DUST-IT2

Fine Dust Sensor

UniTec
Innovation in Analysis

The fine dust sensor **DUST-IT-2** is an optical sensor for continuous measurement and control of fine dust contents, **PM10 and PM2.5**. It can be integrated into several applications.

APPLICATION

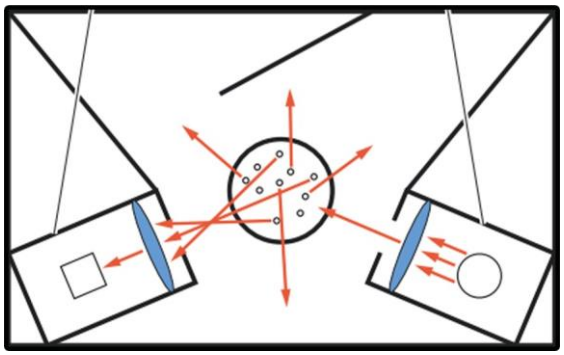
By means of the DUST-IT-2 it is possible to determine the current fine dust loading of the environment and make out health hazards.

Application examples:

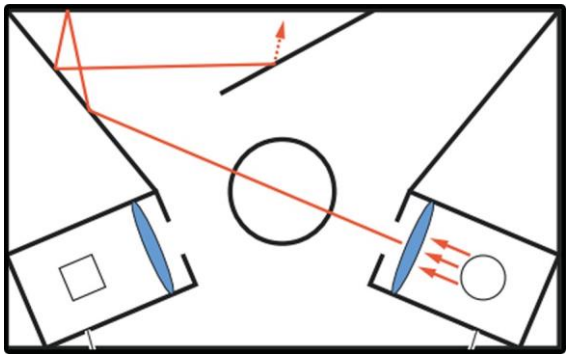
- monitoring of fine dust in the range of production (workshops, factory buildings etc.) • monitoring of room air quality in offices and public institutions (hospitals, schools etc.) or in the private domain
- monitoring of ambient air
- upgrading of weather stations

LIGHT PATH IN THE SENSOR HOUSING

Without dust particles



With dust particles



FUNCTION

The determination of the dust content in the **DUST-IT-2** is based on the method of scattered light measurement. The sucked air is tempered. Thereby flow enforcement takes place via the integrated fan (2 l/min). The velocity of the measuring gas is chosen in a way that particles are determined representatively.
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. For communication besides the standard Modbus interface there is the option of a 4…20 mA current loop or an integrated WLAN module.

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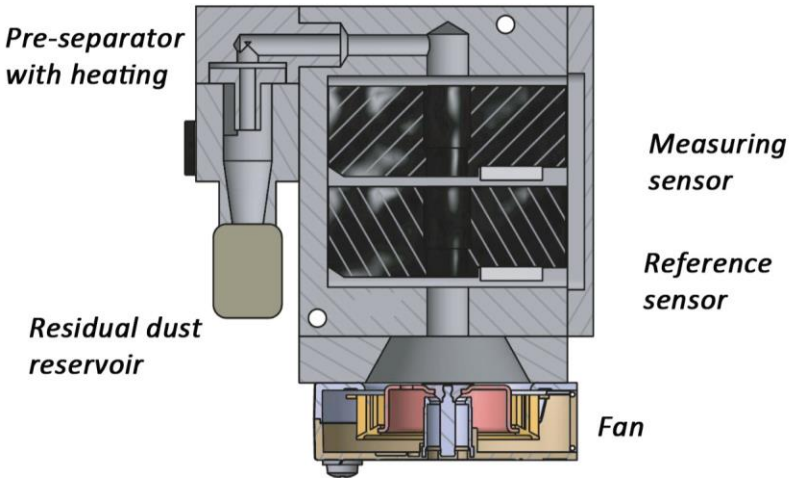
FEATURES & SPECIFICATIONS



HIGHLIGHTS

- robust design
- low-noise operation
- active suction
- long-term stability through two sensors
- cross linking of several DUST-IT
- network-compatible, WLAN
- easy installation without special tool
- low operational costs
- first-class price-performance ratio

SPECIFICATIONS

Housing	compact sensor housing made of aluminium, integrated pre-separator for measurement of fine dust (PM2,5 and PM10)
Dimension	200 mm x 297 mm x 121 mm (w x h x d)
Weight	approx 4 kg.
Protection degree	IP33
Power Supply	100-240 V AC, 0.7 A, 50-60 Hz(optional 12 V DC, 2.1 A);
Ambient Temperature	-20...+50 °c
Relative Humidity	0…95%
Measuring method	scattered light measurement
Sensors	2 x sensor module with two optical sensors for each; separated control and signal evaluation
Flow	2 1/min
Interface	RS485 (Modbus)
Fan	for flow enforcement
Heating	for conditioning of measuring gas (compliance with the dew-point spread
Average dust contents	up to 500 µg/m^3 max 2000 µg/m^3
Detection limit	2 µg/m^3
Optional	4..20 mA current loop /WLAN module