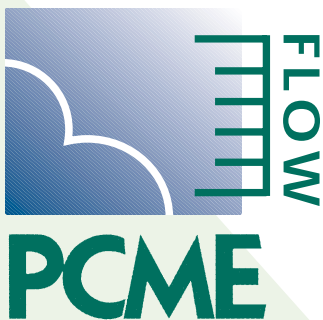


DUST



FLOW

## PARTICULATE MONITORING SYSTEMS

### ACCREDITED DUST MONITOR

*Continuous particulate emissions monitoring and recording system comprising probe and combined control unit/microprocessor-based datalogger*

DT770 & DT270

DUST

EMISSIONS

MONITORING

SYSTEM



- Instrument accredited to TA LUFT standards.
- Full report and analysis facility by linking to any PC and printer †
- Up to 4 channels of dust monitoring via expansion module
- Capable of monitoring in dry, humid and wet gas streams using patented insulated probe option
- Enhanced measurement through unique Electrodynamic® technology
- Continuous quantitative monitoring in mg/m<sup>3</sup> to satisfy U.K. and European Environmental Legislation

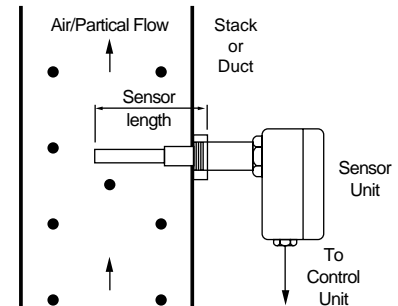
† Optional on DT270

## Principles of Operation

The DT270/770 utilises PCME's unique Electrodynamic<sup>®</sup> 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 affect is analysed from the probe. Distributions in the particle stream result in a frequency charge induction response, which is directly proportional to the concentration of particulate. Unlike Triboelectric systems the measurement is not affected by build up on the probe, which can cause zero and calibration drift. Very Low Dust concentrations can also be measured due to this unique Electrodynamic<sup>®</sup> technique.

Various independent laboratories have validated this relationship.

PCME's Electrodynamic<sup>®</sup> technique also enables the use of fully insulated probes essential for use in high humidity and wet gas streams as well as applications with high conductive dust loadings.



## Modes of Operation

The DT770 & DT270 calculates and records both the <sup>†</sup>EPA averages (EPA mode) and instantaneous levels of emissions (Process Control Mode). The instrument is calibrated to quantitatively monitor in mg/m<sup>3</sup>, by comparison with the results of an isokinetic sample.

### BROKEN BAG MODE

- Graphically displays filter cleaning cycle (Broken Bag Mode)
- Permits anticipation of arrestment plant failure
- Assists diagnosis of location of broken bags

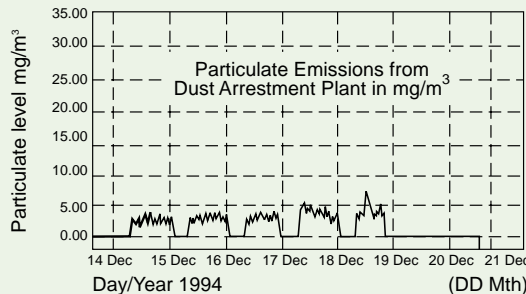
### <sup>†</sup>EPA MODE

- Calculates and records average emissions in mg/m<sup>3</sup> for up to 24 hours using 30 second averages and up to 600 days (if using 1 hour averages)
- Activates alarms on instantaneous and average emission limits, instrument faults and memory full condition
- Downloads data to standard PC (including laptop and notebook computers)
- EPA Reporter software produces a comprehensive graphics EPA report

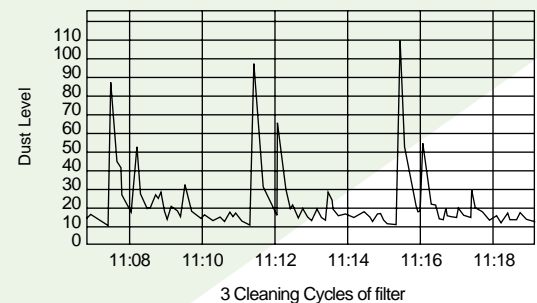
### PROCESS CONTROL MODE

- Stores instantaneous emission for past 24 hours
- Emissions can be reviewed using on-board graphical display for effective trend analysis
- PC connectable (laptop and notebook computers) for emission display and analysis in real time

EPA REPORT



BROKEN BAG MODE



## Features

- Environmental and Process Control modes
- Unique graphics and digital display (for trend analysis)
- Automatic zero, span, probe contamination and system checks
- Records both <sup>†</sup>EPA data and instantaneous data (for process control)
- Broken bag diagnostics (remote broken bag diagnostics optional)
- Full on-board review feature
- Records data from other monitors
- Autoranging capability
- Simple calibration mode after isokinetic sampling
- Expandable to 4 sensors
- Secure data and password protection
- Interlinks with EPA Reporter reporting and analysis software for on-line control and historical reporting using PC
- 24 hour memory
- <sup>†</sup>18 month memory capability

## Electrodynamic<sup>®</sup> Features for Enhanced Measurement

- Dynatrack** Instrument automatically adjusts it's dynamic range to track fast moving dust pulses (typically found after reverse jet cleaning baghouses) to ensure good measurement
- AGC** The instrument automatically adjusts its gain control to suit varying dust loading applications (no need for user to adjust gain controls or potentiometers)
- AZC** Automatic Zero Compensation eliminates drift due to frequency driven signal processing.
- Alpha check** Inbuilt system check, processor driven for system integrity
- Beta check** Digital communication check for sensor integrity
- ECD** Inbuilt Error Code Diagnostics visually displayed for user information
- Gamma check** Instrument zero, span and probe short circuit check

### Memory Capacity (Per Dust Channel)

24 hour memory	Rolling 24 hours at 30 second store rate
Broken Bag	Displays one complete cleaning cycle
<sup>†</sup> EPA memory	16000 data points (e.g. 600 days @ 1 hour store rate)
<sup>†</sup> Storage and averaging of EPA memory	Adjustable over range of 1 minute to 8 hours

### Functions

Monitoring units	mg/m <sup>3</sup> , g/m <sup>3</sup> , units or user defined
Calibration mode	Computes calibration factors associated with isokinetic sampling
Review memory	Graphics or listing display of stored data
Channel name	10 letter name (eg kiln stack) to identify stack
Access security	2 password levels protect unauthorised entry
Data security	Data stored in non-volatile memory
Broken bag mode	Displays bag cleaning cycle in progress

### Inputs/Outputs (per channel)

Type	Name	Specification	Function
Output	Dust emissions	4-20mA isolated (max 250Ω)	Scalable over full range of emissions
Output	Serial O/P	RS-232	Download of emissions data to PC
Output	Relay 1	Single pole make rated 2A, 230V	Emission Alarm 1/Instrument Alarms
Output	Relay 2	Single pole make rated 2A, 230V	Emission Alarm 2
Input	Digital 1	Digital	Plant running signal
Input	Digital 2	Digital	Bag cleaning reference pulse
Input	Alt. Sensor	0-10V, or 4-20mA	Ancillary input**

\*\*Auxiliary input boards connected to spare channels in the expansion module can accept readings from any sensor with 4-20mA output. (optional extra)

### Control /Expansion Unit

	Control Module	Expansion Module
Enclosure rating	IP65	IP65
Enclosure size (mm)	160w x 90d x 260 l	160w x 90d x 360 l
Enclosure weight	3kg	4.5kg
Enclosure material	Die-cast aluminium (epoxy-coated)	Die-cast aluminium (epoxy-coated)
Power supply (switchable)	110Vac or 230Vac 50Hz/60Hz 10VA	110Vac or 230Vac 50Hz/60Hz
Fuse rating	250mA	250mA
Display type	Backlit LCD providing numerical and graphical display	N/A
Temperature range (electronics)	-25°C to +55°C	-25°C to +55°C
No. of dust channels	1	Up to an additional 3

### Instrument Specifications

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

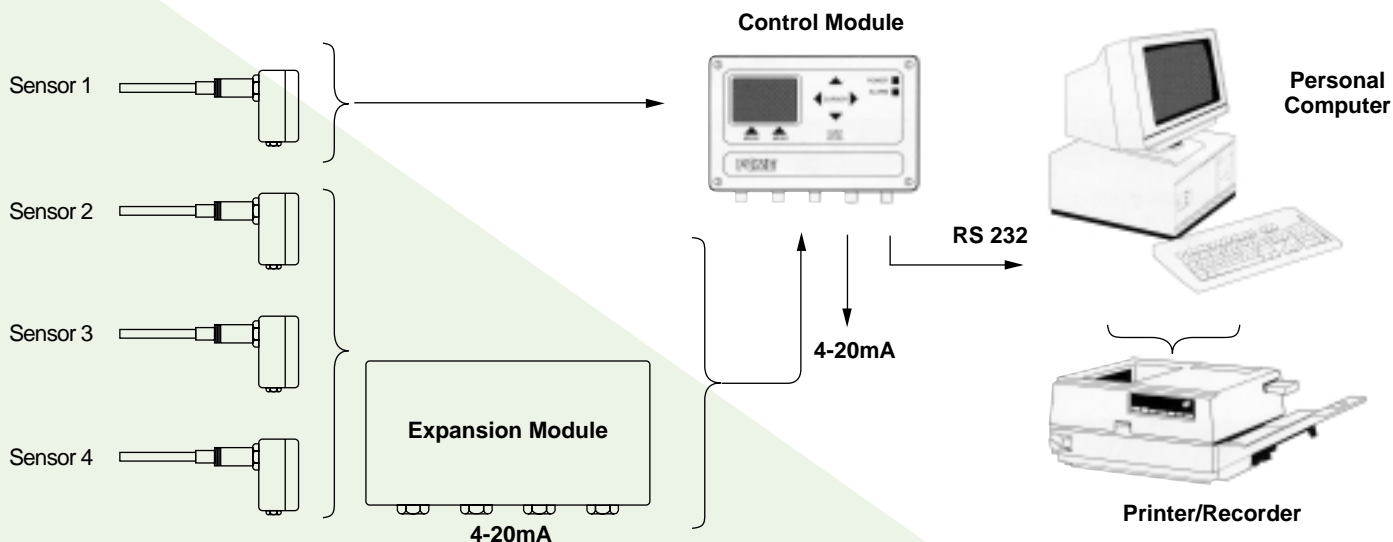
### Sensors & Cables

Sensor types Standard temperature Optional	upto 250°C upto 400°C upto 800°C Over 800°C consult factory	Enclosure temperature rating	-25°C to +55°C
Sensor lengths	100, 200, 300, 400, 500, 600, 800, 1000 & 1500mm.*	Enclosure rating	IP65
Cross-stack probes*	From 2000 to 6000mm available on application	Sensor rod material Special	316 stainless steel Fully insulated Sensor*
Connection required on duct	1½" BSP (female)	Air purge option Airline connection Air consumption Air pressure	¼" BSP Up to 0.5 litres/min 4 barg min, 10 barg max
Enclosure weight	1.8 kg	Sensor enclosure material	Die-cast aluminium (epoxy-coated)
		Cable from sensor	8-core screened
		Cable length	10 m standard : 300m max

\* optional extra

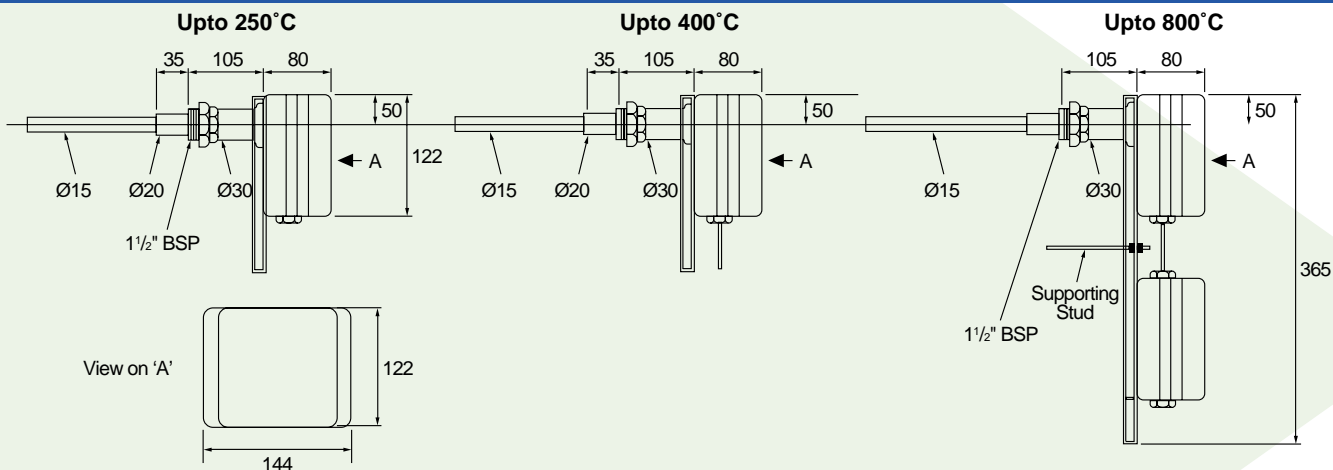
N.B. † Refers to options available on DT770 only

System Layout

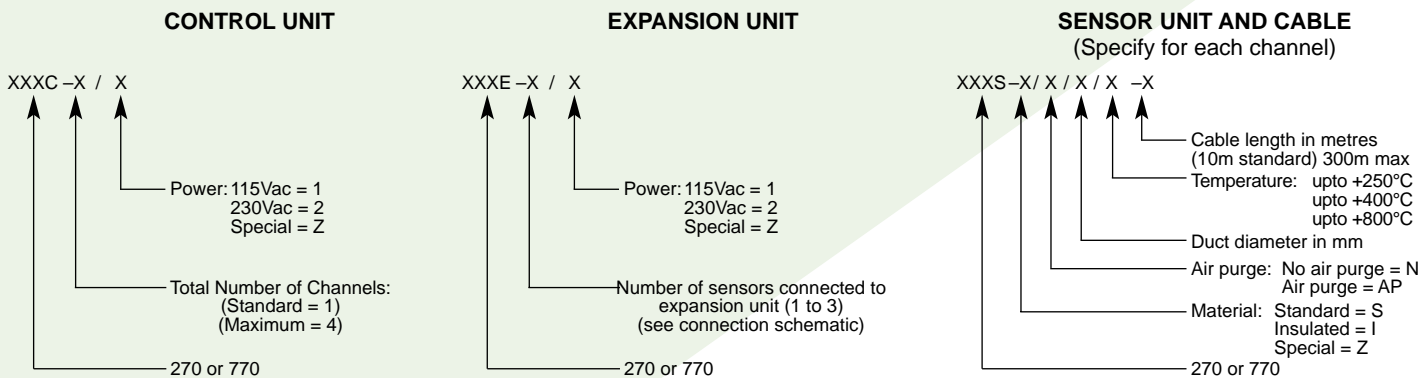


For connection details, refer to Installation and User Manual

Physical Dimensions



Product Ordering Codes



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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