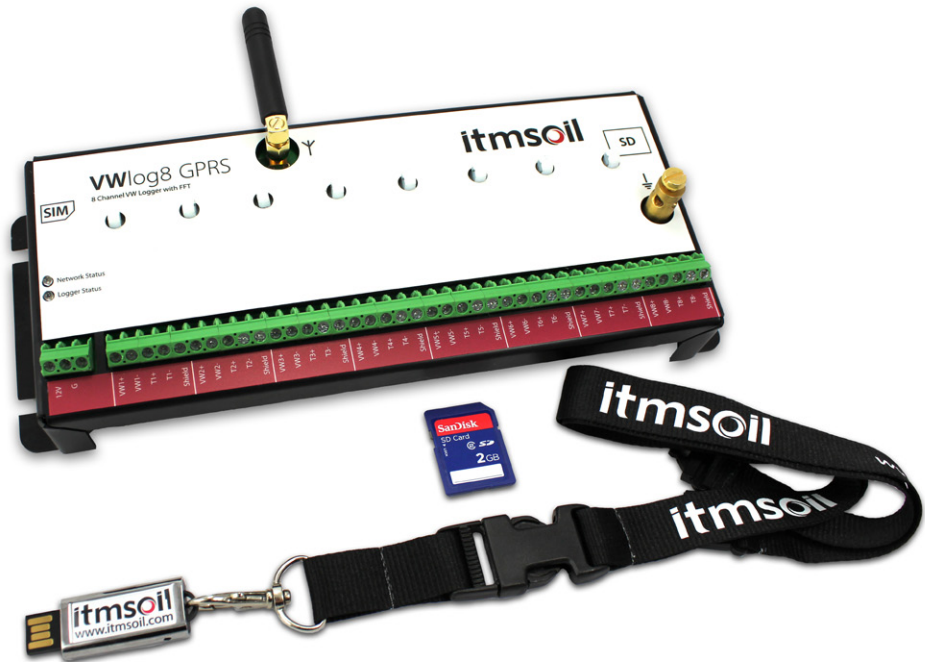


D1-VW-LOG8 VWLOG8 GPRS

Datasheet D1-VW-LOG8



Description

VWlog8 GPRS is an eight channel Datalogger which reads most commercially available geotechnical and structural Vibrating Wire (VW) sensors and optional thermistor temperature sensors, communicating via GPRS.

Using the FFT- (Fast Fourier Transform) based reading algorithm, it will read most VW sensors with the default wide sweeping range of 450-6000 Hz. For maximised noise immunity, the sweep range can be customised for each channel.

The quality indices from the FFT reading algorithm allow the VWlog8

GPRS to retake readings automatically and repeatedly until the user-specified thresholds are met.

Readings are stored internally in a ring memory and uploaded wirelessly to the users FTP site via the mobile internet network (GSM and GPRS).

The itmsoil software included easily enables the user to setup the logger configuration file, parameters and schedules before uploading to the users FTP site. The VWlog8 GPRS will automatically use these settings when it performs its scheduled synchronisation.

Features

- **FFT-based data reading algorithm**
- **Wireless data retrieval via the mobile internet network to users own FTP site**
- **Reads with the default full sweep frequency range (450 - 6000Hz), or any user defined range**
- **Fully configurable data logging schedule for each channel with programmable start and end times**
- **Built-in automatic retry when signal quality is poor**
- **Ring memory capable of storing 10,000 records**
- **Firmware updated over the mobile internet connection**
- **Low power consumption**

Benefits

- **Readings are accurate, repeatable with low interference**
- **Optional 15V excitation ensures quality readings from sensors with long cables**
- **Internet enabled; data uploaded directly to users own FTP site**
- **Quick and easy to set up in the field; no site PC required**
- **Logger set up requires no programming skill and is carried wirelessly via the FTP site or locally using the SD card and itmsoil software**
- **Logger initiated communication; no requirement for fixed IP address**



Comprehensive information about this product and our full range is available at www.itmsoil.com
If you would like to speak with someone directly please call +44 (0)1825 765044 or email sales@itmsoil.com



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 changes 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

VWlog8 GPRS is available as a complete package with enclosure and various power options, or as a basic logger module.

Before going to site, a SIM setup and logger configuration file are created and saved onto the SD card, noting the logger configuration file can be later updated via FTP. The SIM and SD cards are then inserted into the VWlog8 GPRS. Finally the VWlog8 GPRS with an 11 to 20V DC battery and a suitable antenna are installed in an enclosure.

On site, up to eight VW sensors and a power supply are connected to the VWlog8 GPRS and the mobile data plan signal checked to enable the logger to start taking and transmitting readings. Communication is initiated by the logger, so there is no requirement for a fixed IP address. The readings are transmitted remotely to an FTP site which is then accessed off site to obtain the data.

The start and end time of each channel can be configured to read at a specific time e.g. once per day or during site hours.

The Firmware is easily updated over the mobile internet connection (GSM and GRPS) or locally via the SD card.

The VWlog8 GPRS has low power consumption, with a fully charged 7Ah lead acid battery lasting up to six months when reading all 8 channels every 60 minutes and uploading the data twice daily.

Applications

The VWlog8 GPRS can be used to read Vibrating Wire sensors for geotechnical and structural monitoring.

Typical monitoring applications include:

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

Associated products

For details on:

Catalogue code:

VW Piezometers	W4 & W9
VW Strain Gauges	ST1 – ST5
VW Pressure Cells	P6 & P9
VW Jointmeters	J1 & J3
VW Load Cells	L2
VW Crackmeters	J2

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THE TECHNICAL RATING FOR THIS PRODUCT:

As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, itmsoil makes the following recommendations, for the skill level of the installation contractor.

ADDITIONAL SUPPORT

itmsoil offer installation and monitoring services to support this system. For more information please email : sales@itmsoil.com or call +44 (0) 1825 765044

BASIC

ADVANCED

INTERMEDIATE

BASIC

The installer is trained and experienced in the installation of this type of instrument or systems, and is ideally a specialist Instrumentation and Monitoring contractor.

The installer already has previous experience and/or training in the installation of this instrument or system.

As a minimum the installer has read and fully comprehends the manual, and if possible has observed these instruments or systems being installed by others.

Specifications

Vibrating Wire Inputs

Sweep frequency range	450 - 6000 Hz
Reading algorithm	Fast Fourier Transformation (FFT) based
Resolution	0.01 Hz
Accuracy	±0.2 Hz
Output (excitation) voltage	5V and 15V square wave (user selectable)

Temperature Inputs

Thermistor type	3k ohm thermistor
Measurement range	-50 to +150 °C (-58 to +302 °F)
Resolution	0.01 °C
Accuracy ¹	±0.2 °C

Power

Input voltage	11 to 20V DC		
Current consumption @12V DC - sleep mode	3 mA - GPRS inactive		
Current consumption @12V DC - reading	30 - 50 mA (peak) - during VW excitation (5V)		
Current consumption @12V DC - transmitting	Typical 150 mA	Less than 250 mA - during GPRS data transferring	800 mA (peak) - during GPRS network registration

GSM/GPRS

Frequency band	Quad band 850, 900, 1800, 1900
Module	2G GPRS
Antenna	Stubby Antenna, SMA connector ²
SIM card	Onboard connector

Datalogger

Logging frequency range	5 seconds to 1 hour
Upload frequency range	1 minute to 1 month

Data Storage

Memory size	10,000 sets of readings, ring memory, upgradeable on request
Format of reading set	Time stamp, readings in raw and engineering units, sensor temperature, reading quality indices and VWlog8 GPRS information including battery voltage and ambient temperature
Method of data transfer	Via GPRS/FTP and stored locally on the SD card

Physical Properties

	Module	Solar	Battery	Mains
Size	255mm L x 100mm W x 50mm D (10" x 4" x 2")			
Weight	450g (16oz)			
Operating temperature				-20 to +60 °C (-4 to +140 °F)

¹Accuracy is over calibrated range of -20 to +80 °C (-4 to +176 °F)

²Other antennae available

Ordering Information

VWlog8 GPRS Datalogger Module

Excludes data SIM card, enclosure & power supply

D1-VW-LOG8 Vibrating Wire 8 channel GPRS Datalogger module. Excludes data SIM card, enclosure & power supply

VWlog8 GPRS Datalogger Battery Powered

Excludes data SIM card

D1-VW-LOG8-B Vibrating Wire 8 channel GPRS Datalogger module in GRP enclosure with sealed lead acid power supply. Excludes data SIM card

VWlog8 GPRS Datalogger Solar Powered

Excludes data SIM card and mounting pole

D1-VW-LOG8-S Vibrating Wire 8 channel GPRS Datalogger module in GRP enclosure. Sealed lead acid power supply with charging regulator, 10 Watt Solar panel, includes mounting fixings for 50mm diameter mounting pole. Excludes data SIM card and mounting pole

VWlog8 GPRS Datalogger 110-260Vac Powered

Excludes data SIM card

D1-VW-LOG8-M Vibrating Wire 8 channel GPRS Datalogger module in GRP enclosure. Power supply with back up battery, Excludes data SIM card

GSM/GPRS Radio Signal Analyser

DI-SIG-TEST Radio signal analyser for GSM and GPRS radio networks

Manual

MAN-232 VWlog8 GPRS Manual

soil
INSTRUMENTS



Bell Lane, Uckfield, East Sussex
TN22 1QL United Kingdom

t: +44 (0) 1825 765044
f: +44 (0) 1825 744398

e: info@itmsoil.com
w: www.itmsoil.com

Soil Instruments Ltd. Registered in England. Number: 07960087. Registered Office: 5th Floor, 24 Old Bond Street, London, W1S 4AW