

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, PM_{2.5} and PM₁. It is MCERTS certified for PM₁₀ and PM_{2.5} 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 real-time alerts

What can it measure?

- Specific dust fractions, wind, weather and noise



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
PCX ¹	PM ₁ , PM _{2.5} , PM ₄ , PM ₁₀ and TSP	0 to 30,000 µg/m ³	0.1 µg/m ³	0.1 µg/m ³	± 3% of reading	< 5% of reading	± 0.1 µg/m ³ over 24 hour period	0.1 µm to 40 µm
Nephelometer	PM ₁ , PM _{2.5} , PM ₁₀ or TSP	0 to 60,000 µg/m ³	0.1 µg/m ³	<1 µg/m ³	± 1% of reading	±(2 µg/m ³ + 5% of reading)	± 0.1 µg/m ³ over 24 hour period	0.1 µm to 40 µm

System Specifications		
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 7½") [HxWxD] Includes PM inlet Dust Sentry (Nephelometer): 843 mm x 330 mm x 187 mm (33" x 13" x 7½") [HxWxD] Includes PM inlet	
Weight ⁴	< 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 sensors ⁵	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	
PM System Specifications		
Inlet	Omni-directional sample inlet with integrated heater	
Sample Flow	12 V brushless DC diaphragm with automated flow measurement and control system (PCX)	
Optics	PCX: 650 nm industrial laser, hemispherical-focusing OPC Nephelometer: 670 nm laser, near-forward scattering nephelometer	
Zero calibration	Auto-zero on start-up and at user-selected intervals	
Compliance		
In conformity with EC Directives 2014/30/EU and 2014/35/EU; FCC 47 CFR Part 15; RoHS 3 (EU2015/863), REACH		
Certified Modules	MCERTS	South Coast AQMD rule 1466
Dust Sentry PM ₁₀ Nephelometer	Yes - Sira MC130235/02	Yes
Dust Sentry PCX	PM ₁₀ PM _{2.5}	Yes N/A

¹ Representative values for PM_{2.5}; for individual channel performance please see the Aeroqual Technical Performance Guide

² 4G LTE not available in all markets

^{3,4} Configuration used for power and weight calculations: base unit, PCX, modem, heater on

⁵ Optional

⁶ Available with optional PDI Core upgrade

