Passionate about Particulate

PCME

LEAK LOCATE 320 *PLUS*

ELECTRODYNAMIC™ INSIDE

Filter

Performance

Monitors

Multi-compartment Bag Filter Leak Detection System

- Self-contained leak monitoring system for on-line and off-line cleaned multi-compartment bag filters
- Identifies compartments with broken or leaking bags before large-scale emission events occur
- Reduces filter maintenance intervals, process down-time and filter costs
- PC-ME DUST TOOLS software options for comparing compartment emissions and locating specific, failing bag rows
- Sensor Probe Check option for improved data integrity and Quality Assurance

THE QUEEN'S AWARDS FOR ENTERPRISE INTERNATIONAL TRADE 2013

SYSTEM DESCRIPTION

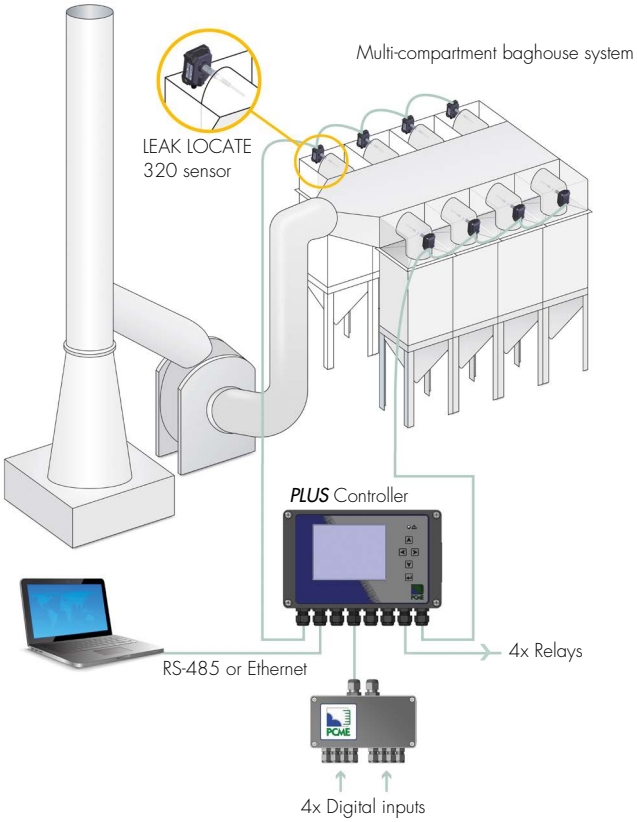
The **LEAK LOCATE 320 *PLUS*** is a digitally networked, multi-compartment baghouse monitoring system providing remote observation of the condition of bag and cartridge filters.

An *ElectroDynamic™* sensor is installed in the outlet of each compartment to monitor dust emission levels. The network of sensors is connected to the *PLUS* Controller, which provides a large graphical user interface giving a clear indication of each compartment's dust level and onward communication to a PC or PLC network.

The system is supported by the PC-ME DUST TOOLS software package for PCs, with advanced features for monitoring emission trends and identifying failing or broken bags. For on-line cleaned bag filters the specific bag row containing leaking bags can be located.

The **LEAK LOCATE 320 *PLUS*** is a valuable filter maintenance tool:

- giving advance warning of filter deterioration
- enabling users to make significant savings in spares, maintenance time, and lost production time
- reducing the likelihood of large-scale emission events.



PRINCIPLES OF SENSOR OPERATION

The sensors use PCME's unique and patented *ElectroDynamic™* Probe Electrification technology. Particulates in the airstream interact with the sensing rod to induce a charge signature. The sensor electronically filters the resulting signal to reject signals outside a defined frequency range (rejecting the DC Triboelectric signal), making it less susceptible to changes in particle velocity and eliminating the effect of any particulate contamination on the sensing rod (unlike Triboelectric dust monitors which suffer from sensor contamination issues).

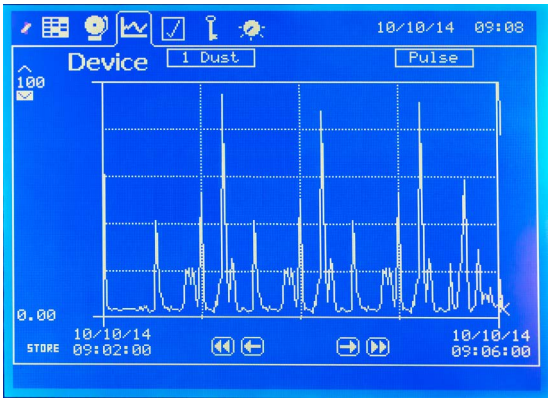
Passive, insulated and air purge sensor options allow use of the sensors in high humidity, high dust or conductive dust applications and hazardous area certified sensors are available. The optional sensor Probe Check is a valuable additional feature for detecting contamination across the insulator, for improved Quality Assurance.

PLUS CONTROLLER

The ***PLUS*** Controller is used for:

- Powering the network of sensors
- Setting up and configuring the sensor network (via the multilingual menu)
- Scaling the output of sensors (to between 0 and 100%) to provide an indication of relative emission levels between compartments
- Displaying overviews of sensor and system status, including Probe Check results, alarms and emission levels per compartment
- Displaying graphs of real-time and historical emission levels (using logged pulse data stored in the controller)
- Providing alarm relay outputs that can be configured to suit requirements, e.g. high and hi/hi emission alarms, sensor status, and system failures
- Providing access to data on PC or PLC systems via RS-485 or Ethernet connections
- Connecting to accessory network modules (Auxiliary Input Module, Relay Output Module, Power Supply Repeater and Network Spurs) for additional I/Os and increased network robustness.

On-line Pulse Screen



Sensor/chamber dust level overview screen

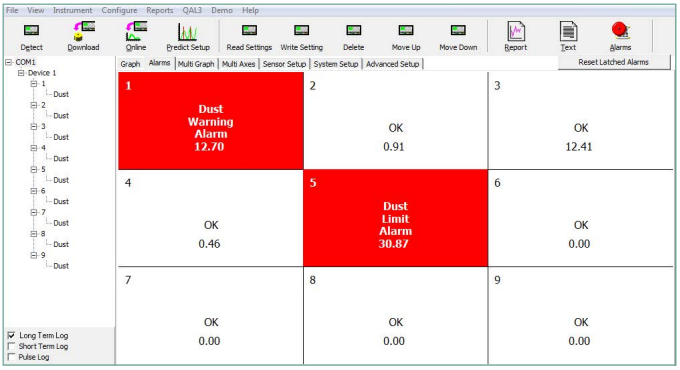
PLUS Controller Features

Feature	Description
Number of Sensors	4–32 sensors
Ambient Temperature	–20°C to +45°C for typical installations (<20 sensors)
Power Supply	100–240V AC, 50/60Hz, 1A
Data Logs	Pulse (4 hours @ 1s for 4 sensors)
Ethernet	Modbus TCP
Outputs	1x RS-485 (Modbus RTU) 4x Relays (2A @ 250V, user configurable)

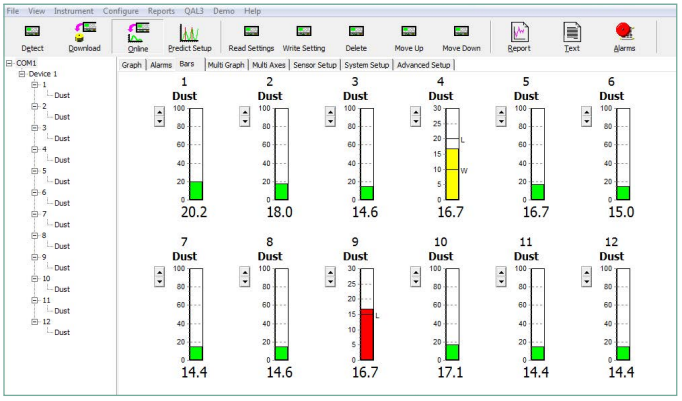
PC-ME DUST TOOLS OPTIONS

PC-ME DUST TOOLS is a powerful supporting software package with functions that enable users to get the longest possible service life from their filters and minimise the risk of filter failure.
The software can be used in conjunction with the *PLUS* Controller for setting up and configuring the sensor network and for a range of different data viewing and recording functions.

Software Option	Description
Online	Real-time display of alarms and emissions data from the network of sensors.
Predict	Graphical analysis tool for locating failing and faulty bag filter media, using real-time data only.
System Set	Interface for configuring the settings of all sensors in the network, and a backup of sensor configuration files.
Data Download	Facility for downloading logged data (pulse emissions and alarms) from the *PLUS* Controller to PCs.
Automatic Download	Automated facility for downloading logged data from the *PLUS* Controller to PCs at user-configurable, timed intervals.
Data Viewer	Graphical tool for instantaneous and long-term analysis of trends in emissions data.
Predict Viewer	Full Predict functionality for logged data, in addition to real-time data.



PC-ME DUST TOOLS 'Online' module: Overview display of dust levels and alarms for all compartments

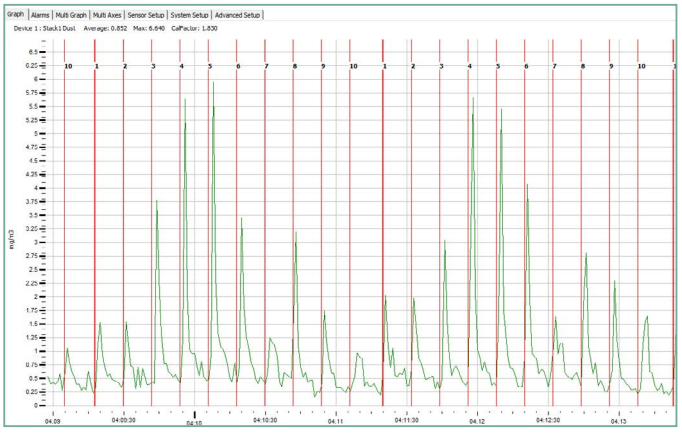


PC-ME DUST TOOLS 'Online': Bar graph display of alarms and dust levels for all compartments.

FILTER DIAGNOSTICS

The advance warning of filter failure provided by the **LEAK LOCATE 320** ***PLUS*** offers the following benefits to filter maintenance departments.

- Scheduled maintenance
- Reduced maintenance time
- Lower labour cost
- Reduced spare filter inventories
- Decreased use of filter media
- Decreased process downtime
- Reduced environmental emissions due to better filter control



PC-ME DUST TOOLS 'Predict': Line graph display of dust levels and bag-row identifiers during an on-line cleaning sequence.

On-line (Pulse Jet) Cleaning

For on-line cleaned bag filters, where the compartment continues to filter during the pulse cleaning process, the **LEAK LOCATE 320** ***PLUS*** system will continuously monitor and display the emission trend profile of each compartment, both during and after the cleaning process.

Synchronising the **LEAK LOCATE 320** ***PLUS*** network of sensors with the cleaning controller enables each dust emission peak to be associated with the particular bag row being cleaned. Using the PC-ME DUST TOOLS 'Predict' software option, the bag rows with the highest emission peaks can be identified to locate leaking and broken bags, and also to detect faulty valve operation.

The 'Predict Viewer' software option uses pulse-logged data so the historical emission profile of each compartment can be viewed, over the lifetime of the filter. Slow changes in cleaning performance and deterioration of specific bag rows can be detected readily.

Off-line Cleaning

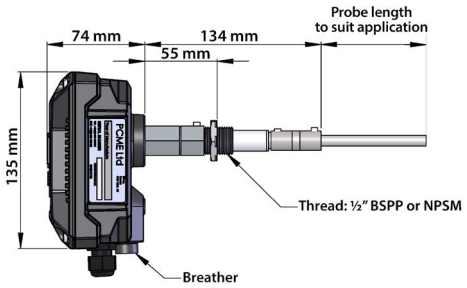
For off-line cleaned bag filters, where the compartment is closed during the pulse cleaning process, the **LEAK LOCATE 320** ***PLUS*** system can be used to show leaking bags in compartments and monitor the overall efficiency of the baghouse, but not to locate specific bag-row failures.

PRODUCT SPECIFICATIONS

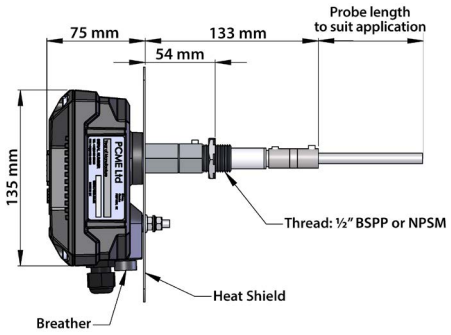
SENSOR OPTIONS

320 Sensor		Order Code	Std./Opt.
Flue gas temperature	0 to125°C 0 to 250°C	125C 250C	Standard Option
Rod Length	100mm to 1000mm (xxxx is the length in mm)	RODxxxx	>300 mm Optional
Sensor type	Stainless steel Passive section	S P	Standard Option
Sensor connection to duct	½ inch BSPP or NPSM (male) 1 ½ inch BSPT or NPT (male) (available on passive sensor type only)	BSPP or NPSM BSP or NPT	Standard Standard
Air purge fitting to sensor	None ½ inch BSPP ½ inch NPSM 1 ½ inch (passive/active sensor only)	0 AP-BS AP-NP AP-PAS	Standard Option Option Option
Air filter and regulator set	None Air filter and regulator set	0 FFR	Standard Option
Sensor probe check	None Manually initiated Automatically initiated	0 MSC ASC	Standard Option Option

Standard 0–125°C Sensor



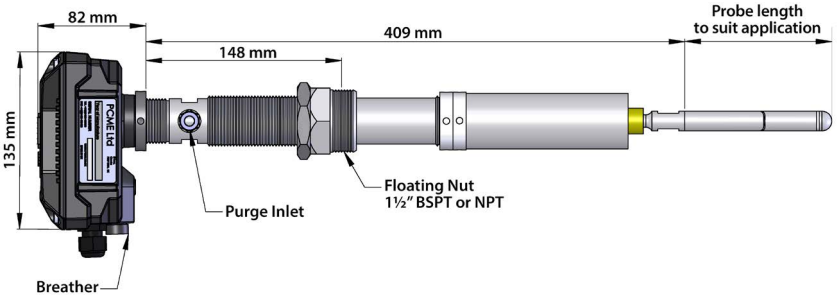
High-Temperature 0–250°C Sensor



320 Sensor Specifications	
Ambient temperature	–20°C to +50°C
Power supply voltage	24V DC (from *PLUS* Controller)
Current consumption	20mA, max.

Note: hazardous area approvals pending.

Passive Sensor



SYSTEM OPTIONS

PLUS Controller		Order Code	Std./Opt.
Ethernet	None	0	Standard
	Ethernet enabled	ETH	Option

Net Modules		Order Code	Std./Opt.
ROM	Relay output module with 8 additional relay outputs	ROM	Option
AIM Digital	Auxiliary input module with 4 additional digital inputs	AIM	Option
Network Spur	Spur for connecting 'spur-linked' sensor networks	SPUR	Option
Power Supply Repeater	Voltage and signal boost for extended cable runs and large sensor networks	PWR	Option

PC-ME DUST TOOLS Software	Order Code	Std./Opt.
Online	ONLINE	Option
Predict	PREDICT	Option
System Set	SYSSET	Option
Data Downloader	DOWNLOAD	Option
AutoDownload	AUTODOWN	Option
Data Viewer	DATAVIEW	Option
Predict View	PREDVIEW	Option

Note: For more information related to the product specification and options, refer to the **LEAK LOCATE 320** ***PLUS*** Specification Guide (available on request from PCME).

ABOUT PCME LTD

As a progressive environmental Company, PCME specialises in particulate and flow 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 for consultation regarding the selection and usage of the most suitable equipment for any particulate monitoring application.

ISO 14001 REGISTERED Environmental Assurance — UKAS QUALITY MANAGEMENT

ISO 9001 REGISTERED Quality Assurance — UKAS QUALITY MANAGEMENT

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