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Elecro Heater Replacement Thermostat Instruction Manual

⚠ 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.
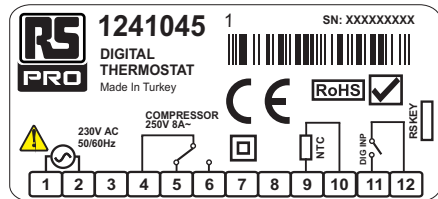
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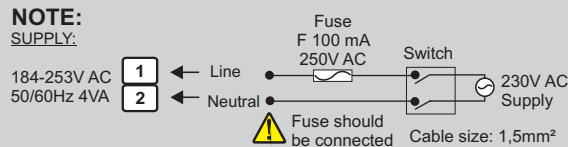| Part Code	Supply Voltage	Number Outputs
124-1045	230V ac	1x Relay

CONNECTION DIAGRAM

⚠ **1241045** 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.

RS PRO
1241045
DIGITAL THERMOSTAT
Made In Turkey
SN: XXXXXXXXX
CE RoHS ✓
COMPRESSOR 250V 8A~
230V AC 50/60Hz
NTC DIG INP RS KEY
1 2 3 4 5 6 7 8 9 10 11 12

▢ Equipment is protected throughout by DOUBLE INSULATION.

Temp Sensor connects to terminals 9-10
Flow switch connects to terminals 11-12

◯ 0.4-0.5Nm

NOTE:
SUPPLY:
184-253V AC
50/60Hz 4VA
1 ← Line
2 ← Neutral
Fuse F 100 mA 250V AC
⚠ Fuse should be connected
Switch
230V AC Supply
Cable size: 1,5mm²

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/-40 ... 85°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
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

Relay Output	Relay : NO+NC 250V AC,8A (resistive load), 1/2HP, 0.37KW 240V AC (inductive load)
Life Expectancy for Relay	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	H35xW77xD61mm
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

77mm
35mm
Depth 61mm 5mm
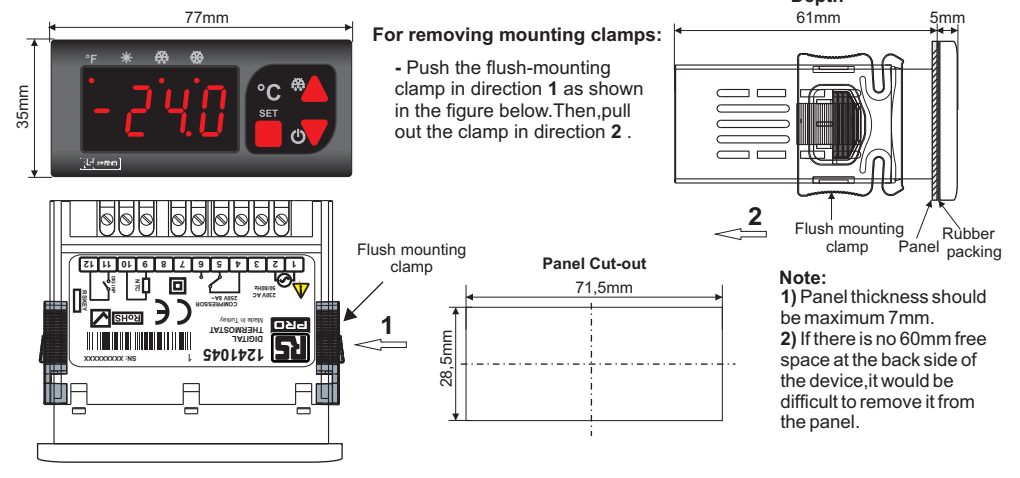
For removing mounting clamps:
- Push the flush-mounting clamp in direction **1** as shown in the figure below.Then,pull out the clamp in direction **2** .

Flush mounting clamp Panel Rubber packing

2

Flush mounting clamp
1

Panel Cut-out
71,5mm
28.5mm

Note:
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.

°F FAHRENHEIT LED : "°F" while this LED is on, otherwise display is in Celcius.

☀ HEATING LED : Solid = Heating, Flashing = 2 min delay after low flow detected.

❄ DEFROST LED : Not used.

❄ COMPRESSOR LED : Not Used.

SET
In "Running Mode", indicates the set value.
In "Programming Mode", indicates the selected parameter value.

▲ 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.

▼ While in "Programming Mode", provides the transiton to the previous parameter. If parameter is being adjusted, it decreases parameter's value. Constantly holding this key,the parameter value rapidly decreases.
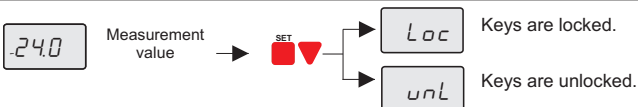
FRONT PANEL COMMANDS

1. Viewing and Changing The Set Value

| -24.0 | Measurement value | → | SET | → | -30.0 | → | ▼ | → | -29.9 | → | ▲ | → | -30.0 |

While in "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

-24.0 Measurement value → SET ▼ → Loc Keys are locked.
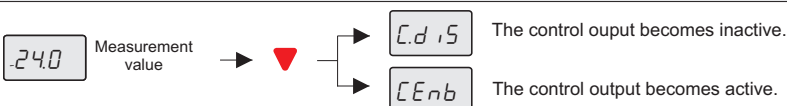   → unL Keys are unlocked.

While in "Running Mode", if **SET** ▼ keys are pressed together for 2 seconds, 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 keys are unlocked. While keys are locked and if **SET** key is pressed, set value can be displayed but can not be changed. While the keys are locked and if any key is pressed **(except SET key)**, Loc message appears.

3. Manuel Defrost Process

While in the "Running Mode", if ▲ key is pressed for 2 seconds, defrost process starts manually. If d.dur parameter is 0 , manual defrost will be inactive.

4. Activating / Inactivating The Control Outputs

-24.0 Measurement value → ▼ → C.diS The control ouput becomes inactive.
                                → CEnb The control output becomes active.

* When in the "Running Mode", if the control outputs are inactive, oFF message appears periodically.

When in the "Running mode", if ▼ key is pressed for 2 seconds, C.diS message is displayed and control outputs becomes 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 control function.

5. Changing Parameter Values

If ▲▼ keys are pressed together for 2 seconds LP17 is displayed and "User Menu" is entered, then first parameter's name is displayed in the user menu.

While a parameter is selected, by pressing **SET** key, parameter value can be displayed. This parameter can be changed with ▼▲ keys. If no operation performed for 3 seconds or during this time, **SET** key is pressed while parameter value displayed, parameter name will be displayed again. While parameter name displayed, if by pressing together ▼▲ keys, "Running Mode" is entered.

Program Mode
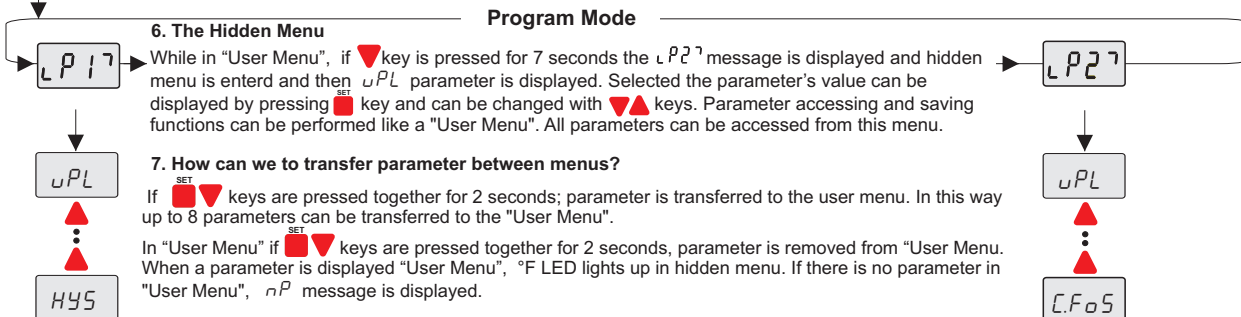
6. The Hidden Menu

LP17   While in "User Menu", if ▼key is pressed for 7 seconds the LP27 message is displayed and hidden menu is enterd and then uPL parameter is displayed. Selected the parameter's value can be displayed by pressing **SET** key and can be changed with ▼▲ keys. Parameter accessing and saving functions can be performed like a "User Menu". All parameters can be accessed from this menu.   LP27

uPL
↑
⋮
↑
HYS

7. How can we to transfer parameter between menus?

If **SET** ▼ keys are pressed together for 2 seconds; parameter is transferred to the user menu. In this way up to 8 parameters can be transferred to the "User Menu".

In "User Menu" if **SET** ▼ keys are pressed together for 2 seconds, parameter is removed from "User Menu. When a parameter is displayed "User Menu", °F LED lights up in hidden menu. If there is no parameter in "User Menu", nP message is displayed.

uPL
↑
⋮
↑
C.FoS

ERROR MESSAGES

PFA 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 - Flow Switch

1.

▲

SA "SA" Indicates FLOW SWITCH is Open. No/Low water flow through the heater, or Pump not running.

FACTORY SETTINGS

If ▼ key is held down while the device is powered up, d.PAr message appears and factory parameters restored.

CONTROL PARAMETERS		Min.	Max.	UNIT	DEFAULT VALUE
uPL	Upper limit for setpoint	-60.0	uPL °C 150	°C	40.0
LoL	Lower limit for setpoint	LoL	150.0	°C	10.0
HYS	Differential cooling (hysteresis)	0.1	20.0	°C	1.0
oFF	Offset value for cooling	-20.0	20.0	°C	0
CONFIGURATION PARAMETERS					
C.tYP	Control type selection (HE = (*) heating control is selected, Co = Cooling control is selected.) C.tYP parameter as HE is selected, the defrost function of the device is disabled.	Co	HE		HE
Unit	Temperature unit	°C	°F		°C
dPnt	Decimal point (no= decimal point isn't shown 22°C, YES=decimal point is shown 22.3°C.)	no	YES		YES
Snd	Type of buzzer sound (6 different voice types can be selected. Alarm during 0 is chosen, the voice warning is canceled.) For Relay-8A is valid.	6	0		
d.inP	Digital input types. nd:Digital input unused. EA: External alarm. EA message flashes in the display. Output unchanged. SA: Important external alarm. SA message flashes in the display. Relay output is turned off. HC:	nd	LGht		SA
dd i	Control type. Ctyp parameter is changed.(If HE = Co, If Co = HE) dF: Defrost operation is started .	0:00	99:00		0:00
dPo	Digital input delay. The period of the digital inputs to be active. 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		oP
COMPRESSOR PROTECTION PARAMETERS					
C.Pon	Delay time for the compressor after power is on.	0:00	99:00	min:sec	0.00
C.FoS	Delay time required for the compressor to restart following a stop.	0:00	99:00	min:sec	2.00
C.PPn	On time for the compressor output in the case of probe failure.	0:00	99:00	min:sec	0:00
C.PPF	Off time for the compressor output in the case of probe failure	0:00	99:00	min:sec	1:00
DEFROST CONTROL PARAMETERS					
d.Snt	Smart Defrost selection (no : Defrost counter (between 2 defrost duration) decrease irrespective of d.int status of the compressor. YES : Defrost counter decreases as long as compressor work).	no	YES		no
d.dur	Defrost duration (If d.dur = 0 selected, automatic and manual defrost is disabled).	0:00	99:00	min:sec	1:00
d.int	Time between 2 consecutive defrosts.	0:00	99:00	hr:min	1:00
d.dSP	Display configuration in defrosting process (rE : Real temperature is displayed during defrost. (Lc : During a defrosting process, last measured temperature value is displayed before the defrosting process. This value remains constant until the end of defrosting.	Lc.	rE		Lc.
d.drE	Delay time for display real temperature after defrost is over.	0:00	99:00	min:sec	1:00
d.Pon	Defrost process with power. (no = Defrost process is not started when power-up. YES = Defrost process starts when power-up).	no	YES		no
d.dPo	Delay time for defrosting after power-up.	0:00	99:00	min:sec	1:00
ALARM CONTROL PARAMETERS					
A.uPL	Limit for upper alarm level. When A.tYP is changed, A.uPL should be readjusted.	A.LoL	150.0	°C	150
A.LoL	Limit for lower alarm level. When A.tYP is changed, AL oL should be readjusted.	-60.0	A.uPL	°C	-60
A.HYS	Hysteresis alarm	0.1	20.0	°C	2
A.tYP	Alarm configuration. (AbS = Independent alarm. Alarm values are A.LoL and A.uPL .) (rEF = Relative alarm. Alarm values are SEt-A.LoL and SEt+A.uPL .) NOTE: Upper and Lower alarm level variables are determined according to the " A.tYP " parameter. If A.tYP = AbS , A.LoL and A.uPL . If A.tYP = rEF, LoL = SEt-A.LoL and A.uPL .	AbS	rEF		AbS
A.dFL	Time delay to display alarm message after alarm is on.	0:00	99:00	min:sec	0:00
A.dPo	Time delay to display alarm message after power is on.	0:00	99:00	hr:min	0:10
MODBUS COMMUNICATION PARAMETERS					
Adr S	Modbus slave device address for device	1	247		1
bAud	Modbus communication speed (Baud rate, 0 : oFF, 1 : 1200, 2 : 2400, 3 : 4800, 4 : 9600, 5 : 19.200)	oFF	19.20	bps	9600