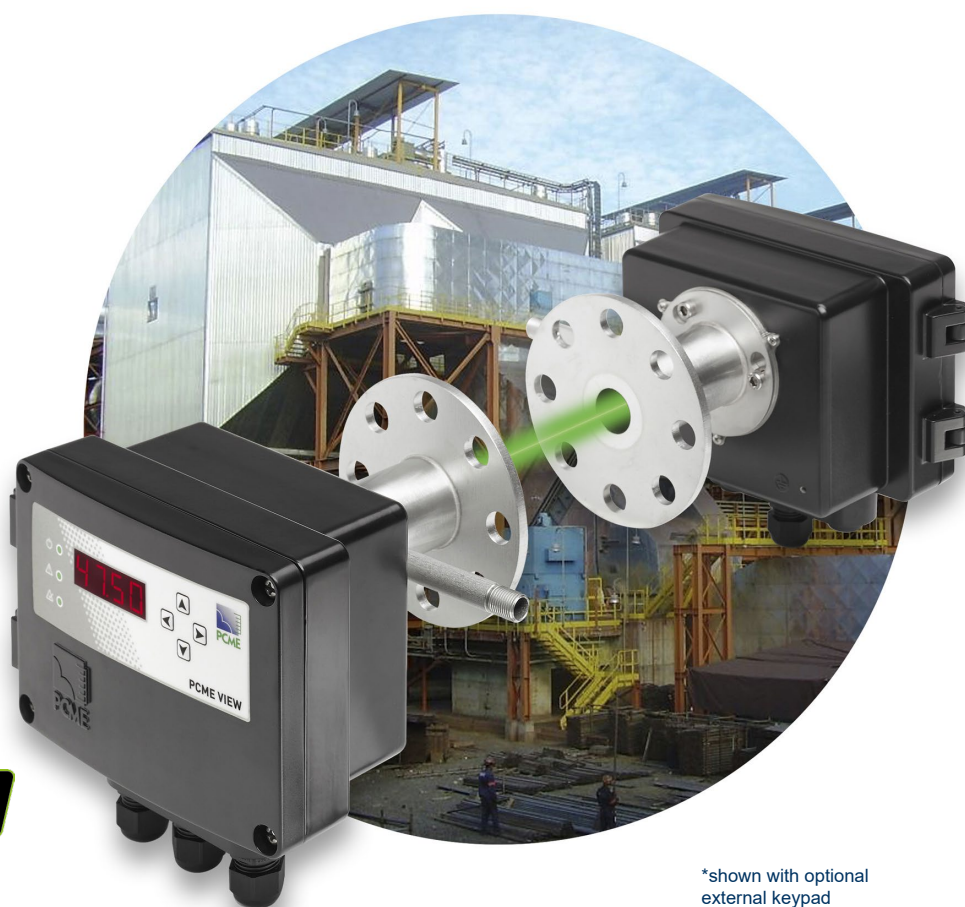


# Particulate Measurement System

PROCESS & EMISSIONS MONITORING SYSTEMS



**DYNAMIC**OPACITY™  
INSIDE

\*shown with optional external keypad

## SPECIFIC FEATURES:

- Reliable and cost-effective monitoring of dust concentration emissions from industrial boiler stacks and electrostatic precipitators
- *DynamicOpacity*™ Ratiometric Opacity technology provides inbuilt continuous compensation for lens contamination
- Rugged operation with tolerance to misalignment and easy access to optics for cleaning



Particulate CEM

# TECHNOLOGY

## SYSTEM DESCRIPTION

The PCME VIEW 580 is suitable for monitoring particle emissions from combustion boilers and stacks controlled by electrostatic precipitators. Problems with plate charging voltage and efficiency can be detected rapidly and effectively by monitoring changes in particulate emissions, providing operators with warning of the deteriorating performance of chambers or failing plates which leads to increased emissions. The instrument comprises transmitter and receiver modules using a unique *DynamicOpacity™* Ratiometric Opacity measurement principle to overcome contamination, which is detrimental to the performance of traditional opacity instruments. A separate control unit is not required, as mains power and a choice of outputs are wired directly to the receiver. In addition to electrostatic precipitator performance monitoring, the PCME VIEW 580 can be used as a quantitative monitor of particulate emissions from boiler stacks where instrument performance approvals may not be necessary.



## PRINCIPLES OF OPERATION



The PCME VIEW 580 continuous particulate monitor benefits from ENVEA's *DynamicOpacity™* Ratiometric Opacity measurement technology. This technique monitors the variation in the amount of received light from the light beam transmitted across the stack. The variation derives from the temporal distribution of particulate which attenuates the light beam. The PCME VIEW 580 calculates the dynamic response (ratio of light variation to light intensity or obscuration). This method has the added benefit that the measurement is unaffected by lens contamination. The instrument response is proportional to dust concentration and can also be calibrated to read in  $\text{mg}/\text{m}^3$  by reference to an isokinetic sample (mass gravimetric technique).

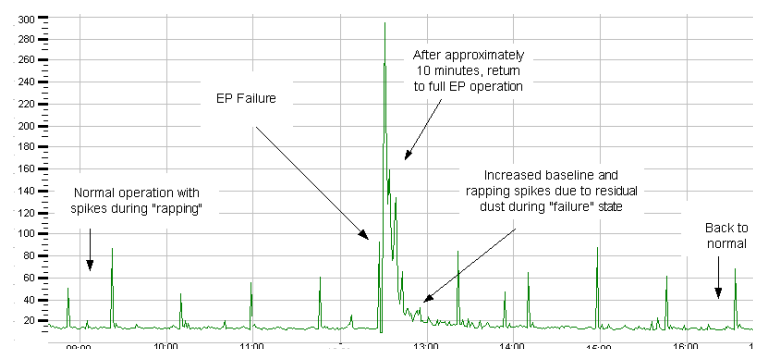
## SIMPLE INSTRUMENT INSTALLATION AND MAINTENANCE

The PCME VIEW 580 transmitter and receiver do not require elaborate alignment. Instead, the modules are simply mounted on opposite sides of the stack with clear line of sight between the two sensor heads. The system is designed for use as a stand-alone dust monitor or for simple integration into a CEM system. There is no need for a separate control unit as all user interface and external connections (mains, relay, 4-20mA) are provided directly in the sensor. The instrument may be set up with the local display and keypad at the sensor, or by remote PC software (optional).

Lens Condition	Light Intensity	Variation	Scintillation
100% transmission	I	x	$x/I$
90% transmission	0.9I	0.9x	$0.9x/0.9I = x/I$
50% transmission	0.5I	0.5x	$0.5x/0.5I = x/I$

The PCME VIEW 580 has inherent low cost of ownership due to the *DynamicOpacity™* measurement principle, however should maintenance be necessary, easy access for cleaning is provided to all windows and mechanical parts which might come into contact with the flue gas. Blower systems are usually not necessary, but low volume, low pressure purging from instrument air is adequate when air purging is required.

The PCME VIEW 580 is highly resistant to lens contamination, and features an automatic light check to provide an alarm should light levels fall to below 10% transmission, indicating the need to clean optical surfaces. As an additional option, the system is available with manually initiated or automatic electronic zero and span checks to provide increased quality assurance that the instrument is measuring correctly.



Emissions from electrostatic precipitator (during rapping cycle)

# PRODUCT FEATURES

## PROCESS AND APPLICATION CONDITIONS

- Stack gas temperatures to 250°C (option to 400°C)
- Stack sizes (flange to flange) 1 - 10m
- Humidity up to 90% (non-condensing)
- For use after Electrostatic Precipitators
- Minimum gas velocity 3m/s



## SPECIFICATIONS

Specifications	Receiver	Transmitter
Ambient Temperature	-25°C to 55°C	-25°C to 55°C
Stack Connection	DN40 PN6	DN40 PN6
External Dimensions (mm)	200 W x 190 H x 200 D (from flange)	200 W x 190 H x 200 D (from flange)
Weight (kg)	3.9	3.5
Enclosure Rating	IP65 (with hinged lid closed)	IP65
Power Requirements	100/240VAC 50/60Hz (32mA) or 24VDC (300mA)	Supplied by receiver
Outputs	Isolated 4-20mA(500Ω) Warning alarm relay (SPST 1A@24VDC) Fail Safe Emission alarm relay (SPST 1A@24VDC) Fail Safe RS-485 (Modbus RTU) - option	N/A
External LED x3	Indicates power, fault and emission alarm	
User Set Up	4 digit display and set up keys accessible on opening hinged lid (option for external keys and display)	N/A
Cable Entries	3 x M20 gland/conduit entries	1 x M20 gland/conduit entry
Connecting Cable Between Receiver and Transmitter	Supplied with 10m of cable (8 core, 7 x .22mm screened, PVC insulated, overall diameter 6.3mm)	
Air Purge Connection	1/4 " BSP	1/4 " BSP
Anti Fouling Connection (for high humidity/high dust applications)	Optional extra	Optional extra

## OPTIONAL PC SOFTWARE

The PCME VIEW 580 can be connected to PCs via RS232 or RS485, for interfacing with PCME's PC software suite PC-ME Dust Tools. The modular format of PC-ME Dust Tools allows for the specific real-time data and remote configuration functionality of the software to be specified, which is suited to the features offered by the PCME VIEW 580.

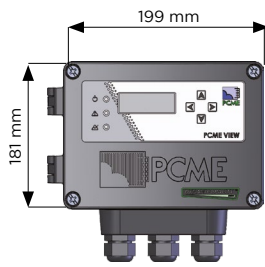
Configuration Options	Device Set
Real-time Data Options	On-line Predict



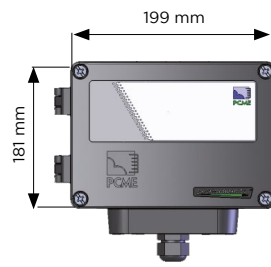
PC connects to the receiver via optional RS232 or RS485 input connector (RS485 optional)

## DIMENSIONS

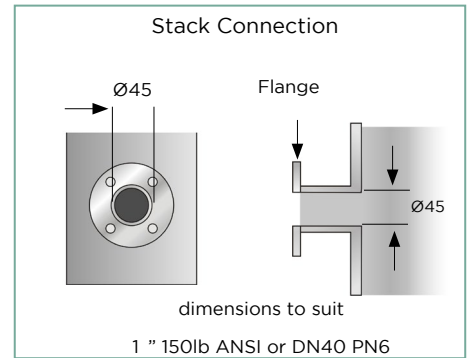
### PCME VIEW 580 (back views)



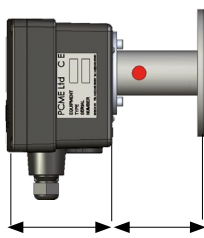
Receiver with display



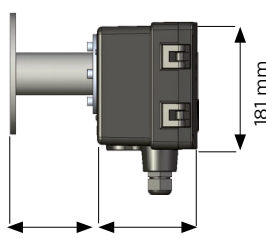
Transmitter



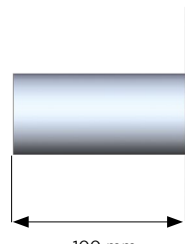
### Sensor Options (side views)



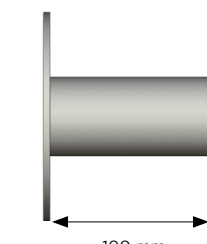
Transmitter (Tx)



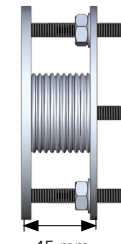
Receiver (Rx)



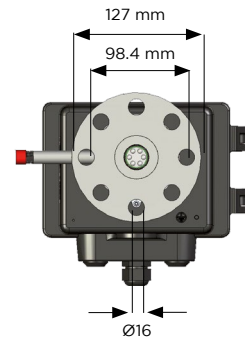
Stackmount (option)



Stand-off (400°C option)



Alignment (option)



Flange

## ORDER CODES

PCME VIEW 580 - 1 2 3 4 5 / A B C D E F G H I J

### Mechanical Features

Feature	Option	Standard	Option
1 Stack Temperature	250°C 400°C (provide stand-off)	std	250C 400C
2 Anti-fouling Fittings	None Pair	std	0 AF
3 Alignment Fittings	None 1 set (Tx)	std	0 ALIGN
4 Stack Mounting Flanges	None Pair	std	0 SM
5 Air Filter/Regulator	None Basic Air Filter Regulator Air Filter Regulator as- sembly	std	0 ACCAIR--FR ACCAIR--FFR

### Sensor Options

Option	Description	Standard	Option
A	Contamination Check Optics	Included	std CC
B	Electronic Self-checks	Not included Manual initiated Automatic	std option option 0 MAN AUTO
C	Scaling Method	Scaling factor 0-100%	std option SF %
D	ATEX/IECEx Category	None	std 0
E	Power Option	100/240VAC 24VDCM	std option AC 24DC
F	RS485 Data Output	Not included RS485 included	std option 0 485
G	RS232 Data Output	Not included RS232 included	std option 0 232
H	External Connector for RS232	Internal connector External connector	std option 0 FLY
I	Keypad	Internal keypad External keypad	std option IK EK
J	Display	Internal display Externally viewable	std option ID ED

### PC Software Options (PC-ME Dust Tools)

Configuration Options	Device Set
Real-time Data Options	On-line Predict

PCME VIEW 580 - 1 2 3 4 5 - A B C D E F G H I J

Example: Sen 580 - 250C 0 ALIGN SM 0 - CC MAN SF 0 AC 485 0 0 ED ED

## 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.



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