

# Pollusense

Portable Air Quality Monitor



# About Pollusense



Pollusense is a Portable Air Quality Monitoring System that measures multiple toxic gases and particulate matter along with noise. The device offers a range of customizable parameters, making it ideal for various applications such as environmental impact assessments, industrial monitoring, environmental audits, mining, indoor air quality assessment, leak detection, construction sites, landfills, livestock management, and research.

Pollusense is a compact and briefcase-sized device that can be carried anywhere to get accurate air quality data. It also has an on-device display that lets users check parameters directly. The data collected by Pollusense can also be accessed through Oizom's Envizom™ environmental monitoring software, enabling comprehensive data visualisation and analytics.

## Product Features



### In-built display

View data directly on the device without relying on any smart devices.



### Alerts and notifications

Receive timely notifications when parameters exceed predefined limits.



### Compact and lightweight

Lightweight and compact system that can be easily set up and transported.



### Patented Technology

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



### Real-time Data

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



### Internal Storage

Internal data storage capacity of up to 16 GB or 90 days.



### Easy-to-carry

Carry anywhere you go and monitor air quality anytime.



### Identity And Configuration

Geo-tagging allows you to get the exact location of the device, consisting of latitude and longitude coordinates.



### Weather Resistant (IP65)

Durable enclosure designed to withstand extreme weather conditions.



### Long battery life

Monitor the environmental parameters up to 24 hours without worrying about battery life.



### Network Agnostic

Supports a wide range of connectivity options GSM/LTE/WiFi/LoRa/Ethernet/Satellite.



### Easy-to-set-up

Set up the device in no time and start getting accurate data.

# Key Benefits



**Quick Sensor stabilisation**  
Get real-time Gas data within 30 minutes\* and Noise and PM data within 5 minutes.



**Quick & Seamless Installation**  
Easily deployable at the surface level or on industrial tripods for real-time monitoring.



**Multi-parameter Monitoring**  
Compatible with a wide range of parameters, including PM, Gases, and Meteorological parameters.



**Secure Cloud Platform**  
Secure platform for visualising and analysing data with easy API integration for immediate action.



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



**Portable Device**  
It is easy to carry, transport, and deploy at any location.

# Pollusense Usecases



## Industries

Comprehensively assess gaseous emissions and the environmental impact of industrial activities to make data-driven measures for minimising their fatal effect.



## Environmental Audit

Conduct environmental audits and improve your ESG scores by optimising the environmental health and safety of the citizens.



## Wastewater

Monitor odour intensity at wastewater treatment plants to regulate odour emission by appropriate maintenance on time.



## Mining

Monitor harmful gas emissions and dust levels during mining activities to protect the working environment and nearby communities.

\*30 min - if the device has been turned off for < 24 hours, and 3 hours - if the device has been turned off for long

# Pollusense Parameters

Parameter	ID	Range	Resolution	Min. Det.	Working Principle	Expected Sensor Life
 Ammonia (NH <sub>3</sub> )	OZNH3_4*	0-10 ppm	0.02 ppm	0.02 ppm	Electrochemical	2 Years
	OZNH3_2*	0-100 ppm	0.3 ppm	0.3 ppm		
	OZNH3_3	0-1000 ppm	2 ppm	2 ppm		
 Methane (CH <sub>4</sub> )	OZCH4_2	50-10,00,000 ppm	1 ppm	500 ppm	Molecular Property Spectrometer (MPS)	2 Years
 Hydrogen Sulfide (H <sub>2</sub> S)	OZH2S_5*	0-10 ppm	0.01 ppm	0.01 ppm	Electrochemical	2 Years
	OZH2S_2	0-50 ppm	0.05 ppm	0.05 ppm		
	OZH2S_3	0-200 ppm	0.2 ppm	0.2 ppm		
	OZH2S_4	0-2000 ppm	2 ppm	2 ppm		
 Total Volatile Organic Compounds (VOC)	OZTVOC_1*	0-40 ppm	0.001 ppm	0.005 ppm	Photo Ionization Detection (PID)	24 Months #
	OZTVOC_2	0-200 ppm	0.05 ppm	0.05 ppm		
 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> 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*	0-20 ppm	0.05 ppm	0.05 ppm	Electrochemical	2 Years
	OZCl2_2	0-50 ppm	0.1 ppm	0.1 ppm		
 Hydrogen Chloride (HCl)	OZHCl_1	0-50 ppm	0.5 ppm	0.5 ppm	Electrochemical	2 Years
	OZHCl_2	0-100 ppm	1 ppm	1 ppm		
 Formaldehyde (CH <sub>2</sub> O)	OZCH2O_1*	0-10 ppm	0.05 ppm	0.05 ppm	Electrochemical	2 Years
	OZCH2O_2	0-50 ppm	0.1 ppm	0.1 ppm		
 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_4*	0-20 ppm	0.01 ppm	0.01 ppm	Electrochemical	2 Years
	OZSO2_2	0-100 ppm	0.2 ppm	0.2 ppm		
	OZSO2_3	0-2000 ppm	5 ppm	5 ppm		
 Nitrogen Dioxide (NO <sub>2</sub> )	OZNO2_4*	0-10 ppm	0.01 ppm	0.01 ppm	Electrochemical	1 Year
	OZNO2_2	0-100 ppm	0.2 ppm	0.2 ppm		2 Years
	OZNO2_3	0-500 ppm	0.5 ppm	0.5 ppm		2 Years
 Carbon Monoxide (CO)	OZCO_5*	0-10 ppm	0.02 ppm	0.02 ppm	Electrochemical	1 Year
	OZCO_4	0-50 ppm	0.05 ppm	0.05 ppm		2 Years
	OZCO_2	0-100 ppm	0.1 ppm	0.1 ppm		2 Years
	OZCO_3	0-1000 ppm	0.75 ppm	0.75 ppm		2 Years
 Nitric Oxide (NO)	OZNO_3*	0-10 ppm	0.02 ppm	0.02 ppm	Electrochemical	2 Years
OZNO_2	0-100 ppm	0.5 ppm	0.5 ppm			
 Carbon Dioxide (CO <sub>2</sub> )	OZCO2_1*	0-5000 ppm	1 ppm	400 ppm	Non-Dispersive Infrared	2 Years
 Oxygen (O <sub>2</sub> )	OZO2_1*	(0-25) %VOL	0.1 %VOL	0.1 %VOL	Electrochemical	2 Years
 Ozone (O <sub>3</sub> )	OZO3_2*	(0-8) %VOL	0.01 ppm	0.01 ppm	Electrochemical	1 Year

# 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.

\*Indicates standard delivery timeline



# Specifications

## Technical

Processor	Quad Core ARM Cortex
Memory	2GB RAM / 16GB eMMC ROM
Device Interface	Display / On-device Software / API / Cloud Platform
Internal Data Storage	Up to 16 GB or 90 days

## 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/LTE) for remote diagnosis, FOTA updates, and cloud calibration

## Mechanical

Size	503mm (L) x 406mm (W) x 193mm (H)
Weight	9 kg (Instrument weight)
Material	Waterproof (IPX7), dustproof (IP6X) & MIL-SPEC certified Case
Installation Method	Tripod Mount / Surface Level

## Environmental

Operating Temperature	-20 °C to 60 °C
Operating Humidity	0-93% RH
Recommended Temperature	-20 °C to 45 °C
Recommended Humidity	15-90% RH
Storage Conditions	10 - 40°C

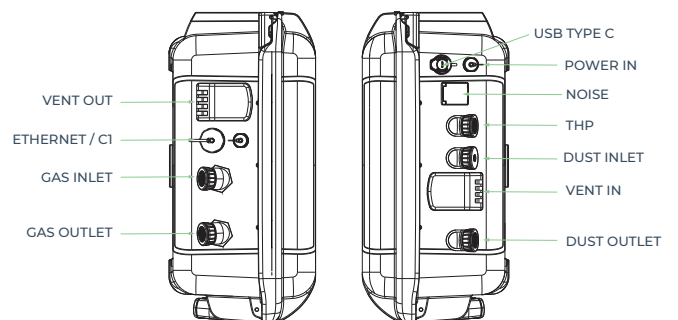
## Sensing

Gas sample mode	Active-Sampling
Warm-up time	Upto 30 min* for gas monitoring 15 min for Noise and PM monitoring

## Electrical

Avg. Power Consumption	Up to 7 Watts
Power Input Options	AC: 100VAC- 240VAC 50/60Hz DC: 24V, 2A Type C: ≥ 45W PD
Battery	12.8V 12Ah / 153 Wh

	Connectivity Options	Specification
Wireless	GSM	Global 2G / 3G / 4G
	LTE	CAT-M1
	Wi-Fi	AP Mode and Station Mode
	LoRa	868 MHz / 915 MHz
Wired	ETHERNET	Static / DHCP Configuration

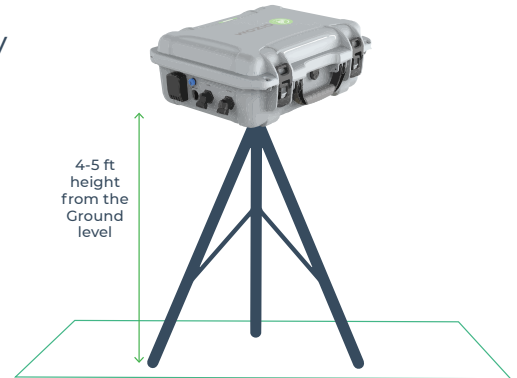


\*30 min - if the device has been turned off for < 24 hours, and 3 hours - if the device has been turned off for long

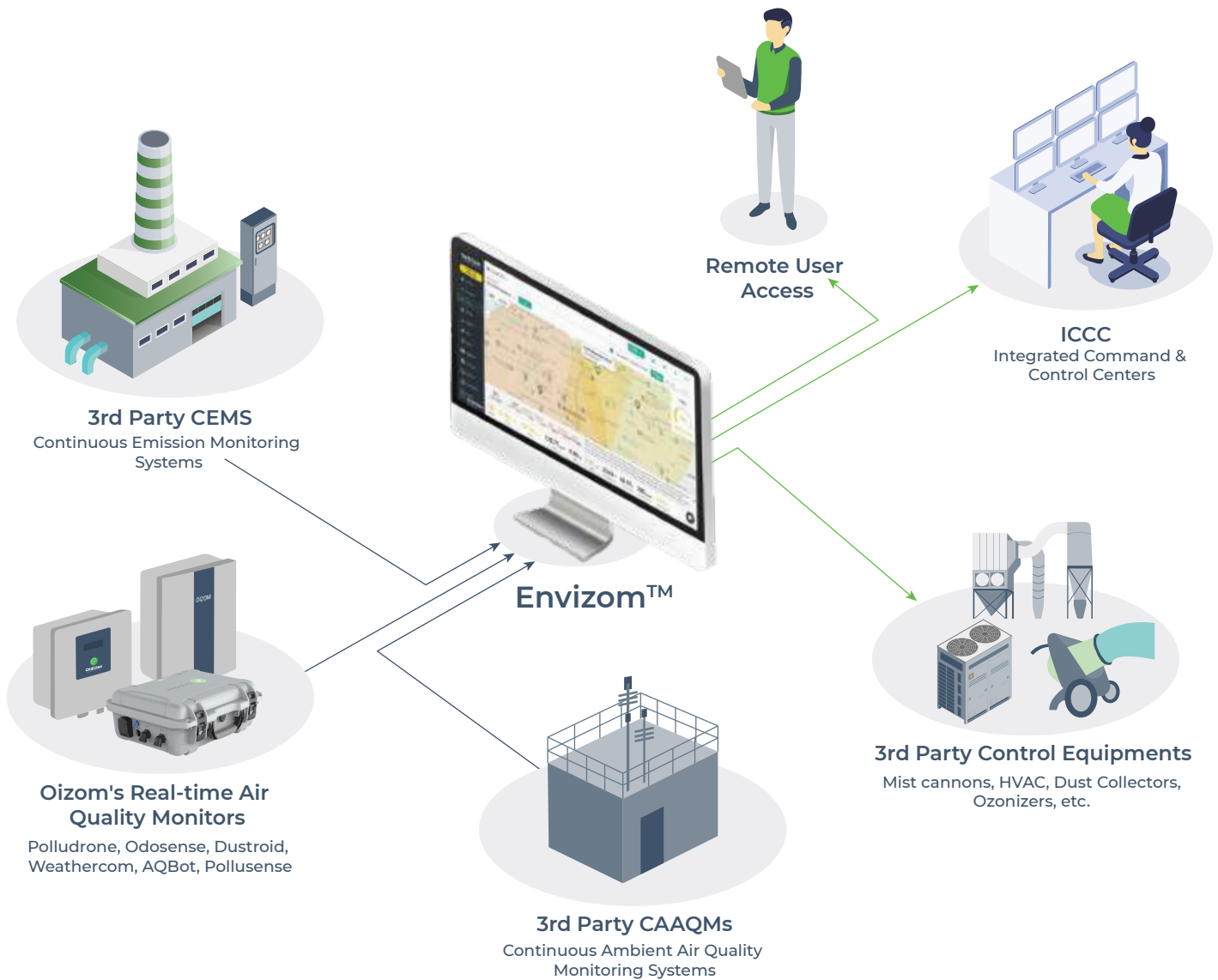
# Functional Specifications

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>	Tripod Mount / Surface Level (preferably 270° open surrounding)
<b>Installation Height</b>	4-5 feet (1.2-1.5 meters)
<b>Direction</b>	As per minimum direct sunlight exposure
<b>Setup</b>	Recommended to setup the device under shade if the temp is above 35°C
<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 dashboard module lets users visualise the device's data in various widgets for easy understanding. With analytics and report modules, users can compare the data and get automated reports of the various air quality parameters.

### 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  
Open Web Application  
Security Project



IEC 62443-4-1



Security Tested



100w Cybersecurity  
Practices



TCM  
SECURITY

# 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 3000+ devices. We are monitoring the environmental health of more than 200 million people worldwide. The solutions we provide are in 65+ major cities worldwide. With a network of partners, Oizom® has expanded its reach and made a strong presence in over 70 countries worldwide.

## Other Oizom® Products



**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.



**Polludrone®**  
Ambient Air Quality Monitoring

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



**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**



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