

# dataTaker

... keeping an eye on reality

## DT500 & DT600 Series



### Data Acquisition and Data Logging Systems

- Easily Configurable Windows Based Software
- Stand Alone and Real Time Data Acquisition
- Remote Monitoring and Control
- PC Card for Data Storage
- Unique Universal Channels
- Channel Expansion Option

Specifications

### DataTaker's Extensive Range

DataTaker's extensive range of data acquisition and data logging systems are real time and stand alone, able to acquire, process and log data without direct computer control. The powerful yet easy-to-use hardware and software enables you to log a wide range of measurements and events.

More than 30,000 dataTakers are in use in over 55 countries - dataTakers are used in many applications including science, aerospace, mining, manufacturing, meteorology, agriforestry, hydrography, petrochemical, public utilities and transportation.

### The dataTaker DT500 Series

The dataTaker DT500 Series of general purpose, battery powered data acquisition and data logging systems measure inputs from most sensor types. Data can be conveniently and securely stored in battery backed RAM and removable memory cards. The dataTaker DT500 Series consists of four models:

- DT500 Basic Unit with Solid State Channel Selector
- DT600 Solid State Channel Selector & LCD Display and Keypad
- DT505 Basic Unit with Relay Channel Selector
- DT605 Relay Channel Selector & LCD Display and Keypad

The DT600 and DT605 both have an integral display and keypad that allows users to view channel data, alarm status, and system information including time, battery status and amount of data stored. Function keys allow keypad control over the unit's operation.

### DataTaker Windows Based Software

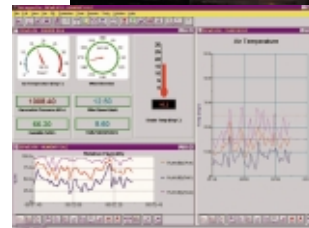
DataTaker produces a range of Windows based software, which provides a simple interface for supervising the dataTaker DT500 Series. DataTaker's software allows you to simply manipulate data with statistical functions and calculations. Alarms can be set for all channels, providing you with warning and control signals.

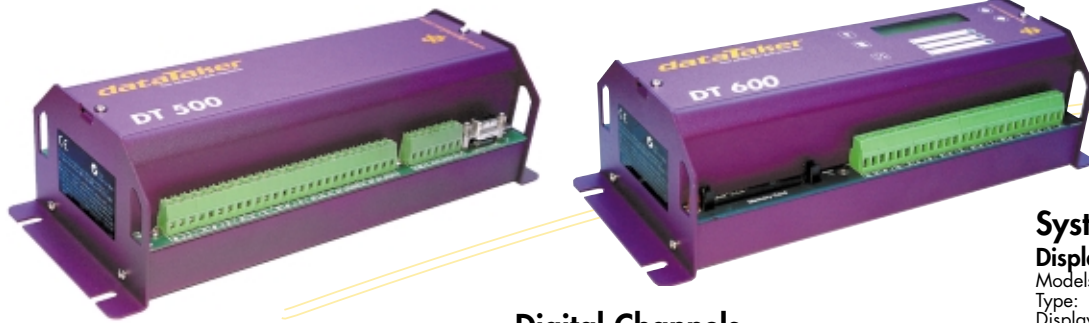
### Applications

Applications for the dataTaker DT500 Series include:

- Fault Finding
- Monitoring Water Levels and Flood Warnings
- Product Testing
- Research & Development
- Monitoring Climatic Conditions
- Process Monitoring
- Building Monitoring
- Automotive Testing

For your unique application, contact your local dataTaker office or your local dealer.





## Analog Channels

### Channel Number

Number of input channels depends on sensor wiring configuration. Sensor configurations may be mixed.

- Two wire: 10
- Two wire with one shared terminal: 30
- Three wire: 10
- Four wire: 10
- Expansion: by Channel Expansion Modules (CEM)

### Fundamental Input Ranges

Full Scale	Resolution	Full Scale	Resolution
±25 mVdc	2 µV	50 Ω	.25 mΩ
±250 mVdc	20 µV	500 Ω	2.5 mΩ
±2.5 Vdc	200 µV	5,000 Ω	25 mΩ
±100 Vdc*	500 µV	100 Hz	0.01 %
±0.25 mA	0.2 µA	10 kHz	0.01 %
±2.5 mA	1 µA		
±25 mA	10 µA		

\*100 Vdc range of DT505 and DT605 only

### Accuracy

Measurement at	25°C	-45°C to 60°C
DC Voltage	0.15%	0.25%
DC Current	0.25%	0.35%
DC Resistance	0.20%	0.30%

### Multiplexer (Channel Selector)

DT500 and DT600: solid-state ±5V input protection  
 DT505 and DT605: relay ±100V input  
 Input impedance: 1MΩ or >100MΩ, programmable  
 Common mode range:  
 DT500 and DT600: ±3.5V  
 DT505 and DT605: ±100V on 100V range  
 ±3.5V on other ranges

### Sampling

Sampling for accuracy and noise rejection by integrating over 50/60Hz line period  
 Maximum sample speed: 25Hz  
 Effective resolution: 15 bits  
 Linearity: 0.01%  
 Common mode rejection 25mV range: >90dB  
 Line (50/60Hz) series mode rejection: >35dB

### Sensor Excitation

Each channel: 4.5V, 250µA or 2.5mA  
 DC voltage: 5V at 100mA (max.) switched

### Internal Channels

Temperature (thermocouple reference junction): 1  
 Reference voltage channels: 1  
 Internal battery voltage: 1

### Sensor Support

Supports a wide range of sensors types including, but not limited to the following:

#### Thermocouples

Types: B, C, D, E, G, J, K, N, R, S, T  
 Reference junction compensation accuracy:

Case temperature	25°C	-20 to +60°C
Accuracy	±1.0°C	±1.5°C

#### RTDs

Types: Pt (385 & 392), Ni, Cu  
 Resistance range: 10Ω to 2kΩ

#### Measurement accuracy:

4 wire: 0.15% of resistance value  
 3 wire: 0.25% of resistance value

#### Monolithic Temperature Sensors

Types supported: LM34, LM35, AD590

#### Thermistors

Types: YSI 400xx Series  
 Resistance range: <7kΩ,  
 <20kΩ with parallel resistor

#### Bridge Sensors

Configurations: 4-wire and 6-wire  
 Bridge completion: external or internal half bridge

#### 4-20mA Current Loops

Shunt value: 100Ω to a shared common  
 Accuracy: 0.25% at 25°C

#### Sensors - Comments

A wide range of sensor scaling and linearizing facilities is provided including polynomials, expressions and functions.

## Digital Channels

Number of channels  
 Bi-directional channels: 4  
 Dedicated counter channels: 3

### Digital Input

Number: 4, shared with output channels  
 Input Type: logic level (protected and 5kΩ pull-up to 5V)

### Counter Channels

Number: 4 low speed (10Hz) shared with input channels  
 3 high speed (1kHz, sleep mode)  
 Size: 16 bit (65,535 counts)

### Digital Output

Number: 4, shared with input channels  
 Output type: open-collector npn transistor  
 Rating: +30V, 100mA

## Calculation Channels

Any expression involving variables and functions including: sin(), cos(), tan(), asin(), acos(), atan(), abs(), sqrt(), average, maximum, minimum, time of max., time of min., variance, integral, histogram

## Scheduling of Data Acquisition

Number of schedules: 4 acquisition schedules  
 1 immediate schedule  
 1 alarm schedule

Scan triggers: time base or digital event  
 Conditional scanning: while digital input high  
 Time based scheduling: from seconds to months in increments of 1 second, 1 minute, 1 hour and 1 day  
 Maximum scheduled rate: 1 second or as fast as possible, typically 25 samples per second  
 Dynamic scan time base change: yes  
 Maximum number of channel entries: 110

## Alarms

Condition: high, low, within range and outside range  
 Delay: optional time period for alarm response  
 Actions: set digital outputs, execute any dataTaker commands

## Data Storage

### Internal

Type: battery backed SRAM  
 Capacity: 13,500 data points

### PC Card

Types: SRAM up to 4MByte, Type 1  
 Card voltage: 5V types  
 Capacity: 340,000 data points per megabyte  
 Data format: proprietary

### Download Data Format

Format: ASCII floating point, fixed point or exponential formats  
 Compatibility: spread sheets, word processors, graphing packages, statistical programs and SCADA software

## Serial Interface (RS232)

The DT500 Series are programmed and data extracted via the RS232 serial interface

Speed: 300 to 9600 baud (default 9600 baud)

Handshake: XON and XOFF

Wake from sleep: yes

Isolation: 500V

Compatibility: computers, modems, satellite-modems, radio-modems and printers

## Network Interface

Standard: RS485

Protocol: proprietary with error correction

Speed: 1200 Baud

Distance: 1000 meter maximum

## System

### Display and Keypad

Models: on DT600 and DT605 only  
 Type: LCD, 2 lines by 16 characters, back light  
 Display functions: channels data, alarms, battery status, data capacity  
 Key pad: 5 keys for scrolling, function execution  
 Beeper: for alarms, etc.  
 Indicator LED's: 3 programmable

### Real Time Clock

For time stamping of data, scheduling and timers  
 Normal resolution: 1 second  
 Accuracy: 2 seconds per day (25°C)

### Power Supply

Voltage range: 11 to 24Vdc or 9 to 18Vac  
 External solar panel: 12V (0.4 x 0.4m typical size)

### Power Consumption

In normal mode: 1W (2W with battery charging)  
 Sleeping: 2mW (350µA from battery)  
 Typical low power operation: 20mW

### Internal Main Battery

Chemistry: lead acid gel cell  
 Voltage (capacity): 6V (1.2Ahr)  
 Temperature compensation: -10°C to +70°C  
 Operating time: Normal: approximately 10 hours  
 Low power: approximately 3 months

## Physical and Environment

Physical dimensions: 260 x 110 x 85mm  
 (height 104mm with PC Card)  
 Weight: 2.2kg (4kg shipping)  
 Environment temperature range: -45°C to 70°C  
 Humidity: 85%RH, non-condensing  
 Environmental protection: IP45

## Accessories Included

Line adaptor: 110/240Vac, 500mA  
 Battery: 6V 1.2Ahr gel cell  
 Comms cable: for PC, with 9 to 25 pin adaptor  
 Software: DeLogger, DeTransfer and DePlot  
 Manuals: "Getting Started with dataTaker" and "dataTaker Manual"

## Options & Accessories

### Channel Expansion Module (CEM)

Multiplexer: relay  
 Number: 2 per DT500 Series unit  
 Channel number:  
 10 two wire  
 30 two wire shared terminals  
 20 digital inputs  
 10 digital outputs, 5 with relay contacts

### Portable Carrying Case (PE)

Capacity: 1 DT500 Series unit  
 Environmental protection: IP66

### SRAM PC Card (MC1024P)

Capacity: 1MByte, approximately 340,000 readings

### DeLogger Pro

Graphical programming and supervision software. Supports a large network of DT500 Series units connected via modem. Features include comprehensive plotting, reporting, mimics and other capabilities

## Warranty

The dataTaker range is 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](http://www.dataTaker.com) or contact your nearest dataTaker office or dealer.

**dataTaker**  
 ...keeping an eye on reality

Your local dealer

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dataTaker

Certified to ISO9002

TOTAL QUALITY COMMITMENT