U3-LV – Low Voltage

LV (Low-Voltage) Version:

- 16 Flexible I/O (Digital Input, Digital Output, or Analog Input)
- Up to 2 Timers (Pulse Timing, PWM Output, Quadrature Input, …)
- Up to 2 Counters (32-Bits Each)
- 4 Additional Digital I/O
- Up to 16 12-bit Analog Inputs (0-2.4 V or 0-3.6 V, SE or Diff.)
- 2 Analog Outputs (10-Bit, 0-5 volts)
- Supports SPI, I2C, and Asynchronous Serial Protocols (Master Only)
- Supports Software or Hardware Timed Acquisition
- Maximum Input Stream Rate of 2.5-50 kHz (Depending on Resolution)
- Capable of Command/Response Times Less Than 1 Millisecond

- Built-In Screw Terminals for Some Signals
- OEM Version Available
- USB 2.0/1.1 Full Speed Interface
- Powered by USB Cable
- Drivers Available for Windows, Linux, Mac and Pocket PC
- Examples Available for C/C++, VB, LabVIEW, Java, and More
- Includes USB Cable and Screwdriver
- Free Firmware Upgrades
- Money Back Guarantee
- Enclosure Size Approximately 3″ x 4.5″ x 1.2″ (75mm x 115mm x 30mm)
- Rated for Industrial Temperature Range (-40 to +85 Degrees C)

Flexible I/O:

The first 16 I/O lines (FIO and EIO ports) on the LabJack U3-LV can be individually configured as digital input, digital output, or analog input. In addition, up to 2 of these lines can be configured as timers, and up to 2 of

these lines can be configured as counters. On the U3-HV, the first 4 flexible I/O are replaced with dedicated high-voltage analog inputs.

The first 8 flexible I/O lines (FIO0-FIO7) appear on built-in screw terminals. The other 8 flexible I/O lines (EIO0-EIO7) are available on the DB15 connector.

For more information about the flexible I/O see Section 2.5 of the User's Guide. For data rate information see Section 3.1. The User's Guide can be found on the U3 Support page.

Analog Inputs:

The LabJack U3 has up to 16 analog inputs available on the flexible I/O lines. Single-ended measurements can be taken of any line compared to ground, or differential measurements can be taken of any line to any other line.

Analog input resolution is 12-bits. The range of single-ended low-voltage analog inputs on the U3-LV is typically 0-2.4 volts or 0-3.6 volts, and the range of differential analog inputs is typically ±2.4 volts (pseudobipolar only). For valid measurements, the voltage on every analog input pin, with respect to ground, must be within -0.3 to +3.6 volts.

On the U3-HV, the first 4 flexible I/O are replaced with dedicated high-voltage analog inputs. The input range of these channels is ±10 volts or -10/+20 volts. The remaining 12 flexible I/O are still available as described above, so the U3-HV has 4 high-voltage analog inputs and up to 12 low-voltage analog inputs.

Command/response (software timed) analog input reads typically take 0.6-4.0 ms depending on number of channels and communication configuration. Hardware timed input streaming has a maximum rate that varies with resolution from 2.5 ksamples/s at 12-bits to 50 ksamples/s at about 10-bits.

For more information about the analog inputs see Section 2.6 and Appendix A of the User's Guide. For data rate information see Sections 3.1 and Sections 3.2. The User's Guide can be found on theU3 Support page.

Analog Outputs:

The LabJack U3 has 2 analog outputs (DAC0 and DAC1) that are available on the screw terminals. Each analog output can be set to a voltage between 0 and 5 volts with 10-bits of resolution.

The analog outputs are updated in command/response mode, with a typical update time of 0.6-4.0 ms depending on communication configuration. The analog outputs have filters with a 3 dB cutoff around 16 Hz, limiting the frequency of output waveforms to less than that.

For more information about the analog outputs see Section 2.7 and Appendix A of the User's Guide. For data rate information see Section 3.1. The User's Guide can be found on the U3 Support page.

Digital I/O:

The LabJack U3 has up to 20 digital I/O channels. 16 are available from the flexible I/O lines, and 4 dedicated digital I/O (CIO0-CIO3) are available on the DB15 connector. Each digital line can be individually configured as input, output-high, or output-low. The digital I/O use 3.3 volt logic and are 5 volt tolerant.

Command/response (software timed) reads/writes typically take 0.6-4.0 ms depending on communication configuration. The first 16 digital inputs can also be read in a hardware timed input stream where all 16 inputs count as a single stream channel.

For more information about the digital I/O see Section 2.8 and Appendix A of the User's Guide. For data rate information see Sections 3.1 and 3.2. The User's Guide can be found on the U3 Support page.

Timers:

Up to 2 flexible I/O lines can be configured as timers. The timers are very flexible, providing options such as PWM output, pulse/period timing, pulse counting, and quadrature input.

For more information about the timers see Section 2.9 and Appendix A of the User's Guide. The User's Guide can be found on the U3 Support page.

Counters:

Up to 2 flexible I/O lines can be configured as 32-bit counters.

For more information about the counters see Section 2.9 and Appendix A of the User's Guide. The User's Guide can be found on the U3 Support page.

I/O Protection:

All I/O lines on the U3 are protected against minor overvoltages. The FIO lines can withstand continuous voltages of up to ±10 volts, while the EIO/CIO lines withstand continuous voltages of up to ±6 volts.

High Channel Count Applications:

By using USB hubs, many LabJacks can be interfaced to a single PC, providing an inexpensive solution for high channel count applications.