SOLAIR
Portable

Airborne Particle Counters

LIGHTHOUSE
WORLDWIDE SOLUTIONS

SOLAIR Portable 1100LD

1.0 CFM - Airborne Particle Counter

THE Lighthouse SOLAIR 1100LD (Laser Diode) leads the industry as the first of it's kind portable particle counter with 0.10 micron sensitivity and 1.0 CFM (28.3 LPM) flow rate using long life laser diode technology. Conventional HeNe (Helium Neon) particle counters require frequent cleaning, periodic Laser tube replacement and suffer low concentration limits. The SOLAIR 1100LD is designed to operate in ISO Class 1 to Class 7 cleanrooms without concerns of it degrading its environment or exceeding concentration limits. The SOLAIR 1100LD uses an optics and photodiode system designed to reduce or eliminate the temperature issues associated with high power laser diode sensors. The thermally-controlled exhaust system and HEPA filter option prevent any external contamination. Weighing just 26 Lbs (11.8 Kg) with the Li-Ion battery option, the SOLAIR 1100LD is the smallest, lightest and coolest running 0.10 micron, 1.0 CFM portable particle counter on the market.

The easy to use icon-driven interface with multiple languages simplifies training and SOP writing. Its Cleanroom Standard report wizards make the SOLAIR 1100LD the preferred cleanroom certification tool and eliminate the need for complex UCL calculations. Its flexible communication and data logging capabilities enable the SOLAIR 1100LD to connect to Ethernet or RS-485 networks, connect point-to-point to a PC using USB or securely export its data to a USB Flash Drive. The SOLAIR 1100LD can be used as a portable instrument or easily integrated into a facility monitoring system.
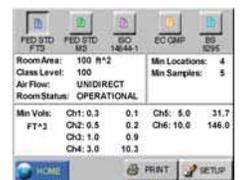
Features

- 0.10 μm to 1.0 μm Standard Size Range
- 1.0 CFM (28.3 LPM) Flow Rate
- Simultaneous Display of up to 8 Particle Sizes
- Designed for ISO 21501-4 Compliance:
    Unit-to-Unit Accuracy and Repeatability
- Designed to Enable 21 CFR Part 11 Compliance
    when used with Additional Software
- Long-life Laser Diode Sensor Technology
- 5.7-inch Color TFT Touch Screen Display with Zoom
- Multiple Communication Interfaces:
    USB, RS-485, Ethernet and USB Flash Drive
- Optional Removable, Rechargeable Li-Ion Battery
- 3,000-sample Data Storage Memory
- Stainless Steel Enclosure
- 400 Alphanumeric Location Labels
- Optional Easy-to-Load Thermal Printer
- User-Definable Printouts
- Report Wizard for Cleanroom Pass/Fail Reports:
    FS-209E, ISO-14644-1 or EU GMP Annex 1
- Open Architecture Connectivity with OPC Server
- Multiple Communication Interfaces - USB, Ethernet,
    RS-485 and USB Flash Drive
- Multiple-language Support: English, French, German,
    Italian, Spanish, Chinese, Russian, Japanese, Korean
- 50-record Configurable Recipe Database

User Friendly
Configuration

Alphanumeric
Location Labels

Multiple Cleanroom
Standard Reports
via Printer

Benefits

- 2 Year Warranty
- User Friendly Interface
- Easy-to-Read Display
- International Support
- Low Cost of Ownership

SOLAIR Portable 3100/5100

1.0 CFM - Airborne Particle Counters

THE SOLAIR 3100 and SOLAIR 5100 portable airborne particle counters incorporate our Extreme Life Laser Diode Technology sensor to produce the industry's longest laser diode life of 20+ years MTTF (based on continuous 24/7 operation). Using a new, lighter extended-life battery and external AC adapter, the SOLAIRs are even more portable.The SOLAIR features one of the industry's best User Interfaces (UI) to configure and operate the instrument with intuitive ICON-driven screens and menus that are simple, easy to learn and use.

The SOLAIR can store up to 3,000 records of particle count data from up to 8 particle channels and the configurable recipe database can store up to 50 recipes for sampling and reports. All data can be quickly and reliably transferred to a computer, a Facility Monitoring System or a Building Automation System. Secure data transfer (per 21 CFR Part 11) to a USB Flash Drive can be accomplished by using the Lighthouse Secure Data transfer feature and LMS Express or Express RT software to read it. Flexible communications with these instruments is made possible by the integrated Ethernet, RS-485, USB and USB Flash Drive interfaces. SOLAIRs are designed, manufactured and calibrated to ISO 21501-4 to ensure particle counting accuracy.

Features
- SOLAIR 3100: 0.3µm to 25.0µm
- SOLAIR 5100: 0.5µm to 25.0µm
- 1.0 CFM (28.3 LPM) Flow Rate
- Simultaneous Display of up to 8 Particle Sizes
- 21 CFR Part 11 Compliant Secure Data Transfer via USB Flash Drive
- Extreme Life Laser Diode Technology >20-year MTTF Laser Lifespan
- Thermal Printer
- Stainless Steel Construction
- Designed for ISO 21501-4 Compliance: Unit-to-Unit Accuracy & Repeatability Assured
- Multiple Communication Interfaces - USB, RS-485, Ethernet and USB Flash Drive
- 5.7-inch Color TFT Touch Screen Display
- 3000-record Data Storage Memory
- 50-record Configurable Recipe Database
- User-Definable Printouts
- Open Architecture Connectivity with OPC Server
- Report Wizard for Cleanroom Pass/Fail Reports: FS-209E, ISO-14644-1 or EU GMP Annex 1
- Multiple-language Support: English, French, German, Italian, Spanish, Chinese, Russian, Japanese, Korean

Benefits
- User Friendly Interface with Multiple Languages
- International Support
- 2 year Warranty
- Easy Integration to External Systems with OPC Server

Applications
- Cleanroom Monitoring
- Facility Certification Testing
- Trend Analysis
- Tool and Equipment Testing
- Multi-Point Facility Monitoring (with 6 or 32 port Manifold System)
- Compressed Gas Monitoring (with High Pressure Controller)

SOLAIR Portable 3200/5200

50 LPM - Airborne Particle Counters

THE SOLAIR 3200 and SOLAIR 5200 portable airborne particle counters incorporate our Extreme Life Laser Diode Technology sensor to produce the industry's longest laser diode life of 20+ years MTTF (based on continuous 24/7 operation). SOLAIRs incorporate one of the industry's best User Interfaces (UI) to configure and operate the instrument. The intuitive ICON-driven screens and menus are easy to learn and simple to use.

SOLAIRs can store up to 3,000 records of particle count data from up to 8 particle channels and the configurable recipe database can store up to 50 recipes for sampling and reports. All data can be quickly and reliably transferred to a computer, a Facility Monitoring System or Building Automation System.Secure data transfer (per 21 CFR Part 11) to a USB Flash Drive can be accomplished by using the Lighthouse Secure Data transfer feature and LMS Express or Express RT software to read it. Flexible communication with these instruments is made possible by the integrated Ethernet, RS-485, USB and USB Flash Drive interfaces. SOLAIRs are designed, manufactured and calibrated to ISO 21501-4 to ensure particle counting accuracy.

Benefits
- User Friendly Interface with Multiple Languages
- International Support
- 2 year Warranty
- Easy Integration to External Systems with OPC Server

Applications
- Cleanroom Monitoring
- Facility Certification Testing
- Trend Analysis
- Tool and Equipment Testing
- Compressed Gas Monitoring (with High Pressure Controller)

Features
- SOLAIR 3200: 0.3μm to 25.0μm
- SOLAIR 5200: 0.5μm to 25.0μm
- 50 LPM or 2.0 CFM (56.6 LPM) Flow Rate
- Simultaneous Display of up to 8 Particle Sizes
- 21 CFR Part 11 Compliant Secure Data Transfer via USB Flash Drive
- Extreme Life Laser Diode Technology
- >20-year MTTF Laser Lifespan
- Thermal Printer
- Stainless Steel Construction
- Designed for ISO 21501-4 Compliance: Unit-to-Unit Accuracy & Repeatability Assured
- Multiple Communication Interfaces - USB, RS-485, Ethernet and USB Flash Drive
- 5.7-inch Color TFT Touch Screen Display
- 3000-record Data Storage Memory
- 50-record Configurable Recipe Database
- User-Definable Printouts
- Open Architecture Connectivity with OPC Server
- Report Wizard for Cleanroom Pass/Fail Reports: FS-209E, ISO-14644-1 or EU GMP Annex 1
- Multiple-language Support: English, French, German, Italian, Spanish, Chinese, Russian, Japanese, Korean

SOLAIR Portable 3350/5350

100 LPM - Airborne Particle Counters

WITH fast, reliable sampling of one cubic meter of air in only ten minutes, the SOLAIR 3350 and SOLAIR 5350 portable airborne particle counters offer faster cleanroom qualification than 1 and 2 CFM counters and at sensitivities of 0.3 and 0.5 microns, respectively. SOLAIRs incorporate our Extreme Life Laser Diode Technology sensor to produce the industry's longest laser diode life of 20+ years MTTF (based on continuous 24/7 operation). The SOLAIR 3350 is the industry's only 100 LPM 0.3 micron portable designed for continuous use. SOLAIRs use the industry's best UI (User Interface) to configure and operate the instrument. The intuitive ICON-driven screens and menus are easy to learn and use, which simplifies SOP writing, and support multiple languages.

SOLAIRs can store up to 3,000 records of particle count data from up to 8 particle channels and the configurable recipe database can store up to 50 recipes for sampling and reports. All data can be quickly and reliably transferred to a computer, a Facility Monitoring System or Building Automation System.Secure data transfer (per 21 CFR Part 11) to a USB Flash Drive can be accomplished by using the Lighthouse Secure Data transfer feature and LMS Express or Express RT software. Flexible communication with these instruments is made possible by the integrated Ethernet, RS-485, USB and USB Flash Drive interfaces. SOLAIRs are designed, manufactured and calibrated to ISO21501-4 to ensure particle counting accuracy.

Features
- SOLAIR 3350: 0.3-25.0µm, 0.3µm @ 100 LPM
- SOLAIR 5350: 0.5-25.0µm, 0.5µm @ 100 LPM
- Samples 1 Cubic Meter in 10 Minutes @ 100 LPM
- Simultaneous Display of up to 8 Particle Sizes
- 21 CFR Part 11 Compliant Secure Data Transfer via USB Flash Drive
- Extreme Life Laser Diode Technology
- >20 Years MTTF Laser Lifespan
- Thermal Printer
- Stainless Steel Construction
- Designed for ISO 21501-4 Compliance: Unit-to-Unit Accuracy & Repeatability Assured
- Multiple Communication Interfaces - USB, RS-485, Ethernet and USB Flash Drive
- 5.7-inch Color TFT Touch Screen Display
- 3000-record Data Storage Memory
- 50-record Configurable Recipe Database
- User-Definable Printouts
- Open Architecture Connectivity with OPC Server

- Report Wizard for Cleanroom Pass/Fail Reports: FS-209E, ISO-14644-1 or EU GMP Annex 1
- Multiple-language Support:
- English, French, German, Italian, Spanish, Chinese, Russian, Japanese, Korean

Benefits
- Reduced Sample Time of 1 Cubic Meter in 10 minutes
- User Friendly Interface with Multiple Languages
- International Support
- 2 year Warranty
- Easy Integration to External Systems with OPC Server

Applications
- Cleanroom Monitoring
- Facility Certification Testing
- Trend Analysis
- Tool and Equipment Testing
- Compressed Gas Monitoring (with High Pressure Controller)

SOLAIR Boulder Counter

1.0 CFM - Airborne Particle Counters

THE Lighthouse BOULDER COUNTER portable airborne particle counters incorporate our Extreme Life Laser Diode Technology sensor to produce the industry's longest laser diode life of 20+ years MTTF (based on continuous 24/7 operation). Designed to use a new, lighter extended-life battery and external AC adapter, the BOULDER COUNTER is even more portable. BOULDER COUNTERs feature one of the industry's best User Interfaces (UI) to configure and operate the instrument with intuitive ICON-driven screens and menus that are quick to document for SOPs, easy to learn and simple to use.

BOULDER COUNTERs can store up to 3,000 records of particle count data from up to 6 particle channels and the configurable recipe database can store up to 50 recipes for sampling and reports. All data can be quickly and reliably transferred to a computer, a Facility Monitoring System or a Building Automation System. Secure data transfer (per 21 CFR Part 11) to a USB Flash Drive can be accomplished by using the Lighthouse Secure Data transfer feature and LMS Express or Express RT software. Flexible communications with these instruments is made possible by the integrated Ethernet, RS-485, USB and USB Flash Drive interfaces. BOULDER COUNTERs are designed, manufactured and calibrated to standards that ensure particle counting accuracy and repeatability.

Features
- 5.0μm to 100.0μm sensitivity
- 1.0 CFM (28.3 LPM) Flow Rate
- Simultaneous Display of up to 6 Particle Sizes
- 21 CFR Part 11 Compliant Secure Data Transfer via USB Flash Drive
- Extreme Life Laser Diode Technology
- >20-year MTTF Laser Lifespan
- Thermal Printer
- Stainless Steel Construction
- Multiple Communication Interfaces - USB, RS-485, Ethernet and USB Flash Drive
- 5.7-inch Color TFT Touch Screen Display
- 3000-record Data Storage Memory
- 50-record Configurable Recipe Database
- User-Definable Printouts
- Open Architecture Connectivity with OPC Server
- Report Wizard for Cleanroom Pass/Fail Reports: FS-209E, ISO-14644-1 or EU GMP Annex 1
- Multiple-language Support: English, French, German, Italian, Spanish, Chinese, Russian, Japanese, Korean

Benefits
- User Friendly Interface with Multiple Languages
- International Support
- 2 year Warranty
- Easy Integration to External Systems with OPC Server

Benefits
- Automotive Manufacturing
- Coating Processes
- Paint Booth
- Aerospace Flight and Space Hardware Manufacturing
- Flat Panel Display Manufacturing
- Medical Device Manufacturing

Product Selection Guide

	1100LD	3100	5100
Size Range	0.10 - 1.0 µm Optional ranges up to 5.0 µm	0.3 - 25.0 µm	0.5 - 25.0 µm
Channel Sizes	Standard: 0.10, 0.15, 0.2, 0.25, 0.3, 0.5, 0.7, 1.0 µm	Standard: 0.3, 0.5, 1.0, 5.0, 10.0, 25.0 µm 8-Channel: 0.3, 0.5, 0.7, 1.0, 3.0, 5.0, 7.0, 10.0 µm	Standard: 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm Standard: 0.5, 1.0, 3.0, 5.0, 10.0, 25.0 µm 8-Channel: 0.5, 0.7, 1.0, 2.0, 3.0, 5.0, 7.0, 10.0 µm
Flow Rate	1.0 CFM (28.3 LPM)	1.0 CFM (28.3 LPM)	1.0 CFM (28.3 LPM)
Counting Efficiency	50% @ 0.1 um: 100% @ sizes > 0.15 µm per JIS B 9921 and ISO 21501-4	50% @ 0.3 um; 100% @ sizes > 0.45 µm	50% @ 0.5 um; 100% @ sizes > 0.75 µm
Concentration Limits	500,000 particles/ft3 (17,150,000 / m3) @ 5% coincidence loss	1,000,000 particles/ft3 (35,300,000/m3) @ 10% coincidence loss Suitable for ISO classes 1-8 cleanrooms	1,000,000 particles/ft3 (35,300,000/m3) @ 10% coincidence loss Suitable for ISO classes 1-8 cleanrooms
Light Source	Long Life Laser Diode	Extreme Life Laser Diode Technology with > 20 year MTTF	Extreme Life Laser Diode Technology with > 20 year MTTF
Dimensions	14.65"Lx8.0"Wx10.4"H (37x20x26cm)	9.5"Lx8.0"Wx10.2"H (24.13x20.32x25.9cm)	9.5"Lx8.0"Wx10.2"H (24.13x20.32x25.9cm)
Weight	With battery: 26 lbs (11.8 kg) Without battery: 23 lbs (10.43 kg)	With battery: 13 lbs (5.89 kg) Without battery: 11.5 lbs (5.2 kg)	With battery: 13 lbs (5.89 kg) Without battery: 11.5 lbs (5.2 kg)

	3200	5200
Size Range	0.3 - 25.0 um	0.5 - 25.0 um
Channel Sizes	Standard: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm Standard: 0.3, 0.5, 1.0, 5.0, 10.0, 25.0 µm 8-Channel: 0.3, 0.5, 0.7, 1.0, 3.0, 5.0, 7.0, 10.0 µm 8-Channel Optional: 0.3, 0.5, 0.7, 1.0, 5.0, 7.0, 10.0, 25.0 µm	Standard: 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm Standard: 0.5, 1.0, 3.0, 5.0, 10.0, 25.0 µm 8-Channel: 0.5, 0.7, 1.0, 2.0, 3.0, 5.0, 7.0, 10.0 µm 8-Channel Optional: 0.5, 1.0, 2.0, 3.0, 5.0, 7.0, 10.0, 25.0 µm
Flow Rate	50 LPM	50 LPM
Counting Efficiency	50% @ 0.3 µm; 100% @ sizes > 0.45 µm	50% @ 0.5 um; 100% @ sizes > 0.75 µm
Concentration Limits	700,000 particles/ft3 (24,710,000/m3) @ 10% coincidence loss Suitable for ISO classes 1-8 cleanrooms	700,000 particles/ft3 (24,710,000/m3) @ 10% coincidence loss Suitable for ISO classes 1-8 cleanrooms
Light Source	Extreme Life Laser Diode Technology with > 20 year MTTF	Extreme Life Laser Diode Technology with > 20 year MTTF
Dimensions	14.65"Lx8.0"Wx10.4"H (37x20x26cm)	14.65"Lx8.0"Wx10.4"H (37x20x26cm)
Weight	With battery: 26 lbs (11.8 kg) Without battery: 23 lbs (10.43 kg)	With battery: 26 lbs (11.8 kg) Without battery: 23 lbs (10.43 kg)

	3350	5350	Boulder Counter
Size Range	0.3 - 25.0 µm	0.5 - 25.0 um	5.0 - 100.0 um Standard: 5.0, 10.0, 25.0, 40.0, 50.0, 100.0µm
Channel Sizes	Standard: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm Optional: 0.3, 0.5, 1.0, 5.0, 10.0, 25.0 µm	Standard: 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm Optional: 0.5, 1.0, 3.0, 5.0, 10.0, 25.0 µm	
Flow Rate	100 LPM	100 LPM	28.3 LPM
Counting Efficiency	50% @ 0.3 µm; 100% @ sizes > 0.45 µm	50% @ 0.5 µm; 100% @ sizes > 0.75 µm	50% @ 5.0 um
Concentration Limits	400,000 particles/ft3 (14,120,000/m3) @ 10% coincidence loss Suitable for ISO classes 1-8 cleanrooms	400,000 particles/ft3 (14,120,000/m3) @ 10% coincidence loss Suitable for ISO classes 1-8 cleanrooms	500,000 particles/ft3 @ 5% coincidence loss
Light Source	Extreme Life Laser Diode Technology with > 20 year MTTF	Extreme Life Laser Diode Technology with > 20 year MTTF	Extreme Life Laser Diode Technology with > 20 year MTTF
Dimensions	14.65"Lx8"Wx10.4"H (37x20x26cm)	14.65"Lx8.0"Wx10.4"H (37x20x26cm)	9.5"Lx8.0"Wx10.2"H (24.13x20.32x25.9cm)
Weight	With battery: 26 lbs (11.8 kg) Without battery: 23 lbs (10.43 kg)	With battery: 26 lbs (11.8 kg) Without battery: 23 lbs (10.43 kg)	With battery: 13 lbs (5.89 kg) Without battery: 11.5 lbs (5.2 kg)

Zero Count Level	<1 count / 5 minutes (per JIS B 9921)
Calibration	Meets ISO 21501-4 calibration using NIST traceable PSL spheres, DMA and condensation Particle Counter
Count Modes	Automatic, manual, beep, concentration, cumulative/differential
Data Storage	3,000 sample records, rotating buffer (includes particle and environmental data, location and time)
Communication Modes	USB, Ethernet, RS-485, Secure Data Transfer to and Storage on USB Flash Drive
Supporting Software	LMS Express, LMS Express RT, LMS Pharma
Environmental Sensors	Optional (up to 4) temperature/relative humidity, air velocity, differential pressure or others
Touch Screen Display	5.7 - inch (14.47 cm) color TFT touch screen display
Reports	Pass/fail report wizard for ISO-14644-1, EU GMP Annex 1, and FS-209E report formats
Alarms	Integrated alarm buzzer and external alarm connector. Alarms on counts, low battery, sensor failure
Sample Output	1100LD Model: Internally filtered to 100% @ 0.1 µm, optional HEPA filtration for cooling system exhause. All other models: Internally filtered to HEPA standards (>99.97% @ 0.3 µm)
Vacuum Source	Internal closed-loop controlled pump. Allows the use of 3/8" ID sample tubing of up to 12 meters (40 feet) @ 50 & 100LPM
Enclosure	Stainless Steel
Power	100-250 VAC, 47-63 HZ
Battery	Optional Li-Ion, removable & rechargeable (typical recharge time 7.5 hours)
Languages	English (U.S.), French, German, Italian, Spanish, Chinese, Russian, Japanese, Korean