OPERATION MANUAL

CNC MACHINING CENTER

WINTER ROUTERMAX BASIC

WARNING!

The operator must thoroughly read this manual before operation.
Keep this manual for future reference.

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Preface

Thank you for purchasing this CNC router.

All the safety instructions contained in this manual must be read carefully and must be fully understood before you attempt to use your CNC router, in order to avoid potential hazards than could cause bodily injury, property damage, or damage the CNC router.

CNC routers belong to the high precision CNC machine. Improper installation or usage maybe damaged the accuracy, stability or the lifetime of the machine. Please read this manual before install the machine and keep this for long-term use or maintenance.

Safety Marks

1. DANGER (Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.)

2. FORBIDDEN (Indicates forbidden to do.)

3. (Must to do.)

4. CAUTION: (Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or moderate injury.)

Caution

In order to safely and properly use this CNC router, please read this manual before use it. Please remember the principle and safety information of this machine and keep this manual for long term use.

Request about the operator

The operator must know the request and procedures about the installation, adjustment and running. And he must know how to overcome the emergency situations and have the following terms: 1.) Have taken the training before. 2.) The operator can run the machine commonly or run the machine safely according this manual. 3.) The operator can do turning on, turning off, clearing, grounding, connecting or other operations. 4.) The operator can use, repair and protect the machine.

The operator must do the following things.

1. Checking the safely appliance run properly or not.
2. Keep all operators alert before turn on the machine.
3. Keep clean worktable.
4. CNC routers may move unexpectedly, stay clear of machine at all times.
5. Wear safety glasses and hearing protection at all times when operating machine.

6. Use a grounded dust collection system to reduce hazard of explosion of airborne particles. Clean machine surfaces and lead screws periodically to remove any foreign material.

7. Don’t turn on the machine before preparation.

8. Press E-stop when meet hazard situation.

Warnings

1. This machine with hazard voltage, don’t open the door of the control box or electronics to avoid potential hazard.

2. This machine has well grounding appliance, the input power just permitted to connect with the permanent power cables.

3. The machine adjusted to be the working situation, don’t arbitrarily do any changes. Please do the changes by the professional engineers.

4. Avoid the children and non-operator far away from the machine.

5. Please read safety cautions, warnings and safety marks on the machine before installation and adjustment. Ensure to put the warning marks at the eyesight position and change the damaged or fall off marks.

6. Please read the manual and instruction carefully to install, adjustment and maintain the machine. Proper movement, assemble and maintenance can ensure the reliability of the machine.

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Abstract

Definition of the model

Producer: WINTER

Series: CNC router ROUTERMAX

Model: BASIC

Drive type: Stepper motor system

X axis travel size: 1300mm

Y axis travel size: 2500mm

Vacuum system type: Water Vacuum Pump

Dust collector (Hood only)

Automatic lubricating system

Spindle: 3,5kW

Control: DSP

Appendix

Parameters of CNC router

NO.	Description	Parameter
1	X, Y, Z Working Area	1300x2500x200mm
2	Table Size	1320×3040mm
3	X, Y, Z Traveling Positioning Accuracy	0.05/300mm
4	X, Y, Z Repositioning Positioning Accuracy	0.05mm
5	Table Surface	Vacuum system
6	X, Y Structure	Rack and Pinion Drive, Hiwin Rail Linear Bearings
7	Z Structure	Ball Screw, Hiwin Rail Linear Bearings
8	Max. Power Consumption (Without spindle)	2.0Kw
9	Max. Rapid Travel Rate	32000mm/min
10	Max. Working Speed	20000mm/min
11	Spindle Power Motor	3.5Kw air cooled spindle
12	Spindle Speed	0-18000RPM
13	Drive Motors	Stepper Motor
14	Working Voltage	AC220V/50Hz, 3PH
15	Command Language	G Code
16	Operating System	DSP System
17	Interface	USB
18	Net Weight	960KG
19	Gross Weight	1200KG

Setting up the CNC router

1. Work environment

1.) No dropping, no steam and no dust place.

2.) Ground is leveled, cleaned and no vibration.

3.) No interfere of electromagnetism

4.) Working environment temperature: -10ºC—40ºC. If the temperature reach to 40ºC, please keep good aeration.

5.) Input voltage is 380V/50Hz, capacity is 6KVA.

2. Setting up the machine

1.) Setting up CNC router

① After receiving the CNC router, please check for the following:

a.) Check to make sure that the package includes the thing listed by the manual.

b.) Inspect the unit to assure it was not damaged during shipment.

c.) Make sure that the part number indicated on the nameplate corresponds with the part number of your order.

② Use the cotton yarn to clean the anti-rust oil on the machine and put some lube on the machine.

2.) Setup DSP panel.

① Install DSP system. (Pic.1 & Pic.2)

First step: Connect the digital cable with the inverter hub on the control box.

Second step: Connect the other end of the digital cable with the DSP panel.

Characteristics about DSP system

① Totally independent from PC platform;

② Directly read files from U Disk;

③ Easily process G code or PLT file with super size;

④ Strong system and process file examining function;

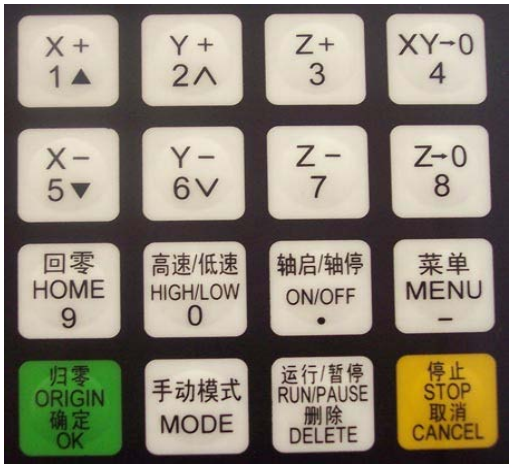
⑤ Easy to update system program;

⑥ It supports high micro step which makes precise and fast process possible;

⑦ Support to process part of the file;

⑧ Reliable data protection and recover function;

⑨ Friendly operating interface



Botton functions on the DSP panel

Positive movement of x axis, Menu upward, figure 1 inputting

Positive movement of Y axis, accelerate process speed, figure 2 inputting, different property selecting in Menu

Positive movement of Z axis, figure 3 inputting, rise spindle speed in process

Working origin of X axis and Y axis setting, figure 4 inputting

Negative movement of X axis; Menu downward, figure 5 inputting

Negative movement of Y axis; slowdown process speed; figure 6 inputting different property selecting in Menu

Negative movement of Z axis, figure 7 inputting, spindle speed adjusting in process

Z axis origin setting; figure 8 inputting

Axes home to machine tool origin, figure 9 inputting

Manual moving mode, high speed or low speed selection, figure 0 inputting

Spindle startup/stop, decimal point inputting

Menu setting entering, negative symbol inputting, multi process state checking,

All axes go working origin: confirm of motions /inputting/operating

Manual move, continue, step and distance modes selection

Cut process running/pause/inputted words delete

High/low speed parameter adjust, Cut process stop/selections, inputting and operating cancel

Compound buttons

1. “

”+ digit button, switch working coordinate;
2. “

”+“

” button, C.A.D function;
3. “

”+digit button, stop point process;
4. “

”+“

” button, advanced process;
5. “

”+“

”, help information;

There are some compound buttons for special applications. The operating mode is: press the first button and hold then press the second button, release the two buttons at same time.

Home Operating

Home is the machinery origin, Go to home operating refers to make all axes go back machinery origin. Home position depends on home sensor. Normally there are 3 sensors in an engraving machine. Goto home operating sets up the relationship between the machine and the working coordinates. And many system function applications rely on this operating, such as: stop point save, power off reboot and so on.

Warnings

1. Don’t use this product in strong magnetic filed or interfere environments;
2. Don’t PnP U Disk while it is running a file;
3. Protect it from water, moist, dust and fire:
4. Protect it from metal materials getting into the cover;
5. Forbad to open the cover, there is no any user maintainable parts inside;

Plug U Disk and other lines gentle

1. Go to home parameter includes Home Speed and Home Direction; and those parameter should be adjusted

in Menu. Home Speed refers to that 3 axes home speed, normally Z axis home speed should be lower than that of X and Y axes. Home Direction refers to which direction the axes go when it is under home process. It depends on the motor direction and Home sensor's location and sensor's property.

2. Entering Menu, cursor is on "Machine Setup" item, press 归零 ORIGIN 确定 OK button, press X− 5 ▼ move the cursor to "Home Setup" item, repress 归零 ORIGIN 确定 OK button to enter it, the cursor is on "Home Speed" item automatic ally, press 归零 ORIGIN 确定 OK to enter and set 3 axes speed.
3. Speed limit Press 归零 ORIGIN 确定 OK to confirm and save the new speed for X axis. The Cursor moves to the Y axis speed item automatically, if it is unnecessary to change the value, press 停止 STOP 取消 CANCEL to move to the Z axis speed item. If it is necessary to change the speed, please do the same operating with X axis. When you finish all settings, it will go to former menu.

(5) Introduction about inverter

① When using a GFCI (Ground Fault Circuit Interrupter), select a current sensor with sensitivity of 200mA, and not less than 0.1-second detection time to avoid nuisance tripping.

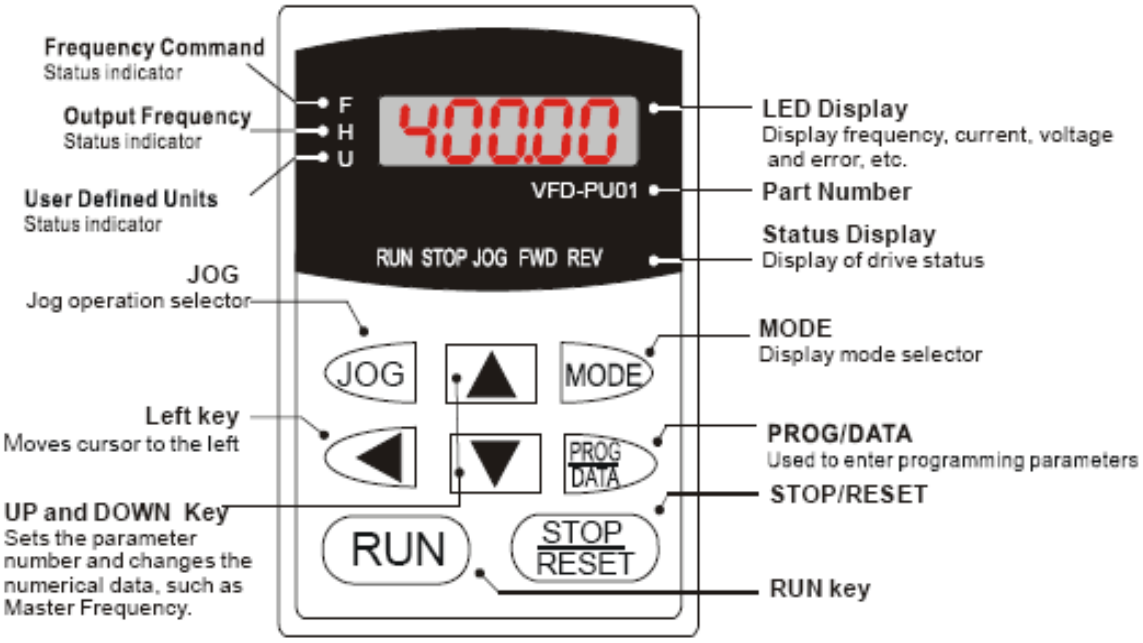
② Connect these terminals (R/L1, S/L2, T/L3) via a non-fuse breaker or earth leakage breaker to 3-phase AC power (some models to 1-phase AC power) for circuit protection. It is unnecessary to consider phase-sequence.

③ Do not connect 3-phase models to a 1-phase power source.

④ Make sure that the wiring is correct. In particular, check that the output terminals U, V, W. are not connected to power and that the drive is well grounded.

The introduction inverter panel.

F 60.00	Displays the AC drive Master Frequency.
H 50.00	Displays the actual output frequency present at terminals U/T1, V/T2, and W/T3.
U 1800.0	User defined unit (where U = F x Pr.00-05)
A 5.0	Displays the output current present at terminals U/T1, V/T2, and W/T3.
-Frd-	Displays the AC motor drive forward run status.



Installation of auxiliary equipment

(1) Installation of vacuum pump.

① Take out the vacuum pump from the package and take out the filter also. Please install the filter on the vacuum pump. (Pic.1)

② Please connect the tubes with vacuum pump and locked it.

③ Take off the cover of power on vacuum pump and connect with the 380V power supply.

④ Please check the rotating direction of the vacuum pump, clockwise rotating is correct.

⑤ Please clean the filter during the use per day.

(2) Installation of dust collector.

① Take out the dust collector from the package and install it according to the manual.

② Connect the power cable with dust collector.

③ Connect the power with dust collector.

④ Please connect the dust collector tube with the dust collector hood and the other end connected with dust collector.

(3) Installation of air compressor.

Connect the power cable with power supply and the other end with air compressor.

4. The installation of DSP software

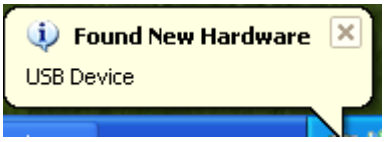
(1) Hardware requirements: Main-board: PIII 450; 128M, Windows 2000 or XP;

(2) Host Program Setup

① Insert CD into computer driver, and copy all files in the CD and save them in a pointed folder in computer, such as: C:\RZNC-0501 Host Program;

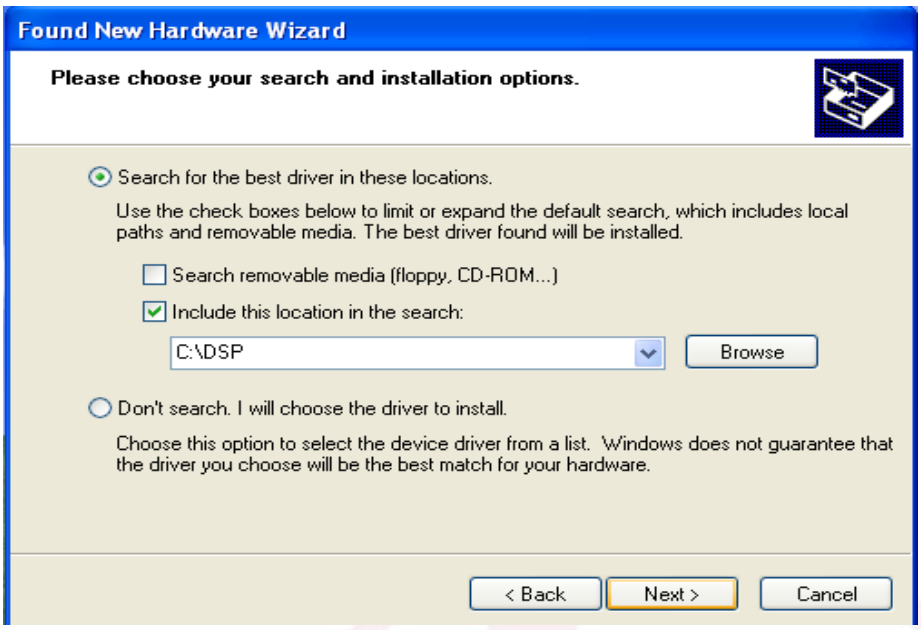
② Connect the Controller to the computer with USB cable;

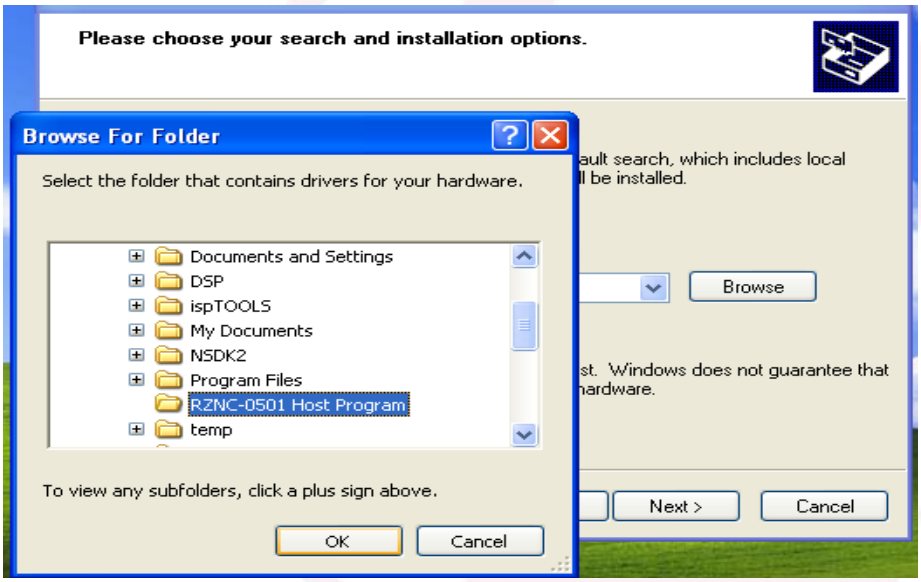
③ It shows: “Find new hardware” on the right bottom on the window as View 3-1, click on the clue;

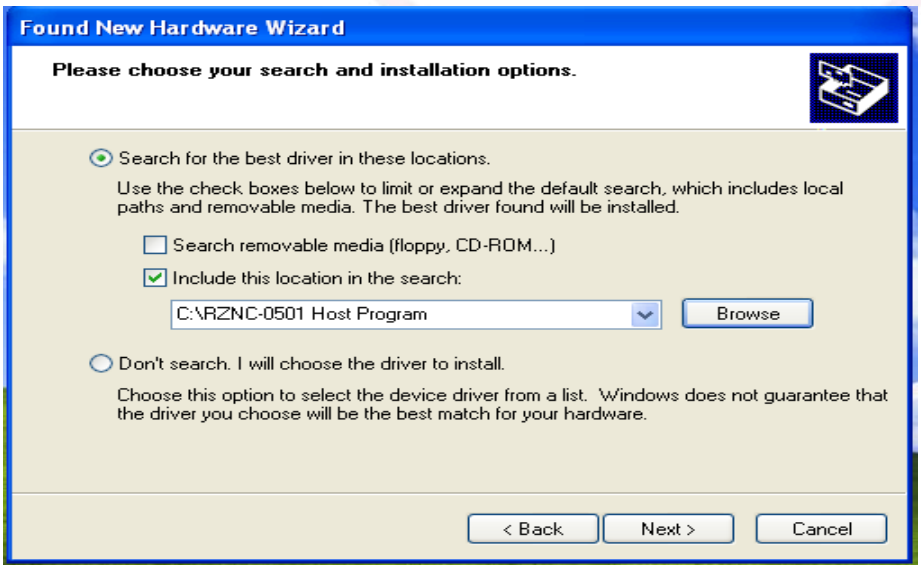


2） It appears setup information, select the second item, which is setup from list or special location, then click on “Next” button (as View 3-2);

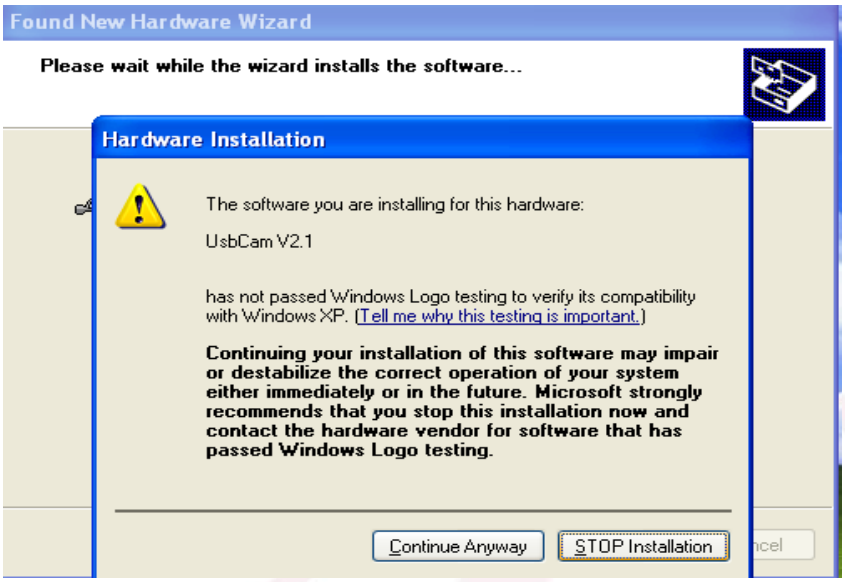
Choose “include this location in the search” then click on “Browse” icon, then find the location, such as: C:\RZNC-0501 Host Program, and click on “Next” button to begin to setup (as View 3-3);


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\DSP
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

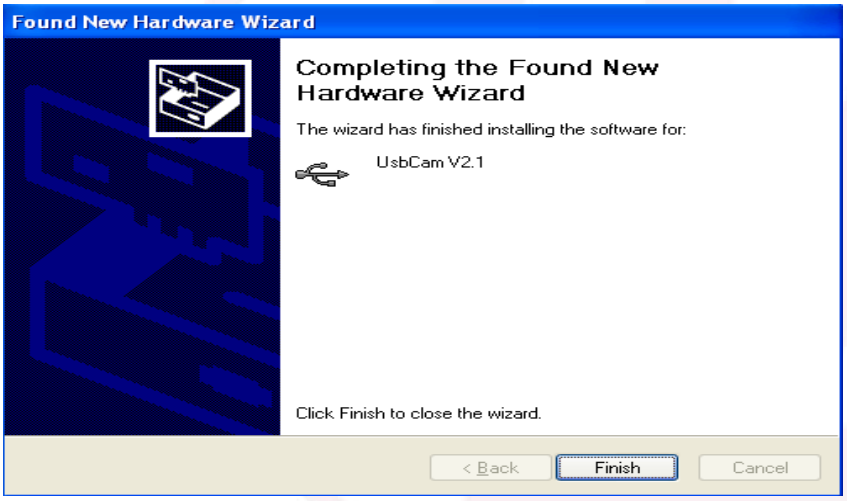

Please choose your search and installation options.
Browse For Folder
Select the folder that contains drivers for your hardware.
Documents and Settings
DSP
ispTOOLS
My Documents
NSDK2
Program Files
RZNC-0501 Host Program
temp
To view any subfolders, click a plus sign above.
OK
Cancel
Browse
Next >
Cancel

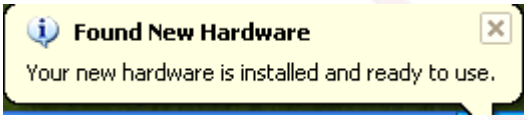

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\RZNC-0501 Host Program
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

It begins to setup driver program, click on “Continue Anyway” when it clews “The program does not pass Microsoft Logo testing to verify its capability with Windows XP.”,(as View 3-4);

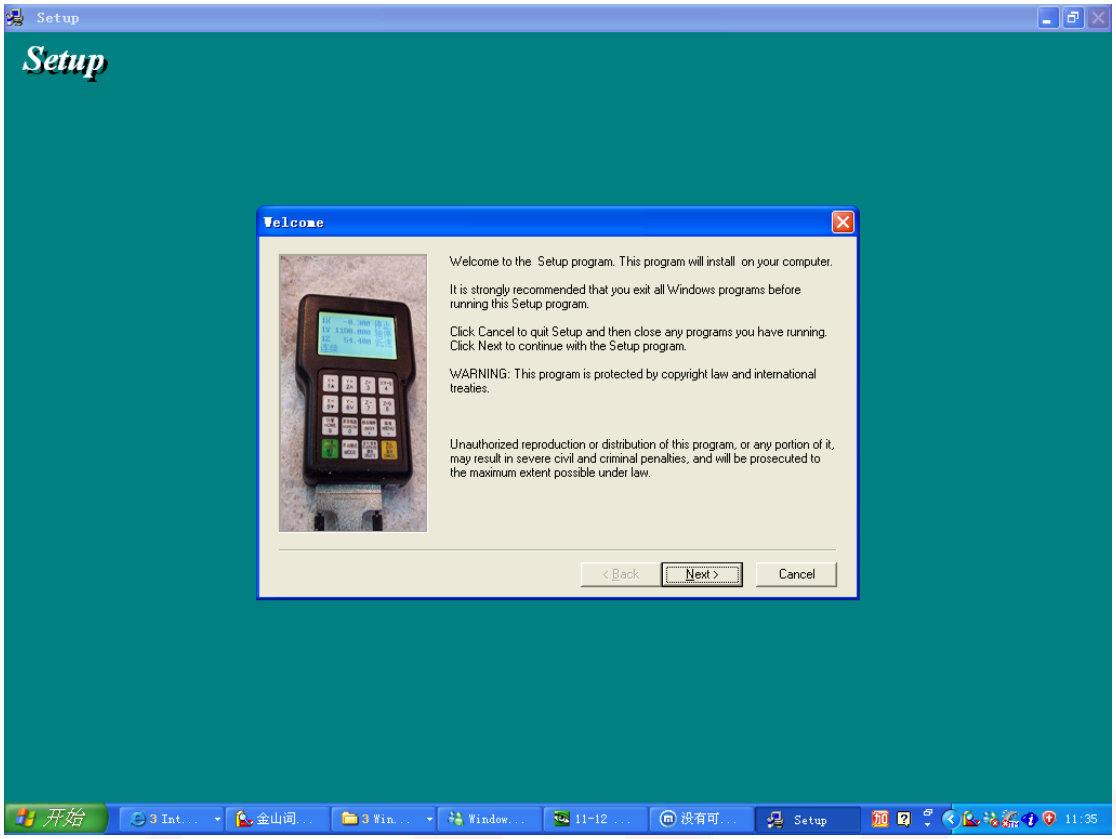


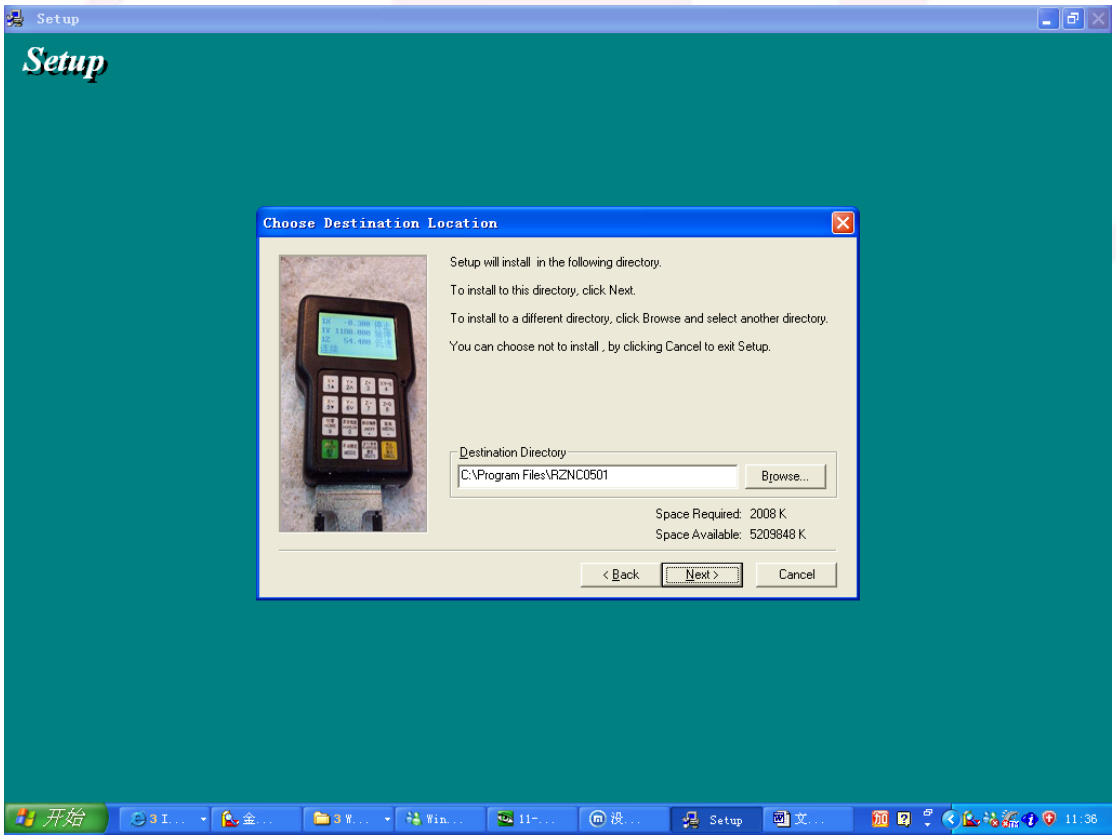
It clews setup finished, click on “Finished”, (as View 3-5);

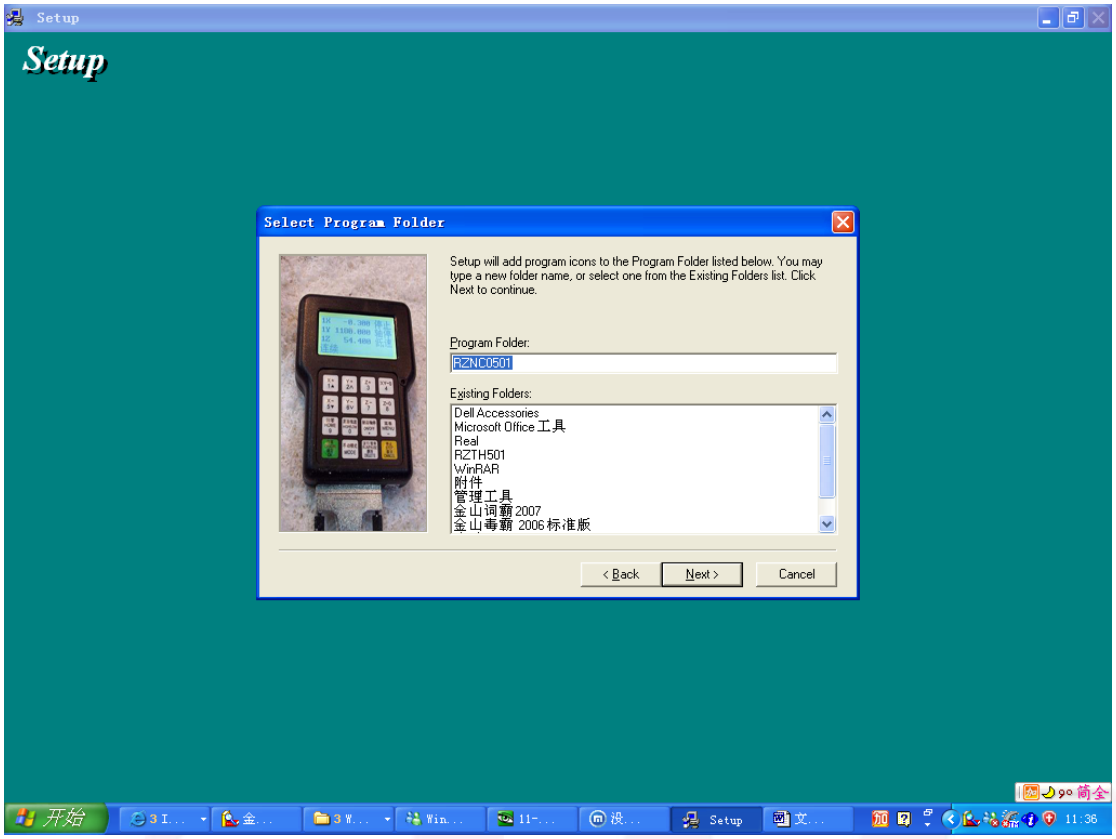


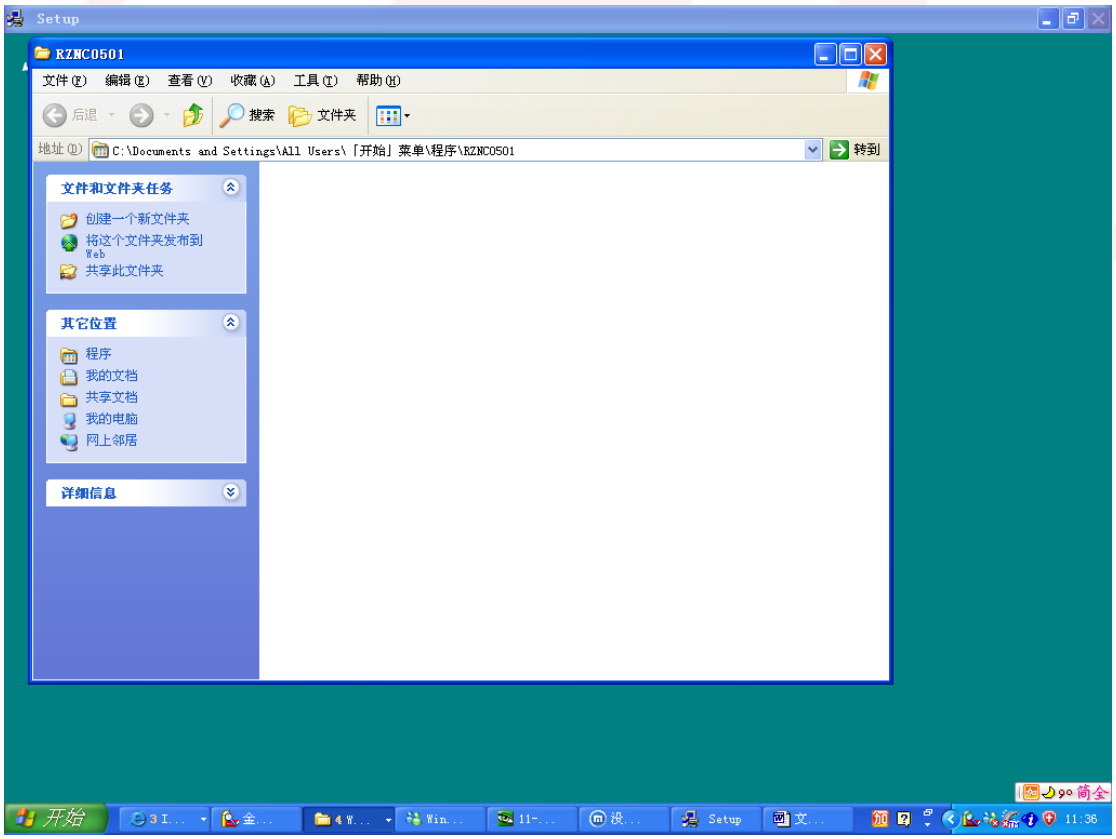


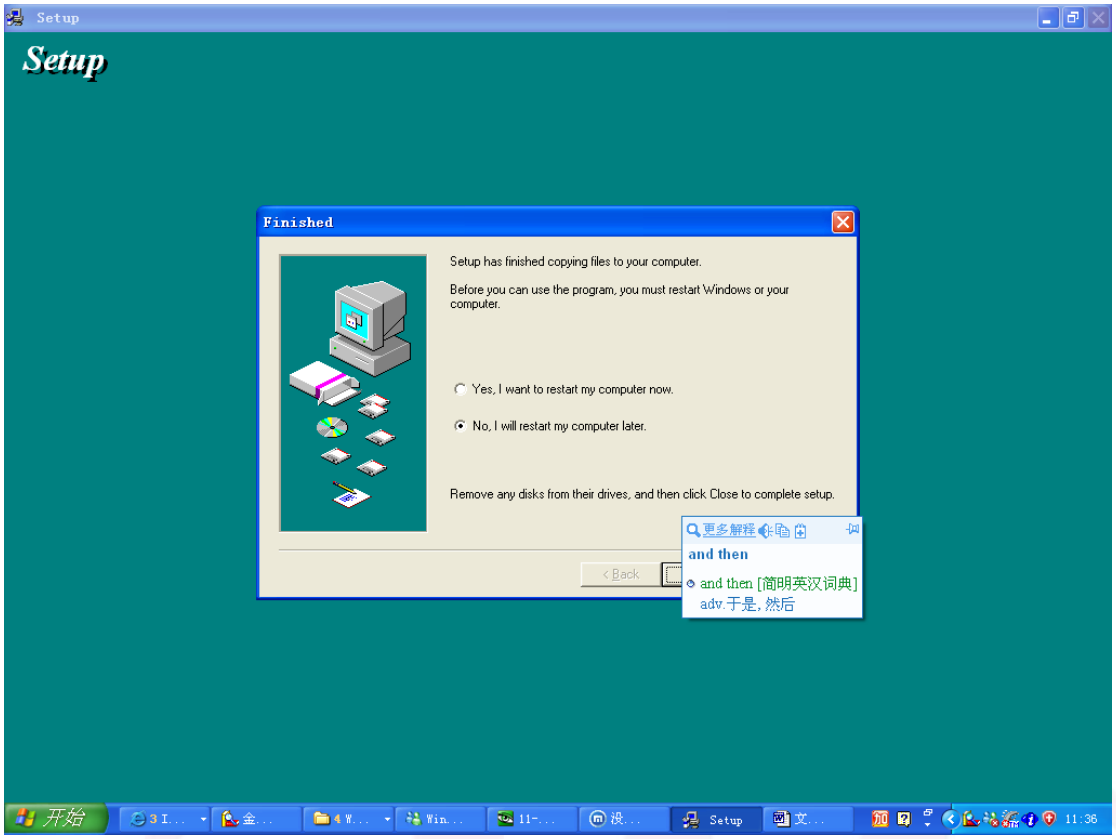
⑧ Enter into C:\RZNC-0501 and click “setup.exe”


Setup
Setup
Welcome
Welcome to the Setup program. This program will install on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Cancel


Setup
Setup
Choose Destination Location
Setup will install in the following directory.
To install to this directory, click Next.
To install to a different directory, click Browse and select another directory.
You can choose not to install , by clicking Cancel to exit Setup.
Destination Directory
C:\Program Files\RZNC0501
Browse...
Space Required: 2008 K
Space Available: 5209848 K
< Back
Next >
Cancel


Setup
Setup
Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the Existing Folders list. Click Next to continue.
Program Folder:
RZNC0501
Existing Folders:
Dell Accessories
Microsoft Office 工具
Real
RZTH501
WinRAR
附件
管理工具
金山词霸2007
金山毒霸 2006标准版
< Back
Next >
Cancel
开始


Setup
RZNC0501
文件(F) 编辑(E) 查看(V) 收藏(A) 工具(T) 帮助(H)
后退
搜索
文件夹
地址(D) C:\Documents and Settings\All Users\「开始」菜单\程序\RZNC0501
转到
文件和文件夹任务
创建一个新文件夹
将这个文件夹发布到Web
共享此文件夹
其它位置
程序
我的文档
共享文档
我的电脑
网上邻居
详细信息
开始



3. Introduction of software

Machine is equipped with Ucancam software. Please refer to Ucancam user manual for more details.

Test the machine

(1) Turn on the power of the inverter and check whether it has abnormity. If it has some problems, please power off the machine and check the problems.

(2) When it has been supplied power, it appears on the screen: “Goto Home?”, actually it is a question which needs your answer, press 归零 ORIGIN 确定 OK means “Yes”, then Z axis moves first, When Z axis arrives its home, then X and Y move. Press 运行/暂停 RUN/PAUSE 删除 DELETE means “No”, 3 axes do not move to their homes. Press any other buttons, only Z axis goes to home, X and Y don’t go home;

(3) When it is in Manual state, press 回零 HOME 9 and 3 axes will go home; If the machine doesn’t stop when back to home, please check the wire connection of the limit sensor and the damage of the limit sensor.

(4) Turn on the switch of inverter to check whether it has any alarm. If it has alarm, please turn off the power and solve the problem. And then move to next step.

(5) Press “start” on inverter, the spindle start to rotating. Please check the running sound, direction right or not and whether the inverter has alarm. If it has abnormity, please turn off the power of inverter and check it. Then move to next step.

(6) Check the air compressor, dust collector and vacuum pump working well.

(7) You can use the DSP system to power on/off the spindle.

(8) Turn on the computer and install the driver and software.

(9) Down load a simples G code file to test the accuracy of the machine and then you can use it.

II. Maintenance

1. Maintenance

(1) Don't operate, dissemble and repair the machine without authorization or training.

(2) Turn off the power of the machine before the maintenance. Please ask the professional electrician do the inspection when the machine power on.

(3) Please check the E-stop works well or not.

(4) Please use the same model parts for the replacement.

(5) Please do a regular inspection on the thermo emission system.

(6) Please check the power voltage of the control system.

(7) Protect the dust fall into the control device.

(8) The maintenance of the control system if no use for long time. First, it is not good to the CNC machine for long time stock. Please use the machine after getting it. If long time no use, the technical function will be declined. Please do regular inspection on the control system.

2. Lubrication

1.) Please use proper engine oil 10#.

2.) Please add the lubricate oil for vacuum pump per three months.

3.) Please lubricate the linear and ball screw per week.

4.) Please lubricate the spindle per week.

3. Other maintenance

1.) Please clean the inlet filter of vacuum pump per day to avoid the dust goes into vacuum pump.

2.) Please clean the outlet filter of the vacuum pump per week.

3.) Please check the neatness of the vacuum pump oil per two months. If the oil becomes black and sticky, please change it.

4.) Please use the air gun to clean the control box per week to protect the component from the dust.

5.) Please ensure the linear and ball without any block from the dust.

6.) Please clean the filter of the cooling machine per week.

7.) Please clean the filter of the cooling funs to ensure the function of the components.

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8.) Please clean the dust from the carousel.

Common problems and solutions

1. DSP controller dies

Change a new DSP controller power supply (+5v) in the control box.

Use the manostat (UPS)

2. The machine doesn't go home.

Restart the DSP controller

Use a new DSP controller

Recover the data in DSP controller: MENU=>SYSTEM MAINTENACE=>DATA SETUP=>RECOVER DATA

Reinstall the DSP program ZHBUSB: copy from the CD we sent with the machine.

3. Machine moves to the opposite direction

The cable maybe loose and you can check the cable.

Change the wire port A+ and A- on motor driver: you can find A+ and A-on the driver in the control box.

Change a new red limit sensor.

Change the cable connected with the limit switch.

4. Computer dies when downloading file

Data is inordinate and format the data in DSP controller: MENU=>SYSTEM MAINTENANCE=>DATA

SETUP=>FORMAT DATA

Enlarge the EMS memory and CPU.

Change a better computer

5. Main spindle doesn't rotate?

Voltage is too low and use the manostat (UPS)

Check the cable connected with the main spindle

Change a new transducer

Change a new main spindle

Date out of order after being copied and recover the data: MENU=>SYSTEM MAINTENACE=>DATA

SETUP=>RECOVER DATA

6. Machine doesn't work accurately

Change the motor of every axis or change the motor driver.

Use ground wire

Fasten the linker of the screw ball

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7. Engraving size is not right

Change the pulse equivalent according to the type of the machine (screw machine: 320 160 320; gear machine: 127.3 127.3 400: 320,320,320 for XHYZ6090): MENU=>SYSTEM MAINTENACE=>SYSTEM PARAMATERS=>PULSE EQUIVALENT

9. Machine doesn't work after opened (including the machine don't go home)

The switch is broken, change a new switch

There is something wrong with the power, check or change the power

Check the cable connected with the switch and pin in one side of the cable

10. Machine strikes sideward peg when it is working

The sensor switch is broken or the sheet copper of the sensor switch is distort, change a new sensor switch or fix the sheet copper

The dimension of the machine in controller is not right, reset the dimension according to the working size (the soft limited in the DSP): MANU=>MANUAL SETUP=>MOTION LIMIT.

11. Blade is broken when engraving

Lower the engraving speed: MANU=>MANUAL SETUP=>MOTION PARAMATERS LOW SPEED/HGIH SPEED.

If the material is too thick, engraves by steps

Change a better quality blade

Collet is in a wrong position and corrects it.

12. There are some leftover of the material when the machine is working.

Rectify the interspace of the screw of every axis in DSP: MENU=>SYSTEM MAINTENACE=>SCREW INTERSPACE

Change the bearing on the screw ball

Fasten the linker of Y axis (for ball screw machine)

13. Red sensor switch is ok but can't stop the machine

Sensor switch is dirty and clean it

Sheet copper is too far away from the red sensor switch, the best distance is 1-2mm

When we operate machine manually, the sensor switch doesn't work

14. Add machine in soft ware TYPE3

Open the TYPE3, and find the machining=> set up machines =>choose the FAUNC OMD in CNC machines=>ok

15. X-axis or y-axis doesn't move.

Usually it is the problem of the stepper motor, driver and cable connected with the x-axis or y-axis, check them and correct

16. How to protect the vacuum hold down table

Don’t hollow out the material when engraving

17. How to change Chinese version to English (DSP)

Open English version ZHBUSB, Download Controller Menu and Download Label.

18. How to solve the problem of message over Z + limited in Type3

When we use software TYPE3, we need to set up machine. When we set up machines, the initial position and end position of Z-axis are the same and higher than the Z between contours.

19. How to change the language of TYPE3 from Chinese to English

Open the soft ware type3 and press the button F10. It will appear option windows. You can choose English

20. Oil of the vacuum pump used for vacuum system CNC router.

Use engine oil #68

H.WINTER HOLZTECHNIK