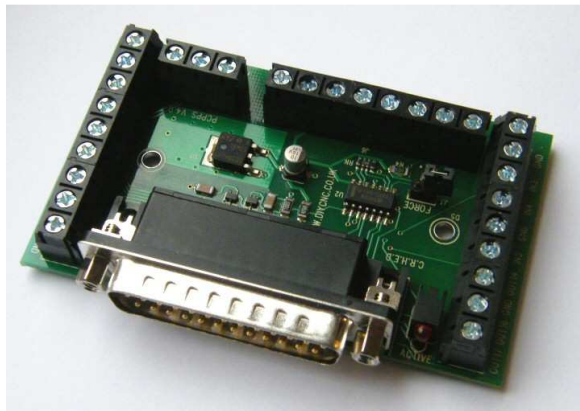


PCPPS

C R H Electronics Design



PCPPS V4

Parallel port interconnection board With charge pump & Buffered inputs

C R H Electronics Design Specification

- Individually marked signal terminal connection for all signals.
- High quality 2 layer PCB with silk screen legend.
- Surface mount components.
- Charge pump active enable L.E.D indicator.
- Onboard 5 volt regulator with spare 200mA power output pin.
- Buffered input pins with on board pull-up resistors
- 7 V Minimum to 30V Maximum power supply input voltage
- Board size 85 X 51 mm. FR4, 1oz copper, RoHS compliant.
- Ideal for coupling stepper motor boards, relays, switches etc to PC parallel port.

Hardware V4 Nov 12
Manual V4.0 Nov 12

PCPPS board is a standard parallel breakout board with the addition of a charge pump circuit and buffered input pins. The charge pump system makes use of the 12 KHz signal on pin one of the parallel port generated by the CNC software. This signal is only present when the program is up and running correctly. The logic level obtained from the signal can then control either an enable or sleep pin on the stepper motor drive board or boards. This effectively prevents any false movement of the motors while the machine is being powered up or down or even a software crash condition. A force jumper J3 is provided to override the charge pump signal for testing purposes. The board has its own onboard regulator and can be fed from the same supply as the stepper motors if restricted to 30V maximum. An external 5V output pin is available to feed other circuits, sensors, etc. The PCPPS V4 board uses surface mount technology and is only available ready assembled.

Connection table (set software to match table pin out)

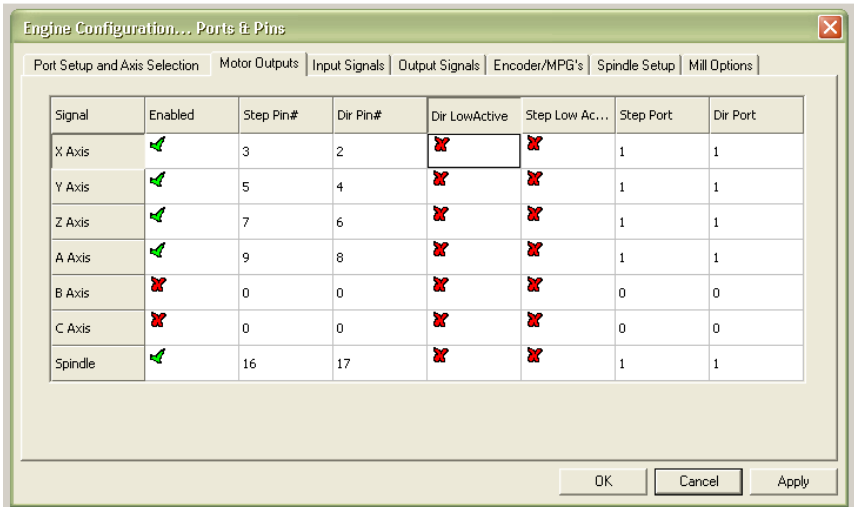
Parallel Port Pin	PCPPS	Input / Output
1	Charge pump signal	In
2	X Direction	Out
3	X Step	Out
4	Y Direction	Out
5	Y Step	Out
6	Z Direction	Out
7	Z Step	Out
8	A Direction (4th Axis)	Out
9	A Step (4th Axis)	Out
10	Input 1	In
11	Input 2	In
12	Input 3	In
13	Input 4	In
15	Input 5	In
14	Out 14	Out
16	Out 16	Out
17	Out 17	Out
18-25 ground pins	GND	
	PS OUT	Not used

The PCPPS board can be utilised with our own driver boards or any third party stepper driver that can work un-buffered, directly from the PC parallel port. The inputs to the PCPPS board are buffered to the PC with the built-in pull up resistors and make connections to e-stop buttons, limit switches etc very simple to implement without extra components being needed. Simply connecting a switch or button from any of the inputs to a ground connection is all that is required.

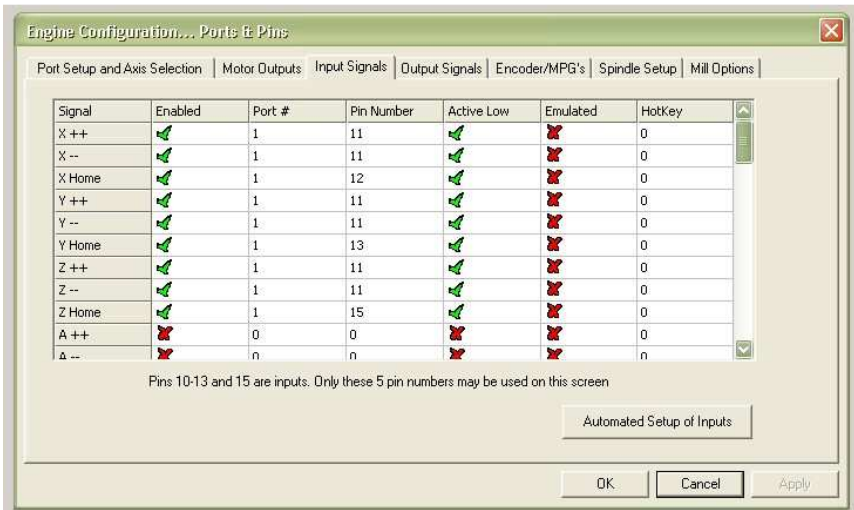
The input buffers do invert the polarity of the signal so that a low on the input creates a high on the output to the PC. This however can easily be configured in the software setup.

The following pictures show typical setups for outputs and inputs for Mach3 but alternative arrangements can be used. Pin 1 for Charge pump setting is a dedicated pin and cannot be changed.

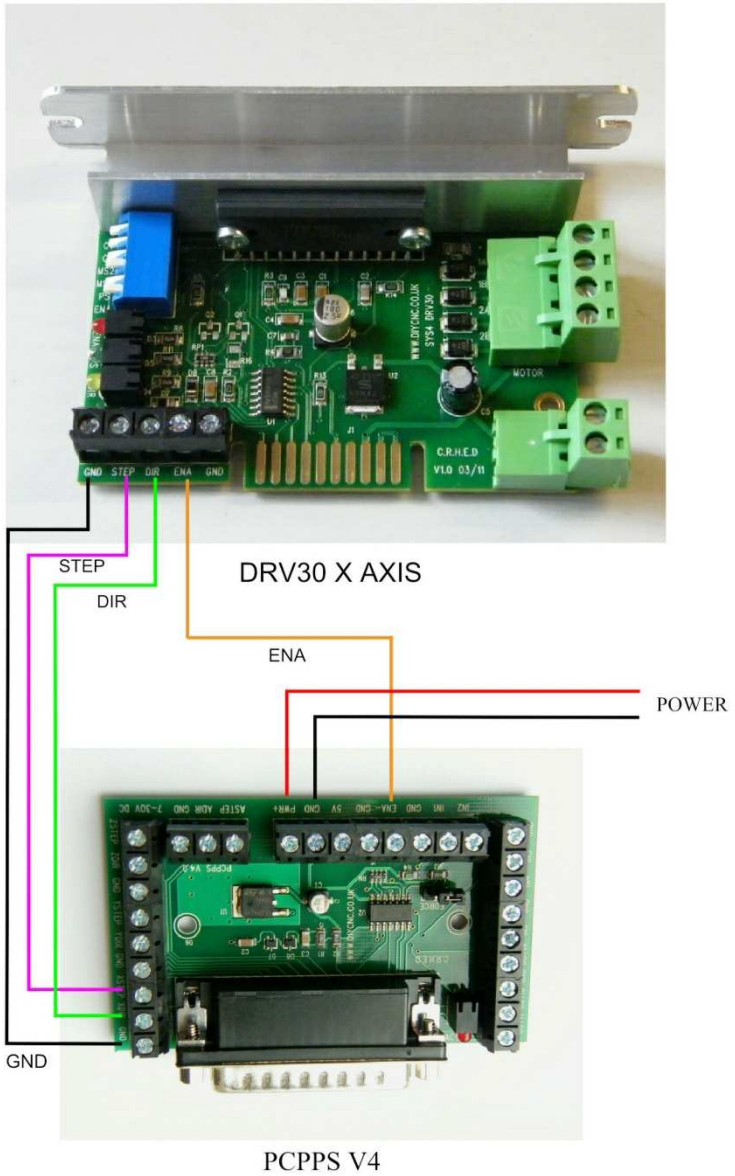
Typical Mach3 setup for stepper motors



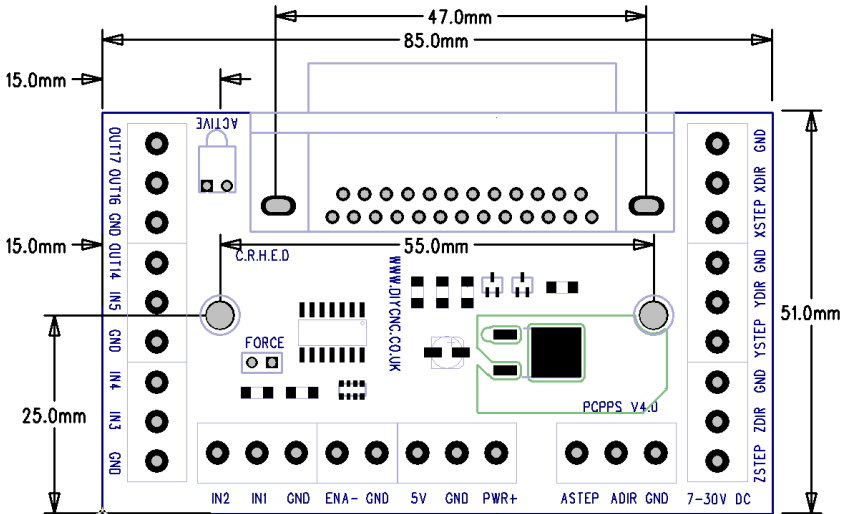
Input setup for limit and Home switches



Connections to DRV30 board on X Axis



PCPPS Dimensions



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