



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 EDT2411 TEMPERATURE CONTROLLER

Thank you for choosing ENDA EDT2411 temperature controller.

CE **RoHS**
Compliant



- *35x77mm sized.
- *On-Off control.
- *Single contact output for cooling or heating control.
- *Single NTC probe input.
- *Offset value can be entered for NTC probe.
- *Compressor protection parameters can be entered.
- *In the keys of probe failure, output state can be selected on, off or periodical running.
- *Upper and lower limits of the setpoint can be adjusted.
- *Defrosting duration and interval can be adjusted.
- *6 different warning tones.
- *Upper and lower limits of the alarm value can be adjusted depending on the setpoint value.
- *Temperature unit can be selected °C or °F.
- *Digital input. (Optional)
- *It can give an external alarm with digital input.
- *With digital input defrost starting feature.
- *Without energy to the device can be transferred parameter with "ENDAKEY".
- *CE marked according to European Norms.

Order Code: EDT2411- -
1 2

1 - Supply Voltage

- 230230V AC
- 2424V AC/DC
- 1212V AC/DC

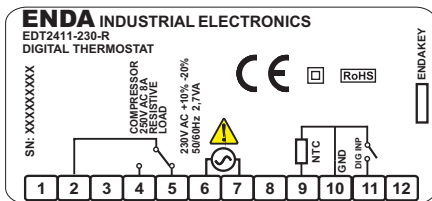
2-Output

- P.....16A relay output
- R..... 8A relay output

CONNECTION DIAGRAM



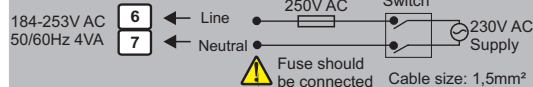
ENDA EDT2411 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The electrical connections must be carried out by a qualified staff and must be according to the relevant locally applicable regulations. During an installation, all of the cables 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:



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.

ENVIRONMENTAL CONDITIONS

Ambient/storage temperature	0 ... +50°C/-25 ... 70°C (without icing)
Relative humidity	%80, up to 31°C decreasing linearly %50 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. 2,7VA
Connection	2.5mm² screw-terminal connections
Scale	-60.0 ... +150.0°C (-76.0 ... +302.0°F)
Sensitivity	0.1°C (Can be chosen as 0.1°C or 1°C.)
Accuracy	±1°C
Time accuracy	±%1
Display	4 digits, 12.5mm, 7 segment yellow LED
EMC	EN 61326-1: 1997, A1: 1998, A2: 2001
Safety requirements	EN 61010-1: 2001 (Pollution degree 2, overvoltage category II)

OUTPUTS

Relay output	For EDT2411-P-X ; Relay: 240V AC, 16A (for resistive load), NO; 1 HP 230V AC (for inductive load) For EDT2411-R-X ; Relay: 250V AC, 8A (for resistive load), NO+NC; 1/2 HP 240V AC (for inductive load)
Life expectancy for relay	For EDT2411-X ; Without load 30.000.000 mechanical; 250V AC, 8A resistive load 100.000 electrical operation.

CONTROL

Control type	Single set-point control
Control algorithm	On-Off control
Hysteresis	Adjustable between 1 ... 20.0°C.

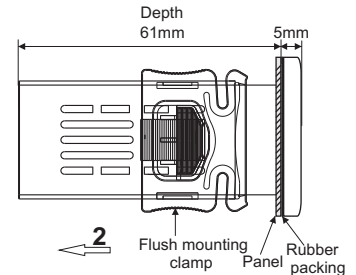
HOUSING

Housing type	Suitable for flush -panel mounting
Dimensions	W77xH35xD61mm
Weight	Approx. 190g (After packing)
Enclosure material	Self extinguishing plastics.



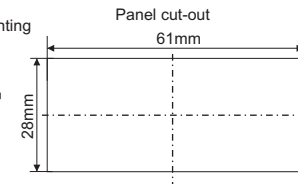
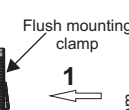
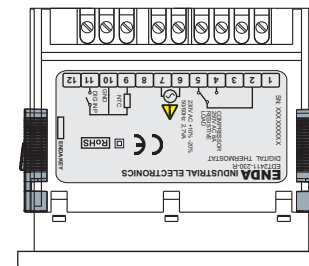
While cleaning the device, solvents (thinner, benzene, acid etc.) or corrosive materials must not be used.

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.



- Not: 1) Panel thickness should be maximum 7mm.
2) If there is no 60mm free space at the back side of the device, it would be difficult to remove it from the panel.

SİSEL MÜHENDİSLİK ELEKTRONİK SAN. VE TİC. A.Ş.

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- °F FAHRENHEIT LED:** In parameter value or the measured temperature value "°F" unit while this LED lights up. In the hidden menu, at the same time the user menu parameter is shown the LED lights up.
- HEATING LED:** Heating is being checked; while the output is active, the LED lights.
- DEFROST LED:** With the defrost lights up.
- COMPRESSOR LED:** If compressor output is active, this LED lights up. While these compressor delays expected, this LED flashes.
- SET** (Green square icon): While in the operating mode set value, while in the programming mode shows selected parameter's value.
- ▲** (Green up arrow icon): While in programming mode, provides the transition to the next parameter. If parameter is being adjusted, it increases parameter's value. Constantly holding this key, the parameter value rapidly increases.
- ▼** (Green down arrow icon): While in programming mode, provides the transition to the previous parameter. If parameter is being adjusted, it decreases parameter's value. Constantly holding this key, the parameter value rapidly decreases.

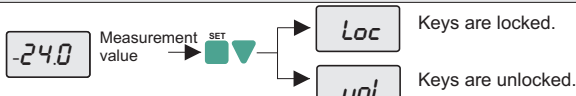
FRONT PANEL COMMANDS

1. Viewing and Changing The Set Value



While in the running mode, if **SET** key is pressed set value is displayed for 3 seconds. While in this case, the set value is changed with **▼▲** keys.

2. Locking and Unlocking Keys

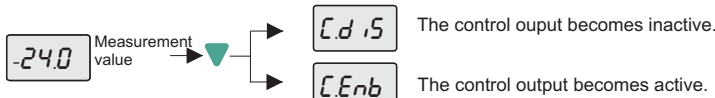


While in the operating mode, if **SET** **▼** keys are pressed together among 2 seconds the *Loc* message is displayed and the keys are locked. If the keys are locked **SET** **▲** keys are pressed for 2 seconds again *unL* message is displayed and key lock is opened and it returns to the normal way of working. While keys are locked, if **SET** key is pressed, the set value can be displayed but the value can not be changed. While the keys are locked, **SET** key outside if a key is pressed the *Loc* message is seen.

3. Manual Defrost Process

While in the operating mode, if **▲** key is pressed for 2 seconds the defrost process is started as manual. If $d.dur = 0$, the manual defrost will also be disabled.

4. Activating / Inactivating The Control Outputs



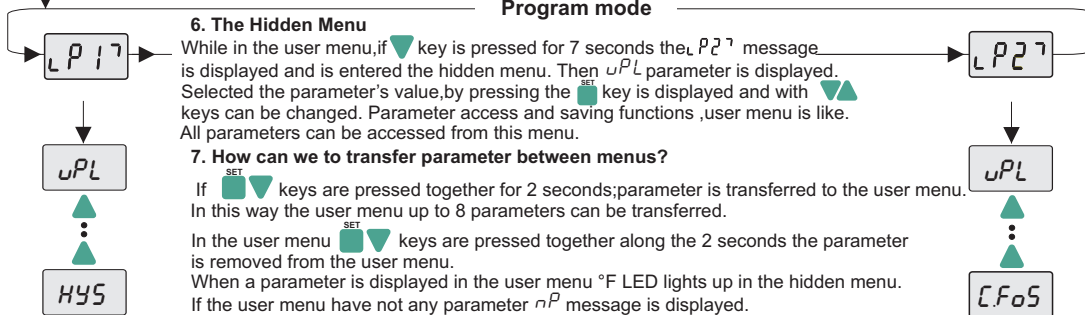
When in the running mode, if **▼** key is pressed for 2 seconds, *C.d.15* message is displayed and control outputs become to the inactive position, the device works as the indicator. When the control outputs are disabled, if **▼** key is pressed for 2 seconds *C.Enb* is disabled and the device continues to do control function.

5. Changing Parameter Values

▲ **SET** keys are pressed together for 2 seconds *LP17* is displayed and the user menu is entered, afterwards first parameter's name is displayed in the user menu.

While a parameter was selected, by pressing to **SET** key parameter's value is displayed, the displayed this parameter can be changed with **▼▲** keys. When the parameter name is shown, no action is done after 3 seconds or to the **SET** key is pressing again to return to the parameter's name. When the parameter name is shown, **▼▲** keys are pressed together immediately without waiting to get out of this process.

Program mode



6. The Hidden Menu

While in the user menu, if **▼** key is pressed for 7 seconds the *LP27* message is displayed and is entered the hidden menu. Then *uPL* parameter is displayed. Selected the parameter's value, by pressing the **SET** key is displayed and with **▼▲** keys can be changed. Parameter access and saving functions, user menu is like. All parameters can be accessed from this menu.

7. How can we transfer parameter between menus?

If **SET** **▼** keys are pressed together for 2 seconds; parameter is transferred to the user menu. In this way the user menu up to 8 parameters can be transferred. In the user menu **SET** **▼** keys are pressed together along the 2 seconds the parameter is removed from the user menu. When a parameter is displayed in the user menu °F LED lights up in the hidden menu. If the user menu have not any parameter *nP* message is displayed.

ERROR MESSAGES

- PFR** Means, thermostat probe is broken.
- PSC** Means, thermostat probe is short circuit.
- Temperature value is higher than the scale.
- Temperature value is lower than the scale.

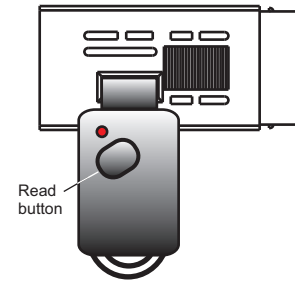
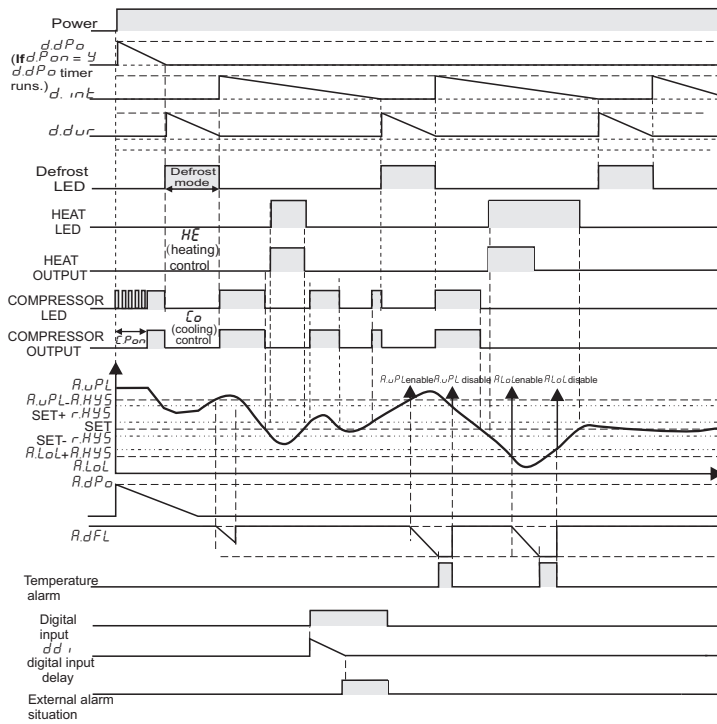
ALARM SITUATION

- WW**
-24.0
AA 1. When the alarm situation occurred, the measured value flashes in the indicator and if "Snd" parameter is not "0" is given audible alarm by the device. While there are a audible warning; **▲** key is pressed, the audible warning will be disabled.
- WW**
EA
AA 2. External alarm is activated but output's is not affected by this situation.
- WW**
SA
AA 3. Except that the alarm has been activated and external alarm output relay is active when the show shut down. (off situation).
- 4. Buzzer voice warning is given; if any key is pressed the buzzer will be silenced.

HOW CAN WE RETURN THE DEVICE TO THE FACTORY SETTINGS

▼ Key is held down while the device is powered up the *d.PAr* message will see and restore the factory parameters.

OUTPUT GRAPHICS



How Can We Download The Parameters From ENDAKEY To The Device?

While in the running mode, if ∇ key or "Read" button (in ENDAKEY) are pressed; is displayed "dL" message and parameters are read in ENDAKEY. "dL" message appears when the ∇ key is pressed again, reading parameter values from the ENDAKEY are transferred to the device. If the parameter transfer is successful, "rEF" message is displayed and the device begins to work with downloaded parameters value. The parameter in the ENDAKEY, while belonging to a different device if there is a malfunction in the ENDAKEY "Err" message is displayed and the parameters of the device unchanged.

How Can We Upload The Parameters From Device To The ENDAKEY?

While in the running mode; if \blacktriangle key is pressed "uL" message is displayed and again \blacktriangle key is pressed; if there is no error, the parameters in the device are loaded in to the ENDAKEY and "Suc" message is displayed. If there is a malfunction in the device and the installation failed "Err" message is displayed.

NOTE 1: To the device without energy, the parameter transfer is done with ENDAKEY.

The battery inside the ENDAKEY for a longer period of time; after the parameter transfer process, the connection between the ENDAKEY and the device should be disconnected.

NOTE 2: ENDAKEY device, is supplied with orders if requested.

CONTROL PARAMETERS

		MIN.	MAX.	UNIT	DEF. SET
uPL	The upper limit of the setpoint	-60.0	uPL	°C	150
LoL	The lower limit of the setpoint	LoL	150.0	°C	-60
HYS	Switch hysteresis for compressor (hysteresis)	0.1	20.0	°C	2
oFF	The offset value for the refrigeration	-20.0	20.0	°C	0

CONFIGURATION PARAMETERS

ζLYP	Control type selection ($HE=*$ heating control is selected, $\zeta o=$ Cooling control is selected.) ζLYP parameter as HE is selected, the defrost function of the device is disabled.	ζo	HE		ζo
$Un it$	Temperature unit	°C	°F		°C
$dPn t$	Decimal point ($no=$ decimal point isn't shown $22^{\circ}C$, $YES=$ decimal point is shown $22.3^{\circ}C$.)	no	YES		no
Snd	Type of buzzer sound (6 different voice types can be selected. Alarm during $\bar{0}$ is chosen, the voice warning is canceled.) For Relay-8A is valid.	0	6		0
$d.inP$	Digital input types. nd : Digital input unused. ER : External alarm. ER message flashes in the display. Output unchanged. SA : Important external alarm. SA message flashes in the display. Relay output is turned off. HL : Control type. ζLYP parameter is changed. (If $HE = \zeta o$, If $\zeta o = HE$) dF : Defrost operation is started.	nd	dF		nd
$dd i$	Digital input delay. The period of the digital inputs to be active.	0:00	99:00		0:00
dPo	Digital input polarity. $cL=$ While a digital input contact is closed, it is activated. $oP=$ While a digital input is opened, it is activated.	cL	oP		cL

COMPRESSOR PROTECTION PARAMETERS

$\zeta P on$	Delay time for the compressor after power is on.	0:00	99:00	dk:sn	1:00
$\zeta F o S$	Delat time required for the compressor to restart following a stop.	0:00	99:00	dk:sn	0:00
$\zeta PP n$	On time for the compressor output in the case of probe failure.	0:00	99:00	dk:sn	0:00
ζPPF	Off time for the compressor output in the case of probe failure	0:00	99:00	dk:sn	1:00

DEFROST CONTROL PARAMETERS

$d.dur$	Defrost duration (If $d.dur=0$, automatic and manual defrost are disabled.)	0:00	99:00	dk:sn	1:00
$d.in t$	The time between 2 consecutive defrosts.	1:00	99:00	sa:dk	1:00
$d.dSP$	During defrost, display configuration ($rE=$ Real temperature is displayed during defrost. ($\zeta c=$ The temperature which is measured before defrost is displayed during defrost.	ζc .	rE		ζc .
$d.drE$	Delay time for display real temperature after defrost is over.	0:00	99:00	dk:sn	1:00
$d.P on$	Defrosting process begins with energy ($no=$ Defrost process doesn't start when, the energy comes. $YES=$ Defrost process starts when the energy comes.)	no	YES		no
$d.dPo$	Delay time for defrosting after power is on.	0:00	99:00	dk:sn	1:00

ALARM CONTROL PARAMETERS

$R.uPL$	Limit for upper alarm level. When $R.tYP$ is changed, $R.uPL$ should be readjusted.	$R.LoL$	150.0	°C	150.0
$R.LoL$	Limit for lower alarm level. When $R.tYP$ is changed, $R.LoL$ should be readjusted.	-60.0	$R.uPL$	°C	-60
$R.HYS$	Switch hysteresis for alarm.	0.1	20.0	°C	2
$R.tYP$	Alarm configuration. ($RbS=$ Absolute alarm. Alarm values are $R.LoL$ and $R.uPL$.) ($rEF=$ Relative alarm. Alarm values are $SET-R.LoL$ and $SET+R.uPL$.) NOTE: Upper and Lower alarm level variables are determined according to the "R.tYP" parameter. If $R.tYP = RbS$, $R.LoL$ and $R.uPL$. If $R.tYP = rEF$, $LoL=SET-R.LoL$ and $R.uPL$.	RbS	rEF		RbS
$R.dFL$	Time delay to display alarm message after alarm is on.	0:00	99:00	dk:sn	0:00
$R.dPo$	Time delay to display alarm message after power is on.	0:00	24:00	sa:dk	0:10