

COMPUTHERM Q3RF

wireless (radio-frequency) digital
room thermostat



NEW
software!

Operating Instructions

You can watch the most important aspects of the usage of this thermostat on our video presentation at www.quantrax.hu or www.computherm-hungary.hu.

GENERAL DESCRIPTION OF THE THERMOSTAT

The **COMPUTHERM Q3RF** type switched-mode room thermostat is suitable to regulate the overwhelming majority of boilers and air conditioners available in Hungary. It can easily be connected to any gas boiler or air conditioning device that has a double wire connector for a room thermostat, regardless of whether it has a 24V or 230V control circuit.

Temperature can be measured and set more precisely as compared to simple, conventional thermostats. In heating mode, in accordance with the selected switching sensitivity, the thermostat switches the boiler or any other appliances on and off below and above the adjusted temperature, respectively, and contributes to reduce energy costs while maintaining comfort. In cooling mode it switches exactly the opposite way.

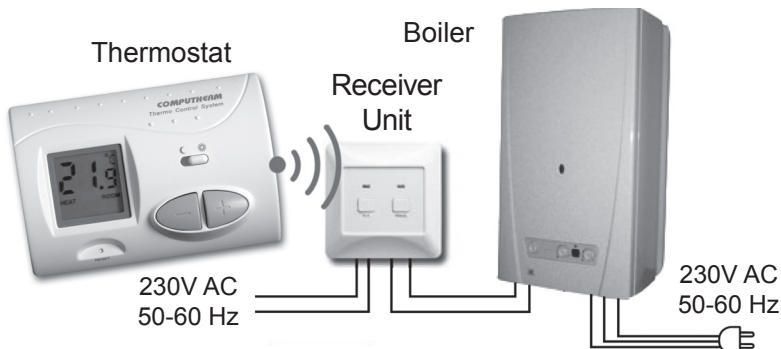
The device consists of two units. One of them is the portable control unit (thermostat), while the other unit is the receiver that controls the boiler. Because there is a wireless (radio-frequency) connection between the two units, no cable is required between the thermostat and the boiler. The two units have been tuned in the factory so that they operate at the same frequency. The trouble-free operation is ensured by its own security code. The installation and connection of the receiver unit is described in Section 7.

To increase the lifetime of the batteries, the thermostat will not transmit signals continuously. Instead it will repeatedly transmit the actual signal every 5 minutes. Therefore, the regulation of the heating or cooling will continue even after a blackout.

The portability of the thermostat offers the following advantages:

- no need to lay a cable, which is especially advantageous when old buildings are being modernized,
- the optimal location of the device can be selected during operation,

- it is also advantageous when you intend to locate the thermostat in different rooms in the course of the day (e.g. in the living room during the day but in the bedroom at night).



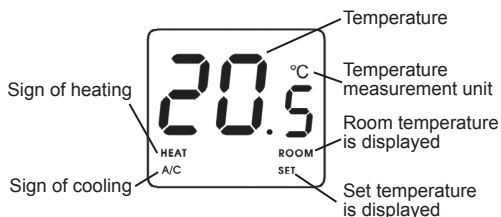
The effective range of the transmitter incorporated in the thermostat is approximately 50m in open terrain. This distance may become considerably shorter within a building, especially when a metal structure, reinforced concrete or adobe wall stands in the way of radio waves.

The switching sensitivity of the thermostat can be set to $\pm 0.1^{\circ}\text{C}$ or $\pm 0.2^{\circ}\text{C}$ (default setting). This means the difference between the adjusted temperature and the actual temperature measured during the switching process. In case of the $\pm 0.2^{\circ}\text{C}$ switching sensitivity and heating mode for example, if the set temperature is 20°C , then the device switches the boiler on at 19.8°C or below, and switches it off at 20.2°C or above. Please refer to Section 3.1 for the modification of the factory default switching sensitivity of $\pm 0.2^{\circ}\text{C}$.

This wireless (radio-frequency) thermostat can also be easily extended with the **COMPUTHERM Q1RX** socket if needed, with which the thermostat is able to control boilers or any other

electrical devices operating on 230V (50Hz; max. 10A) (e.g. fan heaters, pumps, zone valves, etc.) according to the room temperature.

The information shown on the liquid crystal display of the thermostat includes the following:



1. LOCATION OF THE DEVICE

The thermostat of the **COMPUTHERM Q3RF** type device can be freely moved in your residence. It is reasonable to locate it in a room used regularly or for many hours per day so that it is in the direction of natural ventilation in the room but protected from drought or extreme heat (e.g. direct sunlight, refrigerator, chimney, etc). Its optimal location is 1.5 m above floor level. It can be placed on its own stand or can be mounted on a wall.

IMPORTANT WARNING! If the radiator valves in your flat are equipped with a thermostatic head, adjust it to maximum temperature or replace the thermostatic head of the radiator valve with a manual control knob in the room where the room thermostat is to be located, otherwise the thermostatic head may disturb the temperature control of the flat.

2. PUTTING THE THERMOSTAT INTO OPERATION

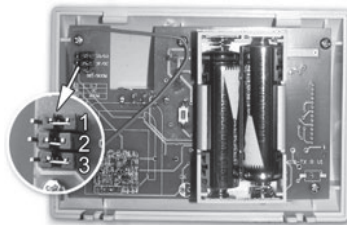
To put the thermostat into operation, detach the rear panel of the thermostat from the front panel by loosening the screws at the bottom of the cover as shown in the figure.



The battery compartment is in the inner side of the front panel of the housing. Insert 2 AA **alkaline** batteries (LR6 type) in accordance with the diagram in the battery compartment. After the batteries have been inserted, the display flashes the measured room temperature. (If this information fails to appear on the display, press the „**RESET**” button with a wooden or plastic stick. To press the button, do not use any electrically conductive materials, e.g. graphite pencil).

3. BASIC SETTINGS

After removing the rear panel of the device, the following factory default settings can be modified by relocating the jumpers (black plugs) located on the base panel.



3.1 Selecting the Switching Sensitivity (Accuracy)

The switching sensitivity of the thermostat can be selected or adjusted by the uppermost jumper.

With factory default settings the jumper is located on the central and right pins, resulting in a switching sensitivity of $\pm 0.2^{\circ}\text{C}$. It can be modified to $\pm 0.1^{\circ}\text{C}$ by relocating the jumper onto the left and central pins. A smaller switching sensitivity results in steadier room temperature and therefore in higher comfort. The heat

loss of the room (building) does not depend on the switching sensitivity.

If higher comfort is needed, the switching sensitivity should be set so that it provides a steadier room temperature. On the other hand, please also take into account that the boiler should not switch on and off multiple times in an hour's time except at low outside temperatures (e.g. -10°C), since the frequent on and off switches of the boiler reduce its efficiency and hence increases the gas consumption. We recommend using the $\pm 0.1^{\circ}\text{C}$ switching sensitivity for heating systems with high thermal inertia (e.g. underfloor heating), and the $\pm 0.2^{\circ}\text{C}$ switching sensitivity (factory default setting) for heating systems with low thermal inertia (e.g. flat panel radiators).

3.2 Switching between the Heating and Cooling Mode

The heating or the cooling mode of the thermostat can be selected by the central jumper.

With factory default settings the jumper is located on the central and right pins, which selects the heating mode. By relocating the jumper onto the left and central pins, the cooling mode can be selected. The output terminals **No. 1** and **No. 2** of the receiver unit are closed below the set temperature in heating mode, and they are closed above the set temperature in cooling mode (taking the switching sensitivity into account). The closed state of the output terminals **No. 1** and **No. 2** are indicated by the notice „HEAT“ (heating) or „A/C“ (cooling) in the bottom left corner of the display, according to the selected mode.

3.3 Selecting the Displayed Temperature

The temperature(s) to be shown on the display can be selected and set by the bottommost jumper.

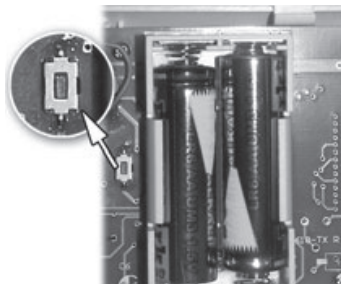
With factory default settings the jumper is located on the central and right pins, in which case the display shows the currently measured

room temperature value, while the notice “**ROOM**” appears in the bottom right corner of the display. In this case, the adjusted temperature is visible only during the adjustment process, for approximately 7 seconds after the last button has been pushed. By relocating the plug onto the left and central pins the displayed temperature can be modified so that the display alternately shows the current room temperature and the adjusted temperature for 4 seconds, respectively. In this mode, the notices “**ROOM**” and “**SET**” are alternately shown under the currently displayed temperature in the bottom right corner of the display, indicating whether the display shows the room temperature or the adjusted temperature value.

ATTENTION! *If the modification of the basic settings was done after inserting the batteries and the modifications did not take effect, please press the “**RESET**” button with a small wooden or plastic stick to activate them. To press the button, do not use any electrically conductive materials (e.g. graphite pencil).*





3.4 Synchronising the Thermostat and the Receiver Unit

In order to have a safe, reliable and trouble-free wireless (radio-frequency) connection, both the thermostat and the receiver unit have their own safety codes. After installing the receiver unit, the two units should be synchronised by pressing the “**LEARN**” button next to the battery compartment of the thermostat. Therefore do not replace the rear panel of the thermostat onto the front panel before synchronisation. The process of synchronisation is described in Section 7.2.





4. SETTING THE DESIRED TEMPERATURE





After putting the thermostat into operation and adjusting the basic settings the thermostat is ready for operation and the adjustment of the temperature can be started.



Above the temperature adjustment buttons ( and ) a switch is located. For both the economy () and the comfort () positions of the switch a different temperature can be set between 5°C and 35°C, in steps of 0.5°C.



For energy efficiency it is recommended that the comfort temperature is only used those times, when the room or building is in use, because every 1°C decrease of temperature saves approximately 6% energy during a heating season. As opposed to common belief, keeping a flat warm requires more energy than heating it up. (When using a stove, more gas is needed to keep a pan of water boiling than to just keep it warm.)

The factory default temperature is 18°C for the economy () position and 20°C for the comfort () position. These default temperatures can be changed as follows:

- Move the switch according to the temperature you would like to change (economy () or comfort ()).
- Press the  or  button, after which the notice “ROOM” disappears, the notice “SET” (adjusted value) appears in the bottom right corner of the display. Meanwhile, the temperature value shown on the display switches from room temperature to the default temperature (18.0°C/20.0°C) or to the last set temperature (this temperature is blinking on the display). By pressing the buttons repeatedly or continuously (the change in values is accelerated), the desired temperature to be maintained at the place where the thermostat has been installed can be set in steps of 0.5°C.

- Approximately 7 seconds after setting the room temperature to be maintained, the device automatically switches to normal mode. The notice “**SET**” disappears from the bottom right corner of the display, and once again the current room temperature and the notice “**ROOM**” are displayed.
- The previously set temperature can be freely changed any time using the  and  buttons. Always the last set temperatures are in effect.

5. OPERATION OF THE INSTALLED THERMOSTAT

After setting the economy and comfort temperatures, the temperature needed at the moment can be selected using the switch.

5.1 Economy Mode (☾) (left hand position of the switch)

In the left hand position of the switch, the thermostat provides the set economy temperature (e.g. night temperature) to be maintained at the place where the thermostat has been installed. According to the change in room temperature and temperature setting, the thermostat controls (switches on or off) the boiler or any other equipment connected to it. When activated, the normally open contact pairs, i.e. **No. 1 (NO)** and **No. 2 (COM)**, of the relay of the thermostat clamp shut, and, as a consequence, the appliance connected to the thermostat is switched on. The appearance of the notice “**HEAT**” (heating) or „**A/C**” (cooling) in the bottom left corner of the display indicates that the device is activated, according to the heating or cooling mode, respectively.

5.2 Comfort Mode (☀) (right hand position of the switch)

In the right hand position of the switch, the thermostat provides the set comfort temperature (e.g. daytime temperature) to be

maintained at the place where the thermostat has been installed. According to the change in room temperature and temperature setting, the thermostat controls (switches on or off) the boiler or any other equipment connected to it. When activated, the normally open contact pairs, i.e. **No. 1 (NO)** and **No. 2 (COM)**, of the relay of the thermostat clamp shut, and, as a consequence, the appliance connected to the thermostat is switched on. The appearance of the notice “**HEAT**” (heating) or „**A/C**” (cooling) in the bottom left corner of the display indicates that the device is activated, according to the heating or cooling mode, respectively.

6. BATTERY REPLACEMENT

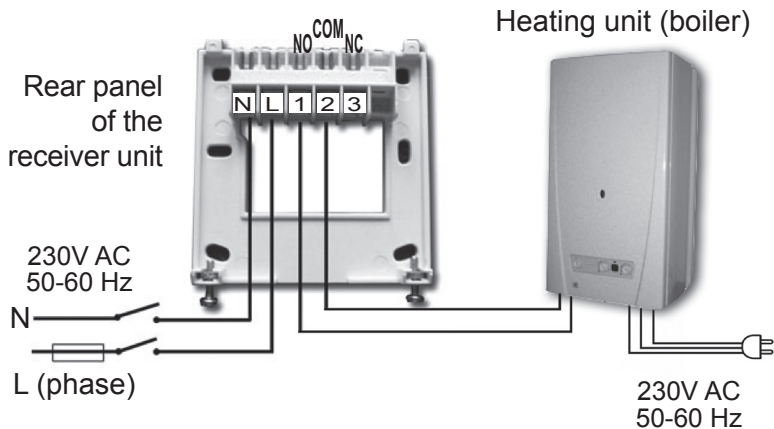
The average lifetime of the batteries is 1 year. The **bA** icon alternately replacing the temperature value on the display indicates low battery voltage. Replace the batteries whenever the **bA** icon indicating low battery voltage appears on the display (see Section 2). After battery replacement, the desired temperature should be adjusted again, because during the battery replacement the thermostat is reset to factory default settings.

7. THE RECEIVER UNIT

7.1 Installation and connection of the receiver unit

The receiver unit should be mounted on the wall in a place protected against moisture and heat, in the vicinity of the boiler.

ATTENTION! *Do not install the receiver unit under the housing of the boiler or near hot pipes because it may damage the parts of the device or compromise wireless (radio-frequency) connection. To avoid electric shock, entrust a specialist with connecting the receiver unit to the boiler!*



Unscrew the two screws at the bottom of the receiver unit without removing them. Following this, remove the front panel of the receiver unit then fix the back panel to the wall in the vicinity of the boiler with the screws provided. Remove the protective carton from the contacts to ensure perfect contact.

The marks of the connections are pressed into the plastic above the connection points: **N**, **L**, **1**, **2** and **3**.

230V mains voltage should be supplied to the receiver unit. This provides the power supply for the device, but this voltage does not appear on the terminals **1** and **2**. We propose to connect the neutral wire of the network to point **N**, while the phase conductor to point **L**. We recommend using a fork type connection including a switch for mains connection. Please de-energize the device when heating is continuously not needed (e.g. summer).

The receiver unit controls the boiler or air conditioner through a potential-free alternating relay whose connection points are: **1 (NO)**, **2 (COM)** and **3 (NC)**. Connect the two connection points of the heating or cooling equipment to be controlled to terminals

No. 1 (NO) and **No. 2 (COM)**, i.e. to the normally open terminals of the relay.

If you would like to operate an old boiler or any other device that has no connection points for thermostats, then the **No. 1 (NO)** and **No. 2 (COM)** connection points of the thermostat should be connected to the mains cable of the device, similarly as a switch would be connected.


ATTENTION! Always consider the loadability of the receiver unit and follow the manufacturer's instructions of the heating or cooling equipment. The device must be installed and connected by a qualified professional!

*The voltage appearing at terminals **No. 1** and **No. 2** depends only on the system being controlled, therefore the dimensions of the wire are determined by the type of the device to be controlled.*

The length of the wire is of no significance, the receiver unit may be installed either near the boiler or far away from it, but do not install it under the housing of the boiler.

If the distance between the transmitter and receiver units is too large due to local circumstances and it makes the wireless (radio-frequency) connection unreliable, install the receiver unit nearer to the place of thermostat.

7.2 Putting the receiver unit into operation



Turn on the power supply to the receiver unit. After a few seconds have elapsed, the wireless (radio-frequency) system (thermostat and receiver unit) tunes itself to the operating frequency. To try the system in heating mode, press the  button of the thermostat several times, until the set temperature is 2-3°C higher than the temperature of the room. Following this, the “**HEAT**” icon indicating that the heating is turned on should appear on the display of the thermostat within a few seconds. At the same time, the red LED light on the receiver unit

should switch on to indicate that the receiver unit has received the command of the transmitter (thermostat).

If it does not happen, the system should be retuned. For this purpose press the “**M/A**” button of the receiver unit and keep it depressed (for approximately 10 seconds) until the green LED starts flashing. Then press the “**LEARN**” button of the thermostat located near the battery compartment and keep it depressed (for approximately 10 seconds) until the green LED stops flashing and goes out, so that the receiver unit “learns” the safety code of the transmitter (thermostat). The safety code will not be lost even during a power outage, the device memorizes it automatically.

ATTENTION! Pressing the “**LEARN**” button for 10 seconds generates a new safety code for the thermostat, and the receiver will recognize it only after a repeated tuning. With this in mind, do not keep the “**LEARN**” button of the thermostat or the “**M/A**” button of the receiver unit depressed without any reason after the two units have been tuned successfully.

7.3 Transmission distance inspection

With the help of the  and  buttons you can check whether the two units are within the transmission distance of the wireless (radio-frequency) connection. In order to do so, set the desired temperature above room temperature by more than 0.2°C, then reduce it below room temperature by more than 0.2°C. When detecting the ON and OFF control signals, the red LED light on the receiver unit switches on and off, respectively. When the receiver unit fails to receive signals sent by the thermostat, then the receiver unit is outside the transmission distance of the wireless (radio-frequency) transmitter, thus they have to be placed closer to each other.

7.4 Manual control of the receiver unit

Pressing the “**MANUAL**” button separates the thermostat from the receiver unit. In this case, the boiler or air conditioner connected to the receiver unit can only be turned on and off manually, without any temperature inspection. The continuously illuminated green LED indicates “**MANUAL**” mode. Pressing the “**M/A**” button turns on or off the boiler. (The red LED is illuminated when the boiler is turned on). By pressing the “**MANUAL**” button again, the device quits manual control and resumes automatic (thermostat-controlled) operation (the green LED goes out).

TECHNICAL DATA

Technical data of the thermostat (transmitter):

- temperature measurement range: 5 to 35°C (in 0.1°C increments)
- adjustable temperature range: 5 to 35°C (in 0.5°C increments)
- temperature measurement accuracy: $\pm 0.5^{\circ}\text{C}$
- selectable switching sensitivity: $\pm 0.1^{\circ}\text{C}$; $\pm 0.2^{\circ}\text{C}$
- storage temperature: -10°C to $+40^{\circ}\text{C}$
- battery voltage: 2 x 1.5V **ALKALINE** batteries (LR6 type; AA size)
- power consumption: 1.5mW
- battery lifetime: approx. 1 year
- operating frequency: 868.35MHz
- dimensions: 112 x 75 x 45mm (without holder)
- weight: 154g
- temperature sensor type: NTC 10k Ω $\pm 1\%$ at 25°C

Technical data of the receiver unit:

- power supply voltage: 230V AC, 50Hz
- power consumption: 6W
- switchable voltage: 24V AC/DC to 250V AC, 50Hz
- switchable current: 6A (2A inductive load)
- transmission distance: approx. 50m in open terrain
- weight: 150g

**Total weight of the device: approx. 500g
(thermostat+receiver+holder)**

The **COMPUTHERM Q3RF** type thermostat complies with the requirements of standards EU EMC89/336/EEC; LVD 73/23/EEC; 93/68/EEC and R&TTE 1999/5/EC.



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