

AQ Guard Smart



Measuring device for monitoring outdoor air quality. Highly accurate fine dust measurement with Palas® aerosol spectrometer technology and optional sensors for gas-measurement

Description

The AQ Guard Smart extends the series of **aerosol spectrometers for outdoor air** by a robust device. It also uses the measurement principle of optical scattered light measurement on single particles based on the technology of the EN 16450-certified Fidas® 200. The system is designed for the requirements of outdoor air measurement in the smart city environment to improve granularity while maintaining high comparability to official measurements, for environmental monitoring and health protection.

In addition, gas sensor technology can be selected to measure the loads of sulfur dioxide, ozone, nitrogen oxides and carbon monoxide

Thus, the AQ Guard Smart supports model calculations of current particulate matter levels and forecasts, which will in the future require stricter limits and thus the necessary lower uncertainties in local measurements. Seasonal and cyclical particulate matter forecasts can be carried out in a more differentiated manner and with greater accuracy. This enables the timely planning of measures to prevent particulate pollution and protect health, the differentiated implementation of measures to protect the population, and the implementation of abatement strategies to reduce pollution, e.g., through anticipatory traffic control.



Fig. 1: AQ Guard Smart in use on the volcanic island of La Palma

For a better understanding of the fine dust input and its cause, the device can optionally be equipped with a weather station, which provides supplementary meteorological information. Sensors that record temperature, humidity and pressure are integrated as a standard feature.



Fig. 2: Abb. 2: AQ Guard Smart on a tripod

With the AQ Guard Smart, the most modern, continuous fine dust measurement system is available, which also offers manufacturers and users of lower-resolution sensors a comparison option and thus a plausibility check before the measured values are made available for further processing in formation and dispersion studies.

Our specially created **cloud application MyAtmosphere¹** enables both private and governmental operators to retrieve current measured values directly, to compare them with other devices without delay and further processing, or to integrate them into their own systems/environments via optional API (application programming interface).

¹MyAtmosphere: <http://www.my-atmosphere.net/>

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Benefits

- Technology based on the certified Fidas® 200 series (EN 16450 and MCERTS)
- Simultaneous measurement of PM₁, PM_{2.5}, PM₄, PM₁₀, Cn with high temporal resolution
- Additionally SO₂, CO, NO₂, O₃ as an option
- Simple and fast installation
- Setting via Wi-Fi hotspot or remotely
- Data-Visualization via cloud application "MyAtmosphere"
- Communication via USB, Ethernet (LAN) (intern), Wi-Fi, 3G / 4G via Modem
- Expandable with weather station / external battery / solar

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Datasheet

<i>Parameter</i>	<i>Description</i>
Interfaces	USB, Ethernet (LAN) (intern), Wi-Fi, 3G/4G via modem
Measurement range (size)	0.175 – 20 μm
Size channels	64 (32/decade)
Measuring principle	Optical light scattering of single particles
Measurement range (number C_N)	0 – 20,000 particles/ cm^3
Time resolution	1 min, moving average 1 min
Power consumption	1.2 A in standard operation, 1.7 A with additional heating
Power supply	12 V, supplied power supply
Dimensions	530 • 270 • 208 mm (H • W • D)
Weight	Approx. 6 kg
Measurement range (mass)	0 – 100 mg/m^3 (depending on the composition of the aerosol)
Reported data	PM ₁ , PM _{2.5} , PM ₄ , PM ₁₀ , TSP, C_N , particle size distribution, T, rH, P, optional: SO ₂ , CO, NO ₂ , O ₃
Installation conditions	-20 – +50 °C
Special features	Accessories: Mast / tripod mount, optional: weather station, sunshade
Data management	Cloud connection to MyAtmosphere (separate registration necessary; cloud license fees may apply or SIM card required)

Applications

- Urban air quality monitoring
- Smart City Projects
- Open-pit mining and landfills

- Origin and dispersion studies
- Construction site and redevelopment areas
- Immission monitoring of industrial plants
- Measurement of dust emissions from road and rail traffic as well as ports
- Risk areas (natural and anthropogenic)

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