

# PUSH-IN PIEZOMETER

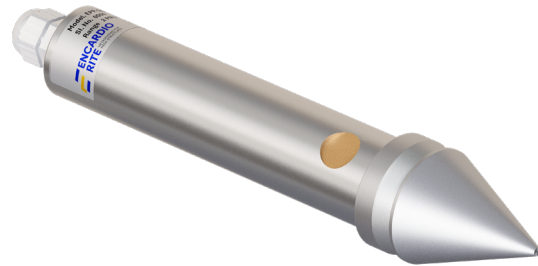
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## DATASHEET

MODEL EPP-50V/51V



EPP-50V



EPP-51V

## OVERVIEW

The Encardio Rite models EPP-50V and EPP-51V vibrating wire push-in piezometers are precision instruments designed to measure pore water pressure in soft soils, clays, and landfills. These piezometers are particularly effective in environments where traditional borehole installation methods are challenging or impractical, such as in very soft clays, organic and fine-grained cohesion soils. They utilize advanced vibrating wire technology, which ensures accurate and reliable measurements even in difficult conditions.

The core mechanism involves a high-tensile strength wire anchored between a fixed point and a sensitive diaphragm. As pore water pressure exerts force on the diaphragm, it deflects, altering the tension in the wire. This change in tension results in a shift in the wire's resonant frequency, which is directly proportional to the applied pressure.

Push-in piezometers provide critical quantitative data on the magnitude and distribution of pore pressure, as well as its variations over time. This data is essential for accurately monitoring soil behavior during and after construction, and for identifying potentially hazardous conditions that could compromise the stability of structures and their foundations.

Push-in piezometer is not suitable for all sites. The limitation of depth varies, especially with type of soil conditions and the installation method used. These piezometers are ideal for a variety of geotechnical and hydrological applications, including slope stability investigations, monitoring groundwater variations, determining flow patterns through earth and embankments, hydrological investigations, construction control, and the monitoring and control of de-watering and drainage operations.

## 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

### Model EPP-50V push-in piezometer

EPP-50V is has a pointed cone at one end and drill rod threads (EW or M 28) at the other. It is inserted into a borehole, threaded into a drill rod, and pushed directly into soft soil to the desired depth, with the cable passing through the drill rod.

### Model EPP-51V push-in piezometer

EPP-51V also features a conical tip at one end but a smooth body (without threads) at the other end. The drill rod is simply slid over the cylindrical body of the piezometer up to the conical tip, and then the assembly is pushed into the soil.

Both models feature three filters positioned at 120° intervals, with a standard 40-micron porosity low air entry stainless steel filter. High air entry filters are available as an option. The filters are removable for saturation; a locking nut secures them in place via an 'O' ring.



EPP-50V push-in piezometer  
(M28 threads)



EPP-50V push-in piezometer  
(EW threads)



EPP-51V push-in piezometer  
(without threads)



## SPECIFICATIONS

The piezometers are supplied with a 1 m polyurethane sheathed cable, which can be extended on-site with a factory-provided kit. Custom cable lengths can also be supplied, pre-attached at the factory upon request.

Each piezometer undergoes rigorous pressure and thermal cycling tests to ensure 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 and is constructed from high-grade stainless steel.

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

For use in saline environments, a version of the piezometer with a titanium enclosure is available upon request, offering enhanced resistance to corrosion.

Sensor type	Vibrating wire
Range (MPa)	0.35, 0.5, 0.7, 1.0, 2.0
Accuracy of pressure sensor	± 0.2 % fs standard ± 0.1 % fs optional
Non linearity	± 0.5 % fs
Temperature limit	
Operational	-20 to 80°C
Compensated	0 to 80°C
Over range limit	150 % of range
Thermistor	YSI 44005 or equivalent (3 kOhms at 25°C)
Enclosure	Stainless steel
Dimension (Ø x L)	35 x 166 mm (EPP-50V) 50.8 x 214 mm (EPP-51V)
Cable	1 m polyurethane sheathed cable



## ORDERING INFORMATION

Model EPP-50V-X (Range) - Cable length (if extra length of pre-attached cable required)

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\*All specifications are subject to change without prior notice

DATASHEET | 1214-13 R02



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