

Combined probe sensor

Single rod measurement probe for simultaneous measurement of

- Dust concentration [mg/Nm³]
- Volume flow [Nm³/h]
- Temperature [°C]
- Absolute pressure [hPa].

Features

- Only one probe / installation opening in the exhaust gas channel
- Compact design, no moving parts, no consumable parts
- Continuous conversion to normalised dust concentration in mg/Nm³ and to normalised volume flow in Nm³/h
- LCD display in mg/Nm³, Nm³/h, °C and hPa, one analog output for each measurement value
- Parameterization at the control unit without the need of a PC or other tools
- Remote connection of control and evaluation unit via two-wire bus interface up to 1000 m.

Applications

- For measurements in accordance with TI Air (Technical Instructions for Maintaining Air Purity), 13., 17. and 27. BImSchV
- ✗ Not suitable for use behind electrostatic precipitators. Please consult us.

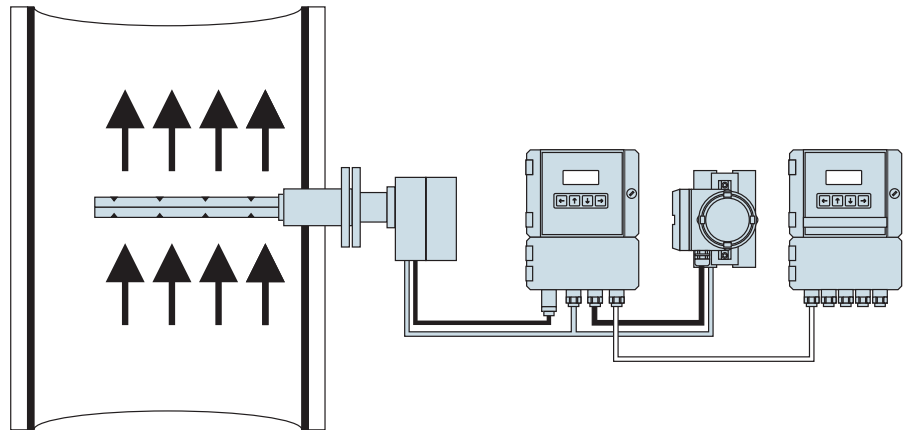
Approvals

- Suitability-tested by the TÜV Cologne, test report 936/800006/A
- Itemized in the list of suitable measuring devices for continuous emission measuring
- MCERTS.



Measuring principle

- The tribo probe measures the electric charge of the incident particles.
- The measurement of the **volume flow** is based on the mechanical action principle. The probe has two separate chambers, between which a differential pressure builds up under flow.
- The **absolute pressure** in the flue gas is measured by a pressure transmitter in one chamber of the probe.
- The **temperature** is measured directly in the centre of the flue gas flow in a separate chamber within the probe with a temperature sensor.
- **Dust concentration** is calculated from the triboelectric measuring signal and the volume flow. To this purpose in calibration, you receive the necessary parameters for the relevant speed ranges, which form the basis for calculating dust concentration. The raw data that are also measured for gas temperature and absolute pressure are used to calculate the standard dust concentration and the standard volume flow (wet).



measurements	dust concentration, volume flow, absolute pressure, temperature	detection limit	<2% of measuring range
measuring ranges	0-10 ... 0-500 mg/Nm ³ 0-9,999,999 Nm ³ /h ¹⁾ 0-200°C, optional 0-350°C 900-1,300 hPa	reference point drift	<1% of measuring range/month
measuring principle	dust: tribo electric volume flow: differential pressure	zero point drift	<1% of measuring range/month
flue gas temperature	above dew point up to 200°C, optional up to 350°C, flue gas humidity <80%	supply voltage	115 / 230 VAC, 50 / 60 Hz, 50 VA
flue gas pressure	-200 up to 200 hPa	dimensions (h x w x d) probe length	probes: 180 x 180 x (340 + probe length) mm 250, 400, 700, 1000 mm
duct diameter	0.3-4 m	weight	probe 9.5 kg electronics 22 kg
ambient temperature	-20 up to +50°C	probe back purging (option)	purge air supply 3 bar
protection	IP65	insulator purging (option)	continuous purge air supply approx. 2 m ³ /h
measuring outputs	4x 0 / 4-20 mA / 500 Ohm, Modbus RTU (RS485)		
digital outputs	7 relay outputs, permissible load 250 V / 100 VA		
digital inputs	6 potential free inputs		
accuracy	<2% of measuring range	remarks	¹⁾ flue gas velocity >5 m/s concentration after gravimetric calibration

