ENCARDIO RITE METASENSING FOR MEGA STRUCTURES

CRACK METER AND JOINT METER

DATASHEET

MODEL EDJ-40V CRACK METER,
EDJ-50V JOINT METER &
EDJ-40T TRIAXIAL JOINTMETER

OVERVIEW

Encardio Rite's crack meters and joint meters are precision-engineered instruments designed to provide accurate monitoring of structural movements, ensuring the safety and health of civil structures and buildings. The crack meter, available in uniaxial, biaxial, and triaxial versions, is specifically developed to monitor changes in the width of surface cracks. These instruments are widely used to monitor crack openings in buildings impacted by nearby construction or excavation activities, as well as in concrete and arch dams, bridges, pavement slabs, rocks, and other critical infrastructure. By enabling early identification of potential structural failures, crack meters play a vital role in preventive maintenance and structural health monitoring.

The joint meter is optimized for embedment applications and is designed to measure displacement across joints in structures such as concrete or masonry blocks in dams. It is also suitable for monitoring mass movement in construction, submerged joints in tunnels and shaft linings, and displacements in rock, soil, and masonry structures.

Both crack meters and joint meters are known for their durable, corrosion-resistant construction, ease of installation, and exceptional accuracy. These features make them indispensable instruments for construction, geotechnical engineering, and structural maintenance professionals committed to ensuring structural integrity and safety.

FEATURES

- **Precision measurement:** Utilizes a vibrating wire sensor for highly accurate displacement readings, ensuring reliable data for monitoring deformation.
- **Long-term reliability:** The excellent zero stability, rugged and waterproof design of displacement sensor makes it a good choice for long-term measurements in severe environments.
- **Ease of installation:** Designed for straightforward, quick installation, enabling efficient deployment in various applications.
- **Cross-compatibility:** The sensor can work with any manufacturer's readouts, dataloggers and data management systems.
- **Versatile datalogging:** Compatible with various readout units for manual data collection. For continuous monitoring, it can be connected to a suitable datalogger.
  Encardio Rite offers a range of NexaWave dataloggers equipped with GSM/GPRS or RF communication capabilities, ensuring reliable and efficient data acquisition at desired frequencies.
- **Infrastructure data intelligence platform:** Encardio offers Proqio software to facilitate data processing, analysis, and real-time visualization providing 24/7 insights. Benefit from instant alerts for critical events and automated reports, supporting informed decision-making

PRODUCT OFFERING

EDJ-40V VW CRACK/JOINT METER

The EDJ-40V uniaxial surface crack/joint meter is equipped with a model EDE-VXX series vibrating wire displacement sensor and precision-engineered anchors. The sensor is orthogonally mounted on anchors via ball joints, which are securely fixed on opposite sides of a joint or crack in a structure or concrete slab. This configuration enables accurate monitoring of relative movement along a single perpendicular axis.

Designed for precise displacement measurement, the EDJ-40V records relative movement between the anchors over time, providing critical data for structural monitoring. For applications requiring **biaxial** measurements, two such crack meters can be installed to monitor displacement along two axes simultaneously..

EDJ-50V VIBRATING WIRE JOINT METER

The EDJ-50V vibrating wire joint meter is designed for embedment applications, offering precise measurement of movement across structural joints. It is particularly essential for monitoring the opening of contraction joints in inaccessible areas, which is critical for determining optimal grout injection timing and volume. It also aids in analyzing unusual structural behaviors that may occur during the construction of dams or other complex infrastructure projects.

Designed for reliability and ease of installation, EDJ-50V features a durable plastic housing, a stainless steel flange at one end, and a detachable stainless steel socket at the other. The vibrating wire displacement sensor inside the housing is connected to the SS flange and socket using flexible joints to allow small lateral movements.

SPECIFICATIONS

EDJ-40T VW TRIAXIAL CRACK/JOINT METER

The EDJ-40T triaxial crack/joint meter is designed to monitor displacement across joints in three dimensions (X, Y, and Z axis), making it ideal for applications such as measuring joint openings between concrete or masonry blocks in dams.

EDJ-40T measures relative movement between two blocks using three independent vibrating wire displacement sensors, each mounted orthogonally and equipped with universal joints. Anchored to slabs on opposite sides of the joint, the sensors capture movement along:

X-axis: Normal to joint to measure joint opening or closing.

Y-axis: Parallel to the joint (and concrete slab face). to monitor joint shear in plane of concrete face.

Z-axis: Normal to the concrete face to monitor relative settlement of concrete slabs.

Surface crack and joint measurements can be performed either directly on accessible surfaces or in locations such as galleries. To suit diverse applications, the EDJ-40T offers flexible mounting arrangements, whether surface-mounted (e.g., in galleries) or embedded (e.g., between dam blocks). For customized setups, consult factory with specific requirements such as sensor range (in mm), mounting type, and desired level of water protection.

Model	EDJ-40V, EDJ-50V, EDJ-40T
Range (mm)	15, 25, 50, 100, 150 **(EDJ-40V, EDJ-40T)** 15, 25, 50 **(EDJ-50V)**
Accuracy	± 0.2 % fs normal ± 0.1 % fs optional
Sensitivity	± 0.02 % fs
Non linearity	<0.5 % fs **(EDJ-40V, EDJ-40T)** ± 1.0 % fs **(EDJ-50V)**
Resolution	0.025% fs
Temperature limit	-10 to 80°C
Thermistor	YSI 44005 or equivalent (3 kOhms at 25°C)
Flange diameter	62 mm (EDJ-50V)

*All specifications are subject to change without prior notice

DATASHEET | 1014-12 R5

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