dataTaker®

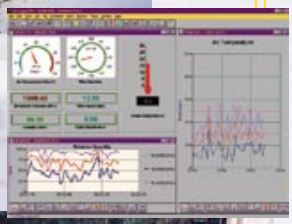
Data Acquisition and Data Logging Systems

www.datataker.com

GeoLogger DT515 & DT615 Series 3

Specifications

- **Geotechnical Low Power Data Logger**
- **10-30 Sensor Channels, 7 Digital Channels**
- **Vibrating Wire Sensor Support**
- **Unique Universal Channels**
- **Up to 1,390,000 Data Points**
- **PC Card for Data Storage**
- **Easily Configurable Windows Based Software**
- **Stand Alone and Real Time Data Acquisition**
- **Remote Monitoring and Control**
- **Removable Screw Terminals**
- **Expandable**



Datataker's Extensive Range

Datataker's extensive range of data acquisition and data logging systems are real time and stand alone, able to acquire, process and log data without direct computer control. The powerful yet easy-to-use hardware and software enables you to log a wide range of measurements and events. *dataTakers* are in use in over 50 countries - *dataTakers* are used in many applications including science, aerospace, mining, manufacturing, meteorology, agriforestry, hydrography, research & development, public utilities, petrochemical and transportation.

The Geotechnical Data Loggers

There are two versions of the GeoLogger, the *dataTaker DT515* and *DT615*. Both units feature easy set up, 10 to 30 analog channels, 7 digital and counter channels, Vibrating Wire Sensor Support with 500Hz to 5 kHz frequency range and unique phase lock loop filtering.

Data can be conveniently and securely stored in battery backed RAM and removable PC cards storing up to 1,390,000 data points respectively. Alarms may also be set for all channels.

The *DT515* and *DT615* are of a rugged steel construction making the units suitable for harsh environments. In addition, the *DT615* also features a display and keypad for viewing channel data, alarm status and system information. Programmable function keys allow keypad control over the unit's operation.

The *dataTaker* Windows Based Software

Datataker produces a number of software packages for interfacing with the *dataTaker* data logger range. DeTransfer provides a text-based interface for programming and management, with simple plotting provided by the DePlot utility. DeLogger4 is our standard GUI (Graphical User Interface) for 'drag and drop' programming, spreadsheet presentation of data, plotting of charts and simple mimics. DeLogger4 Pro is the enhanced graphical package including additional automation, reporting, database and remote *dataTaker* management features.

Applications

Applications for the dataTaker GeoLogger range include:

- Concrete Structural Testing
- Dam Wall Stability Monitoring
- Subway Construction Site Monitoring
- Machinery Condition Monitoring
- Tunnel Monitoring
- Soil Slope Stability Monitoring

For your application contact your local *dataTaker* office or your local dealer.

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Analog Channels

Channel Number

Number of input channels depends on sensor wiring configuration. Sensor configurations may be mixed:
- Two wire: 10
- Two wire with one shared terminal: 30
- Three wire: 10
- Four wire: 10
- Expansion: by external CEM modules

Fundamental Input Ranges

Full Scale	Resolution	Full Scale	Resolution
±25 mVdc	2 µV	50 Ω	.25 mΩ
±250 mVdc	20 µV	500 Ω	2.5 mΩ
±2.5 Vdc	200 µV	5,000 Ω	25 mΩ
±100 Vdc	500 µV	100 Hz	0.01 %
±0.25 mA	0.2 µA	10 kHz	0.01 %
±2.5 mA	1 µA		
±25 mA	10 µA		

Accuracy

Measurement at	25°C	–45°C to 60°C
DC Voltage	0.15%	0.25%
DC Current	0.25%	0.35%
DC Resistance	0.20%	0.30%

Sensor Excitation

Per channel: 4.5V, 250µA or 2.5mA
DC voltage: 5V at 100mA switched

Multiplexer (Channel Selector)

Type: relay ±100V input
Common mode range: ±100V (100V range only)
±3.5V on other ranges
Input impedance: 1MΩ or >100MΩ, programmable

Sampling

Sampling for accuracy and noise rejection by integrating over 50/60Hz line period
Maximum sample speed: 25Hz
Effective resolution: 15 bits
Linearity: 0.01%
Common mode rejection 25mV range: >90dB
Line (50/60Hz) series mode rejection: >35dB

Internal Channels

Temperature (thermocouple reference junction): 1
Reference voltage channels: 1
Internal battery voltage: 1

Sensor Support

Supports a wide range of sensor types including, but not limited to the following:

Vibrating Wire

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

Thermocouples

Types: B, C, D, E, G, J, K, N, R, S, T
Reference junction compensation accuracy:

Case temperature	25°C	–20 to +60°C
Accuracy	±1.0°C	±1.5°C

RTDs

Types: Pt, Ni, Cu
Resistance range: 10Ω to 2kΩ
Measurement accuracy:
- 4 wire: 0.15% of resistance
- 3 wire: 0.25% of resistance

Thermistors

Types: YSI 400xx Series
Resistance range: <7kΩ,
<20kΩ with parallel resistor

Monolithic Temperature Sensors

Types supported: LM34, LM35, AD590

Bridge Sensors

Configurations: 4-wire and 6-wire
Bridge completion: external or internal half bridge

4-20mA Current Loops

Shunt value: 100Ω to a shared common
Accuracy: 0.25% at 25°C

Sensors - Comments

A wide range of sensor scaling and linearising facilities is provided including polynomials, expressions and functions

Digital Channels

Number of channels: Bi-directional channels: 4
Dedicated counter channels: 3
Analog channels may also be used for digital input

Digital Input

Number: 4, shared with output channels
Input Type: logic level (protected with pull-up)

Counter Channels

Number: 4 low-speed (10Hz) shared with input channels
3 high-speed (1kHz in sleep mode) with switchable internal clocking options
Size: 16 bit (65535 counts)

Digital Output

Number: 4 shared with input channels
Output type: open-collector npn transistor, +30V, 100mA

Calculation Channels

Any expression involving variables and functions including: sin(), cos(), tan(), asin(), acos(), atan(), abs(), sqrt(), average, maximum, minimum, time of max., time of min., variance, integral, histogram

Scheduling of Data Acquisition

Number of schedules: 4 acquisition schedules,
1 immediate schedule
1 alarm schedule
Scan triggers: time base or digital event
Conditional scanning: while digital input high
Time based scheduling: from seconds to months in increments of 1 second, 1 minute, 1 hour and 1 day
Maximum scheduled rate: 1 second or as fast as possible, typically 25 samples per second
Dynamic scan time base change: yes
Maximum number of channel entries: 110

Alarms

Condition: high, low, within range and outside range
Delay: optional time period for alarm response
Actions: set digital outputs, execute any commands. Alarms can be combined in alogical fashion

Data Storage

Internal

Type: battery backed SRAM
Capacity: 166,530 data points

PC Card

Types: SRAM up to 4 MByte, Type 1
Card voltage: 5V types
Capacity: up to 1,390,000 data points
Data format: proprietary

Download Data Format

Format: ASCII floating point, fixed point or exponential formats
Compatibility: spread sheets, word processors, graphing packages, statistical programs and SCADA software

Serial Interface (RS232)

The GeoLogger is programmed and data extracted via the RS232 serial interface
Speed: 300 to 9600 baud (9600 default)
Handshake: XON and XOFF
Wake from sleep: yes
Isolation: 500V
Compatibility: computers, modems, satellite-modems, radio-modems and printers

Network Interface (Multiple *dataTaker* only)

Standard: RS485
Protocol: proprietary with error correction
Speed: 1200 Baud
Distance: 1000 meter maximum

Certified to ISO9001
TOTAL QUALITY COMMITMENT
Australia Only

System

Display and Keypad

Models: *DT615* only
Type: LCD, 2 lines by 16 characters, back light
Display functions: channel data, alarms, battery status, data capacity
Key pad: 5 keys for scrolling, function execution
Beeper: for alarms, etc
Indicator LED's: 3 programmable

Real Time Clock

For time stamping of data, scheduling and timers
Normal resolution: 1 second
Accuracy: 2 seconds per day (25°C)

Power Supply

Voltage range: 11 to 24Vdc or 9 to 18Vac

Power Consumption

In normal mode: 1W (2W with battery charging)
Sleeping: 2mW (350µA from battery)
Typical low power operation: 20mW

Internal Main Battery

Chemistry: lead acid gel cell
Voltage (capacity): 6V (1.2 AHr)
Temperature compensation: –10°C to +70°C
Operating time: Normal: approx. 10 hours
Low power: approx. 4 months

Internal Backup Battery

For real time clock and internal data storage backup
Type: 3V 1/2AA Lithium

Physical and Environment

Construction: Powder coated fabricated steel
Physical dimensions: 260 x 110 x 85mm
Weight: 2.2kg (4kg shipping)
Environment Temperature range: –45°C to 70°C
Humidity: 85%, non-condensing

Accessories Included

Line adaptor: 110/240Vac, 500mA
Comms Cable: for PC, with 9 to 25 pin adaptor
Software: Software Suite CD which includes DeLogger4, DeTransfer, DePlot applications
Manuals: "Getting Started with *dataTaker*"
"User's Manual"

Optional Accessories

Channel Expansion Module (CEMS3)

Multiplexer: relay
Number: 4 per GeoLogger
Channel number:
- 10 two wire
- 30 two wire shared terminals
- 20 digital inputs
- 10 digital outputs, 5 with relay contacts

Portable Carrying Case (PE500)

Capacity: 1 *DT500* range unit + 1 x CEMS3 (Requires AS1072)
Environmental protection: IP66

SRAM PC Card (MC1024P, MC4096P)

Capacity: 1MByte, approximately 340,000 data points
4MByte, approximately 1,390,000 data points

DeLogger™4 Pro

Graphical programming and supervision software. Supports a large network of GeoLoggers connected via modem. Features include comprehensive plotting, reporting, mimics, database, web publishing and other powerful capabilities.

Warranty

The *dataTaker* DT515 and DT615 is covered by a 3 year warranty on workmanship and parts. For further information on the *dataTaker* range, or for useful downloads, visit the *dataTaker* web site at www.datataker.com or contact your nearest Datataker office or dealer.

dataTaker®

Your local dealer

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