AQ Guard Smart 1000

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Description

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Certificates

- MCERTS indicative

Operating principle

The system works on the principle of 90-degree scattered light measurement on the single particle, based on the technology of the EN 16450 certified Fidas® 200. Signal duration and shape are taken into account.

The instrument's calibration can be checked and, if necessary, adjusted quickly and easily at any time, even when installed, using a monodisperse test aerosol.

AQ Guard Smart 1000 is suitable for outdoor use under extreme conditions. It has proven its performance under a wide range of meteorological conditions.

For better utilization of its heat, the heated inlet is located inside the housing and is dynamically switched on depending on the humidity and temperature.

The AQ Guard Smart System has Ethernet, WLAN, and cellular connectivity and supports ASCII and MODBUS protocols for communication. All data is continuously recorded and can be retrieved retrospectively and in real-time.

The AQ Guard Smart 1000 supports model calculations of the current fine dust pollution and forecasts. These will be based on stricter limit values in the future, requiring lower uncertainties for local measurements.

The AQ Guard Smart 1000 offers manufacturers and users of low-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.

Sensors that measure temperature, humidity, and pressure are integrated as standard.

Extensions / accessories

MyAtmosphere

AQ Guard Smart 100 can be connected to the cloud platform MyAtmosphere[1] . Private and government operators can retrieve current readings directly without delay. Furthermore, the data can be compared with the measured values of other devices. MyAtmopshere can be integrated into its systems/environments via an optional programming interface (API).

Weather station

To better understand the fine dust input and its cause, the device is optionally available with a corresponding weather station, which provides supplementary meteorological information.

Mounting

AQ Guard Smart System has a pole or tripod mount and can be extended with a sunshade and LoRa modem if required.

Fig. 1: AQ Guard Smart on a tripod

[1] http://my-atmosphere.net/: http://my-atmosphere.net/

Benefits

- Technology based on the certified Fidas® 200 series (EN 16450 and MCERTS)
- Simultaneous measurement of PM1, PM2.5, PM4, PM10, Cn with high temporal resolution
- Easy and fast installation
- Data visualization via cloud "MyAtmosphere
- Communication via GPRS/3G/4G/Ethernet/Wi-Fi, optional: LoRaWAN
- Extendable with weather station / LoRa / solar protection

DATASHEET

Measurement range (number C_N)	0 – 20,000 particles/cm³
Size channels	64 (32/decade)
Measurement range (size)	0.175 – 20 μm
Measuring principle	Optical light scattering at single particles
Reported data	PM_1, $PM_{2.5}$, PM_4, PM_{10}, TSP, CN, particle size distribution, ambient pressure, ambient temperature, rel. ambient humidity, SO_2, CO, NO_2, O_3
Measurement range (mass)	0 – 100 mg/m^3 (depending on the composition of the aerosol)
Measurement uncertainty	< 15 % for $PM_{2.5}$, < 20 % for PM_{10}(expanded measurement uncertainty according to EN 16450, corrected – MCERTS)
Time resolution	1 min, moving average 1 min
Light source	Long term stable LED
Power consumption	Standard operation: 1.2 A (1.7 A with additional heating)
Weight	Approx. 6 kg
Installation conditions	-20 – +50 °C
Interfaces	USB, Ethernet (LAN), Wi-Fi, 3G/4G via Modem, optional: LoRaWAN
Protocols	ASCII, MODBUS, UDP
Power supply	Supplied power supply: 12 V
Special features	Heated inlet, Accessories: Mast / tripod mount, optional: weather station, sunshade, LoRa modem
Dimensions	530 • 270 • 208 mm (H • W • D)
Datenmanagement	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
- Formation and dispersion studies
- Construction sites
- Immission monitoring of industrial plants
- Measurement of dust emissions from road and rail traffic as well as ports
- Risk areas (natural and anthropogenic)

Mehr Informationen:
https://www.palas.de/product/aq-guard-smart1000

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