



® Knowledge Beyond Measure.

# AeroTrak® Portable Particle Counter

Model 9110



4 Year Laser Warranty

## The TSI® AeroTrak® 9110 Portable Particle Counter offers an accurate measurement of particles down to 0.100 µm!

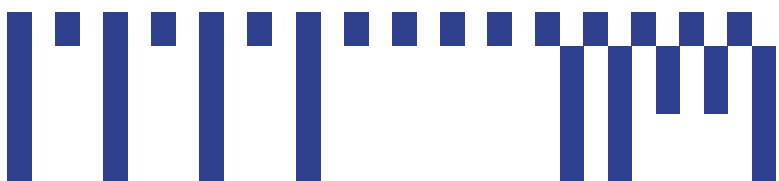
This is made possible utilizing a patented\* HeNe laser technology that is low maintenance with an enhanced signal-to-noise ratio. The Model 9110 is ideal for performing ISO-14644-1 classifications for Class 1 and Class 2 cleanrooms. This instrument is designed for cleanroom monitoring, process tool monitoring, and filter test applications.

The Model 9110 can generate pass/fail reports for ISO 14644-1 via the onboard printer and the supplied TrakPro™ Lite Secure Download Software. Multiple particle counter configurations can be conveniently stored and uploaded as needed. This product can be used as a stand-alone particle counter or integrated into a facility monitoring system like TSI's FMS 5.

The Model 9110 complies with all the stringent requirements set forth in ISO 21501-4. It is calibrated with NIST traceable PSL spheres using TSI's world-class classifier and condensation particle counters, the recognized standard for particle measurements. Backed by a two year product workmanship and material warranty and four year laser warranty as well as the TSI® commitment for superior service and support, there are no other portable 0.100 µm particle counters like it on the market today.

### Features and Benefits

- Accurately measures particles at 0.100 µm
- 0.100 to 10.0 µm size range
- Up to eight channels of simultaneous data
- 1.0 CFM (28.3 L/min) flow rate
- Complies with all requirements of ISO 21501-4
- Best choice for testing Class 1 and 2 Cleanrooms
- Onboard reports for ISO-14644-1, EU GMP Annex 1, and FS209E
- External certification reports via TrakPro™ Lite Secure Software
- Utilizes enhanced HeNe laser
- Highly repeatable and reliable measurements/data
- Data storage: 250 zones, 999 locations, and 10,000 samples
- USB, USB storage device, ethernet data transfer and pulse outputs
- Industry's loudest audible alarm
- Allows storage and recall of specific Recipes and Zone configurations
- Displays up to three environmental parameters
- Stainless steel enclosure
- Seamless integration with M32-01 manifold
- Two year product workmanship and material warranty
- Four year laser warranty



## Specifications

# AeroTrak® Portable Particle Counter Model 9110

| Particle Counting      |  |
|------------------------|--|
| Size Range             | 0.100 to 10.0 µm   |
| Particle Channel Sizes | 9110-01: 0.10, 0.15, 0.2, 0.25, 0.3, 0.5, 1.0, 5.0 µm                                |
| Size Resolution        | <15% @ 0.2 µm (per ISO 21501-4)  |
| Counting Efficiency    | 50% at 0.100 µm; 100% for particles >0.15 µm (per ISO 21501-4 and JIS)               |
| Concentration Limit    | 100,000 particles/ft <sup>3</sup> (3,500,000/m <sup>3</sup> ) @ 10% coincidence loss |
| Light Source           | Enhanced active cavity HeNe laser (4 year warranty)                                  |
| Zero Count             | <1 count per 5 minutes (per ISO 21501-4 and JIS)                                     |
| Flow Rate              | 1 CFM (28.3 L/min) ±5% accuracy (meets ISO 21501-4 and JIS B9921)                    |
| Flow Rate Control      | Electronic, automatic closed loop (patented* flow control technology)                |
| Calibration            | NIST traceable using TSI® calibration system   |
| Calibration Frequency  | Recommended minimum of once per year   |
| Sampling Modes         | Manual, automatic, beep; cumulative/differential; count or concentration             |
| Sampling Time          | 1 second to 99 hours   |
| Sampling Frequency     | 1 to 9999 cycles or continuous   |
| Exhaust                | Internally HEPA filtered   |
| Communication Mode     | Modbus® TCP over Ethernet or USB   |
| Audible Alarm          | Built-in; >85 dB at 1 meter (adjustable)   |
| Status Indicator       | Low battery, flow, laser   |
| Alarm Output           | Dry contacts, closed when alarm is engaged   |
| Alarm Limits           | Programmable for all particle channels   |
| Display                | VGA 5.7-inch (14.5-cm) touch screen display  |
| Languages              | English, German, French, Spanish, Japanese, Chinese (simplified), Italian            |

\*Patent Numbers 6,167,107

Specifications are subject to change without notice.

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Modbus is a registered trademark of Modicon, Inc.

|                                |  |
|--------------------------------|--|
| Software                       | Compatible with TrakPro™ Lite Secure and FMS 5 Software  |
| Printer                        | Built-in thermal printer (also available without printer)  |
| Printer Output                 | Prints in all available languages  |
| Environmental Sensor Interface | Supports TSI® Probe Models: 960, 962, 964, 966 (air velocity/temp/RH) and Temp/RH probe  |
| Unit ID                        | Configurable IP address  |
| Security                       | 2-level password protection to lock out usage and configuration  |
| Data Storage                   | 250 Zones  |
|                                | 999 Locations  |
|                                | 10,000 sample records including: date, time, six total particle size channels, flow status, and instrument status  |
| Data Transfer                  | Via USB storage device, connection to the TrakPro™ Lite Secure Software through Ethernet or USB cable, or optional TSI® FMS Software   |
| Dimension (H x W x D)          | 9.3 in. x 8.1 in. x 20.5 in. (23.6 cm x 20.6 cm x 52.2 cm)   |
| Weight                         | 24.5 lb (11.14 kg) without battery; 28 lbs (12.70 kg) with battery   |
| Power                          | 110 to 240 VAC, 50 to 60 Hz universal power supply   |
| Battery                        | Removeable/rechargeable Li-Ion battery, up to four batteries   |
| Battery Life                   | Up to 4 hours continuous use   |
| Recharge Time                  | 3.5 hours (when idle)  |
| Standards                      | ISO 21501-4, CE, JIS B9921   |
| Warranty                       | Two year product workmanship and material warranty<br>Four year 0.1 µm laser assembly warranty<br>Extended warranties available  |
| Operating Range                | 50° to 95° F (10° to 35° C),<br>20% to 95% RH non-condensing   |
| Storage Range                  | 32° to 122° F (0° to 50° C),<br>up to 98% RH non-condensing  |
| Included Accessories           | Online operating manual, power supply, battery, barbed inlet, isokinetic probe, purge filter, tubing, printer paper, USB cable and TrakPro™ Lite Secure Software                             |
| Optional Accessories           | Electronic filter scanning probe, basic filter scanning probe, TSI® velocity probes, Temp/RH probe, additional battery, dual port external battery charger, isokinetic probes, sample tubing |



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