

heatmiser®



Model: **PRTHW-TS WiFi RF**



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? What is a Programmable Room Thermostat?

A programmable room thermostat is both a programmer and a room thermostat.

The programmer allows you to set “On” and “Off” periods to suit your own lifestyle. The room thermostat works by sensing the air temperature, switching on the heating when the air temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.

So a programmable room thermostat lets you choose what times you want the heating to be on, and what temperature it should reach while it is on. It will allow you to select different temperatures in your home at different times of the day (and days of the week) to meet your particular needs and preferences.

Setting a room thermostat to a higher temperature will not make the room heat up any faster. How quickly the room heats up depends on the design & size of the heating system.

Similarly reducing the temperature setting does not affect how quickly the room cools down. Setting a programmable room thermostat to a lower temperature will result in the room being controlled at a lower temperature, and saves energy.

The way to set and use your programmable room thermostat is to find the lowest temperature settings that you are comfortable with at the different times you have chosen, and then leave it alone to do its job.

The best way to do this is to set the room thermostat to a low temperature – say 18°C, and then turn it up by 1°C each day until you are comfortable with the temperature. You won't have to adjust the thermostat further. Any adjustment above this setting will waste energy and cost you more money.

If your heating system is a boiler with radiators, there will usually be only one programmable room thermostat to control the whole house. But you can have different temperatures in individual rooms by installing thermostatic radiator valves (TRVs) on individual radiators.

If you don't have TRVs, you should choose a temperature that is reasonable for the whole house. If you do have TRVs, you can choose a slightly higher setting to make sure that even the coldest room is comfortable, then prevent any overheating in other rooms by adjusting the TRVs.

You are able to temporarily adjust the heating program by overriding or using the temperature hold feature. These features are explained further on pages 26 and 27 of this manual.

Programmable room thermostats need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture. Nearby electric fires, televisions, wall or table lamps may also prevent the thermostat from working properly.



Installation Procedure



Do
Mount the thermostat at eye level.
Read the instructions fully so you get the best from our product.



Don't
Do not install near to a direct heat source as this will affect functionality.
Do not push hard on the LCD screen as this may cause irreparable damage.

This WiFi Series thermostat is designed to be flush mounted and requires a back box of 35mm (minimum depth) to be sunk into the wall prior to installation.

Step 1

Carefully separate the front half of the thermostat from the back plate by placing a small flat head terminal driver into the slots on the bottom face of the thermostat.

Step 2

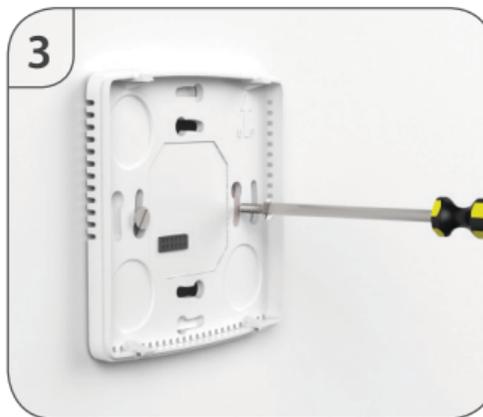
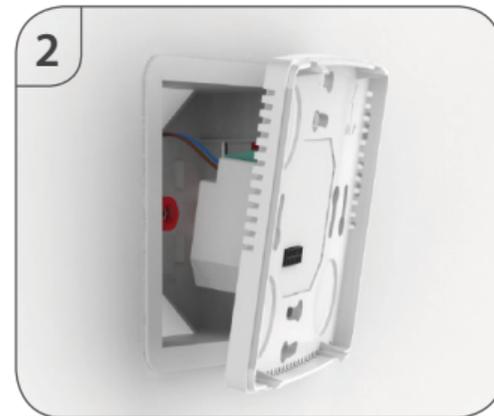
Place the thermostat front somewhere safe.
Terminate the thermostat as shown in the diagrams on pages 37-38 of this booklet.

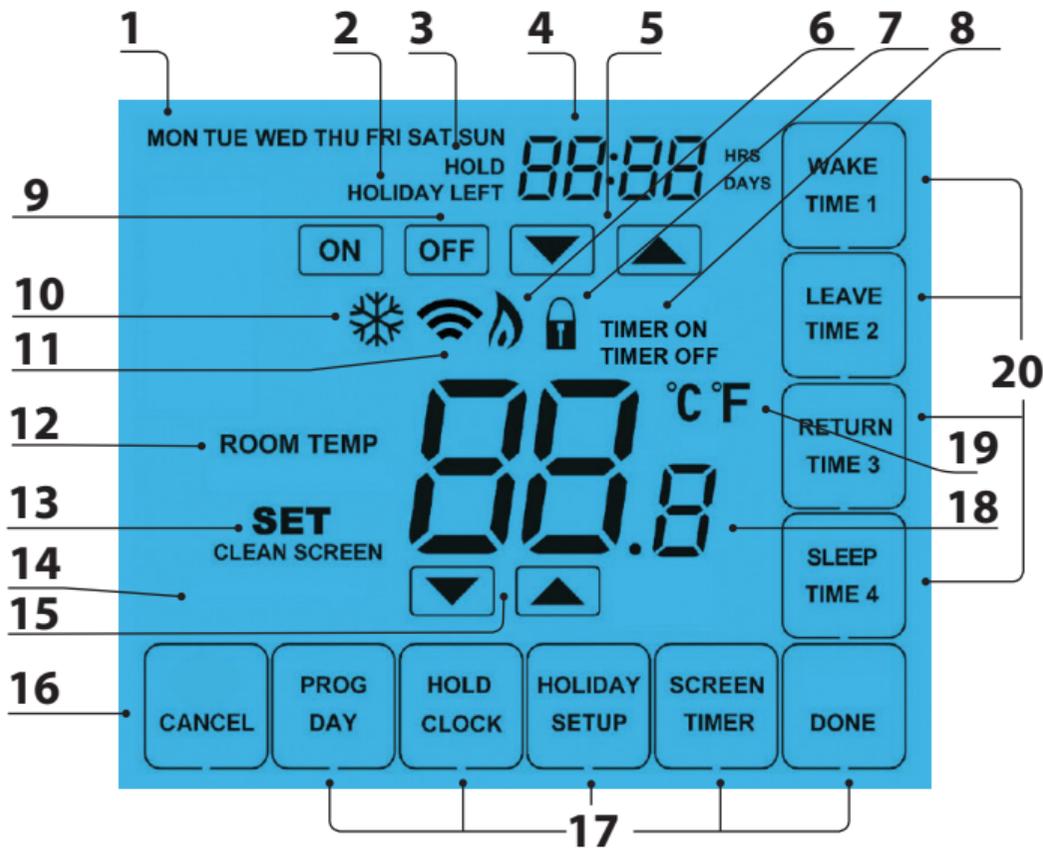
Step 3

Screw the thermostat back plate securely into the back box.

Step 4

Clip the front of the thermostat back onto the thermostat back plate.





LCD

LCD Display

1. Day Indicator - Displays the day of the week.
2. Holiday Indicator - Displayed when the thermostat is in Holiday mode.
3. Temperature Hold - Displayed when the thermostat is in Hold mode.
4. Clock - Displays time in normal operation, time left in hold or days left in holiday mode.
5. Up/Down Keys - Increase or decrease values shown on top digit group.
6. Flame Icon - Displayed when the thermostat is calling for heat, the flame icon will flash when optimum start function is in operation.
7. Keypad Lock Icon - Displayed when the keypad is locked.
8. Timer Status - Displays the current hot water status.
9. OFF Key - Single press to enable/disable frost protection mode, press and hold to turn the display off.
10. Frost Icon - Displayed when the thermostat is in frost protection mode.
11. WiFi Icon - Displayed when a WiFi connection is established.
12. Room Temp - Indicates the current temperature sensor mode.
13. Set - Indicates when changes are being made to programs or temperature set points.
14. Clean Screen - Freezes screen temporarily to enable cleaning.
15. Up/Down Keys - Increase or decrease values shown on bottom digit group.
16. Cancel Key - Used to exit setup/program operations.
17. Setup/Programming Keys - Used to navigate setup options.
18. Current Temp - Indicates the current sensor temperature.
19. Units of Temperature - Degrees Celsius or Fahrenheit.
20. Comfort Level Selection Keys - Used in comfort level setup (see page 21).



Setting Up Your WiFi Thermostat

Step 1:

Download and install the WiFi thermostat setup utility from our web site: www.heatmiser.co.uk/wifi

Step 2:

Connect the thermostat to your PC with the USB cable provided. This will power the thermostat through the USB port and will allow you to test the WiFi connection. Open the setup utility and press Read to view the current thermostat configuration.

Step 3:

Enter the SSID, Security Type and Security Code of your wireless network. These settings can usually be found on the underside of your wireless router. For more information please consult your router manual. See page 11 for additional information on security types and compatibility.

Step 4:

Enter a fixed IP address for your WiFi thermostat outside of the router DHCP range. It is likely that your network will be configured to operate on a DHCP basis. This means your router automatically issues an IP address to a device that successfully connects to the network.

Your WiFi thermostat needs a fixed IP address in order for local and remote access to operate and you must set this up manually.

Log into your wireless router and navigate to the LAN settings page.

Find and select the DHCP setup details.

This should define the IP range that can be assigned to devices connecting to the network.

As an example, you may have an IP starting range 192.168.1.1 and ending 192.168.1.99. This means you can safely provide your WiFi thermostat the IP address 192.168.1.100 as no other devices will be assigned this address by the router.

If your DHCP range is from 192.168.1.1 to 192.168.1.253 you cannot use 254 or above.

You need to change the DHCP range, taking care not to change any of the first 3 numbers.

***Tip!** When setting up an IP address, the first three sets of numbers must be the same as the router IP address and the fourth set must not be used elsewhere on the network.*

Step 5:

Enter the Subnet mask for the network. This information can usually be found on the underside of your wireless router.

Step 6:

Enter the IP address of your gateway and DNS. In most cases, this is the IP address of your wireless router.

If you have a multi-zone system and are using the Multi-Link, the Gateway of the thermostat will need to be configured as the IP address of the Multi-Link.

Step 7:

Create a unique username and password that will be used to access your thermostat from a web browser.

Default Username: admin

Default Password: admin

Change these settings to your personal preference and record for future use.

A 4 digit access PIN is required to use the smartphone/tablet app and also helps to secure your system.

Step 8:

When you have entered the details of your WiFi network press Apply and disconnect the USB cable, (the thermostat LCD should go blank).

Reconnect the USB cable to the WiFi thermostat, when the thermostat has rebooted it will attempt to connect to your network. This process takes approximately one minute and is complete when the WiFi symbol is displayed on screen.



Security Types and Compatibility

The WiFi Thermostats operate on the 802.11b standard.

If your router is a G model, you must ensure it is setup to work in B&G mode. You will not be able to connect to your thermostat without changing this setting on G model routers.

There are currently 4 common methods of securing your wireless connection:

OPEN/DISABLED (not recommended)

W.P.A. (medium security)

W.E.P. (lowest security level)

W.P.A.2. (highest security)

Your choice of security settings in the thermostat must match the setting in your router. Often you will find WPA and WPA2 are a single option in the router. This is perfectly normal as the router automatically selects the correct security level and you can set the thermostat up using either one of these settings.

Passwords can be up to 63 characters in length including spaces _ . / \ characters. The W.E.P. option is not so simple. Some routers generate a hidden password from a pass phrase whilst others require a 10 or 26 digit hex password and won't accept anything else. Your thermostat utility can deal with both options but the following restrictions may apply:

A hex password can only be made up of the numbers 0 to 9 and the letters a to f (lower case only).

Hex passwords can only be 10 characters or 26 characters in length.

If a passphrase is used it must be either 5 or 13 characters in length but can be any letter or number.

Your thermostat will automatically calculate the same hidden password your router creates from the same phrase.

These restrictions are common to most routers but you should refer to the router manual for specific restrictions that apply to your model.



Remote Access via App

To remotely connect to your WiFi Thermostat you must forward a port within your router to your WiFi Thermostat.

As all routers are setup differently, you should consult your user manual or the manufacturer's website for more information.

Generally you should create a new service within your router. Within this service you must open **TCP port 8068**.

Use the port forwarding function to forward the new service to the IP address of your WiFi thermostat.



Remote Access via Web Browser

To remotely access your WiFi Thermostat via a web browser you must first open port 80 and forward this to the IP address of your WiFi Thermostat.

To connect to your thermostat, open your preferred browser and enter the IP address that you gave the thermostat during setup and press enter.

You will be asked to enter a password and username.

These are both set to "admin" as default.

We recommend you change these settings to ensure the security of your system.

For further information, click the help link within the browser.



Pairing with the RC1-W Receiver

If using with the UH1-W wiring centre, turn to page 17.

To pair the thermostat with the RC1-W receiver, follow these steps.

On the receiver;

Press and hold the pairing button until the Comms LED lights up.

On the thermostat;

- Press PROG and then SETUP  
- The small number 01 in the top right corner of the LCD is the feature number.
- Use the Up key to select 06 (Receiver Type) 
The options within feature 06 are: 00 = UH1-W or 01 = RC1-W receiver.
- Use the Up/Down keys to set feature 06 to 01 (RC1-W)  
- Use the Up key to select 07 (Receiver Address) 
- You can now select a Receiver Address from 01-32.
Use the Up/Down keys to set the RC1-W Receiver address  
(You must set a unique receiver address for each receiver installed).
- Press DONE to confirm and exit 
- To pair the thermostat with the receiver, press and hold the
SCREEN button for 10 seconds 



Pair Successful

The address of the receiver will flash on the thermostat display and the Comms LED on the receiver will flash and then go out to indicate the pair is successful.

- Press DONE to confirm the pairing 



Pair Fail

If the Comms LED does not flash there is a problem with the RF signal and you should reduce the distance between the thermostat and receiver. Where possible ensure there are no metal objects blocking the signal. Check features 06 & 07 have been configured correctly.



Comms LED



Pairing with the UH1-W

On the UH1-W:

Set the board address number, choose from 01-09 on the rotary switch.

Note: Each UH1-W will need a different address.



On the thermostat:

- Press PROG and then SETUP  
- The small number 01 in the top right corner of the LCD is the feature number.
- Use the Up key to select 06 (Receiver Type) 

The options within feature 06 are: 00 = UH1-W or 01 = RC1-W receiver.
- Use the Up/Down keys to set feature 06 to 00 (UH1-W)  
- Use the Up key to select 07 (Receiver Address) 
- You can now select a board address from 01-09.
Use the Up/Down keys to set the UH1-W board address  
- Use the Up key to select 08 (Zone Number) 
- You are able to connect eight WiFi RF thermostats to one UH1-W.
Use the Up/Down keys to select the zone this thermostat controls (01 - 08)  
- Press the Up key at the top of the screen to select feature 09 

- Use the Up/Down keys in the centre of the screen to select if the thermostat will bring on the pump & boiler outputs  

00 = UFH Zone (Outputs enabled)
01 = Radiator Zone (Outputs not enabled)
- Press DONE to confirm and exit 



Testing Communications with the UH1-W

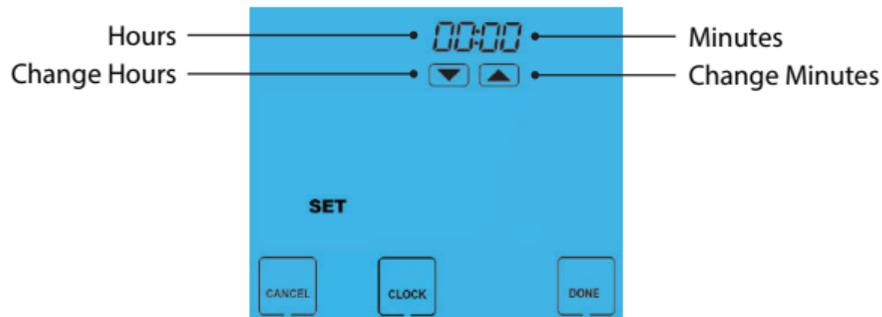
- On the thermostat use the Up key to adjust the set temperature above the room temperature 
 - Press DONE 
-  You will now see the flame icon and the assigned zone on the UH1-W should now be active.
-  If the output on the UH1-W is not activated, reduce the distance between the thermostat and the UH1-W and check features 06-09 have been setup correctly, then repeat the above process.



Setting the Clock

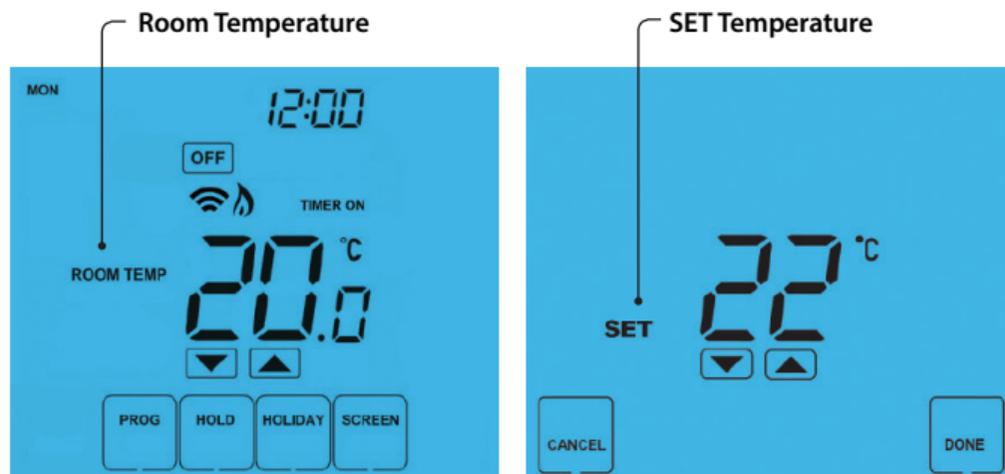
To set the clock, follow these steps.

- Press PROG and then CLOCK  
- Use the Down key to set the hours 
- Use the Up key to set the minutes 
- Press the CLOCK key 
- Use the Down key to set the day 
- Use the Up key to set the month 
- Press the CLOCK key 
- Use the Up/Down keys to set the year  
- Press DONE to confirm and exit 



Temperature Display

The temperature display information is driven by two different inputs; the sensor measurement and the target temperature you have set.



This is the current room temperature.

This is the temperature you are trying to achieve in your home.

TIMER ON / TIMER OFF - Status of the hot water output.



Comfort Levels Explained

Comfort levels allow you to set different temperatures throughout the day. For example, you may want the home warm in the morning when you are getting ready for work, cooler during the day when the house is unoccupied and then warmer in the evening when you are home relaxing.

The thermostat offers 2 programming options:

5/2 Day Programming - 4 levels for the weekdays and 4 different levels for the weekend.

7 Day Programming - 4 levels for each day.

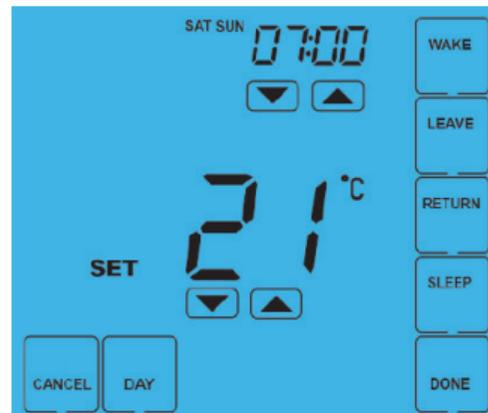
See pages 33-34 for details on how to switch between these modes.

Tip! If you don't want to use all of the comfort levels, just set the time to --:--

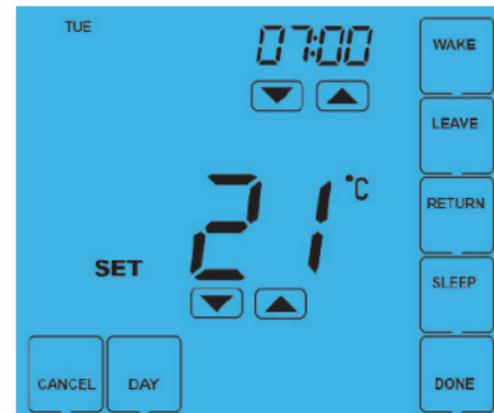
Default comfort levels are pre-programmed but you can change them easily.

Weekday Level	Time	Temp
Wake	08:00	21°C
Leave	09:30	16°C
Return	16:30	22°C
Sleep	23:00	17°C
Weekend Level	Time	Temp
Wake	09:00	21°C
Leave	22:00	16°C
Return	--:--	--°C
Sleep	--:--	--°C

- Press PROG
- Select WAKE
- Use the Up/Down keys to set the time for WAKE period
- Use the Up/Down keys to set the temperature
- Repeat these steps for the LEAVE, RETURN & SLEEP periods
- Press DAY to select the next day to program and repeat



In 5/2 Day mode the thermostat will display "Sat Sun" prompting you to program the temperature levels for the weekend.



In 7 Day mode, the thermostat will display Tue.

- When complete, press DONE to confirm settings and exit



Hot Water Timings Explained

The PRTHW-TS offers an additional timed output for the hot water cylinder.

The thermostat offers 2 programming options:

5/2 Day Programming - 4 levels for the weekdays and 4 different levels for the weekend.

7 Day Programming - 4 levels for each day.

See page 33-34 for details on how to switch between these modes.

Tip! If you don't want to use all of the comfort levels, just set the time to --.--

Default switching times are pre-programmed but you can change them easily.

Weekday Level	On Time	Off Time
Wake	07:00	09:00
Leave	16:00	20:00
Return	--.--	--.--
Sleep	--.--	--.--
Weekend Level	On Time	Off Time
Wake	07:00	09:00
Leave	16:00	20:00
Return	--.--	--.--
Sleep	--.--	--.--

- Press PROG
- Press TIMER, (Time 1 ON will flash)
- Use the Up/Down keys to set the ON time for period 1
- Press OFF
- Use the Up/Down keys to set the OFF time for period 1
- Repeat these steps for periods 2, 3 and 4
- Press DAY to select the next day to program and repeat



In 5/2 Day mode the thermostat will display "Sat Sun" prompting you to program the temperature levels for the weekend.



In 7 Day mode, the thermostat will display Tue.

- When complete, press DONE to confirm settings and exit

Clean Screen

Pressing  will disable all keys, providing you 15 seconds to wipe the screen clean before the keys are re-activated.

Locking the Keypad

The thermostat has a keypad lock facility.

- To activate the lock press the bottom right corner of the display and hold for 10 secs.
- When activated, you will see the Keypad Lock symbol. 
- To cancel, press the bottom right corner of the display again for 10 secs.



Temperature Control

The   keys under the temperature display allow you to adjust the set temperature.

When you press either of these keys, you will see the temperature and the word SET appear on screen.

Select the desired temperature and press  to confirm and exit.

Note: This new temperature is maintained only until the next programmed comfort level. At this time, the thermostat will revert back to the programmed levels.

Hot Water Override

To override the hot water setting follow these steps.

- Press HOLD 
- Press TIMER 
- If the hot water is already On – press OFF 
- If the hot water is already Off – press ON 

You will then see the hot water status change and the hot water output indication will flash to show it has been overridden from the programmed setting.

The hot water will remain in the override state until the next programmed time.

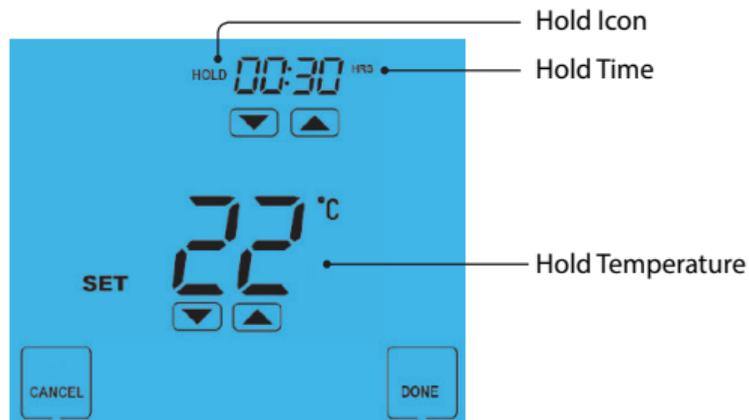
To cancel, repeat the steps above.



Temperature Hold

The temperature hold function allows you to manually override the current operating program and set a different temperature for a desired period.

- Press HOLD 
- Use the top set of Up/Down keys set the hold period 
- Use the center set of Up/Down keys to set the hold temperature 
- Press DONE to confirm and exit 



To cancel a temperature hold, follow the same steps but reduce the time to 00:00.



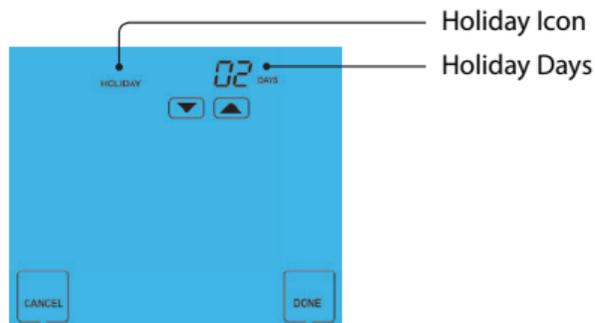
Holiday

The holiday function reduces the set temperature in your home to the frost protection temperature setting and disables the hot water output (see page 31).

The thermostat will maintain this temperature for the duration of the holiday and will then automatically return to the program mode on your return.

- Press HOLIDAY 
- Enter the desired duration in days 
- Press Done 

Note: A holiday period does not start until 00:00 the next day. For example, if you set a holiday period on Friday for 2 days, Saturday will be counted as the first day and the thermostat will revert back to the programmed schedule at 00:00 on Monday.



To cancel a Holiday setting, reduce the holiday time to 00 days.



Frost Mode

Pressing the **OFF** key once will place the thermostat in frost protect mode.

In this mode, the thermostat will display the frost icon and will only turn the heating on should the room temperature drop below the set frost temperature (see page 31).

Should the heating be turned on whilst in frost mode, the flame symbol will be displayed.

To cancel the frost protect mode, press the **OFF** key once.



Frost Protection Mode Enabled



Heating On/Off

The heating is indicated ON when the flame icon is displayed.

When the flame icon is absent, there is no requirement for heating to achieve the set temperature but the thermostat remains active.

To turn the thermostat OFF completely, press and hold the OFF key **OFF**

The display and heating output will be turned off completely.*

To turn the thermostat back ON, press the ON key once **ON**

Thermostat completely OFF



Thermostat powered ON



*See Feature 3 on page 31



Optional Features Explained

THE FOLLOWING SETTINGS ARE OPTIONAL AND IN MOST CASES
NEED NOT BE ADJUSTED

Feature 01 – Temperature Format: This function allows you to select between °C or °F.

Feature 02 - Switching Differential: This function allows you to increase the switching differential of the thermostat. The default is 1°C which means the thermostat will switch the heating on 1°C below the set temperature and will turn it off when the set temperature is achieved. With a 2°C differential, the heating will switch on 2°C below the set temperature and will switch off when the set temperature is achieved.

Feature 03 - Frost Protect: You can set whether the thermostat will maintain the frost temperature when the thermostat display is turned off. As a default, this is enabled.

Feature 04 – Frost Protect Temperature: This is the temperature maintained when the thermostat is in frost mode. The range is 07-17°C. The default is 12°C and is suitable for most applications.

Feature 05 – Output Delay: To prevent rapid switching, an output delay can be entered. This can be set from 00 - 15 minutes. The default is 00 which means there is no delay.

Feature 06 – UH1-W or RC1-W Receiver: The thermostat can work with our UH1-W 8 zone wiring centre or RC1-W 2 channel receiver. This setting determines which is being used.

Feature 07 – Receiver Address: Within one building, up to 9 UH1-W's or 32 RC1-W's can be used. Each receiver must have a unique receiver address.

Feature 08 – Zone Number: This is the zone number you are assigning the thermostat to on either the UH1-W or the RC1-W receiver. 01 - 08 - UH1-W, 01 - 02 – RC1-W.

Feature 09 – Underfloor Heating or Radiator Zone (UH1-W Only): This setting determines whether the thermostat will activate the pump & boiler output on the UH1-W.

If set to 00 the outputs will be activated. 00 = UFH, 01 = Radiators.

Feature 10 – Fail Safe: If enabled, the thermostat will send a signal to the receiver every 20 minutes. Should the receiver fail to receive two signals, the receiver will activate the output for 20% of the time. This is to protect the system against a loss of wireless signal and in case the thermostat battery fails whilst you are away.

Feature 11 – Temperature Up/Down Limit: This function allows you to limit the use of the up and down keys. This limit is also applicable when the thermostat is locked and so allows you to give others limited control over the heating system.

Feature 12 – Air Sensor Selection: On this thermostat, you can select which sensor should be used. Built in sensor or remote air sensor.

Feature 13 – Not used on this model.

Feature 14 – Optimum Start: Optimum start will delay the start up of the heating system to the latest possible moment to avoid unnecessary heating and ensure the building is warm at the programmed time. The thermostat uses the rate of change information to calculate how long the heating needs to raise the building temperature 1°C (with a rate of change of 20, the thermostat has calculated the building needs 20 minutes to raise the building temperature 1°C) and starts the heating accordingly.

Feature 15 – Rate Of Change: This is the number of minutes the thermostat has calculated it takes to raise your building temperature 1°C. The thermostat will continue to monitor and learn the heat up time of your home to optimise heating efficiency.

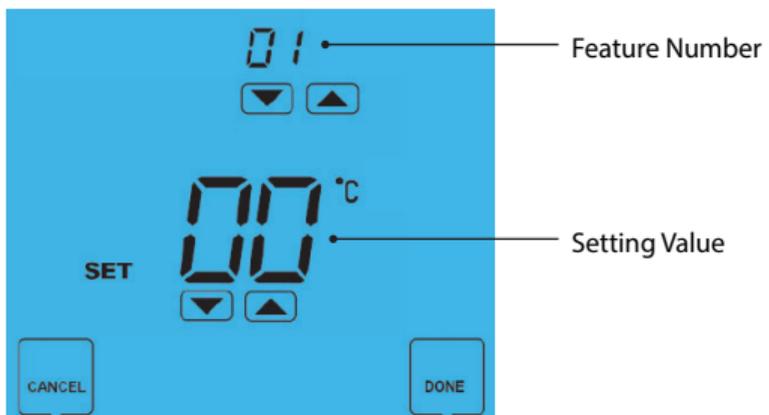
Feature 16 - Programming Mode: The thermostat offers 2 programming methods. Weekday/Weekend allows you to program 4 comfort levels for the weekdays and 4 different comfort levels for the weekend. In 7 Day program mode, each day has 4 comfort levels that can be programmed independently.



Adjusting the Optional Settings

To adjust the optional settings, follow these steps.

- Press PROG 
- Press SETUP 



- Use the Up/Down keys at the top of the screen to select the feature number (shown on page 34) and then use the Up/Down keys in the center to adjust the setting 
- Press DONE to confirm and exit 



Optional Settings - Feature Table

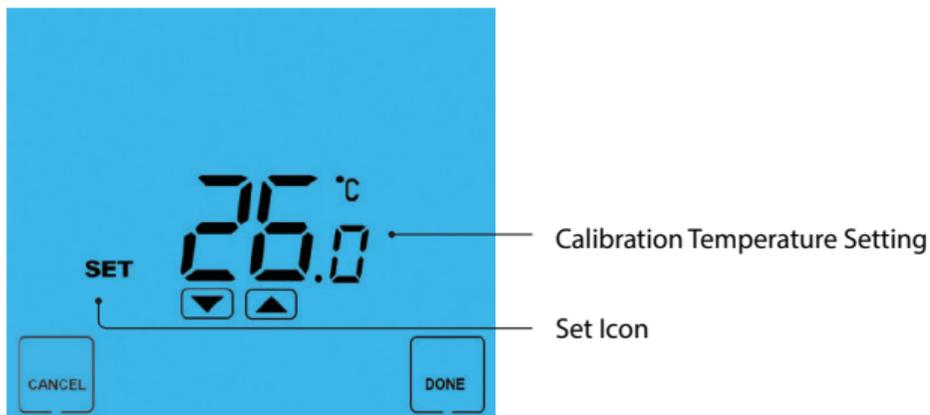
FEATURE	DESCRIPTION	SETTING
01	Temperature Format	00 = °C, 01 = °F (°C = Default)
02	Switching Differential	0.5° - 3.0°C (1.0°C = Default)
03	Frost Protect	00 = Disabled, 01 = Enabled (01 = Default)
04	Frost Protection Temperature	07° - 17°C (12°C = Default)
05	Output Delay	00 - 15 Minutes (00 = Default)
06	Receiver Type	00 = UH1-W, 01 = RC1-W
07	Receiver Address	UH1-W = 01-09, RC1-W = 01-32
08	Zone Number	UH1-W = 01-08, RC1-W = 01-02
09	UFH or Radiators (UH1-W only)	00 = UFH, 01 = Radiators
10	Fail Safe	00 = Disabled, 01 = Enabled
11	Up/Down Temperature Limit	00° - 10°C (00°C = Default)
12	Sensor Selection	00 = Built in sensor, 01 = Remote air sensor
13	Floor Temperature Limit	Not available on this model
14	Optimum Start (Pre-Heat)	00 = Disabled (Default) 01 = 01hr, 02 = 02hr, 03 = 03hr
15	Rate of Change	Minutes to raise by 1°C
16	Program Mode	00 = Weekday/Weekend (Default) 01 = 7 Day Programming



Re-calibrating the Thermostat

If you need to re-calibrate the thermostat, follow these steps.

- Press and hold the OFF key to turn the thermostat OFF
- Press and hold the ON key until the temperature appears on the screen
- Use the Up/Down keys to configure the new temperature
- Press DONE to confirm the new temperature
- Press the ON key once to turn the thermostat back ON



Factory Reset

The thermostat has a reset function to restore all settings to their factory defaults.

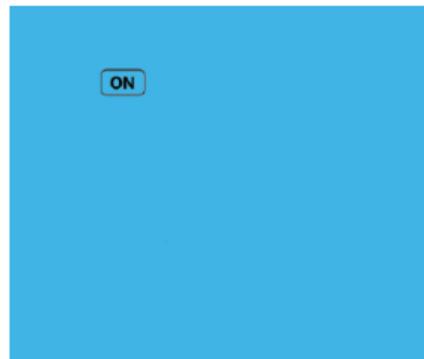
To perform a factory reset, follow these steps.

- Press & hold the OFF key to turn the thermostat display OFF
- Press and hold the bottom left corner of the LCD for 10 seconds.
- All of the screen icons will appear for 2 seconds and then disappear.
- Press the ON key once to turn the thermostat display back ON

All icons displayed simultaneously.

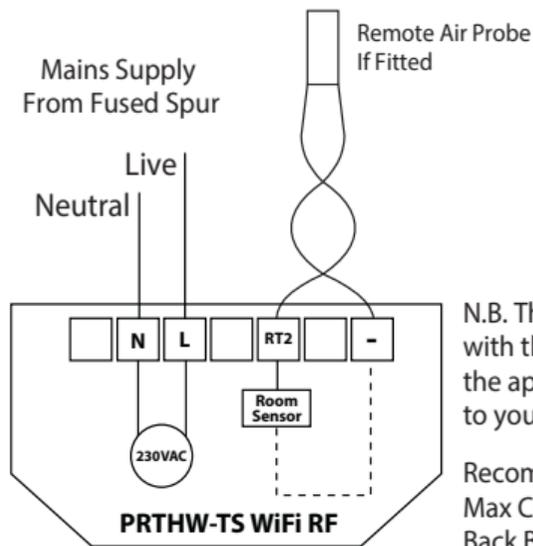


Factory reset is complete.





Wiring Diagram - PRT/HW-TS WiFi RF

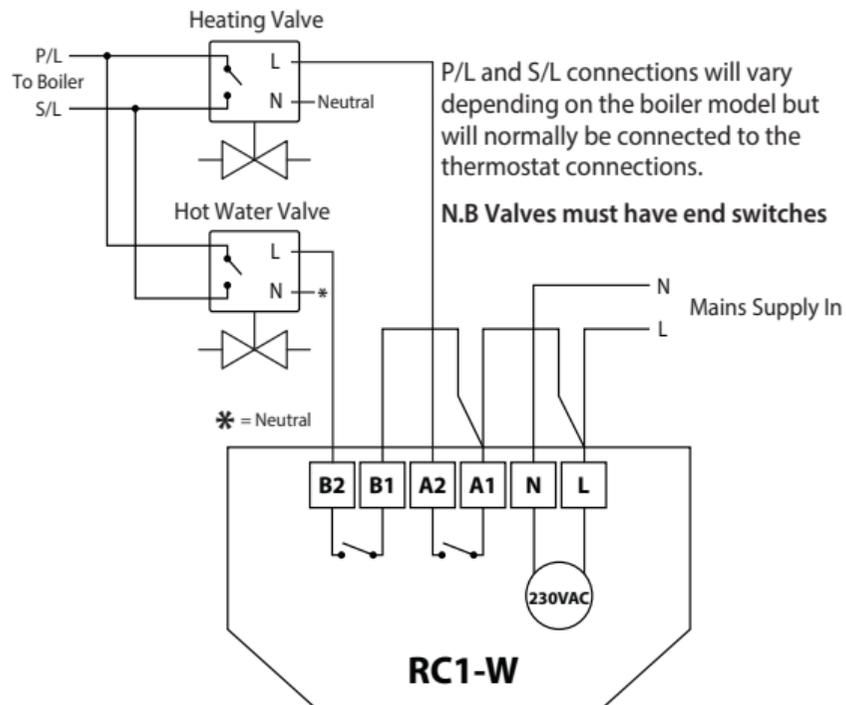


N.B. The PRT/HW-TS WiFi RF is designed to work with the RC1-W and the UH1-W. Please refer to the appropriate diagram for connections to your heating system.

Recommendations
Max Cable Size - 1.5mm
Back Box Depth - 35mm



Wiring Diagram - PRT/HW-TS WiFi RF Receiver One Heating Valve & One Hot Water Valve System





Heating Professionals:
Request a copy of our product installation guide containing detailed technical specifications for our complete product range:
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