

Crystal Wireless Thermostat Instruction



Description

Crystal digital thermostat is ideal to control the temperature of any room (bedroom, kitchen, etc.) and is very easy to use. Allows for the operation of heating / cooling equipment, when the temperature of the environment to be monitored is lower/higher than a user-preset reference temperature. Very easy installation according to the step by step manual instruction. Mounting and connection can be made either by a technician or any other person.

IMPORTANT: carefully read the manual of use before the installation and follow the precautions when using the product.

Precautions on battery use

- Use only batteries of indicated size and voltage.
- Make sure you plug the batteries observing the correct polarity as indicated in the battery compartment. Battery connection with incorrect polarity may damage the thermostat.
- Do not mix different types of batteries such as an alkaline and a zinc carbon, or old batteries with new batteries.
- If you expect not to use the thermostat for a long period, disconnect it from the equipment and remove the batteries to prevent damage resulting from possible battery leakage.


Precautions on installation and use of the thermostat

- Crystal digital thermostat is exclusively for indoor use (closed rooms, garages, porches etc.). Do not install outdoor or in locations directly exposed to rain.
- Do not install in places with high humidity.
- Crystal digital thermostat can operate one device only. The connection of several equipment in cascade or in series (for example, a heater and a fan) does not guarantee the correct functioning of the device.
- Cut off mains power before connecting any device.
- Use the utmost caution when making wirings for connection with equipment and electricity mains: a wrong connection or unreliable shielding of electrical cables may cause damage to the device and jeopardize your safety.

Note: The manufacturer waives any responsibility for damage caused by improper installation or use of the device other than described in this manual.

Specification

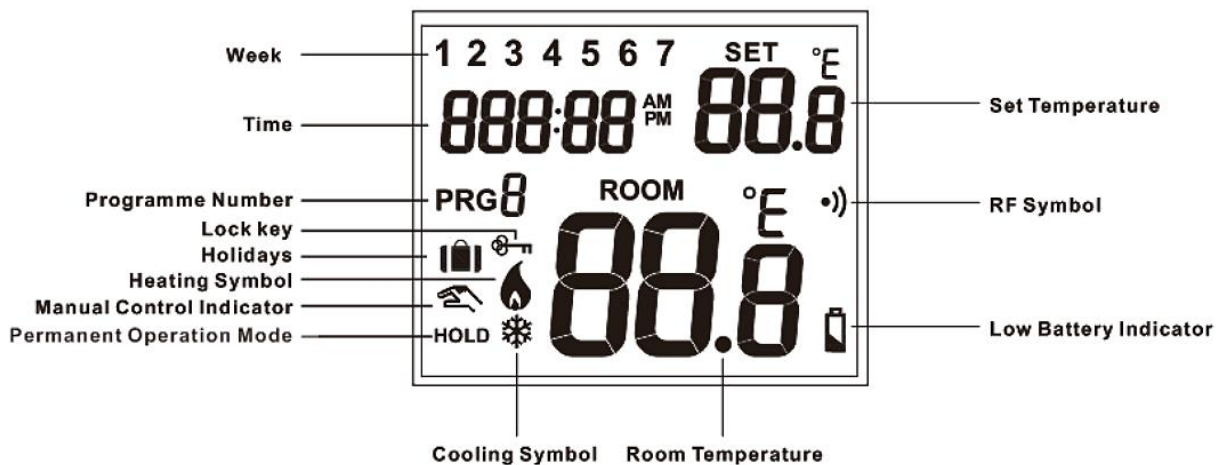
Transmitter (thermostat):

1. Programmability: 7 Day, 5/2 Day and 24 hour Programmable
2. Display Temperature Range: 0°C~40°C (in 0.1°C increments)
3. Adjustable Temperature Range: 5°C~35°C (in 0.5°C increments)
4. Temperature measurement accuracy: $\pm 1^\circ\text{C}$ (at 20°C)
5. Power Supply: DC 2x AA 1.5V Alkaline Batteries RX: 230V/50HZ
6. Switchable Current: 6 A (2 A inductive load), 230V
7. Low Battery Indicator: Display "  " when battery is less than 2.7V
8. Standby current: 40uA, Lighting current $\leq 6\text{mA}$
9. Backlight colour: White/Blue
10. Dimensions: 124 x 79 x 24 mm





Receiver:

1. Power Supply: 230VAC, 50HZ
2. Operating Frequency: 868.35MHZ
3. Transmission Distance: approx. 200m in open terrain
4. Consumption: 6W
5. Maximum Load: 6(2)A, 230V
6. Dimensions: 86 x 86 x 26 mm











LCD Display



Switch mode

Press and hold the "  " button for 5 seconds to access the switching mode(HEAT/COOL/OFF). Press the "  " or "  " button to select heat, cool and off , and press the "  " button to confirm.

How to set the time

1. Press "  " once until the week symbol is flashing, use "  " or "  " to adjust from 1~7.
2. Press "  " once until the hour symbol is flashing, use "  " or "  " to adjust from 0~23.
3. Press "  " once until the minute symbol is flashing, use "  " or "  " to adjust from 0~59.
4. Press "  " to confirm changes or wait for 15 seconds to automatically confirm and return to the Run Mode.

How to set the program

1. Press " **PRG** " once, the week symbol is flashing (1,2,3,4,5)
2. Press " \wedge " or " \vee " to select the setting week in "1 2 3 4 5" or "6 7" (5/2 day mode), "1,2,3,4,5,6,7"(7 day mode), "1 2 3 4 5 6 7"(24 hour mode).
3. Press " \blacktriangleright " once, display P1 and the time will flash, use " \wedge " or " \vee " to adjust the first time to required setting (in 10 minutes increments).
4. Press " \blacktriangleright " once and the temperature will flash, use " \wedge " or " \vee " to adjust the temperature (in 0.5°C increments).
5. Press " \blacktriangleright " once, display P2 and the time will flash, repeat steps 3 to 4 above until all 6 time and temperature settings has been set for Monday (the week chosen).
6. Once Monday's time and temperature has been adjusted to desired settings and 1(Monday) is flashing, press " \blacktriangleright " again to repeat steps 2 to 4 until all 7 days of the week has been set to desired times and temperatures.
7. When all 7 days, time and temperature has been set to desired settings, press " $\hat{\cup}$ " to confirm settings or wait for 60 seconds to automatically confirm and return the programmer Run Mode.
8. Press " **PRG** " to view the programming setting parameters under normal running status, use " \wedge " or " \vee " to view different weeks.
9. The factory pre-set settings:

Week 1~Week 5 :

P1: 6:00 20°C	P2: 8:00 15°C	P3: 12:00 15°C
P4: 14:00 15°C	P5: 17:00 21°C	P6: 22:00 15°C

Week 6 ~Week 7 :

P1: 7:30 20°C	P2: 9:30 20°C	P3: 11:30 20°C
P4: 13:30 20°C	P5: 16:30 21°C	P6: 22:30 15°C

Temporary operating temperature:

Press the " \wedge " or " \vee " button to set the temperature. Then press " $\hat{\cup}$ " to confirm changes or wait for 15 seconds to automatically confirm. This setting temperature will run until the next PROG or press " $\hat{\cup}$ " again to exit.

Manual mode

Press the " \wedge " or " \vee " button to flash the temperature, then press " \blacktriangleright " to access the permanent lock mode. The LCD displays " HOLD " and press the " \wedge " or " \vee " button to set the desired temperature. After setting it, press the " $\hat{\cup}$ " button to confirm or wait for 15 seconds to confirm automatically. The temperature control will continue to run this temperature until the user presses the " $\hat{\cup}$ " button to exit.

Hour lock mode:

Press the " \wedge " or " \vee " button to flash the temperature, then press " \blacktriangleright " to display " HOLD " , then press " \blacktriangleright " for " 1H " to flash, press the " \wedge " or " \vee " button to set the desired hour(1H-9H). Press the " $\hat{\cup}$ " button to confirm after setting. Press the " \wedge " or " \vee " button again to set the desired temperature. After setting it, press the " $\hat{\cup}$ " button to confirm or wait for 15 seconds to confirm automatically.

Holiday lock mode

Press the " \wedge " or " \vee " button to flash the temperature, press " \blacktriangleright " to display " HOLD " , press " \blacktriangleright " for " 1H " to flash, then press " \blacktriangleright " for " 1d " to flash, press " \wedge " or " \vee " button to set the required number of days(1d-99d) and press the " $\hat{\cup}$ " button to confirm. Press the " \wedge " or " \vee " button again to set the desired temperature. After setting it, press the " $\hat{\cup}$ " button to confirm or wait for 15 seconds to confirm automatically.

How to calibrate the temperature

Press and hold the "⏠" for 5 seconds to access to the mode switch setting (HEAT/OFF/COOL), then press "▶▶" to access the interface of temperature calibration "CAL" (in -3.0~+3.0, in 0.5°C increments); Press "▲" or "▼" to set the desired value, then press the "⏠" button to confirm.

SWING: Under the interface of temperature calibration "CAL" (in -3.0~+3.0, in 0.5°C increments), press "▶▶" to display the "RESET" erase memory mode, press "▶▶" again to display the "DIFF" mode and the temperature will flash (0.2 to 2.0). Press "▲" or "▼" to set the desired value, then press the "⏠" button to exit.

(e.g: The swing is set to 0.3°C, the set temperature is 20°C, and the heating is turned on when the room temperature is less than or equal to 19.7°C; when the room temperature is greater than or equal to 20.3°C, the heating is turned off.)

Lock Function

Press and hold the "PRG" button for 5 seconds to activate the lock button function. "LOC" is displayed on the LCD for 3 seconds. After the lock button function is activated, any button will not work.

Unlock Button Function

In the lock button status, press and hold the "PRG" button for 5 seconds to release the lock button function, and "UNLOC" is displayed on the LCD for 3 seconds.

Backlight

The backlight indicator will be on by pressing any buttons. After pressing the buttons for 15 seconds, the user does not have any operation and the backlight is off.

How to replace the batteries

The average battery life is 2 year, but the frequent use of the backlight can reduce this time considerably. If the icon "🔋" indicating low battery voltage appears on the display, the batteries must be replaced.

Restoring thermostat to factory default

Press and hold the "⏠" button for 5 seconds to access to the mode switch setting (HEAT/OFF/COOL), press "▶▶" to display the "CAL" calibration mode, press "▶▶" again to display the "RESET" erase memory mode. Press "PRG" button display "■■■■" and then press the "PRG" button again, the LCD will appear in full display status, indicating that the thermostat is restored to the factory defaults successfully.

The Receiver

Installation and connection of receiver

The receiver must be mounted on the wall in a place protected against humidity and heat, close to the boiler.

ATTENTION! Do not install the receiving unit under the housing of the boiler or close to hot pipes because they may damage parts of the device or compromise wireless connection (radio-frequency). To avoid electric shock, have an expert connect the receiver to the boiler!

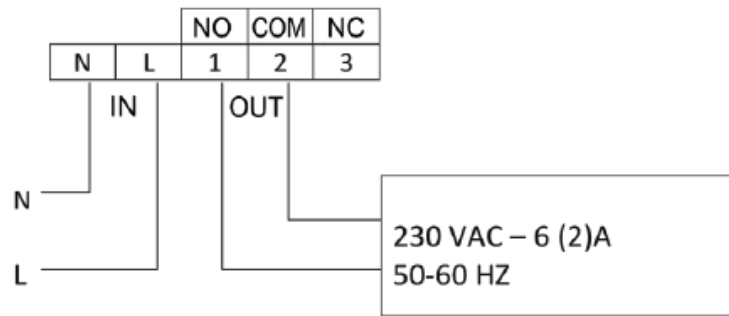
Unscrew the two screws at the base of the receiver unit without removing them. Then remove the receiver unit's front panel and then secure the back panel to the wall close to the boiler with the screws provided.

230V mains voltage should be supplied to the receiving unit. This provides power to the device, but this voltage does not appear on terminals 1 and 2. We propose to connect the neutral network to point N, while the phase conductor to point L. We recommend to use a fork-type connection with switch for mains connection. Please turn off the device when not used (eg. summer).

The receiver unit controls the boiler or air conditioner through a zero potential relay whose connection points are: 1(NO), 2(COM) and 3(NC). Connect the two connection points of the heating or cooling system to be controlled to terminals No.1(NO) and No.2(COM), normally open terminals of the relay.

If you want to use an old boiler or any other device that has connection points for thermostats, then the 1(NO) and 2(COM) of the thermostat connection points must be connected to the device power cord, in the same way to connect a switch.

WARNING! Always consider the load capacity of the receiver and follow the instructions of the manufacturer of the heating or cooling equipment. The device must be installed and connected by a qualified professional!



Note : You can see the detailed diagram of electric connection on the last page.

The voltage at the terminals No.1 and No.2 depends only on the controller system, the wire size is determined by the type of device to be controlled. The thread length is not relevant, the receiver can be installed near the boiler or far from it, but not installed under the housing of the boiler.

If the distance between the transmitter and the receiver is too wide, it will make the wireless (radio frequency) connection unreliable. Install the receiver as close to the point of thermostat.

How to operate the receiver

Turn on the power of the receiver. After a few seconds, the wireless system (radio-frequency) (thermostat and receiver unit) turns to operating frequency. To test the system in the heating mode, press the thermostat button several times, until the set temperature is 2~3 °C higher than room temperature. Later, the icon indicating that the heating is turned on should appear on the thermostat display in a few seconds. At the same time, the red LED light on the receiver should turn on to indicate that the receiver has received the command transmitter (thermostat).

Otherwise the system should be rebooted. So, press the M/A button on the receiver and hold it down (for about 10 seconds) until the green LED starts flashing. Then, hold the " ⏠ " and " ⌚ " buttons on the thermostat for 5 seconds until the green LED on the receiver stops blinking and turns off, so that the receiver "recognizes" the transmitter code (thermostat). The code will not be lost even in case of power failure, the device will automatically store.

Manual receiver control

Press the MANUAL button to separate to the thermostat from the receiver. In this case the boiler or the air conditioner connected to the receiver can be turned on or off manually without temperature control. Fixed green light indicates the MANUAL mode. Press the M/A button to activate or deactivate the boiler. (The red LED lights up when the boiler is on). Press the MANUAL button to stop manual control and resume automatic operation (thermostat-controlled) (the green LED turns off).

ON/OFF button on the receiver

O: OFF

When there is no need to use the thermostat, the users can just turn OFF (by the left side of the receiver) to power off the receiver and it does not need to remove the front case.

I: ON

The receiver is normal operating;

Notes:

When there is no need to use the thermostat for heating or cooling for some seasons, it is advised to turn off the receiver to protect the equipment and thermostat, and take out the batteries from the thermostat.

If there is need to start the heating or cooling, you can put in the batteries to the thermostat, turn on the switch on the receiver, and then press MANUAL on the receiver to turn off the green lights, the receiver now is controlled by the transmitter (thermostat).

