Dust Sentry

easy

aeroqual

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, PM_{10}, PM_4, $PM_{2.5}$ and PM_1. It is MCERTS certified (pending) for PM_{10} and $PM_{2.5}$ and South Coast AQMD 1466 pre-approved for PM_{10}.

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 PM_{10}.
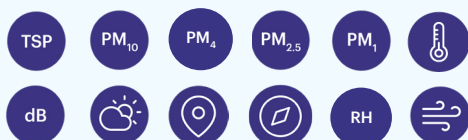
Benefits

- 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

TSP · PM_{10} · PM_4 · $PM_{2.5}$ · PM_1

dB · RH

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 $\mu g/m^3$	0.1 $\mu g/m^3$	0.1 $\mu g/m^3$	± 3% of reading	< 5% of reading	± 0.1 $\mu g/m^3$ over 24 hour period	0.1 μm to 40 μm
Nephelometer	PM_1, $PM_{2.5}$, PM_{10} or TSP	0 to 60,000 $\mu g/m^3$	0.1 $\mu g/m^3$	<1 $\mu g/m^3$	± 1% of reading	±(2 $\mu g/m^3$ + 5% of reading)	± 0.1 $\mu g/m^3$ 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 7⅜") [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), Met One MSO (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) and 4-20mA output devices. Contact Aeroqual for more information.

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} Pending $PM_{2.5}$ Pending	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

Dust Sentry PM_{10}

mCERTS
Sira MC130235/02
CE C FC