

# **MONITOUCH** **V8 series**

*Reference Manual*



## Record of Revisions

Reference numbers are shown at the bottom left corner on the back cover of each manual.

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# Preface

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Congratulations on purchasing the drawing/editing software (V-SFT) for the MONITOUCH V series. For a clearer understanding, the MONITOUCH V series Reference Manual focuses on the outline of each function and the way of using the drawing/editing software (V-SFT) according to operating procedures.

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## About Manuals

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This manual describes the functions of the MONITOUCH V8 series in detail.

The following manuals are available for the MONITOUCH V8 series:

Manual Name	Reference No.	Contents
V8 Series Reference Manual (this manual)	1055NEx	The functions of the MONITOUCH V8 series are explained in detail.
V Series Macro Reference	1056NEx	An overview of macros of V-SFT version 5 as well as macro editor operations and macro command descriptions are explained in detail.
V8 Series Introductory Manual	1057NEx	An overview of the MONITOUCH V8 series as well as basic operating procedures of the configuration software are explained in detail.
V8 Series Hardware Specifications	2016NEx	Hardware specifications and handling procedures of the MONITOUCH V8 series are explained.
V8 Series Connection Manual	2201NEx	Connections with respective devices and wiring diagrams between the MONITOUCH V8 series are explained.
V Series DLL Function Specifications	1059NEx	An overview and contents of DLL files used for Ethernet (HKEtn20.DLL) and CF card (VCFAcS.DLL) are explained in detail.

## V8 Series Models

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The following MONITOUCH V8 series models are available:

Generic Name	Series	Model	V8 Classification
V series	V8 series	V812iS	V8i or V8i series
		V812S	V8
		V810iS	V8i or V8i series
		V810S	V8
		V810iT	V8i or V8i series
		V810T	V8
		V808iS	V8i or V8i series
		V808S	V8
	V7 series	V712iS	V7i or V7i series
		V712S	V7
		V710iS	V7i or V7i series
		V710S	V7
		V710iT	V7i or V7i series
		V710T	V7
		V708iS	V7i or V7i series
		V708S	V7
	V706 series	V706T	
		V706C	
		V706M	
	V6 series	V606iT	
		V606iC	
		V606iM	
		V606eC	
		V606eM	
		V608CH	
		V609E	

Please note that the V series model names are used as listed above in the manuals.

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# Notes on Safe Usage of MONITOUCH

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In this manual, you will find various notes categorized under the following levels with the signal words "DANGER," and "CAUTION."



## DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



## CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and could cause property damage.

Note that there is a possibility that the item listed with  CAUTION may have serious ramifications.



## DANGER

- Never use the input function of MONITOUCH for operations that may threaten human life or damage the system, such as switches to be used in case of emergency. Please design the system so that it can cope with the malfunction of a touch switch. A malfunction of the touch switch will result in machine accident or damage.
- Turn off the power supply when you set up the unit, connect new cables or perform maintenance or inspections. Failure to do so could cause electric shock or damage to the unit.
- Never touch any terminals while the power is on. Otherwise, electric shock may occur.
- You must put a cover on the terminals on the unit when you turn the power on and operate the unit. Without the terminal cover in place, electric shock may occur.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, do not inject the leaked liquid crystal. If the liquid crystal spills on skin or clothing, use soap and wash off thoroughly.
- For MONITOUCH using a lithium battery, never disassemble, recharge, deform by pressure, short-circuit, reverse the polarity (+/-) of the battery, or dispose of the battery in fire. Failure to follow these conditions will lead to explosion or fire.
- For MONITOUCH using a lithium battery, never use a battery that is deformed, leaks, or shows any other signs of abnormality. Failure to follow these conditions will lead to explosion or fire.
- If the screen becomes dark due to a failure or service life of the backlight, the POWER lamp starts flashing. The switches on the screen remain active even in this condition. However, if the screen is too dark to view the switches while the POWER lamp is flashing, do not touch the screen. Doing so could cause unexpected activation, resulting in machine damage or accident.

## CAUTION

- Check the appearance of MONITOUCH when it is unpacked. Do not use the unit if any damage or deformation is found. Failure to do so may lead to fire, damage, or malfunction.
- For use in a facility or for a system related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations, please consult your local distributor.
- Operate (or store) MONITOUCH under the conditions indicated in this manual and related manuals. Failure to do so could cause fire, malfunction, physical damage, or deterioration.
- Understand the following environmental limits for use and storage of MONITOUCH. Otherwise, fire or damage to the unit may result.
  - Avoid locations where there is a possibility that water, corrosive gas, flammable gas, solvents, grinding fluids or cutting oil can come into contact with the unit.
  - Avoid high temperature, high humidity, and outside weather conditions, such as wind, rain or direct sunlight.
  - Avoid locations where excessive dust, salt, and metallic particles are present.
  - Avoid installing the unit in a location where vibration or physical shock may be transmitted.
- Equipment must be correctly mounted so that the main terminal of MONITOUCH cannot be touched inadvertently. Otherwise, an accident or electric shock may occur.
- Tighten the fixtures of MONITOUCH with a torque in the specified range. Excessive tightening may distort the panel surface. Loose tightening may cause MONITOUCH to come off, malfunction, or be short-circuited.
- Check periodically that terminal screws on the power supply terminal block and fixtures are firmly tightened. Loosened screws may result in fire or malfunction.
- Tighten terminal screws on the power supply terminal block equally to a torque of 0.5 N•m. Improper tightening of screws may result in fire, malfunction, or other trouble.
- MONITOUCH has a glass screen. Do not drop or give physical shock to the unit. Otherwise, the screen may be damaged.
- Connect the cables correctly to the terminals of MONITOUCH in accordance with the specified voltage and wattage. Over-voltage, over-wattage, or incorrect cable connection could cause fire, malfunction or damage to the unit.
- Be sure to establish a ground of MONITOUCH. The FG terminal must be used exclusively for the unit with the level of grounding resistance less than 100Ω. Otherwise, electric shock or fire may occur.
- Prevent any conductive particles from entering MONITOUCH. Failure to do so may lead to fire, damage or malfunction.
- After wiring is finished, remove the paper used as a dust cover before starting to operate MONITOUCH. Operation with the cover attached may result in accident, fire, malfunction, or other trouble.
- Do not attempt to repair MONITOUCH at your site. Ask Hakko or the designated contractor for repair.
- Do not disassemble or modify MONITOUCH. Otherwise, it may cause a malfunction.
- Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, overhaul or modification of MONITOUCH that was performed by an unauthorized person.
- Do not use a sharp-pointed tool when pressing a touch switch. Doing so may damage the screen.
- Only experts are authorized to set up the unit, connect the cables, or perform maintenance and inspections.
- For MONITOUCH using a lithium battery, handle the battery with care. The combustible materials such as lithium or organic solvent contained in the battery may generate heat, explode, or catch fire, resulting in personal injury or fire. Read related manuals carefully and handle the lithium battery correctly as instructed.
- When using a MONITOUCH that has an analog switch resolution with resistance film, do not press two or more points on the screen at the same time. If two or more positions are pressed at the same time, the switch located between the pressed positions will activate.
- Take safety precautions during such operations as setting change during running, forced output, start, and stop. Any misoperation may cause unexpected machine motions, resulting in machine accident or damage.
- In facilities where a failure of MONITOUCH could lead to accident threatening human life or other serious damage, be sure that the facilities are equipped with adequate safeguards.
- At the time of disposal, MONITOUCH must be treated as industrial waste.
- Before touching MONITOUCH, discharge static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or other trouble.
- During the CF card power supply, the LED inside the CF card cover illuminates in red. If you remove the CF card or turn the MONITOUCH off while the LED is illuminating, data on the CF card may become corrupt. Before removing the CF card or turning MONITOUCH off, ensure that the LED is not illuminating.

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[General Notes]

- Never bundle control cables and input/output cables with high-voltage and large-current carrying cables such as power supply cables. Keep these cables at least 200 mm away from high-voltage and large-current carrying cables. Otherwise, malfunction may occur due to noise.
- When using MONITOUCH in an environment where a source of high-frequency noise is present, it is recommended that the FG shielded cable (communication cable) be grounded at its ends. However, the cable may be grounded only at one end if necessary due to unstable communication conditions, or for any other reason.
- Plug connectors or sockets of MONITOUCH in the correct orientation. Otherwise, malfunctions may occur.
- When an LAN cable is wrongly connected to the MJ1/MJ2 connector, the counterpart device may be damaged. Double-check the connector to avoid improper insertion.
- Do not use thinners for cleaning because they may discolor the MONITOUCH surface. Use an alcohol-based cleaner which is commercially available.
- If a "data receive error" occurs when MONITOUCH and the counterpart (PLC, temperature controller, etc.) are started at the same time, read the manual for the counterpart unit and handle the error correctly.
- Avoid discharging static electricity on the mounting panel of MONITOUCH. Static charges can damage the unit and cause malfunctions. Otherwise, malfunction may occur due to noise.
- Avoid prolonged display of any fixed pattern. Due to the characteristics of the liquid crystal display, an afterimage may occur. If a prolonged display of a fixed pattern is expected, use the auto OFF function of the backlight.

[Notes on LCD]

Note that the following conditions may occur under normal circumstances:

- The response time, brightness and colors of MONITOUCH may be affected by the ambient temperature.
- Tiny spots (dark or luminescent) may appear on the display due to liquid crystal characteristics.
- There are variations in brightness and colors on each unit.
- Color cathode tubes are incorporated into the LCD display for backlights. Optical properties (brightness, irregular colors, etc.) may change in a low-temperature environment or over time of operation.

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# Functions

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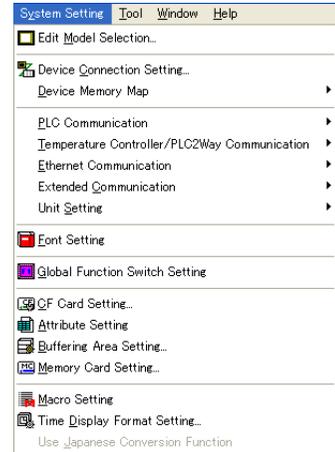
- 1 System Setting
- 2 Overlap
- 3 Switch
- 4 Lamp
- 5 Data Display
- 6 Message
- 7 Entry Mode
- 8 Graph Display
- 9 Trend Graph
- 10 Alarming
- 11 Graphic Display
- 12 Calendar
- 13 Recipe Mode
- 14 Multimedia
- 15 Others
- 16 Print
- 17 Barcode
- 18 CF Card
- 19 Ethernet

# 1 System Setting

## Overview

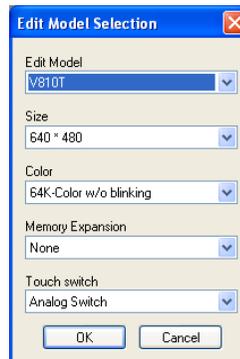
The “system setting” includes the settings that are required for MONITOUCH to communicate with the PLC, screen data settings, and other settings as well as those for the MONITOUCH system.

- \* Before transferring screen data to MONITOUCH, be sure to check the system setting.



## Edit Model Selection

Select the MONITOUCH model type you are going to edit.



Edit Model	Model	Size	Color	Memory Expansion	Touch Switch*1
V812S	V812iS V812S	800 * 600	64K-Color w/o blinking 32K-Color	None	Analog switch
V810S	V810iS V810S	800 * 600			Analog switch
V810T	V810iT V810T	640 * 480			Analog switch Matrix switch
V808S	V808iS V808S	800 * 600			Analog switch

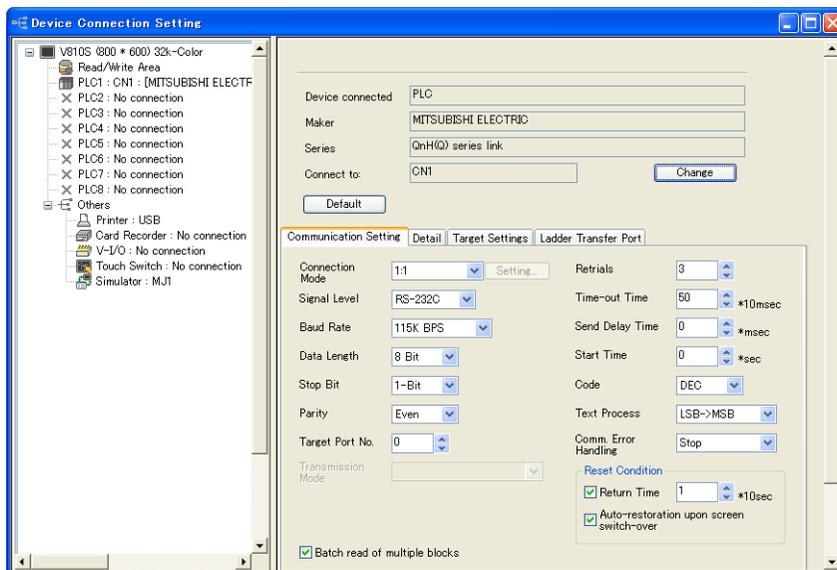
\*1 Touch switch

Analog or matrix can be distinguished from the MONITOUCH model name. For more information, refer to the V8 Series Hardware Specifications.

\*2 The screen data of the V8 series cannot be saved into an earlier version (for example, V7 or V6 series).

\*3 For more information on the models other than the V8 series, refer to the V-SFT Ver. 3 Reference Manual.

## Device Connection Setting

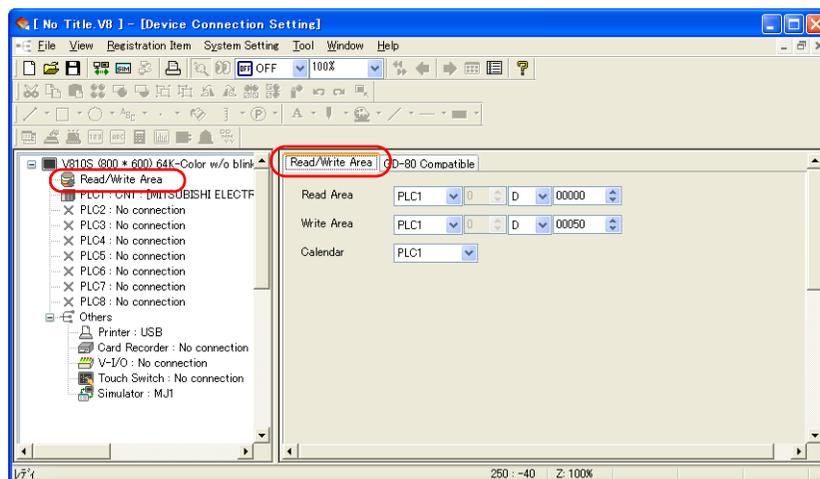


Depending on the device connected, the available connection modes vary. For more information on the connectable devices, refer to the V8 Series Connection Manual provided separately.

\* For more information on the network-compatible models (OPCN-1, T-Link, CC-Link, Ethernet, FL-Net, PROFIBUS-DP, NET/10, DeviceNet), refer to the relevant manual provided separately.

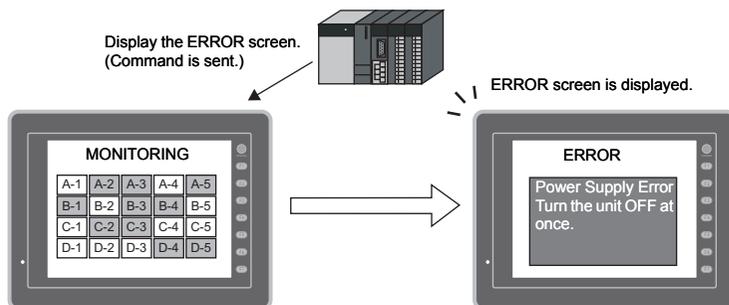
## Read/Write Area

### [Read/Write Area] Tab Window



**Read area**

The read area is the area where the PLC gives commands for display or operation to MONITOUCH. At least 3 words of consecutive memory addresses are secured. MONITOUCH always reads data from these 3 words to display and operate according to the commands.



Memory addresses are allocated as shown below.

Address	Contents	Operation
n	Sub command/data	V8 series ← PLC
n + 1	Screen status command	
n + 2	Screen number command	

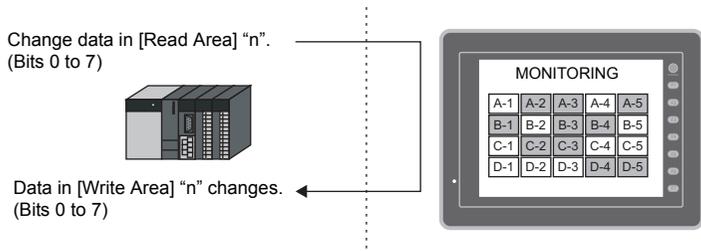
\* Data in these memory addresses is saved at \$s460 to 462 of the V8 series internal memory. For more information on the internal memory (\$s), refer to "Appendix 6 Internal Memory."

Read area "n" (sub command/data)															
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0	0					0	0	0	0	0	0	0	0
(1) Free (2) BZ0 [0 → 1] (leading edge) (3) BZ1 [0 → 1] (leading edge) (4) BZ2 [1] (level) (5) Calendar setting ([0 → 1] (leading edge)) (6) System reserved															
(1) Free	When data is saved in this area, the same data is written to [Write Area] n (refer to page 1-8) after the screen has been displayed. Utilizing this operation, these bits can be used for watch dog monitoring <sup>*1</sup> or display scanning <sup>*2</sup> .														
(2) BZ0	A beep (peep) sounds at the leading edge [0 → 1].														
(3) BZ1	An error buzzer (peep-peep) sounds at the leading edge [0 → 1].														
(4) BZ2	A buzzer (ffee) sounds continuously while the bit remains [1]. It is necessary to select [Unit Setting] → [General Settings] and check [Use Continuous Buzzer Sound]. (Refer to page 1-21.)														

(5) Calendar setting *3	This bit is valid when the built-in clock is not used. This bit should be used differently depending on whether the connecting PLC is equipped with the calendar function. For more information on the built-in clock, refer to "Appendix 2 SRAM/Clock Setting."
	When MONITOUCH is connected to a PLC with calendar function When calendar data in the PLC is updated, it can forcibly be read by setting this bit (at the leading edge of [0 → 1]). In addition to calendar data update using this bit, calendar data in the PLC is automatically read and updated at the following timing. <ul style="list-style-type: none"> <li>• When the power is turned on</li> <li>• When the date is changed (AM00:00:00)</li> </ul>
	When MONITOUCH is connected to a PLC without calendar function Allocate a tentative calendar data area by specifying a memory address for [Calendar] in the [Communication Parameters] dialog, and set the calendar data by setting this bit (ON). For more information, refer to page 1-10.
(6) System reserved	This bit is reserved by the system. This bit must be "0".

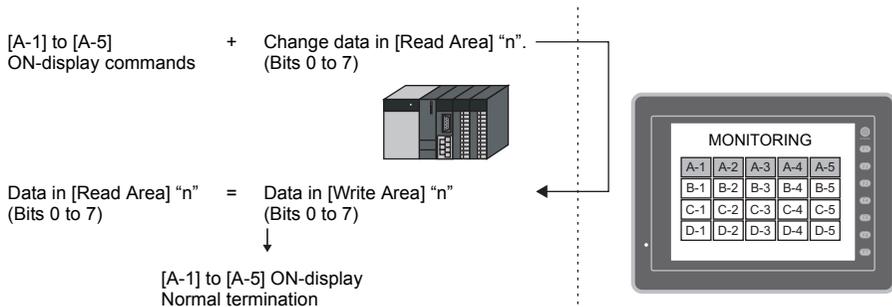
\*1 Watch dog

When the PLC is communicating with MONITOUCH, there is no means for the PLC to know whether or not MONITOUCH is doing operations correctly.  
To solve this one-way communication, change data in bits 0 to 7 in [Read Area] "n" and check that the same data is saved in bits 0 to 7 in [Write Area] "n". This proves that the V8 series is correctly doing operations through communications with the PLC.  
This verification is called "watch dog."



\*2 Display scanning

This operation can be utilized for display scanning. Change data in bits 0 to 7 in [Read Area] "n" when giving a graphic change command and check that the same data is saved in bits 0 to 7 in [Write Area] "n". This can prove that the graphic change command is received and executed correctly.

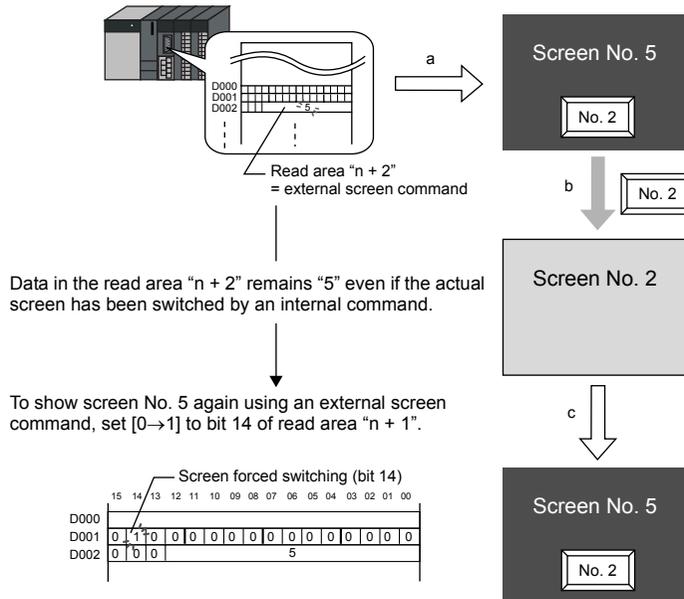


\*3 If this bit is used during constant sampling, data sampling timing may be shifted. If this bit is set during constant sampling, we recommend resetting the sampling as well.

Read area "n + 1" (screen status command)															
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
								0	0	0	0	0			
(1) Overlap 0 (2) Overlap 1 (3) Overlap 2	<p>These bits are used for controlling show/hide operations of overlaps.</p> <ul style="list-style-type: none"> <li>• Normal overlap or call-overlap [0 → 1] (leading edge<sup>*1</sup>): Show [1 → 0] (falling edge<sup>*1</sup>): Hide</li> <li>• Multi-overlap [0] (level<sup>*2</sup>): Hide [1] (level<sup>*2</sup>): Show</li> </ul> <p>It is necessary to specify library No. 0 to 1023 for [Overlap Library Number] for multi-overlap.</p>														
(4) System reserved	This bit is reserved by the system. This bit must be "0".														
(5) Global macro execution	<p>The macro set for [Macro Block] is executed once at [0 → 1] (leading edge).</p> <p>The macro block number should be specified for [Global Macro Memory] in the dialog that is displayed by selecting [System Setting] → [Macro Setting].</p> <p>For more information, refer to the Macro Reference manual provided separately.</p>														
(6) Data sheet output	<p>The data sheet is printed out at [0 → 1] (leading edge).</p> <p>This bit becomes valid when the data sheet function is set. For more information, refer to "16.2 Data Sheet Print."</p>														
(7) Screen hard copy	<p>The V8 series screen image is printed out at [0 → 1] (leading edge). This bit becomes valid when a printer is connected.</p> <p>It is also possible to make a screen hard copy using an internal switch [Function: Hard Copy]. For more information, refer to "16 Print."</p>														
(8) Backlight	<p>This bit becomes valid when an option other than [Always ON] is selected in the [Backlight] tab window that is displayed by selecting [System Setting] → [Unit Setting].</p> <p>[0] (level): OFF when the conditions are satisfied [1] (level): ON</p> <p>For more information, refer to page 1-16.</p>														
(9) For analog RGB input type	<p>These bits are used for controlling show/hide operations of the analog RGB input screen.</p> <p>[0] (level): RGB input screen not displayed (RUN screen displayed) [1] (level): RGB input screen displayed</p> <p>For more information, refer to "14.2 Video/RGB Display."</p>														

(10) Screen internal switching	This bit controls screen switching by internal switches. [0]: Screen switching by internal switches is enabled. [1]: Screen switching by internal switches is disabled. * An "internal switch" means a switch you can create for internal processing within MONITOUCH by selecting [Screen] or [Return] for [Function:] of the switch.
(11) Screen forced switching	This bit is used for switching the screen using the read area "n + 2" when the required screen number has already been specified in "n + 2".*3
(12) Data read refresh	All the data display items on the screen are refreshed at [0 → 1] (leading edge). This is applied to every data display item regardless of the setting for [Process Cycle]. For more information on [Process Cycle], refer to "Appendix 5 Process Cycle."

- \*1 It is possible to make this function work with the bit in the level. For more information, refer to "General Setting" on page 1-21.
- \*2 As an exception, a multi-overlap may appear/disappear at the edge. For more information, refer to "2 Overlap."
- \*3 Example of usage  
 Step a: Screen change according to read area "n + 2"  
 Step b: Screen change with an internal switch  
 Step c: Screen change to the same screen number as step 1 according to read area "n + 2"  
 In this case, however, the same value is stored in read area "n + 2" so the command is not valid.  
 In such a case, it is possible to forcibly switch the screen to the screen number contained in read area "n + 2" at the leading edge [0 → 1] of bit 14.



Read area "n + 2" (screen number command)															
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0													
(2) System reserved												(1) Screen number			
(1) Screen number command *1	0 to 1023 These bits are used for switching the screen by an external command. When a screen number is specified in these bits, the screen is displayed. Even if the screen has been switched using an internal switch, it is possible to switch the screen using an external command from the PLC. External commands have priority over internal switches.														
(2) System reserved	This bit is reserved by the system. This bit must be "0".														

## \*1 Screen No. Error

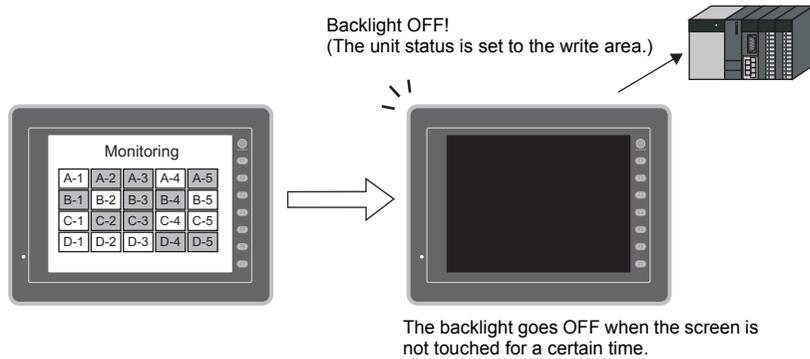
When MONITOUCH has started communications with the PLC, the screen of the screen number specified in read area "n + 2" is displayed. If the screen number specified in read area "n + 2" does not exist in the screen data, "Screen No. Error" is displayed on MONITOUCH.



Before starting communications with the PLC, check the data in [Read Area] "n + 2" and confirm that the screen number to be displayed at first is specified.

**Write area**

This is the area where data is written from [Read Area], such as the displayed screen number, overlap display status, buzzer sounding status, etc. 3 words of consecutive memory addresses are secured. MONITOUCH writes information to these 3 words during communications with the PLC. When the V8 series has completed a display operation, sub command/data in [Read Area] "n" is written.



Memory addresses are allocated as shown below.

Address	Contents	Operation
n	Same as data in read area "n"	V8 series → PLC
n + 1	Screen status	
n + 2	Displayed screen number	

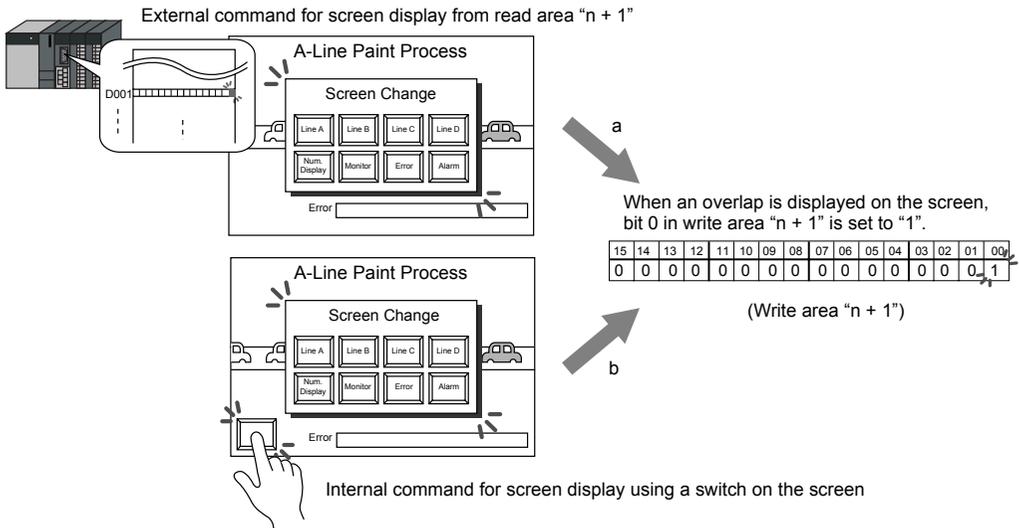
\* Data in these memory addresses is saved at \$s464 to 466 of the V8 series internal memory. For more information on the internal memory (\$s), refer to "Appendix 6 Internal Memory."

Write Area "n" (output of read area "n")															
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0	0					0	0	0	0	0	0	0	0
				(6) System reserved				(1) Free							
								(2) BZ0							
								(3) BZ1							
								(4) BZ2							
								(5) Calendar setting							
(1) Free	These bits reflect the data in read area "n" at the time MONITOUCH has been finished with processing.														
(2) BZ0															
(3) BZ1															
(4) BZ2															
(5) Calendar setting															
(6) System reserved	Always "0"														



\*1 Example:

- a. Display overlap No. 0 from read area (n + 1) using an external command.
  - b. Display overlap No. 0 internally using the [Function: Overlap = ON] switch.
- In either case (a or b), bit 0 of write area "n + 1" is set (ON).  
 In the case of b, the bit in read area "n + 1" remains "0".



- \*2 Data of bits 9 and 10 is output to internal memory address \$s16. For more information on the internal memory (\$s), refer to "Appendix 6 Internal Memory."
- \*3 Data of bit 11 is output to internal memory address \$s17. For more information on the internal memory (\$s), refer to "Appendix 6 Internal Memory."

Write area "n + 2" (displayed screen number)															
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0													
(2) System reserved											(1) Screen number				
(1) Screen number		0 to 1023 Screen number currently displayed													
(2) System reserved		Always "0"													

**Calendar**

For the calendar setting, refer to "12 Calendar."

## [GD-80 Compatible] Tab Window

### GD-80 compatible read/write area

When converting screen data files created on GD-80 into those of the V8 series, this option is automatically checked.

The contents of [Read Area] and [Write Area] with the GD-80/81S series are different from those with the V8 series.

When this option is checked, [Read Area] and [Write Area] will have the same contents as the GD-80/81S series.

For more information on [Read Area] and [Write Area] of the GD-80/81S series, refer to the GD-80 User's Manual provided separately.

### Calendar memory

Use this memory area when the connecting PLC is not equipped with the calendar function and the V8 series built-in clock \* is not used.

\* Built-in clock: V8 series built-in clock

Follow the steps below.

[Step 1]

Specify the desired memory address for [Calendar memory]. Six words are occupied consecutively.

[Step 2]

Save calendar data in the calendar memory addresses specified in step 1 in BCD notation. The allocation of calendar memory is shown below.

Memory	Contents
n	Year (BCD 0 to 99)
n + 1	Month (BCD 1 to 12)
n + 2	Day (BCD 1 to 31)
n + 3	Hour (BCD 0 to 23)
n + 4	Minute(s) (BCD 0 to 59)
n + 5	Second(s) (BCD 0 to 59)

The day of the week is automatically recognized from the above data. It is not necessary to input any data.

[Step 3]

Set bit 11 (calendar setting) of read area "n". At the leading edge of this bit (0 → 1), data in calendar memory is set for calendar data.

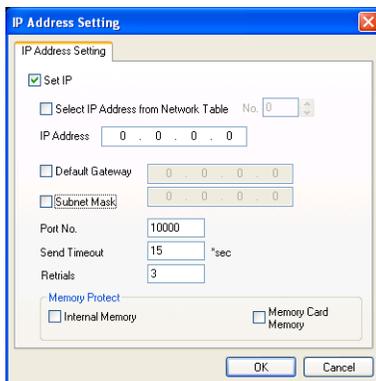
- \*1 Calendar data is cleared when the power is turned off. When the power is turned on, set calendar data according to the procedure mentioned above.
- \*2 When using the calendar memory, automatic reading of calendar data at the time of PLC connection as well as once-a-day automatic correction is not performed. Consequently, some errors may be introduced. Perform the procedure described above at regular intervals.

## Ethernet Communication

### Local Port IP Address

Set the IP address, port number and others of MONITOUCH. This is useful when specific IP addresses are assigned to respective MONITOUCHs where screen data is used.

- \* The IP address setting can be made on the network table or the Main Menu screen of MONITOUCH. When using the same screen data on multiple MONITOUCHs, setting a network table will be useful.



<input type="checkbox"/> Set IP	Check this box when setting the IP address of the V8 within the screen data.
<input type="checkbox"/> Select IP Address from Network Table	This is valid when the IP address of the V8 has been registered in the network table. An IP address can be selected from network table No. 0 to 99.
IP Address *	Set the IP address of the V8.
<input type="checkbox"/> Default Gateway *	Set the default gateway.
<input type="checkbox"/> Subnet Mask *	Set the subnet mask. When this box is not checked, the subnet mask is automatically recognized based on the extreme left byte of the IP address. Example: When IP address is "172.16.200.185", "255.255.0.0" is set. When IP address is "192.168.1.185", "255.255.255.0" is set.
<input type="checkbox"/> Port No. *	Set a port number (1024 - 65535). (except for "8001")
Send Timeout	Specify the timeout time to be used when sending the EREAD/EWRITE macro command.
Retrials	0 - 255 Specify the maximum number of retries to be attempted in the case a timeout occurs.
Memory Protect <input type="checkbox"/> Internal Memory <input type="checkbox"/> Memory Card Memory	Check this box when disabling data writing from a computer or another port.

- \* For more information, refer to the V8 Series Connection Manual.

## Network Table

Depending on the Ethernet function to be used, the network table is required or not required. Refer to the chart below to know whether the network table is required or not for each function.

Function		PLC Communication		Macro EReAD EWRITE SEND	HKEtn20.dll	Screen Data Transfer	Web Server E-Mail
		TCP/IP	UDP/IP				
V series + Option							
V812iS V810iS V810iT V808iS	Built-in LAN	○	○	○	○	○	○
V812S V810S V810T V808S	CU-03-3 (under development)	○	○	○	○	○	×
	CU-03-2	×	○	○	○	○	×
Network table *1		Not required	Required	Not required	Not required	Not required	Not required

\*1 For more information, refer to the V8 Series Connection Manual.

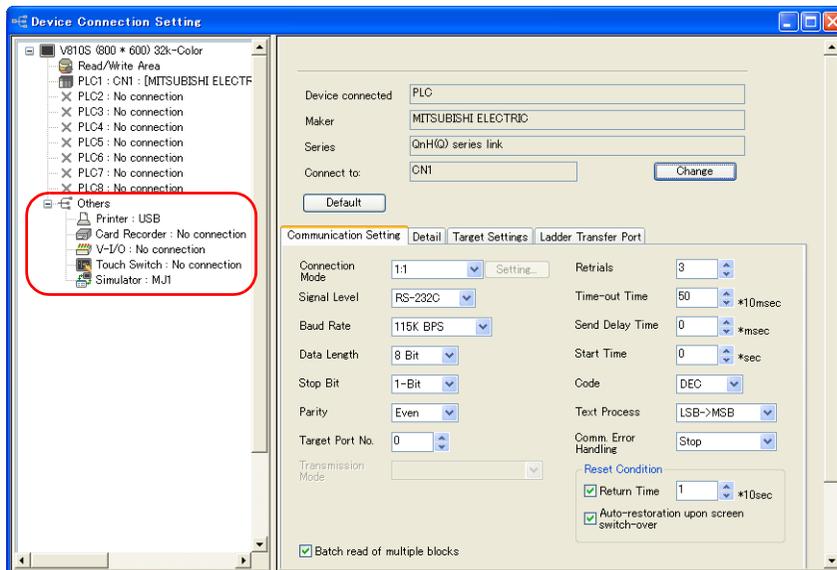
## E-Mail

This is the function available with the V8i series. This is required when [ Use E-Mail] is checked for buffering area setting.

For more information, refer to “19 Ethernet.”

## Other Devices

Select [System Setting] → [Device Connection Setting] and make the settings for the following devices.



### Printer

Make the setting when connecting a printer via parallel port for hard copy, data sheet print or sample print.

For more information, refer to “16 Print.”

### Card Recorder

Make the setting when using a card recorder.

For more information, refer to “15.2 Memory Card Mode.”

### V-I/O

Make the setting when using the serial extension I/O unit (V-I/O).

### Touch Switch

Make the setting when using touch switch operation with RGB input (optional).

For more information, refer to “14.2 Video/RGB Display.”

### Simulator

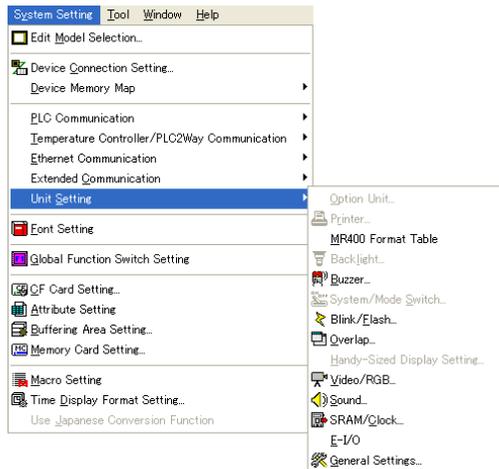
Make the setting when using a simulator.

For more information, refer to the Operation Manual provided separately.

## Unit Setting

Make the setting for the V8 series unit. Select the functions you are going to use and make the setting correctly. If you made a mistake in the setting, it is necessary to send the screen data again.

Select [System Setting] → [Unit Setting].

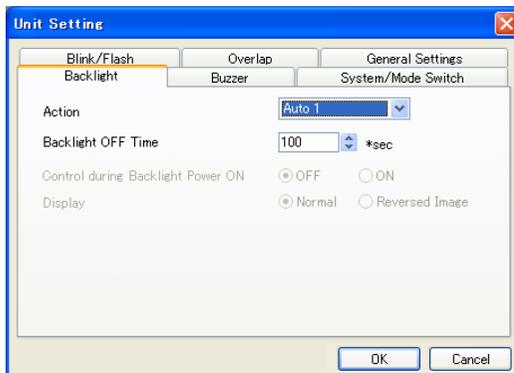


### MR400 Format (Call)

This setting is effective when MR-400 is selected for the printer setting. Register and set the print format. For more information, refer to "Sato's Barcode Printer MR-400" (page 16-10).

## Backlight

Select the operation of the backlight attached to the V8 series unit.



<p>Action</p>	<p>Always ON The backlight is always on.</p> <hr/> <p>Auto 1 Backlight OFF conditions: The backlight is shut off when the time specified by [Backlight OFF Time] has elapsed from the instant when all the following conditions are met.</p> <ul style="list-style-type: none"> <li>• Bit 11 of read area “n + 1”: OFF</li> <li>• Screen display stands still.</li> <li>• Touch switch: OFF</li> </ul> <p>Backlight ON conditions: The backlight is turned on when any of the following conditions is met. *1</p> <ul style="list-style-type: none"> <li>• Bit 11 of read area “n + 1”: ON (always ON)</li> <li>• Screen display has changed.</li> <li>• Somewhere on the screen is touched.</li> <li>• Overlap: ON/OFF</li> <li>• Multi-overlap: ON/OFF, the overlap number changed</li> </ul> <hr/> <p>Auto 2 Backlight OFF conditions: The backlight is shut off when the time specified by [Backlight OFF Time] has elapsed from the instant when all the following conditions are met.</p> <ul style="list-style-type: none"> <li>• Bit 11 of read area “n + 1”: OFF</li> <li>• Touch switch: OFF</li> </ul> <p>Backlight ON conditions: The backlight is turned on when any of the following conditions is met. *1</p> <ul style="list-style-type: none"> <li>• Bit 11 of read area “n + 1”: ON (always ON)</li> <li>• Somewhere on the screen is touched.</li> </ul>
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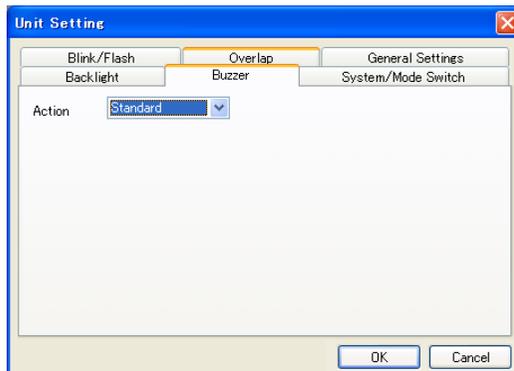
	<p><b>Auto 3</b></p> <p>Backlight OFF conditions: The backlight is shut off when the time specified by [Backlight OFF Time] has elapsed from the instant when all the following conditions are met.</p> <ul style="list-style-type: none"> <li>• Bit 11 of read area "n + 1": OFF</li> <li>• Touch switch: OFF</li> </ul> <p>Backlight ON conditions: The backlight is turned on when any of the following conditions is met. *1</p> <ul style="list-style-type: none"> <li>• Bit 11 of read area "n + 1": ON (always ON)</li> <li>• Screen changed</li> <li>• Somewhere on the screen is touched.</li> <li>• Overlap: ON/OFF</li> <li>• Multi-overlap: ON/OFF, the overlap number changed</li> </ul>														
	<p><b>Manual</b></p> <p>Backlight OFF conditions: The backlight is turned off when either operation is performed.</p> <ul style="list-style-type: none"> <li>• Press [SYSTEM] → [F5] on the MONITOUCH. *2</li> <li>• Bit 11 of read area "n + 1" OFF (at the falling edge of [1→0])</li> </ul> <p>Backlight ON conditions: The backlight is turned on when any of the following conditions is met. *1</p> <ul style="list-style-type: none"> <li>• Somewhere on the screen is touched.</li> <li>• Press a function switch. *2</li> <li>• Bit 11 of read area "n + 1" ON (at the leading edge of [0→1])</li> </ul>														
	<p><b>Manual 2*3</b></p> <p>Backlight OFF conditions: The backlight is turned off when either operation is performed.</p> <ul style="list-style-type: none"> <li>• Press [SYSTEM] → [F5] on the MONITOUCH. *2</li> <li>• Bit 11 of read area "n + 1" OFF (at the falling edge of [1→0])</li> </ul> <p>Backlight ON conditions: The backlight is turned on when any of the following conditions is met.</p> <ul style="list-style-type: none"> <li>• Press [SYSTEM] → [F5] on MONITOUCH.</li> <li>• Bit 11 of read area "n + 1" ON (at the leading edge of [0→1])</li> </ul>														
Backlight OFF Time	0 to 65535 (sec) This is valid when [Auto 1], [Auto 2] or [Auto 3] is selected for [Action]. Set the length of time that elapses before the backlight is turned off when the OFF conditions have been met.														
Control during Backlight Power ON	This is valid when [Manual] or [Manual 2] is selected for [Action]. Select the backlight ON/OFF status when the power is turned on and when the mode is changed from STOP → RUN.														
Display	<p>This is valid for MONITOUCH with monochrome display. This setting determines whether or not the display on MONITOUCH should be shown in reverse video.</p> <table border="1"> <thead> <tr> <th rowspan="2">V-SFT</th> <th colspan="2">Normal</th> <th colspan="2">Reversed Image</th> </tr> <tr> <th>Black</th> <th>White</th> <th>Black</th> <th>White</th> </tr> </thead> <tbody> <tr> <td>MONITOUCH</td> <td>Black</td> <td>White</td> <td>White</td> <td>Black</td> </tr> </tbody> </table>	V-SFT	Normal		Reversed Image		Black	White	Black	White	MONITOUCH	Black	White	White	Black
V-SFT	Normal		Reversed Image												
	Black	White	Black	White											
MONITOUCH	Black	White	White	Black											

\*1 No switch data will be output if a switch is pressed once with the backlight off. When a switch is pressed once with the backlight off, the backlight is turned on. Switch data will be output from switch operation that is made after 500 ms has elapsed since the backlight was turned on.

\*2 Invalid when bit 11 of read area "n + 1" is set (ON)

\*3 Switches on the screen can be operated when the backlight is off. This is compatible with the V4 series.

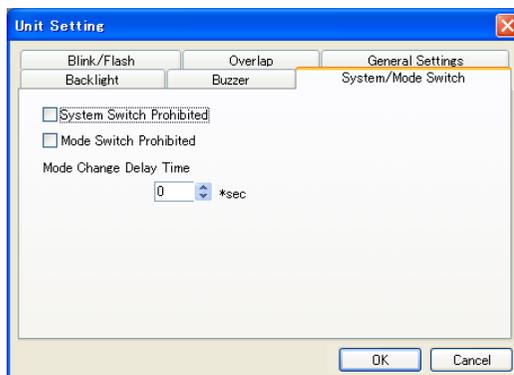
## Buzzer



Action	Choose the desired duration of buzzer that is given when a switch is pressed. Standard: 100 msec Short: 10 msec OFF: No buzzer sounding
--------	--

## System/Mode Switch

This is the setting for the [SYSTEM] switch and [MODE] (F1) switch in the RUN mode.



<input type="checkbox"/> System Switch Prohibited	The use of [SYSTEM] switch is prohibited. Even when the switch is pressed, no menu is displayed and the following operations are disabled. <ul style="list-style-type: none"> <li>• Switching the mode from RUN ↔ STOP (Main Menu screen) *1</li> <li>• Brightness adjustment/contrast adjustment</li> <li>• Backlight control (when [Manual] is selected)</li> </ul>
<input type="checkbox"/> Mode Switch Prohibited	The use of [MODE] switch is prohibited. The mode cannot be switched from RUN ↔ STOP (Main Menu screen) if the [MODE] switch is pressed. *1 Brightness adjustment, contrast adjustment and backlight control are enabled.
Mode Change Delay Time	0 to 30 (sec) Set the mode change delay time for RUN ↔ STOP (Main Menu screen). *1 * The same delay time is applied when canceling the system switch or mode switch prohibited state.

\*1 Refer to the next page for the procedure of switching the mode from RUN ↔ STOP.

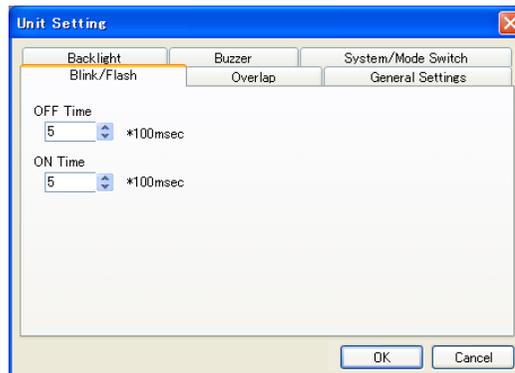
## Procedure of switching the mode from RUN ↔ STOP

The procedure varies depending on the setting for [System Switch Prohibited] and [Mode Switch Prohibited].

System Switch Prohibited	Mode Switch Prohibited	Mode Change Delay Time (sec)	RUN ↔ STOP Procedure
<input type="checkbox"/>	<input type="checkbox"/>	t	Press [SYSTEM] and hold down [F1] (= [MODE] switch) for "t" seconds while the menu is displayed.
<input checked="" type="checkbox"/>	-		Hold down [SYSTEM] and [F7] for "t" seconds. For MONITOUCH with 6-inch display: Hold down [SYSTEM] and [F5] for "t" seconds.
<input type="checkbox"/>	<input checked="" type="checkbox"/>		Press [SYSTEM] and hold down [F1] and [F7] for "t" seconds while the menu is displayed. For MONITOUCH with 6-inch display: Press [SYSTEM] and hold down [F1] and [F5] for "t" seconds while the menu is displayed.

## Blink/Flash

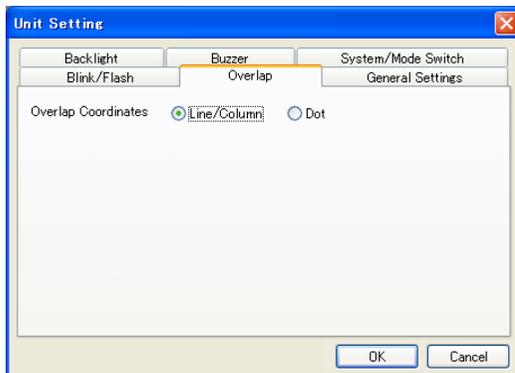
The blink/flash time for the blink color can be set.



OFF Time (× 100 msec)	0:      Blinking at about 500-msec intervals 1 to 100:      Blinking at about ×100-msec intervals
ON Time (× 100 msec)	

## Overlap

This is valid when [Edit Model Selection] → [Touch Switch: Analog Switch] is selected. \*1  
 Select the unit for overlap coordinates. This is used when displaying an overlap at an external command or macro command.



Overlap Coordinates	Line/Column: X coordinate in 8 dots, Y coordinate in 20 dots (= one-byte) Dot: X coordinate in 4 dots, Y coordinate in 1 dot
---------------------	---

\*1 With the matrix switch, this is fixed to [Line/Column].

## Video/RGB

Make the setting when using the video display function.  
 For more information, refer to “14.2 Video/RGB Display.”

## Sound

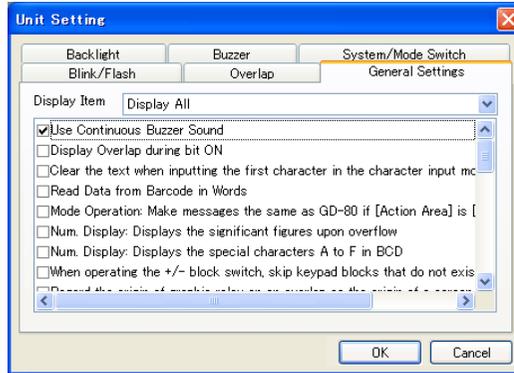
Make the setting when selecting a WAV file by designating a memory address for sound replay function.  
 For more information, refer to “14.4 Sound.”

## SRAM/Clock

Make the setting when using the SRAM or V8 series built-in clock. For more information, refer to “Appendix 2 SRAM/Clock Setting.”

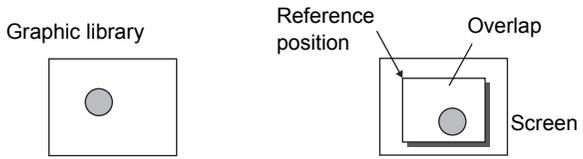
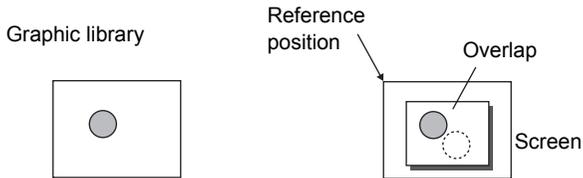
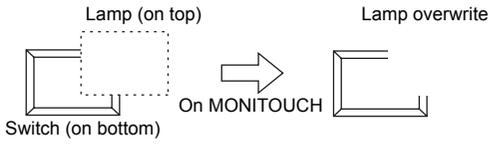
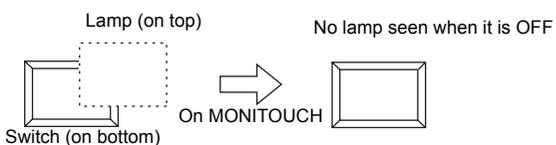
## General Settings

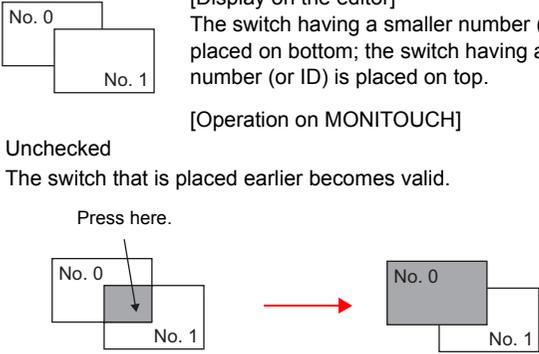
These options are classified into two groups: GD-80 compatible settings, and other additional settings. For the GD-80 compatible settings, these options are automatically selected when the GD-80 data is converted into that for the V8 series.



Use Continuous Buzzer Sound	<p>Used to set whether or not to use a continuous buzzer.</p> <ul style="list-style-type: none"> <li>• Unchecked No continuous buzzer is issued.</li> <li>• Checked A continuous buzzer sounds while bit 10 of read area "n" is set (ON).</li> </ul>
Display Overlap during bit ON	<p>Used to set the action for [Normal/Call-Overlap] (bits 0, 1, 2 of read area "n + 1").</p> <ul style="list-style-type: none"> <li>• Unchecked Recognized at the edge. Even if the bit is set (ON) when the screen is opened, the overlap is not displayed.</li> <li>• Checked Recognized at the level. The overlap is displayed while the bit is set (ON).</li> </ul>
Clear the text when inputting the first character in the character input mode	<p>Used to set the action to be made the first instant you press the character key in the character input mode.</p> <ul style="list-style-type: none"> <li>• Unchecked Existing text remains in the entry display part.</li> <li>• Checked Existing text in the entry display part is automatically cleared.</li> </ul>
Read Data from Barcode in Words	<p>Used to set the unit of counting read data to be output to the I/F memory for barcode setting.</p> <ul style="list-style-type: none"> <li>• Unchecked: in bytes</li> <li>• Checked: in words (same as GD-80)</li> </ul>
Mode Operation: Make messages the same as GD-80 if [Action Area] is [Switch/Lamp].	<p>This is valid when [Action Area: Switch/Lamp] is selected for bit order alarming, page mode or direct mode. Used to set the message display format on a switch or lamp part.</p> <ul style="list-style-type: none"> <li>• Unchecked If the message cannot be held in one line, it is wrapped and shown. </li> <li>• Checked If the message cannot be held in one line, the portion that cannot be held in the area is not shown. </li> </ul>

<p>Num. Display: Displays the significant figures upon overflow</p>	<p>Used to set the display on MONITOUCH when an overflow occurs to a numerical display part. Example: When D100 = 1234:</p> <ul style="list-style-type: none"> <li>• Unchecked 4-digit display: "1234" 2-digit display "--"</li> <li>• Checked 4-digit display: "1234" 2-digit display "34"</li> </ul>																							
<p>Num. Display: Displays the special characters A to F in BCD</p>	<p>Used to set the display on MONITOUCH when BCD is selected for a numerical display part.</p> <table border="1"> <thead> <tr> <th rowspan="2">PLC</th> <th colspan="2">Display on MONITOUCH</th> </tr> <tr> <th>Unchecked</th> <th>Checked</th> </tr> </thead> <tbody> <tr> <td>0 to 9</td> <td>0 to 9</td> <td>0 to 9</td> </tr> <tr> <td>A</td> <td>0</td> <td>.</td> </tr> <tr> <td>B</td> <td>0</td> <td>:</td> </tr> <tr> <td>C</td> <td>0</td> <td>-</td> </tr> <tr> <td>D</td> <td>0</td> <td>+</td> </tr> <tr> <td>E,F</td> <td>0</td> <td>(Space)</td> </tr> </tbody> </table>	PLC	Display on MONITOUCH		Unchecked	Checked	0 to 9	0 to 9	0 to 9	A	0	.	B	0	:	C	0	-	D	0	+	E,F	0	(Space)
PLC	Display on MONITOUCH																							
	Unchecked	Checked																						
0 to 9	0 to 9	0 to 9																						
A	0	.																						
B	0	:																						
C	0	-																						
D	0	+																						
E,F	0	(Space)																						
<p>When operating the +/- block switch, skip keypad blocks that do not exist</p>	<p>Used to set the action to be made if there is an unregistered block between the block numbers [Min. Block] and [Max. Block] for the target of switching the keypad block.</p> <ul style="list-style-type: none"> <li>• Unchecked Switching stopped when an unregistered block is encountered</li> </ul> <div> <p>Switching possible</p> <p>Switching not possible</p> <p>No. 0 No. 1 No. 2 No. 3 No. 4</p> <p>Not registered</p> </div> <ul style="list-style-type: none"> <li>• Checked Switching while skipping the unregistered block</li> </ul> <div> <p>No. 0 No. 1 No. 3 No. 4</p> </div>																							

<p>Regard the origin of graphic relay on an overlap as the origin of a screen</p>	<p>Used to set the reference position when the graphic relay function is set for an overlap.</p> <ul style="list-style-type: none"> <li>• Unchecked Graphics is placed with respect to the origin of the overlap display part.</li> </ul>  <ul style="list-style-type: none"> <li>• Checked Graphics is placed with respect to the origin of the screen.</li> </ul> 
<p>If a switch/lamp OFF color is the same as the base, do not make it solid filled</p>	<p>Used to set the OFF color display when the screen background color is the same as the OFF color of the switch or lamp.</p> <ul style="list-style-type: none"> <li>• Unchecked The switch or lamp part placed on top overwrites the existing switch or lamp part on either editor or MONITOUCH.</li> </ul>  <ul style="list-style-type: none"> <li>• Checked The part on top overwrites on the editor. On MONITOUCH, the OFF color becomes transparent.</li> </ul> 

<p>If a switch is overlaid on another, enable the upper switch</p>	<p>Used to set the action to be made when two switches overlap each other.</p> <p>[Display on the editor] The switch having a smaller number (or ID) is placed on bottom; the switch having a greater number (or ID) is placed on top.</p> <p>[Operation on MONITOUCH]</p> <ul style="list-style-type: none"> <li>• Unchecked The switch that is placed earlier becomes valid.</li> </ul> <p>Press here.</p>  <ul style="list-style-type: none"> <li>• Checked The switch having a greater number (or ID) becomes valid.</li> </ul> <p>Press here.</p> 
<p>Make the action of bit items the same as GD-80.</p>	<p>Check this box when the Hitachi HIDIC-S10 is connected and screen data created on the GD-80 or V4 is converted into V8. If this box is not checked, compatibility cannot be retained because bit weights are reversed from the GD-80 or V4 processing when they are converted into V8.</p>
<p>Make the offset processing for graphic call the same as GD-80</p>	<p>If two or three conditions shown below are present, the graphic display position at bit ON is different from that on the GD-80. If you want to make it the same as the GD-80, check this box.</p> <ul style="list-style-type: none"> <li>• Graphic relay used</li> <li>• Graphic call used</li> <li>• Graphic call with offset and parameter settings</li> </ul>
<p>Use Vertical Text</p>	<p>If you want to place Japanese characters, check this box.</p>
<p>Use Internal Flash ROM as Back-up Area</p>	<p>Check this box when you want to use a part of the FROM area in MONITOUCH as a backup area for memory (PLC memory, internal memory or memory card). This function cannot be used with the station number table *1.</p>
<p>Print Alarm Logging Data in the Displayed Format</p>	<p>Used to make print settings for alarm logging.</p> <ul style="list-style-type: none"> <li>• Unchecked Both bit ON data and bit OFF data are printed.</li> <li>• Checked Data is printed in the currently displayed format (if bit ON data is shown, only bit ON data is printed).</li> </ul>
<p>Convert DIO Input Memory to Bit Memory</p>	<p>The DIO output memory makes bit conversion while the DIO input memory does not make bit conversion.</p> <p>When connecting to the following PLC models, bit conversion of the DIO input memory is required because of a special array of bits. Check this box when the E-I/O or V-I/O is used on these PLCs.</p> <ul style="list-style-type: none"> <li>• Fuji Electric MICREX-F (other than I/O memory for T-LINK)</li> <li>• Hitachi HIDIC-S10<math>\alpha</math> (other than I/O memory for JPCN-1)</li> <li>• SIEMENS S5, S7 series (device memory with byte addresses)</li> </ul>

Validate the Character Order Setting for Text in JIS Codes	<p>Used to set the display of JIS codes for character display parts.</p> <ul style="list-style-type: none"> <li>• Unchecked It is displayed in the form of MSB→LSB regardless of the setting for [Text Process] in the [Communication Parameters] dialog.</li> <li>• Checked It is displayed according to the setting for [Text Process] in the [Communication Parameters] dialog.</li> </ul>
Relay: Priority Display on Screen Call	<p>Used to set the action to be made with [Action Area: Switch] or [Sub-action: Screen Call] for bit order alarming.</p> <p>Example: Assume that three mode switches are placed on the screen and some error messages are shown on these three mode switches. When an error bit of higher priority has been set, the action taken varies as shown below.</p> <ul style="list-style-type: none"> <li>• Unchecked There is no change in the messages that are shown.</li> <li>• Checked The message for the bit of higher priority is displayed.</li> </ul>
Use 3-D Parts	<p>If you have converted screen data using 3D parts for 128-color monitor into the data for 64k-color or 32k-color monitor, this box is automatically checked. Use the setting as is.</p>
2-Point Pressing Special Operation	<p>Used to set the operation by two-point switch pressing for the matrix type MONITOUCH.</p> <ul style="list-style-type: none"> <li>• Unchecked When a switch is pressed at the first point and an area other than switches is pressed at the second point, the output of the switch pressed first is turned OFF.</li> <li>• Checked When a switch is pressed at the first point and an area other than switches is pressed at the second point, the output of the switch pressed first remains ON.</li> </ul>
Hide Check Screen	<p>Used to set the display on the monitor until the RUN screen appears when the STOP mode has been switched to the RUN mode on MONITOUCH.</p> <ul style="list-style-type: none"> <li>• Unchecked: "Data Loading" is shown.</li> <li>• Checked: Nothing is shown (black screen).</li> </ul>
Convert NULL to Space with the LD/RD Macro	<p>Used to set how to process NULL data when reading a CSV file that contains NULL data (attribute table type: CHAR).</p> <p>[Applicable commands] LD_RECIPE, LD_RECIPE2, LD_RECIPESSEL, LD_RECIPESSEL2, RD_RECIPE_FILE, RD_RECIPE_COLUMN, RD_RECIPE_LINE</p> <ul style="list-style-type: none"> <li>• Unchecked It is loaded as NULL (00H).</li> <li>• Checked It is converted into space (20H) and loaded.</li> </ul>

<p>Permit Double-Word Transfer by BMOV</p>	<p>Used to set the action to be taken when the transfer source (transfer target) device is a double-word device.                      Example: Fuji Electric MICREX-F series BD (data memory)</p> <ul style="list-style-type: none"> <li>Unchecked                              Only the lower-order word is transferred.                              \$u100=BD100 C:4 (BMOV)</li> </ul> <table border="1"> <tr> <td>\$u100</td> <td>1111H</td> <td>←</td> <td>BD100</td> <td>22221111H</td> </tr> <tr> <td>\$u101</td> <td>3333H</td> <td>←</td> <td>BD101</td> <td>44443333H</td> </tr> <tr> <td>\$u102</td> <td>5555H</td> <td>←</td> <td>BD102</td> <td>66665555H</td> </tr> <tr> <td>\$u103</td> <td>7777H</td> <td>←</td> <td>BD103</td> <td>88887777H</td> </tr> </table> <ul style="list-style-type: none"> <li>Checked                              Both the upper- and lower-order words are transferred.                              \$u100=BD100 C:4 (BMOV) (D)</li> </ul> <table border="1"> <tr> <td>\$u100</td> <td>1111H</td> <td>←</td> <td>BD100</td> <td>22221111H</td> </tr> <tr> <td>\$u101</td> <td>2222H</td> <td></td> <td></td> <td></td> </tr> <tr> <td>\$u102</td> <td>3333H</td> <td>←</td> <td>BD101</td> <td>44443333H</td> </tr> <tr> <td>\$u103</td> <td>4444H</td> <td></td> <td></td> <td></td> </tr> </table>	\$u100	1111H	←	BD100	22221111H	\$u101	3333H	←	BD101	44443333H	\$u102	5555H	←	BD102	66665555H	\$u103	7777H	←	BD103	88887777H	\$u100	1111H	←	BD100	22221111H	\$u101	2222H				\$u102	3333H	←	BD101	44443333H	\$u103	4444H			
\$u100	1111H	←	BD100	22221111H																																					
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\$u101	2222H																																								
\$u102	3333H	←	BD101	44443333H																																					
\$u103	4444H																																								
<p>Compatible when the video input signal is only in the odd or even field.</p>	<p>Used to set the video input signal.</p> <ul style="list-style-type: none"> <li>Unchecked                              Both odd- and even-numbered fields</li> <li>Checked                              Either odd- or even-numbered fields</li> </ul>																																								
<p>Set the Height of the Windows Font to Gothic</p>	<p>Used to set the font size to be applied when the screen data created using the Windows fonts on the V-SFT version 2.1.3.0 or earlier is opened on the V-SFT version 2.1.4.0 and later.</p> <ul style="list-style-type: none"> <li>Unchecked                              Created with version 2.1.3.0 or earlier → Opened with version 2.1.4.0 or later</li> </ul> <table border="1"> <tr> <td>abcdefg</td> <td></td> <td>abcdefg</td> <td>(Arial 36 pt)</td> </tr> </table> <ul style="list-style-type: none"> <li>Checked                              Compatibility with the screen data created with version 2.1.3.0 or earlier is retained.</li> </ul>	abcdefg		abcdefg	(Arial 36 pt)																																				
abcdefg		abcdefg	(Arial 36 pt)																																						
<p>Perform Drawing in the Background</p>	<p>Used to reduce flickering of data display parts placed on a switch or lamp part.</p> <ul style="list-style-type: none"> <li>Unchecked                              Switch, lamp and data display parts flicker slightly.</li> <li>Checked                              Flickering of switch, lamp and data display parts is reduced.</li> </ul>																																								

<p>Decimal Point Compatible in Reading Recipe File</p>	<p>Used to set the action to be taken when values without decimal point are contained in the CSV file though "with decimal point" is set on the attribute table.</p> <p>&lt;Example&gt; Attribute table Type: DEC, decimal point: 1, word count: 1</p> <p>CSV file</p> <table border="1"> <tr> <td>123.4</td> <td>12.34</td> <td>0.123</td> <td>1234</td> <td>12340</td> </tr> </table> <ul style="list-style-type: none"> <li>• Unchecked Data is read assuming the decimal point as specified</li> </ul> <table border="1"> <tr> <td>D100</td> <td>D101</td> <td>D102</td> <td>D103</td> <td>D104</td> </tr> <tr> <td>1234</td> <td>123</td> <td>1</td> <td>12340</td> <td>57864</td> </tr> <tr> <td>On MONITOUCH</td> <td>123.4</td> <td>12.3</td> <td>0.1</td> <td>1234.0</td> </tr> </table> <p style="text-align: right;">Overflow </p> <ul style="list-style-type: none"> <li>• Checked Data is read without assuming the decimal point</li> </ul> <table border="1"> <tr> <td>D100</td> <td>D101</td> <td>D102</td> <td>D103</td> <td>D104</td> </tr> <tr> <td>1234</td> <td>123</td> <td>1</td> <td>1234</td> <td>12340</td> </tr> <tr> <td>On MONITOUCH</td> <td>123.4</td> <td>12.3</td> <td>0.1</td> <td>1234.0</td> </tr> </table>	123.4	12.34	0.123	1234	12340	D100	D101	D102	D103	D104	1234	123	1	12340	57864	On MONITOUCH	123.4	12.3	0.1	1234.0	D100	D101	D102	D103	D104	1234	123	1	1234	12340	On MONITOUCH	123.4	12.3	0.1	1234.0
123.4	12.34	0.123	1234	12340																																
D100	D101	D102	D103	D104																																
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D100	D101	D102	D103	D104																																
1234	123	1	1234	12340																																
On MONITOUCH	123.4	12.3	0.1	1234.0																																
<p>Fix the Width of the Windows Font</p>	<p>Used when numerical data display or character display parts are created using Windows fonts on Windows XP.</p> <ul style="list-style-type: none"> <li>• Unchecked When the screen data is opened on Windows 98 and is transferred, text width may be changed on MONITOUCH.</li> <li>• Checked Regardless of the OS, text width is standardized on MONITOUCH.</li> </ul>																																			
<p>Delete folders from the oldest if CF card is lacking in space for backup</p>	<p>Used to set the action to be taken when the CF card capacity is not sufficient for creating a backup file of sampling data.</p> <ul style="list-style-type: none"> <li>• Unchecked No backup file is created.</li> <li>• Checked <ul style="list-style-type: none"> <li>• If folders dated the day before or earlier exist: The folder of the oldest date is retrieved and is deleted entirely.</li> <li>• If the folder dated the same day exists: The oldest file in the buffer is retrieved and is deleted.</li> </ul> </li> </ul>																																			
<p>Do Not Delete the Alarm Now Occurring</p>	<p>This setting is valid when [Occurrence Time] or [Cancellation Time] is selected for [History Display] for alarm tracking.</p> <ul style="list-style-type: none"> <li>• Unchecked All the alarms being displayed can be deleted using the [DEL] key.</li> <li>• Checked The alarms currently occurring cannot be deleted using the [DEL] key.</li> </ul>																																			
<p>Follow to the PLC1 setting for the text process in a recipe file.</p>	<p>Used to determine how to recognize LSB and MSB when processing text strings in recipe files.</p> <ul style="list-style-type: none"> <li>• Unchecked Depends on the setting in the [Attribute Setting] dialog.</li> <li>• Checked Depends on the setting for [Text Process] in the [Communication Setting] tab window for PLC1.</li> </ul>																																			

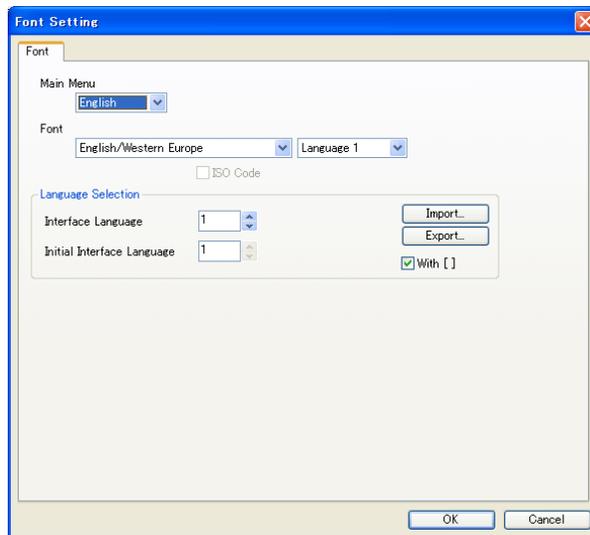
\*1 Station No. Table

Station numbers of target devices can be set as desired for PLC communication or temperature control network communication using the following devices.

- PLC: Mitsubishi QnA series (Ethernet), 1:n connection only
- PLC: Mitsubishi QnH (Q) series (Ethernet), 1:n connection only
- PLC: OMRON SYSMAC CS1/CJ1 (Ethernet Auto), 1:n connection only
- PLC: OMRON SYSMAC CS1/CJ1 DNA (Ethernet Auto), 1:n connection only
- Temperature controller: Fuji Electric M-MPC04P (loader)
- Temperature controller: Fuji Electric F-MPC04S (UM03)

## Font Setting

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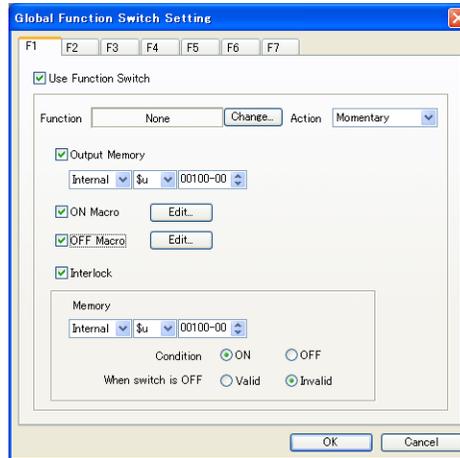


Select the language to be displayed on the V8 series unit.  
For more information, refer to “Appendix 3 Display Language.”

## Global Function Switch Setting

There are function switches [F1] to [F7] ([F1] to [F5] for 6-inch monitor) provided on the V8 series. These switches can be used for all screens in the RUN mode.

- \* When the menu is displayed after the [SYS] key is pressed, these switches work as a mode switch, brightness adjustment switch, contrast adjustment switch, and backlight control switch.
- \* When the screen with local function switch setting is displayed, the setting for local function switch has priority.



<input type="checkbox"/> Use Function Switch	Check this box when using the global function switch.
Function	Set the switch function.
Operation	This option is active when [Output Memory] is checked. Select the write operation to the output memory.
<input type="checkbox"/> Output Memory	When the switch is pressed, output information is written into the specified memory.
<input type="checkbox"/> ON Macro	Set the ON macro for the function switch. For more information on macros, refer to the Macro Reference Manual.
<input type="checkbox"/> OFF Macro	Set the OFF macro for the function switch. For more information on macros, refer to the Macro Reference Manual.
<input type="checkbox"/> Interlock	Set interlock for the function switch.

- \* For more information on the setting items, refer to "3 Switch."

## CF Card Setting

---

Valid when using a CF card.  
For more information, refer to “18 CF Card.”

## Attribute

---

Make the setting when reading or writing a CSV file from or into a CF card.  
When using a macro, refer to the Macro Reference manual; when using the recipe mode, refer to “13 Recipe Mode”; when using this function for sampling, refer to “Appendix 1 Buffering Area.”

## Buffering Area Setting

---

Make the setting when using the sampling mode.  
For more information, refer to “Appendix 1 Buffering Area.”

## Memory Card Setting

---

Make the setting when using the memory card mode. (This is automatically set when using the data logging function.)  
For more information on the memory card mode, refer to “15.2 Memory Card Mode.”

## Macro Setting

---

Make the setting for initial macro, global macro or event timer macro.  
For more information, refer to the Macro Reference Manual.

## Time Display Format Setting

---

Use this setting when you want to define a calendar data format.  
For more information, refer to “12 Calendar.”

## Use Japanese Conversion Function

---

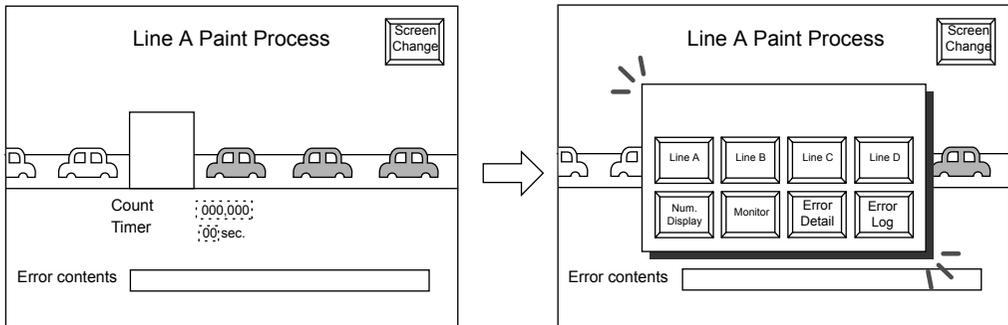
Make the settings when using the Japanese conversion function.  
For more information, refer to “7 Entry Mode.”

## 2 Overlap

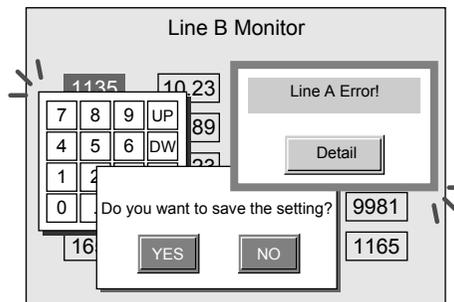
### Overview

#### What Is “Overlap”?

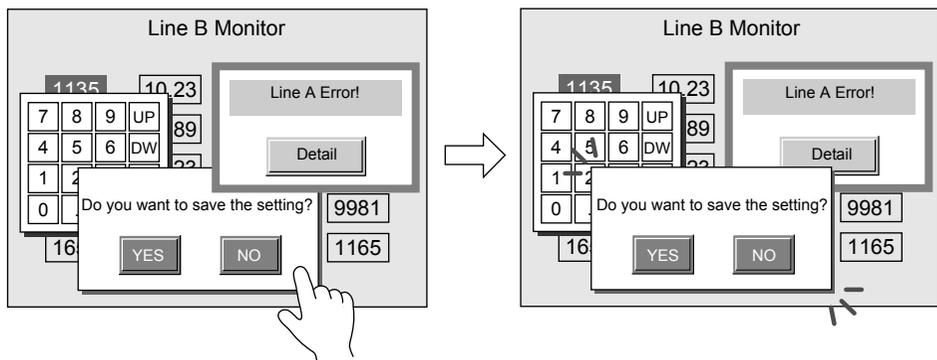
It is possible to show a screen covering over a part of an ordinary screen. This sectional window is called an “overlap” display.



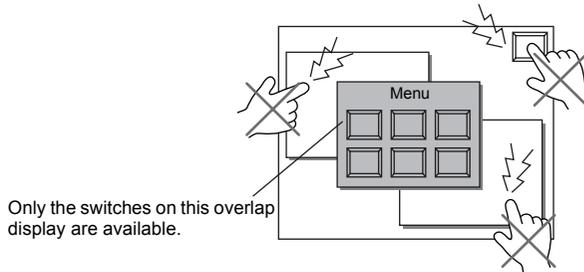
With the V8 series, a maximum of three overlap displays can be shown at one time on the base screen.



When several overlap displays are shown at the same time, it is possible to move one that is partly behind another overlap display to the front with a touch.



\* However, when the value except "0" is entered in system memory address \$s77, only the switches (including the system button) on the overlap display on the forefront are available.

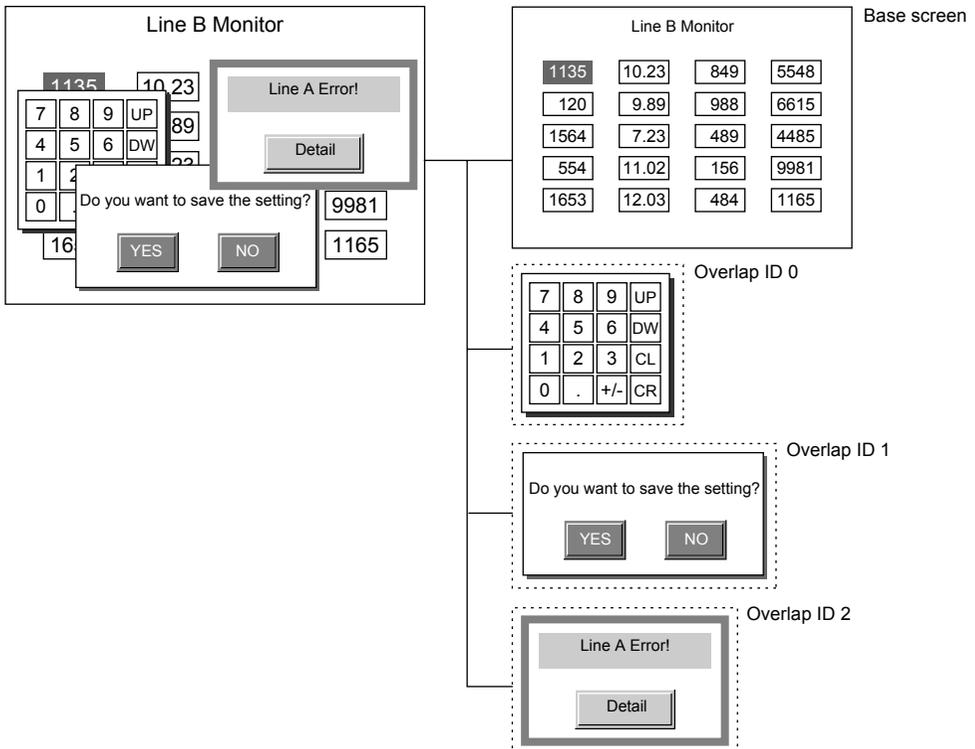


For more information on the system memory (\$s), refer to "Appendix 6 Internal Memory."

## Overlap and Screen

A maximum of three overlap displays can be shown on one screen. This is because overlap areas are secured preliminarily as screen components.

Each overlap area is identified with an "overlap ID."

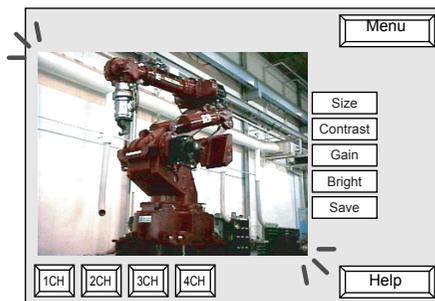


\* Overlap ID

An ID is given to each overlap area for the purpose of identification, which enables you to register a maximum of three overlap displays on the screen.

## Video Overlap (For Channel Selection)

- Images taken by a video camera are displayed directly on one overlap area.



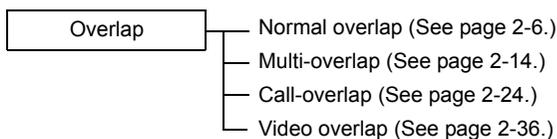
To show a video image, we recommend using a “video/RGB display” item instead of the video overlap function.

For more information, refer to “14.2 Video/RGB Display.”

However, when using the channel selection macro, use the video overlap function. For more information, refer to page 2-36.

## Overlap Display Formats

Four display formats can be set for overlap area.

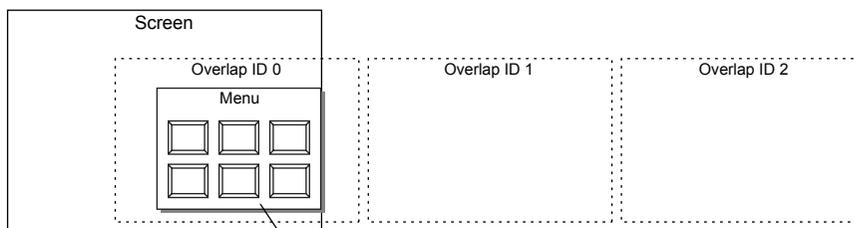


## Normal Overlap

When an overlap screen is to be displayed on a specific screen, set the “normal overlap” format.

Use one of three overlap areas (IDs) on the screen, as a normal overlap area.

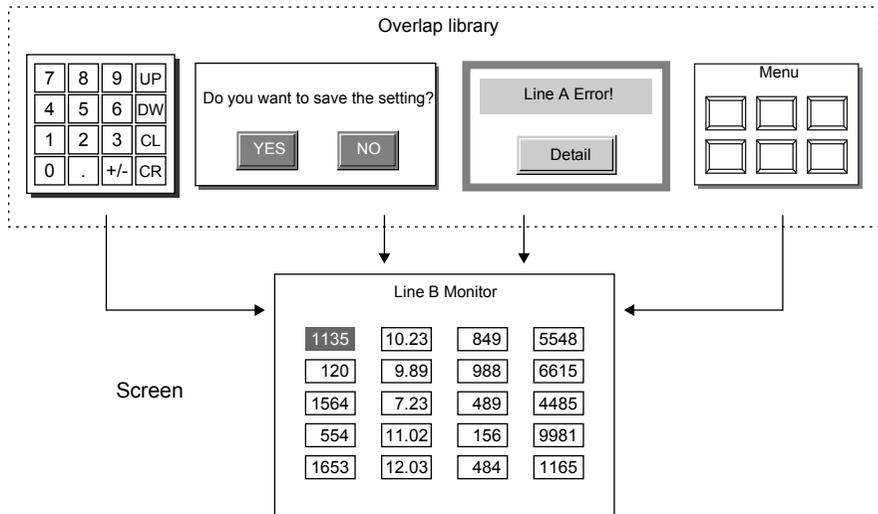
A maximum of three “normal overlap” areas can be set on each screen.



Place a “normal overlap” part on overlap ID 0.

## Multi-overlap

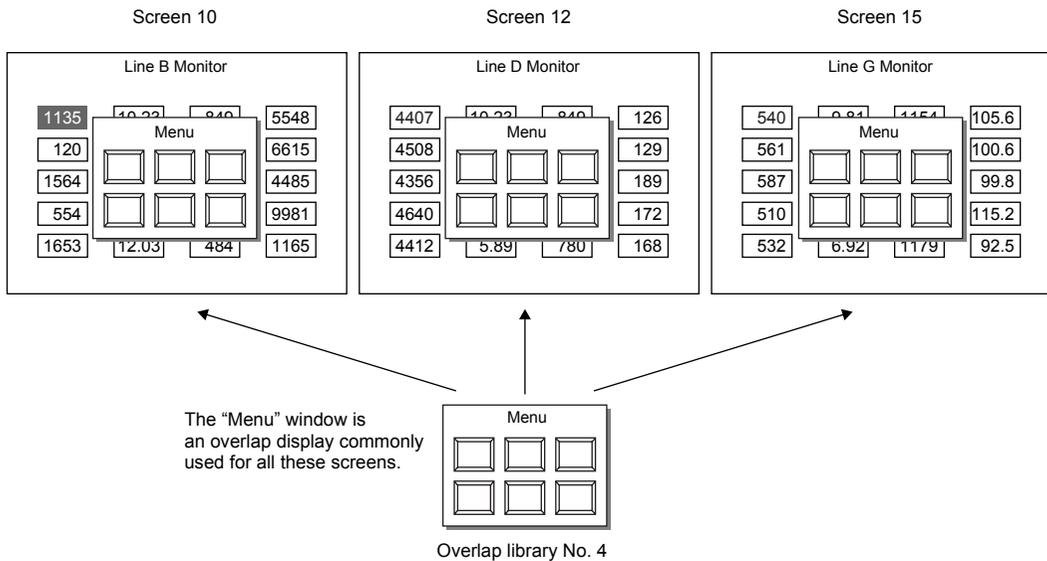
Set the “multi-overlap” format when more than three overlap displays need to be shown on one screen.



## Call-overlap

The “call-overlap” format is used for a commonly used sectional screen, such as a menu screen, which should allow access from any screen display.

If you register once, you can use the same overlap setting on different screens. Using this format saves the memory space for screen data.



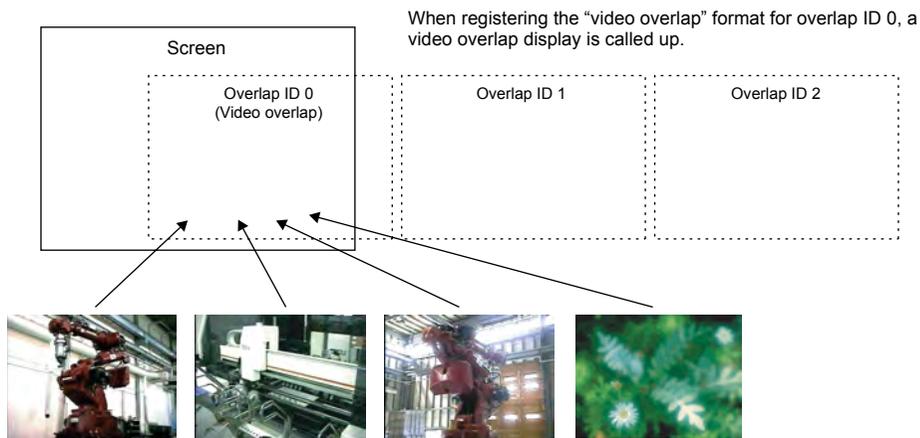
## Video Overlap (For Channel Selection)

Set the "video overlap" format to display images taken by a video camera.

Use one of three overlap areas (IDs) on the screen, as a video area.

Only one video area can be set on the screen.

The image displayed on the video overlap area can be displayed on four channels.



- \* Images of video will always be displayed in the forefront of the screen. No overlap screen under the video display screen can be brought to the forefront, even by touching on the overlap display.

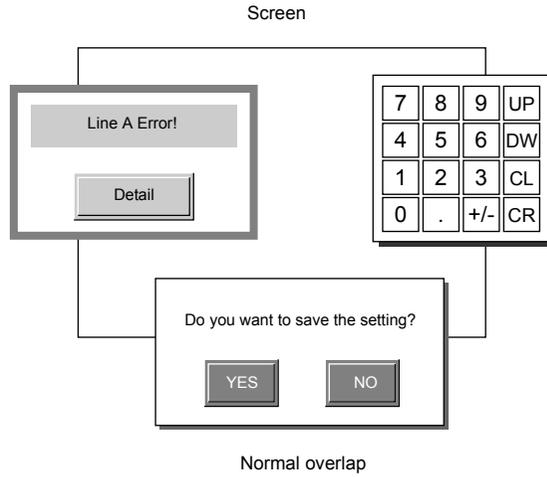
## Normal Overlap

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### Configuration

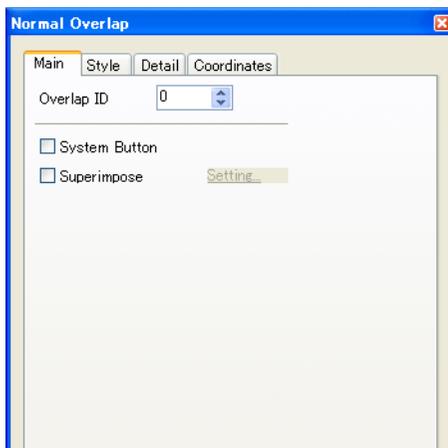
---

Register the “normal overlap” format on the screen. A maximum of three “normal overlap” screens can be set on each screen.



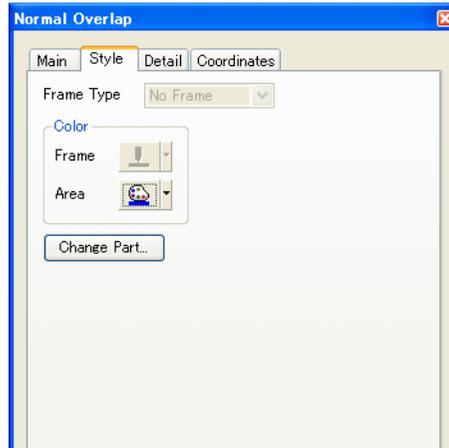
## Setting Dialog

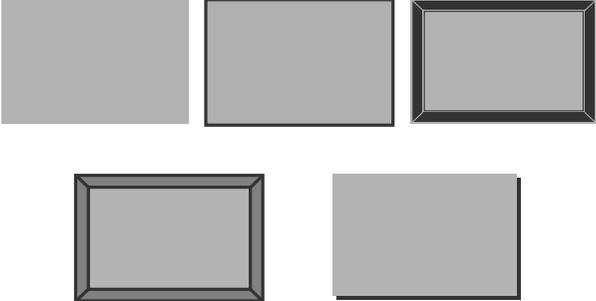
### Main



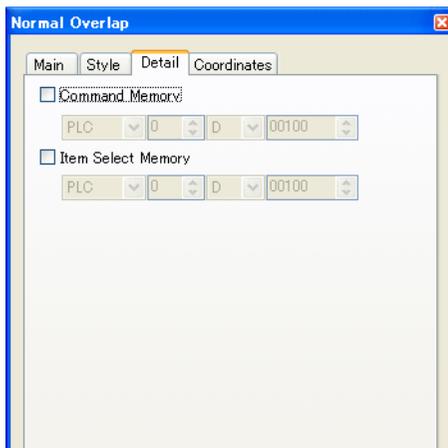
Overlap ID (0 to 2)	Set the overlap area (ID 0 - 2) where the normal overlap display is to be called. A maximum of three overlaps can be set for each screen; if another normal overlap or multi- or call-overlap has been registered, the desired overlap ID may not be specified. Normally, an overlap ID is automatically assigned.
<input type="checkbox"/> System Button	When this box is checked, the overlap screen is equipped with a special button (= switch). For more information, refer to page 2-32.
<input checked="" type="checkbox"/> Superimpose	When this box is checked, the superimpose function can be used. For more information on the superimpose function, refer to page 2-33.

## Style



<p>Frame Type</p>	<p>This is valid when a part compatible with the former MONITOUCH series is selected.</p> <p>Select the desired frame type from five options shown below: No Frame, Line, Paint, Tile, Shadow</p> <div style="text-align: center;">  </div>
<p>Color (Frame, Area)</p>	<p>For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-9.</p>
<p>Change Part</p>	<p>For more information, refer to the Operation Manual.</p>

Detail

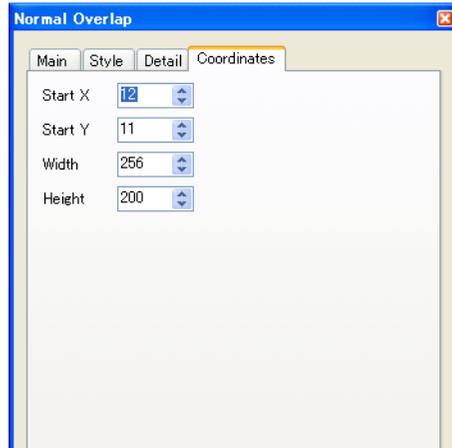


<input type="checkbox"/> Command Memory <sup>*1</sup>	<p>When this box is checked, specify one word of memory as desired. This is used for showing or hiding the overlap display according to the data in the specified memory address.</p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Not used (Be sure to set "0".)      0: Hide      1: Show</p> <p>When this box is not checked, bits 0 to 2 of read area "n + 1" are used.</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
<input type="checkbox"/> Item Select Memory	<p>This is required when using "entry mode" on the overlap screen. For more information, refer to "Item Select Function" on page 7-33</p>																																

\*1 When this box is checked, it is not possible to use bits 0 to 2 of read area "n + 1" for showing or hiding the overlap display.

If you select [System Setting] → [Device Communication Setting] → [Read/Write Area] and check  GD-80 Compatible Read/Write Area, the setting for  Command Memory becomes invalid.

## Coordinates

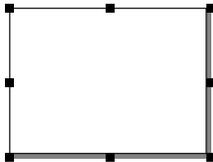


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates" on page A4-10.

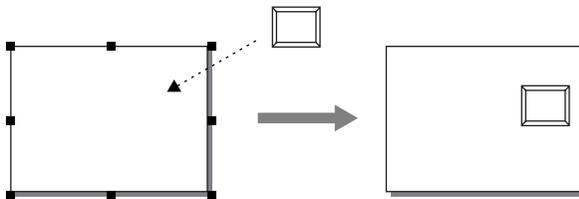
## Editing Procedure

---

When you want to edit parts of a normal overlap area set on the screen, select the normal overlap area (with handles shown around) once.



If you place a switch or lamp part of text in this condition, it is placed on the normal overlap area. When you deselect the normal overlap area, you can place items on the screen.



For more information on the editing procedure, refer to the Operation Manual.

## Showing and Erasing a Normal Overlap Display

To show or erase a normal overlap display created on the screen, the following four methods can be used.

Method		Details	See:
Internal command		Switch (Function: Overlap Display)	Explanation below
External command	Read area "n + 1"	Bits 0 to 2 (0 → 1: Show, 1 → 0: Hide)	Explanation below
	Command memory	Bit 0 (0: Hide, 1 Show)	page 2-12
Macro		OVLP_SHOW OVLP_POS	"Macro Reference"

### Internal command

A normal overlap display can be shown or erased by using a switch.

The following switches can be used.

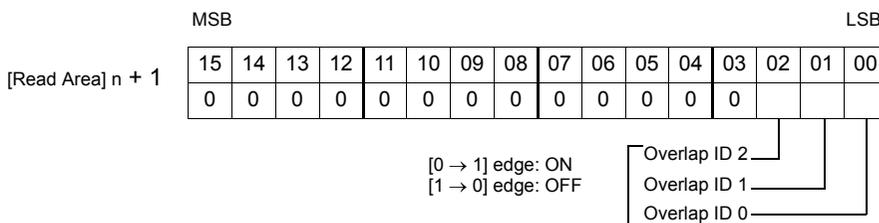
Operation	Switch Function	Attached Setting
Showing a normal overlap display	Overlap Display	Overlap ID Action = ON
		Overlap ID Action = ALT
Erasing a normal overlap display	Overlap Display	Overlap ID Action = OFF
		Overlap ID Action = ALT

For more information on the switch setting, etc., refer to "3 Switch."

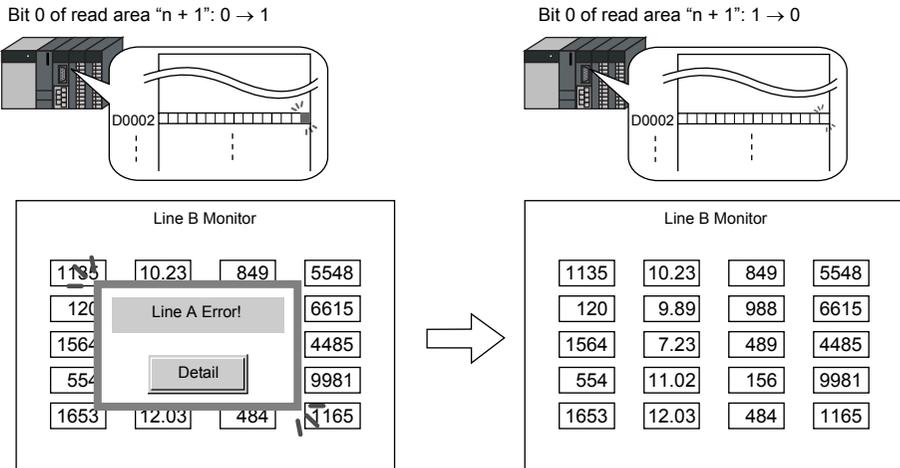
### External command (when using the read area)

A normal overlap display can be shown or erased by using a command from the memory.

Bit 0 of read area "n + 1" (screen status command) in the [Communication Parameters] dialog that is displayed by selecting [System Setting] → [PLC Communication] is for overlap No. 0, bit 1 for overlap No. 1 and bit 2 for overlap No. 2.



At the leading edge (0 → 1) of the bit, the corresponding normal overlap display among overlap ID 0 to 2 is shown on the screen. Likewise, at the falling edge (1 → 0) of the bit, it is cleared from the screen.



**\* To change edge recognition into level recognition:**

It is possible to make the bit status recognized not at the edge (0 → 1 or 1 → 0) of each bit but in the state at the bit level.

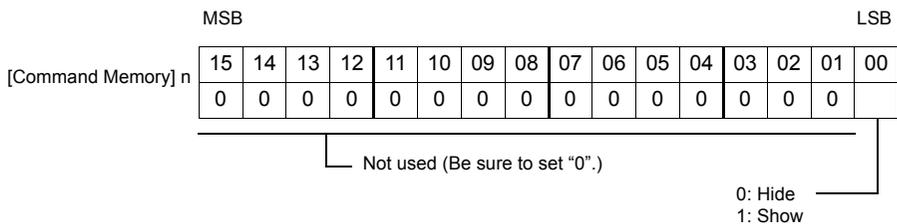
Select [System Setting] → [Unit Setting] → [General Settings]. Check the box for  Display Overlap during bit ON] to select level recognition.

**External command (when using the command memory)**

A normal overlap display can be shown or erased by using a command from the command memory.

For the normal overlap setting, bring up the [Normal Overlap] dialog → [Detail] tab window, check the box for  Command Memory] and specify the desired memory address.

The normal overlap display is shown or hidden according to the ON/OFF status of the specified command memory bit.



**Command with macro**

Using a macro, the normal overlap display can be shown or hidden.

Use the OVLP\_SHOW command.

Additionally, the display location can also be specified. (Use the OVLP\_POS command.)

For more information, refer to the Macro Reference Manual.

---

## Memory Related to Normal Overlap Display

---

Memory	See:
Read Area (n + 1)	page 2-11
Command Memory	page 2-12
Item Select Memory	page 7-33 "Item Select Function"

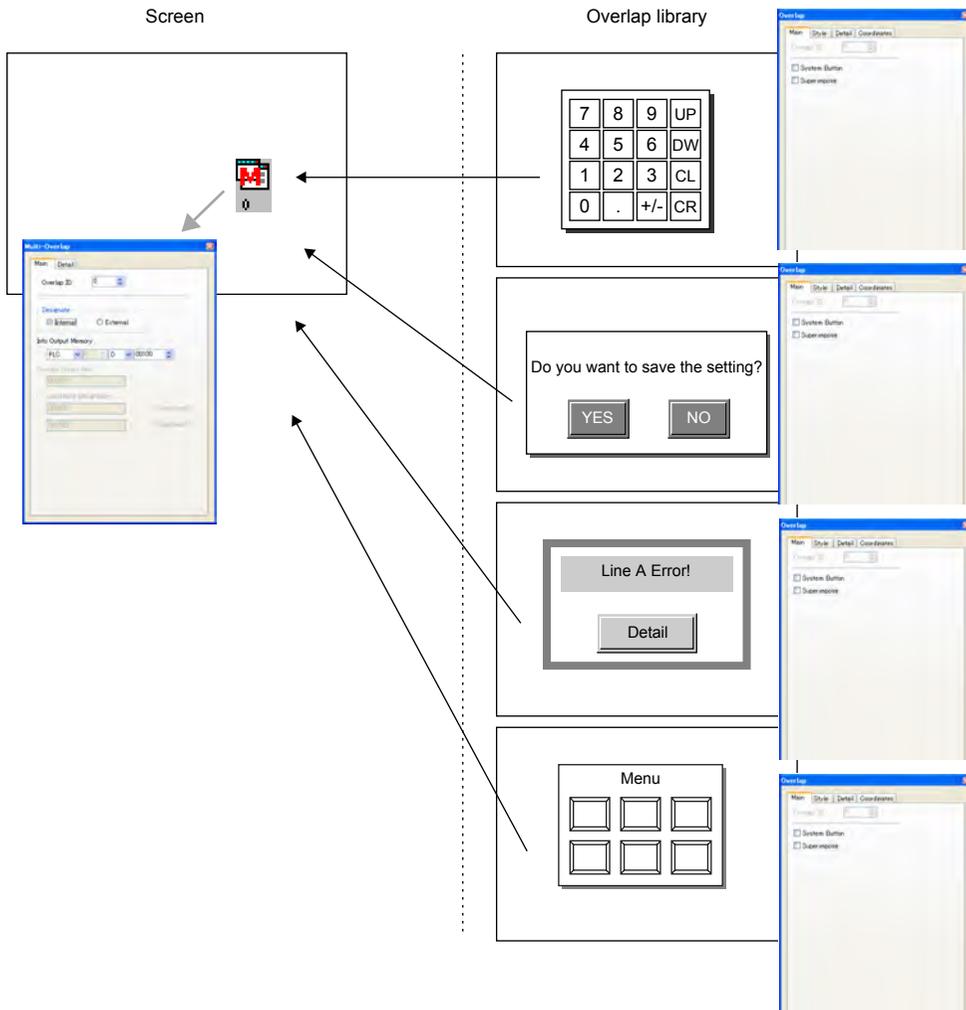
# Multi-overlap

## Configuration

To show a multi-overlap display, select [Multi] for one of the overlap ID 0 to 2.

Register overlap screens as overlap libraries and call the desired one on an overlap area (ID). A maximum of three overlap screens can be displayed at one time; however, if you select the multi-overlap format, you can show as many screens as desired by switching the overlap library for three overlap screens.

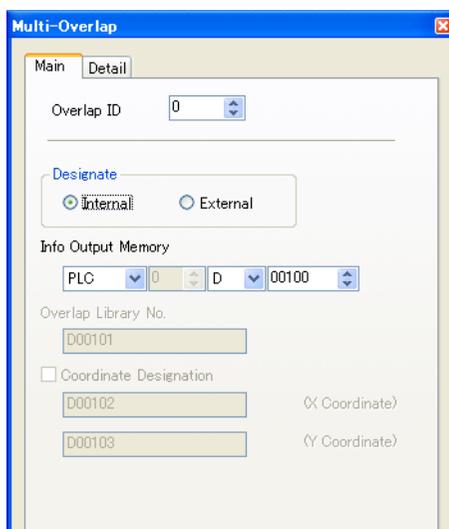
A multi-overlap display can be shown or hidden by a switch or a command from the PLC.



## Setting Dialog

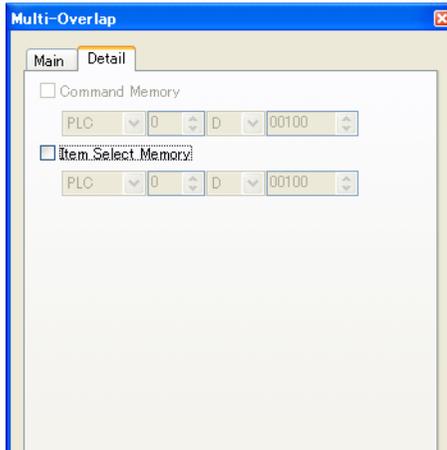
### [Multi-Overlap] dialog (on the screen)

- Main



Overlap ID (0 to 2)	Set the overlap area (ID 0 - 2) where an overlap display registered as an overlap library is to be called for the "multi-overlap" format.
Designate (Internal/External)	<p><b>Internal:</b> An overlap display can be shown or hidden by pressing a switch placed on the screen. For more information, refer to page 2-21.</p> <p><b>External:</b> An overlap library number is specified from the memory, and is shown or hidden according to read area "n + 1". In this case, the display position can also be specified by an external command. For more information, refer to page 2-22.</p>
Info Output Memory	Specify the desired memory address. The overlap library number currently shown on the screen is stored in the top memory address "n". When no overlap display is shown, "-1" is stored. If [Internal] is selected for [Designate], one word of top memory address "n" is used. If [External] is selected for [Designate], a maximum of four words from top memory address "n" is used. (n to n+3) For more information, refer to page 2-23.
Overlap Library No.	This is valid only when [External] is selected for [Designate]. A memory address of [Info Output Memory] "n + 1" is automatically allocated. Specify the overlap library number to be displayed in advance. For more information, refer to page 2-23.
<input type="checkbox"/> Coordinate Designation	This is valid only when [External] is selected for [Designate]. When this box is checked, you can specify the coordinate position where the overlap display is shown from the memory. For more information, refer to page 2-23.

- Detail



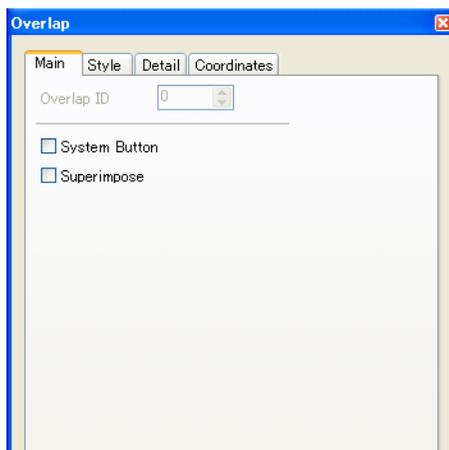
<input type="checkbox"/> Command Memory <sup>*1</sup>	<p>When this box is checked, specify one word of memory as desired. This is used for showing or hiding the overlap display according to the data in the specified memory address.</p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;"> <input type="checkbox"/> Not used (Be sure to set "0".)             <span style="float: right;">0: Hide 1: Show</span> </p> <p>When this box is not checked, bits 0 to 2 of read area "n + 1" are used.</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
<input type="checkbox"/> Item Select Memory	<p>This is required when using "entry mode" on the overlap screen. For more information, refer to "Item Select Function" on page 7-33</p>																																

\*1 When this box is checked, it is not possible to use bits 0 to 2 of read area "n + 1" for showing or hiding the overlap display.

If you select [System Setting] → [Device Communication Setting] → [Read/Write Area] and check  GD-80 Compatible Read/Write Area], the setting for  Command Memory] becomes invalid.

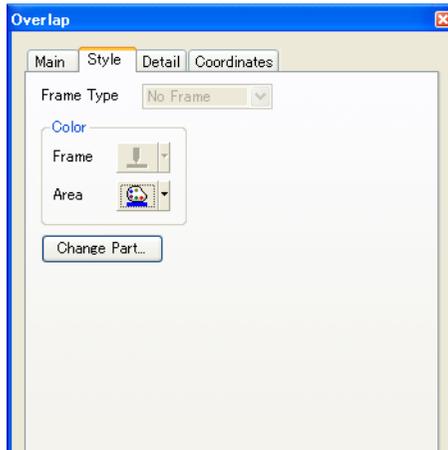
**[Overlap] dialog (on an overlap library)**

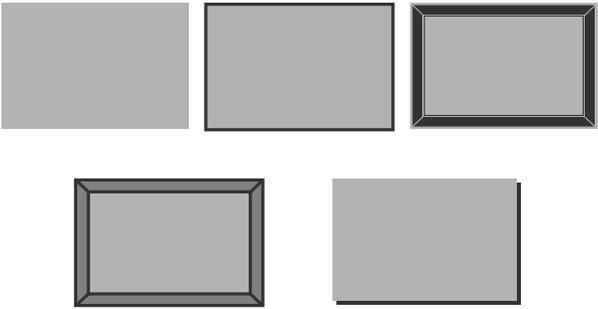
- Main



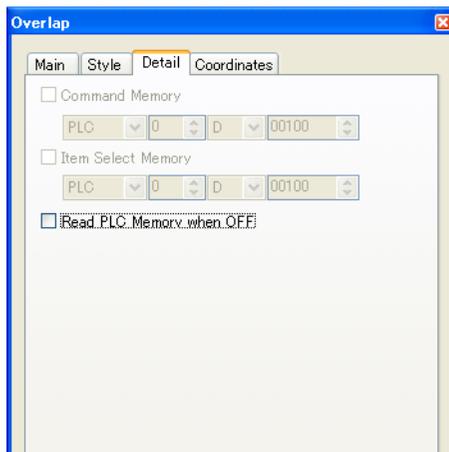
<input type="checkbox"/> System Button	When this box is checked, the overlap screen is equipped with a special button (= switch). For more information, refer to page 2-32.
<input type="checkbox"/> Superimpose	When this box is checked, the superimpose function can be used. For more information on the superimpose function, refer to page 2-33.

- Style



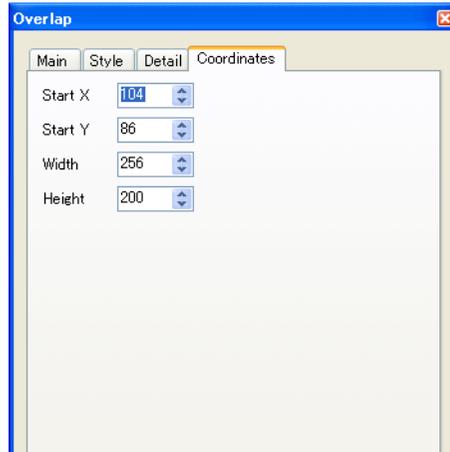
<p>Frame Type</p>	<p>This is valid when a part compatible with the former MONITOUCH series is selected.</p> <p>Select the desired frame type from five options shown below: No Frame, Line, Paint, Tile, Shadow</p> <div style="text-align: center;">  </div>
<p>Color (Frame, Area)</p>	<p>For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-9.</p>
<p>Change Part</p>	<p>For more information, refer to the Operation Manual.</p>

- Detail



<input type="checkbox"/> Read PLC Memory when OFF	<p>This setting item becomes active when you select the multi-overlap format.</p> <p><b>* This setting is not valid for the call-overlap format.</b></p> <p><b>Reading from the PLC memory is continued.</b></p> <p>Checked (Continue):          Even when an overlap display is erased, reading from the PLC memory for an item on the overlap display is continued.          When the overlap display is shown again, it is processed at a high speed since information is constantly read. Conversely, while the overlap display is not shown, screen display processing will be slowed down.</p> <p>Unchecked (Discontinue):          When an overlap display that has been read is erased, its information is completely erased. Thus, when showing the same overlap display again, it may take a little longer. However, screen display processing is performed smoothly while the overlap display is not shown.</p>
---	--

- Coordinates

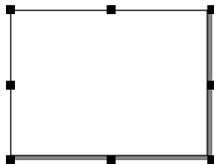


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates" on page A4-10.

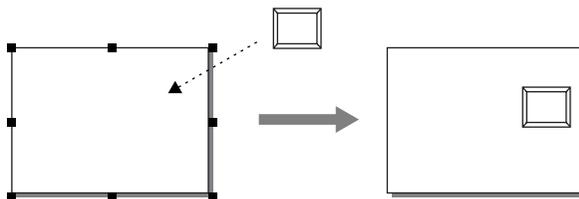
## Editing Procedure

---

When you want to edit parts for an overlap library, select the overlap area (with handles shown around) once.



If you place a switch or lamp part or text in this condition, it is placed on the overlap library. When you deselect the overlap library, you can place items on the base screen.



For more information on the editing procedure, refer to the Operation Manual.

## Macros That Can Be Registered for Overlap Library

---

An OPEN macro and a CLOSE macro can be registered for each overlap library. Each macro is executed when the overlap library is brought up for the multi-overlap format on a screen or is cleared from the screen.

For more information on macros, refer to the Macro Reference Manual.

## Showing and Erasing Multi-overlap Display

To show or erase an overlap display created as an overlap library in the multi-overlap format on the screen, the following four methods can be used.

Method		Details		See:
Internal command		Switch (Function: Multi-Overlap Display → Show Function: Overlap Display (OFF) → Erase)		Explanation below
External command	Show command	Read area "n + 1"	Bits 0 to 1 of read area "n + 1" (0 → 1: Show, 1 → 0: Hide)	Explanation below
		Command memory	Command Memory Bit 0 (0: Hide, 1 Show)	page 2-22
	Target library designation		Overlap Library No. (= Info Output Memory "n + 1")	page 2-23
	Coordinate designation		This is valid only when <input type="checkbox"/> Coordinate Designation] is checked. (= Info Output Memory "n + 2", "n + 3")	page 2-23
Macro		SET_MOVLP		"Macro Reference"

### Internal command

A multi-overlap display can be shown or erased by using a switch.

The following switches can be used.

Operation	Switch Function	Attached Setting
Showing a multi-overlap display	Multi-Overlap Display	Overlap ID Overlap Library No. <input type="checkbox"/> Display Position <sup>*1</sup>
Erasing a multi-overlap display	Overlap Display	Overlap ID Action = OFF

\*1 When this box is not checked, it is displayed in the same position as it is placed for the overlap library.

When this box is checked, you can specify the display position as desired using a switch.

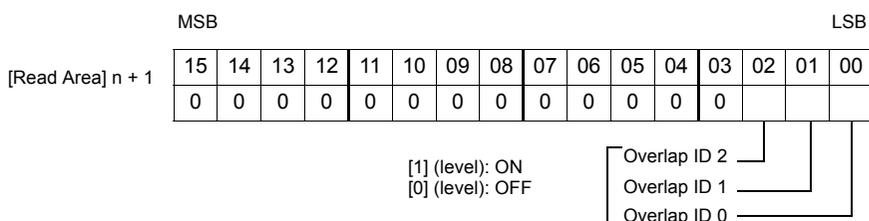
For more information on the switch setting, etc., refer to "3 Switch."

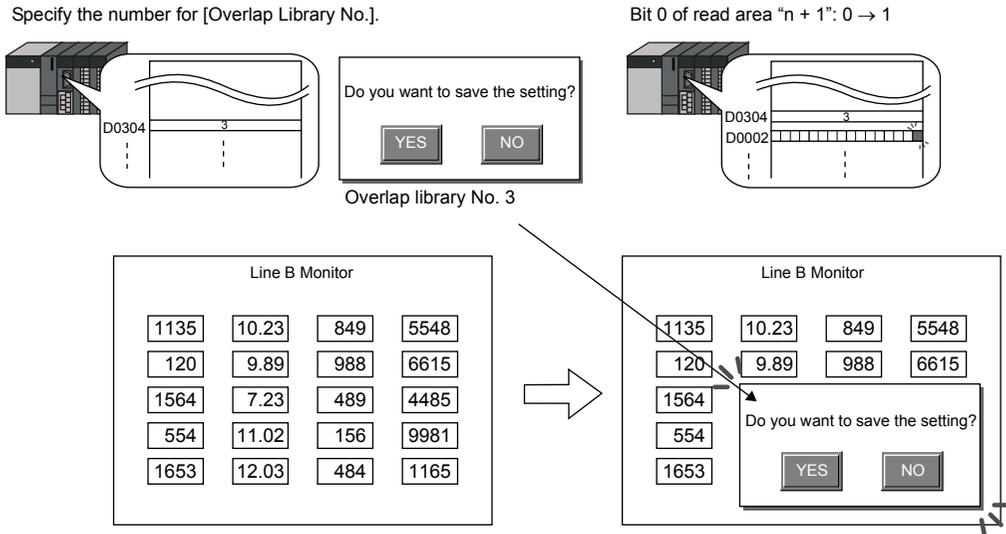
### External command (when using the read area)

A multi-overlap display can be shown or erased using the memory specified for [Overlap Library No.] and [Read Area].

Follow the steps below.

- Specify the overlap library number to be displayed for [Overlap Library No.].
- Show or hide the multi-overlap display using bits 0 to 2 (overlap ID 0 to 2) of read area "n + 1" in the [Communication Parameters] dialog that is displayed by selecting [System Setting] → [PLC Communication].





**\* Notes when showing a multi-overlap display using an external command**

- Level recognition  
Unlike the normal and call-overlap formats, when a multi-overlap display is shown by an external command, it remains shown even after you switch to another screen and then return.
- Edge recognition  
The multi-overlap display can be erased with a switch (Function: Overlap Display OFF). In this case, the overlap display can be hidden if the bit remains ON; consequently, to show it again, it is necessary to reset this bit (OFF) and set it (ON) again.  
Only in such a case, each bit in [Read Area] "n + 1" is recognized at the leading and falling edges.

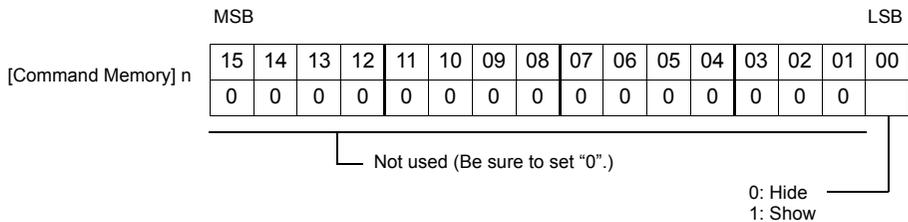
**External command (when using the command memory)**

A multi-overlap display can be shown or erased using the memory specified for [Overlap Library No.] and [Command Memory].

Follow the steps below.

1. Specify the overlap library number to be displayed for [Overlap Library No.].
2. Bring up the [Multi-Overlap] dialog → [Detail] tab window, check the box for  Command Memory] and specify the desired memory address.

The multi-overlap display is shown or hidden according to the ON/OFF status of the specified command memory bit.



### External command (when specifying the display position using an external command)

Not only showing and erasing the overlap display but also the display position can be specified using an external command.

For coordinate designation, follow the steps below.

1. Select [System Setting] → [Unit Setting] → [Overlap]. Then select [Overlap Coordinates].

Line/Column	The position can be moved in 8 dots (X) and in 20 dots (Y).
Dot*	The position can be moved in 4 dots (X) and in 1 dot (Y).

\* [Dot] is not available with matrix type switches.

It is fixed to [Line/Column].

2. Select [Multi-Overlap] dialog → [Main] and check the box for [ Coordinate Designation]. Automatically [Info Output Memory] “n + 2” and “n + 3” are allocated for memory addresses for [X Coordinate] and for [Y Coordinate], respectively.

Specify the coordinate value in increments selected in step 1.

Memory	Contents	Operation
Info Output Memory “n”	The overlap library number of the multi-overlap display currently shown on the screen is stored. When no overlap display is shown, “-1” is stored.	V → PLC
Overlap Library No. (Info Output Memory “n + 1”)	Specify the overlap library number to be displayed.	V ← PLC
Coordinate Designation: X Coordinate (Info Output Memory “n + 2”)	The X coordinate for multi-overlap display is specified.	V ← PLC
Coordinate Designation: Y Coordinate (Info Output Memory “n + 3”)	The Y coordinate for multi-overlap display is specified.	V ← PLC

### Command with macro

Using a macro, the multi-overlap display can be shown or hidden.

Use the SET\_MOVLPL command.

For more information, refer to the Macro Reference Manual.

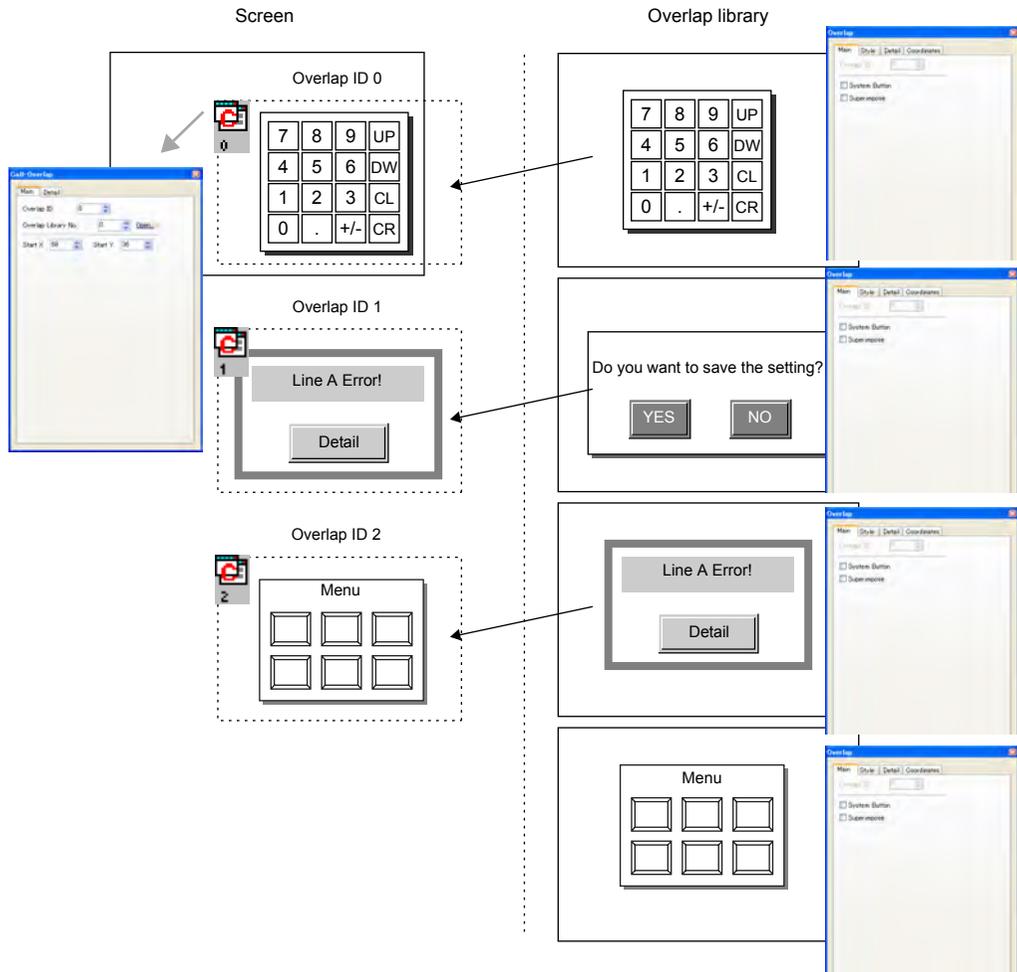
### Memory Related to Multi-overlap Display

Memory	See:
Info Output Memory	page 2-17
Overlap Library No.	page 2-21
Read Area (n + 1)	page 2-21
Command Memory	page 2-22
Coordinate Designation: X/Y Coordinate	page 2-23
Item Select Memory	page 7-33 “Item Select Function”

# Call-overlap

## Configuration

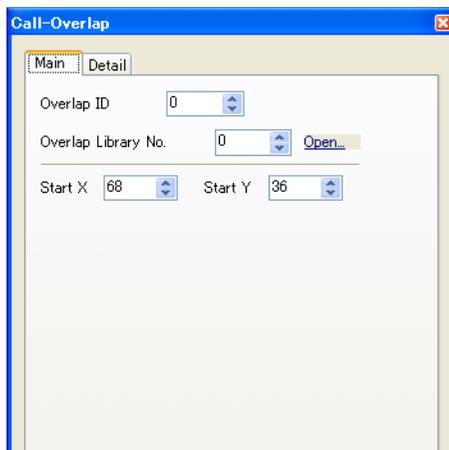
To show a call-overlap display, select [Call] for one of the overlap ID 0 to 2.  
 Register overlap screens as overlap libraries and call the desired one on an overlap area (ID).  
 A call-overlap display can be shown or hidden by a switch or a command from the PLC.



## Setting Dialog

### [Call-Overlap] dialog (on the screen)

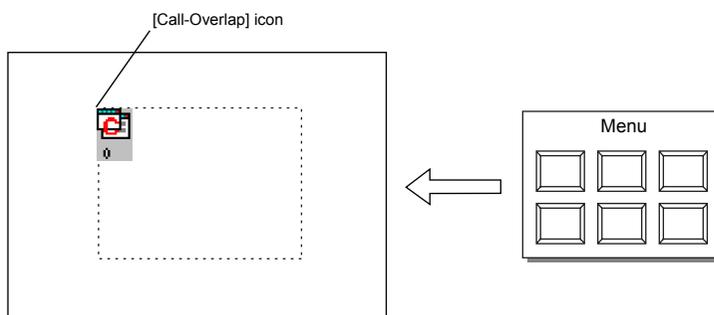
- Main



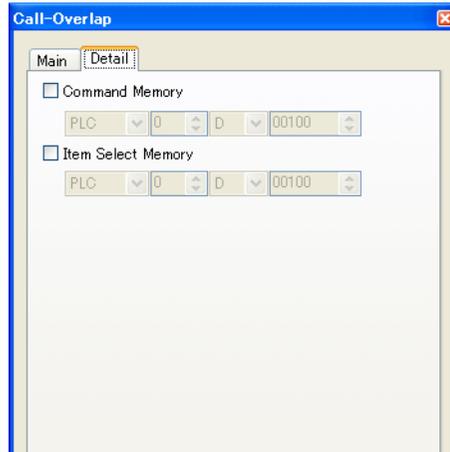
Overlap ID (0 to 2)	Set the overlap area (ID 0 - 2) where an overlap display registered as an overlap library is to be called for the "call-overlap" format.
Overlap Library No.	Specify the overlap library number to be called on the overlap area (ID). Click [Open] to browse in the overlap library list.
Start X <sup>*1</sup> Start Y	Specify the overlap display position.

**\*1 Start X/Y**

The call-overlap icon position corresponds to the upper left corner of the overlap display that will be shown.



- Detail



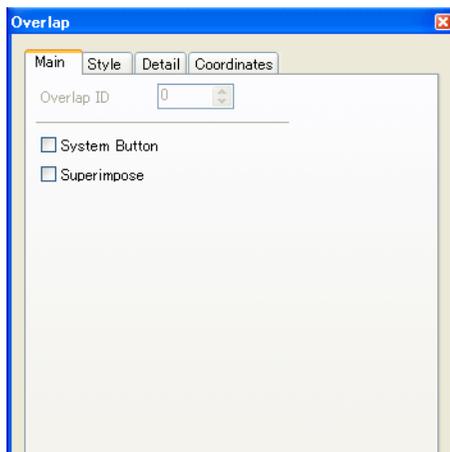
<input type="checkbox"/> Command Memory	<p>When this box is checked, specify one word of memory as desired. This is used for showing or hiding the overlap display according to the data in the specified memory address.</p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;"> <input type="checkbox"/> Not used (Be sure to set "0".)                 <span style="float: right;">0: Hide 1: Show</span> </p> <p>When this box is not checked, bits 0 to 2 of read area "n + 1" are used.</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
<input type="checkbox"/> Item Select Memory	<p>This is required when using "entry mode" on the overlap screen. For more information, refer to "Item Select Function" on page 7-33</p>																																

\*1 When this box is checked, it is not possible to use bits 0 to 2 of read area "n + 1" for showing or hiding the overlap display.

If you select [System Setting] → [PLC Communication] → [Communication Parameters] and check  GD-80 Compatible Read/Write Area], the setting for  Command Memory] becomes invalid.

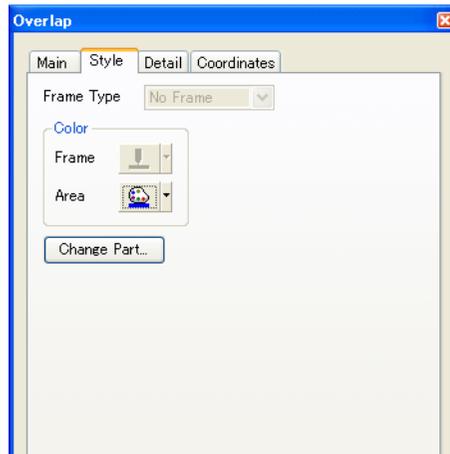
**[Overlap] dialog (on an overlap library)**

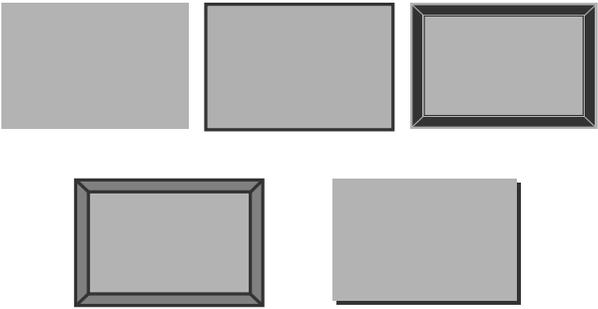
- Main



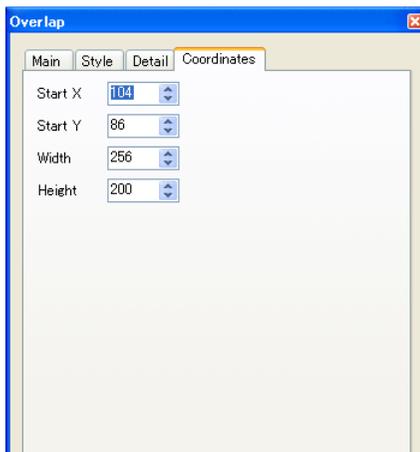
<input type="checkbox"/> System Button	When this box is checked, the overlap screen is equipped with a special button (= switch). For more information, refer to page 2-32.
<input type="checkbox"/> Superimpose	When this box is checked, the superimpose function can be used. For more information on the superimpose function, refer to page 2-33.

- Style



<p>Frame Type</p>	<p>This is valid when a part compatible with the former MONITOUCH series is selected.</p> <p>Select the desired frame type from five options shown below: No Frame, Line, Paint, Tile, Shadow</p> <div style="text-align: center;">  </div>
<p>Color (Frame, Area)</p>	<p>For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-9.</p>
<p>Change Part</p>	<p>For more information, refer to the Operation Manual.</p>

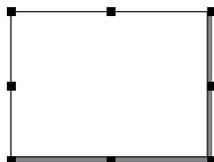
- Coordinates



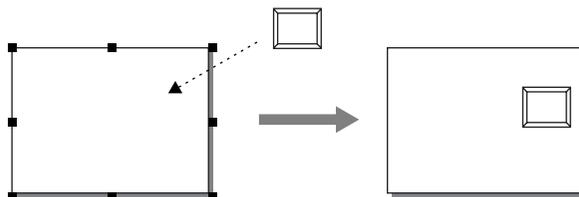
For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates” on page A4-10.

## Editing Procedure

When you want to edit parts for an overlap library, select the overlap area (with handles shown around) once.



If you place a switch or lamp part or text in this condition, it is placed on the overlap library. When you deselect the overlap library, you can place items on the base screen.



For more information on the editing procedure, refer to the Operation Manual.

## OPEN/CLOSE Macros for Overlap Library

- \* For the call-overlap format, the OPEN/CLOSE macros are not valid. These macros are valid for the multi-overlap format.

## Showing and Erasing a Call-overlap Display

To show or erase a call-overlap display created on the screen, the following four methods can be used.

Method		Details	See:
Internal command		Switch (Function: Overlap Display)	Explanation below
External command	Read area "n + 1"	Bits 0 to 2 (0 → 1: Show, 1 → 0: Hide)	Explanation below
	Command Memory	Bit 0 (0: Hide, 1 Show)	page 2-31
Macro		OVLP_SHOW OVLP_POS	"Macro Reference"

### Internal command

A call-overlap display can be shown or erased by using a switch.

The following switches can be used.

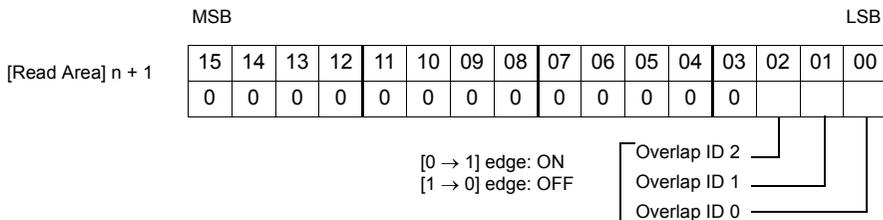
Operation	Switch Function	Attached Setting
Showing a call-overlap display	Overlap Display	Overlap ID Action = ON
		Overlap ID Action = ALT
Erasing a call-overlap display	Overlap Display	Overlap ID Action = OFF
		Overlap ID Action = ALT

For more information on the switch setting, etc., refer to "3 Switch."

### External command (when using the read area)

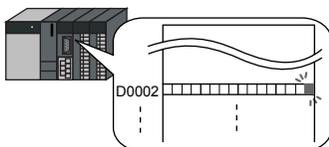
A call-overlap display can be shown or erased by using a command from the memory.

Bit 0 of read area "n + 1" (screen status command) in the [Communication Parameters] dialog that is displayed by selecting [System Setting] → [PLC Communication] is for overlap No. 0, bit 1 for overlap No. 1 and bit 2 for overlap No. 2.

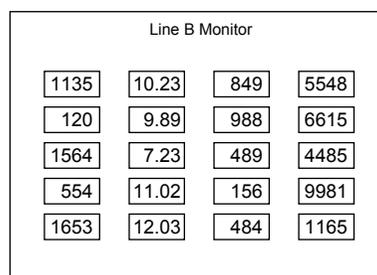
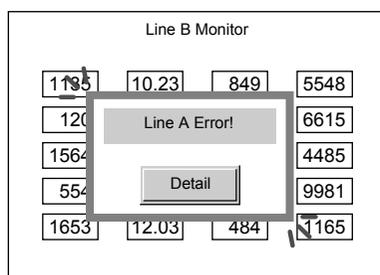
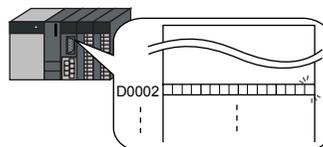


At the leading edge (0 → 1) of the bit, the corresponding call-overlap display among overlap ID 0 to 2 is shown on the screen. Likewise, at the falling edge (1 → 0) of the bit, it is cleared from the screen.

Bit 0 of read area "n + 1": 0 → 1



Bit 0 of read area "n + 1": 1 → 0



**\* To change edge recognition into level recognition:**

It is possible to make the bit status recognized not at the edge (0 → 1 or 1 → 0) of each bit but in the state at the bit level.

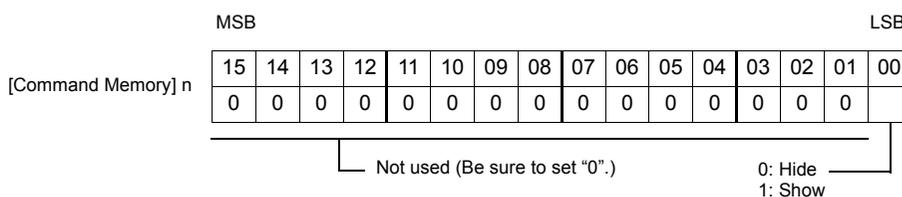
Select [System Setting] → [Unit Setting] → [General Settings]. Check the box for  Display Overlap during bit ON] to select level recognition.

**External command (when using the command memory)**

A call-overlap display can be shown or erased by using a command from the command memory.

Bring up the [Call-Overlap] dialog → [Detail] tab window, check the box for  Command Memory] and specify the desired memory address.

The call-overlap display is shown or hidden according to the ON/OFF status of the specified command memory bit.



**Command with macro**

Using a macro, the call-overlap display can be shown or hidden.

Use the OVL\_P\_SHOW command.

Additionally, the display location can also be specified. (Use the OVL\_P\_POS command.)

For more information, refer to the Macro Reference Manual.

**Memory Related to Call-overlap Display**

Memory	See:
Read Area (n + 1)	page 2-30
Command Memory	page 2-31
Item Select Memory	page 7-33 "Item Select Function"

## Feature of Overlap Display – System Button –

The system button, a function common to every overlap display format, is explained in this section.

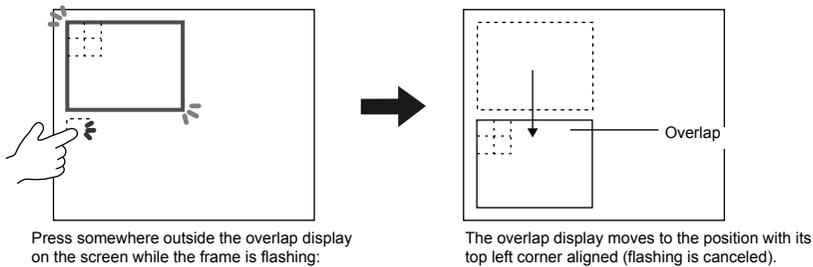
### Overview

The system button is a switch part that can be set on an overlap display and can work in two ways.

#### Moving the overlap display

When you press the top left corner ( $2 \times 2$  switch grids) of the overlap display once, the overlap frame flashes.

If you press another position on the screen while the overlap frame is flashing, the overlap display moves to the position, aligning the top left corner of the overlap display with the position you have pressed. (The frame stops flashing when it has been moved.)

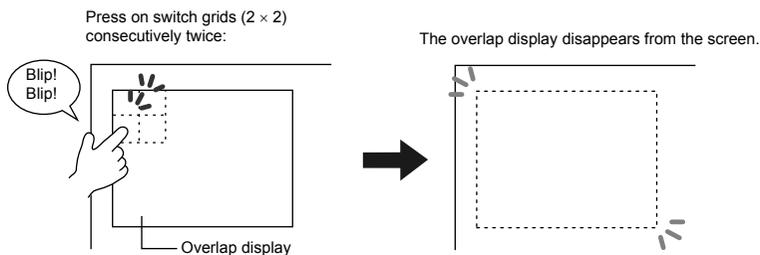


If a part of the overlap should extend off the screen, it is automatically adjusted to a position closest to the pressed position but within the screen space.

To stop the overlap frame flashing (to cancel the movable state), press the top left corner of the overlap display again.

#### Erasing the overlap display

When you press the top left corner ( $2 \times 2$  switch grids) of the overlap display twice consecutively (within one second), the overlap display is cleared from the screen.



#### Setting the system button

The system button can be set on the [Main] tab window in the dialog for each overlap setting.

## Feature of Overlap Display – Superimpose –

### Overview

When a video display item is placed on the screen, it is displayed on top so that no switches on the underlying screen can be used.

To enable switch operation while keeping the video display on the screen, an overlap display with the superimpose function can be called up on the video display item.



The superimpose function can be set for any overlap format (normal overlap, multi-overlap or call-overlap).

The level of transparency for the overlap can be determined by [Transparent Color] and [Blend] on the [Superimpose Setting] dialog.

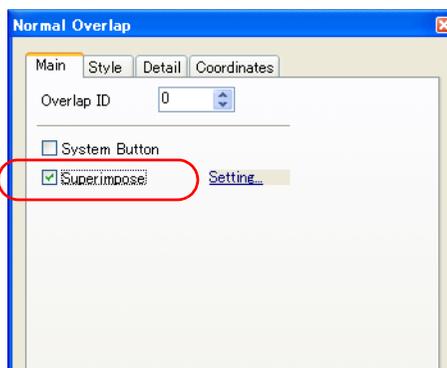
\* **The transparent color and blend value for transparency can be set on the [Screen Setting] dialog that is selected from the [Screen Setting] menu.**

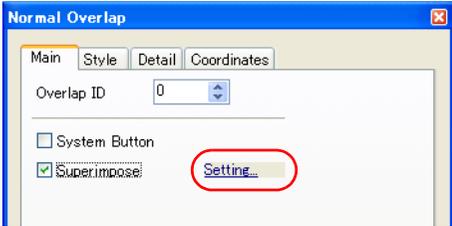
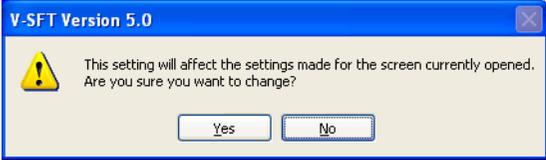
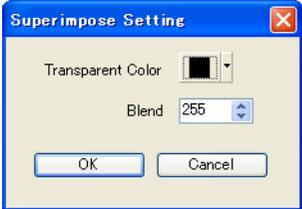
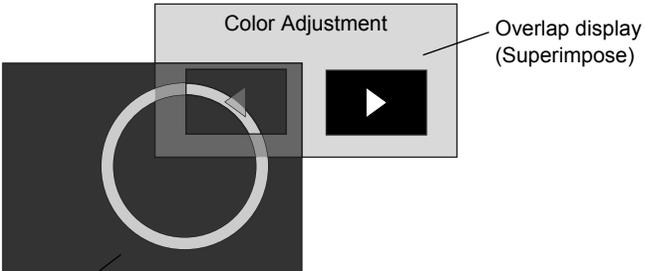
**This setting is valid for all the screens.**

**It is not possible to change the setting for each overlap display.**

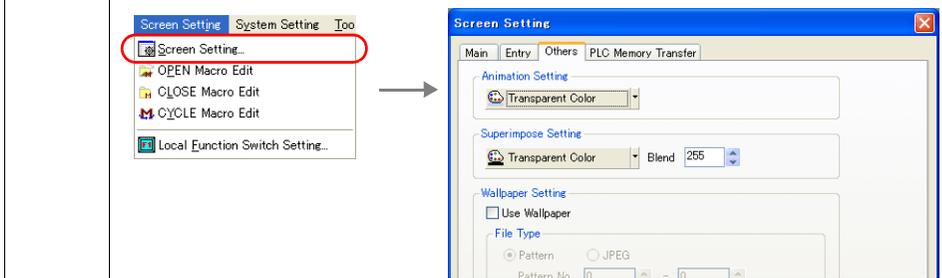
### Setting Procedure

Step 1 Check the box for [ Superimpose] on the [Main] tab window in the dialog for each overlap setting.



<p>Step 2</p>	<p>For [Normal Overlap] if you check this box, [Setting] on the right becomes active. Click [Setting].</p> <p>* For [Multi-Overlap] or [Call-Overlap], move to step 6.</p> 
<p>Step 3</p>	<p>The following message is displayed. Click [Yes].</p> 
<p>Step 4</p>	<p>The [Superimpose Setting] dialog *1 is displayed.</p>  <p>[Transparent Color] When you use the superimpose function, one color is always transparent when the overlap display is shown on the video display. This is due to the system structure. You need to specify that color in advance. To avoid showing the video image as transparent, set one color that you do not use on the overlap display.</p> <p>[Blend] (0 (light) to 255 (dark)) Set the blend ratio of the overlap display to the video display. When the blend value is closer to [0], the overlap display is shown faintly. The overlap display becomes more visible as you increase the blend value closer to [255].</p>  <p>If you use the color (e.g. black) that is set as [Transparent Color] on the overlap display (e.g. switch OFF color), the background (e.g. video display) is displayed as is.</p>
<p>Step 5</p>	<p>Click [OK]. The superimpose setting for the screen equipped with a normal overlap display has been completed.</p>

Step 6 For [Multi-Overlap] or [Call-Overlap], select [Screen Setting] → [Screen Setting] → [Others] tab window for the screen equipped with the overlap display, and make the same setting as step 4 in the [Superimpose Setting] field.



## Showing Procedure

### The same as usual overlap display:

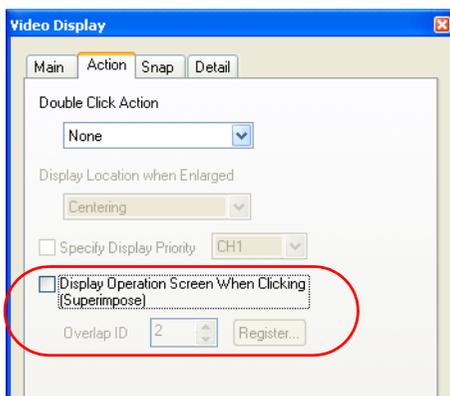
The calling method of [ Superimpose] is the same as [ Superimpose]. The calling method varies depending on the format of overlap display (normal overlap, call-overlap, multi-overlap). Refer to the calling method for each format.

### Calling from a video item:

Depending on the setting of the video display item, you can call an overlap display with the superimpose function by clicking on the video display.

- \* **Note that the method above is available only with the call-overlap format.**

Make the settings on the [Action] tab window for the video display item as shown below.



<input type="checkbox"/> Display Operation Screen When Clicking (Superimpose)	<p>By checking this box, the specified overlap display is shown when you click on the video image.</p> <p>[Overlap ID] Specify the overlap ID to be displayed.</p>
---	--

- \* **Only one overlap display with [ Superimpose] can be set for a screen.**  
**If you display multiple overlap displays with [ Superimpose] simultaneously, the superimpose function becomes valid only with the one that is shown first.**

## Video Overlap (For Channel Selection)

This is the function to allow compatibility with the V6 series. To change the channel or the size during video display on the V8i, use this video overlap display function.

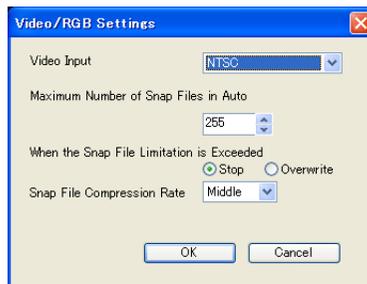
### Setting Procedure

- [System Setting] → [Unit Setting] → [Video/RGB] → [Video/RGB Setting] dialog
  - [Parts] menu → [Multimedia] → [Video/RGB Overlap]
- For more information on the setting items, refer to page 2-37.

### Video setting

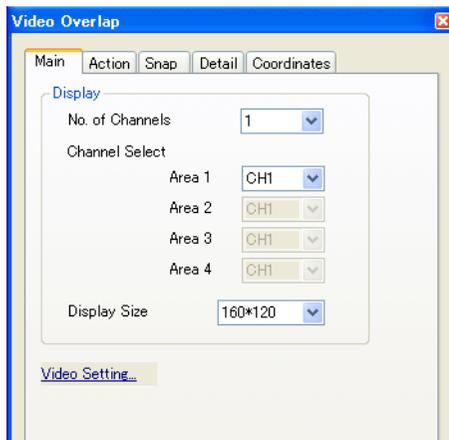
- \* To set up this dialog, you can also start from the [Video Overlap] dialog → [Main] tab window and then select [Video Setting].

Set the items on the dialog shown below.



Video Input (NTSC, NTSC Square Pixel, PAL)	Select the video input signal type.
Maximum Number of Snap Files in Auto (0 to 255)	Snapshot images are saved on a CF card when [Auto] is selected. Specify the maximum number of files to be saved automatically.
When the Snap File Limitation is Exceeded (Stop, Overwrite)	Set the processing rule when [Maximum Number of Snap Files in Auto] mentioned above has been exceeded.  [STOP]: When the limitation has been exceeded, snap shooting stops.  [Overwrite]: When the limitation has been exceeded, the images are saved while overwriting files from the first file.
Snap File Compression Rate (Low, Middle, High)	Set the file compression rate for snap files. High: The file size is small but image quality is lowered. Middle: The file size and image quality are at an intermediate level (twice the "High" level). Low: The image quality is good but file size is bigger (twice the "Middle" level).

## Setting Dialog (V8i)



Most of the setting items on the dialog are the same as those on the [Video] dialog for a video display item.

For more information, refer to “14.2 Video/RGB Display.”

The setting items different from those for a video display item are explained.

Menu	Setting Item	Contents
[Main] → [Display]	No. of Channels	This is fixed to “1”. However, it is possible to change the channel using “SEL_CH” of the [Video] macro command.
[Detail]	Overlap ID	This option determines the overlap area (ID 0 - 2) where the video display is to be called.
[Coordinates]	Start X Start Y	This option determines the video display position. The video screen is displayed while aligning its upper left corner with this coordinate position.

## Video Display Setting (Macro Command)

The size and color of the vide display can be set using the macro commands for video display. When no macro is used, the video screen is displayed under default conditions. When a macro command is executed, it has priority.

### Video display default setting

The default settings are shown below.

Setting Item	Options	Default Value
Size	160 × 120, 320 × 240 640 × 480, 640 × 240	320 × 240
Display Channel	CH1, CH2, CH3, CH4	1 (CH)
Brightness	0 (dark) to 255 (bright)	183
Contrast	0 (weak) to 255 (strong)	48
Color shade	0 (light) to 255 (deep)	1

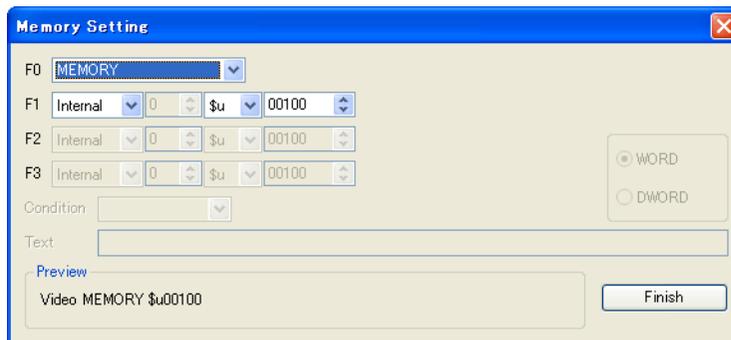
The video display status is output to the internal system memory (\$s). It is output as shown below.

Address	Contents
\$s170	Channel No.
\$s171	Dither (fixed to 1 (yes))
\$s172	Brightness
\$s173	Contrast
\$s174	Color shade

### Changing the default settings

Use macro commands. The size, channel number, brightness, contrast and color shade of video display can be set.

Select the [Video] macro command. The following dialog is displayed.



- **Command selection:**

Command Name	Contents
SIZE	(160 × 120, 340 × 240, 640 × 480, 640 × 240) Determine the video window size.
SEL_CH	(1 to 4) Specify the channel number of the input port.
BRIGHT	(0 to 255) Determine the brightness of video image.
CONTRAST	(0 to 255) Determine the contrast of video image.
COLOR	(0 to 255) Determine the color shade of video image.
VIDEO_INF	(SAVE, DEFAULT) It is possible to save the current video display state or to reset to the default settings. When [SAVE] is selected, the current video display state is saved so that even if a power failure occurs, the video image can be displayed in the same state as before. When [DEFAULT] is selected, the display state is reset to the default. The V8 series may stop for a second when this command is executed.

- Example

Channel No. = 2 (CH2)

Size = 640 × 480 dots

To change to the above state, you should use the following macro commands:

Video SEL\_CH 2 → CH2 selection

Video SIZE 640 × 480 → Size selection

Video\_INF SAVE → Saving the state in the memory

- Designating the memory address

The following data should be set.

Video MEMORY F1 (= n)

F1 memory

n	Command No.	
n + 1	Setting Value	
Command Name	Command No.	Setting Value
SIZE	0	0: 160 × 120, 1: 320 × 240, 2: 640 × 480, 3: 640 × 240
SEL_CH	1	1 to 4
BRIGHT	3	0 to 255
CONTRAST	4	0 to 255
COLOR	5	0 to 255
VIDEO_INF	6	0: SAVE, 1: DEFAULT

- Example

Channel No. = 2 (CH2)

Size = 640 × 480 dots

To change to the above state, you should set [\$u00100] for “F1” for the [Video MEMORY] macro command and set as shown below.

Channel No. 2 selection

\$u00100=1(W) → Command (SEL\_CH) selection

\$u00101=2 (W) → 2CH selection

Video MEMORY \$u00100 → Command execution

Window size change

\$u00100=0(W) → Command (SIZE) selection

\$u00101=2 (W) → 640× 480 dots selection

Video MEMORY \$u00100 → Command execution

Saving in memory

\$u00100=6(W) → Command (Video\_INF) selection

\$u00101=0(W) → SAVE selection

Video MEMORY \$u00100 → Command execution

## Showing and Erasing a Vide Overlap Display

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To show or erase a video overlap display on the screen, the following three methods can be used.

Method	Details	See:
Internal command	Switch (Function: Overlap Display)	Explanation below
External command	Read area “n + 1” Bits 0 to 2 (0 → 1: Show, 1 → 0: Hide)	page 2-41
Macro	OVLP_SHOW OVLP_POS	“Macro Reference”

### Internal command

A video overlap display can be shown or erased by using a switch.

The following switches can be used.

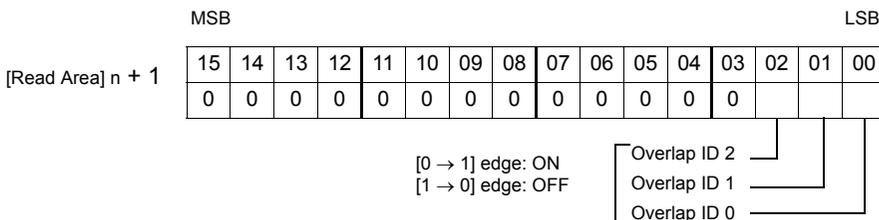
Operation	Switch Function	Attached Setting
Showing a video overlap display	Overlap Display	Overlap ID Action = ON
		Overlap ID Action = ALT
Erasing a video overlap display	Overlap Display	Overlap ID Action = OFF
		Overlap ID Action = ALT

For more information on the switch setting, etc., refer to “3 Switch.”

### External command

A video overlap display can be shown or erased by using a command given from [Read Area].

Bit 0 of read area “n + 1” (screen status command) in the [Communication Parameters] dialog that is displayed by selecting [System Setting] → [PLC Communication] is for overlap No. 0, bit 1 for overlap No. 1 and bit 2 for overlap No. 2.



At the leading edge (0 → 1) of the bit, the corresponding video overlap display among overlap ID 0 to 2 is shown on the screen. Likewise, at the falling edge (1 → 0) of the bit, it is cleared from the screen.

**\* To change edge recognition into level recognition:**

It is possible to make the bit status recognized not at the edge (0 → 1 or 1 → 0) of each bit but in the state at the bit level.

Select [System Setting] → [Unit Setting] → [General Settings]. Check the box for  Display Overlap during bit ON] to select level recognition.

### Command with macro

Using a macro, the video overlap display can be shown or hidden.

Use the OVLP\_SHOW command.

Additionally, the display location can also be specified. (Use the OVLP\_POS command.)

For more information, refer to the Macro Reference Manual.

## Memory Related to Video Overlap Display

Read Area (n + 1)
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page 2-11
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## Size Limits of Overlap Displays

There is a limit to the size of a normal, call-, or multi-overlap display that can be shown on one screen. Set the size of the normal or call-overlap display placed on the screen, or of the multi-overlap display (of the maximum size when showing several multi-overlap displays) so that the combined size does not exceed the maximum overlap size shown here.

(Unit: bytes)

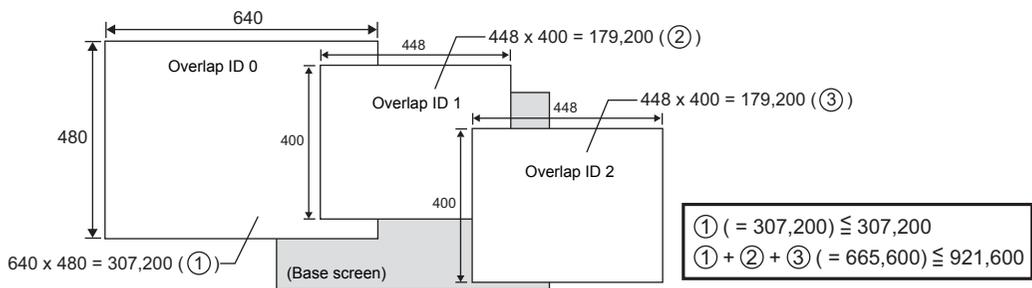
Model	Maximum Screen Size	Maximum Overlap Size*	Maximum Overlap Size (for Video)*
V8xxxS (800 × 600)	480,000	1,440,000	960,000 (The total of widths of three overlap displays must not exceed 2,048 dots.)
V810xT (640 × 480)	307,200	921,600	614,400

\* Overlap size of a screen with video overlap setting

- Normal, call-, and multi-overlap size calculation method (unit: dots)  
Overlap size = Overlap display width × Overlap display height

Example: For V810T

If you have three normal overlap displays shown below, the total size falls within the range, and thus, there is no problem.

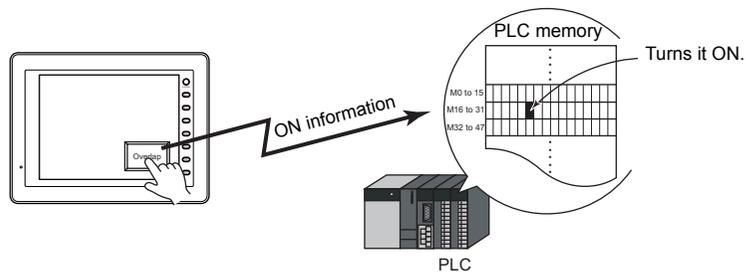


# 3 Switch

## 3.1 Overview

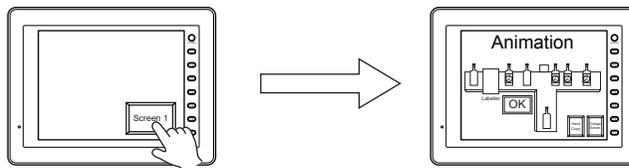
### Basic Function of Switches

A switch part has the function of sending ON/OFF information to the specified bit in the PLC memory.

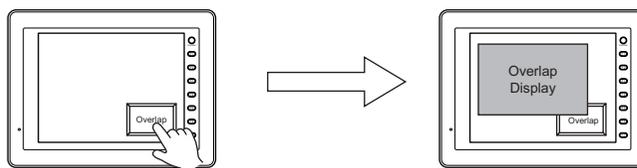


When a switch is pressed, the following processes can be executed:

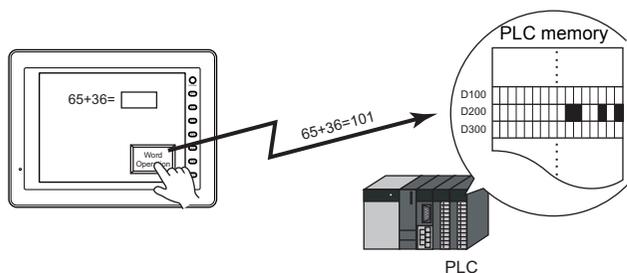
- Changing the screen display



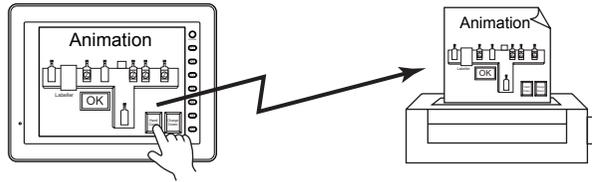
- Showing an overlap display



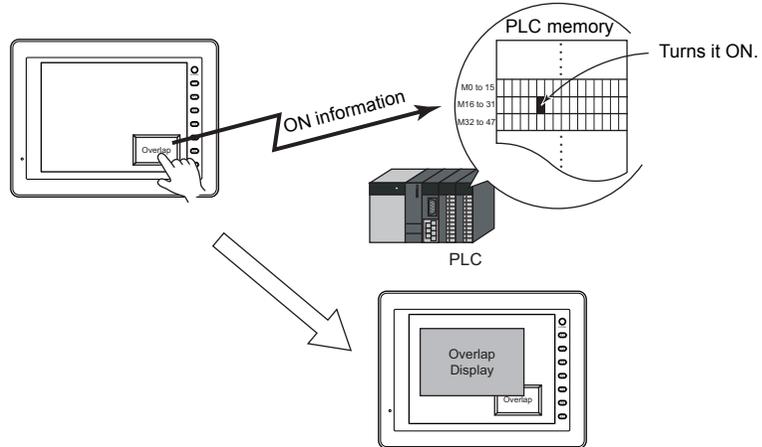
- Performing operations, and writing the results into the PLC memory



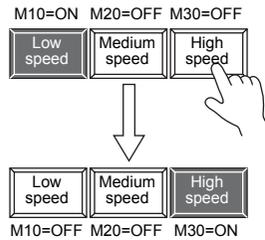
- Printing the image displayed



- Turning a memory bit ON and showing an overlap display at the same time



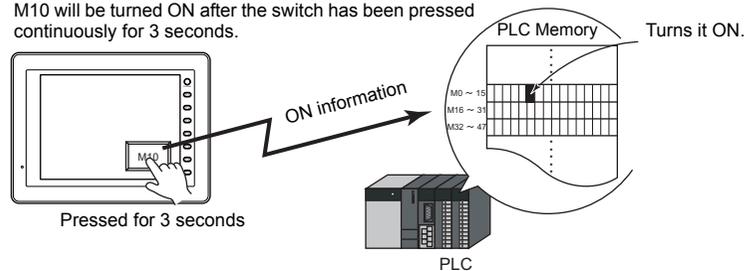
- On pressing a switch, ON/OFF information or a value can be sent to multiple bits or words - e.g. in the PLC memory or internal memory - at the same time. (Multi-output function)



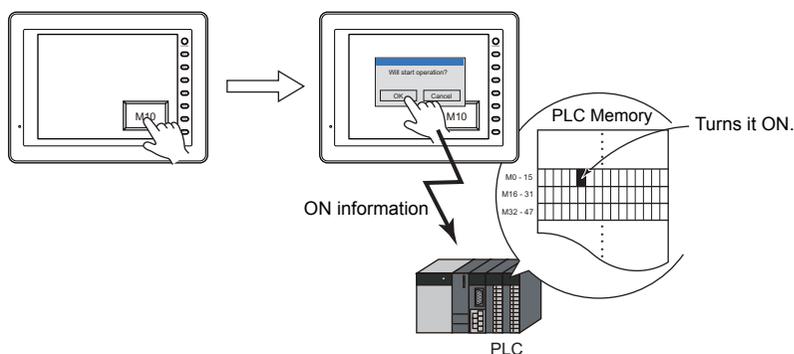
Pressing the [High speed] switch can serve not just to turn M30 ON, but to turn M10 and M20 OFF at the same time. This makes it simple to create radio buttons.

- Switches now feature a delay function. You can set "ON delay" functions, where memory output cannot occur unless the switch is pressed continuously for a fixed time, and "OFF delay" functions, where the memory cannot go OFF until a fixed time has elapsed after you have released your finger from the switch.

For example, on pressing a switch for which [Output Memory: M10] and [ON delay: 3 sec] have been set, M10 will be turned ON after the switch has been pressed continuously for 3 seconds.



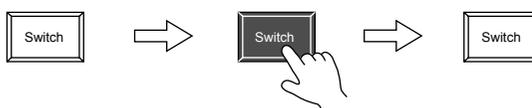
- You can set a confirmation pop-up window to be displayed automatically when a switch is pressed and ask whether the operation is [OK] or should be canceled ([Cancel]). You can make the settings for confirmation and operation execution entirely on the MONITOUCH, without the need for troublesome programming.



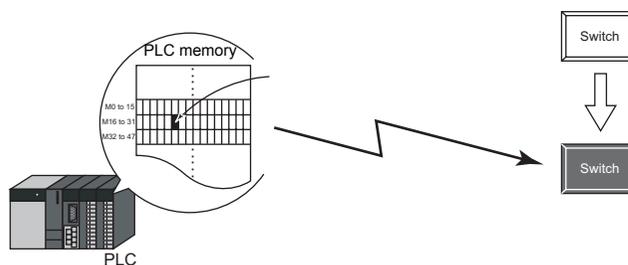
A macro can be executed when a switch is pressed or released.

## Lamps in Switches

- Switches can be equipped with lamps, which light up (in ON color) when the switch is pressed and go off (in OFF color) when it is released.



- Lamp activation can be commanded from the PLC memory.



- When lamp activation is commanded externally, it is also possible for one lamp to use 16 patterns (or 16 colors).

Example: 3 patterns



## 3.2 Notes on Switches

### Switch for Use in Emergency

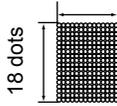


Do not use switches where they could cause injury to people or damage machinery. Moreover, do not use switches as emergency switches.

## Placement

### Minimum Switch Unit and Maximum Number of Switches

- Matrix switches: 18 dots × 14 dots
- Analog switches: 2 dots × 2 dots  
(For safety reasons, however, using switches greater than 18 dots × 14 dots is recommended.)
- For the minimum switch unit and the maximum number of switches, refer to the chart below.

	V812 / 810 / 808
Maximum number per screen	1024
Minimum unit	<p>14 dots</p>  <p>18 dots</p>

### When Placing Switches while Overlaying One on Another:



As a rule, when placing switches, do not overlay one switch on another.

However, if it is unavoidably necessary to do so, either switch must be valid depending on the order of placement.

For this setting, select [System Setting] → [Unit Setting] → [General Settings].

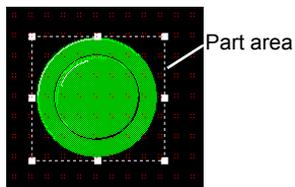
For more information, refer to “1 System Setting” on page 1-21.

The order of placement can be seen on the [Item List] view.

(For more information on the [Item List] view, refer to the Operation Manual.)

## Switch Area

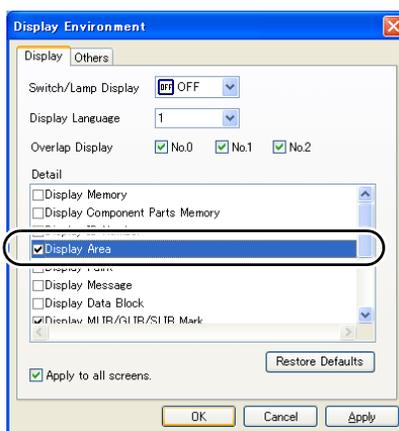
The action area that is sensitive to a press on the screen is basically identical to the switch part area; however, depending on the part type or the method of placement, enlargement or reduction, it may not be so.



Check the action area as described below.

- Setting position

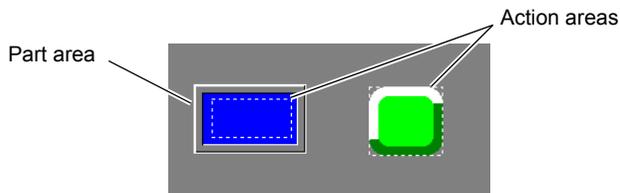
Select [View] → [Display Environment] → [Display] tab window [ Display Area]



When [Display Area] is checked () , a dotted box is shown around each switch part as shown below. This dotted box shows the switch action area.

Pressing in a switch action area activates the switch. The outline of each switch part is called the "part area" of the switch.

Pressing on this area out of the action area does not activate the switch.



## Differences between Switch Types

There are two switch types for MONITOUCH.

For more information, refer to “Touch Switch Specifications” (page 3-8).

### Analog touch switch

Analog touch switches can be placed, enlarged or reduced as desired.

To place, enlarge or reduce switches ignoring the switch grids, uncheck [ Place switches on switch grids].

### Matrix touch switch

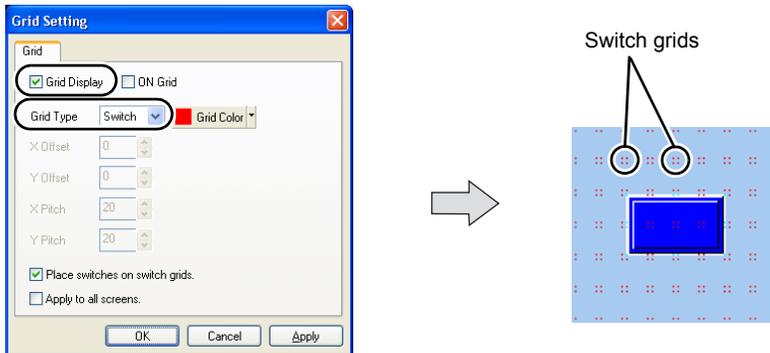
Matrix touch switches must be placed, enlarged or reduced along the switch grids. Otherwise, they do not work.

## Switch Grids

### Setting position

Select [View] → [Grid] → [Grid Setting].

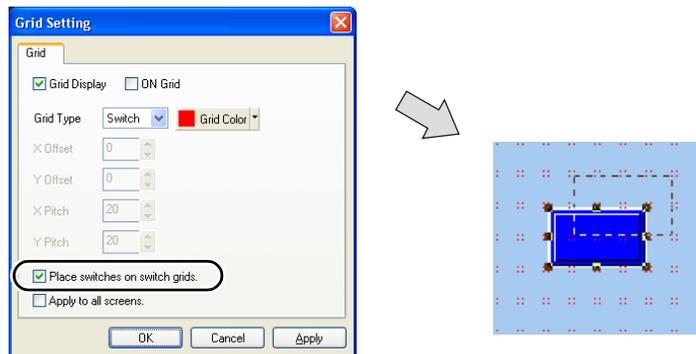
When you check [ Grid Display] and set [Grid Type: Switch], the switch grids shown in the diagram below are displayed on the screen.



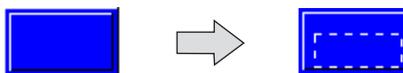
Place switches on switch grids.

As default, [ Place switches on switch grids] is checked () in the [Grid] tab window.

Switches can be enlarged/reduced along the switch grids.



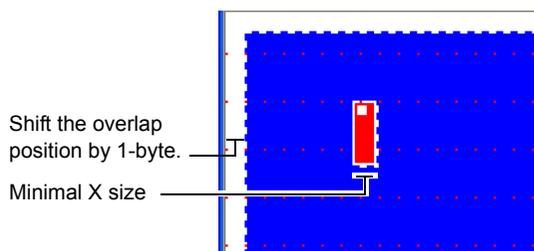
- \* When you uncheck  Place switches on switch grids] for the matrix type V8 series, a switch area (action area) may be misaligned from the switch grids as shown below. Take caution when moving, enlarging, and reducing a switch area.



### When Placing Switches on an Overlap Display:

If the following two conditions exist at the same time, "Error: Action area setting" will be given. Remove either condition.

- X size of the switch is minimal.
- Shift the overlap position by 1-byte from the switch grids.



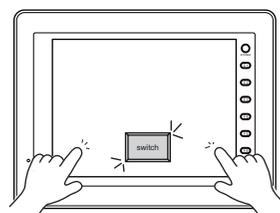
## Touch Switch Specifications

Two types of touch switches are available with the V8 series: analog types and matrix types. The switch output action varies depending on the touch switch type.

	2-point Pressing	
	Two switches on the screen	A switch on the screen and a function switch
Analog switch	Disabled	Enabled
Matrix switch	Enabled by setting	Enabled

### Analog Switch

- When two or more points on the screen are pressed at the same time, the center of the pressed points is output. If the center of the pressed points happens to be a switch, this switch may activate. Do not press two or more points on the screen at the same time.

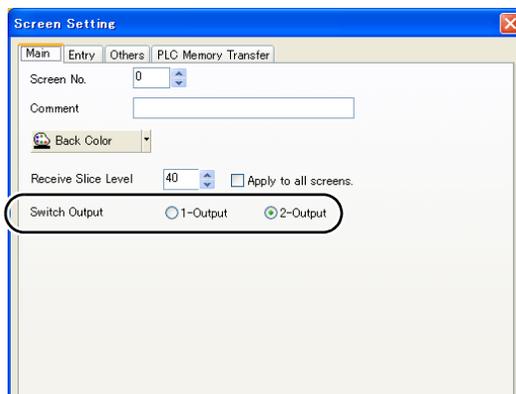


Pressing two positions at the same time activates the switch in the center.

- For two-point pressing, use a switch on the screen and a function switch.

### Matrix Switch

1-output or 2-output of the switch can be set for each screen. Select [Screen Setting] → [Screen Setting] dialog. Set [1-Output] or [2-Output] for [Switch Output].



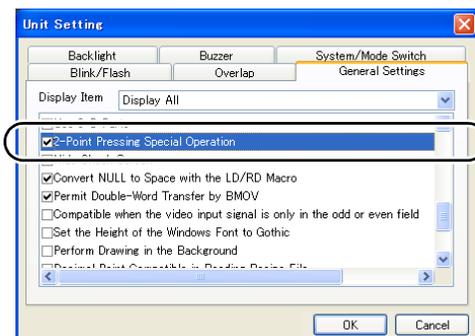
1-Output	The pressed switch is turned ON/OFF. If two switches are accidentally pressed at the same time, both switches do not work.
2-Output	The pressed switch is turned ON/OFF. If two switches are pressed at the same time, both switches work as intended. If three or more switches are accidentally pressed at the same time, none of the switches work.

## 2-point pressing special operation

With the matrix type V8 series, it is possible to select the action taken as a consequence of two-point pressing.

- Setting position

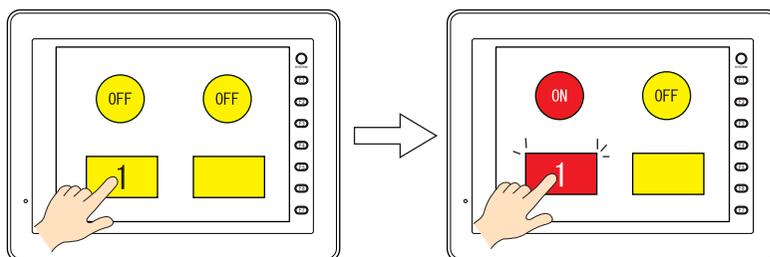
[System Setting] → [Unit Setting] → [General Settings] tab window: [ 2-Point Pressing Special Operation]



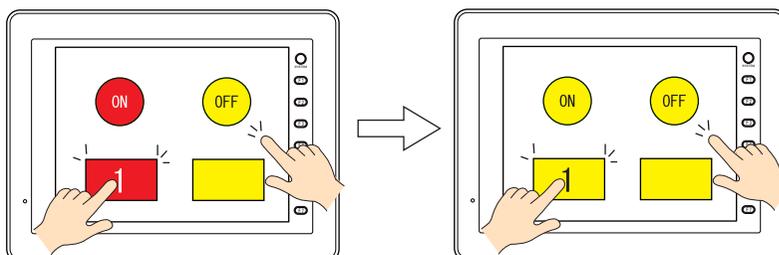
- Operation

Unchecked

- 1) Press switch 1 on the screen. A switch activation status is stored in output memory. (lamp ON)

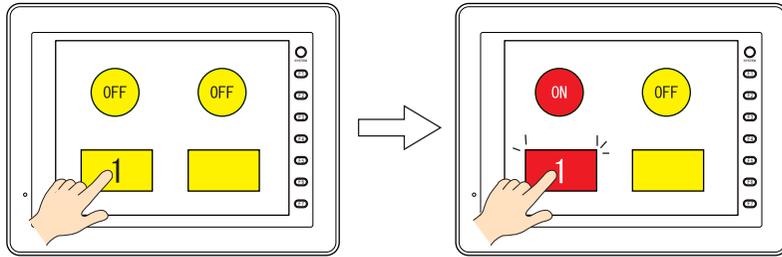


- 2) Press an area outside the switch on the screen. Switch 1 output is turned OFF.

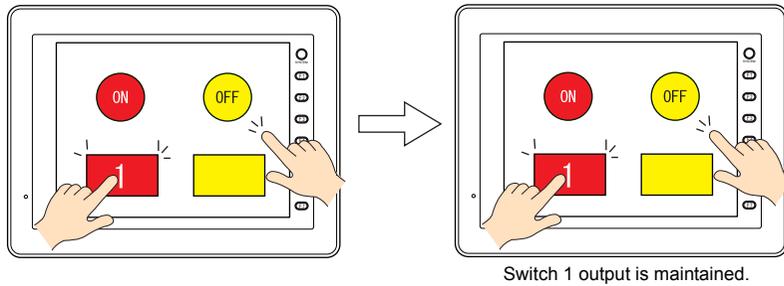


Checked

- 1) Press switch 1 on the screen. A switch activation status is stored in output memory. (lamp ON)

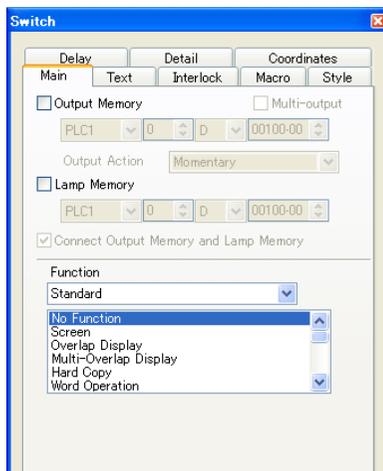


- 2) Press an area outside the switch on the screen.

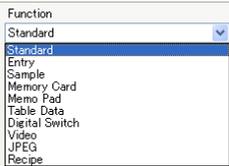


## 3.3 Setting Dialog

### Main



<input type="checkbox"/> Output Memory	<p>Check (<input checked="" type="checkbox"/>) this item when you want to set the specified bit in memory by pressing the switch.</p> <p>When the internal memory or a memory card is chosen, the processing speed will be faster.</p> <ul style="list-style-type: none"> <li>When the PLC memory is chosen:           <p>Depending on whether the specified output memory address is bit-writable or not, the selection for [Output Action] should vary. Refer to the Hardware Specifications whether the memory is bit-writable or not.</p> </li> </ul>										
Output Action <sup>*1</sup> (Momentary, Momentary W, Set, Reset, Alternate)	<p>This item becomes valid when [<input checked="" type="checkbox"/> Output Memory] is checked. Select the write operation to the output memory.</p> <table border="1"> <thead> <tr> <th>Switch Action</th> <th>Output Processing</th> </tr> </thead> <tbody> <tr> <td>Set</td> <td>The specified bit is set to "ON". (Remains ON if the switch is released)</td> </tr> <tr> <td>Reset</td> <td>The specified bit is reset to "OFF". (Remains OFF if the switch is released)</td> </tr> <tr> <td>Momentary Momentary W</td> <td>The specified bit is set to "ON", and when the switch is released, it is reset to "OFF". (Remains ON while the switch is held down)</td> </tr> <tr> <td>Alternate</td> <td>Each time the switch is pressed, the specified bit is alternately set (ON) and reset (OFF).</td> </tr> </tbody> </table>	Switch Action	Output Processing	Set	The specified bit is set to "ON". (Remains ON if the switch is released)	Reset	The specified bit is reset to "OFF". (Remains OFF if the switch is released)	Momentary Momentary W	The specified bit is set to "ON", and when the switch is released, it is reset to "OFF". (Remains ON while the switch is held down)	Alternate	Each time the switch is pressed, the specified bit is alternately set (ON) and reset (OFF).
Switch Action	Output Processing										
Set	The specified bit is set to "ON". (Remains ON if the switch is released)										
Reset	The specified bit is reset to "OFF". (Remains OFF if the switch is released)										
Momentary Momentary W	The specified bit is set to "ON", and when the switch is released, it is reset to "OFF". (Remains ON while the switch is held down)										
Alternate	Each time the switch is pressed, the specified bit is alternately set (ON) and reset (OFF).										
<input type="checkbox"/> Multi-output	<p>This item becomes valid when [<input checked="" type="checkbox"/> Output Memory] is checked. Check this box when you want to perform an output operation set for [Output Memory] to multiple memory addresses at one time. For more information, refer to page 3-15.</p>										

<input type="checkbox"/> Lamp Memory	<p>The display in the switch area can be changed.</p> <ul style="list-style-type: none"> <li>In the case of <input type="checkbox"/> Lamp Memory]           <p>When the switch is pressed, the lamp lights up automatically. When it is released, it goes off. The lamp turns the ON color when it is pressed; and turns the OFF color when it is released.</p> </li> <li>In the case of <input checked="" type="checkbox"/> Lamp Memory]           <p>The settings for [Lamp Memory] become active. The lamp lights up (in ON color) automatically and goes off (in OFF color) according to the ON/OFF status of [Lamp Memory]. For 3-pattern switch parts, the lamp in the switch can be changed in three patterns of OFF → ON → P3 (pattern 3). Likewise, it is possible to show the lamp in the switch in 16 patterns. Depending on the number of patterns of the part, the available number of bits vary. For more information, refer to “4 Lamp.”</p> <p><b>* For parts of three to 16 patterns, the external command must be used (that is, the [Lamp Memory] box must be checked (☑)).</b></p> <p><b>* When the PLC memory is used for [Lamp Memory], set up consecutive addresses for high-speed processing.</b></p> </li> </ul>																				
<input type="checkbox"/> Connect Output Memory and Lamp Memory	<p>This item becomes valid when <input checked="" type="checkbox"/> Output Memory] is checked. When this box is checked (☑), the same memory address as [Output Memory] is set for [Lamp Memory]. When [Alternate] is set for [Output Action], the display reflects the status of the memory bit.</p>																				
Function	<p>Select the function to be provided to the switch, that is, how the switch should work when it is pressed. The switch function is classified into groups depending on the function.</p>  <table border="1"> <tr> <td>Standard</td> <td>To be used by itself</td> </tr> <tr> <td>Entry</td> <td>To be linked with a part in entry mode</td> </tr> <tr> <td>Sample</td> <td>To be linked with a part in sampling mode</td> </tr> <tr> <td>Memory Card</td> <td>To be linked with a part in memory card mode</td> </tr> <tr> <td>Memo Pad</td> <td>To be linked with a part in memo pad mode</td> </tr> <tr> <td>Table Data</td> <td>To be linked to entry mode when using a table data display as an entry target in entry mode</td> </tr> <tr> <td>Digital Switch</td> <td>To be used for creating a digital switch part</td> </tr> <tr> <td>Video</td> <td>To be linked with the video function</td> </tr> <tr> <td>JPEG</td> <td>To be used for calling or deleting a JPEG file</td> </tr> <tr> <td>Recipe</td> <td>To be linked with the recipe function</td> </tr> </table> <p>For more information on each function, refer to page 3-27.</p>	Standard	To be used by itself	Entry	To be linked with a part in entry mode	Sample	To be linked with a part in sampling mode	Memory Card	To be linked with a part in memory card mode	Memo Pad	To be linked with a part in memo pad mode	Table Data	To be linked to entry mode when using a table data display as an entry target in entry mode	Digital Switch	To be used for creating a digital switch part	Video	To be linked with the video function	JPEG	To be used for calling or deleting a JPEG file	Recipe	To be linked with the recipe function
Standard	To be used by itself																				
Entry	To be linked with a part in entry mode																				
Sample	To be linked with a part in sampling mode																				
Memory Card	To be linked with a part in memory card mode																				
Memo Pad	To be linked with a part in memo pad mode																				
Table Data	To be linked to entry mode when using a table data display as an entry target in entry mode																				
Digital Switch	To be used for creating a digital switch part																				
Video	To be linked with the video function																				
JPEG	To be used for calling or deleting a JPEG file																				
Recipe	To be linked with the recipe function																				

\*1 For the [Momentary] and [Momentary W] operations, refer to page 3-13.

## [Momentary] and [Momentary W]

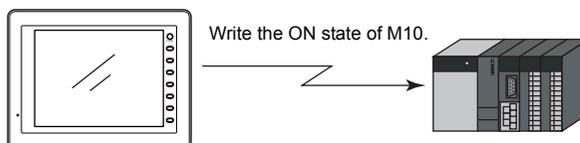
Whether [Momentary] or [Momentary W] is selected, the switch works in the same way in terms of the output action that is performed when the switch is pressed. However, the processing method varies depending on the memory type as described below.

Refer to the Hardware Specifications whether the memory is bit-writable or not.

- For bit-writable memory:

The operation result will be directly written on the bits of [Output Memory] as shown below, regardless of whether [Momentary] or [Momentary W] is chosen.

Example: When [M10] is specified for [Output Memory]:



- For non-bit-writable memory:

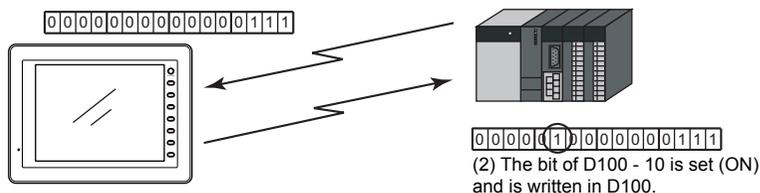
Switch activation is processed in the unit of bits within the V8 series; therefore, if the non-bit-writable memory is specified for [Output Memory], different processing methods are employed depending on the [Momentary]/[Momentary W] selection.

Processing when [Momentary] is chosen:

- (1) One word of [Output Memory] is read.
- (2) The result of [Output Action] is written into one word of [Output Memory].  
(Other bits are kept intact.)

Example: When [D100 - 10] is specified for [Output Memory]:

- (1) Data in D100 is read.



Processing when [Momentary W] is chosen:

The result is directly written into one word of [Output Memory].

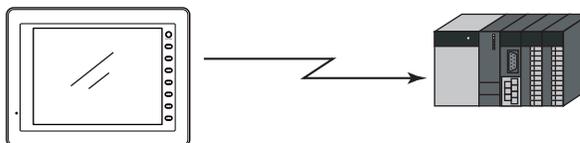
(Other bits are cleared.)

Therefore, a one-word area must be secured for [Output Memory].

Example: When [D100 - 10] is specified for [Output Memory]:

The bit of D100 - 10 is set (ON) and the one word is written entirely.

0000010000000000



For bit-writable memory, you can choose either [Momentary] or [Momentary W]. For non-bit-writable memory, it is recommended to choose [Momentary W] for high-speed processing.

**For matrix touch switches:**

Select [Screen Setting] → [Screen Setting] → [Switch Output], and select [2-Output].

When the output memory is set within the same word for switches of [Momentary W], the two-point output may not be available. Use [Momentary] in such a case. (Refer to “Touch Switch Specifications”: page 3-8.)

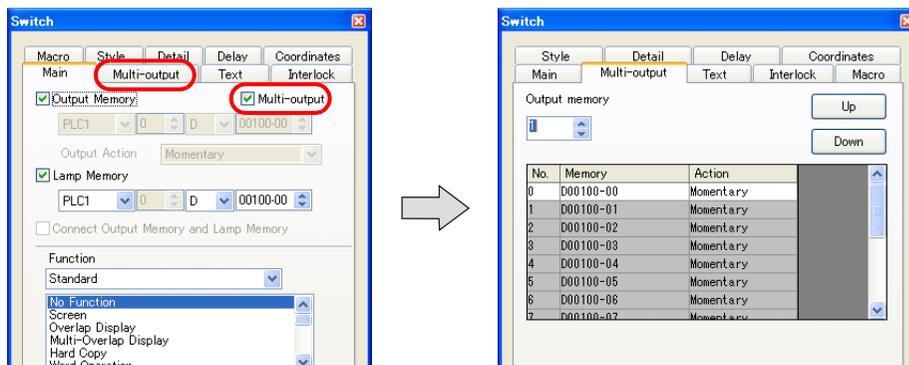
**Others**

The GD-80 series handles switch output in the unit of words as [Momentary W].

Therefore, if data of the GD-80 series is imported, it is recommended to choose [Momentary W].

## Multi-output (New)

- \* The [Multi-output] tab window appears when  Multi-output is checked in the [Main] tab window.



Output memory (1 - 16)	Specify the number of bits to which output operation is to be performed when the switch is pressed. Up to 16 memory addresses can be specified.												
Memory (No. 0 - 15)	Specify as many memory addresses as specified for [Output memory] above. When the internal memory or a memory card is chosen, the processing speed will be faster. <ul style="list-style-type: none"> <li>When the PLC memory is chosen: <p>Depending on whether the specified output memory address is bit-writable or not, the selection for [Output Action] should vary.</p> <p>Refer to the Hardware Specifications whether the memory is bit-writable or not.</p> </li> </ul>												
Action *1	Select the write operation to the output memory. <table border="1"> <thead> <tr> <th>Switch Action</th> <th>Output Processing</th> </tr> </thead> <tbody> <tr> <td>Momentary Momentary W</td> <td>When the switch is held down, the specified bit is set (ON), and when it is released, it is reset (OFF). (Remains ON while the switch is held down)</td> </tr> <tr> <td>Set</td> <td>When the switch is pressed, the specified bit is set (ON). (Remains ON if the switch is released)</td> </tr> <tr> <td>Reset</td> <td>When the switch is pressed, the specified bit is reset (OFF). (Remains OFF if the switch is released)</td> </tr> <tr> <td>Alternate</td> <td>Each time the switch is pressed, the specified bit is alternately set (ON) and reset (OFF).</td> </tr> <tr> <td>Word Operation *2</td> <td>Each time the switch is pressed, one word operation is performed.</td> </tr> </tbody> </table>	Switch Action	Output Processing	Momentary Momentary W	When the switch is held down, the specified bit is set (ON), and when it is released, it is reset (OFF). (Remains ON while the switch is held down)	Set	When the switch is pressed, the specified bit is set (ON). (Remains ON if the switch is released)	Reset	When the switch is pressed, the specified bit is reset (OFF). (Remains OFF if the switch is released)	Alternate	Each time the switch is pressed, the specified bit is alternately set (ON) and reset (OFF).	Word Operation *2	Each time the switch is pressed, one word operation is performed.
Switch Action	Output Processing												
Momentary Momentary W	When the switch is held down, the specified bit is set (ON), and when it is released, it is reset (OFF). (Remains ON while the switch is held down)												
Set	When the switch is pressed, the specified bit is set (ON). (Remains ON if the switch is released)												
Reset	When the switch is pressed, the specified bit is reset (OFF). (Remains OFF if the switch is released)												
Alternate	Each time the switch is pressed, the specified bit is alternately set (ON) and reset (OFF).												
Word Operation *2	Each time the switch is pressed, one word operation is performed.												
Up/Down	The sequence of output memory addresses can be altered. Select the output memory address and click [Up] to move it up or click [Down] to move it down. The output operation is performed in this sequence.												

\*1 For more information on [Action], refer to "List of Functions" (page 3-27).

(For information on [Word Operation], refer to "Word Operation" (page 3-25).)

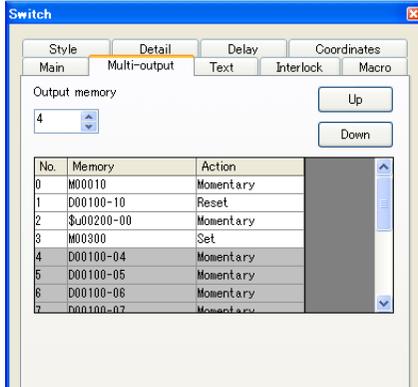
\*2 When [Action: Word Operation] is selected, the setting items for word operation appear.

For more information on these setting items, refer to "Word Operation" (page 3-25).

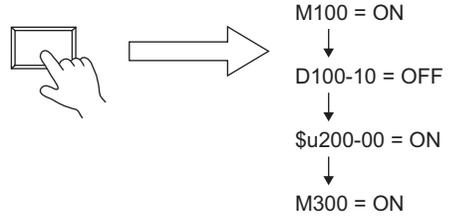
## Multi-output Operation

With  Multi-output] checked, an output operation will be performed to the specified memory addresses from No. 0 when the switch is pressed. The operation performed when the switch is released is also processed in the sequence from No. 0.

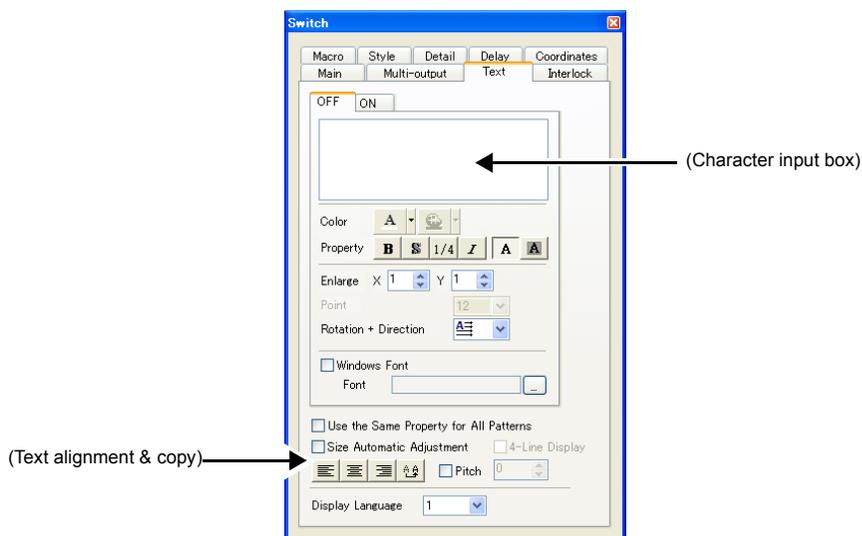
Example: With the settings shown below:



When the switch is pressed, an output operation is performed as shown below:

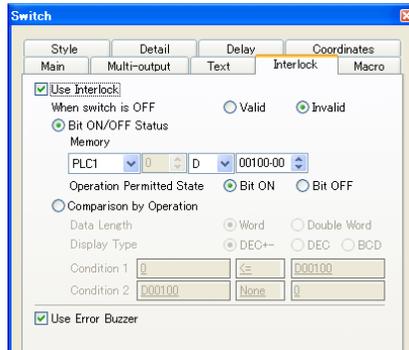


## Text



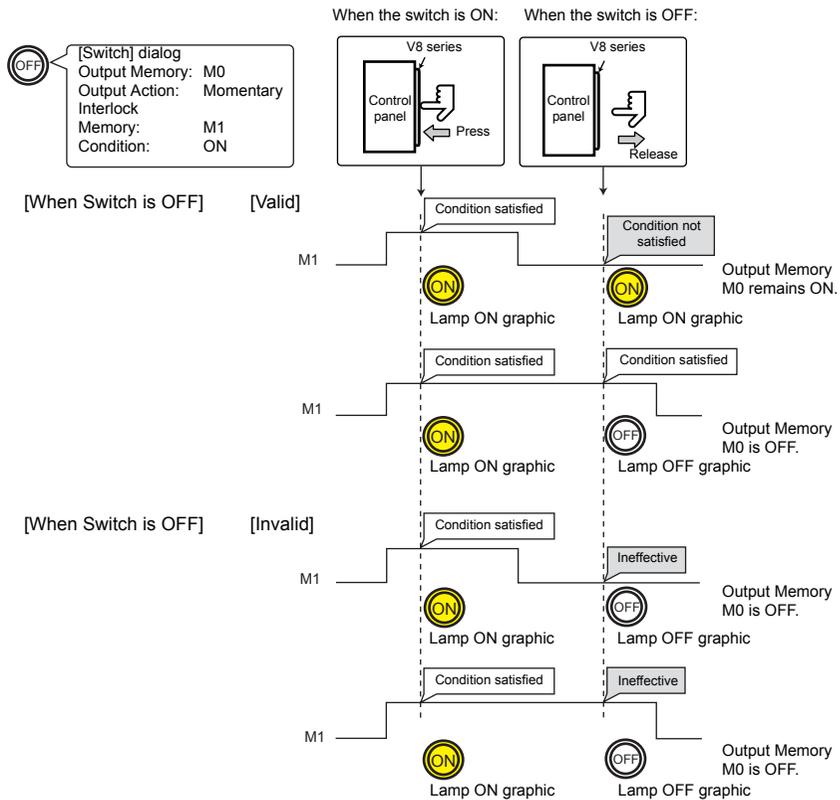
[ON] [OFF] ([P3] ...)	When [XOR] is selected for [Draw Mode] on the [Style] tab window: Only [OFF] can be selected. Specify the text to be displayed.  When [REP] is selected for [Draw Mode] on the [Style] tab window: Text in each pattern can be specified for display. Click each tab and specify the text to be displayed.
(Character input box)	A maximum of four lines of text can be placed on a switch part. Clicking the mouse button on the box brings up a text entry cursor. Text can be justified within the switch part.
Color	For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-4.
Property	
Enlarge	
Point	
Rotation + Direction	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
<input type="checkbox"/> Use the Same Property for All Patterns	When this box is checked ( <input checked="" type="checkbox"/> ) , the text properties for each line are applied to all the patterns.
<input type="checkbox"/> Size Automatic Adjustment	When this box is checked ( <input checked="" type="checkbox"/> ) , the text is automatically adjusted to the largest size of all the patterns.
<input type="checkbox"/> 4-Line Display	For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-4.
(Text alignment & copy)	
<input type="checkbox"/> Pitch	
Display Language	For more information, refer to "Appendix 3 Display Language."

# Interlock

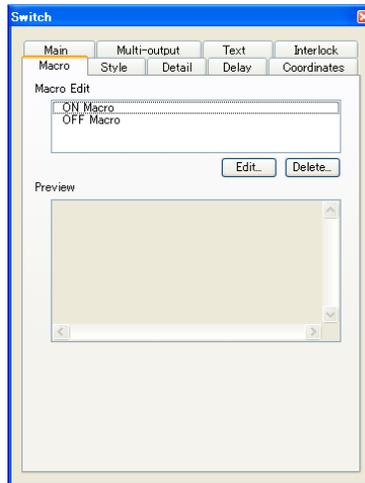


<input type="checkbox"/> Use Interlock	If you want to attach the interlock function to the switch, check this box ( <input checked="" type="checkbox"/> ). The setting items vary depending on the interlock condition.				
When switch is OFF*1 (Valid, Invalid)	This is valid when [Momentary/Momentary W] is selected for [Output Action]. When you remove your finger from the switch (= when the switch is turned OFF), set whether or not the system should determine the condition set below.  Valid: The system determines the condition even when the switch is OFF. If the condition fails, the switch will not be turned OFF even when you remove your finger.  Invalid: The system does not determine the condition when the switch is OFF.				
(Condition)	Set the interlock condition. <table border="1" style="margin-left: 20px;"> <tr> <td>                     Bit ON/OFF Status                 </td> <td>                     Memory                      Set the memory address for interlock.                       Operation Permitted State: Bit ON                      When [Memory] is OFF, switch operation is prohibited.                      When [Memory] is ON, switch operation is allowed.                       Operation Permitted State: Bit OFF                      When [Memory] is OFF, switch operation is allowed.                      When [Memory] is ON, switch operation is prohibited.                 </td> </tr> <tr> <td>                     Comparison by Operation                 </td> <td>                     Data Length                      Set data length of the value used for the condition.                      [Word] / [Double word]                       Display Type                      Set the display type for [Condition 1/2] of the condition.                      [DEC +-] / [DEC] / [BCD]                       [Condition 1/2]                      Set an equal sign, value, and memory address as the condition for comparison.                 </td> </tr> </table>	Bit ON/OFF Status	Memory Set the memory address for interlock.  Operation Permitted State: Bit ON When [Memory] is OFF, switch operation is prohibited. When [Memory] is ON, switch operation is allowed.  Operation Permitted State: Bit OFF When [Memory] is OFF, switch operation is allowed. When [Memory] is ON, switch operation is prohibited.	Comparison by Operation	Data Length Set data length of the value used for the condition. [Word] / [Double word]  Display Type Set the display type for [Condition 1/2] of the condition. [DEC +-] / [DEC] / [BCD]  [Condition 1/2] Set an equal sign, value, and memory address as the condition for comparison.
Bit ON/OFF Status	Memory Set the memory address for interlock.  Operation Permitted State: Bit ON When [Memory] is OFF, switch operation is prohibited. When [Memory] is ON, switch operation is allowed.  Operation Permitted State: Bit OFF When [Memory] is OFF, switch operation is allowed. When [Memory] is ON, switch operation is prohibited.				
Comparison by Operation	Data Length Set data length of the value used for the condition. [Word] / [Double word]  Display Type Set the display type for [Condition 1/2] of the condition. [DEC +-] / [DEC] / [BCD]  [Condition 1/2] Set an equal sign, value, and memory address as the condition for comparison.				
<input type="checkbox"/> Use Error Buzzer	Set whether or not an error buzzer sounds when the switch is pressed while the condition is not satisfied.  <input type="checkbox"/> Use Error Buzzer]:           The buzzer will not sound.  <input checked="" type="checkbox"/> Use Error Buzzer]:           The buzzer will sound.				

\*1 Example: Operations with [When switch is OFF] valid or invalid

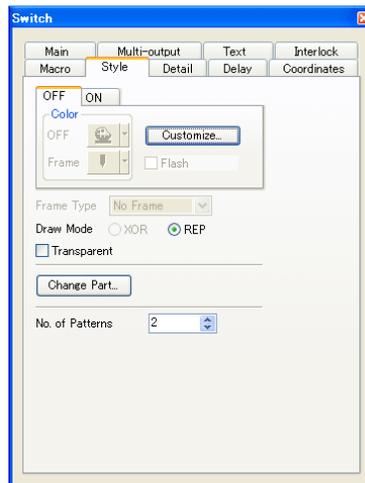


## Macro



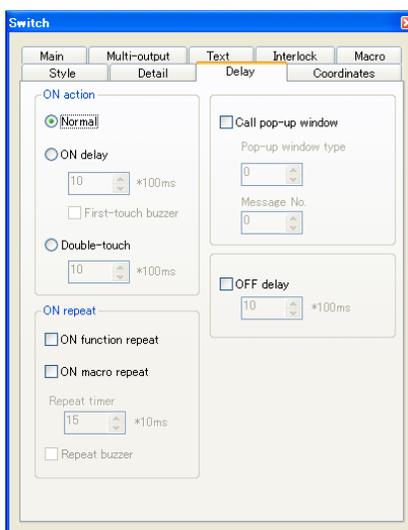
Macro Edit	Set the macros to be executed when the switch is pressed (ON macro) and when it is released (OFF macro). For more information on macros, refer to the Macro Reference Manual.
------------	---

## Style



The setting items are the same as those in the [Lamp] dialog. For more information, refer to “4 Lamp” on page 4-4.

## Delay (New)



ON action  
(Normal, ON delay,  
Double-touch)

The ON delay setting can be made.

Normal	No delay motion is set.
ON delay (10 to 300 × 100 ms)	<p>The switch is activated for the function as specified for <input type="checkbox"/> Output Memory], [Function] and [Macro] when the switch is held down for the time specified.</p> <p><input type="checkbox"/> First-touch buzzer When this box is checked, a buzzer sounds each time the switch is pressed. When this box is unchecked, a buzzer sounds not when the switch is pressed but when the switch is activated after the ON delay time.</p>
Double-touch (10 to 300 × 100 ms)	<p>The switch is activated for the function as specified for <input type="checkbox"/> Output Memory], [Function] and [Macro] when the switch is pressed within the time specified.</p> <p>When the switch is pressed once, the frame of the switch starts blinking. The switch is activated when it is pressed again while blinking. If you press another switch or move to another screen while it is blinking, the switch operation is canceled.</p> <p>* If you display an overlap display while it is blinking, the switch operation continues.</p>

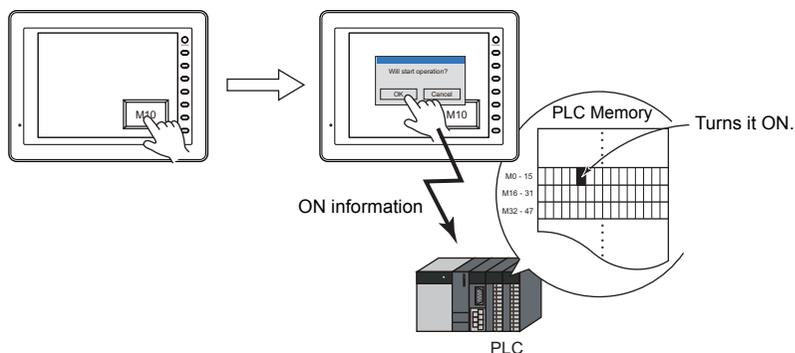
ON repeat *1	<input type="checkbox"/> ON function repeat: When this box is checked, the repeat function is added to the switch function.  <input type="checkbox"/> ON macro repeat: When this box is checked, the repeat function is added to the switch ON macro.  Repeat timer (15 to 150 × 10 ms): When <input type="checkbox"/> ON function repeat] or <input type="checkbox"/> ON macro repeat] is checked, this item automatically becomes active. Specify an interval between repetitions of the function or macro.  <input type="checkbox"/> Repeat buzzer: When <input type="checkbox"/> ON function repeat] or <input type="checkbox"/> ON macro repeat] is checked, this item automatically becomes active. Check this box when you want to sound a buzzer when repeating the function or macro.
<input type="checkbox"/> Call pop-up window	With this box checked, a pop-up window will be displayed automatically when the switch is pressed. For more information, refer to the next section.
<input type="checkbox"/> OFF delay *2	The OFF delay setting can be made. When the box is checked, switch OFF operation (output memory, OFF macro, etc.) will be processed at the conclusion of the specified time after the switch has been released.  * The OFF delay setting can be made to a maximum of eight switches on a single screen.

\*1 If [ON function repeat] is checked and the ON macro repeat function is also set (at \$s64 to 66), the repeat motion of the ON macro will be executed first on pressing the switch.

\*2 When the screen has a switch currently in OFF delay motion, it cannot be switched to another screen (no switch operation acceptable) before the OFF delay motion is completed. Likewise, when an overlap display has a switch currently in OFF delay motion, it cannot be switched or cleared before it is completed.

## Confirmation Pop-up Window

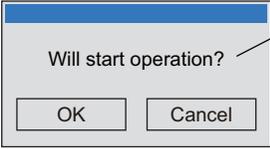
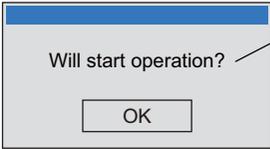
You can set a confirmation pop-up window to be displayed automatically when a switch is pressed.



When [OK] is pressed, the switch is activated for the function as specified for  Output Memory], [Function] and [Macro].

When both [OK] and [CANCEL] are used, pressing [ON] executes the switch function; pressing [CANCEL] closes the confirmation pop-up window without executing the function.

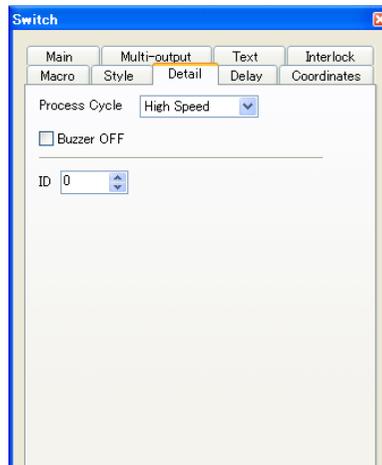
### Setting items

Pop-up window type	<p>Type 0: With [OK] and [CANCEL]</p>  <p>Type 1: With [OK] only</p> 
Message No. (0 - 32767)	<p>The message "Do you want to start?" is shown above as a sample of messages that can be registered freely by the user. (Registration is possible by selecting [Registration Item] → [Message].) Specify the line number (absolute address) of the registered message here.</p> <p>&lt;Displayable message&gt; Only one message number can be specified. (Maximum 32 one-byte characters × 3 lines)</p>

### Note

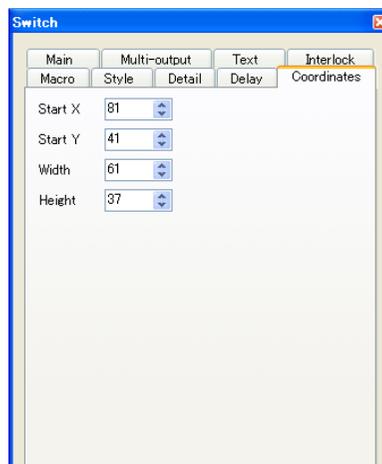
- While a confirmation pop-up window is displayed, no switch operation other than those on the window is acceptable (except for the function switch).
- If you switch the screen while a confirmation pop-up window is displayed, it means the same as pressing [CANCEL].

## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
<input type="checkbox"/> Buzzer OFF	Set whether or not a buzzer is given when the switch is pressed. When this is checked ( <input checked="" type="checkbox"/> ) , no buzzer sounds.
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

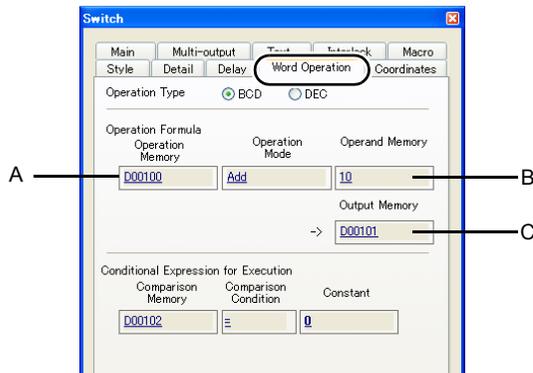
## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates" on page A4-12.

## Word Operation

\* The [Word Operation] tab window appears when [Function: Word Operation] is checked in the [Main] tab window.



Operation Type (BCD, DEC)		This option becomes valid when addition, subtraction, multiplication or division is chosen for [Operation Mode]. Choose BCD (binary coded decimal) or DEC (decimal) for the format for writing into the specified memory.
Operation Memory		Specify the operation memory address. (A in the figure above)
Operand Memory		Specify the operand memory address. (B in the figure above)
Output Memory		This item becomes active in instances other than [Operation Mode: Transfer]. Specify the memory address where the operation result is output. (C in the figure above)
Operation Mode	→ (Transfer)	Operation memory [A] is transferred to operand memory [B].
	+ (Add)	Operation memory [A] and operand memory [B] are arithmetically computed, and its result is written in output memory [C]. In the case of divisions, the quotient is written in output memory [C] and the remainder is written in [C + 1].
	- (Subtract)	
	× (Multiply)	
	× (Divide)	
	∩ (OR)	Operation memory [A] and operand memory [B] are logically computed, and its result is written in output memory [C].
	∪ (AND)	
@ (XOR)		
Comparison Condition	None	Set the condition for executing word operation. Operation is executed when the switch is pressed.
	=, ≠	Set the condition for executing word operation. When the condition is metWord operation is executed. When the condition is not metWord operation is not executed.
	<, >	
	≤, ≥	
Comparison Memory		Specify the memory address that stores a comparator.
Constant		Specify a constant.

---

## Example of Use

---

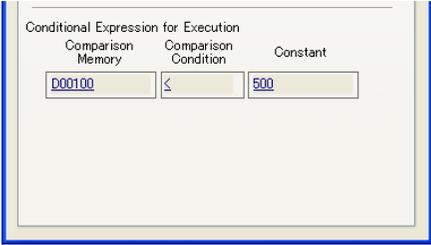
Comparison Condition:<

Comparison Memory: D100

Constant : 500

(Expression of Conditions)= [Comparison Memory] [Comparison] [Constant]  
= D100 < 500

When data in D100 is less than "500", operation is executed.



Conditional Expression for Execution

Comparison Memory	Comparison Condition	Constant
D00100	<	500

### Notes

- If the value in output memory [C] is changed by an external command, the latter value has priority.
- MONITOUCH processes operations in the following order:
  1. Data is read out from [Operation Memory] and [Operand Memory].
  2. Arithmetic operation is processed.
  3. The result is written into [Output Memory].

## 3.4 Basic Function of Switches

### List of Functions

The contents of each function are shown below.

When nothing is entered under the “Linked Part” column, the switch activates alone. When something is entered, the switch will not work unless a link is established with a corresponding part. For more information, refer to the relevant pages.

#### Standard

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
No Function	–	–	–
	Activation of the specified bit in memory		
Screen	Screen No.	–	page 3-34
	Screen shift to the specified screen		
Overlap Display	Overlap ID Action setting (ON, OFF, ALT, ICON)	–	page 3-36
	Control of normal/multi-overlap display		
Multi-Overlap Display	Overlap ID, overlap library number, display position	–	page 3-37
	Multi-overlap control		
Hard Copy	–	–	page 3-35
	Print-out of the currently displayed screen image		
Word Operation	[Word Operation] tab window	–	page 3-25
	Operation of memory data		
+ Block	–	Message mode Graphic mode Data block area Alarm logging Data sampling Trend sampling Alarm tracking Memory card mode Memo pad JPEG display	page 6-1 page 11-2 page 15-1 page 10-39 page 9-30 page 9-14 page 10-21 page 15-6 page 15-26 page 14-64
	Display of block numbered one greater (+1)		
– Block	–	Message mode Graphic mode Data block area Alarm logging Data sampling Trend sampling Alarm tracking Memory card mode Memo pad JPEG display	page 6-1 page 11-2 page 15-1 page 10-39 page 9-30 page 9-14 page 10-21 page 15-6 page 15-26 page 14-64
	Display of block numbered one less (–1)		
Roll Up	–	Bit order alarming Relay-sub Message mode Alarm logging Data sampling Trend sampling Time order alarming Alarm tracking Memory card mode	page 10-1 page 10-15 page 6-1 page 10-39 page 9-30 page 9-14 page 10-55 page 10-21 page 15-6
	Scrolling upward		
Roll Down	–	Bit order alarming Relay-sub Message mode Alarm logging Data sampling Trend sampling Time order alarming Alarm tracking Memory card mode	page 10-1 page 10-15 page 6-1 page 10-39 page 9-30 page 9-14 page 10-55 page 10-21 page 15-6
	Scrolling downward		
Block Call	Block number	Message mode Data block area Graphic mode Memo pad	page 6-1 page 15-1 page 11-2 page 15-26
	Change of the block displayed		

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Mode	Display order	Bit order alarming Message mode Time order alarming	page 10-1 page 6-1 page 10-55
	Display of corresponding messages		
Item Select	–	Entry mode	page 7-1
	Entry selection switch if data is placed in the same switch		
Return	–		page 3-34
	Return to the previous screen		
Reset	–	Alarm logging Data sampling Trend sampling Alarm tracking	page 10-39 page 9-30 page 9-14 page 10-21
	Clear in sampling buffer		
Occupy	–	–	page 3-35
	Communication of 1:1 (only available with multi-link)		
CF Card Format (Buffer)	–	–	page 18-1
	Sampling file format in the CF card		
CF Card Removal	–	–	page 18-1
	Switch that stops access to the CF card		

## Entry

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Character Input	–	Entry mode (DELETE key available for alarm tracking)	page 7-1
	Entry of text placed on switches		
Write	–		
	Write of entry data into memory		
Clear	–		
	Clear of entry		
Toggle Sign	–		
	Inverse of entered sign (for numeric input)		
Space	–		
	Entry of one-byte space (for character input)		
Backspace	–		
	Backspace (for character input)		
DELETE	–		
	Deletion of one character the cursor is sitting over (for character input)		
+1	–		
	Increase by one the number the cursor is sitting over (for numeric input)		

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
-1	-	Entry mode	page 7-1
	Decrease by one (-1) the number the cursor is sitting over (for numeric input)		
Add	Value to be added		
	Addition of the specified value to the numerical display data the cursor is sitting over		
Subtraction	Value to be subtracted		
	Subtraction of the specified value from the numerical display data the cursor is sitting over		
Cancel	-		
	Reset to the default state during input operation		
LFT	-		
	Move of cursor to the right (for character input)		
RGT	-		
	Move of cursor to the left (for character input)		
UP	-		
	Move of cursor to the previous option (-1)		
DW	-		
	Move of cursor to the previous option (+1)		
<<	-		
	Move to the following screen page (+1)		
>>	-		
	Move to the previous screen page (-1)		
Conversion of Kanji	-		
	Selection of Kanji mode		
Graphic Library	Graphic library (GNo., No.)		
	Change of characters by reading a graphic library		
80 Compatible HEX Key	To be used for data converted from the GD80 series Refer to the File Conversion Manual.		
80 Compatible HEX Key Change			
Max. Value Entry	-	Entry mode	page 7-1
	Display of the maximum value in the entry display position		
Min. Value Entry	-		
	Display of the minimum value in the entry display position		

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Multi-char. Input	–	Entry mode	page 7-1
	Switching text on the switch		
Switching	Entry Mode Change		
	Switching entry mode (when the Japanese conversion function is used)		
Switching	(1-byte/2-byte Char. Change)		
	Switching between one-byte and two-byte characters (when the Japanese conversion function is used)		
Switching	Caps Lock		
	Switching between uppercase and lowercase characters (when the Japanese conversion function is used)		
Direct Input	–		
	Direct input (when the Japanese conversion function is used)		
Word Edit	–		
	Registered word edit (when the Japanese conversion function is used)		
Word Registration	–		
	New word registration (when the Japanese conversion function is used)		
Char. Switching (+)	–		
	Switching character entry switch + 1		
Char. Switching (–)	–		
	Switching character entry switch – 1		

## Sample

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Graph Return	–	Alarm logging	page 10-39
	Return to the latest sampling data	Data sampling Trend sampling Alarm tracking	page 9-30 page 9-14 page 10-21
Display Change-over	–	Alarm logging	page 10-39
	Display change by bit ON/OFF	Alarm tracking	page 10-21
Print	–	Alarm logging	page 10-21
	Print of sampling buffer data	Data sampling	page 9-30
Change Display Order	–	Alarm logging	page 10-39
	Display order change of occurrences to begin with the oldest or to begin with the newest	Time order alarming Alarm tracking	page 10-55 page 10-21

## Memory Card

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
File Select	–	Memory card mode	page 15-6
	File selection available from the list		
Record Select	–		
	Record selection available from the list		
Card Number Edit	Overlap Library No.		
	Edit mode available with the specified multi-overlap display shown		
Card Name Edit	Overlap Library No.		
	Edit mode available with the specified multi-overlap display shown		
File Name Edit	Overlap Library No.		
	File edit mode available with the switch lit		
Record Name Edit	Overlap Library No.		
	Record edit mode available with the switch lit		
Card Format	–		
	Formatting of memory cards		
Transfer Card -> PLC	–		
	Transfer of the selected record to PLC		
Transfer PLC -> Card	–		
	Transfer of the selected record from PLC		

## Memo Pad

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Pen Color	Pen color	Memo pad	page 15-26
	Pen color selection		
Pen Size	Pen thickness (1 dot, 2 × 2 dots)		
	Pen thickness selection		
Line	–		
	Straight line		
Delete Area	–		
	Deletion of the memo pad in the selected area		
Delete All	–		
	Deletion of all memo pads on the screen		

## Table Data Display

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Cursor Movement to Right	–	Entry mode (Table data display)	page 7-1
	Cursor movement to the right within the table		
Cursor Movement to Left	–		
	Cursor movement to the left within the table		
Table Move +	–		
	Table movement in the positive direction		
Table Move –	–		
	Table movement in the negative (–) direction		

## Digital Switch

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Digital Switch +	Target digits (1 to 17)	Numerical data display (Digital switch)	page 3-38
	Increment of the selected digit by one (+1)		
Digital Switch –	Target digits (1 to 17)		
	Decrement of the selected digit by one (–1)		
Digital Switch Sign Inversion	–		
	Inverse of the sign for numerical data display		

## Video

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Pause	Channel (Auto, CH1, CH2, CH3, CH4)	Video item	page 14-23
	Pausing of the video display that is linked		
Restart	Channel (Auto, CH1, CH2, CH3, CH4)		
	Pausing cancel of the video display that is linked		

## JPEG

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
File Delete	–	Video item Recipe mode	page 14-23 page 13-1
	Deletion of JPEG file currently displayed or recipe file currently selected		
File Call	JP / VD (0 to 32767)	Video item JPEG Display	page 14-23 page 14-64
	Call of the JPEG file with the specified number		
JPEG Search	Increment/Decrement (-32767 to 32767)		
	Setting of an increment for JPEG file selection		

## Recipe

Name	Auxiliary Setting Item	Linked Part	See:
	Contents		
Folder Select	Folder name	Recipe mode	page 13-1
	Memory designation		
File Select	File name		
	Memory designation A specified file name or a string in the memory address specified for [Command Memory] is displayed on the switch automatically.		
Edit	—		
	Press on the data or name to be edited.		
Recipe Display	Display order 0 - 23		
	CF card folders, CSV file names, and record names are displayed on switches.		

## Switch Function Examples

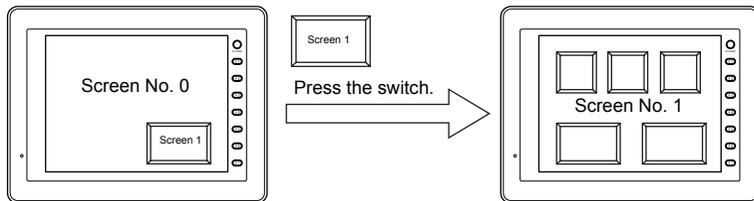
### To Switch the Screen (= Screen, Return)

#### Setting Item

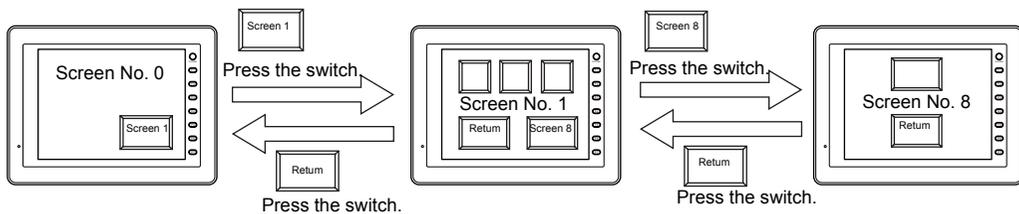
Switch Function	Auxiliary Setting Item	Details
Screen	Screen No.	The screen of the specified screen number is displayed.
Return	-	The screen that was displayed immediately previously is displayed again. You can go up to 8 screens back. However, it is not possible to return to a screen that was changed and displayed externally.

#### Example of use

- [Function: Screen, screen No. 1]



- [Function: Return]



#### Notes

- When the screen display reverts, the initial screen state is displayed, that is, the state when no scrolling nor block change has been specified.
- When the screen display is changed, all the switches and switch outputs should be turned OFF. This is to prevent accidental activation of any switch that may be caused by inadvertent contact with the screen.
- It is possible to change the screen display without using the switch function but using an external command from the PLC.

For information on the screen shift command from the PLC, refer to "1 System Setting."

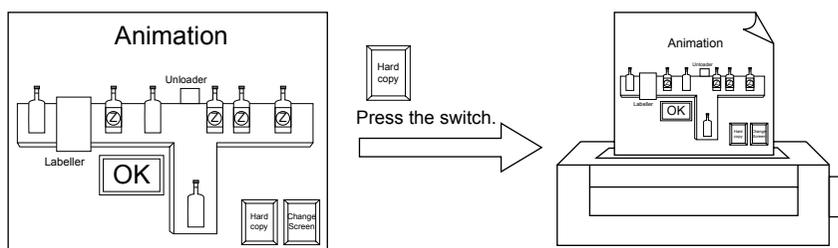
## To Print out the Screen Display (= Hard Copy):

### Setting item

Switch Function	Auxiliary Setting Item	Details
Hard copy	—	The image of the screen currently being displayed is printed. Even during printing, operations on the screen are performed normally.

### Example of use

[Function: Hard Copy]



### Notes

When the screen is printed with the [Function: Hard Copy] switch, that switch is also printed out.  
If you do not want to print out the switch, use a way to print using an external command.  
For more information on printing using an external command, refer to “1 System Setting.”

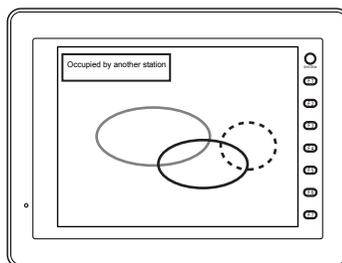
## Occupy

### Setting Item

Switch Function	Auxiliary Setting Item	Details
Occupy <sup>*1</sup>	—	When multiple MONITOUCHs are communicating with one PLC (n:1), pressing the [Occupy] switch limits the communication between one MONITOUCH and the PLC (1:1). Other MONITOUCHs are stopped.

\*1 When “multi-link” is set for connection with the PLC, [Occupy] can be selected for [Function] of the switch.

### Example of use



### Notes

Pressing the [Occupy] switch lights up the lamp in the switch.  
(This lamp lights up even when [Lamp Memory] is set.)  
Pressing the [Occupy] switch again resets the condition, and the lamp in the switch goes off.  
Communications are started between one PLC and multiple MONITOUCHs again.

## Showing Normal Overlap Display (= Overlap Display)

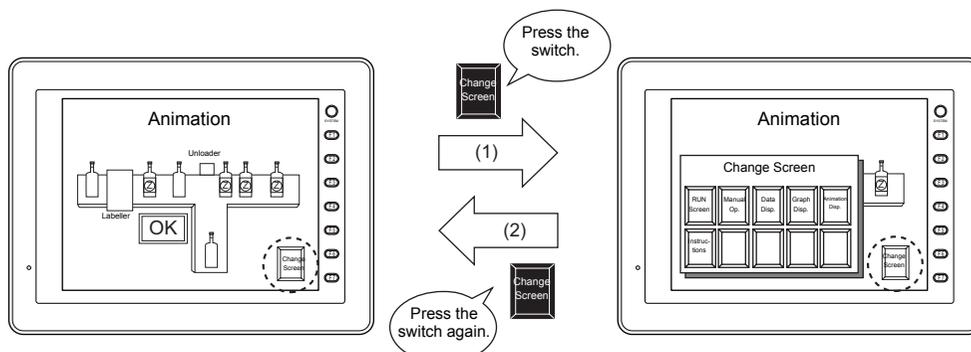
### Setting item

Switch Function	Auxiliary Setting Item	Details	
Overlap display	Overlap ID	A maximum of three overlap displays can be shown on one screen. Set [Overlap ID] for each [Overlap Display] switch so that you can determine which switch acts for which overlap display.	
	Action	ON	The overlap display of the specified ID is shown.
		OFF	The overlap display of the specified ID is cleared.
		ALT	When the switch is pressed once, the overlap display of the specified ID is shown, and when pressed again, it is cleared.
	ICON	Switch move mode <ul style="list-style-type: none"> <li>Pressing the switch once makes the frame flash. When the switch is flashing, the switch move mode is in effect.</li> <li>Pressing a position on the screen while the switch is flashing moves the switch to the pressed position. If part of the switch extends off the screen, the V8 series automatically adjusts the position.</li> <li>When the switch is pressed again, the switch move mode is canceled.</li> </ul> Overlap display <ul style="list-style-type: none"> <li>Pressing the switch twice erases the switch, and the overlap display of the specified ID is shown.</li> <li>When the overlap display of the specified ID has been cleared, the switch is displayed again.</li> <li>If the overlap display is equipped with the system button ([<input checked="" type="checkbox"/> Use System Button]), pressing the top left corner of the overlap display twice (*1) clears the overlap display from the screen.</li> <li>If [<input type="checkbox"/> Use System Button] is not checked, create a [Function: Overlap Display = OFF, overlap OD] switch. This switch is used to clear the specified overlap display.</li> </ul>	

\*1 When pressing a switch twice, be sure to do so within 1 second. Tap it twice rhythmically.

### Example of use

[Function: Overlap Display = ALT]



To transmit the information that the switch was pressed to the PLC while the overlap display is shown, set [Output Memory] to the [Function: Overlap Display = ON] switch. Select from [Momentary W], [Set] and [Alternate] for [Output Action].

## Notes

- There are three types of overlap display formats: normal overlap, call-overlap and multi-overlap. The [Function: Overlap Display] switch is used for showing a normal overlap display or call-overlap display. To show a multi-overlap display, refer to the next section.
- It is also possible to bring up an overlap display without using the switch function but using an external command from the PLC. To show an overlap display using an external command, refer to “1 System Setting.”

## Showing Multi-overlap Display (= Multi-overlap Display)

### Setting item

Switch Function	Auxiliary Setting Item	Details
Multi-overlap Display	Overlap ID	A maximum of three overlap displays can be shown on one screen. Set [Overlap ID] for each [Overlap Display] switch so that you can determine which switch acts for which overlap display.
	Overlap Library No.	For the multi-overlap format, overlap displays should be created and registered not on the screen, but as overlap libraries. The switch is used to specify the overlap library number to be called.
	<input type="checkbox"/> Display Position *1	When this box is checked ( <input checked="" type="checkbox"/> ) , the overlap display position can be set. When this box is not checked ( <input type="checkbox"/> ) , it is displayed in the same position as it is created for the overlap library.

\*1 For the display position, specify the position of the top left corner of the overlap display. There are two ways to specify the display position.

1) Specifying coordinates

Specify the coordinates of the top left corner of the overlap display to be shown.

2) Specifying with mouse

When you click [Specify with Mouse], the mouse cursor is displayed.



When you click on the desired location on the screen, the MLIB mark is displayed on the screen. This mark represents the top left corner of the overlap display.



## Notes

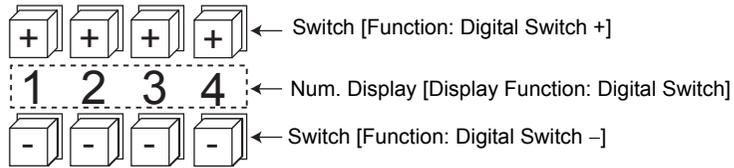
- There are three types of overlap display formats: normal overlap, call-overlap and multi-overlap. The [Function: Multi-Overlap Display] switch is used for showing a multi-overlap display. To show a normal overlap display or a call-overlap display, refer to “2 Overlap.”
- It is also possible to bring up an overlap display without using the switch function but using an external command from the PLC. To show an overlap display using an external command, refer to “1 System Setting.”

## Digital Switch

### Setting item

Switch Function		Auxiliary Setting Item	Details
Digital Switch	Digital Switch +	Target Digit	The selected digit is incremented by one (+1).
	Digital Switch -	Target Digit	The selected digit is decremented by one (-1).
	Digital Switch Sign Inversion	-	The sign is inverted.

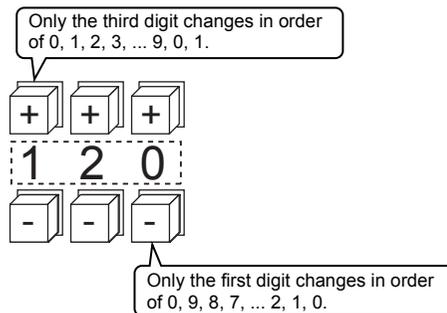
### Example of use



- Switch
  - Switch Function: Digital Switch
  - ID: The same ID as the numerical data display part
- Num. Display
  - Display Function: Digital Switch
  - ID: The same ID as the switch part
  - Moves to Higher/Lower Digits: When this box is checked () , a carry is performed. When this box is not checked () , only the selected digit changes.

<Without a carry>

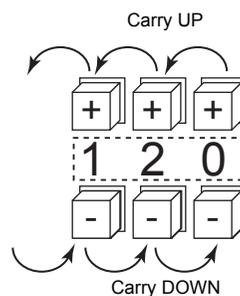
- Without sign or with "+" sign
  - Pressing the [+] key on the first digit changes "129" → "120".
  - Pressing the [-] key on the first digit changes "120" → "129".



- With "-" sign
  - Pressing the [+] key on the first digit changes as shown below.
  - "-008" → "-009" → "000" → "001" → "002"
  - Change the sign using a switch ([Function: Digital Switch Sign Inversion]).

<With a carry>

- Without sign or with “+” sign  
 Pressing the [+] key on the first digit changes  
 “129” → “130”.  
 Pressing the [-] key on the first digit changes  
 “120” → “119”.
- With “-” sign  
 Pressing the [+] key on the first digit changes  
 “-129” → “-128”.  
 Pressing the [-] key on the first digit changes  
 “-129” → “-130”.

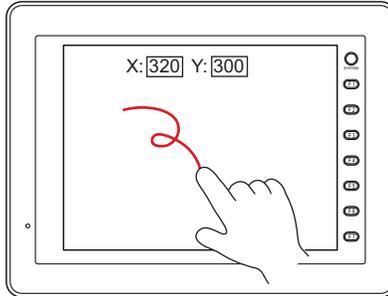


### Notes

- When [Alarm] is selected for [Operation/Alarm], the maximum and minimum values can be set.
- [Word Operation] and [Scaling] can be used.
- If multiple numerical data display parts (function: digital switch) of the same ID exist, the part that is placed first becomes valid.

### 3.5 Switch Coordinate Information

The current touch switch information is output to system memory addresses \$s900 to 902. This information is useful when linking an image processing device.



- \$s900

Touch switch status

15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

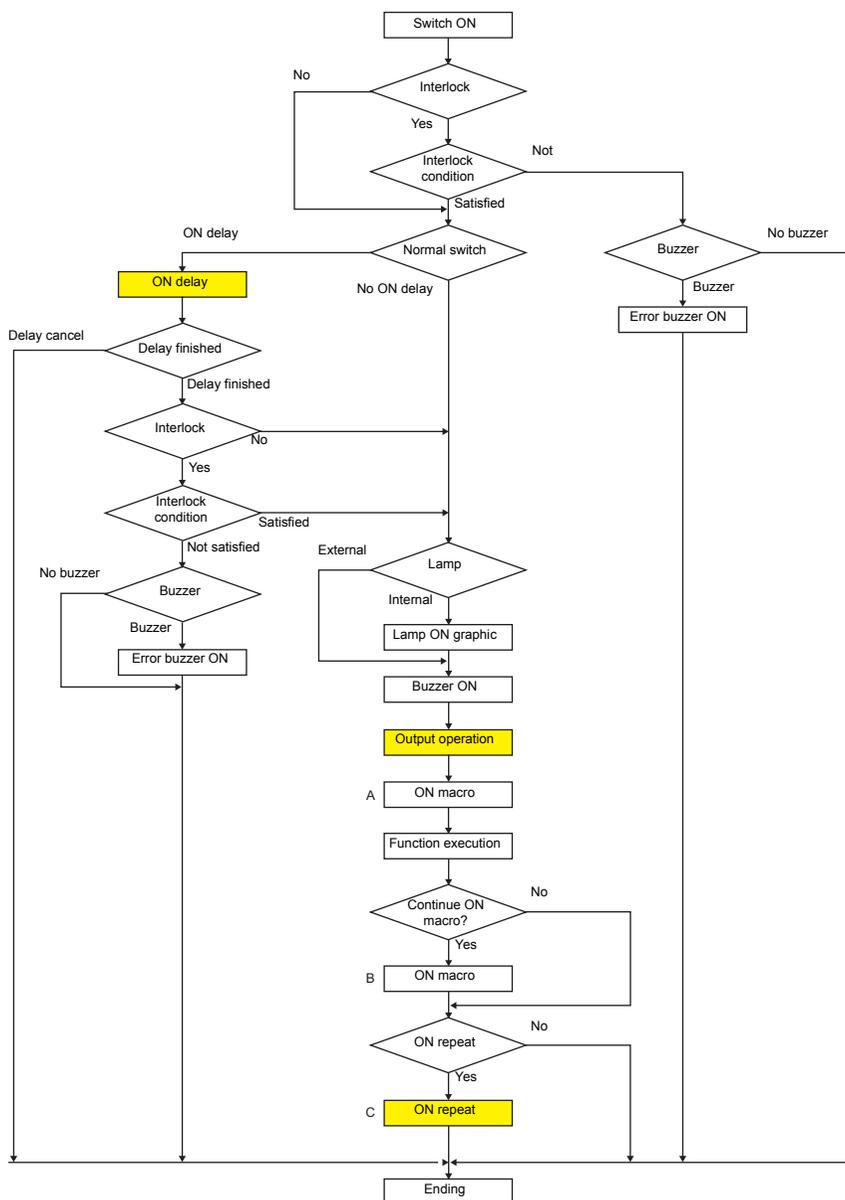
Not used

0: Switch OFF  
1: Switch ON

- \$s901  
X coordinate (absolute)
- \$s902  
Y coordinate (absolute)

## 3.6 Flowchart

### When the Switch Is ON (Pressed):



\*1 [Output Action] or [Macro] should be selected for execution.

\*2 Macro B is started after macro A is finished with "SWRET."

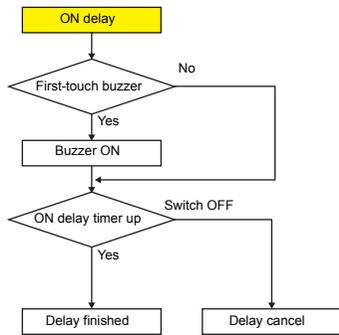
For more information on macro commands, refer to the Macro Reference Manual.

\*3 The switch function is executed after the ON macro is executed. However, the "SET\_SCRN," "SET\_MOVL," "OVL\_SHOW" and "OVL\_POS" commands are executed after the switch function has been executed.

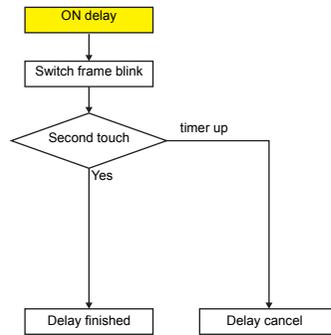
\*4 The motion "C" is repeated until the switch is turned OFF (released).

## ON Delay

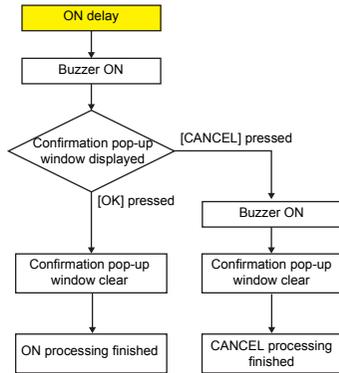
ON delay



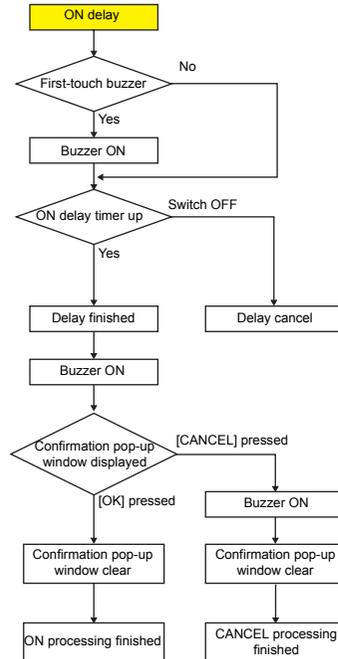
Double-touch



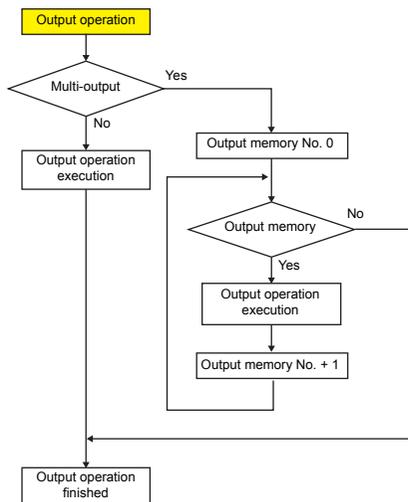
Confirmation pop-up window



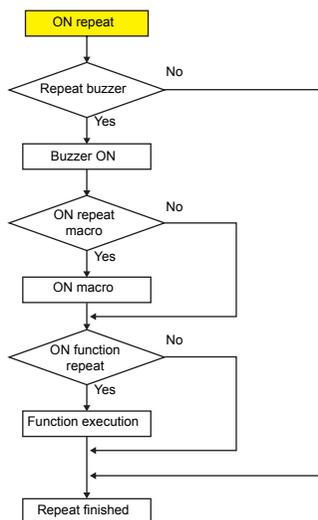
ON delay + confirmation pop-up window



## Output Operation

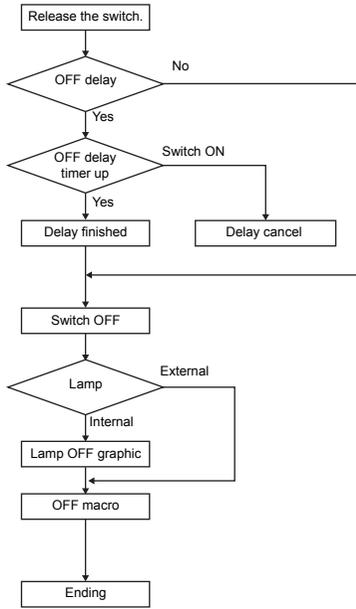


## ON Repeat

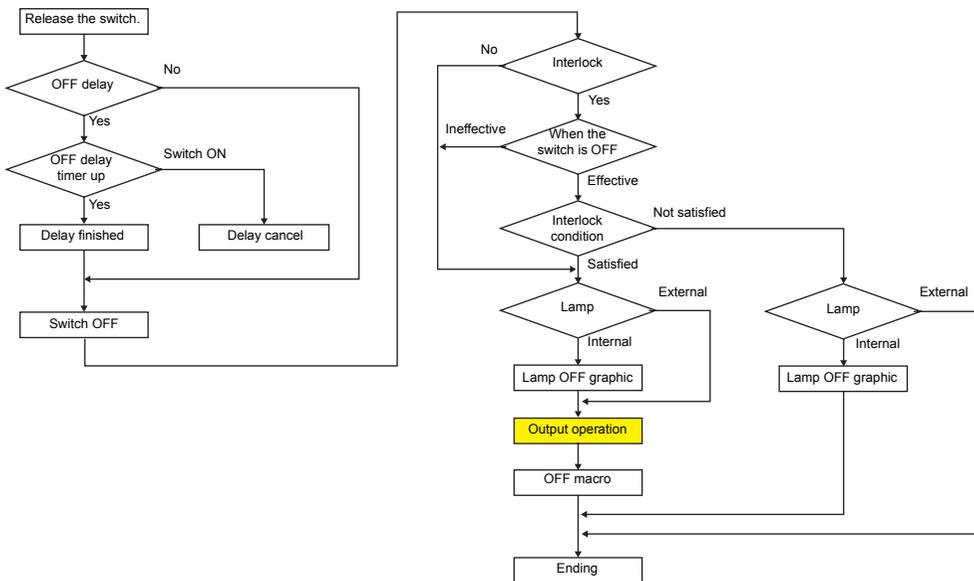


## When the Switch Is OFF (Released):

### Set, Reset, Alternate



### Momentary, Momentary W

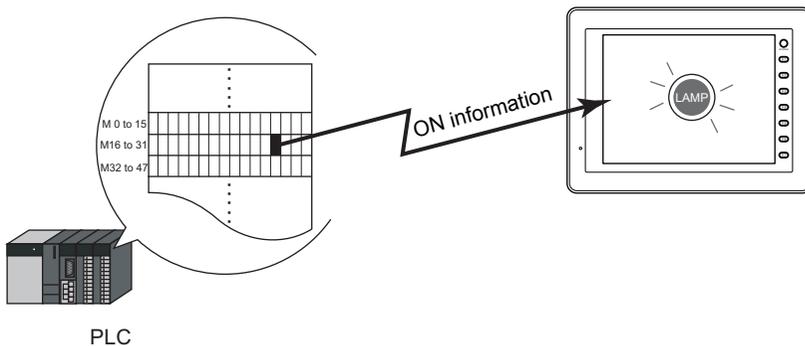


\* For more information on the output operation, refer to “[Momentary] and [Momentary W]” (page 3-13).

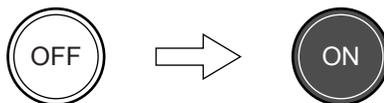
# 4 Lamp

## Overview

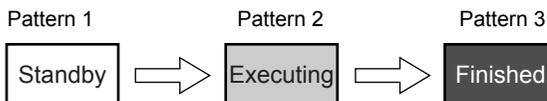
- Lamps are turned on/off in response to bit activation in the PLC.



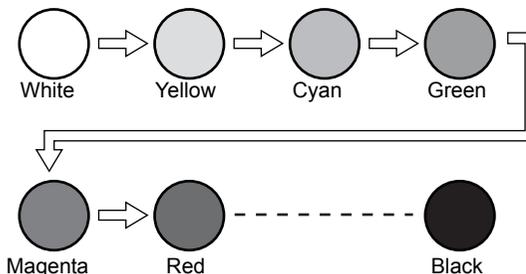
- Lamp colors to be used when a bit is set and reset can be specified. Different text can be displayed when the lamp is turned on and off. (When [REP] is chosen for [Draw Mode])



- It is also possible for one lamp to use three kinds of graphics and colors, such as "Standby" → "Executing" → "Finished." (= 3 patterns, P3)

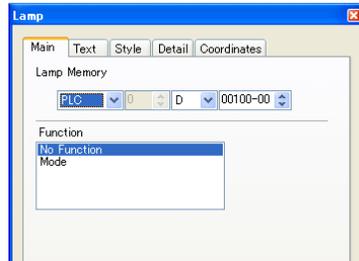


- Likewise, it is possible for one lamp to use max. 16 kinds of graphics and colors (= 16 patterns, [P16]).



# Setting Dialog

## Main



Lamp Memory *1	Specify a memory address for illuminating the lamp. Depending on the number of patterns of the part, the required number of bits vary. The number of patterns can be checked on the [Style] tab window.
Function (No Function, Mode)	<b>No Function:</b> The lamp part works independently irrespective of other parts.  <b>Mode:</b> Messages can be displayed on the lamp part in a link with bit order alarming, time order alarming or message mode. Specify the order in displaying messages [Display Order] on the lamp part as an auxiliary setting item. For more information on bit order alarming and time order alarming, refer to "10 Alarming"; for more information on the message mode, refer to "6 Message."

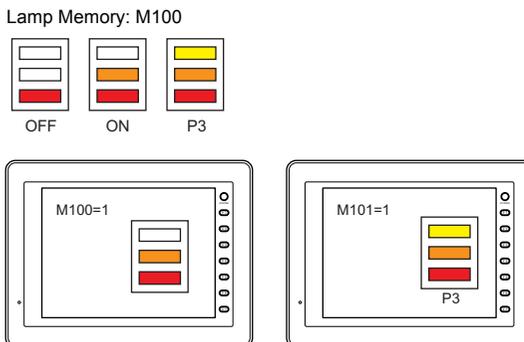
\*1 The relation between [Lamp Memory] and [No. of Patterns] is shown below:

Lamp Memory: n (bits)																No. of Patterns
n+14	n+13	n+12	n+11	n+10	n+9	n+8	n+7	n+6	n+5	n+4	n+3	n+2	n+1	n	Graphic	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	OFF	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	ON	2 patterns
0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	P3	3 patterns
0	0	0	0	0	0	0	0	0	0	0	0	1	-	-	P4	4 patterns
0	0	0	0	0	0	0	0	0	0	0	1	-	-	-	P5	5 patterns
0	0	0	0	0	0	0	0	0	0	1	-	-	-	-	P6	6 patterns
0	0	0	0	0	0	0	0	0	1	-	-	-	-	-	P7	7 patterns
0	0	0	0	0	0	0	0	1	-	-	-	-	-	-	P8	8 patterns
0	0	0	0	0	0	0	1	-	-	-	-	-	-	-	P9	9 patterns
0	0	0	0	0	0	1	-	-	-	-	-	-	-	-	P10	10 patterns
0	0	0	0	0	1	-	-	-	-	-	-	-	-	-	P11	11 patterns
0	0	0	0	1	-	-	-	-	-	-	-	-	-	-	P12	12 patterns
0	0	0	1	-	-	-	-	-	-	-	-	-	-	-	P13	13 patterns
0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	P14	14 patterns
0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	P15	15 patterns
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P16	16 patterns

0: Bit OFF, 1: Bit ON, -: Bit ON/OFF ignored

### Example of display

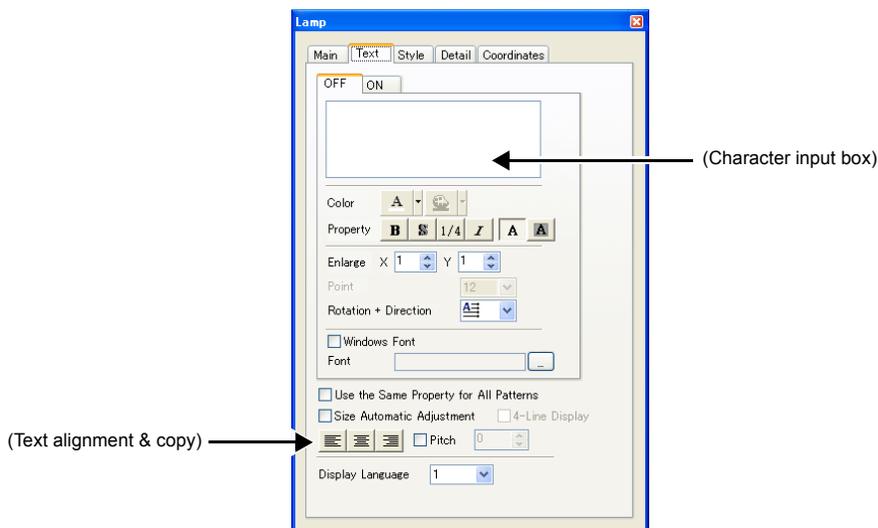
When a 3-pattern lamp shown below is placed:



### Notes

- When the PLC memory is used for [Lamp Memory], set consecutive addresses for speeding the processing.
- If you place multiple lamps having a difference number of patterns on the screen allocating memory in consecutive addresses, carefully make the setting for [Lamp Memory]. The required number of bits varies depending on the number of patterns.

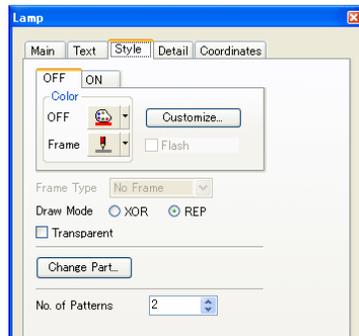
### Text



<p>[ON] [OFF] ([P3]...)</p>	<p>When [XOR] is selected for [Draw Mode] on the [Style] tab window: Only [OFF] can be selected. Specify the text to be displayed.</p> <p>When [REP] is selected for [Draw Mode] on the [Style] tab window: Text in each pattern can be specified for display. Click each tab and specify the text to be displayed.</p>
<p>(Character input box)</p>	<p>A maximum of four lines of text can be placed in one lamp. Clicking the mouse button on the box brings up a text entry cursor. Text can be justified within the lamp part.</p>

Color	For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-4.
Property	
Enlarge	
Point	
Rotation + Direction	
<input type="checkbox"/> Windows Fonts	For more information, refer to the Operation Manual.
<input type="checkbox"/> Use the Same Property for All Patterns	When this box is checked ( <input checked="" type="checkbox"/> ) , the text properties are applied to all the patterns line by line.
<input type="checkbox"/> Size Automatic Adjustment	When this box is checked ( <input checked="" type="checkbox"/> ) , the text is automatically adjusted to the largest size of all the patterns.
<input type="checkbox"/> 4-Line Display (Text alignment)	For more information, refer to "Appendix 4 Styles and Coordinates" on page A4-4.
<input type="checkbox"/> Pitch	
Display Language	For more information, refer to "Appendix 3 Display Language."

## Style

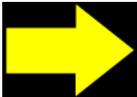


Color/Frame *1	Colors are shown for selection. Depending on the setting for [Draw Mode], the setting items vary. For more information, refer to page 4-7.
Frame Type (No Frame, Type 1, Type 2, Type 3)	This is valid when the selected part file is No. 0000 to 0003 of #32 [2D 2 Pattern] in the file "Parts_Lp_E.V7". It is possible to select part 0 to 3 without opening the part list by pressing the [Change Part] switch.
Draw Mode (XOR, REP)	XOR : When the lamp memory is ON, the frame and text are displayed in the XORed color.  REP : The color selected for [Color] above is shown as is. For more information, refer to page 4-7.
<input type="checkbox"/> Transparent	This setting item becomes active when [REP] is chosen for [Draw Mode]. When this box is checked ( <input checked="" type="checkbox"/> ) , the previous image is completely cleared. For more information, refer to page 4-5.
Change Part	For more information, refer to the Operation Manual.
No. of Patterns (2 to 16)	This is valid when the selected part file is other than No. 0000 to 0003 of #32 [2D 2 Pattern] in the file "Parts_Lp_E.V7". Change the number of patterns.

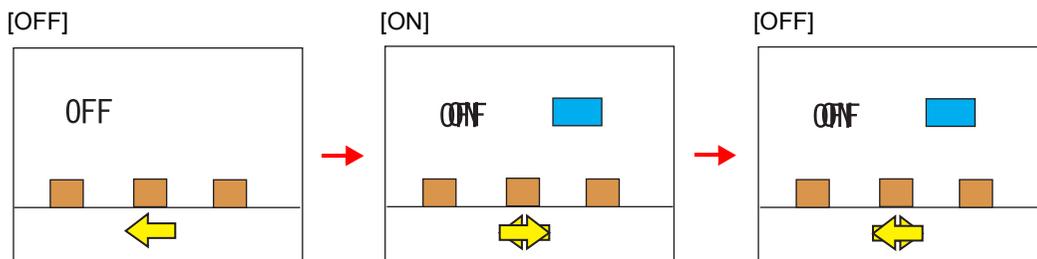
## About transparency

The transparency function is useful to create a part that is displayed only when it is ON or a part consisting of only characters.

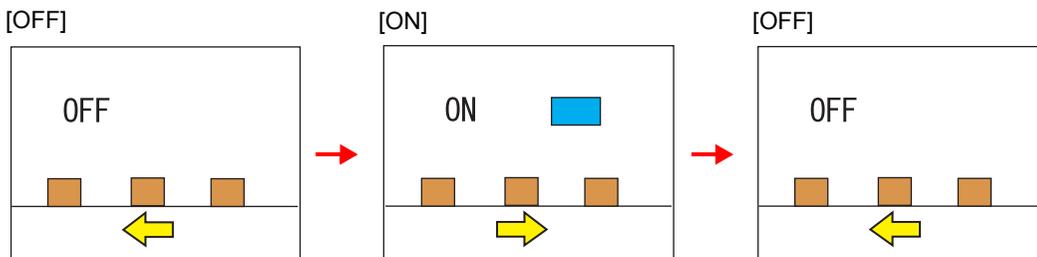
- When a part as shown below is placed on the screen:

	OFF	ON
Part to be displayed only when it is ON	Not displayed 	
Only characters displayed		
Custom parts (Black: transparent color)		

- Unchecked  
The previously displayed image remains.



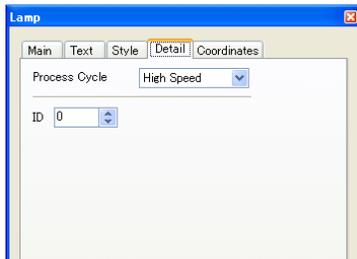
- Checked  
The previously displayed image does not remain. Parts can be displayed appropriately even with graphics placed on the background.



### Notes

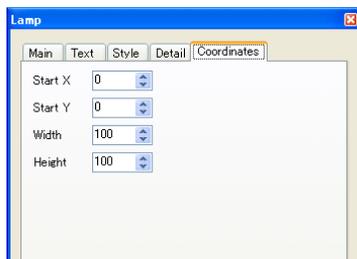
- The [Transparent] setting is not valid for No. 0000 to 0003 in the part files "Parts\_Lp\_E.V7".
- When [Transparent] is checked () for a switch or lamp part, or when [Transparent Color] is checked () for a pattern that is linked in the graphic or graphic relay mode, the switch/lamp or pattern to be displayed on one screen are limited to 128 pieces or 524,288 dots (L × W) in total. For example, when you would like to place as many lamps of H50 × W50 (= 2500 dots) as possible with [Transparent] checked, "209" is calculated based on the dot limitation; however, from the number limitation, it is limited to 128 lamps.

## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



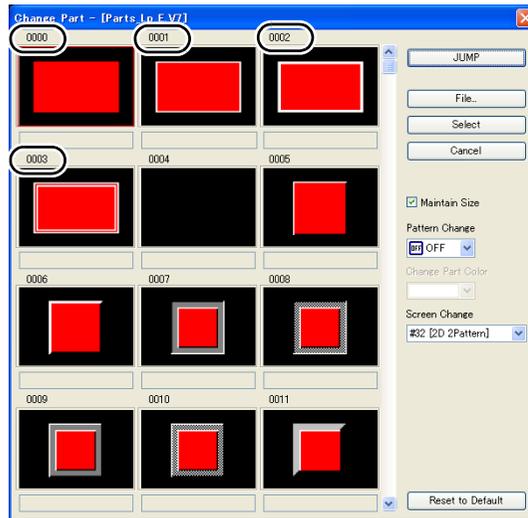
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates" on page A4-12.

## Draw Mode

### XOR

Part file: Parts\_Lp\_E.V7 (No. 0000 to 0003)

(Parts\_Lp\_E.V7)

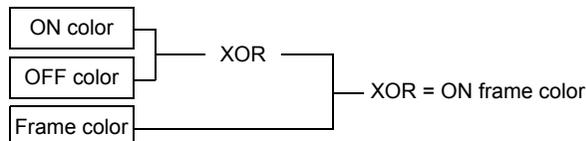


#### Text

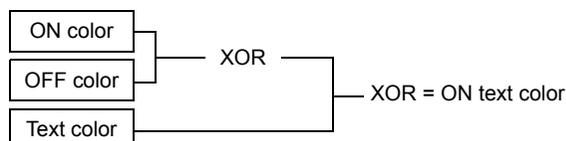
When setting text on a lamp part, the same text is used for both OFF and ON statuses.  
Set "OFF" in the character input box in the [Text] tab window.

#### Color

- OFF frame color / ON color / OFF color  
Select the desired colors in the [Style] tab window. The part is displayed in the selected colors.
- OFF text color  
Select the desired color in the [Text] tab window. The text is displayed in the selected color.
- ON frame color  
It is not possible to select the frame color to be used when the lamp is ON. It is automatically determined by XOR operation.



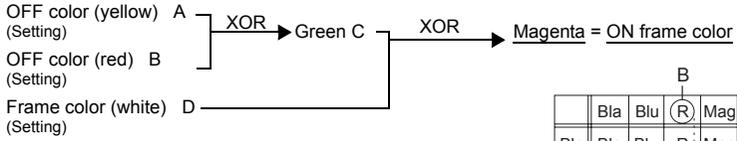
- ON text color  
It is not possible to select the text color to be used when the lamp is ON. It is automatically determined by XOR operation.  
The text displayed when the lamp is ON is the same as that displayed when the lamp is OFF.



- This is the case where text is placed overlapping on a lamp part as shown below.

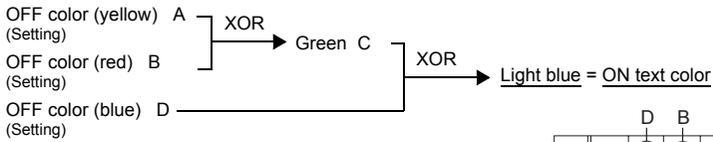
Example of display

- ◆ [OFF color: Yellow]  
 [OFF color: Red]  
 [Frame color: White] The frame color displayed when the lamp is ON:



	Bla	Blu	(R)	Mag	Gre	C	Y	(W)	
	Bla	Bla	Blu	R	Mag	Gre	C	Y	W
	Blu	Blu	Bla	Mag	R	C	Gre	W	Y
	R	R	Mag	Bla	Blu	Y	W	Gre	C
	Mag	Mag	R	Blu	Bla	W	Y	C	Gre
C	(Gre)	Gre	C	Y	W	Bla	Blu	R	(Mag)
	C	C	Gre	W	Y	Blu	Bla	Mag	R
A	(Y)	Y	W	(Gre)	C	R	Mag	Bla	Blu
	W	W	Y	C	Gre	Mag	R	Blu	Bla

- ◆ [OFF color: Yellow]  
 [OFF color: Red]  
 [Text color: Blue] The text color displayed when the lamp is ON:



	Bla	(Blu)	(R)	Mag	Gre	C	Y	W	
	Bla	Bla	Blu	R	Mag	Gre	C	Y	W
	Blu	Blu	Bla	Mag	R	C	Gre	W	Y
	R	R	Mag	Bla	Blu	Y	W	Gre	C
	Mag	Mag	R	Blu	Bla	W	Y	C	Gre
C	(Gre)	Gre	(C)	Y	W	Bla	Blu	R	Mag
	C	C	Gre	W	Y	Blu	Bla	Mag	R
A	(Y)	Y	W	(Gre)	C	R	Mag	Bla	Blu
	W	W	Y	C	Gre	Mag	R	Blu	Bla

---

**Part file: Parts\_Lp\_E.V7 (No. 0004 and later), or other****Text**

When setting text on a lamp part, the same text is used for both OFF and ON statuses.  
Set text in the character input box [OFF] in the [Text] tab window.

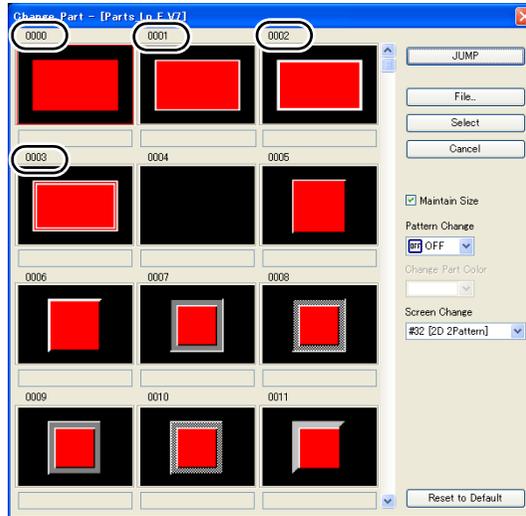
**Color**

- OFF color  
Select the desired colors in the [Style] tab window. The part is displayed in the selected color.
- ON color  
The color specified in the [Style] tab window and the OFF color (explained above) are XORed.
- P3 to P16 color  
As with the ON color, the color specified in the tab window and the OFF color are XORed.
- This is the case where text is placed overlapping on a lamp part as shown below.

## REP

Part file: Parts\_Lp\_E.V7 (No. 0000 to 0003)

(Parts\_Lp\_E.V7)



### Text

When placing text on a lamp part in "REP" draw mode, the following two modes are available.

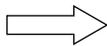
- When displaying different text when the lamp is ON and OFF:

OFF text

Set text in the character input box [OFF] in the [Text] tab window.

ON text

Set text in the character input box [ON] in the [Text] tab window.



The text property can be set as shown.

When the lamp is OFF  
[Char. Prop.: Normal]

When the lamp is ON  
[Char. Prop.: Bold]

- When displaying the same text when the lamp is ON and OFF:

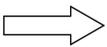
OFF text

Set text in the character input box [OFF] in the [Text] tab window.

ON text

Set nothing in the character input box [ON] in the [Text] tab window.

The text set in the character input box [OFF] is displayed when the lamp is ON.



### Color

- ON frame color, OFF frame color, ON color, OFF color  
Select the desired colors in the [Style] tab window. The part is displayed in the selected colors. The same frame color is used when the lamp is ON and OFF.
- OFF text color  
Set the color for [OFF] in the [Text] tab window.
- ON text color  
Set the color for [ON] in the [Text] tab window. The text is displayed in the selected color.

### Part file: Parts\_Lp\_E.V7 (No. 0004 and later), or other

Almost the same as part No. 0 to 3 (Refer to page 4-10.)

<Different points>

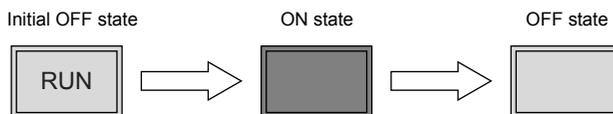
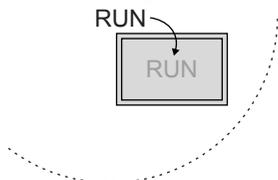
- ON frame color, ON color  
Select the desired colors in the [Style] tab window. The part is displayed in the selected colors. A color different from the OFF frame color can be set.
- For P3 to P16, the selected colors are shown.

### Notes

- When the OFF text color and the ON color are the same, the text cannot be shown when the lamp is turned ON.
- When text is entered as graphics, it is not displayed when the lamp is turned ON.

Once the lamp is turned ON, the text is not displayed even when the lamp is turned OFF unless the screen is changed.

Place text graphics.



The text is not displayed when the lamp is once turned ON.  
The text is displayed by opening the screen again.

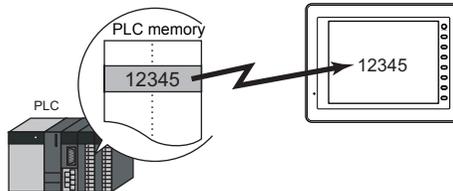


# 5 Data Display

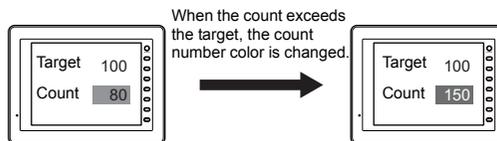
## 5.1 Num. Display

### Overview

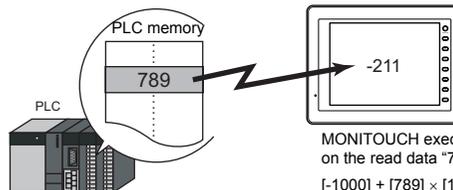
- Numerical data read from PLC is displayed in real time on the MONITOUCH screen in any of the following formats: DEC (w/o sign); DEC (w/ -sign); DEC (w/ +/-sign); HEX (hexadecimal); OCT (octal); BIN (binary) and [Real Number (decimal floating-point)].



- It is possible to show data in a different color when it exceeds or falls short of the specified range. This setting can easily attract the operators' attention to the situation.



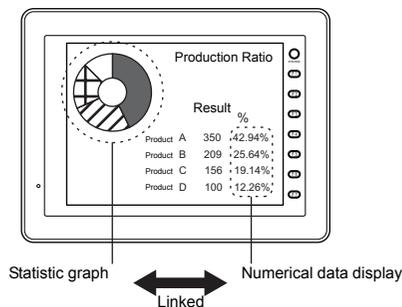
- It is possible to calculate data read from the PLC within MONITOUCH and to display its result on the MONITOUCH screen.



MONITOUCH executes the following calculation on the read data "789" and displays the result.  
 $[-1000] + [789] \times [1] = -211$

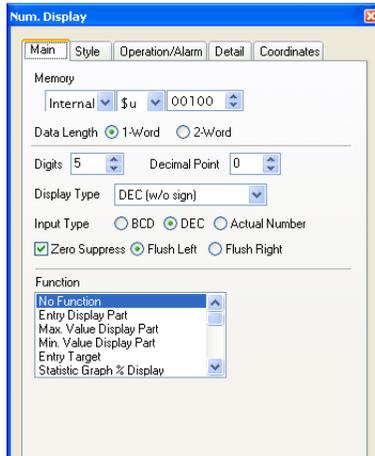
- In addition to using of "numerical data display" ([Num. Display]) independently, it can also be linked with another part.

For example, in order to indicate data as a percent in the statistic graph as shown below, it is necessary to link [Num. Display] with [Statistic Graph]. Then % data automatically reflects changes along with the data in the statistic graph.



# Setting Dialog

## Main



Memory	Specify the address to be used for numerical data display. * This is valid when [No Function], [Entry Target] or [Digital Switch] is set for [Function].															
Data Length <sup>*1</sup>	Choose data length to be occupied for this part. 1 word, 2 words															
Digits <sup>*2</sup>	Specify the number of digits for numerical data display. <sup>*2</sup> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display Type</th> <th>Digits</th> <th>Decimal Point</th> </tr> </thead> <tbody> <tr> <td>DEC</td> <td>1 to 10</td> <td>0 to 9</td> </tr> <tr> <td>HEX</td> <td>1 to 8</td> <td>-</td> </tr> <tr> <td>OCT</td> <td>1 to 11</td> <td>-</td> </tr> <tr> <td>BIN</td> <td>1 to 32</td> <td>-</td> </tr> </tbody> </table>	Display Type	Digits	Decimal Point	DEC	1 to 10	0 to 9	HEX	1 to 8	-	OCT	1 to 11	-	BIN	1 to 32	-
Display Type	Digits	Decimal Point														
DEC	1 to 10	0 to 9														
HEX	1 to 8	-														
OCT	1 to 11	-														
BIN	1 to 32	-														
Decimal Point	Specify the decimal place. When no decimal point is required, set "0".															
Display Type <sup>*1</sup>	Select the format of numbers to be displayed on the screen. DEC (w/o sign), DEC (w/ -sign), DEC (w/ +/- sign), HEX, OCT, BIN (binary)															
Input Type	Choose the code to be used when reading data from the PLC memory address. BCD, DEC, Actual Number <sup>*3</sup>															
<input type="checkbox"/> Zero Suppress	Check this box when using zero suppression.  <div style="margin-left: 40px;"> <input checked="" type="checkbox"/> Zero Suppress (flush right) → <span style="border: 1px solid black; padding: 2px;">  123</span> </div> <div style="margin-left: 40px;"> <input type="checkbox"/> Zero Suppress → 000123         </div> <p style="margin-left: 40px;">When this box is checked, choose either [Flush Left] or [Flush Right].</p> <div style="margin-left: 40px;">           Flush-left → <span style="border: 1px solid black; padding: 2px;">123</span> </div> <div style="margin-left: 40px;">           Flush-right → <span style="border: 1px solid black; padding: 2px;">  123</span> </div>															

Function	Select a function when using the display part linking to it.			
	Function	Attached Data	Linked Item	Refer to:
	No Function	–	–	
	Entry Display Part Max. Value Display Part Min. Value Display Part	–	Entry mode	
	Entry Target	Order INC	–	
	Stat. Graph % Display	Statistic Graph No.	Statistic graph	
	Sampling Count Display Sampling Time Display	–	Trend graph, Data sampling, Alarm logging	
	Memory Card No. Display Memory Card File No. Display Memory Card Record No. Display	–	Memory card mode	
	Sampling Buffer Average Display Sampling Buffer Max. Display Sampling Buffer Min. Display Sampling Buffer Total Display	Sampling Buffer Word No. Sampling Buffer No.	–	
	Digital Switch	Moves to Higher/Lower Digits	Switch	

\*2 Relation between data length and display type

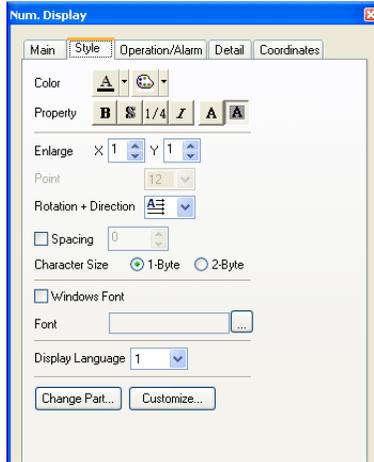
Code	1-word Range	2-word Range
DEC (w/o sign)	0 to 65535	0 to 4294967295
DEC (w/ -sign)	-32768 to 32767	-2147483648 to 2147483647
DEC (w/ ±sign)	-32768 to +32767	-2147483648 to +2147483647
HEX	0 to FFFF	0 to FFFFFFFF
OCT	0 to 177777	0 to 3777777777
BIN (binary)	0 to 1111111111111111	0 to 11111111111111111111111111111111

\*3 When a value exceeding the set number of digits is keyed in:

Model	DEC	HEX/OCT/BIN
Display	Overflow display	Numbers from the right
Example: Data length: 1 word Digits: 3 Entered value: 1010	---	010

\*4 Actual Number (data with decimal floating-point)  
For more information, refer to page 5-9.

## Style

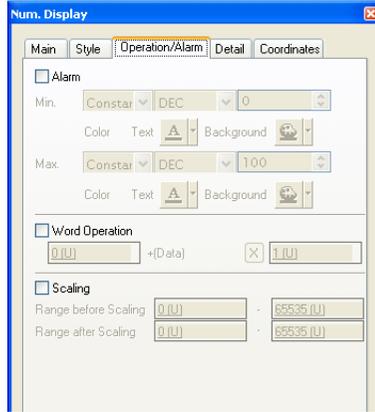


Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Transparent *1	
Enlarge	
Point	
Rotation + Direction	
<input type="checkbox"/> Spacing	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Font	
Character Size	For more information, refer to “Appendix 4 Styles and Coordinates.”
Display Language	For more information, refer to “Appendix 3 Display Language.”
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

\*1 Transparent setting

There are some points to be noted when using the transparent setting for numerical data display. For more information, refer to page 5-34.

## Operation/Alarm



5

<p><input type="checkbox"/> Alarm *1</p> <p>Min.</p> <p>Color</p> <p>Max.</p> <p>Color</p>	<p>Specify a range using a constant or a memory address.</p> <p>Select colors for text and background.</p> <p>Specify a range using a constant or a memory address.</p> <p>Select colors for text and background.</p>
<p><input type="checkbox"/> Word Operation *2</p>	<p>Operation can be performed on the value in the memory address specified for [Memory] on the [Main] tab window.</p> <div style="text-align: center;"> </div>
<p><input type="checkbox"/> Scaling *3</p> <p>Range before Scaling</p> <p>Range after Scaling</p>	<p>Data (Range before Scaling) that the PLC has read is automatically converted into the range (Range after Scaling) that is set. It is possible to eliminate correction program for the data that the PLC has read when displaying temperature, rotation speed, etc.</p> <div style="text-align: center;"> </div> <p>Specify the data to be read from the PLC.</p> <p>Specify the range of data to be shown on MONITOUCH.</p>

- \*1 When [Entry Target] is selected for [Display Function]  
 When the box for [Alarm] is checked, the maximum and minimum values specify the range of numerical data that can be input.  
 For more information on numerical data entry, refer to "7 Entry Mode."

\*2 Word Operation

Example: Data read from PLC is "789".

- [BCD] is chosen for [Input Type], but negative numbers should be indicated.  
 (Negative number in the BCD format does not exist.)  
 Choose either [DEC (w/ -sign)] or [DEC (w/ +/-sign)] for [Display Type].

Offset value	+	(data)	[×]	multiplier	=	data displayed
[0]	+	(789)	[×]	[-1]	=	-789
Or, [-1000]	+	(789)	[×]	[1]	=	-211

- Example of multiplication

Offset value	+	(data)	[×]	multiplier	=	data displayed
[1000]	+	(789)	[×]	[1]	=	1789
[0]	+	(789)	[×]	[100]	=	78900

- Example of division with decimal point

When "2" is entered for [Decimal Point] in the [Type] tab window, "7.89" is read into MONITOUCH.

Offset value	+	(data)	[÷]	divisor	=	data displayed
[0]	+	(7.89)	[÷]	[100]	=	0.0789

Data is rounded down to the decimal place, and "0.07" is indicated.

- Example of division without decimal point

Offset value	+	(data)	[÷]	divisor	=	data displayed
[0]	+	(789)	[÷]	[-100]	=	-7.89

Data is rounded down to the decimal place, and "-7" is indicated.

Offset value	+	(data)	[÷]	divisor	=	data displayed
[200]	+	(789)	[÷]	[100]	=	207.89

Data is rounded down to the decimal place, and "207" is indicated.

Example: When [Word Operation] is selected for [Entry Target] (entry mode):

- The value you enter is displayed (= result of operation).  
 Data stored in the memory address is the source data of operation.

Offset value	+	(data)	[×]	multiplier
[0]	+	(A)	[×]	[100]

Input "100" → 100 = (A) × 100 → (A) = 1

Input "550" → 550 = (A) × 100 → (A) = 5 (Remainder "5" is ignored and "500" is displayed.)

Input "1340" → 1340 = (A) × 100 → (A) = 13 (Remainder "40" is ignored and "1300" is displayed.)

$$\begin{matrix} \text{Offset value} & + & (\text{data}) & [\div] & \text{divisor} \\ [0] & + & (A) & [\div] & [100] \end{matrix}$$

Input "100" →  $100 = (A) \div 100 \rightarrow (A) = 10000$   
 Input "550" →  $550 = (A) \div 100 \rightarrow (A) = 55000$   
 Input "1340" →  $1340 = (A) \div 100 \rightarrow (A) = 2928$  (A word exceeds 5 digits.)

\*3 Scaling

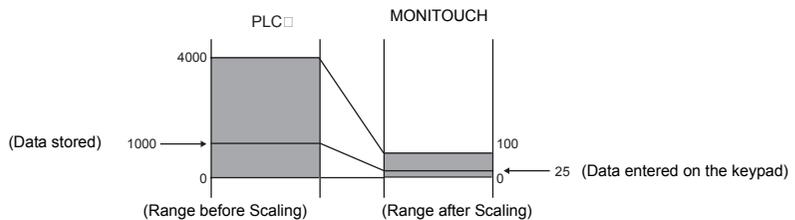
- If data in the PLC memory × the maximum value of [Range after Scaling] is greater than double-word, it cannot be displayed correctly.

- Example: Numerical data display

When data in the PLC memory address D100 is "2000" with [Range before Scaling: 0 to 4,000] and [Range after Scaling: 0 to 100], "50" is displayed on MONITOUCH.

- Example: When [Scaling] is selected for [Entry Target] (entry mode):

When "25" is entered through the keypad with [Range before Scaling: 0 to 4,000] and [Range after Scaling: 0 to 100], "1,000" is written to the PLC memory address D100.

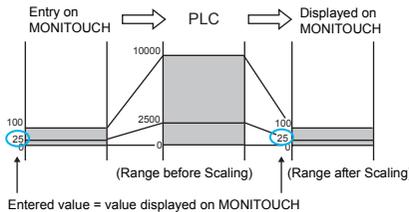


- Notes on the use of entry targets (entry mode)

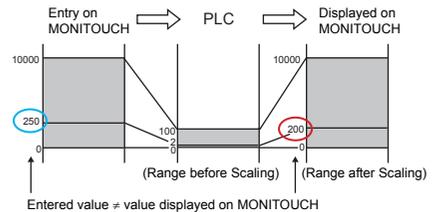
When entry targets are used, some error may arise.

If [Range before Scaling] is greater than [Range after Scaling], the entered value is displayed correctly.

If [Range before Scaling] > [Range after Scaling], the entered value is displayed correctly.



If [Range before Scaling] < [Range after Scaling], the entered value is not displayed correctly.

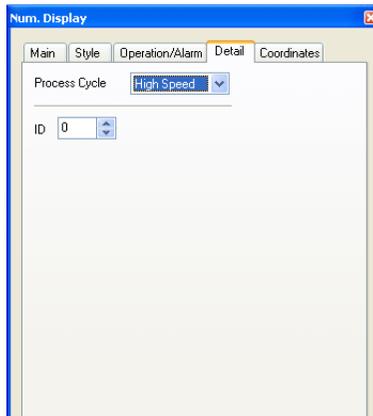


When comparing [Range before Scaling] with [Range after Scaling], remove the decimal point from the display range.

Example: [Range before Scaling: 0 to 10000] and [Range after Scaling: 0.00 to 500.00]

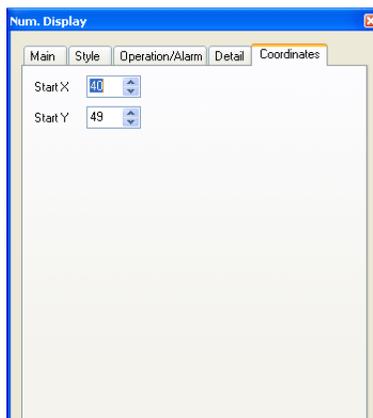
The range after scaling is converted into 0 to 50000, that is, [Range before Scaling] < [Range after Scaling]; therefore, the entered value is not displayed correctly.

## Detail



Process Cycle	For more information, refer to “Appendix 5 Process Cycle.”
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates” on page A4-10.

## Actual Number (Data with Decimal Floating Point)

MONITOUCH can handle real numbers specified by the IEEE754 standards (32-bit single precision real number format).

### Overview

#### About IEEE754 standards (32-bit single precision real number format)

32 bits are defined in the following format.



The format expresses decimal floating-point data as shown below

- Normalized numbers

$$(-1)^s \times 2^{(e-127)} \times (1.f)$$

Symbol	Name	Contents
s	Sign	0: Positive 1: Negative
e	Exponent	0 to 255 * However, if "255" is specified, it cannot be regarded as a decimal floating-point number. If "0" is specified, it is regarded as a denormalized number.
f	Significand	This is a binary fraction less than 1. The final significand can be calculated using the following formula: [1.f] = [1 + f × 2 <sup>-23</sup> ]

- Denormalized numbers (e = 0)

$$(-1)^s \times 2^{-126} \times (0.f)$$

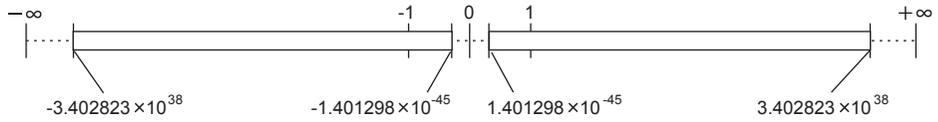
Symbol	Name	Contents
s	Sign	0: Positive 1: Negative
e	Exponent	Since e = 0, the exponent will be "-126".
f	Significand	f ≠ 0 This is a binary fraction less than 1. The final significand can be calculated using the following formula: [0.f] = [f × 2 <sup>-23</sup> ]

**Applicable range**

$$-3.402823 \times 10^{38} \leq n \leq -1.401298 \times 10^{-45}$$

$$1.401298 \times 10^{-45} \leq n \leq 3.402823 \times 10^{38}$$

(Significant digits: approx. 7 (in decimal))



When the value falls in the following conditions, it cannot be handled as a decimal floating-point number.

e = 255, f ≠ 0 (non-numeric)

e = 255, f = 0, s = 0 (+∞)

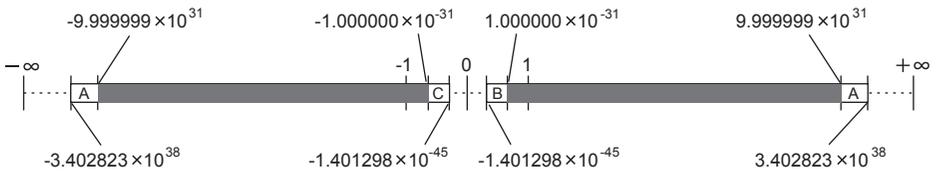
e = 255, f = 0, s = 1 (-∞)

e = 0 (0)

**MONITOUCH display range**

$$-9.999999 \times 10^{31} \leq n \leq -1.000000 \times 10^{-31}$$

$$1.000000 \times 10^{-31} \leq n \leq 9.999999 \times 10^{31}$$



A: Overflow display (- - -)

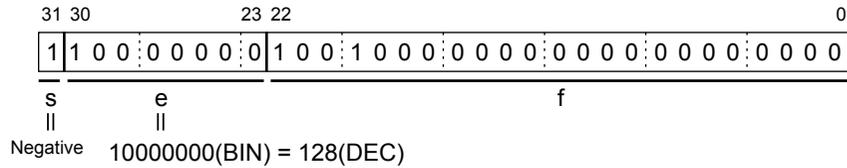
B: 0

C: -0

## Decimal Floating-point Data Example

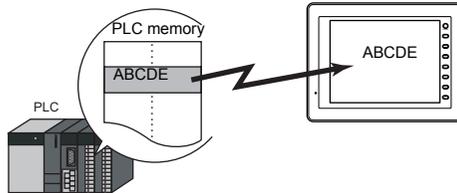
### Example 1

When the following 32-bit data is displayed as decimal floating-point data, it is calculated as shown below.



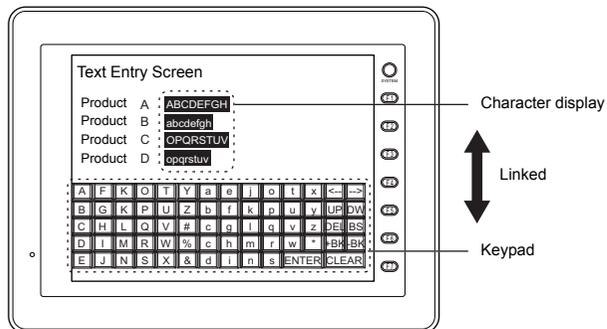
## 5.2 Char. Display Overview

- Data read from the PLC is displayed in the form of characters on the MONITOUCH screen in real time. ANK codes are put into one-byte characters, and Shift JIS codes are put into two-byte characters.



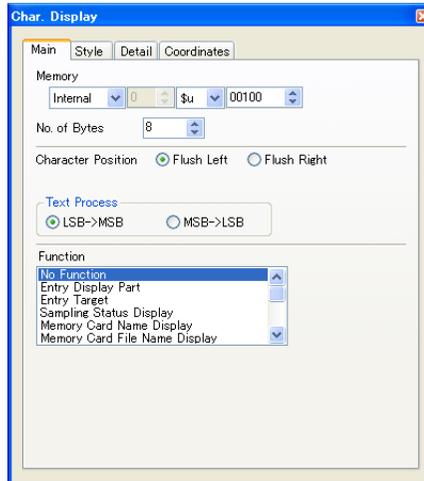
- In addition to using of "character display" ([Char. Display]) independently, it can also be linked with another part.

For example, when a character key set up in [Entry] mode is pressed, the character is entered in the [Char. Display] part specified as "entry target." This is possible by linking [Char. Display] with [Entry] mode.



## Setting Dialog

### Main



Memory <sup>*1</sup>	Specify the address to be used for character display. * This is valid when [No Function], [Entry Target] or [Password Input] is set for [Function].																
No. of Bytes	Specify the number of bytes to be used by this part.																
Character Position	Choose either flush-left or flush-right for character display.  Flush Left → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="padding: 2px 10px;">ABC</td></tr></table> Flush Right → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="padding: 2px 10px;">ABC</td></tr></table>	ABC	ABC														
ABC																	
ABC																	
Text Process (LSB → MSB / MSB → LSB)	Set the recognition of MSB and LSB in one word.  [LSB → MSB] <table style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">15</td><td style="border: 1px solid black; padding: 2px 10px;">MSB</td><td style="border: 1px solid black; padding: 2px 10px;">LSB</td><td style="text-align: center;">0</td></tr><tr><td></td><td style="text-align: center; font-size: small;">2nd byte</td><td style="text-align: center; font-size: small;">1st byte</td><td></td></tr></table>  [MSB → LSB] <table style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">15</td><td style="border: 1px solid black; padding: 2px 10px;">LSB</td><td style="border: 1px solid black; padding: 2px 10px;">MSB</td><td style="text-align: center;">0</td></tr><tr><td></td><td style="text-align: center; font-size: small;">1st byte</td><td style="text-align: center; font-size: small;">2nd byte</td><td></td></tr></table>	15	MSB	LSB	0		2nd byte	1st byte		15	LSB	MSB	0		1st byte	2nd byte	
15	MSB	LSB	0														
	2nd byte	1st byte															
15	LSB	MSB	0														
	1st byte	2nd byte															

Function	Select a function when using the display part linking to it.			
	Function	Attached Data	Linked Item	Refer to:
	No Function	–	–	
	Entry Display Part	–	Entry mode	
	Entry Target	Order INC	–	
	Sampling Status Display	–	Alarm logging	
	Memory Card Name Display Memory Card File Name Display Memory Card Record Name Display	–	Memory card mode	
	Password Input	Password 0 (to 3)	Entry mode	
Recipe Folder Name Display Recipe File Name Display	–	Recipe mode		

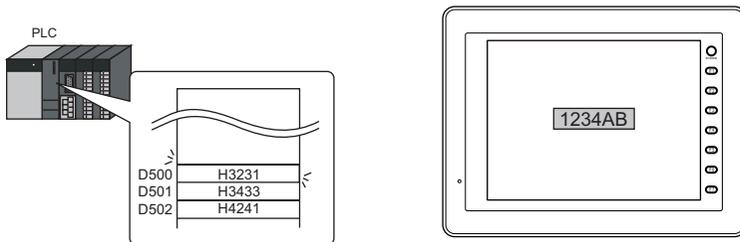
\*1 Code used for storing text of character display parts

- 1-byte characters: ANK code
- 2-byte characters: Shift-JIS code

Pay attention to the order of storing data in the higher and lower digits in each address.

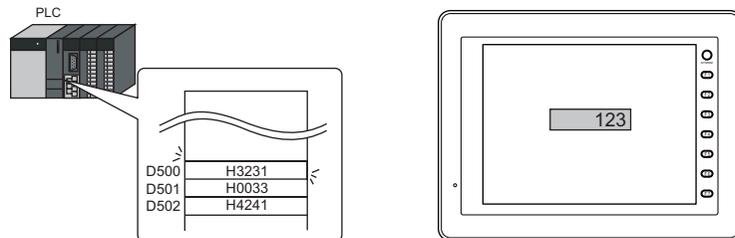
Example: Character display [Memory: D500] [No. of Bytes: 6]

When inputting D500: H3231, D501: H3433 and D502: H4241, the characters “1234AB” is displayed on MONITOUCH.

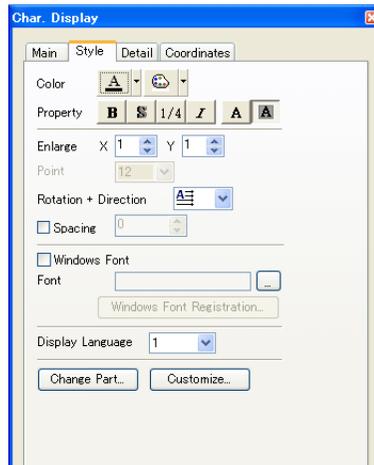


When inputting D500: H3231, D501: H0033 and D502: H4241, the characters “1234” is displayed on MONITOUCH. The characters after the null (00) code are not displayed when inputting null (00) code.

When you want to insert a space, input the space code (20H).



## Style

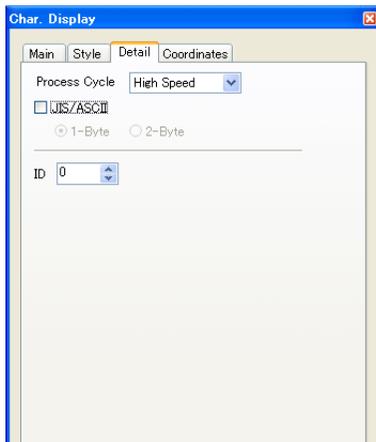


Color	
Property	
Transparent <sup>*1</sup>	
Enlarge	For more information, refer to “Appendix 4 Styles and Coordinates.”
Point	
Rotation + Direction	
<input type="checkbox"/> Spacing	
<input type="checkbox"/> Windows Font	
Font	For more information, refer to the Operation Manual.
Display Language	For more information, refer to “Appendix 3 Display Language.”
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

<sup>\*1</sup> Transparent setting

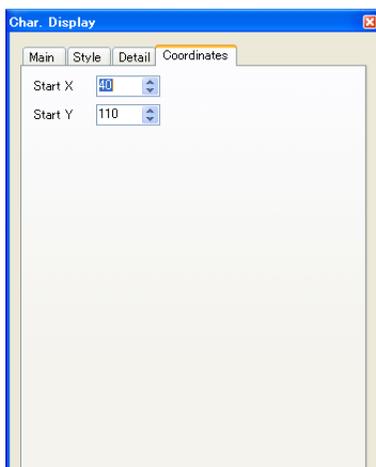
There are some points to be noted when using the transparent setting for character display.  
For more information, refer to page 5-34.

## Detail



Process Cycle	For more information, refer to “Appendix 5 Process Cycle.”
<input type="checkbox"/> JIS/ASCII (1-Byte, 2-Byte)	This is the setting to be used for the GD-80 compatible data. For more information, refer to the File Conversion manual provided separately.
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

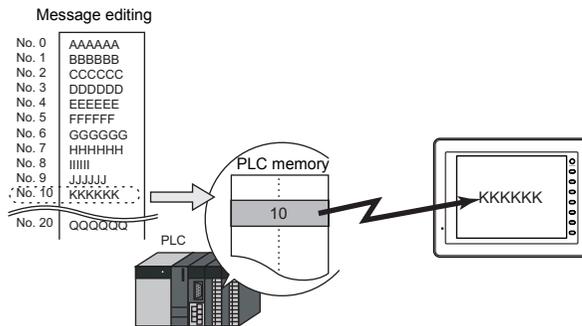
## Coordinates



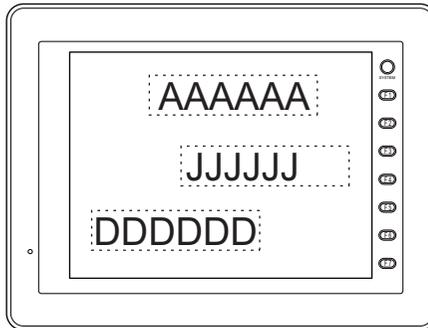
For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates” on page A4-10.

## 5.3 Message Display Overview

- Required messages should be registered within MONITOUCH preliminarily. When a message number is specified in the PLC memory, the corresponding message is displayed on the MONITOUCH screen in real time.

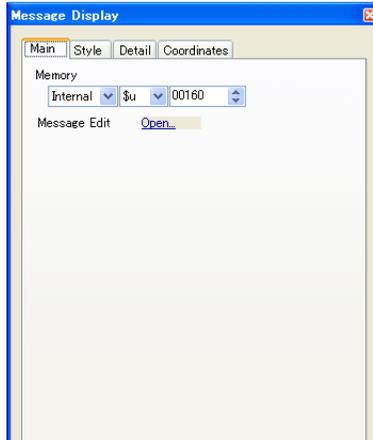


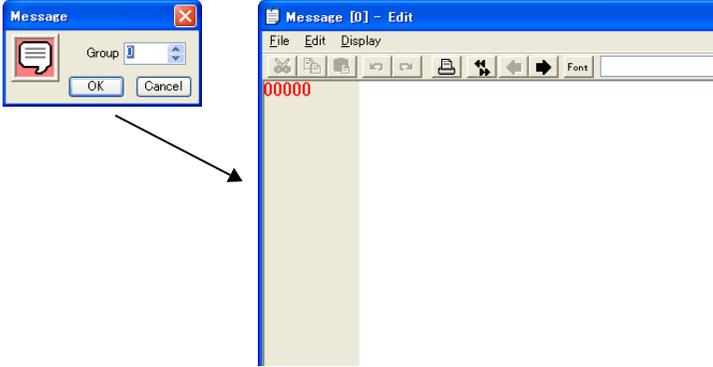
- One-line message can be displayed in any position desired.



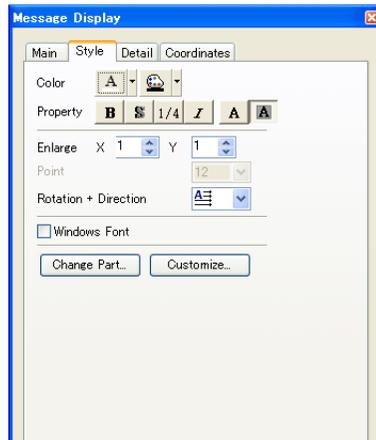
## Setting Dialog

### Main



<p>Memory</p>	<p>One word is occupied.          The message that corresponds to data contained in the specified memory address is displayed on the screen.</p> <p><b>* Specify a message number using its absolute address (range: 0 to 32767).</b></p> <p><b>For more information on the absolute address, refer to the Operation Manual.</b></p>
<p>Message Edit</p>	<p>When you click [Open], the [Message Edit] window is opened.</p>  <p>For more information on the message editing procedure, refer to the Operation Manual.</p>

## Style



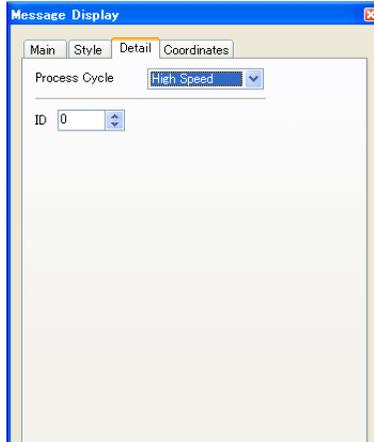
Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Transparent <sup>*1</sup>	
Enlarge	
Point	
Rotation + Direction	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

**\*1 Transparent setting**

There are some points to be noted when using the transparent setting for message display.  
For more information, refer to page 5-34.

## Detail

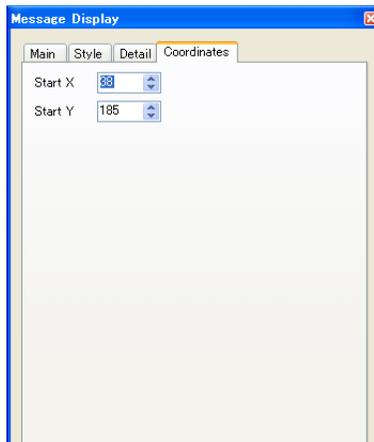
---



Process Cycle	For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates

---



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates" on page A4-10.

## 5.4 Table Data Display Overview

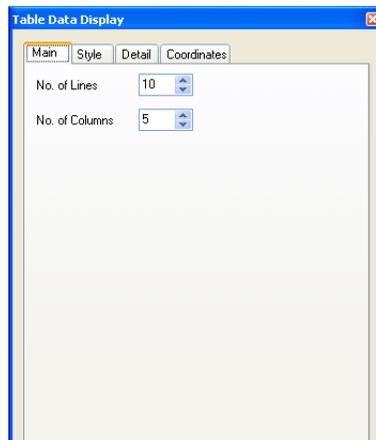
- Multiple data can be displayed in tabular form with ease.  
You can choose any from [Num. Display], [Char. Disp.], [Message Display] and [Text] for data display part.
- Property modification for multiple data display parts is possible at one time.
- Average, maximum, minimum, and total values can be displayed.
- Table data display part can be set as an entry target for entry mode.

	No. 1	No. 2	No. 3	No. 4	No. 5	Average
1	100	150	120	130	200	140
2	120	100	180	190	200	158
3	130	120	160	100	150	132
4	50	60	40	150	20	64

### [Table Data Display] Setting Dialog

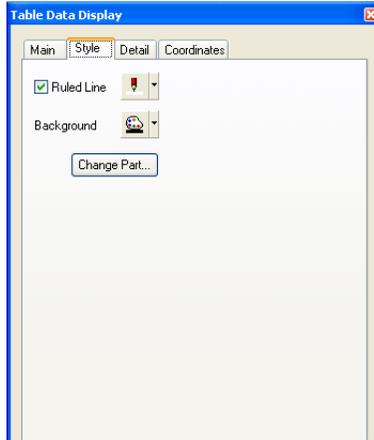
This section explains about the setting dialog that appears when the table data is selected entirely.

#### Main



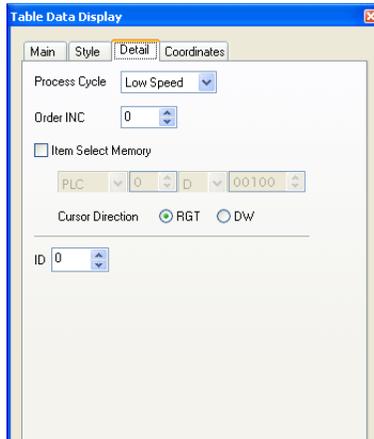
No. of Lines (1 - 20)	Specify the number of lines.
No. of Columns (1 - 25)	Specify the number of columns.

## Style



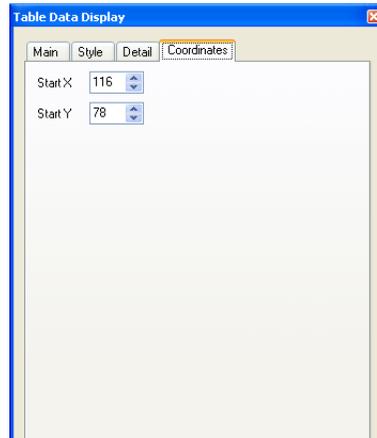
<input type="checkbox"/> Ruled Line (color)	Determine whether or not ruled lines should be displayed. When the box is checked, you can select a color for ruled lines.
Background (color)	Select a color for the background of table data.
Change Part	For more information, refer to the Operation Manual.

## Detail



Process Cycle	For more information, refer to "Appendix 5 Process Cycle."
Order INC	This is valid when you use table data as entry targets. For more information, refer to "7 Entry Mode."
<input type="checkbox"/> Item Select Memory	
Cursor Direction	
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates” on page A4-10.

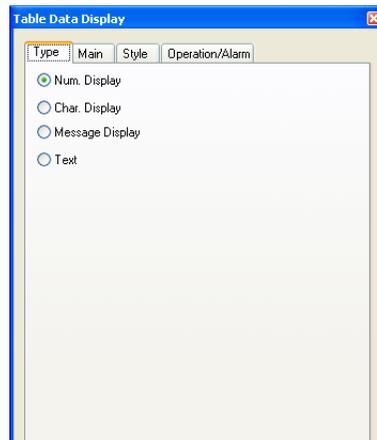
## [Num. Display] Setting Dialog

The setting dialog can be displayed for each data cell.

(For more information on the editing procedure, refer to the Operation Manual.)

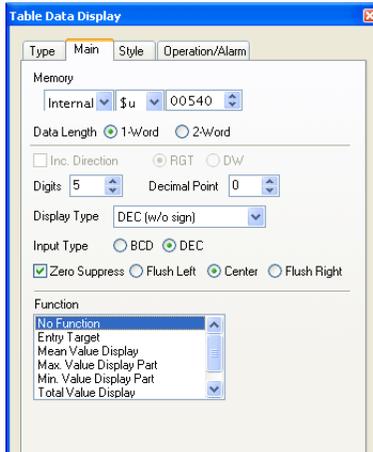
This section explains the case where [Num. Display] is selected on the [Type] tab window.

## Type



Num. Display Char. Display Message Display Text	Choose [Num. Display].
--	------------------------

## Main



Memory	Specify the address to be used for numerical data display. * This is valid when [No Function] or [Entry Target] is set for [Function].															
Data Length * <sup>1</sup>	Choose data length to be occupied for this part. 1 word, 2 words															
<input type="checkbox"/> Inc. Direction * <sup>2</sup>	This is valid when multiple data in the table data are selected. For more information, refer to page 5-25.															
Digits * <sup>3</sup>	Specify the number of digits for numerical data display. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display Type</th> <th>Digits</th> <th>Decimal Point</th> </tr> </thead> <tbody> <tr> <td>DEC</td> <td>1 to 10</td> <td>0 to 9</td> </tr> <tr> <td>HEX</td> <td>1 to 8</td> <td>-</td> </tr> <tr> <td>OCT</td> <td>1 to 11</td> <td>-</td> </tr> <tr> <td>BIN</td> <td>1 to 32</td> <td>-</td> </tr> </tbody> </table>	Display Type	Digits	Decimal Point	DEC	1 to 10	0 to 9	HEX	1 to 8	-	OCT	1 to 11	-	BIN	1 to 32	-
Display Type	Digits	Decimal Point														
DEC	1 to 10	0 to 9														
HEX	1 to 8	-														
OCT	1 to 11	-														
BIN	1 to 32	-														
Decimal Point	Specify the decimal place. When no decimal point is required, set "0".															
Display Type * <sup>1</sup>	Select the format of numbers to be displayed on the screen. DEC (w/o sign), DEC (w/ -sign), DEC (w/ +/- sign), HEX, OCT, BIN (binary)															
Input Type	Choose the code to be used when reading data from the PLC memory address. BCD/DEC															
<input type="checkbox"/> Zero Suppress	Check this box when using zero suppression.  <div style="margin-left: 40px;"> <input checked="" type="checkbox"/> Zero Suppress] (flush right) → <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="padding-left: 5px;">123</td></tr></table> </div> <div style="margin-left: 40px;"> <input type="checkbox"/> Zero Suppress] → 000123         </div> <p style="margin-left: 40px;">When this box is checked, choose [Flush Left], [Center] or [Flush Right].</p> <div style="margin-left: 40px;">           Flush-left → <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; width: 30px; height: 15px; text-align: left;">123</td></tr></table> </div> <div style="margin-left: 40px;">           Center → <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; width: 30px; height: 15px; text-align: center;">123</td></tr></table> </div> <div style="margin-left: 40px;">           Flush-right → <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; width: 30px; height: 15px; text-align: right;">123</td></tr></table> </div>				123	123	123	123								
			123													
123																
123																
123																

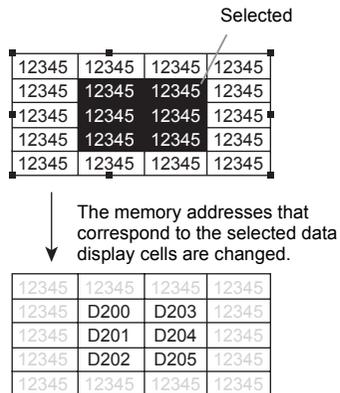
Function	Select a function when using the display part linking to it.	
	Function	Attached Data
	No Function	-
	Entry Target	-
	Mean Value Display MAX Display MIN Display Total Value Display	Start X/Y End X/Y *4

\*1 Relation between data length and display type

Code	1-word Range	2-word Range
DEC (w/o sign)	0 to 65535	0 to 4294967295
DEC (w/ -sign)	-32768 to 32767	-2147483648 to 2147483647
DEC (w/ ±sign)	-32768 to +32767	-2147483648 to +2147483647
HEX	0 to FFFF	0 to FFFFFFFF
OCT	0 to 177777	0 to 3777777777
BIN (binary)	0 to 1111111111111111	0 to 11111111111111111111111111111111

\*2 Inc. Direction

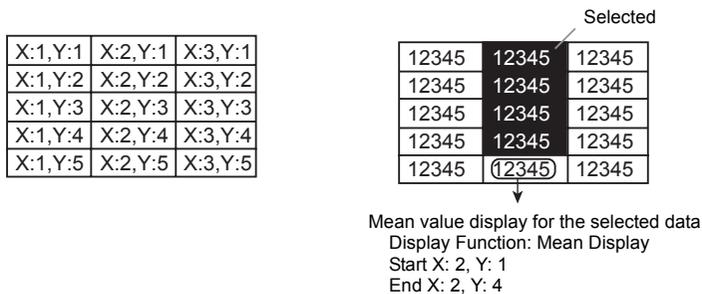
Example:  
Memory: D200  
 Inc. Direction: checked (↓)



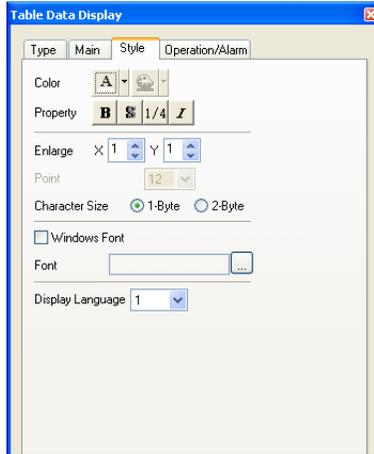
\*3 Digits

For more information, refer to page 5-3.

\*4 Start X/Y, End X/Y

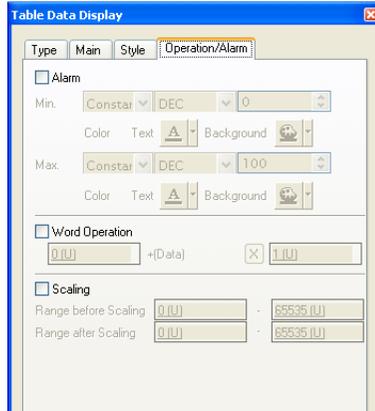


## Style



Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Enlarge	
Point	
Character Size	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Font	
Character Size	For more information, refer to “Appendix 4 Styles and Coordinates.”
Display Language	For more information, refer to “Appendix 3 Display Language.”

## Operation/Alarm



5

<p><input type="checkbox"/> Alarm <sup>*1</sup></p> <p>Min.</p> <p>Color</p> <p>Max.</p> <p>Color</p>	<p>Specify a range using a constant or a memory address.</p> <p>Select colors for text and background.</p> <p>Specify a range using a constant or a memory address.</p> <p>Select colors for text and background.</p>
<p><input type="checkbox"/> Word Operation <sup>*2</sup></p>	<p>Operation can be performed on the value in the memory address specified for [Memory] on the [Main] tab window.</p> <div style="text-align: center;"> <p>Offset value (constant)</p> <p>Multiplier of divisor (constant)</p> <p>x or / (+)</p> </div>
<p><input type="checkbox"/> Scaling <sup>*3</sup></p> <p>Range before Scaling</p> <p>Range after Scaling</p>	<p>Data (Range before Scaling) that the PLC has read is automatically converted into the range (Range after Scaling) that is set. It is possible to eliminate correction program for the data that the PLC has read when displaying temperature, rotation speed, etc.</p> <div style="text-align: center;"> <p>PLC □      MONITOUCH</p> <p>4000      100</p> <p>0      0</p> <p>(Range before Scaling)      (Range after Scaling)</p> </div> <p>Specify the data to be read from the PLC.</p> <p>Specify the range of data to be shown on MONITOUCH.</p>

- \*1 When [Entry Target] is selected for [Display Function]  
When the box for [Alarm] is checked, the maximum and minimum values specify the range of numerical data that can be input.  
For more information on numerical data entry, refer to “7 Entry Mode.”
  
- \*2 Word Operation  
For more information, refer to page 5-6.
  
- \*3 Scaling  
For more information, refer to page 5-7.

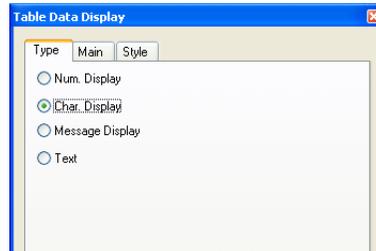
## [Char. Display] Setting Dialog

The setting dialog can be displayed for each data cell.

(For more information on the editing procedure, refer to the Operation Manual.)

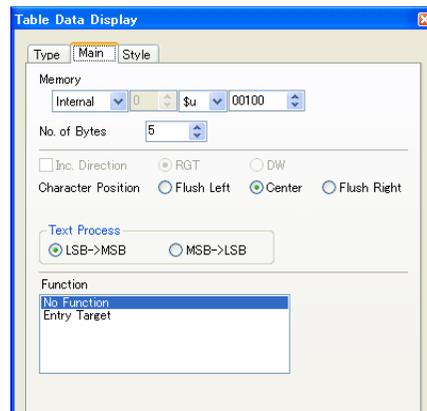
This section explains the case where [Char. Display] is selected on the [Type] tab window.

### Type



Num. Display Char. Display Message Display Text	Choose [Char. Display].
--	-------------------------

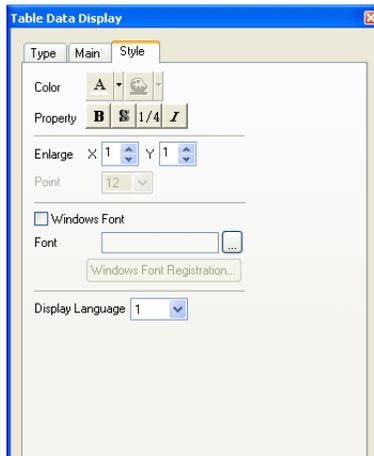
### Main



Memory	Specify the address to be used for character display.			
No. of Bytes	Specify the number of characters to be displayed. One character of the alphabet occupies one byte.			
<input type="checkbox"/> Inc. Direction	This is valid when multiple data in the table data are selected. For more information, refer to page 5-25.			
Character Position	The character position in the cell can be selected.  Flush-left → <table border="1"><tr><td>123</td></tr></table> Center → <table border="1"><tr><td>123</td></tr></table> Flush-right → <table border="1"><tr><td>123</td></tr></table>	123	123	123
123				
123				
123				

Text Process (LSB → MSB / MSB → LSB)	Set the recognition of MSB and LSB in one word.  [LSB → MSB]     15        MSB LSB  2nd byte 1st byte  [MSB → LSB]     15        LSB MSB  1st byte 2nd byte
Function	No Function: Data in [Memory] is displayed as is. Entry Target: Data can be written in the entry mode.

## Style



Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Enlarge	
Point	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Font	For more information, refer to “Appendix 3 Display Language.”
Display Language	

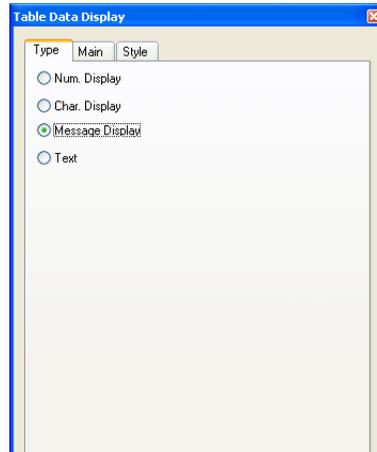
## [Message Display] Setting Dialog

The setting dialog can be displayed for each data cell.

(For more information on the editing procedure, refer to the Operation Manual.)

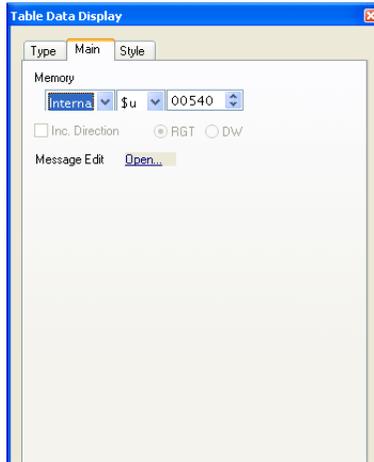
This section explains the case where [Message Display] is selected on the [Type] tab window.

### Type



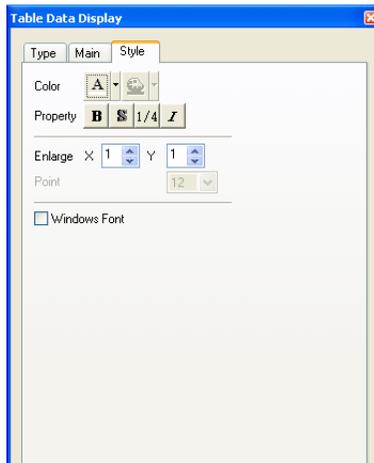
Num. Display Char. Display Message Display Text	Choose [Message Display].
--	---------------------------

## Main



Memory	Specify the memory address to be used for specifying the message line number.
<input type="checkbox"/> Inc. Direction	This is valid when multiple data in the table data are selected. For more information, refer to page 5-25.
Message Edit	When you click [Open], the [Message Edit] window is opened. For more information on the message editing procedure, refer to the Operation Manual.

## Style

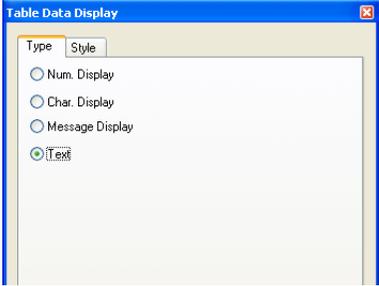


Color	For more information, refer to "Appendix 4 Styles and Coordinates."
Property	
Enlarge	
Point	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.

# [Text] Setting Dialog

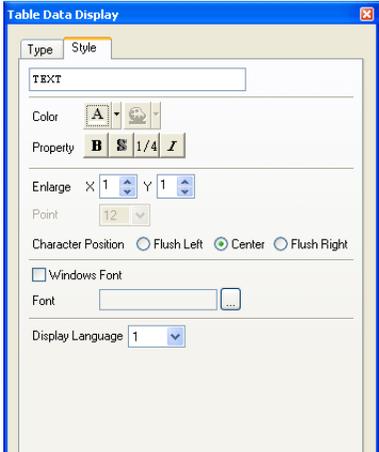
The setting dialog can be displayed for each data cell.  
(For more information on the editing procedure, refer to the Operation Manual.)  
This section explains the case where [Text] is selected on the [Type] tab window.

## Type



Num. Display Char. Display Message Display Text	Choose [Text].
--	----------------

## Style



TEXT	Enter the text to be displayed.
Color	For more information, refer to "Appendix 4 Styles and Coordinates."
Property	
Enlarge	
Point	
Character Position	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Font	For more information, refer to the Operation Manual.
Display Language	For more information, refer to "Appendix 3 Display Language."

## 5.5 Notes

### About Transparency

---

There is a limitation on the use of the [Transparent] setting.

Limitation per Screen	[Transparent] Selected
The number of data display parts	V812/V810/V808 256 pcs
L × W size of data display parts	V812/V810/V808 1,572,864 dots (= 3,145,728 bytes) in total

If this limitation has been exceeded, the transparent setting does not work correctly.

If the displayed image is different from what you intend, reduce the number of display parts with which [Transparent] is selected.

**\* In addition to data display parts, there are other items that have a limitation on the [Transparent] setting.**

- Pattern (Draw, Graphic Display, Graphic Relay)
- Switch, Lamp

For more information, refer to the appropriate section for each item.

### Other Notes

---

- When [Shadow] is chosen for [Property], [Transparent] cannot be selected; however, it can be rendered in the same way as [Transparent].
- Even for transparent enabled parts, it is recommended to keep [Not Transparent] selected.  
If you select [Transparent], flickering may occur when the displayed numerical data or character data changes. Also the display speed will decrease.

## When Placing Switch or Lamp Parts While Overlaying One on Another:

### In the Case of Num. Display, Char. Display or Message Display

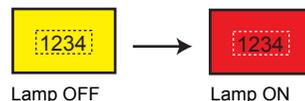
Note the following points when placing parts:

- When placing a data display part on a switch or lamp part:

It is recommended to create the screen under the following conditions.

[Condition 1] Switch/Lamp Draw Mode: REP

[Condition 2] Data Display



Part type:

The parts that do not have any graphics on the background and simply consist of foreground and background colors

(Example: Parts\_NumDsp\_E.V7 (No.0000 to 0009), etc.)

If the above conditions are not met, the parts may not be displayed correctly.

- When placing data display parts on a switch or lamp part:

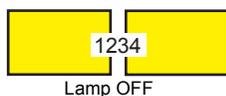
When the above conditions are met, the parts can be displayed correctly with multiple data display parts.



- When placing a data display part on switch or lamp parts:

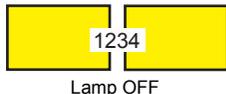
Due to the part property, the parts cannot be displayed correctly.

Draw Mode: REP



The data display part is hidden under the lamp.

Draw Mode: XOR



The XOR color is displayed.

### In the Case of Table Data (with Switches)

With table data, when [Text] is selected for the cell in the first column and the first row of the table, the whole first row has the switch function.

Consequently, if you place a switch part on the first row, it cannot be recognized correctly because it is the same as a switch part overlays another switch part. (The switch function on the table data has priority.)

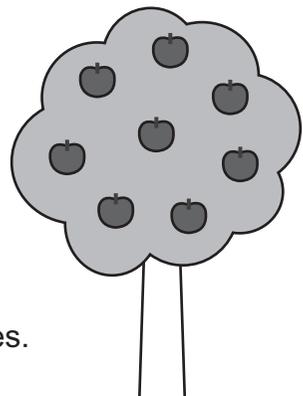
Example:

If you select [Text] the first column and place hidden switch parts on other columns:

No. 1	1004	50	888.9
No. 2	1006	65	100.7
No. 3	999	45	434.0
No. 4	1005	55	123.2
No. 5	1008	41	770.8

Since [Text] is set for the cell in the first column and the first row, the hidden switch parts on the first row are not valid.

# MEMO



Please use this page for notes.

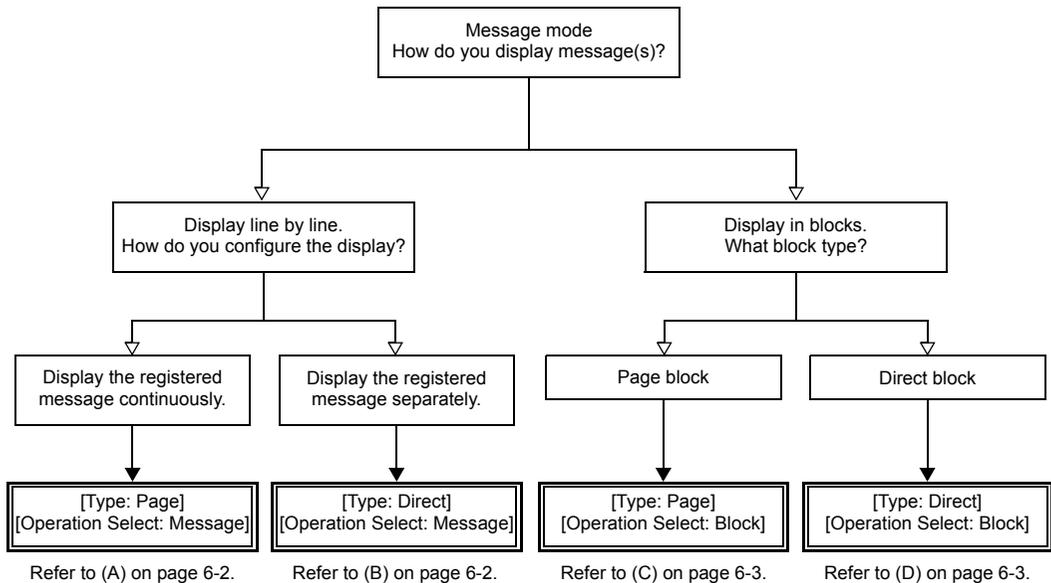
# 6 Message

## 6.1 Message Mode

### Overview

This is the function that displays messages on the screen by specifying the line number of a message previously registered in the message registration area (= message editing) or by grouping these messages into blocks and specifying the block number(s).

The message mode has four kinds of display configuration as shown below.



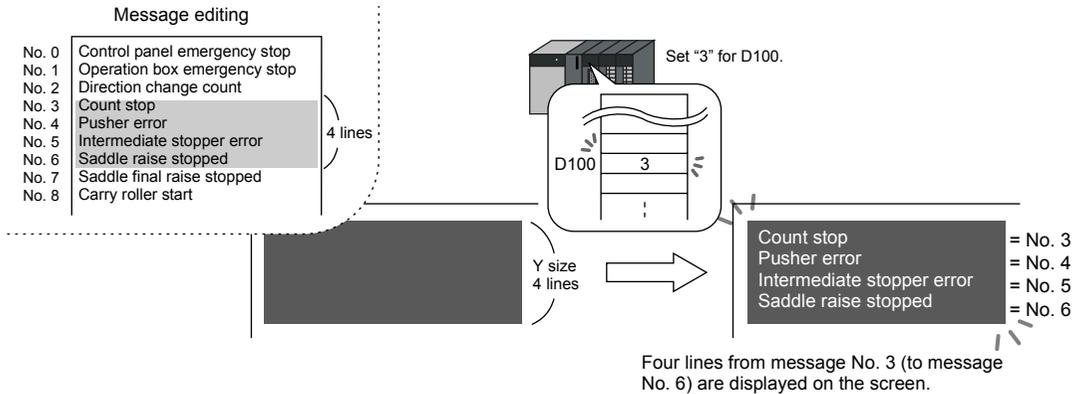
## How to Specify the Message Number

If you select [Operation Select: Message] in the message mode, you must specify the number of the message that you will display.

### A [Type: Page]

Specify the line number of the top message that you will display. Several lines of the message of which number you specified are continuously displayed within the area at the top of the screen.

For more information, refer to page 6-6.

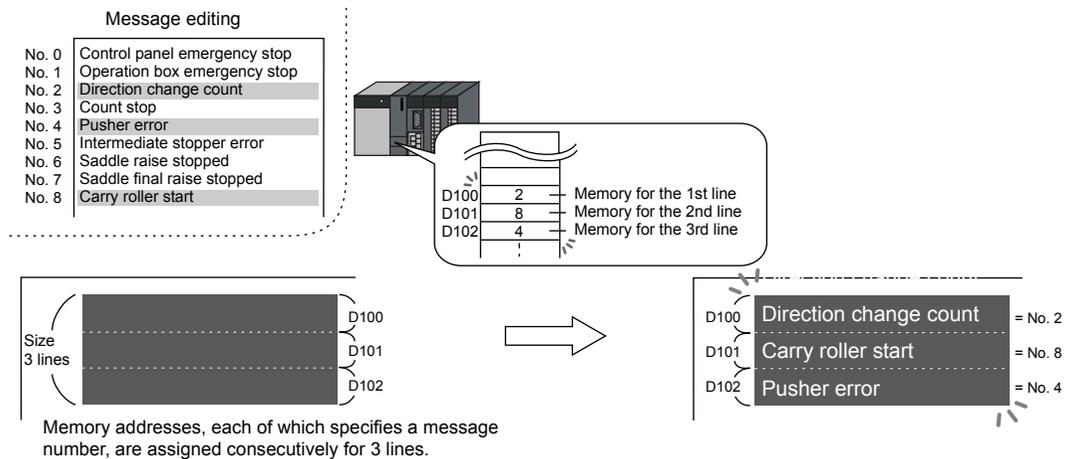


### B [Type: Direct]

One memory address is automatically assigned to every line in the message display area. Specify the message number that you will display based on the assigned memory address.

A message specified by the memory address is displayed on the screen.

For more information, refer to page 6-6.



## How to Specify the Block Number

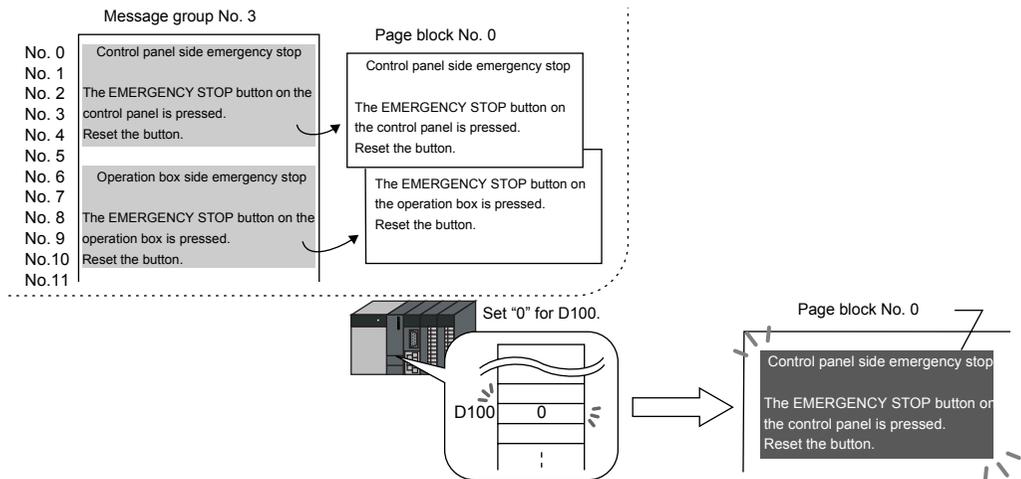
If you select [Operation Select: Block] in the message mode, specify the registered [Page Block] or [Direct Block] number of the message that you will display.

### C [Type: Page]

Register the message that was previously registered in the message editing area as [Page Block].

The corresponding "page block" is displayed on the screen.

To display a page block on the screen, there are two ways: with an internal command (changeover with a switch) or with an external command (changeover with respect to data in a memory address). For more information, refer to page 6-6.

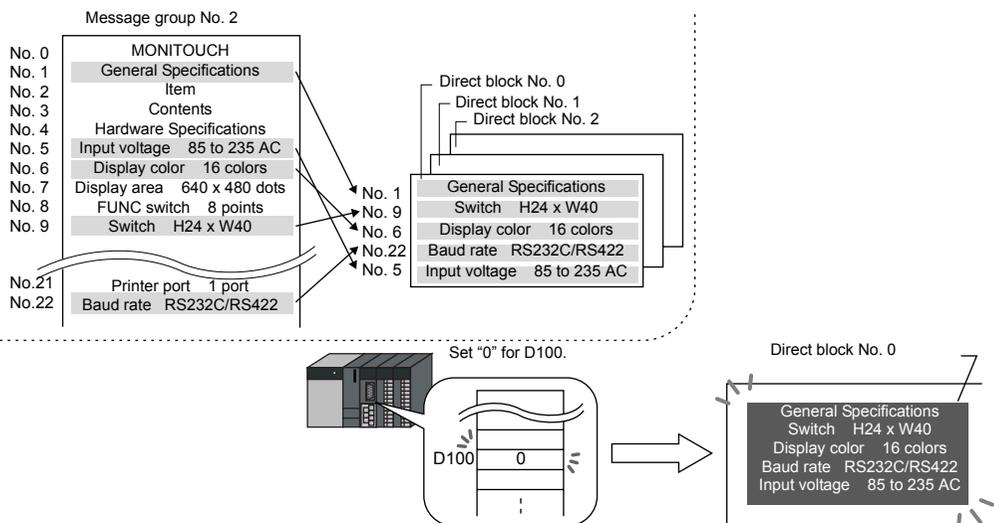


### D [Type: Direct]

Register the message that was previously registered in the message editing area as [Direct Block].

The corresponding "direct blocks" are displayed on the screen.

To display a direct block on the screen, there are two ways: with an internal command (changeover with a switch) or with an external command (changeover with respect to data in a memory address). For more information, refer to page 6-6.

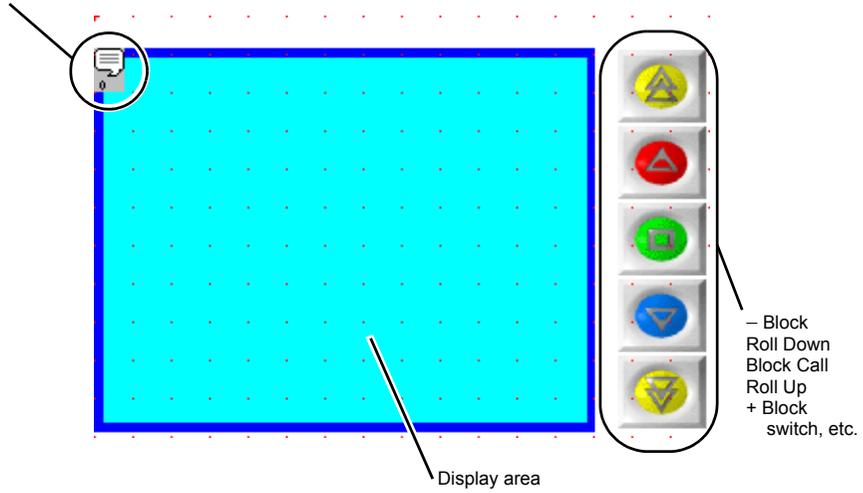


## Configuration

---

The message mode components are shown below.

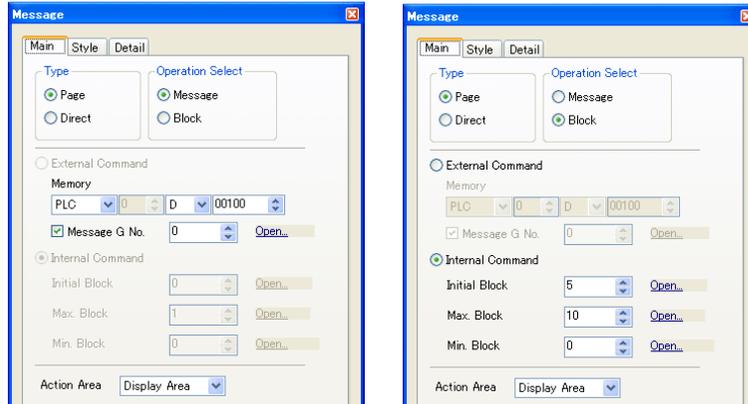
Message icon  
= [Message] dialog



## Setting Dialog

### Message

#### Main



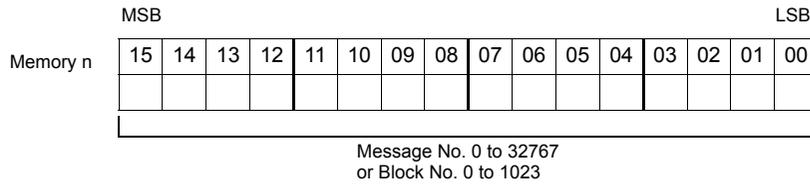
Type <sup>*1</sup> (Page, Direct)	Choose the display format and the operation type. Depending on the combination of selections for [Type] and [Operation Select], the display format varies.
Operation Select <sup>*1</sup> (Message, Block)	
Internal Command External Command	This option becomes active when [Operation Select: Block] is selected. Select how to call up blocks.  Internal Command: The page block or direct block display can be changed with the [Function: + Block/- Block/Block Call] switch placed on the screen.  External Command: Directly specify the page block or direct block number using [Memory], and display the corresponding block.
Memory <sup>*2</sup>	When [Operation Select: Message] is selected or when [Operation Select: Block] and [External Command] are selected, a memory address must be specified. This is the command memory for displaying messages by specifying a message number or block number.
Message G No. <sup>*3</sup>	This option becomes active when [Operation Select: Message] is selected.  Checked (☑): Set a group number (0 - 127) for [Group No]. The message displayed on the screen is limited to a message within the specified group number. Specify a message number (0 - 255) within the group in the command memory specified for [Memory].  Unchecked (☐): Specify the message number to be displayed as an absolute address. Messages from more than one group can be specified. Specify a message number (0 - 32767) among the whole of messages for [Memory]. For more information on message registration, refer to page 6-12.

Initial Block	<p>This option becomes active when [Operation Select: Block] and [Internal Command] are selected.</p> <p>This is the block to be displayed at first when page or direct blocks are called up on the screen.</p> <p>For more information on the page block and the direct block, refer to page 6-14 and page 6-13.</p>
Max. Block	<p>This option becomes active when [Operation Select: Block] and [Internal Command] are selected.</p> <p>This is the greatest number of page or direct blocks to be used in the message mode.</p> <p>For more information on the page block and the direct block, refer to page 6-14 and page 6-13.</p>
Min. Block	<p>This option becomes active when [Operation Select: Block] and [Internal Command] are selected.</p> <p>This is the smallest number of page or direct blocks to be used in the message mode.</p> <p>For more information on the page block and the direct block, refer to page 6-13 and page 6-14.</p>
Action Area	<p>Choose from [Display Area], [Switch] or [Lamp] for specifying the place where the message should be displayed on the screen.</p> <p><b>Display Area:</b> Shows messages on display area parts placed on the screen.</p> <p><b>Switch:</b> Shows messages on switch parts placed on the screen. Place the [Function: Mode] switches. Each switch has [Display Order] as an auxiliary item where you can specify which message to display on which switch. When you do not set [Display Order], the messages are displayed in the same order that the switches were placed.</p> <p><b>Lamp:</b> Shows messages on lamp parts placed on the screen. Place the [Function: Mode] lamps. As with switches, each lamp is set with the auxiliary item [Display Order].</p>

\*1 Depending on the combination of selections for [Type] and [Operation Select], the display motion varies as described below.

Type \ Operation Select	Message	Block
Page	<p>Use [Memory] (discussed later) to specify the line number of the top message that you will display. Several lines of the message, of which number you specified, are continuously displayed within the area at the top of the screen.</p>	<p>Page blocks are displayed on the screen. Either an internal or external command can be used. (Refer to page 6-5.)</p>
Direct	<p>One memory address is automatically assigned to every line in the message display area. Specify the message number that you will display based on the assigned memory address. A message specified by the memory address is displayed on the screen.</p>	<p>Direct blocks are displayed on the screen. Either an internal or external command can be used. (Refer to page 6-5.)</p>

\*2 The contents in memory are shown below.

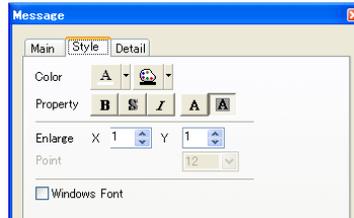


Depending on the combination of selections for [Type] and [Operation Select], the number of words to be used from the address specified for [Memory] varies as described below.

Operation Select \ Type	Message	Block (external command)
Page	1 word	1 word
Direct	The words are based on the display area's Y size divided by the character enlargement factor value. Memory space is sequentially allocated from the top memory address specified for [Memory].	1 word

\*3 For more information on the "absolute address" for message editing, refer to the Operation Manual.

## Style



Color	For more information, refer to "Appendix 4 Styles and Coordinates."
Property	
Enlarge *1	
Point	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.

\*1 When [Switch] or [Lamp] is chosen for [Action Area] on the [Main] tab window, [Enlarge X] and [Enlarge Y] are fixed to "1".

## Detail

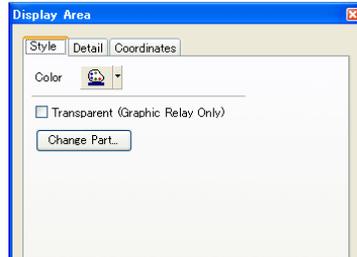


Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Display Area

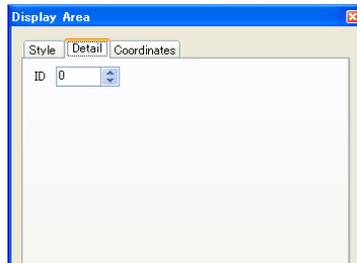
These settings are valid when you select [Operation Select: Block] in the [Message] dialog.

### Style



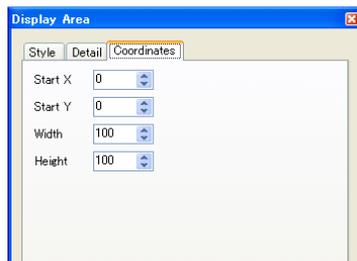
Color	Select the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified in the [Message] dialog. For more information on the ID, refer to the Operation Manual.
----	---

### Coordinates

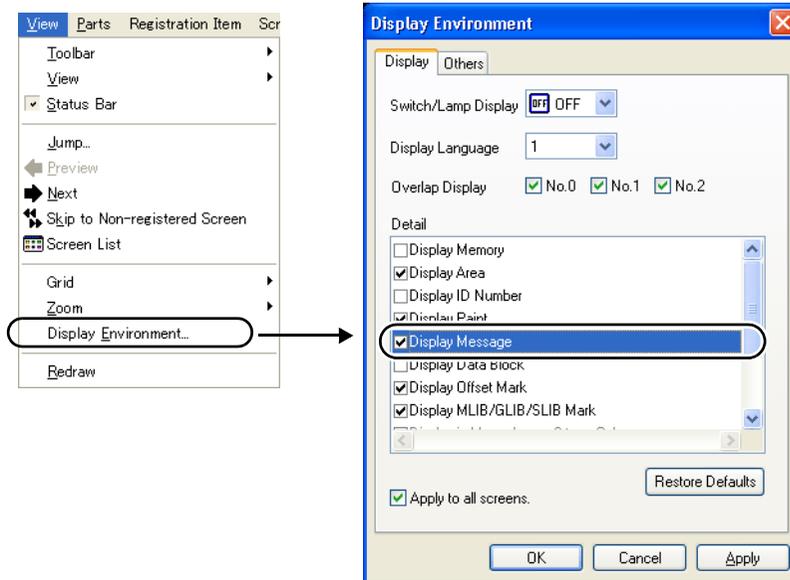


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

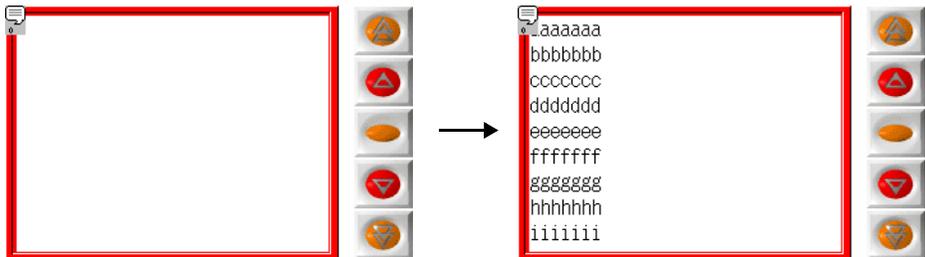
### Checking the display area size

You can check on the screen that error messages can be displayed on the display areas intended.

When you have registered messages, select [View] → [Display Environment] → [Display] tab, check (☑) the box for [☐ Display Message].



The registered messages are displayed on the screen.



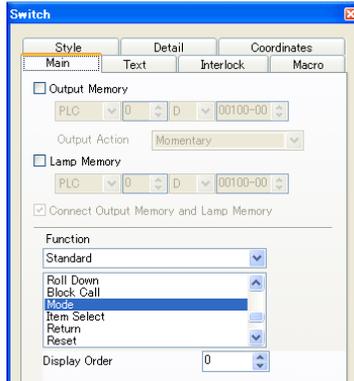
For more information on size adjustment, etc., refer to the Operation Manual provided separately.

## Switch / Lamp (for Display Area)

These settings are valid when you select [Operation Select: Switch or Lamp] in the [Message] dialog. Messages are displayed on switches or lamps.

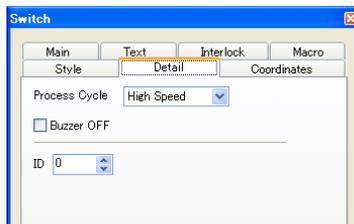
This section describes the switch and lamp settings that are essential.

### Main



Function	<p>Select [Mode].</p> <p>Display Order (0 - 23): Specify the order of displaying the message when multiple [Mode] switches or lamps are placed. If you set the same number for [Display Order] for all switch or lamp parts, the messages are displayed in the same order that the switches or lamps were placed.</p> <p><b>* One switch or lamp shows one line of message.</b></p>
----------	---

### Detail



ID	<p>Set the same ID as specified in the [Message] dialog. For more information on the ID, refer to the Operation Manual.</p>
----	---

## Switch / Lamp (for Message Scroll)

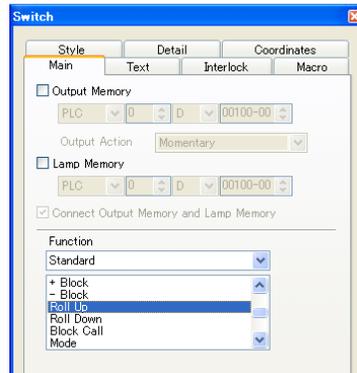
To scroll up and down in the message mode, the following switches can be used.

This section describes key setting items for switches that are used together with the message mode.

### Main

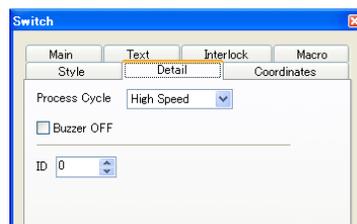
These switches are valid when you select [Operation Select: Block] and [Internal Command] in the [Message] dialog.

Use this setting when the messages of a page block or direct blocks displayed on the screen extend off the area.



Function	Contents
+ Block	Moves to the next message block.
- Block	Moves back to the previous message block.
Block Call	Jumps to the specified block number.
Roll Up	Scrolls up the messages.
Roll Down	Scrolls down the messages.

### Detail

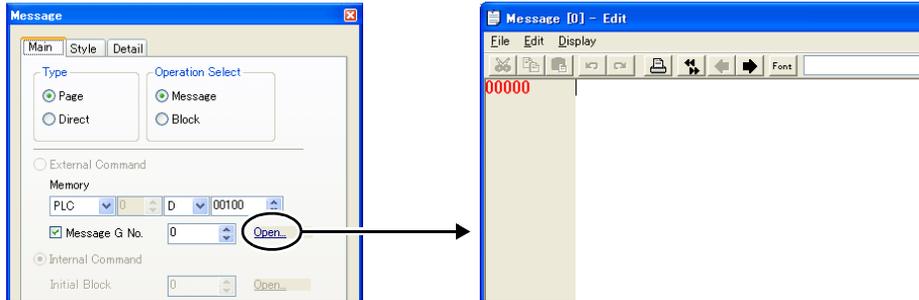


ID	Set the same ID as specified in the [Message] dialog. For more information on the ID, refer to the Operation Manual.
----	---

## Registering Messages

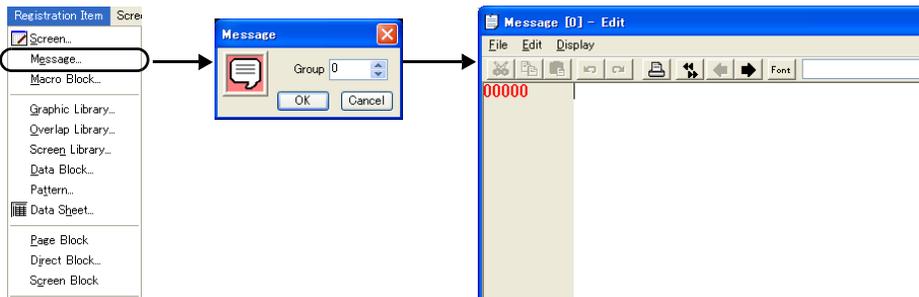
There are two ways of registering messages.

- [Message] dialog → [Main] tab window → [Open]



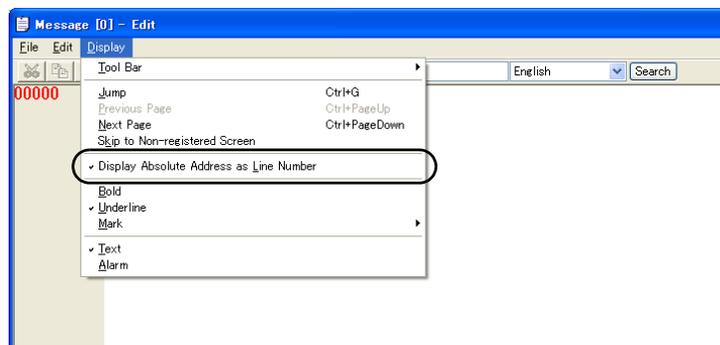
- \* When [Operation Select: Block] is selected, the window for message registration will not be displayed in this way.
- \* When you specify a message group number, the cursor appears at the top of the group.

- [Registration Item] → [Message] → (group number designation)



In the [Message Edit] window, line numbers denote absolute addresses as default.

If [ Message G No.] is checked, select [Display] → [Display Absolute Address as Line Number] and remove the check from this menu item before commencing editing.

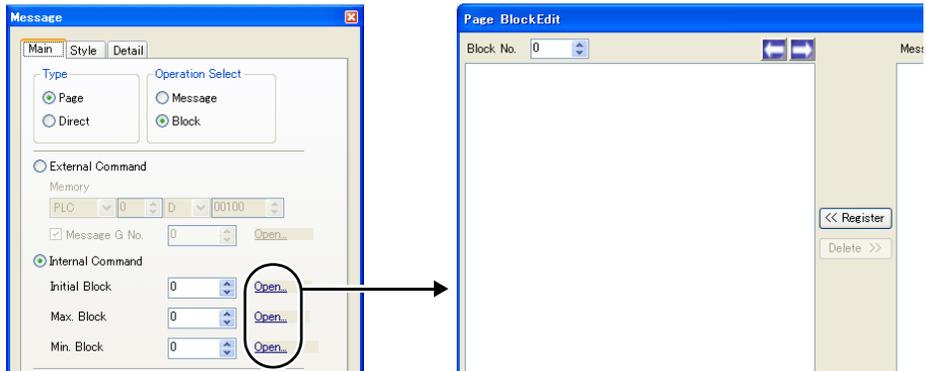


For more information on the editing procedure in the [Message Edit] window, refer to the Operation Manual.

## Registering Page Blocks

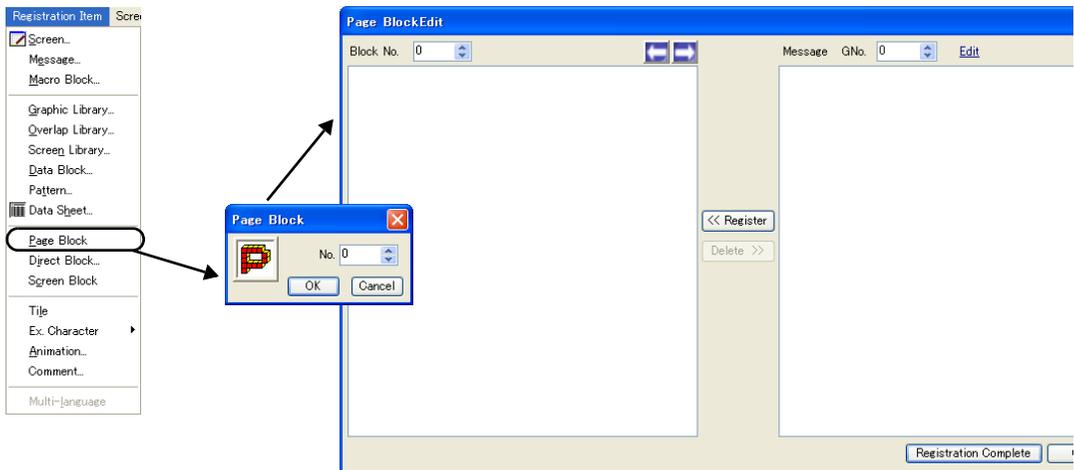
There are two ways of registering page blocks.

- [Message] dialog → [Main] tab window → [Open]  
The specified block number is displayed.



- \* When [Type: Page], [Operation Select: Block] and [Internal Command] are selected, the window for page block registration can be displayed in this way.

- [Registration Item] → [Page Block] → (block number designation)

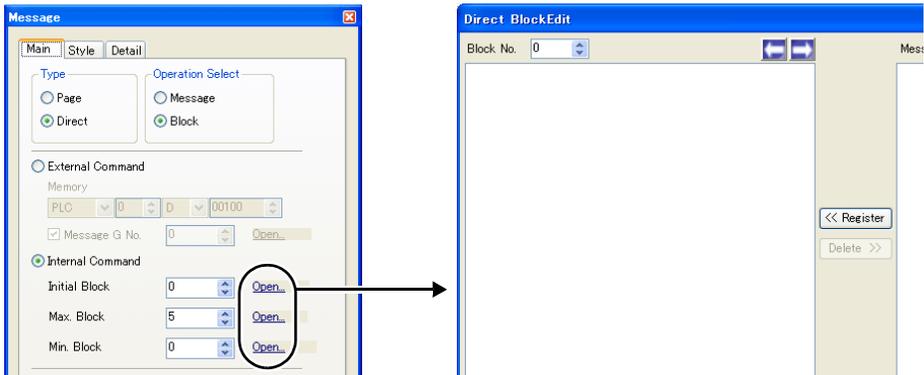


For more information on the editing procedure in the [Page Block Edit] window, refer to the Operation Manual.

## Registering Direct Blocks

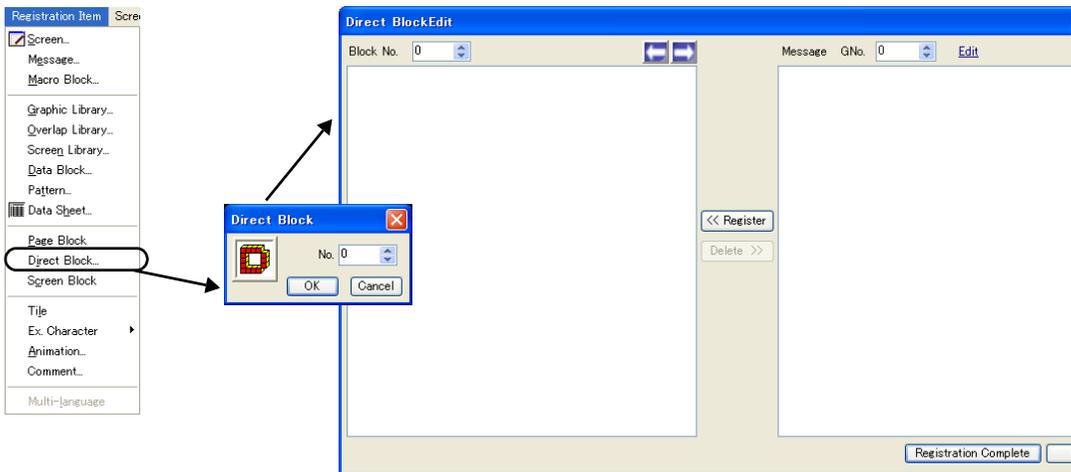
There are two ways of registering direct blocks.

- [Message] dialog → [Main] tab window → [Open]  
The specified block number is displayed.



\* When [Type: Direct], [Operation Select: Block] and [Internal Command] are selected, the window for direct block registration can be displayed in this way.

- [Registration Item] → [Direct Block] → (block number designation)



For more information on the editing procedure in the [Direct Block Edit] window, refer to the Operation Manual.

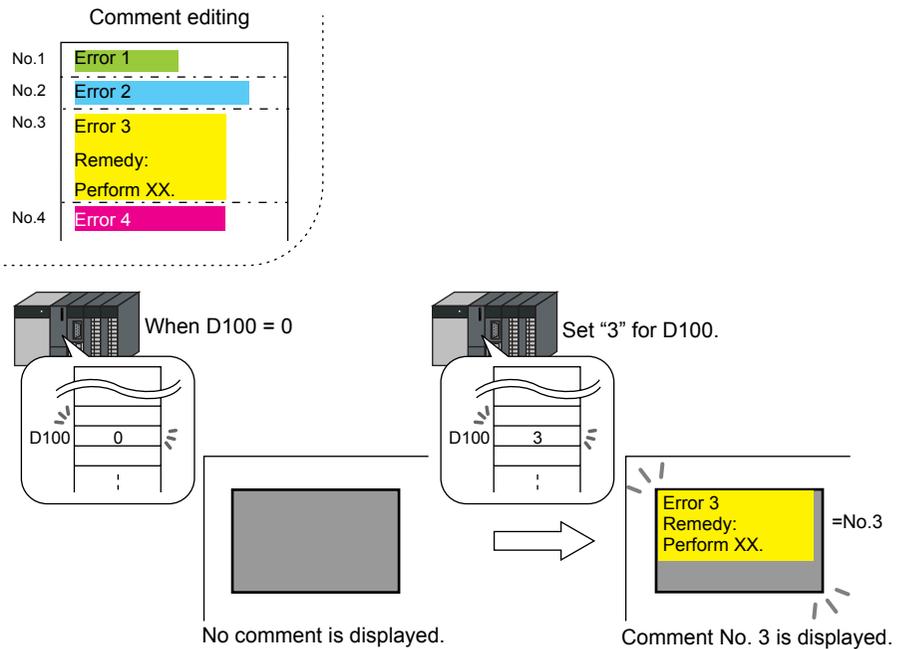
## 6.2 Comment Display Overview

Register comments in advance, and show the comment by setting the comment number (word designation) to the memory address or by setting (ON) the bit (bit designation).

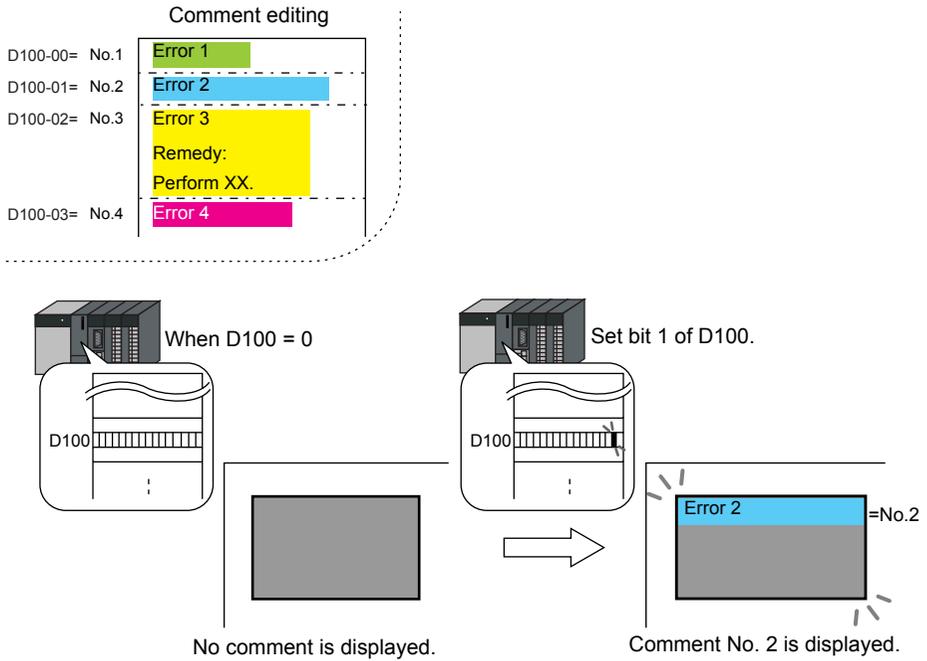
A maximum of 32,767 comments can be registered. The character property, such as color or size, can be set for each comment.

One comment can include multiple lines.

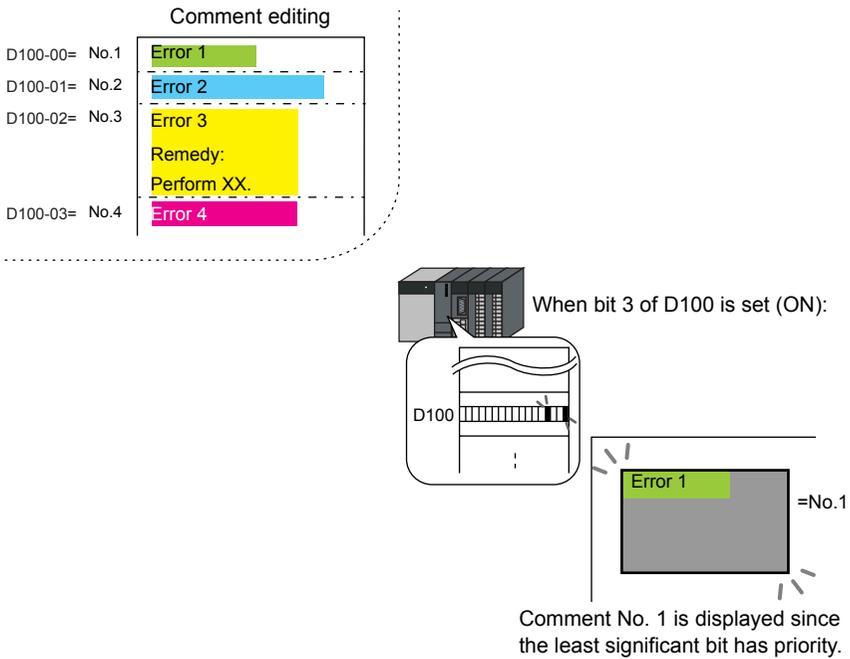
### Word Designation



## Bit Designation

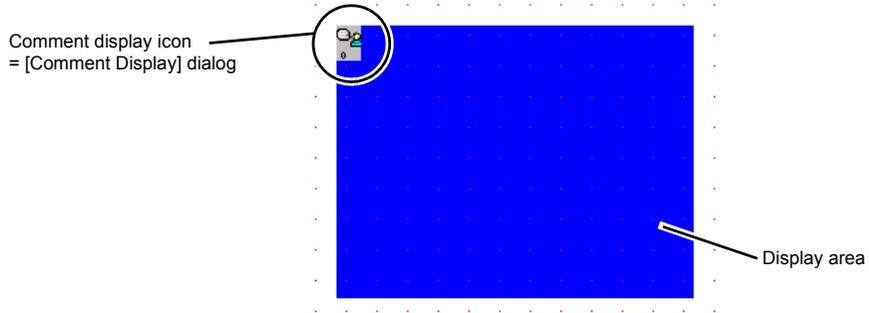


When multiple bits are set (ON), the least significant bit has priority.



## Configuration

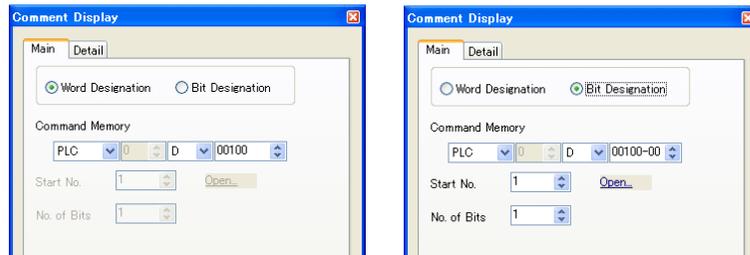
The comment display components are shown below.



## Setting Dialog

### Comment Display

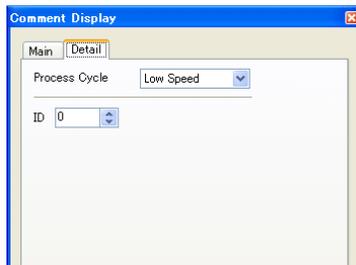
#### Main



<p>Word Designation Bit Designation</p>	<p>Choose the memory designating method.</p> <p><b>Word Designation:</b> Select this option to call up the comment by specifying the comment number.</p> <p><b>Bit Designation:</b> Select this option to call up the comment by bit activation.</p>
<p>Command Memory</p>	<p>Specify the command memory to be used for displaying messages on the screen. The setting should vary depending on whether you select [Word Designation] or [Bit Designation].</p> <p><b>Word designation:</b> Set the memory address (1 word) for specifying the comment number. When "0" is specified, no comment is displayed. When "1 - 32767" is specified, the corresponding comment is displayed. However, if the BCD code is used on the PLC, the available range is limited to "1 - 9999".</p> <p><b>Bit designation:</b> Set the memory address (1 bit) to call up the comment set for [Start No.]. When multiple bits are set (ON), the least significant bit has priority.</p>

<p>Start No. (1 to 32767)</p> <p>[Open]</p>	<p>This is valid when you select [Bit Designation]. Specify the comment number to be called up by activation of the bit set for [Memory].</p> <p>When you click [Open], the [Comment] editing window is opened. For more information, refer to page 6-20.</p>
<p>No. of Bits (1 to 512)</p>	<p>This is valid when you select [Bit Designation]. Specify the number of bits to be used for comment display (= total number of comments to be displayed). From the bit set for [Memory], as many bits as set for [No. of Bits] are consecutively allocated to the comment specified for [Start No.] and later.</p>

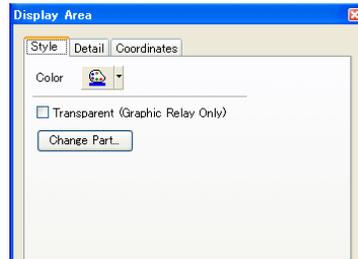
**Detail**



<p>Process Cycle</p>	<p>Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."</p>
<p>ID</p>	<p>Set the ID. For more information on the ID, refer to the Operation Manual.</p>

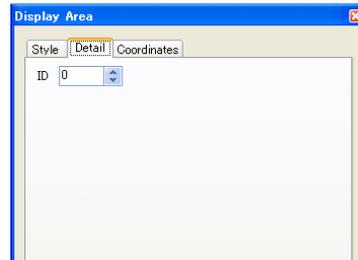
## Display Area

### Style



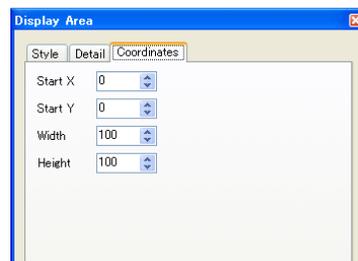
Color	Select the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified in the [Comment Display] dialog. For more information on the ID, refer to the Operation Manual.
----	--

### Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

### Checking the display area size

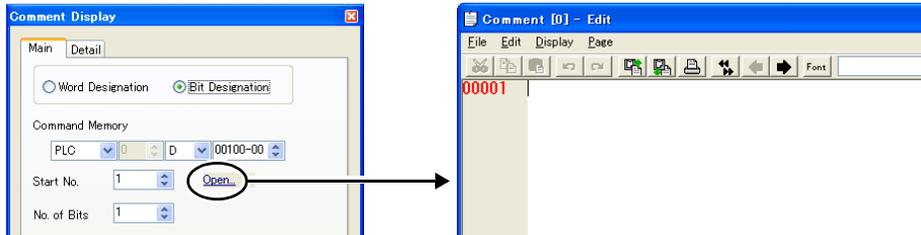
You can check on the screen that error messages can be displayed on the display areas as you intended.

The procedure is the same as described for the message mode. Refer to page 6-9.

## Registering Comments

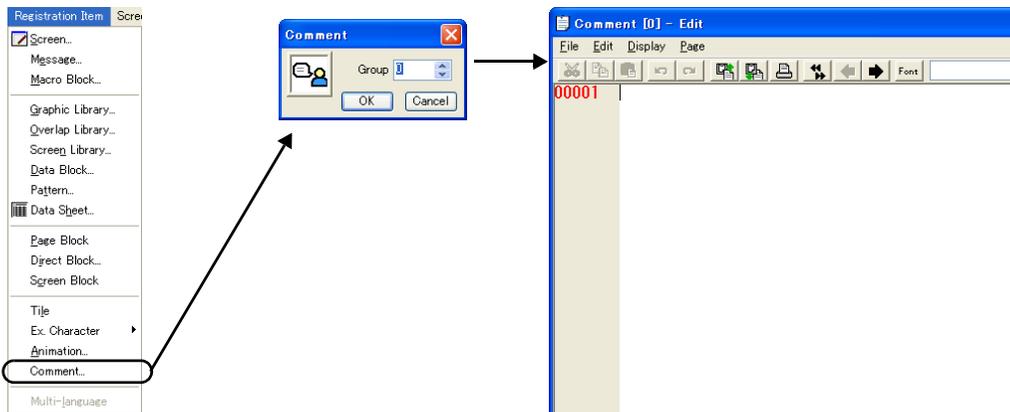
There are two ways of registering comments.

- [Comment Display] dialog → [Main] tab window → [Open]



- \* When [Word Designation] is selected, the window for comment registration will not be displayed in this way.
- \* The cursor appears at the line number specified for [Start No.].

- [Registration Item] → [Comment] → (group number designation)



For more information on the editing procedure in the [Comment Edit] window, refer to the Operation Manual.

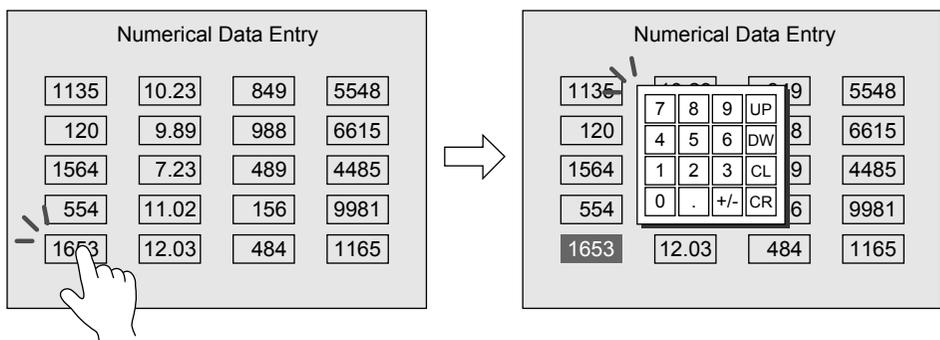
# 7 Entry Mode

## Overview

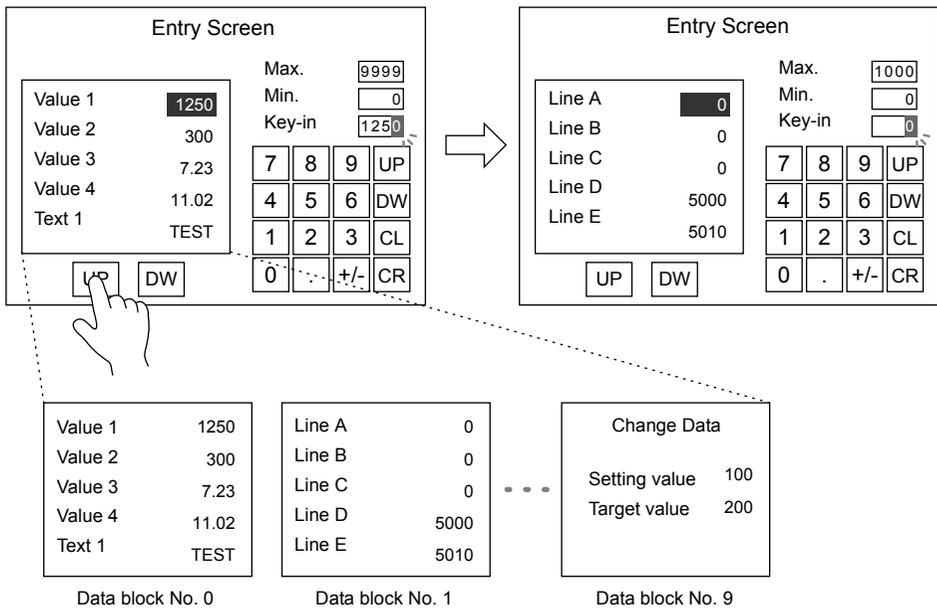
- When writing numerical data or characters (ANK, Shift JIS code, etc.) to the specified memory addresses, you must set the entry mode.
- Entry mode allows you to enter numerical data and characters on the same screen.  
Depending on whether the target data display is a numerical data display part or a character display part, the system automatically recognizes data entry as numeric values or text data.

Entry Screen			
		Max.	9999
		Min.	0
Value 1	1250	Key-in	1250
Value 2	300	7	8 9 UP
Value 3	7.23	4	5 6 DW
Value 4	11.02	1	2 3 CL
Text 1	TEST	0	. +/- CR

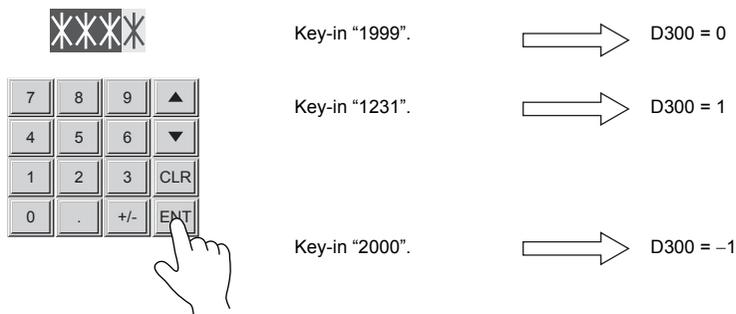
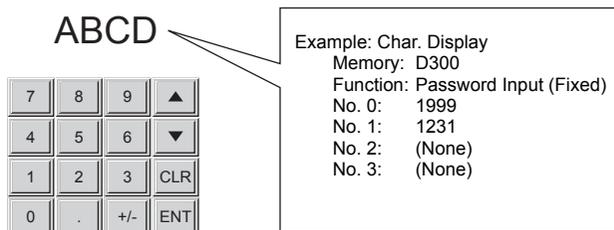
- The keypad can be hidden in normal times and be popped up only when it is necessary. (Refer to page 7-24.)



- Alternatively, target data display parts can be switched over with the keypad displayed. (Refer to page 7-38.)



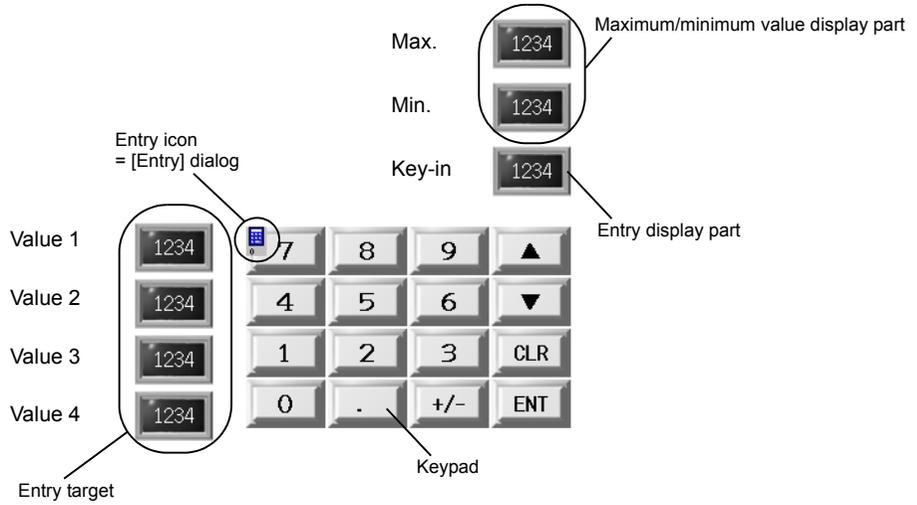
- You can create a password entry screen easily using a character display part. (Refer to page 7-26.)



- You can move the cursor only to the data display parts that require data entry. (Refer to page 7-33.)
- An entry screen that looks like a digital switch can be created. (Refer to page 7-37.)

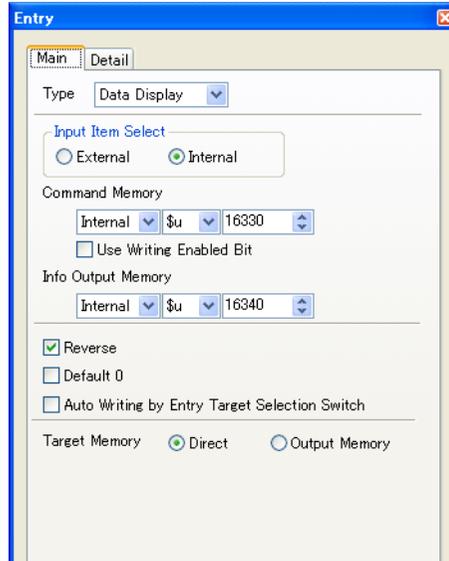
## Configuration

The entry mode components are shown below.



## [Entry] Dialog

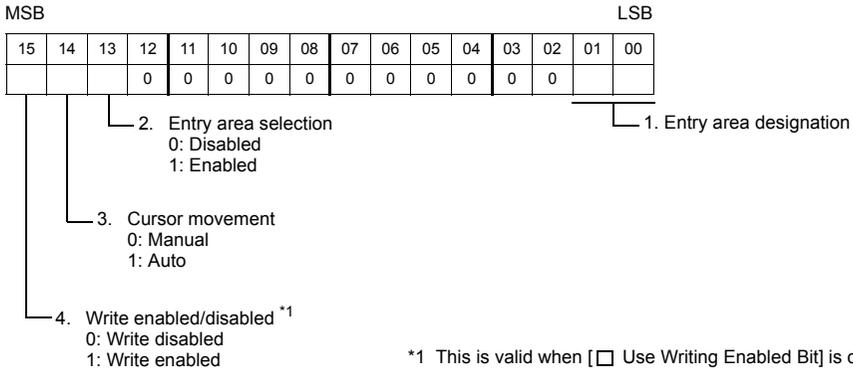
### Main



Type (Data Display, Data Block)	Select the format to be used in the entry mode.  Data Display: Enter data on the data display part (Function: Entry Target) placed on the base screen or an overlap window through the keypad.  Data Block: Enter data on the data display part (Function: Entry Target) placed on a data block (refer to page 7-38) through the keypad.
Input Item Select (Internal, External)	Choose the method for selecting a data field for entry target.  Internal: The [Function: UP/DW] switches are used for controlling the cursor and selecting an entry target. External: Specify the order number ([Order INC]) for [Command Memory] for entry target selection.
Command Memory	This is used for controlling entry mode. The memory contents depend on the selection of [Internal] or [External] for [Input Item Select]. For more information, refer to page 7-6.
<input type="checkbox"/> Use Writing Enabled Bit	When this box is checked, writing is disabled unless the bit specified for [Command Memory] is set. For more information, refer to page 7-6.
Info Output Memory	The status of entry mode is written into the specified memory address. The memory contents depend on whether the <input type="checkbox"/> Line/Column Output box in the [Detail] tab window is checked or not. For more information, refer to page 7-8.
<input type="checkbox"/> Reverse	When this box is checked, the data field currently selected by the cursor as an entry target is reversed (highlighted).

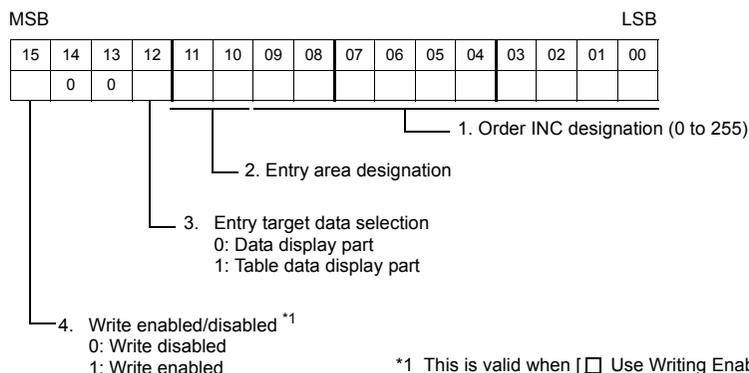
<input type="checkbox"/> Default 0	<p>This is valid when a data display part (Function: Entry Display Part) is placed.</p> <p>When this box is checked, data on the entry display part is reset to "0" if it is a numeric value or is reset to a space if it is text each time the [Write] key is pressed.</p>
<input type="checkbox"/> Auto Writing by Entry Target Selection Switch	<p>When the cursor moves to another data display part (Function: Entry Target), the entered value is written into memory.</p>
<p>Target Memory (Direct, Output Memory)</p>	<p>Select the target memory where data should be written when the [Write] key is pressed.</p> <p>Direct: Data is written to the memory address specified for [Memory] for the data display part (Function: Entry Target).</p> <p>Output Memory: Numerical data entry: → [Info Output Memory] n + 2, n + 3 Character data entry: → [Info Output Memory] n + 2 and allocating as many words as "the number of bytes ÷ 2"</p>

### Command memory (Input Item Select: Internal)



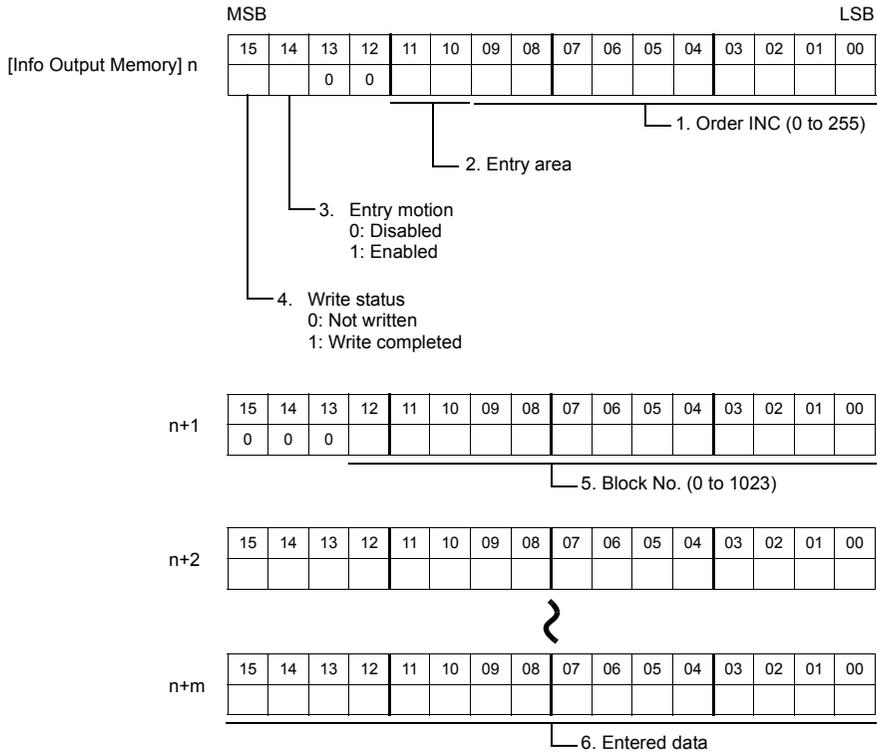
1. Entry area designation	<p>This is valid when input area selection is enabled [1]. Specify the area the cursor can move. The contents are shown below:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2">Bit No.</th> <th colspan="2">Type</th> </tr> </thead> <tbody> <tr> <td>01</td><td>00</td><td>Data Display</td><td>Data Block</td> </tr> <tr> <td>0</td><td>0</td><td>Base</td><td>Data block area No. 0</td> </tr> <tr> <td>0</td><td>1</td><td>Overlap ID 0</td><td>Data block area No. 1</td> </tr> <tr> <td>1</td><td>0</td><td>Overlap ID 1</td><td>Data block area No. 2</td> </tr> <tr> <td>1</td><td>1</td><td>Overlap ID 2</td><td>Data block area No. 3</td> </tr> </tbody> </table>	Bit No.		Type		01	00	Data Display	Data Block	0	0	Base	Data block area No. 0	0	1	Overlap ID 0	Data block area No. 1	1	0	Overlap ID 1	Data block area No. 2	1	1	Overlap ID 2	Data block area No. 3
Bit No.		Type																							
01	00	Data Display	Data Block																						
0	0	Base	Data block area No. 0																						
0	1	Overlap ID 0	Data block area No. 1																						
1	0	Overlap ID 1	Data block area No. 2																						
1	1	Overlap ID 2	Data block area No. 3																						
2. Entry area selection	<p>Select the area where the cursor can move between the data fields to select an entry target.</p> <p>0: Disabled          The cursor moves in the areas in the following order:          1) Base screen          2) Overlap ID 0          3) Overlap ID 1          4) Overlap ID 2</p> <p>1: Enabled          The cursor moves in the specified area only.          For the procedure of area designation, refer to "1. Entry area designation."</p>																								
3. Cursor movement	<p>This bit determines whether or not to move the cursor automatically to the next display part for entry when the [Write] key is pressed.</p> <p>0: Manual          The cursor remains in the same position when the [Write] key is pressed. It is necessary to move the cursor manually.</p> <p>1: Auto          The cursor moves to the next display part for entry when the [Write] key is pressed.</p>																								
4. Write enabled/disabled	<p>This is valid when <input type="checkbox"/> Use Writing Enabled Bit] is checked on the [Entry] dialog. This bit determines whether the data entry keys are disabled or enabled. When <input type="checkbox"/> Use Writing Enabled Bit] is not checked, the entry keys are always enabled.</p> <p>0: Write disabled          The entry keys are all disabled. If an entry key is pressed, an error beep sounds and no entry is possible. However, only the scroll switches that control the cursor can be accepted.</p> <p>1: Write enabled          The entry keys are acceptable.</p>																								

## Command memory (Input Item Select: External)



1. Order INC designation	Specify the order number (Order INC) of the data display or table data display part to be used as an entry target. (Bit 0 to bit 7 are used when [DEC] is selected; bit 0 to bit 9 are used when [BCD] is selected.)																																
2. Entry area designation	Specify the area the cursor can move. The contents are shown below: <table border="1" style="width: 100%; text-align: center; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th colspan="2">Bit No.</th> <th colspan="2">Type</th> </tr> </thead> <tbody> <tr> <td>11</td><td>10</td><td>Data Display</td><td>Data Block</td> </tr> <tr> <td>0</td><td>0</td><td>Base</td><td>Data block area No. 0</td> </tr> <tr> <td>0</td><td>1</td><td>Overlap ID 0</td><td>Data block area No. 1</td> </tr> <tr> <td>1</td><td>0</td><td>Overlap ID 1</td><td>Data block area No. 2</td> </tr> <tr> <td>1</td><td>1</td><td>Overlap ID 2</td><td>Data block area No. 3</td> </tr> </tbody> </table>	Bit No.		Type		11	10	Data Display	Data Block	0	0	Base	Data block area No. 0	0	1	Overlap ID 0	Data block area No. 1	1	0	Overlap ID 1	Data block area No. 2	1	1	Overlap ID 2	Data block area No. 3								
Bit No.		Type																															
11	10	Data Display	Data Block																														
0	0	Base	Data block area No. 0																														
0	1	Overlap ID 0	Data block area No. 1																														
1	0	Overlap ID 1	Data block area No. 2																														
1	1	Overlap ID 2	Data block area No. 3																														
3. Entry target data selection	Select the data display part type to be used as an entry target. 0: Data display part 1: Table data display part For table data display parts, [Command Memory] (n + 1) is also used.  [Command Memory] n + 1  MSB <span style="float: right;">LSB</span> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse; margin-top: 10px;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center; margin-top: 5px;">└── Column selection (1 to 25)      Line selection (1 to 20) ─┘</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0							0	0						
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0							0	0																								
4: Write enabled/disabled	This is valid when <input type="checkbox"/> Use Writing Enabled Bit] is checked on the [Entry] dialog. This bit determines whether the entry keys are disabled or enabled. When <input type="checkbox"/> Use Writing Enabled Bit] is not checked, the entry keys are always enabled.  0: Write disabled The entry keys are all disabled. If an entry key is pressed, an error beep sounds and no entry is possible. However, only the scroll switches that control the cursor can be accepted. 1: Write enabled The entry keys are acceptable.																																

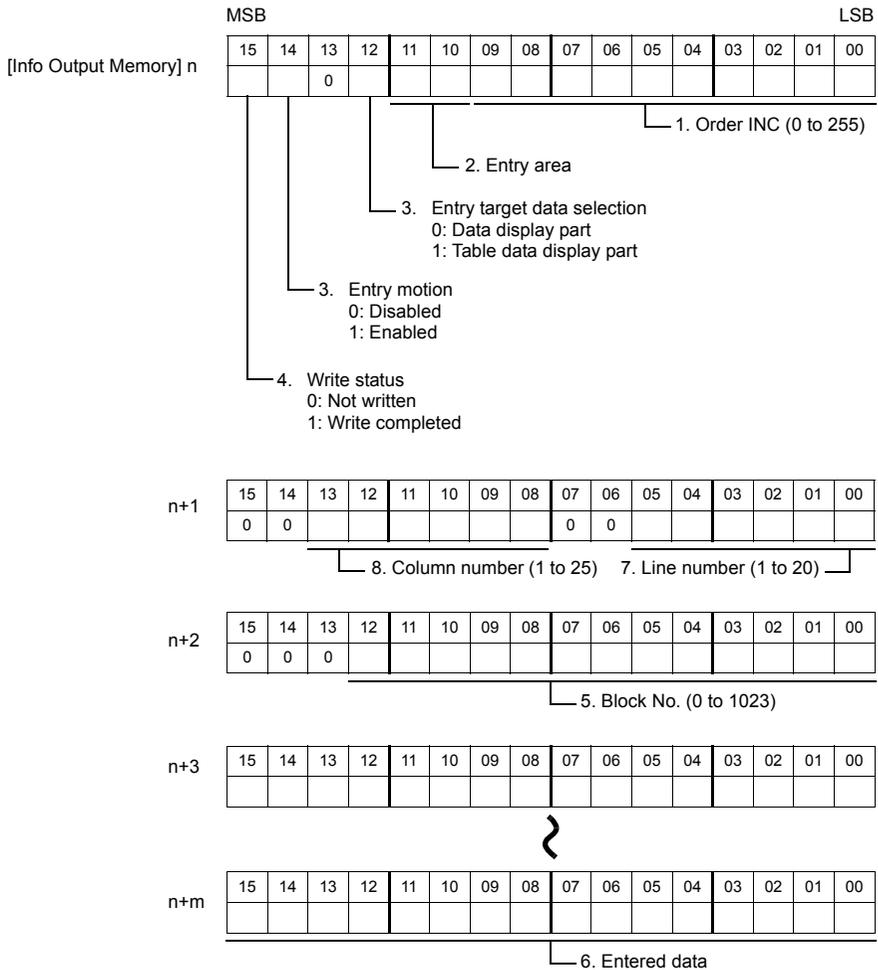
**Info output memory ([Line/Column Output] is not checked)**



1. Order INC	The order INC of the currently selected entry target is stored. (Bit 0 to bit 7 are used when [DEC] is selected; bit 0 to bit 9 are used when [BCD] is selected.)																								
2. Entry area	The currently selected entry area number is written. The contents are shown below: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="2">Bit No.</th> <th colspan="2">Type</th> </tr> <tr> <th>11</th> <th>10</th> <th>Data Display</th> <th>Data Block</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Base</td> <td>Data block area No. 0</td> </tr> <tr> <td>0</td> <td>1</td> <td>Overlap ID 0</td> <td>Data block area No. 1</td> </tr> <tr> <td>1</td> <td>0</td> <td>Overlap ID 1</td> <td>Data block area No. 2</td> </tr> <tr> <td>1</td> <td>1</td> <td>Overlap ID 2</td> <td>Data block area No. 3</td> </tr> </tbody> </table>	Bit No.		Type		11	10	Data Display	Data Block	0	0	Base	Data block area No. 0	0	1	Overlap ID 0	Data block area No. 1	1	0	Overlap ID 1	Data block area No. 2	1	1	Overlap ID 2	Data block area No. 3
Bit No.		Type																							
11	10	Data Display	Data Block																						
0	0	Base	Data block area No. 0																						
0	1	Overlap ID 0	Data block area No. 1																						
1	0	Overlap ID 1	Data block area No. 2																						
1	1	Overlap ID 2	Data block area No. 3																						
3. Entry motion	This bit is valid when multiple entry mode parts are placed on the screen. An entry mode part can be placed on the base screen or an overlap window, respectively. If multiple entry mode parts are displayed at the same time, the one shown at the forefront becomes active. This bit is set to "1" when the entry mode part is at the forefront. (If there is only one entry mode part displayed, the bit is always "1".)																								
4. Write status	This bit shows whether the [Write] key has been pressed or not.  0: Not written Indicates that the [Write] key has not been pressed. 1: Write completed Indicates that the [Write] key has been pressed and that data is written to memory. Unless the cursor moves to another entry target, this bit remains "1". It is recommended to clear this bit to "0" when confirmation has been finished.																								
5. Block number	These bits are valid when you select [Type: Data Block] on the [Main] tab window of the [Entry] dialog. The currently displayed data block number is stored.																								

6. Entered data	These bits are valid when you select [Target Memory: Output Memory] on the [Main] tab window of the [Entry] dialog. The entered value is stored. Numeric value: 2 words maximum Text: "The number of bytes ÷ 2" words (if the number of bytes is odd, 1 is added.)
-----------------	---

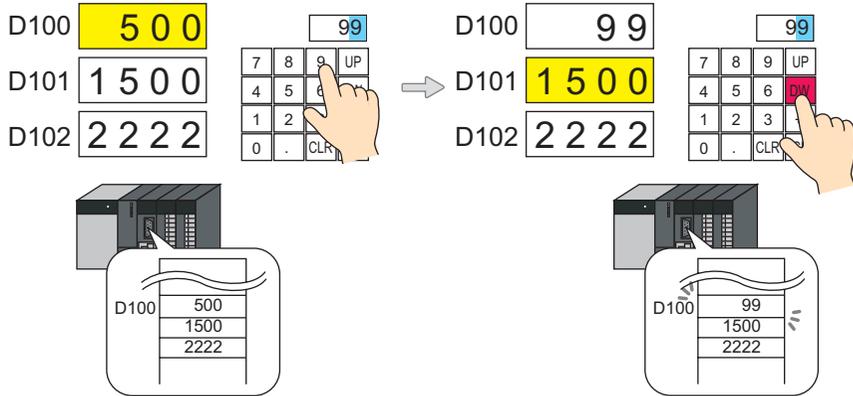
**Info output memory ([ Line/Column Output] is checked)**



1. to 6.	Refer to page 7-8.
7. Line number 8. Column number	The line and column numbers of the selected table data cell are stored.

**Auto writing by entry target selection switch**

When the box for  Auto Writing by Entry Target Selection Switch] is checked on the [Main] tab window of the [Entry] dialog, entered data is written into memory not when [Write] key is pressed but when the cursor is moved to the next data display part using a cursor movement switch.



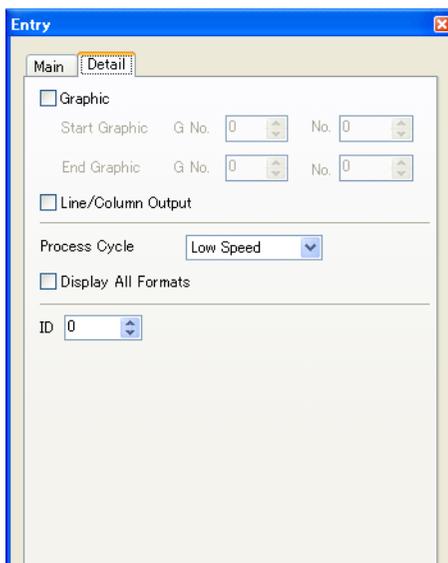
- Cursor movement switches

Function	
Entry	DW
	UP
	>>
	<<
Table Data	Cursor Movement to Right
	Cursor Movement to Left
	Table Move +
	Table Move -

- Note

When an entry mode part is placed on an overlap window, it is not possible to hide the overlap window after entered data has been written automatically into memory by moving the cursor, differently from the [Write] key.

## Detail



<input type="checkbox"/> Graphic	<p>Text on the entry key can be switched over as required.</p> <p>Unchecked: The text set on the switch part is regarded as to be entered text.</p> <p>Checked: The text placed on the graphic library is regarded as entry text. To switch over multiple graphic libraries, use the [Function: Graphic Library] switch. For more information, refer to page 7-27.</p>
<input type="checkbox"/> Line/Column Output	<p>This is valid when you use [Table Data Display] for entry target. When this box is checked, the line and column numbers are stored in [Info Output Memory] (n + 1).</p>
Process Cycle	<p>For more information, refer to "Appendix 5 Process Cycle."</p>
<input type="checkbox"/> Display All Formats	<p>When this box is checked, the number of options for [Type] on the [Main] tab window increases.</p> <p>Memory Card: Used for a keypad that allows name editing in the memory card mode. For more information, refer to "15.2 Memory Card Mode."</p> <p>Recipe Item: Used for a keypad that allows name editing in the recipe mode. For more information, refer to "13 Recipe Mode."</p> <p>Direct: Used for controlling the whole processing up to data write operation using external commands. For more information, refer to page 7-39.</p>
ID	<p>Set the ID. For more information on the ID, refer to the Operation Manual.</p>
<input type="checkbox"/> GD80 Compatible	<p>This is valid when [<input type="checkbox"/> Display All Formats] is checked. This is used for keeping compatibility with GD-80. (For more information, refer to the File Conversion Manual provided separately.)</p>

## Keypad

### Type

#### Numeric data entry keys



#### Character entry keys



- When using graphic libraries:  
If there are too many characters to be displayed, it is possible to switch over the character set displayed on the entry keys.

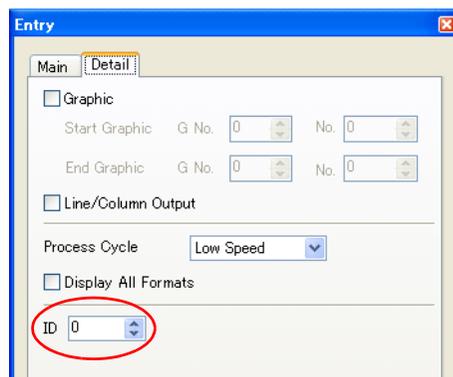
### Notes on Placement

Set the same ID as set the [Entry] dialog for the switch for a keypad or other entry keys.

The ID of the entry mode can be known from the number shown at the bottom left of the [Entry] icon or on the [Detail] tab window of the [Entry] dialog.



or



- \* To check the ID of each key, select [View] → [Display Environment] and check the box for [ Display ID Number].

For more information on the ID, refer to the Operation Manual.

## List of Functions

The following switches can be used in the entry mode.

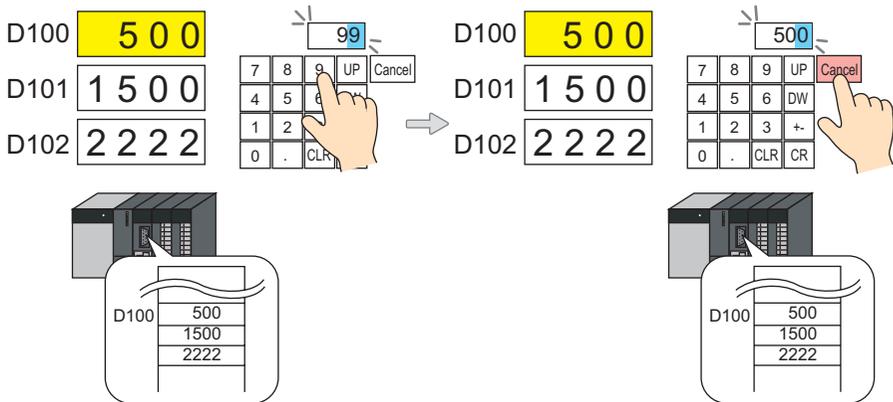
\* **These switches do not work independently. Be sure to link them with entry mode (set the same ID as entry mode).**

Function	Action	Remarks	See:
Character Input	Numeric or character codes are entered.		–
Write	Entered data is written to the specified memory address.		–
Clear	Entered data is cleared.		–
Toggle Sign	Entered sign is inverted.	Target: Num. Display	–
Space	One-byte space is entered.	Target: Char. Display	–
Backspace	The character before the cursor is deleted.	Target: Char. Display	–
DELETE	The character of the current cursor position is deleted.	Target: Char. Display	–
+1	The number at the current cursor position is increased by one.	Target: Num. Display	–
–1	The number at the current cursor position is decreased by one (–1).	Target: Num. Display	–
Add	A specified constant is added. (Data is written when the [Write] key is pressed.)	Target: Num. Display	page 7-37
Subtraction	A specified constant is subtracted. (Data is written when the [Write] key is pressed.)	Target: Num. Display	
Cancel	Data entry is reset to the default during entry operation.		page 7-14
LFT	The cursor is moved to the left.		–
RGT	The cursor is moved to the right.		–
UP	The entry target is moved to the data display part of which order INC is decreased by one (–1).		–
DW	The entry target is moved to the data display part of which order INC is increased by one (+1).		–
>>	The area currently selected for entry target is moved to an area of which number is increased by one (+1).		–
<<	The area currently selected for entry target is moved to an area of which number is decreased by one (–1).		–
Conversion of Kanji	Kanji mode is selected. *JIS level-1 Kanji set only	Target: Char. Display	–
Graphic Library	The specified graphic is displayed.		page 7-28
+ Block	The block/graphic number is increased by one (+1).	Target: Data Block	page 7-38
– Block	The block/graphic number is decreased by one (–1).	Target: Data Block	
Cursor Movement to Right	The cursor is moved to the right in a table data display part.	Target: Table Data Display	page 7-18
Cursor Movement to Left	The cursor is moved to the left in a table data display part.	Target: Table Data Display	
Table Move +	When there are multiple table data display parts, the cursor is moved to the table of which number is increased by one (+1).	Target: Table Data Display	page 7-19
Table Move –	When there are multiple table data display parts, the cursor is moved to the table of which number is decreased by one (–1).	Target: Table Data Display	
80 Compatible HEX Key	HEX keys compatible with the GD-80 series	For compatibility with GD-80	–
80 Compatible HEX Key Change	HEX keys compatible with the GD-80 series	For compatibility with GD-80	–
Max. Value Entry	When this switch is pressed for an entry target with the alarm setting, the maximum setting value is displayed.	Target: Num. Display	page 7-15
Min. Value Entry	When this switch is pressed for the entry target with the alarm setting, the minimum setting value is displayed.	Target: Num. Display	

Function	Action	Remarks	See:
Multi-char. Input	Characters in each pattern are changed over by the switch for [Char. Switching (+), Char. Switching (-)].		
Switching (Entry Mode Change)			
Switching (1-byte/2-byte Char. Change)			
Switching (Caps Lock)			
Direct Input			
Word Edit		Target: Char. Display	
Word Registration		Target: Char. Display	
Char. Switching (+)	The pattern and text of the [Multi-char. Input] switch are switched from OFF → P15.		
Char. Switching (-)	The pattern and text of the [Multi-char. Input] switch are switched from P15 → OFF.		

**[Function: Cancel] switch**

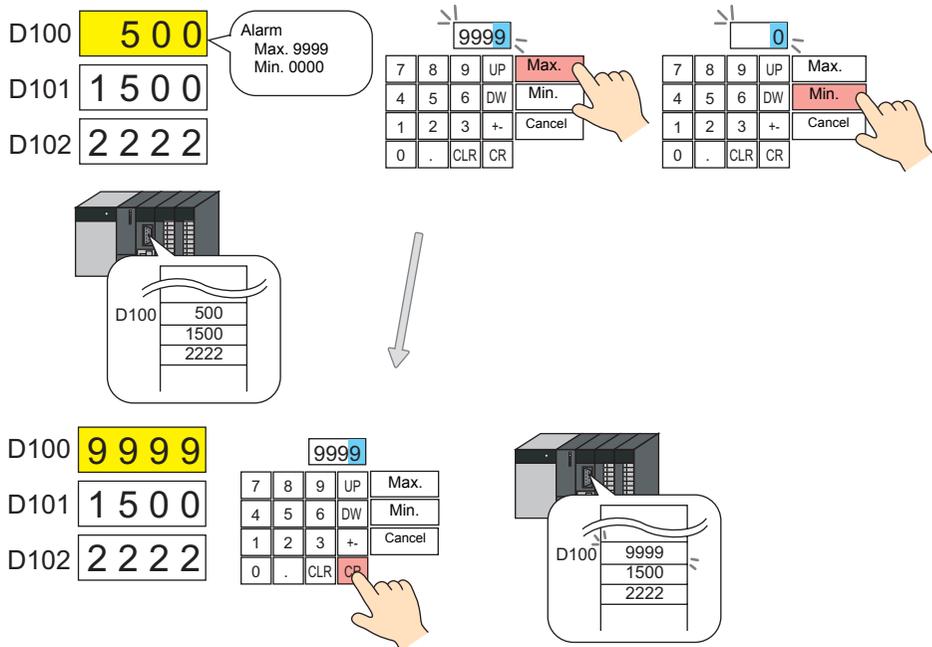
When the [Cancel] key is pressed during data entry, the entry motion is canceled and the field is reset to the previous data.



### [Function: Max./Min. Value Entry] switch

When the maximum and minimum values (alarm setting) are set for an entry target, pressing the [Max. Value Entry] switch and [Min. Value Entry] switch brings up the maximum and minimum values, respectively. When the [Write] key is pressed, entered data is written into memory.

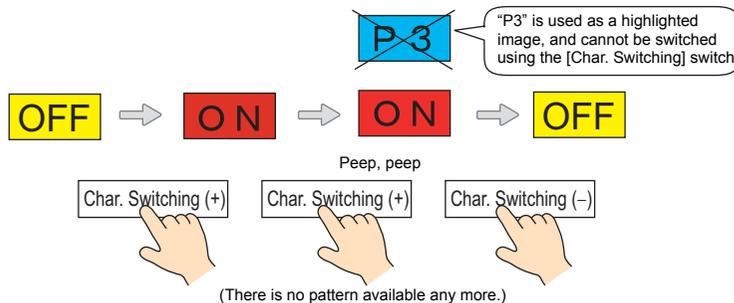
\* For more information on the entry target, refer to page 7-16.



### [Function: Char. Switching (+) / Char. Switching (-)] switch

Pressing the [Char. Switching (+), Char. Switching (-)] switch changes over the text on the [Multi-char. Input] switch. With the [Multi-char. Input] switch, not only the text but also the pattern will be changed over. The maximum numbered pattern of the [Multi-char. Input] switch is used to show that the switch is highlighted when it is pressed.

Example: [Multi-char. Input] switch with 3 notches = "2" patterns can be registered



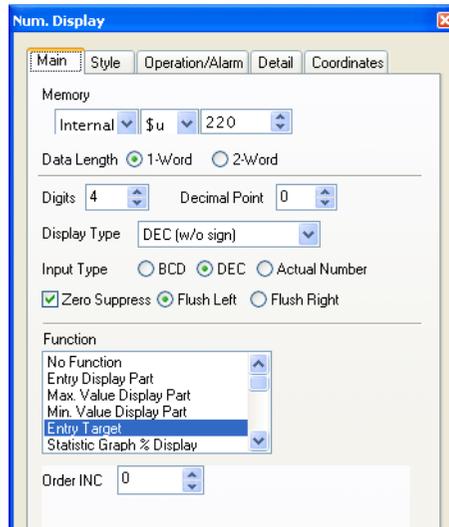
- The [Char. Switching (+) / Char. Switching (-)] switch is disabled when the Japanese conversion function is set.
- Text switching using graphic library is not possible even if  Graphic in the [Detail] tab window in the entry mode.

## Entry Target

This section describes the settings essential for entry mode.

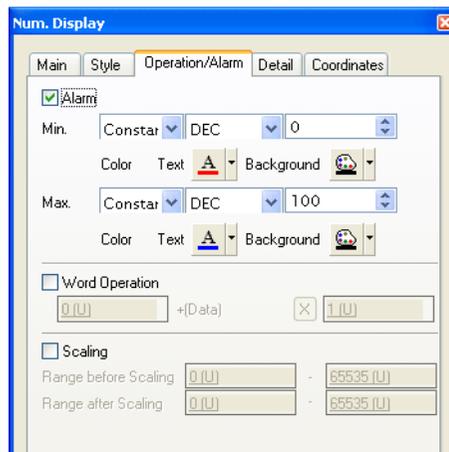
### Num./Char. Display

#### Main



Memory	Specify the memory address to which data is written by pressing the [Write] key.
Function	Select [Entry Target].
Order INC (0 to 255)	Set the number of order of moving the cursor using scroll switches, etc.

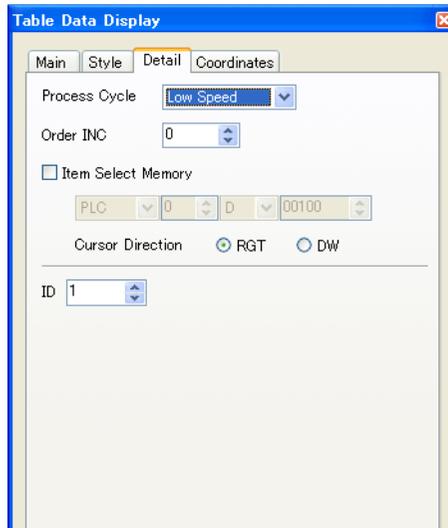
#### Operation/Alarm



<input type="checkbox"/> Alarm	Set the data range that can be written by pressing the [Write] key. When the maximum and minimum values are set, only the values within this range are acceptable. * However, if the value is changed by an external command, this alarm setting is ignored.
--------------------------------	---

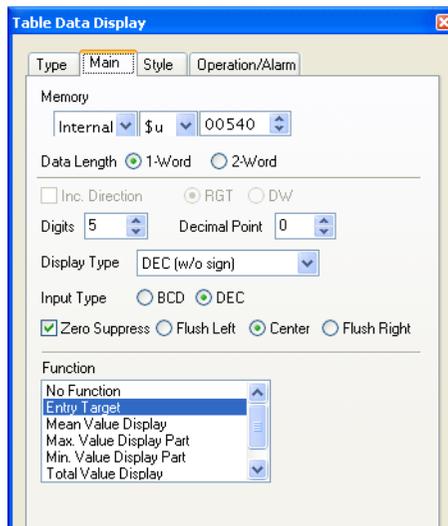
## Table Data Display

### Detail



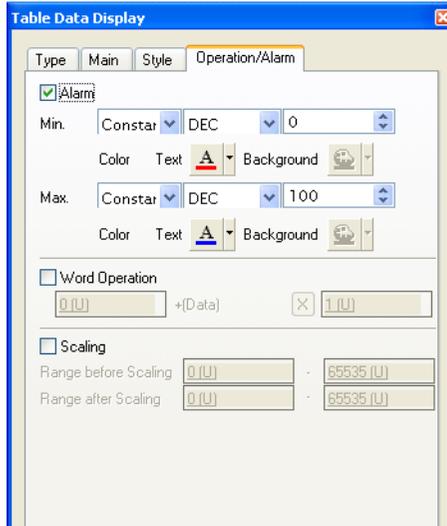
Order INC (0 to 255)	When multiple table data display parts (Function: Entry Target) are present, determine the order of decreasing precedence.
Cursor Direction (RGT, DW)	This is valid when [Internal] is selected for [Input Item Select] for entry mode and bit 14 (cursor movement) of [Command Memory] is set. This option determines the direction in which the cursor moves when the [Write] key is pressed.

### Main (cell → [Detail Setting] → [Type: Num. Display]/[Type: Char. Display])



Memory	Specify the memory address to which data is written by pressing the [Write] key.
Function	Select [Entry Target].

## Operation/Alarm



Alarm

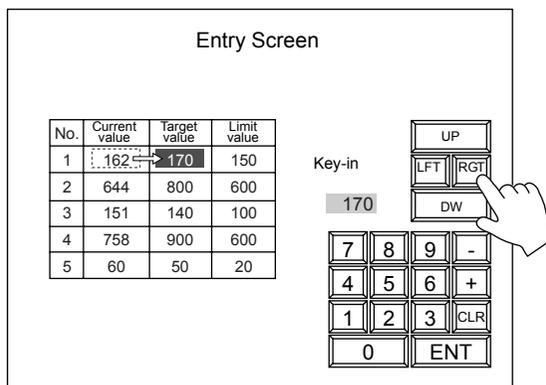
Set the data range that can be written by pressing the [Write] key. When the maximum and minimum values are set, only the values within this range are acceptable.

**\* However, if the value is changed by an external command, this alarm setting is ignored.**

**If data exceeding the specified range is transferred using an external command, it is shown in the color specified for [Color].**

### Notes on table data display part

- If multiple entry targets are present in a table data display part, move the cursor using the [DW] [UP] switches or [Cursor Movement to Right] [Cursor Movement to Left] switches.



- When multiple table data display parts with entry target are present, move the cursor between the table data display parts using the [Table Move +] [Table Move -] switches.

Entry Screen

No.	Current value	Target value	Limit value
1	162	170	150
2	64	800	600
3	15	140	100
4	75	900	600
5	60	50	20

No.	A	B	C	D
1	10	425	700	1615
2	52	754	100	1554
3	45	433	300	1225

Table Move +    Table Move -

UP

Key-in    <-    ->

10    DW

7	8	9	-
4	5	6	+
1	2	3	CLR
0	ENT		

When this switch is pressed, the cursor moves to the top cell in the other table data display part.

- Special function for table data display part

When graphics text is set in the cell in the first line under the first column in a table data display part, the first line is automatically equipped with a switch function.

When you press the first line, the cursor moves to the first entry target cell in the table data display part.

(This works in the same way as the [Table Move +] or [Table Move -] switch.)

Entry Screen

No.	Current value	Target value	Limit value
1	162	170	150
2	64	800	600
3	15	140	100
4	75	900	600
5	60	50	20

No.	A	B	C	D
1	10	425	700	1615
2	52	754	100	1554
3	45	433	300	1225

Table Move +    Table Move -

UP

Key-in    <-    ->

10    DW

7	8	9	-
4	5	6	+
1	2	3	CLR
0	ENT		

Works in the same way as these switches

When you press the first line, the cursor moves to the top cell in the table data display part.

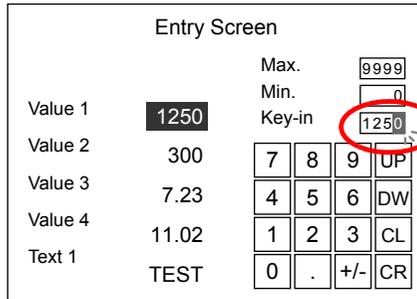
The special function described above is valid under the following conditions:

- The IDs for entry mode and table data display part are not identical.
- [Data Display] is selected for [Type] for entry mode.

## Entry Display

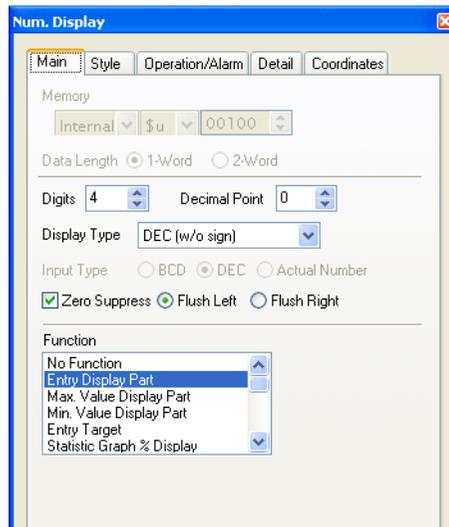
### What Is “Entry Display”?

An “Entry Display” part is an area where data entered using entry keys is temporarily displayed.



When there is no entry display part, entered data is temporarily displayed on the entry target. This section describes the settings essential for entry mode.

### Main

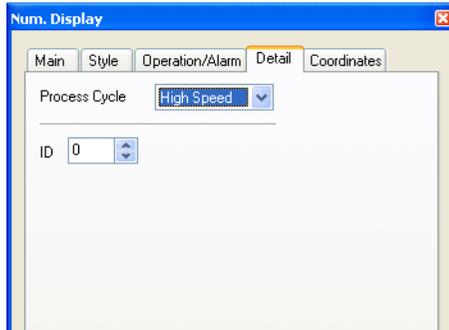


Digits	For entry display parts on MONITOUCH, the system automatically refers to the properties set for the entry target. Make these settings for the purpose of layout on the editor. Lay out the part referring to the greatest value or the longest display among the entry targets.
Decimal Point	
Display Type	
<input type="checkbox"/> Zero Suppress	
Function	
	Select [Entry Display Part].

---

## Detail

---

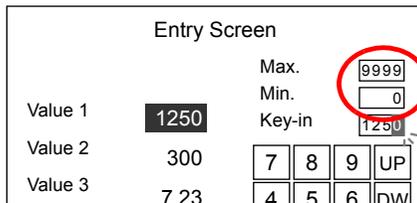


ID	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.
----	---

## Max./Min. Value Display (for Numerical Data Only)

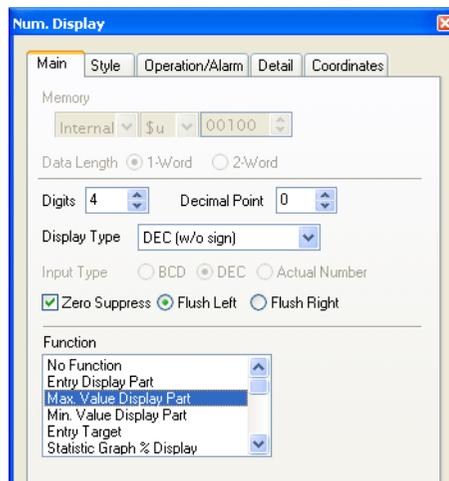
### What Is “Max./Min. Value Display”?

“Max./Min. Value Display” parts define a data range that can be entered using entry keys. This is valid when the box for  Alarm] is checked for the numerical data display part or table data display part (numerical) set as an entry target.



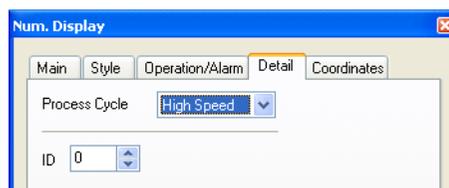
This section describes the settings essential for entry mode.

### Main



Digits	For maximum/minimum value display parts on MONITOUCH, the system automatically refers to the alarm setting made for the entry target. Make these settings for the purpose of layout on the editor. Lay out the part referring to the greatest value or the longest display among the alarm settings for entry targets.
Decimal Point	
Display Type	
<input type="checkbox"/> Zero Suppress	
Function	
	Select [Max. Value Display Part] or [Min. Value Display Part].

### Detail



ID	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.
----	--

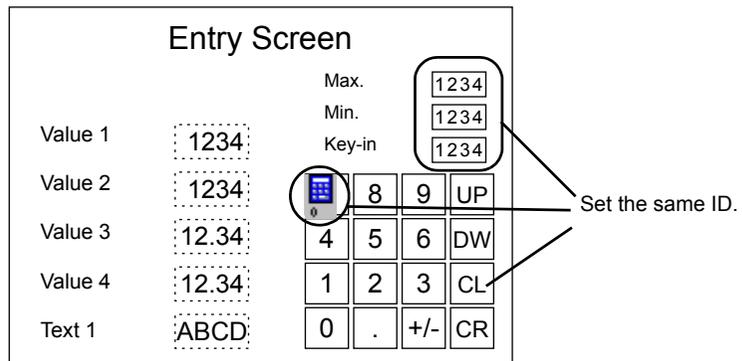
## Placing Entry Targets and Keypad on Base Screen ([Type: Data Display])

### Overview

This is a simple and basic example of using entry mode where all the entry mode settings are made on one screen.

### Setting Procedure

Note the following points when making settings.

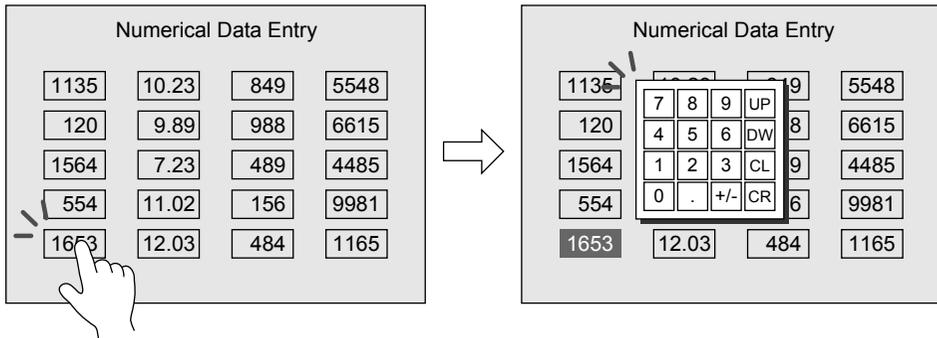


- Set the same ID for the keypad, entry display, maximum value display and minimum value display as specified in the [Entry] dialog.
- Set [Function: Entry Target] for the target data display parts.

## Showing Keypad Only When Necessary

### Overview

It is possible to place entry targets on the base screen and bring up a keypad only when data should be changed. Place the keypad on an overlap display part.

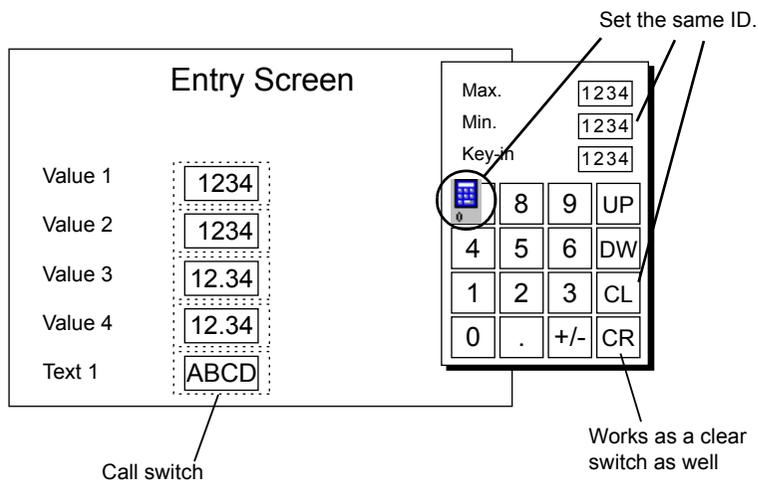


### Setting Procedure

- Place a keypad on an overlap display part with the same ID as specified in the [Entry] dialog. If an entry display, maximum value display or minimum value display part is also required, place it on the same overlap display part with the same ID.
- Place data display parts (Function: Entry Target) in the base screen.

#### To clear the keypad when the [Write] key is pressed:

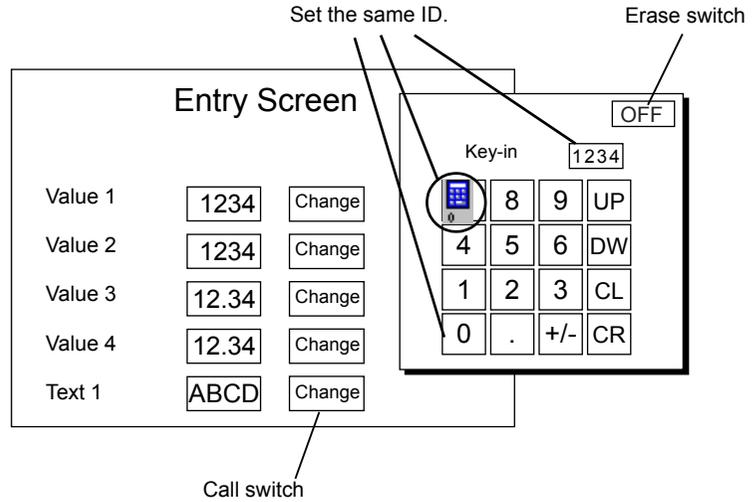
Overlay a [Call] switch for the keypad on the entry target.



- \* To keep the keypad displayed even when the [Write] key is pressed in the layout shown above, use system memory \$s76. When \$s76 ≠ 0, the overlap display part is not hidden; write a value other than "0" into \$s76 using the macro command (MOVE).

### Manually controlling the timing of showing or hiding the keypad

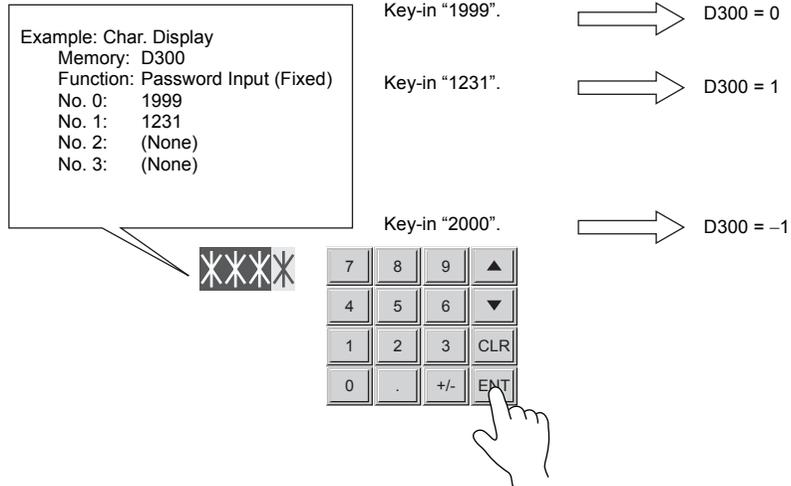
When the [Call] switch for the keypad is not overlaid on the entry target, the keypad is not hidden automatically by pressing the [Write] key. In this case, not only [Call] but also [Erase] must be executed using a switch part, etc.



## Password Function (For Char. Display Only)

### Overview

Using entry mode, a password entry screen can be created with ease.



### Setting Procedure

The following settings are required.

#### [Entry] dialog

Set [Type: Data Display].

#### Char. Display

Memory (Main)	<p>"Accept" or "reject" of the password is stored.</p> <p>Password matches:              When the password is accepted, 0 (to 3) is stored.</p> <p>Password does not match:              [-1] (FFFF H) is stored.</p>
Function (Main)	<p>Select [Password Input].              The following options are included.</p> <p>Fixed:              Select this option when there are four or less passwords.              Specify each password for No. 0 to 3 as necessary. (Max: 32 one-byte alphanumeric characters)</p> <p>Variable:              Select this option when there are more than four passwords.              Check the box for the password number, and specify the desired memory address.              Set a correct password in the specified memory address. This password is used for judging "accept" or "reject" of the input password.</p>

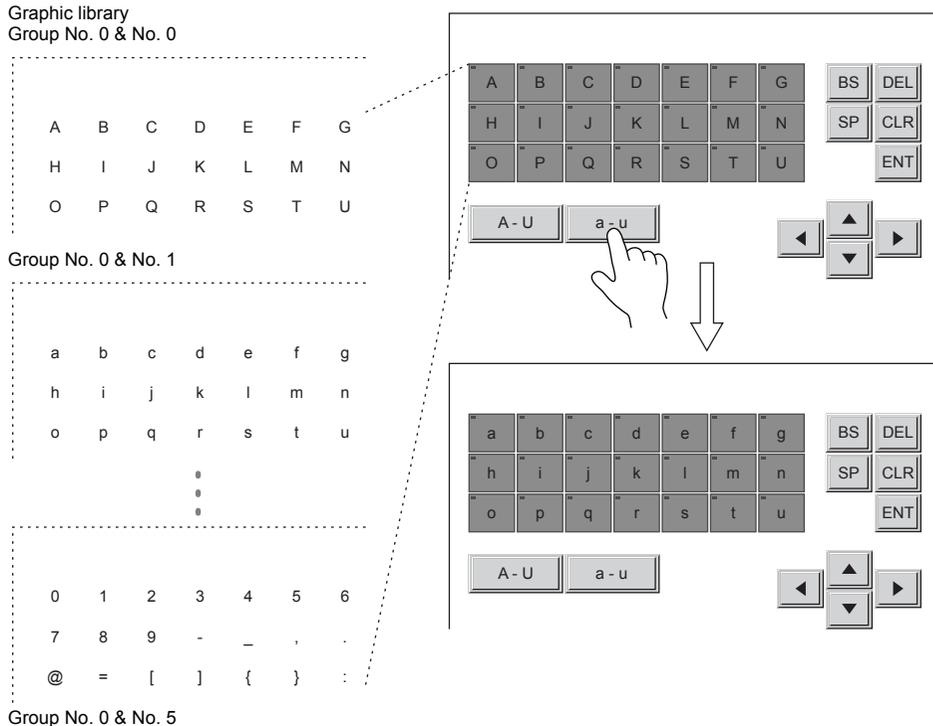
#### Keypad

Set the options in the same way as [Type: Data Display].

## Switching over Characters Displayed on Entry Keys

### Overview

If the space on the screen is not sufficient, you can switch over characters displayed on the entry keys. Register the characters to be switched as graphic libraries.



### Setting Procedure

The following settings are required.

#### [Entry] dialog

<input type="checkbox"/> Graphic	Check the box. Specify the graphic number range to be switched over. It is necessary to register as many graphic libraries as specified.
----------------------------------	--

#### Entry keys

Function (Main)	Select [Character Input] (Entry).
Draw Mode (Style)	Be sure to select [XOR]. * <b>Do not select a switch for which [XOR] cannot be selected.</b> <b>Use the [Change Part] button and select a 2D part for which [XOR] can be set.</b>
ID (Detail)	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.

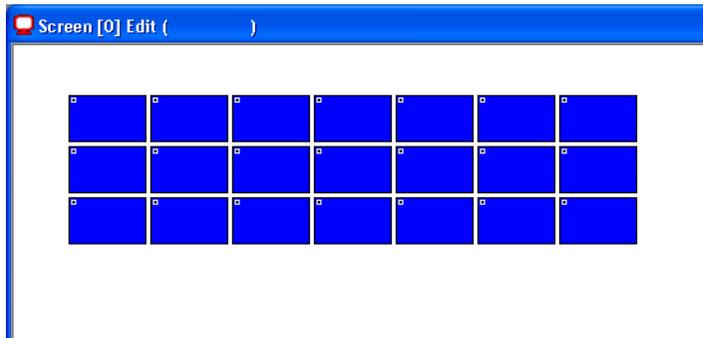
### Character change key

Function (Main)	Choose from the following functions. [+ Block] (standard) [- Block] (standard) [Graphic Library] (Entry) GNo./No.
ID (Detail)	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.

### Graphic library

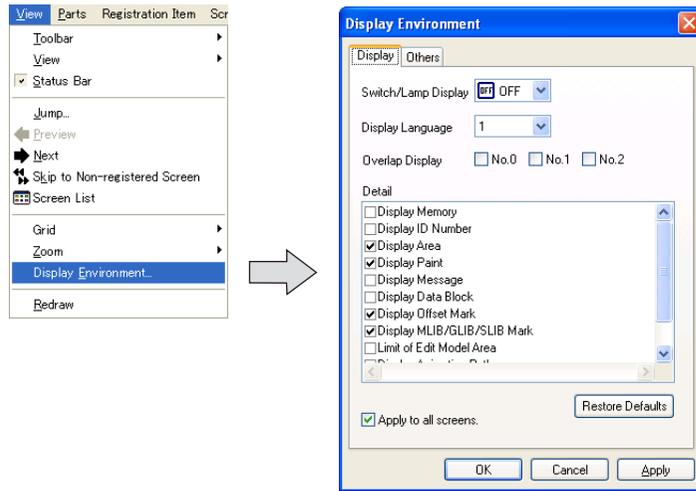
Register graphic libraries to be displayed on the entry keys.

Using the example where entry keys are placed as shown below, the procedure is explained.

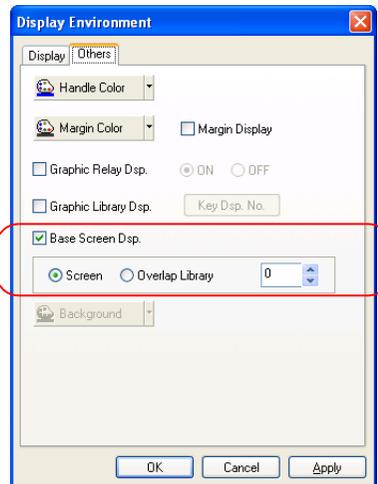


Step 1	<p>Click [Registration Item] → [Graphic Library]. Specify the graphic library number to be registered and click [OK].</p>
Step 2	<p>The [Graphic Library Edit] window is displayed.</p>

Step 3 Select [View] → [Display Environment]. The [Display Environment] dialog is displayed.

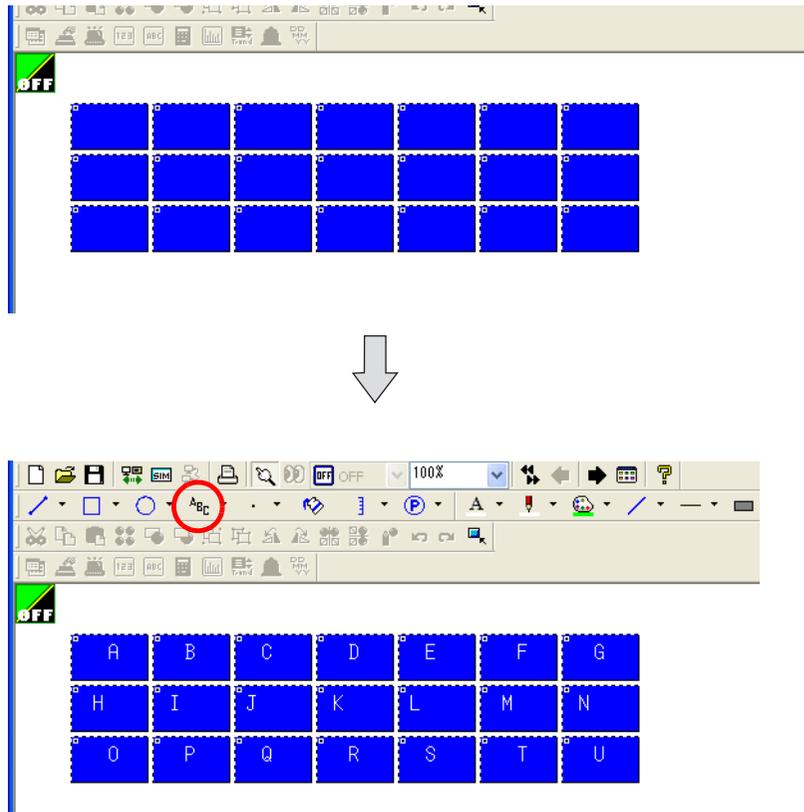


Step 4 Open the [Others] tab window, and check the box for  Base Screen Dsp.].



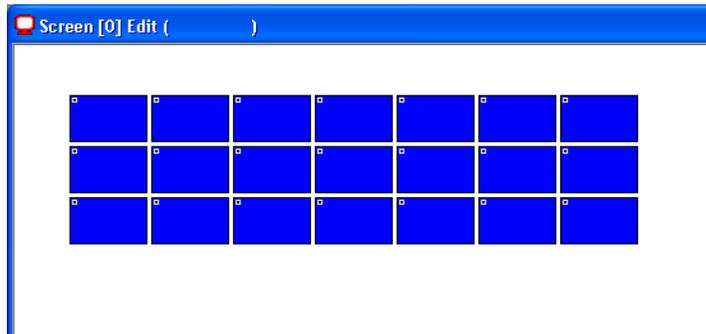
Specify the screen number where the keypad is placed, and click [OK].

Step 5 The screen layout is shown on the [Graphic Library Edit] window. On this window, place text graphics for characters to be displayed on the keypad.

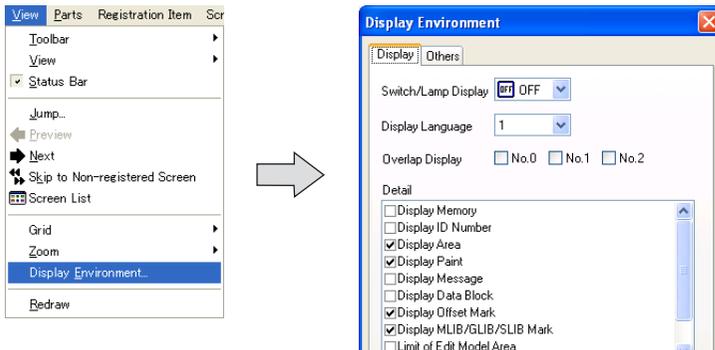


\* When you have finished the first graphic library, move to the next graphic library and place the next text graphics in the same manner. For more information on the graphic library editing procedure, refer to the Operation Manual.

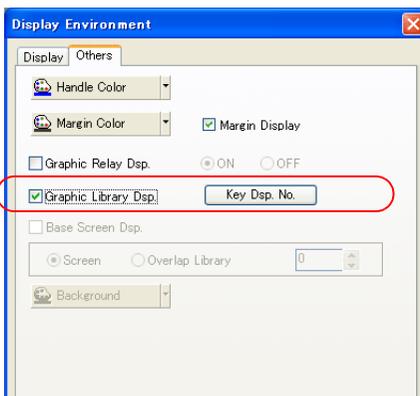
Step 6 When you have finished editing, close the [Graphic Library Edit] window. Return to the [Screen Edit] window.



Step 7 Check the registered graphic libraries on the screen. Select [View] → [Display Environment]. The [Display Environment] dialog is displayed.



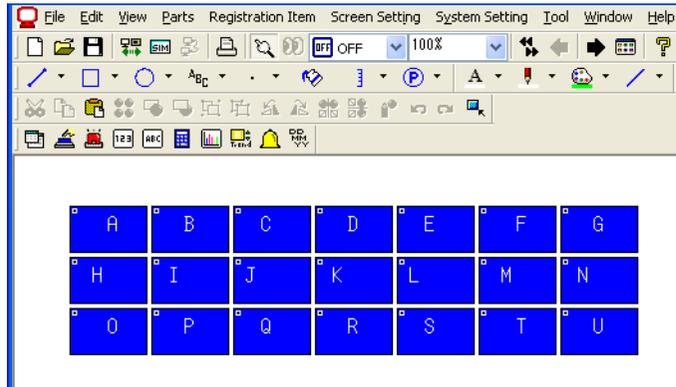
Step 8 Open the [Others] tab window and check the box for  Graphic Library Dsp.]. The [Key Dsp. No.] button becomes active. Click this button.



The [Key Dsp. No. Setting] dialog is displayed. Specify the required graphic library number and click [OK].

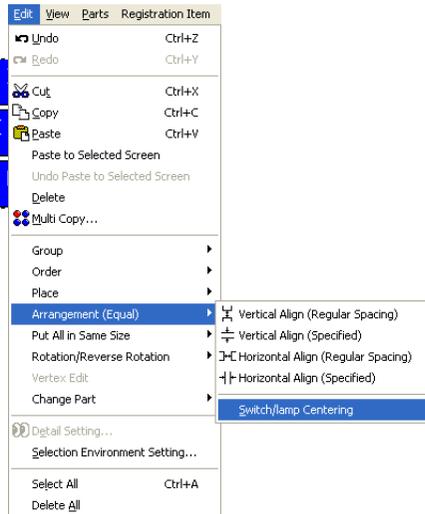
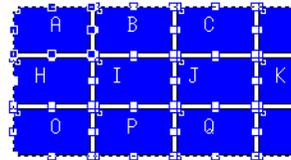


Step 9 The [Display Environment] dialog is displayed again. Click [OK].  
The registered graphic library is displayed on the keypad.



Step 10 The text on the graphic library can be centered on each key on the keypad.  
Select the keypad, and select [Edit] → [Arrangement (Equal)] → [Switch/lamp Centering]. The text is center-aligned.

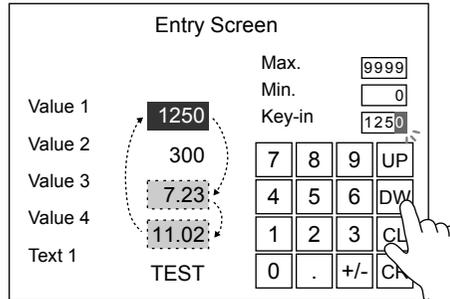
Switches selected



## Item Select Function

### Overview

- It is possible to limit cursor movement to certain entry targets when selecting a data field for entry. This is called the "item select function."



Data entry into "Value 2" and "Text 1" can be disabled if necessary.

- The item select function becomes available when [Data Display] or [Block] is chosen for [Type], and [Internal] is chosen for [Input Item Select] in the [Entry] dialog.
- When using the item select function, either use the [Function: Item Select] switch that is operated with the V8 series' internal switch (see next section) or use an external command with [Item Select Memory] (see page 7-34).

7

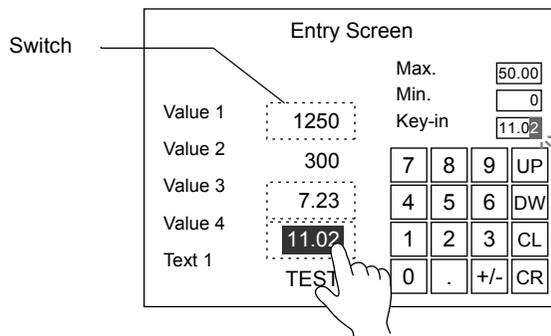
### Item Select Function with a Switch

#### [Function: Item Select] switch

When using the [Function: Item Select] switch, overlay it on the entry target.

Pressing the switch moves the cursor to the part.

- \* The [Function: Item Select] switches must be placed on the same editing layer (base screen or overlap ID 0 to 2) that is specified on the [Entry] dialog. Otherwise, the switches do not work.

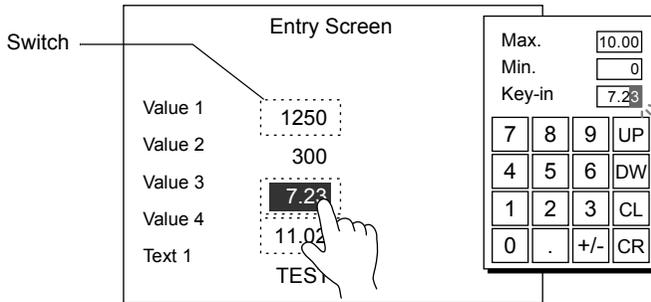


When the switch is pressed, the cursor moves.

**[Function: Overlap Display = ON (or Multi-Overlap Display)] switch**

When the [Function: Overlap Display = ON (or Multi-Overlap Display)] switch is overlaid on an entry target, pressing the switch brings up the overlap window with the cursor on it. (Refer to page 7-24.)

Each time a switch is pressed, the cursor moves; when an overlap display part is shown, the switch works in the same way as the [Function: Item Select] switch.



When the switch is pressed, an overlap window is brought up and the cursor appears in the pressed position.

While the overlap display part is shown, the cursor moves to the switch that is pressed.

**Item Select Function using tem Select Memory**

It is possible to control cursor movement by setting [Item Select Memory] on the same position where an entry target is placed.

**Setting position**

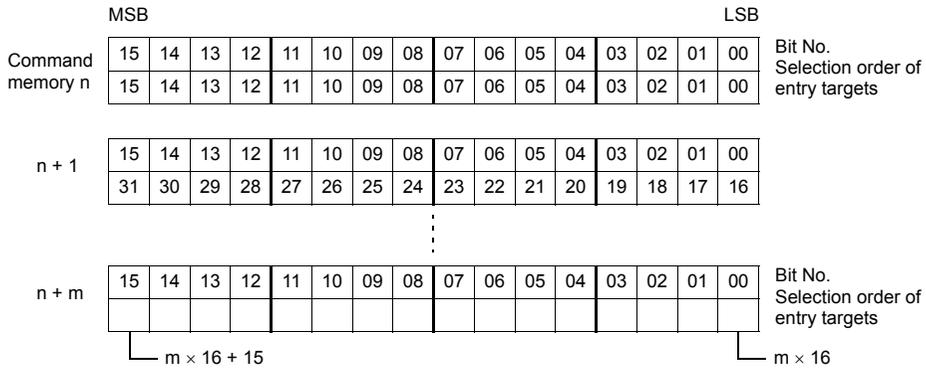
Entry Target		Setting position
Type	Placing position	
Num. Display Char. Display	Base screen	[Screen Setting] → [Screen Setting] → [Entry] tab window → [ <input type="checkbox"/> Item Select Memory]
	Normal overlap	[Normal Overlap] dialog → [Detail] tab window → [ <input type="checkbox"/> Item Select Memory]
	Multi-Overlap	[Multi-Overlap] dialog → [Detail] tab window → [ <input type="checkbox"/> Item Select Memory]
	Call-Overlap	[Call-Overlap] dialog → [Detail] tab window → [ <input type="checkbox"/> Item Select Memory]
	Data Block Area	[Data Block Area] dialog → [Detail] tab window → [ <input type="checkbox"/> Item Select Memory] <sup>*1</sup>
Table Data Display	-	[Table Data Display] dialog → [Detail] tab window → [ <input type="checkbox"/> Item Select Memory]

Check the box for [ Item Select Memory] and specify the top memory address of [Item Select Memory].

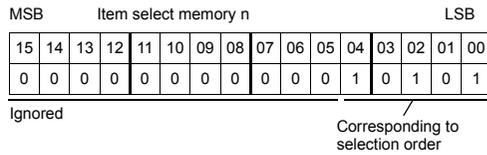
\*1 For [ Data Block Area] in the [Data Block Area] dialog, specify the top memory address and [Word Count].

**Contents of item select memory (Entry Target = Num. Display/Char. Display)**

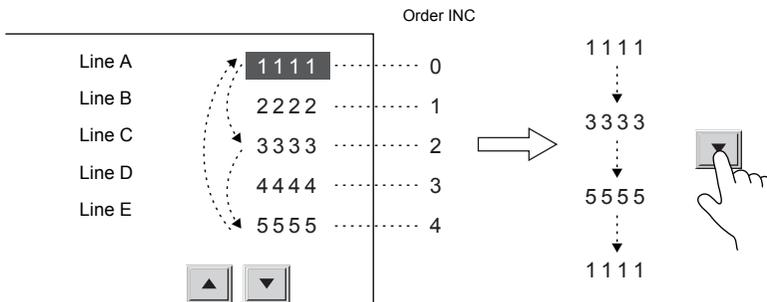
The memory addresses specified for [Item Select Memory] are linked with the selection order of entry targets as shown below:



Example: For the screen shown below:



The cursor moves to the data fields in the following order:



**Contents of item select memory (Entry Target = Table Data Display)**

Assignment depends on the number of columns of the table data display part.

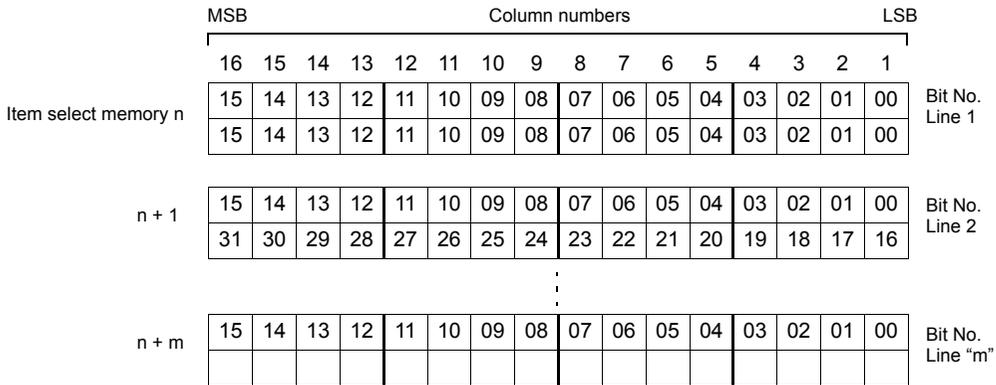
\* In this case, the selection order of data display parts is ignored.

Line and column numbers are fixed whether the [Display Function: Entry Target] parts are present or not. The line and column numbers are also assigned to those consisting of text graphics only.

- Table with 1 to 16 columns

For a table with 1 to 16 columns, one word is used for each line.

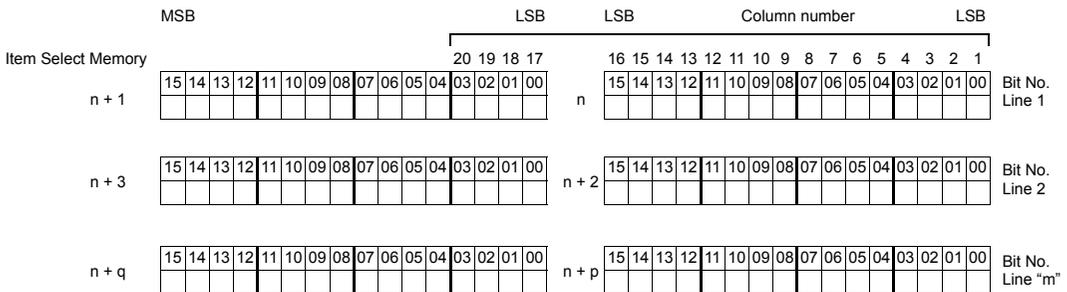
The total number of words used is as many as the number of lines.



- Table with 17 to 20 columns

For a table with 17 or more columns, 2 words are used for each line.

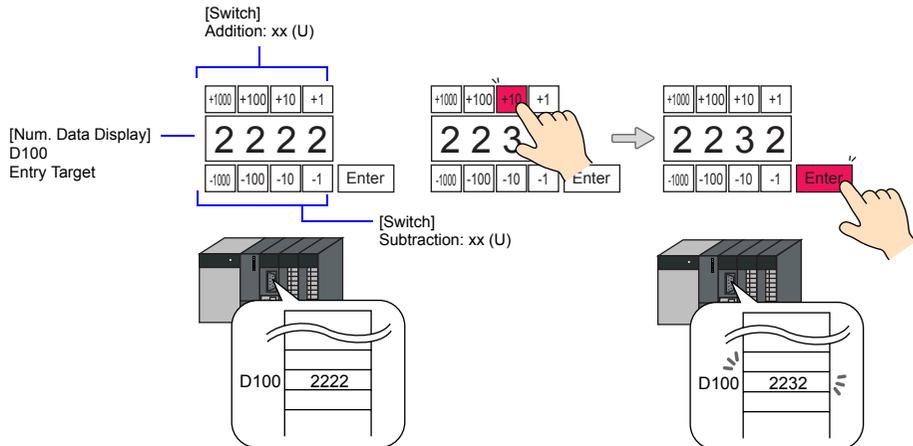
The total number of words used is twice as many as the number of lines (× 2).



## Using the Keypad-like Digital Switch

### Overview

Using entry mode, a digital switch screen can be created with ease.



\* A digital switch part that does not use entry mode (does not use the [Write] key) is also available.

For more information, refer to “3 Switch” on page 3-38.

### Setting Procedure

The following settings are required.

#### [Entry] dialog

Set [Type: Data Display].

#### Entry target (Num. Display)

Place a display part on the screen and specify the memory address to which data should be written.

For more information on other setting items, refer to page 7-16.

\* Real numbers are not supported.

#### Keypad

Function (Main)	Select [Add] or [Subtraction] (Entry).  Set the detail for [Value] as an auxiliary setting item. Range: 0 to 4294967295 DEC (FFFFFFFF HEX) (3777777777 OCT)
ID (Detail)	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.

\* When no alarm setting is made for the entry target:

When the result of calculation exceeds the data length set for the entry target, an error buzzer sounds and the switch becomes invalid.

\* When the alarm setting is made for the entry target:

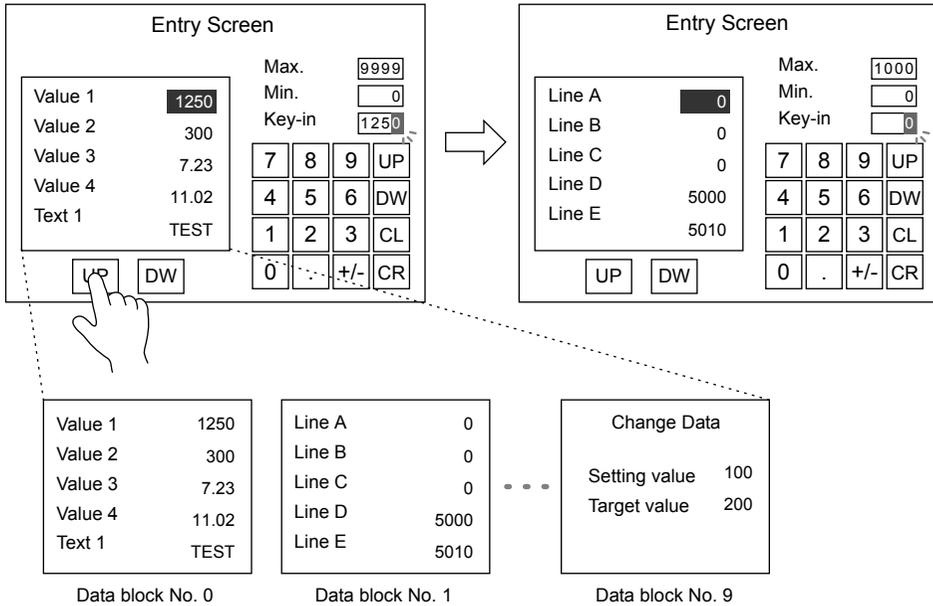
When the result of calculation is greater than the maximum value or smaller than the minimum value, an error buzzer sounds and the switch becomes invalid.

## [Type: Data Block]

### Overview

If the space on the screen is not sufficient, you can switch over the entry targets displayed on the screen.

Register the data for these entry targets to be switched as data blocks.



### Setting Procedure

The following settings are required.

#### [Entry] dialog

Type (Main)	Select [Data Block].
-------------	----------------------

#### Keypad

Place the part in the same way as [Type: Data Display].

#### Data block area

Place the data block area on the screen. For more information, refer to "15.1 Data Block Area."

#### Data block

Register data for entry targets for [Data Block].

For more information on the registration and editing procedure, refer to Operation Manual.

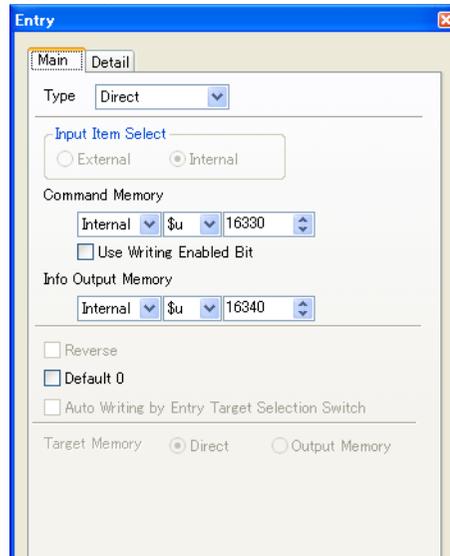
## [Type: Direct]

### Overview

The data format, the number of digits, the decimal point position, etc. are externally controlled.

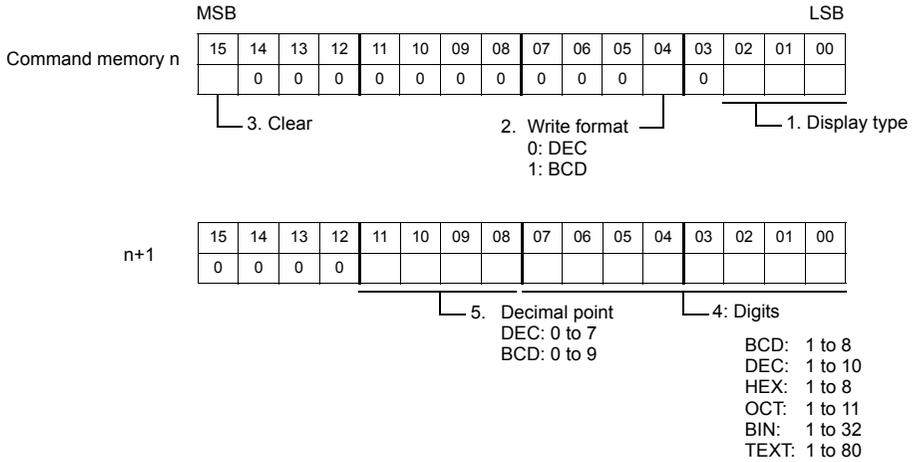
### [Entry] Dialog

#### Main



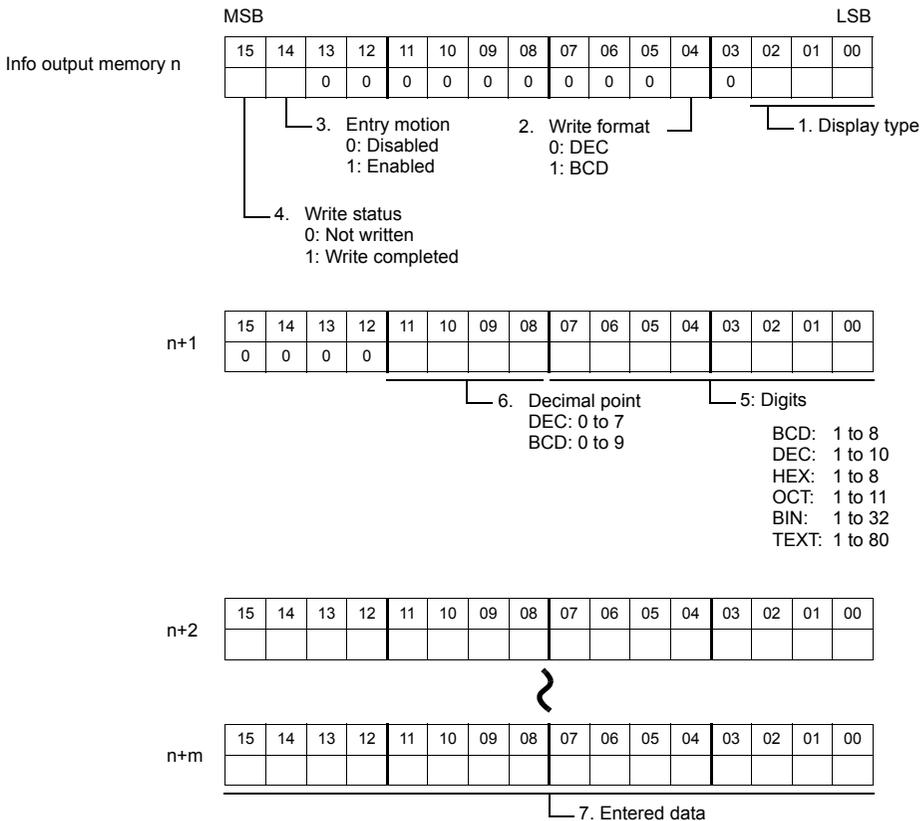
Type	Select [Direct]. * [Direct] can only be selected when [ <input type="checkbox"/> Display All Formats] is checked in the [Detail] tab window.
Command Memory	This is used for controlling entry mode. For more information, refer to page 7-40.
Info Output Memory	The status of entry mode is written into the specified memory address. For more information, refer to page 7-41.
<input type="checkbox"/> Default 0	This is valid when a data display part (Function: Entry Display Part) is placed. When this box is checked, data on the entry display part is reset to "0" if it is a numeric value or is reset to a space if it is text each time the [Write] key is pressed.

### Command memory



1. Display type	Specify data format to be used for entry.																																			
	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Bit No.</th> <th rowspan="2">Display type</th> </tr> <tr> <th>02</th> <th>01</th> <th>00</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>DEC (w/o sign)</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>DEC (w/ -sign)</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>DEC (w/ +- sign)</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>HEX</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>OCT</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>BIN</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>Text</td> </tr> </tbody> </table>	Bit No.			Display type	02	01	00	0	0	0	DEC (w/o sign)	0	0	1	DEC (w/ -sign)	0	1	0	DEC (w/ +- sign)	0	1	1	HEX	1	0	0	OCT	1	0	1	BIN	1	1	0	Text
Bit No.			Display type																																	
02	01	00																																		
0	0	0	DEC (w/o sign)																																	
0	0	1	DEC (w/ -sign)																																	
0	1	0	DEC (w/ +- sign)																																	
0	1	1	HEX																																	
1	0	0	OCT																																	
1	0	1	BIN																																	
1	1	0	Text																																	
2. Write format	Specify data format to be used for writing data to [Info Output Memory] n + 2 and later. Note that when BCD is chosen, "0" is entered for negative values.																																			
3. Clear	This bit is used for clearing the data from the data display part (Function: Entry Display Part).  0: The data indicated on the entry display part remains. 1: Entering "0" clears the current numerical data. Entering a space (ANK 20H) clears the current characters. Entry is prohibited.																																			
4. Digits	Specify the number of digits for entry. "0 to 80" can be specified. The number of required bits depends on the code (DEC or BCD). DEC: Bits 0 to 6 BCD: Bits 0 to 7																																			
5. Decimal point	Specify the decimal point position. Up to 10 digits can be displayed in DEC. Therefore "0" to "9" can be specified.																																			

Info output memory



1. Display type	Data specified in [Command Memory] "n" (page 7-40) is written.
2. Write format	
3. Entry motion	This bit is valid when multiple entry mode parts are placed on the screen. An entry mode part can be placed on the base screen or an overlap window, respectively. If multiple entry mode parts are displayed at the same time, the one shown at the forefront becomes active. This bit is set to "1" when the entry mode part is at the forefront. (If there is only one entry mode part displayed, the bit is always "1".)
4. Write status	This bit shows whether the [Write] key has been pressed or not. 0: Not written Indicates that the [Write] key has not been pressed. 1: Write completed Indicates that the [Write] key has been pressed and that data is written to memory.
5. Digits	Data specified in [Command Memory] "n" (page 7-40) is written.
6. Decimal point	
7. Entered data	Write entry data when the [Write] key is pressed.

## Detail

<input type="checkbox"/> Graphic	Set these options as explained for [Type: Data Display]. For more information, refer to page 7-11.
<input type="checkbox"/> Line/Column Output	
Process Cycle	For more information, refer to "Appendix 5 Process Cycle."
<input type="checkbox"/> Display All Formats	Set these options as explained for [Type: Data Display].
ID	For more information, refer to page 7-11.

## Keypad

Make settings in the same way as explained for [Type: Data Display]. (Refer to page 7-12.)

## Entry Display Part

Make settings in the same way as explained for [Type: Data Display]. (Refer to page 7-20.)

## Operating Procedure

Data is read using the following steps.

Step 1	Specify the display format, the number of digits, the decimal point position, etc. in [Command Memory] "n" and "n + 1".	A
Step 2	The entry display part indicates data according to the specified display format, the number of digits, and the decimal point position, etc.	
Step 3	Check that bit 14 (entry motion) of [Info Output Memory] "n" is set (ON).	B
Step 4	Enter the desired data through the keypad and press the [Write] key.	
Step 5	Check that bit 15 (write completed) of [Info Output Memory] "n" is set (ON). In the same manner, check that the data is written to [Info Output Memory] "n", "n + 2" and "n + 3".	B
Step 6	Read the data in [Info Output Memory] "n", "n + 2" and "n + 3".	B
Step 7	Reset bit 15 (write completed) of [Info Output Memory] "n". *	B
Step 8	Set bit 15 (clear) of [Command Memory] "n". Check that the entry display part indicates "0".	A
Step 9	Reset bit 15 (clear) of [Command Memory] "n". Check that the data is shown on the entry display part again.	A

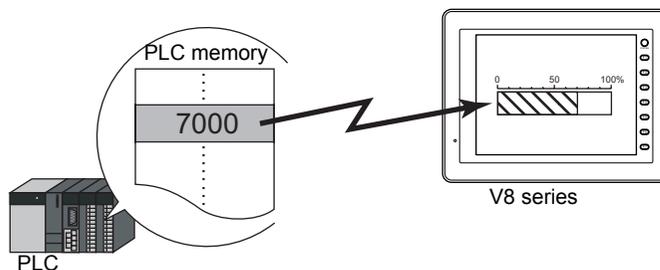
A: Command Memory  
B: Info Output Memory

\* Once bit 15 of [Info Output Memory] "n" is set (ON), it is not reset automatically.

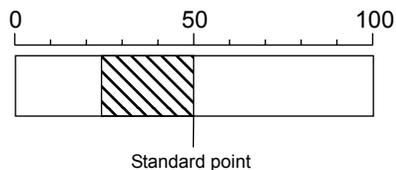
# 8 Graph Display

## 8.1 Bar Graph Overview

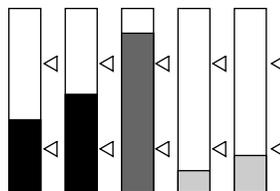
- Data in the memory address can be expressed in a bar graph.



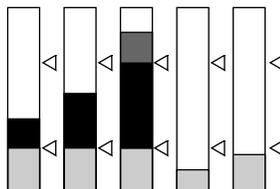
- It is possible to extend the bar from the desired standard point.



- When data in the memory exceeds or falls short of the range specified, the graph color can be changed. This makes the operator recognize the situation easily and correctly.

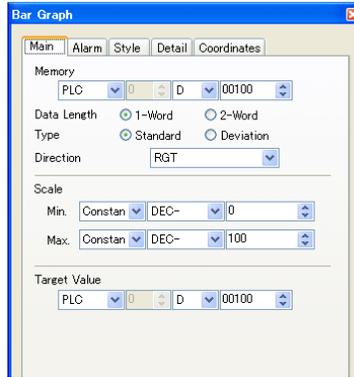


- As shown below, it is possible to indicate a bar graph in several colors.



# Setting Dialog

## Main

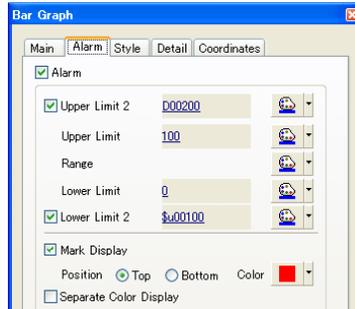


Memory *1	Data in this memory address is shown in the graph in real time. The data in this address is called the "current value."
Data Length (1-Word, 2-Word)	Select data length of the memory address.
Type (Standard, Deviation)	Choose either [Standard] or [Deviation].  Standard: The bar extends from the minimum value toward the maximum value to the current value.  Deviation: Determine the "standard point" in the graph. The bar extends from the standard point to the current value.
Direction (RGT, LFT, UP, DW)	Choose from [RGT], [LFT], [UP] or [DW] to select the direction for drawing the graph.  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Standard</p> </div> <div style="text-align: center;"> <p>Deviation</p> </div> </div>
Scale	Specify the minimum and maximum values for the range of the graph. When the scale value should be variable, choose a memory address; when it is fixed, choose [Constant].
Target Value *1 Standard Value	When [Standard] is chosen for [Type], the option name reads [Target Value]. When [Deviation] is chosen, it reads [Standard Value]. When the target or standard value should be variable, choose a memory address; when it is fixed, choose [Constant].  * When the box for [Alarm] is checked (☑) in the [Alarm] tab window, it is not necessary to set [Target Value] or [Standard Value].

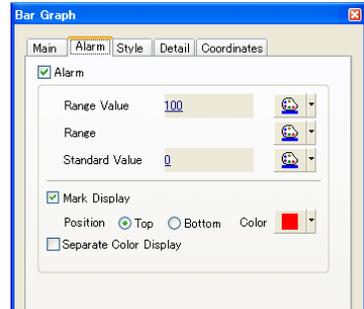
\*1 The type of data specified in memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.

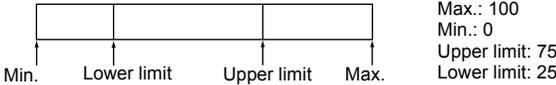
## Alarm

• Standard

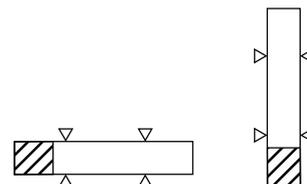


• Deviation

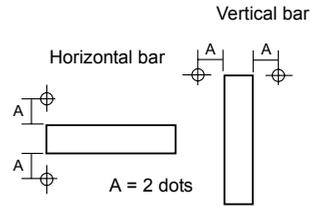


<input type="checkbox"/> Alarm	When the box for <input checked="" type="checkbox"/> Alarm is checked, the bar will be shown in a different color when data in the specified memory address exceeds or falls short of the range specified.
Upper Limit Range Lower Limit	This option is valid when [Standard] is selected for [Type] in the [Main] tab window. Set the upper limit, the lower limit and colors.   When the upper or lower limit should be variable, choose a memory address; when it is fixed, choose [Constant].
<input type="checkbox"/> Upper Limit 2 <input type="checkbox"/> Lower Limit 2	This option is valid when [Standard] is selected for [Type] in the [Main] tab window. Use this option when using more than three colors for alarm setting. Make the settings in the same way as [Upper Limit] or [Lower Limit].
Range Value Range Standard Value	This option is valid when [Deviation] is selected for [Type] in the [Main] tab window. Specify the value to be used as the reference for [Standard Value]. [Range Value] specifies a data range from the standard value in both directions (right and left or up and down). Set the values and colors. When the range or standard value should be variable, choose a memory address; when it is fixed, choose [Constant].
<input type="checkbox"/> Mark Display Position *1 *2 Color	Check this box ( <input checked="" type="checkbox"/> ) when you want to indicate the upper and lower limits using $\Delta$ marks. Specify the position and the color of the marks.
<input type="checkbox"/> Separate Color Display	The bar is shown in separate colors: "lower limit color," "range color," and "upper limit color" when this option is checked ( <input checked="" type="checkbox"/> ). (Refer to "Examples with Alarm Setting" on page 8-6.)

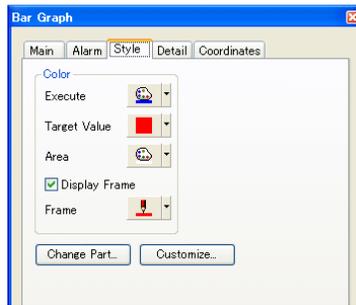
\*1 Choose either [Top] (left) or [Bottom] (right) for placing marks.



\*2 When placing scales around the graph, do not place scales in the positions shown at right. There are some cases where the mark color is different from the setting or is not displayed. The mark is drawn using the XORed color.

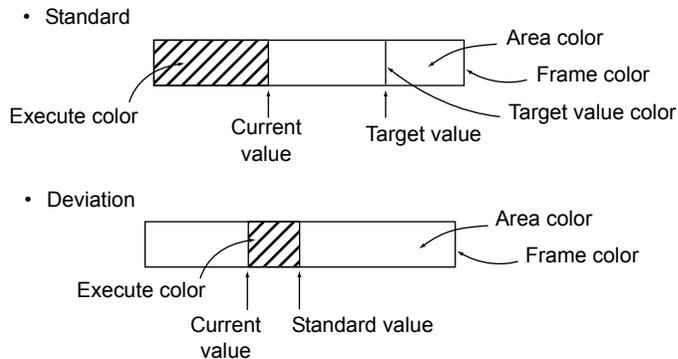


## Style

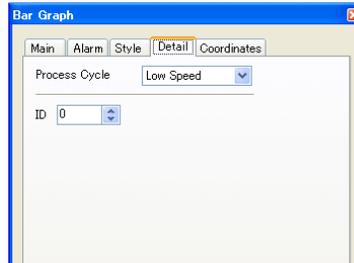


Execute * <sup>1</sup>	When the box for <input checked="" type="checkbox"/> Alarm] is checked in the [Alarm] tab window, the setting for [Execute] is not valid. Set the color for the current value.
Target Value * <sup>1</sup>	When the box for <input checked="" type="checkbox"/> Alarm] is checked in the [Alarm] tab window, the setting for [Target Value] is not valid. Set the color for the target value.
Area * <sup>1</sup>	Specify the colors inside the graph.
<input type="checkbox"/> Display Frame * <sup>1</sup> Frame * <sup>1</sup>	Check this box ( <input checked="" type="checkbox"/> ) when drawing an outline around the bar graph. Set the frame color.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

\*1 Depending on the selection for [Type] on the [Main] tab window, each option denotes as shown below.

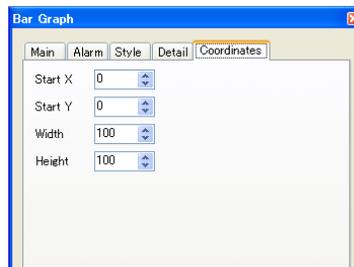


## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to “Appendix 5 Process Cycle.”
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

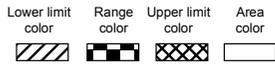
## Coordinates



For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates.”

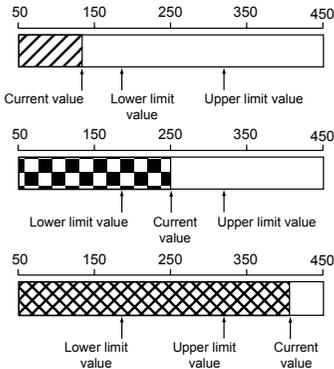
## Examples with Alarm Setting

[Type: Standard], [ Alarm]

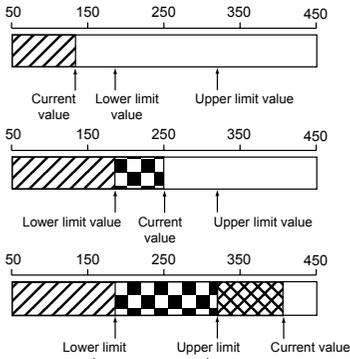


[Direction: RGT]

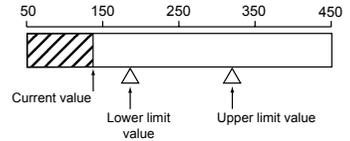
• Single color use



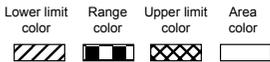
• Separate color use



• With marks



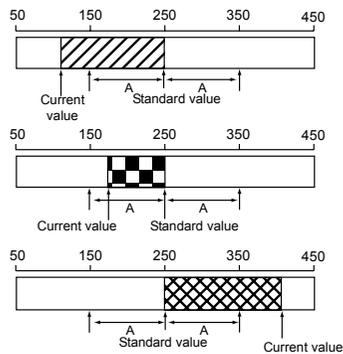
[Type: Deviation], [ Alarm]



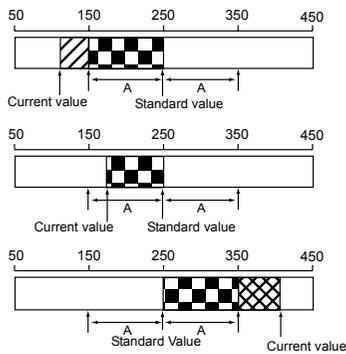
[Direction: RGT]

A: Range value

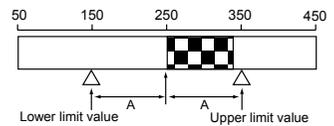
• Single color use



• Separate color use



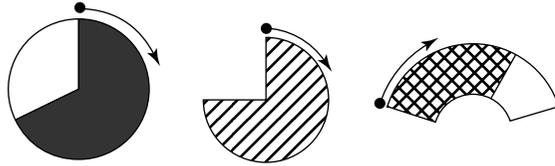
• With marks



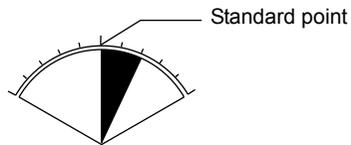
## 8.2 Pie Graph

### Overview

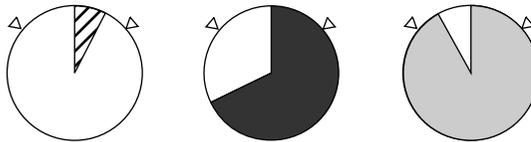
- Data in the specified memory address can be expressed in a pie graph, extending the graph clockwise from the start point.



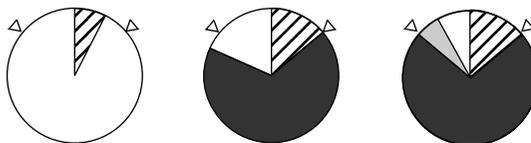
- It is possible to extend the graph from the desired standard point.



- When data in the memory exceeds or falls short of the range specified, the graph color can be changed. This makes the operator recognize the situation easily and correctly.

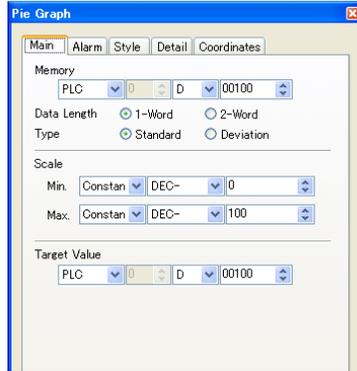


- As shown below, it is possible to indicate a pie graph in several colors.



## Setting Dialog

### Main

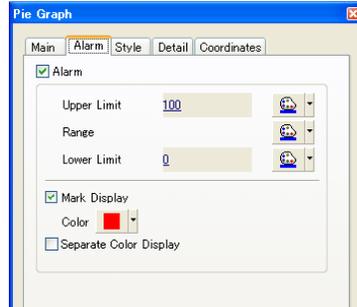


Memory	Data in this memory address is shown in the graph in real time. The data in this address is called the “current value.”
Data Length (1-Word, 2-Word)	Select data length of the memory address.
Type (Standard, Deviation)	<p>Choose either [Standard] or [Deviation].</p> <p><b>Standard:</b> The sector extends from the minimum value toward the maximum value to the current value.</p> <p><b>Deviation:</b> Determine the “standard point” in the pie graph. The bar extends from the standard point to the current value.</p> <ul style="list-style-type: none"> <li>• Standard</li> <li>• Deviation</li> </ul>
Scale	Specify the minimum and maximum values for the range of the graph. When the scale value should be variable, choose a memory address; when it is fixed, choose [Constant].
Target Value, Standard Value	<p>When [Standard] is chosen for [Type], the option name reads [Target Value]. When [Deviation] is chosen, it reads [Standard Value].</p> <p>When the target or standard value should be variable, choose a memory address; when it is fixed, choose [Constant].</p> <p><b>* When the box for [Alarm] is checked in the [Alarm] tab window, it is not necessary to set [Target Value] or [Standard Value].</b></p>

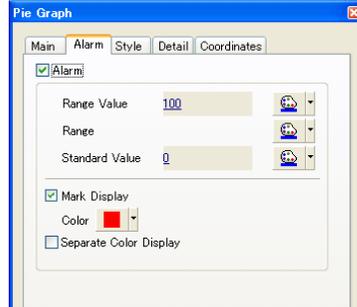
\*1 The type of data specified in memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.

## Alarm

• Standard



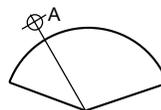
• Deviation



<input type="checkbox"/> Alarm	When the box for [ <input checked="" type="checkbox"/> Alarm] is checked, the bar will be shown in a different color when data in the specified memory address exceeds or falls short of the range specified.
Upper Limit Range Lower Limit	This option is valid when [Standard] is selected for [Type] in the [Main] tab window. Set the upper limit, the lower limit and colors.  Maximum value, minimum value   Max.: 100 Min.: 0 Upper limit: 60 Lower limit: 30
Range Value Range Standard Value	This option is valid when [Deviation] is selected for [Type] in the [Main] tab window. [Standard Value] specifies the standard value. [Range Value] specifies a data range from the standard value in both directions. Set the values and colors. When the range or standard value should be variable, choose a memory address; when it is fixed, choose [Constant].
<input type="checkbox"/> Mark Display  Color *1	Check this box ( <input checked="" type="checkbox"/> ) when you want to indicate the upper and lower limits using $\Delta$ marks. Choose the desired color for the mark.
<input type="checkbox"/> Separate Color Display	The bar is shown in separate colors: "lower limit color," "range color," and "upper limit color" when this option is checked ( <input checked="" type="checkbox"/> ). (Refer to "Examples with Alarm Setting" on page 8-12.)

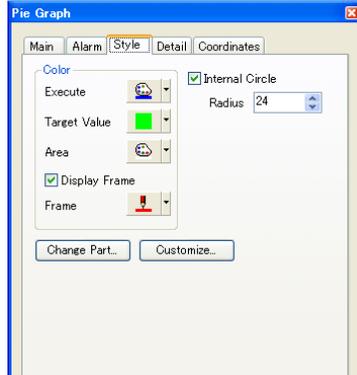
\*1 When showing scales, do not place scales in the following position. There are some cases where the mark color is different from the setting or is not displayed. The mark is drawn using the XORed color.

Pie graph



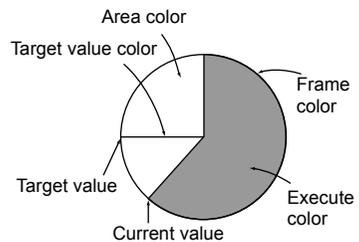
A = Angle: 1/3, Radius r +2 dots

## Style

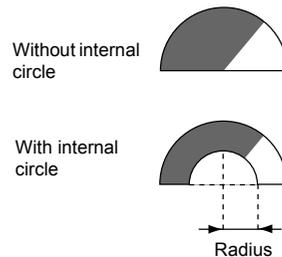


Execute <sup>*1</sup>	When the box for [ <input checked="" type="checkbox"/> Alarm] is checked in the [Alarm] tab window, the setting for [Execute] is not valid. Set the color for the current value.
Target Value <sup>*1</sup>	When the box for [ <input checked="" type="checkbox"/> Alarm] is checked in the [Alarm] tab window, the setting for [Target Value] is not valid. Set the color for the target value.
Area <sup>*1</sup>	Specify the colors inside the graph.
<input type="checkbox"/> Display Frame <sup>*1</sup> Frame <sup>*1</sup>	Check this box ( <input checked="" type="checkbox"/> ) when drawing an outline around the pie graph. Set the frame color.
<input type="checkbox"/> Internal Circle <sup>*2</sup> Radius <sup>*2</sup>	Check this box ( <input checked="" type="checkbox"/> ) when drawing an internal circle in the center of the pie graph. Set the radius of the internal circle.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

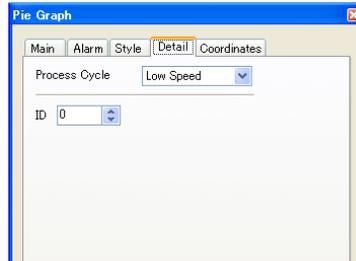
\*1 Depending on the selection for [Type] on the [Main] tab window, each option denotes as shown at right.



\*2 The pie graphs with and without internal circle are shown at right.

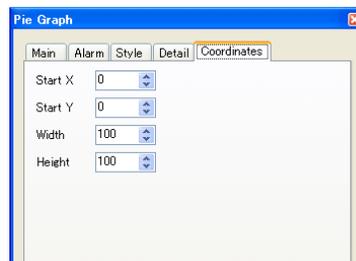


## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to “Appendix 5 Process Cycle.”
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

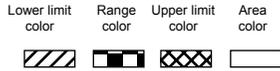
## Coordinates



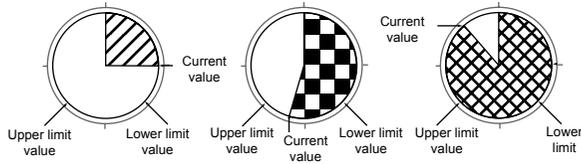
For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates.”

## Examples with Alarm Setting

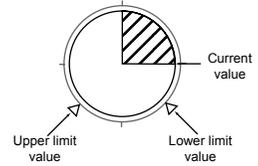
[Type: Standard], [ Alarm]



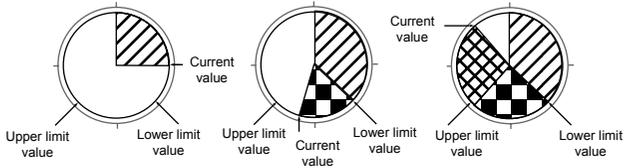
• Single color use



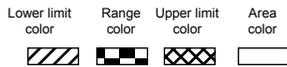
• With marks



• Separate color use

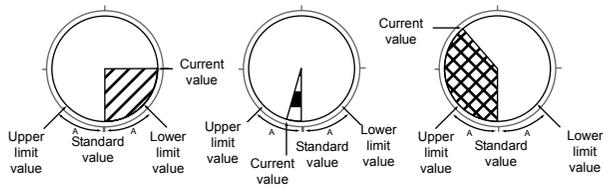


[Type: Deviation], [ Alarm]

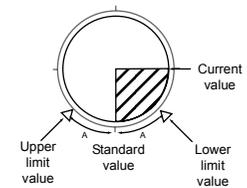


A: Range value

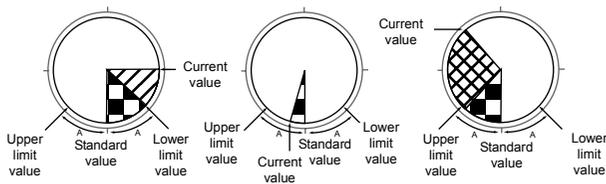
• Single color use



• With marks

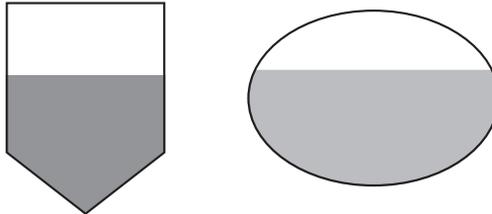


• Separate color use



## 8.3 Closed Area Graph Overview

- Changes in a closed area, such as a tank, can be expressed in a closed area graph.

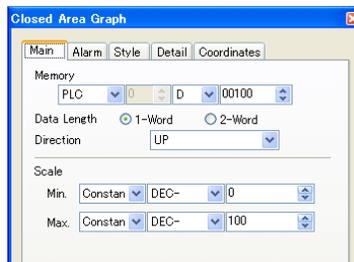


- When data in the memory exceeds or falls short of the range specified, the graph color can be changed.



## Setting Dialog

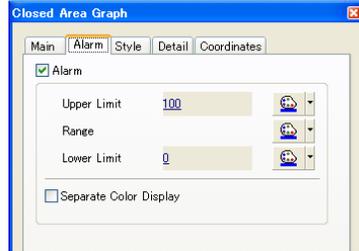
### Main



Memory	Data in this memory address is shown in the graph in real time. The data in this address is called the "current value."
Data Length (1-Word, 2-Word)	Select data length of the memory address.
Direction (RGT, LFT, UP, DW)	Choose from [RGT], [LFT], [UP] or [DW] to select the direction for drawing the graph.
Scale	Specify the minimum and maximum values for the range of the graph. When the scale value should be variable, choose a memory address; when it is fixed, choose [Constant].

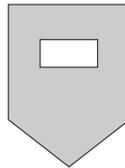
\*1 The type of data specified in memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.

## Alarm

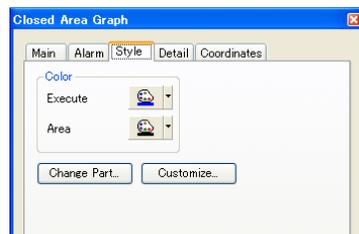


<input type="checkbox"/> Alarm	When the box for <input checked="" type="checkbox"/> Alarm is checked, the bar will be shown in a different color when data in the specified memory address exceeds or falls short of the range specified.
Upper Limit Range Lower Limit	Set the upper limit, the lower limit and colors. When the upper or lower limit should be variable, choose a memory address; when it is fixed, choose [Constant].
<input type="checkbox"/> Separate Color Display *1	The bar is shown in separate colors: "lower limit color," "range color," and "upper limit color" when this option is checked ( <input checked="" type="checkbox"/> ). (Refer to "Closed Area Graph Examples" on page 8-16.)

\*1 For a closed area graph containing a part as shown below, the [Separate Color Display] option is not available.

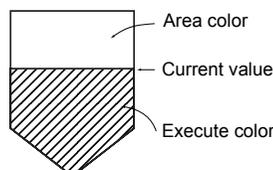


## Style

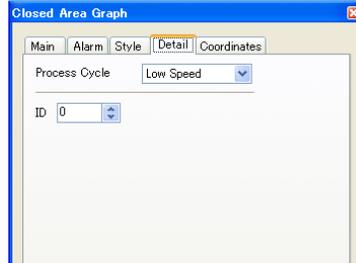


Execute *1	When the box for <input checked="" type="checkbox"/> Alarm is checked in the [Alarm] tab window, the setting for [Execute] is not valid. Set the color for the current value.
Area *1	Specify the colors inside the graph.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

\*1 The above options denote as shown below.

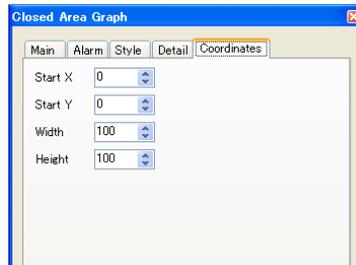


## Detail



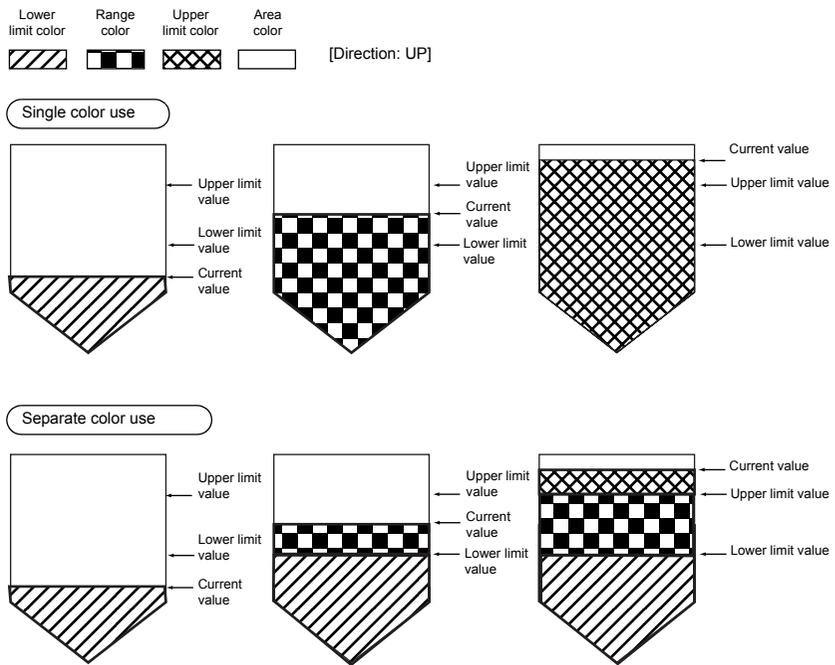
Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

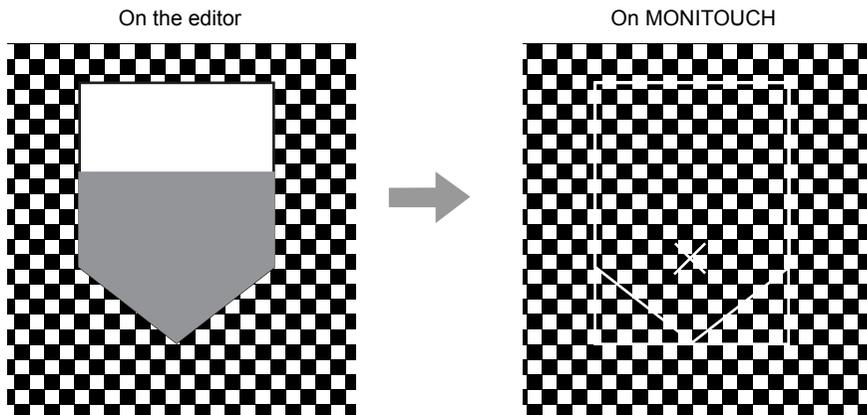
## Closed Area Graph Examples



### Notes

- When a tile pattern (other than tile pattern "0") is used for screen background or overlap display area, the closed area graph may not be drawn correctly. Likewise, when the closed area graph is placed on a graphic using a tile pattern, it may not be drawn correctly either.

Example:



Tile "3" is used for screen background.

- When the line color used for the closed area graph is the same as the screen background color, it cannot be drawn.
- \* If you use a 3D part, this problem will not arise. Therefore, if you want to place a closed area graph on a tile pattern, use a 3D part.**

## 8.4 Panel Meter Overview

- Data in the specified memory address can be expressed in the form of an analog meter.



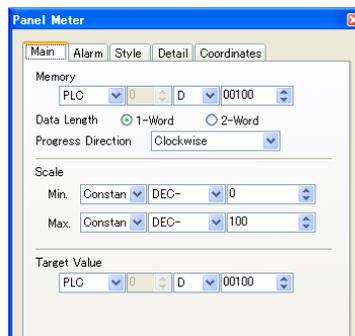
- The indicator can be moved to the right or left.

- When data in the PLC memory exceeds or falls short of the range specified, the indicator color can be changed.



## Setting Dialog

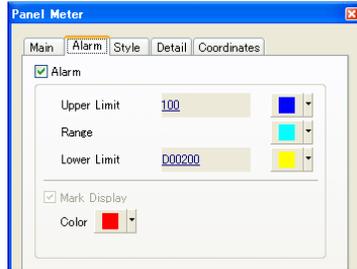
### Main



Memory	Data in this memory address is shown in the meter in real time. The data in this address is called the "current value."
Data Length (1-Word, 2-Word)	Choose data length to be occupied for this part.
Progress Direction (Clockwise, Counterclockwise)	Select the indicator's moving direction.
Scale	Specify the minimum and maximum values for the range of the meter. When the scale value should be variable, choose a memory address; when it is fixed, choose [Constant].
Target Value	Specify the value to be used as the target. When the target value should be variable, choose a memory address; when it is fixed, choose [Constant]. * <b>When the box for [Alarm] is checked in the [Alarm] tab window, it is not necessary to set [Target Value].</b>

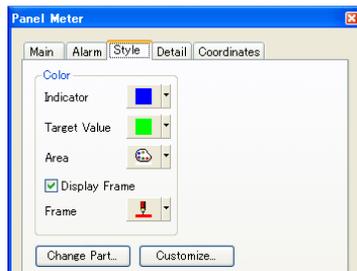
\*1 The type of data specified in memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.

## Alarm



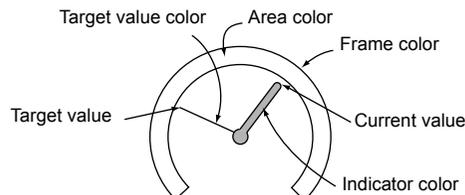
<input type="checkbox"/> Alarm	When the box for <input checked="" type="checkbox"/> Alarm] is checked, the indicator and the area will be shown in different colors when data in the specified memory address exceeds or falls short of the range specified.
Upper Limit Range Lower Limit	Set the upper limit, the lower limit and colors. When the upper or lower limit should be variable, choose a memory address; when it is fixed, choose [Constant].
Color	Set the color inside the area.

## Style

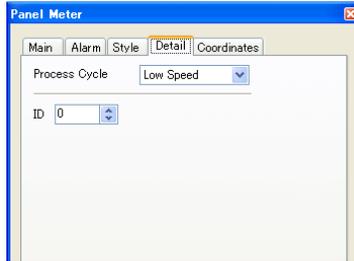


Indicator *1	When the box for <input checked="" type="checkbox"/> Alarm] is checked in the [Alarm] tab window, the setting for [Indicator] is not valid. Choose the desired color for the indicator that shows the current value.
Target Value *1	When the box for <input checked="" type="checkbox"/> Alarm] is checked in the [Alarm] tab window, the setting for [Target Value] is not valid. Set the color for the target value.
Area *1	Specify the colors inside the meter.
<input type="checkbox"/> Display Frame *1 Frame *1	Check this box ( <input checked="" type="checkbox"/> ) when drawing an outline around the panel meter. Set the frame color.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

\*1 The above options denote as shown below.

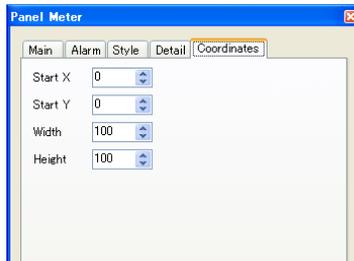


## Detail



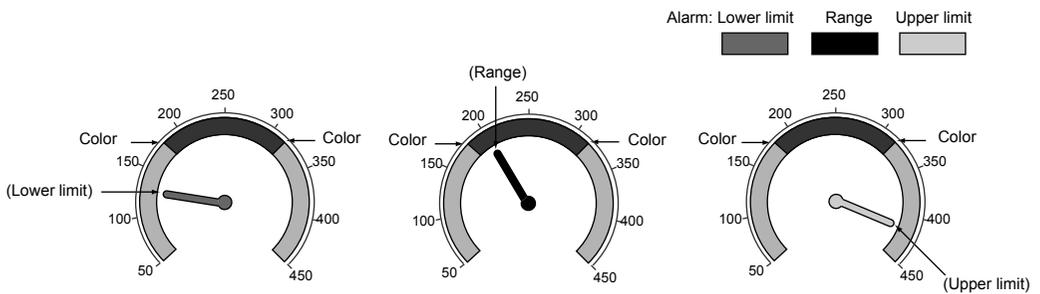
Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



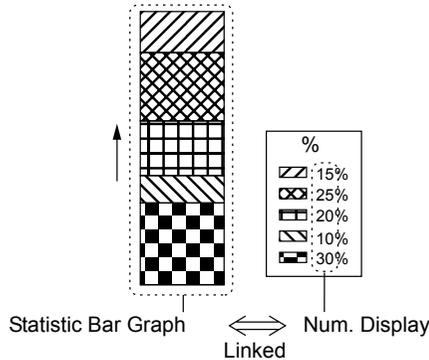
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

## Examples with Alarm Setting



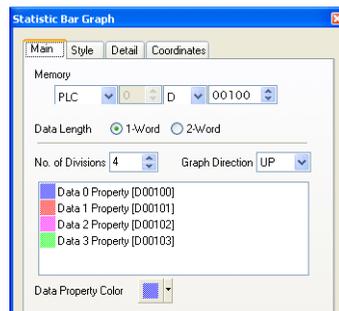
## 8.5 Statistic Bar Graph Overview

- Percentages of data contained in multiple memory addresses can be expressed in a statistic graph.
- One statistic bar graph can be divided into a maximum of eight sections.
- It is also possible to indicate percentages in numerals for the statistic bar graph. In this case, statistic bar graph must be linked with numerical data display parts.



## Setting Dialog

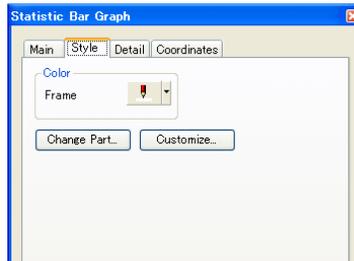
### Main



Memory	Specify the top memory address to be used for the statistic bar graph. Memory in consecutive addresses is automatically allocated to the statistic graph. The required number of words (memory) can be calculated using the following equation: Required memory = [Data Length] × [No. of Divisions]
Data Length (1-Word, 2-Word)	Select data length of the memory address.
No. of Divisions (2 to 8)	Specify the number of divisions for statistic bar graph.
Graph Direction (RGT, UP)	Choose the graph extending direction from [RGT (horizontal bar)] or [UP (vertical bar)].
Data Property Color	Set a color for each division.

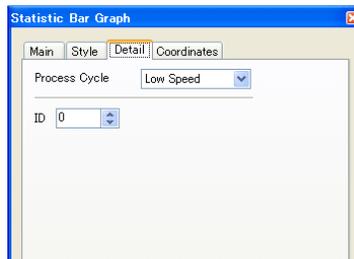
\*1 The type of data specified in memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.

## Style



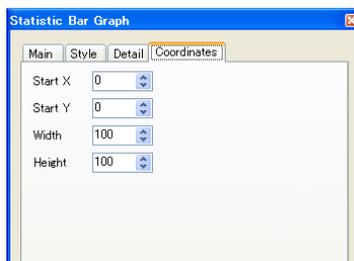
Frame	Choose the desired color for the outline of statistic bar graph.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

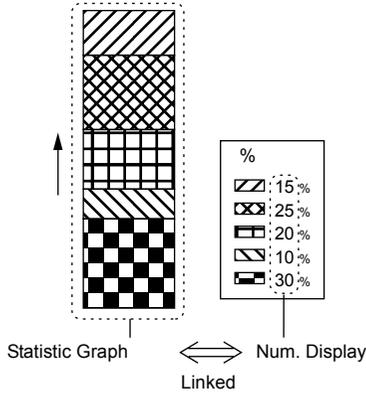
## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

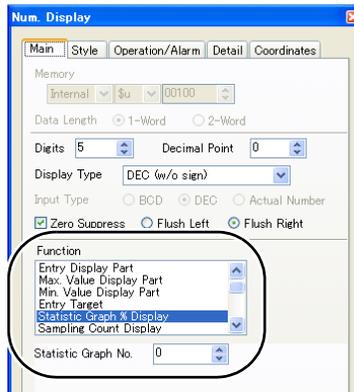
## Num. Display (% Display)

“% display” of data in the graph is available using numerical data display parts.



In this section, the items to be noted when linking a statistic graph and numerical data display parts. For the other setting items for numerical data display parts, refer to “5 Data Display.”

### Main



Function	Select [Statistic Graph % Display].
Statistic Graph No.	Specify the data property number set for the statistic bar graph part. If the number of divisions is 4, four numerical data display parts (0 to 3) are required.

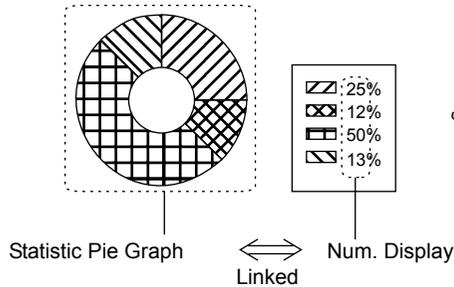
### Detail



ID	Set the same ID as specified in the [Detail] dialog for the statistic bar graph part. For more information on the ID, refer to the Operation Manual.
----	---

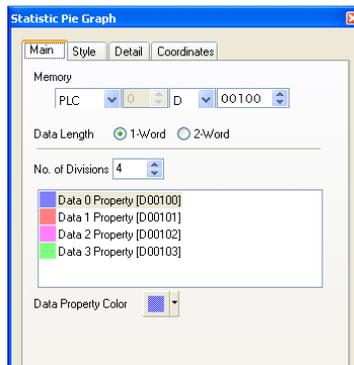
## 8.6 Statistic Pie Graph Overview

- Percentages of data contained in multiple memory addresses can be expressed in a statistic graph.
- One statistic pie graph can be divided into a maximum of eight sections.
- It is also possible to indicate percentages in numerals for the statistic pie graph. In this case, the statistic pie graph must be linked with numerical data display parts.



## Setting Dialog

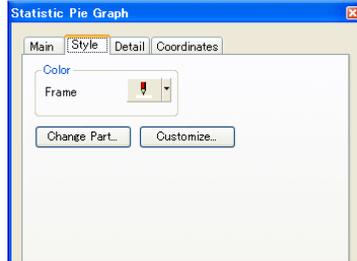
### Main



Memory	Specify the top memory address to be used for the statistic pie graph. Memory in consecutive addresses is automatically allocated to the statistic graph. The required number of words (memory) can be calculated using the following equation: Required memory = [Data Length] × [No. of Divisions]
Data Length (1-Word, 2-Word)	Select data length of the memory address.
No. of Divisions (2 to 8)	Specify the number of divisions for statistic pie graph.
Data Property Color	Set a color for each division.

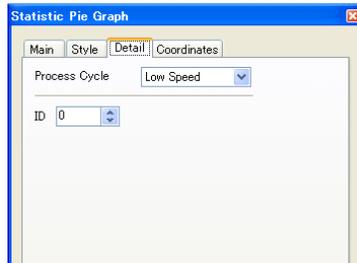
\*1 The type of data specified in memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.

## Style



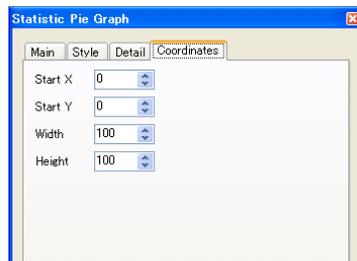
Frame	Choose the desired color for the outline of statistic pie graph.
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to “Appendix 5 Process Cycle.”
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates.”

## Num. Display (% Display)

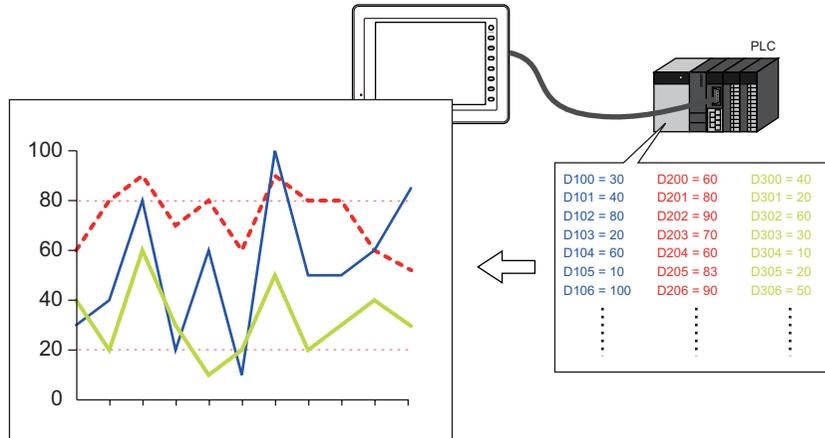
The “% display” is available in the same way as statistic bar graph.  
For more information, refer to “Num. Display (% Display)” on page 8-22.

# 9 Trend Graph

## 9.1 Trend Graph (Real Time)

### Overview

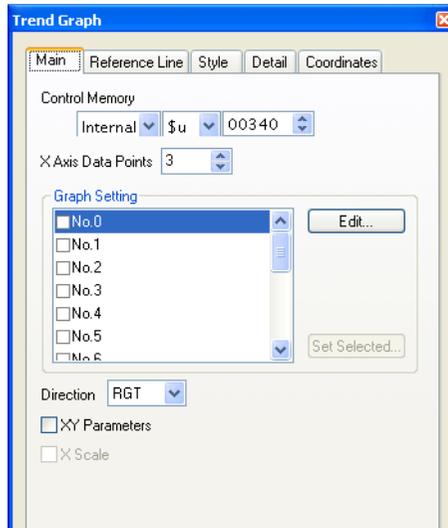
- Data in consecutive memory addresses can be expressed in a line graph or rectangular waves.
- Subsidiary lines can be drawn for easier recognition of data change.



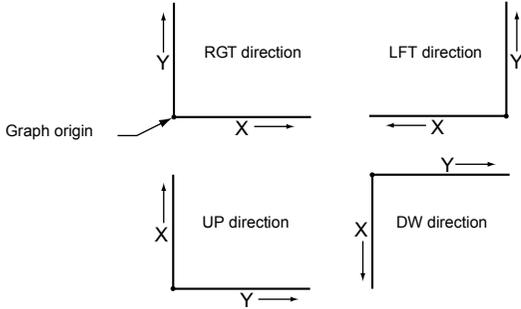
- A maximum of 16 trends (lines) can be displayed.
- Negative values can be used.

# Setting Dialog

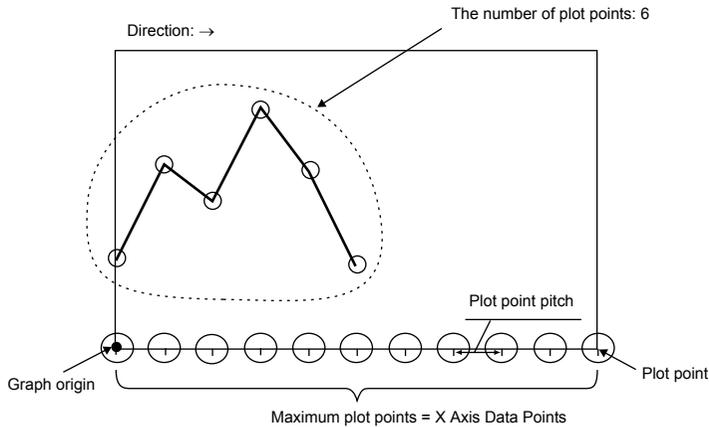
## Main



<p>Control Memory <sup>*1</sup></p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td></td><td></td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p> <span style="margin-left: 100px;">└─ 2. Redraw (0 → 1)</span> <span style="margin-left: 150px;">└─ 1. X-axis data points</span>  <span style="margin-left: 100px;">└─ 3. Redraw after clear (0 → 1)</span> </p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00			0	0	0												<ol style="list-style-type: none"> <li>1. X Axis Data Points <sup>*2</sup> (0 to 1024) Specify the number of plot points to be displayed. When the number of points is specified in [Control Memory], the trend graph is drawn by reading data for the lines (Nos. 0 to 15) as specified in respective tab windows. Each time the number of points increases, the same operation is repeated. (If it decreases, a different operation is made.)</li> <li>2. Redraw <sup>*3</sup> Trend lines are redrawn at the edge (0 → 1) by the specified number of points. Drawing is performed over the previous one without clearing the trend graph area.</li> <li>3. Redraw after clear <sup>*3</sup> Trend lines are redrawn at the edge (0 → 1) by the specified number of points. Drawing is performed after clearing the trend graph area.</li> </ol>
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
		0	0	0																													
<p>X Axis Data Points <sup>*2</sup> (3 to 1024)</p>	<p>Specify the desired number of plot points along the horizontal axis.</p>																																
<p>Graph Setting (No. 0 to No. 15)</p>	<p>When a number box is checked, the corresponding trend line will be displayed. Press the [Edit] button or double-click on the number when setting details of the trend line.</p>																																

Edit	Make settings for the trend line of the number checked in the [Graph Setting] field.	
	Memory <sup>*1</sup>	Data in this memory address is read for drawing the trend line. The required number of memory addresses varies depending on the setting for [X Axis Data Points] described above and [Data Length] described below. For more information, refer to page 9-9.
	Data Length (1-Word, 2-Word)	Choose data length for one plot point.
	Graph Min. Value <sup>*4</sup> Graph Max. Value	Specify the graph display area. (PLC Memory <sup>*5</sup> , Internal Memory <sup>*5</sup> , Constant)
	Min. X Scale <sup>*4</sup> Max. X Scale	This is valid when you check [ <input type="checkbox"/> X Scale] in the [Main] tab window. For more information, refer to page 9-11.
	Line Graph (Line type & color)	Check this box when showing lines in the graph. Set the line type (from 6 types) and color.
	Marker (Point type & color)	Check this box when showing points in the graph. Set the point type (from 6 types) and color.
Batch Setting	It is possible to apply the same settings (from [Data Length] to [Max. X Scale]) within the [Edit] button) to all the lines of which numbers are checked in the [Graph Setting] field.	
Direction	Choose from [RGT], [LFT], [UP], or [DW] to select the direction for drawing the trend graph.  	
<input type="checkbox"/> XY Parameters	Check this box when using XY parameters. For more information, refer to page 9-9.	
<input type="checkbox"/> X Scale	This is valid when [ <input type="checkbox"/> XY Parameters] is checked. For more information, refer to page 9-11.	

- \*1 The type of data specified in the PLC memory is determined by the setting for [Code] in the [Communication Setting] tab window for the device connected.
- \*2 X Axis Data Points

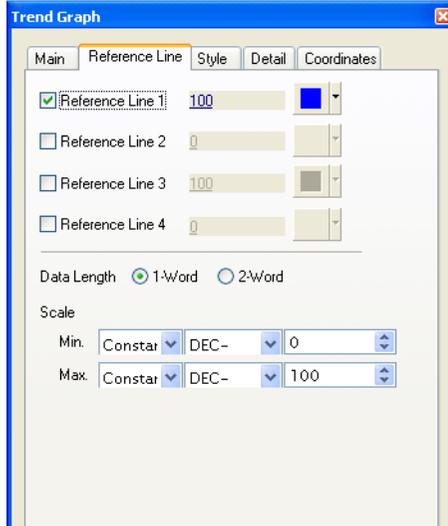


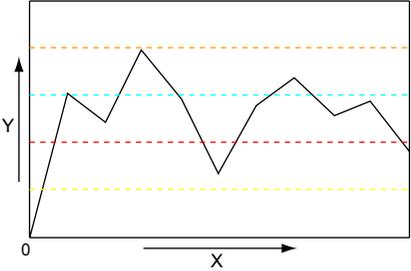
640 × 480 dots: 3 to 640

800 × 600 dots: 3 to 800

- \* **Do not specify a value larger than the X size (dots) of the selected trend graph part. Trend lines will not be drawn correctly.**
- \*3 "Redraw" and "redraw after clear"  
 When redrawing, choose either "2. Redraw" or "3. Redraw after clear." Note the difference of these options.  
 If the interval between redrawing is too short, the trend graph may not be redrawn even at the leading edge.  
 Data once displayed in the trend graph cannot be changed unless the redrawing command is given.
- \*4 Graph Max. Value, Graph Min. Value, Max. X Scale, Min. X Scale  
 Do not specify the same value for both [Graph Max. Value] and [Graph Min. Value]. Doing so will result in an error. Be sure to set correctly.
- \*5 When specifying a memory address (other than [Constant]) for [Graph Max. Value] or [Graph Min. Value], the values will be read and displayed at the timing when the graph is displayed or when the "redraw" or "redraw after clear" command is executed.

## Reference Line



<ul style="list-style-type: none"> <li><input type="checkbox"/> Reference Line 1</li> <li><input type="checkbox"/> Reference Line 2</li> <li><input type="checkbox"/> Reference Line 3</li> <li><input type="checkbox"/> Reference Line 4</li> </ul>	<p>It is possible to draw a maximum of four horizontal lines for reference on the trend graph.</p> <p>The line type is fixed to a dotted line.</p> <p>You can specify the line color and the value at which the reference line should be displayed.</p> <div style="text-align: center;"> <p>Direction: →</p>  </div> <p>When specifying a memory address (other than [Constant]) for the value at which the reference line should be displayed, the value will be recognized at the timing when the graph is displayed or when the "redraw" or "redraw after clear" command is executed.</p>
<p>Data Length (1-Word, 2-Word)</p>	<p>This is valid when a memory address (other than [Constant]) is specified for reference lines or scale range. Choose data length of the specified memory address to be used.</p>
<p>Scale (Max., Min.)</p>	<p>A scale range can be specified for calculating the position where a reference line should be drawn. Negative values can also be specified.</p>

### Reference lines

- When drawing a reference line in the center of a trend graph, make settings as shown below.

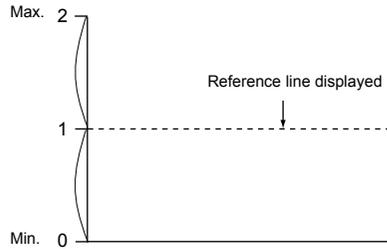
Reference Line 1]

[Value: 1]

[Scale Min. 0]

[Scale Max. 2]

A line is shown in the center.



- Even when [Graph Min. Value] and [Graph Max. Value] for the trend graph is "0" and "1000", [Scale Max.] and [Scale Min.] are used for drawing a reference line.

Thus specifying "0", "1" and "2" as in the example is appropriate for drawing a reference line.

- When four or more reference lines are required or a grid pattern should be displayed:

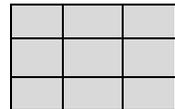
1) Draw the desired lines or grids on the [Graphic Library Edit] window.

2) Go back to the [Screen Edit] window.

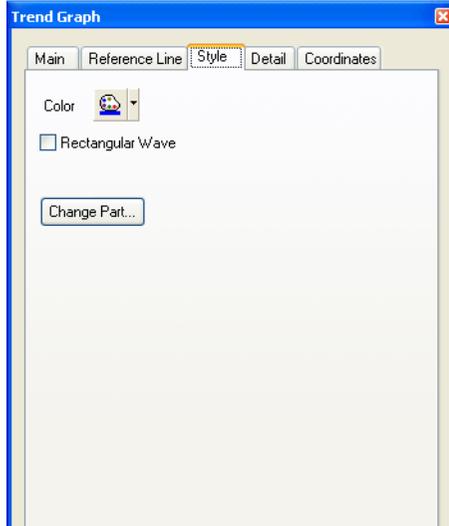
3) Click the trend graph, and click the [Modify Part] icon while handles are shown around the graph.

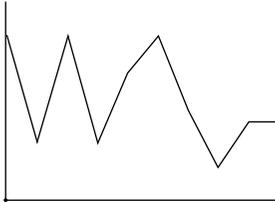
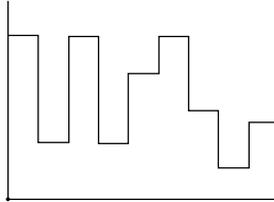
4) The [Modify Part] window is displayed. Click the [Graphic Call] icon, and place the graphic library you created.

5) Close the [Modify Part] window, and go back to the [Screen Edit] window.

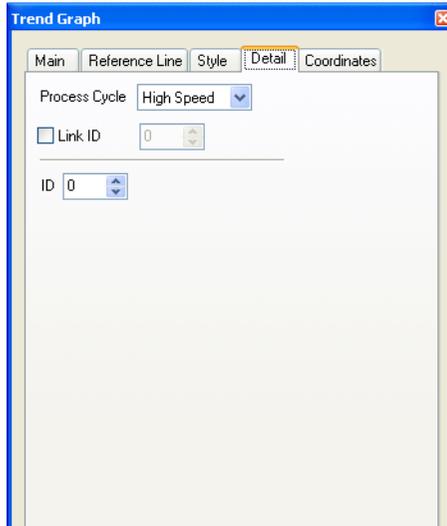


## Style



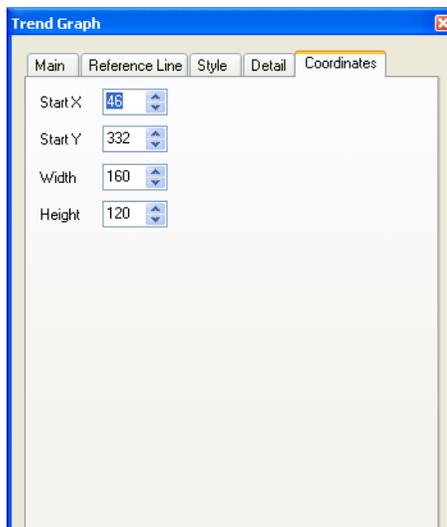
Color	Choose the desired color for the graph area.
<input type="checkbox"/> Rectangular Wave	When this option is checked, the rectangular wave graph is displayed.  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><input type="checkbox"/> Rectangular Wave] unchecked</p>  </div> <div style="text-align: center;"> <p><input checked="" type="checkbox"/> Rectangular Wave] checked</p>  </div> </div> Select a solid line or dotted line for the line type.
Change Part	For more information, refer to the Operation Manual.

## Detail



Process Cycle	For more information, refer to "Appendix 5 Process Cycle."
<input type="checkbox"/> Link ID	When you want to display multiple trend graphs asynchronously or 16 or more trend lines in one graph area, check this box. For more information, refer to page 9-12.
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

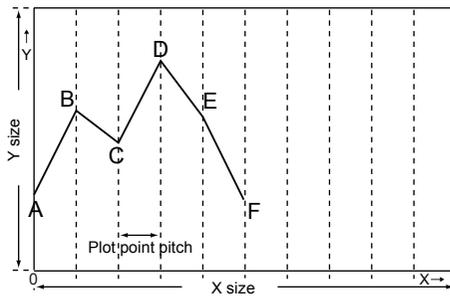
## XY Parameters

Choose whether you want to place plot points along the X-axis of trend graph at equal pitches or at variable pitches.

### Use XY Parameters] Unchecked (Default Setting)

An equal pitch is automatically set between the plot points. MONITOUCH calculates a pitch between plot points as shown below.

- Plot point pitch (dots)
  - = X size of the trend graph (dots) ÷ (the number of trend lines – 1)
  - (MONITOUCH adjusts the data so that no remainder will be left.)



### Memory allocation

Memory allocation varies depending on the setting for [X Axis Data Points] and [Data Length] for each of [ No. 0] to [ No. 15] in the [Graph Setting] field of the [Main] tab window.

Memory setting: n

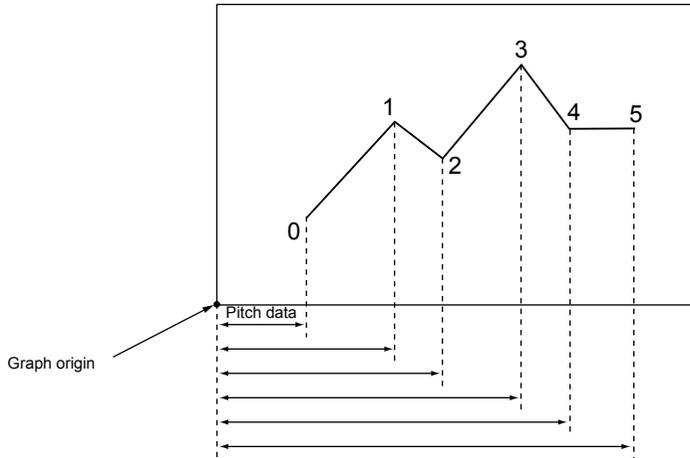
Word		Double-word	
n + 0	Point 0 data	n + 0	Point 0 data
n + 1	Point 1 data	n + 1	
n + 2	Point 2 data	n + 2	Point 1 data
n + 3	Point 3 data	n + 3	
n + 4	Point 4 data	n + 4	Point 2 data
n + 5	Point 5 data	n + 5	
	⋮		⋮
n + m	Point "m" data	n + m	Point "m" data

For example, in the case of [X Axis Data Points: 11], [Memory: D100] and [Data Length: 1-Word], memory addresses D100 to D110 are used.

**[ Use XY Parameters] Checked**

The pitch between plot points can be set freely.

Pitch data (distance from the graph origin to each plot point) can be specified in units of dots.



**Memory allocation**

Memory allocation varies depending on the setting for [X Axis Data Points] and [Data Length] for each of [ No. 0] to [ No. 15] in the [Graph Setting] field of the [Main] tab window.

Memory for each pitch data is allocated following memory for each plot point.

Memory setting: n

	Data length: Word		Data length: Double-word	
n + 0	Point 0	Trend data	n + 0	Point 0    Trend data
n + 1	Point 0	Pitch data	n + 1	Point 0    Pitch data
n + 2	Point 1	Trend data	n + 2	Point 1    Trend data
n + 3	Point 1	Pitch data	n + 3	Point 1    Pitch data
n + 4	Point 2	Trend data	n + 4	Point 1    Trend data
n + 5	Point 2	Pitch data	n + 5	Point 1    Pitch data
	⋮		n + 6	Point 1    Pitch data
	⋮		n + 7	⋮
n + m	Point "m"	Trend data		⋮
	Point "m"	Pitch data	n + m	Point "m"    Trend data
				Point "m"    Pitch data

For example, in the case of [X Axis Data Points: 11], [Memory: D100] and [Data Length: 1-Word], memory addresses D100 to D121 are used.

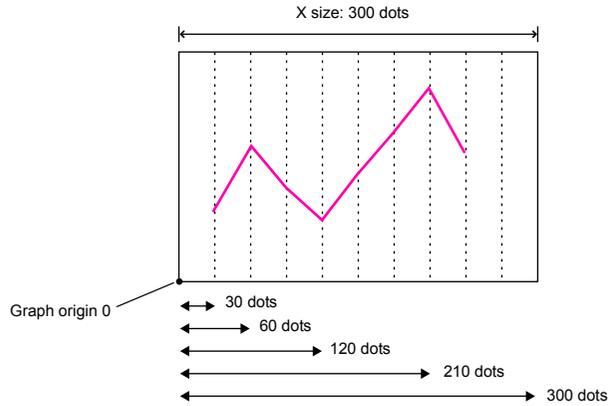
**X Scale] checked**

When this box is checked, pitch data from the graph origin can be specified not with dots but using the specified scale range.

A scale range can be specified for [Min. X Scale] and [Max. X Scale] of each of  No. 0] to  No. 15] selected in the [Graph Setting] field.

Example:

X Scale] unchecked

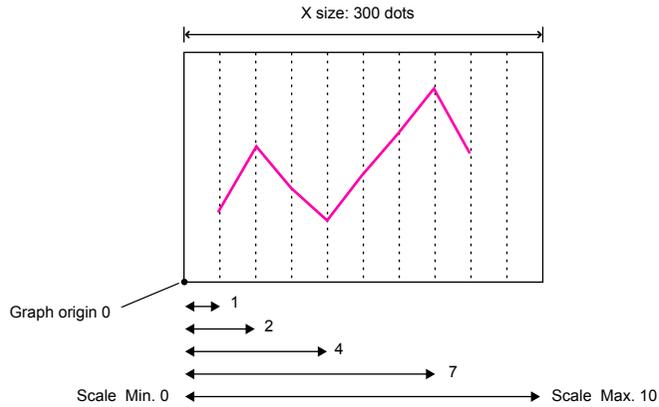


Example:

X Scale] checked

[Min. X Scale]: 0

[Max. X Scale]: 10



## Asynchronous Display of Multiple Trend Graphs

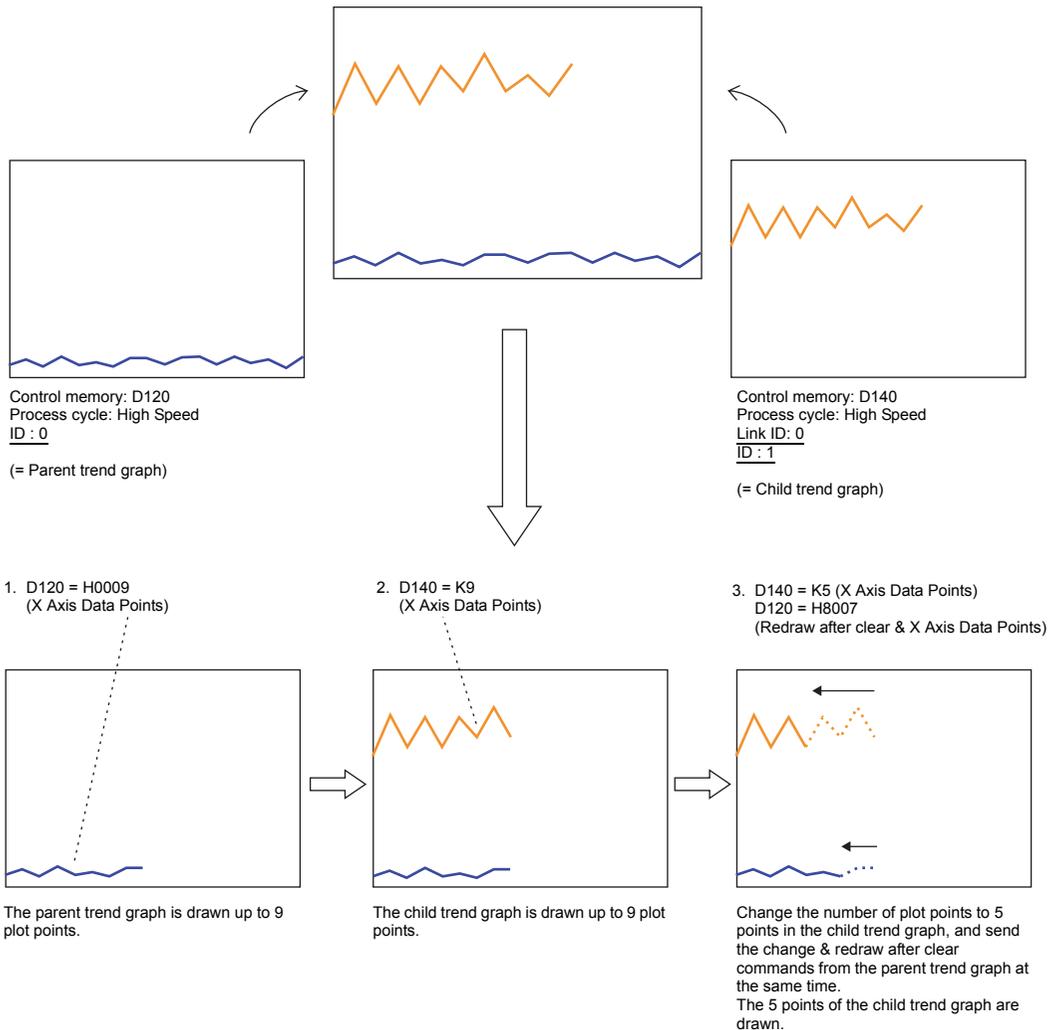
### Overview

All the trend lines on a trend graph are displayed at the same plot points at the same timing because a trend graph has only one control memory.

If you want to display multiple trend lines at an asynchronous timing, you have to select from the item list view [Trend Graph] → [Detail] → [ Link ID] (page 9-8).

When this box is checked, you can link two or more overlapping trend graphs while assigning priorities to respective control memory.

For example, when drawing two trend graphs as follows:



## Notes on Setting

- When linking two or more trend graphs, you have to regard one trend graph as a "parent," and the other trend graph as a "child."

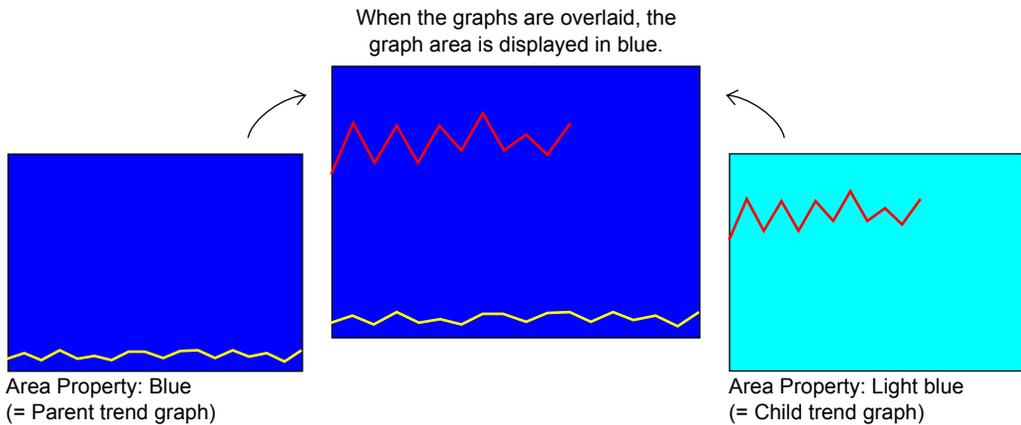
When setting the child trend graph, check [ Link ID] and specify the same ID as the parent trend graph.

Both the redraw & redraw after clear commands at the child trend graph are ignored and only the commands from the control memory of the parent trend graph become acceptable.

- [Process Cycle: High Speed] should be specified for all the trend graphs that are linked.
- The area property setting of the parent trend graph becomes valid. The area property setting of the child trend graph is not valid.

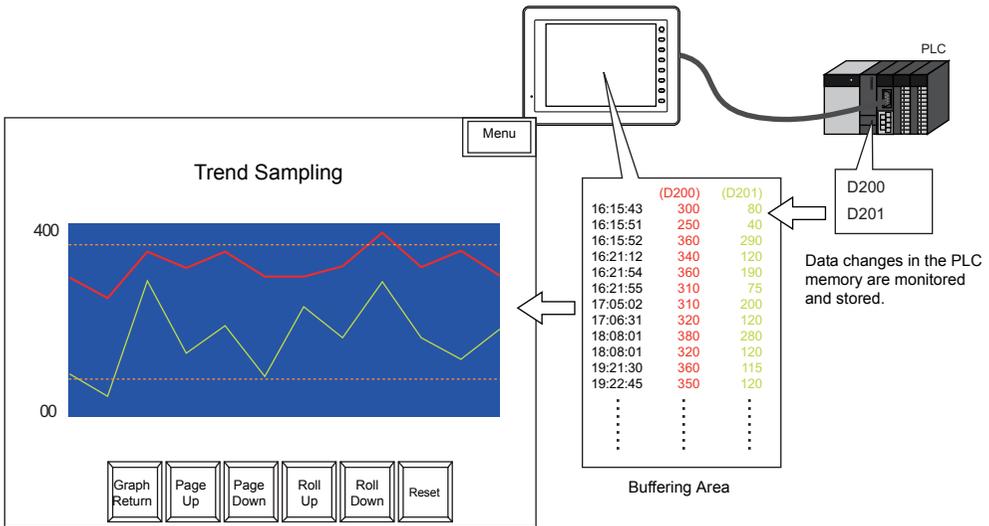
In addition, the reference lines set for the child trend graph area ignored.

- Place the child trend graph over the parent trend graph using the [Bring to Top] or [Send to Bottom] icon. If the parent trend graph is placed over the child trend graph, these two graphs will not be linked correctly.

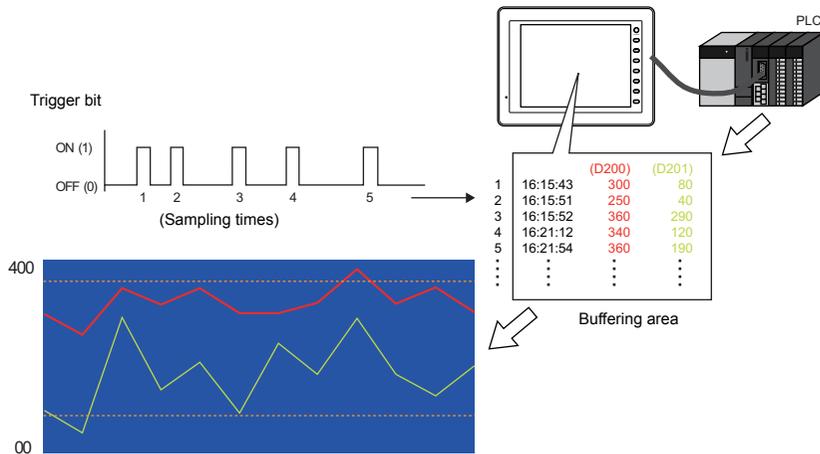


## 9.2 Trend Sampling (Historical) Overview

- Data stored in the specified buffering area can be expressed in a trend graph (line graph) or rectangular waves.
- A maximum of 16 trend lines can be displayed in one graph area.
- When data is updated, so is the graph in real time.
- Sampling data is saved in the specified buffering area of the V8 series even after the screen display has been changed.

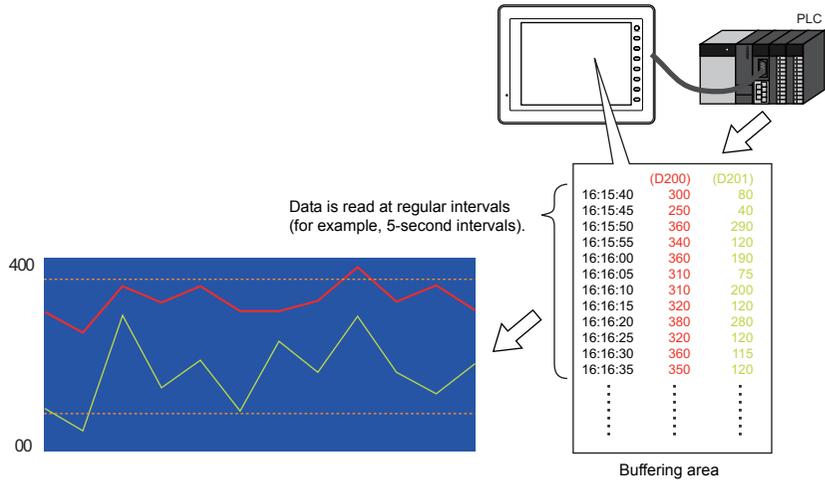


- Data is stored at the following two timings:  
[Bit Synchronization] method:  
Data is stored at the edge of OFF → ON of a designated bit.



[Constant Sampling] method:

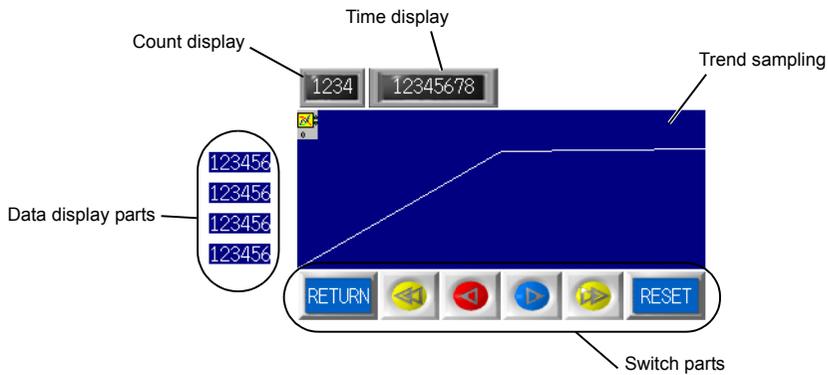
Data is stored at regular intervals determined by a counter inside MONITOUCH.



- Sampling data is retained unless the user clears the buffering area.
- However, if [DRAM] is selected under [Primary storage target] and [None] is selected under [Secondary storage target], it is cleared in the following cases: when the power is turned off, when the Main Menu screen is displayed or when the RESTART macro command is executed.

## Configuration

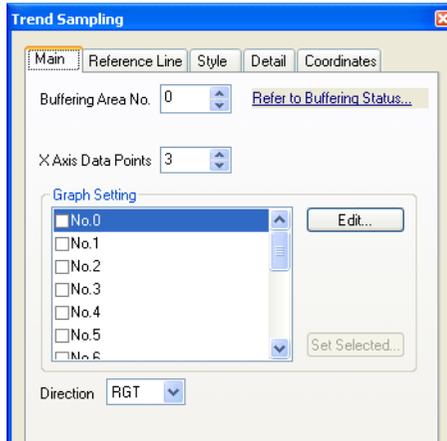
The trend sampling mode components are shown below.



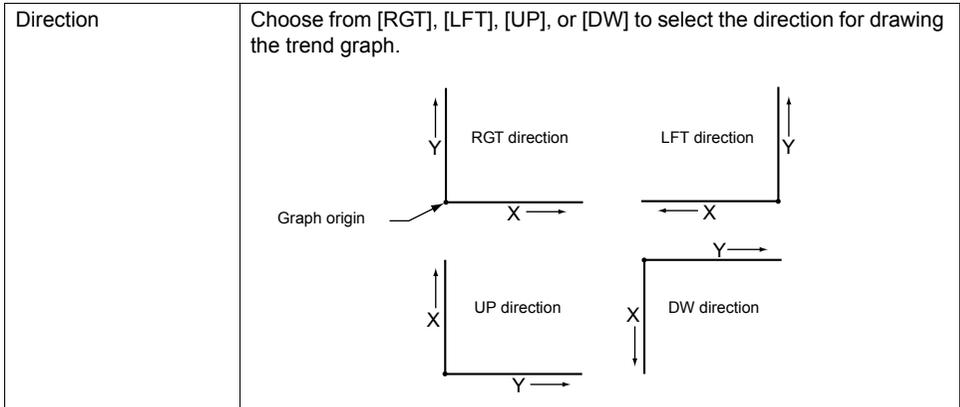
## Setting Dialog

### Trend Sampling

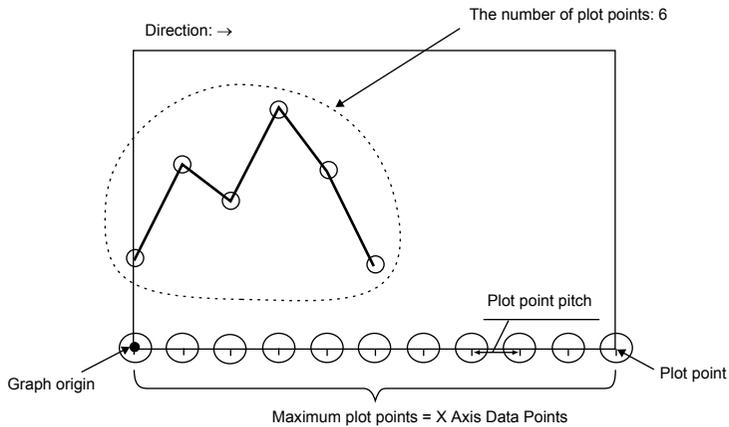
#### Main



Buffering Area No.	Specify the desired buffering area number to be used for trend sampling. The buffering area setting determines the trend controlling bit, source data address, etc.  Refer to Buffering Status: When you click here, the [Buffering Area Setting] dialog for the specified buffer number is displayed. It is also possible to make settings for a buffering area directly. For more information, refer to page 9-27.	
X Axis Data Points <sup>*1</sup> (3 to 1024)	Specify the desired number of plot points along the horizontal axis.	
Graph Setting (No. 0 to No. 15)	When a number box is checked, the corresponding trend line will be displayed. Press the [Edit] button or double-click on the number when setting details of the trend line.	
Edit	Make settings for the trend line of the number checked in the [Graph Setting] field.	
	Sampling Buffer Word No. <sup>*2</sup>	Specify the ordinal number of the word to be referred to for displaying sampling data among the words specified for [Word Count] in the [Buffering Area Setting] dialog.
	Data Length (1-Word, 2-Word)	Choose data length for one plot point.
	Graph Min. Value <sup>*3</sup> Graph Max. Value	Specify the graph display area. (PLC Memory <sup>*4</sup> , Internal Memory <sup>*4</sup> , Constant)
	Line Graph (Line type & color)	Check this box when showing lines in the graph. Set the line type (from 6 types) and color.
	Marker (Point type & color)	Check this box when showing points in the graph. Set the point type (from 6 types) and color.
Batch Setting	It is possible to apply the same settings (from [Data Length] to [Graph Max. Value] within the [Edit] button) to all the lines of which numbers are checked in the [Graph Setting] field.	



\*1 X Axis Data Points



640 × 480 dots: 3 to 640

800 × 600 dots: 3 to 800

\* Do not specify a value larger than the X size (dots) of the selected trend sampling part. Trend lines will not be drawn correctly.

\*2 Example: “8” is specified for [Word Count] in the [Buffering Area Setting] dialog. When you want to sample data of the 3rd word in the buffering area, specify “2” for [Sampling Buffer Word No.].

[Data Length: 1-Word]

	Sampling Buffer Word No.
1 word	0
2nd word	1
3rd word	2
4th word	3
5th word	4
6th word	5
7th word	6
8th word	7

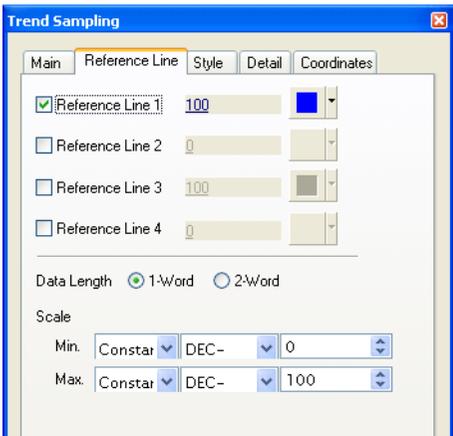
[Data Length: 2-Word]

	Sampling Buffer Word No.
1st word	0
2nd word	
3rd word	2
4th word	
5th word	4
6th word	
7th word	6
8th word	

In this example, the same address should be specified for either data length even if the setting for [Data Length] in the [Trend Sampling] dialog is not the same.

- \*3 Graph Max. Value, Graph Min. Value  
Do not specify the same value for both [Graph Max. Value] and [Graph Min. Value]. Doing so will result in an error. Be sure to set correctly.
- \*4 When specifying [Graph Max. Value]/[Graph Min. Value] as memory (except [Constant]), the graph max./min. values is reflected at the same time when the graph is displayed or the macro command "TREND\_REFRESH" is executed.  
(For more information on the TREND\_REFRESH macro command, refer to the Macro Reference Manual.)

Reference Line



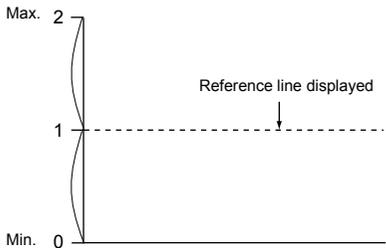
<ul style="list-style-type: none"> <li><input type="checkbox"/> Reference Line 1</li> <li><input type="checkbox"/> Reference Line 2</li> <li><input type="checkbox"/> Reference Line 3</li> <li><input type="checkbox"/> Reference Line 4</li> </ul>	<p>It is possible to draw a maximum of four reference lines on the trend sampling area. The line type is fixed to a dotted line. You can specify the line color and the value at which the reference line should be displayed.</p> <div style="text-align: center;"> </div> <p>When specifying a memory address (other than [Constant]) for the value at which the reference line should be displayed, the value will be recognized at the timing when the graph is displayed and when the TREND_REFRESH macro command is executed.</p>
<p>Data Length (1-Word, 2-Word)</p>	<p>This is valid when a memory address (other than [Constant]) is specified for reference lines or scale range. Choose data length of the specified memory address to be used.</p>
<p>Scale (Max., Min.)</p>	<p>A scale range can be specified for calculating the position where a reference line should be drawn. Negative values can also be specified.</p>

• Reference lines

When drawing a reference line in the center of a trend graph, make settings as shown below.

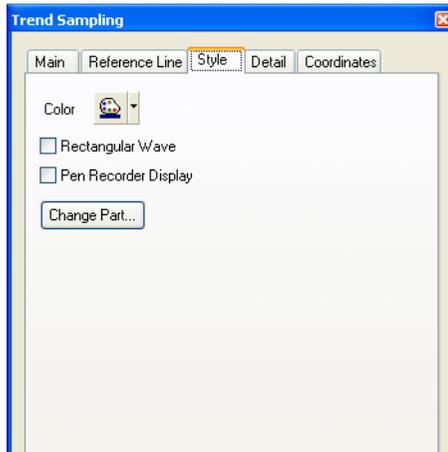
- Reference Line 1
- [Value: 1]
- [Scale Min. 0]
- [Scale Max. 2]

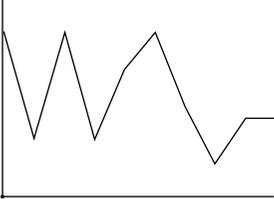
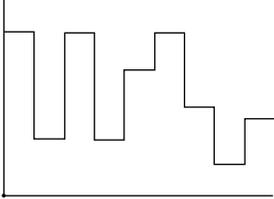
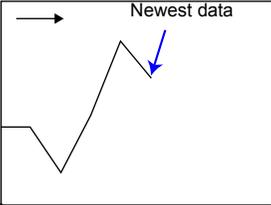
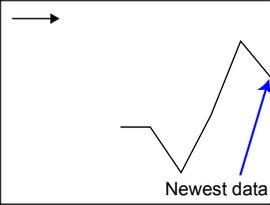
A line is shown in the center.



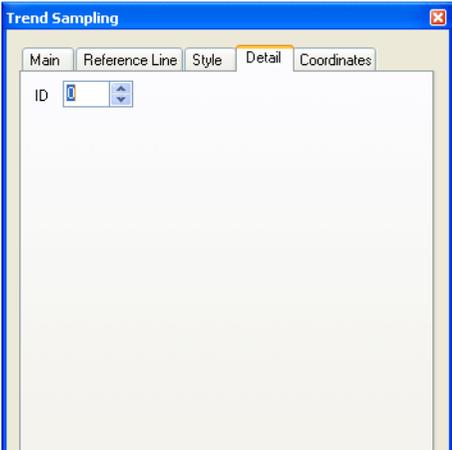
\* Differently from trend graphs, trend sampling cannot be equipped with more than four reference lines or vertical reference lines.

**Style**



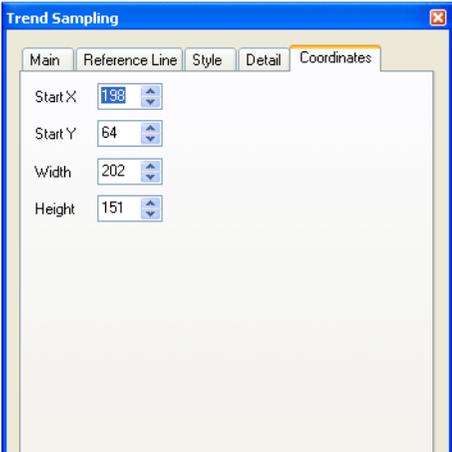
Color	Choose the desired color for the graph area.
<input type="checkbox"/> Rectangular Wave	When this option is checked, the rectangular wave graph is displayed.  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="checkbox"/> Rectangular Wave] unchecked   </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> Rectangular Wave] checked   </div> </div>
<input type="checkbox"/> Pen Recorder Display	When this option is checked, the pen recorder type graph is displayed.  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">                     [Direction] RGT  <input type="checkbox"/> Pen Recorder Display] unchecked   </div> <div style="text-align: center;">                     [Direction] RGT  <input checked="" type="checkbox"/> Pen Recorder Display] checked   </div> </div> <ul style="list-style-type: none"> <li>• Sampling times &lt; [X Axis Data Points] The newest data move from left to right.</li> <li>• Sampling times &gt; [X Axis Data Points] Newest data at the right</li> </ul> <p style="text-align: right; margin-right: 50px;">Newest data always at the right</p>
Change Part	For more information, refer to the Operation Manual.

**Detail**



ID	Set the ID. For more information on the ID, refer to the Operation Manual.
----	---

**Coordinates**



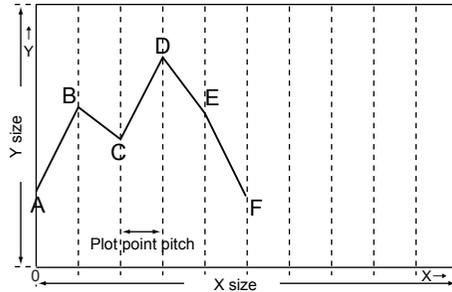
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

**Trend sampling area and plot points**

The V8 series calculates the size of the plot point pitches for drawing a trend line as follows:

$$\text{Plot point pitch (dots)} = \text{X size (dots)} \div ([\text{X Axis Data Points}] - 1)$$

(The minimum unit of plot point pitch is "1 dot.")



<Example 1> Suppose a trend sampling part as shown below:

X size: 270 (dots)  
 [X Axis Data Points]: 10...  

$$270 \text{ (dots)} \div (10 - 1) = 30$$

The plot point pitch is "30".

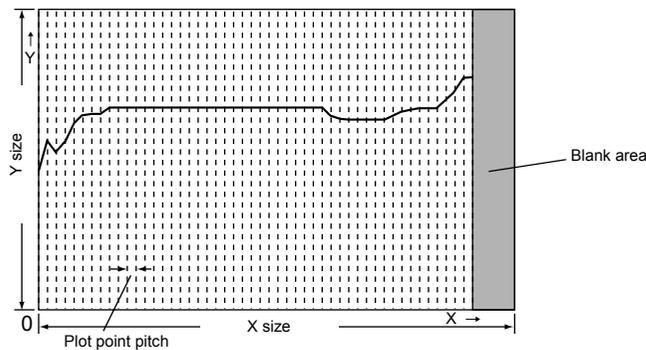
- \* When you adjust the size of a trend sampling part after setting [X Axis Data Points], it is automatically enlarged or reduced so that there will be no remainder left. If the value for [X Axis Data Points] is changed after the trend sampling part is placed and adjusted in size, a remainder may be created. The remainder dots will be shown as a blank area.

<Example 2> Suppose a trend sampling part as shown below:

X size: 278 (dots)  
 [X Axis Data Points]: 50...  

$$278 \text{ (dots)} \div (50 - 1) = 5 \dots \text{Remainder } 33$$

The plot point pitch is 5 dots and the remainder (33 dots) creates a blank area.



To eliminate a blank area, adjust the trend sampling part size after setting the number of plot points (X Axis Data Points).

## Switch Parts for Trend Sampling

### Applicable switch parts list

Function	Contents
Roll Up	Scrolls up by one data point toward the most recent entry. If all data cannot be held in the graph, one data point at a time scrolls into view.
Roll Down	Scrolls down by one data point toward the oldest entry. If all data cannot be held in the graph, one data point at a time scrolls into view.
+ Block	Scrolls up by one page toward the most recent entry.
- Block	Scrolls down by one page toward the oldest entry.
Graph Return	Returns trend sampling to the most recent one when it is pressed while flashing. Flashing of the [Graph Return] switch is canceled as well as its selection.
Reset	When the switch is pressed once, it is turned on. Pressing it again within 2 seconds clears the buffering area. Sampling restarts immediately after clearing. If not pressed again within 2 seconds, the switch is turned off and resetting is nullified.

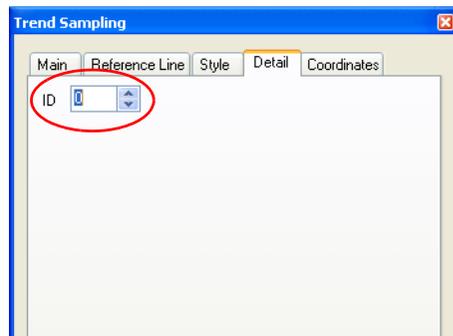
### Notes on setting

Specify the same ID for switch parts as the one specified in the [Trend Sampling] dialog.

The ID specified in the [Trend Sampling] dialog can be known from the [Trend Sampling] icon or on the [Detail] tab window of the [Trend Sampling] dialog.



or



To check the ID of each switch part, select [View] → [Display Environment] and check the box for  Display ID Number].

For more information on the ID, refer to the Operation Manual.

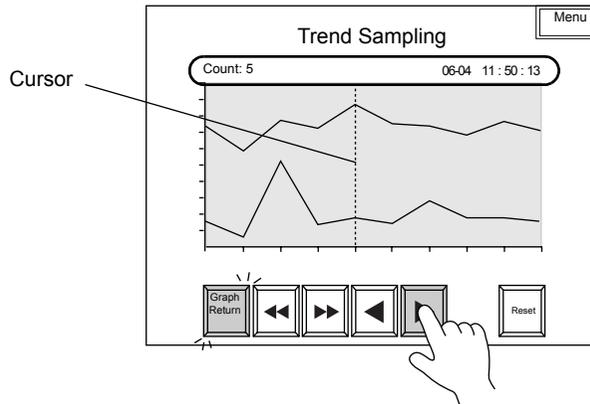
### Sampling data display and switch operation

The first page of trend sampling graph is shown from the newest data when the screen equipped with trend sampling is displayed.

To allow operators to view data in the buffering area that is not shown on the trend sampling graph, use the [Roll Up], [Roll Down], [+ Block], [- Block], and [Graph Return] switch parts.

These switch parts work as described below:

1. Press the [Roll Up], [Roll Down], [+ Block], or [- Block] switch.
2. A dotted vertical line is drawn at the center of the graph. (This dotted line is called a "cursor.")  
The [Graph Return] switch flashes alternately in ON and OFF colors.



3. When the sampling count display or sampling time display is set for data display parts for trend sampling, the count number or the sampling time of the selected data point is indicated. (If no data point is selected, the number of sampling times or the last sampling time is indicated.)
4. Pressing the [Graph Return] switch while it is flashing returns the trend sampling data display to the most recent data.

**\* The data specified by the cursor can be displayed in numerals. Use a macro command in this case. (Macro command "SAMPLE")**  
**For more information, refer to the Macro Reference Manual.**

## Data Display Parts for Trend Sampling

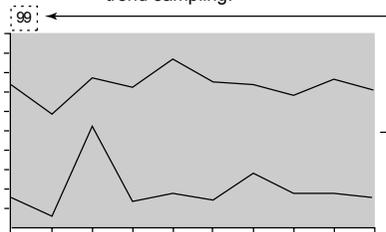
### Applicable data display parts list

Function	Contents
Sampling Count Display *1	The number of sampling times or the ordinal number of the selected data point among those sampled can be indicated.
Sampling Time Display *2	<p>This part indicates the last sampling time or that of the selected data point.</p> <p>Depending on the setting for [Digits] as well as the check box for [<input type="checkbox"/> Put msec information on logging time] in the [Others] tab window for buffering area setting, the sampling time is indicated in the following format:</p> <ul style="list-style-type: none"> <li>- [<input type="checkbox"/> Put msec information on logging time] unchecked:                             <ul style="list-style-type: none"> <li>Less than 8 digits           No display</li> <li>From 8 digits up to 13 digits   "hh : mm : ss"</li> <li>From 14 digits up to 18 digits   "MM - DD   hh : mm : ss"</li> <li>19 digits or greater           "YYYY - MM - DD   hh : mm : ss"</li> </ul> </li> <li>- [<input type="checkbox"/> Put msec information on logging time] checked:                             <ul style="list-style-type: none"> <li>Less than 8 digits           No display</li> <li>From 8 digits up to 11 digits   "hh : mm : ss"</li> <li>From 12 digits up to 17 digits   "hh : mm : ss.xxx" (xxx: msec)</li> <li>From 18 digits up to 22 digits   "MM - DD   hh : mm : ss.xxx" (xxx: msec)</li> <li>23 digits or greater           "YYYY - MM - DD   hh : mm : ssss.xxx" (xxx: msec)</li> </ul> </li> </ul>
Sampling Buffer Average Display	<p>The average, minimum, maximum, or total value of sampling data in the buffering area can be displayed.</p> <p>Calculation is performed in the V8 series and the result is stored in units of doublewords. Results are stored in the V8 series only, and can be displayed on the screen. For more information, refer to page 9-26.</p>
Sampling Buffer Max. Display	
Sampling Buffer Min. Display	
Sampling Buffer Total Display	

\*1 Sampling Count Display

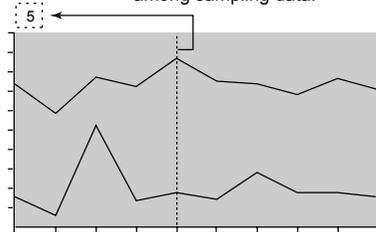
Normal

This number indicates the number of data points that have been read for trend sampling.



When selected:

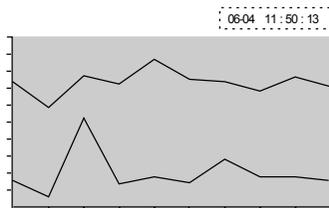
This number indicates the ordinal number of selected data point among sampling data.



\*2 Sampling Time Display

Normal

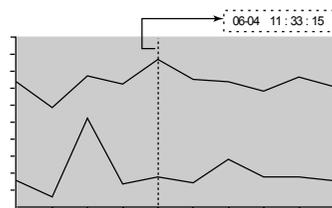
This is the sampling time of the data point that has been read most recently.



Direction: →

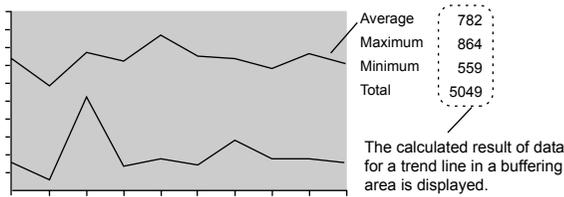
When selected:

This is the sampling time of the selected data point.



Direction: →

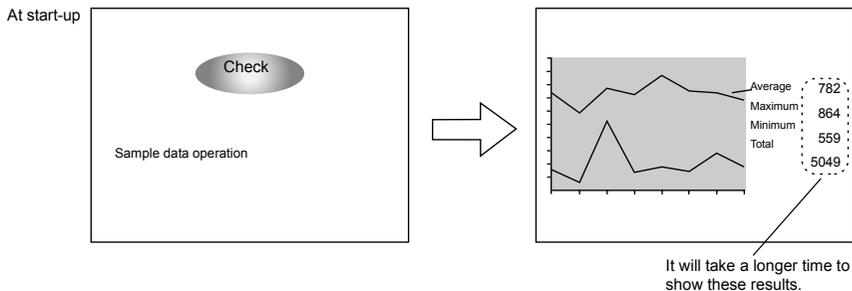
### Sampling Buffer Average, Min., Max., and Total Displays



- When the data of [Sampling Buffer Average Display], [Sampling Buffer Max. Display], [Sampling Buffer Min. Display], or [Sampling Buffer Total Display] should be displayed, check  Use a Calculation Operation in the [Buffering Area Setting] dialog for the buffer number specified for calculation. Otherwise, calculation and data display will not be carried out correctly.
- Calculations are performed based on the data obtained from the start of sampling to the present. When [Overwrite] is chosen for [Full Processing] in the [Buffering Area Setting] dialog, the actually calculated result may not be consistent with the result displayed.
- If the result (2 words) overflows after calculation of [Sampling Buffer Average Display] or [Sampling Buffer Total Display], correct data may not be obtained.  
(Overflow: the state in which data exceeds two words)
- When selecting [Memory Card] for [Secondary storage target] in the [Buffering Area Setting] dialog and storing sampling data on a memory card using a card recorder CREC, it will take a longer time to change from the STOP → RUN mode if you put a check mark to  Use a Calculation Operation in the [Buffering Area Setting] dialog.

This situation arises because read operations from the card recorder are performed for calculation. During read operation, the message "Sample-Operation Working" is displayed on the screen, and bit 15 (sampling calculation) of [I/F Memory] "n" in the [Memory Card Setting] dialog is set (ON).

It will not take much time in read operations when storing sampling data on a CF card without using a card recorder.

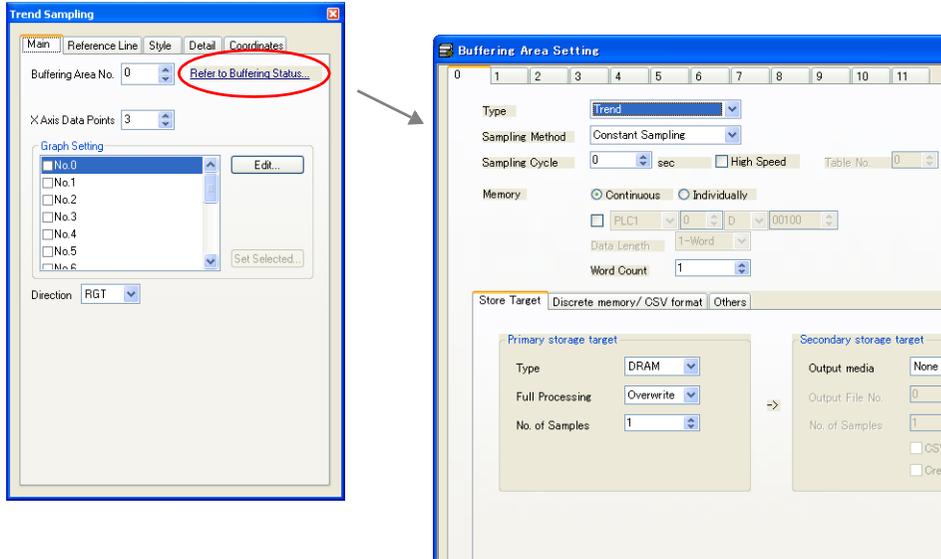


### Notes on setting

Refer to "Notes on setting" for switch parts already described.

## Buffering Area Setting

When you click [Refer to Buffering Status...] on the [Main] tab window of the [Trend Sampling] dialog, the setting items for the buffering area number are displayed.



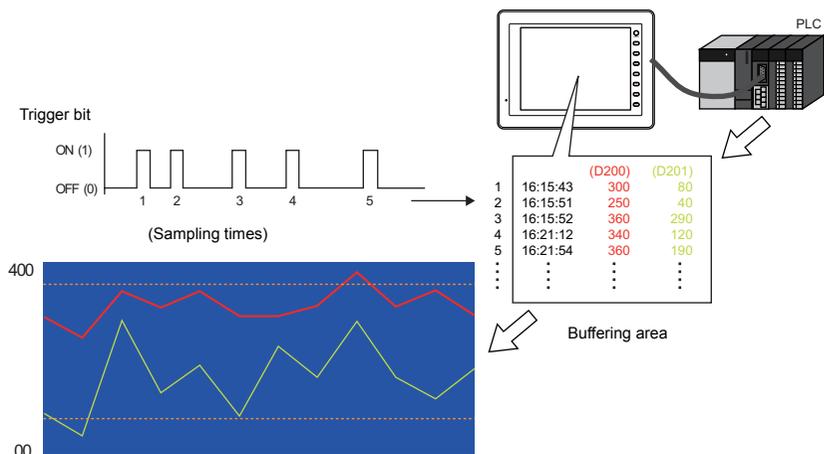
Sampling Method **1	Choose from [Bit Synchronization], [Constant Sampling] and [Device Memory Map: PLC n].
Sampling Cycle (0 to 65535 sec)	Specify the data read cycle. When "0" is specified, monitoring is executed at every cycle.
Memory	<p>Continuous: The sampling data memory is allocated consecutively in the read area or from the specified top address.</p> <p>Individually: The memory address for sampling data can be specified.</p> <p>Select [Continuous] and check this box when specifying a top memory address for consecutive allocation. From the specified top memory address, as many words as specified for [Word Count] are allocated for data for trend lines.</p> <p>Example: [Continuous], [Memory: D100], [Word Count: 4]</p>
Word Count (1 - 128)	Set the number of words to be read for one sampling.

Store Target	For more information, refer to "Storage Target (Setting Dialog)" (page A1-13) in "Appendix 1 Buffering Area."																																																															
Discrete memory/CSV format	For more information, refer to "Discrete Memory/CSV Format (Tab Window)" (page A1-19) in "Appendix 1 Buffering Area."																																																															
Others	For more information, refer to "Others" (page A1-26) in "Appendix 1 Buffering Area."  <input type="checkbox"/> Use a Calculation Operation Check this option when displaying the average, maximum, minimum or total value of data stored in the buffering area on the screen. For more information, refer to page 9-26.																																																															
<input type="checkbox"/> Start Bit	You can control sampling start, stop, and restart.  When this box is checked, the corresponding bit in the sampling control memory area is automatically indicated.  Sampling control memory [U] (bits 03, 07, 11, 15) ON: Start sampling OFF: Sampling stop  Sampling control memory <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="8" style="text-align: left;">MSB</td> <td colspan="8" style="text-align: right;">LSB</td> </tr> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td> </tr> </table> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>n</td><td>Buffer No. 3</td><td>Buffer No. 2</td><td>Buffer No. 1</td><td>Buffer No. 0</td> </tr> <tr> <td>n+1</td><td>Buffer No. 7</td><td>Buffer No. 6</td><td>Buffer No. 5</td><td>Buffer No. 4</td> </tr> <tr> <td>n+2</td><td>Buffer No. 11</td><td>Buffer No. 10</td><td>Buffer No. 9</td><td>Buffer No. 8</td> </tr> </table> * For more information on the sampling control memory, refer to page A1-9 in "Appendix 1 Buffering Area."	MSB								LSB								15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T	n	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0	n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4	n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8
MSB								LSB																																																								
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																																	
U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T																																																	
n	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0																																																												
n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4																																																												
n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8																																																												

\*1 Sampling methods

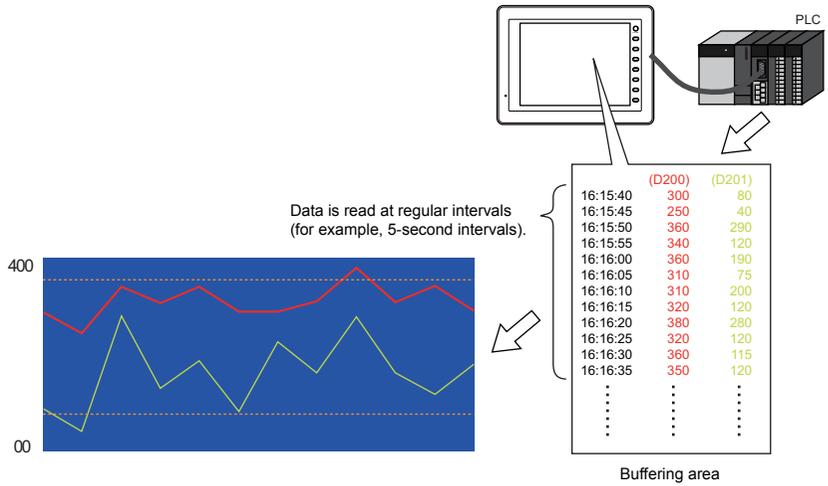
[Bit Synchronization] method:

Data is stored at the edge of OFF → ON of a designated bit.



[Constant Sampling] method:

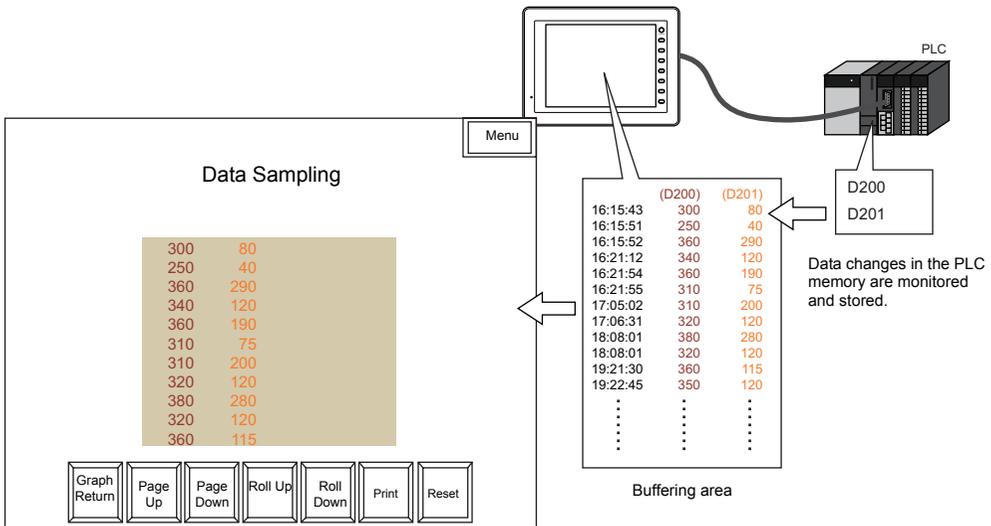
Data is stored at regular intervals determined by a counter inside MONITOUCH.



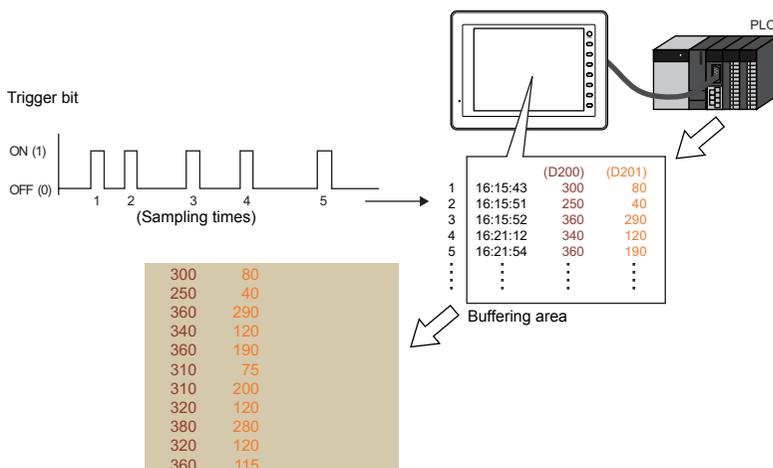
\*2 For the procedure of calculating the size of trend sampling data, refer to “Appendix 1 Buffering Area”.

## 9.3 Data Sampling (Historical) Overview

- Data stored in the specified buffering area can be expressed in a numerical data or text form.
- A maximum of 16 pieces of data can be displayed in one display area.
- When data is updated, so is the display in real time.
- Sampling data is saved in the specified buffering area of the V8 series even after the screen display has been changed.

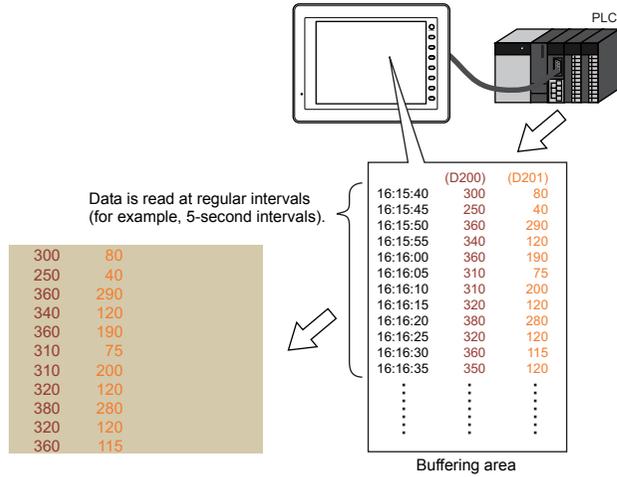


- Data is stored at the following two timings:  
[Bit Synchronization] method:  
Data is stored at the edge of OFF → ON of a designated bit.



[Constant Sampling] method:

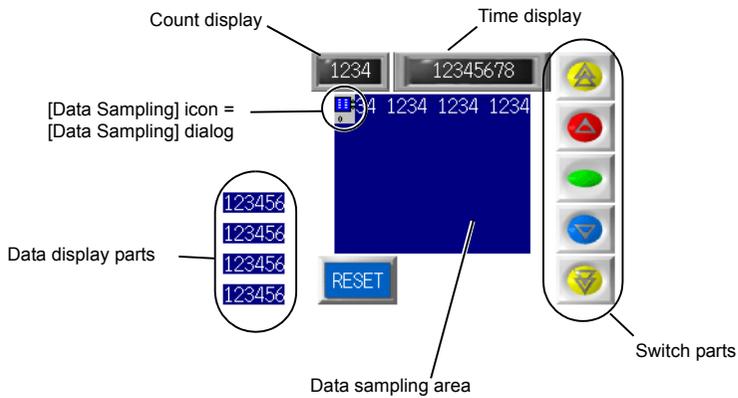
Data is stored at regular intervals determined by a counter inside MONITOUCH.



- Sampling data is retained unless the user clears the buffering area.
- However, if data is stored in the internal buffer, it is cleared in the following cases: when the power is turned off, when the Main Menu screen is displayed or when the RESTART macro command is executed.

## Configuration

The data sampling mode components are shown below.



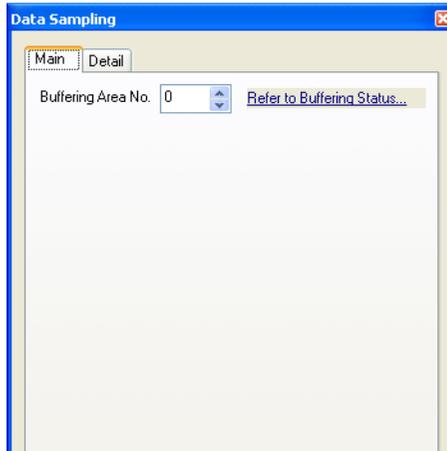
## Setting Dialog

---

### Data Sampling

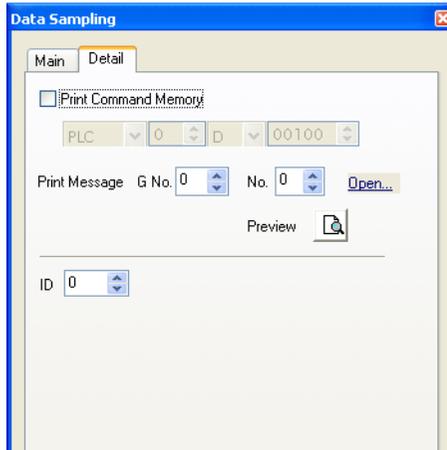
---

#### Main



Buffering Area No.	<p>Specify the desired buffering area number to be used for data sampling. The buffering area setting determines the data display controlling bit, source data address, etc.</p> <p>Refer to Buffering Status: When you click here, the [Buffering Area Setting] dialog for the specified buffer number is displayed. It is also possible to make settings for a buffering area directly. For more information, refer to page 9-45.</p>
--------------------	---

**Detail**

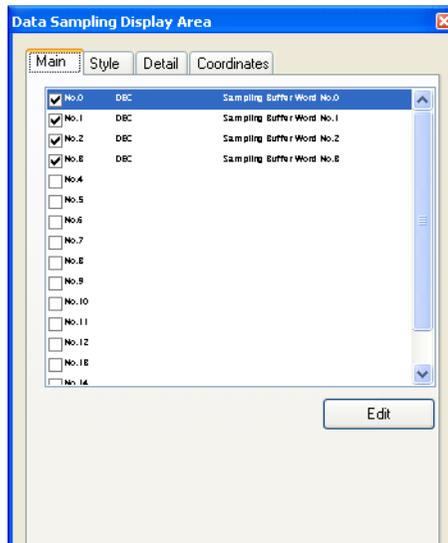


<input type="checkbox"/> Print Command Memory	Check this box when specifying a memory address for "sample print" *1. Specify one word for the command memory. <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p>Printout command (0 → 1)</p> <p>* Be sure to reset all the bits to "0" except bit 15.</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
Print Message (GNo., No.)	When obtaining a "sample print" *1, register the layout and title for printing in a message library. Specify the top line number of the registered message here. <p>Open: When you click here, the [Message Edit] window for the specified group number is displayed. It is also possible to edit the message for printing directly. For more information, refer to page 9-49.</p> <p>Preview: Click here to check the title image for printing. For more information on printing, refer to page 9-48.</p>																																
ID	Set the ID. For more information on the ID, refer to the Operation Manual.																																

\*1 Sample print  
For more information, refer to page 9-48.

## Data Sampling Display Area

### Main

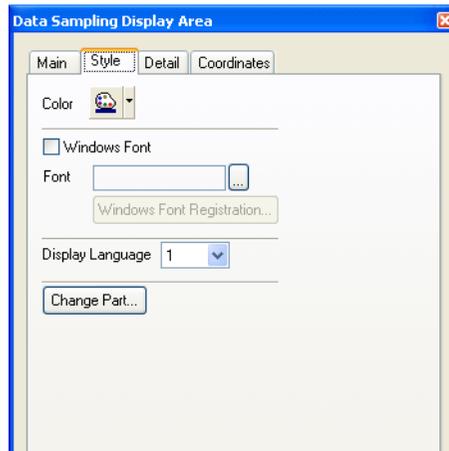


No. 0 to (No. 15)

When a number box is checked, the corresponding data will be displayed. Press the [Edit] button or double-click on the number when setting details of the data.

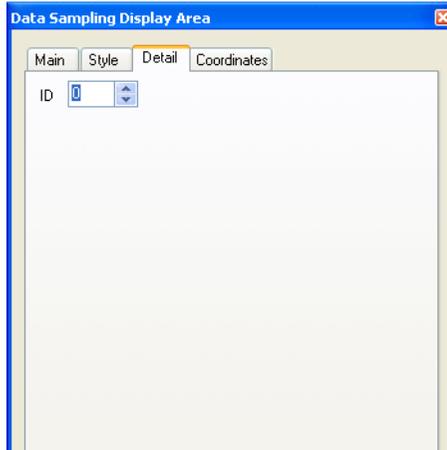
For the other setting items, refer to page 9-36.

### Style



Color	Specify the color in the data sampling area.
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Display Language	For more information, refer to "Appendix 3 Display Language."
Change Part	For more information, refer to the Operation Manual.

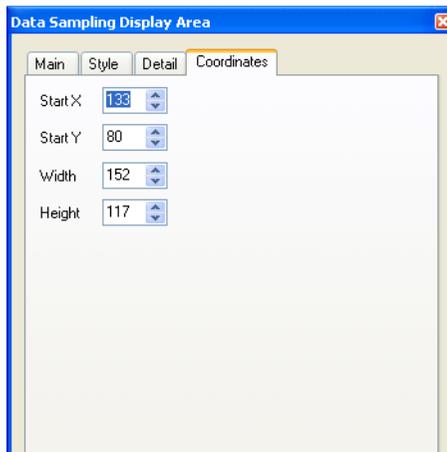
## Detail



ID

Set the ID in the same way as described for the [Data Sampling] dialog. For more information on the ID, refer to the Operation Manual.

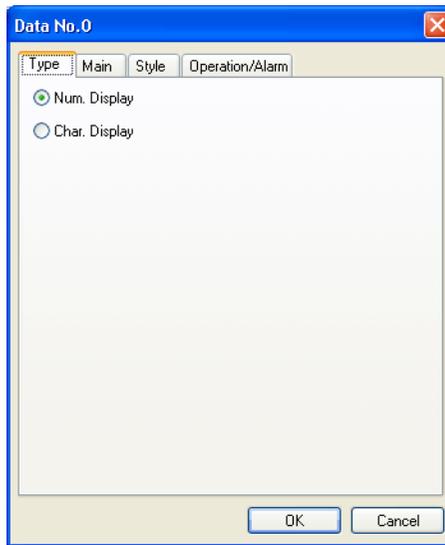
## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

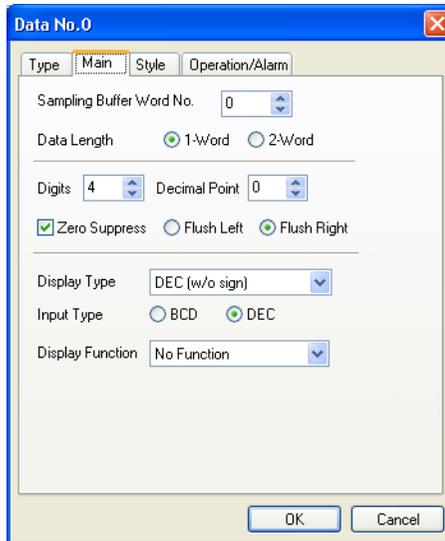
## Data No. 0 (to No. 15)

### Type



Num. Display Char. Display	Choose the desired type.
-------------------------------	--------------------------

### Main (for Num. Display)



Sampling Buffer Word No. <sup>*1</sup>	Specify the ordinal number of the word to be referred to for displaying sampling data among the words specified for [Word Count] in the [Buffering Area Setting] dialog.
Data Length <sup>*2</sup> (1-Word, 2-Word)	Set the data length.

Digits <sup>*3</sup>	Specify the number of digits for numerical data display. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display Type</th> <th>Digits</th> <th>Decimal Point</th> </tr> </thead> <tbody> <tr> <td>DEC</td> <td>1 to 10</td> <td>0 to 9</td> </tr> <tr> <td>HEX</td> <td>1 to 8</td> <td>-</td> </tr> <tr> <td>OCT</td> <td>1 to 11</td> <td>-</td> </tr> <tr> <td>BIN</td> <td>1 to 32</td> <td>-</td> </tr> </tbody> </table>	Display Type	Digits	Decimal Point	DEC	1 to 10	0 to 9	HEX	1 to 8	-	OCT	1 to 11	-	BIN	1 to 32	-
Display Type	Digits	Decimal Point														
DEC	1 to 10	0 to 9														
HEX	1 to 8	-														
OCT	1 to 11	-														
BIN	1 to 32	-														
Decimal Point	Specify the decimal place. When no decimal point is required, set "0".															
<input type="checkbox"/> Zero Suppress	Check this box when using zero suppression.  <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> Zero Suppress] (flush right)         </div> <div style="margin-right: 10px;">→</div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 15px; height: 15px; margin-right: 2px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px; margin-right: 2px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px; margin-right: 2px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px; margin-right: 2px;"></div> <div style="margin-left: 2px;">123</div> </div> </div> <div style="margin-left: 100px; font-size: small;">Space ↗</div> <div style="margin-top: 5px;"> <input type="checkbox"/> Zero Suppress] → 000123       </div> <p>When this box is checked, choose either [Flush Left] or [Flush Right].</p> <div style="margin-left: 40px;">         Flush-left → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>123</td></tr></table>          Flush-right → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>123</td></tr></table> </div>	123	123													
123																
123																
Display Type <sup>*2</sup>	Select the format of numbers to be displayed on the screen. DEC (w/o sign), DEC (w/ -sign), DEC (w/ +/- sign), HEX, OCT, BIN (binary)															
Input Type	Choose the code to be used when reading data from the PLC memory address. BCD, DEC															
Display Function	No Function: Data stored in the buffering area is displayed.  Sampling Count Display: This is the display type compatible with earlier MONITOUCH models. For more information, refer to the File Conversion manual provided separately.															

\*1 Example: "8" is specified for [Word Count] in the [Buffering Area Setting] dialog. When you want to sample data of the 3rd word in the buffering area, specify "2" for [Sampling Buffer Word No.].

[Data Length: 1-Word]		[Data Length: 2-Word]	
	Address		Address
1st word	0	1st word	0
2nd word	1	2nd word	0
3rd word	2	3rd word	2
4th word	3	4th word	2
5th word	4	5th word	4
6th word	5	6th word	4
7th word	6	7th word	6
8th word	7	8th word	6

In this example, the same address should be specified for either data length even if the setting for [Data Length] in the [Data Sampling] dialog is not the same.

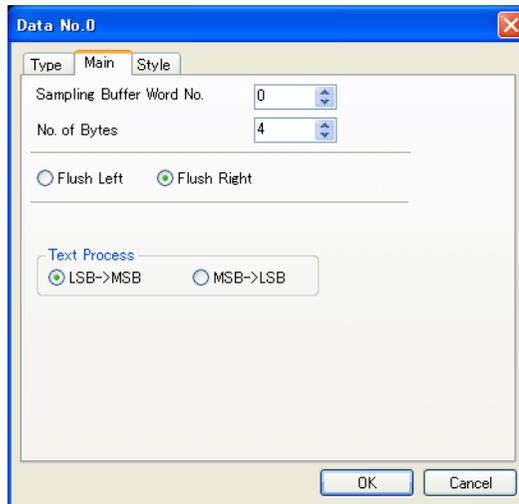
\*2 Relation between data length and display type

Code	1-word Range	2-word Range
DEC (w/o sign)	0 to 65535	0 to 4294967295
DEC (w/ -sign)	-32768 to 32767	-2147483648 to 2147483647
DEC (w/ ±sign)	-32768 to +32767	-2147483648 to +2147483647
HEX	0 to FFFF	0 to FFFFFFFF
OCT	0 to 177777	0 to 3777777777
BIN	0 to 1111111111111111	0 to 11111111111111111111111111111111

\*3 When a value exceeding the set number of digits is keyed in:

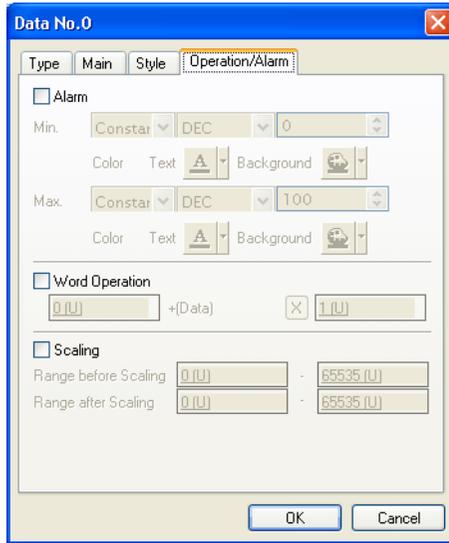
Model	DEC	HEX/OCT/BIN
Display	Overflow display	Numbers from the right
Example: Data length: 1 word Digits: 3 Entered value: 1010	---	010

**Main (for Char. Display)**



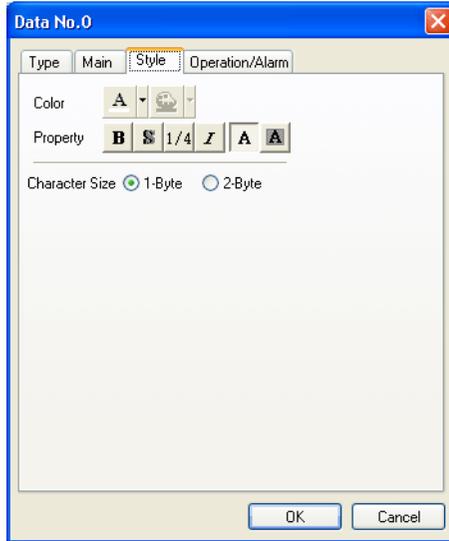
Sampling Buffer Word No.	Specify the ordinal number of the word to be referred to for displaying sampling data among the words specified for [Word Count] in the [Buffering Area Setting] dialog.
No. of Bytes	Specify the number of bytes.
Flush Left Flush Right	Choose either flush-left or flush-right for character display.
Text Process (LSB → MSB / MSB → LSB)	Set the recognition of MSB and LSB in one word.

**Operation/Alarm (for Num. Display)**



For more information on the setting items, refer to “5 Data Display.”

**Style**



Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Transparent	
Character Size (For numerical data only)	

## Switch Parts for Data Sampling

### Applicable switch parts list

Function	Contents
Roll Up	Scrolls up by one data element toward the most recent entry. If all data elements cannot be held in the area, one data element at a time scrolls into view.
Roll Down	Scrolls down by one data element toward the oldest entry. If all data elements cannot be held in the area, one data element at a time scrolls into view.
+ Block	Scrolls up by one page toward the most recent entry.
- Block	Scrolls down by one page toward the oldest entry.
Graph Return	Returns to the most recent data display when it is pressed while flashing. Flashing of the [Graph Return] switch is canceled as well as its selection.
Reset	When the switch is pressed once, it is turned on. Pressing it again within 2 seconds clears the buffering area. Sampling restarts immediately after clearing. If not pressed again within 2 seconds, the switch is turned off and resetting is nullified.
Print	All data elements stored in the specified buffer are printed.

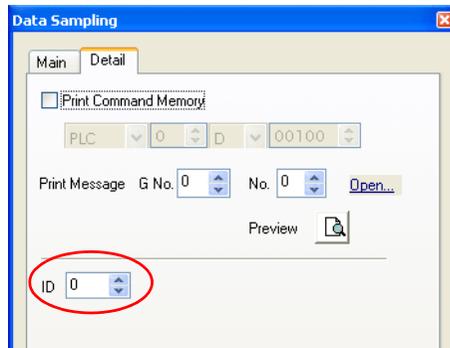
### Notes on setting

Specify the same ID for switch parts as the one specified in the [Data Sampling] dialog.

The ID specified in the [Data Sampling] dialog can be known from the [Data Sampling] icon or on the [Detail] tab window of the [Data Sampling] dialog.



or



To check the ID of each switch part, select [View] → [Display Environment] and check the box for  Display ID Number].

For more information on the ID, refer to the Operation Manual.

### Sampling data display and switch operation

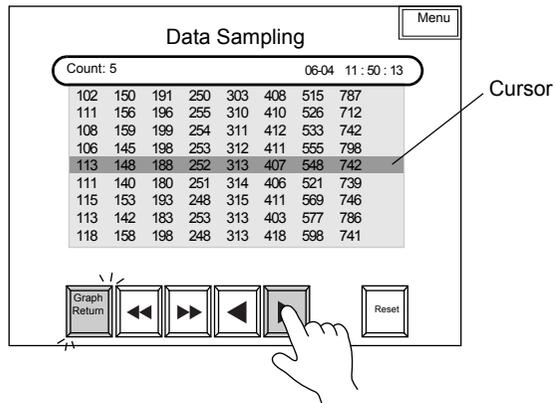
The first page of data sampling is shown from the newest data when the screen equipped with data sampling is displayed.

To allow operators to view data in the buffering area that is not shown on the data sampling area, use the [Roll Up], [Roll Down], [+ Block], [- Block], and [Graph Return] switch parts.

These switch parts work as described below:

1. Press the [Roll Up], [Roll Down], [+ Block], or [- Block] switch.

2. A line in the center of the area is selected with the cursor.  
The [Graph Return] switch flashes alternately in ON and OFF colors.



3. When the sampling count display or sampling time display, described later in "Data Display Parts for Trend Sampling", is set, the count number or the sampling time of the selected data point is indicated.  
(If no data element is selected, the number of sampling times or the last sampling time is indicated.)
  4. Pressing the [Graph Return] switch while it is flashing returns the data sampling display to the most recent data.
- \* **The data specified by the cursor can be displayed in numerals. Use a macro command in this case. (Macro command "SAMPLE")**  
For more information, refer to the Macro Reference Manual.

## Data Display Parts for Data Sampling

### Applicable data display parts list

Function	Contents
Sampling Count Display *1	The number of sampling times or the ordinal number of the selected data element among those sampled can be indicated.
Sampling Time Display *2	<p>This part indicates the last sampling time or that of the selected data point.</p> <p>Depending on the setting for [Digits] as well as the check box for <input type="checkbox"/> Put msec information on logging time] in the [Others] tab window for buffering area setting, the sampling time is indicated in the following format:</p> <ul style="list-style-type: none"> <li>- <input type="checkbox"/> Put msec information on logging time] unchecked:                             <ul style="list-style-type: none"> <li>Less than 8 digits      No display</li> <li>From 8 digits up to 13 digits      "hh : mm : ss"</li> <li>From 14 digits up to 18 digits      "MM - DD hh : mm : ss"</li> <li>19 digits or greater      "YYYY - MM - DD hh : mm : ss"</li> </ul> </li> <li>- <input type="checkbox"/> Put msec information on logging time] checked:                             <ul style="list-style-type: none"> <li>Less than 8 digits      No display</li> <li>From 8 digits up to 11 digits      "hh : mm : ss"</li> <li>From 12 digits up to 17 digits      "hh : mm : ss.xxx" (xxx: msec)</li> <li>From 18 digits up to 22 digits      "MM - DD hh : mm : ss.xxx" (xxx: msec)</li> <li>23 digits or greater      "YYYY - MM - DD hh : mm : ssss.xxx" (xxx: msec)</li> </ul> </li> </ul>
Sampling Buffer Average Display	The average, minimum, maximum, or total value of sampling data in the buffering area can be displayed. Calculation is performed in the V8 series and the result is stored in units of doublewords. Results are stored in the V8 series only, and can be displayed on the screen. For more information, refer to page 9-43.
Sampling Buffer Max. Display	
Sampling Buffer Min. Display	
Sampling Buffer Total Display	

\*1 Sampling Count Display

Normal

This number indicates the number of data elements that have been read for data sampling.

5																																				
	<table border="0"> <tr><td>102</td><td>150</td><td>191</td><td>250</td><td>303</td><td>408</td><td>515</td></tr> <tr><td>111</td><td>156</td><td>196</td><td>255</td><td>310</td><td>410</td><td>526</td></tr> <tr><td>108</td><td>159</td><td>199</td><td>254</td><td>311</td><td>412</td><td>533</td></tr> <tr><td>106</td><td>145</td><td>198</td><td>253</td><td>312</td><td>411</td><td>555</td></tr> <tr><td>113</td><td>148</td><td>188</td><td>252</td><td>313</td><td>407</td><td>548</td></tr> </table>	102	150	191	250	303	408	515	111	156	196	255	310	410	526	108	159	199	254	311	412	533	106	145	198	253	312	411	555	113	148	188	252	313	407	548
102	150	191	250	303	408	515																														
111	156	196	255	310	410	526																														
108	159	199	254	311	412	533																														
106	145	198	253	312	411	555																														
113	148	188	252	313	407	548																														

When selected:

This number indicates the ordinal number of selected data element among sampling data.

2																																				
	<table border="0"> <tr><td>102</td><td>150</td><td>191</td><td>250</td><td>303</td><td>408</td><td>515</td></tr> <tr style="background-color: #e0e0e0;"><td>111</td><td>156</td><td>196</td><td>255</td><td>310</td><td>410</td><td>526</td></tr> <tr><td>108</td><td>159</td><td>199</td><td>254</td><td>311</td><td>412</td><td>533</td></tr> <tr><td>106</td><td>145</td><td>198</td><td>253</td><td>312</td><td>411</td><td>555</td></tr> <tr><td>113</td><td>148</td><td>188</td><td>252</td><td>313</td><td>407</td><td>548</td></tr> </table>	102	150	191	250	303	408	515	111	156	196	255	310	410	526	108	159	199	254	311	412	533	106	145	198	253	312	411	555	113	148	188	252	313	407	548
102	150	191	250	303	408	515																														
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108	159	199	254	311	412	533																														
106	145	198	253	312	411	555																														
113	148	188	252	313	407	548																														

## \*2 Sampling Time Display

## Normal

This is the sampling time of the data element that has been read most recently.

102	150	191	250	303	408	515
111	156	196	255	310	410	526
108	159	199	254	311	412	533
106	145	198	253	312	411	555
113	148	188	252	313	407	548

06-04 11:50:13

## When selected:

This is the sampling time of the selected data element.

102	150	191	250	303	408	515
111	156	196	255	310	410	526
108	159	199	254	311	412	533
106	145	198	253	312	411	555
113	148	188	252	313	407	548

06-04 11:33:15

## Sampling Buffer Average, Min., Max., and Total Displays

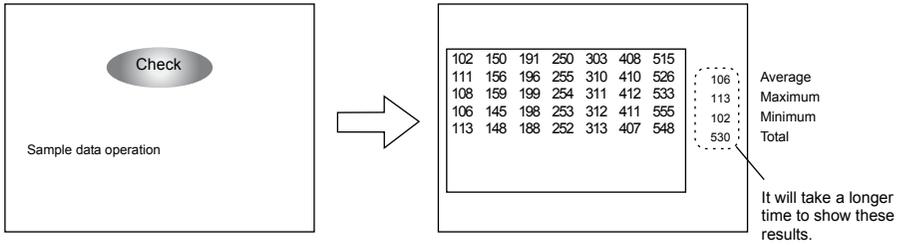
Average	106	102	150	191	250	303	408	515
Maximum	113	111	156	196	255	310	410	526
Minimum	102	108	159	199	254	311	412	533
Total	530	106	145	198	253	312	411	555
		113	148	188	252	313	407	548

The calculated result of data for a trend line in a buffering area is displayed.

- When the data of [Sampling Buffer Average Display], [Sampling Buffer Max. Display], [Sampling Buffer Min. Display], or [Sampling Buffer Total Display] should be displayed, check  Use a Calculation Operation in the [Buffering Area Setting] dialog for the buffer number specified for calculation. Otherwise, calculation and data display will not be carried out correctly.
- Calculations are performed based on the data obtained from the start of sampling to the present. When [Overwrite] is chosen for [Full Processing] in the [Buffering Area Setting] dialog, the actually calculated result may not be consistent with the result displayed.
- If the result (2 words) overflows after calculation of [Sampling Buffer Average Display] or [Sampling Buffer Total Display], correct data may not be obtained.  
(Overflow: the state in which data exceeds two words)
- When selecting [Memory Card] for [Secondary storage target] in the [Buffering Area Setting] dialog and storing sampling data on a memory card using a card recorder CREC, it will take a longer time to change from the STOP → RUN mode if you put a check mark to  Use a Calculation Operation in the [Buffering Area Setting] dialog.
- This situation arises because read operations from the card recorder are performed for calculation. During read operation, the message "Sample-Operation Working" is displayed on the screen, and bit 15 (sampling calculation) of [I/F Memory] "n" in the [Memory Card Setting] dialog is set (ON).

It will not take much time in read operations when storing sampling data on a CF card without using a card reader.

At start-up

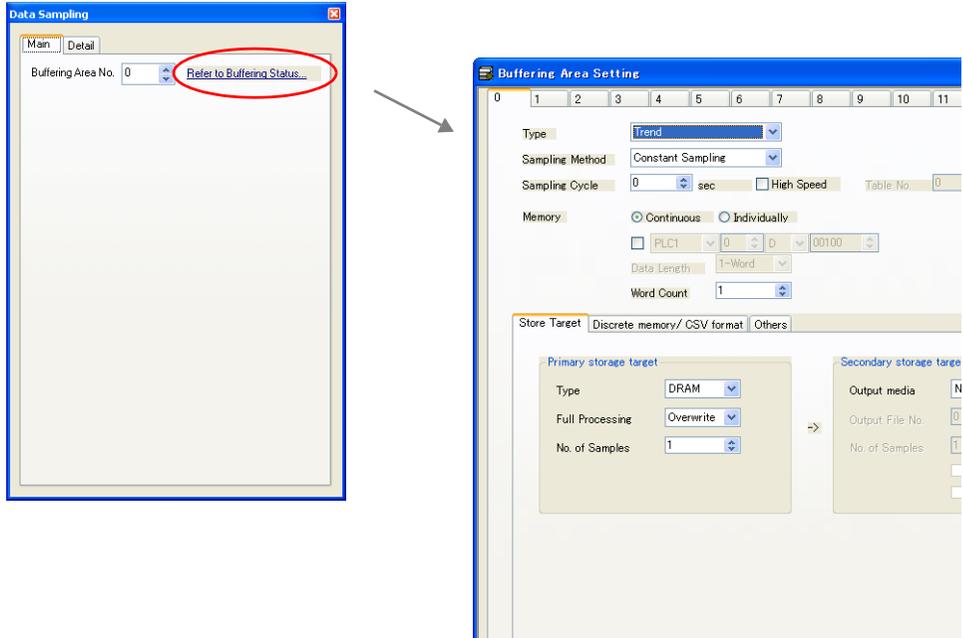


### Notes on setting

Refer to "Notes on setting" for switch parts already described.

## Buffering Area Setting

When you click [Refer to Buffering Status] on the [Main] tab window of the [Data Sampling] dialog, the setting items for the buffering area number are displayed.

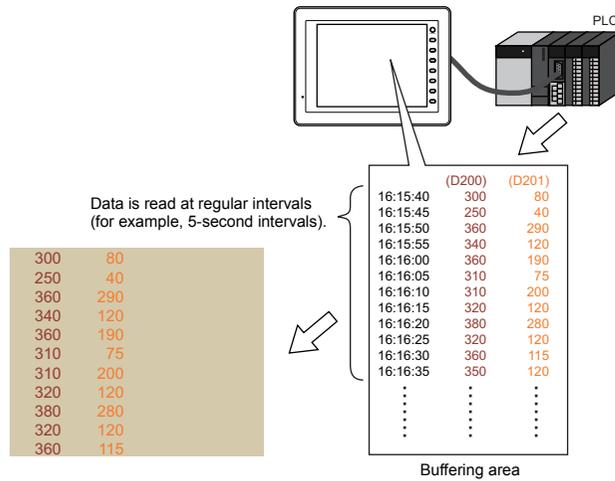


Sampling Method **1	Choose from [Bit Synchronization], [Constant Sampling] and [Device Memory Map: PLC n].																																								
Sampling Cycle (0 to 65535 sec)	Specify the data read cycle. When "0" is specified, monitoring is executed at every cycle.																																								
Memory	<p>Continuous: The sampling data memory is allocated consecutively in the read area or from the specified top address.</p> <p>Individually: The memory address for sampling data can be specified.</p> <p>Select [Continuous] and check this box when specifying a top memory address for consecutive allocation. From the specified top memory address, as many words as specified for [Word Count] are allocated for data for trend lines.</p> <p>Example: [Continuous], [Memory: D100], [Word Count: 4]</p> <div style="text-align: right; margin-right: 20px;"> <p>Sampling Buffer Word No. 0 = D100</p> <p>Sampling Buffer Word No. 1 = D101</p> <p>Sampling Buffer Word No. 2 = D102</p> <p>Sampling Buffer Word No. 3 = D103</p> </div> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr><td>300</td><td>80</td><td>1300</td><td>480</td></tr> <tr><td>250</td><td>40</td><td>1250</td><td>540</td></tr> <tr><td>360</td><td>290</td><td>1360</td><td>590</td></tr> <tr><td>340</td><td>120</td><td>1340</td><td>420</td></tr> <tr><td>360</td><td>190</td><td>1360</td><td>390</td></tr> <tr><td>310</td><td>75</td><td>1310</td><td>675</td></tr> <tr><td>310</td><td>200</td><td>1310</td><td>500</td></tr> <tr><td>320</td><td>120</td><td>1320</td><td>420</td></tr> <tr><td>380</td><td>280</td><td>1380</td><td>480</td></tr> <tr><td>320</td><td>120</td><td>1320</td><td>520</td></tr> </tbody> </table>	300	80	1300	480	250	40	1250	540	360	290	1360	590	340	120	1340	420	360	190	1360	390	310	75	1310	675	310	200	1310	500	320	120	1320	420	380	280	1380	480	320	120	1320	520
300	80	1300	480																																						
250	40	1250	540																																						
360	290	1360	590																																						
340	120	1340	420																																						
360	190	1360	390																																						
310	75	1310	675																																						
310	200	1310	500																																						
320	120	1320	420																																						
380	280	1380	480																																						
320	120	1320	520																																						



[Constant Sampling] method:

Data is stored at regular intervals determined by a counter inside MONITOUCH.



\*2 For the procedure of calculating the size of trend sampling data, refer to "Appendix 1 Buffering Area".



## Registering Print Message

### Setting position

[Data Sampling] dialog → [Detail] → [Print Message]

Register a print message in the position shown above.

For more information on the message editing procedure, refer to the Operation Manual.

### Data to be registered

- The top line in the specified print message denotes a header.  
If you want to use two or more lines for a header, insert one-byte "¥" at the end of the line. The next line is recognized as a part of the header. Of course, "¥" is not printed.
- On the line following the header, specify the positions to indicate count, time, and sampling data. Use one-byte characters "C," "T," and "0" to "15".

C: Sampling count print position  
T: Sampling time print position  
0 to 15: Data No. 0 to 15 print positions

Alignment of C, T and 0 to 15 depends on the formats set for [Sampling Count Display], [Sampling Time Display] and [Data Sampling].

If  [Zero Suppress] and  [Flush Right] are selected for these parts, the values are printed with the lowest digit in alignment.

If  [Zero Suppress] and  [Flush Left] are selected for these parts, the values are printed with the highest digit in alignment; if  [Zero Suppress] is not checked, the values are printed without zero suppression.

[Zero Suppress] checked  
[Flush Left]

C	T	0	1
↓	↓	↓	↓
0	0	12345	12345

- The header is printed on top of each page.
- \* Even when [C] and [T] are registered in the print message, the count and the time are not printed if [Sampling Count Display] and [Sampling Time Display] are not placed on a screen.**

**Registration example**

[Print Message] Message GNo. 2 : No. 0

[  Zero Suppress] unchecked

[Flush Left]

Message GNo. 2 editing

	<input type="checkbox"/>	Sampling Count	Time	--- Line 1 ---		--- Line 2 ---\	
Title				No. 1	No. 2	No. 3	No. 4
Print position	<input type="checkbox"/>	C	T	0	1	2	3



It is printed as shown below.

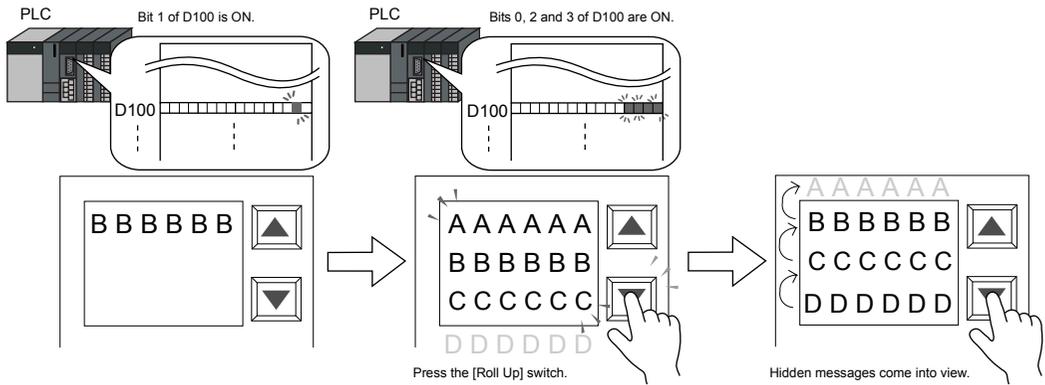
Sampling Count	Time	--- Line 1 ---		--- Line 2 ---	
		No. 1	No. 2	No. 3	No. 4
1	06-04 13:14:20	1234	4562	1111	224
2	06-04 13:34:20	2457	2346	3464	456
3	06-04 13:54:20	1240	6548	5648	984
4	06-04 13:74:20	4563	7683	6713	777
⋮	⋮	⋮	⋮	⋮	⋮
50	06-04 15:14:20	9997	8764	8127	265

# 10 Alarming

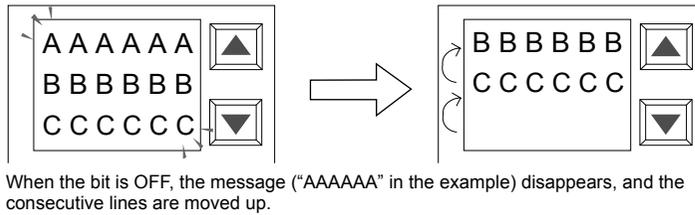
## 10.1 Bit Order Alarming (Real Time)

### Overview

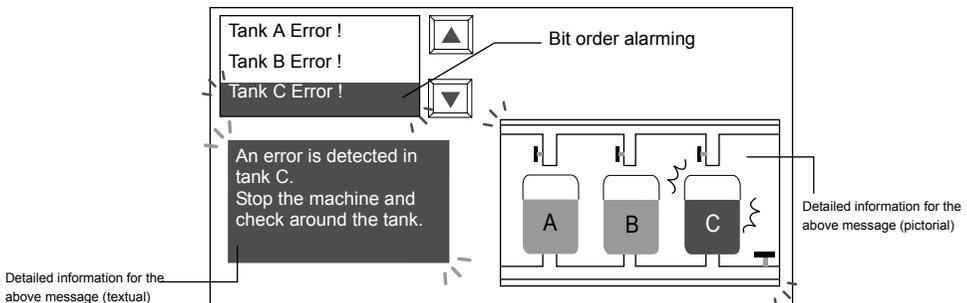
- This is the function for displaying or erasing messages on the screen by setting or resetting bits. When multiple bits are set, the messages are displayed in order of precedence (see page 10-4).
- If multiple bits are set and the applicable messages are not held in the display area on the screen, the messages can scroll up and down using the [Roll Up] and [Roll Down] switches.



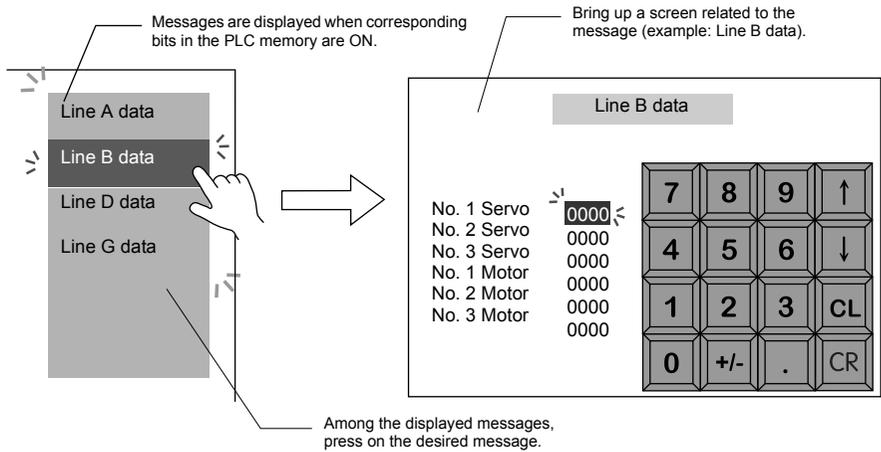
- When a bit is reset, the corresponding message disappears from the screen, and other messages are moved up.



- A detailed display (= alarm sub-display) for a message of "bit order alarming" can be displayed at the same time. The alarm sub-display can be either in text or graphics (pictures). For each bit of bit order alarming data, a maximum of four alarm sub-displays can be connected. (Refer to "10.2 Alarm Sub Display.")



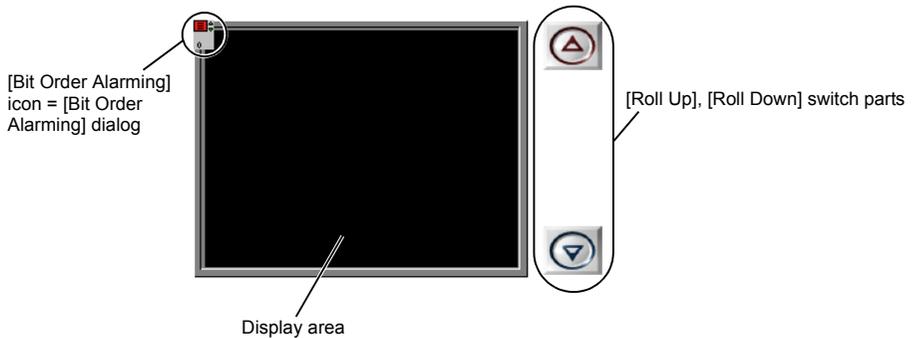
- Also, it is possible to use a screen for alarm sub-display.  
 (Refer to “Calling Screens from Messages (Screen Call)” on page 10-13.)



- When display errors which are currently occurring not in order of precedence, but in order of occurrence, use “time order alarming.” For more information, refer to “10.5 Time Order Alarming (Real Time).”

## Configuration

The bit order alarming components are shown below.



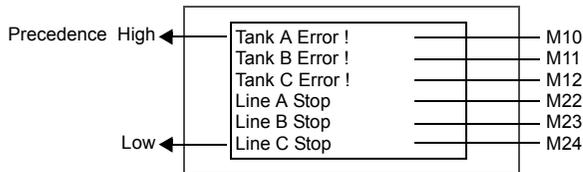


<p>Action Area <sup>*3</sup> (Display Area, Switch, Lamp)</p>	<p>Choose from [Display Area], [Switch] or [Lamp] for specifying the place where the message should be displayed on the screen when the corresponding bit is set or reset.</p> <p><b>Display Area:</b> Shows messages on display area parts placed on the screen.</p> <p><b>Switch:</b> Shows messages on switch parts placed on the screen. Place the [Function: Mode] switch part. Each switch part has an auxiliary item [Display Order] and when using this item you can specify which alarm message should be displayed on which switch. When you set the same number for [Display Order] of all the switch parts, the messages are displayed in the order in which the switch parts were placed.</p> <p><b>Lamp:</b> Shows messages on lamp parts placed on the screen. Place the [Function: Mode] lamp part. As with switch parts, each lamp part has an auxiliary item [Display Order].</p>
---	---

**\*1 Precedence in displaying messages <sup>\*2</sup>**

Precedence is assigned to the messages displayed by bit order alarming. Based on the memory bits assigned, the smaller the bit number is, the higher precedence is given; the larger the bit number, the lower its precedence. When messages are displayed on the screen, those of higher precedence are displayed first.

Example:



**\*2 Precedence**

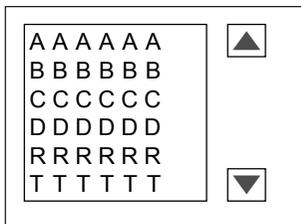
There is another way to display messages in the order of occurrence instead of precedence. This is called “time order alarming.”

For more information, refer to “10.5 Time Order Alarming (Real Time).”

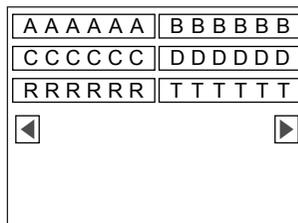
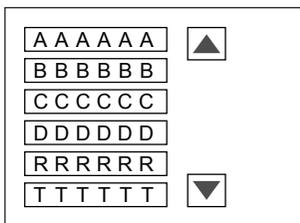
**\*3 Action Area**

When selecting each option, the screen image changes as shown below.

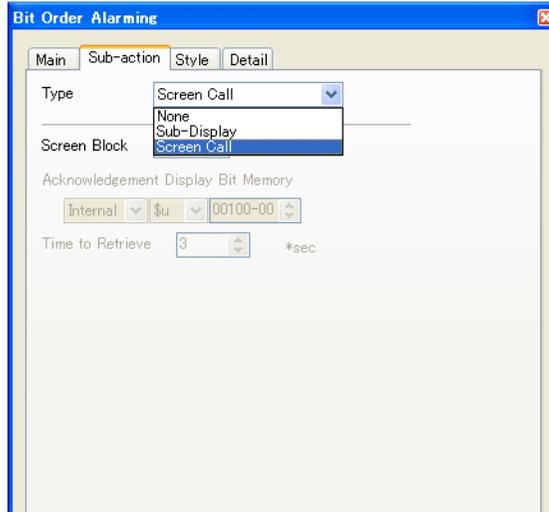
[Action Area: Display Area]



[Action Area: Switch] or [Action Area: Lamp]

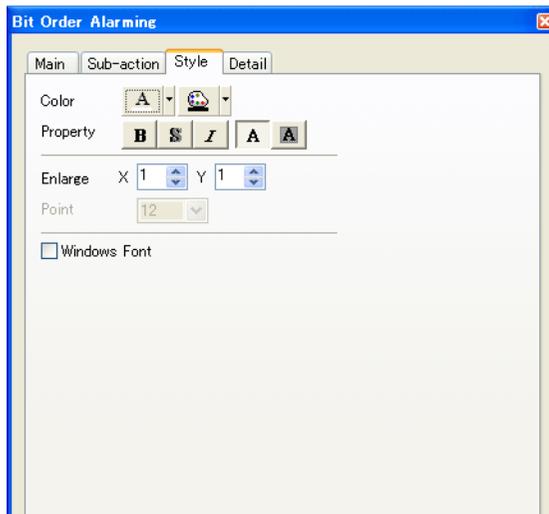


**Sub-action**



<p>Type (None, Sub-Display, Screen Call, Acknowledge Display, Ladder Monitor)</p>	<p><b>None:</b> Choose [None] when using bit order alarming only.</p> <p><b>Sub-Display:</b> Choose this option when you want to relate a supplemental display to a one-bit alarm message. Set an alarm sub-display to be linked. For more information, refer to page 10-15.</p> <p><b>Screen Call:</b> Choose this option when you want to call up a screen (for detailed information, for example) related to a one-bit alarm message that is displayed. Select [Registration Item] → [Screen Block] and edit the screen to be linked. For more information, refer to page 10-13.</p> <p><b>Acknowledge Display:</b> This option is valid when [Switch] or [Lamp] is chosen for [Action Area] on the [Main] tab window. Select this option when using the acknowledge function. (However, note that, if the acknowledge function is used for bit order alarming, acknowledged information will be cleared when the screen display is changed. Please heed this information and use the function effectively.) For more information on the acknowledge function, refer to “Acknowledge Display Function” on page 10-72.</p> <p><b>Ladder Monitor:</b> This option is displayed when the ladder monitor is used. For more information, refer to the Ladder Monitor Specifications provided separately.</p>
<p>Screen Block</p>	<p>When [Screen Call] is chosen for [Sub-action], this option becomes active. Specify the top screen block number corresponding to the alarm message.</p>

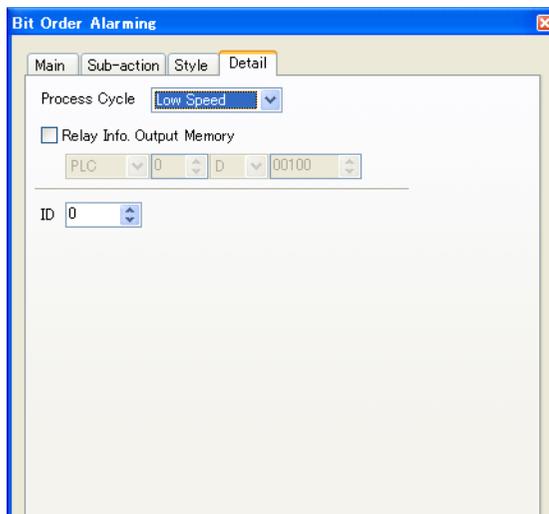
### Style



Color	
Property	
Transparent	For more information, refer to “Appendix 4 Styles and Coordinates.”
Enlarge *1	
Point	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.

\*1 When [Switch] or [Lamp] is chosen for [Action Area] on the [Main] tab window, [Enlarge] is fixed to “1”.

### Detail



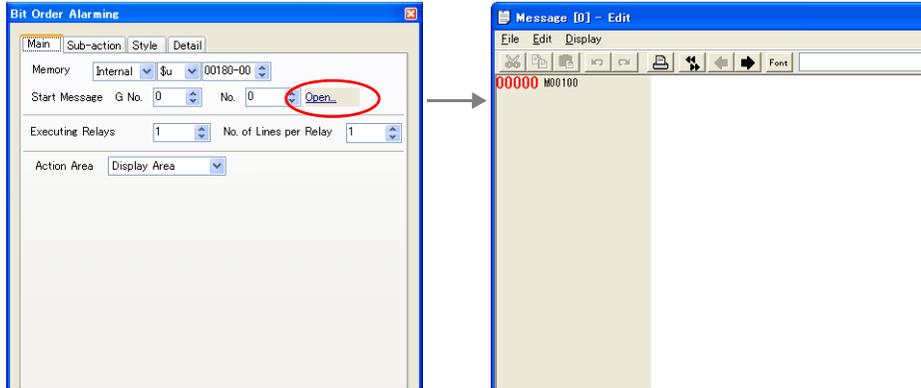
Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to “Appendix 5 Process Cycle.”
---------------	--

<input type="checkbox"/> Relay Info. Output Memory	<p>Choose whether or not data of the message displayed or selected for bit order alarming should be output to the PLC. If you want to output data, check the box, and specify the desired top memory address.</p> <p>When outputting: <input checked="" type="checkbox"/> Relay Info. Output Memory (top memory address "n") Memory addresses are allocated as shown below.</p> <table border="1"> <thead> <tr> <th>Relay Info. Output Memory</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>n</td> <td>Total number of ON alarms</td> </tr> <tr> <td>n + 1</td> <td>Selected alarm number</td> </tr> <tr> <td>n + 2</td> <td>ON alarm number</td> </tr> </tbody> </table> <p>n: Total number of ON alarms The number of bits currently set to ON is written.</p> <p>n + 1: Selected alarm number [Sub-action: Sub-Display] The order of precedence of the alarm message among those being displayed (starting from #1 having precedence) is output. In order of precedence:</p> <table> <tr> <td>First:</td> <td>AAAAAA</td> <td rowspan="5" style="vertical-align: middle;">n + 1 = 4</td> </tr> <tr> <td>Second:</td> <td>BBBBBB</td> </tr> <tr> <td>Third:</td> <td>GGGGGG</td> </tr> <tr> <td>Fourth:</td> <td>OOOOOO</td> </tr> <tr> <td>Fifth:</td> <td>XXXXXX</td> </tr> </table> <p>[Sub-action: None] The order of precedence (starting from "1") of the top message among those displayed is output.</p> <p>n + 2: ON alarm number [Sub-action: Sub-Display] The ordinal number of the message selected with the cursor among those displayed by bit order alarming (regarding the start message number as "0") is written.</p> <div> </div> <p>[Sub-action: None] The ordinal number (regarding the start message number as "0") of the top message among those displayed is output.</p>	Relay Info. Output Memory	Contents	n	Total number of ON alarms	n + 1	Selected alarm number	n + 2	ON alarm number	First:	AAAAAA	n + 1 = 4	Second:	BBBBBB	Third:	GGGGGG	Fourth:	OOOOOO	Fifth:	XXXXXX
Relay Info. Output Memory	Contents																			
n	Total number of ON alarms																			
n + 1	Selected alarm number																			
n + 2	ON alarm number																			
First:	AAAAAA	n + 1 = 4																		
Second:	BBBBBB																			
Third:	GGGGGG																			
Fourth:	OOOOOO																			
Fifth:	XXXXXX																			
ID	Set the ID. For more information on the ID, refer to the Operation Manual.																			

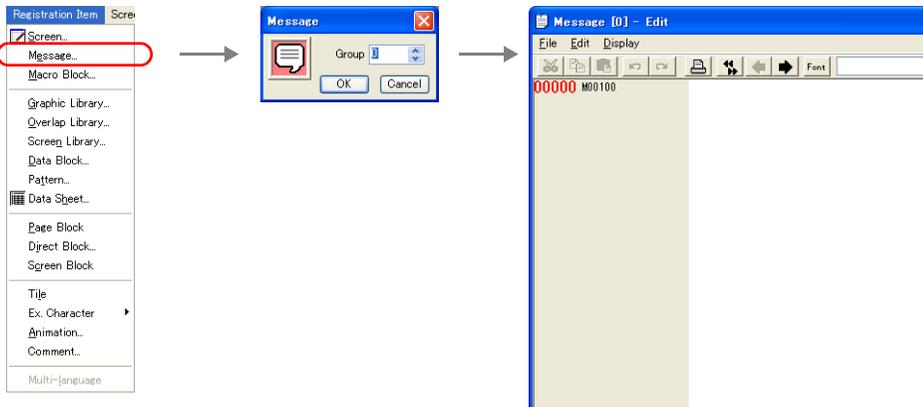
### Registering messages

There are two ways of registering messages.

- [Bit Order Alarming] dialog → [Main] tab window → [Open]

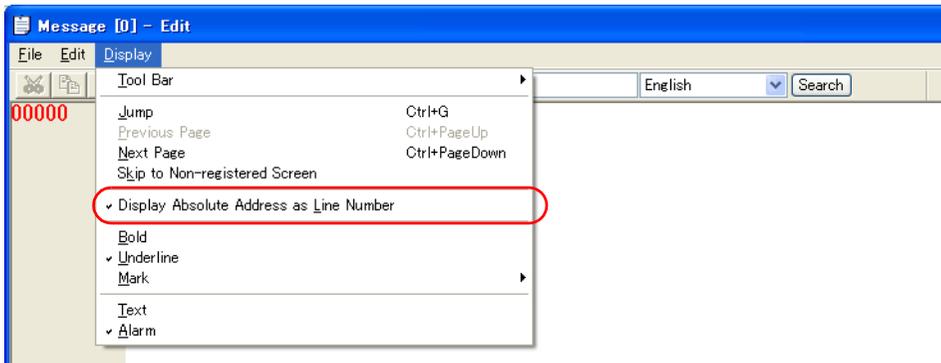


- [Registration Item] → [Message] → [Group No.] designation



In the [Message Edit] window, line numbers denote absolute addresses as default.

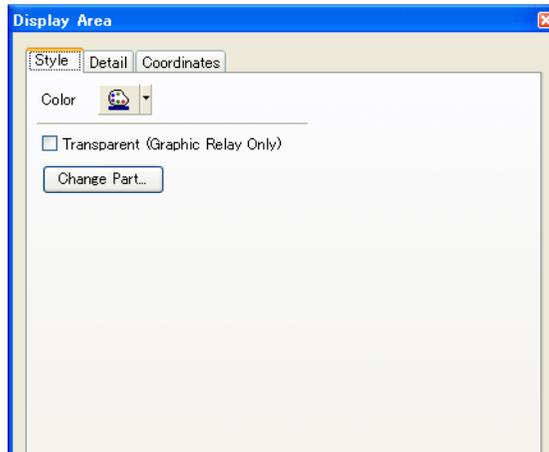
If designating a line number for bit order alarming, select [Display] → [Display Absolute Address as Line Number] and remove the check from this menu item before commencing editing.



For more information on the editing procedure in the [Message Edit] window, refer to the Operation Manual.

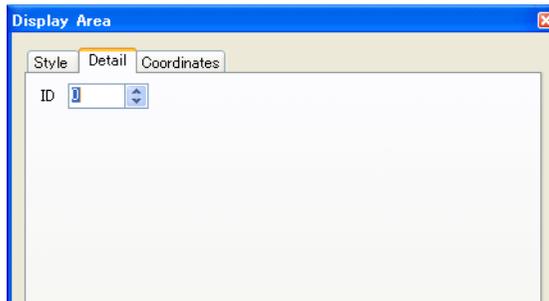
## Display Area

### Style



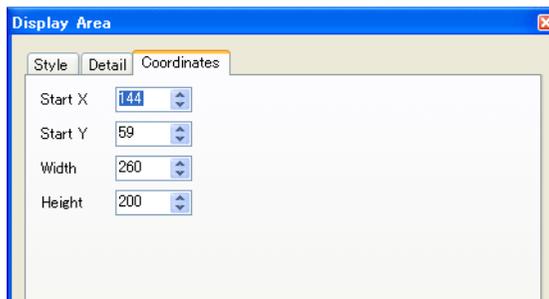
Color	Specify the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified the [Bit Order Alarming] dialog. For more information on the ID, refer to the Operation Manual.
----	---

### Coordinates

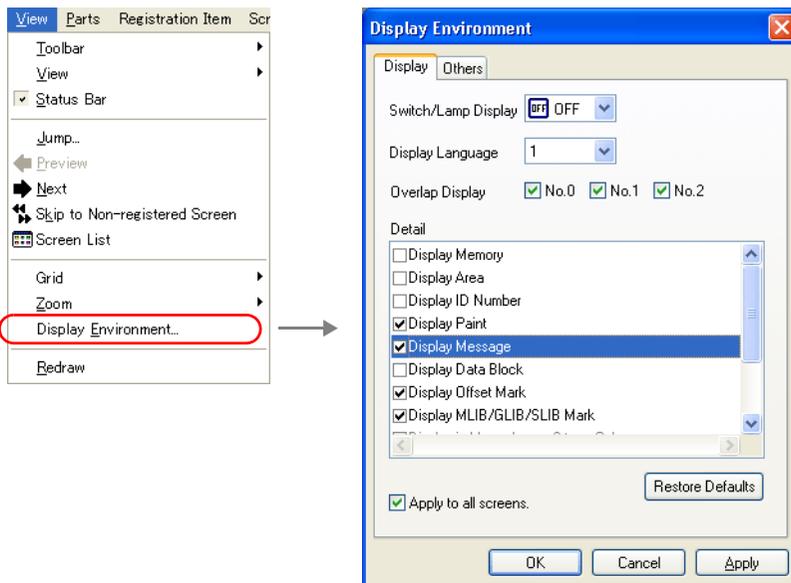


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

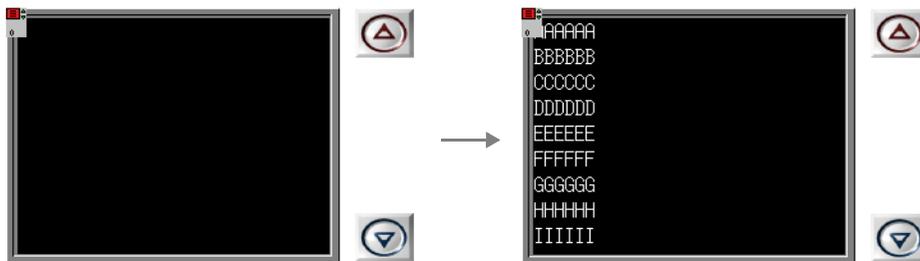
### Checking the display area size

You can check on the screen that alarm messages can be displayed on the display areas as you intended.

When you have registered messages, select [View] → [Display Environment] → [Display] tab, check the box for  Display Message].



The registered messages are displayed on the screen.



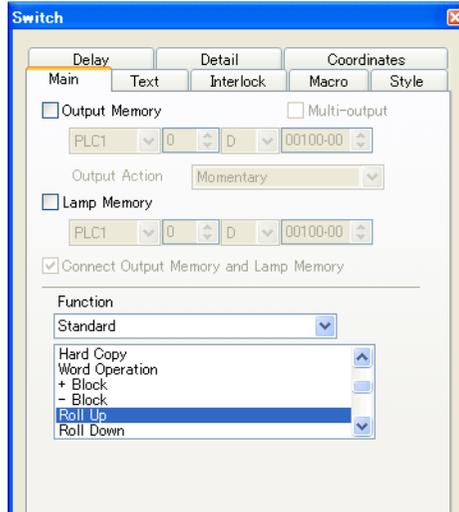
For more information on size adjustment, etc., refer to the Operation Manual provided separately.

## [Roll Up], [Roll Down] Switch Parts

These switch parts are used for scrolling up and down the messages when all the messages cannot be held in the display area.

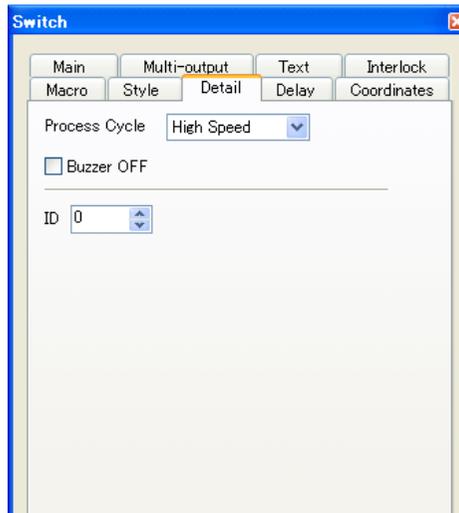
This section describes the settings essential for bit order alarming.

### Main



Function	Choose either [Roll Up] or [Roll Down].
----------	---

### Detail

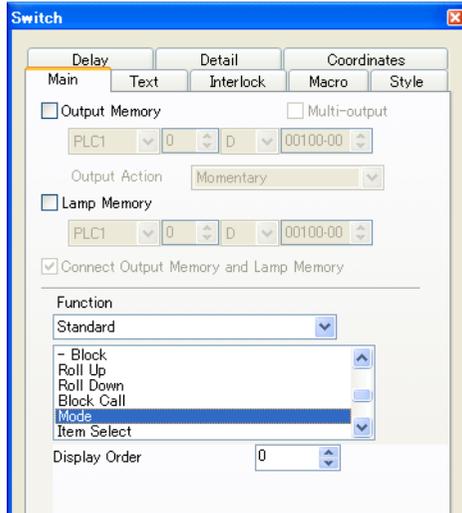


ID	Set the same ID as specified the [Bit Order Alarming] dialog. For more information on the ID, refer to the Operation Manual.
----	--

## Switch / Lamp (for Display Area)

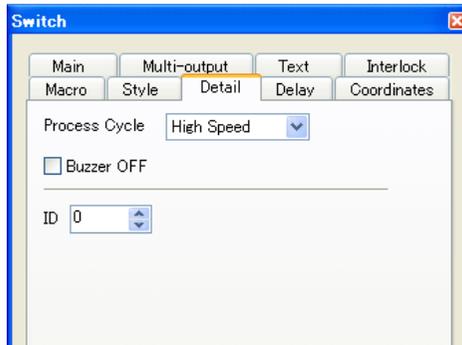
Messages can be displayed on switches or lamps instead of display areas. This section describes the switch and lamp settings that are indispensable.

### Main



Function	<p>Choose [Mode].</p> <p>Display Order (0 - 23): Specify the order of displaying the message when multiple [Mode] switches or lamps are placed.</p> <p>* <b>One switch or lamp part shows one message line.</b></p>
----------	---

### Detail



ID	<p>Set the same ID as specified the [Bit Order Alarming] dialog. For more information on the ID, refer to the Operation Manual.</p>
----	---

## Sub-Display

For more information on the motion that is made by selecting [Sub-action] tab window → [Sub-action: Sub-Display], refer to “10.2 Alarm Sub Display.”

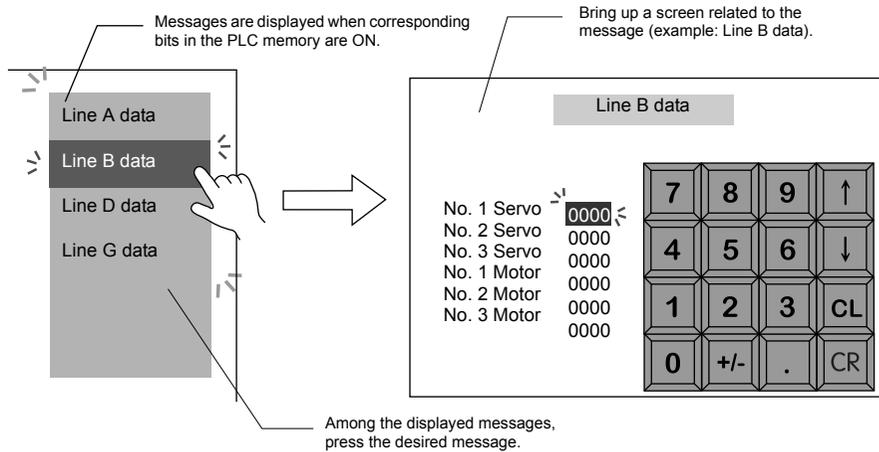
## Calling Screens from Messages (Screen Call)

### Overview

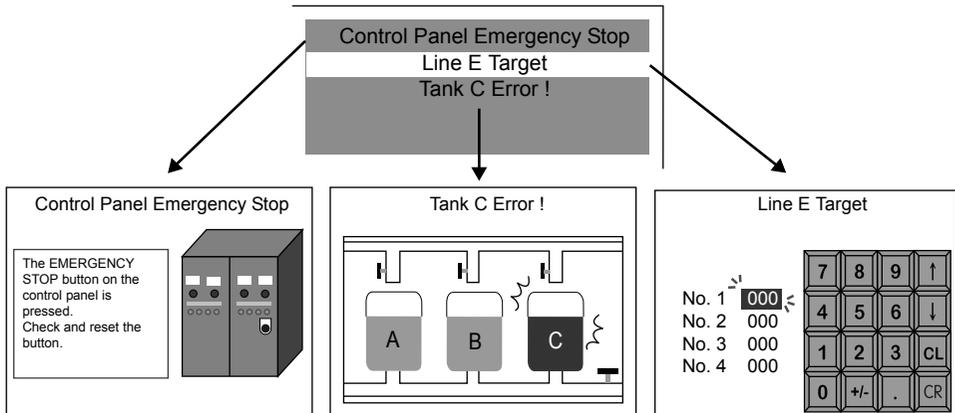
- Register associated content of an alarm message to be displayed in advance.

When an alarm message is selected, the screen containing associated content is displayed. This function is called the "screen call" function.

You can create, register, and call up more detailed content on the screen.



- Screens to be called up are ordinary screen displays equipped with parts and items. Therefore, you can create a supplementary display using as many functions as desired.



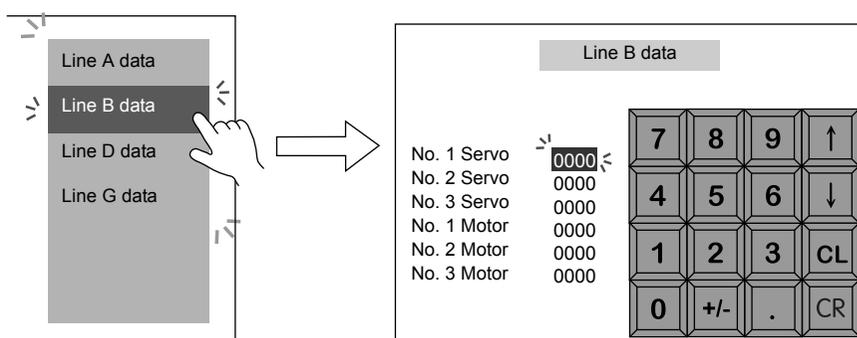
## Notes on Setting Bit Order Alarming

Action Area (Main)	This option is valid when [Display Area] <sup>*1</sup> or [Switch] is chosen.
Type (Sub-action)	Choose [Screen Call].
Screen Block (Sub-action)	This setting is required when [Screen Call] is chosen for [Type]. Specify the top block number (corresponding to the top message for bit order alarming) from which "screen blocks" should be started.

### \*1 Switch function of display area part

When you have shown an alarm message in the display area through the screen call function, the display area part is automatically furnished with the switch function.

When you directly press the location where the message is displayed, the screen call function is activated and the screen changes.



## Screen Block

### Overview

When [Type: Screen Call] is chosen on the [Sub-action] tab window of the [Bit Order Alarming] dialog, screen blocks must be specified.

- A group of supplementary screen displays should be prepared for bit order alarming. These screen displays are re-organized into the order of alarm message registration, which are called "screen blocks." Thus, screen blocks for supplementary displays are assigned to alarm messages in order.
- Screens used for [Screen Block] can be equipped with the same functions that are available with ordinary screens.

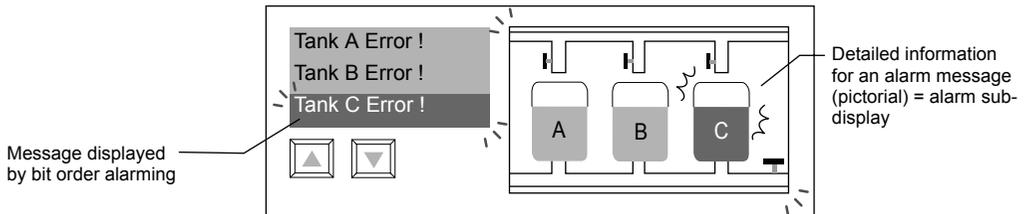
However, when using message mode (using [Page Block] or [Direct Block]), graphic mode, or the data block area mode on the screen, you must set the top number of the corresponding message, graphic, or data block for each alarm message.

### Editing procedure

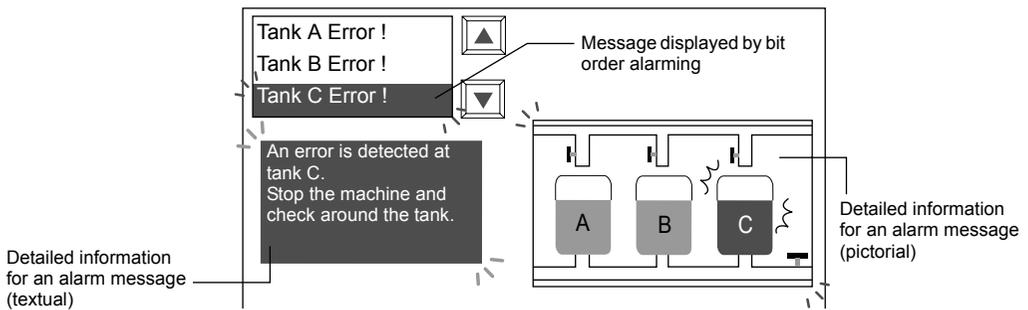
For more information, refer to the Operation Manual.

## 10.2 Alarm Sub Display Overview

- It is possible to link messages that are displayed by setting bits (= bit order alarming) with a detailed explanation using the alarm sub-display function.
- Alarm sub-displays must be used together with bit order alarming.  
Text or graphics can be called up from one-bit alarm message for bit order alarming. For example, this function is useful for displaying a detailed explanation or illustrations corresponding to an alarm message.

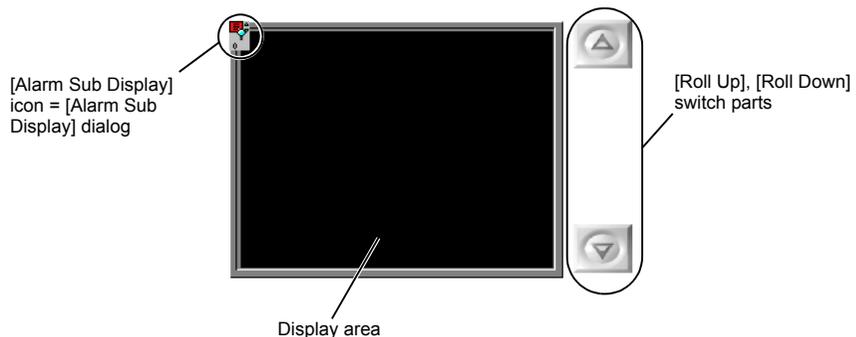


- A maximum of four sub-displays can be set up for one bit of data.  
Therefore, supplemental explanations, additional messages or easy-to-see graphics can be displayed at one time.



## Configuration

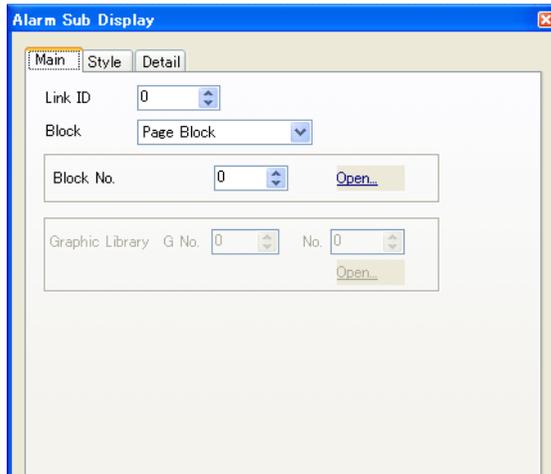
The alarm sub-display components are shown below.



## Setting Dialog

### Alarm Sub Display

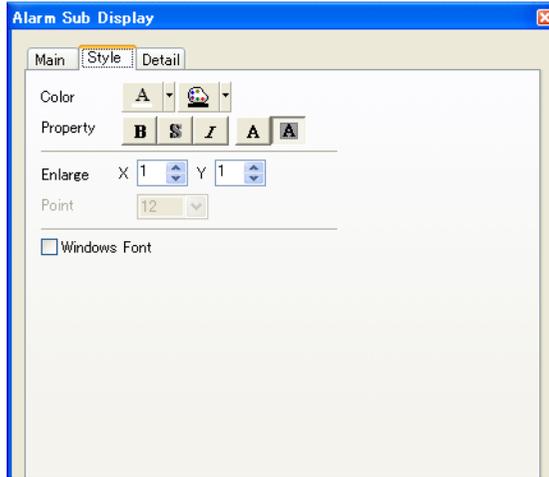
#### Main



Link ID	The [Alarm Sub Display] dialog can only work when it is linked with the [Bit Order Alarming] dialog. Set the same ID as specified in the [Bit Order Alarming] dialog. With this setting, the alarm sub-display is linked with bit order alarming.
Block (Page Block, Direct Block, Graphic Library) *1	Choose a form of sub-display from the following options:  Page Block: Use [Page Block] to display messages.  Direct Block: Use [Direct Block] to display messages.  Graphic Library: Use [Graphic Library] to display graphics.
Block No.	This option becomes active when [Page Block] or [Direct Block] is chosen for [Block]. Specify the top block number of page or direct blocks to be used. This top block number corresponds to the top message number for bit order alarming. The later blocks correspond to the alarm messages consecutively.  When you click [Open], the block edit window is opened.
Graphic Library	This option becomes active when [Graphic Library] is chosen for [Block]. Set the group number and the graphic number of the top graphic. This top graphic number corresponds to the top message number for bit order alarming. The later graphics correspond to the alarm messages consecutively.  When you click [Open], the graphic library edit window is opened.

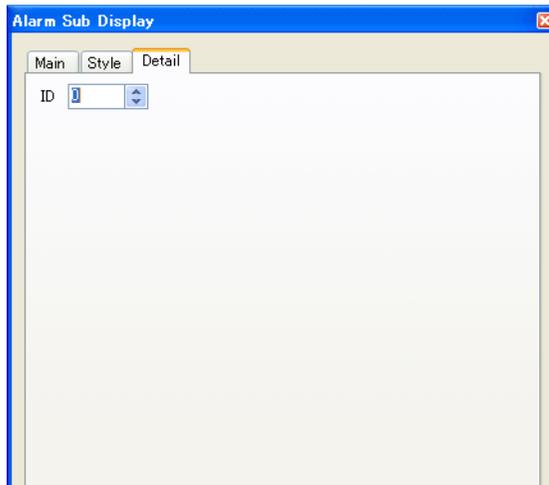
\*1 For more information on the editing procedure of page blocks, direct blocks or graphic libraries, refer to the Operation Manual.

**Style**



Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Transparent	
Enlarge	
Point	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.

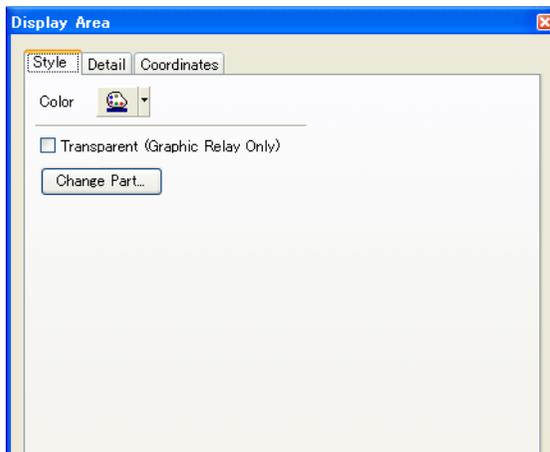
**Detail**



ID	Set the ID. For more information on the ID, refer to the Operation Manual.
----	---

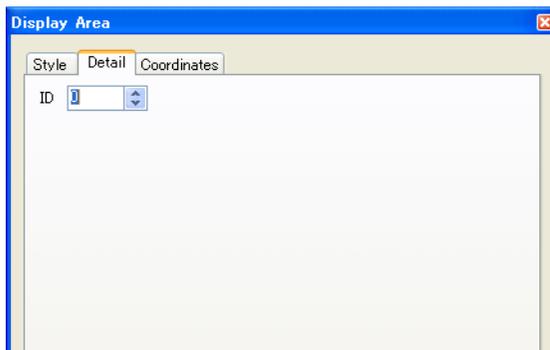
## Display Area

### Style



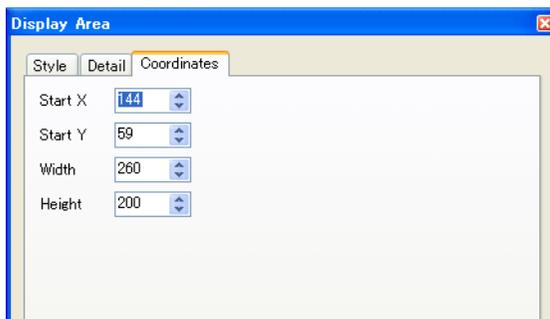
Color	Specify the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified the [Alarm Sub Display] dialog. For more information on the ID, refer to the Operation Manual.
----	--

### Coordinates



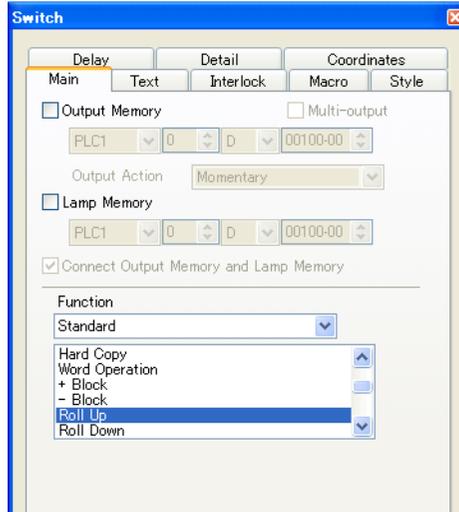
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

## [Roll Up], [Roll Down] Switch Parts

These switch parts are used for scrolling up and down the messages when all the messages cannot be held in the display area.

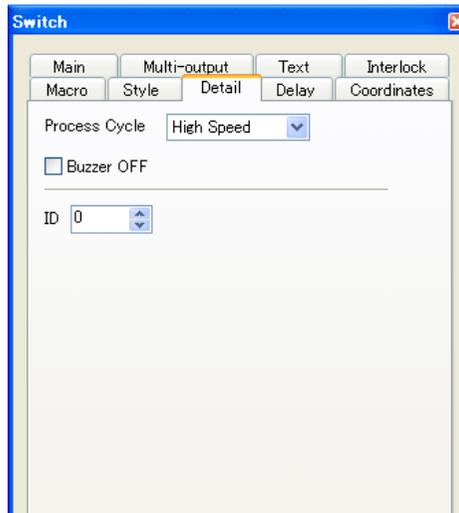
This section describes the settings essential for alarm sub-display.

### Main



Function	Choose either [Roll Up] or [Roll Down].
----------	---

### Detail



ID	Set the same ID as specified the [Alarm Sub Display] dialog. For more information on the ID, refer to the Operation Manual.
----	--

## Notes on Setting Bit Order Alarming

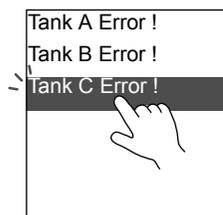
Note the following points when setting the [Bit Order Alarming] dialog.

Action Area (Main)	This option is valid when [Display Area] <sup>*1</sup> or [Switch] is chosen.
Type (Sub-action)	Choose [Sub-Display]. The message displayed by bit order alarming is equipped with alarm sub-display as a sub-action.

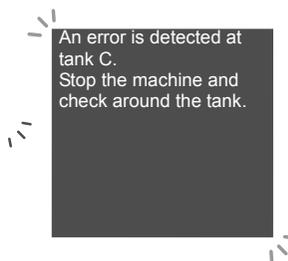
**\*1** Switch function of display area part

When an alarm message is shown in the display area, it is necessary to choose a 1-bit alarm message with the cursor to call up an alarm sub-display. With the V8 series, the switch function is automatically furnished to the display area part. Thus, if you directly press the place where the message is displayed, the cursor will move to that location. (You can also make a selection using the roll-up/roll-down switches.)

(Bit order alarming)

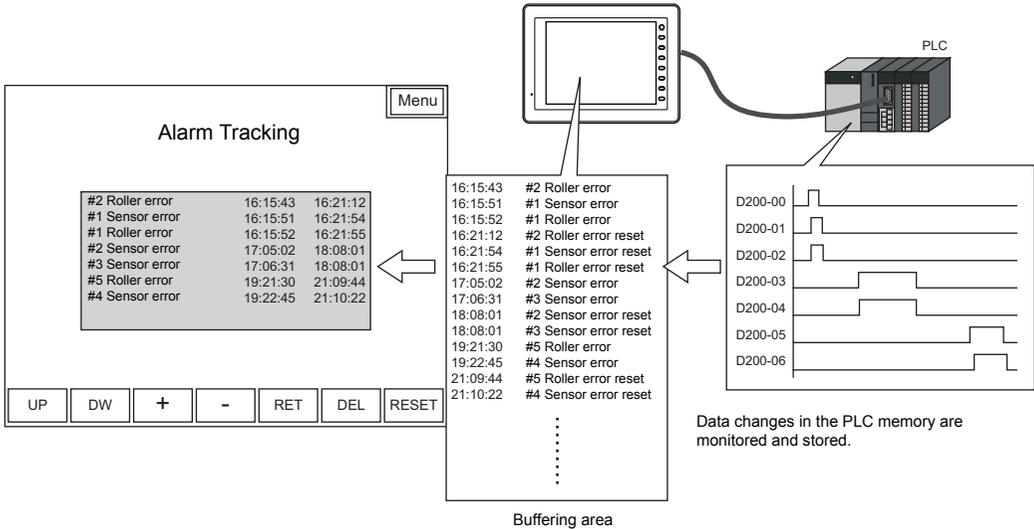


(Alarm sub-display)



# 10.3 Alarm Tracking (Historical) Overview

- Messages triggered by bit ON/OFF operation as well as time information are stored in the buffering area and are displayed as historical data on the screen.



- The occurrence time and reset time are displayed in one line.

	Occurrence time		Reset time	
* #2 Roller error	02/11/15	16:15:43	02/11/15	16:21:12
#1 Sensor error	99/11/15	16:15:51	*****	*****
#2 Sensor error	99/11/15	16:15:52	*****	*****

If an error is not reset, an asterisk (\*) is displayed instead of the time.

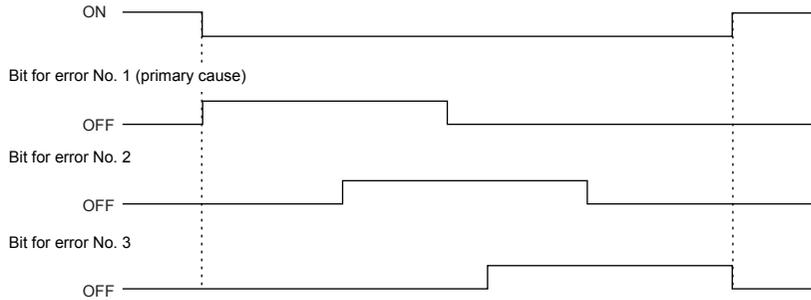
- It is also possible to make calculations to determine time lag, frequency of occurrence, total time, etc.

	Time lag display
* #2 Roller error	*****
#1 Sensor error	000:00:08
#2 Sensor error	000:00:01

The alarm occurrence time lag is displayed.

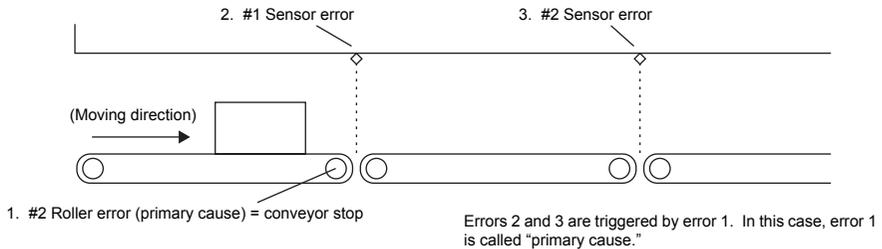
- It is possible to display errors with distinction between the “primary cause” and “others.”
- When monitoring bit ON/OFF operation, you will notice that the setting of a bit (primary cause) causes secondary and tertiary bits to be set as well. When this occurs, it is possible to distinguish the bit that was set first and those that were set afterwards. Thus, you can identify the source bit that causes the error.

Normal operation bit (\* will be OFF when an error occurs)



It is possible to distinguish between error No. 1 and other errors.

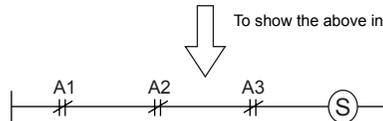
Example: When a belt conveyor error occurs:



S: Normal operation bit (\* will be OFF when an error occurs)



To show the above in a circuit diagram ...



By marking the primary cause with an asterisk (\*) when the error messages are displayed, you can distinguish the primary cause error from the other errors.

Primary cause mark	*: #2 Roller error	02/11/15 16:15:43
	#1 Sensor error	02/11/15 16:15:51
	#2 Sensor error	02/11/15 16:15:52

- It is possible to choose whether or not to save the message in the buffer depending on the importance of the message.

This is useful when messages by other alarming methods are displayed together. (Refer to page 10-38.)

- Messages can be deleted by pressing the [DEL] key.

The deleted message is retained in the buffer as historical data. (Refer to page 10-31.)

	Occurrence time		Reset time	
* #2 Roller error	02/11/15	16:15:43	02/11/15	16:21:12
#1 Sensor error	02/11/15	16:15:51	02/11/15	16:21:54
#2 Sensor error	02/11/15	16:15:52	02/11/15	16:21:55

UP	DW	+	-	RET	Display Change	DEL	RESET
----	----	---	---	-----	----------------	-----	-------

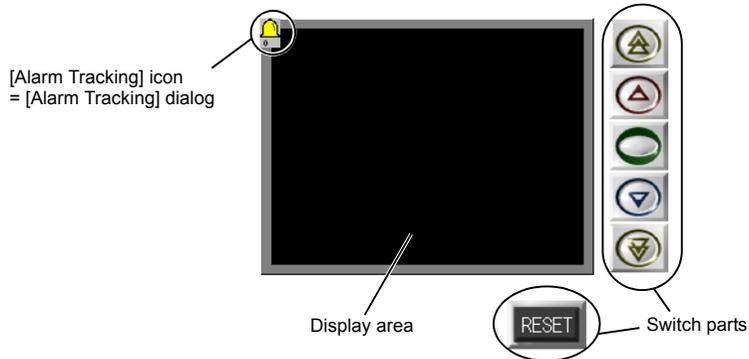
When the [DEL] key is pressed, the selected message is deleted.



- Information about the alarm information (operation result) in auto operation time or operation rate is stored in MONITOUCH internal memory using a macro command. (Refer to page 10-36.)

## Configuration

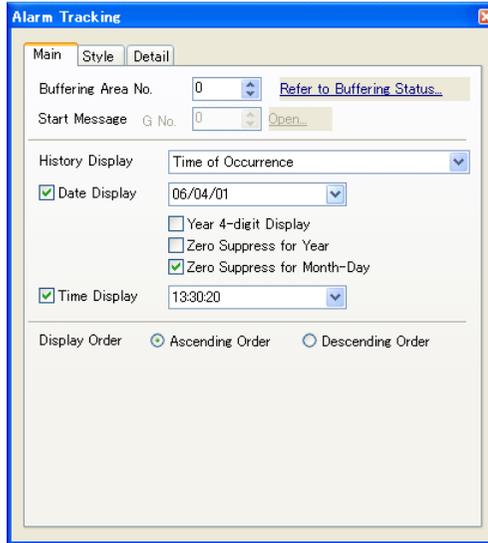
The alarm tracking components are shown below.



## Setting Dialog

### Alarm Tracking

#### Main



<p>Buffering Area No.</p>	<p>Specify the desired buffering area number to be used for alarm tracking. (Refer to page 10-32.) The buffering area setting determines the alarm controlling bit, error bit, etc.</p> <p>Refer to Buffering Status: When you click here, the [Buffering Area Setting] dialog for the specified buffer number is displayed. It is also possible to make settings for a buffering area directly. For more information, refer to page 10-32.</p>
<p>Start Message GNo. (0 to 127)</p>	<p>Specify the group number of the top message among the messages registered on the [Message Edit] window which you want to display for alarm tracking.</p> <p>Open: When you click here, the [Message Edit] window for the specified group number is displayed. It is also possible to edit the message for alarm tracking directly. For more information, refer to page 10-28.</p>
<p>History Display *<sup>1</sup> (Time of Occurrence, Occurrence/Cancellation Time, Time Lag Display, Total Frequency of Occurrence Display, Total Time of Occurrence Display, Time of Occurrence Display)</p>	<p>Time information attached to an error message varies depending on the mode selected. For [Time Lag Display], [Total Time of Occurrence Display] and [Time of Occurrence Display], the time is displayed in units of hours.</p> <p>* When [Sampling Method: Alarm Tracking] is set and <input type="checkbox"/> Add Time Order Alarm and <input type="checkbox"/> Acknowledge function are both checked on the [Others] tab window for buffering area setting, options [Occurrence/Confirmation Time] and [Occurrence/Cancellation/Confirmation Time] are added.</p>
<p><input type="checkbox"/> Date Display</p>	<p>This option is valid for [Time of Occurrence] or [Occurrence/Cancellation Time]. When it is checked, the date is indicated with the time.</p>

<input type="checkbox"/> Year 4-digit Display	This option is valid when [ <input type="checkbox"/> Date Display] is checked and the Christian Era calendar is selected. Check the box when showing the year using four digits.
<input type="checkbox"/> Zero Suppress for Year	This option is valid when [ <input type="checkbox"/> Date Display] is checked and the year display is selected. Check the box when showing the year with zero suppression.
<input type="checkbox"/> Zero Suppress for Month-Day	This option is valid when [ <input type="checkbox"/> Date Display] is checked. Check the box when showing the month and date with zero suppression.
<input type="checkbox"/> Time Display	This option is valid for [Time of Occurrence], [Occurrence/Cancellation Time], [Occurrence/Confirmation Time] or [Occurrence/Cancellation/Confirmation Time]. When it is checked, the time is indicated. For [Time Lag Display], [Total Time of Occurrence Display] or [Time of Occurrence Display], [Time Display] automatically becomes valid. Choose either [100:30] (hour : minute) or [100:30:20] (hour : minute : second).
Display Order (Ascending Order, Descending Order)	The meaning of "display order" varies depending on what is selected for [History Display].  Ascending Order: When [Time of Occurrence], [Occurrence/Cancellation Time], [Time Lag Display], [Occurrence/Confirmation Time] or [Occurrence/Cancellation/Confirmation Time] is selected, older errors are displayed at the top and recently occurring errors are displayed at the bottom. When [Total Frequency of Occurrence Display] or [Total Time of Occurrence Display] is selected, smaller totals are displayed at the top and larger totals are displayed at the bottom.  Descending Order: When [Time of Occurrence], [Occurrence/Cancellation Time], [Time Lag Display], [Occurrence/Confirmation Time] or [Occurrence/Cancellation/Confirmation Time] is selected, recently occurring errors are displayed at the top and older errors are displayed at the bottom. When [Total Frequency of Occurrence Display] or [Total Time of Occurrence Display] is selected, larger totals are displayed at the top and smaller totals are displayed at the bottom.

\*1 History display types

[Occurrence/Cancellation Time]

	Occurrence time		Reset time	
* #2 Roller error	02/11/15	16:15:43	02/11/15	16:21:12
#1 Sensor error	99/11/15	16:15:51	*****	*****
#2 Sensor error	99/11/15	16:15:52	*****	*****

If an error is not reset, an asterisk (\*) is displayed instead of the time.

Supplementary information:

If data becomes lost while an error is occurring due to power shut-off or removal of the card from the secondary store target, "- - - - -" will be displayed for the cancellation time.

[Time Lag Display]

	Time lag display
* #2 Roller error	*****
#1 Sensor error	000:00:08
#2 Sensor error	000:00:01

The alarm occurrence time lag is displayed.

[Total Frequency of Occurrence Display]

Total frequency of occurrence display

#2 Sensor error	1
#1 Sensor error	3
#2 Roller error	5

Errors that occur less frequently are displayed at the top and errors that occur more frequently are displayed at the bottom.  
 Errors with the same frequency are displayed in order of occurrence with the most recent one at the top.

[Total Time of Occurrence Display]

Total time of occurrence display

#2 Sensor error	000:00:41
#1 Sensor error	000:00:42
#2 Roller error	000:00:50

The total length of time when each error is occurring is displayed.  
 Errors that occur for a short time are displayed at the top and errors that occur for a long time are displayed at the bottom.  
 Errors of the same total time are displayed in order of occurrence with the most recent one at the top.

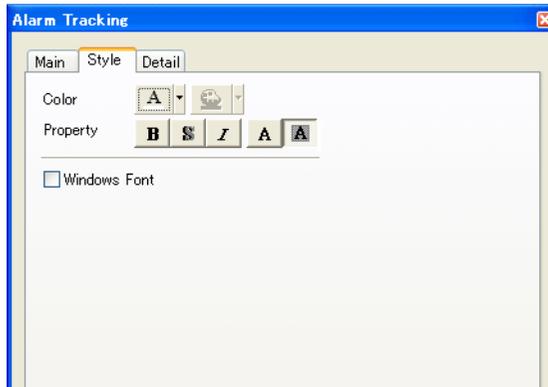
[Time of Occurrence Display]

Time of occurrence display

#2 Roller error	000:01:50
#1 Sensor error	000:00:42
#2 Sensor error	*****

The length of time when each error is occurring is displayed.  
 Errors are displayed in order of occurrence with the most recent one at the top.

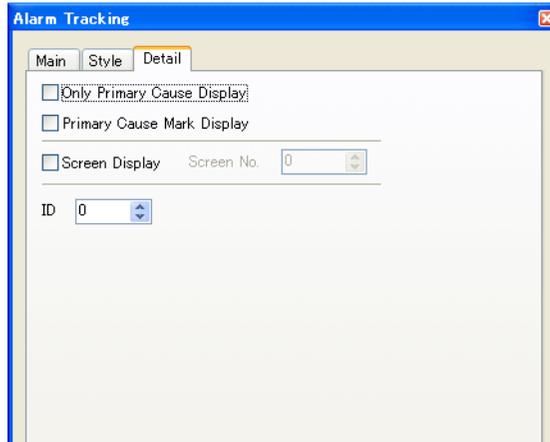
**Style**



Color	For more information, refer to "Appendix 4 Styles and Coordinates."
Property	
Transparent	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.

\* [Enlarge X] and [Enlarge Y] are fixed to "1".

**Detail**

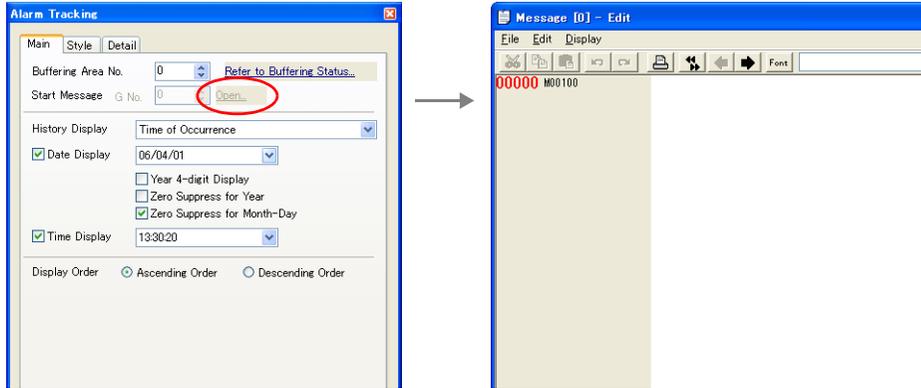


<input type="checkbox"/> Only Primary Cause Display	Check this option when displaying the primary cause error (refer to page 10-22) only.
<input type="checkbox"/> Primary Cause Mark Display	When this is checked, the primary cause error is marked at the left with an asterisk (*).
<input type="checkbox"/> Screen Display	<p>When this box is checked, a screen number can be specified. The specified screen number is linked to a message consecutively from the top message of [Message GNo.] set on the [Buffering Area Setting] dialog. When an error occurs and you touch the displayed error message, the screen changes to the linked screen number. This function is useful for giving a detailed explanation of the error contents.</p> <p>Set [Screen No. 5].</p> <p>Press "#2 Sensor error" that is the second message from the top message.</p> <div> </div> <p style="text-align: center;">↓</p> <p>Screen No. 6 that is the second screen from screen No. 5 is displayed.</p> <div> </div>
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

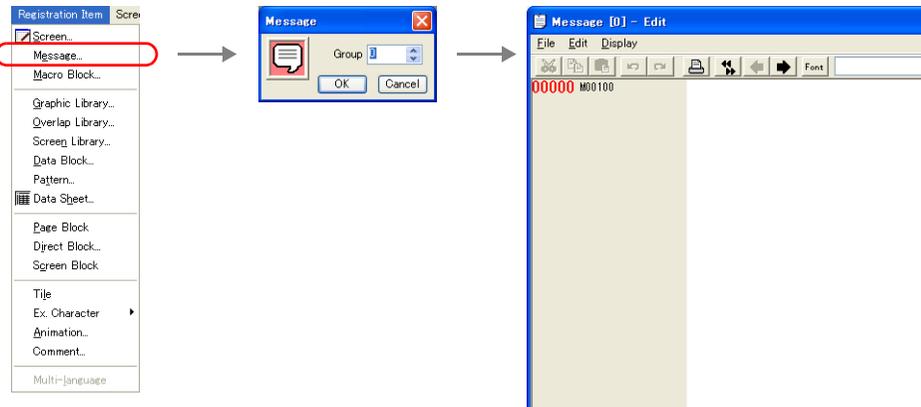
### Registering messages

There are two ways of registering messages.

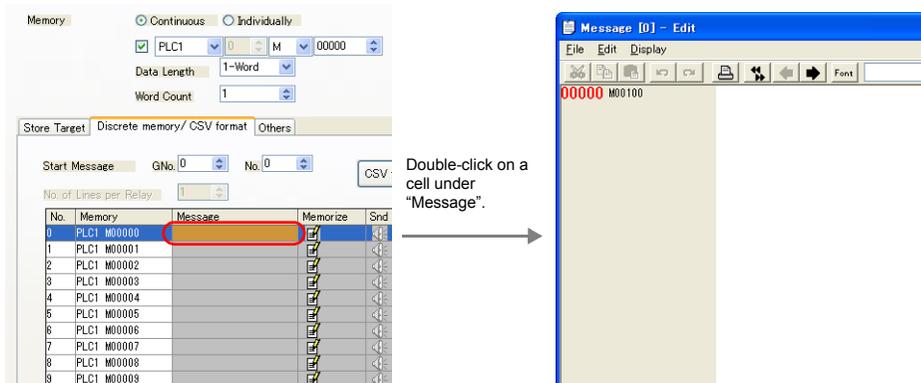
- [Alarm Tracking] dialog → [Main] tab window → [Open]



- [Registration Item] → [Message] → [Group No.] designation



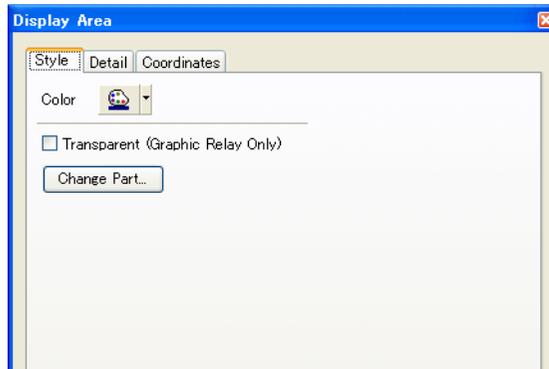
- [Buffering Area Setting] → [Discrete memory/CSV format] tab window



For more information on the editing procedure in the [Message Edit] window, refer to the Operation Manual.

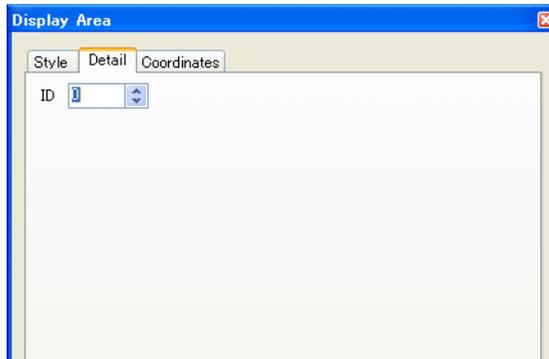
## Display Area

### Style



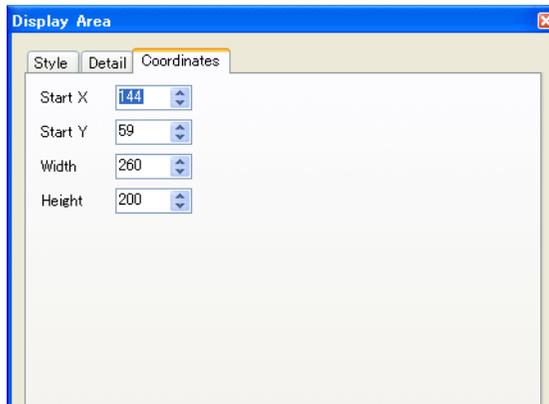
Color	Specify the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified in the [Alarm Tracking] dialog. For more information on the ID, refer to the Operation Manual.
----	--

### Coordinates

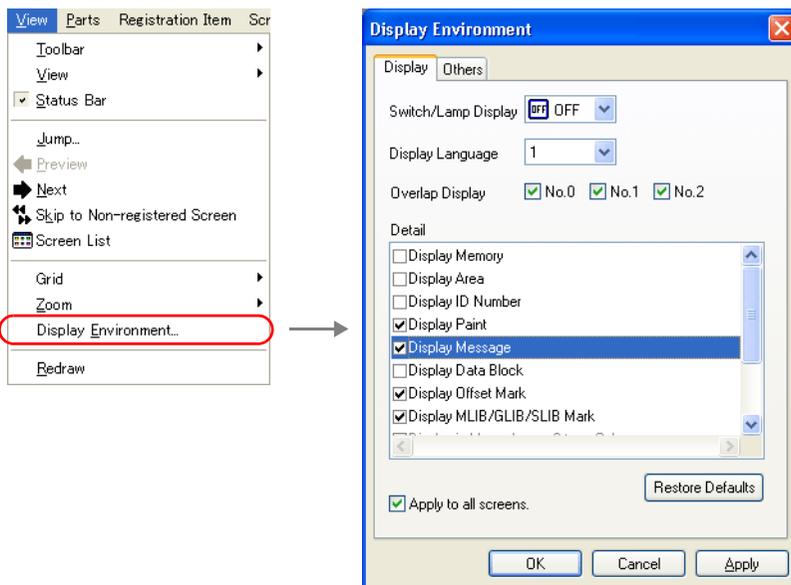


For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates.”

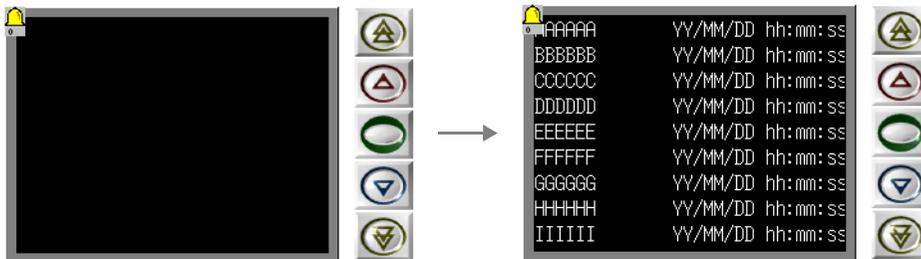
### Checking the display area size

You can check on the screen that alarm messages can be displayed on the display areas as you intended.

When you have registered messages, select [View] → [Display Environment] → [Display] tab, check the box for  Display Message].



The registered messages are displayed on the screen.



For more information on size adjustment, etc., refer to the Operation Manual provided separately.

## Switch Parts for Alarm Tracking

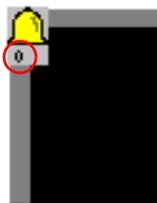
### Applicable switch parts list

Function	Contents
Roll Up	Scrolls up by one data element. If all data elements cannot be held in the area, one data element at a time scrolls into view.
Roll Down	Scrolls down by one data element. If all data elements cannot be held in the area, one data element at a time scrolls into view.
+ Block	Scrolls up by one page.
- Block	Scrolls down by one page.
Graph Return	Returns to the most recent alarm tracking display when it is pressed while flashing. Flashing of the [Graph Return] switch is canceled as well as its selection.
Display Change-over	This switch is valid when [Date Only] or [Time Only] is selected for [Calendar Condition]. Pressing this switch changes between the date display and the time display.
Reset	When the switch is pressed once, it is activated. Pressing it again within 2 seconds clears the buffering area. Sampling restarts immediately after clearing. If not pressed again within 2 seconds, the switch is turned off and resetting is nullified.
Change Display Order	Changes over data display order: in ascending order or descending order.
DEL	Deletes the selected message from the display area. Only valid when [Occurrence Time] or [Cancellation Time] is selected for [History Display].

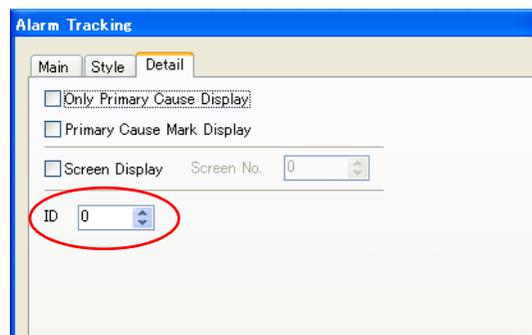
### Notes on setting

Specify the same ID for switch parts as the one specified in the [Alarm Tracking] dialog.

The ID specified in the [Alarm Tracking] dialog can be known from the [Alarm Tracking] icon or on the [Detail] tab window of the [Alarm Tracking] dialog.



or

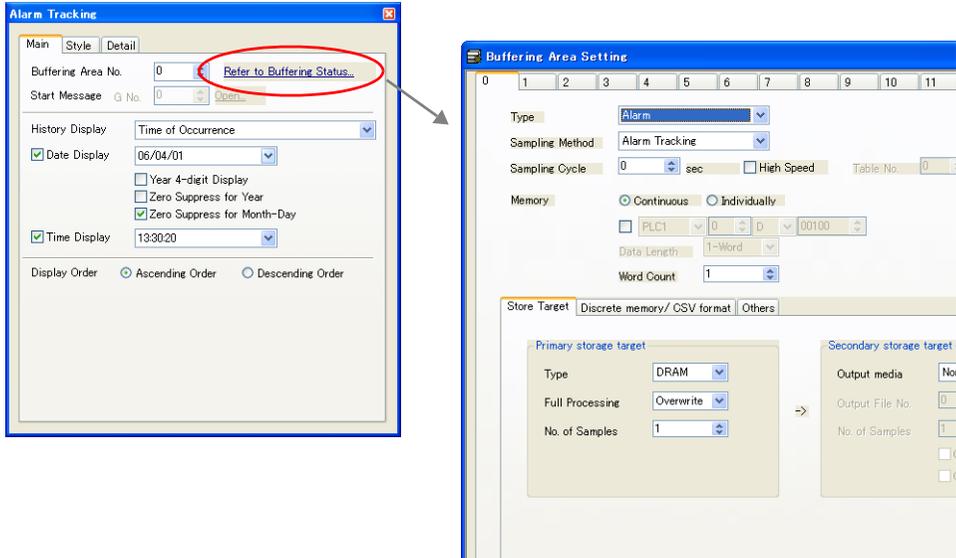


To check the ID of each switch part, select [View] → [Display Environment] and check the box for  Display ID Number].

For more information on the ID, refer to the Operation Manual.

## Buffering Area Setting

When you click [Refer to Buffering Status] on the [Main] tab window of the [Alarm Tracking] dialog, the setting items for the buffering area number are displayed.



Sampling Method	Select [Alarm Tracking].																																																						
Sampling Cycle (0 - 65535 sec)	Specify the data read cycle. When "0" is specified, monitoring is executed at every cycle.																																																						
Memory	<p>Continuous: The sampling data memory is allocated consecutively in the read area or from the specified top address.</p> <p>Individually: The memory address for sampling data can be specified.</p> <p>Select [Continuous] and check this box when specifying a top memory address for consecutive allocation. From the message specified for [Start Message GNo./No.] on the [Discrete memory/CSV format], as many words as specified for [Word Count] are allocated for alarm messages.</p> <p>Example: [Continuous], [Memory: D100], [Word Count: 1] [Start Message GNo.: 3 and No.: 0]</p> <table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Message No. 3</td> <td></td> <td></td> </tr> <tr> <td>No. 0</td> <td>AAAAAA</td> <td>= D100-00</td> </tr> <tr> <td>No. 1</td> <td>BBBBBB</td> <td>= D100-01</td> </tr> <tr> <td>No. 2</td> <td>CCCCCC</td> <td>= D100-02</td> </tr> <tr> <td>No. 3</td> <td>DDDDDD</td> <td>= D100-03</td> </tr> <tr> <td>No. 4</td> <td>EEEEEE</td> <td>= D100-04</td> </tr> <tr> <td>No. 5</td> <td>FFFFFF</td> <td>= D100-05</td> </tr> <tr> <td>No. 6</td> <td>GGGGGG</td> <td>= D100-06</td> </tr> <tr> <td>No. 7</td> <td>HHHHHH</td> <td>= D100-07</td> </tr> <tr> <td>No. 8</td> <td>IIIIII</td> <td>= D100-08</td> </tr> <tr> <td>No. 9</td> <td>JJJJJJ</td> <td>= D100-09</td> </tr> <tr> <td>No. 10</td> <td>KKKKKK</td> <td>= D100-10</td> </tr> <tr> <td>No. 11</td> <td>LLLLLL</td> <td>= D100-11</td> </tr> <tr> <td>No. 12</td> <td>MMMMMM</td> <td>= D100-12</td> </tr> <tr> <td>No. 13</td> <td>NNNNNN</td> <td>= D100-13</td> </tr> <tr> <td>No. 14</td> <td>OOOOOO</td> <td>= D100-14</td> </tr> <tr> <td>No. 15</td> <td>PPPPPP</td> <td>= D100-15</td> </tr> <tr> <td></td> <td>QQQQQQ</td> <td></td> </tr> </table> <p style="text-align: right;">As many messages as word count are assigned.</p>	Message No. 3			No. 0	AAAAAA	= D100-00	No. 1	BBBBBB	= D100-01	No. 2	CCCCCC	= D100-02	No. 3	DDDDDD	= D100-03	No. 4	EEEEEE	= D100-04	No. 5	FFFFFF	= D100-05	No. 6	GGGGGG	= D100-06	No. 7	HHHHHH	= D100-07	No. 8	IIIIII	= D100-08	No. 9	JJJJJJ	= D100-09	No. 10	KKKKKK	= D100-10	No. 11	LLLLLL	= D100-11	No. 12	MMMMMM	= D100-12	No. 13	NNNNNN	= D100-13	No. 14	OOOOOO	= D100-14	No. 15	PPPPPP	= D100-15		QQQQQQ	
Message No. 3																																																							
No. 0	AAAAAA	= D100-00																																																					
No. 1	BBBBBB	= D100-01																																																					
No. 2	CCCCCC	= D100-02																																																					
No. 3	DDDDDD	= D100-03																																																					
No. 4	EEEEEE	= D100-04																																																					
No. 5	FFFFFF	= D100-05																																																					
No. 6	GGGGGG	= D100-06																																																					
No. 7	HHHHHH	= D100-07																																																					
No. 8	IIIIII	= D100-08																																																					
No. 9	JJJJJJ	= D100-09																																																					
No. 10	KKKKKK	= D100-10																																																					
No. 11	LLLLLL	= D100-11																																																					
No. 12	MMMMMM	= D100-12																																																					
No. 13	NNNNNN	= D100-13																																																					
No. 14	OOOOOO	= D100-14																																																					
No. 15	PPPPPP	= D100-15																																																					
	QQQQQQ																																																						
Word Count (1 - 128)	Specify the number of error bits to be monitored in units of 16 bits (in units of words).																																																						

<p>Store Target *2</p>	<p>For more information, refer to “Storage Target (Setting Dialog)” (page A1-13) in “Appendix 1 Buffering Area.”</p> <p>No. of Samples Specify the number of bit ON/OFF operations to be retained as historical data. An occurrence is regarded as one bit operation and a reset is also regarded as one bit operation; therefore, to keep one error bit change as historical data, “2” should be set at minimum.</p> <p>* Note that if the value set for [No. of Samples] is less than the display area size, messages may not be displayed correctly.</p> <p>Example: When the display area can hold 7 lines:</p> <table border="1"> <tr><td>* #2 Roller error</td><td>05/07/15</td><td>16:15:43</td><td>05/07/15</td><td>16:21:12</td></tr> <tr><td>#1 Sensor error</td><td>05/07/15</td><td>16:15:51</td><td>05/07/15</td><td>16:21:54</td></tr> <tr><td>#1 Roller error</td><td>05/07/15</td><td>16:15:52</td><td>05/07/15</td><td>16:21:55</td></tr> <tr><td>#2 Sensor error</td><td>05/07/15</td><td>17:05:02</td><td>05/07/15</td><td>18:08:01</td></tr> <tr><td>#3 Sensor error</td><td>05/07/15</td><td>17:06:31</td><td>05/07/15</td><td>18:08:01</td></tr> <tr><td>#5 Roller error</td><td>05/07/15</td><td>19:21:30</td><td>05/07/15</td><td>21:09:44</td></tr> <tr><td>#4 Sensor error</td><td>05/07/15</td><td>19:22:45</td><td>05/07/15</td><td>21:10:22</td></tr> </table> <p>7 lines × 2 (occurrence and reset) = 14</p> <p>When [No. of Samples] ≤ 14, alarm tracking cannot be displayed correctly.</p>	* #2 Roller error	05/07/15	16:15:43	05/07/15	16:21:12	#1 Sensor error	05/07/15	16:15:51	05/07/15	16:21:54	#1 Roller error	05/07/15	16:15:52	05/07/15	16:21:55	#2 Sensor error	05/07/15	17:05:02	05/07/15	18:08:01	#3 Sensor error	05/07/15	17:06:31	05/07/15	18:08:01	#5 Roller error	05/07/15	19:21:30	05/07/15	21:09:44	#4 Sensor error	05/07/15	19:22:45	05/07/15	21:10:22																
* #2 Roller error	05/07/15	16:15:43	05/07/15	16:21:12																																																
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#2 Sensor error	05/07/15	17:05:02	05/07/15	18:08:01																																																
#3 Sensor error	05/07/15	17:06:31	05/07/15	18:08:01																																																
#5 Roller error	05/07/15	19:21:30	05/07/15	21:09:44																																																
#4 Sensor error	05/07/15	19:22:45	05/07/15	21:10:22																																																
<p>Discrete memory/CSV format</p>	<p>For more information, refer to “Discrete Memory/CSV Format (Tab Window)” (page A1-19) in “Appendix 1 Buffering Area.”</p>																																																			
<p>Others</p>	<p>For more information, refer to “Others” (page A1-26) in “Appendix 1 Buffering Area.”</p>																																																			
<p><input type="checkbox"/> Start Bit</p>	<p>This is valid only when [Alarm Tracking] is selected for [Sampling Method]. You can control start and stop of monitoring the bits for sampling.</p> <p>When this box is not checked, alarm tracking is always active. When this box is checked, alarm tracking is not performed even if the alarm bit is set to ON or reset to OFF unless the bit specified for [Start Bit] (bit 03, 07, 11, 15 of sampling control memory) is set to ON.</p> <p>Sampling control memory</p> <table border="1"> <tr> <td colspan="11" style="text-align: center;">MSB</td> <td colspan="8" style="text-align: right;">LSB</td> </tr> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td> </tr> </table> <p>n                      Buffer No. 3                      Buffer No. 2                      Buffer No. 1                      Buffer No. 0  n+1                    Buffer No. 7                      Buffer No. 6                      Buffer No. 5                      Buffer No. 4  n+2                    Buffer No. 11                    Buffer No. 10                    Buffer No. 9                      Buffer No. 8</p> <p>* For more information on the sampling control memory, refer to “Appendix 1 Buffering Area” (page A1-9).</p>	MSB											LSB								15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T
MSB											LSB																																									
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																					
U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T																																					
<p>Reset Bit</p>	<p>Display the bit information for each buffer in the sampling control memory.</p>																																																			
<p>Trigger Bit</p>	<p>* For more information on the sampling control memory, refer to “Appendix 1 Buffering Area” (page A1-9).</p>																																																			
<p>Normal Operation Bit</p>	<p>* For more information on the sampling control memory, refer to “Appendix 1 Buffering Area” (page A1-9).</p>																																																			

\*1 For the procedure of calculating the size of alarm tracking data, refer to “Appendix 1 Buffering Area” (page A1-15).

## Alarm Tracking Sequence

Example: With the settings shown below:

[Read area: D00000] [Write area: D00050]

[Buffer No.: 0]

[Sampling Method: Alarm Function]

[Word Count: 3]

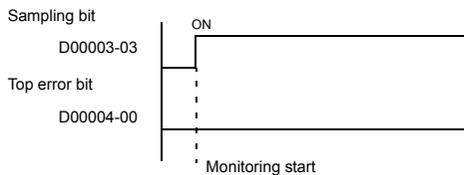
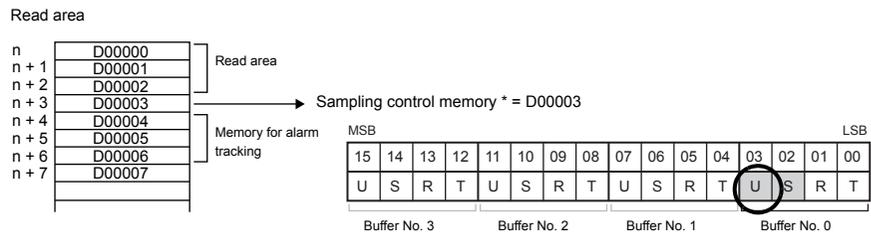
When  Start Bit] is checked:

1. With  Start Bit] checked, alarm tracking is started when this bit is set to ON.  
Set [Start Bit] (= D00003-03) of the sampling control memory to ON.

When the buffer number is "0", the sampling bit is bit 3 of read area "n + 3".

Read area n + 3 = D00000 + 3 = D00003

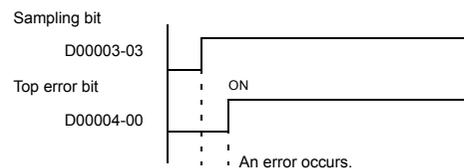
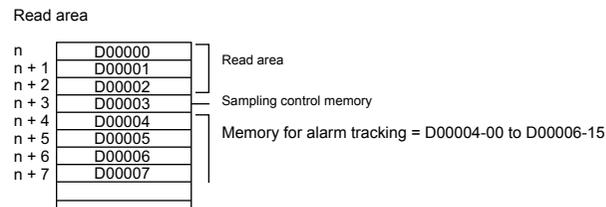
Therefore, it will be "D00003-03".



\* For more information on the sampling control memory, refer to "Appendix 1 Buffering Area" on page A1-9.

2. Set the error bit.

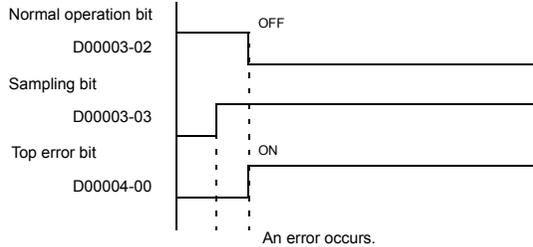
With buffer No. 0 and  Memory Designation], error bits are assigned to read area "n + 4" and later consecutively.



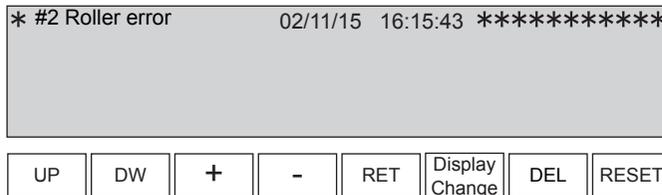
To enable detection of the primary cause, normal operation time or operation rate, set the normal operation bit (D00003-2) at the start of operation, and reset the normal operation bit (D00003-2) when an error bit comes ON.

If it is not required to detect the time, the normal operation bit need not be set and reset.

(However, in this case, alarm tracking is always working so communications may be delayed.)



3. An alarm message is displayed on the screen.



## Other Functions

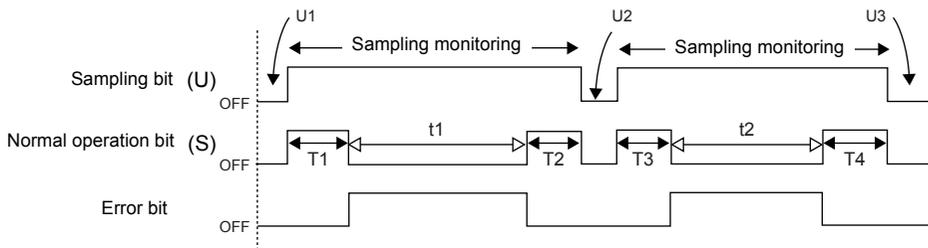
### Using System Memory (\$s)

#### System memory (\$s) list

Address (\$s)	Contents
436	Auto operation time (L) <span style="float:right">┌ (1)</span>
437	Auto operation time (H) <span style="float:right">└</span>
438	Auto operation stop time (L) <span style="float:right">┌ (2)</span>
439	Auto operation stop time (H) <span style="float:right">└</span>
440	Program stop time (L) <span style="float:right">┌ (5)</span>
441	Program stop time (H) <span style="float:right">└</span>
442	Number of stops (8)
443	Rate of operation (XX.X) (4)
⋮	⋮
456	Buffer No. 0 to 11 Normal operation bit (6)
457	
458	Buffer No. 0 to 11 Sampling bit (7)

\* A macro command “**SET\_BUFNo**” must be executed to output the information above (**except for \$s456 and \$s458**) into system memory.

- (1) Auto operation time (\$s436, 437)  
= normal operation bit set time & sampling bit set time
- (2) Auto operation stop time (\$s438, 439)  
= normal operation bit reset time & sampling bit set time
- (3) Total time of operation  
= (1) + (2)
- (4) Rate of operation (\$s443)  
= (1)/(3) × 100  
\* (A decimal point value to the first position is entered for \$s443.)  
Example: \$s443 = The rate of operation for 585 is [58.5].
- (5) Program stop time (\$s440, 441)  
= Sampling bit reset time

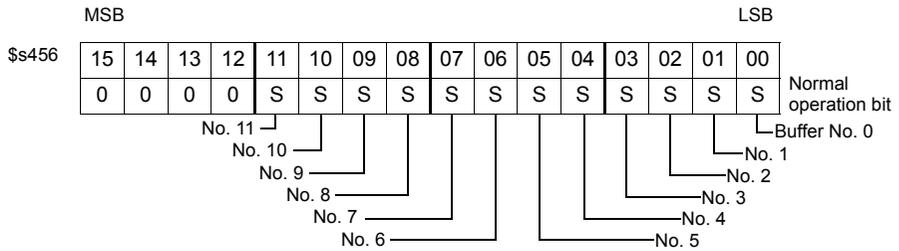


$$\begin{aligned}
 (1) &= T1 + T2 + T3 + T4 \\
 (2) &= t1 + t2 \\
 (3) &= (1) + (2) \\
 (4) &= (1) / (3) \times 100 \\
 (5) &= U1 + U2 + U3
 \end{aligned}$$

\* It is recommended that you use the [Time Display] item to display the time (1) to (5) on the screen. (Refer to the explanation below.)

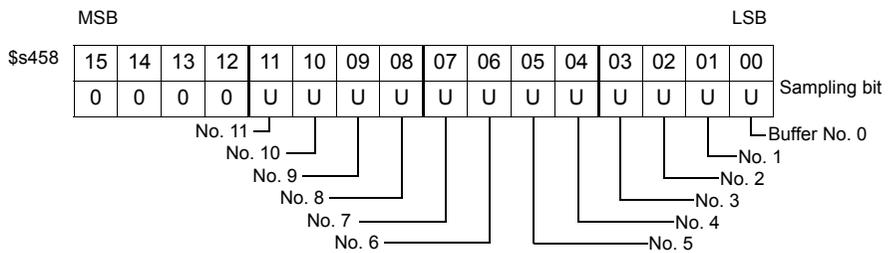
## (6) Buffer No. 0 to 11 Normal operation bit (\$s456)

The normal operation bit status of buffer numbers 0 to 11 is written.



## (7) Buffer Nos. 0 to 11 Sampling bit (\$s458)

The sampling bit status of buffer numbers 0 to 11 is written.



## (8) Number of stops (\$s442)

The number of stops (normal operation bit OFF) during sampling is written.

**Display method using the [Time Display] item**

When using the [Time Display] item, the time information stored in the system memory (\$s) can easily be displayed for alarm tracking. Make settings as shown below.

Display Mode (Main)	Choose [Display Seconds in Timer Format].
Memory (Main)	Specify the address where seconds data is stored. Two words are allocated from the top memory address consecutively. The data range that can be stored is from 0 to 3599999 seconds (= 999:59:59).
<input type="checkbox"/> Time Display (Main)	This is checked (cannot be unchecked). Select [100:30] (hour : minute) or [100:30:20].

## \* Example of [Time Display] item

When the SET\_BUFNo macro command is executed, set \$s438 (auto operation stop time) = 5320.

Setting for [Time Display] item

[Display Mode]: Display Seconds in Timer Format

[Memory]: \$s438 (to 439) = auto operation stop time

[Time Display]: 100:30:20

When the time is displayed with the above settings, "\$s438 = 001:28:40" is shown.

You can see that the auto operation time is 1 hour 28 minutes 40 seconds.

## Sorting Out by Importance of Alarm Messages

### Overview

It is possible to sort out messages according to the importance of each message.

Message No. 3

Line 1 stop	= Retain in memory
Line 2 stop	= Retain in memory
Line 3 stop	= Retain in memory
Line 4 stop	= Retain in memory
Line 1 maintenance	= Retain in memory
Line 2 maintenance	= Retain in memory
Line 3 maintenance	= Retain in memory
Line 4 maintenance	= Retain in memory

When all the messages are set to "retain in memory," every message is stored as historical data when the corresponding bit comes ON.

Line 1 stop	05/07/15	16:15:43	05/07/15	16:21:12
Line 3 stop	05/07/15	16:15:51	05/07/15	16:21:54
Line 1 maintenance	05/07/15	16:15:52	05/07/15	16:21:55
Line 4 stop	05/07/15	17:05:02	05/07/15	18:08:01
Line 3 maintenance	05/07/15	17:06:31	05/07/15	18:08:01
Line 4 maintenance	05/07/15	19:21:30	05/07/15	21:09:44
Line 2 maintenance	05/07/15	19:22:45	05/07/15	21:10:22

Message No. 3

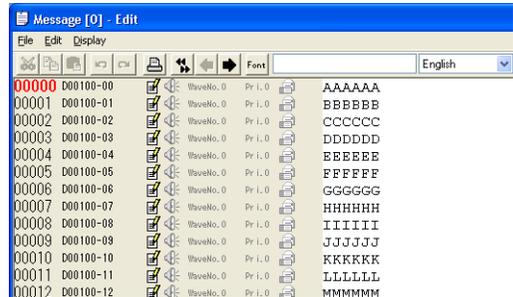
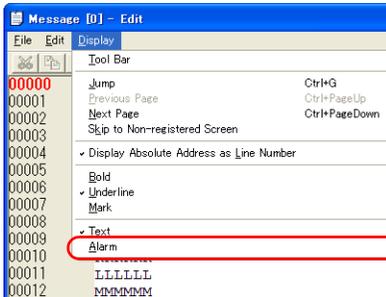
Line 1 stop	= Retain in memory
Line 2 stop	= Retain in memory
Line 3 stop	= Retain in memory
Line 4 stop	= Retain in memory
Line 1 maintenance	= Do not retain in memory
Line 2 maintenance	= Do not retain in memory
Line 3 maintenance	= Do not retain in memory
Line 4 maintenance	= Do not retain in memory

When "Do not retain in memory" is selected for the message "Line \* maintenance," an activation of this bit is not stored as historical data. Consequently, it is not displayed.

Line 1 stop	05/07/15	16:15:43	05/07/15	16:21:12
Line 3 stop	05/07/15	16:15:51	05/07/15	16:21:54
Line 4 stop	05/07/15	17:05:02	05/07/15	18:08:01

### Setting procedure

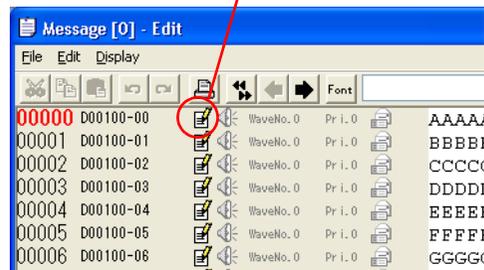
Select [Registration Item] → [Message Edit] window. Then select [Display] → [Alarm] to change the display.



Clicking on the icon at the extreme left determines whether each message should be retained in memory or not. (Refer to the figure on the right.)

For more information on the editing and setting procedure, refer to the Operation Manual.

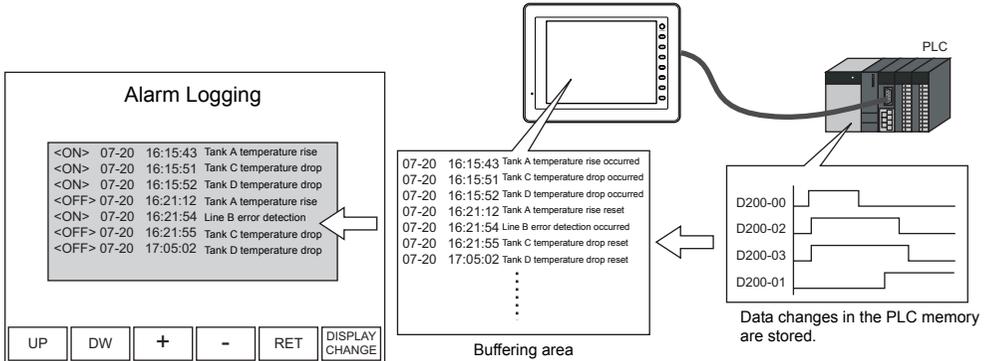
Icon displayed → Retain in memory  
Icon not displayed → Do not retain in memory



# 10.4 Alarm Logging (Historical)

## Overview

- Messages triggered by bit ON/OFF operation as well as time information are stored in the buffering area and are displayed as historical data on the screen.



- One message line is displayed each at an occurrence and a reset. Occurrences and resets can be displayed in different colors.

```

<ON> 07-20 16:15:43 Tank A temperature rise
<ON> 07-20 16:15:51 Tank C temperature drop
<ON> 07-20 16:15:52 Tank D temperature drop
<OFF> 07-20 16:21:12 Tank A temperature rise
<ON> 07-20 16:21:54 Line B error detection
<OFF> 07-20 16:21:55 Tank C temperature drop
<OFF> 07-20 17:05:02 Tank D temperature drop
    
```

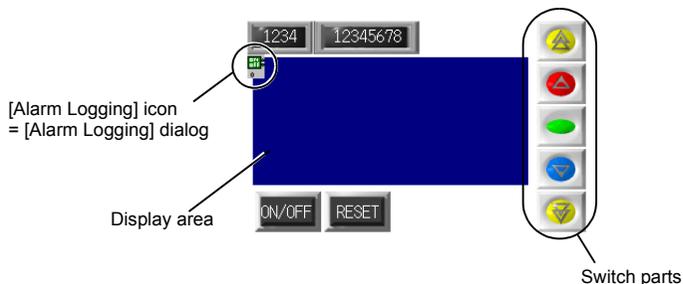
- From the messages stored as historical data, only occurrences or resets can be displayed.

<p>Occurrences only</p> <pre> &lt;ON&gt; 07-20 16:15:43 Tank A temperature rise &lt;ON&gt; 07-20 16:15:51 Tank C temperature drop &lt;ON&gt; 07-20 16:15:52 Tank D temperature drop &lt;ON&gt; 07-20 16:21:54 Line B error detection         </pre>	<p>Resets only</p> <pre> &lt;OFF&gt; 07-20 16:21:12 Tank A temperature rise &lt;OFF&gt; 07-20 16:21:55 Tank C temperature drop &lt;OFF&gt; 07-20 17:05:02 Tank D temperature drop         </pre>
---	--



## Configuration

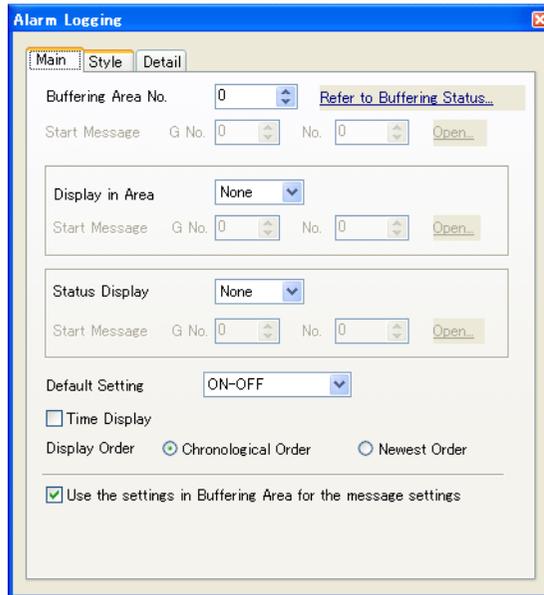
The alarm logging components are shown below.



## Setting Dialog

### Alarm Logging

#### Main



<p>Buffering Area No.</p>	<p>Specify the desired buffering area number to be used for alarm logging.</p> <p>Open: When you click here, the [Buffering Area Setting] dialog for the specified buffer number is displayed. It is also possible to make settings for a buffering area directly. For more information, refer to page 10-50.</p>
<p>Start Message (GNo., No.)</p>	<p>This setting is disabled when <input type="checkbox"/> Use the settings in Buffering Area for the message settings] is checked.</p> <p>When it is unchecked, this setting is possible.</p> <p>Specify the group number and message (line) number of the top message among the messages registered on the [Message Edit] window which you want to display for alarm logging.</p> <p>Open: When you click here, the [Message Edit] window for the specified group number is displayed. It is also possible to edit the message for alarming logging directly. For more information, refer to page 10-44.</p>
<p>Display in Area (None, TYPE0, TYPE1)</p>	<p>Choose from [None], [TYPE0] or [TYPE1] for the display format of bit ON/OFF operation in the display area.</p> <p>None:</p> <pre> 07-20 11:32:10 Tank A temperature rise 07-20 11:33:15 Tank A temperature rise 07-20 11:40:25 Tank C temperature drop 07-20 11:50:13 Tank C temperature drop                     </pre>

**TYPE0:**

<ON> and <OFF> are indicated in one-byte characters.

Display in Area

<ON>	07-20	11:32:10	Tank A temperature rise
<OFF>	07-20	11:33:15	Tank A temperature rise
<ON>	07-20	11:40:25	Tank C temperature drop
<OFF>	07-20	11:50:13	Tank C temperature drop

**TYPE1:**

Text to be displayed for bit ON operation and bit OFF operation can be specified as desired.

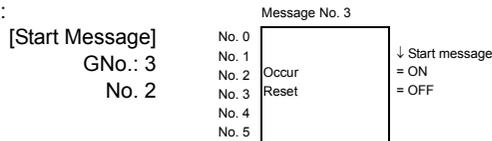
Register the text to be used instead of “<ON>” and “<OFF>” on the [Message Edit] window. The registered text is displayed according to bit ON/OFF operation.

Register the text on the [Message Edit] window.

Occur	07-20	11:32:10	Tank A temperature rise
Reset	07-20	11:33:15	Tank A temperature rise
Occur	07-20	11:40:25	Tank C temperature drop
Reset	07-20	11:50:13	Tank C temperature drop

When [TYPE1] is chosen, the [Start Message GNo. & No.] option becomes active. Specify the group and line numbers of the start message. The start message line is used for bit ON operation, and the next message line is used for bit OFF operation.

Example:



Open:

When you click here, the [Message Edit] window for the specified group number is displayed. It is also possible to edit the message for TYPE1 directly. For more information, refer to page 10-44.

Status Display  
(None, TYPE0,  
TYPE1) \*1

Choose from [None], [TYPE0] or [TYPE1] for status display that indicates the type of messages shown: bit ON operation, bit OFF operation or bit ON/OFF operation.

None:

-----

<ON>	07-20	11:32:10	Tank A temperature rise
<OFF>	07-20	11:33:15	Tank A temperature rise
<ON>	07-20	11:40:25	Tank C temperature drop
<OFF>	07-20	11:50:13	Tank C temperature drop

**TYPE0:**

<ON/OFF> is indicated in one-byte characters.

----- Status display

<ON>	07-20	11:32:10	Tank A temperature rise
<OFF>	07-20	11:33:15	Tank A temperature rise
<ON>	07-20	11:40:25	Tank C temperature drop
<OFF>	07-20	11:50:13	Tank C temperature drop



<p>Display Order (Chronological Order, Newest Order)</p>	<p>Choose the message display order for alarm logging.</p> <p>Chronological Order: Messages are displayed in order of occurrence with the oldest one at the top.</p> <p>Newest Order: Messages are displayed in order with the most recent one at the top.</p>
<p><input type="checkbox"/> Use the settings in Buffering Area for the message settings</p>	<p>This option determines whether you make the message setting for alarm logging on the [Alarm Logging] dialog or in the buffering area setting.</p> <p>Checked: Specify the message to be used for [Start Message] on the [Discrete memory/CSV format] tab window for buffering area setting.</p> <p>Unchecked: Specify the message to be used for [Start Message] on the [Main] tab window in the [Alarm Logging] window.</p>

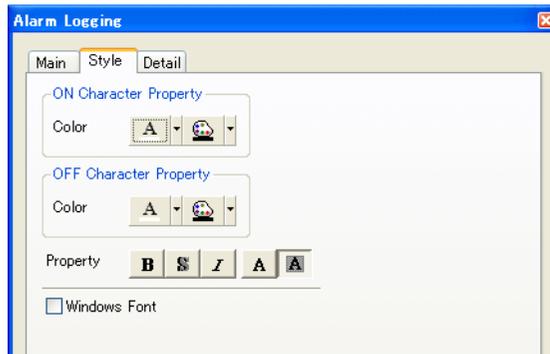
\*1 Status display

Status display uses a character display part.

Unless a character display part ([Display Function: Sampling Status Display]) that links the [Alarm Logging] dialog is placed, no status display is available.

For more information, refer to page 10-49.

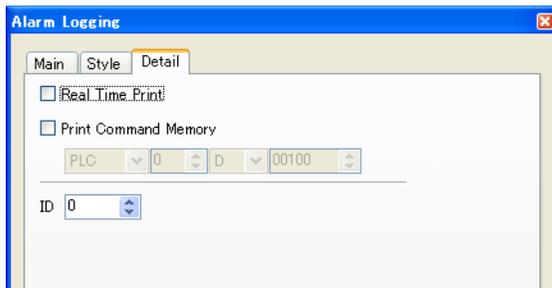
**Style**



<p>Color ON Character Property OFF Character Property</p>	<p>Different colors can be set for bit ON operation (occurrence) and bit OFF operation (reset).</p>
<p>Property</p>	<p>For more information, refer to "Appendix 4 Styles and Coordinates."</p>
<p>Transparent</p>	
<p><input type="checkbox"/> Windows Font</p>	<p>For more information, refer to the Operation Manual.</p>

\* [Enlarge X] and [Enlarge Y] are fixed to "1".

**Detail**

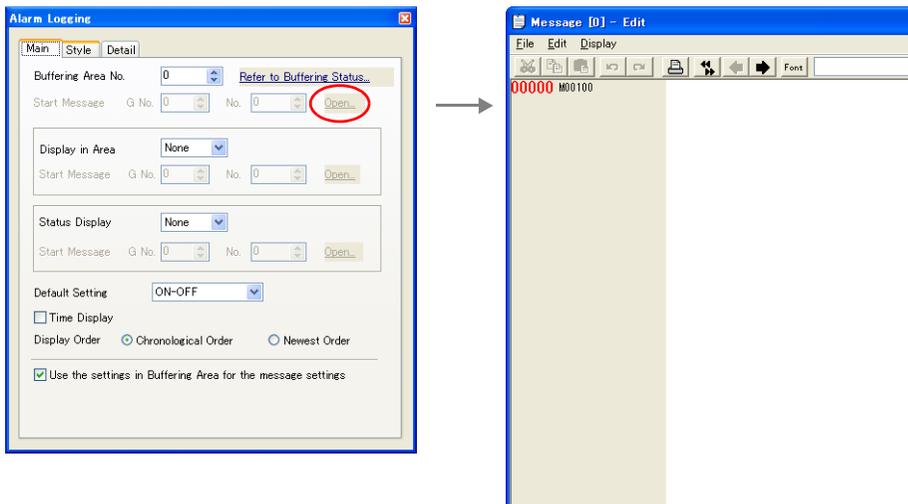


<input type="checkbox"/> Real Time Print	For more information, refer to “Real Time Print” on page 10-54.
<input type="checkbox"/> Print Command Memory	For more information, refer to page 10-52.
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

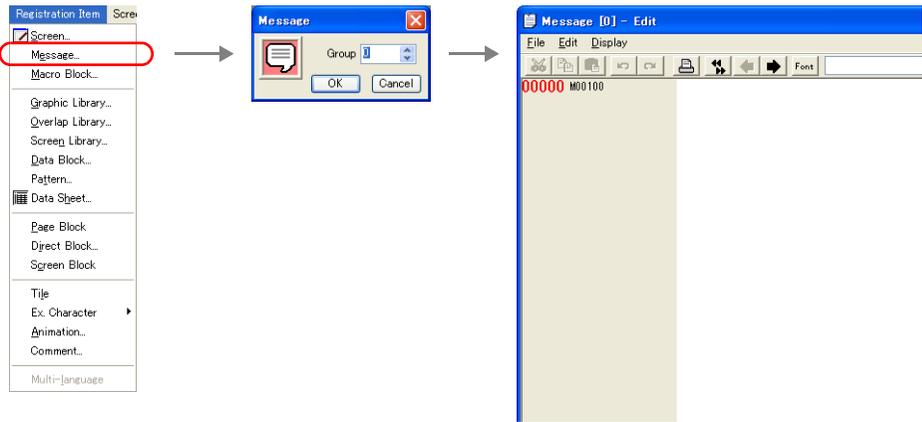
**Registering messages**

There are three ways of registering messages.

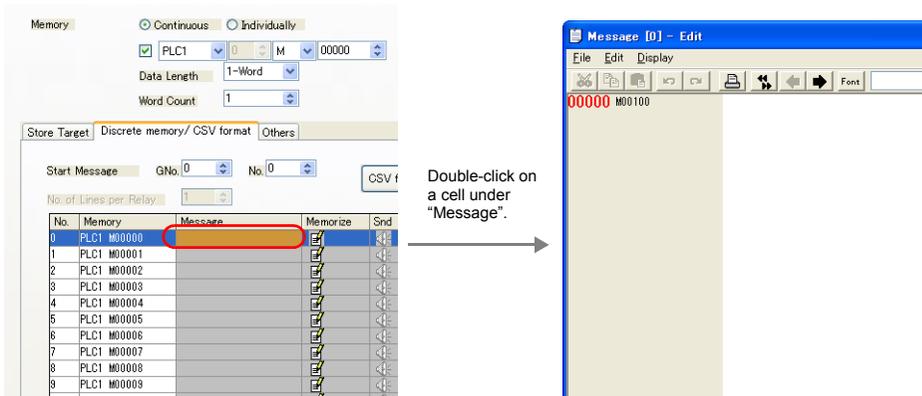
- [Alarm Logging] dialog → [Main] tab window → [Open]



- [Registration Item] → [Message] → [Group No.] designation

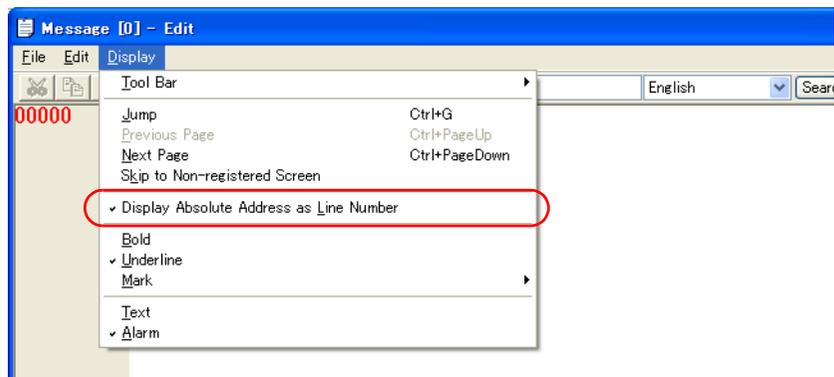


- [Buffering Area Setting] → [Discrete memory/CSV format] tab window



In the [Message Edit] window, line numbers denote absolute addresses as default.

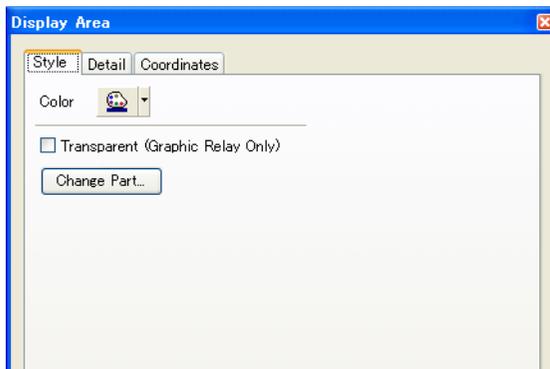
If designating a line number for alarm logging, select [Display] → [Display Absolute Address as Line Number] and remove the check from this menu item before commencing editing.



For more information on the editing procedure in the [Message Edit] window, refer to the Operation Manual.

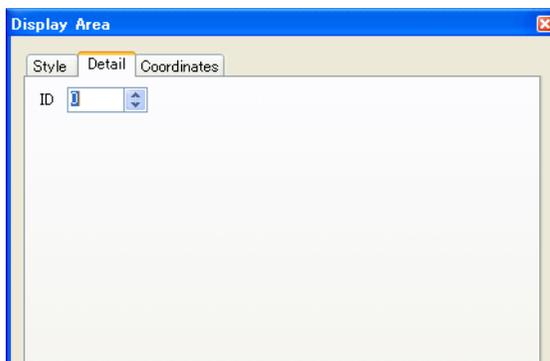
## Display Area

### Style



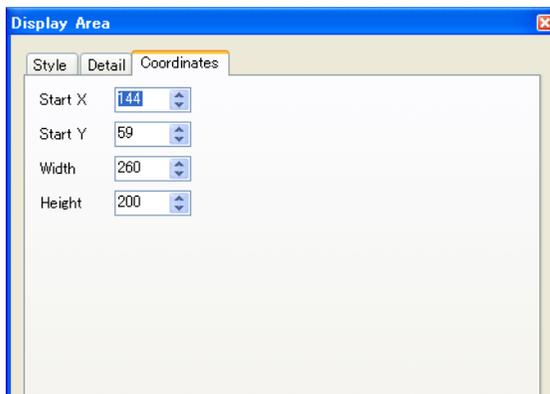
Color	Specify the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified the [Alarm Logging] dialog. For more information on the ID, refer to the Operation Manual.
----	--

### Coordinates

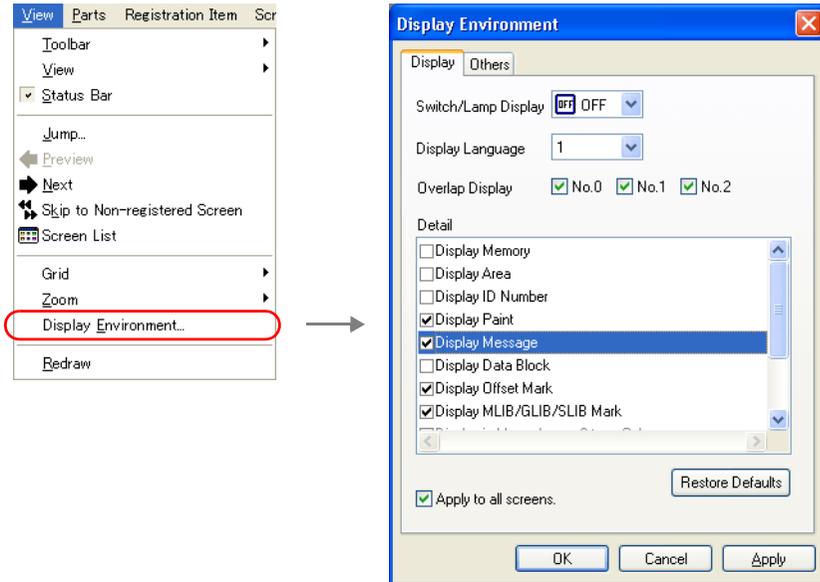


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

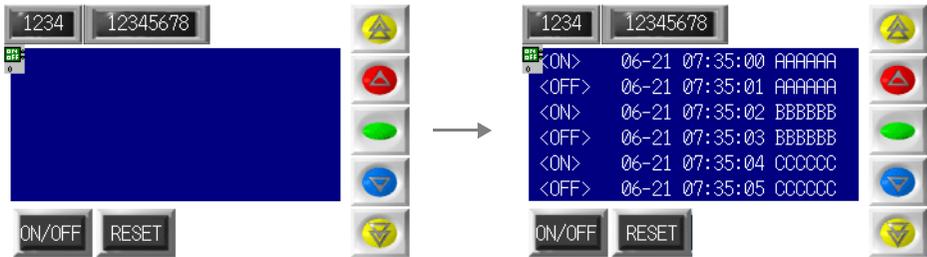
### Checking the display area size

You can check on the screen that messages for alarm logging can be displayed on the display areas as you intended.

When you have registered messages, select [View] → [Display Environment] → [Display] tab, check the box for  Display Message].



The registered messages are displayed on the screen.



For more information on size adjustment, etc., refer to the Operation Manual provided separately.

## Switch Parts for Alarm Logging

### Applicable switch parts list

Function	Contents
Roll Up	Scrolls up by one data element. If all data elements cannot be held in the area, one data element at a time scrolls into view.
Roll Down	Scrolls down by one data element. If all data elements cannot be held in the area, one data element at a time scrolls into view.
+ Block	Scrolls up by one page.
- Block	Scrolls down by one page.
Graph Return	Returns to the most recent alarm logging when it is pressed while flashing. Flashing of the [Graph Return] switch is canceled as well as its selection.
Display Change-over	Changes over the display for bit ON, OFF, or ON/OFF operation.
Print	Outputs all data elements stored in the specified buffer to the printer.
Reset	When the switch is pressed once, it is activated. Pressing it again within 2 seconds clears the buffering area. Sampling restarts immediately after clearing. If not pressed again within 2 seconds, the switch is turned off and resetting is nullified.
Change Display Order	Changes over data display order each time the switch is pressed, between chronological order and reverse chronological order.

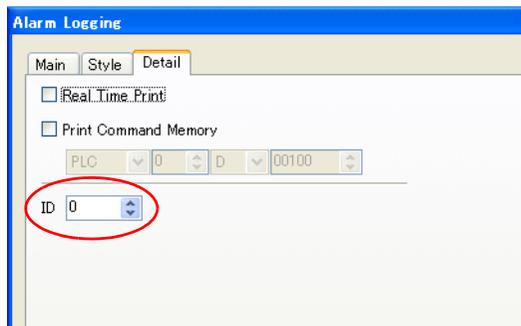
### Notes on setting

Specify the same ID for switch parts as the one specified in the [Alarm Logging] dialog.

The ID specified in the [Alarm Logging] dialog can be known from the [Alarm Logging] icon or on the [Detail] tab window of the [Alarm Logging] dialog.



OR



To check the ID of each switch part, select [View] → [Display Environment] and check the box for  Display ID Number.

For more information on the ID, refer to the Operation Manual.

## Data Display Parts for Alarm Logging

### Applicable data display parts list

Type	Function	Contents
Num. Display	Sampling Count Display <sup>*1</sup>	The total number of historical data elements or the ordinal number of the selected data element can be indicated.
	Sampling Time Display <sup>*2</sup>	<p>This part indicates the last sampling time or that of the selected data point.</p> <p>Depending on the setting for [Digits] as well as the check box for [<input type="checkbox"/> Put msec information on logging time] in the [Others] tab window for buffering area setting, the sampling time is indicated in the following format:</p> <ul style="list-style-type: none"> <li>- [<input type="checkbox"/> Put msec information on logging time] unchecked: <ul style="list-style-type: none"> <li>Less than 8 digits      No display</li> <li>From 8 digits up to 13 digits      "hh : mm : ss"</li> <li>From 14 digits up to 18 digits      "MM - DD   hh : mm : ss"</li> <li>19 digits or greater      "YYYY - MM - DD   hh : mm : ss"</li> </ul> </li> <li>- [<input type="checkbox"/> Put msec information on logging time] checked: <ul style="list-style-type: none"> <li>Less than 8 digits      No display</li> <li>From 8 digits up to 11 digits      "hh : mm : ss"</li> <li>From 12 digits up to 17 digits      "hh : mm : ss.xxx" (xxx: msec)</li> <li>From 18 digits up to 22 digits      "MM - DD   hh : mm : ss.xxx" (xxx: msec)</li> <li>23 digits or greater      "YYYY - MM - DD   hh : mm : ssss.xxx" (xxx: msec)</li> </ul> </li> </ul>
Char. Display	Sampling Status Display <sup>*3</sup>	The alarm logging status (bit ON, OFF, or ON/OFF operation) currently being displayed can be indicated. Secure the required number of bytes by setting [Number of Bytes] correctly.

**\*1 Sampling Count Display (Num. Display)**

Occur/Reset	4	07-20 11:50:13
Occur	07-20 11:32:10	Tank A temperature rise
Reset	07-20 11:33:15	Tank A temperature rise
Occur	07-20 11:40:25	Tank C temperature drop
Reset	07-20 11:50:13	Tank C temperature drop

**\*2 Sampling Time Display (Num. Display)**

Occur/Reset	4	07-20 11:50:13
Occur	07-20 11:32:10	Tank A temperature rise
Reset	07-20 11:33:15	Tank A temperature rise
Occur	07-20 11:40:25	Tank C temperature drop
Reset	07-20 11:50:13	Tank C temperature drop

**\*3 Sampling Status Display (Char. Display)**

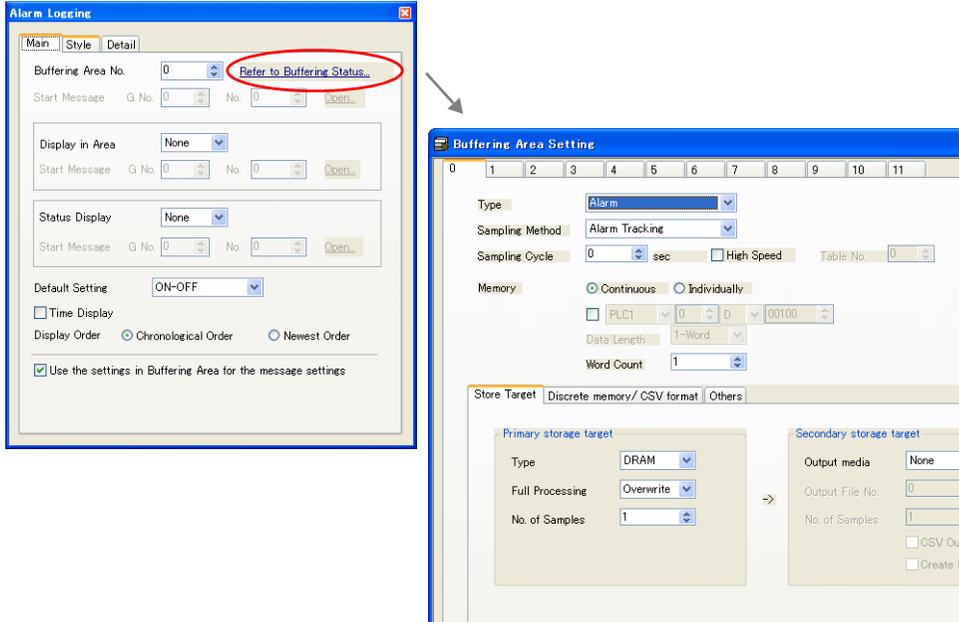
Occur/Reset	4	07-20 11:50:13
Occur	07-20 11:32:10	Tank A temperature rise
Reset	07-20 11:33:15	Tank A temperature rise
Occur	07-20 11:40:25	Tank C temperature drop
Reset	07-20 11:50:13	Tank C temperature drop

**Notes on setting**

Refer to "Notes on setting" for switch parts already described.

## Buffering Area Setting

When you click [Refer to Buffering Status] on the [Main] tab window of the [Alarm Logging] dialog, the setting items for the buffering area number are displayed.



Sampling Method	Select [Alarm Logging] or [Alarm Tracking] *1.																																																						
Sampling Cycle (0 - 65535 sec)	Specify the data read cycle. When "0" is specified, monitoring is executed at every cycle.																																																						
Memory	<p>Continuous: The sampling data memory is allocated consecutively in the read area or from the specified top address.</p> <p>Individually: The memory address for sampling data can be specified.</p> <p>Select [Continuous] and check this box when specifying a top memory address for consecutive allocation. From the message specified for [Start Message GNo./No.] on the [Discrete memory/CSV format], as many words as specified for [Word Count] are allocated for alarm messages.</p> <p>Example: [Continuous], [Memory: D100], [Word Count: 1] [Start Message GNo.: 0 and No.: 10]</p> <table style="margin-left: 40px;"> <thead> <tr> <th colspan="3">Message No. 0</th> </tr> </thead> <tbody> <tr><td>No. 10</td><td>AAAAAA</td><td>= D100-00</td></tr> <tr><td>No. 11</td><td>BBBBBB</td><td>= D100-01</td></tr> <tr><td>No. 12</td><td>CCCCCC</td><td>= D100-02</td></tr> <tr><td>No. 13</td><td>DDDDDD</td><td>= D100-03</td></tr> <tr><td>No. 14</td><td>EEEEEE</td><td>= D100-04</td></tr> <tr><td>No. 15</td><td>FFFFFF</td><td>= D100-05</td></tr> <tr><td>No. 16</td><td>GGGGGG</td><td>= D100-06</td></tr> <tr><td>No. 17</td><td>HHHHHH</td><td>= D100-07</td></tr> <tr><td>No. 18</td><td>IIIIII</td><td>= D100-08</td></tr> <tr><td>No. 19</td><td>JJJJJJ</td><td>= D100-09</td></tr> <tr><td>No. 20</td><td>KKKKKK</td><td>= D100-10</td></tr> <tr><td>No. 21</td><td>LLLLLL</td><td>= D100-11</td></tr> <tr><td>No. 22</td><td>MMMMMM</td><td>= D100-12</td></tr> <tr><td>No. 23</td><td>NNNNNN</td><td>= D100-13</td></tr> <tr><td>No. 24</td><td>OOOOOO</td><td>= D100-14</td></tr> <tr><td>No. 25</td><td>PPPPPP</td><td>= D100-15</td></tr> <tr><td></td><td>QQQQQQ</td><td></td></tr> </tbody> </table> <p style="margin-left: 40px;">As many messages as word count are assigned.</p>	Message No. 0			No. 10	AAAAAA	= D100-00	No. 11	BBBBBB	= D100-01	No. 12	CCCCCC	= D100-02	No. 13	DDDDDD	= D100-03	No. 14	EEEEEE	= D100-04	No. 15	FFFFFF	= D100-05	No. 16	GGGGGG	= D100-06	No. 17	HHHHHH	= D100-07	No. 18	IIIIII	= D100-08	No. 19	JJJJJJ	= D100-09	No. 20	KKKKKK	= D100-10	No. 21	LLLLLL	= D100-11	No. 22	MMMMMM	= D100-12	No. 23	NNNNNN	= D100-13	No. 24	OOOOOO	= D100-14	No. 25	PPPPPP	= D100-15		QQQQQQ	
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	QQQQQQ																																																						

Word Count (1 - 128)	Specify the number of error bits to be monitored in units of 16 bits (in units of words).																																																																																																																						
Store Target *2	For more information, refer to "Storage Target (Setting Dialog)" (page A1-13) in "Appendix 1 Buffering Area."  No. of Samples Specify the number of bit ON/OFF operations to be retained as historical data. Bit ON operation is regarded as one and bit OFF operation is also regarded as one; therefore, to keep one error bit change as historical data, "2" should be set at minimum.																																																																																																																						
Discrete memory/CSV format	For more information, refer to "Discrete Memory/CSV Format (Tab Window)" (page A1-19) in "Appendix 1 Buffering Area."																																																																																																																						
Others	For more information, refer to "Others" (page A1-26) in "Appendix 1 Buffering Area."																																																																																																																						
<input type="checkbox"/> Start Bit	You can control sampling start, stop, and restart.  When this box is checked, the bit obtained from the sampling control memory area is automatically displayed.  Sampling control memory [U] (bits 03, 07, 11, 15) ON: Sampling start OFF: Sampling stop  Sampling control memory <table style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="11" style="text-align: center;">MSB</td> <td colspan="11" style="text-align: right;">LSB</td> </tr> <tr> <td style="text-align: center;">15</td><td style="text-align: center;">14</td><td style="text-align: center;">13</td><td style="text-align: center;">12</td><td style="text-align: center;">11</td><td style="text-align: center;">10</td><td style="text-align: center;">09</td><td style="text-align: center;">08</td><td style="text-align: center;">07</td><td style="text-align: center;">06</td><td style="text-align: center;">05</td><td style="text-align: center;">04</td><td style="text-align: center;">03</td><td style="text-align: center;">02</td><td style="text-align: center;">01</td><td style="text-align: center;">00</td> </tr> <tr> <td style="text-align: center;">U</td><td style="text-align: center;">S</td><td style="text-align: center;">R</td><td style="text-align: center;">T</td><td style="text-align: center;">U</td><td style="text-align: center;">S</td><td style="text-align: center;">R</td><td style="text-align: center;">T</td><td style="text-align: center;">U</td><td style="text-align: center;">S</td><td style="text-align: center;">R</td><td style="text-align: center;">T</td><td style="text-align: center;">U</td><td style="text-align: center;">S</td><td style="text-align: center;">R</td><td style="text-align: center;">T</td> </tr> <tr> <td colspan="4" style="text-align: center;">n</td><td colspan="4" style="text-align: center;">n+1</td><td colspan="4" style="text-align: center;">n+2</td><td colspan="4"></td> </tr> <tr> <td colspan="4" style="text-align: center;">Buffer No. 3</td><td colspan="4" style="text-align: center;">Buffer No. 2</td><td colspan="4" style="text-align: center;">Buffer No. 1</td><td colspan="4" style="text-align: center;">Buffer No. 0</td> </tr> <tr> <td colspan="4" style="text-align: center;">Buffer No. 7</td><td colspan="4" style="text-align: center;">Buffer No. 6</td><td colspan="4" style="text-align: center;">Buffer No. 5</td><td colspan="4" style="text-align: center;">Buffer No. 4</td> </tr> <tr> <td colspan="4" style="text-align: center;">Buffer No. 11</td><td colspan="4" style="text-align: center;">Buffer No. 10</td><td colspan="4" style="text-align: center;">Buffer No. 9</td><td colspan="4" style="text-align: center;">Buffer No. 8</td> </tr> </table> <p>* For more information on the sampling control memory, refer to "Appendix 1 Buffering Area" (page A1-9).</p>	MSB											LSB											15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T	n				n+1				n+2								Buffer No. 3				Buffer No. 2				Buffer No. 1				Buffer No. 0				Buffer No. 7				Buffer No. 6				Buffer No. 5				Buffer No. 4				Buffer No. 11				Buffer No. 10				Buffer No. 9				Buffer No. 8			
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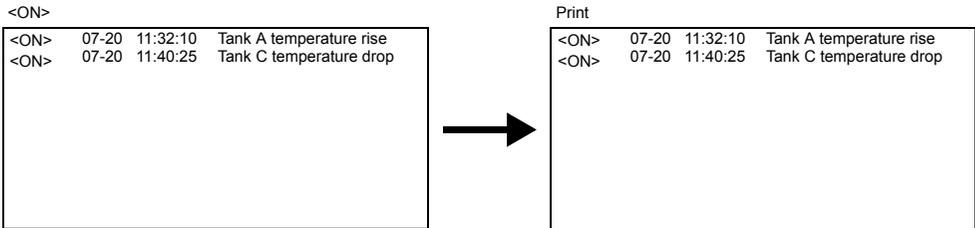
- \*1 Alarm logging is also possible when [Sampling Method: Alarm Tracking] is selected. However, note that there are some limitations described below.
  - [Real Time Print] (see page 10-54) is not possible with alarm logging.
  - The setting for [Memorize] of the registered message (valid for alarm tracking) is also valid for alarm logging.
  - When [Add Time Order Alarming] is checked, in the [Others] tab window for the buffer number (Sampling Method: Alarm Tracking), memory bits are allocated for the messages according to the setting for [No. of Relays] for time order alarming.  
With alarm logging, the first message line specified for [No. of Relays] for time order alarming is displayed.
- \*2 For the procedure of calculating the size of alarm logging data, refer to "Appendix 1 Buffering Area" (page A1-15).



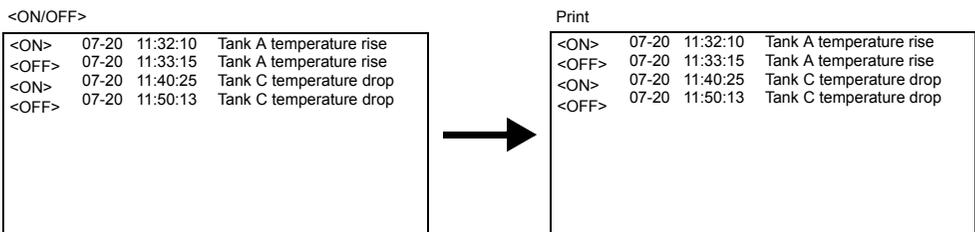
### Printed items

Alarm logs can be printed in the same image as currently shown on the screen.

Only <ON> shown

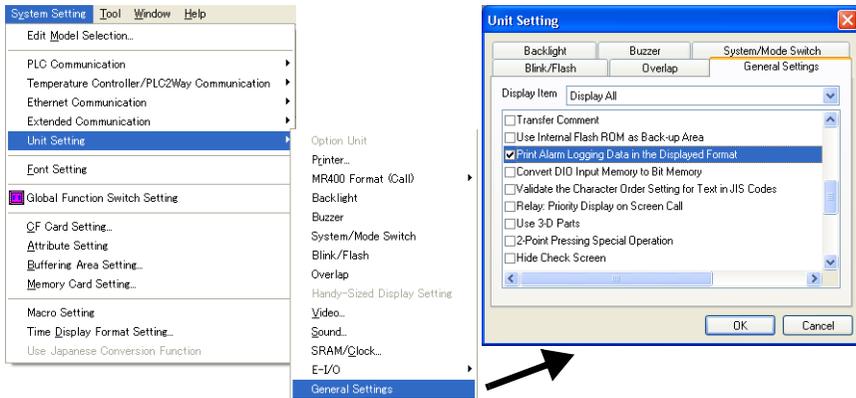


<ON/OFF> shown



- Setting position

[System Setting] → [Unit Setting] → [General Settings]  
 →  Print Alarm Logging Data in the Displayed Format

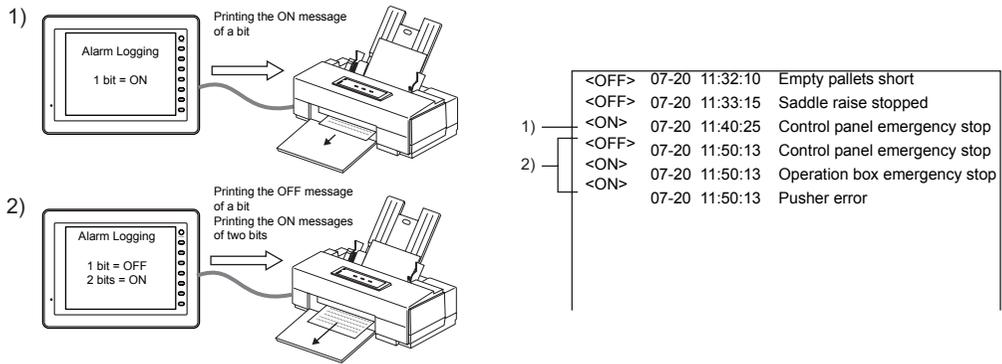


Checked: Print in the same format as shown on the screen  
 Unchecked: Print every <ON/OFF> operation

## Real Time Print

### Overview

Each time a bit status changes, the change is printed.  
 Alarm logs are continuously printed out.



### Setting procedure

The setting shown below is required on the [Alarm Logging] dialog.

<input type="checkbox"/> Real Time Print (Detail)	Check the box.
Default Setting (Main)	Specify the bit of which activation triggers a real time print. When [ON-OFF] is selected, an alarm log is printed each time a bit changes from ON to OFF or from OFF to ON. When [ON] is selected, an alarm log is printed at the ON edge of each bit. When [OFF] is selected, an alarm log is printed at the OFF edge of each bit. * Contents of a real time print are not the same as the display format on the screen.
<input type="checkbox"/> Time Display (Main)	If checked, alarm logs are printed with time data. Time data is not printed if this option is not checked.

### Limitations

It is possible to use a maximum of 4 alarm loggings with [ Real Time Print].

\* Be sure to set different buffer numbers.

When setting four or more alarm loggings with [ Real Time Print], or setting the same buffer number on the [Alarm Logging] dialog, the error message "Data has some error." is displayed. Please keep this limitation in mind.

[Real Time Print] is possible when alarm logging data is being displayed with [Sampling Method: Alarm Tracking] selected. (If you make the setting, it will be ignored.)

# 10.5 Time Order Alarming (Real Time)

## Overview

This is the function for displaying or erasing messages on the screen by setting or resetting bits.

### Difference from Bit Order Alarming

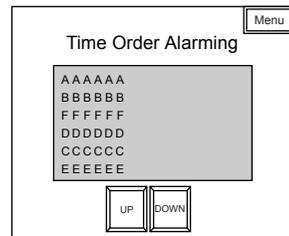
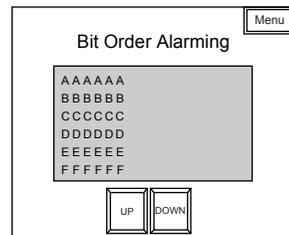
#### Message display

With bit order alarming, the messages are displayed in order of precedence when multiple bits are set. With time order alarming, the messages are displayed in order of occurrence (from the oldest or the newest) (see page 10-58) when multiple bits are set.

Example: If the following bits are set in order:

- D100 Bit 0 = ON
- Bit 1 = ON
- Bit 5 = ON
- Bit 3 = ON
- Bit 2 = ON
- Bit 4 = ON

High precedence	Message
D100 0th bit =	Zeroth = AAAAAA
1st bit =	First = BBBBBB
2nd bit =	Second = CCCCCC
3rd bit =	Third = DDDDDD
4th bit =	Fourth = EEEEE
5th bit =	Fifth = FFFFF
6th bit =	6th = GGGGG
7th bit =	7th = HHHHH
8th bit =	8th = IIIII
9th bit =	9th = JJJJJ
10th bit =	10th = KKKKK
11th bit =	11th = LLLLL
12th bit =	12th = MMMMM
13th bit =	13th = NNNNN
14th bit =	14th = OOOOO
	PPPPPP



#### Time display

With time order alarming, not only messages but ON time can also be displayed.

Fixed to 15 one-byte		
06-04	11:33:15	A A A A A A
06-04	11:33:22	B B B B B B
06-04	11:33:36	F F F F F F
06-04	11:33:45	D D D D D D
06-04	11:33:49	C C C C C C
06-04	11:33:55	E E E E E E

hour : minute : second  
month-day

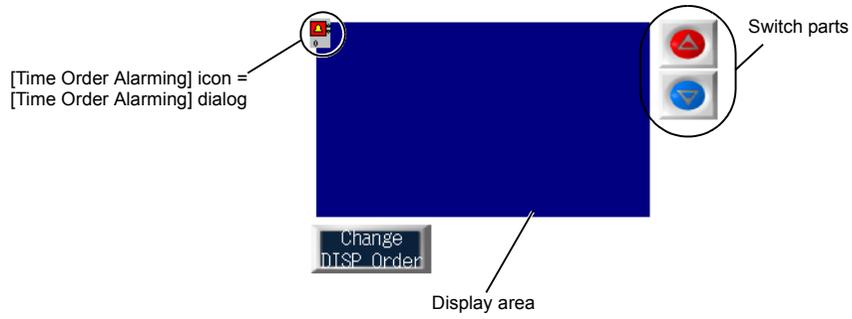
#### Setting item

This is the function that displays the current error status in real time; for the convenience of setting, the [Buffering Area Setting] dialog must be set.

## Configuration

---

The time order alarming components are shown below.



## Setting Dialog

### Time Order Alarming

#### Main

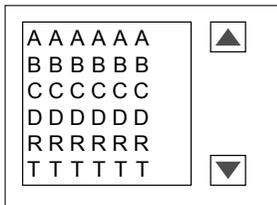
Buffering Area No.	<p>Specify the desired buffering area number to be used for time order alarming.</p> <p><b>* With time order alarming, only the current bit ON information is displayed. Therefore, different from the type of alarming that retains historical data in the buffering area, the information is not retained in the buffering area.</b></p> <p>Open: When you click here, the [Buffering Area Setting] dialog for the specified buffer number is displayed. It is also possible to make settings for a buffering area directly. For more information, refer to page 10-68.</p>
Start Message (GNo., No.)	<p>This setting is disabled when <input type="checkbox"/> Use the settings in Buffering Area for the message settings] is checked.</p> <p>When it is unchecked, this setting is possible.</p> <p>Specify the group number and message (line) number of the top message among the messages registered on the [Message Edit] window which you want to display for time order alarming.</p> <p>Open: When you click here, the [Message Edit] window for the specified group number is displayed. It is also possible to edit the message for time order alarming directly. For more information, refer to page 10-63.</p>
No. of Lines per Relay (1 to 24)	<p>This setting is disabled when <input type="checkbox"/> Use the settings in Buffering Area for the message settings] is checked.</p> <p>When it is unchecked, this setting is possible.</p> <p>This option is active when [Display Area] is chosen for [Action Area]. Specify the number of lines to be linked with one alarm (= one bit) on the display area part.</p>

<p>Action Area *1 (Display Area, Switch, Lamp)</p>	<p>Choose from [Display Area], [Switch] or [Lamp] for specifying the place where the message should be displayed on the screen when the corresponding bit is set or reset.</p> <p><b>Display Area:</b> Shows messages on display area parts placed on the screen.</p> <p><b>Switch:</b> Shows messages on switch parts placed on the screen. Place the [Function: Mode] switch part. Each switch part has an auxiliary item [Display Order] and using this item you can specify which alarm message should be displayed on which switch. When you set the same number for [Display Order] of all the switch parts, the messages are displayed in the order in which the switch parts were placed.</p> <p><b>Lamp:</b> Shows messages on lamp parts placed on the screen. Place the [Function: Mode] lamp part. As with switch parts, each lamp part has an auxiliary item [Display Order].</p>
<p><input type="checkbox"/> Time Display</p>	<p>When this box is checked, the occurring time can be displayed with the message. (Refer to page 10-55.)</p>
<p>Display Order</p>	<p><b>Chronological Order:</b> Messages are displayed in order of occurrence with the oldest one at the top.</p> <p><b>Newest Order:</b> Messages are displayed in order with the most recent one at the top.</p>
<p><input type="checkbox"/> Use the settings in Buffering Area for the message settings</p>	<p>This option determines whether you make the message setting for time order alarming on the [Time Order Alarming] dialog or in the buffering area setting.</p> <p><b>Checked:</b> Specify the message to be used for [Start Message] on the [Discrete memory/CSV format] tab window for buffering area setting.</p> <p><b>Unchecked:</b> Specify the message to be used for [Start Message] on the [Main] tab window in the [Time Order Alarming] window.</p>

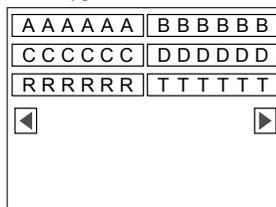
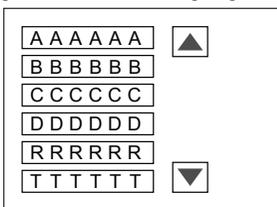
\*1 Action Area

When selecting each option, the screen image changes as shown below.

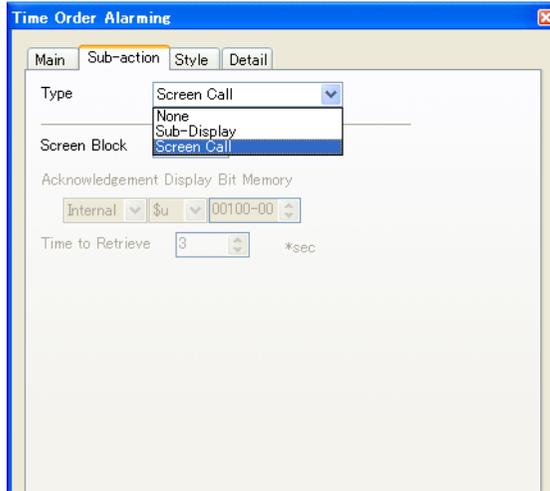
[Action Area: Display Area]



[Action Area: Switch] or [Action Area: Lamp]

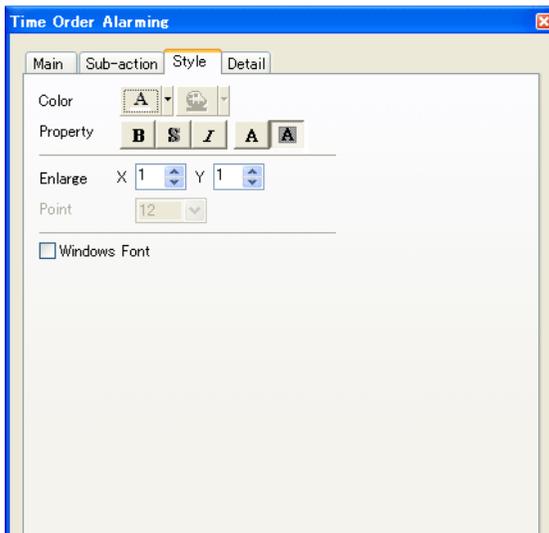


**Sub-action**



<p>Type (None, Sub-Display, Screen Call, Acknowledge Display)</p>	<p>None: Choose [None] when using time order alarming only.</p> <p>Sub-Display: Choose this option when you want to relate a supplemental display to a one-bit alarm message. Set an alarm sub-display to be linked. For more information, refer to page 10-15.</p> <p>Screen Call: Choose this option when you want to call up a screen (for detailed information, for example) related to a one-bit alarm message that is displayed. Select [Registration Item] → [Screen Block] and edit the screen to be linked. For more information, refer to page 10-13.</p> <p>Acknowledge Display: This option is valid when [Switch] or [Lamp] is chosen for [Action Area] on the [Main] tab window. Select this option when using the acknowledge function. For more information, refer to “Acknowledge Display Function” on page 10-72.</p>
<p>Screen Block</p>	<p>When [Screen Call] is chosen for [Sub-action], this option becomes active. Specify the top screen block number corresponding to the alarm message.</p>
<p>Acknowledgement Display Bit Memory</p>	<p>This is used for acknowledge display. Setting this bit (ON) when errors have occurred brings up their messages in colors showing their respective conditions. For more information, refer to “Acknowledge Display Function” on page 10-72.</p>
<p>Time to Retrieve (sec)</p>	<p>This is used for acknowledge display. For more information, refer to “Acknowledge Display Function” on page 10-72.</p>

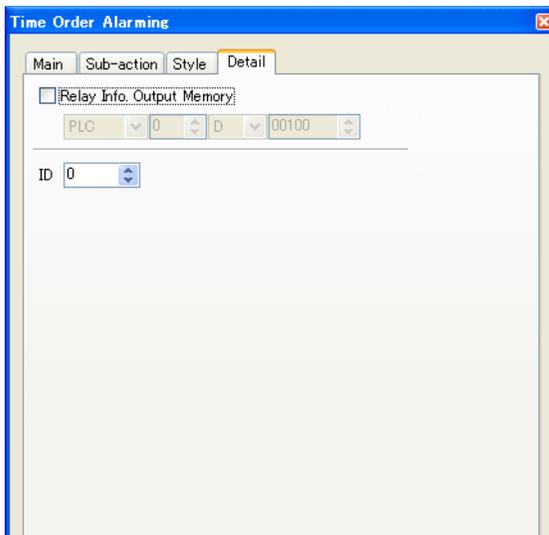
### Style



Color	For more information, refer to "Appendix 4 Styles and Coordinates."
Property	
Transparent	
Enlarge *1	
Point	
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.

\*1 When [Switch] or [Lamp] is chosen for [Action Area] on the [Main] tab window, [Enlarge] is fixed to "1".

### Detail



Relay Info. Output Memory

Choose whether data of the message displayed or selected for time order alarming should be output to the PLC.  
If you want to output data, check the box, and specify the desired top memory address.

When outputting:  Relay Info. Output Memory (top memory address "n")  
Memory addresses are allocated as shown below.

Relay Info. Output Memory	Contents
n	Total number of ON alarms
n + 1	Selected alarm number
n + 2	ON alarm number

n: Total number of ON alarms  
The number of bits currently set to ON is written.

n + 1: Selected alarm number

[Display Order: Chronological Order]  
[Sub-action: Sub-Display]  
The ordinal number of the alarm message among those being displayed (starting from #1 that occurred first) is output.

In order of occurrence:

First =	GGGGGG	n + 1 = 3
Second =	BBBBBB	
Third =	OOOOO	
Fourth =	XXXXXX	
Fifth =	AAAAAA	

[Sub-action: None]  
The order of occurrence (starting from "1" that is the oldest) of the top message among those displayed is output.

[Display Order: Newest Order]  
[Sub-action: Sub-Display]  
The ordinal number of the alarm message among those being displayed (starting from #1 that occurred most recently) is output.

In order of reverse occurrence:

First =	AAAAAA	n + 1 = 4
Second =	XXXXXX	
Third =	OOOOO	
Fourth =	BBBBBB	
Fifth =	GGGGGG	

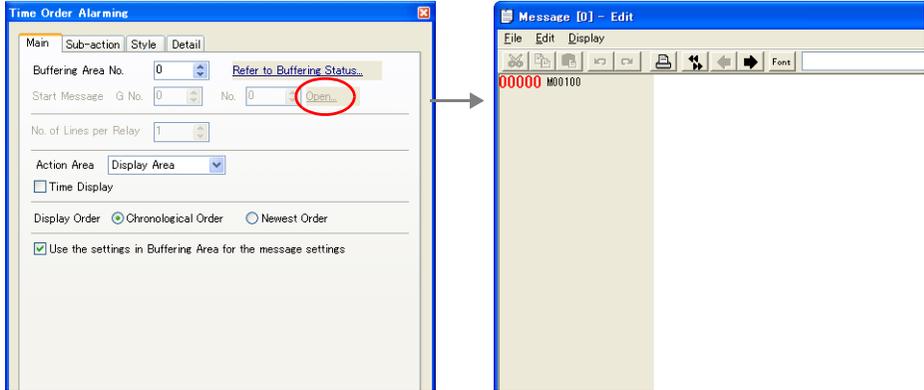
[Sub-action: None]  
The order of reverse occurrence (starting from "1" that is the newest) of the top message among those displayed is output.

	<p>n + 2: ON alarm number                  [Sub-action: Sub-Display]                  The ordinal number of the message selected with the cursor among those displayed by bit order alarming (regarding the start message number as "0") is written.</p> <div style="text-align: center;"> </div> <p>[Sub-action: None]                  The ordinal number (regarding the start message number as "0") of the top message among those displayed is output.</p>
ID	<p>Set the ID.                  For more information on the ID, refer to the Operation Manual.</p>

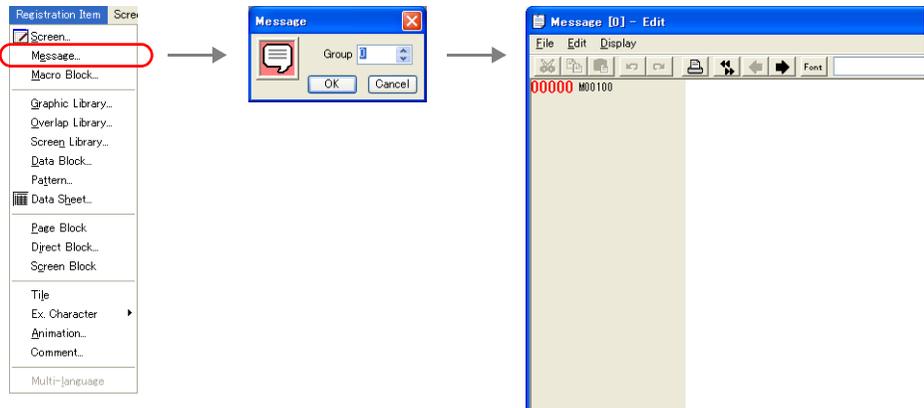
## Registering messages

There are three ways of registering messages.

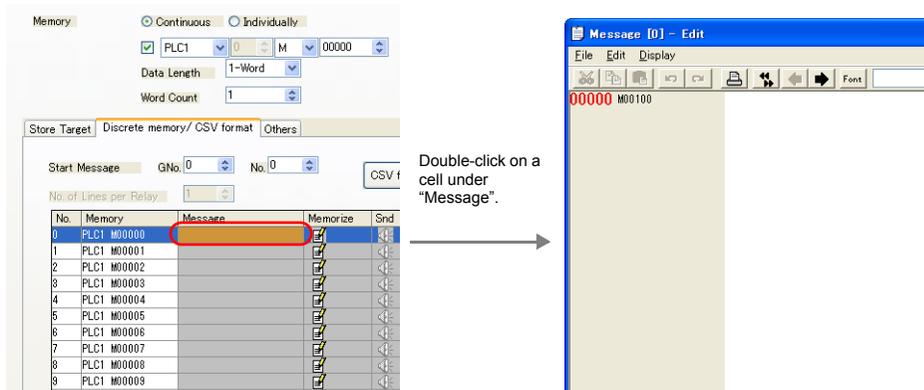
- [Time Order Alarming] dialog → [Main] tab window → [Open]



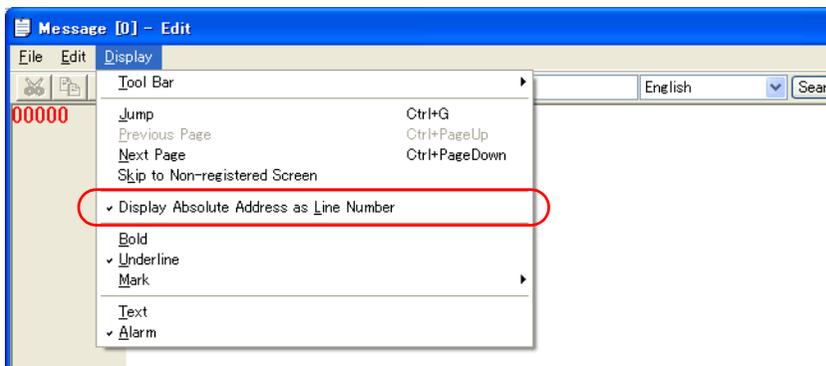
- [Registration Item] → [Message] → [Group No.] designation



- [Buffering Area Setting] → [Discrete memory/CSV format] tab window



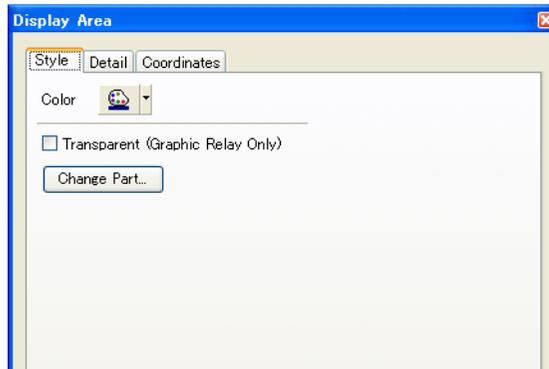
In the [Message Edit] window, line numbers denote absolute addresses as default.  
If designating a line number for time order alarming, select [Display] → [Display Absolute Address as Line Number] and remove the check from this menu item before commencing editing.



For more information on the editing procedure in the [Message Edit] window, refer to the Operation Manual.

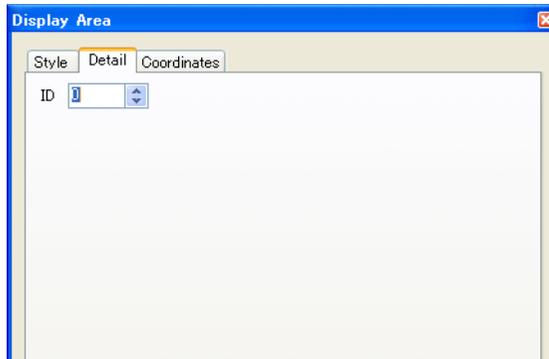
## Display Area

### Style



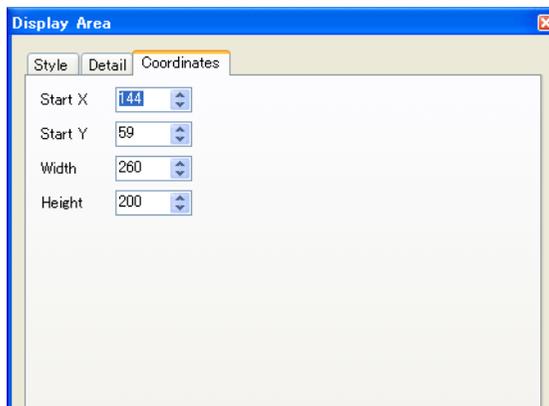
Color	Specify the color in the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified the [Time Order Alarming] dialog. For more information on the ID, refer to the Operation Manual.
----	---

### Coordinates

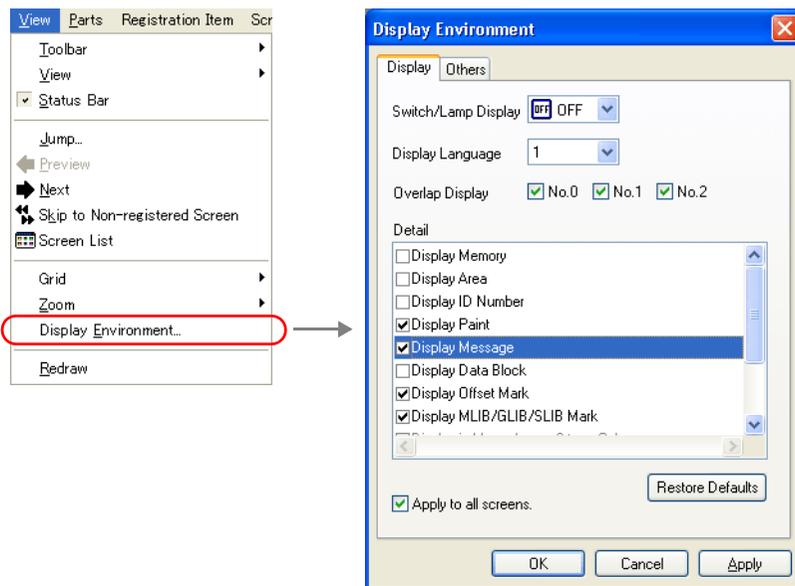


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

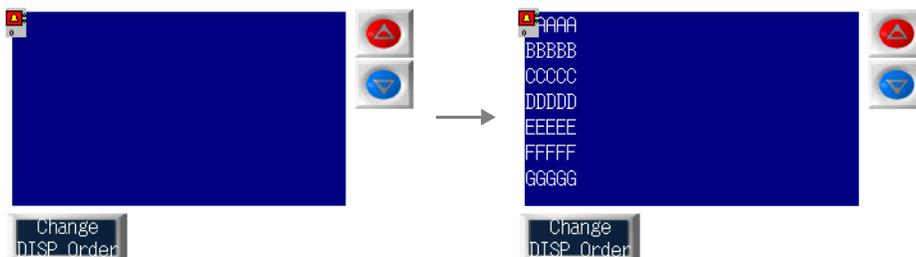
### Checking the display area size

You can check on the screen that alarm messages can be displayed on the display areas as you intended.

When you have registered messages, select [View] → [Display Environment] → [Display] tab, check the box for  Display Message].



The registered messages are displayed on the screen.



For more information on size adjustment, etc., refer to the Operation Manual provided separately.

## Switch Parts for Time Order Alarming

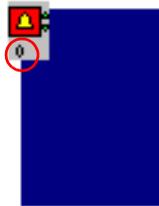
Set the switch function. The following switch functions are available with time order alarming.

Function	Contents
Roll Up	Scrolls up by one data element. If all data elements cannot be held in the area, one data element at a time scrolls into view.
Roll Down	Scrolls down by one data element. If all data elements cannot be held in the area, one data element at a time scrolls into view.
Mode	This switch becomes available when [Switch] is chosen for [Action Area] in the [Time Order Alarming] dialog. The display area part is changed to the area for message display.
Change Display Order	Changes over data display order each time the switch is pressed, between chronological order and reverse chronological order.

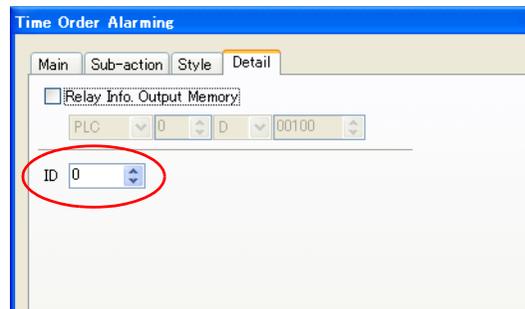
### Notes on setting

Specify the same ID for switch parts as the one specified in the [Time Order Alarming] dialog.

The ID specified in the [Time Order Alarming] dialog can be known from the [Time Order Alarming] icon or on the [Detail] tab window of the [Time Order Alarming] dialog.



or



To check the ID of each switch part, select [View] → [Display Environment] and check the box for [ Display ID Number].

For more information on the ID, refer to the Operation Manual.

## Lamp Parts for Time Order Alarming (for Display Areas)

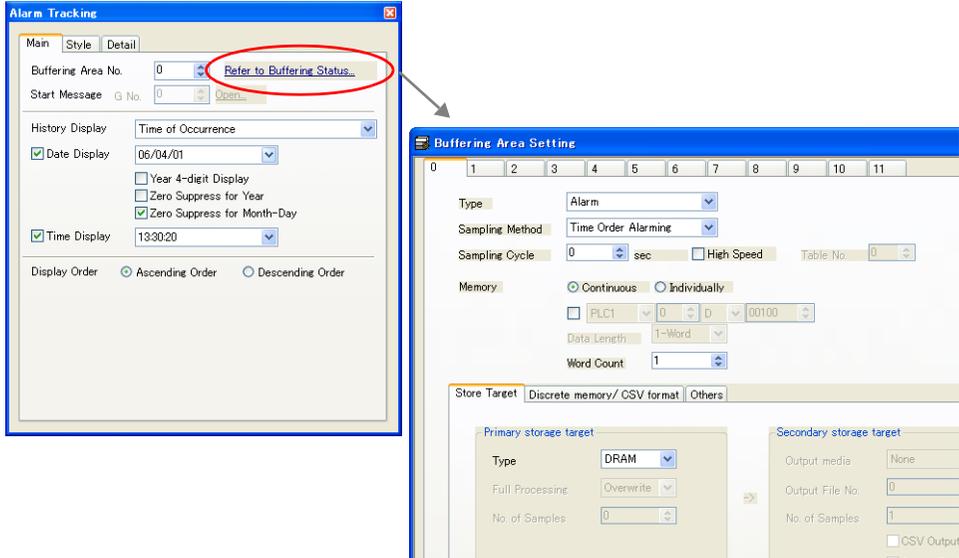
Function	Contents
Mode	This switch becomes available when [Lamp] is chosen for [Action Area] in the [Time Order Alarming] dialog. The display area part is changed to the area for message display.

### Notes on setting

Refer to “Notes on setting” for switch parts already described.

## Buffering Area Setting

When you click [Refer to Buffering Status] on the [Main] tab window of the [Time Order Alarming] dialog, the setting items for the buffering area number are displayed.



<p>Sampling Method</p>	<p>Select [Time Order Alarming] or [Alarm Tracking] *.</p> <p>* If the same memory bits for buffering area setting as [Alarm Tracking] is to be monitored, the same buffer numbers can be used for time order alarming. Be sure to check <input type="checkbox"/> Add Time Order Alarming] the [Others] tab window.</p>																																										
<p>Sampling Cycle (0 - 65535 sec)</p>	<p>Specify the data read cycle. When "0" is specified, monitoring is executed at every cycle.</p>																																										
<p>Memory</p>	<p>Continuous: The sampling data memory is allocated consecutively in the read area or from the specified top address.</p> <p>Individually: The memory address for sampling data can be specified.</p> <p>Select [Continuous] and check this box when specifying a top memory address for consecutive allocation. From the message specified for [Start Message GNo./No.] on the [Discrete memory/CSV format], as many words as specified for [Word Count] are allocated for alarm messages.</p> <p>Example: [Continuous], [Memory: D100], [Word Count: 1] [Start Message GNo.: 0 and No.: 10]</p> <table border="1"> <thead> <tr> <th colspan="3">Message No. 0</th> </tr> </thead> <tbody> <tr><td>No. 10</td><td>AAAAAA</td><td>= D100-00</td></tr> <tr><td>No. 11</td><td>BBBBBB</td><td>= D100-01</td></tr> <tr><td>No. 12</td><td>CCCCCC</td><td>= D100-02</td></tr> <tr><td>No. 13</td><td>DDDDDD</td><td>= D100-03</td></tr> <tr><td>No. 14</td><td>EEEEEE</td><td>= D100-04</td></tr> <tr><td>No. 15</td><td>FFFFFF</td><td>= D100-05</td></tr> <tr><td>No. 16</td><td>GGGGGG</td><td>= D100-06</td></tr> <tr><td>No. 17</td><td>HHHHHH</td><td>= D100-07</td></tr> <tr><td>No. 18</td><td>IIIIII</td><td>= D100-08</td></tr> <tr><td>No. 19</td><td>JJJJJJ</td><td>= D100-09</td></tr> <tr><td>No. 20</td><td>KKKKKK</td><td>= D100-10</td></tr> <tr><td>No. 21</td><td>LLLLLL</td><td>= D100-11</td></tr> <tr><td>No. 22</td><td>MMMMMM</td><td>= D100-12</td></tr> </tbody> </table> <p>As many messages as word count are assigned.</p>	Message No. 0			No. 10	AAAAAA	= D100-00	No. 11	BBBBBB	= D100-01	No. 12	CCCCCC	= D100-02	No. 13	DDDDDD	= D100-03	No. 14	EEEEEE	= D100-04	No. 15	FFFFFF	= D100-05	No. 16	GGGGGG	= D100-06	No. 17	HHHHHH	= D100-07	No. 18	IIIIII	= D100-08	No. 19	JJJJJJ	= D100-09	No. 20	KKKKKK	= D100-10	No. 21	LLLLLL	= D100-11	No. 22	MMMMMM	= D100-12
Message No. 0																																											
No. 10	AAAAAA	= D100-00																																									
No. 11	BBBBBB	= D100-01																																									
No. 12	CCCCCC	= D100-02																																									
No. 13	DDDDDD	= D100-03																																									
No. 14	EEEEEE	= D100-04																																									
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No. 17	HHHHHH	= D100-07																																									
No. 18	IIIIII	= D100-08																																									
No. 19	JJJJJJ	= D100-09																																									
No. 20	KKKKKK	= D100-10																																									
No. 21	LLLLLL	= D100-11																																									
No. 22	MMMMMM	= D100-12																																									

Word Count (1 - 128)	Specify the number of error bits to be monitored in units of 16 bits (in units of words).																																																																					
Store Target *2	For more information, refer to "Storage Target (Setting Dialog)" (page A1-13) in "Appendix 1 Buffering Area."																																																																					
Discrete memory/CSV format	For more information, refer to "Discrete Memory/CSV Format (Tab Window)" (page A1-19) in "Appendix 1 Buffering Area."																																																																					
Others	For more information, refer to "Others" (page A1-26) in "Appendix 1 Buffering Area."  <input type="checkbox"/> Acknowledge function Check this box when using the acknowledge function. For more information, refer to page 10-72.																																																																					
<input type="checkbox"/> Start Bit	You can specify the timing in monitoring the bit as you like. Monitoring can be started or stopped using the sampling control memory.  When this box is checked, the bit obtained from the sampling control memory area is automatically displayed.  Sampling control memory [U] (bits 03, 07, 11, 15) ON: Sampling start OFF: Sampling stop  Sampling control memory <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: left;">MSB</td> <td></td> <td style="text-align: right;">LSB</td> </tr> <tr> <td></td> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td><td></td> </tr> <tr> <td></td> <td style="background-color: #cccccc;">U</td><td style="background-color: #cccccc;">S</td><td style="background-color: #cccccc;">R</td><td style="background-color: #cccccc;">T</td><td style="background-color: #cccccc;">U</td><td style="background-color: #cccccc;">S</td><td style="background-color: #cccccc;">R</td><td style="background-color: #cccccc;">T</td><td style="background-color: #cccccc;">U</td><td style="background-color: #cccccc;">S</td><td style="background-color: #cccccc;">R</td><td style="background-color: #cccccc;">T</td><td style="background-color: #cccccc;">U</td><td style="background-color: #cccccc;">S</td><td style="background-color: #cccccc;">R</td><td style="background-color: #cccccc;">T</td><td></td> </tr> </table> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">n</td> <td style="padding-right: 20px;">Buffer No. 3</td> <td style="padding-right: 20px;">Buffer No. 2</td> <td style="padding-right: 20px;">Buffer No. 1</td> <td>Buffer No. 0</td> </tr> <tr> <td>n+1</td> <td>Buffer No. 7</td> <td>Buffer No. 6</td> <td>Buffer No. 5</td> <td>Buffer No. 4</td> </tr> <tr> <td>n+2</td> <td>Buffer No. 11</td> <td>Buffer No. 10</td> <td>Buffer No. 9</td> <td>Buffer No. 8</td> </tr> </table> * For more information on the sampling control memory, refer to "Appendix 1 Buffering Area" (page A1-9).	MSB																	LSB		15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00			U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T		n	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0	n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4	n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8
MSB																	LSB																																																					
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																																						
	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T																																																						
n	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0																																																																		
n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4																																																																		
n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8																																																																		

## Sub-Display

For more information on the motion that is made by selecting [Sub-action: Sub-Display], refer to "10.2 Alarm Sub Display."

## Calling Screens from Messages (Screen Call)

For more information on the motion that is made by selecting [Sub-action: Screen Call], refer to "Calling Screens from Messages (Screen Call)" on page 10-13

## Difference from Bit Order Alarming

### Error Bit Setting

When assigning registered messages to bits in the PLC memory, the top memory address as well as the number of bits used must be set as follows:

#### Bit order alarming

Specify the desired memory address directly for [Memory] in the [Bit Order Alarming] dialog.

As many memory bits as execution relays are assigned automatically from the specified memory.

Example:

[Memory]: D100-00 (bit designation possible)

[Start Message GNo. and No.]: 0&0

[Executing Relays]: 40

[No. of Relays per Line]: 1

With the above setting, messages are assigned to D100, D101, and D102.

	MSB		LSB													
D100 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Message No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00

	MSB		LSB													
D101 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Message No.	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16

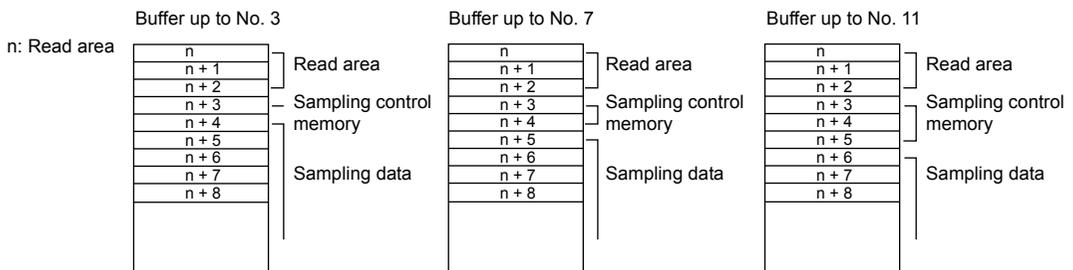
	MSB		LSB													
D102 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Message No.	/	/	/	/	/	/	/	/	39	38	37	36	35	34	33	32

#### Time order alarming

The memory address is specified by [Buffer No.] and [ Memory Designation] in the [Buffering Area Setting] dialog.

- When [ Memory Designation] is not checked:

The memory address following the sampling control memory is used for the start memory.



- When [ Memory Designation] is checked:

The specified memory is used for the start memory. (Only word designation is possible.)  
Memory bits are automatically assigned in units of words from the start memory.

Example:

[Buffering Area Setting] dialog

When [ Memory Designation] is checked: D100 (word designation)

[Word Count]: 3

[Time Order Alarming] dialog

[Buffer No.]: 0

[Start Message GNo. and No.]: 0 & 0

[No. of Relays per Line]: 1

When the above settings are made, bits in D100, D101, and D102 are assigned, and 48 bits (word count × 16) are used for execution.

	MSB															LSB					
D100 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00					
Message No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00					

	MSB															LSB					
D101 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00					
Message No.	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16					

	MSB															LSB					
D102 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00					
Message No.	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32					

## Setting of Processing Cycle

- Bit order alarming

Choose from [Refresh], [High Speed], or [Low Speed] for [Process Cycle] in the [Detail] tab window of the [Bit Order Alarming] dialog.

- Time order alarming

Specify the desired cycle time for [Sampling Time] in the [Buffering Area Setting] dialog. When "0" is specified, it is read at every cycle. When the desired interval is set, read operation is performed at the specified intervals.

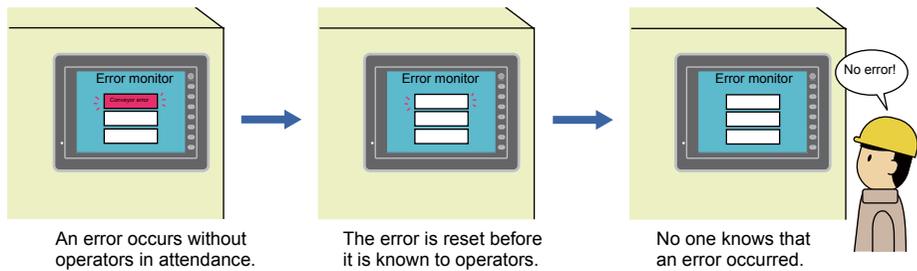
## Acknowledge Display Function

### Overview

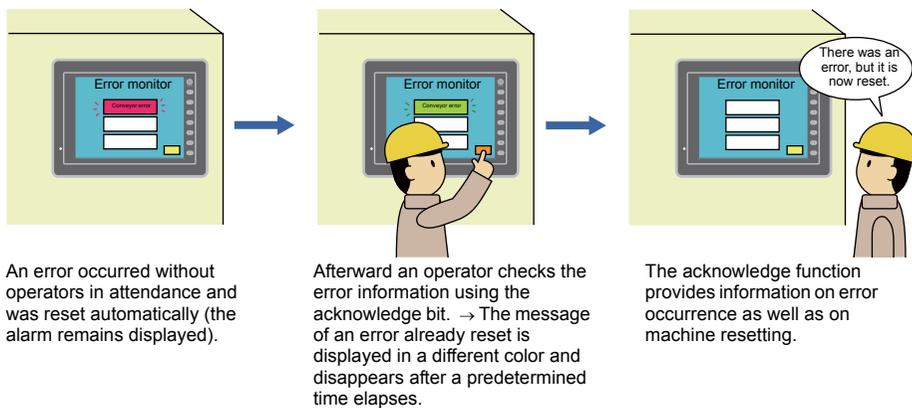
Using an acknowledge bit for time order alarming or bit order alarming, it is possible to indicate whether an alarm message has been acknowledged or not in different colors when an error has occurred.

- \* However, note that, in the case of bit order alarming, acknowledged information will be cleared when the screen display is changed. Please keep this limitation in mind.

If an error occurs while there is no operator attending, the error may be reset automatically before an operator acknowledges it.



Using the acknowledge function, you can be informed whether or not any error has occurred or has been reset.



## Operation Overview

When the acknowledge function is used, switch or lamp parts are used as message display areas. One switch or lamp part can hold one message line.

Message display can have the following four conditions:

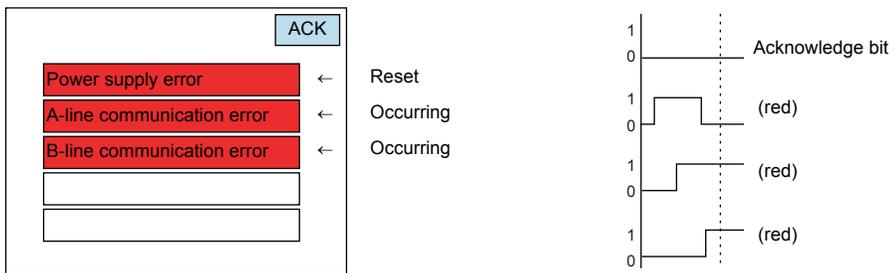
- A: No error
- B: Error occurrence
- C: Error occurring when the acknowledge bit is set (ON)
- D: Error reset when the acknowledge bit is set (ON)

Four-notch switches, or different lamp colors (OFF, ON, P3, and P4 colors), are used to denote these conditions.

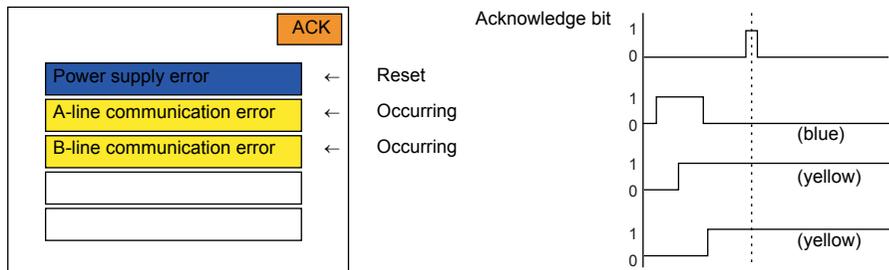
In the example below, lamp parts equipped with four colors each are placed on an acknowledge screen.

- OFF color (no error): white
- ON color (error occurrence): red
- P3 color (error occurring when the acknowledge bit is set (ON)): yellow
- P4 color (error reset when the acknowledge bit is set (ON)): blue

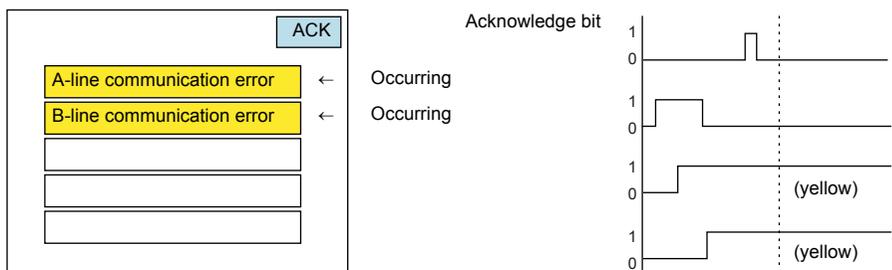
If an error occurs, the corresponding message is displayed in red. If any of them is reset, it remains in red.



When the acknowledge bit is set (OFF → ON), the messages of the errors still occurring turn yellow. The message of the reset error turns blue.



After a predetermined time has elapsed, the blue error message disappears and only the messages of the errors still occurring remain yellow.



## Notes on Setting Time Order Alarming

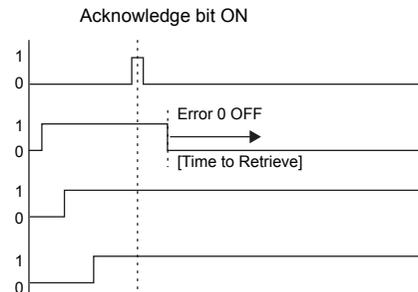
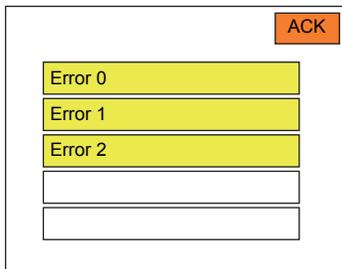
Action Area (Main)	Select [Switch] or [Lamp]. * Choosing [Area] is not valid.
Type (Sub-action)	Select [Acknowledge Display].
Acknowledgement Display Bit Memory (Sub-action)	When this bit is set (ON) at the occurrence of an error, the corresponding alarm message is displayed in a color that shows its condition. * The acknowledge bit is recognized at the edge of OFF to ON. Reset the bit (OFF) when acknowledge operation has been completed.
Time to Retrieve *1 (Sub-action)	When the acknowledge bit is set (ON), the message of an error already reset is displayed in the "reset" color until the time for [Time to Retrieve] elapses. Then the message disappears.

\*1 About [Time to Retrieve]

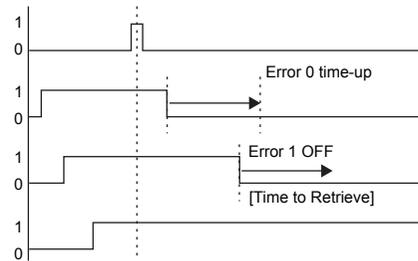
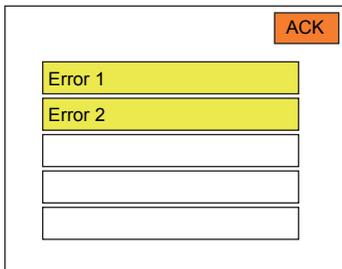
[Time to Retrieve] is the time when a message remains displayed if an error is reset before or after the acknowledge bit is set (ON).

If multiple error bits are reset at different times after the acknowledge bit has been set, each error message will be cleared at the conclusion of the time set for [Time to Retrieve] from the bit reset time.

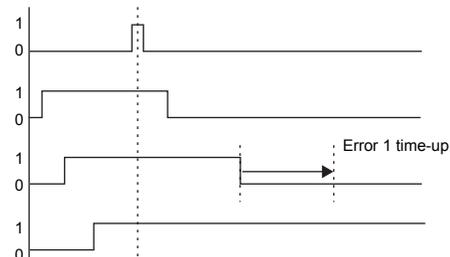
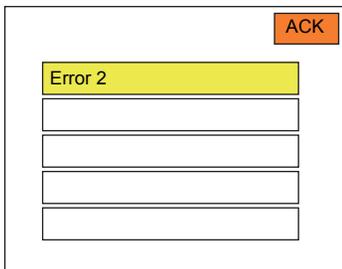
(1)



(2)



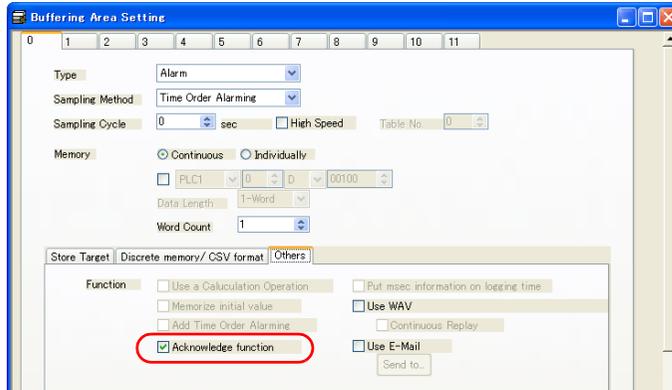
(3)



[Time to Retrieve] count finishes for errors 0 and 1 at different times.

## Notes on Buffering Area Setting

Be sure to check [Acknowledge function] in the [Others] tab window.



## Notes on Setting Switch or Lamp Part (for Display)

Be sure to select 4-notch switch or lamp parts ((Function: Mode)).

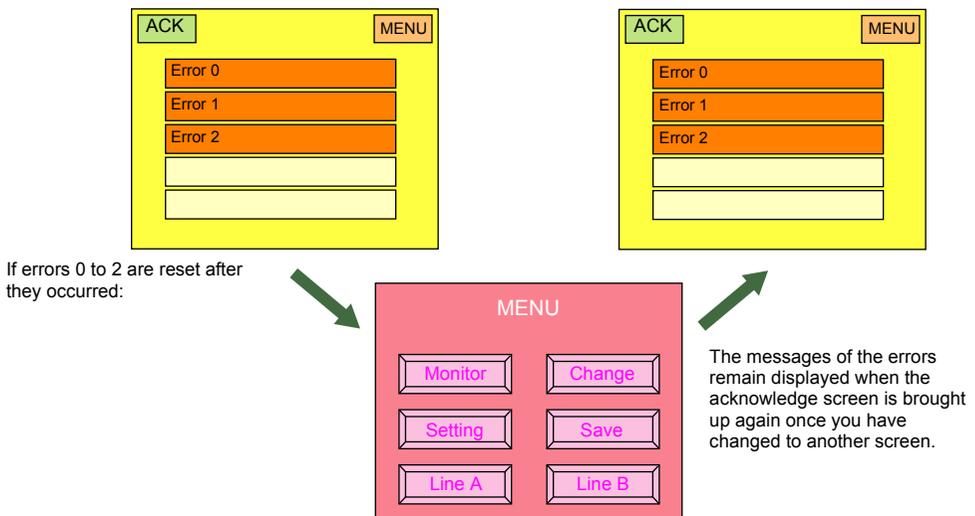
In the case of 4-notch switch or lamp parts, color settings denote as shown below.

OFF color	No error
ON color	Error occurrence
P3 color	Error occurring when the acknowledge bit is set (ON)
P4 color	Error reset when the acknowledge bit is set (ON)

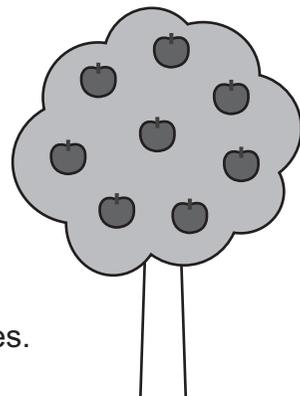
\* Blinking is available when basic 16-color is selected.

## Display on Acknowledge Screen after Screen Change

If you change the currently displayed acknowledge screen in time order alarming to a different screen and then go back to the previous screen, the error information on the acknowledge screen remains the same as that before the screen change. If any errors are reset after screen change, they will be displayed again at the time of return to the acknowledge screen.



# MEMO



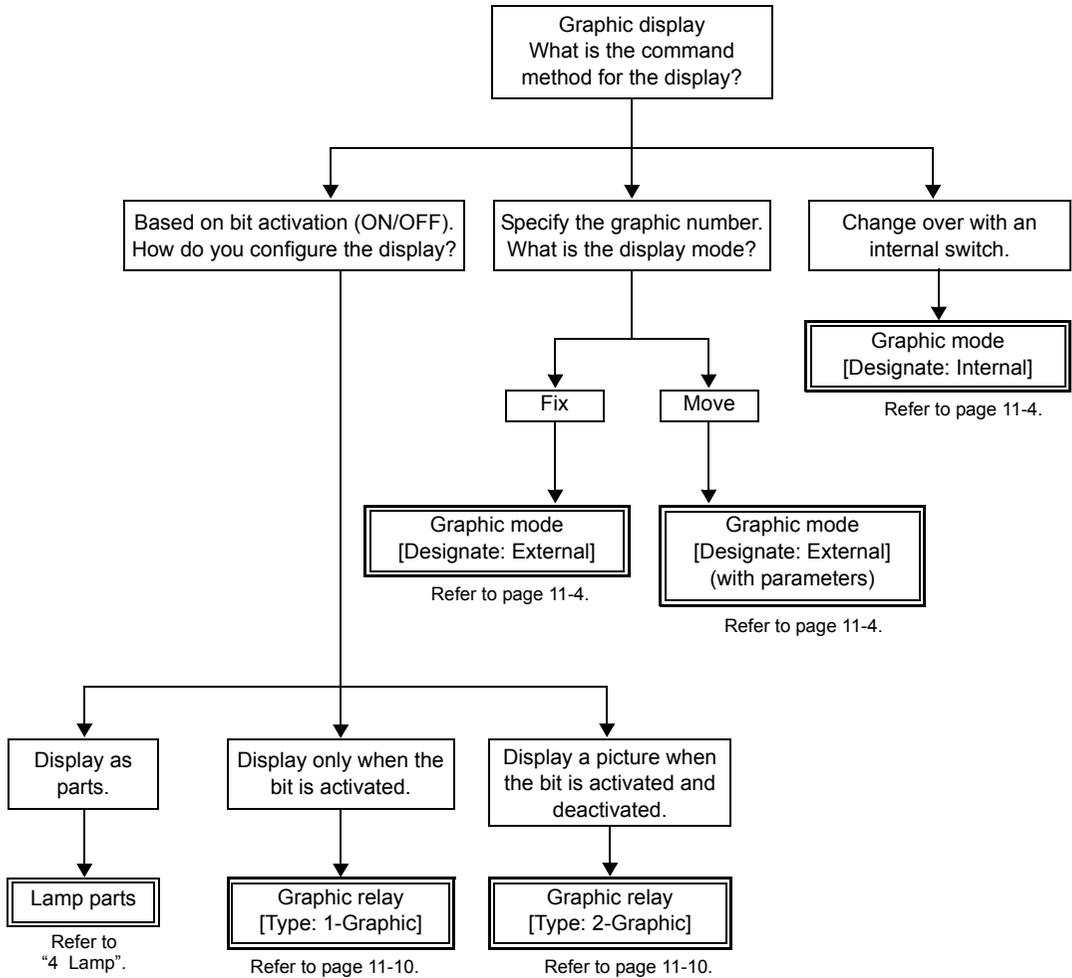
Please use this page for notes.

# 11 Graphic Display

MONITOUCH can display or change a variety of pre-registered graphics on the screen based on bit activation and the graphic number.

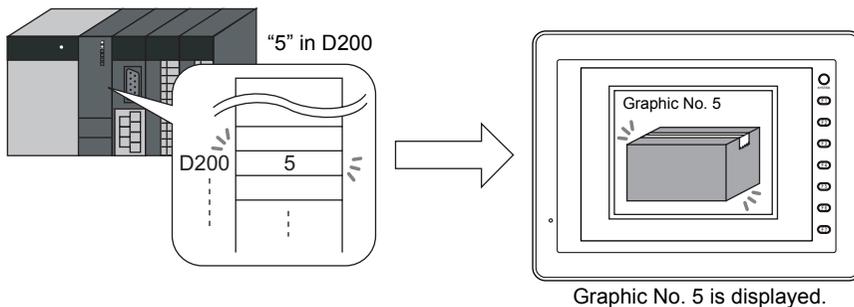
## Overview

The graphic display function can be used in a variety of ways depending on the purpose.



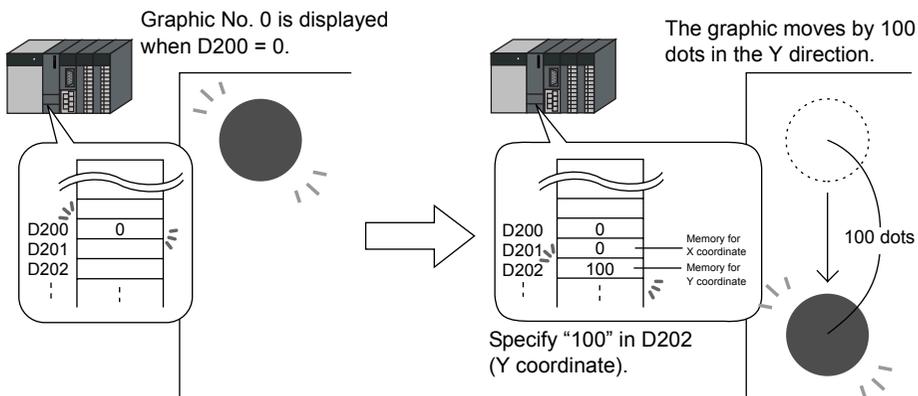
# 11.1 Graphic Mode Overview

- It is possible to bring up registered graphics or texts by specifying a graphic number.  
[Designate: External]

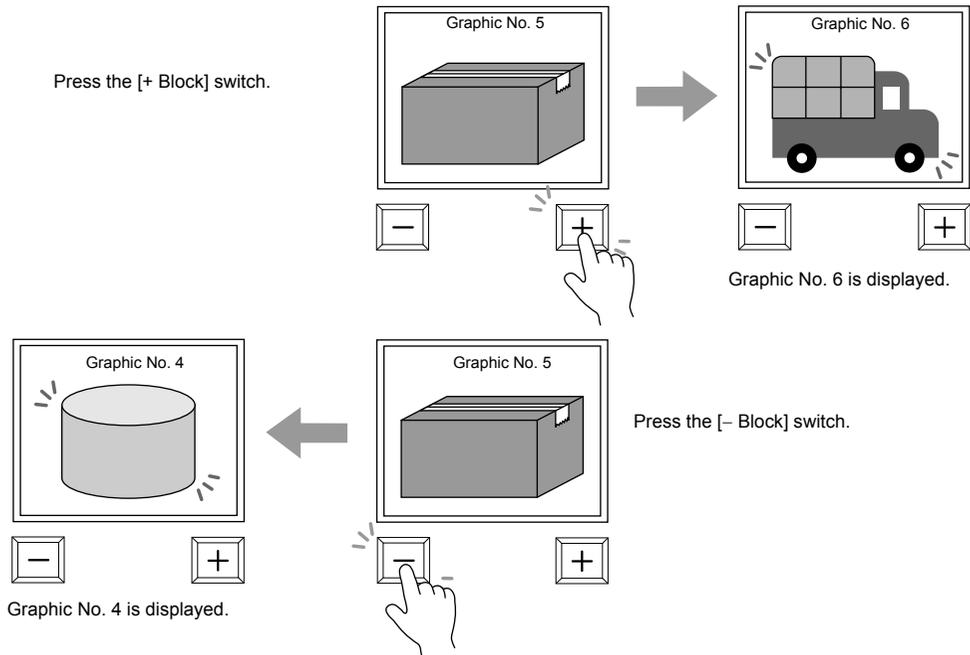


- When graphics or texts are displayed by specifying the graphic number, it is possible to animate or transform them.

If you want to animate or transform graphics or texts, set up parameters for these items in the graphic library.  
When parameters are set, the required memory addresses are allocated for animation and transformation.  
For more information on the procedure for setting parameters, refer to the Operation Manual.

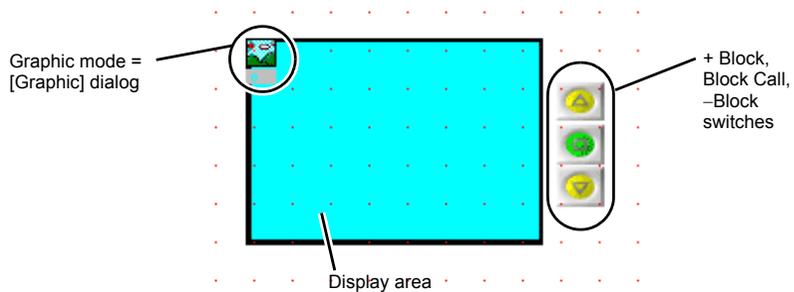


- It is possible to give commands for showing graphics or texts using internal switches.  
[Designate: Internal]



## Configuration

The graphic mode components are shown below.

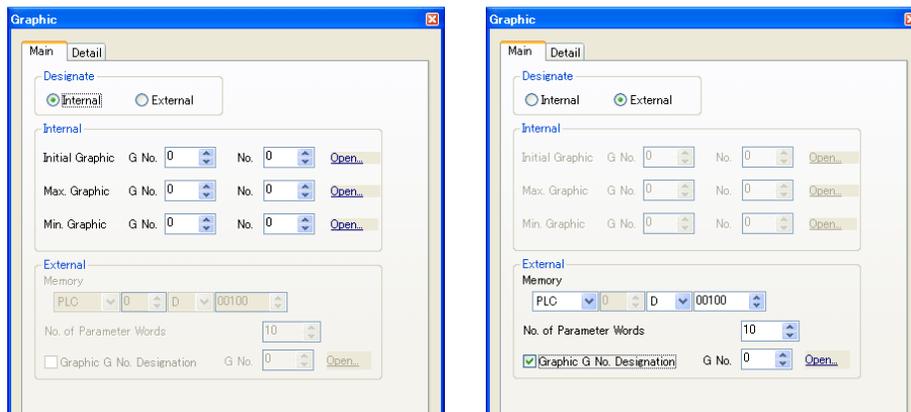


- \* The graphic mode display is possible without placing a display area part.**  
For more information, refer to page 11-7.

## Setting Dialog

### Graphic

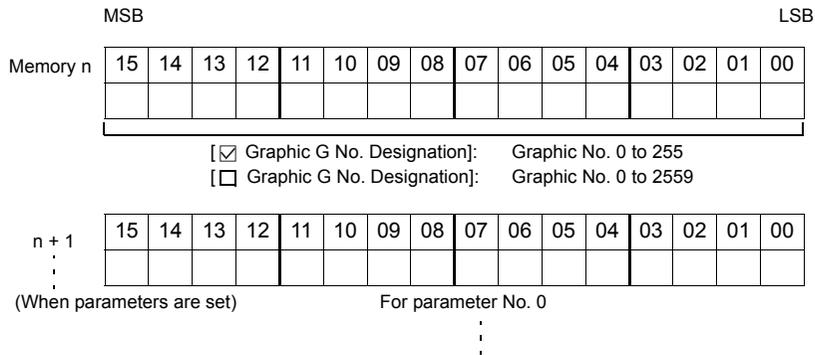
#### Main



<p><b>Designate</b> (Internal, External)</p>	<p>Choose the commanding method of displaying graphics (diagrams, texts, etc.) registered in the graphic library.</p> <p><b>Internal:</b> The graphic display is changed using internal switches placed on the screen (= [+ Block], [- Block] switches, etc.). The graphics cannot be moved or transformed.</p> <p><b>External:</b> The graphic number is specified from the external unit (PLC) and is displayed on screen. The graphics can be moved or transformed.</p>
<p><b>Initial Graphic</b> (G No., No.)</p>	<p>This setting is valid when [Designate: Internal] is selected. Specify the graphic (group number and graphic number) to be displayed first when the screen is opened. The initial graphic number must be located between the minimum and maximum graphic numbers.</p>
<p><b>Max. Graphic</b> (G No., No.)</p>	<p>This setting is valid when [Designate: Internal] is selected. Specify the graphic (group number and graphic number) of the greatest number among those to be displayed on the screen.</p>
<p><b>Min. Graphic</b> (G No., No.)</p>	<p>This setting is valid when [Designate: Internal] is selected. Specify the graphic (group number and graphic number) of the smallest number among those to be displayed on the screen.</p>
<p><b>Memory</b> *1</p>	<p>This setting is valid when [Designate: External] is selected. Specify a memory address used for specifying a graphic number. The graphic number to be specified varies depending on the [<input type="checkbox"/> Graphic G No. Designation] setting described below.</p>
<p><b>No. of Parameter Words</b> *2</p>	<p>This setting is valid when [Designate: External] is selected. Parameters are required when moving or transforming the graphics. Specify the total number of parameters provided to the graphics you are going to use in graphic mode. From this total and parameter numbers, the memory allocation is determined. (For more information on the parameter setting, refer to the Operation Manual.)</p>

<input type="checkbox"/> Graphic G No. Designation *3	This setting is valid when [Designate: External] is selected. When this box is checked ( <input checked="" type="checkbox"/> ) , set a group number (0 - 9). The graphics that can be displayed on the screen are limited to those in the specified group number. A graphic number (0 - 255) in a single group must be specified in [Memory]. When this box is not checked ( <input type="checkbox"/> ) , specify the graphic number to be displayed using an absolute address. A graphic number (0 - 2559) in any group can be specified in [Memory].
---	---

\*1 Memory allocation



\*2 Example of using parameters

The following parameters are set for a circle in the graphic library.

[Action: Animation]

[Center X: Incremental + Input Parameter No. 1]

[Center Y: Incremental + Input Parameter No. 2]



The following settings are made in the [Graphic] dialog:

[Designate: External]

[Memory: D300]

[No. of Parameter Words: 2 (because parameters No. 1 and No. 2 are set)]

From the above settings, memory is allocated as shown below:

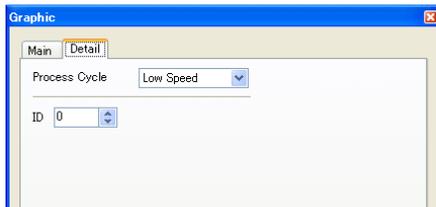
D300	Graphic number specification memory
D301	Center X coordinate change memory
D302	Center Y coordinate change memory

2 words are secured because "2" is specified for [No. of Parameter Words].

\*3 Absolute addresses of the graphic numbers are as shown below:

Groups Specified Separately		Absolute Address	
Group No.	Graphic No.	Group No.	Graphic No.
0	0000 to 0255	(None)	0000 to 0255
1	0000 to 0255		0256 to 0511
2	0000 to 0255		0512 to 0767
3	0000 to 0255		0768 to 1023
4	0000 to 0255		1024 to 1279
5	0000 to 0255		1280 to 1535
6	0000 to 0255		1536 to 1791
7	0000 to 0255		1792 to 2047
8	0000 to 0255		2048 to 2303
9	0000 to 0255		2304 to 2559

### Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

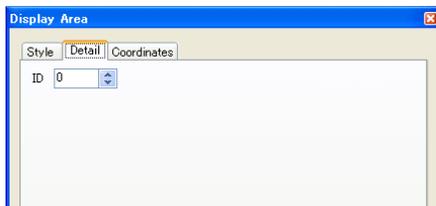
### Display Area

#### Style



Color	Set the color inside the area.
Change Part	For more information, refer to the Operation Manual.

#### Detail



ID	Set the same ID as specified the [Graphic] dialog. For more information on the ID, refer to the Operation Manual.
----	--

#### Coordinates



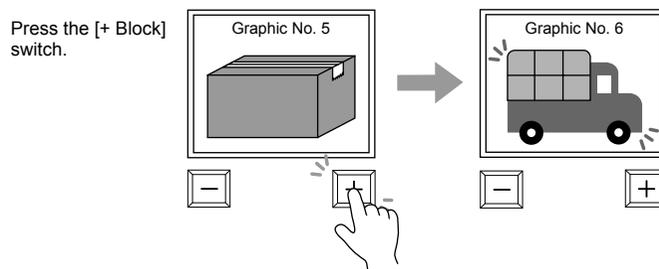
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

## Switch Parts for Graphic Mode

When [Internal] is chosen for [Designate] in the [Graphic] dialog, graphics can be changed using a switch. The following switches can be used.

### Applicable switch parts list

Function	Contents
+ Block	Switches to the next graphic.
- Block	Switches to the previous graphic.
Block Call	Requires [Block No.] as an auxiliary setting item. (In the graphic mode, this means a graphic number (absolute address). Refer to page 11-5.) When this switch is pressed, the graphic of which number you specified is called up.



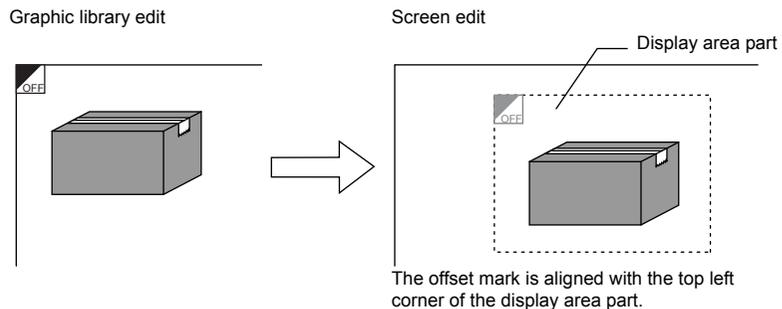
## Notes

### Placing Display Area Parts

With [Designate: Internal], graphics are displayed in display area parts.  
With [Designate: External], it is possible to display graphics without display area parts. However, there are instances where the previous picture remains even after the picture is changed.

### Changing the Display Area Size

The placed display area part must be adjusted to fit the graphic size in graphic mode.  
The "OFF" mark (offset mark) in the graphic library fits to the upper left corner of the display area part on screen. Considering this position, determine the size of the display area part.



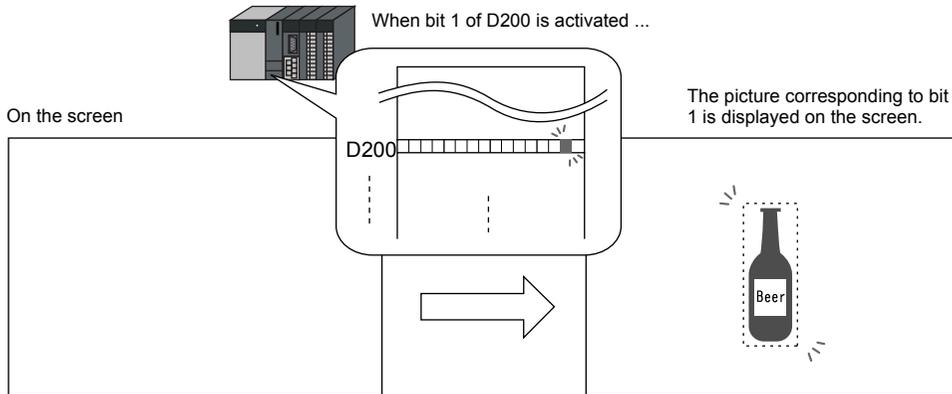
# 11.2 Graphic Relay Mode

## Overview

The graphics or texts registered in the graphic library can be displayed or erased according to bit activation. There are two types of graphic relay modes.

- [Type: 1-Graphic]

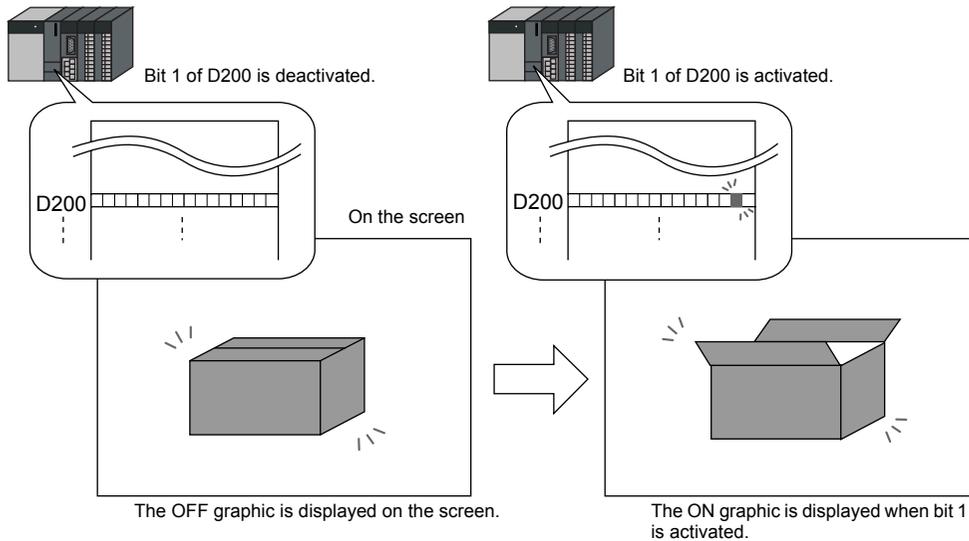
When a bit is set (ON), the corresponding graphic is displayed; when it is reset (OFF), it is erased.



- [Type: 2-Graphic]

Two graphics are assigned to one bit.

When the bit is reset (OFF), the OFF graphic is displayed; when it is set (ON), the ON graphic is displayed.

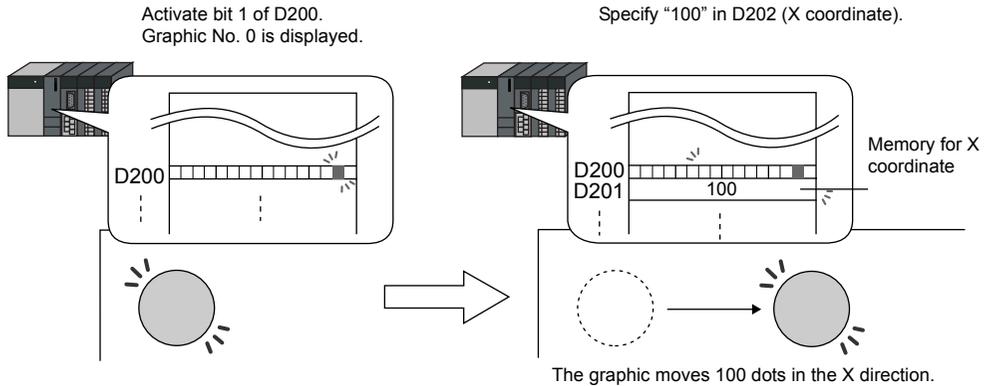


- It is possible to animate or transform both [1-Graphic] and [2-Graphic] graphics or text.

If you want to animate or transform graphics or text, set parameters for these items in the graphic library.

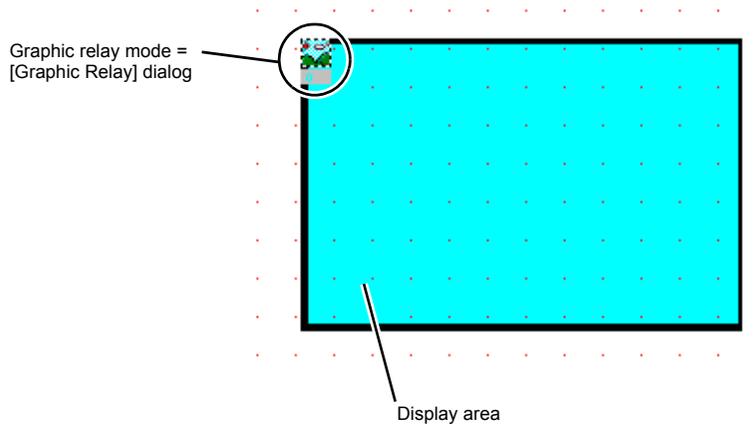
When parameters are set, the required memory addresses are allocated for animation and transformation.

For more information on the procedure for setting parameters, refer to the Operation Manual.



## Configuration

The graphic relay mode components are shown below.

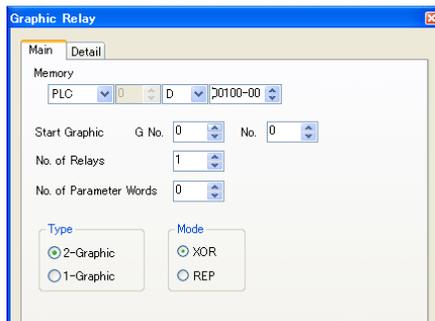


- \* The graphic relay mode display is possible without placing a display area part. For more information, refer to page 11-15.

## Setting Dialog

### Graphic Relay

#### Main



Memory	Specify the command memory that is used to display the registered graphics or text on the screen.
Start Graphic (G No., No.) <sup>*1</sup>	Specify the top graphic (group number and the graphic number).
No. of Relays (1 to 512) <sup>*2</sup>	Specify the number of relays (the total number of bits assigned for graphics) to be used.
No. of Parameter Words <sup>*3</sup>	Parameters are required when moving or transforming the graphics. Specify the total number of parameters provided to the graphics you are going to use in graphic relay mode. From this total and parameter numbers, the memory allocation is determined. (For more information on the parameter setting, refer to the Operation Manual.)
Type (1-Graphic 2-Graphic) <sup>*1 *2</sup>	Select how you will display graphics.  1-Graphic: When the memory bit is set (ON), the corresponding graphic is displayed; when it is reset (OFF), the graphic disappears.  2-Graphic: When the memory bit is set (ON), the ON graphic is displayed; when it is reset (OFF), the OFF graphic is displayed. A graphic is always displayed whether the bit is set or reset.
Mode (XOR, REP) <sup>*4</sup>	This option becomes active when [2-Graphic] is chosen for [Type]. In the case of [Type: 1-Graphic], the mode is fixed to [XOR]. Select the display mode when changing the graphics at bit activation or deactivation.  XOR When the bit is reset (OFF), the OFF graphic is displayed. When it is set (ON), the OFF graphic is cleared, and the ON graphic is drawn. When the bit is reset again, the ON graphic is cleared, and the OFF graphic is drawn.  REP When the bit is reset (OFF), the OFF graphic is displayed. When it is set (ON), the ON graphic is drawn over the OFF graphic. When the bit is reset again, the OFF graphic is drawn over the ON graphic. The graphics are not XORed with the base screen and are displayed in their original colors.

- \*1 Display example  
 [Memory: D200], [Start Graphic: GNo. 0, No. 3]  
 • [Type: 1-Graphic]

	MSB																			LSB			
D200 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00							
Graphic No. 0 graphic No. (Bit ON)	...	...	...	15	14	13	12	11	10	9	8	7	6	5	4	3							

D200 bit 3 is activated: Graphic No. 6 is displayed.  
 D200 bit 8 is activated: Graphic No. 11 is displayed.

- [Type: 2-Graphic]

	MSB																			LSB			
D200 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00							
Graphic No. 0 graphic No. (Bit ON)	...	...	29	27	25	23	21	19	17	15	13	11	9	7	5	3							
(Bit OFF)	...	...	30	28	26	24	22	20	18	16	14	12	10	8	6	4							

D200 bit 4: OFF: Graphic No. 12 is displayed.  
 ON: Graphic No. 11 is displayed.  
 D200 bit 9: OFF: Graphic No. 22 is displayed.  
 ON: Graphic No. 21 is displayed.

- \*2 Display example  
 [Memory: D200], [Start Graphic: GNo. 0, No. 0], [No. of Relays: 12]  
 • [Type: 1-Graphic]

	MSB																			LSB			
D200 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00							
Graphic No. 0 graphic No. (Bit ON)	X	X	X	X	11	10	9	8	7	6	5	4	3	2	1	0							

[No. of Relays: 12]: 12 graphics can be assigned to these bits (bit 0 to bit 11).

- [Type: 2-Graphic]

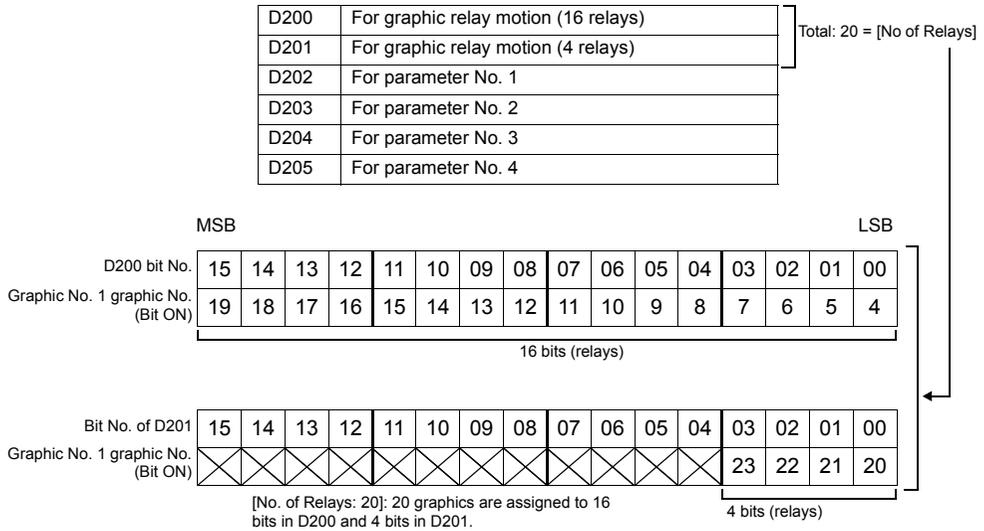
	MSB																			LSB			
D200 bit No.	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00							
Graphic No. 0 graphic No. (Bit ON)	X	X	X	X	22	20	18	16	14	12	10	8	6	4	2	0							
(Bit OFF)	X	X	X	X	23	21	19	17	15	13	11	9	7	5	3	1							

[No. of Relays: 12]: 12 graphics can be assigned to these bits (bit 0 to bit 11).

\*3 Display example

[Memory: D200], [Type: 1-Graphic], [Start Graphic: GNo. 1, No. 4]  
 [No. of Relays: 20], [No. of Parameter Words: 4]

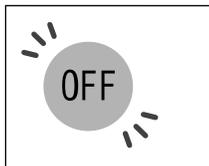
From the above settings, memory is allocated as shown below:



\*4 Display example

- Example in XOR mode

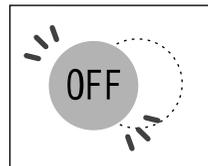
When the bit is reset (OFF), the OFF graphic is displayed.



When the bit is set (ON), the OFF graphic is cleared, and the ON graphic is drawn.

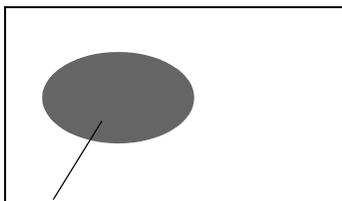


When the bit is reset (OFF) again, the ON graphic is cleared, and the OFF graphic is drawn.



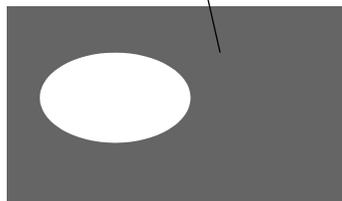
In XOR mode, the graphic color is XORed with the colors of the base screen (display area). Therefore, the graphic is displayed in the base color that has been XORed, rather than the color specified during editing.

Graphic library edit



Ellipse in solid color  
 Foreground color: Yellow

When it is displayed on the screen (background: blue):



[Foreground color: Yellow] of the ellipse and [Blue] of the screen are XORed into white.

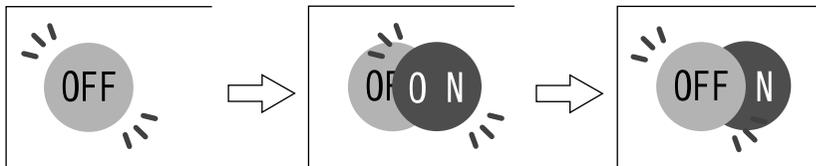
For more information on the XORed colors, refer to page 11-17.

• Example in REP mode

When the bit is reset (OFF), the OFF graphic is displayed.

When the bit is set (ON), the ON graphic is drawn over the OFF graphic.

When the bit is reset (OFF) again, the OFF graphic is drawn over the ON graphic.

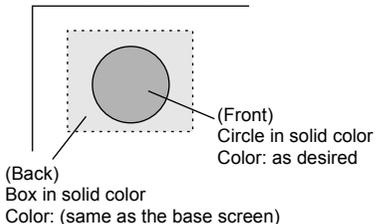


In REP mode, however, note that the previous graphic remains on the screen when the next graphic is drawn.

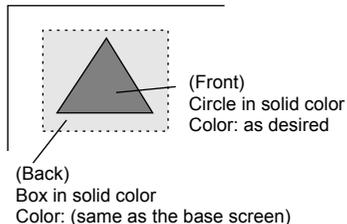
To clear the previous graphic, place a box in a solid color a little larger than the graphic.

Graphic library edit

Graphic No. 0 (ON graphic)



Graphic No. 1 (OFF graphic)

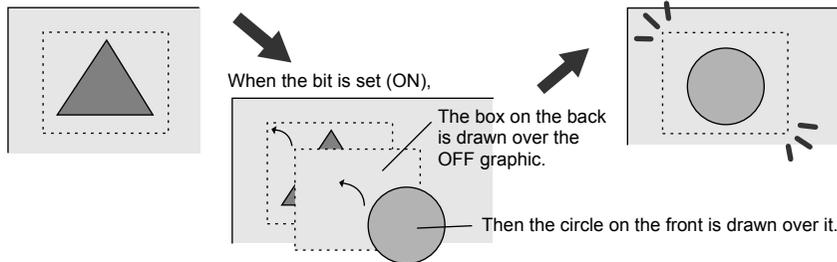


When one graphic is drawn over another, a box in a solid color is drawn and the new graphic is displayed over the box. The previous graphic is cleared from the screen.

Screen

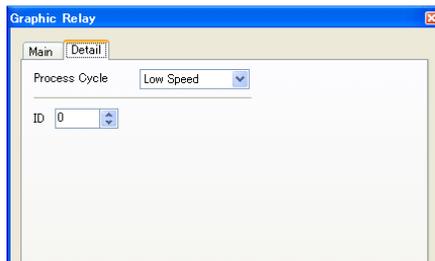
When the bit is reset (OFF), the OFF graphic is displayed.

As the result, the OFF graphic is cleared, and the ON graphic is drawn.



\* Even with [Mode: REP], the graphic color is XORed if [Animation] is chosen for [Action] in the [Parameter Setting] tab window.

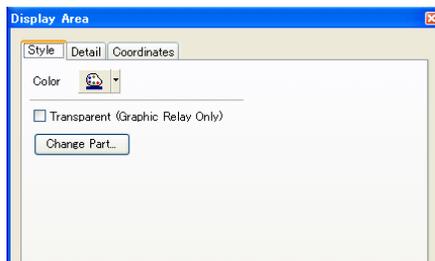
### Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to “Appendix 5 Process Cycle.”
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

### Display Area

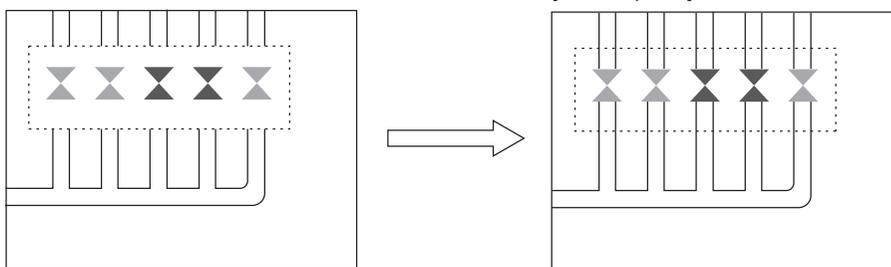
#### Style



Color	Set the color inside the area.
<input type="checkbox"/> Transparent *1	When this box is checked ( <input checked="" type="checkbox"/> ) , transparency is set for the display area part. Check this box ( <input checked="" type="checkbox"/> ) if you want to avoid a situation in which the graphics on the background is hidden by the display area part.
Change Part	For more information, refer to the Operation Manual.

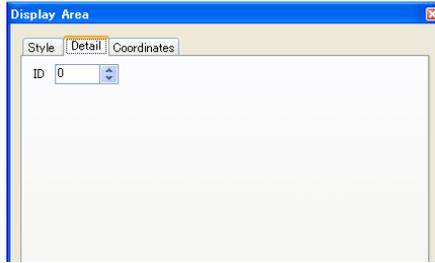
\*1 Example with transparent setting

When  Transparent] is checked in the [Display Area] dialog:



\*  Transparent] is available with display area parts that are not equipped with any graphics but with foreground color and background color only (for example, No. 0 in “Parts\_Area\_E.V7”).

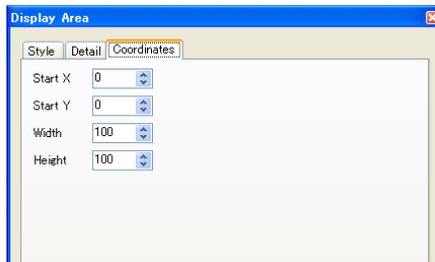
## Detail



ID

Set the same ID as specified the [Graphic Relay] dialog.  
For more information on the ID, refer to the Operation Manual.

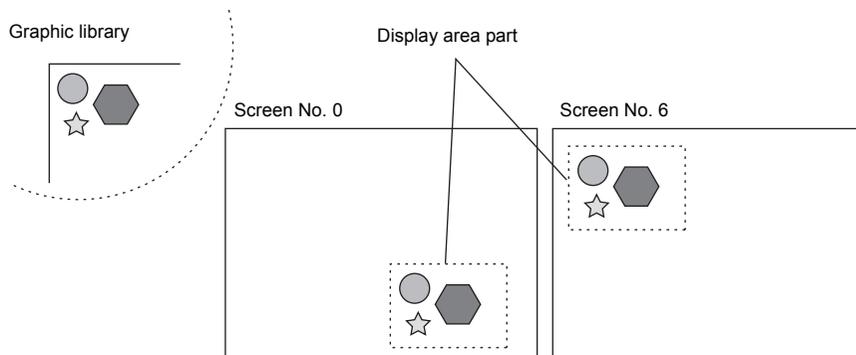
## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

## Offset position of the display area part

When using a display area part, the offset position in the graphic library fits to the upper left corner of the display area part on a screen.



Even if no display area part is placed, the graphic relay mode works normally. In this case, however, the graphic is displayed in alignment with its offset position in the graphic library at the upper left corner of the screen.

# 11.3 Graphic Display Details

## Graphic Colors

### Display Modes

When graphics are displayed on the screen, there are two types of display modes.

- XOR: Graphic colors are XORed with the colors of the base screen.
- REP: Original graphic colors are shown.

This is determined by the settings for the mode or parameters. Refer to the following table.

Graphic mode

		Graphic library edit	
		Graphic registration	
		Parameter Action: Replace	Parameter Action: Animation
Screen edit	Graphic mode		
	Designate: Internal		XOR
	Designate: External		XOR

Graphic relay mode

		Graphic library edit	
		Graphic registration	
		Parameter Action: Replace	Parameter Action: Animation
		Graphic relay mode	
Screen edit	Type: 1-Graphic		XOR
	Type: 2-Graphic	Mode: XOR	XOR
		Mode: REP	XOR

- \* When the graphic to be displayed is a [Paint] graphic, it cannot be displayed in XORed colors.
- \* When a pattern with [Transparent Color] is used, the graphic can be displayed with [Mode: XOR]. For more information, refer to page 11-18.

## XORed Colors

When graphic colors are XORed with the colors of the base screen, the following colors take effect. This color is called "XORed color." XORed colors of basic eight colors are shown below.

	Black	Blue	Red	Magenta	Green	Cyan	Yellow	White
Black	Black	Blue	Red	Magenta	Green	Cyan	Yellow	White
Blue	Blue	Black	Magenta	Red	Cyan	Green	White	Yellow
Red	Red	Magenta	Black	Blue	Yellow	White	Green	Cyan
Magenta	Magenta	Red	Blue	Black	White	Yellow	Cyan	Green
Green	Green	Cyan	Yellow	White	Black	Blue	Red	Magenta
Cyan	Cyan	Green	White	Yellow	Blue	Black	Magenta	Red
Yellow	Yellow	White	Green	Cyan	Red	Magenta	Black	Blue
White	White	Yellow	Cyan	Green	Magenta	Red	Blue	Black

### XOR operation

Each color has its identification code as given below:

64k-color		32k-color	
Color	Code HEX	Color	Code HEX
Black	0000	Black	0000
Blue	001F	Blue	001F
Red	F800	Red	7C00
Magenta	F81F	Magenta	7C1F
Green	07E0	Green	03E0
Cyan	07FF	Cyan	03FF
Yellow	FFE0	Yellow	7FE0
White	FFFF	White	7FFF

"A color is XORed with another color" means that each number of color codes are XORed.

Example 1: XOR color between blue and white (64k-color)

```
Blue  0000 0000 0001 1111 (001F)
White 1111 1111 1111 1111 (FFFF)
XOR ↓
Yellow 1111 1111 1110 0000 (FFE0)
```

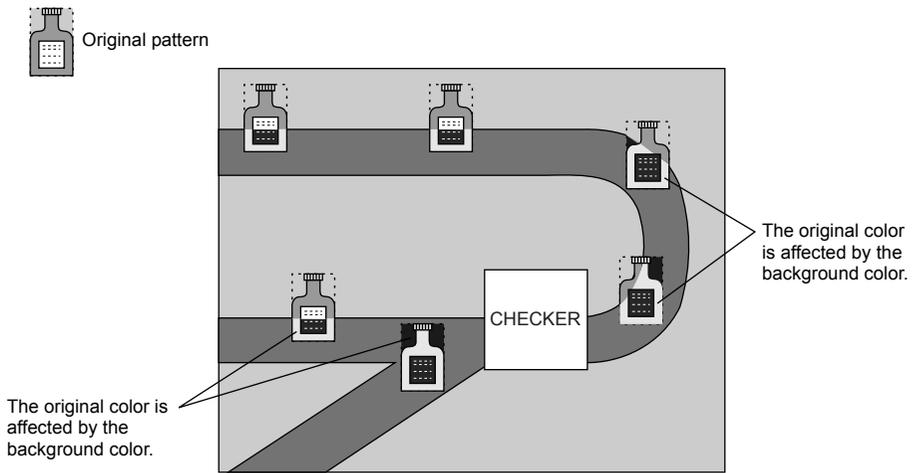
Example 2: XOR color between blue and white (32k-color)

```
Blue  0000 0000 0001 1111 (001F)
White 0111 1111 1111 1111 (7FFF)
XOR ↓
Yellow 0111 1111 1110 0000 (7FE0)
```

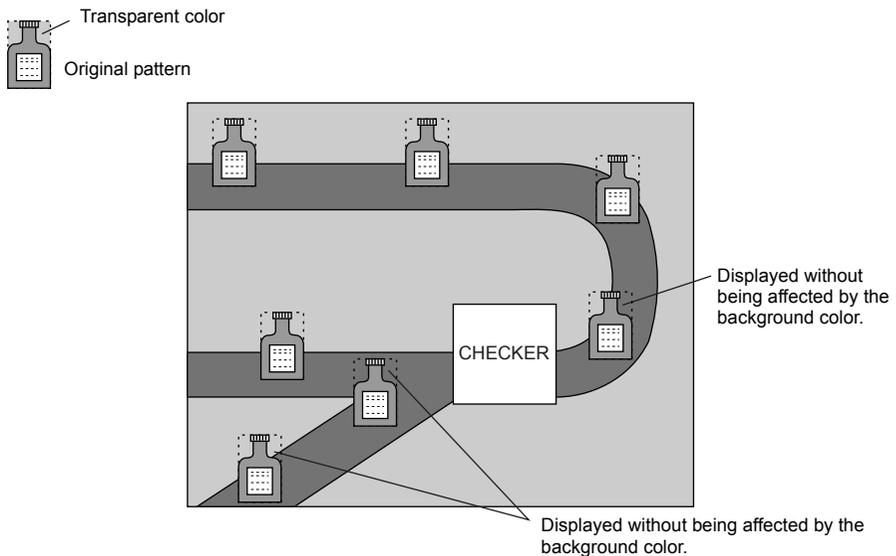
## Canceling XOR Display (Transparent Pattern)

Normally, because things like [Animate] that took place on the graphic display were all XORed, it was impossible to display colors on the screen in the same colors that you initially created them in (when the colors were other than black).

Additionally, because the XORed color was affected by the base color, when animation was performed on multiple background colors, the color changed whenever the background did.



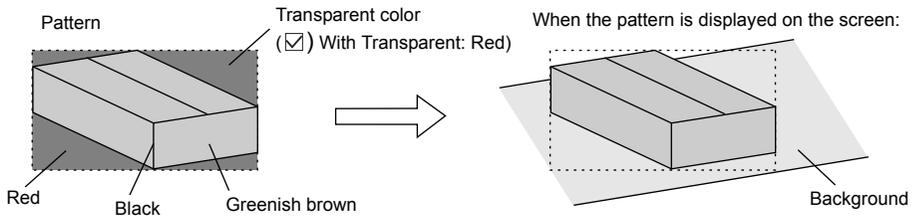
When a transparent pattern is used for animation, colors can be displayed just as they were originally created.



\* For this function, be sure to check [With Transparent] for the pattern.

## Pattern Edit

- You must set the color you do not want to show on the screen in the [Transparent Color Setting] dialog on the [Pattern Edit] window.
- Only one “transparent” color can be used for a single pattern.
- For a pattern like the one below, the perimeter color (red) is set as “transparent color.” Consequently, when this pattern is displayed on the screen, the red area becomes transparent, and the background color is displayed.



- For more information on the pattern editing procedure, refer to the Operation Manual.

### Notes

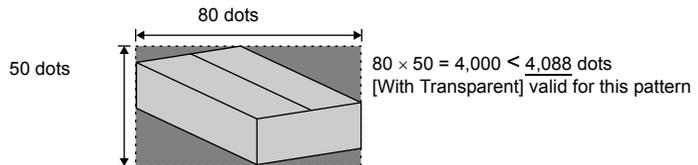
- Pattern edit

The following limitations apply when using a transparent color for a pattern.

	V812 / V810 / V808
1 pattern size *2	4,088 dots
Maximum per screen	128 *1
Total size per screen	512 k dots *1

\*1 This is the number including patterns, switches, and lamps with transparent color.

\*2 Pattern size = X size × Y size



If this limit is exceeded, the transparent color setting automatically becomes inactive and the pattern is displayed in the color that is XORed with the background color.

- Graphic mode

You must set [Designate: External] in the [Graphic] dialog. When you want to change and display several types of graphics, it is recommended that you place the display area parts.

- Graphic relay mode

- [Type: 1-Graphic]

When using a pattern with transparent color setting, you can display the pattern in the original colors that, otherwise, would be displayed in XORed colors.

- [Type: 2-Graphic], [Mode: XOR]

It is necessary to set [Type: 2-Graphic] when changing between two types of graphics.

In this case, be sure to set [XOR] for [Mode].

If you select [REP] for a pattern with a transparent color setting, there is a possibility that it will not be displayed normally.

- \* **When using patterns with transparent color setting for animations in the graphic or graphic relay mode, do not overlap the patterns with each other. Doing so may cause the display to become abnormal. It is recommended that you not overlap patterns with transparent color settings with each other than when using animation. When you animate a pattern with transparent color setting overlaying a pattern with transparent color setting created by drawing, there will be no problem with the display.**

# 12 Calendar

## Overview

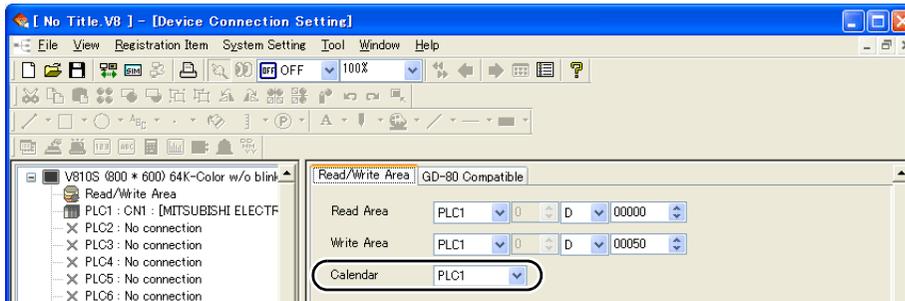
- The “calendar” part is used to show the “year, month, day, hour, minute, second, and day of the week” on the screen.
- The calendar display covers from 2006/1/1 to 2105/12/31 on the V8 series.
- On the V8 series, “2007/11/1 9:00:00” is displayed when the power is turned on immediately after purchase (before communication with a PLC with calendar function and before using the built-in calendar of the V8 series).



- Depending on the calendar data to be used, the setting and correction methods vary. Refer to the following table.

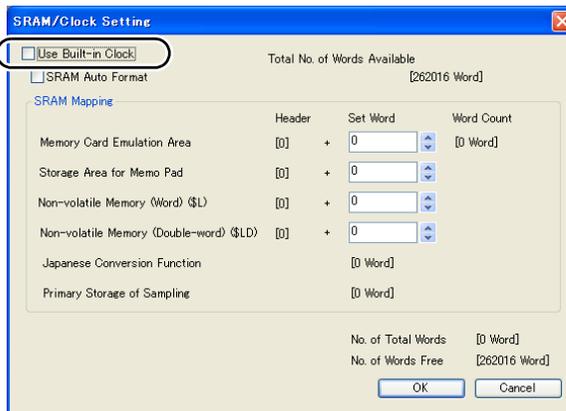
	PLC Calendar *1	V8 series Calendar *2	User Format *3
Part	Time display or Calendar	Time display or Calendar	Time display
Setting items	Device connection setting *1 [Calendar] and SRAM/clock setting *4 Built-in clock not used	SRAM/clock setting *4	Time display format setting
When the power is turned on	The PLC calendar *1 is automatically read and displayed.	The V8 series calendar is displayed.	Data in the memory set for the time display part is read and displayed.
RUN mode	V8 series CPU clock	V8 series CPU clock	
Auto correction	The PLC calendar *1 is automatically read when the date is changed.	–	–
Correction	Read area bit ON or macro: PLC_CLND *5	Main Menu screen or macro: SET_SYS_CLND	
Backup at power-off	×	○	×

- \*1 PLC calendar:                   Calendar that the PLC retains in the CPU  
 With the V8 series, 8-way communication is possible at the maximum. The PLC calendar data to be read must be determined.  
 The [Calendar] setting is possible at [System Setting] → [Device Connection Setting] → [Read/Write Area] tab window. When [PLC1] is set, the calendar of PLC1 is read; when [PLC3] is set, the calendar of PLC3 is read.



However, if the specified PLC is not equipped with a built-in calendar, it is regarded as “no calendar”.

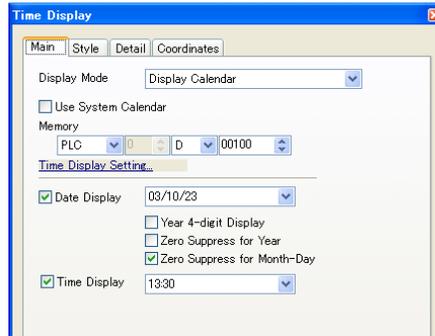
- \*2 V8 series calendar:           Calendar in the V8 series
- \*3 User format:                   Calendar in the user-defined format created in the PLC
- \*4 SRAM/Clock setting  
 This option should be set when using the built-in calendar in the V8 series.  
 The calendar data will be retained even when the power is turned off.



- Select [System Setting] → [Unit Setting] → [SRAM/Clock]. Check (☑) the box for [ Use Built-in Clock].
- Be sure to set a backup battery.  
 For more information on the battery, refer to the V8 Series Hardware Specifications Manual.
- \*5 For the macro command “PLC-CLND”, specify the PLC of which calendar data to be corrected in the macro command. When the read area bit is ON, the calendar data of the PLC set for [Calendar] will be corrected in the same way as \*1.

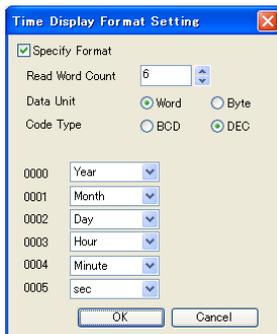
## 12.1 Time Display Setting Dialog

### Main



Display Mode (Display Calendar, Display Seconds in Timer Format)	Choose the time display format. This section explains the case where [Display Calendar] is selected for [Display Mode]. For information on [Display Seconds in Timer Format], refer to “10 Alarming” on page 10-37.
<input type="checkbox"/> Use System Calendar	When this box is checked ( <input checked="" type="checkbox"/> ) , data of the PLC calendar, the V8 series calendar or calendar memory is used for the calendar display. It is possible to select the display format and change the character size easily. When this box is not checked ( <input type="checkbox"/> ) , the calendar in the user-defined format is used.
Memory	This option becomes active when [ <input type="checkbox"/> Use System Calendar] is not checked. Specify the memory address from which data is read based on the time display setting.
Time Display Setting	This option becomes active when [ <input type="checkbox"/> Use System Calendar] is not checked. Set the calendar data format. For more information, refer to page 12-4.
<input type="checkbox"/> Date Display <input type="checkbox"/> Year 4-digit Display <input type="checkbox"/> Zero Suppress for Year <input type="checkbox"/> Zero Suppress for Month-Day <input type="checkbox"/> Time Display	Set the time format to be displayed on the screen. When each box is checked ( <input checked="" type="checkbox"/> ) , the option is selected. Zero suppression can be selected.

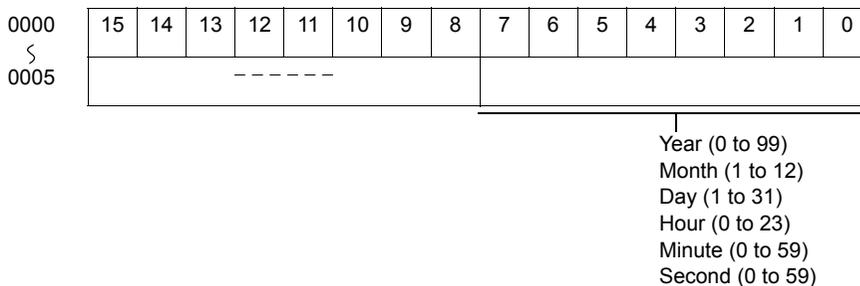
### Time Display Format Setting



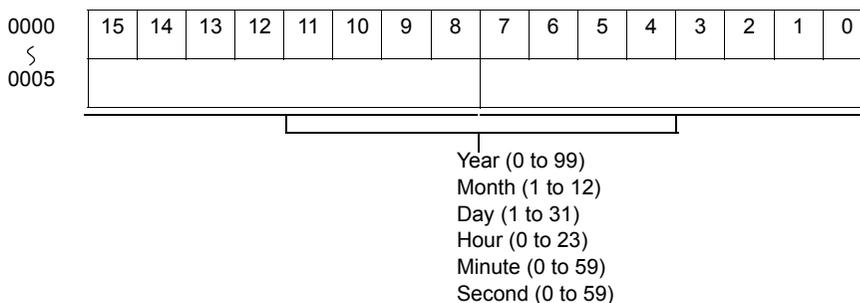
<input type="checkbox"/> Specify Format	Check this box ( <input checked="" type="checkbox"/> ) when <input type="checkbox"/> Use System Calendar is not checked on the [Main] tab window.
Read Word Count (1 to 6)	The specified words are read from the top address specified by [Memory] in the [Main] tab window.
Data Unit *1 (Word, Byte)	Select [Word] or [Byte] for data unit when reading data from the PLC.
Code Type (BCD, DEC)	Select [BCD] or [DEC] for code type when reading data from the PLC.
0000 to 0005	Specify the contents of data for each memory.

\*1 Memory allocation for each data unit

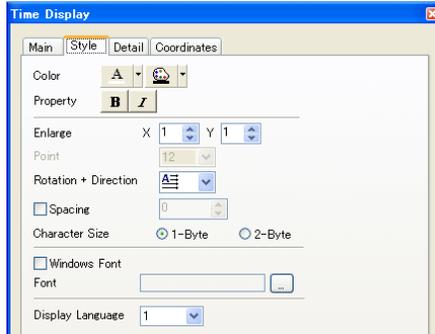
- Word



- Byte

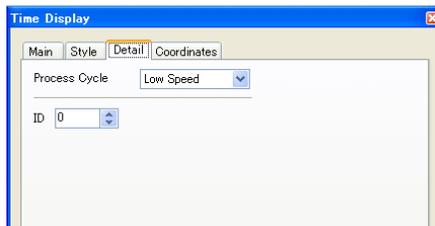


## Style



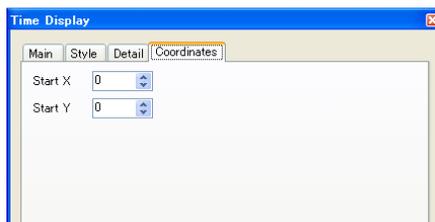
Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Enlarge	
Point	
Rotation + Direction	
<input type="checkbox"/> Spacing	
Character Size	
<input type="checkbox"/> Windows Font	
Display Language	

## Detail



Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to “Appendix 5 Process Cycle.”
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Coordinates



For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates.”

## Example with Time Display Format Setting

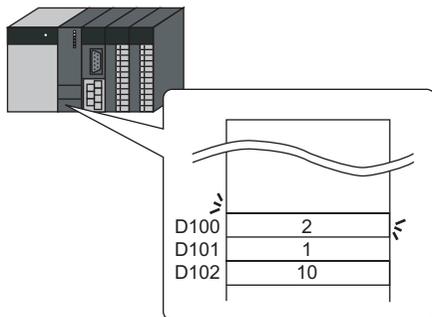
### <Example 1>

[Time Display] dialog

Display Mode: Display Calendar  
Memory: D100

[Time Display Format Setting]

Specify Format  
Read Word Count: 3  
Data Unit: Word  
Code Type: BCD  
0000: Month  
0001: Day  
0002: Hour



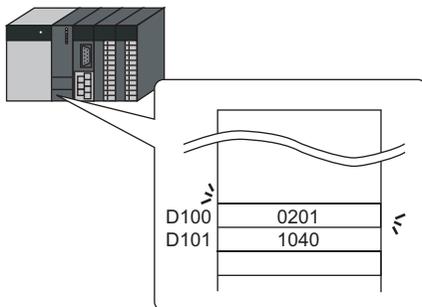
### <Example 2>

[Time Display] dialog

Display Mode: Display Calendar  
Memory: D100

[Time Display Format Setting]

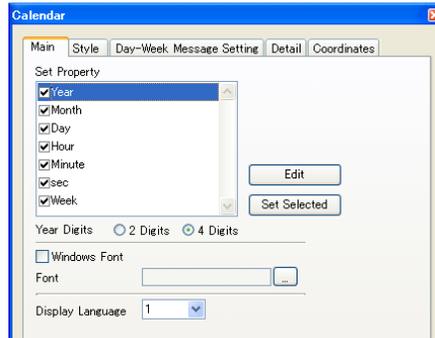
Specify Format  
Read Word Count: 2  
Data Unit: Byte  
Code Type: BCD  
0000: Month Day  
0001: Hour Minute



## 12.2 Calendar

### Setting Dialog

#### Main

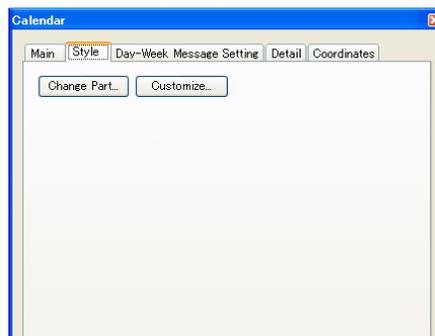


<input type="checkbox"/> Year <input type="checkbox"/> Month <input type="checkbox"/> Hour <input type="checkbox"/> Minute <input type="checkbox"/> sec <input type="checkbox"/> Week	<p>Check (<input checked="" type="checkbox"/>) the items to be displayed.          The year in Western calendar and the hour (0 to 24) are displayed.</p>
Edit	When you select an item above ( <input type="checkbox"/> Year to <input type="checkbox"/> Week) and click [Edit], the [Char. Prop.] dialog for the selected item is displayed.
Set Selected	Use this button when applying the same character properties to all the items.
Year Digits **1	This option becomes active when [Year] is checked ( <input checked="" type="checkbox"/> ). Select either two digits or four digits to indicate the year.
<input type="checkbox"/> Windows Font	For more information, refer to the Operation Manual.
Display Language	For more information, refer to "Appendix 3 Display Language."

\*1 Display example

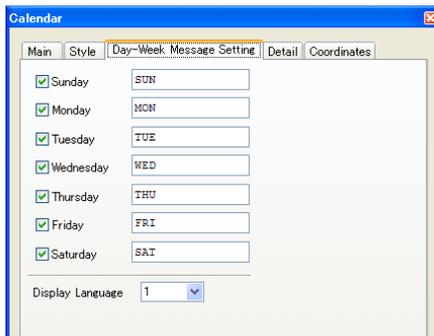
Two digits indicate the year 2007 as "07", four digits, as "2007".

#### Style



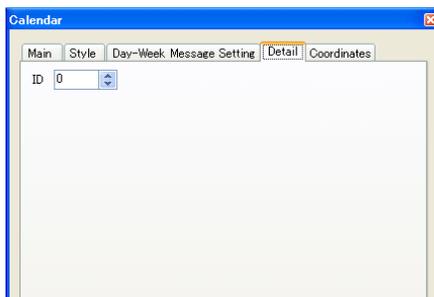
Change Part	For more information, refer to the Operation Manual.
Customize	For more information, refer to the Operation Manual.

## Day-Week Message Setting



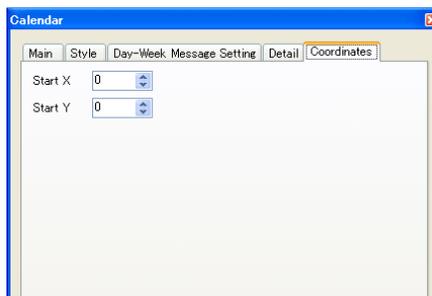
<input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday	This option becomes active when [Week] is checked ( <input checked="" type="checkbox"/> ) on the [Main] tab window. Check ( <input checked="" type="checkbox"/> ) the days of the week to be displayed. When the box is checked ( <input checked="" type="checkbox"/> ), text can be set for each day of the week. A maximum 13 one-byte characters can be used.
Display Language	For more information, refer to "Appendix 3 Display Language."

## Detail



ID	Set the ID. For more information on the ID, refer to the Operation Manual.
----	---

## Coordinates



For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

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## Notes

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- Calendar parts consist of areas of "hour, minute, and second," areas of "year, month, and day," and areas of two-level display. Additionally, there is an area for punctuation marks like ":" and "-".
- Calendar data is displayed in the following format on the computer.

<u>YY or YYYY</u>	<u>MM</u>	<u>DD</u>	<u>hh</u>	<u>mm</u>	<u>ss</u>	<u>SUN</u>
Year	Month	Day	Hour	Minute	Second	Day of the week (Displayed as registered)

## 12.3 Calendar Data Correction

Correct calendar data that has become different from the actual time.

The setting method varies depending on the part selected.

Check the table on page 12-1 and correct the data as needed.

### Correcting in the Read Area

#### PLC with Calendar Function

1. Refer to the PLC manual and correct time-data in the calendar memory of the PLC.
2. Set bit 11 (calendar setting) (0 → 1) of read area “n” that is set in the [Device Connection Setting] dialog.  
The V8 series reads the calendar data from the PLC.

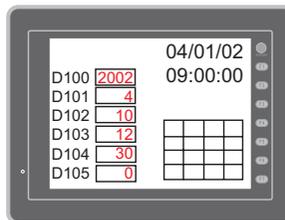
#### PLC without Calendar Function

1. Write correct time-data in the memory specified for [Calendar] in the [Device Connection Setting] dialog.
2. Set bit 11 (calendar setting) (0 → 1) of read area “n” that is set in the [Device Connection Setting] dialog.  
The set calendar data is read.

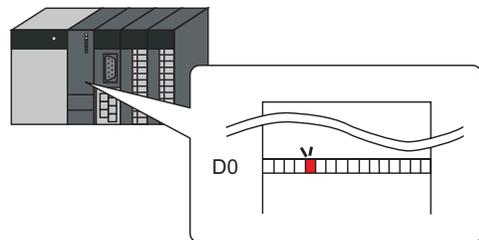
#### <Example>

Calendar memory: D100 to 106  
Read area D0 to 2

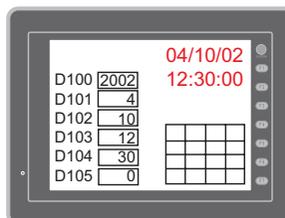
- (1) Set data.
- D100 = 2002
  - D101 = 4
  - D102 = 10
  - D103 = 12
  - D104 = 30
  - D105 = 0



- (2) Read area  
Set D0 bit 11.



Calendar readout



## Correcting using Macro

Using the macro command "PLC\_CLND", the calendar data can be corrected.

1. According to the macro format, set data for "year, month, day, hour, minute, and second" correctly at the relevant memory address.
2. Execute the PLC\_CLND macro command as the ON macro of a switch, etc.  
The calendar data is written in the PLC.  
The set calendar data is read.

### <Example>

- (1) Set data.  
Set 2007/10/15 20:00:00.

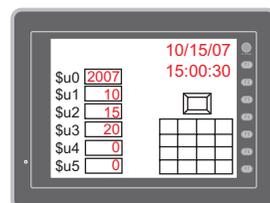
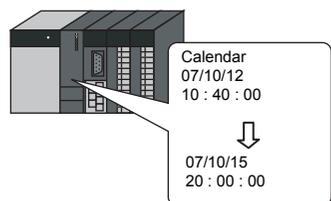
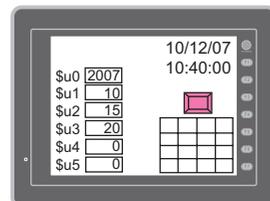
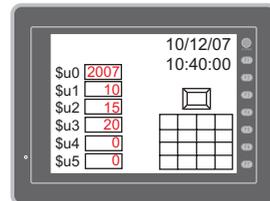
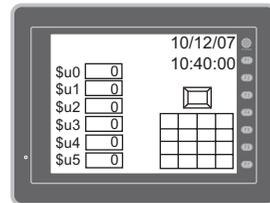
```
$u0000 = 2007 (W)
$u0001 = 10 (W)
$u0002 = 15 (W)
$u0003 = 20 (W)
$u0004 = 0 (W)
$u0005 = 0 (W)
```

- (2) Execute the macro command.  
Set the calendar of PLC1, port 1 to 2007/10/15 20:00:00.

```
[ON Macro Edit]
$u100 = 1 (W) (Port No.)
PLC_CLND 1 PLC1 $u100 $u0000
```

Rewrite the PLC calendar.

Calendar readout



## **Correcting on the Main Menu Screen**

---

Calendar data can be set on the "SRAM/Clock" screen that can be displayed from the Main Menu screen.

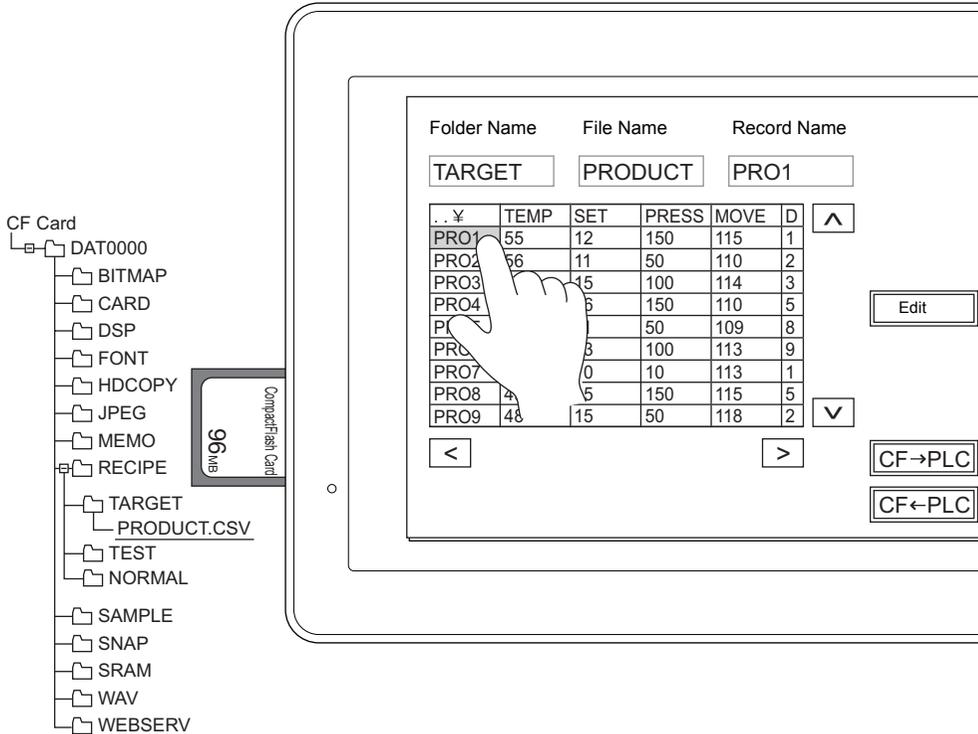
For more information on the setting procedure, refer to the V8 Hardware Specifications Manual.

# 13 Recipe Mode

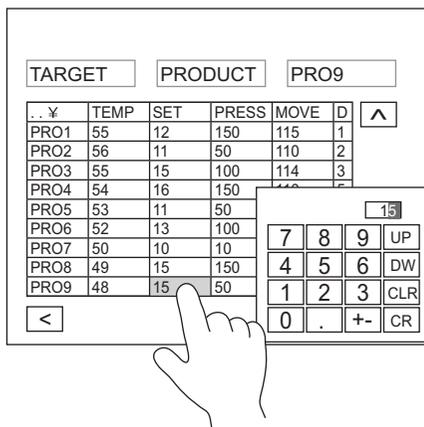
## Overview

Recipe mode is a data management system for more convenient and simple CSV file processing.

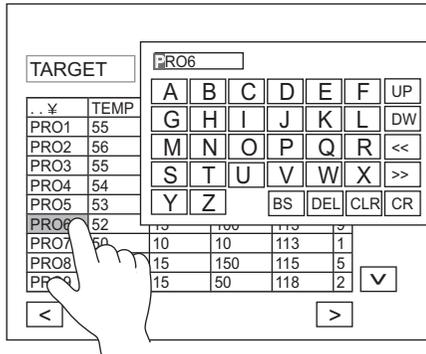
- Display  
 CSV file or data can be displayed in a tabular list form like Excel.



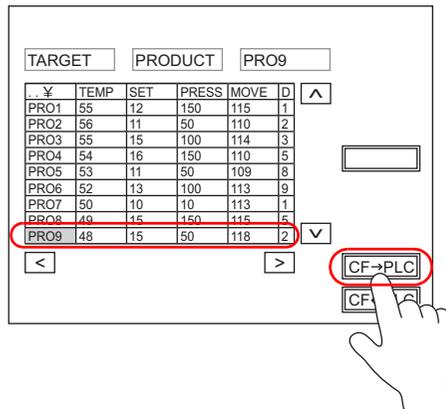
- Edit function  
 Data in the CSV file can be edited directly using the keypad.



Not only data but also the title or record name can be edited.

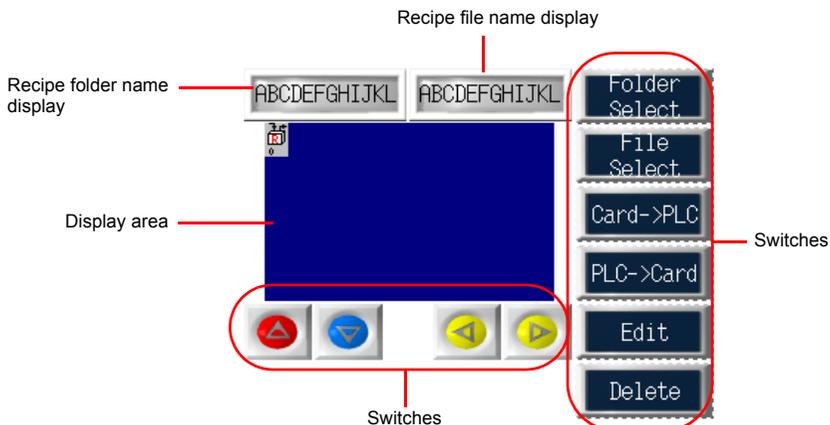


- Files or records can be selected by pressing on the sheet so a batch of data can be transferred with ease.



## Configuration

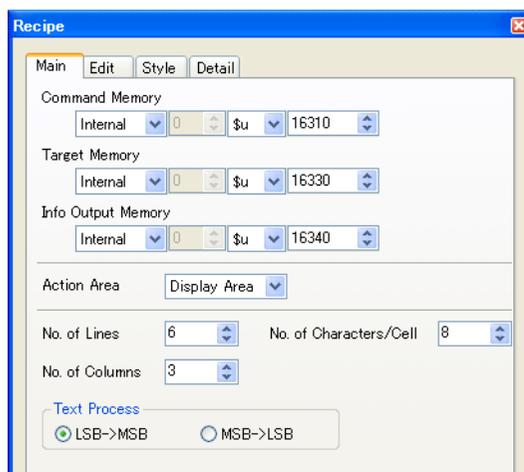
The recipe mode components are shown below.



## Setting Dialog

### Recipe

#### Main



Command Memory	This memory address controls the recipe mode. 11 words are used consecutively. For more information, refer to "Command Memory" (page 13-7).
Target Memory	This is the memory address from, or to which, CSV file data is transferred.*1 CSV file → Target Memory Target Memory → CSV file
Info Output Memory	This is the memory address that stores the recipe mode status. 29 words are used consecutively. For more information, refer to "Info Output Memory."
Action Area (Display Area, Switch)	Choose the area where the data on CF card is to be displayed. For more information, refer to page 13-12.
No. of Lines (1 to 30)	This setting is valid when [Action Area: Display Area] is selected. Specify the number of lines of data to be displayed. When displaying more lines than the specified number, use the scroll switches [DW] and [UP].
No. of Columns (1 to 100)	This setting is valid when [Action Area: Display Area] is selected and [ Hide Title/Data Area ] is not checked. Specify the number of columns of data to be displayed in the display area. When displaying more columns than the specified number, use the scroll switches [RGT] and [LFT].
Characters/Cell (1 to 100)	This setting is valid when [Action Area: Display Area] is selected and [ Hide Title/Data Area ] is not checked. Specify the number of one-byte characters to be displayed in a cell. When displaying more characters than the specified number in a cell, only the specified number of characters are displayed.

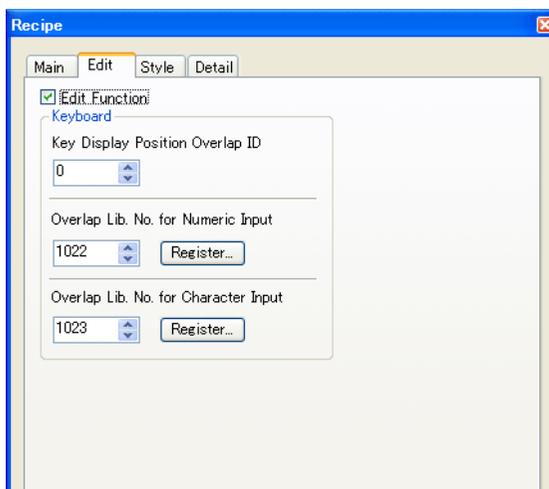
Text Process (LSB → MSB / MSB → LSB)	<p>Set the recognition of MSB and LSB in one word.</p> <p>[LSB → MSB] <sup>15</sup> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>MSB</td><td>LSB</td></tr></table>  <small>2nd byte 1st byte</small></p> <p>[MSB → LSB] <sup>15</sup> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>LSB</td><td>MSB</td></tr></table>  <small>1st byte 2nd byte</small></p>	MSB	LSB	LSB	MSB
MSB	LSB				
LSB	MSB				

\*1 The number of transferable words is limited to 4,096. Words exceeding this limit are not transferred. Check [Info Output Memory] "n + 28" (page 13-10) to know whether the words to be transferred is more than 4,096 or not.

### Edit

Choose this setting when using the edit function of recipe mode.

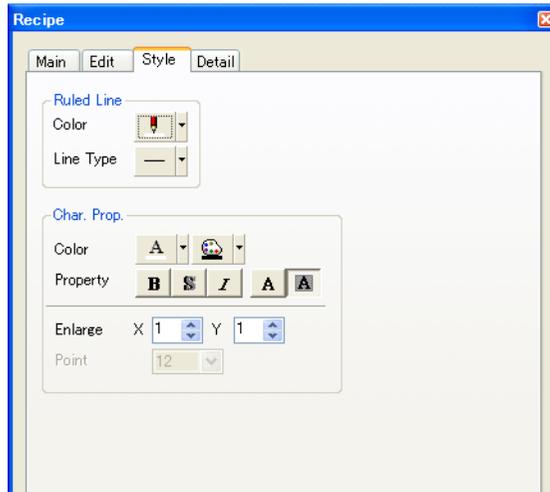
When using the edit function, you can edit the CSV file data, the CSV file name or record name.



<input type="checkbox"/> Edit Function	Choose this setting when using the edit function. The following setting items become active.
Key Display Position Overlap ID	Specify the overlap ID to be used for showing the keyboard.
Overlap Lib. No. for Numeric Input	Specify the overlap library number of the keypad to be used for inputting numerical data. Pressing the [Register] button *1 registers the keypad in the overlap library.
Overlap Lib. No. for Character Input	Specify the overlap library number of the keyboard to be used for inputting characters. Pressing the [Register] button *1 registers the keyboard in the overlap library.

\*1 If you don't press the [Register] button, the keypad or keyboard is not registered in the overlap library.

## Style



Ruled Line Color Line Type	This setting is valid when [Action Area: Display Area] is selected and [ <input type="checkbox"/> Hide Title/Data Area] is not checked. It is possible to change the color and line type of the ruled lines.
Char. Prop. Color Property Enlarge *1 *2 Point	For more information, refer to "Appendix 4 Styles and Coordinates."

\*1 Depending on the character properties, cell size is determined.

Height: [Enlarge: Y] × 20 dots

Width: Depends on [Enlarge: X], [Property:  Italic], [Characters/Cell]

Automatic calculation from [Enlarge: X], [Property: Italic], [Characters/Cell]

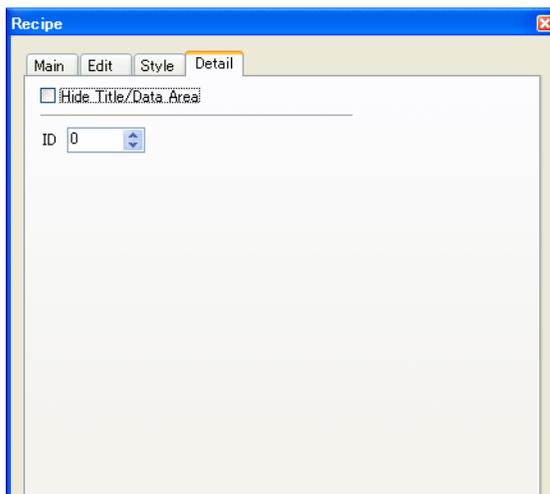


Automatic calculation from  [Enlarge: /Y]

NORMAL\			
TARGET\			
TEST\			

\*2 If the size necessary for recipe mode (cell size × number of lines × number of columns) is greater than that of the display area, data that can be held in the display area part is displayed. To bring hidden data into view, use the scroll switches [DW] and [UP].

## Detail



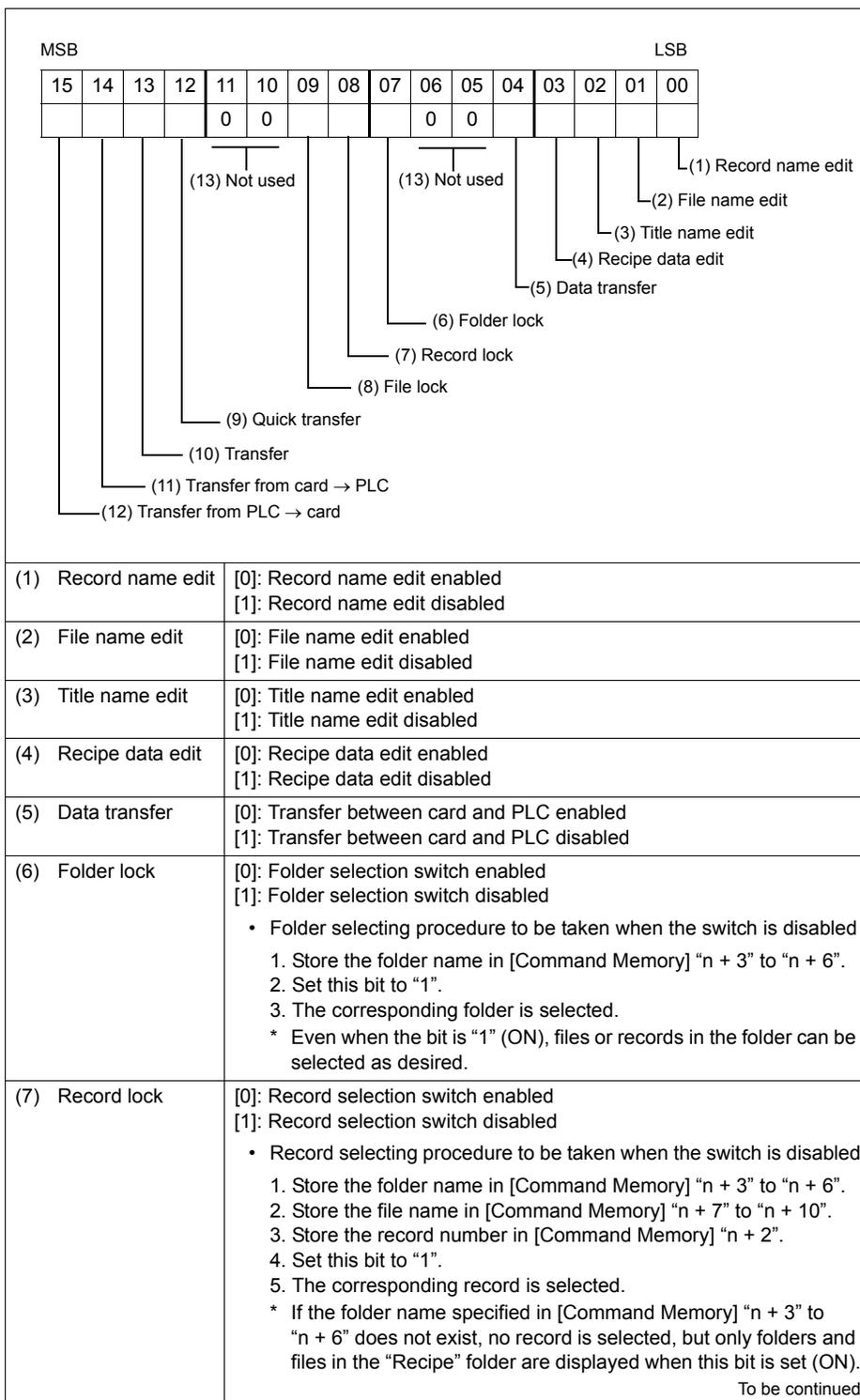
<input type="checkbox"/> Hide Title/Data Area	<p>This setting is valid when [Action Area: Display Area] is selected. Set data to be displayed in the display area.</p> <ul style="list-style-type: none"> <li>• Unchecked The folder name, file name, record name, title, and recipe data are displayed. Example: Folder name display</li> </ul> <table border="1"> <tr><td></td><td></td><td></td><td></td></tr> <tr><td>NORMAL\</td><td></td><td></td><td></td></tr> <tr><td>TARGET\</td><td></td><td></td><td></td></tr> <tr><td>TEST0\</td><td></td><td></td><td></td></tr> <tr><td>REC0000</td><td></td><td></td><td></td></tr> <tr><td>REC0001</td><td></td><td></td><td></td></tr> </table> <ul style="list-style-type: none"> <li>• Checked The folder name, file name, and record name are displayed. Example: Folder name display</li> </ul> <table border="1"> <tr><td>NORMAL\ TARET\ TEST REC0000</td></tr> </table>					NORMAL\				TARGET\				TEST0\				REC0000				REC0001				NORMAL\ TARET\ TEST REC0000
NORMAL\																										
TARGET\																										
TEST0\																										
REC0000																										
REC0001																										
NORMAL\ TARET\ TEST REC0000																										
ID	Set the ID. For more information on the ID, refer to the Operation Manual.																									

## Command Memory

The command memory controls recipe data. 11 words are occupied consecutively.

Memory	Contents
n	For control * For more information, refer to “n : For control” page13-8.
n + 1	File number designation Used to designate a file from the PLC by not using a switch on the screen. This is valid when the following conditions are satisfied. <ul style="list-style-type: none"> <li>• CSV file “RECxxxx.CSV”</li> <li>• Bit 9 (file lock) or bit 8 (record lock) of “n” is set to “1”.</li> </ul>
n + 2	Record number designation Used to designate a record from the PLC by not using a switch on the screen. This is valid when the following conditions are satisfied. <ul style="list-style-type: none"> <li>• CSV file “RECxxxx.CSV”</li> <li>• Bit 8 (record lock) of “n” is set to “1”.</li> </ul>
n + 3 to n + 6	Folder name designation (8 one-byte characters: 4 words) Used to designate a folder from the PLC by not using a switch on the screen. This is valid when the following conditions are satisfied. <ul style="list-style-type: none"> <li>• CSV file other than “RECxxxx.CSV”</li> <li>• Bit 7 (folder lock) of “n” is set to “1”.</li> <li>• Bit 8 (record lock) of “n” is set to “1”.</li> <li>• Bit 9 (file lock) of “n” is set to “1”.</li> </ul>
n + 7 to n + 10	Folder name designation (8 one-byte characters: 4 words) Used to designate a file name from the PLC by not using a switch on the screen. This is valid when the following conditions are satisfied. <ul style="list-style-type: none"> <li>• CSV file other than “RECxxxx.CSV”</li> <li>• Bit 9 (file lock) or bit 8 (record lock) of “n” is set to “1”.</li> </ul>

- n : For control



	<ul style="list-style-type: none"> <li>* If the file name specified in [Command Memory] "n + 7" to "n + 10" does not exist, no record is selected, but only folders and files in the folder specified in "n + 3" to "n + 6" are displayed.</li> <li>* When this bit is set (ON), all selection switches do not work.</li> </ul>
(8) File lock	<p>[0]: File selection switch enabled [1]: File selection switch disabled</p> <ul style="list-style-type: none"> <li>• File selecting procedure to be taken when the switch is disabled <ol style="list-style-type: none"> <li>1. Store the folder name in [Command Memory] "n + 3" to "n + 6".</li> <li>2. Store the file name in [Command Memory] "n + 7" to "n + 10".</li> <li>3. Set this bit to "1".</li> <li>4. When this bit is set (ON), the corresponding file is selected.</li> </ol> </li> <li>* If the folder name specified in [Command Memory] "n+3" to "n + 6" does not exist, the file "RECxxxx.CSV" specified in "n + 1" is selected. If the file "RECxxxx.CSV" does not exist, nothing is selected, and only folders and files in the "Recipe" folder are displayed.</li> <li>* When this bit is set (ON), records can be selected from the selected file. However, the file selection and folder selection switches are disabled.</li> </ul>
(9) Quick transfer	When bit 14 or bit 15 is set to "1" with this bit ON, data is transferred on completion of record selection in MONITOUCH.
(10) Transfer mode	<p>[0]: By record basis When records exist, a record is transferred.</p> <p>[1]: By file basis The entire data of a file is transferred. Even if a record is selected, the entire data of the file including the record is transferred.</p>
(11) Transfer from card → PLC	<p>At the leading edge of this bit [0 → 1], data is transferred from the card to the target memory.</p> <p>When a record is selected and bit 13 is reset (OFF), one record is transferred to the target memory.</p> <p>When no record is selected, or when a record is selected and bit 13 is set (ON), the entire data of the file is transferred to the target memory.</p> <p>On completion of data transfer, bit 14 of [Info Output Memory] "n + 5" is set (ON). Reset this bit to "0" after the completion of data transfer.</p>
(12) Transfer from PLC → card	<p>At the leading edge of this bit [0 → 1], data is transferred from the target memory to the card.</p> <p>When a record is selected and bit 13 is reset (OFF), one record is transferred from the target memory to the card.</p> <p>When no record is selected, or a record is selected and bit 13 is set (ON), the entire data of the file is transferred from the target memory to the card.</p> <p>On completion of data transfer, bit 15 of [Info Output Memory] "n + 5" is set (ON). Reset this bit to "0" after the completion of data transfer.</p>
(13) Not used	This bit must be "0".

## Info Output Memory

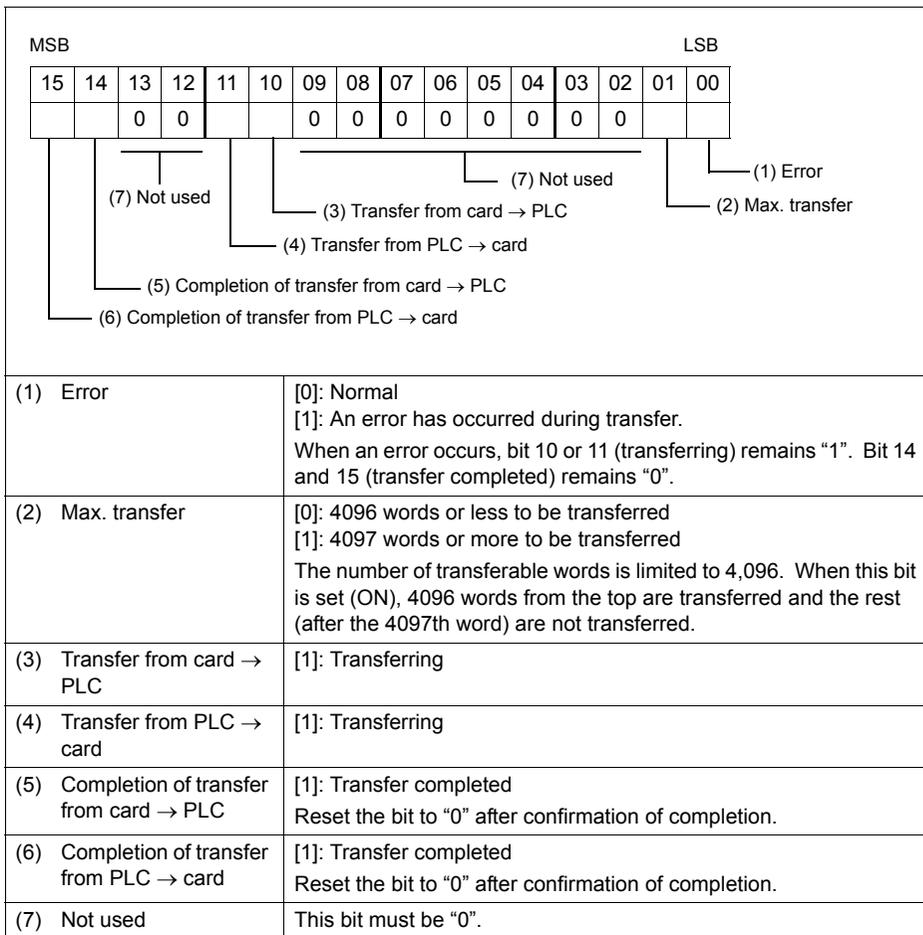
This is the memory address that outputs the recipe mode status. 29 words are occupied consecutively.

Memory	Contents								
n	Card status * For more information, refer to page 13-10.								
n + 1	Error number When bit 0 of "n" is set to "1", the error number is stored. The following error numbers indicate the following content: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Error No.</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>CF card not installed or access stopped</td> </tr> <tr> <td>12</td> <td>CF card writing error</td> </tr> <tr> <td>16</td> <td>CF card reading error</td> </tr> </tbody> </table>	Error No.	Contents	4	CF card not installed or access stopped	12	CF card writing error	16	CF card reading error
Error No.	Contents								
4	CF card not installed or access stopped								
12	CF card writing error								
16	CF card reading error								
n + 2	File number Valid when CSV file is "RECxxxx.CSV". The selected or transferred file number is stored.								
n + 3	Record number The selected or transferred record number is stored.								
n + 4 to n + 7	Folder name (8 one-byte characters: 4 words) Valid when CSV file is other than "RECxxxx.CSV". The folder name that contains the selected file or record is stored.								
n + 8 to n + 11	File name (8 one-byte characters: 4 words) Valid when CSV file is other than "RECxxxx.CSV". The selected or transferred file name is stored.								
n + 12 to n + 27	Record name (32 one-byte characters: 16 words) Valid when CSV file is other than "RECxxxx.CSV". The selected or transferred record name is stored.								
n + 28	Transfer mode The status of data transfer between the card $\leftrightarrow$ the target memory is stored. * For more information, refer to page 13-11.								

- n : Card status

MSB															LSB		
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
(2) Not used													(1) CF card error				
(1) CF card error				[0]: Normal [1]: Error													
(2) Not used				This bit must be "0".													

- n + 28 : Transfer mode

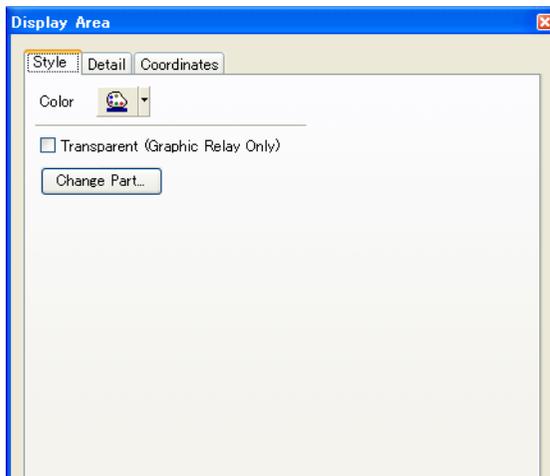


## Display Area

A display area for the recipe mode shows folders in the CF card, CSV file names, or recipe data and record names in the CSV files. Use display area parts to display such data.

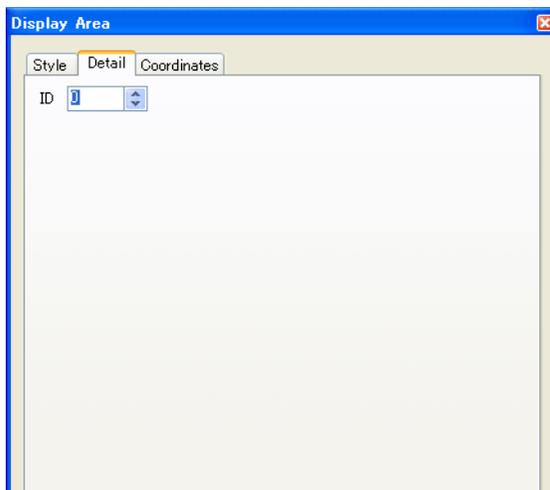
\*  Reverse Definition of Lines/Columns in the [Attribute Setting] dialog is not valid for display areas in recipe mode. (This is valid for macro operation only.)

### Style



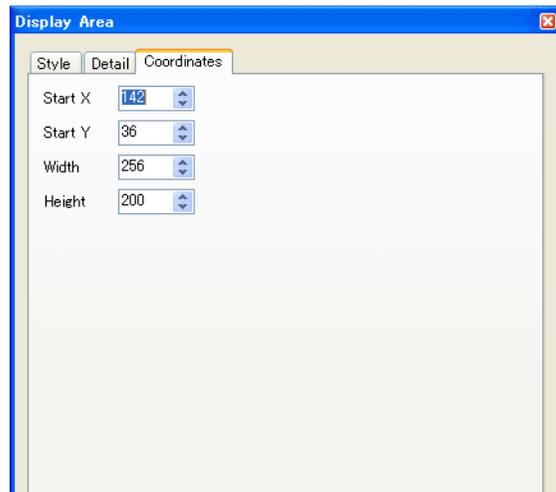
Color	Specify the color for the display area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified in the [Recipe] dialog. For more information on the ID, refer to the Operation Manual.
----	--

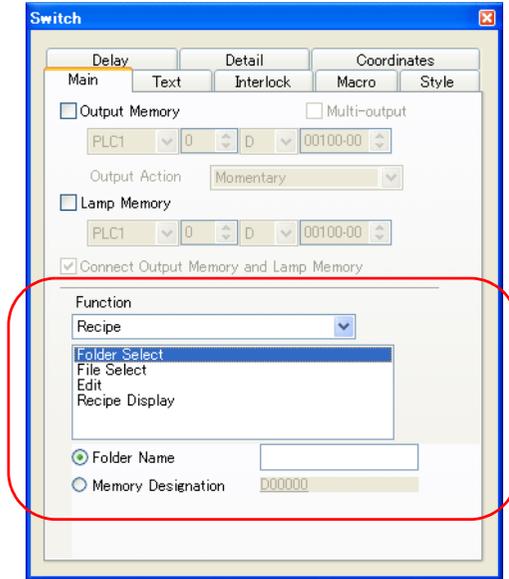
## Coordinates



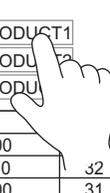
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

## Switch

Eleven switches in total are available with the recipe mode. Four are dedicated to recipe mode and seven are commonly used for other functions.

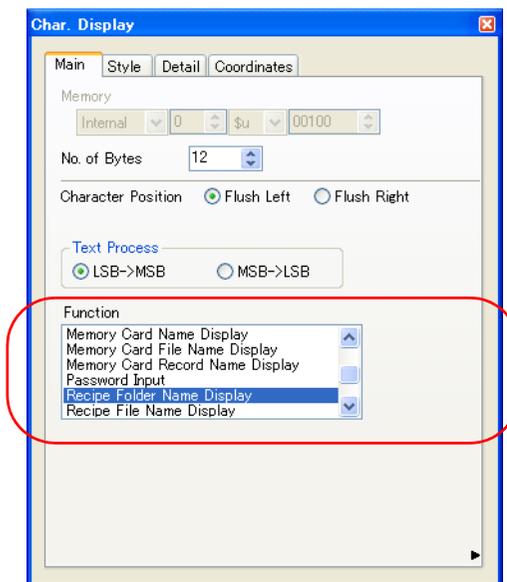


Function		Setting Item	Contents
Recipe	Folder Select	Folder name, Memory designation  (Character properties depend on the settings in the [Recipe] dialog. Enlargement factor is fixed to "1".)	<p>Data specified for [Folder Name] or data in the memory specified for [Memory Designation] is automatically displayed on the switch. When the switch is pressed, the folder indicated on the switch is selected and its contents are displayed on the screen.</p> <p>Pressing the [TARGET] switch brings up the contents of the TARGET folder.</p> <p>* If the folder indicated on the switch does not exist, the contents of the root folder (\RECIPE) are displayed.</p>

Function	Setting Item	Contents																																																		
Recipe	<p>File Select</p> <p>File name, Memory designation</p> <p>(Character properties depend on the setting in the [Recipe] dialog. Enlargement factor is fixed to "1".)</p>	<p>Data specified for [File Name] or data in the memory specified for [Memory Designation] is automatically displayed on the switch.</p> <p>When the switch is pressed, the file indicated on the switch is selected and its contents are displayed on the screen.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>TARGET PRODUCT1</p> <p>TEST PRODUCT2</p> <p>NORMAL PRODUCT3</p> </div> <div> <p>Pressing the switch selects the file and brings up the contents of the file.</p>  </div> </div> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>.. ¥</td> <td>#1</td> <td></td> <td>#3</td> </tr> <tr> <td>#1</td> <td>100</td> <td></td> <td>5550</td> </tr> <tr> <td>#2</td> <td>110</td> <td>32</td> <td>5540</td> </tr> <tr> <td>#3</td> <td>100</td> <td>31</td> <td>5400</td> </tr> <tr> <td>#4</td> <td>120</td> <td>30</td> <td>5510</td> </tr> <tr> <td>#5</td> <td>100</td> <td>29</td> <td>5520</td> </tr> <tr> <td>#6</td> <td>130</td> <td>28</td> <td>5560</td> </tr> </table> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>&lt;</span> <div style="text-align: center;"> <p>Folder TARGET</p> <p>File PRODUCT1</p> </div> <span>&gt;</span> </div> <p>* If the file indicated on the switch does not exist in the folder (or if a different folder is selected), the switch does not work. (An error buzzer sounds.)</p>	.. ¥	#1		#3	#1	100		5550	#2	110	32	5540	#3	100	31	5400	#4	120	30	5510	#5	100	29	5520	#6	130	28	5560																						
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#3	100	31	5400																																																	
#4	120	30	5510																																																	
#5	100	29	5520																																																	
#6	130	28	5560																																																	
	Edit	<p>The [Edit] switch is used for editing CSV file data, CSV file names, and record names or titles (only when titles or record names are used). Press on the data or name to be edited. The selected cell is displayed in reverse video. When the [Edit] switch is pressed, the switch is turned on and a keypad for editing (overlap display) appears. When a value is keyed in and the [CR] key is pressed, it is input and the keypad disappears.</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 20px;"> <p>PRODUCT PRO9</p> </div> </div> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>:MP</td> <td>SET</td> <td>PRESS</td> <td>MOVE</td> <td>D</td> </tr> <tr> <td>12</td> <td>150</td> <td>115</td> <td>1</td> <td>1</td> </tr> <tr> <td>11</td> <td>50</td> <td>110</td> <td>2</td> <td>2</td> </tr> <tr> <td>15</td> <td>100</td> <td>114</td> <td>3</td> <td>3</td> </tr> <tr> <td>16</td> <td>150</td> <td>110</td> <td>5</td> <td>5</td> </tr> <tr> <td>11</td> <td>50</td> <td>109</td> <td>8</td> <td>8</td> </tr> <tr> <td>13</td> <td>100</td> <td>113</td> <td>9</td> <td>9</td> </tr> <tr> <td>10</td> <td>10</td> <td>113</td> <td>1</td> <td>1</td> </tr> <tr> <td>15</td> <td>150</td> <td>115</td> <td>5</td> <td>5</td> </tr> <tr> <td>15</td> <td>50</td> <td>118</td> <td>2</td> <td>2</td> </tr> </table> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>&gt;</span> <div style="text-align: center;"> <p>Edit</p> </div> </div> <p>To quit editing, press the [Edit] switch to turn it off.</p>	:MP	SET	PRESS	MOVE	D	12	150	115	1	1	11	50	110	2	2	15	100	114	3	3	16	150	110	5	5	11	50	109	8	8	13	100	113	9	9	10	10	113	1	1	15	150	115	5	5	15	50	118	2	2
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15	50	118	2	2																																																

Function		Setting Item	Contents
Recipe	Recipe Display	Display order (0 to 23)  (Character properties depend on the settings in the [Recipe] dialog. Enlargement factor is fixed to "1".)	<p>This is valid when [Action Area: Switch] is selected.</p> <p>CF card folders, CSV file names, and record names are displayed on switches instead of display areas. When the [Recipe Display] switch is pressed, the folder, file, or record indicated on the switch is selected.</p> <p>Each time a switch is pressed, the names indicated on the switches change accordingly.</p> <p>Depending on [Display Order] set for each switch, the positions where each folder, file, and record is displayed are determined.</p> <p>A maximum of 24 switches can be placed for one recipe mode.</p>
Memory Card	Transfer Card -> PLC	-	This switch is active when a record or a file has been chosen. This switch transfers the selected record or file data from the CF card to the target memory.
	Transfer PLC -> Card	-	This switch is active when a record or a file has been chosen. This switch transfers the selected record or file data from the target memory to the CF card.
Entry	LFT	-	This switch is available while CSV file data is displayed in the display area. Data scrolls to the left.
	RGT	-	This switch is available while CSV file data is displayed in the display area. Data scrolls to the right.
	UP	-	This switch scrolls up the display of folders, files, records, or CSV file data.
	DW	-	This switch scrolls down the display of folders, files, records, or CSV file data.
JPEG	File Delete	-	This switch deletes the selected recipe file. (Valid with [Action Area: Display Area] only) * When data in the selected file is displayed, no switch operation is acceptable (an error buzzer sounds).

## Char. Display



Function	Contents
Recipe Folder Name Display	The currently selected folder name is displayed.
Recipe File Name Display	The currently selected file name is displayed.

\* Record name display

[Recipe Record Name Display] is not available with the character display function.

To show the currently selected record name, place the data assigned to [Info Output Memory] ("n + 12" to "n + 27").

## Attribute

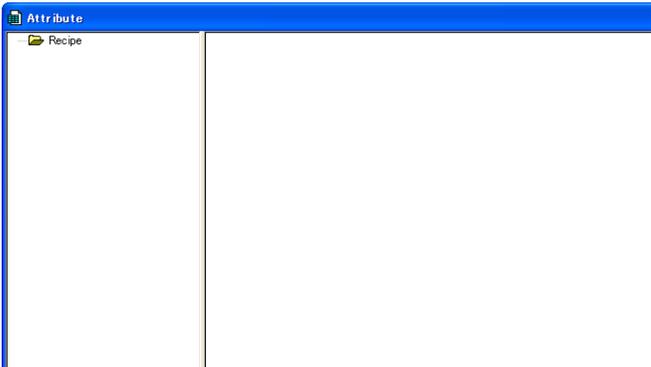
When handling a CSV file, be sure to set [Attribute].

Function and Setting		CSV File Name	Attribute	
Recipe mode		RECxxxx.CSV xxxxxxx.CSV	Recipe	
Macro *1	LD_RECIPE	RECxxxx.CSV T 0000 to 9999  (Number designation)		
	LD_RECIPE2			
	LD_RECIPESEL			
	LD_RECIPESEL2			
	SV_RECIPE			
	SV_RECIPE2			
	SV_RECIPESEL			
	SV_RECIPESEL2			
	RD_RECIPE_FILE			xxxxxxx.CSV T One-byte numerals or uppercase  (Name designation)
	RD_RECIPE_LINE			
	RD_RECIPE_COLUMN			
	WR_RECIPE_FILE			
	WR_RECIPE_LINE			
	WR_RECIPE_COLUMN			

\*1 When using a macro command in the recipe mode, ensure that the CSV file name is correctly specified. Note that the available file names, storage targets, or designation methods vary depending on the macro command. For more information, refer to the Macro Reference Manual.

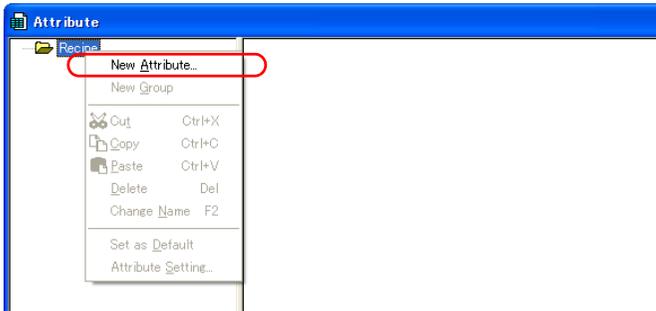
\*2 A maximum of 256 (No. 0 to 255) attributes can be set.

## Starting

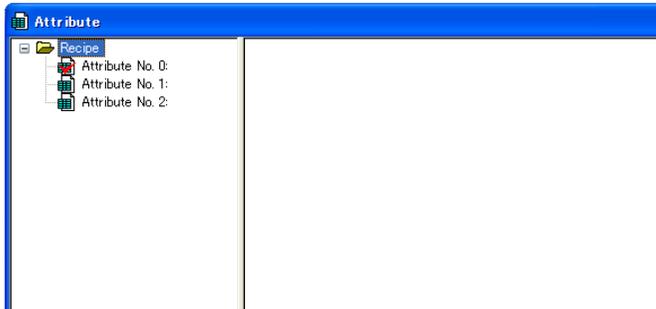
Step 1	<p>Select [System Setting] → [Attribute Setting]. The attribute window opens.</p> 
--------	--

Step 2

- When creating a new attribute:  
Right-click on the "Recipe" folder, and select [New Attribute].

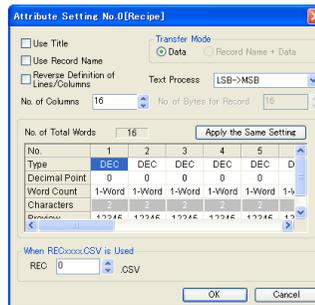


- When selecting an existing attribute:  
Double-click on the desired attribute number.



Step 3

The [Attribute Setting] dialog is displayed.



Step 4

Make the setting on the [Attribute Setting] dialog. Refer to page 13-20.

## Ending

Click the icon on the top left corner of the window and click [Close] or click the [x] button at the top right corner.

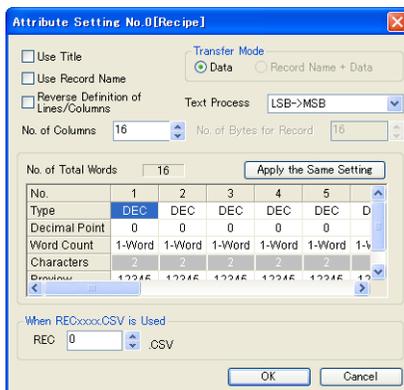


OR



## Setting

### Attribute setting



<input type="checkbox"/> Use Title *1	<p>Determine how to handle the first line in the CSV file.</p> <ul style="list-style-type: none"> <li> <b>Unchecked</b>                      The first line in the CSV file is handled as "data."                      CSV file                     <table border="1" style="display: inline-table; margin: 5px;"> <tr><td>6000</td><td>15</td><td>200</td><td></td></tr> <tr><td>6100</td><td>15</td><td>201</td><td></td></tr> <tr><td>6200</td><td>20</td><td>202</td><td></td></tr> <tr><td>6300</td><td>20</td><td>203</td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table>                     Display on MONITOUCH                     <table border="1" style="display: inline-table; margin: 5px;"> <tr><td>..\</td><td>#1</td><td>#2</td><td>#3</td></tr> <tr><td>#1</td><td>6000</td><td>15</td><td>200</td></tr> <tr><td>#2</td><td>6100</td><td>15</td><td>201</td></tr> <tr><td>#3</td><td>6200</td><td>20</td><td>202</td></tr> <tr><td>#4</td><td>6300</td><td>20</td><td>203</td></tr> </table> </li> <li> <b>Checked</b>                      The first line in the CSV file is handled as "title."                      CSV file                     <table border="1" style="display: inline-table; margin: 5px;"> <tr><td>Title 1</td><td>Title 2</td><td>Title 3</td><td></td></tr> <tr><td>6000</td><td>15</td><td>200</td><td></td></tr> <tr><td>6100</td><td>15</td><td>201</td><td></td></tr> <tr><td>6200</td><td>20</td><td>202</td><td></td></tr> <tr><td>6300</td><td>20</td><td>203</td><td></td></tr> </table>                     Display on MONITOUCH                     <table border="1" style="display: inline-table; margin: 5px;"> <tr><td>..\</td><td>Title 1</td><td>Title 2</td><td>Title 3</td></tr> <tr><td>#1</td><td>6000</td><td>15</td><td>200</td></tr> <tr><td>#2</td><td>6100</td><td>15</td><td>201</td></tr> <tr><td>#3</td><td>6200</td><td>20</td><td>202</td></tr> <tr><td>#4</td><td>6300</td><td>20</td><td>203</td></tr> </table> </li> </ul>	6000	15	200		6100	15	201		6200	20	202		6300	20	203						..\	#1	#2	#3	#1	6000	15	200	#2	6100	15	201	#3	6200	20	202	#4	6300	20	203	Title 1	Title 2	Title 3		6000	15	200		6100	15	201		6200	20	202		6300	20	203		..\	Title 1	Title 2	Title 3	#1	6000	15	200	#2	6100	15	201	#3	6200	20	202	#4	6300	20	203
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<input type="checkbox"/> Use Record Name *1	<p>Determine how to handle the first column in the CSV file.</p> <ul style="list-style-type: none"> <li>• Unchecked The first column in the CSV file is handled as “data.”</li> </ul> <p>CSV file</p> <table border="1"> <tr><td>6000</td><td>15</td><td>200</td><td></td></tr> <tr><td>6100</td><td>15</td><td>201</td><td></td></tr> <tr><td>6200</td><td>20</td><td>202</td><td></td></tr> <tr><td>6300</td><td>20</td><td>203</td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>Display on MONITOUCH</p> <table border="1"> <tr><td>..\</td><td>#1</td><td>#2</td><td>#3</td></tr> <tr><td>#1</td><td>6000</td><td>15</td><td>200</td></tr> <tr><td>#2</td><td>6100</td><td>15</td><td>201</td></tr> <tr><td>#3</td><td>6200</td><td>20</td><td>202</td></tr> <tr><td>#4</td><td>6300</td><td>20</td><td>203</td></tr> </table> <ul style="list-style-type: none"> <li>• Checked The first column in the CSV file is handled as “record names.”</li> </ul> <p>CSV file</p> <table border="1"> <tr><td>ITEM1</td><td>6000</td><td>15</td><td>200</td></tr> <tr><td>ITEM2</td><td>6100</td><td>15</td><td>201</td></tr> <tr><td>ITEM3</td><td>6200</td><td>20</td><td>202</td></tr> <tr><td>ITEM4</td><td>6300</td><td>20</td><td>203</td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>Display on MONITOUCH</p> <table border="1"> <tr><td>..\</td><td>#1</td><td>#2</td><td>#3</td></tr> <tr><td>ITEM1</td><td>6000</td><td>15</td><td>200</td></tr> <tr><td>ITEM2</td><td>6100</td><td>15</td><td>201</td></tr> <tr><td>ITEM3</td><td>6200</td><td>20</td><td>202</td></tr> <tr><td>ITEM4</td><td>6300</td><td>20</td><td>203</td></tr> </table>	6000	15	200		6100	15	201		6200	20	202		6300	20	203						..\	#1	#2	#3	#1	6000	15	200	#2	6100	15	201	#3	6200	20	202	#4	6300	20	203	ITEM1	6000	15	200	ITEM2	6100	15	201	ITEM3	6200	20	202	ITEM4	6300	20	203					..\	#1	#2	#3	ITEM1	6000	15	200	ITEM2	6100	15	201	ITEM3	6200	20	202	ITEM4	6300	20	203
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ITEM4	6300	20	203																																																																														
Transfer Mode (Data, Record Name + Data)	<p>The options become available when [<input checked="" type="checkbox"/> Use Record Name] is checked.</p> <ul style="list-style-type: none"> <li>• Data Only data is transferred.</li> <li>• Record Name + Data Record names and data are transferred.</li> </ul>																																																																																
Text Process (LSB → MSB / MSB → LSB)	<p>Set the recognition of MSB and LSB in one word.</p> <p>[LSB → MSB] <sup>15</sup></p> <table border="1"> <tr><td>MSB</td><td>LSB</td></tr> </table> <p style="text-align: center;">2nd byte    1st byte</p> <p>[MSB → LSB] <sup>15</sup></p> <table border="1"> <tr><td>LSB</td><td>MSB</td></tr> </table> <p style="text-align: center;">1st byte    2nd byte</p>	MSB	LSB	LSB	MSB																																																																												
MSB	LSB																																																																																
LSB	MSB																																																																																
No. of Bytes for Record (0 to 32)	<p>This option is active when [Transfer Mode: Record Name + Data] is selected. Set the number of bytes used for a record name.</p>																																																																																
<input type="checkbox"/> Reverse Definition of Lines/Columns	<p>This is not valid for the display in recipe mode. Keep this box unchecked. For more information, refer to the Macro Reference Manual.</p>																																																																																
No. of Columns (1 to 4096)	<p>This is valid when [<input type="checkbox"/> Reverse Definition of Lines/Columns] is selected. Set the number of columns in the CSV file. The record name column should not be included.</p>																																																																																
No. of Lines. *2 (1 to 4096)	<p>This is valid when [<input checked="" type="checkbox"/> Reverse Definition of Lines/Columns] is selected. Set the number of lines in the CSV file.</p>																																																																																
No. of Total Words *2 (1 to 4096)	<p>This is automatically calculated from the data type of data.</p>																																																																																
Type	<p>Set the data type of data in the CSV file.</p> <p>Type:        DEC, DEC-, HEX, OCT, BIN, CHAR, BCD, FLOAT          Decimal Point:    0 to 32          Word Count:        1-Word, 2-Word          Characters:        2 to 255</p>																																																																																

<p>When RECxxxx.CSV is Used (xxxx : 0000 to 9999)</p>	<p>This option is valid when CSV file name is between REC0000.CSV and REC9999.CSV (number designation). Set the CSV file number corresponding to the attribute setting. The CSV file is stored in a folder under CF\ (access folder) \Recipe.</p> <p style="text-align: right;">Under "Recipe" folder</p> <p>* This is not valid when the CSV file names are managed using any given names.</p>
---	---

\*1 When using both titles and record names:

CSV file

-	Title 1	Title 2	Title 3
ITEM1	6000	15	200
ITEM2	6100	15	201
ITEM3	6200	20	202
ITEM4	6300	20	203

Display on MONITOUCH

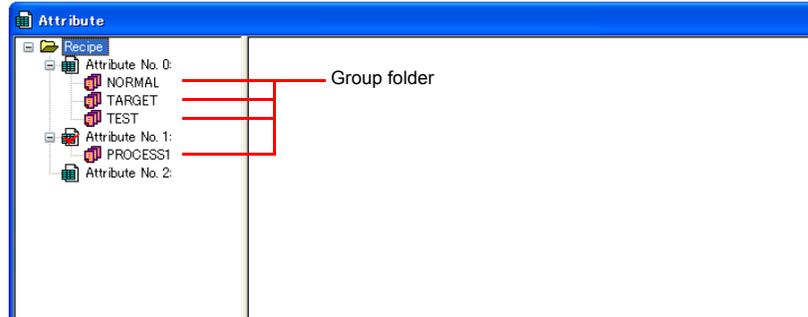
..\	Title 1	Title 2	Title 3
ITEM1	6000	15	200
ITEM2	6100	15	201
ITEM3	6200	20	202
ITEM4	6300	20	203

\*2 The maximum possible number of columns or lines is 4096. However, if [No. of Total Words] reaches 4096 words, columns or lines cannot be added even when the number of columns or lines is not greater than 4096.

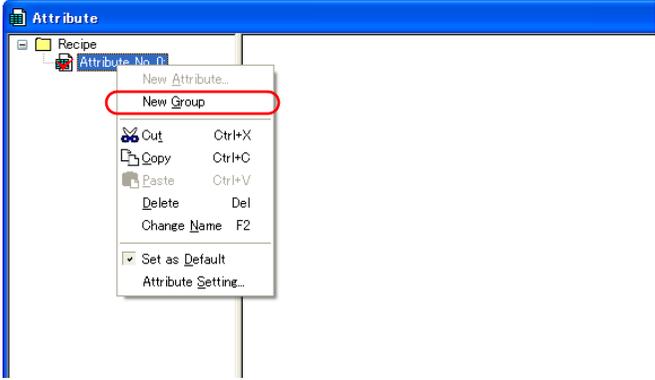
## Creating group folders

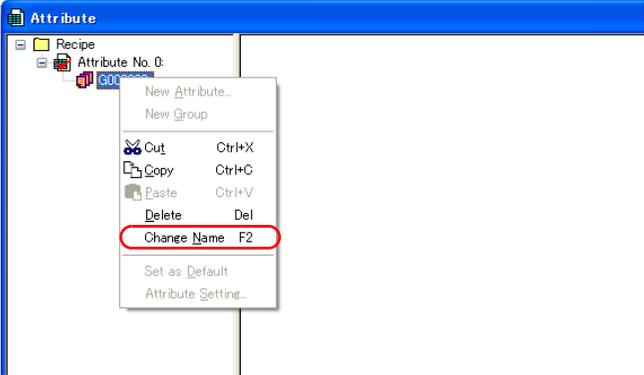
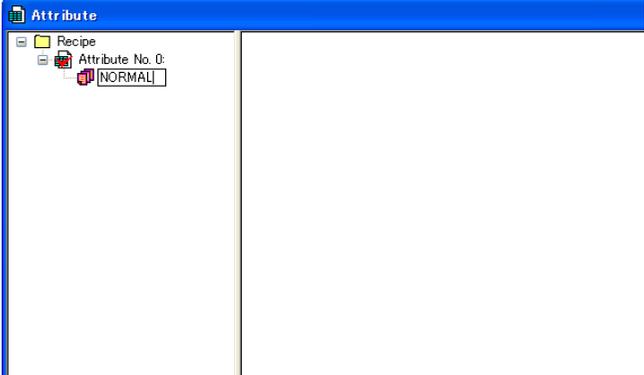
When using randomly given CSV file names<sup>\*1</sup>, create a group folder<sup>\*1</sup> and store the CSV files. Use the same attribute setting for all the CSV files in the same group folder.

- <sup>\*1</sup> Group folder names and CSV file names with 8 or less numerals or uppercase alphabetic characters



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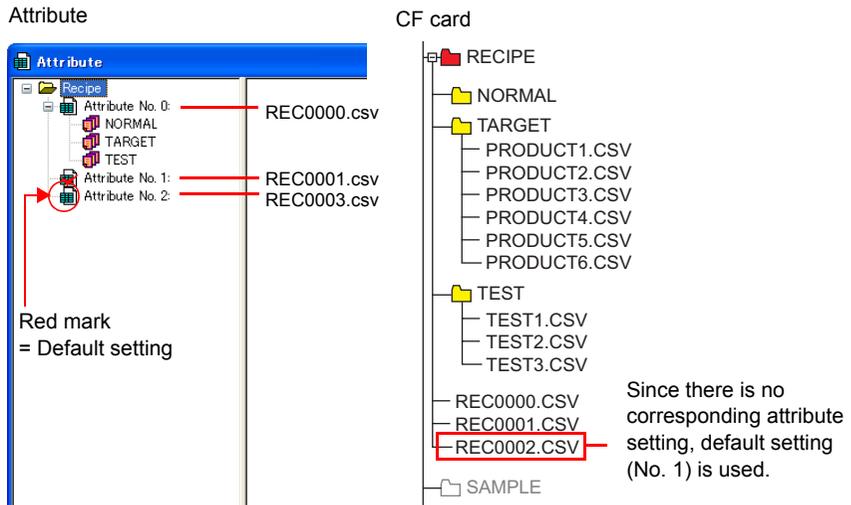
Step 1	<p>Right-click on the attribute number. A drop-down menu is displayed.</p> 
Step 2	<p>Select [New Group]. The "G000000" folder is selected.</p> 

Step 3	<p>Set the folder name. Right-click on the "G000000" folder. A drop-down menu is displayed.</p>  <p>The screenshot shows a window titled 'Attribute' with a tree view containing 'Recipe' and 'Attribute No. 0'. Under 'Attribute No. 0', there is a folder named 'G000000'. A context menu is open over this folder, listing options: 'New Attribute...', 'New Group', 'Cut (Ctrl+X)', 'Copy (Ctrl+C)', 'Paste (Ctrl+V)', 'Delete (Del)', 'Change Name F2' (highlighted with a red circle), 'Set as Default', and 'Attribute Setting...'.</p>
Step 4	<p>Select [Change Name]. The name is highlighted and the cursor appears. Input the desired name.</p>  <p>The screenshot shows the same 'Attribute' window. The folder name 'G000000' has been replaced by 'NORMAL'. A text cursor is visible at the end of the text 'NORMAL'.</p>
Step 5	<p>Repeat steps 1 to 4 and create as many folders as you need.</p>

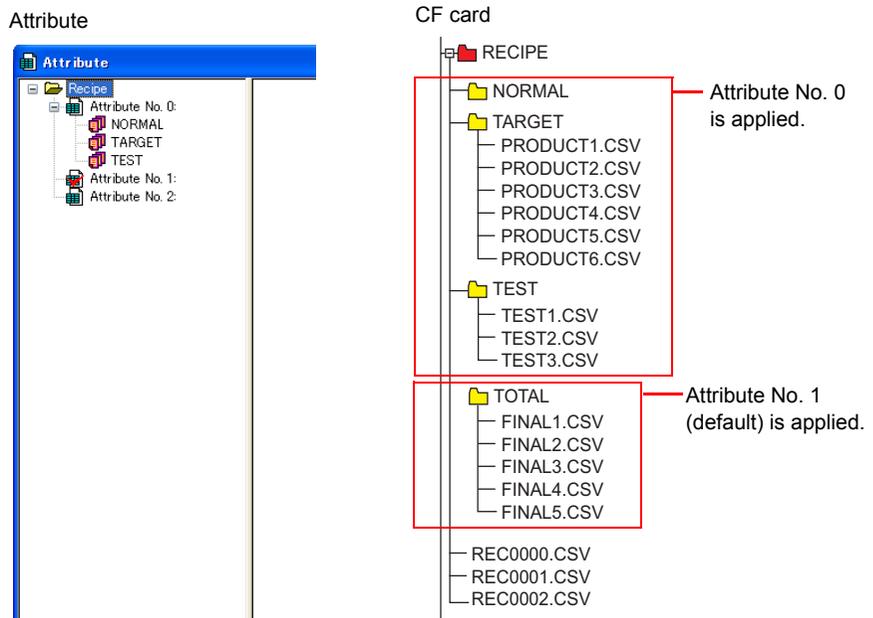
### Default setting

One of the attribute icons is marked in red. This is called the “default setting.”  
The default setting is used in the following cases:

- There is no attribute setting corresponding to the file “RECxxxx.csv”.



- A group folder without an attribute setting is added to the CF card on Explorer.

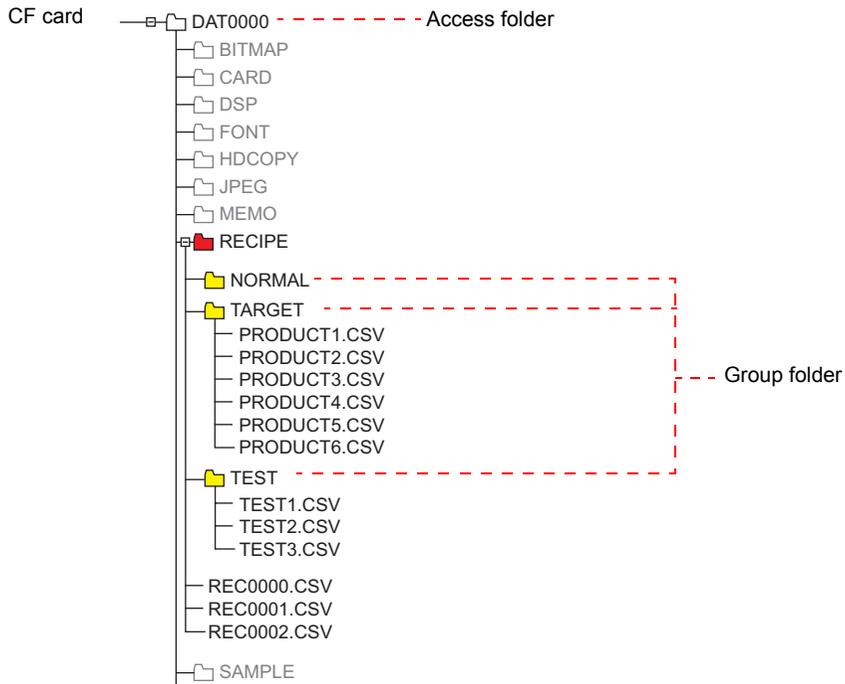


## CSV File

### File Name and Store Target

Depending on the CSV file name, the store target as well as file designation method varies. Create files according to their purpose.

File Name	Store Target
<p><u>RECxxxx</u>.CSV 0000 to 9999</p>	<p>Access folder\Recipe\ Refer to the chart below.</p>
<p><u>xxxxxxx</u>.CSV Max: 8 one-byte numerals or uppercase alphabetic characters</p>	<p>Access folder\Recipe\<u>(group folder)</u> \ Max: 8 one-byte numerals or uppercase alphabetic characters Refer to the chart below.</p>



\* Group folder must be defined in the [Attribute Setting] dialog. A group folder defined in the [Attribute Setting] dialog is automatically created when a CF card is inserted into MONITOUCH.

## Total Number of CSV Files

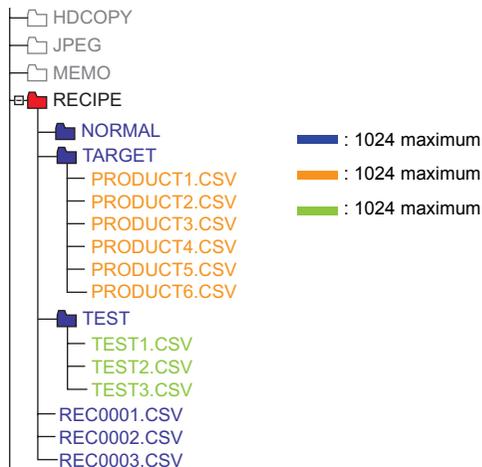
The number of group folders and CSV files in recipe mode is limited.

- The total number of group folders and CSV files in the “Recipe” folder: 1024 maximum
- The number of CSV files in a group folder: 1024 maximum

Folders or files exceeding 1024 are not recognized in recipe mode.

- \* When access to CSV files is made using a macro command, this limitation is not imposed.

However, note that access time is proportional to the number of files.



## Data in CSV File

### The number of transferable words

A maximum of 4096 words can be read and written at one time in recipe mode or using a macro command. If you attempt to transfer data that exceeds this capacity, only the first 4096 words will be transferred and no more.

### Lines and columns

Depending on the attribute setting, the available numbers of columns and lines vary.

	<input type="checkbox"/> Reverse Definition of Lines/Columns	<input checked="" type="checkbox"/> Reverse Definition of Lines/Columns * <sup>4</sup>
No. of Lines	1 to 32767	1 to 4096 * <sup>3</sup>
No. of Columns * <sup>1</sup>	1 to 4096 * <sup>2</sup>	1 to 4096

\*<sup>1</sup> Excel can handle 256 columns maximum.

\*<sup>2</sup> Maximum word count per column: 4096 words

\*<sup>3</sup> Maximum word count per line: 4096 words

\*<sup>4</sup> File size: 1 M byte or less

### Number of bytes for record

32 bytes maximum per record

- \* Make the setting in the [Attribute Setting] dialog.

### Number of bytes for title

32 bytes maximum per title

### Note

In the CSV file, ‘,’ (comma) and ‘ ’ ’ (double quotation mark) are not recognized as data.

Note that the file may not be read correctly.

# MONITOUCH Operation

## Selection

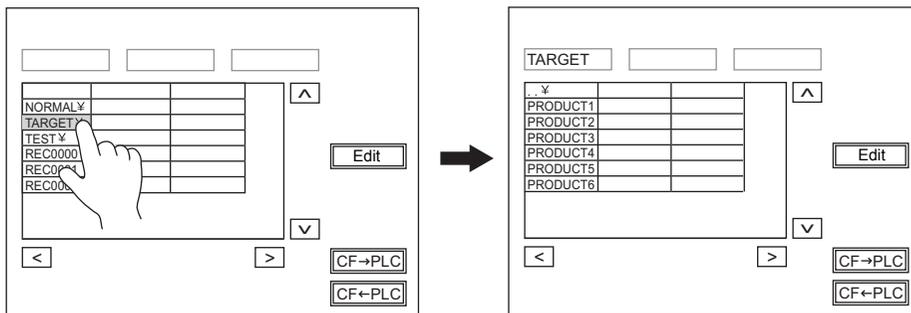
When an action area is pressed, a folder or file can be selected. It is also possible to select a folder, file, or record by designating its name or number from the command memory.

### Folder selection

- Display area

If you double-touch a group folder name, the CSV file names in the folder are displayed.

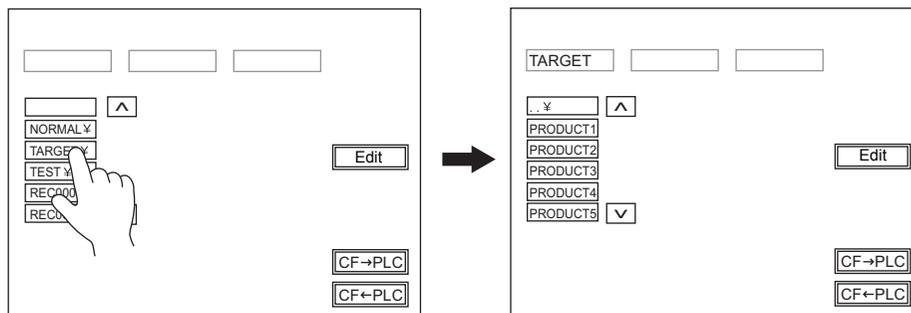
\* Every group folder name is followed by a "V".



- Switch

If you touch a group folder name, the CSV file names in the folder are displayed.

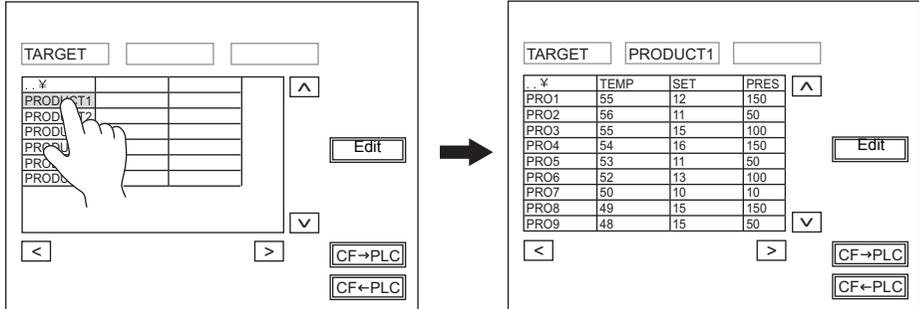
\* Every group folder name is followed by a "V".



### File selection

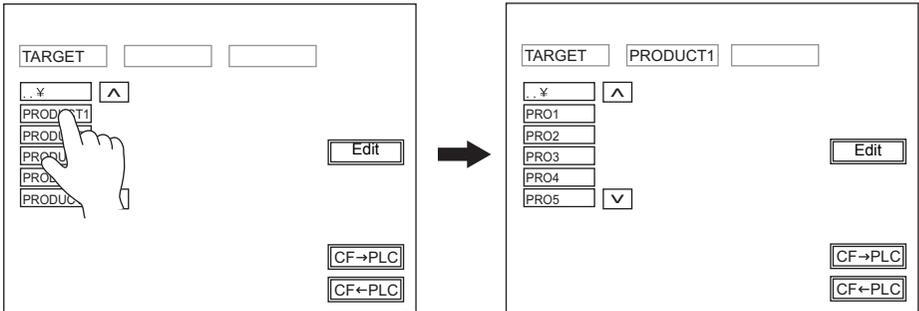
- Display area

If you double-touch on a file name, the file is selected and its data is displayed.



- Switch

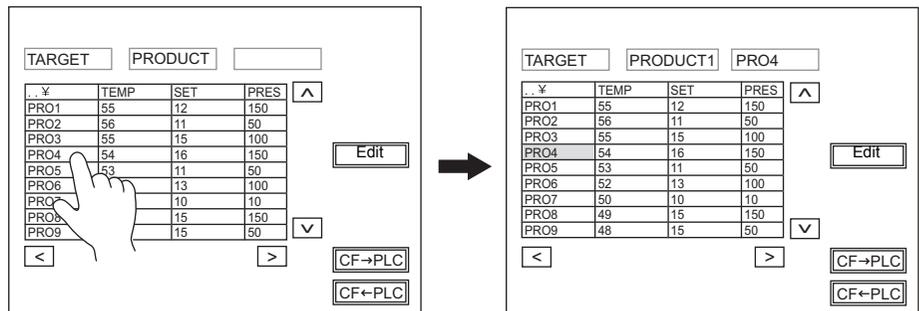
If you touch on a file name, the file is selected and its records are displayed.



### Record selection

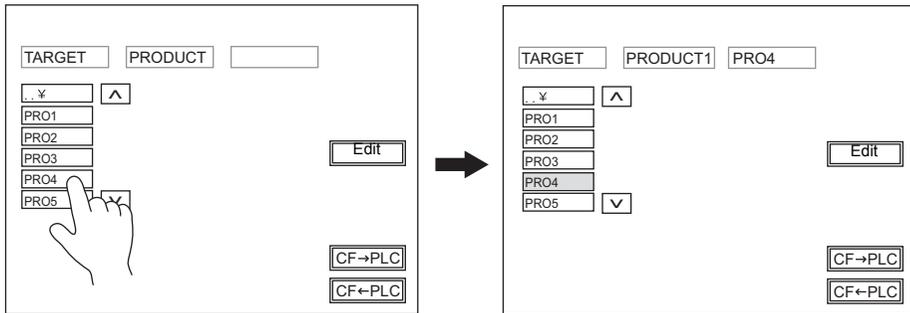
- Display area

If you touch on a record, the record is selected.



- Switch

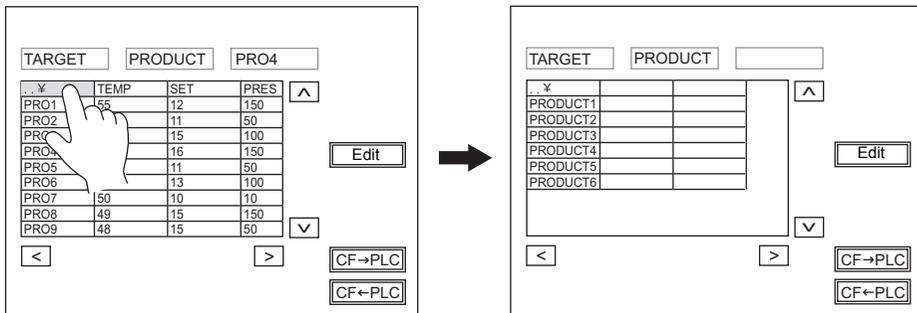
If you touch on a record, the record is selected.



**Return**

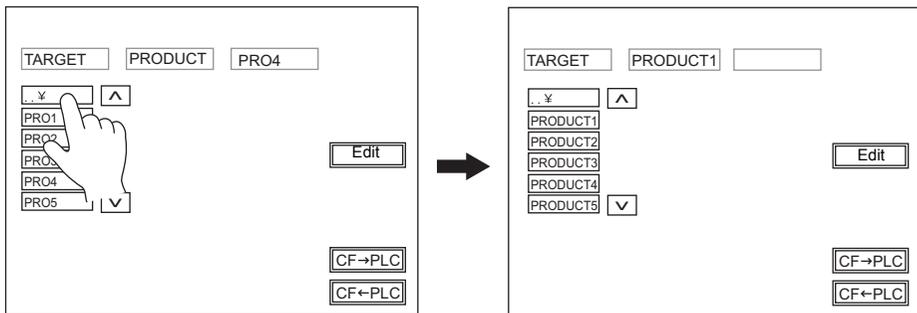
- Display area

If you double-touch on the top left cell (..) in the display area, you are taken one level higher in the hierarchy.



- Switch

If you touch on the top switch (..), you are taken one level higher in the hierarchy.

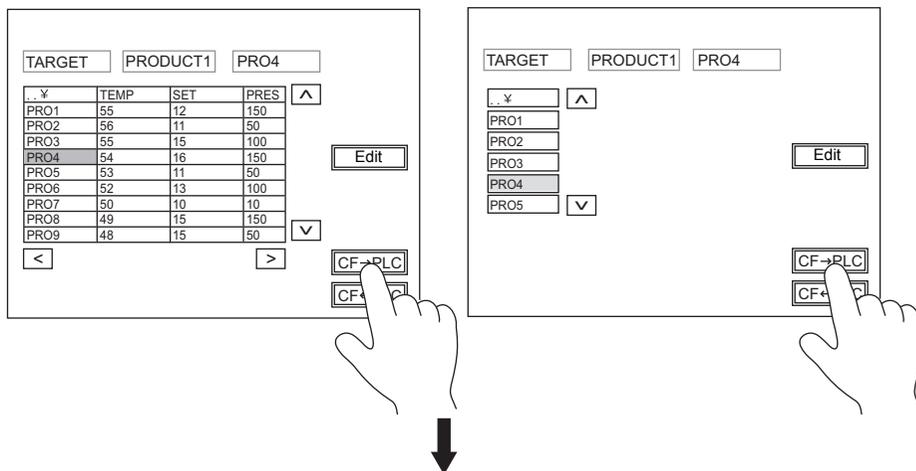


## Transfer

Data can be transferred using a switch on the screen. It is also possible to designate a file or record using the command memory and transfer data.

### Record transfer

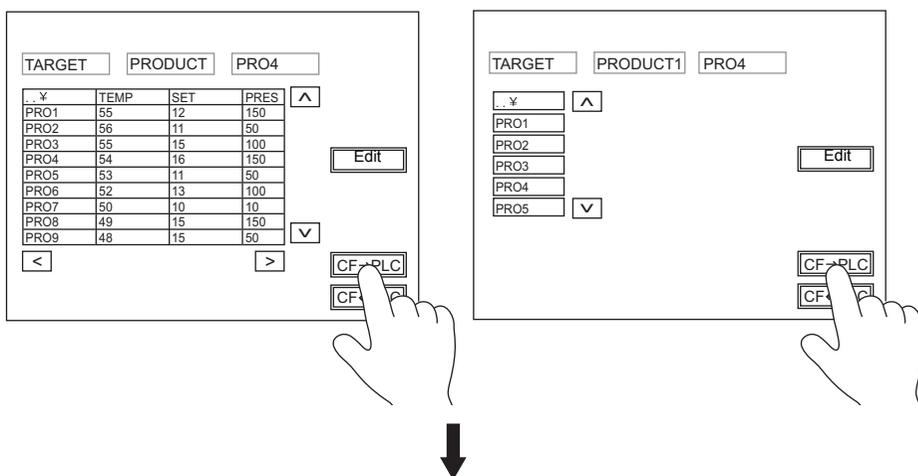
If you press the transfer switch [Card > PLC] or [PLC > Card] with a record selected, the selected record (one line) is transferred.



Data of record No. 4 in the CSV file is transferred to the target memory.

### File transfer

If you press the transfer switch [Card > PLC] or [PLC > CARD] with a file selected (before a record is selected), the entire data of the selected file is transferred.



When a CSV file is selected and no record is selected, the entire data of the file is transferred to the target memory (the maximum transferable size is 4096 words).

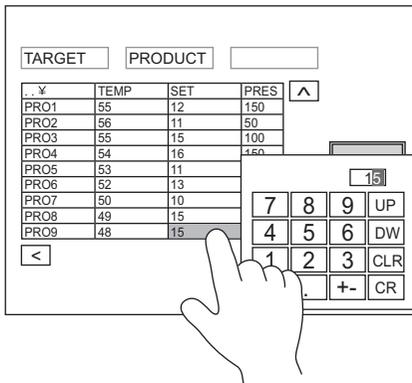
## Edit

### Data edit

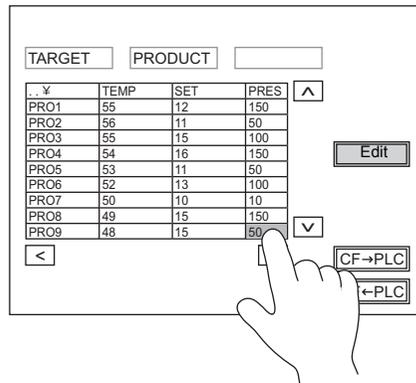
- Display area

If you touch on CSV data with the [Edit] switch activated, a keypad for editing is displayed. If you enter a value using the [CR] key, it is directly written into the CF card. However, if you press on a cell that is only partially displayed, no keypad is displayed.

Edit enabled



Edit disabled

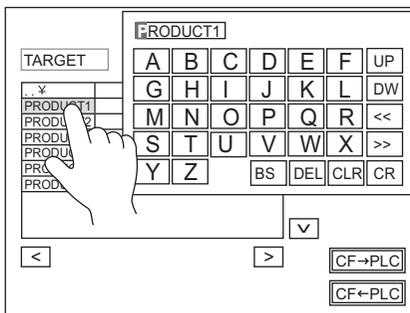


- Switch

Data editing is not possible because CSV data is not displayed on switches.

### Name edit (file, record, title)

If you touch a file name, record name or title name (if set) with the [Edit] switch activated, a keypad for editing is displayed. These names can be edited directly in the same way as data edit. Note that only characters can be input.



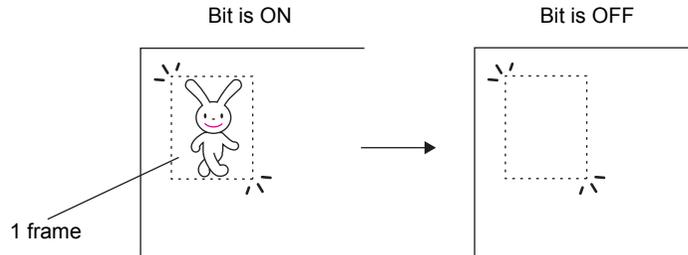
# 14 Multimedia

## 14.1 Animation

### Overview

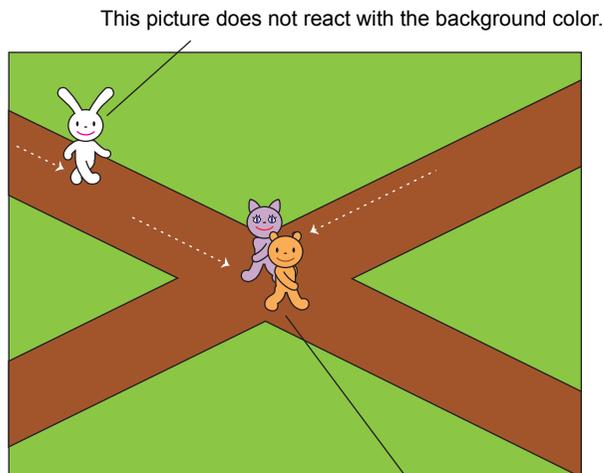
- When the predetermined bit is set ON, the picture is displayed; when the bit is set OFF, the picture is cleared.

You can easily set motion by switching pictures in a position or by moving a picture.



- Graphics can be created with dots in the [Frame Edit] area.  
Bitmap data can be imported and used for animation.
- You can make an animation image opaque to the background color and display the picture exactly as you registered it (when transparent color is set).

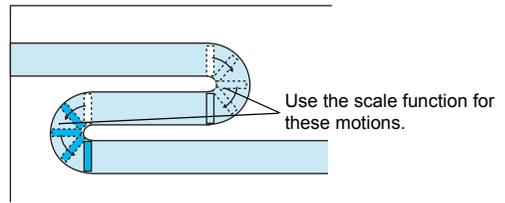
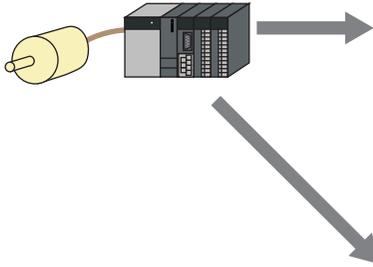
In this case, even if animation pictures overlap each other, the image will not be corrupted or changed in colors.



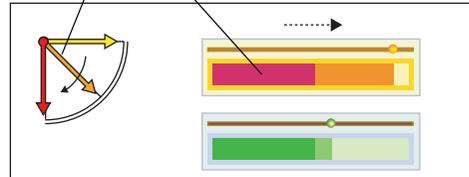
No problem even when images overlap each other.

- It is not necessary to create a complicated program on the PLC for animation. Because animation can be created easily using the settings on V8 series, you can create interesting screens such as screen saver or logo display with minimal effort.
- Using the scale function, you can create screens in synchronization with the PLC, which reflect the field condition in real time.

Animation can be performed by synchronizing with the value in the PLC, such as data from an encoder.

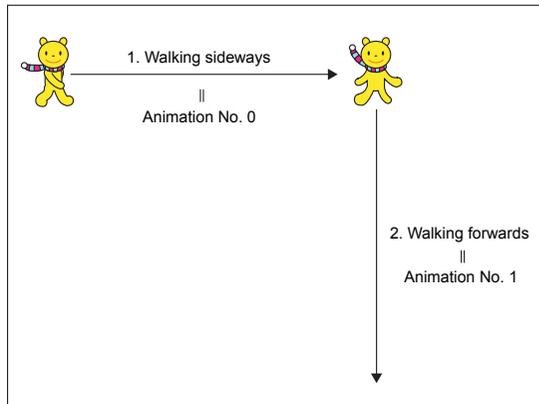


Use the scale function for these motions.



## Configuration

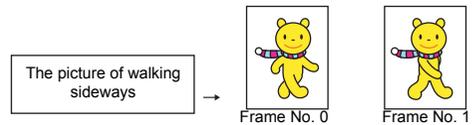
If you make an animation as shown below, the screen data is configured and explained.



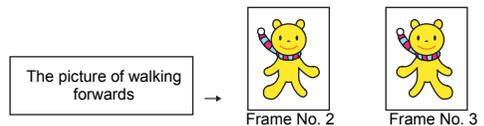
### Registration of animation

- Animation No. 0  
(= register a panel to be used for 1.)  
Frame: No. 0 to No. 1  
Seconds to Replay: 1 second  
(Changing and displaying frame No. 0 and frame No. 1 in 1 second)
- Animation No. 1  
(= register a panel to be used for 2.)  
Frame: No. 2 to No. 3  
Seconds to Replay: 1 second  
(Changing and displaying frame No. 2 and frame No. 3 in 1 second)

Register frame No. 0 and frame No. 1 in relation with the setting of animation No. 0.



Register frame No. 2 and frame No. 3 in relation with the setting of animation No. 1.



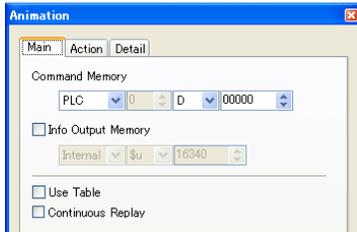
### Setting animation on the screen

Make settings, such as the PLC memory address to be used for displaying the registered animation, or the sequences in which the registered animation should move.

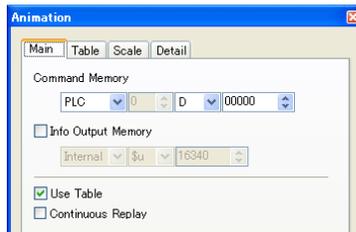
# Setting Dialog

## Main

- Animation table not used

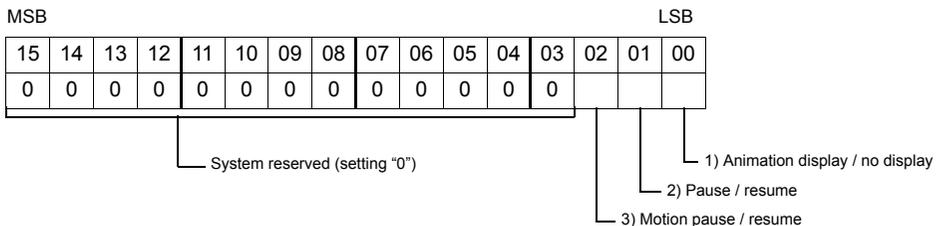


- Animation table used



Command Memory *1	This is the memory address to be used for displaying the registered animation.
Info Output Memory *2	This is the memory address to be used for checking the status of animation.
<input type="checkbox"/> Use Table	<p>Unchecked (<input type="checkbox"/>): An animation number or display position is designated from the specified memory.</p> <p>Checked (<input checked="" type="checkbox"/>): Animation numbers and display positions are designated in the animation table.</p> <p>Depending on this check box, the tab windows in the dialog changes.</p>
<input type="checkbox"/> Continuous Replay	<p>Determine whether the defined animation should be replayed only once or continuously.</p> <p>Unchecked (<input type="checkbox"/>): It is replayed only once.</p> <p>Checked (<input checked="" type="checkbox"/>): It is continuously replayed.</p>

\*1 Contents of command memory



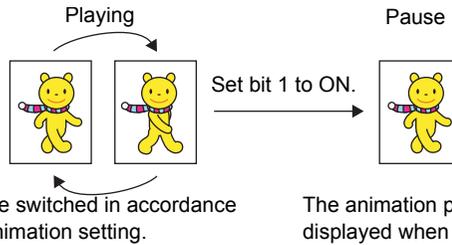
- 1) Animation display / no display (bit 0)

When this bit is set to "1" (ON), the image of the corresponding animation number is displayed.

When you reset it to "0" (OFF), the image is cleared.

2) Pause/ resume (bit 1)

When this bit is set to ON, animation currently being played pauses. When this bit is reset to OFF, pause is reset and play is resumed.



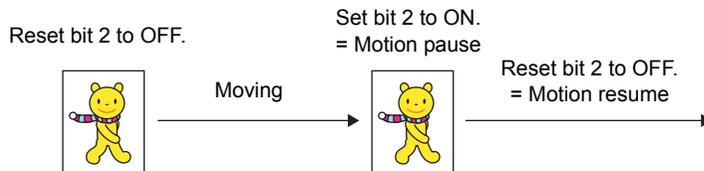
\* **This bit becomes active only when bit 0 (animation display / no display) is set to ON.**

3) Motion pause / resume (bit 2)

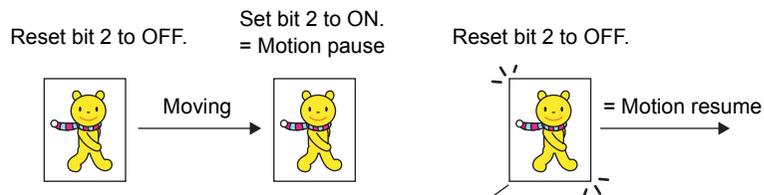
When this bit is set to ON, the animation currently moving pauses. When this bit is reset to OFF, motion is resumed.

\* **This bit becomes active only when bit 0 (animation display / no display) is set to ON.**

- When you select the motion by on the animation table ( Use Table), motion is resumed from the position where it was paused.



- When the coordinate position is specified in memory with  Use Table] and [Coordinates:  Memory Designation], motion is resumed from the position specified in the command memory.



Motion is resumed from the coordinates that are specified in memory when bit 2 was reset to OFF.

\*2 Contents of info output memory

MSB											LSB								
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00				
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

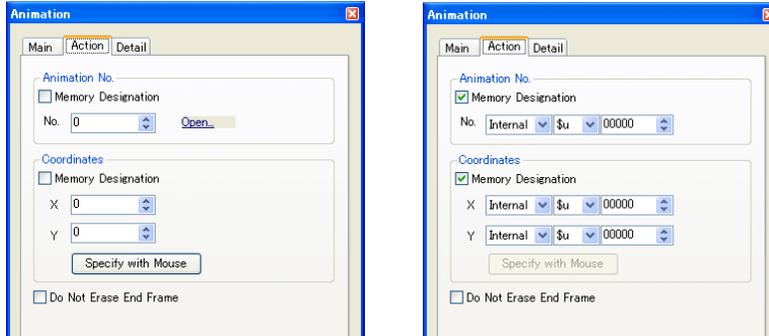
1: End of animation \*

\* **When animation is started, it is reset to “0”.**

- In the case of memory designation, the end bit is output when the animation playback time (seconds) has elapsed.
- In the case of using an animation table, the end bit is output when all the animations on the animation table have been replayed.
- If the animation is finished halfway through replay, the end bit is not output.
- In the case of scale designation, no output is made to the information output memory.

## Action

This tab window is displayed when [Use Table] is not checked () in the [Main] tab window.



<p>Animation No.  <input type="checkbox"/> Memory Designation *1</p>	<p>Unchecked (<input type="checkbox"/>):          Specify the animation number to be used for [No.].</p> <p>Checked (<input checked="" type="checkbox"/>):          Set the memory address to be used for specifying an animation number.</p>
<p>Coordinates  <input type="checkbox"/> Memory Designation *2</p>	<p>Unchecked (<input type="checkbox"/>):          Specify [X] and [Y] coordinates (in units of dots) where animation should be displayed.</p> <p>Checked (<input checked="" type="checkbox"/>):          Set memory addresses to be used for specifying X and Y coordinates, respectively.</p>
<p><input type="checkbox"/> Do Not Erase End Frame *3</p>	<p>Unchecked (<input type="checkbox"/>):          On completion of replay, the image disappears even if the command bit remains ON.</p> <p>Checked (<input checked="" type="checkbox"/>):          The image of the end frame is shown even after completion of replay while the command bit remains ON. When the command bit is reset (OFF), the end frame disappears.</p>

\*1 When this box is not checked () , clicking [Open] brings up the reference dialog shown on the right. The animation setting can be checked in this dialog.

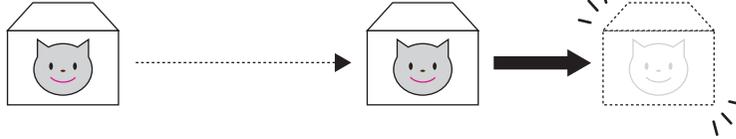


\*2 When this box is not checked () , clicking [Specify with Mouse] changes the mouse pointer into a cross cursor. Specify the position where the image should be displayed.

**\*3 Display example**

- Unchecked (

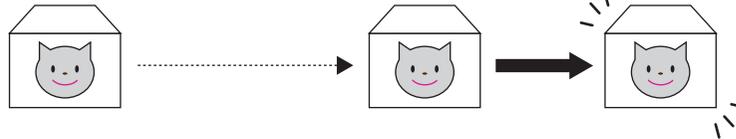
Animation is replayed when the command bit is set (ON).



On completion of its play, it disappears even if the command bit remains ON.

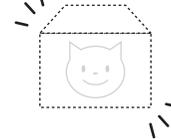
- Checked (

Animation is replayed when the command bit is set (ON).



The end frame is shown even after completion of replay while the command bit remains ON.

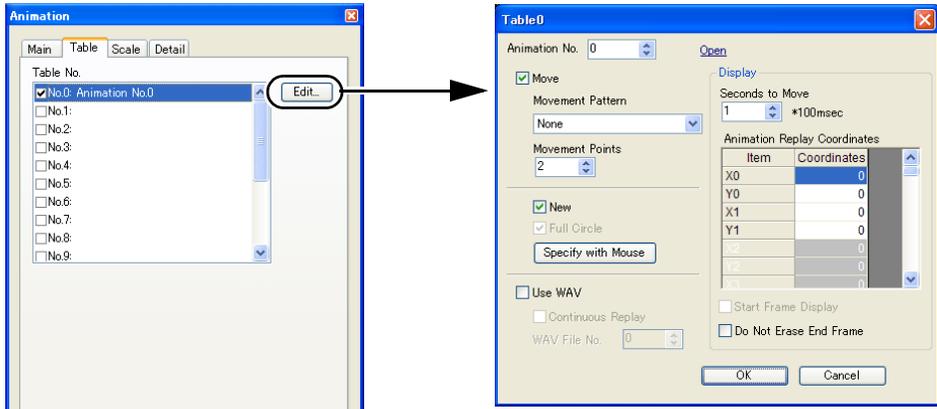
When the command bit is reset (OFF), the end frame disappears.



Animation can be shown or cleared in accordance with the status of the command memory, which facilitates display control from an external device.

## Table

This tab window is displayed when [Use Table] is checked (☑) in the [Main] tab window.



<input type="checkbox"/> Table No. (0 to 15)	<p>You can set up to 16 tables for each animation. Check the box (☑) for the table number to be used, select the table and click the [Edit] button. The [Table No.] dialog is displayed.</p>
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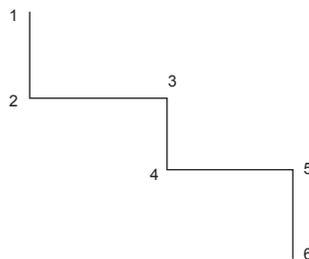
\* The setting items in the [Table] dialog are explained below.

Animation No.	Specify the animation number to be displayed.		
<input type="checkbox"/> Move	Unchecked (☐): Animation is displayed in the position specified for [Animation Reply Coordinates].		
	Checked (☑): Animation will move. The following setting items for movement become active.		
	Movement Pattern *1	None:	Animation moves on a straight line path.
		Circle (Clockwise):	Animation moves on a clockwise circular path.
		Circle (Counterclockwise):	Animation moves on a counterclockwise circular path.
	Movement Points *1 (2 to 32)	This option is active when [None] is chosen for [Movement Pattern]. Specify the desired number of movement points.	
	No. of Divisions *1 (2 to 31)	This option is active when [Circle] is chosen for [Movement Pattern]. Specify the number of divisions of the circumference.	
<input type="checkbox"/> New *2	This setting is valid when you use the mouse to specify the coordinates. If the coordinates have not been set yet, this box is checked. If the coordinates have already been set, this box is not checked.		
<input type="checkbox"/> Full Circle *2	This option is active when [Circle (Clockwise/Counterclockwise)] is chosen for [Movement Pattern]. Check this box (☑) when you need the path of a perfect circle.		
Specify with Mouse *2	Depending on the setting for <input type="checkbox"/> New, the function varies.  <input checked="" type="checkbox"/> New: A mouse cursor is displayed and you can create a path as desired.  <input type="checkbox"/> New: An existing path on the screen can be selected. You can change the position by dragging with the mouse.		

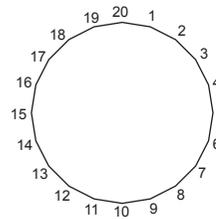
<input type="checkbox"/> Use WAV	Unchecked ( <input type="checkbox"/> ): WAV files are not used.  Checked ( <input checked="" type="checkbox"/> ): You can play animation while playing a sound file (extension "*.WAV"). The following setting items for sound become active. <table border="1"> <tr> <td> <input type="checkbox"/> Continuous Replay                     </td> <td>                         Check this box (<input checked="" type="checkbox"/>) if you want to play the sound all the time when the animation is replayed.                     </td> </tr> <tr> <td>                         WAV File No.                     </td> <td>                         Specify the file number of the sound file to be linked. For information on the sound files available, refer to "14.4 Sound" (page 14-72).                     </td> </tr> </table>	<input type="checkbox"/> Continuous Replay	Check this box ( <input checked="" type="checkbox"/> ) if you want to play the sound all the time when the animation is replayed.	WAV File No.	Specify the file number of the sound file to be linked. For information on the sound files available, refer to "14.4 Sound" (page 14-72).
<input type="checkbox"/> Continuous Replay	Check this box ( <input checked="" type="checkbox"/> ) if you want to play the sound all the time when the animation is replayed.				
WAV File No.	Specify the file number of the sound file to be linked. For information on the sound files available, refer to "14.4 Sound" (page 14-72).				
Seconds to Replay Seconds to Move	Depending on the setting for [ <input type="checkbox"/> Move], the function varies.  [ <input type="checkbox"/> Move]: (Seconds to Replay) Set the length of time that animation keeps replaying in the specified position.  [ <input checked="" type="checkbox"/> Move]: (Seconds to Move) Set the length of time that the selected animation number moves.				
Animation Replay Coordinates	If you check [ <input type="checkbox"/> Move] above ( <input checked="" type="checkbox"/> ), twice as many [Item] and [Coordinates] cells as you specified for [Movement Pattern] become active. When setting [Coordinates], you can enter a numerical value directly through the keyboard or use the mouse to specify the moving positions.				
<input type="checkbox"/> Start Frame Display <sup>*3</sup>	It is possible to animate the graphics like a baton pass using the table. This setting is available for tables other than table No. 0.				
<input type="checkbox"/> Do Not Erase End Frame	Same as explained for [Not Delete End Frame] (page 14-6)				

\*1 Display example

Example: In case of a straight line  
 Movement Points: 6

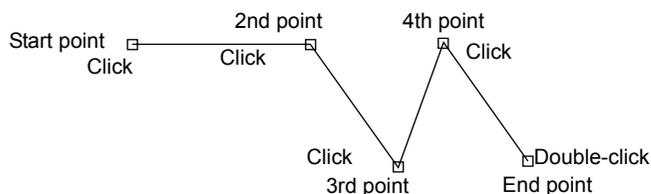


Example: In case of a circle  
 No. of Divisions: 20



\*2 Display example

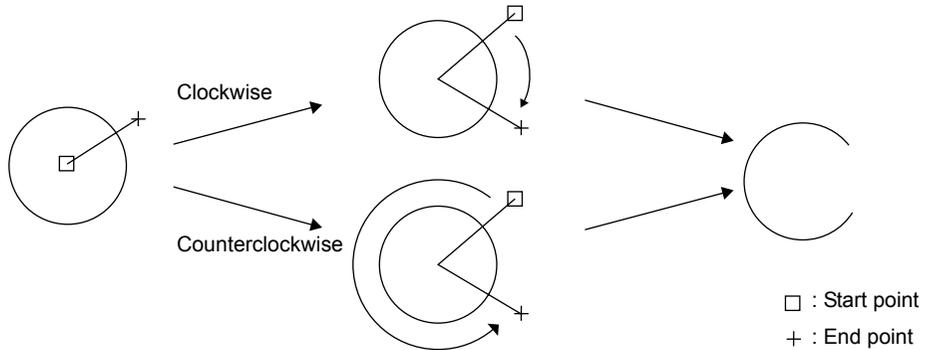
- When you select [Movement Pattern: None] with [ New], click the desired points on the screen in the same way as you draw a straight line. The coordinates are defined in order. Double-click to determine the points. The dialog is displayed again. The number of times you clicked is automatically set for [Movement Points]. Specifying with mouse is automatically finished when you have set 32 points.



- When [Movement Pattern: Circle (Clockwise/Counterclockwise)] with [ New] and [ Full Circle], specify the start and end points.



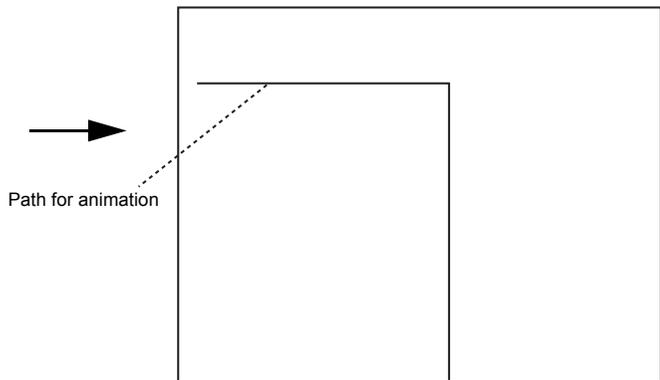
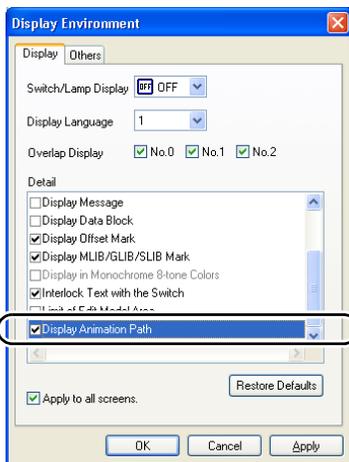
- When [Movement Pattern: Circle (Clockwise/Counterclockwise)] with [ New] and [ Full Circle], specify the start and end points.



Right-click to move back to the [Animation] dialog.

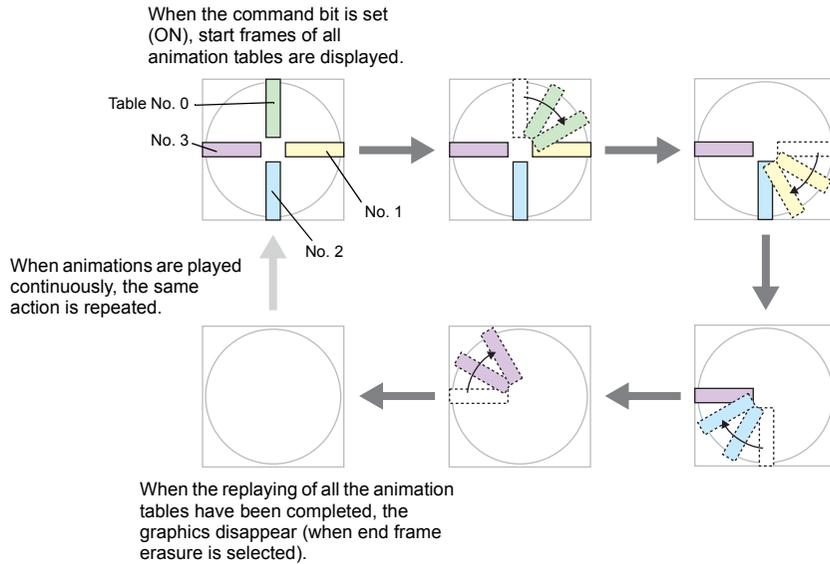
- The path you created can be edited by selecting [ New] and [Specify with Mouse]. To show the path on the editing screen, check the box () for [ Display Path of Animation] in the [Display Environment] dialog.

A straight line, continuous straight line, circle, or arc created by drawing is displayed in the editing window.



## \*3 Display example

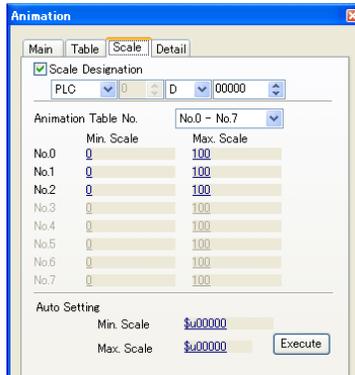
- : Animation No. 0
- : Animation table No. 1, with start frame display
- : Animation table No. 2, with start frame display
- : Animation table No. 3, with start frame display



- The start frame disappears when the animation of the table with the checked box () has been started.

## Scale

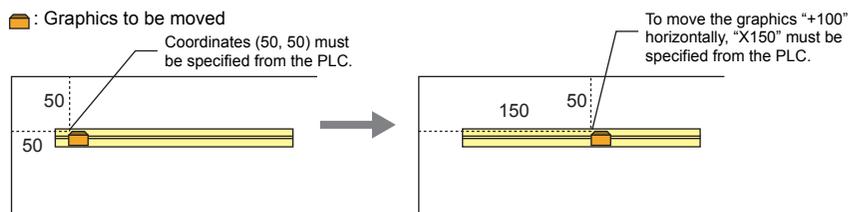
This tab window is displayed when [Use Table] is checked (☑) in the [Main] tab window.



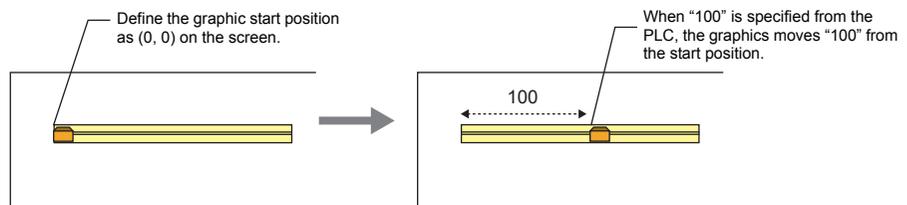
<input type="checkbox"/> Scale Designation * <sup>1</sup>	When this box is checked (☑), scale values are used. The following setting items for scale values become active.
Memory * <sup>2</sup>	Set the memory address used for showing scales.
Animation table No.	When the animation table number is checked (☑) on the [Table] tab window, scale setting becomes available. <ul style="list-style-type: none"> <li>No. 0 - 7: Animation table No. 7 to 7 are displayed.</li> <li>No. 8 - 15: Animation table No. 8 to 15 are displayed.</li> </ul> Set data for [Min. Scale] and [Max. Scale] for each table.
Max. Scale, Min. Scale * <sup>2</sup>	Specify the maximum and minimum scale values for each animation table.
Auto Setting * <sup>3</sup>	Use this setting when assign scale values to the tables at equal spacing.

\*1 With or without scale designation

- When scale values are not used:



- When scale values are used:

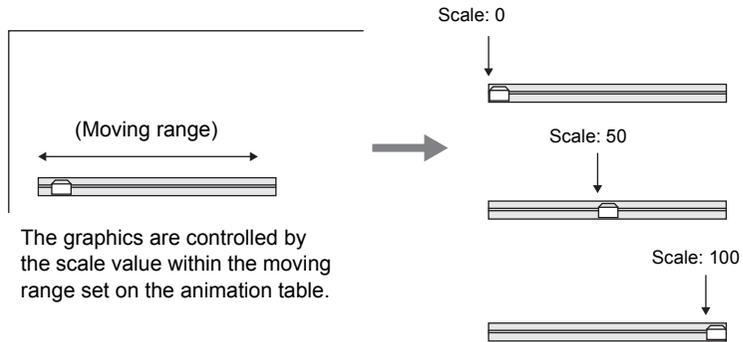


\*2 Display example

- When  Move is checked in the [Table] tab window:

Animation table No.: 0  
 Animation No.: 2  
 [Move] checked: (The graphics moves as shown below.)  
 Scale: 0 to 100

: Animation No. 2



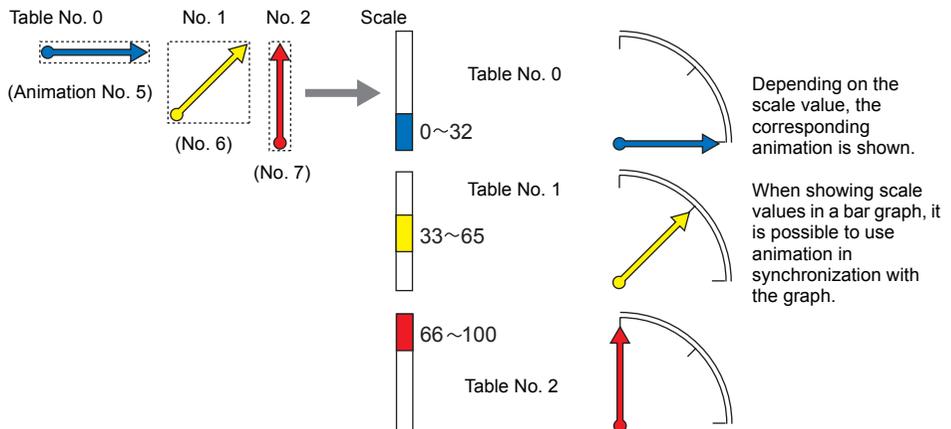
The moving speed can be expressed by changing the scale value.

- When  Move is not checked in the [Table] tab window:

The timing to switch the animation number can be specified using a scale value.

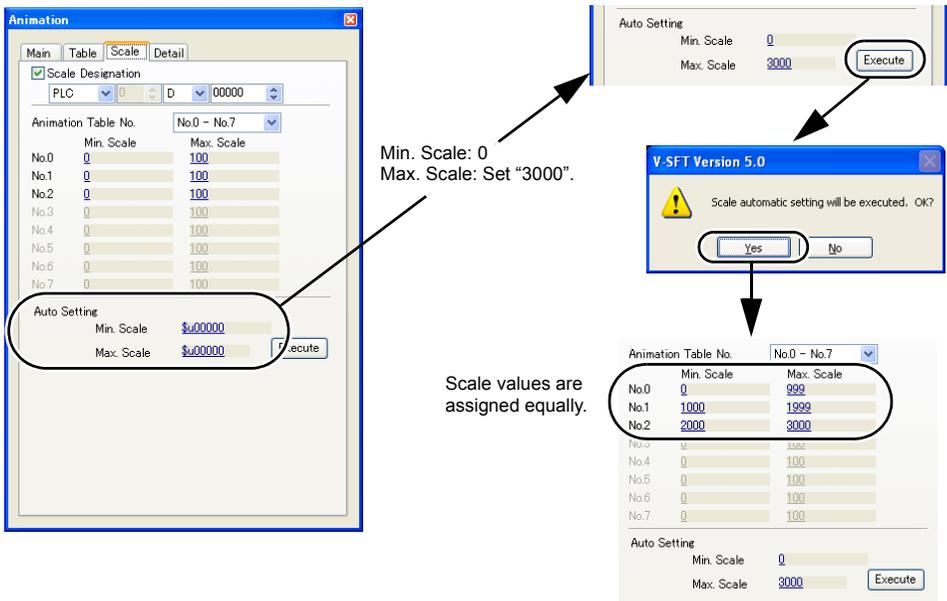
Table No.	Animation No.	Scale	
		Min.	Max.
0	5	0	32
1	6	33	65
2	7	66	100

The graphics is animated as shown below.

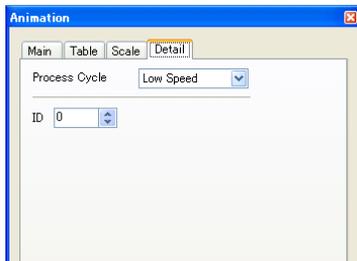


\*3 Setting example

When assigning scale values equally in the range from 0 to 3000 using the animation table No. 0 to No. 3:



Detail



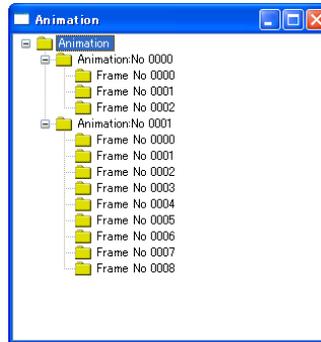
Process Cycle	Set a cycle for the V series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Registering Animation

Define and register animations in the animation area.

### Opening the Registration Window

Click [Registration Item] → [Animation], the [Animation] window opens. Animation can be registered on this window.

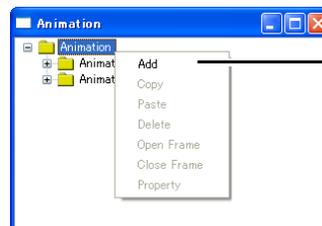


Depending on the setting on the [Animation VIEW] dialog, tree structure changes.

Make the setting on the [Animation VIEW] dialog and on the [Frame Edit] window in the animation area.

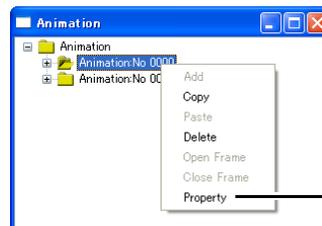
Depending on the folder on which you right-click: [Animation], [Animation No. xxxx] or [Frame No. xxxx], the menu items that become active vary.

[Animation] folder



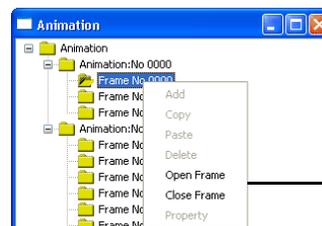
Animation VIEW  
Refer to page 14-16.

[Animation No. xxxx] folder



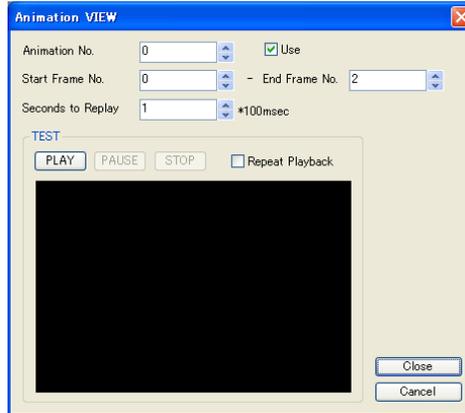
Animation VIEW  
Refer to page 14-16.

[Frame No. xxxx] folder



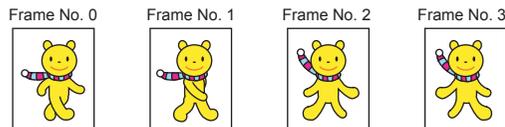
Frame Edit  
Refer to page 14-17.

## Animation VIEW



<input type="checkbox"/> Use	When this box is checked ( <input checked="" type="checkbox"/> ) , an animation number is set. To clear the setting, uncheck this box.								
Animation No. (0 to 1023)	The animation number you are currently editing is displayed. You can change the animation number by clicking the up/down arrow buttons. You can also enter the number directly without using the buttons.								
Start Frame No. to End Frame No. (0 to 1022) * <sup>2</sup>	Set the scope (number) of the frames * <sup>1</sup> to be used for animation.								
Seconds to Replay (×100 msec) * <sup>2</sup>	Set the switching cycle (speed) in which you switch and display the frames that you specified for [Start Frame No.] and [End Frame No.].								
TEST	When the frames have been registered, you can check the actual motion of animation.								
	<table border="1"> <tr> <td>PLAY</td> <td>If you click this button, the set frame is displayed within the time set for [Seconds to reply].</td> </tr> <tr> <td>PAUSE</td> <td>Click this button to cause replay to pause.</td> </tr> <tr> <td>STOP</td> <td>Click this button to finish display during a replay or pause.</td> </tr> <tr> <td><input type="checkbox"/> Repeat Playback</td> <td>When you press the [PLAY] button, normally animation is played only once. When this box is checked (<input checked="" type="checkbox"/>) , the set frame is played consecutively.</td> </tr> </table>	PLAY	If you click this button, the set frame is displayed within the time set for [Seconds to reply].	PAUSE	Click this button to cause replay to pause.	STOP	Click this button to finish display during a replay or pause.	<input type="checkbox"/> Repeat Playback	When you press the [PLAY] button, normally animation is played only once. When this box is checked ( <input checked="" type="checkbox"/> ) , the set frame is played consecutively.
PLAY	If you click this button, the set frame is displayed within the time set for [Seconds to reply].								
PAUSE	Click this button to cause replay to pause.								
STOP	Click this button to finish display during a replay or pause.								
<input type="checkbox"/> Repeat Playback	When you press the [PLAY] button, normally animation is played only once. When this box is checked ( <input checked="" type="checkbox"/> ) , the set frame is played consecutively.								

\*1 A "frame" means each panel to be used for animation.

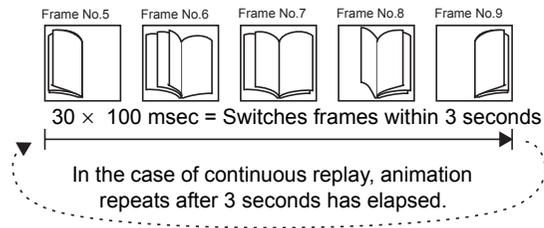


Graphics can be drawn in dots. For more information on registration, refer to the next section.

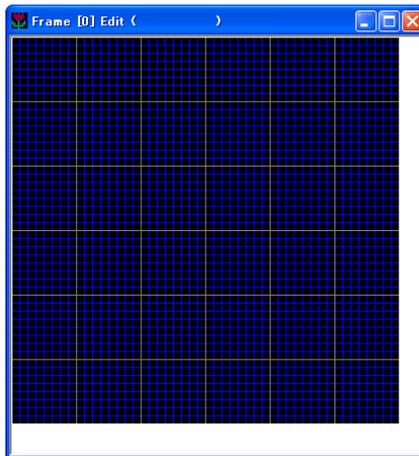
## \*2 Display example

[Start Frame No.] [5]  
 [End Frame No.] [9]  
 [Seconds to Replay] [30] (× 100 msec)

Animation is switched as shown below.



## Frame Edit



- For more information on frame editing and registration, refer to the Operation Manual.
- You can register a maximum of 1023 frames (0 - 1022).
- The frame has limitations in size, etc. For more information, refer to page 14-21.

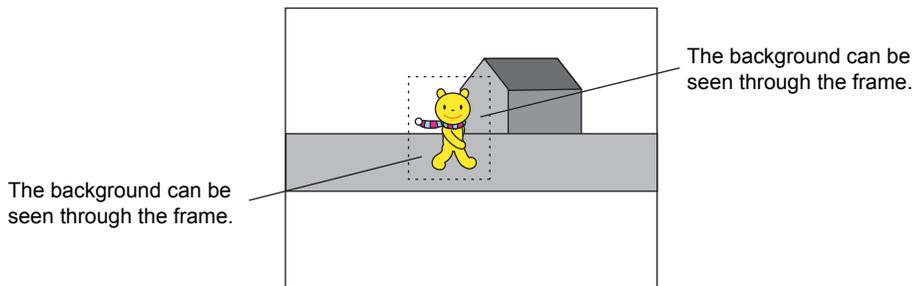
## Notes

### Animation Setting Position

An animation can be set only on the base screen.  
 Note that you cannot register it on overlap display parts.

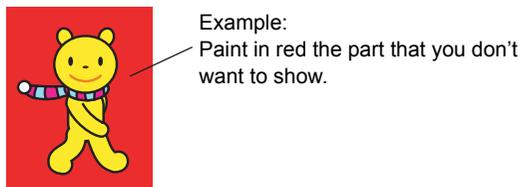
### Transparent Setting

You can hide a part of a picture (frame) in the animation you registered.

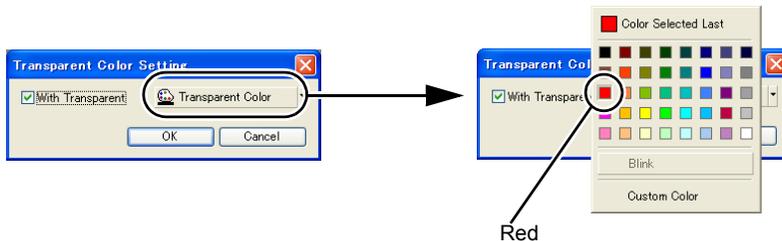


### Transparent color setting for frame

1. Paint out non-display area of each frame using a color different from the color of the display area on the [Frame Edit] window.



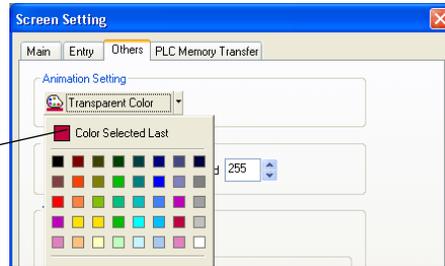
2. Select [Transparent Color Setting] from the [Transform] menu.  
 Check [ With Transparent] and select the same color that you used to paint the non-display area out in step 1.



This makes the color in the non-display are transparent. When you display the frame on the screen, the background can be seen though the non-display area.

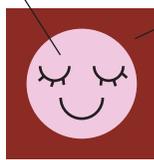
### Transparent color setting for screen

In addition to a transparent color that can be set for each frame of animation, a color will be a transparent color for each screen due to the system structure.

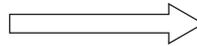


If you use this color in a frame, the area in this color will not be shown and instead, the background will be displayed.

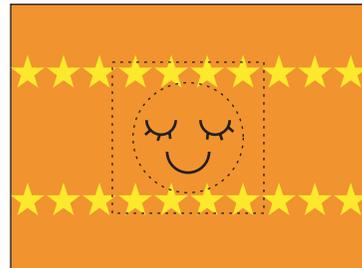
[Transparent Color] for the screen



[Transparent Color] of the frame



On the V8 screen

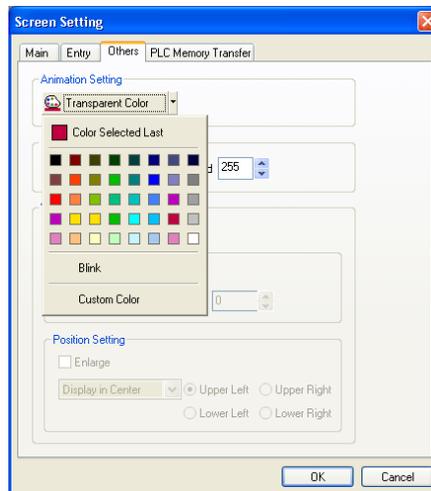


The area painted in the transparent color of the screen also becomes transparent.

To avoid this, set a color that is not used on the screen as a transparent color.

Follow the steps below.

1. Open the screen in which the animation is displayed.
2. Select [Screen Setting] from the [Screen Setting] menu.  
The [Screen Setting] dialog is displayed.
3. Click [Others].  
Select the desired transparent color for the animation setting.



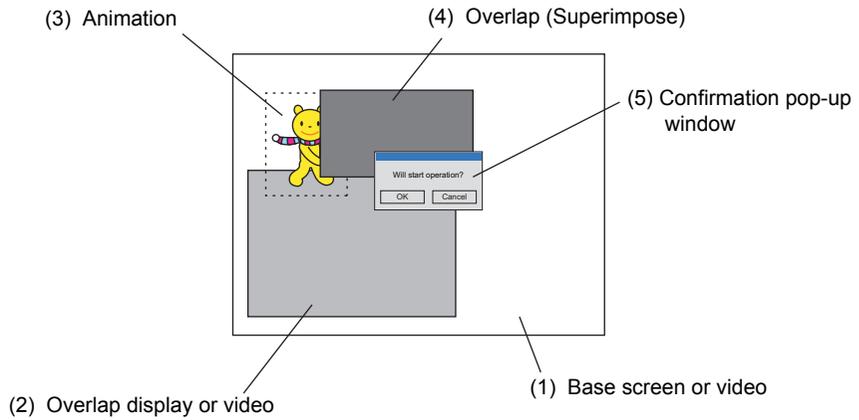
Select a color that is not used in the frame.

## Structure of Layers

---

Animation is placed on the base screen; however, it actually exists in an area different from the base screen.

The figure below illustrates the screen structure.



As shown in the figure above, when you bring up an overlap display during animation, be sure to check the box for [Superimpose] for the overlap display part.

With [Superimpose] unchecked, animation is shown over the overlap display.

However, only one overlap display part with [Superimpose] checked can be shown on each screen.

## Limitations

- Frame size limit

When the capacity per frame is 1 Mbytes or less, maximum resolution of the currently creating screen size (V812S, V810S, V808S; 800 × 600 dots, V810T; 640 × 480 dots) is available.

- Maximum number of motions

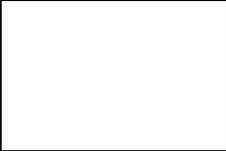
You can set up to 256 animation dialogs for each screen.

However, the maximum number of animations you can display simultaneously is 64.

Even if you set the bit ON, the 65th and subsequent animations will not be displayed.

- To display animation at a high speed:

When displaying animation at a high speed, the frame size and the number of frames per screen are limited.

Per frame	<p>Size: Width (W) × Height (H) = 9,600 dots or less</p> <p>Example: 120W × 80H = 9600 dots</p> <div style="text-align: center;">  <p>120 dots</p> <p>80 dots</p> </div> <p>* The same limitation applies to the frames regardless of the number of colors: 64K colors, 32K colors, 128 colors, 16 colors and 8 colors.</p>
Per screen	<p>The number of frames (Max): 32 (When you display the same frame simultaneously on the same screen, the number of frames is counted as one.)</p>

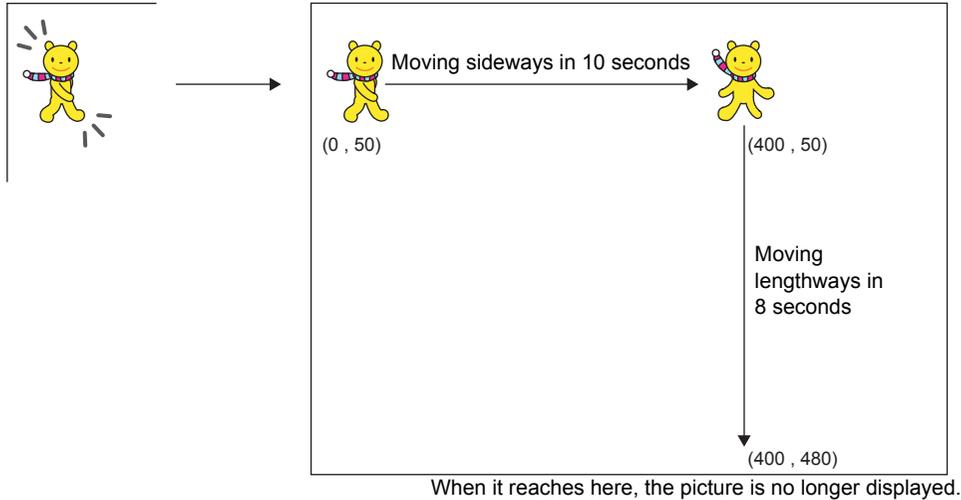
Note that animation cannot be displayed at a high speed if either limitation has been exceeded.

## Setting Example

An animation shown below is explained.

Display when D100 bit 0 is set to ON

(V8 series models: VGA)

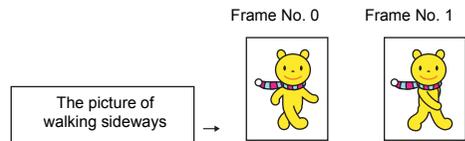


Registration of the animation number and setting on the [Animation] dialog for the screen are explained below:

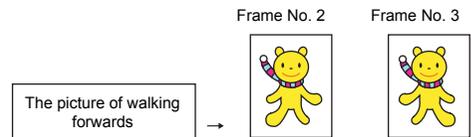
### Registering animation

- Animation No. 0  
 (= register panels to move sideways)  
 Frame: No. 0 to No. 1  
 Seconds to Replay: 1 second  
 (Changing frame No. 0 and No. 1 and display in 1 second)
- Animation No. 1  
 (= register panels to move lengthways)  
 Frame: No. 2 to No. 3  
 Seconds to Replay: 1 second  
 (Changing and displaying frame No. 2 and frame No. 3 in 1 second)

Register frame No. 0 and frame No. 1 in accordance with the setting of animation No. 0.



Register frame No. 2 and frame No. 3 in accordance with the setting of animation No. 1.



### Animation setting

[Main] Tab Window	[Table] Tab Window	
[Command Memory: D100]	Table No. 0	Table No. 1
<input checked="" type="checkbox"/> Use Table	<input checked="" type="checkbox"/> Animation No.: 0	<input checked="" type="checkbox"/> Animation No.: 1
<input type="checkbox"/> Continuous Replay	<input checked="" type="checkbox"/> Move	<input checked="" type="checkbox"/> Move
	[Movement Pattern: None]	[Movement Pattern: None]
	[Movement Points: 2]	[Movement Points: 2]
	[Seconds to Move: 100] (× 100msec)	[Seconds to Move: 80] (× 100 msec)
	[Coordinates] [X0: 0] [Y0: 50] [X1: 400] [Y1: 50]	[Coordinates] [X0: 400] [Y0: 50] [X1: 400] [Y1: 480]

## 14.2 Video/RGB Display

### Applicable Models

#### Video display

Applicable Models	Applicable Option Units	Video Channels
V8i series	GU-00 (V8i/V715X)	4CH
	GU-10 (V8i only)	2CH

\* For information on the video display compatible with V6 models, refer to “2 Overlap” page 2-36.

#### RGB (input) display

Applicable Models	Applicable Option Units	RGB Channels
V8i series	GU-01 (V8i/V715X)	1CH
	GU-10 (V8i only)	1CH
	GU-11 (V8i only)	2CH

#### Video & RGB (input) simultaneous display

Applicable Models	Applicable Option Units	Video/RGB Channels
V8i series	GU-10 (V8i only)	2CH/1CH

## Overview

### Video Display

- NTSC/NTSC Square Pixel/PAL signals are displayed on the screen of the V8i.  
You can show a video screen by simply placing and setting a video/RGB display item.



An image from the connected video input is displayed on the MONITOUCH screen.

## RGB (Input) Display (New)

- The RGB input signal from the computer is displayed on the V8i screen. You can show an RGB screen by simply placing and setting a video/RGB display item.



An image from the connected computer is displayed on the MONITOUCH screen.

- By using the option unit "GU-10", the video signal and the RGB signal can be read at the same time. The video display and RGB input display can be shown on one screen.



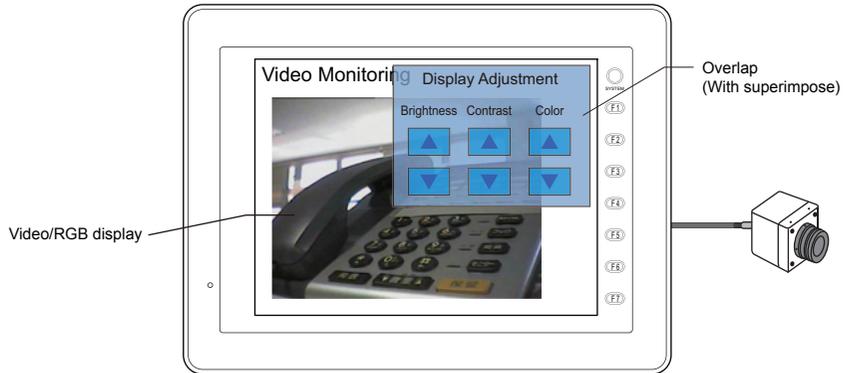
Images from the connected video input as well as a computer are displayed on the MONITOUCH screen at the same time.

However, the order of precedence determined for simultaneous display.

Precedence	High	CH1 (Video)
		CH2 (Video)
		CH3 (Video)
		CH4 (Video)
	Low	CH5 (RGB)
		CH6 (RGB)

## Superimpose

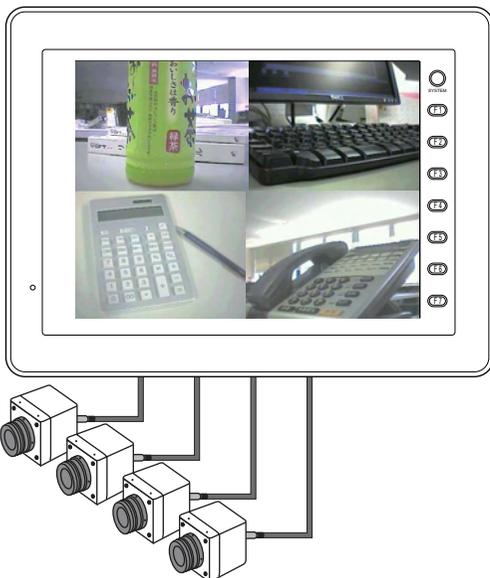
When you display an ordinary operation screen (such as switches or text) that you created on an overlap display, over a video/RGB display, you can make the operation screen transparent so as not to obscure the video/RGB display. (Superimpose)



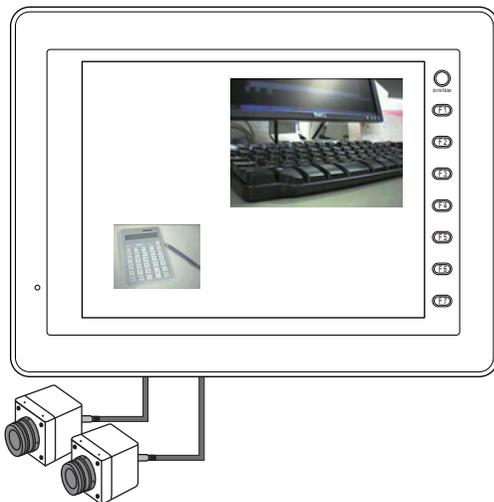
## 4-channel Display

- You can display up to four channels on one screen. (Select from: 1, 2, 4 channels)
- Two or four channels take a little longer to display than one channel.  
However, you can adjust the process speed by specifying a priority in display. (Specify Display Priority)

Example 1: 4-channel display



Example 2: 2-channel display

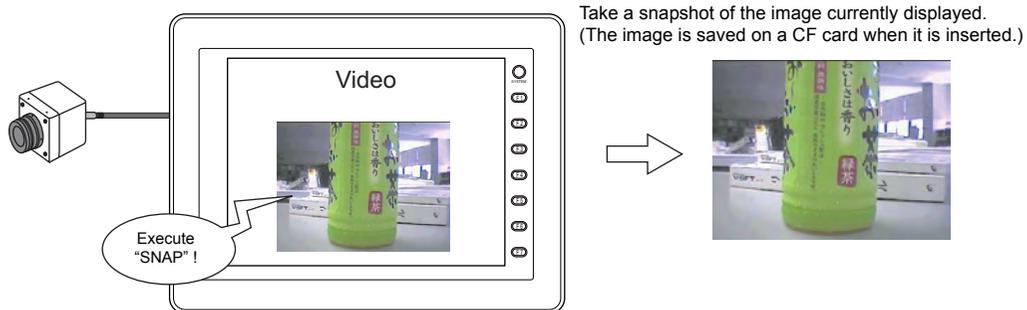


\* When you switch the channels while only one channel is displayed, use [Video Display] of an overlap display part.  
For more information, refer to "2 Overlap" (page 2-36).

## Snapshot Function

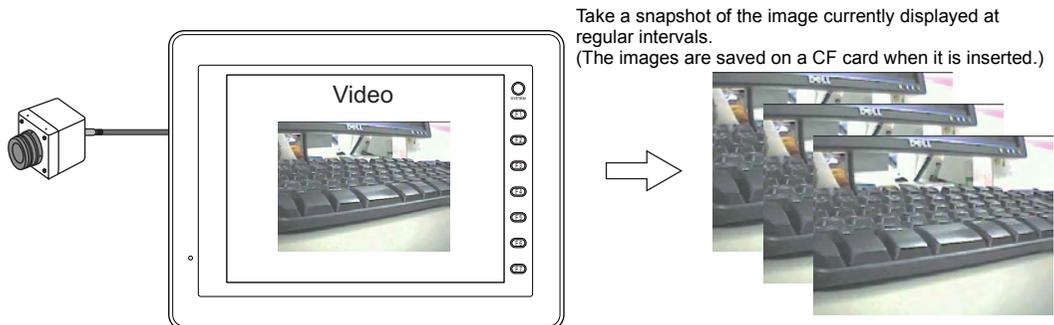
You can capture an image of a video/RGB screen and save it on a CF card. Double-click on the video/RGB screen or execute the macro command "SNAP". There are three snapshot functions.

- Single Snap  
One video/RGB image that is currently displayed is captured when a snapshot is taken.

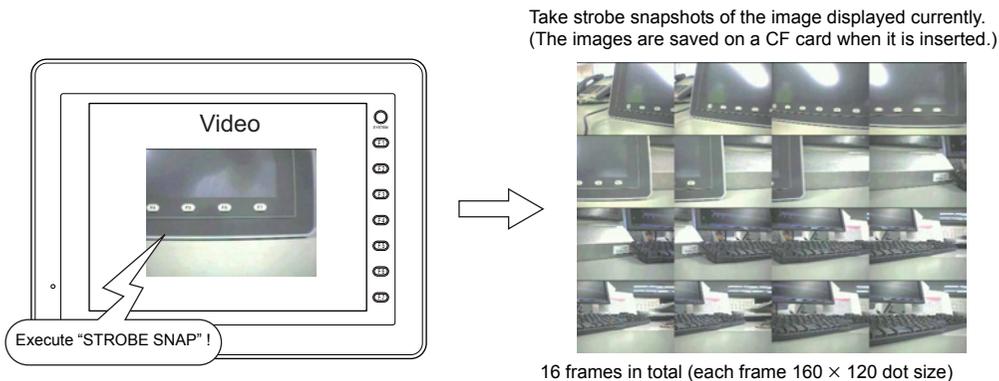


- \* **When a macro command (background SNAP) is used, a snapshot can be taken while the video screen is not displayed. For more information, refer to the Macro Reference Manual.**

- Continuous Single Snap (New)  
The video/RGB image that is currently displayed is captured continuously at regular intervals.



- Strobe Snap  
A number of frames (16 frames in total) are captured as continuous shooting.

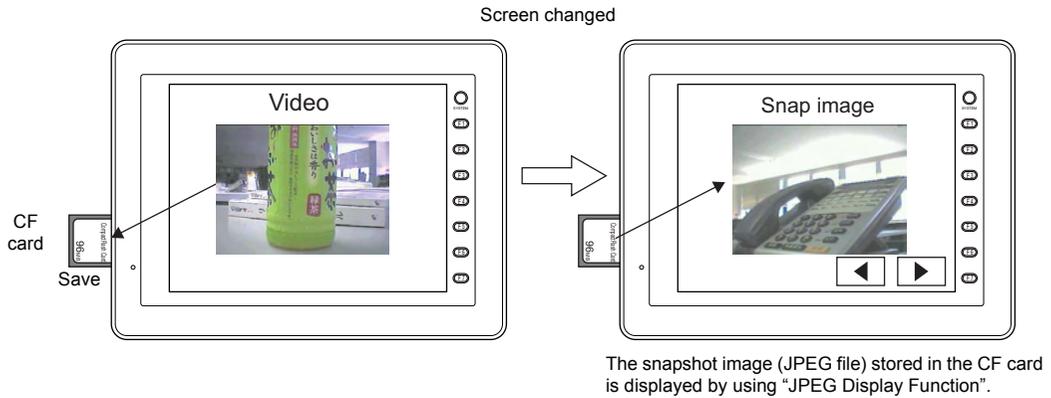


## JPEG Display

You can display a snapshot image, which was saved onto a CF card as a JPEG file, on the screen again.

If you execute "SNAP" when using a CF card, the video/RGB snapshot image is automatically saved as a JPEG file into a certain folder on the CF card. It can be called and displayed by using [JPEG Display] item on the screen.

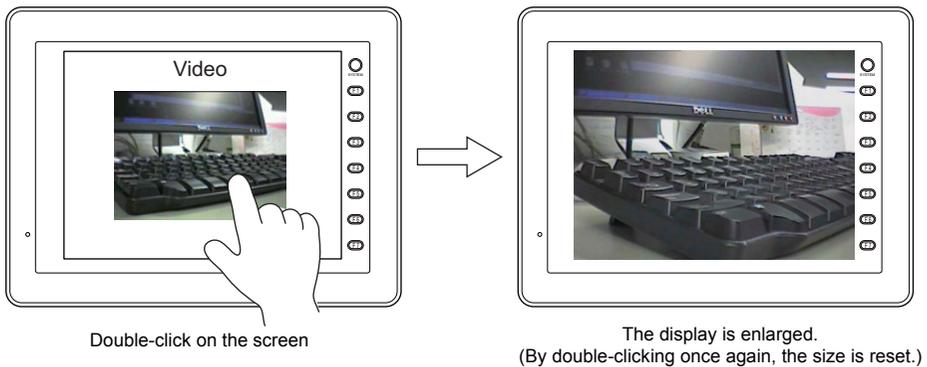
For more information, refer to "14.3 JPEG Display" (page 14-64).



## Operation by Double-clicking

You can set the action to be performed by double-clicking on the video image displayed.

Example: Enlarged display



## Specifications

Item	Specifications	
	Video	RGB Input
Type	Composite video signal	Analog RGB
Input signal	NTSC NTSC Square Pixel PAL	Analog straight polarity 0.5 V - 1.0 Vp-p (75Ω at the end)
Operation mode	NTSC ITU-R BT. 601 NTSC Square Pixel PAL ITU-R BT. 601	-
Sampling frequency	13.5 MHz	-
Display size	(Refer to "Display size" below.)	
Display color	V810/V812 16,777,216 colors V808 262,144 colors	256 gray scales 64 gray scales
External connection	BNC co-axial connector	D-SUB15 pin (mini)

### Display size

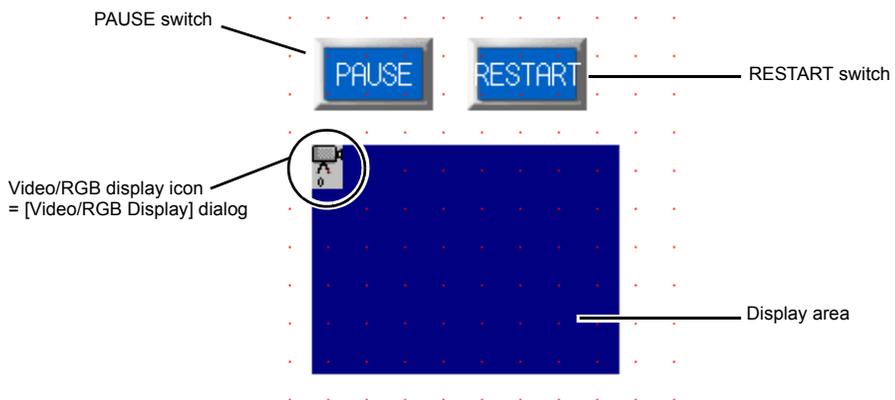
The image taken into video/RGB display may or may not be the same in size as the actual image.

Input Signal	Input Signal Size		Display Size (= image clip size)
Video	NTSC ITU-R BT. 601	720 × 485	640 × 480
	NTSC Square Pixel	640 × 485	640 × 480
	PAL ITU-R BT. 601	720 × 578	720 × 578
RGB input	VESA	640 × 480	640 × 480
		800 × 600	800 × 600
		1024 × 768	640 × 480 or 800 × 600

If the display size is smaller than the input signal size, the start position of the image clip size can be adjusted on the V8i to change the displayable area size. For more information, refer to "Display Size" (page 14-39).

## Configuration

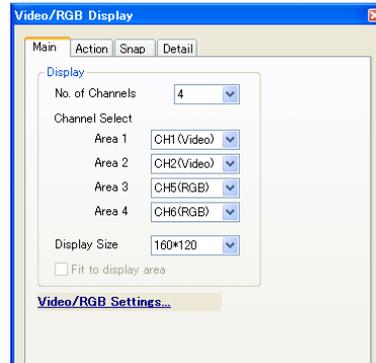
- The video display item components are shown below.

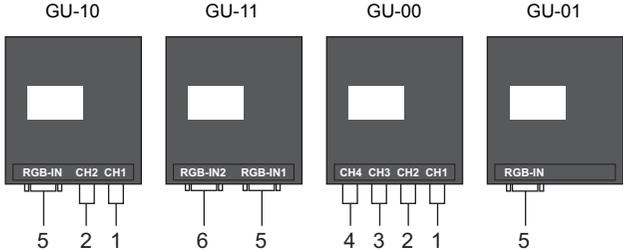


## Setting Dialog

### Video/RGB Display

#### Main

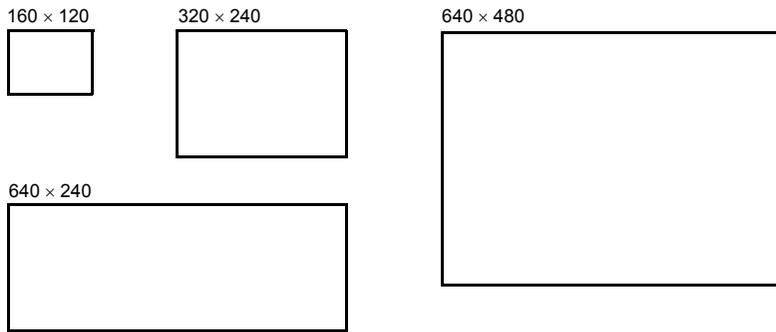


<p>No. of Channels *1 *4 (1CH, 2CH, 4CH)</p>	<p>Specify the number of channels, among those which are connected to the V8i or a computer, to be displayed on the display area part linked to the [Video/RGB Display] item. Display size per channel should be set for [Display Size].</p>												
<p>Channel Select *2 (Area 1, Area 2, Area 3, Area 4)</p>	<p>Specify the channel to be displayed in each video/RGB display area. The areas to be set vary depending on the number set for [No. of Channels] mentioned above.</p> <p>The available number of channels varies depending on the option unit used.</p> <div style="text-align: center;">  <table border="1"> <tbody> <tr><td>1</td><td>CH1 (Video)</td></tr> <tr><td>2</td><td>CH2 (Video)</td></tr> <tr><td>3</td><td>CH3 (Video)</td></tr> <tr><td>4</td><td>CH4 (Video)</td></tr> <tr><td>5</td><td>CH5 (RGB)</td></tr> <tr><td>6</td><td>CH6 (RGB)</td></tr> </tbody> </table> </div>	1	CH1 (Video)	2	CH2 (Video)	3	CH3 (Video)	4	CH4 (Video)	5	CH5 (RGB)	6	CH6 (RGB)
1	CH1 (Video)												
2	CH2 (Video)												
3	CH3 (Video)												
4	CH4 (Video)												
5	CH5 (RGB)												
6	CH6 (RGB)												
<p>Display Size *3 *4 (Free, 160*120, 320*240, 640*480, 640*240)</p>	<p>Select the dot size for one channel. The size is determined with respect to the top left corner of the display area part that is placed on the screen. When [Free] is selected, the display size can be determined as required.</p>												

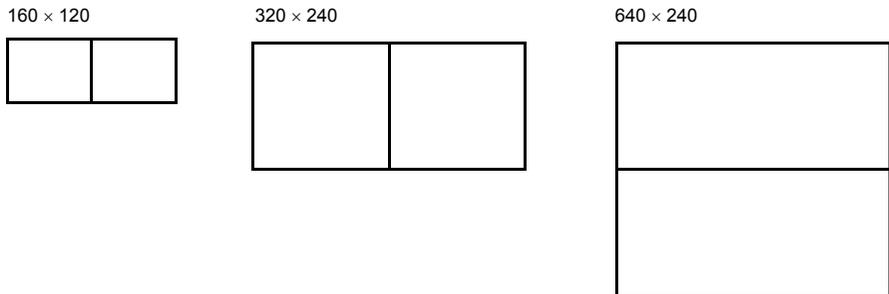
<input type="checkbox"/> Fit to display area	This is active only when [Free] is selected for [Display Size].  Unchecked: The video/RGB screen is displayed only within any display size you set. Checked: The video/RGB screen is displayed with automatic scaling to fit in size “Y” of the set display size.  For more information, refer to “Display Size (Image Clip Size) and Display Area” (page 14-40).
Video Setting	For more information, refer to page 14-43.

\*1 Display example

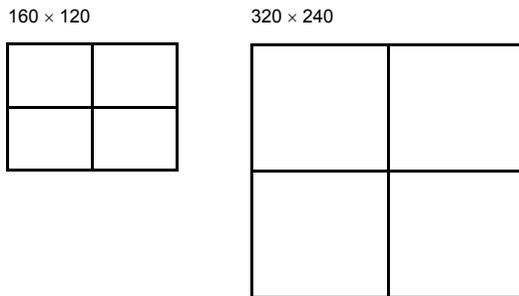
- No. of Channels: 1



- No. of Channels: 2



- No. of Channels: 4

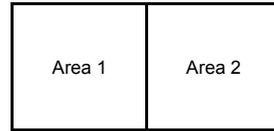


\*2 Display example

- [No. of Channels: 1]



- [No. of Channels: 2]



- [No. of Channels: 4]

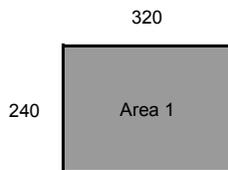


or

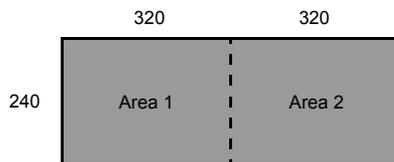


\*3 Display example

- No. of Channels: 1, Display Size: 320 × 240



- No. of Channels: 2, Display Size: 320 × 240



\* To change the display size during video/RGB display, use [Enlarge] display function (fixed to 640 × 480 dots) or use a video overlap display part.

For more information on video overlap display, refer to “2 Overlap” on page 2-36.

\*4 The number of channels and the display size can be combined as shown below.

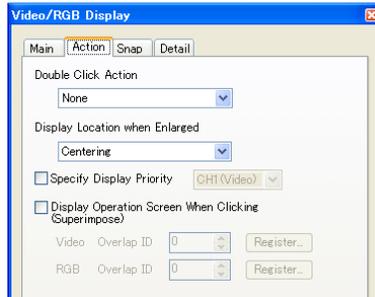
Display Size	No. of Channels
160 × 120	1CH, 2CH, 4CH
320 × 240	
640 × 240 *	1CH, 2CH
640 × 480	1CH

\* When the display size is 640 × 240:

When the display size is 640 × 240, displays in the upper and lower half areas can be switched using internal memory \$s957.

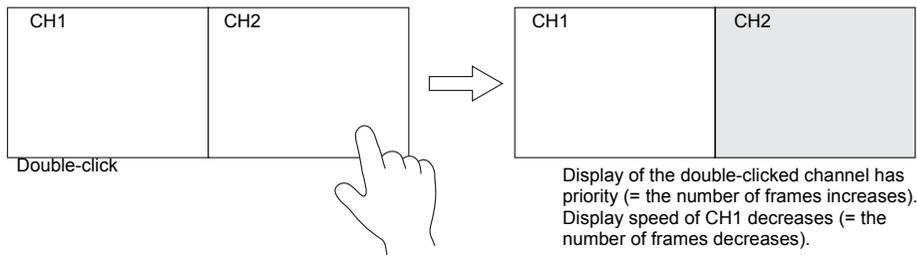
For more information, refer to page 14-45.

**Action**

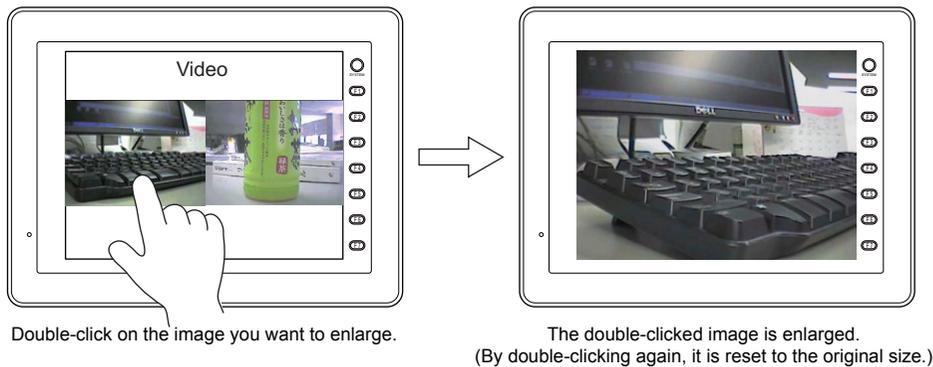


<p>Double Click Action</p>	<p>Select the action to be performed by double-clicking on a video/RGB image.</p> <table border="1"> <tr> <td>None</td> <td>No action</td> </tr> <tr> <td>Specify Display Priority *<sup>1</sup></td> <td>This option becomes active when you specify [2] or more for [No. of Channels] on the [Main] tab window. When double-clicking on a channel being displayed, that channel is displayed on a priority basis (= more frames and faster display speed than the other channels.)</td> </tr> <tr> <td>Enlarge/Resize *<sup>2</sup></td> <td>You can enlarge the image (640 × 480 dots) by double-clicking and reset it to the original size by double-clicking again.</td> </tr> <tr> <td>Single Snap</td> <td>"SNAP" is executed by double-clicking. When an image is being imported, the video/RGB image is displayed as a still-frame image. It is reset when the import is completed.</td> </tr> <tr> <td>Continuous Single Snap *<sup>3</sup></td> <td>"SNAP" is executed continuously by double-clicking. When an image is being imported, the video/RGB image is displayed as a still-frame image. It is reset when the import is completed.</td> </tr> <tr> <td>Strobe Snap *<sup>4</sup></td> <td>"STROBE SNAP" is executed by double-clicking. (The strobe snapshot video/RGB images remain displayed as still-frame images.) By double-clicking again, it is reset to the original video/RGB display.</td> </tr> </table>	None	No action	Specify Display Priority * <sup>1</sup>	This option becomes active when you specify [2] or more for [No. of Channels] on the [Main] tab window. When double-clicking on a channel being displayed, that channel is displayed on a priority basis (= more frames and faster display speed than the other channels.)	Enlarge/Resize * <sup>2</sup>	You can enlarge the image (640 × 480 dots) by double-clicking and reset it to the original size by double-clicking again.	Single Snap	"SNAP" is executed by double-clicking. When an image is being imported, the video/RGB image is displayed as a still-frame image. It is reset when the import is completed.	Continuous Single Snap * <sup>3</sup>	"SNAP" is executed continuously by double-clicking. When an image is being imported, the video/RGB image is displayed as a still-frame image. It is reset when the import is completed.	Strobe Snap * <sup>4</sup>	"STROBE SNAP" is executed by double-clicking. (The strobe snapshot video/RGB images remain displayed as still-frame images.) By double-clicking again, it is reset to the original video/RGB display.
None	No action												
Specify Display Priority * <sup>1</sup>	This option becomes active when you specify [2] or more for [No. of Channels] on the [Main] tab window. When double-clicking on a channel being displayed, that channel is displayed on a priority basis (= more frames and faster display speed than the other channels.)												
Enlarge/Resize * <sup>2</sup>	You can enlarge the image (640 × 480 dots) by double-clicking and reset it to the original size by double-clicking again.												
Single Snap	"SNAP" is executed by double-clicking. When an image is being imported, the video/RGB image is displayed as a still-frame image. It is reset when the import is completed.												
Continuous Single Snap * <sup>3</sup>	"SNAP" is executed continuously by double-clicking. When an image is being imported, the video/RGB image is displayed as a still-frame image. It is reset when the import is completed.												
Strobe Snap * <sup>4</sup>	"STROBE SNAP" is executed by double-clicking. (The strobe snapshot video/RGB images remain displayed as still-frame images.) By double-clicking again, it is reset to the original video/RGB display.												
<p>Display Location when Enlarged *<sup>5</sup> (Centering, Upper Right, Lower Left)</p>	<p>This option becomes active when you use video display function on an SVGA model (V812iS, V810iS, V808iS). If you have enlarged the display (by double-clicking or using macro "ZOOM"), a part of the base screen is shown because the video display size is 640 × 480 dots on the SVGA model. In this case, specify the video display position.</p>												
<p><input type="checkbox"/> Specify Display Priority *<sup>6</sup></p>	<p>This option becomes active when you specify [2] or more for [No. of Channels] on the [Main] tab window. Normally video of each channel is displayed at a uniform speed; however, when multiple channels are used, the speed will be slower than when only one channel is used. With this priority setting, you can make one channel display faster than the other channels. Display priority is available with one channel per screen.</p>												
<p><input type="checkbox"/> Display Operation Screen When Clicking (Superimpose)</p>	<p>When you use this function, you cannot use [Double Click Action] mentioned above. When this box is checked (<input checked="" type="checkbox"/>) , the specified overlap display appears over the video/RGB display when you press on the video image. (For information on "Superimpose," refer to page 14-52.)</p> <p>If you press the [Register] button, you can use a default overlap screen equipped with functions for picture adjustment (brightness, contrast, and color) including the snapshot function. For more information, refer to page 14-54.</p>												

\*1 When [Specify Display Priority] is selected:

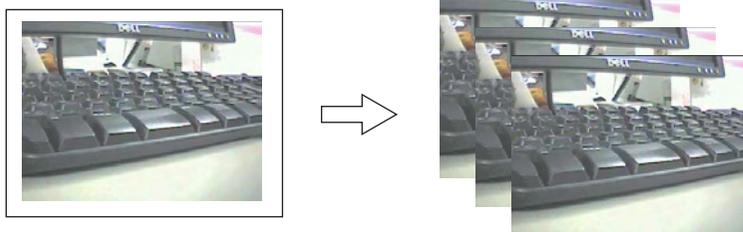


\*2 Display example



\*3 Continuous Single Snap

The target video image is imported by taking snapshots continuously at regular intervals for the serial shoot duration.



\*4 Strobe Snap

The target video image is imported by taking a number of frames similar to continuous shooting. The copied frame images are displayed on the full screen on MONITOUCH. 16 snapshots (160 × 120 dots each) are processed as one image (640 × 480 dots).



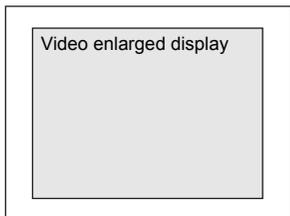
Strobe snapshot order

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

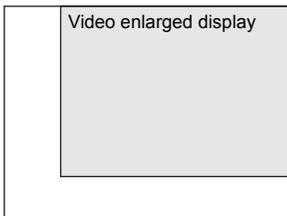
When taking strobe snapshots, other operations or macro commands are not possible. Wait until strobe snapshots have been completed.

\*5 Display example

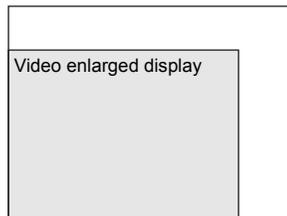
[Centering]



[Upper Right]



[Lower Left]



\*6 Display example

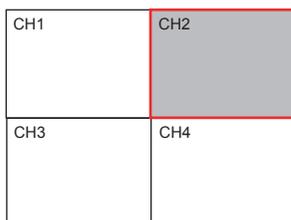
- Unchecked (

A horizontal rectangle divided into two equal-width sections labeled "CH1" and "CH2".

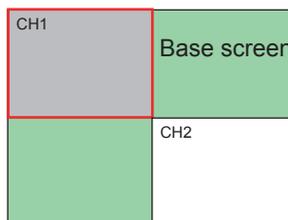
Normally, both are displayed with the same number of frames

- Checked (

: With display priority setting



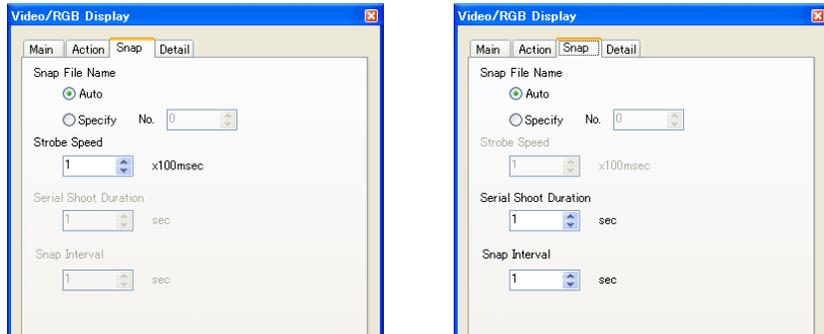
[No. of Channels: 4]  
 Specify Display Priority: CH2



CH1 ( [No. of Channels: 1]  
 Specify Display Priority: CH1)  
 CH2 ( [No. of Channels: 1]  
 Specify Display Priority)

## Snap

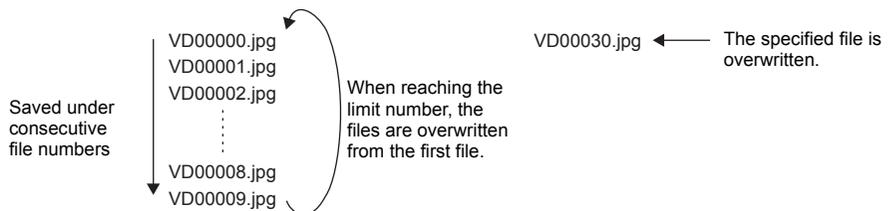
This tab window becomes active only when a CF card is inserted in the V8i.



Snap File Name (Auto, Specify) *1 *2	<p>[AUTO]: (0 to 254) If you select this option, snap files are saved automatically under consecutive numbers starting from "VD00000.jpg". When [Maximum Number of Snap Files in Auto] (refer to page 14-39) has been reached, the existing files are overwritten from "VD00000.jpg".</p> <p>[Specify]: (0 to 32767) Be sure to specify a file number. The snap files are saved under "VDxxxxx.jpg" starting from the specified number. If the specified file already exists, it is overwritten.</p>
Strobe Speed *2 (1 - 255) (× 100 msec)	This is valid when you execute "Strobe Snap." Set the speed for shooting snapshots.
Serial Shoot Duration (1 - 180) (× sec)	This is valid when you execute "Continuous Single Snap." Set the duration for taking snapshots continuously.
Snap Interval (1 - 25) (× sec)	This is valid when you execute "Continuous Single Snap." Specify an interval between shootings when taking snapshots continuously.

### \*1 Setting example

- [Snap File Name: AUTO]  
[Maximum Number of Snap Files in Auto: 10]
- [Snap File Name: Specify]  
[File No.: 30]



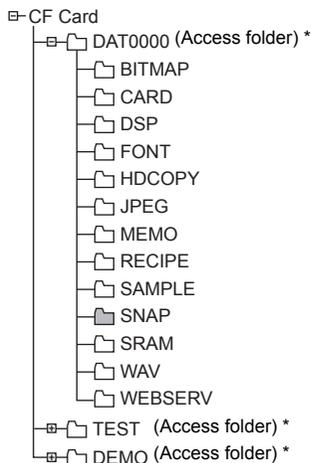
When screen data contains both snap settings of [Auto] and [Specify], specify a number in the range from 255 to 32767 to prevent the files of [Specify] from being overwritten with those of [Auto].

When [Auto] is selected, the number of the last snapshot is stored in system memory \$s932. (Refer to page 14-47.)

- \*2 It is possible to save an image that is superimposed on a video/RGB display.  
For more information, refer to page 14-45.

**\* Snap and CF card**

When a CF card is inserted in the V8i, snapshot images are stored on the CF card.  
 When you insert a CF card into the V8i, the following folders are created for screen data.



**\* You can give a desired name for the access folder for each screen data file.**

Snapshot images are saved in the "SNAP" folder under the file name "VDxxxxx.jpg" (0 to 32767). Each image of [Single Snap] or [Strobe Snap] is saved as one JPEG file.



VD00000.jpg

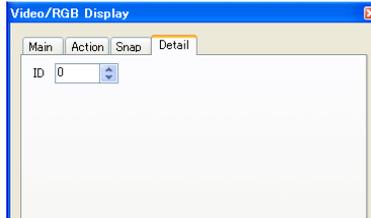


VD00005.jpg

**\* JPEG file colors of snapshots**

The number of colors available with snapshots will vary depending on the display image size at the time of shooting. Refer to the chart shown below.

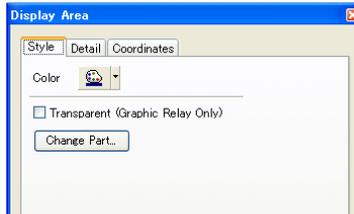
Option Unit	Image Size at the Time of Shooting	Colors Available with JPEG Files
GU-10/GU-11/GU-00 (Video/RGB input)	Same as the image clip size	16M colors
	Enlarged or reduced from the image clip size	64k colors
	"Strobe Snap"	64k colors
RGB input	-	64k colors

**Detail**

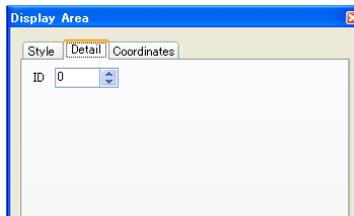
ID	Set the ID. For more information on the ID, refer to the Operation Manual.
----	---

**Display Area**

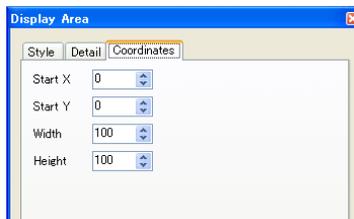
Display area parts are not displayed on the V8i. Place a display area part to determine the video/RGB display position on the editor.

**Style**

Color	Set the color inside the area.
Change Part	For more information, refer to the Operation Manual.

**Detail**

ID	Set the same ID as specified in the [Video/RGB Display] dialog. For more information on the ID, refer to the Operation Manual.
----	---

**Coordinates**

For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

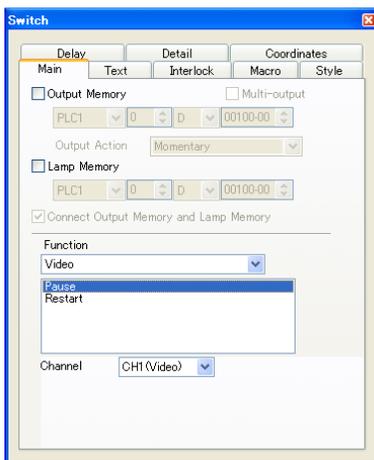
The display area size is automatically calculated in the editor from [Display Size] and [No. of Channels] that are set in the [Video/RGB Display] dialog. The display area is automatically resized and placed.

## Switch Parts for Video/RGB Display

The following switches can be used for video/RGB display.

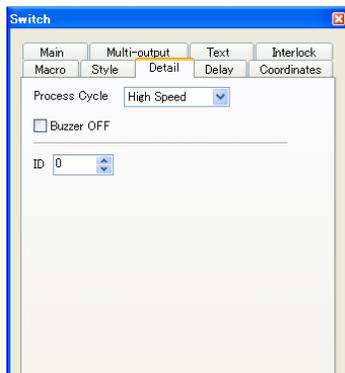
This section describes essential setting items for switches that are used together with video/RGB display.

### Main



Function	<p>Select [Pause] or [Restart], and set the target channel.</p> <p><b>Pause:</b> The video display pauses into a still-frame image.</p> <p><b>Restart:</b> The still-frame image of video display is canceled.</p> <p>* This setting is invalid for RGB display.</p>
----------	--

### Detail



ID	<p>Set the same ID as specified in the [Video/RGB Display] dialog. For more information on the ID, refer to the Operation Manual.</p>
----	---

## Display Size

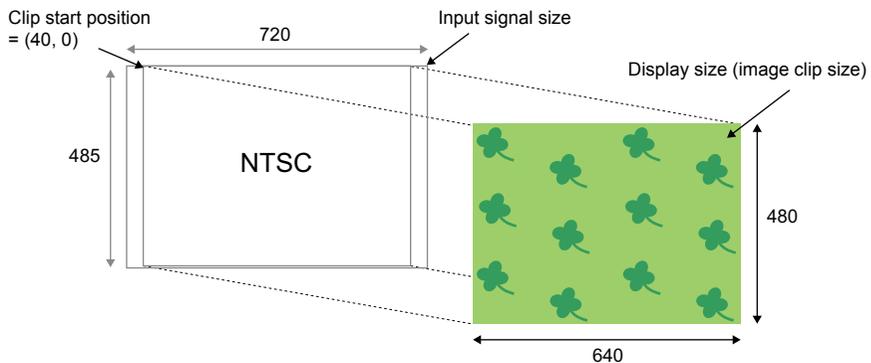
The video/RGB image is displayed in the display area part placed on the screen. However, depending on the input signal size of the video image, the size displayable on the V8i, and the display area size placed on the screen, the image may appear differently on the screen.

In this section, the display size is explained in respective cases.

### Display Size List

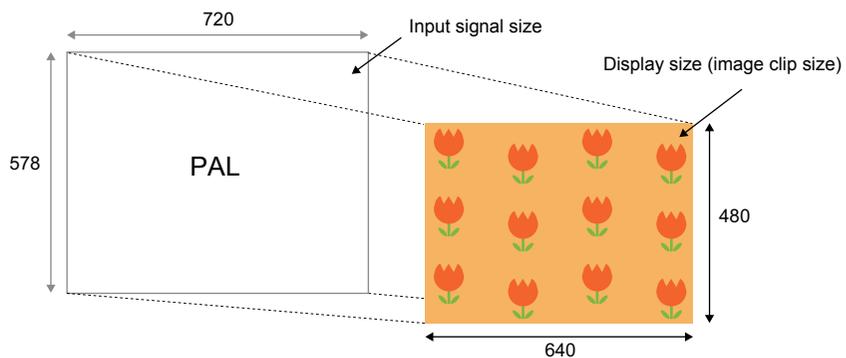
Input Signal	Input Signal Size		Display Size (= image clip size)	Clip Start Position (default)
Video	NTSC ITU-R BT. 601	720 × 485	640 × 480	(40, 0)
	NTSC Square Pixel	640 × 485	640 × 480	(0, 0)
	PAL ITU-R BT. 601	720 × 578	720 × 578	(0, 0)
RGB input	VESA	640 × 480	640 × 480	(0, 0)
		800 × 600	800 × 600	(0, 0)
		640 × 480	640 × 480	(0, 0)

#### Example 1: NTSC ITU-R BT. 601



The image of display size is clipped from the image of input signal size. Consequently, the imported image will be smaller than the actual video image. The start position (= clip start position) can be changed.

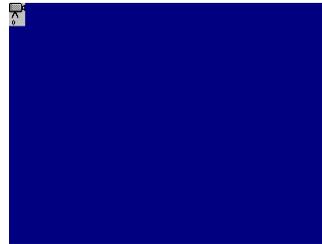
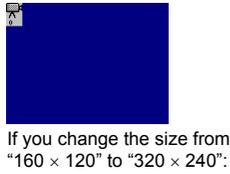
#### Example 2: PAL ITU-R BT. 601



The image of input signal size is scaled down to the display size.

## Display Size (Image Clip Size) and Display Area

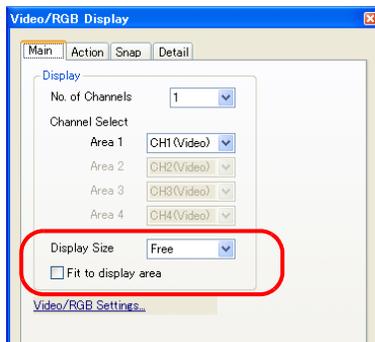
With the [Video/RGB Display] item, if you specify [Display Size], the display area part automatically changes to the specified size where the clipped video/RGB image will be displayed.



The display area is automatically enlarged.

However, if you select [Free] for [Display Size], the display area part size will not change automatically but will be scalable as desired.

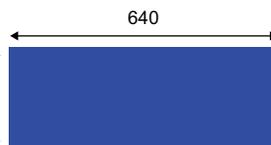
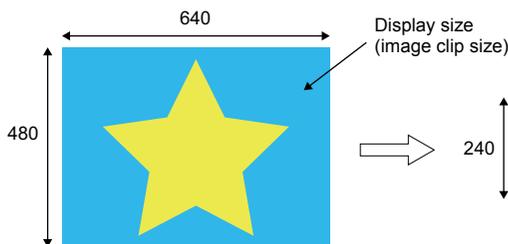
At the same time, the check box  [Fit to display area] becomes active. This box determines whether you want to scale the video/RGB image to fit into the display area or to display the image at the same magnification as much as the display area can hold.



The display area size can be set to "320 × 150".



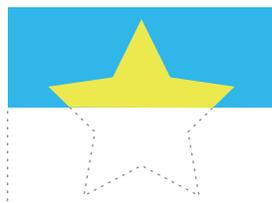
### Example 1: 1CH display



To show the image in the display area shown above:

[Display Size]: Free  
 [Fit to display area] unchecked

The image at the same magnification is displayed as much as the display area can hold.

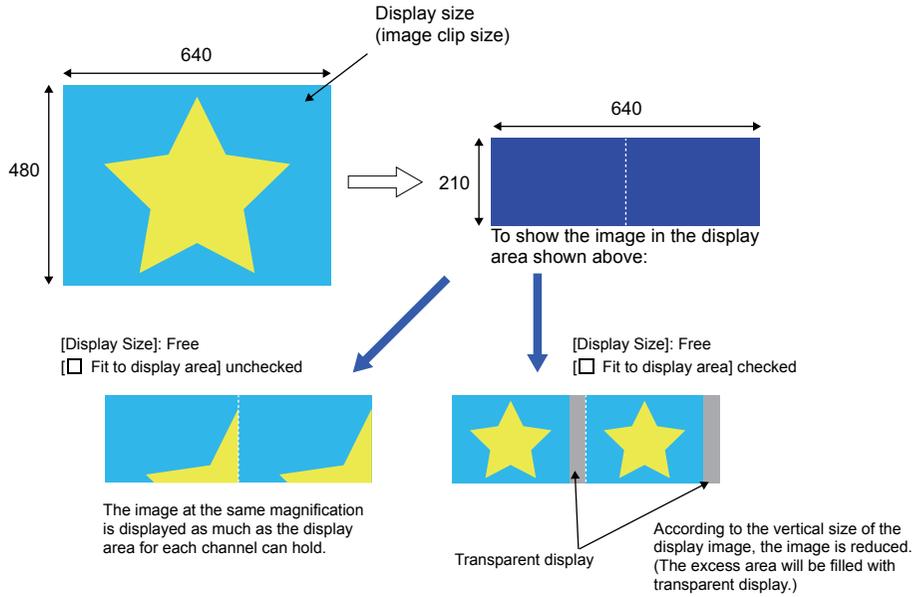


[Display Size]: Free  
 [Fit to display area] checked



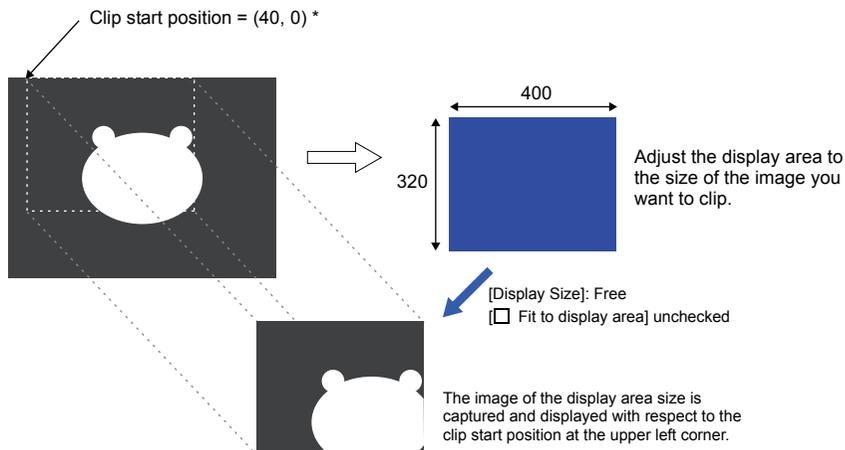
According to the vertical size of the display image, the image is reduced.  
 (The excess area will be filled with transparent display.)

**Example 2: 2CH display**

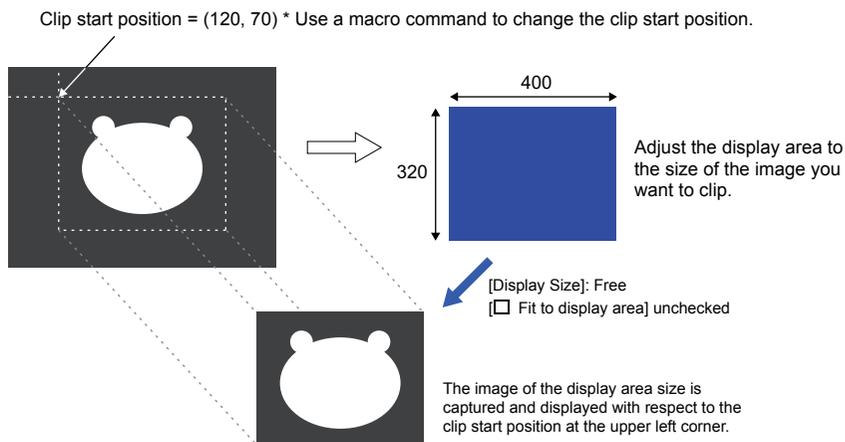


## Clip Start Position

If the image is displayed at the default clip start position, it may extend off the edge of the display area or may not be centered.



If you want to show a certain portion of the entire display size (image clip size) of video/RGB image, change the clip start position and adjust the display area part.

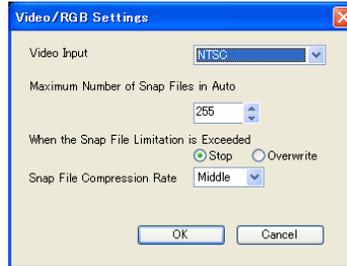


\* The clip start position can be changed using the macro command "CLIP\_POS". For more information, refer to "Macro" (page 14-47).

## Video/RGB Settings

When using a video/RGB display item, be sure to make these settings.

Select from the [Main] tab window of the [Video/RGB Display] dialog or select [System Setting] → [Unit Setting] → [Video/RGB].



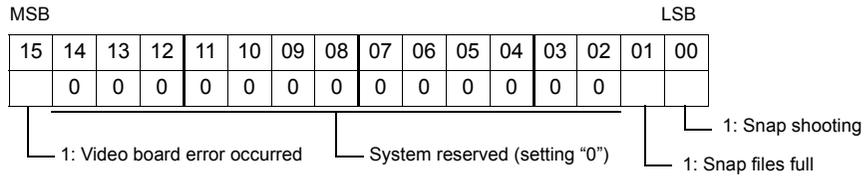
Video Input (NTSC, NTSC Square Pixel, PAL)	Select the video input signal to be used.
Maximum Number of Snap Files in Auto (0 - 255)	Snapshot images are saved on a CF card when [Auto] is selected (page 14-35). Specify the maximum number of files to be saved automatically.
When the Snap File Limitation is Exceeded (Stop, Overwrite)	Set the processing rule when [Maximum Number of Snap Files in Auto] mentioned above has been exceeded.  [STOP]: When the limitation has been exceeded, snap shooting stops.  [Overwrite]: When the limitation has been exceeded, the images are saved while overwriting files from the first file.
Snap File Compression Rate (Low, Middle, High)	Set the file compression rate for snap files. High: The file size is small but image quality is lowered. Middle: The file size and image quality are at an intermediate level (twice the "High" level). Low: The image quality is good but file size is bigger (twice the "Middle" level).

## System Memory (\$s)

The status of video display is output in the system memory (\$s) of the internal memory. For more information, refer to "Appendix 6 Internal Memory."

Address (\$s)	Contents
910	Video CH1 Brightness
911	Video CH1 Contrast
912	Video CH1 Color intensity
913, 914	(System reserved)
915	Video CH2 Brightness
916	Video CH2 Contrast
917	Video CH2 Color intensity
918, 919	(System reserved)
920	Video CH3 Brightness
921	Video CH3 Contrast
922	Video CH3 Color intensity
923, 924	(System reserved)
925	Video CH4 Brightness
926	Video CH4 Contrast
927	Video CH4 Color intensity
928, 929	(System reserved)
930 *1	Video status
931 *2	Composition of video and superimpose screen
932 *3	AUTO File number
933 *4	Focus CH number (Display Priority)
934 *5	CH number of the display area touched
935 *6	Video Brightness of the selected video area
936 *7	Video Contrast of the selected video area
937 *8	Video Color intensity of the selected video area
957 *9	Video Display change (640 × 240 dots only)
962 *10	The number of "Continuous Single Snap" times
966 *11	Video Clip start position of the current channel (X coordinate at the top left corner)
967 *11	Video Clip start position of the current channel (Y coordinate at the top left corner)
968 *12	Video Image clip size of the current channel (width)
969 *12	Video Image clip size of the current channel (height)
970 *13	RGB IN The maximum number of snap files
971 *14	RGB IN Processing when the snap file limitation is exceeded

\*1 \$s930 (Video status)



\* Bit 0 (Snap shooting)

When saving on a CF card, VGA (640 × 480 dots) size takes about 4 or 5 seconds.

\*2 \$s931

It is possible to save a screen superimposed on a video/RGB display.  
Operate internal memory \$s931 using macro commands.

Value	JPEG
0	Video image only
1	Video image + superimpose

\* Notes

- Strobe snapshots are displayed in 640 × 480 dots from the top left corner regardless of the display area setting. Only the area that overlaps this position is superimposed.
- On the JPEG file saved, the superimposed image cannot be transparent.

\*3 \$s932

This is active when you select [AUTO] in the [Snap] tab window.  
The file number that was shot last is stored.  
For more information on [AUTO] in the [Snap] tab window, refer to page 14-35.

\*4 \$s933

The channel number (1 to 4) having priority is stored.  
If no channel is given priority, "–1" is stored.

\*5 \$s934

The channel number (1 to 4) that you touched in the display area is stored.  
As default, "1" is stored.

\*6 \$s935

The brightness of the channel that you touched in the display area is stored.

\*7 \$s936

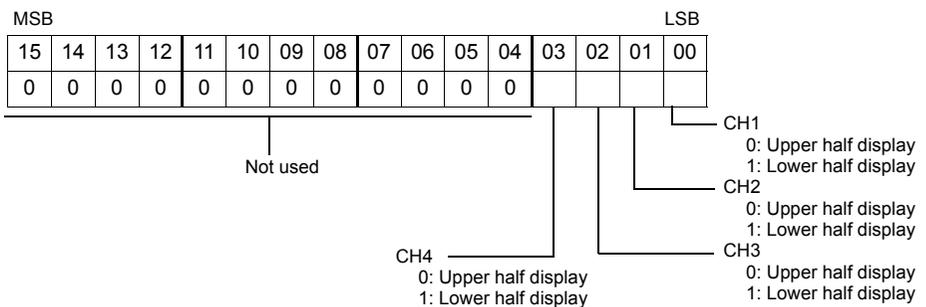
The contrast of the channel that you touched in the display area is stored.

\*8 \$s937

The color intensity of the channel that you touched in the display area is stored.

\*9 \$s957

This is valid when you use a display size of 640 × 240.  
The display in the upper and lower half areas can be switched.



\*10 \$s962

The number of "Continuous Single Snap" times is stored.  
(This is cleared to zero once at the start of continuous snapshots.)

\*11 \$s966, \$s967

The clip start position of the current channel (X, Y) is stored.

\*12 \$s968, \$s969

The image clip size of the current channel (width, height) is stored.

\*13 \$s970

The maximum number of snapshots using the macro command "SET\_RGB" is set.  
(Value: 0 - 255)

\*14 \$s971

The action to be taken when the maximum number specified at \$s970 has been exceeded is set.  
(0: Stop, 1: Overwrite)

## Macro

By using macro commands, you can make action or color adjustment on the video/RGB display.

### Video Display Default Setting

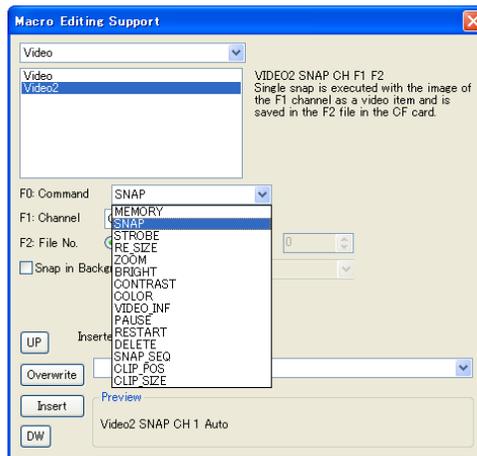
When no macro command is used, the video screen is displayed under default conditions.

Item	Type	Default Value
Brightness	0 (dark) to 31 (bright)	16
Contrast	0 (weak) to 31 (strong)	16
Color intensity	0 (light) to 31 (deep)	16

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### Video/RGB Macro Commands

The macro commands available with video/RGB display items are those of "VIDEO2" type.



The macro command "VIDEO" is available only with video overlap parts.

For more information, refer to "2 Overlap" (page 2-36).

#### Command selection:

Name	Auxiliary Setting Item
	Content
SNAP	Channel: [Auto], [CH (1 - 6)] File No.: [AUTO], [No. designation (0 to 32767)]
	"Single Snap" is executed. When you use a CF card, you can specify the method for storing the snapshot image.
STROBE	Channel: [Auto], [CH (1 - 6)] File No.: [AUTO], [No. designation (0 to 32767)]
	"Strobe Snap" is executed. When you use a CF card, you can specify the method for storing snapshot images. This command is ignored when no video/RGB image is displayed on the screen.

Name	Auxiliary Setting Item
	Content
RE_SIZE	Reset the size of the video/RGB screen that was enlarged by double-clicking on the video display, using the ZOOM macro command, or double-clicking on a strobe snapshot. Even if you do not run this command, you can reset the size by double-clicking on the video/RGB display.
ZOOM	Channel: [Auto], [CH (1 - 6)] Display position: [Centering], [Upper Right], [Lower Left]
	The video/RGB screen (640 × 480 dots) is enlarged. If this command is executed continuously, the previous action is automatically cleared.
BRIGHT	Channel: [Auto], [CH (1 - 4)] Brightness: 0 - 31
	Brightness of the video image can be adjusted. (Not available with RGB)
CONTRAST	Channel: [Auto], [CH (1 - 4)] Contrast: 0 - 31
	Contrast of the video image can be adjusted. (Not available with RGB)
COLOR	Channel: [Auto], [CH (1 - 4)] Intensity: 0 - 31
	Color intensity of the video image can be adjusted. (Not available with RGB)
VIDEOINF	Channel: [Auto], [CH (1 - 6)] Video/RGB display condition: [SAVE], [DEFAULT]
	It is possible to save the current video/RGB display conditions or to reset to the default settings. If you select [SAVE], the display conditions saved by the [SAVE] command is kept even if a power failure occurs. When you display the video/RGB image again, the conditions same as the previous one will remain valid. When [DEFAULT] is selected, the display conditions are reset to default.
PAUSE	Channel: [Auto], [CH (1 - 6)]
	The video/RGB display of the specified channel pauses. You cannot change the size during a pause.
RESTART	Channel: [Auto], [CH (1 - 6)]
	The video/RGB display that was paused with the PAUSE command is restarted.
DELETE	File No.: 0 - 32767
	A JPEG file (File name: VDxxxxx.jpg) saved on a CF card by the snapshot function is deleted.
SNAP_SEQ	Channel: [Auto], [CH (1 - 6)] start/stop: 0: stop, 1: start
	"Continuous Single Snap" is started or stopped.
CLIP_POS	Channel: [Auto], [CH (1 - 6)] Clip start position: X coordinate, Y coordinate
	The clip start position is changed.
CLIP_SIZE	Channel: [Auto], [CH (1 - 6)] Image clip size change: Width, height
	The image clip size is changed.

\* For more information, refer to the Macro Reference Manual.

**Memory designation**

## Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation
F1	○				

**Video2 MEMORY F1**

n	Command No.
n + 1	CH No./File No.
n + 2	Setting value

Command Name	Command No.	CH No./File No.	Setting Value
SNAP	0	1 to 6 (CH) – 1 (AUTO)	0 to 32767 (file No.)/ –1 (AUTO)
STROBE	1	1 to 6 (CH) – 1 (AUTO)	0 to 32767 (file No.)/ –1 (AUTO)
RE_SIZE	2		
ZOOM	3	1 to 6 (CH) –1 (AUTO)	0 to 2 (Centering, Upper Right, Lower Left: for SVGA only)
BRIGHT	4	1 to 4 (CH)	0 to 31
CONTRAST	5	1 to 4 (CH)	0 to 31
COLOR	6	1 to 4 (CH)	0 to 31
VIDEO_INF	7	1 to 6 (CH)	0: SAVE, 1: DEFAULT
PAUSE	8	1 to 6 (CH) –1 (AUTO)	
RESTART	9	1 to 6 (CH) –1 (AUTO)	
DELETE	10	0 to 32767 (file No.)	
SNAP (background)	11	1 to 6 (CH)	0 to 32767 (file No.)/ –1 (AUTO) (n + 3) 0: 160 * 120, 1: 320 * 240 2: 640 * 480, 3: 640 * 240
SNAP_SEQ	12	1 to 6 (CH) –1 (AUTO)	0: stop, 1: start
CLIP_POS	13	1 to 6 (CH) –1 (AUTO)	0 to (up to the maximum screen resolution)
CLIP_SIZE	14	1 to 6 (CH) –1 (AUTO)	1 to (up to the maximum screen resolution)

**AUTO**

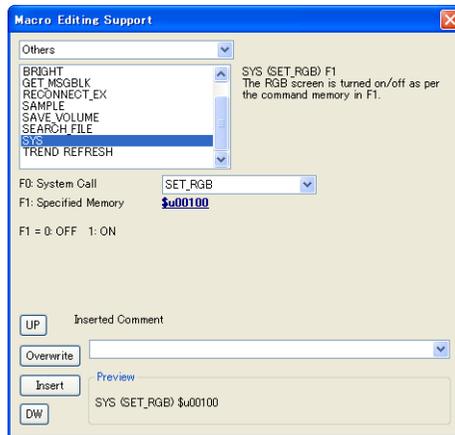
When setting a macro, you can select [AUTO] for channel number (CH) and file number.

- When channel number is set to [AUTO]:  
“SNAP” “STROBE” “ZOOM” “BRIGHT” “CONTRAST” “COLOR”  
“VIDEOINF” “PAUSE” “RESTART” “SNAP\_SEQ” “CLIP\_POS” “CLIP\_SIZE”  
\*1 During “ZOOM”, the relevant channel number is automatically set.  
\*2 When the channel on a higher display priority is shown, the relevant channel number is automatically set.  
\*3 When neither \*1 or \*2 is applicable, it depends on the number of channels.  
If videos of multiple channels are displayed, this command is not executed.

- When file number is set to [AUTO]:  
 “SNAP” “STROBE”  
 When no file exists, the command creates files starting from No. 0; when some files exist, the command creates files starting from the current maximum number (not exceeding the number set for [Maximum Number of Snap Files in Auto]).  
 When reaching the maximum number, the command is not executed any more if you set [Stop] for [When the Snap File Limitation is Exceeded]. If you set [Auto], the command creates files starting back to No. 0.
- \* For more information on [Maximum Number of Snap Files in Auto] and [When the Snap File Limitation is Exceeded], refer to page 14-39.

## RGB Macro Commands

The macro commands available only with RGB display among video/RGB display items are [SYS (SET\_RGB)] [SYS (RGB\_CHG)].



### SYS (SET\_RGB)

#### Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation
F1	○				

#### SYS (SET\_RGB) F1

F1 value	F1 + 1 value	Operation
0	-	Clears the RGB screen.
1	-	Displays the RGB screen.
2	File number (0 - 32767, -1 [AUTO])	Displays the RGB screen and takes a snapshot.
3	File number (0 - 32767)	Deletes the JPEG file of a snapshot.
4 - 7	System reserved	-
8	CH No. (5 - 6)	Specifies the channel number to be displayed or not to be displayed, or the channel number used for touch switch emulation.

\* For more information, refer to the Macro Reference Manual.

**SYS (RGB\_CHG)**

## Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation
F1	○				

## SYS (RGB\_CHG) F1

F1 value	F1 + 1 value	Operation
0	Setting 1	Sets the clip start position with the value of [Setting 1].
1	Setting 2	Sets the clip start position with the value of [Setting 2].

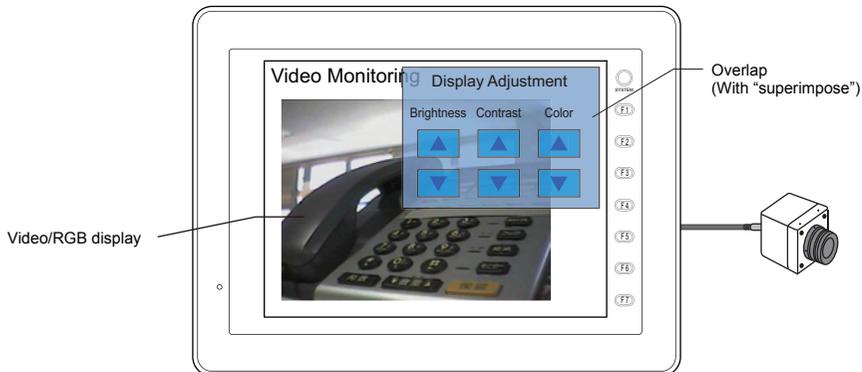
\* For more information, refer to the Macro Reference Manual.

## Superimpose

If a video/RGB image is displayed on the full screen, you cannot operate the switches, etc., on the screen.

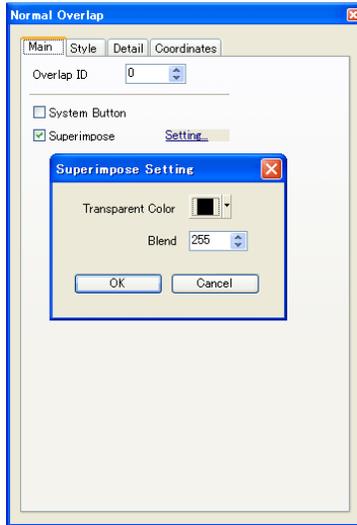
To operate the switches while displaying a video/RGB image, you can call an overlap display with “superimpose” on the video/RGB display.

- \* **If you call an overlap display without “superimpose” on a video/RGB display, the video image becomes a still-frame image.**

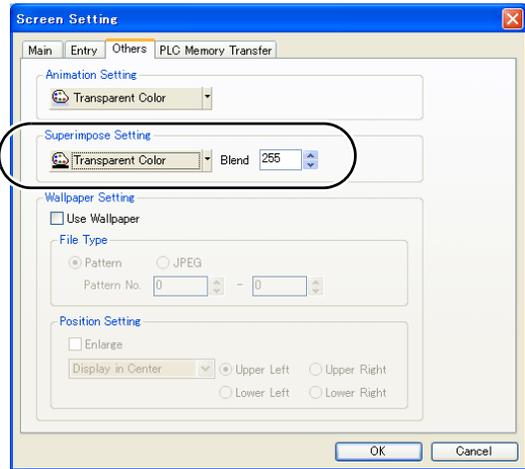


- “Superimpose” is available for any overlap display part (normal, call, or multi).
- If you use [Blend] in the [Superimpose Setting] dialog, you can adjust the transparent level of the overlap display.
- \* **Note that you can set the transparent color and blend value on each screen.**  
**When you use an overlap display (multi or call) registered in the overlap library, you need to set the blend value, etc., on the screen to be displayed.**

## Setting Dialog

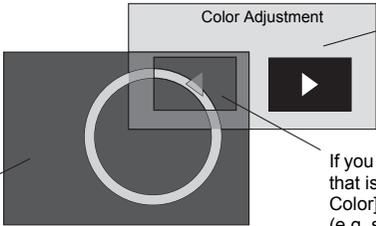


Normal overlap display:  
Make the setting on the [Overlap] dialog.



Call- or multi-overlap display:  
Make the setting on the [Screen Setting] dialog.

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<p>Transparent Color</p>	<p>With "superimpose", one color always becomes transparent when an overlap display is shown over a video/RGB display due to the system structure. You need to specify that color. To avoid showing the video image as transparent, set one color that you do not use on the overlap display.</p>  <p>If you use the color (e.g. black) that is set for [Transparent Color] on the overlap display (e.g. switch OFF color), the background (e.g. video/RGB display) is displayed as is.</p>
<p>Blend (0 to 255)</p>	<p>Set the blend ratio of the overlap display to the video/RGB display. When the blend value is closer to "0", the overlap display is shown faintly. The overlap display becomes more visible as you increase blend value closer to "255". "255" is the same status as without "superimpose."</p>

- \* It is possible to set the above setting only once for each screen.  
You cannot change the setting for each overlap display.

## Notes

- Only one overlap display with "superimpose" is available per screen.  
If you display multiple overlap displays with superimpose simultaneously, only the superimpose setting of the overlap display that appears first becomes active.
- You cannot set a video/RGB display item on an overlap display with "superimpose". To place a video display item on an overlap display, set it without "superimpose" (uncheck [Superimpose]).

## Settings for the Menu Window

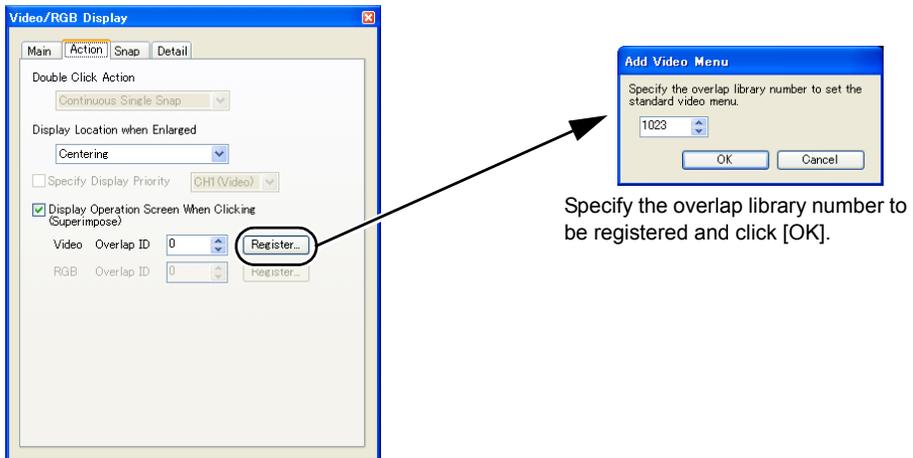
You can use the default overlap screen and make the setting easily. This screen has functions for the picture adjustment (brightness, contrast, and color intensity) as well as snap shooting. The menu window varies depending on whether it is for video screen or RGB screen.

### Registration

To create a video menu, an overlap display part is automatically created and registered in the overlap library, which is to be called as a call-overlap display.

#### Video:

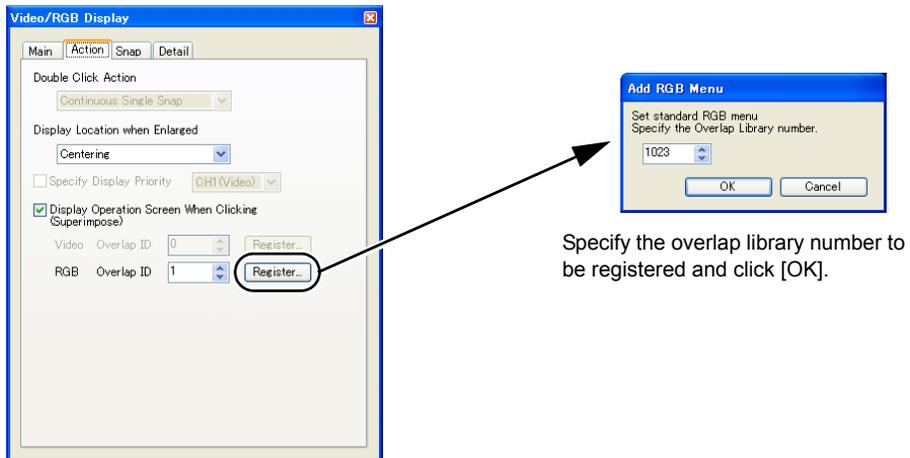
Complete the registration on the [Action] tab window of the [Video/RGB Display] dialog.



A video menu is registered under the specified overlap library number.

#### RGB input:

Complete the registration on the [Action] tab window of the [Video/RGB Display] dialog.

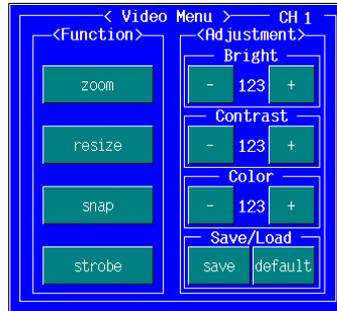


A video menu is registered under the specified overlap library number.

## Confirming the Registered Video Menu

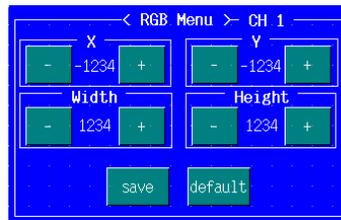
### Video:

The video menu registered in the overlap library shown below is created.



### RGB input:

The RGB menu registered in the overlap library shown below is created.



You can change the design, size, or color intensity for an overlap display as needed.

The editing procedure is the same as the one used for overlap displays, switches, or draw items. For more information, refer to the Operation Manual.

## Calling Methods

There are two methods to call the registered video menu.

### Clicking on video/RGB display

You can display the video menu by simply clicking on the display area when the video/RGB is displayed.

For more information, refer to page 14-32.

### Calling with a switch or external command

The calling method is the same as the one used for a call-overlap display.

For more information, refer to "2 Overlap."

## Superimpose Setting

The registered video menu is equipped with superimpose.

To change the blend value or transparent color, review the [Superimpose Setting] dialog in the [Screen Setting] dialog on the [Screen Edit] window.

For more information, refer to page 14-52.

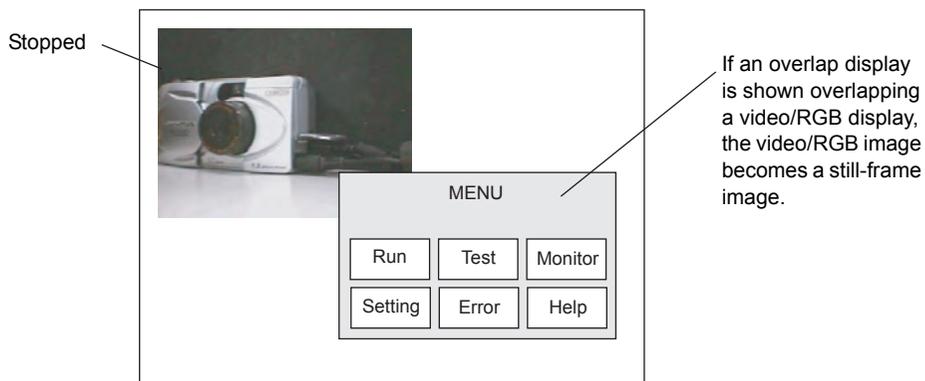
## Notes

### Placement

- You can place a maximum of four video/RGB display items on one screen.  
However, you cannot display multiple video images of the same channel on one screen. If you do so, the video/RGB image displayed last becomes active.
- You can also set video/RGB display items on the base screen or overlap display parts.  
However, if you place a display area part at the top left of an overlap display part, the “system button” (“2 Overlap”) for the overlap display becomes invalid.  
You cannot place any video/RGB display item on an overlap display with “superimpose.”
- When you display animation and video/RGB simultaneously, the animation is displayed on top of the video/RGB.
- When you display a video/RGB image and animation simultaneously or when you display a video/RGB image and an overlap part greater than 640 × 480 dots with superimpose, the image may not be captured correctly.

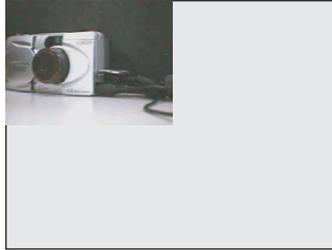
### Display Speed

- The display speed decreases as the number of channels increases. Because the number of frames decreases, a three-channel display is slower than two channels; a four-channel display is slower than a three-channel display.
- If an overlap display is displayed on a video/RGB display on the base screen, the video/RGB becomes a still-frame image defeating its capability to as a video/RGB display.
  - \* **However, if you display an overlap display with superimpose on the video/RGB image, the video/RGB display will not be stopped and will maintain the same display speed.**

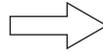
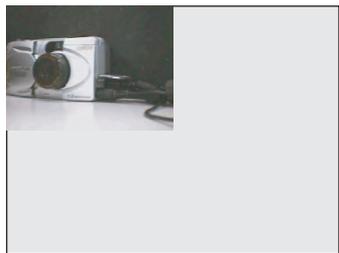


- If one channel video/RGB display is set on the base screen and a video/RGB display item is placed on an overlap display, the video/RGB image is displayed at a high speed until the overlap display appears.

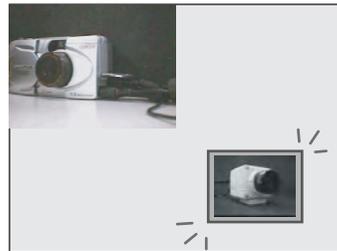
High speed display at this point



When the overlap display appears and it does not overlay the video/RGB display on the base screen, the number of frames decreases and the display speed becomes slow because of the two-channel display.



At this point, both video channels are displayed at a low speed



Overlap display ON

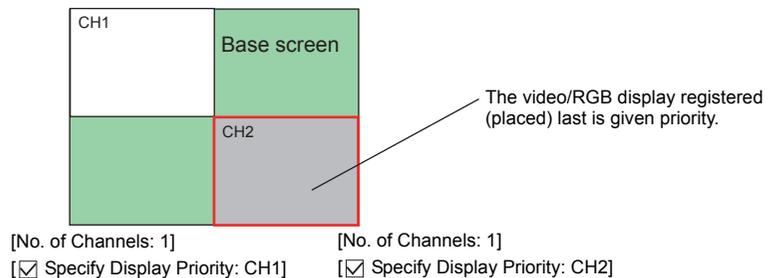
If an overlap display appears over a video/RGB display on the base screen, the video/RGB image becomes a still-frame image. The video/RGB image on the overlap display is displayed automatically at a high speed because of the one-channel video/RGB display.

## Display Priority

You can specify a priority in display when placing multiple video/RGB displays on the screen. (Specify Display Priority)

Specify the channel number you want to give priority using [Specify Display Priority] for the video/RGB display item.

If multiple video/RGB display items are set on one screen, the priority that is assigned to the video/RGB display registered last or displayed last becomes valid.



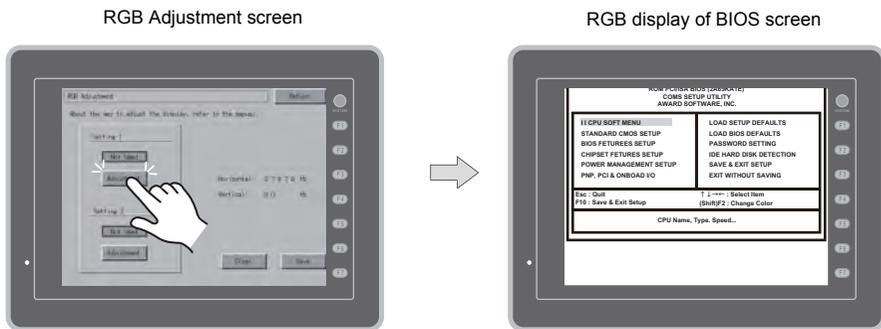
## Before Using RGB (Input) Display

When displaying the RGB screen on the V8i series, positional adjustment is required. This section explains the required adjustment.

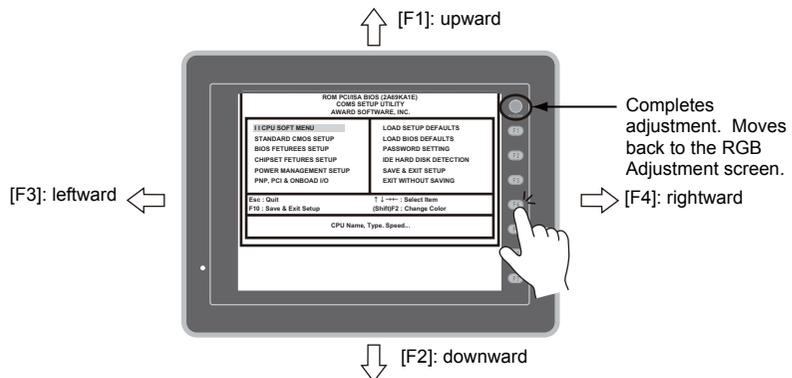
### Adjusting the Display Position of the Screen

If two types of output frequencies are used, make settings for both [Setting 1] and [Setting 2]. If one type is used, make a setting for either of [Setting 1] or [Setting 2]. The procedure for adjusting the display position of the BIOS screen for [Setting 1] and the one of the Windows screen for [Setting 2] is explained below.

- Using an RGB display of BIOS screen  
 Display the BIOS screen on the computer. Press the [Adjustment] switch for [Setting 1] to switch to an RGB display of the BIOS screen.



- Adjusting the display position of the BIOS screen  
 With the BIOS screen displayed, adjust the display position using the [F1] to [F4] switches.

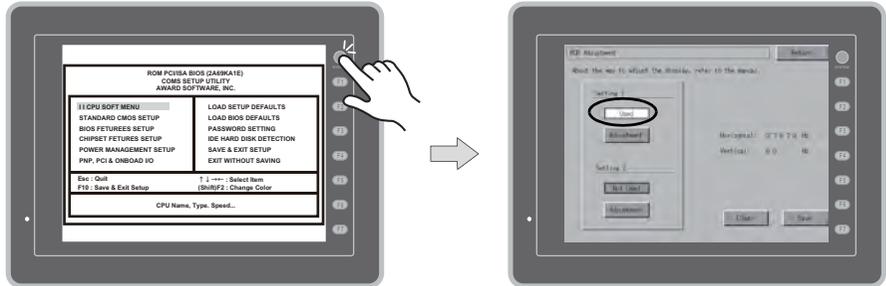


3. Adjustment completed

When the position has been adjusted, press the [SYSTEM] switch. The RGB Adjustment screen is displayed again. The [Used] lamp for [Setting 1] comes on.

Adjustment for the display position of the BIOS screen completed

RGB Adjustment screen



4. Using an RGB display of Windows screen

Display the Windows screen on the computer. Press the [Adjustment] switch for [Setting 2] to switch to an RGB display of the Windows screen.

RGB Adjustment screen

RGB display of Windows screen

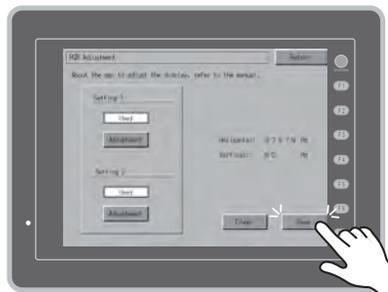


5. With the Windows screen displayed, adjust the display position using the [F1] to [F4] switches. For the procedure for adjusting the display position, refer to step 2.

6. When the position has been adjusted, press the [SYSTEM] switch. The RGB Adjustment screen is displayed again. The [Used] lamp for [Setting 2] comes on.

7. Press the [Save] switch to save the setting. When the setting has been saved, the Main Menu screen is automatically displayed. Settings are stored into the flash ROM, so they are retained when the power is turned off and on.

Setting completed



## RGB Display Method Using the [Video/RGB Display] Item

From the V8i, an RGB input image can be displayed on the [Video/RGB Display] item.

The setting procedure is the same as displaying a video image.

For more information, refer to “Setting Dialog” (page 14-29).

## Other RGB Display Method (V7 Series Compatible)

You can show an RGB input screen without using any [Video/RGB Display] item.

### Switching using read area (n + 1)

15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
								0	0	0	0	0			

Switching to an RGB input screen

Bit 12 (switching to an RGB input screen)

[1] (ON level): RGB input screen displayed

[0] (OFF level): RUN screen displayed

### Switching using the macro command

The RGB input screen can be switched using the macro command “SYS (SET\_RGB)”.

For more information, refer to the Macro Reference Manual.



### Switching RGB input parameters

As RGB input parameters, [Setting 1] and [Setting 2] can be used.

If the frequencies for [Setting 1] and [Setting 2] are not the same, the V8i automatically makes a distinction and switches over RGB input parameters for [Setting 1] and [Setting 2]. If the frequencies for [Setting 1] and [Setting 2] are the same, RGB input parameters for [Setting 1] are used. If the frequencies are the same while RGB input parameters are not the same, [Setting 1] and [Setting 2] are switched over using the macro command.

The RGB input parameters can be switched using the macro command “SYS (SET\_RGB)”.

For more information, refer to the Macro Reference Manual.



### Data output of RGB input

The current RGB input screen status is stored in write area (n + 1).

15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
								0	0	0	0	0			

RGB input screen status

Bit 12 (RGB input screen status)

[1] (ON): RGB input screen displayed

[0] (OFF): RUN screen displayed

## Notes on RGB Input

If there is no RGB input (cable not connected), the screen on the V8i turns black.

## Touch Switch Emulation

Using this function, the Windows screen displayed on the V8i can be operated using touch switches without using the mouse. This is possible regardless of the display size.

- \* **The emulation function is provided to CH5 as default (RGB-IN1 with GU-11). To use CH6, use the macro command “SYS (SET\_RGB)”.**  
**When both CH5 and CH6 are used at the same time, the emulation function is fixed to CH5.**

### Recommended touch panel drivers

Manufacturer	Type	Version		Applicable OS
GUNZE	TPDD	2.00	Non-support version Product version	Windows XP, 2000, Me
GUNZE	U-TP	2.00	Product version	Windows 98, 95, NT4.0, 2000

### Limitations

- DOS application software that runs on the MS-DOS prompt window cannot be operated using touch switches.
- The PS/2 mouse can co-reside; however, some pointing devices mainly provided to notebook computers may not.

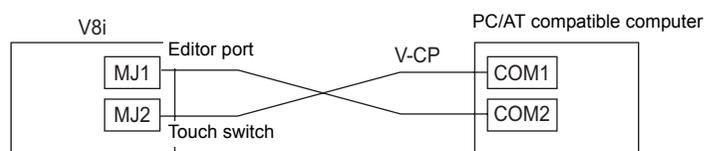
### Setting

- Make the following settings on the V-SFT software.  
 Select [System Setting] → [Device Connection Setting], select [Others] and then [Touch Switch], check  Use], and select [MJ1] or [MJ2] for [Connect to:].  
 When input signals of a PC/AT compatible computer are displayed on the V8i, transmit the touch switch coordinate output back to the computer via the MJ port selected here.
- Install Gunze's touch panel driver on the PC/AT compatible computer before connecting it to the V8i. For the installation procedure, refer to the installation manual provided to Gunze's touch panel driver.

### Setting example

The procedure for adding touch switch emulation in an analog RGB input environment is explained. This example assumes that the following settings have been made.

- On the RGB Adjustment screen, you have adjusted the position of the BIOS screen at [Setting 1] and that of the Windows screen at [Setting 2]. (For the adjustment procedure, refer to page 14-58“Adjusting the Display Position of the Screen”.)
  - The V-CP cable is connected between COM2 of the computer and MJ1 (editor port) of the V8i (for screen data transfer).
1. Switch to an RGB input screen (the Windows screen is displayed).
  2. Start the V-SFT software, and open the file currently transferred to the V8i.
  3. Select [System Setting] → [Device Connection Setting], select [Others] and then [Touch Switch], check  Use], and select [MJ2] for [Connect to:].
  4. Save the file and transfer it back to the V8i.
  5. The RUN mode is selected on the V8i. Switch to an RGB input screen (the Windows screen is displayed).
  6. To perform touch switch emulation, connect COM1 (communication port) of the computer and MJ2 (touch switch) of the V8i using the V-CP cable (refer to item 5 in “Notes” described later).



7. (a) When using the touch panel driver "U-TP":

Insert the floppy disk of Gunze's touch panel driver "U-TP", double-click "setup.exe", and install the touch panel driver according to the prompts. [Welcome!] → [License Agreement] → [Select folder] → [Select Designation Directory] → [Install system tray icons.] → [Number of device (Set to "1")] → [Define device #1 (Keep defaults: "Whole Desktop" and "Device 2")] → [Please select the controller type (Select "Gunze AHL, Serial" for device 1)] → [Serial Setting (Check "Auto Detect")] → [Ready to install] → (Installation starts.)
- (b) When using the touch panel driver "TPDD":

Decompress "TOUCH PANEL DRIVER TPDD" downloaded from the Gunze download site in a drive, and double-click "setup.exe" among the decompressed files. [Welcome] → [Select Language (Select "JAPANESE")] → [Select Controller (Select "4/8 Wire-Type Touch Panel")] → [Select Clone File (Keep it unchecked)] → [Licence Agreement] → [Select Folder] → [Installing TPDD (when completed, click [Finish])]
8. Restart Windows.
9. (a) When using the touch panel driver "U-TP":
  - 1) When Windows boots up, calibration software is automatically started. Make the settings for calibration. (Refer to item 3 in "Notes" described later.) The touch panel driver has been installed.
  - 2) If you need to change the settings for the touch panel driver "U-TP", select [Start] → [Program] → [Gunze] → [U-tp] → [Calibrate]. When the settings have been changed, restart the computer to validate the new settings.
- (b) When using the touch panel driver "TPDD":
  - 1) When Windows boots up, click the [Start] button, and select [Programs] → [Gunze TPDD] → [Adjust Setting] to open [Touch Panel Device Properties].
  - 2) Click the [Device] tab in the [Touch Panel Device Properties] dialog, and click the [Add] button.
  - 3) The [New Pointer Device] window is displayed. Select "Gunze AHL, Serial", select "COM1" for [Select COM port], and click [Next].
  - 4) The [New Pointer Device] window is displayed. Select "Whole Desktop" and click [OK].
  - 5) When the [Touch Panel Device Properties] window is displayed again, click the [Apply] button and then [Calibrate] button.
  - 6) The calibration program is started. Make the settings for calibration. (Refer to item 3 in "Notes" described later.) The settings have been completed.

---

**Notes**

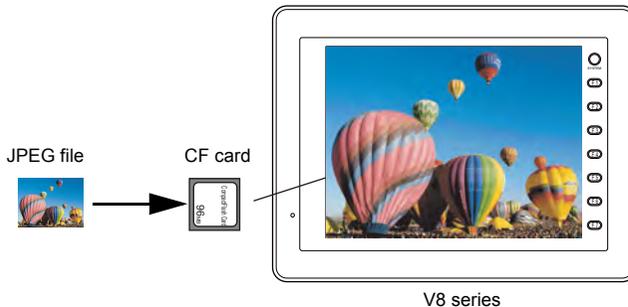
1. It is not possible to switch from the Windows screen to the Main Menu screen on the V8i.
2. When setting the touch panel driver, select "Auto Detect" for [Serial Setting]. When "Auto Detect" is selected, the COM port, address, and IRG of the computer connected to the V8i are automatically detected and set. Consequently, it is necessary to connect the V8i and the computer via the V-CP cable and place the V8i in the RUN mode before starting Windows. The communication parameter settings are fixed: baud rate at 9600 bps, no parity, 8 data bits, and 1 stop bit.
3. Correct the touch position and the mouse cursor display position using the calibration software. Precisely touch the "x" mark displayed on the screen in order: 1st point (top left of the screen) → 2nd point (bottom left of the screen) → 3rd point (top right of the screen) → 4th point (bottom right of the screen). Be sure to touch these four points. When the calibration setting has not been completed successfully, the touch test operation is not possible. Make the calibration settings again.
4. When the display size has been changed on the Main Menu screen, select the RUN mode, start the calibration software, and correct the touch position and the mouse cursor display position.
5. Once the touch panel driver has been installed, the serial port cannot be available with another application software unless the driver is uninstalled or the port is disengaged by changing the setting for [Adjustment Setting].
6. If your computer has only one COM port (communication port), use another computer when transferring screen data to the V8i.
7. For the [Adjustment Setting] dialog of U-TP or TPDD, refer to the Gunze help menu. (Normally keep the default settings.)
8. When the Windows boots up, select the RUN mode on the V8i. If you start Windows on the Main Menu screen (in the STOP mode), the COM port is not recognized.

# 14.3 JPEG Display

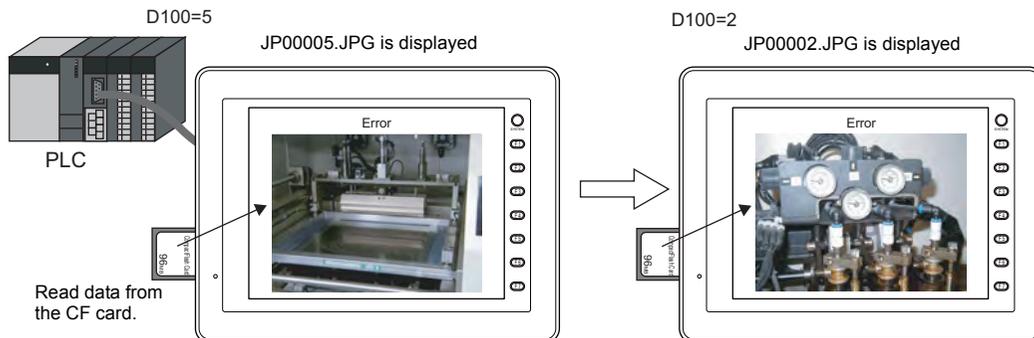
## Overview

### JPEG File Display

- Save a required JPEG file on a CF card and insert the CF card into the V8 series. The V8 series reads the JPEG file and displays the file according to the setting on the screen.
  - \* **Note that a large size JPEG file takes a little longer to display the image.**

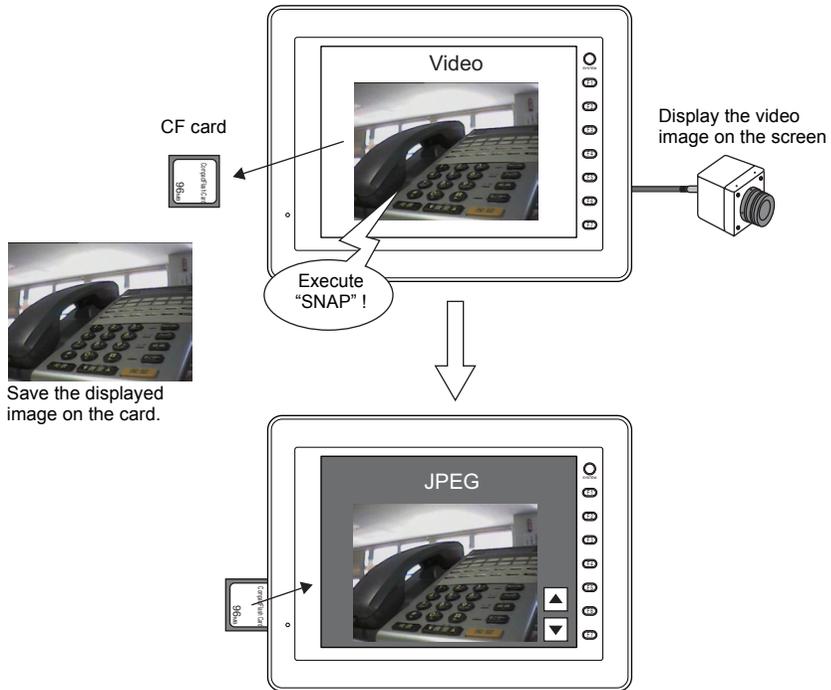


- You can call a JPEG file by specifying its file name or file number or by designating its file number from the PLC.



## Displaying Video Snapshot

- You can display a video image, which is stored on a CF card, as a JPEG file using the snapshot function.



- Two methods of specifying a file number and designating a file number from the PLC are available.

## Configuration

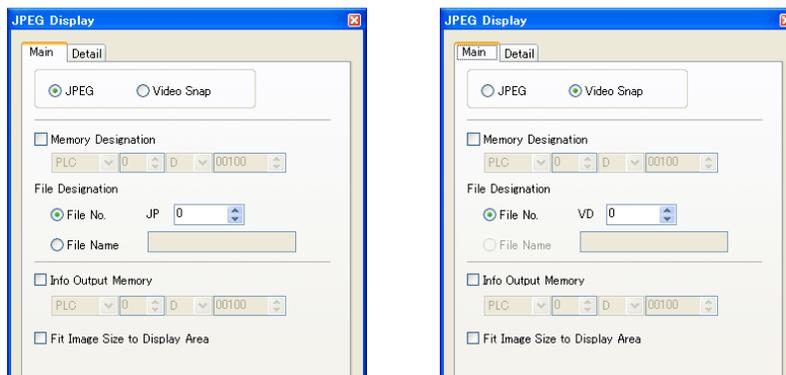
The JPEG display item components are shown below.



## Setting Dialog

### JPEG Display

#### Main



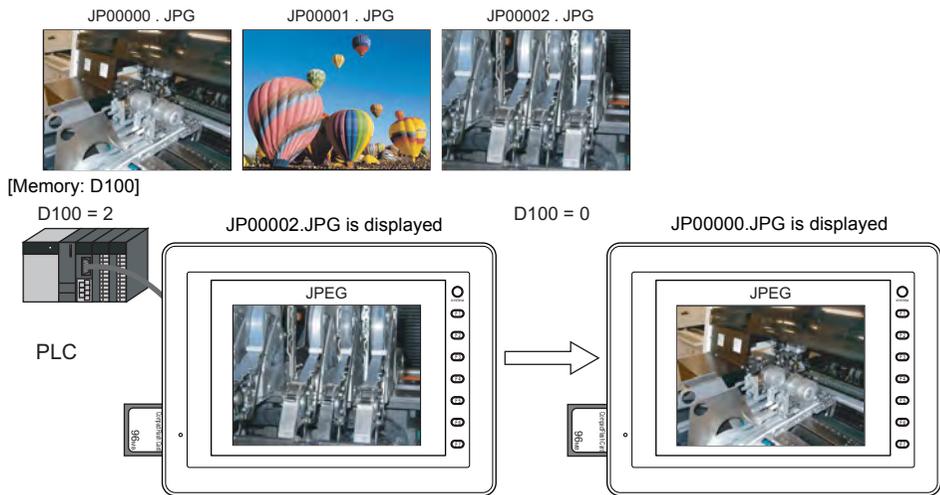
JPEG Video Snap *1	JPEG: Select this option when displaying an existing JPEG file.  Video Snap: Select this option when displaying a video snapshot image.
<input type="checkbox"/> Memory Designation *2	Check this box ( <input checked="" type="checkbox"/> ) to designate a JPEG file number from memory. This is useful to make JPEG display variable. The JPEG file name must be in the format of "JP(VD)xxxxx.JPG". "xxxxx" is recognized as a number.
File Designation (File No., File Name)	These options are active when the [Memory Designation] box is not checked ( <input type="checkbox"/> ).  File No.: A file of "JP(VD)xxxxx.JPG" (xxxxx: 0 to 32767) can be selected. Specify a file number.  File Name: A file of "xxxxxxx.JPG" (xxxxxxx: eight one-byte alphanumeric characters) can be selected. Specify a file name.
<input type="checkbox"/> Info Output Memory	This setting is not valid when [File Designation] and [File Name] are selected. Output the file number currently being displayed to the specified memory address.
<input type="checkbox"/> Fit Image Size to Display Area *3	The JPEG file is automatically enlarged or reduced to fit the display area size.

\*1 The following JPEG files can be displayed:

- When specifying a file number:  
[JPEG] selected: JPxxxxx.JPG (xxxxx: 0 to 32767)  
[Video Snap] selected: VDxxxxx.JPG (xxxxx: 0 to 32767)
- When specifying a file name:  
[JPEG] selected: xxxxxxxx.JPG (xxxxxxx: 8 one-byte alphanumeric characters)  
[Video Snap] selected: Not possible

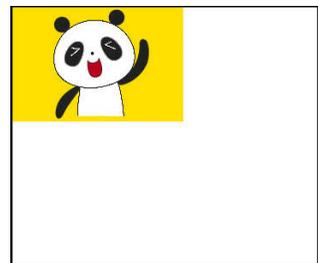
For the storage target of JPEG data and the procedure for storing data on the V8, refer to page 14-71.

\*2 Display example



\*3 Display example

- Unchecked  
 With respect to the top left corner of the display area, the image is displayed in its original size.  
 If the JPEG data is greater than the display area in size, the part that cannot be held in the area is not displayed.



- Checked  
 With respect to the top left corner of the display area, the image is enlarged or reduced.  
 The image is enlarged or reduced at the same factor for width and length relative to the display area size.

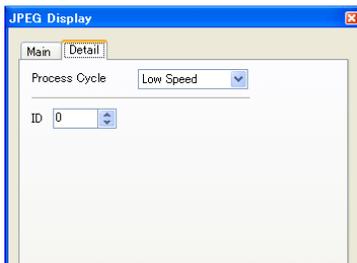


Display resolution for enlarged or reduced JPEG displays can be set in three levels. Set a value shown below for system memory \$s1008 using a macro command.

Value	Resolution	Speed
0	Rough	Fast
1	Medium	Medium
2	Fine	Slow

\* This is valid when the JPEG file size is smaller than 1024 × 768.

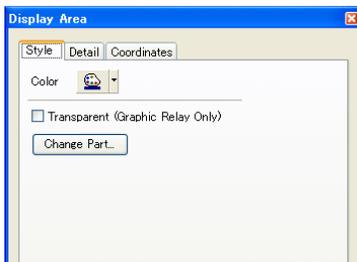
**Detail**



Process Cycle	Set a cycle for the V series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

**Display Area**

**Style**



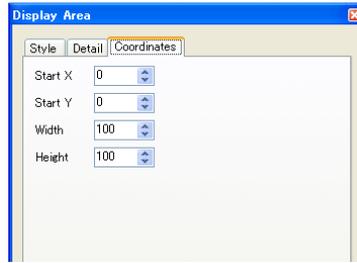
Color	Set the color inside the area.
Change Part	For more information, refer to the Operation Manual.

**Detail**



ID	Set the same ID as specified in the [JPEG Display] dialog. For more information on the ID, refer to the Operation Manual.
----	--

## Coordinates



For more information on the coordinate designating method, refer to “Appendix 4 Styles and Coordinates.”

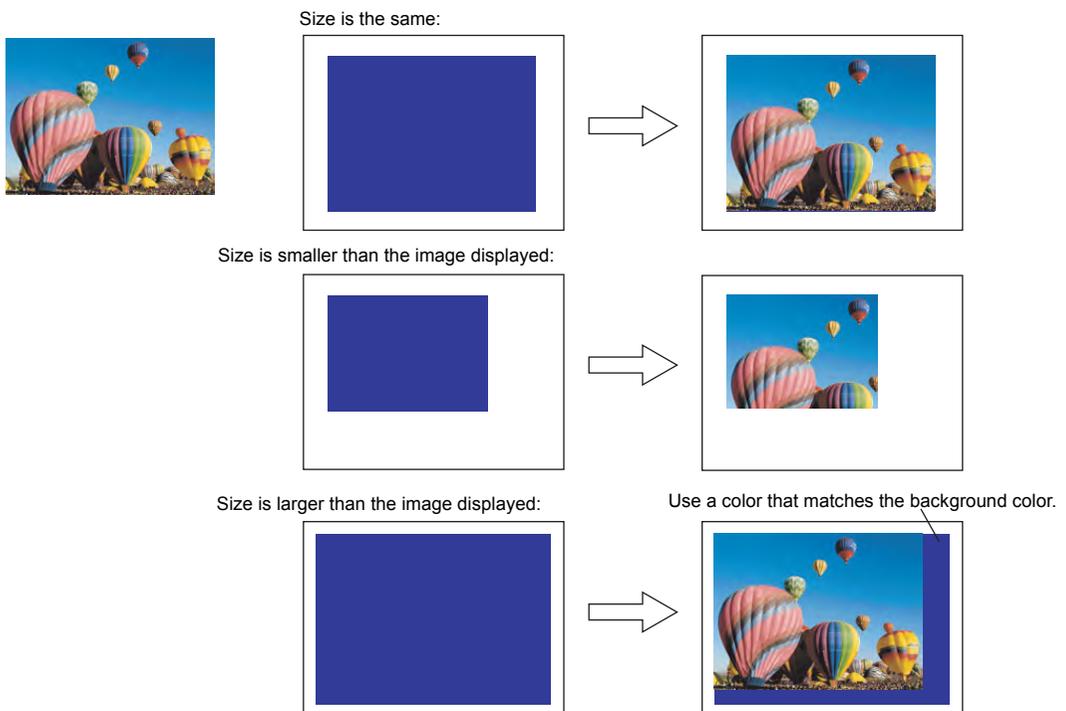
14

## Notes

The display area needs to be large enough to hold the image of the JPEG file.

When the display area is smaller than the image size, the image is not shown entirely.

When the display area is larger than the image of the JPEG file, part of the display area is shown so it is recommended that users match the display area color with the background color of the image.



- \* If you check [Fit Image Size to Display Area] () on the [Main] tab window of the [JPEG Display] dialog, the image is automatically enlarged or reduced to fit the display area size. For more information, refer to page 14-66.

## Switch Parts for JPEG Display

The following switches can be used for JPEG display.

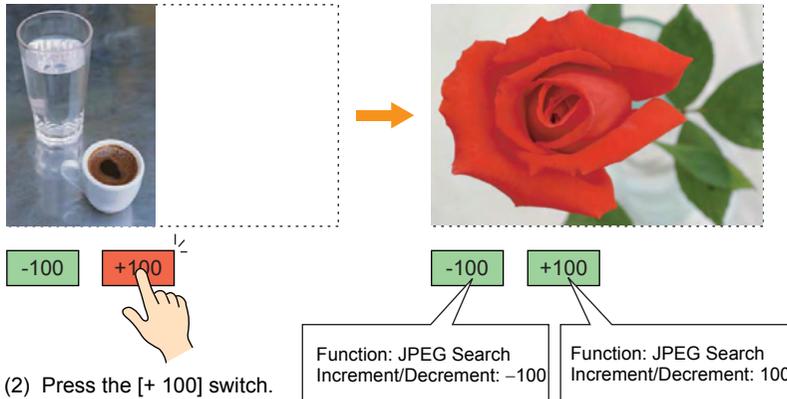
Function	Attached Setting	Contents	Target File
+ Block	-	Calls the JPEG file of the number one greater than the file currently displayed.	JPxxxx.JPG VDxxxx.JPG
- Block	-	Calls the JPEG file of the number one smaller than the file currently displayed.	JPxxxx.JPG VDxxxx.JPG
File Call	(JP/ VD file) No.	Calls the JPEG file of the specified number.	JPxxxx.JPG VDxxxx.JPG
Delete File	-	Deletes the JPEG file currently displayed.	VDxxxx.JPG
JPEG Search *1	Increment/Decrement	Searches the next JPEG file number on the basis of predetermined increment or decrement from the currently displayed file number.	JPxxxx.JPG VDxxxx.JPG

\*1 Display example

- When the [+100] switch is pressed while file No. 800 is displayed, a search is conducted for file No. 900 or later and the file is displayed. When a search has been conducted to No. 32767, it is continued moving back to No. 0.

(1) No. 800 = JP00800.jpg is displayed.

(3) A search is conducted, and No. 900 = JP00800.jpg is displayed.

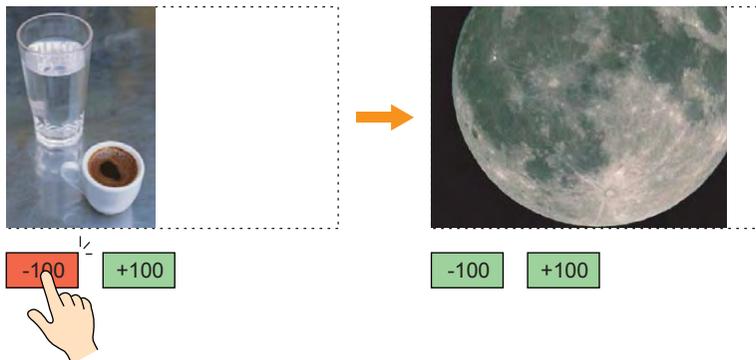


(2) Press the [+ 100] switch.

- When the [-100] switch is pressed while file No. 800 is displayed, a search is conducted for file No. 700 or less and the file is displayed. When a search has been conducted to No. 0, it is continued moving back to No. 32767.

(1) No. 800 = JP00800.jpg is displayed.

(3) A search is conducted, and No. 700 = JP00700.jpg is displayed.



(2) Press the [-100] switch.

## Notes

### Location of Storing Files

The JPEG display function calls and displays the files in the following location:

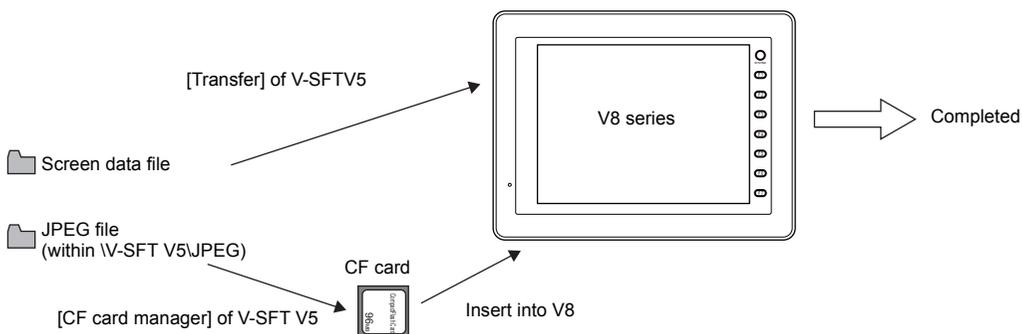
Display Method	File Name	Location in Editor
JPEG Display *1	JPxxxxx.JPG (xxxxx: 0 to 32767) xxxxxxx.JPG (xxxxxxx: 8 one-byte alphanumeric characters)	\\V-SFTV5\JPEG folder where V-SFTV5 is installed
Video Snap	VDxxxxx.JPG (xxxxx: 0 to 32767)	(The video snapshot taken using video/RGB display function is automatically stored in \SNAP folder on the CF card.)

\*1 When using JPEG display, store the files in the above location in advance.

### CF Card Manager

When the JPEG display setting has been completed, transfer the screen data file to the V8 series. It is necessary to save the necessary data (JPEG files) on a CF card using the CF Card Manager and insert the card into the V8 series.

When the JPEG files have been saved on the CF card, insert the CF card into the V8 series.



\* For the procedure for saving JPEG files on a CF card using CF Card Manager, refer to “18 CF Card.”

## 14.4 Sound

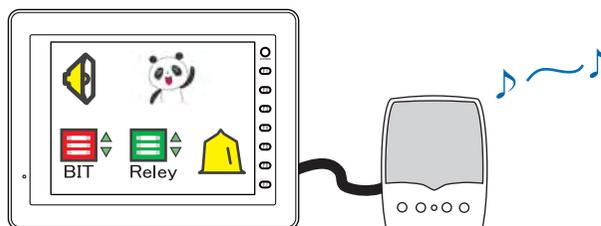
### Applicable Models

Applicable Models	Applicable Option Units
V8i series	GU-00 (V8i/V715X)
	GU-01 (V8i/V715X)

- \* The sound replay function is not available with V8i option units “GU-10” and “GU-11”. Please note the availability of each function.

### Overview

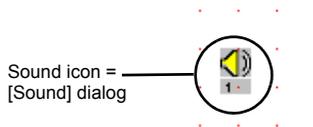
- A WAV file is played when the corresponding bit is set or reset.
  - \* **An external speaker is required to replay a WAV file.**
- You can replay sounds linking the following functions:
  - \*1 Local replay (replay per screen)
    - Sound item
    - Animation
  - \*2 Global replay (replay by setting the sampling bit)
    - Alarm logging
    - Time order alarming
    - Alarm function



# Sound

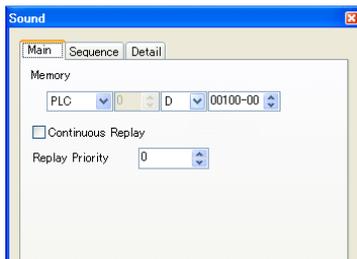
## Configuration

The sound item components are shown below.



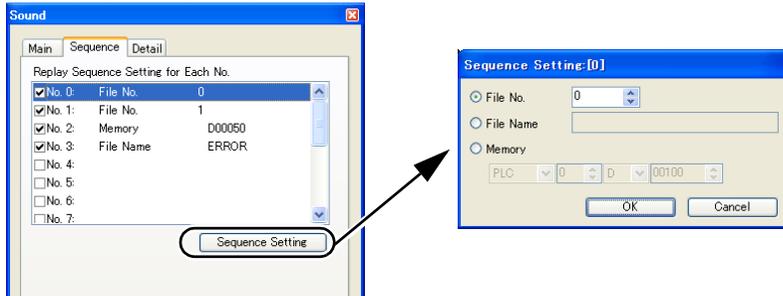
## Setting Dialog

### Main



Memory	Specify the bit memory address that you use to replay/stop the WAV file you set in the [Sequence] tab window (Refer to page 14-74.). Replay [0 → 1] Stop [1 → 0] (Stop even while the file is replaying.)
<input type="checkbox"/> Continuous Replay	Check this box ( <input checked="" type="checkbox"/> ) when you want to continuously replay the WAV file you set in the [Replay Sequence] tab window (Refer to page 14-74.).
Replay Priority	When you set multiple sound items on a screen, set a priority for replay for each item. When multiple bits are set to ON simultaneously, the WAV file having a higher priority is replayed. However, the sound item stops replaying when a WAV file linked to sampling starts replaying because sound of sampling has a higher priority.

### Sequence

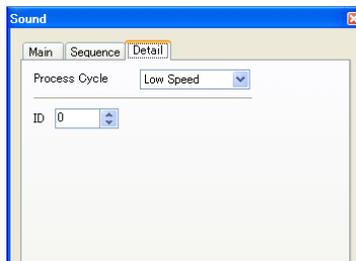


<input type="checkbox"/> No. 0 : <input type="checkbox"/> No. 15	Check (☑) as many boxes as the number of files to be replayed. A maximum of 16 WAV files can be replayed consecutively.
--	--

If any box from  No. 0 to  No. 15 is checked (☑), the [Sequence Setting] dialog for the checked number becomes available.

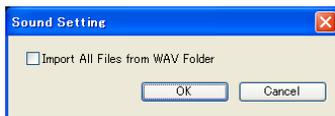
File No.	Specify the WAV file number to be replayed. The WAV file name that can be specified for [File No.] is shown below. No files in any other name format can be replayed. WA xxxx.WAV (xxxx: 0000 to 1023: WAV file number)
File Name	Specify the WAV file name to be replayed. The WAV file name that can be specified for [File Name] is shown below. No files in any other name format can be replayed. xxxxxxxx.WAV (xxxxxxx: 8 one-byte alphanumeric characters maximum)
Memory	Select this option to change WAV files to be replayed. Specify the memory address where the WAV file number is stored. The WAV file name that can be read in memory is shown below. No files in any other name format can be replayed. WA xxxx.WAV (xxxx: 0000 to 1023: WAV file number) Be sure to set the [Sound Setting] dialog when you selected [Memory]. For more information on the [Sound Setting] dialog, refer to page 14-75.

### Detail



Process Cycle	Set a cycle for the V series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

## Sound Setting



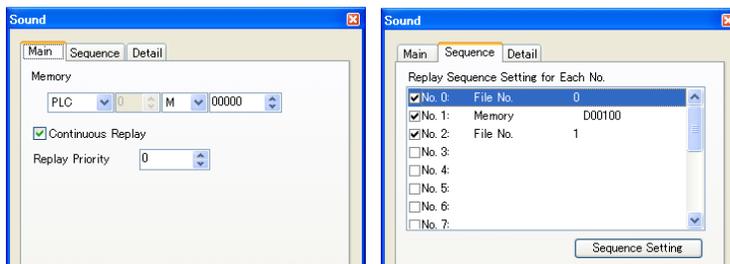
Import All Files from WAV Folder

Check this box () when you want to transfer all WAV files in the V-SFT V5\WAV folder when transferring screen data.

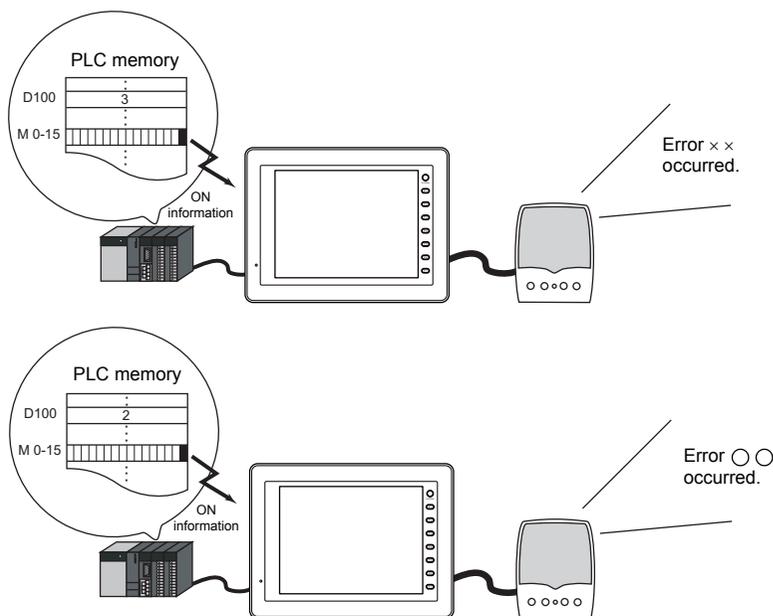
\* Be sure to check this box () when you select [Memory] on the [Sequence] tab window (page 14-74).

## Setting Example

Set the sound item as shown below:



WAV File	File Contents
WA0000.WAV	Error
WA0001.WAV	occurred.
WA0002.WAV	○○
WA0003.WAV	× ×
WA0004.WAV	△△



## Replaying a WAV File Linking to Animation

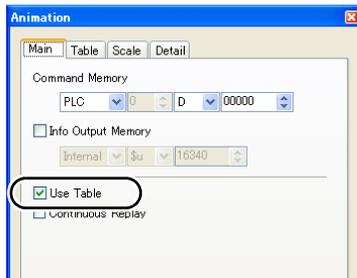
When using an animation table, you can replay a WAV file which is linked to the animation function. However, animation stops replaying when a WAV file linked to sampling starts replaying because sampling has a higher priority.

In this section, the setting for replaying a WAV file linking to animation is explained.

For more information on the animation function, refer to “14.1 Animation” on page 14-1.

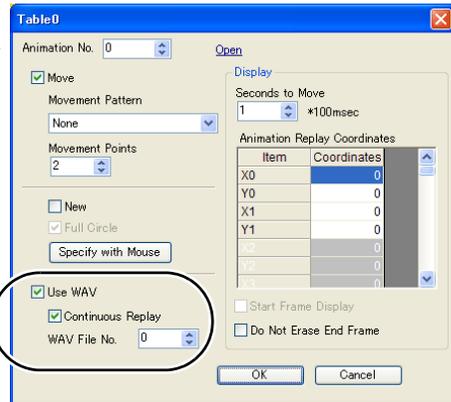
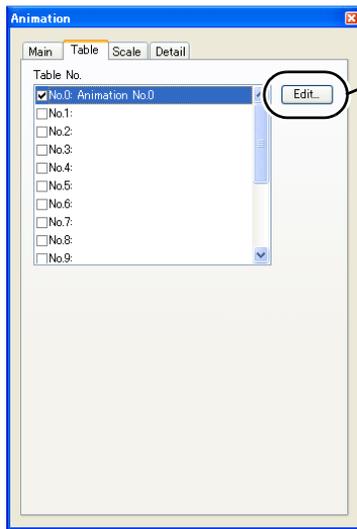
### Animation Setting

#### [Main] tab window



<input type="checkbox"/> Use Table	Check this box (☑).
------------------------------------	---------------------

#### [Table] tab window and [Table] setting dialog



#### [Table] tab window

<input type="checkbox"/> No. 0 to 15	Check the box (☑) for the number you want to replay sound.
--------------------------------------	--

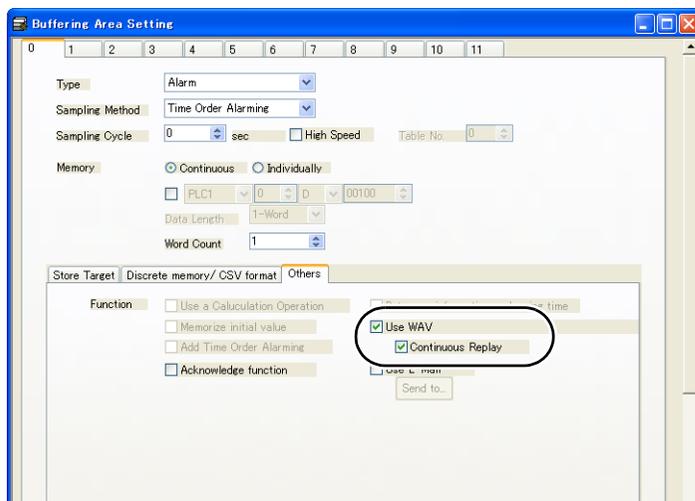
#### [Table] setting dialog

<input type="checkbox"/> Use WAV	Check this box (☑).
<input type="checkbox"/> Continuous Replay	Check this box (☑) when you want to consecutively replay the sound file.
WAV File No.	Specify the WAV file number to be used. The file name that can be replayed is “WA xxxx.WAV” (xxxx: 0000 to 1023: WAV file number).

## Replaying a WAV File Linking to Sampling

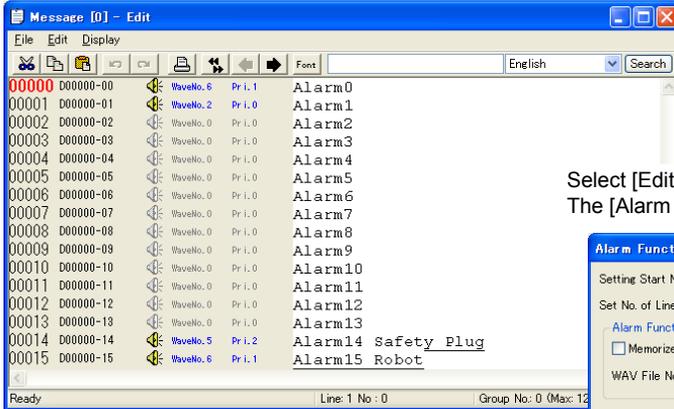
If [Alarm] is selected for [Type], you can replay a WAV file according to bit activation (ON/OFF). In this section, the setting for replaying a WAV file linking to sampling is explained. For more information on sampling, refer to “Appendix 1 Buffering Area.”

### Buffering Area Setting

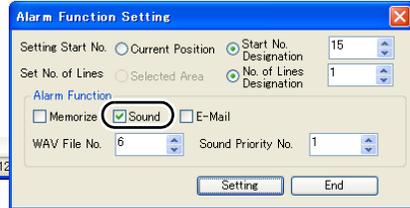


<input type="checkbox"/> Use WAV	Check this box (☑).
<input type="checkbox"/> Continuous Replay	Check this box (☑) when you want to continuously replay the sound file.

## Message Edit



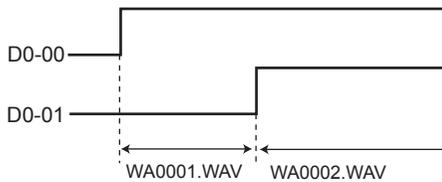
Select [Edit] → [Alarm Function].  
The [Alarm Function Setting] dialog is displayed.



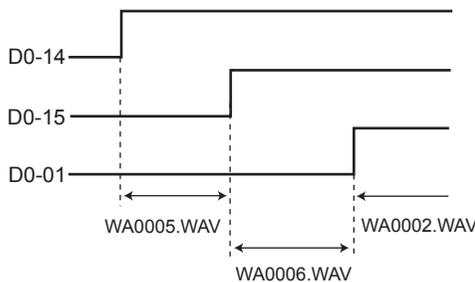
Setting Start No. Set No. of Lines	Select the message with which you want to replay sound.
<input type="checkbox"/> Sound	Check this box (☑).
WAV File No.	Specify a WAV file number. The file name that can be replayed is "WA xxxx.WAV" (xxxx: 0000 to 1023: WAV file number).
Sound Priority No. *1	Set a priority for the WAV file. When multiple sound replay bits are activated simultaneously, the WAV file that has a higher priority is replayed.

\*1 Sound Priority

With the above setting, if the bits having the same priority are activated, the sound file of the bit activated last is replayed.



Also with the above setting, if the bits having different priorities are activated, the sound file of the bit having a higher priority is replayed.



## Notes

### WAV File Format

The WAV file in the following format can be replayed on the V8i:

	V8i series
Sound synthesis	PCM
Sampling rate	8 kHz, 16 kHz
Quantization bit	8 bits, 16 bits
Sound source	Monaural, stereo

### Location of Storing Files

#### File location during screen creation

Save the WAV files in the V-SFT V5WAV folder, which was created when the V-SFTV5 was installed. The WAV files are transferred at the time of screen data transfer.

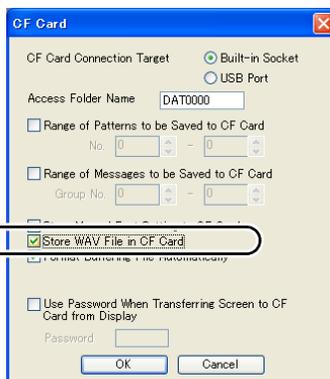
#### File location on the V8i

WAV files are usually transferred to MONITOUCH as a part of screen data.

However, the following limitations are imposed:

- The available screen data capacity decreases.
- The WAV file capacity must be 128 kB or less.

To avoid such an inconvenience, WAV files can be stored on a CF card with the following setting:



Store WAV File in CF Card \*1

When this box is checked (☑), WAV files are saved on a CF card.

\*1 If the WAV file capacity exceeds 128 kB, be sure to check this box (☑).

There is no limitation in capacity when they are saved on a CF card.

When using a CF card, WAV files are not transferred using the screen data transfer function. Use CF Card Manager. (Refer to "18 CF Card.")

## Outputting Sound Information

---

Sound information is output to internal memory (\$s).

- Address \$s1000  
The length of time (seconds) that elapsed before the WAV file has finished replaying is stored.
- Address \$s1001  
The adjusted volume value of channel L is stored.
- Address \$s1002  
The adjusted volume value of channel R is stored.

# 15 Others

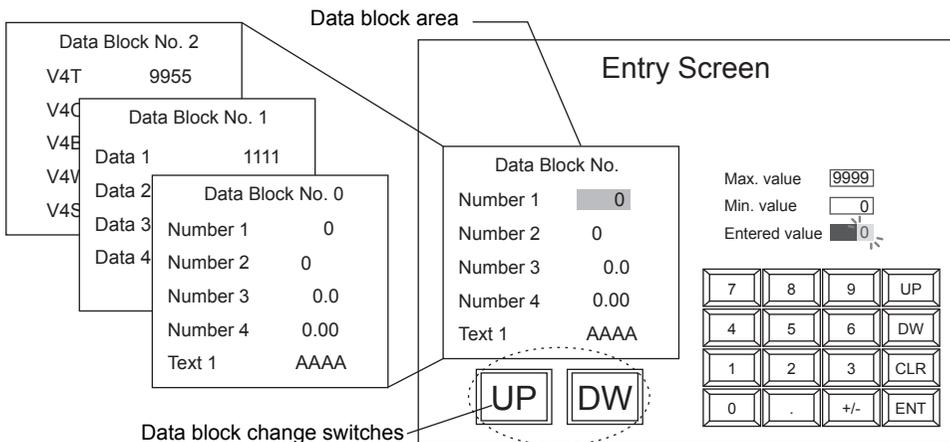
## 15.1 Data Block Area

### Overview

When there are too many display parts to be displayed on the screen at one time, data blocks can be used. Place the data block area on the screen. Register the entry targets in the "data block." Many entry targets can be displayed by switching the block number.

A maximum of four data block areas can be set on one screen.

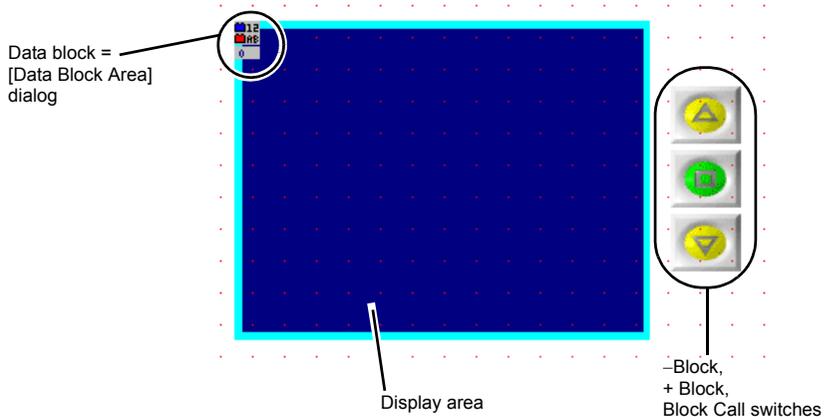
If you set four data block areas on the base screen, you cannot set any more data blocks on the overlap IDs 0 to 2.



15

### Configuration

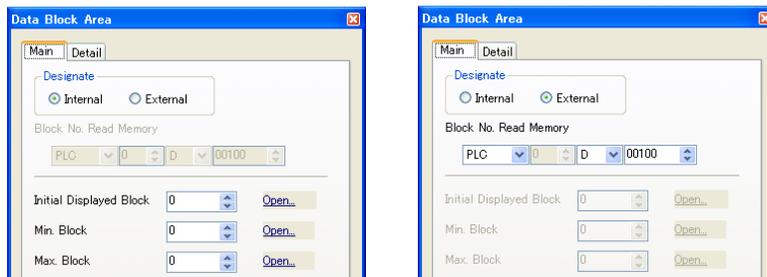
The data block area components are shown below.



## Setting Dialog

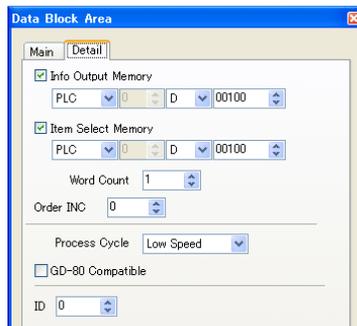
### Data Block Area

#### Main



<p>Designate (Internal, External)</p>	<p>Specify the command methods for changing over the data block to be displayed.</p> <p>Internal: Data blocks are changed over by the switch for [Function: + Block, – Block, Block Call]. The ID set for the block change switch and the [Data Block Area] dialog must be the same to make the switch valid.</p> <p>External: Specify a block number for [Block No. Read Memory].</p> <p>Depending on this setting, the setting items vary.</p>
<p>Initial Displayed Block, Min. Block, Max. Block</p>	<p>These options become active when [Internal] is chosen for [Designate]. Initial Displayed Block: The block number to be displayed first when the screen is opened Min. Block: The minimum number of the block numbers to be displayed Max. Block: The maximum number of the block numbers to be displayed</p>
<p>Block No. Read Memory</p>	<p>This option becomes active when [External] is chosen for [Designate]. Specify a memory address for [Block No. Read Memory].</p>

#### Detail

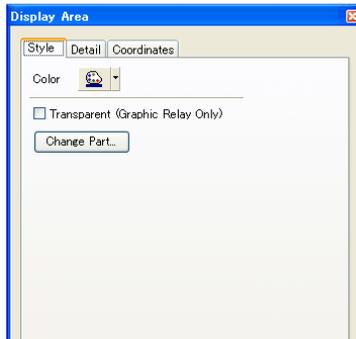


<p><input type="checkbox"/> Info Output Memory</p>	<p>When this box (<input checked="" type="checkbox"/>) is checked, the setting becomes valid. The block number currently displayed is written in this memory address. This option becomes active when [External] is chosen for [Designate].</p>
--	---

<input type="checkbox"/> Item Select Memory	Check this box ( <input checked="" type="checkbox"/> ) when using the item select function. For more information on item selection, refer to "7 Entry Mode."
Word Count	This option becomes active when [Item Select Memory] is checked ( <input checked="" type="checkbox"/> ). Be sure to set this option. For more information on item selection, refer to "7 Entry Mode."
Order INC	Up to four data block areas can be placed on one screen. When multiple data block areas are placed, this option determines the order of precedence given to each data block area.
Process Cycle	Set a cycle for the V8 series to read the PLC data while it is communicating with the PLC. For more information, refer to "Appendix 5 Process Cycle."
<input type="checkbox"/> GD-80 Compatible	Use this item when screen data of the GD-80 series is converted into the V8 series format. For more information, refer to the File Conversion Manual provided separately.
ID	Set the ID. For more information on the ID, refer to the Operation Manual.

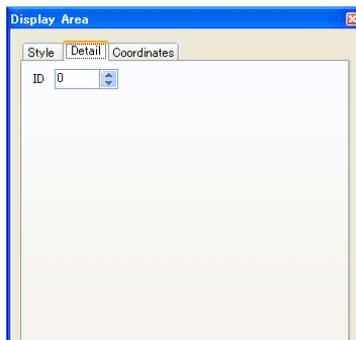
## Display Area

### Style



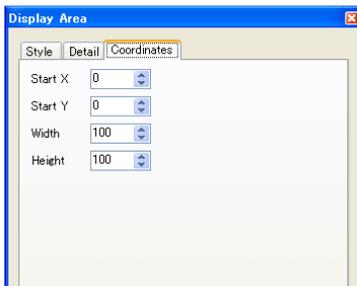
Color	Set the color inside the area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified in the [Data Block Area] dialog. For more information on the ID, refer to the Operation Manual.
----	---

### Coordinate designation



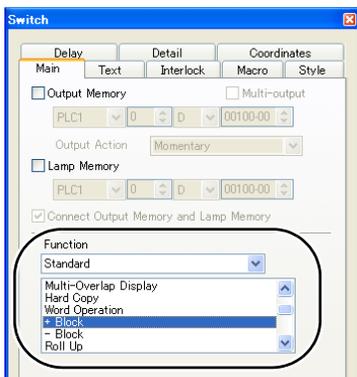
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

### Switch Parts for Data Block Area

When [Internal] is chosen for [Designate] in the [Data Block Area] dialog, data block change switches are necessary.

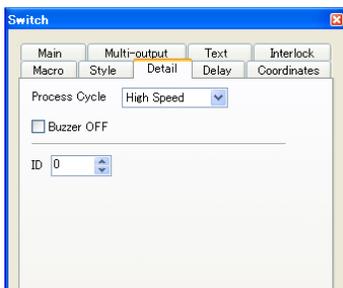
This section describes key setting items for switches that are used together with data block areas.

#### Main



+ Block	Brings up the next data block area in the range between the maximum and minimum data block numbers.
- Block	Brings up the previous data block area in the range between the maximum and minimum data block numbers.
Block Call	Brings up the data block area of the specified number.

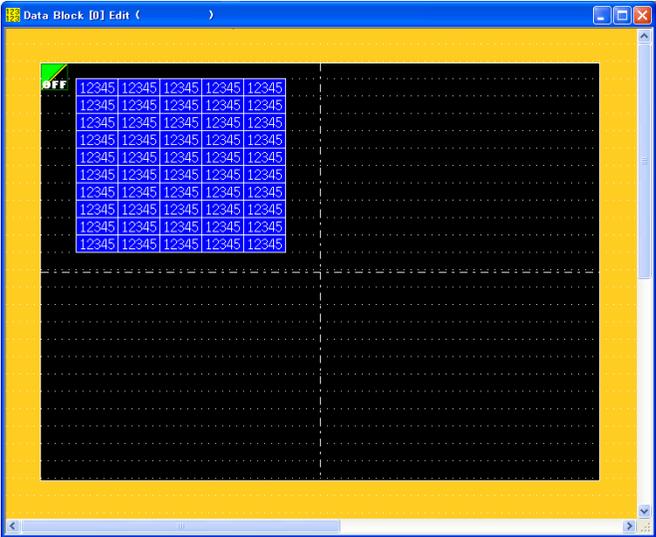
#### Detail



ID	Set the same ID as specified in the [Data Block Area] dialog. For more information on the ID, refer to the Operation Manual.
----	--

## Data Block Edit

Entry targets must be placed on data blocks.  
They cannot be placed on the base screen or overlap IDs 0 to 2.



For more information on the data block editing procedure, refer to the Operation Manual.

## 15.2 Memory Card Mode

### Applicable Media

The SRAM and CF card types compatible with the V8 series are described below.

- Built-in SRAM  
A 512-kB SRAM is built in the V8 series.  
When using the built-in SRAM, a battery must be installed.
- SRAM memory card (Model: REC-MCARD SRAM)  
The required capacity must be specified. (256 kB, 512 kB, 1 MB, 2 MB, and 4 MB types are available.)  
A card recorder (type: CREC) is required.
- CF card  
Use CF cards which are commercially available. (For the media of which operations we have verified, visit our Website (<http://www.monitouch.com>).)

### Storage Target Setting

Data storage target is determined according to the setting. Refer to the following table.

System Setting		Storage Target
Modular Jack	SRAM/Clock	
Card Recorder	Memory Card Emulation Area	
○	-	CREC (SRAM memory card)
×	○	Built-in SRAM
×	×	CF card

#### To store data in the CREC:

Select [System Setting] → [Device Connection Setting] → [Others] → [Card Recorder] and select [MJ1] or [MJ2]. The data is stored on the SRAM memory card inserted in the CREC.

#### To store data on the built-in SRAM:

Select [System Setting] → [Unit Setting] → [SRAM/Clock].

The [SRAM/Clock Setting] dialog is displayed. Make the setting for [Memory Card Emulation Area] to store data on the built-in RAM.

- \* For more information on [Memory Card Emulation Area], refer to “Appendix 2 SRAM/Clock Setting”.

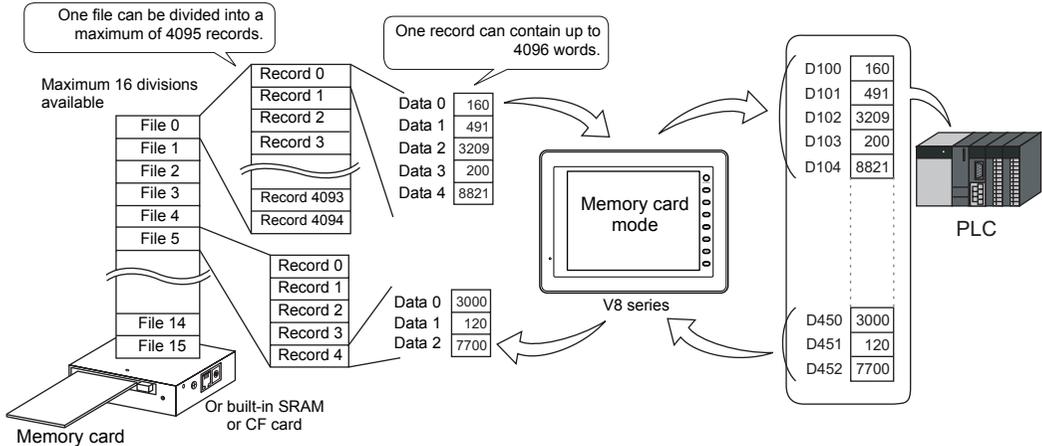
#### To store data on a CF card:

When [Card Recorder: No connection] is set ([System Setting] → [Device Connection Setting] → [Others]) and no [Memory Card Emulation Area] is set ([System Setting] → [Unit Setting] → [SRAM/Clock Setting]), inserting a CF card makes the system recognize the CF card as storage target.

## Overview

SRAM or CF cards can be used as external storage media. Data can be written to or read out from the PLC at any time required.

The memory card emulation area of SRAM or a CF card is divided into a maximum of 16 files. Each file is divided into a maximum of 4095 records. Data is stored in each record.



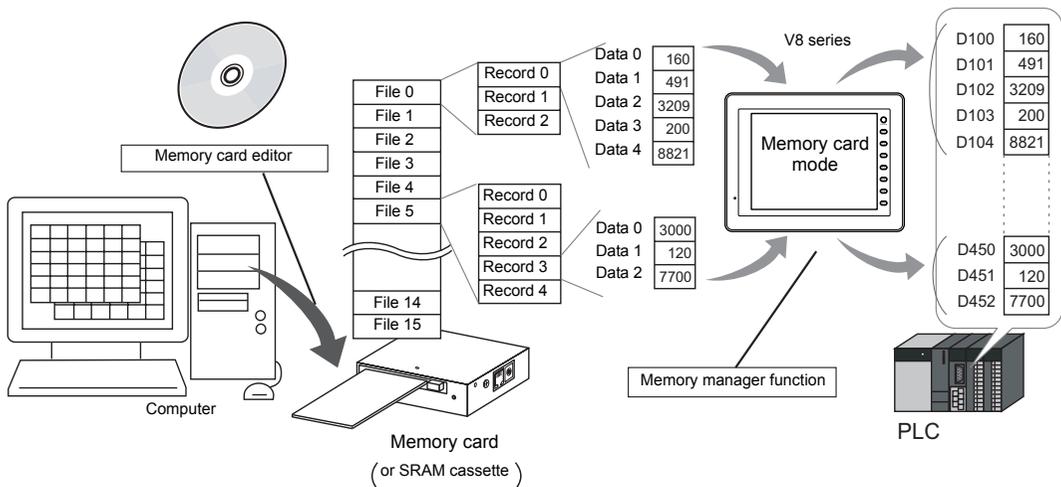
15

Data can be called or stored in units of "record". Since a large capacity of data can be stored, it is not necessary to secure a memory area in the PLC for storage purpose.

- \* When a CF card is used, the recipe function can be used without using the memory card mode. For more information, refer to "13 Recipe Mode."

## Memory Card Editor (Under Development)

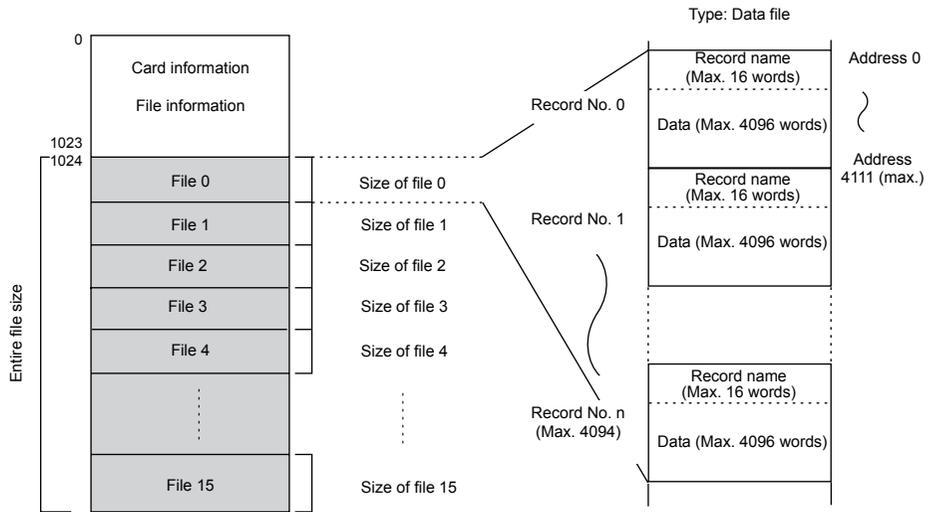
Using Hakko Electronics' memory card editor (model M-CARD SFT), data stored in the SRAM or CF card can be read on a computer, or data in the computer can be written to the SRAM or CF card.



For information on the usage of the memory card editor, refer to the memory card editor M-CARD SFT Instruction Manual.

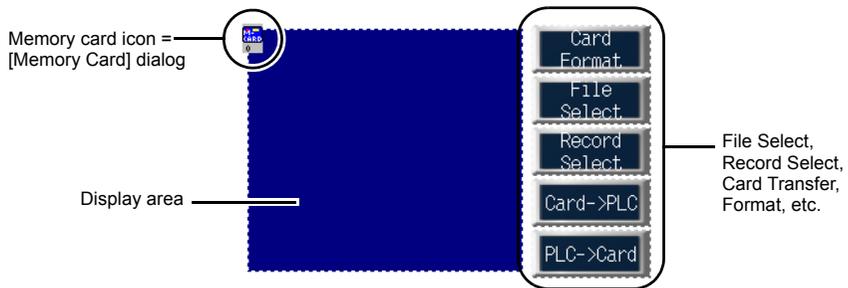
## Memory Card Area Map

Excluding header information, the memory card as well as the memory card emulation area is allocated as shown below:



## Configuration

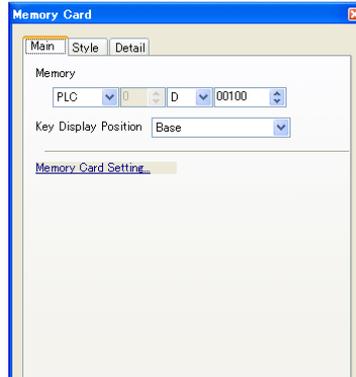
The memory card mode components are shown below.



## Setting Dialog

### Memory Card

#### Main



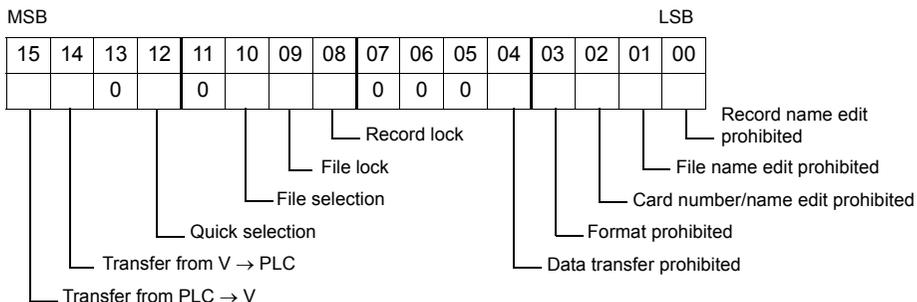
Memory <sup>*2</sup>	<p>When transferring data between the V8 series and the PLC, specify the top memory address that controls operation. Three words are occupied consecutively.</p> <p>The allocation of memory is shown below.</p> <table border="1"> <thead> <tr> <th></th> <th>Memory</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>n</td> <td>Mode operation designation</td> </tr> <tr> <td>B</td> <td>n + 1</td> <td>File number designation</td> </tr> <tr> <td>C</td> <td>n + 2</td> <td>Record number designation</td> </tr> </tbody> </table> <p style="text-align: right;">} PLC → V</p>		Memory	Function	A	n	Mode operation designation	B	n + 1	File number designation	C	n + 2	Record number designation
	Memory	Function											
A	n	Mode operation designation											
B	n + 1	File number designation											
C	n + 2	Record number designation											
Key Display Position (Overlap ID 0 - 2, Base)	<p>When placing the entry keys to enable editing of card numbers, card names, file names, or record names, choose the position from overlap IDs 0 to 2 or the base screen.</p> <p>Only one position (base, overlap ID 0 to 2) can be chosen for the entry keys (entry mode). <sup>*1</sup></p>												
Memory Card Setting	For more information, refer to page 15-19.												

\*1 If you attempt to place the entry keys in two positions, the following error message is displayed.



\*2 Memory details

**A. n (Mode operation designation)**



Bit No.	Contents	Description
0	Record name edit prohibited	Record name edit is prohibited.
1	File name edit prohibited	File name edit is prohibited.
2	Card number/name edit prohibited	Card number and name edit is prohibited.
3	Format prohibited	Memory card formatting is prohibited.
4	Data transfer prohibited	Data transfer between the memory card and the PLC is prohibited.
5 - 7	Not used	This bit must be reset to "0".
8	Record lock	The use of [Record Select] switch is prohibited.
9	File lock	The use of [File Select] switch is prohibited.
10	File selection	In the display area part: [0]: Only the files for [Type: Data File] are displayed. [1]: All files are displayed.
11	Not used	This bit must be reset to "0".
12	Quick selection	When bit 14 or bit 15 is set to "1" while this bit is set, data is transferred upon selection of a record in the V8 series.
13	Not used	This bit must be reset to "0".
14	Transfer from V series → PLC	[0] Data is transferred from the V8 series (memory card) to PLC at the edge of [0 → 1]. When transferring has been completed, bit 14 of "CFM_TRFIN" (I/F memory n + 5) is set to "1". Reset this bit to "0" after the completion of data transfer. For more information on the I/F memory, refer to page 15-20.
15	Transfer from PLC → V series	[0] Data is transferred from PLC to the V8 series (memory card) at the edge of [0 → 1]. When transferring has been completed, bit 15 of "CFM_TRFIN" (I/F memory n + 5) is set to "1". Reset this bit to "0" after the completion of data transfer. For more information on the I/F memory, refer to page 15-20.

**B. n + 1 (File number designation)**

This bit is used to specify a file number from the PLC when bit 9 (file lock) or bit 8 (record lock) of "n" is set to "1". File numbers can be specified from the PLC, not on the screen.

\* When [Not Used] or [Buffering File] is chosen for [Type] of the file number specified from the PLC, the file cannot be selected.

**C. n + 2 (Record number designation)**

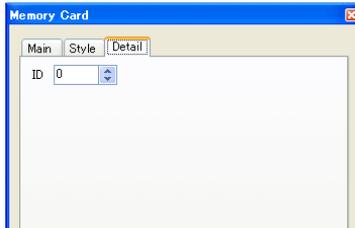
This bit is used to specify a record number from the PLC when bit 8 (record lock) of “n” is set to “1”. When specifying a record number from the PLC, not on the screen, designate the record number in this area. Different from selection by the [Record Select] switch, the record number specified from this memory address is displayed from the top of the display area.

**Style**



Color	For more information, refer to “Appendix 4 Styles and Coordinates.”
Property	
Enlarge	
Point	

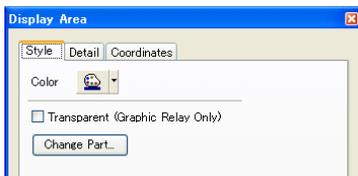
**Detail**



ID	Set the ID. For more information on the ID, refer to the Operation Manual.
----	---

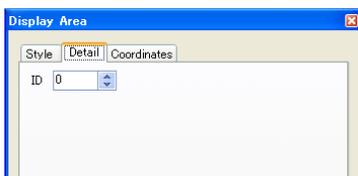
## Display Area

### Style



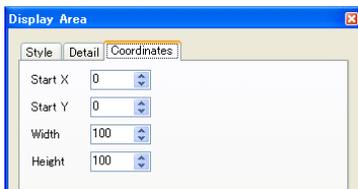
Color	Set the color inside the area.
Change Part	For more information, refer to the Operation Manual.

### Detail



ID	Set the same ID as specified in the [Memory Card] dialog. For more information on the ID, refer to the Operation Manual.
----	---

### Coordinates



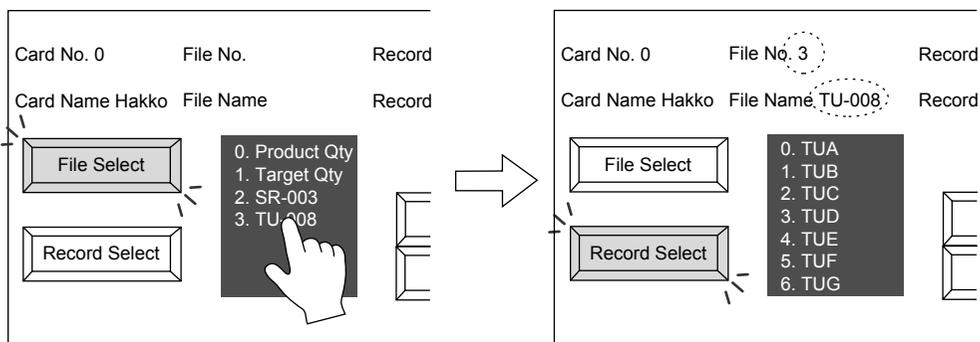
For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

### Notes

- Selection of files and records

Press the desired file or record in the display area to choose it. Since the display area part is automatically equipped with a switch function, pressing a file or record name selects the file or record.

The Y size of each switch is determined based on [Enlarge Y] specified for the characters in the display area.

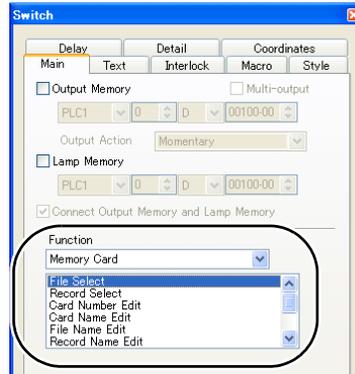


## Switch Parts for Memory Card Mode

With the memory manager function in memory card mode, switches for selecting a file or record on the memory card or transferring data from the PLC to the memory card can be used.

This section describes key setting items for switches that are used together with the memory card mode.

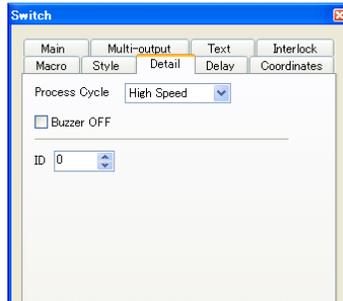
### Main



File Select	When file names in the memory card are displayed, this switch starts flashing. Pressing on a file name selects the file.
Record Select	This switch is active when a file is chosen. Pressing this switch brings up record names in the display area. The switch starts flashing. Pressing on a record name selects the record. The switch keeps flashing.
Card Number Edit Card Name Edit (Auxiliary setting item: Overlap Library No.)	When the switch is pressed, editing card numbers or names can be started. When the entry keys (entry mode) are placed on the base screen, the use of the keys is automatically enabled. When the switch is placed on an overlap display, it works as an overlap call switch. At the same time, the use of the entry keys is enabled. * For auxiliary setting item [Overlap Library No.], register the entry keys (entry mode) in the overlap library.
File Name Edit (Auxiliary setting item: Overlap Library No.)	When this switch is pressed, it is activated. At the same time, the [File Select] switch starts flashing, indicating that a file can be selected. When a file is selected while the [File Name Edit] switch is activated, the file name can be edited using the entry keys. This is an alternate switch: pressing once activates the switch and pressing again deactivates the switch. (The switch is not active during file name or record name editing.) * For auxiliary setting item [Overlap Library No.], register the entry keys (entry mode) in the overlap library.
Record Name Edit (Auxiliary setting item: Overlap Library No.)	When this switch is pressed, it is activated. When a record is selected in this condition, the record name can be edited using the entry keys. This is an alternate switch: pressing once activates the switch and pressing again deactivates the switch. (The switch is not active during file name or record name editing.) * For auxiliary setting item [Overlap Library No.], register the entry keys (entry mode) in the overlap library.
Card Format	Pressing this switch formats a memory card as specified in the [Memory Card] dialog. * This switch is also required for data logging (with storage media other than a CF card).

Transfer Card → PLC	This switch is active only when a record on the memory card is selected. The selected record is transferred from the memory card to the PLC. The data is stored in the memory address specified for [Memory] in the [Memory Card] dialog.
Transfer PLC → Card	This switch is active only when a record on the memory card is selected. Data is transferred from the PLC to the selected record. The data is transferred from the memory address specified for [Memory] in the [Memory Card] dialog. The amount of data to be transferred is determined by [Word Count].
Roll Up	Pressing this switch scrolls up file or record names one by one in the display area.
Roll Down	Pressing this switch scrolls down file or record names one by one in the display area.
+ Block	Pressing this switch scrolls up pages of file or record names in the display area.
- Block	Pressing this switch scrolls down pages of file or record names in the display area.
Reset	When "11" or "12" is stored in the I/F memory address "n + 1" (specified in the [Memory Card] dialog), pressing this switch clears the data in "n + 1". (The error bit of "n" remains set.) For more information on the I/F memory, refer to page 15-20.

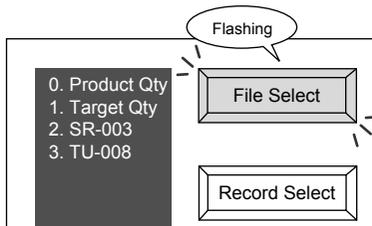
**Detail**



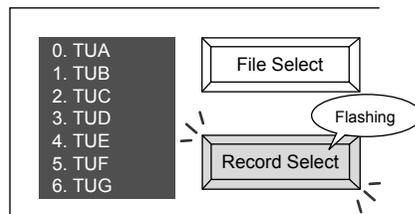
ID	Set the same ID as specified in the [Memory Card] dialog. For more information on the ID, refer to the Operation Manual.
----	---

**Examples of switch operations**

- [File Select] and [Record Select] switches

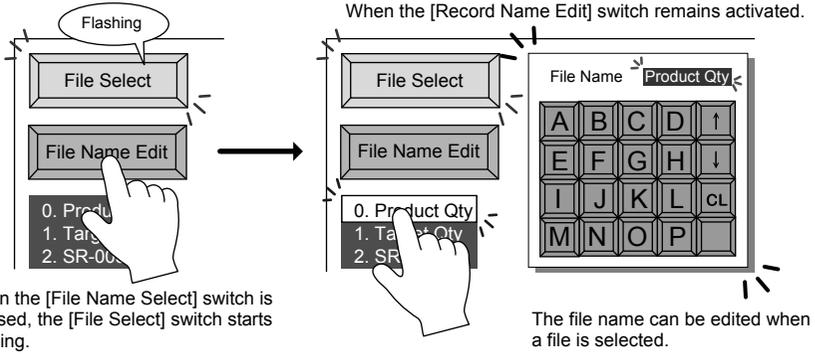


File names are displayed in the display area while the [File Select] switch is flashing.

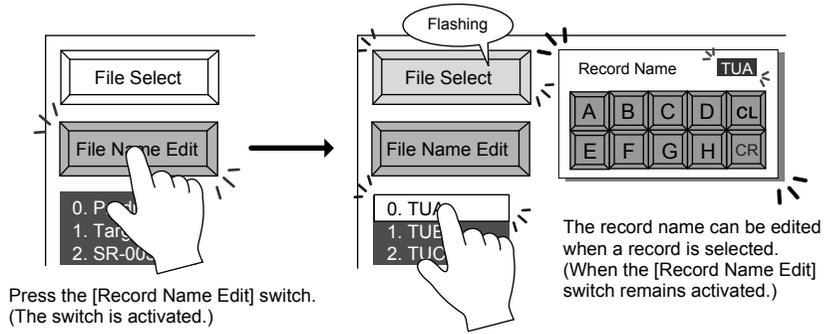


Record names are displayed in the display area while the [Record Select] switch is flashing.

- [File Name Edit] switch



- [Record Name Edit] switch



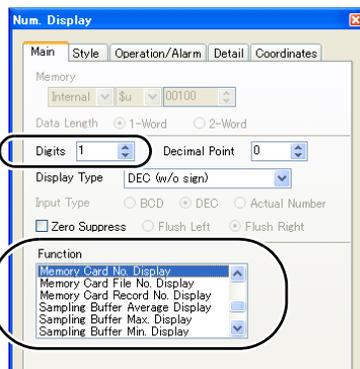
## Data Display Parts for Memory Card Mode

### Applicable numerical data display parts

Function	Content
Memory Card No. Display	Displays the card number currently being used.
Memory Card File No. Display	Displays the file number currently being used or selected.
Memory Card Record No. Display	Displays the record number currently being used or selected.

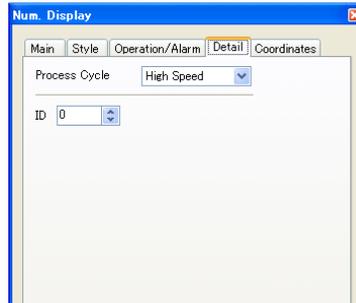
Card No.	12	File No.	3	Record No.	6
Card Name	ECM	File Name	Target value	Record Name	SDY-K

- Main



Digits	<p>When [Function: Memory Card No. Display] is selected: Because the available card numbers are 0 to 255, specify in the range of "1" to "3".</p> <p>When [Function: Memory Card File No. Display] is selected: Because the available file numbers are 0 to 15, specify in the range of "1" to "2".</p> <p>When [Function: Memory Card Record No. Display] is selected: Because the available record numbers are 0 to 4094, specify in the range of "1" to "4".</p> <p><b>* If the number of digits less than the above is specified, figures will not be shown correctly.</b></p>
Function	<p>Set the numerical data display function. Choose from [Memory Card No. Display], [Memory Card File No. Display], or [Memory Card Record No. Display].</p>

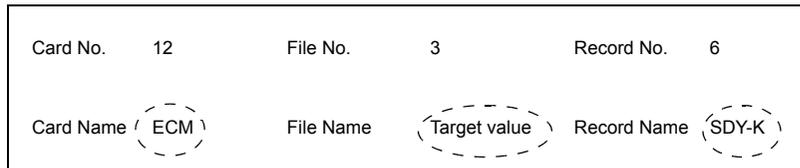
- Detail



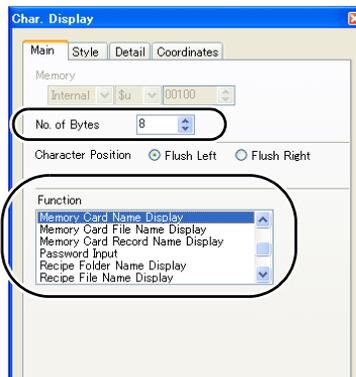
ID	Set the same ID as specified in the [Memory Card] dialog. For more information on the ID, refer to the Operation Manual.
----	--

**Applicable character display parts**

Function	Content
Memory Card Card Name Display	Displays the card name currently being used.
Memory Card File Name Display	Displays the file name currently being used or selected.
Memory Card Record Name Display	Displays the record name currently being used or selected.

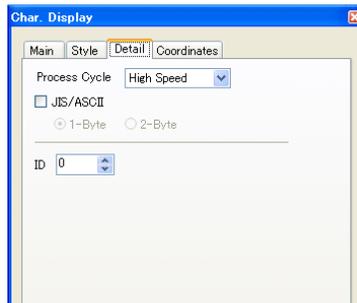


- Main



No. of Bytes	For card, file and record names, it is possible to specify within the range of 0 to 32. Specify the number appropriate for card, file or record names. * <b>For [Memory Card Record Name Display], [No. of Bytes for Record] is specified for each file in the [Memory Card] dialog; therefore, select the greatest number of bytes for the files.</b>
Function	Set the character display function. Choose from [Memory Card Name Display], [Memory Card File Name Display], or [Memory Card Record Name Display].

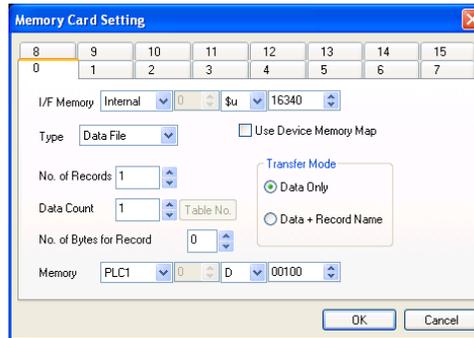
- Detail



ID	Set the same ID as specified in the [Memory Card] dialog. For more information on the ID, refer to the Operation Manual.
----	---

## Memory Card Setting

When memory cards are used, make the setting in the [Memory Card] dialog for file divisions or definition. According to the setting in this dialog, the memory card (or memory card emulation area) is initialized.



[0] to [15] tab window	Each memory card can be divided into 16 (0 to 15). Click the desired number tab and make the setting in the dialog.														
I/F Memory	<p>The I/F memory is used commonly for division No. 0 to 15. Make the setting in the [0] tab window. The I/F memory is the memory address where the memory card status is written. Six words are occupied consecutively. Specify the top memory address. The contents in memory are shown below.</p> <table border="1"> <thead> <tr> <th>Memory</th> <th>Memory Name</th> </tr> </thead> <tbody> <tr> <td>n</td> <td>CFM_STAT</td> </tr> <tr> <td>n + 1</td> <td>CFM_ERRNo</td> </tr> <tr> <td>n + 2</td> <td>CFM_CARDNo</td> </tr> <tr> <td>n + 3</td> <td>CFM_FILENo</td> </tr> <tr> <td>n + 4</td> <td>CFM_RECNo</td> </tr> <tr> <td>n + 5</td> <td>CFM_TRFIN</td> </tr> </tbody> </table> <p>For more information on the I/F memory, refer to page 15-20.</p>	Memory	Memory Name	n	CFM_STAT	n + 1	CFM_ERRNo	n + 2	CFM_CARDNo	n + 3	CFM_FILENo	n + 4	CFM_RECNo	n + 5	CFM_TRFIN
Memory	Memory Name														
n	CFM_STAT														
n + 1	CFM_ERRNo														
n + 2	CFM_CARDNo														
n + 3	CFM_FILENo														
n + 4	CFM_RECNo														
n + 5	CFM_TRFIN														
Type (Not Used, Data File, Buffering File)	<p>Not Used Files are not used.</p> <p>Data File Select this option when using the memory manager function.</p> <p>Buffering File Select this open when using the data logging function.</p> <p><b>* The following options become active when [Data File] is chosen for [Type].</b></p>														
No. of Record (1 to 4095)	Specify the number of records into which each file is divided.														
Data Count (1 to 4096)	Specify the number of words to be stored in a record.														
No. of Bytes for Record (0 to 32)	Specify the maximum number of characters that can be used for a record name. When displaying or editing record names, consider the available number of bytes set here.														
Memory	When transferring data from the memory card to the PLC, specify the top memory address for storing data in the PLC memory.														

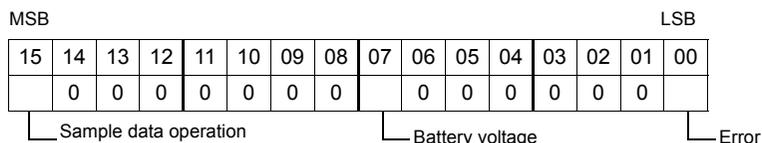
<input type="checkbox"/> Use Device Memory Map	The option becomes active when using device memory maps. For more information on device memory maps, refer to the Connection Manual.
Transfer Mode	When transferring data between the memory card and the PLC, the minimum transferable unit is a "record." Choose either [Data Only] or [Data + Record Name] when transferring data stored in each record.

## I/F Memory

Regardless of the memory card mode setting, the newest data is written into "n" (CFM\_STAT) and "n + 1" (CFM\_ERRNo).

Other memory addresses become valid only when memory card mode is set on the screen currently displayed.

### A. n (CFM\_STAT)



Bit No.	Contents	Description
0	Error	When an error related to the memory card has occurred, this bit is set to "1" (ON). The error contents are stored in "n + 1" (CFM_ERRNo).
1 to 6	Not used	This bit must be reset to "0".
7	Battery voltage	When the battery voltage of the memory card has dropped, this bit is set to "1" (ON). Replace the battery as soon as possible.
8 to 14	Not used	This bit must be reset to "0".
15	Sample data operation	This bit is valid when <input checked="" type="checkbox"/> Use a Calculation Operation] is checked in the [Buffering Area Setting] dialog for the data logging function. If data in the buffering area is being calculated when reading memory card data, this bit is set to "1" (ON).

### B. n + 1 (CFM\_ERRNo)

The error contents are stored in "n + 1" (CFM\_ERRNo) if bit 0 of "n" (CFM\_STAT) is set to "1" (an error has occurred). Respective error numbers indicate the following contents:

Error No.	Contents
1	There is an error in the memory card I/F board.
2	The memory card recorder is not connected.
3	An error has occurred during communication between the V8 series and the recorder.
4	No memory card is inserted.
5	Memory card format is different from the setting data. (Or the memory card is not formatted.)
6	Memory card capacity is smaller than the setting data.
7	The memory card is not compatible.
10	Attempted to write to a memory card of flash ROM.
11	The memory card is write-protected.
12	There is an error in writing data to the memory card.

**C. n + 2 (CFM\_CARDNo)**

The current memory card number is stored.

**D. n + 3 (CFM\_FILENo)**

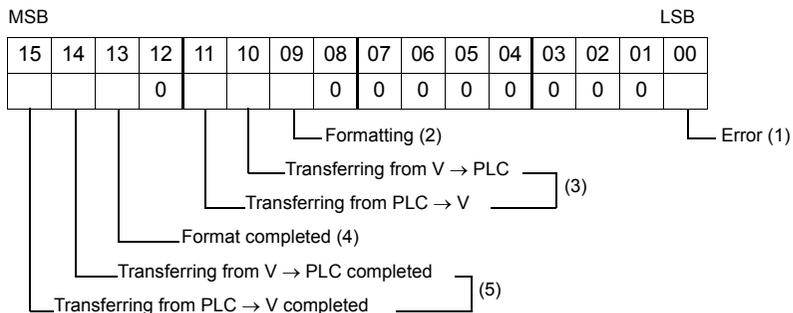
The selected or transferred file number is stored.

**E. n + 4 (CFM\_RECNo)**

The selected or transferred record number is stored.

**F. n + 5 (CFM\_TRFIN)**

Formatting or data transferring condition between the V8 series (= SRAM area or CF card) and the PLC is stored. The contents are shown below:



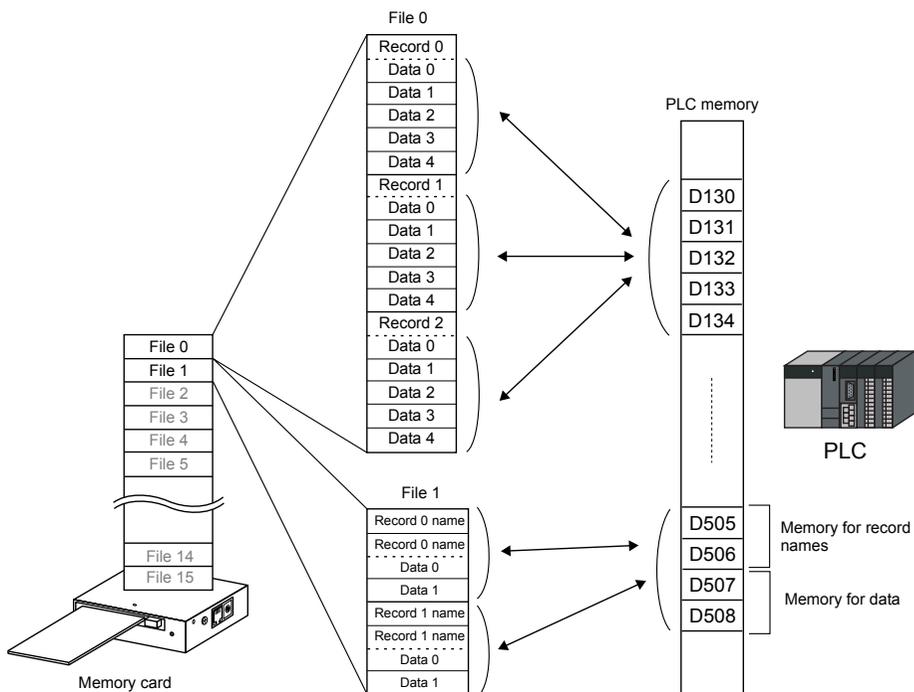
Bit No.	Contents	Description
0	Error	When an error has occurred during formatting or transferring, this bit is set to "1". Bits for (2) "formatting" and (3) "transferring" remain "1". Bits for (4) "format completed" or (5) "transferring completed" remain "0."
1 to 8	Not used	This bit must be reset to "0".
9	Formatting	While formatting, this bit is set to "1".
10	Transferring from V series → PLC	While transferring, this bit is set to "1".
11	Transferring from PLC → V series	While transferring, this bit is set to "1".
12	Not used	This bit must be reset to "0".
13	Format completed	When formatting has been completed, this bit is set to "1".
14	Transferring from V series → PLC completed	When transferring has been completed, this bit is set to "1". The file or record number transferred can be checked with "n + 3" (CFM_FILENo) and "n + 4" (CFM_RECNo). After checking that transferring has been completed, reset this bit.
15	Transferring from PLC → V series completed	When transferring has been completed, this bit is set to "1". The file or record number transferred can be checked with "n + 3" (CFM_FILENo) and "n + 4" (CFM_RECNo). After checking that transferring has been completed, reset this bit.

## Setting Example

When the [Memory Card] dialog is set as below, the area in the memory card is divided and the PLC memory is allocated as illustrated below:

<File No. 0>  
 [Type: Data File]  
 [No. of Records: 3]  
 [Data Count: 5]  
 [No. of Bytes for Record: 8]  
 [Memory: D130]  
 Use Temperature Control  
 Network/PLC2Way]  
 [Transfer Mode: Data Only]

<File No. 1>  
 [Type: Data File]  
 [No. of Records: 2]  
 [Data Count: 2]  
 [No. of Bytes for Record: 4]  
 [Memory: D505]  
 Use Temperature Control  
 Network/PLC2Way]  
 [Transfer Mode: Data + Record Name]

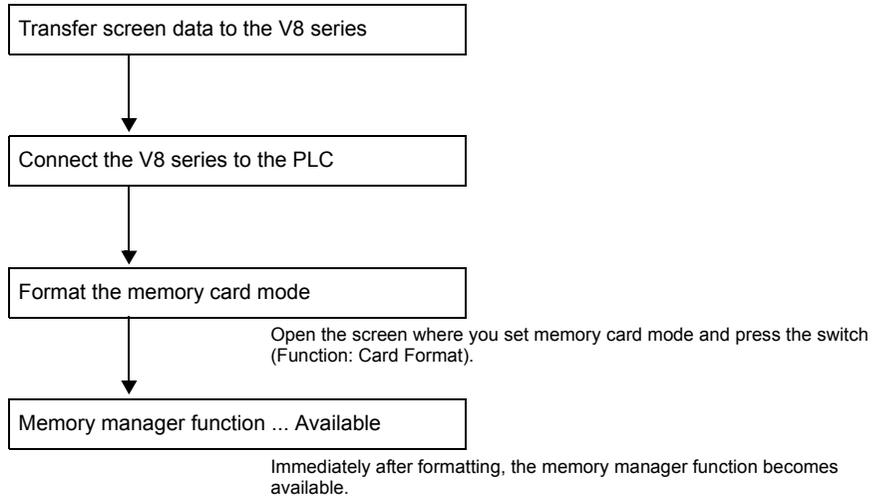


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## Setting and Importing Procedures on the V8 Series

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To start the memory manager function, perform the following procedures on the V8 series:



If the memory manager function does not work, check the status of [I/F Memory] set in the [Memory Card Setting] dialog for the screen data file (refer to page 15-20), and take appropriate action.

## Editing Numbers and Names

When using the memory manager function, card numbers and file names can be edited on the screen. To enable the edit, entry mode must be set.

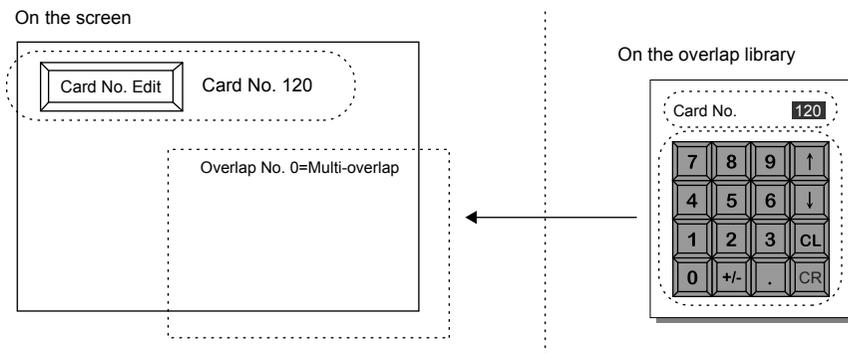
Place the entry keys on the base screen or a multi-overlap display part.

\* The entry keys can be placed in one location for one memory card mode.

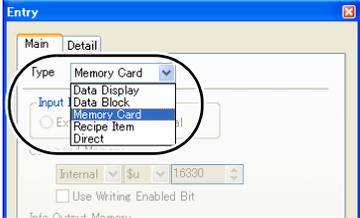
### Placing Entry Keys on Multi-Overlap Display

When the [Card Number Edit] or [File Name Edit] switch is pressed, an overlap screen with entry keys registered in the overlap library is automatically called. This overlap screen can be closed automatically when editing has been completed.

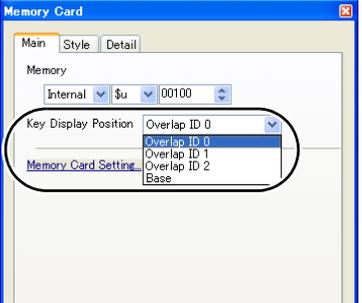
In this case, an overlap screen including an entry mode must be set on the [Overlap Library Edit] window.



### Notes on overlap library editing

Entry mode	Select [Memory Card] for [Type]. 						
Entry display	Place the parts as below: <table border="1"> <tr> <td>For card number editing</td> <td>Numerical data display part Set the same number of digits as the one for the memory card number display part.</td> </tr> <tr> <td>For name editing</td> <td>Character display part Set the same number of bytes as the one for the memory card name, memory card file name, or memory card record name display part.</td> </tr> <tr> <td>ID</td> <td>Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.</td> </tr> </table>	For card number editing	Numerical data display part Set the same number of digits as the one for the memory card number display part.	For name editing	Character display part Set the same number of bytes as the one for the memory card name, memory card file name, or memory card record name display part.	ID	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.
For card number editing	Numerical data display part Set the same number of digits as the one for the memory card number display part.						
For name editing	Character display part Set the same number of bytes as the one for the memory card name, memory card file name, or memory card record name display part.						
ID	Set the same ID as specified in the [Entry] dialog. For more information on the ID, refer to the Operation Manual.						

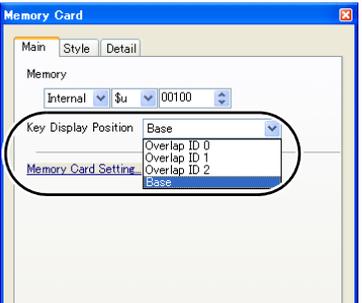
### Notes on screen editing

Memory card mode	<p>Choose an area where [Multi-overlap] is set on the screen from [Overlap ID 0], [Overlap ID 1], or [Overlap ID 2].</p> <p>The entry keys can be placed only in one position for one memory card mode.</p> <p>(It is not possible to use the entry keys on both the base screen and an overlap display area in the memory card mode.)</p>	
Switch parts for memory card mode	<p>Set the same ID as the memory card mode.</p> <p>When the entry keys are placed on a multi-overlap display, the [Card Number Edit], [Card Name Edit], [File Name Edit] or [Record Name Edit] switch works as a “multi-overlap call” switch.</p> <p>Each switch has [Overlap Library No.] as an auxiliary setting item.</p> <p>When [Register] is clicked, the overlap display with entry mode is automatically registered under the specified overlap library number.</p>	

### Placing Entry Keys on Base Screen

The entry keys become available when the [Card Number Edit] or [File Name Edit] switch is pressed. Entry mode and memory card mode are set on the same screen.

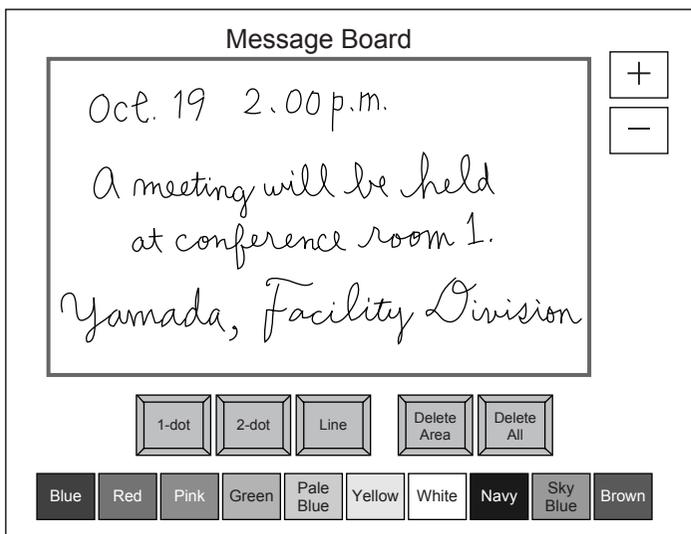
Note the setting items described below.

Entry mode	Set an entry mode. The setting procedure is the same as that for setting on an overlap display.	
Memory card mode	Select [Base].	
Switch parts for memory card mode	<p>Set the same ID as the memory card mode.</p> <p>The [Card Number Edit], [Card Name Edit], [File Name Edit] or [Record Name Edit] switch works as a switch that enables the use of entry mode. Each switch has [Overlap Library No.] as an auxiliary setting item; however, this is not valid.</p>	

## 15.3 Memo Pad Overview

- Message board function  
 The message board function is available for leaving daily messages in a workshop, etc. This is particularly useful for exchanging messages among operators working in shifts.
- Pen input  
 Message entry is made simple by writing on the screen directly with a special pen.
- Eight memo pad areas available  
 Memo pad areas are common to every screen. Up to 8 memo pad areas can be registered.
- Saved in the SRAM area  
 When a memo pad area is secured in the built-in or separate SRAM area, the data is retained even after the power is turned off.
- Also, it is possible to use the CF card to save memo pad data without using the SRAM area.

\* **Memo pad function is not available with the V8 series of matrix switch type.**



## Configuration

- The memo pad components are shown below.



## Setting Dialog

### Memo Pad



ID	Set the ID. For more information on the ID, refer to the Operation Manual.
----	---

\* Only one memo pad function can be used on one screen.

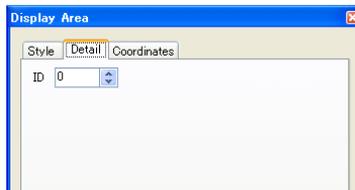
### Display Area

#### Style



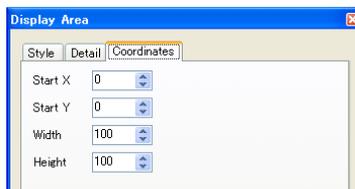
Color	Set the color inside the area.
Change Part	For more information, refer to the Operation Manual.

#### Detail



ID	Set the same ID as specified in the [Memo Pad] dialog. For more information on the ID, refer to the Operation Manual.
----	--

#### Coordinate designation

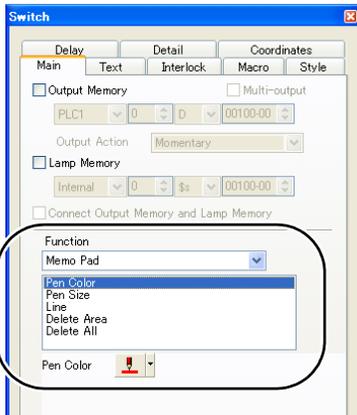


For more information on the coordinate designating method, refer to "Appendix 4 Styles and Coordinates."

## Switch Parts for Memo Pad

The following switch functions are available with the memo pad function.

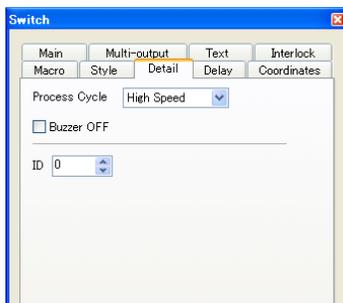
### Main



Pen Color *	Selects the pen color.
Pen Size (1 Dot, 2 Dots)	Selects the pen size.
Line	Selects the pen movement. This is an alternate switch. ON: Straight line OFF: Free-hand line
Delete Area	Deletes the selected memo pad area. This is an alternate switch. ON: Delete the rectangular area selected on the display area. OFF: Deletion is not possible.
Delete All	Deletes data from the current memo pad area.
+ Block	Brings up the next memo pad area (up to 8).
- Block	Brings up the previous memo pad area (up to 8).
Block Call	Brings up the memo pad area of the specified number.

\* As many colors as set for [Color] ([System Setting] → [Edit Model Selection]) can be used.

### Detail



ID	Set the same ID as specified in the [Memo Pad] dialog. For more information on the ID, refer to the Operation Manual.
----	--

## Memo Pad Data Storage Area

Memo pad data can be saved in the built-in RAM, SRAM area, or CF card.

Data saved in the RAM is cleared when MONITOUCH is turned off or when the Main Menu screen is displayed.

To retain data even when the power is turned off, save it in the SRAM area or on a CF card.

## Memo Pad Storage Area Size

Storage Target	Capacity (words)
RAM	32,000
SRAM *1	262,000
CF card	No limitation *2

\*1 This is the maximum capacity available provided that the entire SRAM area is used for the memo pad function.

For the procedure of dividing the SRAM area, etc., refer to “Appendix 2 SRAM/Clock Setting.”

\*2 This depends on the free capacity on the CF card.

## Saving in RAM

No setting is required.

## Saving in SRAM

To save data in the SRAM area, it is necessary to make the setting in the [SRAM/Clock Setting] dialog.

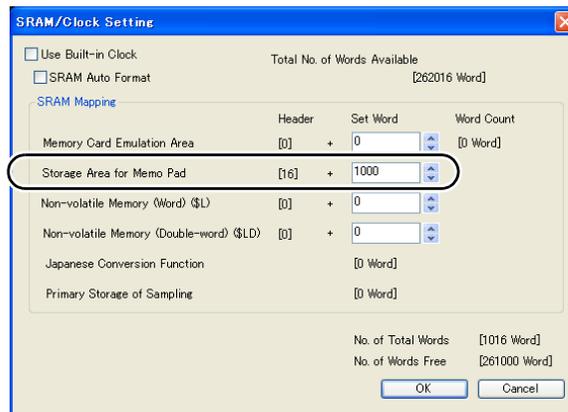
### [SRAM/Clock Setting] dialog

- Store Area for Memo Pad

Set the storage area size for the memo pad function in the SRAM area.

Refer to the list shown above, and set an appropriate size.

For more information on other setting items, refer to “Appendix 2 SRAM/Clock Setting.”



## Saving on a CF Card

No setting is required. Insert the CF card into MONITOUCH.  
 However, when the memo pad area is set in the [SRAM/Clock Setting] dialog, data is stored in the SRAM area even if a CF card is inserted.

## Timing in Saving Data

The memo pad data is saved in the memo pad area at the following timing.

- When switching pages using the [Function: + Block, – Block] switch
- When changing the screen
- When the Main Menu screen is displayed (only for SRAM)

If data cannot be saved due to insufficient memory, the memo pad display area flashes with beeps. Reduce the memo pad data.

The remaining space of the memo pad data storage area is stored in the system memory addresses \$s108 and 109.

**\* Notes on SRAM usage**

- If the power is shut down before data is saved, the data is deleted.
- If the power is shut down while data is being saved, the entire data may be lost.  
 The data save status is stored in the system memory address \$s720.

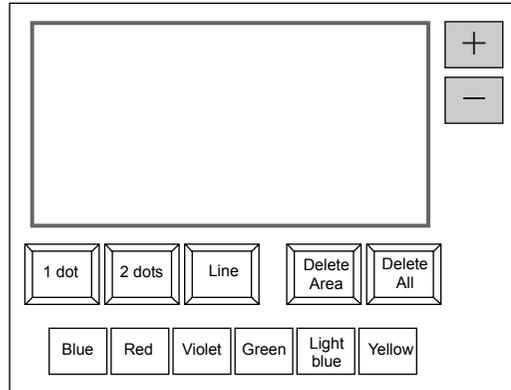
## System Memory

Memo pad data is stored in system memory \$s.

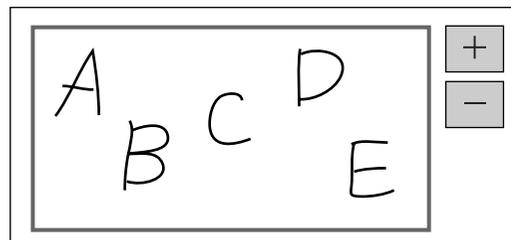
Address (\$s)	Contents	Memory Type
106	Memo pad number (0 to 7)	← V Data is written from the V8 series.
107	<p>0: Data not registered                  1: Data registered</p>	
108 109	Remaining space of memo pad data storage area (unit: bytes)	
720	Result of SRAM area save 0: Normally saved 1: Error in data. The previous data is cleared.	
727	0: Save possible 1: Save impossible due to insufficient memory	

## Usage Example

Suppose that the following screen is created.



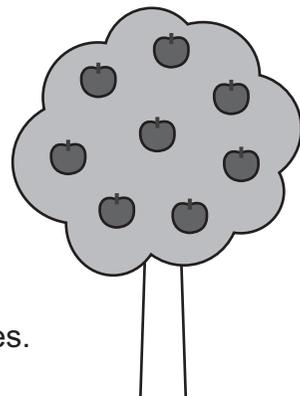
- When the screen is first opened, the following settings are chosen as default.
  - Pen size: 1 dot
  - Pen color: White
  - Pen state: Free
 To change the setting, press the corresponding switch and set the desired option.
- Write a desired message within the memo pad area.



Use the dedicated pen when writing messages.

- When deleting the message, press the [Delete All] switch.
- When deleting a part of the message, press the [Delete Area] switch (ON display), and enclose the desired data. The enclosed data is deleted.
  - On completion, press the [Delete Area] switch (OFF display).
- When drawing a straight line, press the [Line] switch (ON display).
  - Moving the pen on the memo pad area draws a straight line.
  - To cancel the function that draws straight lines, press the [Line] switch again (OFF display).
- Pressing the [+] switch brings up a new memo pad area (up to 8 areas).
  - Pressing the [-] switch brings up the previous memo pad area.

# MEMO



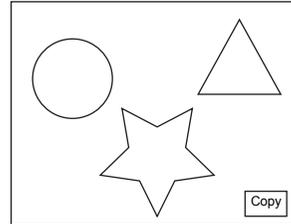
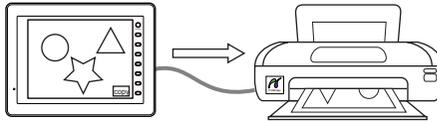
Please use this page for notes.

# 16 Print

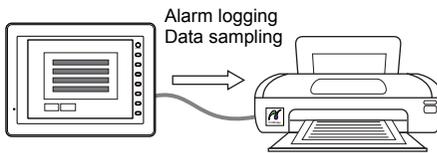
## 16.1 Printing Data Overview

When the V8 series is in RUN mode, the displayed screen or the internal buffer information can be printed.

1) Hard copy

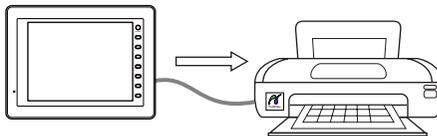


2) Sample print



```
<OFF> 08-20 13:25:40 Empty pallets short
<OFF> 08-20 14:05:13 Saddle raised and stopped
<ON> 08-24 16:59:54 Control panel emergency stop
<OFF> 08-24 17:01:05 Control panel emergency stop
<ON> 08-24 17:01:05 Operation box emergency stop
<ON> 08-24 17:01:05 Pusher error
```

3) Data sheet print



	1	2	3	4	5
A					
B					
C					
D					
E					
F					

## Prerequisites to Printing

### Compatible Printers

The following printers can be connected to the V8 series:

Editor Setting	Applicable Models	Port
PR201 Monochrome	PC-PR201 series models with which printing from MS-DOS is possible	MJ2/MJ1 or USB-A
PR201 color *1		
ESC-P Monochrome	ESC/P24-J84, ESC/P-J84, ESC/P Super models with which printing from MS-DOS is possible	
ESC-P color *1		
CBM292 / 293	Citizen CBM Line Thermal Printer (Hard copy is not possible)	
MR - 400	Sato barcode printer MR-400 Series (Hard copy, data sheet print, and sample print are not possible.)	
EPSON STYLUS PHOTO *2	EPSON Color Inkjet Printer STYLUS PHOTO (Hard copy print in 32k colors is possible.)	
EPSON STYLUS C86 Series *2	EPSON Color Inkjet Printer STYLUS C86 (Hard copy print in 32k colors is possible.)	
EPSON STYLUS C65 Series *2	EPSON Color Inkjet Printer STYLUS C65 (Hard copy print in 32k colors is possible.)	
PictBridge *3	PictBridge compatible printer	

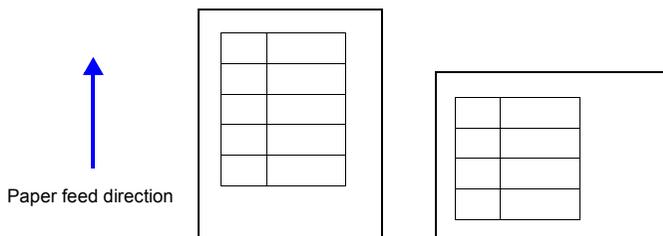
\*1 When "PR201 color" or "ESC-P color" is selected, the 32k-, 64k- or 128-color screen is printed in 16 colors.

\*2 When setting data in the system memory (\$s1007) as shown below, color or monochrome hard copy can be specified. (This applies to hard copy only.)

\$s1007	Hard copy
0	Color
1	Monochrome

The following limitations apply to EPSON STYLUS PHOTO, STYLUS C86 and C65 printers:

- Data sheet print  
Print on A4 wide/15 inch wide sheets is not supported.  
Data is printed in portrait orientation regardless of the paper setting.



- Macro command: OUT\_PR  
Only characters are printed. Control codes are not printed.

\*3 For more information on PictBridge compatible printers, refer to page 16-8.

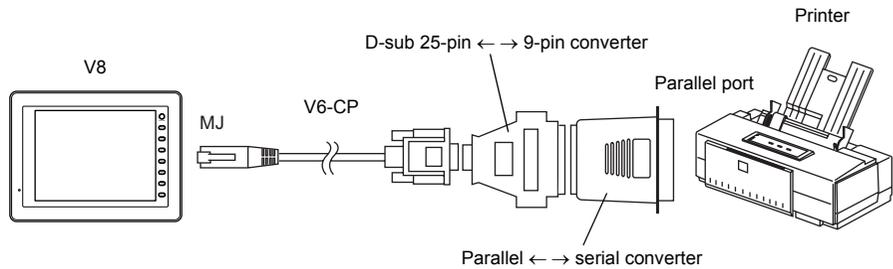
### Compatible printers

For the applicable printer model names, visit our Website (<http://www.monitouch.com>).

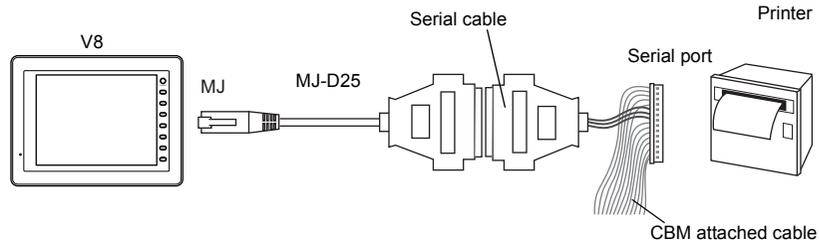
## Printer Connection

### With MJ1/MJ2:

- When the printer is equipped with a parallel port (PR201, ESC/P, STYLUS PHOTO):

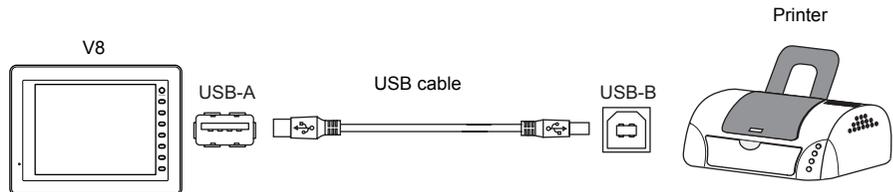


- When the printer is also equipped with a serial port (CBM292/293, MR-400):

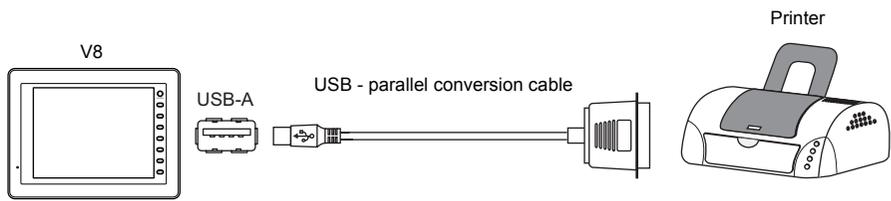


### With USB-A (= STYLUS PHOTO):

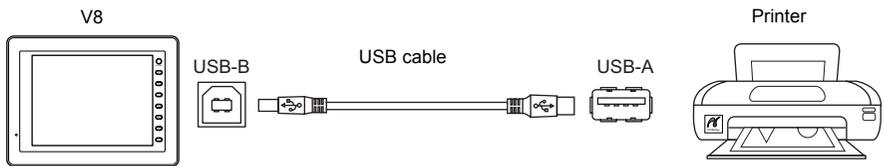
- When the printer is equipped with the USB-B port:



- When the printer is equipped with a parallel port:



**With USB-B (= PictBridge compatible printer)**

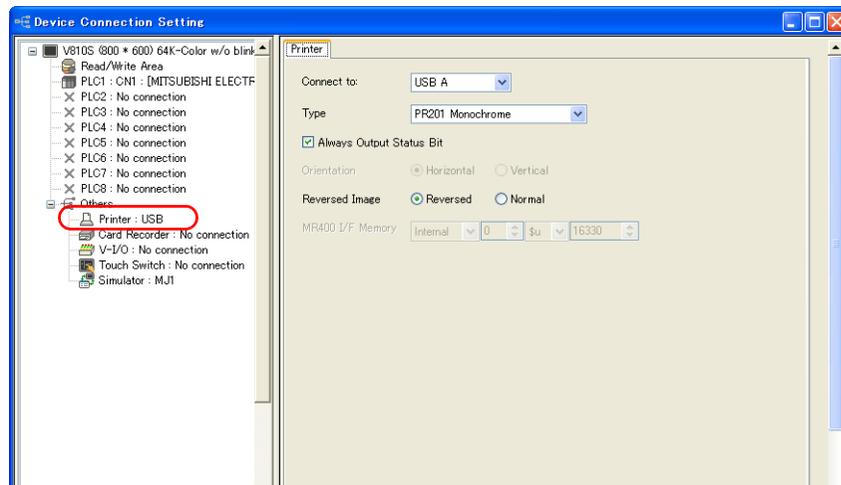


## Printer Settings

Select [System Setting] → [Device Connection Setting] → [Printer] and make the settings for the printer to be connected to the V8 series.

There are two tabs available: [Printer] and [Serial Port].

### Printer



<p>Connect to: (USB-A, USB-B, MJ1, MJ2)</p>	<p>Select the port where the printer cable is connected.</p> <p><b>USB-A:</b> Select this option when connecting a printer equipped with parallel interface using a USB - parallel conversion cable or when connecting a STYLUS PHOTO printer using a USB cable.</p> <p><b>USB-B:</b> Select this option when connecting a PictBridge compatible printer.</p> <p><b>MJ1/MJ2:</b> Select this option when connecting a printer equipped with serial interface. Select either [MJ1] or [MJ2] of the V8 series to be used.</p>
<p>Type *1</p>	<p>Choose the control code of the printer to be connected from the following options:</p> <ul style="list-style-type: none"> <li>• PR201 Monochrome</li> <li>• PR201 Color</li> <li>• ESC-P Monochrome</li> <li>• ESC-P Color</li> <li>• CBM292 / 293</li> <li>• MR-400</li> <li>• EPSON STYLUS PHOTO</li> <li>• EPSON STYLUS C86</li> <li>• EPSON STYLUS C65</li> <li>• PictBridge (only with [Connect to: USB-B])</li> </ul>
<p><input type="checkbox"/> Always Output Status Bit *2</p>	<p>When the V8 series receives a print command, [0 → 1] is output at the start of data transmission and [1 → 0] is output at the end of transmission. However, if the print data is minimal, the signal may not be output. Check this box (<input checked="" type="checkbox"/>) when you want to output the bit regardless of the data size.</p>

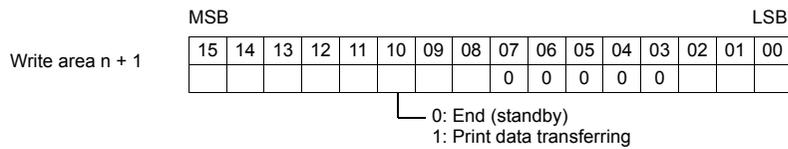
Orientation *3 *4 (Horizontal, Vertical)	Choose the paper orientation for printing the screen image. When [Vertical] is selected, the screen image is printed with a 90° rotation.
Reversed Image (Reversed, Normal)	Reversed: White and black are reversed when printing. Normal: Printed as shown on MONITOUCH
MR-400 I/F Memory *5	This option becomes active when the MR-400 barcode printer is selected. Set this memory address when using an external command for printing.

\*1 Compatible printer models

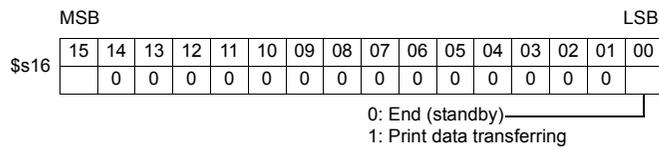
For more information, refer to "Compatible Printers" (page 16-2).

\*2 Data is output in the memory areas shown below.

- Bit 10 of write area "n + 1"

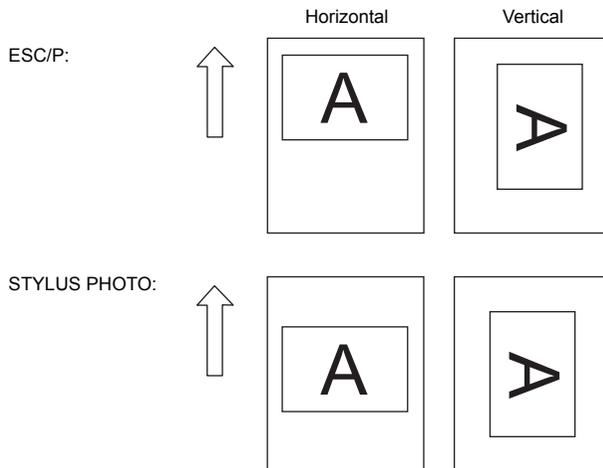


- Bit 1 of internal memory \$s16



\*3 For the edit models of SVGA (800 × 600 dots) or higher, this setting is not valid.  
However, this item is valid when EPSON STYLUS PHOTO, STYLUS C86 or C65, or PictBridge is set on the V8.

\*4 Print example (For PictBridge compatible printers, refer to page 16-8.)



\*5 Memory details

MR-400 I/F Memory	Content
n	Control memory
n + 1	Format table number specification memory (Call setting: 1 -256)

- Control memory (n)

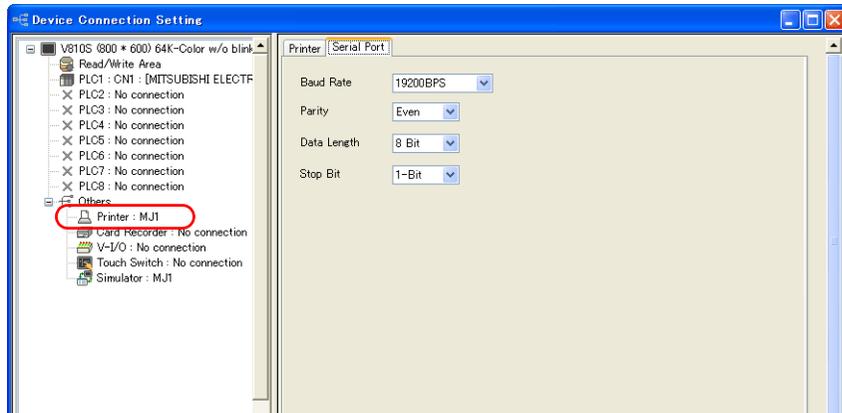
MSB														LSB	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Print command \_\_\_\_\_  
 0: Standby  
 1: Printing  
 This is automatically reset when printing has been completed.

- Format table number designation memory (n + 1)  
Set the number of the format table (call setting) to be printed.
- \* It is possible to specify the format call setting number using the MR\_OUT macro command to print the table.**  
For more information, refer to page 16-17.

## Serial Port

This option is valid when [MJ] is selected for [Connect to:] in the [Printer] tab window.



Baud Rate	Specify the baud rate. 4800, 9600, 19200, 38400, 57600, 76800, 115K BPS
Parity	Set the parity. None, Odd, Even
Data Length	Set the data length. 7-Bit, 8-Bit
Stop Bit	Set the stop bit. 1-Bit, 2-Bit

## Connection with PictBridge Compatible Printer (New)

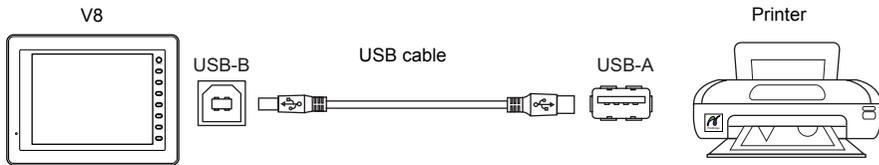
It is possible to connect a printer compatible with the PictBridge standard.

- \* For the connectable models, visit our Website (<http://www.monitouch.com>).

### Printer Connection

Use the USB-B port on the V8.

Connect a PictBridge compatible printer using a commercially available USB cable.



- \* Since the USB-B port is used, it is not possible to use this port for screen data transfer with a computer connected.

### Printable Items

The following items can be printed on PictBridge compatible printers.

Printable Items	PictBridge	STYLUS PHOTO	PR201/ESC-P	CBM292/293
Screen hard copy	○	○	○	×
Sample print	○	○	○	○
Real time print (Sample print)	×	○	○	○
Data sheet print	○	○	○	○
Print using the macro command "OUT_PR"	×	○	○	○

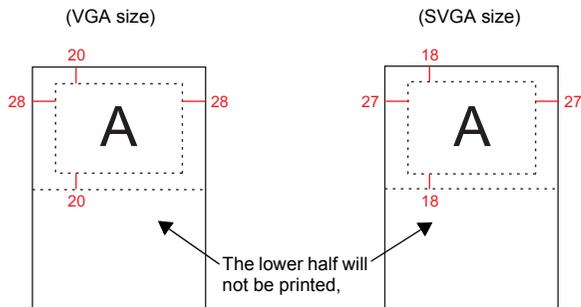
### Print Size

Depending on the item to be printed as well as paper orientation, the printable size will vary.

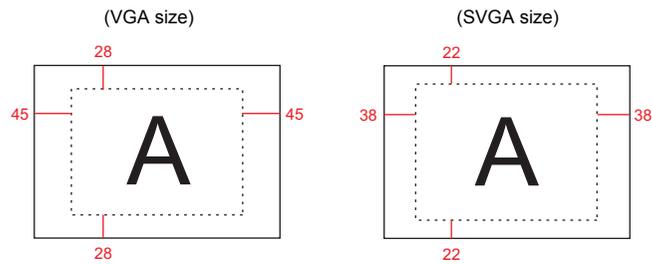
- \* **The paper size is fixed to "A4".**
- \* **Note that the actual print size or margins may vary from printer to printer.**

#### Screen hard copy

- When [Vertical] (portrait) is selected (units: mm):

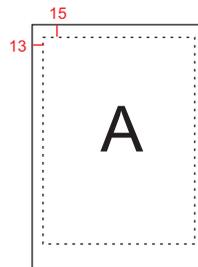


- When [Horizontal] (landscape) is selected (units: mm):



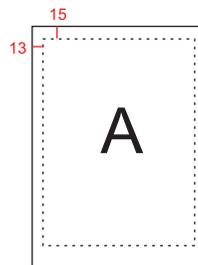
- The print start position and print size cannot be changed.

### Sample print



- Printing is fixed to "A4 vertical (portrait)". If a line cannot be held within the paper width, the remaining section will be printed while wrapping around and going down to the next line.
- The print start position and print size cannot be changed.

### Data sheet print



- Printing is fixed to "A4 vertical (portrait)". If a line cannot be held within the paper width, the remaining section will not be printed.
- The print start position and print size cannot be changed.

### Notes

- Printing is performed as images in JPEG format.
- Colors used for printing are determined according to the setting for [Color] in the [Edit Model Selection] dialog.
- The procedure for changing the print start position or print size as well as error handling varies depending on the printer model. For more information, refer to the instruction manual for the printer.

## Sato's Barcode Printer MR-400

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This section explains the setting required when connecting Sato's barcode printer MR-400 to print barcodes.

- \* **Read the instruction manual and command reference book for Sato's barcode printer MR-400 series before using this function.**

### Memory Card

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To use this function, a memory card is required for the MR-400.

For the memory card type and mounting procedure, refer to the instruction manual for the MR-400 series.

### Card Slot Number Setting and Memory Card Formatting

---

To enable the use of memory cards, set the memory card slot number and format the memory card on MR-400.

- \* **"Memory card formatting" denotes the same as floppy disk initialization.**

- 1) Turn off the power to MR-400, and insert a memory card into the card slot on the backside of MR-400.
  - 2) Hold down the LINE key on the front of the MR-400, and turn the power on.  
"USER MODE" is displayed on the front panel.
  - 3) Press the LINE key and FEED key at the same time.  
"ADVANCED MODE" is displayed.
  - 4) Press the LINE key and FEED key at the same time again.  
"CARD MODE" is displayed.
  - 5) Press the FEED key until "CARD DRIVE NO/ 1 2" is displayed.  
Set the memory card slot number.  
Press the LINE key to select, and press the FEED key to determine.)  
This drive number is the memory card slot number.
  - 6) Press the FEED key to determine the options. Select "YES" for "CARD FORMAT/ YES NO" and format the memory card.  
If no error is given, formatting is successfully done.
  - 7) To quit "CARD MODE," turn the printer off.
- When the screen data is transferred after editing the MR-400 format table (registration setting), formatting is required.  
In addition to the above formatting procedure, it is possible to format the memory card by outputting the control command of MR-400 from the V8 series. For more information, refer to "Example 1: When the following commands are set in No. 22:" (page 16-16).

### Format Table Types

---

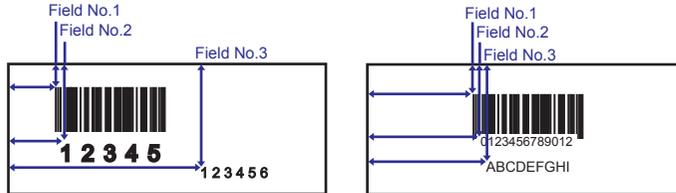
There are two types of format tables.

When the MR-400 commands are registered in this table, desired format or data can be printed.

### MR-400 format table (registration setting)

Set the print format.

- \* The “format” used in the format table includes settings for digits, position, typeface, barcode, etc. for MR-400.



Write these settings on the memory card using the MR\_REG macro command.

Once they are written on the memory card, it is not necessary to repeat this step until the registration setting is changed.

### MR-400 format table (call setting)

Use the format (registration setting), and change the print data. Set the storage target, type, etc. of the changed data.



Print the data using the MR\_OUT macro command.

### Format Table (Registration Setting)

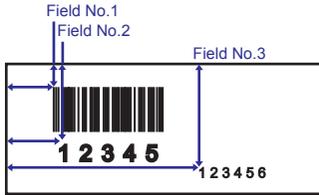
The format table (registration setting) allows settings from No. 1 to 128.



OK	The format table setting is ended.
Cancel	Format table editing is canceled.
Copy	The currently open format table is copied into the specified table.
Jump	The specified format table is opened.
Return	The previous format table number is opened.
Next	The following format table is opened.

### Setting example

To print in the following format:



- Description of escape sequence

<A>  
<Data send start>

<CC> 2  
<Card slot> Slot number

<YS> 10 \_\_\_\_\_ Match this number to the registration setting number.  
<Format register>, Format register number

</N>, 1, 1 0  
<Field register>, field number, print digits

Data registered for field No. 1

<V> 1 0 <H> 5 0  
<Vertical print position> dots <horizontal print position> dots

<B> 2 0 2 0 8 0 1 2 3 4 5 6 7 8 9 0  
<Barcode> Bar code type, bar width enlargement, bar top/bottom size (dots), data

</N>, 2, 5  
  
<V> 1 0 0 <H> 5 0 <L> 0 2 0 2 <P> 2

Data registered for field No. 2

<X22>, 1 2 3 4 5  
<X22 characters>, data

</N>, 3, 6  
  
<V> 1 5 0 <H> 3 0 0 <L> 0 1 0 1 <P> 2

Data registered for field No. 3

<X2 2>, 1 2 3 4 5 6 □

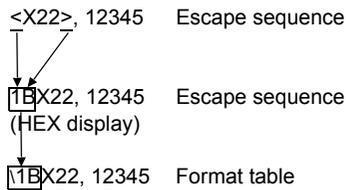
<Z>  
<Data send end>

- Description of the format table

Match these numbers.

No.	Format
001	#1bA#1bCC2
002	#1b\ ,10
003	#1b/N,1,10
004	#1bV10#1bH50
005	#1bB2020801234567890
006	#1b/N,2,5
007	#1bV100#1bH50#1bL0202#1bP2
008	#1bX22,12345
009	#1b/N,3,6
010	#1bV150#1bH300#1bL0101#1bP2
011	#1bX22,1,123456
012	#1bZ
013	

### Notes on inputting



The escape character (ESC) at the top of the escape sequence is expressed as "< >" on MR-400 and as "1B(H)" in hexadecimal notation.

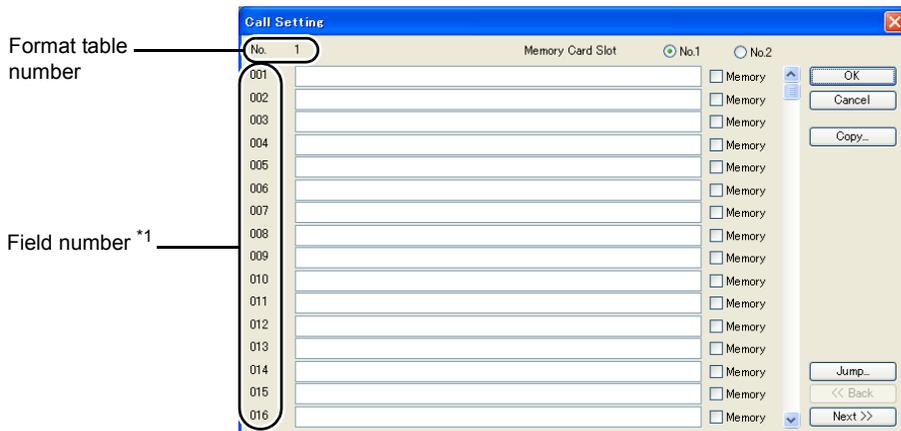
In the format table, "\" denotes hexadecimal data.

Consequently, "1B(H)" is shown as "\1B".

To describe "\" as a character, enter "\\".

### MR-400 Format Table (Call Setting)

The format table (call setting) allows settings from No. 1 to 128.

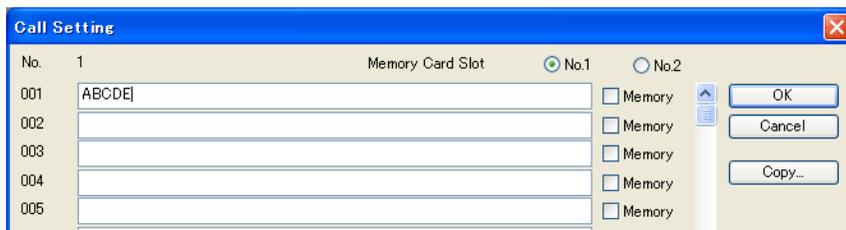


Memory Card Slot (No. 1, No. 2)	Select the card slot drive number set on MR-400.
<input type="checkbox"/> Memory	Check the box ( <input checked="" type="checkbox"/> ) when each field data is stored in the memory.
OK	The format table setting is ended.
Cancel	Format table editing is canceled.
Copy	The currently open format table is copied into the specified table.
Jump	The specified format table is opened.
Return	The previous format table number is opened.
Next	The following format table is opened.

\*1 Field No. 1 to 99 are used.  
Settings of No. 100 to 512 are not valid.

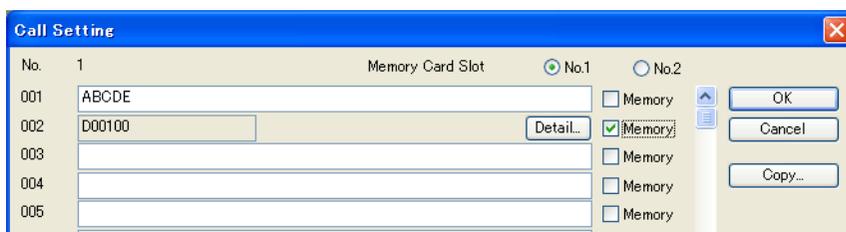
### Setting example (1)

<To print "ABCDE" in field No. 1>



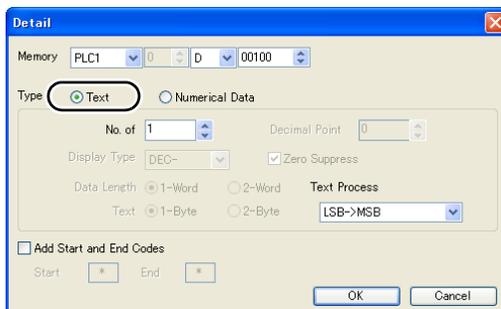
### Setting example (2)

<To print data stored in memory in field No. 2>



Check the box (☑) for [ Memory] of field No. 2.  
Press the [Detail] button to bring up the [Detail] dialog.

- Select [Text] for [Type].

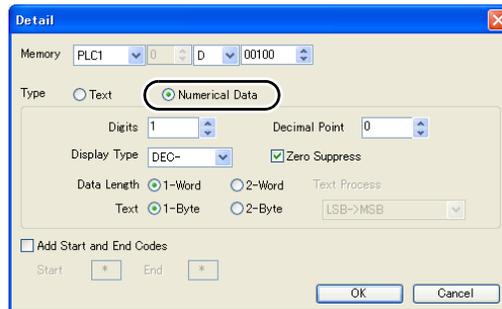


Memory	Specify the top memory address where print data is stored.
No. of Bytes *1	The specified number of bytes is output from the address specified for [Memory].
Text Process	LSB → MSB / MSB → LSB Set the recognition of MSB and LSB in one word.
<input type="checkbox"/> Add Start and End Codes	Make the setting when using barcode type "CODE 39." (Refer to page 16-17.)

\*1 To print "ABCDEF" in one-byte characters, specify as shown below in the Shift JIS code.

D100	4241 [H]
D101	4443 [H]
D102	4645 [H]

- Select [Numerical Data] for [Type].



Memory *1	Data contained in the specified memory address is printed in numerals.
Digits	Specify the number of digits for the display type.
Decimal Point	Specify the number of decimal places.
Display Type	Choose from DEC-, HEX, OCT, DEC or BIN. When [DEC-] is selected, data is shown in decimal notation with $\pm$ signs.
<input type="checkbox"/> Zero Suppress	Choose whether or not to use the zero suppress function. When [Zero Suppress] is checked ( <input checked="" type="checkbox"/> ) , the suppressed zero is filled with spaces.
Data Length	Choose data length for the memory to be used.
Text	Choose one-byte or two-byte characters.
<input type="checkbox"/> Add Start and End Codes	Make the setting when using barcode type "CODE 39." (Refer to page 16-17.)

\*1 When [Numerical Data] is selected, binary data is converted into characters (JIS code).

Example:

When "0100 (BIN)" is set in D100, characters 0100 (= "100") is printed.

## Macro

Macro commands can be used for writing data of format tables (registration setting/call setting) to MR-400 or for printing.

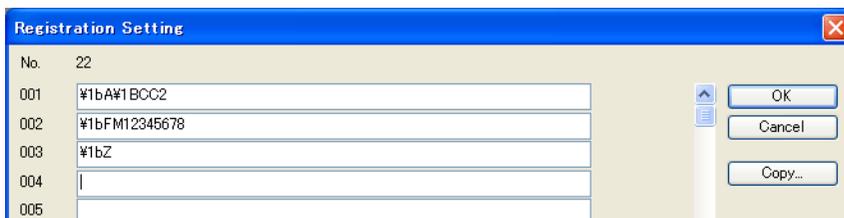
### MR\_REG

#### MR\_REG F0

Data of format table (registration setting number) set for F0 is written on the memory card.  
Available Devices

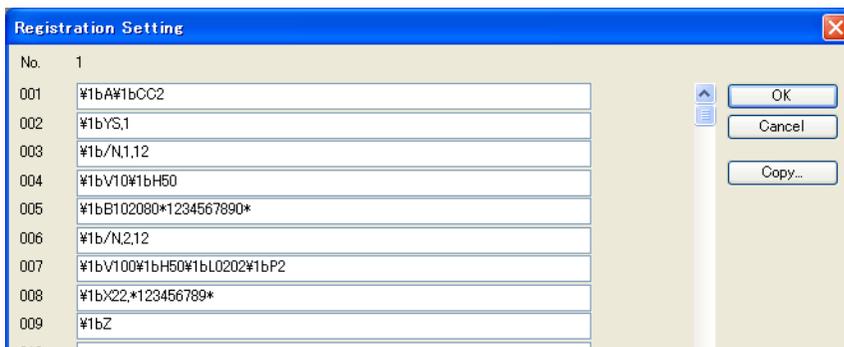
	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	○	○	○	○	○	

- Example 1: When the following commands are set in No. 22:



When the MR\_REG 22 macro command is executed, the memory card is formatted.

- Example 2: When the following commands are set in No. 1:



Execute the MR\_REG 1 macro command as the ON macro of a switch.

First: The format is registered on the memory card for MR-400.

Second: The registered data is printed and the format can be checked.

**MR\_OUT****MR\_OUT F0**

Data of the format table (call setting number) set for F0 is printed.  
Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	○	○	○	○	○	

- Example 1: When the MR\_OUT 50 macro command is executed:  
Data of the MR-400 format table (call setting No. 50) is printed.

**Barcode Type “CODE 39”**

CODE 39 has “\*” at the beginning and the end of each barcode.

When the format table is created, set “\*” in the following two positions.

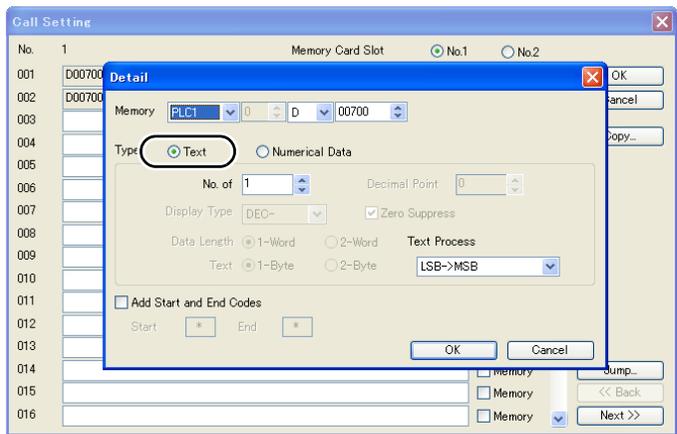
- Setting in [MR-400 Format Table (Registration Setting)]  
Set the number of digits including “\*” for format registration.  
For example shown below, set “12” (10 characters + 2).

**Registration Setting**

No.	1
001	¥1bA¥1bCC2
002	¥1bYS,1
003	¥1b/N,12
004	¥1bV10¥1bH50
005	¥1bB1020(*1234567890*)
006	¥1b/N,2,12
007	¥1bV100¥1bH50¥1bL0202¥1bP2
008	¥1b>22,*123456789*
009	¥1bZ
010	
011	
012	
013	
014	
015	
016	

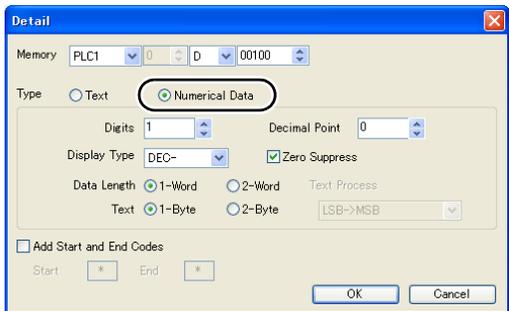
Buttons: OK, Cancel, Copy..., Jump..., << Back, Next >>

- Setting in [MR-400 Format Table (Call Setting)]
  - Select [Text] for [Type].



No. of Bytes	Specify the number of bytes including “*”.
<input type="checkbox"/> Add Start/End Code	Checked ( <input checkbox="" checked="" type="checkbox&gt;): “*” is not included in data in [Memory].&lt;br/&gt;Unchecked (&lt;input type="/> ): “*” is included in data in [Memory].

- Select [Numerical Data] for [Type].

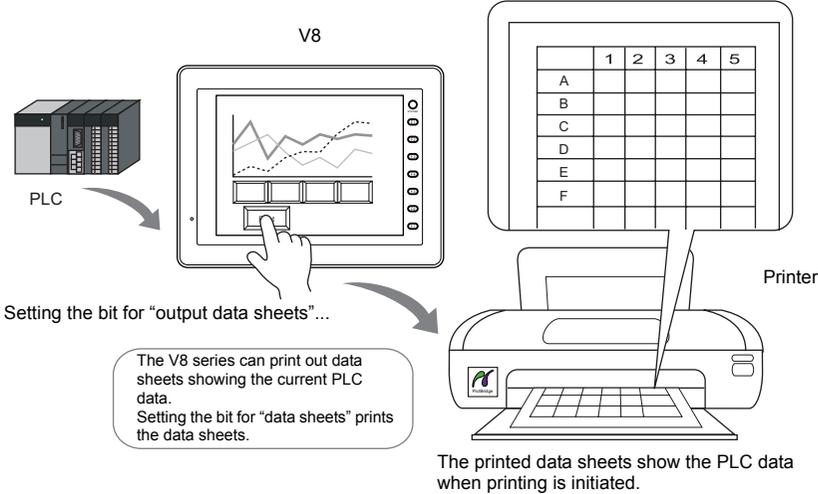


<input type="checkbox"/> Add Start/End Code	Checked ( <input checkbox="" checked="" type="checkbox&gt;): “*” is not included in data in [Memory].&lt;br/&gt;Unchecked (&lt;input type="/> ): “*” is included in data in [Memory].
---	---

# 16.2 Data Sheet Print Overview

The data sheet function makes it possible to print out data (numerical data and characters) in the PLC1 - 8 memory, internal memory or memory card memory in a form of data sheet while the V8 series is communicating with the PLC.

This function also makes it possible to print out the data that is not shown on the V8 series.



The print screen is formatted in [Data Sheet] in the V8 series screen data file.

Line or box

	1	2	3	4	5	6
A Line	ABC	123	123	123	123	123
B Line	ABC	123	123	123	123	123
C Line	ABC	123	123	123	123	123
D Line	ABC	123	123	123	123	123
E Line	ABC	123	123	123	123	123
F Line	ABC	123	123	123	123	123

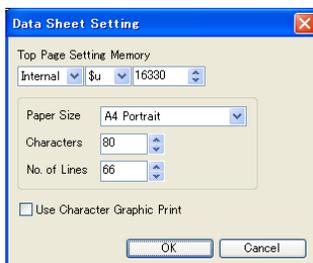
Data display (Numerical data)

Data display (Characters)

\* For more information on the data sheet editing procedure, refer to the Operation Manual.

## Setting Dialog

### Data Sheet Setting



<p>Top Page Setting Memory</p>	<p>Use this memory when printing data sheets by the command (refer to page 16-21) given in the read area. 2 words are used.</p> <table border="1"> <tr> <td>n</td> <td>Start sheet number (→ V)</td> </tr> <tr> <td>n + 1</td> <td>The number of data sheet pages to be output (→ V)</td> </tr> </table>	n	Start sheet number (→ V)	n + 1	The number of data sheet pages to be output (→ V)												
n	Start sheet number (→ V)																
n + 1	The number of data sheet pages to be output (→ V)																
<p>Paper Size (A4 Portrait, A4 Landscape, 15-Inch Landscape, User Designation)</p>	<p>Designate the size and orientation of paper for printing.</p>																
<p>Characters (16 to 152)</p>	<p>Specify the number of characters per line on a data sheet page.</p>																
<p>No. of Lines (2 to 152)</p>	<p>Specify the number of lines per data sheet page.</p>																
<p><input type="checkbox"/> Use Character Graphic Print *1</p>	<p>When this box is checked (<input checked="" type="checkbox"/>) , ruled lines are printed clearly. The number of lines also varies. The numbers of characters and lines are automatically set as shown below.</p> <table border="1"> <thead> <tr> <th>Paper Size</th> <th>Characters</th> <th>No. of Lines</th> <th>No. of Lines with Character Graphic Used</th> </tr> </thead> <tbody> <tr> <td>A4 portrait</td> <td>80</td> <td>66</td> <td>108</td> </tr> <tr> <td>A4 landscape</td> <td>114</td> <td>40</td> <td>64</td> </tr> <tr> <td>15-inch landscape</td> <td>136</td> <td>64</td> <td>64</td> </tr> </tbody> </table>	Paper Size	Characters	No. of Lines	No. of Lines with Character Graphic Used	A4 portrait	80	66	108	A4 landscape	114	40	64	15-inch landscape	136	64	64
Paper Size	Characters	No. of Lines	No. of Lines with Character Graphic Used														
A4 portrait	80	66	108														
A4 landscape	114	40	64														
15-inch landscape	136	64	64														

\*1 Refer to "Printed Data Sheet" on page 16-24.

## Print

There are two methods for printing data sheets.

### Command from Read Area

Bit 9 of [Read Area] "n+1" is the data sheet output bit.

[0 Data sheet is printed at [0 → 1] edge.

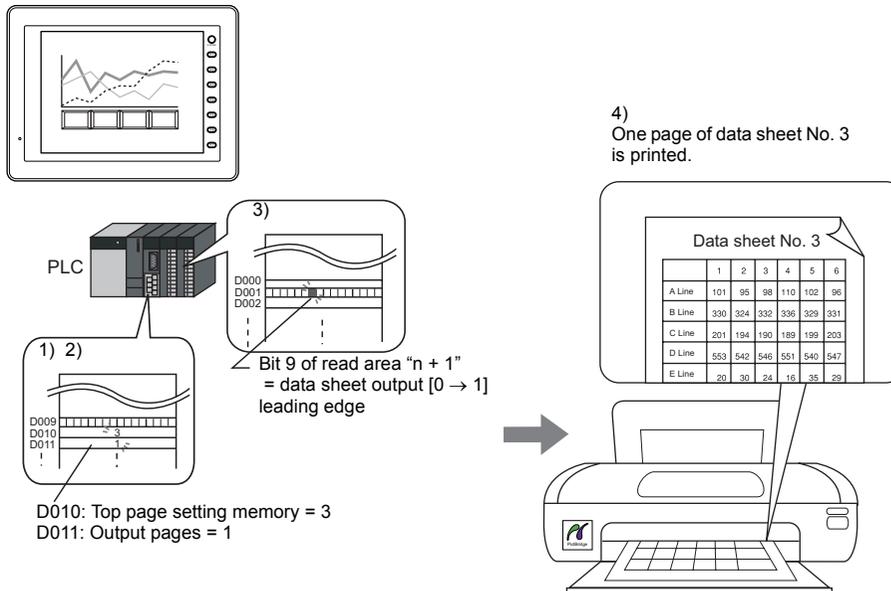
#### Printing procedure

- 1) Specify the data sheet number to be the top page for [Top Page Setting Memory] "n".
- 2) Specify the number of output pages for [Top Page Setting Memory] "n+1".
  - \* **When [Top Page Setting Memory] "n+1" is "0", the printer will not print any data sheet.**
- 3) Set bit 9 of [Read Area] "n + 1" from "0" → "1".
- 4) Data sheet is printed.

#### Usage example

Read area = D0000

Top page setting memory = D0010



## Command with Macro

Use the STA\_LIST macro command to print data sheets.

### (STA\_LIST) F1

#### (STA\_LIST) F1 Data sheet printout

F1 + 0	Print start data sheet number
F1 + 1	Data sheet pages to be printed

#### Available Devices

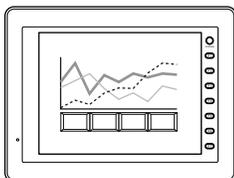
	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation
F0	Command name				
F1	○				○

### Printing procedure

- 1) Set the data sheet number to be the top page for the memory "F1 + 0".
- 2) Set the output pages for the memory "F1+1".
- 3) Execute the STA\_LIST macro command.
- 4) Data sheet is printed.

Print example:

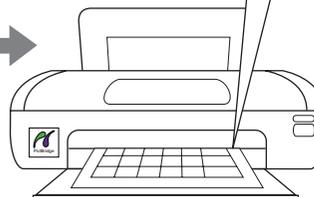
To print data sheet No. 3 with F1 = \$u100:



4) One page of data sheet No. 3 is printed.

	1	2	3	4	5	6
A line	101	95	98	110	102	96
B line	330	324	332	336	329	331
C line	201	194	190	189	199	203
D line	553	542	546	551	540	547
E line	20	20	24	16	35	29

- 1) \$u100 = 3      — Top page setting
- 2) \$u101 = 1      — Number of output pages
- 3) STA\_LIST \$u100 — Macro execution



## Notes

When no data sheet screen has been registered, data sheets cannot be printed even if you specify them by number.

Print example:

Read area = D0000

Top page setting memory = D0010

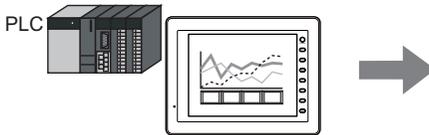
Data sheet No. 10    No. 11    No. 12    No. 13    No. 14

Data sheet No.10					bet No.11				bet No.12				bet No.14			
1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4
A.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
B.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
C.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
D.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
E.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
F.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
G.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
H.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
I.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
J.Low	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
A.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
B.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
C.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
D.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
E.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
F.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
G.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
H.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
I.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	
J.High	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	

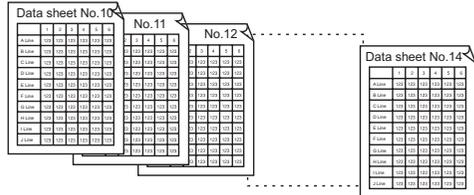
If data sheet pages are registered as shown on the left:

D0010 (Top page setting memory) = 10  
 D0011 (Output pages) = 5

Bit 9 (data sheet output) of D0001 [0 → 1] leading edge



Data sheet No. 10 to 12 and 14 can be printed.  
 The page that is not stored, No. 13, is ignored, and four pages are output.



## Printed Data Sheet

All characters and lines on the data sheet screen are handled as text.

Consequently, the printed data sheet looks differently from the one on the editor screen.

Example: If the following data sheet is created on the editor screen:

No. 0 Data
No. 1 Data
No. 2 Data
No. 3 Data



The data sheet will be printed out:

No. 0 Data
No. 1 Data
No. 2 Data
No. 3 Data

Example: When [Use Character Graphic Print] is checked:

No. 0 Data
No. 1 Data
No. 2 Data
No. 3 Data



The data sheet will be printed out:

No. 0 Data
No. 1 Data
No. 2 Data
No. 3 Data

No. 0 Data
No. 1 Data
No. 2 Data
No. 3 Data



No. 0 Data
No. 1 Data
No. 2 Data
No. 3 Data

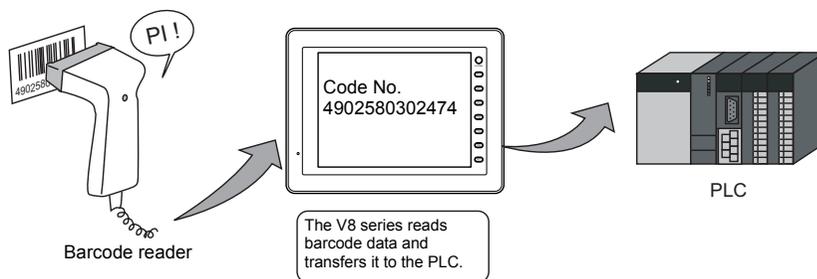
# 17 Barcode

## Overview

The V8 series reads barcode data, converts the necessary data into ASCII code and writes them in the PLC memory.

With this feature, all information from the barcode is transferred immediately to the PLC.

Additionally, the V8 series can show the read barcode data on the screen.



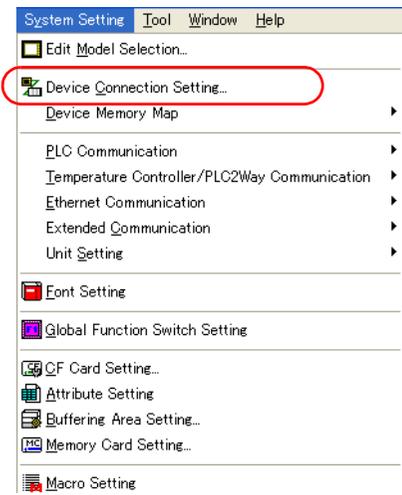
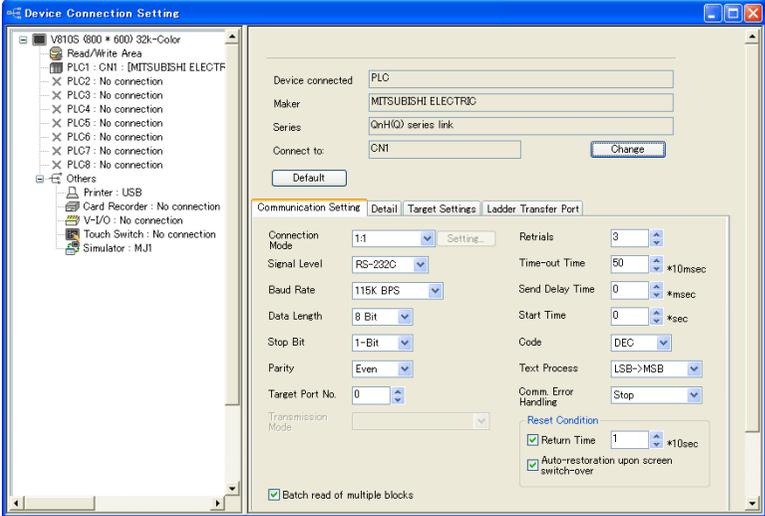
- There is no “handshake communication” between them.  
(The barcode reader is not synchronized with the V8 series.)
- Connect the barcode reader to modular jack 1 (or 2) of the V8 series.
- It is possible to connect a 2D barcode reader for data read/write operations.
- Note on connection

Depending on the barcode reader type, the applicable connecting cable differs. Please prepare an appropriate conversion cable on your own.  
(Refer to “Connecting Barcode Reader” on page 17-9.)

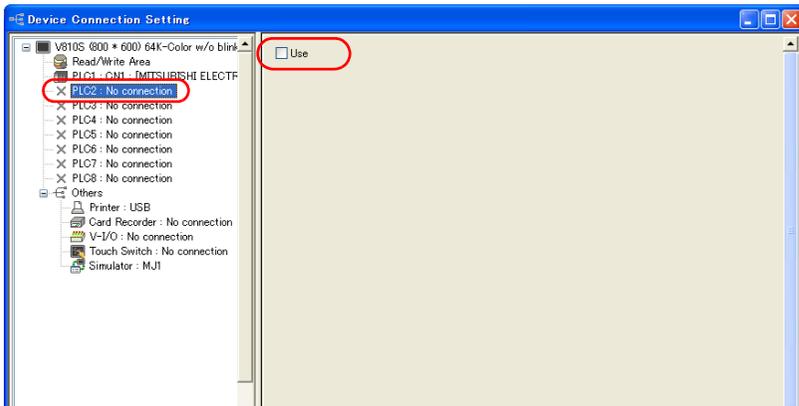
## Setting Dialog

### Setting Procedure

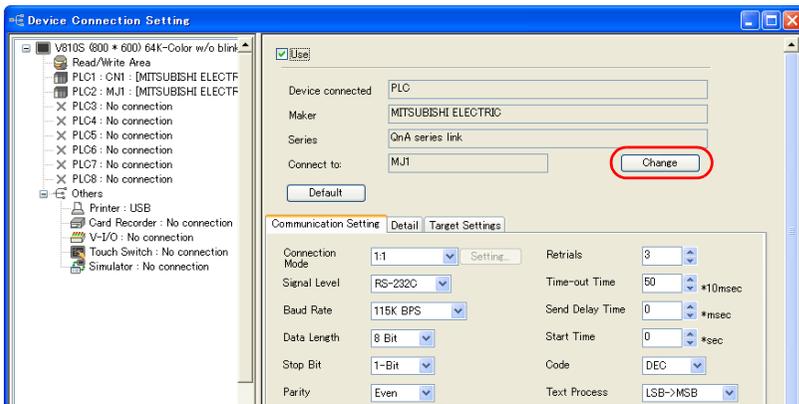
With the V8 series, barcode connection is recognized as one among 8-way communication. The setting procedure is the same as that for 8-way communication. Set the items as shown below.

<p>Step 1</p>	<p>Select [System Setting] → [Device Connection Setting].</p> 
<p>Step 2</p>	<p>The [Device Connection Setting] dialog is displayed.</p> 

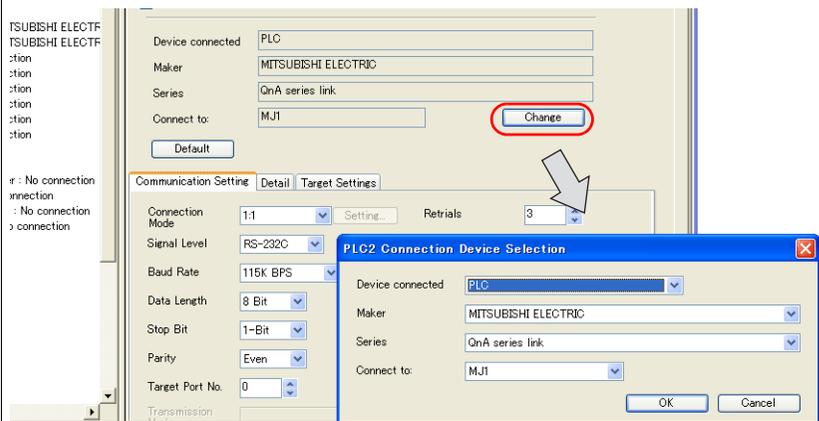
Step 3 Among [PLC2] to [PLC8], click a position that shows “No connection”. In this example, select [PLC2].

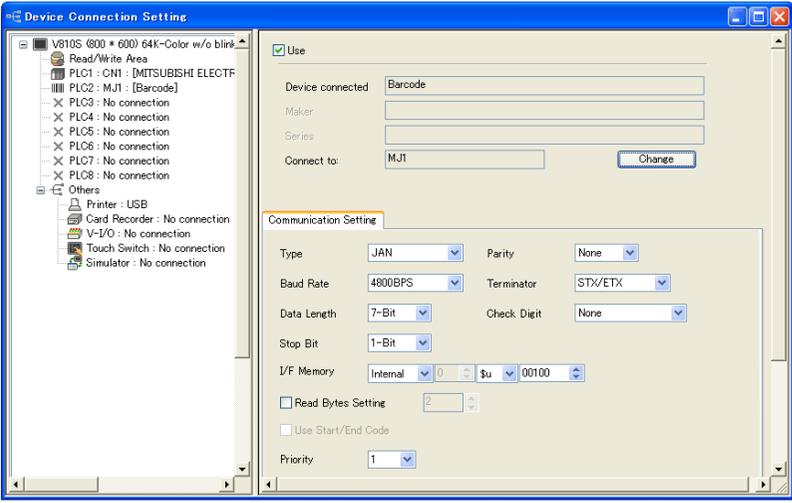


Step 4 Check the box for [Use]. The following dialog is displayed:

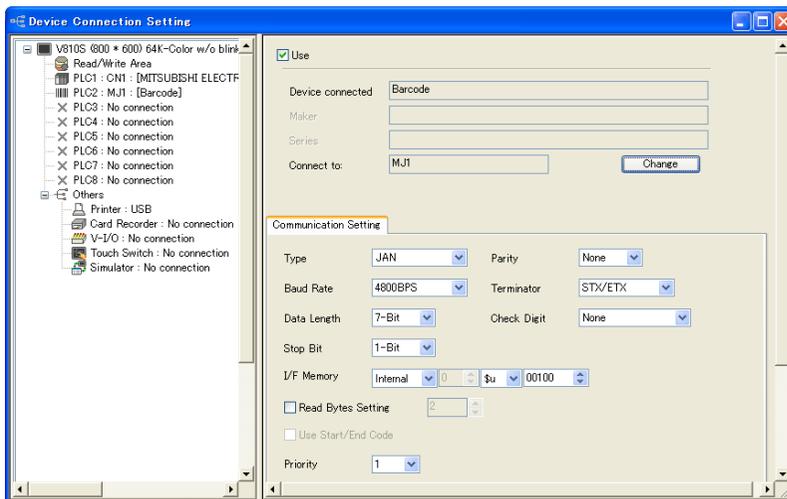


Step 5 Click the [Change] button at the right of [Connect to:]. The [PLC Connection Device Selection] dialog is displayed.



<p>Step 6</p>	<p>Select [Barcode] for [Device connected].</p> 
<p>Step 7</p>	<p>Select [MJ1] or [MJ2], which is not occupied, for [Connected to:].</p> <p>* When a port already occupied is selected, the following message will be displayed. Check that there is no overlapping selection, and correct the setting.</p> 
<p>Step 8</p>	<p>Click [OK], and barcode reader connection is set to the selected MJ port.</p> 

## Barcode Setting



Type	Select the type of barcode reader from the following options. <ul style="list-style-type: none"> <li>• JAN (UPC, EAN)</li> <li>• ITF (Interleaved 2 of 5)</li> <li>• CODABAR (NW-7)</li> <li>• CODE39</li> <li>• ANY (2D code)</li> </ul>
Baud Rate	Choose a baud rate. 4800, 9600, 19200BPS
Data Length (7-Bit, 8-Bit)	Set the bit length.
Stop Bit (1-Bit, 2-Bit)	Set the stop bit.
Parity	Set the parity. None, Odd, Even
Terminator (STX, ETX, CR/LF, CR)	Set the terminator.
Parity	Set the parity. None, Odd, Even
Check Digit	Set the check digit. None, Do Not Delete, Delete
I/F Memory	Specify the top memory address where barcode data, etc. is stored. For more information, refer to page 17-6.
<input type="checkbox"/> Read Bytes Setting	Check this box ( <input checked="" type="checkbox"/> ) when setting the upper limit of the bytes to be read. Specify an even number for [No. of Bytes]. For more information, refer to page 17-7.
<input type="checkbox"/> Use Start/End Code	This is valid when [Type: CODE39] is selected. Set the processing of start/end codes "*" when reading barcodes.  Checked ( <input checked="" type="checkbox"/> ) Data with start/end codes is saved in [I/F Memory].  Unchecked ( <input type="checkbox"/> ) Data without start/end codes is saved in [I/F Memory].
Precedence	Set a priority among PLC2 to PLC8.

**I/F memory details**

The allocation of I/F memory is shown below:

- Type: JAN, ITF, CODABAR, CODE39

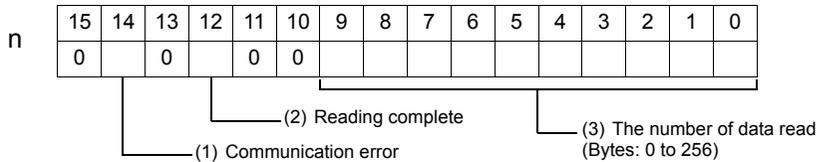
Memory	Contents
n	Flag/ the number of data read ... A)
n + 1	Data read ... B)
•	
•	
n + m	

- Type: ANY

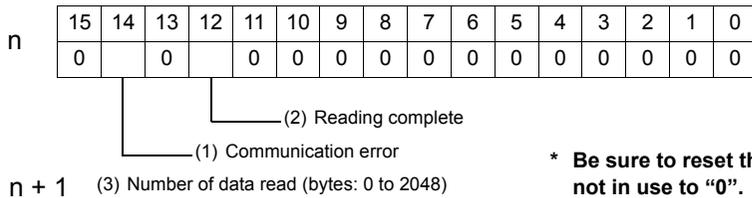
Memory	Contents
n	Flag ... A)
n + 1	The number of data read ... A)
n + 2	Data read ... B)
•	
•	
n + m	

**A) Flag / the number of data read**

- Type: JAN, ITF, CODABAR, CODE39



- Type: ANY



**\* Be sure to reset the bits not in use to "0".**

(1)	Communication error (bit 14)	When an error has occurred in the communication between the barcode reader and the V8 series, bit 14 shows "1". Select [System Setting] → [Extended Communication] → [Barcode] → [Barcode Setting], check the settings with the parameters on the barcode reader and also check cable connection.
(2)	Reading complete (bit 12)	When data from barcode reader is received and written to the I/F memory, bit 12 (reading complete) shows "1". Check that the bit is set, and can receive the next data. To read the next barcode data, reset the bit to "0" when the data has been read.
(3)	The number of data read	The number of bytes read by the barcode reader is written.

**B) Data read**

Barcode data is converted into ASCII code and is stored in these areas.

As many as the bytes read are stored.

("0" (null code) is attached to the last.)

### The number of bytes to be read

The number bytes to be read depends on the setting for [Type] and [Read Bytes Setting].

Type	Read Bytes Setting Check Box	Memory Occupied
JAN ITF CORDERBAR CODE39	Unchecked	Variable for codes to be read 254 bytes maximum
	Checked	Fixed to the set number of words (2 to 254 bytes)
ANY	Unchecked	Variable for codes to be read 2046 bytes maximum
	Checked	Fixed to the set number of words (2 to 2046 bytes)

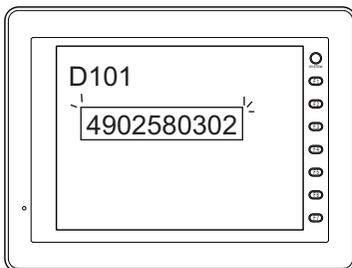
• Example

I/F Memory: D100

Read Bytes Setting: Checked

No. of Bytes: 10 bytes

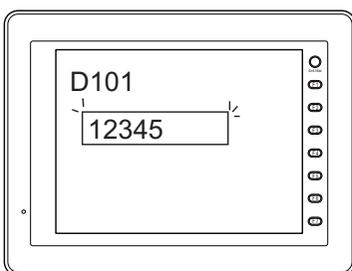
- When data "4902580302" exceeding 10 bytes is read:  
10 bytes of data is stored and the remainder is deleted.



I/F Memory	Value
D100	Flag / the number of bytes read
D101	3934HEX
D102	3230HEX
D103	3835HEX
D104	3330HEX
D105	3230HEX
D106	Not used

10 bytes

- When data "12345" less than 10 bytes is read:  
"0" is stored in memory addresses when there is no corresponding data.

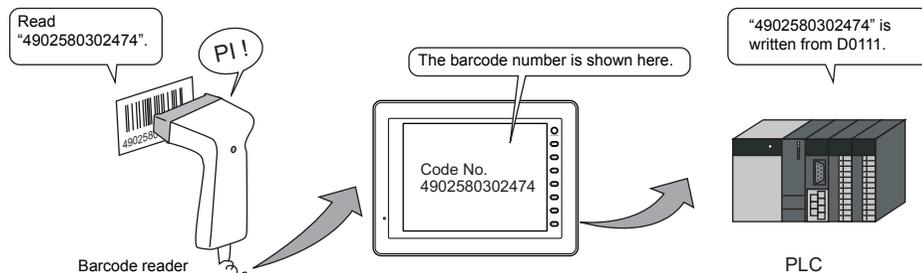


I/F Memory	Value
D100	Flag / the number of bytes read
D101	3231HEX
D102	3433HEX
D103	0035HEX
D104	0000HEX
D105	0000HEX
D106	Not used

10 bytes

## Barcode Setting Example

Follow these steps to display barcode data received from the PLC on the screen of the V8 series:



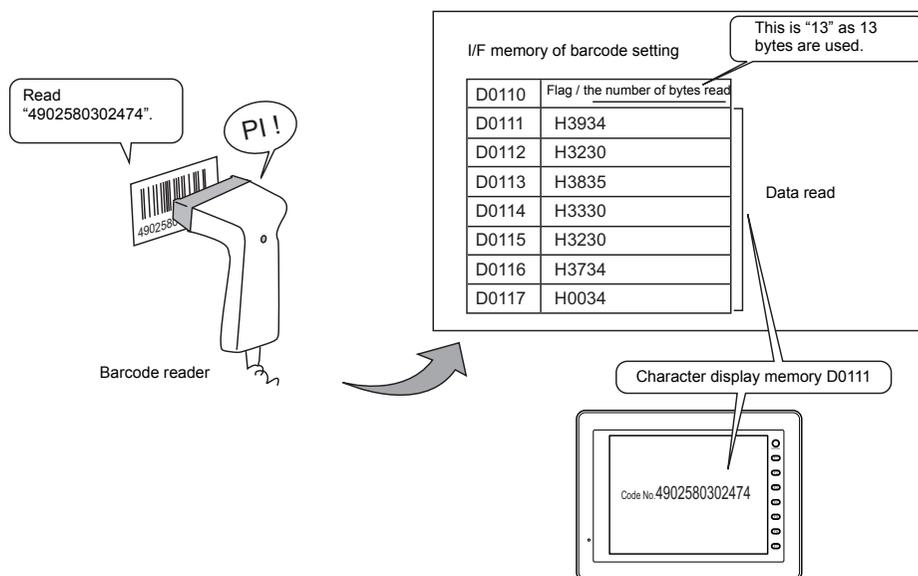
## Setting Procedure

Set the [Barcode Setting] and [Char. Display] dialogs.

- 1) Refer to the barcode reader's manual, and set the items in the [Barcode Setting] dialog correctly. (Refer to page 17-5.)  
In this example, specify "D0110" for [I/F Memory].
- 2) To show the contents of the barcode data that was read, use a character display part.  
For more information, refer to "5 Data Display."

## Notes on Setting

- 1) In this example, specify "D111" for [Memory] for the character display part because barcode data is stored from "n + 1" ("n + 2" for 2D code).
- 2) Specify the number of bytes of barcode data for [Read Bytes Setting].



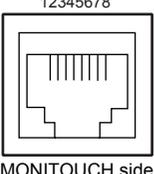
\* This example shows a case of data storage with [Text Process: LSB → MSB].

## Connecting Barcode Reader

This section explains the connection between the V8 series modular jack (MJ1/2) and the barcode reader.

### Modular Jack Pin Arrangement and Signal Name

The pin numbers and signal names are shown in the following diagram.

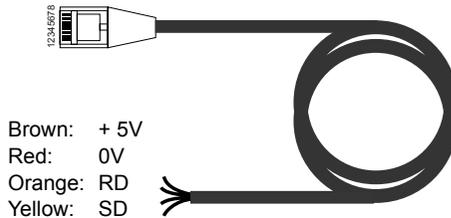
MJ 1 / 2	Pin No.	Signal Name	Contents
	1	+RD/+SD	RS-485 data (+)
	2	-RD/-SD	RS-485 data (-)
	3	+5V	External +5 V *1 Max. 150 mA
	4	+5V	
	5	SG	SG
	6		
	7	RD	RS-232C receive data
	8	SD	RS-232C send data

\* The maximum allowable current value for external power supply (+5V) will vary according to whether the system is full-featured (with communication unit + option unit) or not. For more information, refer to the V8 Series Hardware Specifications.

### Hakko Electronics' Cable (V6-BCD)

Length: 3 m

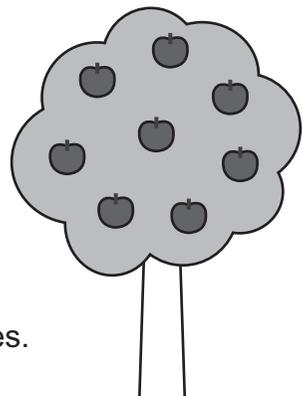
With modular plug



### Notes on Connection

For barcode readers with CTS/RTS control, it may be necessary to install a jumper between the CTS and RTS to maintain proper operation.

# MEMO



Please use this page for notes.

# 18 CF Card

## 18.1 Overview

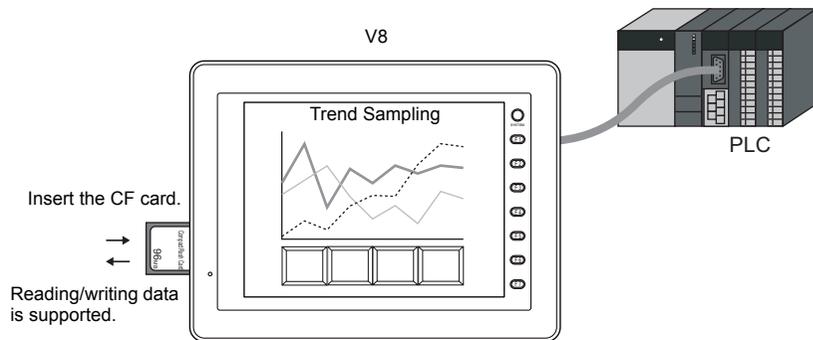
This chapter describes the functions available with CF cards in the V8 series.

### Connection

#### Card Interface

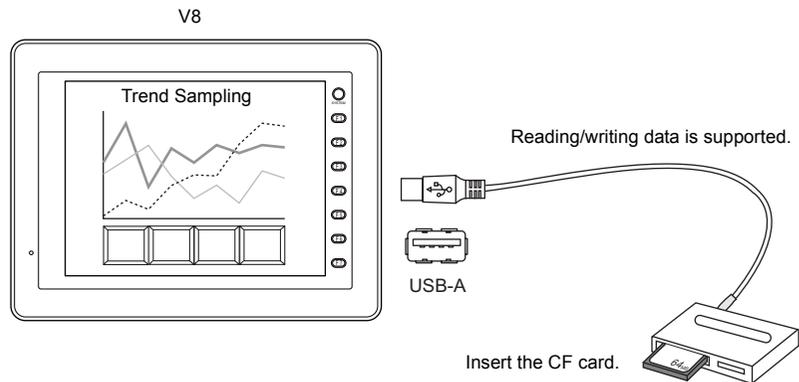
The CF card interface is provided as a standard feature.

- \* The CF card cover is provided. When the CF card cover is opened, access to the CF card is automatically disabled (when completed during access); when the CF card cover is closed access to the CF card is enabled. For more information, refer to the V8 Series Hardware Specifications.



#### USB CF Card Reader/Writer

A commercially available USB CF card reader/writer can be connected to the USB-A port (master port) provided on the V8 as a standard feature.

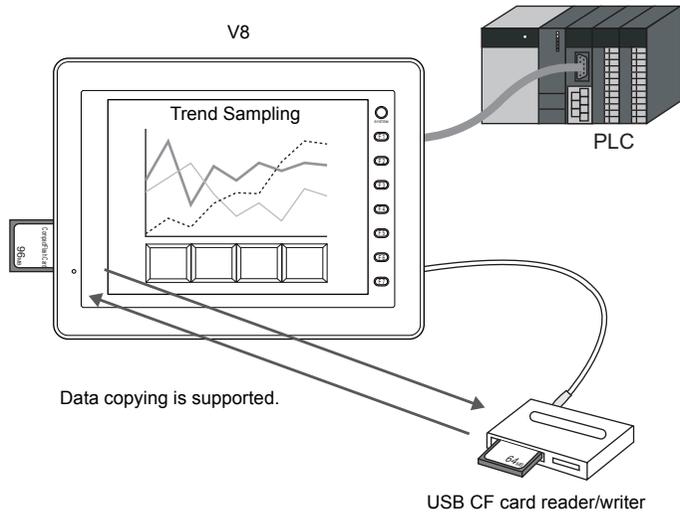


- \* For a list of CF card reader/writers operations that have been verified, visit our website (<http://www.monitouch.com>).

## 2 Drives Supported (New)

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The card interface and the USB-A port (master port) can be recognized at the same time. The card interface is used as a storage target while data can be copied to a CF card connected at the USB-A port for data backup purpose.



For more information, refer to page 18-34.

## Before Using CF Cards

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### CF Cards (Operations Verified)

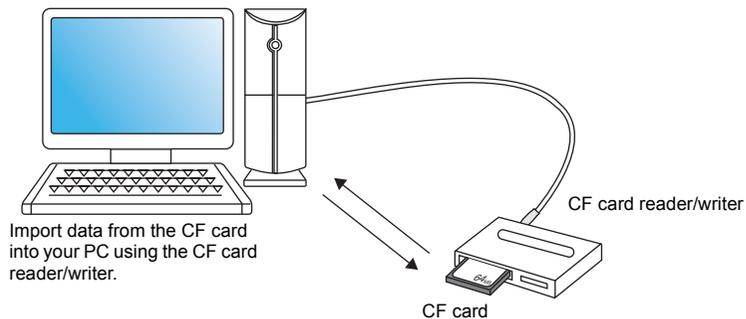
---

For a list of cards (CompactFlash™ compliant CF cards) operations that have been verified, visit our website (<http://www.monitouch.com>).

### When Connecting to Your Computer:

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To store data from your computer on a CF card, or to insert a CF card and check its content, you need a CF card reader/writer connected to the computer on which the V-SFT was installed.



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## Applicable Format (File System)

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The V8 series can recognize CF cards of "FAT" and "FAT32" file system types.

### Notes

---

When using a CF card, please note the following:

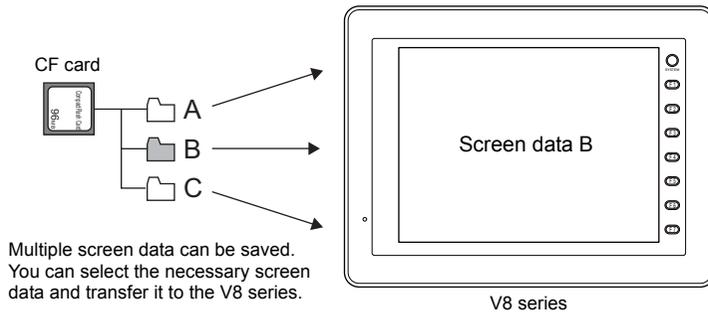
- Before inserting a CF card into MONITOUCH, be sure to read the V8 Series Hardware Specifications and keep the right side out.  
If a CF card is inserted with the wrong side out, the CF card or the socket at the MONITOUCH may be damaged.
- Do not insert or remove any CF card during access. Doing so may corrupt data on the CF card.  
CF cards can be inserted or removed when the Main Menu screen is displayed.  
However, if you press the [Card Menu] switch on the Main Menu screen to bring up the Card Menu screen, you cannot insert or remove your CF card.  
Before inserting/removing a CF card in the RUN state, ensure that the [CF Card Removal] switch is pressed (ON). Failure to do so could cause data corruption or damage to the CF card.
- Do not turn the power to MONITOUCH on or off while accessing the CF card.
- Save a backup copy of the CF card data at regular intervals.
- If there should be a disk error and you cannot read/write data, you can scan the disk in Windows to restore the disk data.  
If you still cannot restore the disk data, you need to re-format the CF card. If you format the CF card, data on the card is completely lost. (For more information on scanning the disk or operating Windows, refer to the Windows help information.)
- There is a limitation in the number of write operations to a CF card (about 300,000 times).  
If you write to a CF card in a short cycle, it can reduce the card's lifetime. When using a CF card to save sampling data, be aware of the sampling time. Be sure to always avoid writing to a CF card with the CYCLE macro command.
- Note that the amount of the data to be written should not exceed the memory capacity of the CF card.  
Especially when you use functions to write data from the V8 series to a CF card, such as saving sampling data as CSV files, saving screen data, screen images, or transferring recipe data, you need to be careful about the capacity limit of the CF card.  
For more information on checking the free CF card space, refer to page 18-42.
- If the screen data for which the CF card function is used is on the V8 series, be sure to insert the CF card before operating the screen.

## Function

You can use the following functions with a CF card.

### Saving multiple screen data (Refer to page 18-14.)

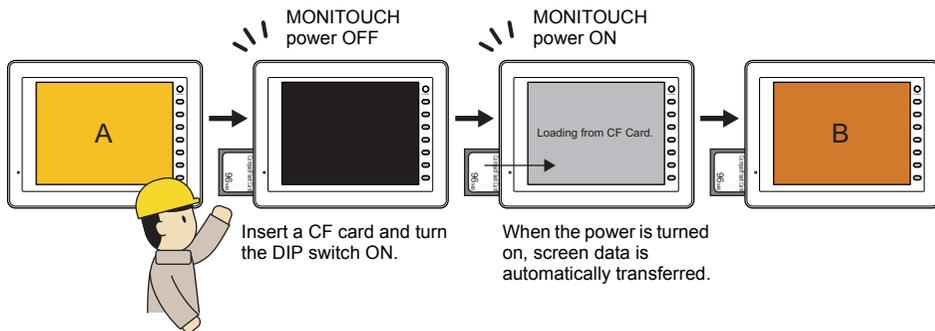
You can exchange screen data when needed by saving multiple screen data on a CF card.



### Auto uploading of screen data (Refer to page 18-18.)

When a CF card is inserted and the power is turned on, screen data is automatically uploaded.

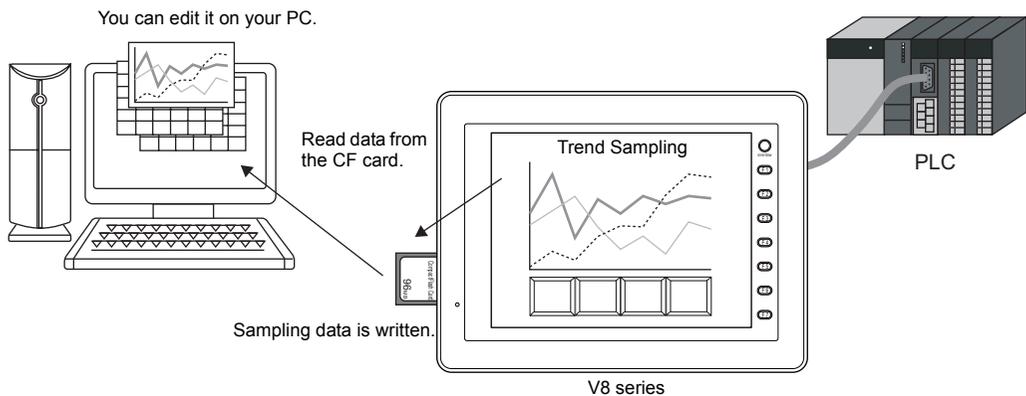
You can exchange screen data easily.



### Saving sampling data (data logging) (Refer to “Appendix 1 Buffering Area.”)

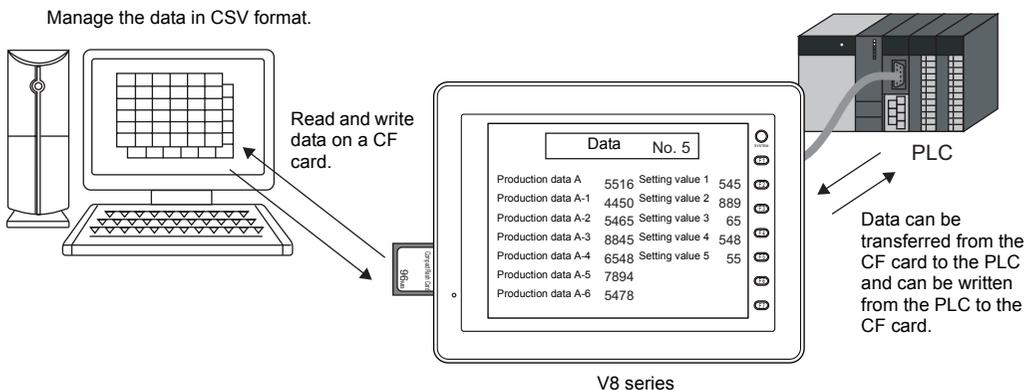
You can save the history data such as errors and numeric values.

If you convert the stored sampling data to a CSV file using the macro command, you can edit the data easily using application software such as Excel.



**Transferring recipe data (Refer to “13 Recipe Mode” or the Macro Reference Manual.)**

Using a macro command or recipe function, you can read and write CSV format files, which you created on a computer, etc.



**Transferring recipe data by the memory manager function (Refer to page 18-21.)**

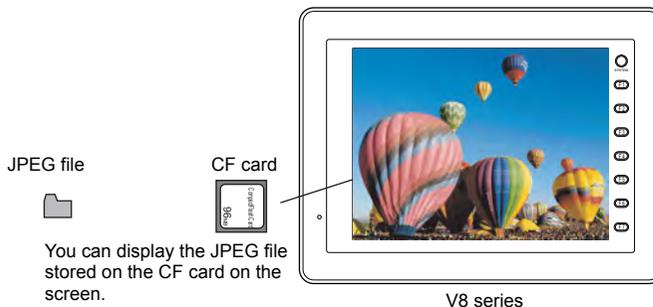
You can also transfer recipe data by the V6 compatible memory manager function. This is recommended if you are familiar with existing methods or if you use the Memory Card Editor.

**Storing a pattern (Bitmap) file (Refer to page 18-22.)**

When using many patterns in a screen data file, the file size will be large. If you use a CF card and save the pattern data to the CF card, you can refer to patterns from the CF card and display them. Thus, the screen data size can be reduced.

**Storing JPEG file (Refer to page 18-26.)**

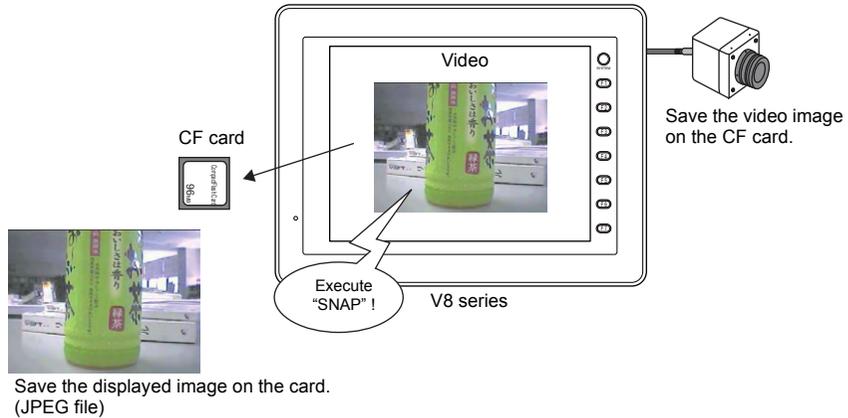
You can display a JPEG file on the V8 series screen. Be sure to store the JPEG data to be displayed on a CF card.



### Saving a video image

In the V8i that supports the video display function, you can save an image captured from video as a still image using the snap function.

The saved image data is stored on a CF card as a JPEG file.

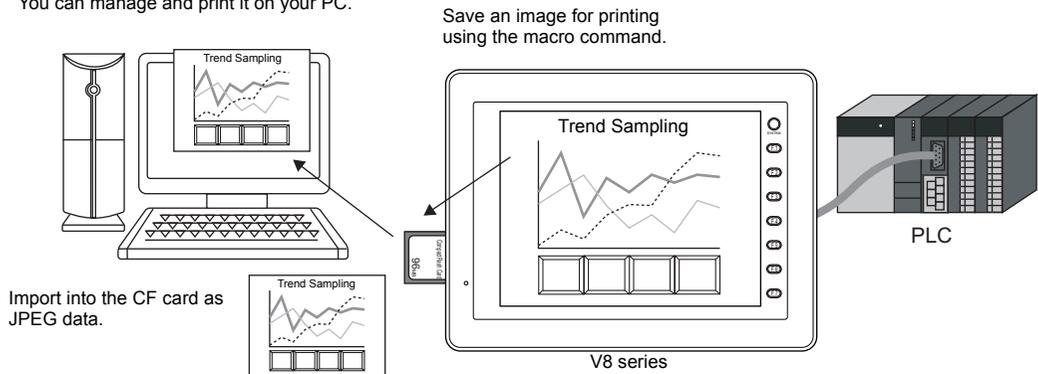


### Saving a screen image

You can store a screen image such as a JPEG file using the macro command on a CF card.

When it is difficult to connect to the printer at a production site, you can save the screen images on a CF card and print them later from your computer.

You can manage and print it on your PC.



### Backing up memo pad data (Refer to page 18-28.)

When using the memo pad function, you can save memo pad data even when the V8 series is turned off.

You can also convert the saved memo pad data to a Bitmap file using the screen editor.

### Storing HK Gothic/Times fonts (Refer to page 18-29.)

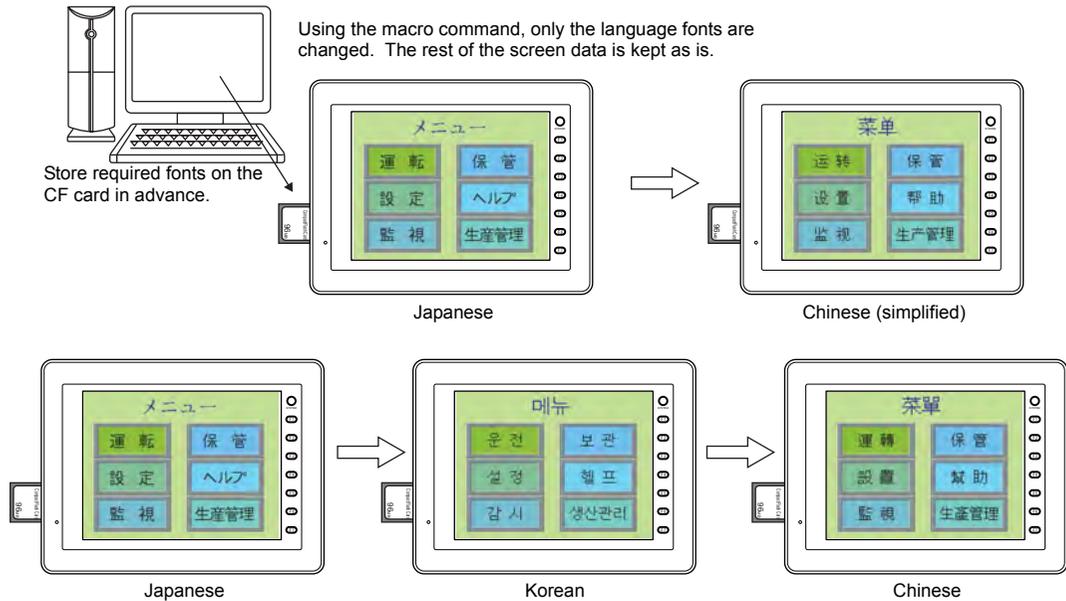
When HK Gothic/Times fonts are used, screen data size will become larger. Among the HK Gothic/Times fonts, the "manual font" type data occupying space can be stored on a CF card.

Using this function, screen data size can be reduced.

**Multi-language display selection (Refer to “Appendix 3 Display Language.”)**

If you register text that were edited in a required language as screen data, you can easily switch between languages on the V8, such as between Japanese and Chinese (Simplified) or between Japanese, Korean, and Chinese.

You need to store the required fonts on a CF card. When using the macro command to order switching, the target language is read from a CF card and displayed.

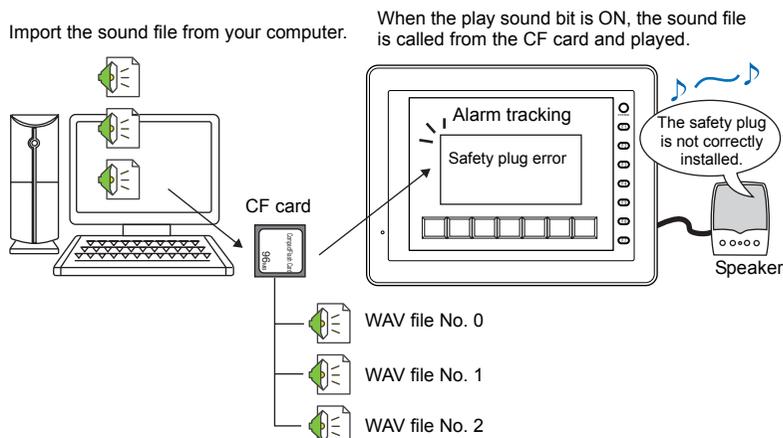


**Storing message text (Refer to page 18-22.)**

When using many messages in multiple languages in a screen data file, the file size will be large. If you use a CF card and save the message data to the CF card, you can refer to messages from the CF card and display them on screen. In this way, the screen data size can be reduced.

**Storing a sound (WAV) file (Refer to page 18-31.)**

In the V8i, you can output sound by importing a sound (WAV) file into the screen data. When importing a WAV file into the screen data, the screen data capacity increases by the amount of the WAV file. If you save the WAV file on a CF card, the screen data size can be reduced.

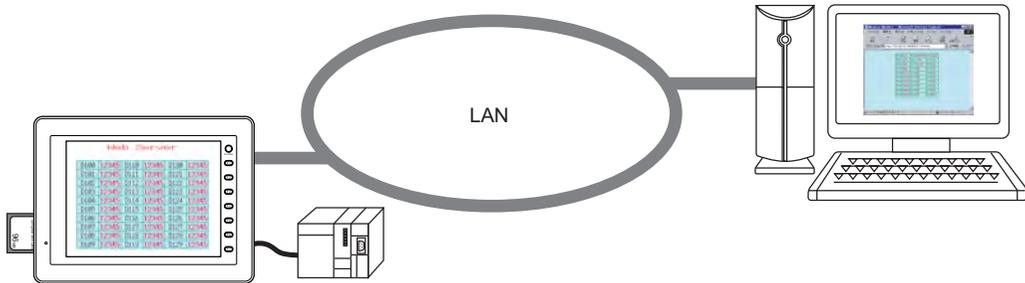


**Backing up SRAM data (Refer to “Chapter 5 MONITOUCH Operations” in the V8 Hardware Specifications Manual)**

If you use built-in SRAM or a SRAM cassette, you can save a backup copy of SRAM data on a CF card in case the data may be lost when replacing the SRAM battery.

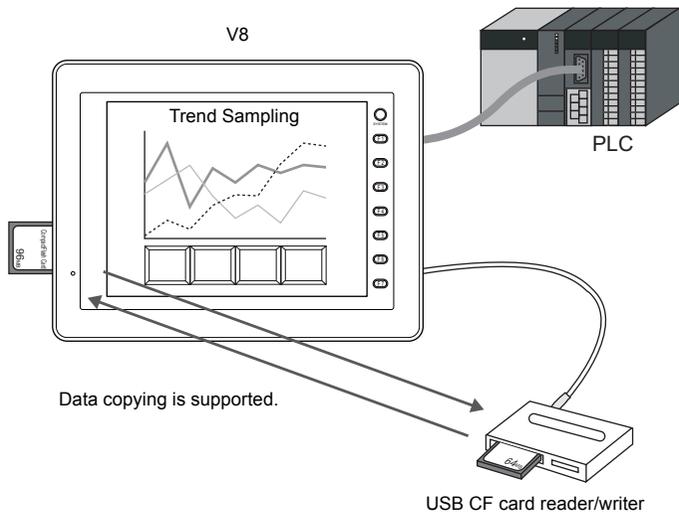
**Web server (Refer to “19.5 Web Server.”)**

You can monitor the contents of data and images displayed on the V8i, from a Web browser on your computer connected to the V8 series by a LAN. Store the files to be accessed from a Web browser on a CF card in advance.



**2 drives supported (New) (Refer to page 18-34.)**

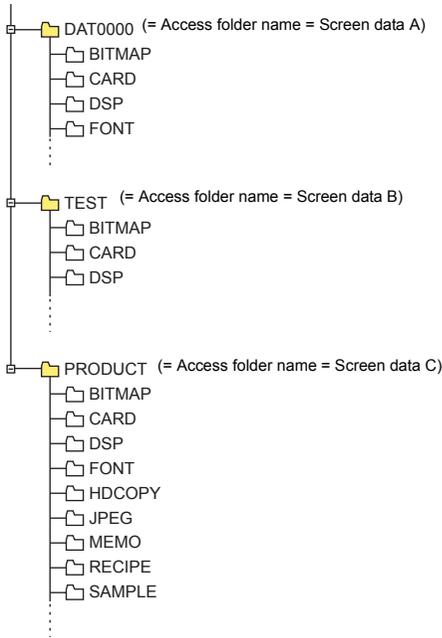
The card interface and the USB-A port (master port) can be recognized at the same time. The card interface is used as a storage target while data can be copied to a CF card connected at the USB-A port for data backup purpose.



# 18.2 Folder Configuration

## Access Folder

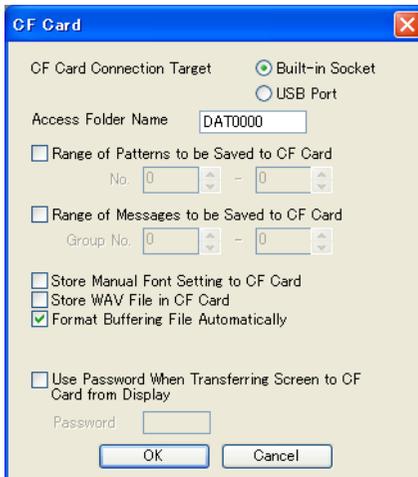
- When writing screen data from your computer to a CF card or writing data from the V8 series to a CF card, folders are automatically created under the access folder on a CF card.
- The name of the access folder that is created on a CF card is the folder name you specified in the screen data file. (Select [System Setting] → [CF Card Setting]. For more information, refer to page 18-10.)
- If you create access folders under different folder names according to the screen data, multiple screen data can be saved in respective folders as long as the CF card space allows.



For the procedure of storing multiple screen data, refer to page 18-14.

## CF Card Setting

Select [System Setting] → [CF Card Setting]. The [CF Card Setting] dialog is displayed. Before using CF cards, check the setting in this dialog.

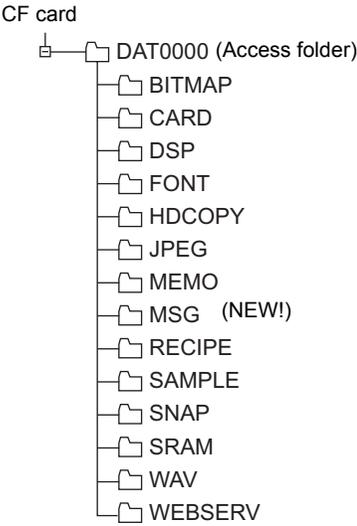


CF Card Connection Target	Select the CF card to be accessed in the RUN mode. (This setting is not valid when transferring screen data from the CF card because the V8 is in the STOP mode (Main Menu screen displayed).)
Access Folder Name (Max: 8 one-byte alphanumeric characters *, Default: DAT0000)	Folder names on the CF card can be created for each screen data. If the same folder name already exists, data will be overwritten. Double-check the folder name.
<input type="checkbox"/> Range of Patterns to be Saved to CF Card	Pattern data can be saved on a CF card. For more information, refer to page 18-22.
<input type="checkbox"/> Range of Messages to be Saved to CF Card	Message data can be saved on a CF card. For more information, refer to page 18-22.
<input type="checkbox"/> Store Manual Font Setting to CF Card	When HK Gothic/Times fonts are used, font data can be saved on a CF card. For more information, refer to page 18-29.
<input type="checkbox"/> Store WAV Files to CF Card	This is possible with the V8i only. Sound files can be saved on a CF card. For more information, refer to page 18-31.
<input type="checkbox"/> Format Buffering Area Automatically	This is valid when storing sampling data (alarm, trend) on a CF card. For more information, refer to "Appendix 1 Buffering Area."
<input type="checkbox"/> Use Password When Transferring Screen to CF Card from Display (Password: Max. 6 one-byte alphanumeric characters)	A password can be used when transferring data from MONITOUCH → CF card on the Main Menu screen. This setting item is valid if no password is set.

\* These are recognized as uppercase characters.  
If you input lowercase characters on the editor screen, they are converted into uppercase characters when you click [OK], and are recognized as uppercase characters on MONITOUCH.

# Contents of CF Card

If you insert an empty CF card (FAT or FAT32 format type) into MONITOUCH and put it in the RUN (communication) mode, or if you switch the Main Menu screen to the Card Transfer screen in the STOP mode, the following folders are automatically created in the CF card.  
(Example: When inserting a CF card into the V8 that contains the screen data file of the access folder [DAT0000])



## Folder Configuration

The following table shows each folder name, files in the folder, and the contents:

CF card

DAT0000 (Access folder: any given name)

Folder Name (Fixed)	Contents	File Name	Data Direction	Refer to:
BITMAP	Pattern (Bitmap) data (to reduce screen data size)	BMPxxxx.BIN	V8 ← CF	page 18-22
CARD	Recipe data using the V6 compatible memory manager function	MCMHEAD.BIN MCMxxxx.BIN	V8 ← CF V8 → CF	page 18-21
DSP	Screen data	DSP0000.BIN	V8 ← CF V8 → CF	page 18-14
FONT	HK Gothic/Times fonts or multi-language fonts (to reduce screen data size)	xxxxx.FTD	V8 ← CF	page A3-1
HDCOPY	Screen images (JPEG file format: with 128-color data, JPEG or BIN selectable)	HDxxxx.JPG HDxxxx.BIN	V8 → CF (V8 ← CF) *1	*3
JPEG	JPEG files (not supported by some models)	xxxxx.JPG JPxxxxx.JPG	V8 ← CF	page 18-26
MEMO	Memo pad data	MEMxxxx.BIN	V8 → CF (V8 ← CF) *2	page 18-28
MSG	Message (to reduce screen data size)	MSGxyyy.BIN	V8 ← CF	page 18-24
RECIPE	Recipe data	RECxxxx.CSV xxxxxxx.CSV	V8 ← CF V8 → CF	*3
SAMPLE	Historical data by data logging	SMPxxxx.BIN SMPxxxx.CSV	V8 → CF (V8 ← CF) *2	page A1-1
SNAP	Video snapshot images	VDxxxxx.JPG	V8 → CF (V8 ← CF) *1 *2	page 14-23
SRAM	Backup data of SRAM data	SRM0000.BIN	V8 ← CF V8 → CF	page A2-1
WAV	WAV files for sound output (to reduce screen data size)	WAxxxx.WAV	V8 ← CF	page 18-31
WEBSERV	Files accessible from a Web browser	*.SHT, *.HTML, *.TXT, etc	V8 ← CF	page 19-11

\*1 Only when using on a Web server.

\*2 Only for the files created on the V8 series.

\*3 Refer to the Macro Reference Manual.

DSPDEF (Folder for auto uploading screen data: fixed folder name)

Folder Name (Fixed)	Contents	File Name	Data Direction	Refer to:
DSP	When setting the DIP switch on the V8 series and inserting a CF card, it automatically reads the screen data in this folder.	DSPDEF.BIN	V8 ← CF	page 18-18

(Other folders are the same as the "access folder.")

## 18.3 Function Descriptions

### List of Functions

For information on applicable functions and their detailed explanations, refer to the chart below.

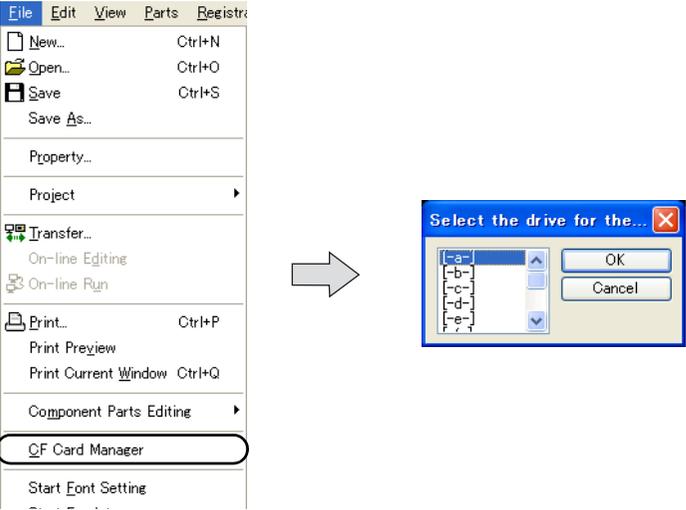
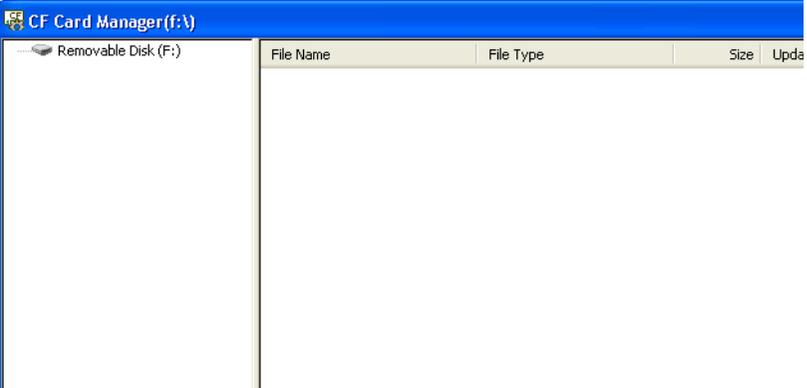
Function	Refer to:
Saving Multiple Screen Data	page 18-14
Auto Uploading of Screen Data	page 18-18
Saving Sampling Data	page A1-1
Transferring Recipe Data	page 13-1 or Macro Reference Manual
Transferring Recipe Data by Memory Manager Function	page 18-21
Storing Pattern (Bitmap) Data	page 18-22
Storing JPEG Data	page 18-26
Saving Video Image	page 14-23
Saving Screen Image	Macro Reference Manual
Memo Pad Data Backup	page 18-28
Storing HK Gothic/Times Fonts	page 18-29
Multi-language Display Selection	page A3-1
Storing Message Data	page 18-24
Storing Sound (WAV) Files	page 18-31
SRAM Data Backup	page A2-1
Web Server	page 19-11
2-drive Connection	page 18-34

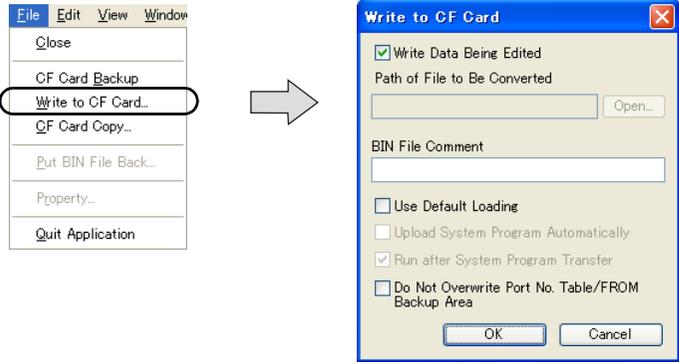
## Saving Screen Data

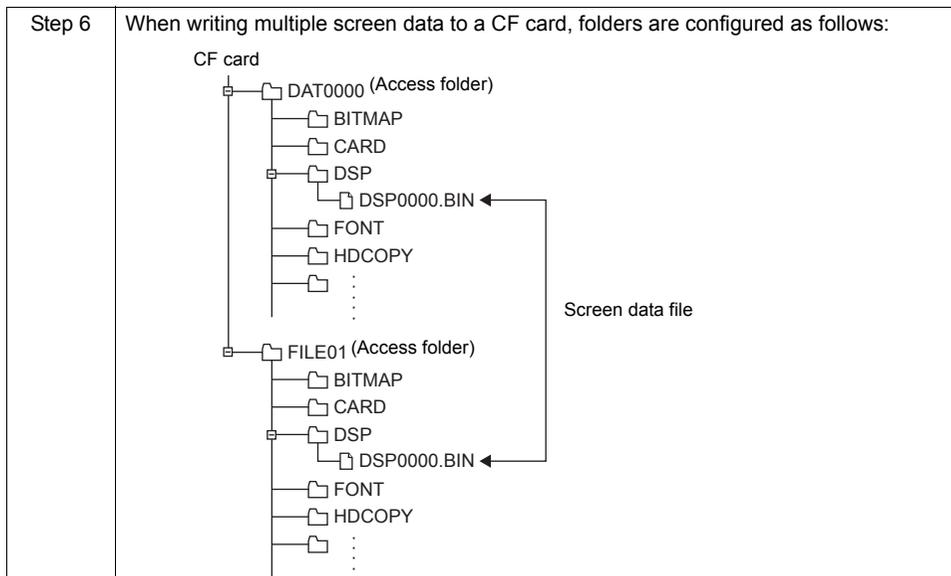
You can exchange screen data when needed by saving multiple screen data on a CF card.

\* **This section describes how to read/write data between your computer ↔ a CF card. For the procedure of reading and writing between a CF card ↔ V8 series, refer to “Chapter 6 MONITOUCH Operations” in the V8 Hardware Specifications Manual.**

### Writing from Computer → CF Card

Step 1	Start V-SFT.
Step 2	<p>Select [File] → [CF Card Manager]. The following dialog is displayed:</p>  <p>The image shows a screenshot of the 'File' menu in a software application. The 'CF Card Manager' option is highlighted with a black oval. To the right of the menu is a dialog box titled 'Select the drive for the...' with a list of drives: [-a-], [-b-], [-c-], [-d-], [-e-], and [-f-]. The 'OK' button is selected.</p>
Step 3	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager<sup>*1</sup> will start.</p>  <p>The image shows a screenshot of the 'CF Card Manager (f:)' window. The title bar reads 'CF Card Manager (f:)'. Below the title bar, there is a section for 'Removable Disk (F:)' and a table with columns for 'File Name', 'File Type', 'Size', and 'Update'. The table is currently empty.</p>

<p>Step 4</p>	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p> <div style="display: flex; align-items: center; justify-content: center;">  </div> <p><input type="checkbox"/> [Write Data Being Edited] When this box is checked, the screen data currently being edited is written at the same time. This setting is not valid when the screen data is not opened.</p> <p>[Path of File to Be Converted] Click [Open] and select the file you write to the CF card. The file extension is “.V8”.</p> <p>[BIN File Comment] Enter texts when annotating on the screen data file (DSP0000.BIN: BIN file) written to the CF card.</p> <p><input type="checkbox"/> [Use Default Loading] Check this box when you perform “Auto Uploading of Screen Data” (Refer to page 18-18).</p> <p><input type="checkbox"/> [Do Not Overwrite Port No. Table/FROM Backup Area] This is valid when “station number table” *2 or “FROM Backup area” *3 is used. Check this box when you do not want to change existing values in the station number table or those in the FROM area during screen data transfer from a CF card.</p>
<p>Step 5</p>	<p>When completing the setting, click [OK]. The screen data file is saved as “DSP0000.BIN” (BIN file) in the [DSP] folder of the access folder on the CF card.</p>



\*1 What is the CF Card Manager?

The CF Card Manager is an application that allows you to write the data used in the V8 series to a CF card or to convert the data into each file format after importing the data from the CF card. For more information, refer to page 18-35.

\*2 What is "station number table"?

Station numbers of target devices can be set as desired when using the following PLC models or temperature control network models.

- PLC: Mitsubishi QnH (Q) series (Ethernet) (1:n connection only)
- PLC: Mitsubishi QnA series (Ethernet) (1:n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 (Ethernet Auto) (1:n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 DNA (Ethernet) (1:n connection only)
- Temperature controller: Fuji Electric F-MPC04P (loader)
- Temperature controller: Fuji Electric F-MPC04S (UM03)

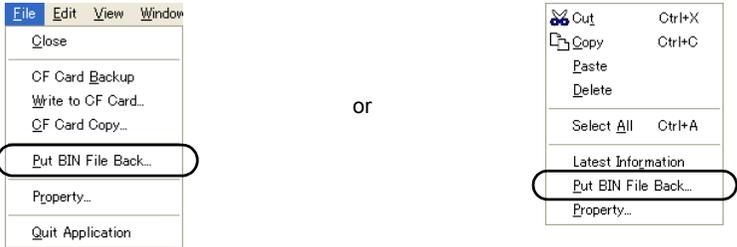
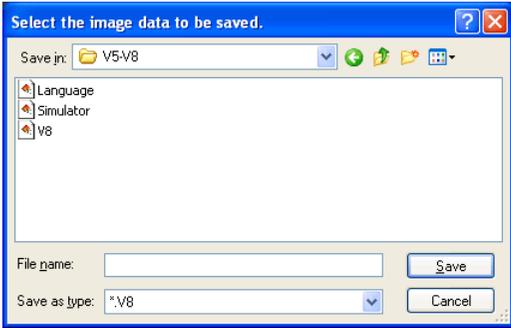
\*3 What is "FROM backup area"?

The FROM backup area is an area in MONITOUCH where the backup copy of data in the PLC memory or internal memory can be stored.

To retain the data, use the macro commands "FROM\_RD" and "FROM\_WR".

For more information on macros, refer to the Macro Reference Manual provided separately.

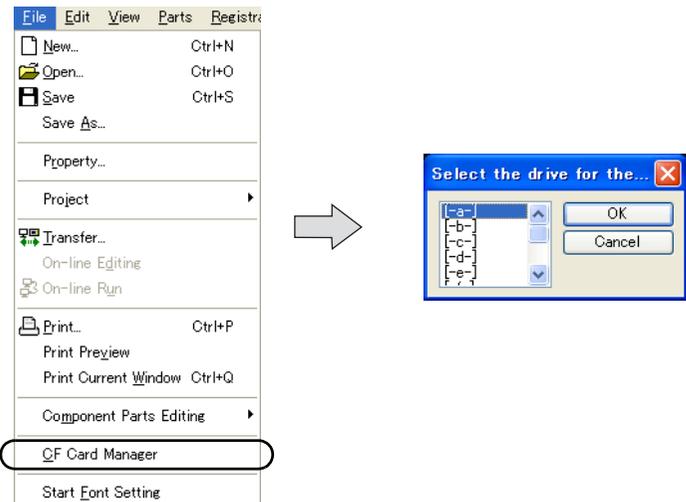
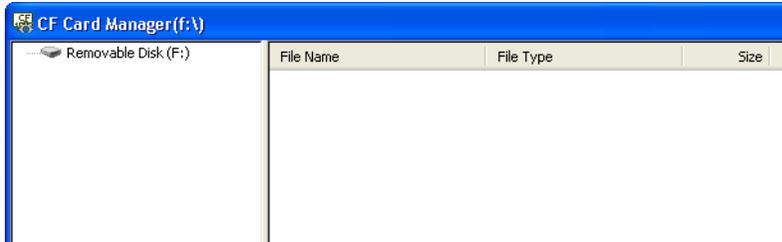
## Reading from CF Card → Computer

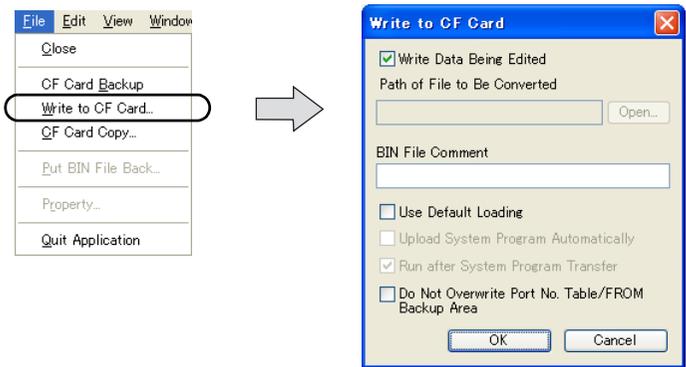
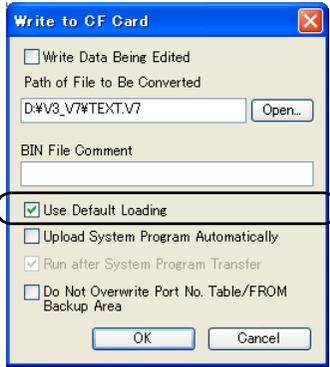
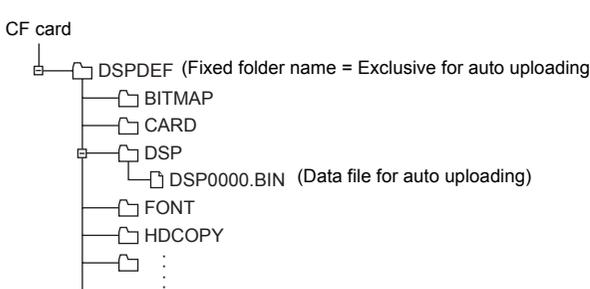
Step 1	Start V-SFT.
Step 2	Select [File] → [CF Card Manager]. The dialog for specifying the CF card drive is displayed.
Step 3	Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.
Step 4	Check that "DSP0000.BIN" (BIN file) exists in the "DSP" folder in the access folder, and select the file. 
Step 5	Select [File] → [Put BIN File Back]. Alternatively, right-click → [Put BIN File Back]. 
Step 6	The following dialog is displayed: Specify the location and the file name and click [Save]. 

## Auto Uploading of Screen Data

By simply inserting a CF card into the V8 series, the screen data file in the CF card is automatically transferred to the V8 series. You can update screen data easily without interrupting the operator.

### Writing from Computer → CF Card

Step 1	Start V-SFT.
Step 2	<p>Select [File] → [CF Card Manager]. The following dialog is displayed:</p>  <p>The image shows a software menu with 'File', 'Edit', 'View', 'Parts', and 'Registr...' options. The 'File' menu is open, showing options like 'New...', 'Open...', 'Save', 'Save As...', 'Property...', 'Project', 'Transfer...', 'Print...', and 'CF Card Manager'. The 'CF Card Manager' option is circled. To the right, a dialog box titled 'Select the drive for the...' is shown with a list of drives (a:, b:, c:, d:, e:, f:) and 'f:' selected. There are 'OK' and 'Cancel' buttons.</p>
Step 3	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager * will start.</p>  <p>The image shows a window titled 'CF Card Manager (f:)' with a file list. The file list has columns for 'File Name', 'File Type', and 'Size'. The first entry is 'Removable Disk (F:)'.</p>

<p>Step 4</p>	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p>  <p>In the [File to be converted] field, click [Refer] and select the file (extension “*.V8”) to be uploaded automatically.</p>
<p>Step 5</p>	<p>Be sure to check [<input type="checkbox"/> Use Default Loading].</p>  <p>When [<input type="checkbox"/> Use Default Loading] is checked, the following options become active.</p> <ul style="list-style-type: none"> <li>• [<input type="checkbox"/> Upload System Program Automatically] Check this box when uploading system program files together with screen data.</li> <li>• [<input type="checkbox"/> Run after System Program Transfer] This is valid when the above option is checked. Always check this box.</li> </ul>
<p>Step 6</p>	<p>When completing the setting, click [OK]. The screen data file is saved as “DSP0000.BIN” (BIN file) in the “DSP” folder under the “DSPDEF” folder on the CF card.</p>  <pre> graph TD     CF[CF card] --&gt; DSPDEF[DSPDEF (Fixed folder name = Exclusive for auto uploading)]     DSPDEF --&gt; BITMAP[BITMAP]     DSPDEF --&gt; CARD[CARD]     DSPDEF --&gt; DSP[DSP]     DSP --&gt; DSP0000[DSP0000.BIN (Data file for auto uploading)]     DSPDEF --&gt; FONT[FONT]     DSPDEF --&gt; HDCOPY[HDCOPY]     DSPDEF --&gt; Dots[...]     </pre>

\* What is the CF Card Manager?

The CF Card Manager is an application that allows you to write the data used in the V8 series to a CF card or to convert the data into each file format after importing the data from the CF card. For more information, refer to page 18-38.

## Operation on the V8 Series

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After storing data on the CF card, import the data into the V8 series following the steps below.

Step 1	Turn off the V8.
Step 2	Set DIPSW1 on MONITOUCH to ON.
Step 3	Insert the CF card into the V8 series.
Step 4	Turn on the V8 series. The message "Loading from CF Card." is displayed on MONITOUCH for awhile. Then the screen data stored on the CF card is written.

### Notes on write operation

- When using the screen data "DSPDEF" for auto uploading, you can store only one kind of data per CF card.
- If you remove the CF card after auto uploading and turn the power on again, the message "Insert CF Card in V8." is displayed and MONITOUCH does not start correctly.  
Insert the CF card or set DIPSW1 to OFF. Then turn the power off and back on.
- Once auto uploading has been performed, all screen data that was written to the V8 (including I/F drivers, fonts, etc.), is changed into screen data for auto uploading.

Note that even if you remove the CF card and set DIPSW1 to OFF again, it is not possible to restore the same state as before uploading.

## Transferring Recipe Data by Memory Manager Function

This is a recipe function using the V6 compatible memory manager function.

### Memory Manager Function

For more information on the memory card setting or memory card mode, refer to “15.2 Memory Card Mode.”

### Operation on the V8 Series

You can transfer data when you have formatted a CF card by pressing the [Function: Card Format] switch.

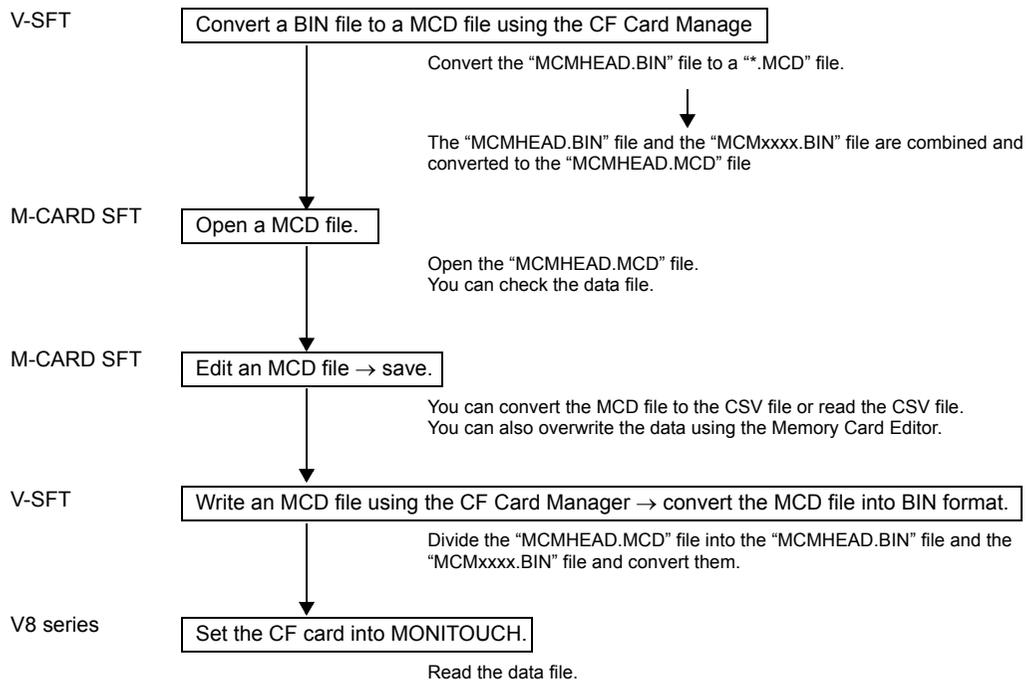
#### Storage target on CF card

The memory manager data on the CF card is stored in the following folder:

Storage target: \CARD  
 File name: MCMHEAD.BIN (BIN file format)  
 MCMxxx.bin (xxx: Memory card setting No. 0 - 15)

### Comparing Data between Computer ↔ V8 and Editing Data

This section describes the procedure for checking a data file, which MONITOUCH has read or written, on a computer, as well as the procedure required before converting data edited on a computer into the format which MONITOUCH can import.



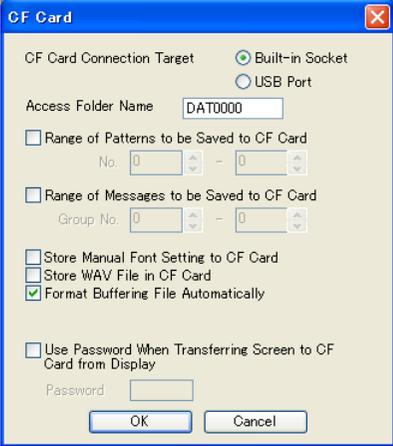
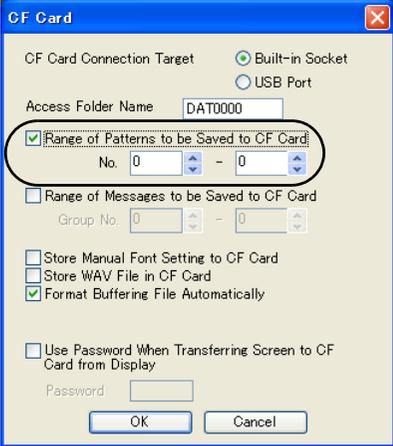
For how to convert from “MCMHEAD.BIN” → “MCMHEAD.MCD”, or from “MCMHEAD.MCD” to “Mcmhead.bin” → “MCMHEAD.BIN”, or “MCMxxx.BIN”, refer to page 18-38.

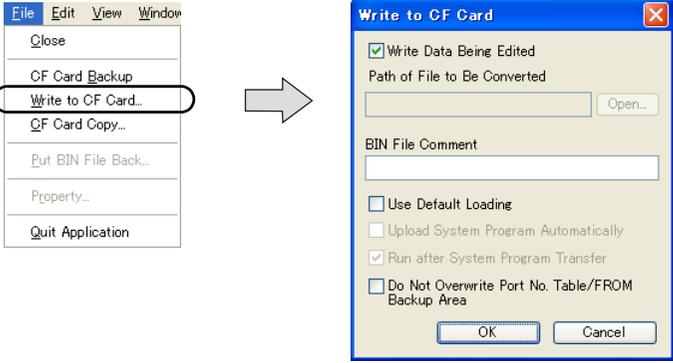
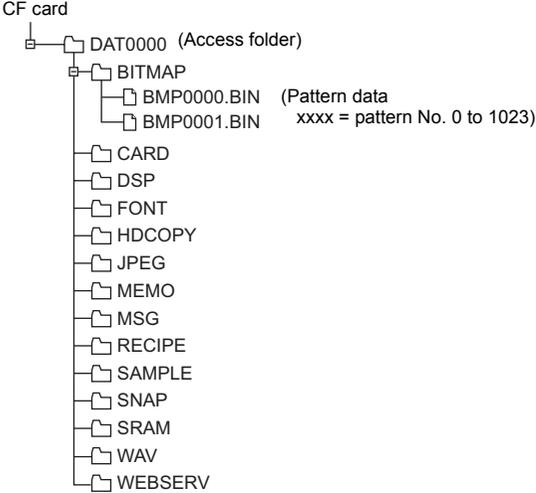
For more information on Memory Card Editor, refer to the M-CARD SFT Instruction Manual.

## Storing Pattern (Bitmap) File

When using many patterns for the screen data file, the screen data might require a large amount of memory. If you use a CF card and save the pattern data to the CF card, you can refer to patterns from the CF card and display them. Thus, the screen data size can be reduced.

### Importing to CF Card

Step 1	<p>Make the following setting on the screen data file beforehand. Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed.</p> 
Step 2	<p>Check the box for [<input type="checkbox"/> Range of Patterns to be Saved to CF Card] and set the range of patterns to be stored.</p>  <p>When the setting has been made, click [OK] and save the screen data file.</p>
Step 3	<p>Select [File] → [CF Card Manager]. The dialog for specifying the CF card drive is displayed.</p>
Step 4	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.</p>

Step 5	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p> 
Step 6	<p>In the [File to be converted] field, click the [Open] button and select the "*.V8" file that you want to write to the CF card.</p>
Step 7	<p>When completing the setting, click [OK]. "BMPxxx.BIN" file is saved in the "BITMAP" folder under the access folder.</p> 

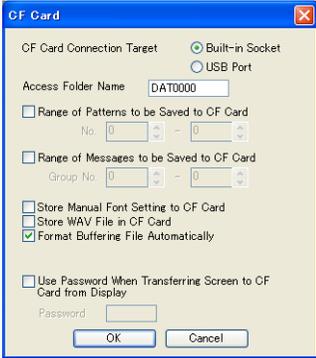
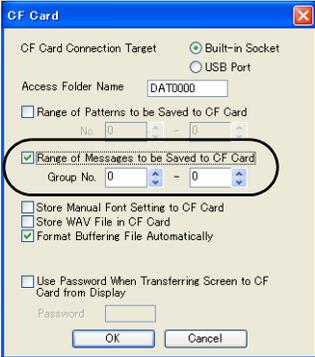
## Operation on the V8 Series

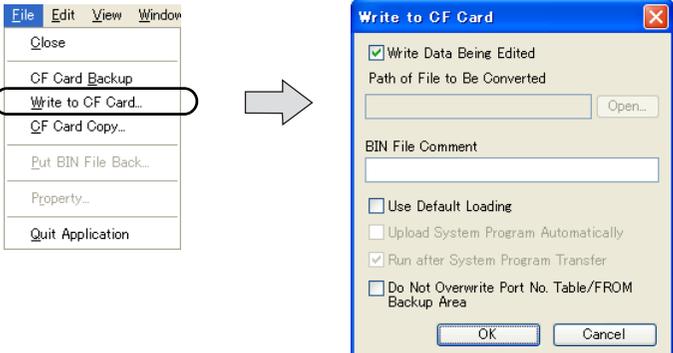
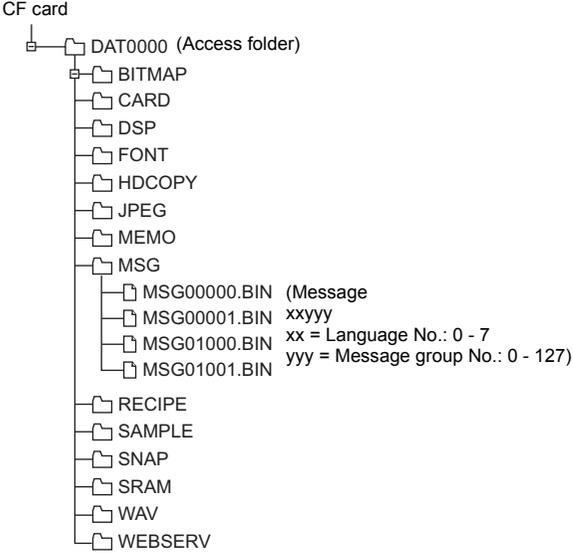
Insert the CF card, where the pattern data is stored according to the procedure mentioned above, into the V8 series. When displaying the screen, the stored pattern data appears.

## Storing Message Data

When using many messages for the screen data file, the screen data might require a large amount of memory. If you save the message data to the CF card, you can refer to messages from the CF card and display them on screen. In this way, the screen data size can be reduced.

### Importing to the CF Card

<p>Step 1</p>	<p>Set up the following setting on the screen data file beforehand.                  Select [System Setting] → [CF Card Setting].                  The [CF Card] dialog is displayed.</p> 
<p>Step 2</p>	<p>Check the box for <input type="checkbox"/> Range of Messages to be Saved to CF Card] and set the range of messages to be stored.</p>  <p>When the setting has been made, click [OK] and save the screen data file.</p>
<p>Step 3</p>	<p>Select [File] → [CF Card Manager].                  The dialog for specifying the CF card drive is displayed.</p>
<p>Step 4</p>	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.</p>

Step 5	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p> 
Step 6	<p>In the [File to be converted] field, click the [Open] button and select the “*.V8” file that you want to write to the CF card.</p>
Step 7	<p>When completing the setting, click [OK]. “MSGxxx.BIN” file is saved in the “MSG” folder under the access folder.</p> 

## Operation on the V8 Series

Insert the CF card that contains the message data as described above into the V8 series. When displaying the screen, the stored message data appears.

## Storing JPEG Data

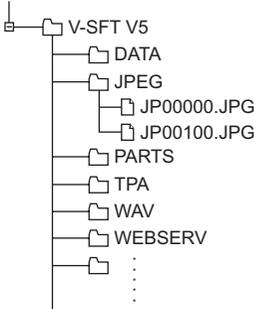
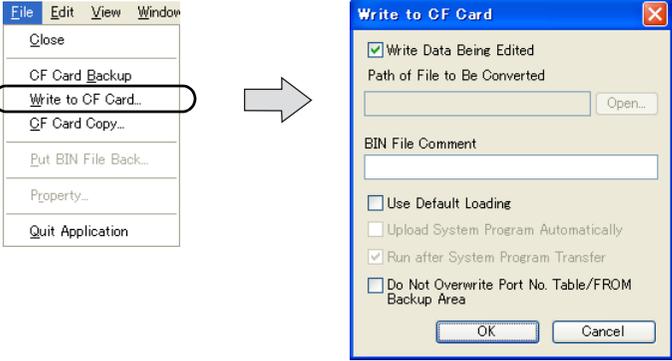
You can display JPEG data on the V8 series screen.  
 Be sure to store the JPEG data to be displayed on a CF card.

### JPEG File Name

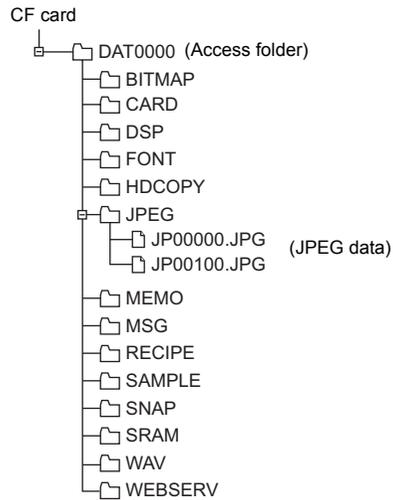
The following is the name of a JPEG file that can be read on the V8:

- Number designation: JPxxxxx.JPG (xxxxx: 0 to 32767)
- Fine name designation: xxxxxxxx.JPG (xxxxxxx: 8 one-byte alphanumeric uppercase characters)

### Importing to CF Card

<p>Step 1 *1</p>	<p>Store the JPEG file to be used in V-SFT V5/JPEG beforehand.</p> 
<p>Step 2</p>	<p>Select [File] → [CF Card Manager].                  The dialog for specifying the CF card drive is displayed.</p>
<p>Step 3</p>	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.</p>
<p>Step 4</p>	<p>Click [File] → [Write to CF Card].                  The [Write to CF Card] dialog is displayed.</p> 
<p>Step 5</p>	<p>In the [File to be converted] field, click the [Open] button and select the "*.V8" file that you want to write to the CF card.</p>

Step 6 When completing the setting, click [OK].  
"JPxxxx.JPG" file is saved in the "JPEG" folder under the access folder.



\*1 In addition to the procedure described above, it is possible to copy the JPEG file into the "JPEG" folder on Explorer if it has a distinguishable file name.

## Operation on the V8 Series

Insert the CF card, where the JPEG file is stored according to the procedure mentioned above, into the V8 series. The JPEG file on the CF card is displayed in the RUN state.

## Memo Pad Data Backup

---

When using the memo pad function, you can save memo pad data even when the V8 series is turned off.

### Operation on the V8 Series

---

When inserting the CF card and using the memo pad in the RUN state, the memo pad data is automatically stored on the CF card.

- \* **When selecting [SRAM/Clock Setting] from the [System Setting] menu and checking  Store Area for Memo Pad], the memo pad data is stored in SRAM or a SRAM cassette even when inserting the CF card into the V8 series.**

#### When to Save:

The following explains when memo pad data should be written to the CF card:

- When switching the memo pad display using the [Function: + Block], [Function: – Block], or [Function: Block Call] switch
- When switching a screen
- When switching from RUN → STOP (Main Menu screen)

### Storage Target on CF Card

---

The memo pad data is stored in the following folder on the CF card:

Storage target: MEMO

File name: MEMxxxx.BIN (xxxx = 0 to 7: Memo pad page number)

- \* You can convert the saved memo pad data (MEMxxxx.BIN) to a Bitmap file using the CF Card Manager.  
For more information on the conversion, refer to page 18-38.

## Storing HK Gothic/Times Fonts

When HK Gothic/Times fonts \* are used, the screen data size will become larger. Within the HK Gothic/Times fonts, the “manual font” type data occupying space can be stored on a CF card. Using this function, the screen data size can be reduced.

### \* HK Gothic/Times fonts

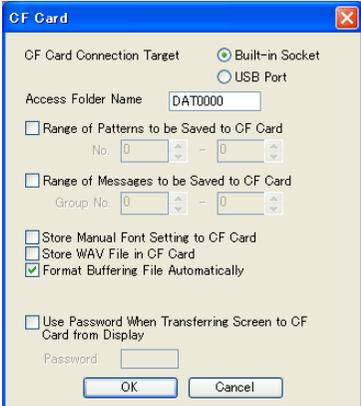
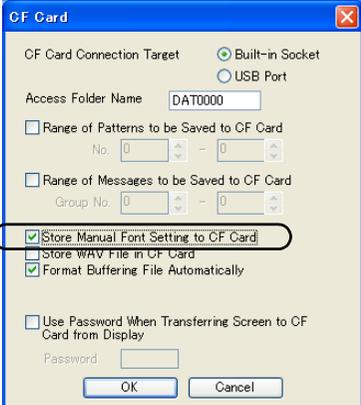
These are font types that can be displayed on the V8 series as beautifully as Windows TrueType fonts (Arial, Times, etc.). Since they must be displayed beautifully, they require a greater capacity than the English/Western Europe fonts.

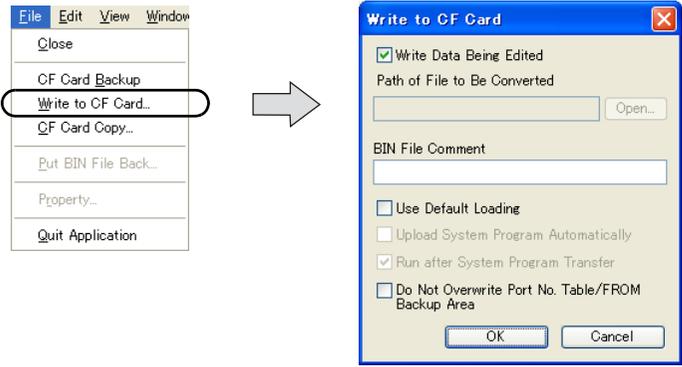
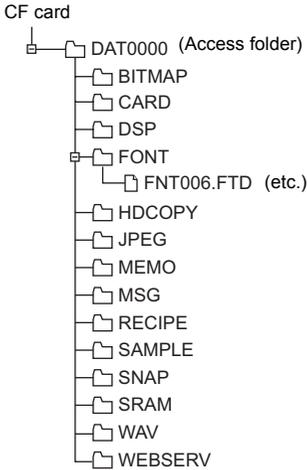
For more information, refer to the Operation Manual.

## Importing to the CF Card

Assuming that HK Gothic/Times fonts are used and that the manual font setting has been made, use the following procedure to import data to the CF card.

\* **The font size that can be stored on a CF card is 6 MB maximum.**

Step 1	<p>Make the following setting on the screen data file beforehand. Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed.</p> 
Step 2	<p>Check the box for [<input type="checkbox"/> Store Manual Font Setting to CF Card].</p>  <p>When the setting has been made, click [OK] and save the screen data file.</p>

Step 3	Select [File] → [CF Card Manager]. The dialog for specifying the CF card drive is displayed.
Step 4	Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.
Step 5	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p> 
Step 6	In the [File to be converted] field, click the [Open] button and select the "*.V8" file that you want to write to the CF card.
Step 7	<p>When completing the setting, click [OK]. Font files are saved in the "FONT" folder under the access folder.</p> 

## Operation on the V8 Series

Insert the CF card that contains the manual fonts data of the V8 series. When the screen with manual fonts is displayed, MONITOUCH automatically refers to the fonts on the CF card.

## Storing Sound (WAV) Files

In the V8i, you can output sound by importing a sound (WAV) file into the screen data.

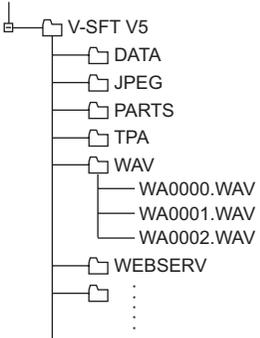
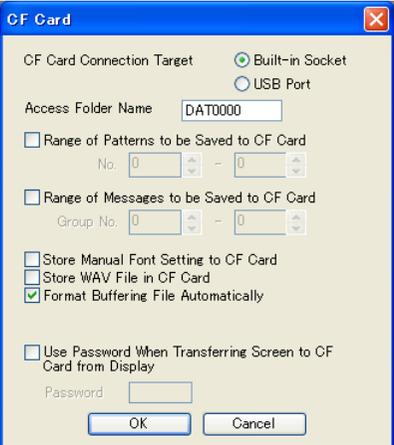
When importing a WAV file into the screen data, the screen data capacity increases by the amount of the WAV file. If you import the WAV file into a CF card, you can reduce the amount of screen data capacity required.

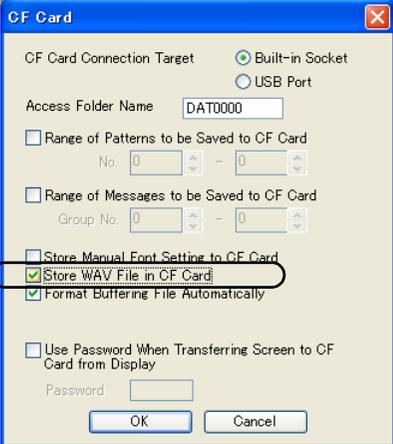
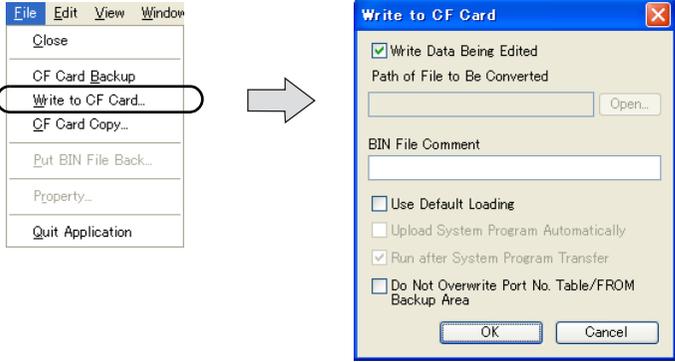
### WAV File Name

The following is the name format of WAV files that can be read by the V8i:

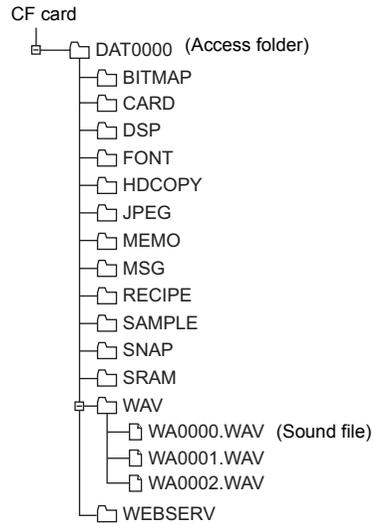
WAxxxx.WAV (xxxx: 0 to 1023)  
xxxxxxx.WAV

### Importing to CF Card

Step 1 *1	<p>Store the WAV file to be used in \V-SFT V5\WAV beforehand.</p> 
Step 2	<p>Make the following setting on the screen data file beforehand. Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed.</p> 

<p>Step 3</p>	<p>Check the box for <input type="checkbox"/> Store WAV File in CF Card].</p>  <p>When the setting has been made, click [OK] and save the screen data file.</p>
<p>Step 4</p>	<p>Select [File] → [CF Card Manager]. The dialog for specifying the CF card drive is displayed.</p>
<p>Step 5</p>	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.</p>
<p>Step 6</p>	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p> 
<p>Step 7</p>	<p>In the [File to be converted] field, click the [Open] button and select the "*.V8" file that you want to write to the CF card.</p>

Step 8 When completing the setting, click [OK].  
Sound files re saved in the "WAV" folder under the access folder.



\*1 In addition to the procedure described above, it is possible to copy the WAV file into the "WAV" folder on the CF card in Explorer.

## Operation on the V8 Series

Insert the CF card that contains sound files as described above into the V8 series. When playing these WAV files in the RUN mode, sound is output.

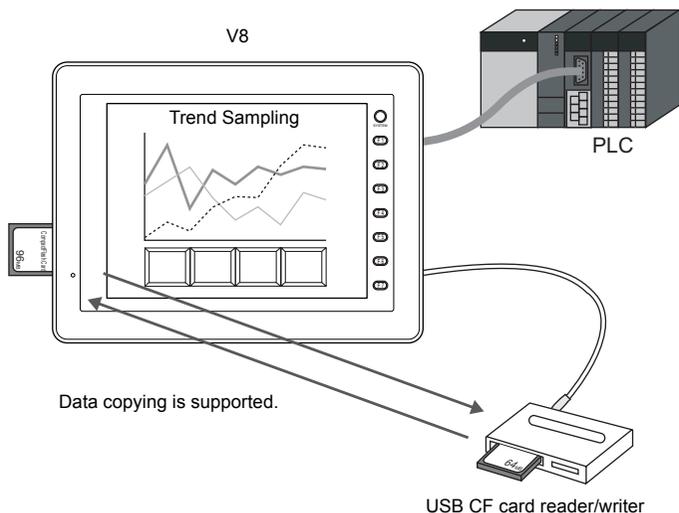
---

## 2-drive Connection (New !)

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The card interface and the USB-A port (master port) can be recognized at the same time.

The card interface is used as a storage target while data can be copied to a CF card connected at the USB-A port for data backup purpose.



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### Data Backup

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Data on the CF card at the card interface can be copied into the CF card connected at the USB-A port. It is also possible to copy data on the CF card connected at the USB-A port into the CF card at the card interface.

#### Data backup procedure

Use the macro command "COPY\_FILE".

For more information, refer to the Macro Reference Manual.

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### Selecting the Drive

---

It is possible to switch the CF card drive to be accessed using a macro command.

#### Drive selection procedure

Use the macro command "SET\_DRIVE".

For more information, refer to the Macro Reference Manual.

#### Limitations

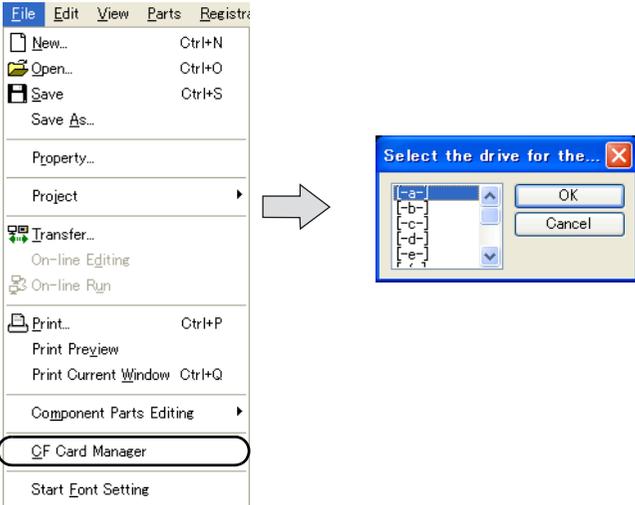
This drive selection procedure applies only to CF card access that is made using a macro command. The drive used as a storage target, such as for sampling, will not be changed.

## 18.4 CF Card Manager

The CF Card Manager is an application that allows you to write the data used in the V8 series to a CF card or to convert the data into each file format after importing the data from the CF card.

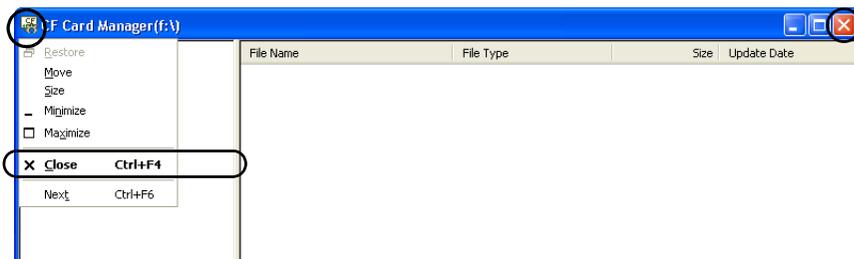
### Start and Quit

#### Start

Step 1	Start V-SFT.
Step 2	<p>Select [File] → [CF Card Manager]. The following dialog is displayed:</p>  <p>The image shows the 'File' menu of the V-SFT application. The 'CF Card Manager' option is highlighted with a rounded rectangle. An arrow points from this option to a dialog box titled 'Select the drive for the...'. The dialog box contains a list of drives: [a-], [b-], [c-], [d-], and [e-]. The [a-] drive is selected. There are 'OK' and 'Cancel' buttons in the dialog box.</p>
Step 3	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.</p>  <p>The image shows the 'CF Card Manager(f:\)' window. The title bar is blue. Below the title bar, there is a tab labeled 'Removable Disk (F:)'. The main area of the window is a table with columns for 'File Name', 'File Type', and 'Size'. The table is currently empty.</p>

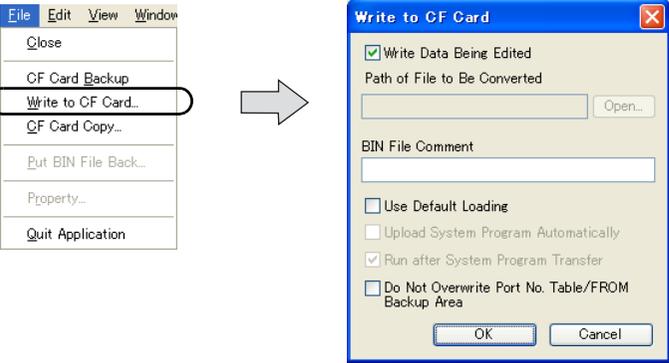
#### Quit

Click the icon on the top left corner of the [CF Card Manger] window and select [Close].  
Or click the [x] button on the top right corner of the window.



## Writing to a CF Card

When you perform each CF card function, you need to store the data on the CF card in advance. The CF card manager is required to write data to a CF card. Follow the steps below.

<p>Step 1</p>	<p>Select [Write to CF Card] from the [File] menu. The [Write to CF Card] dialog is displayed.</p>  <p><input type="checkbox"/> [Write Data Being Edited] When this box is checked, the screen data currently being edited is written at the same time. This setting is not valid when the screen data is not opened.</p> <p>[Path of File to Be Converted] This is valid when the above option is not checked. Click [Open] and select the file you write to the CF card. (Applicable file extensions: "*.V8", "*.MCD", "*.RAM")</p> <p>[BIN File Comment] Enter texts when annotating on the screen data file (DSP0000.BIN: BIN file) written to the CF card.</p> <p><input type="checkbox"/> [Use Default Loading] Check this box when you perform "Auto Uploading of Screen Data" (Refer to page 18-18).</p> <p><input type="checkbox"/> [Do Not Overwrite Port No. Table/FROM Backup Area] This is valid when "station number table" *2 or "FROM Backup area" *2 is used. Check this box when you do not want to change the existing values in the station number table or those in the FROM area during screen data transfer from a CF card.</p>
<p>Step 2</p>	<p>When completing the setting, click [OK]. The screen data file is saved as "DSP0000.BIN" (BIN file) in the "DSP" folder under the access folder on the CF card. At the same time, the specific extension is written to each folder on the CF card according to the screen data file setting.</p>

\*1 What is “station number table”?

Station numbers of target devices can be set as desired when using the following PLC models or temperature control network models.

- PLC: Mitsubishi QnH (Q) series (Ethernet) (1:n connection only)
- PLC: Mitsubishi QnA series (Ethernet) (1:n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 (Ethernet Auto) (1:n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 DNA (Ethernet) (1:n connection only)
- Temperature controller: Fuji Electric F-MPC04P (loader)
- Temperature controller: Fuji Electric F-MPC04S (UM03)

\*2 What is “FROM backup area”?

The FROM backup area is an area in MONITOUCH where the backup copy of the data in the PLC memory or internal memory can be stored.

To retain data, use the macro commands “FROM\_RD” and “FROM\_WR”.

For more information on macros, refer to the Macro Reference Manual provided separately.

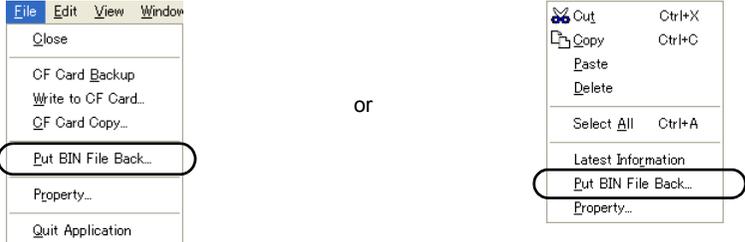
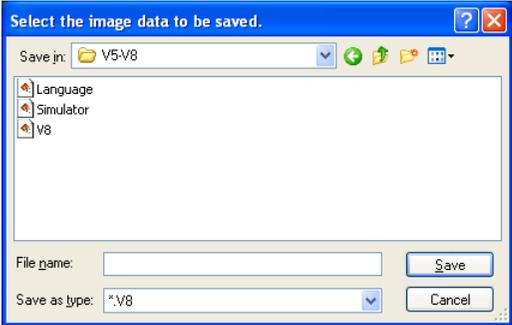
## Converting File (BIN File) on CF Card

Import the BIN file that is written to the CF card from the V8 series and convert it to the recognizable file format.

The following are convertible BIN files.

File	Storage Target Folder	Extension After Conversion
BMPxxxx.BIN	BITMAP	.BMP
MCMHEAD.BIN	CARD	.MCD
DSP0000.BIN	DSP	.V8
HDxxxx.BIN	HDCOPY	.BMP
MEMxxxx.BIN	MEMO	.BMP
MSGxyyy.BIN	MSG	.TXT

Follow the steps below.

<p>Step 1</p>	<p>Select the file to be converted.</p> 
<p>Step 2</p>	<p>Select File[] → [Put BIN File Back]. Alternatively, right-click → [Put BIN File Back].</p> 
<p>Step 3</p>	<p>The following dialog is displayed: Specify the folder to save in and the file name and click [Save].</p> 
<p>Step 4</p>	<p>The converted file is created in the specified folder.</p>

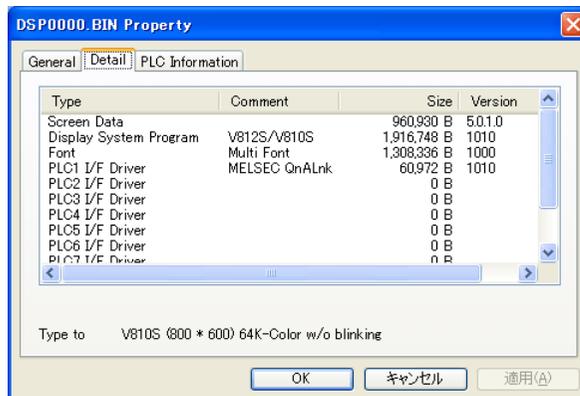
## Property of a BIN File

You can check the information about each BIN file before conversion.

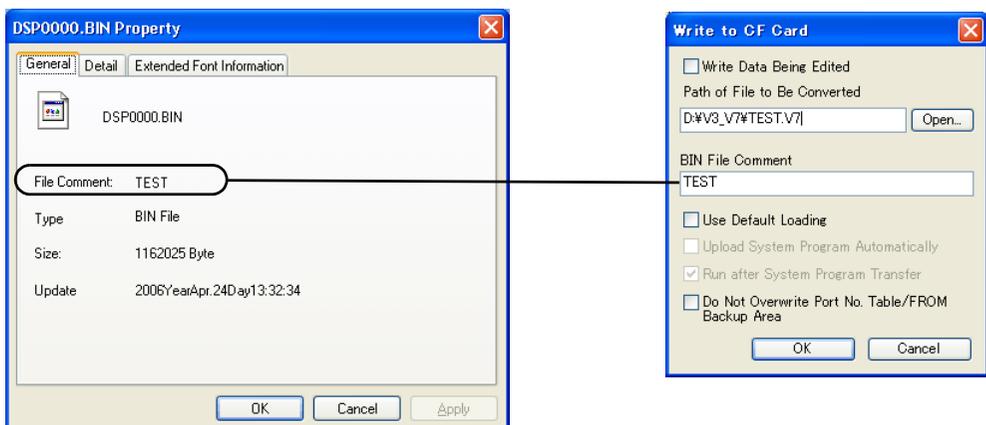
- BMPxxxx.BIN and MEMxxxx.BIN  
The Bitmap image is displayed.



- DSP0000.BIN  
You can check the file type or version in the [Detail] tab window.

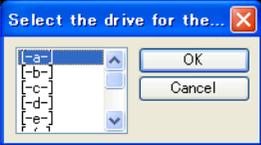


- Other BIN files  
In the [General] tab window, the comment that you entered in the [File comment of BIN file] field is displayed. ([File] → [Write to CF card])



## Other Function

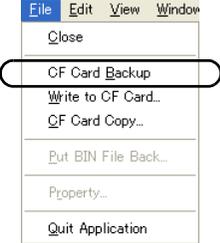
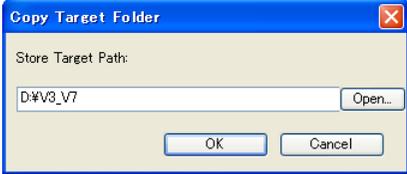
### CF Card Copy

Step 1	<p>Select [File] → [CF Card Manager].</p> 
Step 2	<p>Specify the CF card drive and click [OK].</p> 
Step 3	<p>The following dialog is displayed. Click [OK].</p> 
Step 4	<p>The following dialog is displayed. Remove the CF card from your computer and insert the target CF card. Click [OK].</p> 
Step 5	<p>The following dialog is displayed. Click [OK].</p> 
Step 6	<p>When copy is completed, the following dialog is displayed:</p> 

## CF Card Backup

You can back up the data on a CF card.

You can select the copy target folder.

Step 1	<p>Select [File] → [Back-up of CF Card].</p> 
Step 2	<p>When the [Copy Target Folder] dialog is displayed, click [Refer] and specify the copy target folder.</p> <p>Example: When saving in the “V3_V7” folder in the D drive:</p> 
Step 3	<p>Click [OK]. The following dialog is displayed.</p> 
Step 4	<p>Click [OK]. The data on the CF card is copied to the copy target. When copy is completed, the following dialog is displayed:</p> 
Step 5	<p>Make sure that the data is copied correctly to Explorer.</p>

\* When copying data from a CF card to the hard disk, you can copy and paste it using Explorer.

## 18.5 To Check CF Card Status (\$s):

Information about the status and the free space of the CF card inserted into the V8 series is stored in the system memory (\$s). The content is shown below:

### List

Address	Contents	Memory Type
\$s497	The error status of the CF card	← V
\$s498	The free space of the CF card (KB)	
\$s499		
\$s500	CF card removal switch status	
\$s780	Bitmap file status	
\$s781	JPEG file status	
\$s782	WAV file status	
\$s783	Font file status	
\$s784	HTML file status	
\$s1030	Drive C (card interface) The error status of the CF card	
\$s1031	Drive C (card interface)	
\$s1032	The free space of the CF card (kB)	
\$s1033	Drive C CF card removal switch status	
\$s1035	Drive D (USB-A) The error status of the CF card	
\$s1036	Drive D (USB-A)	
\$s1037	The free space of the CF card (kB)	
\$s1038	Drive D (USB-A) CF card removal switch status	
\$s1050	Background processing flag	
\$s1051	Background processing completion flag	
\$s1052	Background processing error flag	

### Description

- \$s497, \$s1030, \$s1035

The result of access to the CF card is output.

Output No.	Contents
4	The card is not installed.
5	Format error
6	The card size is too small.
7	The card type is different.
12	Card write error
15	Disk error (failed to open)
16	Card read error

- \$s498 to 499, \$s1031 to 1032, \$s1036 to 1037  
The free space of the CF card (kB) is output.
- \$s500, \$s1033, \$s1038  
The status of the [Function: CF Card Removal] switch is output.  
0: Switch OFF = CF card removal prohibited  
1: Switch ON = CF card removal permitted
- \$s780: Bitmap file (pattern data)  
\$s781: JPEG file  
\$s782: WAV file  
\$s783: Font file  
\$s784: HTML file

The status of each file is output.

MSB	LSB																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">15</td><td style="width: 5%;">14</td><td style="width: 5%;">13</td><td style="width: 5%;">12</td><td style="width: 5%;">11</td><td style="width: 5%;">10</td><td style="width: 5%;">09</td><td style="width: 5%;">08</td><td style="width: 5%;">07</td><td style="width: 5%;">06</td><td style="width: 5%;">05</td><td style="width: 5%;">04</td><td style="width: 5%;">03</td><td style="width: 5%;">02</td><td style="width: 5%;">01</td><td style="width: 5%;">00</td> </tr> <tr> <td style="text-align: center;">0</td><td style="text-align: center;">0</td> </tr> </table>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<p>0: File format matched 1: File format not matched</p> <p>0: File present 1: No file present</p>
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		

- \$s1050  
The status of the action currently being processed is output.

MSB	LSB																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">15</td><td style="width: 5%;">14</td><td style="width: 5%;">13</td><td style="width: 5%;">12</td><td style="width: 5%;">11</td><td style="width: 5%;">10</td><td style="width: 5%;">09</td><td style="width: 5%;">08</td><td style="width: 5%;">07</td><td style="width: 5%;">06</td><td style="width: 5%;">05</td><td style="width: 5%;">04</td><td style="width: 5%;">03</td><td style="width: 5%;">02</td><td style="width: 5%;">01</td><td style="width: 5%;">00</td> </tr> <tr> <td style="text-align: center;">0</td><td style="text-align: center;">0</td> </tr> </table>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<p>Sampling data backup/CSV output 0: Not processed 1: Being processed</p> <p>Hard copy macro 0: Not processed 1: Being processed</p>
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		

- \$s1051  
When the processing has been completed (= when \$s1050 turns OFF), this turns ON.

MSB	LSB																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">15</td><td style="width: 5%;">14</td><td style="width: 5%;">13</td><td style="width: 5%;">12</td><td style="width: 5%;">11</td><td style="width: 5%;">10</td><td style="width: 5%;">09</td><td style="width: 5%;">08</td><td style="width: 5%;">07</td><td style="width: 5%;">06</td><td style="width: 5%;">05</td><td style="width: 5%;">04</td><td style="width: 5%;">03</td><td style="width: 5%;">02</td><td style="width: 5%;">01</td><td style="width: 5%;">00</td> </tr> <tr> <td style="text-align: center;">0</td><td style="text-align: center;">0</td> </tr> </table>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<p>Sampling data backup/CSV output 0: Not completed 1: Completed</p> <p>Hard copy macro 0: Not completed 1: Completed</p>
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		

When the operation has been verified, the user must clear it to zero.

18.5 To Check CF Card Status (\$s):

---

- \$s1052

If an error occurs at the time when the processing has been completed (= when \$s1050 turns OFF), this turns ON.

MSB											LSB				
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Sampling data backup/CSV output  
0: Normal  
1: Error

Hard copy macro  
0: Normal  
1: Error

When the operation has been verified, the user must clear it to zero.

# 19 Ethernet

## 19.1 Before Starting

### Overview

The following Ethernet functions are available with the V8 series:

To use the Ethernet functions, it is necessary to set the IP address of the V8 series. Make the settings as required for the function you are going to use.

Function MONITOUCH + Option		PLC Communication		Macro EREAD EWRITE SEND	HKEtn20.dll	Screen Data Transfer	Web Server E-Mail
		TCP/IP	UDP/IP				
V812iS V810iS V810iT V808iS	Built-in LAN	○	○	○	○	○	○
V812S V810S V810T V808S	CU-03-3 (under development)	○	○	○	○	○	×
	CU-03-2	×	○	○	○	○	×

Network table *1	Not required	Required	Not required	Not required	Not required
------------------	--------------	----------	--------------	--------------	--------------

\*1 For more information, refer to the Connection Manual.

## MONITOUCH IP Address Setting

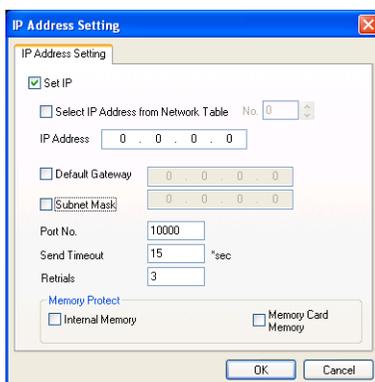
To use the Ethernet functions, it is necessary to set the IP addresses. The IP address can be set within screen data or on MONITOUCH.

- \* If the IP address is set within screen data as well as on MONITOUCH, the one set within screen data becomes valid.

### Method 1: Setting within Screen Data

Set the IP addresses within the screen data.

1. Select [System Setting] → [Ethernet Communication] → [Local Port IP Address]. The [IP Address Setting] dialog is displayed.
2. Check  Set IP] and make the settings.



<input type="checkbox"/> Select IP Address from Network Table	This is valid when the IP address of the V8 has been registered in the network table. An IP address can be selected from network table No. 0 to 99.
IP address *1	Set the IP address of the V8.
<input type="checkbox"/> Default Gateway *1	Set the default gateway.
<input type="checkbox"/> Subnet Mask *1	Set the subnet mask. When this box is not checked, the subnet mask is automatically recognized based on the extreme left byte of the IP address. Example: When IP address is "172.16.200.185", "255.255.0.0" is set. When IP address is "192.168.1.185", "255.255.255.0" is set.
<input type="checkbox"/> Port No. *1	Set a port number (1024 - 65535). (except for "8001")
Send Timeout	Specify the timeout time to be used when sending the EREAD/EWRITE macro command.
Retrials	0 - 255 Specify the maximum number of retrials to be attempted in the case a timeout occurs.
Memory Protect <input type="checkbox"/> Internal Memory <input type="checkbox"/> Memory Card Memory	Check this box when disabling data writing from a computer or another port.

\*1 For more information on the setting items, refer to page 19-4.

3. Click [OK].
4. Transfer screen data to MONITOUCH.

## Method 2: Setting at the Main Menu Screen on MONITOUCH

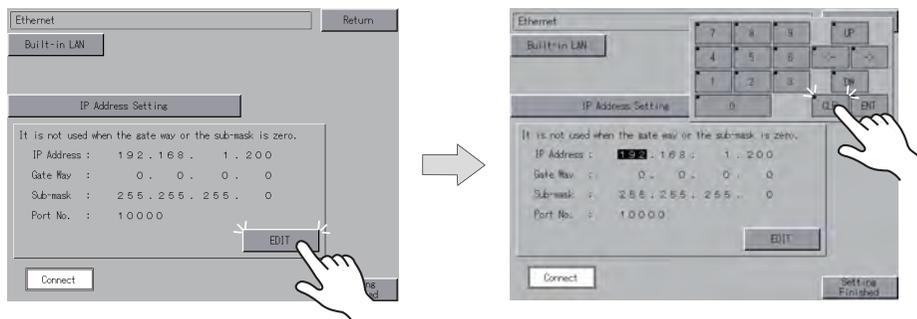
Set the IP addresses at the Main Menu screen on MONITOUCH.

When IP address setting is made within screen data, the setting within screen data becomes valid.

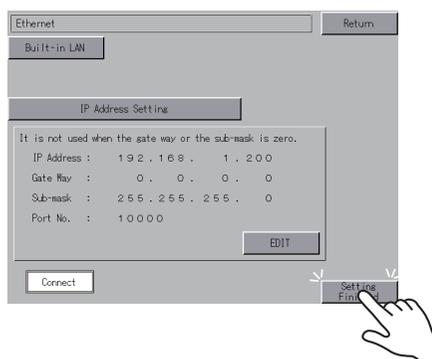
1. Press the [SYSTEM] button on MONITOUCH. The MODE menu is displayed.
2. With the MODE menu displayed, press the [F1] button. The Main Menu screen is displayed on MONITOUCH.
3. Press the [Main Menu] switch at the upper left corner of the screen. The menu is displayed.
4. Press the [Ethernet] switch. The Ethernet screen is displayed.



5. Press the [EDIT] switch and make the settings.



6. Press the [Setting Finished] switch to end the setting. Check the IP address under [Ethernet] on the Main Menu screen.



**IP Address**

This is an address that is used for recognizing each node on the Ethernet and should be unique. The IP address is 32-bit data which consists of the network address and the host address and can be classified into A to C depending on the network size.

Class A	0	Network address (7)	Host address (24)
Class B	10	Network address (14)	Host address (16)
Class C	110	Network address (14)	Host address (8)

<Notation>  
 A string of 32-bit data is divided into four, and each segment delimited with a period is in decimal notation.  
 Example: The IP address in class C shown below is represented as "192.128.1.50".  
 11000000 10000000 00000001 00110010

<Unusable IP addresses>

- "0" is specified for one byte at the extreme left. Example: 0.x.x.x
- "127" is specified for one byte at the extreme left (loop back address). Example: 127.x.x.x
- "224" or more is specified for one byte at the extreme left (for multi-cast or experiment). Example: 224.x.x.x
- The host address consists of only "0" or "255" (broadcast address). Example: 128.0.255.255, 192.168.1.0

**Port No.**

Multiple applications are running on each node, and communications are carried out for each application between the nodes. Consequently, it is necessary to have a means to identify the application that data should be transferred to. The port number works as this identifier. Each port number is 16-bit data (from 0 to 65535). The V8 uses the port for screen data transfer (8001), PLC communication (as desired), and the simulator (8020). Set a unique number in the range of 1024 to 65535. For a PLC or a computer, set the port number in the range of 256 to 65535. It is recommended to set a greater number.

**Default Gateway**

A gateway and a router are used for communication between different networks. The IP address of the gateway (router) should be set to communicate with the node(s) on other network.

**Subnet Mask**

A subnet mask is used for dividing one network address into multiple networks (subnet). The subnet is assigned by specifying a part of the host address in the IP address as a subnet address.

Class B	10	Network address (14)	Host address (16)
Subnet mask	255	255	255
	11111111	11111111	11111111 00000000
	Network address	Subnet address	Host address

<Unusable subnet masks>

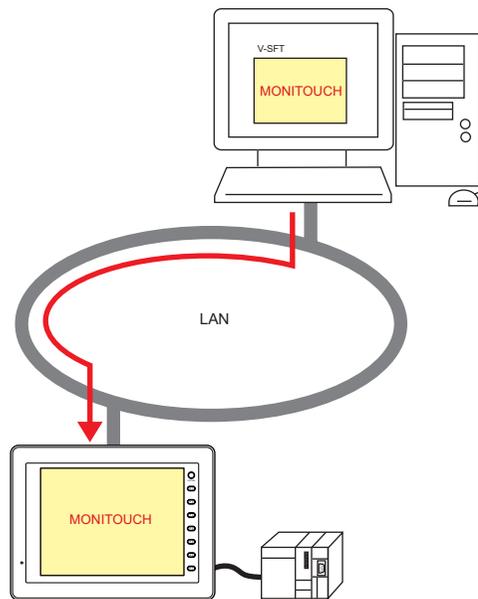
- All bits are set to "0". 0.0.0.0
- All bits are set to "1". 255.255.255.255

## 19.2 Screen Data Transfer

### Overview

You can download/upload screen data through the Ethernet.

For the procedures for transferring screen data, refer to the Operation Manual.



## 19.3 Communication with PLC and Other V8 Series

### Overview

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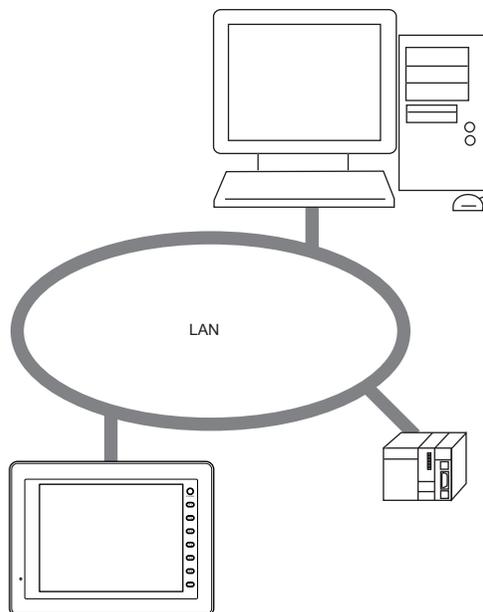
Communication with the Ethernet unit <sup>\*1</sup> of the PLC can be performed at a high speed of 100 Mbps <sup>\*2</sup> or 10 Mbps.

It is also possible to carry out communication and share data with other V8 series on the same LAN. In addition, you can also transfer data to the V8 series from your computer if you create programs using VB, etc. <sup>\*3</sup>

<sup>\*1</sup> For PLC models compatible with Ethernet communication, refer to the Connection Manual.

<sup>\*2</sup> 100 Mbps ready models: V8i (with built-in LAN port)

<sup>\*3</sup> For more information on program creation, refer to the V Series DLL Function Specifications.



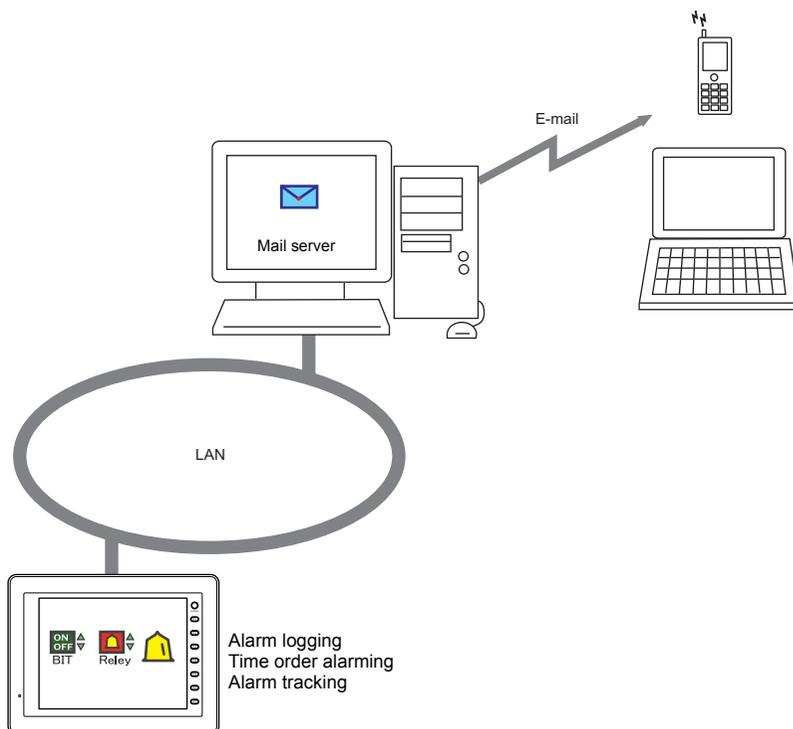
- Register all the partners in the network table.

## 19.4 E-Mail

### Overview

E-mail is sent according to the status of the ON/OFF bit. If a problem occurs, you will be notified of the fault even at a remote location.

- Applicable models  
V8i (built-in LAN port)
- Environment requirements  
Mail server is on the LAN.
- Item allowing you to send e-mail  
Alarm logging  
Time order alarming  
Alarm tracking



## Setting

This section describes the settings required for sending e-mail.

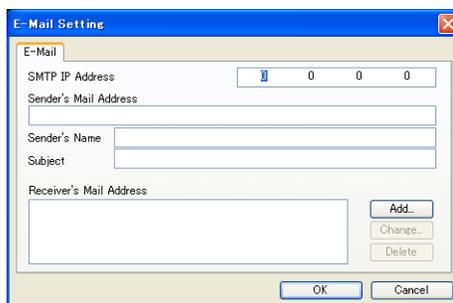
### IP Address

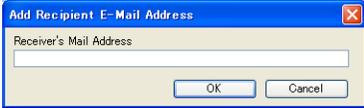
For information on the IP address, refer to page 19-8.

The gateway setting is also required for sending e-mail. If no gateway is set, "warning: 208" is displayed on the Main Menu screen when you attempt to transfer screen data.

### E-Mail

[System Setting] → [Ethernet Communication] → [E-Mail]

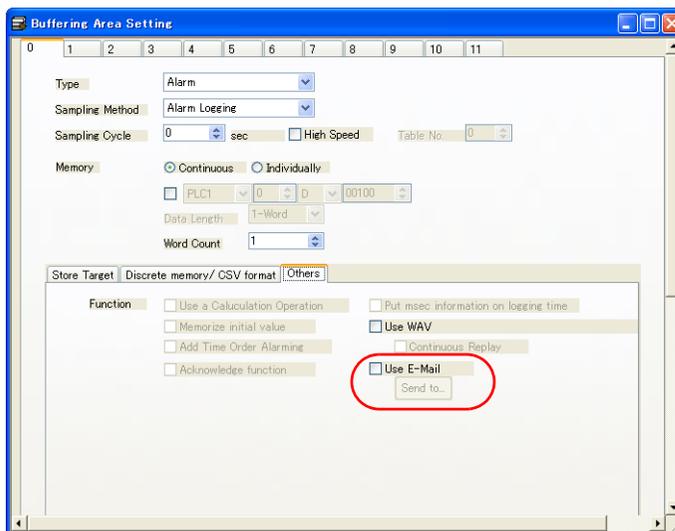


SMTP IP Address	Set the network IP address of the mail server.
Sender's Mail Address	Set the sender's mail address. It is recommended that you prepare a special account only for the V8i on the mail server and set its address.
Sender's Name	Set the sender's name. It is displayed in the "Sender" field in an incoming mail.
Subject	Set the subject. It is displayed in the "Subject" field in an incoming mail.
Receiver's Mail Address	8 maximum Register recipient's mail addresses. Register all mail addresses that you send to from the V8i.
Add	Register a new recipient's address.  
Change	Change an address that is registered.
Delete	Delete an address that is registered.

## Buffering Area Setting

Set a recipient's mail address in the buffering area. You can set a recipient's address for each sampling.

This section describes the required settings for sending e-mail. For more information on other setting items, refer to "10.3 Alarm Tracking (Historical)" on page 10-32.



<input type="checkbox"/> Use E-Mail	This setting is valid when the following three functions are used: <ul style="list-style-type: none"> <li>• Alarm Logging</li> <li>• Time Order Alarming</li> <li>• Alarm Tracking</li> </ul> Select the tab number of the buffering area setting to send e-mail and check this box.
Send to	Select recipient e-mail addresses among the registered e-mail addresses.

## Receiver's Mail Address

Set receivers' e-mail addresses.

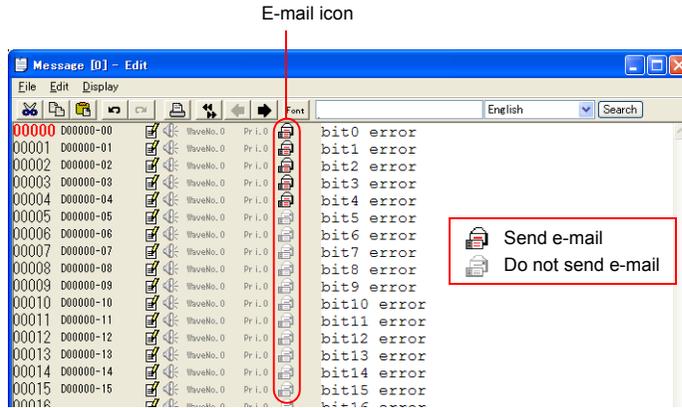


(1)	List of e-mail addresses registered on the [E-Mail Setting] dialog
(2)	Recipient mail addresses
>>	This button registers the addresses selected from (1) in (2).
OK	This button ends selection of recipient.
Cancel	This button cancels selection of recipient.
E-Mail Setting	This button enables you to check or make the e-mail setting.
Delete	This button deletes the selected e-mail addresses from the recipient's mail address list.

## Message Edit

In the [Message Edit] window, register messages corresponding to error bits and select whether or not to send e-mail.

Select the [E-Mail] icons of the messages with which you want to send e-mail.



\* If the [Message Edit] window looks different from the figure above, select [Display] → [Alarm]. For more information on the message editing procedure, refer to the Operation Manual.

## System Memory (\$s)

The information on sent e-mail messages is output to system memory (\$s).

- \$s1005  
If MONITOUCH receives send requests continually, the number (0-16) of e-mail messages waiting to be sent is stored.  
The V8i series can keep up to 16 e-mail messages. Any more than 16 messages are discarded.
- \$s1006  
Error information on e-mail messages is stored.

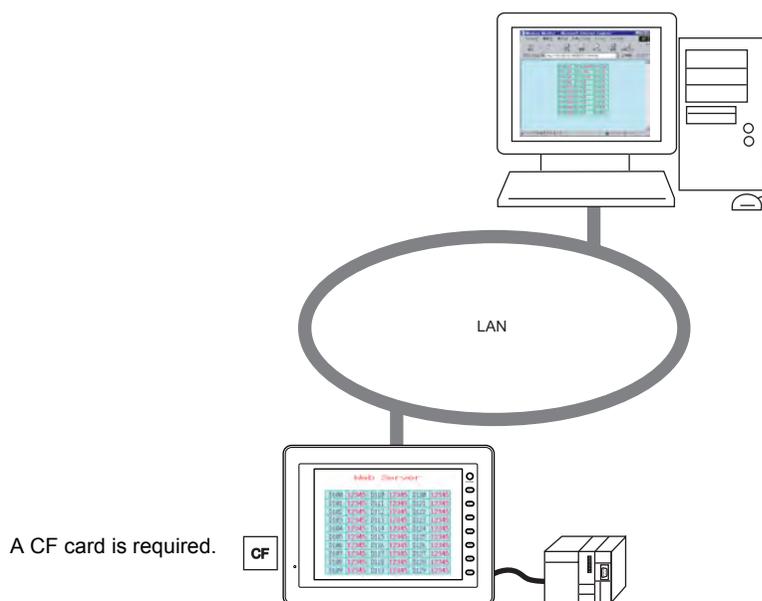
Error No.	Contents	Solution
0	Normal	-
1	E-mail address error	Check the sender's e-mail address.
2	SMTP server log-on error	Check the gateway setting.
3	SMTP server log-off error	

## 19.5 Web Server

### Overview

You can monitor the internal memory of the V8i series, the PLC memory connected to the V8i series, the temperature control memory, and the memory card memory using a Web browser on a computer that is attached to the LAN.

- Applicable models  
V8i (built-in LAN port)



- If you use a table data display, you can create an SHT file (refer to page 19-15) with the V-SFT. You do not need to create a file for monitoring. (Refer to page 19-16.)

V-SFT screen

D100	12345	D110	12345	D120	12345
D101	12345	D111	12345	D121	12345
D102	12345	D112	12345	D122	12345
D103	12345	D113	12345	D123	12345
D104	12345	D114	12345	D124	12345
D105	12345	D115	12345	D125	12345
D106	12345	D116	12345	D126	12345
D107	12345	D117	12345	D127	12345
D108	12345	D118	12345	D128	12345
D109	12345	D119	12345	D129	12345

Web browser screen

Memory Monitor - Microsoft Internet Explorer

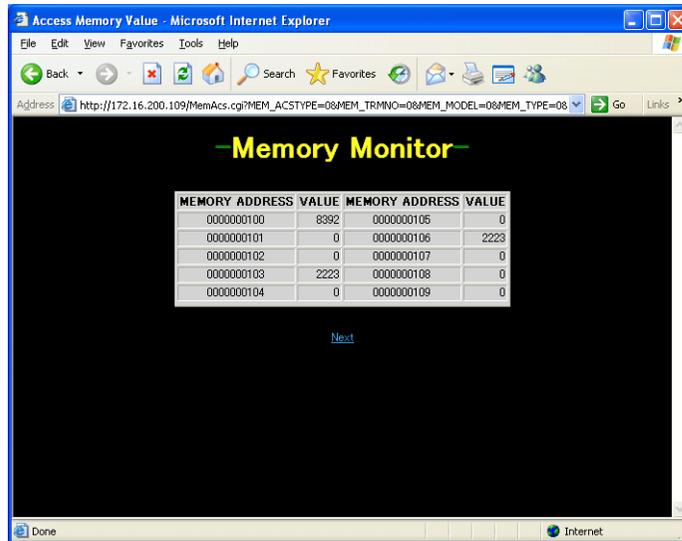
Address: <http://172.16.200.109/WEBSERV/AAA.SHT>

D100	1	D110	23	D120	64
D101	4232	D111	64876	D121	8674
D102	453	D112	0	D122	0
D103	66	D113	0	D123	0
D104	0	D114	6864	D124	0
D105	0	D115	0	D125	3
D106	754	D116	0	D126	0
D107	54341	D117	0	D127	0
D108	0	D118	3221	D128	0
D109	0	D119	0	D129	777

This SHT file is a simple file that shows the table data display only. To show titles or update the monitor automatically, you need to add titles or the monitor auto update function to the SHT file.

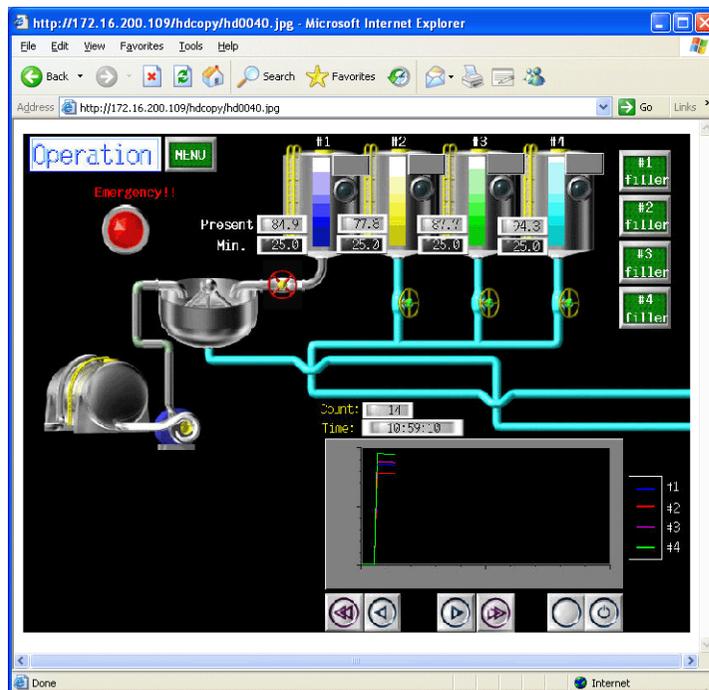
- Writing data to the V8i series and monitoring are available from a Web browser. Use the CGI function (MemAcs.cgi), which is built in the V8i series. (Refer to page 19-20.)

In this case, you will need to create an HTM file in this case.



- You can save a screenshot and a video image onto a CF card in JPEG format. JPEG data on the CF card can be displayed with a Web browser.

You can check the machine line status of a production site from a remote monitoring room with the V8i series. (Refer to page 19-25.)



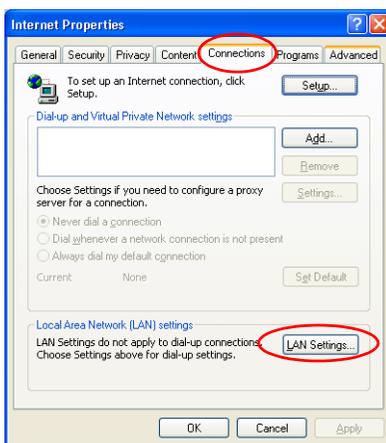
## Notes

### Browser Setting

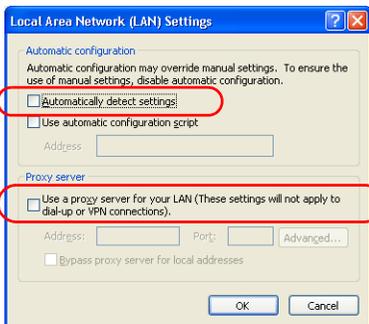
Be sure to uncheck [ Automatically detect settings] and [ Use a proxy server for your LAN] in the LAN settings of your Web browser.

Example: Windows XP

- 1) Start Internet Explorer.
- 2) Select [Tools] → [Internet Options].  
The [Internet Options] dialog is displayed.
- 3) Click the [Connections] tab.



- 4) Click the [LAN Settings] button in the [Local Area Network (LAN) settings] field.  
The [Local Area Network (LAN) Settings] dialog is displayed.



- 5) Uncheck [ Use a proxy server for your LAN] and [ Automatically detect settings], and click [OK].

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## Files Available to Use on the Web Server

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When you use the Web server function, access the CF card in the V8i series from the Web browser on your computer.

The files you can access from the Web browser are as follows:

Extension	MIME Type/Sub Type	Description
htm	text/html	HTML document
sht	text/html	SHT file (with SSI)
txt	text/plain	Text file
gif	image/gif	GIF image
jpg, jpe	image/jpeg	JPEG image

\* The files above should be created with the name using eight (8) or less one-byte alphanumeric characters (0 to 9, A to Z) and an extension of 3 one-byte alphanumeric characters. If the file name or extension does not follow this rule, you cannot access it from the browser.

\* SSI (Server Side Include)

This is one of the methods to insert dynamic information, such as the current time, into an HTML document.

It is expressed as `<!--#exec cgi="xxx.cgi"-->` or `<!--#echo var="DATE_LOCAL"-->`. A file that contains SSI is called SHT/SHTM file.

## Table Data Display Monitor

You can monitor the internal memory of the V8i, PLC memory, etc. with a Web browser.

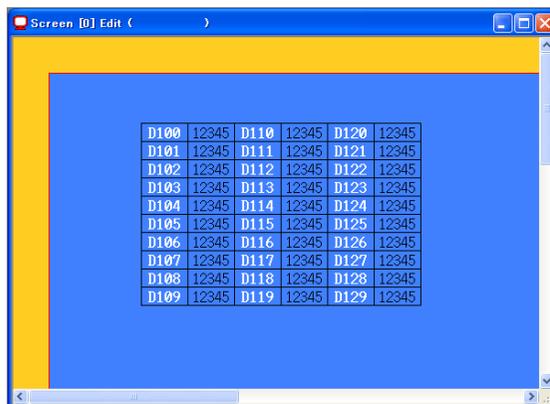
An SHT file, which is required for monitoring with a Web browser, can be created using a table data display on the V-SFT.

### Creating SHT Files

Create an SHT file using the V-SFT.

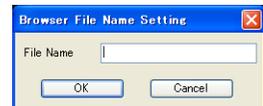
#### Procedure

1. Place the table data display on the screen of the V-SFT.



2. Click the table data to make the handles appear.  
If you need multiple table data displays, create them one by one.
3. Right-click and select [Make Browser File].

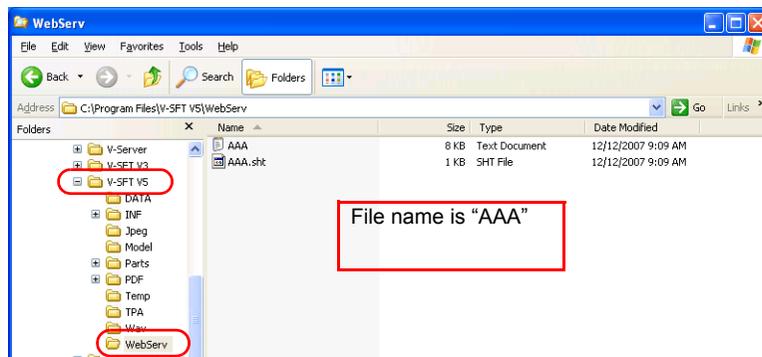
4. The [Browser File Name Setting] dialog is displayed. Enter a file name.



- \* The file name should be eight (8) one-byte alphanumeric characters (0 to 9, A to Z). You cannot access the file using other characters.

5. Two files are created in the "V-SFT V5Webserv" folder, which was created when the V-SFT was installed.

- (File name).sht: The file to be displayed in a Web browser
- (File name).txt: Table data file for table data display



6. Save the screen data.

- \* You need to use an SHT file, because the SSI is used for the monitoring function of the table data display. An HTM file is not available.

## Saving on a CF Card

Save the SHT file, which is created in the “.\V-SFT V5\Webserv” folder, onto a CF card then monitor it with a Web browser from your computer.

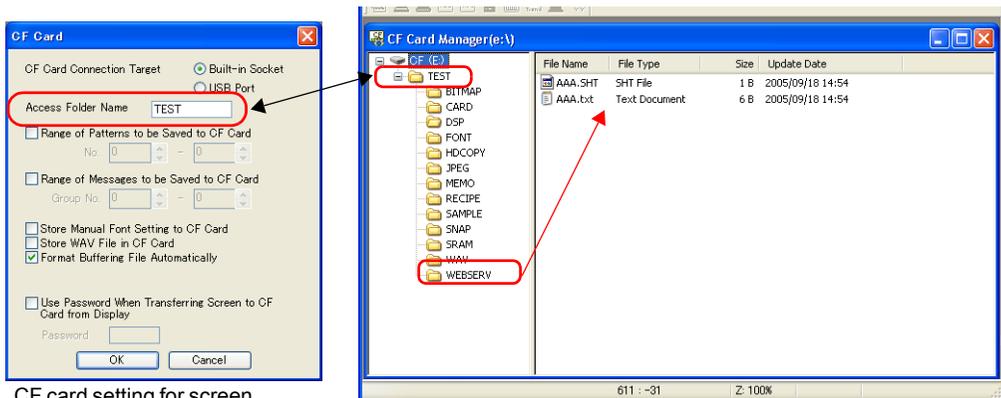
Save the file using the CF card manager or by using Explorer.

### When using CF Card Manager:

1. Select [File] → [CF Card Manager] on the V-SFT.
2. The [Select the drive for CF card] dialog is displayed. Select the CF card drive.
3. CF Card Manager is started.
4. Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed. Select screen data.
5. The access folder is created on the CF card.

At this point, the two files “○○.sht” and “○○.txt”, that were created in the “.\V-SFT V5\Webserv” folder, are stored into the “\access folder\WEBSERV” folder of the CF card.

- \* Note that all files in the “.\V-SFT V5\Webserv” folder are saved on the CF card in this case. Delete unnecessary files beforehand.
- \* For more information on CF Card Manager, refer to “18 CF Card.”

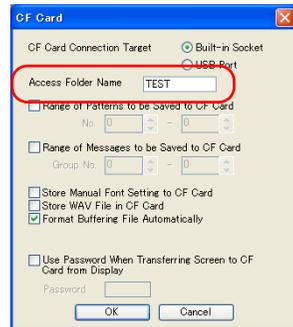


CF card setting for screen data file

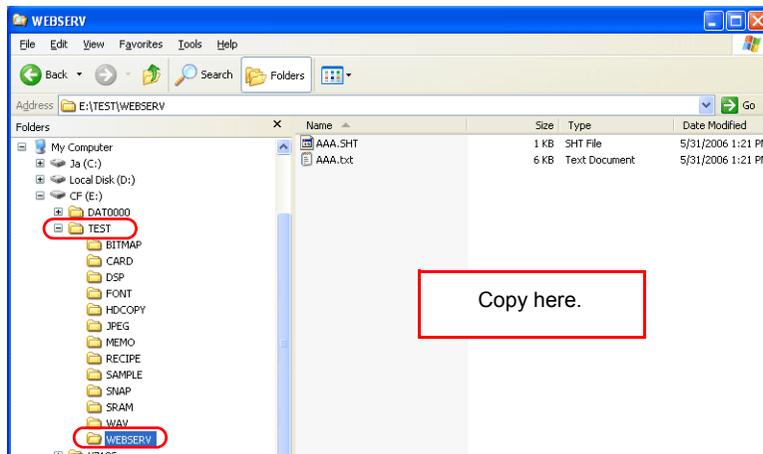
**When using Explorer:**

1. Start Explorer on Windows.
2. Specify the CF card drive.
3. Select [CF Card Setting] for the screen data for which you use Web server function and check that the folder specified for [Access Folder Name] exists on the CF card.  
(Access folder name: Refer to “18 CF Card” on page 18-9.)

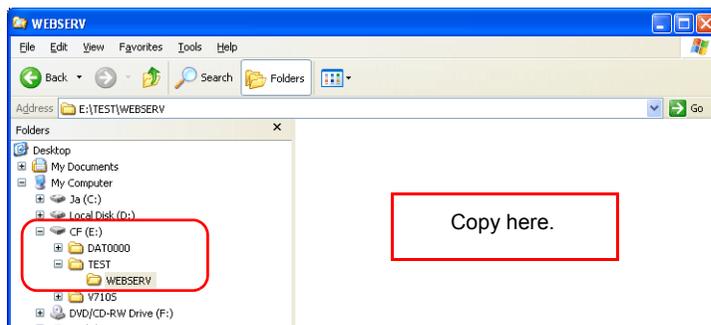
CF card setting for screen data file



- When the folder exists:  
Copy the two files “○○.sht” and “○○.txt”, that were created in the “.\V-SFT V5\Webserv” folder, into the “access folder\WEBSERV” folder of the CF card.



- When the folder does not exist:
  - 1) Create a new folder with the same name as “access folder” name.
  - 2) Create “WEBSERV” folder in the “access folder” that you created in step 1.
  - 3) Copy the two files “○○.sht” and “○○.txt”, that were created in the “.\V-SFT V5\Webserv” folder, into the “access folder\WEBSERV” folder of the CF card.



## Accessing with a Web Browser

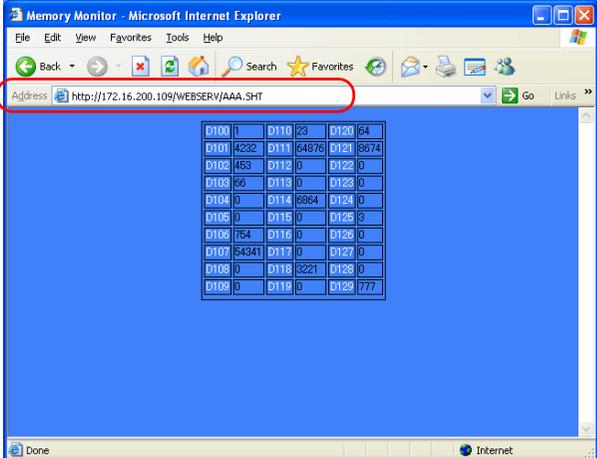
Access the V8i series, in which a CF card is inserted, with a Web browser.

1. Start a Web browser on the computer on the Ethernet.
2. In the [Address] field, specify the V8i series IP address and the SHT file as shown below.

`http://(IP address)/WEBSERV/(file name).sht`

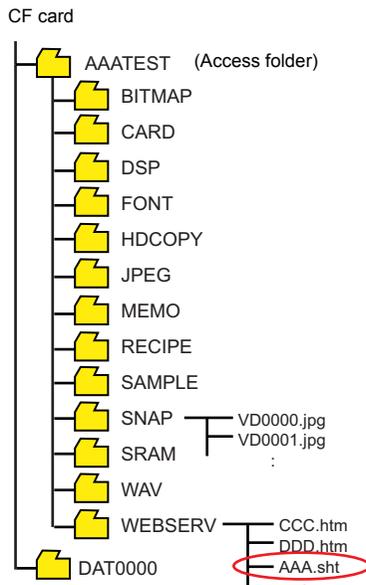
3. The table data display is shown on the Web browser.

IP address: 172.16.200.109  
 SHT file name: AAA  
 http://172.16.200.109/WEBSERV/AAA.sht



D100	1	D110	23	D120	64
D101	4232	D111	64876	D121	2674
D102	453	D112	0	D122	0
D103	55	D113	0	D123	0
D104	0	D114	6864	D124	0
D105	0	D115	0	D125	3
D106	764	D116	0	D126	0
D107	54341	D117	0	D127	0
D108	0	D118	3221	D128	0
D109	0	D119	0	D129	777

- \* The access folder is a root folder with the Web server function.
- \* In this section, it assumes that the HTM file is stored in the WEVSERV folder.



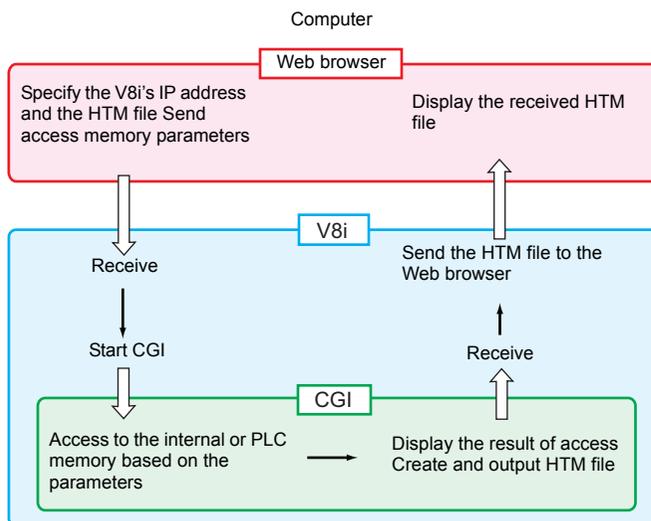
## Memory Access

You can access (read/ write) to any of the internal memory of the V8i, the PLC memory, and the temperature control memory.

In this case, you need to set each parameter in the table (page 19-21) and create an HTM (SHT) file for sending to the V8i series. You can access (read/ write) to the desired memory from this HTM (SHT) file by specifying the CGI function (MemAcs.cgi) prepared in the V8i series.

### Memory Access Flowchart

The procedure of memory access is shown below:



### CGI Function (MemAcs.cgi)

“MemAcs.cgi” is a CGI function prepared for reading from, or writing to, the memory of a device connected to the V8i series.

Specify the parameters with the SHT file and start the CGI function.

The CGI function recognizes whether to read or write according to the received parameter values. For reading, it sends a monitor table to the Web browser. For writing, it sends its writing result to the Web browser.

## Memory Access Parameter List

The required parameters to start the CGI function (MemAcs.cgi) are shown below. Enter the parameter names and parameter values correctly. If a name or value is wrong, MemAcs.cgi cannot recognize it and cannot work correctly.

Parameter Name	Contents		W	R
MEM_ACSTYPE	Memory access type	0: Memory read 1: Memory write	○	○
MEM_MODEL	Memory model	Same as "Indirect Memory" for macro commands. For more information, refer to the Macro Reference Manual.	○	○
MEM_TYPE	Memory Type		○	○
MEM_ADDR	Memory address Top memory address to be accessed (32-bit address supported)		○	○
MEM_EXP	Expansion code Set the required models only. Set "0" for the others.		○	○
MEM_TRMNO	PLC station number in case of the multi-drop connection		○	○
MEM_WCNT	The number of words to be accessed	Data length: 1 word: 1 - 128 Data length: 2 words: 1 - 64	○	○
MEM_TBL_LINE	The number of lines in a table		×	○
MEM_TBL_COLMN	The number of columns in a table		×	○
MEM_UPDT_TIME	Update cycle (unit: second) * No updates when "0" is set.		×	○
MEM_WR_DATA	Writing data Set the number of words specified for [MEM-WCNT] with delimiter "," (comma).		○	×
MEM_WRTYPE	Writing data type	0: DEC 1: HEX 2: OCT 3: BIN	○	×
MEM_DSPTYPE	Memory display type	0: DEC 1: DEC (w/ -sign) 2: DEC (w/ +- sign) 3: HEX 4: OCT 5: BIN	×	○
MEM_KETA	Digits for displaying the value in memory	1 - 32	×	○
MEM_DCPT	Decimal point for the value in memory	0 - 10	×	○
MEM_DLEN	Memory data length	0: 1 word 1: 2 words	○	○
MEM_INPUT	Input format	0: DEC 1: BCD	×	○

W: Used for memory write  
R: Used for memory read



## Accessing with a Web browser

Start a Web browser on your computer, and access to the CF card that is inserted in the V8i series. For how to access, refer to page 19-19.

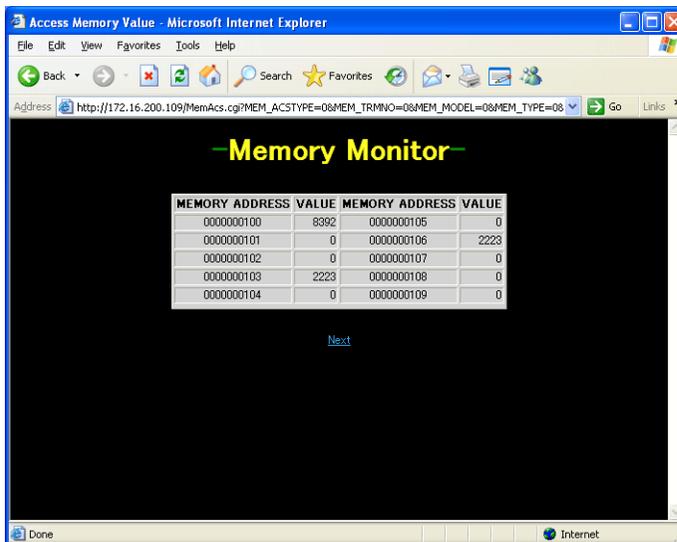
1. The created HTM file is displayed.



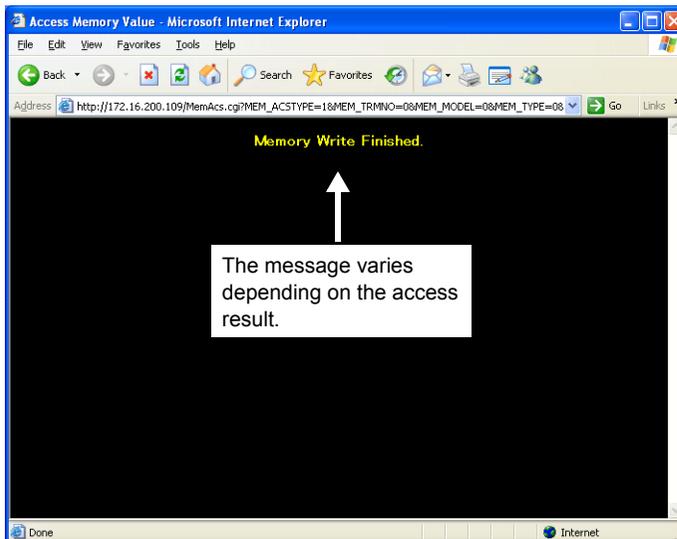
2. Set access memory parameters in each entry field, then press [Write] button.

The V8i series creates the HTM file as shown below and send it to the Web browser.

- Memory access type is "0: Memory read":



- Memory access type is "1: Memory write":



## JPEG File Display

In the V8i series, you can save a video image to the “CF card\access folder\SNAP” folder, and a screen shot to the “CF card\access folder\HDCOPY” folder, both as JPEG files.

On a Web server, you can display the JPEG files with a Web browser.

You can display these files with or without using an HTML file. If you use an HTML file, create one on your own.

### Without Using an HTML File:

If you do not use an HTML file, specify “Folder Name/ File Name” directly from the Web browser to display a JPEG file.

Enter text in the following format for the address field of the Web browser.

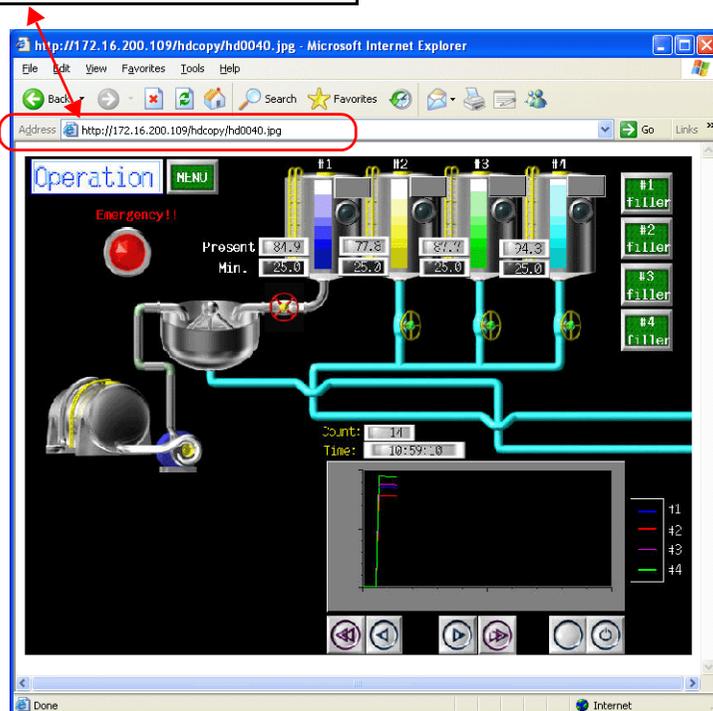
`http://(IP address)/(folder name)/(file name).jpg`

HDCOPY  
JPEG  
SNAP

\* The access folder is a root folder with the Web server function.

Example:

IP address: 172.16.200.109  
When displaying HD0000.jpg in the “HDCOPY” folder:  
`http://172.16.200.109/HDCOPY/HD0000.jpg`



---

## Using an HTM File:

---

If you use an HTM file, you can display not only a JPEG file, but also a title. By using the HTM refresh command, you can process periodic updates.

### Creating HTM files

Example:

Display a video snap image on the Web browser, then create an HTM file to be displayed while updating periodically.

- CCC.htm

```
<HTML>
<META HTTP-EQUIV="refresh" CONTENT="5;URL=DDD.htm">
      Auto update command      Update cycle      File name to be displayed next

<HEAD><TITLE>JPEG Monitor</TITLE></HEAD>
      Page title

<BODY>
<CENTER>
<H1>No. 1</H1>      ← Title to be displayed on the top of the screen
<P>
<IMAGE SRC=" ../SNAP/VD0000.jpg">
      Image display      JPEG file store target/File name

</P>
</CENTER>
</BODY>
</HTML>
```

- DDD.htm

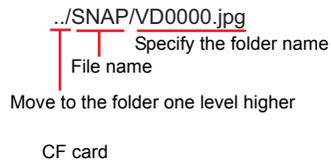
```
<HTML>
<META HTTP-EQUIV="refresh" CONTENT="5;URL=CCC.htm">
      Auto update command      Update cycle      File name to be displayed next

<HEAD><TITLE>JPEG Monitor</TITLE></HEAD>

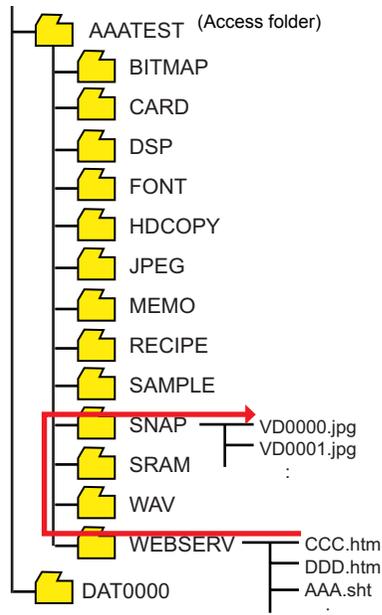
<BODY>
<CENTER>
<H1>No. 2</H1>      ← Title to be displayed on the top of the screen
<P>
<IMAGE SRC=" ../SNAP/VD0001.jpg">
      Image display      JPEG file store target/File name

</P>
</CENTER>
</BODY>
</HTML>
```

In the HTM file example shown on the previous page, the store target is “../SNAP/VD0000.jpg”. This is specified with a relative pathname. Another method, an absolute pathname, can also be used.



The access folder is a root folder with the Web server function.  
 This example assumes that an HTM file is stored in the Webserv folder.



**Saving on a CF card:**

Save the created HTM file on a CF card. For how to save, refer to page 19-17.

### Accessing with a Web browser

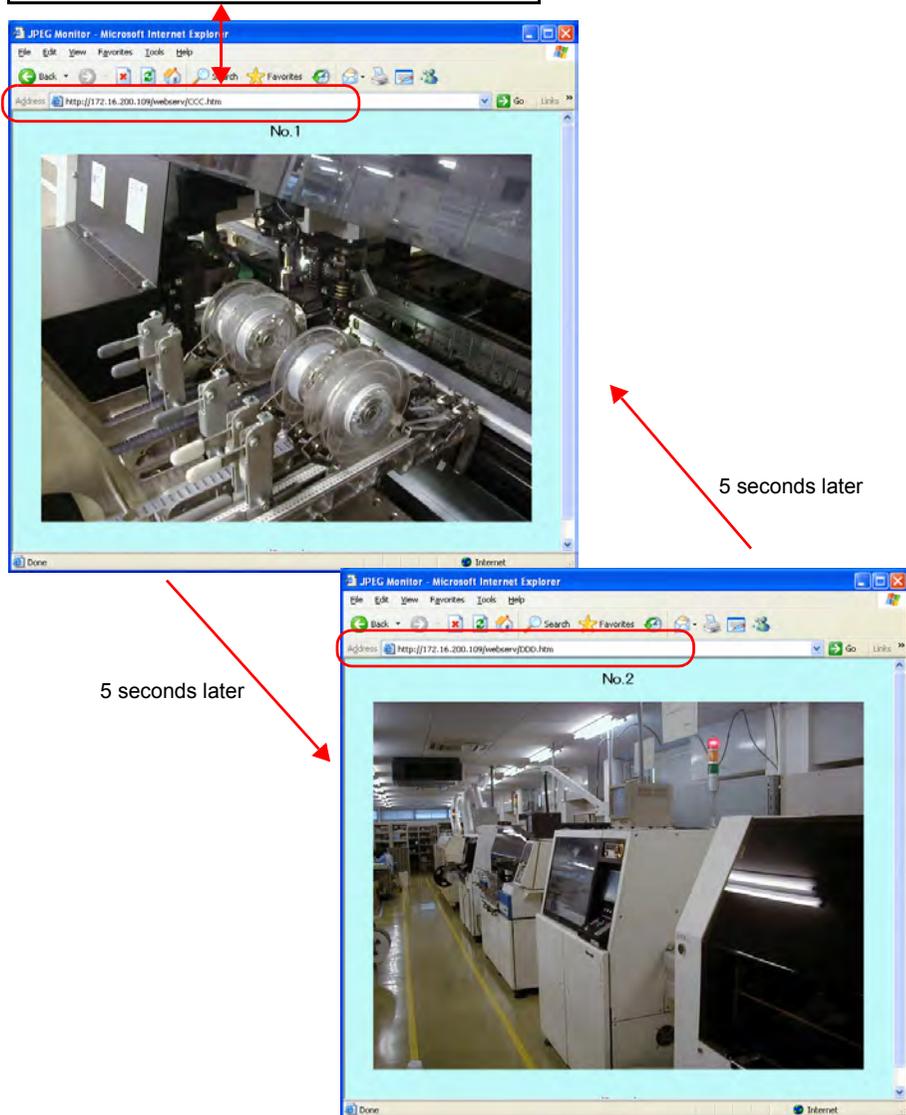
Start a Web browser on your computer, and access to the CF card that is inserted in the V8i series.

Enter text in the following format for the address field of the Web browser.

`http://(IP address)/WEBSERV/(file name).htm`

Example:

IP address: 172.16.200.109  
When displaying CCC.htm in the "WEBSERV" folder:  
`http://172.16.200.109/WEBSERV/CCC.htm`



VD0000.jpg is displayed first. VD0001.jpg and VD0000.jpg are repeatedly displayed in order, each for five seconds.

# Appendix

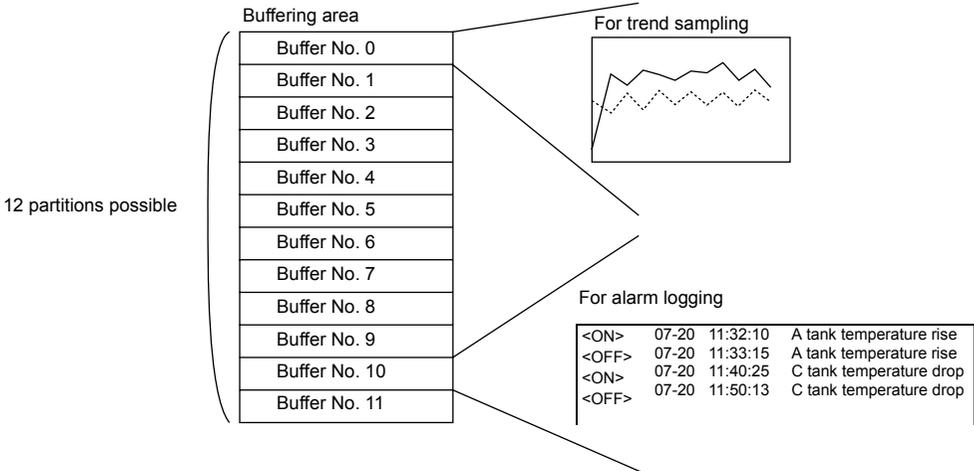
---

- Appendix 1 Buffering Area
- Appendix 2 SRAM/Clock Setting
- Appendix 3 Display Language
- Appendix 4 Styles and Coordinates
- Appendix 5 Process Cycle
- Appendix 6 Internal Memory
- Appendix 7 Error

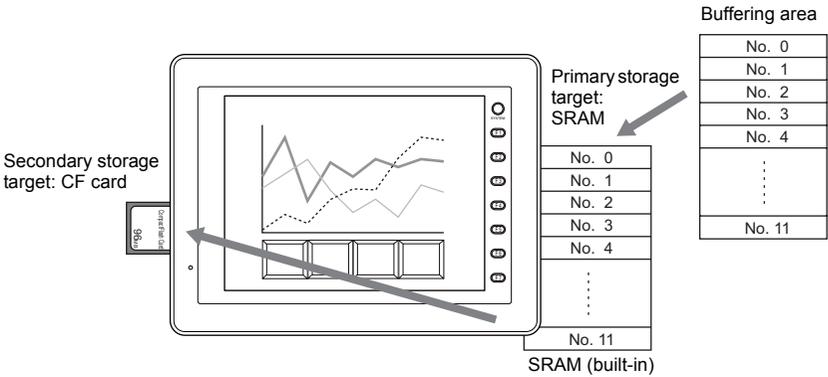
# Appendix 1 Buffering Area

## Overview

- The “buffering area” is the area where sampling data is saved.  
Make the setting by selecting [System Setting] → [Buffering Area Setting].
- The buffering area can be partitioned into 12 sections (buffers).  
Buffers in the buffering area can store several kinds of data that is sampled by different methods.



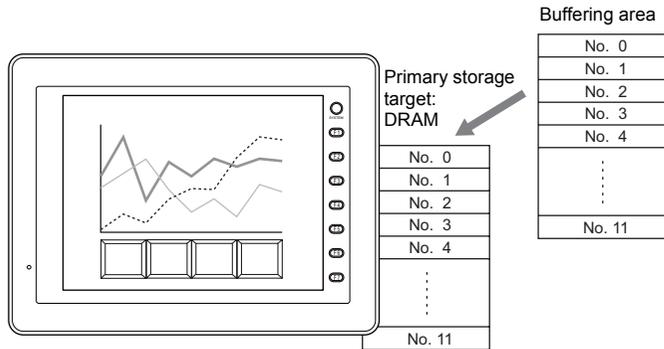
- The buffering areas can be located in the DRAM/SRAM area within the V8 series as the primary storage target or on a CF card/memory card (SRAM) as the secondary storage target.



When two storage targets (primary and secondary) are set, sampling will continue with the primary storage target even if you remove the CF card (secondary storage target) for data backup purpose (with [Full Processing: Overwrite]).

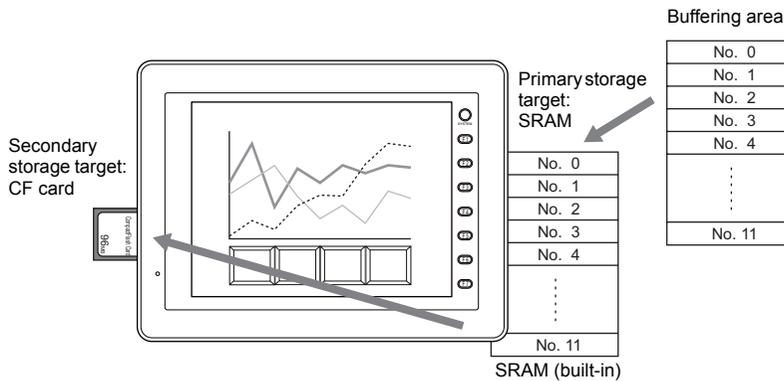
### Primary: DRAM + Secondary: None

- Historical data is temporarily stored in the DRAM area within MONITOUCH. When MONITOUCH is turned off, or when the mode is switched from RUN → STOP, data in the DRAM will be erased.

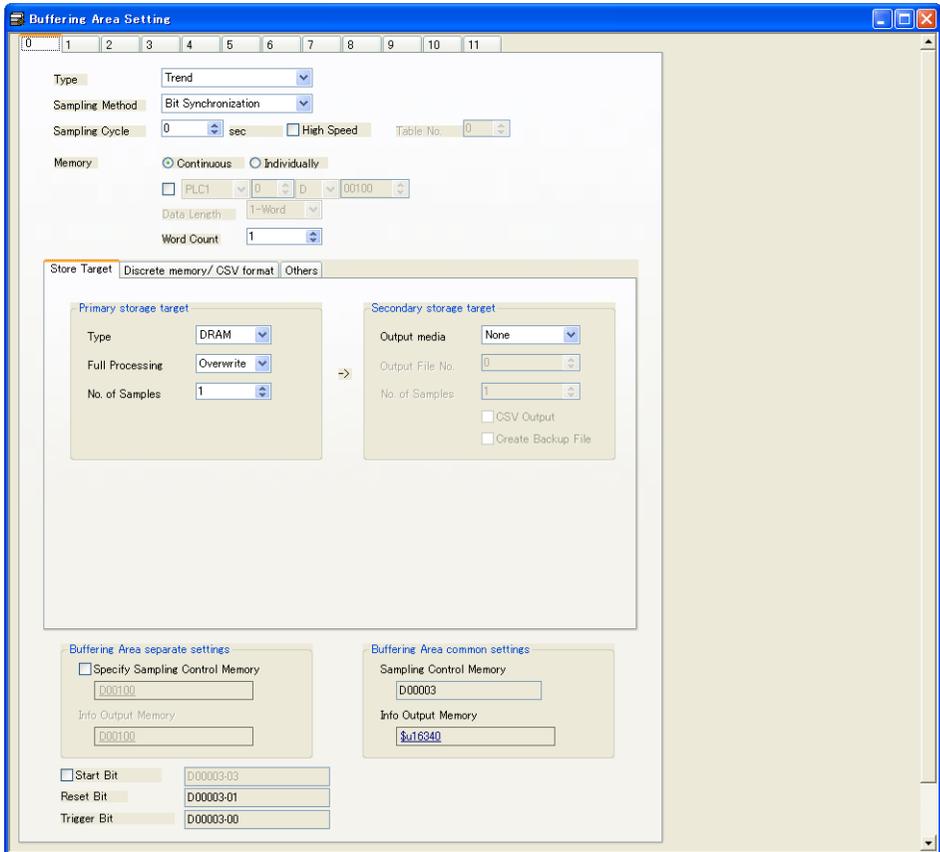


### Primary: SRAM + Secondary: CF Card

- Historical data is stored in the SRAM area built in MONITOUCH. Even when MONITOUCH is turned off, data in the SRAM is retained (as long as the battery voltage lasts). Data in the SRAM is saved to the CF card, that is the secondary storage target, at regular intervals as specified. (For more information, refer to page A1-16.)



## Setting Dialog (from [0] to [11] Tab Windows)



<p>Type</p>	<p>Determine whether you use the sampling function or not and, if desired, specify the function to be used. Depending on the selection here, the setting items in the tab window will change.</p> <table border="1"> <tr> <td>None</td> <td>The sampling function is not used.</td> </tr> <tr> <td>Trend</td> <td>Select this option when you use trend or data sampling.</td> </tr> <tr> <td>Alarm</td> <td>Select this option when you use alarm tracking or alarm logging.</td> </tr> </table>	None	The sampling function is not used.	Trend	Select this option when you use trend or data sampling.	Alarm	Select this option when you use alarm tracking or alarm logging.
None	The sampling function is not used.						
Trend	Select this option when you use trend or data sampling.						
Alarm	Select this option when you use alarm tracking or alarm logging.						

Sampling Method	The following six options are available. Data is sampled in the selected method, and can be displayed in the corresponding sampling mode.																																															
	<table border="1"> <thead> <tr> <th>Type</th> <th>Sampling Method</th> <th>Corresponding Sampling Mode</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Trend</td> <td>Bit Synchronization</td> <td rowspan="3">Data sampling Trend sampling</td> </tr> <tr> <td>Constant Sampling</td> </tr> <tr> <td>Device Memory Map (PLC n)</td> </tr> <tr> <td rowspan="3">Alarm</td> <td>Alarm Logging</td> <td>Alarm logging</td> </tr> <tr> <td>Time Order Alarming</td> <td>Time order alarming</td> </tr> <tr> <td>Alarm Tracking</td> <td>Alarm tracking Alarm logging Time order alarming</td> </tr> </tbody> </table>		Type	Sampling Method	Corresponding Sampling Mode	Trend	Bit Synchronization	Data sampling Trend sampling	Constant Sampling	Device Memory Map (PLC n)	Alarm	Alarm Logging	Alarm logging	Time Order Alarming	Time order alarming	Alarm Tracking	Alarm tracking Alarm logging Time order alarming																															
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<p><b>Bit Synchronization:</b> Data is sampled at the edge of 0 → 1 of bits (specified as "T: trigger") in the sampling control memory. Applicable sampling mode: Data sampling, trend sampling</p> <p>Sampling control memory (default)</p> <p style="text-align: center;">MSB <span style="float: right;">LSB</span></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td> </tr> </table> <p>= Read area</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>n+3</td><td>Buffer No. 3</td><td>Buffer No. 2</td><td>Buffer No. 1</td><td>Buffer No. 0</td> </tr> <tr> <td>n+4</td><td>Buffer No. 7</td><td>Buffer No. 6</td><td>Buffer No. 5</td><td>Buffer No. 4</td> </tr> <tr> <td>n+5</td><td>Buffer No. 11</td><td>Buffer No. 10</td><td>Buffer No. 9</td><td>Buffer No. 8</td> </tr> </table> <p>For more information on the sampling control memory, refer to page A1-9.</p>		15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T	n+3	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0	n+4	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4	n+5	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																	
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<p><b>Constant Sampling:</b> Data is sampled at the specified intervals (= [Sampling Cycle]). Applicable sampling mode: Data sampling, trend sampling</p>																																																
<p><b>Device Memory Map (PLC n):</b> Data for device memory map PLC1 - 8 is sampled at regular intervals or in synchronization. Applicable sampling mode: Data sampling, trend sampling (Refer to the V8 Series Connection Manual.)</p>																																																
<p><b>Alarm Logging:</b> Data is sampled at the ON/OFF edge of each bit. Applicable sampling mode: Alarm logging</p>																																																
<p><b>Time Order Alarming:</b> A message is displayed at the ON edge of each bit. When the bit is reset (OFF), the message disappears. This function uses the buffering area temporarily to show the messages in order of occurrence that begins with either the oldest or newest. Applicable sampling mode: Time order alarming</p>																																																
<p><b>Alarm Tracking:</b> Data is sampled at the ON/OFF edge of each bit. Applicable sampling mode: Alarm tracking, alarm logging, time order alarming</p>																																																

Sampling Cycle (0 - 65535 sec)	<p>Specify the desired interval for sampling. When "0" is specified for [Sampling Cycle], sampling is made every cycle. Set the desired interval in seconds to perform regular sampling.</p> <ul style="list-style-type: none"> <li>* When "0" is specified for [Sampling Cycle], sampling starts at the beginning cycle, and sampling data is read on completion of sampling. When a value other than "0" is specified for [Sampling Cycle], sampling is made while reading sampling data in cycles.</li> <li>* Sampling at extremely short intervals ("0", "1", etc. is specified for [Sampling Cycle]) increases the number of PLC data reading times. Depending on screen data, the processing speed of the V8 series may be slowed down. In this case, it is recommended that <input type="checkbox"/> [Memory Designation] be unchecked. (Refer to page A1-8.)</li> <li>* This setting is not valid when [Device Memory Map] is selected for [Sampling Method].</li> </ul>	
<input type="checkbox"/> High Speed	<p>When this box is unchecked, "sec" is used as the unit for [Sampling Cycle]. When this box is checked, "× 100msec" is used as the unit. A high-speed read cycle for sampling data in 100-msec units can be set.</p>	
Table No.	<p>This setting is valid when [Sampling Method: Device Memory Map] is selected. Specify the number of the device memory map where data to be read is registered.</p>	
Memory	Continuous, Individually	<p>Continuous: The sampling data memory is allocated consecutively in the read area or from the specified top address.</p> <p>Individually: The memory address for sampling data can be specified. (For the procedure of specifying an individual memory address, refer to "Discrete Memory/CSV Format (Tab Window)" (page A1-19) described later.)</p> <ul style="list-style-type: none"> <li>* When [Individually] is selected, reading from the PLC occurs more frequently than when [Continuous] is selected. As a result, the processing speed may be slowed down. To increase processing speed, select [Continuous].</li> </ul>
	(Memory designation)	<p>Unchecked: The sampling data memory is allocated consecutively in the read area. (In this case, [Data Length] is fixed to [1-Word].)</p> <p>Checked: Specify the desired top memory address.</p>
	Data Length	<p>(1-Word, 2-Word) This option becomes active when the box above is checked. Set data length of the data memory.</p>
	Word Count	<p>Specify the number of words to be sampled. As many addresses as the specified number of words must be allocated.</p> <p>[Type: Trend]: 128 words maximum [Type: Alarm]: 1024 words maximum *</p> <p>* 16-bit sampling is performed with one word.</p>
Store Target	<p>For more information, refer to "Storage Target (Setting Dialog)" (page A1-13) described later.</p>	



<input type="checkbox"/> Start Bit	<p>When an option other than [Alarm Tracking] is selected for [Sampling Method]: You can control the sampling start, stop, and restart.</p> <p>When this box is checked, the bit obtained from the sampling control memory area is automatically displayed.</p> <p>Sampling control memory [U] (bits 03, 07, 11, 15)</p> <p>ON: Sampling start OFF: Sampling stop</p> <p>Sampling control memory</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="8">MSB</th> <th colspan="8">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td> </tr> </tbody> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding-right: 20px;">n</td> <td style="padding-right: 20px;">Buffer No. 3</td> <td style="padding-right: 20px;">Buffer No. 2</td> <td style="padding-right: 20px;">Buffer No. 1</td> <td>Buffer No. 0</td> </tr> <tr> <td>n+1</td> <td>Buffer No. 7</td> <td>Buffer No. 6</td> <td>Buffer No. 5</td> <td>Buffer No. 4</td> </tr> <tr> <td>n+2</td> <td>Buffer No. 11</td> <td>Buffer No. 10</td> <td>Buffer No. 9</td> <td>Buffer No. 8</td> </tr> </table> <p>* For more information on the sampling control memory, refer to page A1-9.</p> <p>When [Alarm Tracking] is selected for [Sampling Method]: You can control the start and stop of monitoring bits for sampling.</p> <p>When this box is checked, the start bit remains ON at any time so alarm tracking is always active.</p> <p>When this box is unchecked, alarm tracking is not performed even if the alarm bit is set to ON or reset to OFF unless the bit specified for [Start Bit] (bit 03, 07, 11, 15 of sampling control memory) is set to ON.</p> <p>Sampling control memory</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="8">MSB</th> <th colspan="8">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td><td>U</td><td>S</td><td>R</td><td>T</td> </tr> </tbody> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding-right: 20px;">n</td> <td style="padding-right: 20px;">Buffer No. 3</td> <td style="padding-right: 20px;">Buffer No. 2</td> <td style="padding-right: 20px;">Buffer No. 1</td> <td>Buffer No. 0</td> </tr> <tr> <td>n+1</td> <td>Buffer No. 7</td> <td>Buffer No. 6</td> <td>Buffer No. 5</td> <td>Buffer No. 4</td> </tr> <tr> <td>n+2</td> <td>Buffer No. 11</td> <td>Buffer No. 10</td> <td>Buffer No. 9</td> <td>Buffer No. 8</td> </tr> </table> <p>* For more information on the sampling control memory, refer to page A1-9.</p>	MSB								LSB								15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T	n	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0	n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4	n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8	MSB								LSB								15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	U	S	R	T	U	S	R	T	U	S	R	T	U	S	R	T	n	Buffer No. 3	Buffer No. 2	Buffer No. 1	Buffer No. 0	n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4	n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8
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n+1	Buffer No. 7	Buffer No. 6	Buffer No. 5	Buffer No. 4																																																																																																																											
n+2	Buffer No. 11	Buffer No. 10	Buffer No. 9	Buffer No. 8																																																																																																																											
Reset Bit Trigger Bit Normal Operation Bit	Display the bit information for each buffer in the sampling control memory. * For more information on the sampling control memory, refer to page A1-9.																																																																																																																														



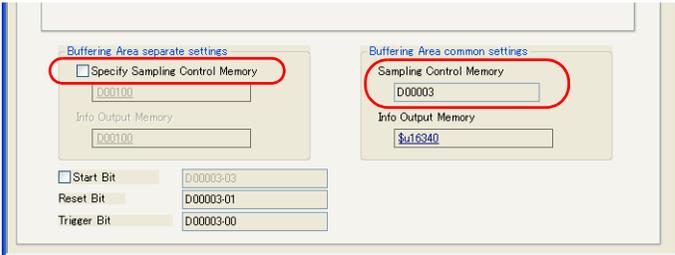
**Sampling control memory**

A memory area called “sampling control memory” is used to control the sampling function for each buffer with buffering area settings.

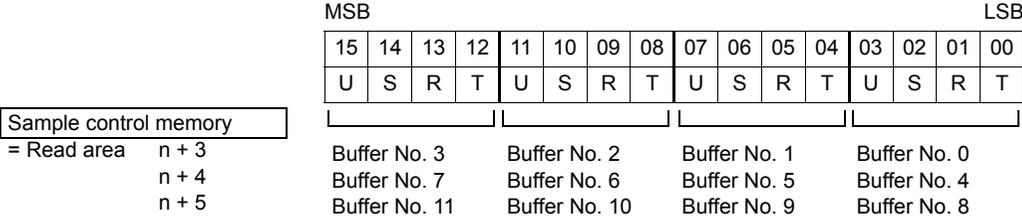
Memory allocation and control items are described below:

- When  Specify Sampling Control Memory is not checked:  
Sampling control memory is automatically allocated for a maximum of 3 words following the read area “n + 3” (specified by selecting [System Setting] → [Device Connection Setting]) when  Specify Sampling Control Memory is checked in the [Buffering Area Setting] dialog.

Example:  
The top memory address of the sampling control memory will be D3 (= read area n + 3) in the following case:



- \* The number of words allocated for the sample control memory depends on the number of buffers to be used. (Refer to the illustration below.)  
When  Use Sample Buffer is not checked, memory addresses from “n + 3” are not used.
- \* Be sure to reset the bits not in use to “0” in the sample control memory.



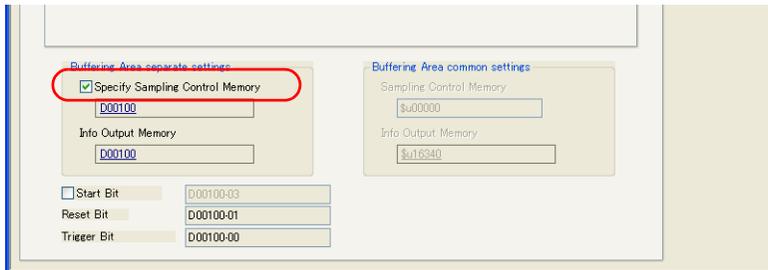
T: Trigger	This is valid only when [Bit Synchronization] is selected for [Sampling Method]. Data is sampled from the specified buffer at the edge of [0→ 1].
R: Reset	When this bit is set (1), data in the specified buffer is cleared and no sampling occurs. When this bit is reset (0), sampling is started. (This is not valid when [Time Order Alarming] is selected for [Sampling Method].)
S: Normal operation bit	This is valid only when [Alarm Function] is selected for [Sampling Method]. This bit controls alarm tracking. When an error bit is reset, this bit is set. When an error bit is set, this bit is reset. The first error bit that is set while this bit is reset is recognized as the “primary cause” error, and can be distinguished from the other errors. (For more information on the alarm function, refer to “10.3 Alarm Tracking (Historical).”)

U:Start Bit	<p>When [Sampling Method: Alarm Tracking] is not selected: When <input type="checkbox"/> Start Bit] is checked, sampling is started with the bit ON and is stopped with the bit OFF.</p> <p>When [Sampling Method: Alarm Tracking] is selected: With <input type="checkbox"/> Start Bit] checked, from the start to the end of sampling, no error message will be displayed when the alarm bit turns ON unless this bit is ON. With <input type="checkbox"/> Start Bit] unchecked, alarm tracking is possible regardless of this bit activation.</p> <p>* <input type="checkbox"/> Start Bit] is checked as default.</p>
-------------	--

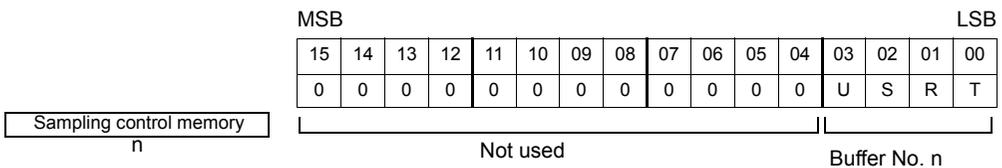
- When  Specify Sampling Control Memory] is checked:  
When  Specify Sampling Control Memory] is checked in the [Buffering Area Setting] dialog, a desired memory address can be specified as a sampling control memory address for each buffer. (The contents of bits are the same as above.)

In this case, however, since data in [Sampling Control Memory] is read at the start of sampling, the communication time will be longer than in cases where the box is not checked. With this box unchecked, data in [Sampling Control Memory] is read at regular intervals, and is not read at the start of sampling.

Example:  
The top memory address of the sampling control memory will be D100 in the following case:



\* Be sure to reset the bits not in use to “0” in the sampling control memory.

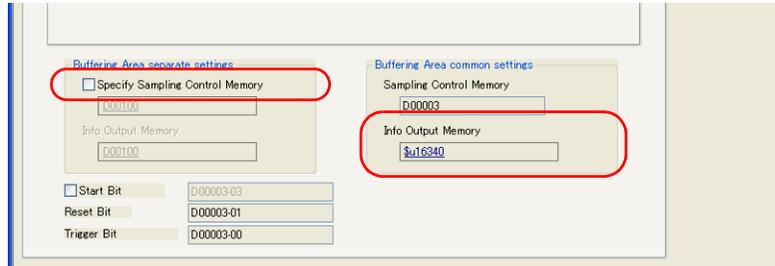


**Info. output memory**

This is the area where the status of each buffer in the buffering area is indicated.

- When  [Specify Sampling Control Memory] is not checked:  
When  [Specify Sampling Control Memory] is not checked in the [Buffering Area Setting] dialog, a maximum of three words from the address specified for [Info Output Memory] in the [Buffering Area Setting] dialog is used as the info. output memory area.

Example:  
The top memory address of the info. output memory will be \$u16340 in the following case:



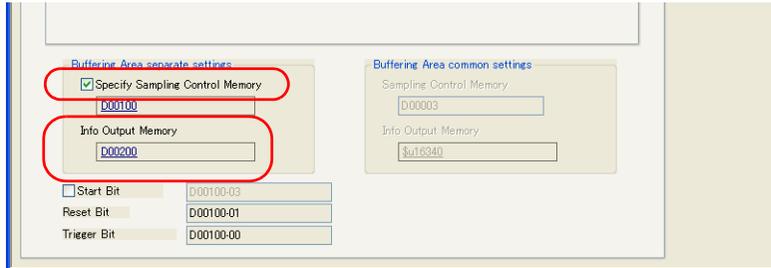
- \* The number of words allocated for the info. output memory depends on the number of buffers to be used. (Refer to the illustration below.)

	MSB								LSB							
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Info. output memory	F1	F0	D	T	F1	F0	D	T	F1	F0	D	T	F1	F0	D	T
n	Buffer No. 3				Buffer No. 2				Buffer No. 1				Buffer No. 0			
n + 1	Buffer No. 7				Buffer No. 6				Buffer No. 5				Buffer No. 4			
n + 2	Buffer No. 11				Buffer No. 10				Buffer No. 9				Buffer No. 8			

- T: Input trigger is output.
- D: Specified buffer contains data.
- F0: Specified buffer is 90% full.
- F1: Specified buffer is full.

- When  [Specify Sampling Control Memory] is checked:  
 When  [Specify Sampling Control Memory] is checked in the [Buffering Area Setting] dialog, a desired memory address can be specified as an info. output memory address for each buffer.  
 (The contents of bits are the same as above.)

Example:  
 The info. output memory address will be D200 and is exclusively used for the specified buffer.

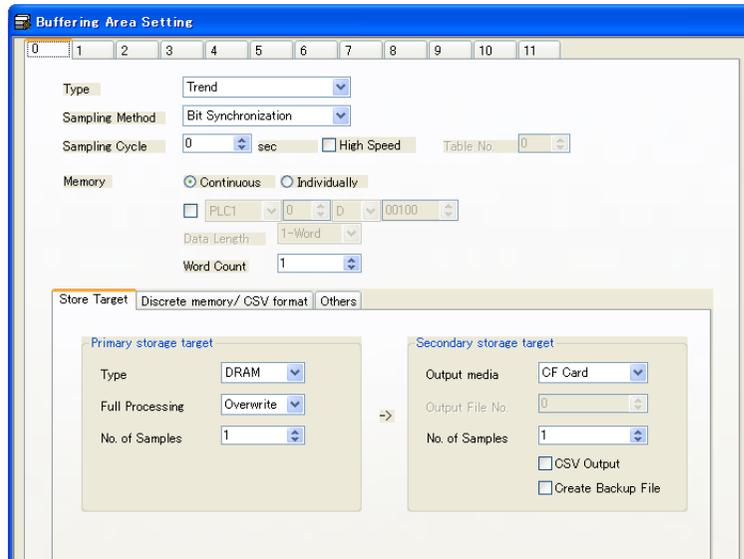


- \* The number of words allocated for the info. output memory depends on the number of buffers to be used.  
 (Refer to the illustration below.)

	MSB												LSB			
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Info. output memory	0	0	0	0	0	0	0	0	0	0	0	0	F1	F0	D	T
	n												Buffer No. n			

- T: Input trigger is output.
- D: Specified buffer contains data.
- F0: Specified buffer is 90% full.
- F1: Specified buffer is full.

## Storage Target (Setting Dialog)



Primary storage target	Type	<p><b>DRAM:</b> Sampled data is stored in the DRAM area of the V8 series. It is cleared when the V8 series is in the STOP mode (the power is turned off, the Main Menu screen is displayed).</p> <p><b>SRAM:</b> Sampled data is stored in the SRAM area (512 kB) built in the V8 series. Data is retained even when the V8 series is in the STOP mode (the power is turned off, the Main Menu screen is displayed).</p>
	Full Processing (Stop, Overwrite)	<p>This option determines what happens when the specified number of sampling times (No. of Samples) has been exceeded.</p> <p><b>Stop:</b> Sampling stops when the number specified for [No. of Samples] has been exceeded. If the medium of the secondary storage target is removed, sampling stops and the graph display is cleared.</p> <p><b>Overwrite:</b> Sampling continues while discarding old sampling data when the number specified for [No. of Samples] has been exceeded. Even if the medium of the secondary storage target is removed, sampling will continue.</p>
	No. of Samples (1 - 65535) *1 *2	Specify the number of times for storing sampling data in the buffering area.

Secondary storage target	Output media	None: The secondary storage target is not used.
		CF Card <sup>*3</sup> : Sampled data is stored on a CF card. Data is retained when the V8 series is in the STOP mode (the power is turned off, the Main Menu screen is displayed). For more information, refer to page A1-16.
		Memory Card: Sampled data is stored in the SRAM memory card (with card recorder "CREC" used). Data is retained when the V8 series is in the STOP mode (the power is turned off, the Main Menu screen is displayed).
	Output File No.	When [Memory Card] is selected for [Store Target], file numbers are automatically given according to this setting. For more information, refer to page A1-29.
	No. of Samples (1 - 86400) <sup>*1 *2</sup>	Specify the number of times for storing sampling data in the buffering area.
	<input type="checkbox"/> CSV Output	For more information, refer to page A1-16.
<input type="checkbox"/> Create Backup File	For more information, refer to page A1-17.	

\*1 For more information on the number of sampling times, refer to "No. of Samples."

\*2 Specify a number greater than that of lines that can be held in the sampling mode display area for [No. of Samples]. Otherwise, the linked switches (Roll Up, Reset, etc.) will become invalid.

\*3 For a list of usable CF cards, visit our Website (<http://www.monitouch.com>).

## No. of Samples

- [No. of Samples] can be set respectively for [Primary storage target] and [Secondary storage target].  
Note that, however, the following inequation must be satisfied:  

$$[\text{No. of Samples}] \text{ for } [\text{Primary storage target}] \leq [\text{No. of Samples}] \text{ for } [\text{Secondary storage target}]$$
- If a medium is selected for [Secondary storage target] and is ready to be accessed, the count of sampling times up to the number specified for [No. of Samples] for [Secondary storage target] can be indicated in a sampling count display part.
- If a medium is selected for [Secondary storage target] and is not ready to be accessed (for example, the CF card is removed, the CF card cover is open, etc.), the maximum possible count will be the number specified for [No. of Samples] for [Primary storage target].

## Size Calculation

The size of each buffer is determined from the formulae shown below as well as the storage target, which determines the value to be added.

### Formulae by sampling method (1)

(Unit: words)

Trend	Bit Synchronization	$(2 \text{ words} + \text{Word Count} + \underline{1 \text{ word}}^{*1}) \times \text{No. of Samples}$	A
	Constant Sampling		
	Device Memory Map		
Alarm	Alarm Logging	$3 \times \text{No. of Samples} + \underline{\text{Word Count}}^{*2}$	B
	Time Order Alarming	$(5 \text{ words} + \underline{1 \text{ word}}^{*3}) \times \text{No. of Samples}$	C
	Alarm Tracking	$\{(5 \text{ words} + \underline{1 \text{ word}}^{*4}) \times \text{No. of Samples}\}$ + $\{(6 \text{ words} + \underline{1 \text{ word}}^{*4} + \underline{2 \text{ words}}^{*5}) \times \text{No. of Samples}\}$ + $(7 \text{ words} + \underline{\text{Word Count}}^{*2})$	D

\*1 With  Put msec information on logging time] checked

\*2 With  Memorize initial value] checked

\*3 With  Acknowledge function] checked

\*4 With  Add Time Order Alarming] and  Acknowledge function] checked

\*5 With  Add Time Order Alarming] checked

\* For more information on these setting items, refer to "Others" (page A1-26).

### Header for each storage target (2)

(Unit: bytes [words])

Store Target	Type/Output media	Header
Primary storage target	DRAM	None
	SRAM	112 [56]
Secondary storage target	CF card	256 [128]
	Memory Card	2048 [1024] <sup>*1</sup>

### Size calculation for each buffer

The required size can be obtained by adding the result of "Formulae by sampling method (1)" and the number of words shown in "Header for each storage target (2)."

Example 1: [Sampling Method: Bit Synchronization], [Primary storage target: DRAM], [Secondary storage target: CF Card]

Primary storage target = (1) A + (2) None (units: words)

Secondary storage target = (1) A + (2) 128 (units: words)

Example 2: [Sampling Method: Alarm Tracking], [Primary storage target: SRAM], [Secondary storage target: None]

Primary storage target = (1) D + (2) 56 (units: words)

Secondary storage target = None

## Timing of Data Storage

---

### Primary storage target: DRAM/SRAM

Sampling data is stored constantly during sampling.

### Secondary storage target: CF Card/Memory Card

Data in the primary storage target will be output to the secondary storage target at the times shown below:

- When the mode is switched from RUN → STOP
- When the [CF Card Removal] switch is pressed
- When the CF card cover is opened
- When the medium of the primary storage target becomes full
- When the macro command “SMPL\_SAVE”, “SMPL\_CSV”, “SMPLCSV\_BAK” or “SMPL\_BAK” is executed
- When the power to MONITOUCH is turned ON with [Primary storage target: SRAM]
- When the [Function: Reset] switch in sampling mode is pressed
- When the “R: Reset” bit in sampling control memory is ON

\* When [Secondary storage target: CF Card] is selected, a BIN file is created on the CF card and data is stored in this file.

## CSV Output

---

Data in the primary storage target is output to the secondary storage target, and data in the BIN file in the secondary storage target is saved in CSV format on the CF card.

### Timing of data saving

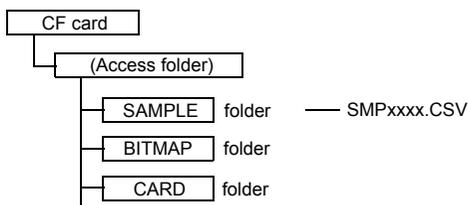
- When the mode is switched from RUN → STOP \*
- When the [Function: CF Card Removal] switch is pressed \*
- When the CF card cover is opened \*
- When the medium of the secondary storage target becomes full \*
- When the macro command “SMPL\_CSV” or “SMPLCSV\_BAK” is executed

\* With  [CSV Output] checked

### Storage target

\ (Access folder) \SAMPLE

- File Name: SMPxxxx.CSV  
xxxx = 0000-0011: Buffering area number



\* It is also possible to use the macro command “SMPL\_CSV” without using  [CSV Output]. For more information on the macro commands, refer to page A1-27.

## Create Backup File

Data in the primary storage target is output to the secondary storage target as a BIN file, and data in the file is copied on the CF card for backup purpose.

### Timing of data saving

- When the power is turned on \*
- When the date is changed (24:00) \*
- When the medium of the secondary storage target becomes full \*
- When the macro command "SMPL\_BAK" is executed

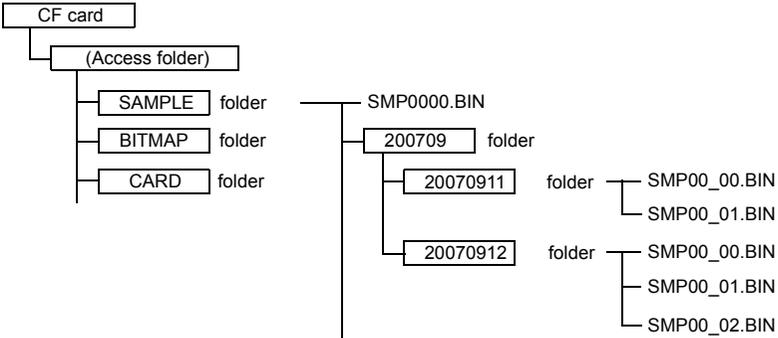
\* With  Create Backup File] checked

### Storage target

\(access folder)\SAMPLE\YYYYMM\YYYYMMDD

YYYY: Year  
 MM: Month  
 DD: Day

- File Name: SMPxx\_yy.BIN  
 xx = 00-11: Buffering area number  
 yy = 00-99: Index number



- Example: When saving data on 11.09.07:  
 Data is saved in the \SAMPLE\200709\20070911 folder.  
 When the SMP00\_99.BIN files have been created these files will be overwritten.

\* It is also possible to use the macro command "SMPL\_BAK" without using  Create Backup File]. For more information on the macro commands, refer to page A1-27.

## CSV Output & Create Backup File

“SMPxxxx.CSV” is created from “SMPxxxx.BIN” in the “SAMPLE” folder when  [CSV Output] is checked.

Consequently, backup files “SMPxxxx.BIN” and “SMPxxxx.CSV” are saved in the backup folder when  [Create Backup File] is also checked.

(The same operations that the macro commands, “SMPL\_BAK” and “SMPLCSV\_BAK”, are executed at the same time.)

### Timing of data saving

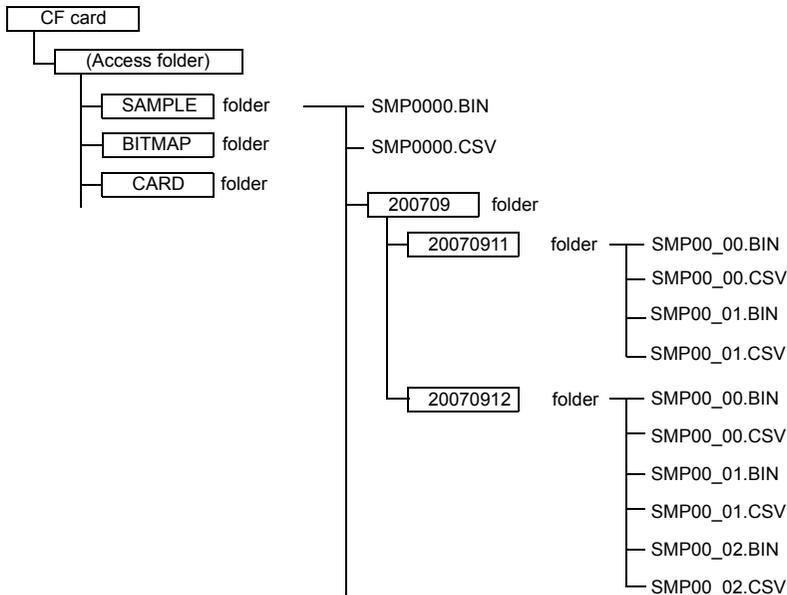
- When the power is turned on
- When the date changes (24:00)
- When the medium of the secondary storage target becomes full
- When the macro command “SMPL\_BAK” or “SMPLCSV\_BAK” is executed

### Storage target

\\(access folder)\\SAMPLE\\YYYYMM\\YYYYMMDD

YYYY: Year  
MM: Month  
DD: Day

- File Name: SMPxx\_yy.BIN  
xx = 00-11: Buffering area number  
yy = 00-99: Index number



- It is also possible to use the macro commands “SMPL\_BAK” and “SMPLCSV\_BAK” without using  [CSV Output] and  [Create Backup File]. For more information, refer to page A1-27.
- It is possible to automatically delete old backup files when the backup file size exceeds the capacity of a CF card.  
(In this case, select [System Setting] → [Unit Setting] → [General Settings] and check the box for  [Delete folders from the oldest if CF card is lacking in space for backup].)

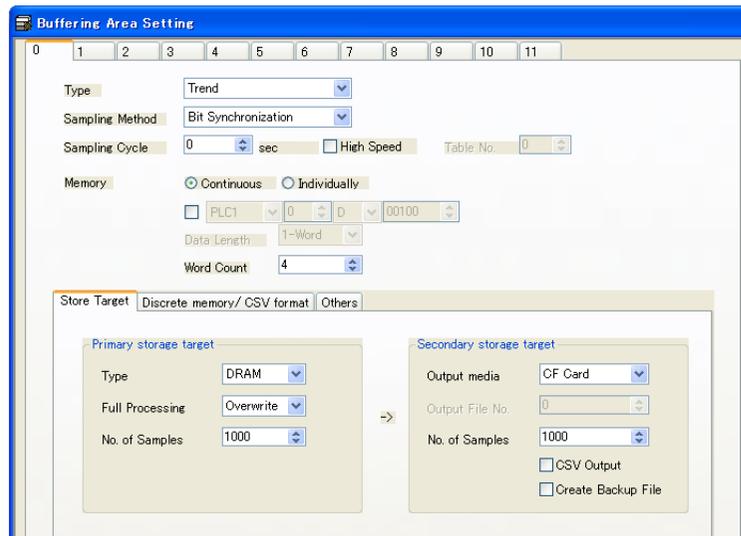
## Discrete Memory/CSV Format (Tab Window)

In this tab window, you can make the memory setting required when [Individually] is selected for [Memory] as well as the data type setting for outputting data in CSV format on the CF card.

### [Type: Trend]

Example: When trend sampling is set as shown below:

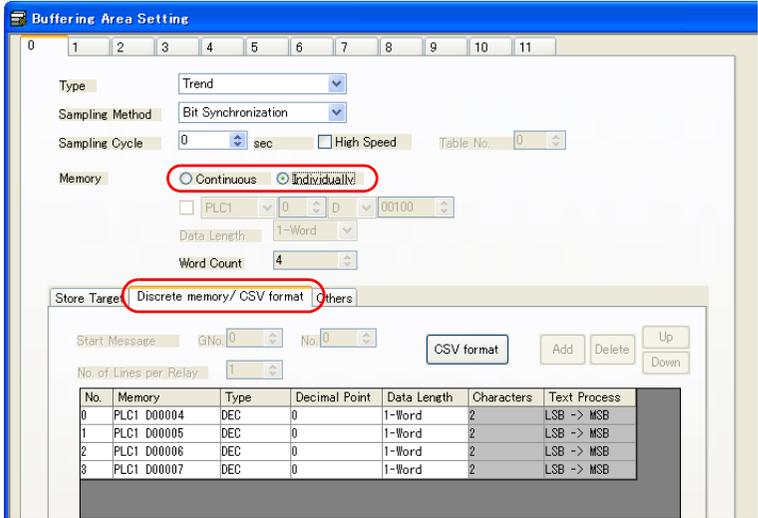
Buffering area setting	
[Buffer No.]	0
[Type]	Trend
[Sampling Method]	Constant Sampling
[Word Count]	4
[Primary storage target]	SRAM
[Secondary storage target]	CF Card
Trend sampling	
[Data Length]	1



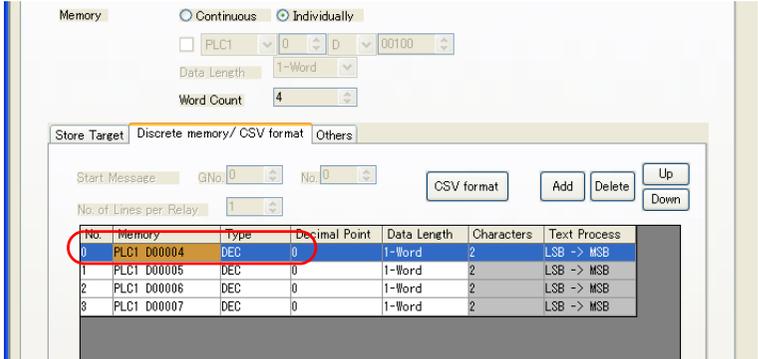
As an example, the setting procedure for sampling 4-word data and store it at "D100", "D200", "D300" and "D400" is explained.

### Individual memory setting procedure

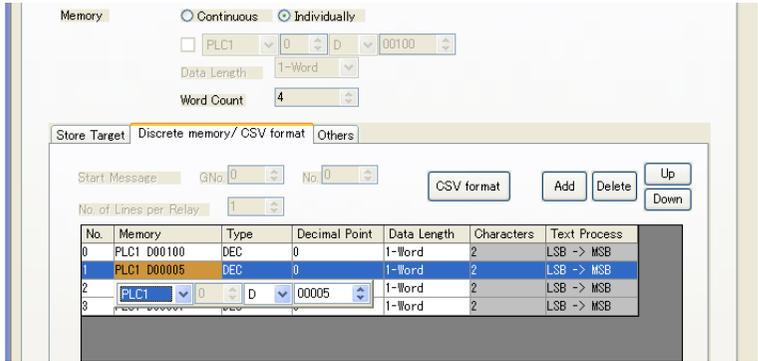
**Step 1** Select [Individually] for [Memory] in the [Buffering Area Setting] dialog. The option for [Word Count] becomes inactive. The [Discrete memory/CSV format] tab window is automatically displayed.



**Step 2** Click on the cell of No. 0 using the mouse.



**Step 3** Select "D100", "D200", "D300" and "D400" in the "Memory" column, respectively.



**Step 4** The selected data attributes (Type, Decimal Point, Data Length) will be valid when saving data in CSV format. Make the settings as required.

No.	Memory	Type	Decimal Point	Data Length	Characters	Text Process
0	PLC1 D00100	DEC	0	1-Word	2	LSB -> MSB
1	PLC1 D00200	DEC	0	1-Word	2	LSB -> MSB
2	PLC1 D00300	DEC	0	1-Word	2	LSB -> MSB
3	PLC1 D00400	DEC	0	1-Word	2	LSB -> MSB

The settings have been completed.

**CSV format setting procedure**

**Step 1** Open the [Discrete memory/CSV format] tab window, and make the settings for data attributes (Type, Decimal Point, Data Length) for respective columns.

**Step 2** Click [CSV Format]. The [CSV Output Setting] dialog for [Type: Trend] is displayed.

**Step 3** When the settings have been completed, click [OK]. The [Buffering Area Setting] dialog is displayed again.

### CSV file example

An example of CSV file with [Type: Trend] is shown below.

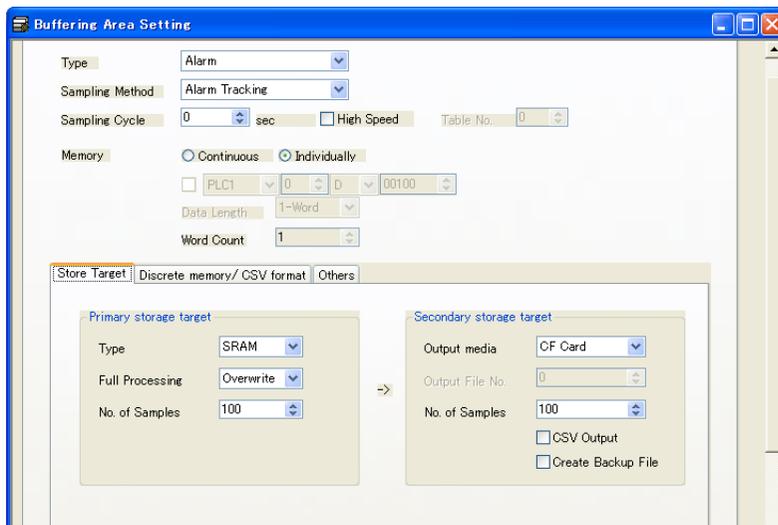
Buffer number →

	A	B	C	D	E
1	No.000				
2	2007/11/1 13:00:00	5000	0		
3	2007/11/1 13:00:02	5000	0		
4	2007/11/1 13:00:04	5000	0		
5	2007/11/1 13:00:06	5000	0		
6	2007/11/1 13:00:08	5000	0		
7	2007/11/1 13:00:10	5000	0		
8	2007/11/1 13:00:12	5000	0		
9	2007/11/1 13:00:14	5000	0		
10	2007/11/1 13:00:16	5000	0		
11	2007/11/1 13:00:18	5000	0		
12	2007/11/1 13:00:20	5000	50		
13	2007/11/1 13:00:22	8000	50		
14	2007/11/1 13:00:24	8000	50		
15	2007/11/1 13:00:26	8000	50		
16	2007/11/1 13:00:28	8000	50		
17	2007/11/1 13:00:30	8000	50		
18	2007/11/1 13:00:32	8000	50		

### [Type: Alarm]

Example: When alarm tracking is set as shown below:

Buffering area setting  
 [Buffer No.] 0  
 [Type] Alarm  
 [Sampling Method] Alarm Tracking  
 [Word Count] 1  
 [Primary storage target] SRAM  
 [Secondary storage target] CF Card



As an example, the setting procedure for sampling 16-bit data and store it at “M100” to “M107”, “D250-10” to “D250-15” is explained.

Individual memory setting procedure

Step 1 Select [Individually] for [Memory] in the [Buffering Area Setting] dialog. The option for [Word Count] becomes inactive. The [Discrete memory/CSV format] tab window is automatically displayed.

Memory:  Continuous  Individually

PLC1 0 0 00100

Data Length: 1-Word

Word Count: 1

Store Target:  Discrete memory/ CSV format  Others

Start Message GNo: 0 No: 0

No. of Lines per Relay: 1

No.	Memory	Message	Memorize	Snd	WAV File No.	Sound Priority
0	PLC1 D00004-00				0	0
1	PLC1 D00004-01				0	0
2	PLC1 D00004-02				0	0
3	PLC1 D00004-03				0	0
4	PLC1 D00004-04				0	0
5	PLC1 D00004-05				0	0
6	PLC1 D00004-06				0	0
7	PLC1 D00004-07				0	0
8	PLC1 D00004-08				0	0
9	PLC1 D00004-09				0	0
10	PLC1 D00004-10				0	0
11	PLC1 D00004-11				0	0

Step 2 Lines for one word from No. 0 to 15 are displayed. Set "M100" to "M107" and "D250-10" to "D250-15."

Memory:  Continuous  Individually

PLC1 0 0 00100

Data Length: 1-Word

Word Count: 2

Store Target:  Discrete memory/ CSV format  Others

Start Message GNo: 0 No: 0

No. of Lines per Relay: 1

No.	Memory	Message	Memorize	Snd	WAV File No.	Sound Priority
4	PLC1 M0104				0	0
5	PLC1 M0105				0	0
6	PLC1 M0106				0	0
7	PLC1 M0107				0	0
8	PLC1 D00250-10				0	0
9	PLC1 D00250-11				0	0
10	PLC1 D00250-12				0	0
11	PLC1 D00250-13				0	0
12	PLC1 0 0 00250-13				0	0
13					0	0
14	PLC1 D00004-03				0	0
15	PLC1 D00004-04				0	0

Step 3 If there are any unnecessary addresses, select the line and click the [Delete] button.

Start Message GNo: 0 No: 0

No. of Lines per Relay: 1

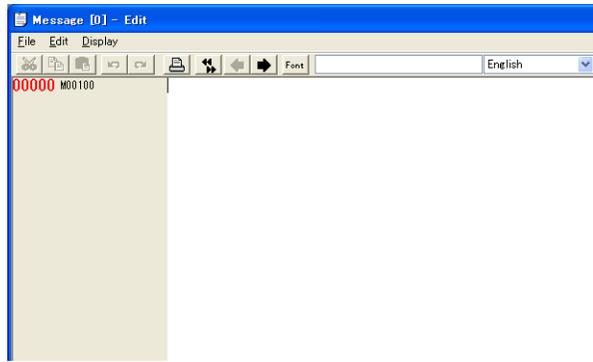
CSV format Add **Delete** Up Down

No.	Memory	Message	Memorize	Snd	WAV File No.	Sound Priority
4	PLC1 M0104				0	0
5	PLC1 M0105				0	0
6	PLC1 M0106				0	0
7	PLC1 M0107				0	0
8	PLC1 D00250-10				0	0
9	PLC1 D00250-11				0	0
10	PLC1 D00250-12				0	0
11	PLC1 D00250-13				0	0
12	PLC1 D00250-14				0	0
13	PLC1 D00250-15				0	0
14	PLC1 D00004-14				0	0
15	PLC1 D00004-15				0	0

Step 4 When editing for changing the message, double-click the cell under the "Message" column.  
The [Message Edit] window is displayed.

No.	Memory	Message	Memorize	Snd	WAV File No.	Sound Priority
0	PLC1 M00100			0	0	
1	PLC1 M00101			0	0	
2	PLC1 M00102			0	0	
3	PLC1 M00103			0	0	
4	PLC1 M00104			0	0	
5	PLC1 M00105			0	0	
6	PLC1 M00106			0	0	
7	PLC1 M00107			0	0	
8	PLC1 D00250-10			0	0	

Double-click on a cell under "Message."



The settings have been completed.

### CSV format setting procedure

Step 1 Open the [Discrete memory/CSV format] tab window.

Buffering Area Setting

Type: Alarm

Sampling Method: Alarm Tracking

Sampling Cycle: 0 sec  High Speed Table No: 0

Memory:  Continuous  Individually

PLC1 0 0 00100

Data Length: 1-Word

Word Count: 1

Store Target: Discrete memory/ CSV format Others

Start Message: GNo. 0 No. 0 CSV format Add Delete Up Down

No. of Lines per Relay: 1

No.	Memory	Message	Memorize	Snd	WAV File No.	Sound Priority
0	PLC1 M00100			0	0	
1	PLC1 M00101			0	0	
2	PLC1 M00102			0	0	
3	PLC1 M00103			0	0	
4	PLC1 M00104			0	0	
5	PLC1 M00105			0	0	
6	PLC1 M00106			0	0	
7	PLC1 M00107			0	0	
8	PLC1 D00250-10			0	0	

Step 2 The [CSV Output Setting] dialog for [Sampling Method: Alarm Tracking] is displayed.

Step 3 When the settings have been completed, click [OK].  
The [Buffering Area Setting] dialog is displayed again.

CSV file example

- [Alarm Logging]

Buffer number

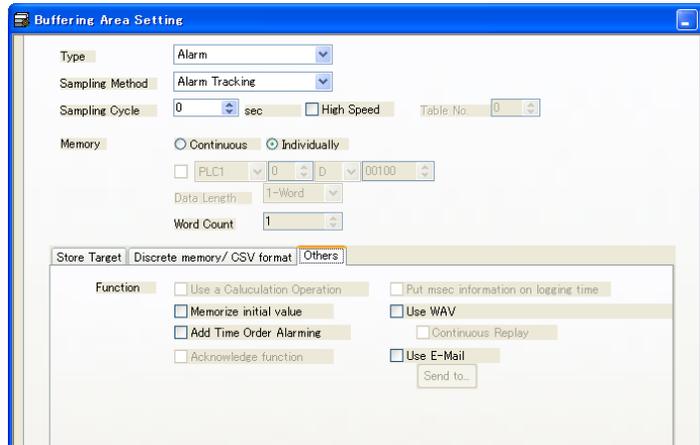
	A	B	C	D	E
1	No.1				
2	2007/11/1 13:00:05	AAAAA			
3	2007/11/1 13:00:05	BBBBB			
4	2007/11/1 13:00:05	EEEEE			
5	2007/11/1 13:00:05	DDDDD			
6	2007/11/1 13:00:05	AAAAA			
7	2007/11/1 13:00:08	BBBBB			
8	2007/11/1 13:00:08	FFFFF			
9	2007/11/1 13:00:08	CCCCC			
10	2007/11/1 13:00:08	HHHHH			
11	2007/11/1 13:00:08	GGGGG			
12	2007/11/1 13:00:08	FFFFF			
13	2007/11/1 13:00:13	AAAAA			
14	2007/11/1 13:00:13	FFFFF			

- [Alarm Tracking]

Buffer number

	A	B	C	D
1	No.002			
2	AAAAA	2007/11/1 14:00:01	2007/11/1 14:00:04	
3	AAAAA	2007/11/1 14:00:01	2007/11/1 14:00:04	
4	EEEEE	2007/11/1 14:00:01	2007/11/1 14:00:04	
5	FFFFF	2007/11/1 14:00:01	2007/11/1 14:00:04	
6	GGGGG	2007/11/1 14:00:01	2007/11/1 14:00:04	
7	AAAAA	2007/11/1 14:00:14	2007/11/1 14:00:17	
8	CCCCC	2007/11/1 14:00:14	2007/11/1 14:00:17	
9	EEEEE	2007/11/1 14:00:14	2007/11/1 14:00:17	
10	BBBBB	2007/11/1 14:00:14	2007/11/1 14:00:17	
11	DDDDD	2007/11/1 14:00:14	2007/11/1 14:00:17	
12	FFFFF	2007/11/1 14:00:14	2007/11/1 14:00:17	
13	AAAAA	2007/11/1 14:00:21	2007/11/1 14:00:24	
14				

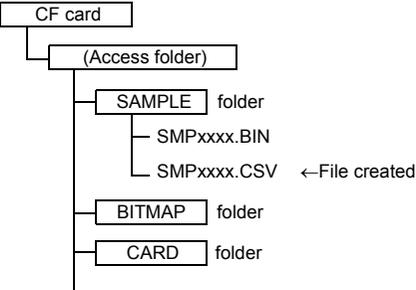
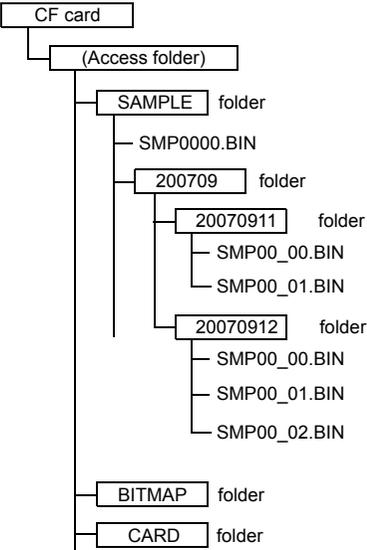
## Others



<input type="checkbox"/> Use a Calculation Operation	This is valid only when [Bit Synchronization] or [Constant Sampling] is selected for [Sampling Method]. When the mean, maximum, minimum or total value of data stored in the buffering area should be indicated on the screen, check this option. (Refer to “9 Trend Graph.”)
<input type="checkbox"/> Memorize initial value	This is valid only when [Type: Alarm] and [Primary storage target: SRAM] are selected. With this box unchecked, the bit ON state is read again when the power is turned on with the alarm bit ON or when the mode is switched from STOP → RUN. With this box checked, the bit ON state is not read again when the power is turned on with the alarm bit ON or when the mode is switched from STOP → RUN because its status is saved.
<input type="checkbox"/> Add Time Order Alarming	This is valid only when [Sampling Method: Alarm Tracking] is selected. Check this box when you use this buffer for time order alarming at the same time.
<input type="checkbox"/> Acknowledge function	This option becomes active when [Sampling Method: Alarm Logging] is selected or when [Sampling Method: Alarm Tracking] is selected with <input type="checkbox"/> Add Time Order Alarming checked. Check this box when using the acknowledge function. (For the acknowledge function, refer to “Acknowledge Display Function” (page 10-72).)
<input type="checkbox"/> Put msec information on logging time	This option becomes active when [Type: Trend] is selected. With this box checked, the sampling cycle (time) stored together with sampling data is saved in units of “msec”. With this box unchecked, it is saved in units of “sec”.
<input type="checkbox"/> Use WAV	This option becomes active when [Type: Alarm] is selected. Sound is replayed at the ON edge of the error bit. (Refer to “14.4 Sound.”)
<input type="checkbox"/> Continuous Replay	This option becomes active when <input type="checkbox"/> Use WAV is checked. Sound is continuously replayed when the error bit is set (ON). (Refer to “14.4 Sound.”)
<input type="checkbox"/> Use E-Mail	This option becomes active when [Type: Alarm] is selected. E-mail is sent when the alarm bit is set or reset.  Send to: Set the e-mail address of the recipient. (Refer to “19.4 E-Mail.”)

## Macro Commands

The following macro commands can be used:

Command Name	Setting Value (F0: Constant/Internal Memory)	Contents
SMPL_CSV F0	0 - 11 (Buffer No.)	<p>Use this command to convert the sampling data (\Sample\SMPxxxx.BIN) at the secondary storage target into a CSV file (SMPxxxx.CSV) and store it in the same storage target.</p>  <pre> graph TD     CF[CF card] --- AF["(Access folder)"]     AF --- SAMPLE["SAMPLE folder"]     AF --- BITMAP["BITMAP folder"]     AF --- CARD["CARD folder"]     SAMPLE --- SMPxxx["SMPxxxx.BIN"]     SMPxxx --- SMPxxx_csv["SMPxxxx.CSV ← File created"]     </pre> <p>* Even if [Secondary storage target: None] is selected, this command can be executed with a CF card inserted.</p>
SMPL_BAK F0	0 - 11 (Buffer No.)	<p>Use this command to create a backup file of sampling data (\Sample\SMPxxxx.BIN) at the secondary storage target.</p> <p>Storage target: \Sample\ (year/month folder) \ (year/month/day folder)</p>  <pre> graph TD     CF[CF card] --- AF["(Access folder)"]     AF --- SAMPLE["SAMPLE folder"]     AF --- BITMAP["BITMAP folder"]     AF --- CARD["CARD folder"]     SAMPLE --- SMP0000["SMP0000.BIN"]     SAMPLE --- 200709["200709 folder"]     200709 --- 20070911["20070911 folder"]     20070911 --- SMP00_00["SMP00_00.BIN"]     20070911 --- SMP00_01["SMP00_01.BIN"]     200709 --- 20070912["20070912 folder"]     20070912 --- SMP00_00_2["SMP00_00.BIN"]     20070912 --- SMP00_01_2["SMP00_01.BIN"]     20070912 --- SMP00_02["SMP00_02.BIN"]     </pre> <p>* Even if [Secondary storage target: None] is selected, this command can be executed with a CF card inserted.</p>

Command Name	Setting Value (F0: Constant/ Internal Memory)	Contents
SMPLCSV_BAK F0	0 - 11 (Buffer No.)	<p>Use this command to convert the sampling data (\Sample\SMPxxxx.BIN) at the secondary storage target into a CSV file (SMPxxxx.CSV) and create a backup file.</p> <p>Storage target: \Sample\ (year/month folder) \ (year/month/day folder)</p> <pre> graph TD     CF[CF card] --&gt; Access["(Access folder)"]     Access --&gt; SAMPLE[SAMPLE folder]     Access --&gt; BITMAP[BITMAP folder]     Access --&gt; CARD[CARD folder]     SAMPLE --&gt; SMP0000[SMP0000.BIN]     SAMPLE --&gt; SMP0000_CSV[SMP0000.CSV]     SAMPLE --&gt; 200709[200709 folder]     200709 --&gt; 20070911[20070911 folder]     200709 --&gt; 20070912[20070912 folder]     20070911 --&gt; SMP00_00_11[SMP00_00.BIN]     20070911 --&gt; SMP00_00_11_CSV[SMP00_00.CSV]     20070911 --&gt; SMP00_01_11[SMP00_01.BIN]     20070911 --&gt; SMP00_01_11_CSV[SMP00_01.CSV]     20070912 --&gt; SMP00_00_12[SMP00_00.BIN]     20070912 --&gt; SMP00_00_12_CSV[SMP00_00.CSV]     20070912 --&gt; SMP00_01_12[SMP00_01.BIN]     20070912 --&gt; SMP00_01_12_CSV[SMP00_01.CSV]     20070912 --&gt; SMP00_02_12[SMP00_02.BIN]     20070912 --&gt; SMP00_02_12_CSV[SMP00_02.CSV]     </pre> <p>* Even if [Secondary storage target: None] is selected, this command can be executed with a CF card inserted.</p>
SMPL_SAVE	-	Use this command to save the data in the primary storage target at the secondary storage target at the preset timing.

## Internal Memory (\$s)

The system memory (\$s) is used for buffering area as shown below.

Address (\$s)	Contents		
20 - 55	Buffer No. 0 - 11	n+0	The setting number of sampling times
		n+1	The current number of sampling times
		n+2	The number of sampling times executed
177	Buffer number selected with macro command "SET_BUFNO"		
180 - 435	Result of operation with macro command "SET_BUFNO"		
436 - 443	Alarm tracking	Time stamp	
456	Alarm tracking	Normal operation bit	
458	Alarm tracking	Sampling bit	
1098	Sampling macro	Background processing selection	
1100 - 1114 1120 - 1134 1140 - 1154 1160 - 1174 1180 - 1194 1200 - 1214 1220 - 1234 1240 - 1254 1260 - 1274 1280 - 1294 1300 - 1314 1320 - 1334	Buffer No. 0 - 11	n+0	Primary storage target    The setting number of sampling times
		n+1	Primary storage target    The current number of sampling times
		n+2	Secondary storage target    The setting number of sampling times
		n+3	
		n+4	Secondary storage target    The current number of sampling times
		n+5	
		n+6	The number of sampling times executed
		n+7	
		n+8	Secondary storage target    Being accessed
		n+9	Background processing flag
		n+10	Sampling macro    Executing flag
		n+11	Sampling macro    Execution completion flag
		n+12	Sampling macro    Error flag
		n+13	Sampling error flag
		n+14	Sampling error forced storage flag

- For more information, refer to "Appendix 6 Internal Memory."

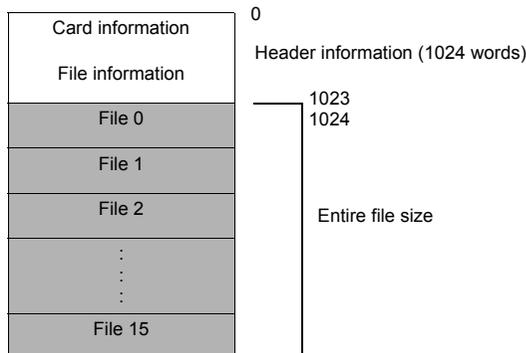
## [Secondary storage target: Memory Card] (= CREC)

### Configuration



### Memory Card Capacity

The memory area of the SRAM memory card is illustrated below.



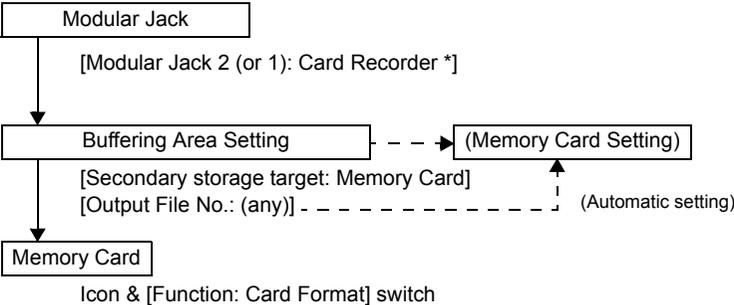
\* 256 kB, 512 kB, 1 MB, 2 MB, and 4 MB type memory cards are available.

### Memory Card Life

The service life of the SRAM area depends on the battery life. The battery life varies depending on its capacity. Consult your local distributor.

To check whether the battery voltage is lowered or not, select [System Setting] → [Memory Card Setting] → [I/F Memory] (refer to "15.2 Memory Card Mode" (page 15-19)) and check the value in the corresponding memory address.

### Setting Procedure



#### Modular jack

When using a CREC (card recorder), select [System Setting] → [Extended Communication] → [Modular Jack], and select [Card Recorder].

#### Buffering area setting and memory card setting

Select [Secondary storage target: Memory Card] in the [Buffering Area Setting] dialog. Editor refers to the setting for [Output File No.], finds the corresponding tab number in the [Memory Card Setting] dialog, and automatically sets [Type: Buffering File].

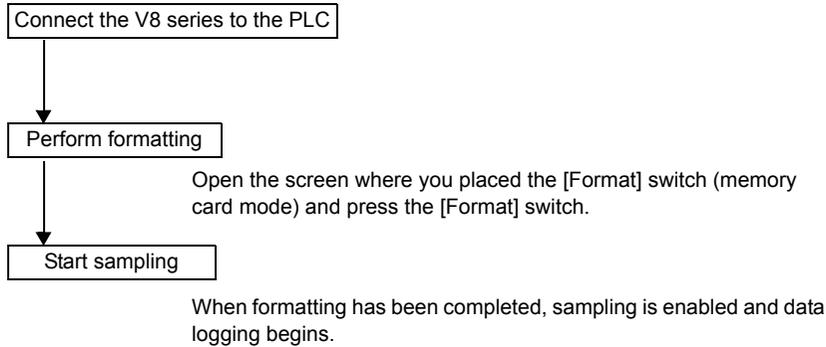
#### Memory card

When using an SRAM, you need to format an SRAM memory card according to the setting in [Memory Card Setting] dialog. Therefore, you need to set items in the [Memory Card] dialog in the memory card mode and create the [Function: Card Format] switch.

## Setting and Importing Procedures on the V8 Series

---

To start data logging, follow the steps shown below on the V8 series:



### Format

When the [Function: Card Format] switch on the screen is pressed, the memory card is formatted and becomes ready to store data.

- \* **SRAM formatting of memory card mode can only be performed using the [Function: Card Format] switch.**
- \* **If you have changed the setting in the [Memory Card Setting] or [Buffering Area Setting] dialog, you need to format the SRAM again. In this case, the data will be cleared.**

### Note

- The data stored on a SRAM memory card is retained unless you reset or format the SRAM memory card again.  
(Note that data will be lost if the battery of the SRAM becomes totally depleted.)
- With [Full Processing: Stop], if you remove the SRAM memory card from the V8 series, sampling is temporarily stopped and the data will not be imported. If sampling data is displayed on the screen, the data disappears from the screen. When you re-set the memory card, the historical data imported in the past is displayed and sampling begins again.  
With [Full Processing: Overwrite], sampling will continue.

### Importing data (under development)

To import the sampling data from an SRAM memory card into your computer, use the data read software Memory Card Editor (M-CARD SFT: under development).

For more information on using the Memory Card Editor, refer to the M-CARD SFT Instruction Manual.

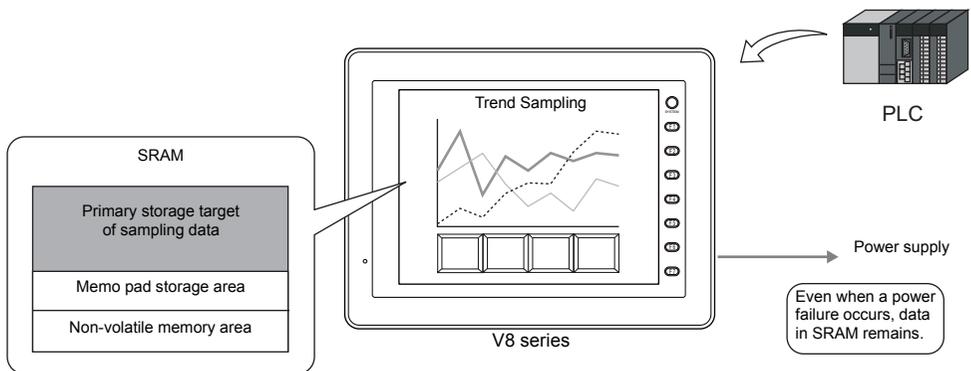
# Appendix 2 SRAM/Clock Setting

## Overview

The V8 series is equipped with a 512-kB built-in SRAM.  
The SRAM allows you to use the following backup functions:

### Primary storage target of sampling data

This area can be allocated as a backup data area of sampling data (data logging function).



### Built-in clock

A clock can be incorporated into the V8 series.

### Internal memory backup

When the V8 series is turned off, all data in the internal memory (\$u) is cleared (reset to "0").

You can keep the non-volatile (= data retaining) internal memory (\$L/\$LD) area in SRAM to retain data even when a power failure occurs.

### Memory card emulation area

When a card recorder (SRAM memory card) is used, you can use this area as an external memory device (memory manager function) for a PLC or for sampling data backup (data logging function).

### Saving the memo pad

When you use the memo pad function, data on the memo pad will be lost if the V8 series is turned off. To avoid such data loss, secure a memory area where memo pad data is retained even when the power is turned off.

\* **Note that the SRAM/clock setting will not work for data backup with the power off if no battery is set in the V8 series.**

## SRAM Capacity and Area Size

### SRAM Capacity

The capacity of the built-in SRAM is shown below:

MONITOUCH Model	Built-in SRAM	Clock Function
V812, V810, V808	512 kB	○

### Area Size

The memory allocation as well as the maximum memory capacity of the built-in SRAM is shown below:

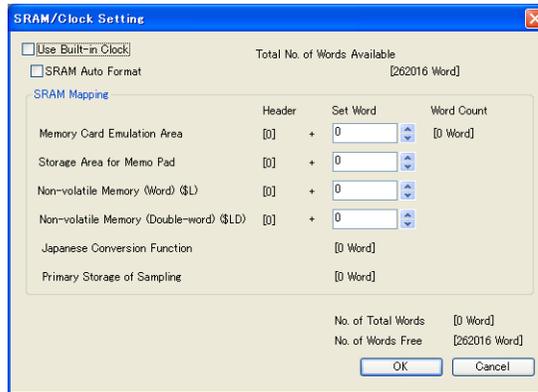
	Header area (128 words)	
	Header area (1024 words)	
A	Memory card emulation area	= 260,992 words
	Header area (16 words)	
B	Memo pad storage area	= 262,000 words
	Header area (32 words)	
C	Non-volatile word memory area \$L	= 261,984 words
	Header area (32 words)	
D	Non-volatile double-word memory area \$LD	= 261,984 words
	Header area (4 words)	
E	Japanese conversion function (Fixed to 1024 words)	
F	Primary storage target of sampling data	(For size calculation, refer to "Appendix 1 Buffering Area.")

- \* The size for "F" (primary storage area of sampling data) varies depending on the buffering area setting. The size is automatically calculated in the editor and cannot be changed.

## Setting Dialog

Select [System Setting] → [Unit Setting] → [SRAM/Clock].

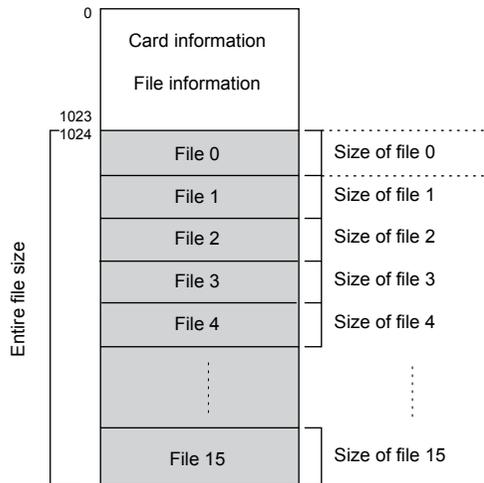
The following [SRAM/Clock Setting] dialog is displayed.



<input type="checkbox"/> Use Built-in Clock	Check this box ( <input checked="" type="checkbox"/> ) when using the clock built in the V8 series. For more information on the procedure of displaying the clock (time display item, calendar) on the V8 series, refer to “12 Calendar.”
<input type="checkbox"/> SRAM Auto Format	Check this box when automatically formatting SRAM. For more information, refer to page A2-6.
Memory Card Emulation Area	This area is used when a card recorder (SRAM memory card) is used. An area is secured as an external memory device (memory manager function) for a PLC or for sampling data backup (data logging function). For more information on its use, refer to page A2-4, “15.2 Memory Card Mode”, and “Appendix 1 Buffering Area.”
Storage Area for Memo Pad	An area that stores the memo pad data is secured. For more information on the memo pad function, refer to “15.3 Memo Pad.”
Non-volatile Memory (Word) (\$L)	An area to be used as a non-volatile word memory area or a non-volatile double-word memory area is secured.
Non-volatile Memory (Double-word) (\$LD)	When setting a non-volatile memory, select [\$L] for [Internal Memory] if you are using word memory; select [\$LD] if you are using double-word memory. The available range is determined by the memory address specified. For more information, refer to page A2-4.
Japanese Conversion Function	When the Japanese conversion function is used, 1028 words are automatically allocated.
Primary Storage of Sampling	When [SRAM] is selected for [Primary storage target] in the [Buffering Area Setting] dialog, an area in SRAM is automatically allocated. Each time the setting is changed, the required size is calculated automatically to allocate the number of words required. * However, each time this area size change occurs, SRAM needs formatting. With [ <input type="checkbox"/> SRAM Auto Format] checked, SRAM can easily be used as the primary storage target. For more information, refer to page A2-6.
[No. of Total Words, No. of Words Free]	The number of words used and the number of words free with the current setting are indicated. Set the items within the number of words available. For the contents of the SRAM area, refer to page A2-2.

## Memory Card Emulation Area

The memory card emulation area excluding header information is partitioned as shown below:



\* For the procedure of partitioning the SRAM area, refer to “SRAM Capacity and Area Size” (page A2-2).

### Data protection when a power failure occurs

When a power failure occurs while writing data to the memory card emulation area, the data transferred just before the power failure is saved in a buffering file, but the data file cannot be guaranteed.

## Storage Area for Memo Pad

For more information on the memo pad storage area, refer to “15.3 Memo Pad.”

## Non-volatile Memory

### Difference between “\$L (Word)” and “\$LD (Double-word)”

The difference between “Word” and “Double-word” is whether the specified address (= Word) only is guaranteed or two words (= Double-word) from the address are guaranteed when a power failure occurs.

The setting ranges are shown below:

Device Name	Detail	Setting Range
\$L	Word Area	0 to 261984 (max.)
\$LD	Double-word area	0 to 261984 (max.)

## Data protection when a power failure occurs

When a power failure occurs while writing data to \$L or \$LD, the data value just before writing is guaranteed. (In case of \$L, the top one word of data just before writing is guaranteed; in case of \$LD, the top two words of data just before writing is guaranteed.)

When writing texts or writing multiple words simultaneously using the BMOV macro command, the data is not guaranteed.

\* Therefore, use \$LD to access two word data. To verify whether writing was successful or not, check system memory address \$s721 to \$s726.

Address (\$s)	Contents	Memory Type
721	Writing result of \$L address where data is written last [0]: Normal [1]: Error	←V (Information is written from the V8 series to the \$s memory.)
722	\$L address where data is written last if \$s721 indicates [1: Error] at power-up	
723		
724	Writing result of \$LD address where data is written last [0]: Normal [1]: Error	
725	\$LD address where data is written last if \$s724 indicates [1: Error] at power-up	
726		

## Japanese Conversion Function

When the Japanese conversion function is used in the entry mode, 1028 words are automatically allocated.

## Primary Storage of Sampling

When [Primary storage target: SRAM] is selected in the [Buffering Area Setting] dialog, the required memory size is automatically calculated and an appropriate area is automatically allocated in SRAM. Each time the buffering area setting is changed this size will change accordingly.

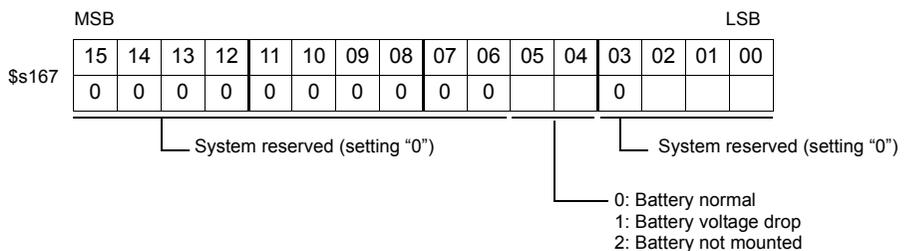
To avoid the need of manual SRAM formatting, check  SRAM Auto Format]. SRAM will be formatted automatically.

For more information, refer to page A2-6.

## Service Life

The service life of the SRAM area depends on the battery life. A battery can last for about five years.

To check whether the battery voltage is lowered or not, check system memory address \$s167.



## SRAM Format

When you have made the settings in the [SRAM/Clock Setting] dialog, be sure to format SRAM on the Main Menu screen of the V8 series before using it.

For more information on the formatting procedure, refer to the V8 Series Hardware Specifications.

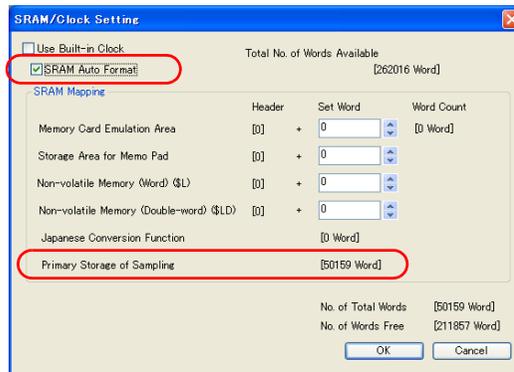
**\* If you do not execute the formatting, the message “Data has some error. Error: 161 (or 163)” appears and you cannot run MONITOUCH.**

## SRAM Auto Format

If you change the data storage target or the number of buffers for storage according to the function such as for sampling, the size of [Primary Storage of Sampling] set in the [SRAM/Clock Setting] dialog may also need changing.

In such a case, every time the size is changed SRAM needs formatting. This formatting can be performed automatically.

When [ SRAM Auto Format] is checked, SRAM will automatically be formatted each time screen data has been transferred. Refer to the chart shown below.



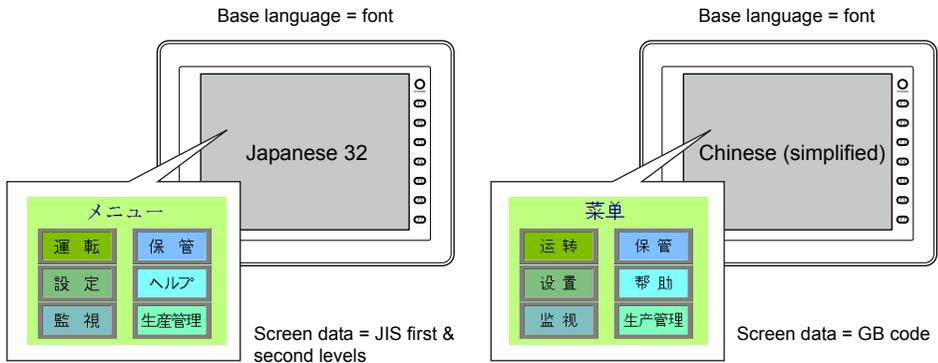
**When [ SRAM Auto Format] is checked:**

SRAM area	Condition	Auto Format
Memory Card Emulation Area	The size is different from the settings.	No
	The memory card setting or buffering area setting of [Secondary storage target: Memory Card] is made or changed.	Yes (All the data on the memory card is cleared.)
Storage Area for Memo Pad	The size is increased.	No
	The size is decreased.	Yes
Non-volatile Memory (Word) (\$L) Non-volatile Memory (Double-word) (\$LD)	The size is increased.	Only the memory area increased is formatted while the existing memory area is not formatted.
	The size is decreased.	Only the memory area decreased is deleted while the existing memory area is not formatted.
Japanese Conversion Function	-	No
Primary Storage of Sampling	The buffering area setting of [Primary storage target: SRAM] is made or changed.	Yes (All the data at the primary storage target is cleared.)

# Appendix 3 Display Language

## Fonts

- The outline of displaying a font on the screen is described below.  
 Select a base language (= font) first, and edit and place characters in the selected font on the screen.  
 For available fonts and languages, refer to the next page.



- By changing the characters displayed on the screen, two or more languages can be used on the same screen.  
 For more information, refer to “Language Selection” on page A3-6.



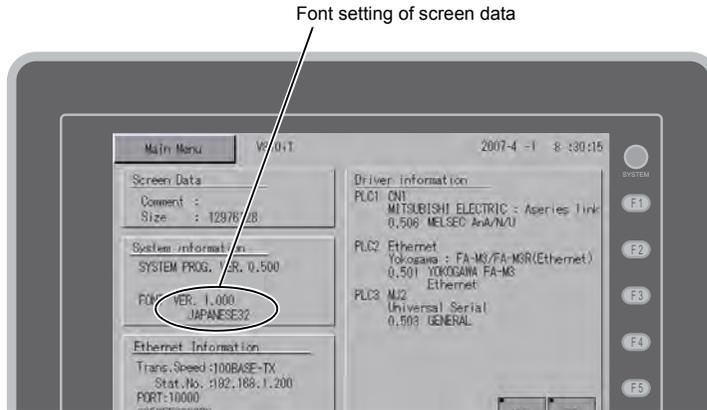
Three languages can be registered within screen data “ABC.V8”.

- To display two or more languages on one screen or to display Windows-type characters on the screen, use “Windows fonts.”  
 For more information on the “Windows fonts,” refer to the Operation Manual.



## Distinguishing Fonts on MONITOUCH

This section explains the procedure of checking the font on the Main Menu screen. The font name is displayed in the following position on the Main Menu screen.



### Font names

The following font names are displayed on the Main Menu screen:

Font	On the Main Menu screen
Japanese	JAPANESE
Japanese 32	JAPANESE 32
English/Western Europe	ENGLISH
Chinese (Traditional)	CHINESE (TRAD.)
Chinese (Simplified)	CHINESE (SIMP.)
Korean	KOREAN
Gothic	HA Gothic
Gothic (IBM Extended Character)	HA Gothic (IBM)
English/Western Europe HK Gothic	HK Gothic
English/Western Europe HK Times	HK Times
Central Europe	Central Euro. CP *
Cyrillic	Cyrillic CP *
Greek	Greek CP *
Turkish	Turkish CP *
Baltic	Baltic CP
(Multi-language screen)	MULTI LANG

\* When [ ISO Code] is checked in the [Font Setting] dialog, "CP" disappears from the Main Menu screen.

## Font Types

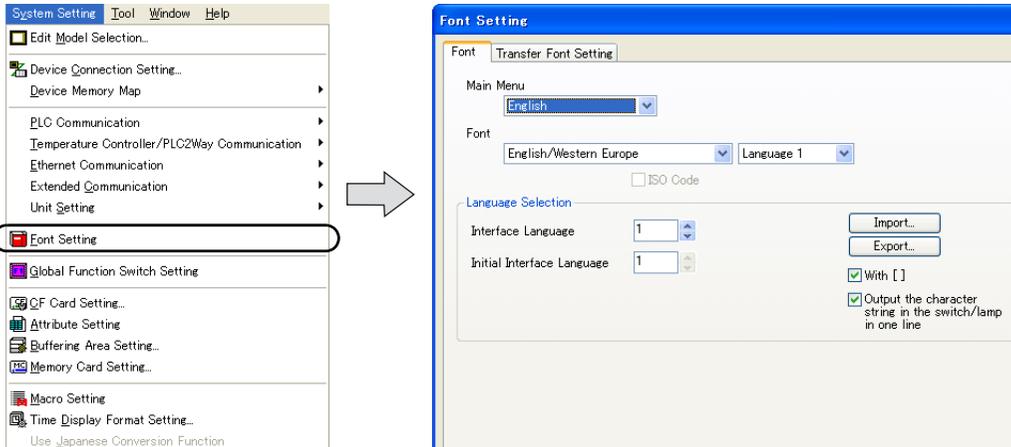
Font	Language	Characters
Japanese	Japanese, English	JIS level 1 + level 2 + ANK code
Japanese 32	Japanese, English	JIS level-1 Kanji + ANK code
English/Western Europe	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faeroese, French	ISO-8859-1: Latin1 (Expanded ASCII code)
Chinese (Traditional)	Chinese (traditional), English	BIG5 code (A141 to C67E) + ASCII code
Chinese (Simplified)	Chinese (simplified), English	GB2312 code (A1A2 to FEEF) + ASCII code
Korean	Hangul, English	KS code (A1A2 to C8FE) + ASCII code
Gothic	Japanese, English	JIS level 1 + level 2 + ANK code
Gothic (IBM Extended Character)	Japanese, English	JIS level 1 + level 2 + IBM extended code (FA40 to FC4B) + ANK code
English/Western Europe HK Gothic	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faeroese, French	ISO-8859-1: Latin1 (Expanded ASCII code)
English/Western Europe HK Times		
Central Europe	Croatian, Czech, Hrvatska (Croatian), Hungarian, Polish, Romanian, Slovakian, Slovene	CP1250 code
		ISO code *1 (ISO-8859-2: Latin2)
Cyrillic	Russian, Ukrainian, Kazakh, Bulgarian, Uzbek, Azerbaijani	CP1251 code
		ISO code *1 (ISO-8859-5: Latin5)
Greek	Greek	CP1253 code
		ISO code *1 (ISO-8859-7: Latin7)
Turkish	Turkish	CP1254 code
		ISO code *1 (ISO-8859-9: Latin9)
Baltic	Estonian, Latvian, Lithuanian	CP1257 code

\*1 For ISO code, select [System Setting] → [Font Setting], select the font and check the box for  ISO Code].

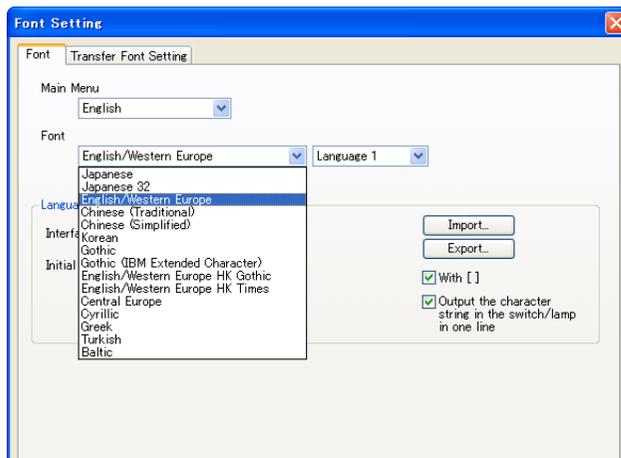
\*2 To display a language other than those shown above, use “Windows fonts.”  
For more information on the Windows fonts, refer to the Operation Manual.

## Font Setting Procedure

1. Select [System Setting] → [Font Setting].  
The [Font Setting] dialog is displayed.



2. Select the desired font for [Font] (= Language 1).



## Difference in Memory Capacity of Font Types

Depending on the font type, the occupied memory capacity varies.  
Data capacity occupied by the fonts can be displayed in the [System Setting] → [Font Setting] dialog.

## Font Size

Depending on the font type, the font size can be specified by point or by using [Enlarge X/Y].

Font	Size Specifying Method
Japanese	Enlarge X/Y
Japanese 32	
English/Western Europe	
Chinese (Traditional)	
Chinese (Simplified)	
Korean	
Gothic	Points
Gothic (IBM Extended Character)	
English/Western Europe HK Gothic	
English/Western Europe HK Times	
Central Europe	Enlarge X/Y
Cyrillic	
Greek	
Turkish	
Baltic	

### Enlarge X/Y

“1” to “8” can be specified for [Enlarge X] or [Enlarge Y].

Correspondence between character sizes and values for [Enlarge] is shown below:

Enlarge	1	2	3	4	5	6	7	8
One-byte (W × H dots)	8 × 16	16 × 32	24 × 48	32 × 64	40 × 80	48 × 96	56 × 112	64 × 128
Two-byte (W × H dots)	16 × 16	32 × 32	48 × 48	64 × 64	80 × 80	96 × 96	112 × 112	128 × 128

### Points

Correspondence between character sizes and points is shown below:

Points	Remarks
8	One-byte 6 × 11 dots, two-byte 11 × 11 dots
9	One-byte 6 × 12 dots, two-byte 12 × 12 dots
10	One-byte 7 × 13 dots, two-byte 13 × 13 dots
11	One-byte 8 × 15 dots, two-byte 15 × 15 dots
12	One-byte 8 × 16 dots, two-byte 16 × 16 dots
14	One-byte 10 × 19 dots, two-byte 19 × 19 dots
16	One-byte 11 × 21 dots, two-byte 21 × 21 dots
18	One-byte 12 × 24 dots, two-byte 24 × 24 dots
20	One-byte 14 × 27 dots, two-byte 27 × 27 dots
22	One-byte 15 × 29 dots, two-byte 29 × 29 dots
24	One-byte 16 × 32 dots, two-byte 32 × 32 dots
26	One-byte 18 × 35 dots, two-byte 35 × 35 dots
28	One-byte 19 × 37 dots, two-byte 37 × 37 dots
36	One-byte 24 × 48 dots, two-byte 48 × 48 dots
48	One-byte 32 × 64 dots, two-byte 64 × 64 dots
72	One-byte 48 × 96 dots, two-byte 96 × 96 dots

\* The point and size of Windows fonts vary depending on the font type.

## Language Selection

It is possible to change the language selection without changing the screen.

### Language Selection Types

There are five language selection types available.

CF Card	Selection in RUN Mode	Windows Fonts	Type	See:
Not used	Yes	Not used	A. Multi-language selection	(page A3-8)
			D. Displayed character selection	(page A3-10)
Used	Yes	Not used	B. Multi-language selection	(page A3-9)
Not used	Yes	Used	C. Multi-language selection	(page A3-10)
Not used	No	-	E. Multi-language screen	(page A3-11)

### Language Selection Types and Fonts

Depending on the MONITOUCH model and presence or absence of CF card, available language selection types and fonts vary.

#### A. Multi-language selection (CF card not used, selection in RUN mode)

#### B. Multi-language selection (CF card used, selection in RUN mode)

Selectable Fonts	Selection Examples
Japanese Japanese 32 English/Western Europe Chinese (Traditional) Chinese (Simplified) Korean Central Europe Cyrillic Greek Turkish Baltic	Japanese (Japanese 32) → Chinese (Chinese (Simplified)) → Spanish (English/Western Europe) Taiwanese (Chinese (Traditional)) → Japanese (Japanese 32) → Hangul (Korean)
	German (English/Western Europe) → Turkish (Turkish) → Czech (Central Europe)
Gothic English/Western Europe HK Gothic English/Western Europe HK Times	Japanese (Gothic) → German (English/Western Europe HK Gothic)

You cannot exchange fonts between the upper and lower rows.

**C. Multi-language selection (CF card not used, selection in RUN mode, Windows fonts used)**

You cannot exchange fonts.

Font	Selection Examples			
Japanese	(Language selection screen is created using the fonts available on Windows.)			
Japanese 32				
English/Western Europe				
Chinese (Traditional)				Japanese (MS Gothic) → Chinese (SimSun) → Spanish (Arial)
Chinese (Simplified)				
Korean				Taiwanese (MingLIU) → Japanese (MS PGothic) → Hangul (Batang)
Gothic				
English/Western Europe HK Gothic				German (Arial Unicode MS) → Turkish (Arial Unicode MS) → Czech (Arial Unicode MS)
English/Western Europe HK Times				
Central Europe				
Cyrillic				
Greek				
Turkish				
Baltic				

\* When using Windows fonts, some limitations may apply.  
 For more information, refer to the Operation Manual provided separately.

**D. Displayed character selection (CF card not used, selection in RUN mode, Windows fonts not used)**

You cannot exchange fonts.

Font	Target Characters
Japanese	Japanese ← → English
Japanese 32	Japanese ← → English
English/Western Europe	Western European language ← → English
Chinese (Traditional)	Chinese (Traditional) ← → English
Chinese (Simplified)	Chinese (Simplified) ← → English
Korean	Korean ← → English
Gothic	Japanese ← → English
English/Western Europe HK Gothic	Western European language ← → English
English/Western Europe HK Times	Western European language ← → English
Central Europe	Central European language ← → English
Cyrillic	Cyrillic language ← → English
Greek	Greek ← → English
Turkish	Turkish ← → English
Baltic	Baltic language ← → English



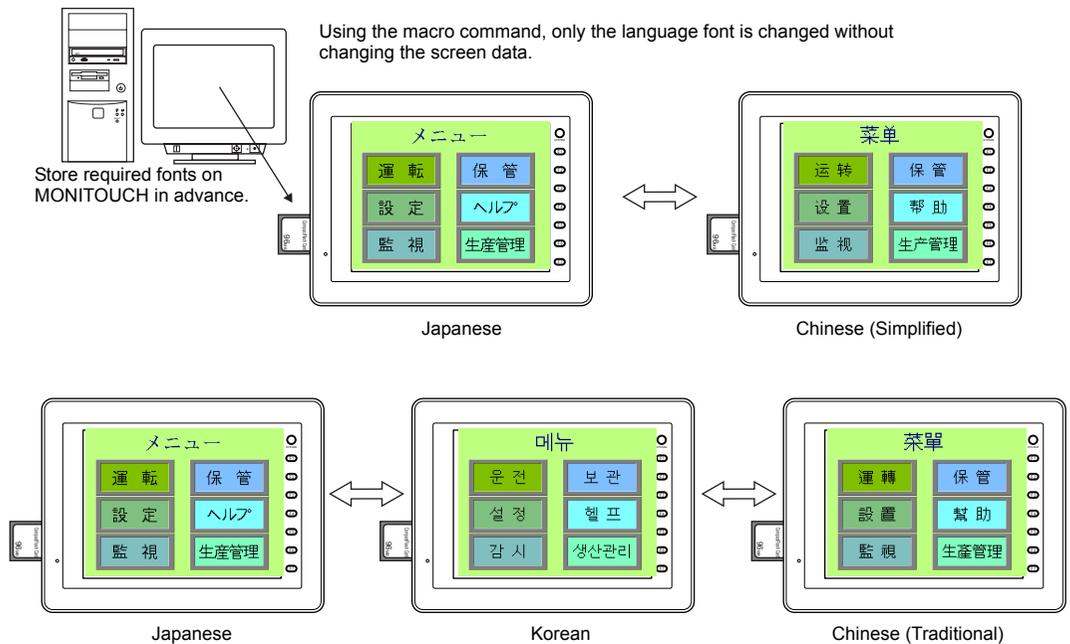
**E. Multi-language screen (no selection in RUN mode = screen data exchange)**

Selectable Fonts	Selection Examples		
Japanese Japanese 32 English/Western Europe Chinese (Traditional) Chinese (Simplified) Korean Central Europe Cyrillic Greek Turkish Baltic	Japanese (Japanese 32)	→ Chinese (Chinese (Simplified))	→ Spanish (English/Western Europe)
	Taiwanese (Chinese (Traditional))	→ Japanese (Japanese 32)	→ Hangul (Korean)
	German (English/Western Europe)	→ Turkish (Turkish)	→ Czech (Central Europe)
Gothic English/Western Europe HK Gothic English/Western Europe HK Times	Japanese (Gothic)	→ German (English/Western Europe HK Gothic)	

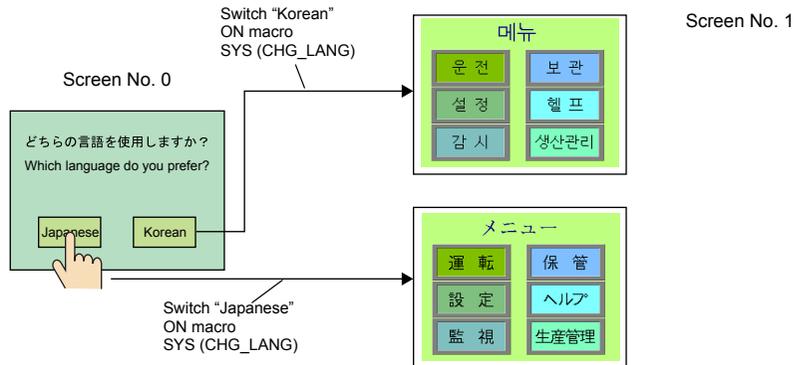
You cannot exchange fonts between the upper and lower rows.

**A. Multi-language Selection**

- You can change the language in RUN mode using the same screen data file.
- Without using the CF card, you can change characters (Japanese ↔ Chinese (simplified) ↔ Korean ↔ Chinese (traditional)) without changing the screen data.  
Store required fonts in MONITOUCH in advance.



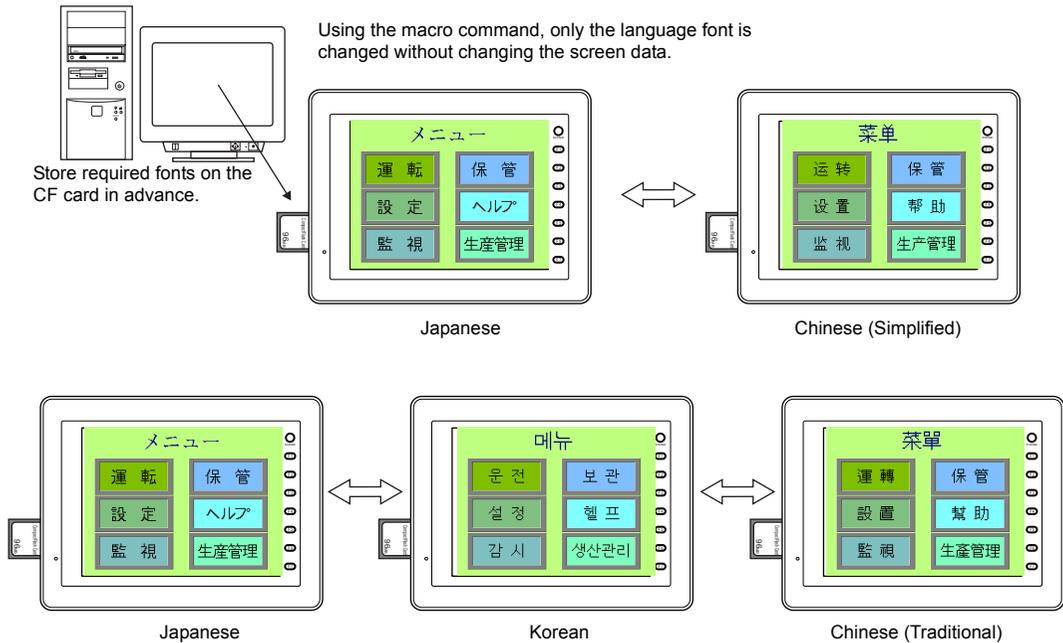
- To change the language in RUN mode, use the CHG\_LANG macro command.  
(For more information on macro commands, refer to page A3-27.)



- Up to eight languages can be changed.
- For more information on the setting procedure, etc., refer to page A3-12.

## B. Multi-language Selection

- By using the CF card, you can change characters (Japanese ↔ Chinese (simplified) ↔ Korean ↔ Chinese (traditional)) without changing the screen data.

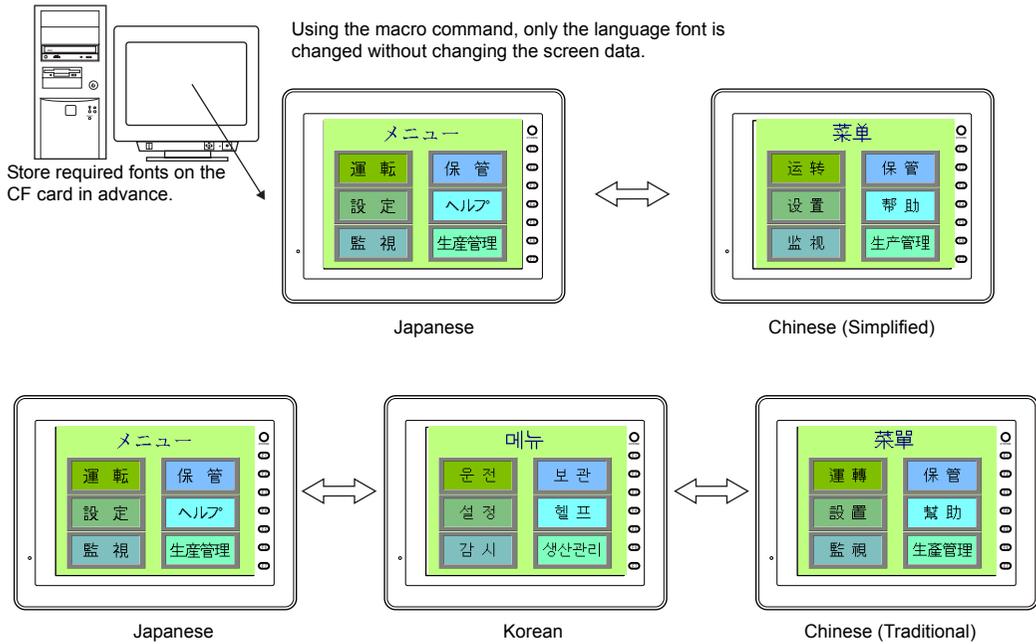


\* The CF card must be inserted at all times.

- To change the language in RUN mode, use the CHG\_LANG macro command.  
(For more information on macro commands, refer to page A3-27.)
- Up to eight languages can be changed.
- For more information on the setting procedure, etc., refer to page A3-30.

### C. Multi-language Selection

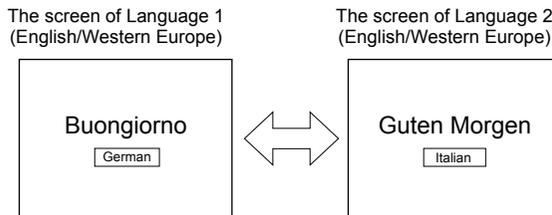
- You can change the language in RUN mode using the same screen data file.
- Without using the CF card, you can change characters (Japanese ↔ Chinese (simplified) ↔ Korean ↔ Chinese (traditional)).  
Since Windows fonts are used it is sufficient to store only one font in MONITOUCH.



- To change the language in RUN mode, use the CHG\_LANG macro command. (For more information on macro commands, refer to page A3-27.)
- Up to eight languages can be changed.
- For more information on the Windows fonts, refer to the Operation Manual.

### D. Displayed Character Selection

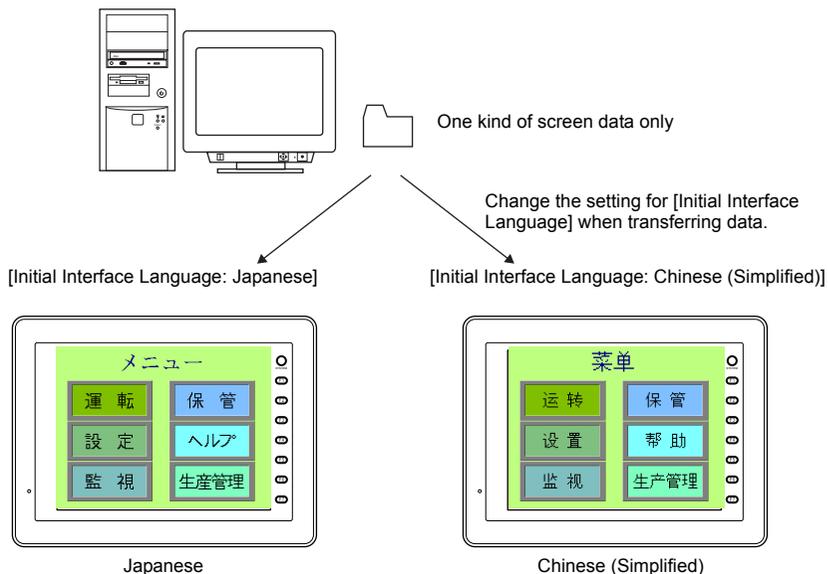
- You can change the characters displayed in RUN mode using the same screen data file.
- Even if you use a single font, you can change characters, such as German ↔ Italian, and display them.



- If you execute the CHG\_LANG macro command and change the screen in RUN mode, the characters displayed will be changed. (For more information on macro commands, refer to page A3-27.)
- Characters in up to eight languages can be changed.
- For more information on the setting procedure, etc., refer to page A3-37.

## E. Multi-language Screen

- You can register multiple languages using the same screen data file.  
However, you cannot change the language in RUN mode. Language selection is available by reloading the screen data setting in the target language for each situation.
- You do not need to manage multiple screen data for each language when storing the screen data.



- For more information on the setting procedure, etc., refer to page A3-40.

## A. Multi-language Selection

This section explains the setting procedure for changing the language in a different font in RUN mode (assuming that the Language 1 setting has been completed).

### Setting Procedure

1. Font setting (page A3-12)
2. Multi-language editing (page A3-16)
3. CHG\_LANG macro command setting (page A3-27)
4. Layout check (page A3-28)
5. Screen data transfer (page A3-36)

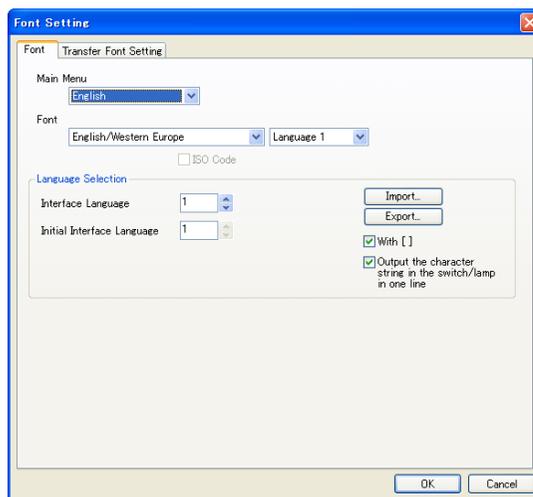
#### 1. Font Setting

Set the number of languages to be used and the languages to be added.

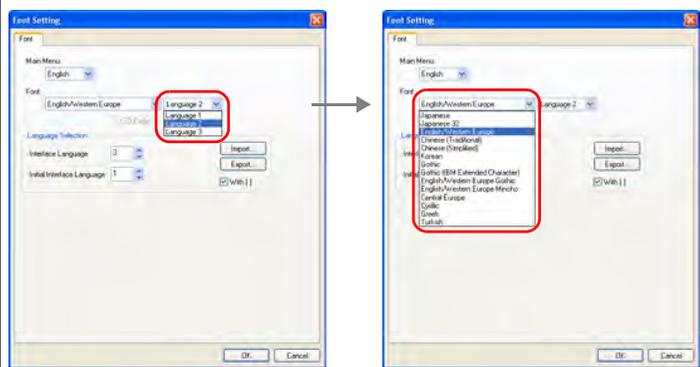
Select [System Setting] → [Font Setting].

The [Font Setting] dialog is displayed.

#### [Font] tab window



<p>Main Menu *1 (Japanese, English, Chinese (Traditional), Chinese (Simplified), Korean)</p>	<p>Select the interface language on the system screen (= Main Menu screen) on MONITOUCH.</p>
--	--

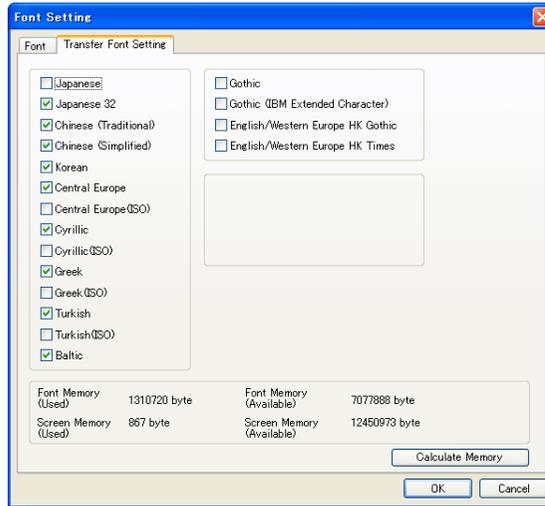
<p>Font *2</p>	<p>When "2" or more is set for [Interface Language], you can select languages in addition to [Language 1].                  Select the language number (example: Language 2) from the drop-down menu on the right, and select the applicable font from the drop-down menu on the left.</p> 
<p>Interface Language (1 to 8)</p>	<p>Set the number of languages to be used.                  Example: [2]: Language 1 to Language 2                  [5]: Language 1 to Language 5</p>
<p>Initial Interface Language (1 to 8)</p>	<p>Select the language to be displayed when the power is turned on.</p>
<p>Import</p>	<p>Use this button when editing text in a language other than Language 1 in a CSV file.                  For more information, refer to page A3-17.</p>
<p>Export</p>	
<p><input type="checkbox"/> With [ ]</p>	

\*1 The available combinations of language selections for [Main Menu] and [Font] are shown below. (Only the fonts of which box you have checked in the [Transfer Font Setting] tab window can be used on the Main Menu screen.)

Main Menu	Font
Japanese, English	Japanese
	Japanese 32
	Gothic
	Gothic (IBM Extended Character)
Chinese (Traditional), English	Chinese (Traditional)
Chinese (Simplified), English	Chinese (Simplified)
Korean, English	Korean
English	English/Western Europe
	English/Western Europe HK Gothic
	English/Western Europe HK Times
	Central Europe
	Cyrillic
	Greek
	Turkish
	Baltic

\*2 Select the language types to be used without mixing the size specifying methods: [Enlarge] and points. For more information on possible combinations, refer to page A3-6.

**[Transfer Font Setting] tab window**



(Font name)	Check the boxes for fonts to be transferred to MONITOUCH. Depending on the transfer font settings, multiple language displays can be switched without using a CF card.
-------------	---

**Language selection using Gothic, English/Western Europe HK Gothic, and English/Western Europe HK Times**

For multi-languages selection, you can change the fonts between [Gothic] (Gothic (IBM Extended Character), [English/Western Europe HK Gothic] and [English/Western Europe HK Times].

The setting procedure is almost the same as the one for [Japanese 32] (refer to page A3-12).

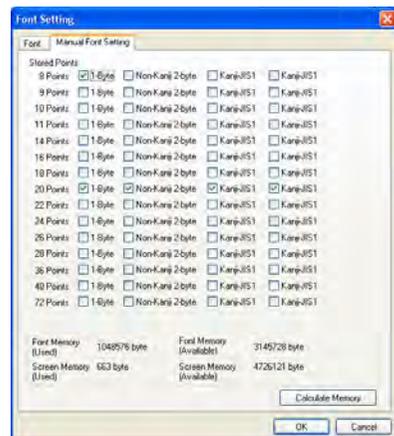
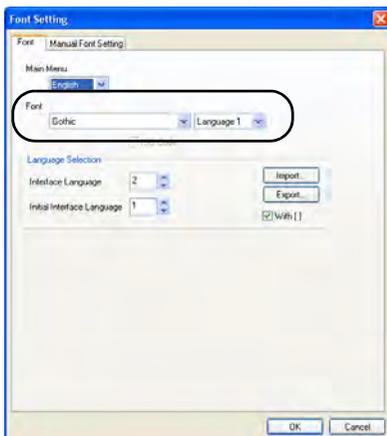
However, when you use [Gothic] (Gothic (IBM Extended Character)), [English/ Western Europe HK Gothic] and [English/ Western Europe HK Times] (called "HK Gothic/Times fonts"), see the notes on setting described below:

- Manual font setting

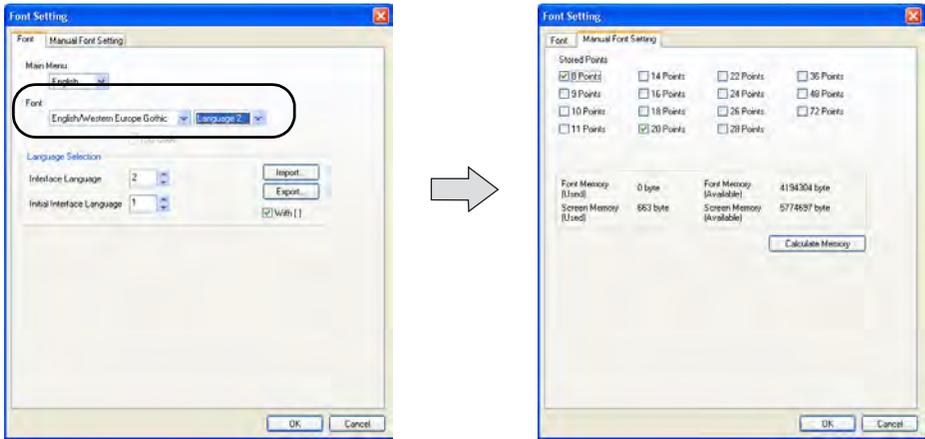
With HK Gothic/Times fonts there are two types available: one is automatic setting type and the other is manual setting type for which you need to set the size manually. (For more information, refer to the Operation Manual.)

Select [System Setting] → [Font Setting], and set the manual font in the [Manual Font Setting] dialog.

Language 1



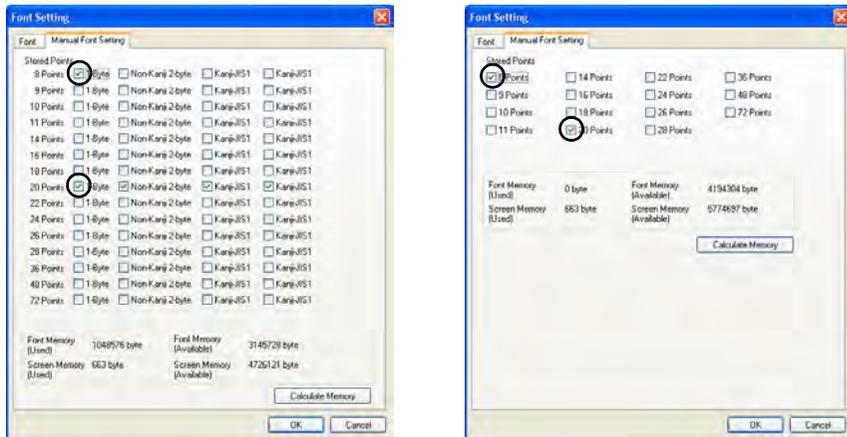
Language 2



A3

Note that the setting for  1-Byte of each point size of Language 1 (e.g. Gothic) affects the setting of Language 2 (e.g. English/ Western Europe Gothic).  
If you change the setting for either language, the setting for the other will also be changed.

All the settings are common to Language 2.  
When you change the setting, Language 2 is also changed.



- Auto Font

When using multi-language selection, automatic setting type font selected for Language 1 is automatically transferred to MONITOUCH together with the screen data. However, automatic setting type font cannot be recognized with Language 2 or later.  
For Language 2, etc., you need to regard automatic setting type font also as a manual setting type font and make the appropriate setting in the [Manual Font Setting] dialog.

## 2. Multi-language Editing

This section explains the multi-language editing procedure. Ensure that the editing of relevant languages is enabled on your Windows computer.

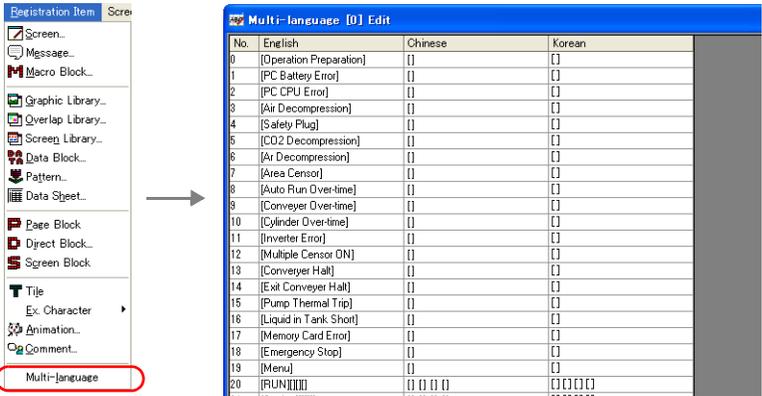
- \* For the setting and notes for editing foreign languages on a Japanese Windows computer, refer to the Operation Manual.

### When editing on the multi-language window:

Bring up the text in Language 1 used for screen data on the [Multi-language Edit] window, and enter the desired text in another language.

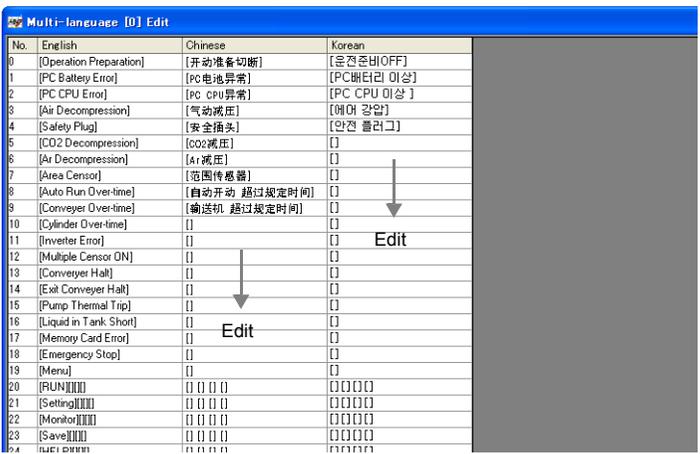
Follow the steps below.

**Step 1** Open the screen data and click [Registration Item] → [Multi-language]. The [Multi-language [0] Edit] window is displayed.



No.	English	Chinese	Korean
0	[Operation Preparation]	[ ]	[ ]
1	[PC Battery Error]	[ ]	[ ]
2	[PC CPU Error]	[ ]	[ ]
3	[Air Decompression]	[ ]	[ ]
4	[Safety Plug]	[ ]	[ ]
5	[CO2 Decompression]	[ ]	[ ]
6	[Ar Decompression]	[ ]	[ ]
7	[Area Censor]	[ ]	[ ]
8	[Auto Run Over-time]	[ ]	[ ]
9	[Conveyer Over-time]	[ ]	[ ]
10	[Cylinder Over-time]	[ ]	[ ]
11	[Inverter Error]	[ ]	[ ]
12	[Multiple Censor ON]	[ ]	[ ]
13	[Conveyer Halt]	[ ]	[ ]
14	[Exit Conveyer Halt]	[ ]	[ ]
15	[Pump Thermal Trip]	[ ]	[ ]
16	[Liquid in Tank Short]	[ ]	[ ]
17	[Memory Card Error]	[ ]	[ ]
18	[Emergency Stop]	[ ]	[ ]
19	[Menu]	[ ]	[ ]
20	[RUN]	[ ]	[ ]

**Step 2** Enter the text in Language 2 and later directly on the [Multi-language [0] Edit] window.



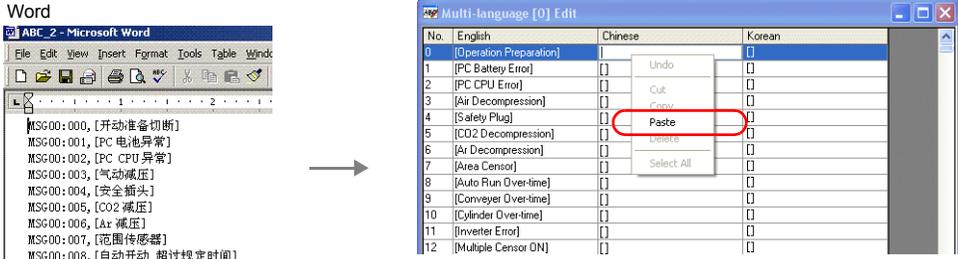
No.	English	Chinese	Korean
0	[Operation Preparation]	[开动准备切断]	[운전 준비 OFF]
1	[PC Battery Error]	[PC 电池异常]	[PC  배터리 이상]
2	[PC CPU Error]	[PC CPU 异常]	[PC CPU 이상]
3	[Air Decompression]	[气动减压]	[에어 감압]
4	[Safety Plug]	[安全插头]	[안전 플러그]
5	[CO2 Decompression]	[CO2 减压]	[ ]
6	[Ar Decompression]	[Ar 减压]	[ ]
7	[Area Censor]	[范围传感器]	[ ]
8	[Auto Run Over-time]	[自动开动 超过规定时间]	[ ]
9	[Conveyer Over-time]	[输送机 超过规定时间]	[ ]
10	[Cylinder Over-time]	[ ]	[ ]
11	[Inverter Error]	[ ]	[ ]
12	[Multiple Censor ON]	[ ]	[ ]
13	[Conveyer Halt]	[ ]	[ ]
14	[Exit Conveyer Halt]	[ ]	[ ]
15	[Pump Thermal Trip]	[ ]	[ ]
16	[Liquid in Tank Short]	[ ]	[ ]
17	[Memory Card Error]	[ ]	[ ]
18	[Emergency Stop]	[ ]	[ ]
19	[Menu]	[ ]	[ ]
20	[RUN]	[ ]	[ ]
21	[Setting]	[ ]	[ ]
22	[Monitor]	[ ]	[ ]
23	[Save]	[ ]	[ ]
24	[ ]	[ ]	[ ]

\* Text editing of Language 1 cannot be performed on the [Multi-language Edit] window.

Notes

- It is not possible to know in which item each text is used.
- You can edit text using another application software (e.g.: Word, Excel, etc.) and paste it on the [Multi-language Edit] window. Paste text by right-clicking on the screen with the cursor displayed.

Word



A3

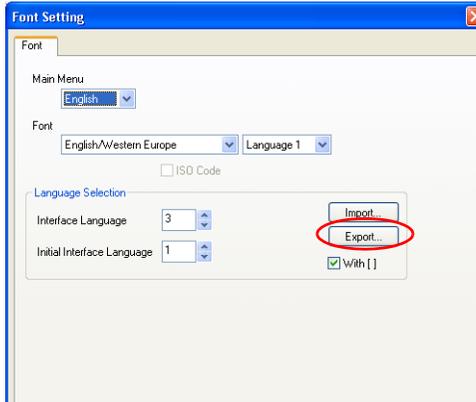
When editing a CSV file:

Output text in Language 1 into a CSV file, edit other text in another language in the CSV file, and then import the screen data.

Follow the steps below.

Step 1

Output text in Language 1 into a CSV file.  
 Select [System Setting] → [Font Setting], and click [Export] button in the [Font Setting] dialog.

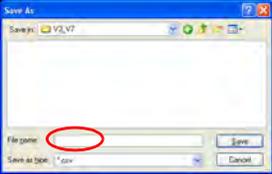
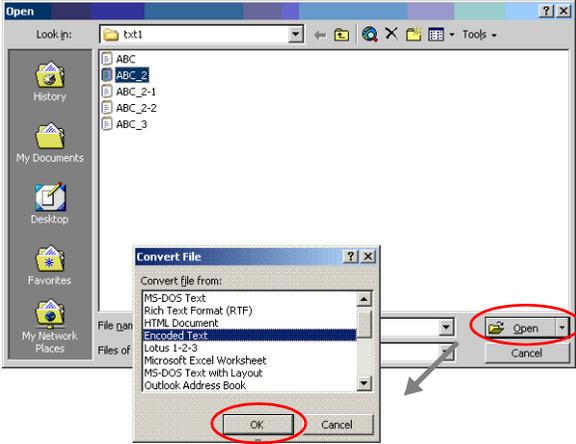
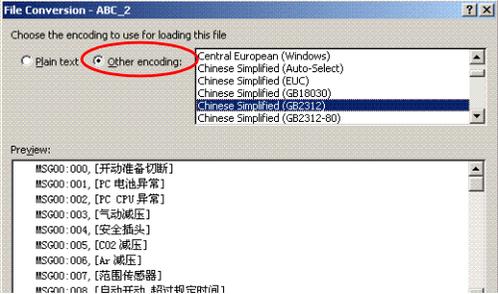


When  With [ ] is checked, “[ ]” is added in the CSV file. When this box is not checked, data is expressed in comma-separated values. In this example, data is exported with this box checked.

\* If you do not check this box, the following characters cannot be imported normally when you open it with CSV compatible software such as Excel.

Characters on V-SFT	Excel (Format: Standard)
0123	123
+BK	#NAME?

← Leading zeros are dropped.  
 ← This is not recognized as recognizable characters.

<p>Step 2</p>	<p>Give a name to the CSV file and save the file. As many CSV files (*1) as the number of languages are created.</p>  <p>For example, "ABC" is entered for a file name, the following CSV files are created:</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;"> <p>Language 1</p>  <p>ABC.csv</p> </div> <div style="text-align: center;"> <p>Language 2</p>  <p>ABC_2.csv</p> </div> <div style="text-align: center;"> <p>Language 3</p>  <p>ABC_3.csv</p> </div> </div>
<p>Step 3 (*2)</p>	<p>Change the file extension on Explorer from "*.CSV" → "*.TXT".</p> <p>Change file extensions from "csv" to "txt".</p> 
<p>Step 4</p>	<p>Open the "*.TXT" file on Word. In this case, open the file as "Encoded Text"</p>  

Encoding for each language is shown below:

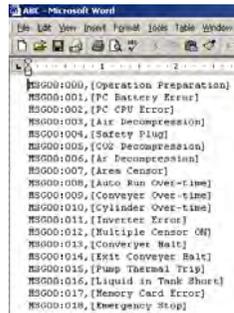
Japanese	Shift JIS
English/Western Europe	Western Europe (Windows)
Chinese (Traditional)	Chinese Traditional (Big5)
Chinese (Simplified)	Chinese Simplified (GB2312)
Korean	Korean
Central Europe	Central European (Windows)
Cyrillic	Cyrillic (Windows)
Greek	Greek (Windows)
Turkish	Turkish (Windows)
Baltic	Baltic (Windows)

Step 5

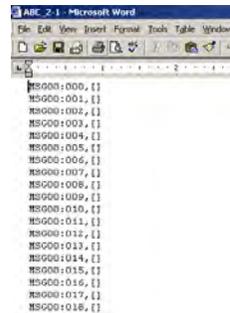
Edit text in Language 2 and later.

Open the TXT file of Language 1 for reference, and edit text in Language 2 and later on Word.

ABC.txt = Language 1 = Reference only



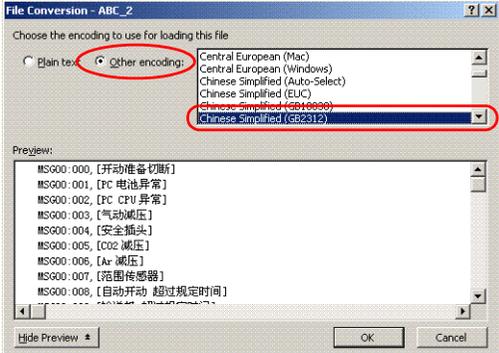
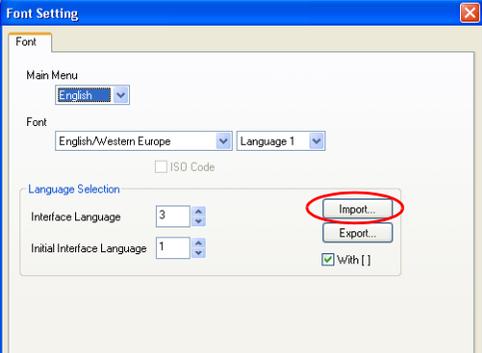
ABC.txt = Language 2 = Editing possible



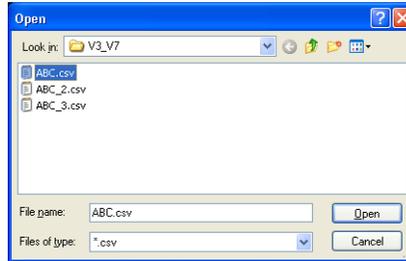
When  With [ ] is checked, text is saved with “[ ]” attached before exporting text in Language 2 and later. Translated messages and texts must be located inside square brackets ([ ]).

Insert translated text within [ ].

```
MSG00:000, [
MSG00:001, [
MSG00:002, [
MSG00:003, [
MSG00:004, [
MSG00:005, [
MSG00:006, [
MSG00:007, [
MSG00:008, [
----- ]
```

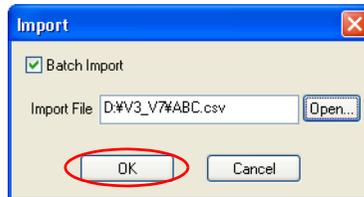
<p>Step 6</p>	<p>Save the "*.TXT" file. Save the text file of Language 2 and later you have edited in step 5 under a different name on Word. When saving the file, select a correct encoding referring to the table in step 4.</p> 
<p>Step 7</p>	<p>Reset the file extension on Explorer from "*.TXT" → "*.CSV".</p>  <p>Change file extensions from "txt" to "csv".</p>
<p>Step 8</p>	<p>Import CSV files into screen data. Select [System Setting] → [Font Setting], and click [Import] button in the [Font Setting] dialog.</p>  <p>* Check or uncheck the box for <input type="checkbox"/> With [ ] as explained in step 1.</p>

- Step 9 The [Import] dialog is displayed. Check the box for [ Batch Import] and click the [Open] button.  
Select the CSV file of Language 1.



Select "ABC.csv" of Language 1.

- Step 10 The [Import] dialog is displayed again. Click [OK].



Importing the CSV file is completed.

\*1 CSV File

The CSV file created by exporting is output in the following format:

```

ABC - Notepad
File Edit Format View Help
MSG00:000, [Operation Preparation]
MSG00:001, [PC Battery Error]
MSG00:002, [PC CPU Error]
MSG00:003, [Air decompression]
MSG00:004, [Safety Plug]
MSG00:005, [CO2 decompression]
MSG00:006, [Ar decompression]
MSG00:007, [Area Censor]
MSG00:008, [Auto Run over-time]
MSG00:009, [Conveyer over-time]
MSG00:010, [Cylinder over-time]
MSG00:011, [Inverter error]
MSG00:012, [Multiple Censor ON]
MSG00:013, [Conveyer Halt]
MSG00:014, [Exit Conveyer Halt]
MSG00:015, [Pump Thermal Trip]
MSG00:016, [Liquid in Tank Short]
MSG00:017, [Memory Card Error]
MSG00:018, [Emergency Stop]
SCRN0000:B00:STR, [Menu]
SCRN0000:B00:SW000, [Run]
SCRN0000:B00:SW000, [Setting]
SCRN0000:B00:SW000, [Monitor]
SCRN0000:B00:SW000, [Save]
SCRN0000:B00:SW000, [Help]
SCRN0000:B00:SW000, [Production]
SCRN0000:B00:SW000, [Managing]
SCRN0001:B00:STR, [Error Monitor]
    
```



Location & Item Name

Item	Format
Screen	SCRN[No]: [Layer]: [Item Name] [ID],
Message Group	MSG[Group No.]: [Line No.],
Graphic Library	GLIB[Group No.]: [No.], [Item Name],
Multi-overlap	MLIB[No.]: [Item Name] [ID],
Data Block	DBLK[No.]: [Item Name] [ID],
Data Sheet	DST[No.]: [Item Name],
Screen Library	SLIB[No.]: [Item Name] [ID],
No. → 0000 to 1023 (for Graphic Library: 000 to 255) Layer → Refer to <Table 1>. Item Name → Refer to <Table 2>. ID → 000 to 255. Group No. → 0000 to 127 (for Graphic Library: 0 to 9) Line No. → 000 to 255	

<Table 1: Layer>

Item Display	Output Notation
Base	B00
Overlap ID 0	OV0
Overlap ID 1	OV1
Overlap ID 2	OV2

<Table 2: Item Name>

Item Display	Output Notation	Screen	Graphic Library	Multi-overlap	Data Block	Data Sheet	Screen Library
Switch	SW	○	×	○	×	×	○
Lamp	LP	○	×	○	×	×	○
Table Data Display	GLID	○	×	○	○	×	○
Calendar	CAL	○	×	○	×	×	○
Text in Drawing*	STR	○	○	○	○	○	○
Multi-Text in Drawing*	MSTR	○	○	○	○	×	○

\* No [ID] setting

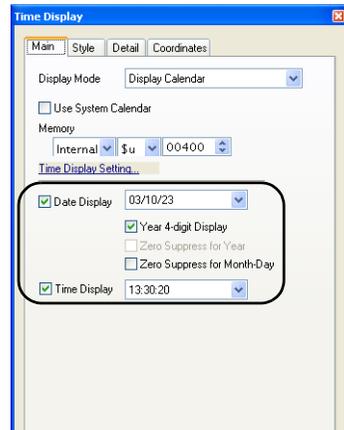
Notes on CSV Files

The following characters are converted into a CSV (text) file as shown in the table below:

Conversion Target Character	After Conversion	Examples (Before → After)
, (Comma)	Put [""] before and after the characters.	abc, def → "[abc, def]"
" (Double-quotation)	Change " to "" Put [""] before and after the characters.	abc"def" ghi → "[abc ""def"" ghi]"
0x0d0x0a (Line feed)	Change "0x0d0x0a" to "0x0a". (↓) (↑) Put [""] before and after the characters.	abc"0x0d0x0a"def ↓ "[abc"0x0a"def]"

Characters of the following functions cannot be exported into a CSV file:

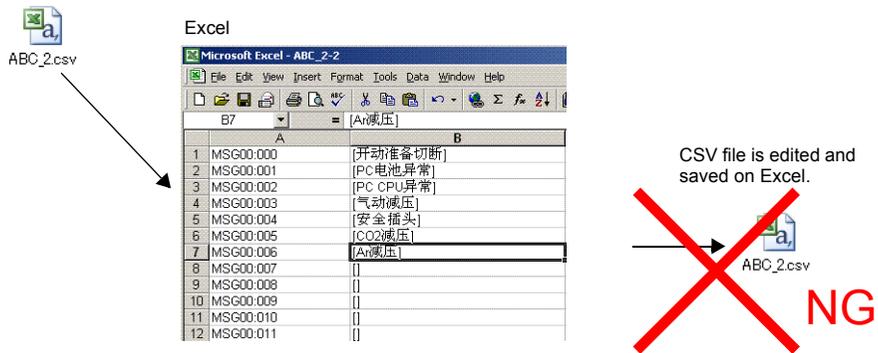
- [Alarm Tracking], [Date Display] and [Time Display] of [Time Display] item



- Characters that are set by macro command CHR (F0 = 'text')
- Characters of comment display for switches or lamps for simulator (Language 1 only)

\*2 When creating a CSV file, note the following points:

- \* **Do not save the exported CSV file in Excel.**



**With Excel, you cannot specify encoding different from Word. Consequently, if you save characters having codes other than English, such as Chinese (simplified), Hangu or Czech, you will not be able to import the text because the text cannot maintain compatibility with other application software.**

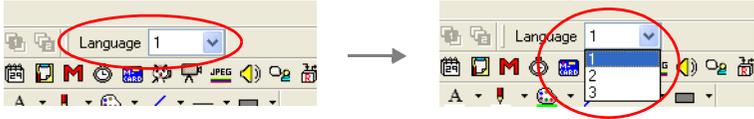
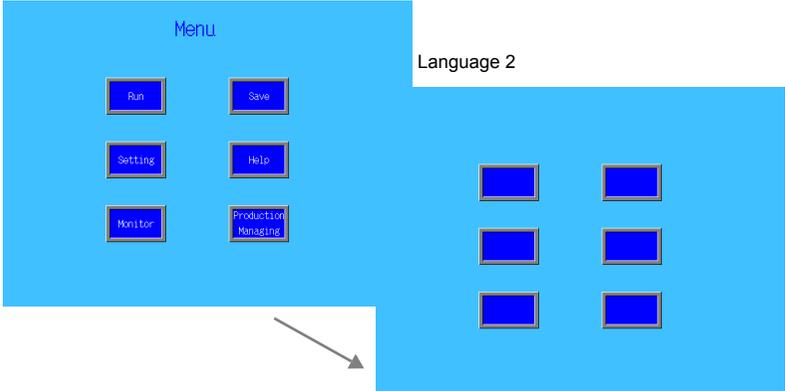
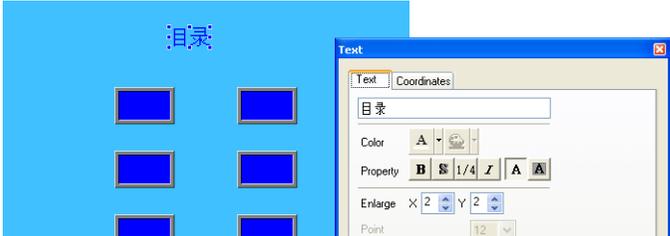
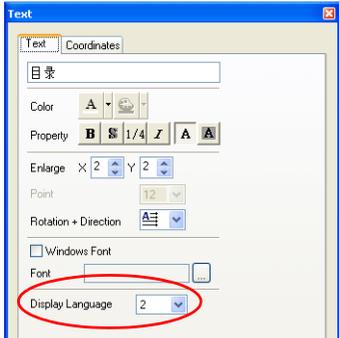
**If you have saved a CSV file on Excel by mistake, immediately contact your local distributor for consultation.**

- \* **Do not change the CSV file of Language 1.**

**If data contents do not coincide with the original data, the data may not be imported corrected in step 9. If you want to edit text of Language 1, do so on the screen configuration software.**

**When directly editing text on items on the screen:**

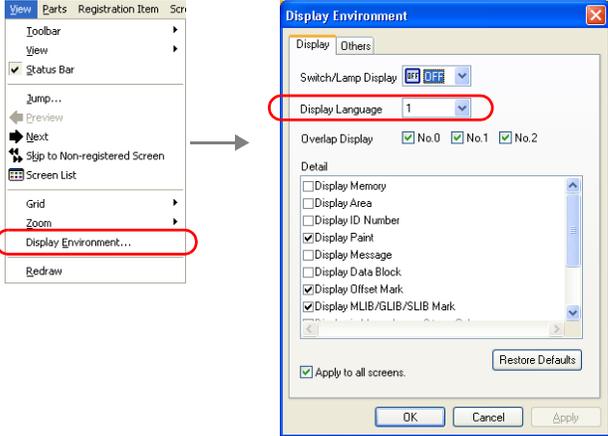
Text in Language 2 and later can be edited on the screen in the same way as Language 1.  
Follow the steps below.

<p>Step 1</p>	<p>Specify the interface language number for [Language] on the toolbar. When a value other than “1” is set, the interface language changes.</p>  <p>Language 1</p> 
<p>Step 2</p>	<p>Edit text in the desired language on each item.</p>  <p>In addition, you can check on the [Entry] dialog for each item that a number other than “1” is specified for [Display Language]. The interface language number can be changed from the drop-down menu of [Display Language].</p> 

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(Supplementary information)

It is also possible to select [View] → [Display Environment]. The setting for [Display Language] can be changed in the [Display Environment] dialog.



The image shows two screenshots. On the left is a 'View' menu with options: Toolbar, View, Status Bar, Jump..., Preview, Next, Slip to Non-registered Screen, Screen List, Grid, Zoom, Display Environment..., and Bedraw. The 'Display Environment...' option is circled in red. An arrow points from this option to the 'Display Environment' dialog box on the right. The dialog box has a 'Display' tab and an 'Others' section. In the 'Others' section, 'Switch/Lamp Display' is set to 'OFF', and 'Display Language' is set to '1', both of which are circled in red. Below this, 'Overlap Display' is checked, with sub-options 'No.0', 'No.1', and 'No.2'. A 'Detail' section contains several checkboxes: 'Display Memory', 'Display Area', 'Display ID Number', 'Display Paint' (checked), 'Display Message', 'Display Data Block', 'Display Offset Mark' (checked), and 'Display MLIB/GLIB/SLIB Mark' (checked). At the bottom, there is a 'Restore Defaults' button and a checked 'Apply to all screens.' checkbox. 'OK', 'Cancel', and 'Apply' buttons are at the very bottom.

### 3. CHG\_LANG Macro Command Setting

#### Overview

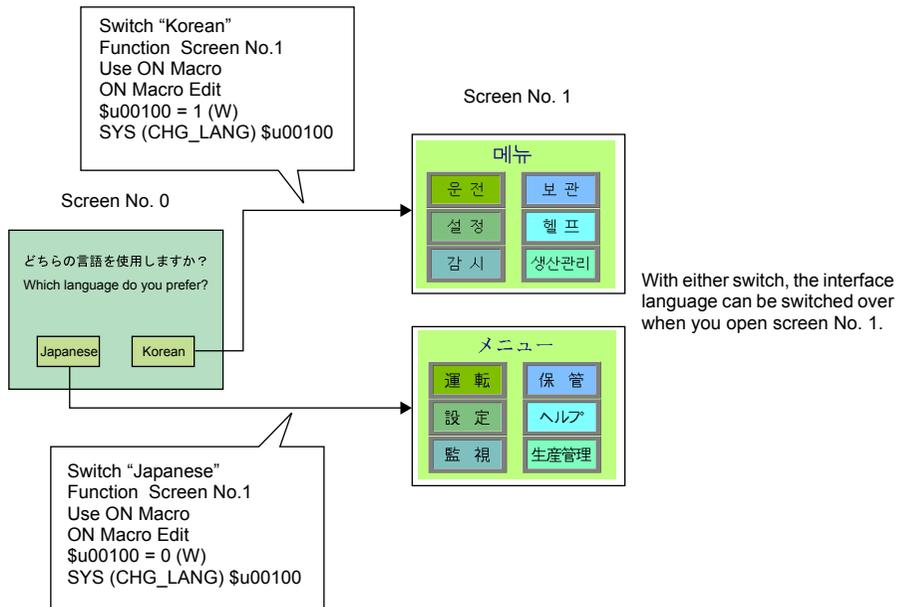
You can set the interface language that is displayed at first by selecting [System Setting] → [Font Setting] and selecting the desired language for [Initial Interface Language] in the [Font Setting] dialog. To change the language in RUN mode, you can perform “CHG\_LANG” in the SYS macro command.

\* **The interface language is switched over when the screen is changed after the macro command has been executed.**

Example:

Set the interface language using the ON macro of the screen change switch.

If you press the “Japanese” switch, the screen changes to the next screen, which will be displayed in Japanese. If you press the “Korean” switch, the screen changes to the next screen, which will be displayed in Korean.



#### Macro command

[CHG\_LANG]

#### Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	Command name					
F1	○				○	

CHG\_LANG: Language selection **SYS(CHG\_LANG) F1**

F1	Language No. (0 - 7) *
----	------------------------

\* Although the setting range for [Interface Languages] in the [Font Setting] dialog and [Display Language] in the [Display Environment] dialog is “1” to “8”, the range of “CHG\_LANG” is “0” to “7”.

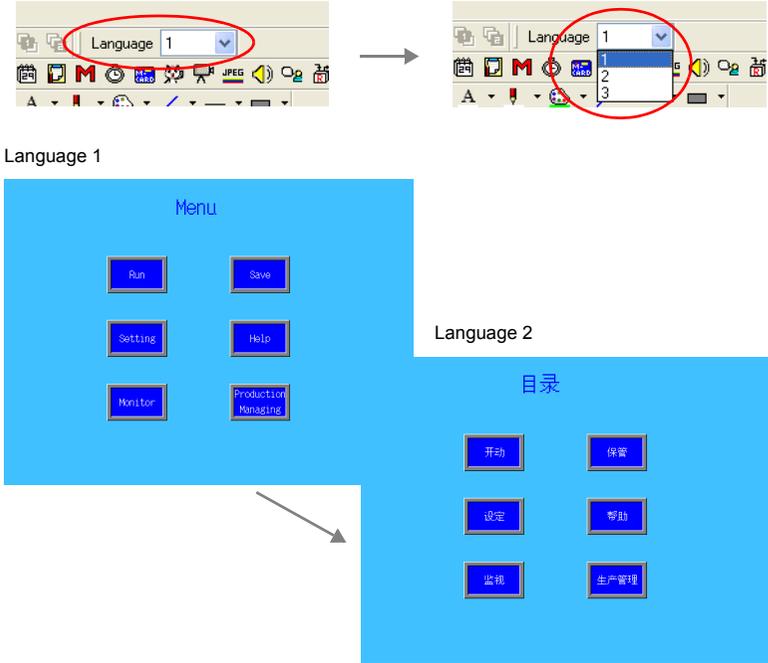
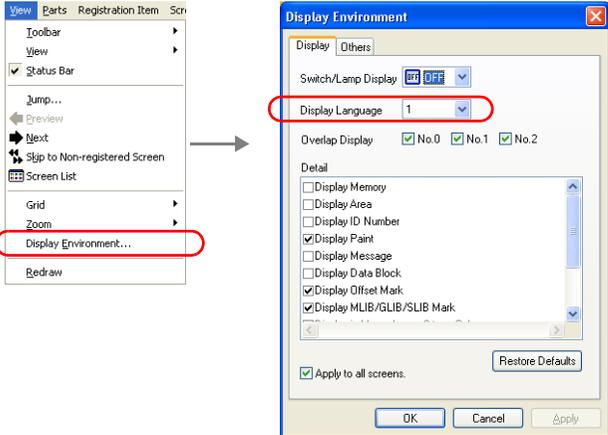
#### Editing procedure

For more information on macro editing, refer to the Macro Reference Manual.

## 4. Layout Check

When screen data editing has been completed, be sure to check the layout of each language on the configuration software.

### Checking procedure

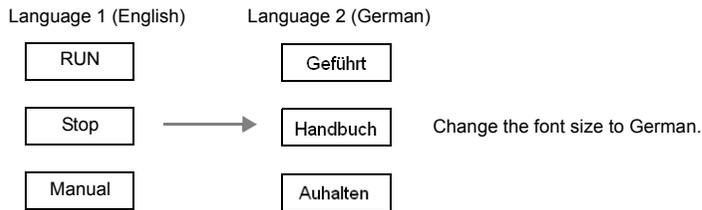
<p>Step 1</p>	<p>Specify the interface language number for [Language] on the toolbar. When a value other than "1" is set, the interface language changes.</p> 
<p>(Supplementary information)</p>	<p>It is also possible to select [View] → [Display Environment]. The setting for [Display Language] can be changed in the [Display Environment] dialog.</p> 

**Notes on layout**

- Character properties are used commonly for all languages.  
It is possible to change [Enlarge X/Y] or color setting for certain languages.
- Positions of Language 2 and later are determined based on those of Language 1.  
For example, if you align texts on the switches at the center for Language 1, texts in Language 2 are displayed as shown below.



To avoid such a problem in layout, the font size of the second language can be changed.

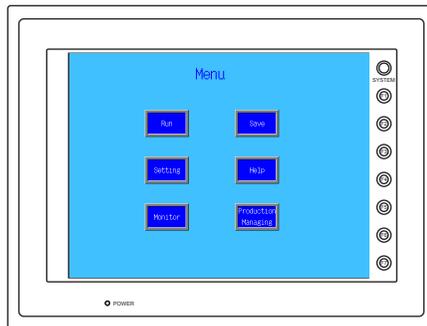


**5. Screen Data Transfer**

When all the prerequisites have been completed, transfer the screen data to MONITOUCH.

When the data has been transferred, insert the CF card (step 4) into MONITOUCH and select RUN mode.

The language selected for [Initial Interface Language] in "1. Font setting" is displayed first.



When you execute the CHG\_LANG macro command and display a screen, the corresponding language is displayed.

**When No CF Card Is Used (= Windows Font Type)**

For more information on the case where multi-language selection is made using Windows fonts, refer to the Operation Manual.

## B. Multi-language Selection

This section describes the procedure for switching over languages in RUN mode using different fonts. (The procedure is explained assuming that the setting for Language 1 has been completed.)

### Setting Procedure

1. Font setting (page A3-30)
2. Multi-language editing (page A3-32)
3. CHG\_LANG macro command setting (page A3-32)
4. Layout check (page A3-32)
5. Writing the font file to a CF card (page A3-33)
6. Screen data transfer (page A3-36)

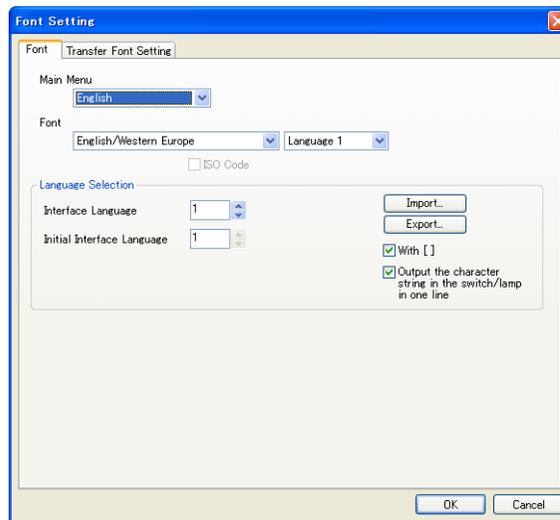
### 1. Font Setting

Set the number of languages to be used and the languages to be added.

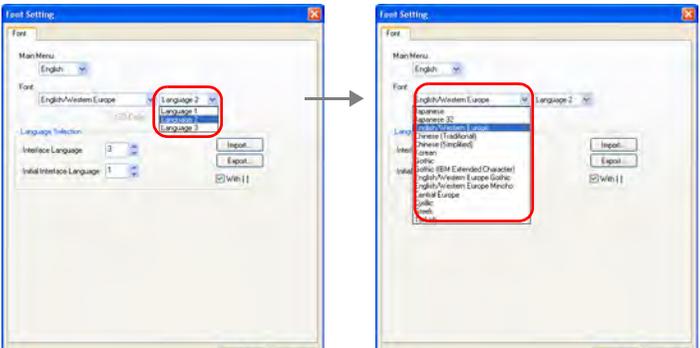
Select [System Setting] → [Font Setting].

The [Font Setting] dialog is displayed.

#### [Font] tab window



<p>Main Menu <sup>*1</sup> (Japanese, English, Chinese (Traditional), Chinese (Simplified), Korean)</p>	<p>Select the interface language on the system screen (= Main Menu screen) on MONITOUCH.</p>
---	--

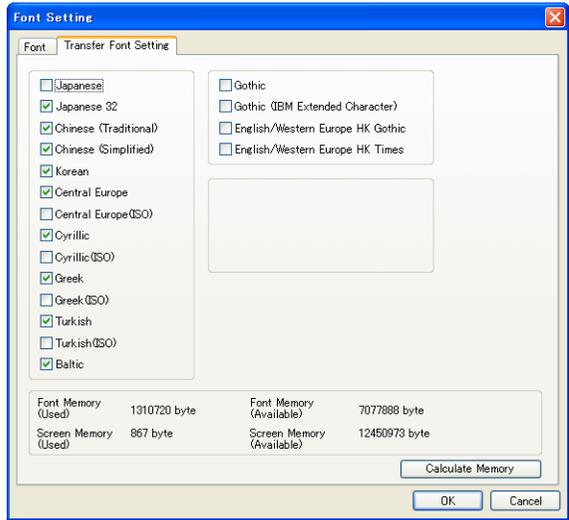
<p>Font *2</p>	<p>When "2" or more is set for [Interface Language], you can select languages in addition to [Language 1].                  Select the language number (example: Language 2) from the drop-down menu on the right, and select the applicable font from the drop-down menu on the left.</p> 
<p>Interface Language (1 - 8)</p>	<p>Set the number of languages to be used.                  Example: [2]: Language 1 to Language 2                  [5]: Language 1 to Language 5</p>
<p>Initial Interface Language (1 - 8)</p>	<p>Select the language to be displayed when the power is turned on.                  * When no CF card is inserted, Language 1 is selected.</p>
<p>Import</p>	<p>Use this button when editing text in a language other than Language 1 in a CSV file.</p>
<p>Export</p>	<p>For more information, refer to page A3-17.</p>
<p><input type="checkbox"/> With [ ]</p>	

\*1 The available combinations of language selections for [Main Menu] and [Font] are shown below.

Main Menu	Font
Japanese, English	Japanese
	Japanese 32
	Gothic
	Gothic (IBM Extended Character)
Chinese (Traditional), English	Chinese (Traditional)
Chinese (Simplified), English	Chinese (Simplified)
Korean, English	Korean
English	English/Western Europe
	English/Western Europe HK Gothic
	English/Western Europe HK Times
	Central Europe
	Cyrillic
	Greek
	Turkish
	Baltic

\*2 Select the language types to be used without mixing the size specifying methods: [Enlarge] and points. For more information on possible combinations, refer to page A3-6.

**[Transfer Font Setting] tab window**



(Font name)	The 1st language is automatically checked. Do not check any box for other languages. Fonts are stored on a CF card instead of being transferred to MONITOUCH.
-------------	---

**Language selection using Gothic, English/Western Europe HK Times, and English/Western Europe HK Times**

For more information, refer to page A3-14.

**2. Multi-language Editing**

The editing procedure is the same as that for “A. Multi-language Selection.”

For more information, refer to page A3-16.

**3. CHG\_LANG Macro Command Setting**

The setting procedure is the same as that for “A. Multi-language Selection.”

For more information, refer to page A3-27.

**4. Layout Check**

The checking procedure is the same as that for “A. Multi-language Selection.”

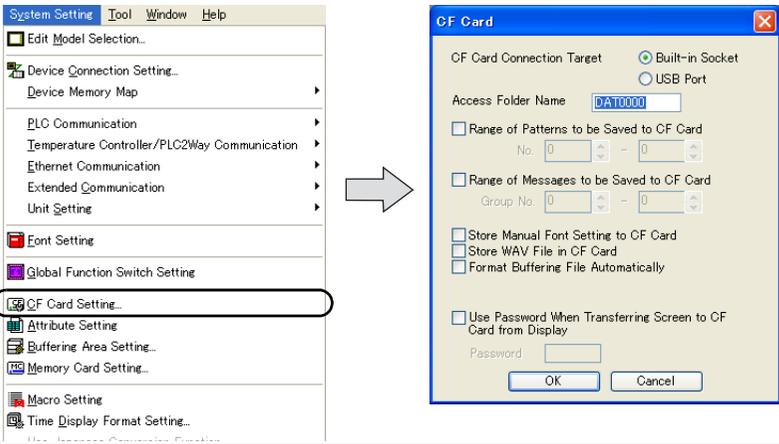
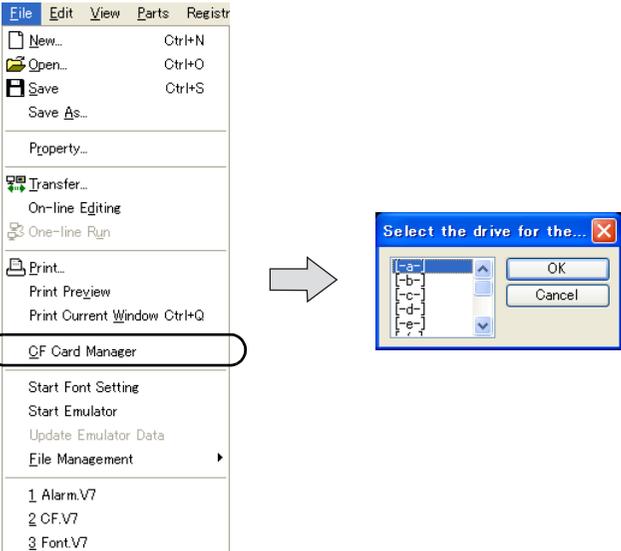
For more information, refer to page A3-28.

## 5. Writing the Font File to a CF Card

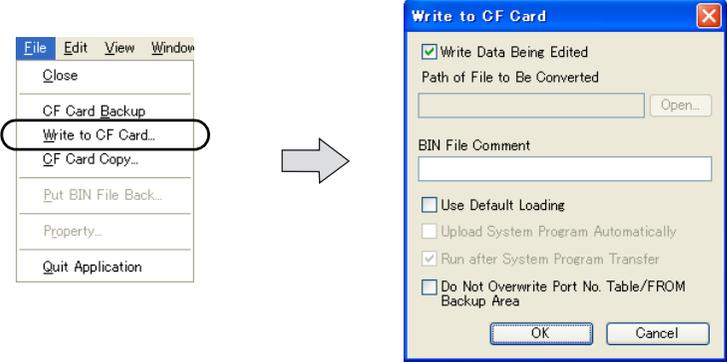
To perform a multi-language selection using CF cards, you need to store the font file for Language 2 and later on a CF card. Then insert it into MONITOUCH.

### Storing procedure

The procedure for storing font data for Language 2 and later are described below:

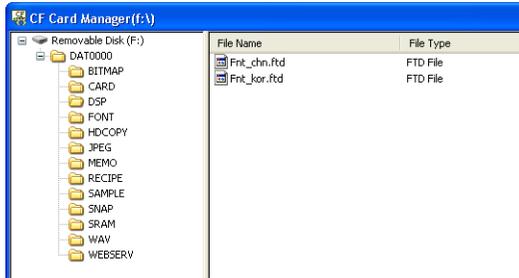
<p>Step 1</p>	<p>Open the V8 screen data file that you completed in the multi-language setting, and select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed.</p> 
<p>Step 2</p>	<p>Enter the desired folder name for [Access Folder Name]. (Max: 8 one-byte numerals or uppercase alphabetic characters) This folder name is used for recognizing screen data to which the font on the CF card corresponds.</p>
<p>Step 3</p>	<p>Save the screen data file of step 2.</p>
<p>Step 4</p>	<p>Insert the CF card into your computer.</p>
<p>Step 5</p>	<p>Select [File] → [CF Card Manager]. The following dialog is displayed:</p> 

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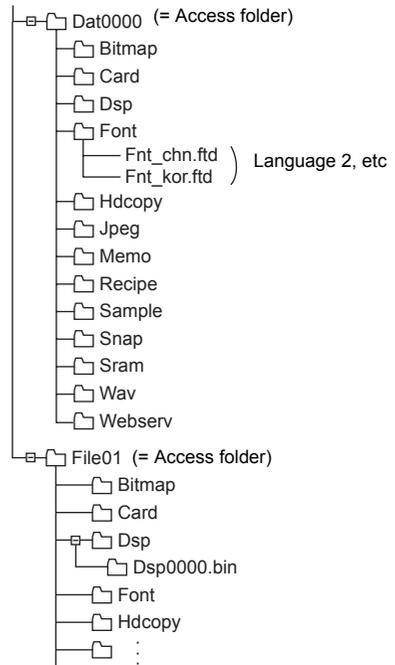
<p>Step 6</p>	<p>Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.</p>  <p>* What is the CF Card Manager? The CF Card Manager is an application software that allows you to write the data to be used in the V8 series to a CF card, or to import data from a CF card and convert it into another file format. For more information, refer to “18.4 CF Card Manager” (page 18-35).</p>
<p>Step 7</p>	<p>Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed.</p> 
<p>Step 8</p>	<p>Click the [Open] button next to [Path of File to Be Converted], and select the V8 screen data file (extension “*.V8”) in which you made the multi-language setting.</p>
<p>Step 9</p>	<p>Click [OK] in the [Write to CF Card] dialog. The font file has been transferred to the CF card.</p>

### Structure in the CF card

Fonts are stored as shown below:



CF card



Store Target:  
Access folder\Font

File Name:

Font	File Name
Japanese	Fnt_jpn.ftd
Japanese 32	Fnt_jpn2.ftd
English/Western Europe	Fnt_eng.ftd
Chinese (Traditional)	Fnt_twn.ftd
Chinese (Simplified)	Fnt_chn.ftd
Korean	Fnt_kor.ftd
Gothic	Fnt006.ftd, Fnt0062.ftd
Gothic (IBM Extended Character)	Fnt012.ftd, Fnt0122.ftd
English/Western Europe HK Gothic	Fnt008.ftd, Fnt0082.ftd
English/Western Europe HK Times	Fnt009.ftd, Fnt0092.ftd
Central Europe	Fnt105.ftd
Cyrillic	Fnt106.ftd
Greek	Fnt107.ftd
Turkish	Fnt109.ftd
Baltic	Fnt110.ftd

\* The fonts other than the font for Language 1 are stored on the CF card.

When you insert this CF card into MONITOUCH to which you transfer the multi-language screen data, multi-language selection becomes possible.

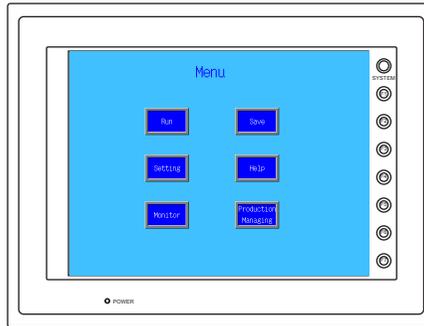
## 6. Screen Data Transfer

---

When all the prerequisites have been completed, transfer the screen data to MONITOUCH.

When the data has been transferred, insert the CF card (step 4) into MONITOUCH and select RUN mode.

The language selected for [Initial Interface Language] in "1. Font setting" is displayed first.



When you execute the CHG\_LANG macro command and display a screen, the corresponding language is displayed.

## C. Multi-language Selection

---

Using the Windows fonts, it is possible to display multiple languages while switching them in RUN mode.

For the editing procedures as well as notes on the Windows fonts, refer to the Operation Manual.

## D. Displayed Character Selection

This section describes the procedure for switching over characters of different languages in RUN mode using the same font.

\* The procedure is explained assuming that the setting for Language 1 has been completed.

### Setting Procedure

1. Font setting (page A3-37)
2. Displayed character editing (page A3-16)
3. CHG\_LANG macro command setting (page A3-27)
4. Layout check (page A3-28)
5. Screen data transfer (page A3-36)

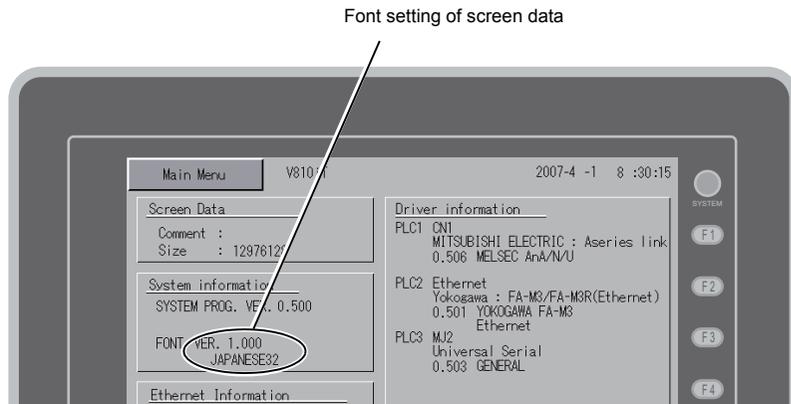
### 1. Font Setting

The setting procedure is almost same as the “Multi-Language Selection” (refer to page A3-12) described before.

However, specify the same font for [Language 1] and [Language 2] in the [Font Setting] dialog.

Only one font type you set is downloaded to MONITOUCH.

(The downloaded font is indicated on the Main Menu screen.)



### 2. Displayed Character Editing

Edit characters in Language 2 (or later) that correspond to the original characters in Language 1.

The editing procedure is the same as that for multi-language selection.

#### When importing from a CSV file:

For more information, refer to page A3-17.

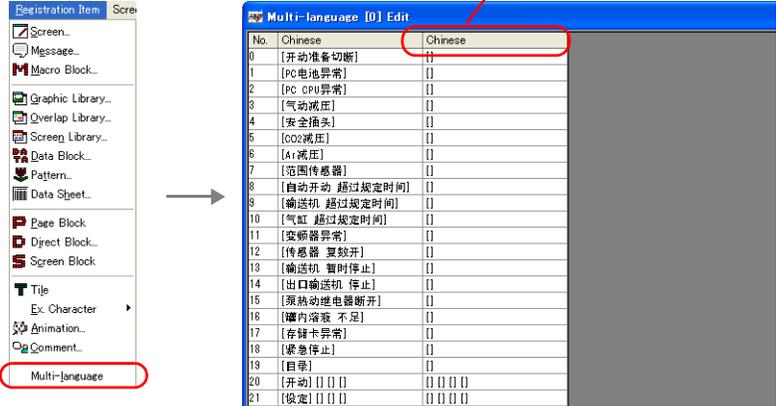
**When editing on the multi-language window:**

Bring up the text in Language 1 used for the screen data on the [Multi-language Edit] window, and enter the desired text in another language.

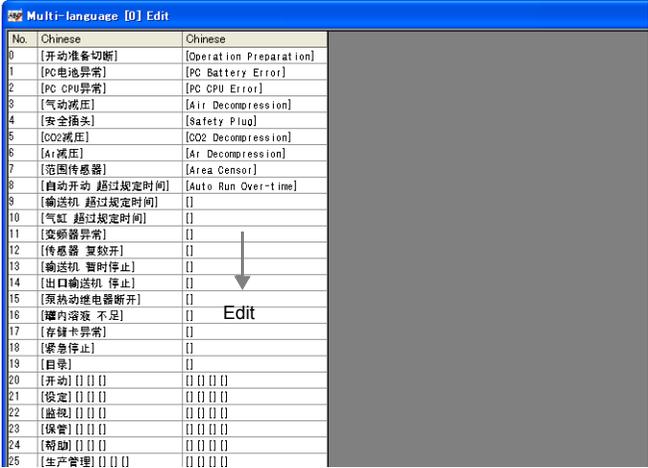
Follow the steps below.

**Step 1** Open the screen data and click [Registration Item] → [Multi-language]. The [Multi-language [0] Edit] window is displayed.

Select the same font of [Language 2] as that of [Language 1].



**Step 2** Enter the text in Language 2 and later directly on the [Multi-language [0] Edit] window.



\* Text editing of Language 1 cannot be performed on the [Multi-language Edit] window.

**Notes**

- It is not possible to know in which item each text is used.
- You can edit text using another application software (e.g. Word, Excel, etc.) and paste it on the [Multi-language Edit] window. Paste text by right-clicking on the screen with the cursor displayed.

**When directly editing text on items on the screen:**

For more information, refer to page A3-25.

### **3. CHG\_LANG Macro Command Setting**

---

The setting procedure is the same as that for multi-language selection.  
For more information, refer to page A3-27.

### **4. Layout Check**

---

The checking procedure is the same as that for multi-language selection.  
For more information, refer to page A3-28.

### **5. Screen Data Transfer**

---

The setting procedure is the same as that for multi-language selection.  
For more information, refer to page A3-36.

## E. Multi-language Screen

---

This section describes the setting procedure for managing multiple languages in different fonts in the same screen data file and transferring the font for one language to MONITOUCH when it is required.

\* The procedure is explained assuming that the setting for Language 1 has been completed.

### Setting Procedure

---

1. Font setting
2. Displayed character editing
3. Layout check
4. Screen data transfer

#### 1. Font Setting

---

The setting procedure is the same as that for multi-language selection.  
For more information, refer to page A3-12.

#### 2. Displayed Character Editing

---

Edit characters in Language 2 (or later) that correspond to the original characters in Language 1.  
The editing procedure is the same as that for multi-language selection.

**When importing from a CSV file:**

For more information, refer to page A3-17.

**When editing on the multi-language window:**

For more information, refer to page A3-25.

**When directly editing text on items on the screen:**

For more information, refer to page A3-25.

#### 3. Layout Check

---

The checking procedure is the same as that for multi-language selection.  
For more information, refer to page A3-28.

## 4. Screen Data Transfer

Since language selection is not allowed in the RUN mode, it is necessary to load the font data each time language selection is made. Follow the steps below.

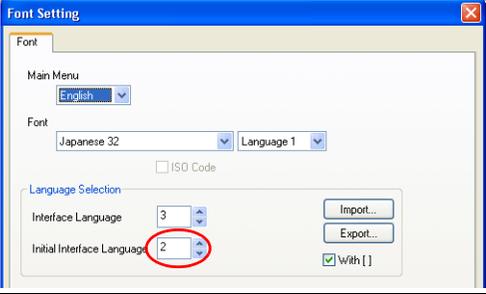
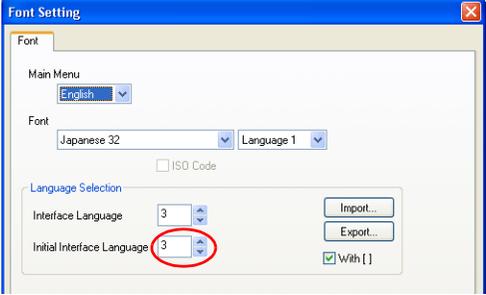
Example:

Language 1: Japanese 32

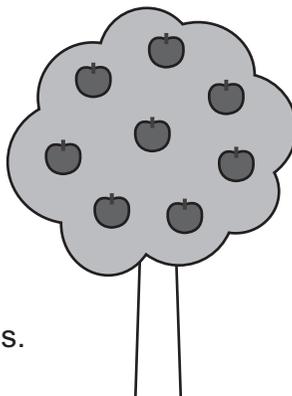
Language 2: Chinese (Simplified)

Language 3: Korean

A3

Step 1	When transferring Chinese screens to MONITOUCH: Open the multi-language screen data.
Step 2	<p>Select [System Setting] → [Font Setting]. Set “2” for [Initial Interface Language] and click [OK].</p> 
Step 3	Transfer screen data. The Chinese font is transferred to MONITOUCH and the MONITOUCH screen is displayed in Chinese.
Step 4	<p>When transferring Korean screens to MONITOUCH: Select [System Setting] → [Font Setting]. Set “3” for [Initial Interface Language] and click [OK].</p> 
Step 5	Transfer screen data. The Korean font is transferred to MONITOUCH and the MONITOUCH screen is displayed in Korean.

# MEMO



Please use this page for notes.

# Appendix 4 Styles and Coordinates

Character properties of items and parts as well as part designing options are almost the same for every setting dialog.

This section explains these setting items that are commonly used for items and parts.

## Style

### Applicable Items

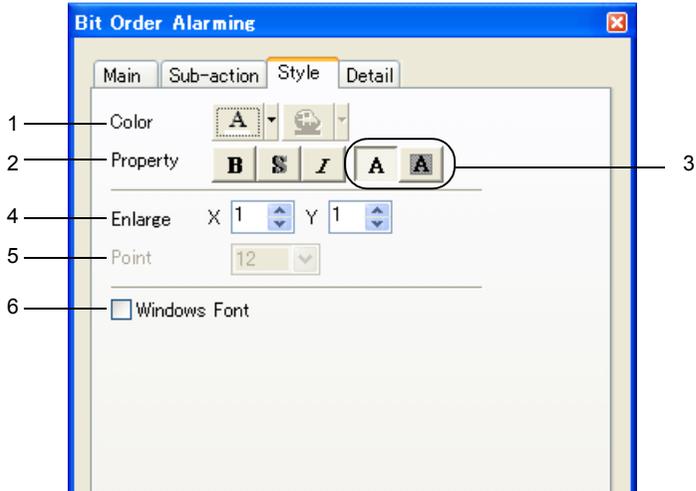
The following items apply to the explanation in this section:

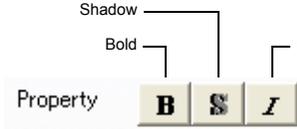
Part Menu	Item	Menu Name	Refer to:
Overlap	Normal Overlap	Style	page A4-9
Switch	Switch, Lamp	Style	
Lamp		Text	page A4-4
Data Display	Data Display (numerical, character, message)	Style	page A4-7
	Table Data Display (all)	Style	page A4-9
	Table Data Display (respective data)	Style	page A4-7
Message	Message	Style	page A4-2
Graph	Graph (bar, pie, closed area, panel meter)	Style	page A4-9
	Statistic Graph (bar, pie)	Style	
Trend Graph	Trend Graph	Style	
	Trend Sampling	Style	
	Data Sampling Area	Style	
Alarm	Alarm Tracking	Style	
	Bit Order Alarming	Style	
	Alarm Sub Display	Style	
	Time Order Alarming	Style	
	Alarm Logging	Style	
-	Display Area	Style	page A4-9
Calendar	Calendar	Style	page A4-7
	Time Display	Style	
Recipe	Recipe	Style	page A4-2
Others	Memory Card	Style	

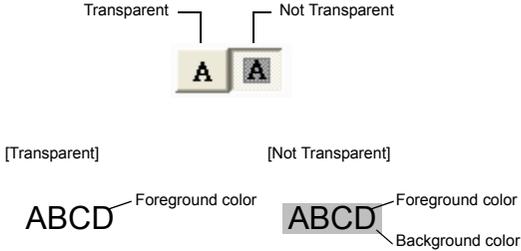
## Message Display Type

This is applicable to the [Style] tab window for bit order alarming, alarm tracking and memory card mode.

### Setting dialog



1	Color (Foreground, Background)	<p>Set the color for text.</p>  <p>When [Transparent] is not selected (refer to "Transparent" item), be sure to set the background color.</p> 
2	Property	<p>Select the bold, shadow or italic typeface for text.</p>  <p>[Shadow]</p> 

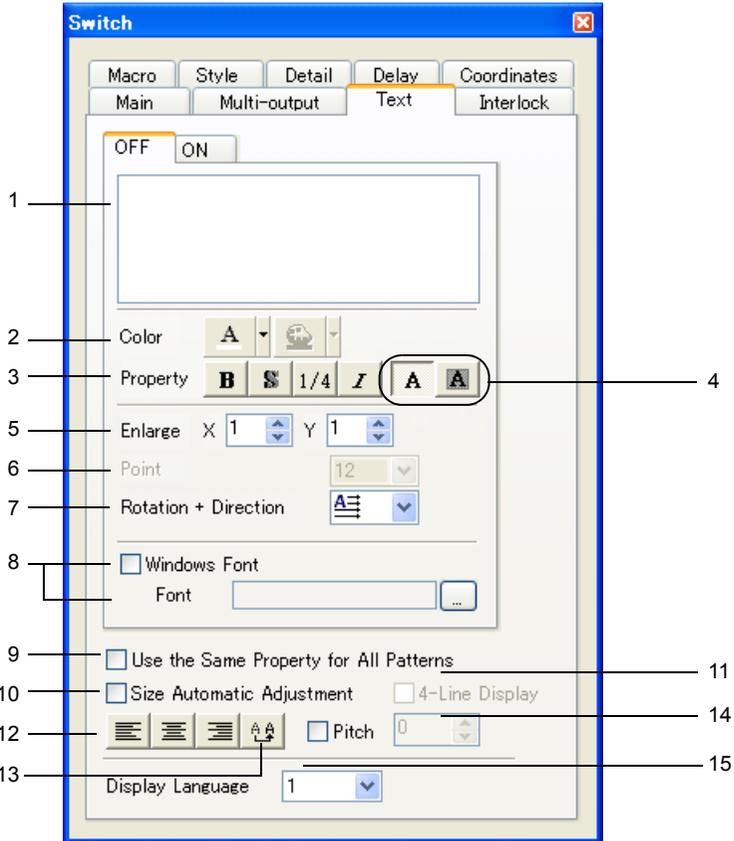
3	Transparent	<p>Select whether or not to make text background transparent.</p>  <p>[Transparent]                      [Not Transparent]</p> <p>ABCD Foreground color                      ABCD Foreground color  <span style="margin-left: 300px;">Background color</span></p>
4	Enlarge (1 to 8)	<p>Specify enlargement factor for text.</p> <p>* If you select [System Setting] → [Font Setting] and select [Gothic] (or Gothic (IBM Extended Character)), [English/Western Europe HK Gothic] or [English/Western Europe HK Times], and check the box for [<input type="checkbox"/> Windows Font], this setting is disabled.</p>
5	Points (8 to 72)	<p>If you select [System Setting] → [Font Setting] and select [Gothic] (or Gothic (IBM Extended Character)), [English/Western Europe HK Gothic] or [English/Western Europe HK Times], and check the box for [<input type="checkbox"/> Windows Font], this setting is disabled. Set text size.</p>
6	<input type="checkbox"/> Windows Font	<p>Check the box when using Windows font. For more information on the Windows fonts, refer to the Operation Manual.</p>

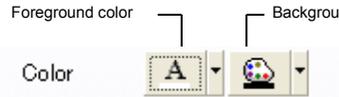
## Switch and Lamp

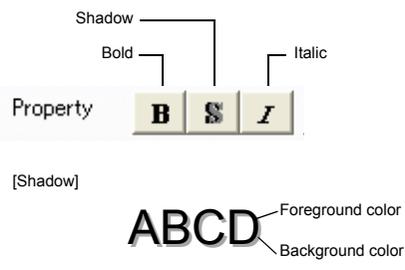
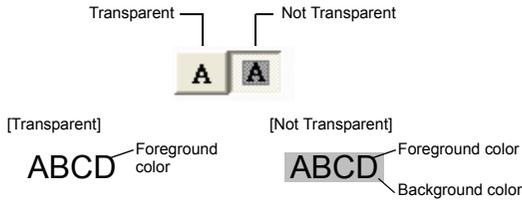
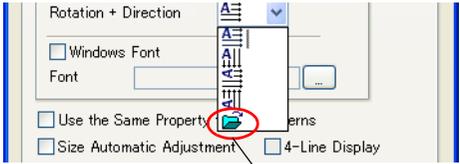
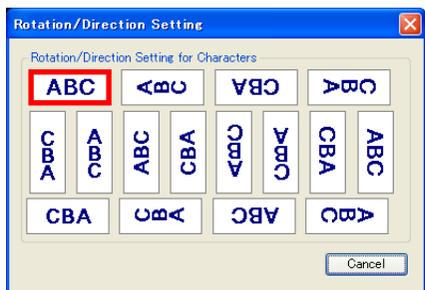
For switch and lamp parts, set text style in the [Text] tab window.

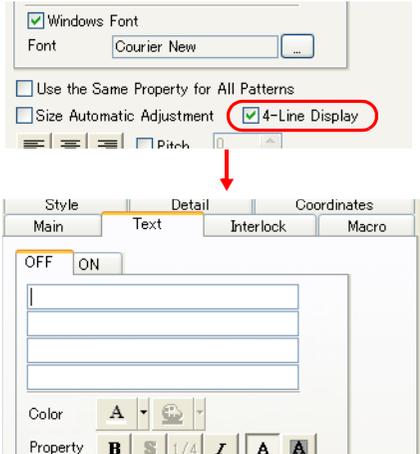
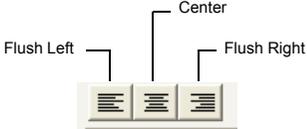
For more information on the [Style] tab window for switch and lamp parts, refer to page A4-9.

### Setting dialog



1	Text entry area	Enter text to be displayed on the switch or lamp part. (Up to 4 lines can be registered. Text properties can be set line by line.) The OFF text can be entered in the [OFF] tab window; the ON text can be entered in the [ON] tab window.
2	Color (Foreground, Background)	Set the color for text.  <div style="text-align: center;">  </div> <p>When [Transparent] is not selected (refer to "Transparent" item), be sure to set the background color.</p> <div style="text-align: center;">  </div>

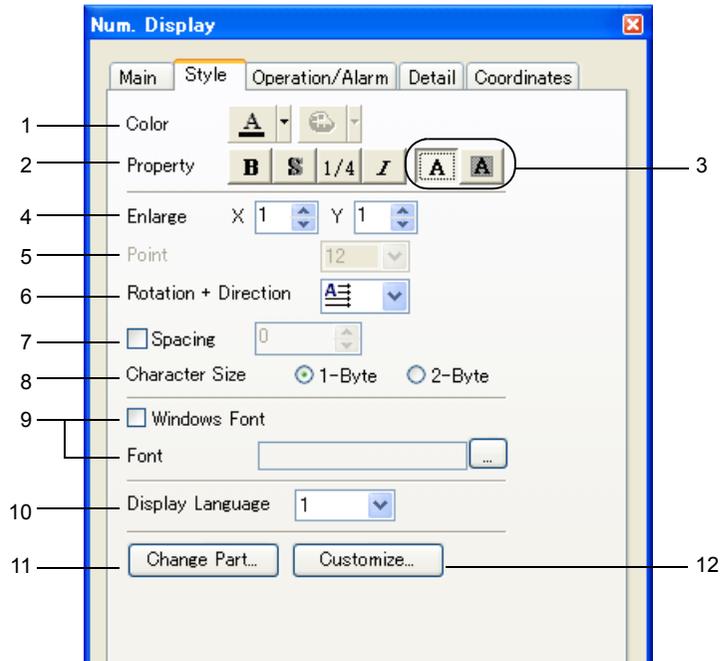
<p>3</p>	<p>Property</p>	<p>Select the bold, shadow or italic typeface for text.</p>  <p>* This is active when [Enlarge X] is set to "1".</p>
<p>4</p>	<p>Transparent</p>	<p>Select whether or not to make text background transparent.</p> 
<p>5</p>	<p>Enlarge (1 to 8)</p>	<p>Specify enlargement factor for text.</p> <p>* If you select [System Setting] → [Font Setting] and select [Gothic] (or Gothic (IBM Extended Character)), [English/Western Europe HK Gothic] or [English/Western Europe HK Times], and check the box for [<input type="checkbox"/> Windows Font], this setting is disabled.</p>
<p>6</p>	<p>Points (8 to 72)</p>	<p>If you select [System Setting] → [Font Setting] and select [Gothic] (or Gothic (IBM Extended Character)), [English/Western Europe HK Gothic] or [English/Western Europe HK Times], and check the box for [<input type="checkbox"/> Windows Font], this setting is disabled. Set text size.</p>
<p>7</p>	<p>Rotation + Direction</p>	<p>Set the combination of text rotation or direction. Four combinations are displayed in the drop-down menu.</p>  <p>Click this icon when you want to see other options.</p> <p>When selecting an option other than the above, click the icon at the bottom. The dialog that allows selection from all options is displayed:</p> 

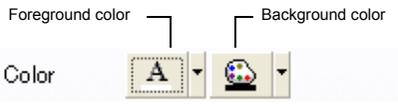
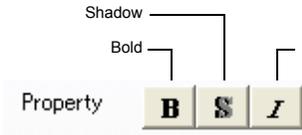
8	<input type="checkbox"/> Windows Font	Check the box when using Windows font. For more information on the Windows fonts, refer to the Operation Manual.
9	<input type="checkbox"/> Use the Same Property for All Patterns	When this box is checked, properties in this dialog are applied to all patterns (OFF, ON, P3 to P8) of switch and lamp parts (to respective lines if multiple lines are included).
10	<input type="checkbox"/> Size Automatic Adjustment	When this box is checked, the switch or lamp part size is automatically adjusted to the text you entered.
11	<input type="checkbox"/> 4-Line Display	<p>This is valid when [<input type="checkbox"/> Windows Font] is checked. When this box is checked, the text entry area is divided into four lines. In this condition, different properties can be specified for each line in Windows font.</p>  <p>For more information on the Windows fonts, refer to the Operation Manual.</p>
12	Alignment	<p>Set text alignment.</p> 
13	Text copy	Text and its attributes of the current pattern (OFF, ON, P3) are copied to the other patterns.
14	<input type="checkbox"/> Pitch	Set the pitch between lines.
15	Display Language	This setting is effective when you create multi-language screen data. For more information, refer to "Appendix 3 Display Language."

## Data Display

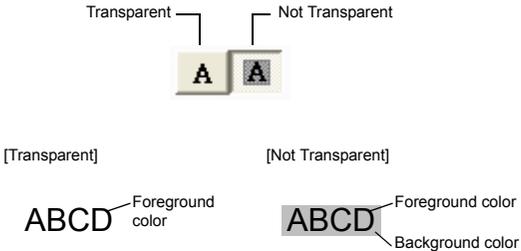
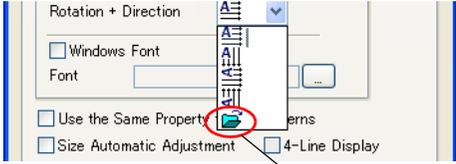
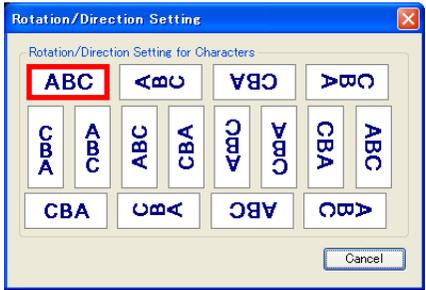
This is applicable to the [Style] tab window for numerical data display, character display and message display.

### Setting dialog



<p>1</p>	<p>Color (Foreground, Background)</p>	<p>Set the color for text.</p>  <p>When [Transparent] is not selected (refer to "Transparent" item), be sure to set the background color.</p> 
<p>2</p>	<p>Property</p>	<p>Select the bold*, shadow or italic typeface for text.</p>  <p>[Shadow]</p>  <p>* This is active when [Enlarge X] is set to "1".</p>

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3	Transparent <sup>*1</sup>	<p>Select whether or not to make text background transparent.</p> 
4	Enlarge (1 to 8)	<p>Specify enlargement factor for text.</p> <p>* If you select [System Setting] → [Font Setting] and select [Gothic] (or Gothic (IBM Extended Character)), [English/Western Europe HK Gothic] or [English/Western Europe HK Times], and check the box for [<input type="checkbox"/> Windows Font], this setting is disabled.</p>
5	Points (8 to 72)	<p>If you select [System Setting] → [Font Setting] and select [Gothic] (or Gothic (IBM Extended Character)), [English/Western Europe HK Gothic] or [English/Western Europe HK Times], and check the box for [<input type="checkbox"/> Windows Font], this setting is disabled.</p> <p>Set text size.</p>
6	Rotation + Direction	<p>Set the combination of text rotation or direction. Four combinations are displayed in the drop-down menu.</p>  <p>Click this icon when you want to see other options.</p> <p>When selecting an option other than the above, click the icon at the bottom. The dialog that allows selection from all options is displayed:</p> 
7	<input type="checkbox"/> Spacing <sup>*2</sup> (0 to 64)	<p>When this box is checked, you can specify spacing between characters.</p>
8	Character Size <sup>*3</sup> (1-Byte, 2-Byte)	<p>Choose one-byte or two-byte for displaying numerical data</p>
9	<input type="checkbox"/> Windows Font	<p>Check the box when using Windows font. For more information on the Windows fonts, refer to the Operation Manual.</p>
10	Display Language	<p>This setting is effective when you create multi-language screen data. For more information, refer to "Appendix 3 Display Language."</p>

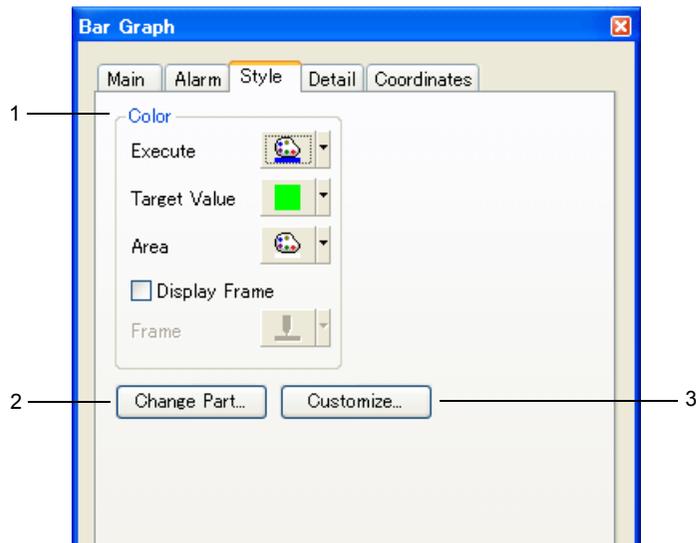
11	Change Part	For more information, refer to the Operation Manual.
12	Customize	For more information, refer to the Operation Manual.

- \*1 For transparent setting for data display parts, there are some points to be noted.  
For more information, refer to “5.5 Notes” (page 5-34) in “5 Data Display.”
- \*2 [ Spacing] is the setting applicable to numerical data display and character display parts.
- \*3 [Character Size] is the setting applicable only to numerical data display part.

## Graph and Display Area Type

This is applicable to the [Style] tab window for normal overlap display, switch or lamp, graph, display area and data sampling area parts.

### Setting dialog



1	Color	Set color for each item.
2	Change Part	For more information, refer to the Operation Manual.
3	Customize	For more information, refer to the Operation Manual.

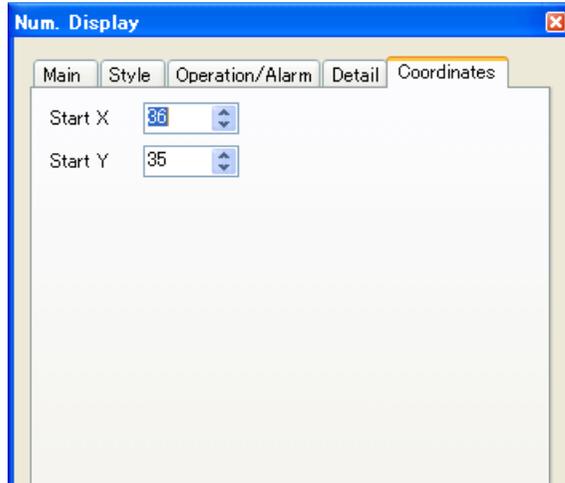
## Coordinates

### Applicable Items

Part Menu	Item	Menu Name	Refer to:
Overlap	Normal Overlap	Coordinates	page A4-12
Switch, Lamp	Switch, Lamp	Coordinates	
Data Display	Data Display (numerical, character, message)	Coordinates	page A4-11
	Table Data Display (all)	Coordinates	
Graph	Graph (bar, pie, closed area, panel meter)	Coordinates	page A4-12
	Statistic Graph (bar, pie)	Coordinates	
Trend Graph	Trend Graph	Coordinates	
	Trend Sampling	Coordinates	
	Data Sampling Area	Coordinates	
–	Display Area	Coordinates	
Calendar	Calendar	Coordinates	page A4-11
	Time Display	Coordinates	
Multimedia	Video Overlap	Coordinates	

## Data Display Type

This is applicable to numerical data display, character display and message display.

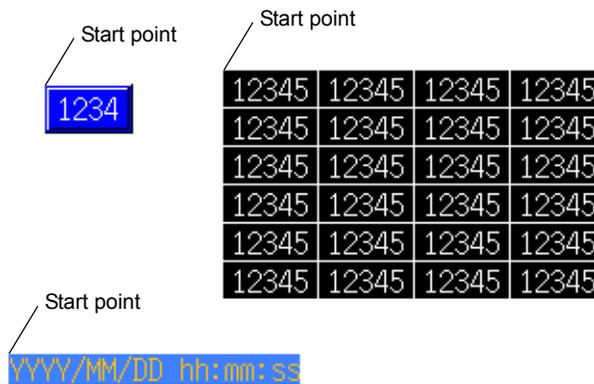


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Start X	Specify the X coordinate at the upper left corner of the item in dots.
Start Y	Specify the Y coordinate at the upper left corner of the item in dots.

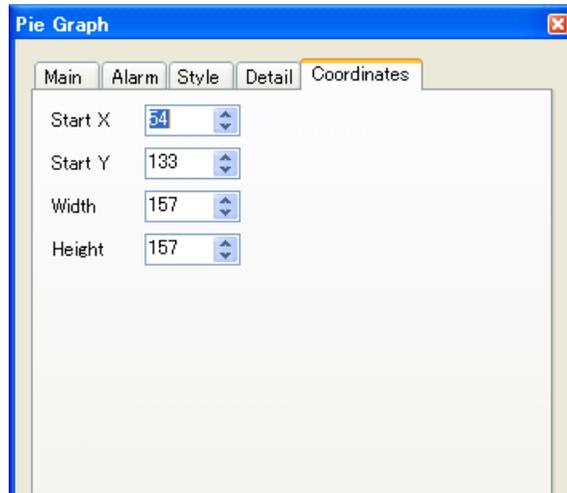
### Start X/Y for each item

Specify the upper left corner of each item for [Start X/Y].



## Switch, Lamp and Graph Type

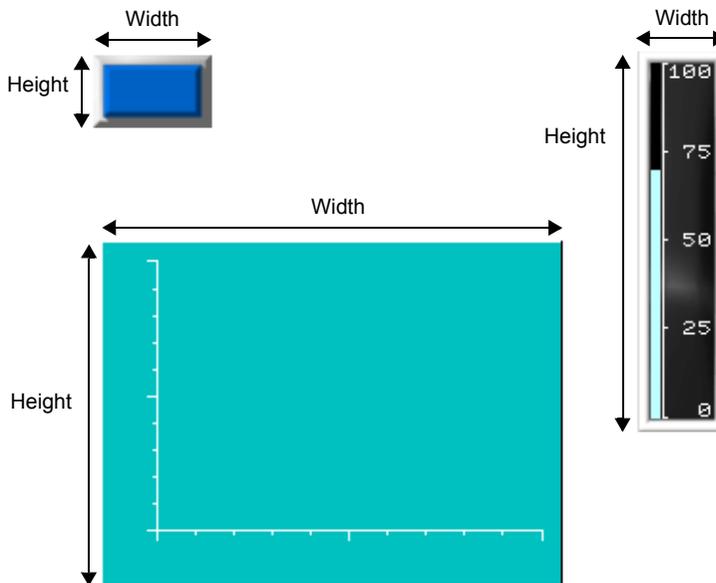
This is applicable to switch, lamp, graph and normal overlap display parts.



Start X	Specify the X coordinate at the upper left corner of the item in dots.
Start Y	Specify the Y coordinate at the upper left corner of the item in dots.
Width	Specify the X size of the item in dots.
Height	Specify the Y size of the item in dots.

### Width and height for each item

Width and height are shown below.



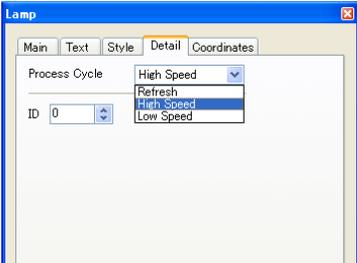
# Appendix 5 Process Cycle

The screen display speed in communication between the V8 series and the PLC depends on the number of parts (mainly the number of memory addresses read from PLC) placed on the screen.

When displaying more parts in screen data, the display speed gets slower and switch response may not be slowed. In such a case, it is possible to speed up the process by differentiating between the data to be viewed in real time (high speed) and the others (low speed). This setting is available with [Process Cycle] included in each item dialog.

## Setting of Process Cycle

The read timing from the PLC memory can be set. (The following example is the case with a lamp part.)



Refresh	<ul style="list-style-type: none"> <li>• One cycle when the screen is opened</li> <li>• At the leading edge (OFF → ON) of bit 15 (data read refresh) in read area * "n + 1"</li> </ul>
High Speed	<ul style="list-style-type: none"> <li>• Every cycle</li> </ul>
Low Speed	<ul style="list-style-type: none"> <li>• Once in several cycles</li> <li>• One cycle when the screen is opened</li> <li>• At the leading edge (OFF → ON) of bit 15 (data read refresh) in read area * "n + 1"</li> </ul>

\* The read area is set in the [Communication Parameter] dialog. For more information, refer to "1 System Setting."

### Exceptions

1. Regardless of process cycle setting, all data is read from the memory at the leading edge (OFF → ON) of bit 15 of the read area "n + 1" and when a screen is opened.  
With this operation, all screen data is displayed on the screen.
2. When [Internal] or [Memory Card] is chosen for [Memory], [High Speed] is automatically selected for [Process Cycle].

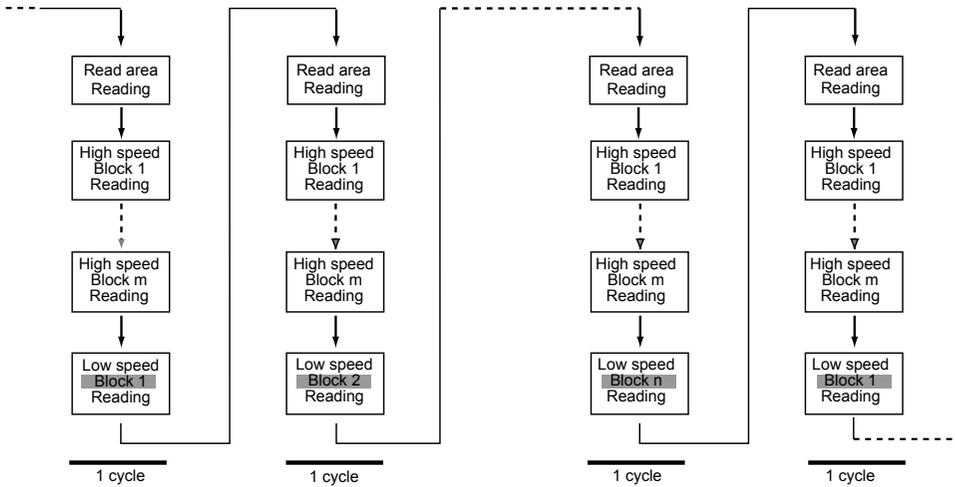
A5

## Processing in V8 Series

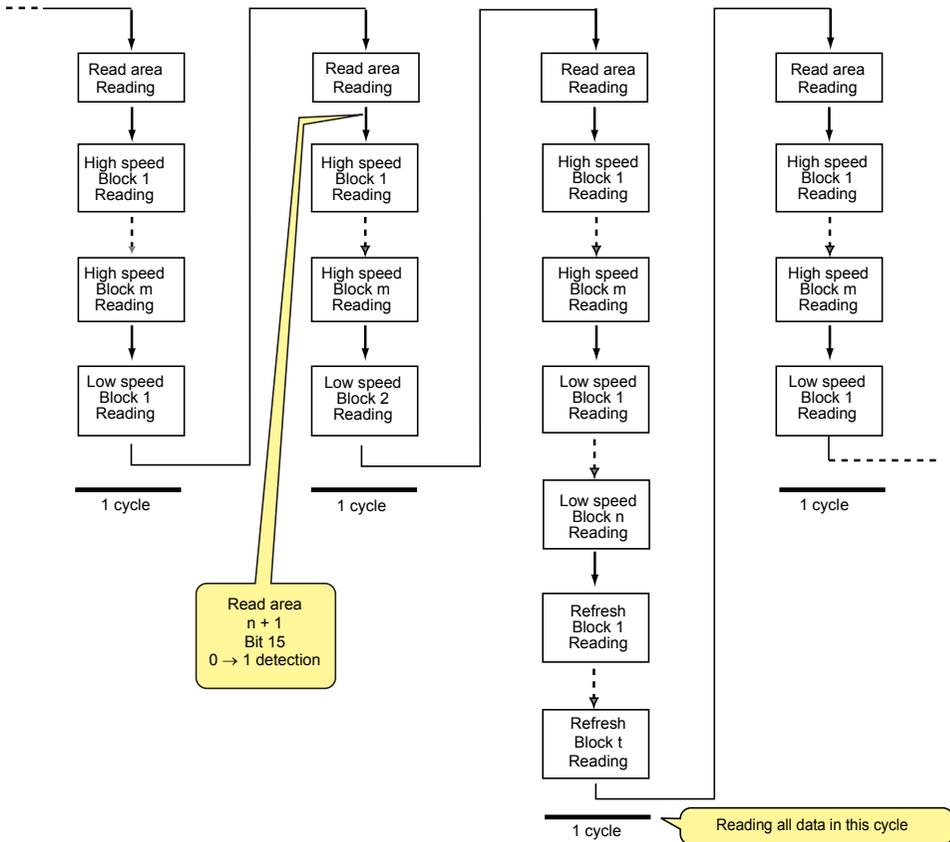
Processing in the V8 series is performed in the following order:

- The V8 series analyzes screen data to be read from the PLC, and reads them in blocks.
- With data set as high speed, all the blocks are read in one cycle.
- With data set as low speed, one block is read in one cycle.

The next one block is read in the following one cycle.



- When activation of bit 15 of read area “n + 1” is detected, all data is read in the next cycle regardless of the setting.

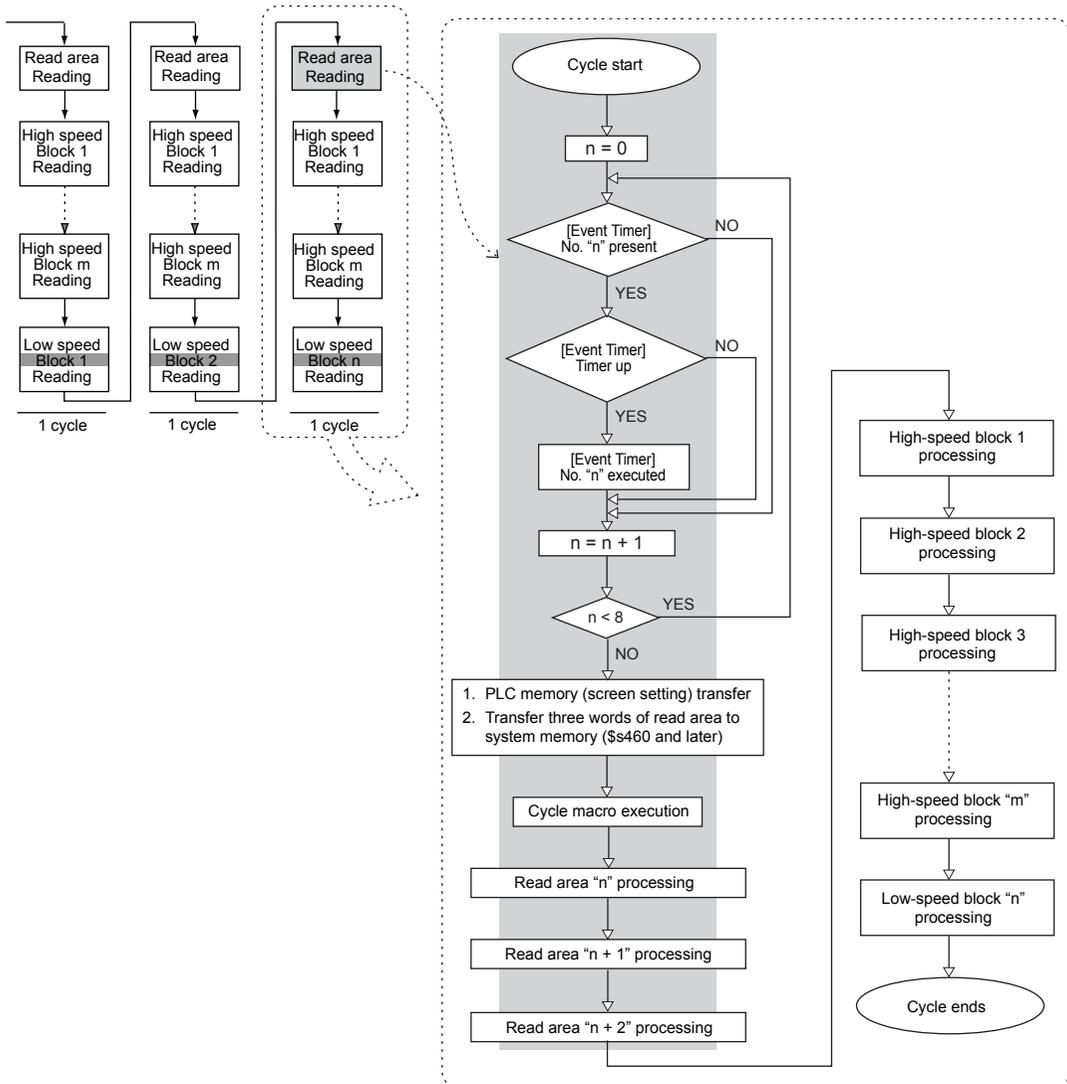


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- Reading of the memory required for display and operation is performed at the same time using two programs.
- Writing of switch activation, etc. is performed in the interval between reading blocks.  
If you feel that the switch response is not optimal, try changing the value for [Receive Slice Time]; if “0” is set, enter “1”; if a value other than “0” is set, enter “0”.  
Set the most appropriate value for [Receive Slice Time] by a cut-and-try method.

## One-cycle Processing

The memory set for [Read Area] in the [Communication Parameter] dialog is read first. Next, data in the memory set for the items on the screen is read and drawn. When operations of all the setting data have been performed, the screen display is completed. This series of operations is called "one cycle." Refer to the illustration below.



### Notes

- The write area is not shown in the above illustration because it is processed at a cycle different from the read area.
- For one cycle that is executed when the screen is opened, data of all the parts placed on the screen is read and the screen OPEN macro is executed; consequently, the processing is not the same as shown above.

## If Communication Speed is Slow:

To speed up communications, try the following method.

### Conventions for Screen Creation

Method		Effect
Consecutively allocate the PLC memory addresses that are used for the same screen.		The number of blocks decreases so the cycle time can be shorter.
Each part	Change the setting for [Process Cycle]. *1	Set [Process Cycle] considering the entire amount of screen data, data type, or functional properties.
Macro	Command conventions *2	Use a macro command to reduce the number of accesses to the PLC.
Sampling	Uncheck [ <input type="checkbox"/> Memory Designation] in the [Buffering Area Setting] dialog, and set the memory of read area "n + 3" and later as sampling data memory. For [Individually] is selected for [Memory], allocate memory addresses consecutively.	The number of blocks decreases so the cycle time can be shorter.
Multi-link Multi-link2	Place all the connected V8 series in RUN mode.	This eliminates recovery confirmation accesses to the ports where communications are not possible.
Screen setting	Set "0" for [Receive Slice Time].	Since the data of each block is greater (= the number of blocks is reduced), the cycle time will be shorter.

\*1 Example of changing [Process Cycle]:

- For data display parts where data is written by the V8 series in entry mode without any changes from the PLC or for those that are hardly changed, select [Refresh].
- Select [Low Speed] for data display parts where the display speed on the V8 series need not be fast in response to data changes in the PLC.
- For data display parts that must be displayed in real time, select [High Speed].

\*2 Example using macro commands:

With [MOV] command:

Line No. 0 D200 = \$u200 (W)

Line No. 1 D201 = \$u201 (W)

Line No. 2 D202 = \$u202 (W)

Line No. 2 D203 = \$u203 (W)

Line No. 3 D204 = \$u204 (W)

When the above is set, write operation to the PLC is performed five times. However, when [BMOV] command is used:

Line No. 0 D200 = \$u200 C : 5 (BMOV)

Only one line is required. Write operation to the PLC is performed only once.

## Other Notes

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- Baud rate setting (serial communications)  
Increase the baud rate between the V8 series and the PLC. With the V8 series, a maximum 115 kbps (direct connection with Siemens MPI port: maximum 187,500 bps) is supported. Set the maximum baud rate that the PLC supports.
- Ethernet communication  
The baud rate available with Ethernet communication is 10 Mbps (depending on the PLC model). Communications faster than serial communication are available.

On the PLC, set a shorter scan time for the ladder program.

# Appendix 6 Internal Memory

The internal memory is the memory in the V8 series available to the user.

With this internal memory, the V8 series can operate quickly because it is not necessary to transfer to or receive data from the PLC.

## Memory Type

The internal memory is composed as shown below.

Type	Symbol	Memory Range	Contents
User memory	\$u *1	0 to 32767 (32768 words)	This is the read/write memory that can be used freely. This is an area common to all screens.
	\$L \$LD *2	Depends on user setting (Refer to "Appendix 2 SRAM/Clock Setting.")	This is the read/write memory that can be used freely. This is an area common to all screens.
	\$T *1	0 to 1023 (1024 words)	This is the read/write memory that can be used freely. Each screen can have up to 1024 words. When the screen is switched, all the areas are reset to "0." Consequently, these memory addresses can be used for macro commands that should be executed for each screen.
	\$M *1	0 to 2047 (2048 words)	This is the read/write memory that can be used freely. Each macro command can have up to 2048 words. When the macro command has been executed, or another macro command is called, all the areas are reset to "0". Consequently, these memory addresses can be used for storing temporary values such as for arithmetic operations.
	\$MC *1	0 to 2047 (2048 bytes)	This is the read/write memory that can be used freely. Each macro command can have up to 2048 bytes. When the macro command has been executed, or another macro command is called, all the areas are reset to "0". Consequently, these memory addresses can be used for storing temporary values such as for arithmetic operations. The difference from \$M is that these are addresses in byte units; therefore, byte access is possible.
	\$C *1	0 to 4095 (4096 words)	These addresses are exclusively used for component parts. These are valid only when editing component parts.
System memory	\$s *1	0 to 2047 (2048 words)	This is the read/write memory used by the system. This memory is used for data communication to and from MONITOUCH, and is mainly necessary for macro commands. <u>Do not use any area indicated as "Not used" of this memory because it is reserved for future use.</u>
	\$P *1	0 to 511 (512 words)	This is the read/write memory and is used to control 8-way communication or indicate the status of 8-way communication. For more information, refer to the V8 Series Connection Manual.

\*1 \$u, \$T, \$M, \$MC, \$s, and \$P are volatile memory.

When the Main Menu screen is displayed or the power is shut down (reset), data is erased.

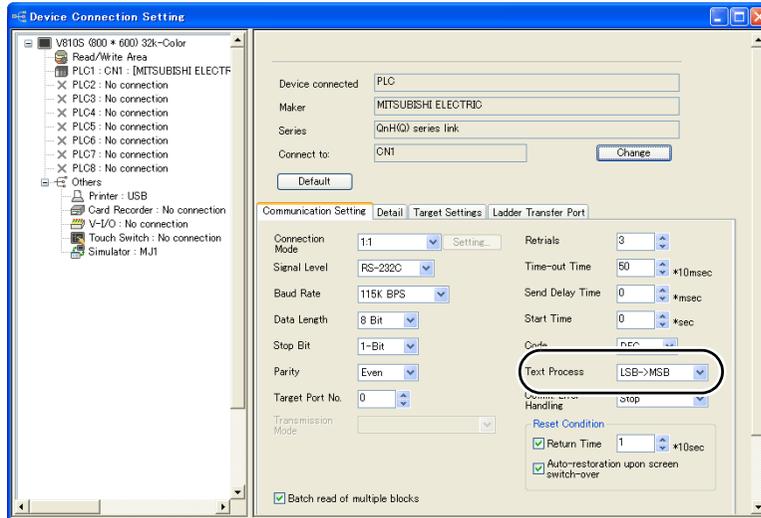
\*2 \$L and \$LD are non-volatile memory. Data is retained if the power is shut down.

To use \$L or \$LD, it is necessary to use the SRAM area built in the V8 series and to make the SRAM/clock setting.

For the [SRAM/Clock Setting] dialog, refer to "Appendix 2 SRAM/Clock Setting."

## Notes

1. The internal memory works with “DEC” no matter what numeric code is set in the [Communication Parameters] dialog.  
(Except items for which the numeric code is specified individually.)
2. Text processing depends on the setting for [Text Process] in the [Communication Setting] tab window ([System Setting] → [Device Connection Setting]).



## Details of System Memory

Contents in system memory \$s are shown below.

Denotation of [Memory Type] in the list

- ← V  
MONITOUCH writing data
- → V  
User definition or setting

Address	Contents		Memory Type
0	Screen number		← V
1			
2	Overlap 0	Registration/display status	← V
3	Overlap 0	Display position X	
4	Overlap 0	Display position Y	
5	Overlap 0	Overlap library number	
6	Overlap 1	Registration/display status	
7	Overlap 1	Display position X	
8	Overlap 1	Display position Y	
9	Overlap 1	Overlap library number	
10	Overlap 2	Registration/display status	
11	Overlap 2	Display position X	
12	Overlap 2	Display position Y	
13	Overlap 2	Overlap library number	
14			
15			
16	Printer status		← V
17	Backlight status		
18			
19			
20	Buffer 0	The number of buffers specified	← V
21	Buffer 0	The number of buffers	
22	Buffer 0	The number of buffers executed	
23	Buffer 1	The number of buffers specified	
24	Buffer 1	The number of buffers	
25	Buffer 1	The number of buffers executed	
26	Buffer 2	The number of buffers specified	
27	Buffer 2	The number of buffers	
28	Buffer 2	The number of buffers executed	
29	Buffer 3	The number of buffers specified	
30	Buffer 3	The number of buffers	
31	Buffer 3	The number of buffers executed	
32	Buffer 4	The number of buffers specified	

Address	Contents		Memory Type
33	Buffer 4	The number of buffers	← V
34	Buffer 4	The number of buffers executed	
35	Buffer 5	The number of buffers specified	
36	Buffer 5	The number of buffers	
37	Buffer 5	The number of buffers executed	
38	Buffer 6	The number of buffers specified	
39	Buffer 6	The number of buffers	
40	Buffer 6	The number of buffers executed	
41	Buffer 7	The number of buffers specified	
42	Buffer 7	The number of buffers	
43	Buffer 7	The number of buffers executed	
44	Buffer 8	The number of buffers specified	
45	Buffer 8	The number of buffers	
46	Buffer 8	The number of buffers executed	
47	Buffer 9	The number of buffers specified	
48	Buffer 9	The number of buffers	
49	Buffer 9	The number of buffers executed	
50	Buffer 10	The number of buffers specified	
51	Buffer 10	The number of buffers	
52	Buffer 10	The number of buffers executed	
53	Buffer 11	The number of buffers specified	
54	Buffer 11	The number of buffers	
55	Buffer 11	The number of buffers executed	
56			
57			
⋮	⋮		
62			
63			
64	Switch function	Repeat setting	→ V
65	Switch function	Repeat prohibited setting	
66	Switch ON macro	Repeat setting	
67			
68			
69			
70			
71			
72	Result of system call		← V
73	Result of switch function		
74			
75			
76	Keypad overlap AUTO OFF	Prohibited	→ V
77	Exclusive function of overlap display		

Address	Contents		Memory Type
78	Entry mode	Display type of entry target	← V
79	Entry mode	Selection of entry target	→ V
80	Universal serial Switch output 0	Output codes 0 to 15	← V
81	Universal serial Switch output 1	Output codes 16 to 31	
82	Universal serial Switch output 2	Output codes 32 to 47	
83	Universal serial Switch output 3	Output codes 48 to 63	
84	Universal serial Switch output 4	Output codes 64 to 79	
85	Universal serial Switch output 5	Output codes 80 to 95	
86	Universal serial Switch output 6	Output codes 96 to 111	
87	Universal serial Switch output 7	Output codes 112 to 127	
88	Universal serial Switch output 8	Output codes 128 to 143	
89	Universal serial Switch output 9	Output codes 144 to 159	
90	Universal serial Switch output 10	Output codes 160 to 175	
91	Universal serial Switch output 11	Output codes 176 to 191	
92	Universal serial Switch output 12	Output codes 192 to 207	
93	Universal serial Switch output 13	Output codes 208 to 223	
94	Universal serial Switch output 14	Output codes 224 to 239	
95	Universal serial Switch output 15	Output codes 240 to 255	
96			
97			
98			
99	CVFD macro setting		→ V
100	PLC calendar condition		← V
101	Calendar writing to PLC	Setting	→ V
102	Result of macro command HIM-FUNC execution		← V
103			
104	PLC error handling during macro execution		→ V
105	(\$s104 is other than 0: Writing the result of error handling)		← V
106	Memo pad	Displayed page number	
107	Memo pad	Data Registered/ Unregistered	
108	Memo pad	Remaining storage area (low-order) Unit: bytes	
109	Memo pad	Remaining storage area (high-order)	
110	Multi-link/ Multi-link 2 communication	Local port number	
111	Universal serial communication	Local port number	
112			
113			
114	When connecting 1 : n	PLC 1 down information (port number 32 to 47)	← V
115	When connecting 1 : n	PLC 1 down information (port number 48 to 63)	
116	When connecting 1 : n	PLC 1 down information (port number 64 to 79)	
117	When connecting 1 : n	PLC 1 down information (port number 80 to 95)	
118	When connecting 1 : n	PLC 1 down information (port number 96 to 111)	
119	When connecting 1 : n	PLC 1 down information (port number 112 to 127)	

Address	Contents	Memory Type
120	When connecting 1 : n PLC 1 down information (port number 128 to 143)	← V
121	When connecting 1 : n PLC 1 down information (port number 144 to 159)	
122	When connecting 1 : n PLC 1 down information (port number 160 to 175)	
123	When connecting 1 : n PLC 1 down information (port number 176 to 191)	
124	When connecting 1 : n PLC 1 down information (port number 192 to 207)	
125	When connecting 1 : n PLC 1 down information (port number 208 to 223)	
126	When connecting 1 : n PLC 1 down information (port number 224 to 239)	
127	When connecting 1 : n PLC 1 down information (port number 240 to 255)	
128	When connecting 1 : n PLC 1 down information (port number 0 to 15)	
129	When connecting 1 : n PLC 1 down information (port number 16 to 31)	
130	MODBUS TCP/IP sub station information	→ V
131		
132	Cycle time	← V
133		
134		
⋮	⋮	
158		
159		
160	Calendar Year	← V
161	Calendar Month	← V
162	Calendar Day	
163	Calendar Hour	
164	Calendar Minute	
165	Calendar Second	
166	Calendar Day of the week (0: Sunday, 1: Monday, 2: Tuesday, ... 6: Saturday)	
167	SRAM information	
168	Greenwich time (low-order)	
169	Greenwich time (high-order)	
170	Video overlap Selected channel number	
171	Video overlap Dithering	
172	Video overlap Brightness	
173	Video overlap Contrast	
174	Video overlap Color	
175		
176		
177	Sampling buffer number	→ V
178	Overflow flag	← V
179	Overflow flag	
180	Buffer Word 0 Average (low-order)	
181	Buffer Word 0 Average (high-order)	
182	Buffer Word 0 Maximum (low-order)	
183	Buffer Word 0 Maximum (high-order)	

Address	Contents			Memory Type
184	Buffer	Word 0	Minimum (low-order)	← V
185	Buffer	Word 0	Minimum (high-order)	
186	Buffer	Word 0	Total (low-order)	
187	Buffer	Word 0	Total (high-order)	
188	Buffer	Word 1	Average (low-order)	
189	Buffer	Word 1	Average (high-order)	
190	Buffer	Word 1	Maximum (low-order)	
191	Buffer	Word 1	Maximum (high-order)	
192	Buffer	Word 1	Minimum (low-order)	
193	Buffer	Word 1	Minimum (high-order)	
194	Buffer	Word 1	Total (low-order)	
195	Buffer	Word 1	Total (high-order)	
196	Buffer	Word 2	Average (low-order)	
197	Buffer	Word 2	Average (high-order)	
198	Buffer	Word 2	Maximum (low-order)	
199	Buffer	Word 2	Maximum (high-order)	
200	Buffer	Word 2	Minimum (low-order)	
201	Buffer	Word 2	Minimum (high-order)	
202	Buffer	Word 2	Total (low-order)	
203	Buffer	Word 2	Total (high-order)	
204 to 211	Buffer	Word 3	Average, maximum, minimum, total	
212 to 219	Buffer	Word 4	Average, maximum, minimum, total	
220 to 227	Buffer	Word 5	Average, maximum, minimum, total	
228 to 235	Buffer	Word 6	Average, maximum, minimum, total	
236 to 243	Buffer	Word 7	Average, maximum, minimum, total	
244 to 251	Buffer	Word 8	Average, maximum, minimum, total	
252 to 259	Buffer	Word 9	Average, maximum, minimum, total	
260 to 267	Buffer	Word 10	Average, maximum, minimum, total	
268 to 275	Buffer	Word 11	Average, maximum, minimum, total	
276 to 283	Buffer	Word 12	Average, maximum, minimum, total	
284 to 291	Buffer	Word 13	Average, maximum, minimum, total	
292 to 299	Buffer	Word 14	Average, maximum, minimum, total	
300 to 307	Buffer	Word 15	Average, maximum, minimum, total	
308 to 315	Buffer	Word 16	Average, maximum, minimum, total	
316 to 323	Buffer	Word 17	Average, maximum, minimum, total	
324 to 331	Buffer	Word 18	Average, maximum, minimum, total	
332 to 339	Buffer	Word 19	Average, maximum, minimum, total	
340 to 347	Buffer	Word 20	Average, maximum, minimum, total	
348 to 355	Buffer	Word 21	Average, maximum, minimum, total	
356 to 363	Buffer	Word 22	Average, maximum, minimum, total	
364 to 371	Buffer	Word 23	Average, maximum, minimum, total	
372 to 379	Buffer	Word 24	Average, maximum, minimum, total	

Address	Contents			Memory Type
380 to 387	Buffer	Word 25	Average, maximum, minimum, total	← V
388 to 395	Buffer	Word 26	Average, maximum, minimum, total	
396 to 403	Buffer	Word 27	Average, maximum, minimum, total	
404 to 411	Buffer	Word 28	Average, maximum, minimum, total	
412 to 419	Buffer	Word 29	Average, maximum, minimum, total	
420 to 427	Buffer	Word 30	Average, maximum, minimum, total	
428 to 435	Buffer	Word 31	Average, maximum, minimum, total	
436	Alarm function	Auto operation time	(low-order)	
437	Alarm function	Auto operation time	(high-order)	
438	Alarm function	Auto operation stop time	(low-order)	
439	Alarm function	Auto operation stop time	(high-order)	
440	Alarm function	Program stop time	(low-order)	
441	Alarm function	Program stop time	(high-order)	
442	Alarm function	The number of stops		
443	Alarm function	Rate of operation	(XX.X)	
444				
445				
⋮		⋮		
454				
455				
456	Alarm function	Normal operation bit		← V
457				
458	Alarm function	Sampling bit		← V
459				
460	Read area	n		← V
461	Read area	n + 1		
462	Read area	n + 2		
463				
464	Write area	n		← V
465	Write area	n + 1		
466	Write area	n + 2		
467				
468	Memory card number			← V
469	Memory card name			
470	Memory card file name No. 0			
471	Memory card file name No. 1			
472	Memory card file name No. 2			
473	Memory card file name No. 3			
474	Memory card file name No. 4			
475	Memory card file name No. 5			
476	Memory card file name No. 6			
477	Memory card file name No. 7			

Address	Contents	Memory Type
478	Memory card file name No. 8	← V
479	Memory card file name No. 9	
480	Memory card file name No. 10	
481	Memory card file name No. 11	
482	Memory card file name No. 12	
483	Memory card file name No. 13	
484	Memory card file name No. 14	
485	Memory card file name No. 15	
486		
487		
488		
489		
490		
491		
492		
493		
494		
495		
496	CF card access status (on V-Server or Memory Card Editor)	← V
497	CF card error status	← V
498	CF card remaining capacity (low-order)Unit: kbytes	
499	CF card remaining capacity (high-order)	
500	CF card removal switch status	
501		
502		
⋮	⋮	
512		
513		
514	Ethernet Macro Request wait	→ V
515	Ethernet Macro Request wait execution result	← V
516		
517		
518	Ethernet Status	← V
519		
520	Network table 0 status	← V
521	Network table 1 status	
522	Network table 2 status	
⋮	⋮	
617	Network table 97 status	
618	Network table 98 status	
619	Network table 99 status	
620	FL-net Local node number	

Address	Contents			Memory Type	
621	FL-net	Local node	Area 1 data top address	← V	
622	FL-net	Local node	Area 1 data top size		
623	FL-net	Local node	Area 2 data top address		
624	FL-net	Local node	Area 2 data top size		
625	FL-net	Host status			
626	FL-net	Protocol version			
627	FL-net	FA links status			
628	FL-net	Local node status			
629	FL-net	Status			
630	FL-net	Node table information			
631	FL-net	Node table information			
632	FL-net	Node table information			
⋮		⋮			
642	FL-net	Node table information			
643	FL-net	Node table information			
645	FL-net	Node table information			
646	FL-net	Refresh cycle time			
647	FL-net	Node number			
648	FL-net	Host status			
649	FL-net	Area 1 data top address			
650	FL-net	Area 1 data size			
651	FL-net	Area 2 data top address			
652	FL-net	Area 2 data size			
653	FL-net	FA links status			
654	FL-net	Minimum allowable frame interval			
655					
656					
⋮		⋮			
698					
699					
700	Language selection, display language number				← V
701					
702					
⋮		⋮			
708					
709					
710					
711					
712					
713					
714					
715					

Address	Contents		Memory Type
716			
717			
718			
719			
720	SRAM	Memo padSave information	← V
721	SRAM	Internal memory \$L save result	
722	SRAM	Internal \$L newest write address (low-order)	
723	SRAM	Internal \$L newest write address (high-order)	
724	SRAM	Internal memory \$D save result	
725	SRAM	Internal \$LD newest write address (low-order)	
726	SRAM	Internal \$LD newest write address (high-order)	
727		Memo pad save overflow	
728		FROM_RD/FROM_WR macro execution result	
729	PLC2	Macro execution result	
730	PLC2	Port No. 00 Status	
731	PLC2	Port No. 01 Status	
732	PLC2	Port No. 02 Status	
⋮		⋮	
758	PLC2	Port No. 28 Status	
759	PLC2	Port No. 29 Status	
760	PLC2	Port No. 30 Status	
761	PLC2	Port No. 31 Status	
762	PLC2	Constant /Synchronized read Interrupt	→ V
763	PLC2	TEMP_RD/TEMP_WR macro forced execution	
764	PLC2	Constant /Synchronized write Interrupt	← V
765	PLC2	Error code	
766	PLC2	Extended error code 1	
767	PLC2	Extended error code 1	
768	PLC2	Extended error code 1	
769			
770			
⋮		⋮	
778			
779			
780	CF card	BMP file load information	← V
781	CF card	JPEG file load information	
782	CF card	WAV file load information	
783	CF card	Font file load information	
784	CF card	HTML file load information	
⋮		⋮	
798			
799			

Address	Contents			Memory Type
800	Modbus slave communication	Reference table number		← V
801	Modbus slave communication	Reference memory setting		
802	Modbus slave communication	Reference memory setting		← V
803	Modbus slave communication	Reference memory setting		
804	Modbus slave communication	Reference memory setting		
805	Modbus slave communication	Reference memory setting		
806				
807				
808				
809				
810 to 813	IP address of the local port			← V
814 to 817	IP address of the other port			
818	Network table number designation			→ V
819				
820	PLC2	Port No. 32	Status	← V
821	PLC2	Port No. 33	Status	
822	PLC2	Port No. 34	Status	
⋮		⋮		
885	PLC2	Port No. 97	Status	
886	PLC2	Port No. 98	Status	
887	PLC2	Port No. 99	Status	
888				
889				
890	Japanese conversion function	The number of user-defined words		← V
⋮		⋮		
898				
899				
900	Touch switch status output			← V
901	Touch switch X coordinate output			
902	Touch switch Y coordinate output			
903				
904				
⋮		⋮		
908				
909				
910	Video CH1	Brightness		← V
911	Video CH1	Contrast		
912	Video CH1	Color intensity		
913				
914				

Address	Contents	Memory Type
915	Video CH2 Brightness	← V
916	Video CH2 Contrast	
917	Video CH2 Color intensity	
918		
919		
920	Video CH3 Brightness	← V
921	Video CH3 Contrast	
922	Video CH3 Color intensity	
923		
924		
925	Video CH4 Brightness	← V
926	Video CH4 Contrast	
927	Video CH4 Color intensity	
928		
929		
930	Video Status	← V
931	Video Composition of superimpose screen	→ V
932	Auto File No.	← V
933	Focus channel	
934	Video Selected video area channel	
935	Video Brightness of the selected video area	
936	Video Contrast of the selected video area	
937	Video Intensity of the selected video area	
938		
939		
:	:	
954		
955		
956	Brightness adjustment	← V
957	Video Display change (640 × 240 dots only)	→ V
958		
959	Video Restart macro            Operation setting	→ V
960	Video Snapshot/JPG display    Operation setting	
961		
962	Video The number of "Continuous Single Snap" times	← V
:	:	
965	File transfer    Communication timeout setting	→ V
966	Video Clip start position of the current channel (X coordinate at the top left corner)	← V
967	Video Clip start position of the current channel (Y coordinate at the top left corner)	
968	Video Image clip size of the current channel (width)	

Address	Contents	Memory Type
969	Video Image clip size of the current channel (height)	← V
970	RGB IN The maximum number of snap files	→ V
971	RGB IN Processing when the snap file limitation is exceeded	
⋮	⋮	
988		
989		
990	Recipe macro GET_RECIPE_FILEINFO execution result	← V
991		
992		
⋮	⋮	
998		
999		
1000	Sound replay Remaining seconds	← V
1001	Sound Channel L Adjusted volume value	← V
1002	Sound Channel R Adjusted volume value	
1003		
1004		
1005	E-mail send Send wait e-mails	← V
1006	E-mail send Error information	
1007	EPSON STYLUS PHOTO Hard copy	→ V
1008	JPEG image accuracy	
1009		
1010		
⋮	⋮	
1022		
1023		
1024	Result of external CF access	← V
1025		
1026		
1027		
1028		
1029		
1030	Built-in CF (drive: C) CF card error state	← V
1031	Built-in CF (drive: C) CF card free capacity (low-order) Unit: kB	
1032	Built-in CF (drive: C) CF card free capacity (high-order)	
1033	Built-in CF (drive: C) [CF Card Removal] switch status	
1034		
1035	USB-A (drive: D) CF card error state	← V
1036	USB-A (drive: D) CF card free capacity (low-order) Unit: kB	
1037	USB-A (drive: D) CF card free capacity (high-order)	
1038	USB-A (drive: D) [CF Card Removal] switch status	
1039		

Address	Contents		Memory Type
1040			
⋮	⋮		
1050	Background CF access	Background processing flag	← V
1051	Background CF access	Background processing completion flag	
1052	Background CF access	Background processing error flag	
1053			
1054			
1055			
1056	Macro execution result	Arithmetic operation	← V
1057	Macro execution result	Conversion, transfer	
1058	Macro execution result	Macro motion control	
1059	Macro execution result	Printer	
1060	Macro execution result	Video	
1061	Macro execution result	CF card	
1062	Macro execution result	Others	
1063			
1064			
1065			
1066	PictBridge	Status output	← V
1067			
⋮	⋮		
1098	Sampling macro	Background processing selection	→ V
1099			
1100	Buffer No. 0	Primary storage target	← V
		The setting number of sampling times	
1101	Buffer No. 0	Primary storage target	
		The current number of sampling times	
1102	Buffer No. 0	Secondary storage target	
		The setting number of sampling times	
1103			
1104	Buffer No. 0	Secondary storage target	
		The current number of sampling times	
1105			
1106	Buffer No. 0	The number of sampling times executed	
1107			
1108	Buffer No. 0	Secondary storage target	← V
		Access status	
1109	Buffer No. 0	Background processing flag	
1110	Buffer No. 0	Sampling macro executing flag	
1111	Buffer No. 0	Sampling macro execution completion flag	
1112	Buffer No. 0	Sampling macro error flag	
1113	Buffer No. 0	Sampling error flag	
1114	Buffer No. 0	Sampling error forced storage flag	→ V
1115			
1116			
1117			
1118			

Address	Contents	Memory Type
1119		
1120 to 1134	Buffer No. 1 (equivalent to buffer No. 0 \$s1100 to 1114)	
1135		
1136		
1137		
1138		
1139		
1140 to 1154	Buffer No. 2 (equivalent to buffer No. 0 \$s1100 to 1114)	
1155		
1156		
1157		
1158		
1159		
1160 to 1174	Buffer No. 3 (equivalent to buffer No. 0 \$s1100 to 1114)	
1175		
1176		
1177		
1178		
1179		
1180 to 1194	Buffer No. 4 (equivalent to buffer No. 0 \$s1100 to 1114)	
1195		
1196		
1197		
1198		
1199		
1200 to 1214	Buffer No. 5 (equivalent to buffer No. 0 \$s1100 to 1114)	
1215		
1216		
1217		
1218		
1219		
1220 to 1234	Buffer No. 6 (equivalent to buffer No. 0 \$s1100 to 1114)	
1235		
1236		
1237		
1238		
1239		
1240 to 1254	Buffer No. 7 (equivalent to buffer No. 0 \$s1100 to 1114)	
1255		
1256		
1257		
1258		
1259		
1260 to 1274	Buffer No. 8 (equivalent to buffer No. 0 \$s1100 to 1114)	

Address	Contents	Memory Type
1275		
1276		
1277		
1278		
1279		
1280 to 1294	Buffer No. 9 (equivalent to buffer No. 0 \$s1100 to 1114)	
1295		
1296		
1297		
1298		
1299		
1300 to 1314	Buffer No. 10 (equivalent to buffer No. 0 \$s1100 to 1114)	
1315		
1316		
1317		
1318		
1319		
1320 to 1334	Buffer No. 11 (equivalent to buffer No. 0 \$s1100 to 1114)	
1335		
1336		
1337		
1338		
1339		
⋮	⋮	
2047		



- Address \$s65  
It is possible to prohibit the repeat function to the switch equipped with the repeat function.  
Set a number other than "0" in address \$s65 using the switch ON macro.
- Address \$s66  
It is possible to repeat switch ON macro.  
Set a number other than "0" in address \$s66 using the ON macro.  
Example: Set the switch ON macro as shown below.  

```
$u100 = $u100 + 1
$s66 = 1
RET
```

 While the switch is held down, \$u100 is continuously incremented.
  - \* **\$s64 to 66 are valid for switch ON macros.**
  - \* **Before executing switch ON macro, the system clears addresses \$s64 to 66 to "0".**  
**For these addresses, set "1" as necessary.**  
**The switch repeat function is prohibited when it is not possible even if the macro command is executed. (For example, the block number has reached the maximum value by the [+ Block] switch.)**
- Address \$s72  
Stores the result of the SYS (system call) macro command.  

```
[0]: Normal termination
[Other than 0] (Normally -1): Error (the second screen setting, etc.)
```
- Address \$s73  
Stores the result of the switch function when the SWRET command is used for the switch ON macro.  

```
[0]: Normal termination
[Other than 0] (Normally -1): Error
```

 Use this address when the next operation should vary depending on the result of the switch function.
- Address \$s76  
If a keypad for entry mode is placed on an overlap display, it is possible to erase the overlap display with the [ENT] key on the keypad.  
To prohibit the above function, use this memory address.  

```
[0]: Overlap AUTO OFF
[Other than 0]: Overlap AUTO OFF prohibited
```

 For more information, refer to "7 Entry Mode."
- Address \$s77  
When a value other than "0" is set, the overlap exclusive function is set.  
For more information, refer to "2 Overlap."
- Address \$s78  
Stores the display type of data in the entry target.

Output Code	Entry Target	Display Type
-2	No entry mode	-
-1	No entry target	-
0	Numerical data display	Decimal without sign
1		Decimal with sign (-)
2		Decimal with sign (+)
3		Hexadecimal
4		Octal
5		Binary
6	Character display	-
7	Message display: other than entry target	-
8	Numerical data display	Real number (floating decimal point):

- Address \$s79

This setting is valid when the entry mode is switched through the overlap activation (ON/OFF) or by multi-overlap number change on one screen.

\* **Do not set any value other than “0” or “1”.**

[0]: The entry target that was selected last in the entry mode becomes selected.

[1]: The entry target currently selected remains selected even after the mode is switched.

- Address \$s80 to 95

Used for universal serial communication.

For more information, refer to the V8 Series Connection Manual.

- Address \$s99

Used to specify the rounding to be used with the CVFD macro command.

Setting Value	Meaning	Operation
Other than 1 or 2	Rounding	When the fraction remainder is 0.5 or greater, it is rounded up; when it is less than 0.5, it is rounded down.
1	Rounding down	The fraction remainder is rounded down.
2	Rounding up	The fraction remainder is rounded up unless it is “0”.

- Address \$s100, 101

These are memory addresses related to the calendar.

\$s100: The calendar status of the PLC (with built-in calendar) is written.

[0]: Normal

[1]: Error (The calendar information could not be read correctly.)

\$s101: When \$s100 = 1, calendar writing to the PLC is enabled or prohibited.

[0]: Calendar writing prohibited

[Other than 0]: Calendar writing enabled

No error handling is performed even if an error is detected.

- Address \$s102

Stores the result of the HMI-FUNC macro command execution.

[0]: Normal

[Other than 0]: Error

For more information, refer to the Macro Reference Manual.

- Address \$s104, 105

Used to specify error handling to be performed when an error occurs during the reading/writing of data to the PLC using a macro command via communications.

Example:

When the indirect PLC memory is set for the writing target memory address within the MOV command, the communication error will occur if the value in the indirect PLC memory exceeds the range of the PLC memory.

Use these addresses to avoid such a communication error.

\$s104 : [0]

When the write macro command is executed, the next command is started without waiting for the result of the macro write command.

If an error occurs during writing, error handling is performed.

The error handling to be performed depends on the setting for [Comm. Error Handling] (Stop/Continue) in the [Communication Parameters] dialog.

\$s104: [Other than 0]

When the write macro command is executed, the next command is started after receipt of the result of write operation. If an error occurs during writing, error handling is not performed and the result is stored in \$s105. It will take a longer time compared with the case where “0” is set.

\$s105: When \$s104 ≠ 0, the result of macro write error is stored.

[0]: Normal

[Other than 0]: Error

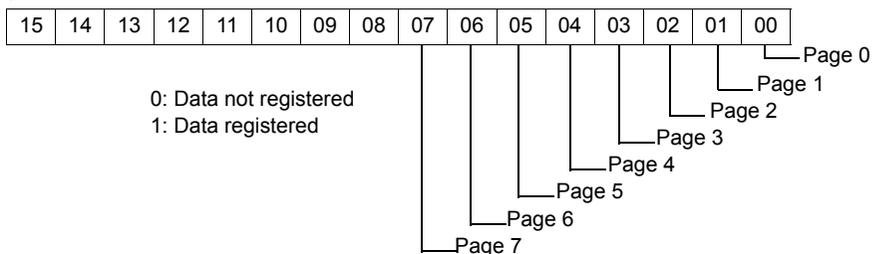
- Address \$s106 to 109

Stores the information of memo pad.

\$s106: The page number (0 to 7) of the displayed memo pad is stored.

\$s107: The information of whether or not data is registered in each page of memo pad (maximum 8 pages) is stored.

\$s107



\$s108, 109: The remaining area for memo pad data is stored. (Unit: bytes)

- Address \$s110

Stores the local port number of the V8 series when selecting [Multi-link] or [Multi-link2] for [Connection Mode].

- Address \$s111

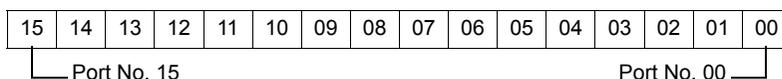
Stores the local port number for 1 : n connection at the universal serial port.

- Address \$s128, 129, 114 to 127 (V7 compatible)

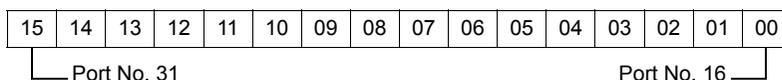
When the connection mode is [1 : n], and time-out is detected in the communication with the PLC 1, "1" is set at the related bit. After that, it is not possible to communicate with the PLC on the same screen.

When the screen display changes, all bits in these addresses will be cleared to "0" to enable communication with the PLC on the screen.

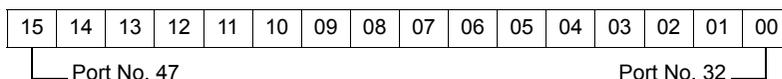
\$s128



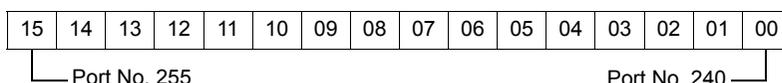
\$s129



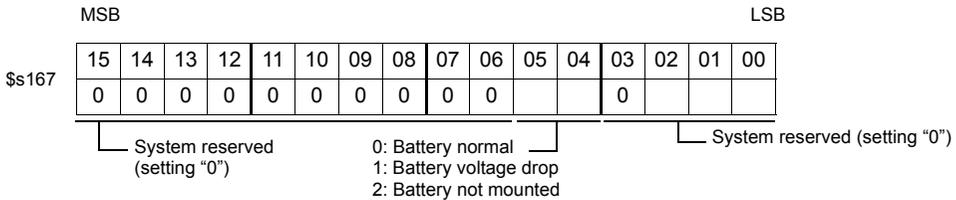
\$s114



\$s127

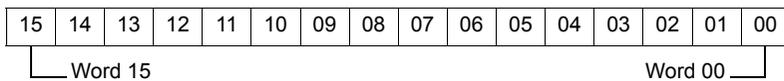


- Address \$s132  
Stores the cycle time of the current screen.  
(Unit: 10 msec)  
For more information on one cycle, refer to “Appendix 5 Process Cycle.”
- Address \$s160 to 166  
Stores the calendar data that is read from the PLC or is currently displayed on MONITOUCH at the start of communication.
- Address \$s167  
Stores the information in the built-in SRAM.

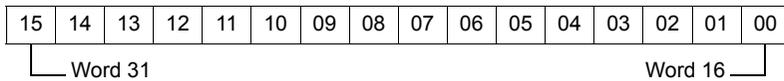


- Address \$s168 to 169  
Stores the Greenwich Mean Time.
- Address \$s170 to 174  
Information about the channel number used by the video window (video overlap), brightness, contrast, color intensity, etc. is written.  
For more information, refer to “2 Overlap.”
- Address \$s177  
Stores the buffer number for which the SET\_BUFNO macro command has been executed.  
When the power is turned on, the smallest buffer number among those with  Use a Calculation Operation] checked in the [Buffering Area Setting] dialog.
- Address \$s178, 179  
When the sample buffer total value overflows after the execution of the SET\_BUFNO macro command, the bits corresponding to sample word No. 0 to 31 become “1”.  
Sample buffer word No. 32 to 128 are not available.

\$s178



\$s179



- Address \$s180 to 435  
Stores the result of the SET\_BUFNO macro command execution.
- Address \$s436 to 443, 456, 458  
Stores the information on the alarm function. For more information, refer to “10 Alarming.”
- Address \$s460 to 462  
Stores the information on the read area. For more information on the read area, refer to “1 System Setting.”

- Address \$s464 to 466

Stores the information on the write area. For more information on the write area, refer to “1 System Setting.”

- Address \$s468 to 485

The memory card information (card number, card name, file name) is read from or written to the memory (n).

Use the MOV macro command.

Read: [n = \$s468 (to 485)] is executed and memory “n” is monitored.

Write: [\$s468 (to 485) = n] is executed and data in memory “n” (to n + 16) is written into the memory card.

**\* Data of \$s468 to 485 is always “0”.**

Example:

- 1) \$u100 = \$s468

The memory card number (1 word) is written into \$u100.

- 2) \$u101 = \$s469

The memory card name (32 characters) is written into \$u101 to \$u116.

(If the memory card name is less than 32 characters, 32 characters will be written.)

- 3) \$u117 = \$s470

The memory card file name (32 characters) is written into \$u117 to \$u132.

(If the file name is less than 32 characters, 32 characters will be written.)

- Address \$s496

Stores the access status from V-Server or Memory Card Editor to the CF card.

[0]: No access

[1]: Accessing

- Address \$s497

The result of access to the CF card is output.

4	Card not mounted
6	Too small card size
7	Different card type
12	Card write error
15	Disk error (open failure)
16	Card read error

- Address \$s498 to 499

Stores the remaining capacity of the CF card in kbytes.

- Address \$s500

Stores the status of the [Function: CF Card Removal] switch.

[0]: Switch OFF (CF card removal disabled)

[Other than 0]: Switch ON (CF card removal enabled)

- Address \$s514 to 619

Stores the setting and information on the Ethernet communication.

For more information, refer to the V8 Series Connection Manual.

- Address \$s620 to 654

Stores the information in the FL-Net communications.

For more information, refer to the Specifications for Communication Unit FL-Net (OPCN-2) provided separately.

- Address \$s700

Stores the display language number (0 to 7) for language selection.

For information on language selection, refer to “Appendix 3 Display Language.”

- Address \$s720  
Stores the result of memo pad data storage in the built-in SRAM of the V8 series.  
[0]: Normal  
[1]: Data contains an error and is deleted.
- Address \$s721  
Stores the result of memo pad data writing in internal memory \$L using the built-in SRAM of the V8 series.  
[0]: Normal  
[1]: Error
- Address \$s722 to 723  
Stores the \$LD address of the last write operation when \$s721 = 1 at power-up.
- Address \$s724  
Stores the result of memo pad data writing in internal memory \$LD using the built-in SRAM of the V8 series.  
[0]: Normal  
[1]: Error
- Address \$s725 to 726  
Stores the \$LD address of the last write operation when \$s724 = 1 at power-up.
- Address \$s727  
Stores the information of whether or not the capacity of the memo pad data is not too big to be saved.  
[0]: Normal  
[1]: Save area insufficient
- Address \$s728  
Stores the result of the FROM\_RD/FROM\_WR macro command execution.  
[0]: Normal  
[-1]: NG
- Address \$s729 to 764 (V7 compatible)  
Stores the information on the PLC2 for 8-way communication.  
For more information, refer to the V8 Series Connection Manual.
- Address \$s725 to 768 (V7 compatible)  
Stores the error information on the PLC2 for 8-way communication.  
For more information, refer to the V8 Series Connection Manual.
- Address \$s780 to 784  
Stores the information on the CF card.  
For more information, refer to "18 CF Card."
- Address \$s800 to 805  
Stores the information on the Modbus slave communication.  
For more information, refer to the Modbus Slave Communication Specifications provided separately.
- Address \$s810 to 813  
Stores the IP address of the V8 series.  
When no IP address is set, "0.0.0.0" is stored.
- \$s814 to 818  
Stores the IP address of the network table number corresponding to the value set in \$s818 \*. If no network table exists, "0.0.0.0" is stored.  
\* **Use the MOV (W) macro command when setting the network table number.**
- Address \$s820 to 887 (V7 compatible)  
Stores the information on the PLC2 for 8-way communication.  
For more information, refer to the V8 Series Connection Manual.

- Address \$s890  
Used when the Japanese conversion function in entry mode is used.  
Stores the number of user-defined words.  
For more information on the Japanese conversion function, refer to “7 Entry Mode.”
- Address \$s900  
Stores the touch switch information. For more information, refer to “3 Switch.”
- Address \$s901  
Stores the X coordinate of the touch switch that is pressed. For more information, refer to “3 Switch.”
- Address \$s902  
Stores the Y coordinate of the touch switch that is pressed. For more information, refer to “3 Switch.”
- Address \$s910 to 937 (V8i only)  
Stores the information on the video display.  
For more information, refer to “14.2 Video/RGB Display.”
- Address \$s956  
Stores the current adjusted brightness value (0 to 127)
- Address \$s957 (V8i only)  
This is valid when you use video display size of 640 × 240.  
For more information, refer to “14.2 Video/RGB Display.”
- Address \$s959 (V8i only)  
Used to specify the operation of the Video2 RESTART (video restart) macro command.  
For more information on the operation, refer to the Macro Reference Manual.
- Address \$s960  
Used to specify the operation for video snapshot and JPEG display.  
For more information on the operation, refer to “14.2 Video/RGB Display” or “14.3 JPEG Display.”
- Address \$s962 (V8i only)  
Stores the number of “Continuous Single Snap” times of video/RGB display.  
For more information, refer to “14.2 Video/RGB Display.”
- Address \$s965  
Used to set the monitoring timeout time of CF card access from the V-server or a client (CF card access DLL, for example) to MONITOUCH in the RUN mode.  
Setting value = 0: 60 sec (default)  
Setting value = other than 0: Setting value × 10 sec
- Address \$s966 to 971 (V8i only)  
Used to set the reference value for video/RGB display.  
For more information, refer to “14.2 Video/RGB Display.”
- Address \$s990  
Indicates the result of the GET\_RECIPE\_FILEINFO (recipe) macro command execution.  
For more information, refer to the Macro Reference Manual.
- Address \$s1000 (V8i only)  
Stores the remaining time duration (in seconds) for sound replay.  
For more information, refer to “14.4 Sound.”
- Address \$s1001 to 1002 (V8i only)  
Stores the adjusted volume value.  
For more information, refer to “14.4 Sound.”
- Address \$s1005 to 1006 (V8i only)  
The information on E-mail sending is output.  
For more information, refer to “19.4 E-Mail.”

- Address \$s1007

Used to select either color or monochrome for hard copy print.  
For more information, refer to "16 Print."

\* **Available with EPSON STYLUS SHOT only**

- Address \$s1008

Used to set accuracy of reduced JPEG images.  
For more information, refer to "14.3 JPEG Display."

- Address \$s1024

Stores the result of access to a file on the CF card from a client (V-server or CF card access DLL, for example) to MONITOUCH in the RUN mode.

0: Normal, -1: Error

- Address \$s1030

The result of access to the CF card at the built-in CF socket (drive: C) is output.

4	Card not mounted
6	Too small card size
7	Different card type
12	Card write error
15	Disk error (open failure)
16	Card read error

- Address \$s1031 to 1032

Stores the free capacity on the CF card at the built-in socket (drive: C) in kB.

- Address \$s1033

Stores the status of the [Function: CF Card Removal] switch.

[0]: Switch OFF (CF card removal disabled)

[Other than 0]: Switch ON (CF card removal enabled)

- Address \$s1035

The result of access to the CF card at the USB-A port (drive: D) is output.

4	Card not mounted
6	Too small card size
7	Different card type
12	Card write error
15	Disk error (open failure)
16	Card read error

- Address \$s1036 to 1037

Stores the free capacity on the CF card at the USB-A port (drive: D) in kB.

- Address \$s1038

Stores the status of the [Function: CF Card Removal] switch.

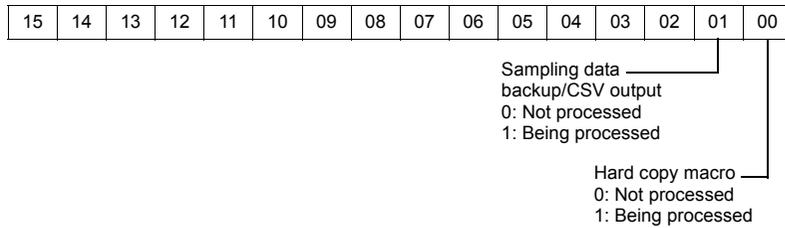
[0]: Switch OFF (CF card removal disabled)

[Other than 0]: Switch ON (CF card removal enabled)

- Address \$s1050

The status of the action related to CF card is output.

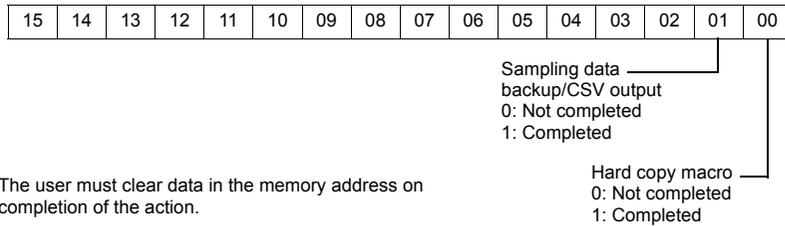
\$s1050



- Address \$s1051

The status of the completed action related to CF card is output.

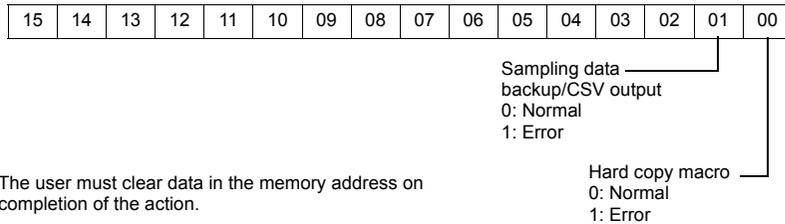
\$s1051



- Address \$s1052

If an error occurs on completion of processing related to CF card, the result is output.

\$s1052



- Address \$s1056 to 1062

Stores the execution result of the operation macro command.  
For more information, refer to the Macro Reference Manual.

- Address \$s1098

[Other than 0]:

Executes background processing of macro commands "SMPL\_BAK", "SMPL\_CSV", and "SMPL\_CSV\_BAK". However, if background processing is being executed to the buffer that has been specified, the next processing is started on completion of the current macro processing.

- Address \$s1100

The setting number of sampling times at the primary storage target is output.

- Address \$s1101

The current number of sampling times at the primary storage target is output.

(The setting number of sampling times (\$s1100) ≥ The current number of sampling times (\$s1101))

- Address \$s1102 to 1103

The setting number of sampling times at the secondary storage target is output.

- Address \$s1104 to 1105  
The current number of sampling times at the secondary storage target is output.  
(The setting number of sampling times (\$s1102 and 1103) ≥ The current number of sampling times (\$s1104 and 1105))
- Address \$s1106  
The number of sampling times executed is output.
- Address \$s1108  
The media status at the secondary storage target, sampling formatting condition, etc. are comprehensively judged and the valid/invalid state of the secondary storage target is output.  
[0]: Writing or browsing the secondary storage target is not possible.  
[1]: Writing or browsing the secondary storage target is possible.
- Address \$s1109  
The status of creating backup file or CSV output is output.  
[Other than 0]: Backup file being created or CSV file outputted
- Address \$s1110  
The status of sampling macro commands is output.  
[Other than 0]: The macro command "SMPL\_BAK", "SMPL\_CSV", or "SMPL\_CSV\_BAK" is being executed.
- Address \$s1111  
The status of sampling macro commands is output.  
[Other than 0]: The macro command "SMPL\_BAK", "SMPL\_CSV", or "SMPL\_CSV\_BAK" has been executed.  
\* This is cleared when \$s1110 (executing flag) is set (ON).
- Address \$s1112  
The status of sampling macro commands is output.  
[Other than 0]: Execution error of the macro command "SMPL\_BAK", "SMPL\_CSV", or "SMPL\_CSV\_BAK"  
\* This is cleared when \$s1110 (executing flag) is set (ON).
- Address \$s1113  
The sampling status is output.  
[Other than 0]: A communication error occurs during sampling.  
\* This is cleared when sampling has been performed normally. Sampling information of device memory maps is not output.
- Address \$s1114  
The sampling status is output.  
[Other than 0]: If a communication error occurs during sampling, sampling will continue by resetting the data in the memory address where the error has occurred to "0".  
\* Sampling of device memory maps is performed regardless of the setting of this flag, with the data in the memory address where an error has occurred at "0".
- Address \$s1120 to 1134, 1140 to 1154, 1160 to 1174, 1180 to 1194, 1200 to 1214, 1220 to 1234, 1240 to 1254, 1260 to 1274, 1280 to 1294, 1300 to 1314, 1320 to 1334  
Same as address \$s1100 to 1114

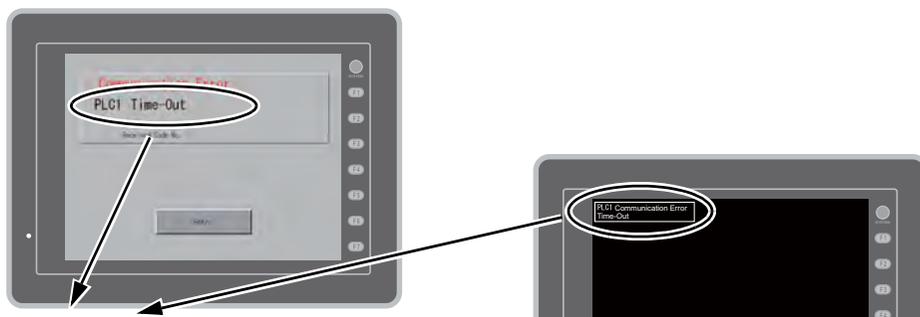
# Appendix 7 Error

There are five kinds of error messages displayed on the V8 series:

- 1) Communication error
- 2) Data Loading
- 3) Warning
- 4) SYSTEM ERROR
- 5) Touch Switch is Active

## Communication Error

When communication is not established between the V8 series and a controller, or any abnormality (noise etc.) is detected, the following messages are displayed on the V8 series.



A7

Error Messages	Contents	Solution	Remarks
Time-Out	Although a request to send is given to a controller, no answer is returned within the specified time.	1. Check settings in the [Communication Setting] tab window of the [Device Connection Setting] dialog.	1
		2. Check the cable connection.	
Parity	An error occurred in parity check.	3. Data may be disrupted because of noise. Fix noise.	2
		1. Check the cable connection.	1
Framing	Although the stop bit must be [1], it is detected as [0].	2. Data may be disrupted because of noise. Fix noise.	2
		1. Check settings in the [Communication Setting] tab window of the [Device Connection Setting] dialog.	1
Overrun	After one character is received, the next character is received before internal processing is completed.	2. Check the cables and wiring.	
		1. Check settings in the [Communication Setting] tab window of the [Device Connection Setting] dialog.	1
Check code error	The check code in the controller response was not correct.	2. Data may be disrupted because of noise. Fix noise.	2
		1. Check settings in the [Communication Setting] tab window of the [Device Connection Setting] dialog.	1

\* If the above error messages are displayed on the V8 series without establishing communication between V8 and PLC, test the solution of remark "1". If the error occurs suddenly in communication, test the solution of remark "2".

Error Messages	Contents	Solution
Error code received	An error code was sent by a controller. (NAK)	Examine the controller error code and solve the problem.
Break	The controller's SD remains at the low level.	Examine the connection between the controller's SD and the V8's RD.
Invalid memory (Mitsubishi CPU)	You specified an address that exceeds the memory range of the PLC that you are linked to.	Check the type and range of memory that you set.
Invalid CPU model (Mitsubishi CPU)	The PLC currently being supported does not have a corresponding CPU.	Confirm whether or not the CPU that you are using can be used with the V8 series.
Format	The code of the received data is invalid.	<ol style="list-style-type: none"> <li>1. Confirm link unit settings. (After making settings, cut power to the controller.)</li> <li>2. On the V-SFT-5 editor, select [System Setting] → [Device Connection Setting] and check the settings.</li> <li>3. If errors only occur from time to time, a noise-based communication error may be present.</li> </ol>
Compare (HIDIC S10)	Transmission data and received data are different.	
NAK	A NAK code is received.	
Transaction Error (Allen-Bradley PLC)	Transmitted transaction data and received transaction data are not in agreement.	
Communication Error	An unclear communication error is detected.	
Count error (Mitsubishi CPU and Q link unit)	The expected data amount is different from the count value.	
Command error (Mitsubishi CPU and Q link unit)	The response code differs from the expected code.	
Invalid cassette (Mitsubishi ACPU)	This cassette is not included in the memory cassettes currently being supported.	Contact your local distributor.
Password error (Mitsubishi QCPU)	The password is incorrect.	

## Error Messages for Network Communication

### Ethernet

Error Messages	Contents	Solution
Ethernet Error:XXXX	The Ethernet status is saved at system memory address \$s518 and a code other than "0" (normal) is received. XXXX : Error No.	For the contents and solution to each error number, refer to Appendix 5 of the V8 Series Connection Manual separately provided.

### CC-LINK

Error Messages	Contents	Solution
I/F Board Err	The I/F unit for CC-LINK has an error.	Contact your local distributor.
No. of Occupy Setting Err	The number of stations set in the [Communication Setting] tab window of the [Device Connection Setting] dialog is different from the number of stations used by switches.	Check the setting of the number of occupy.
Network I/O Access Err	MONITOUCH has attempted to have access to a memory area out of the designated input/output words.	Check the memory for the network I/O in the screen data file.
Station Number Err	The port number set by a switch is not within the setting range (1 to 64).	Specify the port number within the setting range.
Word Writing to Sp. Relay	Word writing to a special relay (M9000 and later) is attempted. (Notes: Only bit writing is possible for special relays when connecting with CC-LINK.)	Do not attempt to perform word writing to special relays.

### OPCN-1

Error Messages	Contents	Solution
I/F Board Err	The I/F unit for OPCN-1 has an error.	Contact your local distributor.
Stat. No. out of range	The port number set by a switch is not within the setting range (1 to 127).	Specify the port number within the setting range.
Network Link Error	Cannot connect to the master station in the network.	Check the condition of the master station (PLC). Check the network connection.
Network I/O Access Err	MONITOUCH has attempted to have access to a memory area out of the designated input/output words.	Check the memory for the network I/O in the screen data file.
Waiting for Reply	<ol style="list-style-type: none"> <li>Less than "Max_int" time (communication monitoring time for salve station) set on the PLC for OPCN-1 communications</li> <li>Timeout on the V8 series (The timeout time can be set in the [Device Connection Setting] dialog that is displayed by selecting [System Setting] → [Device Connection Setting] on the V-SFT-5 editor.)</li> </ol> This error is indicated when the above 1 and 2 are present.	When the "Max_int" time is too long (infinite, for example) on the PLC, it is not possible to know whether or not the response from the PLC is correctly made. This error message disappears when a response from the PLC is received within the "Max_int" time.
Word Writing to Sp. Relay (Mitsubishi: A Series)	Word writing to a special relay (M9000 and later) is attempted. (Notes: Only bit writing is possible for special relays when connecting with OPCN-1.)	Do not attempt to perform word writing to special relays.

**T-LINK**

Error Messages	Contents	Solution
T-LINK I/F Board Err	The I/F unit for T-LINK has an error.	Contact your local distributor.
Network I/O Access Err	MONITOUCH has attempted to have access to a memory area out of the designated input/output words.	Check the memory for the network I/O in the screen data file.
Communication Error Received Code No. 22	The PLC loader is being accessed so that processing is not performed on the V8 series. (This error occurs during program transfer from the PLC loader for most cases.)	Wait for the PLC loader to finish processing, and press the [RETRY] switch on the V8 screen.
Communication Error Received Code No. 32	An attempt to access an area that does not exist within the PLC is made. Example: A file area (W) that is not defined with the PLC program	Check the PLC memory addresses set in the screen data file.
Communication Error Received Code No. 36	The number of monitor registration points is too small.	Correct the number of monitor registration points. For monitor registration, refer to the user manual of the PLC you are using.

**PROFIBUS-DP**

Error Messages	Contents	Solution
Time-Out	"Check" is displayed 2 or 3 seconds before this error occurs when connecting the V8 series and PROFIBUS-DP in the RUN mode.	The setting for [Own Stat. No.] on the V8 series is discrepant with that for [Address] for [V8 series] on the SIMATIC Manager. Check and correct the setting.
	A screen is displayed instantaneously (= communications performed) before this error occurs when connecting the V8 series and PROFIBUS-DP in the RUN mode.	The DB address set on the V8 screen may not exist on the PLC (memory over). Check the setting.

## DeviceNet

○: Extinguished ●: Illuminated ◎: Blinking

Error Messages	LED		Contents	Solution
	MS	NS		
Initialization error	● Red	○	Reading or writing to RAM is not performed normally during initialization check.	<ul style="list-style-type: none"> <li>Turn the power on again.</li> </ul> If recovery is not possible, a fault is suspected.
			Start-up information check error: The baud rate is outside the specified range.	<ul style="list-style-type: none"> <li>Make the baud rate (using DIP switch 7 and 8) the same as set for the master on "CU-07" and turn on the power again.</li> </ul> If recovery is not possible, a fault is suspected.
			Start-up information check error: Excessive size for input	<ul style="list-style-type: none"> <li>On the V-SFT-5 editor, select [System Setting] → [Device Connection Setting]. In the [Input/Output Word Counts Setting] tab window, enter the desired value of up to 128 words for [Input Range]. Then turn on the power again.</li> </ul>
			Start-up information check error: Excessive size for output	<ul style="list-style-type: none"> <li>On the V-SFT-5 editor, select [System Setting] → [Device Connection Setting]. In the [Input/Output Word Counts Setting] tab window, enter the desired value of up to 128 words for [Output Range]. Then turn on the power again.</li> </ul>
BUS OFF Error	● Green	● Red	<ul style="list-style-type: none"> <li>The communication cable is short-circuited at start-up.</li> <li>The baud rate does not match the setting for the master.</li> </ul>	<ul style="list-style-type: none"> <li>Check the wiring and turn on the power again.</li> <li>Make the baud rate (using DIP switch 7 and 8) the same as set for the master on "CU-07" and turn on the power again.</li> </ul>
Node Address Duplication Error	● Green	● Red	The same node address is already used for the master or some other slave.	<ul style="list-style-type: none"> <li>Check the node address and correct it to an address which is not used yet (using DIP switch 1 to 6) on "CU-07". Then turn on the power again.</li> </ul>
Network Error	● Green	○	The network power is off.	<ul style="list-style-type: none"> <li>Turn on the network power supply.</li> </ul>
			No other devices exist on the network.	<ul style="list-style-type: none"> <li>Check the wiring and turn on the power again.</li> <li>Make the baud rate (using DIP switch 7 and 8) the same as set for the master on "CU-07" and turn on the power again.</li> </ul>
		◎ Red	I/O time-out: Communication with the master has become disabled.	<ul style="list-style-type: none"> <li>Check the conditions of the master power supply.</li> <li>Check the wiring.</li> </ul>
		◎ Green	No connection exists.	<ul style="list-style-type: none"> <li>Check the wiring.</li> </ul>
Definition Error	–	–	The returned error code is not supported by the DeviceNet.	Review the settings below: <ul style="list-style-type: none"> <li>Master setting</li> <li>CU-07 setting</li> <li>V-SFT-5 setting</li> <li>Wiring</li> </ul>

\* Depending on the errors detected, turning on the power again may be necessary on the master as well as on the V8 series.

## Data Loading

If an error is detected on the screen data in the RUN mode, the following messages are displayed on the V8 series.



Error Messages	Contents	Solution
Screen No. Error	There is no setting for the received screen.	At the start of communications, the V8 series regards the value in the read area "n + 2" as the screen number. Check that this value is an existing screen number on the controller.
Error : XX (XX : XXX)	There is an error in the created screen data.	<p>According to the item number and the sub-item number displayed on the V8 series, find the edited screen where the error occurs. Check the contents of the error (error number) and remove the error.</p> <p>Error : <u>XX</u> (<u>XX</u> : <u>XXX</u>)</p> <p>Sub-item No. Item No. Error No.</p>

## Error Numbers

### Error No.

- \* Error numbers with "\*" do not occur under ordinary circumstances. If any of these errors are displayed, contact your local distributor.

Error No.	Problem	Solution
3	Data version does not match the MONITOUCH system program version.	Transfer the MONITOUCH system program from Editor. If not corrected, check the Editor version and the system program version of the V8 series, and contact your local distributor.
10	The communications board does not match the I/F driver.	The I/F board does not match the I/F driver. Check the I/F driver and transfer data again.
11	The PLC model set in the screen data does not match the I/F driver.	Check the PLC model and transfer the I/F driver again.
12	The I/F driver version does not match the version of screen data.	Check the Editor version and the I/F driver version, and contact your local distributor.
13	The I/F driver version does not match the version of the MONITOUCH system program.	Check the I/F driver version and the system program (SYSTEM PROG.) version of the V8 series, and contact your local distributor.
15	The display language on MONITOUCH does not match the language set in the screen data.	Check the MONITOUCH model and the language used for the created data.

Error No.	Problem	Solution
17	The network I/O number exceeds the usable number range.	Set a number within the usable range.
19	An I/F driver that MONITOUCH does not support is transferred.	Transfer the correct I/F driver.
20	The maximum capacity of the buffering area has been exceeded.	Data capacity to be saved in DRAM at the primary storage target (buffering area setting) has exceeded the maximum available capacity. Reduce the number set for [No. of Samples].
22	The buffer number specified for trend or alarm item has not been set.	Set the buffer number in the [Buffering Area Setting] dialog from the [System Setting] menu.
23*	Memory card file No. error	Contact your local distributor.
24	The output file number in the buffering area setting is not unique or [Buffering File] is not set for the memory card setting.	When [Secondary storage target: Memory Card] is selected in the buffering area setting, the output file number can be set. However, the set output file number already exists. As another possibility, [Type: Buffering File] is not set in the [Memory Card Setting] dialog though [Secondary storage target: Memory Card] is selected. Check the output file number in the [Buffering Area Setting] dialog, and set correctly. If not successful, check the setting in the [Memory Card Setting] dialog.
25	The number of sampled words in the buffering area setting is exceeded.	Check the value set for [Word Count] in the [Buffering Area Setting] dialog. Bit Synchronization, Constant Sampling, Alarm Logging, Device Memory Map: 128 words maximum Alarm Tracking, Time Order Alarming: 1024 words maximum
26	The trend and alarm items that refer to the buffering area are too many.	The items that refer to the buffering area are too many on one screen (16 items maximum). Reduce the number of trend/alarm items placed on the screen.
27*	There is an error in the buffering area setting.	Contact your local distributor.
28	The same function is set for both MJ1 and MJ2 ports.	Check the setting in the [Modular Jack] dialog and set correctly.
29	The memory capacity is insufficient.	Decrease the value set for [No. of Samples] for DRAM at the primary storage target (buffering area setting). Reduce the value set for [Word Count] for an alarm item. Delete the following settings if not necessary. - Multi-link/Multi-link2 - Ladder monitor - Connection devices not used If not corrected, contact your local distributor.
30	The number of registered items is too many.	Reduce the number of items.
31	The memory capacity for the registered items is insufficient.	Take the following action for the relevant screen.  Reduce the value set for [Word Count] for time order alarming. Reduce the value set for [Word Count] for alarm tracking. Reduce the value set for [Executing Relays] for bit order alarming. Reduce the number of items placed on the screen.
32	The number of items that uses the memory exceeds the available number.	Reduce the number of items.

Error No.	Problem	Solution
33	The maximum settable number of switches and lamps has been exceeded.	The number of switches and lamps placed on the screen has exceeded 1024. Switches and lamps on overlap displays are included in this number. Reduce the number of switches and lamps.
34	The items that occupy the memory area exceed the available work memory capacity.	Reduce the amount of data.
35*	Variable length data error	Contact your local distributor.
36*	ITEM error	
37*	Component ITEM error	
38*	Component error	
40*	Group byte count error	
41*	Recognition flag error	
42*	Function ITEM error	
43*	Function ITEM end error	
44*	Group ITEM end error	
46	An unavailable memory address is set or the available memory range is exceeded.	Check the memory setting.
47	IDs of the items in screen library with setting limitations are duplicate on a screen.	Check the IDs and keep them unique.
48	The network table number set for Ethernet local port IP address is the same as the network table number of the PLC.	Check and set the network table number again.
49*	Group ITEM error	Contact your local distributor.
50*	Link ITEM error	
51*	Editor ITEM error	
52	The overlap ID is illegal and must be a value from "0" to "2".	Check the overlap ID and set correctly.
53	In the call-overlap setting, an overlap library number with no data registration is specified.	Specify an overlap library number registered on the multi-overlap edit window.
54	Overlap displays occupy too much memory capacity.	Reset the overlap display data size.
55*	Multi-overlap header error	Contact your local distributor.
56*	Graphic undefined command error	
57*	Graphic ITEM error	
58*	Graphic execution error	
59*	Switch function error	
60	Switch operating area error	Reset the switch operating area.
61*	Statistic graph % display No. over	Contact your local distributor.
62*	Multi data over	
63	The selection order number of data blocks (a maximum of four) is duplicated.	Check the data block selection order number and set correctly.
64*	Data display element No. error	Contact your local distributor.
65	The scale or graph is not set correctly in the settings for trend graph or trend sampling.	Correct the settings for [Scale Max. Value] and [Scale Min. Value] or [Graph Max. Value] and [Graph Min. Value] in the dialog.
66*	Internal circle radius is "0".	Contact your local distributor.
67*	The number of trends $\leq 0$	

Error No.	Problem	Solution
68	The display area is insufficient for the area (lines) that is displayed by one bit (bit order alarming).	Check the [No. of Lines per Relay] in the [Bit Order Alarming] dialog and enlarge the display area if necessary.
69	A pattern or frame larger than the screen size has been specified.	Re-set the pattern or frame.
70	The number of columns or lines of data sheet is exceeded.	Check the data sheet columns/lines, and set correctly.
71	The maximum part size in the closed area graph has been exceeded.	The part size in the closed area graph has exceeded 64 kB. Reduce the data size of the parts.
72	The setting for real time printing of alarm logging has exceeded the upper limit, or the specified buffer number is not unique.	There are four or more alarm logging parts with [ <input checked="" type="checkbox"/> Real Time Print]. As another possibility, there are two or more alarm logging parts with the same [Buffer No.] with [ <input checked="" type="checkbox"/> Real Time Print]. Make the setting for [ <input checked="" type="checkbox"/> Real Time Print] within the limit. If not solved, check the Editor version and the system program (SYSTEM PROG.) version of the V8 series, and contact your local distributor.
73	There are four or more video items on one screen. (including the screen library)	Check the number of video items and reduce the number.
74	Animation item is placed other than the base screen (screen library, etc.).	Place the animation item on the base screen.
75	The screen data type is not consistent.	Transfer the system program of the V8 series from Editor.
76	The number of executing relays for bit order alarming is exceeded.	Check the value set for [Executing Relays]. Universal serial: 4096 maximum Other PLCs: 512 maximum
77*	Expanded graphic ITEM error	Contact your local distributor.
78*	Expanded function ITEM error	
79	Component parts occupy too much memory capacity.	Reduce the number of component parts.
80*	Macro: Undefined command error	Contact your local distributor.
81	Macro: The numbers of FOR and NEXT commands are not the same. FOR-NEXT commands are nested beyond 8 levels.	Correct the FOR-NEXT commands.
82	Macro: There are two different commands for the same label number.	Macro: Re-set the label.
83	Macro: There is no destination label for the jump.	Macro: Change or set the destination label.
84*	Macro: Illegal memory use	Change the macro command.
85*	Macro: Undefined system call	Contact your local distributor.
90	A screen library that is not registered is used.	Check the screen library number.
91	Bitmap data for switch or lamp is not registered.	Check the following points: No bitmap name is designated. The total count of 3D parts exceeds 1023 (maximum). The part size is too large. There is no bitmap in the PARTS folder.
92*	Multi-language initial display string No. error	Contact your local distributor.
94	Multi-language selection string number error	
95	MR400 format table setting: String code error	There is an illegal code after "\n" in the string.
96	MR400 format table setting: String size error	The total size of the string is too large.
97	Multi-language font setting error	Transfer the first language font or screen data again.

Error No.	Problem	Solution
99	Registration items occupy too much memory capacity.	Reduce the number of registration items.
100	Universal serial: GD-80 compatible entry mode is set.	Uncheck [GD-80 Compatible] in entry mode.
101	Universal serial: System memory setting error	Check whether or not access to the outside the specified memory is attempted, such as for macro indirect designation.
102*	Connection mode setting error	Contact your local distributor.
103*	Network I/O size setting error	
104*	Network table setting error	
120	Multi-link2 is not selected for modular jack 1 or 2.	[Multi-link2] is not selected at [Modular Jack 1 (or 2)] in the case of [Connection Mode: Multi-link2]. Select [Multi-link2] at [Modular Jack 1 (or 2)].
121	Multi-link2 port number error. The local port or the total number of ports is out of the range of 1 to 4.	[Multi-link2] port number error. The value for [Local Port] or [Total] is out of the range of 1 to 4. Set the value of [Local Port] or [Total] within the range of 1 to 4.
122	Multi-link program is not registered.	Transfer the multi-link program.
123	Multi-link2 program is not registered.	
130*	Ethernet: Network byte error	Contact your local distributor.
131	Ethernet: The local port is not set in the table.	Check the port number on the Main Menu screen of MONITOUCH, and check that the local port is set on the network table edit window.
132*	Ethernet: The network table is not found or is not the right one.	Contact your local distributor.
133	Ethernet: IP address No. error	Check the IP address on the network table edit window.
134	Ethernet: Port No. error	Check the port number on the network table edit window.
135	FL-net: FL-net data error	Check the setting for [FL-Net] in the [Communication Parameters] dialog.
136	IP address setting error: The network table number selected for local port IP address is not registered.	Check the network table number.
137	The Ethernet port number of the I/F driver is not unique.	Set an unique port number for the I/F driver.
140	The I/F driver version of MONITOUCH does not match the version of the MONITOUCH system program.	Check that the MONITOUCH system program (SYSTEM PROG.) version is compatible with the device connected, and if necessary, update the system program version.
141*	Multi-link 2 connection is set.	Contact your local distributor.
142	I/F driver not registered	Transfer the I/F driver.
143	Device memory maps in the buffering area setting are not set.	Check the device memory map setting, and set correctly.
145	The setting number of a device memory map in the buffering area setting is not unique.	Check that each device memory map number is unique in the buffering area setting, and set correctly.
146*	Device memory map memory setting error	Contact your local distributor.
150	Ladder monitor program is not registered.	Transfer the ladder monitor program (.ldpA).
151	Ladder monitor program: Model setting error	Check the PLC model of the device connected, and transfer the screen data again.
152	Ladder monitor program: Unsupported language	Check the MONITOUCH model and the language used in the screen data, and set correctly.

Error No.	Problem	Solution
155	FROM data unregistered	The "default.dtm" file is not transferred though <input checked="" type="checkbox"/> Use Internal Flash ROM as Back-up Area is checked in the [General Settings] dialog ([System Setting] → [Unit Setting]). As another possibility, no port number table is found though <input checked="" type="checkbox"/> Use Port Number Table is checked for the temperature control/PLC2Way setting. When this item is checked, the screen data capacity of the Main Menu screen becomes 128 kB smaller than the case where it is not checked. Check the setting. If the capacity is not reduced, contact your local distributor.
156	"Backup area" and "port number table" cannot be used at the same time.	<input checked="" type="checkbox"/> Use Internal Flash ROM as Back-up Area is checked in the [General Settings] dialog ([System Setting] → [Unit Setting]), and at the same time <input checked="" type="checkbox"/> Use Port Number Table is checked in the [Communication Setting] tab window of [Device Connection Setting] dialog. It is not possible to use both functions at the same time. Uncheck either item, and transfer screen data again.
157	Some port numbers in the port number table are duplicate.	Be sure to set unique port numbers when the port number table is changed using the FROM_WR macro command.
158	The model set for ladder monitor program is not consistent with the one for ladder data.	Transfer the ladder data (.ldmA) of the correct model.
159	PLC ladder data is illegal.	Transfer the ladder data (.ldmA) again.
160	The SRAM area size exceeds the available range.	Check the SRAM/clock setting.
161	The SRAM area is not formatted.	Format the SRAM area on the SRAM/Clock screen that can be displayed from the Main Menu screen. Check that the battery voltage is not lowered.
162	Data in the SRAM area does not match the MONITOUCH system program version.	Check the MONITOUCH system program version, and contact your local distributor.
163	The SRAM/clock setting does not match the SRAM area format.	Format the SRAM area on the SRAM/Clock screen that can be displayed from the Main Menu screen.
164	The simulator program version does not match the version of the MONITOUCH system program.	Check the MONITOUCH system program version and the compatible simulator program versions.
165	Device memory map data is registered for a model that does not support device memory maps.	Delete the device memory map.
170	The ladder communication program is not found in MONITOUCH.	[Ladder Tool] is selected for MJ1 or MJ2, but the ladder communication program is not found in the V8 series. When ladder transfer is not performed, uncheck [Ladder Tool] for [Modular Jack 1 (or 2)]. When performing ladder transfer, transfer the ladder communication program to MONITOUCH.
171	The PLC model set for screen data does not match the model of the ladder communication program.	Transfer the ladder communication program for the PLC model (Available with Mitsubishi QnHCPU port (Q) only).
172	The ladder communication program is stored in MONITOUCH.	[Ladder Tool] is not selected for MJ1 or MJ2; however, the ladder communication program is stored in the V8 series. Set [Ladder Tool].

Error No.	Problem	Solution
173	The ladder tool is set; however, the connection mode other than "1:1" is selected for communication parameters.	[Ladder Tool] is not selected for MJ1 or MJ2; however, an option other than "1:1" is selected for [Connection Mode] in the [Communication Setting] tab window. ("1:1" must be selected for ladder transfer.) When ladder transfer is not performed, uncheck [Ladder Tool]. When performing ladder transfer, select "1:1" for [Connection Mode] in the [Communication Setting] dialog.
174	The I/F driver that does not support ladder communication is set.	Check that the I/F driver supports ladder communication.
183	The printer model is not right.	Transfer the printer driver for the model that is set for screen data.
184	Printer driver is not found.	Transfer the printer driver.
187	Check that the device memory map number specified in the buffering area setting is used for periodical writing or synchronized writing.	Check the data in the device memory map.
188	In the device memory maps specified for periodical writing or synchronized writing, the same memory address is specified.	Check the data in the device memory map.
189	The Japanese conversion program is not registered in MONITOUCH.	Transfer the Japanese conversion program.
192*	Driver setting error	Contact your local distributor.
193*	The common data sheet setting is not registered.	
194*	The memory card setting is not registered.	
195*	VIO input/output memory is not registered.	
201*	Total byte count error	
202	The touch switch setting is not right.	Select the touch switch type appropriate for the MONITOUCH model.
203	The memo pad function not available with matrix switch type is found.	Delete the item (= memo pad).
204	Manual setting type font data is not transferred.	Manual setting type font data is not transferred. Characters in automatic setting type font are displayed correctly; however, if not in automatic setting type font, they are displayed in 12 points tentatively. Check the setting in the [Manual Font Setting] dialog, and transfer the screen data again.
206	No sound unit is installed.	Install option unit "GU-xx".
207	No video unit is installed.	Install option unit "GU-00" or "GU-10".
208	There is no gateway setting.	To use the e-mail function, be sure to set gateway on the network table (Ethernet).
209	PLC ladder data is not registered.	Transfer the ladder data (.ldmA).

### Item numbers

The item number shows the editing screen or other place where the error is detected.

- 0 : Header
- 1 : Network table
- 2 : Buffering area
- 3 : Barcode
- 4 : Memory card
- 5 : External character 16
- 6 : External character 32
- 7 : Message group
- 8 : Dot pattern
- 9 : Graphic library
- 10 : Page block
- 11 : Direct block
- 12 : Screen block
- 13 : Macro block
- 14 : Data block
- 15 : Data sheet page
- 16 : Multi-overlap
- 17 : Screen
- 18 : Function switch
- 19 : Screen library
- 20 : Expansion data
- 21 : Device memory map
- 22 : Expanded font
- 23 : Alarm mask data
- 25 : Bitmap area
- 26 : CF attribute table
- 27 : Print format
- 28 : Tag table
- 29 : Slave communication memory table
- 30 : WAV file table
- 31 : JPEG table
- 32 : Animation table
- 33 : Comment table
- 34 : Windows font table
- 35 : Windows font table (message)
- 36 : Windows font table (characters)
- 50 : I/F driver
- 70 : No optional driver provided
- 90 : Error detection in RUN mode

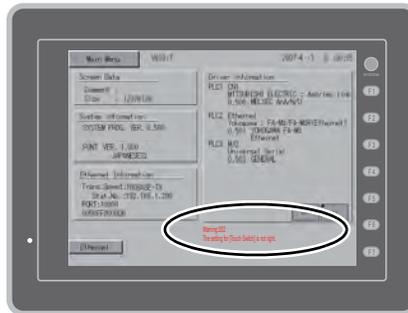
### Sub item numbers

The sub item number shows the number of the editing screen detecting the error.

- Buffering area: -1 = common item, 0 to 11 = buffer No.
- Message: Message group No.
- For graphic library, the library linear number is shown.  
Graphic group No.  $\times$  256 + No. in the group
- Device memory map: xyy (x = PLC1 to 8, yy = table No.)
- I/F driver: 1 to 8 = PLC1 to 8, 9 = simulator

## Warning

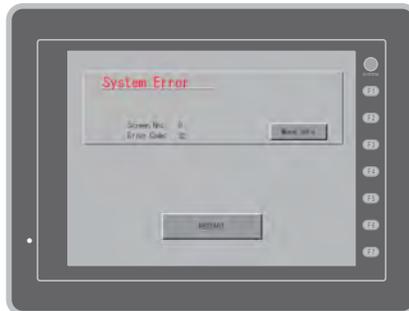
A message may be displayed on the Main Menu screen. This is a warning message. For the warning details and solutions, refer to “Error Numbers” on page A7-6 and correct screen data.



## SYSTEM ERROR

When a system error is detected, the following error screen is displayed on the V8 series.

System Error screen



Error Code: XX

- 1: Watchdog timer error
- 11: Switch table error
- 30: Request for displaying full error
- 31: Memory allocation system error
- 32: General exceptions/MMU address system error
- 33: RTOS system error
- 34: Memory error
- 35: Inaccurate memory error

The source of the error could be one of the following three problems.

- 1) Program crash due to noise
- 2) Hardware problem
- 3) Bad program

**If any of these errors occurs, contact your local distributor.**

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## Touch Switch Is Active

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If the power is turned off while a touch switch is activated, the error screen shown below is displayed. Remove your finger from the screen.

If the error screen remains displayed, contact your local distributor.



## Errors Displayed on the PC when a Screen is Created

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When a rule is violated when creating a screen, the following type of message is displayed. Correct the error as indicated by the message.

Example: When you attempt to set multiple entry modes in one overlap layer or the base screen.



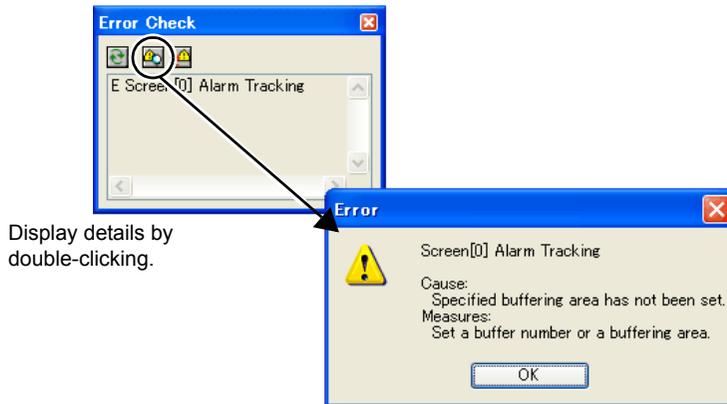
## Error Check

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Errors in the file can be checked during editing.

Select [Tool] → [Error Check] on Editor.

- When no error is found:  
The [Error Check Complete] message is displayed.
- When an error is found:  
An error list like the one shown below is displayed.
- Detail window:  
When you select an item and double-click  , the detail window is displayed.  
Fix the problem as indicated.



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