

J2 VIBRATING WIRE CRACKMETER

Datasheet J2



Description

The Vibrating Wire Crackmeter provides accurate measurement of crack propagation for structural or geotechnical monitoring.

The sensor is made from high quality stainless steel, incorporates 'O' rings to allow for underwater use and is designed for long-term, reliable monitoring.

Fitted across a crack or joint, it monitors displacement by detecting a change in tension in the vibrating wire inside the sensor.

Features

- Uses proven Vibrating Wire technology
- Suitable for long-term monitoring
- Suitable for manual or remote monitoring
- Fully waterproof
- Fitted with thermistor for temperature monitoring

Benefits

- Accurate, repeatable readings over long cable lengths
- Long working life, long-term stability and reliability
- Connecting cable is strong, screened and flexible



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

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 Vibrating Wire Crackmeter consists of a telescoping sensor body incorporating a sprung tensioned Vibrating Wire element. Each end of the telescoping body is anchored either side of the crack to be monitored.

A change in distance between the anchors, by the crack opening or closing, will cause the connecting rod to move within the transducer body, changing the tension on the spring and thus altering the resonant frequency of the wire.

Applications

The Vibrating Wire Crackmeter measures displacements across cracks and joints in buildings, bridges, dams, pipelines and similar structures. It can measure both the opening and closing of cracks or joints.

Typical monitoring applications include:

- Brick and stone buildings
- Bridges and dams
- Construction joints
- Pipelines
- Joints and bearing/support interaction
- Tunnels and lining cracks
- Structures susceptible to earthquake and landslide areas

Associated products

For details on:

Catalogue code:

VWnote

RO-1-VW-NOTE

Terminal and Junction Boxes

RO-TB/JB/TJ

Dataloggers

D1

View our full product range on www.soil.co.uk



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@soil.co.uk 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 | 30mm | 50mm | 100mm |
| Resolution ¹ | | 0.025% full scale | |
| Accuracy | | ±0.2% full scale | |
| Temperature range | | -20 to +80°C | |
| Weight less cable | 190g | 212g | 254g |
| Dimensions ² | 290mm x Ø19mm | 340mm x Ø19mm | 450mm x Ø19mm |
| Excitation method | | Pluck or sweep | |
| Material | | 316 grade Stainless Steel | |
| Ingress protection | | IP68 to 1700 kPa | |

Cable

| | |
|--------------|--|
| Type | Standard |
| Construction | 4 Core, PUR sheath, foil screen & drain wire |
| Diameter | 4mm |
| Weight/m | 30g |

Thermistor

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

Anchors

| | | |
|-----------------|-------------------|-----------------|
| Type | Groutable | Expanding shell |
| Materials | Zinc plated steel | |
| Diameter | 12mm | 16mm |
| Length | 100mm | 80mm |
| Weight per pair | 176g | 180g |

¹ Dependent on readout

² In the closed position

Ordering Information

Vibrating Wire Crackmeters

Armoured cable can only be fitted on site with joint sealing kit CA-4.1

| | |
|------------|-----------------------------|
| J2-1-30 | 30mm range |
| J2-1-50 | 50mm range |
| J2-1-100 | 100mm range |
| J2-1-30-T | 30mm range with thermistor |
| J2-1-50-T | 50mm range with thermistor |
| J2-1-100-T | 100mm range with thermistor |

Mounted Anchors

| | |
|--------|--|
| J2-2.1 | Groutable anchor; 2No. required per crackmeter |
| J2-2.2 | Expanding shell anchor; 2No. required per crackmeter |

Connecting Cable 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; coloured adhesive tapes |
| CA-4.2 | Coloured adhesive tapes; set of 10No. |
| CA-4.3 | Crimping tool |
| CA-4.4 | Crimping sleeves; set of 100No. |
| W6-6.1 | Nylon ties; 150mm x 3.5mm; pack of 100No. |
| ST1-3.5 | Nylon ties; 370mm x 4.7mm; pack of 100No. |

Installation Equipment

| | |
|--------|--|
| W6-4.4 | Polyester resin cartridge; 150ml to fix groutable anchor into drill hole |
| W6-5.5 | Cartridge injection tool |

Manual

| | |
|---------|---------------------------|
| MAN-117 | Vibrating Wire Crackmeter |
|---------|---------------------------|



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INSTRUMENTS