pizzi instruments

Wire Displacement Sensor

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Instruments and Systems for Geotechnical and Structural Monitoring

Wire Displacement Sensor

Description

The wire deformometer is usually used to monitor and measure movements in landslides by measuring two points distant from each other. The instrument is made from the protected sensor in a sturdy aluminum box, by a non-deformable wire constantly kept in tense by a tensioning device and a fixing device to fix the other end of the wire to the measuring point.
The instrument is composed of a sensor protected by a sturdy aluminum box, and a non-deformable wire constantly kept tense by a tensioning device and a fixture securing one end of the wire to the measuring point.
The crackmeters or wire deformometers made by Pizzi Instruments are both with a potentiometric sensors and vibrating wire sensors.
Pizzi Instruments offers both wire deformometers with potentiometric sensors or with vibrating wire sensorsThe choice of sensor depends on the specific requirements of the monitoring project and the type of application.
If required by our customers, we are able to suggest the best solution for a specific application Instruments with different wire lengths are available, depending on the specific requirements of the installation site.
The wire deformometer, connected to an automatic acquisition system, allows real time monitoring and measuring of landslide movements, together with the possibility of managing local and remote alarms if thresholds are exceeded.
The wire deformometers can be read manually with our portable units (DEC 3000 and handheld unit Dec5 for vibrating wire sensors) or automatically with our dataloggers (CUM3000 or /and VW Brick 2 or VW Brick 8, or CRio VW, depending on sensor type). For specific needs and requests, we are able to develop and manufacture customized products with different characteristics from standard.

Applications

Typical applications include:

- **Earthslides or rockslides**
- **Monitoring of large displacements and fractures**
- **Bridges and viaducts**
- **Dams**
- **Walls and diaphragms**
- **Galleries**
- **Excavations**
- **Poles**
- **Buildings**

Features and benefits

Main advantages are:

- **Large measuring range**
- **Large distance between measuring points**
- **Rugged for outdoor applications**
- **Easy to use**
- **Automatable**
- **Built-in automatic monitoring systems**

Measurement principle

The instrument is made of a sturdy body containing both the sensor and the tensioning systemThe sensors used are both vibrating wire and potentiometric; for the latter converters are integrated into the body of the instrument for 4-20mA output or in voltage. The strain gauge wire, connected to an automatic acquisition system, allows real time measuring and monitoring of landslide movements with the possibility of managing local and remote alarms if thresholds are exceeded. Special wire hooking systems are available and produced on demand.

Technical specifications

Potentiometer Wire Displaceme	
Technology	Potentiometer
Range (mm)	50 mm ÷ 2000 mm
Resolution	Infinite
Linearity	<0,02% F.S.
Repeatibility	±0,02% F.S.
Output	Potentiometer; 4-20mA; voltage
Power Supply	9 ÷ 35 Vdc @ 4-20mA; max 30 Vdc @ potentiometer
Material of the sensor	Thermoplastic
Wire	Stainless steel – diameter 0,46 mm
Maximum length of the wire	15 m with kit of wire extension
Protection	IP65
Temperature of operation	-25°C ÷ +75 °C

Vibrating Wire Extensometer	
Technology	Vibrating Wire
Technology Vibrating Wire	10; 20; 50; 100 mm
Resolution	<0,02% f.s.
Linearity	<0,2% f.s.
Repeatibility	±0,02% f.s.
Output	Frequency
Power Supply	-
Material of the sensor	Stainless steeel
Wire	Stainless stessl ; diameter 2mm
Maximum length of the wire	Up to 30 m
Protection	IP65
Temperature of operation	-25 °C ÷ +60 °C

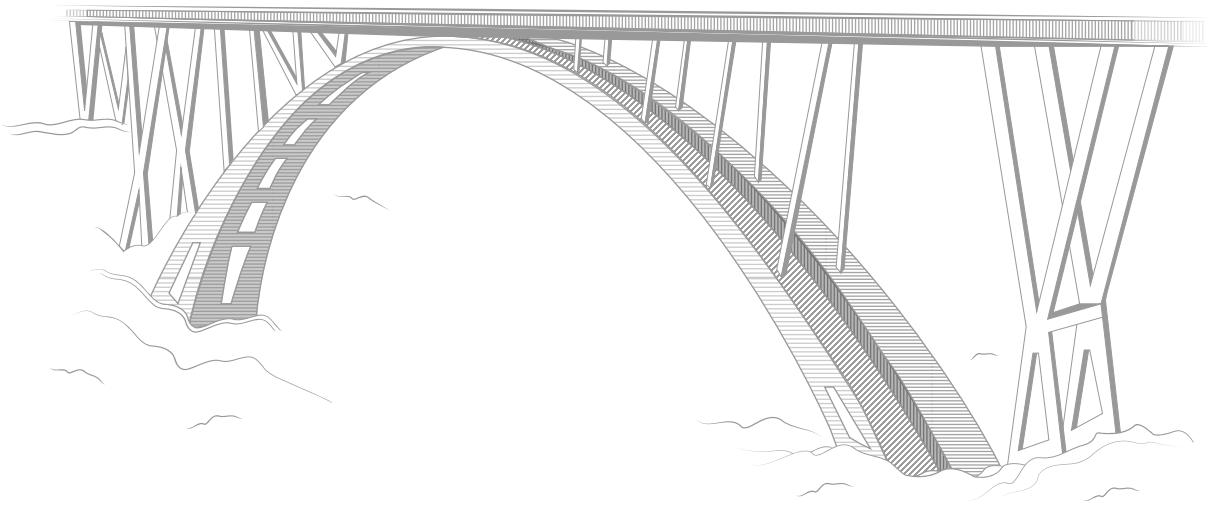
Accessories and related products

Wire fixing kit	Wire fixing kit (out of standard)
Multi-core cable	Different conductors for the connection of different sensors to one cable
Junction Boxes	Different models for the connection to the different instruments
DEC5	Portable Readout Unit
DEC3000	Portable Datalogger
CUM3000	Multichannel Datalogger
MUX	Multiplexer
Selection and Measure Box	Measure Box with MUX Boards for automatic selection
Measure Box	Measure Box for simple measurement

The Company

For over 40 years we have been producing precision and large facility monitoring instruments sold throughout the world.

Accuracy in design, efficiency in construction, reliability in management; these are the prerogatives that every major work must have and that Structural Monitoring Systems must guarantee.



Technical assitance

If you have any requests or questions about our instruments or if you have special needs that require different solutions from the standard, please contact us. Our team will provide all the necessary information and will be very happy to work with you to study, develop and customize instruments and solutions suitable for your specific needs.

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