The dataTaker DT82E smart data logger provides an extensive array of features that allow it to be used across a wide variety of applications. The DT82E 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 DT82E's Dual Channel concept allows up to 4 isolated or 6 common referenced analog inputs to be used in many combinations. With support for 1 SDI-12 sensor network, Modbus for SCADA systems, FTP and Web interface, 12V regulated output to power sensors, the DT82E 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 DT82E 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 and Ethernet, connect to the DT82E locally, remotely through a modem or over the Internet. The web interface allows users to configure the DT82E, 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 | Thermistor Arrays |
|------------------------|****************|
| Agricultural Research  | Aquaculture     |
| Weather Stations       | Structural Monitoring |
| Total Energy Monitoring| Strain Gauges   |
| Environmental Monitoring| Process Monitoring |
| Temperature Profiling  | Fault Identification |
|                       |                   |

| Machine Down Time | Pressure |
|-------------------|**********|
|                   | Load Cells|
|                   | Flow     |
|                   | Vehicle Testing |
|                   | GPS      |

**Dual Channel Isolation Technology**
- Up to 6 Analog (± 50V) sensor inputs
- 8 flexible digital terminals
- 1 Serial 'Smart Sensor’ port
- SDI-12 (multiple networks)
- Programmable Analogue Output
- Modbus for SCADA connection
- Web & FTP client / server
- 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 website 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 Logger Software

- Built-in software – no application to install
- Runs directly from your web browser
- Accessible by Ethernet or USB¹ connection
- Intuitive graphical interface
- Easy-to-use configuration editor
- Access live and historical data
- View data as charts, mimics and tables

What is dEX?
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.

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.

¹ USB port equipped models only.
**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.

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

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.
- 2 - 160Vdc or ±30Vdc
- 2 - 20mA current input
- 3 - 4-20mA current input
- 4 - 3-30Vdc or ±15Vdc
- 2-10Vdc or ±5Vdc

Fundamental Input Ranges
The fundamental inputs that the DAT232E can measure are: voltage, current, resistance, and frequency. All other measurements are derived from these.

Sampling
Integrates over 50/60Hz line period for accuracy and noise rejection
Maximum sample speed: 40kHz
Effective resolution: 18 bits
Linearity: 0.01%
Common mode rejection: >90dB
Line series mode rejection: >35dB

Inputs
- Inter Channel Isolation: 100V (relay switching)
- Analog Signal Isolation: 100V (opto-isolated)
- Input impedance: 160kΩ, >100MΩ
- Common mode range: ±3.5V or ±55V

Sensor Excitation (Supply)
- Analog channels:
  - selectable 2µA, 2.13V or 2.5mA
  - ±50V
  - ±15Vdc
- switched external supply

General Purpose: Switchable 12V/3V 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
Calibration standard: ITS-90

RTDs
Materials supported: Pt, Ni, Cu
Resistance range: 150 to 1MΩ

Thermistors
Types: YSI 400x Series, other types*
- Resistance range: up to 1MΩ
- * Other thermistor types are supported by thermistor scaling and calculated channels.

Monolithic Temperature Sensors
Types supported: LM34 -60, AD590, S92, TMPox, LM1135, 235, 335

Strain Gauge and Bridge Sensors
Configurations: 1/4, 1/3, full bridge
Excitation: voltage or current

4-20mA Current Loop
Internal 100Ω shunt or external shunt resistor

Counter Channels
Low Speed Counters
4 counters shared with digital inputs
Low speed counters not function in sleep mode.
Size: 32 bit
Max Count rate: 10 kHz

Dedicated Counter Inputs
4 high speed inputs
Size: 32 bit
Max Count rate: 100 kHz
Input type:
- 2 logic input levels (max ±30V)
- 2 sensitive inputs (100mA) for magnetic pickups (max ±10V)

Serial Channels
SDI-12
1 SDI-12 inputs, shared with digital channels. Each input can support multiple SDI-12 sensors.

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
Combines 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)
Larger storage available refer to technical support.

Types: compatible with USB 1.1 or USB 2.0 drives,
Removable USB store device (optional accessory)

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), Modbus Slave, Serial Sensor

Network (TCP/IP) Services
Uses Ethernet and/or Host RS232 (PPP) ports

Command Interface
Access the ASCII command interface of the DAT232E via TCP/IP

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

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

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

FTP Client
Automatically uploaded logged data direct to an FTP server

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.

Firmware Upgrade
Via: RS232, Ethernet, or USB memory.

Real Time Clock
Normal resolution: 200 µs
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 (12Vdc 1A)

Average power Consumption
Using 12Vdc external power source

Sampling Speed Average Power
1 second 1500mW
5 seconds 150mW
30 seconds 15mW
1 minute 7.5mW
1 hour 60mW

Physical and Environment
Construction: Powder coated zinc and anodized aluminium.
Dimensions: 180 x 137 x 65mm
Weight: 900g (1kg shipping)

Temperature range: -45°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.
Comm cable: USB cable
Line adaptor: 110/240Vac to 15Vdc, 800mA

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