terneo

Technical data sheet, installation and operation manual

RTP

smart control of heating

The terneo rtp thermostat is designed to maintain a constant temperature from 10 to 40 °C in underfloor heating systems based on:

- electric heating cable and film;
- water floor heating using a normally closed electrothermal servo with an operating voltage of 230 V.

To set the temperature, simply turn the knob clockwise. The thermostat uses data from a temperature sensor placed in the floor.

Please read this document carefully before installing and using the thermostat. This will help to avoid possible hazards, errors and misunderstandings.

TECHNICAL DATA

Adjustment range	10...40 °C
Maximum load current (for category AC-1)	16 A
Maximum power load (for category AC-1)	3 000 VA
Input voltage	230 V ±10 %
Temperature sensor (in set)	NTC thermo-resistor 10 kOhm at 25 ° C (R10)
Length of the sensor cable	3 m
Number combinations under heat, at least	50 000 cycles
Number of combinations without heating, no less than	20 000 000 cycles
Temperature hysteresis	2 °C
Weight in the complete set	0,18 kg ±10 %
Overall dimensions	75 × 75 × 43 mm
Degree of protection GOST14254	IP20

IN THE BOX

Thermostat, frame	1 piece
Temperature sensor with connected wire	1 piece
Technical data sheet and installation and operation manual and warranty card	1 piece
The packing box	1 piece

INSTALLATION

The thermostat is designed for indoor installation at a height ranging from 1,4–1,6 meters from the floor level. The ambient temperature during installation should be within –5...+45 °C. When installing in a bathroom, toilet, kitchen, or pool, place the thermostat in a location not exposed to accidental splashes. Minimize the risk of moisture and liquids entering the installation area.

Recommendations for connecting loads more then 10 A

The terneo thermostat may not handle a current of 16 A and could overheat in the presence of unfavorable factors such as poor heat dissipation from the socket, high ambient temperature, or poor installation quality. We guarantee stable operation of the thermostat with a current up to 10 A. If the current exceeds 10 A, we recommend connecting the heating cable through a contactor (magnetic starter) rated for the required current. See diagram 2.

To protect against short circuits, install an automatic circuit breaker (CD) with a rating of up to 16 A in the phase wire break before the thermostat.

To protect against electric shock, install an SSD (safety shutdown device). See diagram 1.

For installation you need:

- make a hole in the wall with a diameter of 60 mm for the mounting box and channels for power supply and sensor wires;
- bring the heating system power and sensor wires to the mounting box;
- make connections according to this manual;
- secure the thermostat in the mounting box.

The terminals of the thermostat are designed for wires with a cross-section of no more than 2.5 mm². It is recommended to use soft copper wire, which can be tightened in the terminals using a screw-driver with a blade width not exceeding 3 mm and a torque of 0.5 N·m. The use of aluminum is not desirable. A screwdriver with a blade width greater than 3 mm may cause mechanical damage to the

terminals, which can result in the loss of warranty service rights.

Place the sensor in the floor screed using a mounting tube, such as a 16 mm diameter metal-plastic tube, which bends once with a radius of at least 5 cm and is inserted into the heating zone for 50 cm. To ensure the sensor can be replaced in the future, seal the end of the tube with a copper plug or insulation tape. Sealing with a copper plug will provide more accurate floor temperature measurements. Insert the sensor into the tube after the screed has hardened.

Strip and crimp the ends of its wire with insulated terminals. If necessary, reduction and increasing (up to 20 m) of sensor connecting wires is acceptable. For extending, use a separate cable with a cross-section of 0,5...0,75 mm². Near the sensor connecting wires should not be the power cables, they may be interfere.

If you purchased a heating cable and its labeling hasn't its rated power, then before connecting the thermostat (to avoid breakdown of the thermostat due to the excess of its certified values) power (P) must to be calculated.

For this to measure the current (I) consumed of the heating cable (using the ammeter with corresponding measurement limit) and multiply by the supply voltage (U). Or to measure the resistance of the heating cable (R) with ohmmeter, divide the mains voltage (U) to the obtained resistance and multiply by the main voltage (U).

$$P = U \times I \text{ (W)} \qquad P = U \times (U / R) \text{ (W)}$$

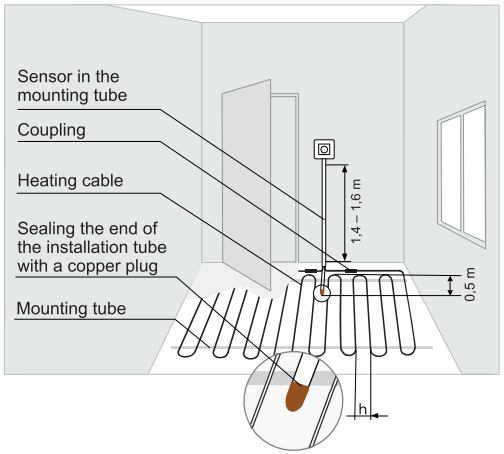


Figure 1.
Mounting the thermostat and underfloor heating

Important!

Install and check the load before installing and connecting the temperature controller:

- make sure that the load is undamaged and free of short circuits;
- check that the load resistance meets the manufacturer's specifications.

Before switching on the device, make sure that the wires are connected correctly. Failure to do so will result in damage to the thermostat.

WARRANTY TERMS

The warranty for devices is valid for 36 months from the date of sale, provided that the instructions are followed. The warranty period for products without a warranty certificate is counted from the date of production.

If your device is not working properly, we recommend that you first read the section "Possible problems".

If you cannot find an answer, contact Service Center, in most cases, these actions resolve all issues.

If you continue to have issues with the device, please, contact the General distributor in your area or the store where you purchased the device. If your device is defective due to our fault, we will repair or replace it under warranty within 14 business days.

Please check the full text of the warranty and the data you need to send to your Service Center on the website https://www.ds-electronics.company

terneo

SERVICE CENTER CONTACT
+38 (091) 481-91-81
Viber Whats App Telegram
support@dse.com.ua

WARRANTY CARD

serial №:

date of sale:

a seller, a seal:

place of a seal

an owner contact for a service center:

ELECTRICAL CONNECTION DIAGRAM

Without sensor the thermostat will not work.

The temperature sensor is connected to terminals 1 and 2.

The supply voltage (230 V ± 10%, 50 Hz) is applied to terminals 5 and 6, and the phase (L) is determined by the indicator and is connected to the terminal 6, a zero (N) — on terminal 5.

To the terminals 3 and 4 is connected the load (the connecting wires from the heating element).

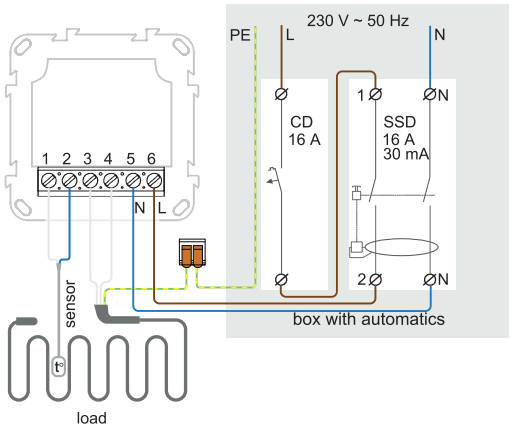


Diagram 1.
Connection of the circuit breaker and SSD

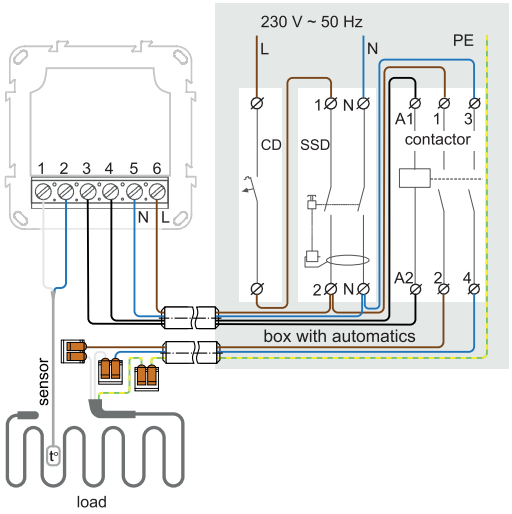


Diagram 2.
Diagram and simplified internal circuit.

EXPLOITATION

According to the data from the temperature sensor placed in the floor, the thermostat will control the heating: it will turn off the heating when the desired temperature is reached and turn it off when it drops by 2 °C.

To turn on the thermostat, turn the knob clockwise until it clicks. The indicator light will turn green.



Temperature selection

When you first turn on the heating, set the thermostat setpoint temperature to the maximum by turning the control knob clockwise to the end. The thermostat will turn on the heating by indicating this with a red indicator light.



Wait until the room temperature is comfortable for you (it may take up to 3 days for the room to warm up). As soon as the room temperature is comfortable for you, turn the knob counter clockwise until the indicator changes to green. This position of the knob will fix the temperature that the thermostat will maintain in the room.



To switch off the heating, turn the control knob counterclockwise until it clicks.

POSSIBLE PROBLEMS, CAUSES AND WAYS TO OVERCOME THEM

When indicator is not lit by turning on the thermostat at all positions of the regulating knob

Possible cause: no power.

It is necessary to: make sure there is power supply voltage with a voltmeter. If voltage is present, then please refer to the Service Center.

It is not possible to turn on the heating system by turning the temperature setting knob. Red light does not light up

Possible cause: incorrect connection, open circuit or short circuit in the sensor circuit, sensor type, temperature measured by the sensor is above 40 °C.

It is necessary to check:

- correctness of the sensor connection;
- the place where the sensor is connected to the thermostat;
- absence of close passing power lines;
- absence of mechanical damage along the entire length of the sensor connection wire.

Reference information. Resistance of an external temperature sensor at different ambient temperatures

5 °C — 25339 Ω	10 °C — 19872 Ω	20 °C — 12488 Ω
30 °C — 8059 Ω	40 °C — 5330 Ω	

If all these reasons are excluded, please contact the Service Center.

ADDITIONAL INFORMATION

Please do not burn or dispose of the thermostat with household waste.

After the end of its service life, the product should be disposed of in accordance with applicable law.

The product is transported in packaging that ensures its preservation.

The thermostat can be transported by any kind of transportation (such as by car, plane, train or ship).

The manufacturing date is indicated on the back of the device, and there is no expiration date.

If you have any questions regarding this device, please contact the Service Center at the phone number provided in the Warranty Terms section.

The manufacturer reserves the right to make changes to the firmware, server interface, mobile applications, and desktop application my.terneo.ua to improve the energy efficiency of the thermostat and optimize its operation.

Technical Support Chat
If you haven't found the answer, please contact our technical support engineer
dselectronics_bot
terneo_official

SAFETY INSTRUCTIONS

To avoid injury and damage to the thermostat, carefully read and understand these instructions for yourself.

The installation of the thermostat should be carried out by a qualified electrician.

Do not connect 230 V mains voltage instead of the sensor (this will damage the thermostat).

Before starting the installation (disassembly) and connection (disconnection) of the thermostat, disconnect the power supply and follow the "Rules of an arrangement of Electric Installations".

Do not immerse the sensor with its connecting wire in liquid environment.

Do not connect the thermostat to the power supply in a disassembled state.

Prevent liquid or moisture from coming into contact with the thermostat.

Do not expose the device to extreme temperatures (above 40 °C or below −5 °C) and high humidity.

Do not clean the thermostat using chemicals such as benzene and solvents.

Do not store or use the thermostat in dusty environments.

Do not attempt to disassemble or repair the thermostat yourself.

Do not exceed the maximum current and power limits.

Use surge protectors to protect against overvoltage caused by lightning discharges.

Keep children away from playing with a functioning device as it is dangerous.

version: 2408

EMC Directive 2014/30/EU
Low Voltage Directive 2014/35/EU

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