

Mobile fine dust sensor

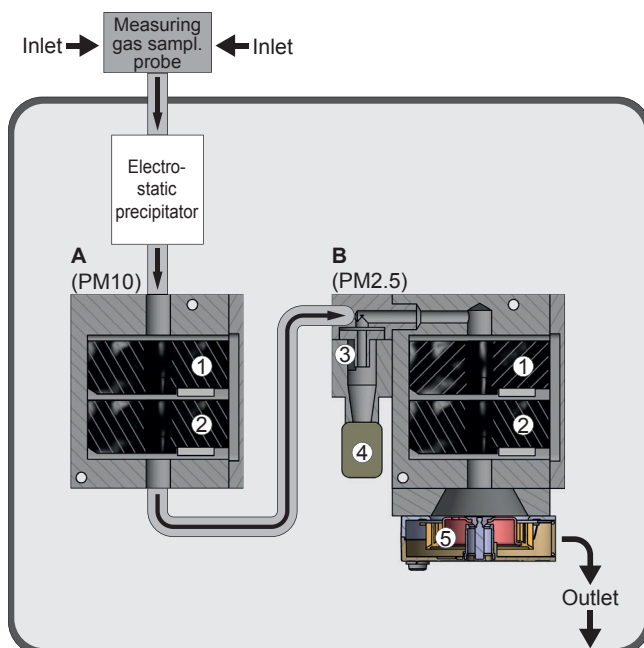


Optical sensor for mobile, simultaneous measurement and monitoring of fine dust contents PM10 and PM2.5 indoor and outdoor

SCHEMATIC DESIGN

- A Sensor module for measurement of PM10
- B Sensor module for measurement of PM2.5

- 1 Measuring sensor
- 2 Reference sensor
- 3 Pre-separator
- 4 Residual dust reservoir
- 5 Fan



YOUR BENEFITS AT A GLANCE

- simultaneous real-time measurement of PM10/ TSP and PM2.5
- patented electrostatic precipitator for zero point setting
- mobile use through design as portable case
- offline power supply by power bank
- data logger for storage of measuring values
- robust design
- active suction
- long-term stability
- easy installation without special tool
- low operational costs

PRECONDITIONS ON SITE

- ambient temperature: -20...+50 °C
- relative humidity: 0...95%
- place with representative dust loading
- protection against draught
- no direct solar radiation
- location free of percussion

APPLICATION

By means of the FDS 17 m it is possible to determine the current particulate matter concentration of the environment by simultaneous measurement of PM10 and PM2.5 and to make out health hazards.

APPLICATION EXAMPLES

- temporary monitoring of air quality (ambient air near industrial areas etc.)
- temporary monitoring of fine dust in the range of production (workshops, factory buildings etc.)
- temporary monitoring of room air quality in offices and public institutions (hospitals, schools etc.) or in the private domain

FUNCTION

The determination of the dust content in the FDS 17 m is based on the method of scattered light measurement.

After the fine dust of the ambient air has entered the device via the measuring gas sampling probe and has passed the electrostatic precipitator, the fine dust concentrations for PM10 and PM2.5 are measured in succession by the respective sensor module. For the analysis of alveolar particle fractions (PM2.5) an integrated pre-separator with residual dust reservoir is used.

In the device there is a periodic control and correction of zero point and reference point which is enabled by the electrostatic precipitator with integrated high voltage module. A high zero point stability is achieved by evaluation of the internal measuring signals.

TECHNICAL DATA

Housing:	complete measuring system designed as portable measuring case; IP33
Dimensions:	300 mm x 280 mm x 225 mm (w x h x d)
Weight:	approx. 7.3 kg
Ambient temperature:	-20...+50 °C
Relative humidity:	0...95%
Measuring method:	scattered light measurement
Average dust contents:	up to 500 µg/m ³ (max. 2000 µg/m ³)
Detection limit:	2 µg/m ³
Flow:	2 l/min
Sensors:	2x sensor module with two optical sensors for each; separated control and signal evaluation
Display / Operating:	operating unit with graphic display and touch function; storage of measuring values via data logger
Zero point setting:	automatic by internal electrostatic precipitator with high voltage module, approx. 10 kV; interval 2-8 h
Fan:	for flow enforcement
Heating:	for conditioning of measuring gas (compliance with the dew-point spread), integrated over temperature protection
Power supply:	by delivered power cord, 100-240 V AC, 0.7 A, 50-60 Hz; offline power supply by power bank possible, operation time approx. 6 h
<i>Special models are possible on request.</i>	