

W12 - 4-20mA PIEZOMETER

Datasheet W12



Description

The 4-20mA Piezometer is designed for accurately measuring pore water pressures in fully or partially saturated soil and rock.

The transducer is fitted with a sintered Stainless Steel filter disc and is available as a vented (gauge) piezometer or a non-vented (absolute) piezometer.

The Piezometer is built from high quality 316 grade Stainless Steel and is fitted with a thermistor for temperature monitoring.

The 4-20mA Piezometer is devised for pressure ranges from -50 to 3500 kPa.

Features

- Accurate with excellent long-term stability
- Fitted with thermistor for temperature monitoring
- Fast response to pressure changes
- Advanced design prevents case stresses from affecting readings
- Capable of measuring negative pore pressures to -50 kPa (absolute non-vented unit)

Benefits

- Small diameter device
- Manufactured from high grade 316 Stainless Steel for extended operation
- Hermetically sealed, ensures long working life of the instrument
- Connecting cable is strong, screened and flexible



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

Operation

The 4-20mA Piezometer is designed for the accurate measurement of pore water pressures in fully or partially saturated soil and rock.

The Piezometer is buried in fill, suspended in a borehole or pushed into soil.

The Piezometer tip comprises a porous filter element integral with a diaphragm type pressure transducer. A cable connects the transducer to a readout, terminal unit or datalogger.

Applications

Piezometers are used in geotechnical, environmental, and hydrological applications. They can be installed in boreholes and 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:

- For environmental management including landfill sites
- Monitoring of aquifers
- Monitor tidal effects on coastal soils
- Dams
- Embankments
- Potential landslide sites
- Dewatering excavations
- Tailings lagoons
- Pumping tests
- Monitor seepage
- Control placement of fill

Associated products

For details on:

Catalogue code:

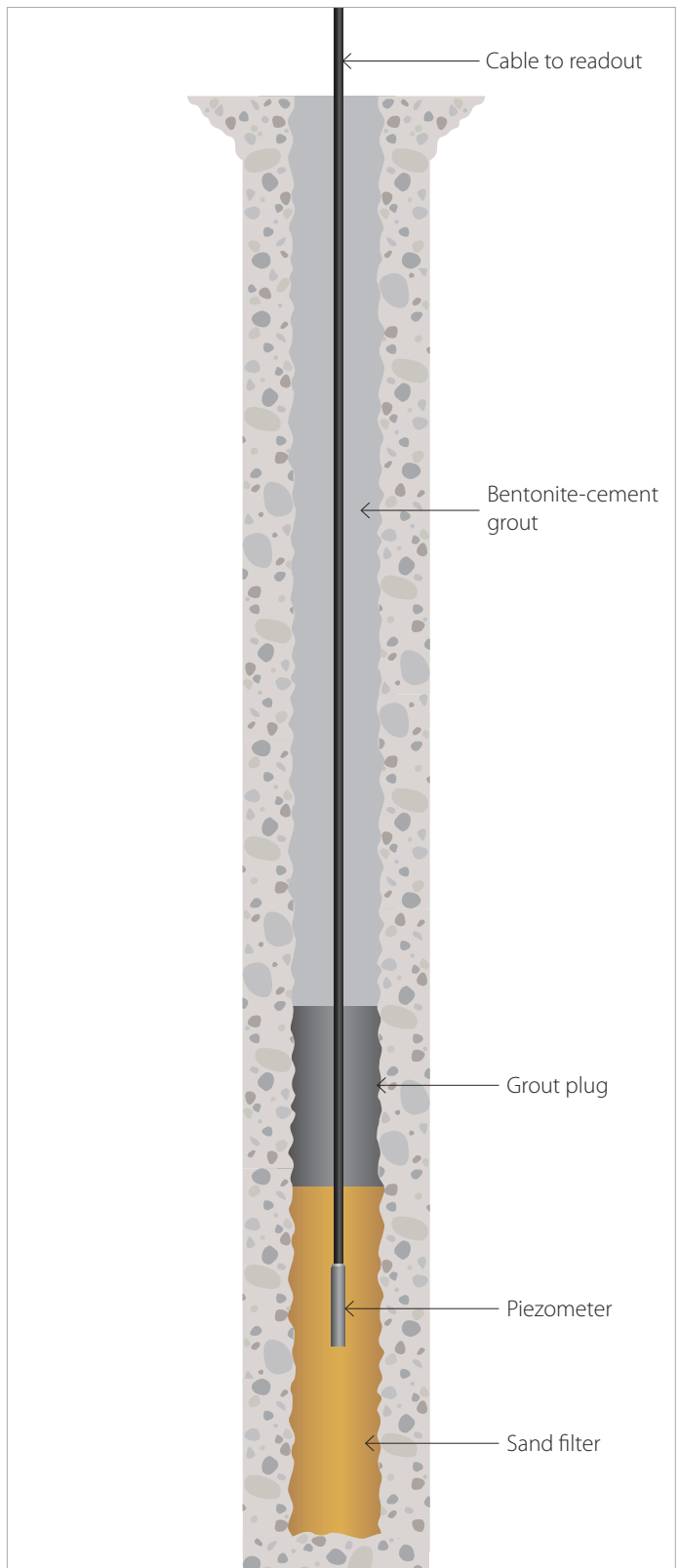
Datalogger

D1

Terminal and Junction Boxes

RO-TB/JB/TJ

View our full product range on www.soilinstruments.com



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 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

| | |
|-------------------------|-------------------------------------|
| Ranges kPa | 100 200 350 700 2000 3500 |
| Material | 316 grade Stainless Steel |
| Accuracy | ±0.1% full scale |
| Linearity | ±0.5% full scale |
| Resolution ¹ | 0.025% full scale (minimum) |
| Over range | 200% of full scale |
| Diaphragm displacement | < 0.001 cm ³ |
| Diameter | 19mm |
| Weight (without cable) | 130g |
| Temperature range | -20 to +80°C |
| Excitation method | 4-20mA loop |

Hermetic Sealing

| | |
|------------|--|
| Piezometer | Cable gland, cable potting compound and 'O' ring seals |
|------------|--|

Thermistor

| | |
|-------------------------|----------|
| Piezometer | NTC 3k Ω |
| Accuracy | 0.5°C |
| Resolution ¹ | 0.1°C |

Filter Type

| | | | |
|--------------------------|---------|-----------|---------------------|
| Sintered Stainless Steel | Ø12.5mm | 3mm Thick | 50 Micron pore size |
|--------------------------|---------|-----------|---------------------|

Cable

| | |
|-----------|---|
| Type | 4 core screened Polyurethane outer sheath |
| Diameter | 5.0mm |
| Weight /m | 26g |

¹Dependant on readout

Ordering Information

4-20mA Piezometer - Absolute Pressure Range

4-20mA Output 2-wire; 19mm outer diameter, sintered Stainless Steel filter disc (50micron) with customer specified length of cable.
Armoured cable to be joined using joint sealing kit CA-4.1

| | |
|---------|------------------------|
| W12-10 | 75-125 kPa Barometer |
| W12-20 | 200kPa pressure range |
| W12-35 | 350kPa pressure range |
| W12-70 | 700kPa pressure range |
| W12-200 | 2000kPa pressure range |
| W12-340 | 3500kPa pressure range |

4-20mA Vented Piezometer - Gauge Pressure Range

4-20mA Output 2-wire; 19mm outer diameter, sintered Stainless Steel filter disc (50micron) with customer specified length of vented cable.
Not compatible with armoured cable.

| | |
|----------|------------------------|
| W12V-10 | 100kPa pressure range |
| W12V-20 | 200kPa pressure range |
| W12V-35 | 350kPa pressure range |
| W12V-70 | 700kPa pressure range |
| W12V-200 | 2000kPa pressure range |
| W12V-340 | 3500kPa pressure range |

Connecting Cables and Fittings

| | |
|-------------|--|
| CA-3.1-4-IC | Instrument cable, 4 core, 7/0.20, screened; Polyurethane jacket, priced per metre |
| CA-1.1-4-A | Armoured cable, 4 cores; 1.5mm ² , PVC jacket, for instruments with thermistors, priced per metre |
| CA-3.3-4-V | Vented cable, 4 cores, 0.22, screened; PVC jacket, priced per metre |
| W12-MT-VC | Moisture trap for 4-20mA Vented Piezometer |
| W10-2.1 | Spare desiccant tablets for moisture trap; set of 20No. |
| CA-4.1 | Joint sealing kit, not for use with vented cables |
| CA-4.2 | Coloured adhesive tapes; set of 10No. |
| CA-4.3 | Crimping tool |
| CA-4.4 | Crimping sleeves; set of 100 No. |
| W6-6.1 | Nylon ties; 150mm x 3.5mm, pack of 100No. |
| ST1-3.5 | Nylon ties; 370mm x 4.7mm, pack of 100No. |

Manuals

| | |
|---------|-------------------|
| MAN-194 | 4-20mA Piezometer |
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INSTRUMENTS



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