Profactor Armaturen GmbH

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PROFACTOR®
DER DEUTSCHE QUALITÄTSSTANDARD

TECHNICAL DATA SHEET AND USER MANUAL

PRODUCT CODE

PF TR 645

ELECTRONIC ROOM THERMOSTAT

1. PURPOSE AND SCOPE

The PF TR 645 electronic room chronothermostat is designed for automatic control and maintenance of a programmed temperature — either the air temperature in a room, the surface temperature, or the temperature of the heat carrier — as well as for overheat protection of structures or heat-transfer media.

The thermostat's primary application is in embedded water-based heating systems (e.g., "underfloor heating").

It can also be used to control other climate systems and equipment within the specified parameters, such as boilers, actuators, pumps, fans, and others.

The thermostat allows for weekly programming of temperature modes with up to six time periods per day.

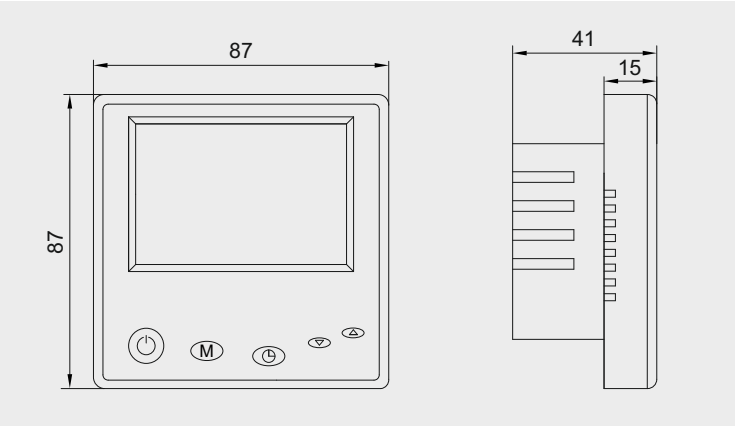
2. TECHNICAL SPECIFICATIONS

Power supply voltage: 220 – 230 V
Power supply frequency: 50 Hz
Maximum switching voltage: 220 V
Maximum switching current: 2 A
Maximum switching power: 650 W
Maximum power consumption: 2 W
External sensor temperature control range (overheat protection mode): +20°C to +70°C
Hysteresis (difference between switch-on and switch-off temperatures): 1°C to 10°C
Permissible ambient temperature range: –5°C to +50°C
Enclosure protection rating: IP20
External sensor type: NTC
Housing material: flame-retardant polycarbonate (PC)
Mounting type: flush-mounted (for concealed wiring)
External sensor cable length: 2 m
Maximum allowable cable extension length: 15 m
Recommended mounting box types: K201 UHL4; D68
Average service life: 15 years

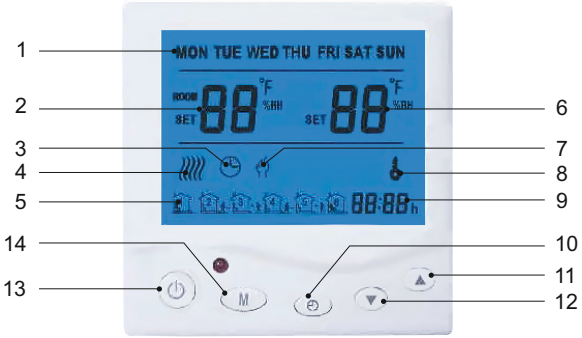
3. DELIVERY SET

№	Name	Quantity
1	Thermostat	1 pc.
2	External temperature sensor with 2 m cable	1 pc.
3	User manual	1 pc.
4	Mounting box screws	2 pcs.
5	Packaging 110×95×55 mm	1 pc.

4. DIMENSIONS



5. INDICATION AND CONTROL



No	Symbol	Name	Note
1	MON	Current day of the week	—
2	88	Temperature according to the external sensor	—
3		Automatic mode indication	The device operates according to the set program
4		Heating command indication	Control contact closed
5		First time period of the day	6:00 – 8:00 “Wake up”*
		Second time period of the day	8:00 – 12:00 “Went to work”*
		Third time period of the day	12:00 – 13:00 “Lunch break”*
		Fourth time period of the day	13:00 – 17:00 “Went back to work”*
		Fifth time period of the day	17:00 – 22:00 “Back from work”*
		Sixth time period of the day	22:00 – 6:00 “Sleep”*
6	88	Set temperature	—
7		Manual control mode indication	The temperature set for this mode is maintained
8		Lock mode indication enabled	Control buttons are locked
9	88:88	Current time indication	—
10		Time setting button	—
11	▲	Up button	Plus / Forward
12	▼	Down button	Minus / Backward
13		Power button	On / Off
14	M	Mode selection button	— manual control — temporary manual control — automatic control

* — factory setting (can be reconfigured by the user)

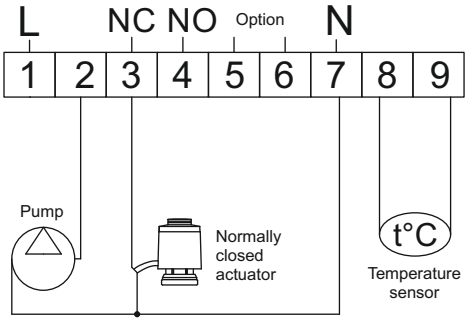
6. INSTALLATION AND CONNECTION INSTRUCTIONS

The thermostat must be mounted on a wall with free air circulation around it.Installation on external walls is not recommended. The installation height should be 0.5 – 1.5 m above the floor.

The thermostat should be installed in locations not exposed to drafts, heat radiation, or direct sunlight.

Installation:

1. Using the tip of a screwdriver, release the slots on the bottom of the thermostat and remove the mounting plate.
2. Connect the wires to the terminal block of the device according to the electrical wiring diagram.



3. Attach the mounting plate to the installation box using two screws.
4. Secure the thermostat onto the mounting plate.

Any equipment with a current consumption up to 2 A and power up to 0.65 kW can be used as a load.

To avoid electrical interference, the external sensor cable must not be laid in the same conduit as power lines or other high-voltage cables.

When using the external sensor as a floor temperature sensor, the cable should be installed in the floor through a tube or corrugated conduit located as close to the floor surface as possible.

7. TURNING THE DEVICE ON/OFF

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

8. SETTING THE CURRENT TIME AND DAY OF THE WEEK

Press the time setting button
The time will appear on the display, with the minutes value flashing.
Adjust the minutes using the Up/Down buttons.

Press ◷ — the hour digits will start flashing. Adjust the hours using the Up/Down buttons.

Press ◷ again — the day of the week will start flashing. Adjust the day of the week using the Up/Down buttons.

Press ◷ to return to normal operation mode.

9. KEYBOARD LOCK

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

10. MODE SWITCHING

The “M” button is used to switch between manual and automatic modes. To enter temporary manual mode, press the Up ▲ or Down ▼ button.In temporary manual mode (when both symbols ◷ and ✋ are displayed simultaneously), the thermostat maintains the manually set temperature only until the end of the current period. After that, operation automatically resumes according to the programmed schedule.

11. PROGRAMMING

To enter the programming mode, press and hold the ◷ button for 5 seconds.
The display will show the start time of the first (of six) programmable periods for the first day. Set the desired time using the ▲and ▼buttons.

Press ◷ — the desired temperature value for this period will appear.
Adjust it using the ▲and ▼buttons.

Press ◷ again to move to the next period. Repeat this process for all six periods of each of the seven days of the week.

To exit programming mode, press the “M” button.

12. ADVANCED SETTINGS MODE

To enter the advanced settings mode, when the device is turned off (OFF), press and hold the “M” button, and simultaneously press the ◷ button.

The advanced settings parameters are shown in the table below.

No	Value	Note
01	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 ±9.9°C.
02	Water shortage protection temperature	+5°C to +50°C. Factory setting: 35°C.
03	Hysteresis	Using the ▲▼ buttons, set the hysteresis (the difference between the contact opening and closing temperatures).Increasing the hysteresis reduces the number of actuator activations but decreases temperature control accuracy. Adjustment range: 1–5°C.Factory setting: 1°C.
04	Enabling/disabling the frost protection mode	Use the ▲▼ buttons to set the activation temperature for the mode (+5°C to +10°C). When set to – – –, the function is disabled. Factory setting: +5°C.
05	Pump operation	0: the pump and the thermal actuator operate simultaneously 1: the pump operates continuously
06	Lock button	0: All buttons are locked except the power button ⏻. 1: All buttons are locked, including the power button ⏻ .
07	Number of working days per week	Use the ▲▼ buttons to select: 02 — mode with two outputs; – – – — mode without outputs.
08	Reset to factory settings	Select – – –
Switching between settings is performed by pressing the “M” button. To exit the advanced settings mode, press the ⏻ button.		

13. OPERATION AND MAINTENANCE

The thermostat must be operated within the parameters specified in the technical specifications.

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

Keep the thermostat clean; do not allow dust, liquids, or insects to enter the device.

The thermostat does not require any additional maintenance.

14. PRESERVATION (CONSERVATION)

Product preservation must be carried out in a closed, ventilated room at an ambient temperature from +15°C to +40°C and relative humidity up to 80%, with no aggressive impurities in the surrounding atmosphere.

15. 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.

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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 detailes:
- 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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