dataTaker

DT81 Series 2 Data Logger

Intelligent Data Logging Products

- Dual Channel Isolation Technology
- Serial 'Smart Sensor' port
- FTP for automatic data transfer
- Web server for improved browser access
- Modbus for SCADA connection
- Up to 3 Analog (± 30V) sensor inputs
- 8 Flexible Digital channels
- SDI-12 (multiple networks)
- USB memory for easy data and program transfer

Applications include:

Research & Development	Structural Monitoring	Vehicle Testing
Agricultural Research	Strain Gauges	GPS
Weather Stations	Process Monitoring	CANgate (optional)
Total Energy Monitoring	Fault Identification	– CAN bus
Environmental Monitoring	Machine Down Time	– J1939
Temperature Profiling	Pressure	– OBDII
Thermistor Arrays	Load Cells	
Aquaculture	Flow	

[1] ***FREE*** *Software & Technical Support*

Feature Packed Value for Money

The *dataTaker* DT81 is the answer to the end user or OEM requiring fewer channels whilst demanding the powerful features and flexibility of the DT80. With support for SDI-12 sensors, Modbus for SCADA systems and Web enabled features, the DT81 is ready to be rolled out into tomorrow's environmental or industrial monitoring projects. The DT81 is a robust, stand alone, low power and economical data logger. It's USB memory stick support, 18 bit resolution and extensive communications capabilities make it a powerful partner.

Versatile Measurement

Analog and digital channels, high-speed counter inputs, phase encoder input and programmable serial sensor channel allow the DT81 to easily connect to most sensors and data measurement sources. 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. Group sampling, logging, alarm and control tasks within schedules to suit your requirements. Smart sensors, GPS, PLCs and other intelligent devices are supported via a serial sensor port (RS232), with our optional CANgate interface available for CAN bus applications.

Superior Data Storage and Communications

Store up to 10 million data points in user defined memory, log as much or as little as you need with independent control of schedule size and mode. Overwrite or stop logging once allocated memory is full. Archive data on alarm event, copy to USB memory or transfer via FTP, the choice is yours. Communications features include RS232 with modem support, USB, Ethernet and USB memory stick ports. Connect to the DT81 locally, remotely or over the Internet. The web server allows browser access to data and files, FTP provides data to your office over the internet or mobile phone network, without the need for polling or specific host software.

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 ISO9001:2000.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.***

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Technical Specifications

Analog Channels

1 analog input channel
The channel supports: one isolated 3-wire or 4-wire input, or two isolated 2-wire inputs, or three common referenced 2-wire inputs.

Fundamental Input Ranges
The fundamental inputs that the DT82E can measure are voltage, current, resistance and frequency. All other measurements are derived from these.

Full Scale	Res olution	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 Hz	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: 100KΩ, >100MΩ
Common mode range: ±3.5V or ±35V on 30V range

Sensor Excitation (Supply)
Analog channel: 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)

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 100R shunt or external shunt resistor

Digital Channels

Digital Input/Outputs
4 bi-directional channels
Input Type: 4 logic level (max 20/30V)
Output Type: 3 with open drain FET (max: 30V, 100mA), 1 with logic output.

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

Counter Channels

Low Speed Counters
4 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 1 phase encoder (quadrature) inputs
Size: 32 bit
Max Count rate: 10 kHz
Input type: 2 logic level inputs (max ±30V), 2 sensitive inputs (10mV) for magnetic pick-ups (max ±10V)

Serial Channels

SDI-12
1 SDI-12 input, shared with digital channel.
The 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: 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

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 (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
Modem support: auto-answer and dial out
Protocols: ASCII Command, TCP/IP (PPP), Modbus, Serial Sensor

Network (TCP/IP) Services

Uses Ethernet and/or Host RS232 (PPP) ports

Command Interface
Access the ASCII command interface of the DT81 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 mimic 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 upload logged data direct to an FTP server

System

Firmware Upgrade
Via: RS232, 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
Internal battery: 6Vdc 1.2Ahr lead acid
Peak Power: 12W (12Vdc 1A)

Average power Consumption
Using 12Vdc external power source

Sampling Speed	Average Power
1 second	1350 mW
5 second	500 mW
30 second	135 mW
5 minutes	70 mW
1 hour	60 mW

Typical Operating Time
from internal 6Vdc, 1.2Ahr battery

Sampling Speed	Operating Time
1 second	6.5 hours
5 second	1 day
1 minute	10 days
1 hour	3.5 months

Physical and Environment
Construction: Powder coated zinc and anodized aluminum.
Dimensions: 180 x 137 x 65mm
Weight: 1.5kg (4kg 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.
Comms cable: USB cable
Line adaptor: 110/240Vac to 15Vdc, 800mA

Optional Accessories

A range of accessories are available. Contact your local distributor or visit www.datataker.com

Your local distributor

TS-0059-03