



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 ET2011 PID TEMPERATURE CONTROLLER

Thank you for choosing ENDA ET2011 temperature controller.

- ▶ 35x77mm sized.
- ▶ Dual setpoint selection.
- ▶ Thermocouple types or PT100 input selection (specify at order).
- ▶ PID Self Tune.
- ▶ **Selftune automatic PID calculation or manually enter PID parameters if known.**
- ▶ Soft-Start feature.
- ▶ Zero point input shift.
- ▶ Alarm or temperature control assignment for CA/2 relay output.
- ▶ SSR Output control selection.
- ▶ Heating/Cooling control selection.
- ▶ In case of sensor failure, manual control or relay positions can be selected.
- ▶ CE Marked According to European Norms.



Order Code : ET2011 - -

1 2

1- Supply Voltage

230...230V AC
110...110V AC

2- Input Selection

RT...PT100 Input
T...TC Input

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

TECHNICAL SPECIFICATIONS

Input Type		Scale 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
J (Fe-CuNi) Thermocouple	EN 60584	0... 600°C	+32... +1112°F	± 0,5% (of full scale)	± 1 digit
K (NiCr-Ni) Thermocouple	EN 60584	0...1300°C	+32... +2372°F	± 0,5% (of full scale)	± 1 digit
T (Cu-CuNi) Thermocouple	EN 60584	0... 400°C	+32... +752°F	± 0,5% (of full scale)	± 1 digit
S (Pt10Rh-Pt) Thermocouple	EN 60584	0...1700°C	+32... +3092°F	± 0,5% (of full scale)	± 1 digit
R (Pt13Rh-Pt) Thermocouple	EN 60584	0...1700°C	+32... +3092°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	80% Relative humidity for temperatures up to 31°C, decreasing linearly to 50% at 40°C.
Rated Pollution Degree	According to EN 60529 ; Front Panel : IP62, Rear Panel : IP20
Height	Max. 2000mm
KEEP AWAY device from exposed to corrosive, volatile and flammable gases or liquids and DO NOT USE the device in similar hazardous locations.	

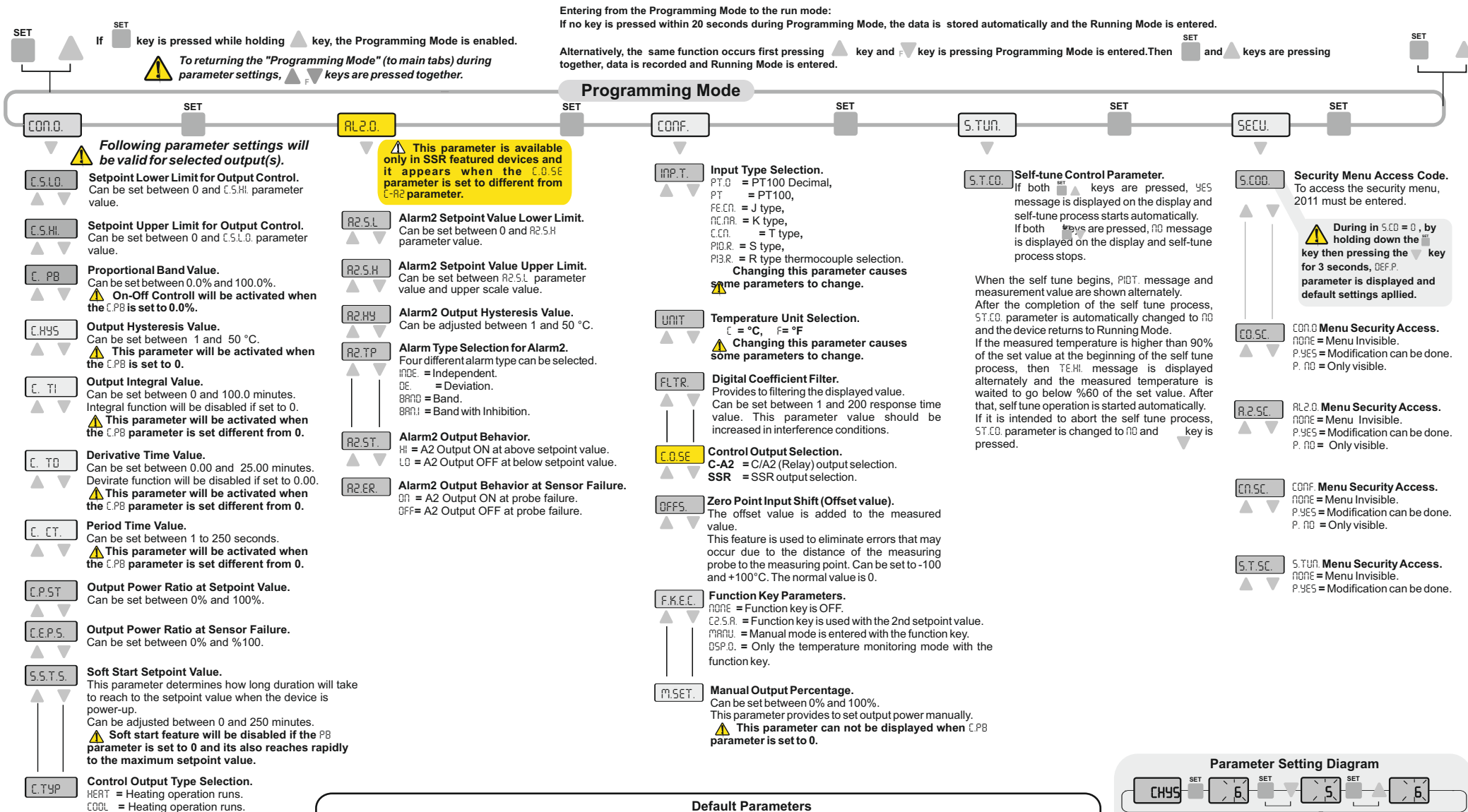
ELECTRICAL CHARACTERISTICS	
Supply	110V AC / 230V AC +10% -20%, 50/60Hz ; 10-30V DC / 8-24V AC SMPS
Power Consumption	Max. 5VA
Wiring	Power connector: 2.5mm² screw-terminal connection.
Line Resistance	Max. 100?
Data Retention	EEPROM (minimum 10 years).
EMC	EN 61326-1: 2013
Safety Requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)

OUTPUTS	
C/A2 Output	Relay : 250V AC, 8A (for resistive load), Selectable as NO+NC Control or Alarm2 output.
SSR Output	Max 20mA 12Volt (as control output).
Life Expectancy for Relay	Mechanical 30.000.000; Electrical 100.000 operation. 250V AC, 8A (resistive load).

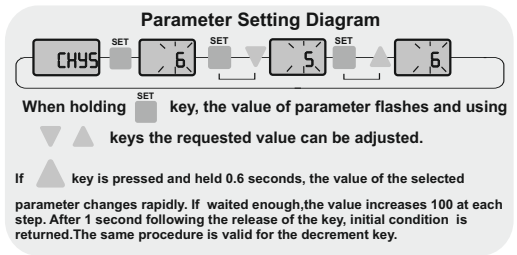
CONTROL	
Control Type	Single set-point and alarm control.
Control Algorithm	On-Off / P, PI, PD, PID (selectable).
A/D Converter	12 bit.
Sampling Time	100ms.
Proportional Band	Can be adjusted between 0% and 100%. If Pb = 0%, On-Off control is selected.
Control Period	Can be adjusted between 1 and 250 seconds.
Hysteresis	Can be adjusted between 1 and 50°C/F.
Output Power	The ratio of power at a setpoint can be adjusted between 0% and 100%.

HOUSING	
Housing Type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W77xH35xD71mm
Weight	Approx. 215g (after packing)
Enclosure Material	Self extinguishing plastics.

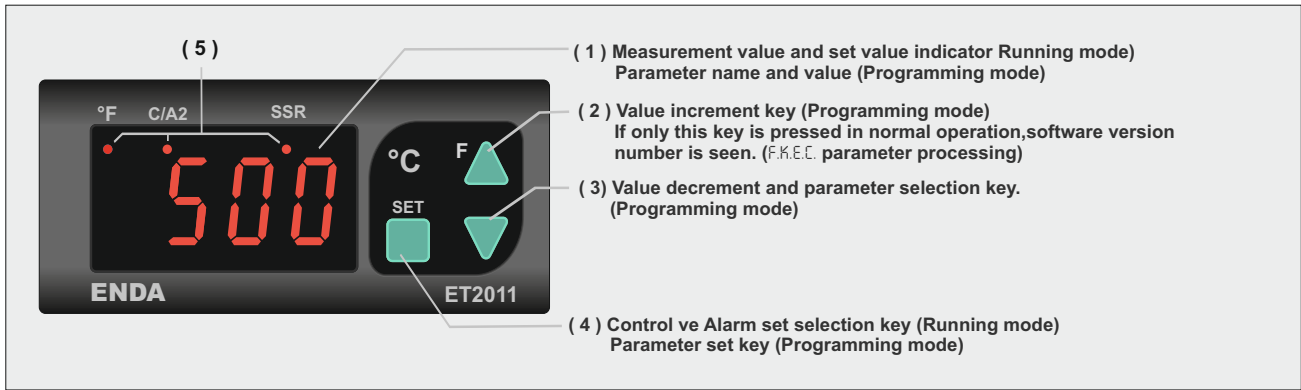
Avoid any liquid contact when the device is switched on.
DO NOT clean the device with solvent (thinner, gasoline, acid etc.) and / or abrasive cleaning agents.



Default Parameters											
Set parameters			Control output parameters			Alarm2 output parameters			Configuration parameters		
			TC input PT100 input			TC input PT100 input			TC input PT100 input		
C1.S.E.	400		C.S.L.O.	0	-200	R2.S.L	0	-200	INP.T.	FE.CN.	PT.
C2.S.E.	400		C.S.H.I.	600		R2.S.H	600		UNIT		C
R2.S.E.	500		C.PB	0		R2.HY	2		FLTR.		25
			C.HYS	2		R2.TP	INDE		C.O.S.E.		C-A2
			C.TI	4.0		A2.ST	HI		OFFS.		0
			C.TD	1.00		R2.ER	ON		F.K.E.C		NONE
			C.CT	20					M.SET.		50
			C.P.ST	0							
			C.E.P.S	0							
			S.S.T.S	0							
			C.TYP	HEAT							

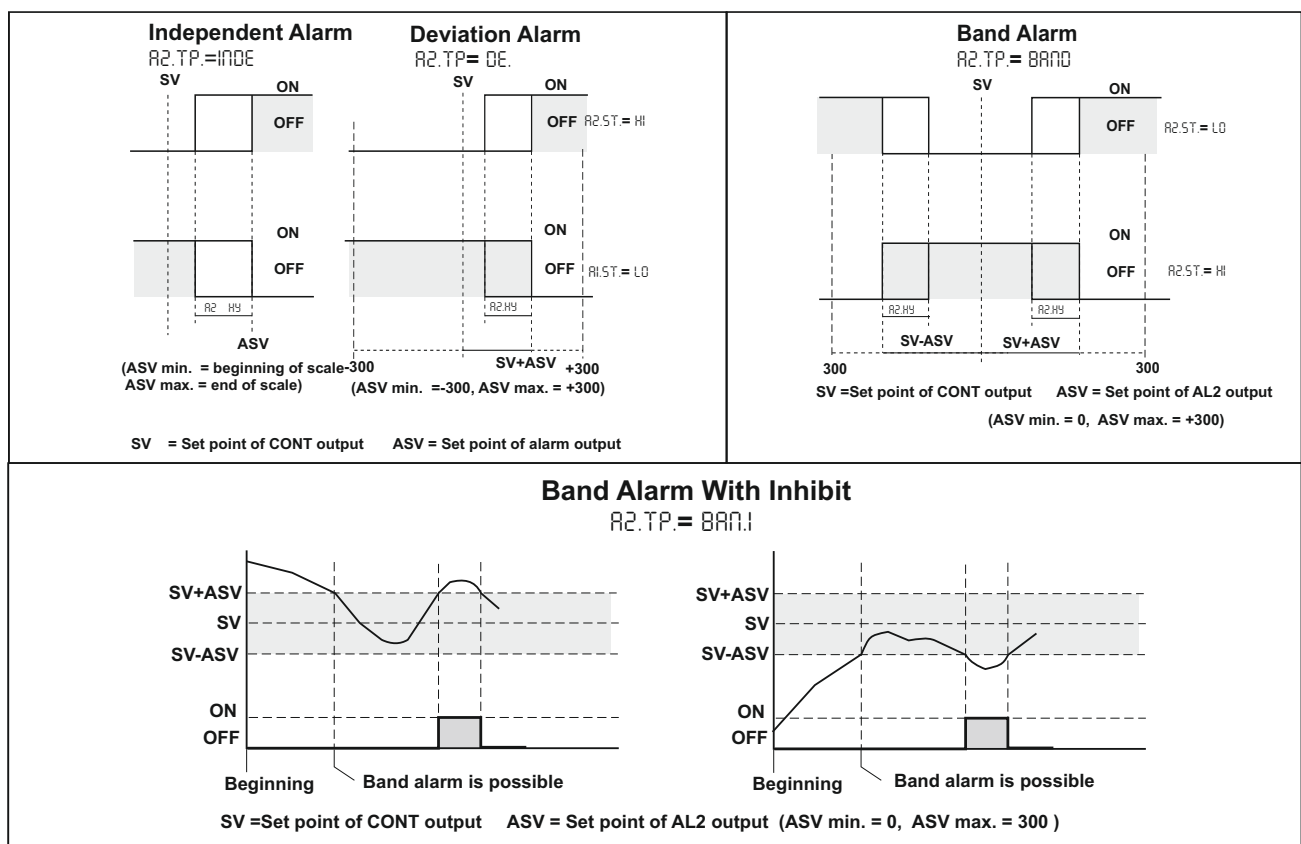


TERMS

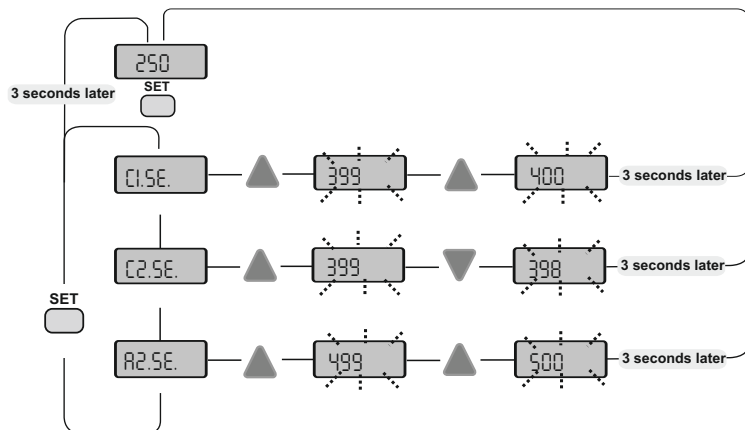


(1) PV and SV display	7 segment, 4 digits red LED display
Character heights	12 mm
(2),(3),(4) Keypad	Micro switch
(5) State indicator	For control, Alarm1 and SSR outputs 3 digits red LED

ALARM2 OUTPUT TYPES



MODIFICATION OF CONTROL AND ALARM SET POINTS



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

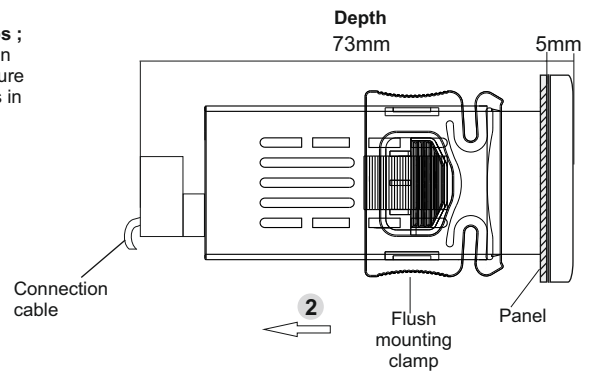
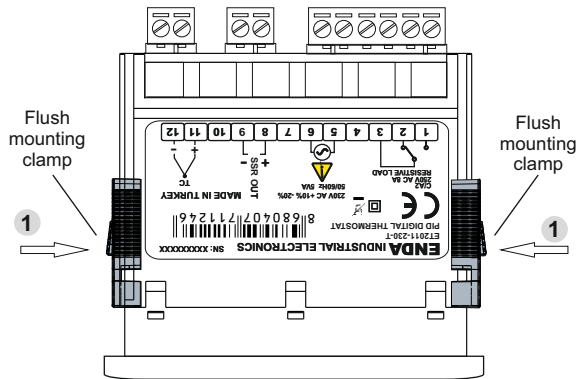
F.K.E.C. parameter, is set to the 02.S.E. parameter, this parameter is displayed.

01.S.E. parameter is set to the output of SSR, this parameter is seen.

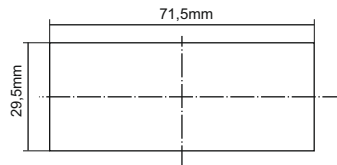
DIMENSIONS



To removing mounting clamps ;
 - Push flush mounting clamps in direction **1** as shown in the figure below. Then pull out the clamps in direction **2**.



Panel Cut-out



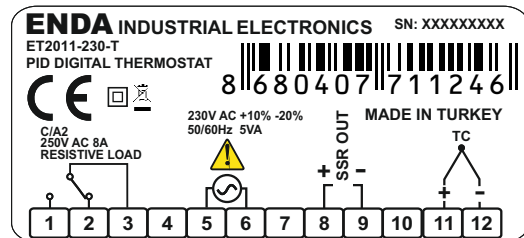
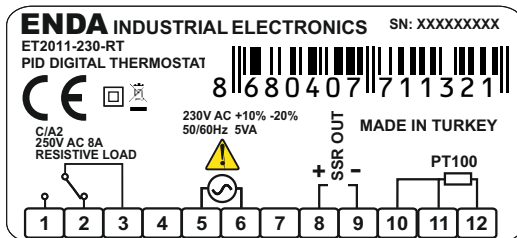
Note :

- 1) Panel thickness should be maximum 7mm.
- 2) If there is no 60mm free space at back side of the device, it would be difficult to remove it from the panel.

Connection Diagram



ENDA ET2011 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.

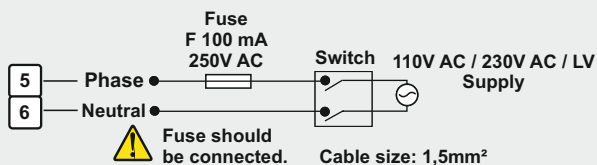


Equipment is protected throughout by **DOUBLE INSULATION**.

Holding screw
0.4-0.5Nm.

NOTE : SUPPLY :

88-121V AC
or
184-253V AC
or
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.