



Particulate Monitoring Systems

Continuous Particulate Emission
and Bagfilter Leak Analyser

DT373

Dust Emissions

Monitoring Systems



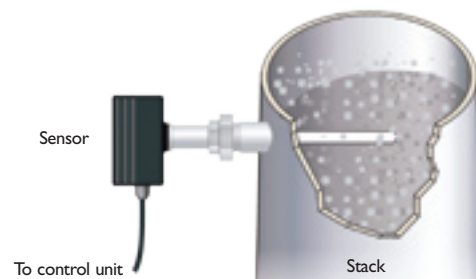
- Similar performance to DT270 particulates emissions with added user interface capability
- Enhanced measurement through unique Electrodynamic technology
- High quality assurance with automatic contamination, zero and span checks
- Up to 4 channels of dust monitoring
- In-built data recording facilities and bag failure diagnostics

Principles of Operation

The DT370 series instruments utilise PCME's unique Electrodynamic measurement principle. When the sensing probe is installed in the duct or stack, particles in the air stream interact with the sensing rod and a charge induction effect is analysed from the probe. Distributions in the particle stream result in a frequency charge induction response which is proportional to the concentration of particles (application dependent). Unlike triboelectric systems, Electrodynamic systems electronically filter out the dc signal caused by particle collision, which makes the quality of the measurement unaffected by build-up on the probe which would otherwise cause zero or calibration drift. Very low concentrations of particulate found after even the most efficient bag filter can be measured due to this unique Electrodynamic technique.

Various independent laboratories have validated this relationship.

Electrodynamic technology also enables the use of patented fully insulated probes, essential for reliable measurement in high humidity applications (after process and spray driers) and applications with high conductive dust loadings.



Modes of Operation

The DT370 series instruments are particularly suited for monitoring particulate emissions from industrial applications controlled with bagfilter-type arrestment plant having rugged performance and sufficient resolution for these applications. The instrument's output is directly proportional to particulate and may be used to monitor emission tendencies or calibrated in mg/m³ by comparison to the results of an Iso-kinetic (gravimetric) sample. The instrument has in-built data recording and graphics display capability enabling emission trends to be easily viewed and plant data can be averaged and recorded in the instrument for alarm purposes and external emissions reporting (via optional DustReporter 2).

All DT370 type instruments have an in-built alarm log which ensures all alarm conditions (emission events, self-check results, instrument failure) are properly stored for reporting purposes and have a separate user defined data log which may be set-up to record data for one of the following purposes:

Broken bag mode (pulse log)

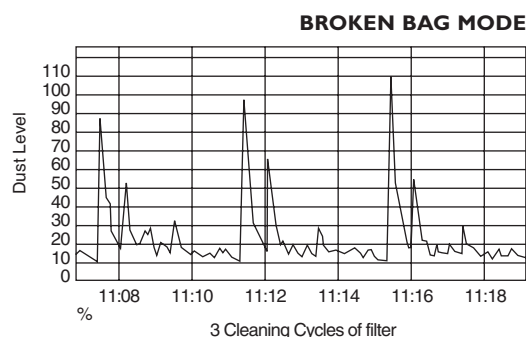
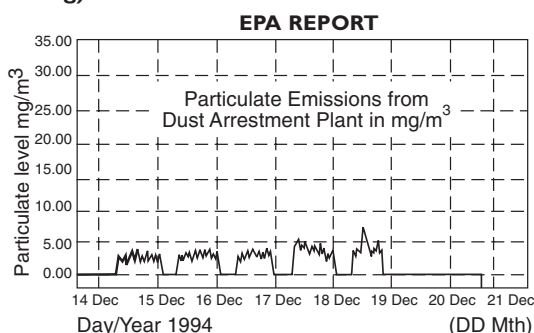
- Short term emission pulses arising from bag cleaning can be recorded and analysed (2 hours of pulse data to cover multiple cleaning cycle)
- Permits anticipation of arrestment plant failure
- Assists location of broken bags

Emissions reporting mode (long term log)

- Calculates and stores emission averages for up to 600 days (@ 15 min average)
- DustReporter 2 PC software used for data archiving and external reporting

Process control mode (short term log)

- Stores instantaneous or short term average data for past 24 hours
- Emissions can be reviewed on instrument for effective trend analysis



Automatic self-checks

DT373: is provided with an Insulator Short circuit test, an internal diagnostics check which hourly monitors for a change in resistance in the insulator at the base of the sensor rod. While the sensing rod is tolerant to dust contamination (due to Electrodynamic performance), it is important that the insulator remains fully operational. While this check rarely fails, since the insulator is not directly in the particle flow, it provides a fail-safe method of ensuring good Electrodynamic measurement.

DT373: is also provided with automatic zero and span checks which apply simulated Electrodynamic signals directly at the sensor's electronic input. This feature is of particular value for regulatory monitoring providing positive feedback that the instrument operation is within specifications.

The sensor is also provided with an internal coms check to ensure that there is proper digital communication between the control unit and sensor (ensures good cable connection) and that the sensor's microprocessor is fully operational.



Features

- Expandable to four dust sensors digitally linked to central user interface module
- Quality Assurance features and screens for analysis of self-check results
- Alarms (with configurable delay) based on both rolling average data and instantaneous data for reliable plant failure detection and diagnostics.
- Unique graphics display and data logger (for trend analysis)
- In-built datalogger for Environmental (600 days), Process control or Broken bag mode
- Automatic zero, span, probe contamination and system check options
- Auto-ranging and Dynatrack feature (instrument adjusts its dynamic range to track fast moving dust pulses (typically found after reverse jet baghouses) to ensure good measurement
- Simple calibration mode after iso-kinetic sample
- Accepts inputs from analysers for on board normalisation (T,Oxygen, P)
- Secure data and password protection
- Interlinks to DustReporter 2 reporting and analysis software for on-line control and historical reporting using PC

Memory Capacity (user selectable pulse, short term or long term logger)

Event Log	Log for emission events (instantaneous or average emissions), self-checks and instrument alarms
Pulse Data	Displays and records 2 hours of cleaning cycles
Short-term Data	Rolling 24 hour data at 30 second store rate
Long-term Data	16,000 data points (eg 600days @ 1hour average). Average period fully adjustable from 30 seconds to 24 hour)

Functions

Calibration Mode (mg/m3)	Computes calibration factors associated with isokinetic test and associated instrument average
Review of Memory	Graphics trend or listing display of stored data
Access Security	Password level to protect unauthorised entry
Data Security	Data stored in non-volatile memory.
Emissions Display	Multibar and overview screen of emissions on up to 4 channels
Configuration and Set-up	On board screens or PC configuration (config wizard)

Control unit/AOM unit

	Control unit	Expansion (AOM) unit
Enclosure Rating	IP-65	IP-65
Enclosure Size and Weight		
Enclosure Material		
Power Supply	90-250VAC (50/60Hz) 250mA	Supplied via control unit (24V DC)
Temperature range	-25°C to +55°C	-25°C to +55°C
Dust Outputs	1 x 4-20mA (isolated)	4 x 4-20mA (isolated)
Digital Output	Modbus RS-232/485 for PC connection	Via control unit
Alarm Outputs	2 x SPSC relays (5A) Assignable	8 x relays (via optional ROM module)

Instrument Specifications

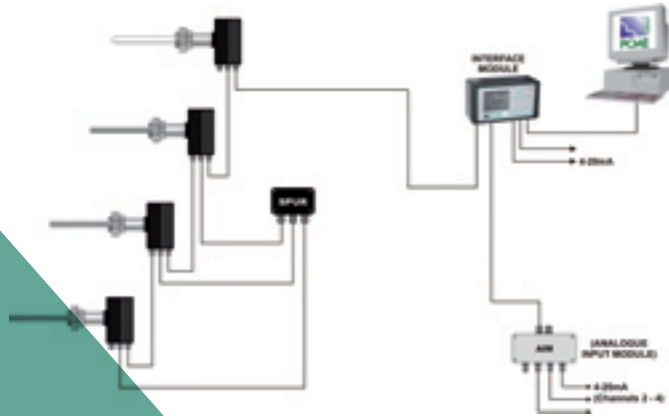
Resolution	<0.01mg/m ³
Response time	<10 seconds for 95% change (user selectable)
Self checks	Automatic zero, span and probe short-circuit checks

Sensors and Cables

Sensor types Standard temperature Optional	up to 250°C up to 400°C up to 800°C up to 1000°C
Sensor rod lengths	100, 200, 300, 400, 500, 600, 800 & 1000
Connection required on duct	1½" BSP (female)
Enclosure weight	1.8 kg

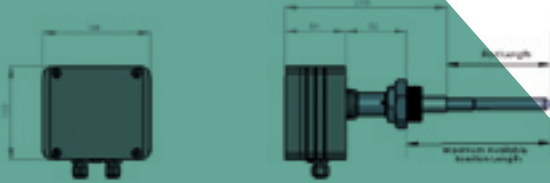
Enclosure temperature rating	-25°C to +55°C
Enclosure rating	IP65
Sensor rod material Special	316 stainless steel Fully insulated Sensor*
Air purge option Airline connection Air consumption Air pressure	¼" BSP Up to 0.5 litres/min 4 barg min, 10 barg max
Sensor enclosure material	Die-cast aluminium (epoxy-coated)
Cable from sensor	4-core screened
Cable length	10 m standard : 300m max

System Layout

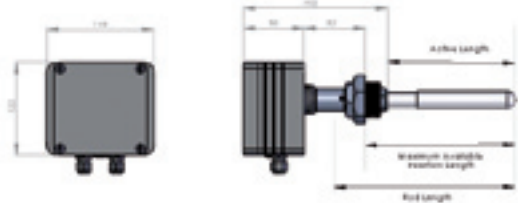


Physical Dimensions

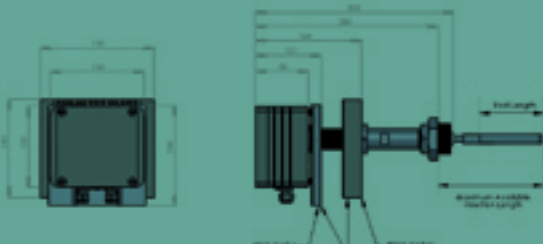
Standard Sensor



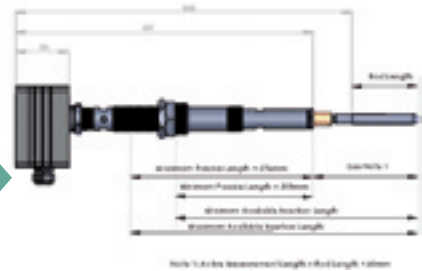
Insulated Sensor



High Temp Sensor

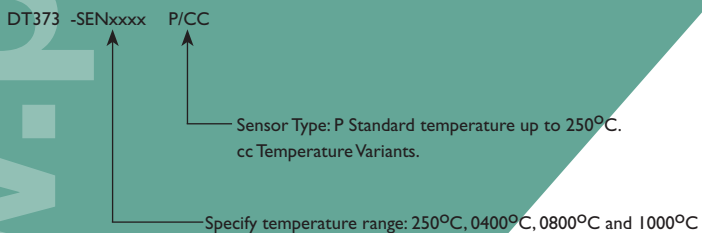


Passive Sensor

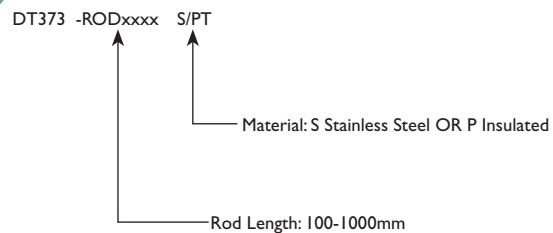


Product Ordering Codes

SENSOR



ROD



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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