
DATASHEET

VIBRATING WIRE PIEZOMETER SLIM SIZE

MODEL EPP-40V



INTRODUCTION

The Encardio-rite model EPP-40V small (slim) size vibrating wire piezometer is specially designed to measure pore water pressure in small diameter boreholes & standpipes.

The piezometer provides significant quantitative data on the magnitude and distribution of pore pressure & its variations with time. It also helps in evaluating the pattern of seepage, zones of potential piping & the effectiveness of seepage control measures undertaken.

FEATURES

- Reliable, accurate, low cost and simple to read.
- Easy installation in small diameter standpipes/ boreholes.
- Very small time lag.
- Hermetically sealed under a vacuum of 0.001 Torr; with stainless steel construction.
- Thermistor provided for additional temperature measurement.
- Negative pressure measurement possible.
- Transmission of signal as a frequency over long cable lengths.
- Protected against lightning spikes.

APPLICATION

- Measuring the elevation of ground water in stand pipes, boreholes and wells.
- Monitoring & control of de-watering & drainage.



Proper evaluation of pore pressure helps in monitoring the behavior after construction & indicates potentially dangerous conditions that may adversely affect the stability of the structure, its foundation and appurtenant. It also provides basic data for design improvement that will promote safer and more economical design and construction.

OVERVIEW

Model EPP-40V piezometer incorporates the latest vibrating wire technology to provide remote digital readout of fluid and/or water pressure in standpipes and boreholes. The superiority of Encardio-rite diaphragm type pressure sensor for these measurements is unquestionable.

OPERATING PRINCIPLE

The piezometer basically consists of a magnetic, high tensile strength stretched wire, one end of which is anchored and the other end fixed to a diaphragm which deflects in some proportion to the applied pressure. Any deflection of the diaphragm changes the tension in the wire, thus affecting the resonant frequency of the vibrating wire.

The resonant frequency with which the wire vibrates can be accurately measured by any vibrating wire readout unit. The data can also be automatically collected at desired frequency, stored and transmitted to remote server by a suitable datalogger.

DESCRIPTION

The Encardio-rite model EPP-40V piezometer is well known for its long term stability. This is achieved by:

- Ageing pressure and thermal cycling
- Unique method of wire clamping
- By generating a vacuum of around 1/1000 Torr inside the sensor by electron beam welding. This results in effect of oxidation, moisture, environmental conditions and any ingress of water being completely eliminated.

The vibrating wire pressure sensing capsule is sealed under high vacuum. The capsule and coil magnet assembly is housed in a stainless steel body.

Leads from the coil magnet are terminated on a glass to metal seal which is electron beam welded to the stainless steel body of the piezometer. A cable joint housing and suitable cable gland is provided for the cable connection. The sensor can also be supplied with the required length of cable attached.

The pressure sensor is individually temperature compensated making the requirement of a thermistor for temperature correction redundant. However, a thermistor is provided for monitoring temperature.

Ceramic filter

A low air entry value ceramic filter of 40 micron porosity is provided. A filter assembly holds the filter in position. The filter assembly can be taken out for saturation.

SPECIFICATIONS

Type	Vibrating wire
Range (MPa)	0.35, 0.5, 0.7, 1.0, 2.0 specify
Accuracy	± 0.2 % fs normal ± 0.1 % fs optional
Non linearity	± 0.5 % fs
Temperature limit Operational	-20° 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)
Dimension (φ x L)	19 x 155 mm

ORDERING INFORMATION

Model: EPP-40V- Range - Cable length (if factory attached cable required)