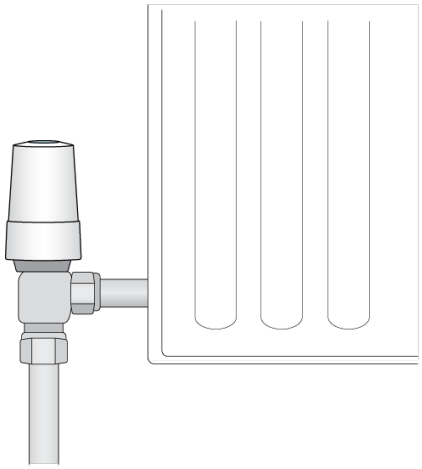
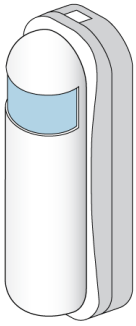
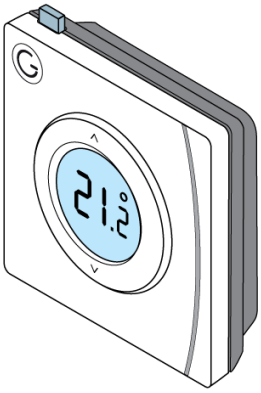
Genius Radiator Valve controlling the temperature with a Genius Room Sensor



The Genius Radiator Valve is allowed to control the temperature of the room because it measures the temperature locally to it and is very good at maintaining an accurate and stable temperature in the room. The reason for not letting the Genius Room Thermostat or Genius Room Sensor do this fine control and the minute-per-minute control of the temperature and plunger position of the valve is battery life. To maintain a steady temperature in a room the valve needs to measure the temperature every minute, and then adjust its valve position accordingly using TPI (temperature proportional integral) control. It does this by measuring the temperature of the water as well as the air temperature locally to it. If every time it had to do this it also needed to communicate with another device in the room to get that temperature, then the battery life of the Genius Radiator Valve would be seriously depleted, or the temperature fluctuations of the room would be considered large if we reduced the temperature sample rate of the valve.





- If the room is reported to go above the target temperature (because the Genius Room Sensor or Genius Room Thermostat has sensed this for the room) then the room will turn blue on the app and the Genius App will stop that room calling for heat from the boiler. This is because the app is now trying to shut off the room as it has over heated.

The valves measure the temperature of the room and they have two temperature probes built into them. One which measures the temperature of the water (against the pin of the valve) and another temperature sensor measuring the air temperature behind the screen. This means that they are very good at interpreting the change in temperature in the room, as the valve recognises how it is being affected being next to a hot source. Because in some cases valves are behind large pieces of furniture or a heavy curtain, for example, we only report the temperature from the Genius Room Sensor in rooms that have both, as this is placed at chest height in the room and is a much more accurate representation of the room temperature.

For rooms with more than one radiator, the independence of the valves is a very good thing, because if one end of a large room is colder than the other, then the valves will work harder to heat the cold end of the room but will throttle back the warm end of the room. However, if the global temperature of the room were to over heat then the room on the app would be shut off because the Room Sensor would pick up the global temperature for this room having gone above the target temperature.

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