AQS 1

Specification Sheet

Near reference real-time monitor for particulates plus O_3/NO_2/CO/SO_2/H_2S/VOC

Designed for environmental professionals who need to monitor and manage specific outdoor dust and particulates, and gases continuously and in real- time.

The AQS 1 delivers affordable and defensible measurement of PM_{10}, $PM_{2.5}$, PM_1, TSP, and up to three gases, O_3, NO_2, CO, SO_2 , H_2S and VOC, all simultaneously.

MCERTS certified for PM_{10} by the UK Environment Agency.

What is it?

- Reduce failure and downtime thanks to this robust purpose-built outdoor monitor for dust and gaseous pollutants

- Industry-leading gas sensing technology from Aeroqual comes fully integrated in the same compact format

- 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 AQS 1 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 VOC NO_2 H_2S

O_3 CO SO_2 dB

Who is it for?

- Industrial operators who need to manage dust and particulates from site activities, within regulatory or permitted limits:

    - Construction and remediation

    - Oil and gas facilities

    - 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 | AQS 1

Particle module	Sizes	Range	Accuracy	Resolution	Lower Detectable Limit (2σ)
Nephelometer	PM_1, $PM_{2.5}$, PM_{10} <u>OR</u> TSP	0 to 60,000 µg/m³	±(2 µg/m³ + 5% of reading)	0.1 µg/m³	1 µg/m³
Profiler (Optical Particle Counter)	PM_1, $PM_{2.5}$, PM_{10} <u>AND</u> TSP	PM_1 200 µg/m³ $PM_{2.5}$ 2000 µg/m³ PM_{10} 5000 µg/m³ TSP 5000 µg/m³	±(5 µg/m³ + 15% of reading)	0.1 µg/m³	1 µg/m³
	Optional Particulate Counts: 0.3, 0.5, 0.7, 1.0, 2.0, 3.0, 5.0, 10 microns (counts range: 0-100,000 counts/L)				

Gas module	Range	Display Resolution	Noise Zero; Span % of reading	Lower Detection Limit (2σ)	Precision	Linearity (% of FS)	Drift 24 hour Zero; Span % of FS
Ozone O_3	0-500 ppb	0.1 ppb	1 ppb; 1%	1 ppb	2% of reading or 2 ppb	1.5"%	1 ppb; 0.2%
Nitrogen dioxide NO_2	0-500 ppb	0.1 ppb	1; 1%	1 ppb	2% of reading or 2 ppb	1"%	1 ppb; 0.2%
Carbon Monoxide CO	0-25 ppm	0.001 ppm	0.02 ppm; 1%	0.04 ppm	3% of reading or 0.05 ppm	1%	0.14 ppm; 2%
VOC (Low range)	0-500 ppb	0.1 ppb	1 ppb; 1%	1 ppb	2% of reading or 1 ppb	1%	1 ppb; 1%
VOC (High range)	0-30 ppm	0.01 ppm	0.1 ppm; 1%	0.05 ppm	2% of reading or 0.05 ppm	2%	0.1 ppm; 1%
Hydrogen Sulfide H_2S	0-10,000 ppb	0.1 ppb	1 ppb; 0.1%	2 ppb	1% of reading or 3 ppb	0.5%	1 ppb; 0.5%
Sulphur Dioxide SO_2	0-10,000 ppb	1 ppb	1 ppb; 0.02%	2 ppb	0.14% of reading	0.6%	1 ppb; 0.3%

System specifications	
Control system	Embedded fanless PC (Intel Celeron® N3350, 1.6GHz, dual core, 4GB RAM, 32GB SSD hard drive), Ubuntu Linux Operating System
Communications[1]	Standard: WIFI, Ethernet (LAN) Optional modem: Cellular IP 4G LTE
Software	**Aeroqual Cloud** – Choose a plan that is right for you **Optimize**: Reduce site visits and improve data quality by managing your monitors and optimizing network performance remotely. **Plus**: Stay one step ahead with enhanced features for viewing and sharing data, real-time alerts, and analysis. 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): 31.3 W Regulated 12 VDC (if required): 34.3 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 Pump: 12 V brushless DC diaphragm 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) Includes solar shield armor & mounting brackets
Weight[4]	< 13 kg (28.6 lbs)
Operating range	-10 °C to +45 °C (14 °F to 113 °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