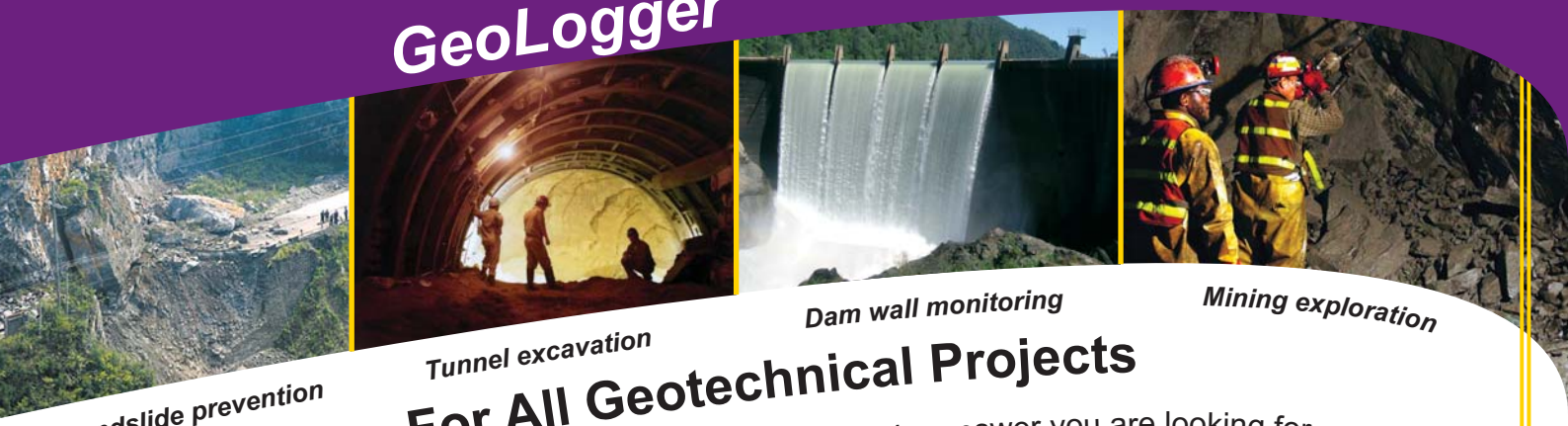
DT85G Series 2 GeoLogger

dataTaker®



Landslide prevention | Tunnel excavation | Dam wall monitoring | Mining exploration

For All Geotechnical Projects

The versatile ***dataTaker DT85G GeoLogger*** is the answer you are looking for.

- **A cost effective data logger expandable to 300 channels.**
- **Supporting vibrating wire and other Geotechnical sensors**
- **Compatible with all major brands - Slope Indicator, RST Instruments, Geokon, Soil Instruments, Roctest, AGI - Applied Geomechanics Inc.**
- **Standalone or part of a network with powerful inbuilt communication options, allows access to data how or where you want.**
- **Includes USB memory stick support.**
- **Rugged design and construction provides reliable operation in the extremes of the geotechnical environment and applications.**
- **16 analog channels capable of measuring up to 16 vibrating wire strain gauges with thermistors or 48 vibrating wire strain gauges without thermistors.**
- **Designed and manufactured in Australia to the highest quality standards.**

Advanced design and technology plus 25 years of geotechnical expertise have produced the ***dataTaker DT85G GeoLogger*** - A versatile, powerful – yet low power and cost effective data logger.

Getting the Data

View the data in real time or store up to 5 million data points. Data storage and retrieval can be achieved via USB memory stick, FTP, cell phone, Modbus for SCADA, Ethernet or Web. The web server allows browser access to data and files, FTP provides data to your office over the internet or mobile phone network, without the need for polling or specific host software.

Key *DT85G* Features

- Vibrating Wire Support
- Low Cost Per Channel
- Expandable to 300 Channels
- USB Memory for data & program transfer
- Built in communication
- Strain Gauge Support
- Carlson, Electro Level & LVDT support
- Web & FTP client / server
- Modbus
- SDI-12
- Designed & Manufactured in Australia

Generic Sensor Types

- Inclinometer
- Extensometer
- Piezometer
- Pressure Cell
- Crack Meter
- Tilt Meter

FREE
Software & Technical Support

Specifications

Analog Channels

16 analog input channels (expandable to 300*)

Each channel is independent and supports: one isolated 3-wire or 4-wire input, or two isolated 2-wire inputs, or three common referenced 2-wire inputs.

The following maximums apply.

Two wire with common reference terminal: 48 (expandable to 800*)

Two wire isolated: 32 (expandable to 600*)

Three and four wire isolated: 16 (expandable to 300*)

*Expansion requires optional *CEM20*

Fundamental Input Ranges

The fundamental inputs that the *DT85G* can measure are voltage, current, resistance and frequency. All other measurements are derived from these.

Full Scale	Resolution	Full Scale	Resolution
±30 mVdc	0.25 µV	100 Ω	1.5 mΩ
±300 mVdc	2.5 µV	1000 Ω	15 mΩ
±3 Vdc	25 µV	10,000 Ω	150.00 mΩ
±30 Vdc	250 µV	100 Hz	0.0002 %
±0.3 mA	2.5 nA	10 kHz	0.0002 %
±3 mA	25 nA		
±30 mA	250 nA		

Auto-ranging is supported over 3 ranges.

Accuracy

Measurement at ...	5°C to 40°C	– 45°C to 70°C
DC Voltage	0.1%	0.35%
DC Current	0.15%	0.45%
DC Resistance	0.1%	0.35%
Frequency	0.1%	0.25%

Accuracy table above is % of reading ±0.01% of full scale.

Sampling

Integrates over 50/60Hz line period for accuracy and noise rejection

Maximum sample speed: 25Hz

Effective resolution: 18 bits

Linearity: 0.01%

Common mode rejection: >90dB

Line series mode rejection: >35dB

Inputs

Inter-Channel Isolation: 100V (relay switching)

Analog Section Isolation: 100V (opto-isolated)

Input impedance: 100KΩ, >100MΩ

Common mode range: ±3.5V or ±35V on 30V range

Sensor Excitation (Supply)

Analog channels: selectable 250µA or 2.5mA precision current source, 4.5V voltage source, or switched external supply.

General Purpose: Switchable 12V regulated supply for powering sensors & accessories. (max 150mA)

Analog Sensors

Supports a wide range of sensors including, but not limited to, those listed below. A wide range of sensor scaling and linearising facilities including polynomials, expressions and functions.

Thermocouples

Types: B, C, D, E, G, J, K, N, R, S, T

Calibration standard: ITS-90

RTDs

Materials supported: Pt, Ni, Cu

Resistance range: 10Ω to 10KΩ

Vibrating Wire

Frequency range: 500 to 5kHz
Coil resistance: 50 to 200Ω
Stimulation method: single pulse pluck

Thermistors

Types: YSI 400xx Series, other types*
Resistance range: <10kΩ**

* Other thermistor types are supported by thermistor scaling and calculated channels.

**Resistance range can be increased with the use of a parallel resistor.

Monolithic Temperature Sensors

Types supported: LM34 - 60, AD590, 592, TMPxx
LM135, 235, 335

Strain Gauge and Bridge Sensors

Configurations: ¼, ½ & full bridge

Excitation: voltage or current

Carlson Sensors

Built-in functions for strain and temperature.

4-20mA Current Loop

Internal 100R shunt or external shunt resistor

Digital Channels

Digital Input/Outputs

8 bi-directional channels

Input Type: 8 logic level (max 20/30V)
Output Type: 4 with open drain FET (max: 30V, 100mA), 4 with logic output.

Relay Output

1 latching relay, contacts (max: 30Vdc, 1A)

Counter Channels

Low Speed Counters

8 counters shared with digital inputs.

Low speed counters do not function in sleep mode.

Size: 32 bit

Max Count rate: 10 Hz

Dedicated Counter Inputs

4 high speed or 2 phase encoder (quadrature) inputs

Size: 32 bit

Max Count rate: 10 kHz

Input type: 2 logic level inputs (max ±30V), 2 sensitive inputs (10mV) for magnetic pick-ups (max ±10V)

Serial Channels

SDI-12

4 SDI-12 inputs, shared with digital channels. Each input can support multiple SDI-12 sensors.

Generic Serial Sensor

Flexible options to allow data to be logged from a wide range of smart sensors and data streams.

Available ports: Serial Sensor Port (RS232, RS422, RS485) or Host RS232 Port*

Baud rate: 300 to 115200

*If used as a Serial Sensor channel then the Host Port is not available for other communications.

Calculated Channels

Combine values from analog, digital and serial sensors using expressions involving variables and functions.

Functions: An extensive range of Arithmetic, Trigonometric, Relational, Logical and Statistical functions are available.

Alarms

Condition: high, low, within range and outside range

Delay: optional time period for alarm response

Actions: set digital outputs, transmit message, execute any *dataTaker* command.

Scheduling of Data Acquisition

Number of schedules: 11

Schedule rates: 10ms to days

Data Storage

Internal Store

Capacity: 64MB = approx 5,000,000 data points

Removable USB store device (optional accessory)

Types: compatible with USB 1.1 or USB 2.0 drives, e.g. Flash drive.

Capacity: approx. 90,000 data points per megabyte.

Communication Interfaces

Ethernet Port

Interface: 10BaseT (10Mbps)

Protocol: TCP/IP

USB Port

Interface: USB 1.1 (virtual COM port)

Protocol: ASCII command

Host RS232 Port

Speed: 300 to 115200 baud (57,600 default)

Flow Control: Hardware (RTS/CTS), Software (XON/XOFF), None

Handshake lines: DCD, DSR, DTR, RTS, CTS

Modem support: auto-answer and dial out

Protocols: ASCII Command, TCP/IP (PPP), Modbus, Serial Sensor

Serial Sensor Port

Interface: RS232, RS422m RS485

Speed: 300 to 57,600 baud

Flow Control: Hardware (RTS/CTS), Software (XON/XOFF), None

Protocols: Modbus, Serial Sensor

Network (TCP/IP) Services

Uses Ethernet and/or Host RS232 (PPP) ports

Command Interface

Access the ASCII command interface of the *DT85* via TCP/IP

Web Server

Access current data and status from any web browser. Custom pages can be defined. Download data in CSV format. Command interface window. Define mimic displays.

Modbus Server (slave)

Access current data and status from any Modbus client (e.g. SCADA system)

FTP Server

Access logged data from any FTP client or web browser

FTP Client

Automatically upload logged data direct to an FTP server

System

Display and Keypad

Type: LCD, 2 line by 16 characters, backlight.

Display Functions: channel data, alarms, system status.

Keypad: 6 keys for scrolling and function execution.

Status LEDs: 4 for sample, disk, attention and power.

Firmware Upgrade

Via: RS232, Ethernet, USB or USB disk.

Real Time Clock

Normal resolution: 200µs

Accuracy: ±1 min/year (0°C to 40°C), ±4 min/year (-40°C to 70°C)

Power Supply

External voltage range: 10 to 30Vdc
Internal battery: 6Vdc 4Ahr lead acid
Peak Power: 12W (12Vdc 1A)

Average power Consumption

Using 12Vdc external power source

Sampling Speed	Average Power
1 second	1350 mW
5 second	500 mW
30 second	135 mW
5 minutes	70 mW
1 hour	60 mW

Typical Operating Time

from internal 6Vdc, 4Ahr battery

Sampling Speed	Operating Time
1 second	1 day
5 second	3 days
1 minute	1 month
1 hour	9.5 months

Physical and Environment

Construction: Powder coated zinc and anodized aluminum.

Dimensions: 300 x 137 x 65mm

Weight: 2.5kg (5kg shipping)

Temperature range: –45°C to 70°C *

Humidity: 85% RH, non-condensing

*reduced battery life and LCD operation outside range –15°C to 50°C

Accessories Included

Resource CD: includes software, video training and user manual.

Comms cable: USB cable

Line adaptor: 110/240Vac to 15Vdc, 800mA

Optional Accessories

A range of accessories are available. Contact your local distributor or visit www.jsinstruments.com

dataTaker®

For full technical specifications download the user's manual from our website.

CE

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