

## VW Crack Meter VWCM-4000



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## Overview



Geosense® VWCM-4000 crack meters are used to measure movement across surface cracks and joints in concrete, rock, soil and structures.

They consist of a sensor outer body tube and an inner free-sliding rod which is connected at the internal end to a vibrating wire sensor by a spring. At the sensor end of the outer body and the external end of the rod anchors are attached which can be fixed either side of a crack to be monitored.

The gauge operates on the principle that a tensioned wire, when plucked, vibrates at its resonant frequency. The square of this frequency is proportional to the strain in the wire. Around the wire is a magnetic coil which when pulsed by a vibrating readout or data logger interface plucks the wire and measures the resultant resonant frequency of vibration.

A change in distance between the anchors caused by the crack opening or closing causes the inner free-sliding rod to move within the outer body which changes the tension on the spring and the vibrating wire thus altering the resonant frequency of the wire.

VWCM-4000 crack meters are installed by grouting, bolting, bonding or fixing expandable anchors to the structure to be monitored. The anchors incorporate ball joints where they are fixed to the gauge which accommodate any differential cross-axis movement and prevent the inner rod from binding within the outer casing.

### APPLICATIONS

- Concrete structures
- Stone & brick buildings
- Dams
- Tunnels
- Construction joints
- Pipelines
- Rock formations

### FEATURES

- Simple to install and read
- High resolution & accuracy
- Internal thermistor
- Insensitive to long cable runs
- Datalogger compatible
- Ranges from 5 to 100mm
- Waterproof up to 16 bar



Groutable Anchors



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## Specifications

### DIMENSIONS

| Model      | Range (mm) | Length Compressed (mm) | Length Extended (mm) | Diameter (mm) |
|------------|------------|------------------------|----------------------|---------------|
| VWCM-4001* | 5          | 244                    | 250                  | 13            |
| VWCM-4002  | 12.5       | 259                    | 272                  | 13            |
| VWCM-4003  | 25         | 307                    | 331                  | 13            |
| VWCM-4004  | 50         | 339                    | 386                  | 13            |
| VWCM-4006  | 100        | 465                    | 557                  | 13            |
| VWCM-4007  | 150        | 591                    | 728                  | 13            |
| VWCM-4008  | 200        | 723                    | 905                  | 13            |
| VWCM-4009  | 300        | 980                    | 1252                 | 13            |
| VWCM-4010  | 500        | 1497                   | 1949                 | 13            |

### PERFORMANCE

|              |            |
|--------------|------------|
| Resolution   | <0.025% FS |
| Accuracy     | ±0.1% FS   |
| Nonlinearity | <0.5% FS   |

### ELECTRICAL

|                    |              |
|--------------------|--------------|
| Frequency range    | 1650-2700 Hz |
| Nominal zero value | 1850 Hz      |

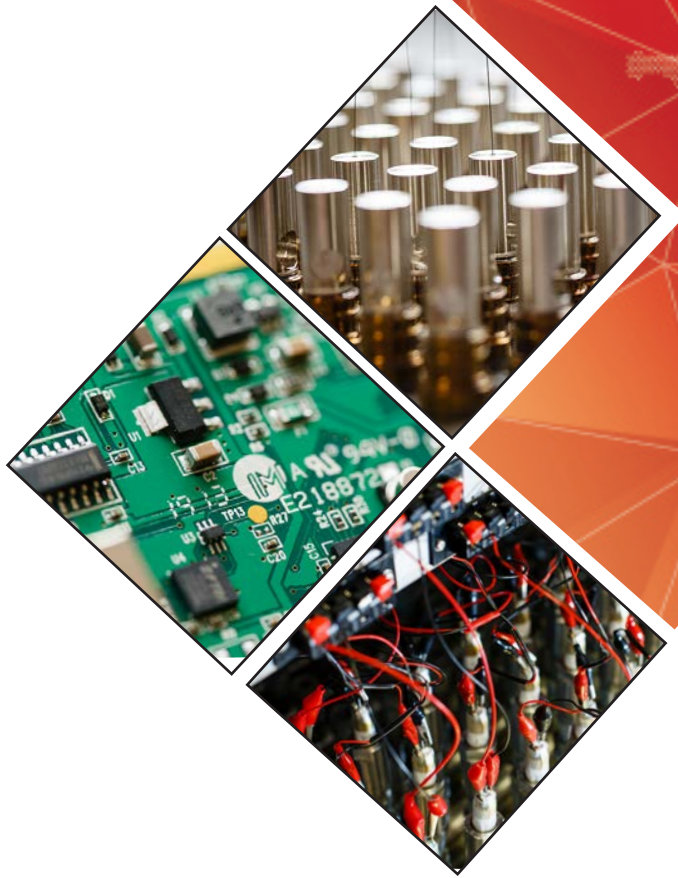
### MECHANICAL

|                   |  |
|-------------------|--|
| Operating range   | -20 °C to +80°C                                    |
| Body material     | Stainless steel                                    |
| Inner rod         | Stainless steel                                    |
| O-ring            | Viton  |
| Anchor material   | Mild steel, BZP, Stainless Steel                   |
| Anchor types      | Grout, bond, bolt, expandable                      |
| Waterproof rating | IP68 (16 bar)                                      |
| Cable             | 2 pair PUR sheath                                  |
| Cable Type        | Type 900 - VW Sensor with Foil Screen & Drain Wire |

### ORDERING INFORMATION

|              |  |
|--------------|--|
| Range        |  |
| Anchor type  |  |
| Readout type |  |

\*Available on request



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