

**Real-time IAQ
monitoring**

**PN, LDSA, PM and
particle size**

Carefree operation

pegasor



Pegasor Airin

ULTRAFINE PARTICLE MONITOR FOR INDOOR AIR QUALITY MEASUREMENTS



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Pegasor Airin

Ultrafine particles (UFPs) pose a significant health risk despite often escaping detection by conventional air quality monitors. The Pegasor Airin system offers a reliable solution for indoor UFP monitoring. It uses the advanced Pegasor PPS-G2 sensor to provide real-time data on particle count, lung deposited surface area LDSA, and mass concentration. This vital information is valuable for researchers, occupational hygienists, and anyone concerned about healthy indoor air.

Since we spend most of our time indoors, whether at home, work, or in public places, monitoring indoor air quality (IAQ) is crucial. Ventilation and filtration systems play a role, but even well-maintained buildings can be affected by outdoor air pollution and UFPs generated indoors. Activities like cooking, cleaning, and industrial processes can all contribute to indoor UFP levels. Poor IAQ can lead to respiratory problems, allergies, headaches, and fatigue. Measuring the IAQ allows you to identify and address potential health risks and enhance the well-being of building occupants. Improvements in the IAQ can lead to more comfortable and productive environment for work, study, and leisure activities.

Pegasor Airin operation

The Pegasor Airin system utilizes an advanced sensor technology called the PPS-G2 to provide real-time insights into the indoor air quality. The 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. The sensor only requires clean air supply to operate, and this is provided by the built-in air supply unit in the Airin system.

The excess ions generated in the charger are collected on the grounded sensor body, and do not affect the particle detection. When the charged sample particles exit the sensor, the

charge carried by these particles is measured with a sensitive electrometer. 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 long term measurements. This unique design enables extremely long measurement periods, even up to years, without any maintenance need.

The PPS-G2 sensor also includes a dynamic trap function which is used to determine the median size of particles in the sample gas. This proprietary method gives the PPS-G2 sensor and the Airin system the superior features that cannot be matched with other methods – particle number, LDSA, mass and particle size measurement within one device.





Pegasor Airin 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 Airin units. A modem or fixed Ethernet connection is needed to transfer the data. The service allows remote monitoring of the Airin 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 indoor air quality monitoring
- Air filtration and air purification efficiency monitoring
- Occupational health and industrial hygiene
- UFP exposure studies



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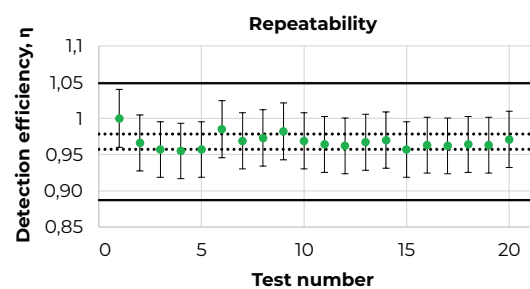
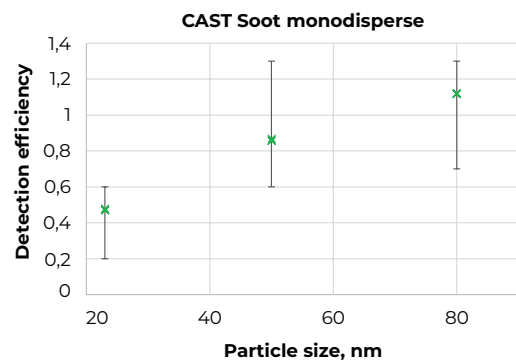
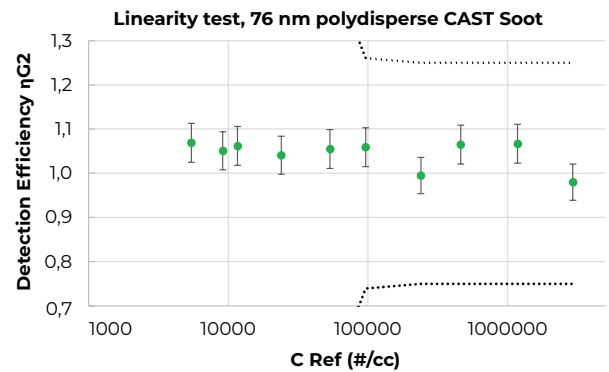
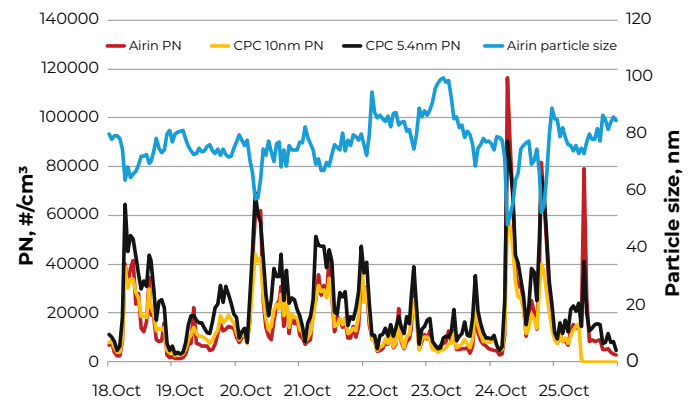
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Specifications

Max concentration	100 000 000 #/cm ³
Sensitivity	30 #/cm ³ 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	USB, Ethernet, Modbus logger, optional cloud service
Power requirements	5 VDC
Dimensions	100 x 150 x 200 mm
Weight	1.8 kg

Sensor performance

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



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