The dataTaker DT80 smart data logger provides an extensive array of features that allow it to be used across a wide variety of applications. The DT80 is a robust, stand alone, low power data logger featuring USB memory stick support, 18 bit resolution, extensive communications capabilities and built-in display.

The dataTaker DT80’s Dual Channel concept allows up to 10 isolated or 15 common referenced analog inputs to be used in many combinations. With support for multiple SDI-12 sensor networks, Modbus for SCADA systems, FTP and Web interface, 12V regulated output to power sensors, the DT80 is a totally self contained solution.

Versatile Measurement
Connect an array of sensors through the versatile analog and digital channels, high-speed counter inputs, phase encoder inputs and programmable serial sensor channels. 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 while interfaces for smart sensors, GPS and other intelligent devices expand the DT80 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/Email, 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/Email provides data to your office over the internet or wireless network, without the need for polling or specific host software.

Applications include:

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

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.
dEX is an intuitive graphical interface that allows you to configure your data logger, view real-time data in mimics, trend charts or tables and retrieve your historical data for analysis.

dEX runs directly from your web browser and can be accessed either locally or remotely, anywhere that a TCP/IP connection is available including worldwide over the Internet. You can use any of the logger’s built-in communications ports to view dEX including Ethernet, USB and RS-232.

What is dEX?

Built-in software – no application to install
Runs directly from your web browser
Accessible by Ethernet or USB\(^1\) connection
Intuitive graphical interface
Easy-to-use configuration editor
Access live and historical data
View data as charts, mimics and tables

**Easy configuration**

The dEX configuration editor allows you to view, edit and save logger configurations in an easy-to-use Windows Explorer style user interface.

**Real-time monitoring**

dEX displays real-time sensor measurements, calculations and diagnostic information using mimics, tables and trend charts.

**Data retrieval**

dEX allows you to retrieve your data at the click of a mouse button. Just select either All, Range or New Data Only.

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\(^1\) USB port equipped models only.

For pricing information contact Omni Instruments by phone on 0845 9000 601 or via our website.

www.omniinstruments.co.uk
**Browser-based solution**

dEX comes pre-installed on every logger in the DT80 range. The software loads in your web browser so there is no need to install cumbersome applications on your computer. Being browser-based, dEX is cross-platform and will work on all major operating systems including Windows, Mac and Linux. To simplify it even further, dEX starts automatically in your default web browser when you connect to your logger using a USB cable.

**Data that is compatible with your applications**

Logged data is ready to import into common spreadsheet and data processing applications such as Excel for further analysis and reporting. Data can be saved to your computer in comma separated (.CSV) format or our proprietary binary (.DBD) format.

**Command window**

The command window provides a terminal interface which allows the built-in command language of the logger to be used. Macro buttons allow common commands to be sent on a button press.

**Configuration editor**

The configuration editor allows you to view, edit and save logger configurations in an easy-to-use Windows Explorer style user interface. Tree view of configuration allows definition of measurement schedules and measurements. Wiring diagrams show available wiring configurations for each sensor type. Configuration can be stored and retrieved on either the logger or a local computer.

**Channel list**

Displays name, value, units, alarm state, time stamp and logging state for each measurement.

**Customisation of the application**

The menu options, mimics panels and mimics can be added or removed to suit novice or advanced users. The color and brand name images within dEX can be customised to match corporate requirements or for personal preference. Mimics are organised into panels which can be modified to highlight custom alarm conditions or data grouping. Mimics include dials, bar graphs, thermometers etc. Real-time chart recorder mimic allows you to view trends and historical data over a custom time/date range. Up to 16 mimics can be displayed on up to 5 mimic pages (default is 1 page of 6 mimics).

**Minimum system requirements**

- Web Browser (tested with): Internet Explorer V7 and above, Firefox, Safari & Google Chrome
- TCP/IP connection
- Adobe flash player 10 or higher
- Screen resolution of 1024 x 768

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**Chart Recorder Mimic**

Real-time trending for sensors, calculations or other data. Supports up to 5 traces per chart and up to 2 Y-axes. Backfills with historical data stored in logger.

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2 dEX operates on all DT80 Series 2, Series 3 and Series 4 except Series 1.
**Technical Specifications**

**Analog Channels**
5 analog input channels (expandable to 100*)
- 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:
  - 16-bit dynamic range: ±30V or ±2.5V precision current source
  - 4.95V voltage source
  - ±2.5V external supply
- General Purpose: Switchable 12/15V regulated supply for powering sensors & accessories (max 150mA).

**Analog Output**
Isolated programmable 16-bit DAC: voltage 0–10V or current 0–24mA

**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, J, K, N, R, S, T
- Calibration standard: ITS-90

**RTDs**
Materials supported: Pt, Ni, Cu
- Resistance range: ±1% to ±10%

**Thermistors**
- Types: 1930X series, other types*
- Resistance range: ±1%
- Other thermistor types are supported by thermistor scaling and calculated channels.

**Monolithic Temperature Sensors**
- Types supported: LM34, -65, ADTS90, 592, TMPx, LM335, 235, 335

**Strain Gauge and Bridge Sensors**
- Configurations: ¼, ½, & full bridge
- Excitation: voltage or current
- 4-20mA Current Loop

**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

**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**
4 high speed or 2 phase encoder (quadrature) inputs
- Size: 32-bit Max Count rate: 150 kHz
- Input type:
  - 2 logic level inputs (max ±30V)
  - 2 sensitive inputs (100mV) for magnetic pickups (max ±10V)

**Serial Channels**
SDI-12
- 4 SDI-12 inputs, shared with digital channels.
- Each input can support multiple 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: Serial Sensor Port (RS232, RS422, RS485)
- 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 and digital 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 data/taker command.
- Scheduling of Data Acquisition
- Number of schedules: 11
- Schedule rates: 1ms to days

**Data Storage**
**Internal Store**
- Capacity: 128MB (approx 10,000,000 data points)
- Larger storage available refer to technical support.
- Removable USB store device (optional accessory)

**USB Port**
- Interface: USB 1.1 (virtual COM port)
- Protocol: TCP/IP, Modbus (Master & Slave)

**External voltage range**: 9 to 36Vdc
- **Internal battery**: 6Vdc: 1.2Ah lead acid
- **Peak Power**: 12W (12Vdc 1A)

**Typical Operating Time**
- From internal 6Vdc, 1.2Ah battery

**Physical and Environmental**
- Construction: Powder coated zinc and anodized aluminum.
- Dimensions: 180 x 137 x 65mm
- Weight: 1.5kg (4kg shipping)
- Temperature range: -50°C to 70°C
- Humidity: 85% RH, non-condensing
- Reduced battery life and LCD operation outside range –15°C to 50°C

**Accessories Included**
- Resource CD: includes software, video training and user manual.
- Communication Interfaces
  - Ethernet Port
    - Interface: 10BaseT (10Mbps)
    - Protocol: TCP/IP, Modbus (Master & Slave)
  - USB Port
    - Interface: USB 1.1 (virtual COM port)
    - Protocol: ASCII command
  - 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
  - Modern support: auto-answer and dial out
  - Protocols: ASCII Command, TCP/IP (PPP), Modbus (Master & Slave), Serial Sensor

**Serial Sensor Port**
- Interface: RS232, RS422, RS485
- Speed: 300 to 115,200 baud
- Flow Control: Hardware (RTS/CTS), Software (XON/XOFF), None
- Protocols: Modbus (Master & Slave), Serial Sensor

**Network (TCP/IP) Services**
Uses Ethernet and/or Host RS232 (9-pin) ports
- Command Interface
- Access the ASCII command interface of the DT80 via TCP/IP

**Web Server**
Access current data and status from any web browser.
- Custom pages can be defined. Download data in CSW format. Command interface window. Define mimic displays.

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

**Modbus Client (master)**
Read/write data from modbus sensors and devices including PLC’s, dataTaker loggers, modbus displays etc.

**FTP Server**
Access logged data from any FTP client or web browser

**Real Time Clock**
- Normal resolution: 200 µs
- Accuracy: ±1 min/year (0°C to 40°C), ±4 min/year (–20°C to 70°C)

**Power Supply**
- External voltage range: 10 to 30Vdc
- **Internal battery**: 6Vdc: 1.2Ah lead acid

**Scheduling**
- Sampling rate: 10ms to days
- Number of schedules: 11
- Schedule rates: 1ms to days

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