

**US-EPA has fined individual plants up to \$2M for baghouse violations.**

"We trust that when one of our four Auburn FilterSense emission monitors is in alarm, we need to act."

- Cement, Environmental Manager



# DynaCHARGE™ Particulate Monitors

Continuous particulate flow/emissions monitors, filter leak analyzers, and filter leak detectors employ reliable DynaCHARGE™ induction-sensing technology.

## Models:

**PM 100 Series**

**PM 1 Series**



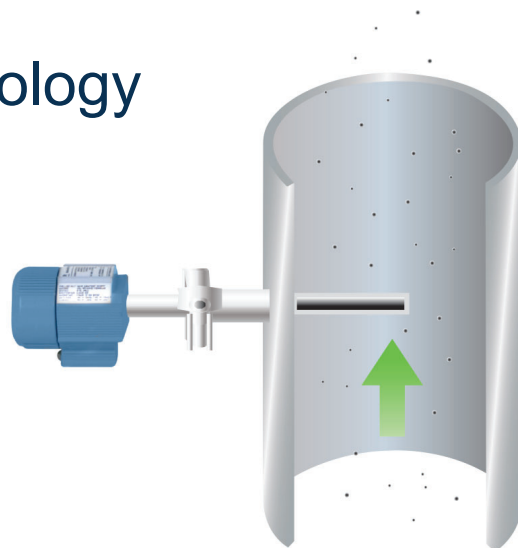
## DynaCHARGE™ Particulate Monitoring Technology

The #1 Choice of Experienced End Users and OEMs

- ▶ End users choose DynaCHARGE™ to replace competing devices and opacity more than any other brand.
- ▶ OEMs choose DynaCHARGE™ more than any other brand.

As particles flow over a sensing probe, charge is induced into the probe creating small currents in the picoamp (pA) range. The signal is processed into an output proportional to mass.

*Auburn FilterSense invented particulate monitoring using charge induction and remains the technology leader.*



## Reliable

### Prevent False Alarms

Fully insulated probes prevent false alarms from moisture, corrosives, agglomeration, and most conductive particles – without air purge.

### Low Maintenance

Typically maintenance free, where competing charge-sensing, tribo, and optical monitors often have 1–3 month cleaning intervals.

### Durable

Sensors are free of electronics on most models (optional on all). Removing electronics from heat and vibration increases performance and product life and enables intrinsic safety approvals.

### Stringent Quality

ISO 9001 certified design and manufacturing, accelerated life testing in the design stage (HALT), thermal stress testing prior to shipment, conformal coating circuits, and quality packaging ensure reliability.

## Easy to Use

### Installation

Fast and easy to install with no special alignment or structural needs (like optical). Remote electronics provide safe, easy commissioning for the many filtration monitoring points that are difficult to access.

### Simple Operation

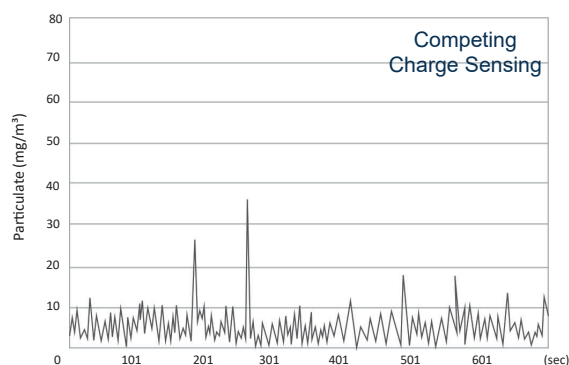
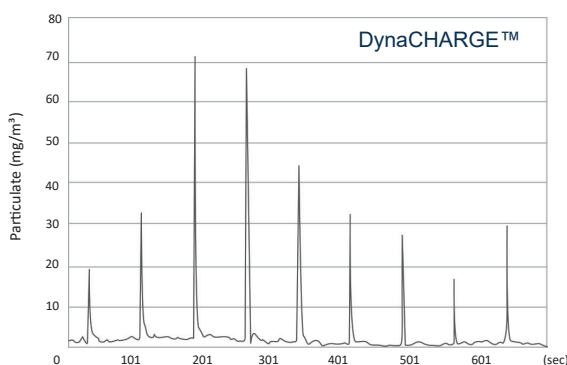
An absolute output proportional to particulate mass provides normalized values for straightforward set up and historical data review. There are also no confusing sensitivity adjustments or blind autoset functions.



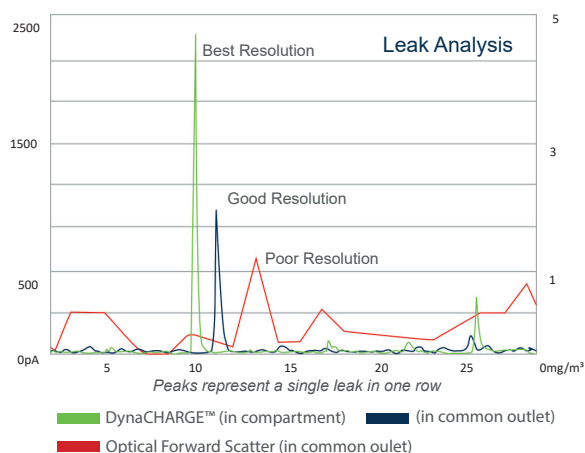
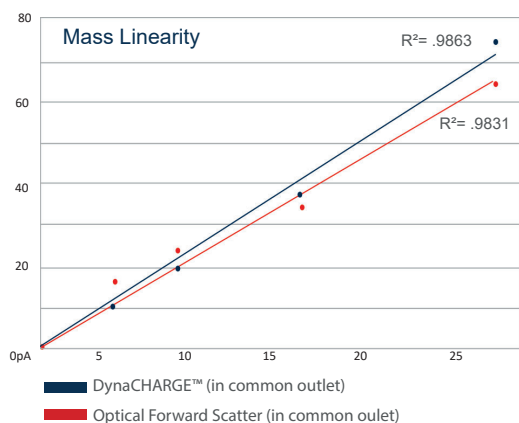
## High Precision When You Need It

High-precision options provide superior low-level detection, and increased linearity for mass correlations resulting in exceptional measurement and graphical filter leak analysis.

### DynaCHARGE™ vs. Competition (Waste to Energy Plant)



### DynaCHARGE™ vs. Optical (Aluminum Plant)



## EPA Compliance

DynaCHARGE is applied to EPA MACT, NESHAP, Title V/CAM and corresponding international regulations (TUV, MCERTS etc).

Models are available for all categories of compliance monitoring including:

- Correlated output in  $\text{mg}/\text{m}^3$
- Relative mass monitoring
- Leak analysis/detection (BLDS)

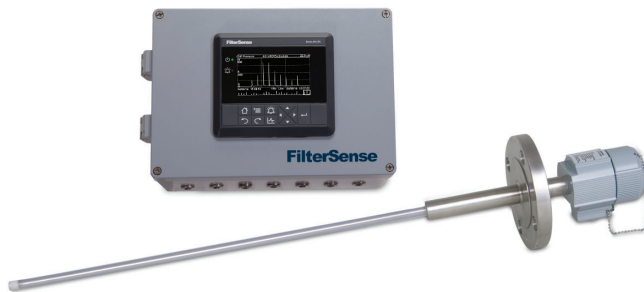
Instrument accuracy, self-testing, and QA functions meet regulatory design and performance standards such as:

- ASTM D7392
- EN 15859

# DynaCHARGE™

## PM 100 Series

### Particulate Monitoring Systems (Single and Multi-Point)



#### PM 100 PRO

- Top Performance & Heavy-Duty Construction
- Widest Range of Features and Configurations

The PM 100 PRO is the industry leader for critical process control and EPA compliance. It consistently outperforms other top level charge and optical devices. Its advanced processor/display and MICS™ platform offer a total solution.



#### PM 100

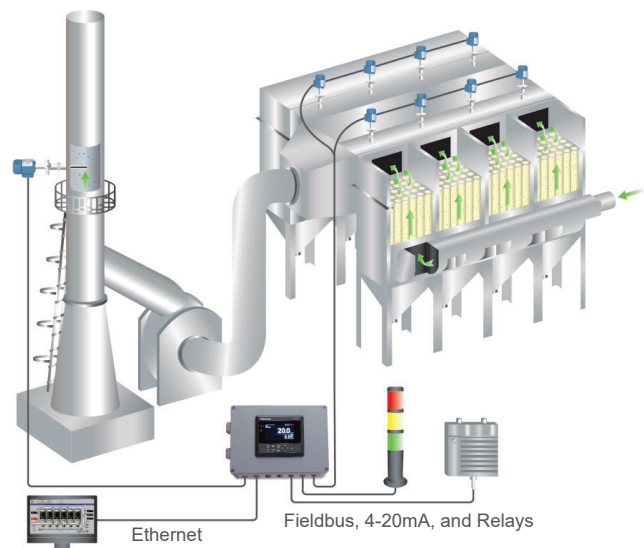
- Essential Features and Functions
- Lower Price with High Quality

The PM 100 provides reliable particulate monitoring and leak/flow detection along with a solid range of basic features, functions, and I/O via the MICS™ platform.

- **DynaCHARGE™ (All Precision, 1-32\* points)**
  - Measurement ( $\text{mg}/\text{m}^3$ ), Monitoring, Detection
- **Device and Process Diagnostics (to NAMUR 107)**
  - Ensure installation and gain time-saving insights
- **Automatic EPA Self-Tests and QA Log**
  - Adhere to regulations, reduce labor and errors
- **Performance and Design to EPA Standards**
  - Exceeds ASTM D7392 and EN 15859
- **Real time, Historical, and Comparative Trending**
  - Quick set up, awareness, and decision making
- **Alarm Management System**
  - Set logic, groups, acknowledgment, security
- **Data Historian**
  - Extensive data and event recording
- **Choice of Certified Fieldbus, SD card**

\*Limited by type; consult factory

- **DynaCHARGE™ (Standard Precisions, 1-16\* points)**
  - Monitoring, Detection
- **Alarm relays, 4-20mA outputs, Basic Data Log**
- **Choice of Certified Fieldbus, SD card**





# DynaCHARGE™

## PM 1 Series

### Particulate Monitors (Single-Point/Single Function)



#### PM 1 PRO

- High Performance and Heavy-Duty Construction
- 2-Wire Loop or Universal Line Power with Relays

The PM 1 PRO is the benchmark for reliability and features in a standard particulate monitor and leak/flow detector. A state-of-the-art instrument, it is the first loop power particulate monitor with EPA certifiable self tests and performance.

- **Device Diagnostics (to NAMUR 107)**
  - Help ensure installation, proper operation
- **Automatic EPA Self-Tests**
  - Adhere to regulations, also for critical process
- **Performance and Design to EPA Standards**
  - Meets ASTM D7392 and EN 15859
- **Communication and Data Logging**
  - HART, USB, and basic internal data logging



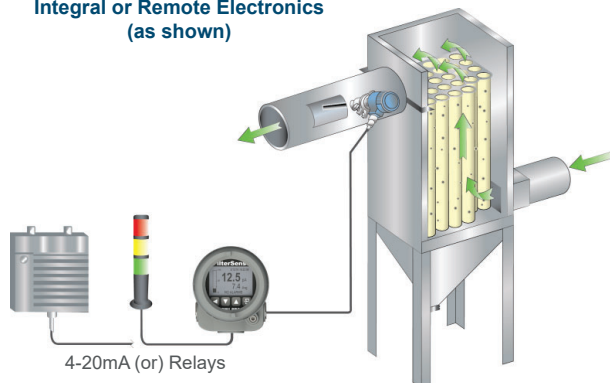
#### PM 1

- Low Cost and Simple
- 2-Wire Loop or Universal Line Power with Relays

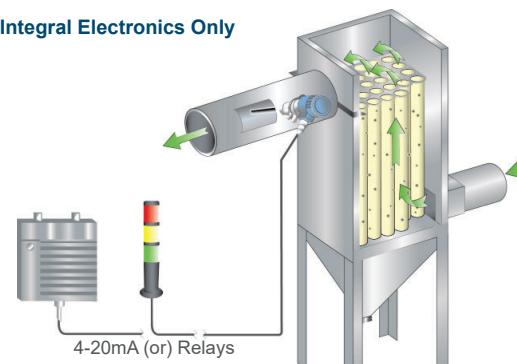
The PM 1 is the industry's best value in a basic particulate monitor and leak/flow detector. The engineering and quality greatly exceed comparably priced devices. Low cost justifies monitoring even small nuisance dust collectors.

- **DynaCHARGE Technology**
  - Superior reliability over other charge and tribo
- **Digital Readout, Lockable Keypad**
  - Simple text prompts (no trim pots or blind auto set)
- **Convenient Loop Check and Alarm Functions**
  - Speeds up and confirms installation

Integral or Remote Electronics  
(as shown)



Integral Electronics Only



# DynaCHARGE™

## Model Comparison



Key Features <sup>1</sup>	PM 100 PRO	PM 100	PM 1 PRO	PM 1
Functions/# of Monitoring Points	Multi-Function/Multi-Point		Single-Function/Single-Point	
Number of Points (limited by type)	1 to 32 <sup>2</sup>	1 to 16 <sup>2</sup>	1	1
Modular Expandable System (MICS™)	✓	✓		
Resolution/Minimum Detection	<1 mg/m <sup>3</sup>	~1-5 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	~1-5 mg/mg <sup>3</sup>
Device Health Diagnostics	●		◐	
Meets EPA Performance Standards	✓		✓	
Data Logging	●	○	○	
On Screen Trending	✓			
Communications	Fieldbus <sup>3</sup>	Fieldbus <sup>3</sup>	HART	
Alarm Capabilities	●	◐	○	○
Auxiliary Inputs (pressure, temp, flow, etc.)	✓			
Advanced Functions (process run input, realtime & avg outputs, calculated values)	✓			

Application				
Measure (mg/m <sup>3</sup> ) - Process/EPA	●		◐	
Monitor - Process/EPA	●	◐	●	○
Detect - Maintenance	●	●	●	●
Large Stack	●		◐	
Multi-Compartment Baghouse	●	◐	◐	○
Single-Compartment Process Baghouse	●	○	◐	○
Nuisance Dust Collector	●	●	●	●
Process Flow/Injection Lines/Cyclones	●	○	◐	○
Other; Mist Eliminator/ESP	●		◐	

General Technical				
Power Supply	100-240 VAC (or) 24 VDC	100-240 VAC (or) 24 VDC	2-wire loop or universal line	2-wire loop or universal line
Processor/Display	Advanced/Color Graphic	Basic/Graphic	Advanced/Graphic	Basic LCD
Discrete Output	Up to 16	Up to 8	Up to 2	Up to 2
Analog Output	Up to 16	Up to 8	Up to 1	Up to 1
Analog & Discrete Inputs	Up to 16 each	Up to 4 each	None	None
Ambient Temperature	-40 °F to 158 °F (-40 °C to 70 °C)	-13 °F to 140 °F (-25 °C to 60 °C)	-40 °F to 158 °F (-40 °C to 70 °C)	-13 °F to 140 °F (-25 °C to 60 °C)
Particulate Sensor Type	PS 10-HP or XD	PS 10-S	PS 10-HP or XD	PS 10-S
Process Temperature (sensor)	-40 °F to 1650 °F (-40 °C to 898 °C)	-13 °F to 450 °F (-25 °C to 232 °C)	-40 °F to 1650 °F (-40 °C to 898 °C)	-13 °F to 450 °F (-25 °C to 232 °C)
Process Pressure (sensor)	1,000 PSI (69 bar)	10 PSI (0.69 bar)	1,000 PSI (69 bar)	10 PSI (0.69 bar)
Enclosure Rating (explosion proof available)	NEMA 4X/IP66	NEMA 4/IP65	NEMA 4X/IP66	NEMA 4/IP65
Hazardous Area Rating	Class I Div. I (Zone 0/20)	Class II Div. II (Zone 22)	Class I Div. I (Zone 0/20)	Class II Div. II (Zone 22)

Note <sup>3</sup>: Certified Fieldbus: EtherNet/IP, Modbus (TCP, RTU), PROFINET IO, PROFIBUS (DPV1, VO), DeviceNet, ControlNet, CanOpen, EtherCAT

Note <sup>2</sup>: Limited by type Note <sup>1</sup>: Features may be optional

● = Best ◐ = Good ○ = Basic

# Particulate Sensors

## PS Series



Auburn FilterSense PS Series particulate sensors are unique, robust, passive sensors that connect to DynaCHARGE™ and B-PAC™ control units. These sensors are free of electronics. Heat and vibration do not reduce accuracy or life of the sensor. They enable intrinsic safety for line powered control units and make for more accessible installations since many filtration monitoring points are difficult to access. The PS 10-HP has proven to be the most reliable and durable sensor available.



Basic



High Performance



Extreme Duty

Key Features	PS 10 - S	PS10 - HP	PS 10 - XD
Fully-Insulated/Isolated Probe	Coating	Layer	Layer
Heavy Duty Construction		✓	✓
Modular Design		✓	
Rotatable Housing		✓	✓
Field Serviceable parts		✓	
<b>Application</b>			
Aggressive/Corrosive Media		●	●
Moist/Conductive Media	◐	●	◐
<b>General Technical</b>			
Process Connection	NPT, Quick Clamp	NPT, Quick Clamp, Flange	Flange
Wetted Materials	316 L Teflon -	316 L Hastelloy C Teflon	316 L Hastelloy C Teflon
Max. Process Temperature	450 °F (232 °C)	500 °F (260 °C)	1650 °F (898 °C)
Max. Process Pressure	10 PSI (0.69 bar)	100 PSI (6.9 bar)	1000 PSI (69 bar)
Max. Probe Length	36 in (914 mm)	72 in (1828 mm)	36 in (914 mm)
Enclosure Rating (explosion proof available)	NEMA 4X/IP66	NEMA 4X/IP66	NEMA 4X/IP66
Hazardous Area Rating	Class II Div. II (Zone 22)	Class I Div. I (Zone 0/22)	Class I Div. I (Zone 0/22)

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## Notes: