

# AQBot<sup>TM</sup>

Industrial Grade Single Parameter Air Quality Monitor



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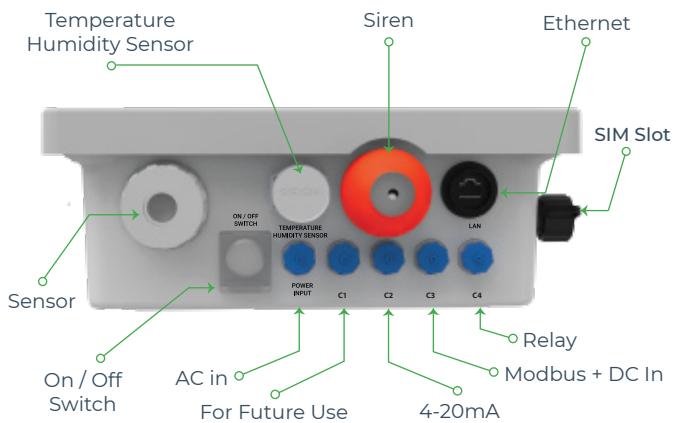
# About AQBot™



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 <sub>3</sub> )	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 <sub>4</sub> )	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 <sub>2</sub> 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 <sub>2.5</sub> , PM <sub>10</sub> , PM <sub>1</sub> , PM <sub>100</sub> )	OZPM_1*	Upto 5000 µg/m <sup>3</sup> for PM <sub>1</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> Upto 30 mg/m <sup>3</sup> for PM <sub>100</sub>	0.1 µg/m <sup>3</sup>	1 µg/m <sup>3</sup>	Optical Particle Counter	18 Months
	Noise	OZN_1*	Up to 140 dB	1 dB	0.5 dB	Capacitive	2 Years
	Chlorine (Cl <sub>2</sub> )	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 <sub>2</sub> 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 <sub>3</sub> SH)	OZCH3SH_1*	0-10 ppm	0.1 ppm	0.1 ppm	Electrochemical	2 Years
	Sulfur Dioxide (SO <sub>2</sub> )	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 <sub>2</sub> )	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 <sub>2</sub> )	OZCO2_1*	0-5000 ppm	1 ppm	400 ppm	Non-Dispersive Infrared	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



# 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

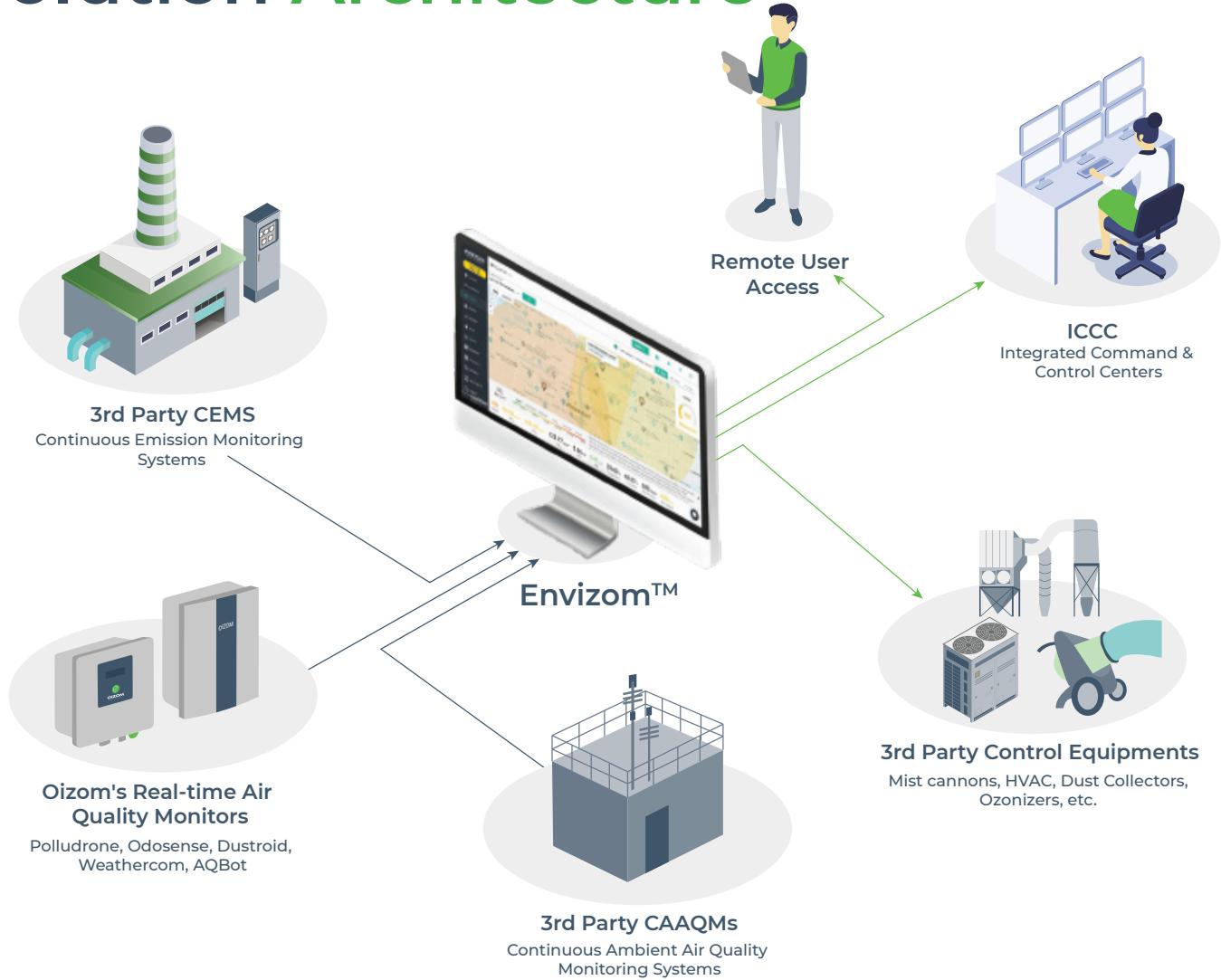
Target Parameter	Refer Parameter Table
Gas Sample Mode	Natural Diffusion
Warm up time	1 hour(cold start) for Gas Monitoring
Response Time (t90)	< 60 seconds
Signal Refresh Rate	5 seconds
Measuring Range	Refer Parameter Table
Accuracy	<±5% FS (at 20±5°C/50±20%RH)
Sensor Life	Refer Parameter Table

Connectivity Options	Specification
Wireless	 GSM
	 LTE
	 Wi-Fi
	 Satellite
Wired	 ETHERNET
	 Modbus
	 RELAY
	4-20 mA Current Loop
	Static / DHCP Configuration
	RS485 RTU / TCP
	2 Channel Relay
	4-20 mA Current Loop
	Note: LoRa, NBLoT, Sigfox available as an option

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# Solution Architecture



## Envizom™ Data Visualisation and Analytics Platform

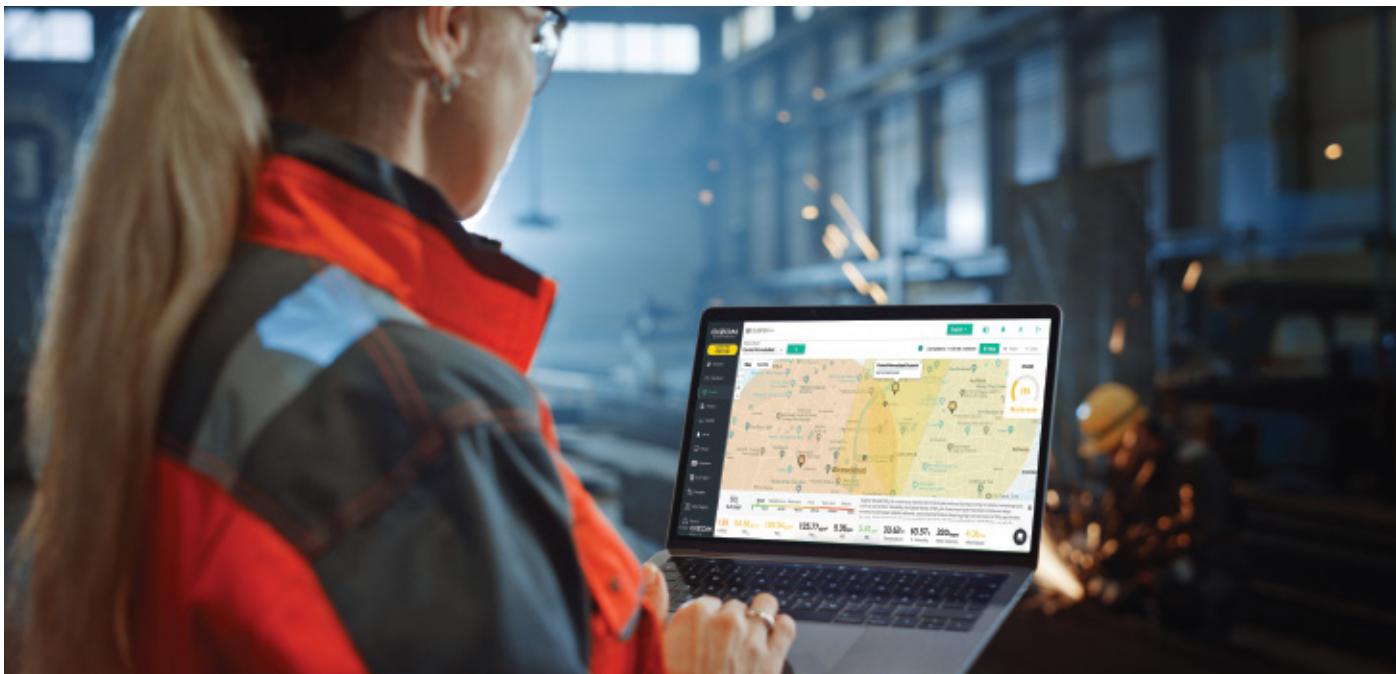


Envizom™ is an Environmental visualisation and analytics platform for real-time air quality data acquisition. Our Environmental Data Interpretation Engine, powered by Artificial Intelligence & Machine Learning algorithms, provides highly accurate data and actionable insights, empowering users to make 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



Easy to Integrate



Smart alerts



Advanced Analytics



Automated Reports



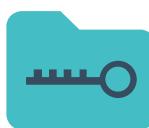
Process Automation

## 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



OWASP

IEC 62443-4-1

API

Security Tested

100w Cybersecurity Practices

TCM SECURITY



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# 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 H<sub>2</sub>S 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 H<sub>2</sub>S emission.



New Jersey



AQbot



Industrial Monitor



## Detecting and Monitoring CH<sub>2</sub>O 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 (CH<sub>2</sub>O).



Australia



AQbot



EHS



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# Case Studies



## Monitoring the levels of SO<sub>2</sub> & CH<sub>4</sub> at Reliance Chemical Products Ltd. Nigeria

Reliance Chemical Products Ltd. is accurately monitoring the levels of SO<sub>2</sub> and CH<sub>4</sub> 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™ Cl<sub>2</sub> variant is monitoring chlorine gas at a CETP in Jetpur, India.



India



AQbot



Wastewater

# Industrial Applications



## Paper And Pulp Industry

**H<sub>2</sub>S** - Lime kiln and evaporator  
**TVOC** - Chemical pulping, bleaching and evaporator  
**CO<sub>2</sub>** - Fuel combustion, lime kiln  
**CH<sub>3</sub>SH** - Digester, black liquor storage, recovery boiler



## Textile Industry

**NO** - Sizing process  
**TVOC** - High temperature ovens - drying and coating  
**Cl<sub>2</sub>** - Bleaching process  
**PM** - Cotton handling process and boiler



## Leather Industry

**H<sub>2</sub>S & NH<sub>3</sub>** - Beamhouse, unhairing and liming process  
**TVOC** - Finishing operations - drying  
**PM** - Storage and handling of powdered chemicals  
**Cl<sub>2</sub>** - Pickling process



## Fisheries Industry

**H<sub>2</sub>S** - Bacteriological and enzymatic decay  
**NO** - Cooking and drying - fishmeal industry  
**TVOC** - Direct and indirect fried dryers  
**NH<sub>3</sub>** - Fish rotting



## Chemical Reaction

**TVOC** - Storage Tanks & Solvent Use process  
**NO<sub>x</sub>** - Combustion Processes & Nitric Acid Production  
**SO<sub>2</sub>** - 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<sub>2</sub>** - Boiler fuel combustion  
**PM** - Ash extraction plant



## Food And Beverages Industry

**Cl<sub>2</sub>** - In various disinfecting activities  
**NH<sub>3</sub>** - Refrigeration and cooling systems  
**CO<sub>2</sub>** - Carbonation and fermentation processes



## Steel plant

**PM** - Basic Oxygen Furnace and Blast furnace  
**NO<sub>x</sub> & CO** - Blast Furnace  
**SO<sub>2</sub>** - Coke Ovens & Sinter Plant Crushing plant



## Wastewater Treatment Plants

**CH<sub>4</sub> & CH<sub>3</sub>SH** - Sludge storage and anaerobic digestion  
**Cl<sub>2</sub>** - Chlorination before outlet discharge



## Meat Processing Plants

**H<sub>2</sub>S** - Storage and ETP  
**CH<sub>4</sub> & CH<sub>3</sub>SH** - By product, storage & ETP



## Dairy Industry

**NH<sub>3</sub>** - Manure storage and application  
**CH<sub>4</sub>** - Manure in housing and enteric fermentation



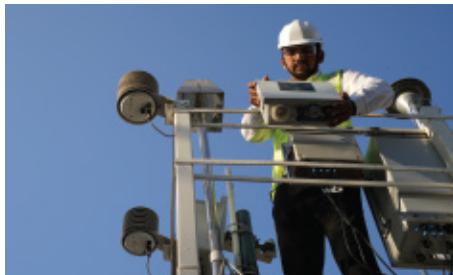
## All Industries

**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 U.S. EPA.

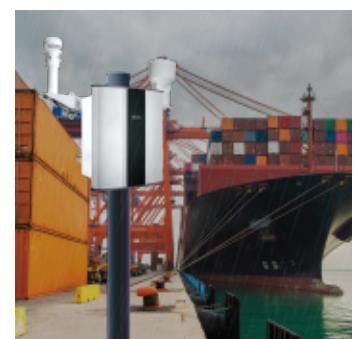
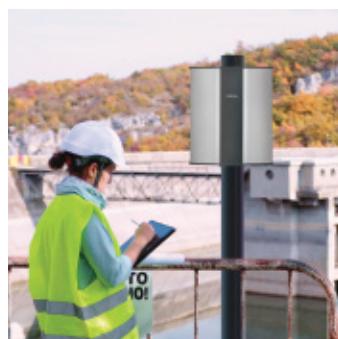
## 2 Collocation Calibration

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.

## 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.



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Trusted by  
**70+ Countries**



Solutions Installed in  
**65+ Cities**



Total Devices Installed  
**3000+**



Total Population Covered  
**200 million+**

## Oizom Customers



**Changing the way Industries monitor air quality**



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Opp. Bodakdev Auda Garden, Ahmedabad, India  
✉ contact@oizom.com / connect@oizom.com