



Applications include:

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|--------------------------|-----------------------|-------------------|
| Weather Stations | Structural Monitoring | Vehicle Testing |
| Agricultural Research | Strain Guages | GPS |
| Environmental Monitoring | Fault Identification | Flow |
| Research & Development | Machine Down Time | Thermistor Arrays |
| Total Energy Monitoring | Load Cells | Pressure |
| Aquaculture | | |

***FREE Software & Technical Support**

Designed For Remote Applications

The dataTaker DT85M intelligent data logger is a fully featured low-powered logging platform with an integrated cellular modem, making it perfect for remote applications. The rugged design and wide operating temperature range of the DT85M provides reliable operation in virtually any environment. The DT85M's perfect balance of performance with low-power also allows you to use a smaller solar panel without compromising on functionality.

Automatic Data Delivery

Forget travelling long distances to get your data. Utilise the DT85M's automatic data delivery features to schedule your data to be automatically emailed to your inbox every day, week, month or other time interval. More sophisticated systems can make use of the automatic data delivery features to send logged data to an FTP server. Alarm conditions can also trigger data delivery in addition to sending alarm messages to multiple email addresses or mobile phones.

Easy To Configure

The DT85M is configured directly in your web browser using dataTaker's *dEX* graphical interface. *dEX* takes you through the configuration of your logger, showing you wiring diagrams and allowing you to decide – in as much or as little detail – how you want the system to work, suiting both novice or advanced users. Using the internal modem you can even re-configure your system remotely over the internet if required.

- » Ultra low-power design
- » Integrated cellular modem
- » Automatic data transfer to email or FTP
- » 1 serial 'smart sensor' port
- » Up to 48 Analog ($\pm 30V$) sensor inputs
- » Expandable to 960 analog points
- » 12 flexible digital channels
- » Modbus for SCADA connection
- » SDI-12 (multiple networks)

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.

Analog Channels

16 analog input channels (expandable to 320*)
 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: 48 (expandable to 960)*
 Two wire isolated: 32 (expandable to 640)*
 Three and four wire isolated: 16 (expandable to 320)*
 *Expansion requires optional CEM20.

Fundamental Input Ranges

The fundamental inputs that the DT85M 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 kHz	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 ±30V 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

8 bi-directional channels
 Input Type: 8 logic level (max 20/30V)
 Output Type: 4 with open drain FET(max: 30V, 100mA), 4 with logic output.

Relay Output

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

Counter Channels

Low Speed Counters

8 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

7 high speed inputs or 3 phase encoder (quadrature) inputs
 Size: 32 bit
 Max count rate: 100 kHz
 Input type: 5 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

4 SDI-12 inputs shared with digital channels. Each input can support up to 10 SDI-12 sensors.

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 via SMS or email, 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

USB Port

Interface: USB 1.1
 Protocol: TCP/IP or ASCII Command

Serial Sensor Port

Interface: RS232, RS422m, RS485
 Speed: 300 to 115,200 baud
 Flow Control: Hardware (RTS/CTS), Software (XON/XOFF), None
 Protocols: Modbus, Serial Sensor

Network (TCP/IP) Services

Uses Ethernet port or integrated modem
Command Interface
 Access the ASCII command interface via TCP/IP

Web Server

Access dEX to view data or configure the logger.
 Define custom dynamic web pages.
 Download data in CSV or DBD format.
 Command interface window.
 Define mimic displays.

FTP Server

Access logged data from any FTP client or web browser.

FTP Client

Automatically upload logged data direct to an FTP server.

Modbus Server (Slave)

Access current data and status from any Modbus client

Modbus Client (Master)

Read/write data from Modbus sensors and devices including PLCs, dataTaker dataloggers, modbus displays.

Email Client

Email data or alarms directly from the logger.

DDNS Client

Browse to the logger over the Internet using Dynamic DNS.

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: Ethernet, USB or 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: 12W

Average Power Consumption (typical)

Using 12Vdc external power source
 Values within brackets represent the additional power required by the modem to push data daily to an FTP server.

Schedule Rate	1 analog sample Average Power (mW)	6 analog samples Average Power (mW)
1 sec	540 (9)	840 (27)
5 sec	250 (3)	330 (7)
30 sec	50 (2)	65 (2)
1 min	30 (2)	40 (2)
5 min	15 (2)	15 (2)
30 min	10 (2)	10 (2)
1 hrs	10 (2)	10 (2)

Inbuilt Modem

Features

Alarms: Send email or SMS messages
 Data: Send data to an email address or FTP server
 Remote access: Connect to dEX or Command interface
 SIM interface: SIM Socket (1.8V/3V)

Networks and Frequencies

USA Only:

Interfaces: EDGE, GPRS, GSM, CSD

All other places:

Interfaces: EDGE, GPRS, GSM, WCDMA, HSUPA, HSDPA

Frequencies:

EDGE/GPRS/GSM: 850/900/1800/1900 MHz
 WCDMA/HSUPA/HSDPA: 850/1900/2100 MHz

Physical and Environment

Construction: Powder coated steel and anodized aluminum.
 Dimensions: 300 x 137 x 65mm
 Weight: 2.5kg (5kg shipping)
 Temperature range: -30°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 and user manual.
 Comms cable: USB cable
 Line adaptor: 110/240Vac to 15Vdc, 800mA
 Antenna with 2m cable

Optional Accessories

A range of accessories are available.

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

Your local distributor