PCME STACK 710

Opacity Measurement System

PROCESS & EMISSIONS MONITORING SYSTEMS

OPACITY INSIDE

SPECIFIC FEATURES:

- Meets or exceeds US EPA requirements for 40CFR60 Sections 13, 17 and App. B PS-1
- Outstanding reliability with no continuously moving parts
- Unique measurement technology incorporating “no drift” zero check
- Automatic in-situ zero and span checking with built-in calibration audit

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2017

QAL1 Certified

PS-1 US EPA Compliant CEM

TÜVRheinland CERTIFIED

Suitability Tested
EN 15267
QAL1 Certified
Regular Surveillance

www.tuv.com
ID 0000038498

www.envea.global

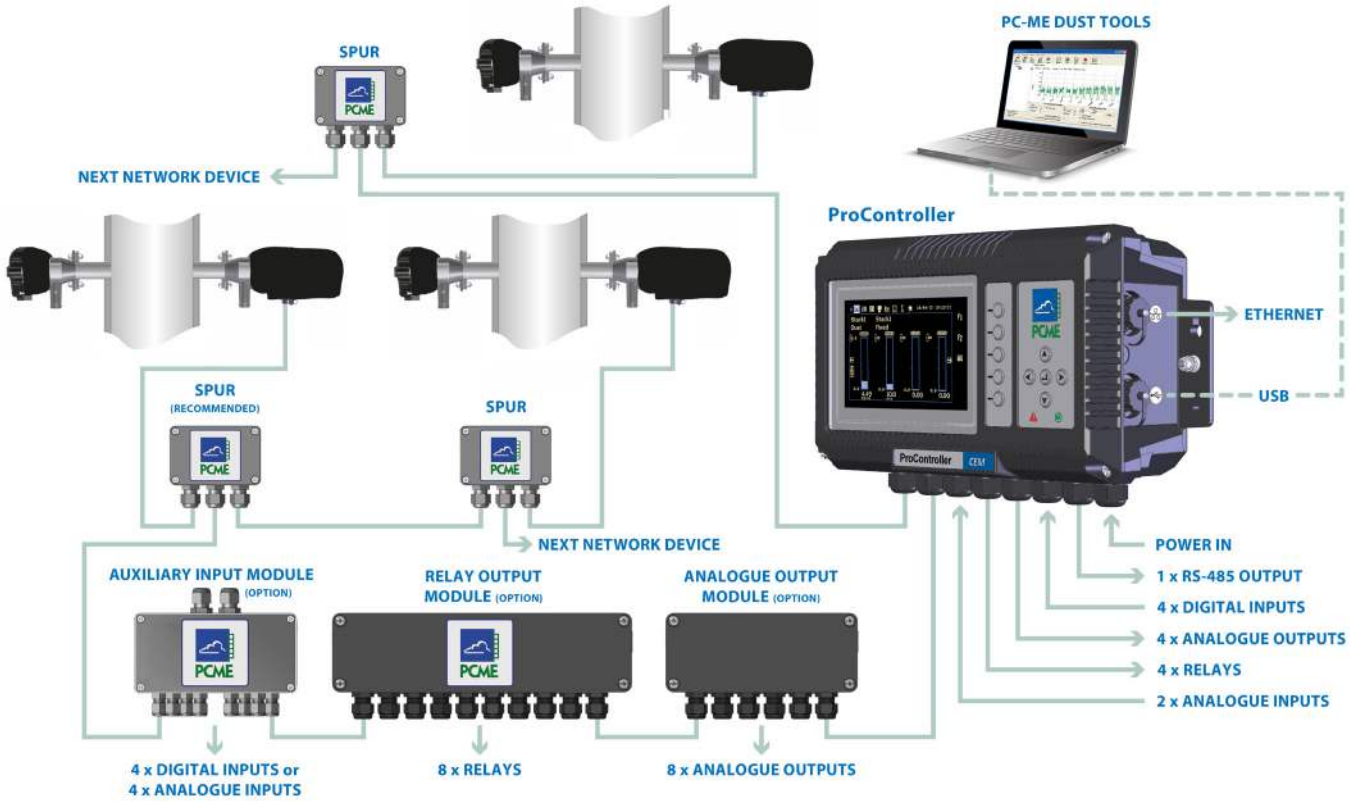
TECHNOLOGY / APPLICATION

SYSTEM DESCRIPTION

The PCME STACK 710 Opacity monitor meets or exceeds US EPA PS-1 requirements for Opacity monitoring from combustion stacks providing class-leading performance in a compact, light-weight and easy-to-use instrument. As part of the ENVEA family of products, the PCME STACK 710 supports the functionality of being connected to an Interface Module or ProController (for multiple sensors, Ethernet communication, graphs, historical data screens with graphs and trending, as well as data logging for emissions reporting, redundancy and data analysis functions). In addition, the instrument can be included as part of the ENVEA's dust monitoring network, including Particulate Monitors, Filter Performance and Leak Monitors, to form an unrivalled plant-wide dust monitoring system.

Designed for Compliance Monitoring

- Meets or exceeds US EPA requirements for 40CFR60 Sections 13, 17 and App. B PS-1.
- Meets or exceeds US EPA requirements for proposed 40CFR60 App. F Procedure 3.
- Meets or exceeds ASTM Standard D6216.



ADVANCED FEATURES AND BENEFITS

- Outstanding reliability – no continuously moving parts.
- Low maintenance – simple access to optics if required.
- High accuracy and repeatability – designed to meet or exceed US EPA PS-1 monitoring applications.
- Unique measurement technology – unique "no drift" zero check.
- Automatic in-situ zero and span checking – built-in calibration audit.
- Range of instrument outputs – opacity, extinction and dust density.
- User friendly – an icon-driven, integral control panel for setup, control and diagnostics on the sensor or via the control unit.
- Integral air purges – prevents dust and corrosive gases from contaminating the optical system (a separate blower system is required).
- Easily integrated into plant control system – 4-20mA and Modbus RS-485 outputs as standard.
- Low-level measurement through advanced LED design – Opacity from 0–10% to 0–100%.

- Suitable for path lengths up to10 m (factory set) – varying Opacity levels.
- Advanced user features/benefits – separate and remote advanced digital Interface Module or ProController / data logger/ graphical user interface (GUI) with Modbus RS-485, RS-232, Ethernet capability.
- New compact design – simplifies installation and reduces air purge requirements.

The PCME STACK 710 uses a homogeneous advanced LED light source to reduce the effect of misalignment on the measured opacity. Together with a "Flood LED", it achieves the highest levels of stability and accuracy. The "no moving parts" optical system gives an instrument with exceptional reliability and proven low-measurement capability beyond most standard Opacity monitors.

*Key features are covered by UK & US patents.

PRODUCT FEATURES

ADVANCED FEATURES AND BENEFITS

Easy Auditing
Periodic performance verification could not be simpler. The built-in audit jig accepts standard optical filters and the zero alignment can be confirmed without removing the instrument from the stack.

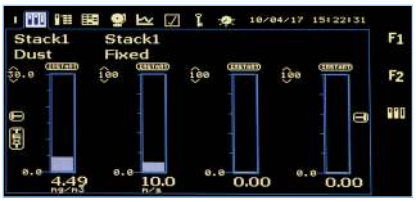
Icon-driven Setup
The instrument can be set up and configured via the integral control panel. The icon-driven menu system assists a language-free and intuitive UI.

Dust Density
Dust density monitors must be calibrated by comparison with an isokinetic sample test, as in PS-11.

Automatic Self-checks
The PCME STACK 710 has fully automatic zero and drift compensation system. An automaticspan check mechanism confirms the instrument calibration at user-defined intervals.

PROCONTROLLER FEATURES

- Displays instantaneous and average emissions (bar graph, text and online graph).
- Customisable 'channel grouping' screen for displaying related data, e.g. dust, velocity, O2.
- Icon and multilingual user interface.
- Monitors data from external sensors for normalisation and centralised analysis, e.g. velocity, O2, Temp, etc.
- Status screen for concise display of alarm conditions.
- Controls up to 32 ENVEA sensors provided suitable power is supplied (ProController option only).
- Dual alarm levels with alarm delays.
- Instrument review of three simultaneous memories (Long Term, Short Term and Pulse).
- Alarm log for instrument and emission alarms.
- Windows compatible software to download to PC for reporting (optional).
- Multiple calibration factors.
- Large, high-contrast, anti-glare graphical display (800 x 480 pixels) for easy interpretation of graphical data.
- Multi-channel bargraph shows emissions relative to alarms.
- Permits easy comparison between emission sources.
- Password protected.



SENSOR HEAD AND OPTICAL SPECIFICATIONS

Sensor Heads – Transceiver / Retro-Reflector	
Display	Reflective, backlit LCD (128 x 64 pixel)
User Screens	Setup/Results
Keypad	4 keys for data input
External Indicators	Power, System OK, Alarm, Calibration
Enclosure Material	Cast aluminium, epoxy coated
Ambient Temperature	-20 to +50°C (-4 to +122°F)
Flue Gas Temperature	max. 600°C (1,000°F)
Flange Temperature	max. 200°C (400°F)
Compliance	EN 61010-2, QAL1 (to EN 14181)
Sealing	IP65 (US equivalent: NEMA 4X)
Modbus Interface	RS-485, Opacity, Optical Density and Status information
Outputs	Isolated 4-20mA Configurable as Opacity, Optical Density 3x Relays (1A @24V DC): System OK, Calibration, Alarm
Power Supply	24V DC nominal (18–30V DC)
Current Consumption	0.3A nominal (3A on start-up)
Dimensions (mm)	W 191 x H 201 x D 413 / W 191 x H 201 x D 237
Weight	Transceiver: 6 kg / Retro-Reflector: 3 kg
Stack Connection	1½ in. 150 lb ANSI flange
Air Purge Blower	Required for correct operation*
Calibration Filters	Option*

Optical Specification	
Technique	Double-pass transmissometry
Operating Wavelength	525 nm (± 20 nm)
Light Source	Pulsed, high-intensity LED
Range	Opacity: 0–10% to 0–100% Optical density: 0–0.1 to 0–3.0
Accuracy	± 2% opacity
Drift (long term)	<0.3% opacity/month
Thermal Stability	<0.3% opacity/22°C (ambient change)
Angle of Projection	<2°
Angle of View	<2°
Response Time	≤10 seconds (to 95%)
Averaging	From 10 seconds to 24 hours, user selectable
Pathlength	1–10 m
Calibration	Automatic Zero and Upscale (Span) checks Frequency: 1–24 hours (in 1-hour increments, user selectable)
Zero Correction	Automatic correction for Zero drift
Fail-Safe Shutters	Option*

Please contact your local ENVEA representative.
**The pathlength must be specified at the time of ordering.*

SPECIFICATIONS

PCME STACK 710

Network Controllers		Standard Controller	ProController
Overview	*Number of sensors/channels*	1	1–32
	Display	Two-tone grey, backlit graphical LCD	High-contrast, anti-glare 7" (viewable) TFT LCD
	Multiple Data Viewing	PC or RS-485	PC/RS-485/Ethernet simultaneously
	Dimensions	W220 x H124 x D80 mm	W390 x H221 x D118 mm
	Power supply voltage	100–240V AC (50/60 Hz)	85–265V AC (50/60 Hz)
	Protection Rating	IP65	IP66
	Ambient Temperature Range	-20°C to 50°C	-20°C to 50°C
Features and Functions	*Navigation keys*	Up/Down/Left/Right/Enter	Up/Down/Left/Right/Enter plus 5 function keys: 3x short-cut keys and 2 user-programmable keys
	Icon-driven, multilingual menus	n/a	✓
	Secure password protection	✓	✓
	Sensor system setup and configuration options	✓	✓
	Configurable emission alarm levels	✓	✓
	Sensor calibration screens	✓	✓
	Seamless integration with existing control units and sensors	n/a	✓
Data Logging*	*Long-term Log*	12 months @ 15 minutes	48 months @ 15 minutes
	Short-term Log	7 days @1 minute	28 days @ 1 minute
	Pulse Log	8 hours @ 1 seconds	32 hours @ 1 second
	Alarm Log	500 entries	500 entries
System Outputs	*Ethernet (RJ45)*	n/a	✓ Connection type: 100Base-T/Tx 100 Mb/s
	USB 2.0	n/a	✓ Suitable for connecting to a local PC or laptop
	Relays	2 off (programmable)	4 off (programmable)
	4–20mA	1 off (programmable)	4 off (programmable)
	RS-485	1	1
System Inputs	*Digital User selectable for: PLANT OFF indication, Bag-filter cleaning sequences, multiple calibrations*	1	4
	4–20mA	0	2

**Data logging capacity for one sensor. Data stored varies per sensor type. Please consult ENVEA for specific data.*

Network Accessories		Standard Controller	ProController
Network Modules *(can be connected to Controller Network systems to provide additional Inputs and Outputs)*	**Analogue Output Module (AOM)** provides 8 additional 4–20 mA outputs definable to sensors/channels	1	1–8
	Auxiliary Input Module (AIM) provides 4 additional digital inputs, plus 4 additional relay outputs	1	1–8
	Relay Output Module (ROM) provides 8 additional relay outputs	1	1–8
	SPUR provides sensor network connection and local isolation during maintenance	1	1–32
	Power Supply Repeater (PSR) provides voltage and signal boost for extended cable runs and large sensor networks	1	1–8

ABOUT ENVEA

As a progressive environmental Company, ENVEA specialises in particulate measurement for industrial processes. With a worldwide reputation for reliability, innovation and technological excellence, the Company produces under the trademark envea™ 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.

Publication Part No. 496028 V31 (11/20)

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