

intelligent Boiler Energy Management System

Flexible. Intelligent. **Effective.** Simple.

Intelligent Energy Savings

of up to 20%



In a typical application, boilers will lose heat to their surroundings, regardless of the fuel source or existing controls.

By adding our intelligent monitoring system this inefficiency can be mitigated.

Typically, 2% of the heat generated is lost through the boiler casing and around another 18% can be lost through the flue, although these figures can be even higher if the boiler has been significantly oversized at design stage.

These losses are known as 'standing losses' and can therefore be responsible for over 20% of the energy consumed being lost to the atmosphere. As this heat is lost, the boiler will fire to compensate for the reduction in its own core temperature, regardless of whether or not there is a genuine heating demand. Failure to address this inherent inefficiency will often result in this cycle repeating over and over, wasting energy and diminishing the life of the boiler by running it unnecessarily. This cycle is known as 'short' or 'dry cycling'.

The Apex intelligent Boiler Energy Management Systems have been designed to mitigate dry cycling and compliment existing controls with minimal capital outlay to achieve a rapid return on investment.

Our patented* iBEMS unit constantly monitors system flow and return temperatures without relying on fixed values and the intelligent algorithms automatically manage and optimise boiler run hours to suit the specific application. Our unique system assurance protocol (SAP) ensures that genuine heating demands are recognised and savings are maximised without compromising comfort levels.

Installation is simple; our fully trained integrators can retrofit iBEMS, typically, in under an hour, which includes commissioning. The Apex intelligent iBEMS unit can be mounted adjacent or close coupled to the boiler and our plug and play mains, control and temperature sensors assist in reducing installation time.

* Patent pending.



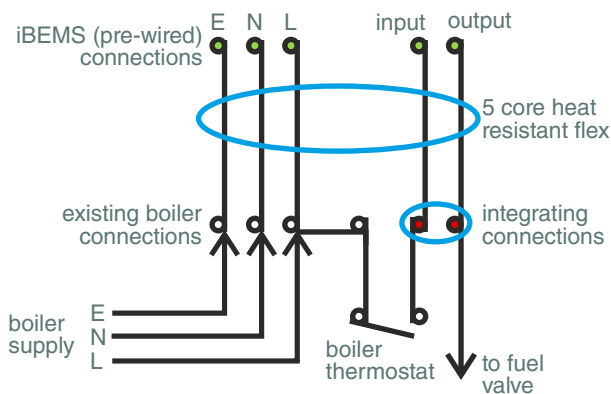
BENEFITS

- ▶ Typical energy savings of 10 – 20% on atmospheric & forced draft boilers.
- ▶ No conflict with existing BMS & HVAC controls.
- ▶ Intelligent algorithms to match boiler loads and maximise efficiency.
- ▶ Typical return on investment 4 months to 2 years.
- ▶ Designed for gas, oil & LPG boilers output: $\geq 30\text{KW}/100,000\text{BTU}$.
- ▶ Targets & mitigates 'short' or 'dry cycling'.

Technical Data

- ▶ **Mains power voltage: 230V**
- ▶ **Boiler control voltage: See product matrix below.**
- ▶ **Current rating: 1 Amp**
- ▶ **Ingress protection: IP54**
- ▶ **Temperature sensor resolution: 0.1°C**
- ▶ **ROHS & CE Compliant.**

iBEMS integration wiring schematic



Individual boiler connections should always be verified by a competent Engineer.

fig. 1

Illustration of iBEMS integration

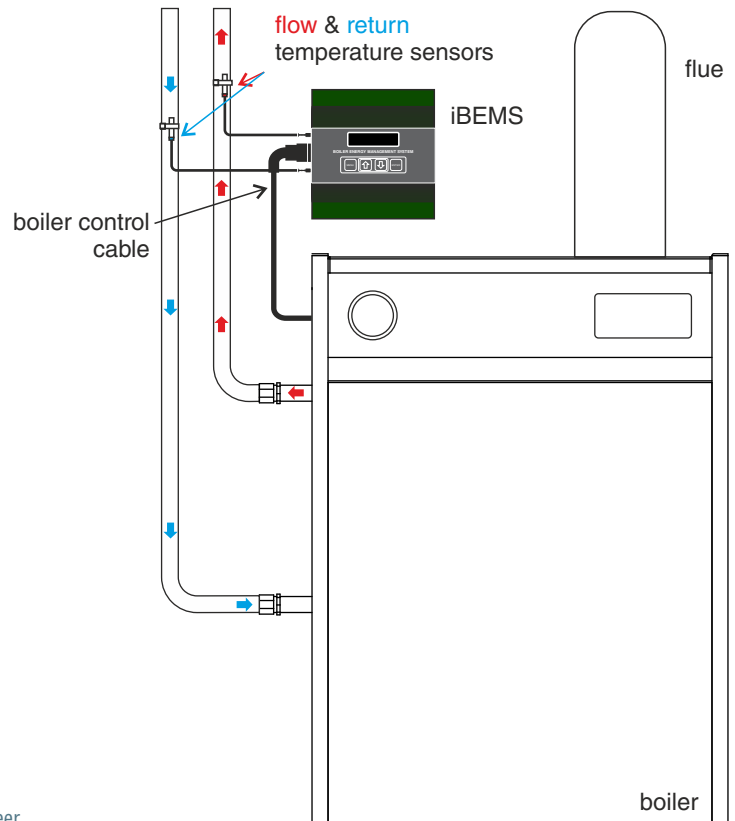
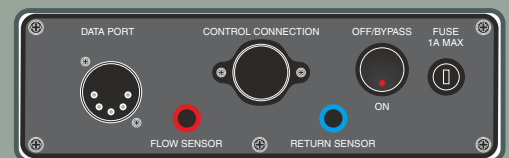


fig. 2

Electrical connections consist of a permanent supply (L,N&E) emanating from the boiler circuit. The 'input' & 'output' control cables effectively divert the switch wire between the boiler thermostat and the fuel valve via the iBEMS unit. These connections are illustrated in Figure 1.

Figure 2 illustrates the integration of the iBEMS controller and sensors in relation to the existing boiler plant. Pre-wired plug & play temperature sensors are colour coded indicating flow & return connections, as detailed in figure 3.

iBEMS port layout



Dimensions: 165 x 170 x 54 mm (h x w x d)

fig. 3

Typical Applications

- ▶ **Nursing homes & sheltered housing.**
- ▶ **Public houses & restaurants.**
- ▶ **Hotels & guest houses.**
- ▶ **Office & commercial premises.**
- ▶ **Retail & industrial applications.**
- ▶ **Hospitals & schools.**
- ▶ **Public buildings & leisure centres.**

Are your boilers compatible?

To identify how much you can save with iBEMS, please forward us a list of your boilers including site reference, make, model, KW output and approximate age and we can arrange a no obligation desktop analysis.

Alternatively contact us at iBEMS@apexwiringsolutions.co.uk and we will be happy to assist you.

Guaranteed

The iBEMS unit is maintenance free and covered by our 5 year warranty.

Additional Features:

- ▶ **Engineers access for bespoke integration**
- ▶ **LCD screen indicating mode, status, percentage savings and flow & return system temperatures.**
- ▶ **Bypass switch for Service Engineer.**
- ▶ **Facility to select bespoke flow and return temperature limits.**
- ▶ **Hard anodised aluminium enclosure.**

Model Number	Boiler Control Voltage
iBEMS-C-101	230v AC
iBEMS-C-201	12 - 24v AC
iBEMS-C-301	12 - 24v DC

Sensor lead assemblies are available in 2.5m and 5m variants with the 5 core power/control lead available as a 2m connection cable or as a kit of parts for fabrication on site.

Distributor:

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