



® Knowledge Beyond Measure.

# DustTrak™ Environmental Monitors



## Real-time dust monitoring for any outdoor environment

Whether you work at a construction site, engineering firm, or monitor the aftermath of wildfires, the DustTrak™ Environmental Monitor is a robust, reliable solution for environmental monitoring. This instrument is compatible with a variety of sensors to detect volatile organic compounds (VOCs), gases, wind speed and more. Conveniently packaged solutions allow you to measure PM10, PM2.5, or PM10, PM2.5, PM1.0 and Total PM simultaneously. The compact, weather-proof enclosure houses the DustTrak™ Environmental Photometer, along with other key components including a long-life pump, built-in auto zeroing, and an optional heated inlet.

### Features and Benefits

- Conveniently packaged solutions for measurement of PM10, PM2.5, or PM10, PM2.5 and PM1.0 and Total PM simultaneously
- Robust design enables long-term runtime in environments from -4 to 122°F (-20 to 50°C)\*
- Field-replaceable, longer-life pump increases measurement uptime (life expectancy >10,000 hours)
- Optional heated inlet sample conditioning improves measurement accuracy in humid environments >50% RH
- MCERTS models available for PM10, PM2.5, and both PM10 and PM2.5

\* Requires internal heater option

### Applications

- Fugitive emissions monitoring
- Site perimeter monitoring
- Fence-line monitoring
- Environmental remediation
- Construction and mining sites
- Hazardous waste sites
- Dust control operations



Sira MC160316/XX  
Sira MC160317/XX  
Sira MC160318/XX



# The DustTrak™ Environmental Advantage

Conveniently Packaged Solutions

Measured Mass Fraction	Base Model Number	Base Model Contents	Optional Accessories
PM10	854001-1		<ul style="list-style-type: none"> <li>▪ Heated Inlet Sample Conditioner</li> <li>▪ Rechargeable Battery System</li> <li>▪ Solar Power System</li> <li>▪ Pole Mount Kit</li> <li>▪ Solar Shield</li> <li>▪ Metrology Sensors</li> <li>▪ DustTrak™ Mobile Wireless Router</li> <li>▪ Impactor (not necessary for 854301-1)</li> <li>▪ Heater for Enclosure</li> <li>▪ Omni-directional Inlet</li> <li>▪ Omni-directional Inlet with Water Trap</li> </ul>
PM2.5	854001-1	<ul style="list-style-type: none"> <li>▪ DustTrak™ Environmental Photometer</li> <li>▪ Environmental Enclosure</li> <li>▪ 24V AC/DC Main Power Supply</li> </ul>	
PMTotal, PM10, PM2.5 and PM1.0 (simultaneous measurements)	854301-1		

## Robust Design For Long Run Time

- Built upon patented, proven DustTrak Aerosol Monitor technology
- Long-life pump (life expectancy > 10,000 hours)
- Built-in auto zero module minimizes drift over long sample runs and temperature changes
- Extended beam dump minimizes optical contamination
- Secure, weather-proof enclosure
- Active volumetric flow control
- Heated inlet sample conditioning minimizes effects of humidity and water vapor to provide more consistent measurement

## Reduced Cost Of Operation

- Generate reports quickly and easily
- Long-lasting parts minimize downtime
- Easy maintenance with field-replaceable parts

## MCERTS Models

Measured Mass Fraction	MCERTS Model Number	MCERTS Model Contents	Optional Accessories
PM10	854201-M1	<ul style="list-style-type: none"> <li>▪ DustTrak Environmental Photometer</li> <li>▪ Environmental Enclosure</li> <li>▪ Omni-directional Inlet with Water Trap</li> <li>▪ Impactor (not necessary for 854301-M1)</li> <li>▪ Heated Inlet Sample Conditioner</li> <li>▪ 24V AC/DC Main Power Supply</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rechargeable Battery System</li> <li>▪ Solar Power System</li> <li>▪ Pole Mount Kit</li> <li>▪ Solar Shield</li> <li>▪ Metrology Sensors</li> <li>▪ Heater for Enclosure</li> </ul>
PM2.5	854001-M1		
PMTotal, PM10, PM2.5 and PM1.0 (simultaneous measurements)	854301-M1		

## Probe Specifications

### **DustTrak™ Environmental Photometer** **Models 8540/8543**

The DustTrak™ Environmental Photometers are the heart and soul of the systems for real-time, second-by-second measurement of PM10, PM2.5 and PM1.0. 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 as well as an extended beam dump to minimize optical contamination. Also a built-in auto zero module works to improve measurement accuracy while a robust, long-life pump maximizes uptime. A removable 37 mm filter cassette enables site-specific gravimetric calibration or sample analysis. Using patented technology, only the DustTrak™ DRX Environmental Photometer can simultaneously measure PMTotal, PM10, PM2.5 and PM1.0 mass fractions.

## Optional Accessories

### **Gas Monitor GM460**

This powerful handheld instrument fits inside the DustTrak Environmental Monitor. In addition to the standard confined space gases which include combustibles, O<sub>2</sub>, CO, and H<sub>2</sub>S, the GM460 has two additional smart channels that accept PID, IR or super toxic sensors.

### **Heated Inlet Sample Conditioner**

*(Included on MCERTS Models)*

Conditions the sampled aerosol to improve measurement accuracy by minimizing the effects of humidity when environments are consistently >50% RH.

### **Rechargeable Battery System**

Provides continuous power to the DustTrak Environmental Monitor base system when AC power is not available. Includes two 22 Ah rechargeable batteries and battery charger.

### **Solar Power System**

Provides continuous power to the DustTrak Environmental Monitor base system. Includes two 90W solar panels with stand, weatherproof battery and charge regulator enclosure, charge regulator, 120 Ah rechargeable battery and DC power cable.

### **Pole Mounting Kit**

Includes bracket, hardware and mounting straps to attach Environmental Enclosure to a fixed pole (not supplied) ranging 2"-6" (50-150 mm) in diameter.

### **Solar Shield**

Custom metal cover to shield the enclosure from sun light. Recommended for environments >104°F (40°C).

### **Metrology Sensors**

We offer two metrology sensors. The base model measures temperature, humidity and pressure, while the advanced version measures wind speed and wind direction including temperature, humidity and pressure. Both versions include data, power connections and mounting hardware.



## Specifications

# DustTrak™ Environmental Monitors

Model Number	Base Models		
	854001-1	854001-1	854301-1
Measured Mass Fraction	PM10	PM2.5	Simultaneous PMTotal, PM10, PM2.5 and PM1.0
Concentration Range	0-400 mg/m <sup>3</sup>	0-400 mg/m <sup>3</sup>	0-150 mg/m <sup>3</sup>
Resolution	±0.1% of reading or 0.001 mg/m <sup>3</sup> , whichever is greater		
Zero Stability	±0.002 mg/m <sup>3</sup> per 24 hours at 10 sec time constant		
Sample Flow Rate	3.0 L/min (±5% of factory set point, internal flow controlled)		
Detection Method	Light scattering laser photometer; 90° off-axis detector		
Gravimetric Sampling	Removable 37 mm cartridge (filter media not supplied)		
Communications	Wired: USB (host and device) and Ethernet		
Operating Environment	32° to 122°F (0° to 50°C) standard; extended temperature range capability of -4° to 120° F (-20° to 50° C) available with optional enclosure heater <sup>1</sup> ; 0 to 100% RH		
Environmental Enclosure	Lockable, enclosure; 16 x 12 x 12.25 inches (HWD) (411 x 305 x 311 mm)		
Sample Inlet	Omni-directional inlet with water trap		
Power Requirements	AC Mains (110-240 VAC Input) or Battery (12 VDC Input)		
Weight <sup>2</sup>	~ 30 lbs. (13.6 kg)		
Mounting	Pole mount and tripod		
Approvals	<ul style="list-style-type: none"> <li>▪ CE</li> <li>▪ MCERTS</li> </ul>		

System Accessories	
P/N 854020	PM10 Impactor
P/N 854021	PM2.5 Impactor
P/N 854022	PM1.0 Impactor
P/N 854023	PM4 Impactor
P/N 854041	Heated Inlet Sample Conditioner
P/N 854048	Solar Shield
P/N 854049	Pole Mounting Kit
P/N 854051	Metrology Sensor (Lufft WS500)
P/N 854053	Tripod Mounting Kit
P/N 854054	Enclosure Heater
P/N 854057	Tripod

Alternate Power Options	
P/N 854036	Rechargeable Battery System (Includes two 22Ah rechargeable batteries capable of running base model 42-48 hours (approx. 30 hours when using base model plus heated inlet accessory)
P/N 854060	Solar Power System (Includes two 90 watt solar panels and 120 Ah rechargeable battery)

<sup>1</sup> For extended temperature range capability, order Models 854002-2, 854004-4, 854302-2, or 854304-4 (all require AC mains power).

<sup>2</sup> Weight includes base model components only. Consult TSI® Representative for additional information.

Specifications are subject to change without notice.

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To see our list of patents please visit: [www.tsi.com/patents](http://www.tsi.com/patents)



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