Laser Machine

Manual

TONGXING TECHNOLOGY DEVELOPMENT CO., LTD

Directory

Laser software

1. Software introduction:

With CorelDraw software,this software can make the design of laser process graph more simple and quicker；With laser without computer controlling system,this software can finished the movement control of kinds of laser cutting、laser scan、laser engraving。

With CorelDraw software,this software can support CorelDraw 12 、CorelDraw 13 Chinese and English Edition Software。

2. Software install：

1）Install CorelDraw software；

2）Open laser software setup CD，open ZHBCAD2DSetup.exe file，install CorelDraw plug-in，click "OK" button；

3）Open CorelDraw software，choose "**Tools**" menu,click "**Options**"，appears **Options dialog box**；click menu and choose **Macros command**，then choose the **third** "**Module1.zhb**" in **Macros command**（**Figure 1**）；Copy "Module1.zhb" to the left side of Tools in CorelDraw software,the（**Figure 2**），click "**OK**"button；then a laser process icon is created in CorelDraw。
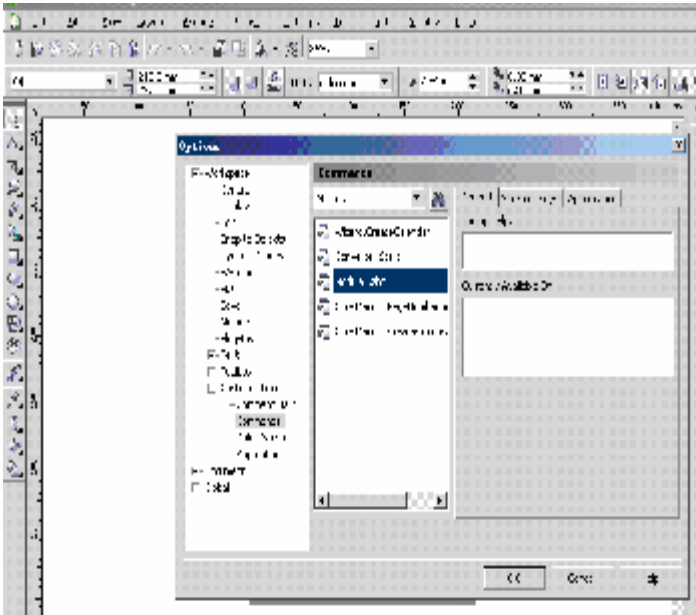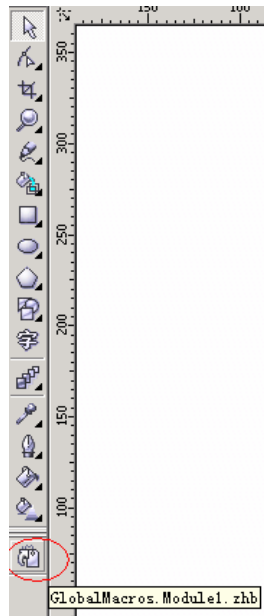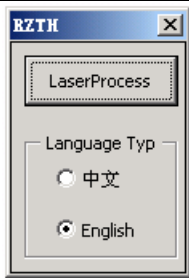

Figure 1

Figure 2

4）After add the Laser process button ，Click icon in CorelDraw can open the laser process window（**Figure 3**）。

You can choose language in here.

Figure 3

3. Software Use：

In CorelDraw software,the sweeping method of vector graph or character sweeping are basic devided into edge sweeping and area sweeping. In this softtware,we indentify the edge sweeping as cutting,while area sweeping as Scanning;Processed BMP format image belongs to sweeping.

(1) Image Sweeping

1) Scan sweeping

After drawn of the vector graph or characters in CorelDraw software,then select the target graph or characters, make the graph and the characters **Inner sweeping with black (Figaure 4)**；make the graph or characters <u>Edge sweeping with no color</u>；After this the inner sweeping of graph or characters is finished,the software indentify it as scanning process。Process effect shows as **Figure 4**。

2) Cutting sweeping：

Select the target vector graph or characters，make it <u>Inner No Sweeping with color</u>, then <u>edge is black</u>,and <u>width of edge is default</u>；after this only the outside square of graph or characters is been sweept ,the software indentify it as cutting processing。(**Figure 5**)。

3) Male Sweeping：

After drawn the graph and the outside square of the graph,then selcet the two，unit them as one by the Combine command in the Arrange menu,then sweep the graph with black,setup the edge as none color。(**Figure 6**)

4) Line sweeping：

When scanning processing and cutting processing of line,our suggestion is you can choose rectangle with small width to replace,because of the line is not closed。

Figure 4   Figure 5

Figure 6

5）Graph scan processing：

In CorelDraw or PhotoShop software, the processed file must be **Black and White（1-bit）**，after import file you can transfmit the scan result by CorelDraw software.For the file is sweept graph,you can click the buttion and setup the laser process parameters after imported。

(2) Laser process track output setup：

In CorelDraw software,after sweeping then select the graph,click then the window

 appears，click **LaserProcess** button and enter **Laser process attribute** window（Figure **7**），then select **Laser Fill**or **Laser Cut,**reclick the left buttong of the mouseto set the laser process parameters，click **Path** to enter **track output** page(**Figure 8**)，click to save the process track as a file，then save it in U flash disk;（When the laser machine is working,insert the U flash disk，then read the file and begin to process）。In **Laser process attribute** process track can output the selected one,the unselected track cann’t be outputted ,also you can output multi track to one file。
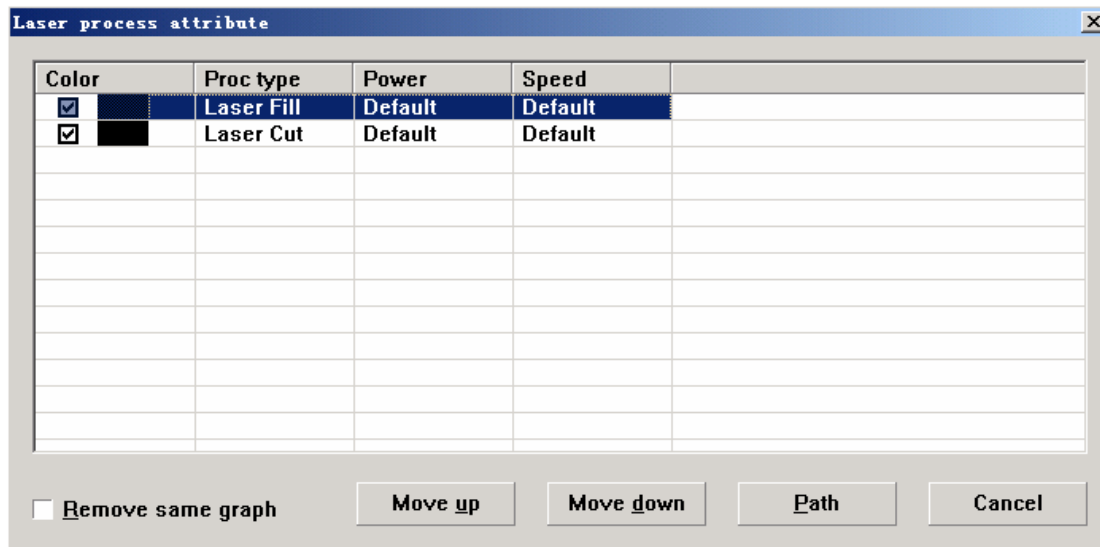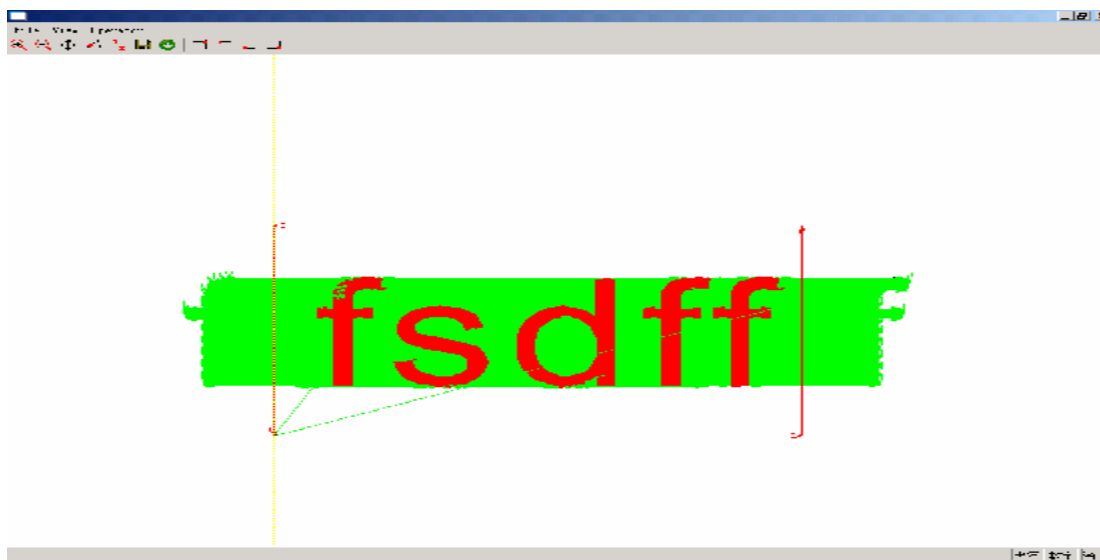
图 7

图 8

4. Process Parameters：

(1)：Laser sweeping parameters：

Laser tube power：Laser software can change the output power by the precent,the user can set it up according to requested material and the sweeping speed。

Sweeping Speed：laser sweeping processing,unit: **mm/min**。

Sweeping interspaces：Sweeping interspaces between two columns,unit:**mm**。

Sweeping method：Signal sweeping、bilateral sweeping。Signal sweeping cann't be effected by the offset value of sweeping interspaces；While bilateral sweeping,the user can change the offset value to get a good process。

Sweeping acceleration：Unit:**mm/s²**。Default value is 13500mm/s²，Max Value is 30000 **mm/s**

2 。

Acceleration Space：Laser Sweeping tool movement,unit：**mm**，default value is 15 **mm** 。

Acceleration Compensate Space:In order to get a good process effect for counteracting error which caused by machine moving,it needs to set the offset sometimes,especially for bilateral sweeping.Laser cutting or single sweeping get nothing to do with this value.Unit:mm.

(2)：**Laser cutting parameters**

Laser power:Laser tube output power when cutting.

Cut Speed:Tool movement speed when cutting,Unit: **mm/min**。

Liner Acceleration：The ability of increase and decrease speed with singal motor when cutting,unit mm/s^2 。

Curve Acceleration:The ability of increase and decrease speed with multi motores when cutting,unit: mm/s^2 ,

Remark：

If sweeping speed is **V,**unit:**mm/s** ；scan acceleration is **a** ；acceleration space is **S**，$V^2 = 2 * a * S$ 。

5. CorelDraw Software common menu commend

Command	Menu	Shortcut Button
Property Processor	Click right button of the mouse to select the targe graph	ALT + ENTER
Combination	Arrange→Combination	CTRL + L
Graph location	Arrange→Change→Location	ALT + F7
Graph Size	Arrange→Change→Size	ALT + F10

6. Machine Use

(1) Button Function Introduction

Controlling panel button as follow picture:

Button function is as follows：

Button	Function
X+ 1 ▲	Positive movement of Xaxis, Menu upward , figure 1 inputting
Y+ 2 ∧	Positive movement of Y axis, accelerate process speed, figure 2 inputting, different property selecting in Menu
Z+ 3	Positive movement of Z axis, figure 3 inputting, rise spindle speed in process
XY- 0 4	Working origin of X axis and Y axis setting, figure 4 inputting
X- 5 ▼	Negative movement of X axis; Menu downward, figure 5 inputting
Y- 6 ∨	Negative movement of Y axis; slowdown process speed; figure 6 inputting different property selecting in Menu
Z- 7	Negative movement of Z axis, figure 7 inputting, spindle speed adjusting in process
Z- 0 8	Z axis origin setting ; figure 8 inputting
回零 HOME 9	Axes home to machine tool origin, figure 9 inputting

HIGH/LOW 0	Manual moving mode, high speed or low speed selection, figure 0 inputting
ON/OFF .	Laser startup/stop, decimal point inputting
MENU —	Menu setting entering, negative symbol inputting, multi process state checking,
ORIGIN OK	All axes go working origin: confirm of motions /inputting/operating
MODE	Manual move, continue, step and distance modes selection
RUN/PAUSE DELETE	Cut process running/pause/inputted words delete
STOP CANCEL	High/low speed parameter adjust, Cut process stop/selections, inputting and operating cancel

(2) Tool axis：
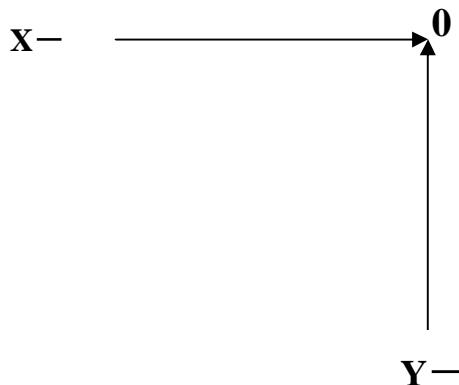
(3) File processing

   File Processing is the system processes files from U flash disk and inne files according to dictate。Before it，you must set up the correct tool and system parameters。

   File processing step:

1）Working Origin   When the system is in the handle movement state，move X、Y axis to

   the processed position，press [XY-0 4] button to ensure the origin of X、Y axis。

2）Select File After setting the work origin，insert U flash disk with processedfile，press

[RUN/PAUSE DELETE] button，it will appears a dialogue box:

Choose file:

U Disk file

Inner file

Press [X+ 1▲] and [X− 5▼] button,select "U Disk file", [ORIGIN OK] button, enter the list type,it will appears the former three file names,press [X+ 1▲] and [X− 5▼] button to move cursor,press [Y+ 2∧] and [Y− 6∨] button to move cursor with two lines, press [STOP CANCEL] buttong to exit。

3）File processing parameters setup Find the target file andpress [ORIGIN OK] button,user must imput file process parameters,including Process speed、Travel Speed、Cutting Power、Turn power、sweep speed、sweep power。

Proc Spd	1000.00
Trvl Spd	6000.00
Cut Pwr	100
Turn Pwr	99
SweepSpd	20000
SweepPwr	22
LA Delay	1

Proc Spd---Process Speed
Trvl Spd---Travel Speed
Cut Pwr---Cutting Power
Turn Pwr---Turn Power
SweepSpd---Sweep Speed
SweepPwr---Sweep Power
LA Delay---Laser Delay

Press [X+ 1▲] and [X− 5▼] button to move cursor and set up,press [RUN/PAUSE DELETE] button to setup the value,after input value,press [ORIGIN OK] button to confirm,then press [X+ 1▲] and [X− 5▼] button to move

cursor for choosing next one。Then press [OK] button to confirm, the tool will begin to process.

The process parameters must be setted according to materials and the request.

（4）System Update 系统升级

If it needn't to update，please don't to update！Improper update will damage the system and make it not work，The tool cann't work naturally!

If you want to update the system，the user must connectwith our engineers.The update file must be offered by us,save in the U flash disk,then insert the U flash disk to controller,file name is*.ZUP。
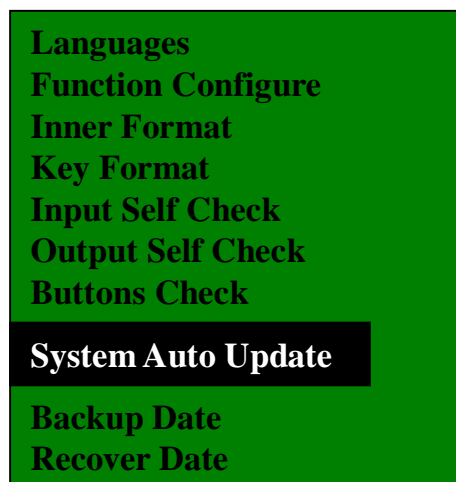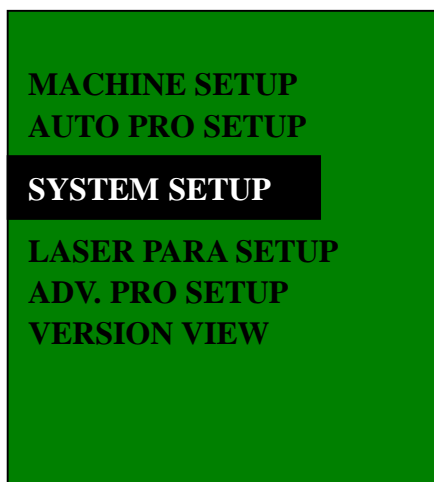
1. Press [MENU] button and enter tool menu（Figure 1），then press [X+ 1▲] and [X- 5▼] button, move cursor to choose " SYSTEM SETUP"，press [OK] button and enter（Figure 2），then press [X+ 1▲] and [X- 5▼] button,move cursor and choose " System Auto Update"，press [OK] button,it will appears like **Figure 3**.

MACHINE SETUP	**Languages**
AUTO PRO SETUP	**Function Configure**
	Inner Format
SYSTEM SETUP	**Key Format**
	Input Self Check
LASER PARA SETUP	**Output Self Check**
ADV. PRO SETUP	**Buttons Check**
VERSION VIEW	
	System Auto Update
	Backup Date
	Recover Date

图 1   图 2

Choose file:

> **U Disk file**
>
> **Inner file**

图 3

Choose U flash disk file list, press [ORIGIN OK] button and enter, the files from U flash disk will appear in the screen, move cursor to update file(*.zup),press [ORIGIN OK] button and enter,the update is beginning, the update information will appear in the screen, user must press [X- 5▼]键 button,move cursor to read the all information, then press [ORIGIN OK] button, the system will auto update, a message will appears in the screen, at last press [ORIGIN OK] button to confirm the update is finished successfully。

After the successful update，the system need to setup some parameters as follows：

In menu : [ORIGIN OK] button is enter "select" menu and confirm [X+ 1▲] and [X- 5▼] button is move up and down to choose menu [STOP CANCEL] button is exit the selected menu and cancel

1）Press [MENU] button and enter the menu, press[X+ 1▲] and[X- 5▼] button

![SUDA logo]

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to choose "SYSTEM SETUP", press [ORIGIN OK] button ,select "Languages",

press [ORIGIN OK] button, then press [X+ 1▲] and [X- 5▼] button to choose "中文"

or "English",press [ORIGIN OK] button to confirm。

2）In "SYSTEM SETUP" menu,press [X+ 1▲] and [X- 5▼] button to choose "Fun

Config", press [ORIGIN OK] button,informations will appear as follows：

Do you need save PowerOFF?OK to

choose and others deny

Please press [STOP CANCEL] button

Languages

    中文

    English

Press [ORIGIN OK] button after choosing

Set Home switch

X Axis: Enable

Y Axis: Enable

Z Axis: Disabl

Please press [ORIGIN OK] button

GoHome types:

Info GoHome

Auto GoHome

Don't GoHome

Select "Info GoHome",press [ORIGIN OK] button

Save Z adjusted value or not?OK
button saves and others deny

Press [STOP CANCEL] button

Is there Emergent Stop Sensor?

Press [STOP CANCEL] button

Is there Hard limit senseors?

Press [STOP CANCEL] button

It is in traditional manual mode?
Press OK for traditional mode

Press [ORIGIN OK] button

T change setup
Toolcove   Disable
Dustcove   Disable

Press [ORIGIN OK] button

Pressing any button to restart……

Press [ORIGIN OK] button

Goto Home ?

Press [ORIGIN OK] button,the laser head willmove to tool origin,then it will appear as follows
(Follow Figure) :

1X   0.000   MANL

LOFF

1Y   0.000   HIGH

Cont3inuous

3）Press [菜单 MENU] button and enter the menu, press [X+ 1▲] and [X- 5▼] button

and choose "MACHINE SETUP", press [归零 ORIGIN 确定 OK] button ,select "Pulse Equiv",

press [归零 ORIGIN 确定 OK] button and enter,it will display：

> **Equival pulse/mm**
> **X Axis: 160.00**
> **Y Axis: 160.00**
> **Z Axis: 160.00**

Please change "160.00" of "X Axis" to "126.00", press [归零 ORIGIN 确定 OK] button

to confrim；then change "160.00" of "Y Axis" to"126.00", press [归零 ORIGIN 确定 OK]

button to confrim；at last change "160.00"of"Z Axis" to "126.00",

press [归零 ORIGIN 确定 OK] button to confrim。

4）Select "Table Size" in"MACHINE SETUP" ,press [归零 ORIGIN 确定 OK] button andenterthe
follow page：

> **Machine Size, mm**
> **X Axis：   1000.00**
> **Y Axis：   1000.00**
> **Z Axis：   1000.00**

Setup according to the tool size

5）Select "Home Setup" in "MACHINE SETUP", press [归零 ORIGIN 确定 OK] button,select

"Home Direction",press [归零 ORIGIN 确定 OK] button and enter the follow page：

> **Set Home Direction**
> **X Axis： -Dir**
> **Y Axis： -Dir**
> **Z Axis： +Dir**

Please change "–Dir" to "+Dir" in **X Axis** and **Y Axis,** press [Y+ 2 ∧] button

and [Y– 6 ∨] button to amend，press [X+ 1 ▲] and [X– 5 ▼] button to select，at

last press [ORIGIN OK] button to confirm.Like the follow picture:

```
Set Home Direction
X Axis :    +Dir
Y Axis :    +Dir
Z Axis :    +Dir
```

After Setup all parameters successfully，the tool can process.

Guarantee Card

Machine Name:	TONGXING TECHNOLOGY DEVELOPMENT CO., LTD
Model :	
Number :	
Buy Date:	
Saler Name:	
Saler Address :	
Saler Telephone:	
Saler Seal :	

Remark:

1. The card must be filled in carefully, it is valid with the saler seal.

2. The guarantee is one year, from the day of buy, not including the easy-damage spare parts.

3. We offer maintenance service for life。

Operation Manual of Laser Machine

Pay attention to the following pictures

1. First, connect fuselage rear "water in" to "water out" in the chilling machine for laser engraver. Secondly, connect fuselage rear "water out" to "back water" in chilling machine for laser engraver. Thirdly, connect fuselage rear "air in" to "air pump ".Fourthly, through ventilation tube (3)connect ventilation machine (4)and ventilation export of laser engraver .

(1)

Picture (2 are all the sockets for the air pump and the chilling machine behind the laser engraver. You should connect them correctly.

(2) All the sockets behind the machine for air pump and the chilling machine.

(3)Air tube

(4)Ventilation machine

2. Supply power, following picture (5) is the correct state. Please notice that .you should open "general power", "driver power" and "water pump" power first. (5)


(5)

(6)

3. In order to ensure the chilling machine operate normally ,after step2,please open "laser power"," air power", and "ventilating power".
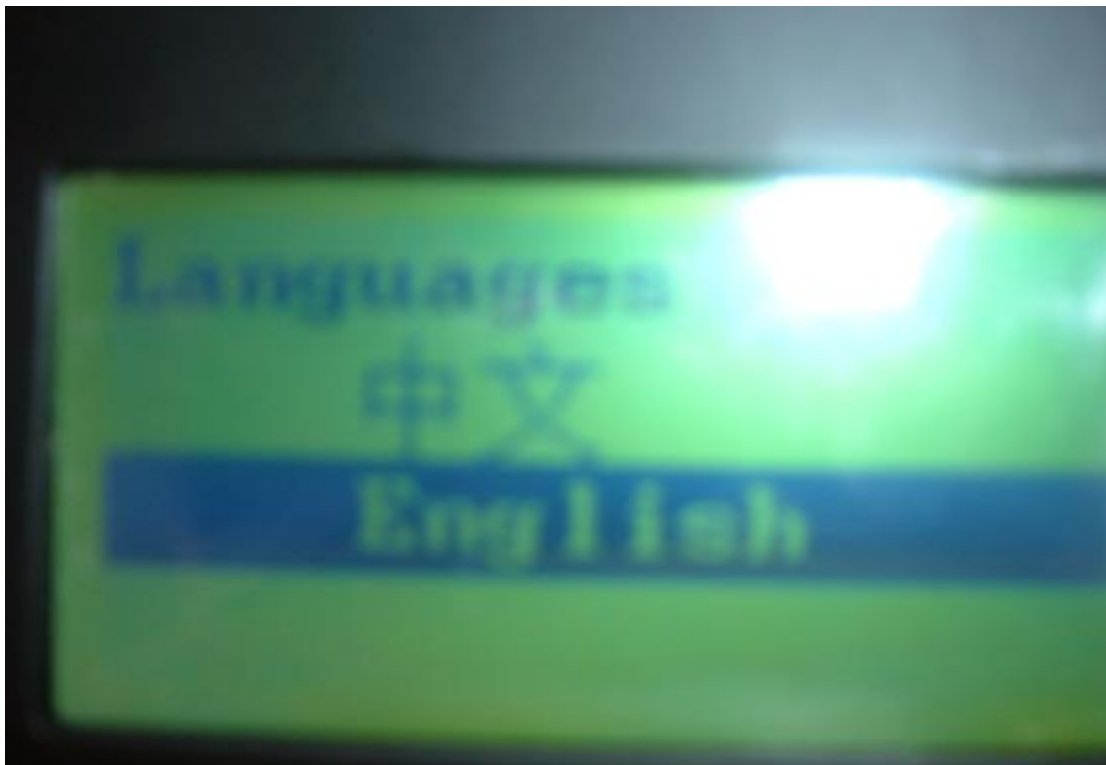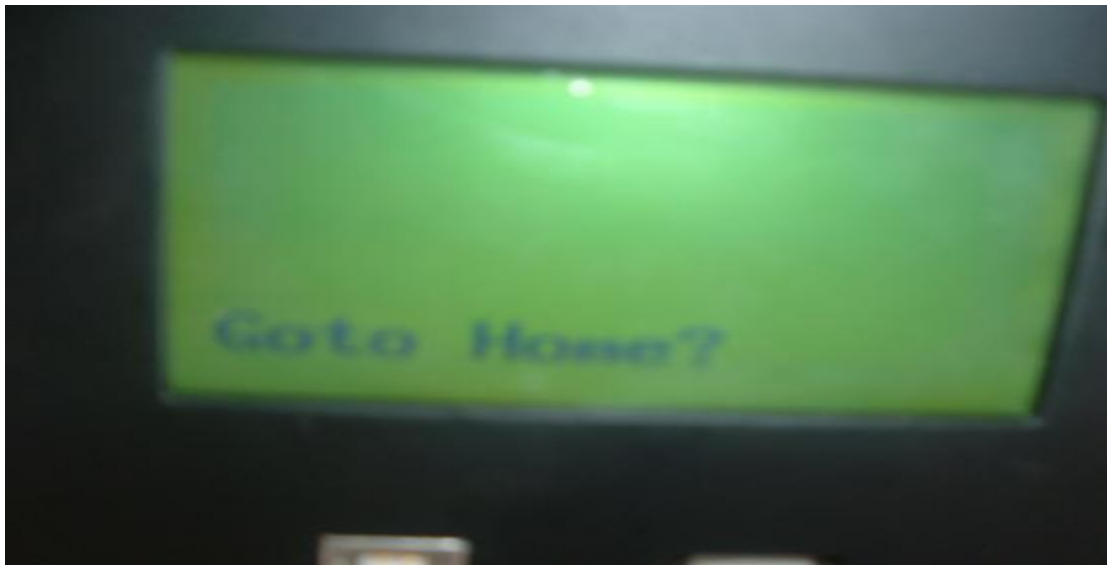
(7)

4. Please note that before operating the machine, you must change the language into English, first press [MENU] button to chose "system parameter", then press [ORIGIN OK] to confirm, the screen will show as follow(8), After opening those power, the control handle will show "go to home"(9).

(8)

(9)

5. press ![ORIGIN OK] to confirm, you can move ![X+ 1▲]、![Y+ 2∧]、![X- 3▼]、![Y- 6∨] to change X Y axis direction, then clear X Y to zero as following picture。


（10）

6. After finishing the file in computer, insert the USB Flash Disk, then press ![RUN/PAUSE DELETE] to choose the file list in the USB Flash disk .Through the direction key to choose the target file

(11)

7. After that, you need to change the parameter at your request. If you want
   to engrave you must change engraving speed, engraving power .But please
   pay attention: the speed ratio is 1, so you need not to change it.
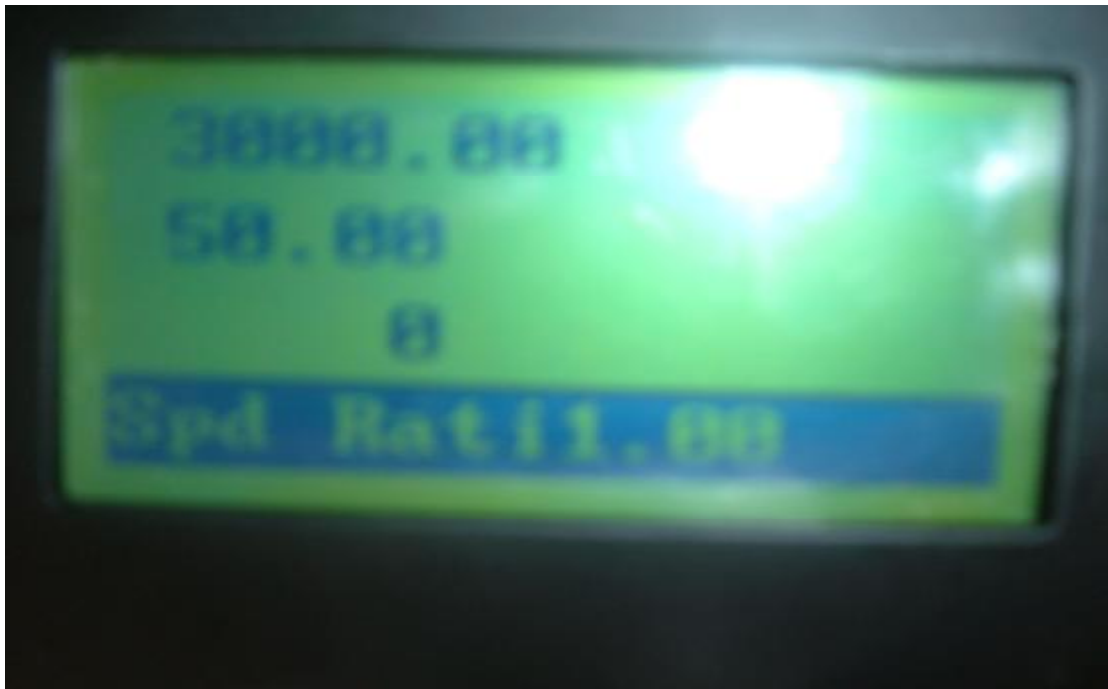
(12)

8. If you want to cut some material, you need to change cutting speed, cutting
   power and corner power. But the corner power must be smaller than cutting
   power by 1, as showing in the following picture. For examle,if the corner
   power is 99,then the cutting power is 100.

（13）

9. After you have changed these parameters, the machine will start working as following picture.
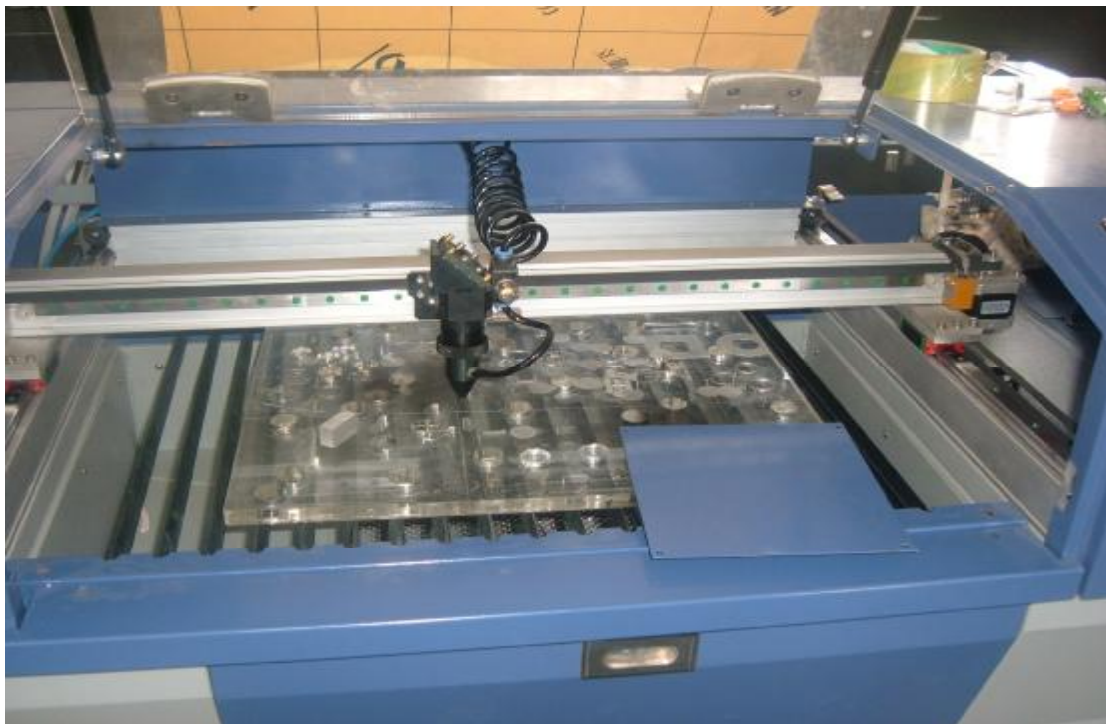
(14)

（15）

10. There are 2 ways to transmit, one is as the USB Flash disk transmitting as the above introduced ,the other is the USB data cable as follow.


（16）

（17）

11. Use the USB data cable to connect the computer and machine, and then save the file from computer to the controller handle. Then chose "inner file", after that chose the target file, you can change the parameter at your request. And then the following steps are the same as the USB Flash disk transmitting mode

(18)

The falling pictures show how to save the file you need into the control handle from your computer. Take the circle for example
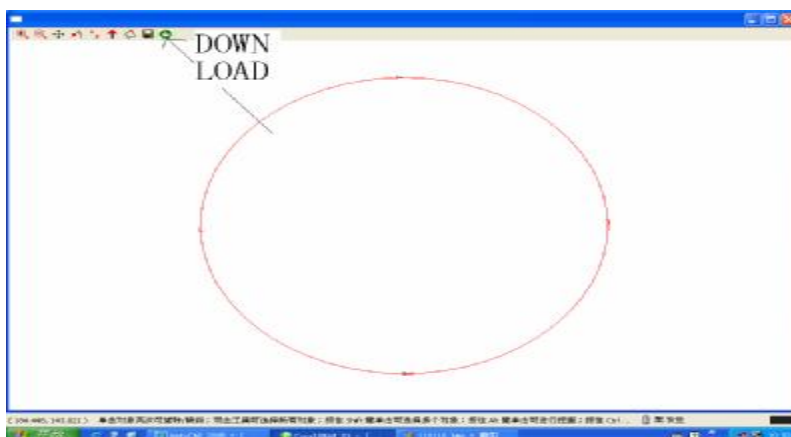
(19)Download the file you need by USB data cable from your computer.

(20)Use USB data cable to save the file into the control handle.