

# 3AXIS H-DRIVE MANUAL

**IMPORTANT! MUST READ THROUGH THE FOLLOWING BEFORE BEGINNING ANY PROCESS.**

## Interfacing With the Printer Port

This section explains the connections the driver board makes to your computers parallel port. This is where the printer plugs into. The pinouts cannot be changed. These are as follows:

Pin	Function
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2	X direction
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3	X step
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4	Y direction
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5	Y step
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6	Z direction
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7	Z step
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8	A direction
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9	A step
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10,11,12,13,15 are pulled up with a 10K resistor and are used for home/limit functions. Consult your software as to the type of switches needed.

14,16,17 are not pulled up and are available as needed.

18-25 Ground

**Refer to your software for your specific requirements.**

Be sure to use a DB25M to DB25F ALL lines wired straight thru parallel port cable.

## Current Adjustment MOST IMPORTANT!

The stepper motor current **MUST be adjusted before connecting any steppers** to the driver board.

Each axis can be adjusted to a different value. Current MUST be 500ma up to 3A per coil. With power applied to TB6 (12VDC min, 42VDC max) use a voltmeter with the black lead connected to TB6 terminal "minus" and the red lead touching the axis pad to the left of VR1, VR2, VR3, VR4. Clockwise movement increases the voltage, counter clockwise decreases the voltage. The following voltage MUST be set to achieve the correct amperage:

500ma = .103VDC

1A= .18VDC

1.5A= .27VDC

2A= .36VDC

2.5A= .45VDC

3A= .54VDC

For any amperage not shown use the following formula: desired amps times .18 equals Vref. Below .103VDC will disable the driver chip output. Keep Vref above .103V!

## Stepper Motor Hookup

This driver board will accept 5, 6 and 8 wire stepper motors rated at 500ma to 3A per coil. Over 2A per coil we recommend a heat sink and fan cooling. (4) wire BIPOLAR motors are not usable! The PCB silkscreen identifies which coil connects where. The coil commons connect to the 2 positions labeled "COM". Leads from "A" and "a" coil connect to positions labeled so. Likewise for "B" and "b". Simply reverse "A" for "a" and "a" for "A" connections to reverse the stepper motor direction. Most software allows for direction reversing. "Ballast" resistors are NOT required. Stepper motor leads should be kept as short as possible. 22ga stranded cabling will be fine for most applications.

## Microstepping

The driver board allows (4) different modes of driving your stepper motors. These can be set differently between each axis if desired. As a side note, 1/8 and 1/16 stepping MAY require quite a lot of computer process power! The Microstepping is set as follows:

1/2 step=J2 OFF J3 OFF

1/4 step=J2 ON J3 OFF

1/8 step= J2 OFF J3 ON

1/16 step= J2 ON J3 ON

For reference, the driver chip steps best with a "low to high" transition signal.

## Synchronous and Asynchronous Mode

Jumper J1 controls this function. **Synchronous function is recommended for use with 1/2 step mode only.** REMOVE J1 jumper for Synchronous mode. INSTALL J1 jumper for all other operating modes.

## Stepper Power Supply

The stepper power supply MUST be capable of providing 60% of the TOTAL current draw of the steppers. A 2.5A stepper will draw 5 Amps! For example: 4 steppers rated at 2.5A will draw a total of 20Amps. Adequate fusing must be used on both the AC and DC side.

**CAUTION:** NEVER connect or disconnect the stepper motors with power applied. This will blow the IC's! **Wait a few minutes for the capacitors to completely discharge before removing any stepper wires.** Best to measure for ZERO voltage at TB6. Steppers will get warm. Also the chopper frequency can be heard in the steppers. This is normal.