

# Stevens DataLog<sub>ic</sub> 3000

## Features



## Description

The Stevens DataLog<sub>ic</sub> 3000 (DL 3000) is a **powerful, flexible, versatile** and **scalable** data logger. Designed using the latest Digital Signal Processing (DSP) technology, the DL 3000 will meet your data acquisition, processing, control and communication requirements.

The analog input channels can be differential or single ended and offer voltage protection to provide reliable monitoring in noisy environments. Supported measurement and sensor types include temperature, 0-5 Vdc, current, 4-20mA loops, resistance, bridges, strain gauges, thermocouples, quadrature, pulse and frequency - all returned in engineering units of your choice. The DL 3000 provides a 24 Vdc loop power supply with sufficient current to drive sensors. Switchable excitation and triggering are provided on all channels to simplify wiring and installation.

The DL 3000 provides several popular data bus I/O's including; SDI-12 (Version 1.3), ModBus (optional), CAN Bus (optional, ISO standard 11898), Four (4) RS-232 ports, RS-485 (optional), and USB 2.0. Other digital features include a Secure Digital SD card interface that can store over two gigabytes of sampled data.

The DL3000 is designed to be the hub for future expansion hardware including; a graphics LCD display, enhanced digital and analog outputs for user control of sensors and actuators, *Bluetooth*, *ZigBee*, Wi-Max, GSM/GPRS, and CDMA wireless communications, Internet connectivity, unlimited data processing and management through richly evolving Web Services and an optional camera attachment with video and image surveillance options, allowing photographs or video of an event to be taken and stored as it happens.

User specified operations and mathematical functions and equations can be programmed into the DL 3000 using a Visual Basic-like programming language.

Connecting the DL 3000 to telemetry modems, GPS, scales, PLC's, and other intelligent devices is made simple with a separate serial port on the back panel offering high-speed communications. The DL 3000 is Internet enabled through a 10/100 Base-T Ethernet connection (TCP/IP) and optional Wi-Fi.

Specifications subject to change.

- Inputs: Analog, Pulse, RS-232, CAN Bus, USB, and SDI-12
- Outputs: RS232/422/485, USB 2.0 (compatible with USB 1.0), Modbus (optional), CAN Bus (optional), Switch voltage excitations
- Simple configuration for telemetry applications:
  - Satellite
  - Radio
  - Telephone
  - Local Area Network (LAN)
- High-speed USB 2.0 port (compatible with USB 1.0 devices)
- SD memory card slot
- Windows software for easy:
  - Configuration and diagnostics
  - Rapid data exchange to PC
  - Graphical analysis
  - Tabular analysis
  - Data export to other software programs
  - Multiple international languages supported

## Applications

- Stand-alone & real-time data acquisition and control
- Water resources:
  - Water level/stage
  - Water flow
  - Water quality
- Irrigation scheduling
- Meteorological & Agrimet
- Soil conditions
- SCADA
- Machine health monitoring
- Industrial

**Stevens**<sup>®</sup>  
Water Monitoring Systems, Inc.

www.stevenswater.com  
(800) 452-5272

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## Technical Specifications

### Power Requirements

9.6 - 16 VDC, 4 mA standby current (telemetry system may require additional power)

### Processor

32-bit ARM, 16-bit TI MSP430, and two 16-bit dsPIC microprocessors

### On-Board Data Storage

FLASH storage, 2 Gigabytes internal plus removable 2 Gigabyte SD memory card

### Logging Interval

1 minute to 24 hours

### Real-Time Clock

Accurate +/- 1 minute/month, leap year correction, temperature correction

### Non-Volatile Memory

All setup parameters and clock, lithium battery backup

8 gigabytes of expandable data storage with external SD card

### Message Size

6 - 250 bytes typical, no maximum

### Serial Port

Two (2) RS-232, minimum +/- 5 Vdc levels, 4800 to 38400 baud\*  
USB 2.0

### Analog to Digital (0-5 VDC)

21-bit resolution  
Input impedance: 10 K ohm (min)

### Communications

Two (2) RS-232 (MODBUS optional)  
CAN bus (optional)  
USB 2.0 (fully compatible with USB 1.0 devices)  
RS-485 (optional)  
10/100 Base-T Ethernet (TCP/IP) (optional) - Auto sensing  
Power-over-Ethernet (PoE) available  
Wi-Fi (optional)  
Removable SD card

### Watchdog Timer

System resets upon microprocessor failure

### Digital to Analog (0-5 Vdc) Output

12-bit resolution

### Temperature and Humidity

Operating: -40 to 158 F (-40 to 70 C)  
NEMA 4 enclosure: 100% condensing  
Aluminum enclosure: 95% non-condensing

### Sensor Input Selections

**(See expansion module for more inputs)**

**9 Analog Channels - 8 Single Ended;**

**5 Differential Ended**

Input type: 2 wire, 4 - 20 mA current loop

Sensor power: 24 Vdc, 12 Vdc, 5 Vdc, (12 & 24Vdc under firmware control)

Accuracy & Resolution: 0.01% accuracy, 0.002% resolution

21-bit analog single-ended and differential  
Input: Resolution is 1 part in 2 million (discreet one for each channel)

Simultaneous Sampling

### Pulse Count:

Input type: pulse  
Sensor power: 5 or 12 VDC continuous  
Maximum rate: 60 pulses per minute  
High data rate mode up to 40 MHz

### Serial:

Input type: SDI-12  
Sensor power: 5 VDC or 12 VDC continuous, 12 VDC under firmware control (switched)

### Two Switched Excitation Voltages:

12V and 24V

### Physical Size (L x H x D)

Black anodized aluminum housing  
6.5 in x 4.5 in x 2.3 in  
(165.1 mm x 114.3 mm x 58.4 mm)

### Optional camera input

Full support for NTSC & PAL, storage of video and images to on-board memory  
\*115k baud for video