Aeroqual AQY 1

Air quality measurement that’s smart and accurate

A ‘low cost’ air quality monitoring solution, the AQY 1 gives you air quality information that’s scientifically credible, and relevant to where you live, work and play. Set up as a single device or deployed in a network of monitors, the AQY 1 reports key urban pollutants in real-time. Accurate air quality data passes through a flexible communications platform and is available to view through our software or yours. Throughout you will be supported by a team of air quality experts who are leading innovators in the field.

What is it?

• A small weather-proofed monitor that measures and reports key urban air pollutants and environmental parameters in real-time

• A flexible communications platform that transfers real-time data wirelessly, and gives you access through an API

• A web interface accessed via browser on your phone, tablet or PC, where you can see all your data in one place and set alerts on parameters of concern

• A remote technical support service that maximises the useful life of the sensors while keeping high quality data flowing

What does it measure?

Ozone, Particulate Matter (PM<sub>2.5</sub> & PM<sub>10</sub>), Nitrogen Dioxide, Temperature, Humidity & Dewpoint

Who is it for?

• Smart cities who want air quality and environmental data to show that their city is an attractive place to live, work and invest in

• Air quality professionals who need a real-time alternative to diffusion tubes and samplers, or a more affordable alternative to analyzers

• Community groups who need a cost-effective way to gather scientifically credible air quality data that will be treated with respect by their stakeholders

• Educators who want students to learn about air pollution in a way that supports STEM subjects and promotes environmental awareness

• Health and safety managers who need to demonstrate that they are providing a safe environment for the people in their care

• Researchers who want to collect as much scientifically robust data as possible on a limited budget
### AQY 1 specifications

<table>
<thead>
<tr>
<th>PARTICLE SENSING</th>
<th>SIZES</th>
<th>RANGE</th>
<th>ACCURACY</th>
<th>LOWER DETECTABLE LIMIT (2σ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser scattering</td>
<td>PM$_{2.5}$</td>
<td>0 to 1000 μg/m$^3$</td>
<td>&lt;±(10 μg/m$^3$ + 5% of reading)</td>
<td>&lt;1 μg/m$^3$</td>
</tr>
<tr>
<td></td>
<td>PM$_{10}$</td>
<td>0 to 1000 μg/m$^3$</td>
<td>&lt;±(10 μg/m$^3$ + 10% of reading)</td>
<td>&lt;1 μg/m$^3$</td>
</tr>
</tbody>
</table>

### GAS SENSING

<table>
<thead>
<tr>
<th>GAS SENSING</th>
<th>RANGE (ppb)</th>
<th>RESOLUTION / ppb</th>
<th>NOISE ZERO / ppb; SPAN % OF READING</th>
<th>LOWER DETECTION LIMIT / ppb</th>
<th>PRECISION &lt;4% of reading or 4 ppb</th>
<th>LINEARITY (% OF FS)</th>
<th>DRIFT 24 HOUR ZERO / ppb; SPAN % OF FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone (O$_3$)</td>
<td>0-200</td>
<td>1</td>
<td>&lt;1 &lt;2%</td>
<td>1</td>
<td>&lt;4%</td>
<td>3%</td>
<td>&lt;2; 1%</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO$_2$)</td>
<td>0-500</td>
<td>1</td>
<td>&lt;2 &lt;4%</td>
<td>2</td>
<td>&lt;8%</td>
<td>8%</td>
<td>&lt;4; 1%</td>
</tr>
</tbody>
</table>

### SYSTEM SPECIFICATIONS

- **Control System**: Single board computer, 1.2GHz quad-core, 1GB SDRAM, 16GB SDHC Storage, Linux Operating System
- **Communications**: Standard: WIFI, 3/3.5/4G cellular modem
- **Software**:
  - Connect: for setup and field service. Installed on device and accessed via web browser
  - Cloud: for instrument and data management. Runs on secure ‘cloud’ servers, accessed via web browser. Features: configuration, diagnostics, journal, calibration and data acquisition, plus SMS and email alerts, auto data export via FTP and email, and data export API
- **Data logging**: 16GB SDHC Storage (>2 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 system**: 12VDC plug pack (90 to 260VAC input) 24W (rated for -10°C to 40°C)
  - Cable: 5m
- **Enclosure**: Weather proof IP33 with solar shield
- **PM Sampling System**: Inlet: 4cm anti-static inlet
  - Sampling: 5V DC fan
- **Gas Sampling System**: Inlet: Teflon, stainless steel
  - Sampling: 5V DC fan
- **Dimensions**: 215H x 170W x 125D mm (including solar shield armour & mounting brackets)
- **Weight**: <1 kg
- **Environmental operating range**: -10°C to +40°C
- **Mounting**: Mounting bracket included for pole, tripod or wall
- **Life expectancy**: System: 5 years
  - Sensors: ~12months based on 0-50 μg/m$^3$ annual average PM$_{10}$
- **Other measurements**:
  - Temperature: -40°C to 125°C, Relative Humidity: 0 to 100%; Dewpoint: -30°C to 50°C