

# CP3



## Wireless Room Thermostat & Receiver

Installation and Operation Guide

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RFRA<sup>V2</sup> Room Thermostat  
**Installation Instructions**

## Factory Default Settings



Temperature indicator:	°C
Hysteresis:	0.4°C
In built frost protection:	5°C - Not adjustable
Keypad lock:	Off

## Frost Protection



5°C

Frost protection is built into this thermostat.

It is pre fixed at 5°C and is not adjustable.

It will only be activated when the thermostat is in the OFF mode and the room temperature falls below 5°C.

## Specifications

Power supply:	2 x AAA Alkaline Batteries
Power consumption:	50 $\mu$ A
Battery replacement:	Once a year
Temp. control range:	5 ... 35°C
Dimensions:	80 x 80 x 25.7mm
Temperature sensor:	NTC 100K Ohm @ 25°C
Temperature indication:	°C
Switching differential:	Adjustable 0.0 ... 1.0°C

## How your RFRA<sup>V2</sup> Room Thermostat works

When your RFRA<sup>V2</sup> thermostat is turned on, it will operate according to the target temperature selected by the user.

The setpoint is defined by turning the dial clockwise for a higher target temperature or anti-clockwise for a lower target temperature.

If the room temperature is lower than the target temperature then the thermostat will activate the demand for heat.

This will be indicated with a flame symbol on the screen.

Once the desired target temperature has been achieved, the thermostat will stop demanding heat, and the flame symbol will disappear from the screen.

The screen will always display the current room temperature.

When the thermostat is turned off, Frost protection is active. If the room temperature drops below 5°C, the thermostat will activate the demand for heat until the room temperature rises above the 5°C frost protection limit.

# Mounting & Installation

## Caution!

- Installation and connection should only be carried out by a qualified person.
  - Only qualified electricians or authorised service staff are permitted to open the receiver.
  - If the thermostat or receiver are used in a way not specified by the manufacturer, its safety may be impaired.
  - Prior to setting the thermostat, it is necessary to complete all required settings described in the section.
- 

## **This thermostat can be mounted in the following ways:**

- 1) To a recessed conduit box**
- 2) To a surface mounted box**
- 3) Directly mounted on a wall**
- 4) Table mounted - Stand Included**

- 1) The mounting height should be 1.5 metres above the floor level.
- 2) The thermostat should be located in the room where the heating is to be controlled.

The place of installation should be chosen so that the sensor can measure the room temperature as accurately as possible.

Choose the mounting location to prevent direct exposure to sunlight or other heating / cooling sources when mounted.

- 3) Press and hold the release button on the bottom of the thermostat to detach the front housing from the base plate.
- 4) Insert the 2 x AAA batteries provided and the thermostat will turn on.
- 5) For wall mounted installation, fix the base plate directly to the wall with the screws provided. Attach the front housing to the base plate.
- 6) For table mounted installation, attach the front housing to the base plate. Place the thermostat onto the stand provided.

1

Type  
1C

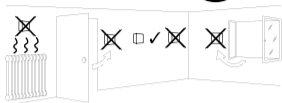
EN60730

IP20

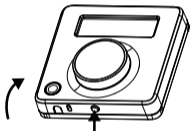
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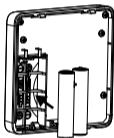
2



3

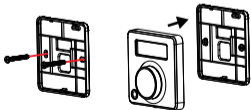


4



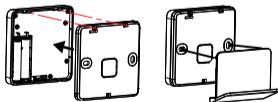
5

Wall mounted



6

Table mounted



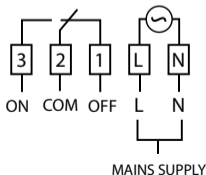


## RF1<sup>V2</sup> Wireless Receiver **Installation Instructions**

## Specifications & Wiring

Power supply:	200 - 240Vac 50-60Hz
Contact rating:	230 Vac 10(3)A
Ambient temperature:	0 ... 45°C
Automatic action:	Type 1.C.
Appliance classes:	Class II appliance <input type="checkbox"/>
Pollution degree:	Pollution degree 2
IP Rating:	IP20
Rated Impulse Voltage:	Resistance to voltage surge 2500V as per EN 60730

### Internal wiring diagram for RF1<sup>V2</sup>



#### Switching Options

##### Mains Switching

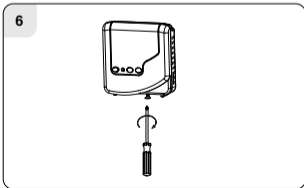
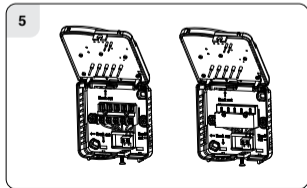
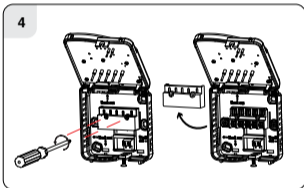
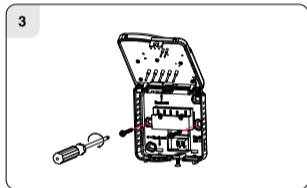
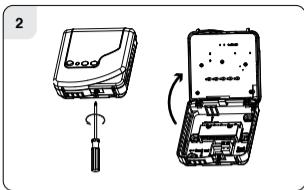
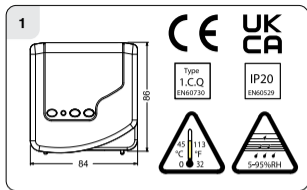
- Link L to 2.

##### Low Voltage Switching

- Remove the external controls link from the boiler PCB.
- Connect 2 and 3 to these terminals.

## Mounting & Installation

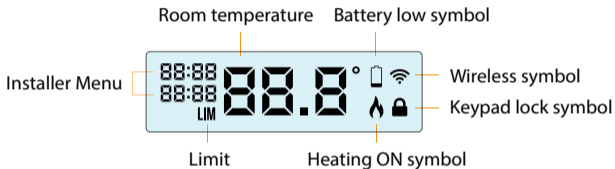
- 1) The RF1<sup>V2</sup> receiver should be wall mounted in an area within 20 metres distance of the wireless thermostat. It is important that the receiver is mounted more than 1 metre away from metal objects as this will affect communication with the thermostat. The receiver should be installed at least 1 metre from any electronic devices such as radio, TV, microwave or wireless network adaptor. The unit can be fitted to:
  1. Recessed conduit boxes
  2. Surface mounting boxes
  3. Directly mounted on a wall
- 2) Slacken the fastening screw on the bottom of the receiver with a philips screwdriver. The receiver is hinged and can be opened 180 degrees.
- 3) Screw the receiver to the wall with the screws provided.
- 4) Remove the protective cover on the terminal block.
- 5) Insert wires into terminal block in accordance with the wiring diagram and refit the protective cover on the terminal block.
- 6) Close the cover and tighten the fastening screw.



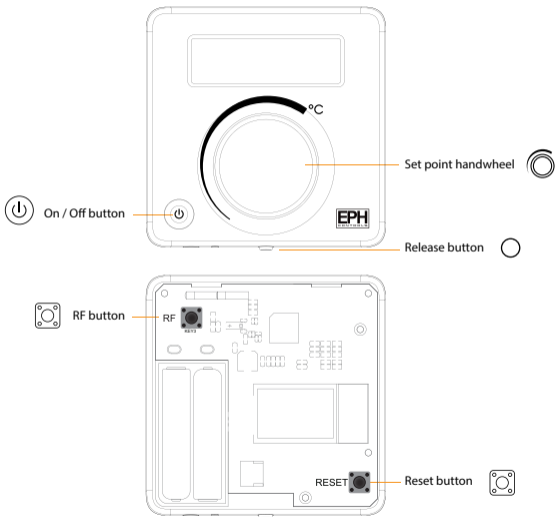


RFRA<sup>V2</sup> Room Thermostat  
**Operating Instructions**



# LCD Symbol Description



## Button Description

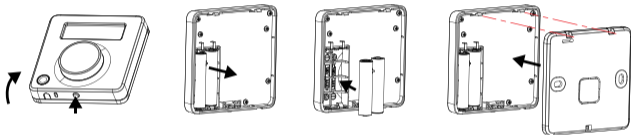


## Replacing the Batteries


Press and hold  on the bottom of the thermostat, while holding , pull from the bottom to detach the front housing from the baseplate.

Insert the 2 x AAA batteries and the thermostat will turn on.

Close the battery compartment.




## On / Off Function

Press  to turn the thermostat On or Off.


When the thermostat is turned on, it will display the current room temperature.


When the thermostat is turned Off, it will display the current room temperature and the word 'OFF'.


## Battery Low Warning


When the batteries are almost empty, the  symbol will appear on the screen. The batteries must now be replaced or the unit will shut down.

## Locking the Keypad

To lock the thermostat, press  for 10 seconds.


 will appear on the screen. The buttons are now disabled.

To unlock the thermostat, press  for 10 seconds.


 will disappear from the screen. The buttons are now enabled.

## Adjusting the Target Temperature

Rotate  clockwise to increase the target temperature.

Press  or wait 5 seconds. The target temperature is now saved.

Rotate  anti-clockwise to decrease the target temperature.

Press  or wait 5 seconds. The target temperature is now saved.

## Menu


This menu allows the user to adjust additional functions.

### **P01 Operating Mode** (Normal / Delay Start / TPI)

There are three settings for selection, Normal, Delay Start or TPI mode. The default setting is Normal.

Press and hold the  and  together for 5 seconds, 'P01' will appear on the screen,

Press  to select.


Rotate  to select between

**Nor** (Normal mode)

**dS** (delay start mode)

**tPi** (Time proportional integral mode)

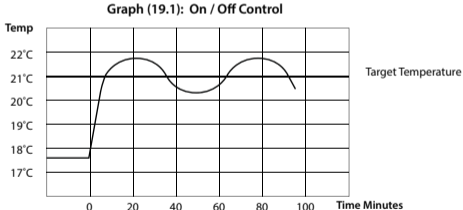
Press  to confirm the mode.

Press  to return to normal operation.

## Nor (Normal Mode)

When the temperature falls below the target temperature, 🔥 will appear and the thermostat will activate the demand for heat.

When the temperature rises above the target temperature, 🔥 will disappear, and the thermostat will cancel the demand for heat.



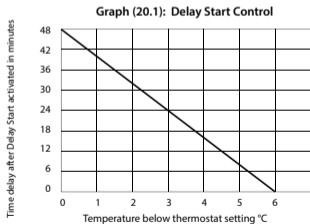
## P01 – Operating Mode (Normal / Delay Start / TPI)

### Delay Start Control (On/Off)

When the delay start mode is active, 'dS' will appear continuously on the screen. When in this mode the thermostat is delayed by a variable time depending on the current temperature, target temperature and also the fall in temperature from when the delay start has activated.

The  will flash until the thermostat activates.



When activated the thermostat will allow the heating system time to reach the target and delay start will remain inactive until it reaches this target.



E.g: If the temperature is 6°C below the thermostat target, the thermostat will call for heat immediately.

If the temperature is 2°C below the target, the thermostat will not call for heat for 32 minutes.

## Delay start can be reactivated by:

1. Lower the target below the current temperature.
2. Press  to set the temperature.
3. Increase the target above the zone temperature within 6°.
4. Press  to confirm.

The heating will be delayed as per the graph on page 20.

If the difference between the actual temperature and the target is 1°C the thermostat will delay starting for circa 40 minutes.

If the difference between the actual temperature and the target is 3°C the thermostat will delay starting for circa 24 minutes.

If the difference is 6°C or more then the thermostat will be switched on immediately.

The time delay will change if the temperature drops from the original calculation.

## P01 – Operating Mode (Normal / Delay Start / TPI)

### Time Proportional Integral Mode (TPI)

When the thermostat is in TPI mode and the temperature is rising in the zone and falls into the Proportional Bandwidth section, TPI will start to affect the thermostats operation. The thermostat will turn on and off as it gains heat so that it doesn't overshoot the target by too much. It will also turn on if the temperature is falling so it doesn't undershoot the target which will leave the user with a more comfortable level of heat.

There are 2 settings that will affect the thermostats operation.

1. The number of heating cycles per hour.
2. The Proportional Bandwidth.

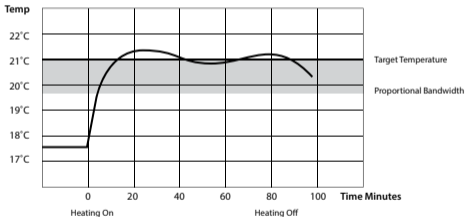
### CyC – Number of Heating Cycles per hour 6 Cycles

This value will decide how often the thermostat will cycle the heating on and off when trying to achieve the target temperature. You can select 2/3/6 or 12.

## Pb -Proportional Bandwidth 2°C

This value refers to the temperature below the target at which the thermostat will start to operate in TPI control. You can set this temperature from 1.5°C to 3.0°C in 0.1°C increments.

Graph (23.1): TPI Control




## P02 – Setting High and Low limits Hi 35°C Lo 5°C

This menu allows the installer to change the minimum and maximum temperatures that the thermostat can operate between.

To access this setting press and hold  and  together for 5 seconds.

'P01' will appear on the screen. Rotate  clockwise.

'P02 & HI LO' will appear on the screen. Press  to select.

'OFF' & 'LIM' will appear on the screen.

Rotate  to select 'ON' and press to confirm.


'Hi LIM' will appear on the screen and the temperature will begin to flash.


Rotate  to select the high limit for the thermostat.

Press  to confirm.

'LO LIM' will appear on the screen and the temperature will begin to flash.

Rotate  to select the low limit for the thermostat.

Press  to confirm. The settings will be saved and the user will be returned to the previous screen.

Press  to return to normal operation.


## P03 – Hysteresis HOn & HOFF HOn 0.4°C HOFF 0.0°C

This menu allows the installer to change the hysteresis of the thermostat when the temperature is rising and falling.

If HOn is set to 0.4°C, this will allow a temperature drop of 0.4°C below the target temperature, before the thermostat turns on again.



If HOFF is set to 0.0°C, this will allow the temperature to rise 0°C above the target temperature before the thermostat turns off.

To access this setting press and hold  and  together for 5 seconds. 'P01' will appear on the screen.



Rotate  clockwise until 'P03 & HOn' appears on the screen.

Press  to select.


'HOn' will remain on the screen and the temperature will begin to flash.

Use  to select the 'HOn' temperature, press  to confirm.

'HOFF' appears on the screen and the temperature will begin to flash.

Use  to select the 'HOFF' temperature, press  to confirm.

The settings will be saved and the user will be returned to the previous screen.


Press  to return to normal operation.

## P04 – Calibration

This menu allows the installer to calibrate the temperature of the thermostat.

To access this setting press and hold  and  together for 5 seconds.

'P01' will appear on the screen.

Rotate  clockwise until 'P04 & CAL' appears on the screen.


Press  to select.

Current actual temperature will appear on the screen.

Rotate  clockwise or anti clockwise to calibrate the temperature.

Press  to confirm the temperature.



The current temperature will be saved and the user will be returned to the previous screen.

Press  to return to normal operation.

## P05 – Frost Protection On

Frost protection is built into this thermostat, it is pre fixed to 5°C and is not adjustable.


It will only be activated when the thermostat is in the standby mode and the temperature drops below 5°C.

To access this setting, press and hold  and  together for 5 seconds.

'P01' will appear on the screen.


Rotate  clockwise until 'P05 & Fr' appears on the screen.

Press  to confirm.

Rotate  to switch between ON and OFF.

Press  to confirm selection.

The setting will be saved and the user will be returned to the previous screen.

Press  to return to normal operation.

## P07 – Resetting the Thermostat

This menu allows the user to reset the thermostat to factory settings.

To access this setting, press and hold  and  together for 5 seconds.

'P01' will appear on the screen

Rotate  until 'P07 & rSt' appears on the screen.

Press  to confirm.

'rSt' will appear on the screen an 'nO' will flash.



Rotate  clockwise.

'rSt' will remain and 'YES' will flash on the screen.

Press  to confirm.

The thermostat will restart and revert to its factory defined settings.

### Note:

The thermostat may also be master reset by using the reset button  located on the PCB inside of the thermostat. Press  and follow the instructions above.



RF1<sup>V2</sup> Wireless Receiver  
**Operating Instructions**

## Button / LED Description



Manual  
○ Manual override

■ Reset button

Press to reset the receiver



Wireless connect:

Once voltage has been applied this button may be pressed to initialise the pairing process with the wireless thermostat. Once pressed the red LED will begin to flash.

## LED Description

Description	Green LED	Red LED
Heating ON	ON	OFF
Heating OFF	OFF	ON
Thermostat disconnected	ON or OFF	Flashes twice per second
Pairing mode	OFF	Flashes once per second

### Note:

The red LED will blink quickly every few minutes when communicating with the thermostat. This is normal operation.

## To connect the RFRA<sup>V2</sup> Thermostat to an RF1<sup>V2</sup> Receiver



Please note: If you are installing a CP3 the RFRA<sup>V2</sup> thermostat and the RF1<sup>V2</sup> receiver are pre-paired. The below procedures are not required.

### On the RF1<sup>V2</sup> receiver:

Press the  button.

The red light will begin to flash.


### On the RFRA<sup>V2</sup> thermostat:

Press and hold  on the bottom of the thermostat, while holding , pull from the bottom to detach the front housing from the baseplate.

Press the RF button  on the PCB.

'nOE' will appear on the screen followed by '-- -'.

The thermostat will count from 01 to 03.

When 'r1' appears on the screen, press the  to confirm the pairing.


The thermostat and the receiver will return to normal operation.


The thermostat is now connected to the receiver.

## To disconnect the RFRA<sup>V2</sup> Thermostat from an RF1<sup>V2</sup> Receiver

This can be done from either the thermostat or the receiver.



### On the RF1<sup>V2</sup> receiver:

Press the  once, the red light will flash.

Press and hold  for 10 seconds until the red light stops flashing.

The RF connection is now cleared.


### On the RFRA<sup>V2</sup> thermostat:

Press and hold  on the bottom of the thermostat, while holding , pull from the bottom to detach the front housing from the baseplate.

Press the RF button  once on the PCB.

'nOE' will appear on the screen followed by '-- -'.

Press and hold the RF button  for 10 seconds until 'Adr' appears on the screen.

Press the  twice to confirm.

The thermostat is now disconnected from the receiver.

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