

Routout - CNC 3 / 4 Axis Plug & Play Controller Data Sheet Version 1.2

The Routout CNC 3 / 4 Axis stepper motor drive box has many uses including for CNC retrofitting / robot control or driving your own CNC machine. It is very simple to wire simply connect up the motor connections and power supply, plug into your PC via the Printer Port and run your chosen CAD / Cam software. The Routout CNC 3 / 4 Axis Plug and play driver is compatible with all of the popular CNC Printer port driven software, including but not limited to Routout CNC, Mach2 / 3, Turbo CNC, KCam etc the list goes on ...

The Routout CNC 3 / 4 Axis stepper motor driver Box will drive 3 / 4 X 6 Amp stepper motors and can be set to Full / Half / Quarter / Eighth stepping (Default configuration when shipped Eighth step – 1600 steps per revolution)



Features.

- 6 A Output Drive Capabilities.
- Built in Power Supply.
- Connection for Limit and E - Stop.

Δ The current is set before despatch to match your motors.

Absolute Maximum Ratings

Δ Exceeding these ratings WILL destroy your 3 Axis Plug and Play Box !
Δ You must use an earthed supply.

- Input Voltage 220 V Ac – 240V AC
- Logic Input :
Step / Direction / Enable Voltage
Logic High Min 4.5 MAX 5 V
Logic Low MAX 1.5 V

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).

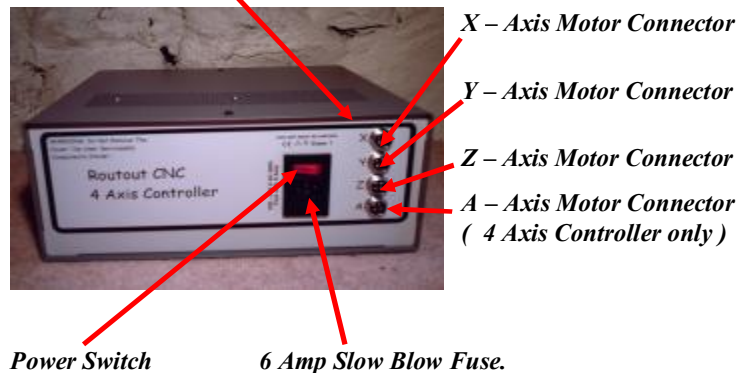
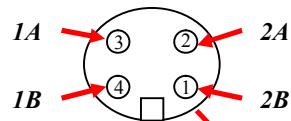
△ All connector pin-outs are shown looking from the front of the Stepper drive box. Where terminal numbers are shown these will be marked on the connector.

Home Switches

Printer Port Connection

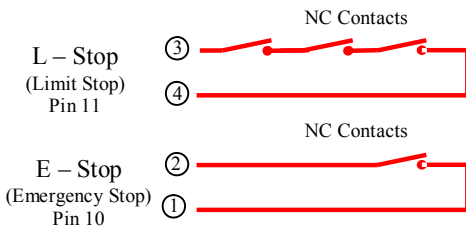
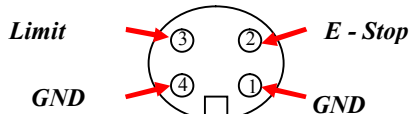


Motor Socket Connector Pin-Out

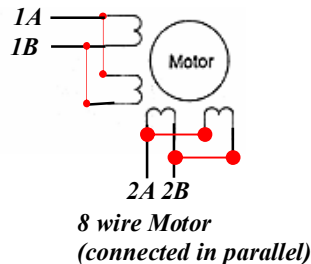
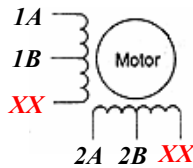
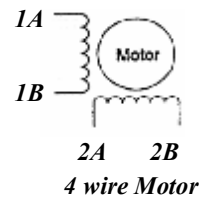
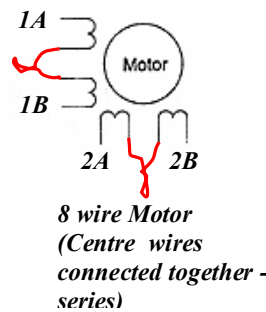
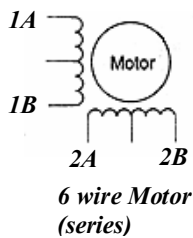


X – Axis Motor Connector
 Y – Axis Motor Connector
 Z – Axis Motor Connector
 A – Axis Motor Connector (4 Axis Controller only)

Limit Switch / E - Stop Socket



Function: The L – Stop can have multiple switches connected in series to detect end of travel limit. Note Pin 11 is an inverted pin.



Not Connected XX

6 wire Motor (Parallel)

- Wire up your motors taking note of the connection as per Figure 1. **(Failure to connect these correctly WILL DESTROY YOUR DRIVER BOX)**
- Wire up your Limit Switch and E - Stop connector as per Figure 1, if needed.
- Turn on the power and the Driver Box the power light should be lit. If it does not, turn off the power supply immediately, and re-check all of the above steps. (Also check the fuse both in the plug and in the fuse draw at the front of the unit)
- Turn OFF the power supply.

Δ Never plug or unplug the motors whilst the driver is on this will destroy the drivers)

- Plug in your Motors Taking special care as the motor connector is identical to the limit switch / E - Stop input.

Δ PUTTING THE MOTOR OR HOME SWITCH CONNECTIONS INTO THE WRONG TERMINAL WILL DESTROY YOUR CARD !! YOU HAVE BEEN WARNED.)

- Plug-in the Limit Switch / E - Stop connector (if needed) and Printer cable.
- Plug-in the Home switches if connector present.
- Power on your power supply, your motors should now lock up and be difficult to turn by hand. *'If you have good hearing you may also hear a high pitch noise showing that the motor is powered up'*. If not turn off your power supply and re-check the above steps.
- Power off the power supply.

The Printer port pins are setup and configured as follows.

Step and Direction Signals + Limit & E - Stop Switches.

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	L - Stop
12	X-Home
13	Y-Home
15	Z-Home

- Run your chosen software package for example Routout CNC – Power on your power supply and try jogging the Motor through the software

△ NOTE If the motor runs the wrong way round change one of the phase wires i.e. swap 1A – 1B or swap 2A – 2B but don't swap them both, if you don't want to swap the pins most software like Routout CNC has the option to change the motor direction.

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