HDT

EPH CONTROLS

Room Thermostat
Installation and Operation Guide

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Mains operated non-programmable Room Thermostat

Installation Instructions

Factory default settings

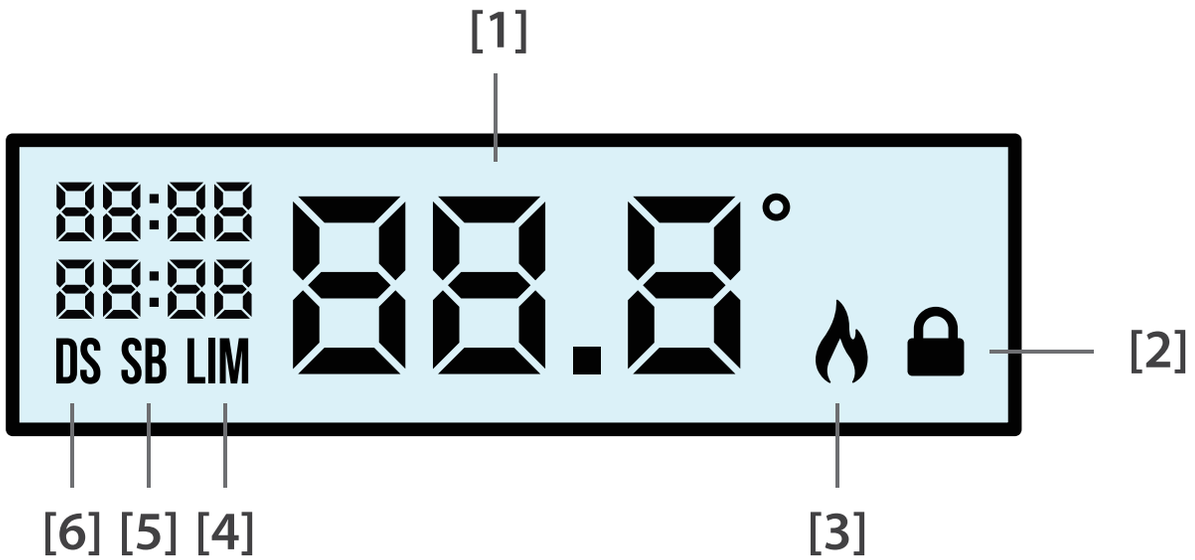
Contacts:	Volt Free
High and Low Temp. limitation:	Off
Keypad lock:	Off
Backlight:	Auto
Setback:	0.0˚C (off)
Operating mode:	Normal

Specifications

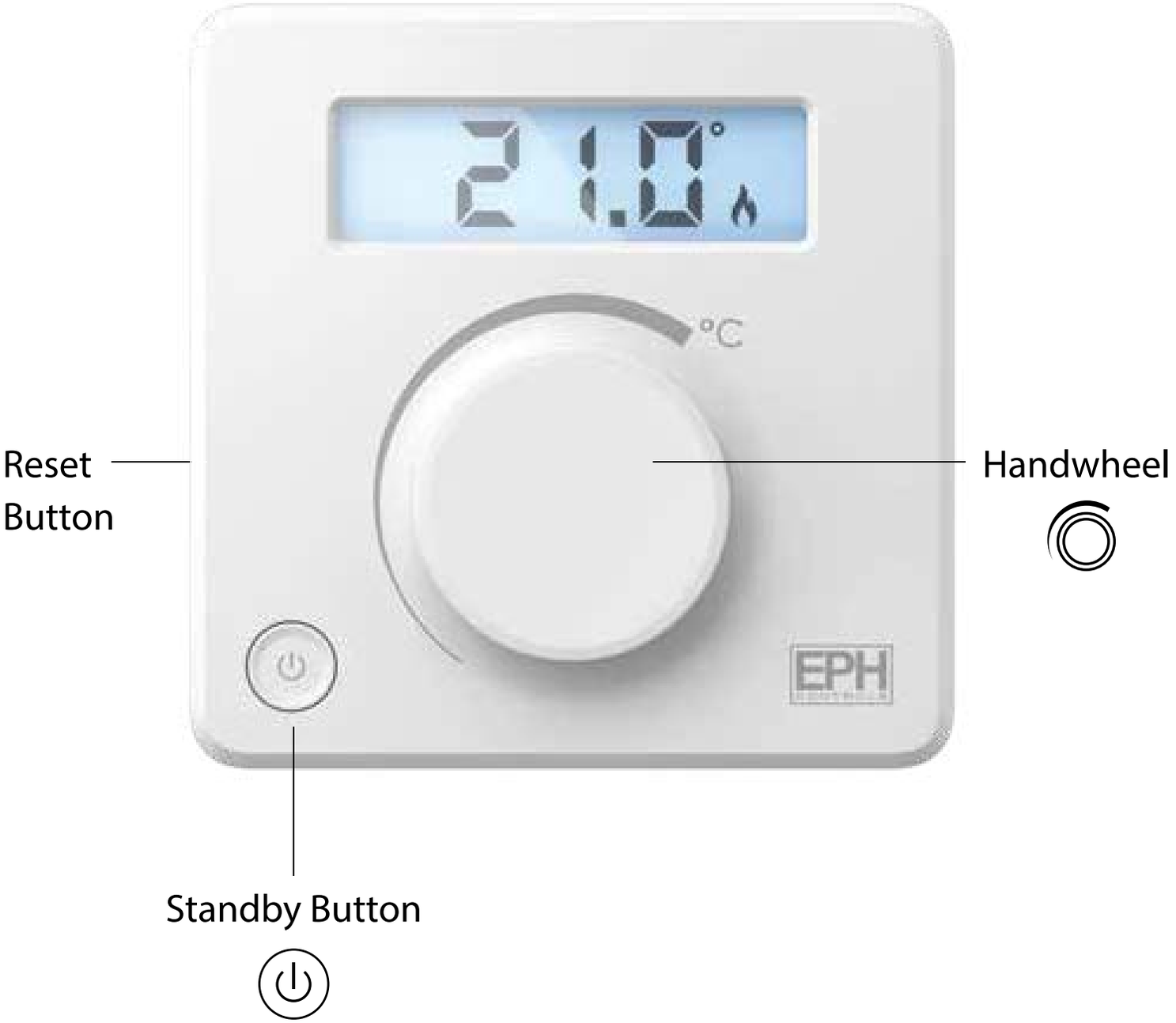
Power supply / Input:	230Vac 50-60Hz
Power consumption:	Operating ≤ 1.5W
Temperature range:	5 … 35˚C
Ambient temperature:	0 … 45˚C
Ambient admissible humidity:	5-95%RH
Contact rating:	7A 230Vac
Dimensions:	85 x 85 x 36mm
Temperature sensor:	NTC 100K
Backlight:	White
IP rating:	IP20
Pollution degree:	2
Switching differential:	Adjustable from 0.0 – 1.0°C 0.1°C increments
Automatic action:	1C

LCD Display

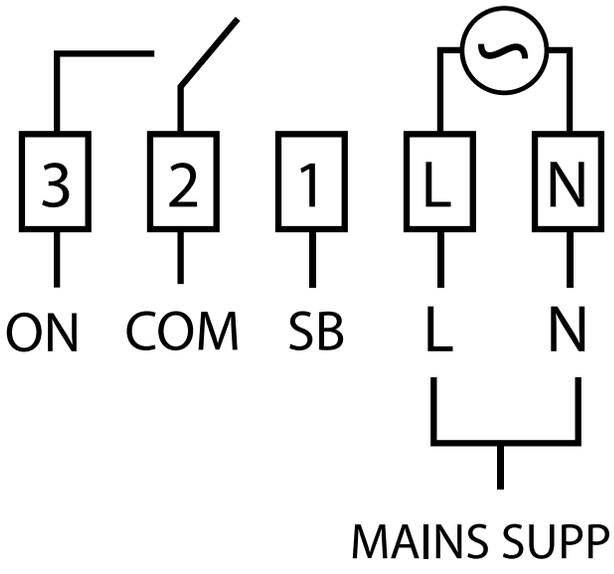
[1]	88.8°	Shows the current / target temperature.
[2]	🔒	If the keypad is locked, the lock symbol is displayed.
[3]	🔥	When the thermostat is calling for heat, the flame symbol is displayed.
[4]	LIM	When a high or low temperature limit is set, 'LIM' is displayed.
[5]	SB	Displayed when setback is enabled.
[6]	DS	Displayed when delay start is enabled.



Buttons



Wiring



230V on Terminal 1: Thermostat works in Normal mode

0V on Terminal 1: Thermostat works in Setback mode

* If mains output is required terminals L and 2 must be electrically linked.

Terminal Connections

L	Live In
N	Neutral In
Terminal 1	Setback
Terminal 2	COM - Common connection
Terminal 3	ON - N/O Normally open connection

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 thermostat.
- If the thermostat is 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 this section.
- Before commencing installation, the thermostat must be first disconnected from the mains.

This thermostat can be mounted in the following ways:

1) **Directly mounted on wall**
2) **To a recessed conduit box**

1) Remove the thermostat from its packaging.

2) Choose a mounting location so that the thermostat can measure the room temperature as accurately as possible.
   - Mount the thermostat 1.5 metres above the floor level.
   - Prevent direct exposure to sunlight or other heating / cooling sources.

3) To open the front housing

   a) use a phillips screwdriver to loosen the screw on the bottom right of the thermostat.

   b) insert and rotate a 3.5mm flat screwdriver into the slot on the bottom left.

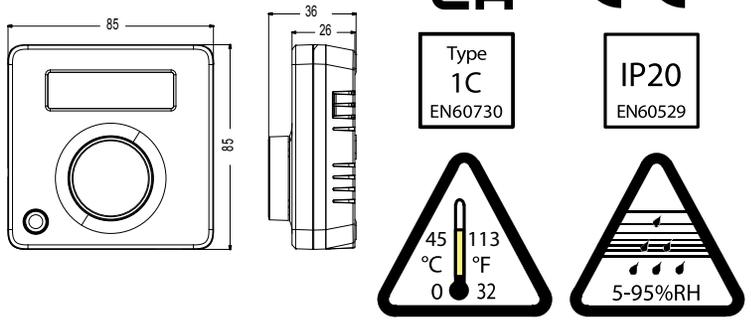
4) Screw the backplate onto a back box or directly to the surface.

5) Wire the thermostat according to the wiring diagram on page 7.

6) Close the front housing and tighten the screw on the bottom of the thermostat.

Mounting & Installation

1



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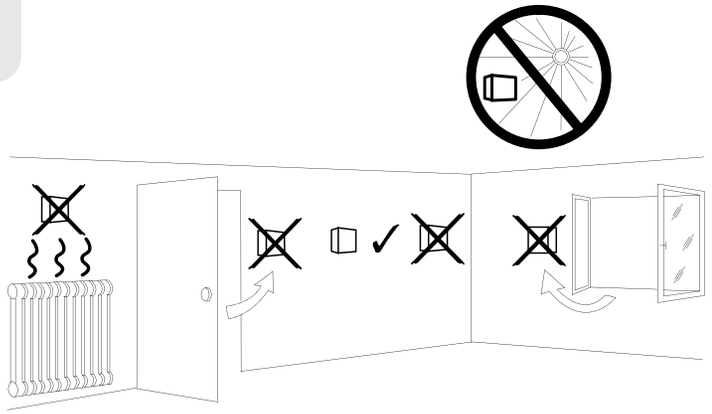

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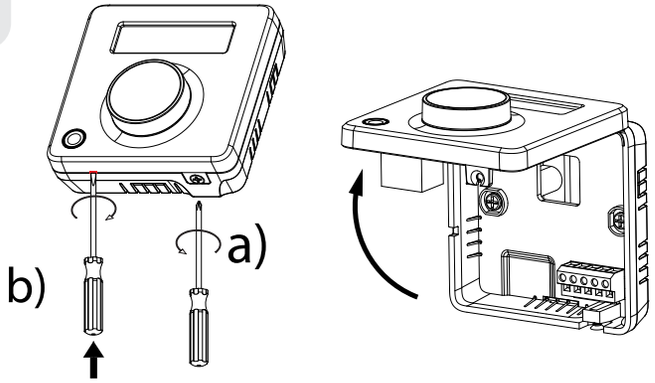

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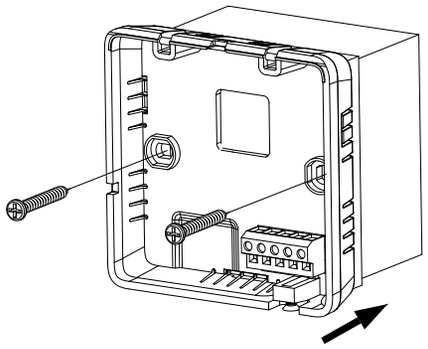

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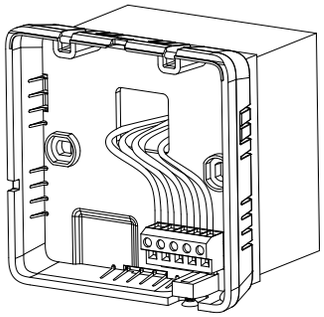

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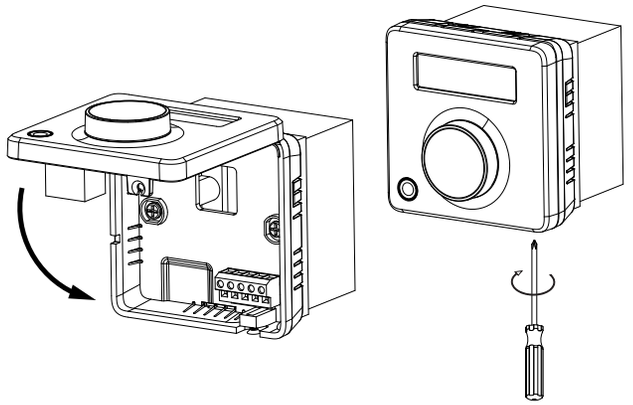


Mains operated non-programmable Room Thermostat

Operating Instructions

On / Off Function

Press to turn the thermostat On or Off.

When in the ON mode the thermostat will display the current ambient temperature.

When in the OFF mode the thermostat will display the current ambient temperature and the word ‘OFF’.

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.

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.

Backlight AUTO

There are three settings for selection.

'AUt' The backlight is on for 10 seconds when any button is pressed.

'On' The backlight is permanently on.

'OFF' The backlight is permanently off.

To adjust the backlight setting, press for 10 seconds.

'AUt' appears on the screen.

Rotate to change the mode between AUTO, ON and OFF.

Press to confirm selection and to return to normal operation.

Menu Function

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 & Nor**' will appear on the screen,

Press to select.

Rotate to select between

Nor (Normal mode)

dS (delay start mode)

tPi (Time proportional integral mode)

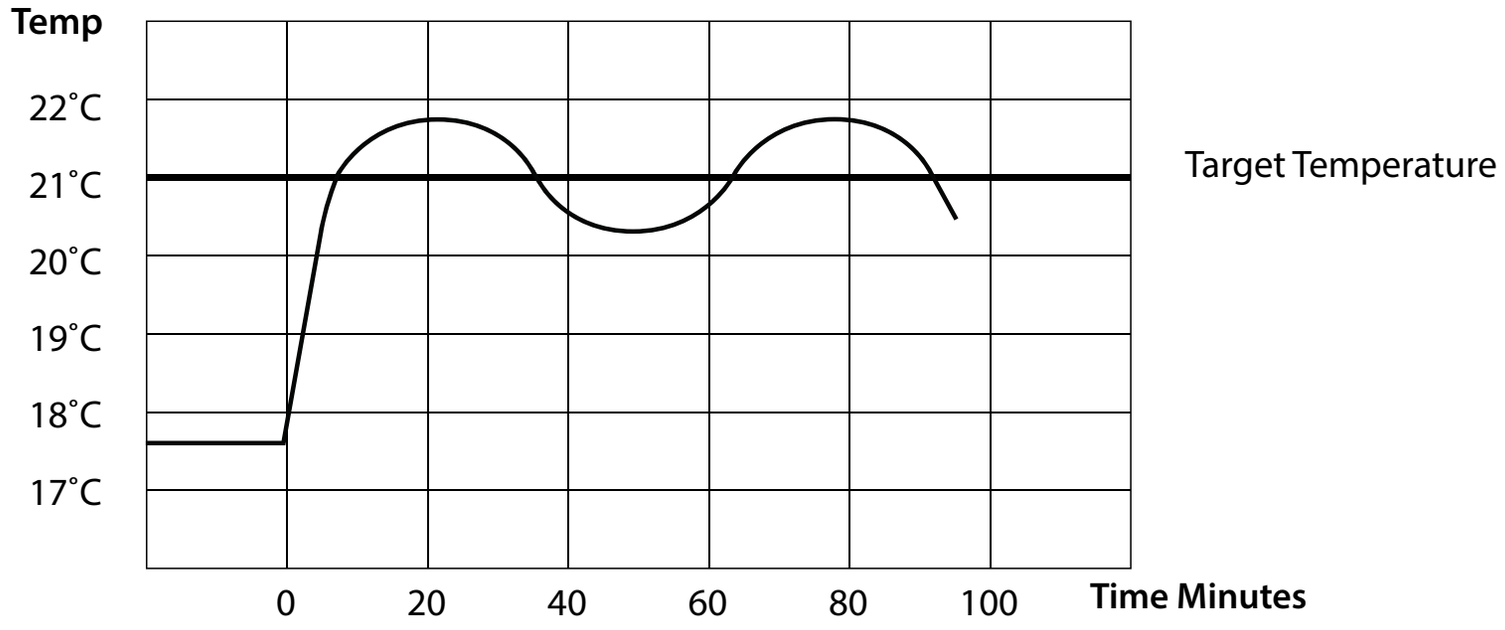
Press to confirm the mode.

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 (15.1): On / Off Control



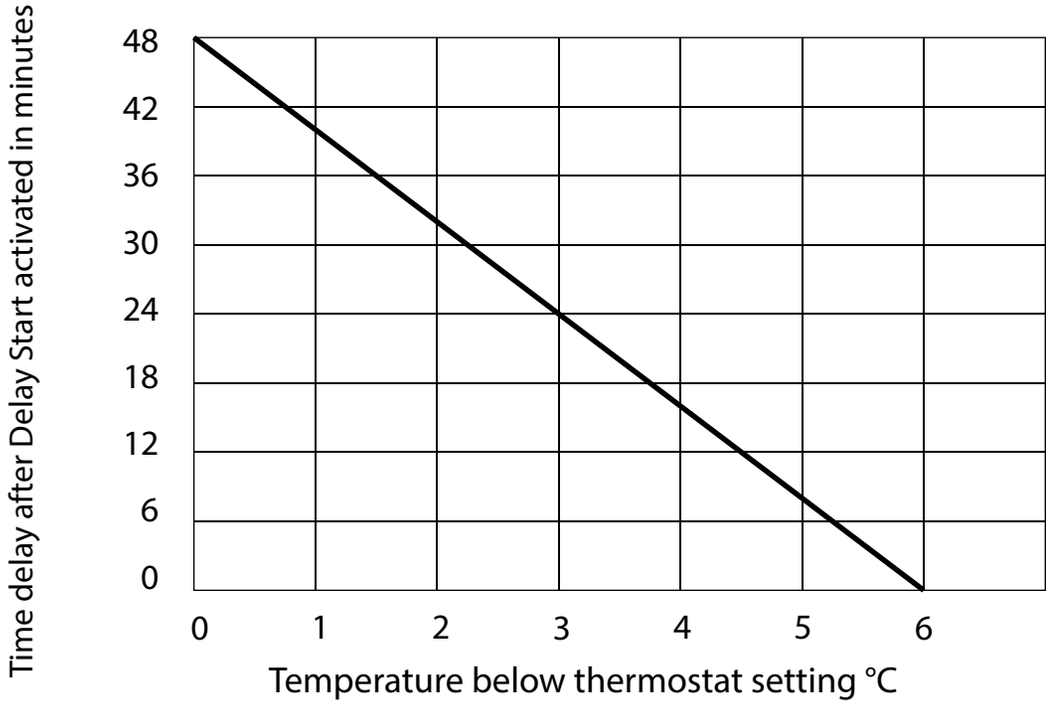
P01 Operating Mode (Normal / Delay Start / TPI)

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.

Graph (16.1): 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.

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.

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 16.

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

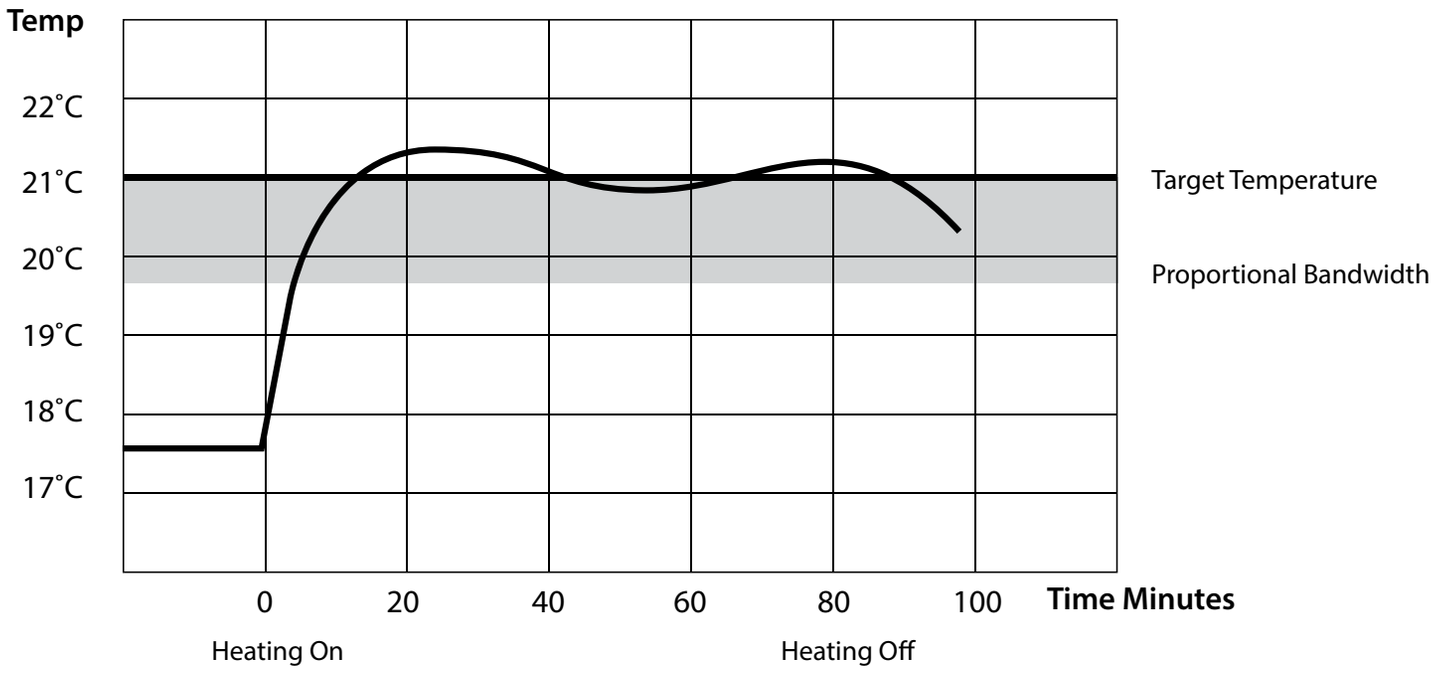
CyC – Number of Heating Cycles per hour 6 Cycles

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 (19.1): TPI Control



P02 Setting High & Low limits Hi 35°C Lo 5°C

This menu allows the installer to change the minimum and maximum temperatures that the thermostat can be set at.

To access this setting press & hold and together for 5 seconds. '**P01 & Nor**' will appear on the screen.

Rotate clockwise. '**P02 & HI LO**' will appear on the screen.

Press to select.

Rotate to switch between '**OFF**' and '**On**'. Press to confirm.

'**Hi Lim**' appears on the screen, the temperature will begin to flash.

Rotate to select the high limit for the thermostat.

Press to confirm.

'**Lo Lim**' appears 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.

P03 Hysteresis HOn & HOff HOn 0.4°C HOff 0.0°C

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

To access this setting press and hold and together for 5 seconds. '**P01 & Nor**' will appear on the screen.

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

Press to select.

'**HOn**' remains 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.

Press to confirm.

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

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 & Nor**' 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.

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 the setting, press and hold and together for 5 seconds.

'**P01 & Nor**' 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.

P06 – Setback Mode (0.0°C / Off)

* To use the thermostat in Setback mode, please refer to page 7 of this guide.
* Setback functionality can only be used in conjunction with a Programmer / Timeswitch.

When the thermostat is operating in Setback mode, it will operate to a reduced temperature based on the input set by the installer in this menu. This is factory set to 0° (off) and must be activated by the user to enable this function.

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.

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.

P07 – Resetting the Thermostat

To reset the thermostat to factory settings, locate the reset button on the left hand side of the thermostat. Press the reset button and release it.

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

'P01 & Nor' will appear on the screen.

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

Press to confirm.

'rst' will appear on the screen and '**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.

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