P-TRAK™ Ultrafine Particle Counter...
for better building systems

Enhancing the Comfort, Safety, and Operating Efficiency of Indoor Environments

TSI®

Find problems fast...improve operation...control cost

Facility maintenance is a complicated business. New and old buildings alike present challenges to building managers and maintenance staff. Today's tightly constructed buildings save energy costs, but the resulting reduction in natural ventilation often traps pollutants within them. Older buildings served by outmoded HVAC systems don't always provide the clean air demanded by occupants. Unwanted airborne contaminants can cause irritation, increase cleaning costs and may lead to premature repair or replacement of costly equipment. Adding to this problem is the fact that people are spending much more time indoors—some studies claim up to 90 percent.

Building managers and maintenance staff are responsible for maintaining costly HVAC systems, controlling energy costs and providing a safe environment for building occupants. Much of this effort is related to the dirt, dust and fine particles that build up and affect the performance of mechanical equipment and even damage expensive components of an HVAC system.

To keep buildings running smoothly, you need to identify and correct problems early—before they can affect occupants or lead to expensive repairs or replacements. To ensure good air quality and optimize system operation, it's crucial to control or remove unwanted pollutants in your building. To effectively control them, you need to find the source.

The P-TRAK Ultrafine Particle Counter lets you do just that. With its real-time data display, you can actually track air problems right to their cause—often in minutes. Once you've found the source, you take action early, frequently at very manageable cost.

Are your air filters functioning properly? Are you sure?

- Check performance to confirm specifications
- Monitor loading
- Find leaks quickly
- Maximize filter life

Are your boiler or furnace leaks under control? How about the exhaust stack? Are you sure?

- Locate leaks fast—before CO becomes a problem
- Pinpoint the exact source
- Extend equipment life

Are outdoor pollutants excluded from your building? Are you sure?

- Monitor openings for entry of pollutants
- Check for building exhaust, construction dust, vehicle emissions and more

Do your coils stay clean? Are you sure?

- Minimize energy costs
- Extend coil life
- Reduce maintenance and cleaning costs

Are dust and fumes controlled during remodeling or other construction? Are you sure?

- Check sealed-off construction areas to detect leaks in barriers
- Reduce potential cleaning in adjacent areas
- Prevent occupant complaints

Is your building free of unwanted tobacco smoke? Are you sure?

- Detect smoke reliably—even at very low levels
- Prevent occupant complaints
- Find smoking hideouts

Are your office equipment and lighting fixtures in good working order? Are you sure?

- Locate overheating lights before fire hazards occur
- Identify photocopiers and printers that may need service
- Find other equipment that may be overheating

Are your HVAC components dirt-free? Are you sure?

- Find sources of dust and dirt
- Reduce cleaning and maintenance costs
- Extend equipment life

Are cooking areas properly exhausted? Are you sure?

- Track particles associated with uncontrolled cooking fumes and odors
- Ensure proper exhaust system operation

Tracking Problems Right to Their Source

The P-TRAK Ultrafine Particle Counter is a new kind of test instrument, allowing you to follow pathways of the very smallest particles right to the source. These "ultrafine" particles are far too small to see and can stay suspended in the air for long periods. By identifying these particle sources and correcting problems, you can maintain a healthier building and save wear and tear on expensive equipment.

When using the P-TRAK, first take several readings outdoors, paying attention to details like wind direction and external sources of pollution that could enter the building. Then set an indoor "goal" by taking the average outside reading and subtracting the number of particles removed by air filters. The filter's efficiency rating is a good rule of thumb. For example, if a building has 50% efficient air filters, the indoor goal or expectation should be about half of the numbers read outside.

With this goal as a benchmark, you can move about your building seeking areas or target sources that are higher than the indoor goal. Keep in mind that it is not so much the absolute numbers that are important, but rather the comparison of differences from one location to another. Continue searching, following increasing numbers until you find the exact source of the particles. Once found, a decision on how to correct the situation is usually not difficult. The hard part is finding the problem, and that's where the P-TRAK is invaluable.

Related Applications from TSI

Indoor Air Quality

- CO_2
- CO
- Comfort conditions
- Air change rates
- Outdoor air percent

Air Balancing

- Supply and exhaust testing
- Easy adjustment to a target flowrate
- Duct traverses
- Grille measurements

HVAC System Performance

- Verify air flow and system balance
- Check temperature and humidity
- Heating and cooling coil efficiencies
- Filter and static pressure measurements
- Combustion gas measurements

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