



## Poultry Automation and Incubation Control Devices

EPC-T10 (Poultry Automation Controller With HMI Touch Panel)

ESM-3721 (Single SET Digital Incubators Control)

ESM-3722 (Dual SET Digital Incubators Control)

EGG-HATCHER (Hatching Control Device)

# Poultry Automation Control

Poultry Automation Controller  
With HMI Touch Panel

EPC-T10



- ▶ 10.1" Wide Touch Screen TFT LCD  
1024x600 resolution (16 million colors)
- ▶ 8 x RS-485 communication connection for Humidity + Temperature sensor

## Specifications

### HMI Touch Panel + I/O Module

- 19 Relay Outputs, 2 Analogue Outputs
- 8 Digital Inputs, 11 Analogue Inputs

### Controls and Measurements

- Heating, Cooling, Ventilation, Humidity, Co2 and Ammonia measurements
- Feeding, Lighting, Weight Measurement, Consumption Calculation

### Analogue Input Functions

- Poultry Internal Temperature Sensor, Static Pressure, Humidity, Co2, Nh3
- Shutter Feedback, Outside Temperature Sensor
- Feed Measurement Sensor

### Digital Input Functions

- Energy Consumption, Electricity Consumption, Water Consumption
- Feed Consumption, Negative Pressure

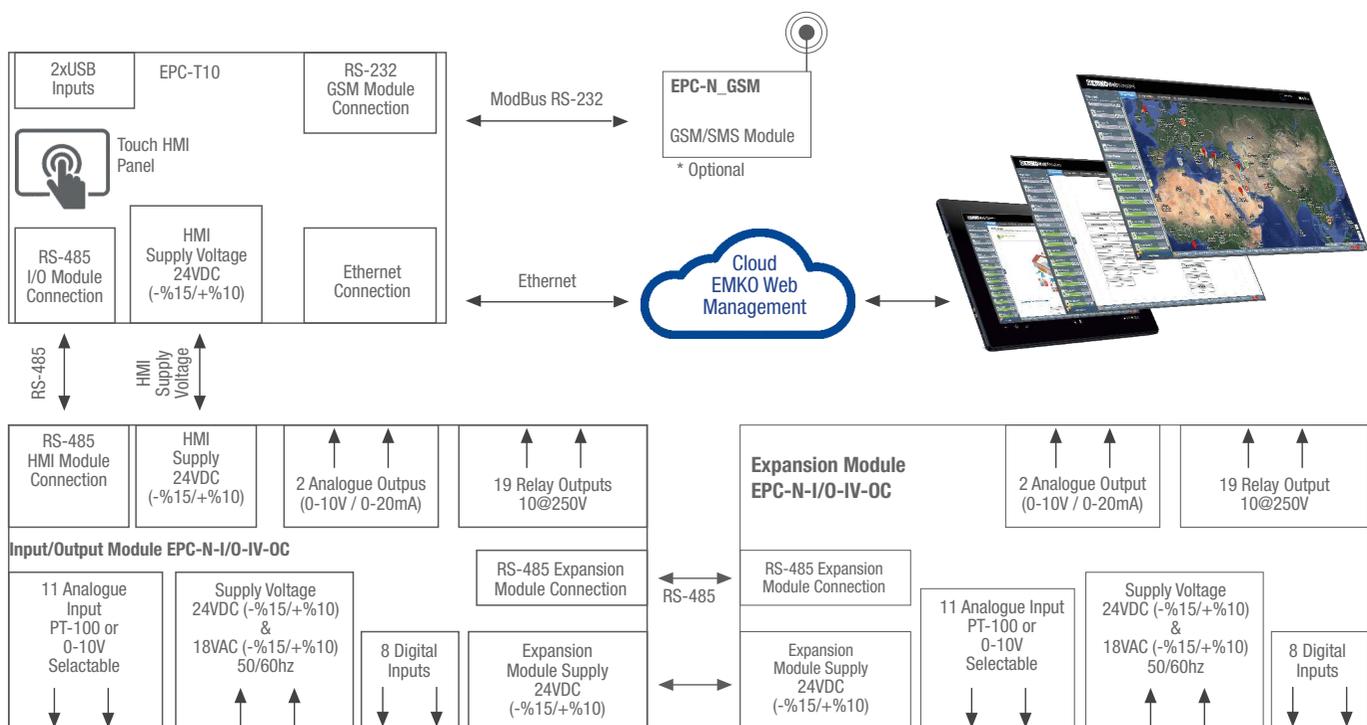
### Relay Functions

- Fan, Heater, Cooling, Shutter Opening-Closing,
- Lighting, Feeding, Alarm, Humidity
- Cooling Shutter On / Off

### Analogue Outputs

- Lightings, Fans, Heaters

## EPC-T10 Block Diagram

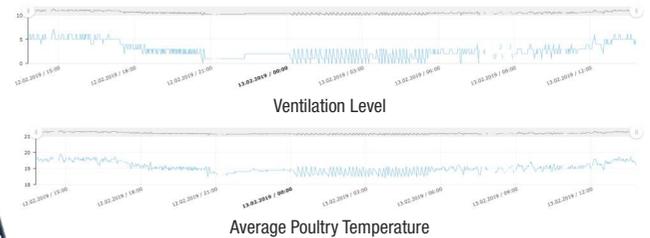


\* Max. 2 Input/Output modules can be connected to EPC-T10 HMI panel

Poultry Control and Monitoring  
 In your Computer,  
 In your Tablet  
 In your Mobil Phone  
 With EMKO Web Management

# Poultry Automation Control

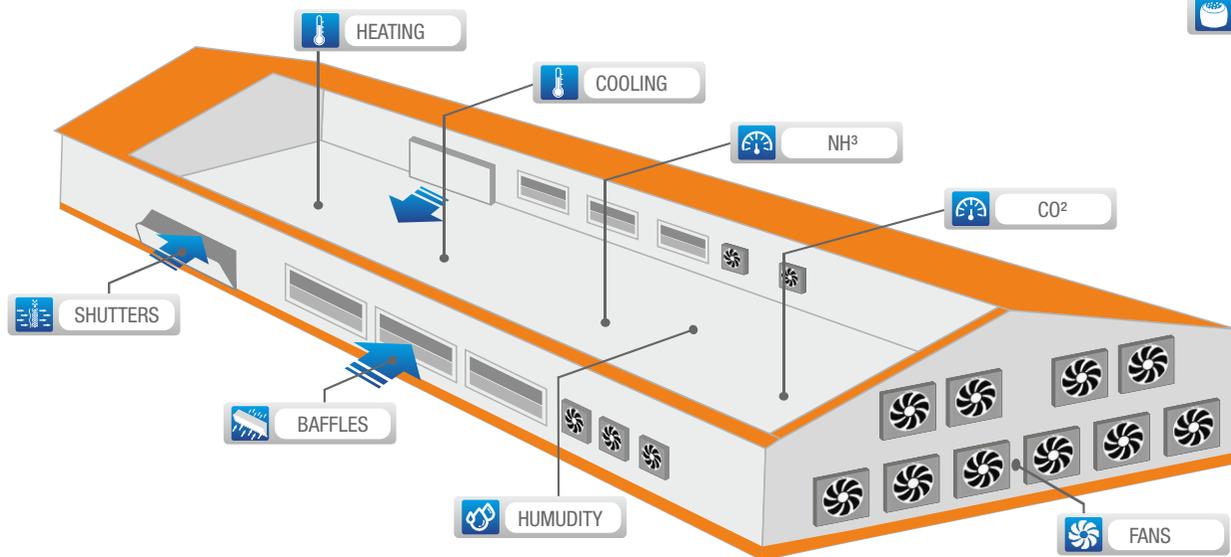
EPC-T10



Remote Monitoring and Control  
 Multiple Poultry Visualisation  
 Measurement Values and Static Analysis

► EPC-T10 Poultry Control & Monitoring Data

- CONSUMPTION
- LIGHTING
- AGE CURVE
- ELECTRICITY
- WEIGHT
- WATER
- FEEDING



Product Order Code	Description
EPC-T10	<u>ECP-T10 ( 10.1" Touch HMI module )</u> 2xUSB, 1x Ethernet, 1xRS-232 (For GSM module) 1xRS-485 (I/O card) communication port
EPC-N-I/O-IV-OC	<u>EPC-N-I/O-IV-OC Input-Output and Expansion Module</u> 2xRS-485 communication port ( For I/O module communication ) , 8 Digital Inputs, 19 Relay Outputs (10@250V) 11 Analogue Inputs ( PT-100 or 0-10V selectable), 2x Analogue Outputs ( 0-10V/0-20mA)
EPC-N_GSM	GSM SMS Module ( Antenna + 3m Communication Cable )
PMD-W-0/0.1.1.EPC	RS-485 communication, wall type , Humidity+Temperature sensors

\* Max. 3 Input/Output modules can be connected to EPC-T10 HMI panel

# Poultry Automation Remote Visualisation

Poultry Automation  
Remote Monitoring Application  
For Android / IOS operating systems

EPC MOBILE

- ▶ Instant monitoring of real-time notifications from the user's phone
- ▶ In the event of a problem with the Internet sending alarm information via SMS
- ▶ Alarm notifications are sent to the user's phone when alarms occurred

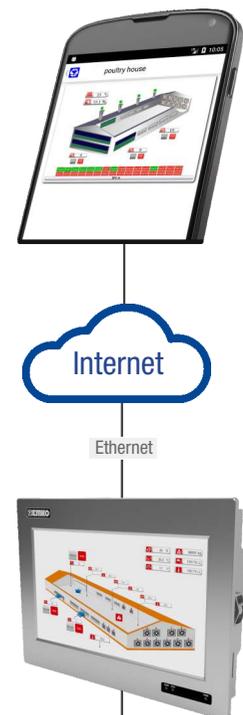
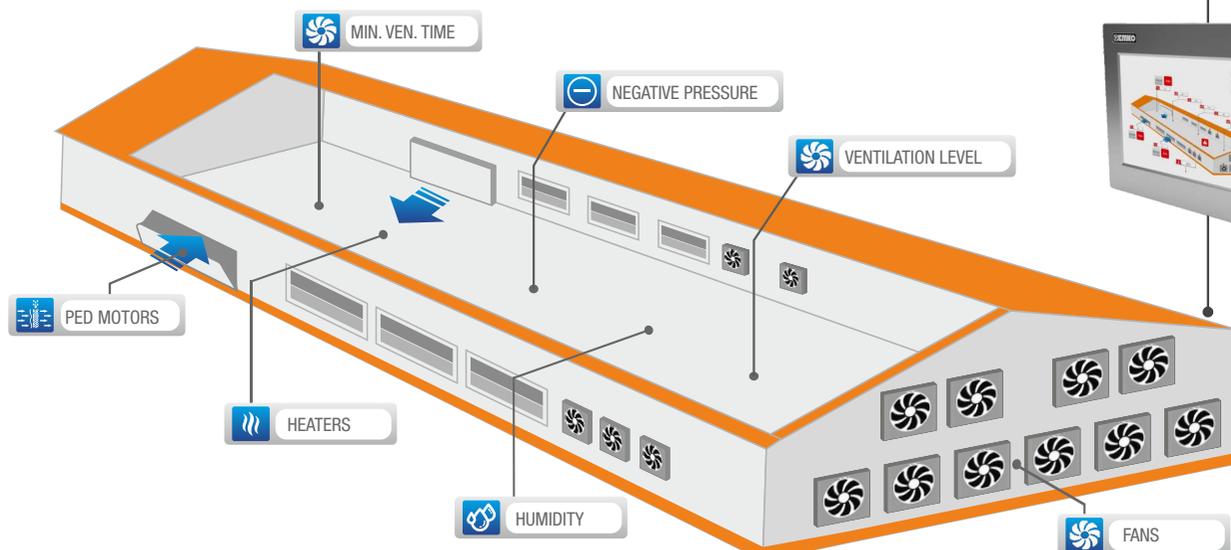


## Specifications

- Silo occupancy view
- Power cut emergency management
- High pressure emergency management
- High temperature, humidity, NH3, CO2 emergency management
- Low outside temperature emergency management
- Time dependent configurable outputs
- Ventilation with local selective sensors.
- Heating and cooling with local selective sensors
- Silo filling controls
- Egg counter
- Min. Max. consumption alarms
- Temperature dependent analog output for control fan speed
- External alarm inputs
- Up to 50 different ventilation templates
- Pressure controlled ventilation
- Ventilation with body weight

## ▶ EPC Mobile Monitoring Data

- |                 |                   |                  |                  |
|-----------------|-------------------|------------------|------------------|
| SET TEMPERATURE | WATER CONSUMPTION | AGE CURVE        | ANIMAL QUANTITY  |
| AVERAGE TEMP.   | VENTILATION LEVEL | FEED CONSUMPTION | DEAD ANIMAL QUA. |





Hatching Control Device



Pronem-Mini

# Incubation Control Instruments

EGG-HATCHER

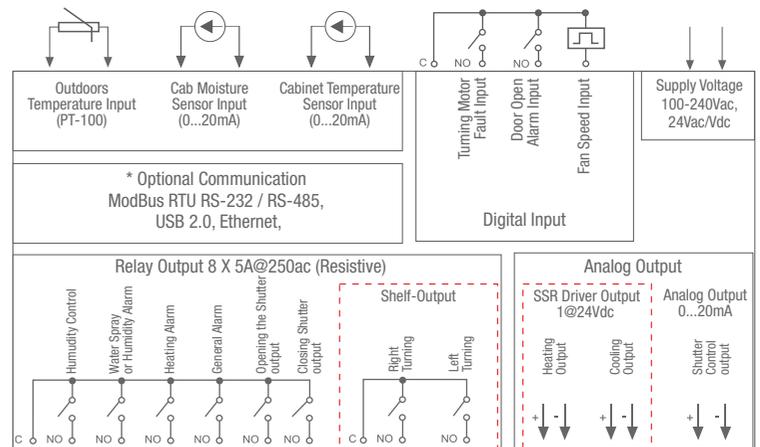


- ▶ 320 x 240 Pixel TFT LCD
- ▶ (RTC) Real Time Time Operation

- ▶ Can Start the Incubation Period Minus Days
- ▶ On the Main Screen (Day, Hour, Minute) Display

## Specifications

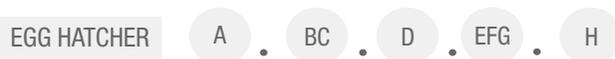
- Heating PID or ON/OFF
- Cooling ON / OFF Control
- Analogue input (mA, mV, V, PT-100, Pronem-Mini) (Must be determined in order)
- Humidity Control
- Shutter Control
- Tray Rotation Control
- Alarm Parameters
- Real Time Clock
- Event Logs



## Technical Specification

- Temperature Sensor Input:** 0-20mA, PT-100 (IEC751)(ITS90),
- Temperature Sensor Input :** PRONEM MINI
- Measurement Range :** 0°C ... 100°C
- Accuracy:** ±0,25% of scale
- Sensor Break Protection:** Upscale
- Sampling Cycle:** 100ms

- Outputs :** Relay, SSR Driver, 0-20 mA or 0-10 V Analog Output
- Control Form :** ON/OFF, PID
- Storage / Operating Temperature :** -20°C to +70°C/ 0° to +50°C
- Pronem Mini Accuracy (RH) :** +/-2 %RH (Typ)@23°C
- Pronem Mini Accuracy (T) :** +/-0,3°C (Typ)@23°C
- Dimensions :** 96x96x96mm



- A** Supply Voltage
- 1 100-240Vac 50/60 Hz (-%15; +%10)-6VA Universal
  - 2 24Vac 50/60 Hz (-%15; +%10) 24Vdc (-%15; +%10)

- B** Input Type
- 66 Pronem-Mini PMI-P + Pt100
  - 20 2 x 0...20mA + Pt100

- B** Output
- 1 8x Relay + 2x SSR + 1x Analog (0...20mA)

- H** Sensor Selection
- 0 There is no sensor in the device box
  - 6 PMI-P Pronem-Mini Digital Humidity Temperature Sensor ( Max. 2,5mt cable)

- EFG** Communication
- 000 RS-232 ModBus RTU communication
  - 200 USB + RS-232 ModBus RTU communication
  - 20U RS-485 + RS-232 ModBus RTU communication
  - 240 Ethernet + RS-232 ModBus RTU communication
  - 2EU Ethernet + USB + RS-232 ModBus RTU communication
  - 24U USB + RS-485 + RS-232 ModBus RTU communication

# Incubation Control Instruments

ESM-3722

Dual SET  
Digital Incubators  
Control



ProNem-Mini

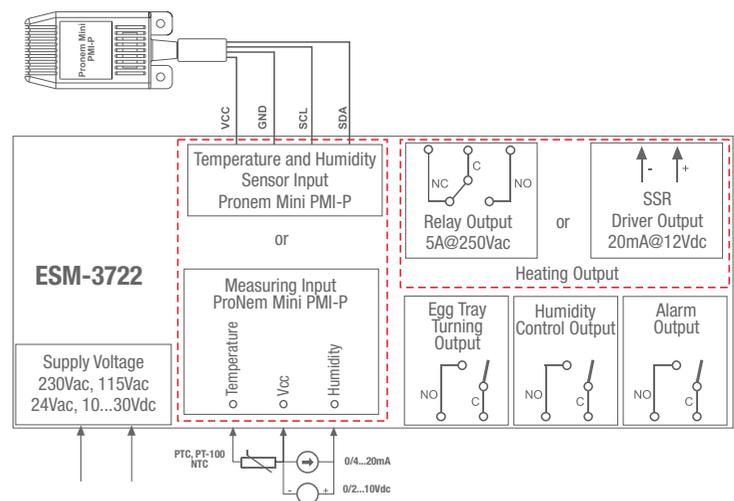


- ▶ Temperature and Humidity (NTC, PTC, PT-100 or ProNem Mini PMI-D)
- ▶ Auto-Tune PID

- ▶ Humidity Sensor Input (0/2..10V, 0/4..20mA or ProNem Mini PMI-D)
- ▶ Egg Tray manual operation from front panel

## Specifications

4 Digits Temperature and 4 Digits Humidity Display  
 Pronem PMI-P Temperature Sensor Input  
 Pronem Mini PMI-P Humidity Sensor Input  
 4 Output for  
 Temperature Control Output, Egg Tray Turning Output  
 Humidity Control Output, Alarm Control Output  
 PID or ON/OFF Selectable Temperature Control  
 Temperature and Humidity Set Value Boundaries  
 Alarm parameters and alarm status can be adjusted according to the audible alert  
 (Internal buzzer functions for alarm conditions)  
 Password Protection for Programming Section



## Technical Specification

### ESM-3722 Measurement Range

PTC, NTC, PT-100, 0/2...10Vdc, 0/4...20mAdc, ProNem Mini PMI-P

**Accuracy:** ±1% of scale

**Sensor Break Protection:** Upscale

**Sampling Cycle:** 3 samples per second

**Control Form:** ON/OFF, PID

**Storage / Operating Temperature :** -40°C to +85°C/ 0° to +50°C

**Pronem Mini Accuracy (RH):** +/-2 %RH (Typ)@23°C

**Pronem Mini Accuracy (T):** +/-0,3°C (Typ)@23°C

**Dimensions :** 76x34,5x71mm

ESM-3722

A . B . C . D . E / 01 . HI / 1 . V . W . 0

### A Supply Voltage

- 2 24Vac/dc 50/60 Hz (-%15; +%10)
- 3 24Vac 50/60 Hz (-%15; +%10)
- 4 115Vac 50/60 Hz (-%15; +%10)
- 5 230Vac 50/60 Hz (-%15; +%10)
- 8 10..30Vdc 1.5W

### B Temperature Sensor Input

- 1 PT 100, IEC751(ITS90)
- 2 PTC (Not-1)
- 3 NTC (Not-1)
- 4 0/2..10Vdc Voltage Input
- 5 0/4..20mA Current Input
- 66 \* ProNem Mini PMI-P

### C Humidity Sensor Input

- 4 0/2..10Vdc Voltage Input
- 5 0/4..20mA Current Input

### E Heating Control Output

- 1 Heating Control: Relay (5A @ 250Vac)
- 2 SSR Driver Output (Maximum 30mA @ 15Vdc)

V W  
 Sensor None 0 0  
 \*PMI-P.PT 7 7

Alarm Output U  
 Relay (3A@250Vac) 1

Egg Tray Turning Control Output HI  
 Relay (3A@250Vac) 01

Humidity Control Output FG  
 (3A@250Vac) 01

\* When ProNem is selected, BC code is written as 66

\* PMI-P (Pronem-mini digital Humidity and Temperature Sensor - Max.2,5mt cable)



Single SET  
Digital Incubators  
Control

## Incubation Control Instruments

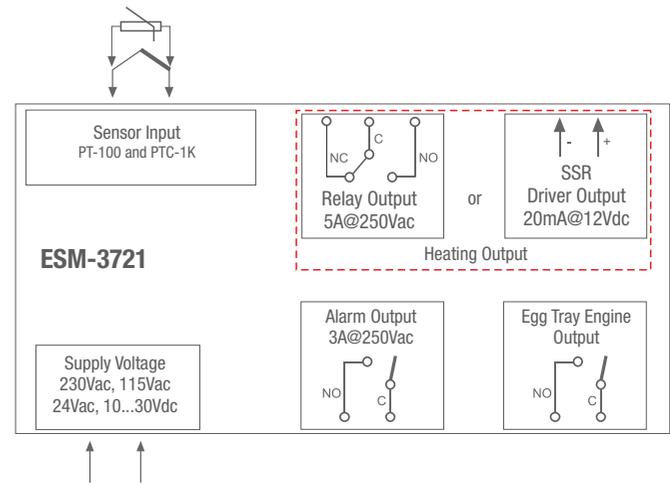
ESM-3721



- ▶ Temperature ON/OFF and PID Control Selectable
- ▶ Heating Control Output, Egg Tray Turning Output, Alarm Control Output
- ▶ Egg Tray manual operation from front panel
- ▶ Auto-Tune PID

**Specifications**

4 Digits Display  
PTC input  
Set Value Boundaries  
Alarm parameters and alarm status can be adjusted according to the audible alert (internal buzzer functions for alarm conditions)  
Password Protection for Programming Section



**Technical Specification**

**Temperature Sensor Inputs :** PT-100 (IEC751)(ITS90), PTC-1K  
**Measurement Range :** 0°C ... 100°C  
**Accuracy:** ±1% of scale  
**Sensor Break Protection :** Upscale  
**Sampling Cycle :** 3 samples per second  
**Outputs :** Relay, SSR Driver Output

**Relay Output :** 5A@250Vac “at resistive Load” (Heating Output)  
3A@250Vac “at resistive Load”(Egg Tray Engine and Alarm Output)  
(Electrical Life: 100,000 Switching at Full Load)  
**Protection Clas :** NEMA 4X (IP65 at front Ip20 at read)  
**Storage / Operating Temperature :** -40°C to +85°C/ 0° to +50°C  
**Dimension :** 76x34,5x71mm

ESM-3721 A . BC . 0 . E / 01 . 01 / 1 . V . 0 . 0

<p><b>A</b> Supply Voltage</p> <p>2 24Vac/dc ( ±%15) 50/60Hz - 1.5VA</p> <p>3 24Vac ( ±%15) 50/60Hz - 1.5VA</p> <p>4 115Vac ( ±%15) 50/60Hz - 1.5VA</p> <p>5 230Vac ( ±%15) 50/60Hz - 1.5VA</p> <p>8 10...30 Vdc - 1.5W</p>	<p><b>BC</b> Sensor Input</p> <p>09 PT 100</p> <p>12 PTC-1K</p>	<p><b>E</b> Heating Control Output</p> <p>1 Relay Output (Max. 5A@250Vac)</p> <p>2 SSR Driver Output (Max. 20mA@12Vdc)</p>	<p><b>V</b> Sensor Selection</p> <p>Sensor None 0</p> <p>*PTC-1K Sensor 1</p> <p>*RTS-3721 5</p> <p><b>H</b> Egg Tray Engine Output</p> <p>Relay Output (Max. 3A@250Vac) 01</p> <p><b>FG</b> Alarm Output</p> <p>Relay Output (Max. 3A@250Vac) 01</p>
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\* PTC-1K : PTC-M6L40.K1,5 (Supplied PTC-1K sensor)  
\* RTS-3721 : RT-M6L40.K1,5 (Supplied PT-100 sensor)



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