

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 soilinstruments.com
If you would like to speak with someone directly please call +44 (0)1825 765044 or email 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 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

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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 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	150mm	200mm
Resolution ¹	0.025% full scale				
Accuracy	±0.2% full scale				
Temperature range	-20 to +80°C				
Weight less cable	190g	212g	254g	296g	338g
Dimensions ²	290mm x Ø19mm	340mm x Ø19mm	450mm x Ø19mm	560mm x Ø19mm	670mm 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-T	30mm range with thermistor
J2-1-50-T	50mm range with thermistor
J2-1-100-T	100mm range with thermistor
J2-1-150-T	150mm range with thermistor
J2-1-200-T	200mm 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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