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# LASERCAD USER MANUAL



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## 1. Profile

## **1.1 Introduction**

LaserCAD is Trocen Laser Control System specialized windows version software. This manual is to introduce how to use software to complete machining task.

## **1.2 Software Versions**

It includes three versions: General Version (LaserCAD), CorelDraw based version, AutoCAD based version.

## **1.3 Software Features**

- Friendly interface, easy to learn, simple to operate.
- Be compatible with AI、BMP、PLT、DXF、DST formats
- Can create simple graphics, characters and edit & layout imported data.
- Can machine by layers and define output sequence.
- Customized settings of working procedure and precision, simulation shows the running trial of laser head.
- Multiple functions of Path Optimization and pause function during working.
- Multiple saving modes of image and working parameter, and can be recycle.
- Function of estimating working time and cost budget, intelligent input.
- Array input, immediately output and go back to origin to output orientation mode.
- Unique double laser systems working intermittently, working independently and motion trial with function of offset and control
- Set the working start point, working path, dock position of laser head according to different requirement.
- Be compatible with multiple communication modes. User can use USB communication and network communication according to situation.
- Support CorelDraw direct output version, AutoCAD direct output version.
- Engrave photograph directly, support rotating engraving.
- Support slope engraving.

## **1.4 Operating System Environment Requirement**

Run on Windows(Window XP、Vista、Win7、Win8、Win10) system

## 2. Installation

## 2.1 Access to installation directory



Double click "Setup.exe":

🕫 Welcome to use 🛛 🛛 🔀		
Install USB Driver		
Тур	e: LaserCAD V7.58	
Lanus	age: English	
	Install	

## 2.2 Install USB Host

🕫 Welcome to use 🛛 🛛 🔀
Install USB Driver
Type: LaserCAD V7.58
Lanuage: English
Install
FTDI Driver Installation
FTDI CDM Drivers have been successfully installed.
OK



## 2.3 Install LaserCAD software independently

as follow:

🗏 Welco	ome to use 🛛 🔀
	Install USB Driver
Type:	LaserCAD V7.58
Lanuage:	LaserCAD V7.58 Flugin For Coreibraw Plugin For AutoCAD
	Plugin For Illustrator CS (32bit) Plugin For Illustrator CS (64bit)

🛿 Welcome to use 🛛 🔀		
Install USB Driver		
Type: LaserCAD V7.58		
Install		
Select install path 🛛 🗙		
Auto to Install CorelDraw Version: CorelDraw 12 Install Path: C:\ Browse		
OK Cancel		

## 2.4 Automatically search Coreldraw categories installation

as follow:

🕏 Welcome to use 🛛 🔀		
Install USB Driver		
Type: Plugin For CorelDraw		
Lanuage: English		
Select install path		
CorelDraw Version: CorelDraw 12 Install Path: CorelDraw 11 CorelDraw 12 CorelDraw X3 CorelDraw X4 OK CorelDraw X6 (32bit)		
Select install path		
Auto to Install		
CorelDraw Version: CorelDraw X6(32bit) Install Path: C:\ Browse		
OK Cancel		

## 2.5 Manually install Coreldraw plugin

as follow:

🕏 Welcome to use 🛛 🔀		
Install USB Driver		
Type: Flugin For CorelDraw		
Lanuage: English		
Install		
Select install path 🛛 🔀		
🔽 Auto to Install		
CorelDraw Version: CorelDraw 12		
Install Path: CorelDraw 11 CorelDraw 12 CorelDraw X3		
CorelDraw X4		
CorelDraw X6 (32bit)		
Select install path 🛛 🔀		
Auto to Install		
CorelDraw Version: CorelDraw X6(32bit) - Install Path: C:\ Browse		
OK Cancel		
? 🔀		
Select the install path		
C:\Program Files\Corel\CorelDRAW Graphics Suite		
Corel		
CorelDRAW Graphics Suite X6		
DAEMON Tools Lite		
Doyo Ever-USB		
<pre>eXeScope</pre>		
OK Cancel		



## 2.6 Similar Coreldraw plugin installation

please refer chapter 2.4 and 2.5

## 3. Software Application

## 3.1 Software Main Interface Introduction



## Menu bar

Main function is to execute commend options in menu bar. Executing commend options is the basic operation; Menu bar includes 7 functions like file, edit, draw, tool, options, view and help.

## • Tool bar

There are some functions completed by commend buttons in tool bar. Most of these functions are sorted from menu bar.

## Object bar

Provide selecting object during operation and relevant properties during using tool. It can control the change of object by setting relevant properties in property bar.

Draw bar

It's on the left of working area. With draw tool in draw bar, it makes operation more flexible and convenient.

## Align bar

Make align multi objects to perfect the layout of page.

• Color bar

Alter the color of selected object

## • Control panel

Use control panel to finish several tasks of laser machining, including setting communication IP, setting layer parameter, loading graphic and so on.

## 3.2 File Management

## 3.2.1 New File

Click File menu and select "New File" option or click system tool bar icon n to create a new file.

## 3.2.2 Open File

Click File menu and select "Open" option or click system tool bar icon select the file and double click. The opened file suffix is pwj5.



#### Preview

graphic option help you to preview the file you selected.

## 3.2.3 Save File

Click File menu and select "save" option or click system tool bar icon import file's name and click save it. The saved file suffix is pwj5.

to find file saving category then

ջ 保存为	×
Save in: 🕞 Work (E:)	- 🥝 🤣 📂 🎞
Name	Date modified
Joc Joc	2015/5/6 22:10
Trocen software	2014/9/20 8:24
\mu work	2015/5/18 21:33
AWC TEST.pwj5	2015/6/13 13:38
•	•
File <u>n</u> ame: testļpwj5	Save
Save as type: PWJ File(*.pwj5)	Cancel

## 3.2.4 Save as...

Click File menu and select "save as" option to find file saving category then import file's name and click save it. The saved file suffix is pwj5.

## 3.2.5 Import file

Click File menu and select "Import"option or click system tool bar icon 🗗 to find file saving category.Double click the file needed to be imported to finish it.This software support files with the following suffix:AI DXF PLT DST DSB BMP GIF JPG PNG MNG ICO TIF TGA PCX JBG JB2 JBC PGX RAS PNM SKA RAW.

👰 Open	×
Look in: 🕞 Work (E:)	- 🥝 🤌 📂 🛄-
Name	Date modified
Jan Doc	2015/5/6 22:10
light Trocen software	2014/9/20 8:24
work	2015/5/18 21:33
AWC TEST.ai	2005/12/2 18:27
< III	4
File name: AWC TEST.ai	Open
Files of type: Supported files1	▼ Cancel
	<ul> <li>✓ Unite Lines …</li> <li>✓ DST,PLT Auto Smoot …</li> <li>✓ Auto Order …</li> <li>PLT Unit: 1016 ▼</li> <li>✓ Reserve the current docme</li> <li>✓ Preview</li> </ul>

## • Unite Lines

Multiple connecting segments in graphic can be merged into a segment while importing the file.

## DST,PLT Auto Smoothing

Smoothing the curve to improve the cutting speed and stability while importing the graphical parameters of DST,PLT files.

## Auto Order

The graphic data objects will be automatically sorted while importing the file. After auto order, the laser processing head will go through the shortest path.

## • Reserve the current document

The file retained before importing new file.After importing file,the graphic data includes original graphic data files before and after importing.

## Preview

Displaying the graphic while a file was selected.

## 3.2.6 Export file

Click File menu and select "Export" option or click system tool bar icon  $\square$  to find file exporting category then input file name and click save to finish it. The saved file suffix is PLT.

Save As	×
Save in: 🕞 Work (E:) 🗸 🎯 👔	ၨ) 📂▼
Name	Date modified
J Doc	2015/5/6 22:10
Jan Trocen software	2014/9/20 8:24
Jan work	2015/5/18 21:33
<	•
File <u>n</u> ame: test	Save
Save as type: PLT files(*.plt)	Cancel

## 3.2.7 Import Machine Configuration

Click File menu and select "Import Machine Configuration" option to find the path of machine configuration file . Then double click machine configuration file to finish it.

🔗 Open	X
Look in: 🕞 Work (E:)	- G 🤌 🗁 🖽
Name	Date modified
June 2000	2015/5/6 22:10
퉬 Trocen software	2014/9/20 8:24
🕛 work	2015/5/18 21:33
AWCCfg.cf5	2015/6/14 18:17
<	
File name: AWCCfg.cf5	Open
Files of type: Cfg files(*.cf5)	Cancel

## 3.2.8 Export Machine Configuration

Click File menu and select "Export Machine Configuration" option to find the path of saving machine configuration file. Then input file name of the file, click save to finish it. The exported file suffix is CF5.

## 3.2.9 Import Software Configuration

Click File menu and select "Import Software Configuration" option to find the path of machine software file .Then double click software configuration file to finish it.The suffix of the software configuration is qscf.

🤦 Open	×
Look in: 🕞 Work (E:)	- G 🤌 📂 💷-
Name	Date View Menu
Doc 🔡	2015/5/6 22:10
light Trocen software	2014/9/20 8:24
퉬 work	2015/5/18 21:33
AWC.qscf	2015/6/14 18:22
۲ <u>ااا</u>	•
File name: AWC.qscf	Open
Files of type: QSCF files(*.qscf)	Cancel

## 3.2.10 Export Software Configuration

Click File menu and select "Export Software Configuration" option to find the path of saving machine configuration file. Then input file name of the file, click save to finish it. The exported file suffix is qscf.

## 3.3 Object Selection And Conversion

## 3.3.1 Object Selection

The first thing is selecting object when drawing and editing the graphic. When the object is in a selected state, there will be a "X"sharped mark in the center. Around it is 8 control points with the color of [Selected Object Color]

Click the [Select] in the Draw] list or click edit tool bar  $\mathbb{R}$  to switch into "Selection" state. In this state you can select object. Five objects selection way are as following:

Click [ All Select] in [ Edit] list(Shortcuts Ctrl+A) to select all objects.

Click to select single object

Click object with mouse as follow:

#### Frame selection

Hold down the mouse and move.All objects touched by the cursor will be selected.

#### Add /Reduce selection objects:

Add

first select the first object and hold down shift. Then click (or frame select) other objects which you need to add.

Reduce

Press shift and click(or frame select)the selected graphic files.Then the clicked(or frame selected)object will be reduced from selected objects.

- Select object by layer color
- Click object operation bar

elect By	Color		<b>-</b> ×
Pen	Color		OK
0			
1			Cancel
2			
•		•	

Select the object color and press **(**OK **)**. It means all objects with this color layer will be selected.

#### 3.3.2 Change Object Color

Object color is the outline color of object. It can be changed by clicking random color tool button in the

layer tool bar.			

## 3.3.3 Rotate Object

Use object operation bar  $2^{0.00}$  to rotate the object.Input rotate angle you need in 0.00.Then click 2 to finish it.

Select Edit tool bar k, double click the object which you need to rotate or tilt and enter the relative

mode.At this moment the control point around the object exchanged into *C*. Rotate control arrow and *t* tilt control arrow.As follow:



Move the cursor to rotate arrow and drag the control points along the direction of the arrow controls; during the process, some outline frame wires will follow to rotate. Like the following picture:



Rotate it to properly position and loose the mouse to finish it.

## 3.3.4 Change Object Size

Use  $\mathbb{R}$  (Select tool)click to select object which need to be zoomed or changed. And move control points of object to change the object size. This method is easy but with low precision.

In object operation bar In object operatio

Click do to log, any changes on one number, another will be changed with According to the proportions of the object.

## 3.4 File edit

#### 3.4.1 Undo

Click 【Undo】 in 【Edit】 list or click 🖴 to cancel the last operation.

## 3.4.2 Redo

Click 【Redo】 in 【Edit】 list or click C To recover the cancel action.

## 3.4.3 Cut

Select one object and click 【Cut】 in 🐰 【Edit】 list or click 🐰 to cut a file part.

## 3.4.4 Copy

Select one object and click 【Copy】 in 【Edit】 list or click 🗈 to copy a file part.

#### 3.4.5 Paste

Select one object and click 【Paste】 in 【Edit】 list or click 
to paste a file part

### 3.4.6 Delete

Select one object and click 【Paste】 in 【Edit】 list to paste a file part

#### 3.4.7 All Select

Click [All Select] in [Edit] list to select all file parts in one graphic.

## 3.4.8 Group

Select needed file parts and click 【Group】 in 【Edit】 list or click 中to build a graphic group with separated selected graphics.

## 3.4.9 Ungroup

Select needed graphic group and click [Ungroup] in [Edit] list or click 🙀 to split a completed graphic file group into separated graphics.

## 3.4.10 All Ungroup

Select needed graphic group and click [Ungroup] in [Edit] list or click 💥 to split All file group into separated graphics.

#### 3.4.11 Move

Click (Move In [Edit] list or click (Click and cursor changes into Click click) size.hold down mouse left button and you can move the graphic.

#### 3.4.12 Zoom

Click 【Zoom】 in 【Edit】 list or click Q<sup>±</sup>. And mouse left button click graphic to enlarge it; right button click graphic to narrow it.

Click [Zoom to selected] in [Edit] list or click 🤐 to make the selected objects completed displayed.

Click 【 Zoom to all 】 in 【 Edit 】 list or click <sup>图</sup> to make all objects completed displayed.

Click [ Zoom to page ] in [ Edit ] list or click 🖾 to make a full page in graphic completed displayed.

## 3.4.13 Align

Select graphic and click 【Align】 in 【 Edit 】 list on relative list options or click

## 3.4.14 Nudge Offset

Select graphic and click [ Align ] in [ Edit ] list on relative options to make a tiny adjustment for the graphic.

## 3.4.15 Convert To Leftover

Convert to leftover belongs to affiliated graphics of array file. It is used for add other graphics in empty places in array layout. Normal application is electric double laser head array processing. In the blank area of array graphic add cutting box file to save materials.

## 3.4.16 Convert LastRow To Leftover

This option is used to add other graphics in the last row of an array of typesetting.

### 3.4.19 Manual Notch

When work piece is being cut, A part of it will be remained in the edge in case that it falls down. We call this part as Notch.

Select graphic and click [ Manual Notch] in [ Edit ] list.Input notch width.Then move cursor to graphic edge.After the cursor become "+",double click to add notch.



## 3.5 Draw

#### 3.5.1Select

Select graphic and click [Select ]in [Draw ]list or click button to change edit state into select mode.

#### 3.5.2 Edit Node

Click 【 Edit Node 】 in 【 Draw 】 list or click 👗 button . In the right side of object operation bar will

appear tools : 🖾 (add node) 🗮 (delete node) 🚧 (connect node) 🚧 (separate node).

Use mouse to select items.Node point of selected file will be presented as small rectangle" <sup>a</sup> " A selected rectangle as follow:



Select points of file Click selected file or select one point of this file. It is marked as "\*".



Select node of file Click the node point of file to select it. It will be marked as "■"as follow:



%Click the selected node of file.At the same time, press "Shift" button to select multi nodes of file.

Add Node Select one point of selected file,as follow:



Click [ Add Node ] in [ Edit ] list or click in object operation bar and selected point is the added node of file.As follow:



Delete Node

Select one node in the selected file as follow:



Click [ Delete Node ] in [ Edit ] list or click = in object operation bar and selected point is the added node of file. As follow:



Separate Node

Select one node in selected file, as follow:



Then click 【Separate Node】 in 【Edit】 list or click object operation bar 🚧 to separate the node.As follow:



Unit Node Select start node and end node in selected file, as follow:



Then click 【 Unit Node】 in 【Edit】 list or click object operation bar 🚧 to unit the node.As follow:



## 3.5.3 Line

Click [Line] in [Draw] list or click Edit Tool Bar . Then drag the mouse to draw any line.

When drawing line, press "Ctrl" and move mouse to draw a level line.

## 3.5.4 Polyline

Click [Polyline] in [Draw] list or click Edit Tool Bar [1]. Then drag mouse and click it to draw any line.

## 3.5.5 Rectangle

## 3.5.6 Ellipse

Click 【Ellipse】 in 【Draw】 list or click Edit Tool Bar . Then drag mouse to draw any ellipse. **When drawing ellipse, press "Ctrl" and move mouse to draw a circle**.

## 3.5.7 Bezier

Click 【Bezier】 in 【Draw】 list or click Edit Tool Bar 😪 .Then drag mouse to draw a Bezier.

## 3.5.8 Text

Click 【Text 】 in 【Draw】 list or click Edit Tool BarA. Then Double click mouse left button in screen ,a dialog as follow:

Edit Text					x
TrueType Font	▼ Courier New	▼ 8 ▼	B	I	U
Text					^
4				•	~
		OK	Car	icel	

Input characters in dialog and set fonts and size. Then press OK to add a text to graphic.

## 3.6 Tool

## 3.6.1 Array Clone

Select edit tool bar . Then select the clone file and press object operation bar and a dialog as follow:

Array clone	
X Count: Y Count: 1	X Offset: 1 Y Offset: 1
Direction	
🔘 Left_Up	🔘 Right_Up
🔘 Left_Down	O Right_Down
OK	Cancel

Input [X Count], [Y Count], [X Offset], [Y Offset] and select [Direction]. Then Press OK to finish it.

## 3.6.2 Select by Color

Click object operation bar  $\overline{a}$ . A dialog as follow:

Pen	Color	OK
0		
1		Cancel
2		

Select relative file color and press 【OK】.Then all files belong to this color will be selected.

#### 3.6.3 Mirror Horizontally

Select a file and click 【Tool】/【Mirror Horizontally】 or click 4 to finish a mirror horizontally graphic.

## 3.6.4 Mirror Vertically

Select a file and click 【Tool】/【Mirror Vertically】 or click 🗐 to finish a mirror Vertically graphic.

## 3.6.5 Manual Order

Select a file and click 【Tool】/【Manual Order】 to enter interface as follow:



## 1) Change serial number of cutting object.

Mouse drag option in [Manual Order]. Then you could move this option to the position of cursor. Mouse double click option in [Manual Order]. Then it could be moved to top position. Click [Rev\_Order] in [Manual Order] could list all items in reverse order. Serial Number is with different file number in [Manual Order]. The less the number is, the earlier the file to be processed.

## **Change The Start Point**

Start point in file is marked as "•".Click file part and you may change the position.

#### **Change Arrow Direction**

Cutting direction of object is marked as "<".Click [Rev\_Dir] in [Manual Order] could make cutting direction opposite to origin.

#### 3.6.6 Automatic Order

[Automatic Order] tool is used for automatically ordering all the objects in the current document. After that, The motion path of output processing will be the theoretical shortest way.

Click [Tool] / [Automatic Order] .A dialog is as follow.Then Press [OK]

Route Optimize
□ Order by layer ✓ Inner to outer ✓ Automation set cut director
Path run region Size: 20.0 Director: Up To Dow 💌
OK Cancel

Order by layer: All file items with the same color will be continuously ordered.(It means some one color files will be processed all when laser cutting happens before the next color items.)

Inner to outer: Inner files (or included) will be ranked priority on outer files(includes).(It means some one inner files will be processed at first when laser cutting happens before the outer items.)

Automation set cut director: It means automatically ensure start point and cutting direction of the processed file when order graphics.

Path run region: Files will be ordered as [Size] with setting [Director]. [Path run region] Is normally used for arrangement a regular array pattern (eg: circular array, a rectangular array).For these,the [Size] setting is the height of single graphic in ordered files.

#### 3.6.7 Smooth Object(s)

To Smooth the curve and improve the cutting speed and stability.

Click [Tool] / [Smooth Object(s)] .A dialog is as follow.Then Press [OK]

Smooth		×
Smooth		75%
OK	Cancel	

% The higher smoothing parameters turns to,the smoother the curve is.However with more file deformation.

## 3.6.8 Delete Repeated Lines

[Delete Repeated Lines] can delete overlapping graphics in case of any repeating cutting.

Click 【Tool】/【Delete Repeated Lines】.A dialog is as follow.Then Press 【OK】

Delete Repeated Lines	x
Repeated error(mm): 0.01	
OK Cancel	

## 3.6.9 Unite Lines

【Unite Lines】 tool combine multiple segments into one segment.

Click	/ [   Inita   inas ]	.A dialog is as follow.Then Press	IOK
CIICK		A ulalog is as follow. Then Fless	

Unite lines options	
Unite tolerance(mm): 0.1	
OK Cancel	

Unite Tolerance(mm): The two segments that their distance is less than their unite tolerance will be merged.

## 3.6.10 Edit Cutting Guide Line

Click 【Tool】/【Edit Cutting Guide Line】 to enter the interface as follow:



Object cutting starting point will be marked as "■".Click object could change the start point.Cutting direction will be marked as "←".Arrow direction will show the cutting direction.

## 3.6.11 Auto Cutting Guide Line

When drawing or import graphics, it is defaulted that curve is with no cutting guide line.

Click **[**Tool**]** / **[**Unite Lines**]** .A dialog is as follow:

Auto Cutting Guide	Line 💌
Cutting In'Guid V Enable	e_Line
Length(mm):	3.00
Angle:	90
Cutting Out' Gui	de_Line
Length(mm):	3.00
Angle:	90
🔽 Auto Confrim	direction
Direction:	Inner 📼
Center Guide	
ОК	Cancel

## • Cutting In & Out Guide Line

Angle of cutting guide line and starting line.Counterclockwise with positive numbers.

### • Auto Confirm direction

When it is not be chosen, you can select guide line direction by hand. When choose direction inner, lines will be guided from graphic inside. Otherwise will be from out of graphic.

## • Center Guide

means cutting guide lines will be guided from center of graphic.

## 3.6.12 Image Invert

Select edit tool 3. Then select file which need to do image invert. And Click [Tool] / [Image Invert]

or click object operation bar  $\mathbf{M}$ .





## 3.6.13 Image Dither

Select edit tool bar . Then select the bitmap object to be treated hanging. And click [Tool] / [Image Dither] in list or click object operation bar . A dialog as follow:

Image Dither	<b>x</b>	
Dot Size(mm): 0.40		
OK Cancel		
6		

## 3.6.15 Create Image Outline

Select edit tool bar k and select the file graphic which need to create image outline. Then click [Tool] / [Create Image Outline] as follow:



## 3.6.16 Close Check

Select edit tool bar . Then select vector object which need to do close check. And click [Tool] / [Close Check] in list as follow:

Close Check	×
Close Tolerance(mm): 0.00	
Check	

## 3.6.17 Parallel Offset

Parallel offset is a external expansion or internal contract.Select graphic and click 【Tool】/【Parallel Offset】 or click object operation bad <sup>(1)</sup>.A dialog as follow:

Parallel Offset	<b>-X</b>
Offset(mm): 1.00	
◙ Outer ⊘ Inner	
OK Cancel	

Select necessary parameter and click **[**OK**]** to create a parallel line.Also it will be automatically created as a new layer.As follow:



## 3.6.18 Measure Length

Select edit tool bar . Then select relative file. And click 【Tool】 / 【Measure Length】. As follow.



## 3.6.19 Estimate Work Time

elect edit tool bar &. Then select relative file. And click [Tool] /[Estimate Work Time] or click system tool bar 3 to budget the working time of processing. As follow:

Estimate Work time	×
Estimated time: 0 : 0 : 35	

## 3.6.20 Simulate

elect edit tool bar . Then select relative file. And click [Tool] / [Simulate] or click system tool bar



## 3.7 Options

## 3.7.1 System Options

Click [Options]/[System Options] or click system too of par to enter the system parameters setting interface.

## 3.7.1.1 Work Space

System settings		X
Work Space Advance Functions Work Parameters Manufacturer Paramet User parameters	Work Space Nudge Offset(mm): Paste Offset(mm):	1.00 1.0
	Language: Speed Unit: Machine Zero: Page Zero: Selected'Color:	English  mm/s  Right_Up  Right_Down
	Grid Show Grid Grid Distance(mm):	50.0
	Always show the welcome	
< >		OK Cancel Apply

## Nudge Offset(mm)

The single movement distance of pressing keyboard " $\leftarrow$ ", " $\rightarrow$ ", " $\uparrow$ ", " $\downarrow$ "to move the selected file.

## Paste Offset(mm)

the offset distance of pasting a copy of selected object to current view.

#### • Language

the language used in the type of software

## Speed Unit

the unit type used for all items in software related to speed.

## Machine Zero

The current machine zero point(Or limit switch position.)this parameters should be the same as actual machine zero point.Otherwise processed file may be left-right or up-down reversed.

### Page Zero

Zero point in software graphic.Or when mouse move to graphic right down corner, state bar presents X=0,Y=0.

## • Selected' Color

Outline color of the selected object.

## • Show Grid

Graphic will be showed with grid model.

## • Simulating show objects of engraving

Simulating shows layer with stuffed engraving way.

When the amount of data in graphic sculpture is large, it will lead a slower speed of software display. Regularly not recommend this option.

## • Always show the welcome screen at launch

When it is selected, there would always be a software defaulted welcome interface after starting.

#### 3.7.1.2 Advance Functions:



## • Rotate Engraving(Only for AWC608,AWC608C System)

Enable:tick it and will exchange the normal output engraving parameters into rotary engraving parameters and achieve rotary engraving craft.

## Rotate axis con(um)

when use X axis as rotate axis ,engraving way must be [X\_Swing] or [X\_Unilateral] And the [Rotate axis con(um)] is X axis pulse equivalent parameters.

## Rotate axis con(um)

when use Y axis as rotate axis ,engraving way must be **[**Y\_Swing] or **[**Y\_Unilateral] .And the **[**Rotate axis con(um)] is Y axis pulse equivalent parameters.

### Step per rotate(pulse)

The number of pulses which motor driver need to output to make the rotary table rotate one circle.

#### Current diameter(mm)

diameter of engraved object.

#### Divided Cutting

Normally keep default parameters.

## • Speed Optimize of cutting

Normally keep default parameters.

System settings			X	
Work Space	Work Parameters			
Work Parameters Manufacturer Paramet	Curve Disperse(m	ım): 0.100		
User parameters	Circle Speed			
	Diameter	Speed	Enable	
	1.00	10.00		
	2.00	15.00		
	3.00	20.00	Add	
	4.00	25.00		
	5.00 6.00	30.00 35.00	Delete	
	7.00	40.00	Modify	
	7.00	40.00		
	Engrave Reverse offset			
	Speed	Reverse Offset	Enabel	
			Add	
			Delete	
			Modify	
	Cutting Backlash			
	X(mm): 0.00000	) Y(mm): 0.0000	0	
۰ III • •				
		ОК	Cancel Apply	
			4.	

## • Curve Disperse(mm)

Parameters of curve smooth. The smaller it is , the higher graphic precision is. But also the slower computing speed is. And it effects processing speed. Normally for materials like acrylic, you can choose a smaller number. Otherwise please use default 0.10.

## Circle Speed

system Automatically determine if the processed circle is limited on cutting speed.And then process it by relative diameter date with different speed.Under right parameters setting,the cutting effect of circle will be great improved.To Click [Add], [Delete], [Modify] and set the parameters.

## • Engrave reserve offset

During the double-way engraving graphics, due to mechanical backlash, it may lead to a uneven edge graphics after scanned. So we use engraving reserve offset to fix it. Special speed relate to special engraving reserve offset. Normally speaking, the more speed with the higher engraving reserve offset. Also this parameters could be positive or negative.

When speed is 200mm/s,reserve offset is 0.3mm;When speed is less than 200mm/s,the relationship between speed and reserve offset is proportional.So when speed is 100mm/s ,reserve offset is 0.30\*(100/200)=0.15mm

When speed is 300 mm/s, reserve offset is 0.50 mm; When speed is within  $200 \sim 300$  mm/s, the relationship between speed and reserve offset is proportional. So when speed is 250 mm/s, reserve offset is  $0.30+(300-250)/(300-200)\times(0.5-0.3)=0.40$  mm

When speed is more than 300mm/s,reserve offset is the same as when speed is 300mm/s(or 0.5mm)

System settings			X		
Work Space Manufacturer Parameters					
Advance Functions Work Parameters Manufacturer Paramet	X_Axis Um/Pulse: 6.5000	Um/Puise:	6.500000		
User parameters	Pulse edge: Falling Datum: Negativ		Falling edge ▼ Negative ▼		
	Key direction: Negativ				
	LimitPolarity: Negativ Range: 1200	ve  LimitPolarity: Range:	Negative		
	Start Speed: 15.000		15.000		
	Max_Acc: 10000.	Max_Acc:	3000.000		
	Max_Speed: 500.00	Max_Speed:	400.000		
		en Protect 🔲 Foot switch	Z/U Axes Options		
	Laser Parameters Laser Mode: Glass		on config axis home OnPower		
		everenective	dware limit um origin after work		
	PWM Frequency: 20000 Max_Power: 98		Other Options		
۰ III ۲	Import	Export Read			
OK Cancel Apply					

## 3.7.1.4 Manufacturer Parameters

## • X,Y axes parameters

X,Y,Z,U axes parameters(Z axis is for up down axis,and U axis is for auto feeding axis).

Click 【Z/U Axes Options】 you can set up parameters of Z and U axis.

## • Um Pulse(um)

The absolute distance value (unit: um) that a signal sent by motor relate to motion axis movement. The processed graphic size with error Um pulse setting will not the same as expected.

## Pulse Edgethe

trigger edge of motor driver make motor spin. It will lead a cutting dislocation if with wrong parameter setting.

#### Datum

Axis movement direction during reset. When this datum is not the same as axis limit switch, please rewrite this parameters.

## Key direction

direction of lcd panel button movement. When it is not the same as the actual direction, please rewrite this parameter.

## Range

Working area of machine.Or related axis max working distance.

## Start Speed

speed of motion axis from still state to starting state. The more numbers , the higher the starting

speed.Also with more machine stopping shake.Please adjust it with machine property.Classical setting ranges in 5~20mm/s.

## • Max\_Acc

acceleration of motion axis doing adding or reducing speed. If with too high Acc, it will cause motor loosing step or shaking. If with too low Acc, it may cause a low working speed and slow down whole program. For a axis with big inertia, like beams corresponding to the Y-axis, a classical setting parameters range from 800 to 3000mm/s2. For a axis with small inertia, like the X-axis, a classical setting parameters range from 10000 to 20000mm/s2.

## • Max\_Speed

The max speed motion axis could be up to which decided by motor driving ablility and inertia. When doing engraving task, the engraving speed could not beyond the max speed of relative axis. When doing cutting task, the max cutting speed could not beyond the max speed of X and Y axes. Controller will protect speed within the max speed limitation if met any over-high speed requirement.

## I/O Switches

#### Water Protect

Controller board water protection interface is Laser 1-Protect and Laser- Protect. Enable [Water Protect] and system will real-time monitor the two water protection signal. When one of them presents in a high level state, the processing task will be paused and laser will be turned off. And "Water protection error" will be shown in Icd display.

## Open Protect

Controller board open protection interface is IN1. Enable [Open Protect] system will real-time monitor the signal. When it changes into low level, the processing task will be paused. When it is in a high level, the paused task will be continued.

#### Foot Switch

Controller board foot switch interface is IN2.Enable [Foot Switch] system will real-time monitor the signal.When signal exchange from high level to low level, the states will be switches (from pause to work or from work to pause).

#### • Laser Mode

select this parameters as out-connected laser source type.Normally mainly three types are China glass laser tube,RF tube(pre-ignition pulse) and RF tube(non-ignition pulse)

#### • TTL Level

select this parameters as out-connected laser power supply.Laser switch signal are Laser1-TTL and Laser2-TTL.When choose [Low level effect] and start optic,system will output two road signal with low level and when stop optic,system will output two road signal with high level.

When choose [High level effect] and start optic, system will output two road signal with high level and when stop optic, system will output two road signal with low level.

#### • PWM Frequency

pulse frequency of control signal of out-connected laser source.Normally ranges from 20000 to 80000.If with too small parameters, it will lead a possible output imbalance during working and come out a "black point".

#### Max Power

peak power percent of laser source.During processing,working power cannot beyond this parameters.

## **ZU Axes Options**

## • XY axis home OnPower

Enable ,when machine is started,X axis and Y axis will do reset motion at the same time.

#### • Z axis home OnPower

Enable ,when machine is started,Z axis will do reset motion at the same time.(normally not enable).

#### • U axis home OnPower

Enable ,when machine is started,U axis will do reset motion at the same time.(normally not enable).

#### • U axis for feeding

Enable U axis auto feeding function. If without it ,all feeding crafts in software will be invalid. (normally enable).

## **Other Options**

Manufacturer Parameters Import and Export

Manufacturer Parameters Import can use files which has been set up.Click [Import] to finish it.Parameters files suffxx is cf5.

Manufacturer Parameters Export can create current copy files as backup.Click [Export] to finish it.And exported manufacturer parameters file could change current main board manufacturer parameters with U disk interface.

Manufacturer Parameters Read and Save

Manufacturer Parameters Read,or read parameters that had been saved into controller board into software interface.Click 【Read】 to finish it.Parameters files suffxx is cf5.

Manufacturer Parameters save.Click [Read] and [Save], Manufacturer Parameters will be read and saved into software.

System settings				×
Work Space	User parameters			
Advance Functions Work Parameters	Work control parameters			
Manufacturer Paramet	Space_Speed:	300.00	Min_Acc:	300.00
	Start_Speed:	10.00	Cut_Acc:	3000.00
	Speed_Factor:	3.00	Space_Acc:	3000.00
	Space_Jerk:	80000.00	Engrave_Acc:	10000.00
	Cut_Jerk::	50000.00		
	Insta	nt recovery:	Noraml Params	<b></b>
	System config parameters			
	X/Y_Home_Speed:	50.00	Key_Move_Speed:	200.00
	Z_Home_Speed:	40.00	RunBox_Speed:	200.00
	U_Home_Speed:		ClipBox_Speed:	50.00
	Z_Work_Speed:			
	U_Work_Speed:	200.00		
	Import	Export	Read	Save
4 IIII >		Export	Hodd	
OK Cancel Apply				

#### 3.7.1.5 User Parameters

## **Work Control Parameters**

## • Space\_Speed

laser head motion speed when laser not output during working process. This parameter is limited by [Max\_Speed] in manufacturer parameters.

## Start\_Speed

laser head motion speed from running to still during working process. This parameter is limited by [Start\_Speed] in manufacturer parameters.

## Speed\_Factor

rounding speed item during working process. The bigger it is , the faster working speed is. Also the more shake is . It ranges between 0 to 5. Default 2.5.

## Space\_Jerk

The changing speed of space acceleration during working process. The bigger it is, the faster space speed is. Also the more shake is. It is normally set as 10000 to 150000.

## • Cut\_Jerk

The changing speed of cutting acceleration during working process. The bigger it is, the faster space speed is. Also the more shake is. It is normally set as 10000 to 150000.

## • Min\_Acc

mini acceleration of axis motion during working process.

## • Cut\_Acc

max acceleration of motion laser head when laser output during working process.Normally set below 4000.

## Space\_Acc

max acceleration of motion laser head when laser NOT output during working process.Normally set below 4000.

## Engrave\_Acc

max acceleration of motion laser head when engraving.Normally set higher than 8000.It with too small parameter, it will lead a long distance between starting speed increase to engraving speed.And cause engraving oversize to fail.

## Instant recovery

one press button to set user parameters. As the difference of materials and working effects recommend, you can choose "Slower Params", "Normal Params", "Faster Params" and "Fastest Params".

## **System Config Parameters**

## • X/Y\_Home\_Speed

machine speed reset to origin point.Normally ranges between 40 to 80.If too big ,it will lead a overload impact and probably damage limit switch.

## • Z\_Home\_Speed

Z axis(up down axis) reset to origin point.

## • U\_Home\_Speed

U axis(feeding axis) reset to origin point.

## • Z\_Work\_Speed

Z axis motion speed during working process.

### • U\_Work\_Speed

U axis motion speed during working process.

## • Key\_Move\_Speed

axis movement speed when pressing keys on LCD panel.

## RunBox\_Speed

laser head motion speed along graphic outline box.

## • ClipBox\_Speed:

Cutting speed on graphics outline box.

## • User parameters import and export

User parameters import could be used for all adjusted user parameters files.Click [Import] to finish it ; User parameters export can create current copy files as backup.Click [Export] to finish it.And exported user parameters file could change current main board manufacturer parameters with U disk interface.

## • User parameters read and save

User Parameters read, or read parameters saved in controller main board to software interface. Click 【 Read】 to finish it.And click 【 Save】, user Parameters will be saved into software.

#### 3.7.2 Array output options

Graphics needed to do array process will be dealt with array parameters setting. It saves humanity working time and materials. Click [Option] / [Array output options] to enter it as follow:
Array output options					
Auto_conver Calculation					
Cell height(Y):	121.74				
Cell width(X):	97.30				
Height(Y):	121.74				
Width(X):	97.30				
Count (Y) :	1				
Count (X) :	1				
Odd Interval (Y):	0.00				
• Odd Interval (Y): 0.00 • Even Interval (Y): 0.00					
Odd Interval(X):	0.00				
Even Interval (X): 0.00 Auto					
Offset (X): -0.00 Auto					
Offset (X): -0.00 Auto					
Pulse Distance: 1.00					
Up					
Left Right					
Down					
Line Mirror					
Row Mirror					
X	Y				
Convert To	Solidline				
F2: Zoom to Objects F4: Zoom to page					

Click [Auto\_conver Calculation] software will do automatic array as the working area and graphic size with the most economical way of materials and make graphics filled in whole working size.

#### 3.7.3 Position relative

[Position relative] means a relative position relationship between laser head and processed graphics.

Click [Options] / [Position relative] or click system tool bar .A dialog as follow then click [OK] to finish it.



#### Graphic relative position as follow:



#### 3.7.4 Default Parameters

Back to default software parameters. When it is selected, reset machine property parameters will be required.

Come back to default for set the machine processing back to define the set to define	operty before
-Machine property-	
Machine Zero:	Right_Up →
X_Size(mm):	1200
Y_Size(mm):	900
ОК	Cancel

### 3.8 View

View list is used to tune out or hide the toolbar

#### 3.8.1 How to tune out the hidden tool bar?

When menu bar is not hidden, you can choose relative tool bar in [View] list to tune them out.

When menu bar is hidden, click mouse right button in space area of state bar and select relative tool bar to finish it. Press down tool bar title and not loose. Then drag it to software top to fix toolbar. As follow:



### 3.9 Help

#### 3.9.1 Information change and customerized

Users could do Customerized modifications on information setting of software.Default setting on information as follow:

About		X
Copyright:	Company	
Address:	Address	
Tel:	Tel	
Fax:	Fax	
Web:	Website	
	OK	)

After the software installation package unzipped ,enter software installation categories.Then open AWCLanguage file and double click lang\_chs file as follow:

🔲 lang_Enu - Notepad 🔲 💷 🔤	3
<u>F</u> ile <u>E</u> dit F <u>o</u> rmat <u>V</u> iew <u>H</u> elp	
<pre>[Section1] 110000=Company 110001=Address 110002=Tel 110003=Fax 110004=Website [Section2] 2000=&amp;File 57600=&amp;New 57601=Create a new document 576002=New 57601=&amp;Open 57601=@Open an existing document 57601=Open an existing document 57603=&amp;Save 57603=&amp;Save 57603=Save the active document 57603=Save &amp;As 576041=Save the active document with a new name</pre>	
576042=Save As	Ŧ

Exchange the first four options with relative information as follow:

ang_Enu - Notepad	- • •
<u>File Edit Format View H</u> elp	
[Section1] 110000=Shenzhen dry cheng automation technology co., LTD 110001=guangdong province shenzhen baoan district 82 new road west B room 410 110002=0755-27958262 110003=0755-27447913-608 110004=www.sztrocen.com www.awc608.com	l east
[Section2] 2000=&File 57600=&New 576001=Create a new document 576002=New 57601=&Open 57601=Open an existing document	
576012=Open 57603=&Save 57603=Save the active document 576032=Save 57604=Save &As 576041=Save the active document with a new name	-

#### The modified effect as follow:

	gdong province shenzhen baoan distr
Tel: 0755-	07050000
	21930202
Fax: 0755-	27447913-608
Web: www.s	ztrocen.com www.awc608.com

#### 3.9.2 Software Icon exchange.

Icon for the software vendors can be replaced. After decompression software installation package unzipped, enter software installation categories and open AWCRes file. Rename your new icon as title. Copy and replace the old icon with the same name. Icon size is 32\*32 and format is ico.

# 4. Control Panel

Computer can do communication with awc series controller main board with Usb and Net work two modes and do operation on laser machine.

### 4.1 USB mode

	Panel			×	
_	ication mod Select Mode		192.168.0	3. 8	means it is a network
Layer	Options				
L	Mode	Speed	Power	0	 communicatio
	Up Dov	vn To	p Bott	om	
Machin Orig: Downl			p Box	Light Stop	
	Х-	x+	Z Dat Z		
Re	ead Current Move to Po		X= 0.00 Y= 0.00		

Select communication mode in control panel.

Click 【USB Mode】

) USI	B Mode Ad	d Delete Modify
	DeviceName	COM
	MachName	3
	MachName	13
✓	MachName	21
) Net	twork Mode Ad	ld Delete Modify
	twork Mode Ad DeviceName	ld Delete Modify
) Net	CWOIX MODE	

Double click 🗹 MachName

USB Com	<b>—</b>
DeviceName:	MachName
USB COM:	21 FindCom
OK	Cancel

Device name could be rewrote as you wish. Input device name and click find com. After it successed you can press OK and finish it.

## 4.2 Select Network Mode

### 4.2.1 Connect with network directly to main board.

Select communication mode in control panel.

Control Pan	el			×
Communicat	ion mod	e		
Sele	ct Mode	USB:	COM21	
Layer Opti	ons			
L Mod	le	Speed	Power	0
Up	Dow	n Top	Botto	m
Machine Co	ntrol			
Origin	Run B	ox Clip	Box	Light
Download	Star	t ise/C	ontin	Stop
		<u></u> ו		
	¥+		Z+	
х-	Datum	X+	Datu	ш
<u>т</u> <u>г</u>				
		J		
Read 0	Current		X= 0.00	
Mov	e to Po	s:	Y= 0.00	

Click Network Mode.

Mode	×
8 Mode Ad	d Delete Modify
DeviceName	COM
MachName	3
MachName	13
MachName	21
work Mode Ad	d Delete Modify
MachName	192.168.8.8
	B Mode Ad DeviceName MachName MachName MachName work Mode Add

Double clic	k 🗹 MachName	192, 168, 8, 8
Device IP	<b>—</b>	
DeviceName:	MachName	
IP:	192 . 168 . 8 . 8	
OK	Cancel	

Device name could be rewrote as you wish.Input ip address in controller main board panel and press OK to finish it.

Windows 7 System for example

Double click Internet to open it.



Click Network and Sharing Center



#### Click to change adapter settings



Double local area connection icon

📱 本地连接 属性
网络共享
连接时使用:
😰 Realtek PCIe GBE Family Controller
配置 (C) 此连接使用下列项目 (D):
<ul> <li>✓ ■ Microsoft 网络客户端</li> <li>✓ ■ QoS 数据包计划程序</li> <li>✓ ■ Microsoft 网络的文件和打印机共享</li> <li>✓ ▲ Internet 协议版本 6 (TCP/IPv6)</li> <li>✓ ▲ Internet 协议版本 4 (TCP/IPv4)</li> </ul>
<ul> <li>✓ → 链路层拓扑发现映射器 I/O 驱动程序</li> <li>✓ → 链路层拓扑发现响应程序</li> </ul>
安装 (M) 卸载 (U) 属性 (R)
描述 TCP/IP。该协议是默认的广域网络协议,它提供在不同 的相互连接的网络上的通讯。
 确定 

- Internet 协议版本 4 (TCP/IPv4) 属性	? 🔀
常规	
如果网络支持此功能,则可以获取( 您需要从网络系统管理员处获得适)	自动指派的 IP 设置。否则, 当的 IP 设置。
◎ 自动获得 IP 地址(0)	
● 使用下面的 IP 地址(S):	
IP 地址(I):	192 .168 . 8 . 13
子网摘码(0):	255 . 255 . 255 . 0
默认网关 (0):	
◎ 自动获得 DWS 服务器地址(B)	
● 使用下面的 DNS 服务器地址 0	E):
首选 DNS 服务器(P):	· · ·
备用 DNS 服务器(A):	· · ·
🔲 退出时验证设置 (L)	高级(∀)
	确定 取消

Double click Internet Protocol Version 4(TCP/TPv4)

Select the following ip address. The Former three ip address must be the same as what in controller main board. The end one ip could select any one number between 0-255 except main board ip address. Then Click [ OK] to finish it.

#### 4.2.2 Connection through the router to main board.

Computer setting the same as former.lp address set as obtain ip address automatically.The Former three ip address must be the same as what in controller main board. The end one ip could select any one number between 0-255 except main board ip address.

Windows 7 System for example

Double click network to open it.



Click Network and Sharing Center



Click wireless router network connection

□□□ 无线网络连接 状态	<b>—</b>
常规	
IPv4 连接: IPv6 连接:	Internet 无 Internet 访问权限
媒体状态:	已启用
SSID: 持续时间:	AWC608C 02:48:11
速度:	150.0 Mbps
信号质里:	
	属性(₩)
活动	
已发送 ——	
字节: 22, 726, 159	104, 189, 983
⑦属性 (P)     ⑦ 禁用 (D)     ⑦	诊断 (G)
	关闭(C)

**Click Details** 

网络连接详细信息		
网络连接详细信息 (D):		
属性 连接特定的 DNS 后缀 描述	值 Realtek RTL8188CV Wireless L	The Former three ip address must be the same as what in
物理地址 已启用 DHCP IPv4 地址 IPv4 子网掩码 获得租约的时间	5C-63-BF-0A-33-32 是 192.168.1.100 255.255.255.0 2014年12月17日 8:35:14	controller main board.The end one ip could select any one number between 0-255 except main board ip address
租约过期的时间 IPv4 默认网关 IPv4 DHCP 服务器 IPv4 DNS 服务器 IPv4 WINS 服务器	2014年12月17日 12:35:13 192.168.1.1 192.168.1.1 192.168.1.1 192.168.1.1	
已启用 NetBIOS ove 连接-本地 IPv6 地址 IPv6 默认网关 IPv6 DNS 服务器	是 fe80::cdcf:337f:72f9:e22f%12	2
		(C)

# 4.3 Setting layer parameters.

Layer	parameters
-------	------------

Click "Output" bar, could select if this layer will be used for processing.	s yes. 🔲 means
no.Double click any row of parameters list(such as 激光切割 150.00 85.00	).A dialog as
follow:	

ayer Pa	arameters			×
Pen 0 1 2 3	Color BMP	Layer: Work Mode: Work Count: Laser PPI: If Air Swit Cut Parameters <>/Laser1 (1) MaxPower(%): MinPower(%):	Cut • 1 200 ch Open Laser2 / Laser3 / I 50.00 40.00	OK Cancel
		Speed: Engrave Parameters	100.00  Laser2 Y Laser3 Y I	
		Power(%): Speed: Scan gap(mm): Engrave Mode: VertWiden(mm): HoriWiden(mm):	50.00 300.00 0.10 X_swing ▼ 0.00 0.00	
•	• III	Horimiden (mm): BMP Optimize: Hole Para Pen Para	<pre>@ Yes No  meters</pre>	

#### Layer

means the current layer which need to change parameters.could click layer bar in the left side to exchange them.

#### • Work Mode

Includes "Cut", "Engrave", "Cut after engrave", "Hole", "Pen Run". If current file format is BMP or bitmap layer, then it shows only "Engrave" (As bitmap layer is only used for laser engraving).

#### • If Air Switch Open

blowing air when cutting this layer.

#### • Cut Parameters

Select "Cut" or "Cut after engrave" in [Work Mode], cut parameters would be enable. As follow:

Cut Parameters	Laser2 Y Laser3 Y I
MaxPower(%):	50.00
MinPower(%):	40.00
Speed:	100.00

#### Speed

working speed of laser head during cutting.

#### • Max Power(%)

Machine working power (unit is percent). Related to awc controller panel Laser 1 power.

#### • MiniPower(%)

In variable motion, the power in the lowest speed. Related to awc controller panel Laser 1 power.

and a dialog as follow:

setting cut advance parameters ,click		
Cut advance paramet	ers 💽	
Overlap(mm):	0.00	
Open Delay(ms)	: 0.00	
Close Delay(ms)	0.00	
Dash Line		
📃 Enable		
Solid Length(mm	): 5.00	
Dash Length(mm)	1.00	
OK	Cancel	

#### • Overlap(mm)

as the mechanical deviation, it may lead a closed graph cannot be cut down result. This parameters can help to solve this problem. However it should not be adjust too much. Suggest improve your mechanical parts precision to fix it.

#### Open Delay(ms)

set open delay time before laser output.

#### • Close Delay(ms)

set close delay time after laser shut down.

#### • Dash Line

cutting graphic with a dash line way. Enable it and you can set the dash line length and single solid length.

#### • Engrave Parameters

Select "Engrave" or "Cut after engrave" in [Work Mode]. And engrave parameters will be enable as follow:

Engrave Parameters		
Power (%):	50.00	
Speed:	300.00	
Scan gap(mm):	0.10	
Engrave Mode:	X_swing 👻	
VertWiden(mm):	0.00	
HoriWiden(mm):	0.00	
BMP Optimize:	🖲 Yes 🔘 No	

#### Speed

scanning speed when engraving.

#### • Power(%)

adjustable laser power of processing the layer (unit is percent).

#### • Scan gap(mm)

gap distance of each scanning line

#### • Engrave Mode

includes X\_swing,X\_unilaseralism,Y\_swing,Y\_unilaseralism

#### • X\_Swing

laser head do BACK AND FORTH repeat laser scanning graphics in LEVEL direction.

#### • X\_unilaseralism

laser head do back and forth repeat laser scanning graphics in level direction BUT LASER OUTPUT ONLY TOWARDS TO ONE DIRECTION.For example, when laser head do output scanning from right, it won't do optic output when towards to left.

#### • Y\_Swing

laser head do BACK AND FORTH repeat laser scanning graphics in VERTICAL direction.

#### X\_unilaseralism

laser head do back and forth repeat laser scanning graphics in vertical direction BUT LASER OUTPUT ONLY TOWARDS TO ONE DIRECTION.For example, when laser head do output scanning from top to bottom, it won't do optic output when towards from bottom to top.

Click

. . .

to enter engrave advance parameters

Engraving advance parameters	
If GradeEngrave	
Grade Length(mm): 0.00	
/Laser1 Laser2 / Laser3 / 1	
MinPower (%): 40.00	
OK Cancel	

#### • If GradeEngrave

choose "Yes" and enable 【Grade Length(mm)】和【MinPower(%)】.Grade engraving schematic diagram:



#### • Grade Length(mm)

or "slope" in diagram.

#### • MinPower(%)

min power of laser when doing grade engraving. This parameters decide top depth of slope. **[**Power%] decide the engraving depth.

#### Hole

Select "Hole" in [Work Mode] and enable hole parameters.

Such like	Hole Parame	tersPress	[Hole Parameters] and a dialog as follow:
Set hole options	×		
📝 If Center Hole			
< >/Laser1	Laser2 V Laser3 V		
Power (%):	50.00		
Speed:	200.00		
Interval (mm	): 3.00		
time(s):	0.500		
ОК	Cancel		

#### • Power(%):

adjustable laser power when the layer is being processed.

#### • Speed:

laser head movement speed.

• Interval(mm):

distance of each hole

• Time(s):

each period laser head will stay when drilling

Pen Parameters

Pen Parameters	<b>×</b>
Speed:	100.00
Begin Delay(s):	1.000
End Delay(s):	1.000
OK	Cancel

#### • Speed:

movement speed of pen.

#### 4.3.1 Adjust layers processing order

Default processing order in layer list is from top to bottom. If you need change it, just select any one layer

and press Up, Down, Top, Bottom to finish it.

\*Only select 【Order by layer】 in Route optimization parameters ,this function will work.

## **4.4 Machine Control**

[ Machine Control] includes control operation on importing graphics, starting process and other simple machine stuffs.

Control Panel					×			
-Com	ากบา	icat:	ion mod	e				
		Sele	ct Mode	IP:	192	2. 168. 8	. 8	_
•								
Lay	rer	Opti	ons					_
L.	• •	Mod	e	Speed	P	ower	0	
_								_
								_
		υp	Dow	n T	op	Botto	m	
-Mac	hin	e Com	ntrol					
0:	rig	in	Run B	ox Cl:	ip B	ox	Light	٦
Do	Download Start ise/Contin Stop					٦		
	bondoad bear ise onern brop							
	Y+ Z+							
	_				ï		-	
		X-	Datum	X+		Datu	m	
				1	,		1	
	YZ							
	Read Current Pos: X= 0.00							
Move to Pos: Y= 0.00								

Click Download button an	nd a dialog as follow:
Download Document	<b>X</b>
Memory Document Number Document Name	Current Document options Name: DOC Work times: 1 Repeat Delay(s): 0
Refresh Work	Document Data Optimize Auto Group Engrave Gap Optimize GoCenter Mode Re-Order Objects
Delete All Delete Download UFile Format	Save Document to UFile Download Document

# 4.5 Download graphic parameters management

```
Current Document options
```

#### Name

name of file downloaded to main board.

#### • Work times

processing time of file downloaded. After it's started ,system could do repeat processing on this file parameters.

#### • Repeat Delay(s)

delay time after one processing program is finished during repeat processing.

End : Document advance options setting. Click this button and a dialog as follow. Then click [OK] to finish it.

Document advance op	otions	×
- Enable		
Feed length(mm):	117.57 <b>+</b> 0.00	
Feed back(mm):	0.00	
ОК	Cancel	

#### • Feed length(mm)

feeding distance of feed axis(or z axis) after each processing finished.

Document Date Optimize

Auto Group Engrave

• Gap Optimize

When cutting complex graphics, if this option is enable, system will decide cutting direction automatically to do mechanical backlash compensation. However it will greatly add length of space running. Normally not recommend.

#### • Re-Order Objects

When it is enable, system will do a 【Route Optimize】 on file graphic parameters.

Export file parameters

Saved it as off-line file(or \*.ud5 file). Then copy it with U disk to controller main board. Press

[Save document to Ufile] and dialog as follow:

፶ 另存为		×
保存在(I):	💼 Document (E:) - 🧿 🤣 📂 🖽	-
퉬 win8_x86	_ghost	*
lindows 🐌	6.1_KB2581464	
🌗 待上传		
🔰 生产		
🌗 视频教程		
] 说明书		
📗 说明书备(	分	
📗 说明书图相	5	
📗 图形		
📗 网站相关		
🔰 文档		
📗 迅雷下载		=
123.ud5		
745.ud5		
756.ud5 🗋		
789.ud5 📄		
852.ud5		-
文件名(M):	123 保存 (\$	
保存类型(T):	Ⅶ files(*.ud5) ▼ ■ 取消	

Input file name and press [Save] to finish it.

Directly download file parameters via USB or network mode to controller main board.

Device file management

Manage the files saved in main board storage.

Refresh

or check all files saved in main board storage.Click Refresh all files name saved here will be presented in device file list.

lumber	Docum	ent Name	_	
				"2", "1", "003", "abc". Main board saved four files: "2", "1", "003", "abc"
Refres	sh	Work		
Delet	e ]	All Delete		
)ownload	UFile	Format		

Work select a file in files list and click to start the processing program on it.

#### • Delete

Delete select a file in files list and click button. Then this file will be removed from main board storage.

#### • All Delete

remove all files in controller main board storage.

• Format

format controller main board storage.All files saved here will be lost.

Download UFile:download Ufiles saved in computer(ud5 files)to main board.Click and a dialog appears. Then select the Ufile or ud5 file you need to load and click [Open] to finish it.

#### 4.5.1 Start processing and relative control



#### • Origin:

set laser head current position as origin point.

• Start:

start current selected file in controller main board to do process.

Click Lise/Contin to switch two states:pause and continue.

#### • Stop:

machine stop current task.

• Run Box:

laser head will do a space run along a relative working parameters rectangle. This craft is used for ensure the position of processed materials.

#### • Clip Box:

cutting a completed processed file off from materials.

• Light:

press Light, laser output. And loose it, laser shut down.

#### • Datum:

click this button and laser head (or Z axis)will move to machine zero point with a low speed.Once touched machine limit switch, it will move to origin point fast. This function could reduce cumulative deviation. Recommend once before processing program started.

Move laser head(or Z axis).When press relative button,laser head (or Z axis)start to move.When loose button,laser head (or Z axis)will stop move.

## 5 CorelDraw Based Software

# 5.1 Manual Download Tool "AWCLaserCut"

After installation of CorelDraw direct output, (refer to Chapter 2 Installation of Software), start CorelDraw, Main interface of CorelDraw12 shown as below:



(1) Click menu [Tool] / [Macro] / [Run Macro] as follows:

CorelDRAW X4 (OEM Version - Not for resale) - [Graphic1]			
Eile       Edit       View       Layout       Arrange       Effects       Bitma         Image: Strain	ps Iext Iable T 	Customization	_ ₽ × Ctrl+J Tm Tm
200 x 20		Object Ma <u>n</u> ager Obj <u>e</u> ct Data Manager Vie <u>w</u> Manager Lin <u>k</u> Manager <u>U</u> ndo Interne <u>t</u> Bookmark Manag	Ctrl+F2
	9	Color Styles Palette Editor Graphic and Text Styles Create	Ctrl+F5
字 : III Macro Editor	Alt+F11	Run Script Macros	
Image: Second secon		un Macro	× *
▲       1       of 1       →       Start Recording         (207.437, 335.500)       Next dick for D       Stop Recording		▶ @	►

#### (2) Dialog displayed as follows:

oreIDRAW X4 Visual Basic for Applications Macros	
Macro name:	Run
	Cancel
	Step Into
	Edit
	Create
	Delete
Macrosin: VBAProject (Graphic1)	•
Description:	
	A
	· ·

(3) At [Mocras in] select "AWCCorelEx.Gms" or" AWCCorel12.Gms", then at [Mocra name] select "AWCLaserCut.AWCInit" as follows:

CoreIDRAW X4 Visual Basic for Applications Macros	
Macro name:	Run
AWCLaserCut. AWCInit	Cancel
AWCLaserCut.AWCImportDstFile AWCLaserCut.AWCInit	Cancer
AWCLaserCut. AWCLaserStart	Step Into
	Edit
	Create
	Delete
Macrosin: GlobalMacros (AWCCorel12.gms)	
Description:	
*	

(1) Click [Run], main interface of CorelDraw can add tool "AWCLaserCut" as follows:

CorelDRAW X4 (OEM Version - Not for resale) - [Graphic1]	
<u>File Edit View Layout Arrange Effects Bitmaps Text Table Tools</u>	<u>W</u> indow <u>H</u> elp — ☞ ×
🖸 🖿 🖬 📇 🛠 🖷 🛍 🤚 - 🕈 - 💕 🚳 📮 - 🖬 🛛 100%	▼ Snap to ▼ 🎉
A4 210.0 mm VA C C C Units: millimeters	◆ .1 mm     ◆ .1 mm     ◆ .1 mm     ◆ .0 mm
35         100         0         100         200         milimeters	
	0.0" ←Ξ→ 01 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
祥	
	pn: 0.00 ▼ Manager
₩ AWCLaserCut"toolbar	
	Show units
	Image: Show and begin
	Sample:
	Set Defaults
2. 二字	
	Set Defaults
	5
Signature         Signature <thsignature< th=""> <thsignature< th=""> <th< td=""><td>×</td></th<></thsignature<></thsignature<>	×
(83.098, 144.120) Next dick for Drag/Scale; Second dick for Rotate/Skew; Dbl-clicking tool selects all.	

(5) Use mouse to drag tool "AWCLaserCut" to toolbar as follows:



(6) After manual loading tool "AWCLaserCut" in CorelDraw, then re-start CorelDraw, "AWCLaserCut" Tool will display in toolbar.

# 5.2 Display hidden tool "AWCLaserCut"

User will close tool "AWCLaserCut" carelessly during using CorelDraw, so hidden tool should be displayed, operation as follows:

Right click toolbar to display a list, then click 【AWCLaserCut】 as follows:



# 5.3 Import DST/DSB file

Click import button tool "AWCLaserCut", dialog displayed as below:

🔁 Open				X
Look in: 🌗	engraving files		- 🗿 🤣	⊳ 🖽 ڬ
Name	Date modif	Туре	Size	
	No ite	ems match your	search.	
File name:	[			Open
Files of type:	DST File(*.dst)		•	Cancel

Select DST/DSB file to be imported, then click 【Open】.

## 5.4 Switch CorelDraw to LaserCAD

Edit diagram in CorelDraw as follows:



Click *to* switch to LaserCAD directly. And edited diagram in CorelDraw will display in the view of LaserCAD as follows:



In this case, we can complete laser machining by LaserCAD.

# 6 AutoCAD Based Software

#### 6.1 ADD AWCLaserCut toolbar.

After installation of AutoCAD direct output, (refer to: Chapter 2 Installation of Software), start AutoCAD, the main interface doesn't display menu [Laser machining] and tool [Laser machining], at the moment, it should be downloaded manually. Operation as follows:

(1) Click menu [tools] / [Macro] / [Macro] , shown as below:



(2) Dialog displayed as follows:



(3) In [Macro name] to select"...AWCLaserCut.AWC\_Init\_EN", and then click [run], menu "AWCLaserCut" and tool "AWCLaserCut", as follows:



### 6.2 Switch AutoCAD to LaserCAD

Edit diagram in AutoCAD as follows:

Click menu [AWCLaserCut] / [LaserCut] ,or click to switch to LaserCAD and edited diagram in AutoCAD will display in the view of LaserCAD as follows:



In this case, we can complete laser machining by LaserCAD.

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