

CB25 Terminal Board Datasheet

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The CB25 Provides screw terminal connections, with short-circuit/overvoltage protection, for the extra 16 digital I/O on the LabJack U12.

The green LED on the CB25 is directly powered by the +5V supply, so it should be lit whenever the CB25 is connected to an active LabJack U12.

D0-D15 – These are connections to the 16 lines of digital I/O. Each has a 1.5kΩ series resistor (R0-R15) for short-circuit/overvoltage protection, and a jumper (J0-J15) to short that resistor. In general, the jumpers will not be installed unless you are using a particular line to output more than 1 mA. See the specifications section of the *LabJack U12 User's Guide* for more information on the D lines.

Short-Circuit/Overvoltage Protection: The LabJack U12 has diodes from each D line to each power rail. These diodes clamp the voltage seen by the LabJack to about 5.7 volts maximum and -0.7 volts minimum, but external resistors are required to limit the current to 25 mA (200 mA total for all 16 lines). The CB25 provides 1.5kΩ resistors for this purpose. Taking $1.5\text{k}\Omega * 25\text{ mA}$, we get a maximum voltage drop of 37.5 volts so the maximum safe voltage that can be handled by each D line is about $37.5 + 5.7 = 43.2$ volts (the minimum safe voltage is about -38.2 volts). Note, however, that the power dissipated by the resistor in this situation is $((0.025)^2) * 1500 = 0.94$ watts. Since these are ¼ watt resistors you will not be able to block this maximum voltage continuously. The maximum continuous voltage drop is about $(0.25 * 1500)^{0.5} = 19.4$ volts so the **maximum safe continuous voltage that can be handled by each D line is about 19.4 + 5.7 = 25 volts (the minimum safe continuous voltage is about -20 volts).**

+5V – These are the same as the +5V connection on the LabJack U12. They are a 5 volt source (output), so do not connect another power source to these terminals.

GND – These are the same as the GND connection on the LabJack U12.

Declaration of Conformity

Manufacturers Name: LabJack Corporation
Manufacturers Address: 3112 S Independence
Lakewood, CO 80227
USA

Declares that the product

Product Name: CB25 Terminal Board
Model Number: CB25

conforms to the following Product Specifications:

EMC Directive: 89/336/EEC

EN 55011 Class A
EN 61326-1: General Requirements
EN 61000-4-2: 1995
EN 61000-4-3: 1995

and is marked with CE.

