

**BREATHE
EASIER**

The New DUSTTRAK™ II and DRX Aerosol Monitors



HEALTH AND SAFETY

Exposure Monitoring



TRUST. SCIENCE. INNOVATION.

Real-Time Dust Monitoring Takes A Giant Leap Forward.



The Revolution in Real-Time Dust Monitoring Has Arrived:

Forget everything you knew about aerosol monitors. The new DUSTTRAK II and DRX monitors are light years ahead of any other. The DUSTTRAK™ DRX monitor, for instance, is a new laser photometer that simultaneously measures both mass and size fraction – something no other monitor can do. When it comes to worker comfort and productivity, as well as risk management, don't you want the best? The new DUSTTRAK II and DRX aerosol monitors simply leave everyone else in the dust.

Desktop or Handheld Units for Any Environment, Any Application

The new DUSTTRAK II and DRX Aerosol Monitors are battery-operated, data-logging, light-scattering laser photometers that give you real-time aerosol mass readings. They use a sheath air system that isolates the aerosol in the optics chamber to keep the optics clean for improved reliability and low maintenance. Suitable for clean office settings as well as harsh industrial workplaces, construction and environmental sites and other outdoor applications. DUSTTRAK II and DRX monitors measure aerosol contaminants such as dust, smoke, fumes and mists.



Applications include:

- Industrial / occupational hygiene surveys
- Indoor air quality investigations
- Outdoor environmental monitoring
 - Fugitive emissions monitoring
 - Site perimeter monitoring
 - Fenceline monitoring
 - Dust control operations
 - Environmental research studies
- Baseline trending and screening
- Engineering control evaluations
 - Corrective action validation
- Point source monitoring
- Engineering studies
- Remote monitoring
- Process monitoring
- Emissions monitoring
- Aerosol research studies

Easy to Program, Easy to Operate

The new graphical user interface with color touch-screen puts everything at your fingertips. The easy-to-read display shows real-time mass concentration and graphical data as well as other statistical information along with instrument pump, laser and flow status, and much more. Perform quick walk-through surveys or program the instrument's advanced logging modes for long-term sampling investigations. Program the start time, total sampling time, logging intervals, alarm setpoints and many other parameters. You can even set up the instrument for continuous unattended operation.



Simply Leaves Everyone



Handheld Models: Perfect for Walk-Through Surveys and Single-Point Data Collection Applications

Handheld DUSTTRAK aerosol monitors are lightweight and portable. They're perfect for industrial hygiene surveys, point source location monitoring, indoor air quality investigations, engineering control evaluations / validation, and for baseline trending and screening. Like desktop models, they have manual and programmable data logging functions. They also have single-point data logging capability useful for industrial hygiene walk-through surveys and indoor air quality investigations.

New Software Makes Monitoring Easier than Ever

TRAKPRO™ Data Analysis Software allows you to set up and program directly from a PC. A new feature is the ability for remote programming and data acquisition from your PC via wireless (922MHz or 2.4GHz) communications or over an Ethernet network. As always, you can print graphs, raw data tables and statistical and comprehensive reports for recordkeeping purposes.

Desktop Models: Ideal for Long-Term Surveys and Remote Monitoring Applications

Manual and programmable data logging functions also make desktop DUSTTRAK aerosol monitors ideal for unattended applications. They come with USB (device and host), Ethernet, and analog and alarm outputs allowing remote access data. User adjustable alarm setpoints for instantaneous or 15-minute short-term excursion limit (STEL) are available on desktop models. The alarm output with user-defined setpoint alerts you when upset or changing conditions occur.



Else in the Dust

All DUSTTRAK Desktop Aerosol Monitors Have Three Special Features:

- Gravimetric sampling capability using a 37-mm filter cassette which can be inserted in-line with the aerosol stream allowing you to perform an integral gravimetric analysis for custom reference calibrations.
- They can be zeroed automatically using the external zeroing module. This optional accessory is used when sampling over extended periods of time. By zeroing the monitor during sampling, the effect of zero drift is minimized.
- STEL alarm feature for tracking 15-minute average mass concentrations when alarm setpoint has been reached for applications like monitoring fugitive emissions at hazardous waste sites.



DUSTTRAK II Aerosol Monitors

Both the desktop and handheld monitors are continuous real-time, single-channel, 90° light-scattering laser photometers that are used to determine the mass concentration of aerosols. A built-in pump allows the use of a variety of size-selective inlet conditioners to measure aerosol concentrations corresponding to PM₁₀, PM_{2.5}, PM₁, or respirable size fractions.



Join The Revolution In Real-Time Insist On The New DUSTTRAK



DUSTTRAK DRX Aerosol Monitors

These new laser photometers simultaneously measure mass and size fraction – something no other monitor can do. Both the desktop and handheld monitors are continuous real-time 90° light-scattering laser photometers that simultaneously measure size-segregated mass fraction concentrations corresponding to PM₁, PM_{2.5}, Respirable, PM₁₀, and Total PM size fractions. They combine both particle cloud (total area of scattered light) and single particle detection to achieve mass fraction measurements.

This size-segregated mass fraction measurement technique is superior to either a basic photometer or optical particle counter (OPC). It delivers the mass concentration of a photometer and the size resolution of an OPC.

- Photometers can be used at high mass concentration, but they do not give any size information (unless used with size selective inlet conditioners) and significantly underestimate large particle mass concentrations.
- OPC's provide size and count information; however, they do not provide any mass concentration information and cannot be used in high mass concentration environments.

Comparison of Arizona Road Dust: DUSTTRAK DRX vs. TEOM

The PM₁₀ figures on the next page show size-segregated Arizona Road Dust mass concentration measured by the DUSTTRAK DRX monitor. These mass concentrations were compared with a Tapered Element Oscillating Microbalance (TEOM). Three separate experiments were performed with PM_{2.5}, Respirable, and PM₁₀ inlet conditioners attached to the inlet of the TEOM. Each size-segregated mass fraction channel measured by the DUSTTRAK DRX monitor shows excellent correlation with the TEOM using the proper inlet conditioner.

For additional information on this comparison, see TSI Application Note EXPMN-004.

Dust Monitoring – II Or DRX Aerosol Monitor.

DUSTTRAK DRX Aerosol Monitor Advantages Over TEOM

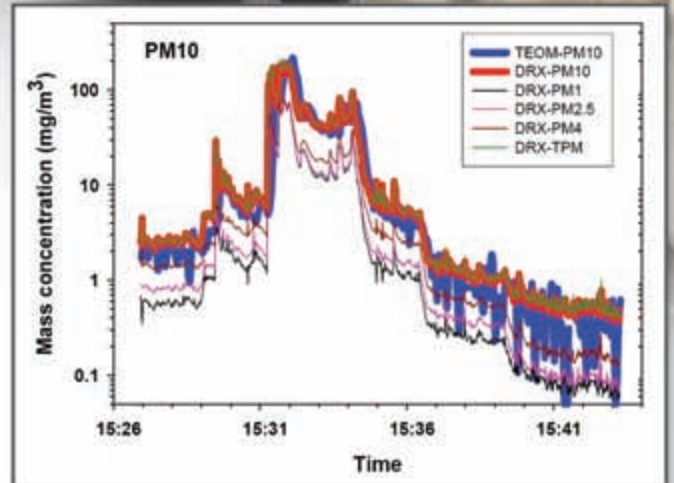
1. Faster response time
2. Continuous and faster data acquisition rate (once per second)
3. Simultaneous measurement of size segregated mass fraction concentrations
4. Size segregated mass fraction data is shown in real time
5. No need for multiple instruments for different size fraction measurements
6. No need for size-selective inlet conditioners
7. No consumables and low maintenance
8. Much lower cost of ownership – one instrument can do the work of five

DUSTTRAK DRX Aerosol Monitor Advantages Over OPCs

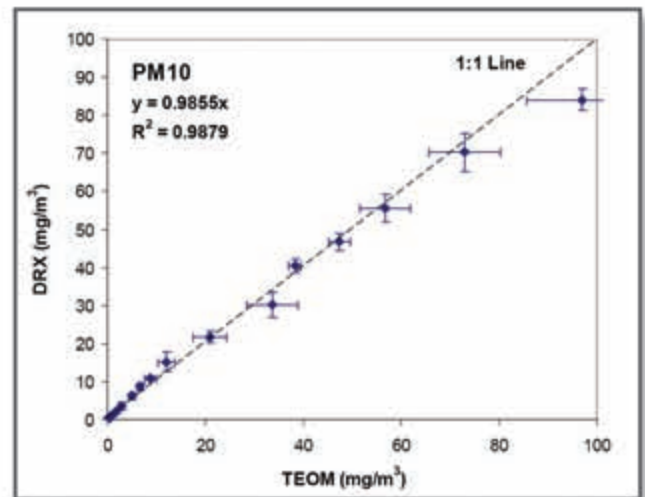
1. Simultaneous measurement of size-segregated mass fraction concentrations
2. Size-segregated mass fraction data is shown in real time
3. Can be used in high mass concentration environments
4. Ability to generate custom calibration factors with integrated gravimetric reference sampling capability based on aerosol of interest
5. Significantly reduces mass conversion errors using particle size and count data due to particle density, refractive index and shape
6. Lower particle detection range down to 0.1 μm in particle size

DUSTTRAK DRX Aerosol Monitor Advantages Over Single-Channel Photometers

1. Greater sensitivity to particles $>1 \mu\text{m}$ in size
2. Simultaneous measurement of size-segregated mass fraction concentrations
3. Size-segregated mass fraction data is shown in real time
4. Ability to generate custom calibration factors with integrated gravimetric reference sampling capability based on aerosol of interest
5. No need for multiple instruments for different size fraction measurements
6. No need for size-selective inlet conditioners



Comparison of Arizona Road Dust (A1) mass concentration measured by the DustTRAK DRX and the TEOM with a PM10 impactor.



Linear correlation between DustTRAK DRX and TEOM for Arizona Road Dust (A1) mass concentration measurement. The TEOM ran with a PM10 impactor.



Parameters and Features Chart

The chart below is a guide for selecting a DUSTTRAK Aerosol Monitor model to best fit your measurement needs.

Features	DUSTTRAK II Desktop Model 8530	DUSTTRAK II Desktop HC Model 8531	DUSTTRAK II Handheld Model 8532	DUSTTRAK DRX Desktop Model 8533	DUSTTRAK DRX Handheld Model 8534
Gravimetric reference sample (37 mm filter cassette, user supplied) capability with active flow control for flow accuracy, +/- 5% of factory setpoint	•	•		•	
User adjustable custom calibration settings	•	•	•	•	•
Auto zeroing module (optional accessory)	•	•		•	
15 minute STEL alarm	•	•		•	
Instantaneous alarm settings with visual and audible warnings	•	•	•	•	•
Logged test pause and restart feature	•	•	•	•	•
Logged test programming	•	•	•	•	•
– Color touch screen - either manual mode or program mode	•	•	•	•	•
– TRAKPRO Data Analysis Software via a PC	•	•	•	•	•
TRAKPRO Data Analysis Software	•	•	•	•	•
– Remote programming and real time data acquisition	•	•	•	•	•
• USB host with wireless radio modem (922MHz/2.4GHz)	•	•	•	•	•
• Ethernet	•	•		•	
• Analog / alarm output	•	•		•	
Download data directly from instrument via	•	•	•	•	•
– USB FLash Drive to PC	•	•	•	•	•
– USB device to PC	•	•	•	•	•
– Ethernet to PC	•	•		•	•
View statistical information during and after sampling	•	•	•	•	•
Real time graph display	•	•	•	•	•
Long life 10,000 hour internal pump	•	•		•	
Long life 2,500 hour internal pump			•		•
Li-Ion rechargeable batteries	•	•	•	•	•
Hot swappable batteries	•	•		•	
Internal and external battery charging capabilities	•	•	•	•	•
Outlet port for isokinetic sampling applications	•	•	•	•	•
On-screen instrument status indicators: FLOW LASER and FILTER	•	•	•	•	•
Filter service indicator for user preventative maintenance	•	•	•	•	•
User serviceable sheath flow and pump filters	•	•	•	•	•
Display and user interface - 5.7" VGA color touch screen	•	•		•	
Display and user interface - 3.6" VGA color touch screen			•		•

TSI Incorporated serves a global market by investigating, identifying and solving measurement problems. As an industry leader in the design and production of precision instruments, TSI partners with research institutions and customers around the world to set the standard for measurements relating to aerosol science, air flow, health and safety, indoor air quality, fluid dynamics and biohazard detection. With headquarters based in the U.S. and field offices throughout Europe and Asia, TSI has established a worldwide presence in the markets we serve. Every day, our dedicated employees turn research into reality.

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