



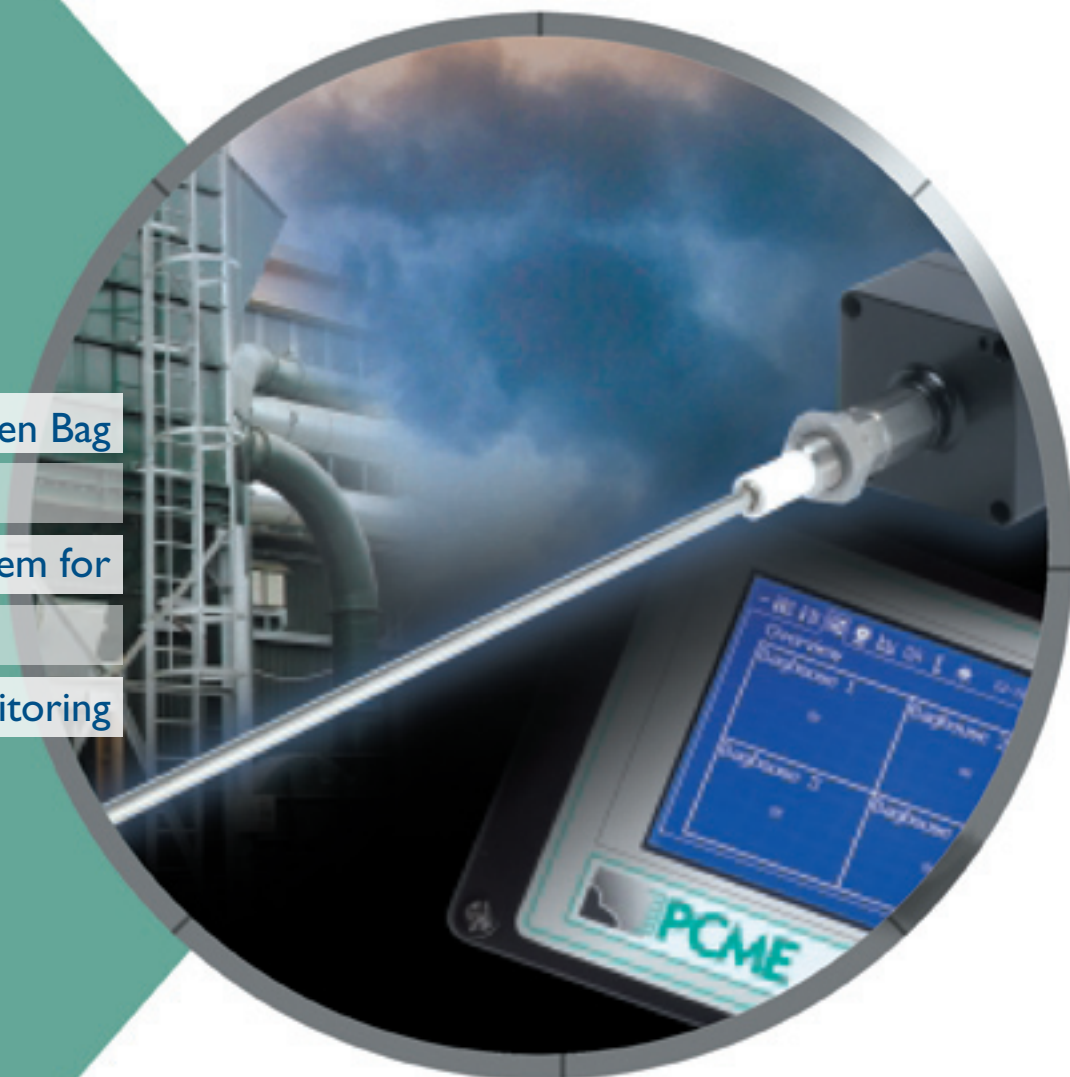
# Particulate Monitoring Systems

Dust Monitoring System for Broken Bag  
Detection and Filter Maintenance

BBS220 Broken Bag

System for

Baghouse Failure Monitoring



Certificate No: 9389

- Filter failure detection with multichannel and multicompartment baghouse capability
- Up to 64 monitoring points on network
- Alarm status overview displaying condition of bag emission outlet or bag compartment
- Bargraphs show status in respect to alarm levels
- PC overview of system status with alarm conditions\*

For continuous measurement in  $\text{mg}/\text{m}^3$  or trends, please refer to DT990 datasheet  
\*using optional 'DustReporter2' software

## Baghouse Monitoring System

The BBS220 Bagfilter monitoring system is suitable for filter failure detection in single or multicompartment filter systems. The functionality of baghouse filters can be controlled and maintained to operate at optimum levels. Having the capability to identify the bagfilter or compartment in which the suspect fabric filter is fitted, down time and costs for replacing non-faulty bags are significantly reduced. Over time, analysis of the baghouse functionality and filter deterioration can be assessed such that maintenance can be scheduled for natural shutdowns or when the process is least affected. In addition, from a regulatory perspective, prediction of faulty fabric filters can mean few or no excursions over emissions levels.

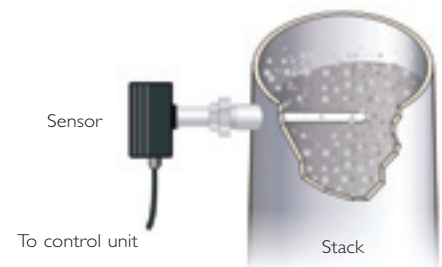
- Detects and identifies the specific bagfilter or compartment with broken bags
- Permits comparison of filter conditions on multiple outlets
- Identification of suspect filter and indication of severity of problem minimises downtime and reduces costs
- Effective predictive maintenance capability by overseeing and predicting problems before they occur
- Assists in maintenance scheduling both for rework and in budgeting for replacement parts
- Provides accurate records for regulatory purposes



Multi-compartment baghouse with a number of 220 sensors installed in compartment outlets

## Principles of Operation

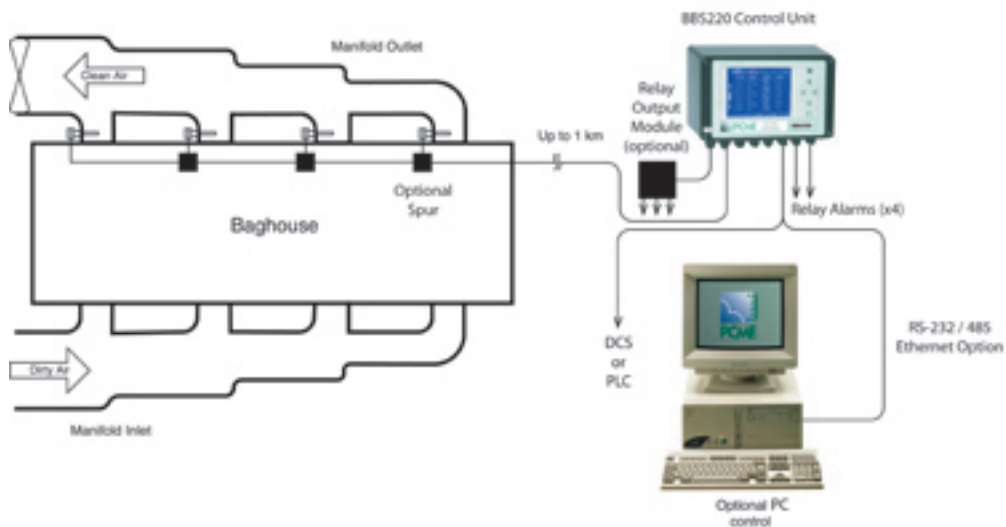
The BBS220 combines advanced signal processing techniques with PCME's unique Electrodynamic measurement principal. When the sensing probe is installed in the duct or stack, particles in the airstream interact with the sensing rod and a charge induction effect is analysed in the probe. Distributions in the particle stream result in a frequency charge induction response, which is directly proportional to the concentration of particulate (application dependant). The sensors' output is an analysis of this frequency response. Emissions are monitored and displayed to the nearest 5% of a programmable alarm level which is easily set relative to normal bagfilter emission levels.



## Advanced Design

Unlike Triboelectric systems, the Electrodynamic measurement is not significantly affected by velocity variations between 8m/s and 20m/s and is not effected by build up on the rod surface. The system has suitable resolution for Baghouse applications ( $>0.1 \text{ mg/m}^3$ ).

## System Layout

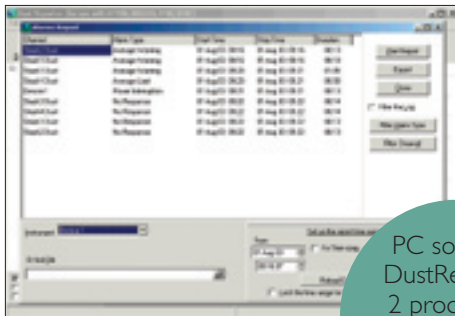


The instrument design permits up to 64 sensors to be connected to a single central control unit. The control unit provides power to a number of sensors (additional power supply units required on larger systems), user interface and alarm outputs. The control unit also comprises a data logging capability to permit alarms to be recorded for process and regulatory reporting. Alarm conditions, system status and alarm reports can be viewed and generated remotely on a PC using PCME's 'DustReporter 2' Windows based software and alarm conditions signalled to external control equipment via relay outputs.

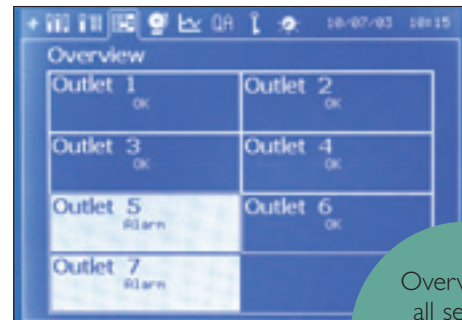
## Advanced Control Unit Features

The condition of the filter is monitored and displayed in the control unit allowing the operator to optimise the performance of dust control equipment and to minimise excursions above emissions levels. The control unit provides a full range of displays to review and analyse data including:

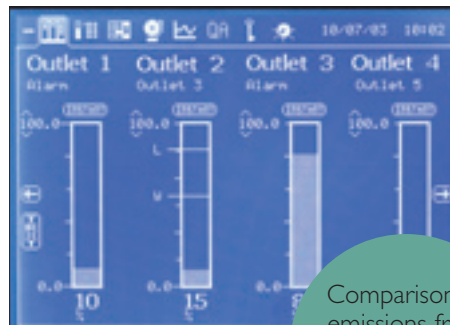
- Sensor status and alarm overview
- Individual bar graphs showing relative dust levels to alarm settings
- Review of alarm history and current alarm status
- Password protected menu structure for security
- Windows based software for review of data on remote PC, LAN
- Warning and limit alarm settings per sensor



PC software DustReporter 2 produces a permanent record of the alarm log



Overview of all sensors showing any bag compartment or dust collector in alarm



Comparison of emissions from one outlet or compartment to another

## Control Unit

Multichannel Support:	1 to 64 sensors
Enclosure Rating:	IP-65
Enclosure Size (mm):	260w x 160h x 90d
Power Supply:	90 to 260 VAC (50/60Hz)
Current Rating:	250mA
Display Type:	Backlit LCD providing graphical and text display
Systems outputs: RS-485 & RS-232 Outputs (MODBUS) 4 x relay outputs* (1A@250V) 4 x digital inputs	Connection to PC or PLC Assignable to any sensor (warning or limit alarm) eg plant on/off,

\* For additional alarms, the 'Relay Output Module' (option) is available

Control Unit Memory Type	Alarm Log Purpose	Storage Rate/Capacity	Typical Log Period
Alarm logger features: Alarm data can be downloaded to a PC for reports. Alarm data is available online or via MODBUS 485/232 register Alarm data can be sent via Modem or Ethernet (options)	log alarm conditions eg warning or limit alarm, communication error; power failure,	Immediate storage of relevant alarm-condition for each sensor	1000 entries

## Sensors

Sensor Rod Material	316 Stainless Steel
Sensor Rod Length (mm)	Over 50% of duct stack diameter
Temperature Range	Up to 125°C (standard) Up to 250°C (optional)

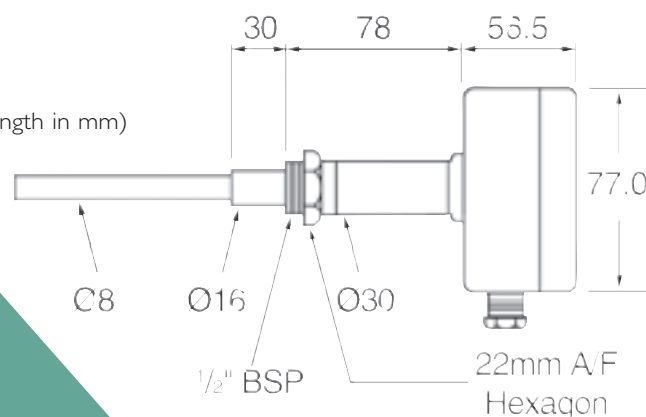
Stack/Duct Connection	½" BSP (socket)
Enclosure Weight	0.5kg
Enclosure Temperature Rating	-25°C to +55°C
Enclosure Rating	IP65
Sensor Enclosure Material	Die-cast Aluminium (epoxy-coated)

## Order Codes

**Control Unit** BB220 --CON

**Sensor Unit - Body** BB220 --SEN0125P (to 125°C)  
BB220 --SEN0250P (to 250°C)

**Rod** BB220 --ROD XXXXS (where XXXX is length in mm)



## Optional Components

Component	Purpose	Specification	Details (size mm)
Cable	Power and communication to sensors from control unit	4 conductor overall screened cable, diameter <0.8mm (Each conductor < 0.5mm <sup>2</sup> <50 ohm/km, a suitable for RS-485) Eg. Batt cables 85364	Up to 1km*
AIM	Input data from external devices (eg for bagfilter pressure drop)	4 x 4-20mA inputs 4 x Digital Inputs (contact closure)	176w x 80h x 60d
SPUR	Divides cable into 2 branches	3 cable connections	100w x 64h x 44d
PSU/Repeater	Voltage and signal boost for extended cabling runs	90-260 VAC input (50/60 Hz)	222w x 125h x 81d
Relay Output Module	Additional alarm relays for larger systems	8 relays (1A@250V) assignable to any sensor	

\*For further cable length an additional PSU may be required.

## About PCME Ltd

As a progressive environmental Company, PCME specialises in particulate measurement for industrial processes. With a worldwide reputation for reliability, innovation and technological excellence, the Company produces equipment for concentration, velocity and mass monitoring for regulatory, environmental and process control requirements. A dedicated team of qualified application and sales engineers is always on hand and should be consulted in the selection and usage of the most suitable equipment for any particulate application.



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