dataTaker

. . . keeping an eye on reality

DT50

Data Acquisition and Data Logging Systems

- General Purpose Low Cost Data Logger
- 5-10 Sensor Channels, 8 Digital Channels
- Easily Configurable Windows Based Software
- Stand Alone and Real Time Data Acquisition
- Remote Monitoring and Control
- PC Card for Data Storage
- Unique Universal Channels

Specifications

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.

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

DataTaker's DT50 General Purpose Low Cost Unit

The *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 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 340,000 readings. Alarms maybe set for all channels. The *DT50's* rugged steel construction makes the unit suitable for harsh environments.

DataTaker's Windows Based Software

The *DT50* system comes with the *dataTaker* Software Suite, which includes DeLogger, DeTransfer and DePlot. These packages allow you to easily program the *DT50*.

DeLogger, with it's graphical programming interface provides trend plots, spreadsheet and visual instrument display. DeTransfer facilitates text based programming and trend plots via DePlot.

Applications

Applications for the *dataTaker DT50* 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: 5
Two wire with one shared terminal: 10
Three wire: 5
Four wire: 5
4-20mA current loop: 5 with shared common

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 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 protection
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 (385 & 392), 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 to a shared common
Accuracy: 0.25% at 25°C

Sensors - Comments

A wide range of sensor scaling and linearizing 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)
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
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

Data Storage

Internal

Type: battery (external) backed SRAM
Capacity: 13,500 data points

PC Card

Types: SRAM to 4MBytes, 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 *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: HM64180, 18 MHz
Program storage: EPROM
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
External solar panel: 12V (0.4 x 0.4m typical size)

Power Consumption

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

External Battery

An external battery can be charged
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

Physical and Environment

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
Environmental protection: IP45

Accessories Included

Line adaptor: 110/240Vac, 500mA
Comms cable: for PC, with 9 to 25 pin adaptor
Software: DeLogger, DeTransfer, DePlot
Manuals: "Getting Started with *dataTaker*"
"*dataTaker* Manual" and
"DeLogger Manual"

Optional Accessories

Portable Carrying Case (PE)

Capacity: 1 *DT50* unit
Environmental protection: IP66

Battery

Capacity: 1.2AHr or 4AHr for mounting external to the *DT50*

SRAM PC Card (MC1024P)

Capacity: 1MByte, approximately 340,000 readings

DeLogger Pro

Graphical programming and supervision software. Supports a large network of *DT50*, *DT500* and *DT800* Series units 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* web site at www.dataTaker.com or contact your nearest *dataTaker* office or dealer.

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...keeping an eye on reality

Certified to ISO9002
TOTAL QUALITY COMMITMENT

Your local dealer

TS-0001-A7