LaserCA V4.1.3

USER MANUAL

(V4.1.3.15)

BOYE LASER APPLIED TECHNOLOGY CO.,LTD.
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The license of LaserCA

Only when you accept all clauses in this license agreement about using LaserCA software (hereinafter called the agreement for short), will our company authorize you to use LaserCA software and relevant documents. So please read the agreement carefully before you choose to accept or not to accept the agreement. If you don't accept the agreement, our company will not authorize you any right to use this software. If you accept the agreement, you will be one party of the agreement and should comply with the following agreement as soon as you start to use this software.

1. The name of our company is BOYE LASER APPLIED TECHNOLOGY CO., LTD. Or BOYE for short. Our company is the legal owner of the property right of this software and relevant documents.
2. LaserCA software can only be used with BOYE laser cutting and engraving machines. They are not sold alone. You are not allowed to use this software alone without buying our machines.
3. You have the limited right to use this software. You can only install and run this software in one computer. Our company is the only legal owner of property right of this software and relevant documents whether it is in the optical disk you bought or installed in your computer.
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5. The following actions will cause strict civil punishment or bring a suit against you.

   ■Try to spy upon the source code of the software.

   ■Copy, change, distribute and retail the software.

   ■The actions mentioned in the fifth clause include but are not confined to making the illegal copy, amending, reprogramming, compiling, un-compiling or other reverse engineering activities.

6. The older version of our software can be upgraded by visiting http://www.boye.com.cn. The customers holding the upgraded software should comply with all the clauses in this agreement. If the agreement of the older version conflicts with this agreement, this agreement takes priority.
7. This agreement will take effect when you buy the software or upgrade your older version. If you reject this agreement, you give up the right to use the software as the agreement indicated. You must delete and destroy the software and all the copies, and bear all the relevant loss and responsibility.
8. Our company reserves the right to interpret and modify this agreement.

There are several cautions relating to safety as follows in this manual:

This sign shows that something should be note when operation.

This sign offers some useful information or some operate skill.

Announce: because of that specific requirements or parts of construction and contents make changes as caused by technical upgrade for users，we will not inform you again.

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Contents

1.INTRODUCTION

1.1.Computer Requirement

1.1.1.Hardware Environment

100%IBM Compatible PC or Industrial Computer, With Memory of 256M or above, 10/100M Network Card, CD-ROM, VGA Color Display and above 100M Hard Disk free space.

1.1.2.Software Environment

LaserCA software should run under the Windows setting, So customers are required of installing the Operating System of Windows 7 or Windows XP.

1.1.3.Compatible Device

LaserCA V4.1 software supports BOYE processing devices that contain CA-II and BY control system.

1.2.Software Installation and Operation

1.2.1.Software Installation

- Start Windows operating system and correct the system current time (Note: If the time is wrong, LaserCA will not operate correctly);
- From the LaserCA installation disk and put into CD-ROM, Run LaserCA_EN_CH_SetupV4.10.exe to install LaserCA software in your computer;
- Start operation according to the related prompt;
- After installation complete, installation will create LaserCA shortcuts in your Start menu and your desktop.

1.2.2. Add Device

■ Double click the icon of LaserCA  , Startup LaserCA to enter interface (Fig.1-2-1) ;

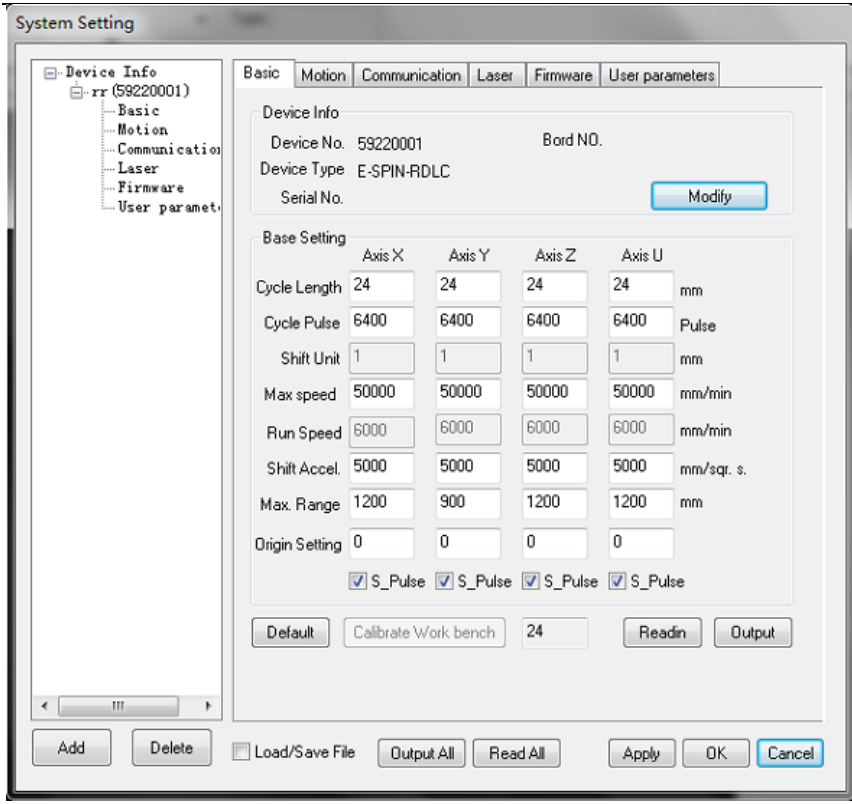
■ Click the add button, Input device name（Fig.1-2-2）;

■ Input the twenty-one-digit serial number（Fig.1-2-3）;

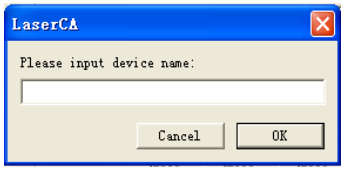
■ Click “OK” button to enter LaserCA software.

1、 To upgrade LaserCA, please uninstall the old version of the software, then to install;

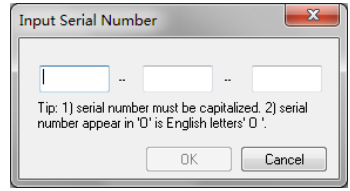
2、 Uninstall the software operation will remove some user information under the software installation path, please backup in time; Particular, you can backup the ini folder under the installation path, after installation, replace the ini folder you just installed by the backup files, so you may not re-enter the device serial number and the system parameters.



（Fig.1-2-1）



（Fig.1-2-2）

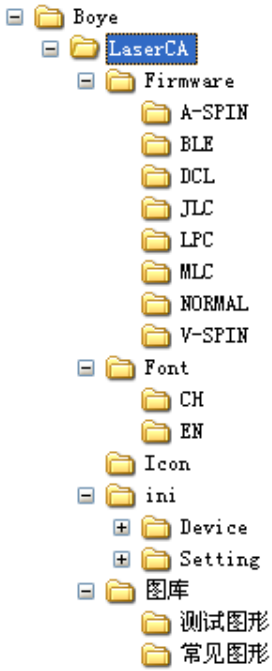


（Fig.1-2-3）

NOTICE

After adding the device, please close and restart the software again, so the related equipment information can be saved to the related catalog.

1. 2. 3. Installation Fill Introduction

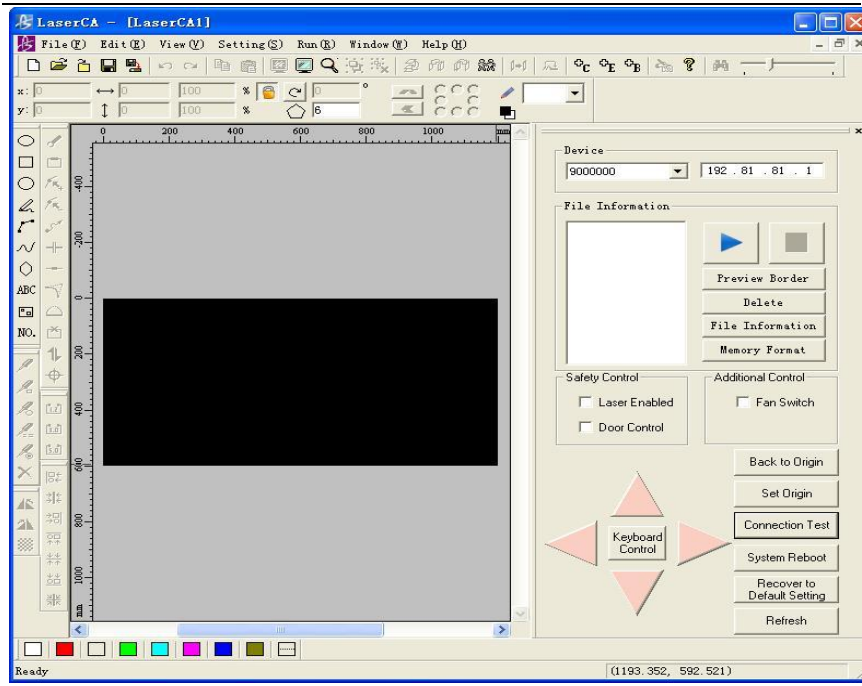


(Fig.1-2-4)

After installation is completed, the system will automatically generate such as the left side of the folder structure, the firmware folder is used to store the firmware file in various types of equipment, Such as the A-SPIN folder used to store the estimate of the A-SPIN equipment, the corresponding device firmware can be found from this folder; Icon stored the software's icon; ini folder is stored the device parameters and user settings, you can back up the folder before re-install the software, after the installation is completed, restore it when necessary,so you can no longer enter the device serial number;

1.3.LaserCA Graphic User Interface

To start the software: double click the icon of LaserCA, you can enter LaserCA System. You will see a window as below:



（ Fig.1-3-1）

More detail information please refer to the related chapter of “Basic knowledge”.

NOTICE

The“Set Origin”,“System Reboot”,“Recover to Default Setting”,“File Information”will not be used on the operator interface of BY mode.

1.4.The Characteristics of LaserCA

LaserCA system is developed specifically for laser engraving and cutting by BOYE.

- Undo/Redo functionalities to make editing much easier and more fun;
- Adopt 32 bit programming technology, has system-level linear and circular interpolation function;
- Able to configure the laser power easily in the software;
- Able to input and save multiple device information, and choose one as the current device. When you change the current device, the device parameters (in System Setting, Motion Setting and Laser Setting under Settings menu) will change with it. So that you can go on several of operation and control for multiple devices by this software;
- Able to import existing files into current documents to enable you to utilize multiple graphic or image files. Support PLT, BMP (1bit), DXF (R12), DST (SPIN Serial) and HPG file format;
- Able to select one or more graphic elements and apply editing operations such as mirroring, transforming, duplicating, rotating distorting, alignment, changing color to them. Able to do minor adjustment to the positions of the selected graphics elements using arrow keys. Able to edit graphic expediently with the function of nesting groups, which a group can be one element within another group. Able to move the laser head to any specified point in the working area of the device;
- Smoothing function to improve the cutting and engraving result dramatically for low quality graphics;
- Able to insert text in chosen font. Able to produce the envelope curve or the outline for the closed path;

- Grid support for more precise positioning;
- Adopt vector, raster or combined operating mode, it can do the engraving and cutting on the same plate;
- Automatic laser energy compensation to ensure the consistency of engraving and cutting depth and to satisfy the special need of the laser engraving and cutting;
- Flexible and rich correcting function to produce precise engraving and cutting results; Support slope engraving function or Stamp Mode; Able to define polygon engraving area, to minimize the area of engraving and save engraving time;
- Support multiple set of cutting parameters, you can choose different cutting parameters for graphics with different colors; Able to define multiple set of cut settings and save them for later use;
- Powerful ordering capabilities to change the order in which graphic elements are outputted, including By Row, By Column, Closest First, Click Ordering, and Mouse Guided Ordering;
- The software offer recovery function.When the software breakdowns or quits abnormally,reset the software,then you can recover the files operate before;
- The software offer data recording function.It can select the numbers entered before;
- The software offers bitmap function.Like“Internal filter”.“External filter”. “Remove filter”and so on.

2.Basic Knowledge

2.1.Enter and Exit the System

2.1.1.Enter the System

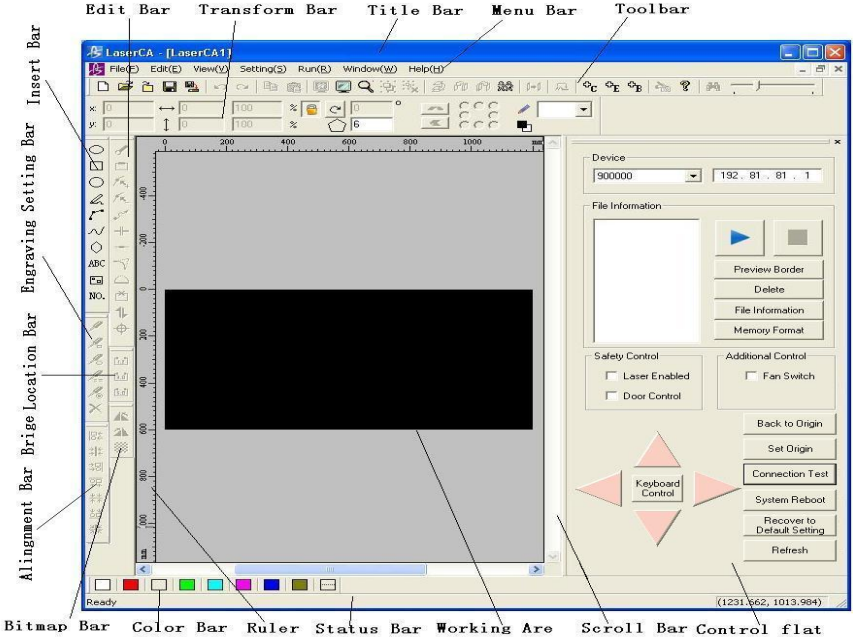
Double click the icon of LaserCA to enter LaserCA software.

2.1.2.Exit the System

There are three methods to exit the system;

- Click the exit button on the right up corner of the main windows of the system;
- Select the exit in the File menu;
- Press the quick key ALT+F4。

2.2.Customer Interface Instruction



(Fig.2-2-1)

From up to down there take turns as follows: Title Bar, Menu Bar, Toolbar, Transform Bar, Color Bar, Bitmap bar, Insert Toolbar, Engraving Bar, Curve Editing Bar, Alignment Bar, Bridge Location Bar, Ruler Bar, Working Area, Scroll Bar, Status Bar, Control flat;

Title Bar: Display the symbol of BOYE Company, software name and opened file name;

Menu Bar: Click any one of the menu bars to see a rolling menu;

Toolbar: Display the common tools in the menu. Move the cursor on each button, the system will display its function instruction automatically in the left side of the status bar;

Transform Bar: Used to localize and zoom, rotate, Display the color of the selected graphics, Change the position of graphics;

Color Bar: Used to set color for the graphics;

Bitmap Bar: Used to rotate bitmap and reverse color of bitmap;

Insert Toolbar: To show the common tools in drawing and inserting;

Engraving Setting Bar: To set the engraving area;

Editing Bar: To show the common tools for Curve Editing;

Alignment Bar: Display the alignment tools;

Bridge Location Bar: To take the bridge location;

Ruler: To show the size and the position of graphics;

Working Area: Operating area of the graphic display, the origin point is at the top left corner;

Scroll Bar: It is used to move the display area of the graphic quickly;

Status Bar: Display the operating status and the coordinate of the cursor;

Control flat: Display the related device control information of CA-II Control System. And do operation for the equipment.

Place the mouse in the toolbar icon for about 1 second, the system will automatically show the function of each icon.

2.3.Shortcut Key

Shortcut Key	Functions	Function Declaration
F1	Using Help	Open the help file of system
F2	Cut Setting	Set the parameters of cutting graphics
F3	Graphics	Display all the graphics in the screen
F4	Work Area	All the screen display the selected graphics
F5	Run	Selective output the run dates
F6	Run All	Output the run dates
F7	Selected Preview	Imitate the system running path and time
F8	System Setting	Setting every parameter for system
F9	Generate Guide Light Spot	Generate Guide Light Spot
CTRL+N	New	Create a new blank page
CTRL+O	Open	Open the saved*.ble file
CTRL+I	Import	Import graphics in different formats
CTRL+S	Save	Save the *.ble file in the current page
CTRL+Z	Undo	Undo the previous operation

CTRL+Y	Redo	Redo to the previous graphics
CTRL+A	Select All	Select all the graphics in current page
CTRL+C	Copy	Copy the selected graphics
CTRL+V	Paste	Paste the selected graphics to the current page
CTRL+D	Define Rectangle Engraving Area	Define Rectangle Engraving Area
CTRL+G	Group	Combine the selected graphic elements into a group
CTRL+U	Ungroup	Release the group to make the elements within the group appear as themselves.

Hold down the mouse button and move the mouse, drag the entire canvas

2.4.About Colors

Different colors displayed have different meaning:

White: Laser on area;

Black: Laser off area;

Red: Laser on area after run;

Blue: Laser off area after run;

Red dark: Laser on slope engraving area after run;

Grey: Out of ranger.

2.5.Tool Bar

(Fig.2-5-1)

The icon in the tool bar is the common functions of the system; it shows the common tools in the menu. Move the cursor on each button, the system will display a brief explanation about this tool in the left side of the status bar.

From left to right:

New		Open		Import		Save	
Output to off-line file		Undo		Redo		Copy	
Paste		Graphics		Work Area		Zoom	
Group		Ungroup		Order		To Front	
To Back		Batch Reproduce		Change to graph		Smoothing	
Cut Setting		Engrave Setting		Run All		About	
Bitmap Engrave Setting		Preview All			Auto Group		

2.6.Transform

(Fig.2-6-1)

Used to localize and zoom the selected graphics.

Horizontal distance		Vertical distance		Lock		Rotate	
Polygon Setting		H-Mirror		V-Mirror		Paint brush color	
Colors of selected graphics		Location of selected graphics		Type			

2.7.Color Bar

(Fig.2-7-1)

The Color Bar is used to change the color of the selected graphics by clicking the button in the toolbar.

PROMPT

The last button can be used to self-define the color by the color palette.

2.8.Alignment Bar

(Fig.2-8-1)

The icon in the alignment bar is the common ways for alignment.

Move the cursor on each button, the system will display a brief explanation about this tool in the left side of the status bar.

From left to right:

Align Left		Align Vertical Center		Align Right		Align Top	
Align Horizontal Center		Align Bottom		Align Center			

2.9.Insert Tool Bar

(Fig.2-9-1)

The icon in the Insert Tool Bar is the common tools for drawing and inserting. Move the cursor on each button, the system will display a brief explanation about this tool in the left side of the status bar.

From left to right:

Draw ellipse		Draw rectangle		Draw Circle	
Draw lines		Draw Arc		Draw Spline	
Draw polygon		Insert text	ABC	Insert Location Frame	
Insert file no.	NO.				

2.10.Curve Editing Bar

(Fig.2-10-1)

The Curve Editing Bar contains icons for curve editing tools. It can add/delete some nodes from the curve, break the curves, and close the curves. Move the cursor on each button, the system will display a brief explanation about this tool in the left side of the status bar.

From left to right:

Node Editing		Make Closed		Add Node		Delete Node	
Change Start Point		Break Apart		Link Up		Change To Curve	
Change To Line		Delete Segment		Locate Node		Merge lines	
Split graph		Fill Graphics		Delete SuperPosition			

2.11.Bitmap Bar

(Fig.2-11-1)

From left to right:

90 degrees anti-clockwise		90 degrees clockwise		Anti-color bitmap	

rotation		rotation			
Vector bitmap		Internal Filter		External Filter	
Un_Filter					

Please refer to the “Vision Subsystem Operation Manual” for detailed information.

2.12.Engraving Setting Bar

(Fig.2-12-1)

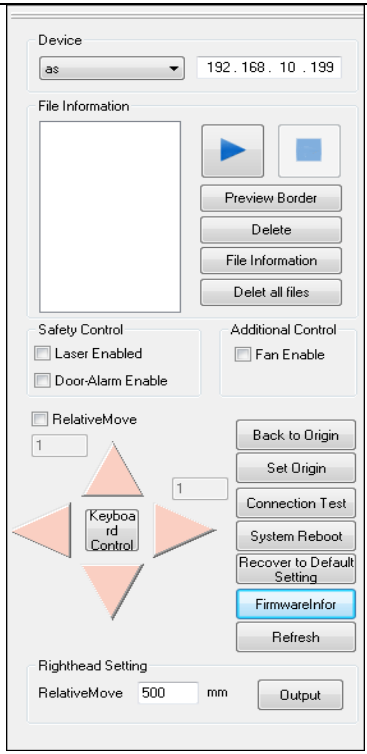
Define Engraving Area		Define Rectangle Engraving Area	
Define Polygon Area		EngravingArea ToBmp	
Define Enveloping Engraving Area		Release Engraving Area	

2.13.Bridge Location Bar

(Fig.2-13-1)

1.2 mm Bridge Location		3 mm Bridge Location		5 mm Bridge Location	
bridge					

2.14.Control Flat Bar



(Fig.2-14-1)

Can read the relevant file information of device through Control Flat Bar.

Device: Contains the current selected device name and IP address;

File Information: Display the file name in the opposite order of memory files, and do delete, run, pause,continue,terminated operation to file or see the current file information, make the equipment empty will delete all the files on the device and do formatting operations for the file system;

Safety Control: Open the door controlling, used to open the "door open warning",Make sure to install the appropriate hardware in the device before using;Laser enabled, the same as the "laser enable"button functions of the control panel, only the "laser enable" is effective, the device can come out light;

Additional Control: Fan control, switch the equipment of fan;

（Requires special hardware support）

Back to origin: Confirm whether the laser head go back to origin of system;

Firmware Information: Read firmware data from the motherboard;

Origin Control: Set the current position of the laser head as the origin of system, After setting ,the laser head will go back to this position once the device starts up;

Default setting: Return to the original default settings;

System Reboot: Reboot the device;

Connection Test: Test the connection between this software and the device;

Direction Key: To control the laser head moving;

Keyboard Control: Use the direction key on keyboard;

Refurbish: Reread the information in device to keep coincides with that displayed in the control desk.

1.Do any operation on the file, you must select the response file;
2.To delete the file, you can select multiple files by shift + left mouse button to delete together.

3.Basic Operations

3.1.Basic Operating Process

- Set the parameters in motor setting, motion setting and laser setting through the setting menu, set the machine state through the Device Information Bar, make sure the parameters in device is same to parameters in software;
- Make the graphics or read the graphics file in other file;
- According to the file, set appropriate parameters.(Cut Setting, Engraving Setting);
- Execute the engraving and cutting work.

3.2.Editing with Mouse

3.2.1.Select

- To select a graphic element, just click on it. When selected, there will be eight small squares shown around the element and one “x” shown in the center;
- To select multi-graphic elements, press the left mouse button, hold it, and drag a rectangle to cover the graphic elements and one “x” shown in the center;
- To select a compound, you can just click on it ,you will see two empty squares in the center instead of “x”.

3.2.2.Move

Select the graphic element, and move the cursor to the center, you will see that the cursor becomes “+”. Then press the left mouse button and drag, the graphic element will move with your mouse move.

Select the graphics,press the button SHIFT, Using the mouse to drag the graphics,figure move only in X or Y direction.The graphics will move on the direction which the mouse move nearly.

3.2.3.Zoom

Select the graphic element, and move the cursor to one of eight small squares, the cursor becomes double arrowhead icon. Then press the left mouse button and drag, the graphic element will zoom with your mouse move.

3.2.4.Rotate

Click the selected graphic element again to get into rotate/distort mode, the selection display will become four short lines on four sides, four short

curves around the corners, and the icon  in the center. The icon represents the reference point for rotation, and you can move it by mouse. Move the cursor to the one short curve of the four short curves, press the left mouse button and drag, the graphic element will rotate with your mouse move around the reference point.

3.2.5.Distort

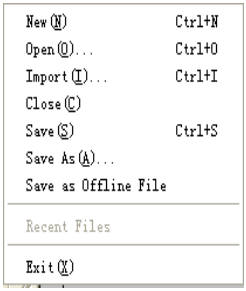
Click the selected graphic element to get into rotate/distort mode. Then move the cursor to one of the short lines on the sides, press the left mouse button and drag, the graphic element will distort with your mouse move around the center.

3.2.6.Grab

Press the Mouse middle button, the mouse will become the icon  , then press the right mouse to drag the window at will.

3.3.File Menu

Click File in the Menu Bar, the following menu appears:



(Fig.3-3-1)

3.3.1.New(N)

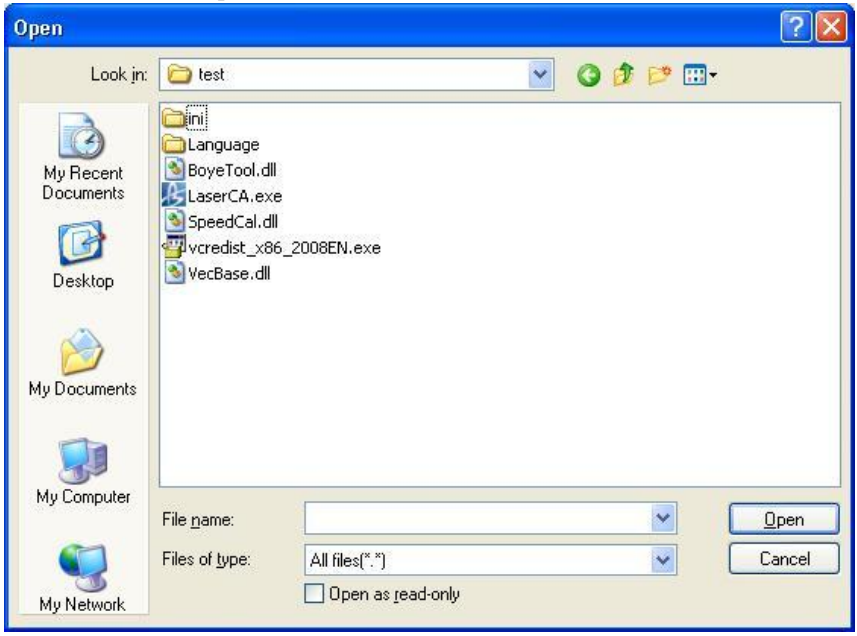
Create a new document. You can also click the icon  in the

toolbar or use shortcut key Ctrl-N.

3.3.2.Open(O)

Open an existing file. You can also click the icon in the toolbar or use shortcut key Ctrl-O. Can open 5 file formats: PLT.BMP.DXF.DST.HPG and BLE. Among them BLE is the main file format and the only one LaserCA can save to.

Through the "menu"-"file"-"open"or"open"button in the commonly used toolbar,pop dialog box "open",as show in Fig3-3-2.The file type increases the bitmap format selection.



(Fig3-3-2)

3.3.3.Import(I)

Import an existing file and merge it into the current document. You

can also click the icon  in the toolbar or use shortcut key Ctrl-I. Can import 5 file formats: PLT.BMP.DXF.DST.HPG and ai, the software supports preview function when choosing a file.

3.3.4.Close (C)

Close the current document.

3.3.5.Save(S)

Save the current document to the corresponding BLE file. The settings (such as cut settings, engraving settings etc.) are saved along with graphic information. You can also click the icon  in the toolbar or use shortcut key Ctrl-S.

3.3.6.Save As(A)

Save the current document to another BLE file. Will prompt for the new file name.

3.3.7.Output the offline files

Save the current file as the off-line files format（ULE format）, Can directly click the icon  in the toolbar. The saved offline files can be copied to the device through U disk or through the “Send Offline Files”way to sent to the device (via the F5 shortcut key to open).

3.3.8.Recent File

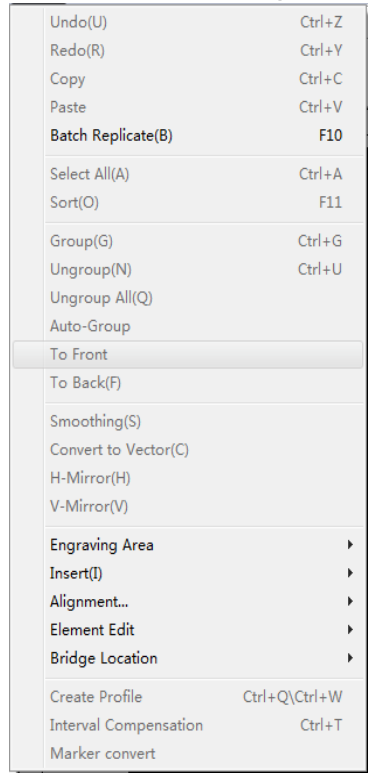
Shows recent files that you have used. You can click a file name and open it directly.

3.3.9.Exit(X)

Exit from LaserCA software. Will prompt you to save if you have edited the open documents but have not saved them.

3.4.Edit Menu

Click Edit in the Menu Bar, the following menu appears:



(Fig3-4-1)

3.4.1.Undo(U)

Undo the last operation of changing the graphic shape and position. You can also use shortcut key Ctrl+Z.

3.4.2.Redo(R)

Redo the last operation that was undone. Can use shortcut key Ctrl+Y.

3.4.3.Copy

Copy the selected graphic. Can use shortcut key Ctrl+C.

3.4.4.Paste

Paste the copied graphic. Can use shortcut key Ctrl+V.

NOTICE

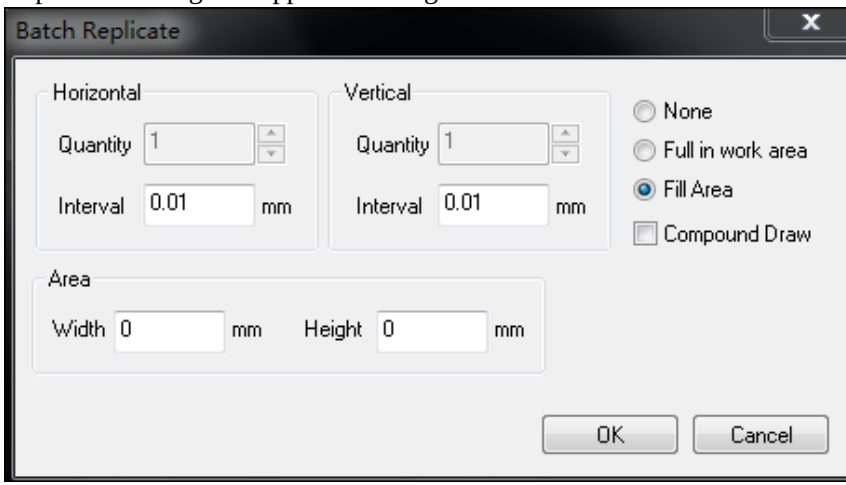
After paste the graphic color become the first color in the document

3.4.5.Batch Replicate(B)

Reproduce the graphic according to the quantity and interval in the Batch Reproduce dialog.

How to operate:

Select graphic elements to be reproduced, click icon in the toolbar or select "Batch Reproduce" in Edit menu, and Batch Reproduce dialog will appear as in Fig.3-4-2.



(Fig.3-4-2)

Specific instruction:

Quantity: Number of copies to generate horizontally or vertically;

Interval: Distance from border to border between copies horizontally or vertically;

Full In Work Area: Select this item, click "OK" key to make the system auto generate one batch of the same graphic that arranged full surface;

Fill Area: Select this item, click "OK" key to make the system auto generate one batch of the same graphic that fill the specified area.

3.4.6.Select All(A)

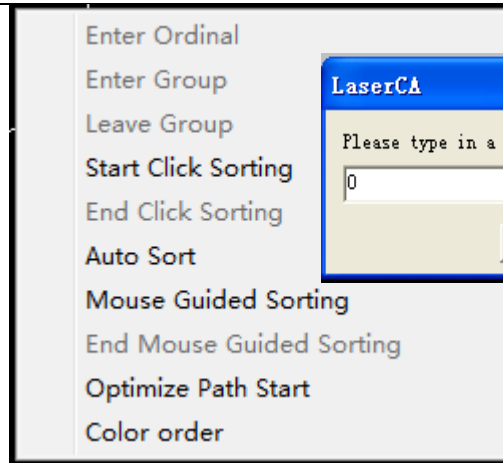
Select all graphic elements in the document. You can also use shortcut key Ctrl-A.

3.4.7.Sort(O)

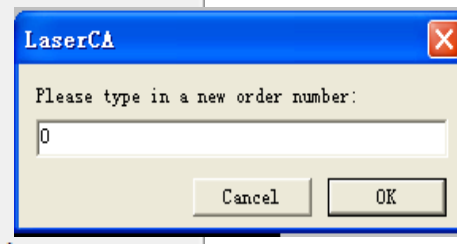
Order the selected graphic elements in the work area. Used to change the order that graphic elements are outputted. There are six methods of ordering, including three automatic methods: By Row, By Column, Closest First and three manual methods: Input Order, Click Ordering and Mouse Guided Ordering. Advice to use automatic method first and do fine tuning later manually.

How to operate:

Click "Order" in Edit menu or click icon  in the toolbar to enter ordering mode. Press the right mouse button to bring up the following menu. (Fig.3-4-3)



(Fig.3-4-3)



(Fig.3-4-4)

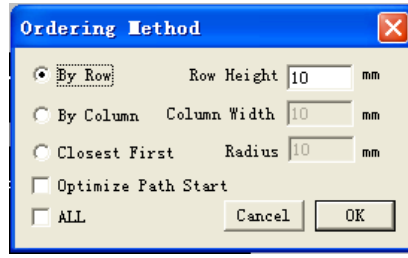
3.4.7.1.Enter Ordinal : Select a graphic element and choose Input Order will bring up a dialog as in Fig.3-4-3. You can type in an order number directly to change the order of the selected graphic element.

3.4.7.2.Enter Group: Enter a group to edit the order of graphic sub-elements within the group.

3.4.7.3.Leave Group: Leave the current group and go back to the root level.

3.4.7.4.Click Sorting: Click on each graphic element in the order you want, and they will be ordered according to the order you clicked.

3.4.7.5.Auto Sort: After clicks on the Auto Ordering, the following ordering menu appears:



(Fig.3-4-5)

By Row: Order the graphic elements row by row according to given height;

By Column: Order the graphic elements column by column according to given width of the column;

Closet First: Start from the top-left corner of the working area, and order by choosing the closest element as the next one after finishing ordering the elements within the scan radius;

radius: When select the Closet First, the last graphic within the scan radius takes priority;

Optimize Path Start: Change the origin of the graphic when in the process of ordering so that to make the cutting optimizes;

Automatic sorting imported graphics: According to the customer‘s demand,increase the function of import graphics,the graphics use the shortest sort method automatically.the premise is the graphics which to be imported can not exceed the size of the area which the software setting in it,if exceed the area,it must do sort operation by yourself;

All: If not checked, will treat the group just as an element; while

if checked, will also order the elements with a group.

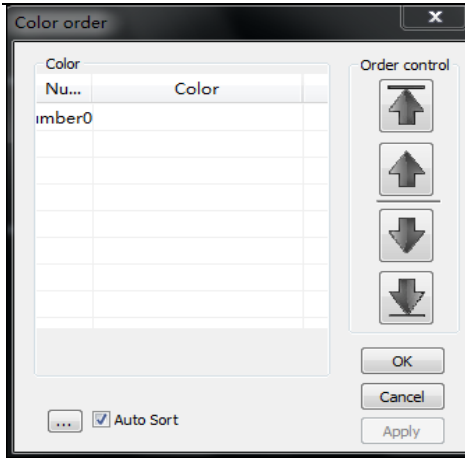
3.4.7.6.Mouse Guided Sorting: Clicks on the Start Mouse Guided Ordering to enter the Mouse Guided Ordering state. Then press the left mouse button and drag, and the graphic elements will be ordered according to the path your mouse moved. If all graph elements in the working area are ordered, the system will automatically end the Mouse Guided Ordering. You may also click on “End Mouse Guided Ordering” to end, and the remaining graphic elements will stay in the original order.

3.4.7.7.Optimize Path Start: Optimize the path start to reduce the total operation time.

3.4.7.8.Color order

“Placed to top” operation will make the currently selected color cutting order to route to the front, “Placed to end” operation will make the currently selected color cutting order routed to the end, “Up""and “Down” will make the currently Selected color cutting order move up and down a bit.

The graphics can not be a combination when do perform color sorting)



(Fig.3-4-6)

PROMPT

Mouse Guide Ordering follows a principle: When an element encloses other elements (called sub-elements), the sub-elements have to be ordered first for the laser cutting purpose. Ordering By Row or By Column goes in the shape of letter S to reduce machine operation time. For example: the first row of ordering By Row goes from left to right, while the second row will go from right to left.

3.4.8.Group(G)

Combine the selected graphic elements into a group. All elements within a group will appear as one element. You can also use shortcut key Ctrl-G. A Group can be one element within another group, and a group must contain more than one element.

3.4.9.Ungroup(N)

Release the group to make the elements within the group appear as themselves. You can also use shortcut key Ctrl-U.

3.4.10.Ungroup All(Q)

Release the all groups to make the elements within the group appear as themselves at one time.

3.4.11.To Front

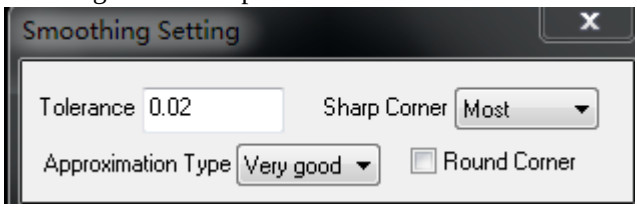
Arrange the selected graphic elements at the first.

3.4.12.To Back

Arrange the selected graphic elements at the last.

3.4.13.Smoothing(S)

To make the selected graphic elements smoother, so that the laser head will move stably during cutting and the cutting result will be better. You can also click icon  in the toolbar. If the graphics are already in good quality, Smoothing will not help much.



(Fig.3-4-7)

3.4.14.Convert to Vector

Transform the text into the graphics (only valid for the text)

How to operate: Select the text which need to be transformed, single-click the icon  in the toolbar, or single click "Edit/To Graphics" in the menu.

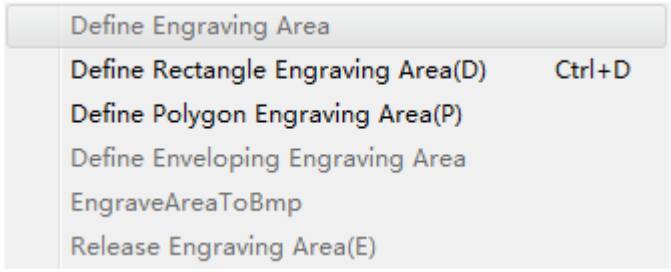
3.4.15.H-Mirror(H)

Mirror the selected graphic elements horizontally.

3.4.16.V-Mirror(V)

Mirror the selected graphic elements vertically.

3.4.17.Engraving Area



(Fig.3-4-8)

3.4.17.1.Define Engraving Area:

Define the graph to engraving area directly.

How to operate: Select the graph, click the icon  in the toolbar or select "Define Engraving Area" in Edit menu to start.

3.4.17.2.Define Rectangle Engraving Area(D):

Make a rectangle engraving areas which include the graph (or use shortcut key Ctrl-D).

How to operate:

- Click the icon  in the toolbar or Select " Define Rectangle Engraving Area" in Edit menu;
- Move the cursor "+" to the upper left corner of the graph you want, press and hold the left mouse button, move the cursor to the lower right corner of the graph you want, then release the left mouse button. An engraving area will be defined with the rectangle as its boundary. (Note: this rectangle cannot intersect with any graphic

elements);

- Double click the engraving area, will open the engrave setting dialog, and you can use this dialog to set the engraving parameters for this engraving area.

3.4.17.3.Define Polygon Engraving Area(P):

Click and draw a polygon in the graph boundary to define an engraving area.

How to operate:

- Select "Define Engraving Area" in Edit menu, or click icon  in the toolbar;
- Click a point you desire to start, and draw multiple points in the same way. These points will be connected to a polygon. You can finish the polygon by pressing Enter.(Note that this polygon cannot intersect any graphics);
- Double click the engraving area, will open the engrave setting dialog, and you can use this dialog to set the engraving parameters for this engraving area.

When draw a polygon engraving area, you can press "enter" or click the button "Define Engraving Area" in Edit menu, the system will link to a closed area automatically.

3.4.17.4.Engrave Area ToBmp: Transform the defined engraving area directly into monochrome bitmap .

3.4.17.5.Define Enveloping Engraving Area:

Add envelope to the closed graph first, then do the define engraving area to it.

How to operate: Select the closed graph, click the icon in toolbar or select “Define Enveloping Engraving Area” in Edit menu.

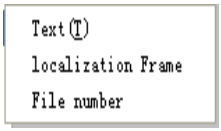
3.4.17.6.Release Engraving Area(E):

Release the engraving area to make the graphic elements within the engraving area appears as them.

How to operate: Select the engraving area you want to release, select “Release Engraving Area” in Edit menu or click icon in the toolbar.

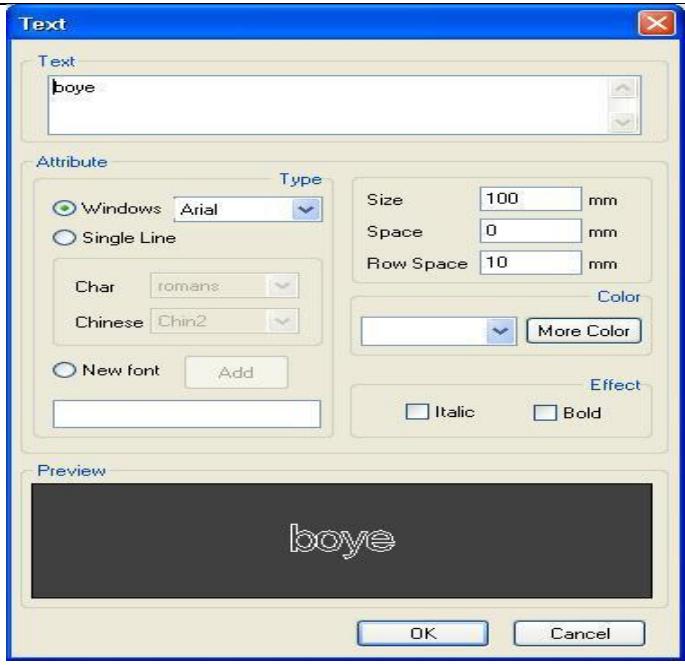
3.4.18.Insert

It can be inserted into ABC of the toolbar, or insert text under the Edit menu to open the above dialog box.



(Fig.3-4-9)

3.4.18.1.Text（T）As （Fig.3-4-10）



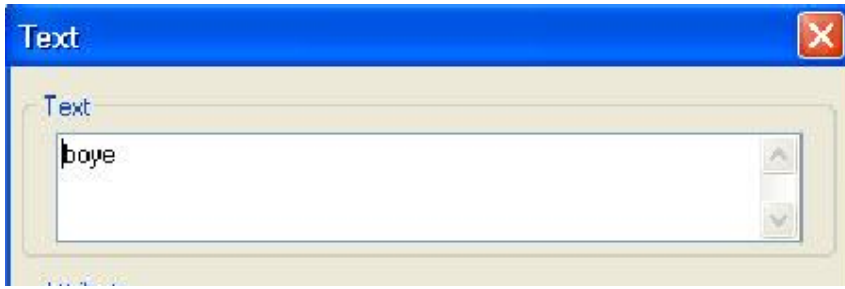
(Fig.3-4-10)

How to operate: Input text in dialog, set font, click OK, and pick the position in the work area for the text to be inserted.

Enter the word and preserve function:it will display the word entered last time automatically when open"word" next time.

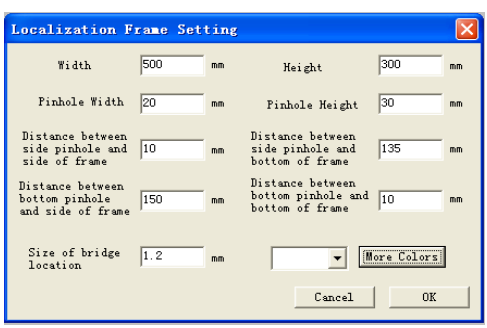
Via "menu"-"edit"-"insert"-"word"or insert the toolbar "word"  button,as shown in Fig.3-4-10.

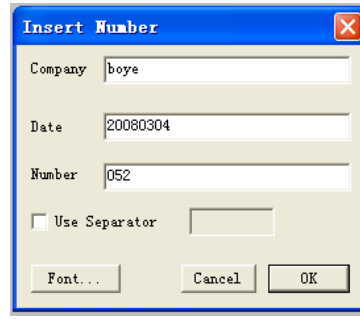
Eject dialog box "insert word",enter the word in the input dialog (Fig3-4-11),the word will be kept when opening the input dialog next.



(Fig.3-4-11)

3.4.18.2.Localization Frame(Fig.3-4-12)





(Fig.3-4-12)

(Fig.3-4-13)

Width: The frame width;

Height: The frame height;

Pinhole Width: The width of pinhole in rectangle;

Pinhole Height: The height of pinhole in rectangle;

Distance between side pinhole and side of frame: distance from side of side pinhole to side of frame;

Distance between side pinhole and bottom of frame: distance from side of bottom pinhole to side of frame;

Distance between bottom pinhole and side of frame: Distance from side of bottom pinhole to side of frame;

Distance between bottom pinhole and bottom of frame: Distance from bottom of bottom pinhole to bottom of frame;

Size of bridge location: the size of bridge location in pinhole;

More colors: Set the color of the frame.

3.4.18.3.File number(As fig.3-4-13)

Company: User input, can modify;

Date: Get from computer automatically, can modify;

Number: User input, can modify;

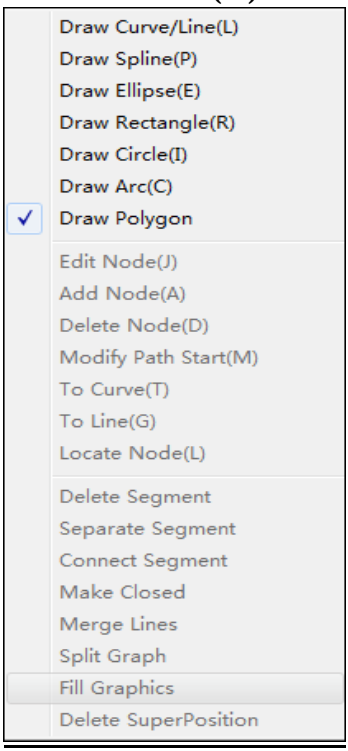
User separator: separate above information to Company, Date and Number(the sign support by filename);

Font button: Set font containing of height, gap, color ,font file and so on.

3.4.19.Alignment(L)

Select the graphic elements, and click the alignment icon you want in the toolbar. Alignment include left, vertical center, right, top, horizontal center, bottom, center.

3.4.20.Element Edit(M)



(Fig.3-4-14)

3.4.20.1.Drawing Curve/Line(L)

When you are drawing curves or lines, you can also get into editing mode at the same time.

How to operate: Select “Draw Curve/Line” get into drawing mode, and press the “Enter” to exit drawing mode. Pressing the “Esc” will delete the previous line or curve segment you have drawn. If there is only one segment left, pressing the “Esc” will exit drawing.

Drawing lines: Once you are in drawing mode, you can draw a line

segment by clicking two points.

Drawing curve: The curve is make up by four points, starting point, end point, two control points which determine the shape of the curve. First, press the left mouse button to set the starting point. And then drag the mouse to a proper position and release the left mouse button to set the control point 1. Next move the mouse and press the left mouse button to set the end point; drag the mouse and release the left mouse button to set the control point 2. While still inside the drawing mode, you can press down the shift key to get into temporary editing mode where you can move line or curve segments around or even change the shape of a curve.

3.4.20.2.Draw Spline(P)

Select "Draw Spline" gets into drawing mode, and press "Enter" to exit drawing mode. Pressing the "Esc" will delete the previous segment you have drawn. If there is only one segment left, pressing the "Esc" will exit drawing.

3.4.20.3.Draw Ellipse(E)

Select "Draw Ellipse" gets into drawing mode. First, press the left mouse button to set the starting point, and then drag the mouse to a proper position to set the end point, our software will draw an ellipse in the rectangle defined by the start point and end point.

3.4.20.4.Draw Rectangle(R)

Select "Draw Rectangle" gets into drawing mode. First, press the left mouse button to set the starting point, and then drag the mouse to a proper position to set the end point, our software will draw a rectangle defined by the starting point and end point.

3.4.20.5.Draw Circle(I)

Select “Draw Circle” gets into drawing mode. First, press the left mouse button to set the starting point, and then drag the mouse to a proper position to set the end point, our software will draw a circle in the rectangle defined by the starting point and end point.

3.4.20.6.Draw Arc(C)

Select “Draw Arc” to get into drawing mode. First, press the left mouse button to set the starting point, and then move the mouse to a proper position to a set the second point by left click the mouse. At this time the mouse point correspond to the end point, and moving the mouse will cause the arc to change with it. Move the mouse to proper position, left click the mouse, the arc will be drawn by the three points.

3.4.20. 7.Draw polygon

To draw a polygon, at first make sure the sides of polygon and input the sides in the icon  of Orientation/Zoom Bar, Then Select “Draw polygon” get into drawing mode. First, press the left mouse button to set the starting point, and then drag the mouse to a proper position to set the end point, our software will draw a polygon in the rectangle defined by the starting point and end point.

3.4.20.8.Edit Node(J)

Select “Node Editing” to get into edit mode. Use the mouse to click the graphics in work area, the graphics selected by the mouse will become brighter and Bolder, the nodes in the selected graphics will show in the work area. Use the mouse to drag the nodes in the graphics, then the graphics’ shape will be changed.

3.4.20.9.Add Node(A)

Select “Add Node” to get into editing mode. Move the mouse to a place you want to add the node, then left click the mouse to add the node.

3.4.20.10.Delete Node(D)

Select “Delete Node” to get into editing mode. Move the mouse to a place you want to delete the node, then left click the mouse to delete the node.

3.4.20.11.Modify Path Start(M)

Select “Modify Path Start” to get into editing node. Move the mouse to a node you want to be the start point, and then left click the mouse. You can choose any node of the path as the start point in a closed path. But for open path, the path start can only be one of the two ends of the path.

3.4.20.12.To Curve(T)

Move the mouse to the node that connect two lines, select “To Curve”, then the two lines will change to a curve, and the node will be deleted.

3.4.20.13.To Line(G)

Move the mouse to click the arc, spline or Bezier, select “To Line”, the arc, spline or Bezier will change to a Line, and the control points of the arc, spline or Bezier will be deleted.

3.4.20.14.Locate Node(L)

To find the closest node among all graphic elements, and display its coordinates in a message box. You can also click icon  in the toolbar.

3.4.20.15.Delete Segment

Use the mouse to select the segment you want to delete, and select “Delete Segment”, the Segment you selected will be deleted.

3.4.20.16.Separate Segment

Select “Separate Segment”, move the mouse to the segment you want to separate from, left click the mouse, the place you separate from the segment become two nodes. Move the nodes if necessary.

3.4.20.17.Connect Segment

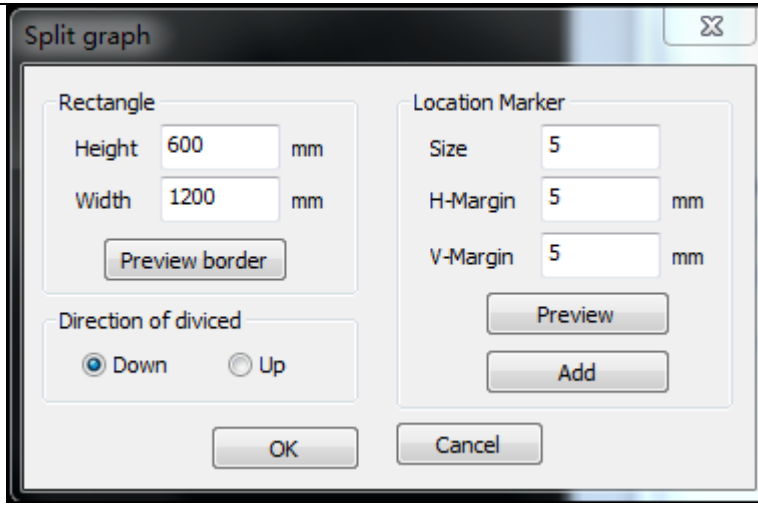
Select “Connect Segment”, Left click and select one of the ends of an open path. Move the mouse to select an end of another open path, and the two paths will be connected.

3.4.20.18.Make Closed

Move the mouse to select an open path, select “Make Closed”, then the path will be closed.

3.4.20.19.Split Graph

“Rectangular box”defines the height of the cutting box and broadband, From the coordinate zero (based on “the cutting direction” from top to bottom or from bottom to top) to calculate, after the definition is finished, press the “Border Preview” to see the result of cutting (preview only found in view, which will disappear when refresh the window);



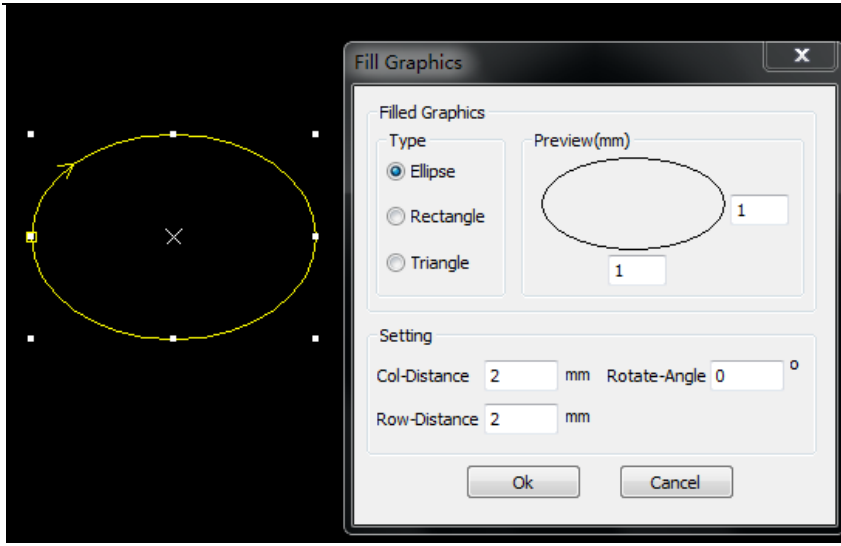
(Fig.3-4-15)

"Cross cursor" is used to insert "cross" in the figure, the size can be defined, the location matters with the size defined by the "rectangular box", "Cursor Preview" button is used to view the added effect of the current view , to really add the cursor in the figure, you need to click "Add cross cursor" button;

3.4.20.20.Fill Graphics

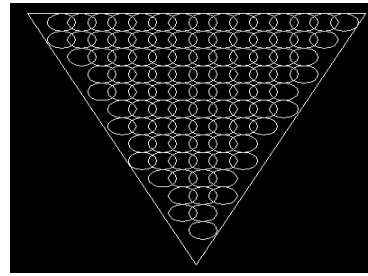
Select a close figure,via"menu"-"edit"-"element edit"-"Fill Graphics"or via"edit toolbar"-"Fill Graphics"button,as shown in Fig3-4-16,Fig3-4-14,so you can open the graphics fill dialog,as shown in Fig 3-4-17.

(Fig3-4-16)edit toolbar



(Fig3-4-17)Graph fill dialog

Select fill graphics types and corresponding parameters, press "Ok"and then fill corresponding graphics to vector diagram,as shown in Fig3-4-18.

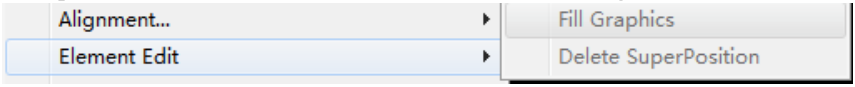


(Fig3-4-18)

3.4.20.21 Delete Superposition

The segment type of the delete superposition have:straight line. Arc.curve；Other types do not support this function,if user found not be deleted when he using it,please make sure the overlapping

segments are the same or not,we only delete the same type segments. Via press“menu”-“edit”-“element edit”-“Delete Superposition”or press button  in the edit toolbar.as shown in Fig3-4-17,3-4-18.



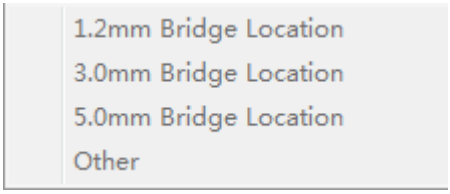
(3-4-19)

（3-4-20）

3.4.20.22.Merge Lines

It can combine two separate segments into one independent Segment.When combine tolerance between two segments is 0.02 to 5mm,we can use this function to combine two separate segments.

3.4.21.Bridge Location



（Fig.3-4-21）

1.2 mm Bridge Location: Make 1.2 mm Bridge;

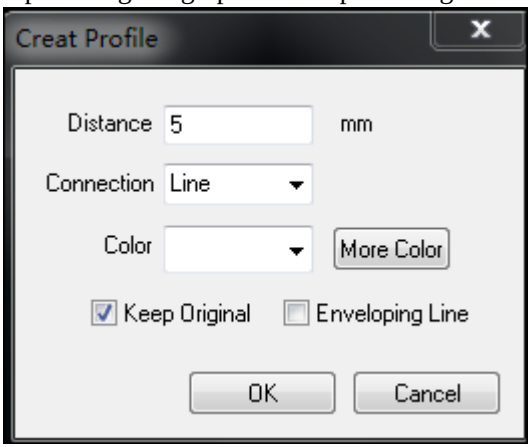
3 mm Bridge Location: Make 3 mm Bridge;

5 mm Bridge Location: Make 5 mm Bridge;

Generating bridge site: The Bridge’s site can be set.

3.4.22.Create Profile(F)

Create outlines for closed path. We can set the distance between the outline and the original graphics, set the way of producing outline, the color and whether to keep the original graphic when producing outline.



(Fig.3-4-22)

Distance: The interval between the outline and the original path;

Connection: The method for connecting outline;

Color: The color of outline;

Enveloping Line: Generating the outline of the selected graphic in order to define the engraving area. It largely improves the work efficiency;

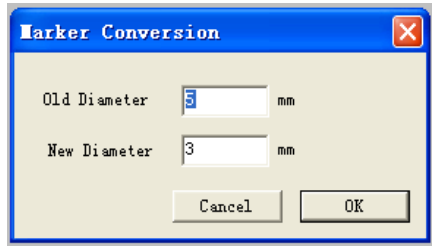
Keep Original: Select to keep original graphic when producing the outline, otherwise the original graphic will be deleted (this function invalid for the Enveloping Line).

3.4.23.Marker Conversion:

Convert the marker "+" into a small lozenge.

How to operate: Choose the "+" and then click the button of "Marker

Conversion", you will see the dialog as following:



(Fig.3-4-23)

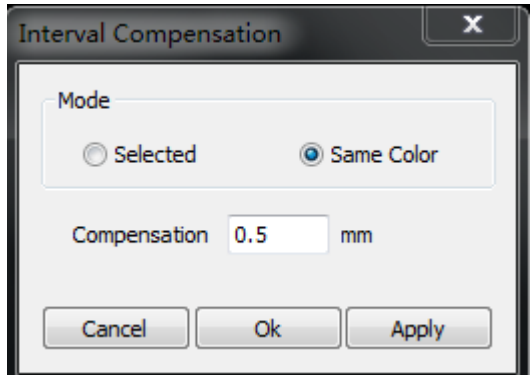
Old Diameter: The "+" that are smaller than this size will be converted;

New Diameter: The size of the small lozenge after the conversion.

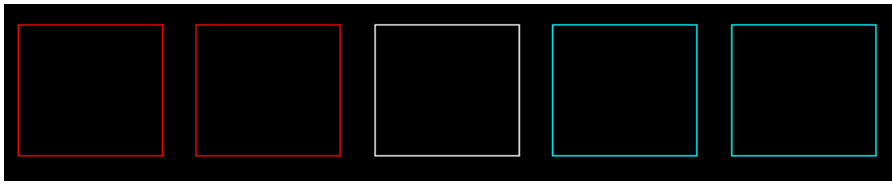
3.4.24.Interval compensation

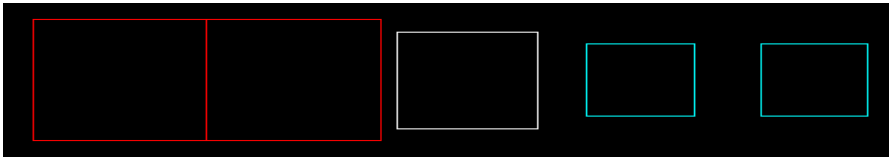
Select a color graphics,select"menu"-"edit"-"Interval compensation", as shown in Fig3-4-1.

Open interval compensation dialog,as shown in Fig3-4-26.set the type and the amount of compensation, according to the selected graphics or the color of the selected graphics to size the internal shrinkage or expand the change.



(Fig.3-4-24 interval compensation dialog)





（Fig.3-4-25）

3.4.25.Auto-Group

Automatic combine the combination for multiple graphics.

3.5.View Menu

Click “View” in the menu bar, the following menu will appear:

（Fig.3-5-1）

3.5.1.Toolbar(T)

Show or hide the toolbar.

3.5.2.Orientation/Zoom

Used to set the location and transform for the graphics.

3.5.3.Color

Set the color for the graphics.

3.5.4.Status (S)

Show or hide the status bar. Status bar shows information about the selected menu item or toolbar icon on the left, and shows the coordinates of the cursor.

3.5.5.Control Flat(F)

Show or hide the control platform.

3.5.6.Engraving area Define

Define and Set the Engraving area.

3.5.7.Alignment (A)

Show or hide the alignment bar.

3.5.8.Edit (E)

Show or hide the edit bar.

3.5.9.Insert (D)

Show or hide the insert bar.

3.5.10.Bridge Location

Used to take bridge location.

3.5.11.Bitmap

Show or hide the bitmap bar.

3.5.12.Vision (C)

Show or hide the vision bar.

3.5.13.Graphics (G)

Zoom to a point that the selected graphic elements or all graphic elements (when nothing is selected) fill the whole working area. You can also click icon  or use shortcut key F3.

3.5.14.Work Area (W)

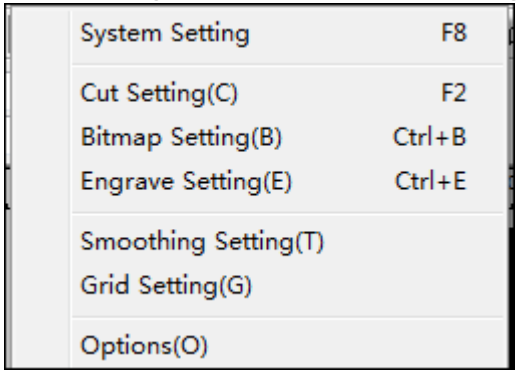
Zoom to a point that the work area (representing the work area in the device) fills the whole working area. You can also click icon  or use shortcut key F4.

3.5.15.Zoom（Z）

Zoom in or out. You can also click icon  in the toolbar to get into the zooming mode. To zoom in, you can just click at any point in the working area, or drag a rectangle using left mouse button. To zoom, you should hold the shift key and click at a point in the working area.

3.6.Setting Menu

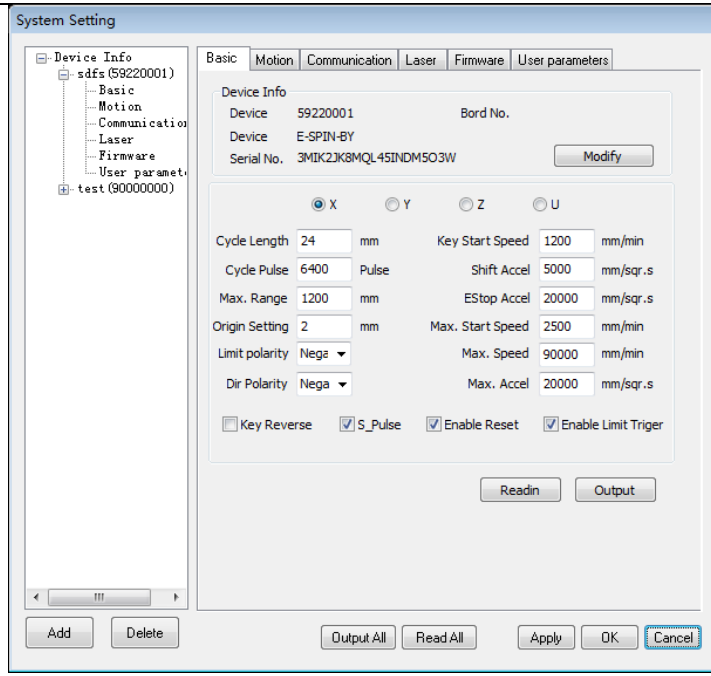
Click “Setting” in the menu bar, the following menu will appear.



(Fig.3-6-1)

3.6.1.System Setting

Select “System Setting” or press the button F8 will open the system setting window (As Fig.3-6-2). LaserCA software can set different parameters for basic setting, motion setting, network, laser type, work mode, firmware and so on.



(Fig.3-6-2)

Add: Add new device;

Delete: Delete the current device;

Read All: Read in the parameters of all page in device;

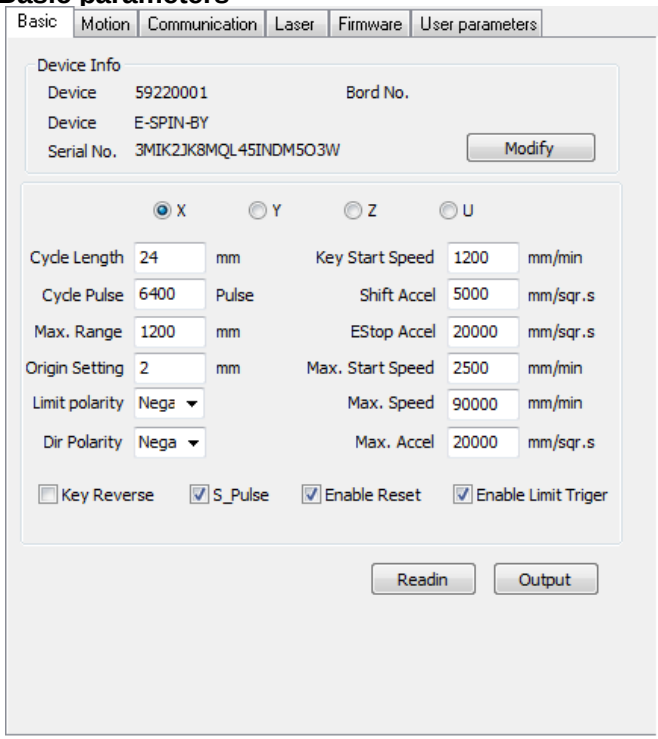
Output All: Output the parameters of all page in device;

Apply: Make the current modify valid;

OK: Make the current modify valid and close the dialog;

Cancel: The current modify is invalid and close the dialog.

3.6.1.1.Basic parameters



(Fig.3-6-3)

Modify: Modify the serial number for the current device;

Cycle Length: The distance that the laser head travels when the motor turns one cycle;

Cycle Pulses: The number of pulses output that the motor needs to turn one cycle;

Max.Range： The size of the work area of the device. This setting has to be compatible with the device; otherwise it might cause damage to the device;

Origin Setting: The logical origin position. if this axis enabled hard

limit protection, it should be 2~5mm. If set 0, the axis moves to the min. coordinate 0, which might make the limit effective, so will trigger the hard limit protection wrongly and the machine will stop urgently. If disable hard limit protection, the value can be set 0~5mm;

Limit Polarity: it is used to set the high and low level mode of spacing/limit signal. When the motion axis arrives at the spacing/limit position and input a low-level signal to the controller, the spacing/limit polarity should be set to negative at this time;

Direction Polarity：Direction polarity modification can move the motor to the opposite direction. The modification purpose is to make the axis moving to the origin when resetting. If this axis moves far from the origin on resetting, it means the direction polarity setting is wrong and should be modified;

Key Start Speed：it means the starting speed to move the axis by way of the keys on the keyboard；

Shif Accel：it means the acceleration to move this axis by way of the keys on the keyboard；

EStop Accel：if the "Enable Limit Triger" is used, when the axis moves to the position of the limit, it will be Emergency stop operation of the axis with EStop Accel；

Max.Start Speed：it means the speed of the motion axis in direct start from the idle condition. If this value is excessively large, it will make the motor lose steps, jar and even squeak; if small, it will reduce the running speed of the whole figure. If the inertia of the motion axis is larger (the axis is heavier), you can set a smaller jump-off speed; if

smaller (the axis is lighter), the jump-off speed can be increased. For example, the typical value is 300~1800mm/min；

Max.Speed： it means the maximum limit of motion speed that this axis can bear. This parameter has something to do with the driving force of motor, the inertia of motion axis and its drive ratio. For example, the typical value is 12000~30000mm/s；

Max.Accel： it means the maximum acceleration of the motion axis in accelerated or decelerated motion；

Key Reverse: to control the motion direction when move the axis by pressing key manually.When set the direction polarity parameters correctly, if press the direction key on the panel, the axis will move to the reverse direction, so enable this item;

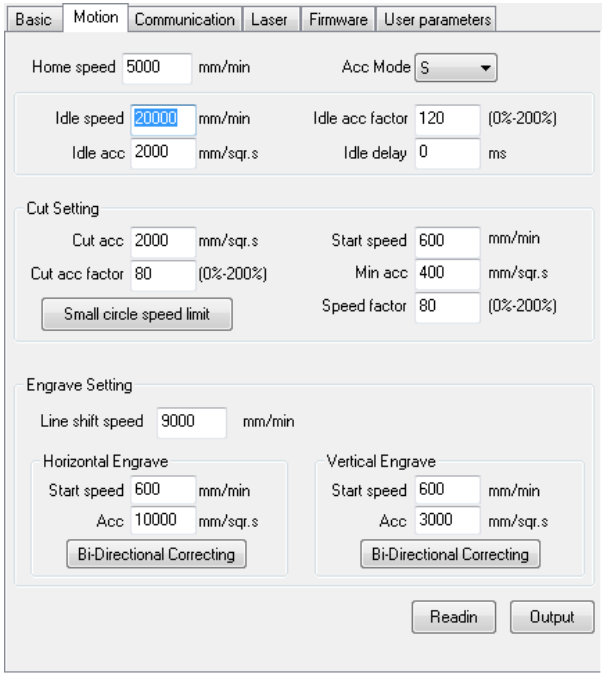
Single Pulse: Select"Single pulse"for this motor mode, otherwise as "Double pulses"；

Enable Reset: if the machine is configured this axis, "Reset Enable" should be opened; if no, "Reset Enable" should be prohibited. This parameter is mainly to control the "Reset Enable" option in user parameters and "axis reset" in function keys, to prevent user to reset one axis whichis not exist in real；

Enable Limit Triger:it is used for whether the hard-spacing protection of this axis is Enabled;

After modified the configuration parameters in the manufacturer parameters, the system should be reset. Such a modification can function upon the resetting of the system.

3.6.1.2. Motion Parameters



(Fig.3-6-4)

Home speed： This parameter determines the machine speed of returning to origin. When the machine is larger breadth, to set the higher reset speed, but cannot too larger。

Acc Mode:S-mode acceleration and T-mode acceleration. Generally, the S-mode acceleration is more smoothly and T-mode acceleration is faster；

Idle speed: It's the speed that the device moves in light-off. A higher idling speed can shorten the operation time of the entire figure,while excessively higher idling speed may cause dithering of the tracks, therefore, you should take all relevant factors into consideration when setting;

Idle acc:match the accelerated speed of air travel time,idle acceleration must match idle speed,if set too slow the idle speed may can't reach the value which set before,if set too fast,the mechanical structure may not stand and shake.In general,idle acceleration slightly higher than cut acceleration;

Idle delay: The extension of time when idle start work;

Idle acc factor:the coefficient of idle walking speed, the greater the ratio, the greater the idle speed;

Cut Setting

Cut acc:the speed of corresponding cut acceleration (cut speed is the same as layer speed of layer parameter);

Cut acc factor:the coefficient of cutting speed, the bigger the ratio, the greater the cutting speed;

Start speed: The minimum speed when turning around.The start speed can be slowed down when there are many sawtooth in the processing graphics;

Min acc: It should matched with start speed;

Speed factor: The accelerated percentage when turning around;

Engrave Setting

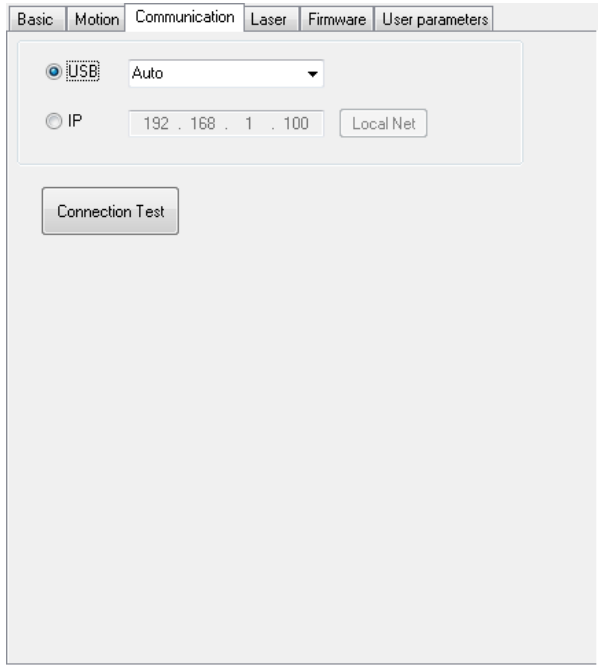
Line shift speed:also called stepping speed.According to the different Speed,when engraving graphics,the engraving line is over and be ready to move the next process,the laser head will move at a jump speed which the user set;

Start speed: The minimum speed of axis motion. the scanning start speed, there is no need to accelerate from 0 in the use of stepper motor dragging, but can start working directly from a speed to shorten the overall processing time, but the speed cannot be too high, because the X, Y axial load is different, generally the initial speed of X-axis is slightly higher than the initial speed of Y-axis;

Acc: The acceleration of the minimum speed up to maximum speed when engraving.If the acceleration is set too large, it will make the motor lose steps, jar and even squeak; if too small, it will cause the reduction of acceleration so as to reduce the running speed of the whole figure. For the axis with larger inertia, such as Y axis corresponding to the beam, its typical setting range is 800~3000 mm/s2; for the axis with smaller inertia, such as X axis corresponding to the car, its typical setting range is 8000~20000mm/s2;

Bi-Directional Correcting: When laser scans the graphics in two-way maybe cause the edge of the scanned graphics uneven due to the relationship between the machine belt tensions. Therefore, increase backlash to correct it. It has the specific correcting for the certain speed. Generally, the faster the speed, the greater the correcting;

3.6.1.3.Communication



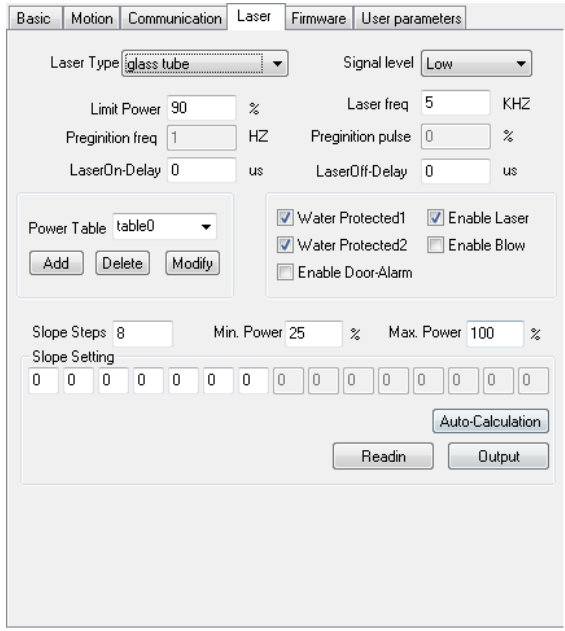
(Fig.3-6-5)

There are two kinds of connection way :USB and network.Select the connection whether through USB or IP,and then click“Connection Test”,if the connection is successful,then it is set up correctly.

NOTICE

1.make sure the device IP and PC’s IP belong to the same network segment;
2.if PC can be connected to equipment, but can not send data, check the PC’s network firewall-related settings;
3.WIN7 and above operating system, please set the administrator mode;

3.6.1.4.Laser



(Fig.3-6-6)

Laser type: The software supports the type of laser,there are glass laser and RF tube(no pre-burning).RF tube(pre-burning);

Signal level:control the level of the opened laser,the default value is Low;

Limit power: Set max power to protect the laser, when any power parameter exceed this data, it will be replaced by this data;

Preignition frequency: Set the preignition frequency value of the laser tube;

Preignition pulse: Set the preignition pulse width of the laser tube;

LaserOn-Delay: The punch time of laser on(extend period of time that set before laser on);

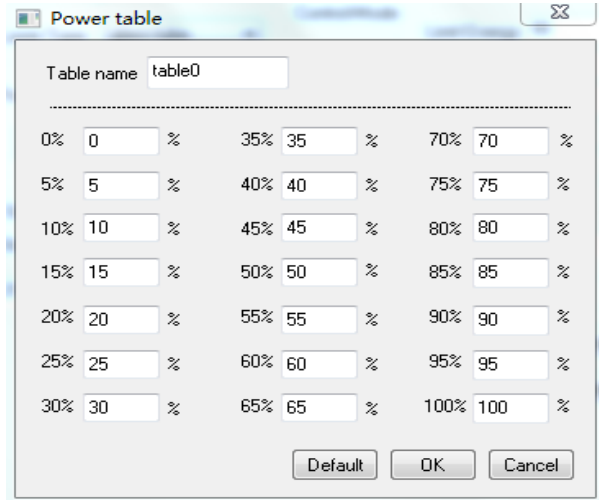
LaserOff-Delay: The punch time of laser off(extend period of time that set before laser off);

NOTICE

1.You should master proper basic knowledge of the power curve of laser tube before set this form, the warp between the setting parameters and the actual value should be small as possible, otherwise it may just in the opposite way. Recommended that ordinary staff set it as default parameters.

2.Unreasonable setting of the laser pre-combustion energy may lead to the unexpected laser emission.

Power table: Laser power parameters of laser tube,as shown below; With the nonlinear change of laser power curve,if you want to obtain better cutting effect you should through the table to reset the laser power curve(before the form is the actual energy output value,after the form is the controlled theory output value),for an example:if you want the actual output power reached 5%,then you should output 7% controlled theory value to let the actual output power reached 5%.



Slope setting:

Slope Steps: Number of different laser power levels within a slope. The slope steps can be between 6-16 levels, recommend to set as 6 or 8;

Min. Power: Laser power of level one for slope engraving;

Max. Power: Laser power of the highest level for slope engraving;

Auto-Calculate: According to the settings of slope steps, starting power and maximum power, generate power values for each level automatically;

Slope parameters setting as following:

Once you change the Slope Steps, you should click Auto-Calculate to generate power values for each level automatically. Then you can do fine tuning on the values to get better result.

- When the slope is not obvious, lower the first two levels;
- When the stroke is getting wider, increase the first level;
- When the depth of engraving is not enough between two strokes, increase the third level or two and four levels if necessary.

Enable Parameters

Water Protected: When the water protection enabled, the controller must connect the wiring, otherwise the machine will not emit laser. If disable, no need to connect the water protect wiring, controller will not test;

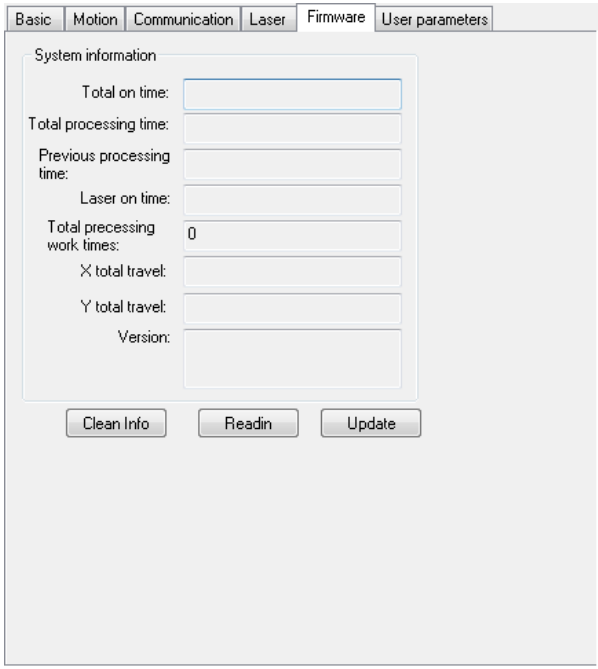
Enable Door-Alarm: If enabled this item, the controller must connect the protection wiring, otherwise, the machine will not work;

Enable Blow: if use wind signal of output port to control the blower switch as

layers, you must enable this item, otherwise, the wind signal outputs other signal;

Enable Laser: If enabled this item, the Laser Tubes work, otherwise, the machine will not work;

3.6.1.5.Firmware



(Fig.3-6-7)

Function indiction:

Total on time: The total time of motherboard working;

Total processing time: The total time of processing ,including the time of jump moving;

Previous processing time: The time of the last processing;

Total laser on time: The time of the laser processing;

Total processing times: The number of completed processing, not include the processing forcing to end;

X total travel: The total travel of motor X;

Y total travel: The total travel of motor Y;

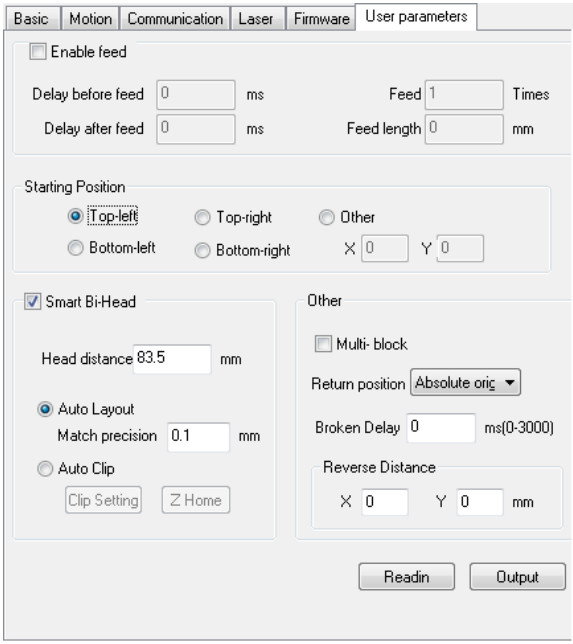
version: The version of the current controller;

Clean info: Clean "total on time","Total processing Time", "Previous processing time", "Total laser on time", "Total processing times"information.(This function used for factory setting);

Update: update the new version firmware to the controller;

Read: Read the controller information.

3.6.1.6.User parameters



(Fig.3-6-8)

Enable feed

Delay before feed: It means the delay time set before feeding;

Delay after feed: It means the delay time set after feeding;

Feed: The statistical data of feeding;

Feed length: The material's length of feeding;

Laser Start Position: The position of laser head before start cutting or engraving. The laser head will be back to this position once the cutting or engraving is done. You can set it to four corners of the working area or set it anywhere by typing in the position;

Smart Bi-head: It means whether set the mode"Smart Bi-head".(The bio-head distance of cut setting is no use);

Head distance: The minimum distance between left laser head and right laser head;

Match precision: It used to compare the similarity between two graphics;

Multi-block: When the picture exceed format in Y axis,we can use feeding mode to complete format processing when cutting;

Return position: the mechanical origin, the locating point and no return, this parameter decides the laser head stop position when finished each processing.

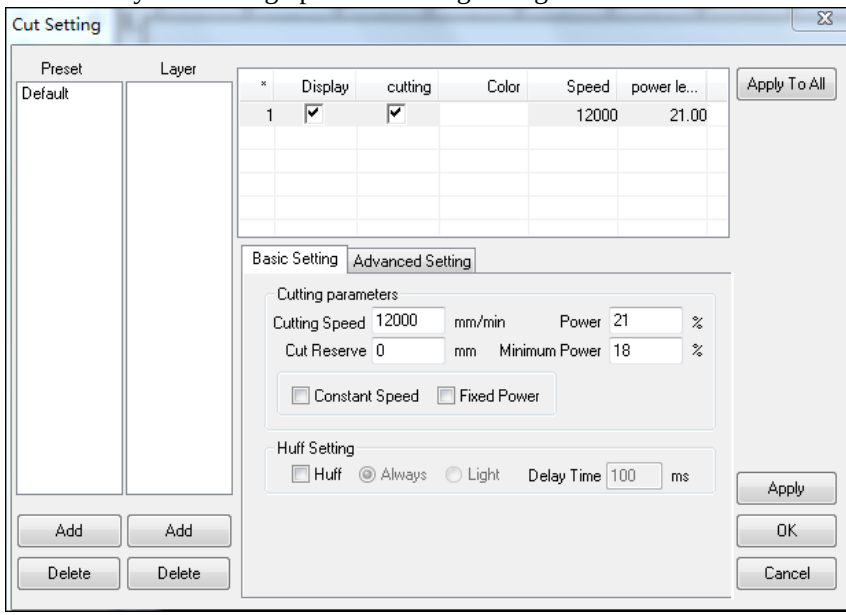
Broken delay: The delay time which the controller that suddenly lose power will use when start up in next time;

Reverse Distance: Compensate the backlash caused by the machine Drive.

3.6.2.Cut Setting(C)

3.6.2.1.Cut Setting of general type

Select “Cut Setting” in Setting menu, click icon  in the toolbar or use shortcut key F2 to bring up the following dialog. LaserCA software can



(Fig.3-6-29)

do cut in many kinds of color, and set different cutting parameters for different color graphics.

Please choose a Preset Cut Setting: Choose a Preset Cut Setting, and copyist content to the cut setting for the current color;

Add preset: Select a color set, save it as a preset for later use;

Delete: Delete the current selected preset from the preset list;

Amend Preset: Modify the selected preset parameters by the current setting;

Apply to All: Fill other colors’ cut setting with the selected color’s

parameters;

Show: Whether display the graphic elements of the current color;

Cutting: Whether output the graphic elements of the current color;

Color: Choose a color of the graphics as the current color;

Apply: Make the current modify valid;

OK: Make the current modify valid and close the dialog;

Cancel: Make the current modify unvalid and close the dialog.

Two TAB detailed indication in this window:

（1）Basic Setting:

Cut Speed: The speed at which the laser head moves with the laser on. In Varying Speed mode, it is the maximum speed at which the laser head moves with the laser on;

Power: The laser power during cutting. You can set it between 1-100%;

Cut Reserve: Before finishing cutting a closed loop, turn off the laser a little earlier to avoid the whole part being cut off;

Minimum Power: The minimum value of the laser power setting, when the system tries to compensate laser power for different speed;

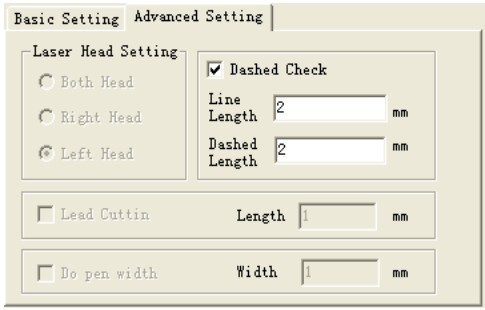
Constant Speed: When laser is on during cutting, the laser head moves with a constant speed to make cutting depth consistant;

Huff： Huff control the device that has its function, You can set it by press the button. It contains always huff and laser on huff(namely don't huff in light-off);

Huff delay time: The time of the huff status changed;

Fixed Power: The laser power is fixed and won't change whether the acceleration in the Varying Speed mode.

（2）Advanced Setting



(Fig.3-6-30)

Laser head setting: used to select which laser head need to use during the operation, it's effective only for the device with double head, if for single-head device, please select the "dual laser head"or "left laser head";

Light-out Head Selecting: For the double-head device, you can set the graphics with the left or the right-head out of the light;

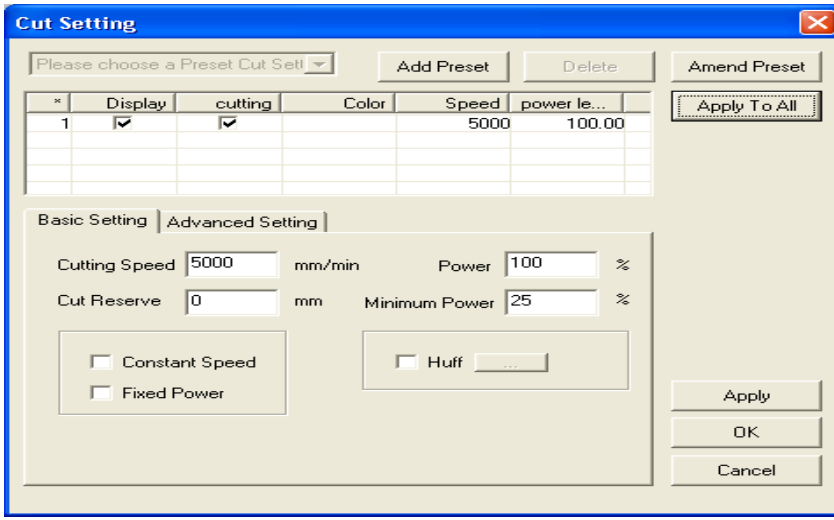
Dashed Check: Whether output is line or dashed, choose it can set the length of line or length of dashed;

Lead cutting: Add an additive line to close graph. (use to metal device);

Do pen width: used to set the pen width.

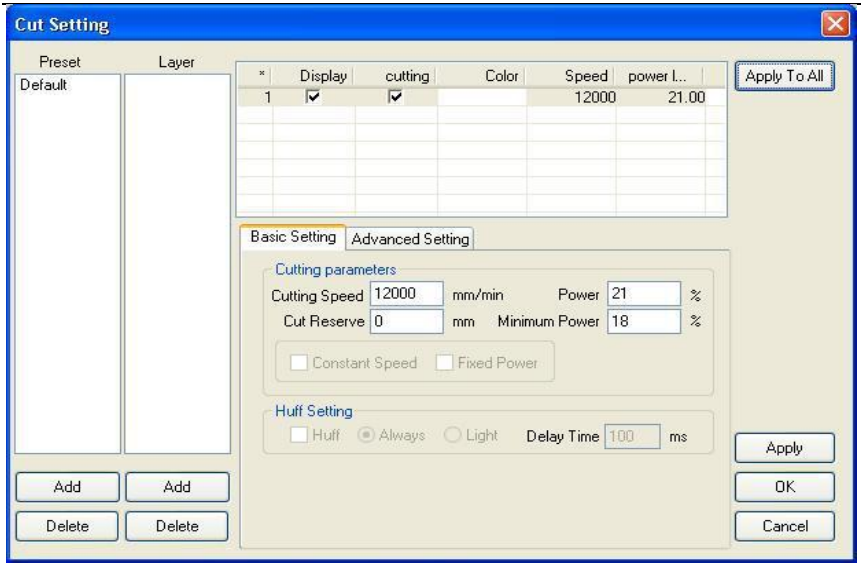
3.6.2.2.BY control system

Select “Cut Setting” in Setting menu, click icon in the toolbar or use shortcut key F2 to bring up the following dialog. LaserCA software can



(Fig.3-6-31)

do cut in many kinds of color, and set different cutting parameters for different color graphics.



(Fig.3-6-32)

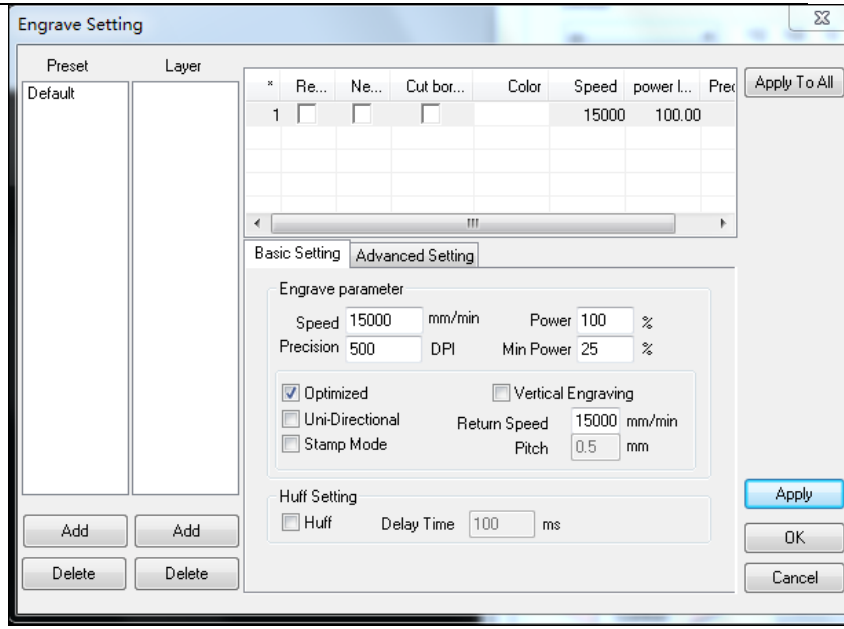
Basic setting: has the same function with general type,the function of Constant Speed.Fixed Power.Huff have no used in BY system,the function introduction of another function can be saw in basic setting of cut setting of general type.

Advanced setting: has the same function with general type.

3.6.3.Engrave Setting (E)

3.6.3.1.Engrave setting of general type

Modify the engrave setting for the selected engraving area. Select an engraving area, select “Engrave Setting” in Setting menu, click icon in the toolbar or just double click the engraving area, the Engrave Setting dialog will appear:



(Fig.3-6-33)

Default Setting: Set the current setting as default value (remark: if select the bitmap, set it as the default value of bitmap, if select the engrave area, set it as the default value of engrave area);

Apply to All: Fill other colors' cut setting with the selected color's parameters;

Start Reverse: Select this will start engraving in reverse direction;

Negative: Engrave the internal side of the graphic elements within the engraving area;

Cut border: Cut the graphics'outline after carving;

Color: Choose a color of the graphics as the current color;

Apply: Make the current modify valid;

OK: Make the current modify valid and close the dialog;

Cancel: Make the current modify unvalid and close the dialog.

Two TAB detailed indication in this window:

（1）.Basic Setting:

Speed: The speed at which the laser head moves during engraving;

Power: The laser power during engraving. You can set it between 1-100%;

Precision: The engraving precision in Y-axis in DPI (Dot Per Inch);

Minimum Power: The minimum value of the laser power setting, when the system tries to compensate laser power for different speed;

Optimized: Engrave the graphics in the best path;

Vertical Engraving: Engrave vertically instead of horizontally;

Uni-Directional: The laser will be only when the laser head moves from left to right.（Apply to very fine graphics, such as below 3mm text and precision above E level shape code);

Return Speed: The return speed when the laser moves back from right to left in Uni-Directional mode with the laser being off;

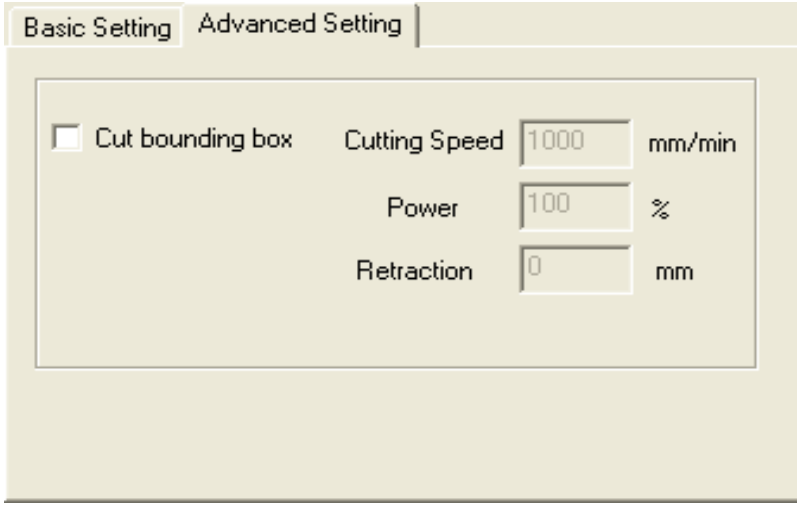
Stamp Mode: In stamp mode, you will see slope at the edge of engraved graphic.Also called slope mode. To grantee the better result of slope, it better set the engrave power ad 100%;

Pitch: The length of slope in Stamp Mode. You can set it between 0-4mm;

Huff: Control on the blowing for the device, select the option, it means that the engraving have to being blowing, otherwise, it means not to blow;

Huff delay: The time of huff switch changes the status.

（2）.Advanced Setting



(Fig.3-6-34)

Laser head setting: used to select which laser head need to use during the operation, it's effective only for the device with double head, if for single-head device, please select the "dual laser head"or "left laser head";

Cut Bounding Box: Cut the frame of the defined engraving area after engraving is done;

Cutting Speed: The cutting speed that is used to cut frame in the condition of the Cut Bounding Box is valid;

power: The laser power during cutting. You can set it between 1-100%;

Rectraction: How much the frame is indented when it is cut.

3.6.3.2.Engrave setting of BY mode.

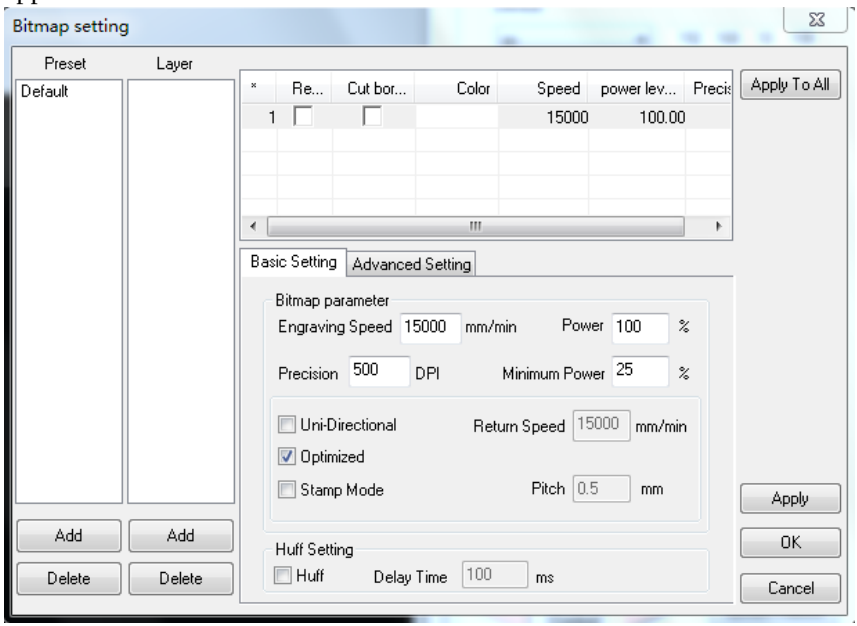
It has the same function with the general type.but the "Huff"function can

not be used.

3.6.4.Bitmap Setting

3.6.4.1.Bitmap Setting of general type

Modify the bitmap setting for the selected bitmap area. Select an bitmap area, select "Bitmap Setting" in Setting menu, click icon in the toolbar or just double click the bitmap area, the Bitmap Setting dialog will appear:



(Fig.3-6-35)

Default Setting: Set the current setting as default value (remark: if select the bitmap, set it as the default value of bitmap, if select the engrave area, set it as the default value of engrave area);

Apply to All: Fill other colors' cut setting with the selected color's parameters;

Reverse: Select this will start engraving in reverse direction;

Cut border: Cut the graphics'outline after carving;

Color: Choose a color of the graphics as the current color;

Apply: Make the current modify valid;

OK: Make the current modify valid and close the dialog;

Cancel: Make the current modify unvalid and close the dialog.

Two TAB detailed indication in this window:

（1）.Engrave setting:

Speed: The speed at which the laser head moves during engraving;

Power: The laser power during engraving. You can set it between 1-100%;

Precision: The engraving precision in Y-axis in DPI (Dot Per Inch);

Minimum Power: The minimum value of the laser power setting, when the system tries to compensate laser power for different speed;

Uni-Directional: The laser will be only when the laser head moves from left to right.（Apply to very fine graphics, such as below 3mm text and precision above E level shape code);

Return Speed: The return speed when the laser moves back from right to left in Uni-Directional mode with the laser being off;

Optimized: Engrave the graphics in the best path;

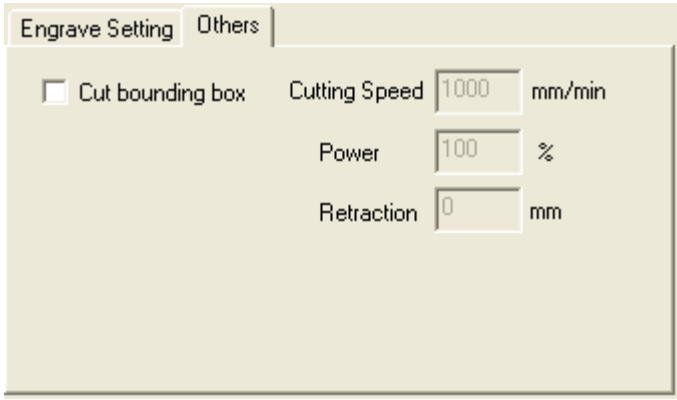
Stamp mode: The graphics'edge will appear slope when you select the stamp mode,it also called slope mode;

Huff: Huff control the device that has its function, You can set it by press the button. It contains always huff and laser on huff(namely don't huff in light-off).

PROMPT

For the device with blowing control, if not select the "blowing", the device will not be blowing, for the device does not with blowing control, the function is invalid;

(2).Others:



(Fig.3-6-36)

Laser head setting: used to select which laser head need to use during the operation, it's effective only for the device with double head, if for single-head device, please select the"dual laser head"or"left laser head";

Cut Bounding Box: Cut the frame of the defined engraving area after engraving is done;

Cutting Speed: The cutting speed that is used to cut frame in the condition of the Cut Bounding Box is valid;

Cut power: The laser power during cutting. You can set it between 1-100%;

Out Frame Indent: How much the frame is indented when it is cut;

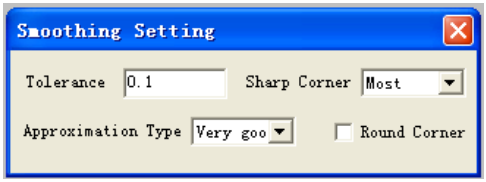
3.6.4.2.Bitmap Setting of BY model.

The function of bitmap setting is the same as the general type.

3.6.5.Smoothing Setting (O)

3.6.5.1.Smoothing Setting of general type

Smoothing Setting contains a set of parameters that can affect the smoothing process and result. Select “Smoothing Setting” in Setting menu to launch the following Smoothing Setting dialog.



(Fig.3-6-37)

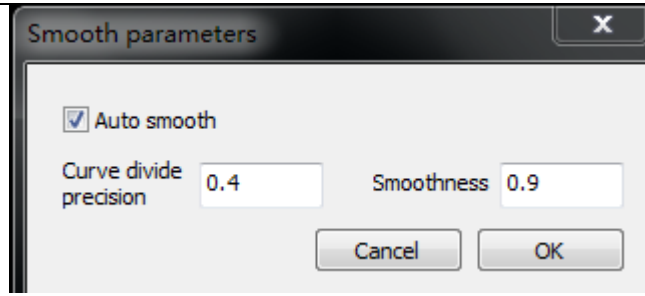
Tolerance: Amount of deviation from the old graphics that is allowed, normally choose from 0.1~0.2mm;

Sharp Corner: How to deal with sharp corner. Normally use More;

Approximation Type: The type of precision during approximation. Normal use Very Good;

Round Corner: Make all corners round corner.

3.6.5.2.Smoothing Setting of BY mode



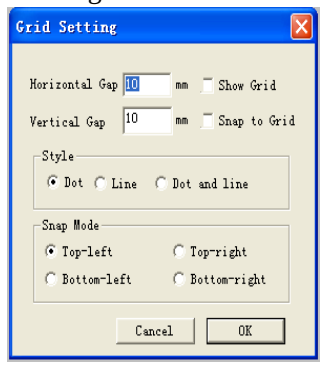
(Fig.3-6-38)

Segment accuracy: It means precise value of divided curve.

Smoothing accuracy: The curve will more smooth when the accuracy is high.

3.6.6. Grid Setting(G)

Settings about grid, whether to show the grid, to snap to the grid and the style of the grid etc.



(Fig.3-6-39)

Horizontal Gap: Horizontal distance between two neighbor grids lines;

Vertical Gap: Vertical distance between two neighbor grid lines;

Show Grid: Whether to show grid in the view or not;

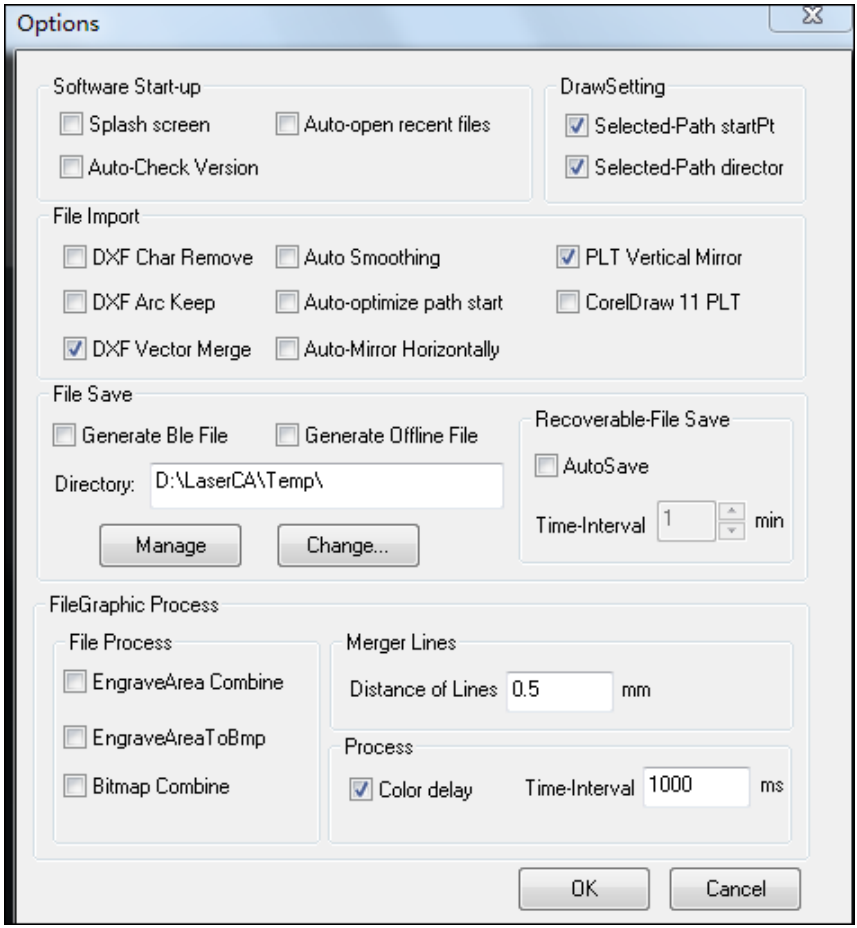
Snap to Grid: Whether to snap the graphics to the grid position when

they are moved;

Style: Style of the grid, could be Dot, Line or Dot and Line;

Snap Mode: Which point of the graphics to snap to grid.

3.6.7. Options(0)



(Fig.3-6-40)

Software start-up

Splash screen: It used to open the files that close normally;

Auto-open recent files: The screen appeared in the interface of open software.(it will no appear startup screen if do no select this option);

Auto-check version: Select “Auto-check version”,the software will link the network and read the firmware information when open the dialog“System setting”.there will show the firmware information in the“Firmware management” if read success,or there will show“receive error”.

Import Files

DXF Char Remove: Whether skip the text when loading a DXF file;

CorelDraw 11 PLT: The size of the graphics in the PLT file generated by CorelDraw 11 is smaller than as designed. With this option checked, graphics from all CorelDraw PLT files will be scaled up to 101.6% to compensate. Check this if you are using CorelDraw 11;

DXF Arc Keep: When loading a DXF file, set the Arc change to curve or not;

PLT Vertical Mirror: If you select the PLT Vertical Mirror, when input the PLT file, the system will automatically turn this file into the vertical mirror and output it;

DXF Vector Merge: When loading a DXF file, whether connect the line segments into a path when they are close to each other, so that the cutting can go quickly;

Auto Smoothing: Auto smooth the input graphics to make

cutting much more successful. You can adjust the smoothing parameters in its setting menu bar to get better result;

Auto-optimize path start: Automatic optimize the graphics' origin to corner,and the offer a cut speed and a cut effect;

Auto-Mirror Horizontally: Auto horizontally mirror when import a file;

Bitmap Combine: Deal with several bitmaps together;

EngraveArea Compound: Deal with several engrave areas together;

Engrave Area to BMP: Change the defined sculpture area into monochrome bitmap;

Automatically open recent documents: Auto open the recent file when the software is broken in last time;

Draw Setting: Show some options,include"Selected-Path startPt","Selected-Path director";

Time-Interval : Optimization the cut graphics according colors.when the same graphics are finished,wait a few time,then cut the next color's graphics;

File save: The files will be saved as"Generate Ble File" and "Generate Offline File";

Recoverable-File Save: Select "Auto Save",set time interval, when close the dialog ,after a few time, the system will save a recoverable file in the"Recoverable File".

3.7.Run Menu

Select "Run" in the menu bar, the following menu will appear.

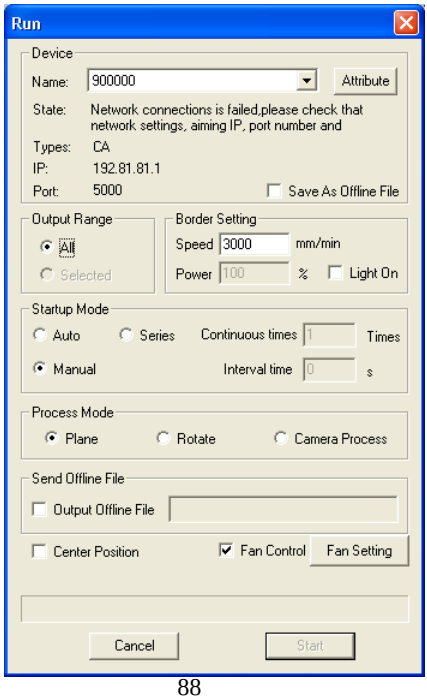
(Fig.3-7-1)

3.7.1.Run All(R)

Output all graphic elements, engraving areas and bitmaps to the device. The graphic elements will be cut, and the engraving areas and bitmaps will be scanned.

3.7.2.Run(U)

Click the “Run” in the run menu or use shortcut key F5, the following menu will appear.



(Fig.3-7-2)

Device: Information about the selected Device, press attribute to see the parameters of system setting;

Save as off-line file: Whether to output the file and save as off-line file;

Output Range:

All: Select this button can run all graphics in work area;

Selected: Select this button can run the select graphics in work area;

Border Setting:

Speed: Speed for the frame preview;

Power: Laser power for the frame preview;

Light On: Whether laser is on for frame preview;

PROMPT

To run the border preview function, select the file in the panel of the device, then hold down the"Start / Pause"button for 1 second or more, or through the "Preview Frame"command in the software console to operate;

Startup Mode: The machine is set as automatically start, manually start and continuous start, if choose the automatically start, then the file sends over, , the device will start to run the file, but the manual start requires human intervention to run the file, continuous start refers to keep running the same file, it requires human intervention only when the running start, you can set the number of continuous operation and the time interval between the two runnings;

Process Mode: The machine is set as automatically start, manually start and continuous start, if choose the automatically start, then the

file sends over, the device will start to run the file, but the manual start requires human intervention to run the file, continuous start refers to keep running the same file, it requires human intervention only when the running start, you can set the number of continuous operation and the time interval between the two runnings;

Send Offline File: Send the saved off-line file to device;

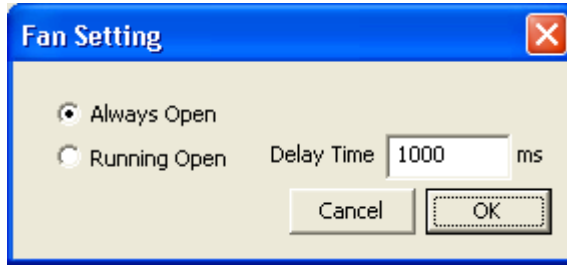
Center Position: Before run the file, the laser head will be sent to center position of the cut graphics;

Fan Control: Control the fan equipment when running files;

Always Open: Open the fan when running files, the fan is still opened after running;

Running Open: Open the fan when running files, the fan will be closed after running;

Delay Time: The time of change the fan status.



(Fig.3-7-3)

PROMPT

Choose the device in pull-down menu, will display in status bar whether it is successfully connect on with the current device, When send or deal with data, we can see the degree of progress.

3.7.3.Preview(V)

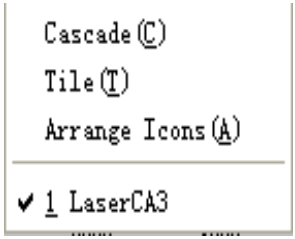
Simulate the run result of the graphic which you selected on the screen only without outputting to the device.You can also see the estimated amount of time it might take,and the total distance that laser head will travel with laser being on or off.

3.7.4.Vision(S)

Please refer to the "Vision Subsystem Operation Manual" for detailed information.

3.8.Window Menu

Select "window" in the menu bar, the following menu will appear.



(Fig.3-8-1)

3.8.1.Cascade(C)

Arrange windows so that they overlap.

3.8.2.Tile(T)

Arrange windows as non-overlapping tiles.

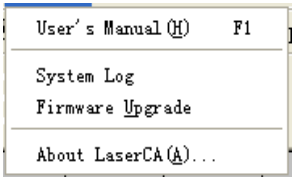
3.8.3.Arrange Icons(A)

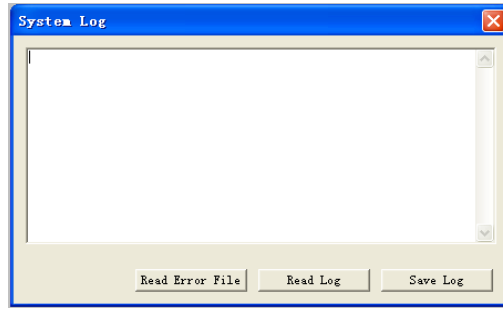
Arrange icons at the bottom of the window.

3.9.Help Menu

Select "Help" in the menu bar, the following menu will appear as

Fig.3-9-1:





（Fig.3-9-1）　　（Fig.3-9-2）

3.9.1. User's Manual

Launch the online User's Manual. You can select "User's Manual" in Help menu or press F1. You have to include the online document ". CHM" file when installing the software for this to be available.

3.9.2. System log:

It can read in the system logs, which are saved in the device. (As Fig.3-9-2).

Read Error File: Read in the error files, can be saved to text for analyzing;

Read Log: Read in the logs in device;

Save Log: Save the logs read in to the text.

3.9.3. Firmware Upgrade:

Upgrade the firmware(software within the device), can refer to the function of firmware management in system setting.

3.9.4. About LaserCA(A)

Click this icon in toolbar, Displays the version and copyright

information. Users can get the latest information, technical substance, software upgrade through the web of Boye Laser, and can also contact with Boye Laser Company through phone, fax and email and so on.

(Fig.3-9-3)