Please read this document carefully before using this product. The guarantee will be invalidated if the device is damaged by not following instructions detailed in the manual. The company shall not be responsible for any damage or losses however caused, which may be experienced as a result of the installation or use of this product.

ENDA ETDC2422 DIGITAL TDC THERMOSTAT

Thank you for choosing **ENDA ETDC2422** Digital Temperature Differential Controller.

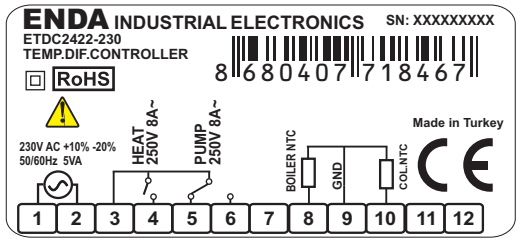
- 35x77mm sized.
- On-Off control.
- Two relay outputs for pump and heater control.
- Two NTC probe input for collector and boiler control.
- NTC probe input offset adjustments can be performed.
- Collector frost protection.
- Boiler overheat protection.
- Lower and Upper alarm limit can be adjusted to dependent on setpoint value.
- CE marked according to European Norms.

Order Code : ETDC2422 - ☐☐☐
(1)

2 - Supply Voltage
230 ..... 230V AC
24 ..... 24V AC
12 ..... 12V AC
SM.....9-30V DC / 7-24V AC

RoHS Compliant

ENDA ETDC2422 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The electrical connections must be carried out by a qualified staff and must be according to the relevant locally applicable regulations. 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 and make sure that the operation temperature is not exceeded. The cables should not be close to the power cables or components.

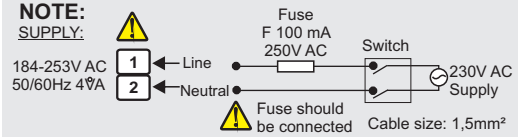


Equipment is protected throughout by DOUBLE INSULATION

Holding screw 0.4-0.5Nm.

NOTE:

SUPPLY:



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.

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.

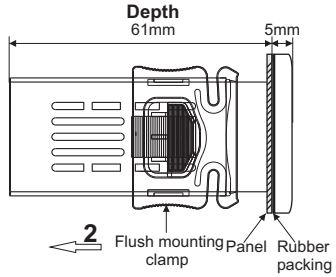
ELECTRICAL CHARACTERISTICS	
Supply voltage	230V AC +%10 -%20, 50/60Hz or 12/24 V AC/DC ± %10
Power consumption	Max. 5VA
Connection	2.5mm² screw-terminal connections
Scale	-60.0 ... +150.0°C (-76.0 ... +302.0°F)
Sensitivity	0.1°C (Can be selected as 0.1ºC or 1ºC.)
Accuracy	±1°C
Time accuracy	±1%
Display	4 digits, 12.5mm, 7 segment LED
EMC	EN 61326-1: 2013
Safety requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)

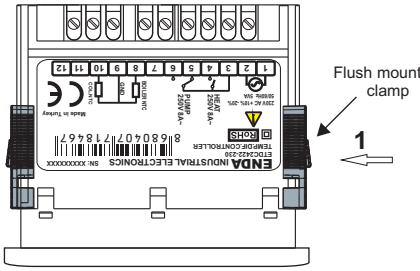
OUTPUTS	
Pump relay output	NO 250V AC,8A (resistive load), 1/2HP, 0.37KW 240V AC (inductive load)
Heater relay output	NO+NC 250V AC,8A (resistive load), 1/2HP, 0.37KW 240V AC (inductive load)
Life expectancy for relay	Without load 30.000.000 switching; 250V AC, 8A resistive load 100.000 electrical operation.
CONTROL	
Control type	Single set-point, pump and heater control
Control algorithm	On-Off control
Hysteresis	Adjustable between 1 ... 20.0°C.
HOUSING	
Housing type	Suitable for flush -panel mounting
Dimensions	W77xH35xD61mm
Weight	Approx. 190g (After packing)
Enclosure material	Self extinguishing plastics.

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

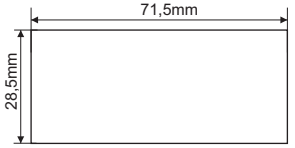
DIMENSIONS

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** .





Panel cut-out



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.

FRONT PANEL USAGE

B (BOILER) LED : This LED indicator light is on while the boiler temperature is shown.

C (COLLECTOR) LED : This LED indicator light is on while the collector temperature is shown. If B and C indicator LEDs are off, collector-boiler temperature differences displayed.

H (HEATING) LED : If heating output is activated, this LED light is on.

P (PUMP) LED : If pump output is activated, this LED light is on.

SET In "Running Mode", indicates the differential output setpoint value.
In "Programming Mode", indicates the selected parameter value.

In "Running Mode", changes the to be displayed (boiler, collector, collector-boiler) measurement values.
In "Programming Mode" provides the pass to the next parameter. Increases the parameter value while adjusting. If this key held down continuously, parameter value increases quickly.

"In Programming Mode" provides the back to the previous parameter. Decreases the parameter value while adjusting. If this key held down continuously, parameter value decreases quickly.

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OPERATING

1. Pump Relay Output

If sum of the setpoint and hysteresis value parameters are greater or equal than collector-boiler temperature differences, pump output relay is activated. If the temperature difference equal or less than setpoint value, pump output relay is disabled.

In the following cases, the pump relay output will not operate ;

- If control outputs canceled manually.
- If boiler temperature exceeds the maximum temperature value.
- If collector temperature drops below minimum temperature value.

* If the collector temperature drops below the freezing point for frost protection, pump relay output is activated.

2. Heating Relay Output :

If boiler temperature value drops below the setpoint, heater output relay is activated. If sum of the setpoint and hysteresis value parameters are greater or equal than boiler temperature, heating output relay is deactivated.

In the following cases, the boiler relay output will not operate ;

* If control outputs canceled manually.
* If boiler temperature exceeds the maximum temperature value.
* If the heating setpoint value is set to 0, control is not performed. Heater output relay is deactivated.

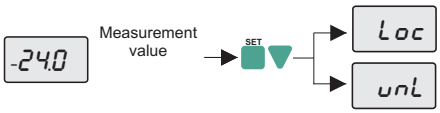
1. Displaying and Changing Setpoint

While in the "Running Mode", if SET key is pressed, setpoint value is displayed for 3 seconds. While in this case, setpoint value can be changed with ▼▲ keys.

2. Displaying Measurement Value

In "Running Mode", by pressing the ▲ key, desired measurement results can be displayed sequentially. Related temperature values can be monitored from B and C indicator LEDs.

3. Locking and Unlocking Keypad

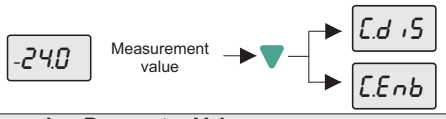


In "Running Mode", if SET ▼ keys are hold down together for 2 seconds, Loc message is displayed and the keypad will be locked. In order to unlocking keypad, hold down SET ▼ keys for 2 seconds again, unL message appears on display and keypad will be unlocked.

While keypad locked and if SET key is pressed, setpoint value can be displayed but can not be changed.

If any key is pressed (except SET key), Loc message appears on display.

4. Activating / Inactivating The Control Outputs



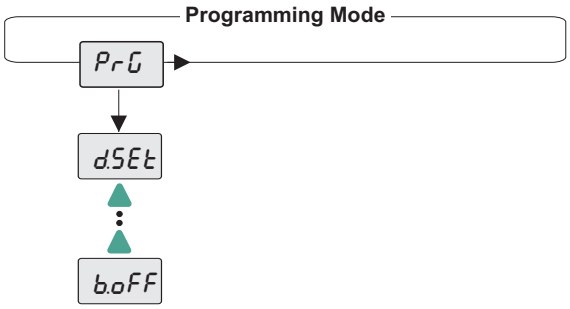
In "Running Mode", if ▼ key is hold down for 2 seconds, C.dIS message appears and control outputs becomes to the disable state and the device runs as indicator. While control outputs are disabled, if ▼ key is hold down for 2 seconds C.Enb appears on display and the device continues to control the process.

5. Changing Parameter Values

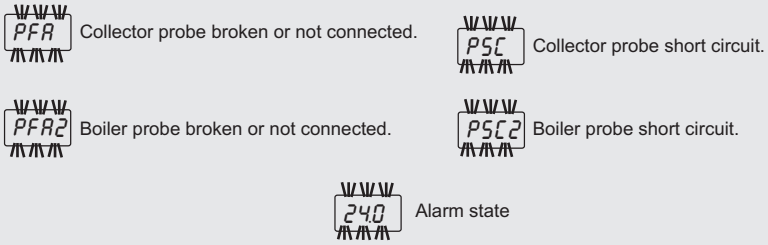
By pressing these two keys simultaneously and hold down for 2 seconds, PIn message appears and user menu is entered and name of the first parameter will be displayed in user menu.

While a parameter is selected, by pressing SET key, parameter value displayed and this parameter can be changed by using ▼▲ keys. If no operation is performed for 3 seconds or SET key is pressed during a parameter value displayed, returns to the related parameter.

While parameter name displayed, if ▼▲ keys are pressed simultaneously, "Running Mode" is entered quickly.



6. ERROR MESSAGES



7. Factory Defaults

If ▼ key is hold down while the device is powered up, dPAr message appears on display and factory parameters restored.

PARAMETER LIST

PUMP OUTPUT (DIFFERENTIAL CONTROL) PARAMETERS		MIN	MAX	UNIT	DEFAULT
dSEt	Setpoint value for differential control. (This value can be adjusted from the front panel without entering the menu).	-60.0	150.0	°C	0
dHYS	Setpoint hysteresis value for differential output.	0.1	20.0	°C	2.0
dFP	Setpoint value for frost protection. (If the collector temperature is equal or drop below to this value, pump output is activated. If collector temperature freezing setpoint value exceeds to 2°C, pump output is disabled).	-20.0	20.0	°C	4.0
dLoL	Minimum collector temperature point. (If the collector temperature drops below this value, differential control and pump output is canceled. When the collector temperature exceeds to 3°C, differential control starts again. Frost protection and heating controls are not affected by this parameter).	-60.0	150.0	°C	10.0
coFF	Offset value for collector probe.	-20.0	20.0	°C	0
dSPc	Temperature that desired to be displayed. (coL : Collector, boIL : Boiler, dIF : Temperature difference value).	coL	dIF	°C	dIF
HEATER OUTPUT CONTROL PARAMETERS					
hSEt	Heater setpoint value.	-60.0	150.0	°C	0
hHYS	Setpoint hysteresis value for heater output.	0.1	20.0	°C	4.0
huPL	Maximum boiler temperature point. (If the boiler temperature exceeds this value, all controls are canceled. When the collector temperature drops below to 2°C, controls starts again.	-60.0	150.0	°C	60.0
boFF	Boiler probe offset value.	-20.0	20.0	°C	0

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