



Description

The weather station offers real-time monitoring of temperature, humidity, wind speed, rainfall, solar radiation, and more. With a solar panel and battery backup, it operates continuously in remote areas. Featuring wireless communication (GSM/Wi-Fi/RS485), rugged weatherproof design, and modular sensor options, it's ideal for agriculture, environmental monitoring, and renewable energy applications.

Features

- **Solar-Powered with Battery Backup:** Continuous operation with renewable energy and backup power.
- **Comprehensive Weather Monitoring:** Tracks temperature, humidity, wind speed/direction, rainfall, solar/UV radiation, and more.
- **Wireless Communication:** Real-time data via GSM, Wi-Fi, or RS485 Modbus.
- **Rugged, Weatherproof Design:** Built for harsh environments with stainless steel or painted metal housing.
- **Modular Sensor Integration:** Easily customizable for additional environmental parameters like air quality (PM2.5/CO₂).
- **Low Power Consumption:** Optimized for efficient energy use.
- **Data Logging & Cloud Connectivity:** Local storage with options for cloud-based analytics and alerts.

Sensors



Wind Speed Sensor



Wind Direction Sensor



Ultraviolet Rays



Air Sensor



Rainfall Sensor (SS)



Ultrasonic Wind Speed and Direction



Total Solar Radiation Sensor

Parameters

Sr. No.	Sensor Name	Principle	Measurement Range	Measurement Accuracy	Resolution	Life Cycle
1.	Wind speed sensor	Anemometer	0-30m/s	±1m/s	-	3 to 5 Years
2.	Wind direction sensor	Wind vane	0-360°	±3°	-	
3.	Ultraviolet rays	Measures using a photosensitive element	0-150 w/m ²	± 3%	-	
4.	Total solar radiation sensor	Measures using a photosensitive element	0-1500W/m ²	-	1 W/m ²	
5.	Rainfall sensor (Stainless steel)	Tipping bucket mechanism	0.12~30(mm) /min	0.12mm	0.12mm	
6.	Temperature	Chip method	-40°C-80°C	±0.3°C	0.1°C	
7.	Humidity	Chip method	0-100%RH	±3-7%	0.1%RH	
8.	PM2.5	Laser detection principle	0-999ug/m ³	±10 Full Scale	1ug/m ³	
9.	PM10	Laser detection principle	0-999ug/m ³	±10 Full Scale	1ug/m ³	
10.	Pressure	-	10-1200mbar	±0.1mbar	0.01mbar	
11.	Light	-	0-200000.Lux	±7%	1	
12.	Noise	-	30-130dB	±1.5	0.1	
13.	Wind Speed and Direction	Ultrasonic	Wind speed: 0~60 m/s	± 2%	-	
			Wind direction: 0~360°	± 3%	-	

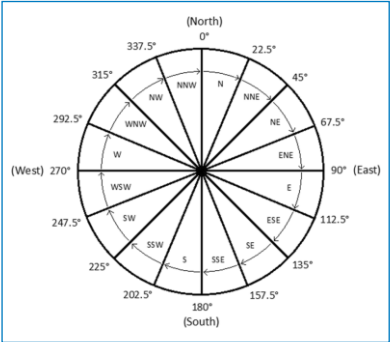
Model Options

Variants	Parameters
Basic (ABWS-0-0-0-0-1-2-1)	Wind Speed, Wind direction, Rainfall, Noise, Temperature, Humidity, Pressure, Light, Total Solar Radiation, Ultraviolet Rays, Ultrasonic Wind Speed and Direction*
Standard (ABWS-0-0-0-1-1-2-1)	Wind Speed, Wind direction, Rainfall, Noise, Temperature, Humidity, Pressure, Light, Total Solar Radiation, Ultraviolet Rays, Ultrasonic Wind Speed and Direction*, PM2.5, PM10

***NOTE:** On request, in place of Wind Speed (1) and Wind Direction (2)

Specifications

Mechanical	
Size	700 × 1150 × 1250 mm
Weight	23.45 kg (Approx.)
Material	MSCRA Painted RAL7035
Certifications	CE
Electrical	
Avg. Power Consumption	≤0.5W (@12V DC, 25°C)
Power Input Options	12-24V DC
SMPS Specs	24V,2 Amps output
Battery Backup Time	Upto 24 hours(As Per Customize)
Battery Specs	7Ah High Capacity Battery
Solar Panel	
Open-Circuit Voltage	21.96 V
Voltage at Pmax	18.25 V
Short-Circuit Current	0.59 A
Current at Pmax	0.55 A
Maximum Power	10 W
Technical	
Processor	STM 32-bit RISC ARM Cortex
Device Interface	Cloud Platform
Data Storage	As per Requirement
Environmental	
Operating Temperature	(- 10 to 70 °C)
Operating Humidity	0-95% RH without condensation
Recommended Humidity	15-90% RH
Storage Conditions	0-40 °C
Ingress Protection	IP 65
Communication	
Wired Communication	Modbus Protocol (RS 485)
Wireless Communication	WiFi /GSM Over MQTT
Transport interface	4G wireless signal transmission
Cloud Service	Cloud Integration with Dashboard, Reports, and Alerts
Installation	
Preferred Mounting	Pole / Wall
Installation Height	4-5 meters
Direction	As per maximum direct sunlight exposure
Network Availability	Uninterrupted Mobile network connection



ANEMOMETER & WIND VANE

- Site approx. 33 ft above ground
- Mount above roof apex & tree canopy
- Place 3x as far away from the mast as the mast's diameter



RAIN GAUGE

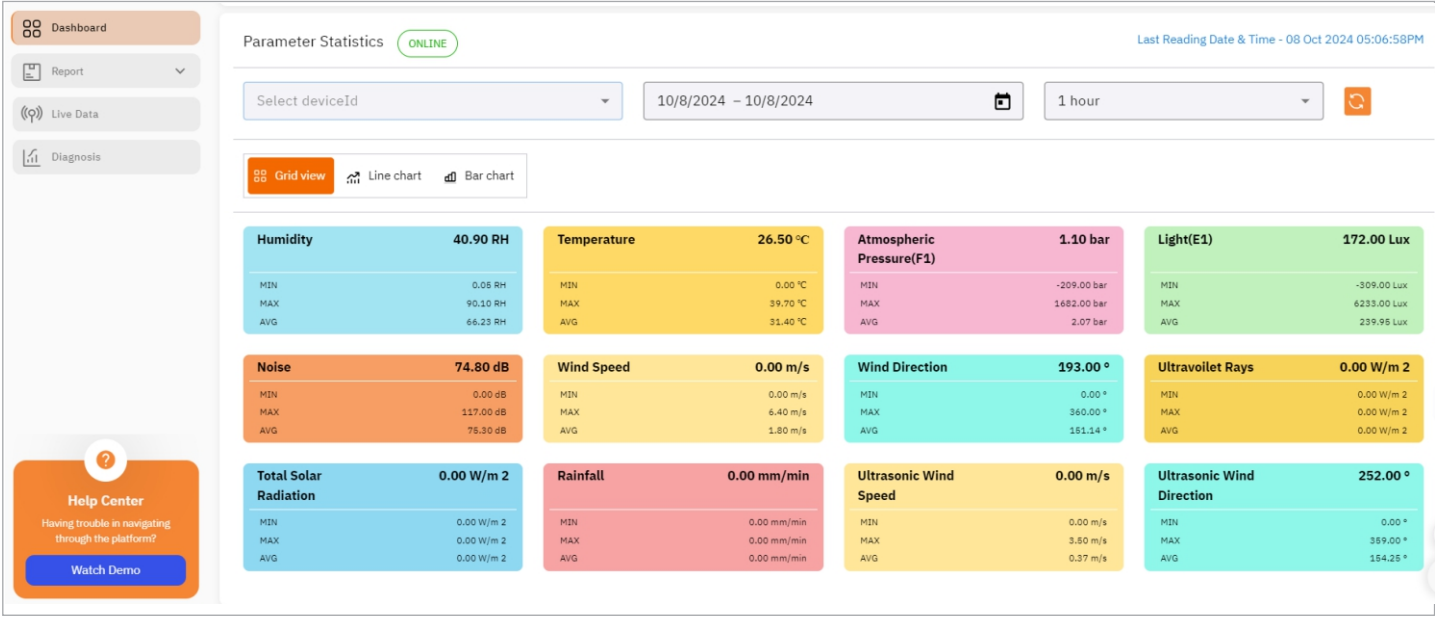
- Mount 2-5 ft above natural ground
- Ensure no in-splashing from hard surface nearby
- Locate away from roof line so water doesn't run in
- Site away from obstructions that are higher than the rain gauge

Maintenance and Troubleshooting

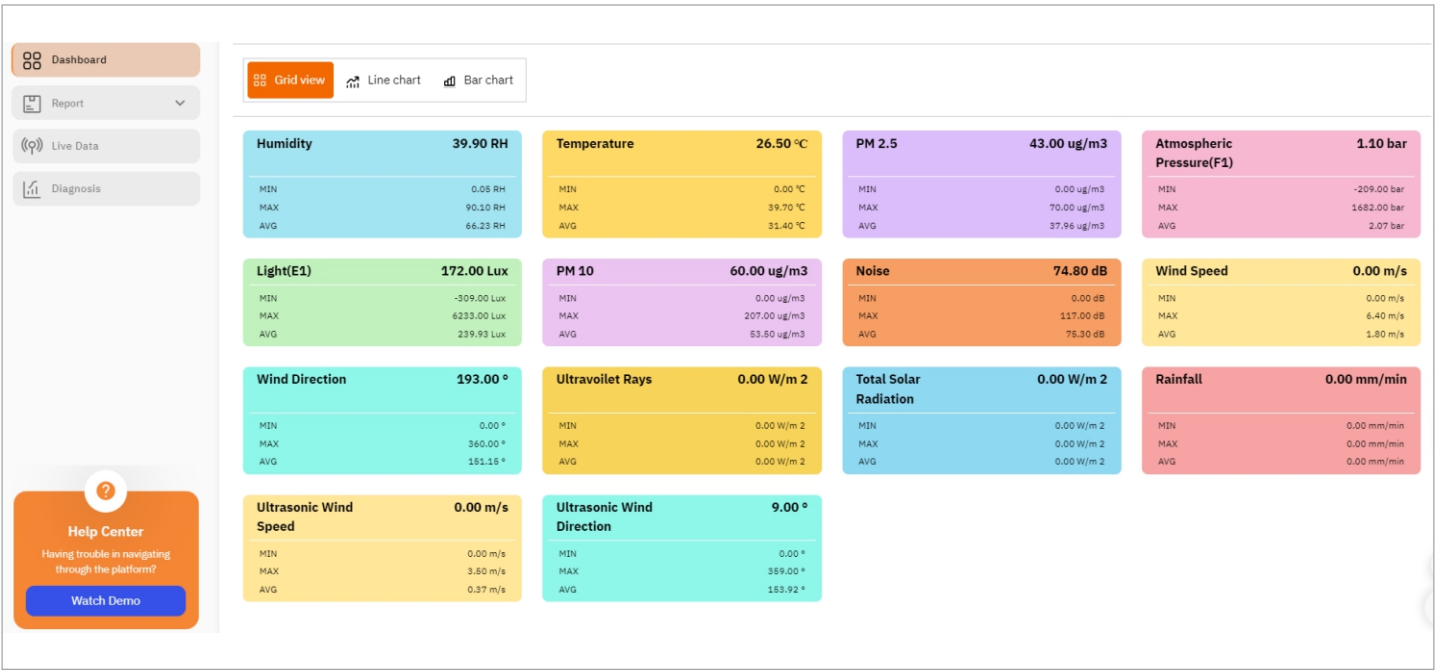
- **Routine Checks:** Regular inspections for cleanliness, sensor calibration, and proper operation.
- **Common Failures:** Address sensor malfunctions, connection issues, power supply failures, and software glitches promptly.
- **Documentation:** Keep detailed records of all maintenance and calibration activities.

Application Preview

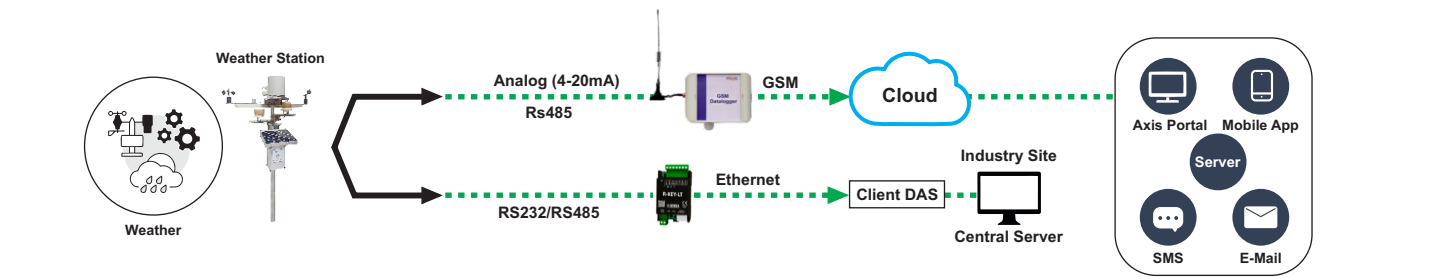
Basic Variant



Standard Variant



Weather Monitoring System



Ordering information

WS									
	Electrical Power								
	0					Solar with Integrated Battery			
	1					24V DC Supply			
	2					Auxiliary Power (90V - 230V AC)			
	Mounting								
	0					Base Mount			
	1					Wall Mount			
	Material								
	0					MSCRCA Painted RAL7035			
	1					SS304			
	2					SS316			
	Parameters Configuration*								
	0					Basic Version			
	1					Standard Version			
	2					Premium Version			
	3					Custom Configuration			
	RS485 Communication								
	0					NA			
	1					RS485 with Modbus Protocol			
	Wireless Communication								
	0					NA			
1					Wi-Fi Over MQTT Protocol				
2					GSM Over MQTT Protocol				
Cloud Services									
0					NA				
1					Cloud Integration with Dashboard, Reports, and Alerts				

(*) NOTE:

Parameters Configuration	Parameters
0) Basic	Wind Speed, Wind direction, Rainfall, Noise, Temperature, Humidity, Pressure, Light, Total Solar-Radiation, Ultraviolet Rays, Ultrasonic Wind Speed and Direction*
1) Standard	Wind Speed, Wind direction, Rainfall, Noise, Temperature, Humidity, Pressure, Light, Total Solar-Radiation, Ultraviolet Rays, Ultrasonic Wind Speed and Direction*, PM2.5, PM10
2) Premium Version	Wind Speed, Wind direction, Rainfall, Noise, Temperature, Humidity, Pressure, Light, Total Solar-Radiation, Ultraviolet Rays, Ultrasonic Wind Speed and Direction*, PM2.5, Pm10, Ozone (O3), Oxygen (O2), Carbon Dioxide (CO2), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Nitrogen Dioxide (NO2)
3) Custom Configuration	Sensors and ranges can be modified as per request.

NOTE: (*)On request, in place of Wind Speed (1) and Wind Direction (2)

Applications

- **Agriculture:** Monitoring weather conditions such as rainfall, temperature, humidity, and wind speed for optimized crop management and irrigation planning.
- **Environmental Monitoring:** Tracking air quality parameters like particulate matter (PM2.5/PM10), CO₂, and O₂ to assess pollution levels.
- **Disaster Management:** Providing early warning systems for storms, floods, and extreme weather conditions.
- **Renewable Energy:** Assessing solar and wind energy potential for solar farms and wind turbines by measuring solar radiation and wind speed.
- **Smart Cities:** Integrated into smart city infrastructure for real-time monitoring of weather, air quality, and noise pollution.
- **Climate Research:** Collecting data for research on climate patterns, global warming, and long-term weather trends.
- **Water Resource Management:** Monitoring rainfall and atmospheric pressure for water management, including dam level control and watershed management.
- **Construction and Mining:** Measuring site-specific weather conditions like wind speed, temperature, and humidity to ensure safe operation and optimal planning.
- **Transportation and Aviation:** Providing weather data for road safety, airport operations, and maritime navigation by tracking wind, visibility, and atmospheric pressure.
- **Rural and Remote Areas:** Ideal for locations without access to electricity or communication infrastructure, offering continuous weather data for local decision-making.

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