ENCARDIO RITE
METASENSING FOR MEGA STRUCTURES

AUTOMATIC WEATHER STATION

DATASHEET

MODEL EAWS-101

OVERVIEW

The Encardio-rite EAWS-101 is a compact, cost-effective weather data management and presentation system designed to deliver precise, continuous meteorological monitoring. It collects data from multiple high-quality sensors installed at the site, managed through the EWDAS-101 data logger, ensuring reliable measurement and secure storage.

Configured to monitor essential parameters — including rainfall, wind speed and direction, temperature, relative humidity, solar radiation, evaporation, and barometric pressure — the EAWS-101 is easily customizable to project-specific needs. The system automatically processes the collected data, performs necessary calculations, and presents the results in clear numerical and graphical formats. It can also generate alarms when parameters cross critical thresholds.

Engineered with rugged construction, low power consumption, a wide operating temperature range, and integrated lightning protection, the EAWS-101 provides precise performance even in harsh, high-humidity, or low-temperature environments. This makes it ideal for meteorological and climatological applications where accurate, dependable weather monitoring is critical for forecasting, research, and site safety.

FEATURES

- **Comprehensive monitoring:** Equipped with standard sensors to measure essential weather parameters such as rainfall, wind speed and direction, relative humidity, and temperature. Additional sensors (e.g., barometric pressure, solar radiation) can be added on request.
- **Flexible configuration:** The system can be customized according to the parameters you need to monitor and the sensors required for your project.
- **Automated data handling:** The AWS automates the entire process — from data collection and secure storage to calculation, analysis, and reporting.
- **User-friendly presentation:** Weather data is provided in clear numerical and graphical formats, making it easy to interpret and use for operational decisions.
- **Alarm & Alerts:** Configurable alarms notify stakeholders of any weather conditions that exceed predefined thresholds, enabling timely action.
- **Remote access:** Weather data can be accessed remotely in real time and integrated with other project systems.

WEATHER STATION SENSORS

DATA LOGGER

The EWDAS-101 data logger system configuration is capable of recording data from all the weather monitoring sensors as mentioned above. The data is logged at pre-selected time intervals and stored in an internal memory.

Suitable software and interface cables are provided for transferring the logged data from the data logger memory to a desktop or laptop computer. The data logger can store many days data in its internal memory. The standard configuration is supplied with mains powered battery backed power supply adequate for most sites. The Automatic weather station system data logger itself is housed in weather proof housing.

SPECIFICATIONS

EWDAS-101 data logger	
Scan/upload interval	5 seconds to 168 hours
Power supply	2 x D size 3.6 V/19 Ah Lithium cells, or 2 x D size 1.5 V Alkaline high power cells, or 12V SMF battery chargeable from AC mains or solar panel
Memory capacity	Flash Memory (64-Mbit); 2 Million data points
Temperature limit	-30 to 80°C
Data retrieval/ transmission	GSM/GPRS telemetry link, laptop/PC
Communication port	RS-232 (Standard) 115 kbps
Housing	Corrosion resistant weather proof enclosure

Model ERG-160 rain gage

Model ERG-160 mechanical rain gage is similar to model ERG-200/201 rain gage excepting that instead of the tipping bucket mechanism in the latter, there is a container to collect water in the former.

The collected rain water in the container is poured into the graduated flask to measure the rainfall over a period of time.

EWDAS-101 data logger	
Sensor Type	Tipping bucket
Output	Potential free contact, one momentary switch closure per tip
Tip sensor	Sealed magnetic proximity switch
Measurement range	0-500 mm/hr
Resolution	0.2 mm/tip for model ERG-200 0.5 mm/tip for model ERG-201
Accuracy	± 2 %
Operating temp	Up to 80°C
Catchment area	200 mm diameter
Construction	Corrosion resistant stainless steel outer housing, shock and vibration resistant

Model EWV-102U wind speed & direction sensor (ultrasonic)

Model EWV-102U uses ultrasonic technology to take measurements of wind speed and direction. It is maintenance free and easy to install. The data of speed and direction are available in the form of a public protocol.

Model EWV-102U	
Wind speed EWV-101S	
Range	0-60 m/s
Accuracy	±0.3 m/s
Resolution	0.1 m/s
Operating Temp.	-20 to 80°C
Wind direction	
Sensor type	Ultrasonic (no moving parts)
Range	0-360°
Accuracy	± 3°
Resolution	±1°
Operating Temp.	-20 to 80°C
General info for EWV-102U wind sped & direction	
Output	RS232/RS485
Response time	Less than 1 second lag in operating range

Model EWR-101S/102T solar radiation sensors

Solar Radiation sensor are available in two variations: Model EWR-101S having a silicon photovoltaic detector mounted in a cosine corrected head and model EWR-102T that has a high quality blackened thermopile protected by a dome.

EWR-101S measures sun plus sky radiations, while EWR-102T monitors solar radiation for full solar spectrum range. This enables EWR-102T to be used under plant canopies, artificial light conditions, when the sky is cloudy and for reflected radiation measurements. Both the models are accurate and dependable, ideal for long term use in harsh conditions.

EWR-101S

EWR-102T

Model EWR-101/102 solar radiation sensors

Sensor type	EWR-101S: Silicon photovoltaic detector mounted in a cosine corrected head EWR-102T: Blackened thermopile protected by a dome
Light Spectrum Waveband	EWR-101S: 360 to 1120 nm EWR-102T: 285 to 3000 nm
Range	0 – 2000 W/m2
Accuracy	3%
Sensitivity	EWR-101S: 5 W m^{-2} mV^{-1} EWR-102T: 15 µV/W/m^2
Resolution	1 W/m2
Threshold	120 W/m^2 of direct solar irradiance
Temperature ranges	EWR-101S: -40 to 80°C EWR-102T: -40 to 80°C

Model EWH-101T relative humidity & temperature gage

The model EWH-101T performs both relative humidity & temperature measurement. The humidity sensor is based on advanced technology with a unique sensing technology. The multi plate radiation shield protects the sensors from direct and reflected solar radiation, thus minimizing errors.

A 20 µm polyethylene filter provides a high level of protection and maintains the optimum measurement environment for the humidity & temperature sensors. The sensors are mounted in a small probe which contains all the electronics necessary to provide output for indicating the ambient humidity and temperature.

The sensor comes complete with the mounting clamps for easy mounting.

Model EWH-101T relative humidity & temperature gage

Sensor Type	Humidity: Capacitance thin film sensor Temperature: Pt100
Operating range	Humidity: 0....100 % Rh Temperature: -40 to 60°C
Accuracy	Humidity: ±0.8 % Rh Temperature: ± 0.2°C
Outputs	Humidity: 0-1 V DC Temperature: 0-1 V DC, Pt 100 Ohm
Resolution	Humidity: 1% Temperature: ± 0.1°C
Sensor response Time	10 seconds
Temperature ranges	-40 to 80°C
Housing protection	IP 65

Model EEG-10 evaporation measurement system

Model EEG-10 evaporation measurement system consists of evaporation gage and an evaporation pan. The system determines evaporation rate by measuring the changing water level in an evaporation pan. The evaporation gage is connected to the pan using stainless-steel pipe and fittings.

The evaporation gage consists of a float, pulley and counterweight attached to a precision 1000 Ω potentiometer mounted through a gear assembly in a weatherproof housing. It has a square base plate equipped with three leveling screws and a bubble level. The potentiometer produces a resistance output proportional to the position of the float. The data can be collected at site using a datalogger and can be monitored remotely.

Model EEG-10 evaporation measurement system	
Total Resolution	0.76 mm (0.03 in)
Potentiometer Accuracy	0.25%
Rotation	360° continuous
Operating Temp. Range	-40° to +80°C
Linearity	0.25%
Pan material	Non-corrosive, weather resistant stainless steel or cast acrylic plastic
Pan diameter	1.2 m
Platform for pan	Rot resistant wood with suitable wood preservative coating
Graduation	In millimeters

BAROMETRIC PRESSURE SENSOR

The model EWP-101 barometric pressure sensor is ideal for measuring barometric pressure for remote environmental applications. It is designed to meet stringent accuracy requirements over wide operating temperatures in remote applications.

BAROMETRIC PRESSURE SENSOR	
Range	800-1100 hPa/mb
Accuracy	± 0.3 hPa
Resolution	± 0.01 mB

MASTS AND MOUNTING ACCESSORIES

In its standard configuration, EAWS-101 is supplied with a 2 m high guy wire stayed corrosion resistant mast for mounting the various sensors and the data logger enclosure.

Suitable mounting brackets and accessories for mounting the various sensors, optional solar panels, data logger enclosure etc. are included as necessary. Rain gages are generally fixed to the floor or ground near the base of the mast. Optionally, masts suitable for mounting sensors at higher levels are also available to suit unusual site conditions like those near low lying obstructions etc.

DATA RETRIEVAL AND TRANSMISSION

Telemetry through GSM/GPRS modem

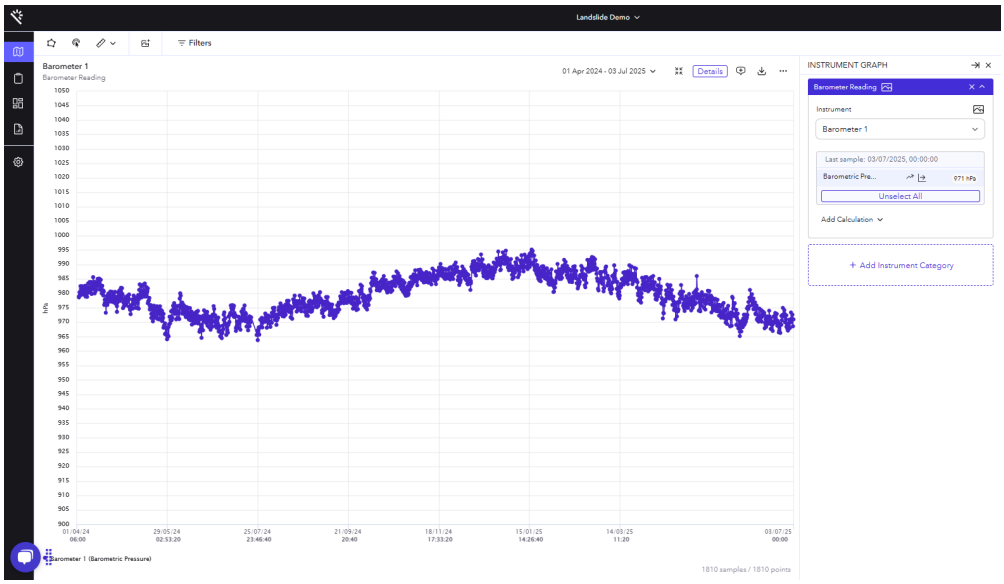
In an area covered by any GSM/GPRS service provider network, the data from the datalogger can be transmitted to a remote server at a central location. The user will need a data SIM card for each GSM/GPRS modem. In case telemetry is not required, the GSM/GPRS modem is not provided.

Readout/data retrieval using laptop, PC

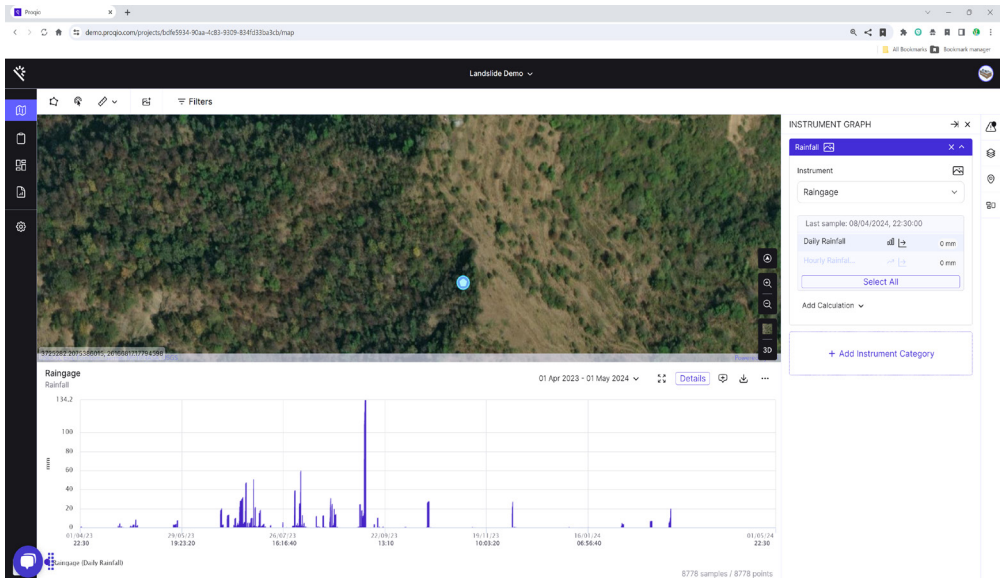
Logged data from datalogger at site can be directly downloaded to a laptop. Data can be transferred to the server or central PC from the laptop using either a USB pen drive or through Internet.

DATA MANAGEMENT SYSTEM (Proqio)

Encardio Rite's Proqio transforms raw automatic weather station data into clear, actionable insights. It integrates real-time weather parameters — rainfall, wind, temperature, humidity with solar radiation data, giving a unified view of site conditions. Live dashboards and automated SMS/email alerts enable quick response to changing weather. Custom reports and trends support better decisions. Reliable and scalable, Proqio ensures safe, efficient operations for projects in construction, tunnels, industrial zones, and remote sites.



Barometer data on display



Rain gage data on display

*All specifications are subject to change without prior notice

DATASHEET | 1182-12 R02

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