

COMPUTHERM Q5RF

**Multi-zone wireless
(radio-frequency)
digital room thermostat**



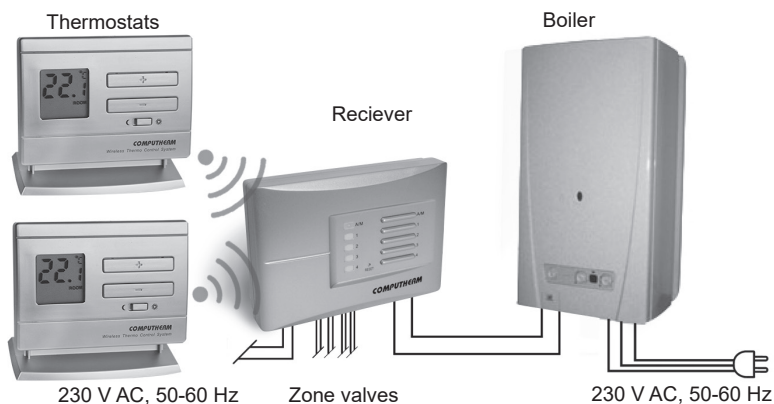
Operating instructions

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

GENERAL DESCRIPTION OF THE THERMOSTAT

The **COMPUTHERM Q5RF** type switched-mode room thermostat is suitable to regulate the overwhelming majority of boilers and air conditioners. 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 24 V or 230 V control circuit.

The basic package of the device includes two thermostats and a receiver unit. If required, the equipment can be extended by two additional **COMPUTHERM Q5RF (TX)** or **Q8RF (TX)** thermostats. The receiver unit receives switching signals from the thermostats, controls the boiler (or air conditioner) and gives commands to open/close the heating zone valves (max. 4 zones, loadability of the zone outputs: 230 V AC, max. 1 A (0.5 A inductive load)) associated with the thermostats. The zones can operate independently from each other or, in case of need, all zones can operate at the same time. This way only those rooms are heated at a given time, where it is required (e.g. the living room and the bathroom during the day, and the bedroom during the night). Because there is a wireless (radio-frequency) connection between the thermostats and the receiver, no cable is required between the thermostats and the boiler. The installation and connection of the receiver unit is described in *Section 7*.



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.

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:

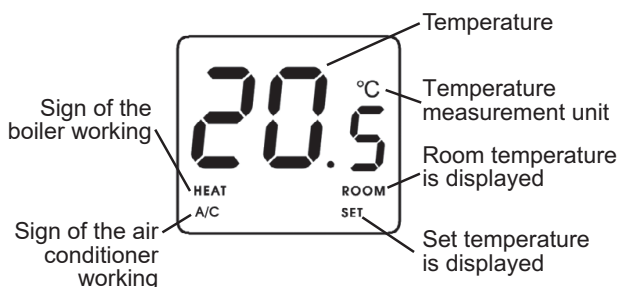
- no need to lay a cable, which is especially advantageous when old buildings are being modernized,
- the optimal location of the device can be selected during operation,
- it is also advantageous when you intend to locate the thermostat in different rooms in the course of the day (e.g. in the living room during the day but in the bedroom at night).

The effective range of the transmitter incorporated in the thermostat is approximately 50 m 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 $\pm 0.1\text{ }^{\circ}\text{C}$ or $\pm 0.2\text{ }^{\circ}\text{C}$ (default setting). This means the difference between the adjusted temperature and the actual temperature measured during the switching process.

In case of the $\pm 0.2\text{ }^{\circ}\text{C}$ switching sensitivity and heating mode for example, if the set temperature is $20\text{ }^{\circ}\text{C}$, then the device switches the boiler on at $19.8\text{ }^{\circ}\text{C}$ or below, and switches it off at $20.2\text{ }^{\circ}\text{C}$ or above. Please refer to *Section 3.2* for the modification of the factory default switching sensitivity of $\pm 0.2\text{ }^{\circ}\text{C}$.

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



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. 16A) (e.g. fan heaters, pumps, zone valves, etc.) according to the room temperature. (You can find detailed information and recommended usage of the **COMPUTHERM Q1RX** socket on our website: www.quantrax.hu)

1. LOCATION OF THE DEVICE

The thermostat of the **COMPUTHERM Q5RF** 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.*

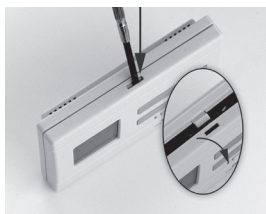
2. PUTTING THE THERMOSTAT INTO OPERATION

The device must be installed and connected by a qualified professional.

Warning! *Modifying the thermostat can cause electric shock or product failure.*

To put the thermostat into operation, detach the rear panel of the thermostat from the front panel by pressing the lock on the upper side of the housing of the thermostat, as shown in the figure.

Warning! **Alkaline batteries may only be used** for this appliance. Carbon-zinc batteries known as durable or long life batteries and chargeable accumulators are not suitable for the operation of this appliance. Icon **BA** appearing on the display to indicate low battery voltage warns reliably that the batteries should be replaced only when **alkaline batteries** are used.



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 located on the main panel of the thermostat.

3. BASIC SETTINGS

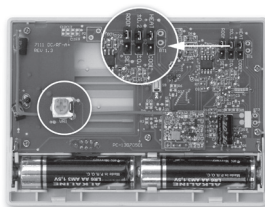
After removing the rear panel of the device, the following factory default settings can be modified by relocating the jumpers (black plugs) and/or changing the position of the orange-colored potentiometer located on the main panel.

3.1 Selecting the Displayed Temperature

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

With factory default settings the jumper is located on the central and uppermost 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 bottommost 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.



3.2 Selecting the Switching Sensitivity (Accuracy)

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

With factory default settings the jumper is located on the central and uppermost pins, resulting in a switching sensitivity of $\pm 0.2\text{ }^{\circ}\text{C}$. It can be modified to $\pm 0.1\text{ }^{\circ}\text{C}$ by relocating the jumper onto the bottommost 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. $-10\text{ }^{\circ}\text{C}$), since the frequent on and off switches of the boiler reduce its efficiency and hence increases the gas consumption. We recommend using the $\pm 0.1\text{ }^{\circ}\text{C}$ switching sensitivity for heating systems with high thermal inertia (e.g. underfloor heating), and the $\pm 0.2\text{ }^{\circ}\text{C}$ switching sensitivity (factory default setting) for heating systems with low thermal inertia (e.g. flat panel radiators).

3.3 Switching between the Heating and Cooling Mode

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

With factory default settings the jumper is located on the central and uppermost pins, which selects the heating mode. By relocating the jumper onto the bottommost and central pins, the cooling mode can be selected. The output terminals No. 1 (NO) and No. 2 (COM) 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 (NO) and No. 2 (COM) are indicated by the notice **„HEAT”** (heating) or

„A/C“ (cooling) in the bottom left corner of the display, according to the selected mode.

3.4 Calibration of the thermometer of the thermostat

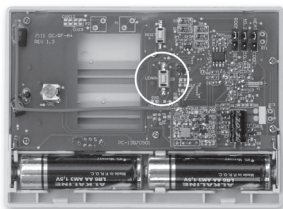
You can calibrate the thermometer of the appliance (to correct measured temperature). To this end all you have to do is change the position of the orange-colored potentiometer by a Phillips screwdriver. When you adjust the potentiometer clockwise then the displayed temperature will be higher than that measured initially, and when you adjust it anticlockwise the displayed temperature will be lower than that. The displayed temperature can be adjusted within a range of approx. 3 °C.

Correction of the displayed temperature takes place a few seconds after the adjustment.

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 located on the main panel of the thermostat.*

3.5 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 located above the battery compartment, on the main panel 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.

Below 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 40 °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 icon  alternately replacing the temperature value on the display indicates low battery voltage. Replace the batteries whenever the 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.

Warning! **Alkaline batteries may only be used** for this appliance. Carbon-zinc batteries known as durable or long life batteries and chargeable accumulators are not suitable for the operation of this appliance. Icon  appearing on the display to indicate low battery voltage warns reliably that the batteries should be replaced only when **alkaline batteries** are used.

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.

When choosing the location of the receiving unit you should remember that bulky metal objects (e.g. a boiler, buffer tank, etc.) and metal building structures may have an adverse effect on propagation of radio waves. If it is possible, in order to ensure trouble-free RF connection, we recommend that you install the receiving unit at a height of 1.5 to 2 m and at a distance of 1 to 2 m from the boiler or other bulky metal constructions. We recommend that you check reliability of RF connection at the place selected before installing the receiving unit.

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:

L1 N1 L2 N2 L3 N3 L4 N4 NO COM L N

230 V 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 connection points of the relay that controls the boiler (**NO** and **COM**). 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 relay whose connection points are: **NO** and **COM**. Connect the two connection points of the heating or cooling equipment to be controlled to terminals **NO** and **COM**, i.e. to the normally open terminals of the relay. These connection points become closed following the heating/cooling command of any thermostat.

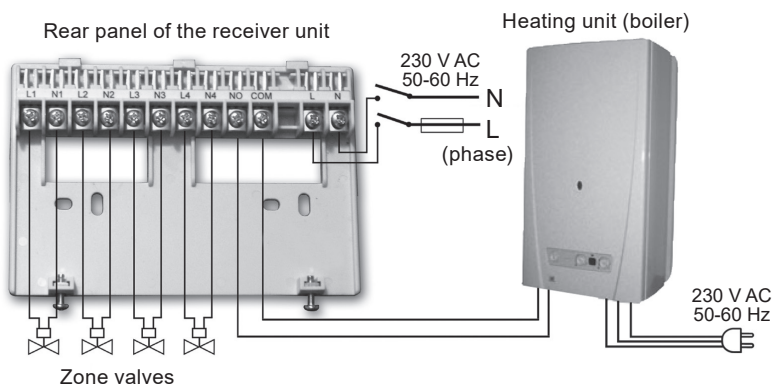
If you would like to operate an old boiler or any other device that has no connection points for thermostats, then the connection points **NO** and **COM** of the thermostat should be connected to the mains cable of the device, similarly as a switch would be connected.

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** and **COM** 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.

Beside controlling the boiler, the receiver unit can also open/close the valves of maximum 4 heating zones. Following the heating/cooling command of one of the thermostat, 230 V AC, 50 Hz voltage appears on the connection points of the zone valves associated with the thermostat. The zone valves should be connected to the connection points **L1 N1; L2 N2; L3 N3** and **L4 N4** of the receiver.



Cut or break out the outlets to the required connection points at the bottom of the receiver unit, in order to be able to connect wires to them.



ATTENTION! When the two units of the thermostat can only be located on or outside the boundary of the range due to the layout of the building or the shielding effect of the building structures between the units then, in order to guarantee reliable RF connection, please install a **COMPUTHERM Q2RF** type RF transmitter between the two units.

7.2 Putting the receiving unit into operation

Turn on the power supply to the receiver unit. A few seconds after the LED lights flash once, the receiver unit becomes ready for operation. This state is indicated by the blue LED light with the "A/M" sign. After this, you can start tuning the receiver and the thermostats together. Following this, you can start synchronization of the thermostats and the receiving unit according to the following steps:

Receiving unit:



- Press and hold the button which belongs to the zone with which you wish to synchronize thermostat **COMPUTHERM Q5RF** until the red LED beside the button starts to flash.

Thermostat:

- Separate the back panel of thermostat **COMPUTHERM Q5RF** from the front panel by pushing the latch located on the upper side of the case.
- Press and hold buttons „**LEARN**“ and „**RESET**“ located inside the thermostat simultaneously.
- Release the „**RESET**“ button and keep the „**LEARN**“ button depressed for additional 5 seconds.
- Following this, sign **U1** appears on the display of the thermostat, indicating that the thermostat can now be synchronized with zone 1 of the receiving unit.
- With the help of **+** and **-** buttons select the zone from 1 to 4 with which you wish to synchronize the thermostat.
- Press and hold the „**LEARN**“ button located inside the thermostat for approx. 3 seconds until on the receiving unit of **COMPUTHERM Q5RF/Q8RF** the LED belonging to the zone concerned stops flashing.

7.3 Resetting synchronization method of thermostat **COMPUTHERM Q5RF**



When you wish to reset operation of thermostat **COMPUTHERM Q5RF** to default zone 1 then you can reset this option with the following steps:

- Press the „**RESET**” button located inside the thermostat and the  button on the front panel simultaneously.
- Release the „**RESET**” button but keep the button  depressed for additional 5 seconds.
- Now the synchronization method of the thermostat is reset to default zone 1.

7.4 Activating the delayed start of the boiler function

When designing the heating zones, in order to protect the pump of the boiler, it is reasonable to leave at least one heating circuit without a zone valve (e.g. the bathroom circuit). In such a heating system, after the boiler is started, the heating water can freely circulate through the circuit(s) without a zone valve until the zone valves are opened (the opening time of an electro-thermal actuator is approximately 4 minutes). If the heating system was not designed as described above, it is reasonable to activate the delayed start of the boiler function in order to protect the pump of the boiler. If this function is activated, then the boiler starts only 4 minutes after the receipt of the heating command, when the zone valves are already opened. Under the factory default settings, this function is inactive. It can be activated at the back side of the receiver unit, by relocating the jumper (black plug) with the „**DELAY**” sign. It is inactive in the „**OFF**” position and active in the „**ON**” position of the jumper.

7.5 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.

ATTENTION! *When the two units of the thermostat can only be located on or outside the boundary of the range due to the layout of the building or the shielding effect of the building structures between the units then, in order to guarantee reliable RF connection, please install a **COMPUTHERM Q2RF** type RF transmitter between the two units.*

7.6 Manual control of the receiver unit

Pressing the “A/M” button separates the thermostats 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 blue LED indicates automatic (thermostat-controlled) mode, while its switched off state indicates manual mode. In manual mode, pressing the **1**, **2**, **3**, and/or **4** buttons of the receiver unit turns on or off the boiler (or air conditioner) and opens/closes the zone valves associated with the heating zones. The operation of a heating zone is indicated by the illuminated red LED light associated with it. By pressing the “A/M” button again, the device quits manual control and resumes automatic (thermostat-controlled) operation, which is indicated by the illuminated blue LED light.

FREQUENTLY ASKED QUESTIONS

When you think that your appliance is operating incorrectly or encounter any problem while the appliance is being used then we recommend that you read Frequently Asked Questions (FAQ) available on our website, where we collected the problems and questions that most frequently occur while our appliances are being used, along with the solutions thereto:

<http://www.quantrax.hu/gyik/>



The vast majority of the problems encountered can be solved easily by using the hints available on our website, without seeking professional help. If you have not found a solution to your problem, please pay a visit to our qualified service.

Warning! The manufacturer does not assume responsibility for any direct or indirect damages and loss of income occurring while the appliance is being used.

PRODUCT INFORMATION DATA SHEET:

- Trademark: **COMPUTHERM**
- Model identifier: **Q5RF**
- Temperature control class: **I. class**
- Contribution to the efficiency of seasonal space heating: **1%**

Remark:

In addition to using modern temperature regulators, the following up-to-date regulation methods also contribute significantly to the improvement of the comfort provided by the heating network, the energy efficiency of the heating network and the coefficient of performance:

- By dividing the heating network into sections or zones (e.g. by means of **COMPUTHERM Q4Z** zone controller and the associated **COMPUTHERM** zone valves) and with their separate regulation we can ensure that every room (zone) is heated only when it is necessary. (You can obtain information on the establishment of the heating network and apparatuses and fittings needed for division into zones in our publication titled „Energy Savings and Comfort” which is also available on our website www.quantrax.hu).
- Using programmable thermostats you can ensure that every room (zone) is just heated according to a timetable preset in accordance with the demands. (You can obtain information on the services provided by **COMPUTHERM Q7; Q7RF** and **Q8RF** programmable room thermostats on our website).
- Using modern modular heating devices equipped with an external temperature sensor the boiler can be operated at a higher efficiency.
- Using low temperature heating networks (e.g. 60/40 °C) and condensing boilers the temperature of the flue gas leaving the boiler can be reduced, and this way fuel efficiency can be improved significantly.

TECHNICAL DATA

Technical data of the thermostats (transmitters):

– adjustable temperature range:	5 to 40 °C (in 0.5 °C increments)
– temperature measurement range:	3 to 45 °C (in 0.1 °C increments)
– temperature measurement accuracy:	±0.5 °C
– temperature calibration range:	approx 3 °C
– selectable switching sensitivity:	±0.1 °C; ±0.2 °C
– storage temperature:	-10 °C to +40 °C
– battery voltage:	2 x 1.5 V ALKALINE batteries (LR6 type; AA size)
– power consumption:	1.5 mW
– battery lifetime:	approx. 1 year
– operating frequency:	868.35 MHz
– dimensions:	100 x 80 x 22 mm (without holder)
– protection against environmental impacts:	IP30
– weight:	80 g
– temperature sensor type:	NTC 10 kΩ ±1% at 25 °C

Technical data of the receiver unit:

– power supply voltage:	230 V AC, 50 Hz
– power consumption:	0.15 W
– switchable voltage of the relay that controls the boiler:	24 V AC/DC to 230 V AC, 50 Hz
– loadability of the relay that controls the boiler:	6 A (0,5 A inductive load)
– voltage of the zone outputs:	230 V AC, 50 Hz
– loadability of the zone outputs:	1 A (0.5 A inductive load)
– transmission distance:	approx. 50 m in open terrain
– protection against environmental impacts:	IP30
– weight:	210 g

**Total weight of the device: approx. 470 g
(2 thermostats+2 holders+1 receiver)**

The **COMPUTHERM Q5RF** type thermostat complies with the requirements of standards RED 2014/53/EU and RoHS 2011/65/EU.



Manufacturer: QUANTRAX Kft.

Fülemüle u. 34., Szeged, H-6726, Hungary

Phone: +36 62 424 133 • Fax: +36 62 424 672

E-mail: iroda@quantrax.hu

Web: www.quantrax.hu • www.computherm-hungary.hu

Origin: designed in the EU, made in China

Please watch our video presentation of the most important aspects of the usage of this thermostat at our websites!

