Passionate about Particulate

PCME

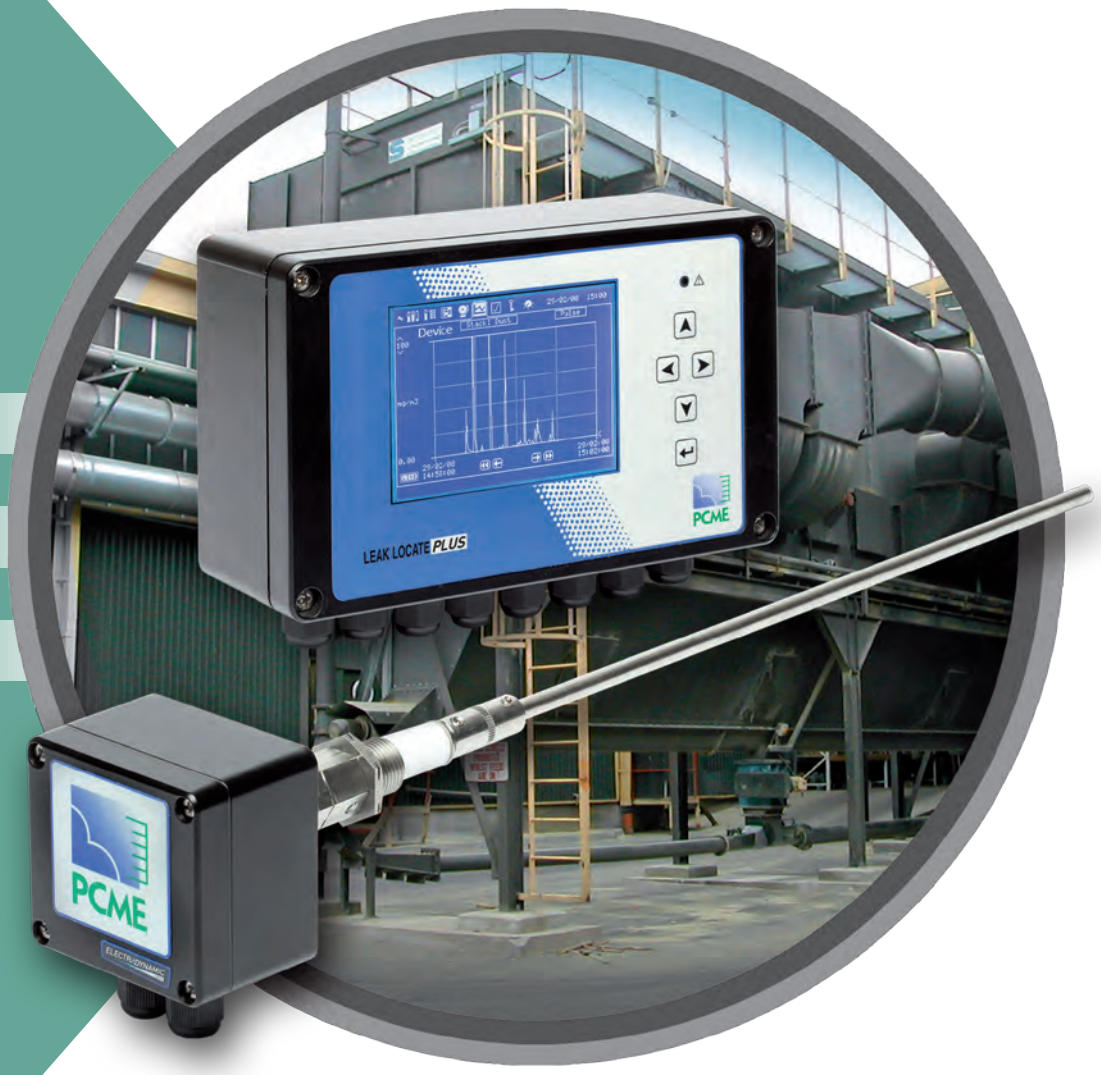
# LEAK LOCATE 660 *PLUS*

ELECTRODYNAMIC™ INSIDE

Filter

Performance

Monitor




Leak Location Diagnostics for Multi-compartment Bagfilters

- Unique *ElectroDynamic*™ Probe Electrification measurement principle provides measurement stability with tolerance to dust build-up on probe rod and velocity changes
- Multi-point monitoring of each chamber/outlet of multi-chamber bag filters from 4-32 chambers (on-line or off-line cleaning)
- Large graphical user interface, bargraph and trend screens to facilitate data interpretation and analysis of location of leaking or broken bags
- Optional 'Predict' PC software for enhanced broken bag detection and location

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2007

riqa. ISO 9001 Registered

Certificate No: 9389

## System Description

The **LEAK LOCATE 660** ***PLUS*** is a dust emission monitoring system incorporating a digital network and advanced graphics capability. It is designed for use in any processes where filter type arrestment plant are used, eg bag, ceramic and cartridge filters. The system comprises up to 32 networked sensors, a central control unit, user interface with data acquisition and optional PC software.

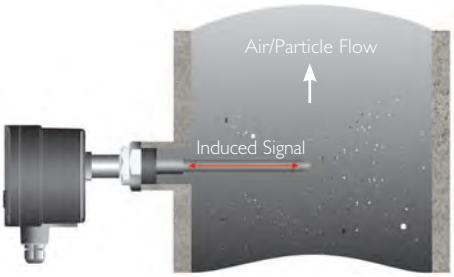
The **LEAK LOCATE 660** ***PLUS*** is specifically designed to monitor the outlet of each chamber or plenum of a bagfilter to identify the relative dust levels through each chamber, highlighting which chamber or compartment contains leaking, faulty or broken bags, giving pre-warning of emissions to maintenance and process personnel. An advanced graphical user interface gives clear indication of each chamber's dust levels allowing the opertor to identify both leaking and faulty filter media and imporantly identify the position or location of this faulty media/bag for replacement. Additional intervention is not required, therefore, costs and filler downtime are significantly reduced.

## Principles of Operation

The instrument uses PCME's unique and patented *ElectroDynamic*™ Probe Electrification technology. The sensor electronics measures the current signature created by particles interacting with the grounded sensing rod which protrudes into the stack. The electronics extract a specific frequency band of this signal and filters out the dc current caused by particle collisions (unlike DC Triboelectric systems and "induction sensing and protected probe" systems).

Advantages from this technology are that the signal generated is:

- Unaffected by contamination on the sensor rod (which causes signal drift issues for other systems).
- Not affected by velocity variations within typical bagfilter velocity ranges.
- Stable, reliable and does not drift due to electrostatic charging which may occur with protected probe systems in dry flue gas applications.



Sensor

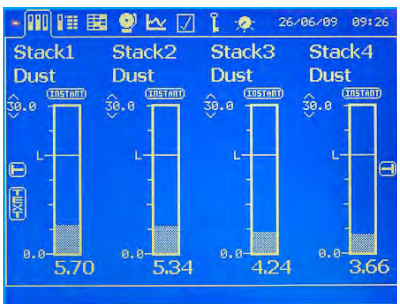
In addition, *ElectroDynamic*™ Probe Electrification technology provides sufficient dynamic range to follow "on-line" and "off-line" bag cleaning cycles for predictive filter failure and faulty bag location detection.

ELECTRODYNAMIC™

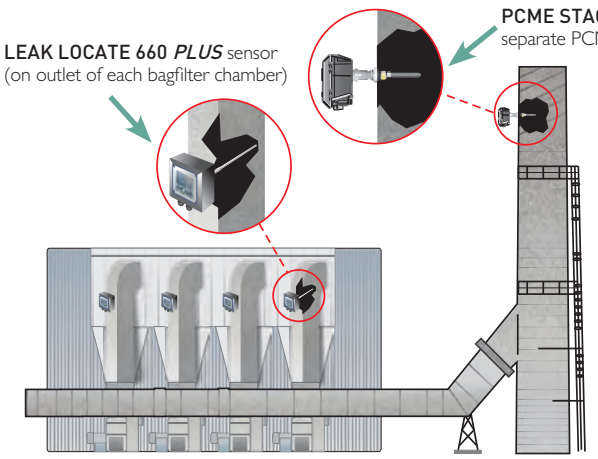
### Added Value Features

*ElectroDynamic*™ Probe Electrification systems have the following added benefits:

- An optimised frequency spectrum to extend the velocity range over which the system has no cross sensitivity to changing velocity (see TUV approvals).
- Unique digital signal processing algorithms give the wide dynamic range required for measurement accuracy during arrestment plant cleaning and high reproducibility of signal tracking.
- Uses the same technology as in PCME's Continuous Emission Monitors (CEMS) approved by MCERTS and TUV.



Multi-channel overview of dust readings




Analysis of bag cleaning process

# product features

## Leak Location Diagnostics

The **LEAK LOCATE 660** ***PLUS*** sensor has the appropriate high resolution and signal to noise characteristics to provide indication of dust emissions from cleaning pulses and to reliably monitor the performance of fabric filter dust collection equipment for applications requiring high accuracy and repeatability, in both on-line and off-line cleaning cycles.

The **LEAK LOCATE 660** ***PLUS*** can be configured to display either:

a) Emissions relative to a 'normal' level (for applications only needing to monitor changes in emissions).
b) Bagfilter leakage and broken bags in addition to location of leaking bag row or chamber.
c) Relative performance of each bag compartment.

Therefore, for installations with multiple chambers on a single bagfilter, dust levels can be compared between different emission points. The **LEAK LOCATE 660** ***PLUS*** uses an advanced digital algorithm which has sufficient processing power to provide good resolution to track dust pulses in bag cleaning systems which may require a dynamic range of up to 5,000:1, eg reverse jet or reverse flow cleaning systems. Sensitivities of < 0.1 mg/m$^3$ ensure bag leak detection can be measured (small changes in background dust levels can indicate bag leakage).

## Advanced Features

The on-board pulse screen gives the advantage of offering an instantaneous view of the dust emissions of each of the chambers/compartments being cleaned. These can be viewed as bargraphs or on-line trend graph for instant visualisation of dust trends allowing the operator to assess the relative efficiency levels of each row/chamber. This data is additionally stored in the pulse logger and can be reviewed at a later time period to compare cleaning cycles and thereby changing emissions between cleaning. By helping to identify leaking or faulty bags in specific chambers or compartments, the instrument pre-warns of failing or faulty bag media before the event.


## Specifications

| Control Unit | MultiController (LEAK LOCATE *PLUS*) |
|---|---|
| Number of Sensors | 4-32<br>additional power supply units may be required for larger systems (consult PCME or reseller) |
| Enclosure Rating | IP65 |
| Dimensions (mm) | 263 W x 160 H x 91 D |
| Power Supply | 90-260VAC (50/60Hz) |
| Current Rating | 1A |
| Ambient Temperature | -25°C to + 55°C |
| Display Type | Backlit LCD providing graphical and text display |
| Outputs | 4 x Isolated 4-20mA outputs (500 ohm)<br>[may be extended in units of 8 via optional Analogue Output Module (AOM)]<br><br>4 x Relays (user selectable)<br>[may be extended in units of 8 via optional Relay Output Module (ROM)]<br><br>Modbus RS232/485<br>Modbus ethernet (option) |
| Inputs | 4 x digital inputs<br>• Plant stop signal<br>(output to zero when plant is off)<br>• Marker for start of bag cleaning sequence |

Sensor

| | |
|---|---|
| Enclosure Temperature Rating | -25°C to +55°C |
| Enclosure Rating | IP65 |
| Enclosure Material | Die-cast aluminium (polyester powder coated) |
| Sensor Weight | 0.7kg |
| Connection Required on Duct | 1/2" BSP (female) |
| Power Requirements | 24V (provided by control unit) |
| Cable Entries | 2 x PG 9 |

ETHERNET CAPABILITY

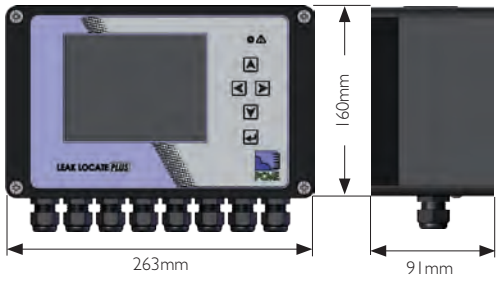
Data Logging

| Memory Type | Typical Use | Log Rate (min-max) | Typical Log Period for 8 Sensors |
|---|---|---|---|
| Pulse | Locating Broken Bags | At poll rate (usually 1 sec) | > 1 hour (@ 1sec) |
| Alarm Log | Log of all alarms for fault indication | Instantaneous | 500 entries total |

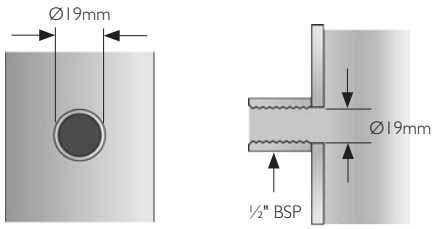
# specifications

## Dimensions

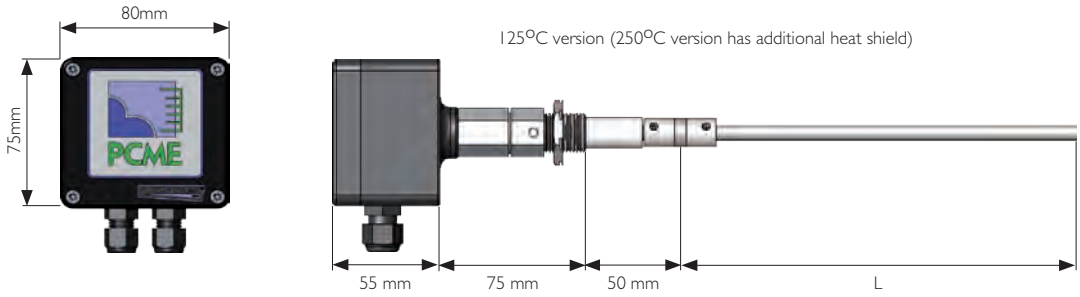
### MultiController




### Duct Connection




### Sensor




## Order Codes

### PCME LEAK LOCATE 660 *PLUS*

#### Control Unit Options

CON 660 PLUS – A B

| | | | |
|---|---|---|---|
| A | Controller | *PLUS* version (MultiController) | M |
| B | Ethernet | None<br>Ethernet fitted | 0<br>ET |

#### Sensor Options

SEN 660 – 1 2 3 4 5

| | | | |
|---|---|---|---|
| 1 | Sensor Type | Up to 125°C<br>Up to 250°C | 125C<br>250C |
| 2 | Rod Length | 0100-800mm | RODxxxx |
| 3 | Rod Material | Stainless | S |
| 4 | Air Purge Fitting | None | 0 |
| 5 | Air Filter/Regulator | None | 0 |

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Example: SEN 660 | 250P | ROD0500 | S | 0 | 0 |

#### System Options

| | | |
|---|---|---|
| 4-core Cable | Specify length required (10m per sensor included as standard) | CAB4 |
| Spur | Divides cable into 2 branches | SPR |
| Power Supply/Repeater | Voltage and signal boost for extended cabling runs with multiple sensors | PWR |
| Analogue Input Module (AIM) | Input data from external devices (eg for Temp, $O_2$) | AIM |
| Analogue Output Module (AOM) | Additional 4-20 mA x 8 | AOM |
| Alarm Output Module (ROM) | Additional Relay x 8 | ROM |

#### PC Software Options (PC-ME Dust Tools)

| | |
|---|---|
| Configuration Options | System Set |
| Real-time Data Options | On-line<br>Predict |
| Historical Data Options | Data Downloader<br>Data Viewer<br>Predict View |

## 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 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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