

A. LabJack U12 Specifications V1.02 (1/27/2002)

Parameter	Conditions	Min	Typical	Max	Units	
General						
USB Cable Length	CE compliance			3	meters	
User Connection(s) Length				3	meters	
Supply Current (1)			20		mA	
Operating Temperature			-40		85	°C
Clock Error		~ 25 °C 0 to 70 °C -40 to 85 °C			±30 ±50 ±100	ppm ppm ppm
+5 Volt Power Supply (+5V)						
Voltage (Vs) (2)	Self-Powered	4.5		5.25	volts	
	Bus-Powered	4.1		5.25	volts	
Output Current (2) (3)	Self-Powered	450		500	mA	
	Bus-Powered	50		100	mA	
Analog Inputs (AI0 - AI7)						
Input Range For Linear Operation	AIx to GND	-10		10	volts	
Maximum Input Range	AIx to GND	-40		40	volts	
Input Current (4)	Vin = +10 volts		70.1		µA	
	Vin = 0 volts		-11.7		µA	
	Vin = -10 volts		-93.5		µA	
Resolution (No Missing Codes)	C/R and Stream		12		bits	
	Burst (5)		11		bits	
Offset	G = 1 to 20		±1 * G		bits	
Accuracy			±1		%	
CAL Accuracy	CAL = 2.5 volts		±0.05	±0.25	%	
CAL Current	Source			5	mA	
	Sink	20	200		µA	
Trigger Latency	Burst	25		50	µs	
Trigger Pulse Width	Burst	40			µs	
Analog Outputs (AO0 & AO1)						
Maximum Voltage (6)	No Load		Vs		volts	
	At 1 mA		0.99 * Vs		volts	
	At 5 mA		0.98 * Vs		volts	
Output Current	Each AO			30	mA	
IO						
Low Level Input Voltage				0.8	volts	
High Level Input Voltage		3		15	volts	
Input Leakage Current			±1		µA	
Output Short-Circuit Current (7)	Output High		3.3		mA	
Output Voltage (7)	No Load	Vs - 0.4	Vs		volts	
	At 1 mA		Vs - 1.5		volts	

Parameter	Conditions	Min	Typical	Max	Units
D					
Low Level Input Voltage (8)	D0 - D12			0.8	volts
	D13 - D15			1	volts
High Level Input Voltage (8)	D0 - D12	2		$V_s + 0.3$	volts
	D13 - D15	4		$V_s + 0.3$	volts
Input Leakage Current			± 1		μA
Output Current (8)	Per Line			25	mA
	Total D0 - D15			200	mA
Output Low Voltage				0.6	volts
Output High Voltage		$V_s - 0.7$			volts
CNT					
Low Voltage (9)		GND		1	volts
High Voltage (9)		4		15	volts
Schmitt Trigger Hysteresis			20-100		mV
Input Leakage Current			± 1		μA
High Time		30			ns
Low Time		30			ns
Input Frequency				>1	MHz

(1) Current drawn by the LabJack through the USB. The status LED is responsible for 4-5 mA of this current.

(2) Self-powered would apply to USB hubs with a power supply, all known desktop computer USB hosts, and some notebook computer USB hosts. Bus-powered would apply to USB hubs without a power supply and some notebook computer USB hosts.

(3) This is the total current that can be sourced by +5V, analog outputs, and digital outputs.

(4) The input current at each analog input is a function of the voltage at that input (V_{in}) with respect to ground and can be calculated as: $(8.181 * V_{in} - 11.67) \mu A$.

(5) Burst mode only returns even binary codes, and thus has a net resolution of 11 bits.

(6) Maximum analog output voltage is equal to the supply voltage at no load.

(7) The IO lines each have a 1500 ohm series resistor.

(8) These lines have no series resistor. It is up to the user to make sure the maximum voltages and currents are not exceeded.