



LM3189 – LASER DUST MONITOR

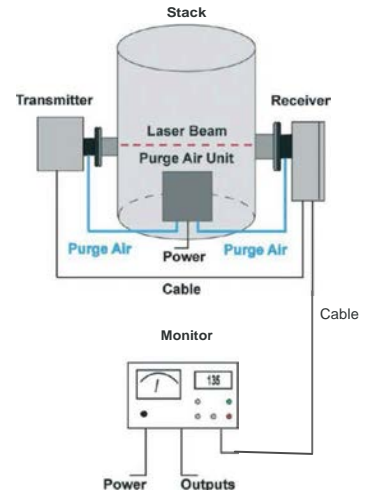
ACCURACY CHOPPED LASER LIGHT SOURCE – EXCELLENT CHOICE FOR LOW DUST APPLICATIONS

APPLICATIONS:

- Power plants
- Cement factories
- Iron and Steel factories
- Tunnels

FEATURES:

- Manual Zero and Calibration checks
- Long monitoring paths possible
- Minimum optics needed
- Less maintenance
- Wide operation range ($1\text{mg}/\text{m}^3 \dots 2\text{g}/\text{m}^3$)
- Analog and digital display



PRINCIPLE OF OPERATIONS:

The measurement system is based on the single pass method. The laser beam crosses the measuring section once only and the receiver unit measures and evaluates the laser beam's weakening caused by the dust content. The optical value is converted to a mass value with the help of calibration constant.

The dust monitor features two operational modes: normal and compensated. Normal operation is intended to use for higher concentration (from $10\text{ mg}/\text{m}^3$ upwards). The compensated mode is meant to be used for very low dust concentration ($<10\text{ mg}/\text{m}^3$), where the gradual dirt contamination of the detector surfaces to be corrected.



ADVANTAGES OF USING A LASER LIGHT SOURCE:

- No optics in the transmitter
- Calibration: once a year
- The alignment of the beam



MEASUREMENT FUNCTIONS AND RANGES

Range switch operation	D-value (D)	Opacity %	Mass range mg/m ³ Dist. 3 feet	Mass range mg/m ³ Dist. 7.5 feet	Mass range mg/m ³ Dist. 15 feet
1	0...0.03	0...6.7	0...24	0...9.6	0...4.8
2	0...0.1	0...20	0...80	0...32	0...16
3	0...0.3	0...50	0...240	0...96	0...48
4	0...1.0	0...90	0...800	0...320	0...160
Option:	0...3.0	0...99	0...2400	0...960	0...480

*Depends on the size and density of the particles, values given with the size of ave. 1 µm and 1kg/dm³

MONITOR UNIT

Communication	Analog
Display	Analog display for D-value, 0-100% Linear scale from the selected range, Digital display, 4-digit LCD for mg/m ³
Controls	Range selector, Alarm test button, Alarm set screw, Alarm indicator lamp, calibration screw, Mass calibration screw, Manual zero/cal-button
Alarms and mode indicators	Relay 115 or 230 VAC, 1A max, with LED indicator
Outputs/Inputs	Current 4...20mA for real time mg/m ³ or D-value Voltage 0-1V DC for real time mg/mg ³ or D-value Current 4...20mA for opacity, Optional
Environmental	Ambient temperature 32...158° F Power 115/230 VAC, 14 VA
Dimensions	Size: 7.1" x 8.5" x 5.1" Weight: 3lbs

TRANSMITTER

Laser type	Semicond./Class II
Wavelength	655 nm, visible light
Ambient temperature	-4...+140° F
Purge flow requirement	2.64 gal/min
Dimensions	Size: 4.9" x 3.1" x 5.7" Weight: 2.2lbs

RECEIVER UNIT

Detection	Optically matched semicond. detector, 2", 4" option
Power	From monitor unit
Ambient temperature	-4...+176° F
Purge flow requirement	7.93 gal/min
Dimensions	Size: 6.7" x 4.3" x 4.9" Weight: 2.8lbs