User Instructions

Laser Engraver

Technical Data / Device Specification

Model			
Basic info	USB570-60W	USB570-80W	USB570-100W
Color	Blue and gray	Red and black	Red and black
Processing/ cutting area	500 x 700mm	500 x 700mm	500 x 700mm
Workbench	Honeycomb & aluminum knife	Honeycomb & aluminum knife	Honeycomb & aluminum knife
Laser power	60W	80W	100W
Laser type	CO2 sealed laser tube	CO2 sealed laser tube	CO2 sealed laser tube
Power supply	110V/ 60Hz	110V/ 60Hz	110V/ 60Hz
Minimum shaped text	2mm*2mm	2mm*2mm	2mm*2mm
Maximum shaped text	1mm*1mm	1mm*1mm	1mm*1mm
Fan	Built-in	Built-in	Built-in
Software	RDWORKS V8	RDWORKS V8	RDWORKS V8
Display	LCD Digital	LCD Digital	LCD Digital
Laser predrilled mounting holes?	Yes	Yes	Yes
Workbench adjustment	Manual adjustment	Manual adjustment	Manual adjustment
Cutting thickness	0-10mm (varies according to materials and power capacity)	0-15mm (varies according to materials and power capacity)	0-15mm (varies according to materials and power capacity)
Resolution ratio	≤4500dpi	≤4500dpi	≤4500dpi
Supported software	Coreldraw /Autocad/ Engrave Lab/ Illustrator output	Coreldraw /Autocad/ Engrave Lab/ Illustrator output	Coreldraw /Autocad/ Engrave Lab/ Illustrator output
Dichroic cutting	256 colors	256 colors	256 colors
Assisted positioning	Red light positioning	Red light positioning	Red light positioning
Protection	Air-blowing flame retardant/ Water protection	Air-blowing flame retardant/ Water protection	Air-blowing flame retardant/ Water protection
System environment	Windows xp/win 7/win 8/win 10	Windows xp/win 7/win 8/win 10	Windows xp/win 7/win 8/win 10
Graphic format supported	All formats that can be recognized by coreldraw and autocad, such as JPG, BMP, AI, PLT, etc.	All formats that can be recognized by coreldraw and autocad, such as JPG, BMP, AI, PLT, etc.	All formats that can be recognized by coreldraw and autocad, such as JPG, BMP, AI, PLT, etc.
Data transmission	USB 2.0/ Network port/ U-disk	USB 2.0/ Network port/ U-disk	USB 2.0/ Network port/ U-disk
Optional configuration	Regular rotation axis (not included)	Regular rotation axis (not included)	Regular rotation axis (not included)
Dimensions	120*87*93cm	120(150)*87*93cm	120(170)*87*93cm
Net weight	150	150	150
Package dimensions	131*98*110cm	141*98*110cm	161*98*108cm
Gross weight	170kg	178kg	184kg

CONTENTS

Introduction

This manual has been designated as the systems, laser cutting machine installation and user guide ; the manual is divided into five chapters , Including general information instructions, safety instructions, the key components of every laser cutting systems and the installation steps, operation instructions and maintenance instructions from LASER Company.

Frist, it should be emphasized that the installation of each system must meet the requirements, and make it consistent with the installation requirements of LASER. If not, the machine will not working properly and this will lead to poor performance, shortened service life, increased maintenance costs and even machine damage.

The note is for getting a specific requirement of system installation and we hope every customer try to understand these notes before installation and usage, thus you can correctly install and use. If you meet any installation problems, you can contact our technical staff and customer service staff.

Chapter 1 General

1.1 General Information

Caution:

Please read and follow this Operation Manual carefully, before installation and operation. Damage to persons and/or material can result from not following individual points of the Operation Manual!

Operation of the system is only permitted with equipment and spare parts supplied or listed in the spare parts and consumables lists.

Auxiliary equipment must be adjusted to the base machine (any queries to dealer or manufacturer).

The following symbols are used for easier understanding of the Operation Manual:

If the Operation Manual is not observed, this area represents a particular danger for the operating personnel or the personnel responsible for maintenance.

Caution: This component is under voltage. In these areas strictly observe the safety instructions regarding electricity. Care is to be taken in particular during maintenance and repair work.

Caution: In this area pay attention to the possible dangers of the laser beam.

Tips: Note or information on individual components of the device that simplify the use or make it more understandable.

Attention

1. Read the manual carefully before operating. The following safety measures must be strictly enforced and abided by. Never operate laser machinery unless you have been properly trained.
2. Make sure to run the water pump before you switch on the laser.
3. Never leave the laser unattended. Remain with the machine when it is running at all times so that you can hear and observe abnormalities and potential hazards.
4. Never under any circumstances attempt to dismantle your machine as laser and high voltage parts can cause severe injury.
5. Always connect the ground connector to a grounded outlet to help eliminate static electricity.
6. Top lid should remain closed when the machine working.
7. Keep unit in areas that are clean and dry with good air quality, as certain pollutants can cause electrical interference with the device.
8. Caution: Do not open machine while in operation or while engraving reflective materials. Doing so will cause the laser to deviate or reflect which can result in blindness or serious injury requiring medical attention.
9. In rare cases of fire, please locate the nearest fire extinguisher, hose, or call your local fire department.
10. Coolant temperature should be kept between 60-85F. Store coolant at a consistent temperature as fluctuations can cause the tube to break if too cold and explode if overheated. For best results use deionized water. If deionized water can't be used, distilled water is an acceptable substitute. Always keep your coolant clean and clear for proper functioning of your unit.
11. Requires a 110 v 60Hz power supply. Do not run laser through an unstable or incompatible power source under any circumstances.
12. Warning: Never operate laser near flammable materials. The laser beam is invisible and poses an extreme fire risk to operators.
13. DO NOT run machine continuously for more than 8 hours. To keep your laser tube working optimally, stop your machine for a half hour every 7 hours.
14. Maximum current for laser tube is 20mA
15. Currents above 20mA will result in puncturing of the tube and damaging of the laser.
16. CE iSO9001 FDA

Manufacturer shall not be held responsible for damages or injury resulting from improper use or not following the safety measures.

1.2 Designated

This is used for engraving and cutting of signs, stamps and suchlike.

A wide variety of materials such as rubber, acrylic, coated metal, tin, special steel, anodized aluminum, cork, cardboard, glass, leather, marble, several plastics and wood can be processed on the laser.

1. The engraving process must only be performed with a perfectly adjusted machine.

2. It is absolutely necessary of using air system when process all the materials.

3. Use of the system in other areas is against the designated use. The manufacturer does not admit liability for damage to personal and/or equipment resulting from such use.

4,. The system must only be operated, maintained and repaired, by personnel that are familiar with the designated field of use and the dangers of the machine!

5. Non-observance of the instructions for operation, maintenance and repair described in this Operation Manual excludes any liability of the manufacturer if a defect occurs.

6. Caution when processing conductive materials (carbon fibers), Conductive dust or particles in the ambient air might damage electrical components and lead to short circuits. Bear in mind that those defects are not warranted.

1.3 Disposal remarks

Do not dispose the machine with domestic waste! 

Electronic devices have to be disposed according to the regional directives on electronic and electric waste disposal. In case of further questions, please ask your supplier. He might take care of proper disposal.

1.4 Device Specification

Mechanics

Working area	27.6“x 19.7“/ 700 x 500 mm
Table Size	29.5“x 21.6“/ 750 x 550 mm
Z Axis Height	7.9 inch / 200mm
Max. Height of work piece (Standard laser head)	7.9 inch / 200mm

Features standard:

Red Dot Pointer, Pass-Through Door, Air Assist, Water Pump, Exhaust Fan, Honey Comb Table, 1.5”(38.1mm)Focus Lens, , LCD Display, 3D Engraving, Water “protection, Emergency Stop.

Optional:

Rotary Attachment, open cover protection, motorized table, auto-focus worktable, Water Chiller Attachment, High Resolution head (up to 1000DPI, while standard laser head Max is 500DPI), Air Compressor, Water Filter.

Control System

Laser power	Adjustable from 0 - 100% (typically 10-100%)
Interface Hardware	USB: connect to PC and U-disk
Ethernet	connect to PC
Interface Software	RDworks V8
Operating Modes	Optimized raster, vector, and combined mode
Buffer Memory	128MB Standard

Laser Equipment

Laser Type	Sealed CO2 Glass Laser Tube
Laser Power	60W,80W,100W

Cooling System

Water Cooling System	Water Cooled

Electricity, Power, Fuse

Electricity Requirement	110 or 240 volts, 50 or 60 Hz, Single phase
Power consumption	1200W
Recommended fuse	15A (220V), 15A (110V)

Ambient Conditions	
Ambient temperature	+5°C to +25°C / 59°F to 77°F
Humidity	40% to max. 70%, not condensing

Laser Safety	
Laser class	CDRH Laser Safety Laser Class 4(H) CE compliant, FDA approved

1.5 Manufacturer's Label

The manufacturer's label is located on the device (see Figure below).

It is recommended to enter data such as serial number and year of manufacture into the manufacturer's label below so that you always have this data handy if you have problems with your device or require spare parts.

Chapter 2 Safety

2.1 General Safety Information

All personnel involved in installation, set-up, operation maintenance and repair of the machine, must have read and understood the Operation Manual and in particular the "Safety" section.
The user is recommended to generate company-internal instructions considering the professional qualifications of the personnel employed in each case, and the receipt of the instruction/Operation Manual or the participation at introduction/training should be acknowledged in writing in each case.

Safety-conscious of Working

The machine must only be operated by trained and authorized personnel.

The scopes of competence for the different activities in the scope of operating the machine must be clearly defined and observed, so that under the aspect of safety no unclear questions of competence occur. This applies in particular to activities on the electric equipment, which must only be performed by special experts.

For all activities concerning installation, set-up, start-up, operation, modifications of conditions and methods of operation, maintenance, inspection and repair, the switch-off procedures that may be provided in the Operation Manual must be observed.

Safety Information for the User and/or Operating Personnel

1. No working methods are permitted that affect the safety of the machine.
2. The operator must also ensure that no unauthorized persons work with the machine (e.g. by activating equipment without authorization).
3. It is the duty of the operator, to check the machine before start of work for externally visible damage and defects, and to immediately report changes that appear (including behavior during operation) that affect the safety.
4. The user must provide that the machine is only operated in perfect condition.
5. The user must guarantee the cleanness and accessibility at and around the machine by corresponding instructions and controls.
6. Principally, no safety components may be removed or disabled (already here we emphasize the imminent dangers, for example severe burns, loss of eye-sight). If the removal of safety components is required during repair and service, the replacement of the safety components must be performed immediately after completion of the service and

repair activities.

7. Preparation, retooling, change of work piece, maintenance and repair activities must only performed with equipment switched off, by trained personnel.
8. It is forbidden to perform unauthorized modifications and changes to the machine. It is emphasized, that any unauthorized modifications to the machine are not permitted for safety reasons.

2.2 Laser Safety Information

1. To assess the potential dangers that laser systems pose, they are classified into 4 safety classes. It is a device of class 4. This is guaranteed by the protective housing and the safety installations.

Please note that improper operation of the device can override the status of safety class 4 and can cause the emission of harmful radiation.

2. This laser engraving system contains a carbon dioxide (CO_2) laser of class 4 that emits intensive and invisible laser radiation. Without safety precautions
the direct radiation or even diffuse reflected radiation is dangerous!

3. Without safety precautions, the following risks exist with exposure to laser radiation: Eyes: Burns to the cornea
Skin: Burns
Clothing: Danger of fire

4. Never try to modify or disassemble the laser and do not try to start up a system that had been modified or disassembled!

5. Dangerous radiation exposure can result from the use of operation or adjustment equipment other than that described here, and if different operational methods are performed.

2.3 Safety Precautions when Operating the Device

The machine must only be operated by trained and authorized personnel.
in your operation, when there is no water, less water or dirty water, the laser machine will be off, so please attention the water situation, for example, there is more enough water, and the water is cleanly.
We suggest you choose purified water or distilled water.
Press the "PAUSE" button, if you want to interrupt an working process.

Please remember the following safety precautions when working with this device:

A fire extinguisher must always be handy as the laser beam can ignite flammable materials. Do not store any flammable materials in the inside of the device or in the immediate vicinity of the device. Particularly leftovers of produced materials have to be removed to prevent fire hazard.

Unsupervised operation of the system is not permitted:

Because of their low absorption, many metals, in particular un-coated aluminum, copper, silver and gold, cannot be processed with the laser and this will lead to high reflection of the laser beam. Such materials must not be inserted into the beam, as a directed reflection could destroy the protection cover.

Adjustment of the beam path must be performed only by especially trained personnel. An improper setting can lead to uncontrolled emission of the laser radiation.

Before processing materials the user must verify, whether harmful materials can be generated and whether the filter equipment of the exhaust system is suitable for the harmful materials. We emphasize that it is the responsibility of the user, to consider the national and regional threshold values for dust, fogs and gases when selecting the filters and the exhaust system. (The values for the maximum workplace concentration must not be exceeded.)

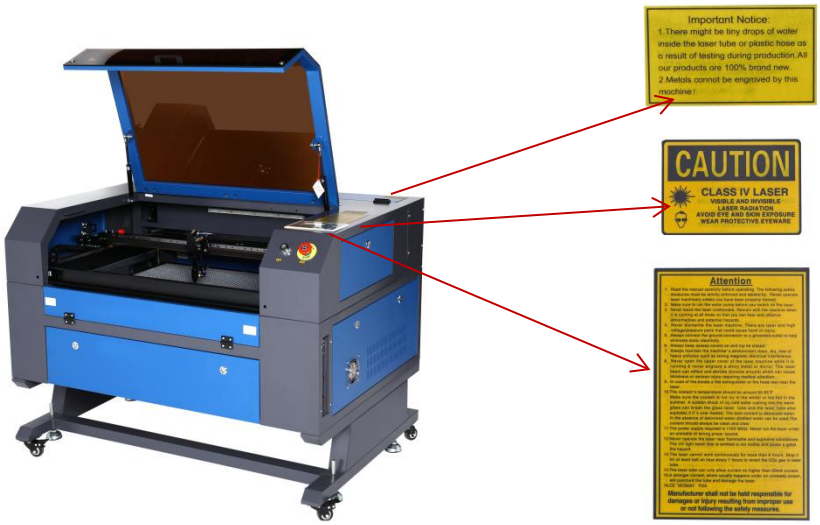
Please refer to the manual of the exhaust system on how and in what intervals you need to replace filters.

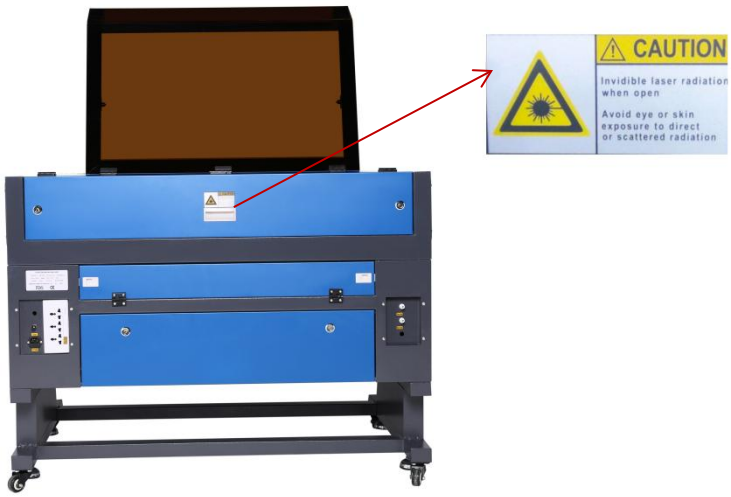
PVC (polyvinyl chloride) must under no circumstances be processed with the laser.

Should you have further questions before starting work, please feel free to write us an email at: help@cs-supportpro.com

2.4 Warning and Information Labels

The warning and information labels are attached in such positions of the device that could represent a source of danger during set-up and operation. Therefore, follow the information on the labels. If labels are lost or damaged, they must be replaced immediately.





Chapter 3 Process of Installing

3.1 Unpacking

You receive your packed in a wooden box, which contains the laser machine and additional accessories. The following steps give you an overview of the unpacking and assembly of the laser. Please follow these steps carefully.

Tips: Keep the packing box. You will require it in case of a return. Dispose all waste according to the applicable waste disposal law.

1. Put the wooden box on a flat and spacious room for unpacking.

2. Remove the machine box, carefully remove the foam material, which protects the viewing window of the cover and around the machine.

3. Take out the key , open the door of the laser , Remove the accessories box which contains all accessory parts required for the installation of the laser machine.
And check if there's anything damaged or missed during shipping.

4. Remove the sponge and nylon cable ties inside the machine, and start to install the machine (below chapters are installation details)

5. Please keep the keys.

6. Remove the sponge and nylon cable ties inside the machine, and start to install the machine, (below chapters are installation details)

3.2 Contents of Delivery

1. Transport and service packaging
2. Laser including optics
3. Other optional components that you buy.
4. Accessories box and the other machine parts, which contains the following parts:

	ITEM	QTY
1.	tools	1
2	Ground Wire	1
3	Long USB Cable	1
4	Ethernet cable	1
5	Water box	1
6	Power Cable	1
7	silicone	1
8	7mm acrylic focus tool	1
9	Water Pump	1
10	Sticker for Adjust light path	1

11	Exhaust Pipe	1
12	Hose Clamp	3
13	Water Pipe	2
14	Key	3
15	Manual	1
16	4G-U DISK (software)	1

3.3 Location

Before you install the laser system, you should select an appropriate

location. Follow the guidelines shown below:

1. Avoid locations where the system is exposed to high temperatures, dust and high humidity. (The humidity must not exceed 70% and the temperature must not be close to the dew point.)
2. Avoid locations, where the system is exposed to mechanical shocks.

3. Fuse protection:

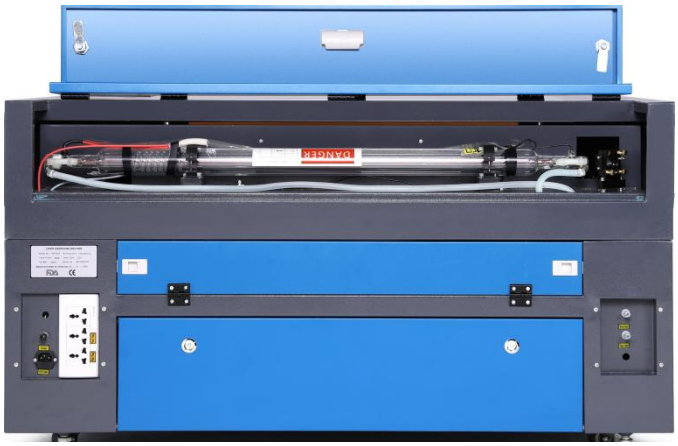
   Do not connect other devices via the laser fuse, as the laser system requires the full amperage.

Tips:

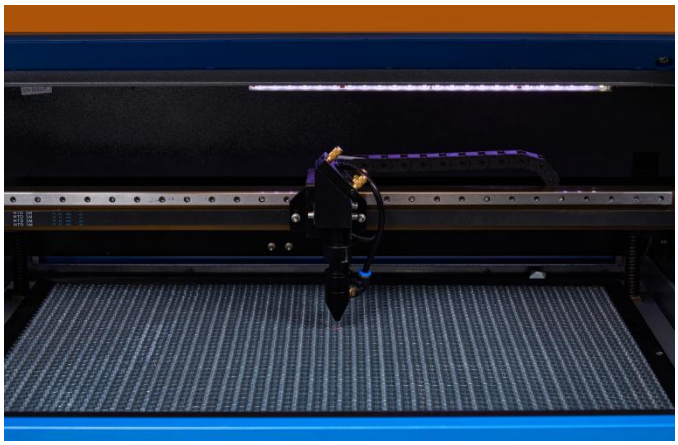
1. Avoid locations with poor air circulation.
2. Select a location, whose room temperature is between 5 °C and 25 °C Avoid higher ambient temperatures and strong exposure of the engraver to the sun. Use blinds, if required.
3. Select a location close to ventilation (if available).
4. Select a location that is not more than 4.50 m away from your computer (max. cable length to avoid disturbing interferences).
5. Try to place a working table next to it and avoid using the machine as a table

3.4 Before Installation

1. Take out the sponge around the laser tube.



2. Take out the nylon cable ties around the honey comb plate and X axis.



3. Open the rotate emergency switch (must do it for the first time to use the machine). Like below

3.4 Exhaust System – Requirements

To guarantee the right ventilation during the engraving and the cutting. The device must be equipped with a fine exhaust fan(generation of rubber dust), if you use an carbon filter (neutralization of smells) will be better for exhaust effect. A good exhaust fan of the outgoing air is also required when cutting plastics or engraving wood.

Connection - see section 3.8.3 connecting the Exhaust System.

Do not start the machine without an adequate exhaust system.

3.5 Built-in air pump

3.6 Computer – Requirements

The following recommendation represents the minimum requirements. When using a more powerful computer the graphics are generated and displayed faster and the computing times and the data transfer to the laser are reduced. To use the newest software version, you might have to abide other requirements.

- Windows 8 (32 bit and 64 bit)
- Windows 7 (32 bit and 64 bit)
  Windows Vista (with Service Pack 1 or later) Windows XP (with Service Pack 2 or later)
- 1024 MB of RAM, 400 MB of hard disk space

- Pentium® 3 or 4 processor or AMD Athlon™ XP
- 1024 x 768 or better monitor resolution
- 1 free USB interface
- 1 free Ethernet interface
- Mouse

3.7 Connections

Perform the connections exactly in the order described; otherwise electrostatic charging can damage your computer and/or the electronics of the laser system.

3.7.1 Connecting the Mains

Connect one end of the mains cable with the connection socket at the rear

side of the laser device (see Figure below) and the other end with a protected power outlet.

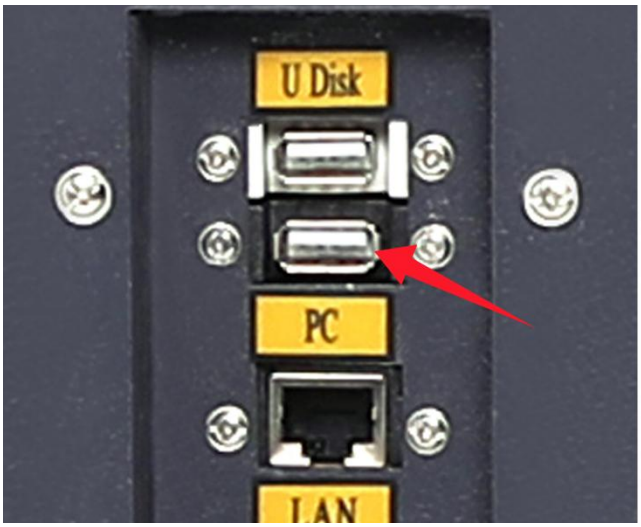
Mains voltage and operating voltage must correspond (AC 220 V/50 Hz or AC 110 V/60 Hz) – see information label beside the connection socket.

Under no circumstances can you switch on the device if the voltages do not correspond.

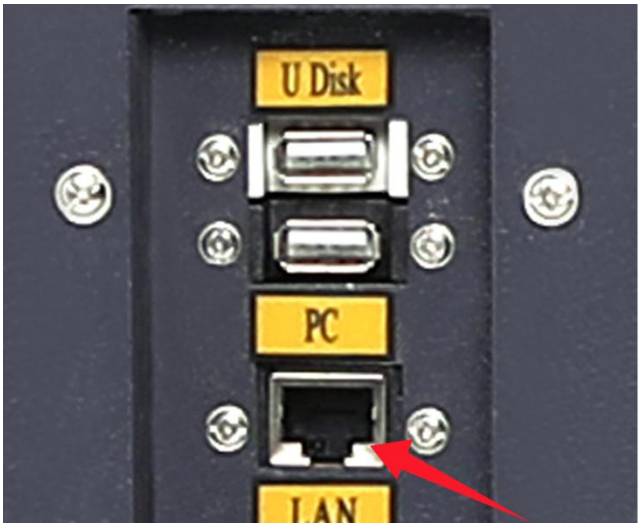
Tips: The main fuses are located inside the connection socket and are accessible from the exterior.

3.7.2 Connecting the Computer

Connecting the computer and the machine by using the USB cable, like below:



Connecting the computer and the machine by using the Ethernet cable, like below:



3.7.3 Connecting the Exhaust System

Exhaust fan, smoke pipe, is shown in Fig.

Also follow the operation and maintenance instructions in the Operation Manual of the exhaust system.

The input voltage must correspond (AC 220 V/50 Hz or AC 110 V/60 Hz) – see information label beside the connection socket.

Tips: Do not connect the air compressor or the water chiller to the above interface. If you connect them to the above interfaces that cause in failure of the machine, the warranty does not covered.

3.7.4 Built-in air pump

3.7.5 Connecting the Cooling System

If you have the water chiller, please connect to the water chiller priority. If not, please connect to the water pump.
The connection of the machine and the **Water chiller**

① Take out one of the water pipes and connect to the water chiller where marked as "OUTLET", the other side of the pipe connect to the machine where marked as "Water IN".

② The other pipe, please connect to "INLET" of water chiller and "Water OUT" of machine.

We will provide a certain chiller power cable for different countries, and the powercable will be put inside a box together with the water chiller.

We will provide a certain chiller power cable for different countries, and the power cable will be put inside a box together with the water chiller.

The connection of the machine and the **water pump**

① Take out one of the water pipes and connect to the water pump, the other side connect to the machine where marked as “Water IN”.

② The other pipe, please connect to the machine where marked as “Water OUT”., the other side directly into the water.

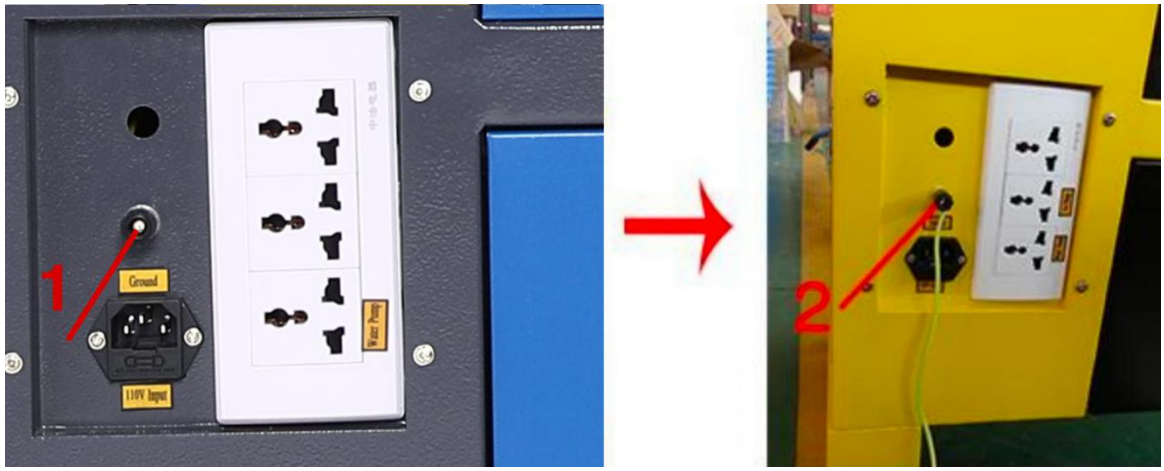
Like below:

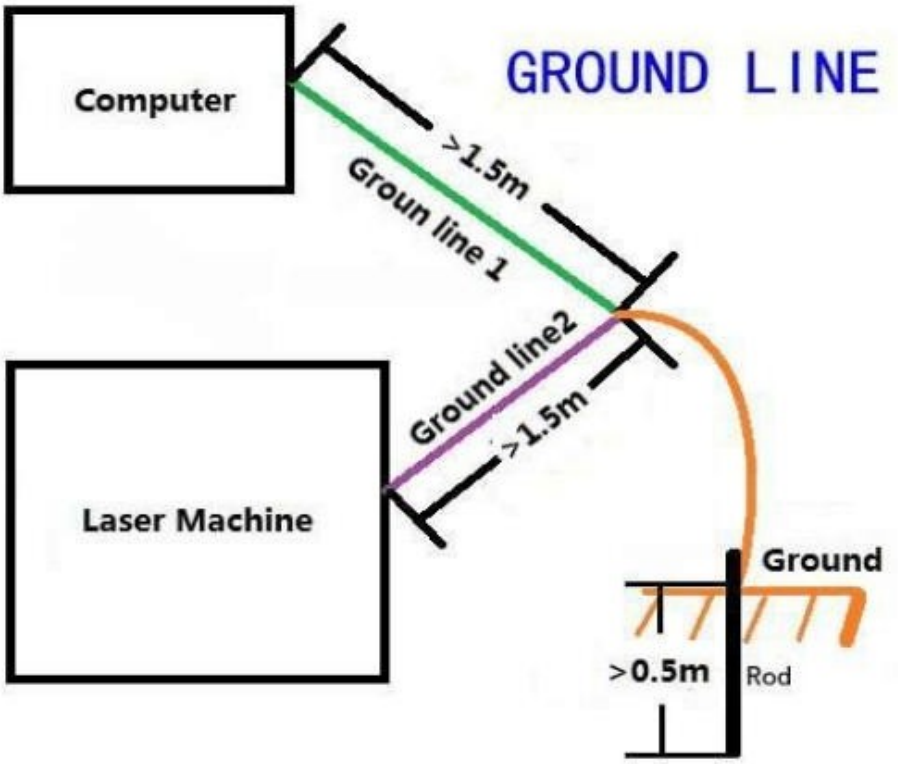
Get through the water chiller or the water pump, and turn on the main power.

Check the water chiller or pump to work（If normally work, the green light will light or water will flow from the pipe）.

3.7.6 Safety Grounding

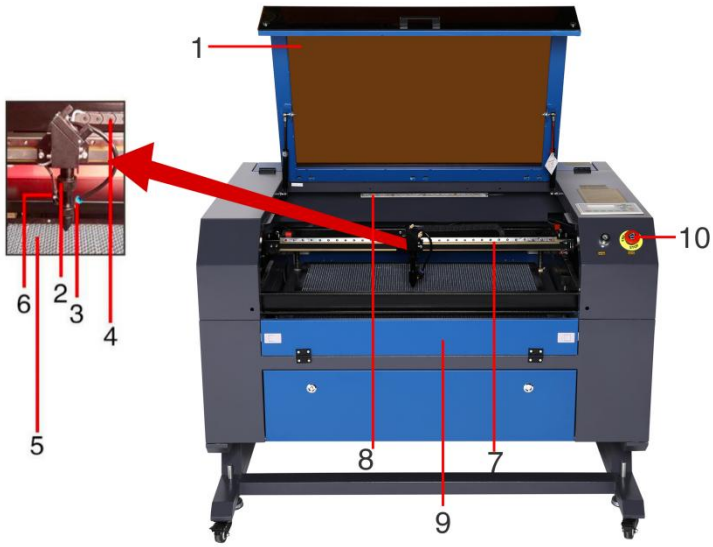
Co2 laser tube is the fourth type of laser. The type of drive is high-voltage-driven, so during users use the machine, they must comply with the "Safety Note". On the other hand, it asks stringent requirement about the safety grounding to the users. The safe Line-to-Ground Resistance should be less than 5□ , Specific connection method is shown in the below:

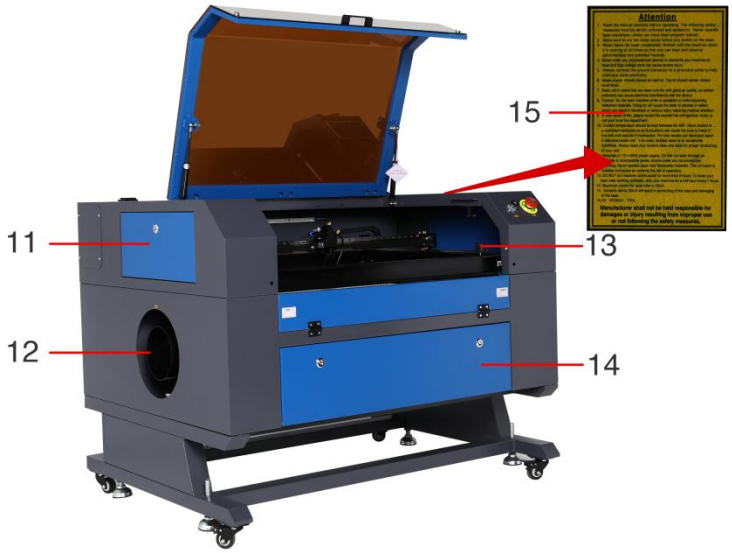


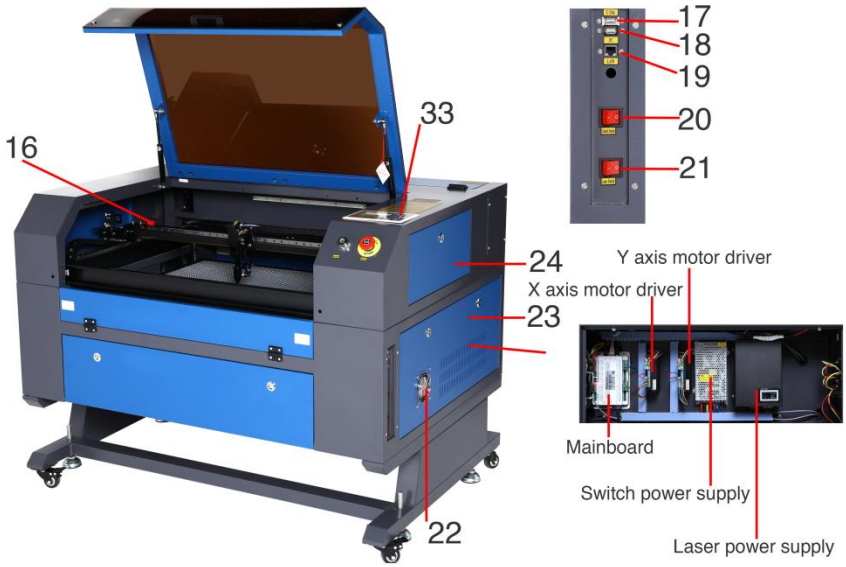


Chapter 4 O peration

4.1 Machine View



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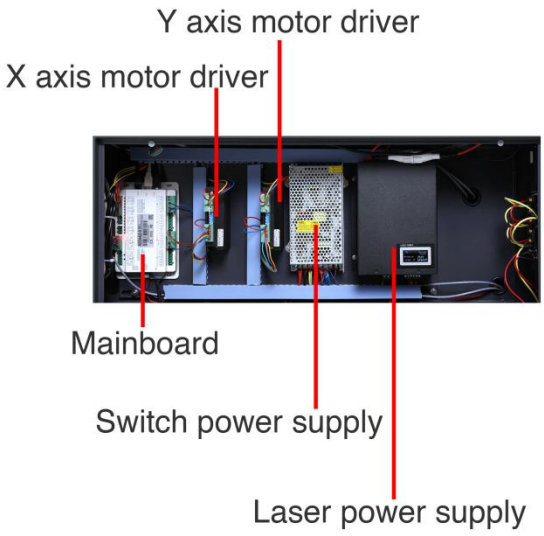
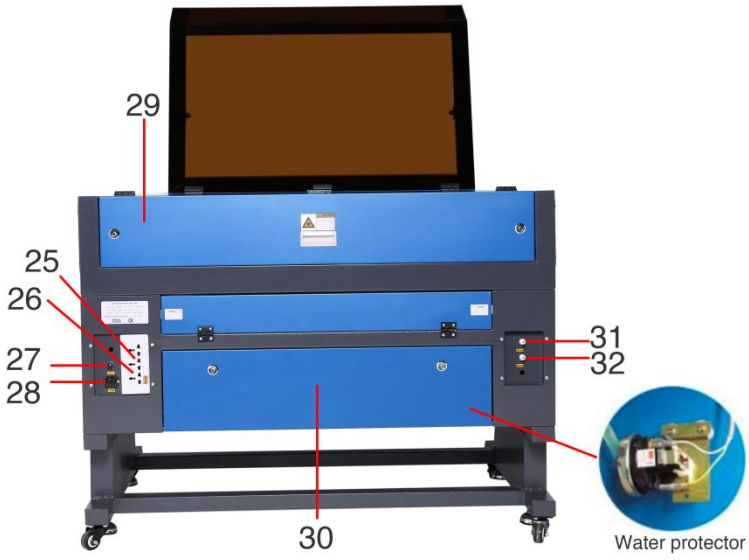
Y axis motor driver
X axis motor driver
Mainboard
Switch power supply
Laser power supply


Y axis motor driver
X axis motor driver
Mainboard
Switch power supply
Laser power supply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32
Water protector

1. Top lid

Open the top lid when you put materials, and close the top lid when the machine is working.

2. Laser head

The laser and red dot pointer come out from the laser head.

3. Blow air conditioner

Blow away the smoke and dust, protect the lens, prevent the material from catching fire, etc

4. Leading chain

The air pipe is here to blow air for laser head, and there is red point cable in it.

5. Honeycomb working table

According to your need, put the honeycomb working table onto the aluminum knife working table or aluminum plate working.

6. Red point

Used to indicate the position of the laser light

7. X - axis

The motion system is that performs the mechanical movements in X direction. The X- axis is visible in the working area.

8. LED light

You can easily see the situation of working.

9. Front and rear feeding port.

Easy to process the long materials

10. E-stop (The rotate emergency switches)

Once there's an accident happen (laser catch fire, laser out leakage) during working, please turn off this switch immediately.

And run the machine, make sure it is on.

11. Left up side door

Open this door for cleaning the second reflective mirror

12. Exhaust hose

This is for installing the exhaust device.

13. Manual regulating valve of up and down

You can adjust it to make the worktable up or down.

14. Front door

Open this door for cleaning the waste after working.

15. Attention

Please read it carefully before the machine works.

16. X limit switch

It will give a stop instruction to the motors when the laser head get to origin.

17. U-disk connection port (USB)

You can transport the data by U-disk, it is very useful for different situation**.**

18. USB cable port (PC connection port)

This USB is for connecting computer.

19. Ethernet port

This port is connecting the laser machine and PC by Ethernet cable.

20. Control switch

Turn it on when the machine is running; otherwise there is no instruction for the machine.

21. Laser switch

Turn on the laser switch when the machine is running, otherwise there is no laser.

22. Fan

Bring down fever of the main board and driver.

23. Right down side door

There is laser power supply, main board, switch power supply, X and Y motor driver. please open this door for checking these parts, but must pay attention to the electric current.

24. Right up side door

Open it, easy to connect socket of rotary attachment. (rotary attachment is optional)

25. Air pump power socket

You can connect the air pump to it when you do not have enough socket on your work place.

26. Water pump power socket

You can connect the water pump to it when you do not have enough socket on your work place.

27. Ground line

This point is for connecting cable from machine to ground, and to make sure the machine works better.

28. Power supply socket

To connect the main power and the extend power according to the label information, and there is fuses in it.

29. Laser tube cover

There installed the laser tube and the first reflective mirror inside.

30. Back door

Open the door, you can see the water protector.

31. Water outlet

This port is for connecting water in pipe of water pump or water chiller.

32. Water inlet

This port is for connecting water out pipe of water pump or water chiller.

33. Control panel

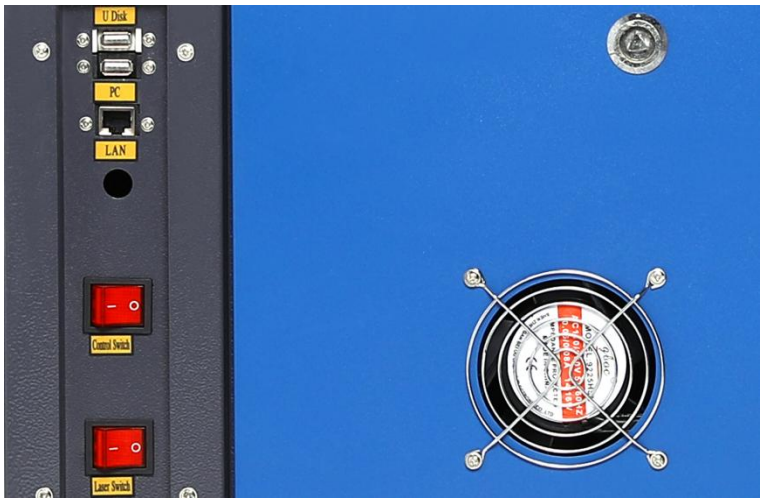
You can control the X-axis and Y-axis (Z-axis optional) by the display panel. It also shows the working time, power, speed and the whole working time, and affords many function options (please view this chapter 4.4 for detailed information)

4.2 ON/OFF Switch

Switches the E-stop and the laser supply power ON/OFF The following conditions must be fulfilled for correct start up:Unrestricted freedom of motion of the mechanics

- No materials under the engraving table

- When turn on the power of machine, and note that turn on the E-stop switch first and then the laser supply power.



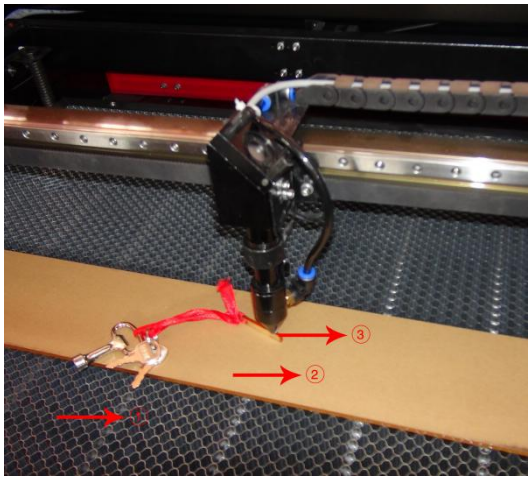
When the referencing process is completed correctly, an acoustic signal sounds and the device is ready for operation. The operation panel will display the home screen when the laser is completed resets.

Before switching on the device, the user must make sure that no objects of any kind are located inside the operating space, which could limit or obstruct the mechanics of the device.

Tips: When switching off the mains supply, all processing data is lost.

4.3 How to adjust focus distance

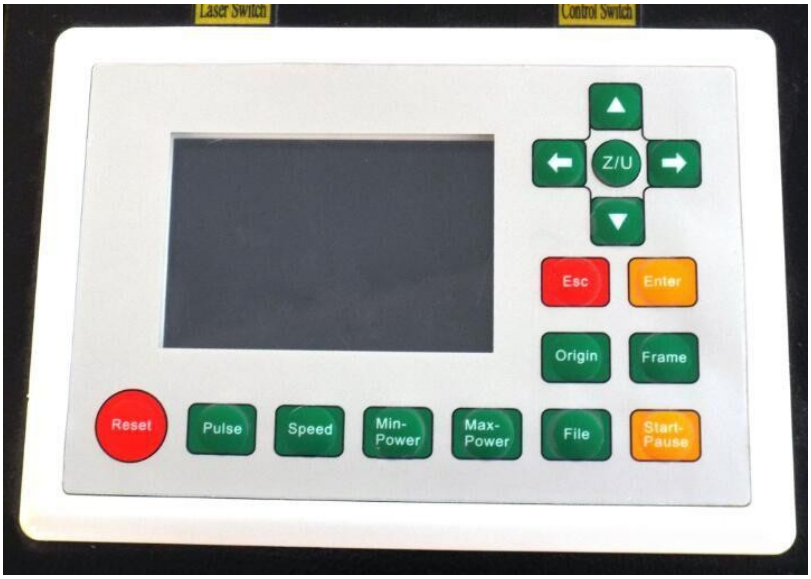
For standard laser head:
Find the 7mm Acrylic Focus Tool for help to adjust the focus directly like below:



①Working Table
②Material
③Focus Tool

4.4 How to use the control panel

4.4.1 Function of the Buttons



Arrow buttons: control the movement of the laser head.(also can be used to change the parameters in the control panel)

Z/U button: The Z/U key can be pressed when the system is idle or the work is finished. On pressing this key, it will show some entries in the interface, each entry includes some functions, Z axes move, U axes move, each axes to go home etc.

Reset button: reset the machine.

Pulse button: single press to draw a dot, press and hold to drill a hole.

Speed button: Set the speed of the current running layer, or set the direction keys' move speed.

Min-Power button: Set the min laser power of the current running layer.

Max-Power button: Set the max laser power of the current running layer, or set the power of "Laser" Key.

File button: The management of the memory and U disc files.

Start-Pause button: run/pause the current job.

Origin button: set the starting point for the laser head.

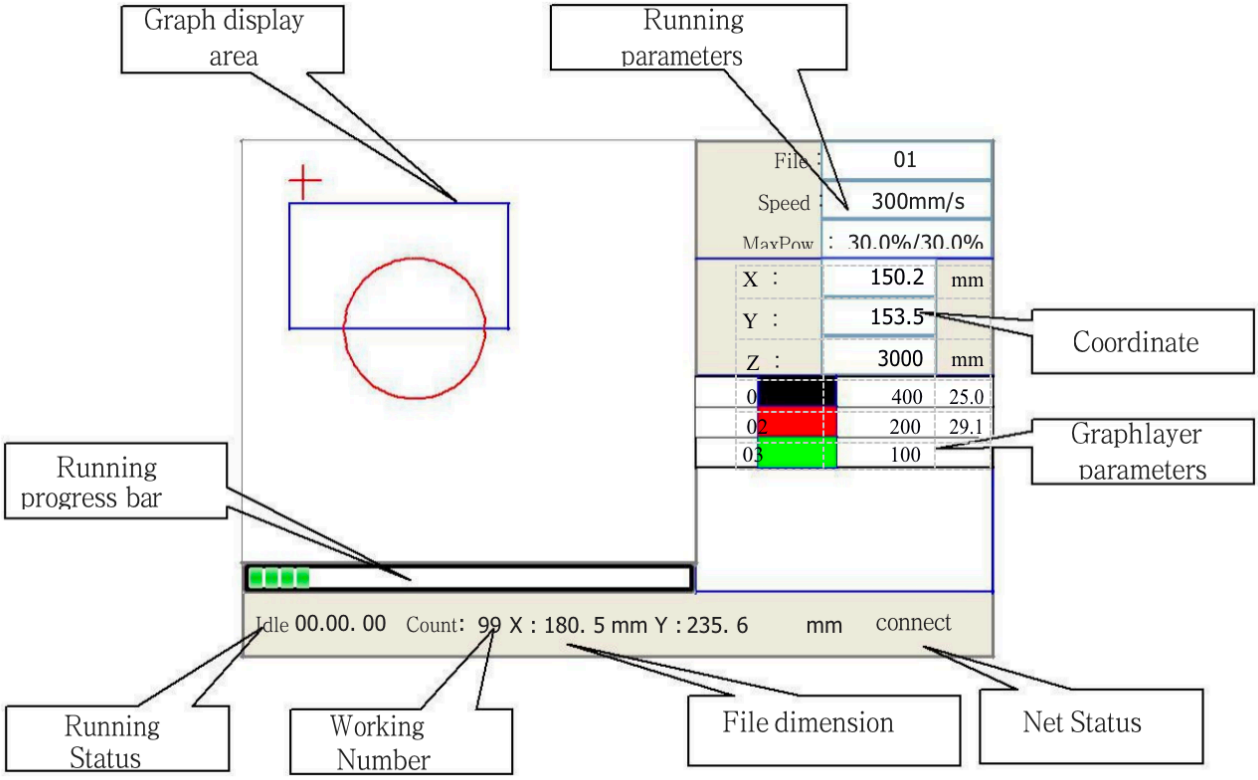
Frame button: To track by the current file's frame.

Esc button: To stop work, or return to the last menu.

Enter button: confirm your selection.

4.4.2 The main interface

When the system is powered on, the screen will show as below:



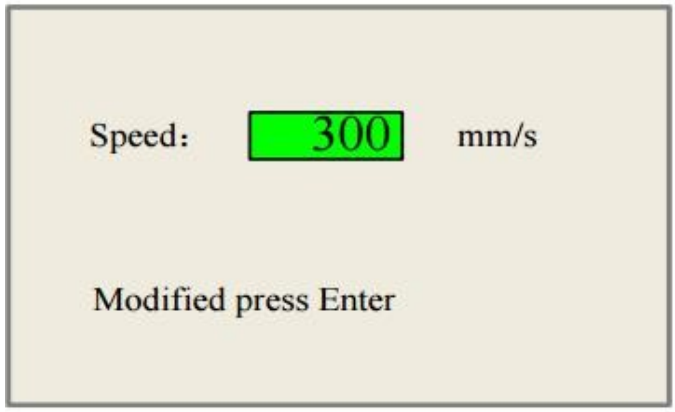
Graph Display Area: To display the whole file's track, and display the running track.

- Running parameters: To display the running file's file number, speed, max power etc.;
- Coordinate: To display the current coordinate of X,Y and Z axes
- Graph layer parameters: To display the layers' information of the current file, such as max or min power, speed etc.. When system is idle, dblclick the layer, then users can change the layer's parameters and the changing would be saved.
- Running Status: To display the current status of the machine, such as Idle, Run, Pause, Finish, etc.;
- Running Progress Bar: To display the progress bar of the current running file;
- Working Number: To accumulate the work number of the current file.
- File Dimension: To display the dimension of the current file;
- Net status: To display the connecting status of the Ethernet.

When in idle or finished mode, all keys can be pressed, and users can select a file to run, set some parameters, preview to a selected file etc. But, when the machine is running or paused, some keys will not respond when they are pressed.

4.4.3 Speed Key

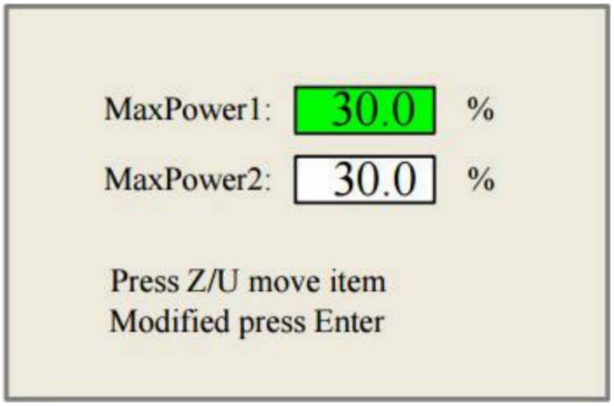
Push the “Speed” key when the screen is on the main interface, it will show as below:

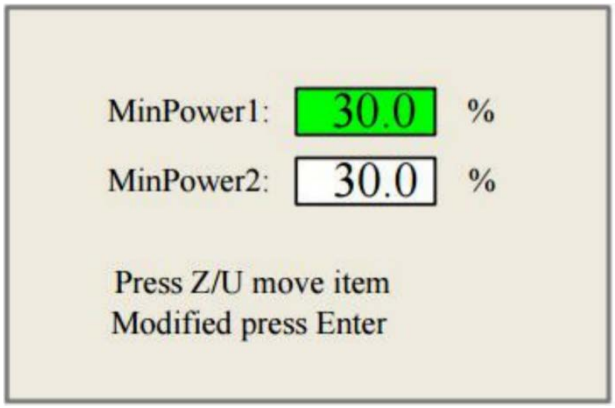


Push the “X+/-“ Keys to move the cursor in the numeral area, and push the “Y+/-” keys to change the value, then push the “Enter” key to save the change, push the “Esc” key to invalidate the change.

4.4.4 Max/Min Power Keys

Push the “Max Power” or the “Min Power” keys when the screen is on the main interface, it will show as below:

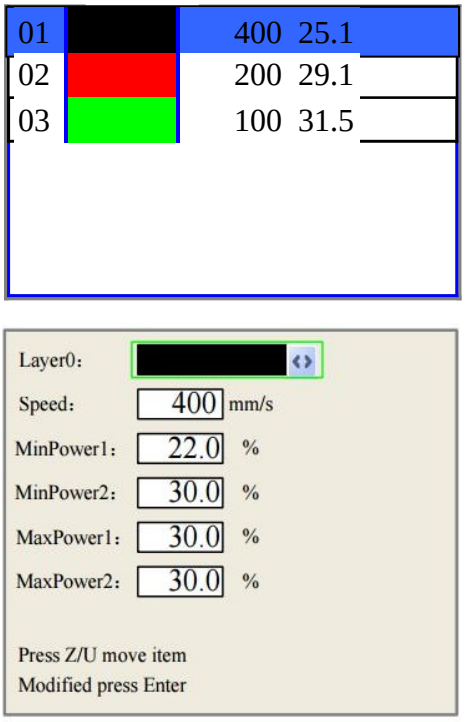




When “Z/U” key is pushed, the green block can move up and down to denote the changing item, then “Y+/-” keys and “X+/-” keys can be used to change the value.

4.4.5 Set the Layer Parameters

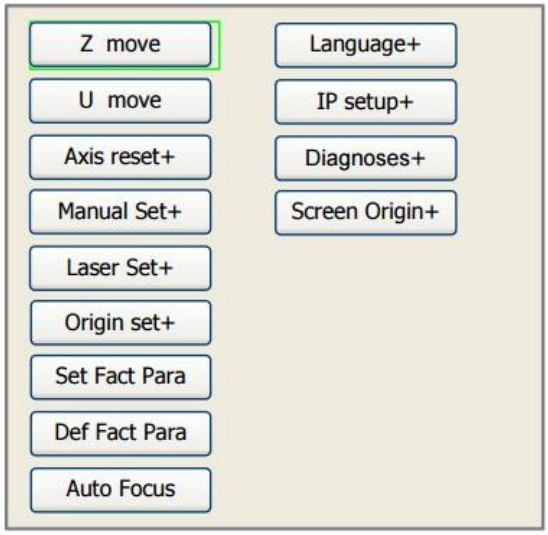
After selecting a file to preview on the main interface, user can push “Enter” key to let the cursor move to the first layer, then “Y+/-” Keys can be pushed to select the intent layer, on that time, user can push “Enter” key to check the selected layer’s parameters, show as below:



User can push “Z/U” Keys to move the green block on the intent parameter, then he could change the parameter if needed. “OK” to validate the change, and “Esc” to invalidate the change.

4.4.6 Z/U Key

The Z/U key can be pressed when the system is idle or the work is finished. On pressing this key, it will show some entries in the following interface:



Press up and down arrow keys to move the green block to the anticipant item, and then push the “Enter” key to display the sub menu.

4.4.7 Z Move

When the green block is on “Z Move” item, to move the Z-axis table up and down by press left and right arrow keys, then press ESC to go back to normal x & Y axis control.

4.4.8 U Move

When the green block is on “U Move” item, to move the Z-axis table up and down by press left and right arrow keys,

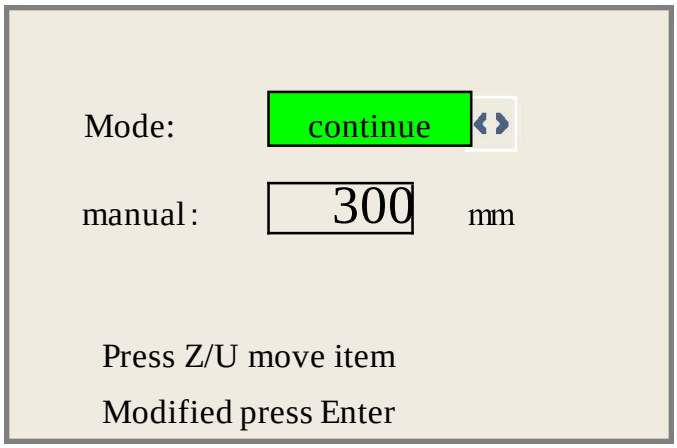
4.4.9 Axis Reset+

When the green block is on this item, push the “Enter” key to show as below:

Press up and down arrow keys to move the cursor to one of the entry, then push “Enter” key to restart the selected axis, the screen will show some information when resetting.

4.4.10 Manual Set+

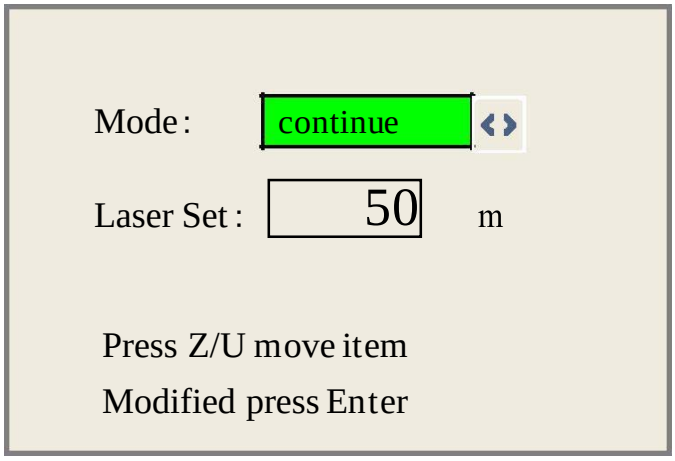
When the green block is on this item, push the “Enter” key to show as below:



Push “Z/U” key to move the green block, and when the green block is on the “Mode” item, push “X+-“ keys to select the anticipant value, “Continue” or “Manual”. When “Continue” item is selected, then the “Manual” item is not valid, on that time, push the direction keys to move the corresponding axes, and when the pushed key is loosed, then the corresponding axes will finish moving. When the Mode item is “manual”, then pushing the direction key one time, the corresponding axes will move a fixed length, unless the scope is overstepped.

4.4.11 Laser Set+

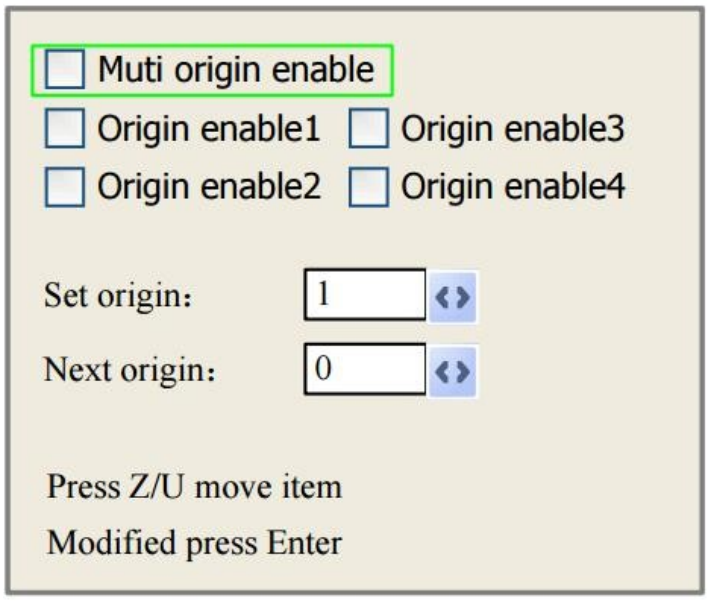
When the green block is on this item, push the “Enter” key to show as below:



Push “Z/U” key to move the green block, and when the green block is on the “Mode” item, push “X+-“ keys to select the anticipant value, “Continue” or “Manual”. When “Continue” item is selected, then the “Laser Set” item is not valid, on that time, push the Laser key to splash the enabled lasers, and when Laser key is loosed, then the lasers will finish splashing. When the Mode item is “manual”, then pushing the Laser key one time, the enabled lasers will splash a fixed time.

4.4.12 Origin Set

When the green block is on this item, push the “Enter” key to show as below:



Push “Z/U” key to move the green block to the anticipant item, and when the green block is on “enable” items, push “Enter” key to enable or disable the item, when enabled, the small diamonds is green, and when disabled, the small diamonds is grey. When the green block is

on the “Set origin” item or the “Next origin” item, push the “X+-“ keys to select the value.

Pay attention to if when the green block is on the “Set origin” item, push the “X+-“ keys to select a value, then, “Enter” key must be pushed to valid the change, or, the change is invalid.

Each item introduced as below:

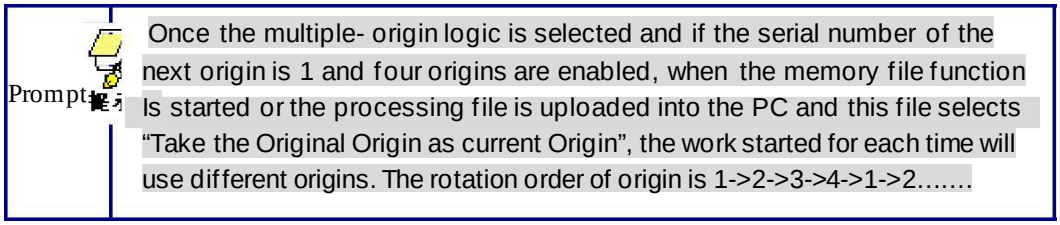
- Multiple Origins Enable: “Yes” or “No” can be selected. If you select “No”, the system will use the single-origin logic. You can press the “Origin” key and set the origin, and only this origin can become valid. If you select “Yes”, the system will use the multiple- origin logic and the “Origin” key on the keyboard become invalid.

  In such a case, the parameter of each origin must be set in the menu as follows.

- Origin Enable1/2/3/4: after the multiple-origin logic is enabled, the four origins can independently be prohibited and enabled.

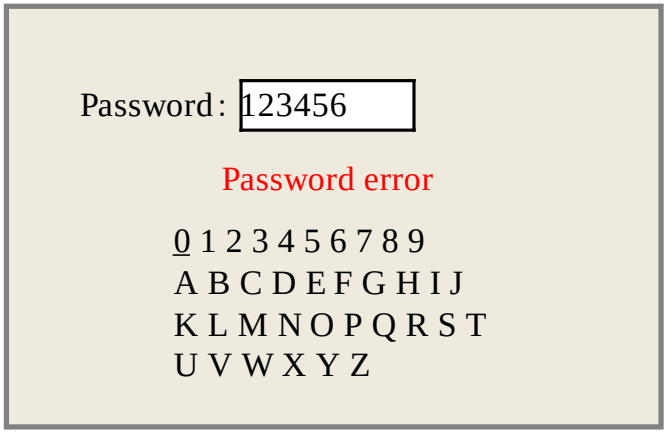
- Set Origin 1/2/3/4: after the multiple- origin logic is enabled, you can stop the cursor at “Set as Origin 1/2/3/4”. Press the “Enter” key on the keyboard and the system will take the coordinate figures of current X/Y axles as the corresponding ones to the origin 1/2/3/4.

  Next Origin: there are such five digits as 0~4 for option, which are the origins to be used for the next figure. Origin 0 means the origin set by the “Origin” key on the panel in the single- origin logic. 1~4 means the serial number of the origins in the multiple- origin logic. Next origin can be modified to any one of origin 1~4, so as to control the start location of next work (the premise is that the origin is enabled), but it can’t be modified to origin 0.

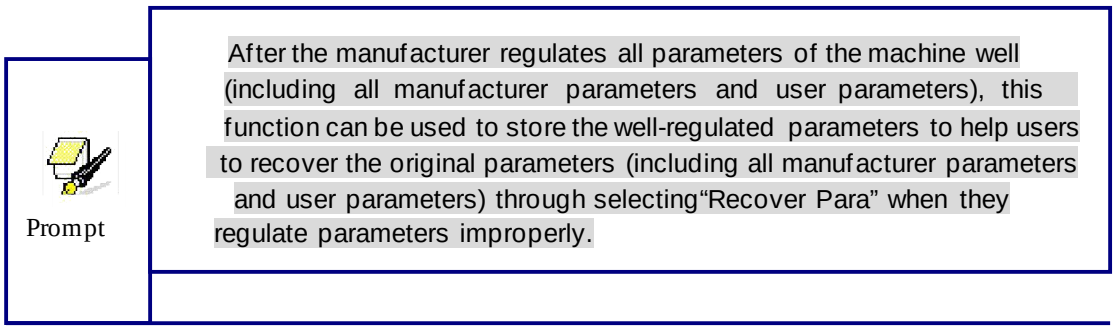


4.4.13 Set Fact Parameters

After the “Set Fact Para” is selected and the Enter key pressed, the interface will show the specific password to be entered when set as default parameter.



Push “X+/-” keys and “Y+/-” keys to select the characters, and push the “Enter” key to valid the characters, when finishing enter the password ,that is to say, the six characters, if the password is error, it prompts there is some error, or, all parameters are stored.



4.4.14 Def. Fact Parameters

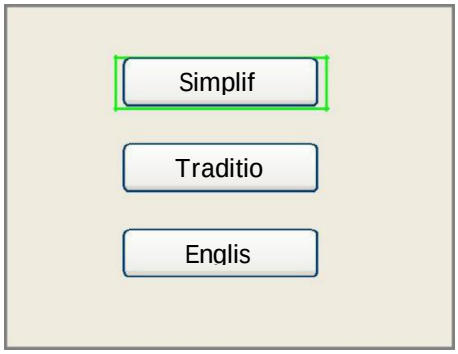
After the “Def Fact Para” is selected and the Enter key pressed, the “Successful Recovery” dialog box will pop up to prompt that all manufacturer parameters and user parameters are recovered successfully. You can return to the previous menu by press the Enter key.

4.4.15 Auto Focus (optional)

When the cursor stops at “Auto Focus”, press the Enter key to search for the focus(When there is z axes, and the z axes reset function is enabled, the auto focusing is valid); press the Esc key to return the prior menu.

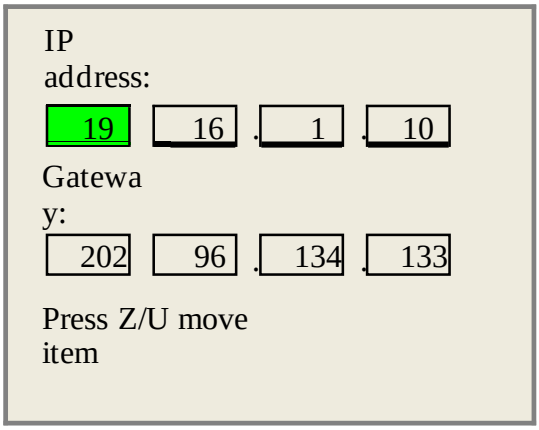
4.4.16 Language

The item “Language” helps you to select a appropriate langue which is displayed on the pane:



4.4.17 IP Setup

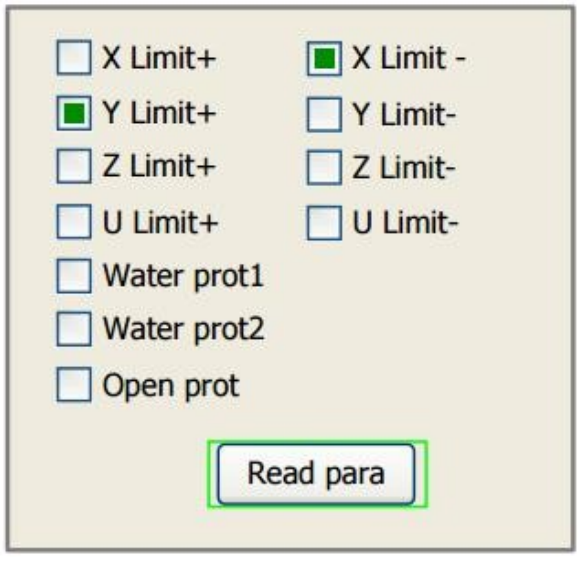
When the green block is on this item, push the “Enter” key to show as below:



Push “Z/U” key to move the changing item, then push “X+/-” keys and “Y+/-” keys to change the value, when all the IP value and the Gateway value are changed, push “Enter” key to validate the change, or “Esc” key to invalidate the change.

4.4.18 Diagnoses

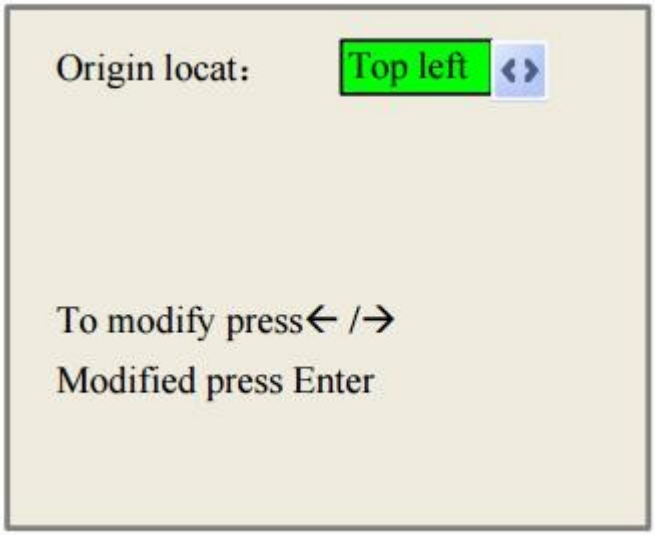
If the “Diagnoses” item is pressed, the system will show as below:



This interface shows some system input information, such as limiter status, the status of the water protecting, and the status of the foot switch etc.. When the input is validated, the color frame will be green, otherwise it’s gray.

4.4.19 Screen Origin

If the "Screen Origin" item is pressed, the system will show as below:



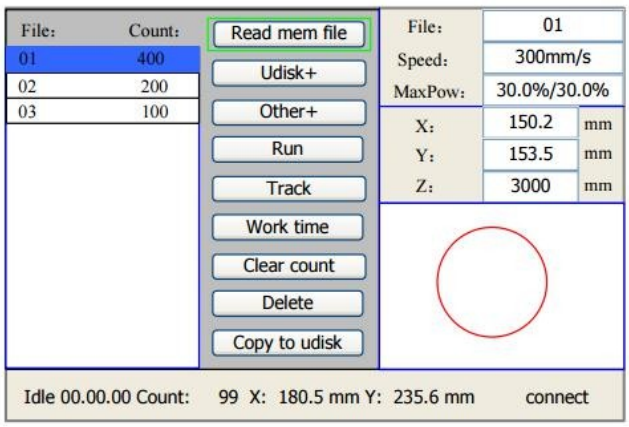
There are four entries to be selected: Top Left, Top Right, Bottom Left and Bottom Right. When one is selected, the previewed graph on the screen would be enantiomorphously based on X or Y direction.

Caution	This item is only used to preview the file on the screen, and it is no meaning to the machine's movement.

4.4.20 File Key

1). Memory File

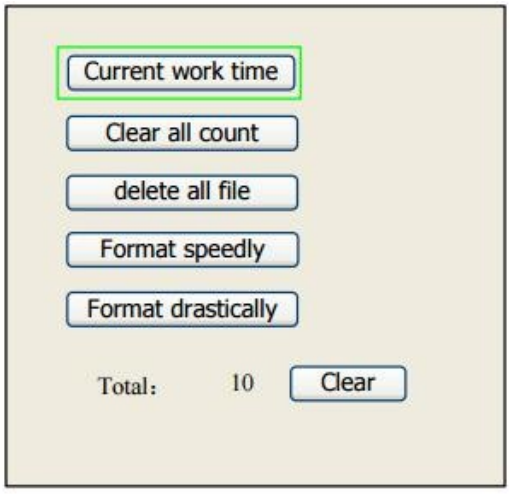
On the main interface, if "File" key is pressed, it will shown as below:



When showing this menu, the system would read the memory file firstly, the file name and the work times would be listed in the area, and the selected file is previewed in the bottom right area. “Y+/-” keys could be used to move the cursor on the file name list. When the cursor is on a target file name, presses the “Enter” key, the selected file will be previewed on the main interface, and then if “Esc” key is pushed, the preview will disappear.
“X+/-” keys could be used to move the cursor left and right, All the item show as below:

- **Read mem file:** read the memory file list;
- **Udisk:** read the U disk file list;
- **Other:** the other operation of the memory files;
- **Run:** to run the selected file;
- **Track:** to track the selected file, and the track mode is optional;
- **work time:** To forecast the running time of the current file(the current file No. is showed on the main interface), and the time is accurate to 1ms;
- **Clear count**: To clear the running times of the selected file;
- **Delete**: To delete the selected file in the memory;
- **Copy to Udisk**: To copy the selected file to Udisk;

If the “Other” entry is pressed, the system will show as below:



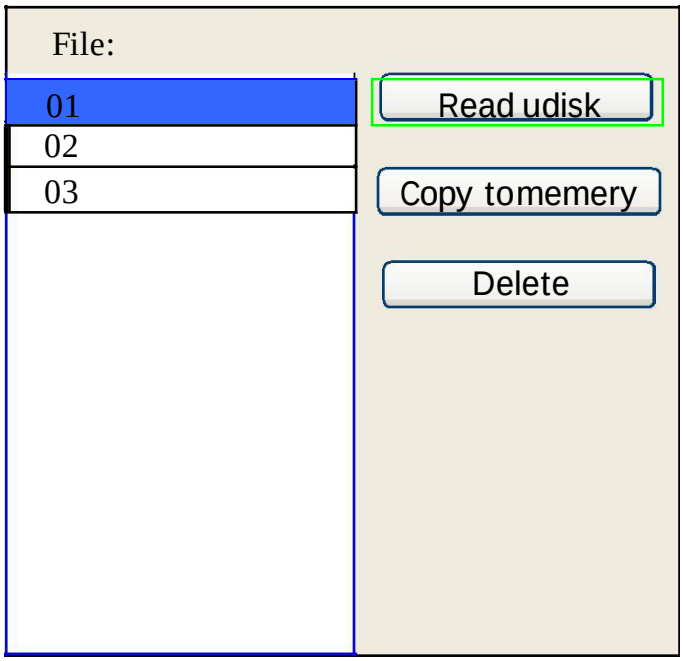
- **Current work time:** To forecast the running time of the current file (the current file No. is showed on the main interface), and the time is accurate to 1ms.
- **Clear all count:** To clear the running times of every file in the memory.
- **Delete all file:** To delete all memory files.
- **Format speedily:** To format memory speedily, and then all the files in memory will be deleted.

● **Format drastically:** To format memory drastically, and then all the files in memory will be deleted.

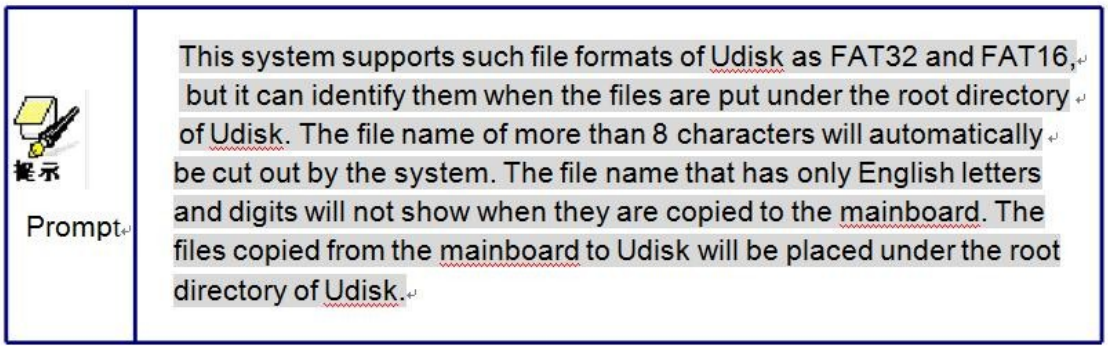
Total: the total running times of all the files.

2). U-Disk File

If the "U-disk" entry in figure 8.4-1 is pressed, the system will show as figure 8.4-3, and the operation method is all the same as figure 8.4-1.

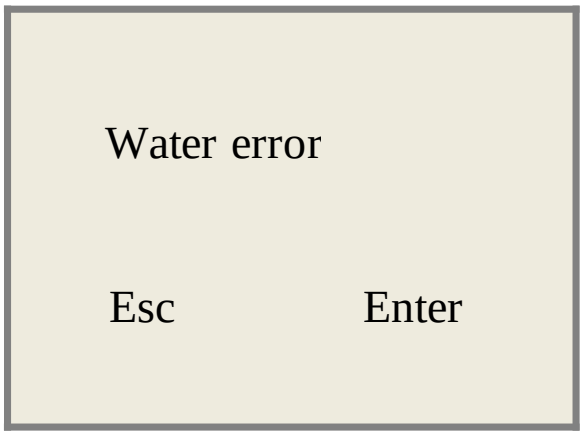


- **Read Udisk**: read the file list in the Udisk;
- **Copy to memory:** copy the target Udisk file to the memory;
- **Delete:** delete the selected Udisk file;



4.4.21 Alarm Information of Display

When users are operating the system, or when the machine is running, some alarm information such as water protecting error maybe shows as below:



Push “Enter” key or “Esc” key, the system will execute some relative steps.

4.5 The First Time Running the Laser

1. Using the machine for the first time, and please note that the machine working voltage of 220V (110V for USA).
2. Please put the honeycomb on the standard table .Unless you need to engrave on thick material or use the rotary axis.
3. Lower the laser head, and the upper part of the head tube must be longer than 38mm
4. Please reset Z-axis after turn on the laser machine (watch the guiding video to learn how to reset the Z-axis, and refer to the operation video).
5. Please don’t use the autofocus function if there’s no materials on the table.

For example, first engraving tests

The following steps describe how to successfully engrave a first pattern. Please follow the individual steps:

1. First switch on the computer and the Laser.

Tips: When turn on the power of machine, turn on the main switch first and then the laser supply power.

2. Put the object to be engraved into the laser and move into the desired position on the engraving table. Usually the object is positioned in the upper left-hand corner. Use the rulers to determine the dimensions of the object to be engraved.

3. With the positioning keys the lens is positioned over the material to be engraved. You can focus with the help of the focus tool or by auto focus.

4. Generate a graphic with the help of your graphics software, or lead in a picture that you want to engrave, but before this, you must click the “Port setting” in the software. The size of the graphic does not matter as the printer driver adjusts it to the work piece automatically if requested. If you have any questions, and also consult the Software Manual for further information.

5. Double-click the Work in the window of "Work", then you can modify the parameters such as speed, Min Power, Max Power, ramp Effect, Ramp Length, Interval and so on.

6. Select "download", you can change the file name. If you don’t change the file name, that will be the default name for “default”, and will be covered the last file.

7. Click “Origin” and “Frame” on the display, please make sure that the material is in the right location and there is enough space for working.

8. Please check the water cooling system is working properly; the water is running into and filling the laser tube. Please do not start your work if the laser tube isn’t full of water, because that may led to laser tube damage due to the high temperature.

9. Finally press the “Start-Pause” button in the display, to start the engraving process.

10. While the laser is engraving, you can generate the next graphic.

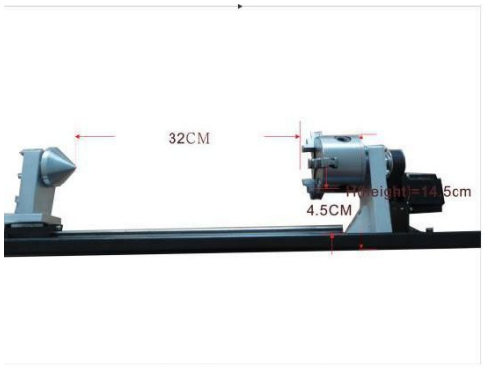
11. When the engraving is complete, the laser machine will give out the notification sound and the laser head will go back to the original point, and the warning light will return to the green light, then you can repeat engraving.

4.6 Rotary Axis Attachment

The rotary axis attachment option in the printer driver is used in combination of the rotary axis attachment, to engrave cylindrical objects. To compensate for the different diameters of different objects, the image must be adjusted. This is performed automatically by the engraving driver, by selecting the rotary engraving option and

entering the diameter of the object to be engraved.

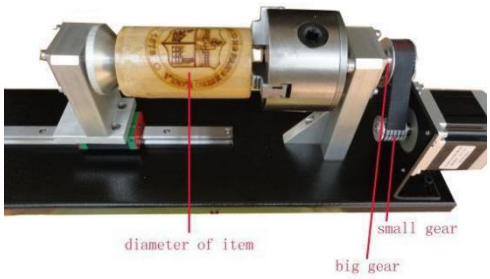
The Rotary size:



To install and set-up the rotary axis attachment proceed as described as follows:

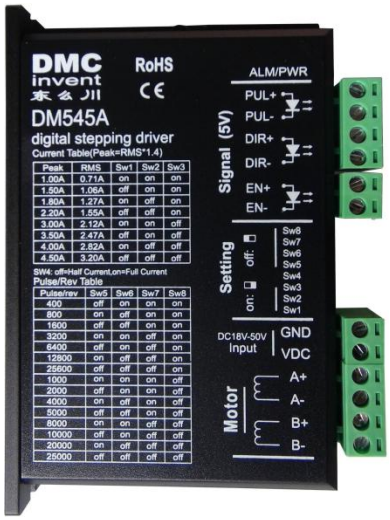
1. Move the working table to the lower position switch off the laser and open the top lid.
2. Put the rotary axis attachment onto the working table, connect the rotary shaft plug and fixed. Before you fix the rotary axis attachment, align it so that its sides are parallel to the X axis and Y axis.

3. Before you mount the object into the rotary axis attachment, measure the diameter of the object at the position to be engraved with a sliding caliper or a similar tool. Write down this value. And how to set the parameter about “Circle Pulse”, please refer to following the picture indicates. Like below:



① Diameter of item = 80mm

② Gear ratio = big gear/small gear =2

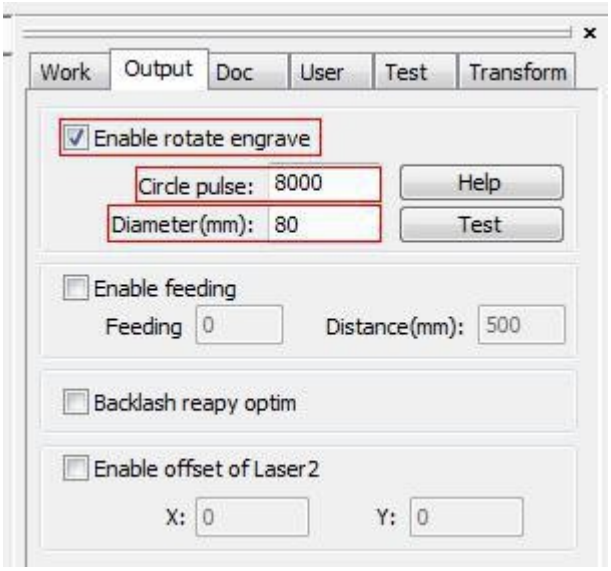


① See the settings of your motor driver

② The subdivision of our motor driver is set to 4000（the “Pulse per round” is 4000 x 2 ）

4. Adjust and fix the slider to make the work piece fitting into the rotary axis attachment.
5. Now switch on the laser and wait until the referencing is finished. Position the working head over the object at the position, where you want to engrave. Now focus the object with the focus tool or by auto focus.
6. Generate a graphic with the help of the graphics software. The graphics size must be adjusted until less than the dimensions of the work piece.

7. Select “Output”, and then input the diameter of the object and the circle pulse. Like below:



Select “Output”, and then tick“Enable rotate engrave”

① The Circle pulse is set to 8000

② The diameter of the target item

8. Select "Download", click “Original” and “Frame” on the display, please make sure that the material is in the right location and enough space for working.

9. Switch on the cooling system, and connect the exhaust system and the air pump to the back of the laser. Please check the water cooling system is working properly; the water is running into and filling the laser tube. Please do not start your work if laser tube isn’t full of water, because that may led to laser tube damage due to the high temperature.

10. Finally press the “Start-Pause” button in the display, to start the engraving or cutting process.

11. When you don’t need to use the rotary axis attachment to work, please remove it out of the working table, and then reset the laser machine.

4.7 For Laser Engraving

The engraving depth can easily be varied through the laser power or the speed. To increase the engraving depth, reduce the speed or increase the power setting. This way you increase the amount of energy per area unit. Engraving too deep, however, reduces the quality of the details. With coated materials the required power depends of the kind and thickness of the coating. With power set too high the individual lines become too thick and a sharp picture cannot be achieved. The resolution of the graphics should usually be at 500 dpi. The dpi setting (number of laser dots per inch) depends on the material. The lower this setting is, the lower the resolution of the engraved picture will be. This, however, reduces flaming and increases the energy of a pulse, which can improve the overall result (e.g. when engraving some sorts of plastic materials).

1. Plastics

Plastics for engraving are available in many different colors and thicknesses and with many different coatings and surfaces. The majority of available plastics can be well engraved and cut with the laser. Plastics with a micro-porous surface seem to give the best result, because less surface material needs to be removed. As most plastic materials have a low melting point, a low pip setting should be selected to reduce the danger of melting.

2. Acrylic

There are two different types of acrylic – cast and extruded. The cast acrylic becomes white or mat after engraving, the extruded acrylic remains clear. Use extruded acrylic for engravings that are filled with paint and cast acrylic for normal engravings. Cast acrylic can be best engraved without protection foil. It is better to engrave the entire surface with a low energy setting.

3. Engrave the rubber material

The various mixtures and densities of rubber plates cause a slightly varying engraving depth. The settings in the overview table give a good indication. Since engraving a standard rubber material requires a relatively high laser power, the laser power is principally set to 50% or more high and only the speed is varied. Due to their lower density, so-called micro porous rubber materials allow a significantly higher engraving speed. Test the rubber first, to find out the correct speed setting.

The RDWorksV8 software using the engraving function, you can choose “Ramp Effect” or common engraving, once you choose “Ramp Effect” and you will need to set a minimum power lower than Max Power, generally we set it to about 15%, and input a value with the Ramp Length what you want, but if you want to make it better, you may need to test different kinds of power and speed by yourself, then you can get the best result.

Engraving rubber produces a considerable amount of dust and terrible gas. Therefore a well-dimensioned exhaust system and its regular maintenance are very important.

4 Laser Processing Parameters for Different Materials

Power and speed is regulated by software. You can set up them in the software. Current in Ammeter is controlled manually.

Power	%	20	30	40	50	65-75	80	90	100
Current	MA	6MA	10MA	12MA	15MA	18MA	23MA	25MA	30MA

Description		Cutting Thickness of Acrylic					
		3mm	5mm	10mm	15mm	20mm	30 mm
60W	**Power**	23MA	23MA	23MA			
	Speed	8MM/S	3MM/S	1MM/S			
80w	**Power**	23MA	23MA	23MA	23MA	23MA	
	Speed	12MM/S	5MM/	2MM/S	1MM/S	0.7MM/S	
100w	**Power**	23MA	23 MA	23MA	23MA	23MA	
	Speed	20MM/S	12MM/S	4 MM/S	2 MM/S	1 MM/S	

Description		Cutting Thickness of MDF		
		3mm	5mm	10mm
60W	**Power**	23MA	23NA	
	Speed	5MM/S	3MM/S	
80w	**Power**	23MA	23MA	
	Speed	8MM/S	4MM/S	
100w	**Power**	23MA	23MA	23MA
	Speed	13 MM/S	8 MM/S	2 MM/S

Description		Cutting Thickness of Plywood		
		3mm	5mm	10mm
60W	**Power**	23MA	23MA	
	Speed	12MM/S	3MM/S	
80w	**Power**	23MA	23MA	
	Speed	15MM/S	7MM/S	
100w	**Power**	23MA	23MA	23MA
	Speed	20 MM/S	12 MM/S	2 MM/S

Description		Cutting Thickness of Rubber		
		3mm	5mm	10mm
60W	**Power**	23MA	23MA	
	Speed	12MM/S	4MM/S	
80w	**Power**	23MA	23MA	
	Speed	15MM/S	8MM/S	
100w	**Power**	28MA	28MA	
	Speed	30MM/S	30MM/S	

Description		Cutting Thickness of Leather			
		1mm	3mm	5mm	10mm
60W	**Power**	15MA	20MA	20MA	
	Speed	20MM/S	10MM/S	6MM/S	
80w	**Power**	12MA	15MA	18MA	20MA
	Speed	50MM/S	12MM/S	8MM/S	2MM/S
100w	**Power**	18MA	18MA	18MA	20MA
	Speed	50MM/S	28MM/S	12MM/S	4MM/S

Description		Cutting Thickness of Paper Board				
		0.3mm	0.5mm	1mm	1.5mm	2mm
60W	**Power**	8MA	10MA	12MA	15MA	15MA
	Speed	300MM/S	300MM/S	200MM/S	200MM/S	160MM/S
80w	**Power**	8MA	10MA	13MA	18MA	16MA
	Speed	400MM/S	400MM/S	300MM/S	300MM/S	200MM/S
100w	**Power**	6MA	8MA	12MA	12MA	16MA
	Speed	120MM/S	120MM/S	130MM/S	130MM/S	100MM/S

Description		Cutting Thickness of Cloth	
		0.3mm	0.5mm
60W	**Power**	10MA	12MA
	Speed	50MM/S	40MM/S
80w	**Power**	8MA	10MA
	Speed	70MM/S	60MM/S
100w	**Power**	6MA	8MA
	Speed	150MM/S	140MM/S

Chapter 5 Maintenance

5.1 Cleaning the Laser Machine

1. Caution – use of controls or adjustments or performance of procedures other than those specified here in may result in hazardous laser radiation exposure.
2. Before starting cleaning and maintenance work always switch off the device and unplug the mains plug.
3. Always keep the system clean, as flammable parts in the working area or exhaust area rise the fire hazard.

Tips:

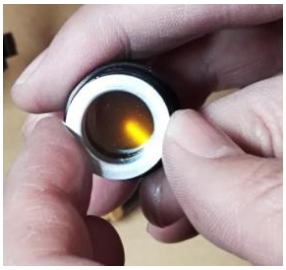
You should check at least once a day, whether dust has accumulated in the engraving system. In case of soiling the machine must be cleaned. The cleaning interval strongly depends on the material that is being processed and the operating time of the device. Please bear in mind that only a clean machine guarantees optimal performance and reduces the service costs.

General Cleaning Notes:

1. Make sure, that the device is switched off and unplugged. Open the protective cover.
2. Move the working table into a position in which it is easiest for you to clean the surface with a window cleaning agent and paper towels.
3. Thoroughly remove all loose dirt particles and deposits in the interior of the machine.
4. Clean the cover of the laser tube.
5. You can clean the viewing window with a cotton cloth. Do not use paper towels as they could scratch the acrylic.

5.2 Cleaning the Optical Parts

The lens has a durable multi-coating and won't be damaged by correct and careful cleaning. You should inspect the focus lens and the mirrors and the beam combiner according the maintenance plan. If you discover a veil of haze or dirt, you must clean them.



It is suggested to clean the mirrors/lens before work every day in order to run the machine at max efficiency.

Follow the instructions below for the cleaning of optical parts:

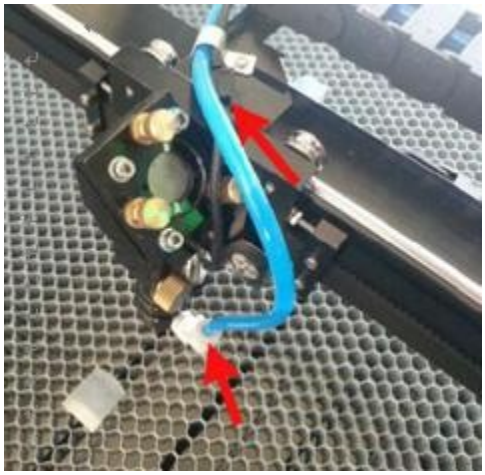
5.2.1 Cleaning the Focus Lens

1. Move the engraving table to a distance approx. 10 cm under the lens holder.
2. Move the working head into the center of the working surface and put a cloth under the lens holder (so that the lens is not damaged if it accidentally falls out of its holder).
3. Now you can unscrew the lens holder.
4. Once positioned over a clean lens cleaning tissue, remove the lens from the lens holder by carefully turning the lens holder and letting the lens and the O-ring drop onto the cleaning cloth.
5. Examine the O-ring, if necessary; clean it with a cotton bud and a lens cleaning tissue/cloth.
6. Remove the coarse dust as good as possible by blowing air onto the lens surface.
7. Check the surface and if necessary clean the lens with the lens cleaning liquid and lens tissue/cloth.
8. Hold the lens assembly by its edge with a lens cleaning tissue and use a drop of lens cleaning liquid. While holding the lens on an angle, flush both surfaces of the lens, to wash away coarse soiling.
9. Put the lens on a clean lens cleaning tissue. Put some lens cleaning liquid on one side of the lens. Leave the liquid to take effect for approximately one minute and then gently wipe it away with lens cleaning tissues soaked with lens cleaning liquid.
10. Finally, dry this side of the lens with dry lens cleaning tissues/cloth and repeat the cleaning process on the other side of the lens. Never use a cleaning tissue twice. Dust accumulated in the cleaning tissue could scratch the lens surface.

11. Examine the lens. If it is still soiled, repeat the cleaning process until the lens is clean.
12. Carefully insert the lens into the lens holder. Ensure, that the rounded side (= convex) of the lens is facing upwards. Then put the O-ring on top of the lens.
13. Carefully assemble the lens in reverse order.

How to take out the focus lens, please just as following the picture indicated:

1. Remove the air pipe parts



2. Rotation the left, and the head is divided into two

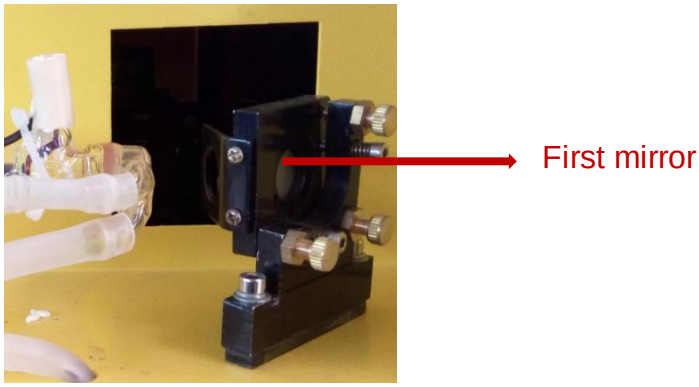
3.Installation and please concave downward and be careful not scratch the lens, then merge both parts together

4. Fixed back the focus lens, (convex side of the lens is facing upwards) to

5.2.2 Cleaning the Mirrors

There are three mirrors in the operating area of the laser, which may have to be cleaned if they are soiled. To clean the reflector, follow the instructions below.

The Mirror#1



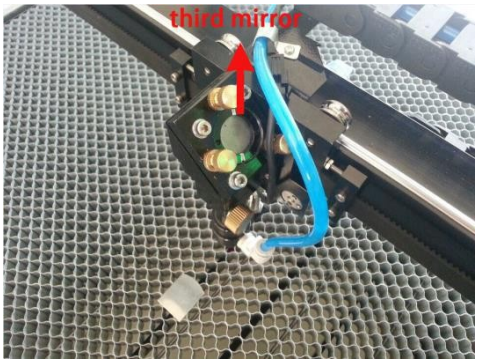
The mirrors are easily get dirty. And this will reduce the efficiency of the laser beam. Meanwhile, laser energy absorbed by the mirror may cause heat and destroy the mirrors too. For the first mirror, you can clean them directly.

The Mirror#2

Make sure the power of the laser machine is turned off while cleaning.

The 2nd mirror is installed on the left side of X rail. For the second mirror, you can clean them directly.

The Mirror#3



Cautions:

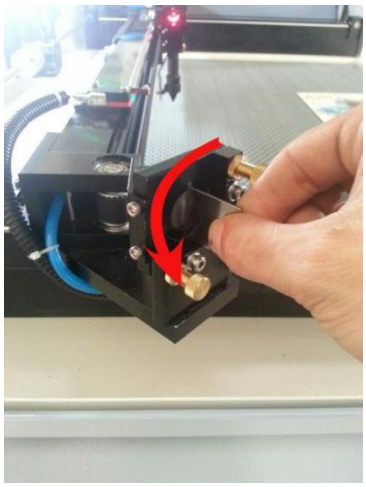
1) Mirrors must be cleaned carefully by using lens cleaning paper/lens cleaning cloth to avoid scratching the surface.

2) Do not touch the surface of the mirrors/lens after cleaning

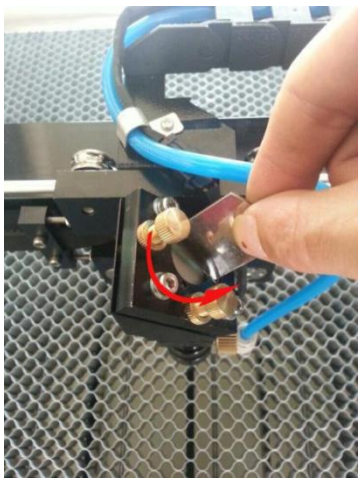
3) The concave side of the lens must be on the bottom when installed

How to take out the mirror#1 #2 and#3, and please just as following the picture indicated:

1. The mirror#1



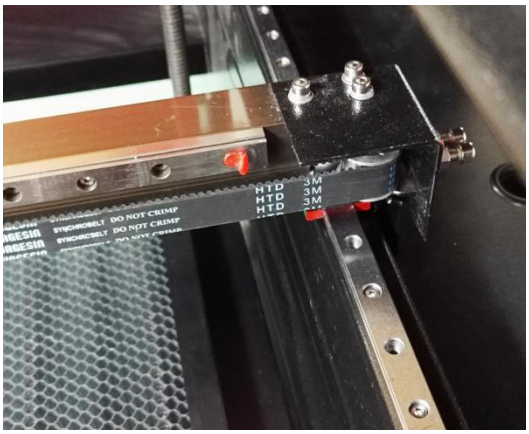
2. The mirror#2



3. The mirror#3

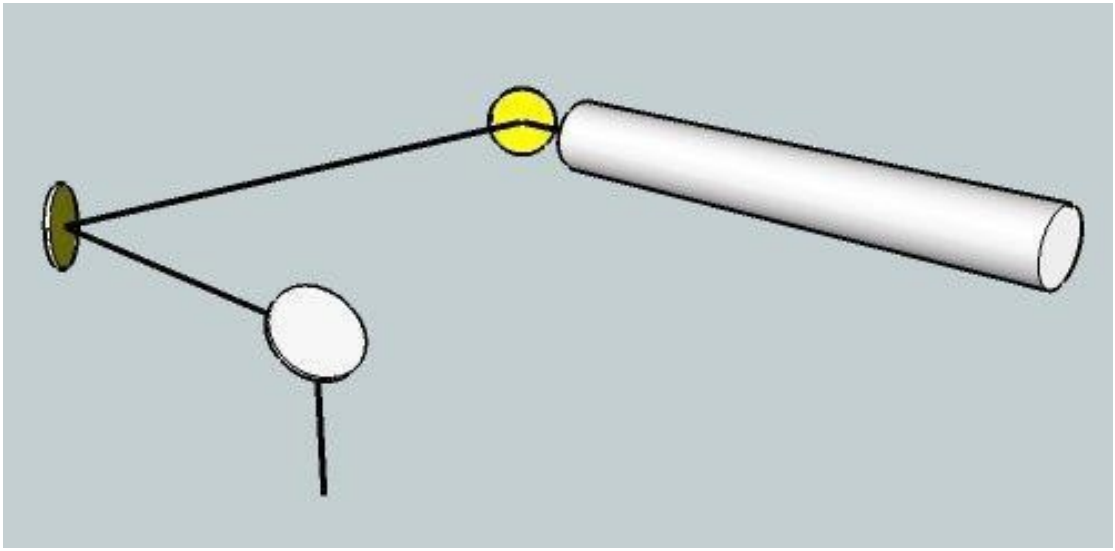
5.3 Maintain the X/Y/Z Rails

It is suggested to add lubricant oil (or Rust Preventative Grease) to the



rails/screws at least every two weeks.

5.4 Check the Beam Path



After being used for a long time, the beam path might be deflective. This will reduce the efficient of the laser beam or even cause no laser beam. At this moment, you will need to re-adjust the beam path again.

5.5 Change Cooling Water for The Water Chiller

It is suggested to change the water at least once every month

Make sure the laser tube is filled with water before starting the machine. It is advised to add water every 3 days.

The quality and temperature of the cooling water affects the life time of the laser tube. You need to use pure (distilled) water and control the temperature below 35℃(95℉).

5.6 Maintenance Plan

1. The lens and the mirror#3 must be checking daily, and cleaning if required
2. The mirror#1 and the mirror#2 must be checking every monthly, and cleaning if required.
3. The working table must be cleaning daily.
4. The whole laser machine must be cleaning every monthly.
5. The exhaust system must be checking every weekly, and cleaning if required.
6. The air blower must be checking every monthly, and cleaning if required.
7. The other component (as the water cooling system) must be checking every monthly, and cleaning if required.

5.7 Cover Protection

If the cover opens when the machine is operating, the machine will stop working and you will see the screen shows below:

Press “Enter” on the screen and the machine will start working again.

5.8 Digital Display Power Supply

5.81 Images

Embedded LCD Type

LCD Display Current and Fault Code

Function

Display condition for normal working

Display condition for no laser signal

Display condition for no water protection

Display condition for neither water protection nor laser signal

5.8.2 Advantages

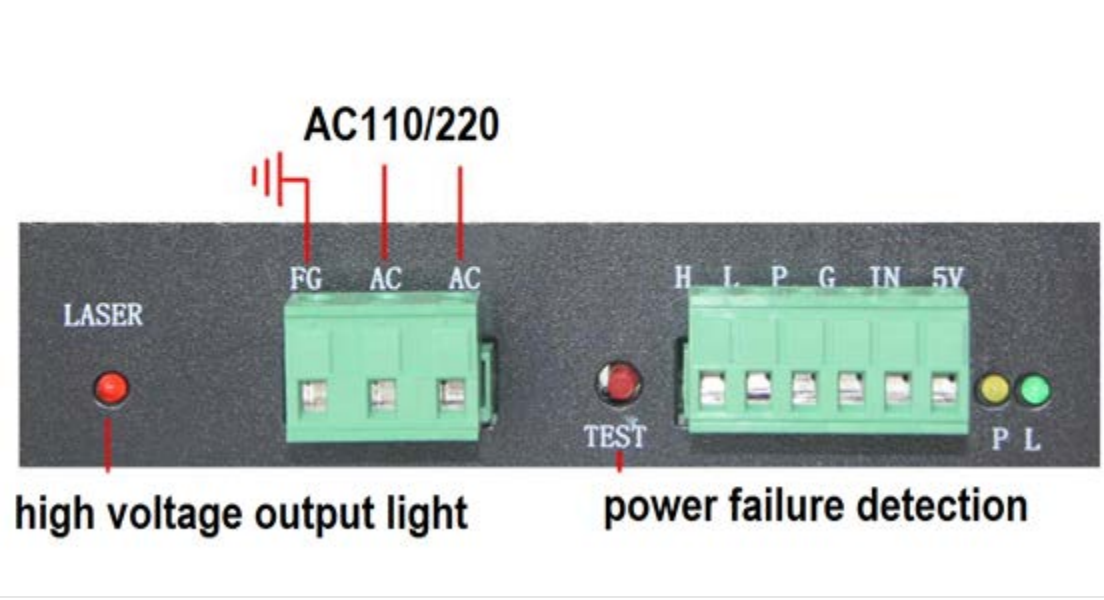
1. This series power supply has high stability feature. Because of low repair rate, it is widely used by most machine factories.

2. The high-end LCD makes display function integrate into power supply. Besides beautiful appearance, it also displays current and judges fault automatically.

3. External connected LCD module reduces damage rate on tube and power supply when bad wiring connection with ammeter. Also it reduces cumbersome wiring during machine production and improves productive efficiency.

4. All mounting holes of 50W,60W, 80W,100W or 150W power supplies are the same, which is good for assembly line mount.

2.9.4 Connection of Laser Power Supply



AC: Input Voltage AC220V or AC110V

H: Laser output control (When high level, it is effective）

L: Laser output control (When low level, it is effective）

P: Water protection switch (When ground connected, it is effective)

G: Signal ground

IN: Laser control signal (0～5V)

5V: 5V/50mA signal output

Water protection indicator light

Laser signal input indicator light

5.9 Troubleshooting

Below are some solutions to this problem: we advise our customers to check the following thinking if they encounter problems, and hope they can revise it at any time.

.

Laser head impact Limit switch while resetting

Here are the fault factors:

1. Wrong pulse settings
2. Limit switch type mismatch the laser controller
3. Wiring mistake

Here are the solutions:

Step 1. Wrong pulse setting

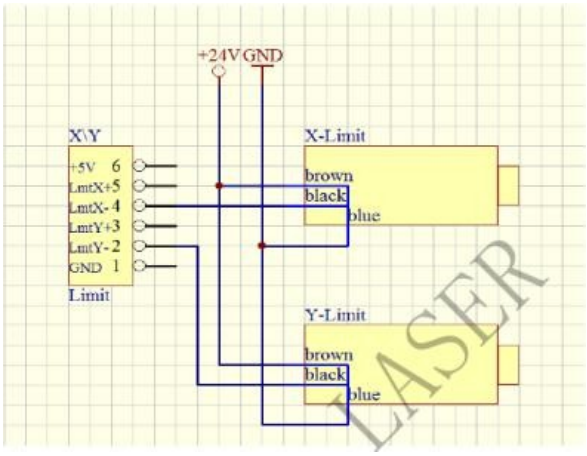
Resetting the pulse equivalent, for how to reset, please refer to the lesson "why cutting size doesn't match design size"

Step 2. Limit switch type mismatch laser controller Our controller support sensor switch.

Step 3. Wiring mistake

Please refer to following diagram for how to wiring the limit switch:

Sensor switch



Thanks for your purchase. Any questions, please don't hesitate to contact us. We'll try our best to resolve your issue ASAP.
Should you have any concern, please contact us by emailing to:

help@cs-supportpro.com.

Thank you for using our products.