# Fine dust sensor

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Optical sensor for continuous, 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
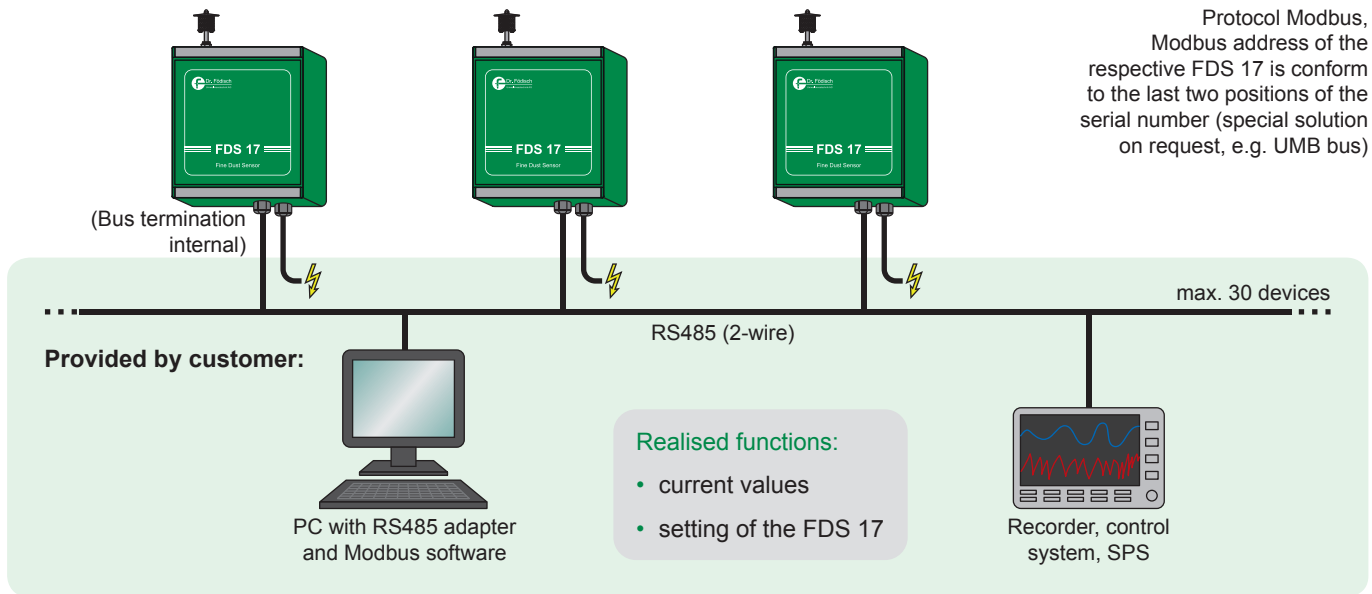3 Pre-separator
4 Residual dust reservoir
5 Fan
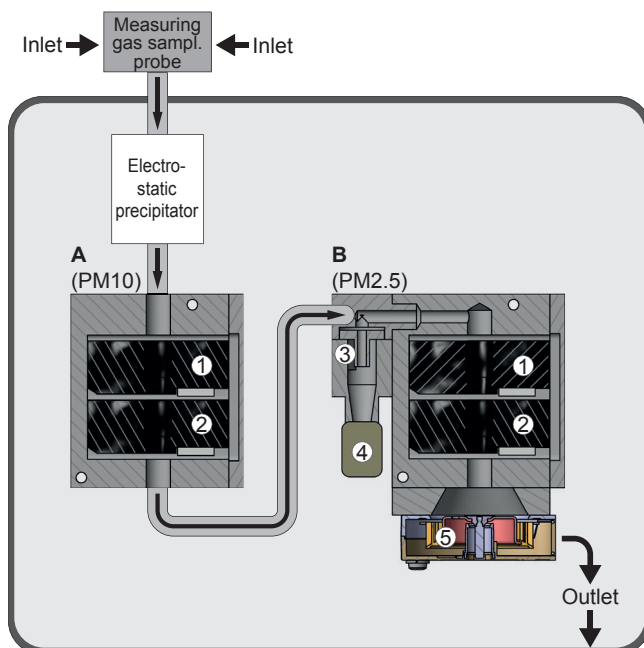
YOUR BENEFITS AT A GLANCE

- simultaneous real-time measurement of PM10/TSP and PM2.5
- patented electrostatic precipitator for zero point setting
- robust design
- active suction
- long-term stability
- cross linking of several FDS 17
- network-compatible, WLAN
- 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
- power supply
- signal connection (Modbus / mA / WLAN)

INSTALLATION EXAMPLE

Protocol Modbus, Modbus address of the respective FDS 17 is conform to the last two positions of the serial number (special solution on request, e.g. UMB bus)

(Bus termination internal)

Provided by customer:

RS485 (2-wire)

max. 30 devices

PC with RS485 adapter and Modbus software

Realised functions:
- current values
- setting of the FDS 17

Recorder, control system, SPS

TECHNICAL DATA

Housing:	compact sensor housing made of aluminium; IP33
Dimensions:	200 mm x 313 mm x 121 mm (w x h x d)
Weight:	approx. 4 kg
Ambient temperature:	-20...+50 °C
Relative humidity:	0...95%
Measuring method:	scattered light measurement
Average dust contents:	up to 500 µg/m³ (max. 2000 µg/m³)
Detection limit:	2 µg/m³
Flow:	2 l/min
Sensors:	2x sensor module with two optical sensors for each; separated control and signal evaluation
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
Interface:	RS485 (Modbus)
Clip contacts:	max. 0.5 mm; power supply connection: max. 2.5 mm
Power supply:	100-240 V AC, 0.7 A, 50-60 Hz (optional 12-24 V DC, 2.1 A); pre-fuse min. 5 A
Optional:	• 4...20 mA current loop • WLAN module
Special models are possible on request.	

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