

# PIEZOMETER (HEAVY DUTY)

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## DATASHEET

MODEL EPP-30V



## OVERVIEW

The Encardio Rite model EPP-30V Vibrating Wire Piezometer is a high-precision sensor designed for the accurate measurement of pore water pressure and water levels across various geotechnical, structural and hydrology applications. It provides critical quantitative data on the magnitude and distribution of pore pressure and its variations over time - essential for analyzing flow patterns within soils, earth/rock fills, concrete structures and delineating phreatic lines.

The EPP-30V features a robust design, incorporating a high-tensile strength wire anchored between a fixed point and a sensitive diaphragm. Variations in pore pressure cause the diaphragm to deflect, altering the tension of the wire and consequently changing its resonant frequency. This frequency shift is directly proportional to the applied pressure, ensuring reliable and precise measurements.

EPP-30V is widely used in a broad range of geotechnical and hydrological monitoring applications, including:

- **Sub-surface pore pressure monitoring:** Essential for hydrological studies and construction control
- **Ground, structure or slope stability assessments:** Critical in dams, mines, landslides, embankments, retaining structures, excavations, foundations, tunneling, underground works and de-watering processes.
- **Groundwater level monitoring:** In boreholes, open standpipes and wells, tracking groundwater table variations over time.
- **Water level monitoring:** In reservoirs and other hydraulic structures, ensuring effective water management.

## FEATURES

- **Reliable & accurate:** Offer long-term stability, high sensitivity, and a broad pressure range for dependable measurements in various scenarios.
- **Fast Response Time:** Minimal time lag ensures prompt and accurate readings.
- **Temperature compensation:** Each pressure sensor is individually temperature compensated to 0.03%/°C to minimize measurement errors.
- **Hermetically sealed:** Hermetically sealed under a vacuum of 0.001 Torr ensures protection against severe environmental factors as effect of oxidation, moisture, and ingress of water is completely eliminated.
- **Integrated temperature monitoring:** Enhances measurement accuracy by accounting for temperature variations.
- **Robust construction:** The stainless steel construction ensures durability and reliability in harsh environments.
- **Long-distance signal transmission:** Maintains signal integrity over long distances, ensuring accurate data collection.
- **Versatile datalogging:** Compatible with various readout units for manual data collection. For continuous monitoring, it can be connected to a suitable datalogger, allowing for data acquisition at desired frequencies. Encardio Rite offers a range of NexaWave dataloggers equipped with GSM/GPRS or RF communication capabilities, ensuring reliable and efficient data transmission.
- **Infrastructure data intelligence platform:** Integrates with Proqio software to facilitate data processing, analysis, and real-time visualization, and generates instant alarms for critical events to keep all stakeholders informed.
- **Cross-compatibility:** The sensor can work with any manufacturer's Dataloggers and Data Management Systems.

## PRODUCT OFFERINGS

Each EPP-30V piezometer is subjected to rigorous pressure and thermal cycling tests to ensure exceptional long-term stability. To further enhance its longevity and performance, the piezometer is hermetically sealed under a vacuum of 0.001 Torr using electron beam welding technology. Constructed from high-grade stainless steel, the EPP-30V piezometer is ideally suited for demanding civil engineering applications.

The piezometer is individually temperature compensated, eliminating the need for additional temperature correction. However, an in-built thermistor is provided for monitoring temperature.

A low-air entry value ceramic filter of 40 micron porosity filter is provided as standard, with high-air entry filters available as an option to meet specific application requirements.

The cable connection is secured with a glass-to-metal seal connector, along with a cable joint housing and a suitable cable gland, ensuring reliable and robust connections.

For use in saline environments, specially treated piezometers are available upon request. In these, the stainless steel diaphragm is protected with a thin layer (around 1 mm) of GE Silicones compound TSE 399. Additionally, the exposed cylindrical surface of the stainless steel body is wrapped with a saline-resistant tape, such as 3M's 33 Super PVC tape, to provide further protection.

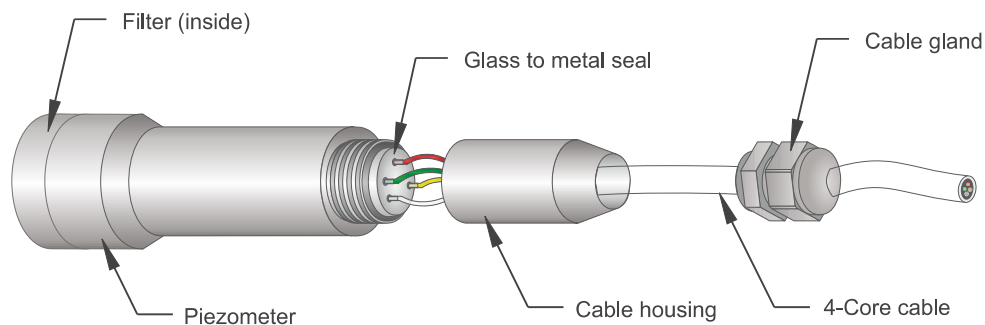
Engineered for durability, accuracy, and ease of use, the EPP-30V piezometer is a vital tool for professionals seeking to manage water-related risks and optimize the safety and performance of infrastructure projects.

## SPECIFICATIONS

Sensor type	Vibrating wire
Range (MPa)	0.2, 0.35, 0.5, 0.7, 1.0, 1.5, 2.0, 3.5, 5.0, 10.0, specify
Accuracy of pressure sensor	± 0.25 % fs standard ± 0.1 % fs optional
Non linearity	± 0.5 % fs
Temperature limit	
Operational	-20 to 80°C
Compensated	0 to 80°C
Insulation resistance	Better than 500 M Ohm at 12 V
Over range limit	150 % of range
Thermistor	YSI 44005 or equivalent (3 kOhms at 25°C)
Enclosure	Stainless steel - standard, Saline protection - optional
Cable connection	Glass to metal seal cable connector
Dimension (dia. x L)	42 X 185 mm

## ORDERING INFORMATION

Model EPP-30V-X (Range) - Filter (LAE/HAE) - Cable housing type (suitable for cable Ø 3.5-8 mm or 9-14 mm)/ Cable length (if factory attached cable required)



\*All specifications are subject to change without prior notice

DATASHEET | 1098-12 R3



Dams



Mining



Tunnels



Transportation



Construction



Bridges



Landslides



Energy



Environmental  
Monitoring



Pipelines



Structural Health  
Monitoring



Smart  
Cities