



Shenzhen Sinjoe Laser Technology Co.,Ltd



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Shenzhen Sinjoe Laser Technology Co.,Ltd

User Manual

Version No: SJ 5.90

Product Name: Sinjoe Laser Controller AWC-608

Supplier: Shenzhen Sinjoe Laser Technology Co.,Ltd

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1. Preview

Thank you for purchasing Sinjoe Laser products!

Shenzhen Sinjoe Laser Technology Co., Limited, as a professional industrial laser supplier, started our business in Shenzhen in year 2009. With the new season of 2013 coming, overseas market has become our new target.

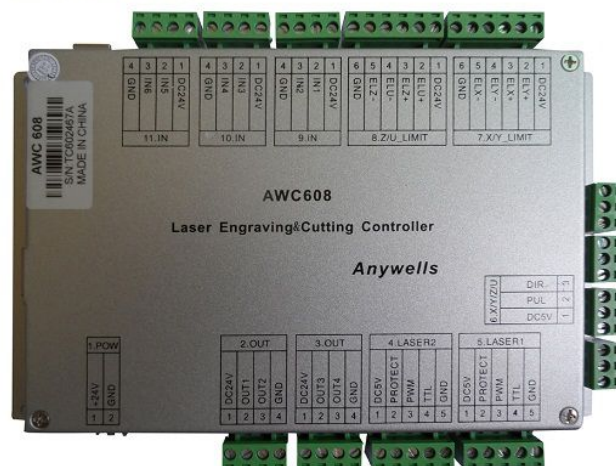
With more efforts from our engineering group, our products, including laser cutting control system(laser controller) and all laser parts, are developed in a high speed. And we've won the trust of our customers and cooperators in China. Now we wish to win your trust, because regarding packages, additional parts or ways of payment, we will offer as much as we can for you to find the best way to get what you want.

**We'd like to focus on product quality and willing to bring the best user feeling to you.
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2. Product list.....





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SINJOE



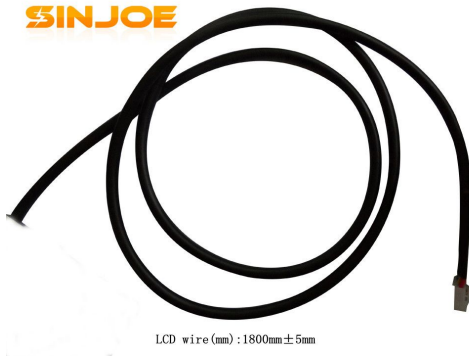
U disk extension line:Length 1000mm \pm 5mm

SINJOE



USB Line :Length 3000mm \pm 10mm

SINJOE



LCD wire (mm):1800mm \pm 5mm

SINJOE

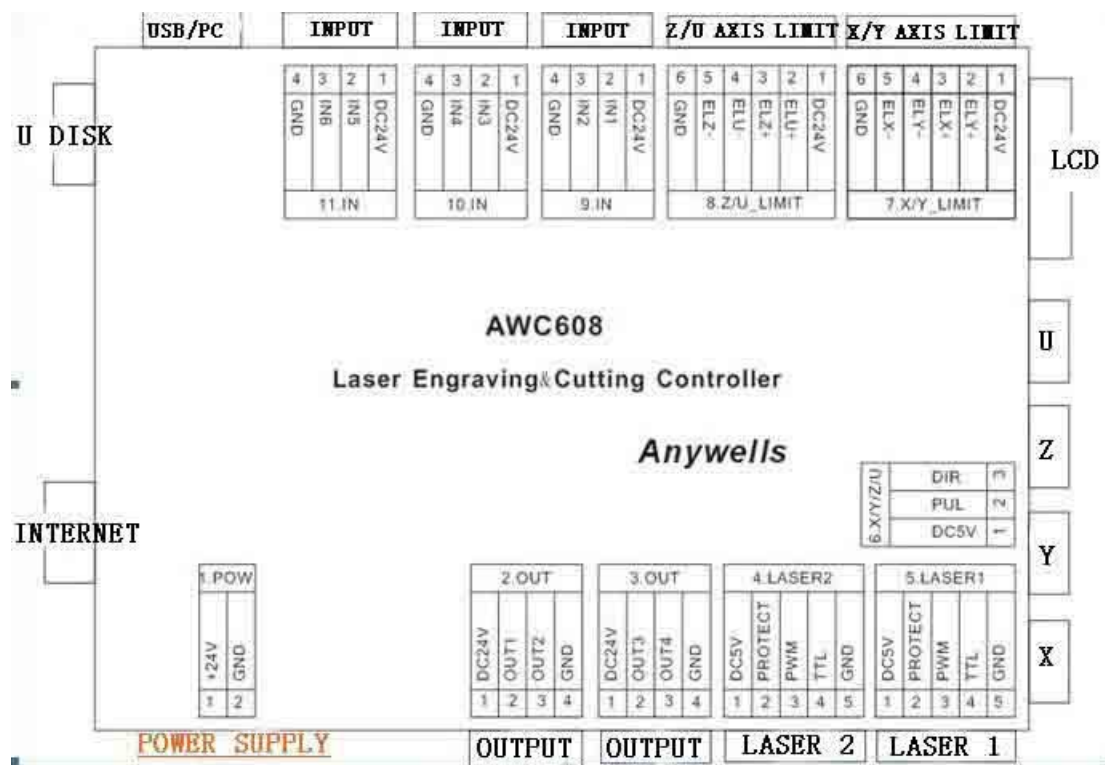


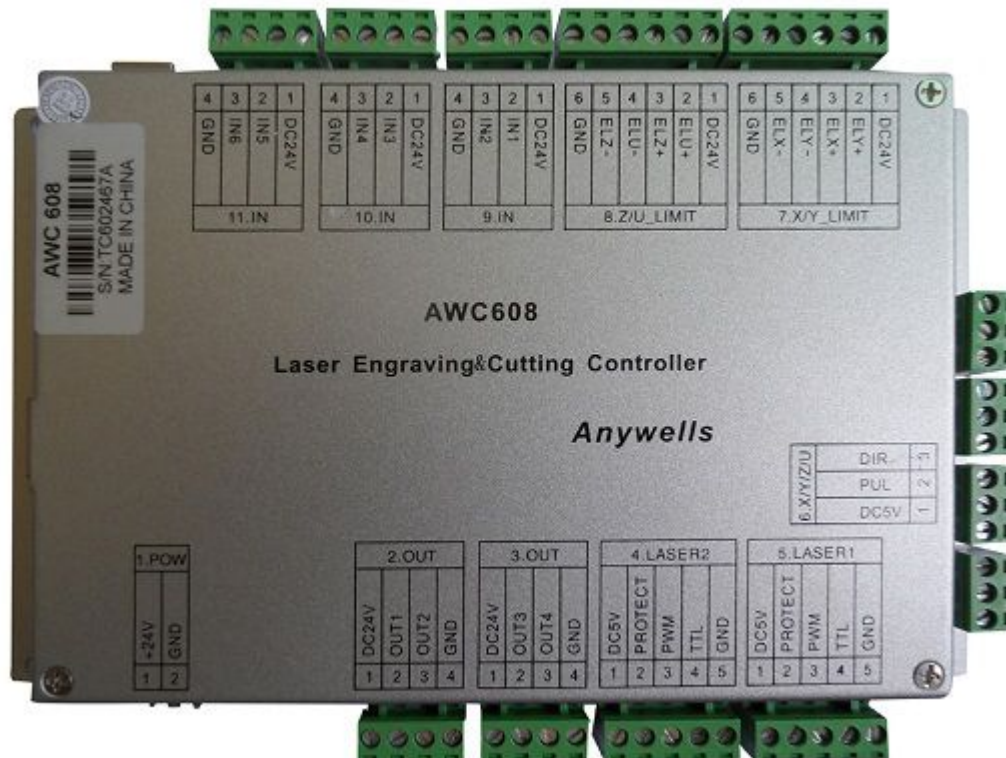
LCD Lag spike:45*15*6mm

Square buckle 16*15mm (All \pm 1mm)

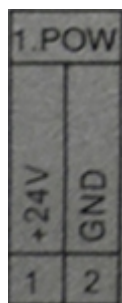
3 Connection and interface.....

3.1 Main Board Overview



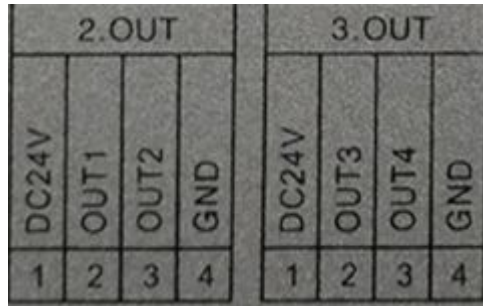


3.2 POW



Pin	Definition
1	+24V, Power supply Anode
2	GND,

3.3 Output Interface1 and 2



Pin	Definition
1	DC24V, Power(Output)
2	OUT1,Air blowing signal (The whole process of blowing) When machine idle , Main board OUT1 in high level; When machine work , Main board OUT1 in low level .
3	OUT2, Air blowing signal(Only laser come out with blowing) When machine idle , Main board OUT2 in high level; When machine work and laser come out Main board OUT2 in low level , off laser Main board OUT2 in high level.
4	GND, Power ground (OUT)

Out 3 and Out 4

Pin	Definition
1	DC24V, Power(OUT)
2	OUT3, Output signal (reservations)
3	OUT4, Output signal (reservations)
4	GND, Power ground(OUT)

3.4 Laser 1 and Laser 2

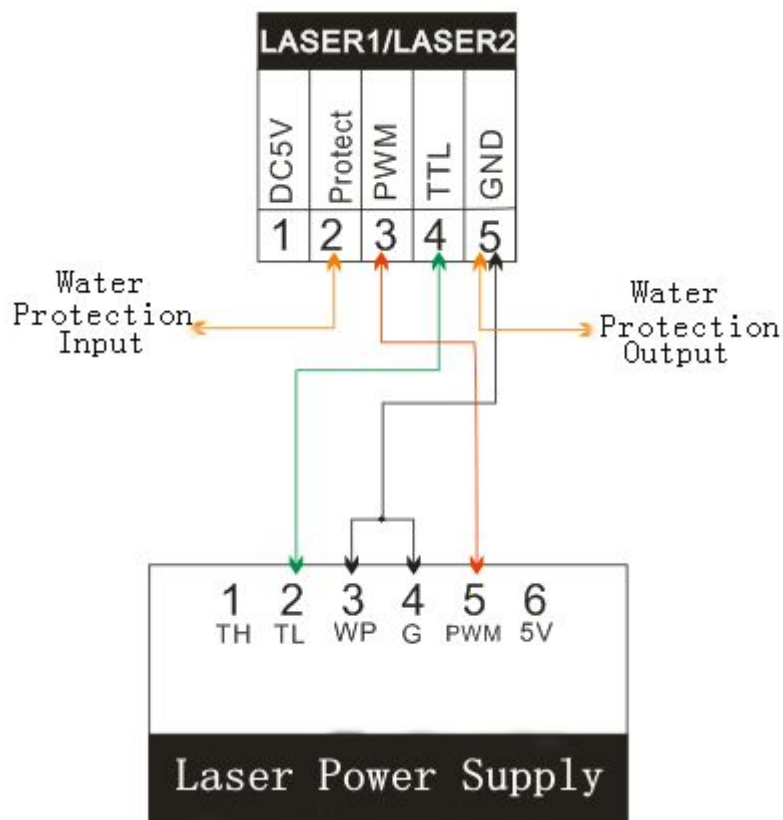
4.LASER2					5.LASER1				
DC5V	PROTECT	PWM	TTL	GND	DC5V	PROTECT	PWM	TTL	GND
1	2	3	4	5	1	2	3	4	5

Laser 2

Pin	Definition
1	DC5V, Power(OUT)
2	PROTECT, Water protection input signal
3	PWM, Laser power Frequency
4	TTL, Laser switch signal
5	GND, Power ground(OUT)

Laser 1:the same.

The connection between Laser interface and the normal laser power supply is as follow:

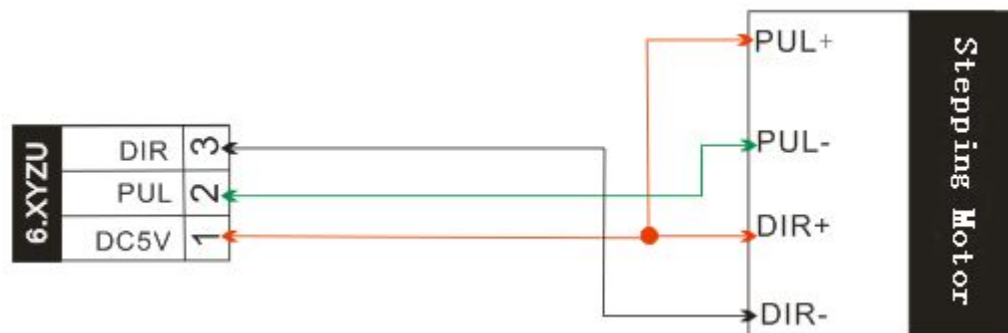


3.5 X/Y/Z/U Axis

6.X/Y/Z/U	DIR	3
	PUL	2
	DC5V	1

Pin	Definition
1	DC5V, Power(OUT)
2	PUL, Pulse signal
3	DIR, Direction signals

The connection of this interface and drivers is as follow:

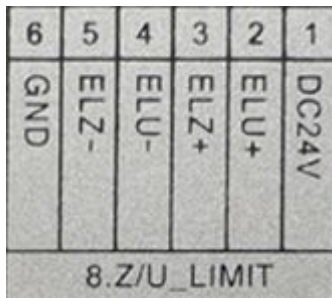


3.6 X/Y Limit Switch Interface

6	5	4	3	2	1
GND	ELX-	ELY-	ELX+	ELY+	DC24V
7.X/Y_LIMIT					

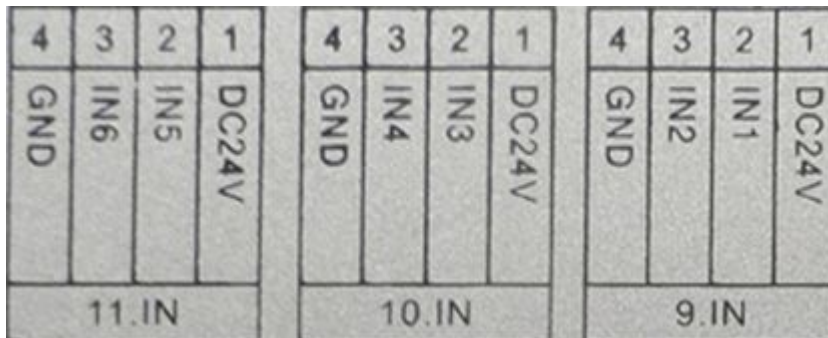
Pin	Definition
1	DC24V, Power(OUT)
2	ELY+; the upper limit of Y-axis the axis movement to the sensor signal input signal at the maximum coordinate limit
3	ELX+; the upper limit of X-axis the axis movement to the sensor signal input signal at the maximum coordinate limit
4	ELY-; The lower limit of the Y-axis, the axis movement to a minimum at the coordinate (zero position) limit sensor signal input signal.
5	ELX-; The lower limit of the X-axis, the axis movement to a minimum at the coordinate (zero position) limit sensor signal input signal.。
6	GND Power ground(OUT)

3.7 Z/U limit Switch Interface



Pin	Definition
1	DC24V, Power(OUT)
2	ELU+; the upper limit of U-axis the axis movement to the sensor signal input signal at the maximum coordinate limit
3	ELZ+ the upper limit of Z-axis the axis movement to the sensor signal input signal at the maximum coordinate limit
4	ELU-; The lower limit of the U-axis, the axis movement to a minimum at the coordinate (zero position) limit sensor signal input signal.
5	ELZ- The lower limit of the Z-axis, the axis movement to a minimum at the coordinate (zero position) limit sensor signal input signal.。
6	GND Power ground(OUT)

3.8 Input Interface



9.IN (IN1,IN2)

Pin	Definition
1	DC24V, Power(OUT)
2	IN1, Cap protection signal (input), active low
3	IN2, The footswitch signal (input), active low
4	GND Power ground(OUT)

10.IN(IN 3,IN4)

Pin	Definition
1	DC24V, Power(OUT)
2	IN3, Input signal (reserved)
3	IN4, Input signal (reserved)
4	GND Power ground(OUT)

11.IN(IN5,IN6)

Pin	Definition
1	DC24V, Power(OUT)
2	IN5, Input signal (reserved)
3	IN6, Input signal (reserved)
4	GND Power ground(OUT)

3.9 Internet, U-disk, LCD Panel, Power supplier Interface.....







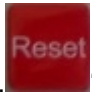
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4. Introduction of AWC-608



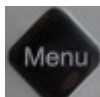
4.1 Function introduction to each key



1. "Reset" Key: Press this key, machine can enter into the state of reset under any circumstances, and then go back to "Original point"



2. "Laser" Key: Be applied to test Optical path. Press it to flash.



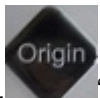
3. "Menu" Key: Press this key to enter into main menu.



4. "Test" Key: Be applied to test the size of graphic to be cut and test the current original point.



5. "File" Key: Working files saved on control panel



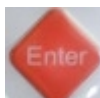
6. "Origin" Key: Can set starting point of machine



7. "Esc" Key: definition key to be applied to cancel operation and go back to last interface.



8. "Stop" Key: Stop running machine.



9. "Enter" Key: definition key to agree current operation.



10. "Start/Pause" Key: Start to operate current file, it can realize stopping and continuing of running machine.



11. Key: It can be applied to move motion axis, move cursor in current view, and also alter the number value in view.

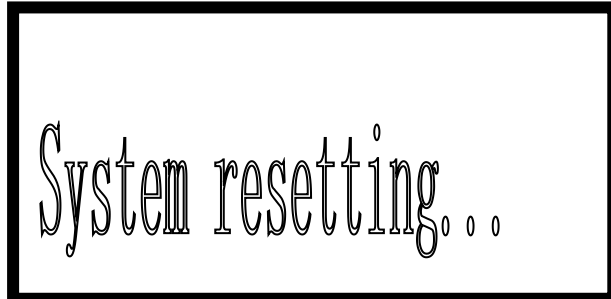


12. "Z/U" Key: Autofocus and Z/U-axis moving, Z-key is lifting axis, U-key is feeding

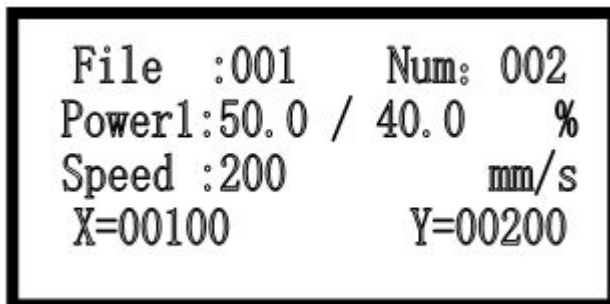
axis.

4.2 Interface of starting computer

Interface of starting computer shown as below:



After initialization, it enters into main interface shown as below:

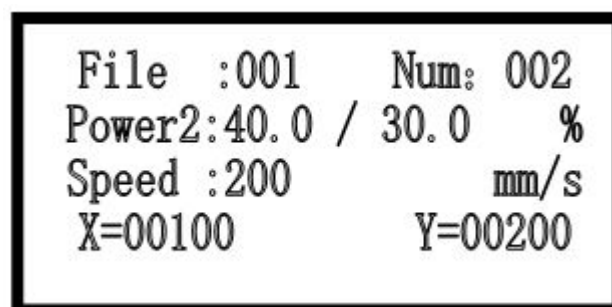


【file】: show serial number of files.

【Num】: show times of current diagram after adding one by one.

【Power 1】: Machining graphic, set the percentage of laser power; front number is maximum power (In-process power), the number behind is minimum power(power when turn around)

【power 1】 can be switched to 【power 2】 shown as below:

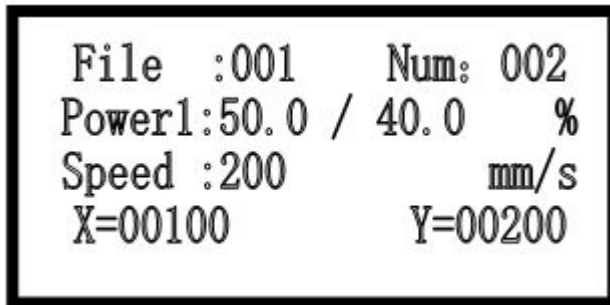


【speed】: Speed value set during machining graphic

【X】: show X-axis value of laser head with machine

【Y】: show Y-axis value of laser head with machine

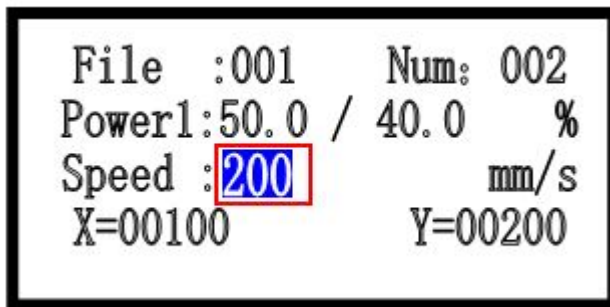
4.3 Function introduction to main interface



View 4-3

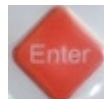


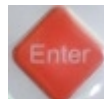
Under the main interface, press , cursor will appear on one item selected show as below:







When there is no cursor, system is in state of “Key moving”; when there is cursor, system is in state of “parameter alteration”.

In the state of “Key moving”:




- (1) press , cursor will appear and system will enter into state of “parameter alteration”;








- (2) press  or  to move X-axis, press  or  to move Y-axis

In the state of “parameter alteration”:



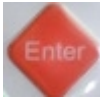




- (1) Press , cursor will disappear and system will enter into state of “Key moving”.

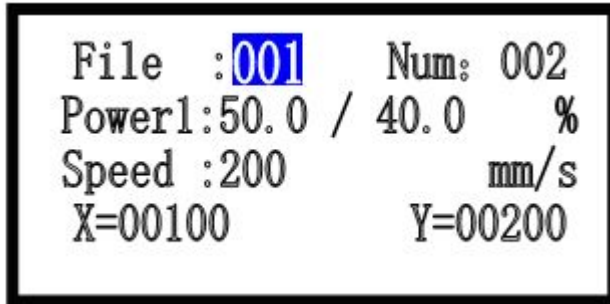



- (2) Press  or  or  or  to select other items, then press  to enter into sub interface to alter parameter.

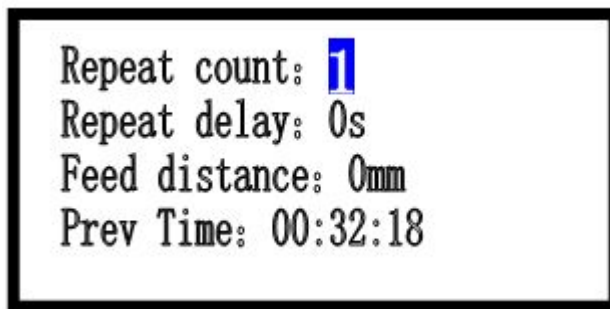
4.3.1 Check and Alter the properties of current file (refer to view 4-3)

4.3.1.1 Check the properties of current file

Press , cursor appears on main interface, press  or  or  or  to move cursor onto item **【file】** :



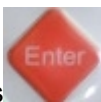
Press  to enter into properties sub interface of file:

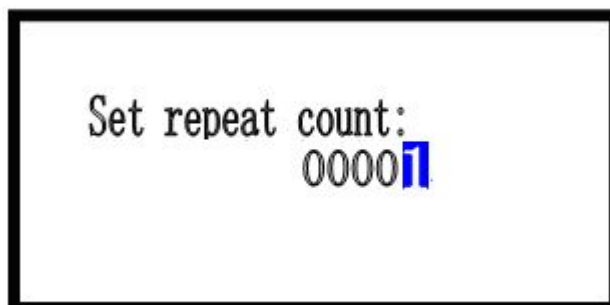






View 4-3-1-1

4.3.1.2 Alter the properties of current file

Take altering the **【Repeat count】** of file for example, to explain how to alter the properties of files. Refer to view 4-3-1-1, press  or  to move cursor onto item

【Repeat count】 and then press  :



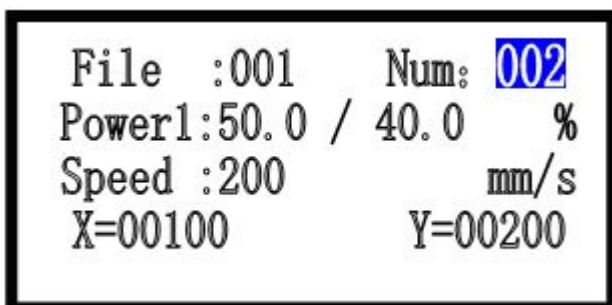
Press  or  to move cursor onto one number, and then press  or  to alter

the number After alteration, press  to finish the alteration of 【Repeat count】 .

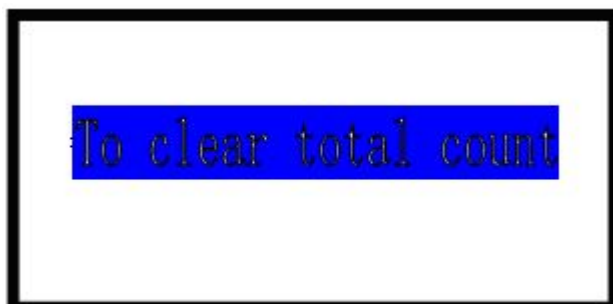
4.3.2 Clear total working times of file (refer to view 4-3)


Press , cursor appears on main interface, then

press  or  or  or  to move cursor onto item 【Num】 :








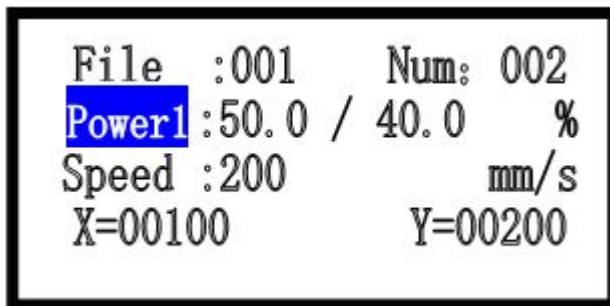
Press  to enter into sub interface:




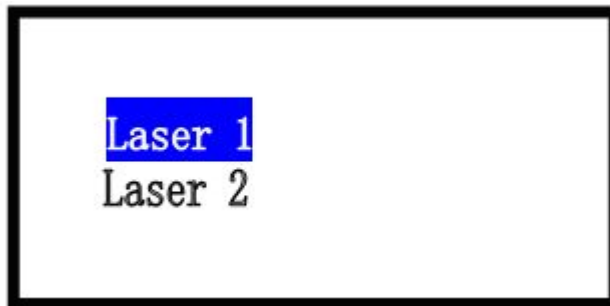
Press  to clear total working times of file.


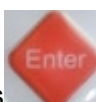
4.3.3 Switch between “Power 1”&“Power 2” (refer to view 4-3)

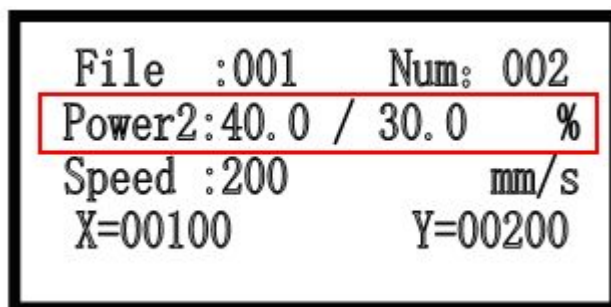
Press , cursor appears on main interface, press  or  or  or  to move cursor onto item **【power】** :



Press  to enter into sub interface:








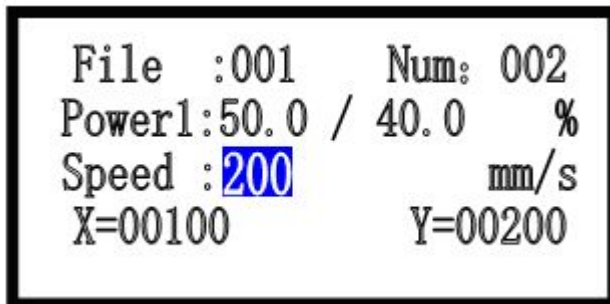
Press  to move cursor onto item **【Laser 2】** , then press  :

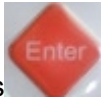


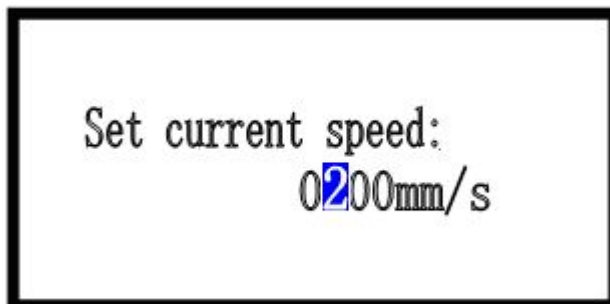
Similar operation can also switch “power 2” to “power 1”。





4.3.4 Change speed, Maximum power, Minimum power (refer to view 4-3)

Press , and cursor appears on main interface,
press  or  or  or  to move cursor onto item 【speed】 :



Press  to enter into sub interface:



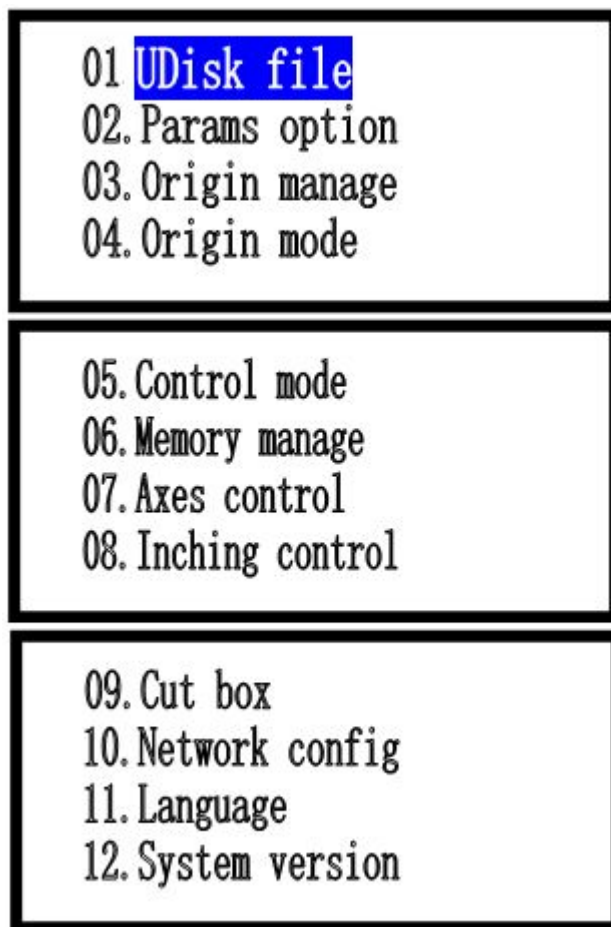
Press  or  to move cursor onto one number, and then press  or  to

modify the number After modification, press  to finish the modification of 【speed】.
Similar operation can modify 【maximum power】 , 【minimum power】 .





4.4 Main menu function



Press  to enter into main menu interface.

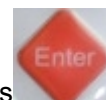


View 4-4

Under the main menu interface, press  or  or  or  to move cursor onto one item.

4.4.1 UDisk file (Refer to View 4-4)

This UDisk file system only support FAT32.



Under the main menu interface, move cursor onto **【UDisk file】** , press  to enter

into 【Disk file】 interface (User must insert U-disk into U-disk interface in control board of




AWC608)





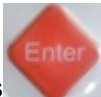
View 4-5

4.4.1.1 Work file (refer to view 4-5)

Under the 【UDisk file】 , press  or  to move cursor onto item 【work' files】 ,


press  to enter into 【work' files】 interface:



Press  or  or  or  to move cursor onto one file, and then press  , system will copy the file into the memory of control panel. Then this file can be output. (suffix of work file is ud5)

4.4.1.2 Config File (refer to View4-5)


Under 【UDisk file】 interface, press  or  to move cursor onto item 【 Config' files】 ,after pressing  to enter into 【Config ' files】 interface, move cursor to select

one parameter file, and then press  , system will update the parameter of control panel according to parameter file.(suffix of parameter file is cf5).

4.4.1.3 System upgrade file (refer to graphic 4-5)


Under 【UDisk file】 interface, press  or  to move cursor onto item 【Upgrade'

files】.After pressing  to enter into 【Upgrade' files】 ,move cursor to select one

upgrade file, and then press , system will upgrade according to upgrade file. System will go to state of reset after upgrade finished. During update, don't cut power of control panel. Otherwise it will damage the system. (suffix of system upgrade file is ug5).

4.4.1.4 Save Current parameter to UDisk(refer to graphic 4-5)

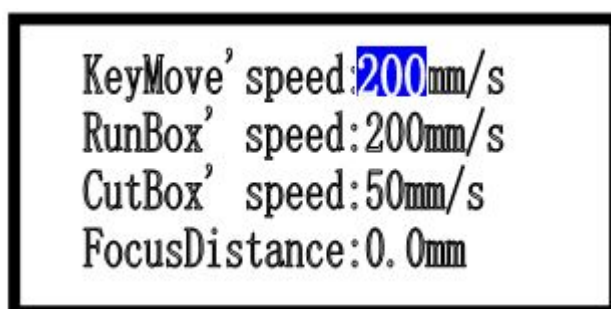
Under 【UDisk file】interface, press  or  to move cursor onto item 【Curr config

to UDisk】. Press , system will copy a parameter of control panel into U-disk. The file name is Params.cf5.

4.4.2 Parameter Option(refer to view 4-4)

Under the main menu interface, press  or  or  or  to move cursor

onto item 【Params Option】. Press  to enter into 【Params Option】 interface;






【KeyMove' speed】 : Traveling speed of key on LCD panel.


【RunBox' speed】 : Traveling speed around graphic border.

【CutBox' speed】 :Cutting speed on graphic border.

【FocusDistance】 :Autofocus distance of Z-axis.

Press  or  to move cursor onto one item, press  to enter into sub

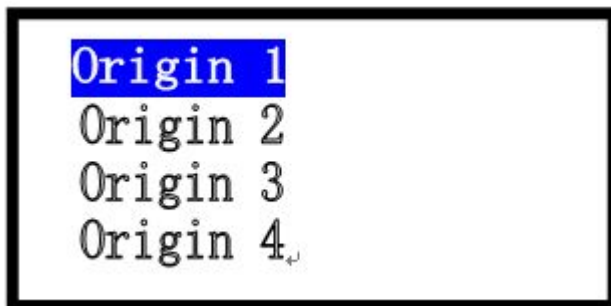
interface, and then press  or  or  or  to modify the value. Then




press  to finish the modification of this parameter.

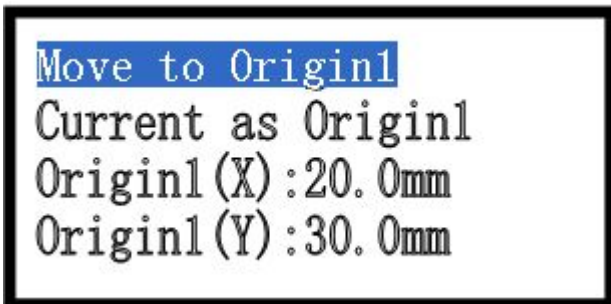
4.4.3 Origin manage (Refer to view 4-4)


Under the main menu interface, press  or  or  or  to move cursor

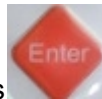
onto item **【Origin manage】**, then press  to enter into **【Origin manage】** interface:




Press  or  to move cursor onto one item, and then press :



Move cursor onto item **【move to origin1】**, and then press , system will move laser head to the original position 1 (X=20.0mm, Y=30.0mm).

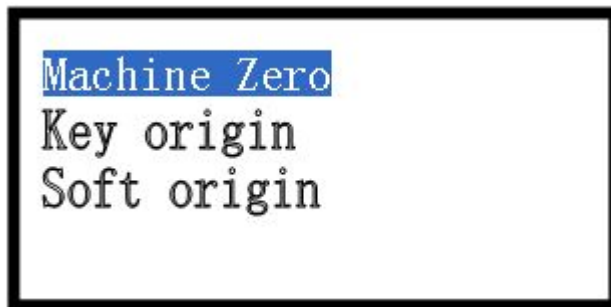
Move cursor onto item **【Current as Origin1】**, and then press , system will set the position of current laser head as original position 1.

Move cursor onto item **【origin 1(X)】** or item **【origin 1(Y)】**, then press , it will enter into sub interface to do modification manually on coordinate of original position.

4.4.4 Origin Mode (Refer to view 4-4)



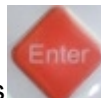
Under the main menu interface, press  or  or  or  to move cursor

onto item **【Origin mode】**, then press  to enter into **【Origin mode】** interface:



【Key origin】: Take the original point selected by  of LCD panel as beginning.

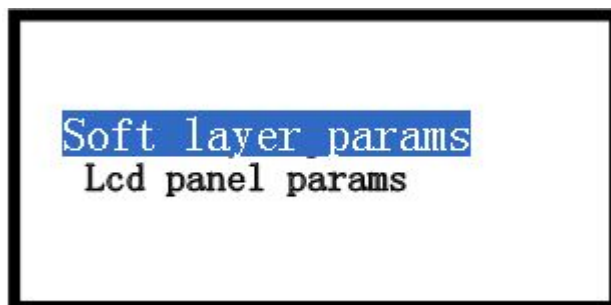
【Soft origin】: System will work according to the position of data on coordinate of software. **【Machine zero】**: Take zero point of machine (limit point) as beginning.

Press  or  to move cursor onto one item, then press  to set specific orientation mode

4.4.5 Control Mode (refer to view 4-4)




Under the main menu interface, press  or  or  or  to move cursor

onto item **【control mode】**, press  to enter into **【control mode】** interface:



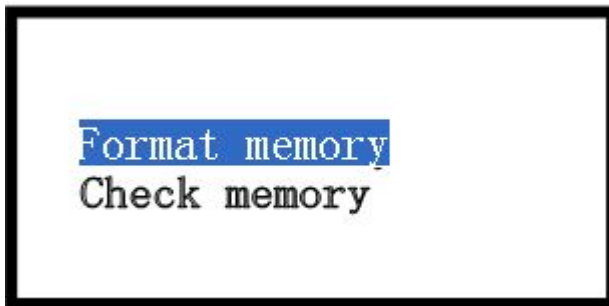
【Soft layer params】: Using the layer parameter set in software (LaserCAD) to deal with graphic and data. (Including: speed, maximum power and minimum power of laser 1, maximum power and minimum power of laser 2)(Regarding the instruction of layer parameter, please refer to 4.3layer parameter)

【LCD Panel params】 : Using the parameter set in the main interface of LCD panel to deal with graphic and data. (Including: speed, maximum power and minimum power of laser 1, maximum power and minimum power of laser 2)(Regarding the instruction to the main interface of LCD Panel, please refer to 7.3 function instruction of main interface.)

Press  or  to move cursor onto one item and then press  to set parameter control mode




4.4.6 Memory management (refer to view 4-4)

Under the main menu interface, press  or  or  or  to move cursor onto item 【Memory manage】 , press  to enter into 【memory manage】 interface:




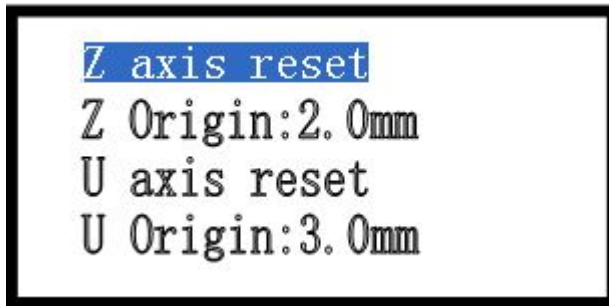
【format memory】 : format the memory of control panel, it will delete all files saved in control panel.

【check memory】 : check memory of control panel, it will delete all files saved in control panel.

Press  or  to move cursor onto one item, and then press  to do relevant operation

4.4.7 Axes Control (refer to view 4-4)

Under the main menu interface, press  or  or  or  to move cursor onto item 【Axes Control】 , press  to enter into 【Axes Control】 interface:






【Z axis reset】 : Z-axis starts to move to reset

【Z Origin:2.0mm】 : the mobile distance of Z-axis in opposition direction after reaching limit.

【U axis reset】 ; U-axis starts to move to reset. **U-axis can't reset when U-axis is feeding axis** (Regarding the function and configuration of U-axis, please refer to 3.3.2.4 Function and configuration)

【U axis origin:3.0mm】: the mobile distance of U-axis in opposition direction after reaching limit.

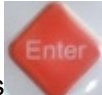
Press  or  to move cursor, and then press  to do operation and setting





4.4.8 Inching control (refer to view 4-4)





Under the main menu interface, press  or  or  or  to move cursor


onto item 【Inching control】 , press  to enter into 【Inching control】 interface:




Press  to move cursor to select one item

When select item 【XY inching】 , press  or  to move laser head with the length of 【inching distance】 in the X direction, press  or  to move laser head with the length of 【inching distance】 in the Y direction.

When select item **【Z/U inching】** , press  or  to move laser head with the length of **【inching distance】** in the U direction, press  or  to move laser head with the length of **【inching distance】** in the Z direction.

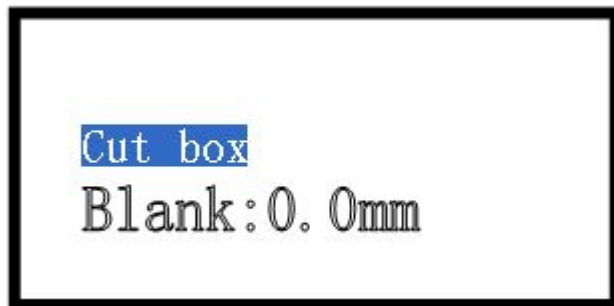
When select item **【inching distance】** , press  to enter into sub interface to set **【inching distance】** .

Under **【 inching control 】** interface, press  to go back to the main menu interface.

4.4.9 Cut box (refer to view 4-4)


Under the main menu interface, press  or  or  or  to move cursor onto

item **【cut box】** , then press  to enter into **【cut box】** interface:



【blank 】 :The distance between border of graphic and border of cut part.

Press  or  to move cursor onto one item

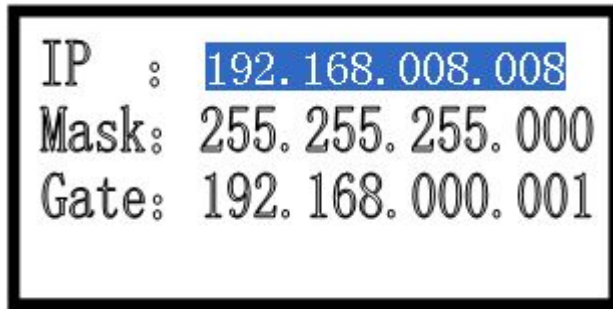
When select item **【cut box】**, press , system will cut outline border at the speed of **【Speed of cutting border】** and at the power set in the main interface (Regarding **【Speed of cutting border】** , please refer to 4.4.2 parameter setting; Regarding the power in main interface, please refer to 4.3 function instruction of Main interface)




When select item **【Blank】** , press  to enter into sub interface to set **【blank】** .

4.4.10 Network Config (refer to view 4-4)

Under the main menu interface, press  or  or  or  to move cursor

onto item **Network config**, and then press  to enter into **network config** interface:



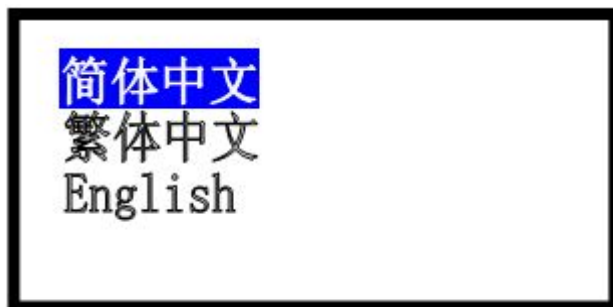
Press  or  to move cursor onto one item, then press  to enter into sub interface to modify this value



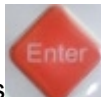
(Regarding more content of network communication of computer and control panel, please refer to 3.2.2 Select network communication mode)

4.4.11 Languages (refer to view 4-4)

Under the main menu interface, press  or  or  or  to move cursor

onto item **Language**, and then press  to enter into **Language** interface:

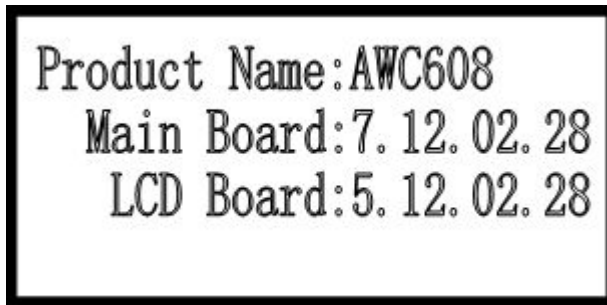


Press  or  to move cursor onto one item and then press 

4.4.12 System Version (refer to view 4-4)


Under the main menu interface, press  or  or  or  to move cursor

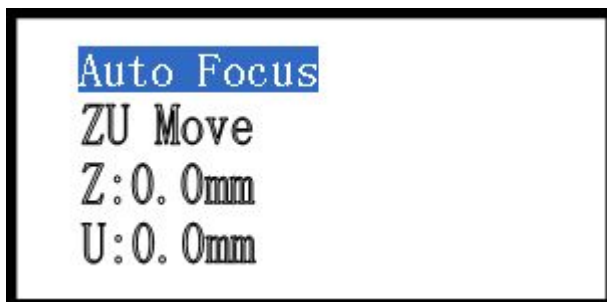
onto item **【system version】**, press  to enter into **【system version】** interface:






Version of **【Main Board】** can be upgraded by **【UDisk file】** to the newest one. (Refer to 4.4.1.3 System upgrade file)



4.5 Z/U axis

Under the main interface, press :







Press  or  to move cursor to select one item

When select **【Auto focus】** and press , Z-axis will move at the speed of **【Z-axis reset speed】**(Refer to: 3.3.3.2), stop till touch Z+ limit switch, and then move the distance as in **【Focus distance】** in opposite direction.(Refer to: 4.4.2)

When select **【 ZU move 】**, and press  or , Z-axis starts to move,

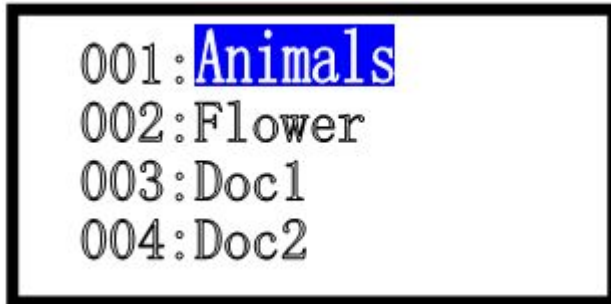
release  or , Z-axis stops moving.

Press  or , U-axis starts to move, release  or , U-axis stops moving.

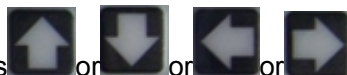
4.6 Files system



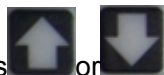
Under the main interface, press  to enter into **【file】** interface:



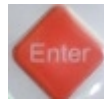
In **【file】** interface, it will show all working files saved in the memory of control board.

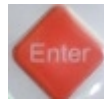


Press  or  or  or  to move cursor on one item and then press



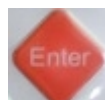
Press  or  to move cursor to select one item



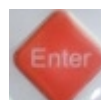
Select **【select】**, and press , system will select files and go back to main interface. In main interface, the file sequence number will be shown in **【file】**;



Press  in main interface will start files output.





Select **【delete】**, and press , then files will be deleted.



Select **【copy to UDisk】**, and press , then files will be copied to UDisk (UDisk only support FAT32)

5. How to Update the controller?.....

- 1) Copy the update files you download and don't forget the files name.

 130428C1.rar	82,598
 130428V7.rar	57,624

- 2) Input the update files into Your U-disk

ATTENTION: Considered the different features of U-disk in the global market, we are seriously recommend you to format it with our following requirement:

FAT 32

Please NEVER choose the "Quick Format".

NEVER NEVER NEVER!!! Thanks.(We faced that problem thousands times every year! with the complain from customers.)

The correct method:

- 3) ONLY WITH U-DISK CAN THIS MAIN BOARD BE UPDATED.
- 4) After you connect your U-disk with the main board interface,



Shenzhen Sinjoe Laser Technology Co.,Ltd

6. How to feedback your opinions to us?.....

Our feedback page welcome you send any question and improving suggestions.

If our product good, please let your friend know about it; if our product not good, please let us know.

What's more , you can send E-mail to Support@sinjoelaser.com and we will reply you within 12 working hours.

7. Ending.....

It's a great honor for us to have a opportunity to help you. We, SINJOE LASER, are always ready for the requirement from overseas lands.

However, Absolute perfection is impossible. Our products are all with some disadvantages and weak points that we didn't find out. Your suggestions will help us to be a better professional laser supplier which can help you everywhere.

Best wishes for you.

Better life since you join us!

