# CNC4PC
Integration Solutions for CNC Projects

**USER'S MANUAL VER.1**

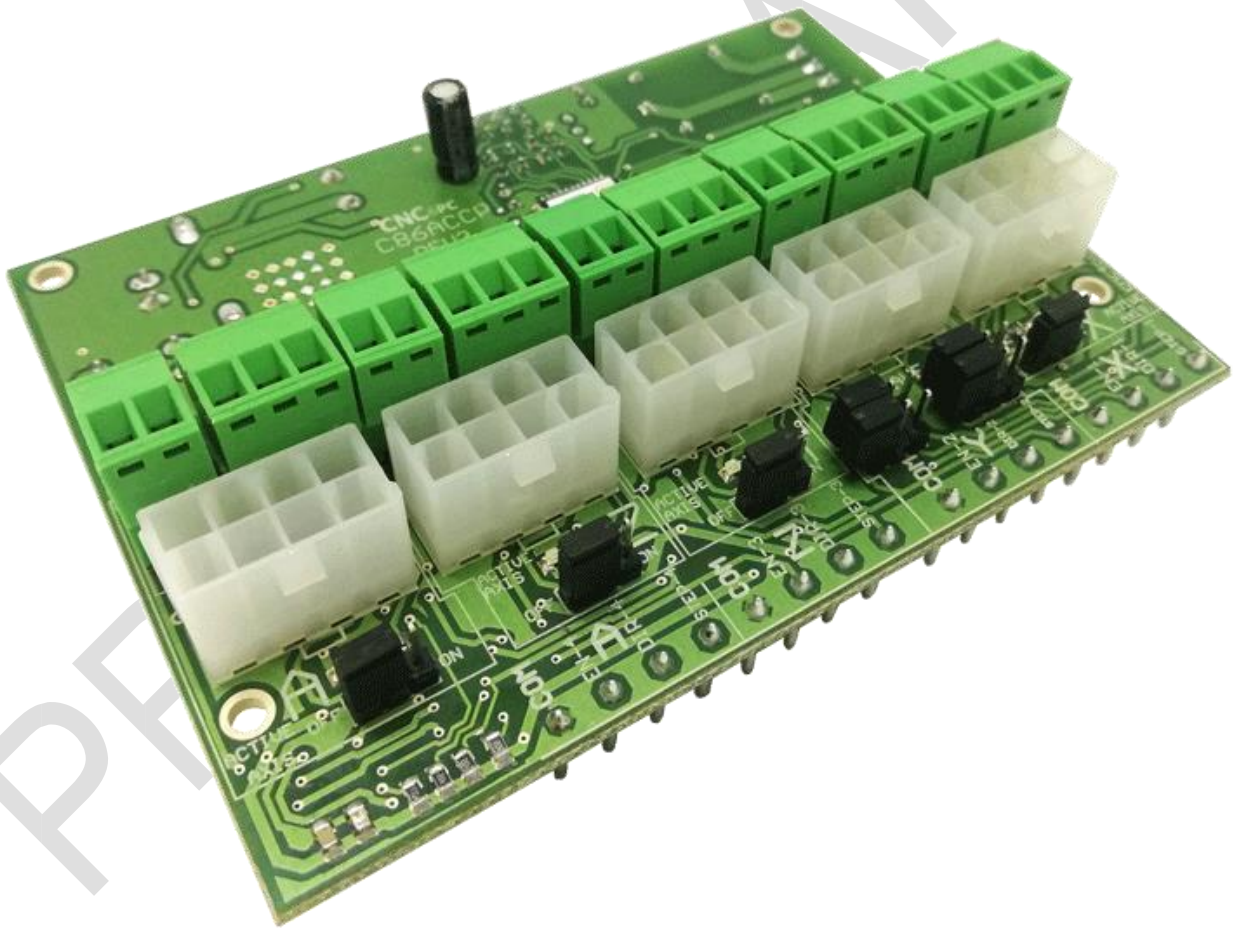## C86ACCP CleartPath Connector Board for the Acorn Controller
## Rev. 3



MARCH  2022

# USER'S MANUAL TABLE OF CONTENTS

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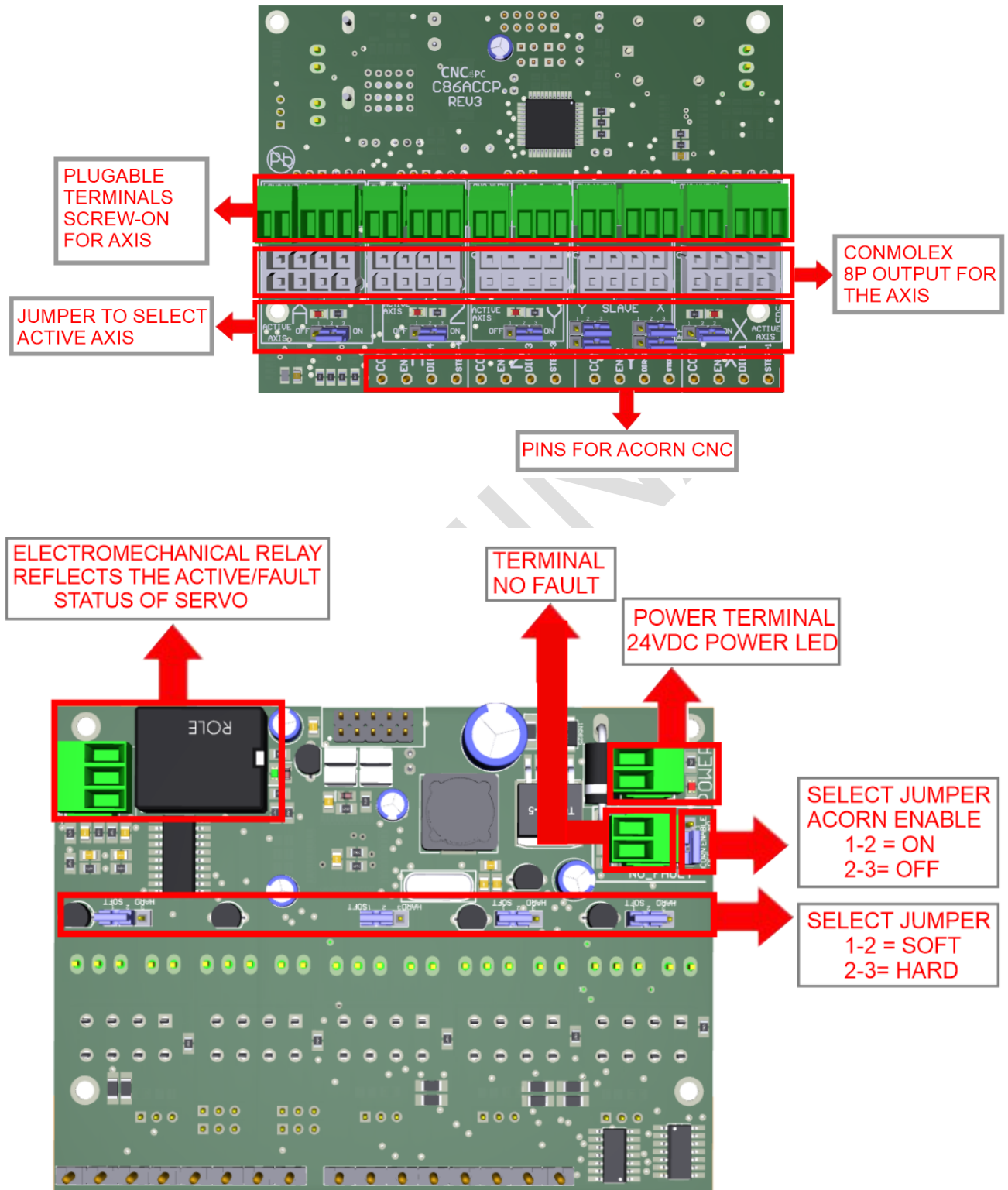
## 1.0   OVERVIEW

This board interface is used for the connection between Acorn CNC and the CLEARPATH SERVO DRIVE.


## 2.0   FEATURES

- *Enable and disable the drives.*

- *Splits Step and Direction signals from axis X or Y to allow wiring an additional axis using the same signals.*

- *The board can be activated and start monitoring for a driver fault using the axis enable or NO_FAULT signal.*

- *Electromechanical relay reflects the ACTIVE / FAULT Status of a servo.*

- *Power terminal (24VDC).*

- *Status LEDs for fault axis and relay status.*

- *Connector CONMOLEX 8P for driver CLEARPATH.*

- *Pluggable Screw-On Terminals*

# 3.0   BOARD DESCRIPTION

PLUGABLE TERMINALS SCREW-ON FOR AXIS

CONMOLEX 8P OUTPUT FOR THE AXIS

JUMPER TO SELECT ACTIVE AXIS

PINS FOR ACORN CNC

ELECTROMECHANICAL RELAY REFLECTS THE ACTIVE/FAULT STATUS OF SERVO

TERMINAL NO FAULT

POWER TERMINAL 24VDC POWER LED

SELECT JUMPER ACORN ENABLE
1-2 = ON
2-3= OFF

SELECT JUMPER
1-2 = SOFT
2-3= HARD

## 4.0   REQUIREMENTS
### 4.1   Power Requirements


Regulated 24VDC@200mA   is required to power this board.

⚠️ **WARNING**

Check the polarity and voltage of the external power source and connect the 24VDC and GND. Overvoltage or reverse-polarity power applied to these terminals can cause damage to the board, and/or the power source.


## 5.0   TERMINAL POWER



**POWER TERMINAL 12/24 VDC**
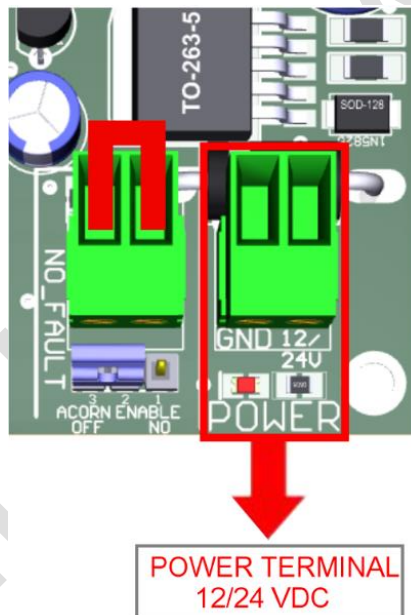
Regulated 12 or +24VDC@200mA is required to power this board.


## 6.0   ACTIVATING THE BOARD

Fault monitoring starts when the board is active.  When the board is active the relay is activated and the green LED is on.

Two conditions must be met to activate the system and start monitoring for a fault:

1. At least one axis is receiving an active enable signal from the ACORN board or the jumper is set not to monitor the ACORN enable signals.
2. The contacts on the NO_FAULT terminal are closed.  You can configure a relay and read the NO_FAULT signal from the ACORN, or you could just put a jumper on it if not used.



1-2 ON          2-3 OFF
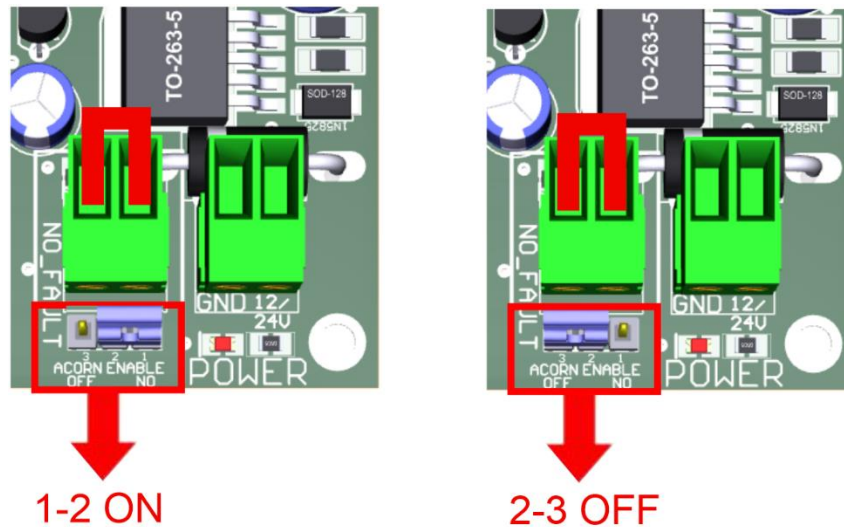
The board can be activated by the axis enable or the NO_FAULT signal, or a combination of both signals.  It could also be hardwired to be permanently active if both inputs are jumped.

## 6.1 Operation Sequence:

1. Once the board gets enabled, it will take 5 seconds in order for it to start monitoring for a fault.  This to preserve compatibility with some drivers which may need time to activate.
2. If a driver faults, the relay will trip and the green LED will go off.  An LED indicating the which driver or drivers triggered the fault will light next to the RJ45 of the axis that tripped the fault.

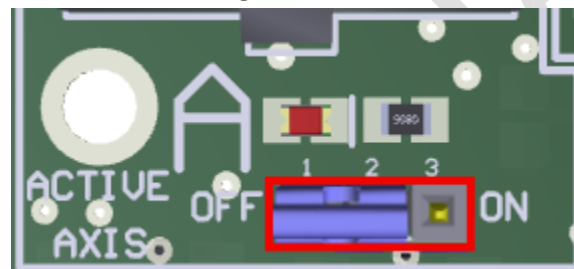## 7.0 JUMPER TO SELECT THE ACTIVE AXIS

Set of jumpers as shown in the image

2-3: ON
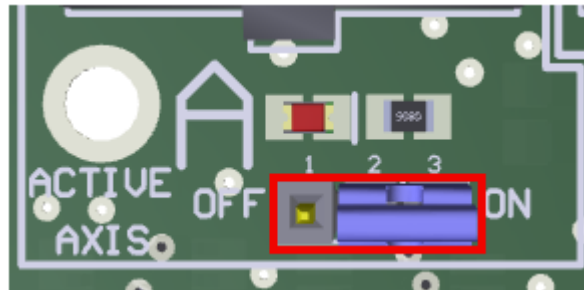


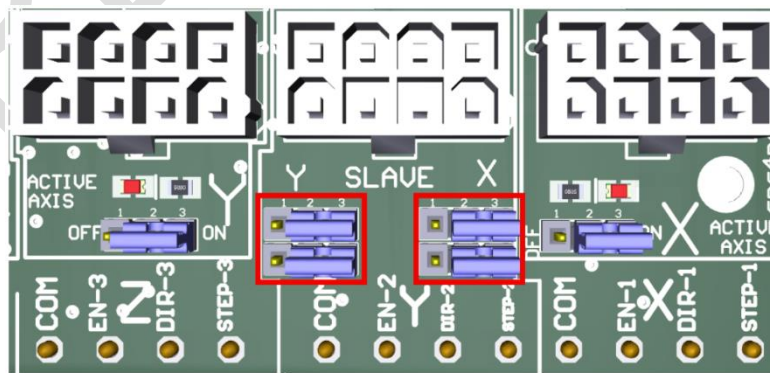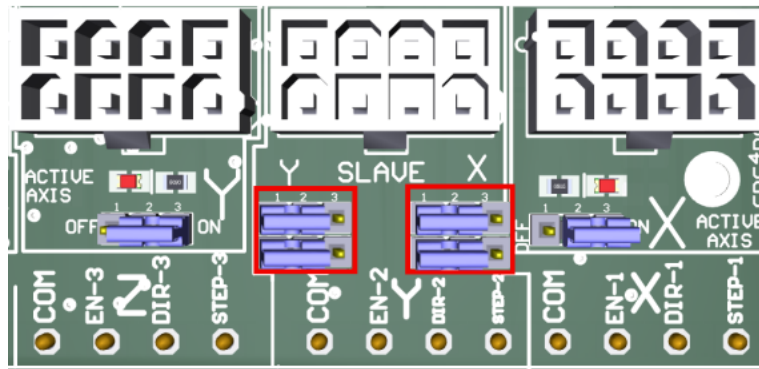Set of jumpers as shown in the image

1-2: OFF



Note: Set the jumper to ON for connected axis and off if no drivers are connected.

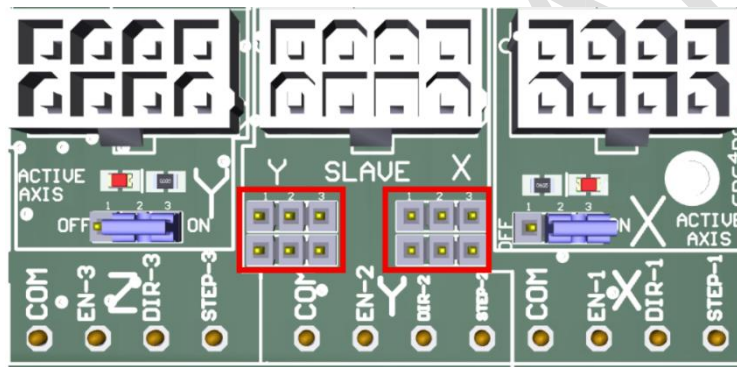## 8.0 SLAVE AXIS SELECT JUMPER WITH X AXIS OR Y AXIS

Set jumper 2-3 for X slave

Set jumper 1-2 for Y slave



Remove jumper if not use axis slave



## 9.0  JUMPER TO SELECT THE ENABLE

Use Software Enable to keep the driver active only while the system is active. Set of jumpers as shown in the image.



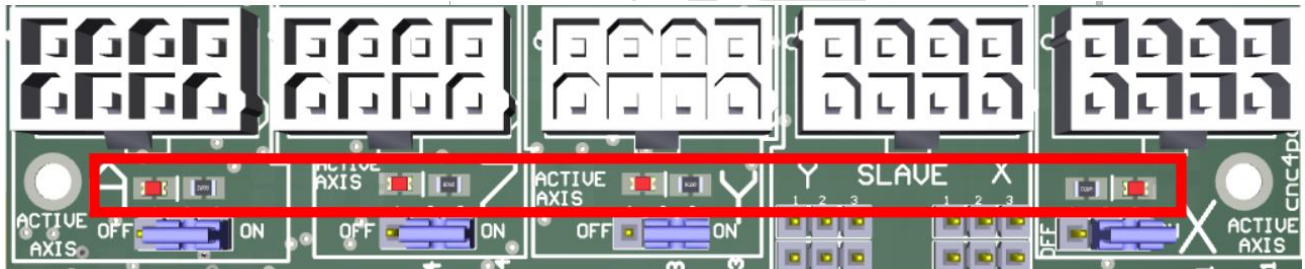Use Hardware Enable to keep the driver enabled all the time.

## 10.0   LED INDICATOR

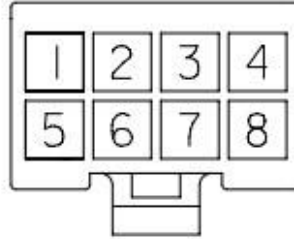When **Status LED,** (Green LED) lights, it indicates that the system is enabled.
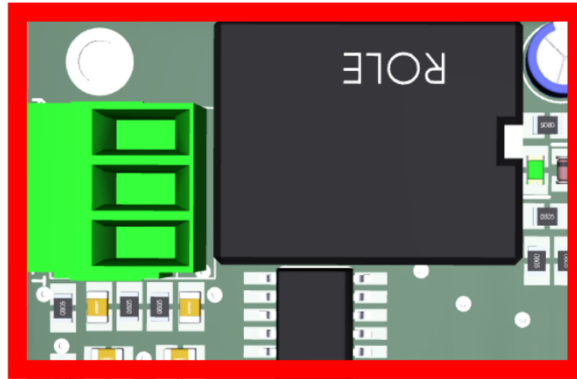


## 10.1   INDICATOR FAULT DETECTION

## 11.0 PINOUT

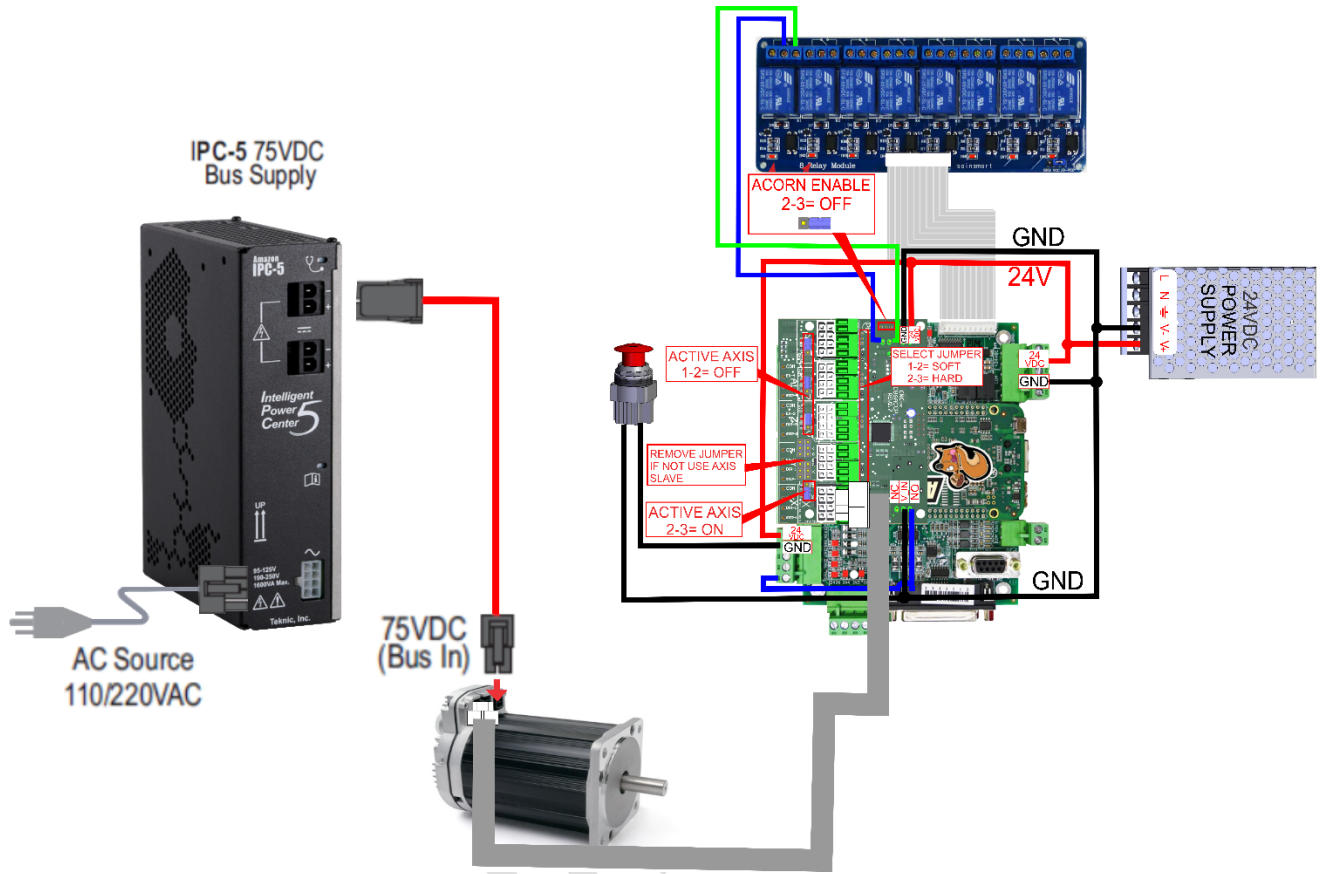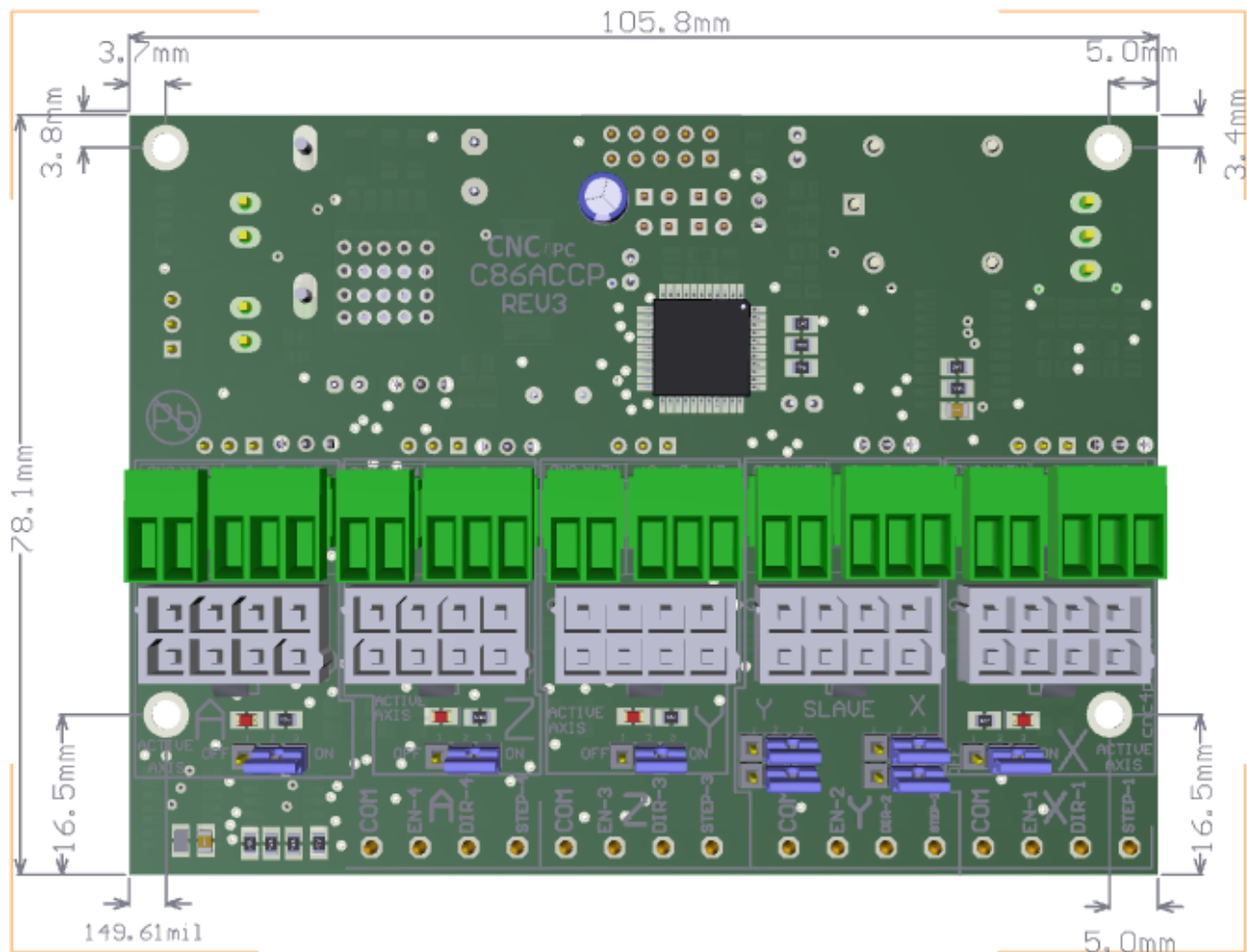| CONTROL CABLE PIN ASSIGNMENTS | | | | |
|---|---|---|---|---|
| **PIN** | **COLOR** | | **NAME CLEAR PATH** | **PLUGGABLE TERMINAL C86ACCP** | **FUNCTION** |
| 1 | GRN | | HLFB+ | HLFB+ | ALARM |
| 2 | BLK | | INPUT B+ | B+ | STEP |
| 3 | WHT | | INPUT A+ | A+ | DIRECTION |
| 4 | BLU | | ENABLE + | EN+ | ENABLE |
| 5 | RED | | HLFB- | GND | GND |
| 6 | YEL | | INPUT B- | GND | GND |
| 7 | BRN | | INPUT A- | GND | GND |
| 8 | ORN | | ENABLE - | GND | GND |

## 12.0 WIRING EXAMPLE PLUGGABLE TERMINAL
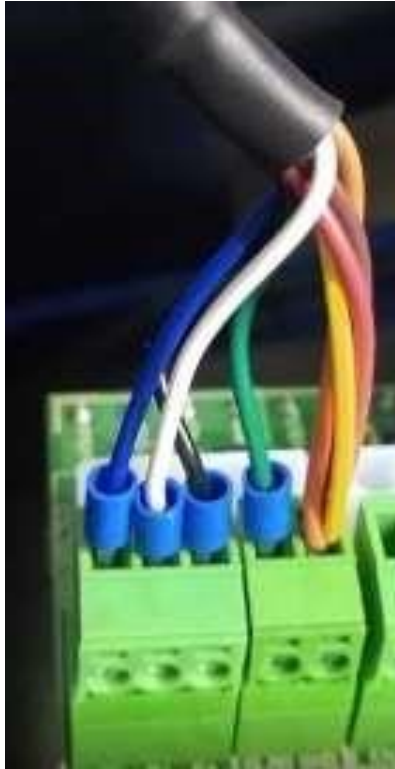
## 13.0   WIRING EXAMPLE

## 14.0  DIMENSIONS



All dimensions are in Millimeters
**Fixing holes (3 mm)**

## DISCLAIMER

Use caution. CNC machines can be dangerous machines. Neither DUNCAN USA, LLC nor Arturo Duncan is 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.