

# AQBot<sup>™</sup>

Industrial Grade Single Parameter Air Quality Monitor

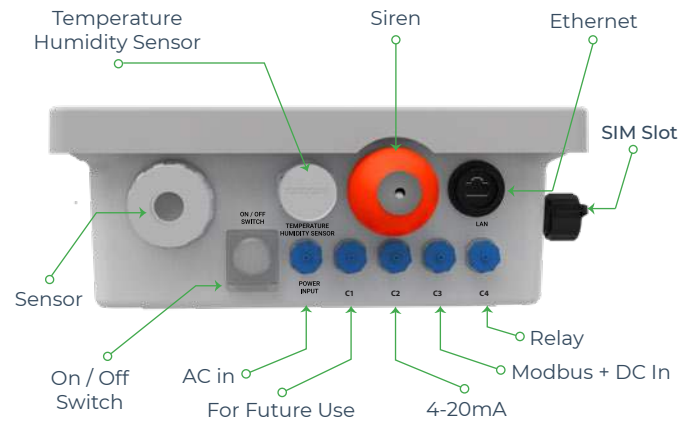


# About AQBot™



AQBot™ is an industrial grade single parameter air quality monitor with automation capabilities. AQBot™ Series offers a wide range of air quality parameters to choose from. AQBot™ product range consists of critical parameters and toxic gases like Total Volatile Organic Compounds (TVOC), Ammonia (NH<sub>3</sub>), Hydrogen Sulfide (H<sub>2</sub>S), Methane (CH<sub>4</sub>), Carbon Monoxide (CO), Formaldehyde (CH<sub>2</sub>O), Particulate Matter (PM<sub>1</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, PM<sub>100</sub>), Ambient Noise. The AQBot™ series is designed for easy operation.

The AQBot™ enclosure houses robust electronics to last long in extreme industrial conditions. It offers industry-standard connectivity options in addition to multiple modes of wired and wireless communications. Using a wide range of communication capabilities, AQBot™ enables the Industrial Internet Of Things (IIoT) which is the backbone of Industrial Revolution 4.0. AQBot™ can easily integrate with existing building monitoring or plant control systems.



## Product Features



Wide range of parameters



On-device display



Real-time data



Data analytics software



Built-in relay



Alerts and notifications



Compact



Durable



Wired communication



Wireless communication



Internal data storage



Dedicated support

# Key Benefits



## Accurate Data

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



## Robust And Rugged

Durable enclosure to sustain harsh industrial conditions.



## Relay-Based Automation

In-built relay operation for automation



## Cloud Platform

Visualise and analyse data in the cloud. Easy data integration via APIs.



## Easy to install

Effortless installation with versatile mounting arrangements.



## Seamless Connectivity

A wide range of options of wired and wireless connectivity.

## AQBot™ Usecases



### Industrial Fenceline

Comprehensively assess the environmental impact of industrial activities and monitor the fugitive emissions, and gas leaks on a real-time basis.



### Environmental Automation

Improve your Environmental Process control by monitoring air pollution, odour and other environmental conditions on a real-time basis.



### Wastewater

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



### Industrial EHS

Conduct Environmental audits and improve your ESG scores by optimizing the Environmental, Health, and Safety of the citizens.

# AQBot Variants

Parameter	ID	Range	Resolution	Min. Det.	Working Principle	Sensor Life
 Ammonia (NH <sub>3</sub> )	OZNH3_1* OZNH3_2* OZNH3_3	0-20 ppm 0-100 ppm 0-1000 ppm	0.3 ppm 0.3 ppm 2 ppm	0.3 ppm 0.3 ppm 2 ppm	Electrochemical	2 Years
 Methane (CH <sub>4</sub> )	OZCH4_1 OZCH4_2	500-1500 ppm 50-10,00,000 ppm	1 ppm 1 ppm	500 ppm 500 ppm	Molecular Property Spectrometer (MPS)	2 Years
 Hydrogen Sulfide (H <sub>2</sub> S)	OZH2S_1* OZH2S_2 OZH2S_3 OZH2S_4	0-1.5 ppm 0-50 ppm 0-200 ppm 0-2000 ppm	0.001 ppm 0.05 ppm 0.2 ppm 2 ppm	0.01 ppm 0.05 ppm 0.2 ppm 2 ppm	Electrochemical	2 Years
 Total Volatile Organic Compounds (VOC)	OZTVOC_1* OZTVOC_2	0-40 ppm 0-200 ppm	0.001 ppm 0.05 ppm	0.005 ppm 0.05 ppm	Photo Ionization Detection (PID)	5000 Hours
 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> , PM <sub>10</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	5000 Hours
 Noise	OZN_1*	Up to 140 dB	1 dB	0.5 dB	Capacitive	2 Years
 Chlorine (Cl <sub>2</sub> )	OZCl2_1* OZCl2_2	0-20 ppm 0-50 ppm	0.05 ppm 0.1 ppm	0.05 ppm 0.1 ppm	Electrochemical	2 Years
 Hydrogen Chloride (HCl)	OZHCl_1 OZHCl_2	0-50 ppm 0-100 ppm	0.5 ppm 1 ppm	0.5 ppm 1 ppm	Electrochemical	2 Years
 Formaldehyde (CH <sub>2</sub> O)	OZCH2O_1* OZCH2O_2	0-10 ppm 0-50 ppm	0.05 ppm 0.1 ppm	0.05 ppm 0.1 ppm	Electrochemical	2 Years
 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_1* OZSO2_2 OZSO2_3	0-10 ppm 0-100 ppm 0-2000 ppm	0.001 ppm 0.2 ppm 5 ppm	0.01 ppm 0.2 ppm 5 ppm	Electrochemical	2 Years
 Nitrogen Dioxide (NO <sub>2</sub> )	OZNO2_1* OZNO2_2 OZNO2_3	0-10 ppm 0-100 ppm 0-500 ppm	0.001 ppm 0.2 ppm 0.5 ppm	0.01 ppm 0.2 ppm 0.5 ppm	Electrochemical	2 Years
 Carbon Monoxide (CO)	OZCO_1* OZCO_4 OZCO_2 OZCO_3	0-5 ppm 0-50 ppm 0-100 ppm 0-1000 ppm	0.01 ppm 0.05 ppm 0.1 ppm 0.75 ppm	0.01 ppm 0.05 ppm 0.1 ppm 0.75 ppm	Electrochemical	2 Years
 Nitric Oxide (NO)	OZNO_1* OZNO_2	0-5 ppm 0-100 ppm	0.001 ppm 0.5 ppm	0.01 ppm 0.5 ppm	Electrochemical	2 Years
 Carbon Dioxide (CO <sub>2</sub> )	OZCO2_1*	0-5000 ppm	1 ppm	400 ppm	Non-Dispersive Infrared	2 Years

\*Indicates standard delivery timeline

# Specifications

## Mechanical

Size	210MM(W) x 258mm(H) X 105mm(D)
Weight	2.8 Kg (instrument weight)
Material	NEMA 4X Fire Retardant FRP Enclosure
Certifications	CE, IP66, RoHS
Installation Method	Pole Mount / Wall Mount

## Electrical

Avg. Power Consumption	3.5 Watt (Actual consumption depends upon the number of parameters)
Power Input Options	AC : External 90-265V AC, 50-60Hz DC : Uninterrupted 12V DC or 24V DC, 2 Ampere
Certifications	CE, RoHS, cURus UL, IEC/EN61000-4 and CISPR32/EN55032 & IEC/UL/EN62368 standard.

## Technical

Processor	Quad Core ARM Cortex
Memory	2GB RAM / 8GB eMMC ROM
Device Interface	Display / 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

## 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

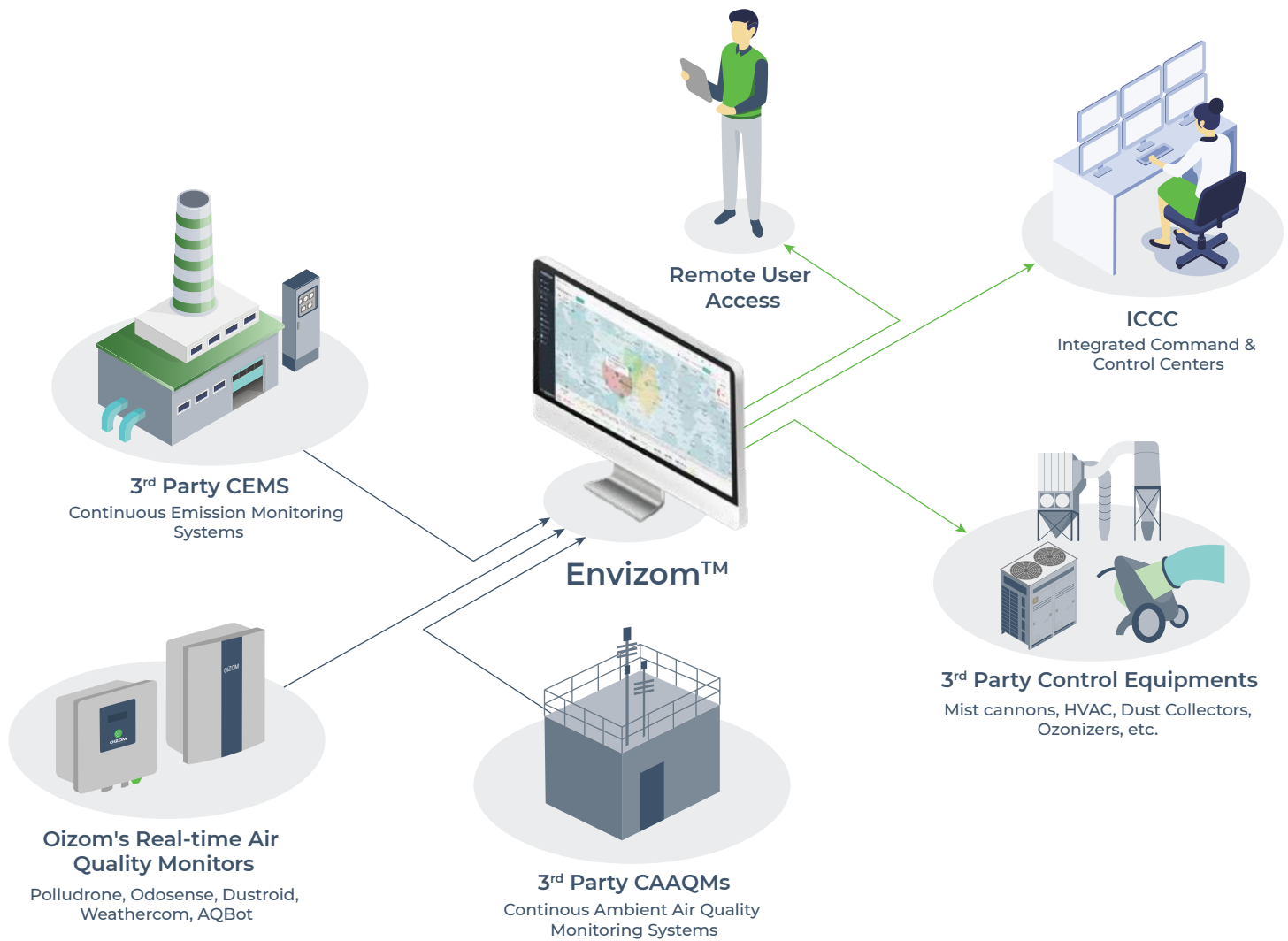
## Sensing

Target Parameter	Refer Parameter Table
Gas Sample Mode	Natural Diffusion
Warm up time	1 hour(cold start) for Gas Monitoring
Response Time (t90)	< 60 seconds
Signal Refresh Rate	5 seconds
Measuring Range	Refer Parameter Table
Accuracy	<±5% FS (at 20±5°C/50±20%RH)
Sensor Life	Refer Parameter Table

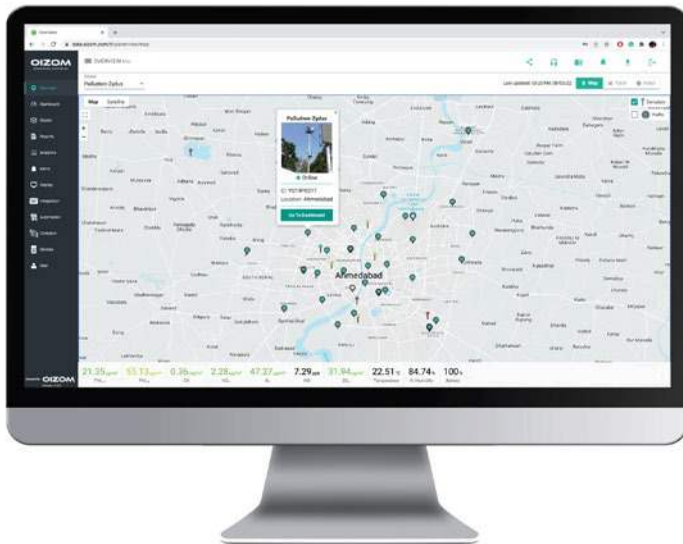
	Connectivity Options	Specification
Wireless	 GSM	Global 2G / 3G / 4G
	 LTE	CAT-M1
	 WiFi	AP Mode and Station Mode
Wired	 Ethernet	Static / DHCP Configuration
	 Modbus	RS485 RTU / TCP
	 RELAY	2 Channel Relay

Note: LoRa, NBIoT, Sigfox available as an option

# Solution Architecture

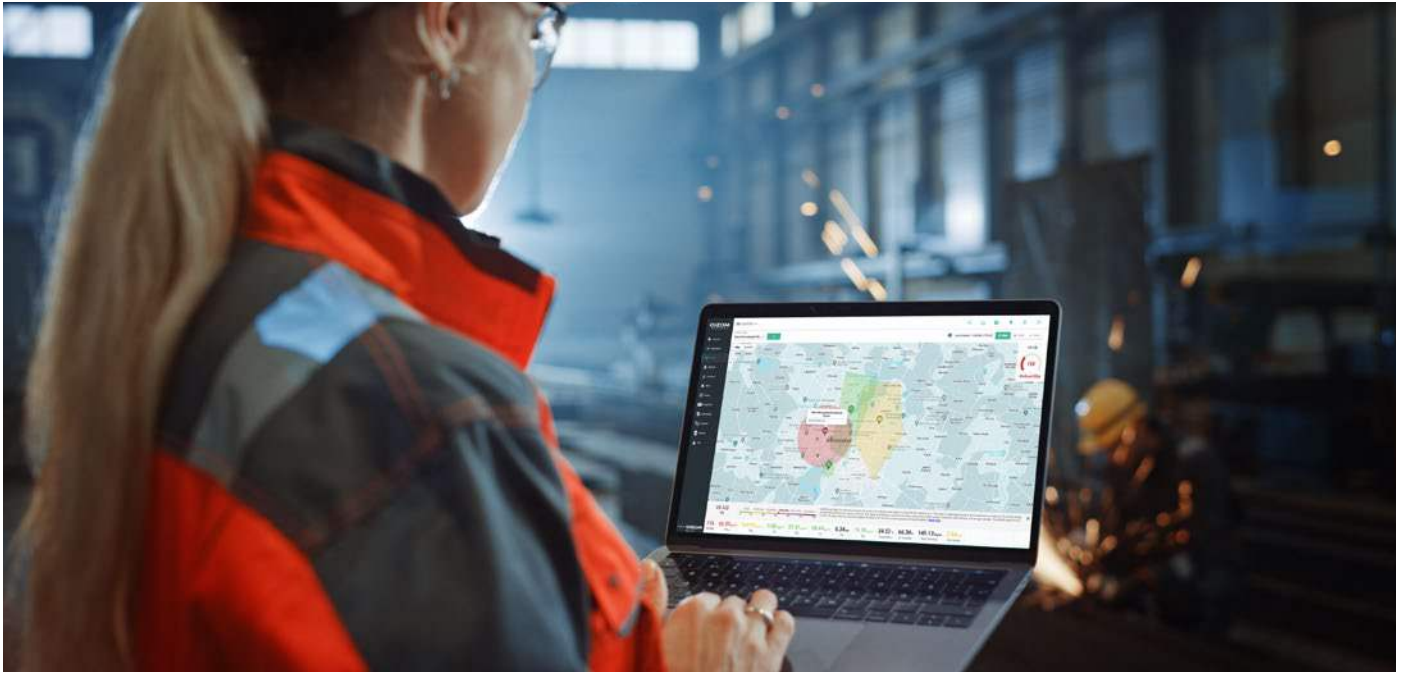


## Envizom™ Air Quality Software



An on-device data software enables users to access the data, configure networks and sensors without any dependency on the internet. Users can also connect their smart devices to AQBot and view real-time data, perform on-site calibration, change network configuration, and change sensor configuration.

# Envizom™ Features



Real-time data



Smart alerts



User friendly interface



Easy to Set Up



One click share



Data accessibility

## 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



## Monitoring chlorine gas at a common effluent treatment plant

AQBot™ Cl<sub>2</sub> is used for monitoring chlorine gas at a CETP in Jetpur, India.



India



July 2020



Wastewater

## Detecting and Monitoring CH<sub>2</sub>O at Australia

Oizom installed AQBot™ with our partners - Ektimo in Australia to detect and monitor CH<sub>2</sub>O (Formaldehyde) in workplaces.



Australia



May 2022



EHS



## Dust Monitoring at Ambuja Cement Factory in India

A cement factory in Raipur district of India opted for Oizom's AQBot™ to monitor dust particles in their factory and take preventive actions.



India



December 2022



Industrial Fenceline





# Case Studies



## Dust Monitoring in Coimbatore, India

Oizom installed AQBot™ for monitoring PM in an iron casting company named VR Foundries located in Coimbatore, India.



India



August 2022



Automation

## Dust Monitoring at Manufacturing Company in Hyderabad, India

Oizom installed AQBot™ for PM monitoring in a manufacturing company named Grip Strapping Technologies Pvt Ltd located in Hyderabad.



India



July 2022



Automation



## Monitoring Formaldehyde in a Laminates Facility, India

Samarpan Laminates installed Oizom®'s AQBot™ for monitoring formaldehyde in their manufacturing facility situated in Morbi district of India.



India



May 2022



Industrial  
EHS



# Industrial Applications



## Paper And Pulp Industry

**H<sub>2</sub>S** - Lime kiln and evaporator  
**TVOC** - Chemical pulping, bleaching and evaporator  
**CO<sub>2</sub>** - Fuel combustion, lime kiln  
**CH<sub>3</sub>SH** - Digester, black liquor storage, recovery boiler



## Leather Industry

**H<sub>2</sub>S & NH<sub>3</sub>** - Beamhouse, unhairing and liming process  
**TVOC** - Finishing operations - drying  
**PM** - Storage and handling of powdered chemicals  
**Cl<sub>2</sub>** - Pickling process



## Cement Industry

**CO** - Kilns in clinker process  
**NO<sub>2</sub>** - Rotary kiln and vertical shaft kiln, clinker  
**CO<sub>2</sub>** - Limestone decarbonization and fuel combustion  
**PM** - Packaging and ash handling system



## Food And Beverages Industry

**Cl<sub>2</sub>** - In various disinfecting activities  
**NH<sub>3</sub>** - Refrigeration and cooling systems  
**CO<sub>2</sub>** - Carbonation and fermentation processes



## Wastewater Treatment Plants

**CH<sub>4</sub> & CH<sub>3</sub>SH** - Sludge storage and anaerobic digestion  
**Cl<sub>2</sub>** - Chlorination before outlet discharge



## Dairy Industry

**NH<sub>3</sub>** - Manure storage and application  
**CH<sub>4</sub>** - Manure in housing and enteric fermentation



## Textile Industry

**NO** - Sizing process  
**TVOC** - High temperature ovens - drying and coating  
**Cl<sub>2</sub>** - Bleaching process  
**PM** - Cotton handling process and boiler



## Fisheries Industry

**H<sub>2</sub>S** - Bacteriological and enzymatic decay  
**NO** - Cooking and drying - fishmeal industry  
**TVOC** - Direct and indirect fried dryers  
**NH<sub>3</sub>** - Fish rotting



## Thermal Power Plants

**CO** - Fuel combustion in boiler  
**NO** - Natural gas/oil/coal based fuel combustion  
**CO<sub>2</sub>** - Boiler fuel combustion  
**PM** - Ash extraction plant



## Mining Industry

**SO<sub>2</sub> & NO<sub>2</sub>** - Extraction including blasting & crushing  
**CH<sub>4</sub>** - Material destruction and natural disintegration  
**PM** - Drilling, blasting and transportation



## Meat Processing Plants

**H<sub>2</sub>S** - Storage and ETP  
**CH<sub>4</sub> & CH<sub>3</sub>SH** - By product, storage & ETP



## All Industries

**Noise** - In every operation including rotary mechanical components

*\*This is an indicative list.  
Speak to our representative for your exact requirement.*

# 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.

# Other Oizom® Products



### Polludrone®

Ambient Air Quality Monitoring

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



### Odosense®

Odour Monitoring System

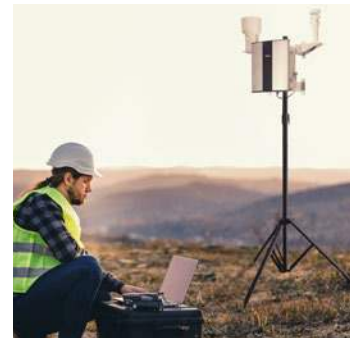
Odosense® monitors various odourful and toxic gases in the environment and provides insight into odour dispersion.



### 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.





Trusted by

**60+ Countries**



Solutions Installed in

**65+ Cities**



Total Devices Installed

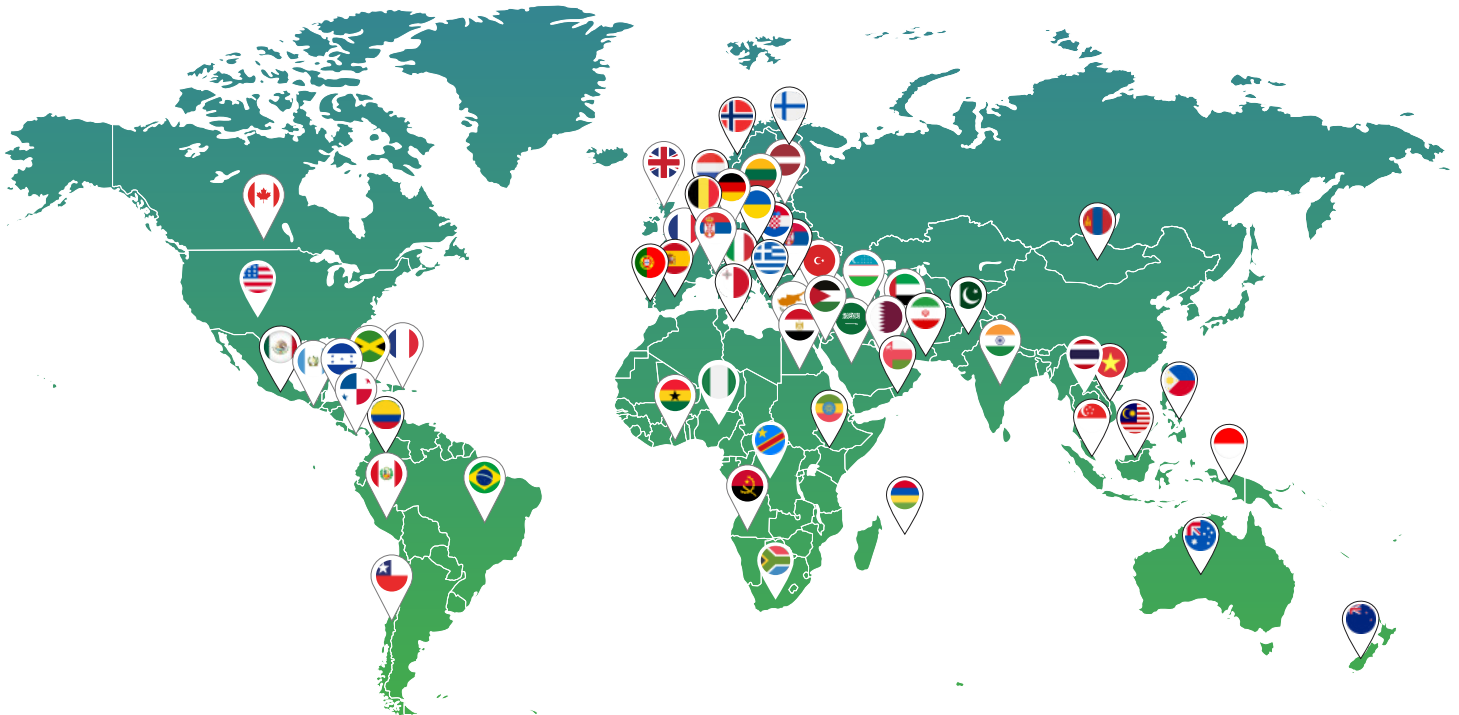
**1000+**



Total Population Covered

**200 million+**

## Global Presence



**Accurate Air Quality Monitoring And Advanced Data Analytics**



Get in touch



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