CP4D

EPH CONTROLS

Programmable RF Thermostat & Receiver

Installation and Operation Guide

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RFRPD Room Thermostat

Installation Instructions

Factory Default Settings

Temperature indicator:	˚C
Hysteresis:	0.4˚C
In built frost protection:	5˚C
Clock:	24 hours
Keypad lock:	Off
Operating mode:	5/2 day
Backlight:	AUTO
High & Low Limits:	35°C & 5°C
Pin Lock:	OFF

Frost Protection

5˚C

Frost protection is built into this thermostat.

It has a factory default of 5°C and is adjustable from 5...15°C.

When frost protection is activated the thermostat will switch on the boiler when the temperature drops below the setpoint.

This symbol ❄ will show on the screen when frost protection is active.

Frost protection is only active in OFF and Holiday mode.

Specifications

Power supply:	2 x AA Alkaline Batteries
Power consumption:	2 mW
Battery replacement:	Once a year
Temp. control range:	5…35˚C
Ambient temperature:	0…45˚C
Dimensions:	130 x 95 x 23mm
Temperature sensor:	NTC 100K Ohm @ 25˚C
Temperature indication:	˚C
Frost protection:	Only operational in OFF and Holiday mode
Pollution degree:	Pollution degree 2

How your programmable thermostat works

When the thermostat is in the AUTO mode, it will operate according to the times and temperatures that have been programmed. The user can select from 6 different programs per day - each with a time and a temperature.

There is no OFF time, only a higher and a lower temperature.

If the user wants the thermostat to be OFF at a certain time, set the temperature for this time to be low. The thermostat will turn ON if the room temperature is lower than the setpoint for the current period.

Example: If P1 is set to be 21˚C at 6am, and if P2 is set to be 10˚C at 8am, the thermostat will look for the temperature to be 21˚C between 6am and 8am.

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.

This thermostat can be mounted in the following ways:

1) Directly mounted on wall.
2) Free standing - Stand Included.

Note: For accurate temperature control it is recommended to mount the thermostat as per the installation drawing on Page 11.

*If installing multiple CP4D please see page 15 & 50.

Note: If installing multiple CP4D please ensure to keep a minimum of 25cm distance between receivers.

Mounting & Installation Continued

1) The mounting height should be 1.5 metres above the floor level.

2) The thermostat should be situated 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.

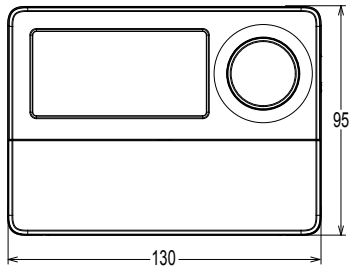
3) Fix the mounting plate directly to the wall with the screws provided.

4) Attach the thermostat to the mounting plate.

5) Lower the flap at the front of the thermostat. There is a battery compartment located below the buttons. Apply downward pressure to remove the cover.

6) Insert the 2 x AA batteries and the thermostat will turn on. Close the battery compartment.

1



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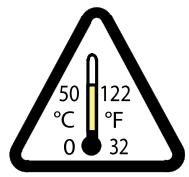
IP20
EN60529



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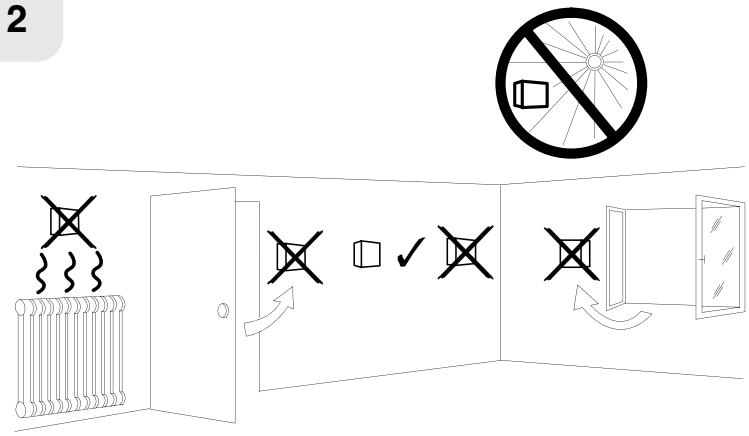

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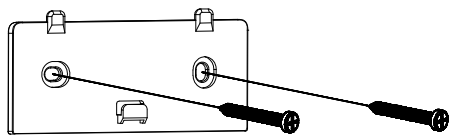

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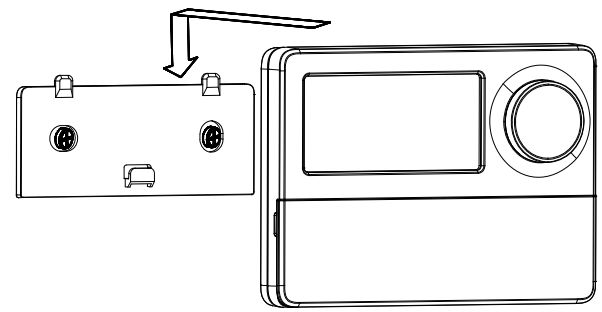

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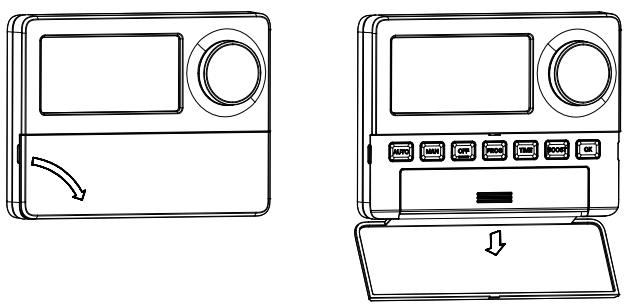

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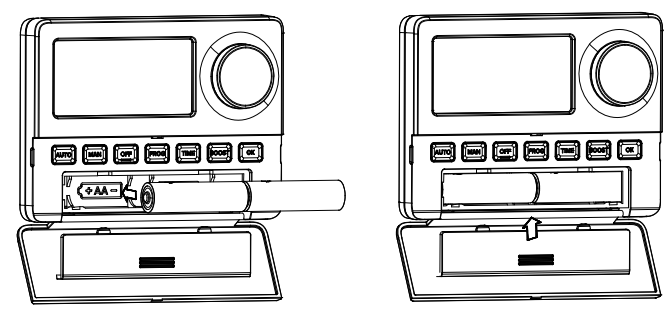


Important Notes

- Good quality batteries are essential to ensure the correct operation of this product. EPH recommend using Duracell or Energiser batteries.
- Do not use low quality battery brands as they can cause the following problems:

  - Stop the wireless communication with the receiver.

  - Can cause the thermostat to reset.

  - Can cause the thermostat to display the incorrect information.

- • When the battery low symbol appears on the CP4D or EMBER App. The batteries should be changed immediately.
- • If a Symbol appears on your thermostat screen, please see page 21 for unlocking instructions.
- • If **'OVERRIDE'** appears on your thermostat screen, please see page 27.

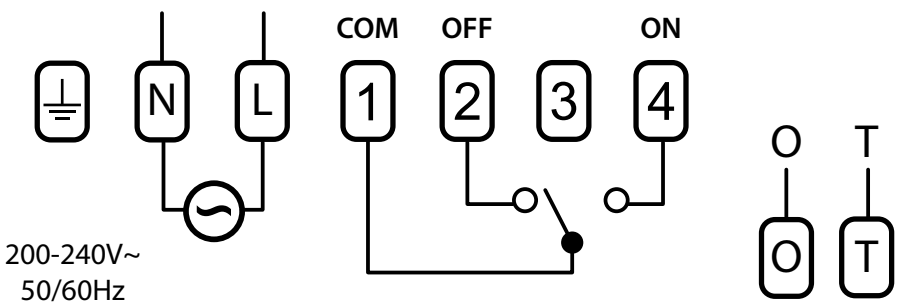
RF1B Receiver

Installation Instructions

Specifications & Wiring

Power supply:	200 - 240Vac 50-60Hz
Contact rating:	230 Vac 10(3)A
Switch output:	SPDT Volt Free
Ambient temperature:	0 … 45˚C
Automatic action:	Type 1.C.Q
Appliance classes:	Class II appliance ⧈
Pollution degree:	Pollution degree 2
IP Rating:	IP20
Rated Impulse Voltage:	Resistance to voltage surge 2500V as per EN 60730

Internal wiring diagram for RF1B



Switching Options

Mains Switching

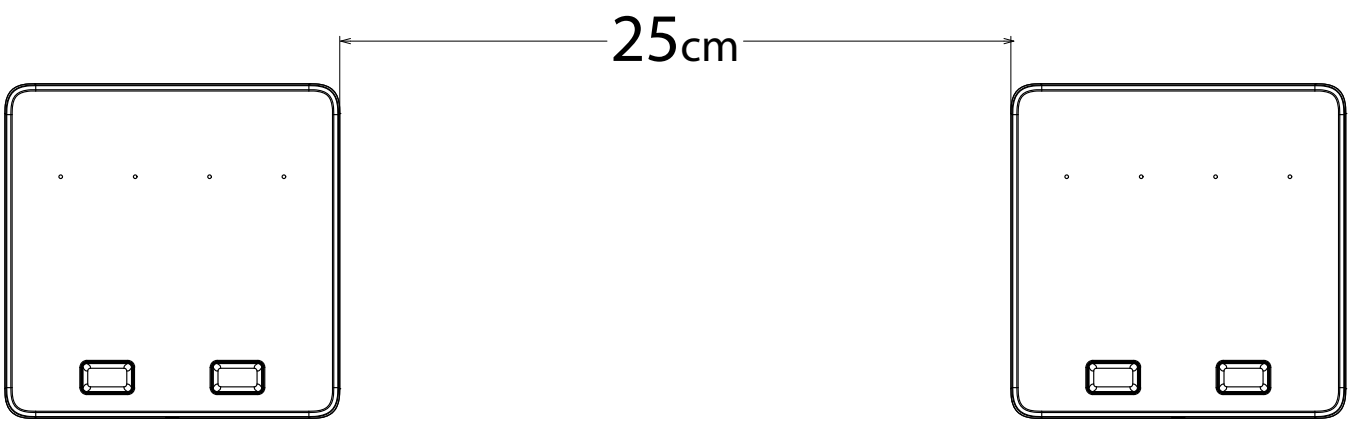
- Link L to 1.

Low Voltage Switching

- Remove the external controls link from the boiler PCB.
- Connect 1 and 4 to these terminals.

Important Notes

- Each receiver should have a minimum 25cm distance from any metal object such as a pipe or a minimum 25cm from any electrical device such as a spur or socket. It should not be fitted close to wireless devices such as a router or Wi-fi booster. This is to ensure the best possible wireless connection and operating range.
- When installing multiple receivers, it is important to ensure that there is a minimum 25cm between each receiver. If they are too close, they will not be able to pair with each other.
- Where possible, keep the receivers in the same area of the premises to allow for stable communication.



Mounting & Installation

1) The RF1B receiver should be wall mounted in an area within 20 metres distance of the wireless thermostat. It is important that the receiver has over 25cm clearance 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 adapter.

2) Use a Phillips screw driver to loosen the screws of the backplate on the bottom of the RF1B. The receiver is lifted upwards from the bottom and removed from the backplate. (see page 17)

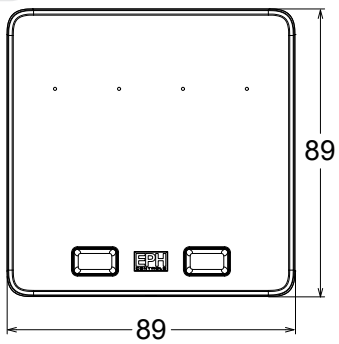
3) Screw the backplate to the wall with the screws provided.

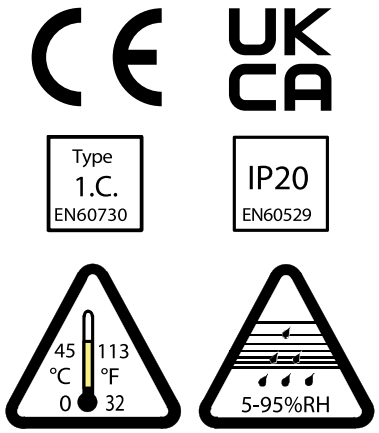
4) Wire the backplate as per the wiring diagram on page 14.

5) Mount the receiver on the backplate making sure the pins and the backplate contacts are making a sound connection. Push the receiver flush to the surface and tighten the screws of the backplate from the bottom. (See page 17)

6) If installing more than one RF1B receiver ensure they are 25cm apart.

1





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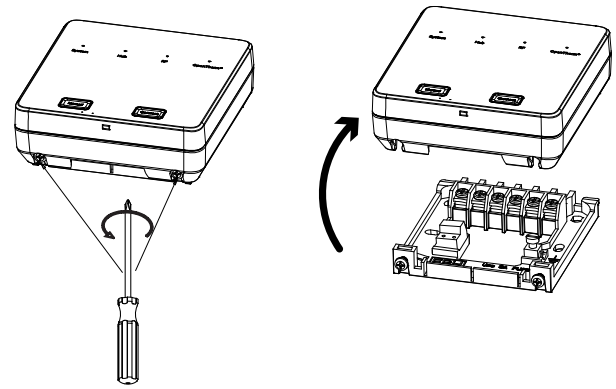

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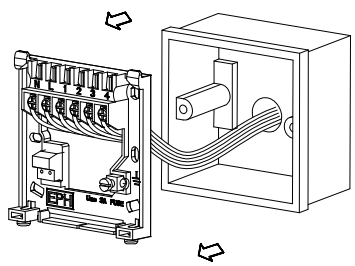

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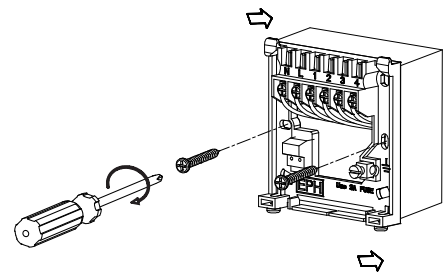

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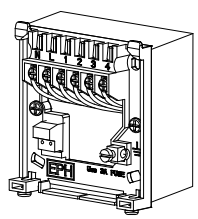

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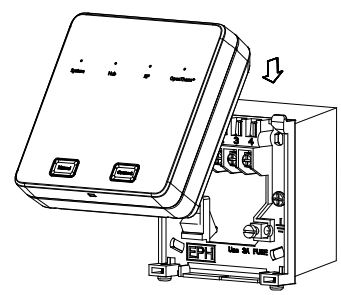
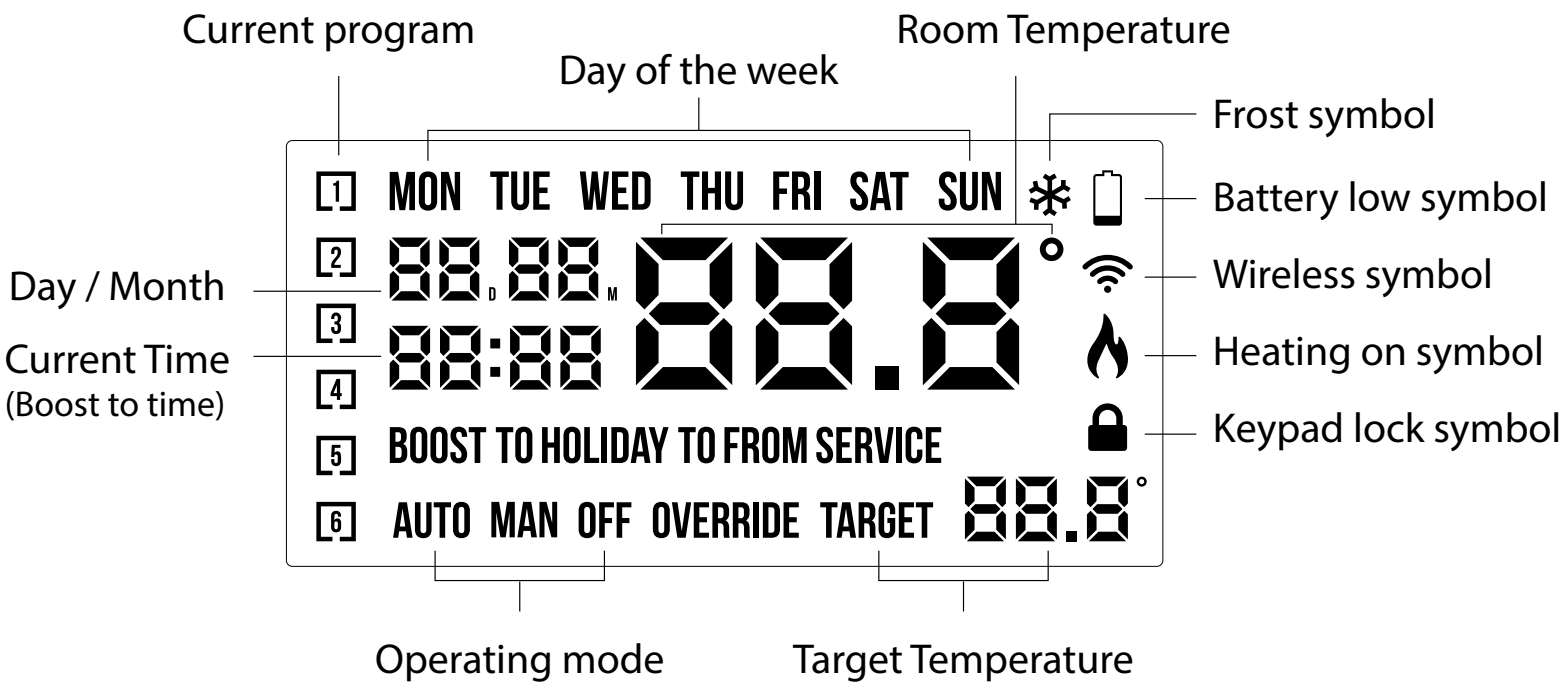


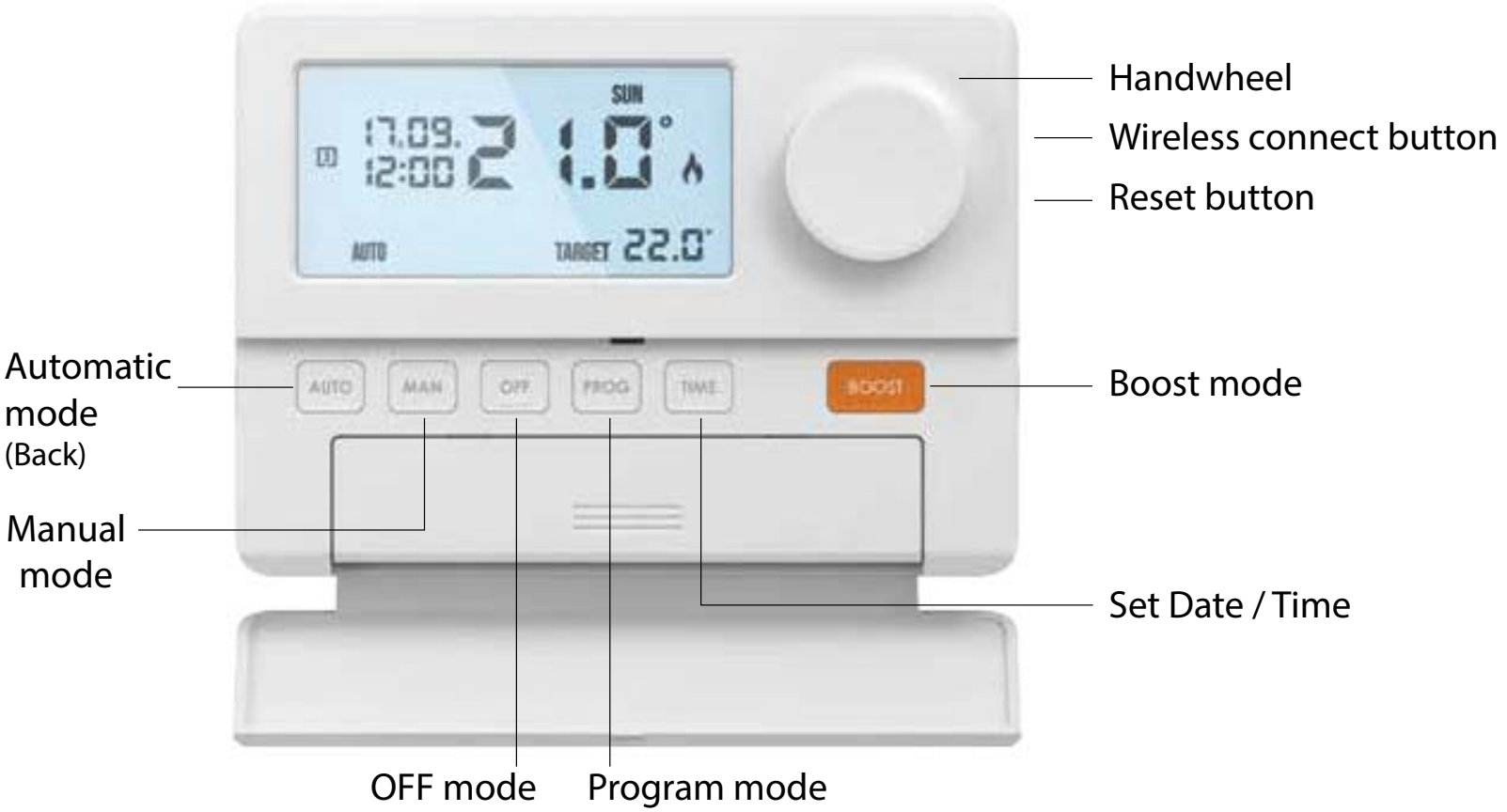
RFRPD Room Thermostat

Operating Instructions

LCD Symbol Description



Button Description



AUTO Automatic mode

MAN Manual mode

OFF Off mode

PROG Program mode

TIME Time

BOOST Boost mode

Handwheel

Reset button

Wireless connect button

Resetting the thermostat

Press the ⊡ button on the side of the thermostat.

'rst nO' will appear on the screen.

Rotate ◯ clockwise.

'rst yes' will appear on the screen.

Press ◯ to reset the thermostat.

The thermostat will restart and revert to its factory settings.

Locking and unlocking the thermostat

OFF

To lock the thermostat

Press and hold ◯ for 10 seconds.

🔒 will appear on the screen. The keypad is now locked.

To unlock the thermostat

Press and hold ◯ for 10 seconds.

🔒 will disappear from the screen. The keypad is now unlocked.

Setting the date, time and programming mode

Press TIME once, the year will begin flashing.

Rotate ◯ to adjust the year. Press ◯.

Rotate ◯ to adjust the month. Press ◯.

Rotate ◯ to adjust the day. Press ◯.

Rotate ◯ to adjust the hour. Press ◯.

Rotate ◯ to adjust the minute. Press ◯.

Rotate ◯ to adjust from 5/2d to 7d or 24h mode. Press ◯.

Rotate ◯ to turn DST (Day Light Saving time) On or Off.

Press AUTO or wait 5 seconds and the thermostat will return to normal operation.

Factory Program Setting

5/2d

	5/2 Day					
	P1	P2	P3	P4	P5	P6
Mon-Fri	06:30	08:00	12:00	14:00	17:30	22:00
	21°C	10°C	10°C	10°C	21°C	10°C
Sat-Sun	08:00	10:00	12:00	14:00	17:30	23:00
	21°C	10°C	10°C	10°C	21°C	10°C

	7 Day					
	P1	P2	P3	P4	P5	P6
Mon-Fri	06:30	08:00	12:00	14:00	17:30	22:00
	21°C	10°C	10°C	10°C	21°C	10°C
Sat-Sun	08:00	10:00	12:00	14:00	17:30	23:00
	21°C	10°C	10°C	10°C	21°C	10°C

	24 Hour					
	P1	P2	P3	P4	P5	P6
Everyday	06:30	08:00	12:00	14:00	17:30	22:00
	21°C	10°C	10°C	10°C	21°C	10°C

Programming Modes

The RFRPD Room Thermostat has the following programming modes available:

5/2 Day mode	Programing Monday to Friday as one block and Saturday and Sunday as a 2nd block. Each block can have 6 different times and temperatures.
7 Day mode	Programming all 7 days individually with different times and temperatures.
24 Hour mode	Programming all 7 days as one block with the same time and temperatures.

If 7 D mode is selected, you can program each day of the week with 6 individual times and temperatures.

If 24H mode is selected, you can only program each day of the week with the same 6 times and temperatures.

See page 22 to select 5/2D, 7d or 24hr mode.

Adjust the program setting in 5/2 Day mode

Press PROG .

Programming for Monday to Friday is now selected.

Rotate ◯ to adjust the P1 time. Press ◯.

Rotate ◯ to adjust the P1 temp. Press ◯.

Repeat this process to adjust P2 to P6 times and temperatures. Press ◯.

Programming for Saturday to Sunday is now selected.

Rotate ◯ to adjust the P1 time. Press ◯.

Rotate ◯ to adjust the P1 temp. Press ◯.

Repeat this process to adjust P2 to P6 times and temperatures.

Press AUTO to return to automatic mode.

While in PROG Mode pressing PROG will jump from P1 - P2 etc without changing the temperature.

While in PROG Mode pressing TIME will jump to the next day (block of days).

Copy Function

Copy function may only be used if the thermostat is in the 7d mode.

Press PROG. Select the day of the week you want to copy from.

Press BOOST.

The day of the week that you have selected will be shown with **'COPY'**.

The next day will begin to flash on the top of the screen.

Rotate ◯ clockwise to copy the times and temperatures to that day.

Rotate ◯ anti clockwise to skip a day.

You can copy to multiple days by rotating ◯ clockwise.

Press ◯ when copying has been completed.

Temporary Override

When in AUTO mode, rotate ◯ to adjust the temperature setpoint.
'OVERRIDE' will appear on the screen.

Press ◯ or after 5 seconds the thermostat will operate to this temperature, until the next switching time.

To cancel temporary override, press AUTO to return to the automatic mode.

Auto Mode

When the thermostat is in the AUTO mode it will automatically change the temperature throughout the day according to the schedule set by the user in the PROG menu.

If the room temperature falls below the setpoint it will activate the heating. See Page 8 for more information.

Note: If the heating is set to default Program 6 is 16°C. If during the night the heating falls below 16°C it will turn on the heating. If you do not want this to happen you should adjust P6 to a lower temperature.

Permanent Override

Press MAN to enter the manual mode (Permanent Override).

'MAN' will appear on the screen.

Rotate ◯ to adjust the temperature setpoint.

Press ◯ or after 5 seconds the thermostat will operate in this permanent override.

To cancel permanent override, press AUTO to return to the automatic mode.

Boost Function

The thermostat can be boosted to a specific temperature for 30minutes, 1, 2 or 3 hours while the thermostat is operating in all modes except for holiday mode.

Press BOOST once for 30 minutes,

twice for 1 hour,

three times for 2 hours or

four times for 3 hours

Press ◯ to confirm.

The boost temperature will flash.

Rotate ◯ to select required temperature.

Press ◯ to confirm.

'**BOOST TO**' will now be displayed on the screen with the time that it is activated to displayed above this text.

Press BOOST to deactivate the boost.

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.

A good quality brand must be used - see important notes on Page 12.

Replacing the batteries

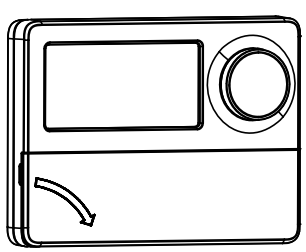
Lower the flap at the front of the thermostat.

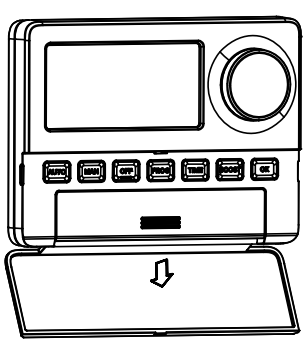
There is a battery compartment located below the buttons.

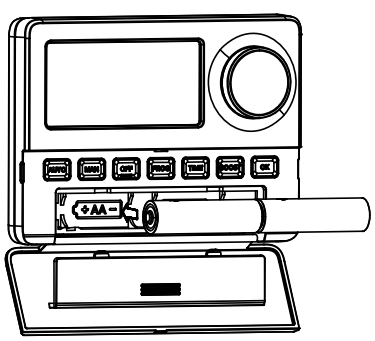
Apply downward pressure to remove the cover.

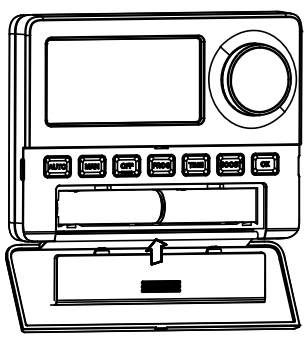
Insert the 2 x AA batteries and the thermostat will turn on.

Close the battery compartment.









Installer menu

To access the installer menu, press and hold PROG and ◯ for 5 seconds.

When in the installer menu, rotate ◯ to navigate and press ◯ to select.
Use AUTO , MAN or OFF to go back a step.

P0 1: Operating Mode (Normal / Optimum Start / TPI)

P0 2: Hi Lo (limiting the thermostat)

P0 3: Hysteresis (differential)

P0 4: Calibration

P0 5: Frost Protection

P0 6: Holiday mode

P0 7: Backlight

P0 8: PIN

Exit: Exit from menu

Installer menu OpenTherm® Instructions

P0 9: Setting DHW temperature

P 10: OpenTherm® Information

P 11: DHOP

P 12: Set OpenTherm® Parameters

Exit

P0 1 Operating Mode Normal

There are three settings for selection, Normal, Optimum Start or TPI mode.

The default setting is Normal.

Press and hold PROG and ◯ for 5 seconds.

'P01 & Nor' will appear on the screen.

Press ◯ to select.

Rotate ◯ to select between:

Nor (Normal mode)

OS (Optimum start)

TPI (Time Proportion Integral mode)

Press ◯ to confirm the mode.

Press AUTO to return to normal operation.

Nor (Normal Mode)

When the thermostat is in Normal mode, the thermostat will try to reach the target temperature at the program time.

Example: Program 1 on the thermostat is 21°C for 06:30am and the room temperature is 18°C. The thermostat will start the heating at 06:30am and the room temperature will start to increase.

OS (Optimum Start Mode)

When the thermostat is in Optimum Start mode, the thermostat will try to reach the target temperature by the start time of the next program. This is done by setting the Ti (time interval) on the thermostat in this menu to 10, 15, 20, 25 or 30. This will allow the thermostat 10, 15, 20, 25 or 30 minutes to increase the room temperature by 1°C.

Ti can be set when OS is selected in the installer menu. 20

To achieve the target temperature when the program starts, the thermostat will read:

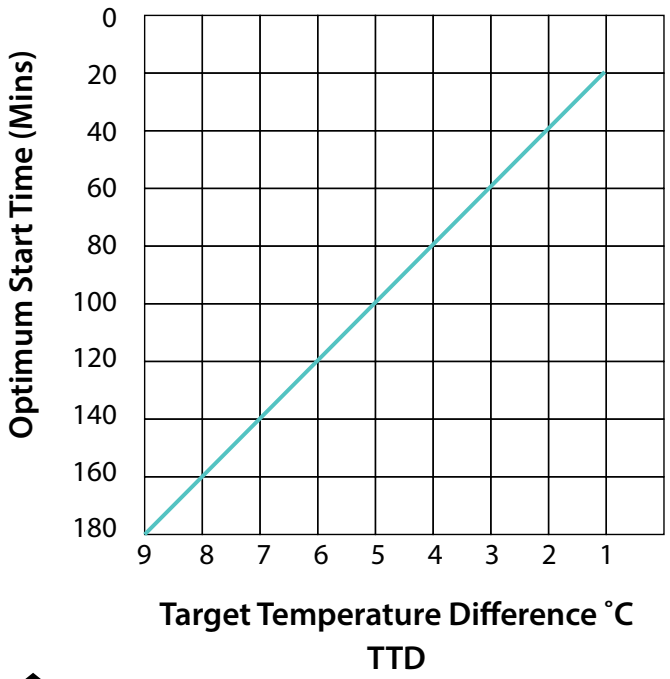
1. The Room Temperature (RT)
2. The Setpoint Temperature (ST)
3. The Target Temperature Difference (TTD) is the difference between the setpoint temperature and the room temperature .

The time (in minutes) that it will take to overcome (TTD) is called Optimum Start Time (OST) and its maximum value is 3 hours = 180 mins. This is subtracted from the start time.

As the temperature increases the thermostat will recalculate the OST if the temperature is increasing too quickly.

OS (Optimum Start Mode) (Continued)

Optimum Start Control Graph with Ti = 20



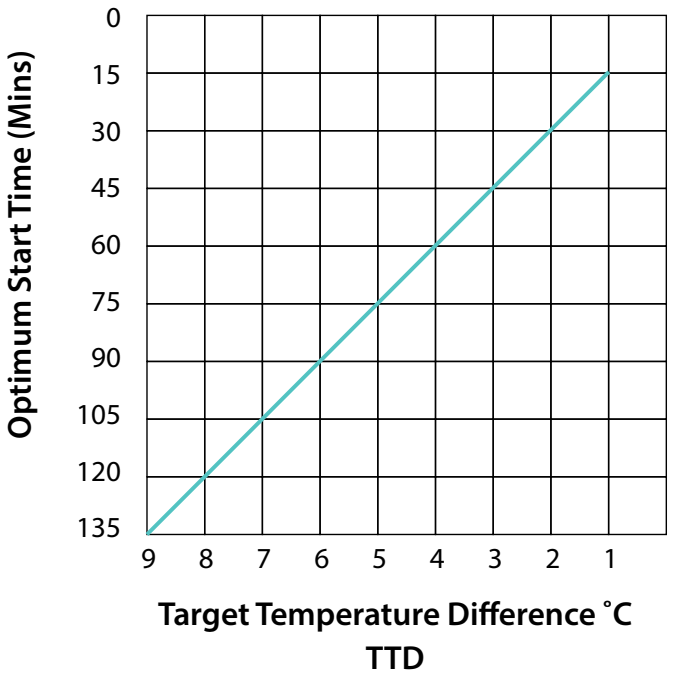
Example when Ti = 20

Program 1 on the thermostat is 21°C for 06:30am and the room temperature is 18°C. The thermostat will start the heating at 05:30am to reach 21°C for 06:30am @ Ti=20.

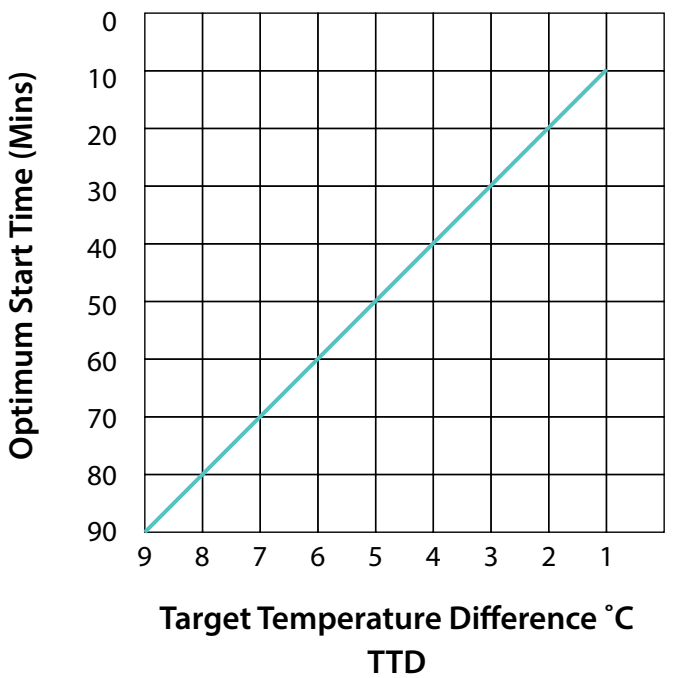
Example when Ti = 10

Program 1 on the thermostat is 21°C for 06:30am and the room temperature is 18°C. The thermostat will start the heating at 06:00am to reach 21°C for 06:30am @ Ti=10.

Optimum Start Control Graph with Ti = 15



Optimum Start Control Graph with Ti = 10



P0 1 Operating Mode Continued

TPI (Time Proportional & Integral Mode)

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 setpoint by too much. It will also turn on if the temperature is falling so it doesn't undershoot the setpoint which will leave the user with a more comfortable level of heat.

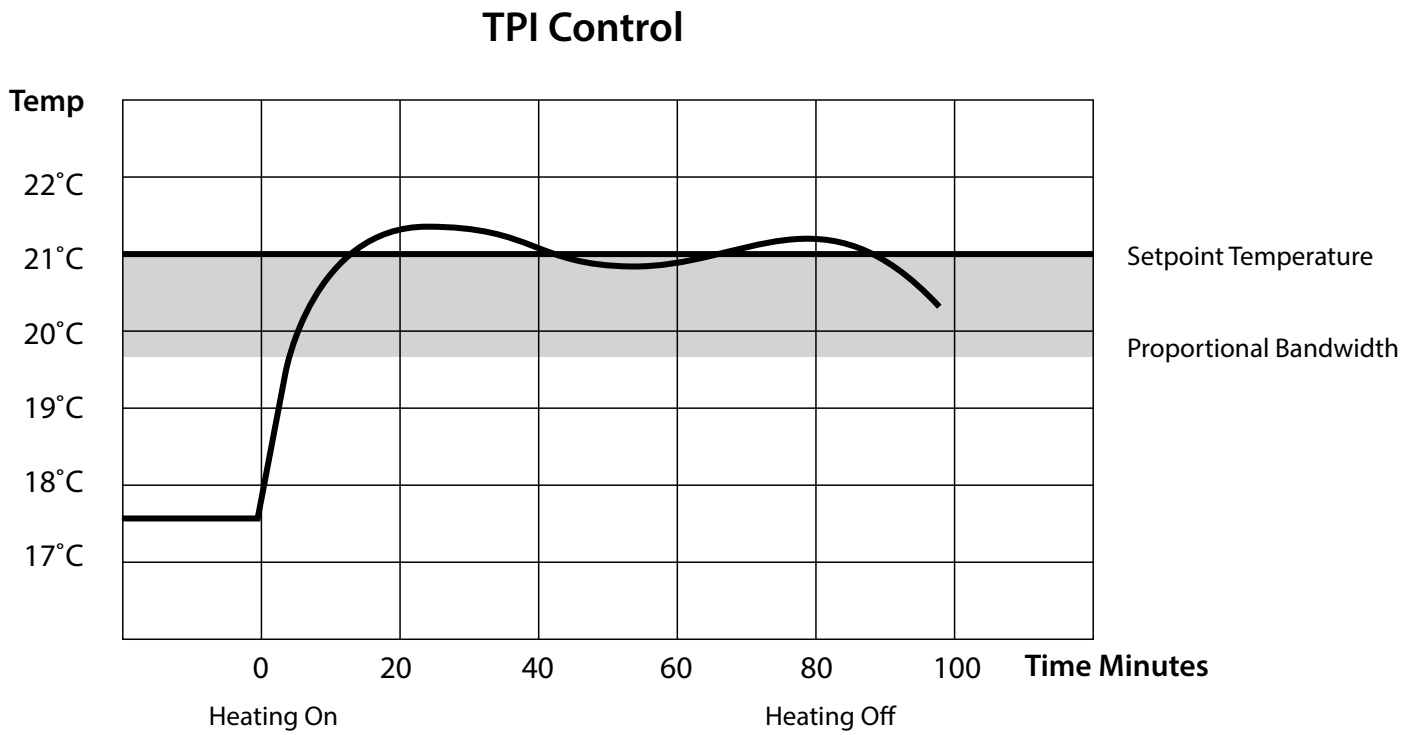
There are 2 settings that will affect the thermostats operation:

1. CYC - No. 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 setpoint temperature. You can select 2/3/6 or 12.

2. Pb - Proportional Bandwidth: 2˚C

This value refers to the temperature below the setpoint 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.



Example: Program 1 on the thermostat is 21°C for 06:30am and the room temperature is 18°C. The thermostat will start the heating at 06:30am and the room temperature will start to increase then but will switch itself off before it reaches temperature and allow the room temperature to increase naturally – this cycle may begin again if the thermostat isn't reaching temperature.

P0 2 Setting High & Low Limits Hi 35˚C and Lo 5˚C

This menu allows the installer to change the minimum and maximum temperatures to between 5...35°C.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

Rotate ◯ clockwise until **'P02 & HI LO'** appears on the screen.

Press ◯ to select.

'HI' appears on the screen, the temperature will begin to flash.

Rotate ◯ to select the high limit for the thermostat.

Press ◯ to confirm.

'LO' appears on the screen, the temperature will begin to flash.

Rotate ◯ to select the low limit for the thermostat.

Press AUTO once to return to the menu or twice to return to normal operation.

P0 3 Hysteresis HOn and HOFF

HOn 0.4˚C and HOFF 0.0˚C

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

If **'H On'** is set at 0.4°C and the setpoint is 20°C, then the thermostat will turn on when the temperature drops below 19.6°C.

If **'H OFF'** is set at 0.0°C and the setpoint is 20°C, then the thermostat will turn off when the temperature reaches 20°C.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

Rotate ◯ clockwise until **'P03 & H On'** appears on the screen.

Press ◯ to select.

'H On' temperature will begin to flash.

Use ◯ to adjust the **'H On'** temperature between 0.2°...1°C.

Press ◯ to confirm.

'H OFF' temperature will begin to flash.

Use ◯ to adjust the **'H OFF'** temperature between 0.0°...1°C.

Press AUTO once to return to the menu or twice to return to normal operation.

P0 4 Calibrate the thermostat

This function allows the user to calibrate the temperature reading of the thermostat.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

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

Press ◯ to select.

The current actual temperature will appear on screen.

Rotate ◯ to adjust the temperature reading.

Press ◯ to confirm and you will return to the menu.

Press AUTO to return to the home screen.

P0 5 Frost Protection 5˚C

This function allows the user to activate or deactivate frost protection.

Frost protection can be set from 5…15°C.

When frost protection is activated, the thermostat will switch on the boiler when the temperature drops below the setpoint.

Frost protection is only active in OFF mode and Holiday mode.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

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

Press ◯ to select. **'ON'** will flash on the screen.

You now have two choices:

1. Press ◯ to confirm frost protection,

Rotate ◯ to select the frost protection temperature between 5…15°C.

Press ◯ to confirm and you will return to the menu.

2. Rotate ◯ anticlockwise to turn the frost protection OFF.

Press ◯ to confirm and you will return to the menu.

Press AUTO to return to the home screen.

P0 6 Holiday Function

This function allows the user to switch the thermostat off for a certain period of time.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

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

'**HOLIDAY FROM**' will appear on screen.

Rotate ◯ to select the year. Press ◯.

Rotate ◯ to select the month. Press ◯.

Rotate ◯ to select the day. Press ◯.

Rotate ◯ to select the hour. Press ◯.

'**HOLIDAY TO**' will appear on screen.

Rotate ◯ to select the year. Press ◯.

Rotate ◯ to select the month. Press ◯.

Rotate ◯ to select the day. Press ◯.

Rotate ◯ to select the hour. Press ◯.

Press AUTO to return to the home screen.

The thermostat will now return to the mode it was in before the Holiday settings were entered. To cancel Holiday mode, press ◯ once.

P 07 Backlight AUTO

There are two settings for selection.

AUTO The backlight is on for 10 seconds after any button press.

OFF The backlight is permanently OFF.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

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

'AUTO' will appear on the screen.

Press ◯ to select the AUTO setting or rotate ◯ to select the OFF setting.

Press AUTO to return to the home screen.

P0 8 PIN Lock OFF

This function allows the user to put a PIN lock on the thermostat.

There are two options available.

'OPt 01'. The thermostat is fully locked.

'OPt 02'. This will reduce the functionality of the thermostat.

The user will be able to change the mode between AUTO and OFF.

Set Up the PIN

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

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

Press ◯. **'OFF'** will appear on the screen.

Rotate ◯ to select ON.

Press ◯. Rotate ◯ to select **'OPt 01'** or **'OPt 02'**.

Press ◯. **'0000'** will flash on the screen.

Rotate ◯ to set the value for the first digit.

Press ◯ to confirm and move to the next PIN digit.

When the last digit of the PIN is set, press ◯.

P0 8 PIN Lock Continued

It is necessary to verify the PIN.

'vErI' will appear on the screen.

Re enter the PIN code again.

Press ◎.

The PIN is now verified and the PIN lock is activated.

If the verification PIN is entered incorrectly the user is brought back to the menu.

When the PIN lock is active, the lock symbol 🔒 will appear on the screen.

When the thermostat is PIN locked, pressing any button will take the user to the PIN unlock screen.

To Unlock the PIN

Press any button, '**UnL**' appears on the screen. '**0000**' will flash on screen.

Rotate ◯ to set the value from 0 to 9 for the first digit.

Press ◯ to move to the next PIN digit.

When the last digit of the PIN is set.

Press ◯. The PIN is now unlocked.

If a PIN has been unlocked on the thermostat, it will automatically reactivate if there is no button pressed for 2 minutes.

To Deactivate the PIN

When the PIN is unlocked (see above instructions)

Access PIN in the installer menu.

Press ◯, '**ON**' will appear on the screen.

Rotate ◯ to select '**OFF**'.

Press ◯. '**0000**' will flash on the screen. Enter the PIN.

Press ◯.

The PIN is now disabled.

Exit: Exit from Menu

This menu allows the installer to return to the main interface.

It is also possible to exit the installer menu by pressing AUTO , MAN or OFF whilst in the installer menu.

P0 9 Setting DHW temperature

This function allows the installer to change the DHW temperature of the boiler.

The temperature can be set in 0.5°C increments by rotating ◯.

Press ◯ to select the desired temperature.

This menu is only available when the thermostat is connected to OpenTherm® and DHOP is ON (**P11 OT installer menu**).

Note: P09 - P12 is only available when the receiver is connected to an OpenTherm® appliance.

P10 OpenTherm® Information

This function allows the installer to view information received from the OpenTherm® boiler. It may take a few seconds to load information relating to each parameter. The information that can be shown from the boiler is outlined in the table below.

Displayed on screen	Description	Remark
tSEt	Target water temp	
tFLO	Outlet water temp	
trEt	Return water temp	
tdH	DHW temperature	This is only visible if DHOP is On (P08 OT Installer menu)
tFLU	Flue gas temperature	Dependent on boiler
tESt	Outdoor temperature	Dependent on boiler
nOdU	Modulation percentage	
FLOr	Water flow	This is only visible if DHOP is On (P08 OT Installer menu)
PrES	Water pressure	Dependent on boiler

P11 DHOP

This function allows the installer to activate or deactivate DHW target temperature control from the thermostat. This menu is only available when the thermostat is connected to OpenTherm®

P12 Set OpenTherm® Parameters

This function allows the installer to configure the OpenTherm® parameters.

To access the menu please enter the password **“08”** by rotating ◯.

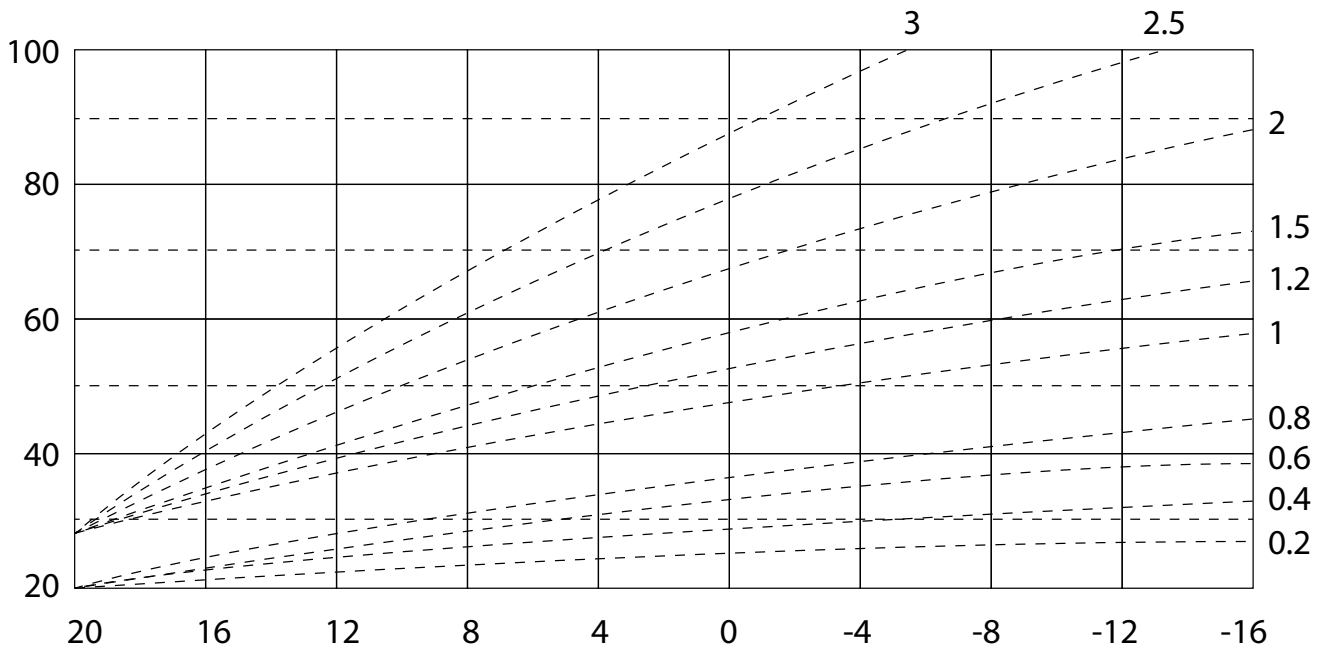
Press ◯ to confirm.

The parameters that can be set are outlined in the table on the next page 50.

P12 Set OpenTherm® Parameters Continued

Param	Description	Range	Default
HHCH t-1	Maximum setpoint heating	45 - 85˚C	85˚C
LLCH t-2	Minimum setpoint heating	10 - HHCH˚C	45˚C
CLI t-3	This allows user to select different climatic curves for weather compensation. This only applies to Boilers with an outside sensor connected.	0.2 - 3.0	1.2
InFL t-4	Influence of room sensor on modulation of the boiler. Recommended value is 10.	0 - 20	10
HHbO t-5	This is the target setpoint for your CH flow temperature. Note: this value must be within the range of HHCH and LLCH.	HHCH Max >=ID57 >=LLCH Min	85˚C
Exit	Press OK button to turn back to main interface.		

Climatic Curve



Exit

This function allows the installer to return to the main interface.

It is also possible to exit the installer menu by pressing AUTO , MAN or OFF whilst in the installer menu.

System architecture

Example A CP4D controlling OT Boiler

RFRPD Thermostat RF1B Receiver OpenTherm® Boiler

This function allows the installer to confirm if the thermostat is receiving OpenTherm® information from the boiler.

Press and hold PROG and ◯ for 5 seconds.

'P01' will appear on the screen.

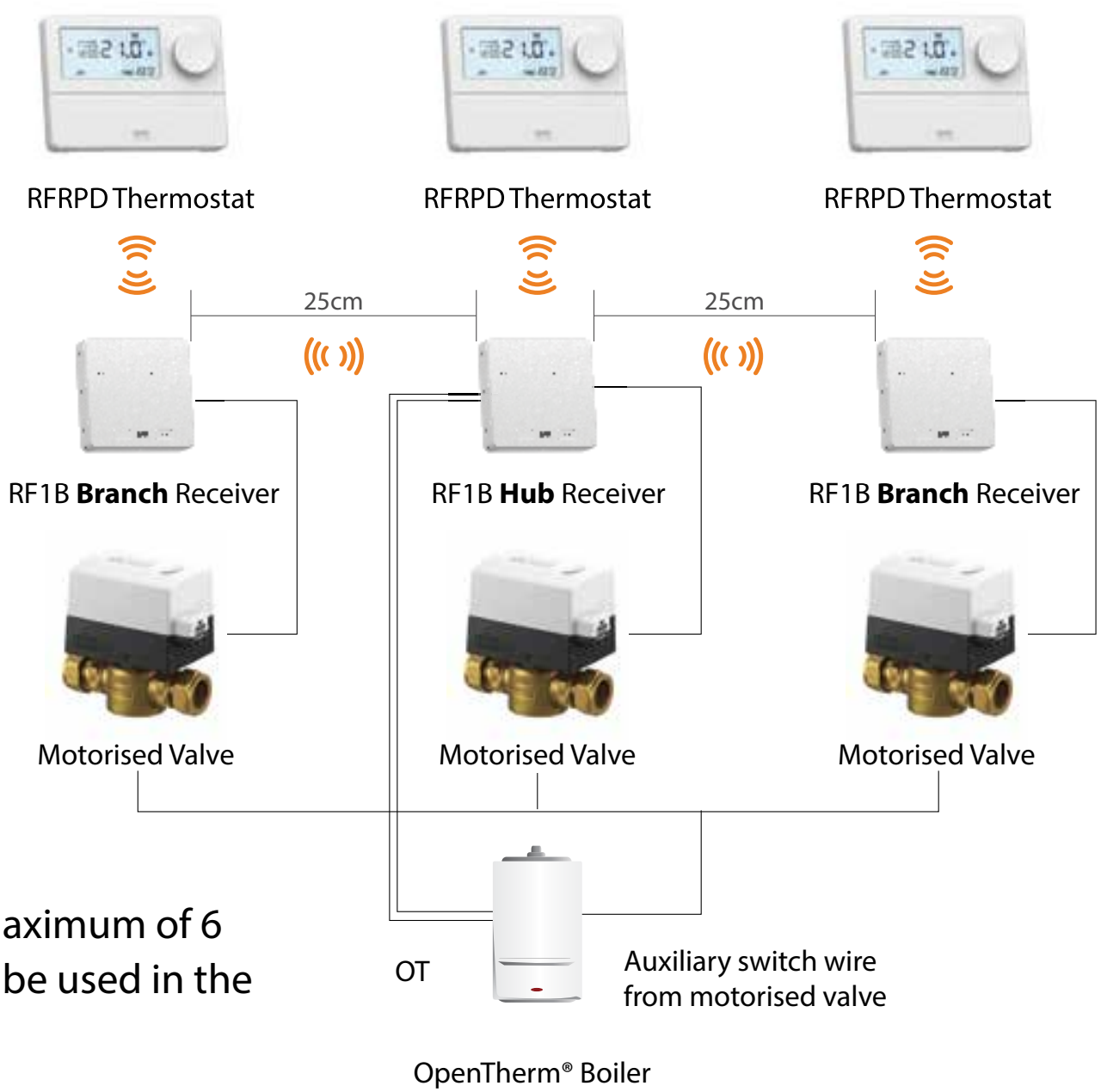
Rotate ◯ clockwise until **'P10 & InFO'** appears on the screen.

If **'P01 to P08'** is visible and **'P10'** does not appear on the screen, the thermostat is not communicating via OpenTherm®.

Note: To control an appliance with OpenTherm® run a dedicated two core cable from the OpenTherm® connection on the RF1B to the OpenTherm®connection on the appliance.

Note: When connected via OpenTherm® the OpenTherm® LED on the RF1B receiver will be illuminated.

Example B Multiple CP4D controlling OT Boiler



Note: A maximum of 6 CP4D can be used in the system.

Controlling an OpenTherm® Boiler with multiple CP4D

It is possible to have up to six CP4D thermostats controlling one OpenTherm® boiler. To do this it is necessary to make one of the RF1B receivers into a Hub Receiver. This Hub Receiver will receive data from all of the RFRPD thermostats and relay this information to the boiler via OpenTherm®.

Note: The Hub Receiver should have a wired OpenTherm® connection to the boiler. When installing multiple receivers - see important on page 15.

Making your RF1B receiver into a Hub Receiver:

1. The RF1B has an LED to indicate if it is a Hub.
2. Press and hold Manual & Connect for 5 seconds to make the receiver a Hub or Branch.

Note: A Hub receiver is the master receiver in multiple zone installations. A branch receiver is used for connecting additional zones. See Page 50 for System Architecture.

Note: A Hub receiver can connect to a GW04 Wi-Fi Gateway.

Identifying if a receiver is a Hub Receiver:

1. If the Hub LED is illuminated the RF1B is a Hub receiver.

Pairing the RF1B receivers together:

1. Hold Connect on the Hub receiver for 3 seconds.
   The RF LED will begin to flash.
2. Hold Connect on the next receiver to be paired. The RF LED will flash 3 times and then stop. This receiver is now linked.
3. Repeat this process to pair more, up to a maximum of 6 receivers.
4. Press Manual on the hub to return to normal operation.

Once all units have been paired, allow time for the receivers to begin to communicate and receive OpenTherm® information from the boiler. This may take approximately 2 – 5 minutes.

Disconnecting the RF1B receiver from other Receivers:

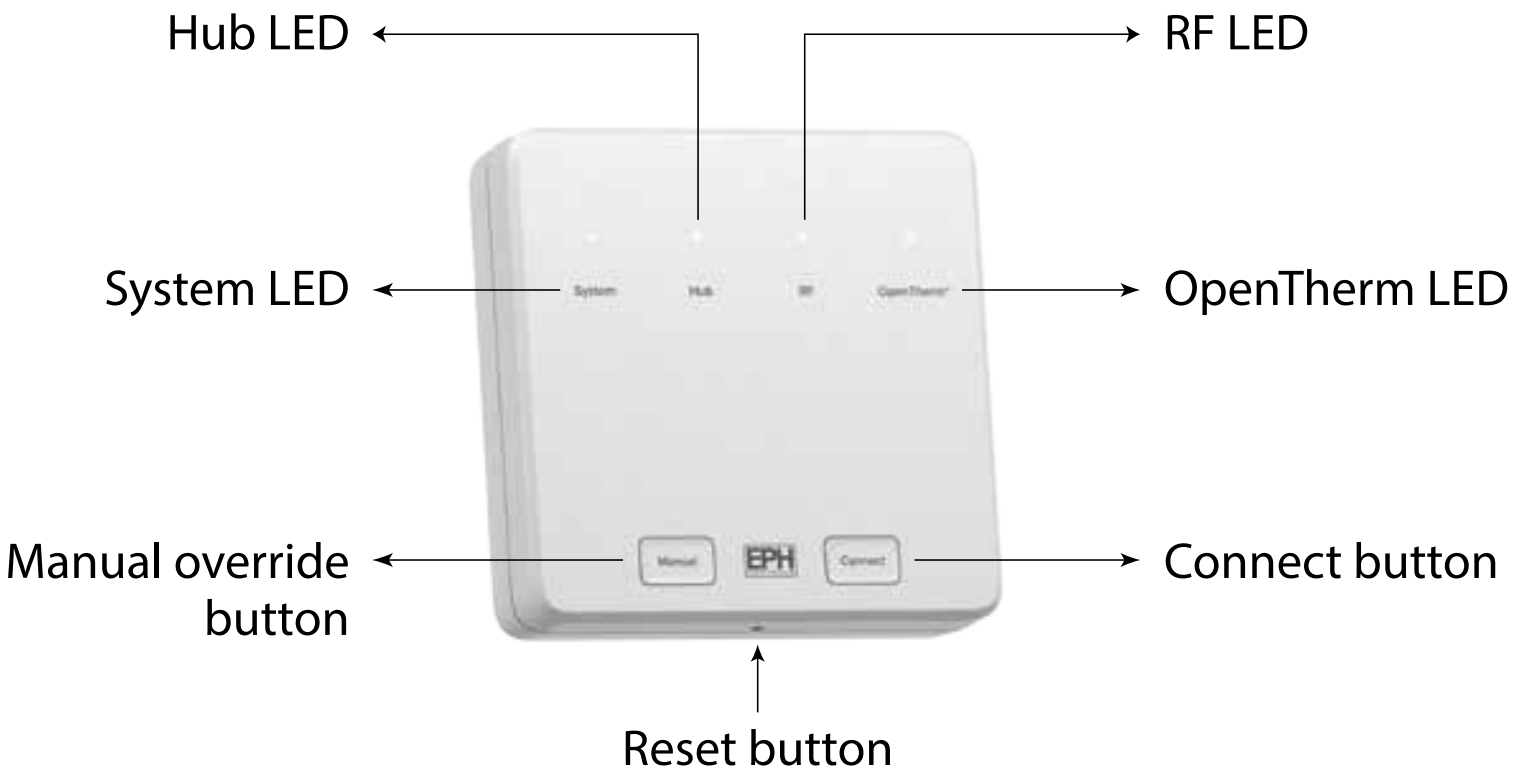
1. Hold Manual & Connect on the Hub receiver until the Hub LED turns off.

This will clear the connection to the branch receivers.

RF1B Receiver

Operating Instructions

Button / LED Description



Manual Manual override

■ Reset button

Press to reset the receiver

Connect Connect:

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

Note: Please refer to Page 14 for wiring information.

LED Description

LED	Colour	Description
System	Red	The system is OFF.
	Green	The system is ON.
Hub	White	Indicating that the receiver is a HUB.
RF	White	Indicating that the thermostat is connected.
		The RF light will double flash when the thermostat is disconnected. Check thermostat pairing.
		Note: The RF light will blink intermittently when the system is sending and receiving a signal for communication.
		Note: The RF light will blink once every second when in RF pairing by holding Connect. Press Manual to exit from this state.
Opentherm®	White	Indicating that Opentherm® is connected.
		The Opentherm® LED will blink when there is an Opentherm® communication error.

To connect the RFRPD Thermostat to an RF1B receiver

When installing a CP4D, the RFRPD thermostat and the RF1B receiver will have a pre-established RF connection so it is not necessary to carry out the RF connection process below.

On the RF1B receiver:

Hold Connect for 3 seconds.

The RF LED will begin to flash.

On the RFRPD thermostat:

Press the connect button on the side of the thermostat.

The thermostat will show '**nOE**' followed by '**---**'

Once an RF connection has been established the thermostat will show '**r01**' on the LCD screen.

Press ◯ to finish the process.

The thermostat is now connected to the RF1B receiver.

Pairing your RF1B Receiver to your GW04 Gateway

Note: Your CP4D can be controlled remotely via the EMBER app with the addition of a GW04 Gateway.

Ensure that your RFRPD thermostat(s) are paired to your RF1B receiver(s). Ensure that the receiver you're connecting to the boiler is set up as a Hub receiver:

On the RF1B receiver:

Hold Manual & Connect for 5 seconds.

The Hub LED will illuminate. The receiver is now a HUB.

Hold Connect on the RF1B until RF LED flashes.

On the GW04 Gateway:

Hold the RF Connect button ◯ until RF LED flashes.

The gateway & receiver will stop flashing. Paring is now complete.

The white RF light on the GW04 will stay illuminated.

Note: If you are connecting multiple receivers to a GW04 Gateway, please ensure that all branch receivers are connected to the hub receiver. There can only be 1 hub receiver in a system. Allow 5 minutes for all receivers to synchronise with the hub receiver before connecting the gateway to the EMBER App. See page 52 & 53.

To disconnect the RFRPD Thermostat from an RF1B receiver

This can be done from either the RFRPD thermostat or the RF1B receiver.

On the RFRPD thermostat:

Press connect button ▯ on the side of the thermostat,

'--' will appear on the screen.

Hold TIME for 10 seconds, **'ADDR'** appears on screen,

Press ◯ 2 times to return to the normal screen – the thermostat is now disconnected.

On the RF1B receiver:

Hold Connect for 3 seconds to enter pairing mode,

Hold Connect for 10 seconds and System LED will turn on,

Hold Manual to exit, the thermostat is now disconnected.

Service Interval OFF

The service interval gives the installer the ability to put an annual countdown timer on the thermostat. When the Service Interval is activated '**SErv**' will appear on the screen which will alert the user that their annual boiler service is due.

For details on how to enable or disable the Service Interval, please contact customer service.

Notes

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

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