TEMPERATURE CONTROL CHARACTERISTICS

If the temperature from the check sensor is equal or higher than the temperature setting, then the load connected to the terminals (2), (4) is switched off. If the temperature from the check sensor is lower by 2°C than the temperature setting, then the load connected to the terminals (2), (4) is switched on. The heating symbol on the display is active. The symbol comes off when the temperature in the room reaches the set value. When the sensor is set in the MODE – "0" (F5 tab), and if the external sensor detects the increase of the temperature above the upper safety limit, then the heating is switched off. At the OFF status the system switches the heating on when the temperature is lower than the safety temperature set in the F3 mode.
Notes: in the normal operation mode it is possible to set the temperature directly by pressing the "+" / "-" buttons. Pressing the "Ø" button for short time or no action for 10 minutes makes the system leaving the temperature setting mode.

KEYBOARD LOCK STATUS

In the normal operation mode press simultaneously and hold the "+" and "-" buttons to enable/disable the keyboard lock. When the keyboard is locked the system is not active and does not respond to pressing buttons, and the "Lock" is shown in the right hand upper corner of the LCD display.

CONTROL IN THE MANUAL AND AUTOMATIC MODE

In the normal operation mode press and hold for about 5 seconds the button "-" to switch between manual and automatic modes.

Manual mode: temperature adjustment in accordance with the set value only, without displaying the operation time range (P1÷P4).

Automatic mode: temperature adjustment in accordance with the set value for the current operation time range; temperature within diverse operation time ranges and various working days can be different – in accordance with the program set.

NOTES

In the normal operation mode press and hold for about 5 seconds the button "-" to switch between manual and automatic modes.

Manual mode: temperature adjustment in accordance with the set value only, without displaying the operation time range (P1÷P4).

Automatic mode: temperature adjustment in accordance with the set value for the current operation time range; temperature within diverse operation time ranges and various working days can be different – in accordance with the program set.

Note	Description
After connecting the temperature controller to the power supply 230 VAC no signs on the display	Check the wiring and the connection of the temperature controller with the mains – 230 VAC/50Hz
After pressing any button no backlight comes on	Backlight system damaged
Temperature in the room is lower by 2 °C than the temperature set, and in spite of that the floor heating does not come on	Check the pad connection to the temperature controller. Check the relay operation.
The system does not operate correctly	Switch the power supply off and then switch it on again
The display shows wrong date and time	Caused by a power supply failure for more than 2 hours. Recheck settings, make new correct ones.
The temperature controller executes wrong timed operation program	Caused by a power supply failure for more than 2 hours. Recheck settings, make new correct ones.
The controller does not execute the timed operation program	The controller set in manual mode. Switch the controller over to automatic mode.

⚠️

This symbol informs that the device creates an electric shock hazard when servicing
The system should be serviced by appropriately qualified electricians who has familiarized himself with the operating manual and the functions of the device.

MATEC – ELECTRIC HEATING SYSTEMS

RTP-01 TEMPERATURE CONTROLLER INSTRUCTION MANUAL

ZAMEL

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DESCRIPTION

RTP-01 temperature controller is used to control the electrical floor heating systems under load. The device is installed in a deepened 60 mm x 60 mm wiring box.
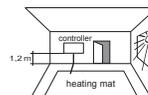
- **The controller is to be installed in a heated room – installation in a deepened 60 mm x 60 wiring box at the height about 120 cm above the heated floor level.**
- **The controller is to be installed in a safe place, not exposed to direct sun light, in a slightly airy area**
- **The temperature and humidity in the installation place should not exceed the values listed in the technical specification (T < -5 OR T > +50 °C, relative humidity RH > 90%)**

INSTALLATION

- Disconnect supply circuit by means of a fuse, an overcurrent protection device or a switch disconnector connected to the appropriate circuit.
- Check the voltage free status on supply connectors using an appropriate tester.
- Install the RTP-01 device in a room, in accordance with the instructions given in the "Description" paragraph.
- Connect leads to the connecting terminals according to the electrical diagram.
- Switch on the power supply circuit.
- Check the operation of the controller and the installation.

⚠️ **CAUTION** This device is to be connected to single-phase mains, in accordance with the standards in force in the respective country. Installation must be carried out according to this instruction manual. The installation, connection and adjustment of the device should be carried out by a competent and appropriately qualified, licensed electrician who has familiarized himself with this instruction manual and the functions of the device. **Warning!** Do not remove the casing! Electric shock risk! Before installation, dismantling, cleaning, and servicing disconnect power supply and make sure the terminals are voltage-free. For installing use a straight blade screwdriver of the diameter up to 3.5 mm. The correct operation of the device is affected by its transportation, storage, and use, and particularly how the temperature controller and sensor have been installed. Installation of this device is not recommended in the following situations: the lack of parts, damage or deformations of the device. If the device does not operate properly, please contact the manufacturer.

🚮 The symbol indicates the selective collection of the electric and electronic equipment. Do not dispose electrical and electronic waste together with another kind of waste.

TECHNICAL SPECIFICATIONS

	RTP-01
Input (supply) terminals:	L (5), N (6)
Input rated voltage:	85 ÷ 265 V~
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	6 mA / 0.4 W (STANDBY)
Battery support:	no
NTC sensor terminals:	(6), (7)
NTC sensor terminals:	NTC 5 k dla 25 ºC
Temperature adjustment range:	+5 ÷ +45 °C
Accuracy of temperature measurement:	±1 °C
Control accuracy:	0 °C ÷ -2 °C
Output terminals:	(2), (4)
Output type:	1NO-16 A / 250 V AC1 4000 VA voltage contact
Connection terminals quantity:	7
Section of connecting cable:	0,5 ÷ 2,5 mm²
Ambient temperature range:	-5 ÷ +50 °C
Humidity:	<90%, no condensation
Installation:	deepened wiring box 60 mm x 60 mm
Casing material:	polycarbonate (PC)
Casing protection degree:	IP40
Protection level:	II
Overvoltage category:	II
Dimensions:	86 x 86 x 45.5 mm (H x W x D)
Weight:	136 g
Reference standard:	EN 60335-1:2002+A2:2006, EN 61000-3-2:2006, EN 61000-3-3:2006, EN 55014-1:2006+A1:2009, EN 55014-2:1997+A2:2008

APPEARANCE

LCD display
LED
ON/OFF button
"–" button
"+" button
Menu button

NTC 5k sensor
N
Heating element
L, fuse, B- characteristics
(6A/10A, power dependent)

CE
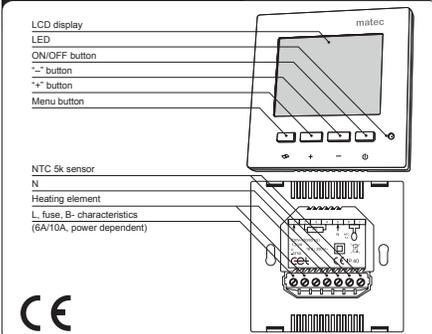
DESCRIPTION OF THE LCD DISPLAY

1. Power failure symbol – displayed when there is no power supply (not connected or failure)
2. Setting mode symbol – displayed at the procedure of the setting of controller parameters
3. Freezing prevention function symbol – displayed when the temperature in the room is lower than that set as the minimum temperature preventing freezing.
4. Heating symbol – displayed when the output relay which switches on the load is ON, this occurs when the temperature in the room is lower than that set.
5. Temperature in the room – the temperature from the internal or external sensor is displayed, and when the sensor failed (error code Err1, or Err2, depends on the sensor used.
6. Days of week in the room – displayed are days of week (1...7)
7. Clock and temperature setting – time/temperature is displayed alternately.
8. Operation (timed) program – time schedule of the operation is displayed P1 up to P4.
9. Keyboard lock symbol – displayed when the keyboard is locked.
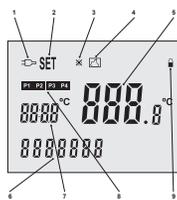
DESCRIPTION OF THE FUNCTIONS OF INDIVIDUAL BUTTONS

Button: "⟳"
Pressed for short time: in/out from selection mode.
Button: "+"
Pressed for short time: increasing the setting value by 1. Pressed and hold: quick increment of the setting value.
Button: "-"
Pressed for short time: decreasing the setting value by 1. Pressed and hold: quick decrement of the setting value.
Button: "⏻"
Pressed for short time: switching between displaying the temperature from the internal and external sensor, or entering/leaving setting mode. Pressed and hold: ON / OFF.
"LED"
Not used in the RTP-01 temperature controller.
Note: pressing and holding "+" and "-" buttons simultaneously makes the keyboard locked or unlocked.
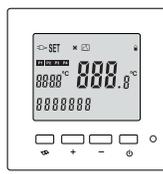
CLOCK SETTING

In normal mode press shortly the "⟳" button once to switch to the mode selection status; this will the symbol "F0" light flashing, then press the "⏻" button to switch to the clock setting mode and flashing the of week day field.
• Keep pressing buttons "+" / "-", to set week day, then press "⏻" button to set hour.
• Keep pressing buttons "+" / "-", to set hour, then press " " button to set minutes.
• Keep pressing buttons "+" / "-", to set minutes, then press "⏻" button to go back to the selection mode status.

SETTING THE OPERATION PROGRAM

(operating within the following setting values in automatic mode)
Default timed operation program:

Time period (operation time span)	Start time (commencement time)	Temperature setting (°C)	
		Mon. – Fri. (Monday through Friday)	Sat. – Sun. (Saturday through Sunday)
P1: 6:00 – 8:00	6:00	25 °C	25 °C
P2: 8:00 – 16:00	8:00	10 °C	10 °C
P3: 16:00 – 22:00	16:00	25 °C	25 °C
P4: 22:00 – 6:00	22:00	15 °C	15 °C

The user can edit the timed operation program – editing relates to the operation time span and relative temperature value according to the following description:
• In the selection mode press the "+/-" button to select "F1". ● Press the "⏻" button to switch to the schedule of the timed operation, the "1-----5" week day field should flash. ● Keep pressing "+" / "-" buttons to select week day: 1 2 3 4 5 / 6 / 7. ● After setting press "⏻" button to confirm the selection and switch to the mode of the operation span time setting; symbol "P1" should flash. ● Keep pressing "+" / "-" buttons to select time span: P1/P2/P3/P4.
After setting press "⏻" button to confirm the selection and switch to the mode of the operation span time setting; respective P1/P2/P3/P4 symbol should flash.
● Keep pressing "+" / "-" buttons to select operation time span. Short, one press of the button makes the operation time lower or higher by 15 minutes.
Please note the time set restriction: 0:00 <P1<P2<P3<P4<23:59. After setting press "⏻" button to confirm settings and to switch to the temperature settings for individual operation times; temperature setting field should flash. ● Keep pressing "+" / "-" buttons to set temperature, pressing the button once makes the temperature setting increased / decreased by 1 °C; allowable set value range: min. 5 °C → 6 °C →···→ 45 °C max.; press "⏻" button to confirm the setting and to switch to the next operation time. ● Repeat operations until four operation time ranges are set for working days (1 2 3 4 5) and then switch to the setting of the operation time on Saturday. ● Entering this mode is indicated by "6" symbol flashing in the week day field. The setting mode is the same as described above. After setting press "⏻" button to switch to the setting of the operation times on Sunday (7). The setting mode is the same as described above. After setting press "⏻" button to switch to go back to the selection mode.

Note: if the devise is not operated within 10 seconds it returns to the normal operation status.

SETTING THE PROTECTION SYSTEM AGAINST TOO HIGH TEMPERATURE

● In the status selection mode keep pressing "+" / "-" buttons to select "F2". ● Press "⏻" button to set the maximum temperature value. ● Keep pressing "+" / "-" buttons to chose the setting; pressing the button each time makes the setting changed by 1°C. ● The default setting is 50°C (maximum allowable adjustment range is 40 up to 70°C). ● After setting press "⏻" button to return to the selection mode.

SETTING THE "FREEZING PROTECTION" TEMPERATURE

● In the status selection mode keep pressing "+" / "-" buttons to select "F3". ● Press the "⏻" button to set the "freezing protection" temperature. ● Keep pressing the "+" / "-" buttons to chose the setting; pressing the button each time makes the setting changed by 1°C; default setting is 3°C (maximum allowable adjustment range is 2 up to 10°C). ● After setting press the "⏻" button to return to the selection mode.

CALIBRATION OF THE INTERNAL SENSOR

● In the status selection mode keep pressing "+" / "-" buttons to select "F4". ● Press the "⏻" button to enter the internal sensor calibration mode. ● Keep pressing the "+" / "-" buttons to corrective the setting (0 up to 15°C) which is deducted from the current temperature value of the internal sensor; pressing the button once makes the setting increased/decreased by 1°C. ● Press the "⏻" button to return to the selection mode.

SETTING THE SENSOR OPERATION MODE

● In the selection mode press the "+" / "-" buttons to select "F5". ● Press the "⏻" button to go to the sensor operation selection: the default value is "1", as presented in the drawing below. ● In order to set the selected the operation mode of the sensors keep pressing the "+" / "-" buttons to select one of the modes (Mode 0 – Mode 1 – Mode 2). ● Press the "⏻" button to confirm and go back to the mode selection.

Sensor operation modes:

Mode	Parameter in the "F5" tab.	Time
MODE 0	0	temperature checked by the internal sensor, the external sensor for limiting the temperature
MODE 1	1	temperature checked by the internal sensor
MODE 2	2	temperature checked by the external sensor
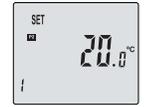
Table of errors:

Error code	Error description	Procedures
Err1	Internal sensor damaged	-
Err2	External sensor damaged or wrong connection	● check the connection of the NTC sensor to the RTP-01 temperature controller ● check the NTC probe operation ● the resistance of the probe should be 5kΩ at 25°C
Err3	Internal or external sensor damaged in the MODE 0 / wrong connection of the external sensor	● check the connection of the NTC sensor to the RTP-01 temperature controller ● check the NTC probe operation ● the resistance of the probe should be 5kΩ at 25°C ● if the probe is in good working order and connected properly, it means that the internal sensor is damaged

SETTING OF THE MEMORY FUNCTIONS

● In the selection mode keep pressing the "+" / "-" buttons to select "F6". ● Press the "⏻" button; the "0". "0" should flash. When switching off the power supply and then switching it on again after more than about 2 hours the temperature controller goes to the "OFF" status. "1". When switching off the power supply and then switching it on again after about 2 hours the temperature controller goes to operation mode it was before the switching off the power supply. ● Keep pressing the "+" / "-" buttons to select the requires mode. ● Press the "⏻" button to confirm the setting and return to the selection mode.

DESCRIPTION OF THE OPERATION STATE

In normal operation state the current our, temperature from the check sensor, and the symbol of the current operation time range (P1÷P4), as presented in the drawing.
If the device operates in the manual mode, no symbol of the current operation time range is displayed.
Pressing the "⏻" button for short time: checking the temperature of the second sensor.
Pressing the "⏻" button for longer time: switching between ON and OFF.
Pressing the "⟳" button for short time: switching to selection mode status, keep pressing the "+" / "-" buttons to select the (F0 – F6) mode; press the "⏻" button to switch to the mode or value selection.
Pressing the "+" / "-" button for short time makes the setting values increased or decreased.
Pressing and holding the "+" button for more than 5 seconds: switching to the default values of the temperature controller. Pressing and holding the "-" button for more than 5 seconds: switching between automatic/manual mode.

POWER FAILURE STATUS

If the devise is disconnected from the mains or a power supply failure occurs the system retains all the current settings and goes to the standby mode: only time and week day is displayed, as well as the power failure symbol (left hand upper corner). After switching the power supply on before about 2 hours elapse the system automatically returns to the normal operation mode. If the controller has been disconnected from the power supply for more than about 2 hours, the clock and week day readings become shortly incorrect, and the system, after the power supply is restored, will set these values randomly. The temperature controller does not lose its settings introduced into the menu F0 – F6 tabs when programming. When the power supply is back after the time longer than about 2 hours the F0 – F6 tabs automatically comes on and enters the operation mode in accordance to the settings in the menu F6 tab of the controller, i.e.
• the temperature controller enters the "OFF" mode – the "0" parameter in the F6 tab.
• the temperature controller enters the mode it was before the power supply failure – the "1" parameter in the F6 tab.