



dataTaker®

DT82E Series 3 Data Logger

Designed especially for environmental monitoring



Applications include:

- | | |
|--------------------------|-------------------------|
| Environmental Monitoring | Agricultural Research |
| Research & Development | Total Energy Monitoring |
| Weather Stations | Temperature Profiling |
| Thermistor Arrays | Aquaculture |
| Wind Power Generation | |

***FREE Software & Technical Support**

The Smarter Solution

The *dataTaker* DT82E is a smart data logger designed especially for environmental monitoring. The DT82E is a robust, low power data logger featuring USB memory stick support, 18-bit resolution, extensive communications capabilities and built-in display. The *dataTaker* DT82E's Dual Channel concept allows up to 4 isolated or 6 common referenced analog inputs to be used simultaneously in various combinations. With advanced networking capability (FTP and Web interface), one SDI-12 sensor channel (supporting up to 10 sensors) and switchable 12V regulated output to power sensors, the DT82E is ready to be deployed.

Versatile Measurement

Inputs include analog and digital channels as well as high-speed counters. Temperature, voltage, current, 4-20mA loops, resistance, bridges, strain gauges, frequency, digital, serial and calculated measurements can all be scaled, logged and returned in engineering units or within statistical reporting. Set up sampling, logging, alarm and control tasks to suit your own requirements, or interface with smart sensors, GPS and other intelligent devices expand the DT82E's flexibility.

Superior Data Storage & Communications

With the standard unit able to store up to 10 million data points (expandable) you can log as much or as little as you need. Overwrite or stop logging once allocated memory is full, archive data on alarm event, copy to USB memory or transfer via FTP, the choice is yours. Communications features include RS232, USB and Ethernet, connect to the DT80 locally, remotely through a modem or over the Internet. The web interface allows users to configure the DT80, access logged data and see current measurements as mimics or in a list using a web browser. FTP provides data to your office over the internet or mobile phone network, without the need for polling or specific host software.

- » Low power design for remote applications
- » Dual Channel Isolation Technology
- » 1 SDI-12 input
- » Serial 'Smart Sensor' port
- » FTP for automatic data transfer
- » Modbus for SCADA connection
- » Up to 6 Analog ($\pm 30V$) sensor inputs
- » USB memory for easy data and program transfer

Warranty: All dataTaker Data Loggers are 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 distributor.

Quality Statement: dataTaker operates a Quality Management System complying with ISO9001:2008. It is dataTaker's policy to supply customers with products which are fit for their intended purpose, safe in use, perform reliably to published specification and are backed by a fast and efficient customer support service.

Trademarks: dataTaker is a registered trademark.

Specifications: dataTaker reserves the right to change product specifications at any time without notice. **Designed and Manufactured in Australia.**

*Our ability to provide free software and support is dependent on applicable export control laws (including those of the United States) and the export policy from time to time of Thermo Fisher Scientific Inc.

www.datataker.com

Analog Channels

2 analog input channels

Each channel is independent and supports: one isolated 3-wire or 4-wire input, or two isolated 2-wire inputs, or three common referenced 2-wire inputs.

The following maximums apply.

Two wire with common reference terminal: 6

Two wire isolated: 4

Three and four wire isolated: 2

Fundamental Input Ranges

The fundamental inputs that the DT80 can measure are voltage, current, resistance and frequency. All other measurements are derived from these.

Full Scale	Resolution	Full Scale	Resolution
±30 mVdc	0.25 µV	100 Ω	1.5 mΩ
±300 mVdc	2.5 µV	1000 Ω	15 mΩ
±3 Vdc	25 µV	10,000 Ω	150.00 mΩ
±30 Vdc	250 µV	100 Hz	0.0002 %
±0.3 mA	2.5 nA	10 kHz	0.0002 %
±3 mA	25 nA		
±30 mA	250 nA		

Auto-ranging is supported over 3 ranges.

Accuracy

Measurement at ...	5°C to 40°C	-45°C to 70°C
DC Voltage	0.1%	0.35%
DC Current	0.15%	0.45%
DC Resistance	0.1%	0.35%
Frequency	0.1%	0.25%

Accuracy table above is % of reading ±0.01% of full scale.

Sampling

Integrates over 50/60Hz line period for accuracy and noise rejection

Maximum sample speed: 25Hz

Effective resolution: 18 bits

Linearity: 0.01%

Common mode rejection: >90dB

Line series mode rejection: >35dB

Inputs

Inter-Channel Isolation: 100V (relay switching)

Analog Section Isolation: 100V (opto-isolated)

Input impedance: >100MΩ, 100KΩ (30v range)

Common mode range: ±3.5V or ±35V on 30V range

Sensor Excitation (Supply)

Analog channels: selectable 250µA or 2.5mA precision current source, 4.5V voltage source, or switched external supply

General Purpose: Switchable 12V regulated supply for powering sensors & accessories (max 150mA)

Switchable 5V regulated supply for powering analog sensors (max 25mA)

Analog Sensors

Supports a wide range of sensors including, but not limited to, those listed below. A wide range of sensor scaling and linearising facilities including polynomials, expressions and functions.

Thermocouples

Types: B, C, D, E, G, J, K, N, R, S, T

Calibration standard: ITS-90

RTDs

Materials supported: Pt, Ni, Cu

Resistance range: 10Ω to 10KΩ

Thermistors

Types: YSI 400xx Series, other types*

Resistance range: <10kΩ**

* Other thermistor types are supported by thermistor scaling and calculated channels.

**Resistance range can be increased with the use of a parallel resistor.

Monolithic Temperature Sensors

Types supported: LM34 - 60, AD590, 592, TMPxx,

LM135, 235, 335

Strain Gauge and Bridge Sensors

Configurations: ¼, ½ & full bridge

Excitation: voltage or current

4-20mA Current Loop

Internal 100Ω shunt or external shunt resistor

Digital Channels

Digital Input/Outputs

4 bi-directional channels

Input Type: 4 logic level (max 20/30V)

Output Type: 3 with open drain FET(max: 30V, 100mA), 1 with logic output.

Relay Output

1 latching relay, contacts (max: 30Vdc, 1A)

Counter Channels

Low Speed Counters

4 counters shared with digital inputs.

Low speed counters do not function in sleep mode.

Size: 32 bit

Max Count rate: 10 Hz

Dedicated Counter Inputs

4 high speed inputs

Size: 32 bit

Max Count rate: 100 kHz

Input type: 2 logic level inputs (max ±30V), and 2 programmable inputs as either logic level inputs or sensitive inputs (10mV) for magnetic pick-ups (max ±10V)

Serial Channels

SDI-12

1 SDI-12 input, a digital channel. Input

can support up to 10 SDI-12 sensors.

Generic Serial Sensor

Flexible options to allow data to be logged from a wide range of smart sensors and data streams.

Available ports: Host RS232 Port*

Baud rate: 300 to 115,200

*If used as a Serial Sensor channel then the Host Port is not available for other communications.

Calculated Channels

Combine values from analog, digital and serial sensors using expressions involving variables and functions.

Functions: An extensive range of Arithmetic, Trigonometric, Relational, Logical and Statistical functions are available.

Alarms

Condition: high, low, within range and outside range

Delay: optional time period for alarm response

Actions: set digital outputs, transmit message, execute any *dataTaker* command.

Scheduling of Data Acquisition

Number of schedules: 11

Schedule rates: 10ms to days

Data Storage

Internal Store

Capacity: 128MB = approx 10,000,000 data points

Removable USB store device (optional accessory)

Types: compatible with USB 1.1 or USB 2.0 drives, e.g. Flash drive.

Capacity: approx. 90,000 data points per megabyte

Communication Interfaces

Ethernet Port

Interface: 10BaseT (10Mbps)

Protocol: TCP/IP, Modbus Slave

Host RS232 Port

Speed: 300 to 115,200 baud (57,600 default)

Flow Control: Hardware (RTS/CTS),

Software (XON/XOFF), None

Handshake lines: DCD, DSR, DTR, RTS, CTS

Modem support: auto-answer and dial out

Protocols: ASCII Command, TCP/IP (PPP), Serial Sensor,

Modbus Slave

Network (TCP/IP) Services

Uses Ethernet and/or Host RS232 (PPP) ports

Command Interface

Access the ASCII command interface

of the DT82E via TCP/IP

Web Server

Access current data and status from any web browser.

Custom HTML pages can be defined.

Download data in CSV format.

Command interface window.

Define mimic displays.

FTP Client

Automatically upload logged data direct to an FTP server.

Modbus Server (Slave)

Access current data and status from any Modbus client (e.g. SCADA system)

System

Display and Keypad

Type: LCD, 2 line by 16 characters, backlight.

Display Functions: channel data, alarms, system status.

Keypad: 6 keys for scrolling and function execution.

Status LEDs: 4 for sample, disk, attention and power.

Firmware Upgrade

Via: RS232, Ethernet, USB disk.

Real Time Clock

Normal resolution: 200µs

Accuracy: ±1 min/year (0°C to 40°C),

±4 min/year (-40°C to 70°C)

Power Supply

External voltage range: 10 to 30Vdc

Peak Power: 6W (typical) (12Vdc 500mA)

Average power Consumption (typical)

Using 12Vdc external power source

Schedule Rate	1 analog sample	6 analog samples
	Average Power (mW)	Average Power (mW)
1 sec	560	926
5 sec	250	337
30 sec	50	65
1 min	30	38
5 min	14	16
30 min	11	11
1 hrs	11	11

Physical and Environment

Construction: Powder coated steel and anodized aluminum.

Dimensions: 180 x 137 x 65mm

Weight: 900 gram (3kg shipping)

Temperature range: -45°C to 70°C *

Humidity: 85% RH, non-condensing

*reduced LCD operation

outside range -15°C to 50°C

Accessories Included

Resource CD: includes software, video training and user manual.

Comms cable: Ethernet crossover cable

Line adaptor: 110/240Vac to 15Vdc, 800mA

For full technical specifications download the user's manual from our website.

Your local distributor