# Dust Sentry

## Specification Sheet

## 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

$PM_{10}$ $PM_{2.5}$ $PM_{1}$ TSP

### 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 | 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/m³ | ±(2 µg/m³ + 5% of reading) | 0.1 µg/m³ | 1 µg/m³ |

| 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 or 4G LTE |
| Software | **Aeroqual Cloud** – Choose a plan that is right for you<br>**Optimize:** Reduce site visits and improve data quality by managing your monitors and optimizing network performance remotely.<br>**Plus:** Stay one step ahead with enhanced features for viewing and sharing data, real-time alerts, and analysis.<br>Talk to our sales team to learn more about Aeroqual Cloud plans. |
| Data logging | 32 GB Hard Drive (> 5 years data storage) |
| 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): 24.7 W, Regulated 12 VDC (if required): 27.2 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 PM10, PM2.5 or PM1 size selection<br>Pump: 12 V brushless DC diaphragm<br>Optics: 670 nm laser, near-forward scattering nephelometer with sheath air protection |
| Dimensions[3] | 483 H x 330 W x 187 D mm (19 H x 13 W x 7.4 D inches)<br>Includes solar shield armor & mounting brackets |
| Weight[4] | < 13 kg (28.6 lbs) |
| Operating range | -10 °C to +50 °C (14 °F to 122 °F) |
| Mounting | Pole, tripod and wall mounting brackets included |
| Factory integrated sensors[5] | Gill WindSonic (ultrasonic wind sensor), Vaisala WXT536 (weather transmitter), Met One MSO (weather transmitter), Cirrus MK427 Class 1 (noise sensor), Novalynx Pyranometer (solar radiation) |
| Compatible tested sensors | 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
[2,4] Configuration used for power and weight calculations: base unit, nephelometer, $PM_{10}$ sharp cut, modem, heater on
[3] Dimensions are for enclosure. PM sampling inlet with cyclone adds 360 mm (14.17") to total height
[5] Optional