

LEAK ALERT 73

ELECTRODYNAMIC™
INSIDE

Dust

Filter Leak

Monitor

Filter Leak
Monitor with
optional added
value options



- Designed to differentiate between gross failure and dust leakage from faulty/failing filter systems including bag filters
- Selection of advanced features and options for improved functionality
- Supports simple and flexible configuration via keypad/display or remote PC software
- Improved performance over previous models

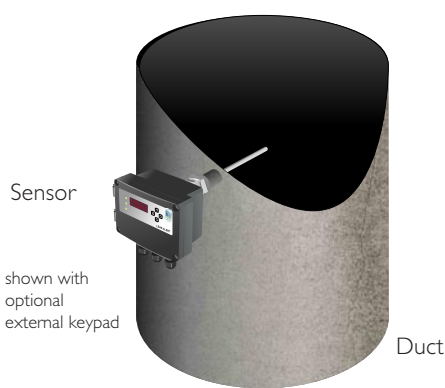
technology/applications

System Description and Product Range

The **LEAK ALERT 73** is particularly well suited for use on fabric filter type dust collectors (baghouses) and provides reliable and robust monitoring of particulate leaks from bags. With its compact cost effective transmitter design, pragmatic and reliable monitoring can now be provided for all types of industrial bagfilters. The instrument benefits, first from PCME's unique *ElectroDynamic™* Probe Electrification technology, secondly advanced features enabling the **LEAK ALERT 73** to be configured for all types of bagfilters irrespective of cleaning sequence and finally a choice of field upgradeable options to provide quality assurance (QA) features for the user. The **LEAK ALERT 73** is part of the PCME Leak Alert family of products, which have been specifically designed to detect low and medium levels of dust leakage in addition to gross bag failure enabling bagfilter users to maximise filter performance.



Principles of Operation



The **LEAK ALERT 73** combines advanced signal processing techniques with PCME's unique *ElectroDynamic™* Probe Electrification technology. When the sensing probe is installed after the bagfilter, particles in the airstream interact with the sensing rod to induce a charge signature. The resulting signal is filtered electronically to reject signals outside a defined frequency range (including the dc Triboelectric signal) which makes the instrument less susceptible to changes in particle velocity and virtually eliminates the effect of any particle contamination on the rod. In bagfilter applications the instrument provides a robust signal proportional to dust emissions which is used to monitor and detect bag leaks. The instrument has the necessary features to discriminate between the variation in dust due to the bag cleaning sequence and real leak conditions.

Advanced Features

The **LEAK ALERT 73** provides powerful bag leak capability based on the following standard features:

Bag leak monitoring performance

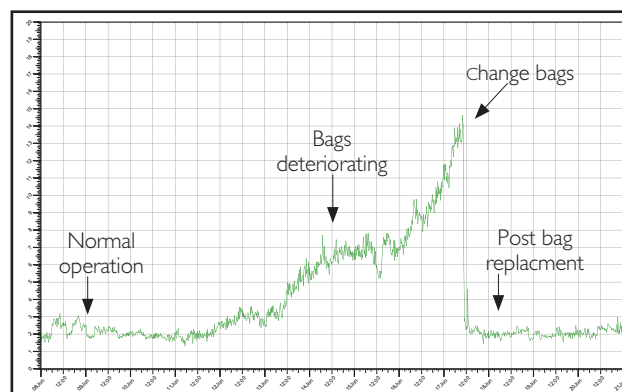
- High quality leak response with sufficient dynamic range and time response to track emissions from single and multi-compartment pulse cleaned bagfilters
- Instrument drift and minimum detection level below 0.1 mg/m^3 with leak monitoring to 500 mg/m^3
- Fully configurable warning alarm and limit alarm levels with independent alarm delay
- Convenient bag leak output range scaled 0-100%. Option for scaling in defined units (user selectable)

Designed for practical bagfilter issues

- Category 3 option is suitable for ATEX dust zone 22 (see Category 1 option for zones 20 and 21)
- Inbuilt surge protection to counter effects of indirect lightning
- Input available for marker pulse from bag cleaning cycle
- Industrially hardened enclosure and sensor mechanics provides convenient connections to plant allowing armoured cable use
- Powered directly from mains power supply 100-240VAC (or 24VDC option)

Powerful user Interface

- 4 digit display and keypad within instrument
- Instrument set-up via internal keypad or PC/laptop (optional software required)
- Intuitive multilevel user interface (user set-up, engineering set-up) with password protection
- Three separate tri colour status LEDs, for power, emission alarms and instrument self-checks



Leak Alert Monitors Bag Leak Conditions



LEAK ALERT 73 with lid open showing 3 LEDs, display and internal set up keys

product features

User Selectable Added Value Options

The **LEAK ALERT 73** is provided with a full choice of optional user selectable added value features. These include:



- Automatic insulator contamination detection - option**
ElectroDynamic™ sensors are tolerant to dust contamination of the sensor rod (unlike Triboelectric systems) due to the non-contact measurement principle, however, build-up of conductive material across the insulator at the base of the rod can lead to error as with all charge electrification systems. For standard dry dust collector applications, contamination is unlikely, but a possibility. The short circuit check option provides a reliable method for detecting insulator contamination and hence improve Quality Assurance (for applications where water condensation is likely, PCME's patented insulated sensor is a preferred option).

- Electronic zero and reference drift detection - option**
 Electronic dust signals are injected into the front end of the sensor electronics to ensure any electronic and signal measurement malfunction is automatically detected. This Quality Assurance feature checks that the sensor electronics are operating within manufacturer specification.

- User scaling of display**

Of assistance to plant personnel wishing to manually scale the display to an approximate known dust level rather than a relative % level.

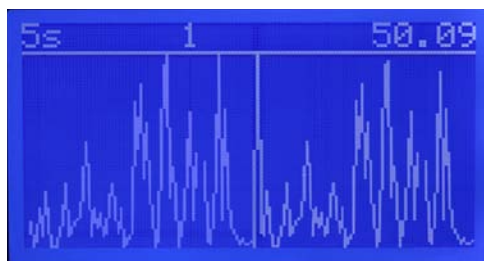
Specifications

| Feature | Specification |
|--|--|
| Ambient Air Temperature (stack limit is 250°C or 400°C) Stack Gas Temperature | -25°C to +55°C 250°C standard, 400°C option |
| Stack Connection (at sensor connection) | 1 ½" BSP |
| Enclosure Rating | IP-65 (with hinged lid closed) |
| Power Requirements | 100-240VAC 50/60Hz (32mA) or 24VDC (300mA) |
| Outputs (Standard) | Isolated 4-20mA (500 ohm) Warning alarm relay (SPST 1A@24VDC) Fail safe Emission alarm relay (SPST 1A@24VDC) Fail safe |
| Outputs (Optional) | RS232 (Modbus RTU) - option RS485 (Modbus RTU) - option } Enables use of PC-ME Dust Tools PC software suite |
| Inputs | Plant stop signal (output to zero when plant is off), marker for start of bag cleaning sequence |
| External LED x3 | 1 Power/ sensor OK 2 Warning and limit alarm 3 Self check status (options) |
| User Set Up | 4 digit display and set up buttons (external keypad and display option) |
| Cable Entries | 3 x M20 gland/conduit entries |
| Air Purge Connection | Optional air purge fitting is required *1/4" BSP connection to instrument air line |

*option: requires external supply of 5-10 litres/min of dry, clean, oil free instrument air depending on dust loading.

Bag Pulse Display Module

The **LEAK ALERT 73** may be upgraded to provide Leak Locate capability by adding the optional Bag Pulse Display module. This enables plant operators to locate the position of failing bag rows in the dust collector, hence reducing bag replacement costs and minimising time diagnosing dust collector faults.



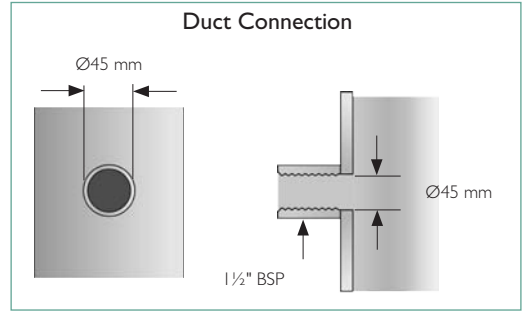
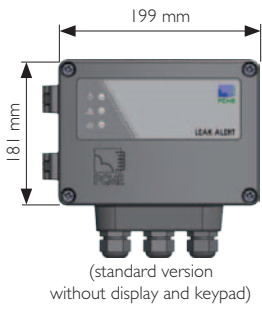
Pulse Display permits failing bag rows to be identified during bag cleaning



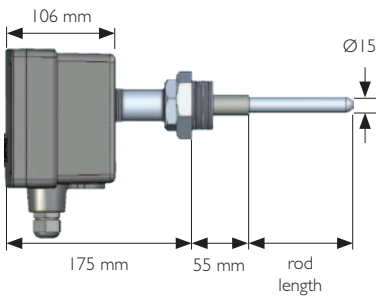
specifications

Dimensions

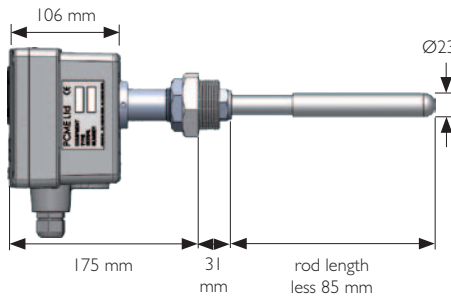
LEAK ALERT 73 (back view)



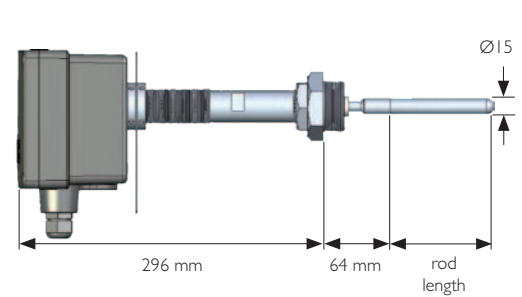
250°C Stainless steel



250°C Insulated



400°C Stainless steel



Order Codes

LEAK ALERT 73 - 1 2 3 4 5 - A B C D E F G H I J - P

Mechanical Options (12345)

| Option | Description | Available Options | Standard Option |
|--------|----------------------|-------------------------------------|---------------------|
| 1 | Stack Temperature | Up to 250°C Up to 400°C | options: 250C, 400C |
| 2 | Rod Length | 0100mm to 1000mm | specify: RODxxxx |
| 3 | Rod Material | Stainless Insulated (PTFE) | std option: S, I |
| 4 | Air Purge Fitting | None Air Purge Fitting | std option: 0, AP |
| 5 | Air Filter/Regulator | None Filter + regulator assembly | std option: 0, REG |

PC Software Options (PC-ME Dust Tools)

| | |
|------------|-------------------------------------|
| Device Set | For instrument configuration by PC |
| Online | For viewing emissions on PC |
| Predict | For baghouse performance monitoring |

Sensor Features (A B C D E F G H I J P)

| Feature | Description | Options | Standard Option |
|---------|--------------------------------|--|-------------------------|
| A | Short Circuit Check | None Short circuit check* | std option: 0, SC |
| B | Electronic Self-checks | None Manually initiated | std option: 0, MAN |
| C | Scaling Method | 0-100% Scaling Factor | std option: %, SF |
| D | ATEX Category | None Category 3 dust (zone 22) Category 1 dust (zone 20) | std option: 0, X22, X20 |
| E | Power Option | 100-240VAC 24V DC | option: AC, 24DC |
| F | RS485 Data Output ¹ | Not included RS485 included | std option: 0, 485 |
| G | RS232 Data Output ¹ | Not included RS232 included | std option: 0, 232 |
| H | External Connector for RS232 | Internal connector External connector | std option: 0, FLY |
| I | Keypad | Internal keypad External keypad | std option: IK, EK |
| J | Display | Internally Display Externally viewable | std option: ID, ED |
| P | Leak Locate Capabilities | Not included Bag Pulse Display Module | option: 0, BPD |

*not available with insulated rod material

¹Cannot have both together

Example: Sen 73 - 1 250C 2 ROD0500 3 S 4 AP 5 REG - A SC B 0 C % D X22 E AC F 485 G 0 H 0 I IK J ID - P BPD

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.

Baghouse images reproduced with kind permission of Danthem Filtration Ltd

PCME Ltd
Clearview Building
60 Edison Road
St Ives Cambs UK
PE27 3GH

DASTEC S.R.L. : your national or area sales and service office

Representantes / Distribuidores Exclusivos

Buenos Aires, Argentina
Tel.: (54 - 11) 5352-2500
Email: info@dastecsr.com.ar
Web: www.dastecsr.com.ar

Passionate
about
Particulate
PCME

Tel: +44 (0)1480 468200
Fax: +44 (0)1480 463400
E-mail: contact@pcme.com
www.pcme.com