aeroqual

# AQM 65 BTEX


## Near reference real-time monitor for BTEX, gases, and particulate fractions

The AQM 65 BTEX is an all-in-one premium air monitoring solution that combines best in class BTEX sensing technology with near reference particulate and gas measurement available in the rugged AQM hardware and software system.

Continuously measure air pollutants including BTEX, $O_3$, $NO_2$, $NO_x$, CO, $SO_2$, VOC, $H_2S$, $CO_2$, TSP, $PM_{10}$, $PM_{2.5}$, $PM_1$, noise and meteorological parameters such as rainfall, temperature, humidity, pressure, wind speed and direction. MCERTS certified for $PM_{10}$.

## What is it?

- Real-time detection of speciated benzene, toluene, ethylbenzene and xylene in ambient air at sub-ppb levels
- Proven long term performance in extreme climates with purpose-built enclosure and advanced temperature and humidity control
- Reduce site visits using two-way communications- remotely troubleshoot, upgrade software, change settings, and calibrate
- More siting options as the system size is smaller without bulky carrier gas bottles
- Respond in real-time via configurable email / SMS alerts

## What can it measure?

- Multiple gases, dust fractions, wind, weather and noise


## Who is it for?

- Environmental consultants and industrial operators who need to ensure and demonstrate safe operation of site activities to stakeholders.
    - Remediation sites contaminated with petrochemicals
    - Fenceline monitoring of oil and gas facilities and pipelines
- Environmental protection agencies who need to manage the concerns of communities living close to potential BTEX sources such as oil and gas facilities, remediation sites, and chemical plants.

## How we measure BTEX

The BTEX analyzer uses Micro-Electro-Mechanical-System (MEMS) technology and microfluidics for its pre-concentration and chromatographic separation. The detector is a robust photo-ionization detector (PID). The system uses ambient air as the carrier gas.

Real-time micro gas chromatograph module

| Gas module | Range | Resolution | Noise Zero; Span % of reading | Lower Detection Limit (2σ) | Drift 24 hour Zero; Span % of FS |
|---|---|---|---|---|---|
| BTEX | 0.1 - 50 ppb | 0.01 ppb | 0.05 ppb | 0.1 ppb | <2% FS |

Values apply to Benzene, Toluene, Ethylbenzene, Xylene, and calculated with a 15 min cycle time

# Specifications | AQM 65 BTEX

| Gas module | Range | Resolution | Noise<br>Zero; Span<br>% of reading | Lower Detection Limit (2σ) | Precision | Linearity (% of FS) | Drift 24 hour<br>Zero;<br>Span % of FS |
|---|---|---|---|---|---|---|---|
| Ozone $O_3$ | 0-500 ppb | 0.1 ppb | 1 ppb;<br>1 % | 1 ppb | 2 % of reading or 2 ppb | 1.5 % | 1 ppb;<br>0.2 % |
| Nitrogen dioxide $NO_2$ | 0-500 ppb | 0.1 ppb | 1<br>1 % | 1 ppb | 2 % of reading or 2 ppb | 1 % | 2 ppb;<br>1 % |
| Carbon Monoxide CO | 0-25 ppm | 0.001 ppm | 0.02 ppm;<br>1 % | 0.02 ppm | 3 % of reading or 0.050 ppm | 1 % | 0.02 ppm;<br>0.2 % |
| Sulfur Dioxide $SO_2$ | 0-10000 ppb | 1 ppb | 4 ppb;<br>2 % | 9 ppb | 3 % of reading or 9 ppb | 1 % | 1 ppb;<br>0.2 % |
| Nitrogen Oxides $NO_X$ | 0-500 ppb | 0.1 ppb | 1 ppb;<br>1 % | 1 ppb | 3 % of reading or 3 ppb | 1 % | 1 ppb;<br>0.2 % |
| Hydrogen Sulfide $H_2S$ | 0-10000 ppb | 0.1 ppb | 6 ppb;<br>2% | 12 ppb | 3 % of reading or 12 ppb | 1 % | 1 ppb;<br>0.6 % |
| Carbon Dioxide $CO_2$ | 0-2000 | 1 ppm | 5 ppm;<br>1 % | 10 ppm | 3 % of reading or 10 ppm | 2 % | 1 ppm;<br>0.6 % |
| VOC (Low range) | 0-500 ppb | 0.1 ppb | 1 ppb<br>1 % | 1 ppb | 2 % of reading or 2 ppb | 1 % | 1 ppb;<br>1 % |
| VOC (High range) | 0-30 ppm | 0.01 ppm | 0.1 ppm;<br>1 % | 0.05 ppm | 2 % of reading or 0.05 ppm | 2 % | 0.1 ppm;<br>1 % |

| Particle module | Sizes | Range | Accuracy | Resolution | Lower Detectable Limit (2σ) |
|---|---|---|---|---|---|
| Nephelometer | $PM_1$, $PM_{2.5}$, $PM_{10}$ OR TSP | 0 to 60,000 µg/m³ | ±(2 µg/m³ + 5% of reading) | 0.1 µg/m³ | 1 µg/m³ |
| Profiler<br>(Optical Particle Counter) | $PM_1$, $PM_{2.5}$, $PM_{10}$ AND TSP | $PM_1$ 200 µg/m³<br>$PM_{2.5}$ 2000 µg/m³<br>$PM_{10}$ 5000 µg/m³<br>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) | | | | |

| System specifications | |
|---|---|
| Control system | Embedded fanless PC (Intel Celeron® N3350, 1.1GHz, dual core, 4GB RAM, 32GB SSD hard drive), Debian Linux Operating System |
| Communications[1] | Standard: WIFI, Ethernet (LAN) Optional modem: Cellular IP 3G HSPA or 4G LTE |
| Software | **Aeroqual Cloud** – Choose a plan that is right for you<br>**Optimize:** Reduce site visits and improve data quality by managing your monitors and optimizing network performance remotely.<br>**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] | 90 - 264 Vac, 47 - 63 Hz Typical draw: 100 W (depends on configuration and ambient temperature) |
| Enclosure | Outer: IP65 rated aluminum skin with solar reflective coating Inner: 40 - 50 mm (1.6 - 2 “) layer of cross-linked PE foam insulation |
| Gas sampling system | Inlet: Teflon, glass-coated stainless-steel Pump: 12 V brushless DC diaphragm |
| PM sampling system | Inlet: Omni-directional 36 cm (14.1 inches) heated inlet; Optional sharp cut cyclones for $PM_{10}$, $PM_{2.5}$ or $PM_1$ size selection<br>Pump: 12 V brushless DC diaphragm<br>Optics: 670 nm laser, near-forward scattering nephelometer with sheath air protection |
| Dimensions[3] | Standard: 1310 H x 510 W x 280 D mm (51.6 H x 20 W x 11 D “) |
| Weight[4] | < 30 Kg |
| Operating range | -35 °C to +50 °C (-31 °F to 122 °F) |
| Mounting | Pole, tripod and wall mounting brackets included |
| 47mm sample filter[5] | 47 mm filter for particle loading analysis |
| 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