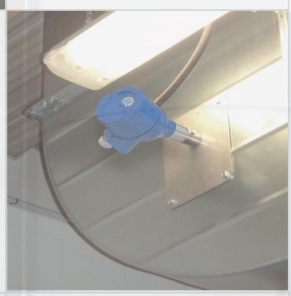
ProSens

Dust Measurement



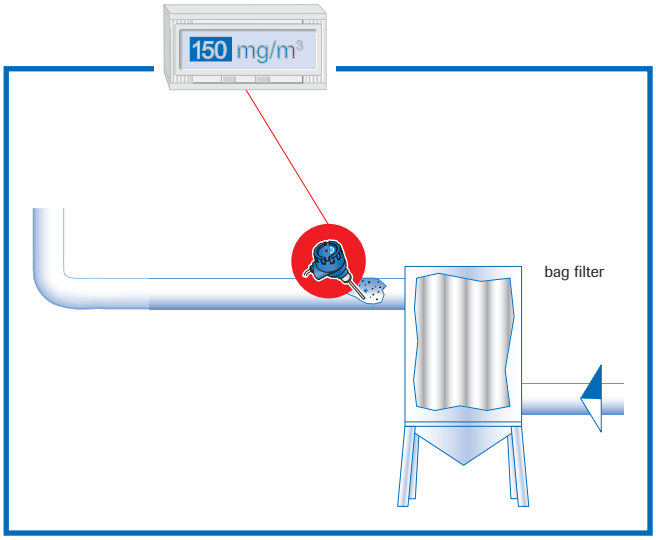
Product Information

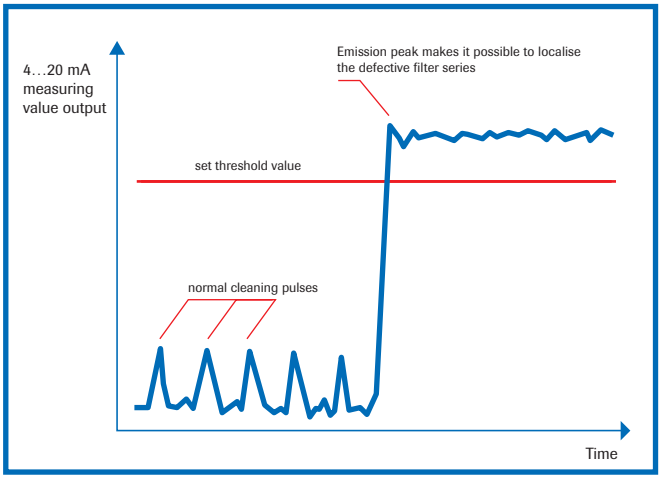
Use

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 for emission measurement.

ProSens is used:

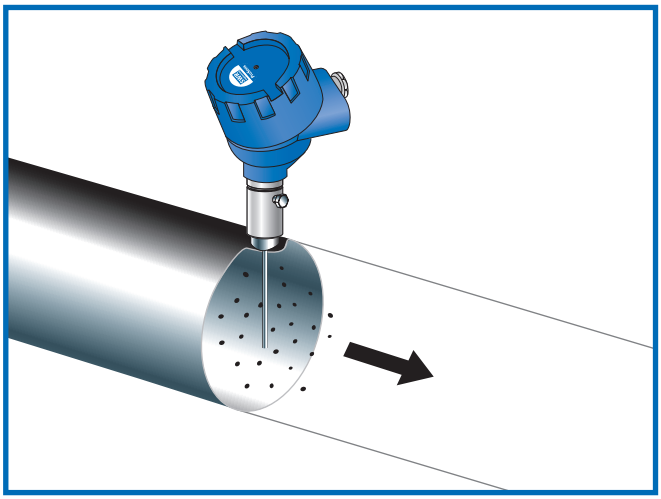
- if the dust concentration is to be output as an absolute value in mg/m³.
- for exact measurements even with large channel diameters.
- for applications in explosion hazard zones (GasEx-Zone 1, DustEx-Zone 20)
- for the measurement of dust concentration even at high temperatures.





Function

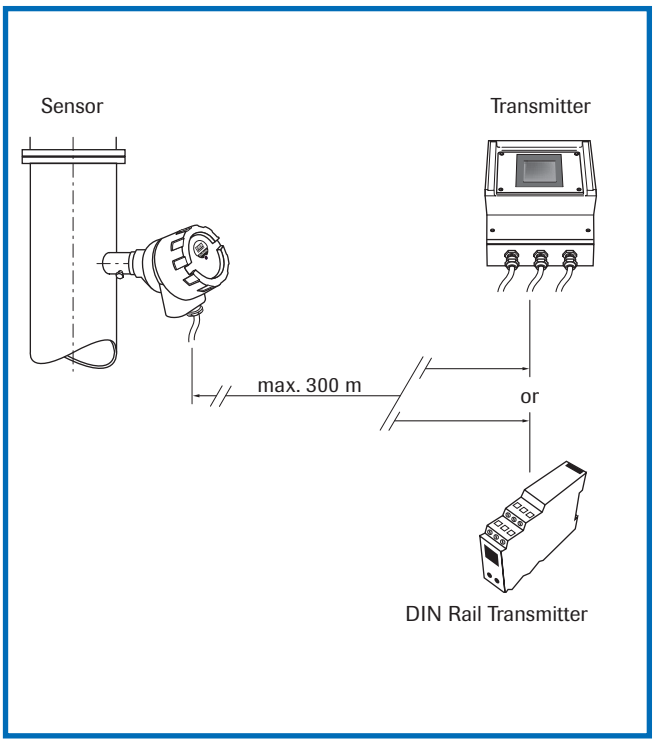
Basic principle of the ProSens is the triboelectric effect.
If the dust to be measured is constant, then the generated measuring signal is proportional to the dust concentration, even if there are dust deposits on the measuring probe.
Experience shows that the measuring method provides very exact results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



System

A complete measuring system consists of these components:

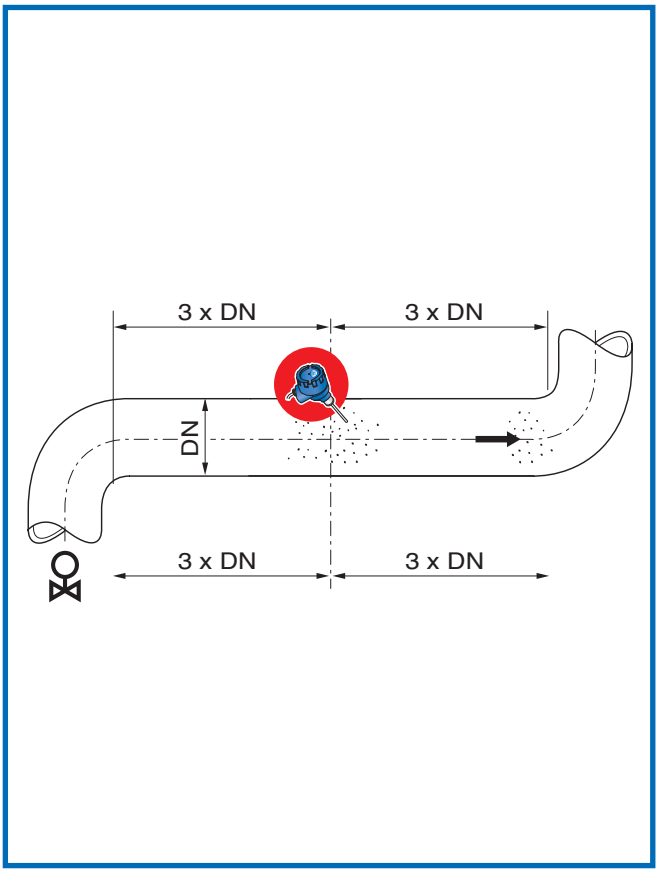
- Welded casing to serve as a sensor receptacle
- PMS sensor
- Transmitter PME 100
  This unit can be supplied in a field housing with touch panel display or as a DIN-Rail version.
  In case of a DIN-Rail version also a Software for parameter setting will be supplied.



Mounting and installation

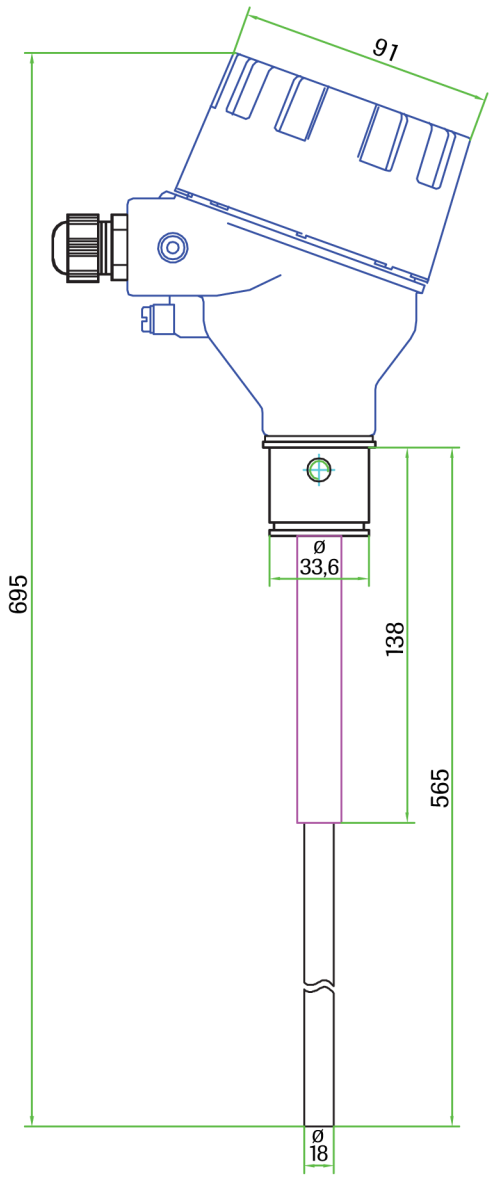
The ProSens can be installed in metal channels and pipelines.
The installation should take place away from any curves and other inserts such as flaps and valves.
The distance between the sensor rod and inserts in the channel should be at least 3 times the channel diameter in every flow direction.
Non-metallic 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 is at least 1/3 and at most 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
Particle size	0.3 µm or larger
Measuring range	From 0.1 mg/m³
Process temperature	Standard: 150 °C; optional: max. 700 °C
Pressure	Max. 2 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
Weight	Approx. 1.5 kg
Transmitter	
Supply voltage	110 / 230 V, 50 Hz, 24 V DC
Power consumption	20 W / 24 VA
Current consumption	Max. 1 A @ 24 V
Protection type	IP 65 acc. to EN 60 529/10.91
Operating temperature	-10 … +45 °C
Dimensions	258 x 237 x 174 (W x H x D)
Weight	Approx. 2.5 kg
Interface	RS 485
Cable glands	3 x M16 (4.5-10 mm Ø)
Screw terminals	0.2 - 2.5 mm² [AWG 24-14]
Current output signal Voltage output signal	4…20 mA (0…20 mA), load < 700 Ω or 2…10 V (0…10 V), load > 2 kΩ
Switched output measuring alarm 3x	Relay with switchover contactt Max. 250 V AC, 1 A
Unit counter	Reset function
Data storage	Flash
Impulse output	Open Collector



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