PID Temperature Controllers

ESM-4420 (48x48mm DIN 1/16)
ESM-7720 (72x72mm DIN 1/8)
ESM-9920 (96x96mm DIN 1/4)

CE PG

- 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: ± 0.25% of scale for thermocouple and thermoresistance
Cold Junction Compensation: Automatically ± 0.1°C/1°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∿(±15%) 50/60 Hz - 3VA
115V∿(±15%) 50/60 Hz - 3VA
24V∿(±15%) 50/60 Hz - 3VA
(It must be determined in order)

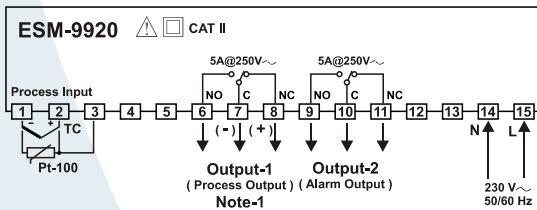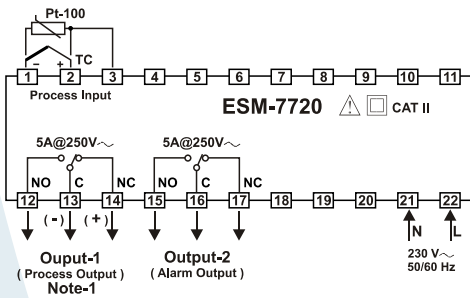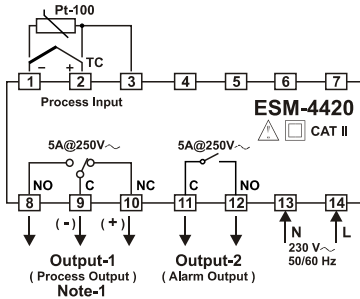## ENVIRONMENTAL RATINGS and PHYSICAL SPECIFICATIONS

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) |
| ESM-7720 (72x72 DIN Size) |
| ESM-9920 (96x96 DIN 1/4) |

A	BC	D	E	/	FG	HI	/	U	V	W	Z
		0		/	01	00	/	0	0	0	0

A	Supply Voltage
3	24V ∿ (± 15%) 50/60Hz
4	115V ∿ (± 15%) 50/60Hz
5	230V ∿ (± 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∿ at resistive load)
2	SSR Driver Output Max. 20mA @12V ⎓

FG	Alarm Output
01	Relay Output (5A@250V∿ 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