

# AirSafe

Continuous ambient air  
dust monitoring



## Applications

Triboelectric sensor technology from SWR has proven itself in thousands of applications for measuring dust concentrations in process systems.

AirSafe is a new measuring instrument which can monitor the dust concentration in ambient air, for example in control system areas, silo areas, boiler houses or work stations.

AirSafe monitors concentrations on the basis of pre-set limit values.

For example, to avoid the accumulation of dust in explosion zones or to detect unnoticed accumulation of dust from processes.

AirSafe can be used as early detection for dust which could endanger the workplace.

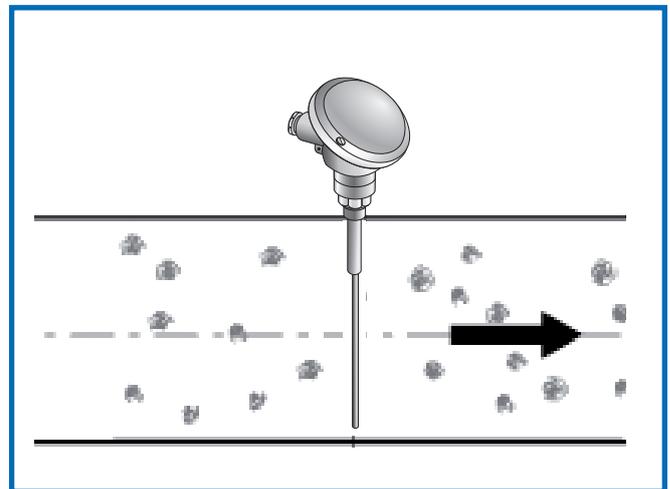
## Operation

AirSafe consists of a flow duct and an integral triboelectric dust sensor.

A current of air is drawn through the duct at approximately 100 m<sup>3</sup> /h.

Dust particles, carried in the air current, passes the sensor, this generates a charge transfer, which is used as the measurement signal.

This signal is converted to electrical process outputs which could be used for display or control.



## Description

The AirSafe flow duct is 500 mm long and 100 x 100 mm square.

The integral dust sensor has a relay output which energises when the set limit value is exceeded.

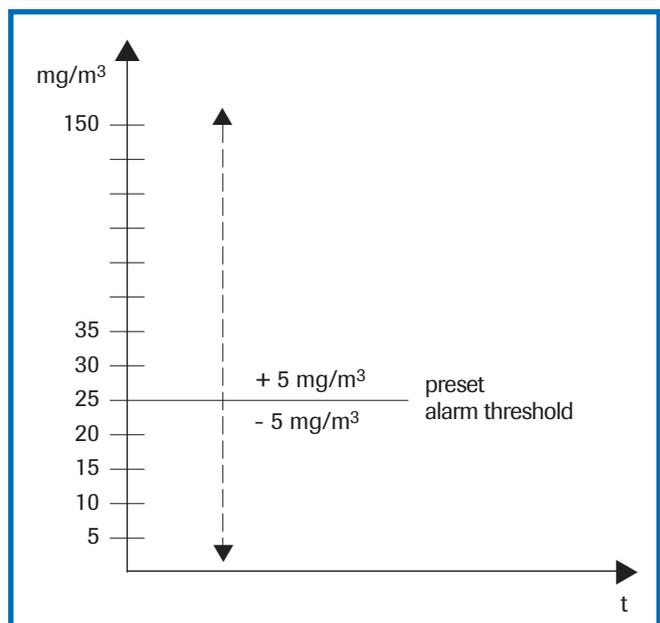
The unit is supplied pre-calibrated.

The alert point is set to approximately 25 mg/m<sup>3</sup> of dust.

The user can set his own alarm threshold.

This may be set within a range of approximately 5 mg/m<sup>3</sup> to 150 mg/m<sup>3</sup>.

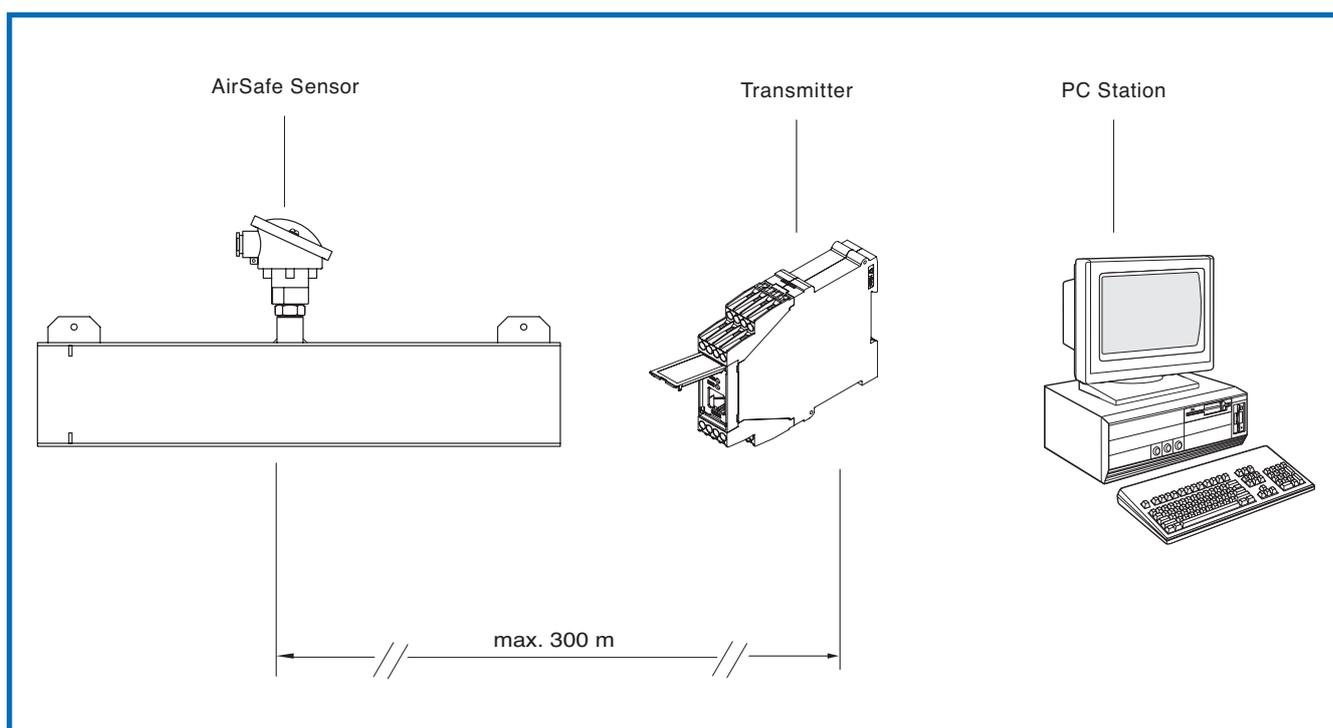
The alert point can be changed in steps of 5 mg by simply pressing a button.



As well as a contact closure output, the sensor also has an RS 485 output which can be connected to a wall mount or DIN rail mount transmitter.

The output from the transmitter is a standard 4...20 mA process output. The transmitter also has a ModBus RTU RS 485 output which can also be used for connecting to a PC.

By using the visualisation software, up to 10 measuring points can be displayed and saved and can be interfaced to other computer programs, e. g. Excel.



## Assembly and installation

AirSafe can be installed anywhere in a room.

Except of high ambient temperatures, there is no need to maintain distances from units or walls.

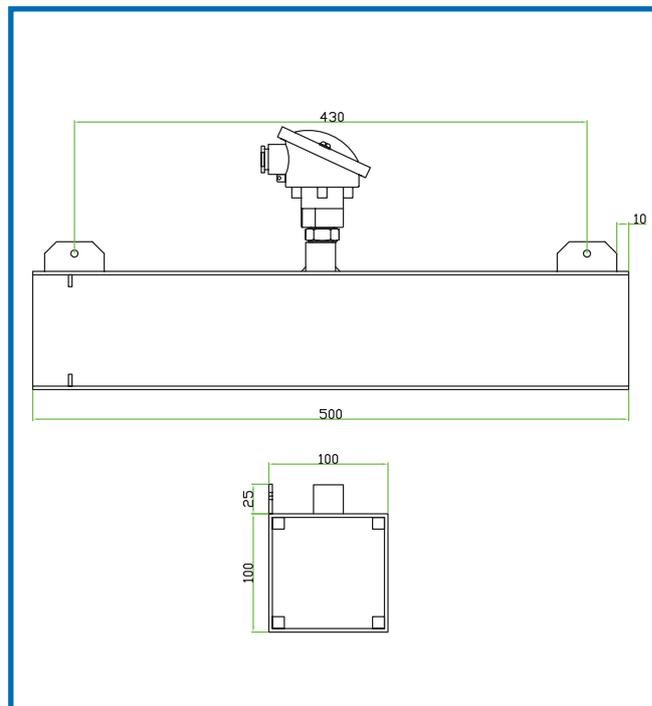
AirSafe can be wall-mounted using brackets provided.

## Benefits

- The creation of dust explosion zones can be prevented.
- Dust concentrations at work stations are safely monitored.
- Possible dust escape from system parts is quickly detected.

## Technical data

<b>AirSafe duct detector</b>	
Measured objects	Solid particles in a gas stream
Particle size	0.3 µm or larger
Measurement range	From 0.1 mg/m <sup>3</sup>
Ambient temperature	- 20 ... + 60°C
Humidity	95 % RH (non-condensing)
Measurement principle	Triboelectric
Damping time	1 s
Output signals	Relay output, either NC or NO
Dimensions	500 x 100 x 240 (L x W x H)
Housing material	Sensor: Aluminium Flow duct: St52 power-coated
Power supply	24 ± 10 % V DC
Rating	Max. 10 W
Electrical connection	Screw terminals
Weight	5.5 kg



<b>Transmitter (DIN rail)</b>	
Power supply	24 ± 10 % V DC
Power consumption	20 W / 24 V
Protection type	IP 40 to EN 60529
Ambient operating temperature	-10 ... +45 °C
Dimensions	23 x 90 x 118 (W x H x D)
Weight	Approx. 172 g
Connection terminals conductor cross-section	0.2 - 2.5 mm <sup>2</sup> [AWG 24-14]
Current output signal	4 ... 20 mA, load < 500 Ω
Switch output measurement alarm	Relay with switchover contact Max. 250 V AC, 1 A
Interface	ModBus (RS 485)
Data backup	Flash memory

