Odosense ®

Odor Monitoring System

...uously detects, measures, and monitors odourful parameters such as Sulphur Dioxide (SO_2), Hydrogen sulfide (H_2S), Ammonia (NH_3), Methyl Mercaptan (CH_3SH), Total volatile organic compound (TVOC), Formaldehyde (CH_2O), Nitrogen Dioxide (NO_2), Chlorine (CL_2), 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.

Solar Powered with Battery Backup
Compatible to charge internal battery using solar power.

Retrofit Design
Plug and play design for ease of implementation.

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

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

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

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

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

Over-The-Air Update
Automatically upgradeable from a central server without any onsite visit.

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

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

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

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_2S, NH_3, Temperature, Humidity, Pressure
Odosense® Smart	Solid Waste	SO_2, H_2S, NH_3, CH_3SH, TVOC, Temperature, Humidity, Pressure
Odosense® Pro	Industrial, ETP	SO_2, H_2S, NH_3, CH_3SH, TVOC, CH_2O, 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_2S)	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_3SH)	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)	18 Months
	OZTVOC_2	0-200 ppm	0.05 ppm	0.05 ppm	N.A.		
Formaldehyde (CH_2O)	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_1*	0-10 ppm	0.001 ppm	0.01 ppm	±20 ppb / Year		
	OZNO2_2	0-100 ppm	0.2 ppm	0.2 ppm	< 2% / Month		
	OZNO2_3	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 (CH4)	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.		

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

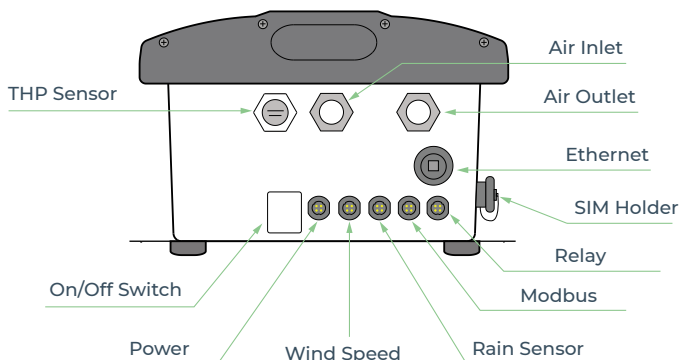|	
Processor	Quad Core ARM Cortex
Memory	2GB RAM / 8GB eMMC ROM
Device Interface	On-device Software / API / Cloud Platform
Internal Data Storage	Upto 8 GB or 90 days

🌡 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

THP Sensor, Air Inlet, Air Outlet, Ethernet, SIM Holder, Relay, Modbus, Rain Sensor, Wind Speed, Power, On/Off Switch

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
	WiFi	AP Mode and Station Mode
Wired	ETHERNET	Static / DHCP Configuration
	Modbus	RS485 RTU / TCP
	RELAY	2 Channel Relay

Solution Architecture

3rd Party CEMS
Continuous Emission Monitoring Systems

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

Envizom™

3rd Party CAAQMs
Continuous Ambient Air Quality Monitoring Systems

Remote User Access

ICCC
Integrated Command & Control Centers

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

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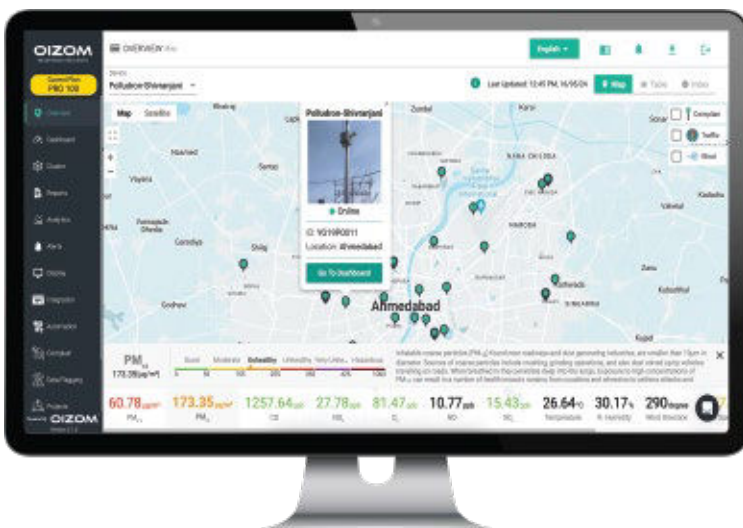
Envizom™ is an Environmental monitoring software for real-time air quality data acquisition, visualization, and analytics. The Oizom® environmental data interpretation engine fetches the data from the Oizom® Environmental monitoring stations. On receiving the data, the engine runs necessary corrections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

Envizom™ Capabilities
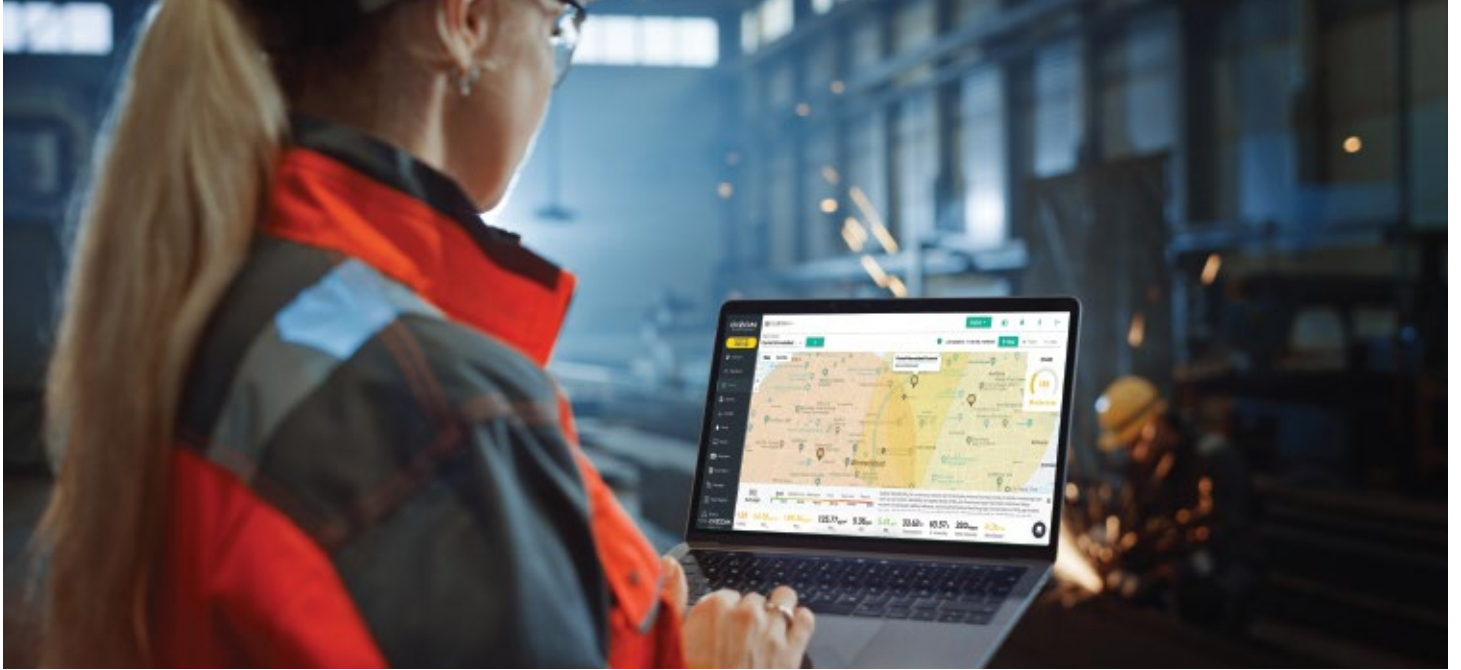
⏱ **Real-time Data**

🔔 **Smart alerts**

🖥 **User friendly interface**

⚙ **Easy to Integrate**

📊 **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.

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

12-15 ft height From the Ground level

270° Open surrounding
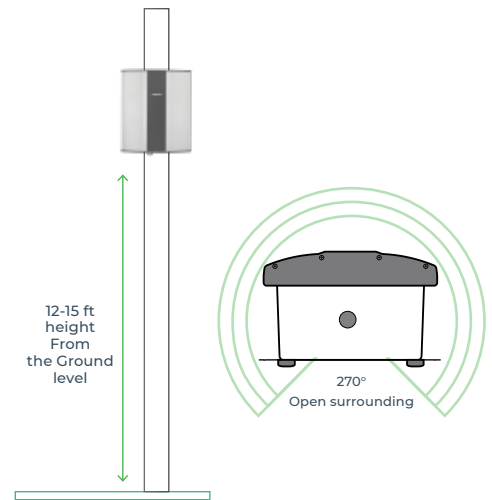
Data and Calibration

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.

OIZOM ®
REDEFINING RESOURCES

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

OIZOM ®
REDEFINING RESOURCES

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