genius
HUB

Installation Manual
(V 5.10.2)

# Chapters:

1. Installing the Genius Hub

The first component to be installed is the Genius Hub. This is the 'brains' of the system, which communicates with all of the other devices and allows you to control your heating remotely.
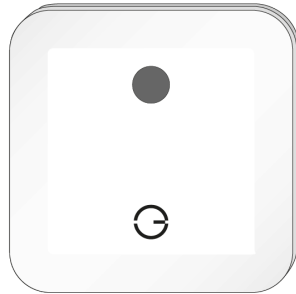

1. The Genius Hub can be placed flat on a surface, such as a cabinet or mounted on a wall. To mount it onto a wall, first remove the back plate by turning the Genius Hub around so the logo is facing away from you with the cutout for the Ethernet cable (see point 3) at the bottom. Slide the segmented back plate in the centre of the Genius Hub down, holding the outside of the Genius Hub. Once it has moved approximately 1 cm down, it can be pulled away from the Genius Hub. The back plate can be screwed to the wall with the segmented part facing the wall. Make note of the 8 **blue** characters for Chapter 2.

   > ⚠ Before you screw the backplate to the wall, place the Ethernet Cable through the cutout so it is between the backplate and the wall.

2. If you have Genius Radiator Valves, ensure that the Communications Adapter is installed into the Genius Hub. If it is not, insert the Communications Adapter into the USB port found at the bottom of the Genius Hub.
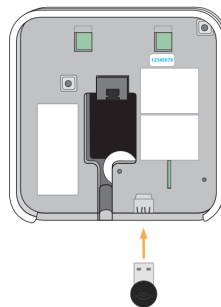
3. Connect the Genius Hub to your Internet router using an Ethernet cable. This fits into the port located in the middle of the rear of the Genius Hub.
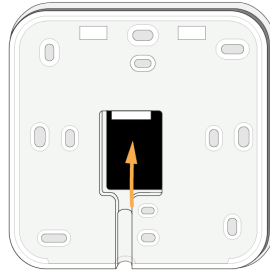
4. Plug the USB power cable, both to the Genius Hub (until you hear it click) and into the power supply provided, and plug into a wall socket. A green light will appear on the left hand side.
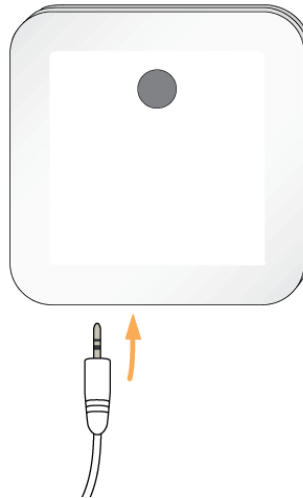
5. When the Genius Hub successfully connects to the Internet router, a second regularly flashing green light will appear on the left hand side.

Do not power the Hub from a USB port on the Internet router - it will not provide enough power to operate the Hub correctly.

- The low power wireless communication to other devices is easily stopped by thick walls, large objects and water.

- Ensure that the Genius Hub is in an open space and not hidden away behind any heavy objects. For optimum RF communication, fit the unit above floor level, and at least 30cm away from metal objects & appliances such as: boiler, hot water tank, microwave oven, cooker, fridge/freezer, stainless steel sink, TV, set-top box (satellite/cable/Freeview), radio, printer, photocopier or computer (desktop/laptop).

- Do not place within 100cm of RF devices, such as cordless phones, mobile phone or Wi-Fi signal boosters, or Wi-Fi routers. It may be necessary to relocate the unit if problems with communication occur. Mobile phones should not be used or placed in the vicinity of this unit.

2. Logging onto the Genius Hub

There are two ways of accessing your Genius Hub system, depending if you are using an Android/Apple device or a computer.

On an Android/Apple device

On a mobile device (such as a smart phone, iPad or tablet), you can download the Genius Hub app from the Apple App store or Android Play store.

The app is available on Android versions 5.0 and above, and iOS 12 and above.

On a web browser

On a computer, or a device not running Android/Apple you should access your system via our web app. This is found by going to our website and clicking on 'My Hub' at the top right of the screen, or by navigating to: www.geniushub.co.uk/app

Logging onto your system for the first time

To log onto your system for the first time:

1. Load the app from your mobile device, iPhone, iPad, tablet or go to the web app on a computer.
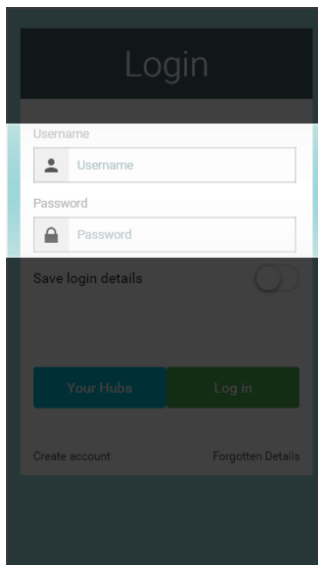
2. On the Welcome page, in the username field, enter the 8 **blue** digits found on the underside of the Genius Hub. This is behind the removable back plate that is used to attach the Genius Hub to the wall. Slide the back plate down to remove it from the back of the Genius Hub.
   This is your **temporary** username and you can change it to something more memorable once you have logged in.
   a. Enter only the numbers and letters.
   b. This field is not case-sensitive.
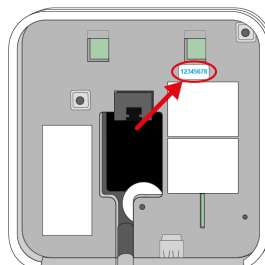
3. Leave the password field blank (when you choose your own username, you will also set the password you wish to use on your system).

4. Tap 'Log In'.

> ⓘ The customer can now register their system, which lets them choose a memorable username and their own secure password. For information on registering the system see chapter 1 of the User Manual (found in the Main Menu of the app) or see Chapter 1 of the User Manual.

3. Installing the Boiler Receiver Units

The Genius system has been tested with a wide variety of boilers, heat pumps and other heat sources and there are 3 Receiver Units which can be used to control these: the Single Channel Receiver, Dual Channel Receiver and Electric Switch.

General Information

> ⓘ Standard wiring diagrams are provided with the system. To download a copy of the wiring diagrams, visit: https://www.geniushub.co.uk/wiring

The Single Channel and Dual Channel receiver units are rated to 3A maximum. They can only be used to switch a **zone valve** or a **boiler** and **not a circulation pump**. Controlling a circulation pump will result in damaging the receiver unit, voiding the warranty!

> ⚠ Do not attempt to wire in your boiler controller if you are not 100% sure that you know what you are doing. Danger of electric shock! All wiring should conform to IEE regulations. The boiler and wiring for the boiler controller must be electrically isolated before you commence work on wiring in the boiler controller!
> - To comply with building regulations, a hard-wired cylinder stat. must be present on every system to protect against scalding.

### Combination Boiler (Single Channel Receiver)
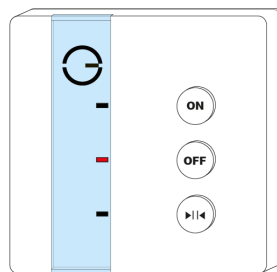
Included in the Genius Starter Kit is the Single Channel Receiver, which is most commonly fitted to a Combination boiler (for properties without a hot water tank). In many cases you can swap in the Single Channel Receiver where the wired house thermostat or boiler programmer was located as the Single Channel Receiver uses a standard backplate. You need to ensure that wiring is correct for the Single Channel Receiver before placing it on the backplate.

1. Always ensure that the boiler and wiring for the Single channel Receiver is electrically isolated before you commence work on any wiring.
2. Remove the backplate from the Single Channel Receiver by loosening the 2 screws found on the bottom of the Receiver Unit.
3. Mount the backplate onto the wall where the Single Channel Receiver is to be placed, or (if using an existing comaptible backplate) remove the front of the

existing thermostat/receiver unit. This must be on a flat surface to ensure good contact between the Single Channel Receiver and backplate.

4. Wire the Single Channel Receiver backplate as per the wiring diagrams provided, checking this is suitable as per the boiler installation manual.

5. Fit the Single Channel Receiver onto the backplate by first fitting it to the top of the backplate and hinging the receiver unit down. This should hinge easily and should rest squarely on the backplate. If it does not attach easily first time, take the receiver unit off and try again.
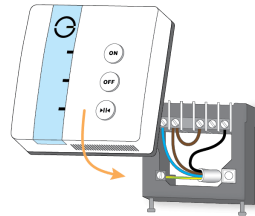

6. Tighten the screws underneath the Single Channel Receiver, and check the unit is securely and safely attached to the wall.

In normal operation the Single Channel Receiver will have a single solid light (**red** for when there is no call for heat, and **green** for when the Receiver unit is is calling for heat).
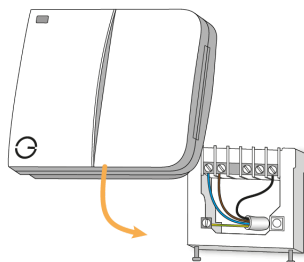

- If there is no existing boiler programmer then the Single Channel Receiver must be wired into the boiler as if it were an external programmer or thermostat. See wiring diagrams provided by the boiler manufacturer to confirm the wiring guides provided with this installation manual.

- If you replace the existing house thermostat with the Single Channel Receiver, and leave the existing boiler programmer (not recommended), the customer must be aware that they will have no control of the boiler if the programmer turns off. The existing programmer in this case must be set to always on or constant to make sure that the Single Channel Receiver retains control of the boiler at all times.

- If you remove the existing wired house thermostat out of the control circuit (recommended), it must also be removed from the control in the boiler wiring centre, otherwise the Single Channel Receiver will not have control over the boiler.

System Boiler (Dual Channel Receiver)
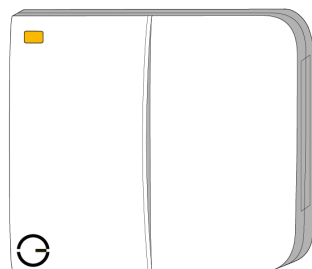
1. Included in the Genius Starter Kit + Hot Water On/Off is the Dual Channel Receiver, which is most commonly fitted to a System boiler (for properties with a hot water tank). The existing programmer must be exchanged with the Dual Channel Receiver to control the heating and the hot water. You need to ensure that wiring is correct for the Dual Channel Receiver before placing it on the backplate.
2. Always ensure that the boiler and wiring for the Dual channel Receiver is electrically isolated before you commence work on any wiring.
3. Remove the backplate from the Dual Channel Receiver by loosening the 2 screws found on the bottom of the Receiver Unit.
4. Mount the backplate onto the wall where the Dual Channel Receiver is to be placed, or (if using an existing comaptible backplate) remove the front of the existing programmer/receiver unit. This must be on a flat surface to ensure good contact between the Dual Channel Receiver and backplate.
5. Wire the Dual Channel Receiver backplate as per the wiring diagrams provided, checking this is suitable as per the boiler installation manual.
6. Fit the Dual Channel Receiver onto the backplate by first fitting it to the top of the backplate and hinging the receiver unit down. This should hinge easily and should rest squarely on the backplate. If it does not attach easily first time, take the receiver unit off and try again.


7. Tighten the screws underneath the Dual Channel Receiver, and check the unit is securely and safely attached to the wall.

In normal operation the Dual Channel Receiver will have a solid **amber** light which means it is connected to the system.

> - If there is no existing boiler programmer then the Dual Channel Receiver must be wired into the boiler as if it were an external programmer. See wiring diagrams provided by the boiler manufacturer to confirm the wiring guides provided with this installation manual.
> - If you remove the existing wired house thermostat out of the control circuit (recommended), it must also be removed from the control in the wiring centre, otherwise the Dual Channel Receiver will not have control over the heating.
> - Inside the door on the Dual Channel Receiver are 2 labels to display which button controls which part of the heating. When wiring the Dual Channel Receiver, check that the wiring matches these labels.

# Hot Water Time & Temperature addon (Electric Switch)
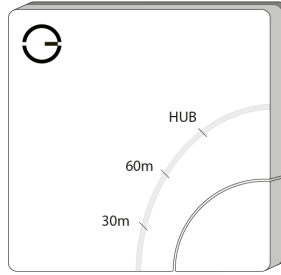
The Electric Switch and Temperature Probe, which is used to measure the temperature of the Hot Water Tank. The Electric Switch must be wired into a switched, fused spur near the Hot Water tank. Place the end end of the Temperature Probe into the pocket/under the insulation of the hot water tank. The Electric Switch and Temperature Probe, which is used to measure the temperature of the Hot Water Tank. The Electric Switch must be wired into a switched, fused spur near the Hot Water tank. Place the end for the Temperature Probe into the pocket/under the insulation of the hot water tank

If the Hot Water Tank has an immersion heater backup, this can be wired into the Electric Switch (output) so you can also control the heating of the hot water from the immersion heater as well as the boiler.

> ⚠ At no point should the Temperature Probe be pulled out or removed from the Electric Switch.

The Electric Switch should be wired into the same fused spur as the relevant zone valve or immersion heater.

1. Always ensure that the boiler, immersion heater and wiring for the Electric Switch is electrically isolated before you commence work on any wiring.
2. Locate the existing tank cylinder thermostat for the hot water tank.
3. If the same pocket as the cylinder stat is accessible, insert the Temperature Probe into this pocket.
   a. If it is not available, attach the Temperature Probe to the outside of the tank (under the insulation) using a thermal paste so it gets an accurate water temperature reading and has good adhesion.
4. Break out the relevant section of a 1-gang pattress for the wiring, allowing for the temperature probe to exit the pattress box if applicable, and fix the pattress to the wall. It is recommended that a 40mm pattress is used.
5. Pull through the relevant wiring, allowing plenty of spare.
6. Wire in the Electric Switch as per the wiring diagrams provided, checking this is suitable as per the relevant installation manual, such as immersion heater.
7. Remove the front cover of the Electric Switch to expose the screw holes. The cover can be removed by placing a flat bladed screwdriver into the gap underneath the Electric Switch and levering in a downwards direction.
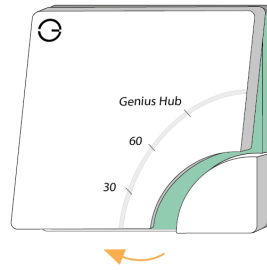
8. Fit the Electric Switch into the pattress, ensuring there are no trapped wires. Screw in using standard pattress screws, and check the unit is securely and safely attached to the wall. Re-attach the front cover starting at the top.

In normal operation there will be no lights when the unit is not heating and one or more **red** lights near the button when heating.

> ⚲ The temperature in a hot water tank will stratify, and so the Electric Switch will measure a different temperature dependent on where on the tank it is located. It is recommended to use the location of the existing Cylinder Stat or a pocket built into the Hot Water tank. For more information, please see the installation manual provided with the hot water tank.
>
> • The existing cylinder stat should be set to a temperature above the temperature required on the app, and above 60º to protect against legionella.
>
> • Using the appropriate wiring, as in accordance with BS7671 (or newer if such exists).
>
> • The Electric Switch is rated to 13A and must not be wired to an immersion heater with a higher rating. This will result in damaging the Electric Switch and voiding the warranty!

4. Installing the Wireless Thermostats

The thermostat provides you with an easy way to see the temperature in the room as well as a quick way of overriding the temperature without loading the app.

1. First, remove the Room Thermostat from its backplate using a flat bladed screwdriver and placing this in the cutout in the underside of the device, before levering the front away.
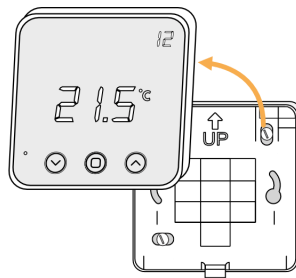
2. Turn the Room Thermostat over, so the screen is facing away from you and pull out the plastic tab to connect the battery.
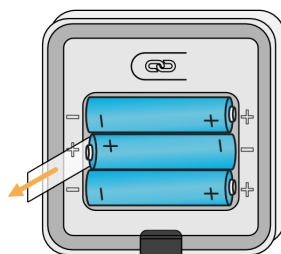
3. Affix the backplate to the wall, with the up arrow at the top.

> ⓘ The golden rules for positioning a Room Thermostat are:
>
> **Internal Wall** - To stop the Room Thermostat from under reading from being on a cold surface.
> **Out of Direct Sunlight** - Consider if the sun was shining through the window would the Room Thermostat be in direct sunlight therefore affecting the temperature it reports.
> **Chest Height** - Position 1.5m from the ground to give the best view and accurate temperature (not the ceiling temperature).

4. First screw the backplate to the wall in the chosen room. Then fit the Room Thermostat onto the backplate by aligning it at the top and rotating it down to meet at the bottom.
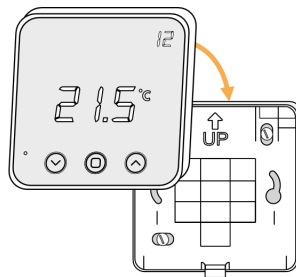
5. Installing the Underfloor Heating Controls

The Genius Hub system can control a wide variety of wet underfloor heating, in terms of the configuration of the underfloor heating, the floor covering and the hardware that is already part of the underfloor heating system. It can also control electric underfloor heating with the Powered Room Thermostat.

General Information

ⓘ Standard wiring diagrams are provided with the system. To download a copy of the wiring diagrams, visit: https://www.geniushub.co.uk/wiring

All devices which control the heating in individual rooms and are purchased as part of a system direct from Genius Hub, such as Underfloor Receiver Units, Genius Radiator Valves or Room Sensors, are labelled with the room they control and are pre-linked to zones on the app.

The Single Channel Receiver is rated to 3A maximum. It can only be used to switch a **zone valve, underfloor heating wiring centre** or **actuator** and **not a circulation pump**. Wiring to a circulation pump directly will result in damaging the receiver units, voiding the warranty! The Electric Relay is rated to 11A maximum. The Electric Switch is rated to 13A maximum. The Powered Room Thermostat is rated to 16A maximum.

ⓘ There is no requirement for a programmer to be connected to the underfloor heating wiring centre. All of the control should be done from the Genius Hub receiver units. See wiring diagrams provided by the underfloor heating manufacturer to confirm the wiring in this installation manual.

• Using the appropriate wiring, as in accordance with BS7671 (or newer if such exists).

⬥ Do not attempt to wire in any devices if you are not 100% sure that you know what you are doing. Danger of electric shock! All wiring should conform to IEE regulations. The boiler and underfloor heating for the new devices must be electrically isolated before you commence work on any wiring!

Underfloor Wiring Centre
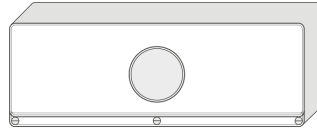
Depending on the control devices purchased, the Genius Hub system can be wired in a variety of ways, and to different voltage actuators and wiring centres. If you are using our Underfloor Wiring Centre, the terminals on the right-hand-side for the Manifold Pump and Underfloor Zone Valve are **volt-free**. See our wiring diagrams (link above) for how to connect to a 230v Pump/Zone Valve.

## Powered Room Thermostat (Switched Live connections, or Single Zone / Underfloor Pump, Electric Underfloor)
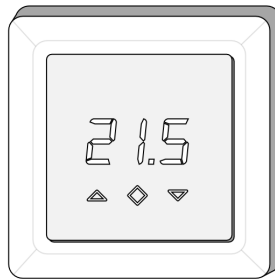
If you are controlling an underfloor heating wiring centre or actuators which are 230v the Powered Room Thermostat will be used per zone controlled. If there are any existing controls, such as a thermostat, the wiring to these will need to be removed. The Powered Room Thermostat is wired into the room being controlled so it can detect the temperature, **not** near the actuators / wiring centre.

If you are only controlling a single zone of underfloor heating, you are likely to need to switch the underfloor circulation pump directly from the Powered Room Thermostat along with any zone valves or actuators. The Electric Switch can also be used in these situations.
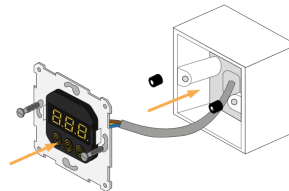
1. The Powered Room Thermostat fits into a standard 1-gang pattress, we recommend approximately 40mm deep.
    a. If you are using a flush mount pattress it should screw in without any problems.
    b. If you are using a surface mount pattress, you may need to use the 2 spacers to bring the Powered Room Thermostat closer to the edge of the pattress.
2. Wire in the Temperature Probe or 10kΩ resistor provided into the 'Floor Sensor' terminals. (If using an existing probe, it must be 10kΩ at 25°C)
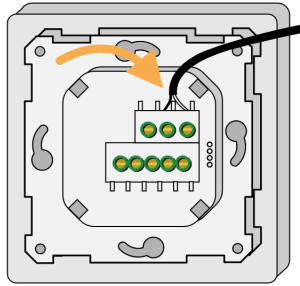
3. Install the pattress into the room the Powered Room Thermostat is going to control.
   a. If using the floor probe, consider how this is going to get out of the pattress and it will be installed into the floor layer/onto the pipework of the wet underfloor.
4. Wire in the mains power and the heating load to the Powered Room Thermostat.
5. To screw the Powered Room Thermostat to the pattress, first remove the screen by pushing a small flat-bladed screwdriver into the flat gap on each side of the screen. This will release the 2 spring clamps, and the screen and frame will become loose.
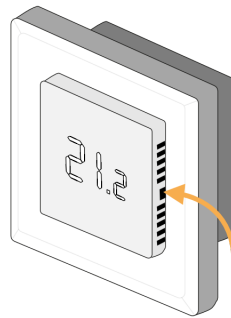
6. Screw the Powered Room Thermostat to the pattress. Due to the cutouts to the side of the screen of the PRT, it can either be screwed directly to the pattress, or the screws can be mostly screwed in first and the Powered Room Thermostat placed over the screwheads and rotated.
   a. See 1.b if using a surface mount pattress, taking care to place the spacers between the device and the pattress.


7. Place the frame on the Powered Room Thermostat and push the screen in place to secure the two parts to the main unit, ensuring the logo is at the bottom-left of the screen.
8. If using the Floor Probe, fit this into the floor layer before powering on the Powered Room Thermostat.

In normal operation there will be no lights when the unit is off and one **red** light to the bottom-right of the display when heating.
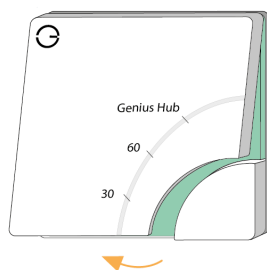
Electric Switch (Switched Live connections, or Single Zone / Underfloor Pump)
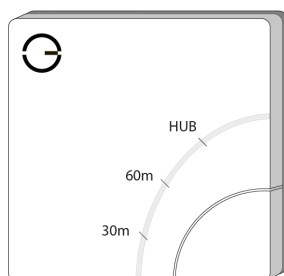
If you are controlling an underfloor heating wiring centre or actuators which are 230v the Electric Switch will be used per zone controlled. If there are any existing controls, such as a thermostat, the wiring to these will need to be removed. The Electric Switch is often wired near the actuators / wiring centre and the Room Sensor or Room Thermostat placed in the room with the underfloor heating.

If you are only controlling a single zone of underfloor heating, you are likely to need to switch the underfloor circulation pump directly from the controller along with any zone valves or actuators. The Powered Room Thermostat be used in these situations.
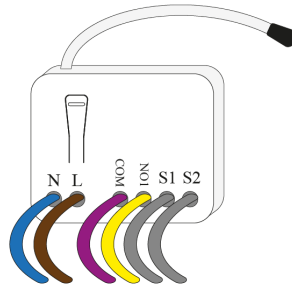
1. Always ensure that the boiler, underfloor heating and wiring for the Electric Switch is electrically isolated before you commence work on any wiring.
2. Break out the relevant section of a 1-gang pattress for the wiring and fix the pattress to the wall. It is recommended that a 40mm pattress is used.
3. Pull through the relevant wiring, allowing plenty of spare.
4. Remove the front cover of the Electric Switch by placing a screwdriver in the slot under the device and levering the cover forwards.

5. Wire in the Electric Switch as per the wiring diagrams provided, checking this is suitable as per the relevant installation manuals.
6. Fit the Electric Switch into the pattress, ensuring there are no trapped wires. Screw in using standard pattress screws (provided), and check the unit is securely and safely attached to the wall.
7. Reattach the front cover, starting at the top.

In normal operation there will be no lights when the unit is not heating and one or more **red** lights near the button when heating.

Electric Relay (Low Voltage/Volt free connections or Switched Live connections)

The Electric Relay can control an underfloor heating wiring centre or actuators which are 12v/24v/230v and will be used per zone controlled. If there are any existing controls, such as a thermostat, the wiring to these will need to be removed. The Electric Relay is often wired near the actuators / wiring centre and the Room Sensor or Room Thermostat placed in the room with the underfloor heating.

1. Always ensure that the boiler, underfloor heating and wiring for the Electric Relay is electrically isolated before you commence work on any wiring.
2. Break out the relevant section of a 1-gang pattress for the wiring and fix the pattress to the wall. It is recommended that a 40mm pattress is used.
3. Pull through the relevant wiring, allowing plenty of spare.
4. Wire in the Electric Relay as per the wiring diagrams provided, checking this is suitable as per the relevant installation manuals.
5. Fit the Electric Relay into the pattress, ensuring there are no trapped wires, fit the blanking plate to the front of the pattress. Screw in using standard pattress screws, and check the unit is securely and safely attached to the wall.
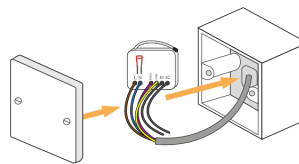
6. Installing the Electric Heating

The Genius system can control a wide variety of electric heating systems, from electric Towel Rails and Infra-Red panels to wall-mounted Convection Heaters.

General Information

The Electric Relay is rated to 11A maximum. The Electric Switch & Smart Plug are rated to 13A maximum. The Powered Room Thermostat is rated to 16A maximum. Devices must not control a more powerful heater, or a number of heaters which together go above this limit.

> ⓘ Standard wiring diagrams are provided with the system. To download a copy of the wiring diagrams, visit: https://www.geniushub.co.uk/wiring
>
> Using the appropriate wiring, as in accordance with BS7671 (or newer if such exists).

> ◆ Do not attempt to wire in any item if you are not 100% sure that you know what you are doing. Danger of electric shock! All wiring should conform to IEE regulations. The Electric Heater and wiring for the controls must be electrically isolated before you commence work on wiring the controls!

> ⚠ None of the devices in this chapter can be used to **directly** control Electric Underfloor heating. Attempting to use any of these to control electric underfloor heating may damage the device, the underfloor heating or the floor itself.

If the electric heating is also being controlled with a Room Sensor or Room Thermostat, any controls on the heater should be set to constant and the highest temperature to ensure that there are no conflicts between the control provided by the Genius Hub system and the built in controls.

If the electric heating is only being controlled by an Electric Switch, Electric Relay or Smart Plug (i.e. on/off control, not temperature control from the app), then disable any timer functions on the heater, but leave any temperature settings enabled.

> ⓘ All devices which control the heating in individual rooms and are purchased as part of a system direct from Genius Hub, such as Electric Switches, Genius Radiator Valves or Room Sensors, are labelled with the room they control and are pre-linked to zones on the app.

Wired-in Electric Heating (Electric Switch)
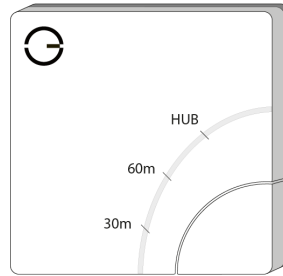
Many Electric Heaters are wired into a Fused Switch Spur, for electrical safety. These can be controlled by the Genius Hub system by fitting the Electric Switch between the wiring of Unswitched Fused Spur and the Electric Heater.
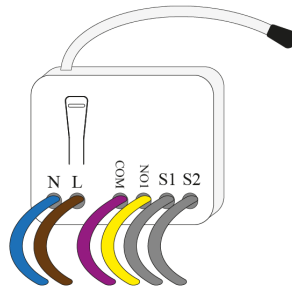
1. Always ensure that the electric heater and wiring for the Electric Switch is electrically isolated before you commence work on any wiring.
2. Break out the relevant section of a 1-gang pattress for the wiring and fix the pattress to the wall. It is recommended that a 40mm pattress is used.
3. Pull through the relevant wiring, allowing plenty of spare.
4. Wire in the Electric Switch as per the wiring diagrams provided, checking this is suitable as per the electric heating installation manual.
5. Remove the front cover of the Electric Switch to expose the screw holes. The cover can be removed by levering a flat bladed screwdriver into the gap underneath the Electric Switch.
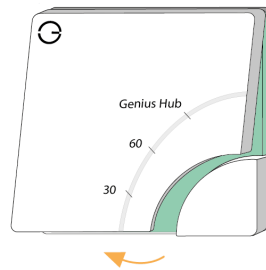
6. Fit the Electric Switch into the pattress, ensuring there are no trapped wires. Screw in using standard pattress screws, and check the unit is securely and safely attached to the wall.

In normal operation there will be no lights when the unit is not heating and one or more **red** lights near the button when heating.
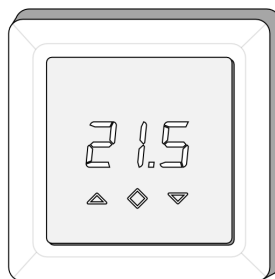
Wired-in Electric Heating (Electric Relay)

Many Electric Heaters are wired into a Fused Switch Spur, for electrical safety. These can be controlled by the Genius Hub system by fitting the Electric Relay between the wiring of Unswitched Fused Spur and the Electric Heater.

1. Always ensure that the electric heater and wiring for the Electric Relay is electrically isolated before you commence work on any wiring.
2. Break out the relevant section of a 1-gang pattress for the wiring and fix the pattress to the wall. It is recommended that a 40mm pattress is used.
3. Pull through the relevant wiring, allowing plenty of spare.
4. Wire in the Electric Relay as per the wiring diagrams provided, checking this is suitable as per the electric heating installation manual.
5. Fit the Electric Relay into the pattress, ensuring there are no trapped wires, fit the blanking plate to the front of the pattress. Screw in using standard pattress screws, and check the unit is securely and safely attached to the wall.

Wired-in Electric Heating (Powered Room Thermostat)

Many Electric Heaters are wired into a Fused Switch Spur, for electrical safety. These can be controlled by the Genius Hub system by fitting the Powered Room Thermostat between the wiring of Unswitched Fused Spur and the Electric Heater.

1. Always ensure that the electric heater and wiring for the Powered Room Thermostat is electrically isolated before you commence work on any wiring.
2. The Powered Room Thermostat fits into a standard 1-gang pattress, we recommend approximately 40mm deep.
    a. If you are using a flush mount pattress it should screw in without any problems.
    b. If you are using a surface mount pattress, you may need to use the 2 spacers to bring the Powered Room Thermostat closer to the edge of the pattress.

3. Wire in the <u>10kΩ resistor</u> into the 'Floor Sensor' terminals.
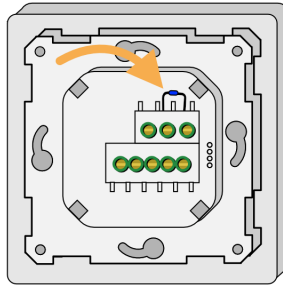
4. Install the pattress into the room the Powered Room Thermostat is going to control.
5. Wire in the mains power and the heating load to the Powered Room Thermostat.
6. To screw the Powered Room Thermostat to the pattress, first remove the screen by pushing a small flat-bladed screwdriver into the flat gap on each side of the screen. This will release the 2 spring clamps, and the screen and frame will become loose.
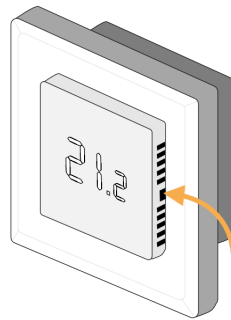
7. Screw the Powered Room Thermostat to the pattress. Due to the cutouts to the side of the screen of the PRT, it can either be screwed directly to the pattress, or the screws can be mostly screwed in first and the Powered Room Thermostat placed over the screwheads and rotated.
    a. See 2.b if using a surface mount pattress, taking case to place the spacers between the device and the pattress.
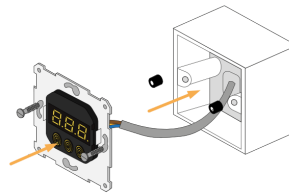
8. Place the frame on the Powered Room Thermostat and push the screen in place to secure the two parts to the main unit, ensuring the logo is at the bottom-left of the screen.

In normal operation there will be no lights when the unit is off (but the temperature will be displayed on the screen) and one **red** light to the bottom-right of the display when heating.

Plug-in Electric Heating
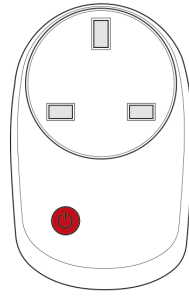
Smart Plugs can be used for 2 different purposes. They can be controlled via the app to switch devices plugged into them, via a schedule like a heating room; and they will boost the signal around the property improving reliability of the system and battery life.

Plug-in heaters which are to be controlled with the Genius system should be plugged into Smart Plugs, which can can used to switch the Electric Heater on and off. Each Smart Plug can control up to 2.4kw of heating.

First plug the Smart Plug into a nearby socket, then plug the heater into the Smart Plug.

7. Installing the Smart Plugs

Smart Plugs can be used for 2 different purposes. They can be controlled via the app to switch devices plugged into them, via a schedule. They will boost the signal around the property improving reliability of the system and battery life.
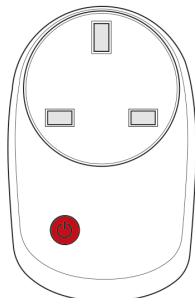
> ⓘ The signal travels in straight lines and the only devices that relay the messages are the Smart Plugs, Electric Switches and the Receiver Units. The signal does not bend or bounce, so when positioning think about how thick the wall is that the signal is going to have to pass through to get back to the Genius Hub. Consider that thick stone or concrete walls may be difficult for the wireless signal to penetrate, so the Smart Plug may need to be positioned in a wall socket, which gives a longer route but through thinner walls.
>
> For the **Genius Radiator Valves**, the Genius Smart Plug (Dual Band) is the only device which relay the messages, and so should be spread throughout the property between the Genius Hub and any Genius Radiator Valves.

If you are using the Smart Plugs to boost the signal, they are often placed in one of 2 configurations:

1. In properties with a larger footprint, Smart Plugs are often placed on the upstairs floor as the walls are generally thinner upstairs and the signal goes through floors easily.
2. In tall & thin properties the Smart Plugs are often placed centrally on each floor. For more information see: https://heatgenius.atlassian.net/wiki/x/YIIu

> ⚠ Do not plug anything into a Smart Plug which needs to remain on all of the time such as a fridge or freezer. The Smart Plugs may intermittently turn off, causing anything that you plug into it to also turn off.
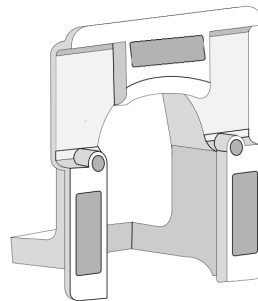
Installing the PlugLock

The PlugLock is used in HMOs and commercial buildings as a tamper-proof option for the Genius Smart Plug.
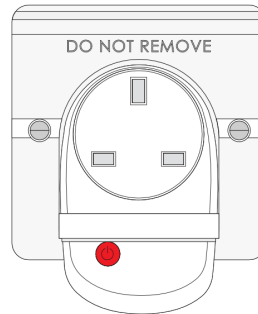
There are 2 ways to install the PlugLock with either the Smart Plug (Single Band) or Smart Plug (Dual Band):

1. *(Preferred)* If the Smart Plug is being installed into a 1-Gang, Unswitched Socket:
    a. Unscrew the pattress screws holding the socket into the pattress.
    b. Install the Smart Plug and fit the PlugLock around the Smart Plug, lining up the PlugLock screw holes with the socket screw holes.
    c. Re-install the pattress screws through both the PlugLock and socket. This will mean that the Smart Plug can now only be removed by unscrewing the pattress screws.
2. If using a 2-Gang or Switched Socket, they will likely not have screw holes which line up with the PlugLock as there is no standard placement for these, and so:

    a. Install the Smart Plug into the socket
    b. Install up to 3 of the adhesive pads provided and fix these onto the flat sections highlighted in grey in the image above. Remove the paper covers from the visible side.
    c. Carefully line up the PlugLock on the Smart Plug, and firmly push the PlugLock onto the socket.

8. Installing the Range Extenders

To produce a reliable wireless mesh network in buildings, Range Extenders are used to repeat the signal from battery powered devices so they are able to communicate with the relevant Genius Hub.
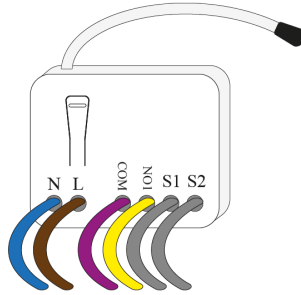
Preparing the Range Extender

Required:
- 1 x Genius Range Extender.
- 1 x 40mm deep Surface Mounted Single Gang Pattress.
- If flush mounting; never use a metal backbox as this will interfere with the signal from the range extender.
- 1 x 3A unswitched Fused Spur with neon.

The Range Extender should be wired into the 'load' of a unswitched, neon fused spur, with a 3A fuse fitted.

> ⬦ Do not attempt to wire in the Range Extender if you are not 100% sure that you know what you are doing. Danger of electric shock! All wiring should conform to IEE regulations. The wiring for the wall socket must be electrically isolated before you commence work on wiring the Range Extender!

Installing the Range Extender

ⓘ The signal travels in straight lines and the only devices that relay the messages are the Range Extenders, Electric Relays, Electric Switches, Smart Plugs and the Receiver Units. The signal does not bend or bounce, so when positioning think about how thick the wall is that the signal is going to have to pass through to get back to the Genius Hub. Consider that thick stone or concrete walls may be difficult for the wireless signal to penetrate, so the Range Extenders may need to be positioned by a wall socket, which gives a longer route but through thinner walls.

Placing the Range Extender on internal stud walls is better than external walls, or high on a wall close to consumer units if there is one per room, or running a new ring main in the loft area above all the rooms should be considered for optimum signal strength.

The Range Extender needs to be fitted inside a plastic pattress which is most easily located next to an existing socket.

1. Remove the existing socket from the wall and pre-drill the wholes for the single gang pattress.
2. Fit the single gang pattress box next to the wall socket.
3. Run the Twin & Earth between the wall socket backbox and the single gang pattress.
4. Make off the connection behind the wall socket and re-fit.
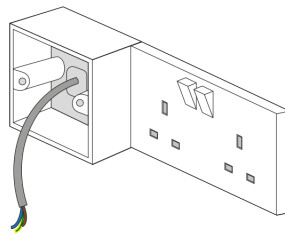
5. Wire the new fused spur into the Twin and Earth taken from the existing socket. Ensure that the cables are not wrapped around the Range Extender or its aerial.
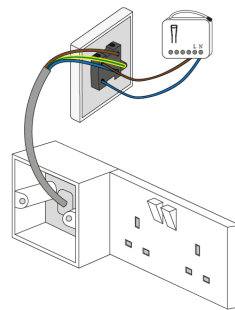
6. Ensuring there are no trapped wires, fit the fused spur using standard pattress screws. Check the unit is securely and safely attached to the wall, with the neon light on when powered.
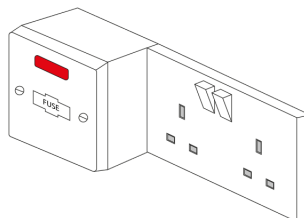
- ☝ Using the appropriate wiring, as in accordance with BS7671 (or newer if such exists).
- For optimum RF communication, fit the Genius Range Extender above floor level, and at least 30cm away from metal objects and appliances such as: boiler, hot water tank, microwave oven, cooker, fridge/freezer, stainless steel sink, TV, set-top box (satellite/cable/Freeview), radio, printer, photocopier or computer (desktop/laptop/tablet).
- Do not fit the unit within 100cm of RF devices, such as cordless phones, mobile phone signal boosters, Wi-Fi signal boosters or Wi-Fi routers. It may be necessary to relocate the unit if problems with communication occur. Mobile phones should not be used or placed in the vicinity of this unit.

9. Installing the Radiator Valves

The Radiator Valves easily replace the majority of existing TRVs to give you the ability to schedule each room independently, without any plumbing being required.
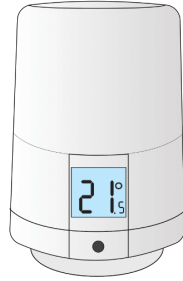

Each Radiator Valve comes with two adapters. The two adapters fit the Radiator Valve onto either an M30x1.5mm thread (the UK standard which fits most brands of TRV) or a Danfoss RA fitting (the adapter with the grub screw). To mount the Radiator Valve:

1. Remove the existing TRV head (this is the part which turns and normally has the number 1-5 on it to regulate the temperature) from the radiator. Usually this requires loosening a nut between the TRV head and the valve body (the part the water flows through). Fasten the new adapter to the TRV body on the radiator. Screw the adapter down onto the TRV body if using the M30 x 1.5mm adapter, or attach the RA adapter & valve onto the radiator & tighten up the grub screw using a 2mm hex (Allen) key. The image below shows the M30 adapter being fitted.
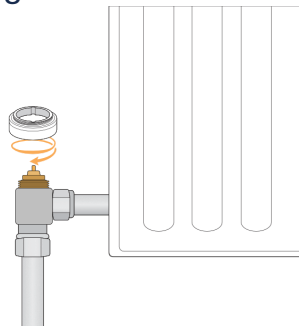

ⓘ If using the Danfoss RA adapter make sure that the grub screw is done up very tight as the adapters can work loose over time, which stops the Radiator Valve being able to shut off the flow of water to the radiator, causing the radiator to heat up when it is supposed to be off.

2. Remove the battery cover by depressing the tab at the back of the valve, and pull the cover up and away from the valve.
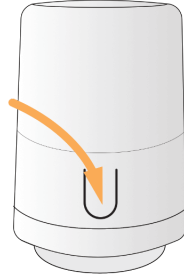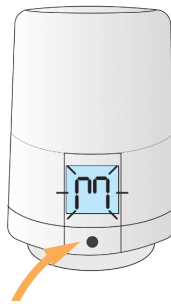

3. Place 2 x AA batteries in the valve, a temperature should appear on the screen.
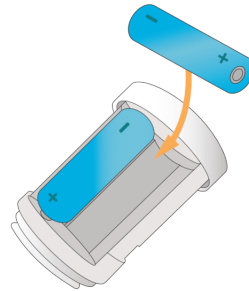
4. Press and hold the button for 3 seconds until an 'M' appears on the screen. The 'M' will begin to flash on the screen, the valve will buzz and the plunger in the underside of the valve will retract. The valve is now in Mount Mode.

> ⚠ The Valve must be in mount mode when being attached to the radiator.

5. Screw the valve down onto the adapter.
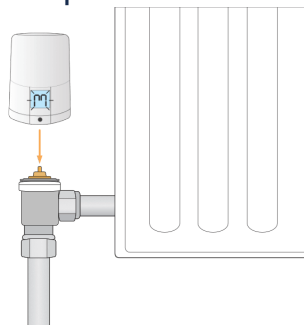
6. Press and hold the button for 3 seconds until the valve starts to buzz and a temperature appears on the screen. This takes the valve out of Mount Mode.

> ⊕ If you want to get the valve as tight as possible onto the valve body, you need to remove the cover to access the button (which is beneath the button you press from the cover). If you press this button on the valve hard while tightening the valve onto the radiator you will be able to get it tighter, reducing the chances of the valve not being able to control the radiator properly.
>
> * Sometimes when you press a button on the valve it can take 30 seconds for the screen to react. This is normal as the valve may be communicating with the Genius Hub at the time.

> ⚠ The Radiator Valve learns the characteristics of the radiator and room for the first couple weeks of heating after installation. This can cause it to be slow to heat up during this period. For more information on this process see: https://docs.geniushub.co.uk/x/T4BoBg
>
> You can stop a valve from learning if you simply press any button on the valve or turning the case whilst it is trying to warm up the room. The valve abandons the learning for that time and will wait until the next time it is called to heat a room before it tries to learn again.
>
> If you put a valve into 'mount mode' again then it will starting the learning process again.

10. Installing the Room Sensors

The Room Sensors report a more accurate temperature to the app as they are installed at chest height and away from heat sources. They can also detect motion in the property to give you access to Sense and Footprint Mode for each zone.

1. Remove the battery tab from the back of the Room Sensor. Lightly tap the end of the Room Sensor on a hard surface, to ensure that the battery is correctly seated against the contacts inside the Room Sensor.
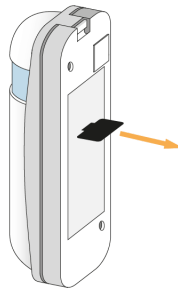
2. Fix the Room Sensor temporarily to the wall using the **thick black sticky pad**, for the first two weeks. Once the customer is happy with the position they can use the long thin sticky pads provided to stick it to the wall. Alternatively the customer can use the screws provided to fix the Room Sensor to the wall when the final position is decided.
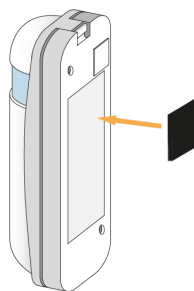
3. The golden rules for positioning a Room Sensor are:
   a. **Internal Wall** - To stop the Room Sensor from under reading from being on a cold surface.
   b. **Out of Direct Sunlight** - Consider if the sun was shining through the window, would the Room Sensor be in direct sunlight & therefore affecting the temperature it reports.

c. **Chest Height** - The field of vision is 175º left to right and 40º up and down. Position 1.5m from the ground to give the best view and accurate temperature (not the ceiling temperature).
d. **Facing The Occupants Of The Room** - In rooms when people are sitting (e.g. lounges, bedrooms and offices) make sure the sensors are facing the front of the occupants so the sensor can see any movement in the room.

ⓘ Often the best position for a room sensors in on an internal wall and next to a light switch.

11. Installing the Motion Sensors

The Motion Sensors report when movement is detected in a room, providing access to Sense and Footprint Mode in the app and allowing the heating to only heat when a room is in use.
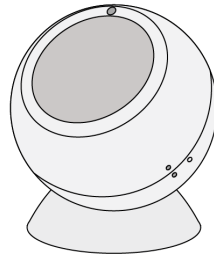

1. First fit the round, concave mount to the surface you want to attach the Motion Sensor to, as the Motion Sensor can be rotated on the mount, it can be placed on nearly any flat surface including walls and ceilings. As the Motion Sensor does not measure the temperature, it can be placed at any height and it does not matter if it is near a heat source in the room.
   a. If the surface is magnetic, the mount can attach directly to it.
   b. If you don't want the mount to be moved in the future, use the white adhesive pad provided to attach the mount to the surface.
   c. If you want the mount to be removable in the future, use the white adhesive pad provided to attach the metal plate to the surface.
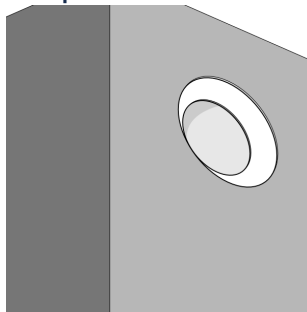

2. Open the Motion Sensor by twisting the 2 halves until the solid and hollow dots line up, then pull the back off the Motion Sensor.
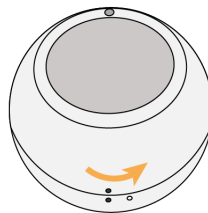
3. Pull out the battery tab, then replace the back cover with the hollow dot and solid dots lining up. Twist the back cover until the 2 solid dots line up once again.
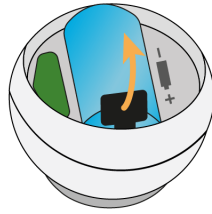
4. Place the Motion Sensor on the mount. The 2 parts fasten together via magnetism allowing you to rotate the Motion Sensor to face the part of the room people are going to occupy.
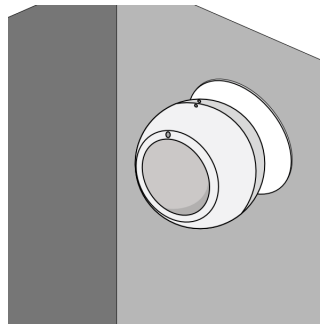
ⓘ Remember to leave the pack of fixings behind with the customer in case they want to move the Motion Sensor at a later date.

12. Testing the Heating

There are up to 3 tests which should be carried out to test that the Genius Hub system has been installed correctly.

Valve Seating Test

This tests that the Genius Radiator Valves have been mounted correctly
1. On the app, override one zone to 28°C for 1 hour. Ideally choose a room that has only 1 Radiator Valve.
    a. Click on the zone to override.
    b. Change the mode icon at the top-right to the Override symbol (3 arrows).
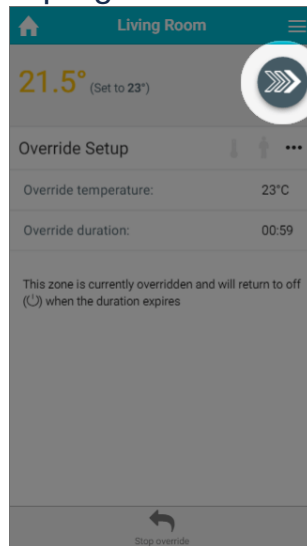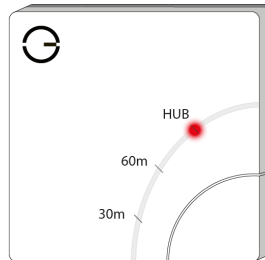

    c. Ensure the override temperature is 28°C and the override duration should be 1 hour.
2. Check that the Receiver Unit is active:
    a. A Single Channel Receiver shows a **green** light.
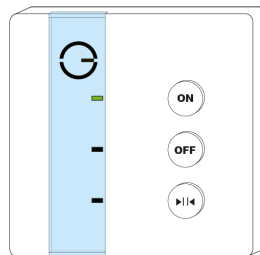
b. Hold down the Heating button on the the Dual Channel Receiver (the light at the top-left with turn **green** for 2 seconds).
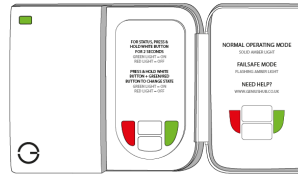
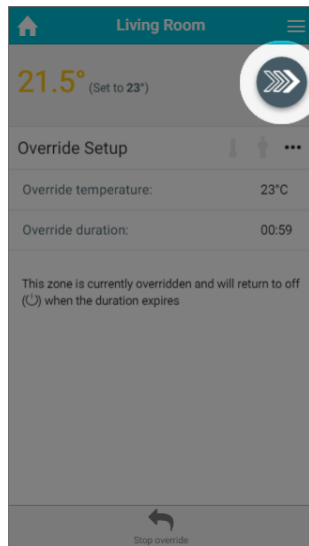c. An Electric Switch shows a **red** light next to 'HUB'.

3. Check the boiler fires as normal and the correct zone valve has opened or pump has come on.
4. Check that the central heating pipe from the zone valve, pump or boiler gets hot.
5. **Wait 10 minutes!**
6. Now check the radiator in & out pipes and that each radiator is **cold** not **hot!** (Except for the overridden zone).

> ⓘ This confirms all the valves are properly seated on the radiators, and they can turn the radiators off

Underfloor & Electric Heating Test

This tests that the wired devices such as Receiver Units and Electric Switches have been wired correctly.
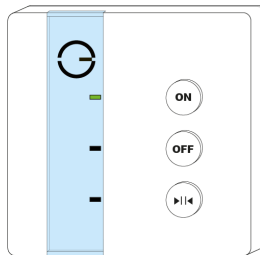
1. On the app, override one zone at a time to 28°C for 1 hour.
   a. Click on the zone to override.
   b. Change the mode icon at the top-right to the Override symbol (3 arrows).
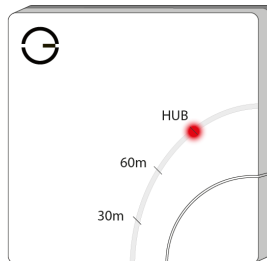
c. Ensure the override temperature is 28°C and the override duration should be 1 hour.
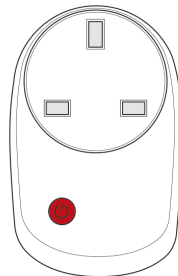
2. Check that the wired device is active:

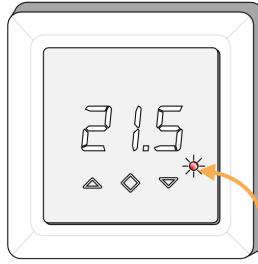a. A Single Channel Receiver shows a **green** light.

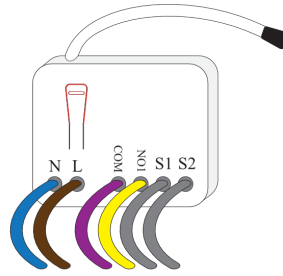b. An Electric Switch shows a **red** light next to 'HUB'.

c. A Smart Plug shows a **red** light above the socket.

d. A Powered Room Thermostat shows a **red** light to the bottom right of the display.

e. An Electric Relay shows a **red** light behind the button on the device. You will need to remove the blanking front plate to see this.

3. For wet underfloor heating, check the boiler fires as normal and the correct zone valve has opened or pump has come on.
   a. Check that the central heating pipe from the zone valve, pump or boiler gets hot.
   b. **Wait 30 minutes!**
   c. Now check the floor nearest the in & out pipes and see if it is getting warm. The other rooms, not overridden yet should remain **cold**.
4. For electric underfloor heating:
   a. **Wait 15 minutes!**
   b. Now check the floor to see if it is getting warm.
5. For electric space heating check:
   a. **Wait 5 minutes!**
   b. Now check that the heater has began to warm up. The other rooms, not overridden yet should remain **cold**.
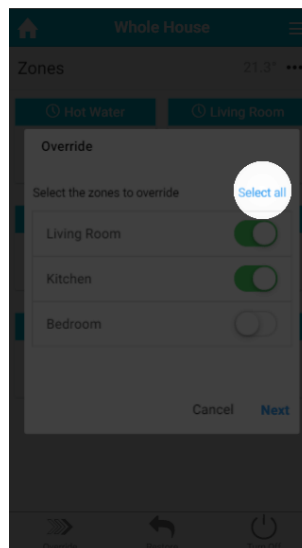
The Communication Test

This tests that the Genius Radiator Valves can communicate with the Hub

1. Override all of the heating zones to 28°C.
   a. Click on the 'My House' icon at the top left.
   b. Tap 'Override' at the bottom of the screen.
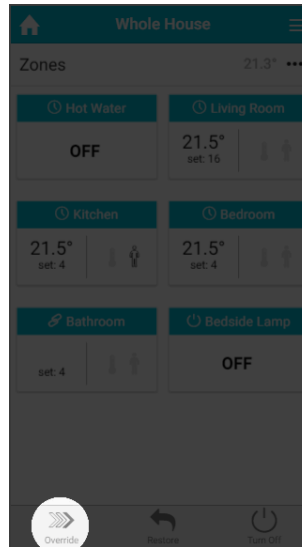
   c. Choose 'Select all'.

   d. Ensure the override temperature is 28°C and the override duration should be 1 hour.
2. Check all the rooms receive the new set point temperature on the app. Each zone will have 'Set: 28'.
3. **You must wait 10 minutes!**
4. All of the valves will wake up on their own and get the message to go to 28ºC.
5. Make sure the radiator valves have received the message by pressing any of the three buttons to light up the screen. Each valve should read the Override temperature, i.e. 28ºC.

- This confirms all of the valves have good communication with the Genius Hub.
- The radiators **do not** need to warm up. The valves can take up to 30 minutes to react when newly installed as they learn how far the pin needs to be opened.

The Hot Water Test

This tests that the Hot Water has been wired correctly

⚠ Only complete if hot water control is installed

1. Override the Hot Water on the app for 1 hour.
    - a. Click on the hot water zone on the app.
    - b. Change the mode icon at the top-right to the Override symbol (3 arrows).
        - i. If the hot water is an On/Off zone, select the override setting as **ON.**
        - ii. If the hot water is a temperature zone, select a much temperature higher than the current measured temperature.
    - c. Ensure the duration is 1 hour.
2. Check the relay on dual/single channel receiver is active.
    - a. A Single Channel Receiver shows a **green** light.
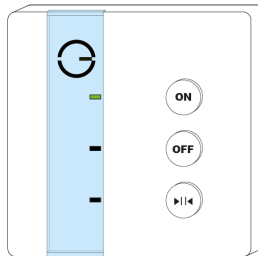
    - b. Hold down the Hot Water button on the the Dual Channel Receiver (the light at the top-left with turn **green** for 2 seconds).

    - c. An Electric Switch shows a **red** light next to 'HUB'.
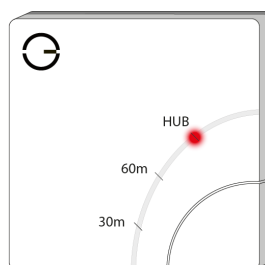
3. Check the boiler fires as normal and the correct zone valve has opened or pump is running.

- This confirms the Genius Hub has control over the hot water.
- If the boiler does not fire, the Cylinder Stat may be stopping the boiler as the Hot Water tank is already up to temperature. To test this increase the cylinder stat temperature temporarily, to check the zone valve opens and boiler fires. The cylinder stat must be returned to what is appropriate for the property after the test has been completed.

13. Legal Information & Datasheet

This product complies with the requirements of European Directives 2006/95/EC, 2004/108/EC and 1999/5/EC.

Europe - EU Declaration of Conformity

A copy of the EU Declaration of Conformity is available by request from Heat Genius at Heat Genius Ltd, 41 Hylton Street, Birmingham, B18 6HJ.
Email: support@geniushub.co.uk

UK - Declaration of Conformity
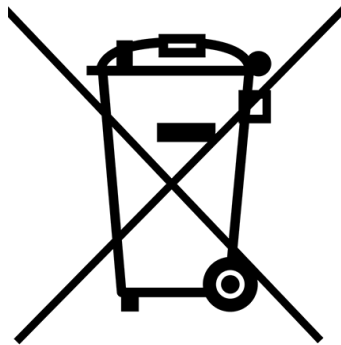

A copy of the UK Declaration of Conformity is available by request from Heat Genius at Heat Genius Ltd, 41 Hylton Street, Birmingham, B18 6HJ. Email: support@geniushub.co.uk

European Union - Disposal Information

The symbol above means that according to local laws and regulations your product should be disposed of separately from household waste. When this product reaches

its end of life, take it to a collection point designated by local authorities. Some collection points accept products for free. The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

An important note

Please read this document carefully as well as the accompanying safety material provided before you use the Genius Hub.

You can find out more about the product and information about installation by visiting our website at: www.geniushub.co.uk

Your Genius Hub comes with 90 days of technical support and a 2-year manufacturers warranty on manufacturing defects.

If you have any problems with this product please do not hesitate to contact us through details on the website or submit a Bug Report from the app.

Heat Genius Ltd, 41 Hylton Street, Birmingham, B18 6HJ.
Email: support@geniushub.co.uk
Website: www.geniushub.co.uk

Datasheet

> ⓘ Full specifications can be downloaded from: https://www.geniushub.co.uk/wiring

Operating Environment: Operating the Genius Devices outside these ranges may affect performance:

- Transmission Frequency: 868.42 (EU) MHz *(unless otherwise stated)*
- Relative humidity: 10% to 85% (noncondensing)
- Operating altitude: 0 to 3048 meters (0 to 10,000 feet)
- Indoor User Only
- RoHS Compliant

Genius Hub specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- USB Line Voltage: 5V DC, Current: 2A Max. (10W)
- Regulation: EN 55022:2010 + AC:2011, EN 55024:2010, EN 61000-3-2:2006+A2:2009, EN 61000-3-3:2013

Communications Adapter specifications:

- Connection: 5V DC (USB)
- Transmission Frequency: 2.4 GHz
- Enclosure Protection: IP20
- Regulation: SiLabs EFR32MG1 chip, IEEE 802.15.4

Single Channel Receiver specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- Contact Type: Micro disconnection voltage free
- Contact Rating: 3 (1) A 230V AC Max.
- Rated impulse voltage: CAT 2 - 2500V
- Enclosure Protection: IP30
- Regulation: EMC 2004/108/EC, R&TTE 1999/5/EC, LDV 2006/95/EC

Dual Channel Receiver specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- Contact Rating: 3 (1) A 230V AC Max.
- Rated impulse voltage: CAT 2 - 2500V
- Enclosure Protection: IP30
- Regulation: EMC 2004/108/EC, R&TTE 1999/5/EC, LDV 2006/95/EC

Electric Switch specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- Resistive Load: 13A (3000W)
- Inductive Load: 3A (750W)
- Contact Type: Micro disconnection
- Rated impulse voltage: CAT 2 - 2500V
- Enclosure Protection: IP30
- Regulation: EN 60730-2-7, CE, R&TTE, ETSI EN 300 220-2, ETSI EN 301 489-3

Smart Plug specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- Transmission Frequency: 2.4GHz & 868.42 (EU) MHz
- Resistive Load: 13A (3000W)
- Incandescent Load: 6A (1500W)
- Fluorescent Load: 1A (320W)
- Load Return Error Rate 5W~40W:±3W
- Load Return Error Rate 40W~3150W:±5%
- Overload: 3300W
- Regulation: LVDEN 61058, R&TTEEN 301489, EN 300200

Wireless Thermostat specifications:

- Power Supply: 3 x AA alkaline batteries
- Temperature Range 5°C - 30°C
- Enclosure Protection: IP21
- Regulation: EN 62479:2010, EN 62368-1:2014+A11:2017

Radiator Valve specifications:

- Power Supply: 2 x AA alkaline batteries
- Transmission Frequency: 2.4GHz
- Maximum Water Temperature: 90°C
- Noise Level: <30 dBA
- Max Spindle Movement: 2mm
- Enclosure Protection: IP20

Room Sensor specifications:

- Power Supply: CR123A lithium battery (1500mAh)
- Range: Front = 10m, +/- 45° = 8m
- Regulation: EN60950-1:2006, A11:2009, FCC part 15.249, EN300 220-1

Motion Sensor specifications:

- Power Supply: CR123A lithium battery (1500mAh)
- Detection Range: Front = 10m, +/- 45° = 6m
- Regulation: EN60950-1:2006, A11:2009, FCC part 15.249, EN300 220-1

Electric Relay specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- Contact Type: Micro disconnection
- Resistive Load: 11A (2400W)
- Regulation: FCC part15.249, EN 300 220-1, NCC

Powered Room Thermostat specifications:

- Line Voltage & Frequency: 230V AC, 50-60Hz, single phase
- Contact Type: Micro disconnection
- Resistive Load: 16A (3600W)
- Inductive Load: 3A (750W)
- Enclosure Protection: IP21