

BMR VTM4000

Programmable room thermostat

Device description

The VTM4000 is a simple programmable thermostat designed to regulate electric direct heating in living spaces. The basic principle of regulation consists of switching between the set comfort and setback temperatures at defined time intervals. The VTM4000 comes with the most common time programs already set up. The user has the option of locking the keys to prevent unwanted manipulation. Service settings are protected by an access password. The VTM4000 records the heating time (the duration of the output relay switching) in its memory. It is possible to display the heating time or consumption for the last period. For controlling the electric heating of the entire house, we recommend using the BMR RT central control.

**The thermostat can be configured in the service settings for the following types of control:**

- Measuring the air temperature in the room without a floor sensor (C:A - the internal air temperature sensor is located directly in the thermostat).
- Floor temperature measurement without air sensor (C:F - an external floor temperature sensor is connected to the thermostat).
- Measuring the air temperature in the room while monitoring the maximum floor temperature (C:FA - both sensors simultaneously).

The thermostat operates in the following modes:

- **(AUTO) - activated time modes.** The thermostat regulates according to the set times. The daily time mode can optionally contain 4 or 6 changes, when switching between comfort and setback temperatures. The modes can be repeated as follows:
 - DAY - the same time mode is used every day (suitable for bathrooms, hallways).
 - WORKING WEEK - one common time regime is used for Monday to Friday, and a second time regime, known as the 5+2 regime, is used for Saturday and Sunday.
 - WEEK - each day of the week can have a different time schedule.
- **(MAN) - manual mode.** The thermostat regulates according to the manually set temperature using the up/down arrow buttons.
- **(Fro5) - anti-freeze mode activated.** The control system monitors the anti-freeze temperature of 5°C.
- **(OFF) - control switched off.** The thermostat is not regulating.

Safety Information

Before installing and using the thermostat for the first time, read carefully this operating manual. The VTM4000 thermostat is an electrical device and must be installed by a person qualified to work with electrical equipment. The installation of the thermostat must comply with the prescribed standards. The product is designed for indoors installation. Do not expose the product to high or very low temperatures, high humidity, or dripping or splashing water. Do not cover or insert any objects into the ventilation openings of the product. Do not tamper with the thermostat's electronics, as this may damage it and void the warranty. Use a slightly damp soft cloth for cleaning. Do not use solvents or other cleaning agents. If the product is damaged or defective, have it disassembled by a qualified person and send it to the manufacturer's address. Only the manufacturer is authorized to repair the product. This product is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or persons with insufficient experience and knowledge,

unless they have been provided with supervision or have been instructed in the use of the appliance by a person responsible for their safety. Children should not handle the product, or supervision must be provided to ensure that they do not play with the device.

First start-up and operation of the thermostat

After connecting 230V power to the thermostat, four flashing dashes '----' will appear for 10 seconds to indicate that the thermostat has started up.

The VTM4000 thermostat is configured by default to measure both air and floor temperature simultaneously (service mode C:FA). This setting is primarily intended for floor heating using electric heating cables or heating foil. It is assumed that an external floor sensor is connected to limit the maximum floor temperature. In this configuration, the thermostat starts up without an error message and is immediately ready to set time modes and other functions.

If the floor sensor is not connected when the thermostat is started for the first time (for example, if the thermostat controls a direct heater or infrared panel based only on the internal air sensor, or if the floor heating is controlled exclusively by the floor sensor), error message no. 5 (Error 5) will be displayed. In this case, the sensor configuration must be changed in the device's service menu.

The thermostat is controlled using a graphic LCD display and buttons on the front of the device:

 - The button is used to enter the menu or confirm the set value (MENU, ENTER, OK).

 - The button is used to exit the menu and cancel input (ESC).

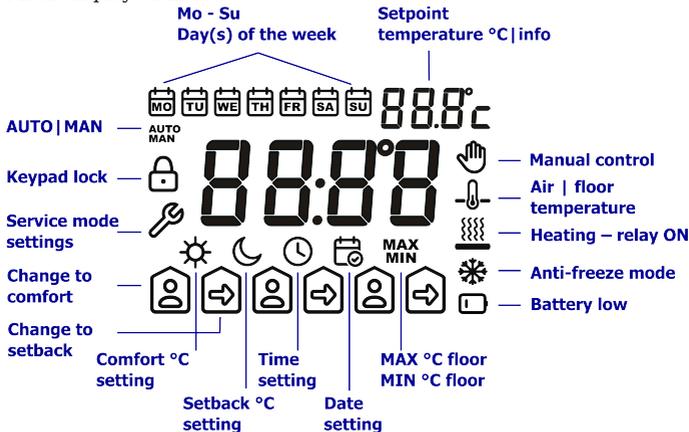
 - Use the arrow keys to move through the menu items or change parameter values.

Some other functions are accessible by pressing two buttons simultaneously, see below.

The LCD display shows the current and setpoint temperature, day of the week, heating/cooling status, and, if time modes are activated, the comfort/attenuation mode status on the default screen.

Pressing the button  briefly displays the current time, pressing it again displays the approximate time the relay has been switched on (heating time) for the current day (Htd), the previous day (HYd), the previous week (H7d), and the total time since the thermostat was installed (Hto). If the heater size [kW] is entered in the service menu, the electricity consumption (Etd, EYd, E7d) is displayed.

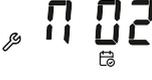
Description of LCD display elements:



The individual screens are supplemented with graphic pictograms and text abbreviations, which facilitate understanding of the function's meaning and quicker orientation when operating the thermostat.

User settings

Press and hold the button  to display the user menu with the first item being the thermostat mode selection.

Symbol		Symbol	
	Thermostat mode: MAn-manual mode, Fro5-anti-freeze, OFF-off, Auto-regulation according to modes		Time - settings
	Comfort temperature (sun symbol)		Year - settings
	Setback temperature (moon symbol)		Month - settings
	Minimum floor temperature. Only if a floor sensor is configured.		Day - settings
	Programming modes		Deleting relay activation times

Service settings

Before using the VTM4000 thermostat, an installation company or other trained person should set the service parameters that determine the basic behavior of the thermostat. The service menu is accessed by pressing the  and  buttons simultaneously for about 3 seconds. Four dashes will then appear on the display for entering the service code (PIN).



Note

The default service code is: **0000**. If you lose the modified code, contact your supplier or manufacturer.

Use the arrow keys   to enter a number between 0 and 9, press the key  to confirm, and continue entering the next digit. If the code is correct, the first item in the service menu will appear, as shown in the table:

Symbol		Symbol	
	Configuration of installed sensors: F-(floor) floor sensor, A-(air) air sensor, FA-air and floor sensor		Heater power consumption [kW]
	Predefined types of time modes: DAY mode (d:1), 5+2 WORKING WEEK mode (d5:2), and WEEK mode (d:7)		Open window detection: 1-enabled, 0-disabled
	Maximum floor temperature: Only if the floor sensor is configured		Default thermostat settings. Confirming will delete all data and reset the controller to factory settings.

Symbol		Symbol	
	Number of time changes: Comfort/setback temperature switch) per day. There can be a total of 6 or 4 changes per day.		Setting the PIN code for access to the service menu.
	Summer mode: 1-year active, 0-deactivated		

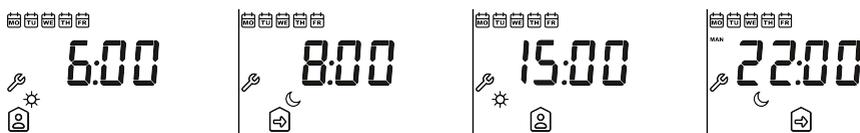
Programming time modes (tPro)

Go to the user menu by holding down the button and select the item 'tPro' with the button .

Confirm with the button and the time of the first time change 'Comfort' will be displayed. Use the arrows to scroll through all time changes, which always alternate between 'Comfort' and 'Setback' depending on the service setting for the number of changes per day (4 or 6) and the selected time mode (DAY, WORKING WEEK 5+2, WEEK). If you have set the DAY time mode, no icons for the days of the week are displayed because the mode repeats the same for each day. If you have set

WORKING WEEK 5+2, you set the time mode together for Monday to Friday and

together for Saturday and Sunday . If you have set WEEK, the icons for each day are displayed sequentially, so you can set the comfort and setback times for each day separately. Example of switching between comfort and setback for a 5+2 WORK WEEK with four changes per day:



Manual change, manual mode (MAN)

If you have activated time modes (AUTO option) in the user menu, you can manually change the Comfort or Setback temperature using the up/down arrows. Manual changes are indicated on the

display by the icon . The change is possible in increments of 0.2°C, and the current value is shown in the upper right corner of the display. The maximum value for manual change is +/- 15°C. The manual change is automatically deleted with the next change in the time mode.

If manual mode (MAN) is selected in the user menu, the thermostat simply regulates according to the temperature values set using the arrows. Time changes are ignored.

Anti-freeze temperature activation (Fro5)

Go to the user menu by holding down the button and select first item with the button . Press the button again activate the mode option, use the arrow to select the option **Fro5** (frozen 5°C) and confirm . The main screen will display the setpoint temperature of 5°C and a snowflake icon .

Switching off the thermostat (OFF)

Go to the user menu by holding down the button and select first item with the button . Press the button again activate the mode option, use the arrow to select the option **OFF** and confirm . The main screen will display OFF instead of the setpoint temperature. The thermostat will still show the current temperature but will not regulate. The output relay is open in this state.

To turn the thermostat back on, use the same procedure to activate the **AUTO** or **MAN** function.

Locking the keypad

The thermostat can be locked e.g. against manipulation by children or strangers. Press both arrows

  simultaneously for about 3 seconds until the lock icon appears . The thermostat stops responding to the control buttons. Repeating the procedure unlocks the thermostat.

Time backup

All settings are stored in EEPROM memory, where they remain stored after a power failure. The time and date are backed up using a maintenance-free high-capacity capacitor, known as a supercap. The maximum backup time is 3 days, provided that the thermostat has been continuously connected to the power supply for at least one hour. If the capacitor is not charged after a prolonged power failure, a low battery icon will appear .

Installation and Removal, End-of-Life Disposal and Recycling

The thermostat is placed on an internal uncooled wall in installation boxes with a spacing of 62 mm for screw mounting. The thermostat is powered by 230 VAC. The heating element must be resistive. The maximum permissible load connected to the output terminals (No. 4-5) is 2000W. The floor sensor must be the BMR FT3000 type.

The thermostat consists of two parts: the display section and the power supply base. To disassemble both parts, use a small flat screwdriver, insert it into the lock cutout on the bottom edge of the thermostat, and press lightly. At the same time, lift the front display part vertically upwards, which will then pop out of the lock and disconnect from the connector. The thermostat can now be connected and secured with screws to the installation box. When reassembling the display, make sure that the 6-pin connector is inserted correctly and that both plastic locks click into place.

Warning

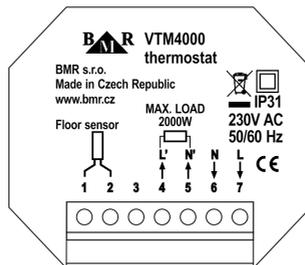
Before installing or removing the thermostat, the power supply to the thermostat **MUST** be turned off, otherwise there is a risk of electric shock and damage to the thermostat's electronics.

The display part and power supply must not be combined between different thermostat models. When replacing an older VTM3000 model, the entire thermostat must be replaced, including the lower power supply part. The floor sensor can remain unchanged.

If heating is provided by an electric floor heating cable or heating foil, a floor sensor **MUST** be used in accordance with the standard to monitor the maximum temperature in the floor.

Error codes displayed on the screen: E1 - temperature is lower than -20°C, E2 - temperature is higher than 50°C, E4 - floor sensor short circuit, E5 - disconnected floor sensor.

Thermostat terminal labels:



Technical parameters

Parameter	Value
Power supply:	230VAC
Supply voltage terminals L, N:	7, 8
Floor sensor:	1, 2
Load terminals L', N':	4, 5
Measured temperature range:	-20°C to 50°C
Hysteresis:	fixed 0.3°C
Measurement accuracy:	1°C
Type of floor sensor:	BMR FT3000 (NTC640-10k) (spare part)
Rated power:	max. 0.15W
Relay ON indication (icon):	
Max.resistive load:	2000W
Output relay specifications:	
Number / type of contacts:	1x NO (Normally open)
Rated current:	16A
Switching power:	max. AC 4000 VA
Rated voltage / Max. switching voltage:	250 VAC / 440 VAC
Mechanical lifetime:	3 x 10 ⁷
Electrical lifetime:	1 x 10 ⁵ 250VAC, 16A
Other:	
Ambient operating temperature::	-20 .. +50 °C
Ambient storage temperature:	-30 .. +60 °C
Mounting:	vertical wall mounting mounting box, 62 mm
Protection degree:	IP 31
Safety class:	II.
Input-output insulation:	4kV
Galvanic isolation of measuring terminals/power supply:	4kV
Relative humidity::	15%-85%
Maximum input wire diameter:	max. 2x1.5mm ² ; 1x2.5mm ² / max. 2x1.5mm ² ; 1x2.5mm ²
Weight netto/brutto:	190g/230g
Dimension:	80 x 80 x 40mm
Related standards:	ČSN EN 60730-1 ed. 4



■ This product must not be disposed of with household waste. When it reaches the end of its life, please take it to an appropriate collection point for the recycling of electrical and electronic equipment. Proper disposal helps prevent potential negative impacts on the environment and human health. For details, contact your local recycling facility or the retailer where the product was purchased.

Notes

Please record the set switching times between comfort and setback temperatures in the prepared tables:

Comfort temperature: °C  Setback temperature: °C 

	1 	2 	3 	4 	5 	6 
[MO]	:	:	:	:	:	:
[TU]	:	:	:	:	:	:
[WE]	:	:	:	:	:	:
[TH]	:	:	:	:	:	:
[FR]	:	:	:	:	:	:
[SA]	:	:	:	:	:	:
[SU]	:	:	:	:	:	:

Comfort temperature: °C  Setback temperature: °C 

	1 	2 	3 	4 	5 	6 
[MO]	:	:	:	:	:	:
[TU]	:	:	:	:	:	:
[WE]	:	:	:	:	:	:
[TH]	:	:	:	:	:	:
[FR]	:	:	:	:	:	:
[SA]	:	:	:	:	:	:
[SU]	:	:	:	:	:	:

