

Odosense[®]

Odor Monitoring System



About Odosense®



Odosense® is an E-nose based odor monitoring system designed to monitor various odourful and toxic gases. It continuously detects, measures, and monitors odourful parameters such as Sulphur Dioxide (SO₂), Hydrogen sulfide (H₂S), Ammonia (NH₃), Methyl Mercaptan (CH₃SH), Total volatile organic compound (TVOC), Formaldehyde (CH₂O), Nitrogen Dioxide (NO₂), Chlorine (CL₂), Temperature and Humidity. Users can visualize the collected data on the Envizom™ environmental monitoring platform in the form of real-time dashboards. The odor data can also be useful for various industrial automation applications in an Industrial IoT (IIoT) environment.

Odosense® technologically provides better accuracy with features including unique e-breathing technology, auto device firmware upgrades, and remote calibration capabilities. Our systems also use AI and machine learning algorithms to understand smell levels and impact.



Product Features



Patented Technology

Works on innovative e-breathing technology for higher data accuracy.



Weather Resistant

IP66 Grade (certified) enclosure for endurance against harsh weather conditions.



Solar Powered with Battery Backup

Compatible to charge internal battery using solar power.



Tamper Proof

Comes with a security system to avoid tampering / malfunction / sabotage.



Retrofit Design

Plug and play design for ease of implementation.



Over-The-Air Update

Automatically upgradeable from a central server without any onsite visit.



Compact

Light-weight and compact system that can be installed at 12-15 feet (4-5 m) height.



Real-Time Data

Continuous monitoring and real-time data transfer at configurable intervals.



Ultimate Durability

Made of high-grade engineering-metal and composite polymers for a long life.



Network Agnostic

Supports a wide range of connectivity options like GSM / GPRS / WiFi / LoRa / NBIoT / Ethernet / Modbus.



Identity And Configuration

Each equipment carries its unique identity with geo-tagging through wireless configuration.



On-device Calibration

On-site device calibration capability using on-device calibration software.

Key Benefits



Robust And Rugged
Durable enclosure to sustain extreme climatic conditions.



Meteorological Capability
A provision to add Wind Direction, Wind Speed sensor for accurate source tracking of pollutants.



Multiple parameters
Compatible with a wide range of parameters including PM, gases and meteorological parameters.



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



Complain Management
Users can raise complains on the Oizom Platform for authorities to log issues and take actions.



Odor & Dispersion Modelling
Based on emissions and meteorological inputs, a dispersion model can be used to predict concentrations at selected downwind receptor locations.

Odosense[®] Usecases



Wastewater

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



Landfills

Diffusion of odorful gases from landfills can create nuisance in the neighborhood. The odor level can be monitored to carry out precautionary steps.



Livestock

Odosense[®] helps operators assess the impacts of odors from their livestock operations and develop and implement the best strategies to reduce emissions and their impact.



Industries

Odourful gaseous emission from industries like agro-chemical, pharmaceutical, paper-pulp, sugar, etc. can be monitored to make data-driven measures for minimizing their fatal effect.

Odosense® Variants

Variants	Applications	Parameters
Odosense® Lite	STP, WWTP	SO ₂ , H ₂ S, NH ₃ , Temperature, Humidity, Pressure
Odosense® Smart	Solid Waste	SO ₂ , H ₂ S, NH ₃ , CH ₃ SH, TVOC, Temperature, Humidity, Pressure
Odosense® Pro	Industrial, ETP	SO ₂ , H ₂ S, NH ₃ , CH ₃ SH, TVOC, CH ₂ O, NO ₂ , Cl ₂ , Temperature, Humidity, Pressure
Odosense® Custom	As per request	Choice of upto 9 gases with External Modules.

Parameters

Sensor	ID	Range	Resolution	Min. Detection	Drift	Working Principle	Expected Sensor Life	
Sulfur Dioxide (SO ₂)	OZSO2_1*	0-10 ppm	0.001 ppm	0.01 ppm	±20 ppb / Year	Electrochemical	2 years	
	OZSO2_2	0-100 ppm	0.2 ppm	0.2 ppm	< 2% / Month			
	OZSO2_3	0-2000 ppm	5 ppm	5 ppm	< 2% / Month			
Hydrogen Sulfide (H ₂ S)	OZH2S_1*	0-1.5 ppm	0.001 ppm	0.01 ppm	±100 ppb / Year			
	OZH2S_2	0-50 ppm	0.05 ppm	0.05 ppm	< 2% / Month			
	OZH2S_3	0-200 ppm	0.2 ppm	0.2 ppm	< 2% / Month			
	OZH2S_4	0-2000 ppm	2 ppm	2 ppm	< 2% / Month			
Ammonia (NH ₃)	OZNH3_1*	0-20 ppm	0.3 ppm	0.3 ppm	< 2% / Month			
	OZNH3_2*	0-100 ppm	0.3 ppm	0.3 ppm	< 2% / Month			
	OZNH3_3	0-1000 ppm	2 ppm	2 ppm	< 2% / Month			
Methyl Mercaptan (CH ₃ SH)	OZCH3SH_1*	0-10 ppm	0.1 ppm	0.1 ppm	< 2% / Month			
Total Volatile Organic Compounds (VOC)	OZTVOC_1*	0-40 ppm	0.001 ppm	0.005 ppm	N.A.	Photo Ionization Detection (PID)	24 Months #	
	OZTVOC_2	0-200 ppm	0.05 ppm	0.05 ppm	N.A.			
Formaldehyde (CH ₂ O)	OZCH2O_1*	0-10 ppm	0.05 ppm	0.05 ppm	< 2% / Month	Electrochemical	2 years	
	OZCH2O_2	0-50 ppm	0.1 ppm	0.1 ppm	< 2% / Month			
Nitrogen Dioxide (NO ₂)	OZNO2_2	0-10 ppm	0.001 ppm	0.01 ppm	±20 ppb / Year			
	OZNO2_3	0-100 ppm	0.2 ppm	0.2 ppm	< 2% / Month			
	OZNO2_1*	0-500 ppm	0.5 ppm	0.5 ppm	< 2% / Month			
Chlorine (Cl ₂)	OZCl2_1*	0-20 ppm	0.05 ppm	0.05 ppm	< 2% / Month			
	OZCl2_2	0 - 50 ppm	0.1 ppm	0.1 ppm	< 2% / Month			
Methane (CH ₄)	OZCH4_1	500-1500 ppm	1 ppm	500 ppm	N.A.			Molecular Property Spectrometer (MPS)
	OZCH4_2	50-10,00,000 ppm	1 ppm	50 ppm	N.A.			
Hydrogen Chloride (HCl)	OZHCL_1	0-50 ppm	0.5 ppm	0.5 ppm	< 2% / Month			Electrochemical
	OZHCL_2	0-100 ppm	1 ppm	1 ppm	< 2% / Month			
Ambient Noise	OZN_1*	Upto 140 dB	1 dB	0.5 dB	N.A.	Capacitive		
Temperature	OZTEMP_1*	-40 to 125°C	0.01°C	-40 °C	N.A.	Solid State Semiconductor Sensing		
Humidity	OZHUM_1*	100% Rh	0.1%	0.1%	N.A.			
Barometric Pressure	OZPRES_1*	300-1100 hPa	0.18 Pa	300 hPa	N.A.			

TVOC Sensor Housing: 24 Months, 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.

External Modules



Anemometer
OZWSD_1*
Wind Speed: 0-40 m/s
Wind Direction: 0-359°
Working Principle: Ultrasonic



Rain Gauge
OZRAIN_1*
Resolution: 0.25 mm
Working Principle: Tipping Bucket

*Indicates standard delivery timeline.

Specifications

Mechanical

Size	360mm (H) x 328mm (W) x 200mm (D)
Weight	7.2 Kg (instrument weight)
Material	Aluminum Magnesium Alloy, Mild-steel (With Powder Coating), FRP
Certifications	CE, FCC, NEMA 4X, IP66, RoHS

Electrical

Avg. Power Consumption	5 Watt (Actual consumption depends upon the number of parameters)
Power Input Options	AC : External 110-240V AC, 50-60Hz DC : Uninterrupted 24V DC, 2 Ampere 60 Watt 24V Solar Panel
SMPS Specs	24V, 2Amps output UL-62368 & CAN/CSA C22.2 Certified
Battery Backup Time	Upto 12 Hours
Battery Specs	Lithium iron phosphate (LiFePO4) battery cell with rated voltage 12.8V Capacity 6Ah

Technical

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

Environmental

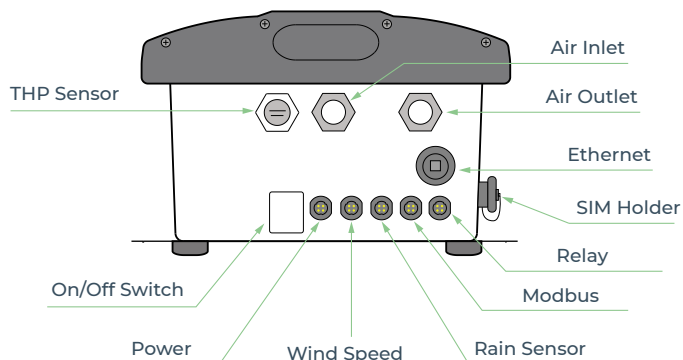
Operating Temperature	-20 °C to 60 °C
Operating Humidity	0-93% RH
Recommended Humidity	15-90% RH
Storage Conditions	10 - 40°C










Sensing

Gas Measurement Principle	Active Sampling with Sampling rate of 325 mL/Sample
Warm up time	< 48 hours for data stabilisation

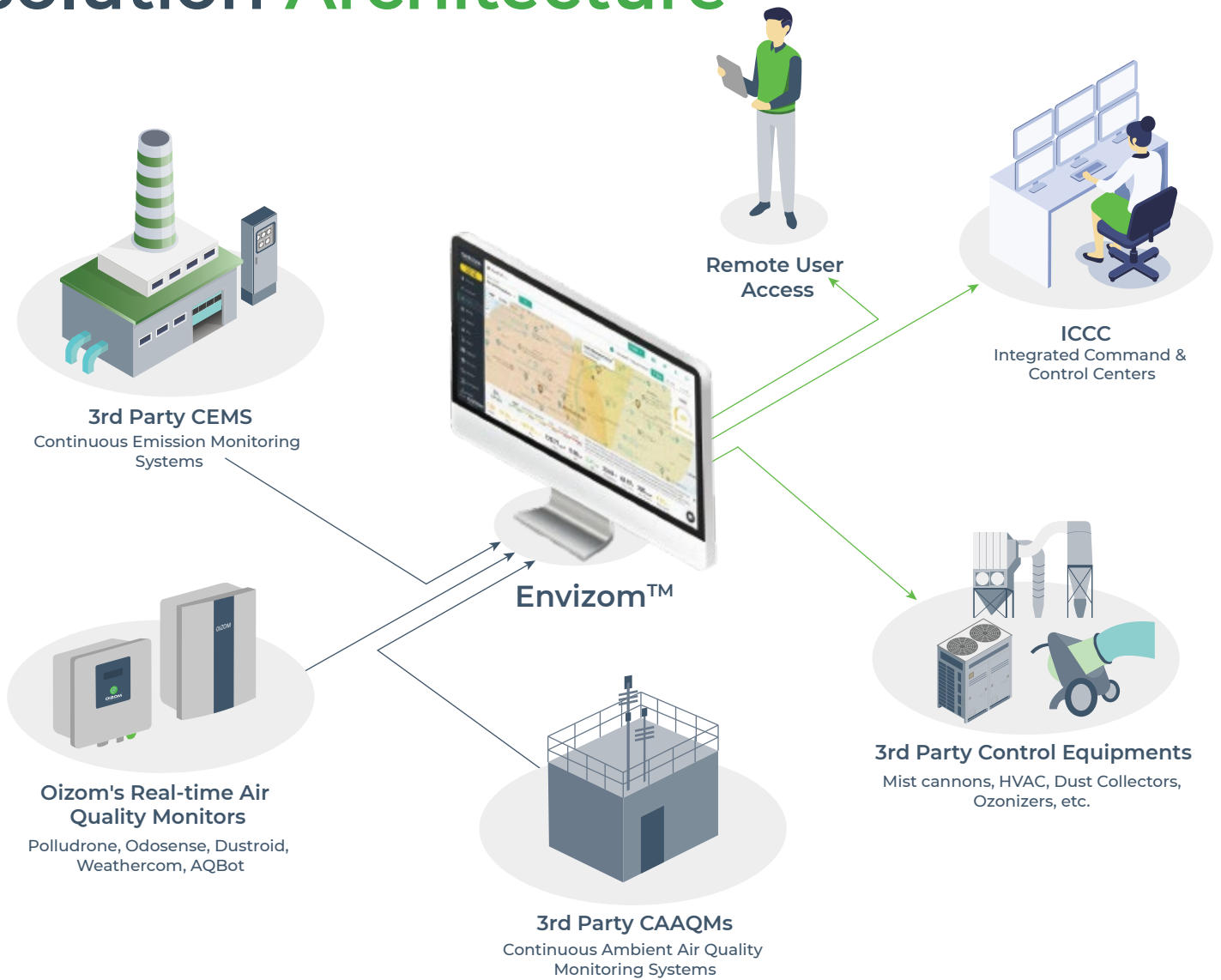
Communication

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

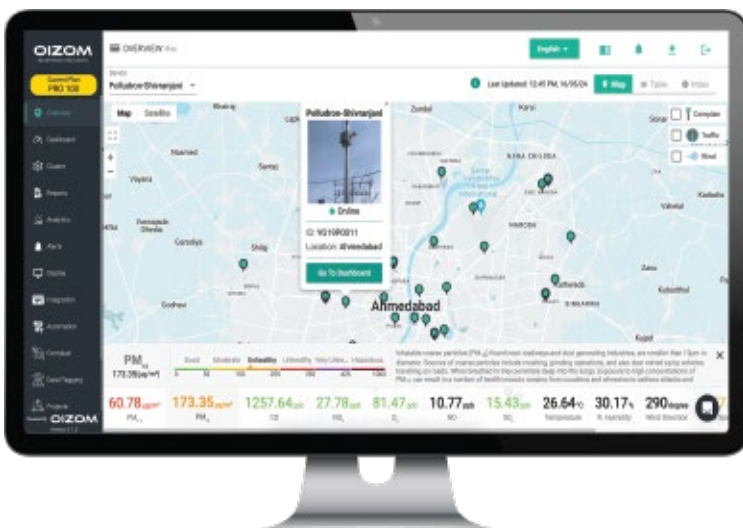


Connectivity Options		Specification
Wireless	 GSM	Global 2G / 3G / 4G
	 LoRa	868 MHz / 915 MHz
	 LTE	CAT-M1
	 NB-IoT	CAT-NB1
	 sigfox	868 to 869 MHz, 902 to 928 MHz
	 Wi-Fi	AP Mode and Station Mode
Wired	 ETHERNET	Static / DHCP Configuration
	 Modbus	RS485 RTU / TCP
	 RELAY	2 Channel Relay

Solution Architecture

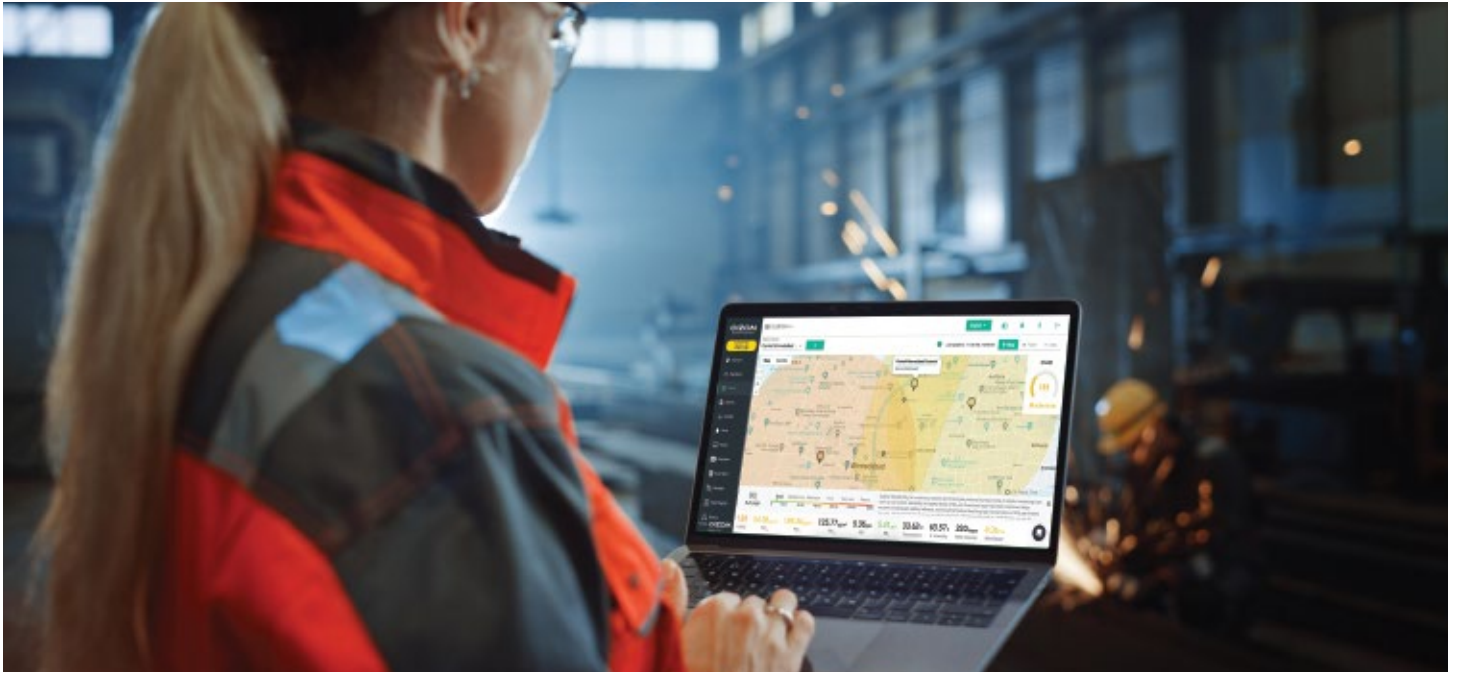


Envizom™ Data Visualization and Analytics Platform



Envizom™ is an Environmental monitoring software for real-time air quality data acquisition, visualization, and analytics. The Oizom® environmental data interpretation engine fetches the data from the Oizom® Environmental monitoring stations. On receiving the data, the engine runs necessary corrections and compensation algorithms. Envizom™ uses secured HTTPS servers for data storage. Alternatively, this data can also be stored on-premise local servers.

Envizom™ Capabilities



Real-time Data



Easy to Integrate



Smart alerts



Analytics



User friendly interface



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.

Case Studies



Leading dairy companies in the UAE chose Odosense to identify and mitigate the odor.

The United Arab Emirates dairy company chose Oizom to address its odor challenges with Odosense, which provides accurate data in real time.



UAE



August 2022



Dairy Company

Monitoring odor and air quality in Masan Group, Vietnam

Oizom®'s Odosense® is monitoring odor and air quality in Masan Group, Vietnam to ensure hygienic standards of environment for workers.



Vietnam



October 2021



Industrial Odour



Bioreactor Landfill odor monitoring in Republic of Croatia

A Bioreactor Landfill in Croatia installed Oizom®'s odor monitoring system, Odosense® Smart to monitor odour and other air pollutants.



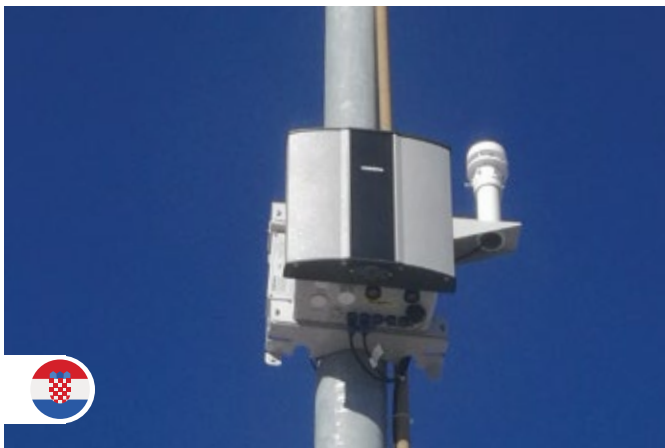
Croatia



March 2022



Industrial Odour



Case Studies



Oizom monitoring the air quality and odor levels in the Port of Duqm, Oman

Oizom air quality monitoring system monitors the air quality, dust, odor, and other hazardous gaseous emissions and ensures safe breathing conditions for the workers in the Duqm port.



Oman



June 2020



Sea Port Monitoring

Monitoring odor levels in Dubai's Waste Water Treatment Plant

Oizom®'s Odosense® and Weathercom® are monitoring the air quality and odor levels in Dubai's Waste Water Treatment Plant.



Dubai



February 2022



Industrial Odour



STP Odor Monitoring in Palava City

Through Oizom® Odor Monitor Odosense®, the inconvenience from STP odour dispersion in the Palava Campus was reduced significantly by suppressing the odor.



India



September 2017



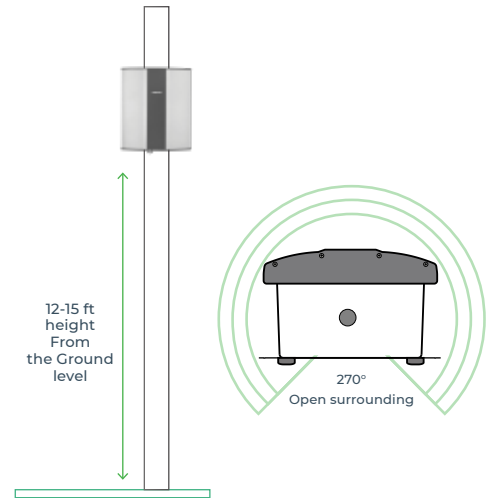
Industrial Odour



Functional Specifications

Proper location selection is critical for optimized data collection. It varies as per the purpose of the project. According to USEPA QA handbook (Vol II, Section 6.0 Rev.1), the selection of locations should be based on monitoring purposes.

Preferred Mounting	Pole / Wall (preferably 270° open surrounding)
Installation Height	12-15 feet (4-5 meters)
Direction	As per maximum direct sunlight exposure
Power Availability	Constant AC / DC supply within a 2-meter range from the unit or solar panel
Network Availability	Uninterrupted network connection



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.



About Oizom®



Leaders in sensor based
air quality monitoring



Plug and play monitors
for hassle free setup



Low powered solutions
for multiple applications

Oizom® is an environmental IoT company offering data-driven environmental solutions for better decision-making. With our sensor-based hardware, we monitor various environmental parameters like air quality, noise, odor, radiation, weather conditions, etc. Our data analytics platform derives many actionable insights for authorities, communities, and industries. Oizom® strives to play an essential role in a sustainable future through smart environmental solutions and data science.

Oizom® has years of experience in stimulating innovation by creating groundbreaking technology for environmental monitoring. With an IoT-based development approach, Oizom® has been able to successfully unlock multiple solutions, catering to various industries.

Other Oizom® Products



Polludrone®

Ambient Air Quality Monitoring

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



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.



AQBot™

Single Parameter Air Quality Monitor

AQBot™ is an industrial grade single parameter air quality monitor with automation capabilities.





Trusted by

70+ Countries



Solutions Installed in

65+ Cities



Total Devices Installed

3000+



Total Population Covered

200 million+

Global Presence



Changing the way Industries monitor air quality



Get in touch



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