
TOSVERT VF series
VF-S15 / VF-nC3
VF-AS1 / VF-PS1

Adaptation to TOSHIBA IE3 motors
Default setting values change of motor parameters
Replacement manual

TOSHIBA INDUSTRIAL PRODUCTS AND SYSTEMS CORPORATION**NOTICE**

1. Read this manual before installing or operating. Keep this manual on hand of the end user, and make use of this manual in maintenance and inspection.
2. All information contained in this manual will be changed without notice. Please contact your Toshiba distributor to confirm the latest information.

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1. INTRODUCTION

In Japan, the motors from 0.75kW to 375kW which are shipped by manufacturers and the imported motors have been changed to IE3 motors since April 2015.

According to this change, Toshiba standard motors have also been changed to IE3 motors (Premium Gold Motor).

We have informed the adaptation to IE3 motors by attachment manual with product “■Setting parameters for Toshiba IE3 motor” (E6582053) until now.

Since the adoption rate of IE3 motors has increased, the software of “VF-AS1/PS1/S15/nC3” has been changed and the default setting values of motor parameters have also changed to IE3 motors from traditional IE1 motors.

This manual will be explained the changes above and replacement method in case of using traditional IE1 motors.

2. CHANGE POINT

The default setting values of motor parameters of “VF-AS1/PS1/S15/nC3” have been changed to IE3 motors from traditional IE1 motors.

Adaptation schedule is below.

VF-S15 and VF-nC3: From Oct 2016

VF-AS1 and VF-PS1: From Apr 2017

2.1. Product identification

The default setting values of motor parameters, applicable motors and the software version of inverter are shown in Table 2.1.

Software version can be checked by below methods.

a) Status monitor of the panel

CPU1 version shows the software version. (Refer to Instruction manual chapter 8.2)

The association of the software version and applicable motor are shown in Table 2.1.

b) Name plate or packaging label of the inverter (Product version)

Software version can be checked by product version on name plate and packaging label.

(Refer to Figure 2.1)

Product version number is (20) or later, Applicable motor of them are IE3 motor. (Refer to Table 2.1)

c) Label on the back surface of front cover of inverter

Following content has been described on label. (Refer to Figure 2.2)

Mot.const. : IE3

Table 2.1 The association of the software version and applicable motor

Model	Software version	Applicable motor (Default setting value)	Product version
VF-S15	V100 ~ V116	Traditional IE1 motor	(0) ~ (8)
	V120 ~	IE3 motor	(20) ~
VF-nC3	V100 ~ V112	Traditional IE1 motor	(0) ~ (7)
	V120 ~	IE3 motor	(20) ~
VF-AS1	V100 ~ V168	Traditional IE1 motor	(0) ~ (17)
	V170 ~	IE3 motor	(20) ~
VF-PS1	V600 ~ V668	Traditional IE1 motor	(0) ~ (12)
	V670 ~	IE3 motor	(20) ~

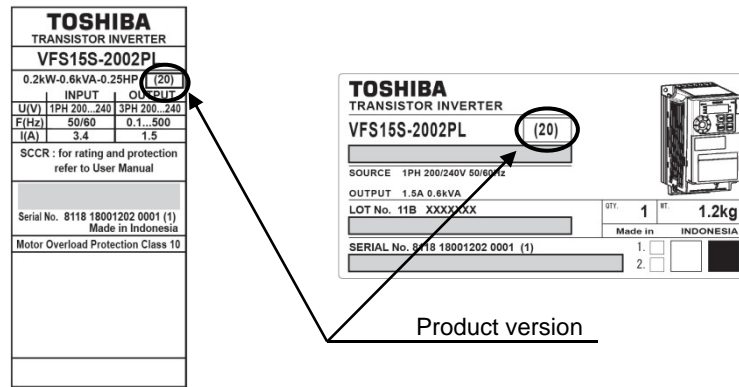


Figure 2.1 Product version on name plate and packaging label

Example for VF-S15

IN 200/240V		Mot.const.:IE3	
Cu AWG14: 75°C 8.9 lb·in / 1.0 N·m			
R/L1	S/L2/N		
PB	PO	PA+	PC/-
U/T1	V/T2	W/T3	
Serial No. 8118 18021202 0001 (1)			

SW2 SW1

SW2
VIB↔S4

PTC↔S3

SW1

SINK
PLC
SOURCE

Cu AWG26-16 : 75°C
 4.4 lb·in
0.5 N·m

Example for VF-nC3

R/L1	S/L2	T/L3	
IN 200/240V		Mot.const.:IE3	
Cu AWG10: 75°C 0.7 lb.in / 1.2 Nm			
P0	PA+	PC/-	U/T1
V/T2		W/T3	
Serial No. 1328 02021208 0001 (1)			

Cu AWG26-16 : 75°C
 4.4 lb.in
0.5 Nm

Example for VF-AS1/PS1

VFAS1-2007PL
S No. 1834 05101305 0001(1)
Mot.const.:IE3

Figure 2.2 Label on the back surface of front cover of inverter

2.2. Change parameters

2.2.1. Change parameters

Change parameters have been shown in Appendix

Table A-1 (a) VF-S15 IE3 motor adaptaion parameters (V120 or later version)

Table A-1 (b) VF-S15 Traditional IE1 motor adaptation parameters (V116 or earlier version)

Table A-2 (a) VF-nC3 IE3 motor adaptaion parameters (V120 or later version)

Table A-2 (b) VF-nC3 Traditional IE1 motor adaptation parameters (V112 or earlier version)

Table A-3 (a) VF-AS1 (200V/400V class) IE3 motor adaptaion parameters (V170 or later version)

Table A-3 (b) VF-AS1 (200V/400V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Table A-3 (c) VF-AS1 (500V class) IE3 motor adaptation parameters (V170 or later version)

Table A-3 (d) VF-AS1 (500V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Table A-3 (e) VF-AS1 (575V class) IE3 motor adaptation parameters (V170 or later version)

Table A-3 (f) VF-AS1 (575V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Table A-3 (g) VF-AS1 (690V class) IE3 motor adaptation parameters (V170 or later version)

Table A-3 (h) VF-AS1 (690V class) Traditional IE1 motor adapatation parameters (V168 or earlier version)

Table A-4 (a) VF-PS1 (200V/400V class) IE3 motor adaptaion parameters (V670 or later version)

Table A-4 (b) VF-PS1 (200V/ 400V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Table A-4 (c) VF-PS1 (500V class) IE3 motor adaptation parameters (V670 or later version)

Table A-4 (d) VF-PS1 (500V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Table A-4 (e) VF-PS1 (575V class) IE3 motor adaptation parameters (V670 or later version)

Table A-4 (f) VF-PS1 (575V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Table A-4 (g) VF-PS1 (690V class) IE3 motor adaptation parameters (V670 or later version)

Table A-4 (h) VF-PS1 (690V class) Traditional IE1 motor adapatation parameters (V668 or earlier version)

The parameter names are different depending on the model.

The parameters of each models have been shown in Table A-5.

2.2.2. Search changed parameters (G r.U)

There is a case that the motor parameters which are changed in this change will be appeared by using automatic edit function (G r.U).

In this software version up, the default setting values have been changed as Appendix.

In case of copying the parameters from IE1 motor adaptaion inverter (Previous software version than V120/V170/V670) to IE3 motor adaptation inverter (V120/V170/V670 or later software version) by using Parameter writer or other options, some parameters described on Table A-5 of appendix will be searched in automatic edit function (G r.U).

The reverse is same too.

Please note you have to set the motor parameters according to the motor types you use.

2.2.3. Maintenance communication tool (PCM002Z)

In case of reading the parameters of IE1 motor (Previous software version than V120/V170/V670) to the parameter list of IE3 motor (V120/V170/V670 or later software version) by using the maintenance communication tool (PCM002Z), PCM002Z will be displayed as “modified” even if you have not changed for the parameters described on Table A-5 of appendix. The reverse is same too.

Please note you have to set the motor parameters according to the motor types you use.

2.3. To the same characteristics as IE1 motor adaptation inverters

In case of driving traditional IE1 motors by using IE3 motor adaptation inverters (V120/V170/V670 or later software version), the parameters should be adjusted described Table A1~4(b) according to your inverter models.

By adjusting the parameters for IE1 motors to IE3 motor adaptation inverters, it can be obtained the same characteristics as IE1 motor adaptation inverters.

However, F457 of VF-nC3 has been added since the V120.

If you want to get the same characteristics as V112, please set the 75 to F457.

If you don't know the previous motor data, please refer to name plate of motor or test report and perform auto tuning.

Please perform auto tuning according to instruction manual of each models.

2.4. To adapt IE3 motors by IE1 motor adaptation inverters

Regarding adaptation to IE3 motors by using IE1 motor adaptation inverters, please refer to "TOSVERT VF series Adaptation manual for IE3 motors" (E6582056).

2.5. In case of unknown the motor types

If you don't know the motor types, please refer to the name plate of motor or test report and perform auto tuning.

Please perform auto tuning according to instruction manuals of each models.

3. TROUBLESHOOTING

The Table 3-1 shows the troubleshooting in case of driving traditional IE1 motors by using IE3 motor adaptation inverters (V120/V170/V670 or later software version) without parameter changes.

To the same characteristics as IE1 motor adaptation inverters, please refer to chapter 2.3 in this manual and set the related parameters.

Table 3-1. Troubleshooting

Phenomenon	Related parameters	Expected causes	Countermeasures
Torque at the start-up is lower.	<i>u b</i> , <i>F 1 7 2</i> (Common) <i>F 4 0 2</i> (VF-S15, VF-nC3)	The output voltage is low at low speed area because the torque boost default setting values of IE3 motor adaptation inverters and primary resistance value are lower than IE1 motors values.	*Set the related parameters same values as IE1 motor adaptation inverters. (Refer to chapter 2.3) *Perform auto tuning. (Refer to the name plate of motor, instruction manuals of each models)
Congestion at start-up, Current is increased.	<i>F 4 1 0</i> (VF-AS1, VF-PS1)		
Cannot start-up.			
Characteristics after auto-tuning is different.	<i>F 4 0 2</i> , <i>F 4 1 6</i> (VF-S15, VF-nC3) <i>F 4 1 0</i> , <i>F 4 1 1</i> , <i>F 4 1 3</i> (VF-AS1, VF-PS1) <i>F 4 1 2</i> (Common)	The default setting values of IE3 motor adaptation inverters are different compared with IE1 motor adaptation inverters.	*Perform auto tuning after setting the related parameters same values as IE1 motor adaptation inverters. *Check the name plate of motor and perform auto tuning according to instruction manuals of each models.
DC braking is weakened. DC braking time is slightly shorter.	<i>F 4 5 7</i> (Common)	The default setting values of IE3 motor adaptation inverters are different compared with IE1 motor adaptation inverters.	*Set the related parameters same values as IE1 motor adaptation inverters. (Refer to chapter 2.3)
Start-up time after starting of operation is slightly longer.	<i>F 4 5 6</i> (VF-S15) <i>F 4 5 9</i> (VF-AS1, VF-PS1)	The default setting values of IE3 motor adaptation inverters are different compared with IE1 motor adaptation inverters.	*Set the related parameters same values as IE1 motor adaptation inverters. (Refer to chapter 2.3)
Operation characteristics has changed.	Parameters of Table A-1~4	The default setting values of IE3 motor adaptation inverters are different compared with IE1 motor adaptation inverters.	*Set the related parameters same values as IE1 motor adaptation inverters. (Refer to chapter 2.3)

Phenomenon	Related parameters	Expected causes	Countermeasures
Motor parameters which have never changed is displayed to <i>U.U.</i>	Parameters of Table A-1~4	Reading the parameters of the different versions of the applicable motors to inverters by using Parameter writer or other options.	*If you have not changed the motors, it can be used as it is. (Refer to chapter 2.2.2)
Motor parameters which have never changed is displayed as "modified" in maintenance communication tool (PCM002Z).	Parameters of Table A1~4	Reading the parameters of the different versions of the applicable motors.	*If you have not changed the motors, it can be used as it is. (Refer to chapter 2.2.3)

Appendix

A. 1 Changed parameters list

Table A-1(a) VF-S15 IE3 motor adaptaion parameters (V120 or later version)

Type-form	$\frac{u_b}{F172}$ %	F402 %	F415 A	F416 %	F417 (JP,USA)*1 min ⁻¹	F417 (ASIA,EU)*1 min ⁻¹	F456 %	F457 -	F458 -	F459 Times				
VFS15-2002PM	Same values as Table A-1(b) (V116 or earlier version)													
VFS15-2004PM	Same values as Table A-1(b) (V116 or earlier version)													
VFS15-2007PM	4.8	4.3	3.40	55	1730	1440	120	50	101	1.5				
VFS15-2015PM	4.8	4.4	6.40	42	1740	1445								
VFS15-2022PM	3.1	2.9	9.40	50	1755	1460								
VFS15-2037PM	3.1	2.8	14.60	38	1755	1460								
VFS15-2055PM	2.5	2.3	21.40	41	1760	1465								
VFS15-2075PM	2.3	2.0	28.60	38	1755	1460								
VFS15-2110PM	1.8	1.6	42.00	38	1770	1475								
VFS15-2150PM	1.6	1.5	55.60	33	1760	1470								
VFS15S-2002PL	Same values as Table A-1(b) (V116 or earlier version)													
VFS15S-2004PL	Same values as Table A-1(b) (V116 or earlier version)													
VFS15S-2007PL	4.8	4.3	3.40	55	1730	1440	120	50	101	1.5				
VFS15S-2015PL	4.8	4.4	6.40	42	1740	1445								
VFS15S-2022PL	3.1	2.9	9.40	50	1755	1460								
VFS15S-2022PL	3.1	2.9	9.40	50	1755	1460								
VFS15-4004PL	Same values as Table A-1(b) (V116 or earlier version)													
VFS15-4007PL	4.8	4.3	1.70	55	1730	1440	120	50	101	1.5				
VFS15-4015PL	4.8	4.4	3.20	42	1740	1445								
VFS15-4022PL	3.1	2.9	4.70	50	1755	1460								
VFS15-4037PL	3.1	2.8	7.30	38	1755	1460								
VFS15-4055PL	2.5	2.3	10.70	41	1760	1465								
VFS15-4075PL	2.3	2.0	14.30	38	1755	1460								
VFS15-4110PL	1.8	1.6	21.00	38	1770	1475								
VFS15-4150PL	1.6	1.5	27.80	33	1760	1470								

*1 : Regarding the region setting, refer to the instruction manual chapter 4.4 "Checking the region settings selection".

Table A-1(b) VF-S15 Traditional IE1 motor adaptation parameters (V116 or earlier version)

Type-form	$\frac{u_b}{F172}$ %	F402 %	F415 A	F416 %	F417 (JP,USA)*1 min ⁻¹	F417 (ASIA,EU)*1 min ⁻¹	F456 % ^{*2}	F457 % ^{*2}	F458 % ^{*2}	F459 Times
VFS15-2002PM	6.0	8.3	1.20	70	1710	1410	150	75	0	1.0
VFS15-2004PM	6.0	6.2	2.00	65						
VFS15-2007PM	6.0	5.8	3.40	60						
VFS15-2015PM	6.0	4.3	6.20	55						
VFS15-2022PM	5.0	4.1	8.90	52						
VFS15-2037PM	5.0	3.4	14.80	48						
VFS15-2055PM	4.0	3.0	21.00	46						
VFS15-2075PM	3.0	2.5	28.20	43						
VFS15-2110PM	2.0	2.3	40.60	41						
VFS15-2150PM	2.0	2.0	54.60	38						
VFS15S-2002PL	6.0	8.3	1.20	70	1710	1410	150	75	0	1.0
VFS15S-2004PL	6.0	6.2	2.00	65						
VFS15S-2007PL	6.0	5.8	3.40	60						
VFS15S-2015PL	6.0	4.3	6.20	55						
VFS15S-2022PL	5.0	4.1	8.90	52						
VFS15-4004PL	6.0	6.2	1.00	65	1710	1410	150	75	0	1.0
VFS15-4007PL	6.0	5.8	1.70	60						
VFS15-4015PL	6.0	4.3	3.10	55						
VFS15-4022PL	5.0	4.1	4.50	52						
VFS15-4037PL	5.0	3.4	7.40	48						
VFS15-4055PL	4.0	2.6	10.50	46						
VFS15-4075PL	3.0	2.3	14.10	43						
VFS15-4110PL	2.0	2.2	20.30	41						
VFS15-4150PL	2.0	1.9	27.30	38						

*1 : Regarding the region setting, refer to the instruction manual chapter 4.4 "Checking the region settings selection".

*2 : F456 to F458 are manufacturer setting parameters.

However, please change these parameters according to Table A-1(b) for achieving same motor control characteristics.
 F456 and F457 are not copied from V110 or earlier version inverter by Parameter writer or other options, because
 F456 and F457 do not exist on V110 or earlier version inverter. Therefore, change F456 and F457 manually.

Table A-2(a) VF-nC3 IE3 motor adaptation parameters (V120 or later version)

Type-form	$\frac{u_b}{F172}$	F402	F415	F415	F417 (JP, USA)	F417 (ASIA, EU)	F457	F458	F459
	%	%	A	%	min ⁻¹ *1	min ⁻¹ *1	—	—	Times
VFNC3-2001P	Same values as Table A-2(b) (V112 or earlier version)						50	101	1.5
VFNC3-2002P									
VFNC3-2004P									
VFNC3-2007P	4.8	4.3	3.4	55	1730	1440			
VFNC3-2015P	4.8	4.4	6.4	42	1740	1445			
VFNC3-2022P	3.1	2.9	9.4	50	1755	1460			
VFNC3-2037P	3.1	2.8	14.6	38	1755	1460			
VFNC3S-2001PL	Same values as Table A-2(b) (V112 or earlier version)						50	101	1.5
VFNC3S-2002PL									
VFNC3S-2004PL									
VFNC3S-2007PL	4.8	4.3	3.4	55	1730	1440			
VFNC3S-2015PL	4.8	4.4	6.4	42	1740	1445			
VFNC3S-2022PL	3.1	2.9	9.4	50	1755	1460			
VFNC3S-1001P	Same values as Table A-2(b) (V112 or earlier version)						50	101	1.5
VFNC3S-1002P									
VFNC3S-1004P									
VFNC3S-1007P	4.8	4.3	3.4	55	1730	1440			

*1 : Refer to the instruction manual chapter 3.1 "How to Set the Setup Menu" and 4.4 "Checking the region settings selection".

Table A-2(b) VF-nC3 Traditional IE1 motor adaptation parameters (V112 or earlier version)

Type-form	$\frac{u_b}{F172}$	F402	F415	F415	F417 (JP, USA)	F417 (ASIA, EU)	F457	F458	F459
	%	%	A	%	min ⁻¹ *1	min ⁻¹ *1	— *2	— *2	Times
VFNC3-2001P	6.0	10.3	0.6	75	1710	1410	75	0	1.0
VFNC3-2002P	6.0	8.3	1.2	70					
VFNC3-2004P	6.0	6.2	2.0	65					
VFNC3-2007P	6.0	5.8	3.4	60					
VFNC3-2015P	6.0	4.3	6.2	55					
VFNC3-2022P	5.0	4.1	8.9	52					
VFNC3-2037P	5.0	3.4	14.8	48					
VFNC3S-2001PL	6.0	10.3	0.6	75	1710	1410	75	0	1.0
VFNC3S-2002PL	6.0	8.3	1.2	70					
VFNC3S-2004PL	6.0	6.2	2.0	65					
VFNC3S-2007PL	6.0	5.8	3.4	60					
VFNC3S-2015PL	6.0	4.3	6.2	55					
VFNC3S-2022PL	5.0	4.1	8.9	52					
VFNC3S-1001P	6.0	10.3	0.6	75					
VFNC3S-1002P	6.0	8.3	1.2	70					
VFNC3S-1004P	6.0	6.2	2.0	65					
VFNC3S-1007P	6.0	5.8	3.4	60					

*1 : Refer to the instruction manual chapter 3.1 "How to Set the Setup Menu" and 4.4 "Checking the region settings selection".

*2 : F457 and F458 are manufacturer setting parameters.

However, please change these parameters according to Table A-2(b) for achieving same motor control characteristics.

F457 is not copied from V112 or earlier version inverter by Parameter writer or other options, because F457 do not exist on V112 or earlier version inverter. Therefore, change F457 manually.

Table A-3(a) VF-AS1(200V/400V class) IE3 motor adaptaion parameters (V170 or later version)

Type-form	$\frac{u_b}{F}$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$F172$ $F175$ $F180$	A	min^{-1}	%	%	%*1	%	—	—	—
VFAS1-2004PL	Same values as Table A-3(b) (V168 or earlier version)									
VFAS1-2007PL	4.8	3.4	1730	4.3	55	140	3.89	50	-1	120
VFAS1-2015PL	4.8	6.4	1740	4.4	42	140	3.33			
VFAS1-2022PL	3.1	9.4	1755	2.9	50	140	2.50			
VFAS1-2037PL	3.1	14.6	1755	2.8	38	110	2.50			
VFAS1-2055PL	2.5	21.4	1760	2.3	41	110	2.22			
VFAS1-2075PL	2.3	28.6	1755	2.0	38	100	2.50			
VFAS1-2110PM	1.8	42.0	1770	1.6	38	100	1.67			
VFAS1-2150PM	1.6	55.6	1760	1.5	33	90	2.22			
VFAS1-2185PM	1.5	69.0	1770	1.4	37	90	1.67			
VFAS1-2220PM	1.7	80.0	1760	1.6	32	80	2.22			
VFAS1-2300PM	1.4	108.0	1765	1.2	33	80	1.94			
VFAS1-2370PM	0.9	132.0	1775	0.8	32	80	1.39			
VFAS1-2450PM	0.8	159.0	1775	0.7	31	80	1.39			
VFAS1-2550P	0.8	192.0	1775	0.8	28	70	1.39			
VFAS1-2750P	1.1	270.0	1780	1.0	37	80	1.11	75	0	150
VFAS1-4007PL	4.8	1.7	1730	4.3	55	140	3.89	50	-1	120
VFAS1-4015PL	4.8	3.2	1740	4.4	42	140	3.33			
VFAS1-4022PL	3.1	4.7	1755	2.9	50	140	2.50			
VFAS1-4037PL	3.1	7.3	1755	2.8	38	110	2.50			
VFAS1-4055PL	2.5	10.7	1760	2.3	41	110	2.22			
VFAS1-4075PL	2.3	14.3	1755	2.0	38	100	2.50			
VFAS1-4110PL	1.8	21.0	1770	1.6	38	100	1.67			
VFAS1-4150PL	1.6	27.8	1760	1.5	33	90	2.22			
VFAS1-4185PL	1.5	34.5	1770	1.4	37	90	1.67			
VFAS1-4220PL	1.7	40.0	1760	1.6	32	80	2.22			
VFAS1-4300PL	1.4	54.0	1765	1.2	33	80	1.94			
VFAS1-4370PL	0.9	66.0	1775	0.8	32	80	1.39			
VFAS1-4450PL	0.8	79.5	1775	0.7	31	80	1.39			
VFAS1-4550PL	0.8	96.0	1775	0.8	28	70	1.39			
VFAS1-4750PL	1.1	135.0	1780	1.0	37	80	1.11			
VFAS1-4900PC	1.1	165.0	1785	0.9	43	80	0.83	75	0	150
VFAS1-4110KPC	0.8	195.0	1780	0.7	36	80	1.11			
VFAS1-4132KPC	0.9	230.0	1780	0.8	31	70	1.11			
VFAS1-4160KPC	0.8	287.0	1785	0.7	39	80	0.83			
VFAS1-4200KPC	0.9	337.0	1785	0.8	29	60	0.83			
VFAS1-4220KPC	1.0	375.0	1780	0.9	26	60	1.11			
VFAS1-4280KPC	0.8	485.0	1785	0.7	24	70	0.83			
VFAS1-4355KPC	0.6	630.0	1790	0.5	33	80	0.56			
VFAS1-4400KPC	Same values as Table A-3(b) (V168 or earlier version)									
VFAS1-4500KPC	Same values as Table A-3(b) (V168 or earlier version)									

*1: (x0.1%)

Table A-3(b) VF-AS1(200V/400V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Type-form	$\frac{u_b}{F172}$	F406	F407	F410	F411	F412	F413	F457 ^{*1}	F458	F459 ^{*1}			
	$\frac{F176}{F180}$												
	%	A	min ⁻¹	%	%	%*2	%	—	—	—			
VFAS1-2004PL	8.0	2.0	1680	7.8	61	120	6.67	75	0	150			
VFAS1-2007PL	8.0	3.4	1690	7.3	54	100	6.11						
VFAS1-2015PL	6.0	6.2	1690	7.1	45	70	6.11						
VFAS1-2022PL	6.0	8.9	1680	5.9	41	70	6.67						
VFAS1-2037PL	6.0	14.8	1690	4.9	36	80	6.11						
VFAS1-2055PL	4.0	21.0	1730	3.9	34	70	3.89						
VFAS1-2075PL	4.0	28.2	1730	3.4	33	70	3.89						
VFAS1-2110PM	3.0	40.6	1730	2.8	27	60	3.89						
VFAS1-2150PM	3.0	54.6	1730	2.5	27	60	3.89						
VFAS1-2185PM	3.0	68.0	1750	2.6	27	70	2.78						
VFAS1-2220PM	3.0	80.0	1750	2.4	27	70	2.78						
VFAS1-2300PM	3.0	108.0	1745	2.2	26	70	3.06						
VFAS1-2370PM	3.0	134.0	1750	1.8	26	70	2.78						
VFAS1-2450PM	3.0	160.0	1750	1.7	26	60	2.78						
VFAS1-2550P	3.0	196.0	1755	1.6	24	70	2.50						
VFAS1-2750P	2.0	258.0	1775	1.5	28	50	1.39						
VFAS1-4007PL	8.0	1.7	1690	7.3	54	100	6.11				75	0	150
VFAS1-4015PL	6.0	3.1	1690	7.1	45	60	6.11						
VFAS1-4022PL	6.0	4.5	1680	5.9	41	70	6.67						
VFAS1-4037PL	6.0	7.4	1690	4.9	36	70	6.11						
VFAS1-4055PL	4.0	10.5	1730	3.9	34	70	3.89						
VFAS1-4075PL	4.0	14.1	1730	3.4	33	70	3.89						
VFAS1-4110PL	3.0	20.3	1730	2.8	27	60	3.89						
VFAS1-4150PL	3.0	27.3	1730	2.5	27	60	3.89						
VFAS1-4185PL	3.0	34.0	1750	2.6	27	70	2.78						
VFAS1-4220PL	3.0	40.0	1750	2.4	27	70	2.78						
VFAS1-4300PL	3.0	54.0	1745	2.2	26	70	3.06						
VFAS1-4370PL	3.0	67.0	1750	1.8	27	70	2.78						
VFAS1-4450PL	3.0	80.0	1750	1.7	26	60	2.78						
VFAS1-4550PL	3.0	98.0	1755	1.6	24	70	2.50						
VFAS1-4750PL	2.0	129.0	1775	1.5	28	50	1.39						
VFAS1-4900PC	2.0	153.0	1775	1.3	26	50	1.39						
VFAS1-4110KPC	2.0	183.0	1775	1.5	21	30	1.39						
VFAS1-4132KPC	2.0	217.0	1765	0.7	20	40	1.94						
VFAS1-4160KPC	1.5	271.0	1765	0.6	20	40	1.94						
VFAS1-4200KPC	1.5	333.0	1765	0.6	20	40	1.94						
VFAS1-4220KPC	1.5	371.0	1765	0.6	20	40	1.94						
VFAS1-4280KPC	1.0	464.0	1765	0.6	20	40	1.94						
VFAS1-4355KPC	1.0	614.0	1765	0.6	20	30	1.94						
VFAS1-4400KPC	1.0	691.0	1765	0.6	20	30	1.94						
VFAS1-4500KPC	0.5	830.0	1765	0.6	20	30	1.94						

*1 : F 4 5 7 and F 4 5 9 are manufacturer setting parameters.

However, please change these parameters according to Table A-3(b) for achieving same motor control characteristics.

F 4 5 9 is not copied from V166 or earlier version inverter by Parameter writer or other options, because F 4 5 9 do not exist on V166 or earlier version inverter. Therefore, change F 4 5 9 manually.

*2 : (x0.1%)

Table A-3 (c) VF-AS1 (500V class) IE3 motor adaptation parameters (V170 or later version)

Type-form	ω_b	F405	F406	F407	F410	F411	F412	F413	F457	F458	F459
	F172										
	F176										
F180	%	kW	A	min ⁻¹	%	%	%*1	%	—	—	—
VFAS1-5015PM	2.1	1.5	2.4	1465	1.9	50	70	2.33	50	-1	120
VFAS1-5022PM	1.7	2.2	3.6	1460	1.5	50	100	2.67			
VFAS1-5030PM	4.9	3.0	4.5	1430	4.5	31	80	4.67			
VFAS1-5040PM	5.0	3.7	5.6	1430	4.5	30	80	4.67			
VFAS1-5055PM	4.4	5.6	8.7	1440	4.0	45	90	4.00			
VFAS1-5075PM	3.5	7.5	11.3	1450	3.2	39	80	3.33			
VFAS1-6150PL	3.7	11.2	17.8	1470	3.4	42	120	2.00	50	-1	120
VFAS1-6185PL	3.3	14.9	25.0	1470	3.0	48	150	2.00			
VFAS1-6220PL	3.1	18.6	27.0	1465	2.8	36	80	2.33			
VFAS1-6300PL	2.2	22.4	34.0	1470	2.0	39	100	2.00			
VFAS1-6370PL	2.3	29.8	44.0	1470	2.0	37	90	2.00			
VFAS1-6450PL	1.9	37.3	56.0	1475	1.7	41	100	1.67			
VFAS1-6550PL	1.8	44.7	67.0	1470	1.6	40	100	2.00			
VFAS1-6750PL	1.7	55.9	89.0	1470	1.6	48	120	2.00			
VFAS1-6900PL	1.5	74.6	118.0	1470	1.3	47	120	2.00			
VFAS1-6110KPC	1.6	93.2	153.0	1480	1.4	49	140	1.33			
VFAS1-6132KPC	1.4	111.9	176.0	1480	1.2	44	130	1.33			
VFAS1-6160KPC	0.9	132.0	187.0	1485	0.8	32	80	1.00			
VFAS1-6200KPC	0.9	149.1	218.0	1485	0.8	36	90	1.00			
VFAS1-6250KPC	0.8	186.4	254.0	1480	0.7	26	60	1.33			
VFAS1-6315KPC	0.9	261.0	378.0	1485	0.9	42	80	1.00			
VFAS1-6400KPC	0.7	335.6	506.0	1485	0.7	41	110	1.00			
VFAS1-6500KPC	0.8	410.1	570.0	1490	0.7	26	70	0.67			
VFAS1-6630KPC	0.7	522.0	741.0	1490	0.6	33	80	0.67			

*1: (x0.1%)

Table A-3 (d) VF-AS1 (500V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Type-form	ω_b	F405	F406	F407	F410	F411	F412	F413	F457*1	F458	F459*1
	F172										
	F176										
F180	%	kW	A	min ⁻¹	%	%	%*2	%	—	—	—
VFAS1-5015PM	6.0	1.5	2.6	1442	4.7	49	74	3.89	75	0	150
VFAS1-5022PM	6.0	2.2	3.5	1459	3.8	42	53	2.71			
VFAS1-5030PM	6.0	3.0	4.5	1459	4.0	41	53	3.00			
VFAS1-5040PM	6.0	3.7	5.8	1451	4.2	35	50	3.30			
VFAS1-5055PM	4.0	5.5	8.5	1466	2.5	41	61	2.30			
VFAS1-5075PM	4.0	7.5	11.0	1458	2.4	38	59	2.76			
VFAS1-6150PL	3.0	11.0	16.9	1481	2.2	37	49	1.27	75	0	150
VFAS1-6185PL	3.0	15.0	21.8	1478	2.0	31	64	1.42			
VFAS1-6220PL	3.0	18.5	27.9	1476	1.8	34	78	1.62			
VFAS1-6300PL	3.0	22.0	32.8	1479	1.5	33	68	1.39			
VFAS1-6370PL	3.0	30.0	44.1	1483	1.3	35	76	1.15			
VFAS1-6450PL	3.0	37.0	54.4	1483	1.1	33	74	1.16			
VFAS1-6550PL	3.0	45.0	67.4	1483	1.2	38	73	1.14			
VFAS1-6750PL	2.0	55.0	80.9	1480	1.2	30	70	1.36			
VFAS1-6900PL	2.0	75.0	104.0	1484	1.3	26	57	1.08			
VFAS1-6110KPC	2.0	90.0	128.0	1484	1.2	25	52	1.08			
VFAS1-6132KPC	2.0	110.0	166.0	1484	1.1	27	58	1.08			
VFAS1-6160KPC	1.5	132.0	189.0	1484	0.9	27	53	1.08			
VFAS1-6200KPC	1.5	160.0	221.0	1484	0.7	27	48	1.08			
VFAS1-6250KPC	1.5	200.0	278.0	1484	0.7	26	48	1.08			
VFAS1-6315KPC	1.0	250.0	386.0	1484	0.7	25	52	1.08			
VFAS1-6400KPC	1.0	315.0	474.0	1484	0.6	24	49	1.08			
VFAS1-6500KPC	0.5	400.0	607.0	1484	0.5	24	48	1.08			
VFAS1-6630KPC	0.5	500.0	773.0	1484	0.5	23	47	1.08			

*1: F457 and F459 are manufacturer setting parameters.

However, please change these parameters according to Table A-3(d) for achieving same motor control characteristics.

F459 is not copied from V166 or earlier version inverter by Parameter writer or other options, because F459 do not exist on V166 or earlier version inverter. Therefore, change F459 manually.

*2: (x0.1%)

Table A-3 (e) VF-AS1 (575V class) IE3 motor adaptation parameters (V170 or later version)

Type-form	$\frac{U_b}{F172}$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$\frac{F176}{F180}$	A	min ⁻¹	%	%	%*1	%	—	—	—
VFAS1-5015PM	2.3	2.4	1750	2.1	58	120	2.78	50	-1	120
VFAS1-5022PM	1.8	3.2	1760	1.7	50	110	2.22			
VFAS1-5040PM	2.1	5.2	1750	1.9	42	110	2.78			
VFAS1-5055PM	3.7	7.8	1760	3.4	46	120	2.22			
VFAS1-5075PM	3.8	10.4	1760	3.4	44	120	2.22			
VFAS1-6150PL	3.1	15.2	1770	2.8	38	120	1.67	50	-1	120
VFAS1-6185PL	2.9	20.0	1770	2.6	39	110	1.67			
VFAS1-6220PL	2.8	24.0	1770	2.5	36	100	1.67			
VFAS1-6300PL	2.9	29.0	1770	2.6	35	100	1.67			
VFAS1-6370PL	2.0	38.0	1775	1.8	32	90	1.39			
VFAS1-6450PL	1.8	48.0	1775	1.7	31	100	1.39			
VFAS1-6550PL	1.4	55.0	1775	1.3	28	80	1.39			
VFAS1-6750PL	1.4	69.0	1780	1.3	27	80	1.11			
VFAS1-6900PL	1.3	93.3	1776	1.2	31	90	1.33			
VFAS1-6110KPC	1.2	116.3	1785	1.1	31	90	0.83			
VFAS1-6132KPC	1.0	140.4	1784	0.9	33	90	0.89			
VFAS1-6200KPC	1.0	184.5	1784	0.9	30	90	0.89			
VFAS1-6250KPC	0.6	220.0	1782	0.5	22	60	1.00			
VFAS1-6315KPC	0.6	304.0	1786	0.5	21	50	0.78			
VFAS1-6400KPC	0.8	411.0	1783	0.7	26	70	0.94			
VFAS1-6500KPC	0.7	489.0	1785	0.6	22	60	0.83			
VFAS1-6630KPC	0.7	637.0	1785	0.6	30	80	0.83			

*1 : (x0.1%)

Table A-3 (f) VF-AS1 (575V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Type-form	$\frac{U_b}{F172}$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$ _{*1}	$F458$	$F459$ _{*1}
	$\frac{F176}{F180}$	A	min ⁻¹	%	%	%*2	%	—	—	—
VFAS1-5015PM	6.0	2.2	1730	4.7	49	74	3.89	75	0	150
VFAS1-5022PM	6.0	3.1	1751	3.8	42	53	2.71			
VFAS1-5040PM	6.0	5.0	1741	4.2	35	50	3.30			
VFAS1-5055PM	4.0	7.4	1759	2.5	41	61	2.30			
VFAS1-5075PM	4.0	9.6	1750	2.4	38	59	2.76			
VFAS1-6150PL	3.0	14.7	1777	2.2	37	49	1.27	75	0	150
VFAS1-6185PL	3.0	19.0	1774	2.0	31	64	1.42			
VFAS1-6220PL	3.0	24.3	1771	1.8	34	78	1.62			
VFAS1-6300PL	3.0	28.6	1775	1.5	33	68	1.39			
VFAS1-6370PL	3.0	38.4	1779	1.3	35	76	1.15			
VFAS1-6450PL	3.0	47.3	1779	1.1	33	74	1.16			
VFAS1-6550PL	3.0	58.6	1779	1.2	38	73	1.14			
VFAS1-6750PL	2.0	70.4	1776	1.2	30	70	1.36			
VFAS1-6900PL	2.0	90.2	1781	1.3	26	57	1.08			
VFAS1-6110KPC	2.0	111.0	1781	1.2	25	52	1.08			
VFAS1-6132KPC	2.0	144.0	1781	1.1	27	58	1.08			
VFAS1-6200KPC	1.5	192.0	1781	0.7	27	48	1.08			
VFAS1-6250KPC	1.5	242.0	1781	0.7	26	48	1.08			
VFAS1-6315KPC	1.0	336.0	1781	0.7	25	52	1.08			
VFAS1-6400KPC	1.0	412.0	1781	0.6	24	49	1.08			
VFAS1-6500KPC	0.5	528.0	1781	0.5	24	48	1.08			
VFAS1-6630KPC	0.5	672.0	1781	0.5	23	47	1.08			

*1 : $F457$ and $F459$ are manufacturer setting parameters.

$F459$ is not copied from V166 or earlier version inverter by Parameter writer or other options, because $F459$ do not exist on V166 or earlier version inverter. Therefore, change $F459$ manually.

However, please change these parameters according to Table A-3(f) for achieving same motor control characteristics.

*2 : (x0.1%)

Table A-3 (g) VF-AS1 (690V class) IE3 motor adaptation parameters (V170 or later version)

Type-form	$\overset{ub}{F172}$	$F405$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$			
	$F176$													
	$F180$													
	%	kW	A	min ⁻¹	%	%	%*1	%	—	—	—			
VFAS1-6022PL	2.0	2.2	2.6	1460	1.8	50	90	2.67	50	-1	120			
VFAS1-6030PL	2.3	3.0	3.0	1440	2.0	43	60	4.00						
VFAS1-6055PL	4.5	5.6	6.3	1440	4.1	44	90	4.00						
VFAS1-6075PL	3.6	7.5	8.2	1450	3.3	40	80	3.33						
VFAS1-6110PL	3.6	11.2	12.6	1470	3.2	40	110	2.00						
VFAS1-6150PL	3.3	14.9	18.3	1470	2.9	52	140	2.00						
VFAS1-6185PL	3.3	18.6	20.0	1465	2.9	38	90	2.33						
VFAS1-6220PL	2.2	22.4	25.0	1470	1.9	44	110	2.00						
VFAS1-6300PL	1.9	29.8	32.0	1470	1.8	37	90	2.00						
VFAS1-6370PL	1.7	37.3	41.0	1475	1.5	42	100	1.67						
VFAS1-6450PL	1.9	44.7	51.0	1470	1.7	45	120	2.00						
VFAS1-6550PL	1.7	55.9	63.0	1470	1.5	44	110	2.00						
VFAS1-6750PL	1.5	74.6	83.0	1470	1.4	45	110	2.00						
VFAS1-6900PL	1.7	93.2	115.0	1480	1.5	53	160	1.33						
VFAS1-6110KPC	1.4	111.9	122.0	1480	1.2	39	110	1.33	75	0	150			
VFAS1-6132KPC	0.9	132.0	136.0	1485	0.8	33	80	1.00						
VFAS1-6160KPC	0.9	149.1	156.0	1485	0.8	35	90	1.00						
VFAS1-6200KPC	0.9	186.4	184.0	1480	0.8	23	60	1.33						
VFAS1-6250KPC	0.9	261.0	266.0	1485	0.8	36	70	1.00						
VFAS1-6315KPC	0.8	335.6	355.0	1485	0.7	35	90	1.00						
VFAS1-6400KPC	0.7	410.1	416.0	1490	0.6	29	70	0.67						
VFAS1-6500KPC	0.7	522.0	533.0	1490	0.6	30	70	0.67						
VFAS1-6630KPC	Same values as Table A-3(h) (V168 or earlier version)													

*1 : (x0.1%)

Table A-3 (h) VF-AS1 (690V class) Traditional IE1 motor adaptation parameters (V168 or earlier version)

Type-form	$\overset{ub}{F172}$	$F405$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$F176$								*2		*1
	$F180$										
	%	kW	A	min ⁻¹	%	%	%*2	%	—	—	—
VFAS1-6022PL	6.0	2.2	2.5	1442	4.7	49	74	3.89	75	0	150
VFAS1-6030PL	6.0	3.0	4.2	1459	3.8	42	53	2.71			
VFAS1-6055PL	4.0	5.5	6.2	1451	4.2	35	50	3.30			
VFAS1-6075PL	4.0	7.5	8.0	1466	2.5	41	61	2.30			
VFAS1-6110PL	4.0	11.0	12.2	1458	2.4	38	59	2.76			
VFAS1-6150PL	3.0	15.0	15.8	1481	2.2	37	49	1.27			
VFAS1-6185PL	3.0	18.5	20.2	1478	2.0	31	64	1.42			
VFAS1-6220PL	3.0	22.0	23.8	1476	1.8	34	78	1.62			
VFAS1-6300PL	3.0	30.0	32.0	1479	1.5	33	68	1.39			
VFAS1-6370PL	3.0	37.0	39.4	1483	1.3	35	76	1.15			
VFAS1-6450PL	3.0	45.0	48.8	1483	1.1	33	74	1.16			
VFAS1-6550PL	3.0	55.0	58.6	1483	1.2	38	73	1.14			
VFAS1-6750PL	2.0	75.0	75.1	1480	1.2	30	70	1.36			
VFAS1-6900PL	2.0	90.0	92.6	1484	1.3	26	57	1.08			
VFAS1-6110KPC	2.0	110.0	120.0	1484	1.2	25	52	1.08			
VFAS1-6132KPC	2.0	132.0	137.0	1484	1.1	27	58	1.08			
VFAS1-6160KPC	1.5	160.0	160.0	1484	0.9	27	53	1.08			
VFAS1-6200KPC	1.5	200.0	202.0	1484	0.7	27	48	1.08			
VFAS1-6250KPC	1.5	250.0	280.0	1484	0.7	26	48	1.08			
VFAS1-6315KPC	1.0	315.0	343.0	1484	0.7	25	52	1.08			
VFAS1-6400KPC	1.0	400.0	440.0	1484	0.6	24	49	1.08			
VFAS1-6500KPC	0.5	500.0	560.0	1484	0.5	24	48	1.08			
VFAS1-6630KPC	0.5	630.0	706.0	1484	0.5	23	47	1.08			

*1 : $F457$ and $F459$ are manufacturer setting parameters.

However, please change these parameters according to Table A-3(h) for achieving same motor control characteristics.

$F459$ is not copied from V166 or earlier version inverter by Parameter writer or other options, because $F459$ do not exist on V166 or earlier version inverter. Therefore, change $F459$ manually.

*2 : (x0.1%)

Table A-4 (a) VF-PS1 (200V/400V class) IE3 motor adaptaion parameters (V670 or later version)

Type-form	$\frac{U_b}{F172}$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$\frac{F175}{F180}$	A	min ⁻¹	%	%	%*1	%	—	—	—
VFPS1-2004PL	Same values as Table A-4(b) (V668 or earlier version)									
VFPS1-2007PL	4.8	3.4	1730	4.3	55	140	3.89	50	-1	120
VFPS1-2015PL	4.8	6.4	1740	4.4	42	140	3.33			
VFPS1-2022PL	3.1	9.4	1755	2.9	50	140	2.50			
VFPS1-2037PL	3.1	14.6	1755	2.8	38	110	2.50			
VFPS1-2055PL	2.5	21.4	1760	2.3	41	110	2.22			
VFPS1-2075PL	2.3	28.6	1755	2.0	38	100	2.50			
VFPS1-2110PM	1.8	42.0	1770	1.6	38	100	1.67			
VFPS1-2150PM	1.6	55.6	1760	1.5	33	90	2.22			
VFPS1-2185PM	1.5	69.0	1770	1.4	37	90	1.67			
VFPS1-2220PM	1.7	80.0	1760	1.6	32	80	2.22			
VFPS1-2300PM	1.4	108.0	1765	1.2	33	80	1.94			
VFPS1-2370PM	0.9	132.0	1775	0.8	32	80	1.39			
VFPS1-2450PM	0.8	159.0	1775	0.7	31	80	1.39			
VFPS1-2550P	0.8	192.0	1775	0.8	28	70	1.39	75	0	150
VFPS1-2750P	1.1	270.0	1780	1.0	37	80	1.11			
VFPS1-2900P	1.1	330.0	1785	0.9	43	80	0.83			
VFPS1-4007PL	4.8	1.7	1730	4.3	55	140	3.89	50	-1	120
VFPS1-4007PDE										
VFPS1-4015PL	4.8	3.2	1740	4.4	42	140	3.33			
VFPS1-4015PDE										
VFPS1-4022PL	3.1	4.7	1755	2.9	50	140	2.50			
VFPS1-4022PDE										
VFPS1-4037PL	3.1	7.3	1755	2.8	38	110	2.50			
VFPS1-4037PDE										
VFPS1-4055PL	2.5	10.7	1760	2.3	41	110	2.22			
VFPS1-4055PDE										
VFPS1-4075PL	2.3	14.3	1755	2.0	38	100	2.50			
VFPS1-4075PDE										
VFPS1-4110PL	1.8	21.0	1770	1.6	38	100	1.67			
VFPS1-4110PDE										
VFPS1-4150PL	1.6	27.8	1760	1.5	33	90	2.22			
VFPS1-4150PDE										
VFPS1-4185PL	1.5	34.5	1770	1.4	37	90	1.67			
VFPS1-4185PDE										
VFPS1-4220PL	1.7	40.0	1760	1.6	32	80	2.22			
VFPS1-4220PDE										
VFPS1-4300PL	1.4	54.0	1765	1.2	33	80	1.94			
VFPS1-4300PDE										
VFPS1-4370PL	0.9	66.0	1775	0.8	32	80	1.39			
VFPS1-4370PDE										
VFPS1-4450PL	0.8	79.5	1775	0.7	31	80	1.39			
VFPS1-4450PDE										
VFPS1-4550PL	0.8	96.0	1775	0.8	28	70	1.39			
VFPS1-4550PDE										
VFPS1-4750PL	1.1	135.0	1780	1.0	37	80	1.11			
VFPS1-4750PDE										
VFPS1-4900PDE	1.1	165.0	1785	0.9	43	80	0.83	75	0	150
VFPS1-4900PC	1.1	165.0	1785	0.9	43	80	0.83			
VFPS1-4110KPC	0.8	195.0	1780	0.7	36	80	1.11			
VFPS1-4132KPC	0.9	230.0	1780	0.8	31	70	1.11			
VFPS1-4160KPC	0.8	287.0	1785	0.7	39	80	0.83			
VFPS1-4220KPC	1.0	375.0	1780	0.9	26	60	1.11			
VFPS1-4250KPC	0.8	440.0	1785	0.7	27	80	0.83			
VFPS1-4280KPC	0.8	485.0	1785	0.7	24	70	0.83			
VFPS1-4315KPC	0.8	545.0	1785	0.7	28	70	0.83			
VFPS1-4400KPC	Same values as Table A-4(b) (V668 or earlier version)									
VFPS1-4500KPC	Same values as Table A-4(b) (V668 or earlier version)									
VFPS1-4630KPC	Same values as Table A-4(b) (V668 or earlier version)									

*1 : (x0.1%)

Table A-4 (b) VF-PS1 (200V/ 400V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Type-form	F_{172}^{ub}	F_{406}	F_{407}	F_{410}	F_{411}	F_{412}	F_{413}	F_{457}^{*1}	F_{458}	F_{459}^{*1}			
	F_{176} F_{180}	A	min ⁻¹	%	%	%*2	%	—	—	—			
VFPS1-2004PL	8.0	2.0	1680	7.8	61	120	6.67	75	0	150			
VFPS1-2007PL	8.0	3.4	1690	7.3	54	100	6.11						
VFPS1-2015PL	6.0	6.2	1690	7.1	45	70	6.11						
VFPS1-2022PL	6.0	8.9	1680	5.9	41	70	6.67						
VFPS1-2037PL	6.0	14.8	1690	4.9	36	80	6.11						
VFPS1-2055PL	4.0	21.0	1730	3.9	34	70	3.89						
VFPS1-2075PL	4.0	28.2	1730	3.4	33	70	3.89						
VFPS1-2110PM	3.0	40.6	1730	2.8	27	60	3.89						
VFPS1-2150PM	3.0	54.6	1730	2.5	27	60	3.89						
VFPS1-2185PM	3.0	68.0	1750	2.6	27	70	2.78						
VFPS1-2220PM	3.0	80.0	1750	2.4	27	70	2.78						
VFPS1-2300PM	3.0	108.0	1745	2.2	26	70	3.06						
VFPS1-2370PM	3.0	134.0	1750	1.8	26	70	2.78						
VFPS1-2450PM	3.0	160.0	1750	1.7	26	60	2.78						
VFPS1-2550P	3.0	196.0	1755	1.6	24	70	2.50						
VFPS1-2750P	2.0	258.0	1775	1.5	28	50	1.39						
VFPS1-2900P	2.0	306.0	1775	1.3	26	50	1.39						
VFPS1-4007PL	8.0	1.7	1690	7.3	54	100	6.11				75	0	150
VFPS1-4007PDE													
VFPS1-4015PL	6.0	3.1	1690	7.1	45	60	6.11						
VFPS1-4015PDE													
VFPS1-4022PL	6.0	4.5	1680	5.9	41	70	6.67						
VFPS1-4022PDE													
VFPS1-4037PL	6.0	7.4	1690	4.9	36	70	6.11						
VFPS1-4037PDE													
VFPS1-4055PL	4.0	10.5	1730	3.9	34	70	3.89						
VFPS1-4055PDE													
VFPS1-4075PL	4.0	14.1	1730	3.4	33	70	3.89						
VFPS1-4075PDE													
VFPS1-4110PL	3.0	20.3	1730	2.8	27	60	3.89						
VFPS1-4110PDE													
VFPS1-4150PL	3.0	27.3	1730	2.5	27	60	3.89						
VFPS1-4150PDE													
VFPS1-4185PL	3.0	34.0	1750	2.6	27	70	2.78						
VFPS1-4185PDE													
VFPS1-4220PL	3.0	40.0	1750	2.4	27	70	2.78						
VFPS1-4220PDE													
VFPS1-4300PL	3.0	54.0	1745	2.2	26	70	3.06						
VFPS1-4300PDE													
VFPS1-4370PL	3.0	67.0	1750	1.8	27	70	2.78						
VFPS1-4370PDE													
VFPS1-4450PL	3.0	80.0	1750	1.7	26	60	2.78						
VFPS1-4450PDE													
VFPS1-4550PL	3.0	98.0	1755	1.6	24	70	2.50						
VFPS1-4550PDE													
VFPS1-4750PL	2.0	129.0	1775	1.5	28	50	1.39						
VFPS1-4750PDE													
VFPS1-4900PC	2.0	153.0	1775	1.3	26	50	1.39						
VFPS1-4900PDE													
VFPS1-4110KPC	2.0	183.0	1775	1.5	21	30	1.39						
VFPS1-4132KPC	2.0	217.0	1765	0.7	20	40	1.94						
VFPS1-4160KPC	1.5	271.0	1765	0.6	20	40	1.94						
VFPS1-4220KPC	1.5	371.0	1765	0.6	20	40	1.94						
VFPS1-4250KPC	1.5	378.0	1765	0.6	20	40	1.94						
VFPS1-4280KPC	1.0	464.0	1765	0.6	20	40	1.94						
VFPS1-4315KPC	1.0	473.0	1765	0.6	20	40	1.94						
VFPS1-4400KPC	1.0	691.0	1765	0.6	20	30	1.94						
VFPS1-4500KPC	0.5	830.0	1765	0.6	20	30	1.94						
VFPS1-4630KPC	0.5	946.0	1765	0.6	20	30	1.94						

*1 : F 4 5 7 and F 4 5 9 are manufacturer setting parameters.

However, please change these parameters according to Table A-4(b) for achieving same motor control characteristics.

F 4 5 9 is not copied from V666 or earlier version inverter by Parameter writer or other options, because F 4 5 9 do not exist on V666 or earlier version inverter. Therefore, change F 4 5 9 manually.

*2 : (x0.1%)

Table A-4 (c) VF-PS1 (500V class) IE3 motor adaptation parameters (V670 or later version)

Type-form	$\frac{u_b}{F172}$	$F405$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$\frac{F176}{F180}$										
	%	kW	A	min ⁻¹	%	%	%*1	%	—	—	—
VFPS1-5022PM	1.7	2.2	3.6	1460	1.5	50	100	2.67	50	-1	120
VFPS1-5030PM	4.9	3.0	4.5	1430	4.5	31	80	4.67			
VFPS1-5040PM	5.0	3.7	5.6	1430	4.5	30	80	4.67			
VFPS1-5055PM	4.4	5.6	8.7	1440	4.0	45	90	4.00			
VFPS1-5075PM	3.5	7.5	11.3	1450	3.2	39	80	3.33			
VFPS1-6150PL	3.7	11.2	17.8	1470	3.4	42	120	2.00	50	-1	120
VFPS1-6185PL	3.3	14.9	25.0	1470	3.0	48	150	2.00			
VFPS1-6220PL	3.1	18.6	27.0	1465	2.8	36	80	2.33			
VFPS1-6300PL	2.2	22.4	34.0	1470	2.0	39	100	2.00			
VFPS1-6370PL	2.3	29.8	44.0	1470	2.0	37	90	2.00			
VFPS1-6450PL	1.9	37.3	56.0	1475	1.7	41	100	1.67			
VFPS1-6550PL	1.8	44.7	67.0	1470	1.6	40	100	2.00			
VFPS1-6750PL	1.7	55.9	89.0	1470	1.6	48	120	2.00			
VFPS1-6900PL	1.5	74.6	118.0	1470	1.3	47	120	2.00			
VFPS1-6110KPC	1.6	93.2	153.0	1480	1.4	49	140	1.33			
VFPS1-6132KPC	1.4	111.9	176.0	1480	1.2	44	130	1.33			
VFPS1-6160KPC	0.9	132.0	187.0	1485	0.8	32	80	1.00			
VFPS1-6200KPC	0.9	149.1	218.0	1485	0.8	36	90	1.00			
VFPS1-6250KPC	0.8	186.4	254.0	1480	0.7	26	60	1.33			
VFPS1-6315KPC	0.9	261.0	378.0	1485	0.9	42	80	1.00			
VFPS1-6400KPC	0.7	335.6	506.0	1485	0.7	41	110	1.00			
VFPS1-6500KPC	0.8	410.1	570.0	1490	0.7	26	70	0.67			
VFPS1-6630KPC	0.7	522.0	741.0	1490	0.6	33	80	0.67			

*1 : (x0.1%)

Table A-4 (d) VF-PS1 (500V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Type-form	$\frac{u_b}{F172}$	$F405$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$\frac{F176}{F180}$								*1		*1
	%	kW	A	min ⁻¹	%	%	%*2	%	—	—	—
VFPS1-5022PM	6.0	2.2	3.5	1459	3.8	42	53	2.71	75	0	150
VFPS1-5030PM	6.0	3.0	4.5	1459	4.0	41	53	3.00			
VFPS1-5040PM	6.0	3.7	5.8	1451	4.2	35	50	3.30			
VFPS1-5055PM	4.0	5.5	8.5	1466	2.5	41	61	2.30			
VFPS1-5075PM	4.0	7.5	11.0	1458	2.4	38	59	2.76			
VFPS1-6150PL	3.0	11.0	16.9	1481	2.2	37	49	1.27	75	0	150
VFPS1-6185PL	3.0	15.0	21.8	1478	2.0	31	64	1.42			
VFPS1-6220PL	3.0	18.5	27.9	1476	1.8	34	78	1.62			
VFPS1-6300PL	3.0	22.0	32.8	1479	1.5	33	68	1.39			
VFPS1-6370PL	3.0	30.0	44.1	1483	1.3	35	76	1.15			
VFPS1-6450PL	3.0	37.0	54.4	1483	1.1	33	74	1.16			
VFPS1-6550PL	3.0	45.0	67.4	1483	1.2	38	73	1.14			
VFPS1-6750PL	2.0	55.0	80.9	1480	1.2	30	70	1.36			
VFPS1-6900PL	2.0	75.0	104.0	1484	1.3	26	57	1.08			
VFPS1-6110KPC	2.0	90.0	128.0	1484	1.2	25	52	1.08			
VFPS1-6132KPC	2.0	110.0	166.0	1484	1.1	27	58	1.08			
VFPS1-6160KPC	1.5	132.0	189.0	1484	0.9	27	53	1.08			
VFPS1-6200KPC	1.5	160.0	221.0	1484	0.7	27	48	1.08			
VFPS1-6250KPC	1.5	200.0	278.0	1484	0.7	26	48	1.08			
VFPS1-6315KPC	1.0	250.0	386.0	1484	0.7	25	52	1.08			
VFPS1-6400KPC	1.0	315.0	474.0	1484	0.6	24	49	1.08			
VFPS1-6500KPC	0.5	400.0	607.0	1484	0.5	24	48	1.08			
VFPS1-6630KPC	0.5	500.0	773.0	1484	0.5	23	47	1.08			

*1 : $F457$ and $F459$ are manufacturer setting parameters.

However, please change these parameters according to Table A-4(d) for achieving same motor control characteristics.

$F459$ is not copied from V666 or earlier version inverter by Parameter writer or other options, because $F459$ do not exist on V666 or earlier version inverter. Therefore, change $F459$ manually.

*2 : (x0.1%)

Table A-4 (e) VF-PS1 (575V class) IE3 motor adaptation parameters (V670 or later version)

Type-form	$\frac{u_b}{F172}$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$\frac{F176}{F180}$	A	min ⁻¹	%	%	%*1	%	—	—	—
VFPS1-5022PM	1.8	3.2	1760	1.7	50	110	2.22	50	-1	120
VFPS1-5040PM	2.1	5.2	1750	1.9	42	110	2.78			
VFPS1-5055PM	3.7	7.8	1760	3.4	46	120	2.22			
VFPS1-5075PM	3.8	10.4	1760	3.4	44	120	2.22			
VFPS1-6150PL	3.1	15.2	1770	2.8	38	120	1.67	50	-1	120
VFPS1-6185PL	2.9	20.0	1770	2.6	39	110	1.67			
VFPS1-6220PL	2.8	24.0	1770	2.5	36	100	1.67			
VFPS1-6300PL	2.9	29.0	1770	2.6	35	100	1.67			
VFPS1-6370PL	2.0	38.0	1775	1.8	32	90	1.39			
VFPS1-6450PL	1.8	48.0	1775	1.7	31	100	1.39			
VFPS1-6550PL	1.4	55.0	1775	1.3	28	80	1.39			
VFPS1-6750PL	1.4	69.0	1780	1.3	27	80	1.11			
VFPS1-6900PL	1.3	93.3	1776	1.2	31	90	1.33			
VFPS1-6110KPC	1.2	116.3	1785	1.1	31	90	0.83			
VFPS1-6132KPC	1.0	140.4	1784	0.9	33	90	0.89	75	0	150
VFPS1-6200KPC	1.0	184.5	1784	0.9	30	90	0.89			
VFPS1-6250KPC	0.6	220.0	1782	0.5	22	60	1.00			
VFPS1-6315KPC	0.6	304.0	1786	0.5	21	50	0.78			
VFPS1-6400KPC	0.8	411.0	1783	0.7	26	70	0.94			
VFPS1-6500KPC	0.7	489.0	1785	0.6	22	60	0.83			
VFPS1-6630KPC	0.7	637.0	1785	0.6	30	80	0.83			

*1 : (x0.1%)

Table A-4 (f) VF-PS1 (575V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Type-form	$\frac{u_b}{F172}$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$ ^{*1}	$F458$	$F459$ ^{*1}
	$\frac{F176}{F180}$	A	min ⁻¹	%	%	%*2	%	—	—	—
VFPS1-5022PM	6.0	3.1	1751	3.8	42	53	2.71	75	0	150
VFPS1-5040PM	6.0	5.0	1741	4.2	35	50	3.30			
VFPS1-5055PM	4.0	7.4	1759	2.5	41	61	2.30			
VFPS1-5075PM	4.0	9.6	1750	2.4	38	59	2.76			
VFPS1-6150PL	3.0	14.7	1777	2.2	37	49	1.27	75	0	150
VFPS1-6185PL	3.0	19.0	1774	2.0	31	64	1.42			
VFPS1-6220PL	3.0	24.3	1771	1.8	34	78	1.62			
VFPS1-6300PL	3.0	28.6	1775	1.5	33	68	1.39			
VFPS1-6370PL	3.0	38.4	1779	1.3	35	76	1.15			
VFPS1-6450PL	3.0	47.3	1779	1.1	33	74	1.16			
VFPS1-6550PL	3.0	58.6	1779	1.2	38	73	1.14			
VFPS1-6750PL	2.0	70.4	1776	1.2	30	70	1.36			
VFPS1-6900PL	2.0	90.2	1781	1.3	26	57	1.08			
VFPS1-6110KPC	2.0	111.0	1781	1.2	25	52	1.08			
VFPS1-6132KPC	2.0	144.0	1781	1.1	27	58	1.08			
VFPS1-6200KPC	1.5	192.0	1781	0.7	27	48	1.08			
VFPS1-6250KPC	1.5	242.0	1781	0.7	26	48	1.08			
VFPS1-6315KPC	1.0	336.0	1781	0.7	25	52	1.08			
VFPS1-6400KPC	1.0	412.0	1781	0.6	24	49	1.08			
VFPS1-6500KPC	0.5	528.0	1781	0.5	24	48	1.08			
VFPS1-6630KPC	0.5	672.0	1781	0.5	23	47	1.08			

*1 : $F457$ and $F459$ are manufacturer setting parameters.

However, please change these parameters according to Table A-4(f) for achieving same motor control characteristics.

$F459$ is not copied from V666 or earlier version inverter by Parameter writer or other options,

because $F459$ do not exist on V666 or earlier version inverter. Therefore, change $F459$ manually.

*2 : (x0.1%)

Table A-4 (g) VF-PS1 (690V class) IE3 motor adaptation parameters (V670 or later version)

Type-form	u_b	$F405$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$F172$										
	$F176$ $F180$	%	kW	A	min ⁻¹	%	%	%*1	%	—	—
VFPS1-6030PL	2.3	3.0	3.0	1440	2.0	43	60	4.00	50	-1	120
VFPS1-6055PL	4.5	5.6	6.3	1440	4.1	44	90	4.00			
VFPS1-6075PL	3.6	7.5	8.2	1450	3.3	40	80	3.33			
VFPS1-6110PL	3.6	11.2	12.6	1470	3.2	40	110	2.00			
VFPS1-6150PL	3.3	14.9	18.3	1470	2.9	52	140	2.00			
VFPS1-6185PL	3.3	18.6	20.0	1465	2.9	38	90	2.33			
VFPS1-6220PL	2.2	22.4	25.0	1470	1.9	44	110	2.00			
VFPS1-6300PL	1.9	29.8	32.0	1470	1.8	37	90	2.00			
VFPS1-6370PL	1.7	37.3	41.0	1475	1.5	42	100	1.67			
VFPS1-6450PL	1.9	44.7	51.0	1470	1.7	45	120	2.00			
VFPS1-6550PL	1.7	55.9	63.0	1470	1.5	44	110	2.00			
VFPS1-6750PL	1.5	74.6	83.0	1470	1.4	45	110	2.00			
VFPS1-6900PL	1.7	93.2	115.0	1480	1.5	53	160	1.33			
VFPS1-6110KPC	1.4	111.9	122.0	1480	1.2	39	110	1.33			
VFPS1-6132KPC	0.9	132.0	136.0	1485	0.8	33	80	1.00			
VFPS1-6160KPC	0.9	149.1	156.0	1485	0.8	35	90	1.00			
VFPS1-6200KPC	0.9	186.4	184.0	1480	0.8	23	60	1.33			
VFPS1-6250KPC	0.9	261.0	266.0	1485	0.8	36	70	1.00			
VFPS1-6315KPC	0.8	335.6	355.0	1485	0.7	35	90	1.00			
VFPS1-6400KPC	0.7	410.1	416.0	1490	0.6	29	70	0.67			
VFPS1-6500KPC	0.7	522.0	533.0	1490	0.6	30	70	0.67			
VFPS1-6630KPC	Same values as Table A-4(h) (V668 or earlier version)										

* 1 : (x0.1%)

Table A-4 (h) VF-PS1 (690V class) Traditional IE1 motor adaptation parameters (V668 or earlier version)

Type-form	u_b	$F405$	$F406$	$F407$	$F410$	$F411$	$F412$	$F413$	$F457$	$F458$	$F459$
	$F172$								*1		*1
	$F176$ $F180$	%	kW	A	min ⁻¹	%	%	%*2	%	—	—
VFPS1-6030PL	6.0	3.0	4.2	1459	3.8	42	53	2.71	75	0	150
VFPS1-6055PL	4.0	5.5	6.2	1451	4.2	35	50	3.30			
VFPS1-6075PL	4.0	7.5	8.0	1466	2.5	41	61	2.30			
VFPS1-6110PL	4.0	11.0	12.2	1458	2.4	38	59	2.76			
VFPS1-6150PL	3.0	15.0	15.8	1481	2.2	37	49	1.27			
VFPS1-6185PL	3.0	18.5	20.2	1478	2.0	31	64	1.42			
VFPS1-6220PL	3.0	22.0	23.8	1476	1.8	34	78	1.62			
VFPS1-6300PL	3.0	30.0	32.0	1479	1.5	33	68	1.39			
VFPS1-6370PL	3.0	37.0	39.4	1483	1.3	35	76	1.15			
VFPS1-6450PL	3.0	45.0	48.8	1483	1.1	33	74	1.16			
VFPS1-6550PL	3.0	55.0	58.6	1483	1.2	38	73	1.14			
VFPS1-6750PL	2.0	75.0	75.1	1480	1.2	30	70	1.36			
VFPS1-6900PL	2.0	90.0	92.6	1484	1.3	26	57	1.08			
VFPS1-6110KPC	2.0	110.0	120.0	1484	1.2	25	52	1.08			
VFPS1-6132KPC	2.0	132.0	137.0	1484	1.1	27	58	1.08			
VFPS1-6160KPC	1.5	160.0	160.0	1484	0.9	27	53	1.08			
VFPS1-6200KPC	1.5	200.0	202.0	1484	0.7	27	48	1.08			
VFPS1-6250KPC	1.5	250.0	280.0	1484	0.7	26	48	1.08			
VFPS1-6315KPC	1.0	315.0	343.0	1484	0.7	25	52	1.08			
VFPS1-6400KPC	1.0	400.0	440.0	1484	0.6	24	49	1.08			
VFPS1-6500KPC	0.5	500.0	560.0	1484	0.5	24	48	1.08			
VFPS1-6630KPC	0.5	630.0	706.0	1484	0.5	23	47	1.08			

* 1 : $F457$ and $F459$ are manufacturer setting parameters.

However, please change these parameters according to Table A-4(h) for achieving same motor control characteristics.

$F459$ is not copied from V666 or earlier version inverter by Parameter writer or other options, because $F459$ do not exist on V666 or earlier version inverter. Therefore, change $F459$ manually.

* 2 : (x0.1%)

A.2 Related parameters list of each models

The Table A-5 shows related parameters list of each models.

Table A-5. Related parameters list of each models

Function	VF-S15	VF-nC3	VF-AS1 VF-PS1
Torque boost value 1	ub		
Torque boost value 2	F 172		
Torque boost value 3	-	-	F 176
Torque boost value 4	-	-	F 180
Motor rated capacity	F 405		
Automatic torque boost value (VF-S15, VF-nC3)	F 402		F 410
Motor constant 1 (VF-AS1, VF-PS1)			
Motor rated current	F 415		F 406
Motor no-load current	F 416		F 411
Motor rated speed	F 417		F 407
Motor specific constant 1 (VF-S15, VF-nC3)	F 412		
Motor constant 3 (VF-AS1, VF-PS1)			
Motor constant 4	-		F 413
Motor specific constant 13 (VF-S15)	F 457		
Motor specific constant 11 (VF-nC3)			
Manufacturer setting parameter 7 (VF-AS1) Manufacturer setting parameter 3 (VF-PS1)			
Motor specific constant 12 (VF-S15)	F 456	-	F 459
Manufacturer setting parameter 8 (VF-AS1)			
Manufacturer setting parameter 4 (VF-PS1)			
Motor specific constant 2 (VF-S15, VF-nC3)	F 458		
Current control proportional gain (VF-AS1, VF-PS1)			
Load inertia moment ratio	F 459		-