

Indoor Air Quality Monitor for Dust Exposure PM1, PM2.5, PM4.25, PM10, TSP

PROCESS MONITORING SOLUTIONS

Product Information



FEATURES:

- PM monitoring for indoor ambient air
- Precise PM1, PM2.5, PM4.25, PM10 and TSP monitoring
- Separate measurement of the E and A dust fractions
- Applicable in process areas and industrial environments
- Able to provide a fast detection of fine process leak
- Wireless communication and user friendly interface with datalogging
- Up to 20 mg/m³ dust concentration
- Compliance with EN 481 and TRGS 900

TECHNOLOGY

USAGE

The AirSafe PM provides continuous and precise monitoring of PM levels in indoor ambient air.

The AirSafe PM can be used for indoor workplace exposure monitoring, utilizing the high range and low range sensors to detect and track particulate exposure limits and limit violations.

Health and safety personnel can use the measurement data to provide a safe working environment and report site air quality.

Monitoring and understanding PM sizing is important to ensure a safer working environment. The AirSafe PM is a powerful tool to help you minimise worker exposure risk and optimise your process with dust control systems.

AirSafe PM is also an effective tool to detect fine process or machine dust leak.

This could be used to protect persons and equipments from hazardous dust or detect leak of sealed process.

FUNCTION

The AirSafe PM uses a high end optical measurement system that is embedded in the sensor.

The air flows through the measuring device which counts the particles and defines their size.

The raw measurement is processed by a unique algorithm which enables continuous and accurate measurement for the different sizes of particles as well as classification of A or E dust fractions (also known as inhalable and respirable fractions).

SYSTEM

The AirSafe PM housing is made in ABS and aluminium to ensure the robustness of the sensor.

The device is delivered with a pre-set OELV alarm level. This pre-set level is based on EU recommendation for E or A dust maximum daily exposure. Those OELV values can be manually adjusted in our software to meet local regulation.

On the AirSafe PM Basic version, an easy to use, but powerful PC software allows the user to set all parameters and outputs to visualize live data and log data.

The AirSafe PM WIFI version includes wireless communication and the ENVEA interface eSAM.

This interface allows the user to see measurements in real-time, display recorded measurement of a selected time frame and download data. It is a great tool to generate elements of exposure reports.

As the sensor is designed to be used in process areas, it has a 4 ... 20 mA active output to be connected to any PLC. It has a relay output and Modbus communication.

Those different communication channels can provide you an instant alarm when exposure value are reached or a leak is detected.

Wireless (WLAN) communication allows the user to connect to the sensor using any device, such as PC or a tablet.



TECHNOLOGY

INSTALLATION

The AirSafe PM is designed to be used indoors only. It can be installed in any room that needs particulate monitoring as part of exposure and health safety limit monitoring.

The sensor is designed for monitoring ambient air in workplaces in industries such as cement plants, foundries, wood workshops, incineration plants or logistic warehouses.

The AirSafe PM can be easily mounted to most surfaces and areas.

- In or around process areas
- Storage rooms
- Laboratories
- Breakrooms

- Changing rooms
- In or around office areas
- Other footfall areas of health and safety exposure concern
- Areas of air quality monitoring requirements

Install the AirSafe PM as near as possible to air intakes, areas of air movement, and areas of static air/settlement where people work.

When positioned near the ventilation and filtration apparatus, the AirSafe PM can be used to monitor the effectiveness of the ventilation and filtration process

When a process need to be monitored to detect minor dust leak, the sensor should be installed in the vicinity of possible leakage.

APPLICATION EXAMPLE

A ceramic tile manufacturer, that is aware of the health issues related to PM, wants to monitor the level of exposure to PM to its workforce.

Currently, the only solution is an annual check by a third party company using portable equipment. This gives them an onetime indication of the concentration levels of PM in the ambient air, but it is not a viable long-term solution to drive down exposure.

Also, to comply with the local recommendations, they are looking for a continuous monitoring solution.

Solution:

The AirSafe PM provides continuous measurement of PM of different sizes (PM1, PM2.5, PM4.25, PM10 and TSP) and can classify them as A or E dust fractions according to EN 481. This allows to check that the short term (15 mins) and long term (8 h) exposure levels are being respected.

In the event that the levels are exceeded, the data can be analysed in conjunction with production data to identify the source and the company can take proactive measures to improve working conditions.

FEATURES	BENEFITS
Continuous measurement of PM levels in the workplace	Detailed information to take actions to reduce exposure or solve process leak
Precise PM1, PM2.5, PM4.25, PM10 and TSP monitoring	Continuous PM monitoring for indoor ambient air: data made available to the Health and Safety department. Early detection of fine process dust leak
Classification into E and A dust fraction according to EN 481	Compliance to regulations
Secure, robust and protected air intakes and electronics	Can be installed in process areas and industrial environments up to 20 mg/m ³
User-friendly interface	Easy to use, with minimal training
Low maintenance	Maintenance every 12 months, depending on dust load
Easy maintenance	Maintenance takes only 10 mins and can be done on-site with minimal training
2 separate sensor modules with low and high ranges in one device	0-100 µg detection capability
Flexible communication: Modbus, 4...20 mA, WiFi	Connection to a variety of DCS and DAHS systems

TECHNICAL DATA

Sensor

Particulate matter measurement range	Mass concentration of E Dust
	Volume concentration of A Dust
PM level range	• PM1
	• PM2.5
	• PM4.25
	• PM10
	• TSP
Data processing	Long term value: Mean value of 8 h
	Short term value: Mean value of 15 min
	Instantaneous value: Only sampling time
Tracking of limit violations	Counting of phases with violations of long term limits
	Counting of recovery phases inbetween them
Humidity compensation	Yes
Dust material density adjustment	Yes
Limits for dust concentration	• Long term dust concentration limit for E Dust
	• Long term dust concentration limit for A Dust
	• Instantaneous dust concentration limit for E Dust
	• Instantaneous dust concentration limit for A Dust
Datalogger	Yes (on AirSafe PM WIFI version)
Communication	2 × 4 ... 20 mA analog output (active)
	Modbus 485 RTU or TCP/IP
	WLAN (on AirSafe PM WIFI version)
Relay	1
Voltage	24 V DC
Power	12 W
Current	0.5 A
IP rating	Sensor: IP20; Electronic: IP40
Ambient temperature	-10 ... +50 °C
Dimensions	290,1 × 259 × 107 mm (L × W × H)
Weight	Approx. 2.5 kg

