dataTaker

...keeping an eye on reality

GeoLogger DT515 & DT615

Data Acquisition and Data Logging Systems

- **Vibrating Wire Sensor Support**
- **Remote Monitoring and Control**
- **Easy-to-use Hardware and Software**
- **Battery-backed Data Storage**
- **Networking Capabilities**
- **Channel Expansion Option**

Specifications

DataTaker's Extensive Range

DataTaker's extensive range of data acquisition and data logging systems are real-time and standalone, 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.

More than 30,000 *dataTaker* data loggers are in use in over 55 countries - *dataTakers* are used in many applications including science, aerospace, mining, manufacturing, meteorology, agriforestry, hydrography, petrochemical, research and development, public utilities and transportation.

The Geotechnical Data Loggers

There are two versions of the GeoLogger: the *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 13,500 and 340,000 readings 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.

DataTaker's Windows-based Software

The GeoLogger system comes complete with three software packages including DeLogger, DeTransfer and DePlot, allows you to easily program the units, DeLogger's GUI provides drag and drop programming, charts, mimic screens, and spreadsheet views while DeTransfer facilitates text-based programming and simple trend plots via DePlot.

Applications

Applications for the dataTaker GeoLogger Series include:

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

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

www.dataTaker.com

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 (4-20 mA)		

*100 Vdc range only

Accuracy

Measurement at:	25°C	–45°C to 60°C
DC Voltage	0.15%	0.25%
DC Curent	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 (max.) switched

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

Sampling
Sampling for accuracy and noise rejection by intergrating 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 sensors types including, but not limited to the following:

Vibrating Wire
frequency range: 500 to 5kHz
Coil resistance: 50 to 200Ω
Stimulation method: single pluse 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 (385 & 392), 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 linearizing facilities is provided including polynomials, expressions and functions

Digital Channels
Number of Channels: Bi-directional channels: 4
    Dedicated counter channels: 3

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, operation in sleep mode)
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

Data Storage

Internal
Type: battery backed SRAM
Capacity: 13,500 data points

PC Card
Types: SRAM up to 4 MByte, Type 1
Card voltage: 5V types
Capacity: 340,000 data points per megabyte
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 *GeoLoggers* are 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
Standard: RS485
Protocol: proprietary with error correction
Speed: 1200 Baud
Distance: 1000 meter maximum

System

Display and Keypad
Models: DT615 only
Type: LCD, 2 lines by 16 characters, backlight
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
External solar panel: 12V (0.4 x 0.4m typical size)

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):   6 V (1.2 AHr)
Temperature compensation: –10°C to +70°C
Operating time: Normal: approx. 10 hours
    Low power: approx. 4 months

Physical and Environment
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
Battery: 6V 1.2AHr gel cell
Comms Cable: for PC, with 9 to 25 pin adaptor
Software: DeLogger, DeTransfer, DePlot
Manuals: "Getting Started with *dataTaker*", "*dataTaker* Manual", "DeLogger"

Optional Accessories

Channel Expansion Module (*CEM*)
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 (*PE*)
Capacity: 1 *GeoLogger*
Environmental Protection: IP66

SRAM PC Card (*MC1024P*)
Capacity: 1MByte, approximately 340,000 readings

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

Warranty
The *dataTaker* range 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* website at www.datataker.com or contact your nearest *dataTaker* office or dealer.

dataTaker
...Keeping an eye on reality

Your local dealer

CE
dataTaker
Certified to ISO9002
TOTAL QUALITY COMMITMENT

R
Lloyd's Register Quality Assurance ISO9001
UKAS QUALITY MANAGEMENT 001

TS-0004-A7