

# DT500 & DT600 Series

# dataTaker

... keeping an eye on reality



## 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

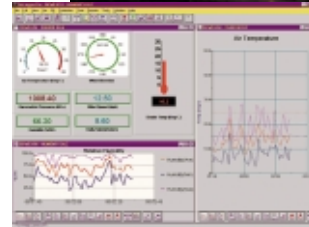
DataTaker produces a range of Windows based software, which provides a simple interface for supervising the dataTaker DT500 Series. DataTaker's software allows you to simply manipulate data with statistical functions and calculations. Alarms can be set for all channels, providing you with warning and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



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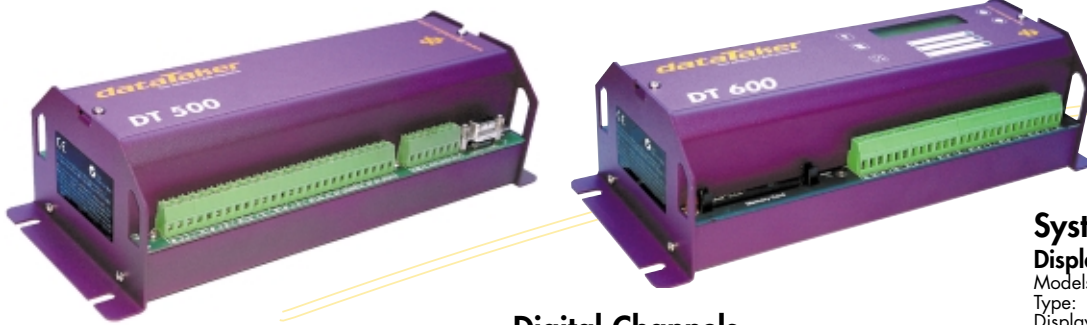
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## Analog Channels

### 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: spreadsheets, 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.

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Certified to ISO9002

TOTAL QUALITY COMMITMENT