

Continuous Particulate Measurement

Laser Precision

The PM Laser is a compact, optical dust monitor for continuous, in-situ measurement of particulate concentration or opacity in industrial processes. Using advanced laser transmission and scattering, it delivers accurate, real-time monitoring across pipes, stacks, and ducts. Its non-contact design produces high reliability and low maintenance, making it ideal for demanding environments like metal production, power plants, and cement kilns. Fast response and robust performance help optimize processes, support compliance, and reduce emissions.



Key Benefits



Low and simple maintenance

Wide dynamic range

High resolution and sensitivity

Dual mode functionality for low and high concentration

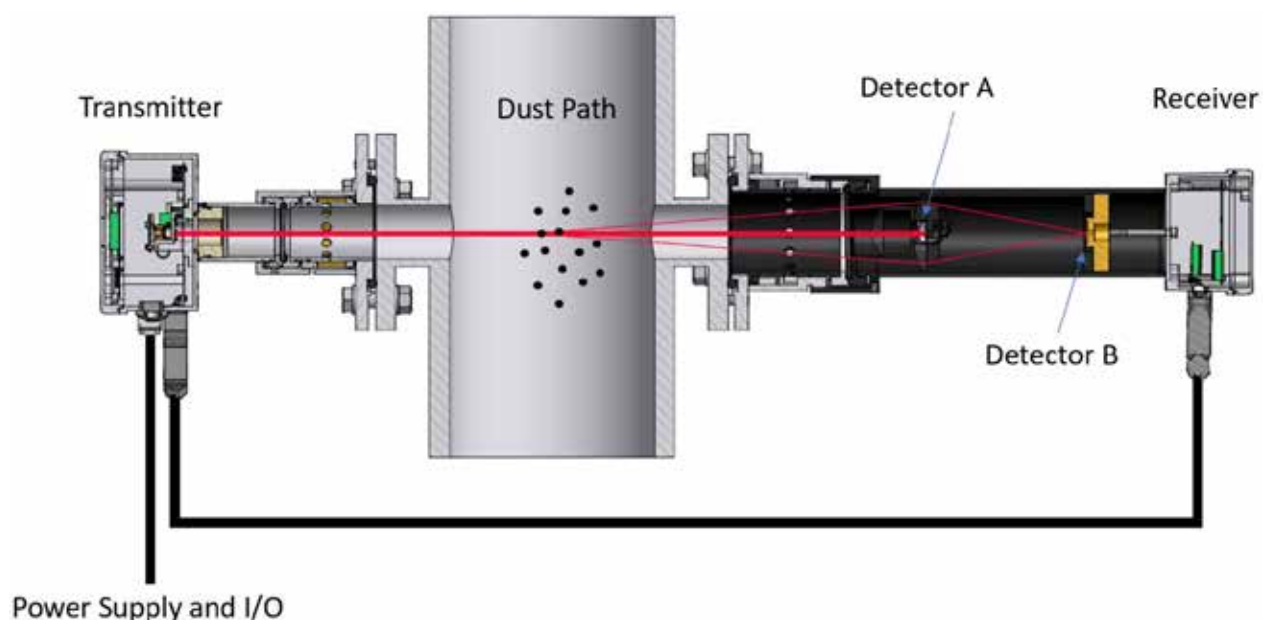
Monitor dust concentration for large stack apps

Non-contact measurement for sensitive process material

Principle of Operation

The PM Laser measures dust concentration using two optical techniques: laser transmission and forward scattering. A laser beam passes across the stack or duct, and detectors on the opposite side measure both the reduction in light intensity (transmission) and the amount of light scattered by dust particles. This dual-mode

approach enables accurate, real-time monitoring across a wide range of particulate levels. The instrument's non-contact design, with no moving parts, ensures stable performance and minimal maintenance in demanding industrial environments.



Key Features



Outputs include 4–20 mA, Modbus TCP, relay alarms, Ethernet, and RS-232

Optional Ethernet diagnostics for remote condition checks

Handles large stack diameters up to 10 m/32.8 ft

Built-in zero and span validation without process interruption

Integrated purge system prevents dust buildup on optics

PC Software for configuration, calibration, and diagnostics

Specifications		Ratings	
Process temperature:	Above dew point up to 1292 °F /700 °C	Input power supply unit:	100 – 240 VAC, 50/60 Hz, 0.36 – 0.26 A
Process pressure:	0.1 – 1.5 BarA (21.76 psi)	Output power supply unit:	24 VDC, 900 – 1000 mA
Detection limit:	< 0.5 mg/Nm3 (in scattered mode)	Input transmitter unit:	18 – 36 VDC, max. 20 W
Measurement range:	min. 0 – 15 mg/Nm3 (scattered mode), particle size >1micron max. 0 – 10,000 mg/ Nm3 (transmission mode), particle size >1micron	4 – 20 mA output:	500 Ohm max. isolated
Resolution:	0.05 mg/Nm3	Relay output:	1 A at 30 V DC/AC
Optical path length**:	MP: 0.5 – 3 m/2 – 10 ft LP: 3 – 6 m/10 – 20 ft XLP: 6 – 10 m/20 – 33 ft	Safety	
Response time:	1 – 2 sec Pulse mode: 50 ms	Laser class:	Class IIIb according to IEC 60825-1
Environmental conditions		CE:	Certified
Operating temperature:	-20 °C to +55 °C/-4 °F to +131 °F	EMC:	Conformant with directive 2014/30/EU
Storage temperature:	-20 °C to +55 °C/-4 °F to +131 °F	Installation and Operation	
Protection classification:	IP66	Flange dimension:	MP: DN50/PN10 LP: DN80/PN10 XLP: DN150/PN10 Optional ANSI or other sizes on request
Inputs / Outputs		Alignment tolerances:	Flanges parallel within 1.5°
Analog output:	4 – 20 mA current loop (concentration, transmission)	Purging of windows:	Dry and oil-free pressurised air or gas
Digital output:	Modbus TCP, Ethernet, and RS-232	Purge flow:	50 – 100 l/min 1.76-3.58 CFM (application dependent)
Relay output:	High dust-, Warning - and Fault relays (normally closed-circuit relays)	Dimension and weight	
Analog input:	4 – 20 mA process temperature and pressure reading	Transmitter unit (MP, LP, XLP):	200 mm/7.9 in (plus 100 mm/3.9 in for purge unit) x 270 mm/10.6 in x 170 mm/6.7 in, 6.2 kg/13.7 lbs
Approvals		Transmitter unit (Ex version):	200 mm/7.9 in (plus 100 mm/3.9 in for purge unit) x 270 mm/10.6 in x 310 mm/12.2 in, 7.9 kg/17.4 lbs
IECEX/ATEX zone 2:	II 3 GD T100 °C Ex nA nC II T5	Receiver unit (MP):	300 mm/11.8 in (plus 100 mm/3.9 in for purge unit) x 120 mm/4.7 in x 120 mm/4.7 in, 3.9 kg/8.6 lbs
Maintenance		Receiver unit (LP):	380 mm/15.0 in (plus 100 mm/3.9 in for purge unit) x 120 mm/4.7 in x 120 mm/4.7 in, 5 kg/11.0 lbs
Visual inspection:	Recommended every 6 – 12 months (no consumables needed) Remote instrument check by Ethernet connection or external modem possible	Receiver unit (XLP):	410mm/16.1 in (plus 100 mm/3.9 in for purge unit) x 270 mm/10.6 in x 170 mm/6.7 in, 8 kg/17.6 lbs
Calibration:	Recommended every 12 months (against gravimetric analysis)	Power supply unit:	180 mm/7.1 in x 85mm/3.3 in x 70 mm/2.8 in, 1.6 kg/ 3.5 lbs
Validation:	Integrated zero and span check		

** Other OPLs on request



MEDIUM PATH (MP)

Designed for stack diameters from 0.5-3 meters/ 1.64-9.84 feet the MP model is ideal for standard industrial ducts and stacks. It offers precise, in-situ dust measurement for a wide range of applications.



LONG PATH (LP)

Optimized for larger stacks, the LP model covers diameters from 3-6 meters/ 9.84-19.69 feet. It provides reliable monitoring in facilities with higher flow rates or larger process equipment.



EXTRA LONG PATH (XLP)

Engineered for the largest installations, the XLP model measures across stack diameters from 6-10 meters/ 19.69-32.81 feet. It delivers robust performance and accuracy in even the most demanding industrial environments.

All models feature non-contact laser measurement, fast response, and minimal maintenance for continuous, real-time dust monitoring.



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