



PID Temperature Controllers

ESM-4420 (48x48mm DIN 1/16)

ESM-7720 (72x72mm DIN 1/8)

ESM-9920 (96x96mm DIN 1/4)



- 4 digits process (PV) and 4 digits set (SV) display
- Process input (TC, RTD)
- Programmable ON/OFF, P, PI, PD and PID control forms
- Adaptation of PID Coefficients to the system with Self-Tune operation (Step Response Tuning)
- Programmable Heating or Cooling Functions for Control Output
- Selectable Alarm Functions for Alarm Output

ESM series temperature controllers are designed for measuring and controlling a process value. They can be used in many applications with their TC and RTD temperature measurement input, multi-function control outputs, selectable alarm functions. They are mainly used in glass, plastic, petro-chemistry, textile, automotive and machine production industries. Accurate and advanced controlling is performed with selectable ON-OFF, P, PI, PD, PID and Self Tune PID functions.

SPECIFICATIONS

Process Input: TC, RTD

Thermocouple (TC): J , K , R , S ve T (IEC584.1)(ITS90)

Thermoresistance (RTD): PT-100 (IEC751)(ITS90)

Measurement Range: Please refer to Table-1 for selection of input type and scale.

Accuracy: $\pm 0.25\%$ of scale for thermocouple and thermoresistance

Cold Junction Compensation: Automatically $\pm 0.1^\circ\text{C}/1^\circ\text{C}$

Line Compensation: Maximum 10 Ohm

Sensor Break Protection: Upscale

Sampling Cycle: 3 samples per second

Input Filter: 1.0 second.

Control Form: ON/OFF, P, PI, PD or PID (Control form can be programmed by the user.)

OUTPUT

Process Output: Relay (5A@250V~at resistive load) or SSR Driver Output (Maximum 20mA @12V==)

Alarm Output: Relay(5A@250V~at resistive load)

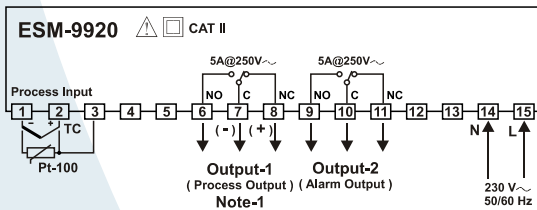
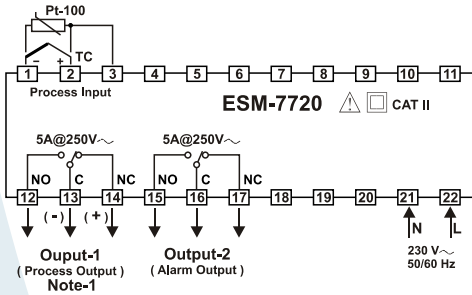
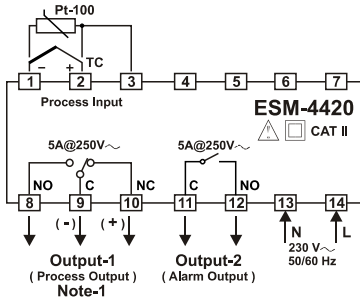
SUPPLY VOLTAGE

230V \sim ($\pm 15\%$) 50/60 Hz - 3VA
 115V \sim ($\pm 15\%$) 50/60 Hz - 3VA
 24V \sim ($\pm 15\%$) 50/60 Hz - 3VA
 (It must be determined in order)

ENVIRONMENTAL RATINGS and PHYSICAL SPECIFICATIONS

Operating Temperature: 0...50°C
Humidity: 0-90%RH (none condensing)
Protection Class: IP65 at front, IP20 at rear
Dimension: ESM-4420 : (48 x 48mm, Depth:95 mm)
 ESM-7720 : (72 x 72mm, Depth:95.5 mm)
 ESM-9920 : (96 x 96mm, Depth:96 mm)

ELECTRICAL WIRING



Note-1: If process output is SSR driver output, pay attention to the (+) and (-) pins while doing the connection of the device.

Ordering Information

ESM-4420 (48x48 DIN 1/16)	A	BC	D	E	/	FG	HI	/	U	V	W	Z
ESM-7720 (72x72 DIN Size)												
ESM-9920 (96x96 DIN 1/4)			0		/	01	00	/	0	0	0	0

A Supply Voltage
3 24V \sim ($\pm 15\%$) 50/60Hz
4 115V \sim ($\pm 15\%$) 50/60Hz
5 230V \sim ($\pm 15\%$) 50/60Hz
9 Customer

BC Input Type
20 Configurable(Table-1)

D Serial Communication
0 None

E Process Output
1 Relay Output (5A@250V \sim at resistive load)
2 SSR Driver Output Max. 20mA @12V ---

FG Alarm Output
01 Relay Output (5A@250V \sim at resistive load)

Table-1

BC Input Type(TC)	Scale(°C)	Scale(°F)
23 J,Fe CuNi IEC584.1(ITS90)	-200°C,900°C	-328°F,1652°F
25 K,NiCr Ni IEC584.1(ITS90)	-200°C,1300°C	-328°F,2372°F
27 R,Pt13%Rh Pt IEC584.1(ITS90)	0°C,1700°C	32°F,3092°F
28 S,Pt10%Rh Pt IEC584.1(ITS90)	0°C,1700°C	32°F,3092°F
29 T,Cu CuNi IEC584.1(ITS90)	-200°C,400°C	-328°F,752°F

BC Input Type(RTD)	Scale(°C)	Scale(°F)
39 PT 100 , IEC751(ITS90)	-200°C,650°C	-328°F,1202°F
40 PT 100 , IEC751(ITS90)	-199.9°C,650.0°C	-199.9°F,999.9°F