

# P-TRAK<sup>®</sup> Ultrafine Particle Counter

*Do you know what your employees  
may be exposed to?*

The P-TRAK Ultrafine Particle Counter measures aerosol particles ranging from 1  $\mu\text{m}$  down to 0.02  $\mu\text{m}$  in size (1,000 nm to 20 nm). Using TSI's proven technology, the P-TRAK gives direct, real-time measurement of workplace ultrafine particulate levels.

Ultrafine particles are defined as having a diameter less than 0.1  $\mu\text{m}$  (or 100 nm). Engineered nanoparticles (nanomaterials) are a subset of ultrafine particles with dimensions from 1 to 100 nm. Nanomaterials are produced and used for industrial and high-tech applications, while ultrafine particles are the by-products of combustion and other chemical reactions. Unfortunately, the occupational health risks associated with manufacturing and using nanomaterials are not clearly understood. As a result, a need has arisen to assess workplace conditions.

Measuring ultrafine and nanoparticles can be difficult because these particles have relatively little mass. Mass concentration is not a good indicator of concentration or exposure even though the particles occur in large numbers. Alternative, number-based measurements can effectively measure the amount of ultrafine and nanoparticles in the workplace environment. These measurements can be used to determine specific sources of ultrafine and nanoparticles in the workplace and evaluate the effectiveness of corrective actions or engineering controls.

The P-TRAK Ultrafine Particle Counter can be used to qualitatively assess the workplace, check HVAC system filter efficiency, evaluate effectiveness of engineering controls, and track down point sources of ultrafine and nanoparticle generation.



**Fact:**

It takes 1 billion 10 nm diameter particles to equal the mass of one 10  $\mu\text{m}$  particle.

## For More Information

Visit [www.tsi.com](http://www.tsi.com) for Application Notes, including P-TRAK IH Investigative Methodology (ITI-093) and Nanotechnology, An Emerging IH Issue (ITI-098).

## Specifications

### P-TRAK Model 8525 Ultrafine Particle Counter

Concentration Range	0 to $5 \times 10^5$ particles/cm <sup>3</sup>
Particle Size Range	0.02 to 1 micrometer
Temperature Range	
Operation	32 to 100°F (0 to 38°C)
Storage	-40 to 160°F (-40 to 70°C)
Flow Rate	
Sample	100 cm <sup>3</sup> /min
Total	700 cm <sup>3</sup> /min (nominal)
Power Requirement	
Battery type	6 AA alkaline
Battery life	6 hrs at 70°F (21°C)
Alcohol Requirement	
Type	100% reagent grade isopropyl
Hours per charge	8 hours at 70°F (21°C)
RS232 Output	Baud rate 9600
Memory	
Single points	470
Data logging	1,000 hours at one-minute intervals. A maximum of 141 separate tests. <sup>1</sup>
Size	10.75 in. × 5.5 in. × 5.5 in. (27 cm × 14 cm × 14 cm)
Weight	
Instrument with batteries	3.8 lbs (1.7 kg)
Factory Recalibration Interval	One year
Warranty	Two years on parts and labor <sup>2</sup>
Computer Requirements	PC with Microsoft Windows® 2000 or XP; Windows-compatible printer; 5 MB hard disk space; and available RS232 serial port (for downloading)

<sup>1</sup> The P-TRAK will operate with an AC adapter for long periods but the alcohol wick must be resaturated every 8 hours when operating over an extended time.

<sup>2</sup> Warranty repairs returned via overnight carrier at TSI expense.

Specifications are subject to change without notice.

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## Description

P-TRAK Ultrafine Particle Counter and accessories includes: Telescoping Sample Probe, Shoulder Strap, Inlet Screen, Spare Wicks (2), Alkaline Batteries, Alcohol Fill Capsule with Storage Cap, Reagent Grade Isopropyl Alcohol, Zero Filters (2), Carrying Case, TRAKPRO™ Software, Computer Cable, Operation and Service Manual, Calibration Certificate, and Two-year Warranty



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