

W16 KOMPAKT VIBRATING WIRE PIEZOMETER

Datasheet W16



**Description**

The Kompakt Vibrating Wire Piezometer provides accurate measurement of pore water pressures.

The transducer is designed to handle pressure ranges from 0 to 500 kPa. It incorporates an over voltage surge arrester that offers protection from a lightning strike.

The piezometer is fitted with a low air entry stainless steel sintered filter.

An integral thermistor for temperature monitoring is included.

**Features**

- Small diameter
- Uses proven Vibrating Wire (VW) technology
- In built temperature compensation
- Hermetically sealed
- No electronic components in sensor module
- Fitted with thermistors for temperature monitoring

**Benefits**

- Accurate, repeatable readings over long cable lengths
- Fast response to pressure changes
- Design prevents case stresses from affecting readings
- Over-voltage surge arrester protects against electrical damage
- Connecting cable is strong, screened and flexible



Comprehensive information about this product and our full range is available at [www.soilinstruments.com](http://www.soilinstruments.com)  
If you would like to speak with someone directly please call +44 (0)1825 765044 or email [sales@soilinstruments.com](mailto:sales@soilinstruments.com)

## VIBRATING WIRE PRINCIPLE



A high carbon steel wire is held in tension between a fixed point and a movable point within the sensor.

The physical changes measured by the sensor result in small changes to the position of the movable point which results in a change to the tension of the wire.

The wire may be excited by either plucking or sweeping via a coil adjacent to the wire. The resulting resonant frequency (which is relative to the tension of the wire) is then recorded by the same coil. The reading can be displayed by instrument readout or recorded by data logging equipment.

### Operation

The Kompakt Vibrating Wire Piezometer is designed for the accurate measurement of pore water pressures.

The piezometer tip has an integral porous filter element containing a diaphragm type Vibrating Wire pressure transducer. A cable connects the transducer to a read-out, terminal unit or data logger.

The readout displays either frequency based units, or by inputting the instrument calibration factor, engineering units.

### Applications

Piezometers are used in geotechnical and hydrological applications. They can be installed in boreholes, placed in fill materials or open wells to measure water levels or pore water pressures to enable engineers to verify design assumptions and control placement of fill.

Typical applications include:

- Monitoring of aquifers
- Monitoring of tidal effects on coastal soils
- Embankments
- Potential landslide sites
- Dewatering excavations
- Tailings lagoons
- Pumping tests
- Monitoring seepage
- Control placement of fill

### Associated products

For details on:

Catalogue code:

VWnote

RO-1-VWNOTE

Datalogger

D1

Terminal and Junction box

RO-TB/JB/TJ

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### THE TECHNICAL RATING FOR THIS PRODUCT:

INTERMEDIATE



As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, Soil Instruments makes the following recommendations, for the skill level of the installation contractor.

#### ADDITIONAL SUPPORT

We offer installation and monitoring services to support this system. For more information please email : [sales@soilinstruments.com](mailto:sales@soilinstruments.com) or call : **+44 (0) 1825 765044**

ADVANCED



The installer is trained and experienced in the installation of this type of instrument or systems, and is ideally a specialist Instrumentation and Monitoring contractor.

INTERMEDIATE



The installer already has previous experience and/or training in the installation of this instrument or system.

BASIC



As a minimum the installer has read and fully comprehends the manual, and if possible has observed these instruments or systems being installed by others.

## Specifications

### Sensor

Range (kPa)	350   500
Material	Stainless Steel / PVC
Accuracy	±0.25% full scale
Linearity	±0.5% full scale
Resolution <sup>1</sup>	0.025% full scale (minimum)
Over range	200% of full scale
Diaphragm displacement	< 0.001 cm <sup>3</sup>
Diameter	19mm
Weight (without cable & filter)	150g
Temperature range	-10° to +60°C
Excitation method	pluck or sweep

### Hermetic Sealing

Sensor	Sealed by welding
Piezometer	Potting compound / "O" ring seals

### Thermistor

Type	NTC 3kΩ
Accuracy	0.5°C
Resolution <sup>1</sup>	0.1°C

### Filter

### Porosity

Stainless Steel	50 Micron
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### Cable (with thermistor)

Type	4 Core screened PUR outer sheath
Diameter	5mm
Weight /m	26g

<sup>1</sup>Dependent on readout

## Ordering information

### Low Air Entry Stainless Steel Sintered Filter Vibrating Wire Piezometer

Low resistance to air entry (LAE), stainless steel sintered filter (50 micron)

W16-35-LAE-T	350kPa pressure range with thermistor - LAE Filter
W16-50-LAE-T	500kPa pressure range with thermistor - LAE Filter

### Connecting Cables and Fittings

CA-3.1-4-IC	Instrument cable, 4 core, 7/0.20, screened, priced per metre, polyurethane jacket
CA-4.1	Joint sealing kit

### Manual

MAN-253	Kompakt Vibrating Wire Piezometer
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