

pegasor

Real-time monitoring

PN, LDSA, PM and  
particle size

User-friendly operation,  
minimal maintenance



Pegasor Airam

**ULTRAFINE  
PARTICLE MONITOR  
FOR AIR QUALITY  
MEASUREMENTS**



# Pegasor Airam

Ultrafine particles (UFPs) in the air pose a significant health risk to people, and yet they often escape detection by conventional air quality monitoring methods. As recommended by the WHO, monitoring UFPs is crucial for comprehensive air quality assessment. The Pegasor Airam provides a reliable and effective way to monitor these tiny particles in urban environments. Equipped with the advanced Pegasor PPS-G2 sensor, the Airam system delivers real-time data on particle number, lung deposited surface area, and particle mass concentration. This makes the Pegasor Airam ideal for researchers, environmental agencies, and anyone concerned about air quality.

## Pegasor Airam operation

The Airam PPS-G2 sensor operation is based on electrically detecting aerosol particles using the escaping current technique. In the PPS-G2 sensor, the particle sample is charged by a corona-ionized flow as it is being pumped in by an ejector pump built in the sensor's construction. This unique design maintains constant sample flow and keeps all the critical parts within the sensor clean while providing a known, calibrated charge level to the particles in the sample. For operation, the sensor only requires a clean air supply, which is built into the Airam system.

The excess ions generated in the charger are collected on the grounded sensor body, and do not affect the particle detection. A sensitive electrometer measures the charge of the sample particles exiting the sensor. This charge or "escaping current" is the measure of the particle concentration in the sample. Since the particles flow through the sensor without being collected, and clean sheath air protects critical parts of the system, the sensor remains clean even in the long term measurements. This unique design enables extremely long measurement periods, even up to years, with zero maintenance.

The PPS-G2 sensor also includes a dynamic trap function that determines the median size of particles in the sample gas. This method enables unparalleled single-device measurement of particle number, LDSA, mass, and size.

The Pegasor Airam system is housed in a weatherproof cabinet with extensive self-diagnostics. A heater for the sensor module is included inside the system to prevent condensation, and the integrated pump with required filters ensures standalone operation without need for external air supply units. The data is saved on an SD card installed in the unit or via Ethernet to a remote location. An optional cloud-based service is also available for remote operation and data storage.

## Airam Features

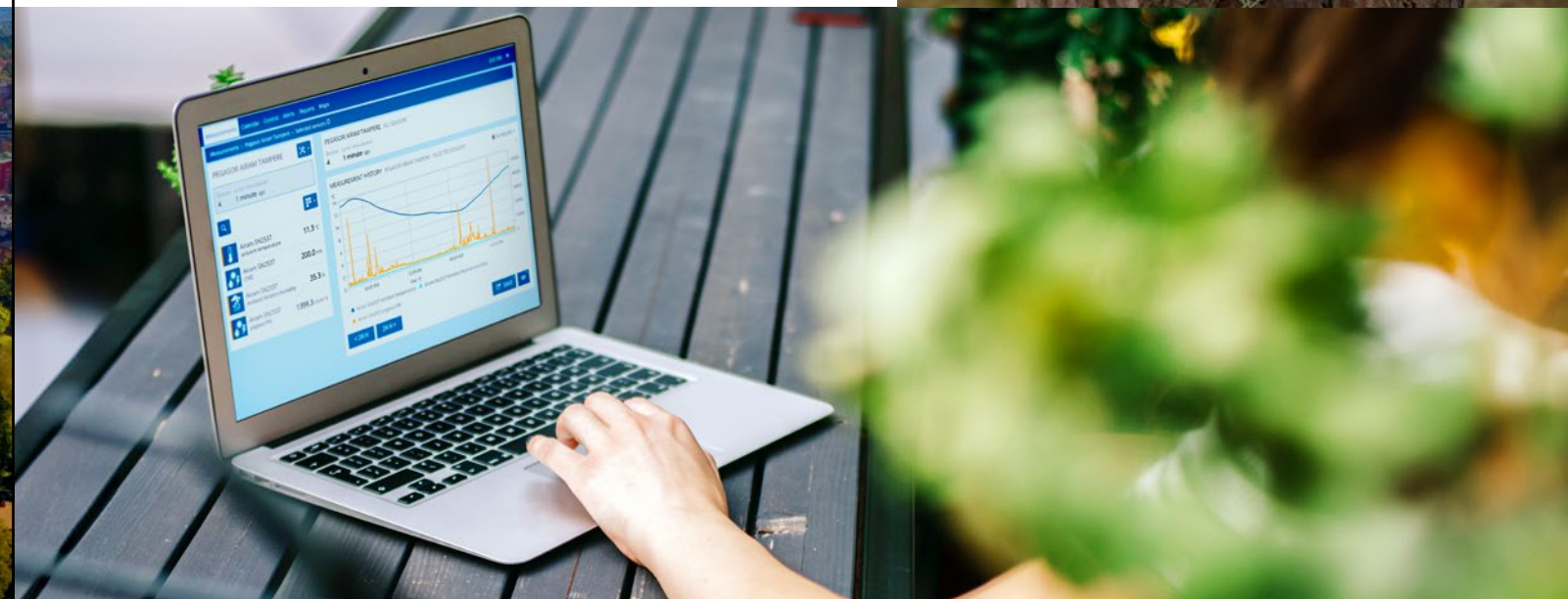
- Continuous & real-time monitoring of ultrafine particle concentration (UFP)
- PN, LDSA, PM concentration measurement of ultrafine particles
- Median particle size measurement
- Minimal maintenance and carefree operation
- Non-collective measurement method ensures very long maintenance intervals
- No consumables, no operating liquids
- User-friendly operation
- Several data communication options, including the Pegasor Cloud Portal
- Extensive self-diagnostic system for increased reliability
- Integrated pump included for sensor operation, no external pumps or air compressors needed

## Pegasor Cloud Portal

Pegasor Cloud Portal is an optional web-based service for saving and viewing data from one or multiple Pegasor Airam units. A modem or fixed Ethernet connection is needed to transfer the data. The service allows remote control of the Airam unit(s) as well as data storage into the remote system. The software's intuitive user interface can also be used to create measurement reports or export the data in a spreadsheet for more detailed analysis.

## Applications

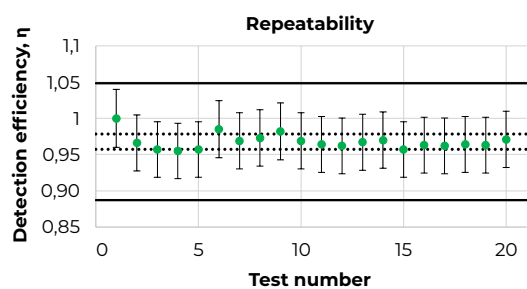
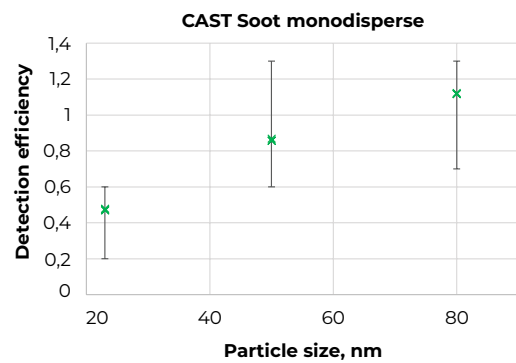
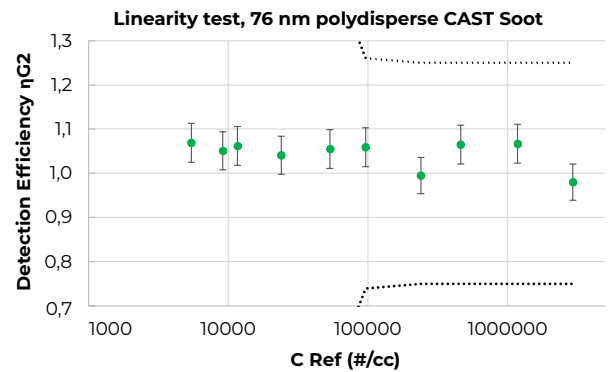
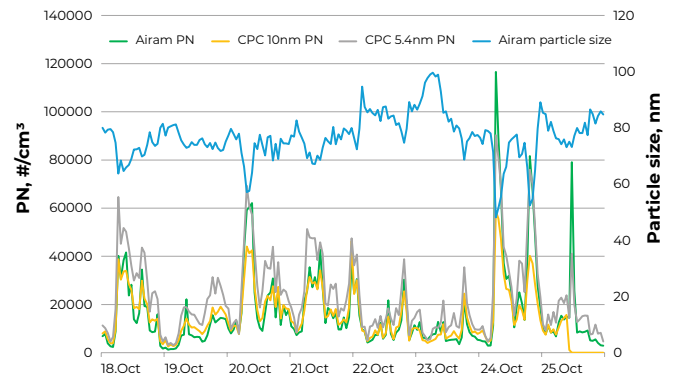
- Real-time air quality monitoring
- Urban air quality monitoring
- Ultrafine particle monitoring networks





# Specifications

Range	0–100,000,000 #/cm <sup>3</sup>
Sensitivity	30 #/cm <sup>3</sup> depending on sampling rate and data averaging
Particle size	10–300 nm for PM and particle size
	10 nm – 1 µm for PN and LDSA
Sensor response time	0.2 s
Sampling rate	1–10 Hz, averaging options available
Output data	Particle number, LDSA and mass concentration, particle median size
Data storage and communication	SD Card, Ethernet, Modbus logger, optional cloud service
Power requirements	24 VDC (optionally 230/115V)
Dimensions	420 x 150 x 300 mm
Weight	7 kg



# Sensor performance

PPS-G2 sensor performance measured by Federal Institute of Metrology METAS: Test report 235-11079.

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