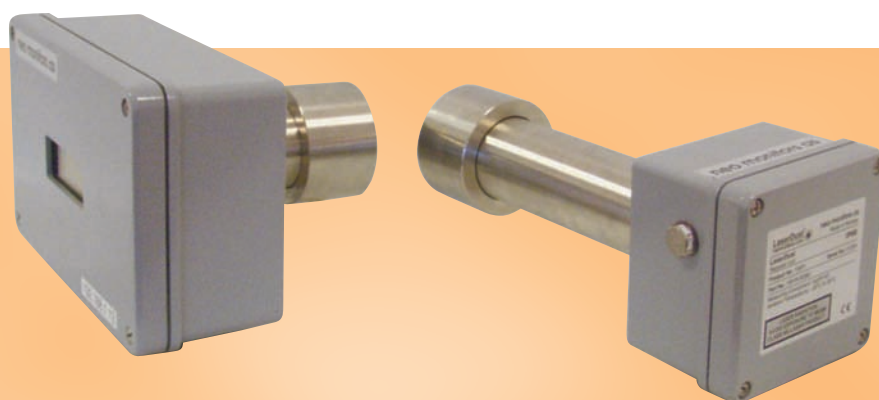


LaserDust™ MP, LP and XLP Monitors

- Data sheet



Key Features

- Response time down to one second
- Suitable for high gas temperatures
- Cross stack measurement up to 10 m
- High dynamic range (mg or g with one instrument)
- Scattered light detection for high sensitivity
- Non-contact measurement (no probes)



NEO Monitors LaserDust Medium Path (MP), Long Path (LP), and Extra Long Path (XLP) Monitors are compact, optical dust monitors for true continuous in-situ measurement of dust concentration or opacity. The monitors are designed for measurement across pipes, stacks, and ducts with typical path lengths of 0.5 – 10 m. LaserDust Monitors use a transmitter / receiver configuration to probe the dust concentration along the optical line-of-sight. Our true non-contact approach (no probes) is superior to point type dust meters.

State of the Art Technology

With innovative laser technology the LaserDust combines two measurement principles in one instrument. At low dust levels it operates with forward scattered light technology: The incident laser light is scattered by dust particles and collected onto a solid-state sensor for dust quantification. This highly sensible mode enables detection limits of $< 0.5 \text{ mg/Nm}^3$ and is unaffected by dust depositing on the windows. At high dust levels the LaserDust will measure transmittance or opacity: Light absorption by dust particles is captured by a 2nd sensor. The operation mode is user selectable and can be changed on site.

Installation

Transmitter and receiver are mounted opposite each other onto DN or ANSI flanges, which include purge gas connections and a tilting mechanism for easy alignment. A continuous purge flow will prevent dust and other contamination from settling on the optical windows. Once power and data lines are connected, measurements are performed in real-time.

Main Applications

The LaserDust monitors are suitable for measuring particles after baghouse filters and electrostatic precipitators even at elevated gas temperatures. Their response is unaffected by charged particles and changes in velocity, making them the choice for obtaining robust and reliable emissions data. Some of the typical applications:

- Emission monitoring in Aluminium smelters and steel works
- Emission monitoring in waste incinerators, power plants, cement kilns
- Scrubber and filter optimisation, bag house filter surveillance
- Dust explosion prevention (e.g. in silos or bins)

Instrument data

Specifications

Process temperature	Above dew point up to 700 °C
Process pressure	0.1 – 1.5 bar abs (optional windows for up to 5 bar)
Detection limit	< 0.5 mg/Nm ³ (in scattered mode)
Measurement range	min. 0 – 15 mg/Nm ³ (scattered mode) max. 0 – 10.000 mg/Nm ³ (transmission mode)
Resolution	0.05 mg/Nm ³
Optical path length	Medium Path: 0.5 – 3 m Long Path: 3 – 6 m Extra Long Path: 6 – 10 m
Response time	1 – 2 sec Pulse mode: 50 ms

Environmental conditions

Operating temperature	-20 °C to +55 °C
Storage temperature	-20 °C to +55 °C
Protection classification	IP66

Inputs / Outputs

Analogue output (3)	4 – 20 mA current loop
Digital output	RS – 232 format Optional 10 or 10/100 Base T Ethernet, optional fibre optic (ASCII – format)
Relay output (3)	High dust -, Warning - and Fault relays (normally closed-circuit relays)
Analogue input	Optional 4 – 20 mA process temperature and pressure reading

Ratings

Input power supply unit	100 – 240 VAC, 50/60 Hz, 0.36 – 0.26 A
Output power supply unit	24 VDC, 900 – 1000 mA
Input transmitter unit	18 – 36 VDC, max. 20 W
4 – 20 mA output	500 Ohm max. isolated
Relay output	1 A at 30 V DC/AC

Installation and Operation

Flange dimension	Medium Path: DN50/PN10 Long Path: DN80/PN10 Extra Long Path: DN150/PN10 Optional ANSI or other on request
Alignment tolerances	Flanges parallel within 1.5°
Purging of windows	Dry and oil-free pressurised air or gas, or by fan
Purge flow	50 – 100 l/min (application dependent)

Maintenance

Visual inspection	Recommended every 6 – 12 months (no consumables needed) Remote instrument check by Ethernet connection or external modem possible
Calibration	Recommended every year (against gravimetric analysis)
Validation	Integrated zero and span check (EN 14181 compliant)

Security

Laser class	Class IIIb according to IEC 60825-1
CE	Certified, conformant with LVD 73/23/EEC, including 93/68/EEC
EMC	Conformant with directive 2004/108/EC

Explosion protection (optional)

ATEX Cat 3 (zone 2)	II 3 GD T100 °C Ex nA nC II T5
CSA	Class I, Div. 2 on request

Dimension and weight

Transmitter unit (MP, LP, XLP)	200 (plus 100 for purge unit) x 270 x 170 mm, 6.2 kg
Transmitter unit (Ex version)	200 (plus 100 for purge unit) x 270 x 310 mm, 7.9 kg
Receiver unit (MP)	300 (plus 100 for purge unit) x 120 x 120 mm, 3.9 kg
Receiver unit (LP)	380 (plus 100 for purge unit) x 120 x 120 mm, 5 kg
Receiver unit (XLP)	410 (plus 100 for purge unit) x 270 x 170 mm, 8 kg
Power supply unit	180 x 85 x 70 mm, 1.6 kg

neo monitors as

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