



## Applications include:

Landslide Prevention  
Tunnel Excavation  
Concrete Curing

Mining Exploration  
Dam Wall Monitoring

<sup>1</sup> **FREE** Software & Technical Support

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

- 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.

## Getting the Data

View the data in real time or store up to 10 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.

- » Vibrating Wire Support
- » Low Cost Per Channel
- » Carlson, Electro Level & LVDT support
- » Expandable to 900 analog inputs
- » Strain Gauge Support
- » Web & FTP client / server

**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 900\*)  
 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%

**Sampling**

Integrates over 50/60Hz line period for accuracy & 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 115,200  
 \*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: 128MB = approx 10,000,000 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 115,200 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, RS422, 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 DT85G 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 & user manual.  
 Comms cable: USB cable  
 Line adaptor: 110/240Vac to 15Vdc, 800mA

Your local distributor

