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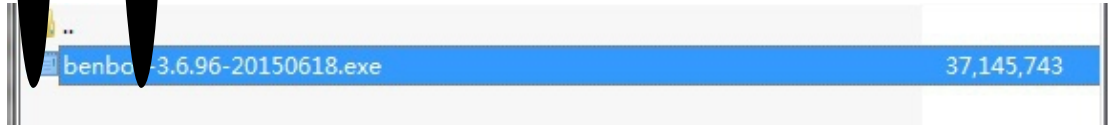
Benbox Software Manual

1. Software Description

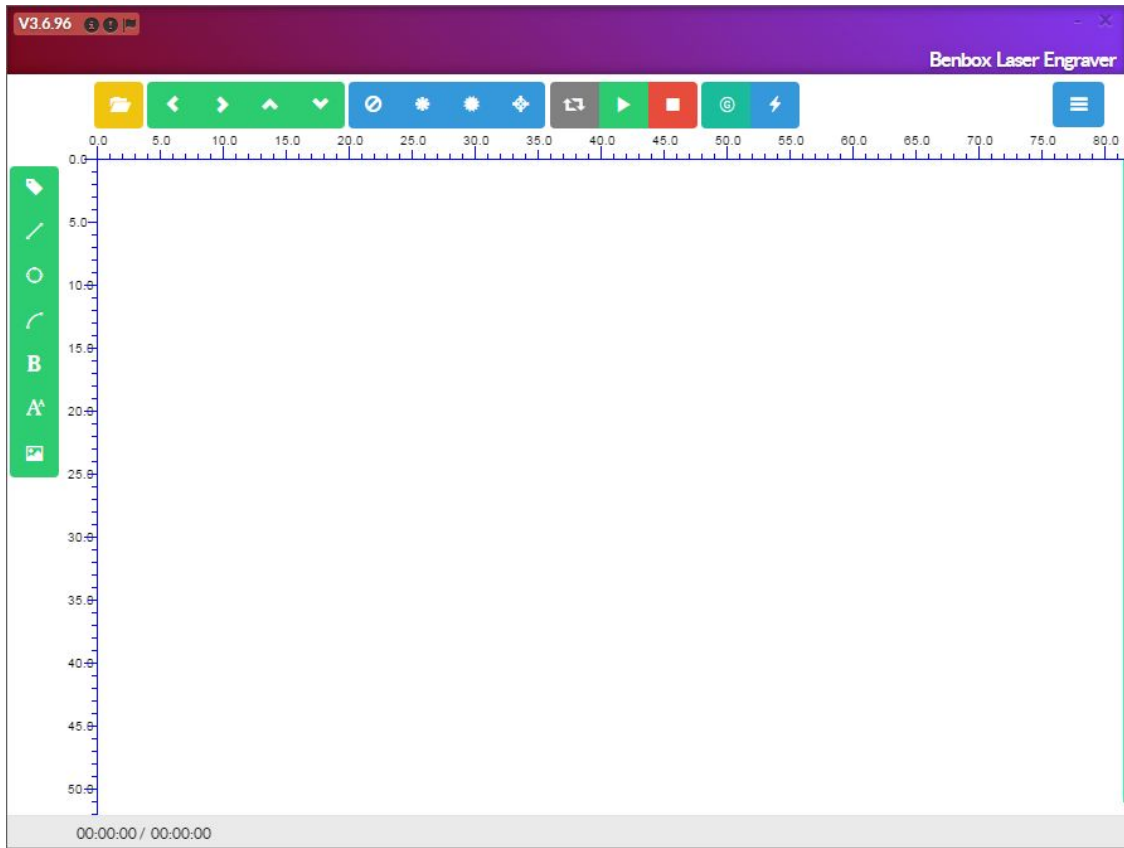
The software developed by its own team 'BENBOX'. After constantly upgrading the software features improved steadily. The software is mainly used to control the laser engraving machine of 'BENBOX'. After connected upper computer and lower computer, we can use the software for precise control. The software interface and software details, we will detail below.

2. Software Architecture

Install the control software Benbox 3.9.69 (Or other versions). Follow the prompts to install, to complete the installation.



Open the software, we can see:




There are many buttons on the screen, let's introduce one by one.




Open files










Move buttons----move your laser and choose your zero point

 Laser control buttons----Laser off/Laser low/Laser high/Laser test

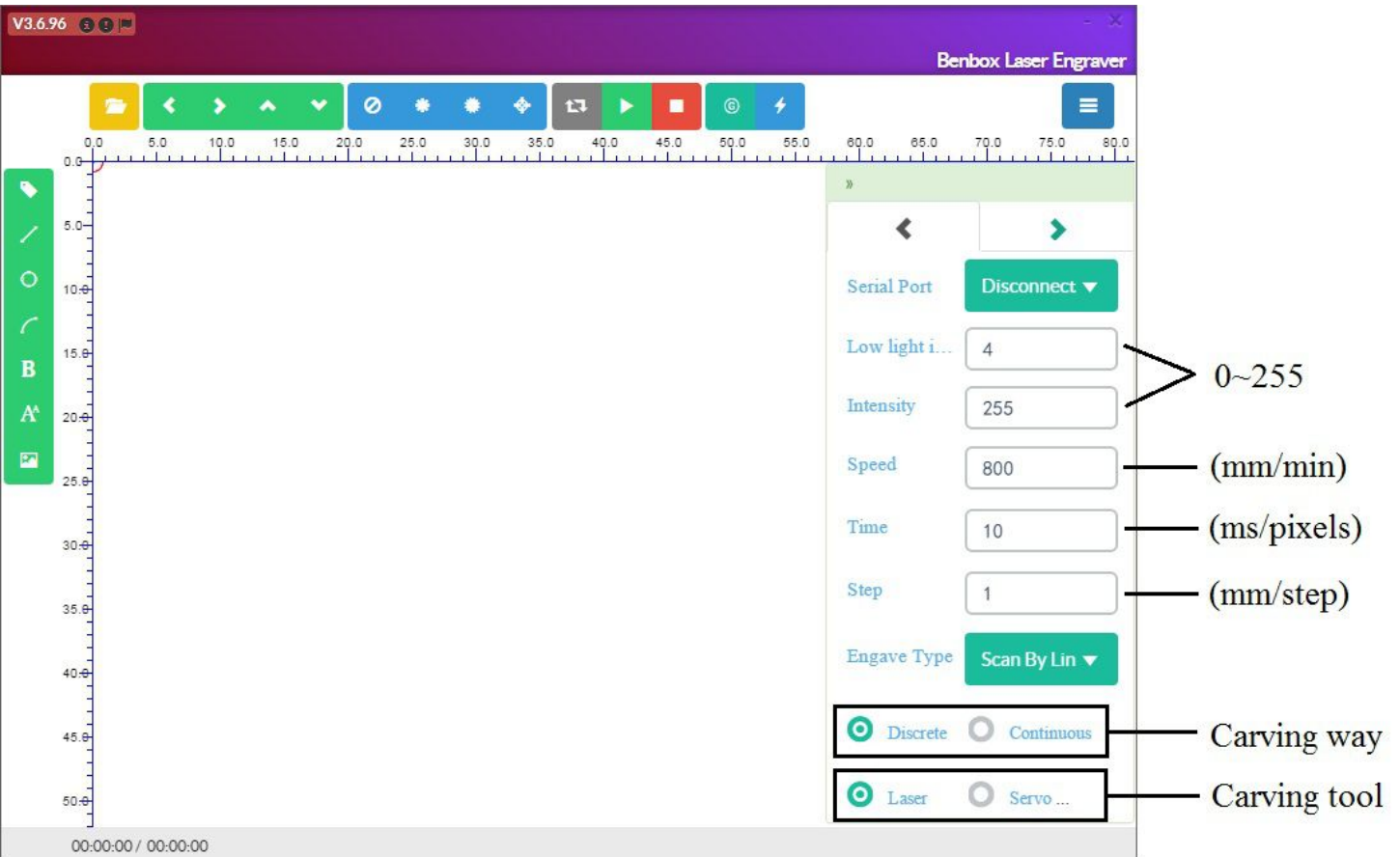
 Preview/Start or pause/Stop buttons

 G code debugging/Upload firmware

 Hidden interface

-  Locate
-  Line
-  Round
-  Arc
-  Bezier
-  Add text
-  Add image

Click the parameter setting button  , we can see that there are two pages:



The screenshot shows the Benbox Laser Engraver software interface. The top bar displays the version 'V3.6.96' and the title 'Benbox Laser Engraver'. Below the top bar is a toolbar with various icons. The main workspace is a coordinate grid. On the right side, there is a parameter settings panel with the following controls:

- Serial Port: Disconnect
- Low light i...: 4
- Intensity: 255
- Speed: 800 (mm/min)
- Time: 10 (ms/pixels)
- Step: 1 (mm/step)
- Engave Type: Scan By Lin
- Carving way: Discrete Continuous
- Carving tool: Laser Servo ...

Annotations on the right side of the screenshot point to the Intensity, Speed, Time, Step, Carving way, and Carving tool settings.

The screenshot shows the Benbox Laser Engraver software interface. A configuration dialog box is open, displaying settings for the X and Y axes. The settings are as follows:

Parameter	X	Y
STEP	2	3
DIR	5	6
MIN	-1	-1
MAX	-1	-1
PPM	320	320
LASER	0	1
SERVO	11	11
SERVO	-1	-1
FEED RA.	1000	

Red arrows point from the following labels to the corresponding values in the dialog box:

- step pin (points to STEP values)
- dir pin (points to DIR values)
- limit pin(min) (points to MIN values)
- limit pin(max) (points to MAX values)
- determined by the hardware(step/mm) (points to PPM values)
- laser control pin (points to LASER values)
- servo control pin (points to SERVO values)
- the moving speed of the positioning (mm/min) (points to FEED RA. value)

An arrow labeled "After setting click OK" points to the green checkmark button at the bottom of the dialog box.

The above configuration are hardware-related, if in doubt, please consult the hardware section.

3. Software Steps

(1) Connecting the laser engraving machine to your computer, Then follow the steps below to upload firmware.

The screenshot shows the main interface of the Benbox Laser Engraver software. The toolbar at the top contains several icons. A red box highlights the lightning bolt icon, which is used for uploading firmware.

Update Firmware



Nothing selected 1

UNO(328p)/Benbox Laser 123567/Makeblock Orion 2

Where is the firmware? 3

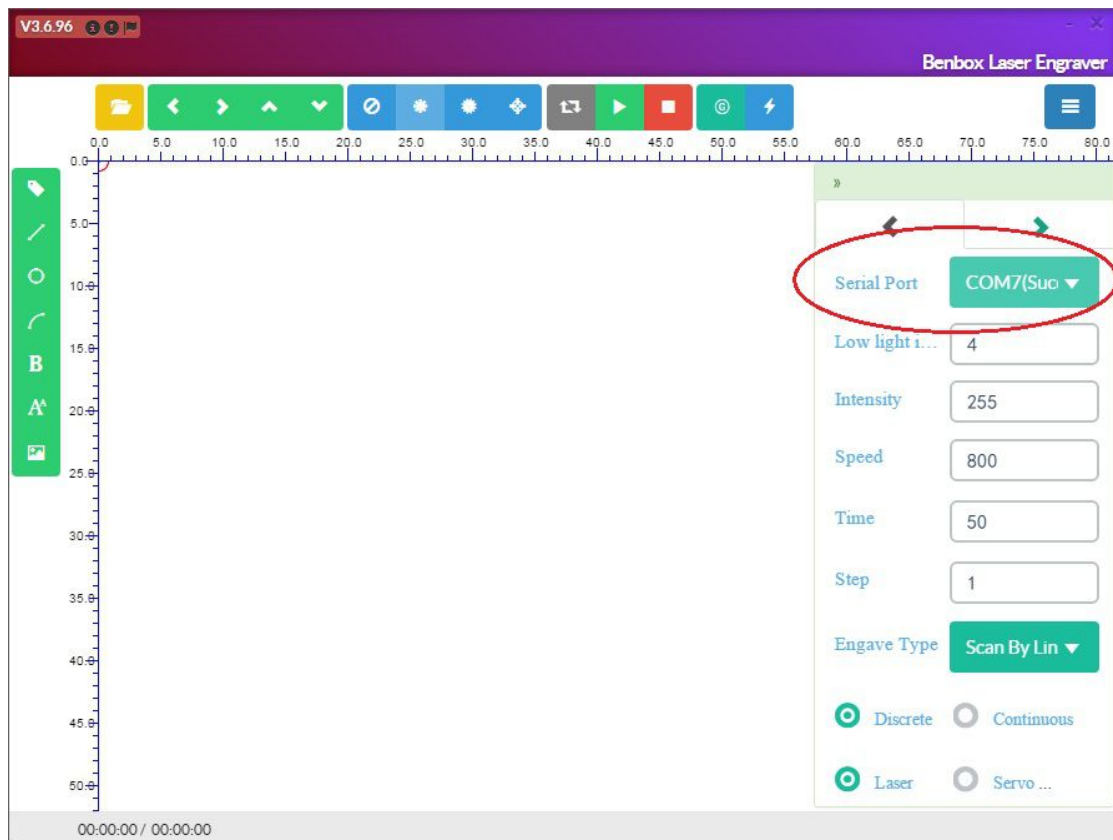
4

1. You must choose the correct COM port
2. Select the right mainboard type
3. Select the right version of your board
4. Update firmware. Click .Done!

Program Files > Benbox > 3.6.96 > roms

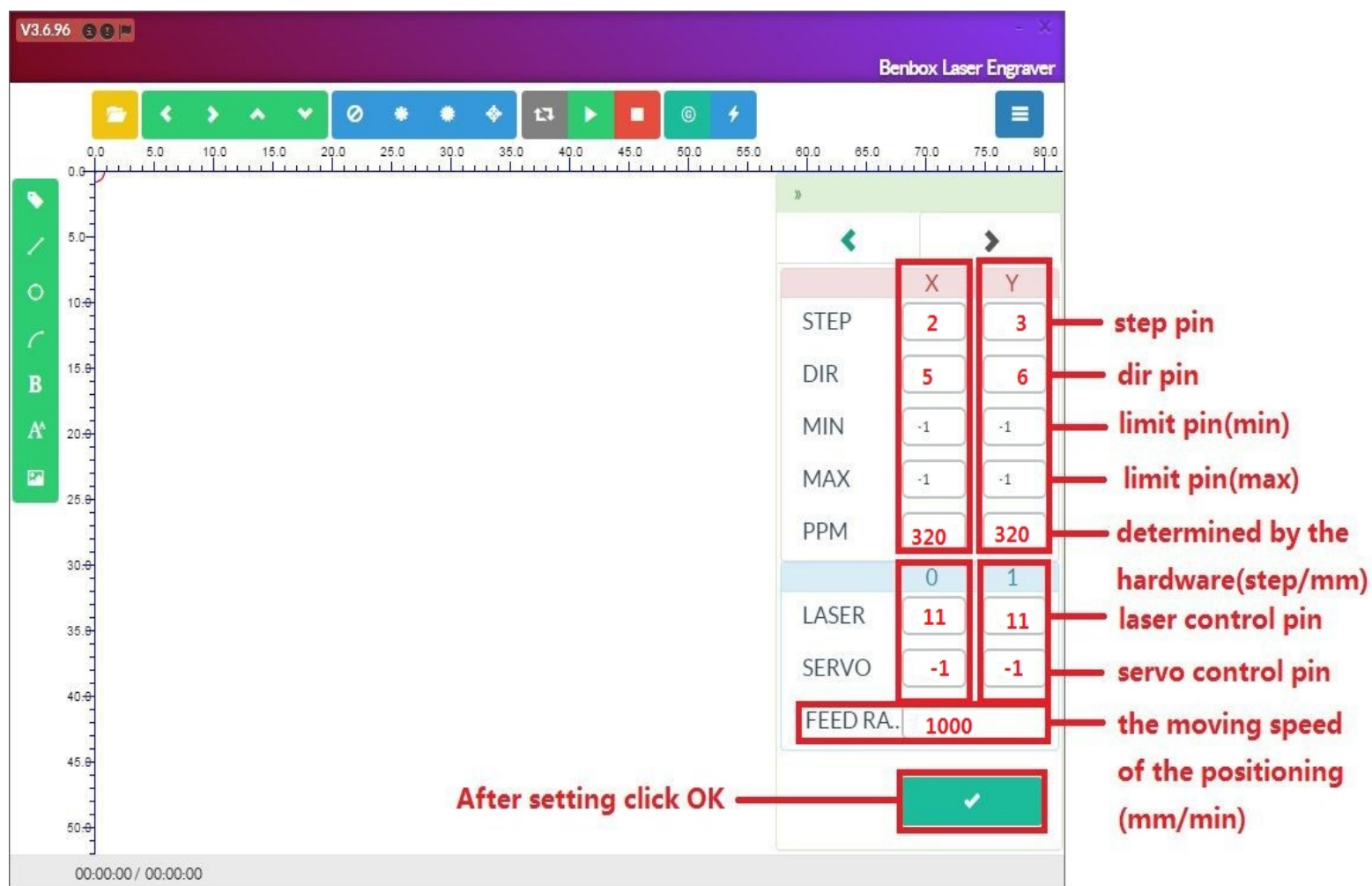
名称	修改日期	类型	大小
Benbox_Laser.60.32u4.20141225.hex	2015-02-05 13:57	HEX 文件	77 KB
Benbox_Laser.60.328p.20141225.hex	2015-02-05 13:56	HEX 文件	69 KB
Benbox_Laser.60.328p.20150606.hex	2015-06-06 18:28	HEX 文件	69 KB
Benbox_Laser.90.32u4.20141225.hex	2015-01-04 18:13	HEX 文件	77 KB
Benbox_Laser.90.328p.20150606.hex	2015-06-06 18:29	HEX 文件	69 KB
makeblock-32u4-20141225.hex	2014-12-25 15:53	HEX 文件	77 KB
makeblock-32u4-20150606.hex	2015-06-15 17:47	HEX 文件	70 KB
makeblock-328p-20141225.hex	2014-12-29 16:26	HEX 文件	70 KB
makeblock-328p-20150606.hex	2015-06-06 18:27	HEX 文件	70 KB

Select the right version of your board. Depending on your mainboard type. If you do not know which one to choose, contact your hardware personnel.



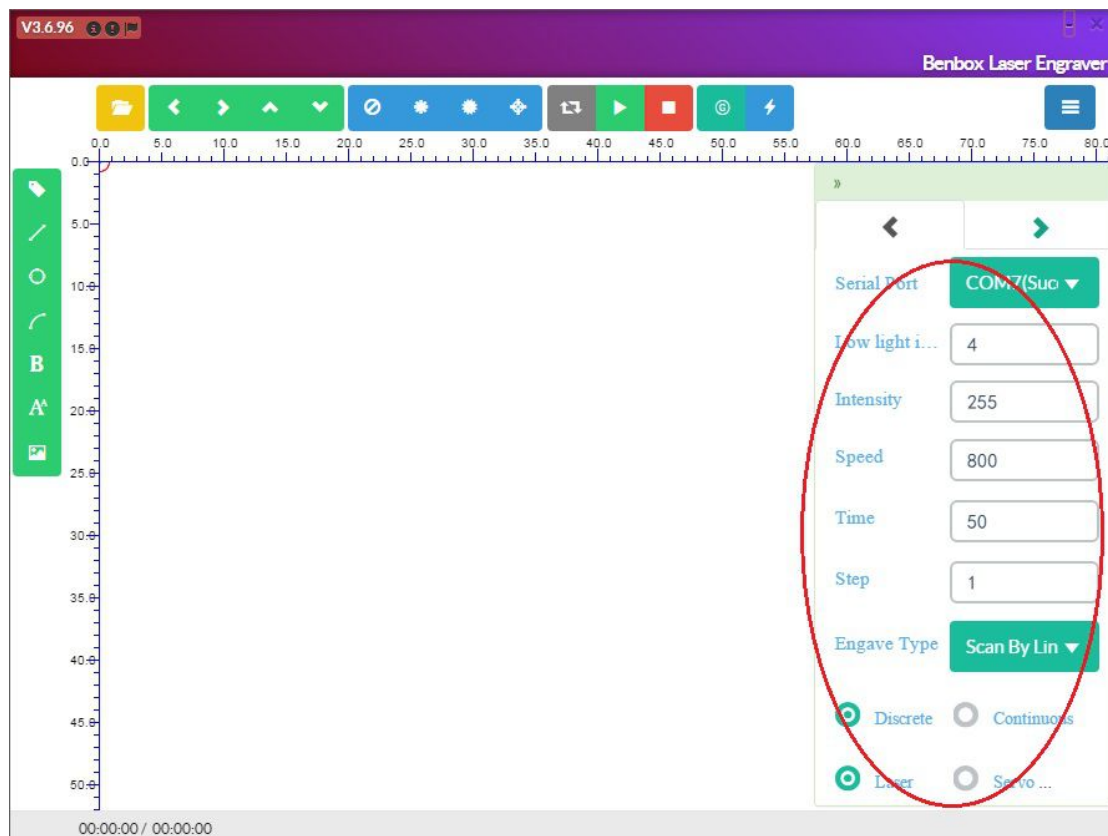
If the connection is unsuccessful, restart the software and check the hardware is functioning properly. You need to connect an external power supply to make sure it can work normally.

(2) Modify the parameters depending on hardware:

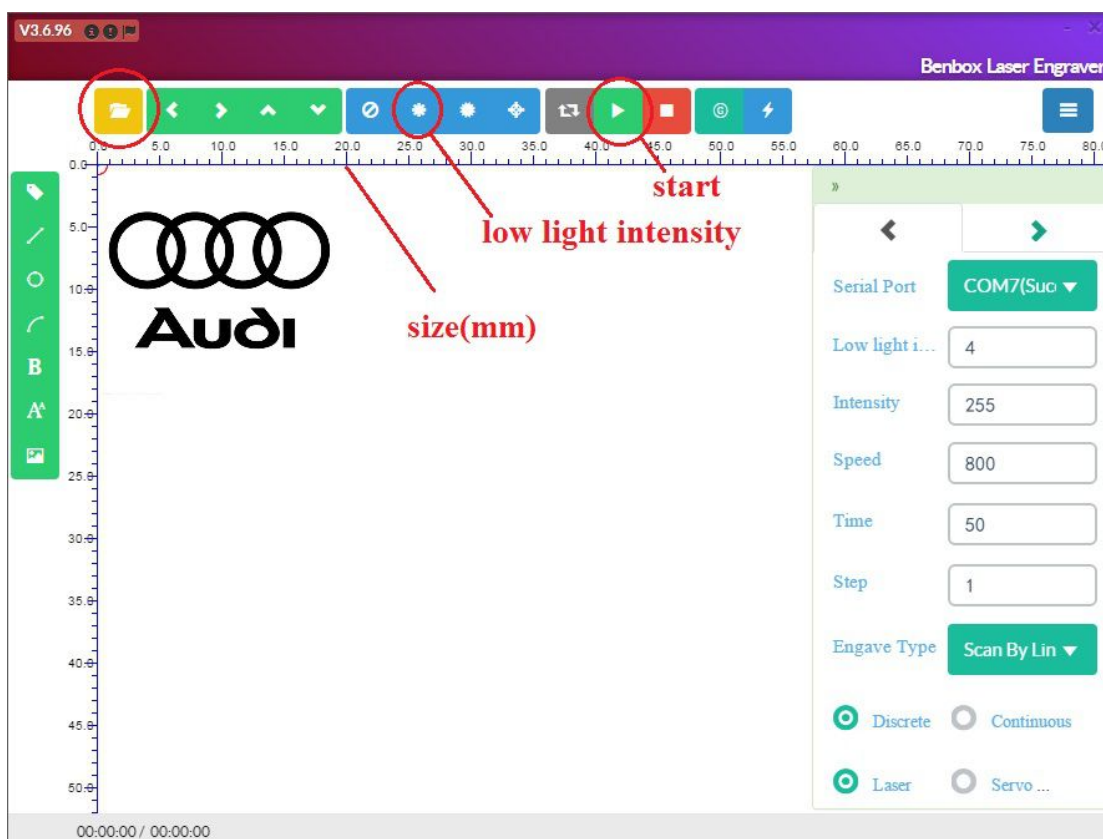


Click OK to save this informations.

(3)This information is based on engraving modify the way you want:



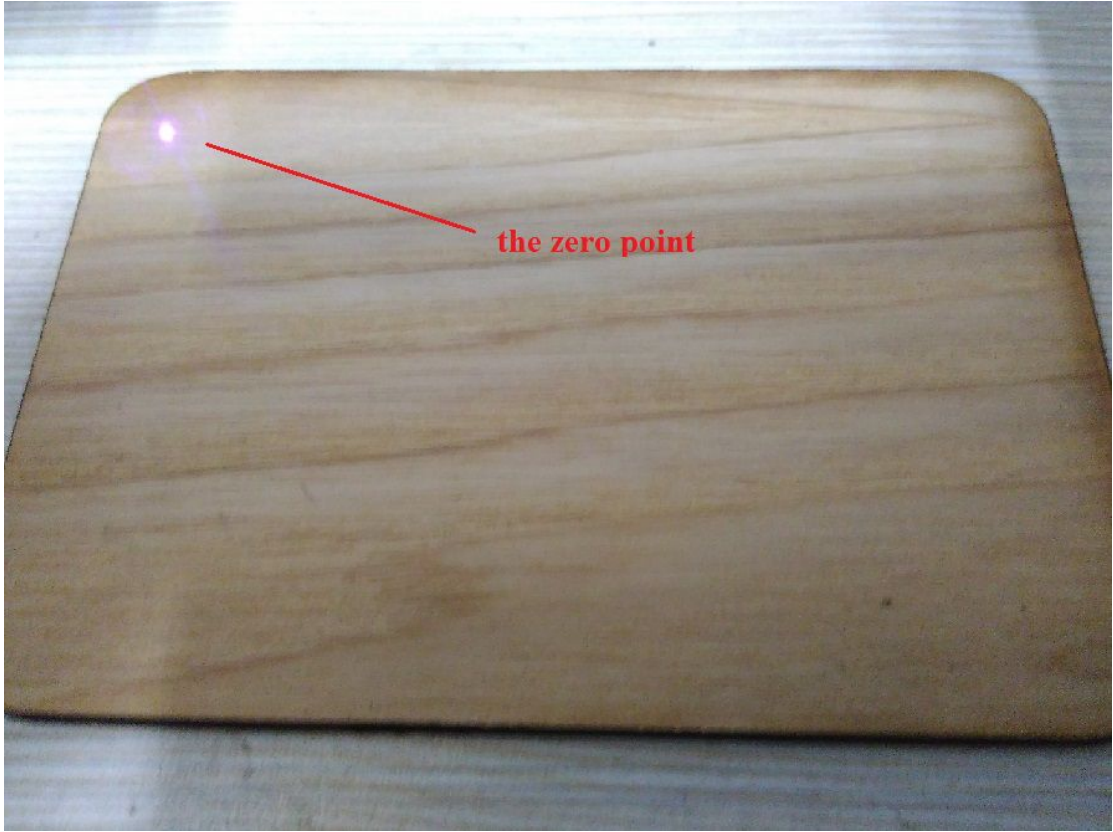
(4)Load picture you want to carve on software:



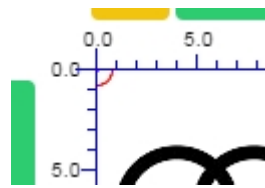
And you can see the size of your picture. Click 'low light intensity' button to aim at your object. I'll show you how to do this:



Makes this point minimum by focusing knob:

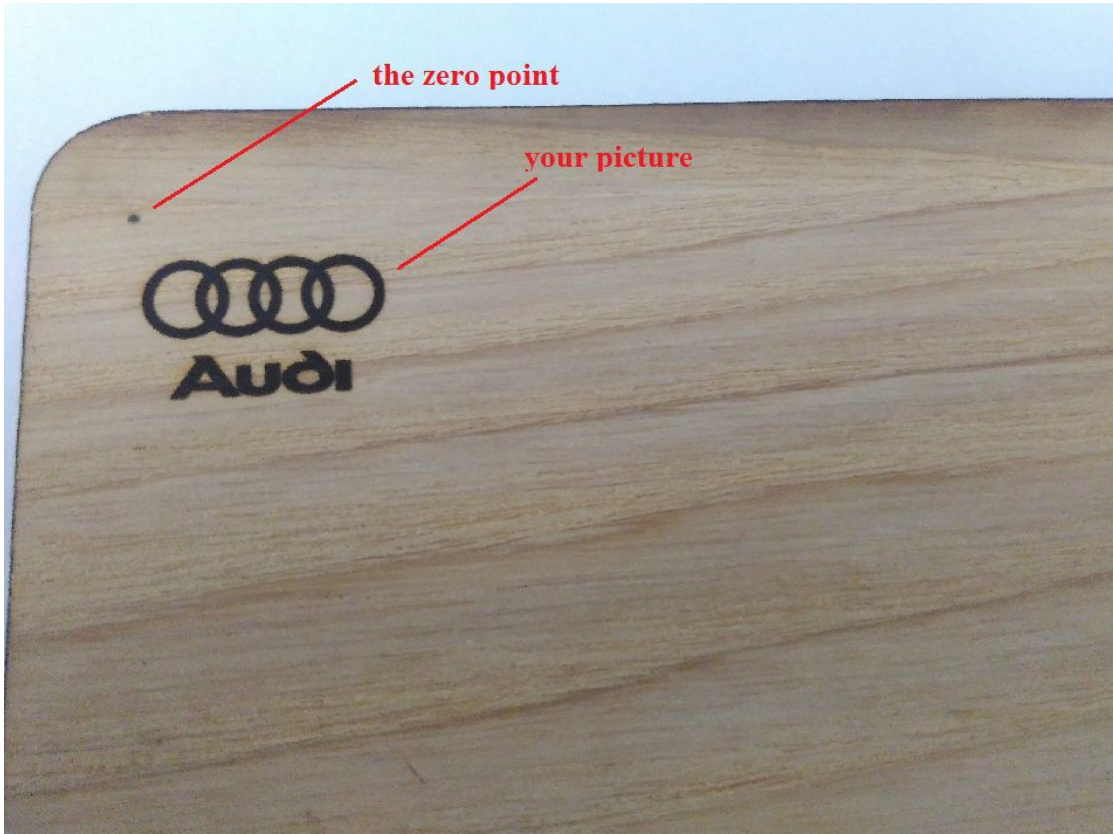


The zero point is aim at this '0.0' point:



I will play a little as a reference in here, then click start.....just wait.....

Carving time by the size of the picture and your set!



So, Can you understand the role of the zero point? It does not occur under normal circumstances, I just show you about this.

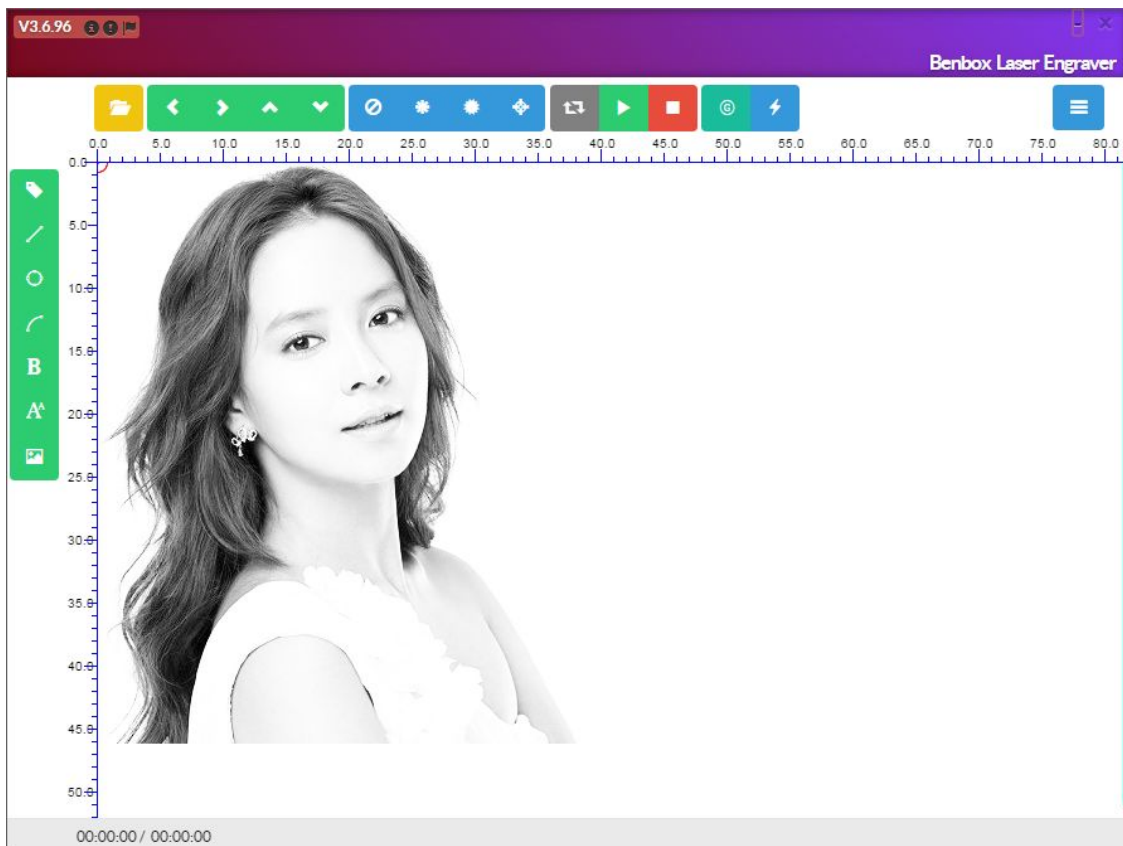
If we choose OUTLINE way to carve, you can get this:



(5)I will show you more practical function:

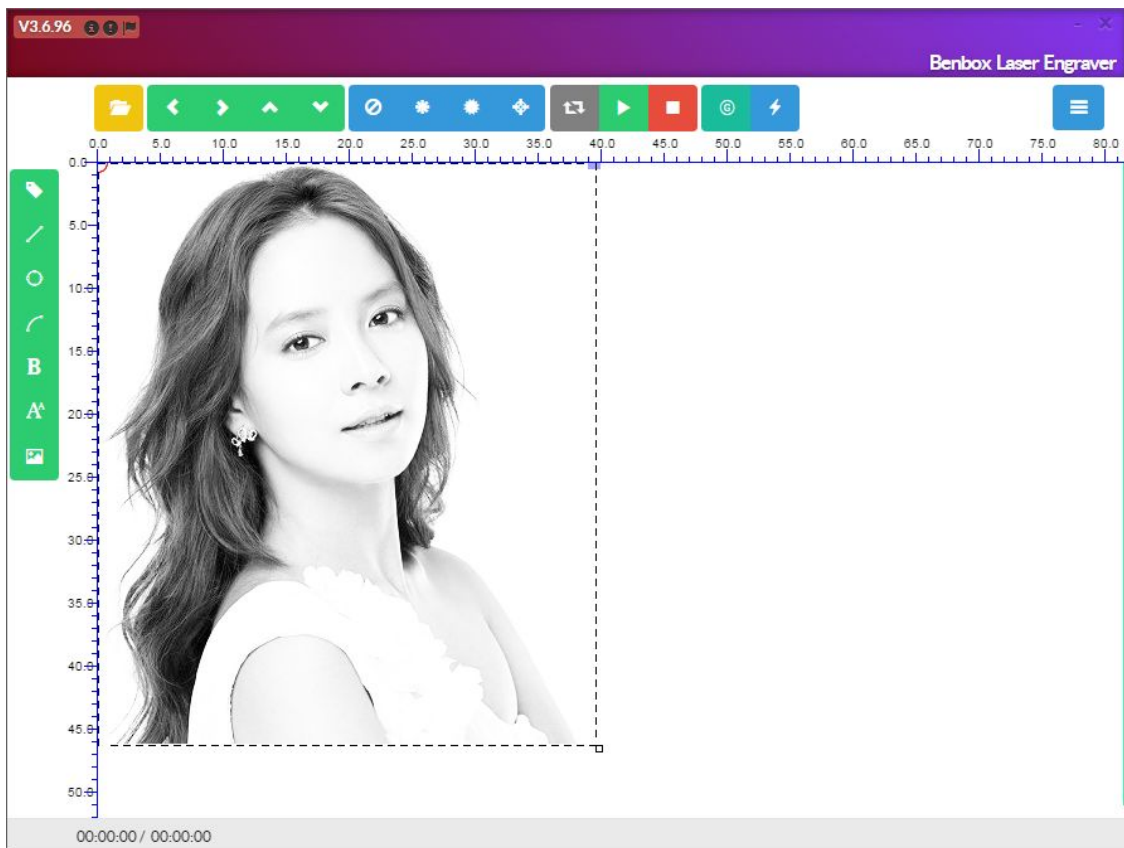


This is a beautiful photograph, is my goddess.I'll show you how to process it.

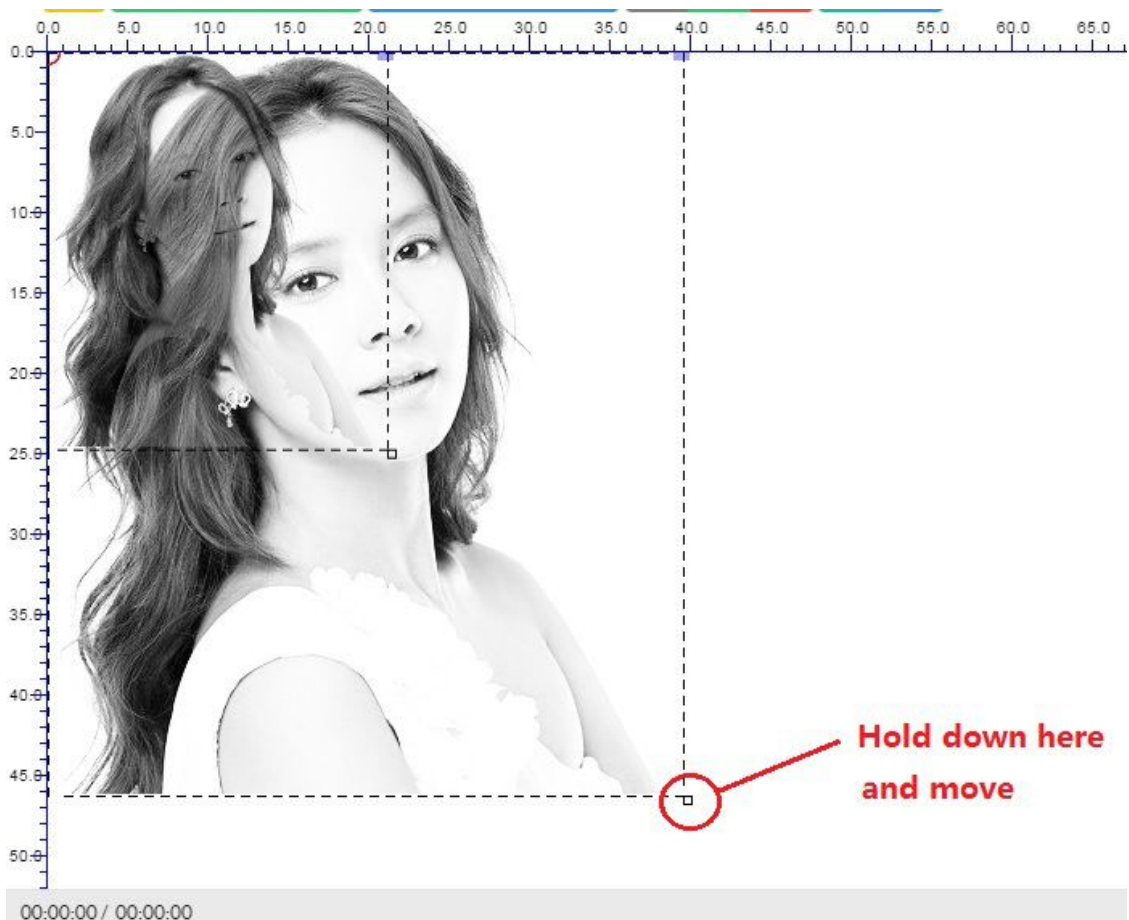


Opening it becomes a grayscale,and you can try to engrave it.....

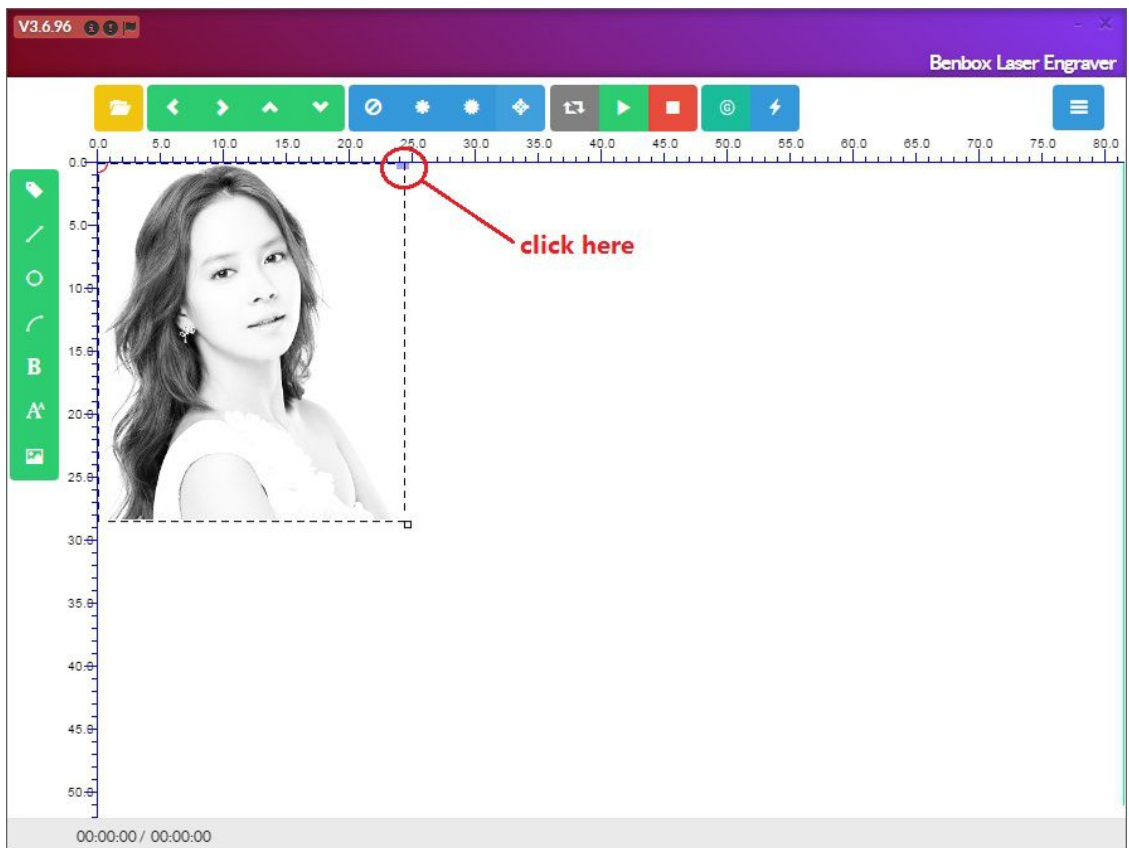
Click it and you can see next:



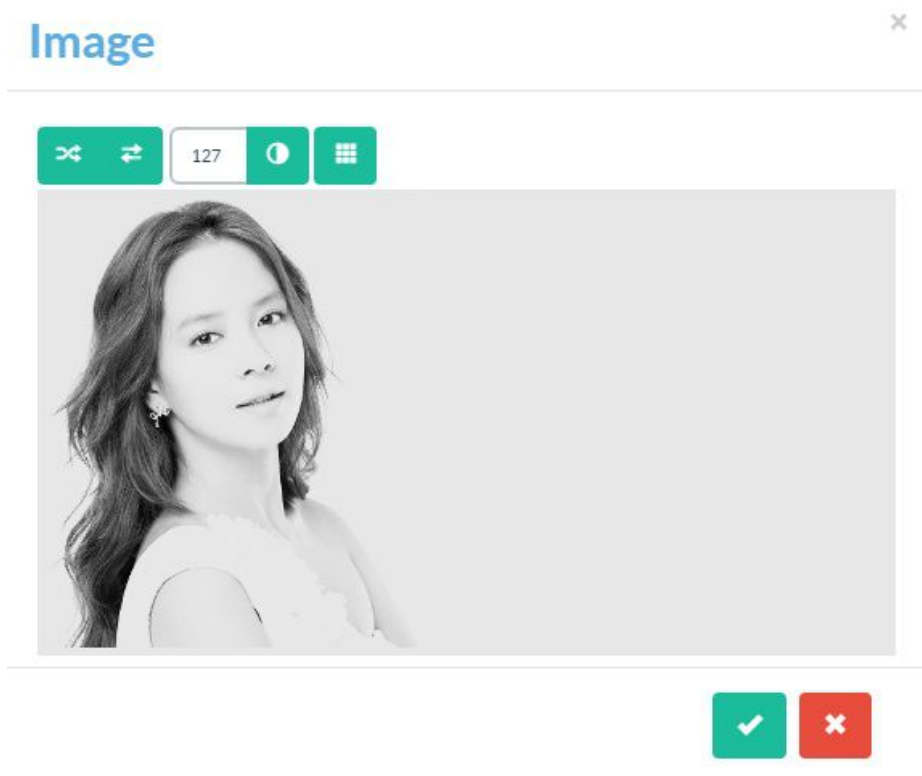
Hold down the left mouse button to drag you can change the picture size:




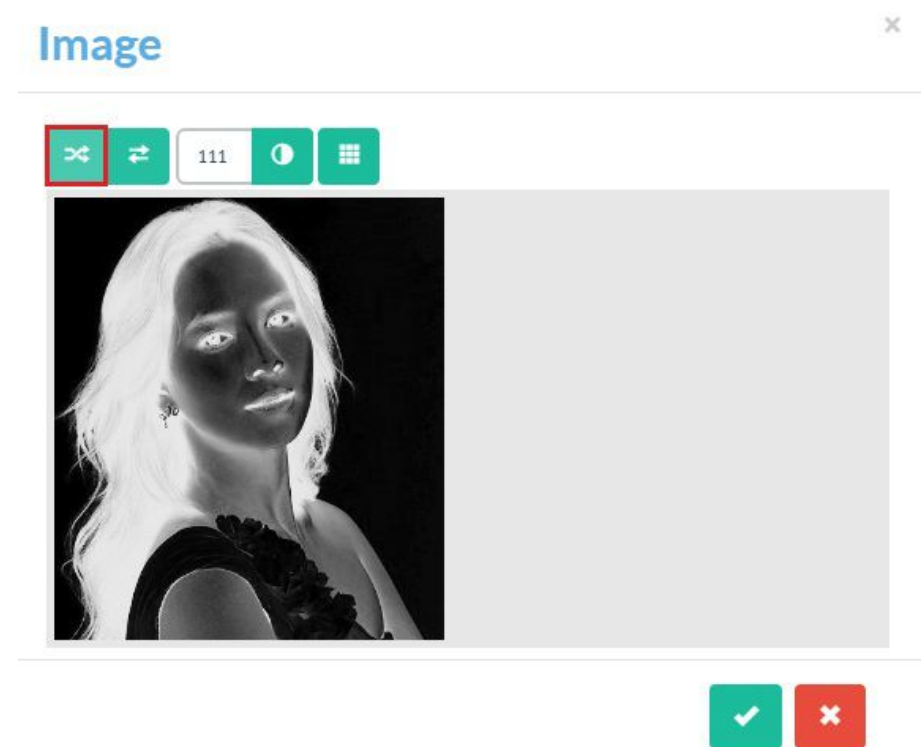
Click here to enter the menu, you can modify more. Click on the blue-violet squares:




You can see this interface:



Click  you will get a negative picture:



Click  you will get a reversed picture:

Image

×




Back to the original picture, We introduce the approach binary images:

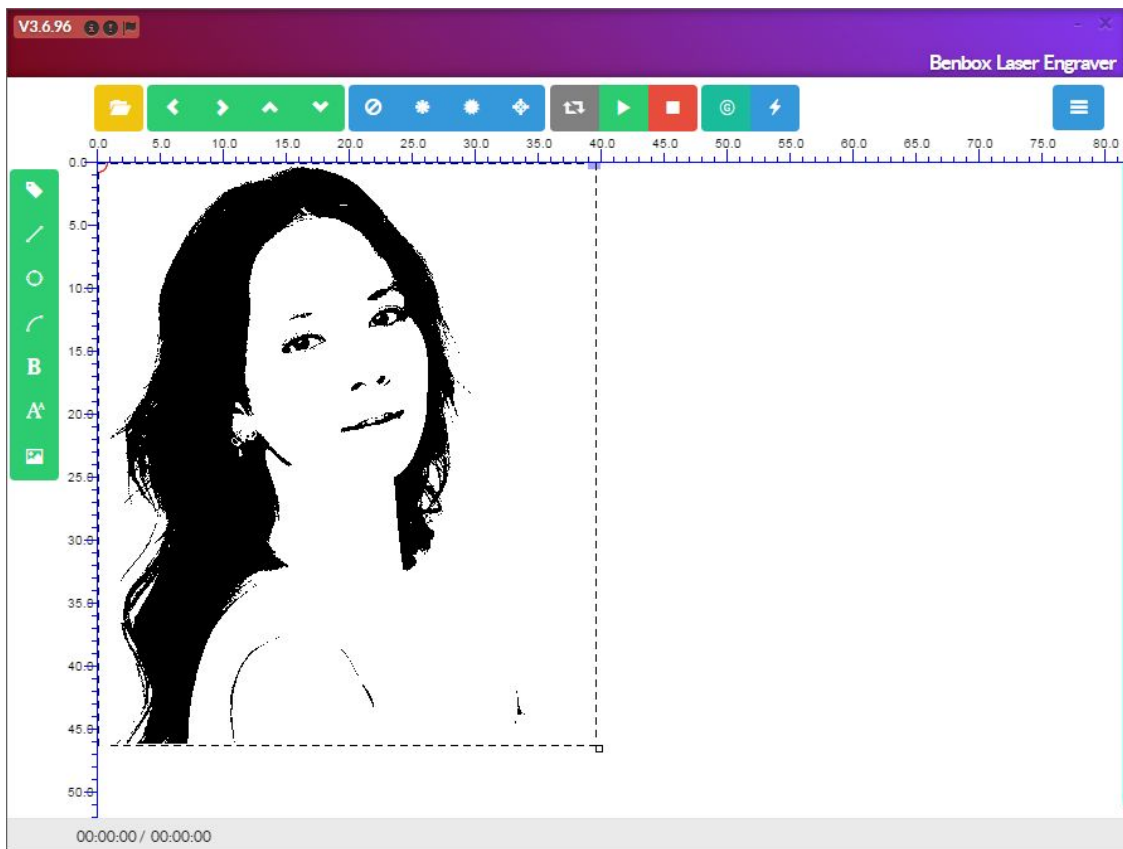
Image


×

Threshold



Threshold selection range between 0 to 255. Please select appropriate threshold according to the actual situation. After clicking  you can see the results:



Back to the original picture again, We introduce the image dithering. After clicking  you can see the results:

