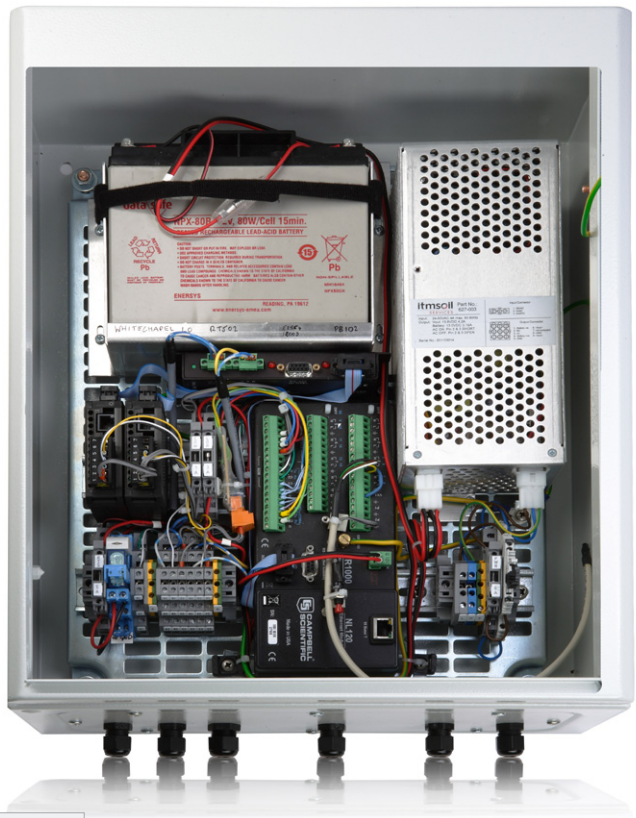
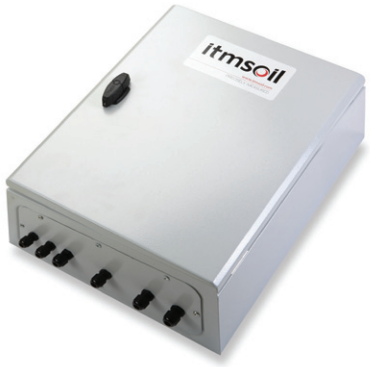
D1 DATALOGGERS





Description

The datalogger is a bespoke, site specific logger with various modules and communication options, combined with a power supply, contained within a steel or reinforced GRP IP65 enclosure.

Each logger is customised to specific site requirements and is tested using a logging program, written to suit the sensor types to be used on each project.

We configure all the datalogging equipment to suit your individual needs and our technical expertise ensures a tailored solution to read an extensive range of sensors, in a vast range of environments.

Features

- **Configured to customer requirements according to sensor, power supply and communication requirements**
- **Can be configured to read almost any geotechnical or structural monitoring sensor**
- **Data kept in simple 'ASCII' file for use with web based interfaces such as 'Argus' software, or a spreadsheet**

Benefits

- **Proven track record on major projects**
- **Rugged construction**
- **Low power consumption**
- **Various communication options available; ADSL, short haul modem, GPRS modem**
- **Can be powered from mains voltage as well as stand alone wind and solar sources for remote monitoring sites**

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

Operation

Dataloggers are supplied with various memory options and further capacity can be added through the addition of a Compact Flash module.

Each logging program is bespoke and written for all types of sensors and projects, drawing from a large software library that allows us to configure a program easily and quickly for any application.

The system can be setup to generate alarms remotely, via email or SMS, or locally using a siren and/or beacon if user defined parameters are exceeded.

The datalogger consumes minimal power from either a 12 VDC or mains power source. Power supply options are flexible depending on the site and can include mains, solar cell, and wind generation.

Applications

Dataloggers can form part of any automated monitoring system. They are ideally suited for structural and geotechnical monitoring and are used extensively in harsh environments on projects around the world.

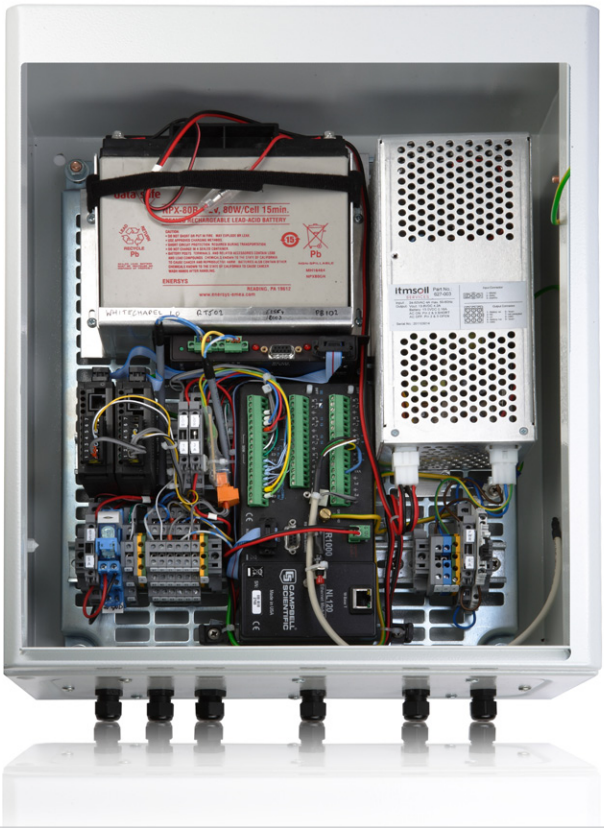
Typical applications for datalogged monitoring systems include:

- Dams and bridges
- Tunnels (both during construction and operation)
- Tracks on the railway networks for twist and longitudinal settlement
- Monitoring rock falls
- Any structure adjacent to and affected by construction activities

Communication

A wide variety of communication options are available for the datalogger, including:

- Direct link to PC or laptop
- Fibre optic link
- Extended RS485 link (up to 13Km)
- Satellite up link
- Cellular (GSM/GPRS) modem
- Telephone modem
- IP via GPRS modem, i.e. direct to internet
- Dedicated radio communication



Associated products

For details on:	Catalogue Code:
'ARGUS' Monitoring Software	D4

View our full product range on www.itmsoil.com

THE TECHNICAL RATING FOR THIS PRODUCT: **ADVANCED**

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**

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

Datalogger

Program Execution Rate	10ms to 30min @ 10ms increments

Analogue Inputs

3 differential (DF) or 6 single-ended (SE) individually configured

Channel expansion provided by AM16/32 and AM25T multiplexers			
Ranges and resolution[3]	Input Range (mV)[1]	DF Res (µV)[2]	Basic Res (µV)
	±5000	667	1333
	±2500	333	667
	±250	33.3	66.7
	±25	3.33	6.7
	±7.5	1	2
	±2.5	0.33	0.67
Accuracy[2]	0 to +40°C	-25 to +50°C	-55 to +85°C (-XT only)
	±(0.06% of setting + 0.8 mV)	±(0.12% of setting + 0.8 mV)	±(0.18% of setting + 0.8 mV)

Analogue Outputs

2 switched voltage, active only during measurement, one at a time

Ranges and resolution	Voltage outputs programmable between ±2.5 V with 0.67 mV resolution		
Accuracy	0 to +40°C	-25 to +50°C	-55 to +85°C (-XT only)
	±(0.06% of setting + 0.8 mV)	±(0.12% of setting + 0.8 mV)	±(0.18% of setting + 0.8 mV)

Resistance Measurements

Measurement types	4- and 6-wire full bridges, 2, 3 and 4 wire half bridges. Precise, dual polarity excitation using any of the 3 switched voltage excitations eliminates dc errors.
Ratio Accuracy	±(0.04% of voltage reading + offset)/Vx

Pulse Counters

Maximum counts per scan	16.7 x 106
Digital I/O ports	4 ports software selectable, as binary inputs or control outputs

CR1000 Series Specifications

Program execution rate	10ms to 30min @ 10 ms increments

Analogue Inputs

8 differential (DF) or 16 single-ended (SE) individually configured

Channel expansion provided by AM16/32 and AM25T multiplexers			
Ranges and resolution[3]	Input Range (mV)[1]	DF Res (µV)[2]	Basic Res (µV)
	±5000	667	1333
	±2500	333	667
	±250	33.3	66.7
	±25	3.33	6.7
	±7.5	1	2
	±2.5	0.33	0.67
Accuracy[2]	0 to +40°C	-25 to +50°C	-55 to +85°C (-XT only)
	±(0.06% of setting + 0.8 mV)	±(0.12% of setting + 0.8 mV)	±(0.18% of setting + 0.8 mV)

Analogue Outputs

3 switched voltage, active only during measurement, one at a time

Ranges and Resolution	Voltage outputs programmable between ±2.5 V with 0.67 mV resolution		
Accuracy	0 to +40°C	-25 to +50°C	-55 to +85°C (-XT only)
	±(0.06% of setting + 0.8 mV)	±(0.12% of setting + 0.8 mV)	±(0.18% of setting + 0.8 mV)

Resistance Measurements

Measurement types	4- and 6-wire full bridges, 2, 3 and 4 wire half bridges. Precise, dual polarity excitation using any of the 3 switched voltage excitations eliminates DC errors
Ratio Accuracy	±(0.04% of voltage reading + offset)/Vx

Pulse Counters

Maximum counts per scan	16.7 x 106
Digital I/O Ports	4 ports software selectable, as binary inputs or control outputs

[1]Range overhead of ~9% exists on all ranges to guarantee that full-scale values will not cause over-range. [2]Resolution of DF measurements with input reversal.
[3]Basic resolution (Basic Res) is the A/D resolution of a single conversion. Resolution of DF measurements with input reversal is half the Basic Res.

Ordering Information

Datalogger Components	
D1-1.1.2	CR1000 - Advanced datalogger and wiring panel, up to 14 multiplexers
D1-1.1.3	CR800 - Basic datalogger and wiring panel, up to 3 multiplexers
D1-1.2	Lead acid power supply, 115VAC / 220VAC, includes 12volt battery
D1-1.3	AVW100 - Vibrating Wire interface, for reading VW multiplexers or 1No VW instrument with thermistor
D1-1.4	AM16/32 - relay multiplexer, 16 channel with 4wire instruments, 32 channel with 2 wire instruments
D1-1.9	AVW4 - Vibrating Wire Interface, for reading VW multiplexers or 4No VW instrument with thermistor
Enclosures	
D1-2.6	Enclosure, epoxy painted steel. H400mm x W400mm x D250mm
D1-1.6	Enclosure, epoxy painted steel. H600mm x W600mm x D250mm
D1-2.7	Enclosure, polyester/GRP. H530mm x W430mm x D200mm
D1-1.7	Enclosure, polyester/GRP. H745mm x W535mm x D300mm
Configuration and Wiring	
D1-1.8	CR1000, Includes logger customer specified program and full testing
D1-2.8	CR800, Includes logger customer specified program and full testing
D1-1.4	Multiplexer, additional to a logger configuration
Direct Communication	
D1-3.1	SC32B, RS232 opto isolated interface, for permanent use
D1-3.2	SC929, RS232 interface, for temporary use
D1-3.3	USB optically isolated interface cable
Telephone Modem	
D1-3.4	TD32, telephone modem
Digital Wireless Modem	
D1-3.5	GSM digital transceiver
Multidrop Interface	
D1-3.9	Multidrop interface
D1-3.10	Power supply for interface at PC
CA-3.1-4-IC	4 core, Instrument cable, 7/0.20, screened
Weather Station	
D1-4.1	Weather station Logger, CR10, SC32B, mains charger, battery backup, housed in 600mm x 400mm steel enclosure
	Components, temperature and relative humidity probe, anemometer, pyranometer and tipping bucket rain gauge
CA-3.1-4-IC	4 core, Instrument cable, 7/0.20, screened
Non-Mains Power Supply	
D1-5.1	Solar panel, 10watt
D1-5.2	Solar shunt regulator
CA-3.1-4-IC	4 core, Instrument cable, 7/0.20, screened
Options & Accessories	
D1-6.1	SC12 cable, connecting two peripherals to logger
D1-6.2	Desiccant to remove excess humidity
D1-6.5	Battery 12V 7Ah, additional battery for mains power dataloggers
D1-6.6	Lead acid battery 12V 16Ah, additional battery for non-mains battery powered dataloggers
D1-6.7	Desktop battery charger

soil INSTRUMENTS

bsi. ISO 9001 Quality Management · ISO 14001 Environmental Management · OHSAS 18001 Occupational Health & Safety Management
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