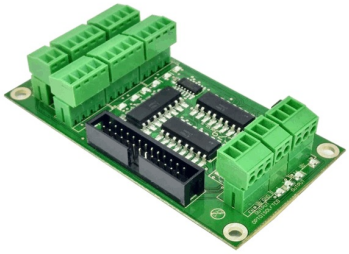
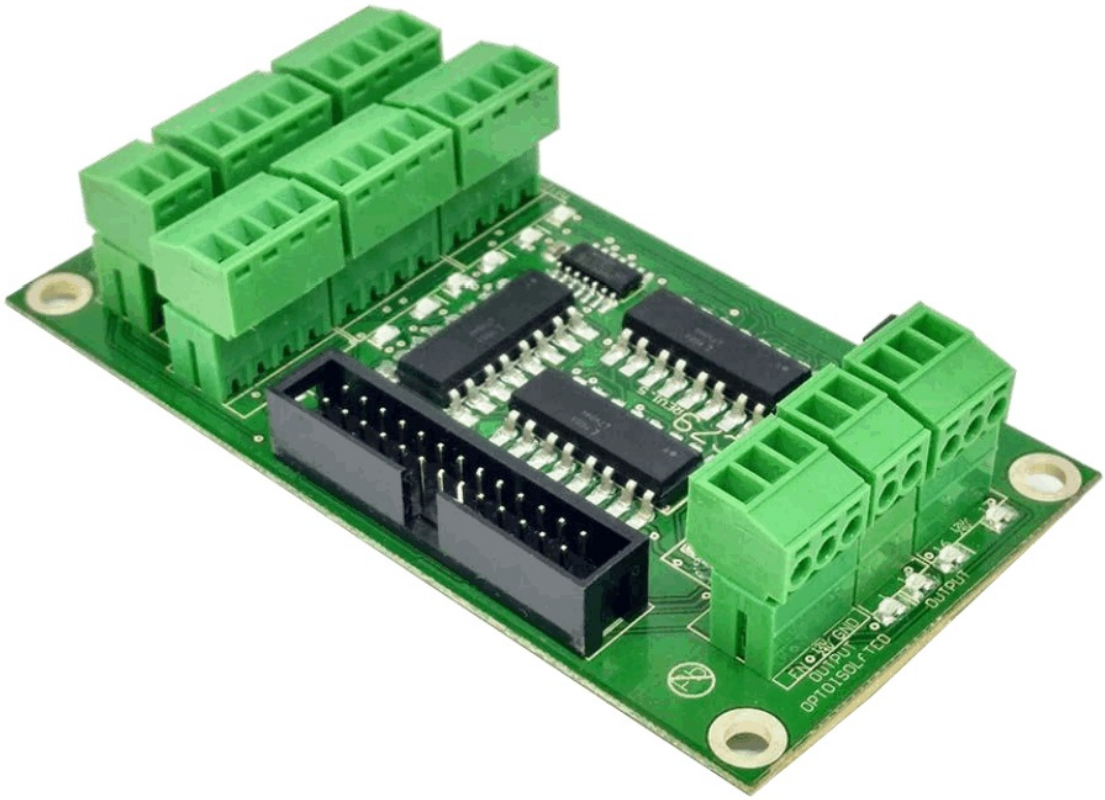


CNC4PC C79 Open Collector Expansion Board User Manual

CNC4PC
Integration Solutions for CNC Projects

C79 Open Collector Expansion Board
User Manual



C79- EXPANSION BOARD
Rev. 1.7

Contents

OVERVIEW

This card provides an easy way to connect your inputs and outputs from your port using a LPH26pin Ribbon Cable or parallel port. Provides terminals for connections and conditions signals for use in CNC applications; this version can be easily mounted on control boxes using DIN rails and can also accommodate ribbon cables or DB25 connectors.

FEATURES

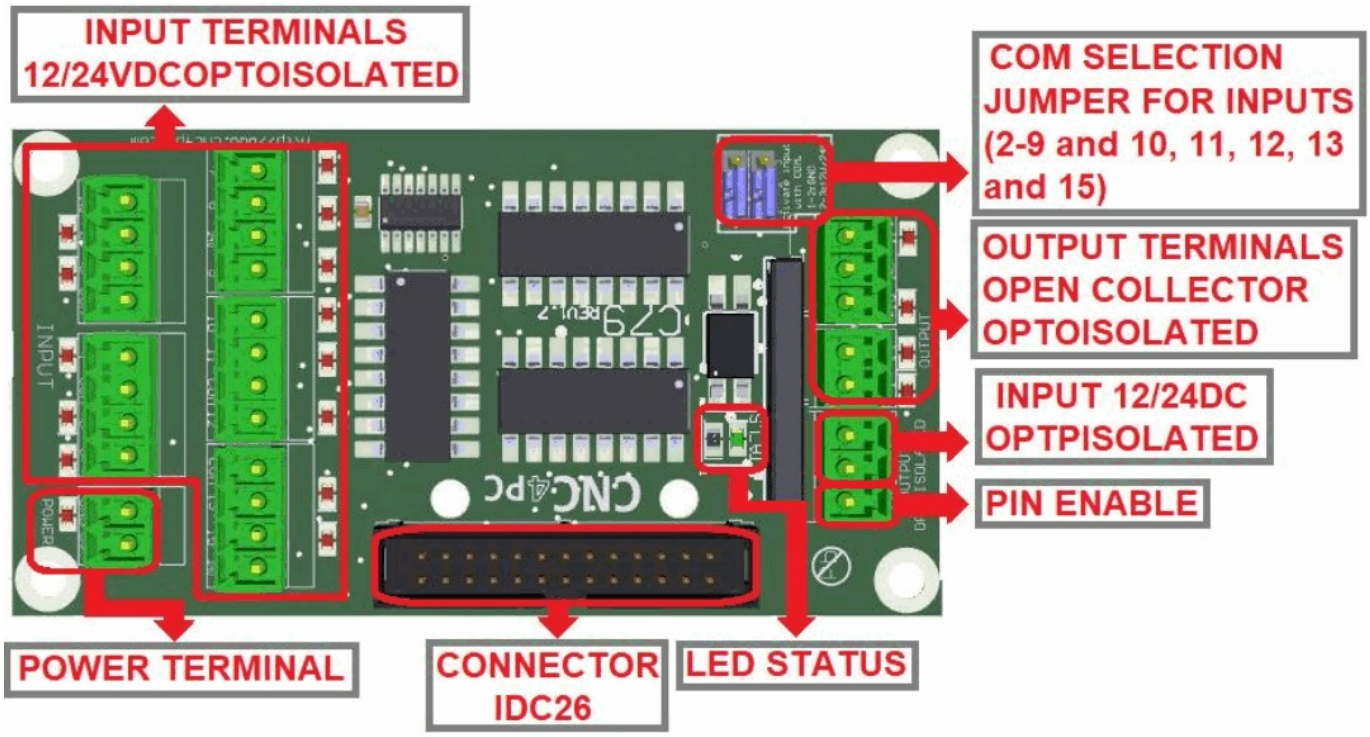
- Terminal Block for all I/So.
- Buffered outputs.
- Open collector Outputs Pins opt isolated 1, 14, 16, 17.
- Compatibility with several Motion Controllers and Mother Board. C76, M16D, UC300ETH-5LPT, C92, and ESS expansion board.
- Input pins 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15.
- Terminal Block input with close by ground or +5vdc connections, COM and outputs with + 24vdc and ground
- Screw-On connections for all terminals. You only have to screw-on the wires to make all your connections.
- Status LEDs for enable.
- Fully opt isolated Inputs and Outputs.
- External Enable Pin
- Din rail mountable. *NEW*.
- Pluggable Screw-On Terminals. *NEW*.

SPECIFICATIONS

DIGITAL INPUT SPECIFICATIONS	
On-state voltage range	24V DC
Maximum off-state voltage	0.8V
Maximum operation frequency	4 MHz
Typical signal delay	loans

OPEN COLLECTOR OUTPUT SPECIFICATIONS	
Maximum output voltage	60VDC
Maximum output current	2mA
Typical signal delay	0.5 pS

BOARD DESCRIPTION



REQUIREMENTS

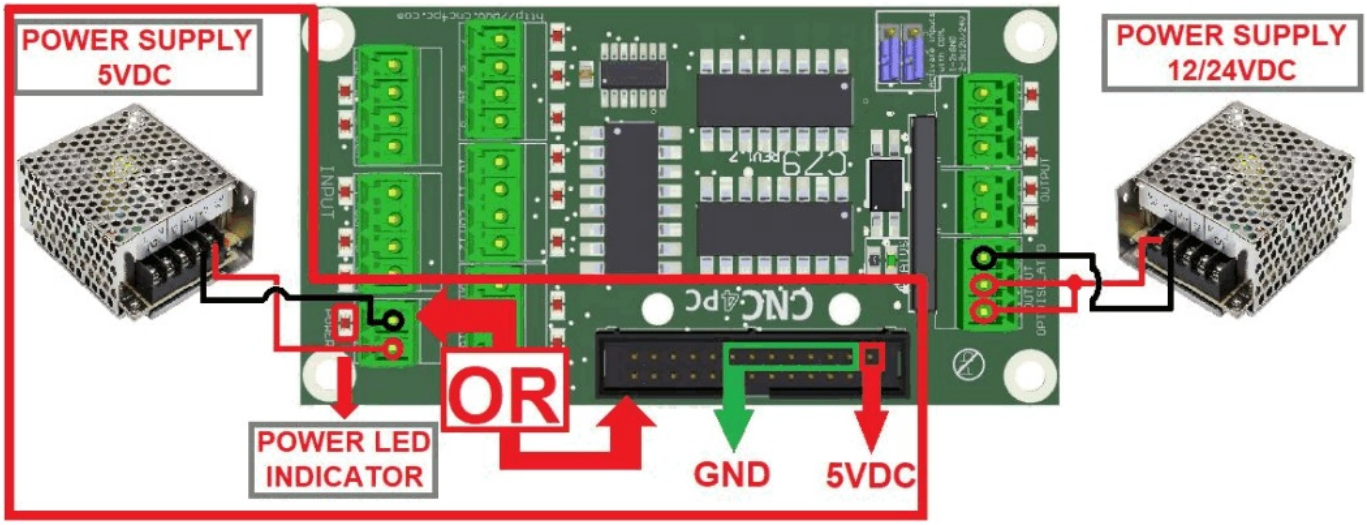
Power Requirements

Regulated +5VDC which can be supplied through pin 26. +12 or 24VDC are required to power the Open Collector Outputs and opt isolated Inputs.
Note. The +5vdc can be supplied through pin 26 on the IDC26. If supplying +5vdc through the IDC26, do not apply +5vdc externally as it will damage the board.

WARNING
Check the polarity and voltage of the external power source and connect the 5VDC and GND. Overvoltage or reverse-polarity power applied to these terminals can cause damage to the board, and/or the power source.

POWER TERMINAL

To preserve optoisolation two independent power sources should be used.

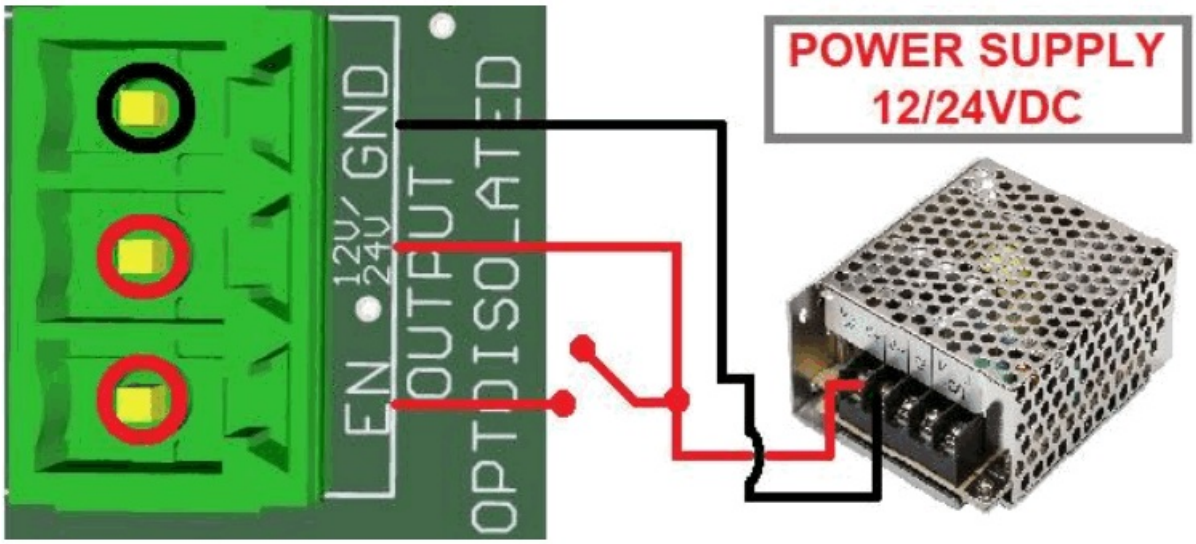


A +5vdc to power the logic and optos that interact with the controller. Since these are isolated, they can come from a USB cable or pin 26 on the IDC26 connector. The +12/24vdc at 200mA will power the Open Collector Outputs and Inputs.
Note. The +5vdc can be supplied through pin 26 on the IDC26. If supplying +5vdc through the IDC26, do not apply +5vdc externally as it will damage the board.

WARNING: This board uses pins 2-9 as inputs. It must be connected to a controller that uses pins 2-9 as inputs. If using the Ethernet Smooth Stepper, make sure to configure it to use pins 2-9 as inputs before wiring it.

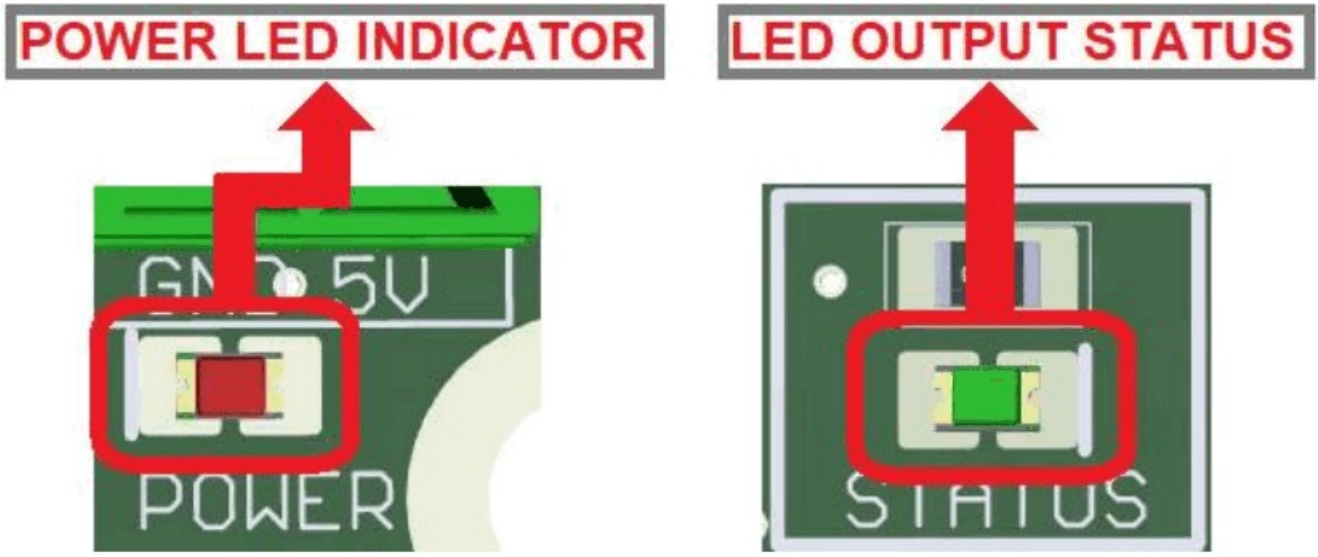
Enable pin.

The card must be provided with a 24VDC signal to enable operation. This feature has been added to externally control the status of the outputs. An external switch or a Safety Charge Pump can be added to provide the enabling signal. If this function is not required, a jumper can be placed between 24VDC and the EN terminal.



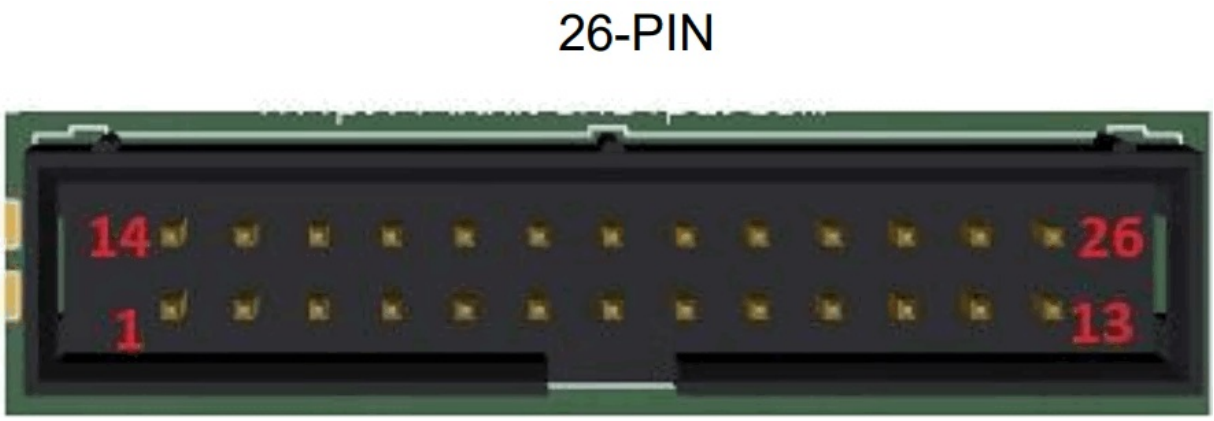
If using it with the C76 or M16D using an IDC26 to IDC26 ribbon cable, you can leave a jumper on the EN terminal and allow the motherboard to control the enable. The C79 will be enabled when the motherboard is enabled. This is done through pin 18 of the IDC26 connector.

INDICATOR LED



PINOUT

Pin numbering



IDC26

IDC26 Pin number	LPT port direction signal
	Output 1
2	Input 2
3	Input 3
4	Input 4
5	Input 5
6	Input 6
7	Input 7
8	Input 8
9	Input 9
10	Input 10
	Input 11
12	Input 12
13	Input 13
14	Output 14
15	Input 15
16	Output 16
17	Output 17
18	Watchdog (Ground to Enable)
19 – 25	GND
26	+5VDC

Compatibility

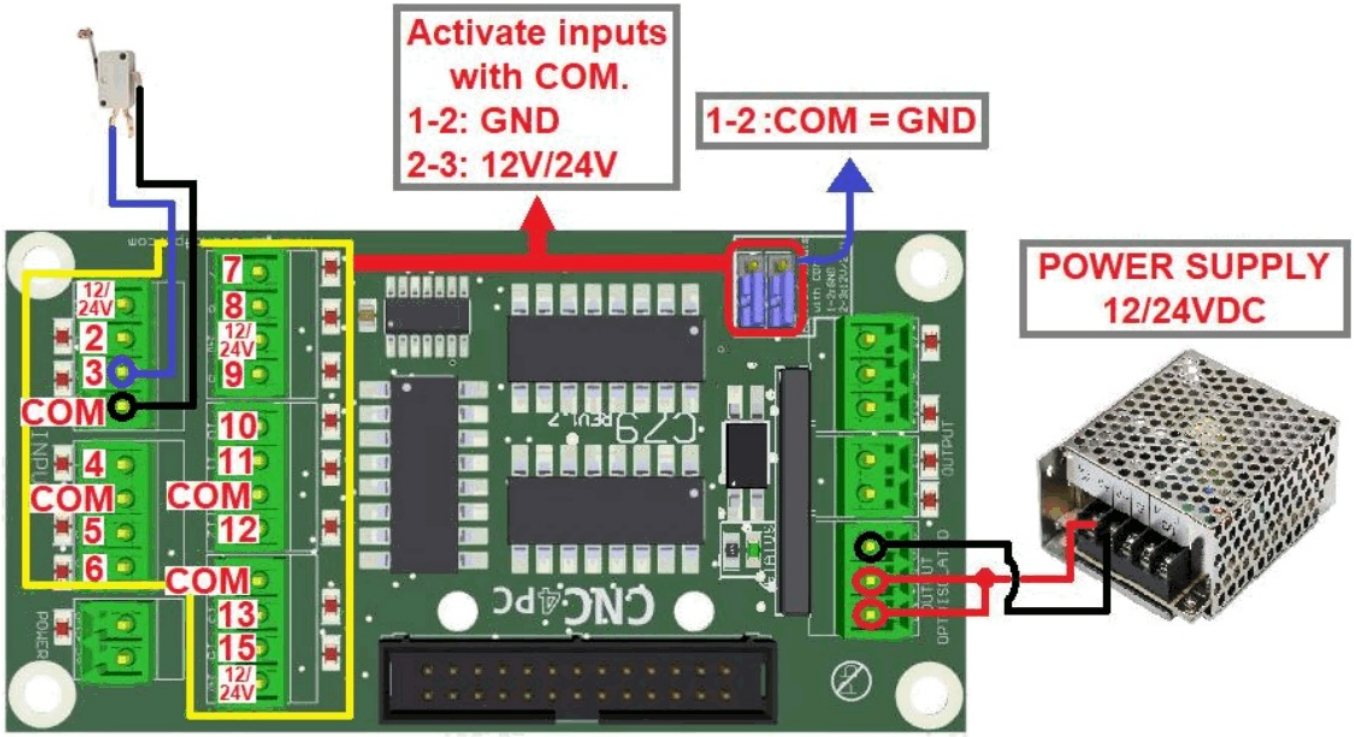
CONTROLLERS	PORTS
C76	3
M16D	3
ESS	2
5LPT	1, 4, 5
C92	1,2,3

CONFIGURATION JUMPERS

Connecting Switches Using the COM = GND

There is a jumper that allows you to select +12/24VDC or GND for the COM pins.

While this board supports input +24VDC signals, different kind of sensors, switches using different voltages can be connected using the diagrams that follow:



Note. This board has two possible inputs banks, (pins: 10, 11, 12, 13, and 15 or 2-9) and (dedicated outputs: pins 1, 14, 16, and 17), and all the inputs of the same bank have the same configuration. The below wiring diagrams are an example, any input can be used for the connections.

Connecting Switches Using the COM = 12/24VDC

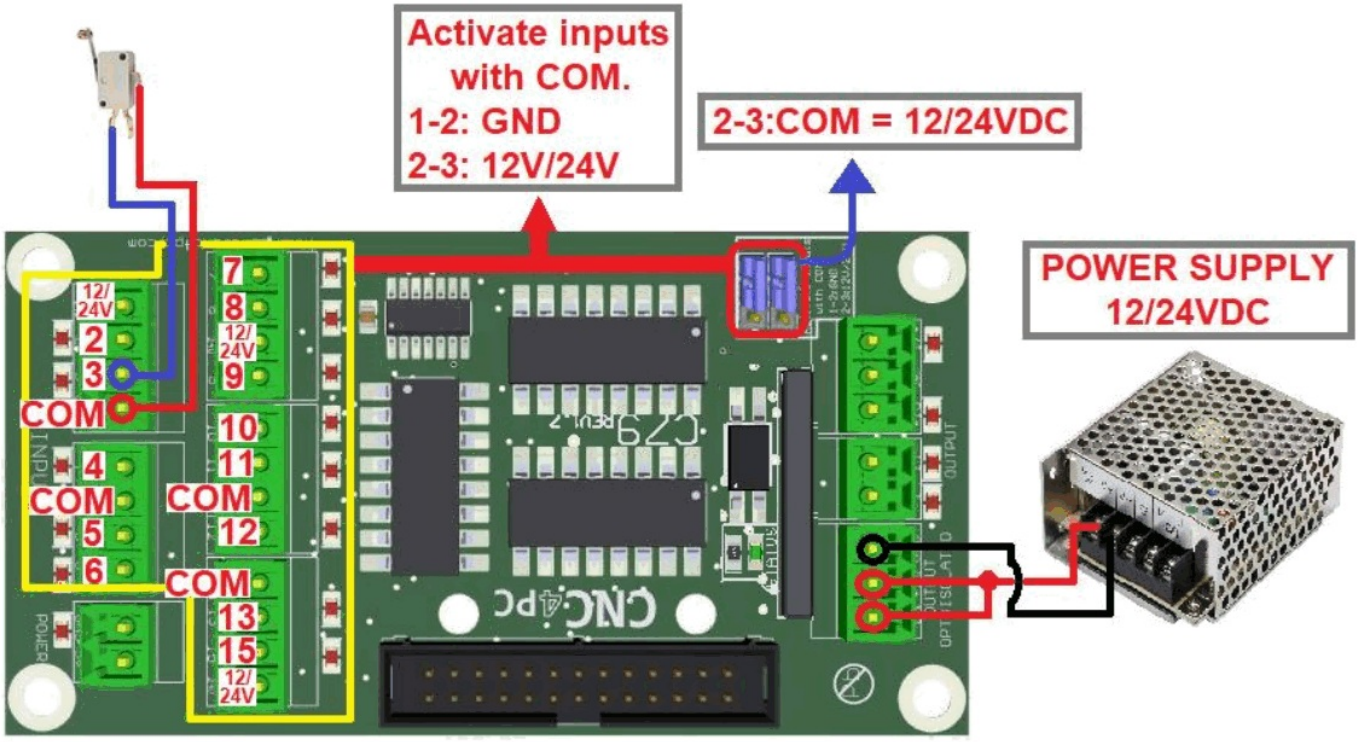
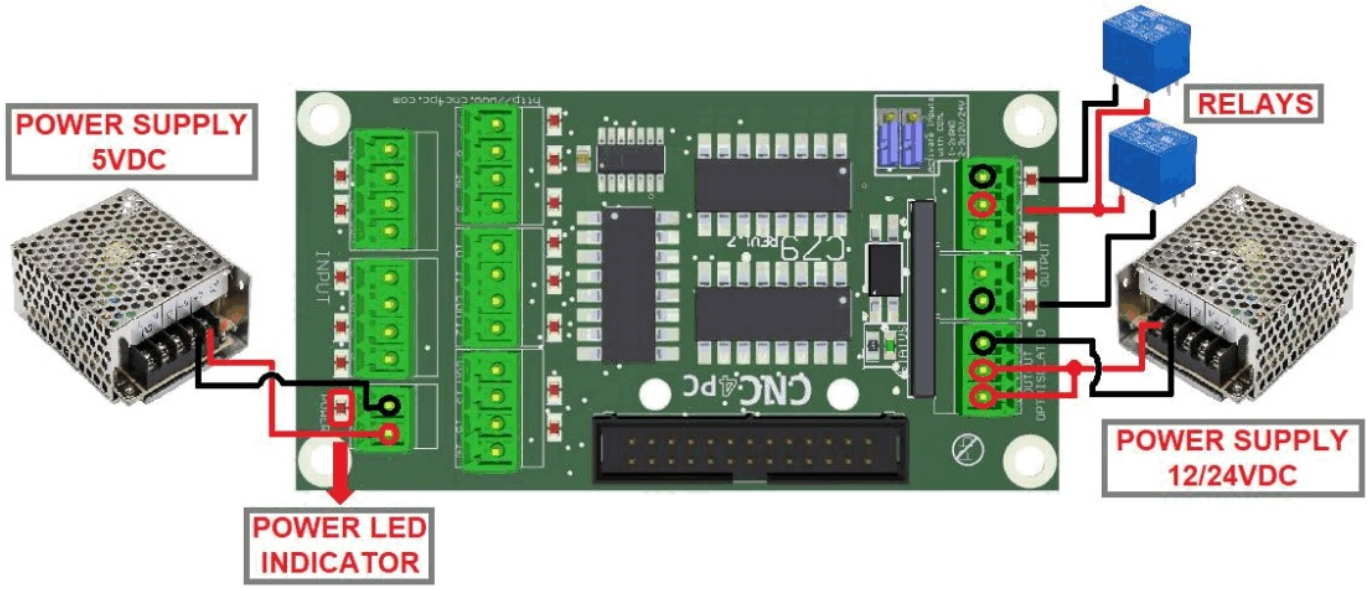


Fig. 2 Wiring diagram to connect switches.

EXAMPLE WIRING OPTOISOLATED OUTPUT

The power source of 12/24 VDC is for the correct functioning of the outputs (1,14,16,17).



WIRING DIAGRAM SENSORS

Connecting PNP sensors.

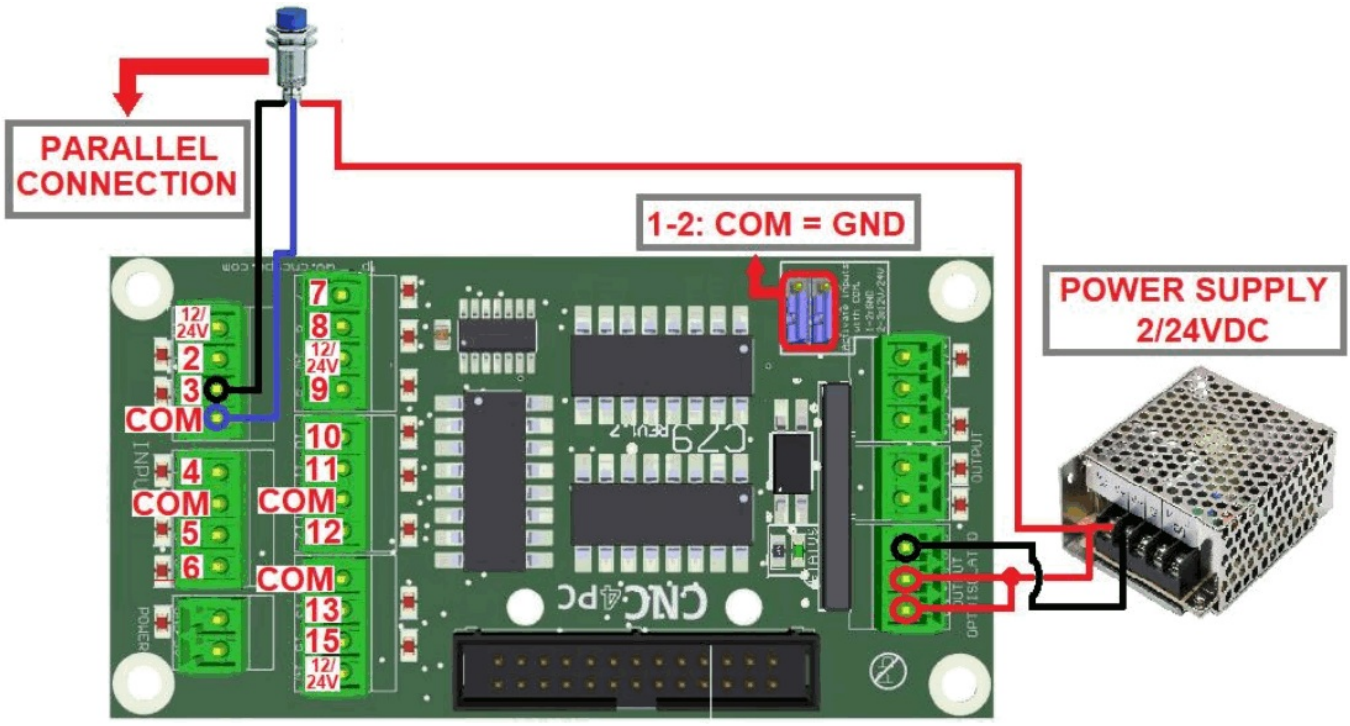


Fig. 3 Wiring diagram to connect PNP open collector proximity sensors.

Connecting NPN sensors.

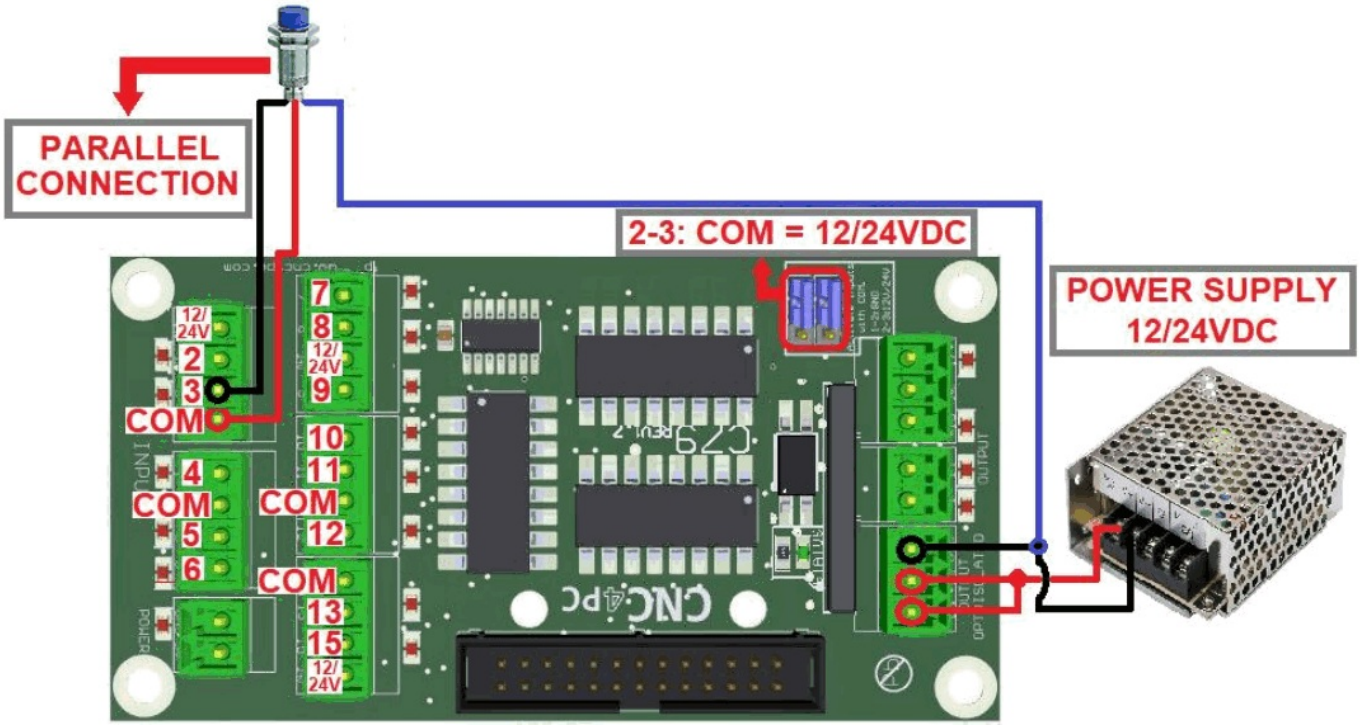
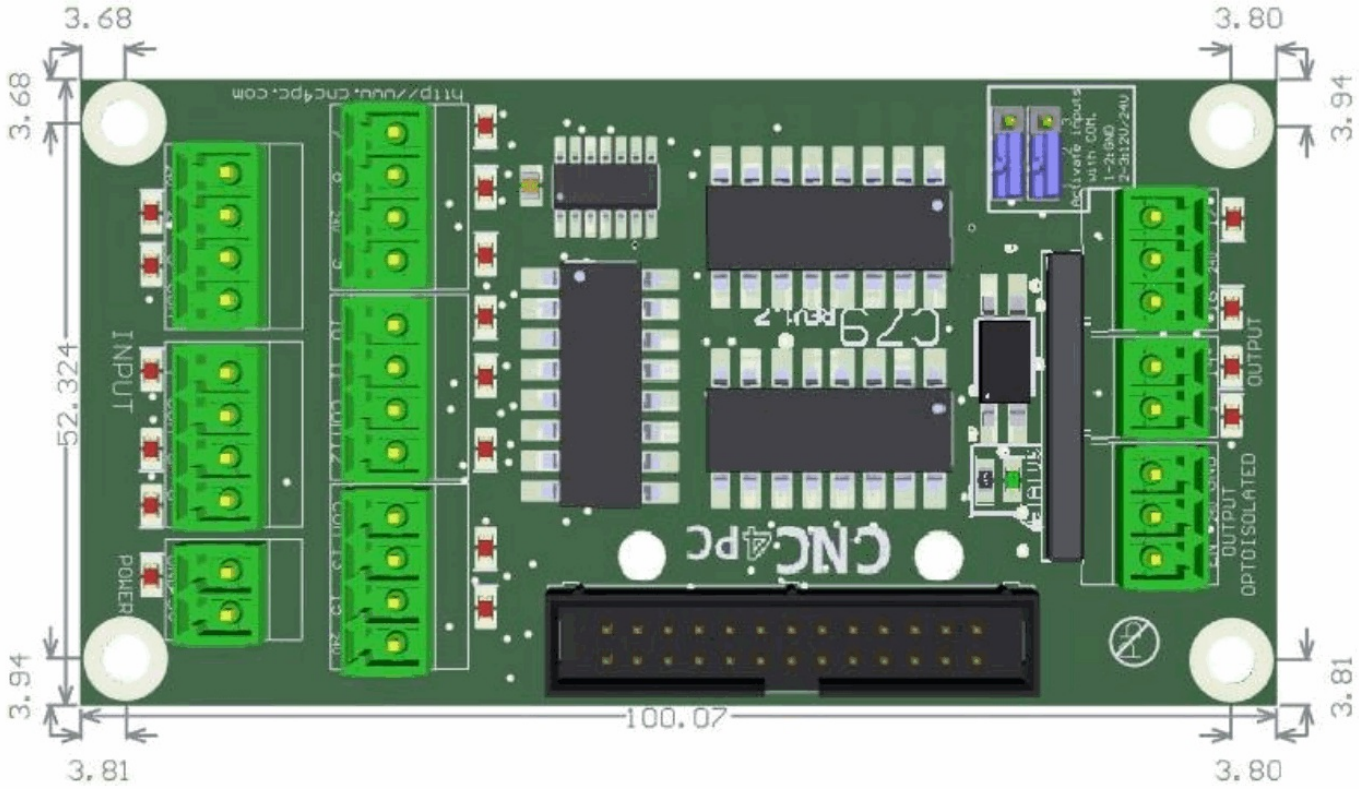


Fig. 4 Wiring diagram to connect in parallel NPN open collector proximity sensors.

DIMENSIONS



All dimensions are in Millimeters.
Fixing holes (4mm).

DISCLAIMER

Use caution. CNC machines can be dangerous machines. Neither DUNCAN USA, LLC nor Arturo Duncan are liable for any accidents resulting from the improper use of these devices. This product is not a fail-safe device and

it should not be used in life support systems or in other devices where its failure or possible erratic operation could cause property damage, bodily injury or loss of life.

Documents / Resources

	CNC4PC C79 Open Collector Expansion Board [pdf] User Manual C79, C79 Open Collector Expansion Board, Open Collector Expansion Board, C79 Expansion Board, Expansion Board