

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

***Environmental DustTrak™ Aerosol Monitor 854301-M1***

Manufactured by:

***TSI Incorporated***

500 Cardigan Road  
Shoreview  
MN USA

**MCERTS Performance Standards for Indicative Ambient Particulate Monitors,  
Version 4, August 2017**

Certification ranges:

PM <sub>2.5</sub>	0 to 10,000 µg/m <sup>3</sup>
PM <sub>10</sub>	0 to 10,000 µg/m <sup>3</sup>

Project number: 80103834  
Certificate number: Sira MC160318/04  
Initial certification: 02 December 2016  
This certificate issued: 08 December 2021  
Renewal date: 01 December 2026



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*The MCERTS certificate consists of this document in its entirety.*

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## Approved Site Application

*Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at [www.mcerts.net](http://www.mcerts.net)*

On the basis of these tests this certificate is valid when the instrument is used for urban air quality monitoring and similar applications.

The field test was conducted on a site representative of urban background particulate loading.

The indicative dust monitoring analyser(s) can be operated in one of two ways:

For qualitative measurements: Providing qualitative measurement data for the analysis of particulate pollution trends, and source identification studies based for example on pollution roses etc. Such application can rely on instrument factory calibration only.

For quantitative measurements: Providing measurement data with the uncertainty defined for indicative instruments (+/- 50%). This can be achieved on condition that each instrument used for measurement has been calibrated on the specific site where monitoring is taking place against a standard reference method for a period of two weeks and the resulting slope and intercept have been used for instrument calibration. Using non-standard filters and procedures for this purpose is not acceptable. To maintain the validity of data this calibration has to be repeated at least every twelve months or when the instrument is moved to a different site.

They **cannot** be used as a substitute for continuous ambient air quality monitoring systems (CAMs) employed in national air quality monitoring networks for the EU Air Quality Directive

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### Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

Bureau Veritas Report ref AGGX6339002/BV/2989, dated September 2016

### Product Certified

The measuring system consists of the following parts:

- 854301-M1 or EDTDRXM Environmental DustTrak Aerosol Monitor;
  - 8543-M Environmental DustTrak Photometer
  - 854038 or 854030 Environmental Enclosure;
  - 854041 Heated inlet Sample Conditioner and Omni Directional Inlet with Water Trap

This certificate applies to all instruments fitted with software version 3.5 (serial number 8543154304) onwards.

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## Certified Performance

Test	Result	MCERTS specification
Constancy of the sample volumetric flow	<3%	Remain constant within $\pm 3\%$ of rated value
Tightness of the sampling system	0%	Leakage not to exceed 2% of sampled volume
Intra-instrument uncertainty for the reference method		
PM <sub>2.5</sub>	0.38 $\mu\text{g}/\text{m}^3$	$\leq 5\mu\text{g}/\text{m}^3$
PM <sub>10</sub>	0.51 $\mu\text{g}/\text{m}^3$	
Intra-instrument uncertainty for the candidate method		
PM <sub>2.5</sub>		
All data (n = 94)	0.25 $\mu\text{g}/\text{m}^3$	$\leq 5\mu\text{g}/\text{m}^3$
$\geq 18 \mu\text{g}/\text{m}^3$ (n = 14)	0.44 $\mu\text{g}/\text{m}^3$	
$\leq 18 \mu\text{g}/\text{m}^3$ (n = 80)	0.21 $\mu\text{g}/\text{m}^3$	
PM <sub>10</sub>		
All data (n = 94)	0.33 $\mu\text{g}/\text{m}^3$	
$\geq 30 \mu\text{g}/\text{m}^3$ (n = 4)	0.46 $\mu\text{g}/\text{m}^3$	
$\leq 30 \mu\text{g}/\text{m}^3$ (n = 90)	0.33 $\mu\text{g}/\text{m}^3$	
Highest resulting uncertainty estimate comparison against data quality objective (Measurement Uncertainty)		WCM $\leq$ Wd <sub>qo</sub> Measurement uncertainty defined as 50% for indicative instruments
PM <sub>2.5</sub>	19.7%	
PM <sub>10</sub>	30.9%	
Maintenance Interval	>Two weeks Note 2	>Two weeks

Note 1: Only one Reference Method was used during the testing of the EDTDRX5M. 0.38  $\mu\text{g}/\text{m}^3$  was calculated during operation of two identical Reference Methods during 2014 for PM<sub>2.5</sub> and 0.51  $\mu\text{g}/\text{m}^3$  for PM<sub>10</sub>.

Note 2: During the 3 months of operation no maintenance was required. The manufacturer recommends the monitoring system is serviced annually.

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## Description

The Environmental DustTrak™ Aerosol Monitor (TSI Model 854301-M1 or EDTDRXM) includes a data-logging, multiple- channel 90° light-scattering laser photometer (8543-M) that gives real-time aerosol mass readings that can simultaneously measure both mass and size fraction. It uses a sheath air system that isolates the aerosol in the optics chamber to keep the optics clean for improved reliability and low maintenance.

The 854301-M1 or EDTDRXM include automatic zeroing which minimizes the effect of zero drift. The monitor simultaneously measures size-segregated mass fraction concentrations. Each unit includes an environmental enclosure, a DustTrak photometer, Omni directional inlet with water trap and a heated inlet sample conditioner to reduce humidity effects.

## General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this certificate. The manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates'.
2. The design of the product certified is defined in the CSA Group Design Schedule V04 for certificate No. Sira MC160318/04.
3. If a certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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