



PARTICULATE MONITORING SYSTEMS

Continuous Fabric Filter Performance Monitoring

DA550

PARTICULATE

EMISSIONS

MONITORING

SYSTEMS



- US patented AC Electrodynamic measurement principle provides measurement stability, velocity insensitivity* and tolerance to dust build up

- Single point or network (up to 32 sensors) solution for baghouse and dust emission monitoring

- On-board graphics, bargraph and trend screens to facilitate data interpretation

- Built-in data recording and reporting



Certificate No: 9389

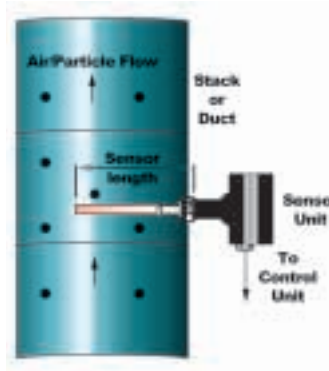
Dust Emission Monitoring for Bagfilters

The DA550 is a cost-effective dust emission monitoring system for baghouses, incorporating network and advanced graphics capability usually associated with more advanced systems. It is designed for use in any process which has particulate control installed, eg bag, ceramic and cartridge filters, cyclones and spray driers, where dust monitoring is required. The system comprises up to 32 networked sensors, a central control unit, data acquisition and optional reporting software.



Principles of Operation

The DA550 uses patented AC Electrodynamic technology, an advanced Triboelectric method. The DC signal created by particles colliding with a probe inserted in a stack is electronically filtered out, leaving an AC signal resulting from charged particles passing and interacting with the rod. Since the signal includes no DC component, the instrument has minimal cross sensitivity to changing velocity* and has increased stability even with dust build up on the rod sensor. The dust signal is amplified, digitized and processed at the probe, consistent with good signal to noise design techniques. The processed signal is proportional to dust concentration although the exact correlation is application dependent. Instruments using the same Electrodynamic technology have had this linear relationship validated in independent certification tests (specifically German TÜV, BImSchV 17, and UK MCERTS on bagfilters).



An insulated probe option is also available to minimize false signals resulting from dust build up at the base of the sensor, which can occur in process dryer and conductive dust applications. Unlike other insulated sensors, this sensor operates with AC signal analysis which provides measurement stability, velocity insensitivity and tolerance to dust coating on the sensing part of the rod.

*Insignificant effect for velocities between 8-20m/s

Satisfying MACT Standards

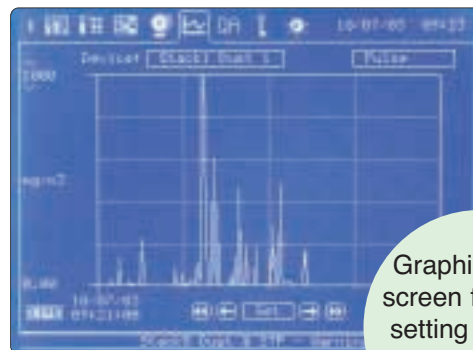
The DA550 has the tools to satisfy the EPA guidance procedure for fabric filter bag leak detection. Its minimum detection level of 0.1mg/m³ easily meets the EPA requirements under the MACT standards.

Consistent with EPA Guidance, the instrument has two options to set alarms:

- 1) Using dust peak height as an early indication of filter failure.
- 2) Using average dust level to identify significant filter failure. Alarm delay is used to discriminate filter failure from dust pulses arising from bag cleaning.

Recording of emission alarms and average emissions (pulse, short-term, or long-term) is built into the control unit and optional 'Dust Reporter 2' PC software can be used to download data from the control unit and produce reports.

An optional signal generator can be used to satisfy the EPA requirements for monthly zero and span drift checks. The alternative DT990 sensor has automated zero and span checks for users who wish to save manpower. The DT990 sensor has additional features listed below:

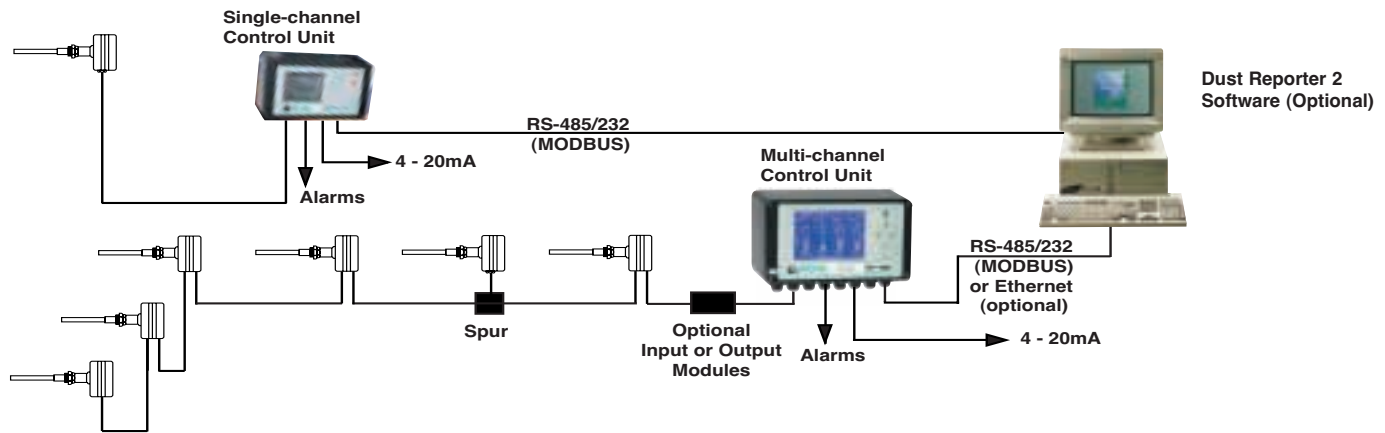


Graphics pulse screen facilitates setting of alarm levels relative to peak heights

	DT990	DA550	
Quality Assurance/Audit	Self test Alarm log and Audit Path	Continuous	Manual by written log
	Sensor Diagnostic Check	Automatic	Manual using procedures below
	Monthly electronic Zero Check	Automatic (every hour)	Manual using signal generator
	Monthly electronic Span check	Automatic (every hour)	Manual using signal generator
	Contamination Check	Continuous	Removing sensor from stack & inspection
	QA Screen	Continuous	None
Sensor Capability	Signal Time Constant	Instant and Average	Instant or Filtered
	Reproducibility*	>50	>30
	Dynamic Range	1,000;000:1 (Dynatrack)	10;000:1
	Minimum Detection Level	0.01 mg/m ³	0.1 mg/m ³

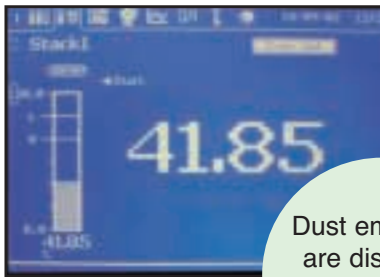
*Reproducibility = certification range / standard deviation for two instruments in field trial as independently evaluated by TÜV.

System Layout

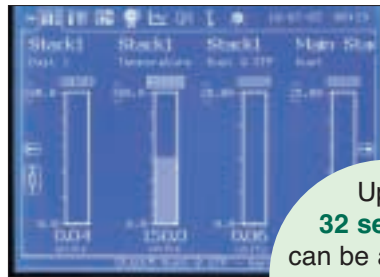


Control Unit

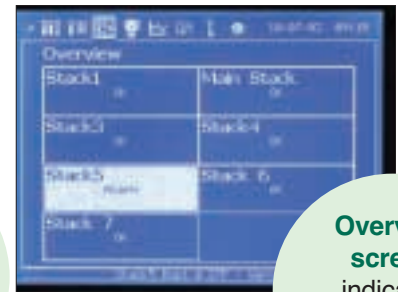
The following user interface is provided by the control units. The multi-channel control unit allows for future expansion. Specifications are below.



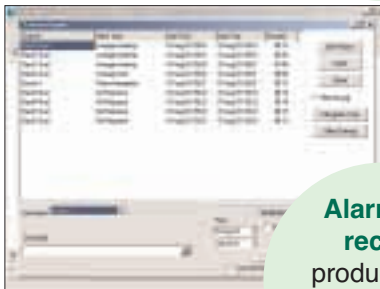
Dust emissions are displayed with **alarm level**



Up to **32 sensors** can be accessed on a **multi-channel control unit**



Overview screen indicates **alarm location (multi-channel)**



Alarm log record produced by Dust Reporter software

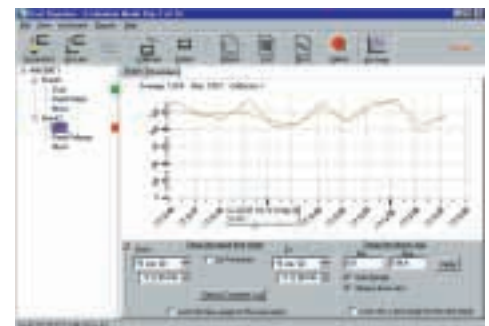
	Single Channel	Multi-Channel
Number of Channels	1	1-32
Order Code	DA550S--CON	DA550M--CON
Size (mm)	220w x 123h x 80d	260w x 160h x 90d
Power Supply	90-260 VAC (50/60 Hz)	90-260 VAC (50/60 Hz)
Enclosure Rating	IP65	IP65
User Screens	- Set-up - Trends - Memory - Alarm Log - Bargraph	- Set-up - Trends - Memory - Alarm Log - Multiple Bargraph - System Overview
Memory	User Defined: Pulse, Short OR Long	User Defined: Pulse, Short OR Long
Output	1 x 4-20 mA 2 x Relay RS232/485 (MODBUS)	4 x 4-20 mA* 4 x Relay* RS232/485 (MODBUS) Ethernet (option)

* For additional outputs analogue and relay output modules are available

'DustReporter 2' Software for PC (option)

Analysis and Historical Reporting:

- Automatic* or user controlled transfer of data from control unit's internal dataloggers to PC for further analysis and reporting
- Pre-configured and user configurable environmental report formats*
- Easy access to historical data and alarm logs*
- "Zoom" function permits data to be viewed rapidly and concisely for analysis
- Windows 95, 98, 2000, XP and NT compatible
- Alarm reports
- On-line alarm overview and graphs from various sensors displayed on PC screen*
- Bag failure location* (Predict)
- Real-time alarm overview



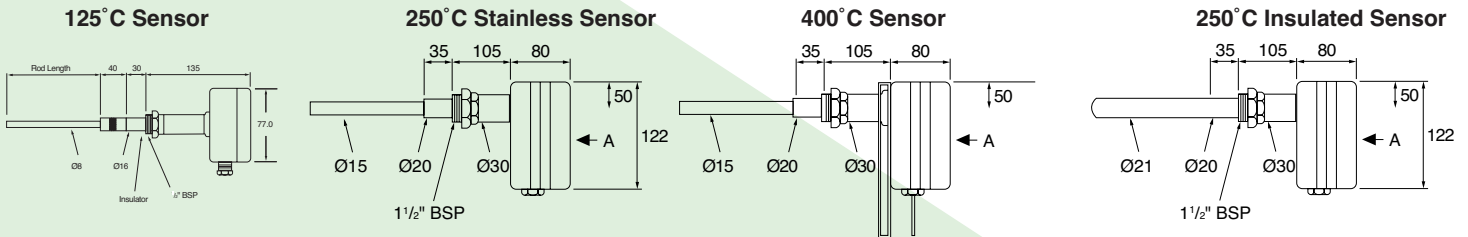
Typical Emission Graph

*optional features

Sensors

Sensors comprise both a sensor body and insulated or stainless sensor rods. The tables below show order codes for the sensor body and sensor rod, which must be specified separately. Occasionally an additional air purge is fitted for very conductive applications.

Temp Range	For Rod Type	For Rod Diameter	Weight kg	Sensor Body Order Code
up to 125°C	316 Stainless	8mm	0.5	DA550--SEN0125P
up to 250°C	316 Stainless	15mm	1.8	DA550--SEN0250P
up to 400°C	316 Stainless	15mm	1.8	DA550--SEN0400C
up to 250°C	Insulated (PTFE)	21mm	1.8	DA550--SEN0250I
up to 400°C	Insulated (Ceramic)	16mm	1.8	DA550--SEN0400I



The sensor rod material is either 316 stainless steel or for humid (eg process dryer) applications a patented insulated rod. To ensure representative measurement, the sensor rod is selected for a particular stackduct size (which should be specified). Typically the rod length is at least half the stack diameter.

Rod Order Code :
DA550 - - ROD x x x x X

- S 316 stainless
 - P PTFE (insulated)
 - C Ceramic (Insulated)
- Rod Surface
 Rod Length in mm (eg 0500)

Stack/Duct Connection	1 1/2" NPT or 1 1/2" BSP socket
Ambient Temperature Rating	-25°C to +55°C
Enclosure Rating	IP65
Sensor Enclosure Material	Die-cast Aluminium (epoxy-coated)
Air Purge (optional)	DA550- - AIRPURGE
Stack Pressure	>30PSI

Optional Components

Component	Purpose	Specification	Size (mm)
Cable	Power (+24v DC) and communication (RS-485) to sensors from control unit	4 conductor overall screened cable, diameter <0.8mm (Each conductor < 0.5mm ² <50 ohm/km, and suitable for RS-485) Eg. Batt cables 85364	10m per sensor (included) Extendable to >1000m*
AIM (Analog Input Module)	Input data from external devices (eg Pressure Drop)	4 x 4-20 mA inputs 4 x Digital Inputs (contact closure)	160w x 80h x 65d
SPUR	Divides cable into 2 branches	3 cable connections	100w x 66h x 46d
PSU/Repeater	Voltage and signal boost for extended cabling runs with multiple sensors	90 - 260 VAC input (50/60 Hz) 24V DC output	222w x 125h x 81d
Analogue Output Module	Additional 4-20 mA	8 x 4-20 mA (500 ohms)	
Relay Output Module	Additional Relay	8 x Relay (1 Amp@250V)	
220 sensor	Broken bag detector (alarm only)	Temperature up to 125°C (250°C option)	1/2" BSP stack connector
DustReporter 2	PC Reporting software	Windows 95, 98 NT, XP	

About PCME

As a progressive environmental Company, PCME specializes in particulate measurement for industrial processes. With a worldwide reputation for reliability, innovation and technological excellence, the Company produces equipment for concentration, velocity 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. PCME-US is PCME's independent distribution partner for the US and is a division of B3 Systems.

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