

DustMonitor DM 800

Dust concentration measurement and filter breakage monitoring



Application

The DustMonitor DM 800 is a calibrated system for continuous measurement of dust concentrations. It is based on the triboelectric effect, is insensitive to contamination and is characterized by reliable measurement results and low maintenance costs.

The Dustmonitor DM 800 can be used to measure the dust concentration in flues and chimneys, it can be used to monitor sources of contamination and can ensure the correct functioning of dust collectors and dust filters. The Dustmonitor requires a constant air velocity in the stack, it is suitable for use behind bag filters, cartridge filters, cyclones and electrostatic precipitators (EGP).

Industries

Aluminum and steel industry
Bakeries
Building materials
Mining
Chemistry and fertilizers
Power generation
Foundries
Glass production
Rubber
Wood industry
Mills
Food and feed industry
Pulp and paper
Pharmaceuticals
Cement industry
etc.

Advantages

- Reliable measurement of the dust concentration in the exhaust air duct or chimney
- Responsive measurement
- Is not affected by dust deposits on the sensor rod
- Rugged construction, well protected for multi-year operation in harsh environments
- Detects filter damage or dust collection malfunction, thereby improving production conditions and the environment
- Reduces the cost of filter maintenance
- Also suitable for electrostatic dust collectors
- Triboelectric principle, low maintenance costs compared to optical dust sensors
- Easy installation in existing ducts

Function

The measurement of the DM 800 is based on the triboelectric effect. The particles in the air stream permanently collide with each other and are charged in a natural way. If these electrically charged particles fly past or touch the sensor rod of the DM 800, they are detected via a charge transfer. Dormant particles, such as deposits or similar, do not influence the measurement. Installation in an existing exhaust air duct is possible without any problems.

The measurement result in the range from 0.1 mg/m³ to 1000 mg/m³ is output via a 4-20mA interface, and two relays can also be switched for pre-alarm and main alarm. In this way, the person responsible for the process can react in time to changes in the process and prevent an increase in dust emission.

The system is suitable for almost all fields of application in dust measurement, variants are available for temperatures up to 250°C, for aggressive media and for use behind electrostatic precipitators.

Technical data

Housing material	Aluminum
Sensor rod	Stainless steel (SUS304 / SUS316L)
Sensor rod length	250 mm - 1000mm (up to 2000mm for EGP)
Insulation material	PEEK
Mech. Connection	NPT 0.5", PT 0.5", 2"x10kg/cm ²
Dust concentration	0.1 mg/m ³ to 1000 mg/m ³
Particle size	>= 0.3µm
Ambient-Temperature	-30°C to +70°C
Process temperature	Max. 250°C
Process pressure	Max. 6 bar
Protection class	IP67
Power supply	24 VDC or 100-240VAC
Power consumption	Max. 10 W
Output	4-20 mA 2x SPDT relay contacts
Communication	Modbus RS485
Switching voltage	60 VAC or 60 VDC
Calibration	Through comparative measurements (for trend measurements and Filter analyses not required)

