

MINIATURE DATA RECORDER

Remote Voltage Logger Module Is Self-Powered, Requires No PC Attachment For Recording

Model LVOLT816



Description

Less than 1" thick and 4" long, and weighing just 4 ounces, #LVOLT816 provides an inexpensive way to record voltage outputs from a variety of sensors. Over 16,000 readings from 0 to 3.3VDC can be logged into non-volatile memory for later downloading to a PC. Typical applications are monitoring pressure, flow, force or temperature in industrial, commercial or research processes, but the possibilities are endless!

Use a Logger Module wherever mounting a whole PC would be difficult because of size, weight, cost or the environment. Recording starts at a pre-set time or when the module's start button is pressed. Readings are taken at pre-set intervals from ½ second to 8 hours 59 minutes 59.5 seconds and continue until the module's 16,376 sample capacity is reached, or until the data is downloaded and the module reset by temporarily connecting it to a PC. Easy-to-use software is included to program, download, and reset the module.

Features

- The module is normally used with a sensor and signal conditioning circuitry
- Records 8 bit voltages between 0.0VDC and 3.3VDC
- Records up to 16,376 voltage readings
- Start at predetermined start time or on a manual trigger
- Sample interval from ½ sec to 8 hr 59 min 59.5 sec in ½ sec increments
- RS-232 serial interface to PC
- Nonvolatile memory – no data loss if battery is removed
- Lithium battery powered – user replaceable
- Auxiliary terminal block available to power external circuitry

Connections

The LVOLT816 has one DB-9S (female) connector and three terminal blocks. To program the data logger module or to download data from the data logger, the DB-9S connector must be connected to a PC's RS-232 COM port. The LVOLT816 is configured as DCE, so a straight through cable can be used when connecting the LVOLT816 to a COM port on a PC. Table 1 shows the pinout of the LVOLT816's DB-9S connector.

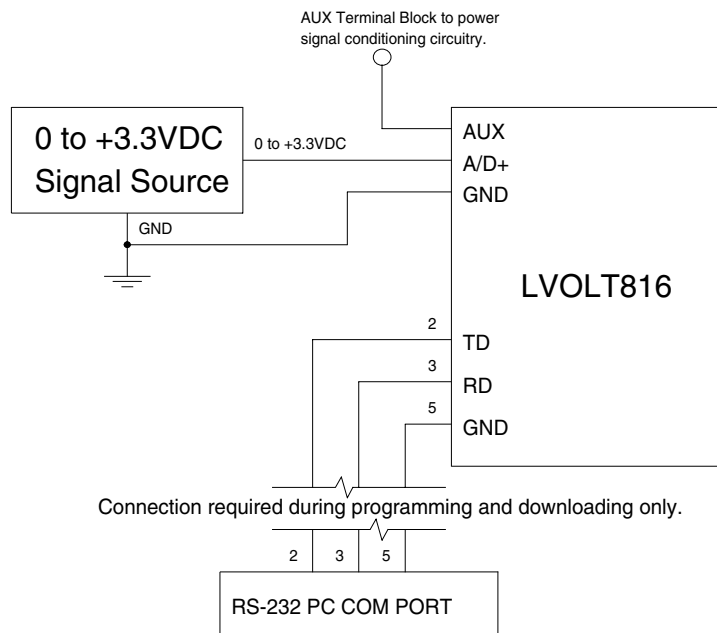
Table 1: Pinout of LVOLT816 (DCE)

DB-9S Pin Number	Function
2	Transmit Data (TD)
3	Receive Data (RD)
5	GND

Note: Pins 1, 4, and 6-9 are not used.

The A/D connections are made using the terminal blocks labeled A/D+ and GND. The positive lead of the signal source should be connected to the A/D+ terminal block, and the GND lead of the signal source should be connected to the GND terminal block. Figure 1 contains a schematic covering basic connections.

The third terminal block is labeled AUX. The voltage on this terminal block is referenced with respect to the GND terminal block. A voltage of 3.3VDC is available on the AUX terminal block 10msec before the A/D sample is taken. As soon as the A/D sample is read, AUX is turned off. This feature is useful for powering external signal conditioning circuitry without wasting an excessive amount of battery power between analog voltage readings.

**Figure 1:** Basic Schematic

Software

Software used to program, release, and download the data logger is included with the LVOLT816. First, the software determines which data logger module is connected. The included software can keep track of 255 individual voltage data loggers and 255 temperature data logger modules. Next, the sample interval, start mode (predetermined start time or trigger start), and start time (delay) are determined. Then the LVOLT816 is released to start the voltage logging process. Finally, the included software will download the recorded data from the LVOLT816, and saves the data in a file that can be manipulated and/or imported into a spreadsheet program. Versions of this software for Windows 95 and DOS are included.

Specifications

Size (including mounting feet):	3.88" x 2.09" x 0.90"
Weight:	4 Ounces
Channels:	1
A/D Resolution:	8 bit
A/D Voltage Range:	0VDC to 3.3VDC
Maximum Voltage Error:	$\pm 0.5\text{LSB} \pm 2\%$ of reading (includes error from voltage regulator)
Maximum Driving Source Impedance:	60K Ω
Sample Interval:	0.5 sec to 8 hr 59 min 59.5 sec in 0.5 sec increments
Maximum Time Error:	± 1.73 seconds / day
Maximum Number of Samples Saved:	16,376 samples saved in EEPROM's
Auxiliary Terminal Block:	3.3V pulse goes high 10msec before reading and goes low after sample
Operating Temperature Range:	-10°C to +60°C
Battery:	3.6V, 1.7Ah Lithium Wafer Cell (user replaceable)
Battery Life:	2.5 months*
Communications:	RS-232, 1,200 baud, 1 start bit, 8 data bits, 1 stop bit, no parity

*Note: This is for average usage. The life of the battery will vary depending on application and amount of sampling.

Note: All specifications listed for 25°C.