



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.

- \* 77 x 35mm sized.
- \* Selectable dual setpoint.
- \* Selectable thermocouple types or PT100 input. (Specify at order).
- \* Automatic calculation of PID parameters. (SELFTUNE).



Selftune for automatic PID calculation or manually enter PID parameters if known.

- \* Soft-Start feature.
- \* Zero point input shift.
- \* C/A2 Relay output programmable as alarm or control output.
- \* Selectable SSR control output.
- \* Selectable heating/cooling control.
- \* In the case of sensor failure, manual control can be selected.
- \* CE marked according to European Norms.



R<sup>HS</sup>  
Compliant

### 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
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	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



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

#### ELECTRICAL CHARACTERISTICS

Supply	230V AC +%-10 -%20, 50/60Hz or 24V AC %±10, 50/60Hz
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: 2012
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. Relay : 250V AC, 16A (for resistive load), Selectable as NO 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 and 16A (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	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	W77xH35xD71mm
Weight	Approx. 200g (after packing)
Enclosure material	Self extinguishing plastics.



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

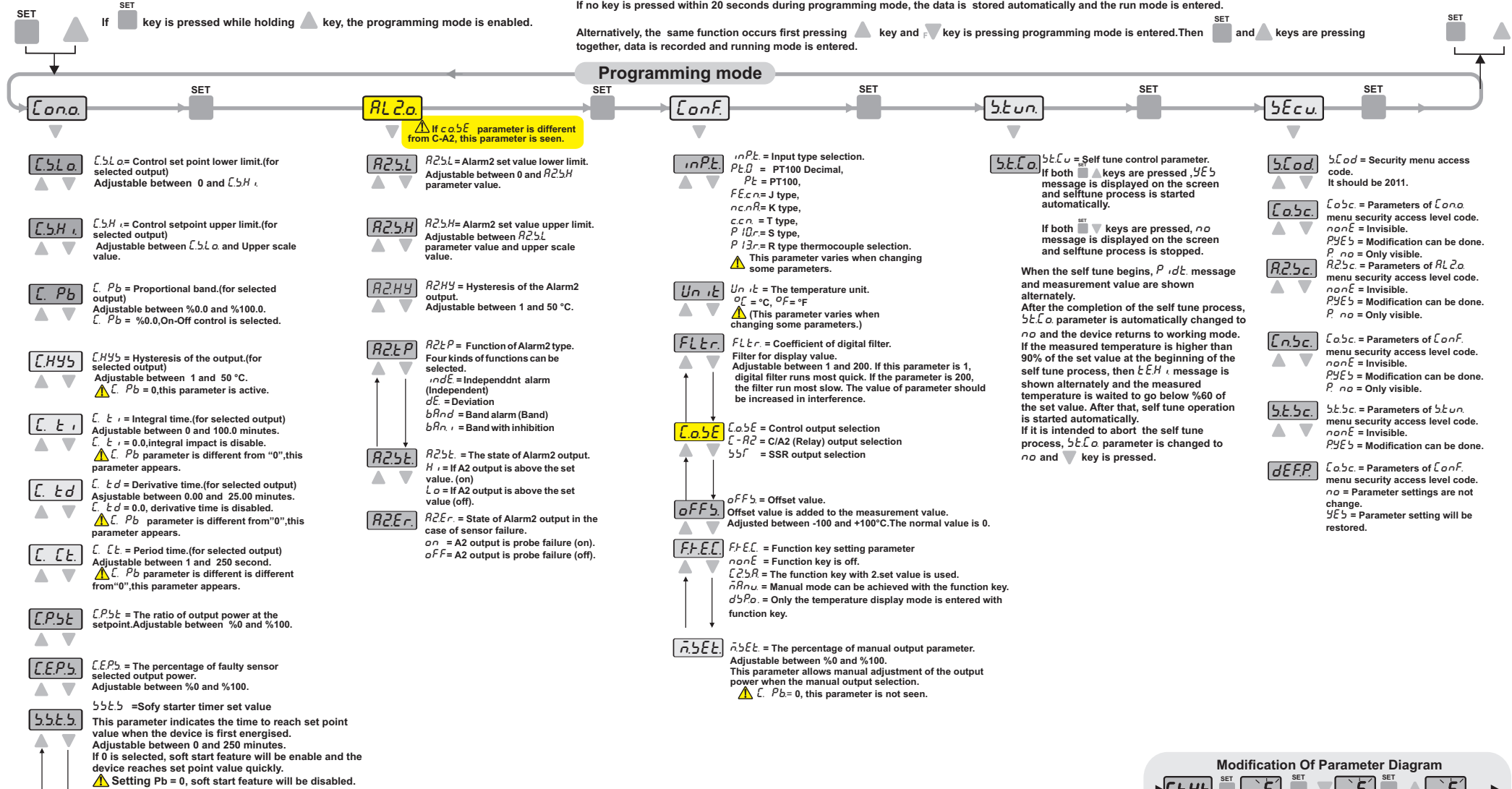


SISEL MÜHENDİSLİK ELEKTRONİK SAN. VE TİC. A.Ş.  
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Entering from the programming mode to the run mode:  
If no key is pressed within 20 seconds during programming mode, the data is stored automatically and the run mode is entered.

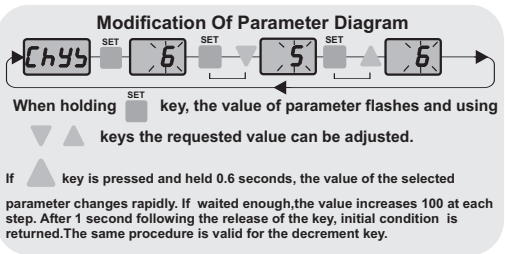
Alternatively, the same function occurs first pressing  $\blacktriangle$  key and  $\blacktriangledown$  key is pressing programming mode is entered. Then  $\blacktriangle$  and  $\blacktriangledown$  keys are pressing together, data is recorded and running mode is entered.



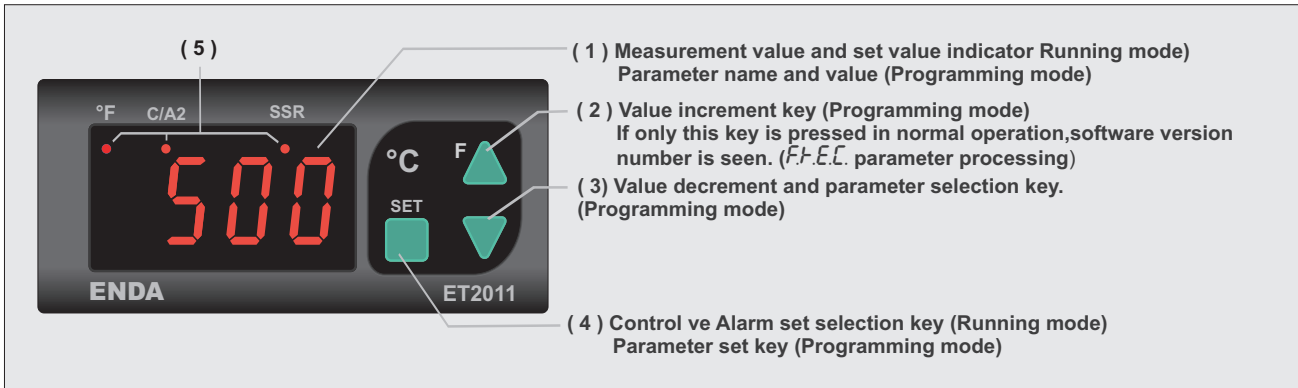
While the parameter names appear, if  $\blacktriangle$  and  $\blacktriangledown$  keys are pressed together, returns to the program mode.

**DEFAULT PARAMETERS**

Set parameters		Control output parameters		Alarm2 output parameters		Configuration parameters			Self tune parameters		Security parameters	
		TC input	PT100 input	TC input	PT100 input	TC input	PT100 input		TC input	PT100 input	TC input	PT100 input
C1SE	400	C5Lo	0	A25L	0	inPt	FEcn	Pt	A2Er	no	CoSc	PYE5
C2SE	400	C5Hi	600	A25H	600	UnIt					A25c	PYE5
A2SE	500	C.Pb	0	A2HY	2	FLtr		25			CnSc	PYE5
		CHY5	2	A2EP	indE	CoSE		C-A2			S55c	PYE5
		C.ti	4.0	A25L	Hi	oFF5		0			dEFP	no
		C.td	1.00	A2Er	on	FtEc		nonE				
		C.Ct	20			n5Et		50				
		CP5t	0									
		CEP5	0									
		S555	0									
		CtYP	HEAt									
			COoL									

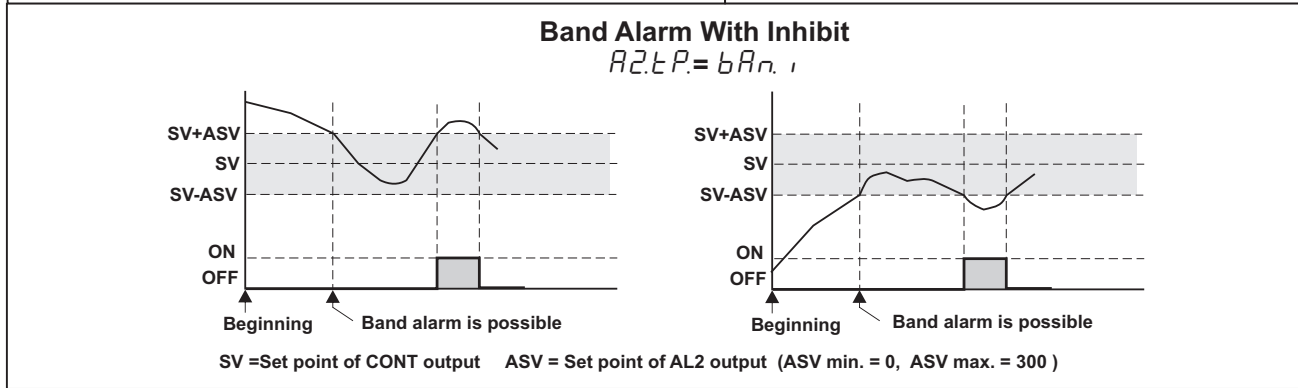
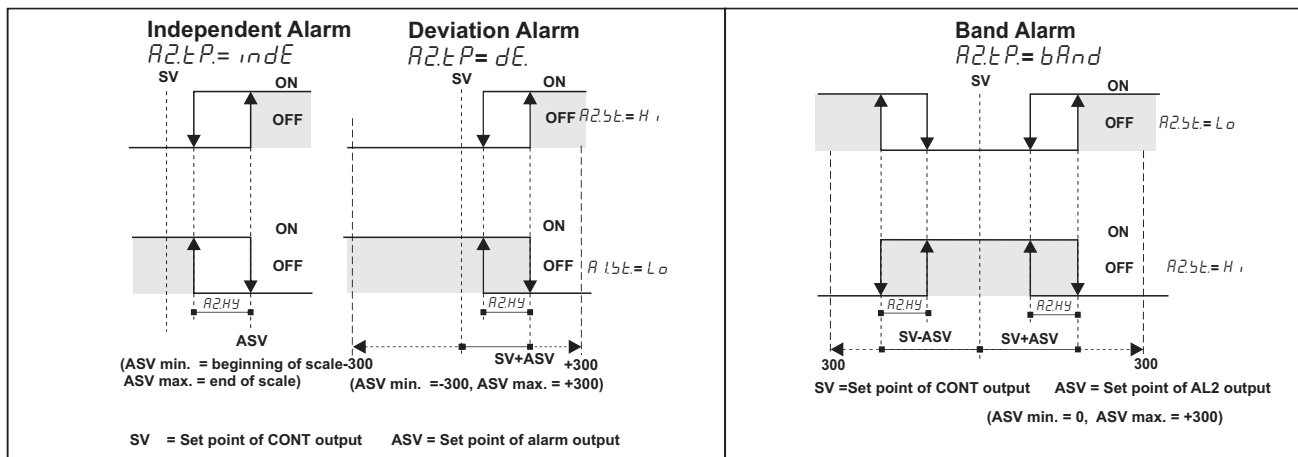


# TERMS

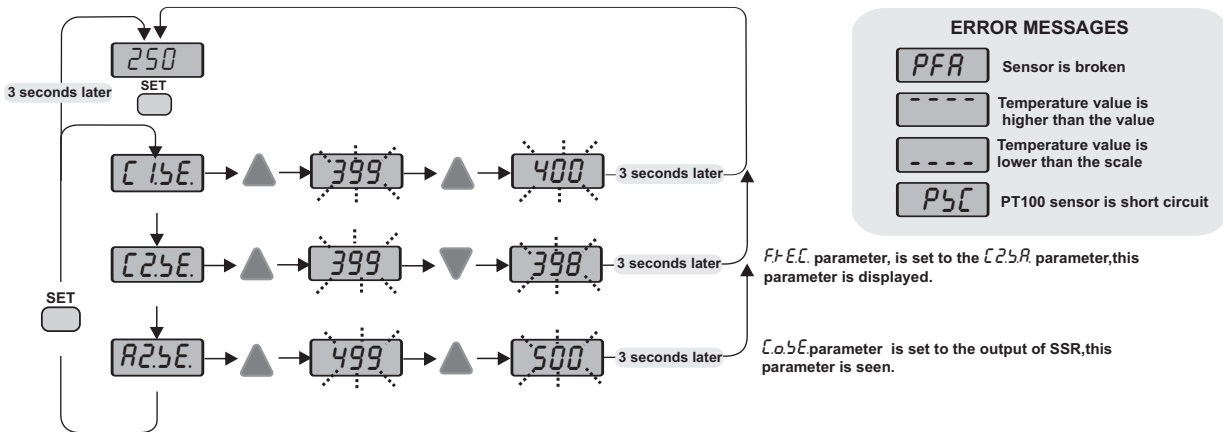


(1) PV and SV display	7 segment, 4 digits red LED display
Character heights	12 mm
(2),(3),(4) Keypad	Micro switch
(5) State indicator	For control, Alarm1 and SSR outputs 3 digits red LED

## ALARM2 OUTPUT TYPES



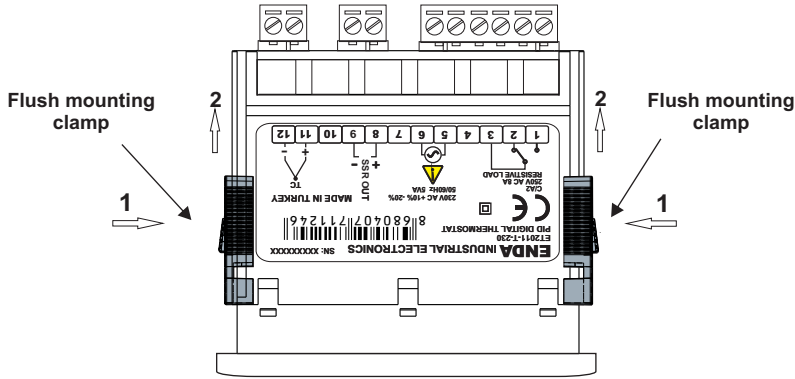
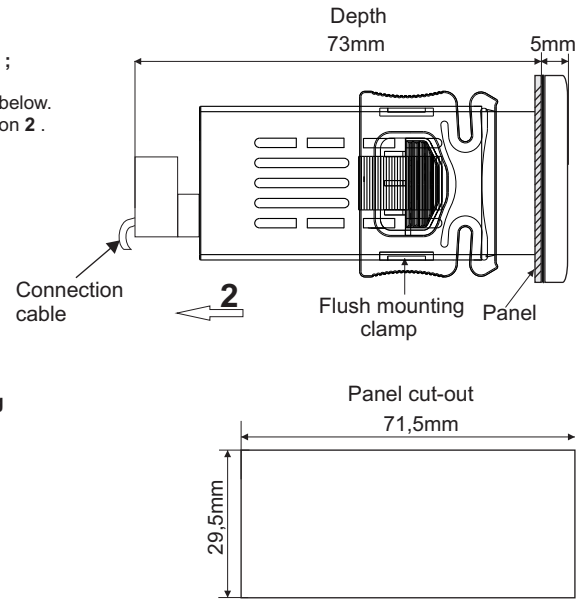
## MODIFICATION OF CONTROL AND ALARM SET POINTS



## DIMENSIONS



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



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.

Order Code : ET2011---  
1 2 3

1- Input selection  
RT....PT100 input  
T....TC input

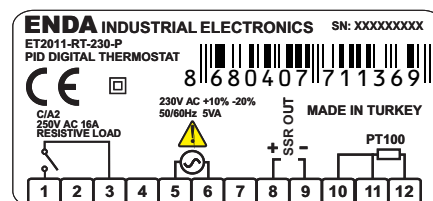
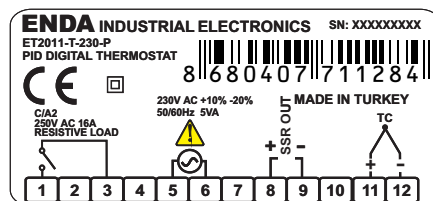
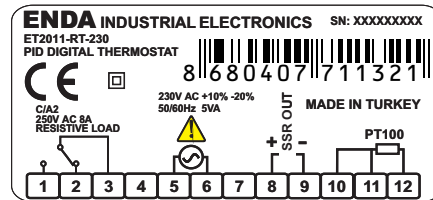
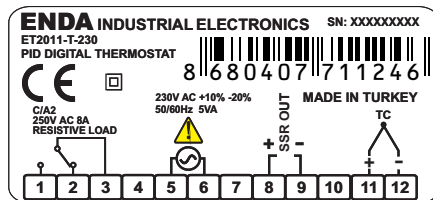
2 - Supply Voltage  
230VAC...230V AC  
110VAC.....110V AC  
024VAC.....24V AC  
SM.....9-30V DC / 7-24V AC

3- Contact current selection  
None.....8A contact output  
P....16A contact output

## CONNECTION DIAGRAM



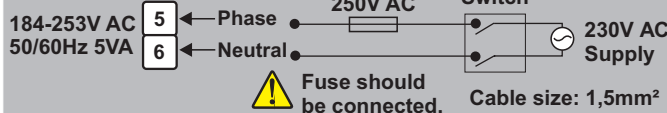
ENDA ET2011 is intended for installation within control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of electrical power. The device must 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.



Holding screw  
0.4-0.5Nm

Equipment is protected throughout  
by DOUBLE INSULATION.

NOTE :  
SUPPLY:



- 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.