USB Analog Input/Output Device

LabJack produces low cost, high quality, USB data acquisition and control products with up to 84 analog inputs and 2+ outputs when combined with various expansion modules. LabJack produces devices that have high quality analog muxing ICs allowing them to have several analog input channels. For visual reference, analog input pins are labeled as AINx and analog output pins are labeled as DACx on the majority of our devices. LabJack’s devices have between 8 and 16 built in analog input channels and with the addition of a Mux80 AIN Expansion Board a U6, UE9, or T7 can have up to 84 Analog Input channels.

Browse LabJack’s full list of products by exploring all of our USB, Ethernet, and WiFi data acquisition (DAQ) and control devices.

Related Pages:

- What is an analog input?
- What is an analog output?
- USB Digital Input/Output
- What does 12- or 16-bit resolution mean?
Related Devices With Up to 84 Analog Input Channels

Performance

U6/U6-Pro

- 14 Analog Inputs (16-18+ Bits Depending on Speed)
- Expand to 84 analog inputs with Mux80 add-on
- U6-Pro Adds 24-bit Low-Speed ADC for 22-Bit Effective Resolution
- Instrumentation Amplifier Inputs
- Software Programmable Gains of x1, x10, x100, and x1000
- Analog Input Ranges of ±10, ±1, ±0.1, and ±0.01 Volts
- 2 Analog Outputs (12-Bit, ~0-5 Volts)
- 20 Digital I/O
- Up to 2 Counters, 4 Timers (Pulse Timing, PWM Output, Quadrature Input, ...)
- Supports SPI, I2C, and Asynchronous Serial Protocols (Master Only)

U6: $319
U6-Pro: $389

T7/T7-Pro

- Newest DAQ device supporting USB, Ethernet, and 802.11b/g WiFi
- Fully compatible with Modbus TCP/UDP and most SCADA programs
- 14 analog inputs built-in
- Expand to 84 analog inputs with Mux80 add-on
- Analog input ranges: ±10V, ±1V, ±0.1V and ±0.01V

T7: $429
T7-Pro: $549
- 16-bit high-speed ADC (up to 100k samples/s)
- 24-bit low-speed ADC (resolution as low as 1uV noise-free)
- 23 digital I/O
- Up to 10 counters
- 2 analog outputs (12-bit, 0-5V)
- Serial protocols: SPI, I2C, and more ...
- Up to 8 PWM, quadrature, pulse width, and more ...

The Original, USB & Ethernet DAQ

UE9/UE9-Pro

- USB 2.0/1.1 Full Speed and 10Base-T Ethernet
- Mostly compatible with Modbus TCP and most SCADA programs
- 14 Analog Inputs (12-16 Bits Depending on Speed)
- Expand to 84 analog inputs with Mux80 add-on
- UE9-Pro Adds 24-bit Low-Speed ADC for 20-Bit Effective Resolution
- ±5 or 0-5 Volt Maximum Analog Input Range
- 2 Analog Outputs (12-Bit, 0-5 Volts) with Stream-Out Feature
- 23 Digital I/O
- Maximum Input Stream Rate of 50+ kHz (Depending on Resolution)
- Supports SPI, I2C, and Asynchronous Serial Protocols (Master Only)
- Dual-Processor Design with 168 MHz of Total Processing Power
- Electrical Isolation Possible with Ethernet Interface

Other Related Devices

Low Cost Ethernet DAQ
**T4**

- Lowest cost Modbus TCP Ethernet DAQ device. Also supports USB communication.
- 4 dedicated high voltage analog inputs (±10V, 12-bit resolution)
- 8 configurable low voltage analog inputs (0-2.5V, 12-bit resolution) that can function as digital I/O lines
- 8 dedicated digital I/O lines (EIO4-EIO7 and CIO0-CIO3)
- Multiple timers and counters (Pulse Timing, PWM Output, Quadrature Input, ...)
- Digital I/O lines support SPI, I2C, 1-Wire, and UART (Master modes only)
- 2 Analog Outputs (10-bit, 0-5 volts)

**T4: $209**

---

**Most Affordable DAQ**

**U3-LV/U3-HV**

- Lowest cost DAQ device supporting USB
- 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
- 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)

**U3-LV: $115**

**U3-HV: $119**

---

**Low Cost**
**Multifunction DAQ**

### U12
- 8 Single-Ended, 4 Differential 12-Bit Analog Inputs
- ±10 Volt Analog Input Range
- PGA with Gains of 1, 2, 4, 5, 8, 10, 16, or 20 V/V
- Up to 8 kSamples/Sec (Burst) or 1.2 kSamples/Second (Stream)
- 2 Analog Outputs
- 20 Digital I/O (Up to 50 Hz per I/O)
- USB 2.0/1.1 Low Speed HID Interface
- Connect Up to 80 LabJacks to One USB Host
- Complete Software Control, No Jumpers or Switches

### U12: $159

**Related LabJack Accessories**

- **LJTick-InAmp**
- **LJTick-Divider**
- **LJTick-DAC**
- **Mux80 AIN Expansion Board**

**NIST Traceable Calibration**

**Why LabJack?**

All Software Is Free!
Windows, Mac OS X, Linux

Examples In:
- LabVIEW
- C/C++
- Python
- MATLAB
- Java
- Visual Basic
- .NET
- More...

LabJack Software Options

The **LJM Library** is a set of functions used to easily communicate with several of our devices using a simple Modbus over USB interface (as well as Modbus TCP/UDP when applicable). The goal is to be easy to use and understand, yet flexible. All important values and data from the device can be read and/or written by using the associated register(s).

LabJack’s DAQ devices have a wide range of features

- Analog Inputs
- Digital I/O
- Analog Outputs
- PWM, Quadrature ...
- SPI, I2C, Async Serial ...

*Check Individual Devices for support

We don't force you into a certain operating system, software, or programming environment. We provide free support for C/C++, C#, Delphi, Java, LabVIEW, MATLAB, Python, VBA, VB.NET, DAQFactory and more. If you use something we don't already support, we will work with you to add support. Add new kinds of sensors on-the-fly. We provide inexpensive signal conditioning modules. Control valves, motors, lights, pumps, etc - using one of many digital I/O control options. Embed LabJack DAQ hardware in your product using our OEM options. Leveraging smart designs and the latest semiconductors, allows us to provide more performance for less money. Have confidence in your measurements. Each device is individually tested and calibrated traceable to NIST standards. New features are readily available through field-programmable
firmware. Each device has multiple protection mechanisms on every I/O to help prevent damage. Free lifetime support. Timely Email responses that actually answer your question. Get answers from the engineers who made the product.