The dataTaker DT85 smart data logger provides an extensive array of features that allow it to be used across a wide variety of applications. The DT85 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 DT85’s Dual Channel concept allows up to 32 isolated or 48 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 DT85 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 DT85 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 DT85 locally, remotely through a modem or over the Internet. The web interface allows users to configure the DT85, 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.
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.

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

#### 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:
    - 2-wire with common reference terminal: 48 (expandable to 96)*
    - 2-wire isolated: 32 (expandable to 64)*
    - 3- and 4-wire isolated: 16 (expandable to 320)*
  - Expansion requires optional OEM20

#### Fundamental Input Ranges
- The fundamental inputs that the DT85 can measure are voltage, current, resistance and frequency. All other measurements are derived from these.

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

**Series line mode rejection:** >35dB

#### Inputs
- Inter-Channel Isolation: 100V (relay switching)
- Analog Section Isolation: 100V (opto-isolated)
- Input impedance: 160kΩ, >100MΩ

#### Relay Output
1 latching relay, contacts (max: 30Vdc, 1A)
- 4 with logic output
- 8 bi-directional channels

#### Digital Input/Outputs
- 4-20mA Current Loop
- Excitation: voltage or current
- Strain Gauge and Bridge Sensors
- LM135, 235, 335
- Types supported: LM34 - 60, AD590, 592, TMPxx, Monolithic Temperature Sensors
- Calibration standard: ITS-90
- Resistance range: up to 1MΩ
- Types: YSI 400xx Series, other types*

#### RTDs
- Resistance range: 10Ω to 1MΩ
- Calibration standard: ITS-90
- Including polynomials, expressions and functions.

#### 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: 10Ω to 1MΩ

##### Thermisters
- Types: YSI 400xx Series, other types*
- Resistance range: up to 1MΩ
- Other thermistor types are supported by thermistor scaling and calculating channels.

##### Monolithic Temperature Sensors
- Types supported: LM34 - 60, AD590, 592, TMPxx, LM135, 235, 335

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

##### 4-20mA Current Loop
- Internal 1000 ohm or external shunt resistor

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

#### Relay Output
- 1 latching relay, contacts (max: 30Vdc, 1A)

### Counter Channels
- **Low Speed Counters**
  - 6 counters shared with digital channels.
  - Low speed counters do not function in sleep mode.
  - Size: 32 bit
  - Maximum Count rate: 10 Hz

#### Dedicated Counter Inputs
- 7 high speed or 3 phase encoder ( quadrature ) inputs
- Size: 32 bit
- Maximum Count rate: 100 kHz
- Input type:
  - 5 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, 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.

#### Communication Interfaces

##### Ethernet Port
- Interface: 10BaseT (10Mbps)
- Protocol: TCP/IP, Modbus (Master & Slave)
- USB Port
  - USB Port: 1.1 (virtual COM port)
- Protocol: ASCII command

##### Host RS232 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

##### Communication Functions
- 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

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

### 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

### 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 LED: 4 for sample, disk, attention and power.

#### Firmware Upgrade
- Via: RS232, Ethernet, USB or USB disk.

#### Real Time Clock
- **Normal resolution:** 200 us
- **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: 4Ah lead acid
- **Peak Power: 12W (12Vdc: 1A)**
- **Average power Consumption**
  - Using 12Vdc: external power source
    - Sampling Speed
      - Average Power
      - 1 second: 1300 mW
      - 5 seconds: 500 mW
      - 30 seconds: 135 mW
    - 1 minute
      - 70 mW
    - 1 hour
      - 60 mW

#### Typical Operating Time
- From internal 6Vdc, 48 battery
  - Sampling Speed
    - Operating Time
    - 1 second: 1 day
    - 5 seconds: 3 days
    - 30 seconds: 1 month
    - 1 minute: 8 months

#### Physical and Environment
- **Construction:** Powder coated zinc and anodized aluminum.
- **Dimensions:** 300 x 137 x 65mm
- **Weight:** 2.5kg (5kg shipping)
- **Temperature range:** -45°C to 70°C
- **Humidity:** 85% RH, non-condensing
- **Reduced battery life and MODbus 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

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