



Read this document carefully before using this device. The guarantee will be expired by 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 ET5011 PID TEMPERATURE CONTROLLER

Thank you for choosing ENDA ET5011 Temperature Controller

- ▶ 54x94mm sized.
- ▶ PT100 input.
- ▶ Auto calculation for PID parameters (SELF TUNE).



**Self tune for automatic PID calculation or manually enter PID parameters if known.**

- ▶ Soft-Start feature.
- ▶ Zero point input shift.
- ▶ C1 Relay output.
- ▶ Selectable Heating / Cooling control.
- ▶ In case of sensor failure, periodically, auto-periodically running or relay state can be selected.
- ▶ CE Marked according to European Norms.



**R<sup>HS</sup>  
Compliant**



Order Code : ET5011-

1	-	2

1- Supply Voltage 230.....230V AC      2- Input selection RT.....PT100 Input

LV.....10-30V DC / 8-24V AC

## TECHNICAL SPECIFICATIONS

Input type	Temperature range		Accuracy
	°C	°F	
PT100 Resistance thermometer EN 60751	-99.9...300.0 °C	-99.9...543.0 °F	± 0,5% (of full scale) ± 1 digit
PT100 Resistance thermometer EN 60751	-200...600 °C	-328.....1112 °F	± 0,5% (of full scale) ± 1 digit

## ENVIRONMENTAL CONDITIONS

Ambient/storage temperature	0 ... +50°C/-25... +70°C (with no icing)	
Max. Relative humidity	Relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.	
Rated pollution degree	According to EN 60529	Front panel : IP65 Rear panel : IP20
Height	Max. 2000m	



**KEEP AWAY device from exposed to corrosive, volatile and flammable gases or liquids and DO NOT USE the device in similar hazardous locations.**

## ELECTRICAL CHARACTERISTICS

Supply	230V AC +%-10-%20, 50/60Hz ; 10-30V DC / 8-24V AC SMPS
Power consumption	Max. 5VA
Wiring	Power connector: 2.5mm <sup>2</sup> screw-terminal, Signal connector: 1.5mm <sup>2</sup> screw-terminal connection.
Line resistance	Max. 100ohm
Data retention	EEPROM (minimum 10 years)
EMC	EN 61326-1: 2013
Safety requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)

## OUTPUTS

C1 output	Relay : 250V AC, 8A (for resistive load), Selectable as NO+NC Control output.
Life expectancy for relay	Mechanical 30.000.000; Electrical 300.000 operation at 250V AC 8A (resistive load).

## CONTROL

Control algorithm	On-Off / P, PI, PD, PID (selectable)
A/D converter	12 bit
Sampling time	100ms
Proportional band	Adjustable between 0% and 100%. If Pb=0%, On-Off control is selected.
Control period	Adjustable between 1 and 250 seconds
Hysteresis	Adjustable between 1 and 50°C/F
Output power	The ratio of power at a set point can be adjusted between 0% and 100%

## HOUSING

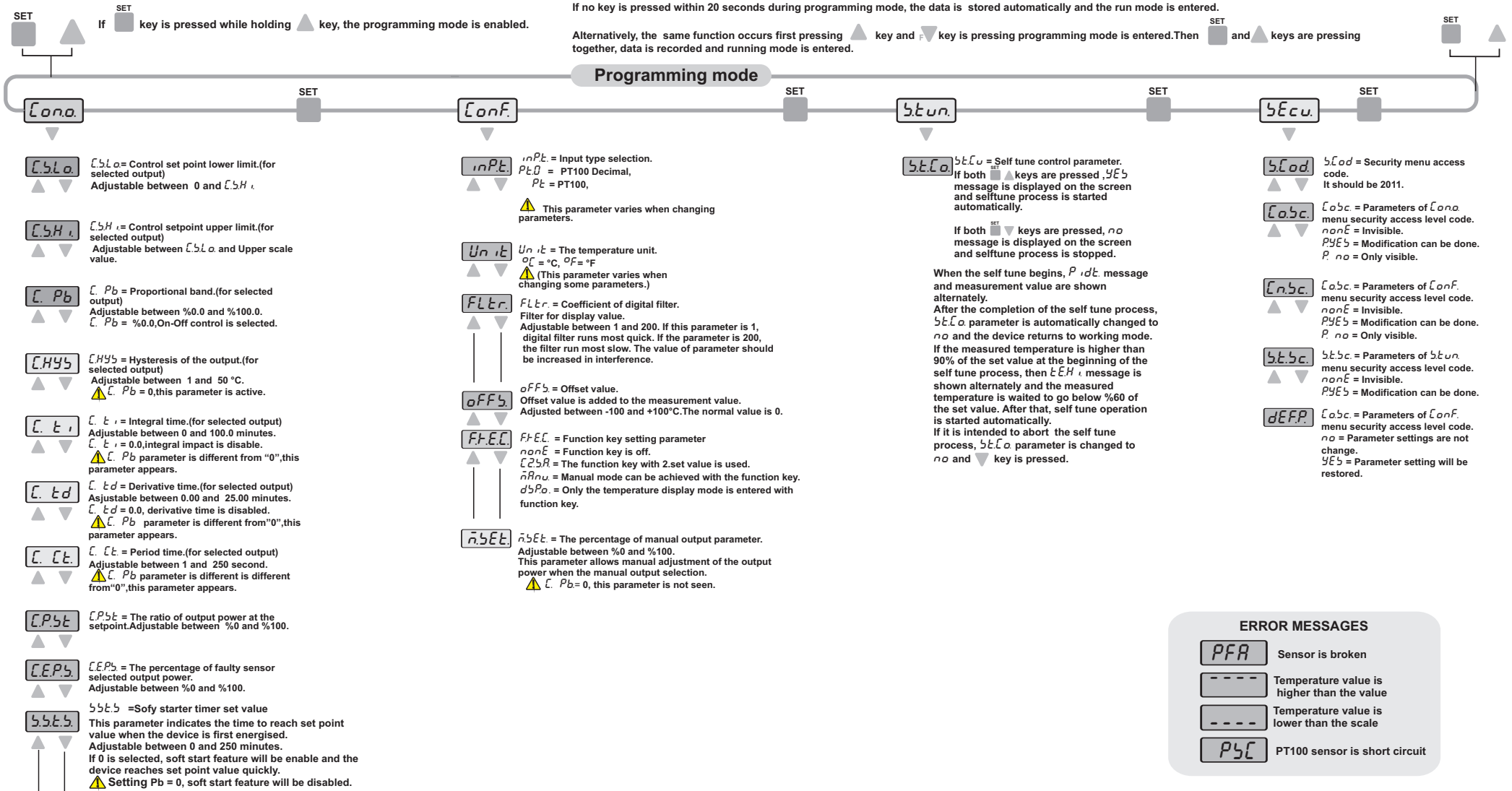
Housing type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W54xH94xD68mm
Weight	Approx. 190g (after packing)
Enclosure material	Self extinguishing plastics.



**Avoid any liquid contact when the device is switched on. DO NOT clean the device with solvent (thinner, gasoline, acid etc.) and / or abrasive cleaning agents.**

Entering from the programming mode to the run mode:  
If no key is pressed within 20 seconds during programming mode, the data is stored automatically and the run mode is entered.

Alternatively, the same function occurs first pressing  $\blacktriangle$  key and  $\blacktriangledown$  key is pressing programming mode is entered. Then  $\text{SET}$  and  $\blacktriangle$  keys are pressing



While the parameter names appear, if  $\blacktriangle$  and  $\blacktriangledown$  keys are pressed together, returns to the program mode.

**DEFAULT PARAMETERS**

Set parameters	Control output parameters	Configuration parameters	Security parameters
[CLo] 400	Pt100 giris	Pt100 giris	Pt100 giris
	[CLo] -200	[inPt] Pt	[CoSc] PyES
	[CHi] 600	[Unit] of	[CnSc] PyES
	[Cpb] 0	[FLtr] 25	[stSc] PyES
	[CHYS] 2	[OFFs] 0	[dEFP] no
	[Cti] 40	[FFEL] nonE	
	[Ctd] 100	[nSEt] 50	
	[Ckt] 20		
	[CPSt] 0		
	[CEPs] 0		
	[SStS] 0		
	[CTYP] HEAt		

**ERROR MESSAGES**

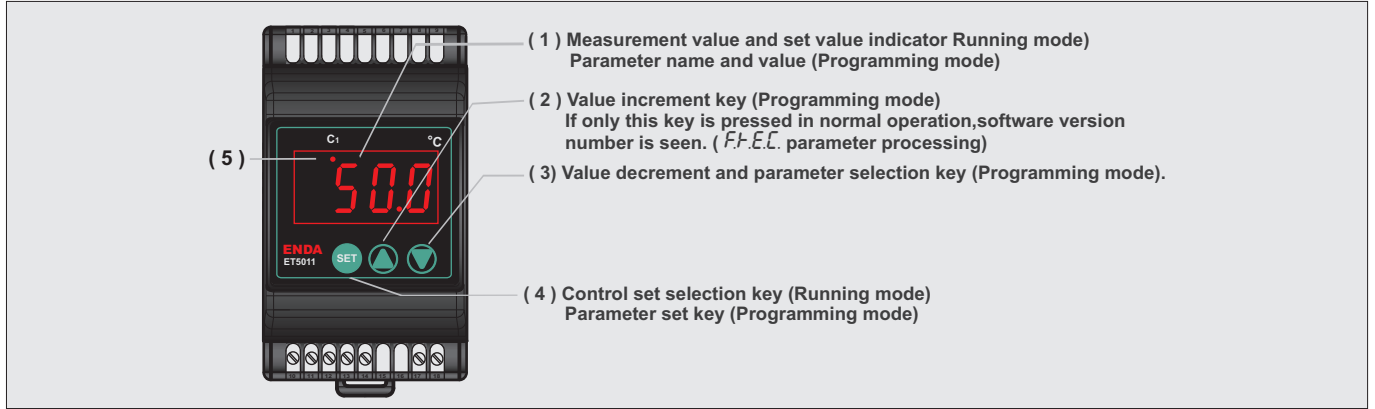
- PFR** Sensor is broken
- Temperature value is higher than the value
- Temperature value is lower than the scale
- PSc** PT100 sensor is short circuit

**Modification Of Parameter Diagram**

When holding  $\text{SET}$  key, the value of parameter flashes and using  $\blacktriangledown$   $\blacktriangle$  keys the requested value can be adjusted.

If  $\blacktriangle$  key is pressed and held 0.6 seconds, the value of the selected parameter changes rapidly. If waited enough, the value increases 100 at each step. After 1 second following the release of the key, initial condition is returned. The same procedure is valid for the decrement key.

## TERMS



(1) PV and SV display	7 segment, 4 digits red LED display
Character heights	12 mm
(2),(3),(4) Keypad	Micro switch
(5) State indicator	Control outputs 1 digits red LED

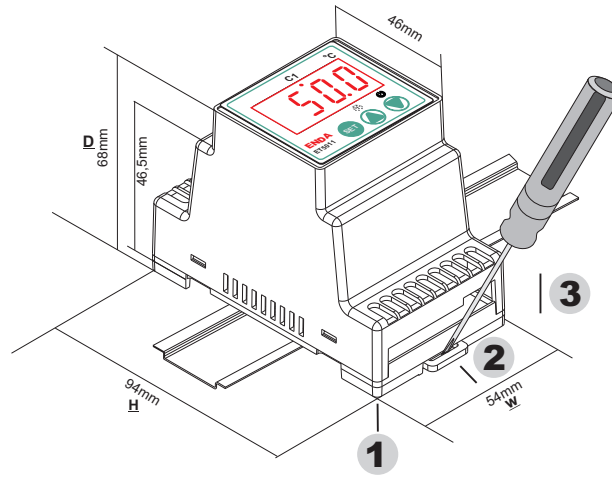
## DIMENSIONS

### Mounting the device to the rail :

Push the device in direction **1** and provide to keep it locked on the rail.

### Removing the device from rail ;

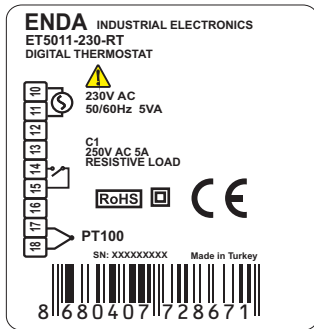
Push the rail lock on the device in direction **2** with a screwdriver and pull the device in direction **3**.



## CONNECTION DIAGRAM



ENDA ET5412A Series are rail mounted devices. Make sure that the device is used only for the intended purpose. The electrical connections must be carried out by qualified staff and must be according to the relevant locally applicable regulations. During 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 and make sure that the operating temperature is not exceeded. The cables (signal, data, sensor, etc.) 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.



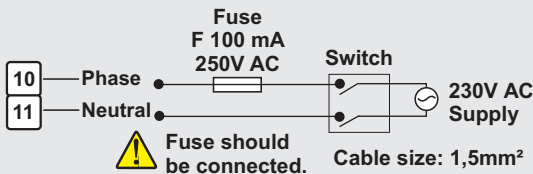
☐ Cihazın tümünde ÇİFT YALITIM vardır.

⊖ Vida sıkma momenti 0.4-0.5Nm.

### NOTE :

#### SUPPLY:

184-253V AC  
veya  
10-30V DC/  
8-24V AC  
50/60Hz 5VA



### 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.