

DUST SENTRY

Near reference real-time particle monitor for specific dust fractions

Designed for those who need to monitor and manage specific outdoor dust and particulate emissions continuously and in real-time.

The Dust Sentry is a nephelometer-based instrument that delivers defensible and accurate mass measurement for PM₁₀, PM_{2.5}, PM₁, or TSP.

MCERTS certified and SCAQMD 1466 pre-approved.



What is it?

- A weather-proof nephelometer-based monitor with integrated solar shielding for outdoor monitoring of dust and particulates
- A modular and configurable monitoring platform for measurement and compliance of a specific dust and particulate designation, and the option to integrate environmental sensors e.g. wind, noise, weather, and solar
- A flexible communications platform that transfers real-time data wirelessly, and gives you access through an API
- A web interface accessed via browser on any device, see all your data in one place and set email / SMS alerts on parameters of concern

What can it measure?

- Specific dust fraction, wind and noise



Who is it for?

- **Industrial operators** who need a cost-effective and robust solution to manage and control dust and particulates from site activities within regulatory or permitted limits:
 - Construction and remediation
 - Quarry and mine operators
 - Port and bulk handling terminals
 - Waste management sites
- **Environmental consultants** who require defensible particulate measurement for their clients air quality permits
- **Regulatory authorities** who require deployable, rapid response incident monitoring
- **EHS managers** who need to demonstrate that they are providing a safe environment for the people in their care
- **Researchers** who are on a limited budget and want to collect accurate, scientifically robust data

Specifications | Dust Sentry

Particle Module	Sizes	Range	Accuracy	Resolution	Lower Detectable Limit (2 σ)
Nephelometer	PM ₁ , PM _{2.5} , PM ₁₀ or TSP	0 to 60,000 $\mu\text{g}/\text{m}^3$	$<\pm(2 \mu\text{g}/\text{m}^3 + 5\% \text{ of reading})$	0.1 $\mu\text{g}/\text{m}^3$	$<1 \mu\text{g}/\text{m}^3$
System Specifications					
Control System	Embedded fanless PC, Intel Atom N2600, 1.6 GHz, 2 GB RAM, 32 GB SSD, Ubuntu Linux Operating System				
Communications	Standard: WIFI, Ethernet (LAN) Optional: Cellular IP HSPA 4G modem				
Software	Connect: Runs on embedded PC, access via browser (IE, Firefox, Chrome, Safari) Cloud: Runs on secure 'cloud' servers, accessed via web browser Connect / Cloud Features: configuration, diagnostics, journal, calibration and data acquisition, plus SMS and email alerts (optional), auto data export via FTP and email (optional), and data export API (optional)				
Data logging	32 GB Hard Drive (> 5 years data storage)				
Outputs	2 x Relay (optional) 4 x 4-20mA (optional)				
Averaging period	1 min, 5 min, 10 min, 15 min, 20 min, 30 min, 1 hr, 2 hr, 4 hr, 8 hr, 12 hr, 24 hr				
Power requirements*	100-260 VAC (standard): 21 W / 30 W * Regulated 12 VDC (if required): 21 W / 30 W				
Enclosure	Lockable IP65 GRP cabinet with integrated aluminium solar shield armour				
PM Sampling System	Inlet: Omni-directional 36 cm (14.1 inches) heated inlet; Optional sharp cut cyclones for PM ₁₀ , PM _{2.5} or PM ₁ size selection Pump: 12 V brushless DC diaphragm Optics: 670nm laser, near-forward scattering nephelometer with sheath air protection				
Dimensions	483 H x 330 W x 187 D mm (19 H x 13 W x 7.4 D inches) Includes solar shield armour & mounting brackets				
Weight*	< 13 kg (28.6 lbs)				
Environmental operating range	-10 °C to +50 °C (14 °F to 122 °F)				
Mounting	Pole, tripod and wall mounting brackets included				
47mm Sample Filter (Optional)	47mm filter for particle loading analysis				
Factory Integrated & Tested Sensors (Optional)	Gill WindSonic (ultrasonic wind sensor), Vaisala WXT536 (weather transmitter), Met One MSO (weather transmitter), Cirrus MK427 Class 1 (noise sensor), Novalynx Pyranometer (solar radiation)				

* Configuration used for power and weight calculations: base unit, nephelometer, PM₁₀ sharp cut, modem, heater off / heater on

