

LASER DISPLACEMENT SENSOR (RF)

DATASHEET

NEXAWAVE RANGE



OVERVIEW

The Encardio Rite “NexaWave Range” model Laser displacement/settlement monitoring sensor is designed for fast and precise measurement of displacement between two points. It is a non-contact type high-performance sensor, useful in geotechnical and structural engineering applications, where it is difficult to monitor displacement with standard instruments.

Utilizing the pulsed time-of-flight measurement principle, this laser sensor ensures high measurement repeatability and delivers reliable results in continuous field applications. It is important to note that the sensor’s performance is dependent on weather conditions; factors like mist, fog and smoke can effect the precision of the sensor. The sensor’s compact enclosure facilitates easy installation even in confined spaces.

NexaWave Range integrates with the long range, low power LoRa RF wireless network for radio transmission, ensuring accurate data collection. Data is collected, stored, and transmitted to a remote server via gateway. The availability of online data from laser sensors enables stakeholders to monitor even minor displacement changes occurring at the project site, allowing authorities to make timely decisions, enhance safety, reduce project delays, and achieve cost-effectiveness.

FEATURES

- **Reliable data transmission:** High-resolution and repeatability with long-term stability and uninterrupted data transmission.
- **Compact sensor:** IP67 compact weatherproof enclosure, suitable for field applications.
- **Easy configuration:** Plug and Play sensor installation. Intuitive set up and configuration on your mobile.
- **Scan rate:** The sensor can be configured to scan and transmit data at customizable frequencies, ranging from 3 minutes to 24 hours.
- **Seamless connectivity:** 200 RF sensor/nodes to 1 gateway over large distances in MESH (presently only STAR) configuration.
- **Remote gateway configuration:** Configure an inaccessible Gateway remotely using any RF sensor or node in network.
- **Privacy:** AES-128 encryption, maximizing the security of the sensor data collected.
- **Cloud-hosted data management:** The collected sensor data is uploaded to a central/cloud server to be processed to provide 24/7 access to the data allowing advanced data analysis and visualization on our platform Proqio.
- **Automatic alerts and reports:** Real-time alerts via SMS or email for data that crosses pre-defined alert levels allowing timely response to critical events or changes in the monitored parameters.
- **High battery life:** 6 – 60 months for sensor, depending upon the application and data transmission rate.

In gateway, batteries are only for emergency (as a short time back-up in case of power failure).
- **Versatile power options:** Choose from battery, mains, or optional solar power (model ESP-12V1A). For remote sites, mains or solar power is advised.

DATALOGGING

The tilt meter transmits the data to the gateway via the long range (LoRa), low power RF wireless network., which then transmits the data to the central/cloud server via GSM/GPRS network. A single gateway can collect data from multiple displacement sensors, along with other RF sensors and nodes installed at site, provided they are in its line of sight.

REAL-TIME DATA MANAGEMENT

Proqio, our data intelligence platform hosted on a central server, enables users to remotely monitor and manage structures with advanced infrastructure intelligence. Leveraging machine learning, it provides real-time insights and analytics, offering a clear visualization of the project's status. It features customized automatic reporting tailored to specific project needs, ensuring a comprehensive performance overview. Proqio also provides instant alerts via SMS or email when readings exceed predefined alert levels, enhancing project management and responsiveness.





SPECIFICATIONS

Displacement sensor (EWN-01LD)

Laser range (mm) 100, 200, 400, 600, 800, 1000

Repeatability (1 Sigma) ± 0.15 mm

Resolution 0.1 mm

Internal non-rechargeable batteries 2 D-Cell Lithium Thionyl Chloride (Li-SOCl₂) 3.6 V Nominal Voltage, 14 Ah batteries

Operating Temperature -40°C to +70°C

Antenna (LoRa) Fiber Glass Antenna Omni directional (3 dBi)



Model ESP-12V1A solar power supply 12 VDC @ 1A

Hub (EWG-01) Gateway

Nodes per Gateway Up to 200

Storage SD card 16 GB expandable up to 32 GB

Typical current drain 200 mA typical operating current

Internet connectivity In-built 4G modem

Radio Frequency EU: 863-870 MHz;
US& ROA: 902-928 MHz

Antenna (Cellular) Stub Antenna (3 dBi)
External Whip Antenna (5 dBi)

Antenna (LoRa) Fiber Glass Antenna Omni directional (3 dBi)

Internal non-rechargeable batteries 2 D-Cell Lithium Thionyl Chloride 3.6 V Nominal Voltage, 14 Ah batteries
Batteries are only for emergency (as a short time back-up in case of power failure).

Power supply 9-30 VDC @ 1 A nominal

Solar power supply (Range sensor and Gateway) Model ESP-12V1A solar power supply 12 VDC @ 1A, available on order.

*All specifications are subject to change without prior notice

DATASHEET | 2401-24 R00



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Energy



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Monitoring



Pipelines



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