

Lasair[®] III 110

Aerosol Particle Counter



The Lasair[®] III 110 is a laser diode-based true 0.1 μm particle counter with 1.0 CFM flow rate.

With a comprehensive set of features and unequalled accuracy, the Lasair III 110 offers reduced operating costs and the reliability and longevity to support its three-year laser warranty.

FEATURES

- Diode laser
- 8 user-adjustable sizing channels from 0.1 – 5.0 μm
- Saves up to 10,000 samples for review, sorting, data filtering, and printing
- USB data download to flash memory key
- Built-in thermal printer
- Large, 8.4" color touchscreen display for simplified use
- Quiet carbon-free blower/pump for portable applications
- Integrates up to 4 environmental sensors
- Optional high-efficiency exhaust filter for ISO Class 1 – 2
- Optional onboard batteries for over 6 hours of continuous mobile use

BENEFITS

Reduce Defects

- Real-time measurement of yield-impacting particles
- Use as mobile counter to localize source of particles
- Patented smart flow technology eliminates traditional undercounting errors in manifold sampling
- Full range of accessories for monitoring in different applications
- Actual detection of 0.1 μm particles

Increase Productivity

- Industry-leading battery life for continuous mobile use
- Saving/reloading recipes reduces time to certify cleanroom
- Control cleanroom monitoring remotely via web browser: set-up, sample, display, print, download data, and upload sample recipes
- Quiet operation improves work environment
- Calculations and reports for ISO 14644-1 or FS 209E
- Interfaces with Facility Net software for comprehensive data management
- Data download to Excel or USB flash memory key

Cost-Effective

- Use same particle counter for ISO Class 1 – 9 applications
- Eliminates need for frequent, costly laser cleaning
- Easy to clean/wipe down; designed to minimize particle traps
- Rugged, chemical-resistant, stainless steel casing
- Long-lasting cooled diode with 3-year laser warranty
- Optional critical orifice configuration can use house vacuum for aerosol manifold applications

APPLICATIONS

- Cleanroom and mini-environment monitoring
- High-sensitivity applications
- Facility certification to ISO 14644-1 (including 2015 revision) or FS 209E
- Troubleshooting/mobile applications
- Manifold sampling (with Aerosol Manifold II)
- Process gas monitoring (with High Pressure Diffuser)
- Ultraclean zones (ISO 1–2)

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Specifications

Channel thresholds	0.1, 0.15, 0.2, 0.25, 0.3, 0.5, 1.0, and 5.0 μm by default – All 8 channels are user-adjustable
Counting efficiency	50% @ 0.1 μm
Flow rate	1 CFM (28.3 LPM); monitored and adjusted electronically for portable applications
Calibration	Materials traceable to US National Institute of Standards and Technology (NIST); ISO 21501-4 Compliant
Test methodology	0.1 μm particles verified by Differential Mobility Analysis; larger sizes verified by transmission electron microscopy
Maximum concentration	@ 10% coincidence loss: > 950,000/ft ³ (optional diluter required for ISO Class 8+); automatic coincidence alarm
Zero count level	Exceeds JIS (Japanese Industrial Standards), allowing use in ISO Class 1 and ISO Class 2 rooms
Laser source	Laser diode, 6 W (de-rated to 2.5 W), 810 nm, infrared
Laser cooling	Thermoelectric chilling (Peltier cooler), heat sink, dedicated cooling fan
Warranty	3-year warranty on laser module, 2-year warranty on other components
Communication modes	Ethernet (PMS Protocol, Modbus, Web Server) or RS-232; four 4-20 mA outputs (3 particle, 1 status); TTL/pulse output; USB key for CSV data download
Environmental sensors	Optional Temp/RH probe; integrates up to 4 external sensors via 4-20 mA input
Display	8.4" color VGA display (640 x 480); IR touchscreen CIP65 rated
Display languages	English, French, German, Italian, Japanese (Kanji), Korean, Spanish, Chinese (traditional or simplified), Russian, Polish, Portuguese
Printer	Built-in thermal printer
Reports	Sample print strips; final reports for ISO or FS 209 cleanroom qualification; averages of multiple runs; print-on-alarm; sampling configuration printouts
Remote operation	Use web browser to operate unit; save or load recipes
Key software features	Recipes, scheduled sampling, historical data filtering, sorting and review, password protection
Data storage	10,000 data sets (includes particle and environmental data, plus location, time, etc.)
Data and sampling security	Stored data records cannot be altered; sampling recipes can be password protected
External surface	Stainless steel chassis, glass display screen, and anodized aluminum bottom all ESA/ESD compliant
Cleaning materials	Bleach, ethyl/isopropyl alcohol, peroxide/quaternary ammonium solutions
Monitor cleanliness	Internally filters pump exhaust (99.99+% @ 0.1 μm)
Dimensions (l, w, h)	11.6 x 19.3 x 13.7 in (29.5 x 49.0 x 34.8 cm)
Weight	34.5 lb (15.6 kg) without batteries; 38.5 lb (17.5 kg) with 4 optional batteries
Power	100 – 240 V, 3 A, 50 – 60 Hz; optional on-board batteries and external charger
Operating environment and sample conditions	Temperature: 59 – 86 °F (15 – 30 °C) Humidity: 1 – 95% non-condensing Ambient pressure @ altitudes from 0 – 7,000 ft (0 – 2,134 m)

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