

Flue Gas Monitoring System Datasheet

The system is designed for the continuous measurement of oxygen, carbon dioxide and temperature of flue gases on industrial and commercial boilers. It is suitable for use on boilers in:

- Hospitals
- Schools
- Factories
- Prisons
- Government buildings

The advantage the fixed system has over periodical checks with portable instruments, is that any change that may affect the safe and economical use of fossil fuelled boiler plant can immediately be detected and remedial action taken, without a period of time elapsing before the service engineer is next due.

The outputs from the sensors are monitored by the BMS, (building management system) and alarm parameters can be set to meet the boiler manufacturer's recommendations.



A sample extraction and condensate removal system ensures a clean dry sample of flue gas is extracted from the boiler flue via the stainless steel tube which has the function of heat exchanger to condense the flue gas water vapour content to globules of water the coalescing filter can separate and the time controlled condensate pump can discharge from the cabinet to drain via the tundishes.

The interface to the BMS also allows a signal to be read to say the sample is valid and the system is not in its drain mode.

In the drain mode which occurs once every hour and lasts for 10 seconds, the sample pump supply is cut off and the condensate pump is activated for the 10 seconds. Water that may have collected in the coalescing filter housing is then extracted by the condensate pump.

The oxygen detector is an electro-chemical fuel cell with on board electronics to drive a 2 wire 4-20mA loop the power supply is loop powered with the range 18 – 30v dc but nominally 24 V dc. The range is 0 – 25% oxygen by volume.

The carbon dioxide detector is an infra-red device with on board electronics to drive a 3 wire 4-20mA loop the power supply is loop powered with the range 18 – 30v dc but nominally 24 v dc. The range is 0 – 30% carbon dioxide by volume.

The service interval for the system and gas detectors is one year from the commissioning date.

The oxygen sensor is changed annually and recalibrated using 5% O₂ in N₂ to give a signal to the BMS of 7.2mA ± 10%.

The carbon dioxide sensor is serviced annually with the in-line filter changed and recalibrated using 5% CO₂ in Air to give a signal to the BMS of 6.6mA ± 10%.

Key features include:

- Designed for continuous operation on commercial and industrial boilers, some fuels may require additional sample conditioning equipment.
- Interfaces to Building Management Systems (BMS)

Applications include:

- Low pressure and medium pressure hot water boilers
- Biomass boilers
- Steam boilers
- Thermal fluid boilers
- Process systems



Specification

Material:	Sheet Steel
IP Rating:	IP 55
Colour:	RAL 7035 Pale Grey
Size:	50cm high x 40cm wide x 17cm from wall
Current rating:	Fused at 2 amp
Voltage:	230 V ac standard 110V ac option
CO ₂ Sensor:	NDIR range 0-30% ~ 4-20mA transmitter
O ₂ Sensor:	Electro-chemical range ~ 0-25% 4-20mA transmitter
Temperature:	K Type thermocouple range ~ 0-500° C 4-20mA in head transmitter
Sample pump:	Twin head diaphragm pump
Sample pipe:	6mm od x 4mm id 316L stainless steel
Connections required in flue:	2 off 3/8" bsp sockets, 300mm from exit on boiler

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