# P-TRAK® Ultrafine Particle Counter

#### Fact:

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

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

The P-Trak Ultrafine Particle Counter measures aerosol particles ranging from 1  $\mu$ m down to 0.02  $\mu$ 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  $\mu$ 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 byproducts 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.



#### **For More Information**

Visit 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

0 to  $5 \times 10^5$  particles/cm<sup>3</sup> Concentration Range Particle Size Range 0.02 to 1 micrometer

Temperature Range

Operation 32 to 100°F (0 to 38°C) -40 to 160°F (-40 to 70°C) Storage

Flow Rate

Sample 100 cm<sup>3</sup>/min

Total 700 cm<sup>3</sup>/min (nominal)

Power Requirement

Battery type 6 AA alkaline 6 hrs at 70°F (21°C) Battery life

Alcohol Requirement

Type 100% reagent grade isopropyl 8 hours at 70°F (21°C) Hours per charge

Baud rate 9600 RS232 Output

Memory

470 Single points

Data logging 1,000 hours at one-minute intervals. A maximum of 141 separate tests.<sup>1</sup>

 $10.75 \text{ in.} \times 5.5 \text{ in.} \times 5.5 \text{ in.}$ 

 $(27 \text{ cm} \times 14 \text{ cm} \times 14 \text{ cm})$ 

Weight

Size

Instrument with batteries 3.8 lbs (1.7 kg) Factory Recalibration Interval One year

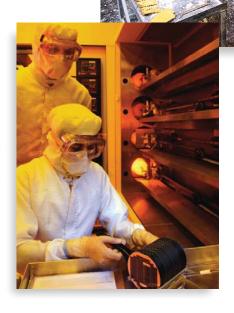
Warranty Two years on parts and labor<sup>2</sup>

PC with Microsoft Windows® 2000 or XP; Computer Requirements

> 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.

Specifications are subject to change without notice. Windows is a registered trademark of the Microsoft Corporation.



#### 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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<sup>&</sup>lt;sup>2</sup> Warranty repairs returned via overnight carrier at TSI expense.