



® Knowledge
Beyond
Measure.



Reliable. Confident. Environmental Monitoring.

Pharmaceuticals | Life Sciences

Instruments and Systems for Compliance

- FDA cGMP - Sterile Drug Products Produced by Aseptic Processing
- EU GMP - Annex 1: Manufacture of Sterile Medicinal Products
- ISO 14644-1:2015, 14644-2:2015 & 21501-4:2018



Reliable. Confident. Environmental Monitoring.

Airborne Particle Counters

Confident Results Matter

- Models for every pharmaceutical environment and application
- ALCOA+ data integrity principles for no-hassle 21 CFR Part 11 compliance
- Leading the way in real-time viable particle detection

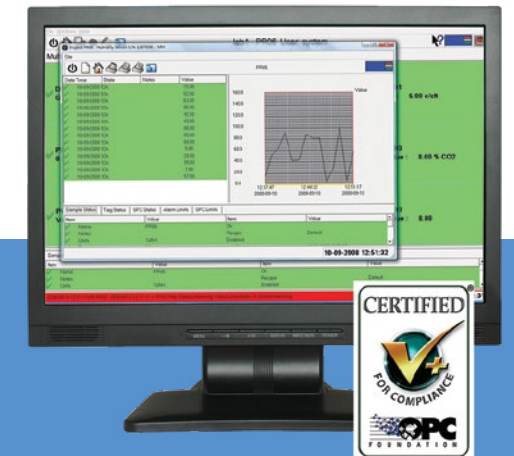
Compliance
Data Integrity
Ease of Use
Profitability

Risk
Downtime
Cost
Waste

TSI® Facility Monitoring Software: Reliable Monitoring Systems

Distributed. Flexible. Redundant.

- No single point of failure with a distributed design
- Fault-tolerant and redundant
- Communicate with virtually any other platform via OPC UA Client/Server



1 AeroTrak®+ Remote Particle Counters

Ultra-Reliable Data Collection

- Protect against network failures with six months of data storage
- Worry-free cleaning with sealed inlets and VHP resistant options
- Flexible environmental monitoring system with Wi-Fi® communication

When Every Second Counts, Count Every Second

Particle data updated every second allows instant action when excursions occur

2 Remotes with Pump

3 BioTrak® Real-Time Viable Particle Counter

The Future of Viable Monitoring

- Reduce or eliminate interventions in Grade A
- Achieve truly continuous viable monitoring
- Accelerate investigations with real-time data

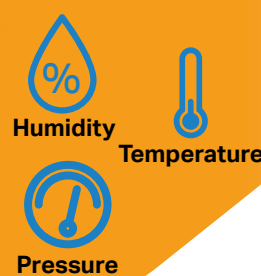
4 Active Air Sampler for Aseptic Environments

- Intermittent sampling improves knowledge of conditions during a production run without interventions
- Protect against network failures with local data storage

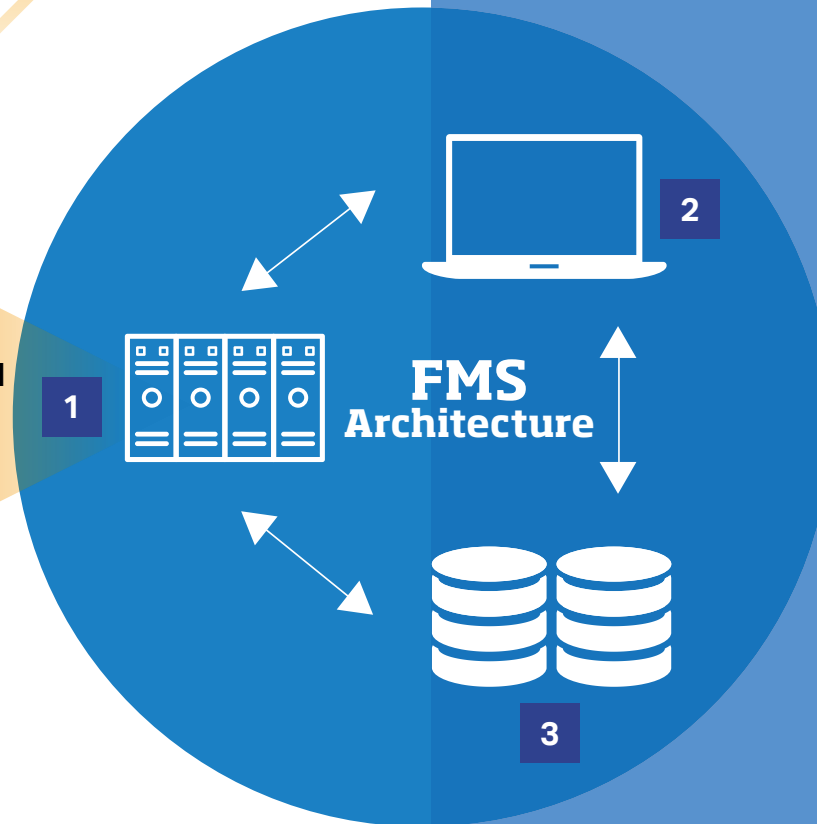
5 Handhelds

6 Portables

7 Integrated Environmental Monitoring Probes



Environmental
Monitoring
Data



1 Monitor: Data Collection

- Fault-tolerant design
- Protects against network failures
- Hot-standby options

2 Client: Interface

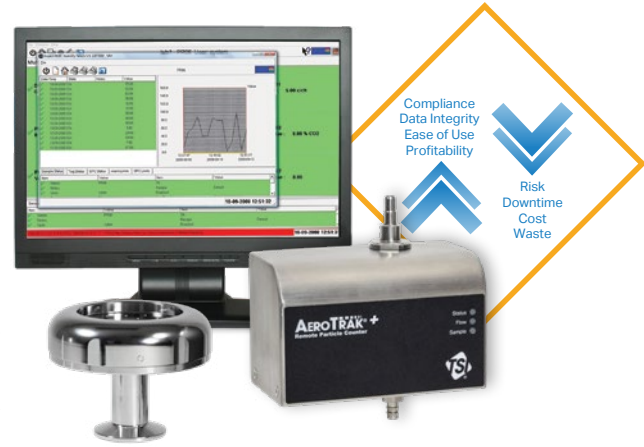
- Turn data into knowledge with alarming, reports, and trending
- Does not effect monitor or database functions
- Multiple clients possible

3 Database: Secure Storage

- Valuable data is safe and secure
- Redundancy is standard with a mirror database
- SQL for high availability and fast access

Reliable. Confident. Environmental Monitoring.

Environmental Monitoring Products for Pharmaceutical Manufacturing & Life Sciences



Facility Monitoring Software

Is a reliable monitoring system that reduces waste and increases yield, quality and profits—OPC UA Foundation compliant

Model	Flow Rate	Particle Size Ranges Available
-------	-----------	--------------------------------

Remote Particle Counters

Designed for continuous monitoring with a facility monitoring system

AeroTrak®+ 7510	1 CFM (28.3 L/min)	0.5, 5.0 µm (VHP resistant models available; Wi-Fi® option)
AeroTrak® 6510	1 CFM (28.3 L/min)	0.5, 0.7, 1.0, 5.0 µm (VHP resistant models available)

Portable Particle Counters

For confident, compliant periodic monitoring

AeroTrak® 9510	1 CFM (28.3 LPM)	0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm
----------------	------------------	----------------------------------

High Flow Portable Particle Counters

For faster periodic monitoring

AeroTrak 9350	1.77 CFM (50 LPM)	0.3, 0.5, 1.0, 2.0, 3.0, 5.0 µm 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm
AeroTrak 9500	3.53 CFM (100 LPM)	0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm
AeroTrak 9550	1.77 CFM (50 LPM)	0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm

Handheld Particle Counters

Are convenient and compact for spot-checks and investigations

AeroTrak 9306	0.1 CFM (2.83 LPM)	0.3, 0.5, 0.7, 1.0, 2.0, 5.0 µm 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm 0.3 to 10 µm, user-selectable Factory calibrated at 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm
---------------	--------------------	---

Real-Time Viable Particle Counter (also known as biofluorescent particle detector)

An alternative and rapid microbiological method (ARMM) for viable air testing that offers proactive risk mitigation, continuous viable monitoring, improved process knowledge and investigations

BioTrak® 9510-BD	1 CFM (28.3 LPM)	0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm (and viable particle detection)
------------------	------------------	---

Active Air Sampler

AeroTrak+ 7010	1 CFM (28.3 LPM)	d ₅₀ = 0.8 µm
----------------	------------------	--------------------------

AeroTrak, BioTrak, TSI and the TSI logo are registered trademarks of TSI Incorporated in the United States and may be protected under other country's trademark registrations.

Wi-Fi is a registered trademark of the Wi-Fi Alliance.



Knowledge Beyond Measure.

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		