



T6R – Smart thermostat

Table stand or Wall mount, with optional hot water control

The **T6R** smart thermostat is designed to provide automatic time and temperature control of heating and stored Hot water systems in homes and apartments.

It's compatible with 24-230V on/off such as gas boilers or OpenTherm® appliances such as combi-boilers or heat pumps. Also, works with zone valve applications and is suitable for Sundial S, Y and W plan stored hot water systems (on/off). Not with electric heating (240V).

The T6R is available for table stand or wall mount installations (wireless) and consist of a thermostat and a Receiver box.

The solution is designed with the installer in mind and includes a 2-channel Receiver module with mounting options for directly on the wall or on a wall box. Wiring can be from below or from the back by lifting the terminal platform, which makes installation quick and easy.

The thermostat has a high contrast PMVA display with dynamic text line and touch screen buttons. The thermostat has a simple programming philosophy to make it easier to install and very user friendly.

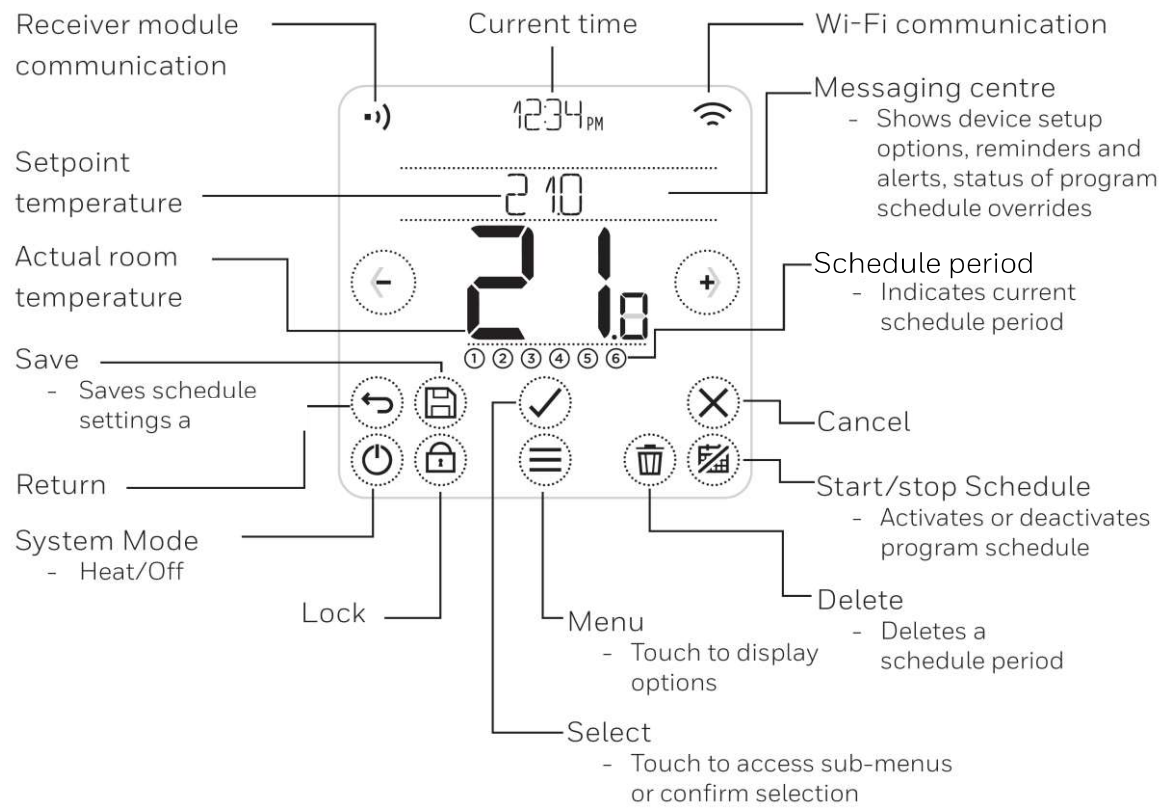
The T6 is ideal for consumers who want to control their comfort and hot water remotely and is based on a modern design, which is simple to program and easy to use.



FEATURES & BENEFITS

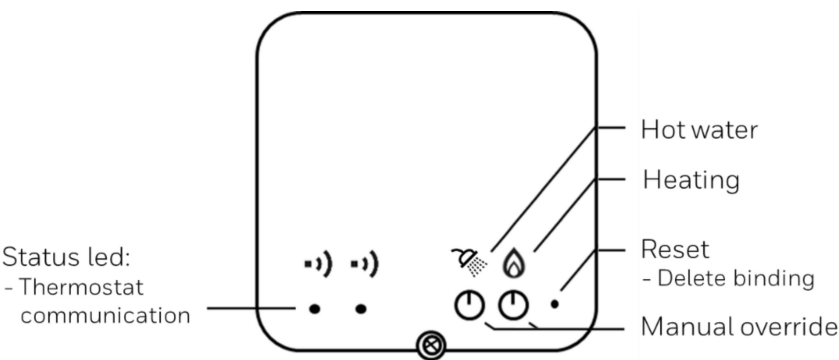
- Attractive, ultra-modern styling makes it ideal for any location in any type of home.
- Table stand or wall mount thermostat to fit a new and replacement installations.
- For control of central heating and stored hot water systems
- Suitable for Sundial S, Y and W plan stored hot water systems (on/off)
- Wi-Fi communication to connect to the Internet
 - Smart Home and Apple HomeKit ready
- Honeywell Home mobile App for:
 - Remote view and change of settings of heating and hot water
 - Schedule changes
 - Smartphone Geolocation temperature control
- A dynamic text display on the LCD that gives enhanced feedback to the user / installer.
- High LCD Contrast and backlighting for easier viewing in all light conditions.
- Time out screen with selectable brightness
- Heating control:
 - Factory programmed daily or 5+2 default schedule
 - Schedule with up to 6 independent time and temperature pairs to suit the comfort needs.
 - "Hold until" temperature override of programmed schedule temperature till the next switch point.
 - Schedule off mode for manual operation.
 - Setpoint and room temperature always displayed.
 - OFF position has an integral frost protection setting at minimum 5°C so that pipes in the house will never freeze in winter.
- Hot water control (optional):
 - Factory programmed daily or 5+2 default schedule.
 - Schedule with up to 3 ON periods per day to suit the comfort needs.
 - Hot water Boost function for temporary override
- Alert messages to assist in fault-finding.
- 2-channel Receiver box with clear LED indications and override buttons (heating and hot water)
 - A flip up wiring platform for easy wiring
 - On/Off compatible heating control.
- User menu allows extra functions to be set at the discretion of the user:
 - Language selection
 - Wi-Fi setup
 - Optimisation
 - Clock setting
 - Resetting the heating program to factory default
 - Brightness
 - Temperature offset
 - Lock function
- Advanced menu (Installer Set-Up) allows extra functions to be set at the discretion of the installer to match the consumers applications and needs:
 - Language selection
 - System type
 - 5+2 or daily schedule option
 - Upper / Lower Set point Limit Adjust
 - Minimum ON time
 - Cycle rate
 - Factory Reset
 - Binding (wireless version)
- Pre-configured and bound system pack.

THERMOSTAT DISPLAY / BUTTON LAYOUT



Reference to the icons			
	Geofencing active		Heating demand active
	Geofencing home active		Hot Water Enabled
	Geofencing away active		Heating mode
	Geofencing sleep active		Not used (future)
	Failure/Alarm		Receiver module communication
	Geofencing home active		Communication failure
	Schedule disabled		Wi-Fi communication
	Schedule enabled		Wi-Fi failure
	Temporary Hold active		

2 CHANNEL RECEIVER BOX



TECHNICAL SPECIFICATIONS

T6R Thermostat	
Control form	Adaptive Fuzzy Logic
Room Temperature display range	From 0°C to 50°C
Dimensions (w x h x d)	T6R table stand 108 x 103 x 68 mm T6R wall mount 103 x 103 x 68 mm
Time display	24 hour or 12 hour AM/PM format
Time keeping accuracy	Synchronized with Internet when connected or typically better than 10 minutes per year
Program Heating	5+2 or daily schedule with 6 daily time and temperature level changes
Program Hot water	5+2 or daily schedule with 3 ON periods per day
Time setting resolution	Program - 10 minute steps
Sensing element	100K (@ 25 °C) NTC thermistor
Temperature setting range	Program : 5 to 37°C in 0.5 °C steps OFF : 5 °C
Power	T6R table stand 5VDC power adapter T6R wall mount 5VDC power module

RF communication	
RF operation band	ISM (868.0-868.6) MHz, 1% duty cycle
Protocol	Propriety Encrypted
Comm. Range	30 m in a residential building environment
Comm. technology	short, high rate transmissions to minimise air time and avoid collisions
Receiver class	RED RX Cat 2
Wi-Fi	IEEE 802.11b/g/n – 2.4GHz

R6 Receiver box	
Power	230VAC
Electrical rating 2 relay contacts	230 V~, 50...60 Hz, 0.5 A to 5 A resistive 0.5 A to 3 A inductive (0.6 pf) . 24 V~, 50...60 Hz, 0.5 A to 5 A resistive 0.5 A to 3 A inductive (0.6 pf).
Cycle rate	Selectable by application (see installer set up).
Wiring	Terminal block capable of accepting wires up to 1.5 mm ²
Wire access	From back via large wall box opening. From bottom with cable clamps. Mains wiring – left. Low voltage wiring – right.
Dimensions	110 x 110 x 40 mm (w x h x d)
IP class	30

Environmental and standards	
Operating temperature range	0 to 40°C
Shipping and storage temperature	-20 to 55°C
Humidity range	10 to 90% rh, non-condensing
Receiver Category 2	868.3MHz
Max RF Power	25 mW
Operating frequency	868–868.6MHz
Wi-Fi	2.4GHz
Max Power	100mW
Operating frequency	2.4–2.458GHz
ErP	Class V (+3%), (EU) 811/2013

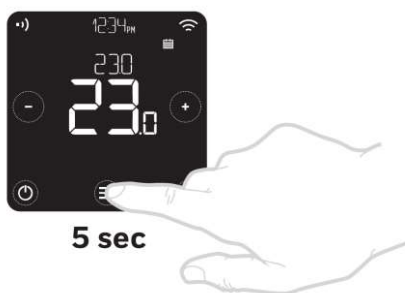
Hereby, Pittway Sarl declares that the radio equipment type T6H700RW is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: <https://hwllhome.co/DoC>

ADVANCED MENU

To enter the Advanced menu (installer set-up):

Press the  menu key for 5 seconds.



Menu item	Default	Options
Language	English	English, Francais, Espanol, Deutsch, Nederlands, Italiano
System type	Heat + H/W	Heat only, Heat + H/W
OpenTherm	-	OpenTherm boiler data when a vailable
Cycle rate	6	3,6,9 or 12
Min on time	1 minute	1, 2, 3, 4 or 5 minutes
Heat range	Min = 5.0 Max = 37.0	Min: 5.0°C to 21.0 °C, Max:21.0°C to 37.0 °C
Schedule options	Daily	1 = daily schedule, 2 = 5+2 days schedule
Optimisation	Opt.start on Opt.stop off	Opt start: 0 = off, 1 = on, 2 = Delayed start Opt stop: 0 = off, 1 = on
Clock	Format: 24h Time: --:-- Date: 01/09/2016	Clock format: 1 = 12h, 2 = 24h Setup time and date
Low Load Control	ON	0= Off, 1 = On
Temperature offset	0.0	-1.5°C to 1.5 °C
Bind	-	Bind, check RF and clear bind.
Adv Reset	-	Factory, schedule, Wi-Fi and Homekit reset
Failsafe	OFF	0= Off, 1 = On

Specific Applications		Setting		What do you need to change?
		Cycle/ Hour	Minimum ON time (in minutes)	Note : a. To change Cycle/Hour, b. To change Minimum ON Time,
Heating	Gas Boilers (<30KW)	6	1	No action required
	Oil Boiler	3	4	1. Set Minimum ON Time to 4 minutes. 2. Set Cycle/Hour to 3.
	Thermal Actuator	12	1	Set Cycle/Hour to 12.
	Zone valve	6	1	No action required.

Special Features	Description
System Type	When bound to a 2-channel receiver box the system type can be set: Heating only or Heating + Hot Water
OpenTherm	If the Receiver box is connected to an OpenTherm appliance various appliance specific data can be viewed. The data displayed is depending on what the appliance is providing.
Heat Range	The normal lower temperature limit of 5 °C can be increased up to 21 °C to protect the inhabitants from cold conditions. This is a useful feature aimed at supporting the elderly, children and disabled inhabitants. The normal upper temperature limit of 35°C can be reduced down to 21 °C to save energy. This feature is useful for leased homes and apartments.
Schedule options	The thermostat has 2 default schedules: daily (every day) and 5+2 (week + weekend days)

Special Features	Description
Optimisation (optimal start, optimal stop and delayed start)	<u>Optimal Start</u>: learns how long it takes your system to reach the programmed temperature. It turns on the heating system earlier to make sure it's comfortable at the scheduled time. <u>Optimal Stop</u>: Saves energy and money by switching off a little bit earlier than the normal programmed time. If the home is up to temperature, it will not notice the effect on the temperature, but will show a difference in the fuel bill. <u>Delayed start</u>: Saves energy by slightly delaying the start of heating depending on the difference between the scheduled temperature and the actual room temperature
Clock setting	Change display format (default 24hr) and adjust time and date. When connected to Internet time and date will be synchronized
Low Load Control	If the Receiver box is connected to an OpenTherm appliance this setting is used in the demand control. When an appliance is no longer able to modulate lower the control switches from modulating control to low/off control.
Temperature Offset	If the Thermostat is located in a hot/cold location and cannot be moved because of wiring then the measured/ displayed temperature can be adjusted by +/- 1,5 °C. This feature is useful if the homeowner wants the reading to match another appliance temperature display.
Binding	Menu to bind the Thermostat and the Receiver box, test the RF signal strength of the radio communication and to clear an existing binding.
Reset	Menu to reset the thermostat back to factory default settings, reset the schedule to default settings, reset the Wi-Fi and HomeKit settings.
Failsafe	When the radio communication between the Thermostat and Receiver box is lost for longer than 1 hour the Receiver box will start to cycle the demand 20% on / 80% off.

OPENTHERM® COMMUNICATIE

OpenTherm® is a manufacturer independent communication protocol between modulating appliances (boilers, heat pumps, air heaters and heat interface units) and room thermostats.

Via the OpenTherm® protocol, the Receiver box of the T6 / T6R thermostat constantly communicates with the connected appliance (boiler, heat pump or heat interface unit).

Modulating

The T6/T6R thermostat controls, via the Receiver box, the OpenTherm® communicating appliance modulating. This means that, depending on the heat demand, the burner capacity is adjusted in the appliance. This creates a very accurate control of the room temperature.

On top of that, this method of temperature control is more energy-efficient and environmentally friendly.

Low Load Control

When the home is at its comfort temperature or if the heat demand of the home is so low that the burner's capacity is reduced to about 20-30% of the total capacity, the thermostat switches from modulating control to a on/off cycling, the so-called low-load control.

During the low-load control, it is continuously calculated what the optimum on and off time of the appliance should be, so that an accurate control of the room temperature is achieved.

Hot water control

Most Combi-boilers have a small internal storage for hot tap water. By keeping a number of liters of hot water, the appliance can supply hot tap water directly without having to heat it up first. With a longer period of none use or absence, for example sleep or holiday, the hot water storage does not have to be kept at a high temperature.

The T6/T6R thermostat can provide additional savings here. With the last programmed period (sleeping) the hot water status can easily be switched to a saving level or completely be switched off.

With these Combi-boilers, a menu "Hot water during sleep" (on/off) will be available in the installer menu (page 6).

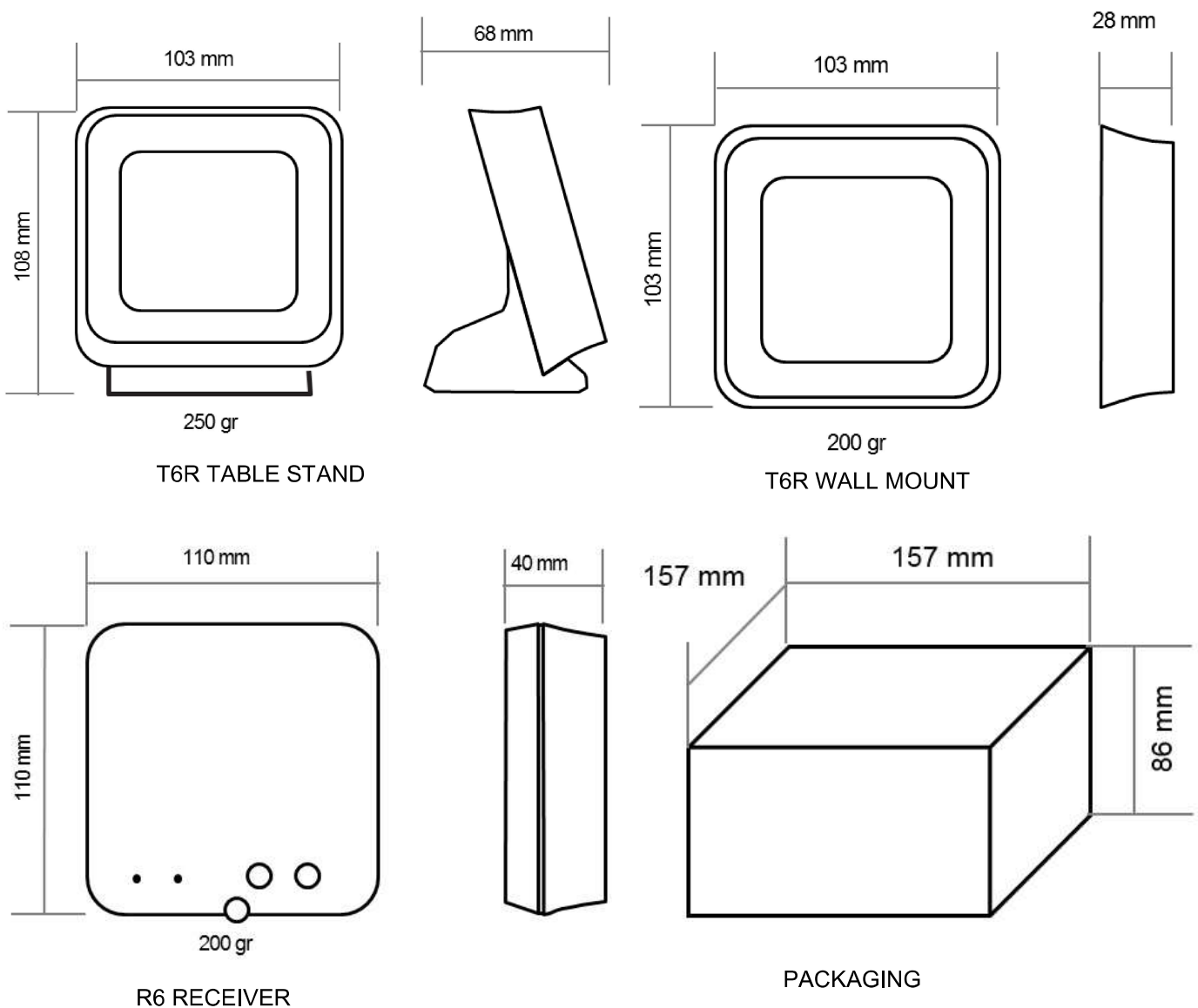
OpenTherm® data

De T6/T6R thermostat offers the ability to view some appliance data via de OpenTherm® communicatie. See table on page 6 which data can be viewed.

Note: Depending on the connected appliance, more or less data is displayed on the T6/T6R thermostat and certain settings of the appliance may or may not be changed from the thermostat. Refer to the instruction manual of the appliance for specific information.

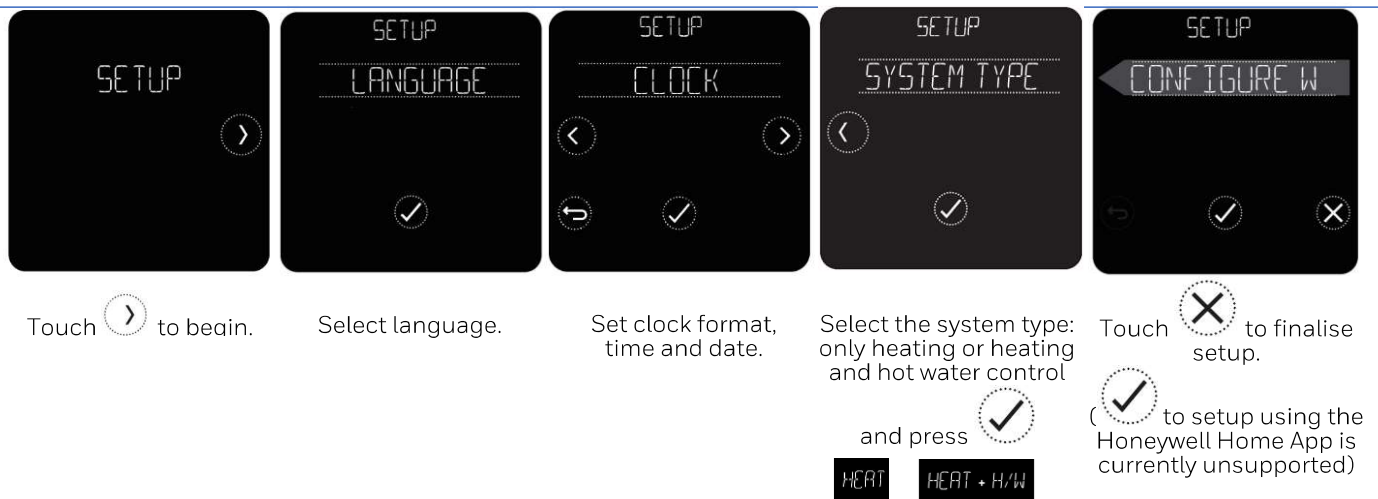
Advanced menu item	Default	Data / Options
OpenTherm	Submenu (read only)	- Low Load Control - Control Setpoint → Requested supply temperature - Supply Water Temperature → Actual supply water temperature - Return Water Temperature → Actual return water temperature - Max Supply Water Temperature - Hot water Temperature → Actual hot water temperature - Hot Water Setpoint - Actual Power → Actual power of appliance - Water Pressure
Hot Water Overnight	1	0= OFF, 1 = ON
Hot Water Setpoint	60	30 tot 75 °C (appliance depending)
Max Supply Water Setpoint	90	30 tot 90 °C (appliance depending) - future
Low Load Control	1	0= OFF, 1 = ON

DIMENSIONS



Setup and configuration

After power up, SETUP is displayed on the thermostat's screen.



Once setup is completed go to the advanced menu to change application specific changes.

BINDING

The T6R Smart Thermostat wireless thermostat comes bound from the factory and binding is therefore not required during installation.

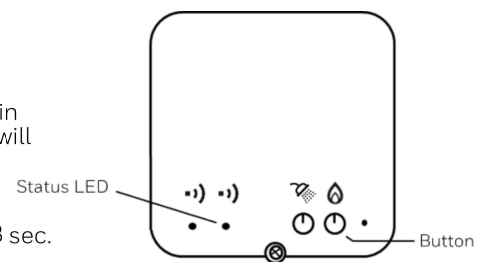
The binding operation described below is only required if:

- The T6R thermostat or Receiver box is replaced.
- The T6R thermostat or Receiver box has incorrect or no binding data stored.
 - Thermostat will indicate the Alert message: NO RECEIVER BOX BINDING
 - Receiver box status LED remains green blinking (no communication from thermostat)
 - Receiver box status LED does not light up (not bound).

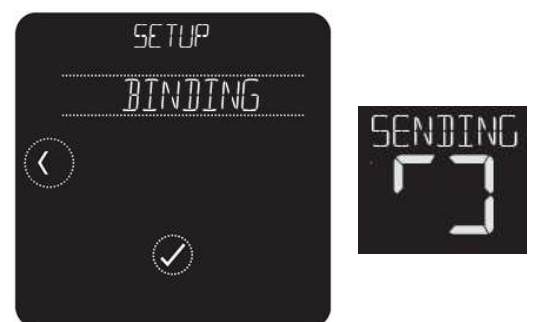
To rebind

Note: When the Receiver box has been bound before first press with a small pin the pinhole for approximately 3 seconds to reset the binding. All LED's will flash amber for a moment.

1. Put the Receiver box into binding mode by pressing the Heat button for 3 sec.
 - The first LED will flash amber



2. Enable binding on the thermostat:
 - Enter the advanced menu by pressing the [Menu] button for 5 sec.
 - Navigate to BINDING
 - Select BIND and the signal will be sent



3. When binding is successful:
 - Thermostat will show SUCCESS
 - First Receiver box status LED will show green



When binding is **NOT** successful:

- Thermostat will show FAILED
 - Receiver box will exit binding after 3 min.
- RF communication might be too far or is blocked due to wrong location of the Thermostat or Receiver box. Try to move closer or re-locate and re-bind again.



TROUBLE SHOOTING

Symptom (Fault message)	Possible Cause	Remedy
The Receiver box button LED is green but the heat or hot water does not switch on.	Heat or hot water wiring might be incorrect or broken	Check the Receiver box wiring
The status LED on the Receiver box is red (Communication loss)	The Receiver box receives no communication from the thermostat: RF communication might be too far or is blocked due to Receiver box location. Thermostat is no longer powered.	Try to move thermostat or Receiver box closer or re-locate. Check the power to the thermostat
Thermostat alert messages		
WIFI RADIO ERROR	The Wi-Fi radio of thermostat is faulty.	Replace thermostat
INTERNAL MEMORY ERROR	The internal memory of thermostat is faulty.	Replace thermostat
INDOOR TEMPERATURE SENSOR ERROR	(wired only) The external temperature sensor is not connected or the wiring is faulty.	Check external sensor wiring and sensor
NO COMMUNICATION RECEIVER BOX	The thermostat receives no communication from the thermostat: RF signal is blocked due to the location of the thermostat. Receiver box is no longer powered.	RF communication might be too far or is blocked due to the location of the Thermostat or Receiver box. Check the power to the Receiver box
RF SIGNAL OF RECEIVER BOX LOW	There is a weak radio signal from the Receiver box	Try to move thermostat or Receiver box closer or re-locate.
NO RECEIVER BOX	The thermostat is not bound with the Receiver box	Bind or re-bind the Receiver box
NO INTERNET	Thermostat has no longer Internet connection.	End user needs to check their Internet connection via router.
NO WIFI SIGNAL	Thermostat has no longer a Wi-Fi connection.	End user needs to check their Wi-Fi network of router.
REGISTER ONLINE	Thermostat is connected to Internet but not yet registered to an account.	End user needs to download the App, create an account and register the thermostat.
WIFI NOT CONFIGURED	Thermostat is not connected to Wi-Fi network.	End user needs to download the App, create an account, connect and register the thermostat.
BOILER FAILURE FAULT XX	The OpenTherm boiler reported a failure number XX.	Check the boiler
BOILER LOW WATER PRESSURE	The boiler reported low water pressure.	Fill up the hydronic system with water.

ORDERING SPECIFICATION

Description	Model	EAN code	Literature
Smart Wireless Thermostat with Heating and optional Hot water control (UK)	Y6H920RW4026 (Table stand)	5025121380805	
	Y6H920RW5031 (Wall mount)	5025121380171	

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