LJTick-InBuff Datasheet
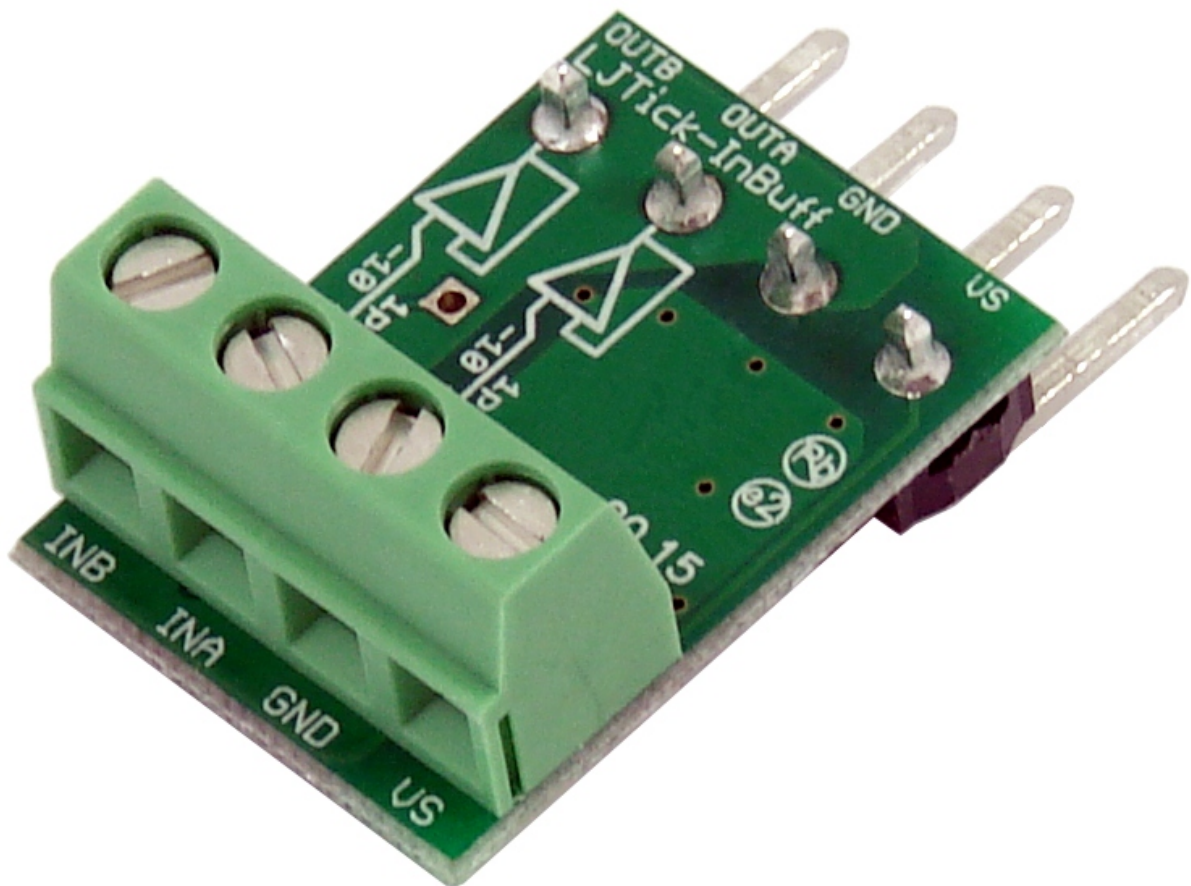
LJTick-InBuff
Stock: In Stock
Price: $47.00

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The LJTick-InBuff (LJTIB) is an input buffer tick that allows LabJack devices to directly measure pH sensors and other kinds of weak signals. Our main LabJack DAQ products (U3, U6, UE9, and T7) require somewhere on the order of 10 to 100pA of bias current. This accessory can really help users trying to measure signals with >10MΩ of source impedance. The LJTick-InBuff accomplishes this by adding a Texas Instruments OPA2140 high-precision, low-noise Op Amp in between a devices analog input channel and the sensor. Simply connect the LJTick-InBuff to a screw terminal with analog inputs and connect a sensor to the INA or INB screw terminal of the LJTick-InBuff.

- 1pA bias current
- ±10V input & output range
- Has pads to optionally install gain resistors & input filter.
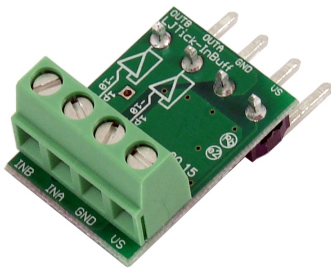
Common Applications

- Measuring PH sensors.

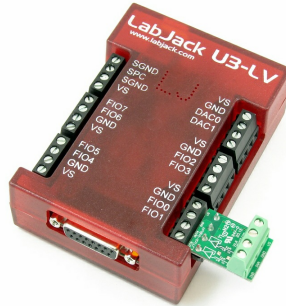

Figure 1: LJTick-InBuff

Figure 2: LJTick-InBuff with U3-LV

Screw Terminal Descriptions

VS: This is the same 5 volt output as the VS terminals on the LabJack itself. This is an output terminal, not an input. It can be used to provide 5 volt (nominal) power as needed.

GND: Same as LabJack ground (GND).

INA/INB: These input lines go through the Op Amps to have their signals amplified before being sent to a LabJack device.
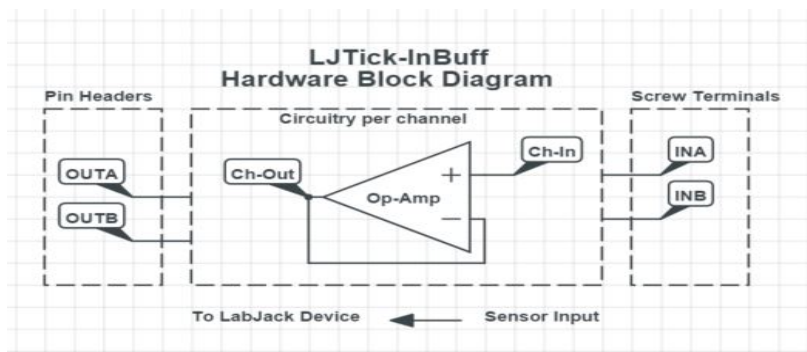
LJTick-InBuff Hardware Block Diagram

Figure 3: LJTick-InBuff Schematic
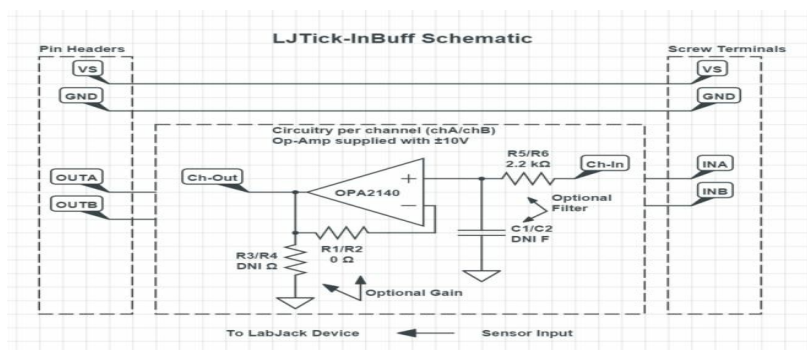
LJTick-InBuff Schematic

Figure 4: LJTick-InBuff Schematic

Usage with the T4 or U3-HV

The T4 and U3-HV have a mix of high voltage analog inputs (±10 volt range) and low voltage analog inputs (±2.5/2.4 volt range). Most input ticks are best used with the low voltage analog inputs, but the LJTick-InBuff is unique in that it has a ±10 volt output range and thus either type of analog input might be best depending on the range of the input signal.

Specifications:

Parameter	Conditions	Min	Typical	Max	Units
General					
Input Voltage Range		-10		10	Volts
Temperature Range		-40		85	°C
Supply Voltage		4		5.25	Volts
Supply Current			28		mA
Input Bias Current			±0.5	±10	pA
Input Impedance			10^13		Ω
Input Capacitance			10		pF
Gain Accuracy					
Offset Accuracy				±100	µV
Cutoff Frequency	0-5V Input Sine Wave		4.3		MHz
	±10V Input Sine Wave		120		kHz

For more specifications about the Op Amp used in the LJTick-InBuff refer to the Texas Instruments OPA2140 datasheet.

File Attachment:

Texas-Instruments-OPA2140-Datasheet.pdf