D1-VW-LOG2 VWLOG2





Description

The VWlog2 is a simple, rugged, low-power, 2 channel Datalogger which reads most commercially available geotechnical and structural Vibrating Wire (VW) sensors and optional thermistor temperature sensors.

VWlog2 contains a large internal memory of 4MB, enabling storage of up to 50,000 readings per channel. The internal memory operates as a USB mass storage device which is accessible through a mini USB interface, allowing data to be easily transferred to a PC or mobile device via drag-and-drop. The included VWlog2 software, enables the user to easily setup the logger parameters, such as date and time, sweep frequency range and excitation voltage.

VWlog2 is housed in a rugged enclosure, providing a rating of IP66 and all electronics are encased in an impervious sealing compound to avoid damage.

Features

- Reads two Vibrating Wire (VW) sensors and combined thermistor temperature sensors
- 4MB internal memory; reads up to 50,000 readings per channel, equating to 5 years of data sampling at hourly intervals
- IP66 rated, rugged, die-cast aluminium enclosure
- Low power requirement; 2 x D Cell batteries last up to two years
- Easy configuration and firmware upgrade via mini-USB to USB cable
- True USB interface; data downloaded via drag-and-drop
- Reads with user definable frequency range (1700 to 6000 Hz)

Benefits

- Reads most types of commercially available Vibrating Wire (VW) sensors
- Optional 15V excitation ensures quality readings from sensors with long cables
- Ideal for long-term monitoring in harsh environments
- Allows data collection immediately after sensor installation
- Fast setup and download time
- Versatile and economical
- All electronics sealed to protect from static and water damage



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PRECISELY MEASURED

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

Before going to site, a configuration file is created using the VWlog2 software provided by Soil Instruments.

The included VWlog2 software allows the user to easily create the configuration file, setting up the logger parameters such as date and time, sweep frequency range and excitation voltage.

On site, two Vibrating Wire sensors with optional thermistor temperature sensors are connected to VWlog2. As soon as the batteries are fitted, VWlog2 will start reading and storing data according to the previously specified settings in the configuration file.

The data is saved onto the VWlog2 internal memory in CSV format and is easily retrieved via a mini-USB to USB cable.

Once connected, VWlog2 appears as an external USB drive allowing data to be easily transferred from VWlog2 to a PC or mobile device via drag-and-drop, using the same action as a file on the PC's hard drive.

The VWlog2 reads the Vibrating Wire sensors using 'Zero Crossing' which is a signal processing method that calculates the frequency of a waveform by detecting and counting the number of times the signal crosses zero, or changes sign.

Applications

VWlog2 can be used to read Vibrating Wire (VW) sensors for geotechnical and structural monitoring.

Typical monitoring applications include:

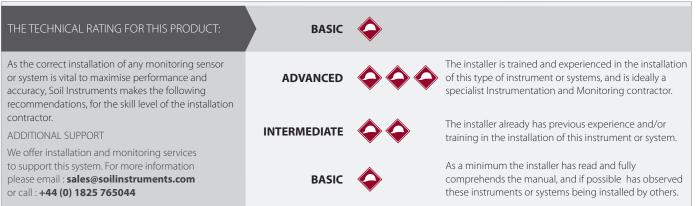
- Pore pressure
- Water level
- Displacement
- Crack
- Load
- Pressure cell

Associated products

For details on:	Catalogue code:
VW Piezometers	W4 & W9
VW Pressure Cells	P6 & P9
VW Jointmeters	J1 & J3
VW Load Cells	L2
VW Crackmeters	J2

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Specifications		
Vibrating Wire Inputs		
Sweep frequency range	1700 - 6000 Hz	
Reading algorithm	Zero crossing method	
Resolution	0.1 Hz	
Accuracy	± 0.02 % of full scale	
Output (excitation) voltage	5 V and 15 V square wave (user selectable)	
Temperature Inputs		
Thermistor type	3 k ohm thermistor	
Measurement range	50 to +150 °C	
Resolution	0.01 °C	
Accuracy	± 0.2 ℃	
Power		
Power Supply	3 V DC using two D Cell alkaline batteries	
Low Battery Voltage	2.6 V DC	
Current Consumption ¹	50 mA during sleep mode, up to 700 mA pulsed current during Vibrating Wire sensor reading	
Battery Life	2 years (reading 2 channels every hour)	
Data Storage		
Memory Size	4 MB – sufficient for 50,000 readings per channel	
Interface	USB to mini-USB	
Format of reading Set	Date/Time stamp, device serial number, logger battery voltage reading, logger internal temperature reading, sensor reading 1 (Hz), sensor reading 2 (Hz), sensor reading 2 (Hz), sensor reading 2 temp (°C), Flag	
Method of Data Transfer	Drag-and-drop (as USB drive)	
Physical Properties	Enclosure Only	
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ritysicarrioperaes	Enclosure only	
Size	120 mm x 120 mm x 82 mm	
	Enclosure only - without batteries	Enclosure only - with batteries
Weight	1.0 kg	1.3 kg
Operating Temperature	-20 to +60 ℃	
IP Rating	IP66	

 $^{\scriptscriptstyle 1}$ Actual value depends on the Vibrating Wire sensor type and the excitation voltage

Ordering Informa	ation
VWlog2 Vibrating Wire 2 channel D	atalogger
D1-VW-LOG2	Vibrating Wire 2 channel Datalogger module. Includes Datalogger, 2 x D Cell batteries
Optional Accessories	
RO-10-VW-1.4	Mini-USB to USB communication cable 3 metres
Manual	
MAN-235	VWlog2





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