AQBot™

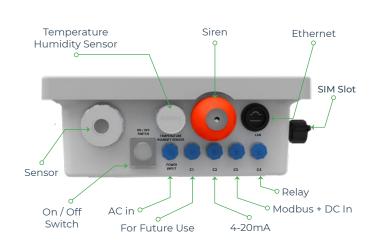## Industrial Grade Single Parameter Air Quality Monitor

About AQBot™

AQBot™ is an industrial grade single parameter air quality monitor with automation capabilities. AQBot™ Series offers a wide range of air quality parameters to choose from. AQBot™ product range consists of critical parameters and toxic gases like Total Volatile Organic Compounds (TVOC), Ammonia (NH_3), Hydrogen Sulfide (H_2S), Methane (CH_4), Carbon Monoxide (CO), Formaldehyde (CH_2O), Particulate Matter (PM_1, $PM_{2.5}$, PM_{10}, PM_{100}), Ambient Noise. The AQBot™ series is designed for easy operation.

The AQBot™ enclosure houses robust electronics to 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™ enables the Industrial Internet Of Things (IIoT) which is the backbone of Industrial Revolution 4.0. AQBot™ can easily integrate with existing building monitoring or plant control systems.

Product Features

- Wide range of parameters
- On-device display
- Real-time data
- Data analytics software
- Built-in relay
- Alerts and notifications
- Compact
- Durable
- 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 operation for automation

Cloud Platform
Visualise and analyse data in the cloud. Easy data integration via APIs.

Easy to install
Effortless installation with versatile mounting arrangements.

Seamless Connectivity
A wide range of options of wired and wireless connectivity.

AQBot™ Usecases

Industrial Fenceline
Comprehensively assess the environmental impact of industrial activities and monitor the fugitive emissions, and gas leaks on a real-time basis.

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 optimizing the Environmental, Health, and Safety of the citizens.

AQBot Variants

Parameter		ID	Range	Resolution	Min. Det.	Working Principle	Sensor Life
	Ammonia (NH₃)	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 (CH₄)	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 (H₂S)	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 0.05 ppm	0.005 ppm 0.05 ppm	Photo Ionization Detection (PID)	5000 Hours
	Particulate Matter (PM₂.₅, PM₁₀, PM₁, PM₁₀₀)	OZPM_1*	Upto 5000 μg/m³ for PM₁, PM₂.₅, PM₁₀ Upto 30 mg/m³ for PM₁₀₀	0.1 μg/m³	1 μg/m³	Optical Particle Counter	5000 Hours
	Noise	OZN_1*	Up to 140 dB	1 dB	0.5 dB	Capacitive	2 Years
	Chlorine (Cl₂)	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 (CH₂O)	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 (CH₃SH)	OZCH3SH_1*	0-10 ppm	0.1 ppm	0.1 ppm	Electrochemical	2 Years
	Sulfur Dioxide (SO₂)	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 (NO₂)	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 (CO₂)	OZCO2_1*	0-5000 ppm	1 ppm	400 ppm	Non-Dispersive Infrared	2 Years

*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 depends 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	Upto 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

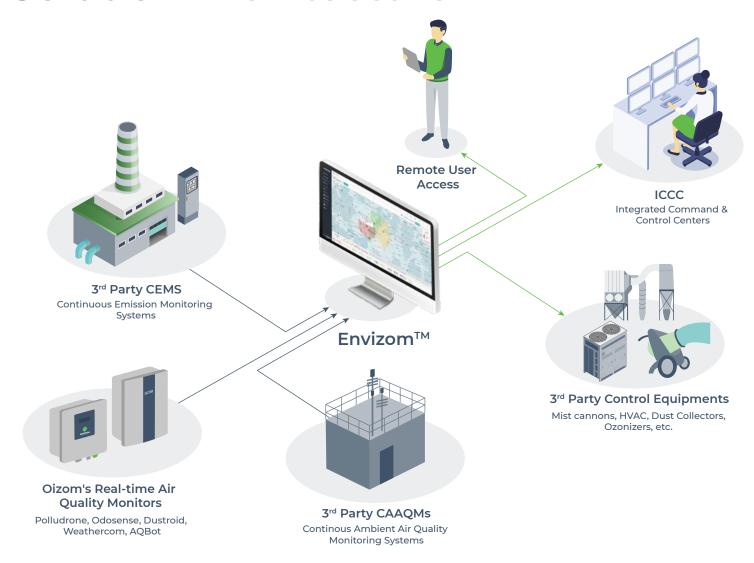|	
Data Interval	2-30 (configurable) minutes
Data-push Protocol	HTTP post request to host server
Data-pull	HTTP request on device IP
Firmware Updates	Over-The-Air Firmware Update
Standby Connectivity	GSM (2G/3G/4G) for remote diagnosis, FOTA updates, and cloud calibration
Certification	PTCRB, CE, FCC,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

Sensing

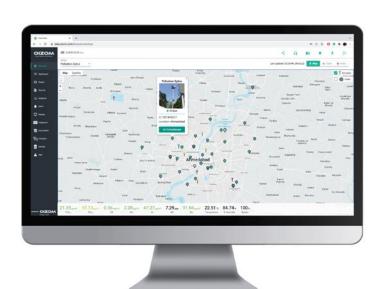|	
Target Parameter	Refer Parameter Table
Gas Sample Mode	Natural Diffusion
Warm up time	1 hour(cold start) for Gas Monitoring
Response Time (t90)	< 60 seconds
Signal Refresh Rate	5 seconds
Measuring Range	Refer Parameter Table
Accuracy	<±5% FS (at 20±5°C/50±20%RH)
Sensor Life	Refer Parameter Table

Connectivity Options		Specification
Wireless	GSM	Global 2G / 3G / 4G
	LTE	CAT-M1
	WiFi	AP Mode and Station Mode
Wired	ETHERNET	Static / DHCP Configuration
	Modbus	RS485 RTU / TCP
	RELAY	2 Channel Relay

Note: LoRa, NBIoT, Sigfox available as an option

Solution Architecture

3rd Party CEMS
Continuous Emission Monitoring Systems

Oizom's Real-time Air Quality Monitors
Polludrone, Odosense, Dustroid, Weathercom, AQBot

Remote User Access

Envizom™

3rd Party CAAQMs
Continous Ambient Air Quality Monitoring Systems

ICCC
Integrated Command & Control Centers

3rd Party Control Equipments
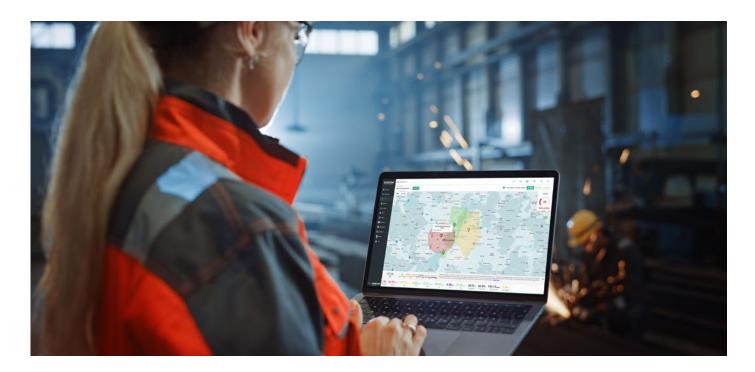Mist cannons, HVAC, Dust Collectors, Ozonizers, etc.

Envizom™ Air Quality Software

An on-device data software enables users to access the data, configure networks and sensors without any dependency on the internet. Users can also connect their smart devices to AQBot and view real-time data, perform on-site calibration, change network configuration, and change sensor configuration.

Envizom™ Features

🕐	**Real-time data**	🖥️	**Easy to Set Up**
🔔	**Smart alerts**	🔗	**One click share**
🖥️	**User friendly interface**	⚙️	**Data accessibility**

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.

Case Studies

Monitoring chlorine gas at a common effluent treatment plant

AQBot™ Cl$_2$ is used for monitoring chlorine gas at a CETP in Jetpur, India.

India   July 2020   Wastewater

Detecting and Monitoring CH$_2$O at Australia

Oizom installed AQBot™ with our partners - Ektimo in Australia to detect and monitor CH$_2$O (Formaldehyde) in workplaces.

Australia   May 2022   EHS

Dust Monitoring at Ambuja Cement Factory in India

A cement factory in Raipur district of India opted for Oizom's AQBot™ to monitor dust particles in their factory and take preventive actions.

India   December 2022   Industrial Fenceline

Case Studies

Dust Monitoring in Coimbatore, India

Oizom installed AQBot™ for monitoring PM in an iron casting company named VR Foundries located in Coimbatore, India.

India | August 2022 | Automation

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 | July 2022 | Automation

Monitoring Formaldehyde in a Laminates Facility, India

Samarpan Laminates installed Oizom®'s AQBot™ for monitoring formaldehyde in their manufacturing facility situated in Morbi district of India.

India | May 2022 | Industrial EHS

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

Cement Industry

CO - Kilns in clinker process
NO_2 - Rotary kiln and vertical shaft kiln, clinker
CO_2 - Limestone decarbonization and fuel combustion
PM - Packaging and ash handling system

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

Mining Industry

SO_2 & NO_2 - Extraction including blasting & crushing
CH_4 - Material destruction and natural disintegration
PM - Drilling, blasting and transportation

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**

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 USEPA.

2 **Collocation 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.

3 **On-site Calibration**

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

Polludrone®
Ambient Air Quality Monitoring

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

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.

OIZOM ®
REDEFINING RESOURCES

Trusted by
60+ Countries

Solutions Installed in
65+ Cities

Total Devices Installed
1000+

Total Population Covered
200 million+

Global Presence

ISO 9001:2015 ISO 14001 MAKE IN INDIA

Accurate Air Quality Monitoring And Advanced Data Analytics

OIZOM
REDEFINING RESOURCES

306, Indraprasth Corporate,
Prahladnagar, Ahmedabad - India

✉ contact@oizom.com / connect@oizom.com
📞 +91 88666 60025 / 39

Get in touch