

ProSens

Dust Measurement



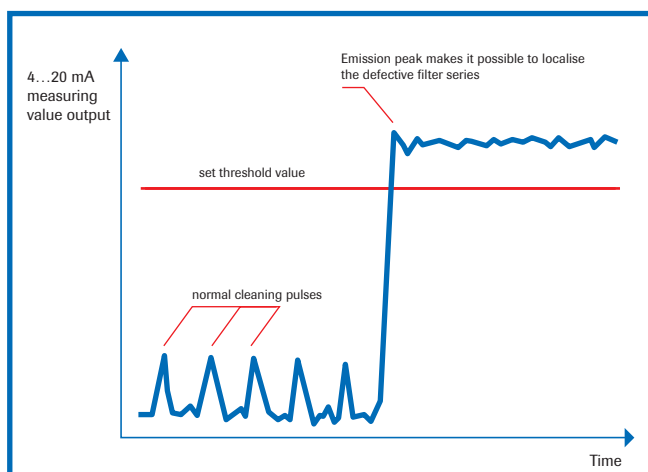
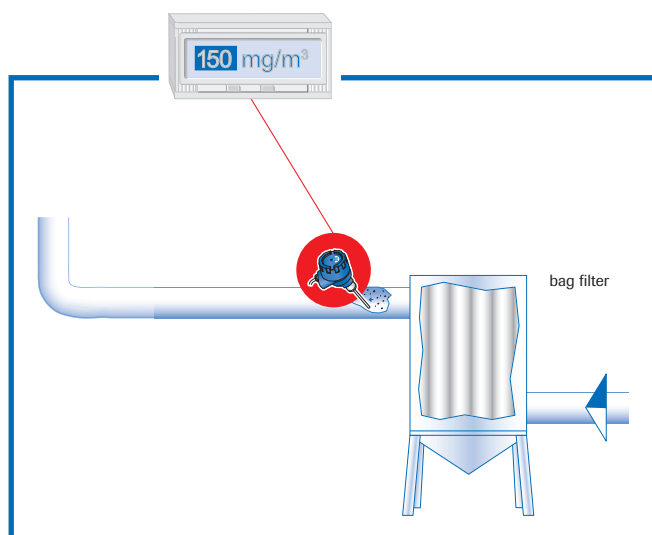
Use

ProSens was specially developed to carry out reliable dust measurement on clean sides after filters.

The measuring device provides measurement values for dust concentration, either as a trend signal or as absolute values (after calibration) for emission measurement.

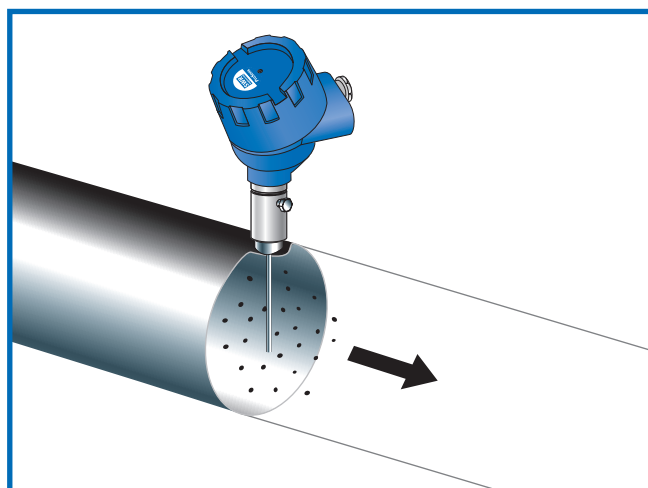
ProSens is used:

- if the dust concentration is to be output as an absolute value in mg/m^3 .
- for exact measurements even with large channel diameters.
- for applications in explosion hazard zones (GasEx-Zone 1, DustEx-Zone 20)
- for the measurement of dust concentration even at high temperatures.



Function

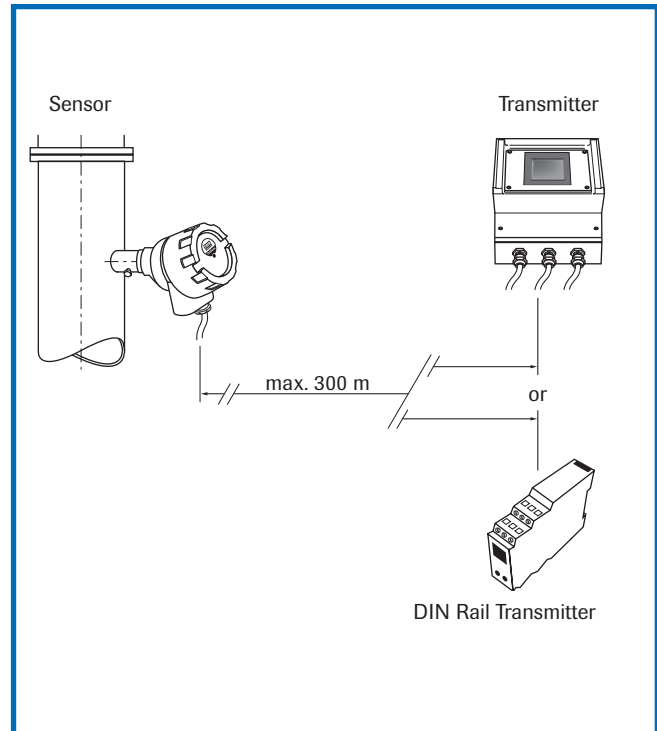
Basic principle of the ProSens is the triboelectric effect. If the dust to be measured is constant, then the generated measuring signal is proportional to the dust concentration, even if there are dust deposits on the measuring probe. Experience shows that the measuring method provides very exact results with little required maintenance.



System

A complete measuring system consists of these components:

- Welded casing to serve as a sensor receptacle
- ProSens sensor
- Transmitter PME 100
 This unit can be supplied in a field housing with touch panel display or as a DIN-Rail version.
 In case of a DIN-Rail version also a Software for parameter setting will be supplied.



Mounting and installation

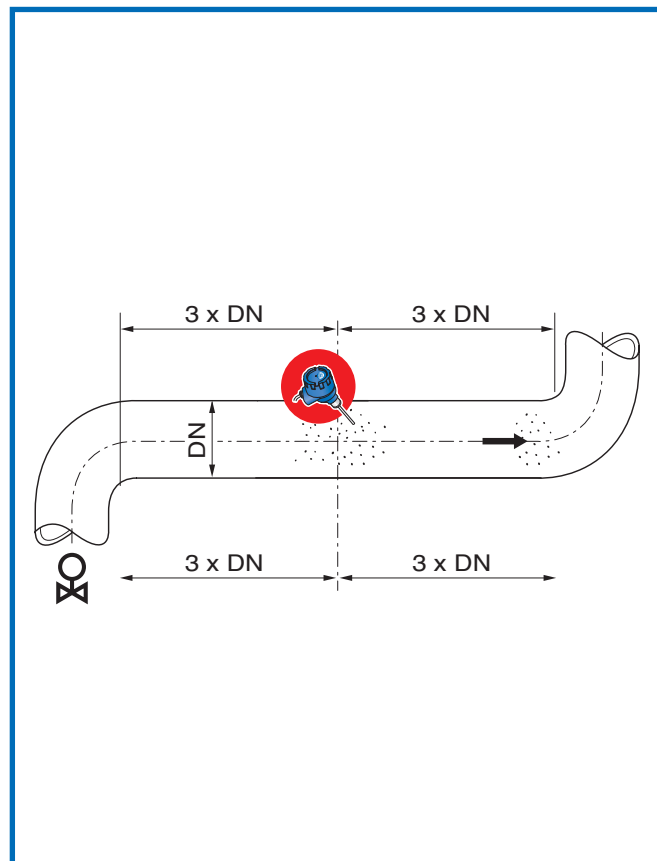
The ProSens can be installed in metal channels and pipelines.

The installation should take place away from any curves and other inserts such as flaps and valves.

The distance between the sensor rod and inserts in the channel should be at least 3 times the channel diameter in every flow direction.

Non-metallic channels must be sheathed using a metal sleeve, a metal foil or a close-mesh metal grid over a length of at least 5 times the channel diameter.

After determining the installation location, a hole must be drilled in the channel wall to insert the welding casing flush. The casing is now welded into place vertically to the channel. The sensor rod is then inserted in this and fastened with a fixing screw. The length of the sensor rod should at least $\frac{1}{3}$ and at most $\frac{2}{3}$ of the channel diameter. It can be shortened to the respective optimal length (up to 70 mm) without a problem.



Technical Data

Sensor	
Measuring objects	Particles in the gas flow
Measuring range	From 0.1 mg/m ³
Process temperature	Standard: 150 °C; optional: max. 700 °C
Pressure	Max. 2 bar (Optional: up to 25 bar)
Flow speed	Min. 4 m/sec
Humidity	95 % rel. hum. or less (non-condensing)
Measuring principle	Triboelectric effect
Ambient temperature	-20 ... + 60 °C
Sensor rod	Material: stainless steel; length: 500 / 1000 mm
Housing	Aluminium
Protection type	IP 66; ATEX: cat. 1/2 GD
Electric connection	Connection room DIN PG 16
Measurement value alarm relay output	Relay with switching contact Max. 250 V AC, 1 A Not for EX-devices Cat. 1 and 2
Weight	Approx. 1.5 kg

Transmitter (DIN rail)	
Power supply	24 ± 10 % V DC
Power consumption	20 W / 24 V
Protection type	IP 40 to EN 60529
Ambient operating temperature	-10 ... +45 °C
Dimensions	23 x 90 x 118 (W x H x D)
Weight	Approx. 172 g
Connection terminals conductor cross-section	0.2 - 2.5 mm ² [AWG 24-14]
Current output signal	4 ... 20 mA, load < 500 Ω
Switch output measurement alarm	Relay with switchover contact Max. 250 V AC, 1 A
Interface	ModBus RTU (RS 485)
Data backup	Flash memory

