

KTA-205 Parallel Port Breakout Board for CNC with Relays



- 4 Axis CNC Breakout Board
- Step, Direction and Limit Switch Connections for Each Axis
- 2 Relays with indicator LED's for Spindle, Coolant or Vacuum Control
- 3 Extra IO for further Expansion
- 12V or 24V DC Power Option

The Ocean Controls Parallel Port Breakout Board for CNC is a parallel (printer) port hardware interface designed for providing Stepper Motor control signals, and incorporates 2 relays for switching devices on and off.

The main circuitry consists of a buffer IC which boosts the weak parallel port signals to a level high enough to drive Stepper Motor Driver Circuits which use Opto-Couplers.

The Breakout Board provides 8 motor control output signals to control up to 4 Stepper Motor Drivers, 4 digital inputs designed for use as limit switch inputs, 2 Relay Outputs to control spindles, coolant or vacuums, and 3 general IO which are connected directly to the port.

The Breakout Board is available with 12V or 24V relays and requires power at the relay voltage.

Setup:

The Breakout Board is connected to the parallel port of a PC using a standard D25 male to female cable.

12VDC (or 24VDC) is connected between the V+ and COM terminals with positive connected to V+.

The Sx and Dx terminals are connected to each driver circuits STEP and DIRECTION inputs respectively. A connection between the driver circuit COM and the Breakout Board COM terminals may need to be made as well.

The Limit Switch inputs are labeled L1-L4 and are pulled high internally. To use a limit switch connect a Normally Open switch between the Lx and COM terminals.

The relays Normally Open, Common and Normally Closed terminals are available for both relays. I1 is an input with no pull up resistor and is directly connected to the parallel port of the PC. Care should be taken not to make incorrect connections.

IO1 and IO2 can be used as either Outputs or Inputs if the port is set in SPP mode, and are both directly connected to the parallel port of the PC. Again, care should be taken not to make incorrect connections so as to avoid damaging the parallel port.

A regulated 5V DC output is available via the terminal labeled 5V.

Software Settings:

Table 1 shows the signal connections, which are needed to set the CNC software up.

Table 1 Connections and Signals

Terminal	Description	D25 Pin No.	Signal	Register	Bit No.
V+	12VDC or 24VDC Input				
COM	Ground	18-25	Gnd		
5V	5V Output				
S1	Stepper Motor 1 STEP output	2	D0	Data	0
D1	Stepper Motor 1 DIRECTION output	3	D1	Data	1
S2	Stepper Motor 2 STEP output	4	D2	Data	2
D2	Stepper Motor 2 DIRECTION output	5	D3	Data	3
S3	Stepper Motor 3 STEP output	6	D4	Data	4
D3	Stepper Motor 3 DIRECTION output	7	D5	Data	5
S4	Stepper Motor 4 STEP output	8	D6	Data	6
D4	Stepper Motor 4 DIRECTION output	9	D7	Data	7
L1	Limit Switch 1 input	13	Select	Status	4
L2	Limit Switch 2 input	15	nError	Status	3
L3	Limit Switch 3 input	10	nAck	Status	6
L4	Limit Switch 4 input	12	PaperEnd	Status	5
NC1	Relay 1 Normally Closed Contact	17	nSelectIn	Control	3
C1	Relay 1 Common				
NO1	Relay 1 Normally Open Contact				
NC2	Relay 2 Normally Closed Contact	14	nAutoLF	Control	1
C2	Relay 2 Common				
NO2	Relay 2 Normally Open Contact				
I1	Extra Input 1	11	Busy	Status	7
IO1	Extra In/Out 1	1	nStrobe	Control	0
IO2	Extra In/Out 2	16	nInit	Control	3

System Configuration

