



Knowledge Beyond Measure.

BioTrak™ Real-Time Viable Particle Counter

Model 9510-BD



Confidence comes with a higher caliber of data

BioTrak™ Real-Time Viable Particle Counter offers best-in-class features and versatility in the exciting new field of real-time airborne viable particle detection—detecting total and viable particle counts in real time. It incorporates TSI® field-proven, patented laser induced fluorescence (LIF) technology to determine particle viability.

The TSI® BioTrak™ Real-Time Viable Particle Counter combines real-time viable particle detection, total particulate detection, and integrated particle collection functionality into a single portable instrument.

Real-time viable particle detection enables:

- Immediate notification of contamination events allowing
 - Segregation of product potentially exposed to contamination
 - Initiation of root cause investigations
 - Initiation of control measures
- Trending of biological particulate levels
- Information for process improvement (PAT)
- Information for process risk management (ICH Q9)
- Feedback for gowning and aseptic process training

Features and Benefits

- Particulate size range: 0.5 to 25 µm
- Up to six channels of simultaneous total and viable particle data
- Patented laser induced fluorescence viability detection
- Integrated particle collection filter for offline speciation analysis
- Complies with all requirements of ISO 21501-4
- 1.0 CFM (28.3 L/min) sample flow rate
- Full optical particle counter functionality
 - Intuitive icon-driven touch screen graphical user interface
 - Recipe-based storage and recall of sampling protocols
 - Reports for ISO-14644-1, EU GMP Annex 1, and FS209E
 - 10,000 sample record storage, 999 locations
 - Ethernet and USB outputs
 - Stand-alone operation or integrate into a facility monitoring system
 - Displays up to three environmental parameters
- Stainless steel enclosure



Specifications

BioTrak™ Real-Time Viable Particle Counter

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Particle Counting

Size Range	0.5 to 25 µm
Particle Channel Sizes	0.5, 0.7, 1.0, 3.0, 5.0, 10 µm****
Size Resolution	<15% @ 0.5 µm (per ISO 21501-4)
Total Particulate Counting Efficiency	50% at 0.5 µm; 100% for particles >0.75 µm, (per ISO 21501-4 and JIS)
Viable Detection	2 fluorescent channels and 1 sizing channel for discrimination
Sample Collection	Integrated filter holder for 37-mm diameter filters
Concentration Limit	820,000 particles/ft ³ (29,000,000/m ³) @ 10% coincidence loss
Zero Count	<1 count per 5 minutes (per ISO 21501-4 and JIS B9921)
Flow Rate	1.0 CFM (28.3 L/min) ±5% accuracy (meets ISO 21501-4 and JIS B9921)
Calibration	NIST traceable using TSI® calibration system
Calibration Frequency	Recommended minimum of once per year (twice per year for fluorescence)
Standards	ISO 21501-4, CE, JIS B9921

Hardware

Total Particulate Light Source	660 nm laser diode for MIE particle sizing
Viable Particulate Light Source	405 nm laser diode for laser induced fluorescence viability detection
Flow Rate Control	Electronic, automatic closed loop (patented* flow control technology)
Audible Alarm	Built-in; >85 dB at 1 meter (adjustable)
External Alarm Relay	Normally open contact closure rated for 0 to 60 V AC/DC at 1.5A peak, 0.5A continuous. Alarm output rated for 60 V insulation. Relay contact closes under user configurable alarm conditions.
Exhaust	Internal HEPA filter
Vacuum Source	Internal pump
Alarm Output	Dry contacts, closed when alarm is engaged
Display	VGA 5.7-in. (14.5-cm) touch screen display
Dimension (H x W x D)	19 in. x 10.5 in. x 11.7 in. (48.3 cm x 26.7 cm x 29.7 cm)
Weight	37 lbs (16.8 kg)
Power	110 to 240 VAC universal power supply
Operating Range	41° to 86°F (5° to 30°C),** 20% to 85% RH non-condensing***

Operating Elevation	0 to 10,000 ft (0 to 3,000 m)
Storage Range	32° to 122°F (0° to 50°C), up to 98% RH non-condensing
Housing	Stainless steel
External Chemical Resistance	Isopropyl alcohol, chlorinated solution, hydrogen peroxide
Environmental Sensor Interface	Supports TSI® air velocity, temperature and relative humidity probes

User Interface and Communication

Sampling Modes	Manual, automatic, beep; cumulative/differential; count or concentration
Sampling Time	1 second to 99 hours
Sampling Frequency	1 to 9,999 cycles or continuous
Data Storage	250 Zones 999 Locations 10,000 sample records
Status Indicators	Flow, Instrument
Alarm Limits	Programmable for all particle channels (both total and viable)
Languages	English, German, French, Spanish, Japanese, Chinese (simplified), Italian
Software	Included: ▪ TrakPro™ Lite Secure Software ▪ FMS Software (OPC UA Bridge 5SP) Optional: ▪ FMS Software (full version)
Unit ID	Configurable IP address
Security	2-level password protection to lock out usage and configuration
Reports	Provides Pass/Fail on ISO 14644-1, EU GMP, and FS209E reports
Communication Mode	Manual data transfer: ▪ Export .xml file to USB drive ▪ To TrakPro™ Lite Secure over Ethernet or USB Automatic data transfer: ▪ To FMS over ethernet ▪ To external software via FMS with OPC UA

Accessories

Included Accessories	Printed QuickStart guide, power supply, isokinetic probe, tubing, 1/2" barb inlet adapter, zero count filter, USB cable, gelatin filter holder, gelatin filters, cleaning swabs, calibration certificate, and insert card with instructions on how to download manuals and software
Optional Accessories	Electronic filter scanning probe, basic filter scanning probe, BioTrak™ aerosol generator, TSI velocity probes, temp/RH probe, isokinetic probes, sample tubing, and hard-sided carrying case

*The BioTrak™ 9510-BD incorporates the following patented technologies:
Patent Numbers 6,167,107; 5,701,012; 5,895,922; 6,831,279; 7,261,007.

**Maximum temperature limited by gel collection filter.

***See TSI Application Note CC-104 for operation above 50% RH.

****Size setting at 0.5 and 5.0 µm per ISO 21501-4.

Specifications are subject to change without notice.

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TSI Incorporated - Visit our website www.tsi.com for more information.

USA	Tel: +1 800 874 2811	India	Tel: +91 80 67877200
UK	Tel: +44 149 4 459200	China	Tel: +86 10 8219 7688
France	Tel: +33 1 41 19 21 99	Singapore	Tel: +65 6595 6388
Germany	Tel: +49 241 523030		