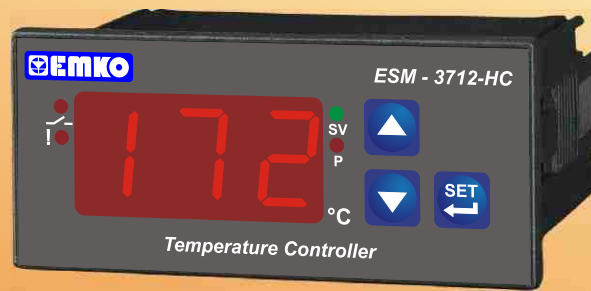


Digital Temperature Controller



ESM-3712-HC (SET + ALARM)

Digital ON / OFF Temperature Controller

- Heating / Cooling Applications
- Economic
- Easy to Use
- 3 Digits display
- PTC input or NTC input or J Type Thermocouple input or K Type Thermocouple input or 2-wire PT-100 input or 2-wire PT-1000 input (It must be determined in order)
- Temperature control output and alarm output
- Process and alarm set values boundaries
- Selectable heating or cooling function
- Adjustable temperature offset value
- Relay or SSR driver output
- Operation selection of compressor operates continuously, stops or operates periodically in case of probe defect
- Compressor protection times
- Password protection for programming section

SPECIFICATIONS

INPUT

PTC : PTC (1000 @25°C)

NTC : NTC (10 k @25°C)

Thermocouple (TC) : J, K (IEC 584.1) (ITS90)

Thermoresistance (RTD) : 2-wire PT 100, PT 1000 (IEC 751)(ITS90)

Measurement Range : It is in ordering information

Accuracy : ±1% of scale

Cold Junction Compensation : Automatically ±0.1°C/1°C

Sensor Break Protection : Upscale

Sampling Cycle : 3 samples per second

CONTROL

Control Form : ON/OFF

ON/OFF hysteresis : It can be configured by the user

OUTPUTS

Process Output :

Relay (10A@250V~ at resistive load) or

SSR Driver Output (Maximum 12mA@5V=)

Alarm Output :

Relay (5A@250V~ at resistive load) or

SSR Driver Output (Maximum 12mA@5V=)

DISPLAY

Process Display :

ESM-3712-HC : 14 mm Red 3 digits LED Display

LED Indicators :

SV(Green), Process Output (Red), P(Red), Alarm Output(Red)

POWER SUPPLY

Supply Voltage :

100-240 V ~ (-%15; +%10) 50/60 Hz -2 VA

24 V ~ (-%15; +%10) 50/60 Hz -2 VA

(Supply voltage 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

Weight :

ESM-3712-HC : 200 gr

Dimension :

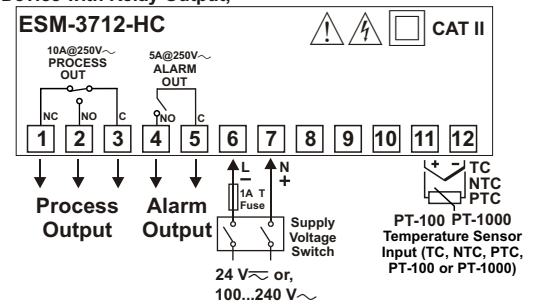
ESM-3712-HC : 77 x 35 mm, Depth : 62.5 mm

Panel Cut-Out :

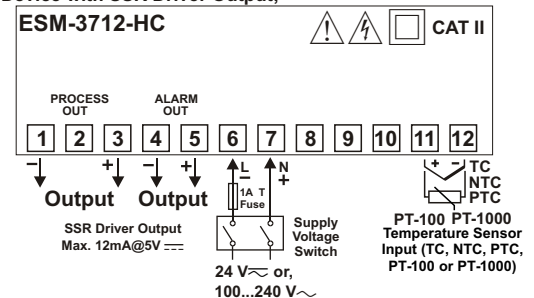
ESM-3712-HC : 71 x 29 mm

Electrical Wiring

Device with Relay Output;



Device with SSR Driver Output;



Parameters

HSE

Hysteresis Parameter For Output

1 to 100 °C for TC Type Devices,
1 to 100 °C for PT-100 and PT-1000 (-50°C, 400°C),
0.1 to 10.0 °C for PT-100 and PT-1000 (-19.9°C, 99.9°C),
1 to 20 °C for PTC (-50°C, 150°C) and NTC (-50°C, 100°C),
0.1 to 10.0 °C for PTC and NTC (-19.9°C, 99.9°C)

SUL

Set Value Minimum Parameter

Set value can not be defined less than this value.
This parameter value can be adjusted from minimum value of device's scale to set value maximum parameter.

SUH

Set Value Maximum Parameter

Set value can not be defined greater than this value.
This parameter value can be adjusted from set value minimum parameter to maximum value of device's scale.

OFT

Display Offset Parameter

-100 to 100 °C for TC Type Devices,
-100 to 100 °C for PT-100 and PT-1000 (-50°C, 400°C),
-10.0 to 10.0 °C for PT-100 and PT-1000 (-19.9°C, 99.9°C),
-20 to 20 °C for PTC (-50°C, 150°C) and NTC (-50°C, 100°C),
-10.0 to 10.0 °C for PTC and NTC (-19.9°C, 99.9°C)

ALS

Alarm Type Selection Parameter

- 0 Sensor Failure Alarm
 1 Process High Alarm
 2 Process Low Alarm
 3 Deviation High Alarm
 4 Deviation Low Alarm
 5 Deviation Band Alarm
 6 Deviation Range Alarm

ALL

Alarm Set Value Low Limit Parameter

Alarm set value can not be lower than this value.
This parameter value can be adjusted from, minimum process set value parameter to alarm set value high limit parameter value.

AUL

Alarm Set Value High Limit Parameter

Alarm set value can not be greater than this value.
This parameter value can be adjusted from alarm set value low limit parameter value to maximum process set value parameter

ROn

Alarm On Delay Time Parameter

It can be adjusted from 0 to 99 minutes.

ROF

Alarm Off Delay Time Parameter

It can be adjusted from 0 to 99 minutes.
When this parameter is 99, if increment button is pressed, **LCH** is observed and alarm latching output is selected. To make the alarm latching output passive, decrement button must be pressed in main operation screen.

APd

Alarm Delay Parameter After Power On

This parameter defines the delay for the alarm is being active after power on. It can be adjusted from 0 to 99 minutes.

ALS

Alarm Set Value Parameter

Alarm output is controlled according to this value.
For alarm type selection parameter **ALS** = 1 or 2, this parameter value is can be adjusted from alarm set value low limit **ALL** parameter to alarm set value high limit **AUL** parameter, for alarm type selection parameter **ALS** = 3,4,5 or 6 this parameter value is can be adjusted from 0 to alarm set value high limit **AUL** Parameter.

ALH

Alarm Hysteresis Parameter

Alarm hysteresis value. This parameter is can be adjusted 0 to %50 of the device scale

HCS

Operating Type Selection Parameter

- 0 Heating
 1 Cooling

POs

Switch On Delay After Power On

When power is first applied to the device, compressor is on when this time delay is expired. It can be adjusted from 0 to 20 minutes

SPd

Compressor Stop/Start Time Delay Parameter

When compressor is inactive, this time delay must be expired for activation of the compressor. It can be adjusted from 0 to 20 minutes

Std

Compressor Start/Start Time Delay Parameter

This time delay must be expired between two activation of the compressor. It can be adjusted from 0 to 20 minutes

PdF

Probe Defect Parameter

- 0 Compressor is "OFF" in case of probe defect
 1 Compressor is "ON" in case of probe defect
 2 Compressor operates periodically according to "P.on" and "P.oF" time periods in case of probe defect.

P.on

Compressor is active during this time period in case of probe defect.

It can be adjusted from 0 to 99 minutes

P.oF

Compressor is inactive during this time period in case of probe defect.

It can be adjusted from 0 to 99 minutes

PRs

Programming Mode Accessing Password

It is used for accessing to the programming mode. It can be adjusted from 0 to 999. If it is selected 0, password is not entered for accessing to the parameters.

Ordering Information

ESM-3712-HC (77x35 DIN Size)	A	BC	D	E	/	FG	HI	/	U	V	W	Z
			0		/	00		/	1		0	0

A	Supply Voltage
1	100...240V ~ (- %15;+%10) 50/60Hz
2	24V~(-%15;+%10) 50/60Hz 24V===(-%15;+%10)
9	Customer

BC	Input Type	Scale(°C)
05	J, Fe CuNi IEC584.1(ITS90)	0°C 800°C
10	K, NiCr Ni IEC584.1(ITS90)	0°C 999°C
11	PT 100, IEC751(ITS90)	-50°C 400°C
09	PT 100, IEC751(ITS90)	-19.9°C 99.9°C
12	PTC (Note-1)	-50°C 150°C
15	PTC (Note-1)	-19.9°C 99.9°C
14	PT 1000, IEC751(ITS90)	-50°C 400°C
13	PT 1000, IEC751(ITS90)	-19.9°C 99.9°C
18	NTC (Note-1)	-50°C 100°C
19	NTC (Note-1)	-19.9°C 99.9°C

Note-1 : If input type is selected PTC or NTC (BC = 12, 15, 18, 19), Temperature sensor is given with the device. For this reason, If input type is selected as PTC, sensor type (V = 0,1 or 2) or If input type is selected as NTC, sensor type (V = 0,3 or 4) must be declared in ordering information.

E	FG	Outputs
1	01	Process Out Relay Output (10A@250V~ at resistive load, 1NO) Alarm Out Relay Output (5A@250V~ at resistive load, 1NO)
2	02	Process Out SSR Driver Output (Max. 12mA@ 5V ---) Alarm Out SSR Driver Output (Max. 12mA@ 5V ---)

V	Temp. Sensor which is given with ESM 3712 HC
0	None
1	PTC-M6L40.K1.5 (PTC Air Probe with 1.5 m silicon cable)
2	PTCS-M6L30.K1.5.1/8" (PTC Liquid Probe with 1.5 m silicon cable)
3	NTC-M5L20.K1.5 (NTC Probe, thermoplastic moulded with 1.5 m cable for cooling application)
4	NTC-M6L50.K1.5 (NTC Probe, stainless steel housing with 1.5 m cable for cooling application)
9	Customer