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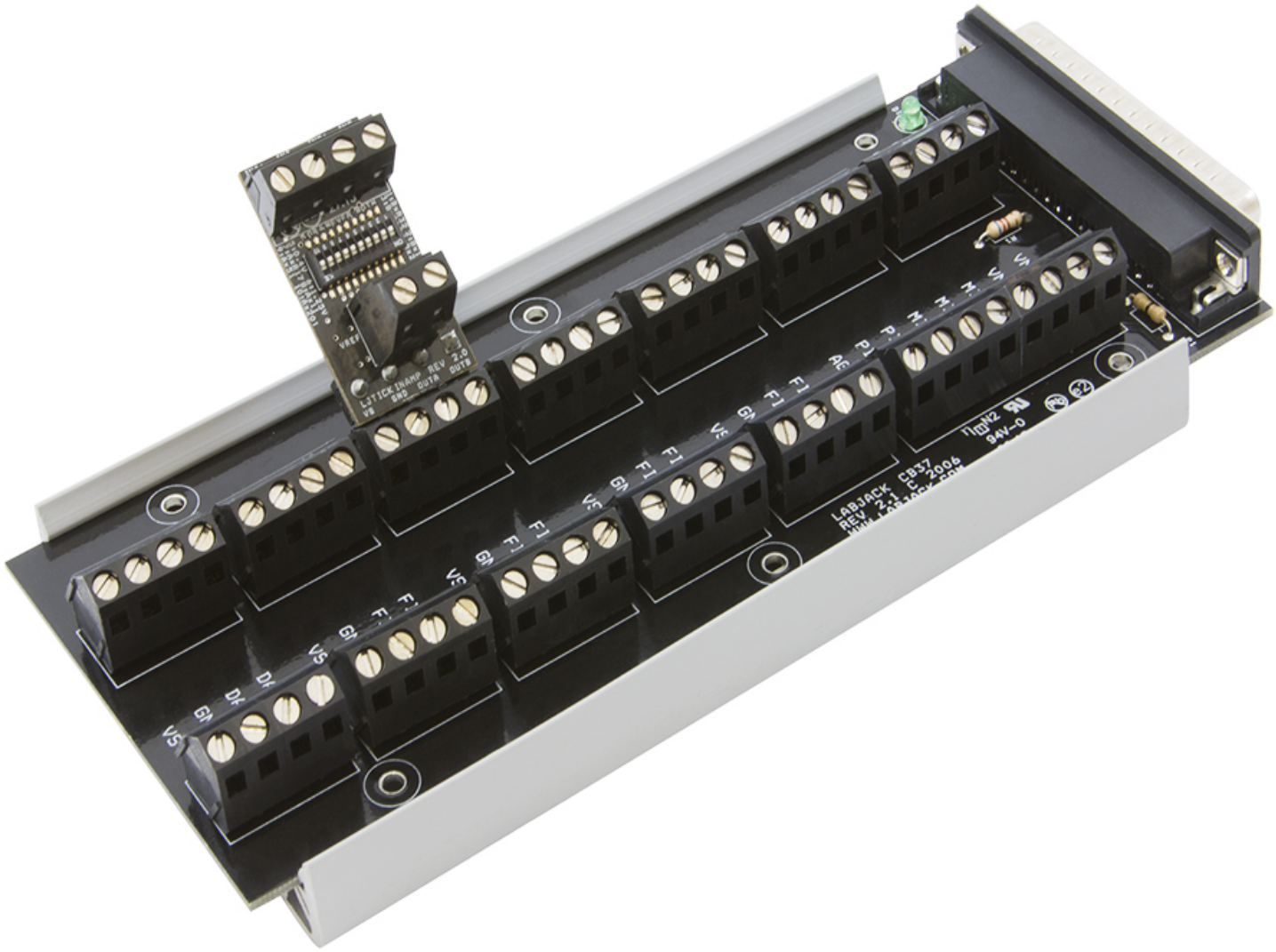
CB37 V2.1 Datasheet

CB37 Terminal Board
Stock: In Stock
Price: $46.00



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The CB37 terminal board connects to the DB37 connector on the LabJack U6, UE9, or T7, and provides convenient screw terminal access. The CB37 is designed to connect directly to the LabJack (see image below), but can also connect via a 37-line 1:1 male-female cable (not included). Since the CB37 V2.1 has screw-terminals with the same IO/IO/GND/VS arrangement as the U6/UE9/T7 itself, it is compatible with LJTick signal conditioning modules.

The green LED on the CB37 is directly powered by the 5-volt supply (Vs) from the LabJack, so it should be lit whenever the CB37 is connected to a powered LabJack.

The CB37 PCB is mounted to a piece of Snaptrack. The Snaptrack is DIN rail mountable using TE Connectivity part #KAD

(not included).

On older CB37 boards, PIN2 was labeled TX0, and PIN20 was labeled RX0.

On the U6/T7, PIN2 and PIN20 are current sources. On the UE9, PIN2 and PIN20 are UART connections.

The table below shows the pinout of the DB37 connector on the LabJack. Pins 1, 8, 10, 19, and 30, are all connected to GND on the LabJack. On the CB37, all GND terminals connect to a single ground plane and this ground plane is connected to pins 1, 8, 10, and 19, of the DB37 connector. The AGND terminal is simply connected to pin 30 of the DB37 connector. That means the GND and AGND terminals connect to the same single ground plane on the LabJack, but they have different paths to get there.

Table 1. DB37 Pinout

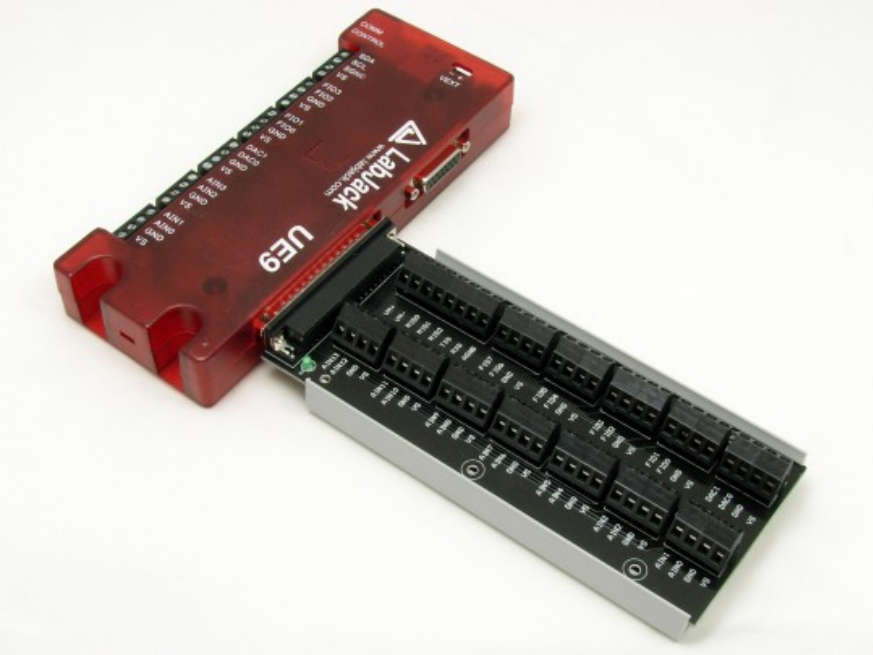
Pin #	Pin Name	Pin #	Pin Name	Pin #	Pin Name
1	GND	14	AIN9	27	Vs
2	PIN2 (200µA)	15	AIN7	28	Vm+
3	FIO6	16	AIN5	29	DAC1
4	FIO4	17	AIN3	30	GND
5	FIO2	18	AIN1	31	AIN12
6	FIO0	19	GND	32	AIN10
7	MIO1/CIO1	20	PIN20 (10µA)	33	AIN8
8	GND	21	FIO7	34	AIN6
9	Vm-	22	FIO5	35	AIN4
10	GND	23	FIO3	36	AIN2
11	DAC0	24	FIO1	37	AIN0
12	AIN13	25	MIO0/CIO0		
13	AIN11	26	MIO2/CIO2		

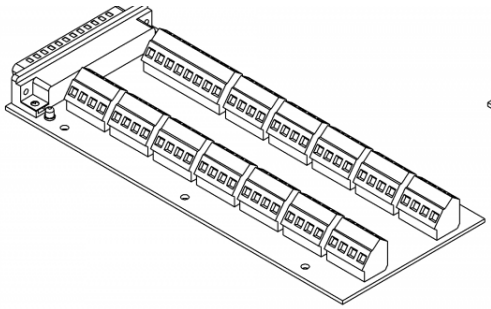
Ground Offsets

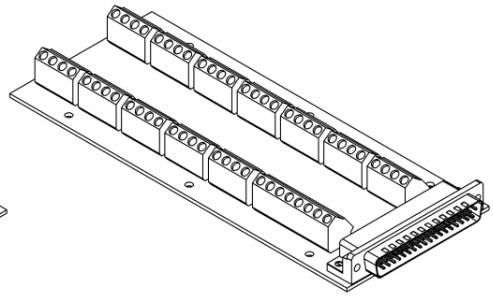
When using the analog connections on the CB37, the effect of ground currents should be considered, particularly when a cable is used and substantial current is sourced/sunk through the CB37 terminals. For instance, a test was done with a 6 foot cable between the CB37 and a LabJack UE9, and a 100 ohm load placed from Vs to GND on the CB37 (~50 mA load). A measurement of CB37 GND compared to UE9 GND showed 5.9 mV. If a signal was connected to AIN0 on the CB37 and referred to GND on the CB37, the UE9 reading would be offset by 5.9 mV. The same test with the CB37 direct connected to the UE9 (no cable) resulted in an offset of only 0.2 mV. In both cases (cable or no cable), the voltage measured between CB37 AGND and UE9 GND was 0.0 mV.

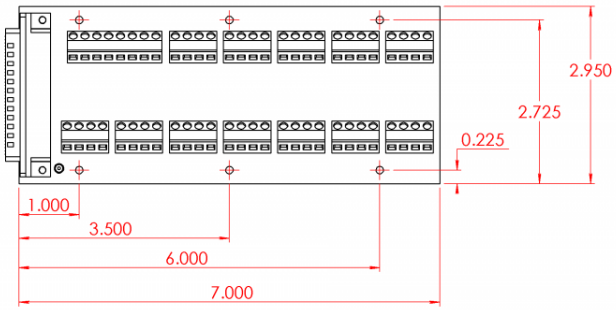
When any sizeable cable lengths are involved, a good practice is to separate current carrying ground from ADC reference ground. An easy way to do this on the CB37 is to use GND as the current source/sink, and use AGND as the reference ground. This works well for passive sensors (no power supply), such as a thermocouple, where the only ground current is the return of the input bias current of the analog input. Another option is to use a separate ground wire for loads requiring substantial current. Another option is to use a differential measurement, rather than a single-ended measurement which is taken versus ground at the built-in instrumentation amp.

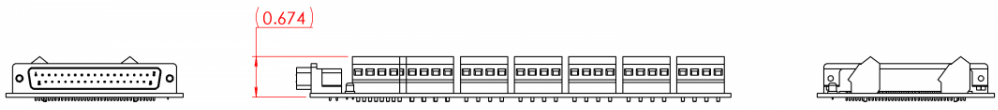
See the Mux80 Datasheet for more information about ground offset errors.











Notes:

1. 6" Snap-Track not shown.

Common neutral format CAD models are provided below. Right-click and select the "Save link as..." option to download STEP files.

File Attachment:

- CB37.IGS
- CB37.STEP
- SnapTrack_6in.IGS
- SnapTrack_6in.STEP
