

Pollusense

Portable Air Quality Monitor



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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.



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Pollusense Parameters

| Parameter | ID | Range | Resolution | Min. Det. | Working Principle | Expected Sensor Life |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------|---------------------------------------|----------------------|
|  Ammonia (NH ₃) | 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 ₄) | OZCH4_2 | 50-10,00,000 ppm | 1 ppm | 500 ppm | Molecular Property Spectrometer (MPS) | 2 Years |
|  Hydrogen Sulfide (H ₂ 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 _{2.5} , PM ₁₀ , PM ₁ , PM ₁₀₀) | OZPM_1* | Upto 5000 µg/m ³ for PM ₁ , PM _{2.5} , PM ₁₀ Upto 30 mg/m ³ for PM ₁₀₀ | 0.1 µg/m ³ | 1 µg/m ³ | Optical Particle Counter | 18 Months |
|  Noise | OZN_1* | Up to 140 dB | 1 dB | 0.5 dB | Capacitive | 2 Years |
|  Chlorine (Cl ₂) | 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 ₂ 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 ₃ SH) | OZCH3SH_1* | 0-10 ppm | 0.1 ppm | 0.1 ppm | Electrochemical | 2 Years |
|  Sulfur Dioxide (SO ₂) | 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 ₂) | 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 ₂) | OZCO2_1* | 0-5000 ppm | 1 ppm | 400 ppm | Non-Dispersive Infrared | 2 Years |
|  Oxygen (O ₂) | OZO2_1* | (0-25) %VOL | 0.1 %VOL | 0.1 %VOL | Electrochemical | 2 Years |
|  Ozone (O ₃) | 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



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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

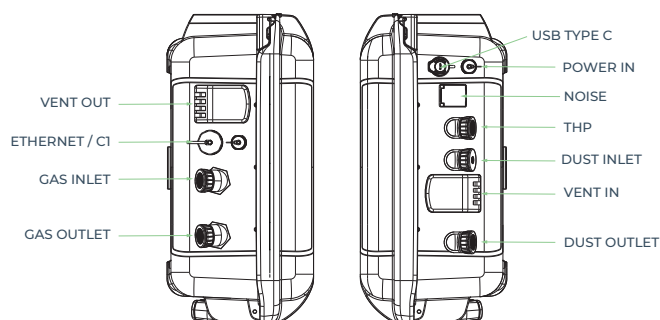
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|-----------------|-----------------------------------------------------------------------|
| Gas sample mode | Active-Sampling |
| Warm-up time | Upto 30 min* for gas monitoring 15 min for Noise and PM monitoring |



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



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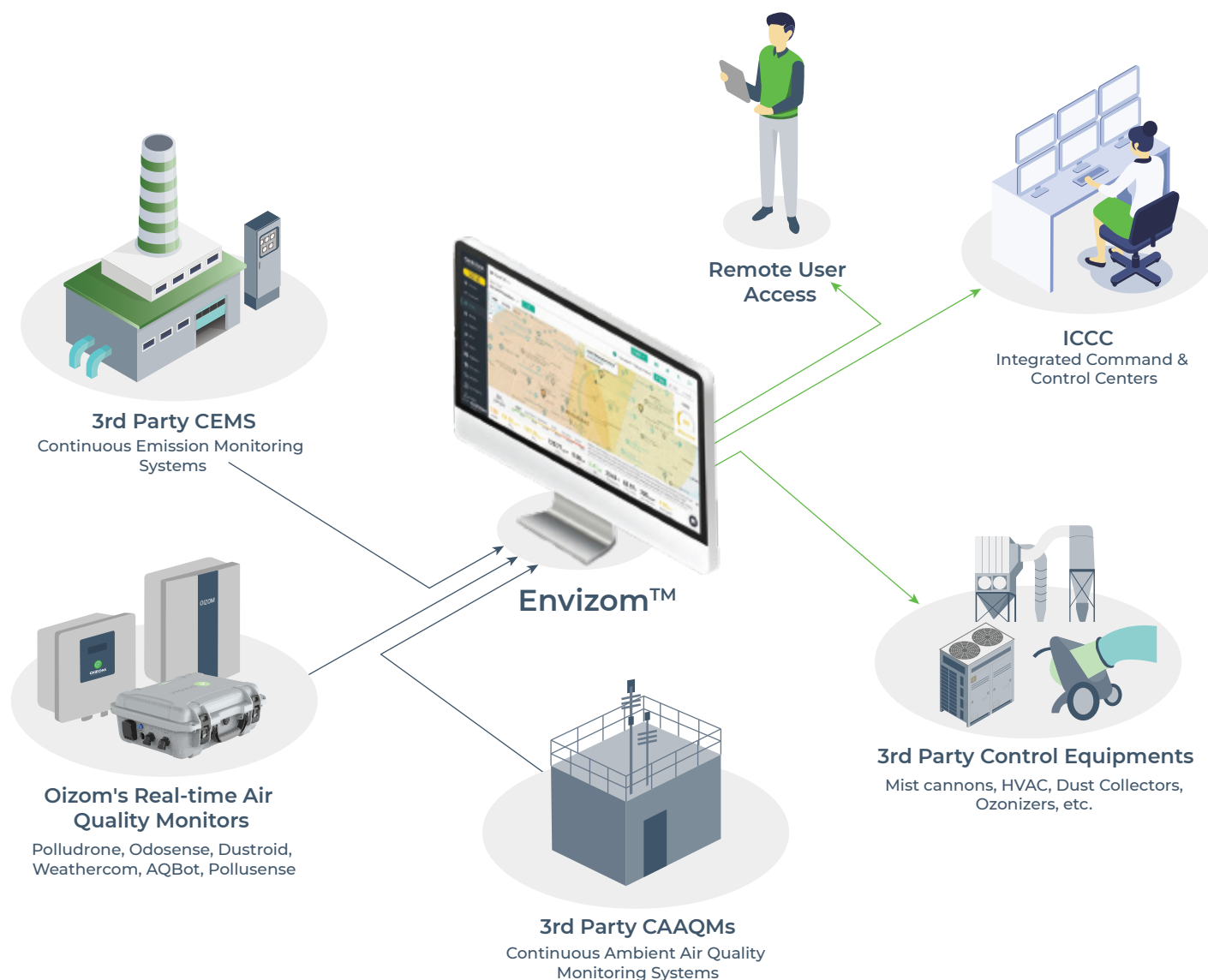
Functional Specifications

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.I), the selection of locations should be based on monitoring purposes.

| | |
|----------------------|-----------------------------------------------------------------------|
| Preferred Mounting | Tripod Mount / Surface Level (preferably 270° open surrounding) |
| Installation Height | 4-5 feet (1.2-1.5 meters) |
| Direction | As per minimum direct sunlight exposure |
| Setup | Recommended to setup the device under shade if the temp is above 35°C |
| Network Availability | 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



Smart alerts



Automated Reports



Easy to Integrate



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.



IEC 62443-4-1



Security Tested



100w Cybersecurity Practices



TCM SECURITY



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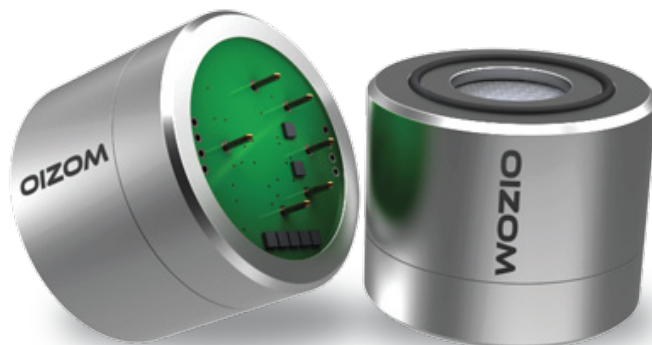


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Oizom® Gas Sensor

The Oizom® 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® 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.



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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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