

# Weathercom<sup>®</sup>

Automatic Weather Station



# About Weathercom®



Weathercom® is an Automatic Weather Station (AWS) that provides a holistic view by continuously monitoring wind speed & direction, rainfall, road visibility, light intensity, UV radiation, temperature, humidity, and pressure. It goes beyond basic data collection. It analyses historical trends to provide accurate forecasts and timely alerts, empowering proactive decision-making. This makes it ideal for diverse applications such as Roads and Highways, Smart Cities, Mining Sites, Agriculture, Climate Research, Disaster Prevention, Airport and Seaport monitoring.

Weathercom's IP66-rated enclosure ensures it can withstand any climate conditions, from scorching deserts to freezing tundras, as well as extreme wind and rain. It seamlessly connects via wired or wireless options.



## Product Features



### Fully Solar Powered

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



### Weather Resistant (IP 66)

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



### 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.



### Real-Time Data

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



### Trusted by IMD and WMO

Trusted by leading meteorological organizations, such as the India Meteorological Department & the World Meteorological Organization.



### Network Agnostic

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



### Identity And Configuration

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



### Internal Storage

Internal data storage capacity of upto 8 GB or 90 days.





# Key Benefits



## Robust And Rugged

Durable enclosure to sustain extreme climatic conditions.



## Monitor Multi-parameter

Monitor a wide range of meteorological parameters, including wind, rain, temperature, humidity, pressure, Solar radiation, and several more.



## Seamless Connectivity

A wide range of options of wired and wireless connectivity.



## Secure Cloud Platform

Secure platform for visualising and analysing data, with easy API integration for immediate action.



## Accurate Data

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



## Easy to install

Effortless installation with versatile mounting arrangements.

# Weathercom® Usecases



## Agriculture

Temperature and rainfall play an important role in crop growth. By monitoring weather conditions and patterns, farmers gain valuable insights to manage their crops effectively.



## Sea Ports

The data acquired from the Weathercom device can help detect approaching storms or high winds and take the required decisions beforehand.



## Smart city

Pollution monitoring at strategic locations in a smart city empowers city authorities to obtain actionable insights for pollution control.



## Roads And Highways

Road accidents can be prevented by cautioning drivers and setting up a dynamic speed limit according to weather conditions.



# Parameters

Sensor	ID	Range	Resolution	Min. Detection	Working Principle	Expected Sensor Life
Wind Speed	OZWSD_1	0-40 m/s	0.1 m/s	0.1 m/s	Ultrasonic	2 years
Wind Direction		0-359°	1°	1°		
Rain	OZRAIN_1	N.A.	0.25 mm	0.25 mm	Tipping bucket	
Ambient Noise	OZN_1	Up to 140 dB	1 dB	0.5 dB	Capacitive	2 years
Temperature	OZTEMP_1	-40°C to 125°C	0.01 °C	-40°C	Solid State Semiconductor Sensing	
Humidity	OZHUM_1	100% Rh	0.10%	0.10%		
Barometric Pressure	OZPRES_1	300-1100 hPa	0.18 Pa	300 hPa		
Pyranometer Solar Radiation 300 - 1100 nm	OZUV_1	Up to 1,00,000 Lux	1 Lux	1 Lux	Photoconductivity	3 years
		Upto 5000 Lux	0.1 Lux	0.1 Lux		
		0.1-100,000 uW/cm <sup>2</sup>	0.1 uW/cm <sup>2</sup>	0.1 uW/cm <sup>2</sup>		
		0-12	-	-		

**Note:** 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



### Noise Sensor

OZN\_1\*

**Working Principle:** Capacitive  
**Range:** Upto 140 dB



### Vibration Sensors

PPV: +/- 2G

**Range frequency:** 0.5 - 250 Hz

**Range velocity:** ±50 mm/s (±2 in/s)

**Working Principle:** MEMS



### Pyranometer

OZUV\_1\*

**Working Principle:** Photoconductivity

Vibration sensors and soil moisture sensors are available as optional features upon specific customer requests.

# Specifications



## Mechanical

Size	360mm (H) x 328mm (W) x 200mm (D)
Weight	8.7 Kg (instrument weight)
Material	Aluminum Magnesium Alloy, Mild-steel (With Powder Coating), FRP
Certifications	CE, NEMA 4X, IP66, RoHS, IMD



## 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 (LiFePO <sub>4</sub> ) 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



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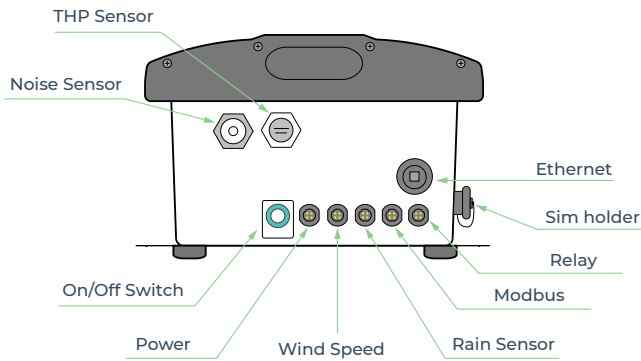
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## Communication

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



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	Satellite	Satellite
	Ethernet	Static / DHCP Configuration
	Modbus	RS485 RTU / TCP
	RELAY	2 Channel Relay

# Functional Specifications

### Strategic Location Selection

EPA's Meteorological guidelines for regulatory modelling mentions the following distance/height from the ground level for strategic sensor location:

### Wind Speed and Direction

Wind sensor should be at least 10 m above the surface to avoid hindrance by buildings.

### Temperature and Humidity

This sensor should be located 2 m above the surface.

### Rain Gauge

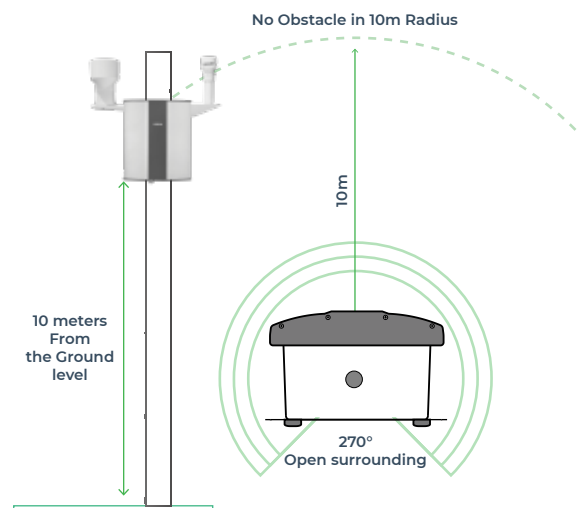
It should be placed on the ground level such that its mouth faces horizontally towards the sky.

### Solar Radiation

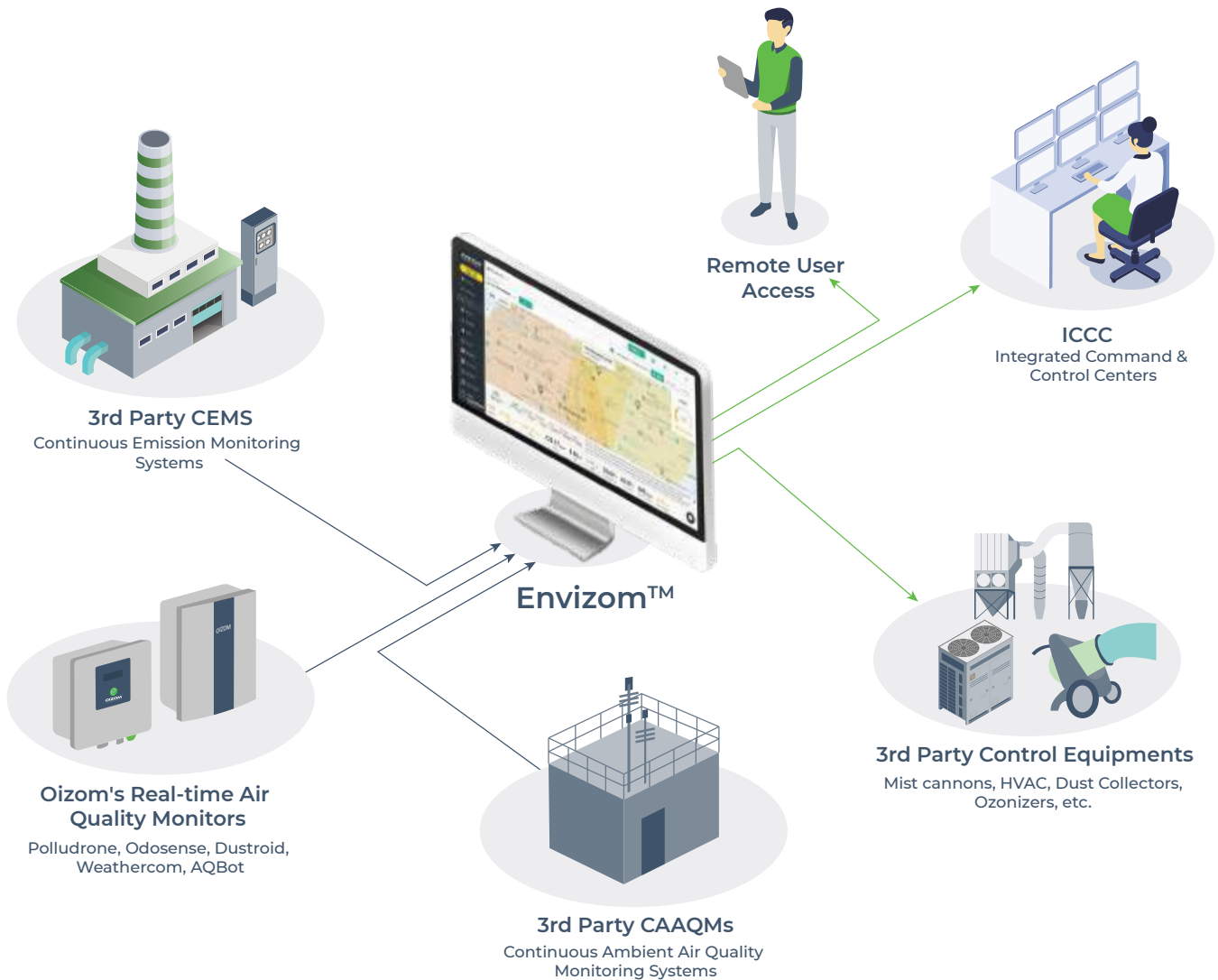
Pyranometer should be placed such that it has unrestricted incoming radiations from all directions.

## Installation

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



# 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.

In the Envizom platform, meteorological and wind data can be viewed with Wind rose charts, which visually represent the wind speed and direction over a specific period of time at a particular location. The platform also has a weather prediction and forecasting feature based on historical data, which allows users to plan and postpone activities proactively by knowing upcoming weather patterns. This helps to take preventative measures.



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# Envizom™ Capabilities



## Envizom™ Capabilities



Real-time Data



Easy to Integrate



Smart alerts



Advanced Analytics



Automated Reports



Forecasting

## 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



IEC 62443-4-1



Security Tested



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# Case Studies



## Monitoring weather on a real-time basis in Dholera Smart City

Oizom® is monitoring the weather in the Dholera Smart city on a real-time basis by installing Weathercom®.



India



Weathercom



Smart City

## Monitoring Weather at Adani Dighi Port, Maharashtra

Adani Dighi Port in Maharashtra is monitoring the weather by using Oizom®'s Weather Monitoring Station – Weathercom®.



India



Weathercom



Seaports



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# Case Studies

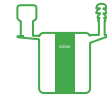


## Weather monitoring with Pollucon at Mormugao Port, Goa

At Adani Mormugao Port Terminal in Goa, weather-com was installed to measure the wind and rain in the area.



India



Weathercom



Seaports

## The Advanced Institute of Wildlife Conservation installed Weathercom® to study biodiversity.

The Advanced Institute of Wildlife Conservation installed Oizom's Weathercom to study how weather impacts biodiversity and to develop better conservation strategies.



India



Weathercom



Wildlife Conservation



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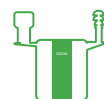


## Flood and weather monitoring in Colombia

Oizom®'s weather monitoring station, Weathercom® is monitoring the rainfall and flood levels in Colombia to warn and safeguard civilians from these natural disasters.



Colombia



Weathercom



Smart City

## Weather Monitoring at Kandla Port, India

At Kandla Port where over 100 MMT Cargo is handled, Weathercom® monitors rain, wind direction and wind speed data for Port Personnel daily activities and weather data.



India



Weathercom



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# 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.

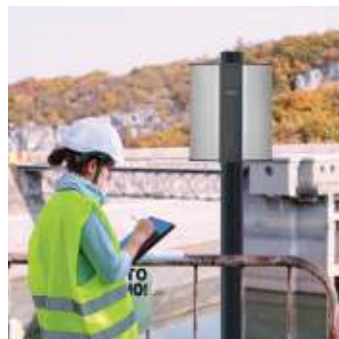
## Other Oizom® Products



### Polludrone®

Ambient Air Quality Monitoring

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



### Odosense®

Odor 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.



### 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+**

## Oizom Customers



Changing the way Industries monitor air quality



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