

# Odosense<sup>®</sup>

Odour Monitoring System



# About Odosense®



Odosense® is an E-nose-based Odour Monitoring system designed to monitor various odourful and toxic gases. It offers real-time monitoring of odourful parameters such as Sulphur Dioxide (SO<sub>2</sub>), Hydrogen Sulfide (H<sub>2</sub>S), Ammonia (NH<sub>3</sub>), Methyl Mercaptan (CH<sub>3</sub>SH), Total Volatile Organic Compound (TVOC), Formaldehyde (CH<sub>2</sub>O), Nitrogen Dioxide (NO<sub>2</sub>), Chlorine (CL<sub>2</sub>), Temperature, Humidity and Pressure. The data collected can be visualised in the Envizom environmental monitoring platform in different values like ppm, ppb, µg/m<sup>3</sup> and Ou (odour unit) in the real-time dashboard. The odour data is useful for different applications, such as Wastewater Treatment Plants, Landfills, Oil and Gas Industries, etc.

Odosense® utilises a combination of sensor technology alongside data analysis techniques to get real-time readings that measure low, medium, and high odour intensity. It technologically provides better accuracy with features including patented e-breathing technology, auto device firmware upgrades, and remote calibration capabilities. Our systems also use AI and machine learning algorithms to provide accurate odour data.



## Product Features



### Patented Technology

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



### Weather Resistant (IP 66)

IP 66 Grade (certified) enclosure for endurance against harsh weather conditions.



### Fully Solar Powered

The system works 100% on solar power, making it ideal for off-grid locations.



### 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

Lightweight and compact system that can be easily installed on a pole or wall.



### Internal Storage

Internal data storage capacity of up to 8 GB or 90 days.



### Relay based automation

Relay-based automation allows activating odour neutralisers when an odour level crosses thresholds.



### Network Agnostic

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



### 3-Level Calibration

Our devices go through 3-level calibration, including factory, multi-span & collocation calibration as per the U.S. EPA guidelines.



### On-device Calibration

On-site device calibration capability using built-in calibration software.

# Key Benefits



**Robust And Rugged**  
Durable enclosure to sustain extreme climatic conditions.



**Advanced TVOC detection (1000+)**  
Monitor up to 1000+ VOC gases through indicative values for detailed and accurate data on air quality



**Monitor 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 Envizom™ Platform for authorities to log issues and take actions.



**Odour Index for Dispersion Modelling**  
Based on emissions and meteorological data, the odour calculative index offers accurate odour units for effective odour and dispersion modeling.

## Odosense® Usecases



### Wastewater

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



### Landfills

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



### Oil and Gas

Ensure a safe work environment in oil and gas refineries by actively monitoring odorous gas levels at various refinery processes.



### Industries

Odourful gases 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 <sub>2</sub> , H <sub>2</sub> S, NH <sub>3</sub> , Temperature, Humidity, Pressure
Odosense® Smart	Solid Waste	SO <sub>2</sub> , H <sub>2</sub> S, NH <sub>3</sub> , CH <sub>3</sub> SH, TVOC, Temperature, Humidity, Pressure
Odosense® Pro	Industrial, ETP	SO <sub>2</sub> , H <sub>2</sub> S, NH <sub>3</sub> , CH <sub>3</sub> SH, TVOC, CH <sub>2</sub> O, NO <sub>2</sub> , Cl <sub>2</sub> , 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 <sub>2</sub> )	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 <sub>2</sub> 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 <sub>3</sub> )	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 <sub>3</sub> 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)	2 years#	
	OZTVOC_2	0-200 ppm	0.10 ppm	0.10 ppm	N.A.			
Formaldehyde (CH <sub>2</sub> 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 <sub>2</sub> )	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 <sub>2</sub> )	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 <sub>4</sub> )	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: 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.

### 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



**Vibration Sensors**  
PPV: +/- 2G  
Range frequency: 0.5 - 250 Hz  
Range velocity: ±50 mm/s (±2 in/s)  
Working Principle: MEMS

\*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	Up to 7 Watt (Actual consumption will vary 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	Up to 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	Up to 8 GB or 90 days

## Environmental

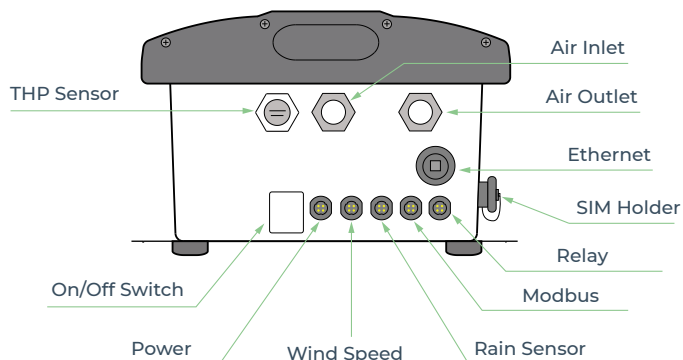
Operating Temperature	-20 °C to 60 °C
Operating Humidity	0-93% RH
Recommended Humidity	15-90% RH
Storage Conditions	10 - 40°C











## 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 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

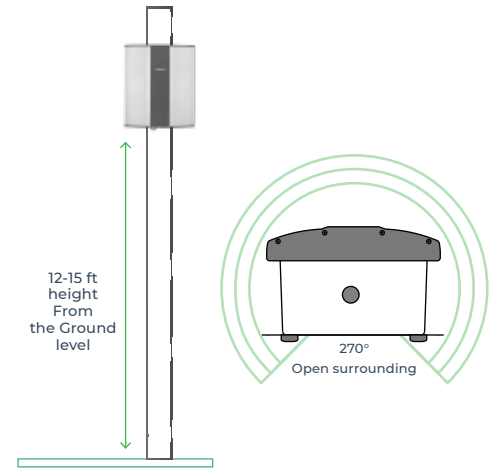


	Connectivity Options	Specification
Wireless	 GSM	Global 2G / 3G / 4G
	 LoRa	868 MHz / 915 MHz
	 LTE	CAT-M1
	 NB-IoT	CAT-NB1
	 sigfox	868 to 869 MHz, 902 to 928 MHz
	 Wi-Fi	AP Mode and Station Mode
Wired		Satellite
		Static / DHCP Configuration
		RS485 RTU / TCP
		2 Channel Relay

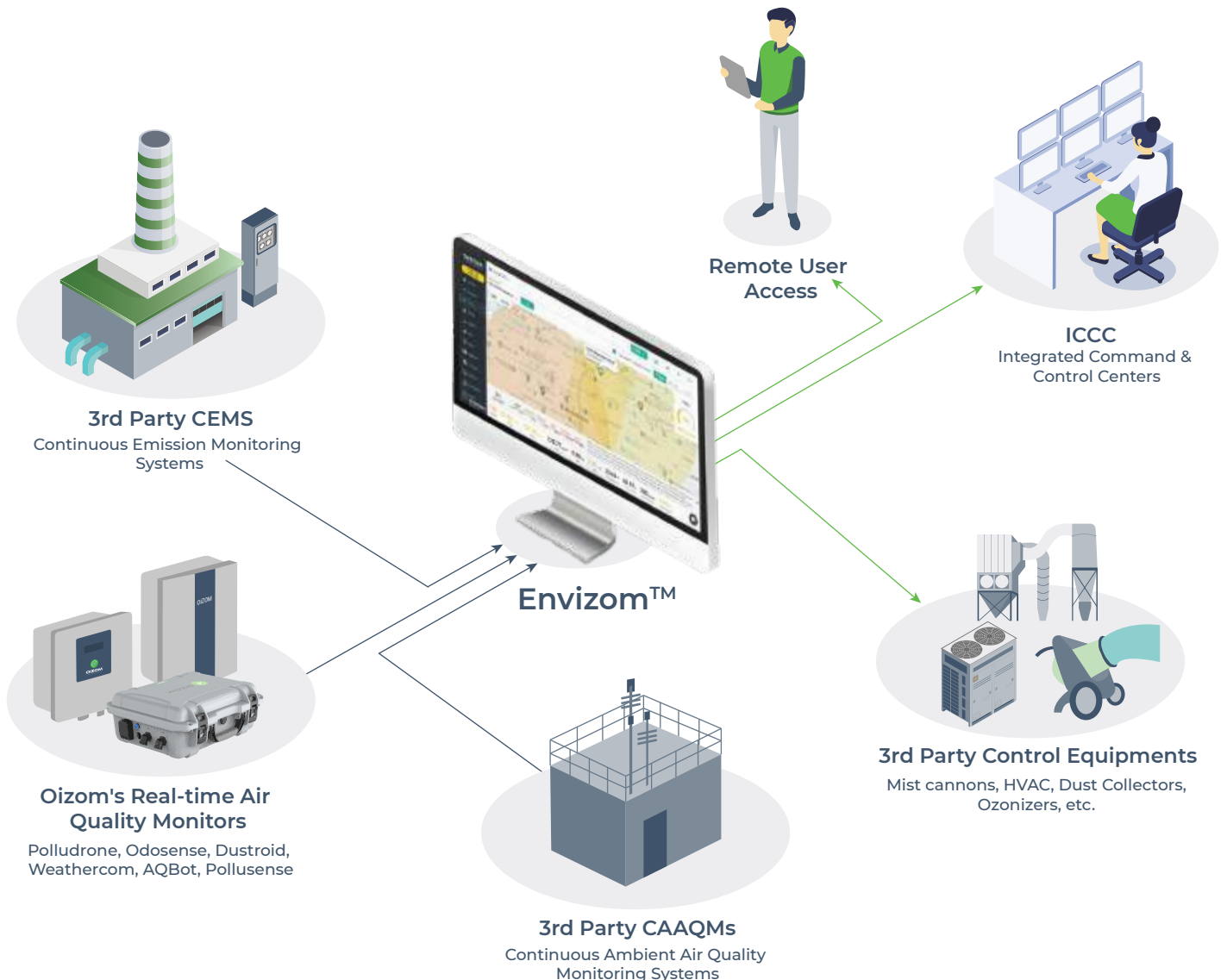
# Functional Specifications

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

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



# 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.

Envizom's Cluster module allows users to monitor and analyze the odour data of industrial zones and nearby areas. The Complain module keeps users notified of air quality complaints in nearby areas and helps them to take immediate actions to reduce the problem to action time.

## Envizom™ Capabilities



Real-time Data



Smart alerts



Automated Reports



Easy to Integrate API



Advanced Analytics



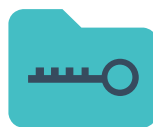
Process Automation

## 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



OWASP



IEC 62443-4-1



Security Tested



100w Cybersecurity Practices



TCM SECURITY

# Case Studies



## Dubai is leading the way to a cleaner future with Oizom's Odosense®

Dubai Municipality installed Oizom's Odosense® throughout the city to take the necessary actions by monitoring toxic and odorous gases impacting the air quality.



UAE



Odosense Custom



Smart City

## Kanjurmarg Dumpyard detects harmful odours with Oizom's odour monitoring solution

Oizom's Odosense® continuously monitors real-time odorous emissions from one of Asia's largest dumpyards, KanjurMarg, Maharashtra, India, to take data-driven actions to control and mitigate the issue.



India



Odosense Custom



Dumpyard



## Monitoring air quality at Johanna Foods plant to control odours

Johanna Food, a leading food processing plant in the US, chose Oizom® to minimise the impact of odorous gases emitted from their processes and create an action plan to mitigate and control odour.



New Jersey



Odosense Pro



Wastewater treatment plant





# Case Studies



## Bioreactor Landfill odour monitoring in Republic of Croatia

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



Croatia



Odosense Smart



Industrial Odour

## Brasov landfill authorities improving air quality for residents with Odosense

Oizom's Odosense® is installed at Brasov Landfill to monitor harmful odour and manage complaints to improve the air quality for nearby residents.



Romania



Odosense Smart



Landfill



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

One of the largest sea port in Oman, Port of Duqm deployed Odosense to ensure safe working conditions by monitoring the air quality and odour levels.



Oman



Odosense Custom



Sea Port Monitoring

# Oizom<sup>®</sup> Gas Sensor

The Oizom<sup>®</sup> Gas Sensor (OGS) module is designed to accurately measure low concentrations of various gases at ppb, and ppm levels in the ambient air. The sensor is capable to monitor the point source gases on real-time basis. Each sensor is integrated into a metal casing along with the ultra-low-noise support electronics, which makes it compact and reliable. This allows accurate gas detection even at very low concentrations in the atmosphere.

1. Proprietary gas sensing technology
2. Independent calibration of each sensor
3. Low-noise electronic design



## 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.(Vol II, Section 6.0 Rev.1)



### 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<sup>®</sup> 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 monitoring company that offers accurate air quality monitoring solutions for better decision-making. Using our patented monitoring technology, Oizom's system monitors various environmental parameters related to Air Quality, Noise, Odour, Weather, Radiation, etc. Our data analytics platform derives various actionable insights for authorities, communities, and industries. With smart environmental solutions, Oizom® aims to empower future cities with reliable and accurate environmental monitoring.

Over the past decade, Oizom® has focused on environmental monitoring technology and solutions, and till now, we've deployed 3500+ devices. We are monitoring the environmental health of more than 250 million people worldwide. The solutions we provide are in 90+ major cities worldwide. With a network of partners, Oizom® has expanded its reach and made a strong presence in over 80 countries worldwide.

## Other Oizom® Products



### Dustroid®

Real-time Dust Monitor

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



### AQBot™

Single Parameter Air Quality Monitor

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



### 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



WASTE CONNECTIONS  
*Connect with the Future*



EPSON®

بلدية دبي  
Dubai Municipality



Changing the way Industries monitor air quality



Get in touch



House No.2, Garden View Corporate House,  
Opp. Bodakdev Auda Garden, Ahmedabad, India

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