

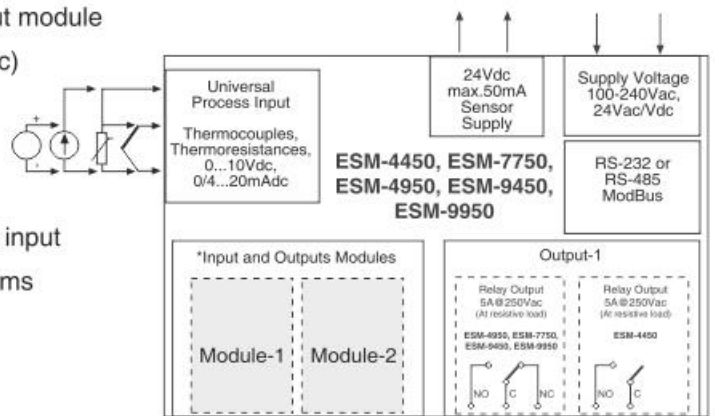


“Smart I/O Module” System
RS-232/485 Modbus RTU
Serial Communication
Process Controller

ESM-9450 ESM-4450
ESM-9950 ESM-4950
ESM-7750



- 4 digits process (PV) and 4 digits set (SV) display
- Programmable heating, cooling and alarm functions for control outputs
- 8 steps profile control (Ramp & Soak) function and start-hold-stop by using logic input module
- Re-transmission of process value or process control by using 0/4...20 mAdc Current Output Module
- Detection of heater failure by using 0 ..5Aac CT input module
- Universal process input (TC, RTD, mVdc, Vdc, mAdc)
- Auto-tune and Self-tune PID
- Bumpless transfer
- Motorized valve control function
- Dual or multi point calibration for dc Voltage/Current input
- Configurable ON/OFF, P, PI, PD and PID control forms



* Input and output modules can be mounted each modules sockets.
* Two input modules can be not be plugged in Module-1 and Module-2 socket at the same time

Specifications

Input

Universal Input: TC, RTD, dc Voltage/Current
Thermocouple (TC): L(DIN 43710), J, K, R, S, T, B, E and N (IEC584.1)(ITS90), C (ITS90)
Thermoresistance (RTD): PT-100 (IEC751)(ITS90)

Output

Standard Relay Output: 5A@250Vac (at resistive load)

Measurement Range

Accuracy: ± 0.25% of full scale for thermocouple, thermoresistance, mV, V ± 0.70% of full scale for mA input
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: 0.0 to 900.0 seconds

Supply Voltage

100-240Vac 50/60 Hz (-15%;+10%) -6VA Universal
24Vac 50/60 Hz (-15%;+10%) -6VA Optional
24Vdc (-15% ; +10%) -6W Optional
(Must be determined in order)

Input/Output Modules

Two Input / Output Modules can be plugged in sockets.
Output Modules: Relay Output Module, SSR Output Module (Max.20mA @18Vdc), Digital(Transistor) Output Module (Max.40 mA @18Vdc), 0/4...20 mAdc Current Output Module
Input Modules: Digital Input Module, 0/4...20 mAdc Current Input Module, 0...5Aac CT Input Module, TC or 0...50mVdc Input Module, PT-100 Input Module, 0...10Vac Input Module

Dimensions

ESM-4450, 48x48mm, Depth: 116mm
ESM-7750, 72x72mm, Depth: 87,5mm
ESM-9950, 96x96mm, Depth: 87,5mm
ESM-9450, 48x96mm, Depth: 86,5mm
ESM-4950, 96x48mm, Depth: 86,5mm

**Universal Input Dual SET
PID Process Controller**

ESM-4430 ESM-9430
ESM-4930 ESM-9930
ESM-7730



- 4 digits process (PV) and 4 digits process set (SV) display
- Universal process input (TC, RTD, mVdc, Vdc, mAdc)
- Dual or multi point calibration for dc Voltage / Current input
- Configurable ON/OFF, P, PI, PD and PID control forms
- Auto-tune and Self-tune PID
- Manual/Automatic mode selection for control outputs
- Bumpless transfer
- Programmable heating, cooling and alarm functions for control outputs

Specifications

Input

Universal Input: TC, RTD, dc Voltage/Current
Thermocouple (TC): L(DIN 43710), J, K, R, S, T, B, E and N (IEC584.1)(ITS90), C (ITS90)
Thermoresistance (RTD): PT-100 (IEC751)(ITS90)

Output

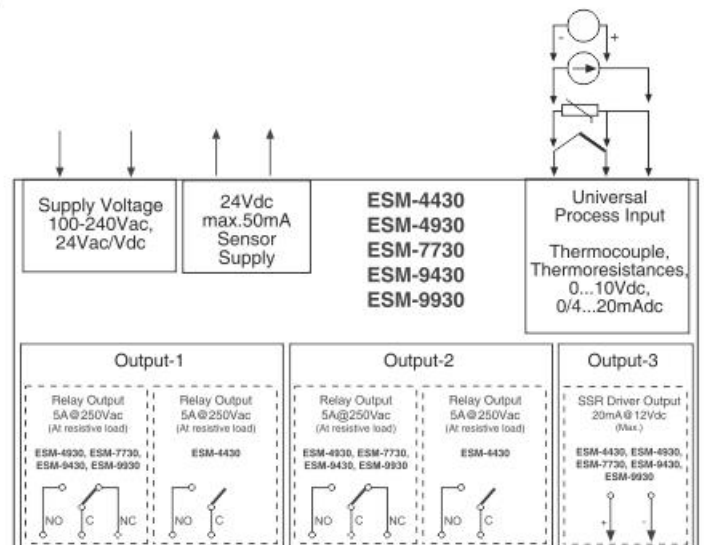
Standard Relay Outputs: Two relays. Their rating is 5A@250Vdc
SSR Driver Output: Maximum 20mA @ 12Vdc

Supply Voltage

100-240 Vac 50/60 Hz (-15%;+10%) 6VA Universal
24Vac 50/60 Hz (-15% ; +10%) 6VA Optional
24Vdc (-15% ; +10%) 6W Optional
(Must be determined in order)

Dimensions

ESM-4430, 48x48mm, Depth:116mm
ESM-7730, 72x72mm, Depth:87,5mm
ESM-4930, 96x48mm, Depth:87,5mm
ESM-9430, 48x96mm, Depth:86,5mm
ESM-9930, 96x96mm, Depth:86,5mm



Measurement Range

Accuracy: $\pm 0.25\%$ of full scale for thermocouple, thermoresistance, mV, V, $\pm 0.70\%$ of full scale for mA input
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: 0.0 to 900.0 seconds

Environmental Rating and Physical Specifications

Operating Temperature: 0...50°C
Humidity : 0-90%RH (none condensing)
Protection Class: IP65 at front, IP20 at rear

Universal Input Dual SET
PID Process Controller

ESM-4435



- 4 digits process (PV) and 4 digits process set (SV) display
- Universal process input (TC, RTD, mVdc, Vdc, mAdc)
- Dual or multi point calibration for dc Voltage / Current input
- Configurable ON/OFF, P, PI, PD and PID control forms
- Auto-tune and Self-tune PID
- Manual/Automatic mode selection for control outputs
- Bumpless transfer
- Programmable heating, cooling and alarm functions for control outputs

Specifications

Input

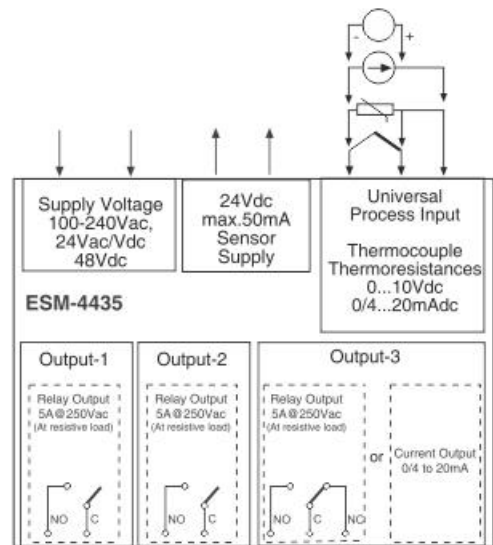
Universal Input: TC, RTD, dc Voltage/Current
 Thermocouple (TC): L(DIN 43710), J, K, R, S, T, B, E and N (IEC584.1)(ITS90), C (ITS90)
 Thermoresistance (RTD): PT-100 (IEC751)(ITS90)

Output

Process Output: Relay output 5A@250Vdc (at resistive load) or Current Output 0/4 to 20mA
 Standard Relay Outputs: Two relays. Their rating is 5A@250Vdc

Measurement Range

Accuracy: $\pm 0.25\%$ of full scale for thermocouple, thermoresistance, mV, V, $\pm 0.70\%$ of full scale for mA input
 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



Supply Voltage

100-240 Vac 50/60 Hz (-15%;+10%) Universal
 24Vac/Vdc 50/60 Hz (-15% ; +10%) tercihen
 48Vdc 50/60 Hz (-15% ; +10%) Optional
 (Must be determined in order)

Environmental Rating and Physical Specifications

Operating Temperature: 0...50°C
 Humidity : 0-90%RH (none condensing)
 Protection Class: IP65 at front, IP20 at rear

Dimensions

ESM-4435, 48x48mm, Depth: 87,5mm

**“Smart Output Module”
System RS-232/485 Modbus
RTU Serial Communication
Process Indicator**



ESM-4400 ESM-7700
ESM-4900 ESM-9900



- 4 digits Process (PV) Display
- Universal Process Input (TC, RTD, mVdc, Vdc, mAdc)
- Dual or Multi Point Calibration for dc Voltage / Current Input
- RS-232 (standard) or RS-485 (optional) Serial Communication with Modbus RTU Protocol
- Smart Output Module System
- Programmable Alarm Functions
- Retransmission of Process Value or Process Control by using 0/4...20 mAdc Current Output Module

Specifications

Input

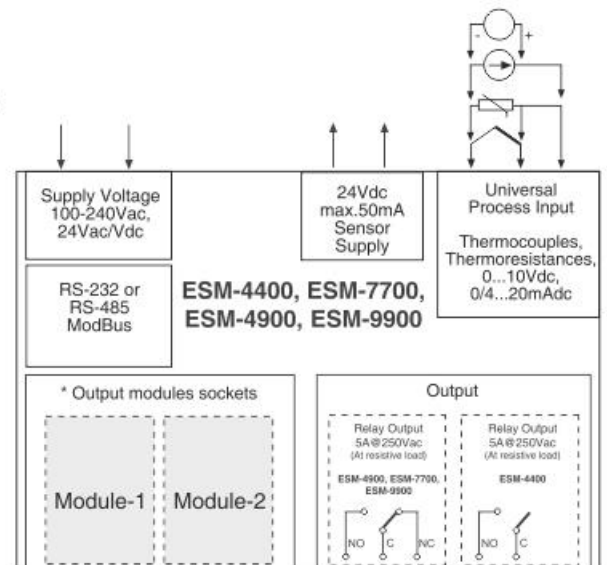
Universal Input: TC, RTD, dcVoltage/Current
Thermocouple (TC): L(DIN 43710), J, K, R, S, T, B, E and N (IEC584.1)(ITS90), C (ITS90)
Thermoresistance (RTD): PT-100 (IEC751)(ITS90)

Measurement Range

Accuracy: $\pm 0.25\%$ of full scale for thermocouple, thermoresistance, mV and V, $\pm 0.70\%$ of full scale for mA
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: 0.0 to 900.0 seconds

Dimensions

ESM-4400, 48x48mm, Depth: 116mm
ESM-7700, 72x72mm, Depth: 87,5mm
ESM-9900, 96x96mm, Depth: 87,5mm
ESM-4900, 96x48mm, Depth: 86,5mm



* Output modules can be mounted each modules sockets.

Output

Standard Relay Output: 5A @ 250Vac
SSR Output Module (Max.20mA @ 18Vdc)
Digital(Transistor) Output Module(Max.40mA @ 18Vdc)
0/4...20 mAdc Current Output Module

Supply Voltage

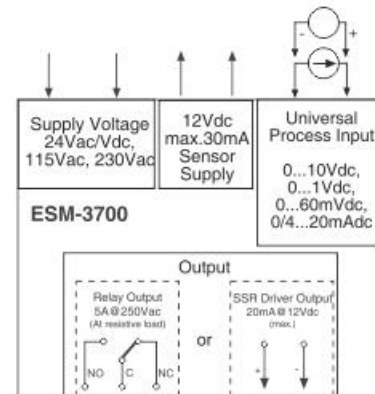
100-240Vac 50/60 Hz (-15%;+10%) -6VA Universal
24Vac 50/60 Hz (-15% ; +10%) -6VA Optional
24Vdc (-15% ; +10%) -6W Optional
(Must be determined in order)

Single SET Process Indicator

ESM-3700



- 4 digits display
- Easily adjustable from front panel
- Configurable display scale between -1999 and 9999
- Adjustable decimal point
- Selectable universal process Input (0-10 Vdc, 0-1 Vdc, 0-60 mVdc, 0-20 mAdc, 4-20 mAdc)
- Adjustable input filter
- Maximum and minimum measurement value are registered to the devices memory
- Maximum or minimum measurement value can be shown continuously on the display
- User can be adjust device's reading value for selected input type
- Alarm output, Relay or SSR driver output (It must be determined in order.)
- Adjustable alarm set value from front panel
- Programming mode password protection



Specifications

Input

Vdc, mAdc

Output

Relay (5@250Vac at resistive load) or
SSR Output Module (Max.20mA @12Vdc)

Measurement Range

Accuracy: $\pm 0.5\%$ of scale
Sensor Break Protection: Upscale
Sampling Cycle: 3 samples per second

Environmental Rating and Physical Specification

Operating Temperature: 0...50 C
Humidity: 0-90%RH (none condensing)
Protection Class: IP65 at front, IP20 at rear
Dimensions: ESM-3700 77x35mm, Depth: :62.5 mm

Dimensions

ESM-3700, 77x35mm, Depth: 62,5mm

Supply Voltage

230Vac ($\pm 15\%$) 50/60 Hz -1.5VA
115Vac ($\pm 15\%$) 50/60 Hz -1.5VA
24Vac ($\pm 15\%$) 50/60 Hz -1.5VA

| Order Code | ESM-3710-N | ESM-1510 | ESM-4410 | ESM-7710 | ESM-9910 | ESM-4420 | ESM-7720 | ESM-4920 | ESM-9420 | ESM-9920 | ESM-3711-H | ESM-3712-H | ESM-3712-HC | ESM-3711-CN | ESM-3712-CN |
|---|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|------------|-------------|-------------|-------------|
| A Supply Voltage | | | | | | | | | | | | | | | |
| 1 100...240Vac (-%15, +%10) 50/60Hz | - | - | - | - | - | - | - | - | - | - | - | - | - | + | |
| 2 24Vac/Vdc (-%15, +%10) 50/60Hz | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 3 24Vac (-%15, +%15) 50/60Hz | + | + | + | + | + | + | + | + | + | + | + | - | - | + | + |
| 4 115Vac (-%15, +%15) 50/60Hz | + | + | + | + | + | + | + | + | + | + | + | - | - | + | + |
| 5 230Vac (-%15, +%15) 50/60Hz | + | + | + | + | + | + | + | + | + | + | + | - | - | + | + |
| 8 10-30Vdc | + | - | - | - | - | - | - | - | - | - | - | - | - | + | + |
| BC Input Type | | | | | | | | | | | | | | | |
| 20 Universal (TC or RTD) | - | - | - | - | - | + | + | + | + | + | - | - | - | - | - |
| 05 J, Fe-CuNi, 0...800 °C | + | + | + | + | + | | | | | | + | + | + | - | - |
| 10 K, NiCr-Ni, 0...999 °C | + | + | + | + | + | | | | | | + | + | + | - | - |
| 03 Pt-100, 0...400 °C | - | - | + | + | + | | | | | | - | - | - | - | - |
| 11 Pt-100, -50...400 °C | + | + | - | - | - | | | | | | + | + | + | - | - |
| 09 Pt-100, -19.9...99.9 °C | + | + | + | + | + | | | | | | + | + | + | - | - |
| 12 PTC, -50...150 °C | + | + | + | + | + | | | | | | + | + | + | + | + |
| 15 PTC, -19.9...99.9 °C | + | + | + | + | + | | | | | | + | + | + | + | + |
| 14 Pt-1000, -50...400 °C | + | + | + | + | + | | | | | | + | + | + | - | - |
| 13 Pt-1000, -19.9...99.9 °C | + | + | + | + | + | | | | | | + | + | + | - | - |
| 18 NTC, -50...100 °C | + | + | + | + | + | | | | | | + | + | + | + | + |
| 19 NTC, -19.9...99.9 °C | + | + | + | + | + | | | | | | + | + | + | + | + |
| E Output-1 | | | | | | | | | | | | | | | |
| 1 Relay Output | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 2 SSR Driver Output | + | + | - | - | - | | | | | | + | + | + | | |
| FG Output-2 | | | | | | | | | | | | | | | |
| 01 Relay Output | - | - | - | + | + | + | + | + | + | + | - | + | + | - | + |
| 02 SSR Driver Output | - | - | - | - | - | - | - | - | - | - | - | + | + | | |
| HI Output-3 | | | | | | | | | | | | | | | |
| 02 SSR Driver Output or Relay Output | - | - | - | - | - | + | + | + | + | + | - | - | - | - | - |
| V PTC and NTC Temperature Sensor Selections | | | | | | | | | | | | | | | |
| 0 Without Sensor | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 1 PTC-M6L40.K1,5 PTC Air probe 1,5 m silicon cable | + | + | + | + | + | - | - | - | - | - | + | + | + | + | + |
| 2 PTCS-M6L30.K1,5.1/8" PTC Liquid probe with 1,5 m silicon cable, 1/8" fittingnut | + | + | + | + | + | - | - | - | - | - | + | + | + | + | + |
| 3 NTC-M5L20.K1,5 Thermoplastic covering for cooling application 1,5 m cable NTC probe | + | + | + | + | + | - | - | - | - | - | + | + | + | + | + |
| Specifications | | | | | | | | | | | | | | | |
| Dimension (mm) | 77x35 | DIN Rail | 48x48 | 72x72 | 96x96 | 48x48 | 72x72 | 96x48 | 48x96 | 96x96 | 77x35 | 77x35 | 77x35 | 77x35 | 77x35 |
| Password protection for programming mode | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Set value boundaries | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adjustable temperature offset | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| ON/OFF Temperature control | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adjustable P, PD, PI and PID Control forms | - | - | - | - | - | + | + | + | + | + | - | - | - | - | - |
| Adjustable Compressor delay times | + | + | - | - | - | - | - | - | - | - | - | - | + | + | + |
| Alarm functions for alarm output | - | - | - | - | - | + | + | + | + | + | - | + | + | - | + |
| Adaptation of PID coefficients to the system with Self-Tune operation | - | - | - | - | - | + | + | + | + | + | - | - | - | - | - |
| Universal Thermocouple and thermoresistances process input | - | - | - | - | - | + | + | + | + | + | - | - | - | - | - |
| Programmable Heating or Cooling functions for control outputs | + | + | + | + | + | + | + | + | + | + | - | - | + | - | - |
| Adjustable hysteresis value | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adjustable re-activation time for control outputs | + | + | + | + | + | - | - | - | - | - | - | - | + | - | - |
| Functional Internal Buzzer | - | - | - | - | - | - | - | - | - | - | + | + | - | + | + |
| Installing Parameters via Prokey | - | - | - | - | - | - | - | - | - | - | - | - | - | + | + |
| Data collecting & controlling with Modbus RTU | - | - | - | - | - | - | - | - | - | - | - | - | - | + | + |



PID Temperature Controllers

ESM-9420 ESM-4420
ESM-9920 ESM-4920
ESM-7720



- 4 digits process(PV) and 4 digits set value(SV) display
- Universal process input (TC, RTD)
- Configurable 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
- Alarm Functions for Alarm Output
- Soft Start Output For Resistance Durability
- SET Value Limitation For System Protection
- Sensor Break Protection

Specifications

Input

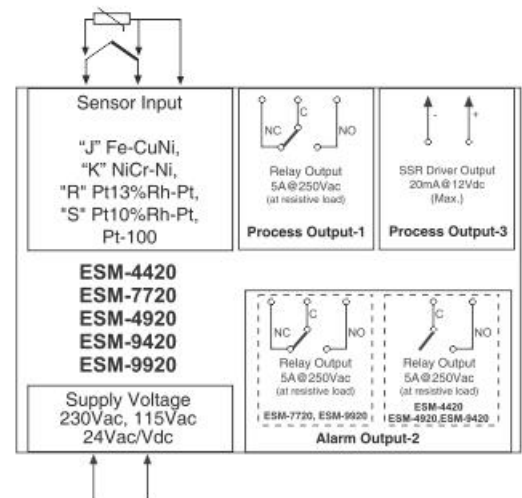
Process Input: TC, RTD
Thermocouple (TC): J, K, R, S and T (IEC584.1)(ITS90)
Thermoresistance (RTD): PT-100 (IEC751)(ITS90)

Output

Process Output : Relay (5A@250Vac at resistive load) and SSR Driver Output (Maximum 20mA@12Vdc)
Alarm Output : Relay(5A@250Vac at resistive load)

Measurement Range

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



Supply Voltage:

230Vac ($\pm 15\%$) 50/60 Hz -1.5VA
115Vac ($\pm 15\%$) 50/60 Hz -1.5VA
24Vac ($\pm 15\%$) 50/60 Hz -1.5VA
24Vac/dc (-15% ; $+10\%$) 50/60 Hz-1.5VA

Dimensions

ESM-4420, 48x48mm, Depth:95mm
ESM-7720, 72x72mm, Depth:95,5mm
ESM-4920, 96x48mm, Depth:94,50mm
ESM-9420, 48x96mm, Depth:94,50mm
ESM-9920, 96x96mm, Depth:96mm

Digital ON/OFF
Temperature Controllers

ESM-4410
ESM-7710
ESM-9910



- PTC, NTC, PT-100, PT-1000 thermoresistances input types
- Fe-Const (J), NiCr-Ni (K) thermocouples input types
- ON/OFF Control Form
- Selectable Heating and Cooling Function
- Operating Type Selection with Hysteresis
- Adjustment of Temperature Offset Value
- Minimum Pulling Time Adjustment for Control Outputs
- Password Protection for Programming Section

Specifications

Input

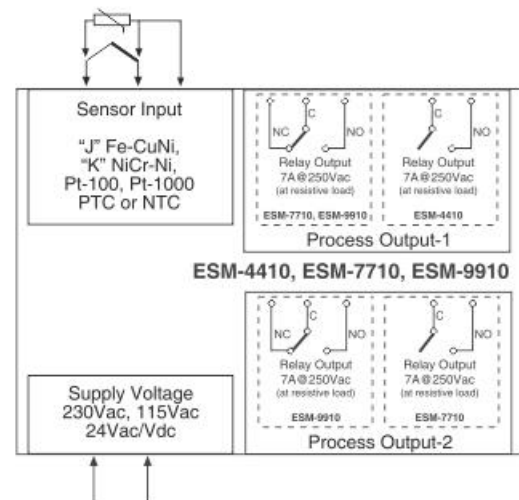
PTC: PTC (1KOhm @ 25°C)
 NTC: NTC (10KOhm @ 25°C)
 Thermocouple (TC): J, K (IEC 584.1) (ITS90)
 Thermoresistance (RTD): 2 or 3-wire PT-100 (IEC 751) (ITS90)

Output

Control Output: Relay (7A@250Vac at resistive load)
 Process Output: Relay (7A@250Vac at resistive load)

Measurement Range

-50 °C to 999 °C (refer to ordering information)
 Accuracy: ± 1% of full scale
 Cold Junction Compensation: Automatically ±0.1°C/1°C
 Sensor Break Protection: Upscale
 Sampling Cycle: 3 samples per second



Supply Voltage

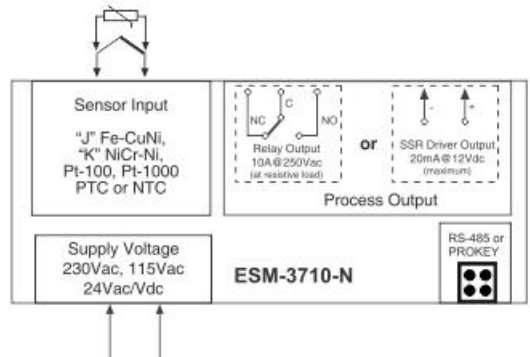
230Vac (±%15) 50/60 Hz -1.5VA
 115Vac (±%15) 50/60 Hz -1.5VA
 24Vac (±%15) 50/60 Hz -1.5VA
 24Vac/dc (-%15;+%10)50/60 Hz-1.5VA

Dimensions

ESM-4410, 48x48mm, Depth: 95mm
 ESM-7710, 72x72mm, Depth: 95,5mm
 ESM-9910, 96x96mm, Depth:96mm



- 4 Digits Display
- NTC Input or PTC Input or J Type thermocouple Input or K Type thermocouple Input or 2-Wire PT-100 Input or, 2-Wire PT-1000 Input (Must be determined in order.)
- Adjustable temperature offset
- ON/OFF temperature control
- Selectable heating or cooling function
- Selection of operation with hysteresis
- Adjustable temperature offset
- Set value low limit and set value high limit boundaries
- Operation selection of compressor operates continuously, stops or operates periodically in case of sensor defect
- Compressor protection delays
- Adjustable internal buzzer according to sensor defect status.
- Password protection for programming section
- Installing parameters using Prokey
- Remote access, data collecting and controlling with Modbus RTU



Specifications

Input

- PTC: PTC (1KOhm @ 25°C)
- NTC: NTC (10KOhm @ 25°C)
- Thermocouple (TC): J, K (IEC 584.1) (ITS90)
- Thermoresistance (RTD): 2 wire PT-100, PT-1000 (IEC 751) (ITS90)

Output

- Control Output: Relay (10A@250V "for resistive load") or SSR Driver output (Maximum 20mA@12Vdc)
- ON/OFF hysteresis: It can be configured by the user.

Measurement Range

- 50 °C to 999 °C (refer to ordering information)
- Accuracy: $\pm 1\%$ of scale
- Cold Junction Compensation: Automatically $\pm 0.1^\circ\text{C}/1^\circ\text{C}$
- Sensor Break Protection: Upscale
- Sampling Cycle: 3 samples per second

Supply Voltage

- 230Vac ($\pm 15\%$) 50/60Hz -1,5VA
- 115Vac ($\pm 15\%$) 50/60Hz -1,5VA
- 24Vac/dc ($\pm 15\%$) 50/60Hz -1,5VA
- 24Vac ($\pm 15\%$) 50/60Hz -1,5VA
- 10...30Vdc -1,5VA

Environmental Rating and Physical Specification

- Operation Temperature: 0...50°C
- Humidity: 0-90%RH (none condensing)
- Protection Class: IP65 at front, IP20 at rear

Dimensions

ESM-3710-N, 76x34,5mm, Depth:71mm

Dual SET Digital ON/OFF Heating Controller (SET + ALARM)

ESM-3712-H
ESM-3711-H



- Heating Application
- Alarm Output
- Functional Internal Buzzer
- User can select to start Cooking Time when Temperature reaches to the Set Value
- 3 digits display
- PTC, NTC, PT-100, Pt-1000 thermoresistances input types
- Fe-Const (J), NiCr-Ni (K) thermocouples input types
- Adjustable Temperature Offset
- Temperature Control Output and Alarm Output
- Relay or SSR Driver Output
- Digital Input (Start/Stop input for Cooking time)
- Adjustable Cooking Time from Front Panel
- Temperature Control according to the Cooking Time
- Adjustable Internal Buzzer According to Cooking Time, Probe Defect and Alarm Status

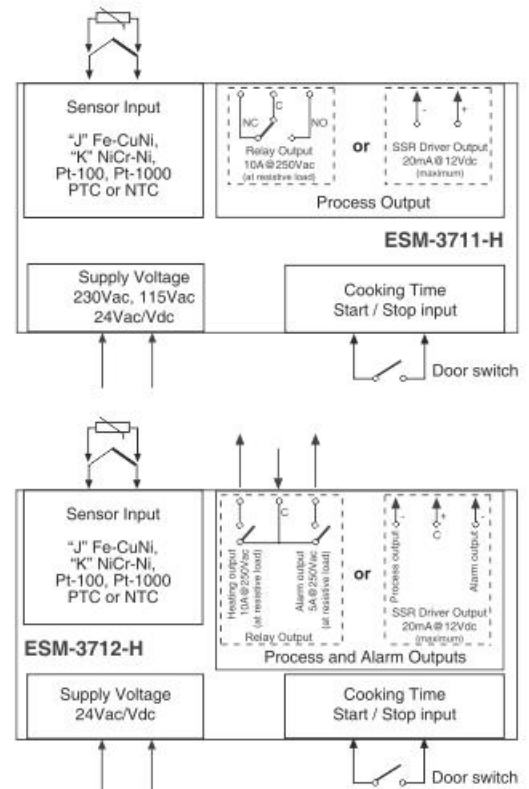
Specifications

Input

PTC: PTC (1KOhm @ 25°C)
NTC: NTC (10KOhm @ 25°C)
Thermocouple (TC): J, K (IEC 584.1) (ITS90)
Thermoresistance (RTD): 2 wire PT-100, PT-1000 (IEC 751) (ITS90)

Output

Proses Output: Relay (10A@250Vac at resistive load) or SSR Driver Output (Maximum 10mA@24Vdc)
Alarm Output: Relay (5A@250Vac at resistive load) or SSR Driver Output (Maximum 10mA@24Vdc)



Measurement Range

-50 °C to 999 °C (refer to ordering information)
Accuracy: $\pm 1\%$ of scale
Cold Junction Compensation: Automatically $\pm 0.1^\circ\text{C} / 1^\circ\text{C}$.
Sensor Break Protection: Upscale
Sampling Cycle: 3 samples per second

Supply Voltage

24Vac-Vdc (-15%,+10%) 50/60 Hz -1.5VA

Environmental Rating and Physical Specification

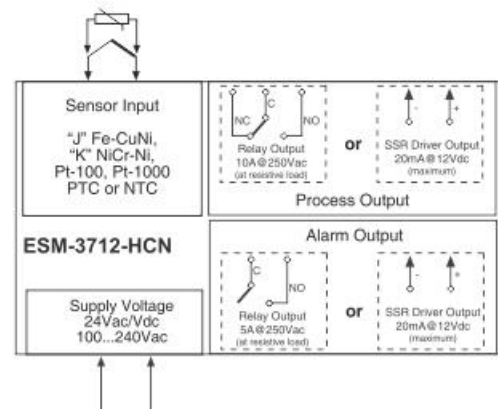
Operation Temperature: 0...50°C
Humidity: 0-90%RH (none condensing)
Protection Class: IP65 at front, IP20 at rear

Dimensions

ESM-3712-H, 77x35mm, Depth:62.5mm
ESM-3711-H, 77x35mm, Depth:62.5mm



- 4 Digits Display
 - NTC Input or PTC Input (Must be determined in order.)
 - ON/OFF temperature control
 - 2 output for compressor and alarm controls
 - Selectable heating or cooling function
 - Selection of operation with hysteresis
 - Adjustable temperature offset
 - Alarm parameters
 - Operation selection of compressor operates continuously, stops or operates periodically in case of sensor defect
 - Compressor protection delays
 - Password protection for programming section
 - Installing parameters using Prokey
 - Process Set value and Alarm Set value low limit and set value high limit boundaries
 - Adjustable Alarm Set Value from front panel
- Adjustable internal buzzer according to Sensor prob defect and Alarm status
- Remote access, data collecting and controlling with Modbus RTU



Specifications

Input

- PTC: PTC (1KOhm @ 25°C)
- NTC: NTC (10KOhm @ 25°C)
- Thermocouple (TC): J, K (IEC 584.1) (ITS90)
- Termoresistance (RTD): 2 wire PT-100, PT-1000 (IEC 751) (ITS90)

Output

- Process Output: Relay (10A@250Vac at resistive load) or SSR Driver Output (Maximum 10mA@24Vdc)
- Alarm Output: Relay (5A@250Vac at resistive load) or SSR Driver Output (Maximum 10mA@24Vdc)

Measurement Range

- 50 °C to 999 °C (refer to 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

Supply Voltage

- 100...240Vac (+15%; -10%) 50/60 Hz -2VA
- 24Vac-Vdc (-15%,+10%) 50/60 Hz -1.5VA

Environmental Rating and Physical Specification

- Operation Temperature: 0...50°C
- Humidity: 0-90%RH (none condensing)
- Protection Class: IP65 at front, IP20 at rear

Dimensions

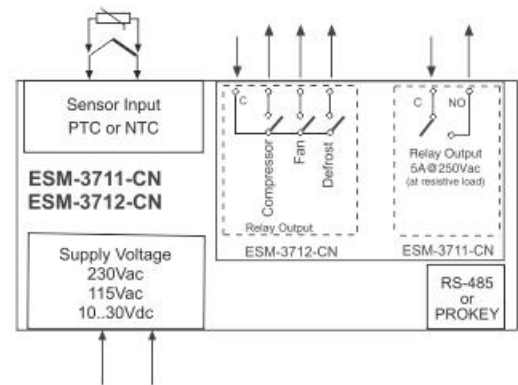
- ESM-3712-HCN, 76x34,5mm, Depth:71mm

Digital ON/OFF Single SET & Dual SET Cooling Control

ESM-3711-CN
ESM-3712-CN



- Cooling Application
- NTC Input or PTC Input (Must be determined in order.)
- ON / OFF Control
- Adjustable °C and °F
- Set value boundaries
- 3 output for compressor, defrost and fan controls
- 2 sensor input for cabinet and evaporator (ESM-3712-CN)
- 1 sensor input for cabinet and evaporator
- Configurable digital input
- Separately adjustable 2 offset value for cabinet and evaporator sensor
- Selectable defrost function (hot gas or electric)
- Adjustable defrost time from front panel
- Fan can be operated depending on compressor and defrost
- Fan can be operated depending on evaporator temperature or (cabinet - evaporator) temperature
- Defrost time and/or manual defrost and/or temperature set value protection
- Operation selection of compressor operate continuously, stops or operates periodically in case of cabinet probe defect
- Installing parameters using Prokey
- Remote access, data collecting and controlling with Modbus RTU
- Password protection for programming mode



Specifications

Input

PTC: PTC (1KOhm @ 25°C)
NTC: NTC (10KOhm @ 25°C)

Output

Compressor Output : Relay 16A@250Vac at resistive load)
Defrost Output : Relay (5A@250Vac at resistive load)
Fan Output : Relay (5A@250Vac at resistive load)

Dimension

ESM-3711-CN & ESM-3712-CN : 76x34.5mm, Depth:71mm

Measurement Range

Accuracy: $\pm 1\%$ of scale
Sensor Break Protection: Upscale
Sampling Cycle: 3 samples per second

Supply Voltage:

230Vac ($\pm 15\%$) 50/60 Hz -1.5VA
115Vac ($\pm 15\%$) 50/60 Hz -1.5VA
24Vac ($\pm 15\%$) 50/60 Hz -1.5VA
24Vac/dc (-15% ; $+10\%$) 50/60 Hz -1.5VA
10...30Vdc 1.5Va

Environmental Rating and Physical Specification

Operation Temperature: 0...50°C
Humidity: 0-90%RH (none condensing)
Protection Class: IP65 at front, IP20 at rear



- Heating / Cooling Applications
- DIN RAIL Mounting
- 3 digits display
- PTC, NTC, PT-100, PT-1000 thermoresistances input types
- Fe-Const (J), NiCr-Ni (K) thermocouples input types
- ON/OFF Temperature Control
- Selectable Heating or Cooling Function
- Adjustable Temperature Offset Value
- Set Value Boundaries
- 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

NTC: NTC (10KOhm @ 25°C)

PTC: PTC (1KOhm@25°C)

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

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

Output

Relay (5A@250Vac at resistive load) or

SSR Driver Output (Maximum 20mA@12Vdc)

Measurement Range

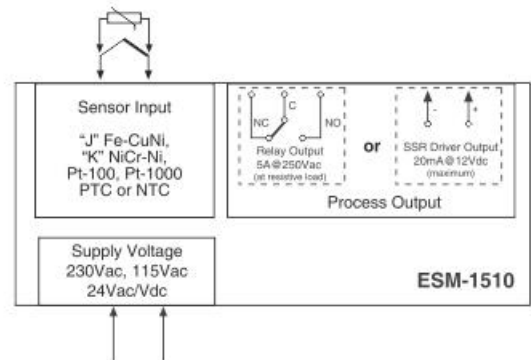
-50 °C to 999 °C (refer to ordering information)

Accuracy: ±1% of scale

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

Sensor Break Protection: Upscale

Sampling Cycle: 3 samples per second



Supply Voltage

230Vac (±%15) 50/60 Hz -1.5VA

115Vac (±%15) 50/60 Hz -1.5VA

24Vac (±%15) 50/60 Hz -1.5VA

24Vac/dc (-%15;+%10)50/60 Hz-1.5VA

Environmental Rating and Physical Specification

Operation Temperature: 0...50°C

Humidity: 0-90%RH (none condensing)

Dimensions

ESM-1510, 86x35mm, Depth: 59mm