

# HPM-1000™

## High-Pressure Particulate Monitor

### Detect and measure particulate contaminants in compressed gas streams.

The HPM-1000 High-Pressure Industrial Particulates Monitor is installed directly in-line with compressed air/gas streams to provide continuous measurement of oil mist carryover, entrained water mist, and particulate contamination. Highly sensitive yet rugged, the HPM-1000 monitors compressed air quality at pressures to 350 psig (24 bar). The HPM-1000 is ideal for applications such as powder coating deposition, critical parts cleaning, and protection of high precision flow control components. The HPM-1000 has a resolution and repeatability to 0.001 mg/m<sup>3</sup> (equivalent to 0.0001 ppm in air at 120 psig.) Measurement and calibration are independent of flow rate. While the HPM-1000 is designed for particulate/aerosol monitoring in pressurized environments, it can also be used at ambient pressures, such as duct monitoring, or in vacuum applications.

### Real-time measurement plus three signal/alarm outputs

The HPM-1000 provides real-time measurement and continuous readout of particulate concentrations. The two-line LCD provides continuous information on time-averaged and maximum concentrations as well as diagnostic indications. The HPM-1000 provides 3 signal outputs which are available concurrently and updated every second; RS232 digital, 0-5VDC and 4-20mA analog, plus a pulsed alarm signal.

### Excellent long-term stability

Factory calibrated using ISO Fine test dust, the HPM-1000 employs a reference detector for long-term source output stabilization and compensation. This ensures repeatability - at constant pressure - within 0.001 mg/m<sup>3</sup> over months of continuous operation. The software allows the user to program customized calibration constants, if desired.

### Field-configurable

Programming of alarm level and mode, data logging, customized calibration constant, analog output range, and stored data retrieval is easy using a computer.



*In-field programming is quick and easy using a laptop PC.*



### Optional Accessories

- Zeroing filter bypass unit
- High visibility remote concentration display
- Alarm relay unit

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### Specifications

#### Concentration measurement range (auto-ranging):

*Referred to gravimetric calibration with ISO Fine test dust*

0.001 to 400 mg/m<sup>3</sup>

(equivalent to 0.001 to 400 ppm in air at 0 psig)

(equivalent to 0.05 ppb to 20 ppm in air at 250 psig)

#### Precision/repeatability (2-sigma):

*At constant temperature and pressure*

±1% of reading or ± 0.001 mg/m<sup>3</sup>, whichever is greater  
(10-sec. average)

#### Accuracy:

± 5% of reading ± precision

#### Readout resolution:

0.1% of reading or 0.001 mg/m<sup>3</sup>, whichever is greater

#### Particle size range of maximum response:

0.1 to 10µm

#### Concentration readout averaging time (user selectable):

1 to 60 sec.

#### Alarm level adjustment range (user selectable):

selectable over entire measurement range

#### Pressure:

0 to 350 psig

#### Operating Temp:

14°F to 122°F (-10°C to 50°C), non-condensing humidity

#### Data logging:

- Averaging periods (user selectable): 1 sec. to 4 hrs.
- Maximum number of stored data points: 13,000
- Maximum number of data sets (tags): 99

#### Outputs:

- Digital: serial RS232, 4800 baud
- Analog: 0 to 5 VDC and 4 to 20 mA  
Ranges (user selectable): between 0 to 0.1 mg/m<sup>3</sup>  
0 to 400 mg/m<sup>3</sup>
- Alarm: 1 Hz square wave, 5 V amplitude

#### Power Source:

90 to 265 VAC, 50 to 60 Hz, or 12 VDC, at 1 W

#### Dimensions:

9 in. (23 cm) L x 7 in. (18 cm) H x 4.5 in. (11.5 cm) W

#### Weight:

9 lbs (4 kg)

#### Case Materials:

NEMA-12 steel case; .0625 in. OD purge inlet fitting

#### Pipe fittings:

.375 in. OD Swagelok®

#### Standard Accessories

- Analog signal output cable
- Software
- RS232 communications cable
- Instruction manual

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