TSI®
Knowledge
Beyond
Measure.

Real-Time Dust and Aerosol Monitoring

The DustTrak™ II and DRX Aerosol Monitors

Real-Time Dust Monitoring. Any Environment. Any Application.

The DustTrak™ II and DustTrak™ DRX Aerosol Monitors are battery-operated, data-logging, light-scattering laser photometers that provide real-time mass concentration readings for aerosol contaminants such as dust, smoke, fumes and mist. These instruments use a sheath air system that isolates the aerosol in the optics chamber to keep the optics clean for improved reliability and low maintenance. From desktop and desktop with external pump models to handheld models, the DustTrak™ II and DustTrak™ DRX offer a suitable solution for harsh industrial workplaces, construction and environmental clean-up sites, as well as clean office settings, with the DRX models being the only laser photometers on the market that can measure mass and size fraction simultaneously. Also, an environmental enclosure accessory is available to allow for protection of the desktop models to permit 24/7 outdoor monitoring regardless of the weather conditions and in harsh industrial environments. Plus, add the Cloud Data Management System to access data on demand — anytime, most anywhere.

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

Portable Model 8535
Environmental Enclosure

Easy to Program, Easy to Operate

The 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.

TrakPro™ Software Makes Monitoring Easier than Ever

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

Handheld Models

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

Handheld DustTrak™ aerosol monitors (Models 8532 and 8534) are lightweight and portable. They are 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.

Desktop Models

Ideal for Long-Term Surveys and Remote Monitoring Applications

The DustTrak™ is also offered as a standard desktop (Models 8530 and 8533), as well as desktop with external pump (Models 8530EP and 8533EP.) All models have manual and programmable data logging functions, making them ideal for unattended applications. The standard desktop model is most suitable for indoor, continuous monitoring, while the desktop with external pump is designed for 24/7 unattended, remote monitoring outdoors.

The DustTrak™ desktop models come with USB (device and host), Ethernet, and analog and alarm outputs allowing remote access to data. User adjustable alarm setpoints for instantaneous or 15-minute short-term excursion limit (STEL) are also available on desktop models. The alarm output with user-defined setpoint alerts you when upset or changing conditions occur.

The DustTrak™ Desktop Monitors Have Several Unique Features:

- External pump (Models 8530EP and 8533EP) with low power consumption for continuous, unattended monitoring in remote outdoor locations.
- Gravimetric sampling capability allows integral gravimetric analysis for custom reference calibrations.
- Optional autozero module minimizes the effect of zero drift when sampling over extended period of time.
- STEL alarm tracks average mass concentrations at 15-minute intervals
- Environmental protected and tamper-proof secure (with an optional environmental enclosure).
- Optional heated inlet sample conditioner reduces humidity effects on photometric mass measurements (for use with optional environmental enclosure)
- Optional Cloud Data Management System, in partnership with Netronix™ Inc., enables users to access data from remote monitors almost anywhere in the world.

Advanced Technology Unsurpassed Performance

DustTrak™ II Aerosol Monitors

All DustTrak™ II Aerosol 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 for the use of a variety of size-selective inlet conditioners to measure aerosol concentrations corresponding to PM10, PM2.5, PM1, or respirable size fractions.

DustTrak™ DRX Aerosol Monitors

The DustTrak DRX Aerosol Monitors are laser photometers that 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, PM2.5, 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 PM2.5, 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.

Real-time, Accurate Results

DustTrak™ DRX Aerosol Monitor Advantages Over TEOM

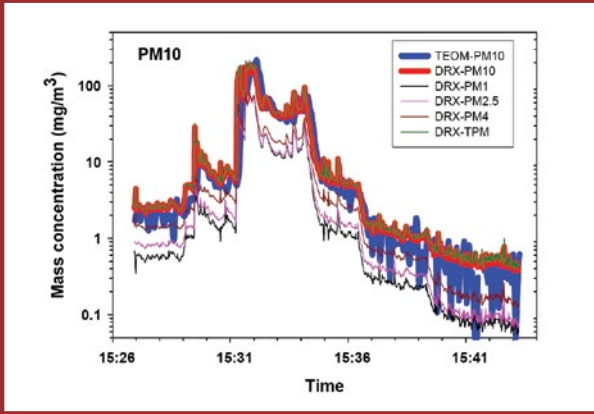
1. Faster response time
2. Continuous and faster data acquisition rate (once per second)
3. Simultaneous measurement of size segregated mass fraction concentrations
4. Size segregated mass fraction data is shown in real-time
5. No need for multiple instruments for different size fraction measurements
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

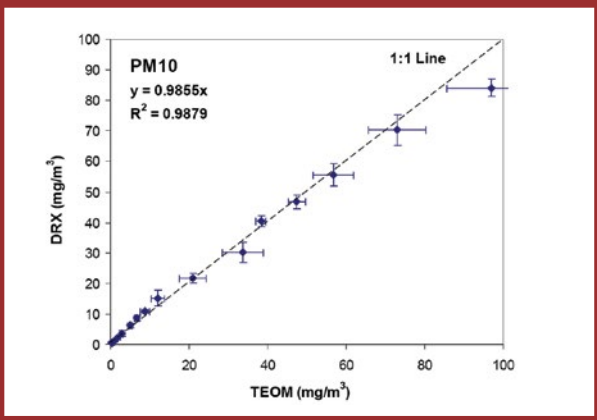
1. Simultaneous measurement of size-segregated mass fraction concentrations
2. Size-segregated mass fraction data is shown in real-time
3. Can be used in high mass concentration environments
4. Ability to generate custom calibration factors with integrated gravimetric reference sampling capability based 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 µm 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.

Features Chart

The Chart Below is a Guide for Selecting a Dusttrak™ Aerosol Monitor Model That Best Fit Your Measurement Needs.

Features	DustTrak™ II Desktop Model 8530	DustTrak™ II Desktop Model 8530EP	DustTrak™ II Handheld Model 8532	DustTrak™ DRX Desktop Model 8533	DustTrak™ DRX Desktop Model 8533EP	DustTrak™ DRX Handheld Model 8534
Simultaneous size-segregated mass fraction measurements				■	■	■
Gravimetric reference sample capability with active flow control	■	■		■	■	
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 internal pump	■		■	■		■
Long life external 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			■			■
Optional Accessories						
Heated Inlet Sample Conditioner	■	■		■	■	
Cloud Data Management System	■	■		■	■	
Environmental Enclosures	■	■		■	■	

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Find out more
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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		

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