DT50

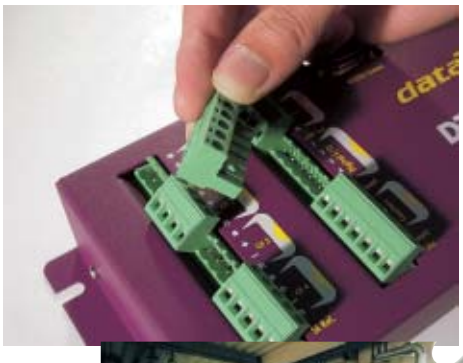
Data Logger

dataTaker®

Intelligent Data Logging Products

Specifications

- **General Purpose Low Cost, Low Power Data Logger**
- **5-10 Sensor Channels, 8 Digital Channels**
- **Unique Universal Channels**
- **Up to 1,390,000 Data Points**
- **Stand Alone & Real Time Data Acquisition**
- **Remote Monitoring & Control**
- **Removable Screw Terminals**



The *dataTaker DT50*
General Purpose Low Cost Unit

The *dataTaker DT50* is a general purpose low cost data logger. The *DT50* features 5 to 10 analog channels depending on sensor type, five 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 and removable PC cards; the latter providing storage for up to 1,390,000 data points. Alarms may be set for all channels.The *DT50*'s rugged steel construction makes the unit suitable for harsh environments.

Applications include:

- Fault Finding
- Automotive Testing
- Temperature Profiling
- Weather Stations
- Flood Warnings
- Research & Development
- Process Monitoring
- Machine Down Time
- Load Cells
- Building Monitoring
- Strain Guages

FREE Software & Technical Support

dataTaker software and Resource CD

The *dataTaker* Resource CD is provided FREE with every new logger. It contains software to enable easy setup, fast download, real time viewing of data and direct export to excel spreadsheets. The Resource CD also contains helpful training videos, manuals, application and technical notes and other valuable utilities.

DeLogger™ 4 Pro is the enhanced graphical package including additional automation, reporting, database and remote *dataTaker* management features.

For your nearest local Datataker distributor visit www.datataker.com.

Australasia
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

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

Americas
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@computeraidedsolutions.com

Analog Channels

Channel Number
Number of input channels depends on sensor wiring configuration. Sensor configurations may be mixed:
Two wire: 5
Two wire with one shared terminal: 10
Three wire: 5
Four wire: 5
4-20mA current loop: 5 with shared common + with 10 external shunts

Fundamental Input Ranges

The *DT50* 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 Hz	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 (1Ωk 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: 1M or >100M, 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	2.5˚C	-20 to +60˚C
Accuracy	±1.0˚C	±1.5˚C

RTDs
Types: Pt, Ni, Cu
Resistance range: 10Ω to 2Ωk
Measurement accuracy:4 wire: 0.15% of resistance value3 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 to a shared common
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: 5
Dedicated counter channels: 3

Digital Input
Number: 5, shared with bi-directional channels
Input Type: logic level (protected with pull-up)

Counter Channels
Number: 5 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: 5
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
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

PC Card
Types: SRAM to 4MBytes, 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: spreadsheets, word processors, graphing packages, statistical programs and SCADA software

Serial Interface (RS232)

The *DT50* 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

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(height 104mm with PC Card)
Weight: 1.5kg (2.5kg shipping)
Environment temperature range: -45˚C to 70˚C
Humidity: 85%, non-condensing

Accessories Included

Comms cable: for PC
Resource CD which includes standard software
Manuals: "Getting Started with dataTaker"
"User's Manual"
Line adaptor: 110/240Vac, 500mA

Optional Accessories

Battery (Recommended)
A battery can be connected for stand alone data logging. The battery can be re-charged by the *DT50* when main supply is restored/applied.
Chemistry: lead acid gel cell
Voltage: 6V
Maximum charge current: 200mA
Temperature compensation charging: –10°C to +70°C

External Battery (GC-4)
Capacity: 4AHr
for mounting external to the *DT50*
Normal: approx. 24 hours
Low power: approx. 12 months

Internal Battery (BATOPTION)
0.5AHr (Lead Acid) - factory fitted
Normal: approx. 3 hours
Low power: approx. 1 months

Portable Carrying Case (PE500)
Capacity: 1 *DT50* unit + battery
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 *DT50*, *DT500* and *DT800* range units connected via modem. Features include comprehensive plotting, reporting, mimics, database, web publishing and other powerful capabilities.

dataTaker®

Your local distributor

Manufactured and designed in Australia.

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