

Read this manual before operation

- > The content include of electric connections and operating steps
- $\blacktriangleright$  Read the manual to operate the systems

# **RDVisionWorks**

# Large format visual cutting software

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# **CERTIFICATION DECLARATION**

# CE

The product has been certified by the CE (Commutate European) safety certification. It has passed the corresponding conformity assessment procedure and the manufacturer's declaration of conformity, in accordance with the relevant EU directive.

#### ROHS

This product has been certified by EU legislation (Restriction of Hazardous Substances) Safety certification; comply with relevant EU environmental regulations.

### **FCC**

This product has been certified by the Federal Communications Commission for safety, Comply with us electronic safety regulations.



# SAFETY INFORMATION

When using this system, please make sure the operation is correct and the usage is safe. Some signs or text will be used to remind you to pay attention to the dangerous matters and some important information.



#### Dangerous:

Indicates a serious danger. In the process of use, if the operation is improper or the way of use is wrong, it may cause serious injury or even death to the user. Please do not operate it easily until you have made sure that the operation method is correct and the way of use is correct.



#### Warning:

Danger.n the process of use, if the operation is improper or the use is wrong, which may lead to the injury of the personnel, please do not operate the personnel and related personnel easily, until ensure the correct operation method and use method is correct before use.



#### Cautious:

Represents the potential risk of the product. In the process of use, if the use method is wrong or improper operation, it may cause damage to the product or some parts. Please do not use it until you have made sure that the operation method is correct and the usage is correct.



#### Important:

Represents important information to be paid attention to during the use of the product.Please do not ignore this information, this information will provide effective operational help.



This sign indicates laser radiation, which is usually posted on products with laser output. Please be careful with laser and pay attention to safety when using this kind of equipment.



# Sign in , Devanning , Examine cargo

The product itself with plastic or metal shell, can protect the external electrical components from damage. The products are packed in foam bags and anti-static bags. If there is any external damage to the package, check the equipment and notify the carrier and carrier in writing of the damage.



#### **Inportant:**

After receiving the product, please check whether the outer package is intact, check whether the product is complete after unpacking and whether all parts are intact. If any damage is found, please contact ruida immediately.

Remove all cargo from package and keep packing material and wiring parts. Please take care of the safety of the goods when unpacking them. After taking out the goods, please check whether the parts are complete and intact. If any missing parts or damaged parts are found, please contact ruida technology immediately. Do not install or debug the equipment if any obvious damage is found.

RDVisionWorks Large format visual cutting software, The shipping list is shown in the following table: (As the products are constantly updated, you may receive different accessories from this manual)

部件	数量	说明



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# Section 1 System Overview

# **CONTENTS:**



Copyright statement



## **1.1 Introduction**

The manual, the main content for the large format cutting software (RdVisionWorks1.00.08) method of operation. The software is mainly used by manufacturers, end customers.

RdVisionWorks is a large format vision based smart recognition cutting system. The system (combined with software, camera, cutting system) integrates. Mainly used for visual guidance cutting. Such as fabric, wedding, printed materials and other materials.

# **1.2 Computer Configuration**

Operating system	Windows 7
CPU	I5 3.0GHZ above
Memory	8G above
Graphics	2G independent
LCD flat	panel display

## 1.3 Copyright statement

The software ownership belongs to Shenzhen Rui Da Technology Co., Ltd.



# Section 2 Software installation and configuration

# **CONTENTS:**

Software installation and configuration





### 2.1 Software installation and configuration

1. After decompressing the installation package, double-click to run RdVisionWorksSetup.exe program.



Click "Next"



RdVisionWork	s1.00.08 Install	
	Choose Install Location Choose the folder in which to install	RdVisionWorks.
Destination fold	Setup will install RdVisionWorks in the following fol different folder, click Browse and select another f continue. At least 86.83 Mb of free disk space is required.	lder. To install in a folder. Click Next to
C:\Program F	ïles (x86)\RdVisionWorks	Browse
Copyright ?20145HI	ENZHEN RUIDA TECHNOLOGY LTD.	Vext > Cancel

#### Click "Next"

RdVisionWorks1.00.08 Install	]
Select shortcuts Select additional shortcuts.	
Select any additional shortcuts for RdVisionWorks that you would like created by the installation:	
<ul> <li>✓ Create a Desktop icon</li> <li>✓ Create shortcut in start menu</li> </ul>	
Copyright ?2014SHENZHEN RUIDA TECHNOLOGY LTD	-

#### Click "Next"





#### Click "Install"



Next "step"



· · · · · · · · · · · · · · · · · · ·	x
选择目标位置 将 EosCtrl 安装到哪里?	
安装向导将把 BosCtrl 安装到以下文件夹中。	
若要继续,单击"下一步"。如果你要选择不同的文件夹,请单击"浏览"。	
C:\Program Files (x86)\EosCtrl [ 浏览 (B)	]
至少需要 4.0 MB 的空闲磁盘空间。	
< 上一步 (B) 下一步 (B) 取消	Í

#### Click "Next"

🕑 安装向导 - EosCtrl	
<b>准备安装</b> 安装向导现在准备开始安装 EosCtrl。	
点击"安装"继续安装,如果你想要查看或者更改设置请点击"上·	——————————————————————————————————————
目标位置: C:\Program Files (x86)\EosCtrl	*
< 上一步 (B) 安装 (L) 安装 (L)	取消

#### Click "Install"





Click "Finish"

RdVisionWorks1.00.06 Install
Completing the RdVisionWorks Setup Wizard
RdVisionWorks has been installed on your computer.
Click Finish to close this wizard.
Launch RdVisionWorks
Finish Cancel

Click "Finish"

At this point, the software installation is completed.



# Section 3 Software main operation flow introduction(Quick Start)

# **CONTENTS**:

Software overall interface
and structure
Calibration preparation
Camera correction
Thickness calibration
Template matching
Contour extraction







## 3.1 Software overall interface and structure



# 3.2 Calibration preparation

After the software is started, some settings must be made on the card so that the machine can work normally.



# 3.2.1 Set the connection between the computer and the card.





Board factory ip is 192.168.1.100 or 192.168.1.101, it is recommended that the local computer ip set in the range of 192.168.1.102 ~ 192.168.1.254.

If it is a double-headed asynchronous machine, the ip of the two boards have to set up communication success. (It is recommended to use ip connection to communicate more stable)

#### **3.2.2 Factory settings**

Factory settings (set a good pace, the direction of the electrical polarity, format and other parameters)

Setting method: Refer to the setting method of ordinary cutting software.



## 3.2.3 Origin set

Origin set, the machine after a normal reset. Single-head machine, set the origin position in the software, as shown below.



If it is double asynchronous machine settings as shown below.





Double cantilever: the origin on the bottom left of the machine (main card), lower right (secondary card), if you check the "reverse" means the origin is located in the upper left (primary), upper right (secondary).

Double beam: the origin on the bottom left of the machine (main card), the upper left (secondary card), if you check the "reverse" means the origin is located in the lower right (main card), upper right (secondary card).

#### 3.3 Camera correction

				Image	process
				Model	Para ContourPara Calibration
				Mat	ch Contour Takephotos
Came	ra calibration		~	ן ⊡Ge	et Data cut direct 🛛 🗹 ColcorImg
- 1.Cals	et	2.offset correction	^	Offcet	compensation
		CutCross	Speer 500.000 mm/s		kness
	Cut	Cutcross	50,000 %		MIC35
2	Photo	Photo	Powe Street	Fas	t compensati
	CatCrass	CalCross	CrossSize 50.000 mm	Upo	offset 0.0 Leftoffse 0.0
	Getcross	Calcross	□ 使能高级算法	Doy	whoff:
- Ч	Caliration	X: 0.000 mm		Manu	alFix Zoom in
		Y: 0.000 mm			
				vailzor	ne
Other					
	Import	Advanced			
	Clear	LoadCal			
		SaveCal			
er 1: Device: (IP: 192. 1	68.1.100) ~				
er2: Device:(IP:192.1	68.1.101)				
put Select grapl Stop a	after processe 100				
n downi Contir	nueModePanleCtr				

#### 3.3.1 Calibration before work

1) To improve the calibration accuracy, the camera should be installed in the center of the machine, the camera imaging and the machine as far as possible parallel.

2) After fixing the camera, make sure the camera is not shaking. Slight sloshing of the camera can also cause a large offset in the cutting position.



- 3) Anti-shake camera switch off.
- 4) AF hit the lens that is the AF block.
- 5) Camera range to adjust the scope of the machine size.

6) Unplug the camera data cable, half-press the shutter, auto-focus, press the shutter all the way to complete the focus. The lens hit mf block.

7) Will be covered with white paper on the laser machine work surface, the formation of white paper is not allowed to bulge, bulging will affect the calibration below (Note: You can use a magnet to fix the white paper, the fan suction white paper at the same time To achieve the effect of white flattening)

#### 3.3.2 Draw a grid

Click the "Calibration" button in the main interface of the software, the calibration dialog box pops up.

Choose to draw a grid and pop up a grid setting dialog box,Set the appropriate size interval on the machine board(50mm or other size).If the software connection is successful, click ok to start drawing the grid.

At this point, the machine will draw some grid on the laid paper.

#### 3.3.3 Take a photo

After the grid is drawn, the machine moves to the origin. Click the "camera" button. Get an image. As shown below.





## 3.3.4 Set valid area

Draw a valid area that contains all the grids.



After the setting is successful, a green box will appear, indicating the valid data range.



Click the "Recognition" button, there will be some red cross. As shown below.





prompt. Draw a

rectangle at the cross of the image as shown below.



(The rectangle size is about 15mm \* 15mm, the center of the rectangle is over -lapped with the laser drawn cross.)



Then click the "Recognition" button. The same will identify some cross at the intersection of drawing lines.

#### 3.3.5 Correction

Click the "Calibration" button.

If the number of cue points wrong. As shown below

RdVisionWorks	×
Ada	or delete Cross point!
	确定

Please check if there are some unidentified cross or wrong cross. If you have, double-click a location to add a cross. Delete key to delete the cross. Selected part of the frame can also delete the selected area within the cross. Or check the advanced settings in the parameter settings are correct.

Otherwise there is no prompt, the status bar will display the calibration is completed. After the calibration is completed, restart the software.

#### 3.4 Thickness calibration

After the calibration is completed, or after switching the material, if it is found that the center cutting effect is good and the edge cutting effect is poor, the thickness correction can be used to compensate.

As shown below, check the thickness calibration, the "thickness calibration" button is highlighted.



#### RDVisionWorks Large format visual cutting software V1.0

 $\times$ 

-Image proces	s	
ModelPara	ContourPara	Calibration
Match	Contour	Takephotos
Get Data	cut direct	ColcorImg
Offset compe	nsation	
Thickness		
Fast compe	ensati	
Upoffset	0.0	Leftoffse 0.0
	0.0	Rightoffs 0.0
Downoff:		
ManualFix	Zoom in	

#### Click on the "..." The following interface appears. Thickness calibration

Current ply	0.0	mm			
1	Create	Cross			
5	Output(	Cross			
в	Phot	to			
Ч	Calibra	ation	bei pla cui	Eor eas t m	e calibration e Overlap the arks with the
			the	922 922	movement in oftware
		Ok			Cancel

Click add button input material name to create new material category.

# 3.4.1 Cross generation

Clicking on "Generate Rectangle" will generate nine crosses at nine corners of the calibration range, as shown in the figure below.





#### 3.4.2 Output cross

Clicking on "Output Cross" (adjustable if necessary) the laser will draw nine crosses at the designated position.

#### 3.4.3 Re-photographed.

Retrieve a photo again.

# 3.4.4 calibration

Move the cross on the software interface and use it to coincide with the cut cross. Click Calibration to close the window. Thickness correction is successful.

### 3.5 Template matching

## 3.5.1 Image acquisition and template drawing



Placed in the machine to cut the material to take pictures, as shown below.



#### 3.5.2 Create a template

		- 🗆 ×
♪ <mark>♪</mark> = = ヽ ^ <b>ヽ</b> ∧ ∧ ⊂ ∕ ≻ = ● ▲ ∢ ⊚ ⇔ ∺ ¤ Å 辱∥	Y: 0.	000 mm ↔ 0.000 mm 000 mm 1 0.000 mm
	Takephotos Match Similarity	46 %
		Dura-
Feature	channel Gray V Colcort	
Cutting	Model file path D:	Change path
	1 New Delete De	form
	Chose fi V CopyModel	( Name Model0
8		Model1
	Draw-CutLine Open	Model2
	U Generate Edit	Model3
05 /	ManAlign	
	ModelPara	^
	ModelAngle	0.00
	Muil-point	No
	Auxiliary-score	0.80
	MatchSpeed	75.0
	MatchOverlap	50.0 ¥
	Get Para	
	FeatureMod     Cedg	eMod
	Feature-len	
		OK
		UN

Click on template management, create a new button to create template. The following figure shows.

After creation, select the green arrow in the upper left corner (feature selection),

[Box selected graphics, At this point the graphic feature line turns blue. After zooming in, the graphics detail is adjusted by editing the feature line.]



【The feature line can only be deleted. If the error can be removed, the feature line can be reset by adjusting the smoothing coefficient slider in the lower right corner.】





【Click to select mobile tool, exit line edit state. Red and green lines.】

Get Para	
Feature-len	

After the feature line editing is completed, click the red arrow in the upper left corner, quick box selection to get the contour cutting line, and the cutting line can be defined by other drawing tools. The green line is the characteristic line, the red line is the cutting line.

#### 3.5.3 Create a template

After the template editor completes, click the generate template. Click "generate" button.

#### 3.5.4 match

Click the "Match" button. 【Adjust the similarity value can affect the number of matching graphics. The greater the similarity, the less the number found, the higher the accuracy; the smaller the similarity, the more the number found, the lower the accuracy. 】





#### 3.6 Contour extraction

## 3.6.1 Image acquisition

Contour para setting × N T = 4 / 🖁 🖗 Takephotos Preview GetContour Expand 0.0 mm Glaborati NylonLacr v ✓ ColcorImg channel Grav Threshold Whiteligh 255 Manual 21 Auto Del-imp 5 Pi Close Del-gap Pr Unconne Del-fil Del-Small RemoveEdg Sel-WH ContourH 50.0 Reset Advance 1 0.30 mm Smootherr Fitting 10.0 % ОК

Placed in the machine to cut the material to take pictures, as shown below.

### 3.6.2 Channel settings

The first mention of materials, the first set up a good pre-treatment channel, the first choice of different channels have different effects. We try to choose a strongest contrast channel, as shown below.



#### RDVisionWorks Large format visual cutting software V1.0



### 3.6.3 Parameter adjustment

After setting the channel. Open the edge management. There are some parameters can be adjusted. And real-time display adjustment effect. As shown below.



Takephotos Preview GetContour Expand 0.0 mm Elaborati Nyloni Preprocessing
channel Gray ColcorImg Threshold Whiteligh Manual 21 Auto
Image process     5     pix       Del-imp     5     pix       Close     3     pix       Del-gap     9     Pix       Unconne     9     Pix
Del-Small     40     Pix     Del-fill       ConnectFea     DisconFea     RemoveEdg       Sel-Contour     Solo         ContourW     50.0       1500.0       ContourH     50.0       1500.0       mm     Reset
□ OpenGraph     Advance       □-Smooth     1       EdgeSmoot     0.30 mm       ☑ Fitting     10.0 %

# 3.6.4 Contour extraction

Tune to the desired effect, the point to mention edge, the results shown below.



#### RDVisionWorks Large format visual cutting software V1.0

	Takephotos Preview GetContour Expand 0.0 mm
	Preprocessing
	channel Gray  ColcorImg
	Threshold
and the second	Whiteligh
	Auto 135
	Image process
And TE	✓ Close 7 Pix
	Del-gap 9 Pix
THE IS A	Unconne     9     Pix
	Del-Small 40 Pix Ø Del-fill
And SE 3	Sel-Contour
	ContourW 50.0 1500.0 mm Sel-WH
The second second	ContourH 50.0 1500.0 mm Reset
	OpenGraph     Advance
	Smooth
	EdgeSmoot 4 Smootherr 0.3 mm
	Fitting 25.0 %
	ОК

Then point the original map, testing the edge details of the effect. As shown below.

Contour para setting	
🕨 🏹 🖿 🕊 🦉 层	Takephotos Preview GetContour Expand 0.0 mm
	Preprocessing
A A A	channel Gray 🔻 📝 ColcorImg
- ALAUTAR	
ARIA CIRA	Threshold
A ROPULATA D	Auto 135
H HOVER OTHER DE	Image process
A DAY YOR DA	Del-imp
EXX XXEV HVEX HVEY	Close - 7 Pix
DARCH ANA SIG	Del-gap 9 Pix
AD CARDO CARDONES	Unconne - 9 Pix
TO ALLEY TOULY TOUL	Del-Small 40 Pix 🔽 Del-fill
AUGH YOUGH	
AND AND DAVE AND	Sel-Contour
AND WORL CHANNE MAN	ContourW 50.0 1500.0 mm Sel-WH
H KOLOWUMAN UN	ContourH 50.0 1500.0 mm Reset
1 March 19 18	OpenGraph     Advance
	Smooth
	EdgeSmoot 4 Smootherr 0.3 mm
	Either 250 gr
000000000000000000000000000000000000000	Pricing 200 %
	ОК

For the introduction of specific parameters, please refer to Chapter 4 "Software Function Details".



# Section 4 Software features detailed introduction

# **CONTENTS**:









#### 4.1 Menu Bar

💠 V1.0	0.40 - [R	dVisionWo	orks]			
File(F)	Edit( <u>E</u> )	Draw(D)	Setting(S)	Modfiy( <u>W</u> )	View(V)	Help( <u>H</u> )

Figure 2.1 Menu bar and common edit

#### 4.1.1 File sub-options introduced



Figure 2.2 menu bar file options sub-options legend

- Open the project: open the template saved before, the format can only be.Pjvw
- Save engineering: save template file, format can only be.Pjvw
- Import vector diagram: import graphic format can be.Ai.Dxf.Pltt three formats.
- Select the correct format, click open. The dialog box is like the following figure:



• Export vector diagram: import graphics format can be.Ai.Plt two formats. The dialog box is like the following figure:



◆ 另存为						X
	档▶			▼ 4 複素 文标	<b>成</b>	٩
组织 ▼ 新建文件夹					-	0
▶ 下载 ▲ ■ 桌面 ● 最近访问的位置	文档库 包括: 2个位置			3	非列方式: 文件夹 ▼	]
<ul> <li>▲ RECTURNING E</li> <li>■ PPTV视频</li> <li>■ 限片</li> <li>■ マキド</li> </ul>	QQEIM Files	Visual Studio 2010	Visual Studio 2015	Picosmos	QQPCMgr	* III
■ 文档 ● 文档						•
文件名(N): 保存类型(T): Ai File	es (*.ai)					•
▲ 隐藏文件夹				保存(S	) 取消	

• Quit: turn off the software.

Set sub-options introduced





Click the system settings, pop-up the parameter dialog box, and select the system parameters page:



#### RDVisionWorks Large format visual cutting software V1.0

Software paramete	r set	×
System parameter	File parameter	
Page and Grid		_
PageWidth:	1450.000	
PageHeight:	350.000	
Grid size(mm):	100.000	
Double head	d€ O Dual-beam	ns 🗹 InvDir
	Dual-cantil	le
Safe-Dis	200.000	mm
Safe	60.000	mm
MinWidth	300.000	mm
MaxWidth	800.000	mm
Move hot key		
Move distance:	0.100	↑↓←→
Move factor:	10.000	Shift+↑↓←→
Rotation angle:	0.100	Ctrl+↑↓←→
Moving curve use up use Shift+ up,down, up,down key	,down,right,lef right,left key. F	t key. Rapid Moving Rotation use Ctrl+
Continue start no	tip 🔄	FA-Camera
RDV6445	RDV6342	XYU Union
	C	K Cancel

• Page and grid: page width, height, respectively, set the width and height of the graphic page. (Mm) General system will be based on cutting equipment working platform format automatically set. Pitch is the grid spacing of the graphics page, the default is 100mm.

• Fine-tune the distance: for small keyboard movement graphics. Decided to press up and down around a healthy, graphic mobile distance. (Way, directly up and down around health)

● Adjust the ratio: for the keyboard to move the graphics more drastic. Decided to press up and down around a healthy, graphic mobile distance. (Way, Shift + up and down about health)

● Angle adjustment: for keyboard rotation graphics. This text box sets the angle. (Way, Ctrl + up and down about health)

●OK and Cancel: Click OK to save the modified parameters; click Cancel to modify the above parameters is invalid.

• Select the "File Parameters" page, as shown below:



Software paramet	ter set			×
System parameter	File parameter			
PLT import dpi:		1016	~	
Export precision:		0.800		
DXF data unit:		mm	$\sim$	
Import DXF tex	t info			
	C	ж	Cance	el 🛛

- PLT Graphics Precision: Imported .plt format graphics accuracy. Can be set to 1000 or 1016.
- Output Curve Accuracy: The precision of the exported graph curve.
- DXF data unit: .plt format graphic size units.

• Import DXF text information: When the user only needs the graphic information in Dxf, but does not need the text information in the file, you can uncheck this item.

#### **Manufacturer parameters**

Click the factory settings, pop-up factory tools dialog box, select "factory parameters" page, as shown below:



۷	Vendor tools							
	Vend							
		Axis parameters		*				
		Axis	х					
		Direction polarity	Negative					
		Limiter polarity	Negative	Ξ				
		Keying direction	Negative					
		Contrl Mode	Pulse+Dir					
		Enable Limit trigger	Yes					
		Enalbe home	Yes					
		Step length(um)	0.35000					
		Max speed(mm/s)	1000.000			Read		
		Jump-off speed(mm/s)	5.000					
		Acceleration(mm/s2)	8000.000			Write		
		Breadth(mm)	1000.000			Open		
		Start speed of keying(m	5.000	Ŧ		Save		
					(	Cancel		

The meaning of the parameters is the same as that of ordinary motion control card. Select "information clear" page, as shown below:

Vendor tools	×
Vendor param Clear info	
Clear all information	
☑ Clear total on time	
Clear total processing time	
Clear previous processing time	
Clear laser on time	
Clear total processing work times	
Clear X total travel	
Clear Y total travel	
Execute	
Cancel	

Cumulative boot time: the total working time of the motherboard. Cumulative processing time:

The	total	movement	time,	that	is,	the	actual
-----	-------	----------	-------	------	-----	-----	--------



total processing time, including empty time.

Last processing time: the last processing run time.

Accumulated light time: the total laser working hours.

The cumulative number of processing: the number of successful completion of the work, not including the end of the processing.

**Total X-axis travel:** The total travel of the X-axis motor.

Y-axis total stroke: The total motor Y-axis travel.

#### • User parameter

Click the user parameters, pop-up user parameters dialog box, as shown below:

Use	rPara				×
	Cut parameters		*	Home pos	
	Idle speed(mm/s)	200.000		🔘 Left-up	Right-up
	Idle Acc(mm/s2)	3000.000		C Left-dow	n 🔘 Right-down
	Start speed(mm/s)	20.000			
	Min Acc(mm/s2)	400.000	Ξ	Small circle spe	ed limit
	Max Acc(mm/s2)	3000.000		Diameter(mm)	Speed(mm/s)
	Idle Delay(ms)	0.000		1.100	15.000
	Acc factor(0%-200%	100		2.100	20.000
	GO Acc factor(0%-20	100		3.100	25.000
	Speed factor(0%-200	100		4.100	30.000
	Key setting			8 100	40.000
	Feeding para			0.100	10.000
	Delay before feed(s)	0.000			
	Dealy after feed(ms)	0			
	Progressive feeding	No			
	Progressive feeding r 0.000			Add De	elete
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		<u> </u>		
				FeedSet	
	pen Save R	ead Write	•		

**Null speed:** the highest speed of all non sculpted straight lines during the movement of a machine. If the user sets the parameter illegally, the controller will automatically put it in the above range; if the airway speed is set larger, the working time of the whole graph can be shortened, but the settings are too large, which may cause the trajectory to shake. Move.

Airway acceleration: corresponds to the speed of acceleration when walking, airway acceleration and airway speed to match, if set too slowly the actual airway speed may not reach the set value, if set too fast, the mechanical structure may not be able to bear, resulting in jitter. The general acceleration is slightly higher than the acceleration.

Turning speed: Corresponding to the lowest speed in the process of carving when turning down,

when there are a lot of sawtooth, the turning speed can be reduced appropriately.

Turning acceleration: it should match the turning speed.

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**Cutting acceleration:** corresponds to the speed of cutting (cutting speed is the layer speed in the layer parameters).

Idle time delay: when a machine is not sculpted, it needs waiting time before movement.

Acceleration ratio: the coefficient corresponding to the cutting speed, the greater the rate, the greater the cutting speed.

**Null acceleration ratio:** the coefficient of velocity corresponding to the empty travel time, the greater the rate, the greater the speed of the empty path.

Turning coefficient: the greater the turning speed, the greater the turning factor.

**Delay before feeding:** Delay before a single feeding when using a feeding device, the user can arrange such processes as picking at this time.

**Delayed feeding:** refers to the feeding device will be delivered to the material in place after a stable period of time before processing.

Line by line feeding: the feeding device sends materials one by one to the place in a way of feeding.

Progressive feed compensation: there may be some errors in the use of feeding devices for progressive feed.

**Reset speed:** When the machine starts, return to the original speed, if the machine is larger, can be set reset speed on the high side, but not too large.

X, Y, Z, U boot reset: you can set up whether each single shaft is reset during boot.

Array processing mode: two way array and one way array can be selected. Bidirectional walk array: that is, cutting the array back and forth in sequence; one-way walk array: cutting the array from one direction to another all the time. When the one-way walking array is selected, the action mode of each array unit is exactly the same, and the action fluency is completely consistent, but it takes a little time than the two-way walking array. The default choice is bidirectional array.

**Location of return:** mechanical origin, location and non return position. This parameter determines the position where the carving head stops after each work.

Focal length: corresponding panel auto focus operation.

Reverse gap X, Y: used to compensate for the reverse gap caused by machine transmission.

Knife lifting position: the position of the cutter head when the machine starts carving.

Location of the cutter: the position of the cutter head when the machine is finished.

Docking position: the position of the carving head after machine carving.

Cutting speed: the speed of the cutting head of the carving head when the machine is engraving.

Pre processing delay: waiting time before machining.



#### \*Double head asynchronous offset setting

Click the double asynchronous offset setting, and display the user parameter dialog box as follows:

Double header laser offset test	$\times$
Laser1 Laser2	
Cross-size 5.000 mm Cross-size 10.000 mm	
Power 20.000 % Power 20.000 %	
Speed 200.000 mm/s Speed 200.000 mm/s	
PoseX 500.000 mm PoseY 500.000 mm CutCross	
Reset	
OK Cancel	L

Parameter setting of laser head 1 Parameter setting of laser head 2

Measurement: laser head offset setting

# 4.2 toolbar

#### 4.2.1 Common menu bar



Icon followed by new, open, save, import, export, withdraw, re-execute. Top 5 has been introduced above. The last two are revoked and re-executed.

• Undo: Undo the previous step. If mistakenly deleted the graphics can be revoked point of withdrawal. (You can undo up to 10 steps.)

• Re-execute: Re-execute the previous step.



#### 4.2.2 Drawing toolbar



Select Move: Used to select graphics, line segments and more. General first to select the graphics, graphics-related operations can be carried out.

Edit line segment: for graphic editing. Click on the drawing is drawing, the graphics will turn cyan, while showing the graphics key points, by dragging, increase (on the line segment), delete the key points to edit the graphics.

Polygons: Used to draw polygons. Click to draw the line, painted double-click to form a closed area.

Bezier curve: used to draw Bezier curve, click to draw the line segment, painted a double click to form a closed area.



Rectangle: used to draw a rectangle.



Ellipse: Used to draw an ellipse. Hold down the Ctrl key to draw a circle.



Horizontal Mirror: Mirror the original image along the Y axis.



Vertical Mirror: Mirror the original image along the X axis.

Rotate: for graphic rotation. Click in the dialog box to set the rotation angle.

#### 4.2.3 Operate the toolbar





Mobile: The entire work area moves.

Set the effective area: Set a graphic valid area, image processing only in the effective area.Selecting the valid area can change the size of the valid area.



Contraction expansion: contraction of the vector expansion.



Path display: display graphics processing compliance.







Segmentation curve: Select the node in the node editing mode, and divide the node into segments.

egments.

EGroups: Select several graphics, and the point group system divides them into groups.

٠.

Disband Group Rent: Select a group, click Disband Group, and the system decomposes the group into a single graph.

Automatic Grouping: Select several graphics and click on the automatic grouping system to randomly divide the graphics into several groups.

#### 4.2.4 Layer toolbar



You can set the color of each graphic. To manage different power, speed and other parameters.

#### 4.3 Camera settings and display area

File(E) Edit(E) Draw(D) Setting(S) Modfly(W) View(V) Help(H)		<b>公</b> 指推上位
😑 🔚 🗉 🗣 🕐 💺 🏠 🖉 🥆 🖬 🗢 🛦 🐗 🕲	(7) ¥ 🛆 🌾 🔣 📕 📕 📕 📕 📕 📕 📕 📕 📕 📕 📕 📕 🖉 🖉 🖉 🖉 👘 🖉 👘 🖉 👘 🖉 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘	THEFT.
		Image process ModelPara ContourPark Calibration
	Camera Paran	Match Contour Takephotos
	Caemra-settings window	Offset compensation
	AV 56 -	Fast compensats Upoffset 0.0 Leftoffse 0.0
	Meterglobe (caluative      DecoursCore (a caluative      DecoursCore (a caluatite      DecoursCore (a caluatite      Deco	Dewnoff: 0.0 Rightoffs 0.0
	Pop ur Camera settings virdfsplay area Wetelwe Body -	Manualfix - valzone _ 1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8
Camera V Open Zoom In Antidodwise90° Exposure V Focus Codwise90°	AMbdo Cine Soli AP        ExMMtbd Qakk mode        Pickerbib Standard	
Graph attribute X: 477.629 mm III 172.632 mm 100 m III Y: 1103.074 mm III 111.832 mm 100 m IIII		
Layer Speed MinPower MaxPower Output 300.0 30.0 40.0 Yes		
	2*         •	
	Z+ U+ Start Pause Stop StartConto FeedSet	

Settings: Click to set the camera's parameters, shutter (exposure) time, to adjust the camera's imaging quality.

Focus: Camera lens in the af file, click to achieve autofocus.

Zoom in: You can enlarge the display.



# 4.4 Graphic properties and settings

-Graph attrib	oute									
X: 0.000	mm 🛏	74.418	mm 100 %							
Y: 0.000	mm 🚺	36.429	mm 100 %							
Layer	Speed	MinPower	MaxPower	Output						
							- -			
					Processed Num:	304	Clear	Z-		U-
					Stop after pro	cesse 100			0	

#### Graphic properties:

Gra	ph attribu	te			
X:	0.000	mm	0.000	mm 100	» <b>–</b> –
Y:	0.000	mm	1 0.000	mm 100	% 🗖 🎛

Select the drawing has been drawn, it will display the graphics properties. As shown below:

Graph attribute	
X: 0.000 mm 🖶 0.000 mm 100 % 🗐 📖	
Y: 0.000 mm 100 %	

X、Y: Said graphics position, the default coordinates for the center, in millimeters.



You can set the coordinates of the display center point or other eight coordinates.

reduced or enlarged. If both are set to 50, the width and height of the graphic change to 50%.



: Lock closed that length and width synchronization zoom.

In the same layer. Different layers can have different processing operations. As shown below:



#### RDVisionWorks Large format visual cutting software V1.0

Careb attribut	-				-	1	40
-Graph attribut	e 📰					STR	A RAD
X: 0.000	mm 🛏	84.608	mm 100 %			S.	2 2156
Y: 0.000	mm 🚺	107.820	mm 100 %			3	2999
Laver	Speed	MinPower	MaxPower	Output		Te	PADE
	300.0	30.0	40.0	Yes		R.C.	
	300.0	30.0	40.0	Yes		Y	Ka
						/	alles (
						0.0.0	aaaaa
						000	analana.
						200	VVVVVVVV
					Z-		U-
						Zer	• •
					Z+		U+
			(X-60.648	V-152 7//		Photo fi	niched
			(7.1-00.040	,111021744,	,	Filoto II	maneu
	Layer	Paramete	r			×	
	Layer	Paramete	r			×	
	Layer	Paramete	r			×	
	Layer	Paramete	r Layer	r:		×	
	Layer	Paramete	r Laye Is Outpu	r: t: Yes	~	×	
	Layer	Paramete	r Layer Is Outpu Speed(mm/s	r: t: Yes ): 300	 □ □ Defa	X	
	Layer	Paramete	Layer Is Outpu Speed(mm/s)	r: t: Yes ): 300	✓ Defa	X	
	Layer	Paramete	r Layer Is Outpu Speed(mm/sj If Blowing	r: Yes t: Yes ): 300 ; Yes	✓ Defa	×	
	Layer	Paramete	r Layer Is Outpu Speed(mm/sj If Blowing	r: Yes t: Yes ): 300 g: Yes	✓ Defa	× ult	
	Layer	Paramete	Layer Is Output Speed(mm/s) If Blowing Min Power(	r: Yes t: Yes ): 300 g: Yes (%) Max Pov	✓ Defa ✓ wer(%)	X	
	Layer	Paramete	Layer Is Outpu Speed(mm/s) If Blowing Min Power( er 1: 30	r: Yes t: Yes ): 300 2: Yes (%) Max Poo	✓ Defa ✓ Wer(%)	× ult	
	Layer	Paramete Lase	Layer Is Output Speed(mm/s) If Blowing Min Power( er 1: 30 er 2: 30	r: Yes t: Yes ): 300 g: Yes (%) Max Pov 40 40	✓ Defa ✓ wer(%) Defa	× ult	
	Layer	Lase	Layer Is Output Speed(mm/s) If Blowing Min Power( er1: 30 er2: 30 Seal:	r: Yes t: Yes ): 300 2: Yes (%) Max Pov 40 40 40 : 0.000	ver(%)	× ult	
	Layer	Lase	Layer Is Output Speed(mm/s) If Blowing Min Power( er1: 30 er2: 30 Seal: Open Delay:	r: Yes t: Yes ): 300 2: Yes (%) Max Pou 40 40 40 : 0.000 : 0	ver(%)	× ult	
	Layer	Lase	Layer Is Output Speed(mm/s) If Blowing Min Power( er 1: 30 er 2: 30 Seal: Open Delay: Close Delay:	r: Yes t: Yes ): 300 2: Yes (%) Max Pov 40 40 : 0.000 : 0 : 0	<pre>ver(%)  Defa wer(%)  Defa mm ms ms ms</pre>	× ult	
	Layer	Paramete Lase	Layer Is Output Speed(mm/s) If Blowing Min Power( er 1: 30 er 2: 30 Seal: Open Delay: Close Delay: rough mode	r: Yes t: Yes 300 Yes (%) Max Pov 40 40 20 20 20 20 20 20 20 20 20 2	<ul> <li>✓</li> <li>✓</li></ul>	× ult	
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# 4.5 Motion control area

Z-		U- Fast 50.00 mm/s	Easer 1:	Device:(IP:192.168.1.100) $\lor$
			O Laser 2:	Device:(IP:192.168.1.101) ~
	Zero	Step 10.00 mm	Output Sel	lect grapl Stop after processe 100
			Union dow	n ContinueModePanleCtr
Z+		U+	Start	Pause Stop StartContin FeedSet

#### Machine operation module



L

: Laser head up and down movement.

: Horizontal (X-axis) movement.

Longitudinal (Y-axis) movement.

: Feeding U-axis movement.

In the above picture, up, down, left and right arrows can operate the machine. Of course, the first to USB cable, or cable to connect the control card and the computer can operate.

#### Connect the device

The connection between software and machine can be realized by USB data cable and network cable. Network cable connection as follows:



Click on the map

button, pop up the following device list dialog box.



		×
	Machine	COM/IP
	Device	USB:Auto
<b>V</b>	Device	IP: 192. 168. 1. 100
	Device	IP: 192. 168. 1. 101
A	Add Delet	e Modify Exit

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Double-click on a device, open the following IP settings dialog box.

Port setting	X
Machine name	: Device
O USB: Port NO;	▼ Test
Web:	
IP	192 . 168 . 1 . 100 Test
	Ok Cancel

You can change the IP address and click the test button. Note: The IP address here should be the same as the IP address on the control panel. In addition, the IP address of the computer should be the same network segment as the software IP address. Specific settings are as follows:

1, check the control panel on the IP address:

Control panel connection, click on the Z / U button to enter the menu, through the up and down keys to adjust, you can find the IP Settings button, click OK to see the IP address.

2, the computer's IP address settings:

Click the computer's network icon 🛄, open the netw	vork and shari	ng center. Cli	ck Local Area
e 1997	Internet		
Connection to open the Local Area Connection dialog box. $^{ imes}$	本地连接	Click the Prop	perties button

, Open the local connection dialog box. As shown below:



♀ 本地连接 属性	23	
网络		
😰 Realtek PCIe GBE Family Controller		
<ul> <li>✓ Microsoft 网络客户端</li> <li>✓ QoS 数据包计划程序</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> <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     方许您的计算机访问 Microsoft 网络上的资源。		
确定	〕消	

Double-click <u>Protocol Version 4</u> to open the following properties page. Click Use the following IP address. Write "192.168.1.99", click the subnet mask box below, it will be filled in automatically. Then click OK.



nternet 协议版本 4 (TCP/IPv4) 属性	2 X
常规	
如果网络支持此功能,则可以获取E 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 . 1 . 99
子网掩码(U):	255 .255 .255 .0
默认网关(0):	· · ·
● 自动获得 DNS 服务器地址(B)	
┌️◉ 使用下面的 DNS 服务器地址O	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(V)
	确定 取消

#### Single-axis motion

Only one axis movement can be controlled at a time. Click the left and right arrows, X-axis, respectively, to the left and right to move. Click the up and down arrows, Y-axis forward, backward move. Press once, then move a step distance. Continue to press, then continue to exercise. The middle 0 key, for the xy axis back to the origin.

Start	Pause	Stop	StartContin
-------	-------	------	-------------

After drawing or extracting entities, turn on the laser. Click the above button, you can control the machine to cut, pause, continue processing, finishing and other operations. Continuous automatic feeding repeated recognition cut.

Processed Quantity: System Statistics The total number of graphics processed.

Finish the specified number of stops: when the statistics have been processed the number reaches the specified number will automatically stop.

Processed time: statistical processing time.

Output selected graphics, processing only the selected graphics.

## 4.6 Image processing area



### 4.6.1 Image acquisition and preservation

Template management: Create new templates, edit delete templates, and so on.

Side management: adjust the edge parameters and get the best side effect.

Match: match the selected template.

Edge: according to the parameters of the lifting side.

Automatic processing after identifying data: after checking, set the feeding parameters, the machine automatically takes pictures after identifying and cutting.

#### 4.6.2 Calibration

Calibrate the camera. Make the machine coordinates correspond to the camera.



Camera calibration	×
1.CalSet	2.offset correction
1 Cut	CutCross
2 Photo	Photo
GetCross	CalCross
<b>4</b> Caliration	X: 0.000 mm Y: 0.000 mm
Other Import Clear	Advanced LoadCal SaveCal

Draw Grid: The system board gets the card format to automatically generate a set of data for cutting. Take a picture: This function is used for image acquisition during calibration.

Identify: Get the grid's cross location.

Correction: Correct the camera.

advanced settings

Camera calibration			×
	Contrast:	15.0	(1~20)
	Linelen:	300	pix
	Line W:	5	pix
			]
Г	确定	取消	É
L	AND ALL	47/1	

In the advanced settings, you can set Grid detection rate .

**Detection rate:** detection threshold point of the grid points, the smaller the easier detection.

**Line length screening:** identification of the length of the grid parameters.

Line width screening: Detection of grid line width parameters.



After modifying the parameters, click OK to take effect.

Import pictures: import a picture to correct.

Clear Grid: The grid or element in the software will be deleted.

Cut cross, offset correction: If the system as a whole offset, use this function to correct.

1. Cut a cross

2. Take pictures

3. Move the software on the cross, with the picture coincide with the cross.

Thickness correction: not the same thickness of the material or corners are not allowed, can improve the cutting accuracy.

Save calibration: Save the calibration file.

Load Correction: Load saved calibration file.

#### 4.6.3 Image preprocessing

Pretreatment 8 channels are optional. Respectively choose the contrast of the most displayed for the next image processing.



# 4.6.4 Matching management

Takepho	otos Mato	h Similarit	τ <b>γ</b>			70 %
channel	Gray	~ 2	ColcorImg	) 🗌 Hid	e	
Model fil	e path C:\R	dVisionWorks7	%\\Model	Char	nge path	
1	New	Delete	Index		Name	P
2	Chose fi $ \smallsetminus $	CopyModel				
в о	Praw-CutLine	Open				
9	Generate	Edit				
	ManAlign		En-ct	rl-pt Model	Add-contro	ol
	ModelPara					^
	ModelAngle			20.00		
	Muil-point			No		
	Auxiliary-sco	re		0.80		
	NO VailRect			0		
	MatchPara					
	MatchSpeed	t		90.0		_
	MatchOverla	ар		10.0		¥
Get Para	ureMod		⊖ Edgel	Mod		
Feature-I	en					
						ОК

Takephotos: get a new picture.

Matching: matching calculation, matching all similar graphics.

**Channal:** The display scheme for the current photo.

New: Select a feature to generate a template using the features contained in the feature.

Generate: A new template is generated according to the completed features and cutting lines.

Edit template: Delete the features in the generated template partially.



**Valid area code:** The whole area is divided into 16 valid areas, set the area code, the template only in the specified valid area for image matching.

**Open:** Open a template file.

**Save:** Save the current settings as a template file.

Add-control: Reducing the Error Caused by Material Deformation

**Connection template:** Cut line and feature formation position correspondence. When the specified feature is found, the specified cutting line is cut.

**Template Angle:** The angle you specified when generating the template. When matching within the range of time search.

**Template Generation Method:** Including Grayscale Values and Profile-Only Grayscale Values All features in a feature are acquired and participate in the matching calculation. Only the contour is to consider only the feature near the contour of the element to participate in the matching calculation.

**Matching expansion:** Due to the needs of the processing technology, to find the target, the results of expansion or contraction operation.

**Matching speed:** the range of 0-100, the larger the value, the faster the matching speed, of course, may lead to match the wrong target.

**Overlap:** Range 0-100, the larger the value, the more overlapped parts of two targets will be recognized.

**Matching angle:** generally consistent with the template. Less than the template angle can only match part of the target, the smaller the angle, the faster.

**Valid area code:** The whole area is divided into 16 valid areas, set the area code, the template only in the specified valid area for image matching.

**Matches:** Specify a certain number, according to the matching result to select the top of the matching score target.

Quick template area

Marquee features: Quickly get the features of the area on the image.

**Die-selected cutting line:** Quickly extract the contrast of the obvious graphics edge, as the cutting line.

**Generate:** After you have acquired features and cut lines, you have to click Generate to form a new template.

Characteristic mode: The adjustment parameter is effective when acquiring the characteristic.

Edge mode: The adjustment parameters are effective when acquiring the cutting line.

Smoothing factor: The degree of graphical analysis. Adjust to better capture features or edge lines.Feature Length: Filters the length of the acquired feature line.



Line Connection: Disconnected cutting lines are connected.

**Smooth lines:** make the cutting line more smooth.

Edge expansion: Cutting lines are expanded or shrunk (Negative numbers are shrunk).

## 4.6.5 Mention management

Takephotos Preview GetContour Expand 0.0 mm Elaborati NylonLace V
Preprocessing
channel Gray V ColcorImg
Threshold
✓ Whiteligh
Manual 123 255
Auto
Image process
Del-imp 1 Pix
Close 7 Pix
Del-gap
Unconne 1 Pix
Del-Small 40 Pix Del-fill
ConnectFea DisconFea 🗸 RemoveEdg
Sel-Contour
Enable diagonal
ContourW 50.0 1500.0 mm Sel-WH
ContourH 50.0 1500.0 mm Reset
✓ OpenGraph ✓ Feature add Advance
D-Smooth
EdgeSmoot 32
Smootherr 0.30 mm
Fitting
ОК

**Takephoto:** Get a new picture.



Preview: View software processing image effects.

**GetContour:** Extract the edge of the contour.

White Liangbian: Material target color white and bright check.

Automatic: Threshold is automatically taken to segment the image.

To Miscellaneous: Remove all interference lines or points.

**Closed:** the target area closed.

**To Gap:** Fill the gap of the target graph.

To micro-even: Remove the micro-even between the two goals.

Delete small pieces: Remove individual small impurities

**Go to the hole:** remove the pattern to form the hole.

**Profile Selection:** Limit a single target graphic to the specified range.

**Select filter:** Select a target as the size of the length and width benchmarks, the size of similar graphics.

**Feature add:** Adding Template Matching Function in Raising Edge Management advanced:

Contour para adv	ance setting		×
Min-Lenth	Max-Lenth	Sel-Add	
		Delete	
		Clear	
		Tolerance 15.0 %	
Saveangle	90.0 °	Cut-in-line	
AnglePro	45.0 ° 120.0	° Tolerance 1.5 mm	
DoubleToSingle			
		ОК	
		<u>o</u> n	



Select Add: Add multiple outlines to the list. When mentioning the edge, only to pick in the list.

Delete: delete the data in the specified list

**Empty:** empty the data in the list.

Tolerance: The allowable margin of error when selecting a profile.

Save sharp corners: When smoothing curves, keep small angles.

**Enable tangent:** Get the outline of the hole in the graphic.

**Double-line to single-line:** When the extracted contour cutting line is double-line, check the double-line to single-line, the cutting line will automatically merge into a cutting line (take the middle value of the two cutting lines)

**Non-closed graphics:** Check to extract non-closed graphics.

**Edge Accuracy:** Extracts the margin of error limits. The higher the value the faster. Reduced accuracy

Smoothing error: Allowable error limits for smoothed edge data.

Curve Fitting: Fitting edge data. Make it more smooth.



# Section 5 large format vibration knife cutting

# **CONTENTS:**





#### 5.1 Open the software

Open the ordinary cutting software, the machine and the computer connected successfully. Then click the menu bar Additional(I), select "SCCD vision", You can open the large format vision software for Vibrating Knives. Software interface as shown below:

+ V1.00.71 - [RdVisionWorks]		- 0 ×
File(F) Edit(E) Draw(D) Setting(S) Modfiy(W) View(V) Help(H)		
🚔 🖥 🖬 🗣 🔶 🕼 🖊 🗮 🔿 🛦 📥 🌾 😣 🕺	🦉 観 🌆 🔜 🔜 🔜 🔜 📾 📾 🔜	
	Image process	
	ModePara ContourPara	Calibration
	Match Contour	akephotos
	Get Data cut direct	ColcorImg
A COLOR OF A	Offset compensation	
	Thickness	
	Fast compensati	
		toffse 0.0
	0.0 Rig	htoffs 0.0
	Manuality Zoomin	
	All and a second s	
	valzone	
		6 7 8
Camera Canon E V Qoen Zoom in		
Exposure (r/4 V Focus		
Graph attribute	Alareta Device (00:102:100:1100)	
X: 0.000 mm 🖶 730.794 mm 100 % 🔒 🖽	00 mm/s @Laser1: Device:(IP:192.168.1.100)	
1. 0.000 mm 2 399.710 mm 100 % 2 20 10.	00 mm Duthut Select and Ston after process 100	
Layer Speed MinPower MaxPower Output	Union down ContinueModePanleCtr	
Z+ 🔶 U+	Start Pause Ston StartContin FeedSet	
(X:509.772,Y:662.247) Photo finished RGB(51,51,51) X: 0.000 Y: 0.000 Z: 0.000 U: 0.0	000 Count:3 TotalWorkTime:(000:00:14)	

If the following dialog box pops up, it indicates that the card connection fails. You need to re-test the card connection, open the software again.



#### **5.2 Camera correction**

The camera is connected in the same way as the previous laser cutting system. Click on the Calibration button in the upper right corner, the following dialog box will pop up:



Camera calibration	×
1.CalSet	2.offset correction
1 Cut	CutCross
2 Photo	Photo
GetCross	CalCross
<b>4</b> Caliration	X: 0.000 mm Y: 0.000 mm
Other Import Clear	Advanced LoadCal SaveCal

1. Shop paper, grid set. Flatten one or more sheets of white paper on the machine and fasten it with scotch tape. If it is initial calibration, it is usually necessary to adjust the position and size of the grid. Click

Advanced button, through the grid offset, a single grid size, machine format to set.

Camera calibr	ation	* *	-	-	
Grid offset(X):	600.0	mm	Contrast:	20.0	(1~20)
Grid offset(Y):	200.0	mm	Linelen:	500	pix
Cell (X):	100.0	mm	Line W:	5	nix
Cell (Y):	100.0	mm		-	Pix
Frame(X):	1000.0	mm			
Frmae(Y):	800.0	mm			
			确完	En:	'н
			RHILE	4X/	п

2.Click

Cut . The graphics area will generate a grid, as shown below. You can see if the size is right by walking the border on the control panel (brush or tool when walking around the border), and machining (drawing) if appropriate.





#### 3. Take a photo Grid processing is as follows:



4.Recognize.





+	-	+	-	-	-	-			
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If the number of calibration points is not enough, the following dialog box will pop up. At this point, double click to add a calibration point.

RdVisionV	Norks	×
<u>^</u>	Current point Number is 30,need 32 point,Add or delete point!	Cross
		确定

5.click to complete the correction. Prompt correction is successful. Restart the software and the camera is calibrated.

6.correction effect test. Close the camera calibration page. Draw several small rectangles in the four corners of the calibration range. After processing photos. By observing the rectangle after processing and the rectangular coincidence degree. The higher the coincidence degree, the more accurate the correction is.

**Caution** If the calibration fails or the error is too big, which will affect the cutting precision, you can recalibrate according to the above steps.

**RD** 睿达科技

### **5.3 Contour extraction**

You can get the outline of the image for processing by using the edge or template matching method. This part of the software features and visual part of the previous consistent, you can refer to Chapter V content.

The general steps of the template matching operation are: taking a photo - creating a new template - selecting a feature - editing a feature - defining a cutting line - generating a template - matching.

The general steps for trimming operation are: photo-preview-channel, threshold, image processing, contour selection and other parameter settings-trimming-edge smoothing. Preview as shown below:



After the edge as shown below:



#### RDVisionWorks Large format visual cutting software V1.0

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							-	CreateModelType		Gray		-
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-		•						MatchOverlap		10.0		-
		- Charles	-				•••	MatchAngle		180.0		Ŧ
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							<b>_</b>	FeatureMod		EdgeMod		
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[Note] mention edge, if the phenomenon of stuck when matching, click on the bottom of the

software Stop button.

## 5.4 Processing

Return to normal cutting software. Click the menu "File", "System Setting" to open the "Parameter Settings" dialog box. Select "Import and Export" item, import graphic parking position "No change." "Direct external processing calls" is not checked by default. As shown below:



Software User V	endor License		
Configuration Optimize Import/Export Interface Controller	Import Setting         PLT Precision:         DXF Unit:         Import Dxf text info         Import Dxf text info         Import dxf point         ✓         Import dxf support layer         ✓         Auto close curves         Close error(mm):         0.100         ✓         Combine lines         Combine error(mm):         0.100         Auto rotate 90 degree         Docking import data:	Export Setting: Mark point as zero 0.0000 0.0000 Processing directly while of Enable counter Export Precisio	Get mark point external calling Reset counter m(%): 80.0

Lower right corner, graphics location, select "absolute coordinates."
Position: Absolute coordinate

Then, return to the visual software, click Start Button, the graphics to be processed will be displayed on the ordinary cutting software. If only part of the output, select the graphics, and check Output Select graphics

If you need to download the file to the panel, click <u>Download</u> button, click on the document page <u>Read</u> button, a list of downloaded documents is displayed in the document table. Select the document to be processed, click the <u>Process</u> button. [Note] After finishing the above steps, please click <u>Stop</u> button. Otherwise, some

functions of the visual software can not be used normally, suggesting that "the connecting card fails."

If you do not need to download, click directly \_\_\_\_\_\_Start\_\_\_\_ button.



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