eTRV-HW

Smart Cylinder Thermostat

Installation & Operation Guide

EPH CONTROLS

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Smart Cylinder Thermostat

Installation Instructions

Factory Default Settings

Keypad lock:	Off
Hon:	5.0˚C
Hoff:	0.0˚C
Boost temperature:	60°C

Specifications

Power supply:	2 x AA Li-FeS2 Batteries
Standby current:	<50uA
Battery replacement:	240 days approx.*
Temp. control range:	5…90˚C
Dimensions:	80 x 52mm
Temperature sensor:	NTC 10K Ohm @ 25˚C
Temperature indication:	˚C
Ambient temperature:	0…45˚C
Ambient admissible humidity:	5-95% RH
Backlight:	White
IP rating:	IP20
Hysteresis (Switching differential):	Adjustable from 0 to 10°C

* Based on average estimated usage.

Li-FeS2 (Lithium Iron) batteries available from www.ephcontrols.com

Important Notes

It is extremely important to use good quality batteries in the eTRV-HW to ensure correct operation of the product. EPH recommend using Li-FeS_2 (Lithium Iron) batteries. If poor quality batteries are used, they may cause the product to stop communicating wirelessly, fail to communicate information correctly and stop opening or closing.

Low power or discount store battery brands should not be used. When the battery is low, a battery low notification will appear on the eTRV-HW. It will also display on the EMBER app. The batteries should be changed immediately. Normally the eTRV-HW will stop operating soon after this notification. When the eTRV-HW shows a fault E4 – the motor is not operating correctly, this is normally due to a battery issue – possibly one or both of the batteries are not providing adequate power.

The eTRV-HW detects temperature and communicates on cycles every 4 minutes to conserve battery power.

When buttons are pressed on the eTRV-HW it will save these changes but may not communicate immediately to the RF16. It will communicate these changes on the next communication cycle.

How your eTRV-HW works

The eTRV-HW is designed to control and operate a hot water valve wirelessly. When the eTRV-HW is calling for heat, it will communicate wirelessly to the RF16 controller which will activate your heating system to heat the hot water. When the eTRV-HW reaches its defined setpoint temperature it will close the hot water valve and stop calling for heat.

The temperature setpoint is defined by using the + and − buttons on the eTRV-HW.

If the hot water temperature is lower than the target temperature then the eTRV-HW will open the hot water valve and request the boiler to activate. If the hot water temperature is higher than the set temperature it will close the hot water valve and signal the system to stop calling for heat.

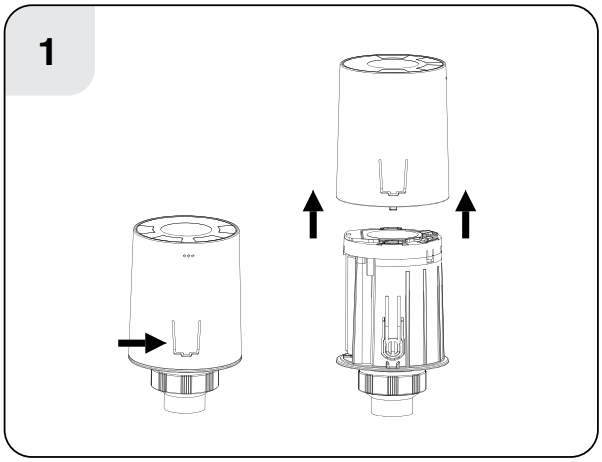
When calling for heat your eTRV-HW will show a flame symbol on the screen. This will disappear when the temperature setpoint has been achieved.

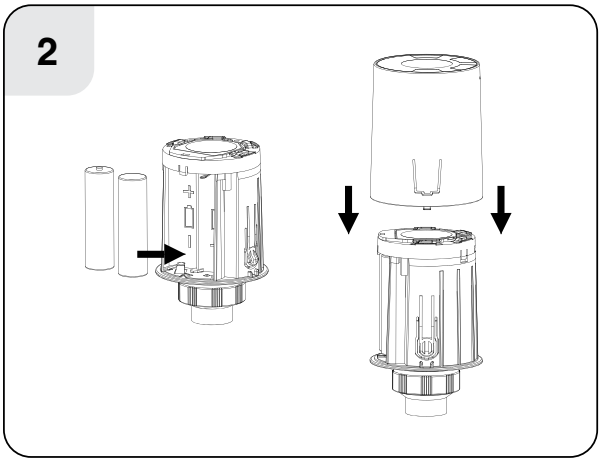
When the eTRV-HW is in MANUAL or AUTO, the screen will display the hot water temperature. When the eTRV-HW is in the OFF mode the screen will display the word '**OFF**'.

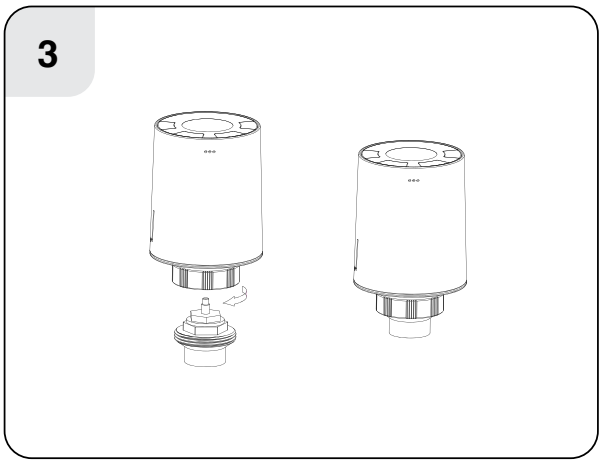
Mounting & Installation

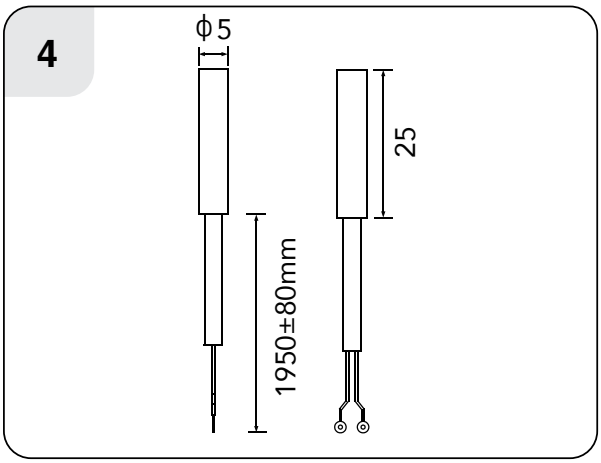
Caution!

- If the eTRV-HW is used in a way not specified by the manufacturer, its safety may be impaired.
- Prior to setting the eTRV-HW, it is necessary to complete all required settings described in the mounting & installation section.
- Ensure the valve body is free of dust and debris.
- Ensure the valve body is dry and not leaking.









1) Press and hold the release mechanism on the side of the eTRV-HW, while holding pull the cover up and it will slide off the eTRV-HW.

2) Insert the 2 x AA batteries and replace the cover.

   Pair the eTRV-HW to the RF16. *(see page 18)*

   - Mark the eTRV zone by using the stickers provided.
   - Note the room name on the 16 zone list provided, this will help the user of the system identify the zones if it's needed in future.

3) The eTRV-HW can be mounted to a SEMTRVB22C valve with a M30 x 1.5mm thread. Rotate the ring at the base of the eTRV-HW so it threads onto the SEMTRVB22C until it's tight. It will automatically adapt its stroke to that of the valve.

   It's recommended that the eTRV-HW is opened to make it easier to mount, this is done by calling for heat on the eTRV-HW or RF16 and it will retract the spindle.

4) Position the eTRV-HW on the valve so the screen is orientated correctly.

Note:

The eTRV-HW is designed for use with SEMTRVB22C Valve.

Mounting of Temperature Sensor

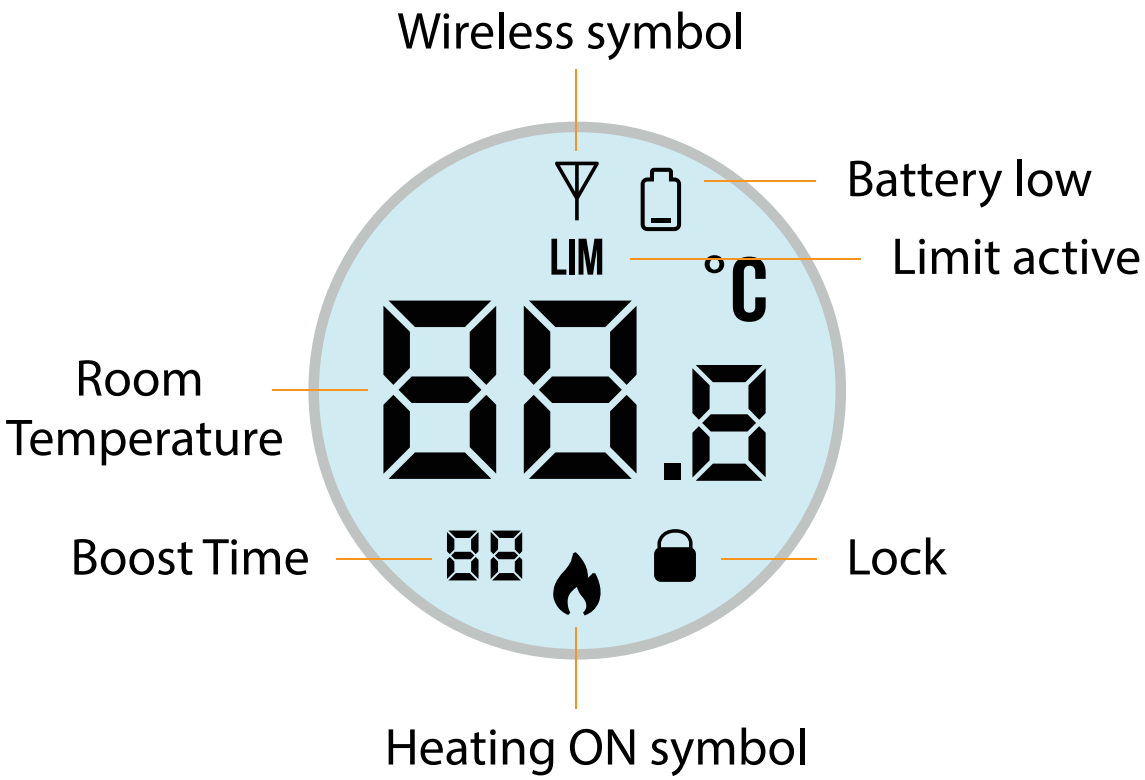
ON CYLINDER: To ensure accurate control of your cylinder, the temperature sensor should be mounted on the bottom 1/3 of the cylinder. It is essential that the sensing element is in direct contact with the cylinder and that there is no insulation between it and the cylinder. The temperature sensor can be fixed to the cylinder using the provided foil tape.

IN THERMAL POCKET: To ensure accurate control, the temperature sensor should be inserted into the thermal pocket. It is essential that the sensing element is inserted as far as possible. The temperature sensor can be fixed using the provided foil tape.

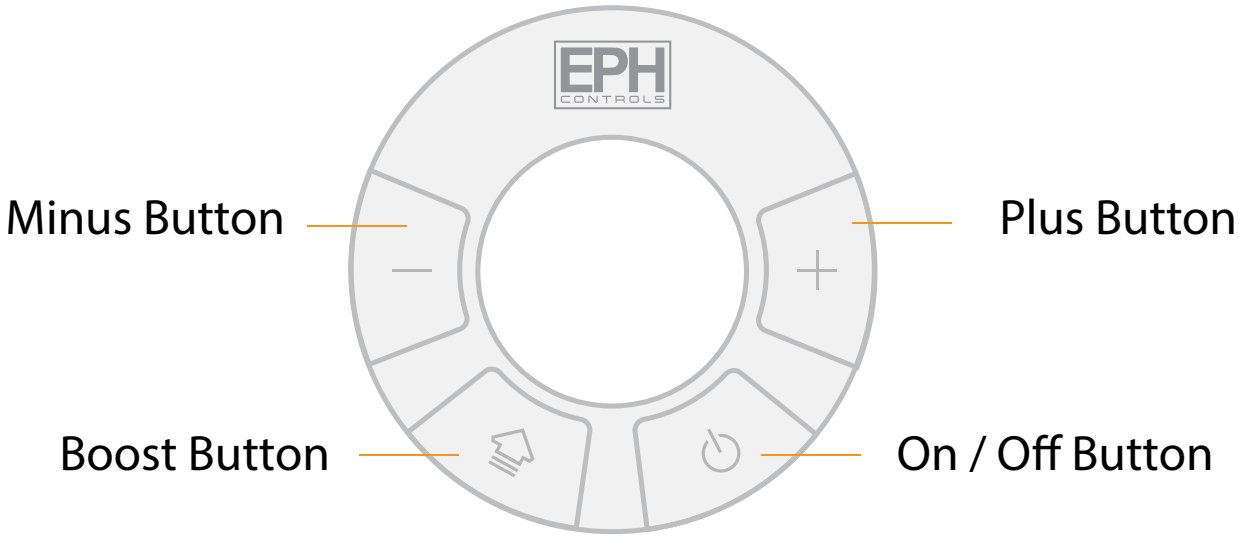
Smart Cylinder Thermostat

Operating Instructions

LCD Symbol Description



Button Description



Shortcuts

Hold [−] and [+] for 10 seconds for keypad lock.

Hold [⌂] and [⏻] for 5 seconds to access the menu.

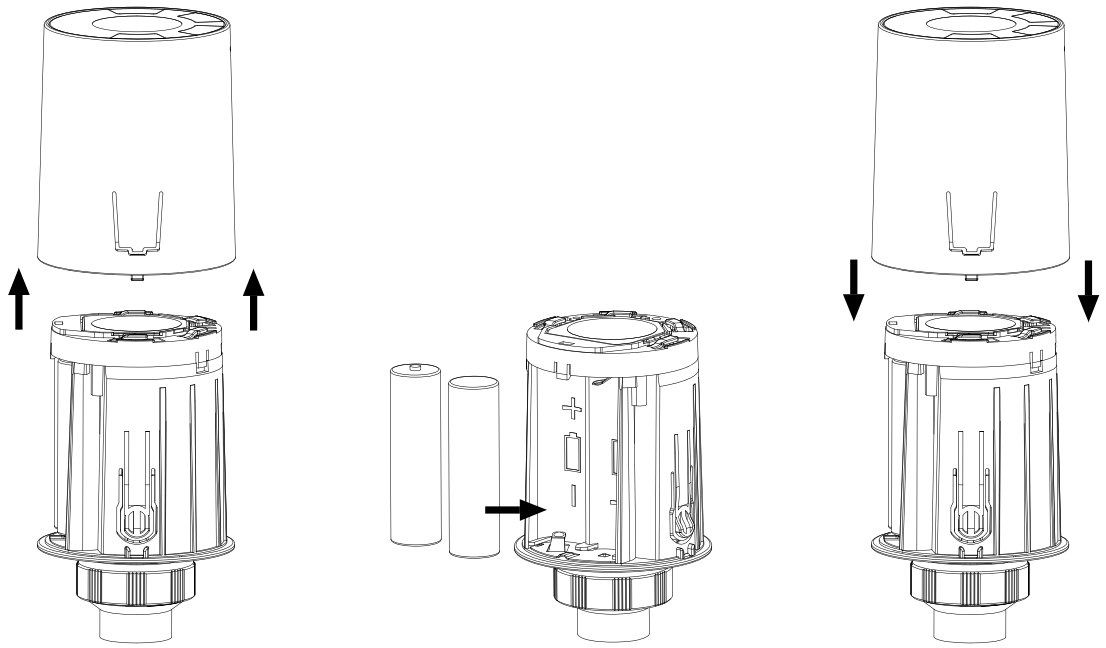
Hold [−] and [⌂] for 5 seconds for RF connection.

Replacing the Batteries

Press and hold the release mechanism on the side of the eTRV-HW, while holding pull the cover up and it will slide off the eTRV-HW.

Remove and replace the 2 x AA batteries. **It is extremely important to use good quality batteries in the eTRV-HW to ensure correct operation of the product.**

Slide the cover back on to the eTRV-HW and it will return to it's normal operation.



Li-FeS2 (Lithium Iron) batteries available from www.ephcontrols.com

Error Codes

The eTRV-HW will display error codes if there is a problem.

1) **E4**

   Motor Issue – Check Batteries

   If E4 still shows after premium batteries are used, the eTRV-HW needs to be replaced.

2) **Battery Low Indication**

   When the batteries are low on the eTRV-HW, the screen will show a low battery icon , this will also show on the zone in the EMBER App. When this appears on the screen it is recommended to replace the batteries immediately. *(see page 6 and 14)*

Boost Function

The eTRV-HW can be boosted to a specific temperature for 30 minutes, 1, 2 or 3 hours.

Press [⌂] once for 30 minutes,
twice for 1 hour,
three times for 2 hours or
four times for 3 hours.

Then Press [−] or [+] to set the desired temperature for the boost period.

30, 1, 2 or 3 will appear on the screen, wait 5 seconds for the eTRV-HW to return to the home screen.

To cancel a boost, press [⌂] when boost is active.

Locking and unlocking the eTRV-HW

To lock the eTRV-HW

Press and hold [−] and [+] for 10 seconds.

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

To unlock the eTRV-HW

Press and hold [−] and [+] for 10 seconds.

🔒 will disappear. The buttons are now enabled.

Changing the Mode

Press [⏻] to change between AUTO, MANUAL and OFF modes.

AUT - Auto

OFF - OFF

On - Manual

Adjusting the Target Temperature

Press [−] or [+] to decrease or increase the target temperature.

Press [⏻] or wait 5 seconds.

The target temperature is now saved.

This will change the manual and auto temperature permanently.

It is recommended that the boost level and target temperature are set as advised by the installer.

See page 30 of the RF16 controller installation guide.

Connecting an eTRV-HW to the RF16 Controller

On the RF16:

Press MENU.

'P01 & rF Cn' will appear on the screen.

Press to confirm.

'01' will appear on the screen.

Rotate to the required zone.

Press to select that zone.

'CONNECT' will appear flashing on the screen.

Note: When selecting a zone to pair, zones that are flashing are available while zones that are solid have already been paired.

On the eTRV-HW:

Press and hold [−] and [⌂] for 5 seconds.

‘nOE’ will appear on the screen followed by **‘ - - ’**

The eTRV-HW will display **‘r ‘** followed by the **zone number**.

Press [⏻] to exit from screen.

On the RF16:

‘CONNECTED’ will appear solid on the screen when the eTRV-HW is successfully paired.

Rotate ◯ to pair the next available zone and repeat the process or press [MENU] to exit.

Press [MENU] to return to normal operation at anytime.

Disconnecting an eTRV-HW from the RF16 Controller

To Disconnect all zones:

On the RF16:

Press MENU on the RF16.

'P01 rF Cn' will appear on the screen.

Rotate ◯ clockwise until **'P06 rF dn'** appears on the screen.

Press ◯ to confirm.

'ALL' will be flashing.

Press ◯ to select ALL.

'nO' will appear on the screen.

Rotate ◯ clockwise.

'YES' will flash on the screen.

Press ◯ to confirm disconnection.

This allows you to disconnect all connected zones at once.

To Disconnect an individual zone:

On the RF16:

Press MENU on the RF16.

'P01 rF Cn' will appear on the screen.

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

Press ◯ to confirm.

'All' will be flashing.

Rotate ◯ to select a hot water zone.

Press ◯ to select the hot water zone to be unpaired.

'nO' will appear on the screen.

Rotate ◯ clockwise.

'YES' will appear on the screen.

Press ◯ to confirm disconnection.

Press MENU to exit to the home screen.

Menu

P1 CAL - Calibrate

This function allows the user to calibrate the temperature reading of the eTRV-HW.

Press and hold and for 5 seconds.

'CAL' will appear on screen.

Press to select.

The current actual temperature will appear on the screen.

Use and to adjust the temperature reading.

Press to confirm and you will return to the menu.

Press to exit at any point.

P2 Hi & Lo – Setting high & low limits

OFF

This function allows the user to change the minimum and maximum temperatures that the thermostat can be set to between 5...90°C.

Press and hold [⌂] and [⏻] for 5 seconds.

'CAL' will appear on the screen.

Press [+] until **'LIn'** appears on the screen.

Press [⌂] to select.

Press [+] to select ON.

Press [⌂] to confirm.

'Hi' will appear on the screen. The temperature will flash.

Use [−] and [+] to select the high limit.

Press [⌂] to confirm,

'Lo' will appear on the screen. The temperature will flash.

Use [−] and [+] to select the low limit.

Press [⌂] to confirm and you will return to the menu.

Press [⏻] to exit at any point.

'LIM' will appear on the screen of the eTRV-HW.

P3 rSt – Resetting the eTRV-HW

This function allows the user to reset the eTRV-HW to its factory default settings.

Press and hold and for 5 seconds.

'CAL' will appear on the screen.

Press until '**rSt'** appears on the screen.

Press to select.

'nO' will flash on the screen.

Use to adjust.

'YES' will flash on the screen.

Press to confirm.

The eTRV-HW will now reset and will go to the OFF mode.

Press to change between Manual, Auto and OFF.

P4 bL – Backlight Auto

This function allows the user to select the backlight to be OFF or Auto.

Auto - this allows the backlight to activate for 5 seconds when a button is pressed.

OFF - the backlight is permanently off.

Press and hold ⌂ and ⏻ for 5 seconds.

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

Press + until **'bL'** appears on the screen.

Press ⌂ to select.

'AUt' will display on the screen.

Use − and + to adjust between Auto and OFF.

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

Press ⏻ to exit at any point.

P5 HOn - Hysteresis HOn 5.0°C & HOF 0.0°C

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

If '**H ON**' is set at 5.0˚C and the setpoint is 60˚C, then the zone will turn on when the temperature drops below 55˚C.

If '**H OF**' is set at 2˚C and the setpoint is 60˚C, then the zone will turn off when the temperature reaches 62˚C.

Press and hold ⌂ and ⏻ for 5 seconds.

'CAL' will appear on the screen.

Press + until **'HOn'** appears on the screen.

Press ⌂ to select.

'On' temperature will begin to flash.

Use − and + to adjust the HOn setting.

Press ⌂ to confirm.

'OF' temperature will begin to flash.

Use − and + to adjust the HOF setting.

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

Press ⏻ to exit at any point.

Notes

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EPH CONTROLS

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2026-03-03_eTRV-HW_DS_PK