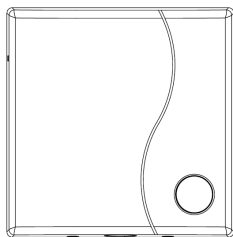
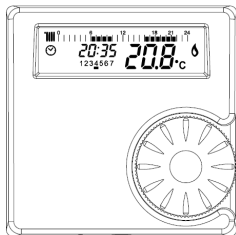


HRT-177RS



WIRELESS RF WEEKLY ROOM THERMOSTAT

Installation and user instruction.....page 2

EN

CRONOTERMOSTATO SETTIMANALE SENZA FILI

Manuale di installazione e uso.....pag. 11

IT

THESE INSTRUCTIONS ARE TO BE RETAINED BY THE USER

Thank you for choosing this radio frequency (RF) radiostat. This central heating control device is easy to fit, and with correct use, will deliver improved comfort levels in your home whilst saving you money.

This thermostat is designed to be used only with heating controls system with a maximum switching load of 2A at 30VDC or 0,25A at 230VAC.

If installing for someone else, please ensure that the instructions are handed to the householder.

WARNING: Please read this manual prior to installation or use.

SHOCK HAZARD: This unit must be installed by a competent person, in accordance with BS 7671 (the IEE Wiring Regulations), or other relevant national regulations and codes of good practice. Always isolate the AC Mains supply before installing this unit.

FIRST INSTALLATION WARNING.

The product arrives with most of the parameters factory set with minimal actions required by the installer: wiring connections of the receiver to the boiler, setting the time and setting the day. All the rest, like coupling between receiver and transmitter, heating pattern, default temperatures, etc. are already pre-configured at the factory.

IMPORTANT: these instructions should be read in conjunction with the appliance installation instructions. It is recommended that this device is installed by a qualified electrician.

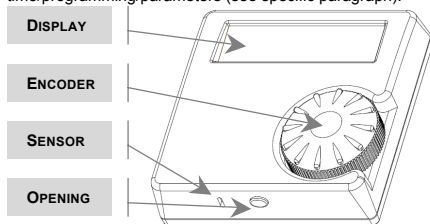
ENCODER KNOB: Encoder movements: clockwise and anticlockwise rotation, push to select.

Encoder clockwise and anticlockwise rotation: increase or decrease the room comfort temperature, auto enter of the selected value after 5 seconds.

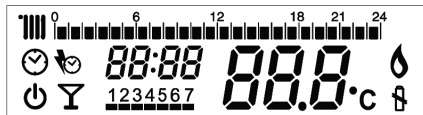
Encoder rotation one step: check the selected comfort temperature. The value will blink for few times and later it will be back to the room temperature value display.











Press and hold the encoder once to activate or de-activate the ADVANCE function

Press and hold the encoder longer for enter in menu and select the status mode or set the time/programming/parameters (see specific paragraph).






LCD DISPLAY



SYMBOL	DESCRIPTION/FUNCTION
	Heating mode is active (winter mode)
STATUS MODE	 AUTO: the thermostat uses the programmed heating pattern (default or user defined) to switch the heating ON & OFF at preselected times.
	 OFF: the thermostat is set to have the heating constantly OFF (in this mode the default or user defined heating pattern is ignored) – summer mode.
	 PARTY: the thermostat is set to provide heating constantly ON (in this mode the default or user defined heating pattern is ignored). This status stay ON up to end user switching OFF
	ADVANCE: the pre-programmed heating pattern is advanced to the next ON (or OFF) period (this function can only be used when the clock is in the AUTO mode)
1234567	Used to show current day of week
	Used to show current time of day or explanation inside the main menu
18 	24-hour clock in 60 minute segments. Side example: The heating fascia is OFF up to 15:59 and it is ON from 16:00 to 15:59
	Used to show current room temperature or desired temperature to be selected.
	Batteries low
	Heat request to the boiler (central heating ON)

other icons inside the main menu

SYMBOL	DESCRIPTION/FUNCTION
	Economy temperature selection
	Technical menu selection (only for expertise)
	Escape from main menu

QUICK START GUIDE

To be read and used after a proper installation has been made and after the hours and the working mode has been set.

WORKING MODE: This central heating control device provides you both the room thermostat function and the weekly clock function. When in AUTO mode, the central heating will be ON/OFF according to the programmed times and according to the set comfort temperature (the ON command is identified by the flame icon). When the heating will be commanded ON the set-point in the room will be the comfort one. In case of off programmed times, the set temperature is the "economy temperature", selectable inside the main menu (16°C is the default value). When in OFF mode the heating requested will be switched on when the room temperature drops under the frost protection value (default is 5°C); this value can be modified inside the technical menu. When in PARTY mode the heating request is permanently on according the selected comfort temperature that can be modified any time rotating the encoder and pressing to confirm.

ENCODER

The encoder has three functions: selection of the set temperature, set the ADVANCE function and setting the thermostat. If the status mode of the thermostat is OFF, only the pressing functionality is active; any rotation done does not generate any modification.

1. Rotate to select the desired temperature and press to enter.
2. Press once to activate or deactivate the ADVANCE function. Use to "advance" the heating to an ON or OFF period
3. Press for 3 seconds to enter menu. Rotate to scroll through the menu choosing between status mode, economy temperature setting, time of day, day of the week, programmed times day by day, technical menu (PL) and exit. Press again to modify selected item.

Status mode: rotate to change the thermostat mode between AUTO, PARTY, and OFF, press to save. The press from status mode automatically escapes from menu.

Economy temperature ECOT: Rotate to select the desired economy temperature and press to enter. This temperature is used when programming time is OFF in AUTO status mode.

Time of the day: rotate to change the hours, press to save. Move to minutes; rotate to change minutes, press to save.

Day of the week: rotate to change the day, press to save

Programmed times day 1-7: rotate clockwise to set hour ON, rotate anticlockwise to select hour OFF. Clockwise and anticlockwise rotation move ahead the time. Press to save. Rotate clockwise to move to the following day. It is possible to program together days 1...5 and days 6-7 with the same pattern in a single operation.

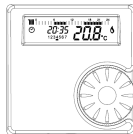
PL: rotate to select the password value, press to enter inside the technical menu. Rotate to select the parameters: 01 = calibration of the temperature sensor, 02 = frost protection temperature selection, 03 = hysteresis OFF value selection, 04 = hysteresis ON value selection, 05 = encoding and coupling with the RF receiver, 06 = radio frequency value selection, EHIt = escape from technical menu. (for technical menu see dedicated paragraph).

Exit: escape from main menu.

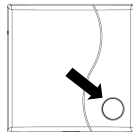
INSTALLATION AND OPERATING INSTRUCTIONS

Unlike the conventional thermostat, this control separates the function in two units. The receiver serves for wiring connections and heat on/off control. The transmitter serves as the user interface and for temperature sensing/control. The two units are linked by radio frequency (RF). The RF communication is only in one direction from the transmitter to the receiver, therefore the transmitter does not receive any feedback from the receiver, no alarm of missing communication is visible on the transmitter display.

THE TRANSMITTER is a wall-mounted timer-thermostat. The transmitter can be located wherever a conventional room thermostat would normally be sited. No wiring is required, as the transmitter is battery powered.



THE RECEIVER is connected to the boiler, and can replace a conventional mechanical or electronic time clock. The receiver arrives pre-cabled and ready to be fixed, therefore it is not necessary to open the receiver casing. The receiver is equipped with a transparent bubble button that incorporates the button function, the green led function and the red led function.



Button functions:

1. Press once: manually switch ON the heating (relay closed), press again to switch OFF.
2. Press for 5 seconds: encoding procedure start up. After success coupling there is an automatically exit from the procedure.

Receiver led: colors and functionality

LED	FUNCTIONS	REASON
Led green ON constantly	Relay closed = heating request ON	Signal received from the transmitter or end user manual button pressing
Led red ON constantly	Relay open = heating request OFF	Signal received from the transmitter or end user manual button pressing
Led green and led red blinking alternatively	Encoding procedure working	The receiver button has been pressed more than 5 seconds in order to start the encoding procedure.
Led green blinking irregularly	Lost communication with the transmitter – heating is ON (relay closed)	Low batteries on the transmitter or transmitter too far from the receiver.
Led red blinking irregularly	Lost communication with the transmitter – heating is OFF (relay open)	Low batteries on the transmitter or transmitter too far from the receiver.

NOTE 1 FOR RECEIVER: when the receiver is manually moved to the ON or OFF relay position (heating request ON or OFF), after few seconds the relay position will move according to the transmitter request. If it is required for a permanent ON or OFF position, please use the transmitter functionality.

NOTE 2 FOR RECEIVER: in case of missing radio communication (see errors paragraph), the receiver relay moves automatically to the ON position whatever the transmitter request was (led green irregularly blinking). However it is possible manually move the relay position (the heat request) to the OFF or ON position permanently by pressing the receiver transparent

button. The selected position is indicated by the red or green light irregularly blinking. Once the radio communication has been reactivated the receiver will revert to work according to the transmitter requests.

PACKING LIST

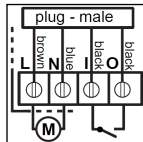
	QTY
• RF receiver with 4 wire cable fitted	1
• RF transmitter	1
• Screws and wall plugs (drill 5 mm)	4
• Adhesive magnetic	3
• Double side adhesive	2
• Instructions	1
• Batteries 1,5 AAA	2

BOILER PREPARATION: Isolate the appliance from the electrical supply and remove the appliance casing and PCB cover (refer to boiler installation instructions for specific details).

The receiver can be provided with or without a male plug according to the product code ordered and according to the availability of female counterpart on the boiler side. The version without male plug is supplied with spade terminals.

Receiver with male plug fitted

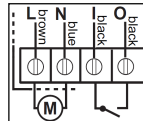
Connect the male plug (4 pins) of the receiver to the female plug on the boiler (pre-wired on specific boiler models)

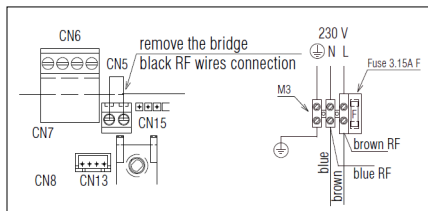


Receiver with spade terminals

Connect the spade terminals from the receiver to the PCB terminals (room thermostat terminal black & black, main supply terminals blue and brown on the main boiler supply socket) - figure below for a sample boiler connections.

Blue = main supply 230 Vac = neutral N





Brown = main supply 230 Vac = line L
Black & Black = room thermostat = I-O

See above picture for the receiver internal connections.

IMPORTANT: the link-wire (if fitted) must be removed from room thermostat terminals

IMPORTANT: Secure the receiver wiring harness to the internal boiler cable anchors.

INSTALLATION OF RECEIVER

Secure the receiver in the proximity of the boiler using the screws and wall plugs or using the adhesive magnetic strips on the external boiler casing including to fix (both fixing tools are provided).

The location should be chosen in order to see the receiver light/button. For no reason should the receiver box be opened. The appliance can only be mounted indoors and in areas free from any water or moisture. Wiring must conform to IEE regulations. RF Address Code Setting, if there is another user nearby, e.g. in the next dwelling, you receiver may be operated in error by their transmitter. You may select a different RF address code to prevent this. (see encoding section).

NOTE: do not fix the receiver in a permanent way to the boiler casing.

INSTALLATION OF TRANSMITTER

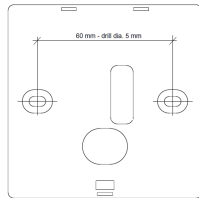
The receiver and the transmitter are delivered already coupled therefore the encoding procedure is not necessary at the installation. In case it is required to encode the transmitter and the receiver, this operation should be done while the receiver and the transmitter are still very near (see the encoding instructions).

Before fixing the transmitter check that the radio signal is active (if there is no communication the receiver will blink red or green irregularly).

Because the transmitter uses radio waves to communicate with the receiver, you should also bear in mind that metallic objects can weaken or deflect radio signals: this includes steel reinforced walls, filing cabinets, kitchen appliances, mirrors, etc. The range of the Radiostat is 40 metres in open air, and 20 metres inside buildings, dependent on RF obstructions as mentioned above.

Position the Radiostat on a wall surface away from obstructions and direct heat sources or draughts, in a room that is warmed by the heating system. The fixing of the transmitter can be done either with screws and wall plugs or with the double side adhesive depending on the wall surface quality (both supplied). See the side diagram as reference to drill the wall. Distance between 2 holes is 60 mm, drill hole dia. 5 mm.

In the case of using wall plugs, the transmitter box must be open to fix the screws to the wall plugs from inside the box. The opening of the transmitter must be done pressing gently the lower button and leverage on the upper side. Fit the supplied two batteries inside the transmitter with the direction as indicated



internally.

WARNING! Do not touch the printed circuit board of the transmitter as it contains electrostatically sensitive components.

FUNCTIONS

The weekly wireless RF room thermostat has the following functions:

- **Room thermostat:** the internal temperature sensor detects the temperature and, comparing with the set point, switches ON or OFF the heating request (according to the programmed timings). The temperature sensor is located on the lower side of the item.
- **Time:** on the display it is possible to set and read the time (weekly hours display mode)
- **Programming timing:** it is possible to select the desired ON or OFF heating times. The programming is possible during one week 24-hours and the minimum time segment is one hour.
- **Status mode:** AUTO, PARTY, OFF: Select AUTO mode if timed ON/OFF period are required. Select PARTY mode for constant ON (24-hours). Select OFF mode for heating OFF (summer mode). Note: summer/winter selection is better to be selected on the main boiler dashboard.
- **ADVANCE functions:** the pre-programmed heating pattern is advanced to the next ON (or OFF) period
- **3 level temperatures:** comfort, economy and frost protection
- **Frost protection functionality**
- **Battery low**
- **Alarm of missing radio frequency communication** on the receiver.
- **Room temperature calibration**
- **Automatic boiler switch ON** for radio communication errors (missing communication between receiver and transmitter).

OPERATING INSTRUCTIONS

At the first installation the thermostat, the time and the day of the week needs to be set (see encoder paragraph). After this, a desired thermostat status must be selected (see the encoder paragraph). When in AUTO mode the heating request follows the programmed heating pattern and the desired room temperature selected.

When in PARTY mode the heating request is ON all the time according the desired room temperature selected.

When in OFF mode, the heating request is OFF all the time (frost protection is ON).

The thermostat is pre-programmed with a default heating pattern (see table below); however this can be modified to suit individual needs (see encoder paragraph).

PRE-PROGRAMMED HEATING PATTERN

Day	AM		PM	
	ON	OFF	ON	OFF
Monday (day 1)	06:00	08:00	04:00	10:00
Tuesday (day 2)	06:00	08:00	04:00	10:00
Wednesday (day 3)	06:00	08:00	04:00	10:00
Thursday (day 4)	06:00	08:00	04:00	10:00
Friday (day 5)	06:00	08:00	04:00	10:00
Saturday (day 6)	08:00	11:00	04:00	11:00
Sunday (day 7)	08:00	11:00	04:00	11:00

Other factory set values are:

- Comfort temperature: 21°C
- Economy temperature: 16°C
- Frost protection temperature: 5°C
- Hysteresis OFF: 0,4°C (boiler switch OFF at 0,4°C above the target)
- Hysteresis ON: 0,2°C (boiler switch ON at 0,2°C below the target)

LOW BATTERIES

The two supplied batteries will last for approximately 1 year under a normal usage. When the batteries are low, the relative icon will appear on the display. It is better to change the batteries on time in order avoid any lack of heating supply during the day.

Follow the correct positioning of the batteries according to the internal transmitter battery box indications.

Every time the batteries are removed the transmitter loses only the time. The programmed times, the set temperatures and the transmitter coupling code are maintained memorized.

ERRORS

- In the case of missing communication between the receiver and the transmitter, the red or green led on the receiver starts to blink irregularly, after 350 sec of the communication being lost.
- The above error can happen either when the battery power on the transmitter is low (battery icon ON on the transmitter display) and when the location of the transmitter is not suitable (too far a distance or internal home disturbs like a concrete wall or electronic interference etc.).
- Once the communication has returned, the transmitter automatically returns to a normal working mode.
- In the case of missing communication, the receiver will automatically switch on the heating requested to the boiler (the boiler switching on will depend on the summer/winter position on the boiler dashboard, not from the thermostat request). This will prevent freezing in case of missing communication between the receiver and the transmitter in winter position.
- If the receiver is located at the limit of wireless maximum distance, the receiver can lose the communication for a while and then back to normal working mode.
- In the case of missing supply to the receiver (electrical black out), the communication will be lost but at the return of the

electricity, the receiver will automatically return to a standard working mode according to the transmitter signal. There is no requirement for any special operation on the receiver/transmitter in the case of missing communication unless it is necessary to change location of the transmitter.

- This product has one-direction radio frequency from the transmitter to the receiver, this means that only the receiver can recognize the missing communication. No advise will be displayed on the transmitter in the case of missing communication.

TECHNICAL MENU AND SPECIAL FUNCTIONS

(ONLY FOR EXPERTISE)

The weekly thermostat incorporates a technical parameterized menu accessible only with a password and the use of this is recommended for expert personnel only.

The parameter settings change the working mode of the thermostat, therefore the modifications are allowed only if required by the particular installation.

The technical menu is accessible by the main menu under the PL icon (see encoder paragraph for the access procedure). The password to be selected is the number 53.

Inside the PL menu are present 6 parameters that can be adjusted as described below:

PAR.	DESCRIPTION	
01	<p>CALIBRATION It is possible to calibrate the transmitter temperature sensor by entering the 01 parameter. On the display will appear only the temperature. Use the encoder to increase or decrease the temperature. Press the encoder to enter the new value. From now the transmitter uses the new value as current room temperature. Please note that for the calibration it is necessary to have a second thermometer that will be used as master. This operation is suggested only if the thermostat is fixed in a non-appropriate position, therefore it is necessary to modify the value on the display to be according the real room temperature.</p>	<p>OFF when the room temperature reaches the room target temperature plus the hysteresis OFF value.</p>
	<p>FROST PROTECTION TEMPERATURE The weekly room thermostat has an internal anti-frost function that switches on the boiler (only when the boiler is properly set to allow the room thermostat to activate/deactivate the boiler, i.e. boiler in winter mode) if the room temperature drops below the selected temperature. This function is active all the time whatever the programming time or the set temperature. By entering the 02 parameter it is possible to adjust the frost protection temperature: the factory setting is 5°C, the 02 parameter can be adjusted between 3°C and 10°C. the frost protection selected temperature becomes the minimum settable value for the economy temperature (inside the main menu).</p> <p>WARNING! This anti-frost protection is not intended to be the main control to protect the entire heating system and the boiler during a freezing period.</p>	<p>HYSTERESIS ON The value selected with this parameter indicates when the heat request is activated. The factory setting is 0,2°C, values range between 0,0°C and 2,0°C. Heat requests switch ON when the room temperature drop below the room target temperature minus the hysteresis ON value.</p>
02		<p>ENCODING The coupling between the receiver and the transmitter is factory done, however if necessary it is possible to make again the coupling. Selecting the parameter the function start, press the button on the receiver for 5 seconds, the green led start to blink regularly. When the codification has been concluded (this will take up to few minutes), the led stops to blink and this will confirm the coupling done. On the transmitter press the encoder to enter and escape.</p>
03	<p>HYSTERESIS OFF The value selected with this parameter indicates when the heat request is stopped. The factory setting is 0,4°C, values range between 0,0°C and 2,0°C. Heat requests switch</p>	<p>RADIO FREQUENCY The product uses a radio frequency value of 868MHz as required by the CE regulation. In the case this value interferes with other home appliances having the same, it is possible to have a small modification of the radio frequency. Default value is CH5 that correspond to 868.0MHz, the choices are between CH0 and CH9. CH0 = 867.5MHz CH9=868.4MHz. After the selection of a new radio frequency value it is necessary to proceed to a new encoding (see encoding parameter 05)</p> <p>WARNING! The modification of the radio frequency must be a rare operation to do only if the errors in are recognized to be not due to a long distance or low batteries.</p>
		<p>04</p>
		<p>05</p>
		<p>06</p>

TECHNICAL SPECIFICATIONS

RECEIVER

Linked with transmitter via RF: frequency 868 MHz

Power rating: 230 VAC \pm 10%, 50 Hz

Power consumption: 1,2 W

Relay switching capacity:

- Min 1mA,
- Max 2A at 30 VDC
- Max 0,25A at 230 VAC

TRANSMITTER

Linked with receiver via RF: frequency 868 MHz

Power rating: 2 x 1,5AAA - Alkaline batteries

Temperature setting: 3°C to 35°C in 0.2°C increments.

Display temperature: -9,9°C to 50°C in 0.2°C increments.

Install transmitter and receiver in an environment with normal pollution level.

Radio range 40 m in free space, (the range can be altered depending on the installation conditions and on the electromagnetic environment).

The manufacturer reserves the right to change specification without prior notice - Consumers statutory rights are not affected.