Dust Sentry

Specification Sheet

Near reference real-time particle monitor

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

The Dust Sentry with PCX delivers simultaneous measurement of TSP, PM₁₀, PM₄, PM₂₅ and PM₁. It is MCERTS certified for PM₁₀ and PM₂₅ and South Coast AQMD 1466 pre-approved for PM₁₀.

The Dust Sentry with nephelometer measures one PM fraction depending on the cyclone separator selected and is MCERTS certified and South Coast AQMD 1466 pre-approved for PM₁₀.

Benefits

- Set up and deploy in under 5 minutes get live data flowing to your PC or mobile
- Minimize downtime and failure with a purpose-built outdoor monitor
- Eliminate flow checks with integrated flow sensing and automated control (PCX)
- Reduce site visits with two-way communications that allow you to calibrate, remotely troubleshoot, upgrade software, and change settings
- Avoid invalid data caused by incorrect wind sensor orientation with a fully integrated self-orientating met sensor (optional)
- Power up with quick and easy interface to solar and battery systems
- Act swiftly before an exceedance occurs with realtime alerts

What can it measure?

Specific dust fractions, wind, weather and noise





aerooual®



Who is it for?

- Industrial site 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 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 | Particulate Matter Size Fractions | | Range | Display Resolution | LDL (2σ) | Precision | Accuracy | Zero Stability | Particle Size Range |
|---|---|--|---------------------------------------|----------------------------|-------------------|---------------------|-------------------------------|------------------------------------|------------------------|
| PCX1 | PM ₁ , PM _{2.5} , PM ₄ , PM ₁₀ <u>and</u> TSP | | 0 to 30,000 µg/m³ | 0.1 µg/m³ | 0.1 µg/m³ | ± 3% of reading | < 5% of reading | ± 0.1 µg/m³ over 24 hour period | 0.1 μm to 40 μm |
| Nephelometer PM ₁ , PM _{2.5} or TS | | , PM ₁₀ P | 0 to 60,000 µg/m³ | 0.1 µg/m³ | <1 µg/m³ | ± 1% of reading | ±(2 μg/m³ + 5% of reading) | ± 0.1 µg/m³ over 24 hour period | 0.1 µm to 40 µm |
| | | | | ç | System Specif | ications | | | |
| Control system | | Embedded PC with on board data storage (>5 years) | | | | | | | |
| Communications ² | | Standard: WIFI, Ethernet (LAN) Optional modem: Cellular IP 4G LTE, Integrated high gain antenna | | | | | | | |
| Software | | Talk to our sales team to learn more about Aeroqual Cloud plans. | | | | | | | |
| Averaging period | | User selectable-averaging interval from 1 min to 24 hr | | | | | | | |
| Power requirements ³ | | 100-260 VAC or 9-36VDC battery/solar: Power usage: 15 to 30 W max steady state (configuration dependent) | | | | | | | |
| Enclosure | | Lockable IP65 GRP cabinet with integrated aluminum solar shield armor, mounting bracket and (PCX) built in temp/RH sensor | | | | | | | |
| Dimensions | | Dust Sentry (PCX): 685 mm x 330 mm x 187 mm (27" x 13" x 7%") [HxWxD] Includes PM inlet Dust Sentry (Nephelometer): 843 mm x 330 mm x 187 mm (33" x 13" x 7½") [HxWxD] Includes PM inlet | | | | | | | |
| Weight⁴ | | < 13 kg (28.6 lbs) | | | | | | | |
| Operating range | | -10 °C to +45 °C (14 °F to 113 °F) Low temperature operation extendable with winterization pack | | | | | | | |
| Mounting | | Pole, tripod and wall mounting brackets included. Optional tripod mount available. | | | | | | | |
| Factory integrated sensors⁵ | | Gill WindSonic (ultrasonic wind sensor), Vaisala WXT536 (weather transmitter), Cirrus MK427 Class 1 (noise sensor), Novalynx Pyranometer (solar radiation), Airmar 200WX (weather station) | | | | | | | |
| Compatible tested sensors | | A wide range of other sensors can be connected including: Victron SmartSolar MMPT 100-20 (solar charge controller), BSWA 308 (sound level meter), Svantek SV971A (sound level meter). Contact Aeroqual for more information. | | | | | | | |
| Inputs/Outputs ⁶ | | 0-5V analog input, 4-20mA input, configurable relay output | | | | | | | |
| | | | | PN | 1 System Spec | cifications | | | |
| Inlet | | Omni-directional sample inlet with integrated heater | | | | | | | |
| Sample Flow | | 12 V brushless DC diaphragm with automated flow measurement and control system (PCX) | | | | | | | |
| | | PCX: 650 nm industrial laser, hemispherical-focusing OPC Nephelometer: 670 nm laser, near-forward scattering nephelometer | | | | | | | |
| Zero calibration Auto-zero on start-up and | | | and at user-select | at user-selected intervals | | | | | |
| | | | | | Compliar | ice | | | |
| In conformity wi | th EC Dire | ctives 20 | 014/30/EU and 2 | 2014/35/EU; FCC 4 | 47 CFR Part 15; F | RoHS 3 (EU2015/863) |), REACH | | |
| Certified Modules | | | MCERTS | MCERTS | | | South Coast AQMD rule 1466 | | |
| Dust Sentry PM ₁₀ Nephelometer | | | Yes - Sira M | 1C130235/02 | | Yes | ; | | |
| Dust Sentry PCX | | | PM ₁₀ PM _{2.5} | | | Yes N/A | | | |

 1 Representative values for $\rm PM_{25'}$ for individual channel performance please see the Aeroqual Technical Performance Guide 24G LTE not available in all markets

³⁴ Configuration used for power and weight calculations: base unit, PCX, modem, heater on ⁵ Optional

⁶ Available with optional PDI Core upgrade

