dataTaker®

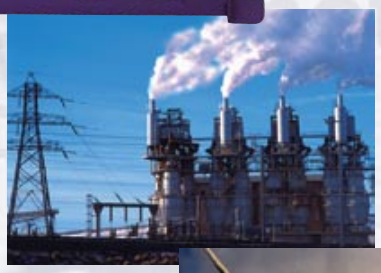
Data Acquisition and Data Logging Systems

www.datataker.com

dataTaker DT51 Series 3

Specifications

- 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 prefered 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.

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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 µV	50 Ω	.25 mΩ
±250.0 mVdc	20.00 µV	500 Ω	2.50 mΩ
±2.50 Vdc	200.00 µV	5,000 Ω	25.00 mΩ
±0.25 mA	0.20 µA	100 Hz	0.01 %
±2.50 mA	1.00 µA	10 kHz	0.01 %
±25.00 mA	10.00 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

Each channel: 4.5V (1kΩ source), 250µA or 2.5mA switched on when channels is selected
DC Voltage: 5V at 100mA (max.) switched

Multiplexer (Channel Selector)

Type: solid-state ±5V input ratings
Input impedance: 1MΩ or >100MΩ, programmable
Common mode range: ±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	±1.0°C	±1.5°C

RTDs

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

Thermistors

Types: YSI 400xx Series
Resistance range: <7kΩ, <20kΩ 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: 100Ω (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 (350µA 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 or contact your nearest Datataker office or dealer.

dataTaker®

Certified to ISO9001
TOTAL QUALITY COMMITMENT
Australia Only

Your local dealer

TS-0041-A2

Request a price at: http://dataloggerinc.com/contact/price-request.php 1-800-956-4437