

DUST SENTRY PRO

Real-time multi-channel particle monitor for aerosol profiling

Designed for environmental professionals who need to monitor and manage multiple outdoor dust and particle size fractions, simultaneously and in real-time.

The Dust Sentry Pro delivers simultaneous measurement of PM₁₀, PM_{2.5}, PM₁, TSP, and particulate counts for 8 different channels; 0.3, 0.5, 0.7, 1.0, 2.0, 3.0, 5.0, 10 microns.



What is it?

- Reduce failure and downtime thanks to this robust purpose-built outdoor dust profiler
- Set up and deploy in under 10 minutes – get live data flowing to your PC or mobile
- Reduce site visits using two-way communications – remotely troubleshoot, upgrade software, change settings, and calibrate
- Plug in all your devices – noise, weather, reference monitors – to the Dust Sentry Pro power and data interface and view data in one software dashboard
- Power up with quick and easy interface to solar and battery systems
- Respond in real-time via configurable email / SMS alerts

What can it measure?

- Multiple dust fractions, wind, weather and noise



Who is it for?

- **Industrial operators** who need to manage multiple dust and particulate fractions from site activities within regulatory or permitted limits:
 - Construction and remediation projects
 - Quarry and mine operators
 - Port and bulk handling terminals
 - Waste management sites
- **Environmental consultants** who need to measure multi-channel PM size fractions without the usual time and hassle of air monitoring projects
- **Regulatory authorities** who need to fill the gaps in the regulatory PM monitoring network
- **EHS managers** who need to demonstrate that they are providing a safe environment for the people in their care
- **Researchers** who want simultaneous and accurate data across a range of particulate profiles

Specifications | Dust Sentry Pro

Particle Module	Sizes	Range	Accuracy	Flow Rate	Lower Detectable Limit (2σ)
Profiler (Optical Particle Counter)	PM ₁ , PM _{2.5} , PM ₁₀ AND TSP	PM ₁ 200 µg/m ³ PM _{2.5} 2000 µg/m ³ PM ₁₀ 5000 µg/m ³ TSP 5000 µg/m ³	<±(5 µg/m ³ + 15% of reading)	1.0 LPM	<1 µg/m ³
Optional Particulate Counts	0.3, 0.5, 0.7, 1.0, 2.0, 3.0, 5.0, 10 microns	0-1000000 particles/L			
System Specifications					
Control System	Embedded fanless PC (Intel Celeron® N3350, 1.1GHz, dual core, 4GB RAM, 32GB SSD hard drive), Ubuntu Linux Operating System				
Communications ¹	Standard: WIFI, Ethernet (LAN) Optional modem: Cellular IP 3G HSPA or 4G LTE				
Software	<p>Aeroqual Connect instrument operating system.</p> <p>Aeroqual Cloud instrument monitoring, management and technical support via secure cloud servers, accessed via web browser (IE, Firefox, Chrome, Safari).</p> <ul style="list-style-type: none"> • Cloud standard features; configuration, calibration, diagnostics, remote technical support. • Cloud optional features; text (SMS) and email alerts, 3rd party sensor measurements, full data visualisation with charts, wind and pollution roses, data reporting with auto data export via FTP and API, full instrument event journal capture. 				
Data logging	32 GB Hard Drive (> 5 years data storage)				
Outputs	2 x Relay (optional), 4 x 4-20 mA (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 ²	100-260 VAC (standard): 30 ^a W / 24.7 ^b W, Regulated 12 VDC (if required): 33 ^a W / 27.2 ^b W				
Enclosure	Lockable IP65 GRP cabinet with integrated aluminum solar shield armor				
PM Sampling System	Inlet: Omni-directional 36 cm (14.1 inches) heated inlet Pump: 12 V brushless DC diaphragm				
Dimensions	483 H x 330 W x 187 D mm (19 H x 13 W x 7.4 D inches) Includes solar shield armor & mounting brackets				
Weight ³	< 13 kg (28.6 lbs)				
Environmental operating range	-10 °C to +45 °C (14 °F to 113 °F)				
Mounting	Pole, tripod and wall mounting brackets included				
47mm Sample Filter (Optional)	47 mm 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), BSWA 308 (sound level meter) Met-One BC-1060 (black carbon monitor), Met-One E-BAM PLUS (Beta-Attenuation Mass Monitor)				

¹ 4G LTE not available in all markets.

^{2,3} Configuration used for power and weight calculations: base unit, nephelometer, PM₁₀ sharp cut, modem, heater on.

^a Configured as per note 2, and incl. Moxa modem.

^b Configured as per note 2, and incl. Sierra modem.

⁴ Dimensions are for enclosure. PM sampling inlet with cyclone adds 360 mm (14.17") to total height.



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