

PCPPS

C R H Electronics Design

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Parallel port interconnection board With optional charge pump & power save circuits

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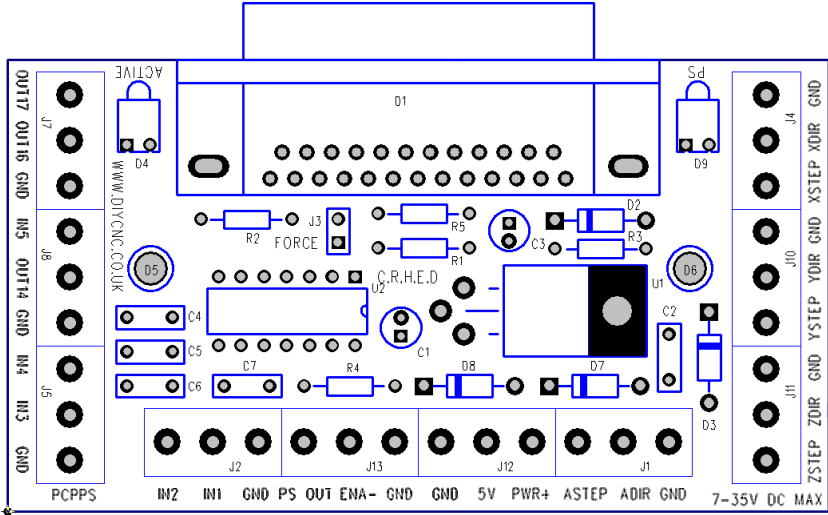
Specification

- Individually marked signal terminal connection for all signals.
- High quality 2 layer PCB with silk screen legend.
- Available in three version and easily upgradable.
- Optional Charge pump logic circuit drives enable line on driver boards.
- Optional PS (Power Save) output for Driver25PS stepper boards with active L.E.D indicator.
- Charge pump active enable L.E.D indicator.
- Onboard 5 volt regulator with 200mA power output pin.
- 7 V Minimum to 35V Maximum power supply input voltage
- Board size 91 X 50 mm. FR4, 1oz copper, RoHS compliant.
- Ideal for coupling stepper motor boards, relays, switches etc to PC parallel port.

PCPPS board is a standard parallel breakout board with the addition of an optional charge pump circuit and power save circuitry. 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. The board has its own onboard regulator and can be fed from the same supply as the stepper motors if restricted to 35V maximum. An external 5V output pin is made available to feed other circuits, sensors, etc. The PCPPS boards are available ready assembled or in kit form as PCPPS. Due to a

needed design modification the PCPPS-3 with power save option is only available ready built.

Component layout of PCPPS board

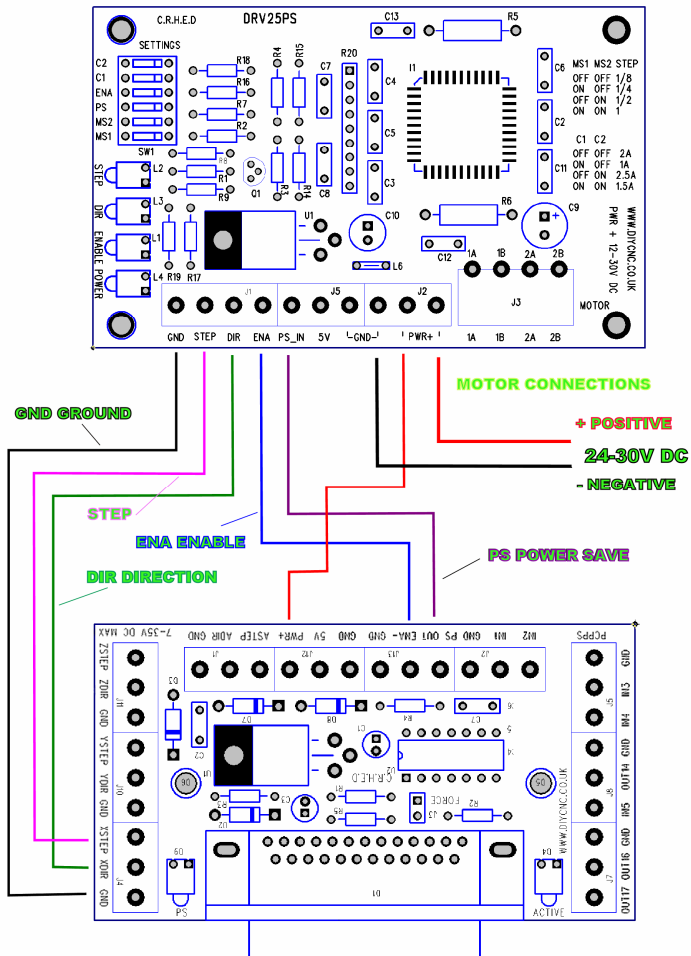


Connection table (set software to match table)

Parallel Port Pin	PCPPS	Input / Output
1	Charge pump signal	
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 (4 th Axis)	Out
9	A Step (4 th Axis)	Out
10	Input 1	In
11	Input 2	In
12	Input 3	In
13	Input 4	In
15	Input 5	In

14	Output	Out
16	Output	Out
17	Output	Out
18-25 ground pins	GND	

Connections to DRV25PS board X Axis



KIT CONSTRUCTION

Building the board should take less than 15-20 minutes. You will need a good soldering iron, preferably temperature controlled. The solder provided is lead free with an active flux. This helps it to flow easily but you need an extra 50 degrees higher temperature compared to lead solders. With reference to the board layout diagram start by placing the resistors as these have the longest leads and will need cropping after soldering. Next place the two diodes, the bar end goes to the square pad, followed by the three capacitors which also require cropping. The LED has a plastic holder to position it at right angles to the board. Slide the LED leads through the holder, noting that the long lead must end up on the square pad and then bend the leads through 90 degrees into the slots provide. The 7805 regulator is bolted to the P.C.B which helps with cooling when drawing extra power. Finally fit the CMOS inverter I'C, force jumper and the connector blocks. The blocks are manufactured in three terminals but there is an interlocking system built into there sides for multiplying the amount of terminals needed. Make sure that they are slid together before fitting to the PCB. The basic PCPPS-1 board has no components apart from connectors and the two central connectors J12 & J13 are absent.

Notes:

- J3 is a jumper, used to force operate the logic level without a signal being present. (normally left open)
- Long lead on LED is anode (goes to square pad)
- Match black bar on diode to silk screen overlay.
- Charge pump signal is taken from pin 1 of the parallel port (check your software configuration)
- Upgrades between versions are available (e-mail for details)

Component parts for PCPPS-1

D1 25 way male R/A connector

8 off 10A 5mm pitch three pin terminal blocks.

Lead free solder.

Component parts for PCPPS-2 (Charge pump option).

U1 7805 regulator

C1 10uF 16V Electrolytic capacitor

C2 0.1uF 100V Capacitor

- C3 1uF 64V Electrolytic capacitor
- R1 100k 5% ¼ W resistor
- R2 470 5% ¼ W resistor
- R3 10k 5% ¼ W resistor
- D4 LED 3mm Red
- D2, D3 1N1418 Diode
- U2 74HC04 hex CMOS inverter
- J3 Jumper
- D1 25 way male R/A connector
- 10 off 10A 5mm pitch three pin terminal blocks.
- Lead free solder.
- 3mm nut & bolt

PCPPS-3 is only available ready built.

Any problems or missing parts, please contact us (roy@diync.co.uk)

www.diync.co.uk

