



- General Purpose, Economical, Low Power Data Logger
- 1-3 Sensor Channels, 7 Digital Channels
- Unique Universal Channels
- Up to 166,500 Data Points
- Embedded Program Option For OEM Use
- Stand Alone & Real Time Data Acquisition
- Remote Monitoring & Control
- Removable Screw Terminals



### 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, petrochemical, research & development, public utilities and transportation.

### The dataTaker DT51 General Purpose Economical Unit

The dataTaker DT51 is a general purpose economical logger suitable for end user or OEM use. The DT51 features 1 to 3 analog channels depending on sensor type, four digital input channels, 3 high speed counters and sampling speed of 25 - 70 samples per second.

Data can be conveniently and securely stored in battery backed RAM. Alarms may be set for all channels. The DT51's rugged steel construction makes the unit suitable for harsh environments.

Datataker can supply the DT51 to OEM customers with your Logo or preferred colours.

### 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 DT51 include:

- Fault Finding
- Monitoring Water Levels
- Process Monitoring
- Building Monitoring
- Automotive Testing
- Monitoring Climatic Conditions
- Machine Down Time Monitoring
- Product Testing
- Research & Development
- Flood Warnings

For your unique application, contact your local Datataker office or your local dealer.



#### Head Office

Australia  
 Datataker Pty Ltd  
 7 Seismic Court  
 Rowville Melbourne  
 Victoria 3178  
 Tel: +61 3 9764 8600  
 Fax: +61 3 9764 8997  
 Email: sales@datataker.com.au



United Kingdom  
 Grant Instruments (Cambridge) Ltd  
 Shepreth  
 Cambridgeshire  
 SG8 6GB  
 Tel: +44 (0) 1763 264780  
 Fax: +44 (0) 1763 262410  
 Email: sales@datataker.co.uk



United States of America  
 Computer Aided Solutions  
 8588 Mayfield Rd, Suite One  
 Chesterland, OH 44026  
 Tel: +1 800 9 LOGGER  
 Tel: +1 440 729 2570  
 Fax: +1 413 375 6137  
 Email: sales@datataker.com



## Analog Channels

### Channel Number

Number of input channels depends on sensor wiring configuration. Sensor configurations may be mixed:

- Two wire: 1
- Two wire with one shared terminal: 3
- Three wire: 1
- Four wire: 1
- 4-20mA current loop: 1 with internal shunt + 3 using external shunts

### Fundamental Input Ranges

The DT51 hardware measures voltage, current, resistance and frequency. From these, all other measurements are derived.

Full Scale	Resolution	Full Scale	Resolution
±25.00 mVdc	2.00 $\mu$ V	50 $\Omega$	.25 m $\Omega$
±250.0 mVdc	20.00 $\mu$ V	500 $\Omega$	2.50 m $\Omega$
±2.50 Vdc	200.00 $\mu$ V	5,000 $\Omega$	25.00 m $\Omega$
±0.25 mA	0.20 $\mu$ A	100 Hz	0.01 %
±2.50 mA	1.00 $\mu$ A	10 kHz	0.01 %
±25.00 mA	10.00 $\mu$ A		

### 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

Each channel: 4.5V (1k $\Omega$  source), 250 $\mu$ A or 2.5mA switched on when channels is selected

DC Voltage: 5V at 100mA (max.) switched

### Multiplexer (Channel Selector)

Type: solid-state  $\pm$ 5V input ratings  
Input impedance: 1M $\Omega$  or >100M $\Omega$ , programmable  
Common mode range:  $\pm$ 3.5V

### Internal Channels

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

### 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

## Sensor Support

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

### 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	$\pm$ 1.0°C	$\pm$ 1.5°C

### RTDs

Types: Pt, Ni, Cu  
Resistance range: 10 $\Omega$  to 2k $\Omega$   
Measurement accuracy:  
4 wire: 0.15% of resistance value  
3 wire: 0.25% of resistance value

### Thermistors

Types: YSI 400xx Series  
Resistance range: <7k $\Omega$ ,  
<20k $\Omega$  with parallel resistor

### Monolithic Temperature Sensors

Types supported: LM335, LM34, LM35, AD590

### Bridge Sensors

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

### 4-20mA Current Loops

Shunt value: 100 $\Omega$  (standard internal)  
Accuracy: 0.25% at 25°C

### Sensors - Comments

A wide range of sensor scaling and linearising facilities are 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 bi-directional channels  
Input Type: logic level (protected with pull-up)

### Counter Channels

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

### Digital Output

Number: 4, shared with bi-directional channels  
Output type: open-collector npn transistor  
Rating: +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 *dataTaker* commands. Alarms can be combined in a logical fashion

## Data Storage

### Internal

Type: battery backed SRAM  
Capacity: 166,500 data points

### Download Data Format

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

## Serial Interface (RS232)

The DT51 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

## System

Processor type: Z180, 18 MHz  
Program storage: FLASH  
Data storage: SRAM, battery backed  
Indicator LED: sampling

### 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 battery input: 6V lead acid

### Power Consumption

In normal mode: 1W (2W with ext. battery charging)  
Sleeping: 2mW (350 $\mu$ A from 6V battery)  
Typical low power operation: 20mW

### External Battery (Recommended)

An external battery can be connected for stand alone data logging. The battery can be re-charged by the DT51 when main supply is restored/applied. (See power supply above)  
Chemistry: lead acid gel cell  
Voltage: 6V  
Maximum charge current: 200mA  
Temperature compensation charging: -10°C to +70°C  
Operating time with 1.2Ahr battery:  
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  
Dimensions: 260 x 110 x 55mm  
Weight: 1.5kg (2.5kg shipping)  
Environment temperature range: -45°C to 70°C  
Humidity: 85%, non-condensing

## Accessories Included

Comms cable: for PC  
Software: Software Suite CD which includes DeLogger, DeTransfer, DePlot applications  
Manuals: "Getting Started with *dataTaker*"  
"User's Manual"

## Optional Accessories

### Portable Carrying Case (PE500)

Capacity: 1 DT51 unit + battery  
Environmental protection: IP66

### Battery

Line adaptor: 110/240Vac, 500mA  
Capacity: 1.2Ahr (GC-1.2) or 4Ahr (GC-4) for mounting external to the DT51

### DeLogger™ 4 Pro

Graphical programming and supervision software. Supports a large network of DT51, DT500 and DT800 range units connected via modem. Features include comprehensive plotting, reporting, mimics, database, web publishing and other powerful capabilities.

## Warranty

The *dataTaker* DT51 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](http://www.datataker.com) or contact your nearest *dataTaker* office or dealer.

**dataTaker®**



**dataTaker**

Certified to ISO9001



TOTAL QUALITY COMMITMENT

Australia Only

*dataTaker*, DeLogger are either registered trademarks or trademarks of *dataTaker* Pty Ltd.

Your local dealer