

Item	Function	Settings and options	Default settings
6	Key lock	0 - All keys are locked except the power supply key. 1 - All keys are locked	0
7 (1)	Week option selection	0 – heating cycle time period in the 1-2-3-4-5 and 6-7 1 week – heating cycle time period in the 1-2-3-4-5-6 and 7 week.	1
7 (2)	Communication protocol	Store option 0. Option 1 does not refer to the software including the controller's functionality.	0
8	Clock 12/24h	12h - mode 12-hour AM/PM 24h - mode 24-hour	24h
9	Backlight time	Select time 3-99 seconds	10
10	Intelligent start-up	00 – programming the heating time 01- heating control in advance – it starts 30 minutes in advance to the pre-set time periods.	0
11	Return to factory settings	Press <b>A</b> for settings in points rst 1 to rst 9. Press <b>A</b> again to return to the default settings.	

If sensors are in the AI mode (temperature sensor and floor sensor), it is possible to check the floor temperature by pressing the **A** and **A** buttons for 3 seconds.

#### Controller's lock

Press the **A** **V** buttons for 5 seconds to lock / unlock the keys.

#### Caution



The symbol means selective collecting of electrical and electronic equipment. It is forbidden to put the used equipment together with other waste.

#### WARRANTY CARD

There is a 24 month guarantee on the product

- ZAMEL Sp. z o.o. assures a 24 month guarantee for the product.
- The manufacturer's guarantee does not cover any of the following actions:
  - mechanical damage during transport, loading / unloading or under other circumstances,
  - damage caused by incorrect product mounting or misuse,
  - damage caused by unauthorised modifications made by the PURCHASER or any third parties to the product or any other devices required for the product functioning,
  - damage caused by Act of God or any other incidents independent of the manufacturer – ZAMEL Sp z o.o.
- The PURCHASER shall lay any claims in writing in the place of purchase or to ZAMEL Sp. z o.o.
- ZAMEL Sp. z o.o. is liable for processing any claim according to current Polish legislation.
- ZAMEL Sp. z o.o. shall process the claim at its own discretion: product repair, replacement or money return.
- The manufacturer's guarantee is valid in the Republic of Poland.
- The PURCHASER's statutory rights in any applicable legislation whether against the retailer arising from the purchase contract or otherwise are not affected by this warranty.

Salesman stamp and signature, date of sale \_\_\_\_\_

## MATEC – ELECTRIC HEATING SYSTEMS

### TEMPERATURE CONTROLLER RTD-02

MANUAL INSTRUCTION

# ZAMEL

ZAMEL Sp. z o.o.

ul. Zielona 27, 43-200 Pszczyna, Poland  
tel. +48 32 449 15 00, +48 32 210 46 65, fax +48 (32) 210 80 04  
www.zamel.com, e-mail: marketing@zamel.pl

#### DESCRIPTION

RTD-02 is a 7-day programmable Controller designed to control temperature in electric floor heating systems. It is operated by means of touch buttons placed under the screen. The Controller is mounted on a wall in a  $\phi 60 \times 60$  mm deepened junction box.

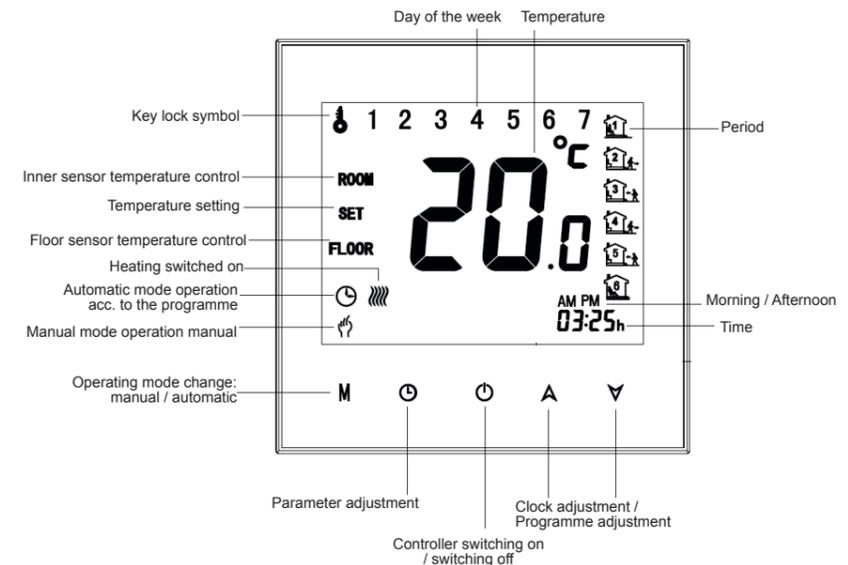
#### TECHNICAL DATA

**RTD-02**  
Input (supply) terminals: N (3), L (4)  
Power supply voltage: 95~240VAC  
Nominal frequency: 50/60Hz  
Nominal current consumption: < 0,55W (STANDBY switched off relay and backlight)  
Battery backup: no  
NTC sensor terminals: (5), (6)  
Temperature sensor: NTC 10k for 25°C, 2,5m  
Room temperature range: +5 + +35°C  
Floor temperature range: +5 + +35°C  
Operating temperature range: 5 + +45°C  
Temperature range during transport: -5 ++55°C  
Temperature measurement accuracy: 1°C  
Resolutions of temperature indications: 0,5°C  
Hysteresis: 1-2-3-4-5°C (default 1°C)  
Output terminals: (1), (2)  
Output type: voltage contact 1NO-16 A/250 V AC  
Number of terminal clamps: 6  
Cross-section of connecting cables: 0,5+2,5 mm<sup>2</sup>  
Humidity: 5-90%, non-condensing  
Mounting: deepened junction box  $\phi$  60mm x 60mm  
Casing material: PC+ABS  
Casing protection degree: IP20  
Protection class: II  
Overvoltage category: II  
Application environment with pollution degree 2 intended for domestic use of normal air circulation  
Dimensions: 86 x 86 x 13,3/39 mm (H x W x D)  
Weight: 165g  
Reference standards: EN 60950-2: 2006+A11:2009+A1:2010+A12:2011+A2:2013 EN 61000-6-3:2007+A1: 2011+AC:2012  
EN 61000-6-1:2007  
EN61000-3-2:2006+A1: 2009+A2:2009  
EN 61000-3-3:2013  
PN-EN 61000-4-3  
PN-EN 61000-4-11  
PN-EN 61000-4-6

#### FEATURES

- 3,2" LCD display
- Operation by means of touch buttons
- Anti-freezing function
- Floor overheating protection
- Key lock function
- Programmable temperature controller cooperates with the inner floor sensor or with both sensors simultaneously floor sensor operates as the (floor temperature limiter)

#### CONTROLLER DESCRIPTIONS

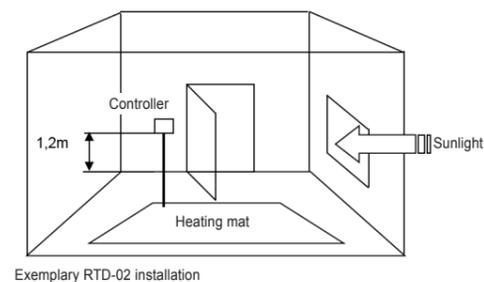


## OPERATIONAL SAFETY

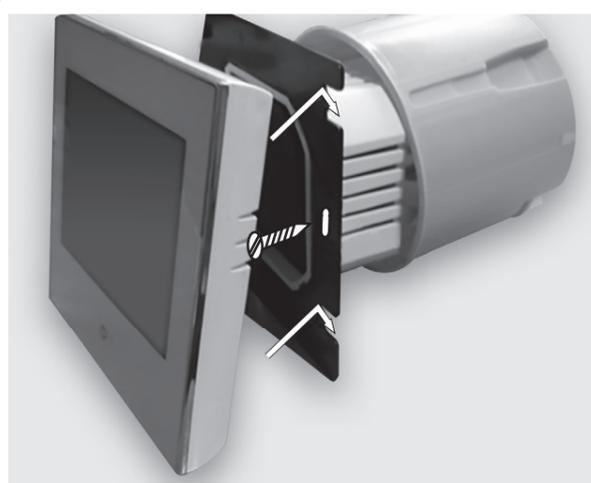
- The device is designed for a single-phase installation and must be installed in accordance with standards valid in a particular country.
- The device should be connected according to the details included in this manual instruction.
- Installation, connection and control should be carried out by a qualified electrician staff, who acts in accordance with the service manual and the device functions.
- In case of casing dismantling, the guarantee is lost and an electric shock may occur.
- Before installation, dismantling, cleaning or maintenance make sure the connection cables are not under voltage.
- The flathead screwdriver 2,5 mm should be used to install the device.
- Proper transport, storage, use of the device and particularly mounting of the Controller and the temperature sensor influence its correct functioning.
- It is forbidden to install the device in the following cases: if any device part is missing or the device is damaged or deformed.
- In case of improper functioning of the device contact the manufacturer.
- Do not cover the controller and do not hang any items e.g. a towel on it.
- Do not douse the controller with water or any liquids.
- Do not interrupt power supply of the temperature controller. Power supply failure causes the screen backlight and heating control are switched off. However, controllers' settings remain unchanged.
- Children and people with sensory, psychological and intellectual impairments are not allowed to control the device.
- Keep away the controller from shock and mechanical damages.

## CONTROLLER'S MOUNTING PLACE

- The controller is designed to be applied in the environment with pollution degree 2, it means it is intended for domestic use with normal air circulation.
- The controller should be mounted in a heated room - mounting in a  $\phi 60 \times 60$  mm junction box, at a height of 120 cm from the heated surface.
  - The controller must be mounted in a place not exposed to direct sunlight and in well ventilated places.
- Temperature and humidity in the installation place should not exceed values given in technical parameters  $0 < T < 45^\circ\text{C}$ , humidity RH 5- 90% non-condensing.



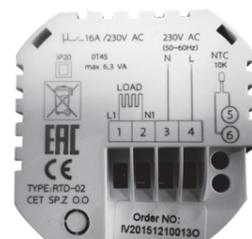
## CONTROLLER MOUNTING



- Disconnect power supply by the phase fuse, the circuit-breaker or the switch-disconnector combined to the proper circuit.
- Check if there is no voltage on the connection cables by means of a special measuring equipment.
- Insert the controller's power supply cable, the floor sensor cable and the heating element power supply cable into the  $\phi 60 \times 60$  junction box through a hole.
- Mount the RTD-02 controller in a room according to the below indications:
  - Carefully unfasten the front of the controller 4 from its rear part 2 by moving the rear part vertically downward.
  - connect the installation elements in the junction box according to the controller's wiring diagram. The primary insulation for the electrical wiring connected to the controller should be fastened together to length of 4 mm.
  - By means of 2 screws 3, screw the rear part of the controller 2 in the junction box.
  - Attach the front controller's part 4 to the rear one by fitting the controller's front part holes with the hooks of the rear part, and slightly move downwards.
  - Make sure the front part has been well mounted and it does not fall down.
- Switch on the power supply from the mains.
- Check if the controller operates properly and its mounting.

## CONNECTION DIAGRAM

- item 1-2 – loading
- item 3 N – neutral
- item 4 L – phase wire
- item 5-6 – floor sensor



## START-UP

After the temperature controller has been mounted and powered, press the **⏻** button under the screen to activate the device.

Next, adjust parameters.

### Controller settings

Press the **⏻** button to switch on / switch off the temperature controller.

### Temperature setting

Push the **▲** **▼** buttons to rise / lower the temperature.

### Time (hour, minutes and day of the week) setting

Push the **⏻** button to change the minutes, hour and day of the week.

Push the **⏻** button again to move the selection to the nearest position.

Change values by means of **▲** **▼** buttons.

### Programme settings

Press the **M** button to choose the automatic (weekly) handy (manual) controller's operation mode **☼**.

In case of the automatic mode press the **⏻** button for 5 seconds to edit the controller's operation programme.

Editing means entering the duration and temperature time for 6 time periods in the system of 1-2-3-4-5 days or 6-7 day. **⏻** for entering 6 time periods for 1-2-3-4-5 days and 6-7 day.

## START-UP continued

- Press **⏻** to set the time of the first period of days 1 to 5. A) Press **⏻** to set the temperature of the first period of days 1 to 5.
- Press **⏻** to set the time of the second period of days 1 to 5. B) Press **⏻** to set the temperature of the second period of days 1 to 5.
- Press **⏻** to set the time of the third period of days 1 to 5. C) Press **⏻** to set the temperature of the third period of days 1 to 5.
- Press **⏻** to set the time of the fourth period of days 1 to 5. D) Press **⏻** to set the temperature of the fourth period of days 1 to 5.
- Press **⏻** to set the time of the fifth period of days 1 to 5. E) Press **⏻** to set the temperature of the fifth period of days 1 to 5.
- Press **⏻** to set the time of the sixth period of days 1 to 5. F) Press **⏻** to set the temperature of the sixth period of days 1 to 5.

Use **▲** **▼** to change the values.

g-G) Repeat the same procedure for days 6-7 (Saturday and Sunday).

The below table includes default settings of periods and temperature for days 1-2-3-4-5 and 6-7:

Time interval	Days of the week 5 days		Saturday and Sunday		
	Start time	Temperature	Start time	Temperature	
Heating	☼ 1	6:00 wake up	20 °C	6:00 wake up	20 °C
	☼ 2	8:00 work	15 °C	8:00 work	15 °C
	☼ 3	11:30 afternoon rest	15 °C	11:30 afternoon rest	15 °C
	☼ 4	13:30 work	15 °C	13:30 work	15 °C
	☼ 5	17:00 end of work	22 °C	17:00 end of work	22 °C
	☼ 6	22:00 rest	15 °C	22:00 rest	15 °C

Proceed in a similar manner with the setting procedure for days 1-2-3-4-5-6 and 7 Sunday, but after a previous cycle change from 1-2-3-4-5-6 and 7 into 1-2-3-4-5-6 and 7. The process of change is described in the "Function and option setting" point – parameter in point 11 item 7.1 and 7.2.

### Function and option

First, press the **⏻** button to switch off the power supply of the regulator and next press simultaneously the **M** and **⏻** buttons for 5 seconds. Then press **M** and choose appropriate settings according to options included in the table. The functions are confirmed just after power supply has been applied. Carry out changes by means of **▲** **▼**.

Item	Function	Settings and options	Default settings
1	Thermal compensation (calibration)	-9 + +9 °C (for the inner sensor)	0
2	controller's dead zone - Hysteresis (temperature difference between the output relay switching on and switching off temperature).	1+5 °C	1
3	Type of sensor	<b>In</b> – room temperature control by means of the inner sensor (built-in a controller), <b>Ou</b> – room temperature control by means of the external sensor (floor sensor), <b>AL</b> – Inner and external sensor. The Controller's inner sensor controls the temperature. The external sensor has the overheating control function. <b>Caution</b> – while choosing an appropriate option, pay attention the correct sensor is connected. Otherwise an error (Err) appears on the display.	In
4	Protection against low temperature (anti freeze temperature)	5 + 10 °C. Use <b>▲</b> button to rise the value. If the detected temperature is lower than the adjusted one, the heating system starts to operate.	5
5	Protection against high temperature (floor overheating temperature)	25 + 70 °C. Use <b>▲</b> <b>▼</b> buttons to lower / rise the temperature protection values against heating. If the detected temperature is higher than the adjusted one, the Controller disconnects the heating system.	45