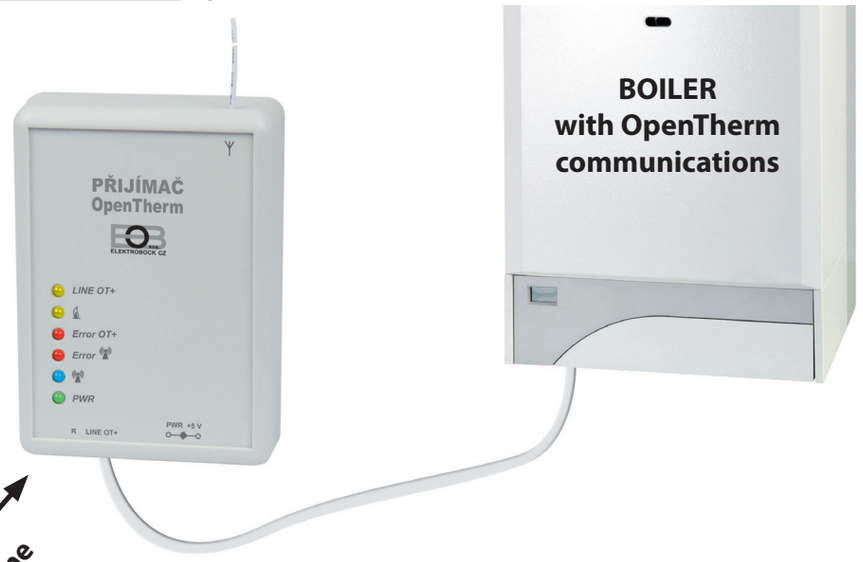
WIRELESS ROOM THERMOSTAT
for boilers with OpenTherm communication

BT52

The BT52 wireless thermostat is designed to control gas and electric boilers that use the OpenTherm plus (OT +) communication protocol. It consists of a receiving part (receiver) and a transmitting part (transmitter), which use two-way wireless communications on the frequency of 433.92 MHz. This wireless variant allows for easy and quick installation, thus eliminating the laborious and time-consuming installation of the line between the thermostat and the boiler with a passage through the floor. The receiver is connected to the boiler via the OT communication line. This line transmits data and also powers the receiver. The receiver immediately transmits the data obtained from the boiler to the transmitter, where the data is processed. The required heating water is calculated and this request is sent back to the boiler.

receiver

- **Power supply via OT communication line directly from the boiler** (or external adapter AD05 - not included)
- **Receiver with SELF-LEARNING system CODES and with E-EPROM memory** (store code even in case of power failure).
- **Visual inspection of conditions** using colored indicator LEDs.
- **The receiver keeps the last settings** and in the event of a wireless failure signal, ensures the operation of the boiler.



transmitter

- Possibility to place a thermostat (transmitter) as needed.
- Predictive system (smart timer) guarantees determined temperature at the required time. The adaptive controller evaluates temperature gradient of the room and can determine the necessary time to reach the required temperature.
- **9 weekly programs (optional) for UT** (6 temperature changes for a day).
- **1 week program (optional) for DHW (3 time periods** with different temperatures).
- **Choice of regulation type:**
equithermal regulation
equithermal control with internal temperature correction
PI regulation
- Display of operating hours information for UT / TUV.
- Display of outdoor temperature information.
- Display of heating water temperature and modulation power information.
- Display of additional information sent by the boiler to the receiver (water flow in liters, return temperature, etc. depending on the type boilers).
- E-EPROM memory retains all settings indefinitely even in the event of a power failure.
- Possibility of control via GSM module GST1 or GST2 (optional).
- Automatic changeover to WINTER or SUMMER time.
- Automatic indication of boiler maintenance.
- Measured temperature -9 ° C to 39 ° C.
- Antifreeze mode.
- Holiday mode and summer mode.
- Power supply 2x1.5 V alk. battery

CONTENT

For easier orientation in the manual, each page is marked with the symbol of the part of the thermostat to which it applies specified settings:

RECEIVER

TRANSMITTER

BT52 FEATURES

Before using the thermostat, it is necessary to verify which functions from the OpenTherm protocol your heating device uses (some heating devices do not use all the functions of the OpenTherm protocol)!

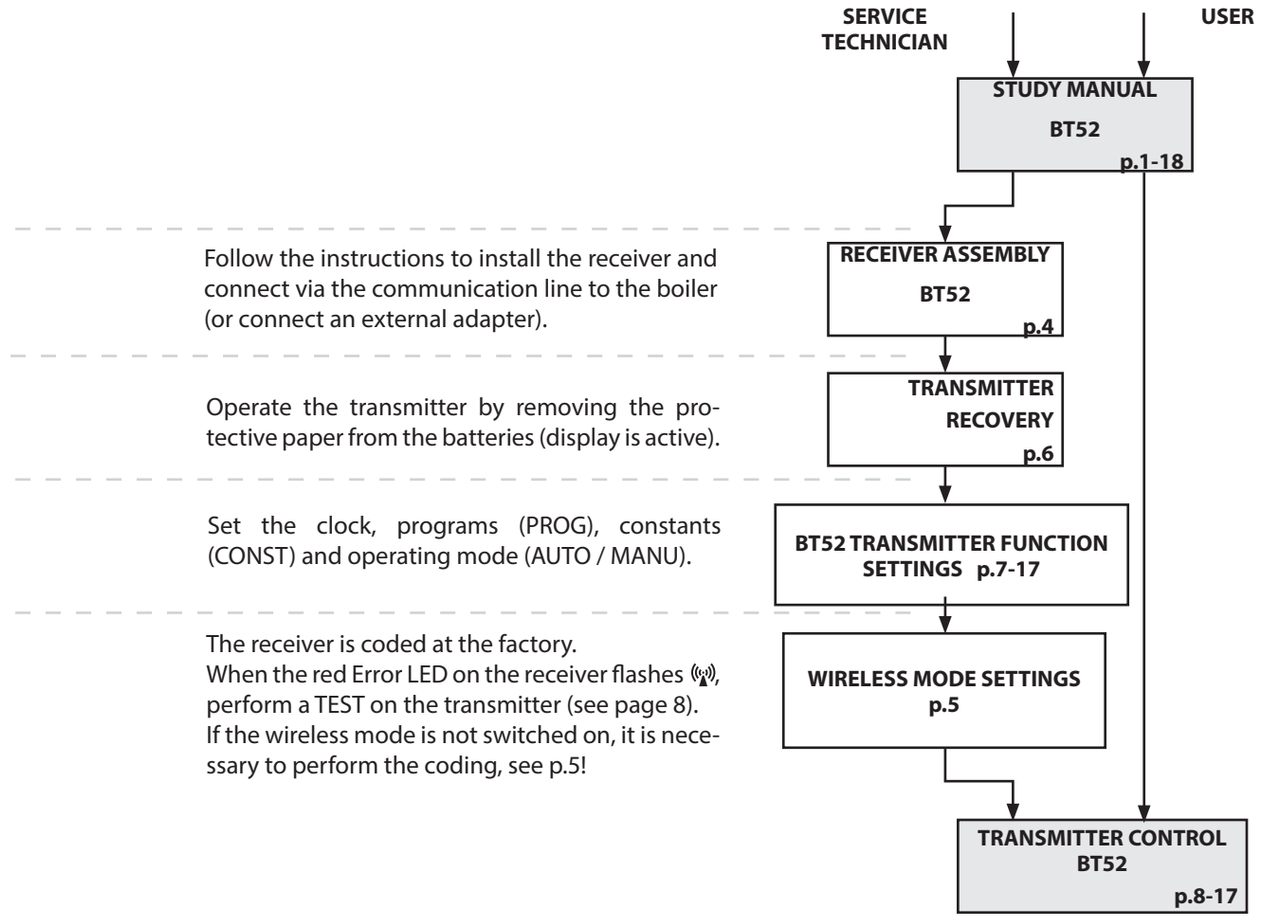
OpenTherm Plus / Lite (OT + / OT-) protocol: based on this protocol, two-way communication (OT +) takes place between the thermostat receiver and the boiler. The thermostat receiver obtains the necessary information (eg about the outdoor temperature), which it then processes and transmits to the transmitter. From the information obtained about the outdoor temperature, the room temperature and the set constants, the thermostat recalculates the desired water temperature of the heating system and passes it back to the boiler. This wireless communication system enables optimal operation of the boiler and heating system, including DHW, thus achieving longer boiler life and higher savings.

! In order to avoid interference and influence from other BT52s in the vicinity, each thermostat is protected by its own unique code, which is stored at the factory! As the whole system works on the two-way radio frequency 433.92 MHz, follow the instructions for mounting and positioning the thermostat according to the instructions!

BT52 FUNCTIONS

- **Equithermal regulation**
- **Equithermal control with manual curve correction**
- **Equithermal control with automatic correction according to the effect of room temperature**
- **Correction of the influence of building dynamics** (for equithermal regulation)
- **PI control (regardless of outdoor temperature)**
- **Premature heating on** (adaptive controller evaluates the room temperature gradient and can determine the time necessary to reach the desired temperature at a given time)
- **Setting the minimum and maximum water temperature in the heating system**
- **DHW preparation program** (3 time intervals per day)
- **Holiday mode** (constant temperature during the holiday)
- **Summer mode**

COMMISSION SCHEME BT52



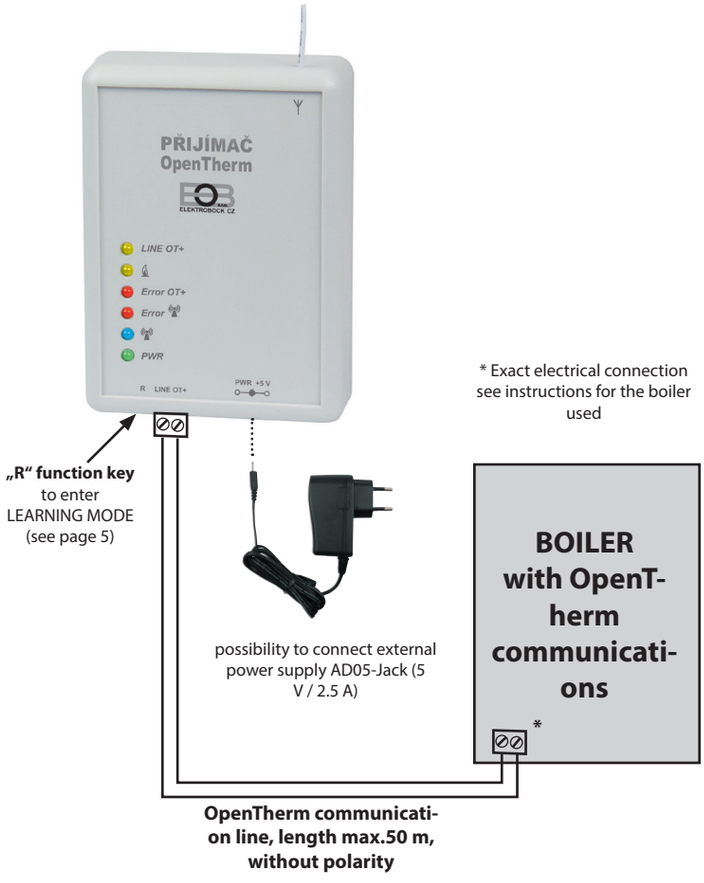
BT52- RECEIVER

The BT52 receiver is a unit that connects directly to the boiler via the OpenTherm communication line. Its function is to obtain the necessary information from the boiler and pass it on to the transmitter unit.

Installation and commissioning of the receiver should be performed by a SERVICE TECHNICIAN in accordance with the procedure described below!

ASSEMBLY BT52- RECEIVER

LEDs diod	Description of functions
LINE OT+	FLASHING - indicates functional OT communication, starts flashing when the communication line is connected OpenTherm and CPU initialization
	FLASHING - indicates boiler heating (UT and TUV)
Error OT+	FLASHING - indicates a fault in the boiler (eg disconnection of an external sensor, etc.)
Error	FLASHING - indicates a wireless error communication, starts flashing the first time the processor is initialized (4 to 10 minutes depending on power supply)
	LITS - indicates ongoing communication between the receiver and transmitter
PWR	LITS - indication of external source connection power supply AD05 (5 V / 2.5 A)
LEDs diod	**Special modes**
Error	FLASHING ALTERNATELY - code learning mode
Error	IT WILL FLASH AT THE SAME TIME - code learned



Install the receiver in a suitable place where its operation will not be affected by interference. Install it as far away as possible from large metal objects (min. 0.5 m) due to poor signal reception. When installing, make sure that no power lines pass around the receiver.

1. Attach the BT52 receiver to the wall using double-sided adhesive tape.
2. We bring the OT communication double line from the boiler to the terminal block marked LINE OT +. Initialization starts no LED is blinking on the processor (this may take up to 10 minutes). **We recommend using an external source AD05-Jack (not included), which ensures continuous power supply of the receiver and trouble-free operation.**

Wireless mode testing

As soon as the red Error LED starts flashing it is possible, after commissioning of the transmitter, to perform a wireless communication test. On the transmitter, press the button **MENU** and by turning the button „ ” select the TEST mode and confirm with ⏎. By turning the button „ ” you initiate the test.

Receiver function in case of OT line failure

a) the receiver is powered only via the OT line => If the OT line fails, the receiver will lose power and will not work. A message appears on the transmitter „TRANSMISSION ERROR" the symbol appears „ „ and the inscription disappears „ RFM". The boiler will work according to its thermostat!

b) receiver powered AD05 => In case of OT line failure the receiver will still be powered, yellow diode LINE OT + stops flashing and the „OT +" symbol on the transmitter disappears within 4 minutes!

Receiver function in case of wireless connection to the transmitter

a) receiver **has information on the outdoor temperature** from boiler => Automatically switches to equithermal control. If it has not been set, the thermostat will automatically select curve no. 12 with a shift of 2.5!

b) receiver **has no outdoor temperature information** from the boiler => It automatically switches to non-freezing mode, where it heats for 30 minutes to the maximum temperature given in CONST 5 and does not heat for 3 hours!

We recommend that the installation is carried out by a person with the appropriate electrical qualification!
In case of unprofessional intervention and damage, the product loses the warranty!

WIRELESS MODE

THERMOSTAT IS CODED BY MANUFACTURE, IT IS NOT NECESSARY TO SET THE CODE!

After connecting the receiver correctly (see page 4) and commissioning the transmitter, test the wireless connection as follows:

1, Wait until the receiver's processor is initialized and the red Error LED flashes .

2, On the transmitter, press the button **MENU** and by turning the button „ „ select the TEST mode and confirm with . By turning the button „ „ you initiate the test.

3, The blue LED on the receiver flashes .

4, When connected correctly, the OT + and RFM symbols for OT wireless communication will appear on the transmitter.

RECEIVER CODING

If the above test of the connection between the receiver and the transmitter has not failed (the message TRANSMISSION ERROR and the symbol ⚠) encoding is required.

1, Connect the receiver Immag.1 (see page 4) and commission the transmitter Immag.2 (more on page 6).

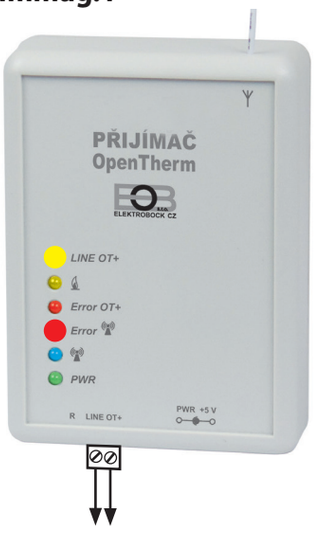
2, Wait until the receiver processor is initialized and the red LED starts flashing Error Immag.1.

3, On the receiver, press the button **R** at 1s - 4s, Error diodes and
they start flashing alternately - the so-called LEARNING MODE Immag. 3.

4, On the transmitter, press the button **MENU** and by turning the button „ „ select the TEST mode and confirm with . By turning the button „ „ you initiate the test (Immag.4).

5, Diods Error and they flash simultaneously on the receiver and thus the code is taught Immag.5.

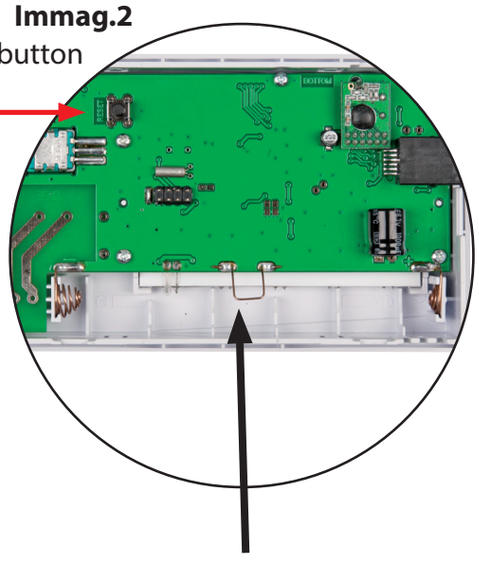
Immag.1



connect the OT line from the boiler

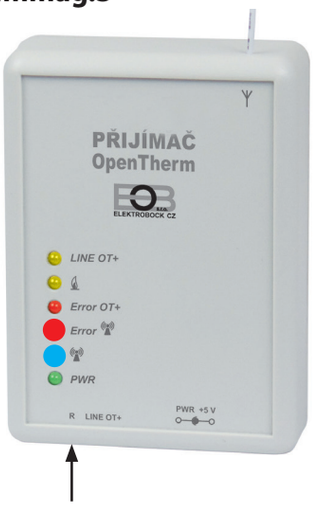
Immag.2

the button RESET



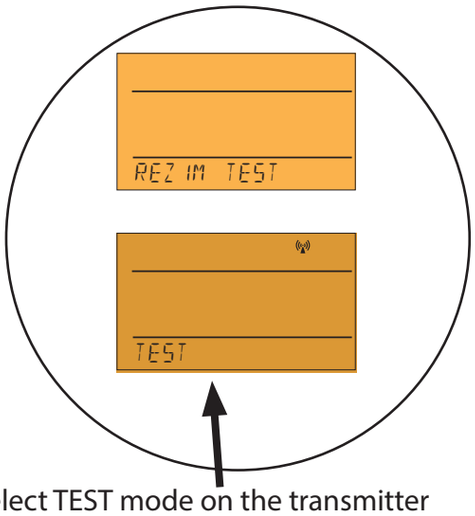
insert the batteries into the transmitter

Immag.3



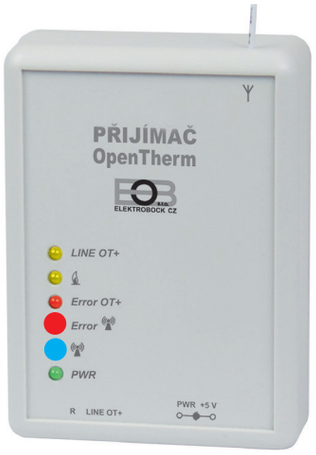
press the button **R** (1s to 4s) to switch to LEARNING MODE (LEDs flash alternately)

Immag.4



select TEST mode on the transmitter and turning the button „ „ perform the test.

Immag.5



THE CODE WAS LEARNED (LEDs flash simultaneously)

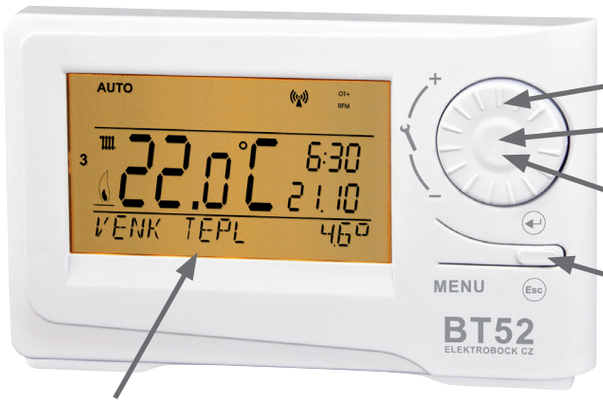
DESCRIPTION BT52- TRANSMITTER

The BT52 transmitter is freely portable and serves to transmit the required temperature to the receiver, which sends this request to the boiler. The clear display shows all current status, including information sent from the boiler.

The delay between data transmissions is max. 2 min.

Set constants, programs and functions according to the procedure described below!

In wireless mode, the boiler is fully controlled by requests from the transmitter!



Controls

by turning = change of set value

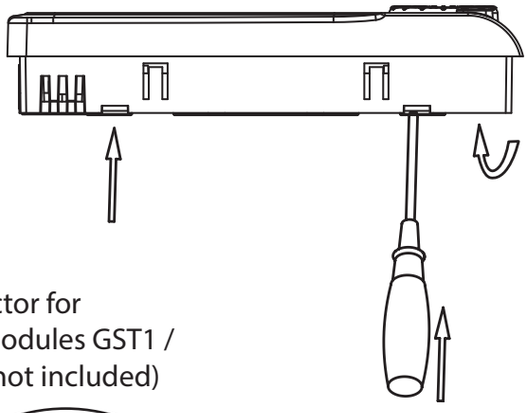
short press = Selection confirmation (entry)
= rapid change of the required temperature
or program (see page 15),
operating hours display (see page 15)

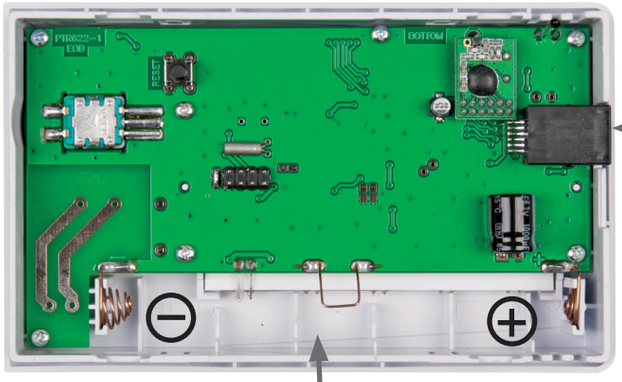
long press = step back (CONST mode only)
p.10-15)

by pressing = enter the main menu or
take a step back

Backlit display
after pressing any button, the backlight will turn on automatically for at least 5 s.

Removing the bottom cover
from the control part





connector for
GSM modules GST1 /
GST2 (not included)

space for placing alkaline batteries (2 x 1.5 V R6 / AA)

BATTERY LOCATION AND REPLACEMENT

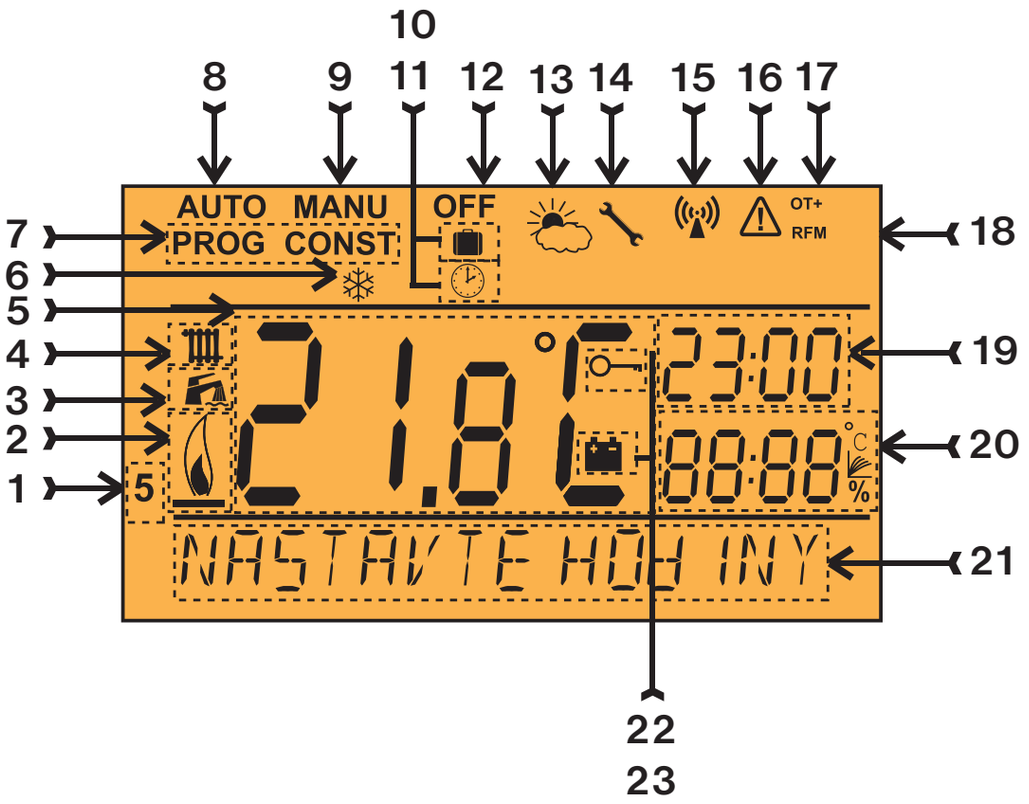
- remove the control unit from the bottom cover of the device, see „Disassembly“, remove the protective paper from the batteries and thus becomes BT52 functional
- when replacing the batteries, pay attention to the correct polarity, which is marked in the battery compartment
- the need to replace the batteries is indicated on the display by the flashing symbol
- always use alkaline batteries 2x1.5V type AA!

Warning: when replacing the batteries, which will be longer than 20 s, it is necessary to reset the clock!

(note: BT52 is equipped with E-EPROM memory, which retains stored data even in the event of a power failure)

! Dispose of used batteries in accordance with hazardous waste regulations!

DISPLAY DESCRIPTION BT52- TRANSMITTER



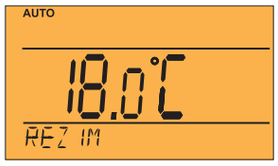
1, Current day (in Prog day selection for programming)
2, Heating on indication
3, DHW indicator
4, UT indicator
5, Current temperature in the room
6, Antifreeze mode
7, Setting modes programs (PROG) and constant (CONST) (p. 9 to p. 15)
8, Automatic mode (p.8)
9, Manual mode (p.8)
10, Holiday mode (p.8)
11, Clock setting mode
12, Permanent shutdown (p.8)
13, Summer mode
14, Boiler inspection indication
15, Signal transmission indication
16, Wireless communication error
17, Communication indication OpenTherm (OT +)
18, Wireless communication symbol
19, Current time
20, Current date / required temperature/ modulation power in% (in CONST mode e.g. equithermal curve number, see page 10 for more details)
21, Status bar, which changes dynamically according to the running process
22, Key lock indication
23, Low battery indication

DESCRIPTION OF FUNCTIONS AND THEIR SETTINGS BT52 - TRANSMITTER

Make sure that you have studied properly the introductory part of the manual with a description of the device, battery storage, button functions and display symbols (LCD)! The next part focuses on explaining the basic modes and setting important ones parameters for the correct operation of the BT52 transmitter.
The first press of any button activates the display backlight. Another short press of the button " **MENU** " you enter the main menu, where it is possible to select operating modes.

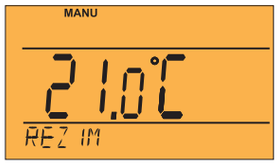
AUTO (weekly program Pr3 is set by default from the factory, see p.9)

The thermostat works according to the set weekly program (this program is possible change, detailed description see PROG p.9).
By turning the button twice " **MENU** ", turn the button " ↻ " select AUTO mode and confirm with " ↵ ".



MANU (factory set temperature 21 ° C)

The thermostat works according to the set temperature until the next manual change.
By turning the button twice " **MENU** ", turn the button " ↻ " select MANU mode and confirm with " ↵ ".



OFF (non-freezing temperature of 3 ° C is maintained - cannot be changed)

The thermostat is switched off until the next manual mode change.
By turning the button twice " **MENU** ", turn the button " ↻ " select OFF mode and confirm with " ↵ ".

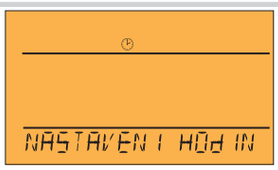
HOLIDAY

The thermostat maintains the set temperature until the set date and time.
After the set time has elapsed, it automatically returns to the last selected mode before the AUTO / MANU holiday.

By turning the button twice " **MENU** ", turn the button " ↻ " select mode
and confirm the button " ↵ ". Gradually set the temperature that the thermostat should keep during the holiday, the time and date of the holiday return. By turning the button " ↻ " change the values and press the button " ↵ " always confirm. After setting, press the button " Esc " to return to the basic view. Note: the holiday can be canceled at any time by selecting another AUTO or MANU mode.

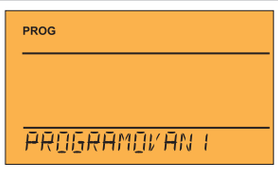
CLOCK SETTING

Set the current time and date.
By turning the button twice " **MENU** ", turn the button " ↻ " select the CLOCK mode and confirm with „ ↵ ". By turning the button " ↻ " change the values and press the button " ↵ " always confirm (set value always flashes), by the button " Esc " you return to the menu.



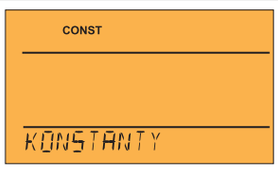
PROG (programming)

It is possible to set 9 weekly programs for UT (6 temperature changes per day). Programs Pr 1 and Pr 2 are empty, Pr 3 to Pr 7 are preset at the factory. Pr U and Pr L are also preset at the factory and are designed for the EVEN / ODD week option (more on page 13). It is also possible to set a 1-week DHW program (see page 9).



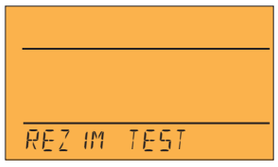
CONST (CONSTANT SETTINGS)

It is used to set control parameters and other thermostat functions (eg premature heating on, temperature correction, boiler type selection, summer mode, etc.).



TEST (TESTING THE CONNECTION WITH THE RECEIVER)

To test the wireless connection between the transmitter and receiver.
press the button **MENU** and by turning the button „ ↻ „ select the TEST mode and confirm with ↵. By turning the button „ ↻ „ you initiate the test.



To change the program settings for UT:

By turning the button twice " **MENU** ", turn the button " ↰ " select PROG mode and confirm with " ↵ ". The number of the selected program flashes on the display. By turning the button " ↰ " select the program you want to edit and confirm with " ↵ ". Turning the button " ↰ " select days for programming (it is possible to program day by day or 1-5 = Mon - Fri, 6-7 = Sat - Sun and 1-7 = Mon - Sun) and confirm with the button " ↵ ". **The 1st change** time flashes, by turning the button " ↰ " set the time (min. step is 10 minutes) and confirm with " ↵ ". To set this time, turn the knob " ↰ " temperature and confirm again with the button " ↵ ". **The 2nd change** time appears on the LCD. Follow the same procedure as at the first setting of changes.
In this way it is possible to set up to **6 temperature changes per day**.
To move back one step, briefly press the button " Esc ", to return to the basic view, press the key " Esc " for a long time.

After changing the preset program, check all the set changes meet your requirements!

It is not a condition to use all six changes in one day!

Changing the program settings for DHW:

In the program for DHW (**Pr t**) 3 time periods with different temperatures can be set (min. step is 1 hour). By turning the button twice " **MENU** ", turn the button " ↰ " select PROG mode and confirm with " ↵ ".
The number of the selected program flashes on the display. By turning the button " ↰ " select the program **Pr t** and confirm with the button " ↵ ". By turning the button " ↰ " select the number of days to program (it is possible to program day by day or 1-5 = Mon - Fri, 6-7 = Sat - Sun and 1-7 = Mon - Sun) and confirm the button " ↵ ". **The 1st time** flashes from turning the button „ ↰ " set the switching time and confirm the button " ↵ ". The data **1st time** to appears, by turning the button " ↰ " set the switch-off time and confirm the button " ↵ ". To set this time, turn the knob " ↰ " temperature and confirm again with the button " ↵ ". **The 2nd time** from appears on the LCD. Follow the same procedure as for the first change settings. In this way it is possible to set up to **3 temperature changes per day**. To move back one step, briefly press the button " Esc ", to return to the basic view, press the key " Esc " for a long time.

If you only want to change the DHW temperature temporarily, use the short-term DHW temperature change option:

Press the button 4 times" ↵ ", the LCD shows the required DHW temperature set in the DHW program (Pr t). By turning the button " ↰ " change the desired temperature and press the button " Esc " to return to the main menu.
0 = off, **range 10 to 65 ° C** in increments of 1 ° C.

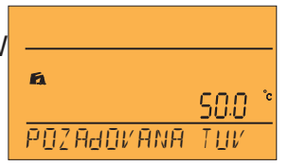


Table of temperature programs for UT and TUV

Factory preset programs: Pr3 to Pr7 (for UT), Pr U and Pr L (for UT and are intended for the selection EVEN / ODD week, more on page 13), the last program Prt (for DHW). All programs can be changed as needed.

program 1	1	2	3	4	5	6
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

program 2	1	2	3	4	5	6
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

Program t optional - for DHW reheating									
Intervals	1			2			3		
	from	to	°C	from	to	°C	from	to	°C
Monday									
Tuesday									
Wednesday									
Thursday									
Friday									
Saturday									
Sunday									

Preset program for DHW:
all week (1-7) all day (0-24) temperature 50 ° C.

Preset programs for UT (eg: data 5/21 means in 5 hours the required temperature is 21 ° C):

program 3	1	2	3	4	5	6
Monday	05/21	06/18	12/20	16/21	18/22	21/18
Tuesday	05/21	06/18	12/20	16/21	18/22	21/18
Wednesday	05/21	06/18	12/20	16/21	18/22	21/18
Thursday	05/21	06/18	12/20	16/21	18/22	21/18
Friday	05/21	06/18	12/20	16/21	18/22	21/18
Saturday	07/21	21/18				
Sunday	07/21	21/18				

program 4	1	2	3	4	5	6
Monday	06/21	07/18	15/21	18/22	22/18	
Tuesday	06/21	07/18	15/21	18/22	22/18	
Wednesday	06/21	07/18	15/21	18/22	22/18	
Thursday	06/21	07/18	15/21	18/22	22/18	
Friday	06/21	07/18	15/21	18/22	22/18	
Saturday	07/21	18/22	22/18			
Sunday	07/22	18/23	22/19			

program 5	1	2	3	4	5	6
Monday	08/21	09/18	15/21	18/22	23/18	
Tuesday	08/21	09/18	15/21	18/22	23/18	
Wednesday	08/21	09/18	15/21	18/22	23/18	
Thursday	08/21	09/18	15/21	18/22	23/18	
Friday	08/21	09/18	15/21	18/22	23/18	
Saturday	08/21	18/22	22/18			
Sunday	08/21	18/22	22/18			

program 6	1	2	3	4	5	6
Monday	07/21	09/18	15/22	18/23	22/18	
Tuesday	07/21	09/18	15/22	18/23	22/18	
Wednesday	07/21	09/18	15/22	18/23	22/18	
Thursday	07/21	09/18	15/22	18/23	22/18	
Friday	07/21	09/18	15/22	18/23	22/18	
Saturday	07/21	18/23	22/18			
Sunday	07/21	18/23	22/18			

program 7	1	2	3	4	5	6
Monday	07/22	09/18	15/23	18/24	22/18	
Tuesday	07/22	09/18	15/23	18/24	22/18	
Wednesday	07/22	09/18	15/23	18/24	22/18	
Thursday	07/22	09/18	15/23	18/24	22/18	
Friday	07/22	09/18	15/23	18/24	22/18	
Saturday	08/22	18/24	22/18			
Sunday	08/22	18/24	22/18			

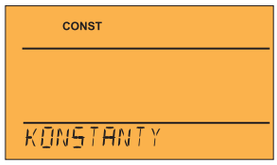
program U	1	2	3	4	5	6
Monday	06/20	08/18	14/21	17/22	22/17	
Tuesday	06/20	08/18	14/21	17/22	22/17	
Wednesday	06/20	08/18	14/21	17/22	22/17	
Thursday	06/20	08/18	14/21	17/22	22/17	
Friday	06/20	08/18	14/21	17/22	22/17	
Saturday	07/21	17/23	22/19			
Sunday	07/21	17/23	22/19			

program L	1	2	3	4	5	6
Monday	08/23	21/18				
Tuesday	08/23	21/18				
Wednesday	08/23	21/18				
Thursday	08/23	21/18				
Friday	08/23	21/18				
Saturday	08/23	21/18				
Sunday	08/23	21/18				

CONST (CONSTANTS)

Setting of control parameters.

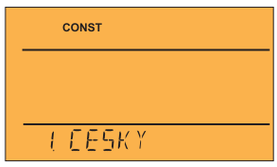
Press twice " **MENU** ", by turning the button " 🔧 " select the CONST mode and confirm with " ↵ ".



1. CZECH (factory set to Czech)

Language selection (CZ/PL/EN/DE/RU/SK).

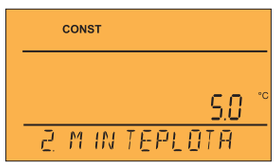
By turning the button " 🔧 " select the language and confirm with " ↵ ".



2. MINIMUM REGUL. TEMPERATURE (factory setting 5 ° C)

Temperature limit below which the required temperature cannot be set during programming. We choose in the range from **3 ° C to 10 ° C** (after 0.5 ° C).

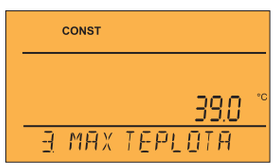
By turning the button " 🔧 " set the value and confirm with the button " ↵ ".



3. MAXIMUM REGUL. TEMPERATURE (factory setting 39 ° C)

Temperature limit above which the required temperature cannot be set during programming. We choose in the range from **15 ° C to 39 ° C** (after 0.5 ° C).

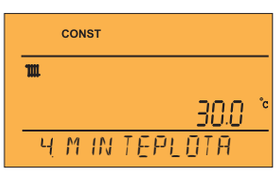
By turning the button " 🔧 " set the value and confirm with the button " ↵ ".



4. MINIMUM TEMPERATURE UT (factory setting 30 ° C)

It determines the lower limit of the required heating water temperature, calculated by the thermostat, when the boiler can start heating. This constant prevents unnecessary ignition of the boiler. Selectable range **5.0 ° C to 50.0 ° C (1.0 ° C each)**.

By turning the button " 🔧 " set the value and confirm with the button " ↵ ".



5. MAXIMUM TEMPERATURE UT (factory setting 70 ° C)

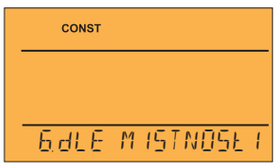
It determines the upper limit of the required heating water temperature, calculated by the thermostat, which the boiler must not exceed. The difference between min. and the maximum temperature must be greater than 8 ° C.

Selectable range 13.0 ° C to 85.0 ° C (1.0 ° C each).

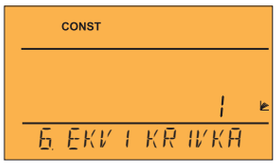
By turning the button " 🔧 " set the value and confirm with the button " ↵ ".

6. CHOICE OF REGULATION TYPE (factory set „ACCORDING TO ROOM")

ACCORDING TO PI = PI regulation
(according to the internal temperature), the thermostat heats up depending on temperature in the reference room. It is necessary to set the parameters of PI control constants no.7 and 8!



1 - 60 = **EQUITHERMAL regulation**, number 1 to 60 corresponds to the required heating curve (see page 11). Follow the instructions when selecting equithermal control listed in the heating curve graph.



By turning the button " 🔧 " select the type of regulation and confirm with the button " ↵ ".

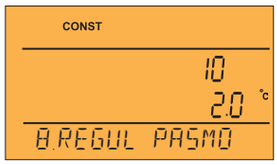
REGULATION CHOICE PI REGULATION, CONSTANT No. 6 SET „ACCORDING TO THE ROOM":

7. REGULATORY INTERVAL PI REGULATION (factory setting 10 minutes)

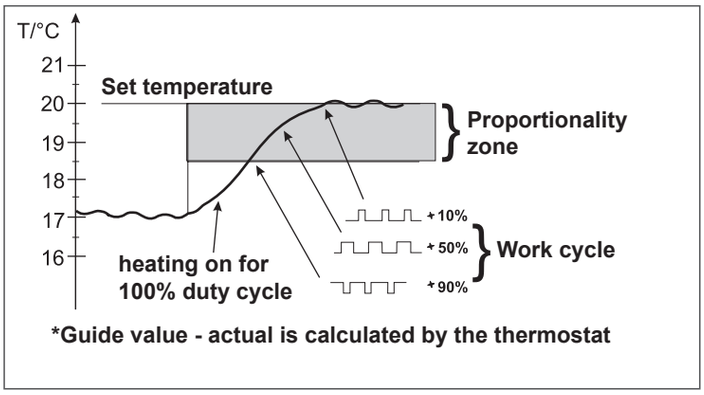
It is selected according to the temperature inertia of the object. The optimal setting is usually 10 to 15 minutes. Selectable range **5 min to 20 min** (1 min each).
The length of the interval in minutes affects the oscillation of the system. The lower this value, the greater the risk of oscillations.

By turning the button " 🔧 " set the value and confirm with the button " ↵ ".

8. REGULATION ZONE OF REGULATION (factory setting 2 ° C)

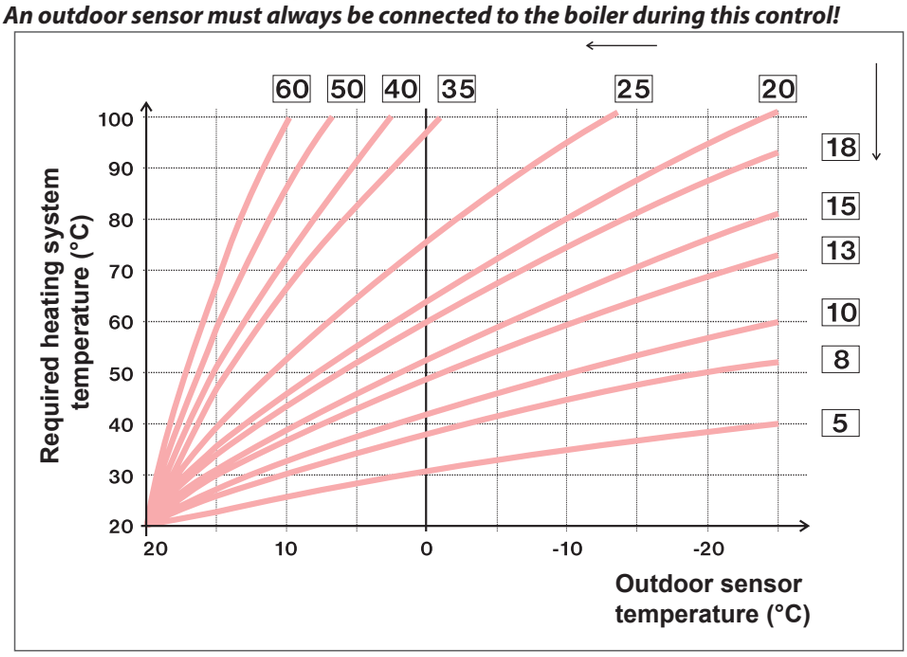


Only when PI control is selected (constant 6 = no equitherm). The so-called The „proportional band" indicates when the thermostat starts to limit the UT temperature (when the PI control starts).
Selectable range **0.5 ° C to 3.0 ° C (0.1 ° C each)**.
By turning the button " ↿ " set the value and confirm with the button " ↵ ".



EQUITHERMAL CONTROL SELECTION, CONSTANT NO.6 CURVE „1-60" SET:

When selecting this control, an outdoor sensor must be installed, which is **part of the boiler**!
Equithermal control is suitable for large objects where it is not possible to determine the reference room. The principle of equithermal control is the optimization of the water temperature of the heating system depending on the outdoor temperature. This dependence is expressed by the stated equithermal curves (for the required room temperature of 20 ° C), according to which we choose the required water temperature of the heating system. The thermostat calculates the heating water temperature according to the selected equithermal curve, which it then sends to the boiler. The boiler then regulates the heating water temperature to the required value. It is necessary to select the steepness of the curve according to the heating system in order to avoid permanent overheating or underheating of the building. Choosing the right curve for a given system is a long-term matter and it is necessary to test the system at different outdoor temperatures! The internal temperature in the rooms should be adjusted, for example, by regulation with thermostatic heads. ***The water temperature of the heating system is limited to min. and max. limits, which are set in constants No. 4 and 5! An outdoor sensor must always be connected to the boiler during this control!***



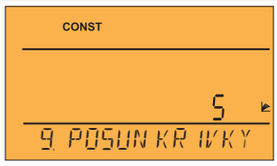
If you select the desired room temperature other than 20 ° C, the thermostat calculates the automatic curve shift according to the following equation, where the coefficient is 1:

shift = (required temperature - 20) * coefficient / 2

... where offset is the offset of the calculated heating system temperature in ° C, the required temperature is the set room temperature and the coefficient is the value set in constant no.9 (p.12)
Note: the most commonly used curve in our conditions is about 9-11 for low temperature systems and about 15-17 for classic heating systems.

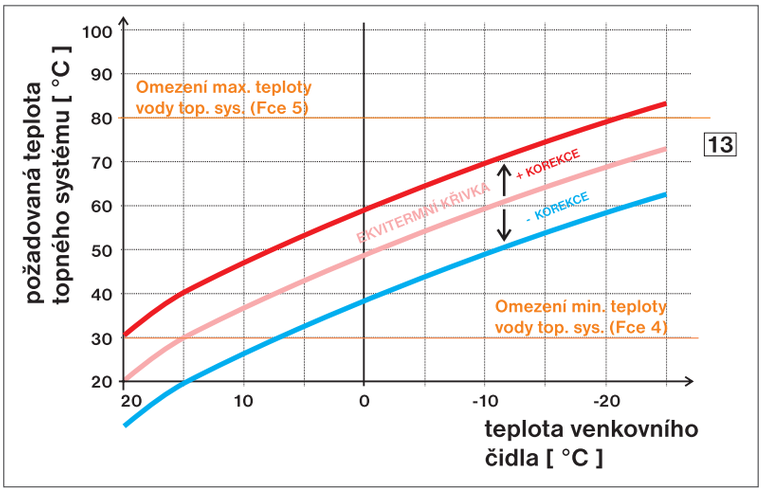
For a clearer selection of equithermal curves and parameters, we recommend: https://history.elektrobock.cz/Equitherm

9. SHIFT TO CURVE (factory setting 5)



1 - 20 = **manual correction according to the coefficient**, we will use it if the temperature is still not according to your requirements (after 0.5).

When selecting the manual correction, you set the coefficient of the heating curve shift, where at different. At the required temperatures in the reference room, you can regulate the heating water according to current outdoor temperatures (see page 11 for the formula).

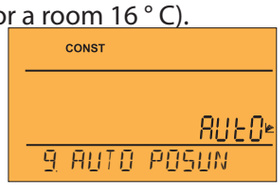


Example describes the choice of equithermal curve No.13 (pink) and its calculated correction by a factor of 5 (for the required room temperatures of 24 ° C at 16 ° C). We will achieve optimal settings system, where the water temperature of the heating system is regulated according to the current outdoor temperature.
Displacement calculation according to the formula:

10°C = (24 - 20) * 5/2

-10°C = (16 - 20) * 5/2

Ie. according to the graph, at an outdoor temperature of -10 ° C the heating water temperature will be approx. 70 ° C (if required for a room 24 ° C) and approx. 50 ° C (if required for a room 16 ° C).

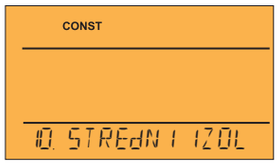


AUTO = **automatic correction**, according to the internal temperature measured in the reference rooms. We can use this option only after the correctly selected equithermal curve!

During this control, the heating curve is automatically corrected depending on both the outdoor temperature and the current temperature in the reference room where the thermostat is located. This achieves higher thermal comfort in the heated space, optimal operation of the heating system and thus higher savings! It must be at the boiler during this regulation ***always connected outdoor sensor*** and constant No.9 must be set to „AUTO"!

By turning the button " 🔧 " select the correction and confirm with " ↵ ".

10. BUILDING INSULATION (factory set „medium")



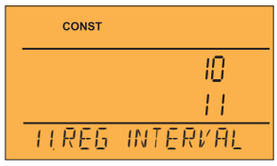
The rate of change of the room temperature during frequent outdoor temperature fluctuations depends on construction and insulation of the building. With this constant, the rate of temperature change can be taken into account according to the type of heated building (only with equithermal control).

wrong = uninsulated building, reacts quickly to changes in outdoor temperature
medium = isolated building, responds more slowly to changes in outdoor temperature
correct = well insulated building, responds most slowly to changes in outdoor temperature

By turning the button " 🔧 " select the correction and confirm with „ ↵ ".

(from production 10 minutes)

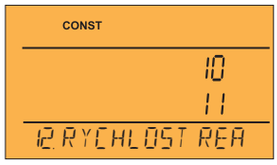
11. REGULATORY INTERVAL EQUITHERMAL REGULATION



It is selected according to the temperature inertia of the object. The optimal setting is usually 10 to 15 minutes.
Selectable range **5 min to 20 mi**n (1 min each).The length of the interval in minutes affects the oscillation of the system. The lower this value, the greater the risk of oscillations.

By turning the button " 🔧 " select the correction and confirm with „ ↵ ".

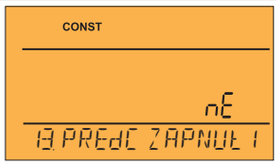
12. RESPONSE SPEED (factory setting 11)



Active only when selecting equithermal control with automatic correction according to the internal temperature! Determines how fast the desired temperature is reached. Selectable **range 1 to 16** (1 each).At reaction rate 1, the desired temperature is reached slowly, which prevents the possibility of overshoot, but the desired temperature is reached later. At reaction rate 16, when the desired temperature changes, it immediately heats up to the desired temperature, but an overshoot occurs.

By turning the button " 🔧 " select the correction and confirm with " ↵ ".

13. EARLY SWITCHING ON THE HEATING (factory setting NO)



This function guarantees you the desired temperature at the desired time. You don't have to think about when to turn on the heating so that it gets warm in the morning when you get up and it doesn't heat unnecessarily long in advance. Just set the temperature program in Prog mode and activate this function. During two days of operation, the thermostat determines the thermal constants of the room and then switches on the heating well in advance. The early switch-on time is limited to maximum 2 hours

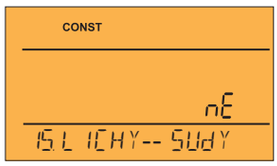
By turning the button " 🔧 " set YES / NO and confirm with the button " ↵ ".

14. SUMMER MODE (factory setting NO)

Heating on is not allowed in this mode. The use is mainly during the summer, when it is not necessary to drown. After activating this mode, the symbol appears on the display" ☀ ".
Note: frost protection (3 ° C) and DHW functions are still functional. You cannot change the temperature and set the holiday mode in this mode!

By turning the button " 🔧 " set YES / NO and confirm withthe button " ↵ ".

15. EVEN EVEN-ODD WEEK (factory setting NO)



If „YES" is selected, the PrU and PrL programs will be switched automatically, depending on the week (even / odd). This setting is advantageous, for example, during shift operation (every week there are different requirements for thermal comfort in the building).

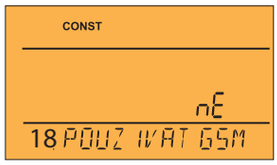
By turning the button " 🔧 " set YES / NO and confirm withthe button " ↵ ".

16. TEMPERATURE CORRECTION (factory setting 0 ° C)

It is used to correct the temperature measured by the thermostat. The setting must be made only after 12 hours of operation, when the temperature of the internal sensor stabilizes. Measure the room temperature with a thermometer, if the temperature differs from the temperature on the thermostat, set **the correction between -5 ° C and + 5 ° C.**

By turning the button " 🔧 " set YES / NO and confirm withthe button " ↵ ".

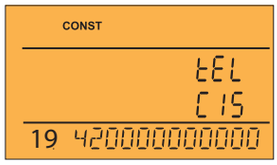
18. USE GSM (factory setting NO)



With this constant we select the possibility of controlling the thermostat via the GSM module.
NO gsm module is not enabled
YES gsm module enabled, it is necessary to set CONST 19, 20!

By turning the button " 🔧 " set YES / NO and confirm with the button " ↵ ".
Note: If you select YES and do not connect the module, it will appear on the LCD in the basic display „GSM NOT CONNECTED" warning. The control of the GSM module is described in detail in the instructions on GST1/GST2.

19. TELEPHONE NUMBER SETTINGS



This constant can be set if CONST18 = YES, thus determining the possibility of connecting a GSM module for control by a mobile phone.
We're setting up a phone number in the international format (420123456789), to which return SMS messages about the thermostat status are to be sent.

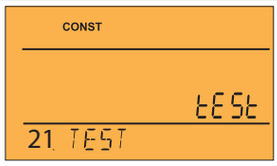
By turning the button " 🔧 " set the phone one by one. number, confirm each setting with the button " ↵ ".

20. PIN CODE SETTINGS

This constant can be set if CONST18 = YES, thus determining the possibility of connecting a GSM module for control by a mobile phone. **We set the PIN code of the SIM card, which is inserted into the GST1 or GST2 module.**

By turning the button " 🔧 " set 4 numbers one after the other, confirm each setting with the button " ↵ ".

21. TEST

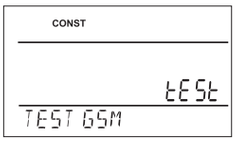


We recommend using the thermostat for wireless authentication the first time you use it communication!

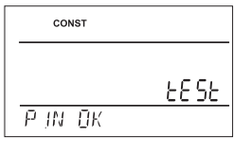
Turning the button " 🔧 " the test starts and switches on / off several times output relay (ON / OFF appears on the LCD). The button " ↵ " the next constant is displayed, to return to the main menu press the button " Esc ".

When the GSM module is connected, it is used to verify the correct PIN code.

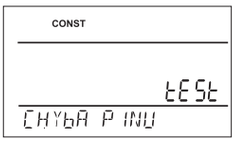
After connecting the GSM module according to the procedure on page 16, turn the " 🔧 ", the following message appears on the LCD:



In progress control connection module.



Module is connected and PIN is entered correctly.



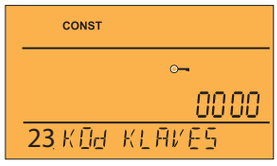
Wrong PIN entered, reset the transmitter and reconnect the module.

22. KEY LOCK (factory setting NO)

It is used to lock the controls. It serves as protection against unwanted manipulation by a third party.

By turning the button „ 🔧 " set YES / NO and confirm with the button " ↵ ".

23. KEY CODE



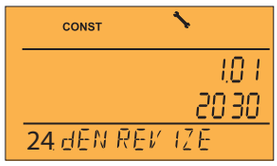
This constant can be set if CONST22 = YES. Used to enter a code that will be able to activate the controls. We set a combination of 4 numbers (in the range 0 to 9).
The keys will be locked within 1 minute (after entering the basic display) symbol shown " 🔑 When you press the button " ↵ " or " Esc " the LCD prompts you to enter the key code, after entering the correct code it is possible to make any changes (the controls are functional again).

By turning the button " 🔧 " set 4 numbers one after the other, confirm each setting with the button " ↵ ".

YOUR CODE

RECOMMENDATION: - record the key code in the table
- code cancellation is possible by selecting NO in CONST22 or by specifying thermostat to factory settings (reset button, located inside the control part + button Esc)

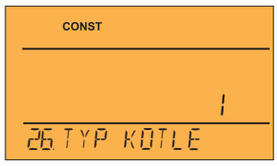
24. BOILER INSPECTION NOTICE (factory set 1.1.2049)



We will set the date when we want to be informed about the need for the prescribed boiler service. At the required date, the word „NECESSARY MAINTENANCE" will appear on the bottom line of the LCD a symbol " 🔧 " (We will cancel the data by entering a new date for the next boiler maintenance!).

By turning the button " 🔧 " set the day, month and year one by one, confirm each setting with the button " ↵ ".

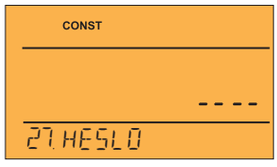
26. BOILER TYPE (factory setting 1)



Possibility to select a boiler that has a modified OT communication.
1 - universal (fits most boiler types) 5 - Viessmann
2 - Thermona gas boilers 6 - Dakon
3 - Thermona electric boilers 7 - De-Dietrich
4 - Ferolli 8 - ACV

By turning the button " 🔧 " select the boiler type and confirm with the button " ↵ ".

27. PASSWORD (not set at the factory)

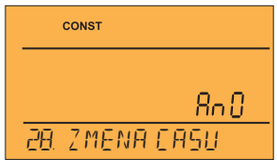


It is used to block constants related to the setting of the given regulation.
Convenient for service technicians. After entering the numeric code, the user cannot change constants Nos. 6,7,8,9,10,11,12 and 26.
When entering CONST mode and scrolling through constants, a key character appears for blocked constants „ 🔑 " when turning the button " 🔧 " a password will be required! If no password is entered, the constants remain locked. For the next attempt to unlock, it is necessary to leave the CONST mode and scroll through the locked constant again.

By turning the button " 🔧 " enter four numbers one after the other and confirm each setting with the button " ↵ ".

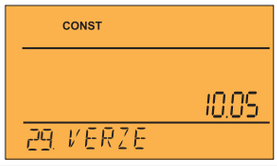
28. TIME CHANGE (factory setting YES)

If YES, DST / WINTER time is automatically changed according to the calendar. You don't have to watch when the time changes, the thermostat will take care of the automatic time setting for the given period.



29. VERSION (factory reset)

Firmware version, information only.
If you press and hold (approx. 3 s) the button " Esc ",RESET appears briefly on the LCD and the thermostat returns to the factory settings!



MORE INFORMATION

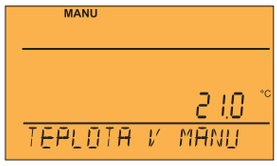
By successively pressing the button "↵" in AUTO / MANU modes, additional information can be obtained, which the boiler transmits to the thermostat (note that this information may be different depending on the boiler type):

QUICK CHANGE OF REQUIRED TEMPERATURE / PROGRAM

Press twice "↵", the required temperature flashes on the display. By turning the button " ↰ " change the desired temperature and press the button " ↵ " for more information or " Esc " to return to the main menu.

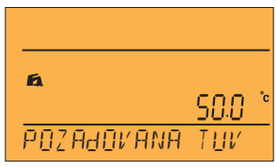
In AUTO mode the change will last until the next change given by the program. In this mode, you can select another program in the same way.

In MANU mode the change will be permanent.



SHORT - TERM CHANGE OF REQUIRED DHW TEMPERATURE

Press 4x the button " ↵ ", the LCD shows the required DHW temperature set in the program for DHW (Pr t). By turning the button " ↰ " change the desired temperature and press the button " Esc " to return to the main menu.
0 = off, range 10 to 65 ° C up to 1 ° C.



OUTDOOR TEMPERATURE INFORMATION

Information about the current outdoor temperature. **The condition is a connected sensor at the boiler!**

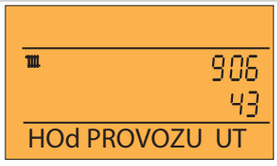
INFO ABOUT UT TEMPERATURE AND MODULATION POWER

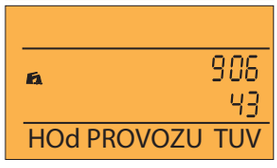
Required UT = calculated UT temperature according to the selected equithermal curve, without regardless of min. and max. possible water temperature UT.

Actual UT = current water temperature UT
Modul performance = boiler modulation output in%

UT AND TUV OPERATING HOURS

Indication of operating hours of the boiler for DHW and DHW heating. The indication on the LCD means 906 hours 43 minutes (max. 9999 hours 999 minutes).
Clock reset:
After displaying the operating hours, turn the button " ↰ " to the left (counterclockwise).



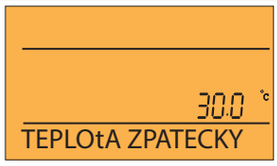


FLOW

Display of water flow information in liters per minute (in UT).

REVERSE TEMPERATURE

If the boiler allows it, the return temperature to the boiler is displayed in this position.



ERROR MESSAGES

If the communication line between the thermostat and the boiler is disconnected or interrupted, is displayed on the LCD " **LINK DISCONNECTED** " (When connecting for the first time, the thermostat must be connected to the boiler via the OT line for approx. 30 minutes).

If the batteries in the transmitter are disconnected for more than 20 s, it is necessary to set the date and time, but the constants and programs remain in the thermostat!
In this case, a warning is displayed on the last line of the display „**SET THE CLOCK**"
The OpenTherm protocol allows sending error messages from the boiler to the thermostat, which are of various importance. BT52 displays these messages on the last line of the display:

- **E xxx** , where **xxx** takes on values **001 up to 255**. This type of error may vary depending on the boiler manufacturer, therefore it is necessary to contact a service technician or manufacturer. These are errors such as: bad draught flue gas, outdoor temperature sensor error, etc.
- **ERROR ACTUAL UT** - UT temperature = the boiler did not receive information about the current UT temperature, contact the boiler service.
- **ERROR TRANSMISSION** = in case of wireless signal failure between the receiver and the transmitter! Check the function of the receiver and perform a TEST on the transmitter (see page 8)

⚠ - wireless communication error between receiver and transmitter. Check the function of the receiver and perform a TEST on the transmitter (see page 8)
- temperature measurement error = internal thermostat sensor is damaged, contact the manufacturer.

ANTIFREEZE MODE

If the room temperature drops below 3 ° C, the BT52 automatically sends a command to switch on the boiler. As soon as the temperature rises by 0.5 ° C, it returns to the set mode.

DESCRIPTION OF SETTINGS WHEN USING GSM MODULE

The system can be extended by a GSM module GST1 or GST2 (not included - must be purchased separately), which will allow remote control of the thermostat via a mobile phone. We control or obtain heating with simple SMS messages thermostat status information. The following procedure must be followed for correct commissioning:

1) Install and adjust the BT52 thermostat according to the instructions.
2) For the CONST18 constant, set the option to YES (use GSM) and then set CONST19 and CONST20 according to instructions from p.13.
3) Insert the activated SIM card into the GST1 (or GST2) module.
4) Connect the thermostat and the GSM module using a data cable (included in the GST1 or GST2 package) and connect power supply of GSM module for el. 230 V / 50 Hz (the green LED on the module lights up and the orange LED flashes).
5) As soon as the orange LED lights up, test the correct connection TEST mode (p.8) - for automatic connection the connection always takes place within 3 minutes, without using the TEST function.

SHAPE OF SENDING MESSAGES

Status	heating system status information
Auto	setting the AUTO mode, the thermostat will work according to the last set temperature program
Manu	setting the MANU mode, the thermostat will keep the last permanent set temperature
Switch off	switching off the heating system, messages can be used to cancel the function Temperature xx or Auto or Manu
Temperature xx	change of the required temperature (only whole numbers can be entered and must be in the range permitted maximum and minimum temperatures)
Call	callback

xx = temperature value in ° C (always a two-digit number, eg 05)

Any type of mobile phone can be used to send and receive feedback !!
If your phone has the option to set the font size (format), always use MEDIUM size (option of three font sizes) or LARGE size (option of two font sizes) when writing messages.

SHAPE OF THERMOSTAT FEEDBACK

Assigned: xx.x	is the required temperature (entered by the user)
Act: xx.x	is the current room temperature
Switch ON **Switch OFF**	heating system ON heating system OFF
AUTO **MANU** **OFF**	the thermostat is in AUTO mode the thermostat is in manual MANU mode the thermostat is permanently switched off
Sig: x	specifies the magnitude of the signal at the location of the module, where x are values in the range 0 to 5: 0..No signal can be determined or detected 1. worst level 5..best signal level
Out: xx.x	is the current temperature of the outdoor sensor (if used at the boiler)
E xxx	error message, where xxx takes values from 001 to 255 (this type of error may vary depending on the boiler manufacturer, therefore it is necessary to contact the service technician or the manufacturer, these are errors such as: poor flue gas exhaust, outdoor temperature sensor error, etc.)
LINE	signals an OT line error
RF Err	signals a wireless communication error between the receiver and the transmitter
Not accepted!	signals an error (wrong SMS format, etc.)

xx.x = temperature value in ° C

FEEDBACKS ARE SENT WITHIN 3 MINUTES!

Note: If the min./max. Is exceeded. room temperature (set CONST 2 and 3, see manual BT52 p.10) a „WARNING“ SMS message in the form of Status is automatically sent.

Info: When using a prepaid card, it is necessary to make a paid call once every 3 months. This call is made automatically (in 80 days from 4 pm to 9 pm) to the telephone number specified in the thermostat (CONST 19) and after 20 seconds the call is automatically terminated. We can perform this function earlier by SMS „Call“.

Our tip! As a cost-effective solution, we recommend using a flat rate offer - eg daughter SIM cards with a favorable tariff or other low tariffs (you can find more information with your mobile operator):

TECHNICAL PARAMETERS

RECEIVER	
Power supply	directly from the OpenTherm communication line (it is possible to use an external source AD05-Jack, not included in the package)
Communication line polarity length	double line without polarity up to 50 m
Type of communication	two-way OpenTherm
Frequency	433,92 MHz
Range	200 m (open area), 25 m (built-up area)
Degree of protection	IP20
Operating temperature	0°C up to +40°C

TRANSMITTER	
Power supply	2x1.5 V alk. batteries 2x1.5 V
Type of communication	bidirectional
Frequency	433,92 MHz
RF power	<10 mW
Range	200 m (open area), 25 m (built-up area)
Number of temperature changes	for each day 6 temperature changes with different temperature
Minimum programming time UT	10 minutes
Minimum DHW programming time	1 hour
Adjustable temperature range	3 up to 39°C
UT adjustable temperature range	5 up to 85°C
Adjustable DHW temperature range	0, 10 up to 65°C
Temperature settings	each 0,5°C
Minimum indication jump	0,1°C
Measurement accuracy	±0,5°C
Battery life(time)	1 up to 3 years depending on the type of battery used
Degree of protection	IP20
Operating temperature	0°C up to +40°C

EU DECLARATION OF CONFORMITY

Here is ELEKTROBOCK CZ s.r.o. declares that the BT52 type of radio equipment complies with Directive 2014/53 / EU. The full text of the EU Declaration of Conformity is available at the following Internet address: www.elbock.cz

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In case of warranty and post-warranty service, send the product to the manufacturer's address.

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