



PROFACTOR[®]
DER DEUTSCHE QUALITÄTSSTANDARD

EN

TECHNICAL DATA SHEET AND USER MANUAL



**PRODUCT
CODE**

PF TR 646

**ROOM THERMOSTAT WITH
UNDERFLOOR HEATING SENSOR**

1. PURPOSE AND SCOPE

The PF TR 646 room thermostat with underfloor heating sensor is designed for the automatic control of hydronic (water-based) heating systems. The primary application of the thermostat is in embedded water heating systems (for example, underfloor heating).

The thermostat can also be used to control other climate systems and equipment within the rated specifications (such as boilers, actuators, pumps, fans, etc.).

WARNING: The thermostat operates only with an external sensor!

2. TECHNICAL SPECIFICATIONS

Power supply voltage: 220...230V

Power supply frequency: 50 Hz

Maximum switching voltage: 220V

Maximum switching current: 3A

Maximum switching power: 650W

Maximum power consumption: 2.0W

Temperature adjustment range of the external sensor in overheating protection mode:
+25°C...+55°C

Hysteresis (difference between contact closing and opening temperatures): +1°C...+10°C

Permissible ambient temperature range: -5°C...+50°C

Enclosure protection rating: IP20

External sensor type: NTC

Housing material: polycarbonate (PC)

Mounting type: flush-mounted (for concealed wiring)

External sensor cable length: 1 m

Maximum allowable cable length when extended: 15 m

Recommended mounting box types: K201 UHL4; D68

Average service life: 15 years

3. DELIVERY SET

Thermostat — 1 pc.

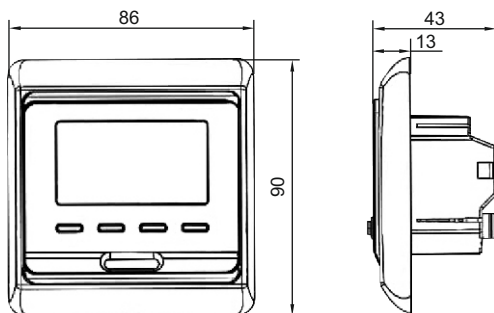
External temperature sensor with 1 m cable — 1 pc.

User manual — 1 pc.

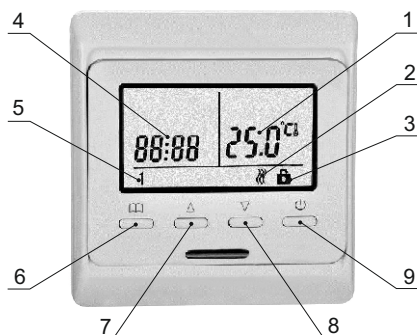
Mounting box screws — 2 pcs.

Packaging (110×95×55 mm) — 1 pc.

4. DIMENSIONS



5. INDICATION AND CONTROL

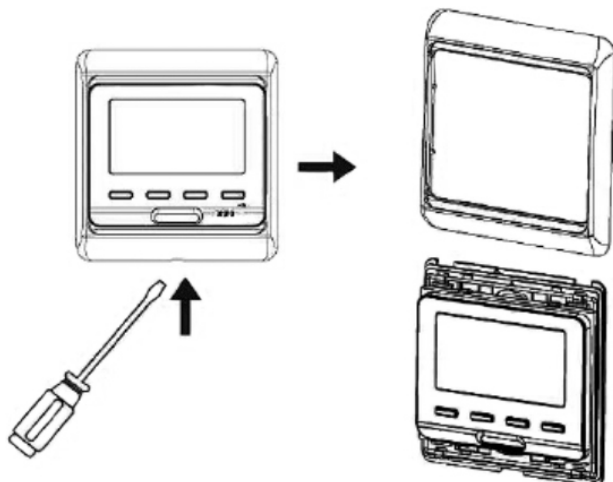


Pos.	Symbol	Function / Description	Note
1	25.0°C	Temperature according to the external sensor	—
2	⋈	Heating command indication	Control contact closed
3	🔒	Lock indicator (lock enabled)	Control buttons locked
4	88:88	Current time indication	—
5	1	Current day number	—
6	📖	Menu button	—
7	▲	Up button	Plus / Forward
8	▼	Down button	Minus / Backward
9	🔌	Power button	On / Off / Enter

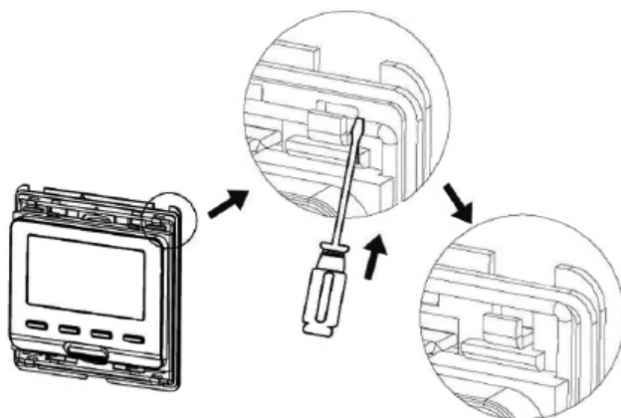
6. INSTALLATION AND WIRING INSTRUCTIONS

The thermostat must be installed on a wall with free air circulation around it. Installation on external (outside) walls is not recommended. The installation height should be between 0.5 and 1.5 meters above the floor.

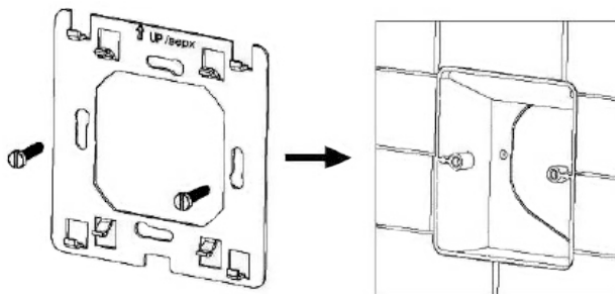
Insert a screwdriver blade into the slot at the bottom of the frame and gently remove the frame:



Move the wire clip upward and remove the bottom mounting plate.

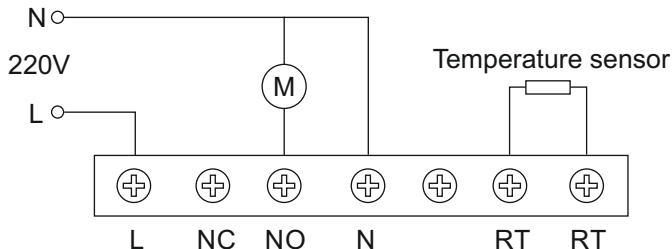


Using two screws, attach the mounting plate to the installation box.



Secure the wires to the terminal block of the device according to the electrical wiring diagram. When the temperature of the working sensor drops below the set value, the NC (normally closed) contact opens and the NO (normally open) contact closes.

For example, when operating with a normally closed actuator designed for 220V, the wiring diagram will be as follows:



Any equipment with a current consumption up to 3A and power up to 0.65 kW may be used as the load.

Secure the device onto the mounting plate and attach the decorative frame.

To avoid interference, the external sensor cable must not be routed in the same conduit as power cables or wiring carrying mains voltage.

When using the external sensor as a floor temperature sensor, its cable should be laid into the floor through a tube or corrugated conduit, positioned as close as possible to the floor surface.

7. TURNING THE DEVICE ON / OFF

To turn on the device, press the power button . Pressing this button again will turn the device off (OFF).

8. SETTING THE CURRENT TIME AND DAY OF THE WEEK

Within 5 seconds, press the buttons  and  simultaneously. The time display will appear with flashing minutes. Set the minutes using the up/down buttons.

Press . The hour value will start flashing. Set the hours.

Press . The day of the week number will start flashing. Set the day of the week.

Press . To return to normal operating mode.

9. KEYPAD LOCK

To lock the buttons, press and hold the buttons  and  simultaneously for 5 seconds.

10. ADVANCED SETTINGS MODE

To enter the advanced settings mode, while the device is turned off (OFF), press and hold  and simultaneously press the button .

The advanced settings parameters are listed in the following table:

No.	Code	Value	Note
1	1A dI	Temperature calibration	Using the buttons   , the readings of the built-in temperature sensor can be adjusted according to a reference thermometer. The calibration range is $\pm 9.9^{\circ}\text{C}$.
2	2 r LE	Not used	—
3	3d iF	Hysteresis	Using the buttons   , set the hysteresis (the difference between the temperatures at which the contacts open and close). Increasing the hysteresis reduces the number of actuator operations but decreases the temperature control accuracy. Adjustment range: $1^{\circ}\text{C} - 10^{\circ}\text{C}$. Factory setting: 1°C .

4	4L ΓP	Not used	—
5	5L ιΓ	Not used	—
6	6P ΓC	Not used	—
7	7F AC	Reset to factory settings	Press and hold the button ▲ for 5 seconds until the device resets to factory settings. At this point, three dashes will appear on the screen instead of a single one.
8	8d LY	External sensor temperature limit	Using the buttons ▲▼, set the maximum allowable temperature for the external sensor. Setting range: 25°C – 55°C. Factory setting: 35°C.
9	9H ιΓ	Not used	—
10	AS EA	Not used	—

Transition between settings is performed by pressing the button  .
Exit from the advanced settings mode is done by pressing the button  .
Error codes:
Er2 — break or short circuit in the external sensor cable.

11. OPERATING AND MAINTENANCE

The thermostat must be operated within the parameters specified in the technical specifications (p. 2).

Avoid any mechanical impact on the device surface, as well as contact with acids, alkalis, or solvents.

Keep the thermostat clean, preventing contamination, liquid ingress, or insects from entering the device.

The thermostat does not require additional maintenance.

12. PRESERVATION

Preservation of the product must be carried out in a closed, ventilated room at an ambient temperature from +15°C to +40°C and a relative humidity up to 80%, provided there are no aggressive impurities in the surrounding environment.

The protection period without re-preservation is 10 years.

13. WARRANTY OBLIGATIONS

The warranty period is 24 months from the date of sale to the end consumer. Throughout the entire warranty period, the manufacturer guarantees the proper functioning of the product and its compliance with safety requirements, provided that the consumer follows the rules for storage, transportation, installation, operation, and maintenance of the product. The warranty covers all defects arising through the manufacturer's fault.

The warranty does not cover defects resulting from:

- Violation of storage, transportation, installation, operation, or maintenance conditions;
- Exposure to substances aggressive to the materials of the product;
- Signs of mechanical damage;
- Damage caused by fire, natural disasters, or other force majeure circumstances;
- Damage caused by improper actions of the user;
- Evidence of unauthorized interference with the product design.

The product described in this technical manual is a technically complex device that must be installed by a qualified specialist with appropriate experience working with this type of equipment.

Installation and commissioning must be carried out by an authorized and certified company.

Profactor Armaturen GmbH reserves the right to make changes to the product design that do not affect its technical characteristics or functional features.



INTERNATIONAL WARRANTY CARD

NAME OF THE PRODUCT

PRODUCT CODE, SIZE

QUANTITY

SELLER NAME AND ADDRESS

DATE OF PURCHASE

SELLER STAMP

SELLER SIGNATURE

For the warranty term refer to the Warranty obligation clause in the technical manual

FOLD LINE

FOLD LINE

In case of any claims to the product quality the following documents should be submitted:

1. Application with customer and product details:

- Name of the customer, actual address and phone number
- Article of the product
- Reason for the claim and photo
- Plumbing system where installed (name, address, phone number)

2. Invoice copy and receipt

3. Warranty card

RETURN/EXCHANGE COMMENTS

DATE

SIGNATURE



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