

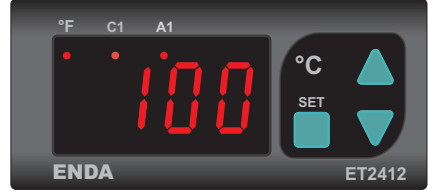


Read this document carefully before using this device. The guarantee will be expired by device damages if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA ET2412 ON/OFF HEAT CONTROLLER

Thank you for choosing **ENDA ET2412 ON/OFF Heat Controller**.

- * 77 x 35mm sized.
- * Single NTC sensor input.
- * Zero point input shift.
- * Selectable heating or cooling control for C1 relay output.
- * A1 Relay output for alarm control.
- * Selectable independent, deviation and band alarm types.
- * In the case of sensor failure, relay state can be set to ON or OFF.
- * Upper and lower setpoint limits can be adjusted.
- * Temperature unit can be selected as °C or °F.



**RoHS
Compliant**

Order Code : ET2412 - 

1 - Supply Voltage

230.....230V AC
110.....110V AC
024.....24V AC/DC
012.....12V AC/DC
SM.....7-24VAC/9-30VDC

2 - Relay Current Selection

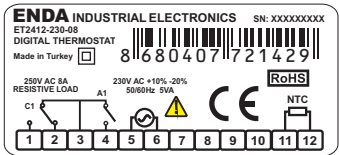
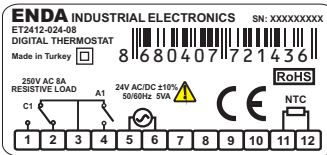
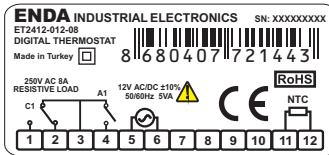
08.....8A Relay Output

CONNECTION DIAGRAM



ENDA ET2412 is intended for installation within control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of electrical power. The device must be protected against inadmissible humidity, vibrations, severe soiling. Make sure that the operation temperature is not exceeded.

All input and output lines that are not connected to the supply network must be laid out as shielded and twisted cables. These cables should not be close to the power cables or components. The installation and electrical connections must be carried out by a qualified staff and must be according to the relevant locally applicable regulations.



Equipment is protected throughout
by **DOUBLE INSULATION**

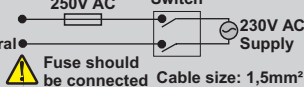


Holding screw
0.4-0.5Nm.

NOTE: SUPPLY:

184-253V AC
50/60Hz 3VA

5 ← Line
6 ← Neutral



Note:

- 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
- 2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.



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TECHNICAL SPECIFICATIONS

INPUT

| Input Type | Scale Range | Accuracy |
|-----------------------|--|---------------------------------|
| NTC Sensor Resistance | EN 60751 -60.0...150.0 °C -76.0...302.0°F | ± 1% (for full scale) ± 1 Digit |

ENVIRONMENTAL CONDITIONS

| | |
|-----------------------------|---|
| Ambient/Storage temperature | 0 ... +50 / °C -25... +70°C(without icing) |
| Relative Humidity | Max. humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C. |
| Protection Class | According to EN60529; Front panel: IP65 Rear panel : IP20 |
| Height | Max. 2000m |

⚠ Do not use the device in locations subject to corrosive and flammable gasses.

ELECTRICAL CHARACTERISTICS

| | |
|---------------------|---|
| Supply | 230V AC / 110V AC +%10 -%20, 50/60Hz or 12/24V AC/DC ±%10 or 9-30V DC / 7-24V AC ±%10 |
| Power Consumption | Max. 3VA |
| Wiring | Power connector : 2.5mm ² screw-terminal, Signal connector : 1.5mm ² screw-terminal connection. |
| Line Resistance | Max. 100ohm |
| Data Retention | EEPROM (Min. 10 years) |
| EMC | EN 61326-1: 2013 (Performance criterion B is satisfied for EN 61000-4-3) |
| Safety Requirements | EN 61010-1: 2010 (Pollution degree 2, over voltage category II) |
| Indicator | 4 digits, 12.5mm, 7 segment red LED |

OUTPUT

| | |
|---------------------------|--|
| C1 Output | 250V AC, 8A (for resistive load), NO and NC control output. |
| A1 Output | 250V AC, 8A (for resistive load), NO control output. |
| Life Expectancy for Relay | 30.000.000 Switching for no-load operation; 300.000 switching for 8A resistive load at 250VAC. |

CONTROL

| | |
|-------------------|---|
| Control Type | Single-setpoint and alarm control. |
| Control Algorithm | On-Off Control. |
| A/D Converter | 12 bit resolution, 100ms sampling time. |
| Hysteresis | Adjustable between 0.1 and 20.0°C/F. |

HOUSING

| | |
|---------------------|--|
| Housing Type | Suitable for flush-panel mounting according to DIN 43 700. |
| Dimensions | W77xH35xD61mm |
| Weight | Approx. 215g (After packing) |
| Enclosure Materials | Self extinguishing plastics |

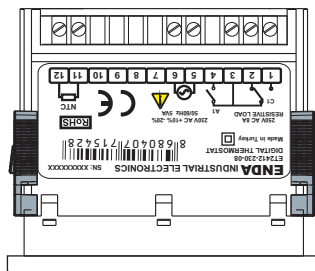
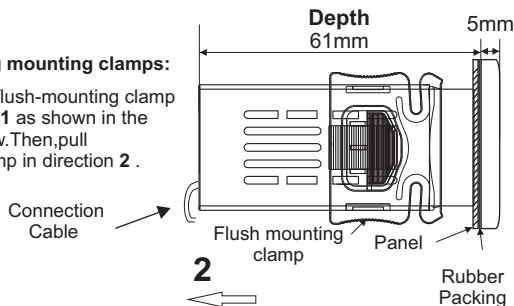
⚠ While cleaning the device, solvents (thinner, benzene, acid etc.) or corrosive materials must not be used.

Dimensions



For removing mounting clamps:

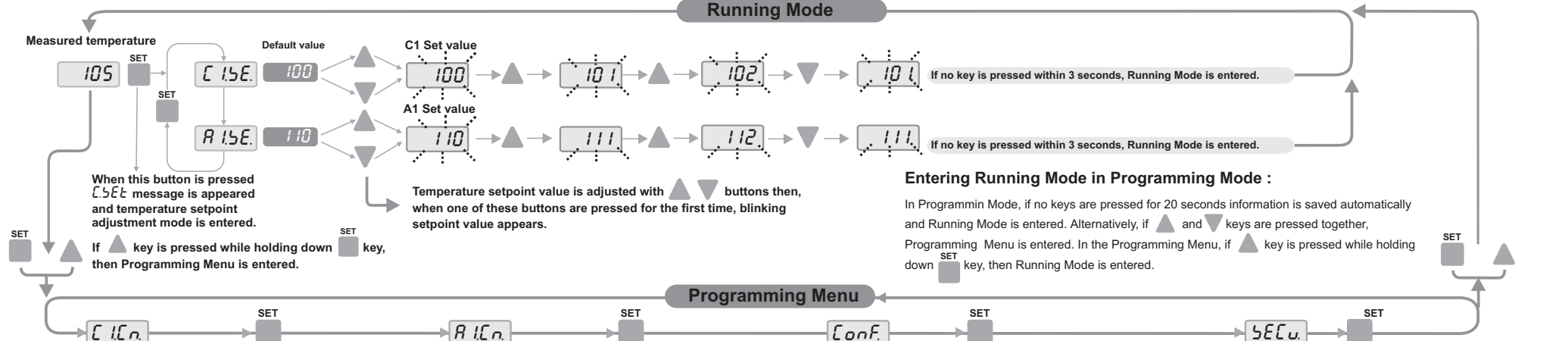
- Push the flush-mounting clamp in direction 1 as shown in the figure below. Then, pull out the clamp in direction 2.



Note: 1) Panel thickness should be maximum 7mm.
2) If there is not 60mm free space at the back side of the device, it would be difficult to remove it from the panel.

Programming Diagram

Running Mode



Entering Running Mode in Programming Mode :

In Programin Mode, if no keys are pressed for 20 seconds information is saved automatically and Running Mode is entered. Alternatively, if up and down keys are pressed together, Programming Menu is entered. In the Programming Menu, if key is pressed while holding down SET key, then Running Mode is entered.

Programming Menu

Default Value -60 C1LL Control set point lower limit for C1 output. It can be adjusted between -60.0 and C1HL parameter value.

150 C1HL Control set point upper limit for C1 output. It can be adjusted between 150.0 and C1LL parameter value.

2 C1HY Output hysteresis value. It can be adjusted between 0.1 and 20.0 °C.

Default Value -60 A1LL Control set point lower limit for A1 output. It can be adjusted between -60.0 and A1HL parameter value.

150 A1HL Control set point upper limit for A1 output. It can be adjusted between 150.0 and A1LL parameter value.

2 A1HY A1 çıkışı histerisiz değeri. 0.1 ile 20.0 °C arasında ayarlanabilir.

inRL A1LY Alarm type selection. Please see A1 Output Format Table for settings.

oFF A1ES A1 Output state in case of sensor failure. on = Output is ON in case of sensor failure. oFF = Output is OFF in case of sensor failure.

Default Value HEAT C1YP Control type selection. C1YP = HEAT Heating control is selected. C1YP = Cool Cooling control is selected.

°C Unit Unit = Temperature unit selection. Unit = Can be selected as °C or °F

no dP dP = Decimal point display selection. If dP = no, decimal value is not dotted. If dP = YES, decimal value is dotted.

0 oFFs Offset value. Zero point shift value is added to the measured value. This feature is used for eliminating the measuring probe distance errors. It can be adjusted between -20.0 and 20.0 °C.

oFF C1ES C1 Output state in case of sensor failure. on = Output is ON in case of sensor failure. oFF = Output is OFF in case of sensor failure.

Default Value 0 SCod SCod = Access code for security menu. This parameter should be 412.

When SCod = 0, if key is pressed for 4 seconds while holding down SET key, then dPAR is seen on display and the device is returned to factory settings.

PYES C15c C15c = C1EN Security menu access level. nonE = Invisible. PYES = Can be modified. P.no = Visible but can't be modified.

PYES A15c A15c = A1EN Security menu access level. nonE = Invisible. PYES = Can be modified. P.no = Visible but can't be modified.

PYES C05c C05c = Conf. Configuration menu access level. nonE = Invisible. PYES = Can be modified. P.no = Visible but can't be modified.

PYES C55c C55c = C1 set value security access level. PYES = Can be modified. P.no = Visible but can't be modified.

PYES A55c A55c = Alarm set value security access level. PYES = Can be modified. P.no = Visible but can't be modified.

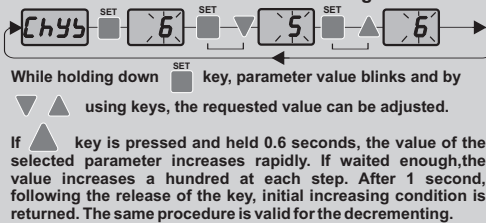
ERROR MESSAGES

PFA Sensor is broken

--- Temperature value is higher than the scale

--- Temperature value is lower than the scale

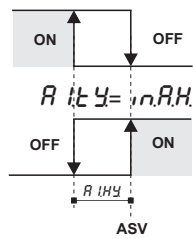
Modification Of Parameter Diagram



A1 OUTPUT FORMATS

Independent Alarm

A1LY = inRL

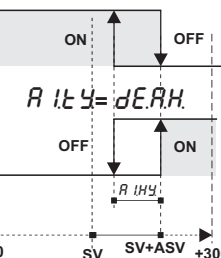


(ASV Min. = Beginning of Scale
ASV Max. = End of Scale)

SV = C1 output setpoint ASV = A1 output setpoint

Deviation Alarm

A1LY = dEAL

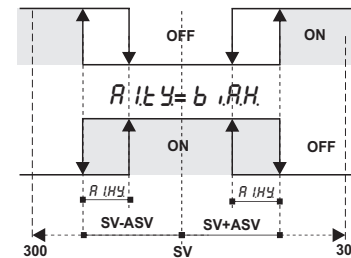


(ASV Min. = -300, ASV Max. = +300)

SV = C1 output setpoint ASV = A1 output setpoint

Band Alarm

A1LY = bAL



SV = C1 output setpoint ASV = A1 output setpoint
(ASV Min. = 0, ASV Max. = +300)