CDC2

EPH CONTROLS

Cylinder / Room Thermostat

Installation and Operation Guide

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Mains operated non-programmable Cylinder / Room Thermostat

Installation Instructions

Factory Default Settings

High and Low Temp. limitation:	Off
Keypad lock:	Off
Operating mode:	Normal
Temperature indicator:	˚C
Frost protection:	On (5˚C)
HYS On:	5˚C
HYS OFF:	0˚C
Temperature selection range:	CyL (Hot Water Parameters)
Temperature sensor:	Connected

Note:

Frost protection is built into this thermostat.

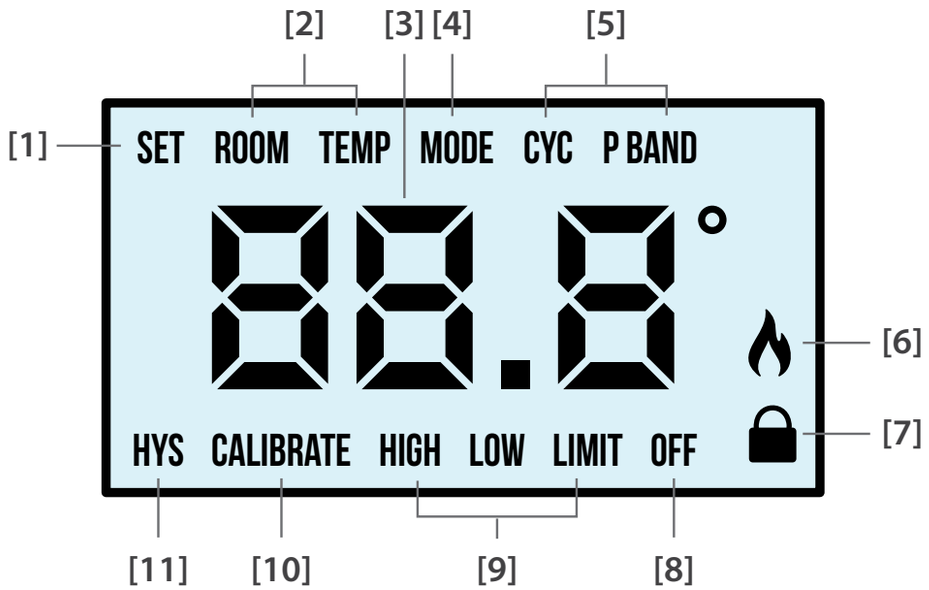
It will only be activated when the thermostat is in OFF position and the temperature reaches 5˚C.

Specifications

Contacts:	Volt Free
Power supply / Input:	230VAC
Power consumption:	1.5W
Ambient temperature:	0 … 45˚C
Ambient admissible humidity:	5-95%RH
Contact rating:	10(3)A 230VAC
Switch Output:	SPDT Volt Free
Dimensions:	91 x 91 x 26mm
External temperature sensor:	NTC 10K
External sensor length:	1950mm ± 80mm
Backlight:	White
IP rating:	IP20
Pollution degree:	2
Automatic action:	1C
Temperature range:	Hot Water 5 … 90˚C
	Heating 5 … 35˚C
Hysteresis (Switching differential):	
	Hot Water 0 … 20°C (0.5°C increments)
	Heating 0 … 1°C (0.1°C increments)

LCD Display

[1] Displays when setting target temperature.
[2&3] Displays when heating mode is active.
[3] Displays when cylinder mode is active.
[4] Displays current / target temperature.
[5] Displays when changing mode settings.
[6] Displays when changing TPI mode settings.
[7] Displays when the thermostat is calling for heat.
[8] Displays when keypad is locked.
[9] Displays when thermostat is in the OFF mode.
[10] Displays when setting HIGH and LOW temperature limit.
[11] Displays during calibration mode.
[12] Displays when setting hysteresis.



Buttons

Reset Button

Standby Button

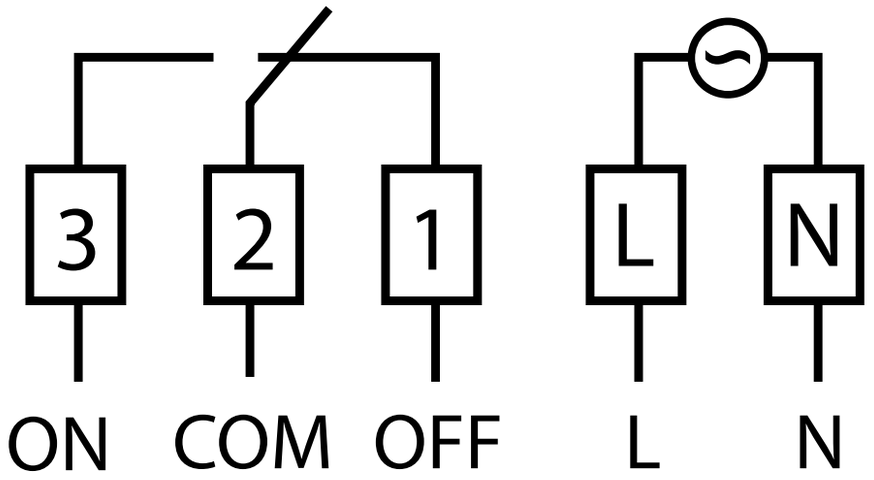
Down Button

Up Button

OK Button

OK

Wiring



Terminal Connections

N	Neutral
L	Live
1	OFF - N/C Normally closed connection
2	COM - Common connection
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**
3) **To a surface mounting box**

Mounting & Installation Continued

1) Remove the thermostat from its packaging.

2) Choose a mounting location so that the thermostat can measure the 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) Use a philips screwdriver to loosen the screw on the bottom of the thermostat to open the front housing.

4) Wire the thermostat according to the wiring diagram on page 6.

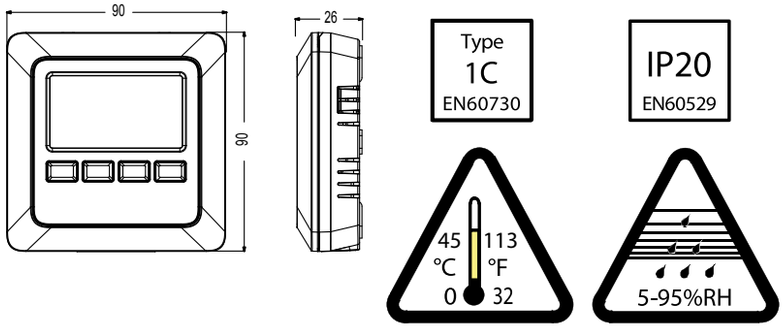
5) Screw the backplate onto a back box or directly to the surface.

6) Ensure the temperature sensor is free from obstruction. Close the front housing and tighten the screw on the bottom of the thermostat.

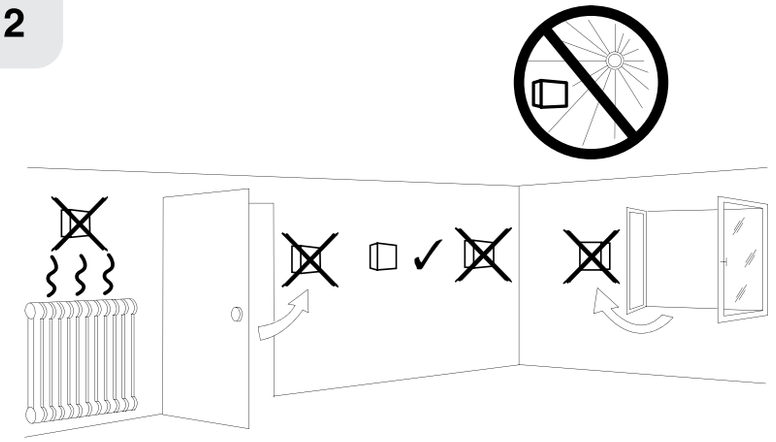
Note:

For side entry of the temperature sensor, please use breakout provided.

1


90
26
90
UK CA
CE
Type 1C EN60730
IP20 EN60529
45 °C 113 °F
0 32
5-95%RH

2



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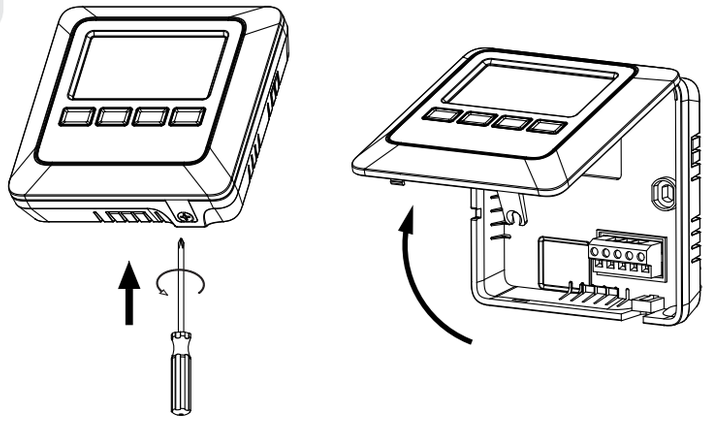

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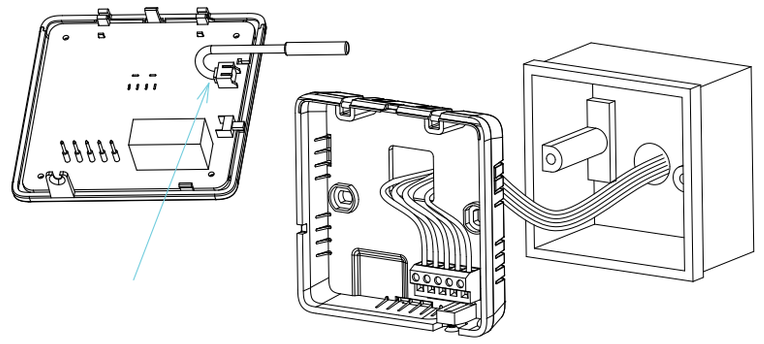

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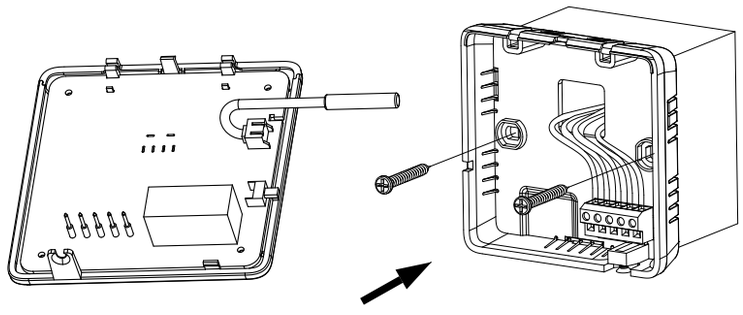

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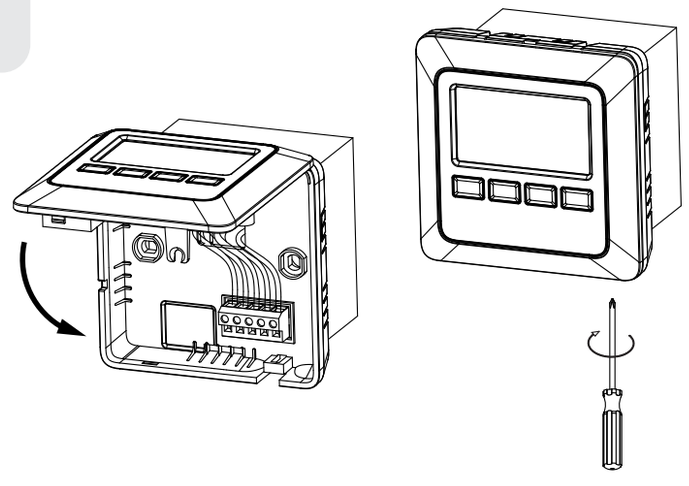


Mounting of Temperature Sensor

1. Cylinder

Surface

The temperature sensor should be fitted on the bottom 1/3 of the cylinder.

Remove a section of insulation on the cylinder to reveal the copper surface.

Attach the temperature sensor to the surface of the cylinder using the foil tape provided.

Cylinder Pocket

Insert the temperature sensor into the appropriate pocket on the cylinder. Secure the temperature sensor to the pocket using the foil tape provided.

2. Pipe

Remove any insulation on the pipework to reveal the pipe.
Attach the temperature sensor to the surface of the pipe using the foil tape provided.

3. Adjacent Room

Mount the NTC sensor housing 1.5 meters above floor level. Ensure the temperature sensor is secured tightly in the NTC sensor housing.

Note:

NTC sensor housing can be purchased as an accessory from EPH Controls.

Product code: NTC-Housing

Mains operated non-programmable Cylinder / Room Thermostat

Operating Instructions

Quick introduction to your CDC2 Thermostat:

The CDC2 thermostat is a Mains operated, non-programmable thermostat which can control either Hot Water or Heating applications.

The easily accessible menu will allow you change from Hot Water to Heating temperature ranges at the push of a button.

The external temperature sensor gives the installer the option to read the temperature of a Hot Water cylinder or of an adjacent room.

The temperature sensor comes connected with hot water temperature ranges set as default.

On / Off Function

Press ⏻ to turn the thermostat On or Off.

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

When in the OFF mode the thermostat will display the current temperature and the word '**OFF**'.

Adjusting the Target Temperature

Press ^ to increase the target temperature.

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

Press v to decrease the target temperature.

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

Locking the Keypad

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

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

To unlock the thermostat, press and hold ⌄ and ⌃ 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 5 seconds when any button is pressed.

'OFF' The backlight is permanently off.

'ON' The backlight is permanently on.

To adjust the backlight setting, press and hold OK for 10 seconds. **'AUt'** appears on the screen.

Use ⌄ and ⌃ to change the mode between AUTO, ON and OFF.

Press OK to confirm selection and to return to normal operation.

Menu Function

This menu allows the user to adjust additional functions.

To access the menu, press and hold ⏻ & OK together for 5 seconds.

Note: When CyL mode is active, PO1 menu is not accessible.

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 OK together for 5 seconds,

'**P01**' will appear on the screen,

Press OK to select.

Use ∨ and ∧ to select between

Nor (Normal mode)

dS (delay start mode)

tPi (Time proportional integral mode)

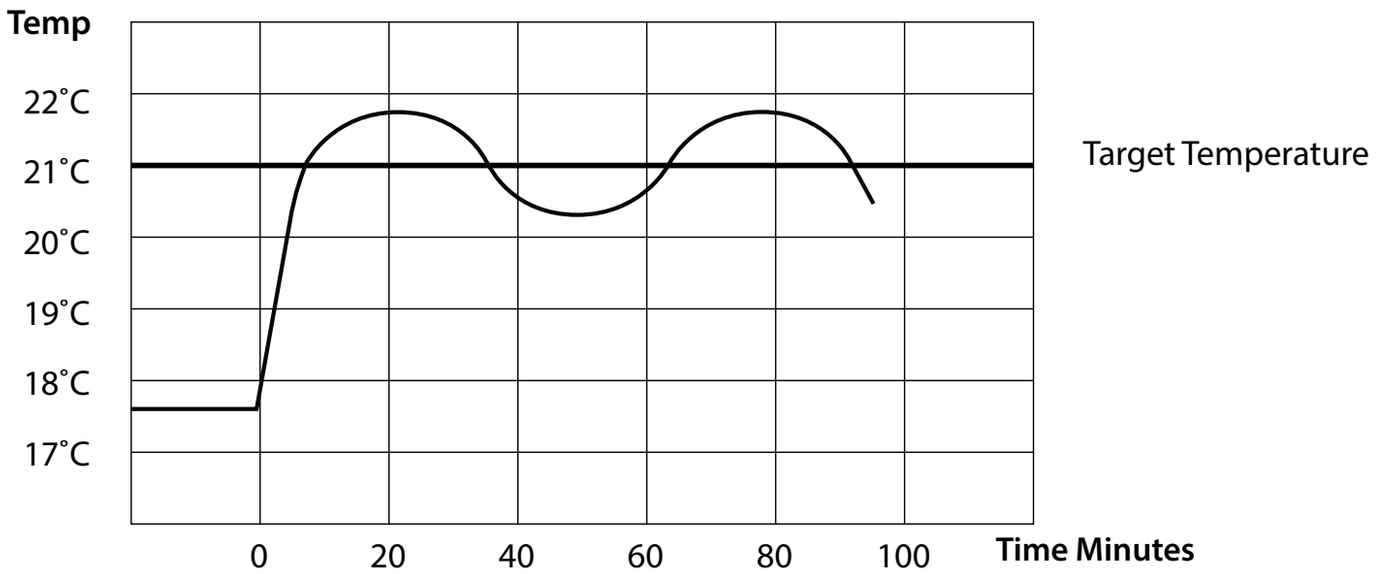
Press OK to confirm the mode.

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 (17.1): On / Off Control



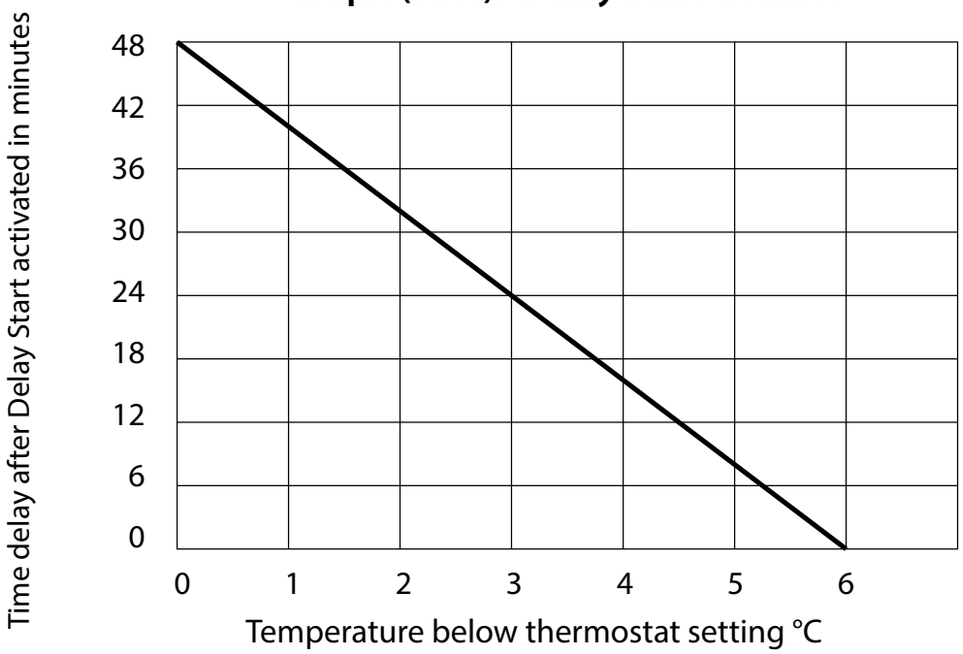
P0 1 Operating Mode (Normal / Delay Start / TPI)

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 (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.

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. Press [∨] to lower the target temperature below the current temperature.
2. Press [OK] and [∧] to set the temperature.
3. Press [∧] to increase the target temperature above the zone temperature within 6°.
4. Press [OK] 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 (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

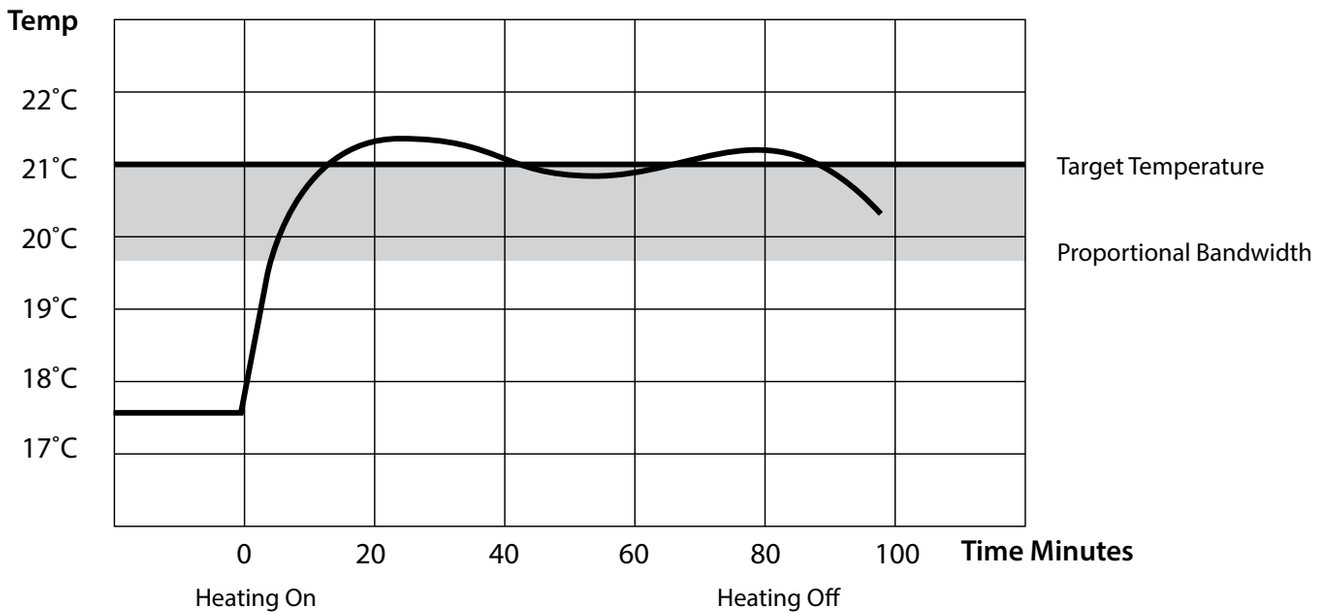
CyC – Number of Heating Cycles per hour 6 Cycles

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 (21.1): TPI Control



P0 2 Setting High & Low Limits Hi 90°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 and hold ⏻ & OK together for 5 seconds.

'**P01**' will appear on the screen.

Press ^ until '**P02 & LIMIT**' appears on the screen.

Press OK to select.

'**HI LIMIT**' will appear on the screen, the temperature will begin to flash.

Use v and ^ to select the high limit for the thermostat.

Press OK to confirm.

'**LOW LIMIT**' will appear on the screen, the temperature will begin to flash.

Use v and ^ to select the low limit for the thermostat.

Press OK to confirm.

Press ⏻ to return to normal operation.

When this setting is enabled, '**LIMIT**' will appear permanently on the screen when the High or Low Limits have been changed.

P0 3 Hysteresis HOn & HOFF HOn 5°C HOFF 0°C

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

If '**HYS ON**' is set at 5˚C and the setpoint is 60˚C, then the thermostat will switch on when the temperature drops below 55˚C.

If '**HYS OFF**' is set at 5˚C and the setpoint is 60˚C, then the thermostat will switch off when the temperature reaches 65˚C.

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

'**P01**' will appear on the screen.

Press ^ until '**P03 & HYS**' appears on the screen. Press OK.

'**HOn**' will appear on the screen.

Press OK and the differential temperature will begin to flash.

Use v & ^ to select the '**HOn**' temperature, press OK to confirm.

P0 3 Hysteresis HOn & HOFF HOn 5°C HOFF 0°C

'**HOFF**' will appear on the screen.

Press [OK] and the differential temperature will begin to flash.

Use [∨] & [∧] to select the '**HOFF**' temperature.

Press [OK] to confirm.

Press [⏻] to return to normal operation.

P0 4 Calibrate

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

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

'**P01**' will appear on the screen.

Press ^ until '**P04 & CALIBRATE**' appears on the screen.

Press OK to select.

'**CALIBRATE**' and the actual temperature will appear on the screen.

Press v and ^ to calibrate the temperature.

Press OK to confirm the temperature.

Press ⏻ to return to normal operation.

P0 5 Temperature Range Selection

This menu allows the installer to choose between different temperature ranges for various thermostat application.

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

'**P01**' will appear on the screen.

Press ^ until '**P05**' appears on the screen.

Press OK to select.

'**CyL**' will appear on the screen.

Press ^ to select '**Htg**' mode.

Press OK to confirm the mode.

Press ⏻ to return to normal operation.

Note:

Heating parameters have now been applied to Temperature Range, Hysteresis and High & Low Limit settings.

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.

'**rSt**' will appear and '**nO**' will flash on the screen.

Press [^] .

'**YES**' will flash on the screen.

Press [OK] to confirm.

The thermostat will restart and revert to its factory settings.

Notes

Notes

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