PALAS®

AQ Guard Smart 2000

AIR QUALITY MEASUREMENT

Monitoring of Nanoparticles

Made in Germany

Precise measurement of ultrafine dust with AQ Guard Smart 2000

Ultrafine particles (UFP) have a significant impact on our health – confirmed by the World Health Organization (WHO). However, optical aerosol photometers or spectrometers can hardly or not at all detect them due to their small size.

AQ Guard Smart 2000 was specially designed for use in the ultrafine particle range. The compact and easy-to-use measuring device closes the gap between classical condensation particle counters (CPC) and optical systems and convinces by its price-performance ratio.

The AQ Guard Smart 2000 is suitable as a quality control instrument, for example to check and compare concentrations or to detect trends and deviations.

Long-term measurements for the evaluation of number concentrations indoors and outdoors are thus easily and reliably possible, for example at highly polluted locations such as seaports and airports, main roads, forwarding agencies or even toll and border stations. But the AQ Guard Smart 2000 is also used for formation and dispersion studies.

Application examples

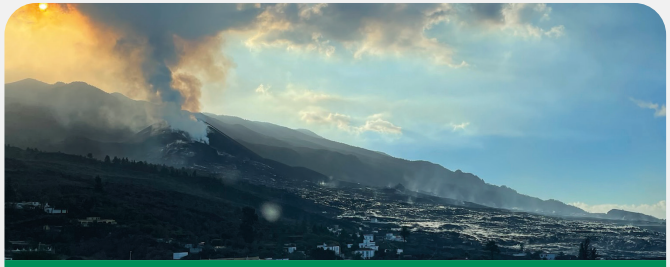
SEAPORTS

SMART CITY

TRAFFIC JUNCTIONS

AIRPORTS

INDUSTRIAL PLANTS



DISPERSION STUDIES

Principle of operation

AQ Guard Smart 2000 is a reliable instrument for simple yet accurate monitoring of particle number concentrations for UFP without the use of working fluids.

The LDSA (Lung Deposited Surface Area) concentration can also be determined: a measure of the adverse health effects of aerosol particles that has now become established as an indicator for describing exposure to ultrafine particles.

AQ Guard Smart 2000 is low-maintenance and runs smoothly over longer periods of time without recalibration. Data transfer options are versatile, ranging from USB, Ethernet (LAN), Wi-Fi, 3G/4G via modem to LoRaWAN (optional).

A connection to the Palas® Cloud **MyAtmosphere** offers additional advantages. Operators (private or governmental) can thus retrieve current measured values directly and compare them directly with other devices. Via an optional programming interface (API), **MyAtmosphere** can also be integrated into your own environments.

MY ATMOSPHERE

Special advantages and benefits

Latest Technology

- Simple and accurate monitoring of particle number concentration for UFP
- Fast commissioning and immediate acquisition of measured values via the MyAtmosphere cloud
- Situational configuration via Wi-Fi hotspot, remote access as well as external touchpad
- Communication via GPRS / 3G / 4G / Ethernet / Wi-Fi, optional: LoRaWAN
- Expandable with weather station

Different Measurement

- Measurement of particle concentration as well as LDSA (Lung Deposited Surface Area)
- Measuring range number C_N > 1,000 particles/cm³ as well as size from 0.01 µm
- Measuring principle of diffusion charging

Best Price-Performance Ratio

- Reliable alternative or supplement to CPC and SMPS systems

Technical features

Measuring principle	Diffusion charging
Reported data	Particle concentration C_N, LDSA (Lung Deposited Surface Area)
Measurement range (number C_N)	1,000 – 10,000,000 particle/cm^3
Measurement range (size)	Starting from 0.01 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
Data Management	Cloud connection to MyAtmosphere*
Dimensions (H • W • D)	530 • 270 • 208 mm
Special features	Accessories: mast/tripod mount optional: weather station, sunshade, LoRa modem

* separate registration necessary; cloud license fees may apply or SIM card required

More measurement devices

... for air quality monitoring in real time.

In addition to the **AQ Guard Smart 2000**, the **AQ Guard Smart System** consists of the **AQ Guard Smart 1000** and the **AQ Guard Smart 1100*.** The MCERTS-certified particulate matter devices can detect PM_1, $PM_{2.5}$, PM_4, PM_{10}, TSP (optional: SO_2, NO_2, O_3, CO).

... for precise nanoparticle measurements.

Our nanoparticle measurement systems **UF-CPC** and **ENVI-CPC** measure the number concentration of ultrafine aerosols from 4 nm.

Palas® is a leading developer and manufacturer of high precision instruments for the generation, measurement and characterization of particles in air.

With more than 30 active patents, Palas® develops technologically leading and certified fine dust and nanoparticle analyzers, aerosol spectrometers, generators and sensors as well as related systems and software solutions. Palas® was founded in 1983 and employs more than 100 people.

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