



# C10 - BIDIRECTIONAL BREAKOUT BOARD

## Rev. 8

### Overview

This card provides an easy way of interfacing your inputs and outputs from you parallel port. It provides terminals for the connections and conditions the signals for use in CNC applications.

### Features

- **Buffered inputs and outputs.**

Outputs are buffered through integrated circuits, allowing the card to output the signals without using the power from the parallel port. It can take the +3.3 or +5vdc at less than 1 milliamps from the parallel port and deliver solid +5vdc at 24 milliamps.

- **Has the option of using pins (2-9) for input or output.**

By selecting the appropriate jumper setting you can use these pins for input or output. If you use a second parallel port and set it to work in a bidirectional way, you get a total of 34 I/O pins.

<u>PINS</u>	<u>LPT1</u>	<u>LPT2</u>	<u>TOTAL</u>
INPUT	5	13	18
OUTPUT	12	4	16
<i>TOTAL</i>	17	17	34

- **Output pins 1,2,3,4,5,6,7,8,9,14,16,17. Or 1, 14,16,17.**
- **Input pins 10,11,12,13,15. Or 2,3,4,5,6,7,8,9,10,11,12,13,15.**
- **Input and output pins with close by ground or +5vdc connections.**

Input and output pins have close by ground or +5vdc terminals to make your wiring easy.

- **The common terminal to pins 2-9 can be ground or +5vdc.**

The board has a jumper that allows you to select if the common terminal to pins 2-9 will carry a ground or +5vdc. So if you are connecting encoders or proximity switches, you can select it to ground. If you are connecting Geckodrives or limit switches, you can set it to be +5vdc.

- ***External Enable Pin (EN).***

The board has a pin that allows you to enable/disable all the outputs at once. The board requires +5vdc in the EN pin. If it is not present, it will send all the outputs to ground. You can use this to enable or disable your system manually, or you can install an external Safety Charge Pump or other external device.

- ***All TTL +5VDC or +3.3VDC Signals.***

Works with newer computers and laptops that have low voltage parallel ports.

- ***All inputs are outputs are tied to pull-down resistors.***

Pins are never in the air open to noise. If you leave a pin in the air you will get a LOW or 0. If you input a ground you will get a LOW and a +3.3 or+ 5 vdc signal will deliver a HI.

- ***Works directly with popular CNC hardware and software.***

Such as GeckoDrive, DeskCNC or Rutex, and parallel port control software, such as mach2, Linux EMC, TurboCNC, CNCPlayer, CNCZeus and others. (Not all tested)

- ***Screw-On connections for all terminals.***

You only have to screw-on the wires to make all your connections.

## **Installation**

### ***Requirements:***

It requires a 5VDC @ 400 milliamps power supply to operate. This power can be taken from the computer's power supply or USB port. Consider using the A3 – USB Power Cable found under Accessories in the website.

### ***Jumpers:***

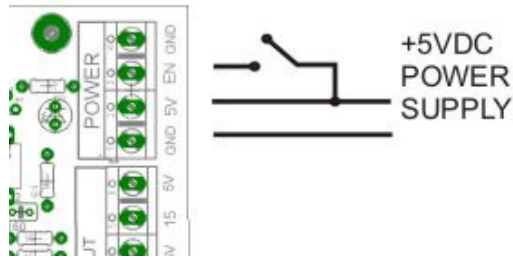
Use the top jumper to select if you are going to use pins 2-9 for input or output.

Use the lower jumper to select if you are going to set the COM terminal next to pins 2-9 to be ground or +5vdc.

Keep in mind that +5vdc and ground connections are common across the board. You can use any terminal marked with +5vdc or ground.

### ***Enable Pin:***

The card must be provided with a 5VDC signal to enable operation. This feature has been added to enable you to control externally the status of the card. You can add an external switch or a Safety Charge Pump to provide the enabling signal. When the enable signal is not enabled, output signals sent to ground. If you need the communication to be enabled at all times you can provide the 5 volts directly from the source that is powering the card.



**Wiring:**

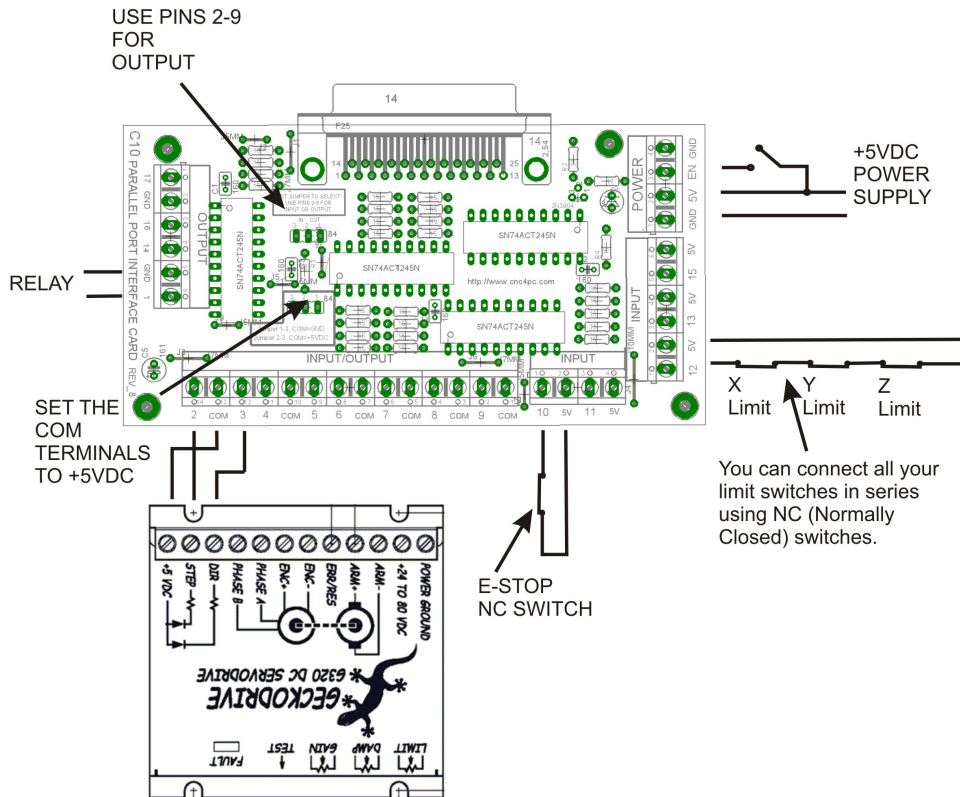
The Parallel Port Interface Card has a very basic design that provides the flexibility you look for on cnc projects.



**WARNING:** This card must have the power supplied while it is connected to the PC. If power is removed to the card while it is connected to the PC, noise can be introduced to the output lines. This can create a dangerous situation as relays or other devices that might be connected to this card could get activated.

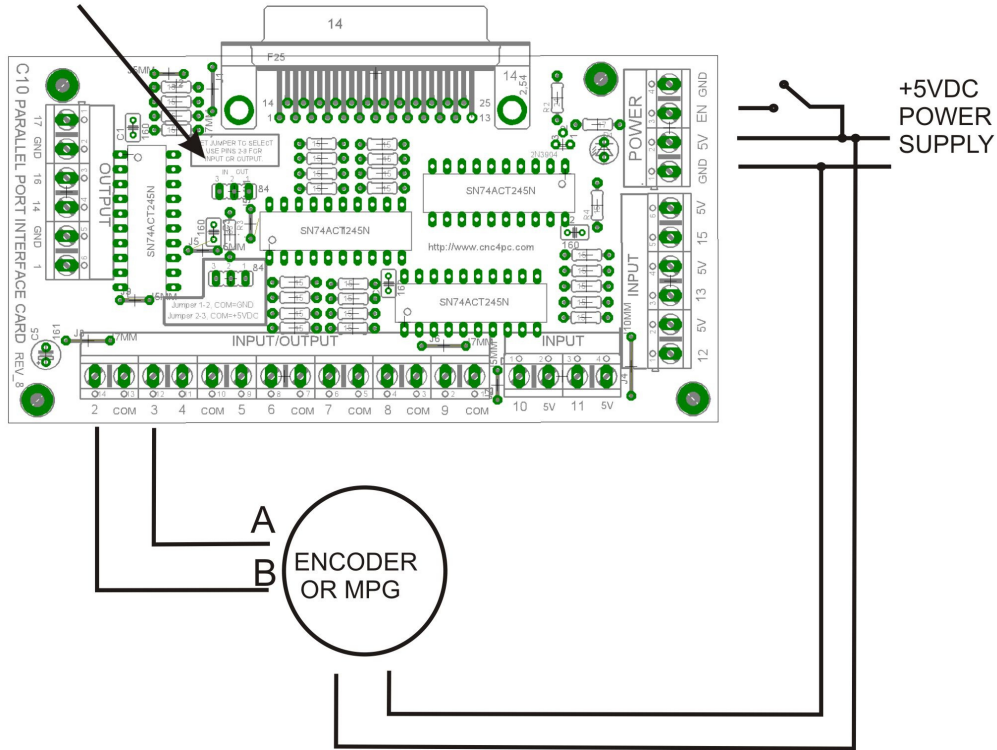
Check the sample installations below.

Sample wiring using to board to connect drivers, e-stop and limit switches, and a relay to start your spindle

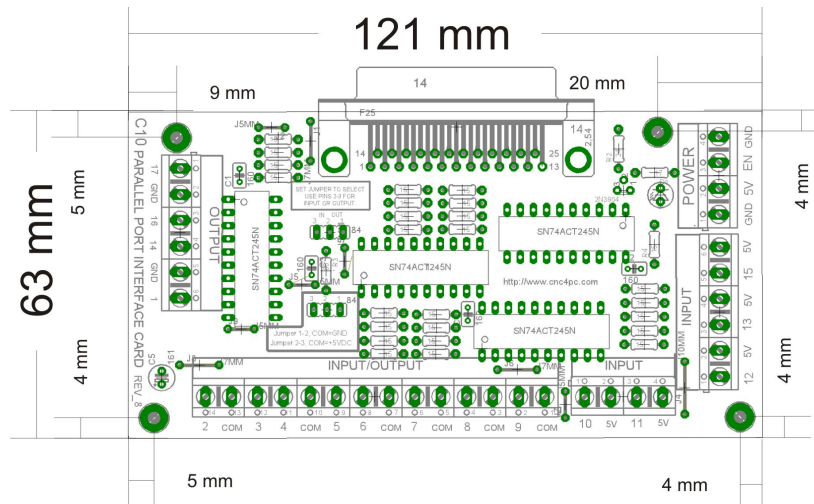


## Sample wiring of an encoder or MPG (Manual Pulse Generator)

USE PINS 2-9  
FOR INPUT



## Dimensions:



## Disclaimer:

Use caution. CNC machines are dangerous machines. DUNCAN USA, LLC or Arturo Duncan are not liable for any accidents resulting from the improper use of these devices.