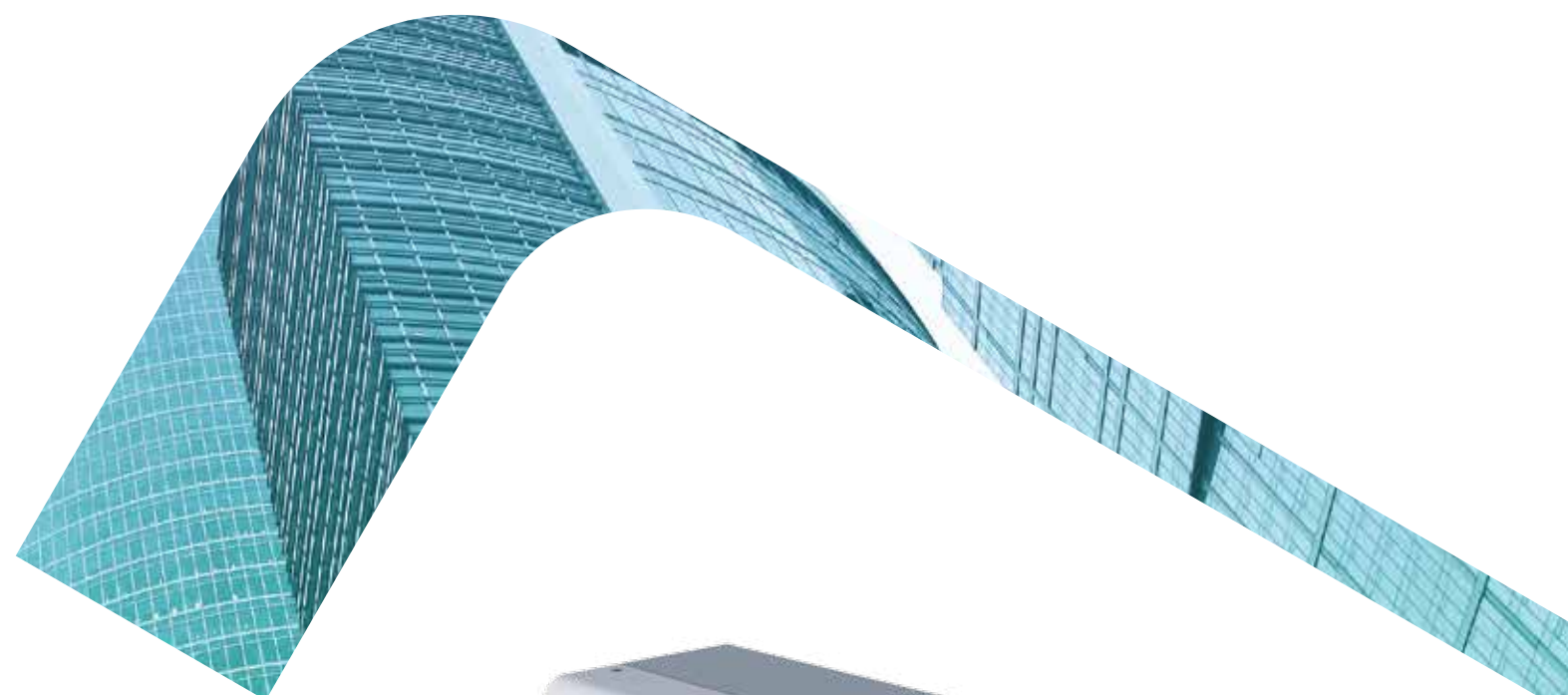


## M1G Direct Fired Hot Water Control



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## M1G direct fired hot water control technology. Typically reducing energy costs and carbon emissions by 10%

### M1G

M1G is a patented intelligent controller for Direct Fired Hot Water Heaters supplied and manufactured by Sabien Technology.

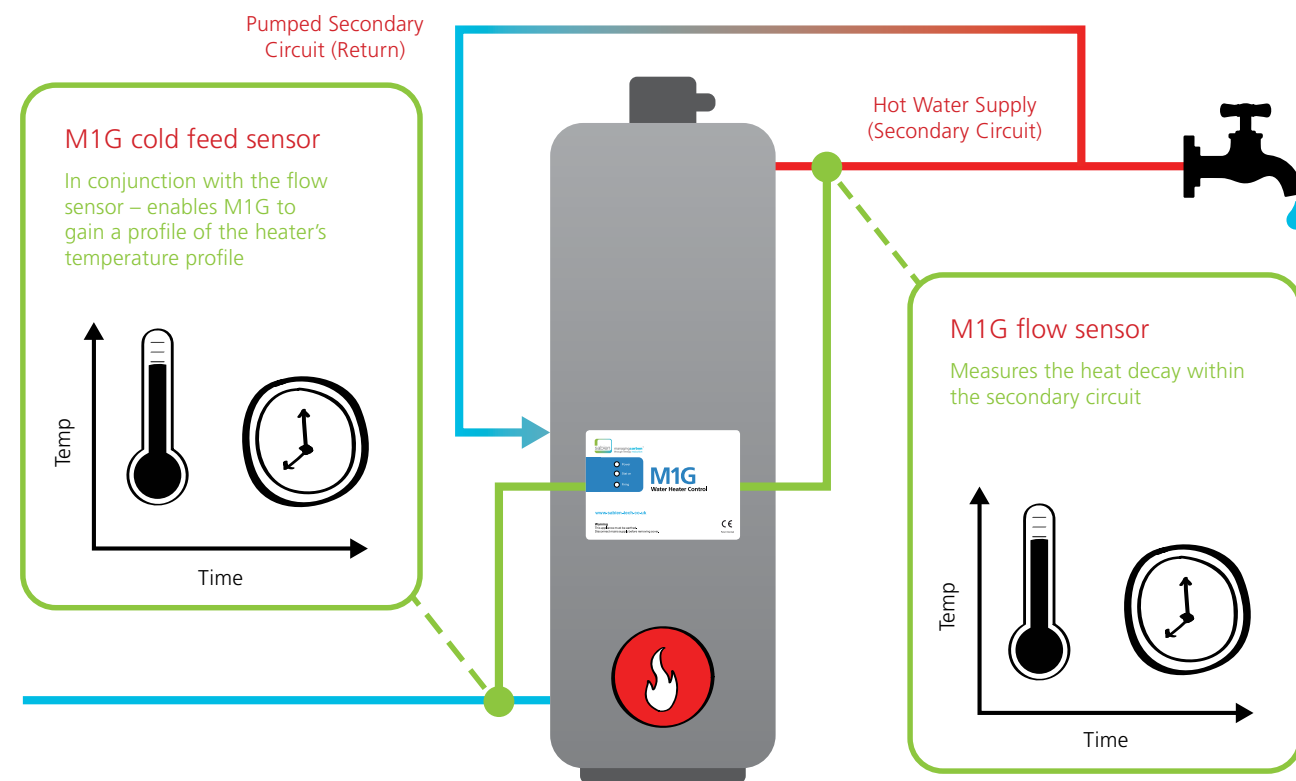
M1G detects when the Water Heater has a real demand to meet or whether the Water Heater is Short Cycling by taking temperature measurements every second of the Hot Water Supply (Secondary Circuit) – the hot water leaving the Water Heater to the taps or point of use and cold water supply to the Water Heater - and analyses this data every 10 seconds.

A gradual decrease of temperature in the hot water supply is recognised by the M1G as 'standing losses' and therefore it prevents the Water Heater from firing unnecessarily i.e. 'short cycling'.

If there is a sharp decrease, i.e. the temperature of the Hot Water Supply drops rapidly, the M1G instantly recognises this as a real demand for hot water and allows the Water Heater to fire.

Specifically designed for all standard direct fired Hot Water Heaters, M1G can be retro-fitted to individual Hot Water Heater and seamlessly integrates with existing building management systems (BMS). M1G does not alter the set point of the Water Heater or the stored water temperatures.

### Measuring temperature in real time



### What is short cycling?

Whatever the size and age of the Direct Fired Hot Water Heater, heat will be lost through the heaters casing and secondary pumped circuit i.e. hot water supply. This is known as 'standing losses'.

Furthermore, the majority of Direct Fired Hot Water Heaters are single stage fired with an input heating capacity far in excess of what is normally required in order to cope with the current "standing losses".

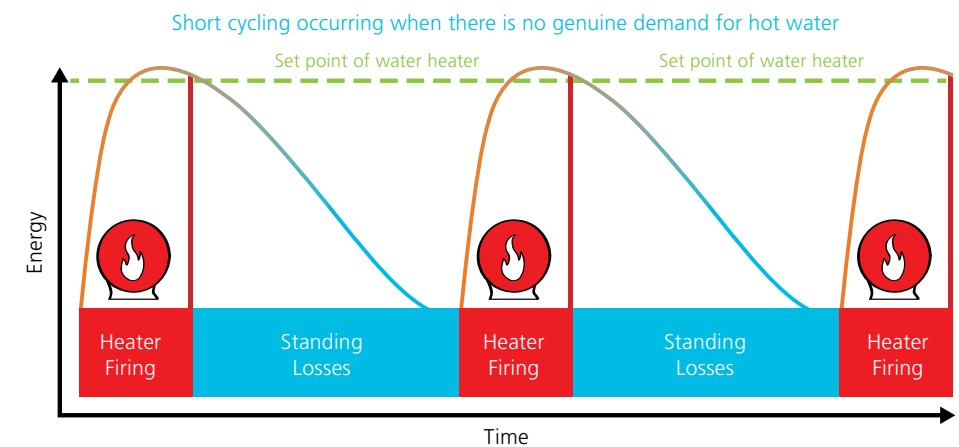
Direct Fired Hot Water Heaters fire to heat the water to 55°C to 60°C. Once reached, the Hot Water Heaters thermostat signals to the Water Heater that the required temperature has been reached and the Water Heater stops firing.

With the Water Heater now in standby, heat in within the heater and secondary circuits starts to cool the stored water temperature due to standing losses and as they cool the Water Heater re-fires and reaches temperature very quickly and cools down slowly The Water Heater can fire unnecessarily just to replace the standing losses, rather than genuine demand for hot water.

This is 'short cycling' and it increases an organisation's energy costs and carbon emissions unnecessarily.

### Example of short cycling

- ❑ The minimum firing capacity (kW) of the heater exceeds the amount of heat lost
- ❑ As consequence the heater reaches temperature very quickly and cools down slowly
- ❑ This is short cycling – which repeats itself, therefore wasting energy and money



The good news is that it can now be eradicated with M1G

Site	Avg. % saving	kWh Capacity	Payback (Years)
Primary School	12%	140 kW	3.1
Junior School	6%	74 kW	1.4
Primary School 2	10%	74 kW	4.4
Commercial Office	7%	426 kW	1.4
Hotel	12%	188 kW	1.6

Please get in touch today

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