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.
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.
**Browser-based solution**

dEX comes pre-installed on every logger in the DT80 range\(^2\). 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\(^1\).

**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

---

\(^2\) 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:
  - 4-wire with common reference terminal: 15 (expandable to 300*)
  - 2-wire isolated: 10 (expandable to 200*)
  - 3- and 4-wire isolated: 5 (expandable to 100*)
  
  *Expansion requires optional E2M20

**Fundamental Input Ranges**
The fundamental inputs that the DT80 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

Max. sample speed: 40kHz

Effective resolution: 18 bits

Linearity: 0.01%

Common mode rejection: >90dB

Line series mode rejection: >35dB

**Inputs**
Inter-Channel Isolation: 1000V (relay switching)

Analog Section Isolation: 1000V (opto-isolated)

Input Impedance: 160KΩ, >100MΩ

Common mode range: ±3.5V or ±55V (attenuator on/off)

**Sensor Excitation (Supply)**
- Analog channels:
  - selectable 2μA, 213μA or 2.5mA precision current source
  - 4.5V voltage source
  - selectable external supply

**General Purpose: Switchable 12V/5V 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: 100 to 1000Ω

**Thermistors**
Types: 153 400μ Series, other types* *Resistance range: up to 1MΩ

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

**Monolithic Temperature Sensors**
Types supported: LM334, 68, AD590, 592, TMPx

LM135, 235, 335

**Strain Gauge and Bridge Sensors**
Configurations: 1/4, 1/8, & full bridge

Excitation: voltage or current

4-20mA Current Loop

Internal 1000 Ohm shunt or external shunt resistor

**Digital Channels**
Digital Input/Outputs
8 bi-directional channels

Input Type: 8 logic level (max 150mA)

Output Type: 4 with open drain FEI (max 150mA)

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**
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 (1000mV) for magnetic pickups (max ±100)

**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, 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

Function: set digital outputs, transmit message, execute any datatimer 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)

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

Capacity: approx. 90,000 data points per megabyte.

**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), DSR/DRF, RTS/CTS

Modem 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 (PPP) ports

Command Interface

Access the ASCII command interface of the DT80 via TCP/IP

Uses Ethernet and/or Host RS232 (PPP) ports

**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 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

**FTP Client**
Automatically upload 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.

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

**Firmware Upgrade**
Via: RS232, Ethernet, USB or USB disk.

**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

Internal battery: 6Vdc: 1.2Ah lead acid

Peak Power: 12W (12Vdc 1A)

**Average power Consumption**
Using 12Vdc external power source

**Sampling Speed**

<table>
<thead>
<tr>
<th>Time</th>
<th>Average Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 second</td>
<td>1350 mW</td>
</tr>
<tr>
<td>5 seconds</td>
<td>650 mW</td>
</tr>
<tr>
<td>30 seconds</td>
<td>135 mW</td>
</tr>
<tr>
<td>5 minutes</td>
<td>75 mW</td>
</tr>
<tr>
<td>1 hour</td>
<td>65 mW</td>
</tr>
</tbody>
</table>

**Typical Operating Time**

From internal 6Vdc, 1.2Ah battery

<table>
<thead>
<tr>
<th>Time</th>
<th>Operating Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 second</td>
<td>6.5 mW</td>
</tr>
<tr>
<td>5 seconds</td>
<td>1.5 mW</td>
</tr>
<tr>
<td>1 minute</td>
<td>10 mW</td>
</tr>
<tr>
<td>1 hour</td>
<td>3.5 mW</td>
</tr>
</tbody>
</table>

**Physical and Environmental**

Construction: Powder coated zinc and anodized aluminum.

Dimensions: 180 x 137 x 65mm

Weight: 1.5kg (4kg shipping)

Temperature range: 0°C to 50°C

Humidity: 85% RH, non-condensing

Reduces battery life and LCD operation outside range –15°C to 50°C

**Accessories Included**

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

Comms 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