



## AQM 60

### Environmental Air Quality Monitor



AQM 60 system installed in an external/outdoor enclosure and configured with multi-gas sensor module, zero-air scrubber, Programmable Logic Controller (PLC) and power supply module



AQM 60 multi-gas sensor module with cover removed to show sampling pump, microcontroller module, four gas sensor modules plus temperature and humidity




**AQM 60 is an integrated multi-gas monitor capable of delivering high quality data for up to six gases in ambient air environments. The modular design lends itself to customised configuration and allows simplified maintenance. Other components including communications, anemometers, solar power units, particulate monitors and weather sensors can be integrated with the AQM 60. Sensors are specifically calibrated for outdoor environmental or indoor air quality applications. Low power and spatial requirements allow the unit to be portable or deployed unobtrusively in urban areas or in remote sites.**

### Features

- Analytic GSS Technology ®
- Multi-gas monitoring (up to six gases)
- High quality data in real-time
- Active sampling system
- RS 232 / 485 data polling or pushing
- PC data logging software
- Automatic baseline calibration
- Low power and spatial requirements
- Modular engineered design
- Low maintenance system
- PLC and data logger options
- Outdoor enclosure options
- Temperature and humidity option
- Wind speed and direction option
- GSM or RF modem options

### Applications

- Urban air quality monitoring
- Industrial air quality monitoring
- Tunnel and roadside monitoring
- Indoor air quality monitoring
- Trend analysis and hotspot screening
- Perimeter and point source monitoring
- Landfills, wastewater and petrochemical plants
- Weather stations

		Range	Resolution
<b>Gas sensors</b> Contact Aeroqual for other calibrations	<b>Ozone (Ultra-low)</b> <b>Ozone (Low)</b> <b>Nitrogen dioxide</b> <b>Carbon monoxide</b> <b>Sulphur dioxide</b> <b>VOC (Non-Methane Hydrocarbon)</b> <b>VOC (Toluene)</b> <b>Hydrogen sulphide</b> <b>Ammonia</b> <b>Halogenated hydrocarbons</b> <b>Carbon dioxide (NDIR)</b>	0 - 150 ppb 0 - 500 ppb 0 - 200 ppb 0 - 100 ppm 0 - 10 ppm 0 - 25 ppm 0 - 500 ppm 0 - 10 ppm 0 - 100 ppm 0 - 500 ppm 0 - 2000 ppm	1 ppb 1 ppb 1 ppb 0.1 ppm 0.01 ppm 0.1 ppm 1 ppm 0.01 ppm 1 ppm 1 ppm 10 ppm
<b>Zero air scrubber</b>	<b>Triple media</b>	Hopcalite, activated carbon and alumina	
<b>Zero calibration</b>		Programmable or external activation	
<b>Pump</b>		Brushless rotary vane	
<b>Sample gas line materials</b>		PFA Teflon, PTFE, Kynar	
<b>Connections</b>	<b>Air inlet / exhaust</b> <b>Power</b> <b>Communications</b>	3 mm Kynar barb 4-way M12 female DB 9 female	
<b>Communications</b>	<b>RS232 or RS485</b> (analog 0-5 V outputs optional)	Data polling or pushing	
<b>Data sampling rate</b>		2 minutes	
<b>Power requirements</b>		24VDC / 1A	
<b>Enclosure (internal)</b>	<b>Fibre Reinforced Polycarbonate (FRP)</b>	361 x 254 x 165 mm	
<b>Weight</b>	<b>AQM 60 Sensor Enclosure</b>	< 10 Kg	
<b>Approvals</b>	<b>Part 15 of FCC Rules</b> <b>EN 61000-6-3: 2001</b> <b>EN 61000-6-1: 2001</b>	  	
<b>Temperature &amp; humidity option</b>	<b>Temperature sensor</b> <b>Relative humidity sensor</b>	-20°C - 100°C 0 - 100% RH	0.01°C 1%
<b>Data logger module option</b>	<b>Removable flashcard</b> <b>Flashcard reader</b>	1.0 GB USB	
<b>Display module option</b>	<b>Vacuum Florescent Display (VFD)</b>	4-line / 20-column	
<b>Power module option</b>	<b>Switch mode power input</b>	100 - 260 VAC	
<b>Sonic anemometer option</b>	<b>Wind speed</b> <b>Wind direction</b>	0 - 60 m/s 0 - 359°	0.01 m/s 1°
<b>Outdoor enclosure option</b>	<b>Fibre Reinforced Polycarbonate (FRP)</b>	515 x 415 x 230 mm + mountings IP66 (NEMA type 4)	
<b>Communication module options</b>	<b>GSM modem</b> <b>RF modem</b> <b>Wireless LAN</b>	Dualband 900/1800 MHz (excludes SIM) 433, 900, 1800, 2400 MHz 802.11	
<b>Other options</b>	<b>Enclosure heating / cooling modules</b> <b>Programmable Logic Controller</b> <b>Particulate monitor integration</b> <b>Solar power system</b>	Contact Aeroqual for specifications	

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# aeroqual<sup>®</sup>

## AQM65

### Compact Air Quality Monitoring Station

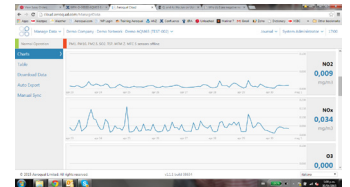
Accurate real-time air quality information, made affordable

Now you can measure outdoor air pollutants in real-time with high data quality, at a price you can afford. The AQM 65 enables Near Reference performance for 3-5 times less cost than traditional reference stations built on analyzers. Compared to cheap alternatives the AQM 65 offers much higher levels of data quality and can be calibrated in the field against certified reference standards for maximum traceability.

The AQM 65 is customized to measure the parameters your application demands. Choose from: criteria pollutants ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter (TSP, PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>); other special interest pollutants: volatile organic compounds (VOC), hydrogen sulfide (H<sub>2</sub>S), carbon dioxide (CO<sub>2</sub>); plus sensors for noise and meteorological parameters such as temperature, humidity, wind speed and direction, barometric pressure, precipitation and solar radiation.



Now with FREE web-based data & diagnostics software



#### Key Features

- Real-time measurement of common pollutants to WHO air quality standards
- Can be installed by one person in less than 30 min.
- Compact size creates new possible monitoring locations
- Remote data acquisition system with fail safe on board storage
- Network mode for urban and national air monitoring
- Modularity allows addition of sensors as needs change
- Temperature control permits long-term operation in extreme climates
- Can be calibrated onsite to traceable reference standards
- Optional integrated and automatic calibration
- Optional plug and play environmental sensors

#### Applications

- Urban and national air monitoring networks
- Industrial perimeter monitoring: petrochemical, power plants, waste sites, mining, heavy industry, airports, ports, railways, construction sites
- Near road: motorways, street canyons, traffic information systems
- Mobile vehicle-mounted monitoring
- Short term monitoring of 'hot spots'
- Community exposure: epidemiological studies, microenvironment, residential, schools, hospitals
- Environmental Impact Assessments

# AQM 65 Specifications

Gas Modules	Range (ppm)	Resolution	Noise Zero / ppm; Span % of reading	Lower detectable limit / ppm	Precision	Linearity (% of FS)	Drift 24 hour Zero / ppm; Span % of FS
Ozone O <sub>3</sub>	0-0.5	0.001	<0.001 <1%	0.001	<2% of reading or 0.002 ppm	<1%	0.001; 0.2%
Nitrogen Dioxide NO <sub>2</sub>	0-0.2	0.001	<0.001; <1%	0.001	<3% of reading or 0.003 ppm	1%	0.001; 0.2%
Carbon Monoxide CO	0-25	0.001	0.020; <1%	0.040	<3% of reading or 0.050 ppm	<1%	0.02; 0.2%
Sulfur Dioxide SO <sub>2</sub>	0-10	0.001	0.004; <2%	0.009	<3% of reading or 0.009 ppm	1%	0.001; 0.2%
Nitrogen Oxides NO <sub>x</sub>	0-0.5	0.001	<0.001; <1%	0.001	<3% of reading or 0.003 ppm	1%	0.001; 0.2%
Hydrogen Sulfide H <sub>2</sub> S	0-10	0.001	0.006; <2%	0.012	<3% of reading or 0.012 ppm	1%	0.001; 0.6%
Carbon Dioxide CO <sub>2</sub>	0-2000	1	<5; <1%	10	<3% of reading or 10 ppm	2%	1; 0.6%
Volatile Organic Compounds VOC	0-20	0.001	0.005; <1%	0.010	<2% of reading or 0.010 ppm	<1%	0.005; 0.2%

Particle Modules	Sizes	Range	Accuracy	Flow Rate	Lower Detectable Limit (2σ)
Particle Monitor (nephelometer)	PM <sub>1</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> or TSP	0 to 2000 µg/m <sup>3</sup>	<±(2 µg/m <sup>3</sup> + 5% of reading)	2.0 LPM	<1 µg/m <sup>3</sup>
Particle 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> 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>	<±(5 µg/m <sup>3</sup> + 15% of reading)	1.0 LPM	<1 µg/m <sup>3</sup>

System Specifications	
Control System	Embedded fanless PC, Intel Atom N2600, 1.6GHz, 2GB RAM, 32GB SSD, Ubuntu Linux
Communications	Standard: WIFI, Ethernet (LAN) Optional: Cellular IP GPRS modem
Gas Sampling System	Inlet: Teflon, glass-coated stainless steel Pump: 12V brushless DC diaphragm
Thermal Management System	Direct current compressor, R134a refrigerant, 12-24V 60W resistance heater
Software	Connect: runs on embedded PC, accessed via web browser (IE, Firefox, Chrome, Safari) Cloud: runs on secure 'cloud' servers, accessed via web browser Connect / Cloud Features: configuration, diagnostics, journal, calibration and data acquisition, plus SMS and email alerts (optional), and auto data export via FTP and email (optional)
Power Requirements	90*-264VAC, 47-63Hz Typical draw: 100W** (depends on configuration and ambient temperature)
Enclosure	Outer: IP65 rated aluminium skin with solar reflective coating Inner: 40-50 mm layer of cross-linked PE foam insulation
Dimensions	Standard: 1310Hx510Wx280D mm (includes inlet) With AirCal 8000: 1310Hx655WX280D mm Weight (installed): 30 Kg**
Environmental Operating Range	Temperature: -35°C to +50°C
Gas Calibration (optional)	Portable: AIRCAL 1000 with gas dilution module and zero air source Integrated: AIRCAL 8000 integrated system with gas dilution module, zero air source, 2 x regulators and span gas storage (excl. gas cylinders)
Factory Integrated & Tested Sensors (optional)	Gill WindSonic (ultrasonic wind sensor) Vaisala WXT520 (weather transmitter) Met One MSO (weather transmitter) Cirrus MK427 Class 1 (noise monitor) Novalynx Pyranometer (solar radiation)
Conformity	Power Supply : EN55015, EN55022 Class B, EN61000-3-2,3, EN61000-4-2,3,4,5,6,8,11, ENV50204, EN61547, EN61347-1, EN61347-2-13; UL1012, UL60950-1; TUV EN60950-1 Gas Modules : Part 15 FCC Rules, 2004/108/EC; EN 61000-6-1: 2001, EN 61000-6-3: 2001 Particle Monitor & Profiler : Class 1 laser; IEC 60825-1:1998; 72/23/EEC; EN 61010-1; EN 60825-1:1996; US 21 CFR 1040.10

\*Power supply efficiency derates at high ambient T (>50°C). Need 110VAC minimum at above 50°C.

\*\*Configuration used for power consumption and weight: Embedded PC, Sample Pump, System Manager, NOx, NO2, O3, CO, PM10 + inlet heater, SO2, H2S (43W internal load); Internal temperature set point = 30°C, Ambient temperature used is 30°C.