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PFM 97 W

Product Information

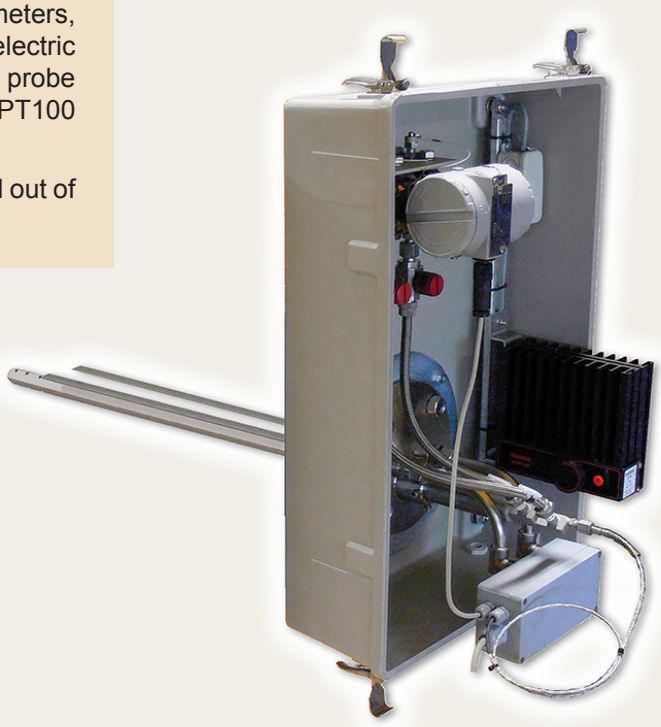
The dust concentration measuring device PFM 97 W is used for continuous in-situ measurement of dust contents. Besides the tribo-electric measurement of the dust content, the volume flow and the temperature of the exhaust gas are determined in parallel.

Design

The PFM 97 W consists of an in-situ probe and an operating unit.

For the measurement of the different parameters, at the probe housing there are two tribo-electric probe rods as well as a dynamic pressure probe with differential pressure transmitter and a PT100 for temperature measurement.

The separated operating unit can be arranged out of the measuring place by wall mounting.

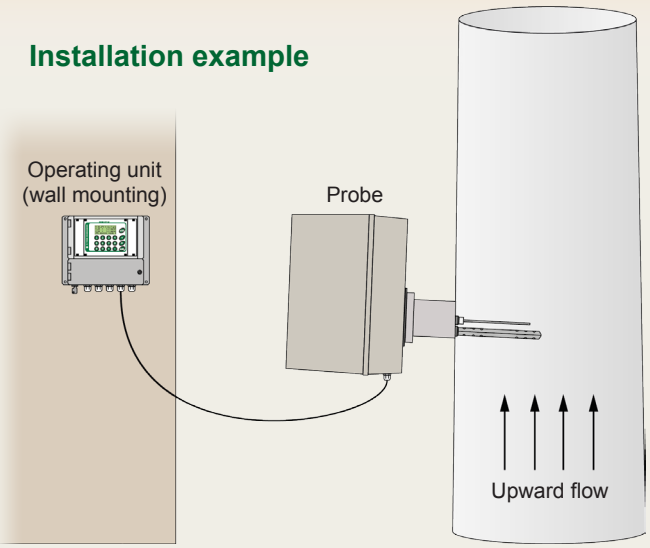


Function

The measuring gas in the exhaust gas flow is gathered by means of the two tribo-electric probe rods. By the passing as well as impinging dust particles a charge exchange takes place. From the discharged current a signal is generated which depends on the mechanical and electrical characteristics of the dust. The dust-proportional signal which is generated by the microcontroller integrated in the operating unit is the degree for the dust content of the exhaust.

Because after dust concentration the velocity has the most influence on the tribo-electric charge changeover, for representation of the dust concentration the tribo-electric signal must be velocity-compensated. By the integrated dynamic pressure probe the differential pressure is measured continuously. The signal which results from the differential pressure is a degree for the velocity of the exhaust gas. The microcontroller integrated in the operating unit generates a proportional signal and evaluates the volume flow. Additionally via the PT100 the gas temperature is determined which serves the calculation of the dust concentration in standard state.

Installation example



Highlights of the device

- compact device
  → only 1 sampling flange necessary
- simultaneous measurement of dust content, volume flow and temperature
- use in corrosive gases possible
- no purge air blower required
- low operational costs
- easy mounting
- first-class price-performance ratio

Technical data

Operating unit:	weatherproof aluminium housing for wall mounting; 4-line LC display with operating keys, key switch and RS232 interface; 305 mm x 240 mm x 300 mm (w x h x d), approx. 3 kg, IP 65
Probe:	housing with with GRP weather protection casing; 420 mm x 640 mm x 1000 mm (w x h x d), approx. 10 kg, IP 55; immersion depth: 500 mm (standard) - 2 tribo-electric probes with wing profile (probe rod electrically isolated from housing) - 1 dynamic pressure probe with differential pressure transmitter and PT100 (measurement of volume flow and temperature)
Flange:	DN 80 PN 6, special design: tube ∅ 100 mm
Ambient temperature:	-20...+50 °C
Relative humidity:	no special sensitivity
Dew-point spread:	min. +5 K
Measuring gas temperature:	max. 280 °C (higher temperatures on request)
Measuring ranges:	- dust i.o.: 0...15 mg/m³ (max. 500 mg/m³) - dust i.st.: 0...15/45/150/500 mg/m³ - volume flow: 0...1.000.000 m³/h - temperature: 0...300 °C - velocity: 0...30 m/s
Operational availability:	after approx. 30 min
Calibration:	by gravimetric comparison measurements
Analogue outputs:	4x 4...20 mA (2x dust, volume flow, temperature), galvanically isolated to device ground, max. burden 500 Ω
Digital outputs:	6x potential-free contact (failure, maintenance, limit value1 and 2, maintenance request, measuring range), max. 35 V DC at 0.2 A
Power supply:	230/110 V AC, 50-60 Hz

Special models are possible on request.