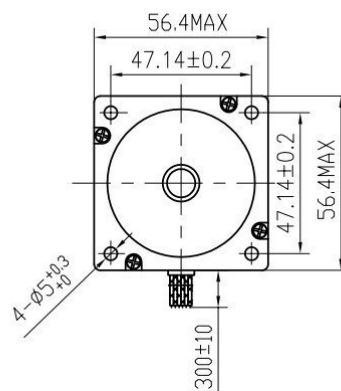
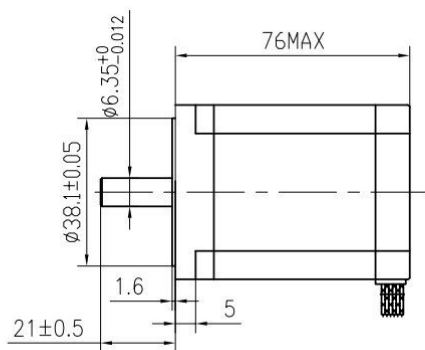
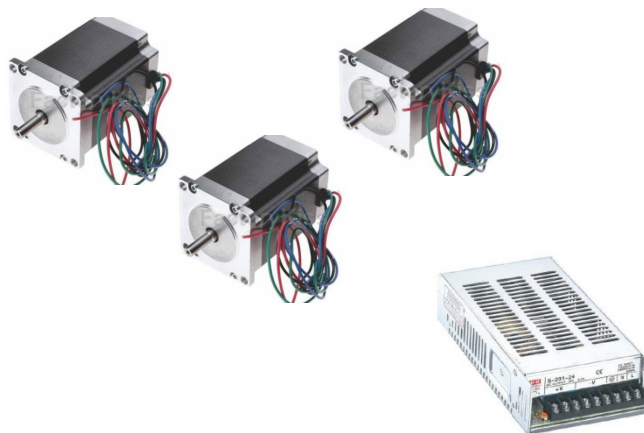
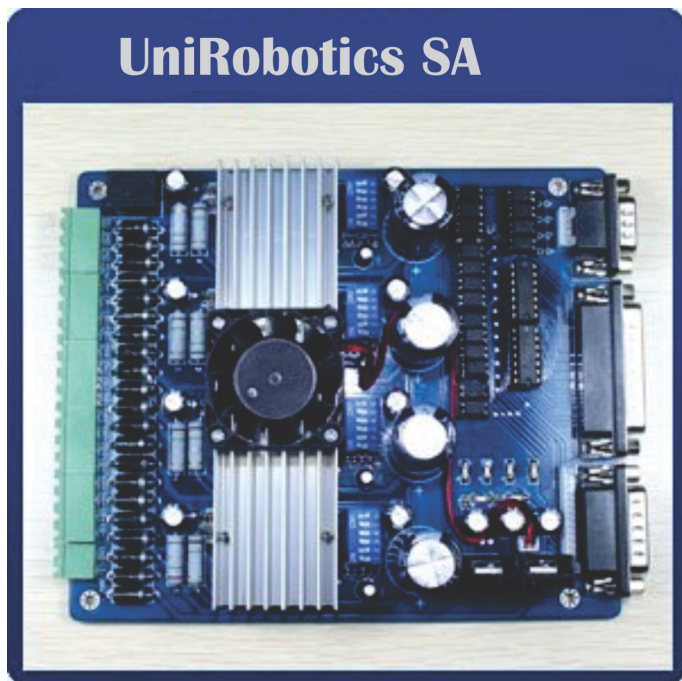


UniRobotics SA

- SBC4 and SBC5 Kits Instruction Manual

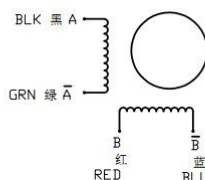
- Toshiba TB6560AHQ 4 Axis High power board –max 3.5A drive 1-1/16 micro-step setting
- Universal architecture - Supports most parallel software MACH3, KCAM4, EMC2 etc!

- 24Vdc Power Supply
- Nema23 1.9nm Stepper Motors
- Cable and connectors
- MC Mach3 CAM software



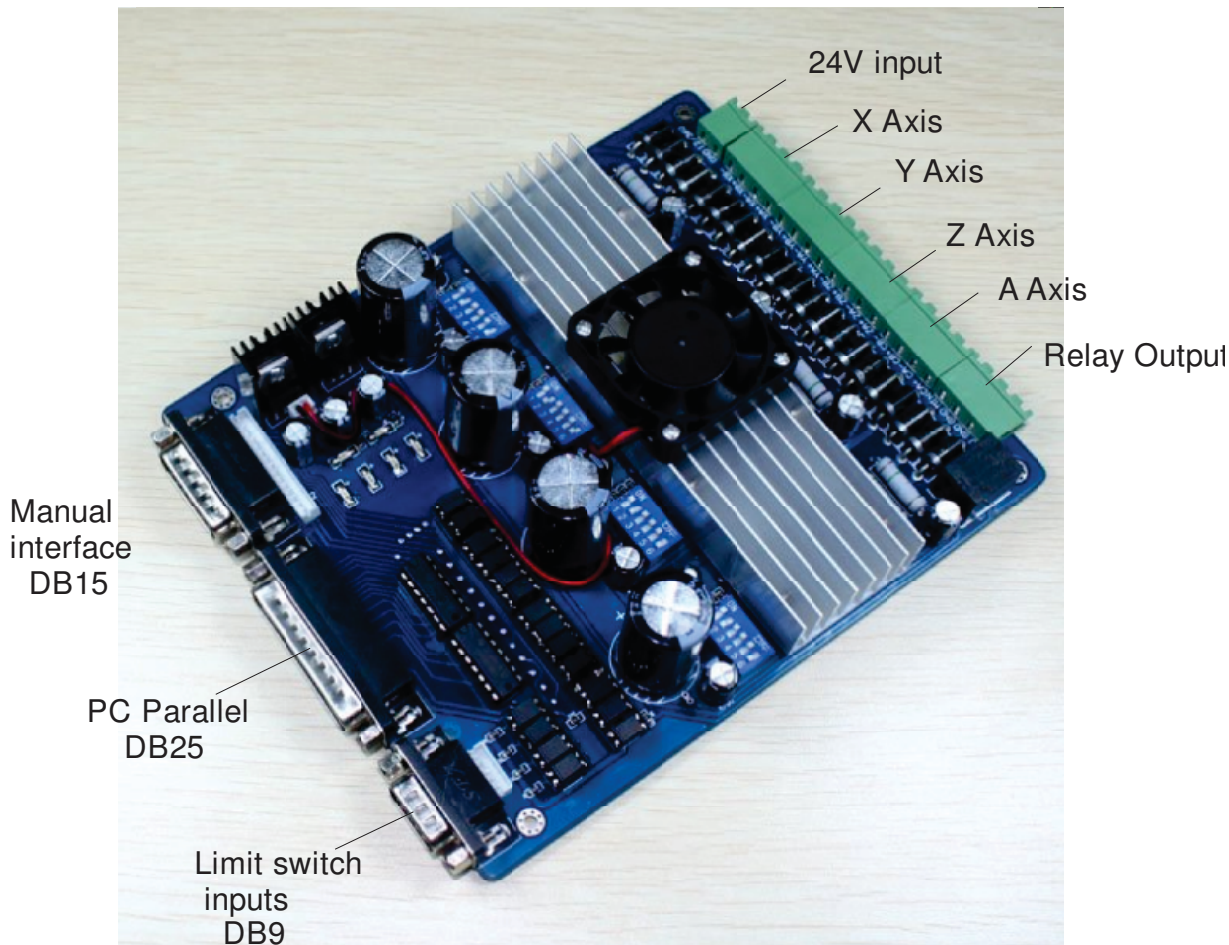
SPECIFICATIONS unit=mm

PHASE	相数	2 PHASE	COMMENT
STEP ANGLE	步距角	$1.8 \pm 5\%$ ° /STEP	
VOLTAGE	静电压	3.0V	
CURRENT	电流	3.0 A/PHASE	
RESISTANCE	电阻	$1.0 \pm 10\%$ Ω/PHASE	
INDUCTANCE	电感	$3.5 \pm 20\%$ mH/PHASE	
HOLDING TORQUE	静转矩	190 N.cm Min	
DETENT TORQUE	定位转矩	6.0N.cm Max	
INSULATION CLASS	绝缘等级	B	
LEAD STYLE	引出线规格	AWG22 UL1007	
ROTOR TORQUE	转动惯量	480 g.cm ²	



更改单号	签 名	日期	23HS8430	常州安科特电机有限公司 www.bct-motor.com.cn
设 计	ANDY	2011.9.2		审核标记
审 核				量 量
工 艺				比 例
标准				1 共 张
批准				

技术规格书



Installation Steps

Dip settings: (Default is 75%)

Current Setting	1	2	Decay Mode Settings	3	4	MicroStep Settings	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

1. Check that the dip switches are set to default as above. You can change to suit your requirements.
2. Connect the PC cable to your printer port and the Axis board
3. Connect the steppers onto the Axis board as follows: (Use supplied connectors)
A+ =Black
A- =Green
B+ =Red
B- =Blue
4. Connect the 24V power supply to the Axis board (with the supplied connector)
5. Do not switch the power on yet. Run the MACH3 software and configure as follows:
Install to a folder MACH3 on your C drive. Copy the file **Mach3Mill.xml** (from the folder SBC4 or SBC5 depending on whether your board is the 4 Axis or the 5 Axis) into your MACH3 Folder. They have all the settings set for the specific board. When you run MACH3, the settings will be in place. If you decide to

manually setup through MACH3, please follow these steps.

From the Main Menu select *Config/Ports and Pins/Motor Outputs*

Enable and enter the Step and Dir, Step Port and Dir Port exactly as below.

For The SBC4 set as:

Signal	Enabled	Step Pin#	Dir Pin#	Dir LowActive	Step Low Ac...	Step Port	Dir Port
X Axis		16	1			1	1
Y Axis		14	7			1	1
Z Axis		3	6			1	1
A Axis		9	8			1	1
B Axis		0	0			0	0
C Axis		2	8			0	0
Spindle		9	0			0	0

OK Cancel Apply

Next, click on Output Signals And then

Enable1,2,3,4 and Output#1 accordingly as below

Signal	Enabled	Port #	Pin Number	Active Low
Digit Trig		1	0	
Enable1		1	4	
Enable2		1	17	
Enable3		1	5	
Enable4		1	5	
Enable5		1	0	
Enable6		1	0	
Output #1		1	2	
Output #2		1	0	
Output #3		1	0	
Output #4		1	0	

Pins 2 - 9 , 1, 14, 16, and 17 are output pins. No other pin

确定 取消 应用(A)

For The SBC5 set as:

Engine Configuration... Ports & Pins

Port Setup and Axis Selection | Motor Outputs | Input Signals | Output Signals | Encoder/MPG's | Spindle Setup | Mill Options

Signal	Enabled	Step Pin#	Dir Pin#	Dir LowActive	Step Low Ac...	Step Port	Dir Port
X Axis		16	4			1	1
Y Axis		1	17			1	1
Z Axis		7	3			1	1
A Axis		5	6			1	1
B Axis		9	8			1	1
C Axis		0	0			0	0
Spindle		0	0			1	1

OK Cancel Apply

Engine Configuration... Ports & Pins

Port Setup and Axis Selection | Motor Outputs | Input Signals | Output Signals | Encoder/MPG's | Spindle Setup | Mill Options

Signal	Enabled	Port #	Pin Number	Active Low
Digit Trig		1	0	
Enable1		1	14	
Enable2		1	14	
Enable3		1	14	
Enable4		1	14	
Enable5		1	14	
Enable6		1	0	
Output #1		1	2	
Output #2		1	0	
Output #3		1	0	
Output #4		1	0	

Pins 2 - 9 , 1, 14, 16, and 17 are output pins. No other pin numbers should be used.

OK Cancel Apply

Setup Complete - Exit Mach3, Plug in power to the board.

Load Mach3

Press **Reset**

To test the steppers, the default settings are:

X Axis Stepper: **Right/Left Arrow**

Y Axis Stepper: **Up/Down Arrow**

Z Axis Stepper: **PgUp/PgDn**

A Axis Stepper: **Home/End**

B Axis Stepper: **Insert/Delete**

Note: You can change these Hotkeys from the main Menu: *Config/System Hotkeys*

These are the basic setup of Mach3. You may need to further tweak the speed, velocity and any other modifications necessary. You should read the Manual for more details using the MACH3 software

Appendix I - Interfacing

UniRobotics SA Inc

The Parallel Interface on the Axis boards is used to interface the computer printer port.

The Manual interface can be ignored if you are not using external controlling devices such as PIC or other microcontrollers.

Note Well: The C and D axis printed on the boards refer to the A and B axis respectively in MACH3

For SBC4 Boards

AXIS	STEP	DIR	ENABLE
X	Pin16	Pin1	Pin14
Y	Pin14	Pin7	Pin14
Z	Pin3	Pin6	Pin14
A	Pin9	Pin8	Pin14
Spindle	Pin9	Pin0	-

In the *Motor Outputs* you will only enter the **Step Pin#** and **Dir Pin#** corresponding to the Axis for X, Y, Z, A & B
The **Step Port** and **Dir Port** should be 1

In the *Output Signals* you will only enter the **Pin Number** corresponding to the ENABLE pins for Axis X, Y, Z, A & B
The **Port#** is default 1

Manual Interface using the DB15 connector

AXIS	STEP	DIR	ENABLE
X	Pin12	Pin4	Pin5
Y	Pin11	Pin7	Pin6
Z	Pin3	Pin8	Pin1
A	Pin2	Pin9	Pin1
Spindle	Pin10	-	-
STOP	Pin13	-	-
GND	Pin14	-	-
5V/vdd	Pin15	-	-

For SBC5 Boards

AXIS	STEP	DIR	ENABLE
X	Pin16	Pin4	Pin14
Y	Pin1	Pin17	Pin14
Z	Pin7	Pin3	Pin14
A	Pin5	Pin6	Pin14
B	Pin9	Pin8	Pin14
Spindle	Pin0	Pin0	-

In the *Motor Outputs* you will only enter the **Step Pin#** and **Dir Pin#** corresponding to the Axis for X, Y, Z, A & B
The **Step Port** and **Dir Port** should be 1

In the *Output Signals* you will only enter the **Pin Number** corresponding to the ENABLE pins for Axis X, Y, Z, A & B
The **Port#** is default 1

Manual Interface using the DB15 connector

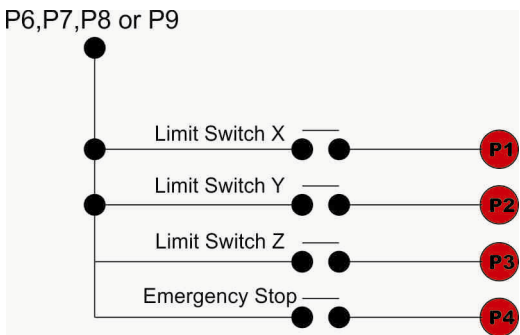
AXIS	STEP	DIR	ENABLE
X	Pin4	Pin5	Pin1
Y	Pin12	Pin6	Pin1
Z	Pin3	Pin7	Pin1
A	Pin2	Pin8	Pin1
B	Pin11	Pin9	Pin1
Spindle	Pin10	-	-
STOP	Pin13	-	-
GND	Pin14	-	-
5V/vdd	Pin15	-	-

Appendix I - Inputs

For SBC4 &SBC5 Boards

DB9 4 interface (Used for inputs from limit switches etc)

P1	P2	P3	P4	P5	P6	P7	P8	P9
X Limit	Y Limit	Z Limit	STOP	Empty	GND	GND	GND	GND



In MACH3 you will enter: 10 for X, 11 for Y, 12 for Z and 13 for EStop as:

Engine Configuration... Ports & Pins

Port Setup and Axis Selection | Motor Outputs | Input Signals | Output Signals | Encoder/MPG's | Spindle Setup | Mill Options

Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X ++		1	10			0
X --		1	10			0
X Home		1	10			0
Y ++		1	11			0
Y --		1	11			0
Y Home		1	11			0
Z ++		1	12			0
Z --		1	12			0
Z Home		1	12			0
A ++		1	12			0
A --		1	12			0

Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be used on this screen

Automated Setup of Inputs

OK | Cancel | Apply

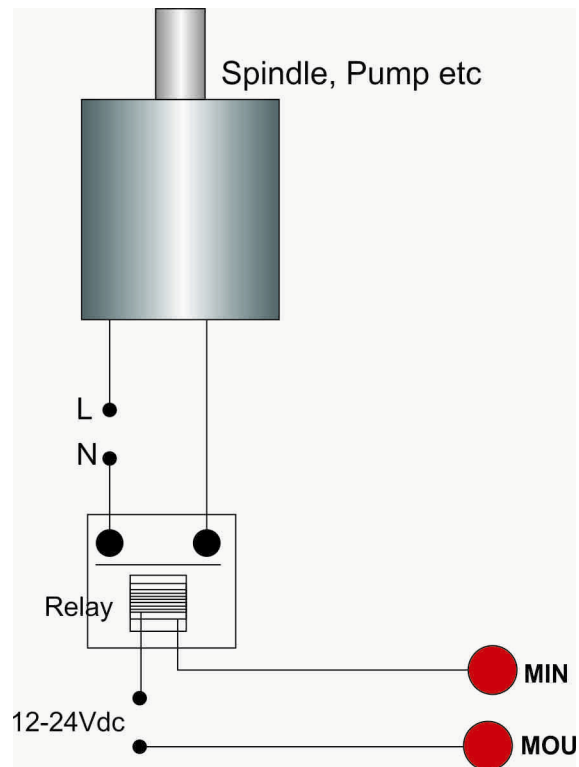
Index		1	0			0
Limit Ovrd		1	0			0
EStop		0	13			0
THC On		1	0			0
THC Up		1	0			0

Relay For Spindle, Pump etc

The Relay connector is the Spindle pin entered in MACH3. The pins are named MIN and MOU on the boards. Ignore the two GND pins

WARNING: Do not put any mains current through the built in relay on the board. Use an external relay to switch on/off the spindle, pump etc.

Recommended circuit wiring of the relay and spindle as:



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