SeeMeCNC

4 Axis Driver Board setup for Mach3

User Guide
for 4 axis TB6560 driver board

4 Axis Parallel Port Stepper Motor Control Board

MODEL: HY-TB4DV-M   shipping with SeeMeCNC 3D printers May, 2012.

Contents

Product Features:

1. Toshiba TB6560AHQ stepper driver chip - High power, maximum 3.5A drive current chipset !
2. 1-1/16 microstep setting - Higher accuracy and smoother operation than standard 1, 1/2 step!
3. Adjustable drive current settings for each axis - 25%,50%,75%,100% of full current can be set for different stepper motors
4. Overload, over-current and over-temperature safety - Full protection for your computer and peripheral equipment !
5. On board current switching - Power output can be set according to specific user requirement !
6. Full closed-type optical isolation to protect the user's computer and equipment
7. Relay spindle☐interface - Outputs Max. 36V 7.5A for spindle motors or coolant pump (only one device can be powered by this output!)
8. 4 channel inputs interface- Can be used for XYZ limit☐and emergency stop !
9. Professional design - Two stage signal processing with super anti-jamming !
10. Bipolar constant current chopper drive with non-resonant region - Controls motors smoothly through range without creep effect !
11. Four control inputs (divided into pairs of knives) - Allows setting of limit and emergency stop !
12. Universal architecture - Supports most parallel software MACH3,KCAM4,EMC2 etc!

Dip Switch Settings:

Refer to Mr. Hackney

Current	1	2	Decay	3	4	Step	5	6
100%	ON	ON	FAST	ON	ON	1	ON	ON
75%	ON	OFF	25%	ON	OFF	1/2	ON	OFF
50%	OFF	ON	50%	OFF	ON	1/8	OFF	OFF
25%	OFF	OFF	SLOW	OFF	OFF	1/16	OFF	ON

POWER

*please note that SeeMeCNC has not verified this information

Power supply□DC 12-36V

*Voltage Selection Guidelines:
12-16V DC power supply for Nema 17 stepper motors
16-24V DC power supply for Nema□23 stepper motors
24-36V DC power supply for Nema□34 stepper motors

(High voltage will burn up the chips or stepper motors!!!)

Ampertage Selection:
Output current of the power supply□can be calculated by the following expressions:
Output current = Rated current of your stepper motors * quantity + 2A
(For example, if you want to drive□3 * 3A Nema 23 stepper motors, theoretically 24V 11A DC power supply is recommended, but higher power such as 24V 15A also will be good.
If you are not sure about the selection of power supply, please feel free to contact us for help)
The power output of 12V shall be applied to the radiator fan of 12V
Driver output compatible with 2 or 4 phase, 4,6 or 8 lead stepper motors, 3A max.

Suitable for unipolar or bipolar stepper motors.
Voltage regulated spindle speed controlled by parallel interface as function of supply voltage.

Connections:

The definition of 1-PIN 25 of Parallel Interface on the 4 axis driver board:

- We have made this table to resemble the Mach3 "Port & Pins" configuration screen.
- These settings are input into Mach3 under the settings for "PORTS AND PINS".
- Note that STEP and DIRECTION are set on the "MOTOR OUTPUTS" tab in Mach3. And the Enable PIN is set on the "OUTPUTS" tab in Mach3.

Signal	Step	Direction PIN	Enable PIN
X Axis	16	1	4
Y Axis	14	7	17
Z Axis	3	6	5
A Axis	9	8	5

Note:
- that's right, pin 5 is enable for Z and A axis
- It's recommended to install jumpers ONLY at the shown OPTO's. This eliminates signal loss due to poor component selection by board manufacturer.

The definition of 1-PIN15 of Manual Interface:

P1 Z/C Enable
P2   C Step
P3   Z Step
P4   X Dir
P5   X Enable
P6   Y Enable
P7   Y Dir
P8   Z Dir
P9   C Dir
P10   Spindle Motor
P11   Y Step
P12   X Step
P13   STOP
P14   GND
P15   5V/vdd

The definition of DB9 4 channel inputs interface:

P1   X Limit
P2   Y Limit
P3   Z Limit
P4   STOP
P5   Empty
P6   GND
P7   GND
P8   GND
P9   GND
P10   Input 1
P11   Input 2
P12   Input 3
P13   Input 4

Corresponding P10   Corresponding P11   Corresponding P12   Corresponding P13

Limit setting for reference:

The definition of output Interface:

P1	P2	P3	P4	P5	P6	P7	P8	
VDD	GND	XA+	XA-	XB+	XB-	YA+	YA-	

P9	P10	P11	P12	P13	P14	P15	P16	P17
YB+	YB-	ZA+	ZA-	ZB+	ZB-	MO/V+	GND	MO-