RDT

EPH CONTROLS

Recessed Room Thermostat

Installation and Operation Guide

Table of contents

Installation Instructions

Factory Default Settings 2

Specifications 3

LCD Display 4

Buttons 5

Wiring 6

Mounting & Installation 7

Operating Instructions

On / Off Function & Adjusting the Target Temperature 11

Locking the Keypad / Backlight 12

Menu Function P0 1 Operating Mode 13

Nor (Normal Mode) 14

Delay Start Control (On/Off) 15

Time Proportional Integral Mode (TPI) 17

P0 2 Setting High and Low Limits 20

P0 3 Hysteresis HOn and HOFF 21

P0 4 Calibrate 22

P0 5 Setback Mode 23

FP Frost Protection 24

Resetting the Thermostat 25

Mains operated non-programmable Room Thermostat with Setback

Installation Instructions

Factory Default Settings

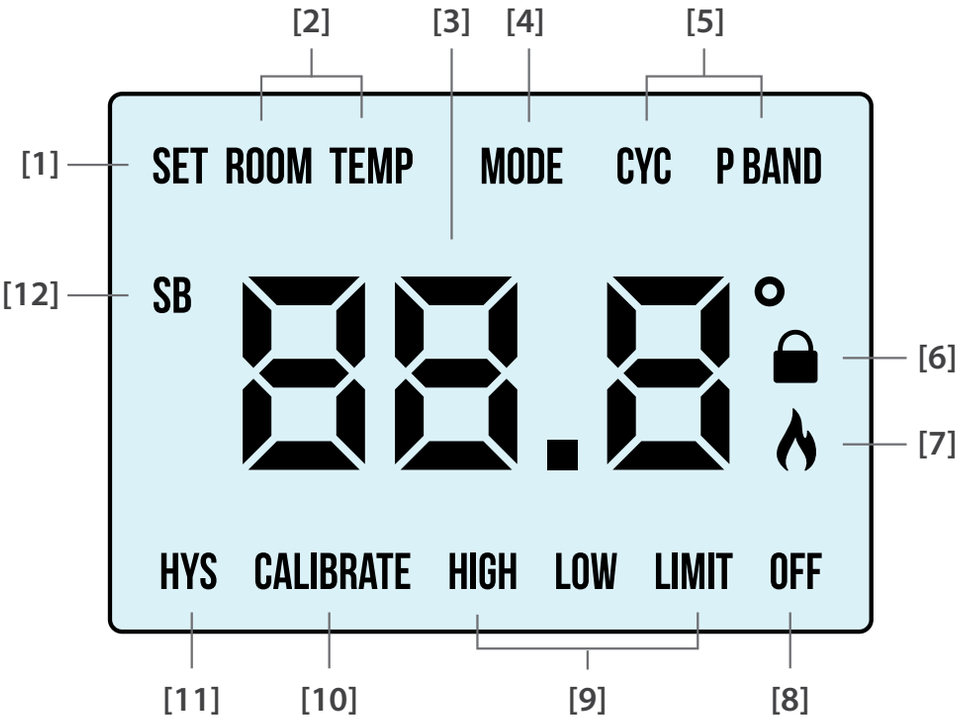
High and Low Temp. Limitation:	Off
Keypad lock:	Off
Operating mode:	Normal
Temperature indicator:	˚C
Frost protection:	On (5˚C)
Setback temperature:	0˚C
HYS On:	0.4˚C
HYS OFF:	0.0˚C

Specifications

Contacts:	Volt Free
Power supply / Input:	230VAC
Power consumption:	<1W
Temperature range:	5…35˚C
Ambient temperature:	0…45˚C
Ambient admissible humidity:	5-95%RH
Contact rating:	10(3)A 230VAC
Switch output:	SPDT Volt Free
Dimensions:	95 x 95 x 40mm
Internal temperature sensor:	NTC 100K
Backlight:	White
IP rating:	IP20
Pollution degree:	2
Hysteresis (Switching differential):	Adjustable from 0 to 1°C 0.1°C increments
Automatic action:	1C
Setback temperature:	Adjustable 0 to 10˚C

LCD Display

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



Buttons

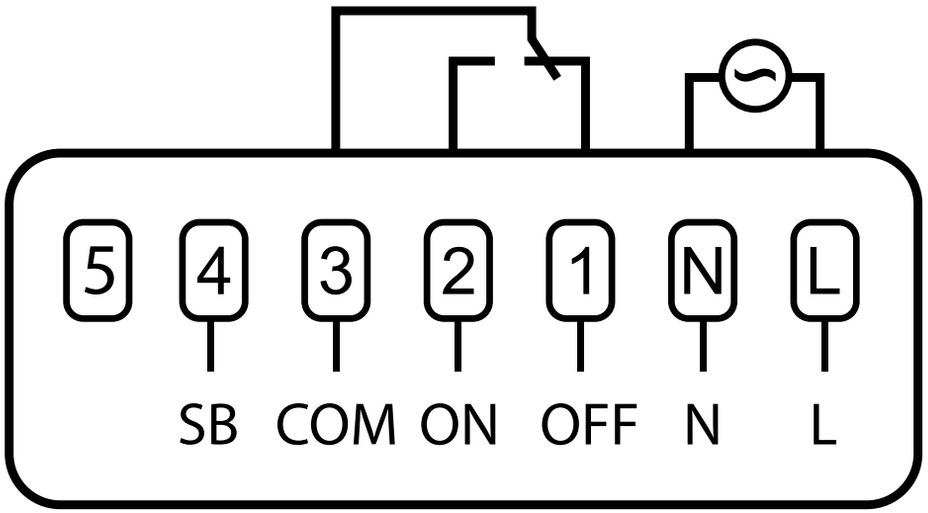
Standby Button

Down Button

Up Button

OK Button

Wiring



230V on Terminal 4: Thermostat works in Normal mode

0V on Terminal 4: Thermostat works in Setback mode

* If mains output is required terminals L and 3 must be electrically linked.

Terminal Connections

L	Live In
N	Neutral In
Terminal 1	OFF - N/C Normally closed connection
Terminal 2	ON - N/O Normally open connection
Terminal 3	COM - Common connection
Terminal 4	SB - Setback 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 to a recessed conduit box.

Mounting & Installation Continued

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 meters above the floor level.
   - Prevent direct exposure to sunlight or other heating / cooling sources.

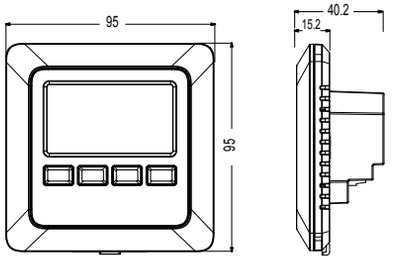
3) Use the fastening clip on the base of the thermostat to release the front housing from the rear wiring box as per diagram on page 9.

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

5) Screw the rear wiring box to the recessed back box.

6) Attach the front housing to the rear wiring box until it clips securely into place.

1

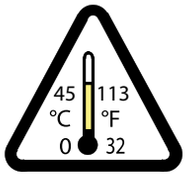


UK CA

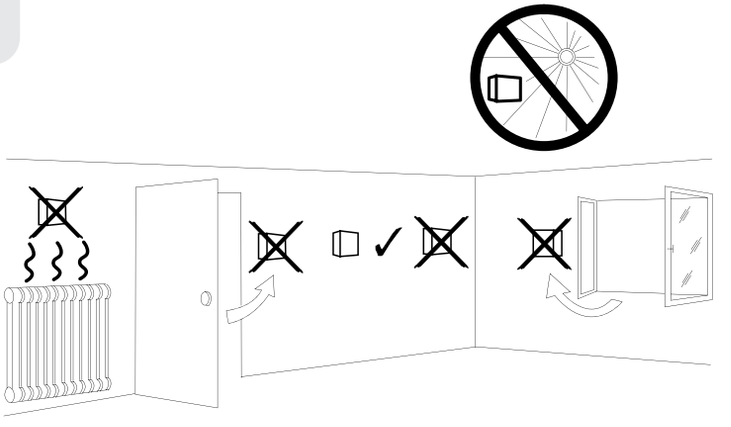
CE

Type
1C
EN60730

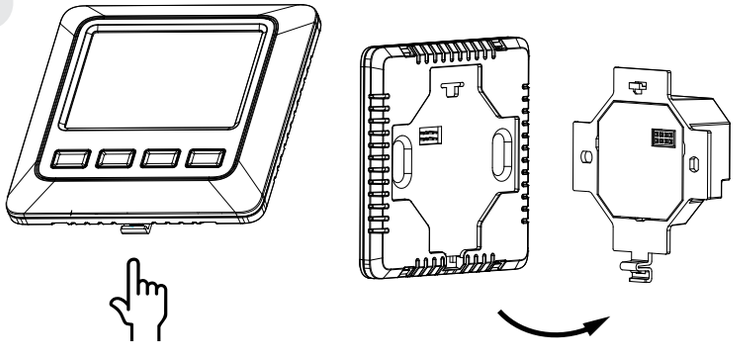
IP20
EN60529



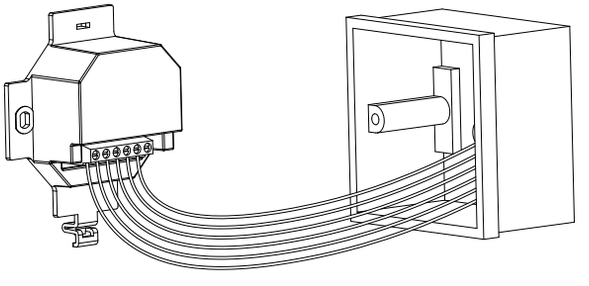
2



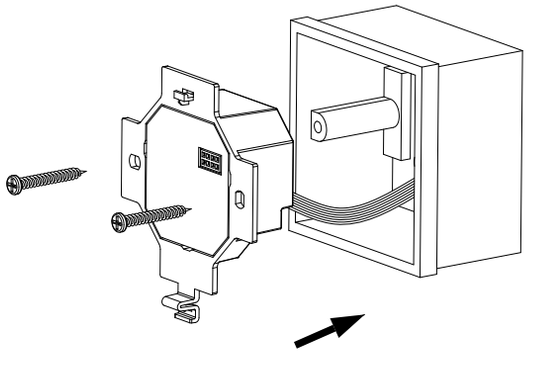
3



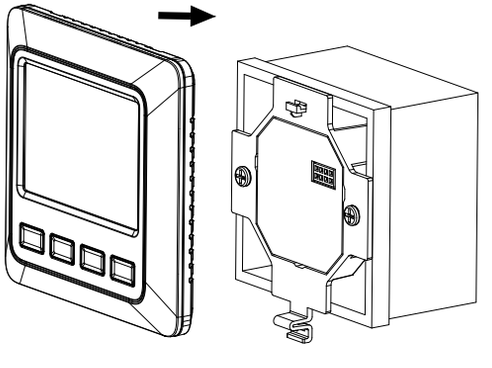
4



5



6



Mains operated non-programmable
Room Thermostat with Setback

Operating Instructions

On / Off Function

Press [⏻] to turn the thermostat On or Off.

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

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

Adjusting the Target Temperature

Press [^] to increase the target temperature from 5-35˚C.

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

Press [v] to decrease the target temperature from 5-35˚C.

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 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 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.

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 [⏻] and [OK] together for 5 seconds.

'PO1' 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.

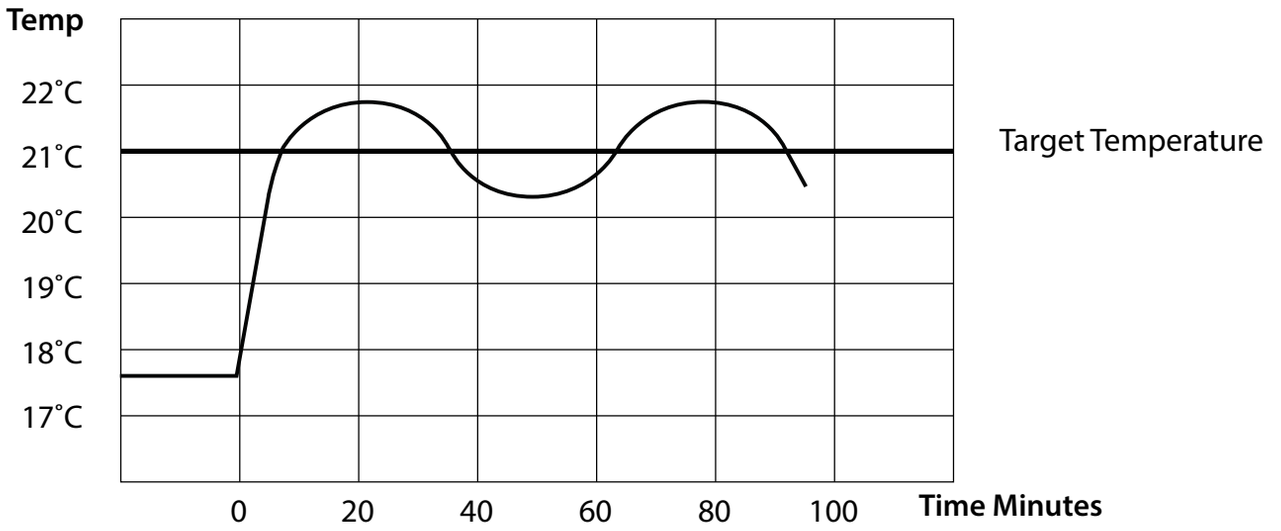
P01 Operating Mode continued

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 (14.1): On / Off Control

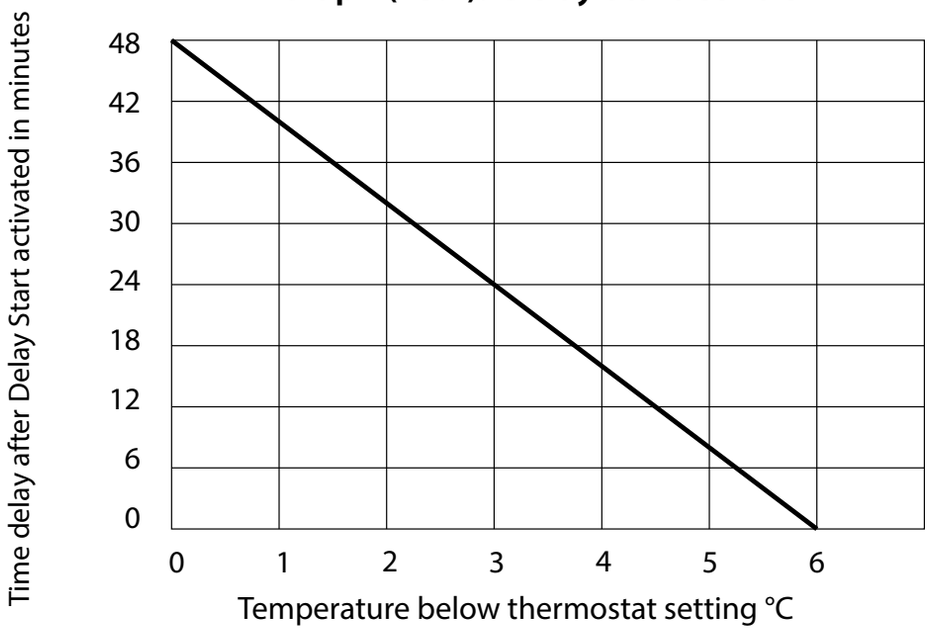


Delay Start Control (On/Off)

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.

Graph (15.1): 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.

P01 Operating Mode continued

Delay Start Control (On/Off) Continued

Delay start can be reactivated by:

1. Press [∨] to lower the target below the current temperature.
2. Press [OK] to confirm.
3. Press [∧] to increase the target temperature above the zone temperature within 6°C .
4. Press [OK] to confirm.

The heating will be delayed as per the graph on page 15.

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.

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 Bandwith 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 Bandwith

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.

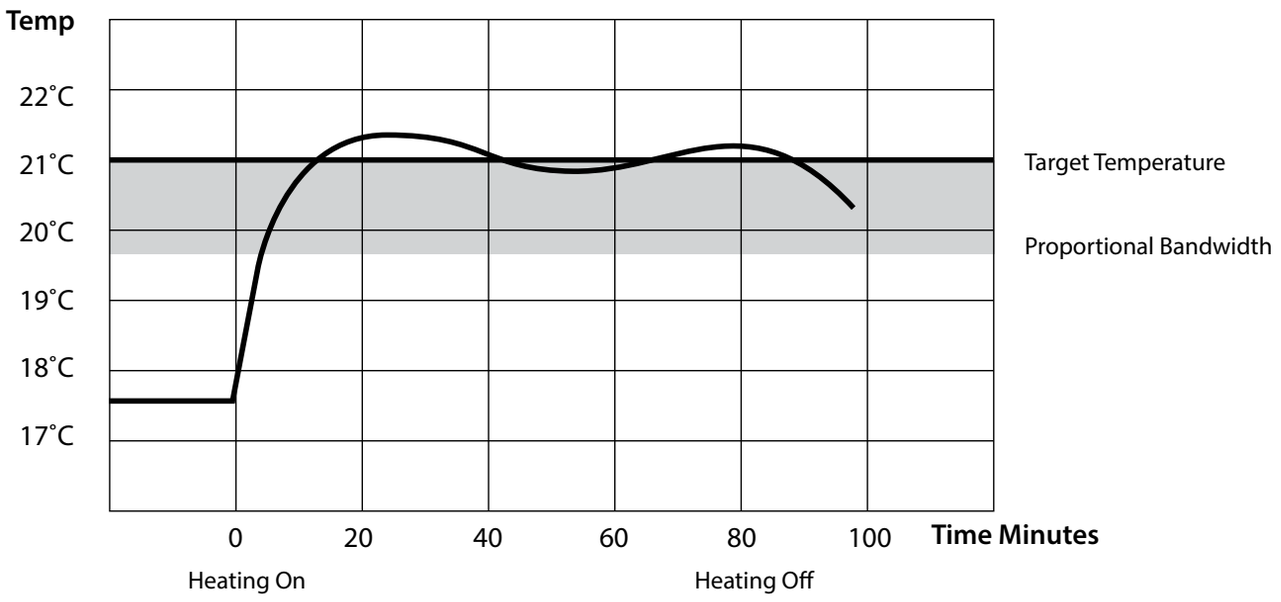
P01 Operating Mode continued

Time Proportional Integral Mode (TPI) Continued

Pb -Proportional Bandwith 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 (18.1): TPI Control



Once TPI mode is selected, '**CYC**' and '**06**' will appear on the screen.

Use ⌄ and ⌃ to select from 2,3,6 or 12.

Press OK to confirm.

'**P Band**' and '**2.0**' will appear on the screen.

Use ⌄ and ⌃ to select from 1.5 to 3.0.

Press OK to confirm.

Press ⏻ to return to normal operation.

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 and hold ⏻ & OK together for 5 seconds.

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

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

Press OK to select.

Use v and ^ to select '**ON**'.

Press OK to select. '**HIGH LIMIT**' will appear on the screen, the temperatur 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.

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

P03 Hysteresis HOn & HOFF HOn 0.4°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 0.4˚C and the setpoint is 20˚C, then the thermostat will switch on when the temperature drops below 19.6˚C.

If '**HYS OFF**' is set at 0.2˚C and the setpoint is 20˚C, then the thermostat will switch off when the temperature reaches 20.2˚C.

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

e

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

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

'**HYS**' & '**ON**' will appear on the screen, press OK and the '**HOn**' temperature will begin to flash.

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

'**HYS**' & '**ON**' will appear on the screen, press v and '**HYS**' & '**OFF**' will appear on the screen. Press OK to confirm.

'**HOFF**' temperature will begin to flash.

P03 Hysteresis HOn & HOFF continued

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

Press [OK] to confirm.

Press [⏻] to return to normal operation.

P04 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**' appears on the screen.

Press [OK] to select.

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

Press [∨] & [∧] to calibrate the temperature.

Press [OK] to confirm.

Press [⏻] to return to normal operation.

P05 – Setback Mode (0°C / Off)

* To use the thermostat in Setback mode, please refer to page 6 of this guide.
* Setback functionality can only be used in conjunction with a Programmer / Timeswitch.

When terminal 4 has 0V, the thermostat will operate in setback mode and will reduce the setpoint by the setback temperature.

The setback is factory set to 0˚C and must be set from 1˚C to 10˚C to enable this function to operate.

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.

Setback temperature will begin to flash.

Press v and ^ to set the Setback temperature from 0 to 10˚C.

Press OK to confirm.

Press ⏻ to return to normal operation.

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

FP - Frost Protection On 5°C

This menu allows the installer to enable or disable frost protection on the thermostat.

When '**ON**' the thermostat will automatically call for heat when the temperature drops to 5˚C.

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

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

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

Press OK to select.

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

Use v and ^ to turn frost protection '**ON**' or '**OFF**'.

Press OK to confirm.

Press ⏻ to return to normal operation.

Resetting the Thermostat

To reset the thermostat to factory settings,

press and hold ⏻ and OK together for 5 seconds.

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

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

Press OK to select.

'**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 defined settings.

EPH Controls IE

technical@ephcontrols.com

www.ephcontrols.com/contact-us

+353 21 471 8440

Cork, T12 W665

EPH Controls UK

technical@ephcontrols.co.uk

www.ephcontrols.co.uk/contact-us

+44 1933 322 072

Harrow, HA1 1BD

© 2024 EPH Controls Ltd.

2024-05-01_RDT_DS_PK