RFRB V2

EPH CONTROLS

RF Room Thermostat with On/Off Button

Installation and Operation Guide

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RFRB^{V2} Room Thermostat

Installation Instructions

Factory Default Settings

Temperature indicator:	˚C
Hysteresis:	0.4˚C
Keypad lock:	Off

Specifications

Power supply:	2 x AAA Alkaline Batteries
Power consumption:	50 uA
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

Note: Good quality batteries are essential to ensure the correct operation of this product. EPH recommend using Duracell or Energiser batteries.

How a RFRB^{V2} Room Thermostat works

When a RFRB^{V2} thermostat is calling for heat, it will operate according to the target temperature selected by the user.

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

A RFRB^{V2} thermostat will be wirelessly connected to a programmer or controller which will determine the times that it will operate. See pages 13 & 14 for pairing instructions.

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.

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 programmer.
- If the thermostat or programmer are used in a way not specified by the manufacturer, their safety may be impaired.
- Prior to setting the thermostat, it is necessary to complete all required settings described in this section.

This thermostat can be mounted in the following ways:

1) Directly mounted on a wall

2) Table mounted - Stand Included

Mounting & Installation Continued

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.

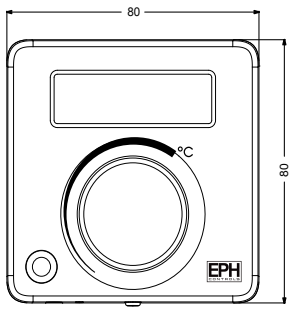
3) Press and hold the release button on the bottom of the thermostat to detach the front housing from the base plate.

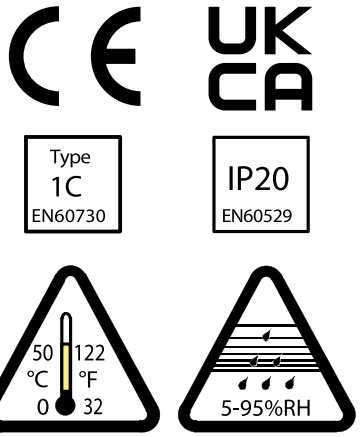
4) Insert the 2 x AAA batteries provided and the thermostat will turn on.

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





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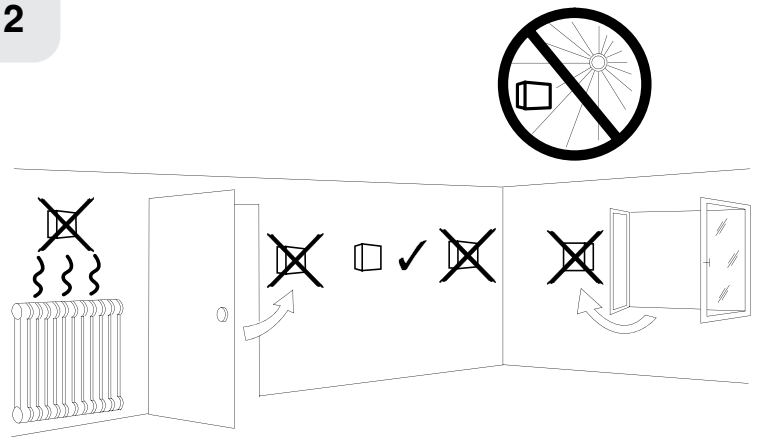

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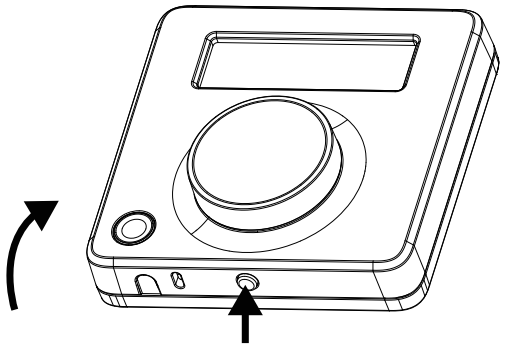

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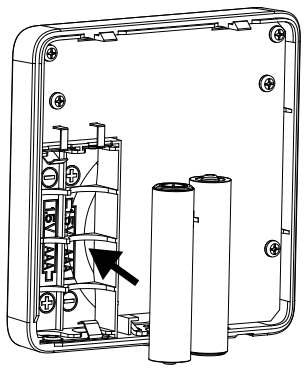
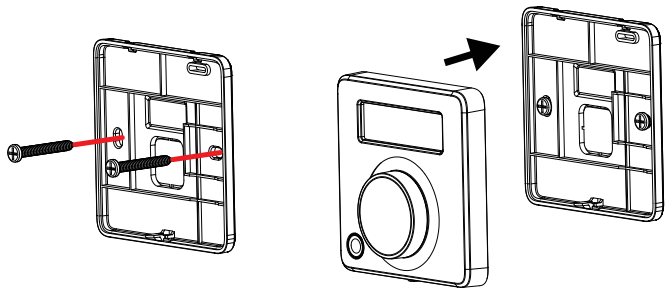
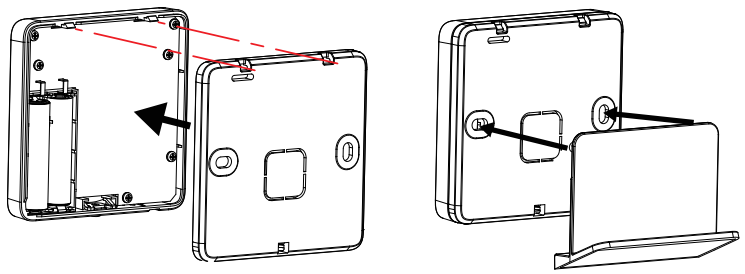


5 Wall mounted



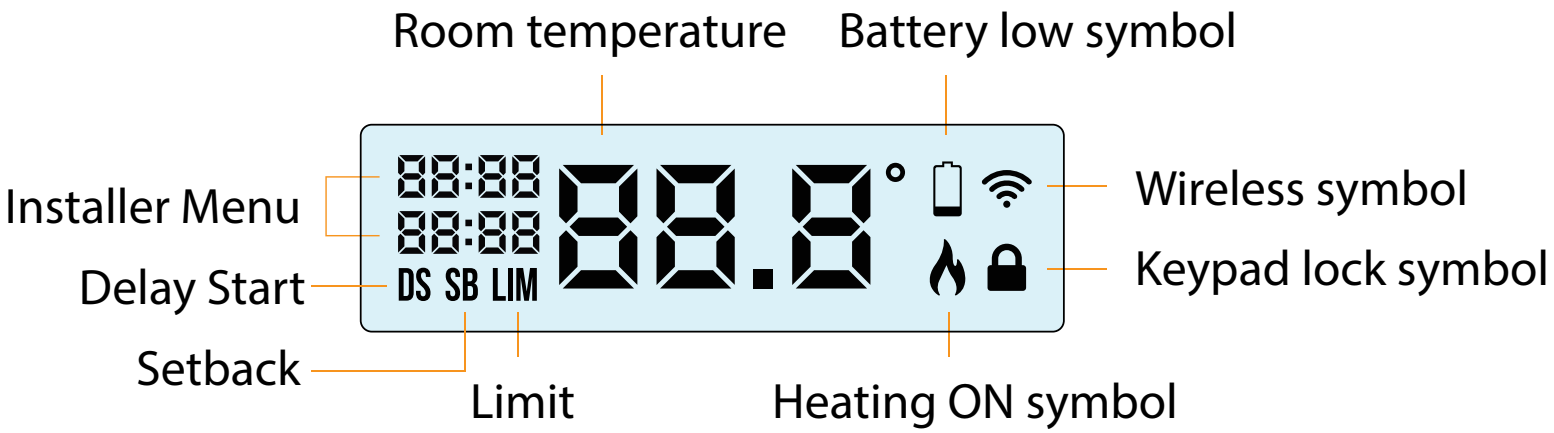
6 Table mounted



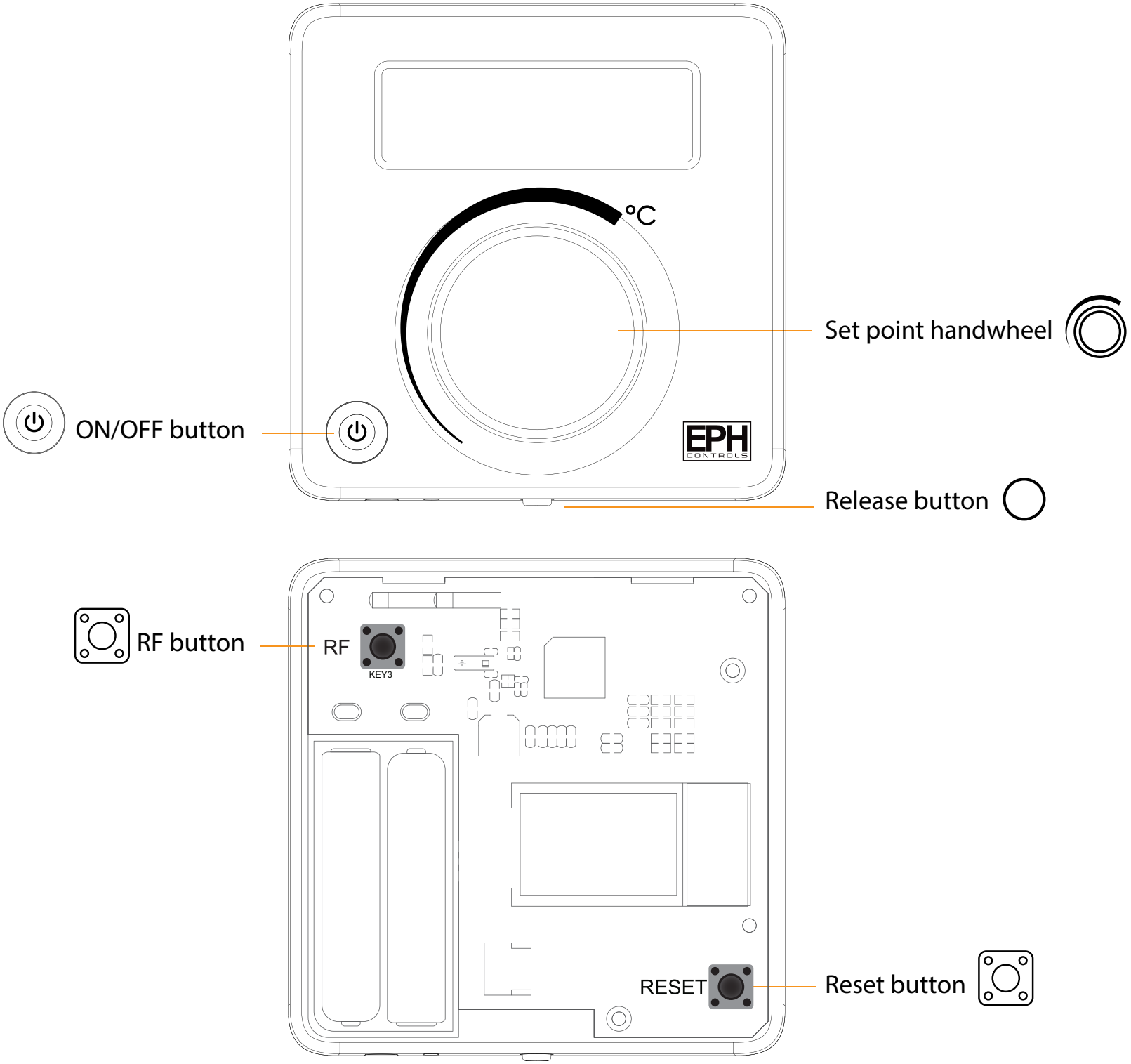
RFRB^{V2} Room Thermostat

Operating Instructions

LCD Symbol Description



Button Description

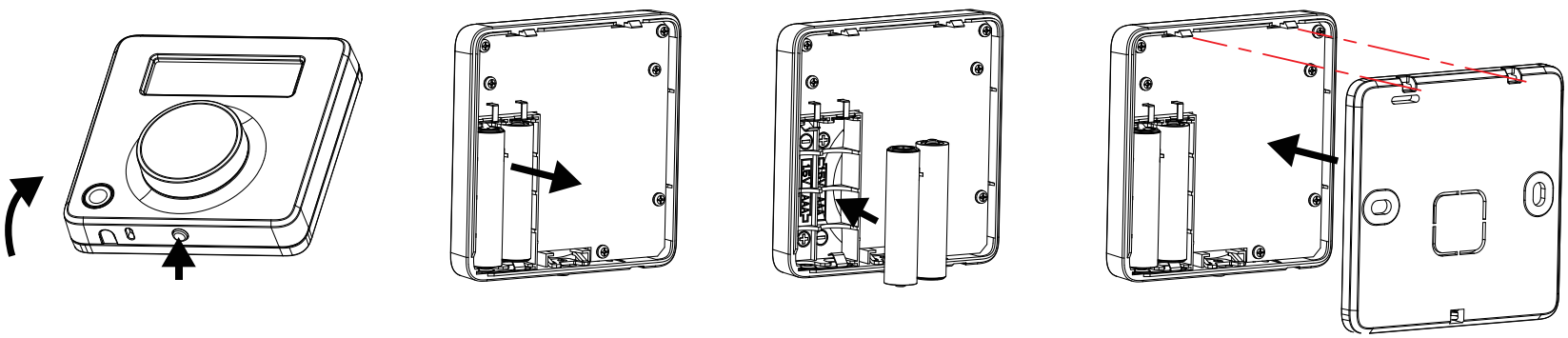


Replacing the Batteries

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.



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.

On / Off Function

Press ⏻ to turn the thermostat On or Off.

When OFF is displayed on the screen the thermostat and zone will be set to OFF.

Note: If the zone is in the constant OFF mode and the ON/OFF button is pressed, this will change the mode of the zone to constant ON.

Locking the Keypad

To lock the thermostat, press and hold ◎ for 10 seconds.

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

To unlock the thermostat, press and hold ◎ 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.

To connect a RFRB^{V2} to a R_7-RF^{V2}

1. On the R_7-RF^{V2}:

Press [MENU], **'P01 rF COn'** will appear on the screen.

Press [OK], **'RF CONNECT'** will appear solid on the screen.

2. On the RFRB^{V2}:

Remove the back cover & press the RF button on the PCB.

3. On the R_7-RF^{V2}:

Once **'ZONE'** flashes, press [Select] on the desired zone.

4. On the RFRB^{V2}:

When **'r01'** appears, press the to confirm the thermostat is connected.

5. On the R_7-RF^{V2}:

Put the next thermostat into pairing mode or press [OK] to return to the main screen.

Note: When pairing additional zones to an R_7-RF^{V2}, **'r02'**, **'r03'**, **'r04'** can appear on the thermostat screen.

To connect a RFRB^{V2} to a UFH10-RF

1. On the UFH10-RF:

Press MENU , **'P01 rF COn'** will appear on the screen.

Press , **'RF CONNECT'** will appear solid on the screen.

Rotate to choose the zone you would like to connect to.

Press to confirm. The zone will stop flashing and appear solid.

2. On the RFRB^{V2}:

Remove the back cover & press the RF button on the PCB.

When **'r01'** appears, press the to confirm the thermostat is connected.

3. On the UFH10-RF:

Rotate to choose another zone you would like to connect to or press MENU to return to the menu.

Note: When pairing additional zones to a UFH10-RF, **'r02'** , **'r03'**, **'r04'** **...'r10'** can appear on the thermostat screen.

To disconnect a RFRB^{V2} from both R_7-RF^{V2} or UFH10-RF

On the RFRB^{V2}:

1. Detach the front housing of the thermostat from the baseplate by pressing the ◯ on the bottom of the thermostat and pull the front housing away from the baseplate.
2. Press the RF button once on the PCB.

   'nOE' will appear on the screen followed by '- - -'.
3. Press and hold the RF button again for 10 seconds until **'Adr'** appears on the screen.
4. Press the twice to confirm.

   The thermostat is now disconnected.

Note: The thermostats can also be disconnected at the R_7-RF^{V2} or UFH10-RF. Please see R_7-RF^{V2} or UFH10-RF operation guide for details.

Menu

This menu allows the user to adjust additional functions.

P0 1 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.

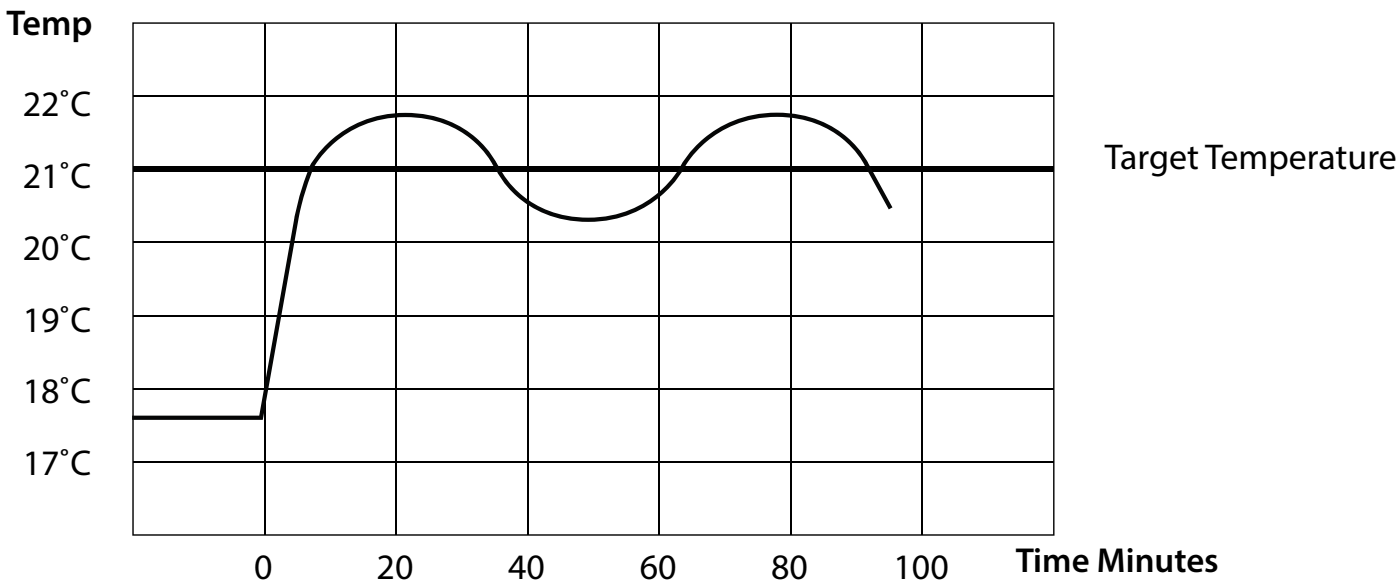
Press to return to normal operation.

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.

Graph (17.1): On / Off Control



P0 1 Operating Mode Continued

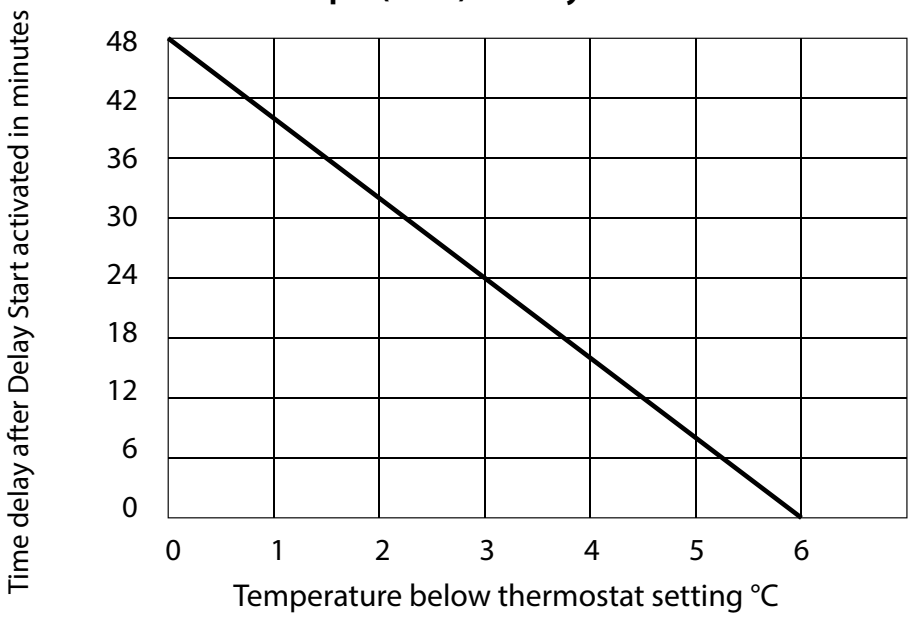
Delay Start Control (On/Off)

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.

'**DS**' will appear solid on the screen 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.

Graph (18.1): Delay Start Control



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 18.

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.

P0 1 Operating Mode Continued

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

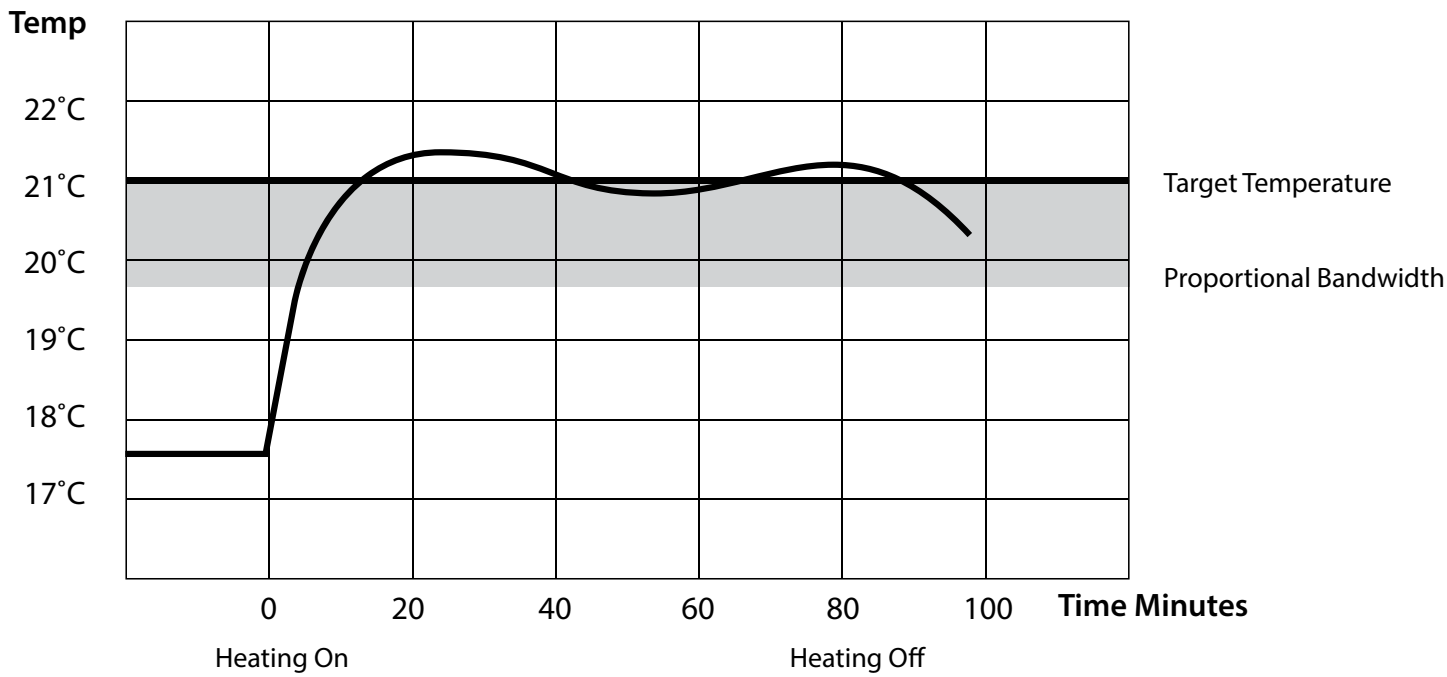
CyC – Number of Heating Cycles per hour **6 Cycles**

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 (21.1): TPI Control



P0 2 Setting High and Low limits Hi 35°C Lo 5°C

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

To access this setting press and hold & 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, 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, 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.

P0 3 Hysteresis HOn 0.4°C HOFF 0.0°C

This function 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 & 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 & the temperature will begin to flash.

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

'HOFF' appears on the screen & 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.

P0 4 Calibration

This function 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.

P0 6 – Setback Mode (0.0°C / Off)

In Setback mode, the thermostat reduces the temperature setpoint by 0°...10°C which is predetermined by the user. The factory default setting is set to (0°C / OFF) and needs to be activated to function. Setback mode will only work when the zone is timed off. This can only happen when the zone is in the AUTO OFF or ALL DAY OFF mode.

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

'P01 & Nor' will appear on the screen.

Rotate clockwise until '**P06 & Sb**' appears on the screen.

Press to select.

Setback temperature will begin flashing on the screen.

Rotate to set the Setback temperature between 0°...10°C.

Press to confirm.

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

When in Setback mode '**SB**' will appear on the screen.

P0 7 – AFS Air / Floor Sensor 01 Internal air sensor

This function allows the user to select between 3 different temperature sensor options.

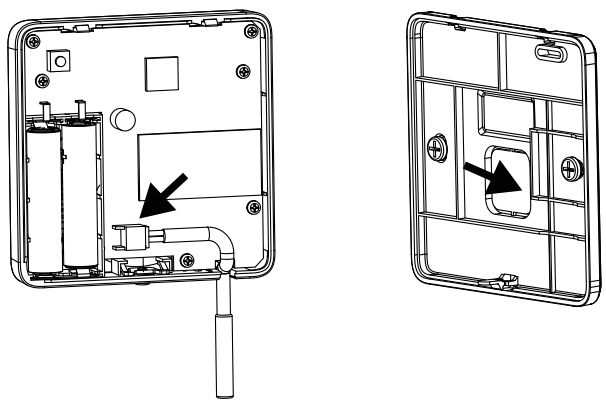
01 Internal air sensor – This option allows the user to record the room temperature using the internal sensor. This is the default option.

02 External air sensor – This option allows the user to record the temperature of an adjacent room **(NTC10K temperature sensor required)**

03 Internal a sensor with an External high limit sensor.

This option allows the user to record the room temperature with the internal sensor while having the external sensor record the floor temperature to prevent overheating. **(NTC10K temperature sensor required)**

Temperature Sensor



Note: The temperature sensor should be ran through the breakout on the rear housing.

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

'P01' will appear on the screen.

Rotate clockwise until **'P07 & AFS'** appears on the screen.

Press to select.

'01' will flash on the screen.

Rotate to choose between options 01, 02 & 03.

Press to confirm.

Press to return to normal operation.

Note: NTC10K temperature sensor can be bought separately as an accessory.

P0 8 – FHL Floor High Limit 26°C

This function allows the user to select the high limit temperature of the external sensor. Selectable temperature range 5°C – 45°C.

Temperature Sensor 03 must be selected, See Page 26 P07 AFS.

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

'P01' will appear on the screen.

Rotate clockwise until **'P08 & FHL'** appears on the screen.

Press to select.

The high limit temperature will flash on the screen.

Rotate to choose the desired high limit temperature.

Press to confirm the temperature.

Press to return to normal operation.

P0 9 – Resetting the Thermostat

This function 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 **'P09 & 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.

EPH Controls IE

technical@ephcontrols.com
www.ephcontrols.com/contact-us
+353 21 471 8440
Cork, T12 F753

EPH Controls UK

technical@ephcontrols.co.uk
www.ephcontrols.co.uk/contact-us
+44 1933 322 072
Harrow, HA1 1BD

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