

# AQS 1

## Near reference real-time monitor for particulate fractions plus O<sub>3</sub>/NO<sub>2</sub>/VOC

Designed for those 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<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>, TSP, and up to three gases, all simultaneously.



### What is it?

- A robust weather-proof monitor with integrated solar shielding for outdoor monitoring of dust, VOCs and other gases
- A modular and configurable monitoring platform for measurement and compliance of a targeted particulate and gases, and the option to integrate environmental sensors e.g. wind, noise, weather, and solar
- A flexible communications platform that transfers real-time data wirelessly, and gives you access through an API
- A web interface accessed via browser on any device, see all your data in one place and set email / SMS alerts on parameters of concern

### What can it measure?

- Particulates, up to three gases, wind meteorology, and noise



### Who is it for?

- **Industrial operators** who need a cost-effective and robust solution to manage and control dust and VOC emissions from site activities within regulatory or permitted limits:
  - Construction and remediation
  - Quarry and mine operators
  - Port and bulk handling terminals
  - Waste management sites
- **Air quality professionals** who need a real-time alternative to diffusion tubes and dust samplers, or a more affordable alternative to analyzers for environmental impact assessments
- **Regulatory authorities** who require deployable, rapid response incident monitoring
- **EHS managers** who need to demonstrate that they are providing a safe environment for the people in their care

# Specifications | AQS 1

Particle Module	Sizes	Range	Accuracy	Resolution	Lower Detectable Limit (2σ)
Nephelometer	PM <sub>1</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> or TSP	0 to 60,000 µg/m <sup>3</sup>	<±(2 µg/m <sup>3</sup> + 5% of reading)	0.1 µg/m <sup>3</sup>	<1 µg/m <sup>3</sup>
Profiler (OPC)	PM <sub>1</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> and TSP	PM <sub>1</sub> 200 µg/m <sup>3</sup>	<±(5 µg/m <sup>3</sup> + 15% of reading)	1.0 LPM	<1 µg/m <sup>3</sup>
		PM <sub>2.5</sub> 2000 µg/m <sup>3</sup>			
		PM <sub>10</sub> 5000 µg/m <sup>3</sup>			
		TSP 5000 µg/m <sup>3</sup>			

Optional particulate counts: 0.3, 0.5, 0.7, 1.0, 2.0, 3.0, 5.0, 10 microns

Gas Module	Range	Resolution (ppb)	Noise	Lower Detection Limit / ppb	Precision	Linearity (% of FS)	Drift 24 hour
			Zero / ppb; Span % of reading				Zero / ppb; Span % of FS
Ozone O <sub>3</sub>	0-500 ppb	0.1	<1 <1%	1	<2% of reading or 2 ppb	<1.5%	1; 0.2%
Nitrogen dioxide NO <sub>2</sub>	0-500 ppb	0.1	1 <1%	2	<2% of reading or 3 ppb	<2.0%	2; 1%
VOC (Low range)	0-500 ppb	0.1	1 <1%	<1	<2% of reading or 1 ppb	<1.0%	1; 1%
VOC (High range)	0-30 ppm	10	<100; <0.20 or 1%	<50	<2% of reading or 20 ppb	<2.0%	100; 1%

System Specifications	
Control System	Embedded fanless PC, Intel Atom N2600, 1.6 GHz, 2 GB RAM, 32 GB SSD, Ubuntu Linux Operating System
Communications	Standard: WIFI, Ethernet (LAN) Optional: Cellular IP HSPA 4G modem
Software	Connect: Runs on embedded PC, access via browser (IE, Firefox, Chrome, Safari) Connect Features: Configuration, diagnostics, journal, calibration and data acquisition, Cloud: Runs on secure 'cloud' servers, accessed via web browser Cloud Features: All Connect features plus; SMS and email alerts, auto data export via FTP and email and API
Data logging	32 GB Hard Drive (>5 years data storage)
Outputs	2 x Relay (optional) 4 x 4-20mA (optional)
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	100-260 VAC (standard): 21W / 30W* Regulated 12 VDC (if required): 21W / 30W*
Enclosure	Lockable IP65 GRP cabinet with integrated aluminium solar shield armour
PM Sampling System	Inlet: Omni-directional 36cm (14.1 inches) heated inlet; Optional sharp cut cyclones for PM <sub>10</sub> , PM <sub>2.5</sub> or PM <sub>1</sub> size selection Pump: 12V brushless DC diaphragm Optics: 670nm laser, near-forward scattering nephelometer with sheath air protection
Gas Sampling System	Inlet: Teflon, glass-coated stainless steel Pump: 12V brushless DC diaphragm
Dimensions	483 H x 330 W x 187 D mm (19 H x 13 W x 7.4 D inches) Includes solar shield armour & mounting brackets
Weight	<13 kg (28.6 lbs)
Environmental operating range	-10°C to +45°C (14°F to 122°F)
Mounting	Pole, tripod and wall mounting brackets included
Factory Integrated & Tested Sensors (Optional)	Gill WindSonic (ultrasonic wind sensor), Vaisala WXT536 (weather transmitter), Met One MSO (weather transmitter), Cirrus MK427 Class 1 (noise sensor), Novalynx Pyranometer (solar radiation)

\* Configuration used for power and weight calculations: base unit, nephelometer, PM<sub>10</sub> sharp cut, O<sub>3</sub> module, modem, heater off / heater on

