

Particulate Measurement System Sensor

MODEL : SEN990-400S



ELECTRODYNAMIC™
INCUBATOR

SPECIFIC FEATURES:

- Extensively used for measurement (mg/m^3) and leak location in bagfilter stack applications
- Upgradeable to include control for up to 32 sensors, plus 16 additional calculated channels (e.g. for Mass or normalised concentration)
- Advanced sensor design includes zero, span and unique contamination checks



TUV Approved
for plants with German
regulations according to
13., 7., 27 BImSchV

TECHNOLOGY / APPLICATION

SYSTEM DESCRIPTION

The PCME STACK 990 is an approved particulate measurement system for continuously monitoring emissions from industrial sources. It is predominantly used to monitor particulate emissions in stacks after bagfilters, cartridge filters, cyclones and process driers. The instrument combines regulatory approvals (TUV Approved BImSchV 13, 17 and 27) for both dust measurement and leak monitoring, with reliable automatic quality assurance features, rugged operation and advanced diagnostics capability for managing and improving the operation of bagfilter arrestment plant.

There are two versions of the PCME STACK 990, the Standard and PRO variants. The PCME STACK 990 Standard system is a single-sensor system, the PCME STACK 990 PRO is a multi-sensor networked system (for up to 32 sensors) for multi-stack and plant-wide monitoring.

In addition, both the standard and PRO versions of the instrument also support the following capabilities:

- Normalisation for T and O₂ (with inputs from other analysers).
- Mass calculation (kg/year) capability for both fixed and varying velocity applications (varying velocity requires velocity input).
- Emission reporting and data analysis via optional PC software.
- Internal data logging for emission recording and data archiving.



PROCESS AND APPLICATION CONDITIONS



- Stack temperature ranges: up to 250° C, option to 400° C and 800° C
- Long-term zero drift: < 0.1 mg/m³
- Measurement capability: 0 – 500 mg/m³
- For dry and humid applications with up to 95% RH, non-condensing.
- Not suitable for electrostatic precipitators (ESPs) or applications with water droplets.
- Stack diameter: 100 mm to 6 m (flow-profile dependent for large stacks).

PRINCIPLE OF OPERATION

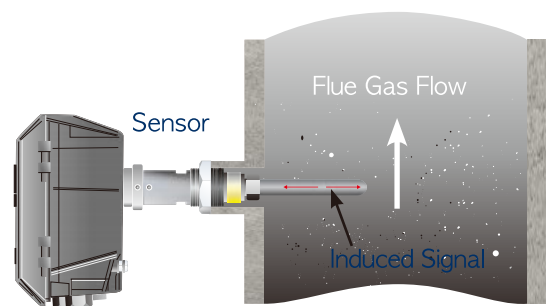
The instrument uses ENVEA's unique and patented ElectroDynamic Probe Electrification technology. The sensor electronics measure the current signal created by particles interacting with the grounded sensing rod, which protrudes into the stack.

A specific frequency band of this signal is extracted and the DC current caused by particle collisions is filtered out. This signal may be correlated to dust concentration by comparison to the results of an isokinetic sample.

Core features of the ElectroDynamic Probe Electrification technology are that the generated signal is:

- Unaffected by contamination on the sensor rod (which can cause signal drift issues for other systems).
- Not affected by variations within typical bagfilter velocity ranges.

- Reliable and stable – technology used in the first ever probe-electrification instrument to become TUV Approved.



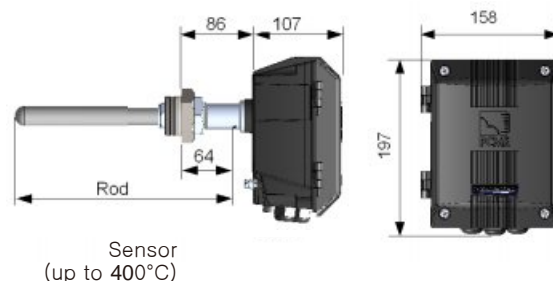
PRODUCT FEATURES

ADDED VALUE FEATURES - CONTROL UNIT

The PRO version of the PCME STACK 990 is powered by ENVEA's ProController, which provides central communications for analysing emissions data and trends and compliance reporting, as well as data recording for plant networks with multiple sensors (and up to 32 channels) and links the sensors into data acquisition systems (DAHS/DCS). A number of interfaces (including Ethernet and USB 2.0) are available for simultaneous communications to data reporting systems and for temporary service connections. The Standard version of the PCME STACK 990 is for simple, single-sensor systems and is powered by the Standard Controller.

SENSOR [SEN990-400S]

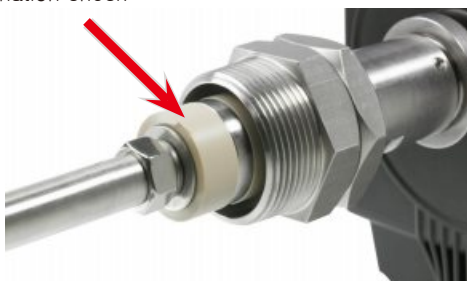
Performance Specifications	
Performance Certification	TUV BlmSchV 13, 17 and 27
Measurement Capability	0-500 mg/m
Long-term Zero Drift	<0.1 mg/m
Velocity Range	> 6 m/s
Stack Temperature Rating	-20 °C to +400 °C
Electrical Specifications	
Power Supply Voltage	18-24V DC (from the control unit)
Cable entries	3x M20 glands
Mechanical Specifications	
Enclosure Protection Rating	IP65 (IP66, Ex-rated sensors only)
Enclosure Material	Die-cast aluminium
Standard Process Connections and Sensor Body Material	316 Stainless steel (insulated variants: PTFE coated)
Weight	1.8 kg (standard sensor)
Probe rod lengths	100-1000 mm (insulated variants: 200 -1000 mm)
Stack Connection	1.5" BSP



The PCME STACK 990 includes advanced automatic functionality checks to provide high quality assurance:

- A probe rod short-circuit check enables the operator to know when the sensing rod may be electrically shorted to the stack.
- A patented probe rod contamination check provides the operator with an advance warning check of a possible probe short-circuit, enabling predictive sensor maintenance scheduling, thus reducing down times and providing confidence in signal quality.
- Automatic electronic drift checks improve measurement reliability and ensure that the instrument is in compliance with regulatory standards. The self-checks ensure the major part of the instrument is challenged during these tests unlike Triboelectric dust monitors.

Advanced probe contamination check



		SENSOR
Accessory Devices	SPUR provides sensor network connection and local isolation during maintenance	1
	Air Filter & Regulator Assembly	1
	Insulated Air Purge Fitting	1
	Air Pulsing Timer Pick Up Module	1
	2'' Welding Nozzle	1



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