aeroqual

DUST SENTRY

Near reference real-time particle monitor for specific dust fractions

Designed for environmental professionals 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 PM_{10}, $PM_{2.5}$, PM_1, or TSP.

MCERTS certified for PM_{10}, and SCAQMD 1466 pre-approved.

What is it?

- Reduce failure and downtime thanks to this robust purpose-built outdoor dust monitor
- 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 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?

- Specific dust fractions, wind, weather and noise

Who is it for?

- **Industrial operators** who need to manage dust and particulates 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 want defensible data 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 to collect accurate, scientifically robust data without the cost of a reference PM monitor

Specifications I Dust Sentry

Particle Module	Sizes	Range	Accuracy	Resolution	Lower Detectable Limit (2σ)
Nephelometer	PM_1, $PM_{2.5}$, PM_{10} or TSP	0 to 60,000 µg/m^3	<±(2 µg/m^3 + 5 % of reading)	0.1 ug/m^3	<1 µg/m^3
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	**Aeroqual Connect** instrument operating system. **Aeroqual Cloud** instrument monitoring, management and technical support via secure cloud servers, accessed via web browser (IE, Firefox, Chrome, Safari). • 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; Optional sharp cut cyclones for PM_{10}, $PM_{2.5}$ or PM_1 size selection Pump: 12 V brushless DC diaphragm Optics: 670 nm 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 armor & mounting brackets				
Weight[3]	< 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)	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, PM_{10} 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.

Sira MC130235/02