AQ Guard Smart 2000

Description

The AQ Guard Smart 2000 is a measuring device designed to measure particle concentrations in the ultrafine range, which typically cannot be detected by optical aerosol photometers or spectrometers due to their small size, but which have a significant impact on health according to the WHO.

Currently, no legal regulations or limits have been established for ultra-fine particle concentrations and masses. Mass limits like $PM_{2.5}$ and PM_{10} can be measured well with gravimetric methods, at the latest for smaller PM_1 fractions of ultrafine fractions are difficult to estimate and can be evaluated meaningfully only by the determination of the particle concentration.

In this case, valuable and maintenance-intensive condensation particle counters are usually used, which in combination with a size-classifying system (Scanning Mobility Particle Sizer) provide information about the particle size distribution and concentration.

Operating principle

AQ Guard Smart 2000 for ultrafine particles closes the gap between classical condensation particle counters and optical systems. Long-term measurements for the evaluation of number concentrations in indoor and outdoor areas, e.g. at highly polluted places like airports, main roads, forwarding agencies or also e.g. toll stations are easily and reliably possible and can already be used for the definition of avoidance and reduction measures in a meaningful and targeted way.

The **cloud application** MyAtmosphere[1] created for this purpose 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 an optional programming interface (API).

Accessories

AQ Guard Smart 2000 has an optional mast or tripod mount and can be expanded to include a weather station, sunshade, and LoRa modem if needed.

[1] Link zu MyAtmosphere: http://www.my-atmosphere.net/

Benefits

- Simple and accurate monitoring of particle number concentration of UFP
- Affordable and low maintenance, no working fluid
- Flexible use indoors and outdoors
- High temporal resolution
- Versatile data transmission options

DATASHEET

Measuring principle	Diffusion charging
Reported data	C_N, average diameter X50, LDSA (Lung Deposited Surface Area), ambient pressure, ambient temperature, rel. ambient humidity
Measurement range (number C_N)	1,000 – 10,000,000 particle/cm^3
Measurement range (size)	starting from 0.010 μm
Weight	Approx. 6 kg
Installation conditions	0 – +40 °C
Interfaces	USB, Ethernet (LAN), Wi-Fi, 3G/4G via Modem, optional: LoRaWAN
Protocols	UDP, ASCII, Modbus
Special features	Heated inlet, Accessories: Mast / tripod mount, optional: weather station, sunshade, LoRa modem
Dimensions	530 • 270 • 208 mm (H • W • D)
Data management	Cloud connection to MyAtmosphere (separate registration necessary; cloud license fees may apply or SIM card required)

APPLICATIONS

- UFP concentrations in and around airports and seaports
- Formation and dispersion studies
- Immission monitoring of industrial plants
- Urban air quality monitoring
- Supplementary measurement of UFP concentrations at traffic-rich sites

Mehr Informationen:
https://www.palas.de/product/aq-guard-smart2000

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