ENCARDIO **RITE**

ONE STOP MONITORING SOLUTIONS | HYDROLOGY | GEOTECHNICAL | STRUCTURAL | GEODETIC
Over 50 years of Excellence through ingenuity

— **DATASHEET** —

LINEAR DISPLACEMENT SENSOR
VIBRATING WIRE TYPE

MODEL EDE-VXX

WP

RC

SC

INTRODUCTION

The Encardio-rite model EDE-VXX linear displacement sensor incorporates the vibrating wire technology. The displacement sensor is used in geotechnical and structural engineering applications where either it is difficult to take direct mechanical readings due to inaccessibility or online data needs to be logged at a remote location. Some uses are:

- Monitoring rock mass or concrete displacement in single or multipoint borehole extensometers
- Monitoring soil displacement in soil extensometers
- Monitoring surface cracks in structures and rock mass.

FEATURES

- Rugged, stainless steel body
- Long term reliability and stability
- Quick and easy to read, adaptable to data loggers or data acquisition system
- 'O' ring protection against ingress of moisture
- Unaffected by changes in atmospheric pressure

APPLICATION

- In single point or multipoint borehole extensometers to monitor rock mass or concrete displacement
- In soil extensometers to monitor soil displacement
- As crack meter to monitor movements across surface cracks in structures and rock mass
- As joint meter to monitor expansion or contractions of joints in concrete structures

The vibrating wire displacement sensor have an advantage over conventional transducers like LVDT as the former gives frequency rather than a voltage as the output signal. The frequency signal can be transmitted over long distances without any change in value caused by variations in cable resistance which can arise from water penetration, temperature fluctuations, contact resistance or leakage to the ground. This factor, coupled with excellent zero stability and rugged design makes the model EDE-VXX range of displacement sensors preferable for long-term measurements in adverse environments.

DESCRIPTION

The vibrating wire displacement sensor can be used in uniaxial/biaixial/triaxial crack meters or joint meters, borehole extensometers (BHE) and soil extensometers. The sensor is available in following variants:

1. EDE-VXX-SC with side cable (suitable for crack gage)
2. EDE-VXX-RC with rear cable (suitable for BHE)
3. EDE-VXX-WP waterproof

For use as a crackmeter, the EDE-VXX-SC version of sensor is provided with spherical bearing joints at the two ends and anchors for fixing the joint rods to brick, concrete or rock surfaces. The retractable shaft of model EDE-VXX vibrating wire displacement transducer has a 10 mm long M6 x 1 male thread.

When used in borehole extensometer the EDE-VXX-RC version of sensor is used. The sensor is positioned with respect to the reference plate to set the zero reading in following ways:

- If extension is expected, the zero reading of the sensor is set by extending it by around 10 mm.
- In case only compression is expected, the zero reading is set by extending it by around 10 mm less than the range.
- If required, the zero reading of the sensor can also be set at any intermediate position.

The displacement sensor converts the mechanical displacement to an electrical frequency output. The frequency output can be accurately measured by any vibrating wire readout unit. The data can also be automatically collected at a desired frequency, stored and transmitted to remote server by a suitable datalogger.

DIMENSIONS

Model No.	Overall dimensions in mm		
	EDE-VXX-SC	EDE-VXX-RC	EDE-VXX-WP
EDE-V015	29 ø x 210	NA	40 ø x 250
EDE-V025	29 ø x 230	NA	40 ø x 270
EDE-V05	29 ø x 290	19 ø x 290	40 ø x 330
EDE-V10	29 ø x 420	19 ø x 420	40 ø x 460
EDE-V15	NA	19 ø x 550	40 ø x 590

SPECIFICATION

Model	EDE-VXX
Sensor type	Vibrating wire
Range (mm)	15, 25, 50, 100 or 150 mm
Sensitivity	0.02 % fs
Accuracy	0.2 % fs standard 0.1 % fs optional 0.5% fs (for 150 mm range)
Non linearity	± 0.5 % fs
Temperature limit	-10 to 80^{0}C (operational)
Thermistor	YSI 44005 or equivalent (3 kOhms at 25°C)

ORDERING CODE

EDE-VXX-YY (SC/RC/WP)

Range required
15: 15 mm
25: 25 mm
05: 50 mm
10: 100 mm
15: 150 mm
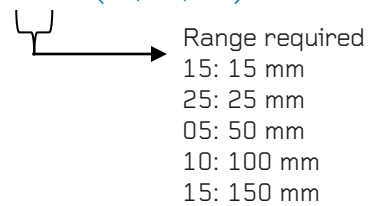
[Note: If purchase order does not specify type of sensor (SC/RC/WP), 'RC' version will be supplied]