Changzhou RATTM Motor Co., Ltd



Content

1	ove	erview
	1.11	Products brief introduction
	1.2 (Computer system requirement
	1.3 I	Production appearance and size4
	1.4 1	note and warning
2	det	ailed functional introduction
	2.1	electrical parameters
	2.2 f	function and definition of each module10
3	softv	ware installation
	3.1	DirectX installation
	3.2	NETFRAME3.5 installation
	3.1	Install USBCNC
	3.2	Install the USB driver错误! 未定义书签。
	3.3	Software registration
4	SC	oftware usage
	4.1	Common settings错误!未定义书签。
	4.2	software utilization

overview

▶ 1.1 Products brief introduction

1

USBCNCV4.0 is a high performance motion controller which based on PC software USBCNC control, the system can complete the conversion from G code to connect stepper motor's driver motion control signal without requiring any additional hardware and software. This control card is compatible with most stepper driver and servo driver, it is a perfect controller that instead of parallel Mach3 interface board.

▶ **1.2** Computer system requirement

Minimum configuration:

- 1) CPU:1GHz
- 2) Memory: 512MB
- 3) 500MB free disk space
- 4) DIRECTX9 graphics device with WDDM 1.0 or higher driver
- 5) USB 2.0 interface
- 6) Net FRAMEWORK 3.5SP1

The recommended configuration:

- 1) CPU:2GHz dikaryon
- 2) Memory: 2GB;
- 3) 1G free disk space
- 4) DIRECTX9 graphics device with WDDM 1.0 or higher driver
- 5) USB 2.0 interface
- 6) Net FRAMEWORK 3.5SP1



interface and DB9 hand control interface for the convenience of customers drawn from the case panel directly;

3. The back-end of narrow edge is power input and output interface and 3 relay output interface; relay is strong interference source, relay away from the design of main control chip, it is conducive to the stability of the board;

4.One of the two wide sides is stepper motor and principal axiscontrol signal output;

5. The another side of two wide sides is the emergency stop, manual speed input, limiting input interface; one side for the input, another side output connection mode is simple and convenient;

6.5V and 12V power module compact independence, security, stability;

7. External ensure the stability of the system work effectively with crystal active and main control chip shield;





Figure 1-1. Product outline dimension drawing

As Figure 1-1shown, outline dimension is 135.3*82.5mm, product positioning hole installment dimension is 127*75mm



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Figure1-2. the overall appearance picture



Figure 1-3. features 1 main control chip



Figure 1-4. features 2 stable power supply system



Figure 1-5. features 3 double regulated power supply

▶ 1.4 Note and Warning



2 Detailed functional introduction

> 2.1 electrical parameters

- A. Card input voltage: 15~36V;
- B. Limit port working voltage: 12V;
- C. Stepper motor control signal output voltage: 5V;
- D. External power supply voltage: 12V;



output interface, can not wiring wrong.

2.2 Function and definition of each module



Figure2-1 features 3 double regulated power supply

A) USB interface, connect to the computer USB port through this interface, you can use the software usbcnc to control this board, this USB interface is the square B interface, please use USB2.0 connection cable which with shielding and magnetic and not to exceed 2 meters in length.

B) Hand control box interface, external hand control box can use this interface to access the system, the interface is standard DB9 form, its definition as shown in the following table.

	Table 4-1	Hand control	interface	definition
--	-----------	--------------	-----------	------------

Interface serial number	1	2	3	4	5
Interface definition	Common port	A axis corotation	Z axis down	Y axis forward	X axis left move
Interface serial number		6	7	8	9
Interface definition		A axis reversal	Z axis up	Y axis back	X axis right move

C) Power indicator, as shown in figure the above D10 indicator is the front-end USB power indicator, this light lit up after USB port connection with computer, D2 in below is the back -end power indicator light, this light also will lit up when board card work power access with it.

D) Board card firmware upgrade button UP and reset button RST, firmware has been updated, so upgrade button don't need to use, reset button be used when need to restart due to the board fault.

E) Manual speed control interface, wiring connection mode as shown in the following figure .



Figure 2-2 Manual speed control interface connection mode

F) Limit input interface. Limit interface definitions are listed in the following table

Interface serial number	12V	MIX	12V	MAX	12V
Interface definition	Switch common port	X lower limit	Switch common port	X upper limit	Switch common port
Interface serial number	MIY	12V	MAY	GND	
Interface definition	Y lower limit	Switch common port	Y upper limit	GND	
Interface serial number	12V	MIZ	12V	MAZ	12V
Interface definition	Switch common port	Z lower limit	Switch common port	Z upper limit	Switch common port
Interface serial number	MIA	12V	MAA	GND	
Interface definition	A lower limit	Switch common port	A upper limit	GND	

Limit switch connection as shown in figure 1-8~ figure 1-10



Figure 2-3. Common microswitch connection method



Figure 2-4. 2 wire inductive proximity switch connection

RATTM MOTOR



Figure 2-5. 3 wire inductive proximity switch connection

G) Spindle control selector switch, as shown in Figure 1-6, the switch shift up to the S1 position for the spindle speed control ; switching switch position On below for output control MIST relay .

H) External pause and reset interface; the 2 feet marked PAUSE connect suspend switch, 2 feet marked RESET connection reset switch.

I) Software MIST control relay output, software settings output marked 3, defined from top to bottom, 3 feet is **NC**, **NO**, **COM**.

J) Software FLOOD control relay output ,output marked 2 in the software settings , defined from top to bottom, 3 feet is **NC**, **NO**, **COM**.

K) Software SPINDLE control relay output, output marked 1 in the software settings, defined from top to bottom, 3 feet is **NC**, **NO**, **COM**.

L) Board working power input, levels above negative below as the board signed, please pay attention to input DC 15~36V, overvoltage or reverse connection will damage the board.

M) 12V output interface. as the board marked, GND is -, 12V is +.

N) Spindle control output interface: definitions turn for GND DIR PWM2 12V, respectively is ground, direction signal output, spindle 0~10V speed control signal output, 12V output.

O) A axis stepper motor control signal output, the definition

is:CK+\CK-\DIR+\DIR-,respectively is impulsion positive, impulsion negative, direction positive, direction negative, the board using common anode connection method, so CK+ and DIR+ linked together to contact to the 5V on the board, this board does not support the common cathode connection method, the specific wiring methods refer to figure 1-11. This board does not contain the enable control, now most of driver in the market should not connect with the EN signal and directly work regularly by default .



Figure2-6 connection methods with stepper motor drives

P) Z axis stepper motor control signal output, the definition is CK+\CK-\DIR+\DIR-, respectively for pulse positive, pulse negative, direction positive , direction negative, the board using anode common connection method, so CK+ and DIR+ linked together connect to the 5V on the board,this board does not support the common cathode connection method. Q) Y axis stepper motor control signal output, the definition is CK+\CK-\DIR+\DIR-,respectively for pulse positive, pulse negative, direction positive , direction negative, the board using anode common connection method, so CK+ and DIR+ linked together connect to the 5V on the board,this board does not support the common cathode connection method.

R)X axis stepper motor control signal output, the definition is CK+\CK-\DIR+\DIR-,respectively for pulse positive, pulse negative, direction positive , direction negative, the board using anode common connection method, so CK+ and DIR+ linked together connect to the 5V on the board,this board does not support the common cathode connection method.

Software installation

3.1 DirectX Install

3

In real that install this softare is a little complex, because it developed by vc.net, and it need directx and .net framework software package support, also be strict required for these 2 type software package version, so it is better use our software to install which is in our CD, if meet the software package conflict or can't run the software after install it, pls use a new system PC to install this software, **pls remember this!**

16

Our CD contain USBCNC software, driver, directx and net framework, user manual, software install guide and register code.each controller match independent register code, so when you get pls safe keeping it.



Figure 3-2. DIRECTX 1 installation process

Click accept and next step, 正在安装 Ticrosoft(R) DirectX(R) DirectI 安装程序 安装 DirectX 运行时组件 DirectI 运行时安装: 此安装包将搜索更新的 DirectX 运行时组件并在需要时更新。这需 要几分钟时间。 要启动安装, 请单击"下一步"。 〈上一步(18)下一步(18)〉 取消 Figure 3-3. DIRECTX 1 installation process Continue to next step dotnetfx35 NET Framework 3. Microsoft Corpor 2: Run "dotnetfx35" install "net framework3.5sp1."

欢迎使用安装程序	.Net	ramework
请确保仔细阅读并理解许可条款 安装该软件。	中说明的所有权利和限制。必须打	接受许可条款才能
MICROSOFT 软件	补充程序许可条款	
MICROSOFT .NET	FRAMEWORK 3.5	SP1 FOR 🥃
按 Page Down 键可查看更多文本(内容。	打印(2)
 我已经阅读并接受许可协议中 我不接受许可协议中的条款 @ 	的条款(<u>A</u>) [)	
□ 将我的安装体验信息发送给 M 关于数据收集策略的详细信息	licrosoft Corporation(<u>S</u>) •	
下载文件大小:	20 MB	
估计下载时间:	51 分钟(56 kbps) 5 分钟(512 kbps)	
	安	装① > 取消
Figure 3-	-4. NETFRAME3.5 1 insta	llation
accept then click install		
ccept then click install	ework 3.5 SP1 安装程序	
ccept then click install 了 Licrosoft . NET France 下载和安装进度	ework 3.5 SP1 安装程序	F ramework
ccept then click install Jicrosoft . NET Frame 下载和安装进度 正在下载:	ework 3.5 SP1 安装程序	Framework
cept then click install 下载和安装进度 正在下载:	ework 3.5 SP1 安装程序	Framework
cept then click install 下载和安装进度 正在下载: 计态: 当前传输速率为 21 KB/ 身体下载进度	ework 3.5 SP1 安装程序 Microsoft でででででででです。	Framework
cept then click install 「 す ま で る で ま で ち で ま で ち で ま つ て ま た の て ち ち で ち た ち で ち た ち で ち た ち で ち た ち で ち た ち で ち た ち で ち た ち た ち た ち で ち た ち た ち た ち た ち た ち た ち た ち た ち た ち た ち た ち た ち ち ち ち ち ち ち ち ち ち ち ち ち	ework 3.5 SP1 安装程序 Microsoft ででで や * * * * * * * * * * * * *	Framework
cept then click install 下载和安装进度 正在下载: 正在下载: 状态: 当前传输速率为 21 KB/ 总体下载进度:	evork 3.5 SP1 安装程序 Microsoft COCC MICROSO MICROSOFT COCC MICROSOF	Framework
ccept then click install 「 すまれ安装进度 正在下载:	evork 3.5 SP1 安装程序 filerosoft fi	Framework
ccept then click install 「 で ま の で ま う こ で ま う こ で ま う で ま う こ の で ま う こ の た ち う こ の た ち う こ の た ち つ こ た ち う こ の た う こ た ち つ こ た ち う こ た ち う こ た ち う こ た ち う こ た ち う こ た ち う こ た ち こ た ち こ た ち こ た ち こ こ た ち う こ た ち こ た ち こ た ち こ た ち こ た う こ ち ち こ ち ち こ ち ち こ ち ち こ ち ち こ ち ち こ ち ち ち う ち う ち う ち う ち う ち う ち う ち う ち う ち う ち う ち う う う ち う う う う う う う う う う う う う	evork 3.5 SP1 安装程序 filerosoft fi	Framework
ccept then click install 「 で ま う で ま う て ま で ま つ て ま た の で ま う て ち た で ま う て ち た で ま う て ち た で ま う て ち た た で ま う て ち た た た た た た た た た た た た た	evork 3.5 SP1 安裝程序 ficesoft file 都. 4 MB / 63 MB	Framework
Accept then click install 「icrosoft . NEI Fram 下载和安装进度 正在下载:	evork 3.5 SP1 安裝程序 能 都 4 MB / 63 MB	Framework
ccept then click install 下載和安装进度 正在下載:	evork 3.5 SP1 安裝程序 file file 都. 4 MB / 63 MB	Framework
Accept then click install 「 icrosoft . NET Fram 下载和安装进度 正在下载:	ework 3.5 SP1 安装程序	下amework
Accept then click install 「 icrosoft . HET Fram 下载和安装进度 正在下载:	evork 3.5 SP1 安装程序 能 後 4 MB / 63 MB	下amework

18

Continue to click "ok"



Figure 3-7. USBCNC installation step 2

Slect suitable install path, then "next"

	j🗗 Setup - CNC USB Controller
	Select Start Menu Folder Where should Setup place the program's shortcuts?
	Setup will create the program's shortcuts in the following Start Menu folder.
	To continue, click Next. If you would like to select a different folder, click Browse.
	CNC USB Controller
	Figure 3-8. USBCNC installation step 3
<i>((</i>	
"next"	
	t⊋ Setup - CNC USB Controller
	Peady to Install
	Setup is now ready to begin installing CNC USB Controller on your computer.
	Click Install to continue with the installation, or click Back if you want to review or change any settings.
	Destination location:
	Start Menu folder:
	CNC USB Controller

Figure 3-9. USBCNC installation step 4

20



Figure 3-11. the USB driver installation step 1

Click "INSTALL" to begin

"next"

🔂 Setup - CNC USB Controller Driver
Select Destination Location Where should CNC USB Controller Driver be installed?
Setup will install CNC USB Controller Driver into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
d:\Program Files\CNC USB Controller\Driver Browse
At least 1.2 MB of free disk space is required.
< <u>Back</u> <u>N</u> ext > Cancel
Figure 3-12. the USB driver installation step 2

Select path, pls keep the same path with main program

	Betup - CNC USB Controller Driver Select Destination Location Where should CNC USB Controller Driver be installed?	×
	Setup will install CNC USB Controller Driver into the following folder.	
	Folder Exists	
Q	The folder: d:\Program Files\CNC USB Controller\Driver already exists. Would you like to install to that folder anyway? 是(Y) 否(Y)	
	At least 1.2 MB of free disk space is required.	

Figure 3-13. the USB driver installation step 1

Here I change to D disk, so see above and click "Yes"

22



Figure 3-15. the USB driver installation step 1

Click "finish" Now the software install work is finished

Software register 3.5

The register is important and if un-successful register, the software won't work, so pls be careful to follow our guide.

1: After install the "usbcnc", to find the "usbcnc" software, so I setup a shortcut for this software on

table,double click "usbcnc"

CNC CNCUSBController 快捷方式 enter it

158

TOTION

1 KB



Figure 3-16. the main interface of software

2: Connect USBCNC controller to the PC by usb cable (pls use back usb port 2.0 type), then will display below



Figure 3-17. the interface by YES

Click"Yes", then display below

🕙 CR	IC USB Controller	
File	e View Program Machine	Help
	Position State P	rogram 2
9.0	Offset W T	
a	• X: 0.	0000
XY	Y : 0	
þľ	0 7: 0	icense activation
		Activation Code
32	JA. 0	• Controller Board
G28		MUFK-WOQJ-OGTK-UOQY Serial: 035991
838		Registration Key
2.6		
32		
2.0		
1 at 5		
az	F: 0	OK Cancel
Sz*		
9.12		🔺
TOOL 词 區	Y Y	
TOOL	Y Z	
91 10	F: 250	
HOME	I	
0/14		

Figure 3-18. software registration interface

Chapter five question and answer

Here pls co	py the register code(in the CD) to the "registration key"
	🕞 key - 记事本
	文件 (P) 编辑 (E) 格式 (D) 查看 (Y) 帮助 (H)
	MUFK-WOQJ-OGTK-UOQY kiaURIoVxnSIx/eYx1iWwDFTfS2zs4q1TieJFyibPczUjr0MIIcZjbFsPR4LAQBLAzgSK8ZtZ4c16yfDL2Zedg==

Figure 3-19. the disc inside the key file

Ln 1, Col 20

The "Key" file of CD see above, the first row character string pls check whether is same as in software, and the second row is key, pls copy this key to "registration key"

Activation Code	
💽 Controller Board	
MUFK-WOQJ-OGTK-UOQY	Serial: 035991
xnSIx/eYx1iWwDFTfS2zs4q1TieJFyibPcz	VjrOMIIcZjbFsPR4LAQBLAzgSK8ZtZ4c16yfDL2Zedg==
xnSIx/eYx1iWwDFTfS2zs4q1TieJFyibPcz	UjrOMIIcZjbFsPR4LAQBLAzgSK8ZtZ4c16yfDL2Zedg==

Figure 3-20. registration code copy to key bar

Click "OK" to confirm. Do not think that is over, there is a section, please read



The following figure 3-21. click the HELP menu in the activate license menu.

Click the"activate license" submenu in the "Help" menu

🕲 CR	C USB Controller		
File	View Program Machi	ne Help	
		I & & A A Q Q Q 🔍 🐺 澤 🦻	
	Position State Offset W T X: 0 Y: 0 Z: 0 A: 0	Program M .0000 .0000 License activation Activation Code	×
846 628 630 830 846 846		© Controller Board MUFK-WOQJ-OGTK-UOQY Serial: 035991 Registration Key	
	F: 0 x Y Y Z y Z F: 250	OK Cancel A .000 >)

Will display the register code dialog box again, then copy the second row content of "key" file to this dialog box



28

Click"OK", so all register job is finished to start work

4.1 Normal Setting

1: Software language setting



Click File Menu's submenu "Language", then chose your language

2: Software setting

Click submenu "Settings" of "File", then can configuration the software

30

File	View	Program	Machine	Help	
C)pen			/101	
C	Close			/102	
F	Recent	Files			Þ
1	Import	G-Code		/111	
1	Import	DXF		/112	
I	Import	PLT/HPGL	:	/113	
I	Emport	NC Drill		/114	
I	Emport	Gerber		/115	
1	Import	Image		/116	
I	Emport	Text		/117	
1	Emport	Airfoil		/118	
0	-Code	Wizard			ŀ
F	xport	Toolpath to	GCode	/141	
F	Ixport	Toolpath to	DXF	/142	
E	Export	Toolpath to	CSV	/143	
E	Axport	Toolpath to	Raw	/144	
S	Setting	çs		/151	
I	Import	Settings		/152	
F	Export	Settings	:	/153	
I	anguag	ge			•
E	Exit			/199	

Figure 4-2. software integrated set entrance

Enter	the	f_0	1014

Measure & Capture Materials Parameters I2C Notes Script General Axes 1 Axes 2 Axes 3 Misc Outputs Limit Jog Units Inches Display Machine type XYZ V Speed Inches XY-UV Distance 500.00 Image: Display Resolution 5.0000 Image: Display Resolution Source Image: Display Resolution SourceImage: Display Resolution Image: Display Resoluti	Input	Con	trol	Tools	Too	1 Change	Tool	Sensor
General Axes 1 Axes 2 Axes 3 Misc Outputs Limit Jog Units Inches Inches Inches Supervise Supervise <th>Measure &</th> <th>Capture</th> <th>Materia</th> <th>ls Par</th> <th>ameters</th> <th>I2C</th> <th>Notes</th> <th>Scripts</th>	Measure &	Capture	Materia	ls Par	ameters	I2C	Notes	Scripts
Units Inches Speed Feed 250.00 Iraverse 000 0verride 0verride Feed Only Default Colors Keys I0 Calibration	General	Axes 1	Axes 2	Axes 3	Misc	Outputs	Limit	Jog
	Units Mil Ind Speed Feed Traverse Override Override	limeters thes Feed Only	250.00 500.00		Display Machine t XY-UV Dis Display R Display S (restart : Hardware Skin	ype XYZ tance [esolution [egments [required) DirectX 	500.00	

Figure 4-3. software interface

As above display have 20 subpage, and we will description some usual setting as below

1. "General": This is the most usual setting

- "Units" have metric and inch to chose
- "Speed" have feed(working speed) and traverse(un-load speed), and the below select "override" and "override feed only" indicate the speed and the working speed is valid
- "Display" is display setting,the "machine type" have "XYZ"(normal cnc router) model,"hot wire"(foam cutting machine)model,"rotary"(A axis)model and "rotary ABC" (ABC rotary) model to chose
- "XY-UV" is distance setting, and then resolution setting and segment display setting
- "Hardware DirectX" to chose the whether you need use DX, if you need the flash effect will be more better, "Skin" is the skin choice, these 2 choice need re-start the PC can be valid
- "Default" button is enable all setting to be the original, be careful for this select
- "Colors" is the forms color
- "Keys" is the shortcut key setting
- "IO" is the state observation
- "Cabibration" is all axis calibration

Input Co	ntrol	Tools	To	ol Change	Tool	Sensor
leasure & Capture	Materia	ls Par	ameters	I2C	Notes	Scripts
eneral Axes 1	Axes 2	Axes 3	Misc	Outputs	Limit	Jog
Axes						
Number of Axes	4	¢ R				
	Name	F	unction			
Axis 1	X	*	*** *** *** ***	~		
Axis 2	Y	~		~		
Axis 3	Z	~		~		
Axis 4	A	~		~		
Axis 5		~		~		
Axis 6		~		~		
Axis 7		~		~		
Axis 8		~		~		
Axis 9		~		*		

44: 2. "AXES1" is

Figure 4-4. AXES1 is the number of the shaft and shaft name selection

Figure number of axes is the number of selected axis, behind the R button for each axis automatic distribution definition name. The following items are manually assigned each axis definition name.

32

Input (Control	Tools	To	ol Change		Tool S	ensor
easure & Captur	e Materi	als Parame	ters	I2C	N	otes	Scripts
eneral Axes	1 Axes 2	Axes 3	lisc	Output	ts	Limit	Jog
Axes	x	Y		Z		A	
Steps/Unit	200.000	200.000	-	200.000	**	200.000	*
Reverse			[
Invert Pulse			[
Acceleration-							
Initial speed	100.00	100.00	\$	100.00	\$	100.00	\$
Maximum speed	0.00	0.00	\$	0.00	\$	0.00	*
Acceleration	15.000	\$ 15.000	\$	15.000	*	15.000	\$
Backlash							
Backlash	0.0000	0.0000	•	0.0000	-	0.0000	\$
Park Positions	5						
Park 1	0.00	0.00	*	0.00	*	0.00	\$
Park 2	0.00	0.00	\$	0.00	*	0.00	\$

3."AXES2" i

Figure 4-5. axis pulse equivalent, velocity, acceleration, back to poor settings

- "Step/unit" is step per setting, means when move 1mm need the pulse number, the "reserse" is the direction choice, when you find the movement is oppositely, you can chose this,"invert pluse" is pluse direction choice.
- "initial speed" is the start speed,"Maximum speed" is the max speed, if 0 means the max speed is according to the system max speed
- "Backlash" setting need according to the real mechanical structure
- "Park positions" is cutter tools position choice, if need automatic tool changing need chose this

easure & Capture Materials Parameters I2C Notes Scrip eneral Axes 1 Axes 2 Axes 3 Misc Outputs Limit Jog X Y Z A Limits Limit Switch $ +$ $ +$ $ +$ $ +$ $ +$ Limit $-$ 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit Limit $+$ 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit Soft Limits Homing Enable Sequence 2 Z Z 1 $ +$ Speed 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit Direction $\bigcirc +$ $\bigcirc +$ $\bigcirc +$ Set Position -10.00 \diamondsuit 0.00 \diamondsuit 100 \diamondsuit 0.00 \diamondsuit Go To 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit	Toput	Control	Tools	Tool	Change	Tool	Sensor
eneral Axes 1 Axes 2 Axes 3 Misc Outputs Limit Jog X Y Z A Limits Limit Switch $ +$ $ +$ $ +$ $ +$ $ +$ Limit $-$ 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit Limit $+$ 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit Soft Limits Homing Enable Sequence 2 V 2 V 1 $ \lor$ Speed 0.00 \diamondsuit 0.00 \diamondsuit 0.00 \diamondsuit Direction $\bigcirc - + \bigcirc - + \bigcirc - \bigcirc +$ $\bigcirc - \bigcirc +$ Set Position $-10.00 \diamondsuit$ 0.00 \diamondsuit 100.00 \diamondsuit 0.00 \diamondsuit	easure & Captu	re Materi	als Para	meters	I2C	Notes	Scripts
X Y Z A Limits	eneral Axes	1 Axes 2	Axes 3	Misc	Outputs	Limit	Jog
Limit Switch $ +$ $ +$ $ +$ $ +$ $ +$ Limit $ 0.00$ 0.00 0.00 0.00 0.00 Limit $+$ 0.00 0.00 0.00 0.00 0.00 0.00 Soft Limits $ -$	Limits	x	Y	z		A	
Limit - 0.00 0.00	Limit Switch	+	· 🔲 - 🛛	+	- 🔲 +		- +
Limit + 0.00 ♀ 0.00 ♀ 0.00 ♀ 0.00 ♀ Soft Limits □ □ □ □ □ □ ♀ Homing Enable □ Sequence 2 ♀ 2 ♀ 1 ♀ ♀ Speed 0.00 ♀ 0.00 ♀ 0.00 ♀ 0.00 ♀ Direction ● - ○ + ● - ○ + ● - ○ + ● - ○ + Set Position □ 10.00 ♀ 0.00 ♀ 0.00 ♀ 0.00 ♀	Limit -	0.00	0.00	\$ 0.0	00	0.00	*
Soft Limits Homing Enable Sequence 2 2 1 > Speed 0.00 0.00 0.00 0.00 0 Direction • • + • + • + Set Position -10.00 100.00 0.00 0.00 • • Go To 0.00 • 0.00 • 50.00 • 0.00 •	Limit +	0.00	0.00	\$ 0.0	00	0.00	*
Homing Enable Sequence 2 2 1 ~ Speed 0.00 0.00 0.00 0.00 0.00 0.00 Direction • • + • + • + + Set Position -10.00 100.00 0.00 0.00 • • • Go To 0.00 0.00 50.00 0.00 • • • •	Soft Limits						
Enable Sequence 2 2 1 > Speed 0.00 0.00 0.00 0.00 0.00 0.00 Direction • • + • • + • • + Set Position • • • • • • • + Go To 0.00 • 0.00 • 50.00 • 0.00 •	Homing						
Sequence 2 2 1 Y Speed 0.00 0.00 0.00 0.00 0.00 0.00 Direction • • • • • • • • Set Position • • • • • • • • • Go To 0.00 • 0.00 • 50.00 • 0.00 •	Enable						
Speed 0.00 0.00 0.00 0.00 0.00 Direction • <	Sequence	2	2	✓ 1	~		~
Direction •	Speed	0.00	0.00	\$ 0.0)0 🛟	0.00	*
Set Position -10.00 -10.00 100.00 0.00 <td>Direction</td> <td>⊙- ○</td> <td>+ 💿 -</td> <td>0+)(C</td> <td>) - 💿 +</td> <td></td> <td>0+</td>	Direction	⊙ - ○	+ 💿 -	0+)(C) - 💿 +		0+
Go To 0.00 🗘 0.00 🗘 50.00 🗘 0.00 🗘	Set Position	-10.00	-10.00	\$ 100	0.00	0.00	-
	Go To	0.00	0.00	\$ 50.	00	0.00	\$
Return Distanc ₍ 5.0000 🗘	Return Distar	ac 5.0000	\$				
]

4."AXES3" is f

34

Figure 4-6. software limit and back to the origin set

- "-" and "+" of limit switch is soft limit setting, and "Limit -" and "Limit+" is upper limit and lower limit setting
- "enable" it is valid,"Sequence" is the sequence of all axis go to zero,"speed" is the speed setting,"direction" is go to zero direction setting,"set position" is setting the current position,"Go to" is setting the position want to move, and "Return distance" is setting for back distance

Input Contr Measure & Capture General Axes 1 -M3, M4, M5 (Spindle Output pin - On/Off	ol Tools Materials P Axes 2 Axes 3	Tool Change arameters I2C 3 Misc Outputs	Tool Sensor Notes Scripts Limit Jog
Measure & Capture General Axes 1 -M3, M4, M5 (Spindle Output pin - On/Off	Materials P Axes 2 Axes 3	arameters I2C 3 Misc Outputs	Notes Scripts Limit Jog
General Axes 1 -M3, M4, M5 (Spindle Output pin - On/Off	Axes 2 Axes (3 Mise Outputs	Limit Jog
-M3, M4, M5 (Spindle Output pin - On/Off)		
Output pin - Direct Output pin - Speed Min 300 Pause Delay CW On 0.0 CCW On 0.0 Vse RC Controller Lo 400	ion ✓ ✓ Max 30000 爻 Off 0.0 爻 Off 0.0 爻	Motor Enable (E-Stop Output pin On Exit M62, M63 Pout Qval Output pin M64, M65 Pout Qval Output pin Invert Invert Output 1 Invert Output 2 Invert Output 3	
		Invert Output 4	
-M7, M8, M9 (Coolant Output pin - Flood Output pin - Mist () (M8) 2 v (M7) 3 v	Invert Output 5 Invert Output 6 Invert Output 7	
Pause Output pin	>	Invert Motor Enable	

5."OUTPUT'

Figure 4-7. 3 relay outputs and the main control output settings

This board have 3 way relay output, and it could be setting in this column

M3,M4,M5 is spindle on/off,direction and speed,here can setting min and max value for the pluse to control the spindle speed

"Delay" can setting the delay time for the CW and CCW rotary, if the spindle inertia is big, it is should be setting delay

"User rc controller" to chose whether use RC controller

- M7M8M9 is for water cooling or mist cooling, the "flood" default is relay2, and the "mist" defult is relay3
- "Invert" is for relay ouput convert

35

2. Jog Manual Input

Measure & Capture	Material	s Paran	neters	I2C	Notes	Scripts
Input Con	trol	Tools	Too	l Change	Tool	Sensor
General Axes 1	Axes 2	Axes 3	Misc	Outputs	Limit	Jog
Jog						
Enable						
Invert						
Smon						
2 2 .						
Decelerate						
Distance	0.1000	\$				
Max Speed	1500.00	\$				
Shift Is Step						
L						

Figure 4-8. Jog manual input settings

"Enable" is for chose connect external manual control,our cnc board have this function, so pls chose it

"Invert" is electrical level convert, this product no need chose

"Swap" default chose

"decelerate" is whether need reduce the speed before stop, need chose it

"distance" is step distance, it is according to your required

"max speed" is the speed setting.

"Shift is step" is single step speed setting

The usual setting is all description, and then can control the cnc machine now

4.2 Software Usage

File	View Program Machine	Help	
1	Open	/101	
1	Close	/102	
	Recent Files		3 ·
	Import G-Code	/111	
1	Import DXF	/112	
	Import PLT/HPGL	/113	
	Import NC Drill	/114	
1	Import Gerber	/115	
	Import Image	/116	
	Import Text	/117	
:	Import Airfoil	/118	
į	G-Code Wizard		•
3	Export Toolpath to GCode	/141	
	Export Toolpath to DXF	/142	
	Export Toolpath to CSV	/143	
	Export Toolpath to Raw	/144	
-	Settings	/151	
	Import Settings	/152	
	Export Settings	/153	
3	Language		× .
-	Exit	/199	
10			

Click"file"menu,can open the file directly or input the G-code WDXF etc file,here we open a little bear diagram





This button is Reset, open, run, stop, suspend



This button is top view, side view, front view, space diagram, amplification, minification, scale tool, panoramagram

38



This button is mist cooling, water cooling, spindle on/off

4 This button is control each axis speed move to the position, from top to bottom is clear zero, go to zero, go to XY0, go to park 1, go to park 2, go to G28 and go to G30



This button is setting for offset, from top to bottom is clear zero, current position setting XY axis offset, current position setting Z axis offset, Z offset height value and cutter tool offset value

□偏移量 □ ₩	T M
• x:	5.0000
<u>о у:</u>	0.0000
○ Z:	5.0000
0 A:	0.0000

F:	0.00 🗢
F:	250.00 🗆
6,	>

This button is 4 axis coordinate display.

Now you can input G-code, and setting the software, then run the machine.

If any questions pls contact us!

40

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