


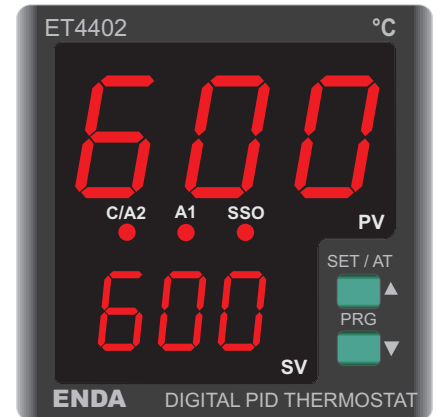


Read this document carefully before using this device. The guarantee will be expired by device damages if you don't attend to the directions in user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA ET4402 PID TEMPERATURE CONTROLLER

Thank you for choosing ENDA ET4402 temperature controller.

- 48 x 48mm sized.
- 14.2 mm Led display.
- Selectable thermocouple types.
- Automatic calculation of PID parameters (Self Tune).
-  Self tune for automatic PID calculation or manually enter PID parameters if known.
- Soft-Start feature.
- Selectable SSR control output.
- C/A2 Relay output can be set as secondary alarm or temperature control.
- A1 Relay output can be used as primary alarm.
- Zero point input shift.
- In case of sensor failure, periodically, auto-periodically running or relay state can be selected.
- CE marked according to European Norms.



Order Code : ET4402 -  1 - Supply Voltage
230.....230V AC
LV.....10-30V DC /
8-24V AC



R^{HS}
Compliant

TECHNICAL SPECIFICATIONS

Input Type		Temperature Range		Accuracy
		°C	°F	
J (Fe-CuNi) Termokupl	EN 60584	-30....600°C	-22....999 °F	± 0,5% (of full scale) ± 1 digit
K (NiCr-Ni) Termokupl	EN 60584	-30....999°C	-22....999°F	± 0,5% (of full scale) ± 1 digit
L (Fe-CuNi) Termokupl	DIN 43710	-30....600°C	-22....999°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 ² screw-terminal, Signal connector: 1.5mm ² screw-terminal connection.
Line resistance	Max. 100ohm
Data retention	EEPROM (minimum 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, overvoltage category II)

OUTPUTS


C/A2 output	Relay : 250V AC, 5A (for resistive load), Selectable as NO. Control or Alarm2 output.
A1 output	Relay : 250V AC, 5A (for resistive load), Selectable as NO. Alarm1 and Cooling Control.
SSR output	Max 20mA 12Volt logic control output.
Life expectancy for relay	5.000.000 Switching for no-load operation; 200.000 switching for 5A resistive load at 250VAC.

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 125 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	W48xH48xD53mm
Weight	Approx. 230g (after packing)
Enclosure material	Self extinguishing plastics.

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



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Running Mode

500.
600

If **SET/AT** key is pressed for 1 second continuously, Control and Alarm setpoint setting is entered.

See page 3

To access "Running Mode" :

If no key is pressed for 20 seconds, the adjusted value (if any) stored and "Running Mode" is entered.
Or if the **SET/AT** key is pressed for 2 seconds, the main menu is entered then by pressed to **PRG** key before expired 20 seconds, "Running Mode" is entered.

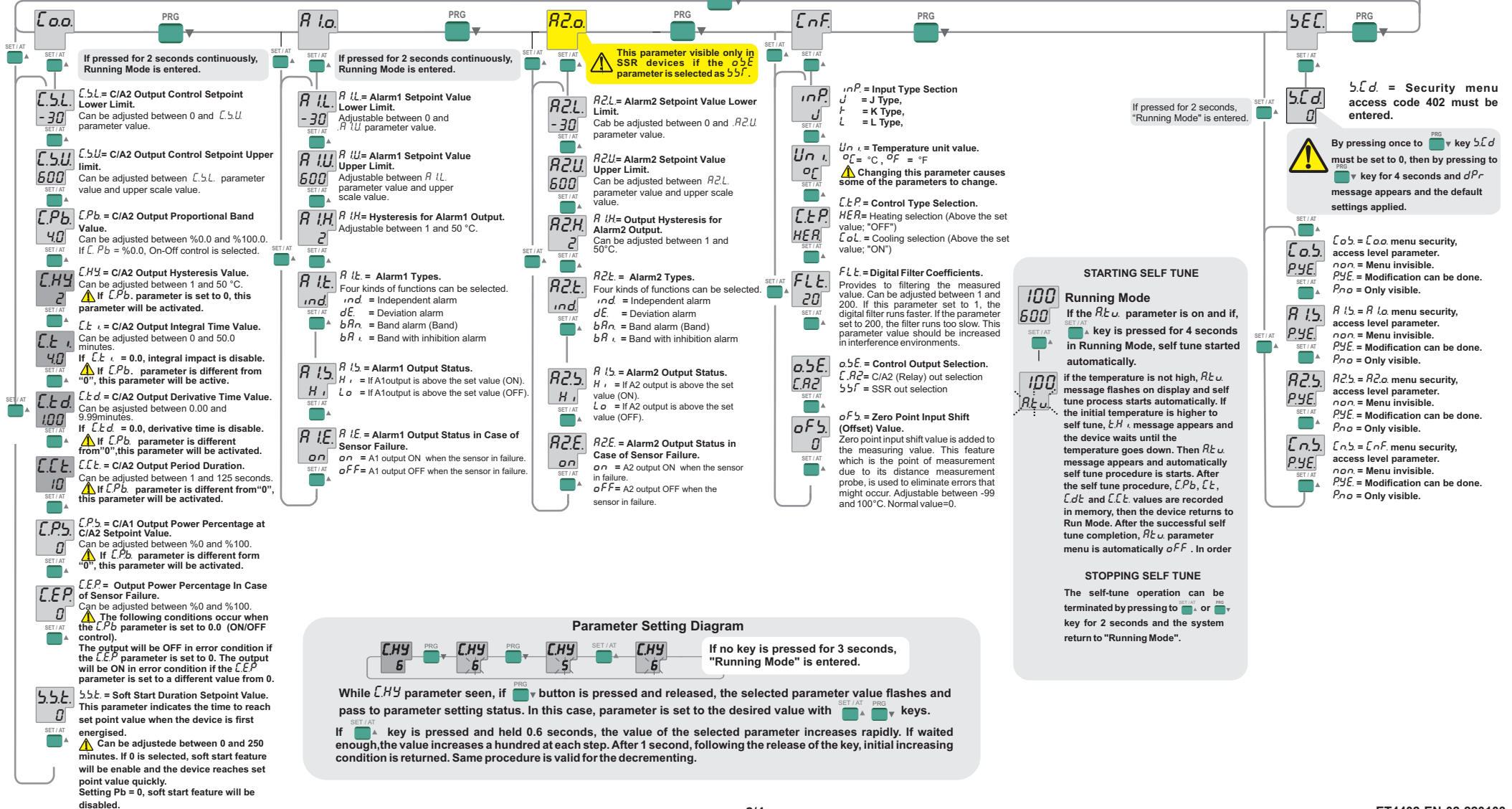
If this key is pressed once, quick setpoint adjustment can be performed. Adjusted value flashes on display.

500.
600

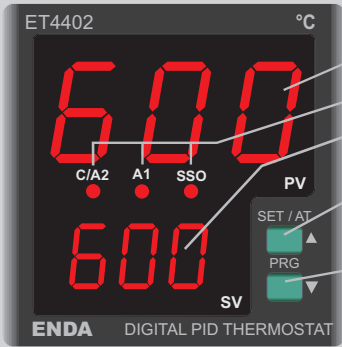
If no key pressed in 3 seconds, "Running Mode" is entered.

If pressed for 2 seconds, "Programming Mode" is entered.

If pressed for 2 seconds, "Programming Mode" is entered.



TERMS

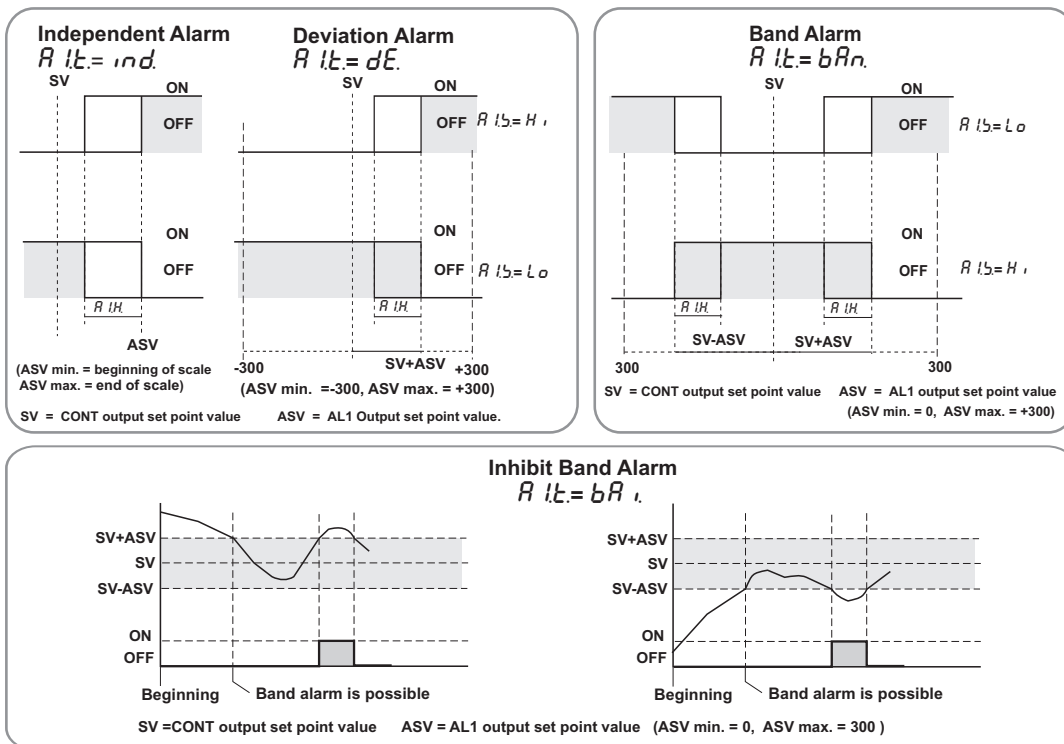


- (1) Measurement value indicator (Running Mode).
Parameter name and indicator (Programming Mode).
- (2) Output state indicators.
- (3) Set value indicator (Running Mode).
Parameter value indicator (Programming Mode).
- (4) Control setpoint input adjustment and self tune key (Running Mode).
Parameter selection key (Programming Mode).
Value increment key (Running Mode and Programming Mode).
- (5) Programming Mode enter key (Running Mode).
Menu selection key (Programming Mode).
Parameter setting transition key (Programming Mode).
Value decrement key (Running Mode and Programming Mode).

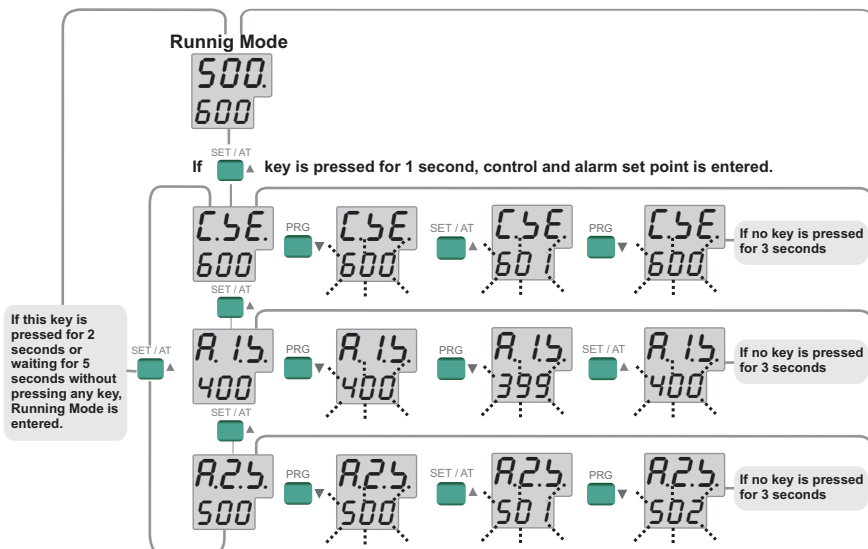
(1), (3) PV and SV indicator	PV 7 Segment 3 digits red, SV 7 segment 3 digits red LED display
Character heights	PV indicator : 14.2mm, SV indicator : 9.1 mm
(4), (5) Keypad	Mikro switch
(2) State indicators	3 Red LEDs for Control , Alarm1 and SSR outputs

ALARM1 AND ALARM2 OUTPUT TYPES

(Graphics are for alarm 1)



CONTROL AND ALARM SET POINT ADJUSTMENT



ERROR MESSAGES

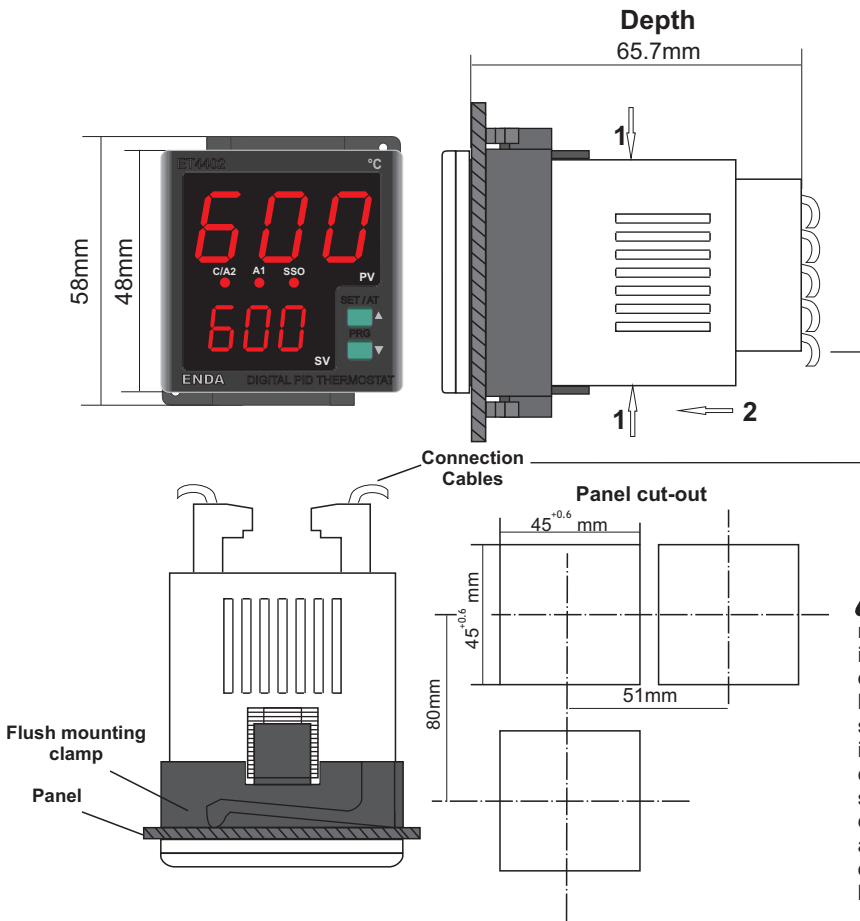
P.F.A. Sensor is broken

600 Temperature value is higher than the scale

600 Temperature value is lower than the scale

When 0.5E parameter is set to 55F output, this parameter is displayed.

DIMENSIONS



For removing mounting clamps ;

- Push the device in direction 1 as shown in the figure.
- Then pull out the device in direction 2 .

- Note :**
- 1) While performing panel mounting, additional space should be allocated for cables.
 - 2) Panel thickness should be maximum 9mm.
 - 3) If there is no 100mm free space at back side of the device, it would be difficult to remove it from the panel.

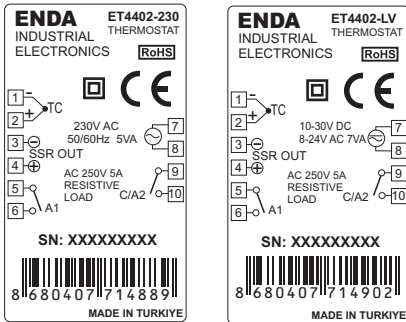


ENDA ET4402 is intended for installation within control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of electrical power. The device must 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.



Logic output of the device is not electrically isolated. Therefore, if the grounded thermocouple is used, logic outputs of the device should not be grounded.

CONNECTION DIAGRAM



- 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.



Holding screw
0.4-0.5Nm.



Equipment is protected throughout by
DOUBLE INSULATION

NOTE :

SUPPLY :

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



Fuse should
be connected.

F 100 mA 250V AC

Switch

Phase

Neutral

230V AC / LV
Supply
Cable size : 1,5mm²

SENSOR INPUT:

For Thermocouple :

Use the correct compensating cable. Do not make any supplement to cables. Connect the thermocouple cables to the right places at the input terminal

