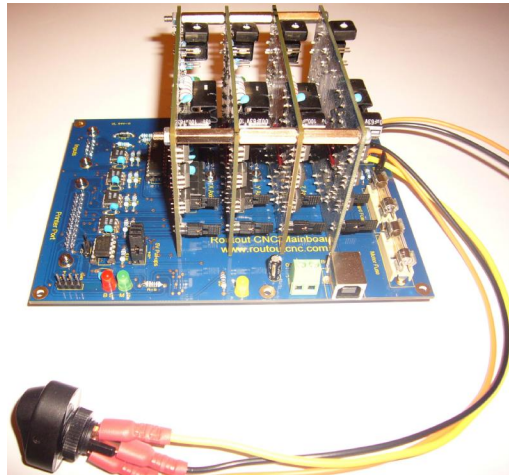


Routout CNC 1,2,3 or 4 Axis Main-board (With Opto-Coupled Inputs and Charge Pump Detection) Data Sheet Version 1.1

The Routout CNC 4 Axis Main-board allows you to connect up to 4 Routout drivers within seconds with absolutely NO wiring. The inputs have opto-isolation and there is a Safety Charge Pump detection for use with software that supports it. I.E Mach 3 / Linux EMC



Features.

- 12 - 30V input for drivers.
- 5v supply can be either supplied via USB or external supply.
- Opto-coupled inputs for home and emergency stop.
- Main board can accommodate 1, 2, 3 or 4 Drivers.
- Safety Charge Pump detect for Mach 3 and EMC (disables drivers & provides an output to disable external relay)
- Printer port, Input port, Motor output connections on rear of PCB so just insert into an enclosure and your done (with no wiring)
- Additional Hardware E-stop input

Absolute Maximum Ratings

Δ Exceeding these ratings WILL destroy your Mainboard !

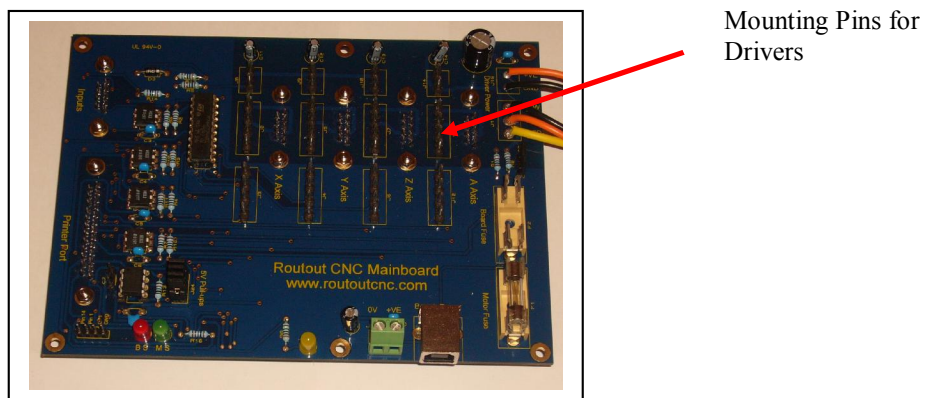
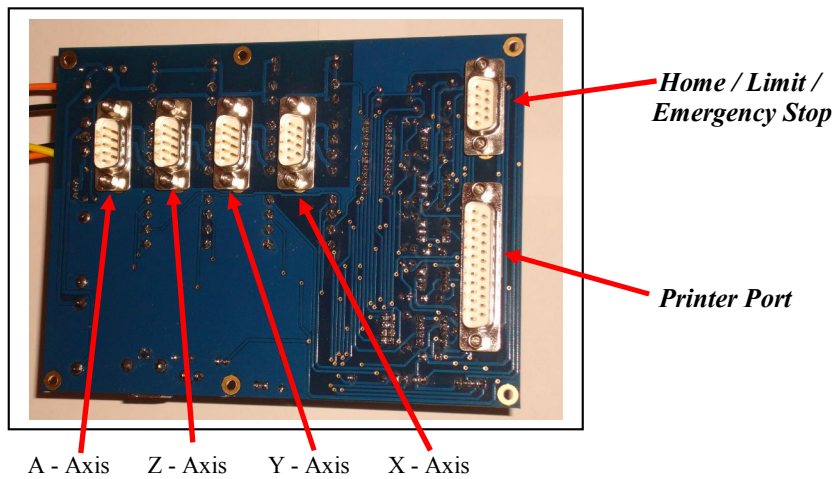
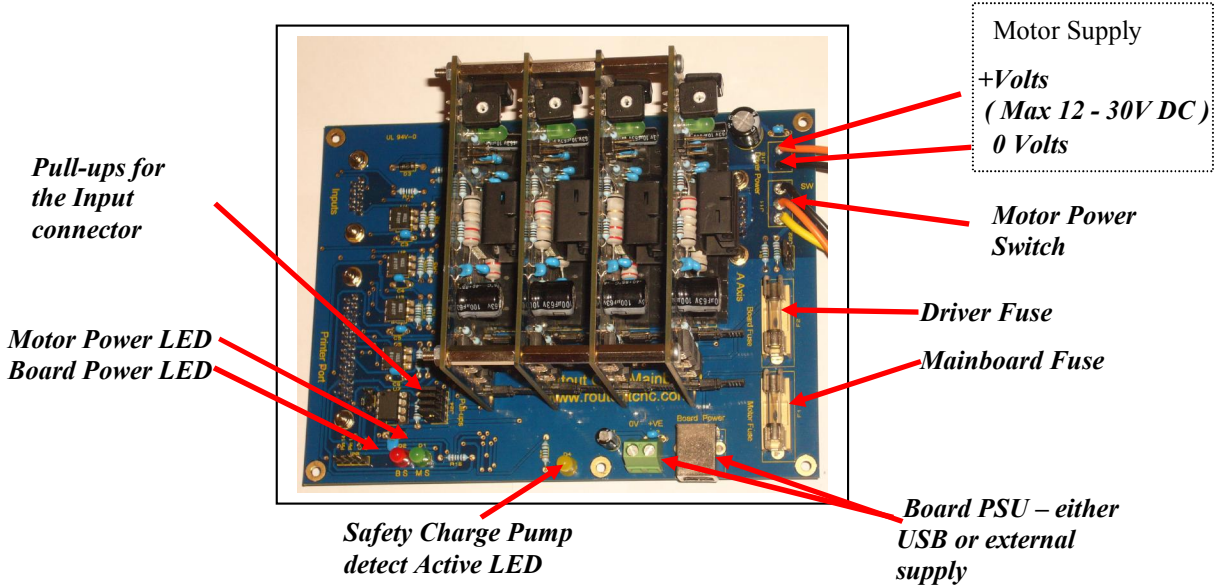
- Input Voltage 30 Volts DC
- Logic Input 5V

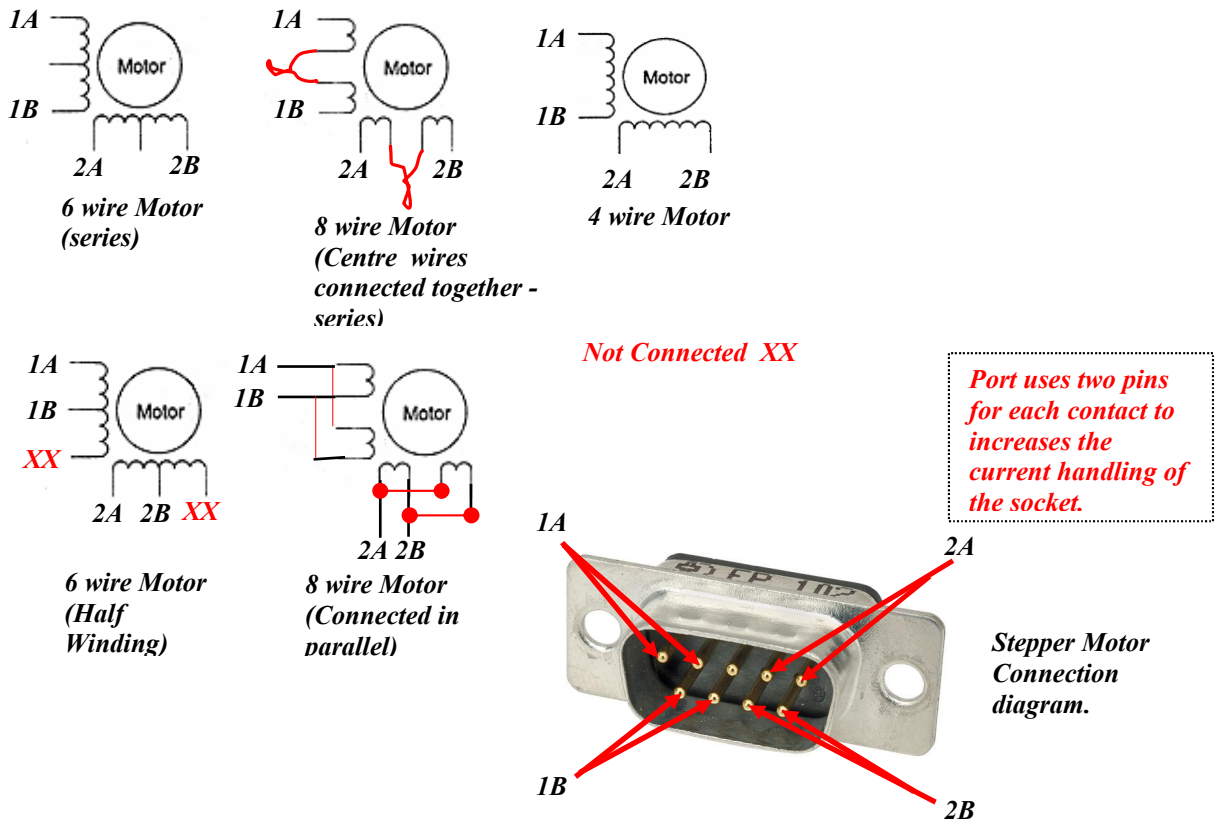
Timing Requirements

- 200nS Minimum Command active time before step pulse.
- 1.0uS Minimum command active time after step pulse.
- 1.0uS Minimum step Low time.

Quick Step Setup Guide

(Figure 1 – Shown with 4 boards mounted)





Stepper Driver Board Configuration

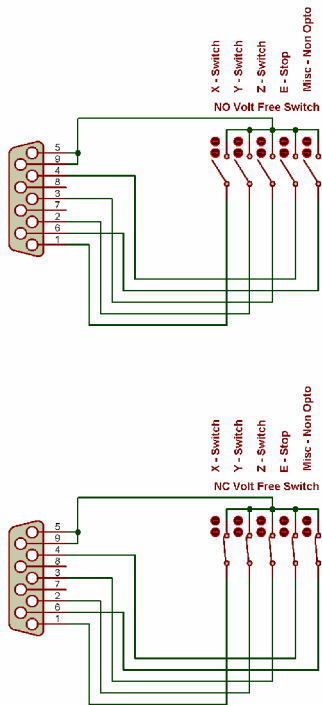
- On the Stepper Driver Boards set the Driver Jumpers as follows :J5- External Enable – ON & J6 – Disable

Motherboard Configuration

- Make sure power connections are correct polarity and the correct socket (motor Supply J16 ONLY) DO NOT POWER UP
- Insert your driver Boards as per the Figure 1
- Make sure all connections are tight, failure to tighten motor connector could result in a blown driver board (you may need to remove the fuse to get the screwdriver in to the terminals)
- If using input switches that supply a voltage i.e **NOT Volt Free** ensure that 5 V pull-up jumpers are removed (Failure to remove will damage your PC) . If using volt free as per diagram Figure 2 then jumpers will be need to be connected.
- Connect up switches / Limits
- In your chosen software set Charge-Pump output to be Pin 17 on the Printer port. (if you do not wish to use the charge pump set the stepper drivers jumper (J6) to enabled.
- Check and double check
- Insert the USB connector into your PC the (BS) LED should light, if it does not check the connection and the board fuse.
- Check again your motor supply connection Power up your Motor supply 12- 24 volt supply. The (MS) Light should light. if it does not check the connection and the Motor board fuse.
- In your Preferred application (Mach 3 / Linux EMC) set up the ports and pins as per the tables below.

▲ DO NOT PLUG / UNPLUG MOTORS WITH THE POWER ON – YOU WILL DESTROY THE DRIVER BOARD AND POSSIBLY DAMAGE THE MAINBOARD.

Figure 2.



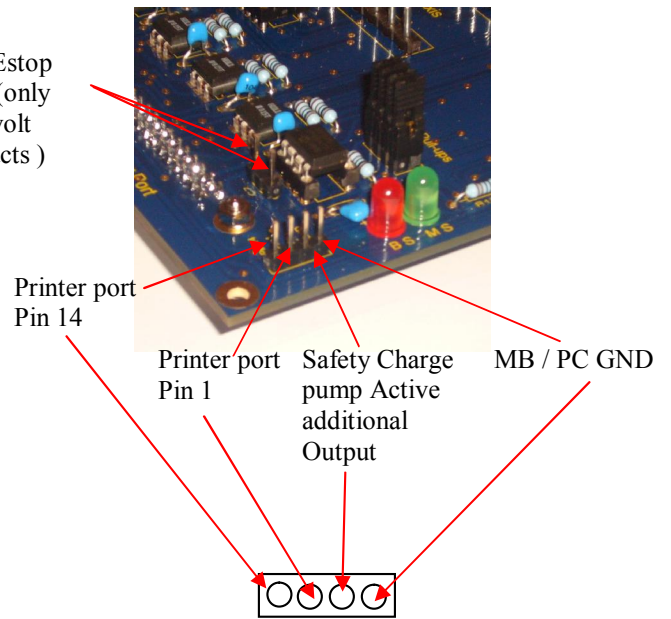
Printer Port Configuration.

| PIN Number | PIN USE |
|------------|-------------|
| 2 | X - Step |
| 3 | X - Dir |
| 4 | Y - Step |
| 5 | Y - Dir |
| 6 | Z - Step |
| 7 | Z - Dir |
| 8 | A - Step |
| 9 | A - Dir |
| 10 | E - Stop |
| 11 | Misc Switch |
| 12 | X-Home |
| 13 | Y-Home |
| 15 | Z-Home |
| 17 | Charge Pump |

9 Pin Input Socket

| PIN Number | PIN USE |
|------------|---------------------------------|
| 1 | X - Home |
| 2 | Y - Home |
| 3 | Z - Home |
| 4 | E - Stop |
| 5 | Signal Return |
| 6 | Misc Input No opto-isolation |
| 7 | No Connection |
| 8 | No Connection |
| 9 | Mother Bd - GND |

External Estop Switch – (only use with volt free contacts)



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