



PARTICULATE MONITORING SYSTEMS

***INTELLIGENT FILTER
PERFORMANCE MONITOR FOR
DUST ARRESTMENT PLANT***

DUSTALERT 50

DUST

EMISSIONS

MONITOR



Shown with insulated probe



- Provides trends in dust emissions and monitors filter performance
- Unique “Quick-set” for baghouses, dryers or cyclone applications
- Capable of working in dry, humid and wet applications
- Not the same as simpler (non a.c) triboelectric systems
- Unique TriboACE® measurement principle combined with innovative microprocessor-based operation
- Can be used with ‘PREDICT’ broken bag detection software (optional)

N.B. If continuous quantitative monitoring in mg/m³ is required please refer to datasheets of our DT range of products

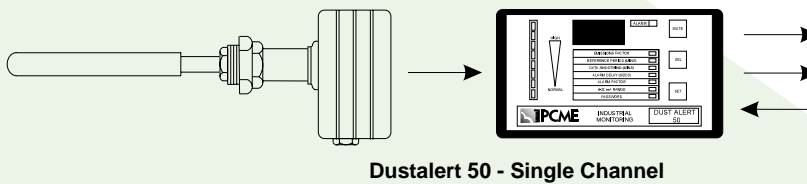
System Description

The Dustalert 50 intelligent filter performance monitor continuously monitors and displays the relative emissions from Baghouses and other arrestment plant.

The Dustalert 50 has many features which enable it to be specifically tailored to each customer's arrestment plant, taking into account different filter cleaning mechanisms and different processes. The microprocessor-based sensor and receiver respond to any small change in the arrestment plant and can follow trends in output, or potential filter failure prior to absolute failure, by giving both a scalable 4-20 mA output (optional) and adjustable alarm output.

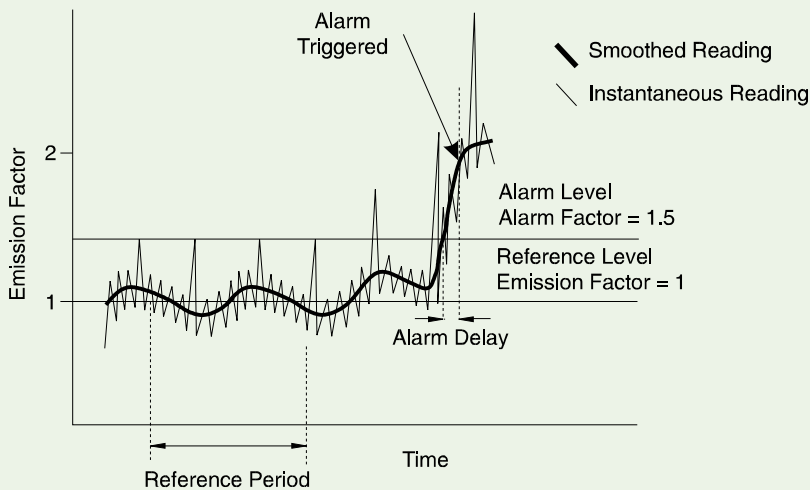
The sensing probe is connected by a standard multi-core cable to the control unit where the user interface is by a clear and simple touch pad control. All instrument parameters can be viewed on a digital display and the relative dust level is continuously displayed by a scalable bargraph as well as the digital display.

The microprocessor technology within the Dustalert 50 ensures reliable and flexible operation with internal electronic fault conditions quickly brought to the attention of the user.



Mode of Operation

A reference emission level is set within the instrument over a representative time period (for example over a number of filter cleaning cycles) when the plant is known to be operating efficiently. Emission values received from the intelligent probe are processed and compared with the stored reference figure to produce an emission factor. The instrument incorporates a variable time constant analysis filter for smoothing of instantaneous data to allow observation of trends in filter performance. An alarm is initiated if the emission factor exceeds the selected alarm factor and an alarm delay period is chosen to prevent false alarms caused by filter cleaning cycles.



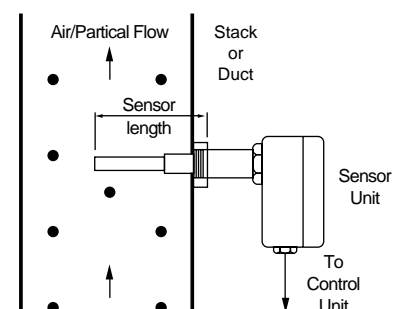
FILTER MONITORING FEATURES

- Reference period is selectable to suit application
- Data may be smoothed for instantaneous monitoring or trend analysis
- Comprehensive alarm features satisfy process and environmental control requirements

Principles of Operation

The Dustalert 50 utilises the **TriboACE**[®] measurement principle. When the sensing probe is installed in a duct or stack, particles in the air stream interact with it and induce charge movement in the probe. Distributions in the particle stream result in an a.c. response which is specifically measured to create a signal directly proportional to the concentration of particles. This relationship has been validated by independent laboratories*.

Unlike d.c. Triboelectric systems, the measurement principle relies mainly on induction which occurs when particles pass the probe. This has the added advantage that the instrument is not affected by particle buildup on the probe or changes in velocity. The TriboACE[®] measurement system also enables the use of insulated probes especially needed for very humid and wet applications; it also permits measurement at extremely low dust concentrations surpassing performance of other Triboelectric systems.



* See Warren Spring Laboratory, TA LUFT approval test reports.

Features

- Virtually maintenance-free, even in aggressive environments
- Unaffected by dust accumulation on sensor
- Extremely sensitive - detects dust concentrations from below 0.02 mg/m³ to over 1000 mg/m³
- Can be installed in ducts with diameters from 50mm to over 6 metres
- Detects particles as small as 0.1 µm (e.g. galvanizing fume)
- Intelligent probe's digital communication eliminates interference caused by plant noise
- 4-20 mA output proportional to dust emission level
- Base unit and sensor self-testing ensures reliable operation and valid results
- Password protection prevents unauthorised access
- Easy identification of alarms using error message display
- Alarms can be initiated by even small increases in concentration
- Simple installation and easy set-up procedure using microprocessor keypad - Features 'Quick-set'

TriboACE® Advantages

- Unique measurement principle (patented)
- Not the same as simpler Triboelectric systems (non a.c.)
- Unaffected by dust build up on sensor
- Unique insulated probe provides reliable operation in humid and wet applications (optional)
- Unaffected by velocity changes in Baghouses
- Has proven lower detection level of 0.02 mg/m³
- 'Quick-set' for baghouses, cyclones and dryers

Typical Applications

The Dustalert 50 is designed for use in any process which has arrestment plant fitted, for example bag, ceramic and cartridge filters, or cyclones where indicative monitoring is required. Typical examples include:

- Animal feed compounding
- Cement manufacture
- Chemical processing
- Ferrous metals industry
- Foundry/shotblasting
- Galvanizing
- Non-ferrous metals industry
- Pharmaceutical manufacturing
- Roadstone/mineral drying
- Rubber compounding
- Timber processing
- Tobacco processing

Functions

Emission/fault alarm relay	Volt free contact (single pole changeover) rated 3 A, 230 Vac
Alarm factor settings	1.1 to 100 selectable in steps of 0.1
Alarm delay settings	0, 3, 10, 30, 60, 300, 600 seconds
Data smoothing settings	0, 0.1, 0.3, 1, 3, 5, 10, 30, 60 minutes
Reference period settings	0, 0.1, 0.3, 1, 3, 5, 10, 30, 60 minutes
Relative dust emissions	Scalable 4-20 mA isolated (max 500Ω) - (optional)

Control Unit

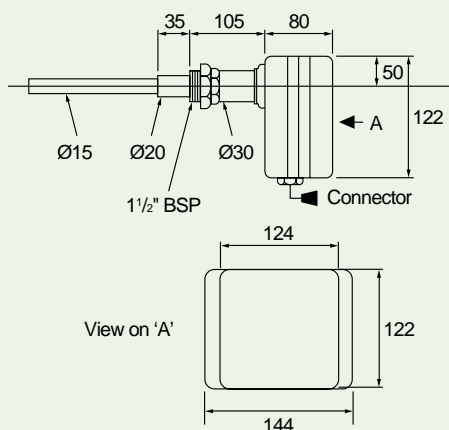
Enclosure rating	IP65
Enclosure size (approximate)	222 x 125 x 81mm
Enclosure weight	1.8kgs
Enclosure material	Die-cast aluminium (epoxy-coated)
Power supply	115/230 Vac, 50/60 Hz ± 10%, 20 VA
Fuse rating	100 mA
Display type	LED and bargraph display
Ambient temperature range	-25°C to +55°C

Sensors & Cables

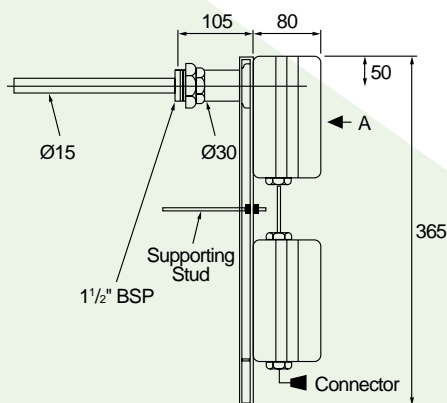
Sensor types	Standard temperature -25°C to +250°C Medium temperature -25°C to +750°C	Sensor rod material	Standard 316 stainless steel non-insulated Options Fully insulated
Sensor lengths (standard)	100, 200, 300, 400, 500, 600, 800, 1000mm.	Air purge option	1/4" BSP
Cross-stack probes	Up to 6000mm available on application	Airline connection	Up to 0.5 litres/sec
Connection required on duct	1 1/2" BSP (female)	Air consumption	4 barg min, 10 barg max
Enclosure size (approximate)	144 x 125 x 81mm	Air pressure	4 barg min, 10 barg max
Enclosure weight	1.8 kg	Cable from sensor	8-core screened (digital data link & power supply to sensor)
Enclosure rating	IP65	Sensor enclosure material	Die-cast aluminium (epoxy-coated)
		Cable length	10 m standard : 500m max

Physical Dimensions

Standard Temperature Sensor

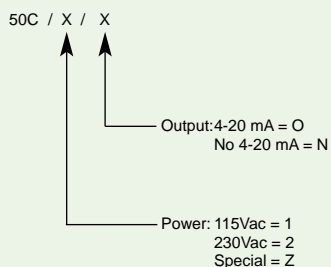


High Temperature Sensor

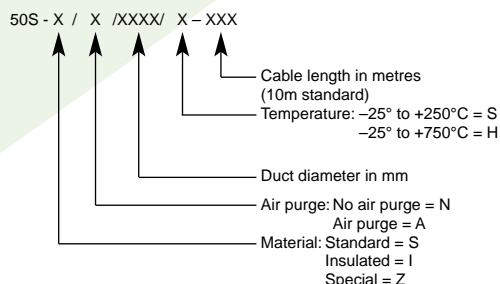


Mounting Details

CONTROL UNIT



SENSOR UNIT AND CABLE (Per Sensor)



About PCME

PCME is a world leader in particulate measurement. The company produces equipment for both emissions monitoring, process control and solids flow monitoring. 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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