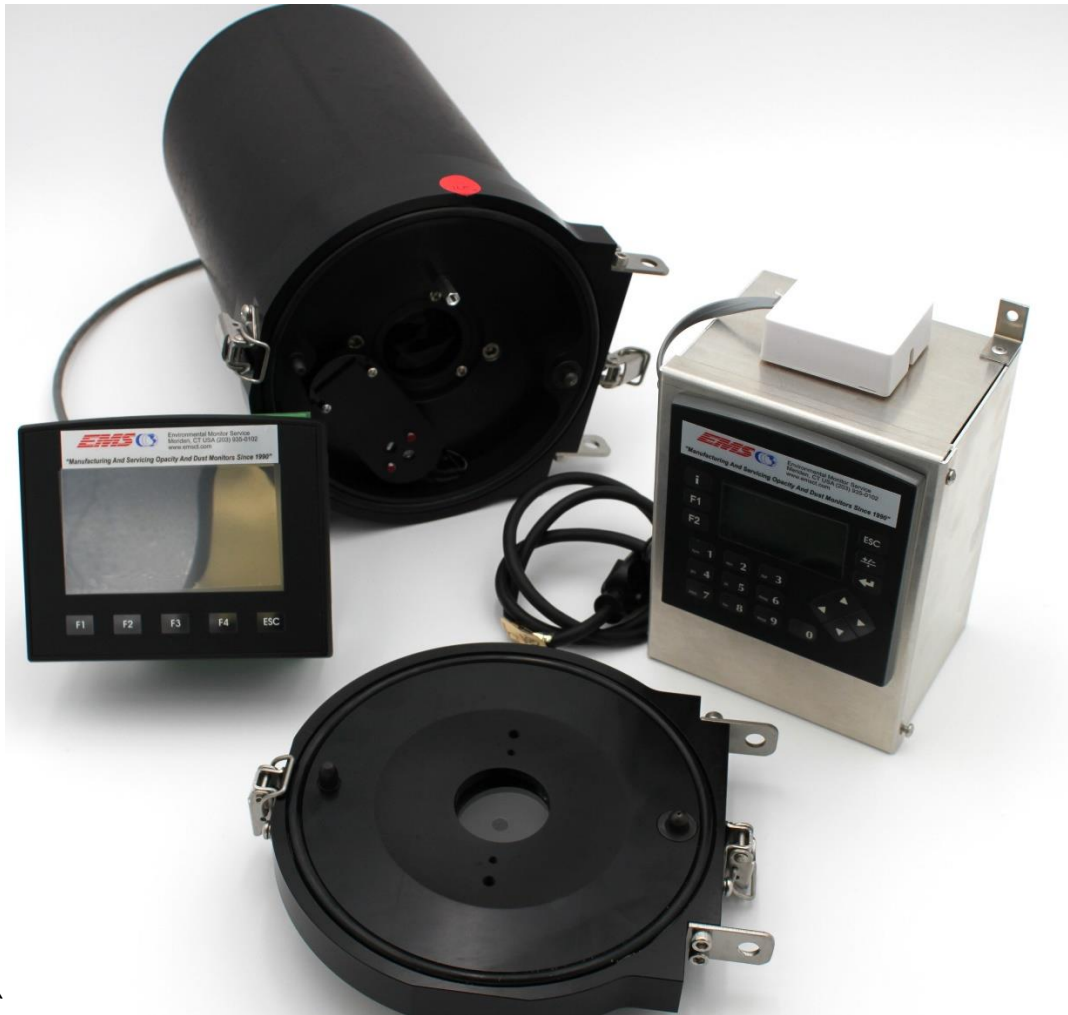


# EMS WATCHDOG PS-1 COMPLIANT OPACITY/DUST MONITOR



**ENVIRONMENTAL MONITOR SERVICE**

**Quality Manufacturing, Integrity, and Dependable Service by Design**



PS1

6216

**Compliant**

Environmental Monitor Service, Inc. Phone: 800-864-2814 ext. 15

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# EMS WATCHDOG PS-1 COMPLIANT OPACITY/DUST MONITOR

*The EMS WatchDog PS-1 delivers uninterrupted, precision monitoring of Opacity and Dust (mg/m<sup>3</sup>) with minimal maintenance requirements. Designed to surpass the specifications outlined by the US EPA in 40 CFR 60, Appendix B, PS-1, the EMS WatchDog PS-1 guarantees accuracy and reliability in opacity and dust measurement.*

*Designed for seamless integration into industrial setups, the EMS WatchDog PS-1 offers continuous monitoring with minimal maintenance requirements, empowering operators with real-time data to optimize processes and ensure compliance with environmental regulations.*

## *Typical Applications*

- ✓ Power Plants
- ✓ Boilers
- ✓ Refineries
- ✓ Cement Plants
- ✓ Crematoriums
- ✓ Combustion Furnaces
- ✓ Process Industries
- ✓ Manufacturing Industries
- ✓ Electrostatic Precipitators
- ✓ Cement Kilns



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# EMS WATCHDOG PS-1 COMPLIANT OPACITY/DUST MONITOR

## *System and Measurement Principle*

The EMS WatchDog system consists of an optical transceiver mounted on one side of the stack, a retroreflector mounted on the other along with a stack-mounted SSM. The LSEM measurement beam is projected across the stack to the retro reflector, which reflects it across the stack. The output of the transceiver is sent to the touchscreen RCU where signals are analyzed. This intuitively designed controller includes 5 selectable displays, four 4-20mA outputs as well MODBUS RS-485.



## *KEY FEATURES*

- ASTM D 6216 and 40 CFR 60 PS-1 Compliant
- Microprocessor controlled
- Dual-beam measurement measurement with Green LED Source
- Standard 4.3" Color Touch Screen User Interface (Premium 5.7" Controller Available)
- Stack Mounted SSM for Audits and Maintenance
- Opacity Measurement output -5 to 99%
- Communications via MODBUS RS-485 or 4-20mA
- User Selectable Output Definition and Alarm Customization
- PS-1 required Audit Kit for Quarterly Audits
- Optional Stainless-Steel Weather Covers and Blowers



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**PS-1 Transceiver/ Reflector Specifications:**

<b>Enclosure</b>	<b>NEMA 4 watertight enclosure.</b>
<b>Sensors</b>	<b>NEMA 4 Anodized Aluminum</b>
<b>Path Length</b>	<b>Distance dependent.</b>
<b>Optical System</b>	<b>PS-1 Double Pass, LED</b>
<b>Reflector</b>	<b>Type 1</b>
<b>Light Source Aging Compensation</b>	<b>Automatic</b>
<b>Light Source Life</b>	<b>62,000 hours (&gt; 7 years) Field replaceable</b>
<b>Ambient Temperature Limits</b>	<b>0 to +130° F (-17 to +54° C)</b>
<b>Process Gas</b>	<b>Up to 750° F (400 ° C),</b>
<b>Alignment Verification</b>	<b>Built-in through-the-lens system</b>
<b>Mounting Flanges</b>	<b>3 inch IPS, 150# flange</b>
<b>Ambient Light Immunity</b>	<b>Solid-state modulation (Meets ASTM D6216)</b>

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<b>EMS WatchDog PS-1 controller Specifications:</b>	
<b>Enclosure Cut Out</b>	<b>IP65/NEMA4X (when panel mounted), 91x122.5mm (3.6" x 4.8"). Power 24Vdc +/- 10%.</b>
<b>Sensors</b>	<b>NEMA 4 Anodized Aluminum</b>
<b>EMS provided 24Vdc Supply</b>	<b>Input: 90-240 VAC, 50/60 Hz, 0.55 amp +10%</b>
<b>Color Graphic Display</b>	<b>4.3" Viewing area, LED Backlight</b>
<b>Approvals</b>	<b>CE, UL, cUL</b>
<b>Measurement Ranges</b>	<b>-5 to 99% Opacity</b>
<b>Display Resolution</b>	<b>0.1% for Opacity</b>
<b>Process Display screens</b>	<b>Selectable Display pages.</b>
<b>Battery back up</b>	<b>7 years typical at 25°C</b>
<b>4-20mA Outputs</b>	<b>Two (2), 800 ohms max individually customer selected F.S. ranges and modes.</b>
<b>Relay Contacts</b>	<b>6 relays for alarms, Field programmable.</b>
<b>Alarm Reset</b>	<b>Automatic and manual.</b>
<b>Cal cycle initiate</b>	<b>Manual on demand, Remote initiated, or Internal Clock.</b>
<b>Opacity Exit Correlation (Lx / 2*Lt)</b>	<b>0.3-1.0</b>
<b>Environment</b>	<b>Operational temperature 0-50°C (32 to 122°F).</b>
<b>Network</b>	<b>Protocol: MODBUS (ASCII or RTU mode), type RS-485</b>

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**WatchDog Smart Service Module (SSM) Specifications:**

<b>Enclosure</b>	<b>NEMA 4X plastic</b>
<b>Graphic Display</b>	<b>1.5x2.25" Viewing area, LED Backlight</b>
<b>Approvals</b>	<b>CE, UL, cUL</b>
<b>Network</b>	<b>Protocol: MODBUS type RS-485.</b>
<b>RCU Display Resolution</b>	<b>0.1 for Opacity RCU, mg, 0.01 O.D. with DUST RCU</b>
<b>Process Display screens</b>	<b>Local display for, Sensor data, Service selections, and Fault displays.</b>
<b>Battery back up</b>	<b>Memory held 7 years typical at 25°C</b>
<b>Cal cycle initiate</b>	<b>Manual push button</b>
<b>Environment</b>	<b>Operational temperature 0 to 50°C (32 to 122°F)</b>
<b>EMS provided 24Vdc Supply</b>	<b>Input: 90-240 VAC, 50/60 Hz, 0.55 amp +10%</b>
<b>2-wire to EMS Control Unit (RCU)</b>	<b>RS485 Modbus to Control Unit</b>

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