

AQBot[™]

Industrial Grade Single Parameter Air Quality Monitor



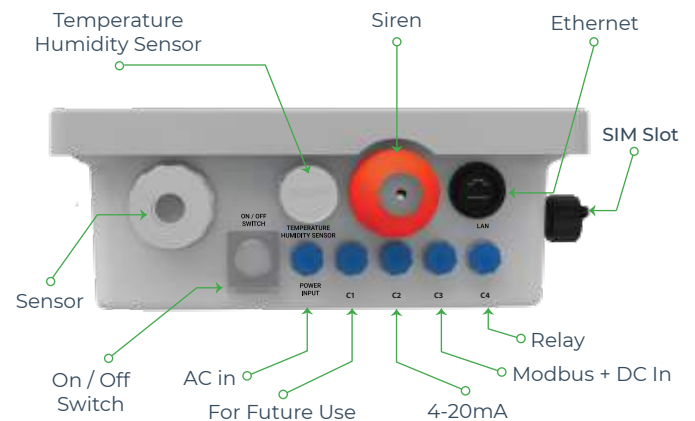
About AQBot™



AQBot™ is an Industrial-Grade Single-Parameter air quality monitor with automation capabilities. It is compatible to monitor various critical environmental parameters like Toxic Gases, Particulate Matter, and Noise. This real-time air quality monitor allows industries to monitor what's crucial for them. It also has a display, siren, and strobe light system to get immediate alerts in critical situations. This system activates in real-time upon exceeding user-defined thresholds, providing a multi-sensory alert alongside software notifications.



The AQBot™ enclosure houses robust electronics that last long in extreme industrial conditions. It offers industry-standard connectivity options in addition to multiple modes of wired and wireless communications. Using a wide range of communication capabilities, AQBot™ bridges the gap between industrial communication and IIoT to improve processes and connect to existing systems that monitor processes or control plants.



Product Features



Range of parameters to choose from



On-device display



Real-time data



Visualisation and advanced analytics software



Built-in relay for automation



Siren and strobe light for alerts



Compact



IP 66 grade certified



Wired communication



Wireless communication



Internal data storage



Dedicated support

Key Benefits



Accurate Data

Gives accurate readings in real-time to detect concentrations in ambient air.



Robust And Rugged

Durable enclosure to sustain harsh industrial conditions.



Relay-Based Automation

In-built relay automation systems provide immediate alerts when the threshold limit rises and activate mitigation equipment.



Secure Cloud Platform

Secure platform for visualising and analysing data, with easy API integration for immediate action.



Easy to install

Effortless installation with versatile mounting arrangements.



Seamless Connectivity

Wide range of connectivity options like GSM, Wi-Fi, LoRa Modbus, Satellite, RS-485, and 4-20mA

AQBot™ Usecases



Leak Detection

Comprehensively detect leaks and monitor hazardous gases or harmful chemicals in real-time to trigger alarms when pre-set threshold are exceeded.



Environmental Automation

Improve your environmental process control by monitoring air pollution, odour and other environmental conditions on a real-time basis.



Wastewater

Monitoring odour intensity at waste water treatment plants can help regulate odour emission by appropriate maintenance on time.



Industrial EHS

Conduct environmental audits and improve your ESG scores by optimising environmental and occupational health and safety.

AQBot Variants

Parameter	ID	Range	Resolution	Min. Det.	Working Principle	Expected Sensor Life
 Ammonia (NH ₃)	OZNH3_1* OZNH3_2* OZNH3_3	0-20 ppm 0-100 ppm 0-1000 ppm	0.3 ppm 0.3 ppm 2 ppm	0.3 ppm 0.3 ppm 2 ppm	Electrochemical	2 Years
 Methane (CH ₄)	OZCH4_1 OZCH4_2	500-1500 ppm 50-10,00,000 ppm	1 ppm 1 ppm	500 ppm 500 ppm	Molecular Property Spectrometer (MPS)	2 Years
 Hydrogen Sulfide (H ₂ S)	OZH2S_1* OZH2S_2 OZH2S_3 OZH2S_4	0-1.5 ppm 0-50 ppm 0-200 ppm 0-2000 ppm	0.001 ppm 0.05 ppm 0.2 ppm 2 ppm	0.01 ppm 0.05 ppm 0.2 ppm 2 ppm	Electrochemical	2 Years
 Total Volatile Organic Compounds (VOC)	OZTVOC_1* OZTVOC_2	0-40 ppm 0-200 ppm	0.001 ppm 0.10 ppm	0.005 ppm 0.10 ppm	Photo Ionization Detection (PID)	2 Years #
 Particulate Matter (PM _{2.5} , PM ₁₀ , PM ₁ , PM ₁₀₀)	OZPM_1*	Upto 5000 µg/m ³ for PM ₁ , PM _{2.5} , PM ₁₀ Upto 30 mg/m ³ for PM ₁₀₀	0.1 µg/m ³	1 µg/m ³	Optical Particle Counter	18 Months
 Noise	OZN_1*	Up to 140 dB	1 dB	0.5 dB	Capacitive	2 Years
 Chlorine (Cl ₂)	OZCl2_1* OZCl2_2	0-20 ppm 0-50 ppm	0.05 ppm 0.1 ppm	0.05 ppm 0.1 ppm	Electrochemical	2 Years
 Hydrogen Chloride (HCl)	OZHCl_1 OZHCl_2	0-50 ppm 0-100 ppm	0.5 ppm 1 ppm	0.5 ppm 1 ppm	Electrochemical	2 Years
 Formaldehyde (CH ₂ O)	OZCH2O_1* OZCH2O_2	0-10 ppm 0-50 ppm	0.05 ppm 0.1 ppm	0.05 ppm 0.1 ppm	Electrochemical	2 Years
 Methyl Mercaptan (CH ₃ SH)	OZCH3SH_1*	0-10 ppm	0.1 ppm	0.1 ppm	Electrochemical	2 Years
 Sulfur Dioxide (SO ₂)	OZSO2_1* OZSO2_2 OZSO2_3	0-10 ppm 0-100 ppm 0-2000 ppm	0.001 ppm 0.2 ppm 5 ppm	0.01 ppm 0.2 ppm 5 ppm	Electrochemical	2 Years
 Nitrogen Dioxide (NO ₂)	OZNO2_1* OZNO2_2 OZNO2_3	0-10 ppm 0-100 ppm 0-500 ppm	0.001 ppm 0.2 ppm 0.5 ppm	0.01 ppm 0.2 ppm 0.5 ppm	Electrochemical	2 Years
 Carbon Monoxide (CO)	OZCO_1* OZCO_4 OZCO_2 OZCO_3	0-5 ppm 0-50 ppm 0-100 ppm 0-1000 ppm	0.01 ppm 0.05 ppm 0.1 ppm 0.75 ppm	0.01 ppm 0.05 ppm 0.1 ppm 0.75 ppm	Electrochemical	2 Years
 Nitric Oxide (NO)	OZNO_1* OZNO_2	0-5 ppm 0-100 ppm	0.001 ppm 0.5 ppm	0.01 ppm 0.5 ppm	Electrochemical	2 Years
 Carbon Dioxide (CO ₂)	OZCO2_1*	0-5000 ppm	1 ppm	400 ppm	Non-Dispersive Infrared	2 Years
 Oxygen (O ₂)	OZO2_1*	(0-25) %VOL	0.1 %VOL	0.1 %VOL	Electrochemical	2 Years

TVOC Sensor Housing: 2 years, TVOC Lamp is user replaceable: 5,000 hours

Expected Sensor Life can vary, subject to actual concentration on-site. In the interest of continued product improvement, we reserve the right to change design features and specifications without prior notification. The data contained in this document is for guidance only. Oizom® accepts no liability for any consequential losses, injury or damage resulting from the use of this document or the information contained within.

*Indicates standard delivery timeline

Specifications

Mechanical

Size	210MM(W) x 258mm(H) X 105mm(D)
Weight	2.8 Kg (instrument weight)
Material	NEMA 4X Fire Retardant FRP Enclosure
Certifications	CE, IP66, RoHS
Installation Method	Pole Mount / Wall Mount

Electrical

Avg. Power Consumption	3.5 Watt (Actual consumption will vary upon the number of parameters)
Power Input Options	AC : External 90-265V AC, 50-60Hz DC : Uninterrupted 12V DC or 24V DC, 2 Ampere
Certifications	CE, RoHS, cURus UL, IEC/EN61000-4 and CISPR32/EN55032 & IEC/UL/EN62368 standard.

Technical

Processor	Quad Core ARM Cortex
Memory	2GB RAM / 8GB eMMC ROM
Device Interface	Display / On-device Software / API / Cloud Platform
Internal Data Storage	Up to 8 GB or 90 days

Environmental

Operating Temperature	-20 °C to 60 °C
Operating Humidity	0-93% RH
Recommended Humidity	15-90% RH
Storage Conditions	10 - 40°C

Communication

Data Interval	2-30 minutes (configurable)
Data-push Protocol	HTTP post request to host server
Data-pull	HTTP request on device IP
Firmware Updates	Over-The-Air Firmware Update
Standby Connectivity	GSM (2G/3G/4G) for remote diagnosis, FOTA updates, and cloud calibration
Certification	PTCRB, CE, FCC, RoHS, ICASA

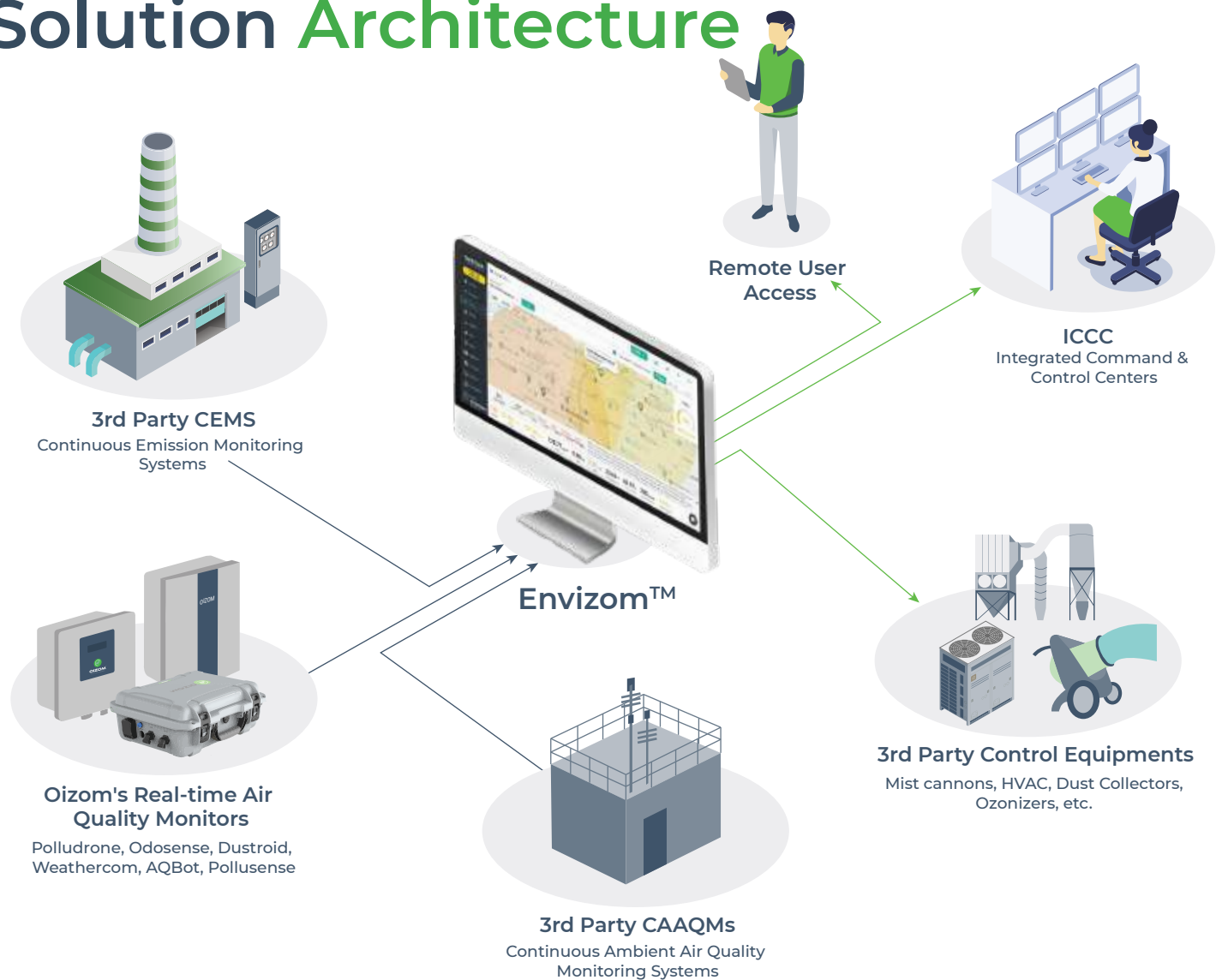
Sensing

Target Parameter	Refer Parameter Table
Gas Sample Mode	Natural Diffusion
Warm up time	1 hour(cold start) for Gas Monitoring
Response Time (t90)	< 60 seconds
Signal Refresh Rate	5 seconds
Measuring Range	Refer Parameter Table
Accuracy	<±5% FS (at 20±5°C/50±20%RH)
Sensor Life	Refer Parameter Table

Connectivity Options		Specification
Wireless	 GSM	Global 2G / 3G / 4G
	 LTE	CAT-M1
	 Wi-Fi	AP Mode and Station Mode
	 Satellite	Satellite
Wired	 Ethernet	Static / DHCP Configuration
	 Modbus	RS485 RTU / TCP
	 RELAY	2 Channel Relay
	 4-20mA	4-20 mA Current Loop

Note: LoRa, NBIoT, Sigfox available as an option

Solution Architecture



Envizom™

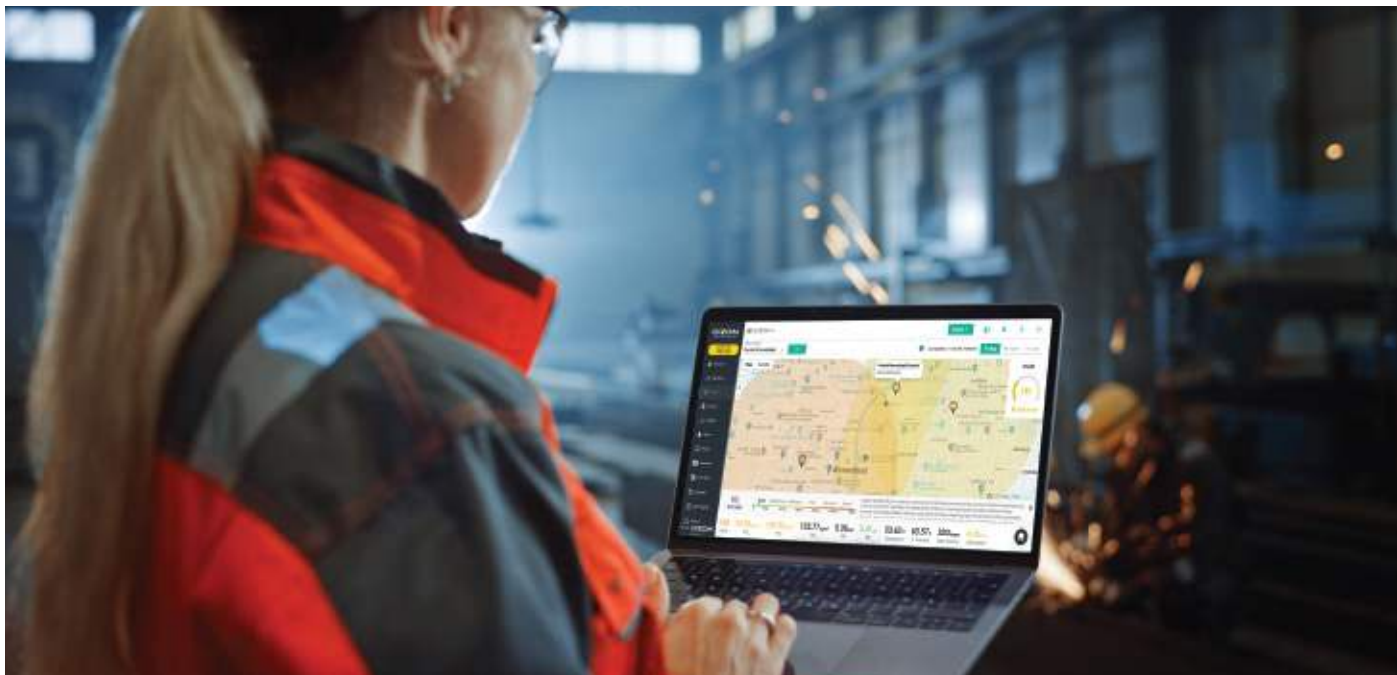
Data Visualisation and Analytics Platform



Envizom™ is an Environmental visualisation and analytics platform for real-time air quality data acquisition. Our Environmental Data Interpretation Engine, powered by Artificial Intelligence & Machine Learning algorithms, provides highly accurate data and actionable insights, empowering users to make well-informed decisions. Envizom™ uses secured HTTPS servers for data storage. Alternatively, this data can also be stored on-premise local servers.

The Report module offers immediate and automated daily / weekly / monthly reports on emissions within industrial facilities. The automation module enables users to activate third-party pollution control equipment based on user-defined thresholds to mitigate pollution. This also ensures timely and precise intervention to maintain optimal environmental conditions.

Envizom™ Capabilities



Envizom™ Capabilities



Real-time Data



Smart alerts



Automated Reports



Easy to Integrate



Advanced Analytics



Process Automation

Privacy First Platform



Data Privacy

The data shared with the client uses an encryption server through HTTPS Secure Socket layers. Envizom™ also uses AES encryption for connection that adds to data safety.



Data Ownership

Envizom™ creates a secured and encrypted password combination for the user login. Oizom® ensures 100% privacy of the data and doesn't share without relevant permissions.



Data Transparency

Data collected from Oizom® equipment runs through the Environment Data Interpretation Engine. It processes various algorithms and eliminates environmental impact interferences on the sensors.



SANS



IEC 62443-4-1



Security Tested



100w Cybersecurity Practices



TCM SECURITY

Case Studies



Monitoring dust particles at Amara Raja manufacturing plant

Amara Raja installed Oizom's AQBot™ to monitor dust particles in their industry, which enabled it to maintain a safe and controlled production environment.



India



AQbot



Industrial Monitoring

Monitoring H₂S at Johanna foods plants to reduce the impact on the local community

Johanna Food project installed AQBot™ at the exhaust of the carbon systems to monitor real-time data and identify the pinpoints of H₂S emission.



New Jersey



AQbot



Industrial Monitor



Detecting and Monitoring CH₂O in Australia

To ensure safe air quality for workers, Oizom's AQBot™ was installed with the help of Ektimo, in Australian workplaces to detect and monitor formaldehyde (CH₂O).



Australia



AQbot



EHS

Case Studies



Monitoring the levels of SO₂ & CH₄ at Reliance Chemical Products Ltd. Nigeria

Reliance Chemical Products Ltd. is accurately monitoring the levels of SO₂ and CH₄ to comply with environmental regulations and ensure the safety and well-being of workers.



Nigeria



AQbot



Industrial EHS

Dust Monitoring at Manufacturing Company in Hyderabad, India

Oizom® installed AQBot™ for PM monitoring in a manufacturing company named Grip Strapping Technologies Pvt. Ltd., located in Hyderabad.



India



1 AQbot



Automation



Monitoring chlorine gas at a common effluent treatment plant

AQBot™ Cl₂ variant is monitoring chlorine gas at a CETP in Jetpur, India.



India



AQbot



Wastewater



Industrial Applications



Paper And Pulp Industry

H_2S - Lime kiln and evaporator

TVOC - Chemical pulping, bleaching and evaporator

CO_2 - Fuel combustion, lime kiln

CH_3SH - Digester, black liquor storage, recovery boiler



Textile Industry

NO - Sizing process

TVOC - High temperature ovens - drying and coating

Cl_2 - Bleaching process

PM - Cotton handling process and boiler



Leather Industry

H_2S & NH_3 - Beamhouse, unhairing and liming process

TVOC - Finishing operations - drying

PM - Storage and handling of powdered chemicals

Cl_2 - Pickling process



Fisheries Industry

H_2S - Bacteriological and enzymatic decay

NO - Cooking and drying - fishmeal industry

TVOC - Direct and indirect fried dryers

NH_3 - Fish rotting



Chemical Reaction

TVOC - Storage Tanks & Solvent Use process

NO_x - Combustion Processes & Nitric Acid Production

SO_2 - Combustion of Sulfur-Containing Fuels & Sulfuric, Acid Production, Sulphonation

PM - Handling of Raw Materials



Thermal Power Plants

CO - Fuel combustion in boiler

NO - Natural gas/oil/coal based fuel combustion

CO_2 - Boiler fuel combustion

PM - Ash extraction plant



Food And Beverages Industry

Cl_2 - In various disinfecting activities

NH_3 - Refrigeration and cooling systems

CO_2 - Carbonation and fermentation processes



Steel plant

PM - Basic Oxygen Furnace and Blast furnace

NO_x & CO - Blast Furnace

SO_2 - Coke Ovens & Sinter Plant Crushing plant



Wastewater Treatment Plants

CH_4 & CH_3SH - Sludge storage and anaerobic digestion

Cl_2 - Chlorination before outlet discharge



Meat Processing Plants

H_2S - Storage and ETP

CH_4 & CH_3SH - By product, storage & ETP



Dairy Industry

NH_3 - Manure storage and application

CH_4 - Manure in housing and enteric fermentation



All Industries

Noise - In every operation including rotary mechanical components

**This is an indicative list.*

Speak to our representative for your exact requirement.

Data and Calibration



1 Laboratory Calibration 2 Collocation Calibration 3 On-site Calibration

All air quality monitoring systems are calibrated at the ISO/IEC 17025:2017 certified calibration laboratory using standard NIST traceable calibration gas standards as per the international guidelines by U.S. EPA.

Post lab calibration, the monitors are operated adjacent to a custom-built reference station housing U.S. EPA-designated Federal Equivalent Method (FEM) for collocation calibration to ensure optimum data quality.

On-site calibration of Oizom devices can be performed using standard calibration gas cylinders of known concentration or by co-locating with a reference standard.

Other Oizom® Products



Odosense® Odour Monitoring System

Odosense® monitors various odourful and toxic gases in the environment and provides insight into odour dispersion.



Dustroid® Real-time Dust Monitor

Dustroid® is an online particulate monitoring system to measure a wide spectrum of particulate matter sizes.



Weathercom® Automatic Weather Station

Weathercom® is an automatic weather station designed to measure various meteorological parameters.



Polludrone® Ambient Air Quality Monitoring

Polludrone® is ideal for real-time ambient air quality monitoring for urban and industrial applications.



Pollusense™ Portable Air Quality Monitor

Pollusense™ is a Portable Air Quality Monitoring System that measures multiple toxic gases and particulate matter.





Trusted by

80+ Countries



Solutions Installed in

90+ Cities



Total Devices Installed

3500+



Total Population Covered

250 million+

Oizom Customers



Changing the way Industries monitor air quality



Get in touch

