



G-Mark software User Manual

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Chapter 1

Introduction of G-Mark Marking Software

G-Mark marking software has been exclusively designed for the LaserPro StellarMark™ laser. The combination of the software, hardware and your imagination will give you the tools to create professional graphics, texts and barcode images. G-Mark marking software allows you to be in control of every facet of the laser marking process. By becoming more familiar with the various features of the software, you can easily and safely harness the power of the StellarMark™ laser.

The G-Mark marking software makes use of mark files which can be sent and processed by the LaserPro StellarMark™. Original mark (.ezm) files can be created by G-Mark marking software or can be imported from graphics files (.jpg, .bmp, etc.) then are converted into the mark format. Each individual graphic object in the mark file has its own set of properties that can be manipulated by the user. These properties ultimately tell the StellarMark™ laser how to transfer the object's image to the marked materials.

There are two uniquely different laser methods the StellarMark™ use to mark objects.

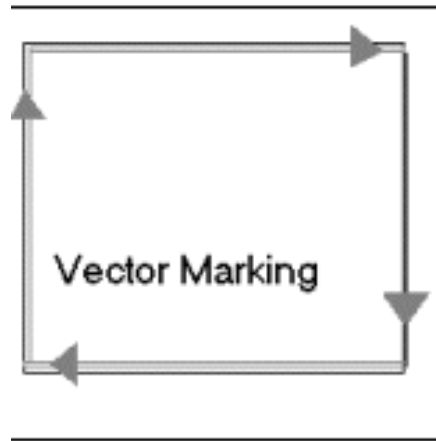
Raster marking

The first method is known as raster marking.

Raster marking uses the laser to fire dot by dot to fill up an area. Raster marking engraves at a slower speed than vector marking, but has the ability to create more detailed graphics.

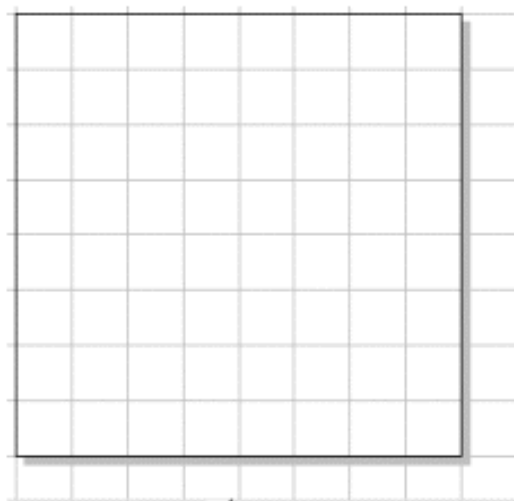
Vector marking

The second method of marking is vector marking. This type is much quicker than raster marking. The machine's galvo motors can move the laser beam along a straight or curved path, quickly marking the vector image line by line.



The G-Mark marking software uses a Work Area to coordinate your drawing images. The Work Area is a grid that is used to align the horizontal and vertical centers of the marking territory. Y-axis refers to the vertical alignment and X-axis refers to the horizontal alignment. A positive and negative number refer to the current positions above, below, and to the left or right of the center point. The center point is $X=0$ $Y=0$.

The numbers in the lower right hand corner of the screen correspond with the current cursor positions on the Work Area. The first number refers to the X-Axis position, while the second refers to the Y-Axis position. If the X-Axis number is positive, the cursor is to the right of center; if it is negative the cursor is to the left of center. Positive Y-Axis numbers are above the center point.



Chapter 2

Software Setup

2.1 Recommended Computer Configuration

The StellarMark is able to accommodate Laptop and compatible PC operating systems. Both the machine and G-Mark marking software is designed to work best using a Windows based system with the following minimum requirements.

Computer Configuration

OS	Microsoft Windows 98/2000/XP/Vista/7/8/10
CPU	Intel Pentium, 1GHz or above
DRAM	Win 90/2000/XP: 2GB, Win 7/8/10: 4GB
CDROM	One CD-ROM disk drive
HDD	500 MB of free hard drive space
Resolution	1024 x 768 or above
Interface	PC or Laptop

2.2 G-Mark Marking Software Installation

Please perform the following steps:

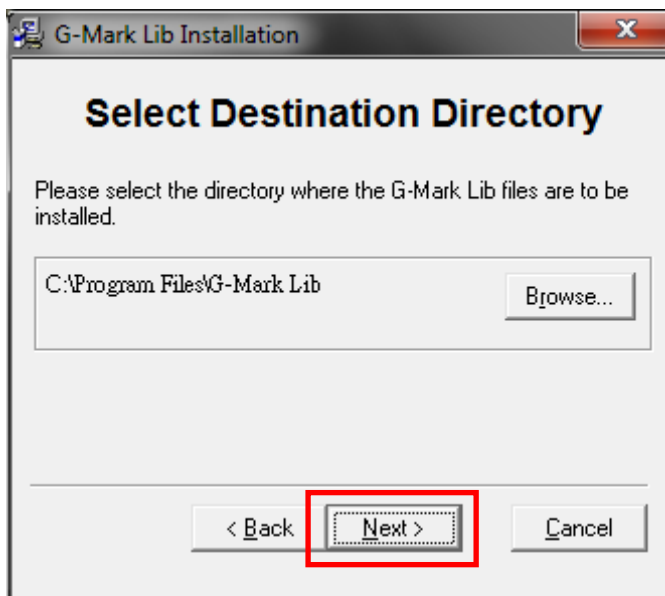
- 1) Take out the G-Mark installation CD from the accessories kit
- 2) Insert the G-Mark installation CD into the CD-ROM drive

Wait a few seconds for the CD Manager to begin the Setup automatically

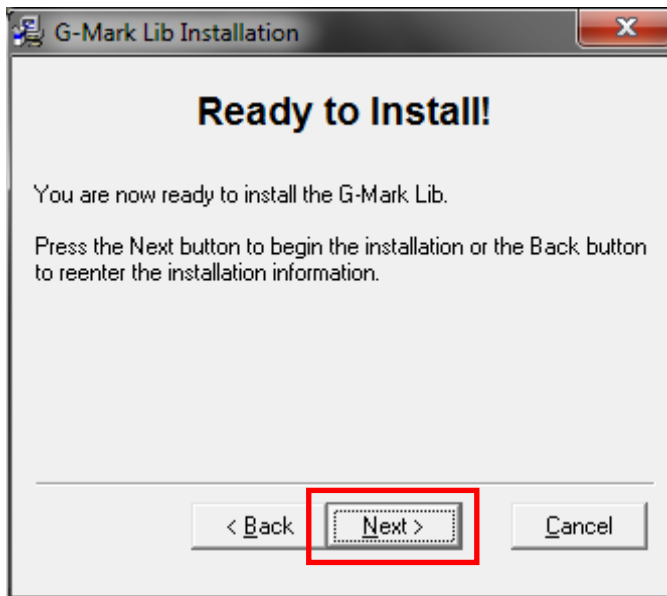
- 3) Click on 32 bit or 64 bit version from the menu of the G-Mark installation CD depending on your operating system



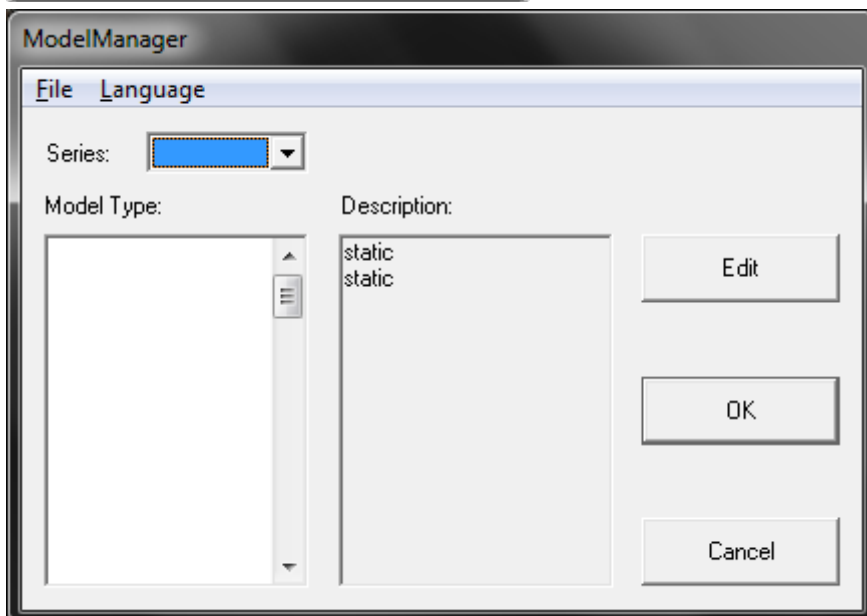
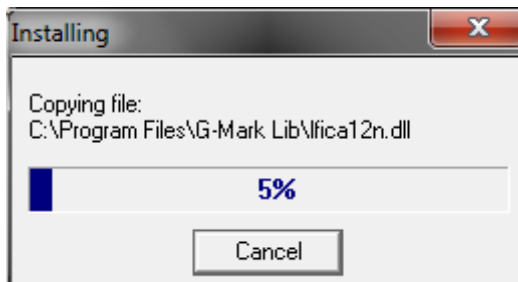
- 4) Set the destination directory and click "Next>"



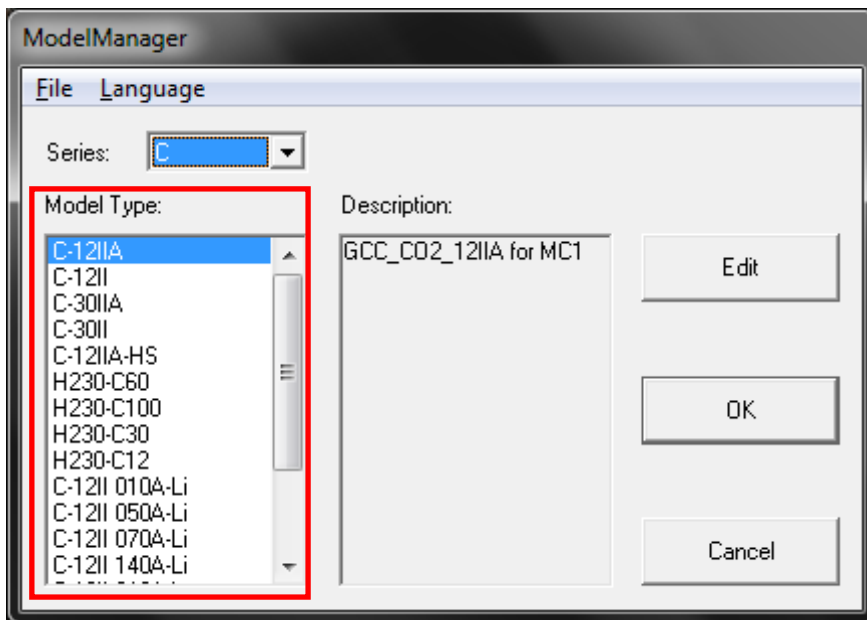
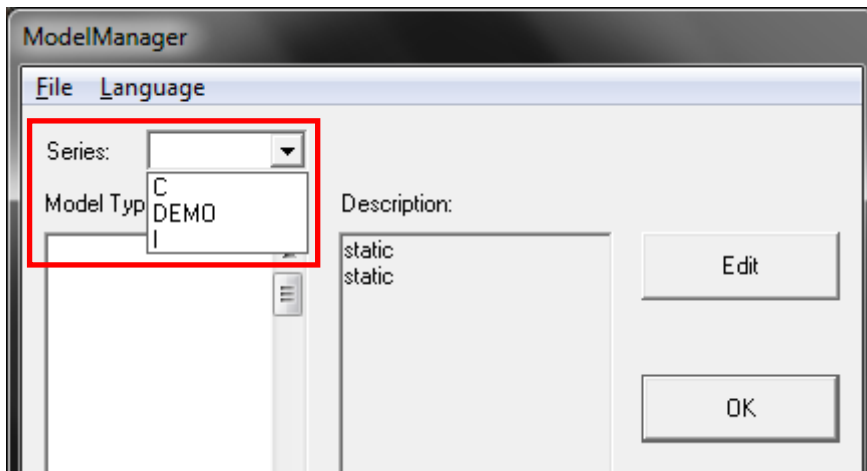
5) Select "Next>"



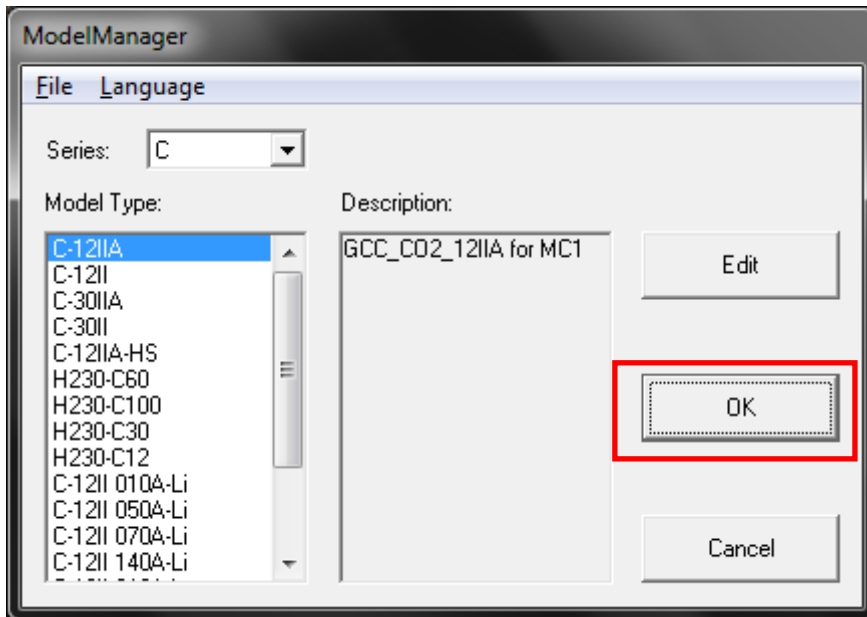
6) Installing



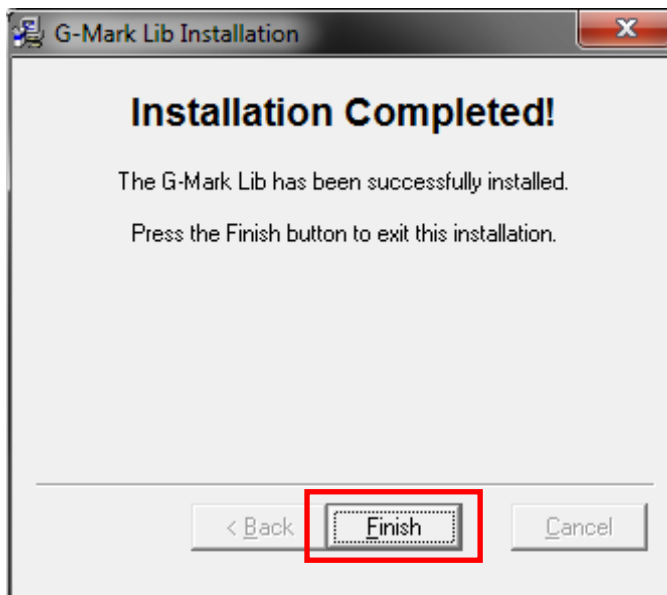
- 7) At 95% completion of the installation, the ModelManger window will show up
Select your series & model type



8) Click "OK"



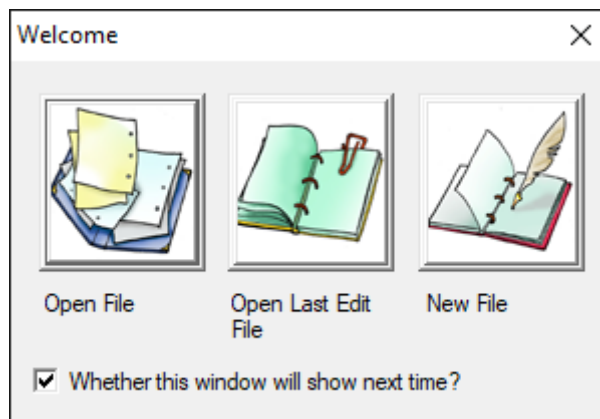
9) Click "Finish" to complete the installation



Chapter 3

Opening Screen

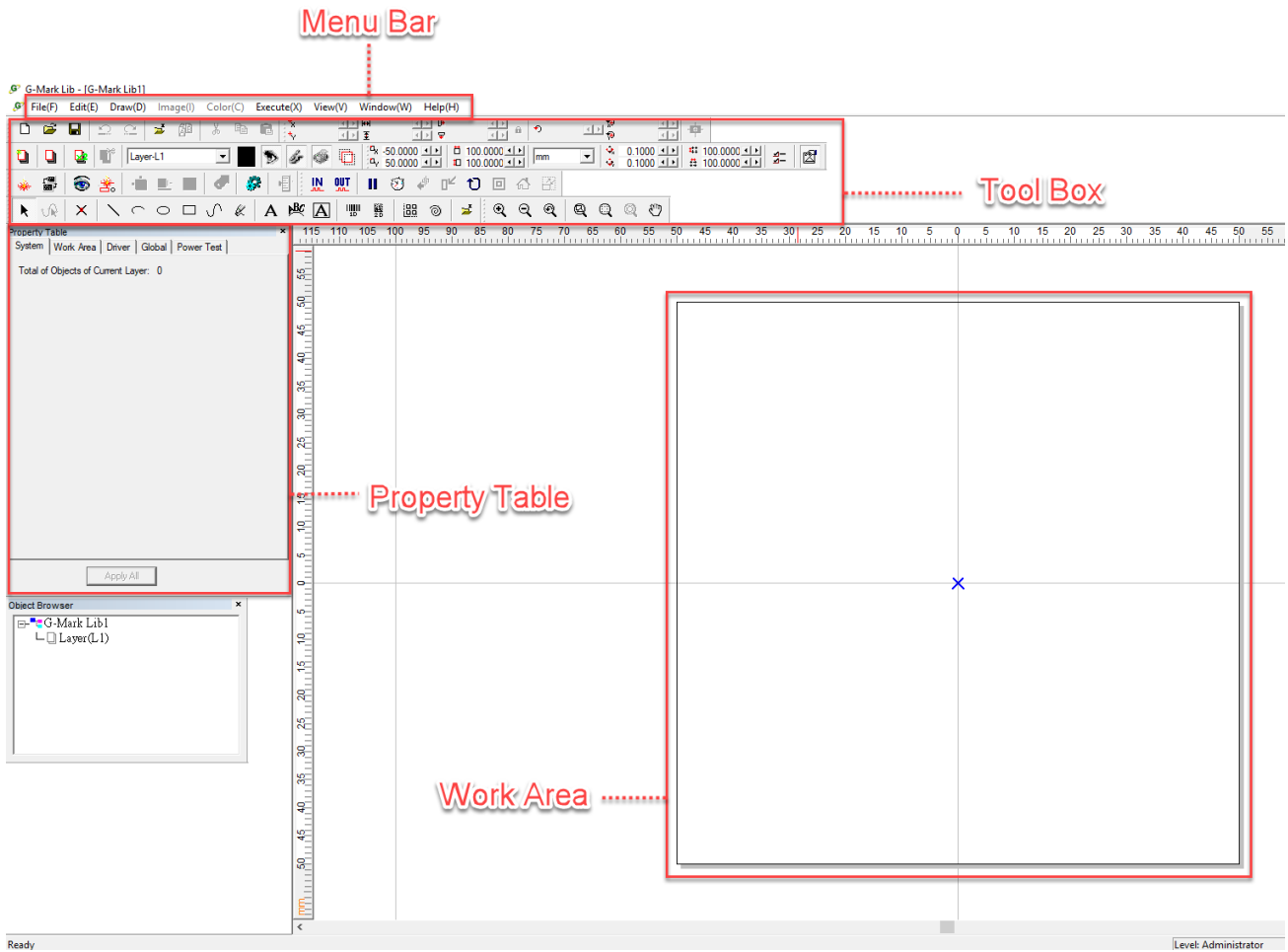
Each time you start the G-Mark marking software, you will begin with the Welcome Window. This opening screen will allow you to quickly open files you were previously working on, open the last file you were working on, or begin a brand new file. Make sure that there is a checkmark beside View → Welcome to make the *Welcome Window* your default opening screen.



Chapter 4


Main Window


The G-Mark marking software's Main Window is divided into several unique sections: The Menu Bar, the Tool Box, the Work Area, and the Property Table.



Chapter 5

Menu Bar

 G-Mark Lib - [G-Mark Lib1]

 File(F) Edit(E) Draw(D) Image(I) Color(C) Execute(X) View(V) Window(W) Help(H)

Similar to many Windows™ based programs; the Menu Bar contains the locations of almost all the functions of the G-Mark Advance™ Marking Software. They are sorted into the following categories:

- ◆ File Menu
- ◆ Edit Menu
- ◆ Draw Menu
- ◆ Image Menu
- ◆ Color Menu
- ◆ Execute Menu
- ◆ View Menu
- ◆ Window Menu
- ◆ Help Menu

More information regarding the different Menus will be provided in the following sections.

Chapter 6

File Menu

New(N)	Ctrl + N
Open(O)...	Ctrl + O
Close(C)	
Save(S)	Ctrl + S
Save As(A)...	
Option(T)...	
Shortcut Option(H)	>
Import(I)...	Ctrl + I
Export DXF(E)...	
Export JPG (J)...	
TWAIN Acquire(Q)...	
Configuration Import/Export(B)...	Ctrl + F
Language(L)...	
Print(P)...	Ctrl + P
Preview(V)	
Printer Setting(R)...	
Set File Password(W)	
1 C:\Users\...\Desktop\Jack.ezm	
Exit(X)	

6.1 New

Create a new document. Users can create several new files at the same time.

6.2 Open

Open an existing G-Mark file. Users can open several files and switch to different document by using “Window Menu.”

6.3 Close

Close the current using file. G-Mark will suggest users to save the editing file before closing it. Users will lose all the modifications they edit after the pervious saving when closing the file without saving it.

When closing an unnamed or new file, G-Mark will pop up a “Save As” dialog box for users to name and save that file.

6.4 Save

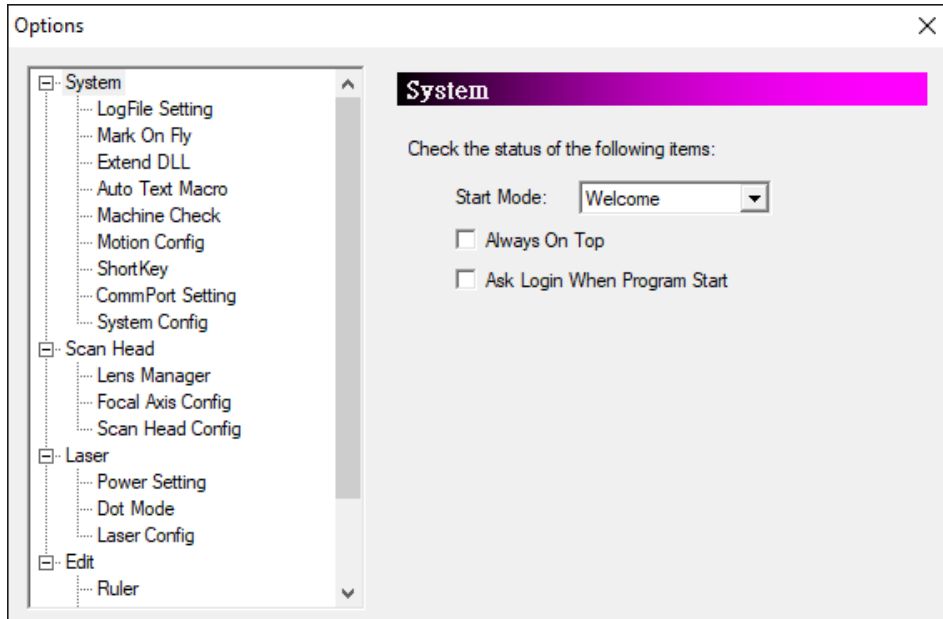
Save the current using document with the original file name under the same folder.

G-Mark will pop up a “Save As...” dialog box when the file is new or unnamed or when users want to change the file’s name or folder.

6.5 Save as

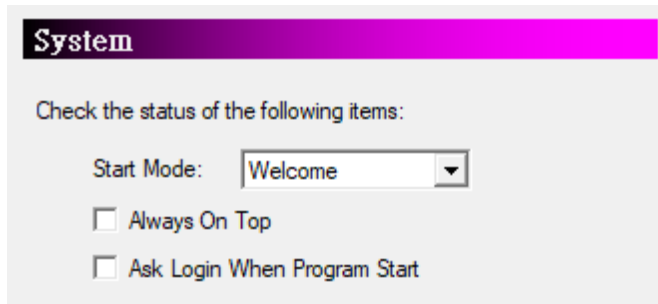
Save the current document using a new file name or changing the saving folder.

6.6 Option



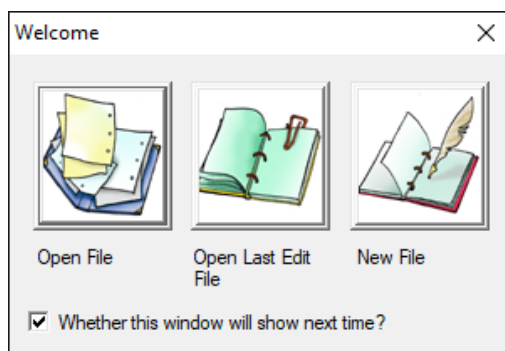
This function allows users to edit their own setting of the program.

6.6.1 System



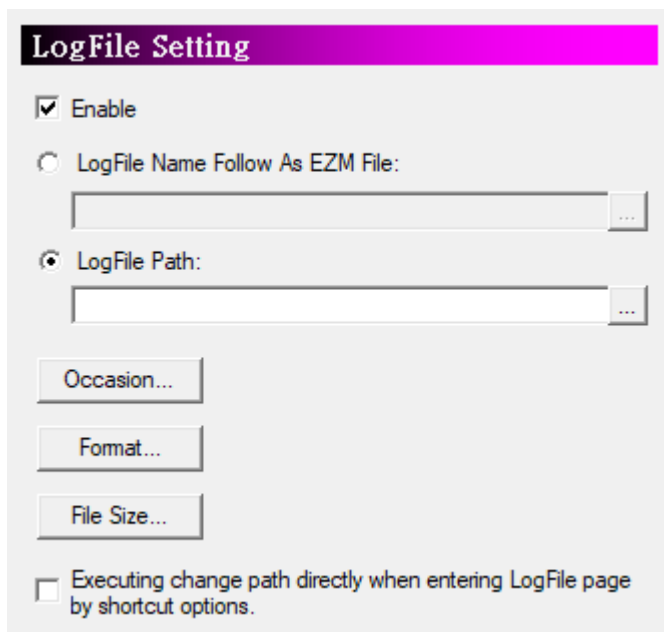
Under the “System” option, there are several settings related to G-Mark system.

- **Start Mode** – Decide if show Welcome dialog, open a new document or open the latest file while G-Mark software is startup. Welcome dialog allows users to open file, open last edit file or create a new file.



- **Always On Top** – Make G-Mark marking software on the top of all current using programs.
- **Ask Login When Program Start** – Make G-Mark marking software to ask you login the user level when the program start

6.6.2 LogFile Setting

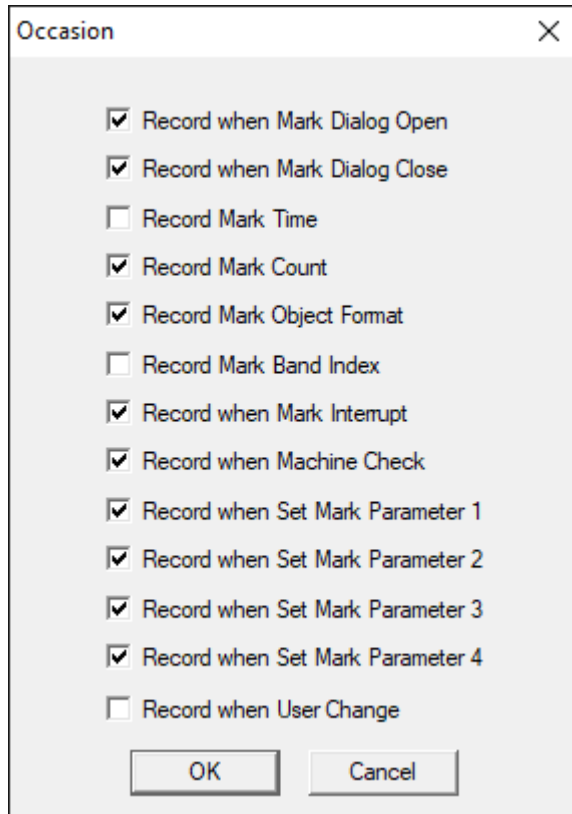


The screenshot shows a dialog box titled "LogFile Setting" with a pink header. It contains the following elements:

- Enable
- LogFile Name Follow As EZM File:
[Text Field] [Browse Button]
- LogFile Path:
[Text Field] [Browse Button]
- Occasion... [Button]
- Format... [Button]
- File Size... [Button]
- Executing change path directly when entering LogFile page by shortcut options.

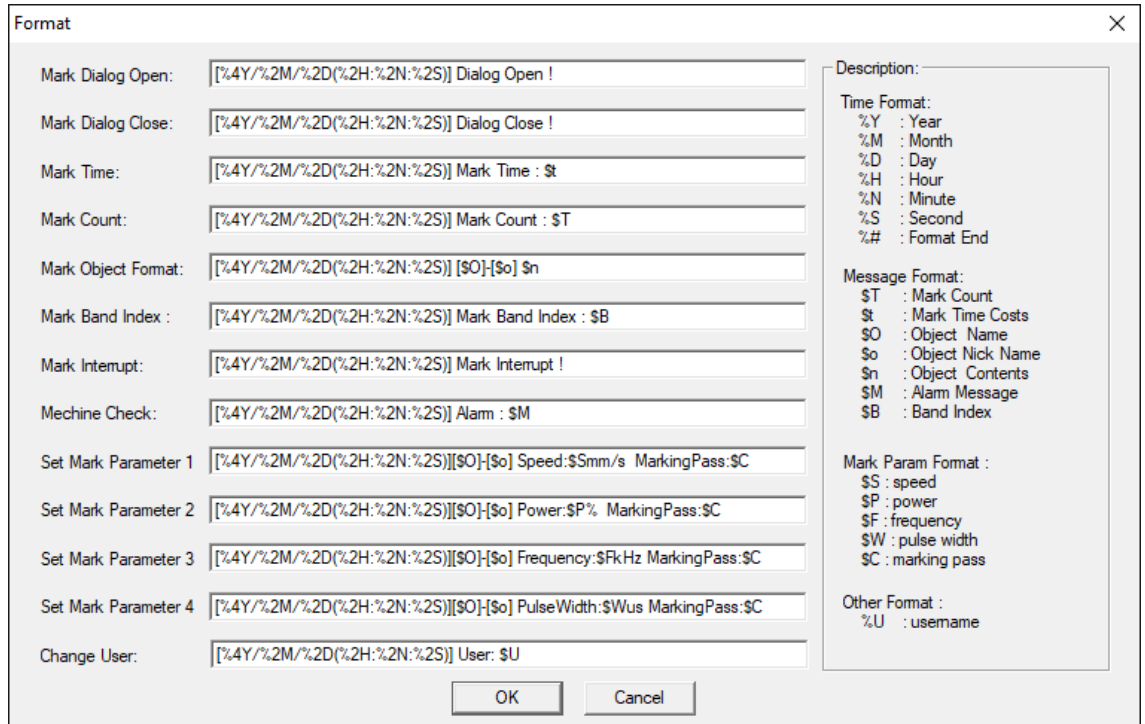
- **Enable** – Enable/disable to use the log file
- **LogFile Name Follow As EZM File** – Select the EZM file of log file name by clicking the [Browse] button.
- **LogFile Path** – Select the path of log file by clicking the [Browse] button.

- **Occasion** – Click “Occasion” and a dialog box will appear



- **Record when Mark Dialog Open** – Record the message when mark dialog opened.
- **Record when Mark Dialog Close** – Record the message when mark dialog closed.
- **Record Mark Time** – Record the marking time
- **Record Mark Count** – Record the marking count
- **Record Mark Object Format** – Record the object format information
- **Record Mark Band Index** – Record the band index information
- **Record when Mark Interrupt** – Record the message while interrupt happened.
- **Record when Machine Check** – Record the message of machine checking.
- **Record when Set Mark Parameter 1~4** – Record the message of set mark parameter 1~4.
- **Record when User Change** – Record the message of user changing.

- **Format** – Click “Format” and a dialog box will appear. Format of each item in the log file can be edited here.



Example: If a format of Mark Dialog Open is set as below:

`[%4Y/%2M/%2D(%2H:%2N:%2S)] Dialog Open ! %#`

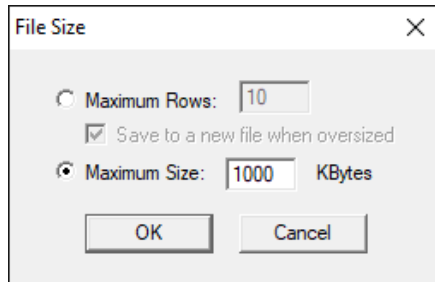
Then the log file will be recorded as:

`[2007/10/15(09:32:24)] Dialog Open !`

Please note that Time Format can be used in every fields, however, the Message Format must be placed at the related fields. For example: the Message Format “\$T” (Mark Count) can only be used in “Mark Count” field, if it is placed in “Mark Dialog Open” field, an unexpected result may occur.

- **File Size** – This function is used for editing the log file’s size and division type.

Example 1:



File Size

Maximum Rows: 10

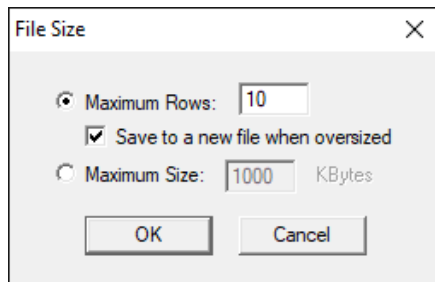
Save to a new file when oversized

Maximum Size: 1000 KBytes

OK Cancel

Select Maximum Size: 1000 KBytes (default). If the file size is over 1000 Kbytes, the system will rename the original file, for example, TEST.TXT, to TEST-1.TXT and continue recording using a new file named TEST.TXT.

Example 2:



File Size

Maximum Rows: 10

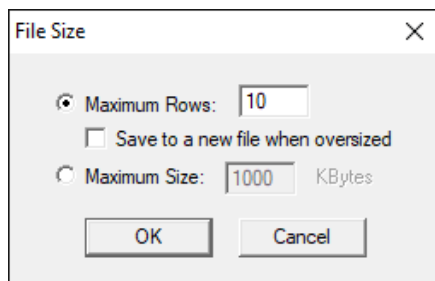
Save to a new file when oversized

Maximum Size: 1000 KBytes

OK Cancel

Select Maximum Rows: 10 and check “Save to a new file when oversized.” If the file rows exceed 10, the system will rename the original file, for example, TEST.TXT, to TEST-1.TXT and continue recording using a new file named TEST.TXT.

Example 3:



File Size

Maximum Rows: 10

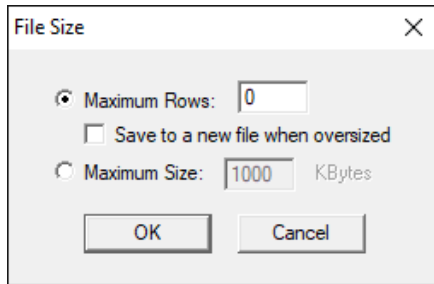
Save to a new file when oversized

Maximum Size: 1000 KBytes

OK Cancel

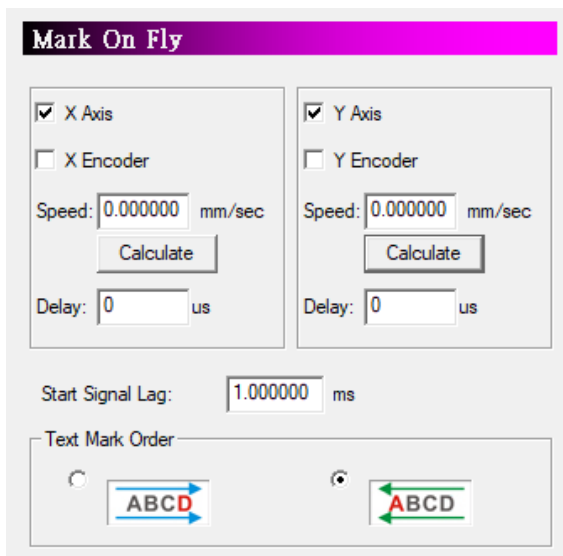
Select Maximum Rows: 10 without checking “Save to a new file when oversized.”

Example 4:

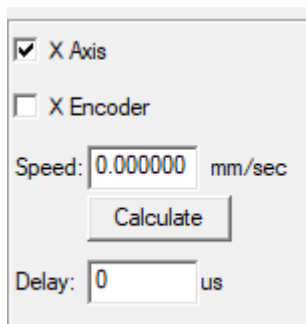


Select Maximum Size: 0 Kbytes or Maximum Rows: 0, The system will not change the file during recording.

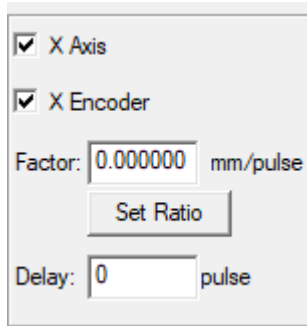
6.6.3 Mark On Fly



Without the “Mark On Fly” function, the marking result will be incorrect while the working pieces are moving. Enable this function the system will pursue the object’s position and revise it to make sure the marking result is correct.

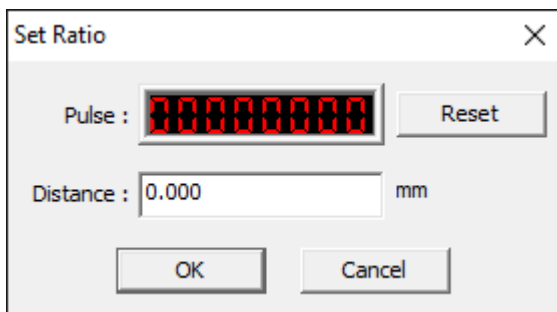


- **X/Y Axis (checked)** – Enable “Mark On Fly” on X/Y Axis.
- **X/Y Encoder (Unchecked)** – The system will use the setting value of “Speed” to pursue the object’s position.
- **Speed** – Theoretical speed of conveyer.
- **Delay** – The time that laser needs to start marking after receive the start signal.



- **X/Y Encoder (checked)** – The parameter will change from “Speed” and “Delay” to “Factor” and “Delay”. The system will pursue the object’s position according to “Factor” which is the product of the encoder feedback pulse value and moving distance. When checking the encoder setting options, please make sure the encoder device is connected with the laser controller; otherwise an incorrect result will happen. As to the encoder connection method, please refer to encoder manual.
- **Factor** – The moving distance of conveyer per pulse.
- **Delay** – The pulses that laser needs to start marking after receive the start signal.

- **Set Ratio** – Counting the factor through the pulse from the encoder and the moving distance.



- **Reset** – Reset the value of pulse.

Delay application

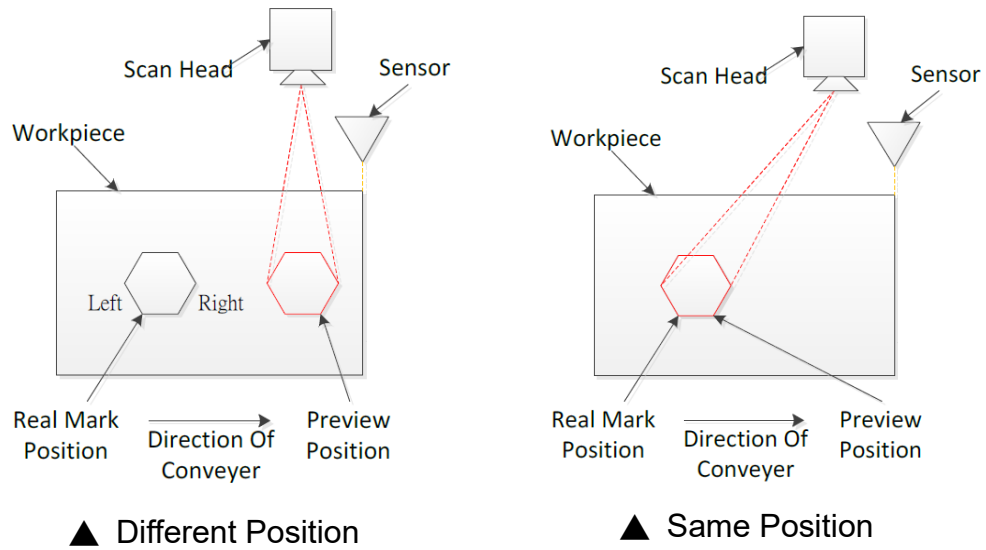
In order to raise the accuracy of marking on the moving objects, the system will usually install a sensor instead of using an operator to measure whether the working pieces are located on the available place for marking. The sensor will trigger the start signal to mark when the working piece move through it. Since the sensor is unable to install right below the laser machine directly, users can apply the delay setting to make the laser machine wait for a period of time when it received the start signal, so the working pieces can move to the available marking position and then start marking. Besides, users can also apply “Automation Process” to “Mark on Fly.”

Delay setting method

Users can calculate the delay time through the setting speed or factor and the distance the object move from triggering the start signal to the correct marking position.

For example, assume that the X Axis is checked, and the moving distance of object from triggering start signal to the marking position is 50mm. If X Encoder is unchecked and the setting speed is 100 mm/sec, then the delay value should set as $(50/100)*10^6 = 5*10^5$ us. If X Encoder is checked and the setting factor is 10 mm/pulse, then the delay value should set as $50/10=5$ pulse.

When using “Mark On Fly” function, users will find that the preview mark position and the real marking position are not the same



This is because there will have a tiny delay time between the sensor inducts the work piece and the laser starts to mark. This delay time and the speed of conveyor will cause this status. As a result, users can fix this status by modifying “Start Signal Lag” and make the position of preview and real marking be the same

This value can be positive or negative according to the actual result. Users must satisfy the following conditions to set “Start Signal Lag”

- I. Do not check X/Y encoder
- II. Set an optimize speed for X/Y axis, and set “Delay” as 0.
- III. The arrangement of Mark On Fly device, working-piece and sensor must be placed.

Adjustment Description

for example. Suppose users set this value as 100. If the preview result located on the right side of real mark position, then increase the setting value. On the contrary, decrease the setting value.

Text Mark Order

Select the marking direction. The direction of arrow represents the conveyer moving direction.

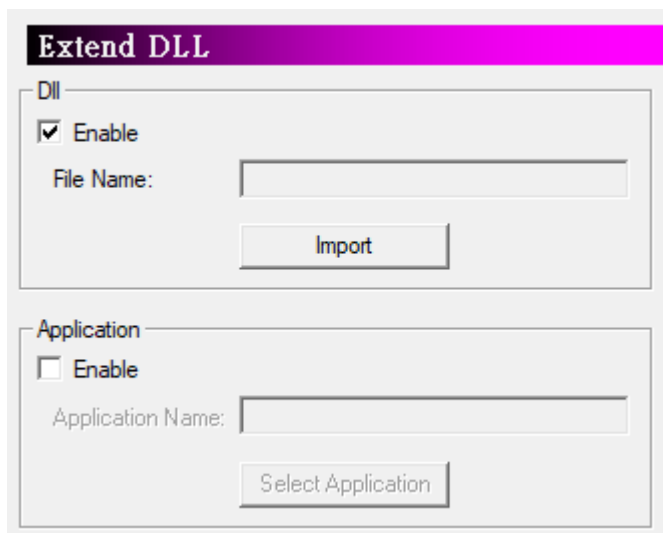


: Conveyer moving direction is right-to-left. The marking direction will be $D \rightarrow C \rightarrow B \rightarrow A$.



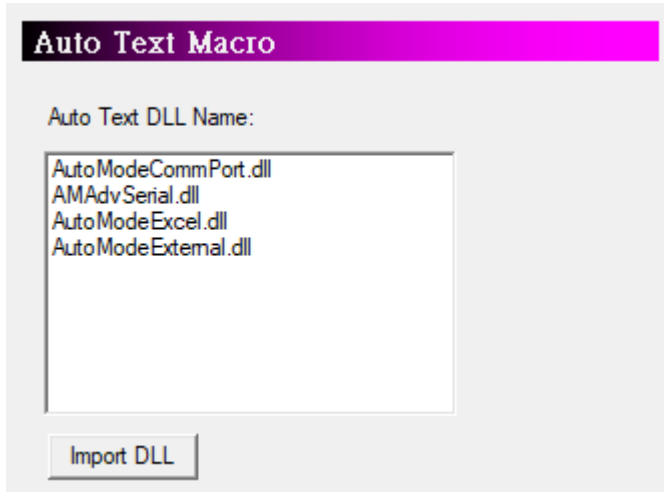
: Conveyer moving direction is left-to-right. The marking direction will be $A \rightarrow B \rightarrow C \rightarrow D$.

6.6.4 Extend DLL

The screenshot shows a dialog box titled "Extend DLL" with a pink header. It has two sections: "Dll" and "Application". The "Dll" section has a checked "Enable" checkbox, a "File Name:" label, an empty text input field, and an "Import" button. The "Application" section has an unchecked "Enable" checkbox, an "Application Name:" label, an empty text input field, and a "Select Application" button.

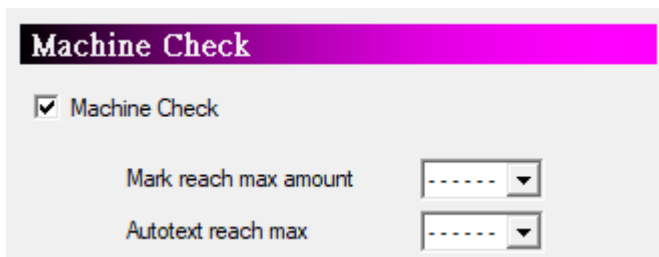
Enable this function when users need to import DLL modules. Click the “Import” button, and then select the assigned DLL module and click “Open”, “Apply” button to import it.

6.6.5 Auto Text Marco



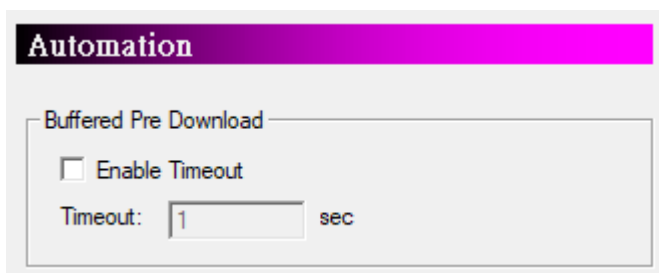
The system provides three Auto Text DLLs, If users need to add more Auto Text DLL modules, they can import the assigned DLL modules by themselves using “Import DLL” function.

6.6.6 Machine Check



Enable this function, the assigned output signal will shine when the marking reaches the setting max mark or auto text amount.

6.6.7 Automation

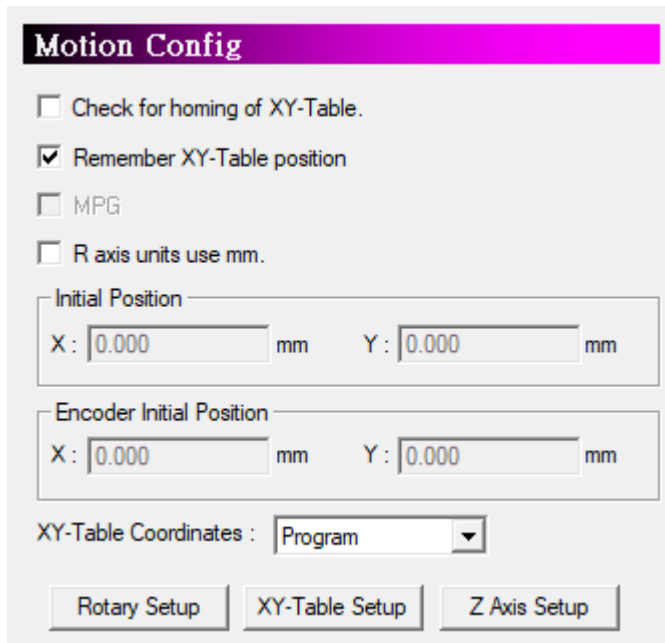


Only MC-1, MC-3 and PMC2 driver supports this function.

- **Buffered Pre Download** – The system will pre download the marking data to the controller’s memory buffer to fasten the marking speed.
- **Enable timeout** – Can make sure the buffering data will be refreshed every

setting time period.

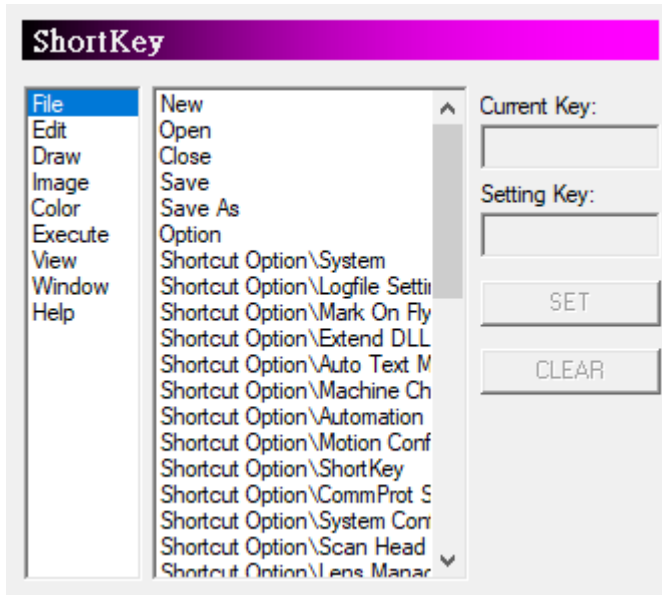
6.6.8 Motion Config



User can do setting for XY-table through this option.

- **Check for homing of XY-Table** – Enable this function, the system will display a warning dialog box when users want to start marking if the XY table is not yet homed.
- **Remember XY-Table position** – Save the current position of XY-table when exiting G-Mark marking software
- **Initial Position** – Set the initial position for XY-table
- **Encoder Initial Position** – Set the initial position encoder
- **XY-Table Coordinated** – Set coordinated of XY-table is based on program or mechanical

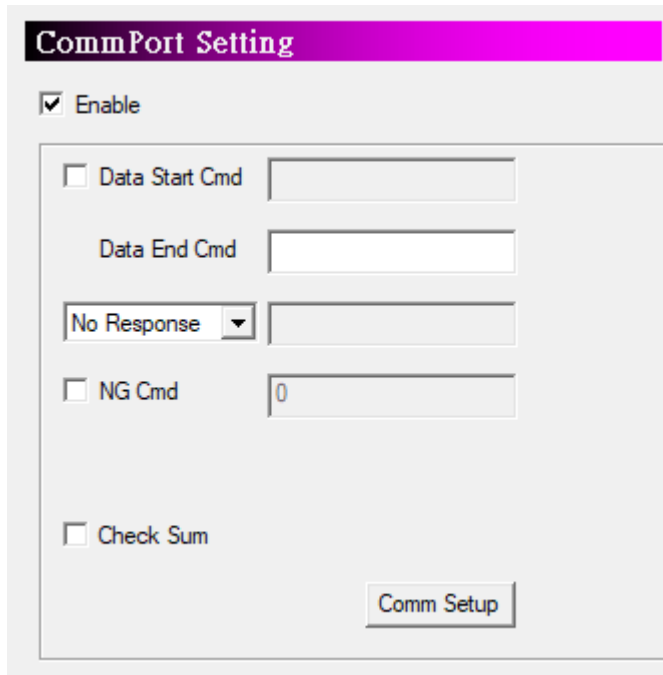
6.6.9 ShortKey



User can assign the short-key for each function through this option

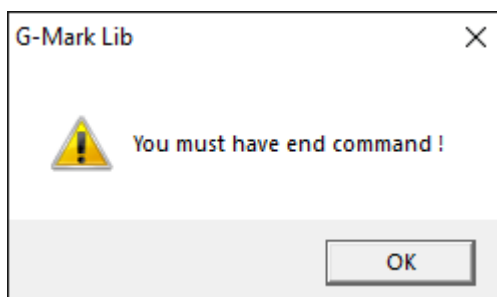
- **Current Key** – The current using short-key of selected function
- **Setting Key** – Set the short-key for selected function. If the assigned key has not been used, then the “SET” button will be enabled for users to click and set that key as the default value. Otherwise, a warning message “Short-key is used” will pop up.
- **Clear** – Clear the short-key setting

6.6.10 CommPort Setting



The Com Port transmission of Auto Text will be effected after enabling this function and setting the Com Port parameters

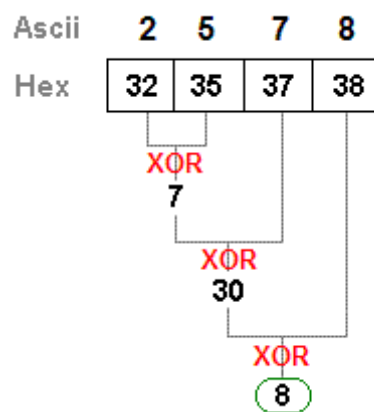
- **Enable** – Decide to use Com Port or not
- **Data Start Cmd** – When system receives this value from the host, it means that the next received character is the correct marking content. If this column is blank, the system will treat the first received character as the Auto Text content
- **Data End Cmd** – This is an essential setting. When the system receives this parameter, it means the transmission is finished. The default value is “\13,” the line feed symbol. This parameter cannot be blank; otherwise the system will pop up a warning dialog box



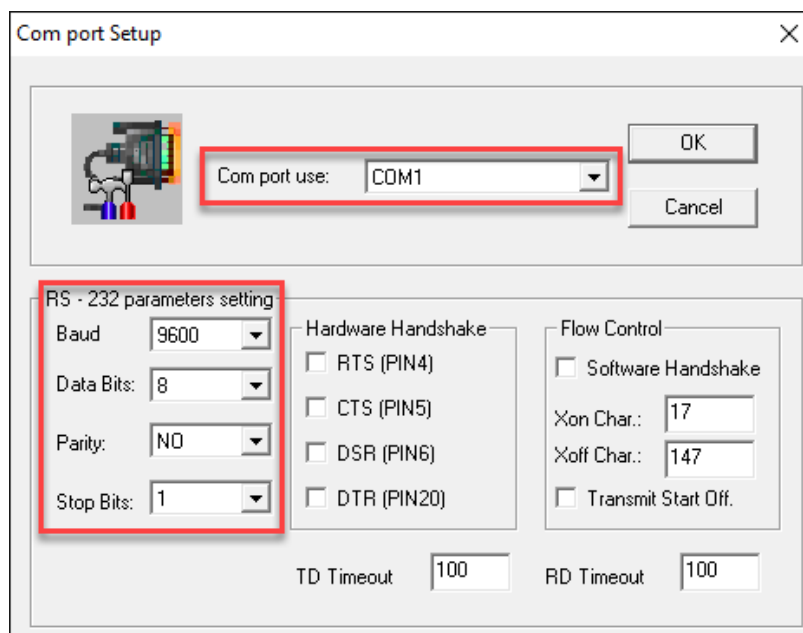
- **Ack Cmd** – Setting this parameter, the software will transmit this value to the

host to report the transmission is regular after system receives the value of “Data End Cmd” and “Check Sum” and confirms that both values are correct.

- **NG Cmd** – The software will report to the host that the transmission is wrong when the “Check Sum” is incorrect while using this function.
- **Check Sum** – Decide to transmit the “Check Sum” or not to do the further verification of information. The operation of “Check Sum” is to convert each character of information into Hex first and then do XOR operation for each one in order. The Hex of final result is the “Check Sum.” For example, the “Check Sum” of “2578” is “8”



- **Comm Setup** – Click “Comm Setup” bottom and enter the setting dialog box

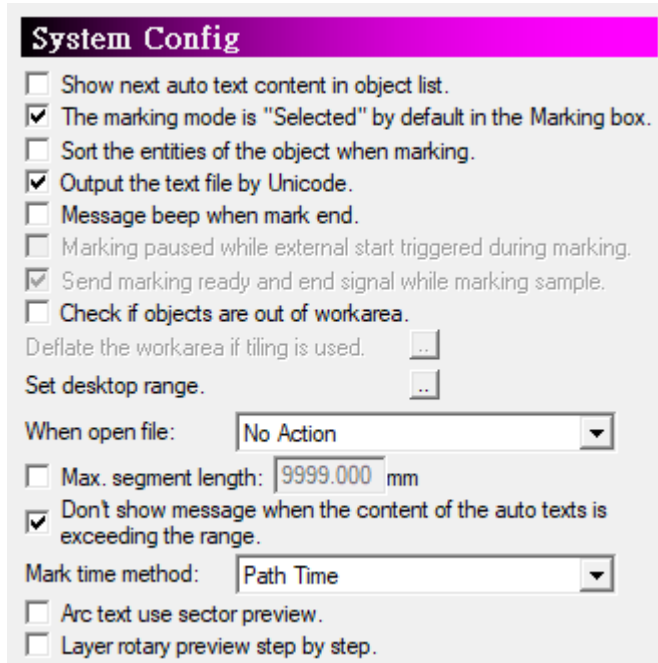


- **Com Port Use** – Select the suitable Com Port basic on the host

equipment.

- **RS-232 Parameters Setting** – Do the same setting as the information transmission source. Please do not change the parameters which are not in the red flame if not necessary.

6.6.11 System Config



System Config

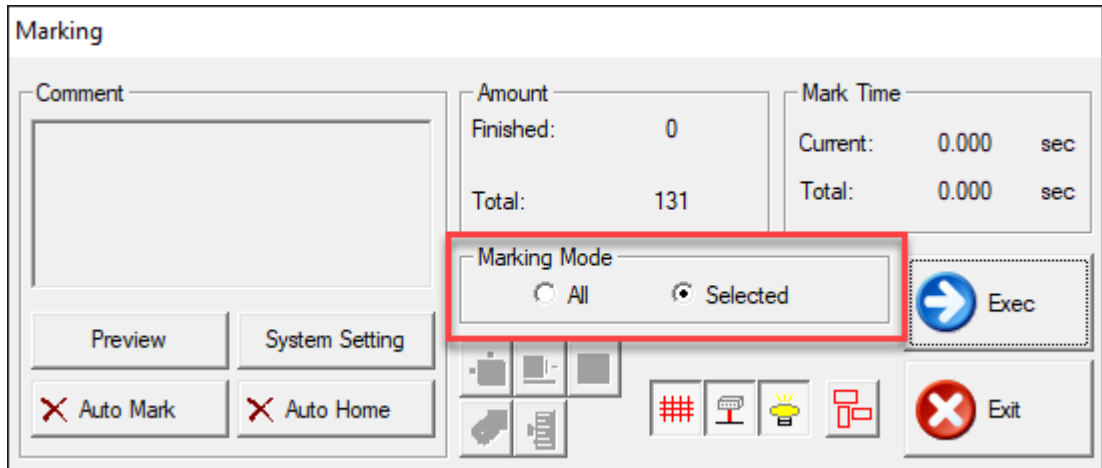
- Show next auto text content in object list.
- The marking mode is "Selected" by default in the Marking box.
- Sort the entities of the object when marking.
- Output the text file by Unicode.
- Message beep when mark end.
- Marking paused while external start triggered during marking.
- Send marking ready and end signal while marking sample.
- Check if objects are out of workarea.
- Deflate the workarea if tiling is used.
- Set desktop range.
- When open file:
- Max. segment length: mm
- Don't show message when the content of the auto texts is exceeding the range.
- Mark time method:
- Arc text use sector preview.
- Layer rotary preview step by step.

Allow users to adjust the config setting of system.

- **Show next auto text content in object list** – Checked this option, the marking object list will present the oncoming marking content of Auto Text. Otherwise, it will show the previous marking content.

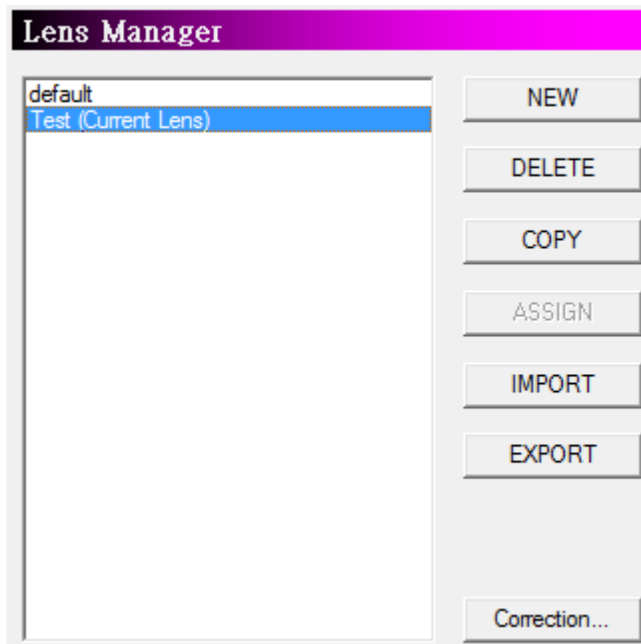
- **The marking mode is "Selected" by default in the Marking box** – Decide

the default value of marking mode is “All” or “Selected”



- **Sort the entities of the object when marking** – Adjust the marking order according to the position of objects to optimize the marking speed
- **Output the text file by Unicode** – Decide to encode the output text file by Unicode or not.
- **Message beep when mark end** – The system will sound a beep when mark end.
- **Marking paused while external start triggered during marking** – Users could pause marking process during marking from external start.
- **Send marking ready and end sample while marking sample** – After checking this box, marking ready signal will send out before marking sample, marking end signal will send out after marking sample.
- **Deflate the work area if tiling is used** – Set the deflate range of work area when using “Graphic Split” function. The value cannot be negative.
- **Set Desktop range** – Allow users to set a new working area range and coordinates according to their demand
- **When open file** – Choose a default action while opening a file.
- **Object name rule** – Select the name rule of objects.
- **Max. segment length** – Set the segment length when marking. There will be no partition if users didn’t check this option.

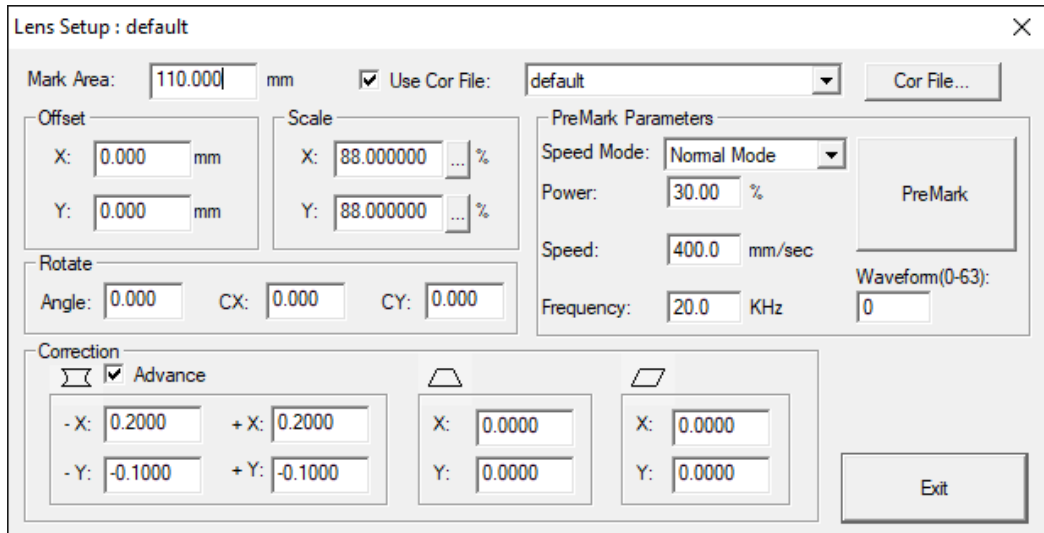
6.6.12 Lens Manager



All lenses users have will be listed here.

- **NEW** – Click this button to add a new lens
- **DELETE** – Click this button to delete the selected lens.
- **COPY** – Click this button to copy the selected lens.
- **ASSIGN** – Click this button to set the selected lens as the default lens.
- **IMPORT** – Allow users to import lens file.
- **EXPORT** – Allow user to export selected lens file.
- **Correction...** – Select the one lens and click this button to enter the lens correction function.

Click “Correction” button and do further settings for lens.



The system will use math formula to correct the barrel distortion, trapezoid distortion, or parallelogram distortion resulted from lenses and optical devices. Adjust lens parameter properly will make the marking result be the same as the original design.

- **Working Area** – Working area of the lens.
- **Use Cor File** – Use the correction files from manufacturers or use the file created by using Scale or Grid Methods and then adjust parameters.
- **Correction file** – Select the file name same as the lens name from dropdown menu or select “Import...” item from the dropdown menu to import the correction file such as COR, CTB (from ScanLab), or GCD (from RayLase). If the selected correction file has the same name as the assigned lens, users are able to click “Coe File...” button and do correction through “Using Correction File” function.
- **Offset** – If the If the working pieces cannot be put in an ideal position, users can modify the design or change the offset value to fix this problem. For example, if the position has 5mm deviation to the right side, then input -5mm in Offset X to correct it.
- **Scale** – If the size of marking result (real size) are different from the original design (theoretical size), user can use the scale function of X and Y to fix it. The unit of scale is percentage (theoretical size / real size *100, the default value is 100). For example, if real size is smaller, this value should be larger than 100.
- **Rotate** – If the If the working pieces cannot be put in an ideal position,

users can modify the design or input suitable values in these fields to amend it.

- **Correction** – When the barrel distortion, trapezoid distortion, or parallelogram distortion happen, enter the suitable X/Y values to do the correction. Please refer the following description of Distortion Correction.
- **Advance** – Allow users to input different correction values at negative X and Y direction.
- **PreMark Parameter** – Setting the parameter for PreMark.
- **Speed Mode** – Select to use Normal Mode or Dot Mode to PreMark.
- **Power** – Laser power percentage for PreMark.
- **Speed** – Laser speed (mm/sec) for PreMark.
- **Frequency** – Laser frequency for PreMark.
- **Pitch (Under Dot Mode)** – The distance between dot and dot on the marking route when doing PreMark.
- **Delay (Under Dot Mode)** – The waiting time a lens needs to start radiating when move to a dot while doing PreMark.
- **Pulse Width (YAG Laser)** – The spending time for each pulse.
- **PreMark** – Click the “PreMark” button, the laser will mark according to the parameter setting above.


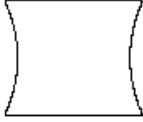
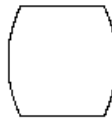




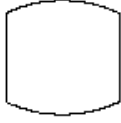
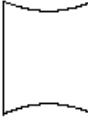
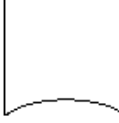



Please follow the steps listed below to do the correction and note that direction of X and Y means the output port of Galvo motor.

- 1) Select the lens user want to correct and adjust its focus.
- 2) Input the value of scale percentage according to the output voltage ratio of lens and driver.


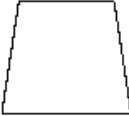



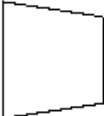
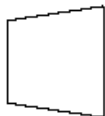


Attention, users need to complete this step first and then start executing PreMark, otherwise the lens would be damaged.

- 3) When barrel distortion happened, follow the rules of “Distortion

Correction” to do the correction until four square sides are all straight lines.


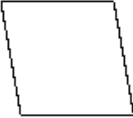
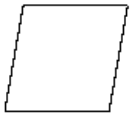



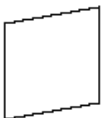


Original				
Mark Results				
Solutions	Increase the X value of  field	Reduce the X value of  field	Reduce the value of $-X$ (Advance)	Reduce the value of $+X$ (Advance)
Mark Results				
Solutions	Increase the Y value of  field	Reduce the Y value of  field	Reduce the value of $-Y$ (Advance)	Reduce the value of $+Y$ (Advance)

4) When trapezoid distortion happened, follow the rules of “Distortion Correction” to do the correction until four square sides are equal in length.

Original		
Mark Results		
Solutions	Enlarge the X value of  field	Reduce the X value of  field
Mark Results		
Solutions	Enlarge the Y value of  field	Reduce the Y value of  field

5) When parallelogram distortion happened, follow the rules of

“Distortion Correction” to do the correction until four square sides are all vertical.

Original		
Mark Results		
Solutions	Enlarge the X value of  field	Reduce the X value of  field
Mark Results		
Solutions	Enlarge the Y value of  field	Reduce the Y value of  field

- 6) Measure the dimension of marking result. Input the value of scale according to the formula (*theoretical size / real size * 100*). If the real size is larger than theoretical size, then reduce its value and retry. On the contrary, increase its value and retry.
- 7) Repeat Step 6 until the theoretical size and real size are equal.

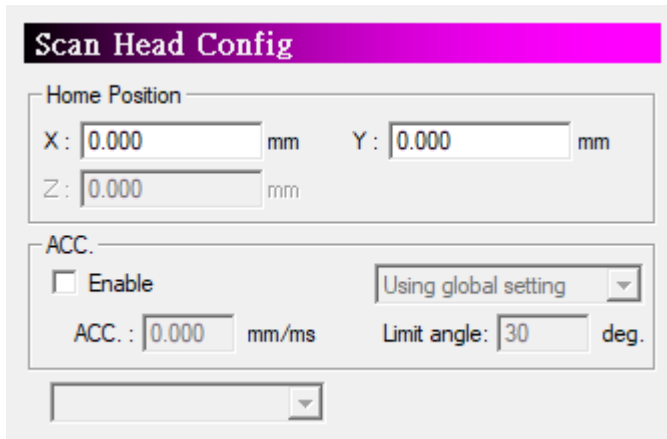
6.6.13 Focal Axis Config



Users can enable focal axis for 3D marking application.

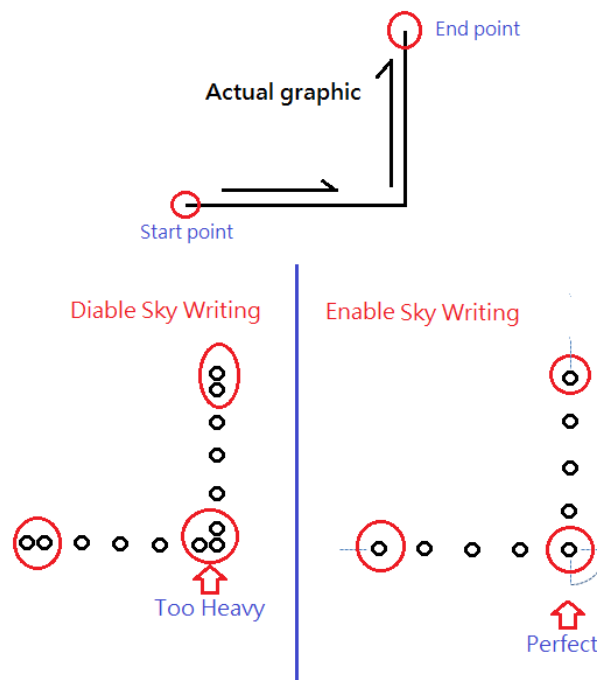
- **Enable 3D Mode** – Allow user use 3D marking.
- **Enable 3D correction mode** – Allow user tune 3D marking detail option.

6.6.14 Scan Head Config



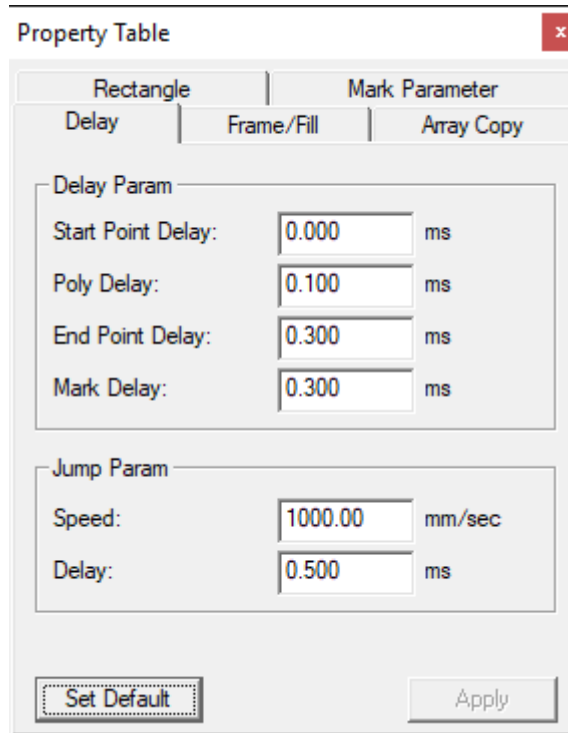
Users can set the home position of scan head, enable multi-head, and activate sky writing from here

- **Home Position** – Setting original points position in X direction and Y direction.
- **ACC.** – Enable Sky Writing function. Sky Writing is developed for eliminating scanner motor physical inertia caused laser spot distribution is uneven at start marking, end marking, and poly-line marking.

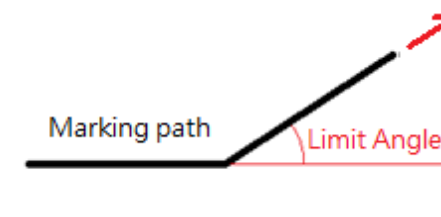


Enable Sky Writing will need to clear Start point delay, Poly delay, End point

delay, and mark delay to 0 at first, than rebuild delay parameters.



- **Enable** – Use Sky Writing function ◦ To use Sky Writing will need controller support.
- **Acc. Speed** – Greater acc. speed will need shorter time to attend the stable marking speed. This value must more than 0.
- **Limit angle** – Sky writing is disabled when poly-line outer corner angle is smaller than limit angle (not include equal to limit angle).



Value is from 0 to 180, which set to 0 means forced to use Sky Writing on whole marking process and set to 180 means forced not to use Sky Writing during marking.

6.6.15 Power Setting

Power Setting

Enable

Power Setting

Time for full power variation: 3.000 sec

Delay for being steady: 1.000 sec

Power Saving

Idle Time: 0.000 sec

Idle Power: 10.000 %

- **Enable** – Enable/disable the power settings
- **Time for fully power variation** - Time period from zero and full power
- **Delay for being steady** – The time it takes for the power to become steady when the power is full.
- **Idle Time** – The system will enter to Power Saving Mode after this setting time when the system is idle.
- **Idle Power** – Set the power under Power Saving mode.

6.6.16 Dot Mode

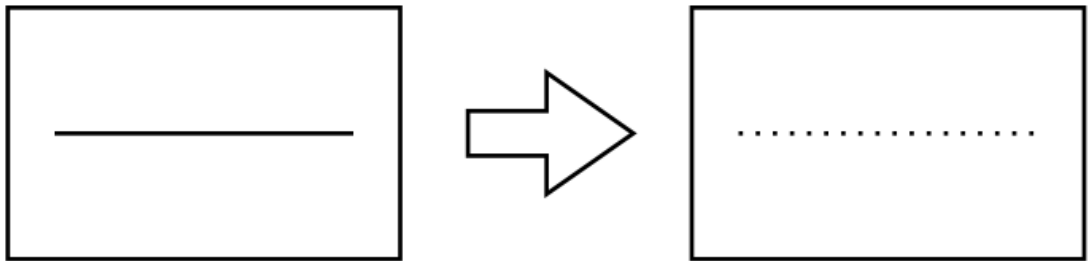
Dot Mode

Enable

Dot Mode:

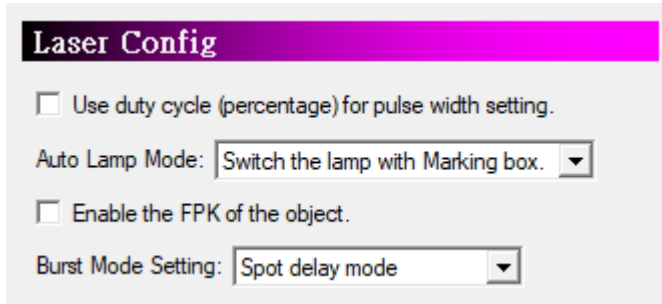
Step Distance:	<input type="text" value="1.000"/>	mm
Step Delay:	<input type="text" value="500.000"/>	ms
Repeat:	<input type="text" value="1"/>	times
Time interval:	<input type="text" value="3.000"/>	ms

Enable this function when requiring a special dot features on the marking object.
For example, mark a line with dot feature,



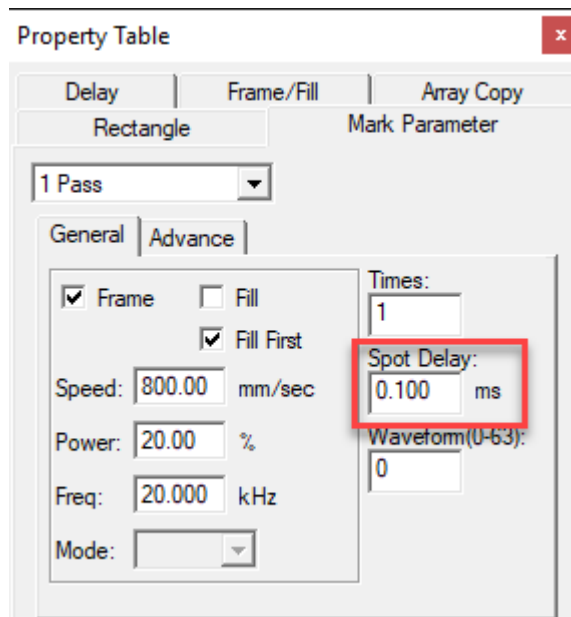
The main purpose of this function is to reach the dot effect through extending the distance and laser staying time of each dot.

- **Step Distance** – Distance between each dot.
- **Step Delay** – Laser staying time on each dot.
- **Repeat** – Set the repeat times for each dot.
- **Time Interval** – The time interval between each dot on one spot.



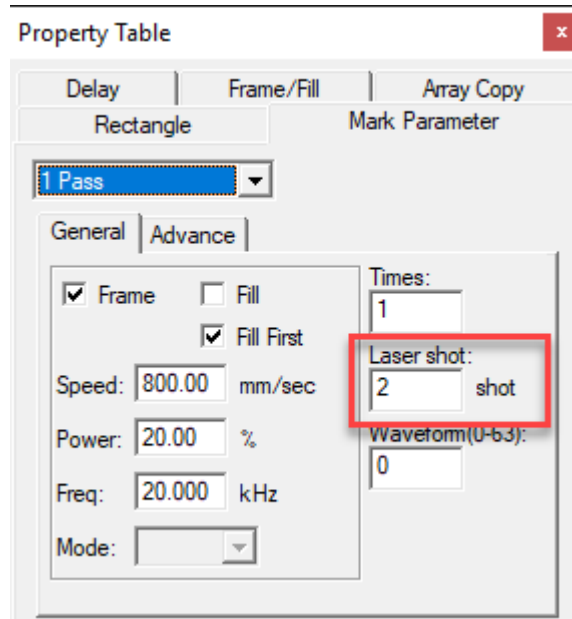
Allow users to do some laser related settings

- **Use duty cycle (percentage) for pulse width setting** – Use the percentage of (pulse/oscillogram) to set the pulse width instead of setting the continuous time of pulse directly.
- **Auto Lamp Mode** – The lamp can be selected to switch with the marking dialogue box or the marking system.
- **Enable the FPK of the object** – Allow using different FPK for each object when marking.
- **Burst Mode Setting** – When the marking object is vertex, image or barcode, users can select the spot marking mode.
 - **Spot delay mode** – This is the default setting. Spot delay means the time laser takes to mark a dot. Users can set the “Spot Delay” time in the ‘Mark Parameter” page of the Property Table while select this mode.

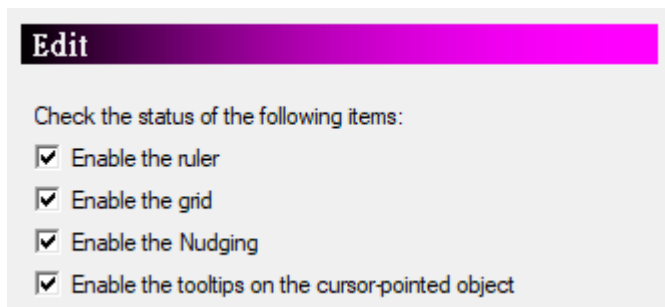


- **Laser shot mode** – This option controls the amount of laser shot on each dot.

Users can set the “Laser Shot” count in the “Mark Parameter” page of the Property Table while select this mode.

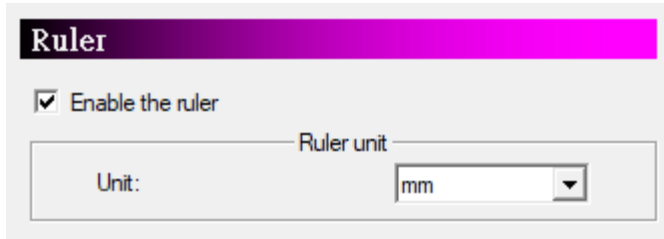


6.6.18 Edit



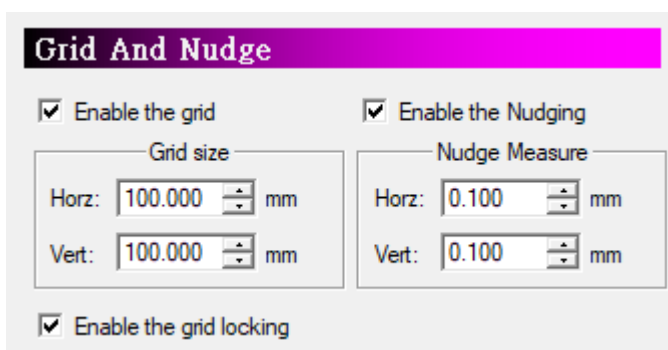
Set the edit function of the system, such as display the ruler and grid or not. The checked options will be the default value.

6.6.19 Ruler



- **Enable the ruler** – Enable/disable the ruler to appear on the work area, use ruler can help user measure the actual size of the object.
- **Ruler unit** – Set the ruler unit.

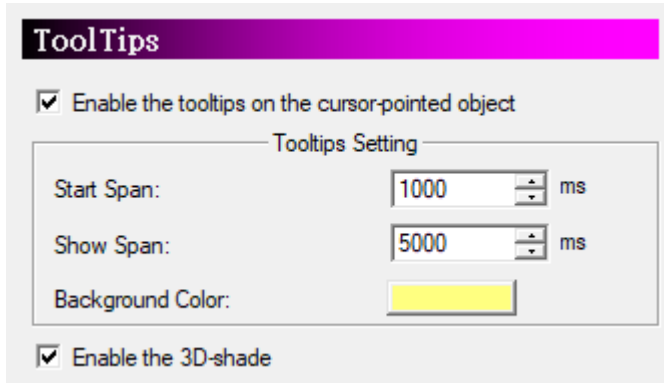
6.6.20 Grid And Nudge



Enable/disable the grid and nudging. Grid is used to help users measure the actual size of the object. Enable nudge, users can adjust the object's position through direction key according to setting nudge measure.

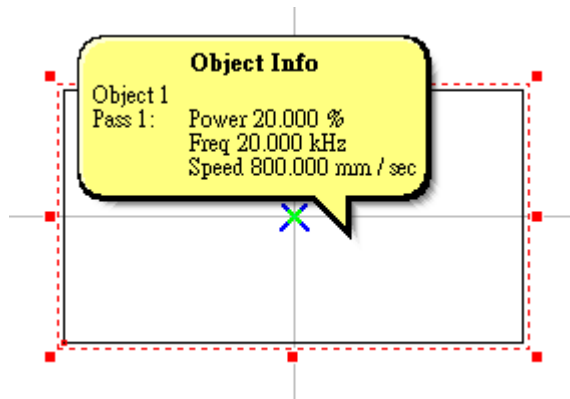
- **Enable the grid locking** – Enable/disable the grid locking function. Enable this function allows users to adjust the size and position of selected object more accurate. The system will automatically lock a grid if the mouse pointer is close to that grid when users create or move an object.

6.6.21 ToolTips



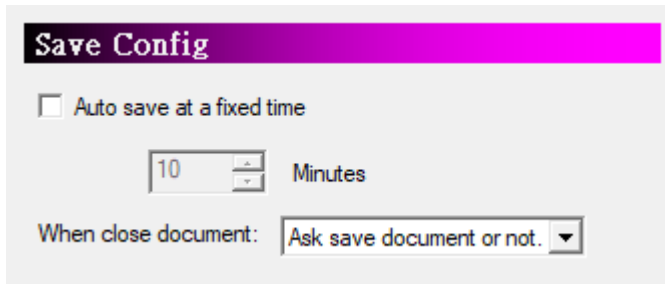
Setting about tips of objects

- **Enable the ToolTips on the cursor-pointed object** – ToolTips shows the info of the selected objects



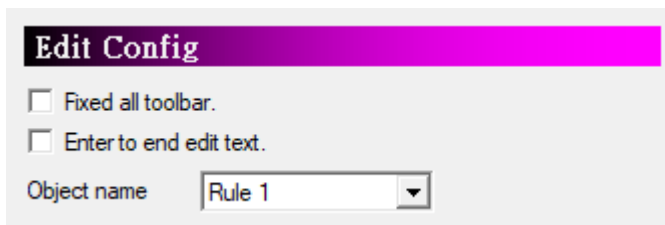
- **Start Span** – Span for ToolTips to appear
- **Show Span** – ToolTips continues time.
- **Background Color** – Background color of ToolTips
- **Enable the 3D-shade** – Enable/disable the 3D-shade

6.6.22 Save Config



- **Auto save at a fixed time** – The system will save the documents automatically every time period users set in the field.
- **When close document** – Executing auto save / without save when closing the document every time.

6.6.23 Edit Config



- **Fix all toolbar** – Enable/disable the toolbar for the moving

6.7 Shortcut Option

Allows user to quickly entry the program settings.

6.8 Import

This function allows user to import an image file that was not originally created by G-Mark, such as *.bpm or *.dxf. The system will automatically convert that file into a format supported by G-Mark after using import function. If the import object is a group or combine object, users can use “Ungroup” or “Break” function to break that object into several individual objects.

6.9 Export DXF

This allows users to transfer the current document into .dxf file format for AutoCAD or other applications which can use this type of file.

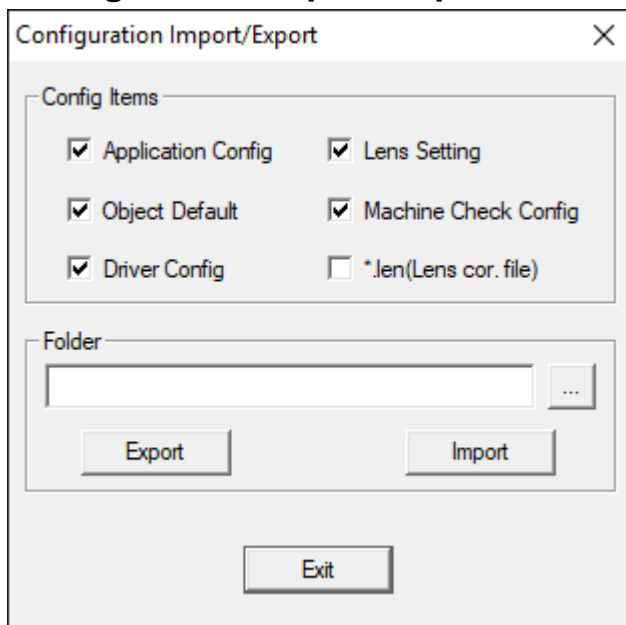
6.10 Export JPG

This allows users to transfer the current document into .jpg file format for other applications which can use this type of file.

6.11 Twain Acquire

Use this function to set image parameters such as size and resolution, the interface is provided from the scanner's manufacturer.

6.12 Configuration Import/Export



Use this function to back-up or restore current configuration, such as application configuration, object default setting, driver configuration, lens setting, machine check configuration and lens correction file.

6.13 Language



This function allows user to change the system to different language version. There are now nine language versions for user to select: English, Simplified Chinese, German, Japanese, Polish, Portuguese, Turkish, Traditional Chinese, and Vietnamese.

6.14 Print

Print the current document

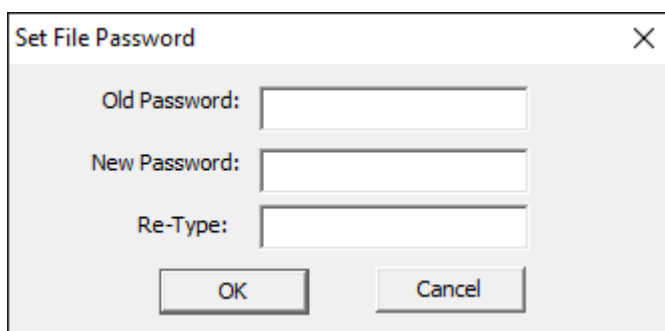
6.15 Preview

Preview the current document before printing it.

6.16 Printer Setting

Further setting about the printer.

6.17 Set File Password



Set current file password. After setting the file password, user will be asked password for access the file.

6.18 Exit



Exit G-Mark marking software.

Chapter 7

Edit Menu

Redo(R)	Ctrl + Y
Undo(U)	Ctrl + Z
Cut(T)	Ctrl + X
Copy(C)	Ctrl + C
Paste(P)	Ctrl + V
Delete(D)	Del
Select All	Ctrl + A
Select Invert(Z)	
Replace(R)...	
Combine(K)	Ctrl + K
Break(B)	Ctrl + B
Group(M)	Ctrl + M
UnGroup(N)	Ctrl + Q
Set Circle Object Radius(E)	
Move To New Layer(L)	
Sort(X)	
Reverse(V)	
Mirror Horz(H)	Ctrl + H
Mirror Vert(L)	Ctrl + L
Move to Center(O)	F8
Baseline(E)	Ctrl + E
Split(S)	Ctrl + D
Trans-Curve(Q)	Ctrl + U
Nudge(A)...	
Jump Cross(J)	
Welding(W)	Ctrl + G
Contour...(C)	Ctrl + W
Transfer to Image(F)...	
Align(G)...	
Distribute(I)...	

When you have just begun a new file and there is no data on the working area, functions are limitedly available from the Edit Menu. Once data is added and selected, the G-Mark Advance™ software's editing capabilities will be made available.

7.1 Redo

Cancel the “Undo” action. If this function was grayed, it means it is disable to use. The maximum times of “Redo” are 20.

7.2 Undo

Back to the previous edit action. If this function was grayed, it means it is disable to use. The maximum times of “Undo” are 20.

7.3 Cut

Remove selected data and store it in the clipboard for another use. If no data or object is selected, this function will be disabled.

7.4 Copy

Duplicate selected data and store it in the clipboard for another use. If no data or object being selected, this function will be disabled.

7.5 Paste

Attach data from the clipboard to the current document. If there is nothing stored in clipboard, this function will be disabled.

7.6 Delete

Delete the selected data, and the data will not be stored in the clipboard.

7.7 Select All

Select all objects, including objects which are not located in working area.

7.8 Select Invert

Select the objects which are un-selected, including objects which are not located in working area and cancel the selected ones.

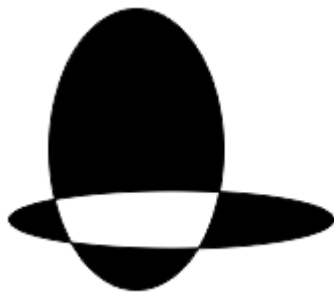
7.9 Replace...

Substitute the selected object by importing assigned object.

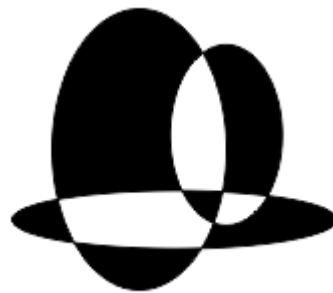
7.10 Combine

Combine two or more objects into one. This function will allow several objects to share the same property settings. Under the fill situation, the odd number overlapping parts of objects will be filled in color, while the even numbers parts will not.

Example:



▲ Two Objects Overlapping



▲ Three Objects Overlapping

7.11 Break

Divide a combined object into several individual objects.

7.12 Group

Classify two or more objects into one group. This function will allow several objects to move together while allowing their individual property settings to remain intact.

Notice: the maximum amount of group's layer is 15. Combine two or more objects into one group.

7.13 UnGroup

Cancel the group effect of an object.

7.14 Set Circle Object Radius

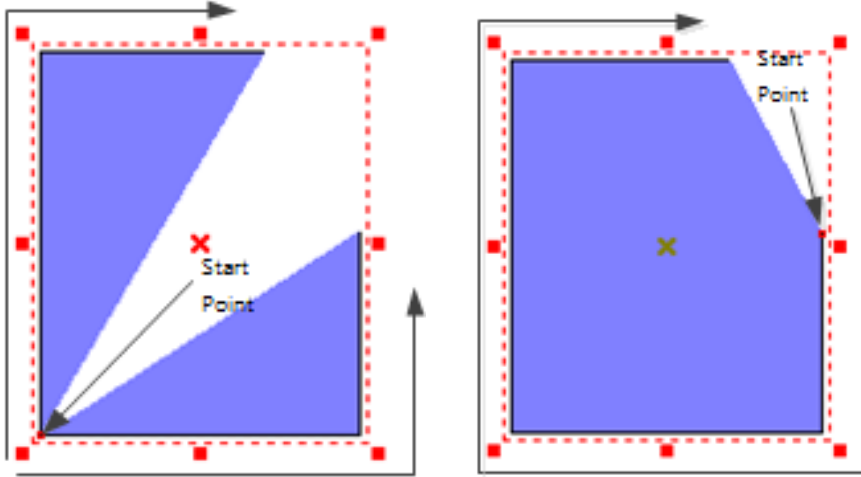
Modify circle that radius same as original radius to modified radius.

7.15 Move To New Layer

System will create a new layer and move the selected object to that new layer.

7.16 Sort

Sort the segments or objects which are not arranged in order



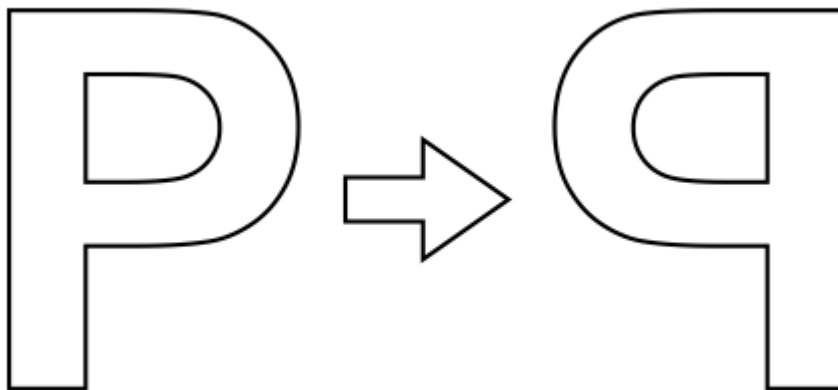
Please note that the objects users want to sort must be combined first. The arrow in the image is the start point of the object.

7.17 Reverse

Set the object's start point as end point and the end point become the start point.

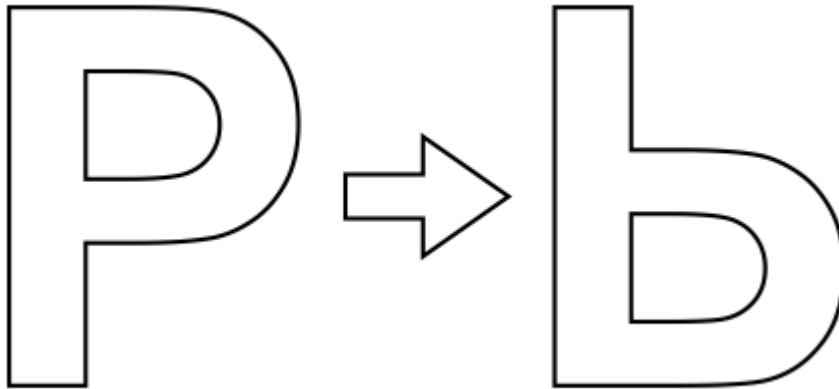
7.18 Mirror Horizontal

Invert an object on its horizontal axis. Left will become right and vice-versa.



7.19 Mirror Vertical

Invert an image on its vertical axis. Up will become down and vice-versa.

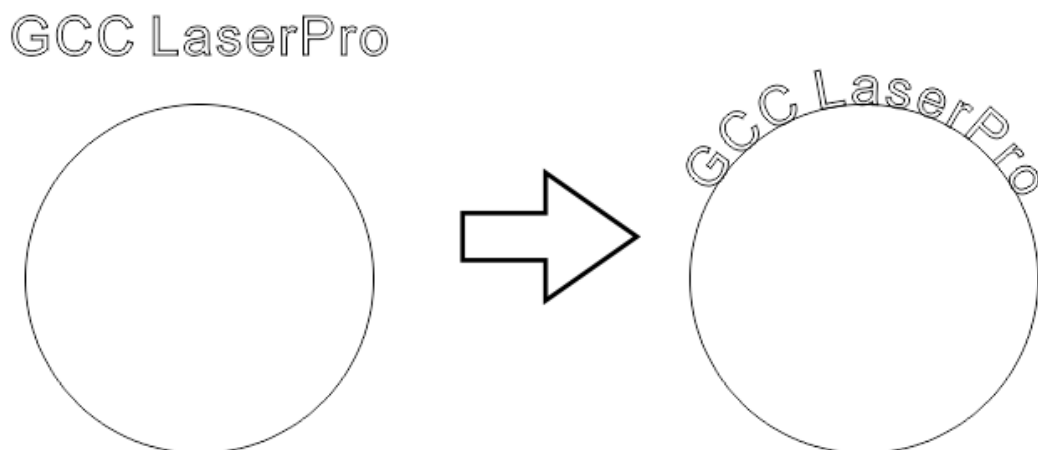


7.20 Move to Center

Move the selected object(s) to the center of working area.

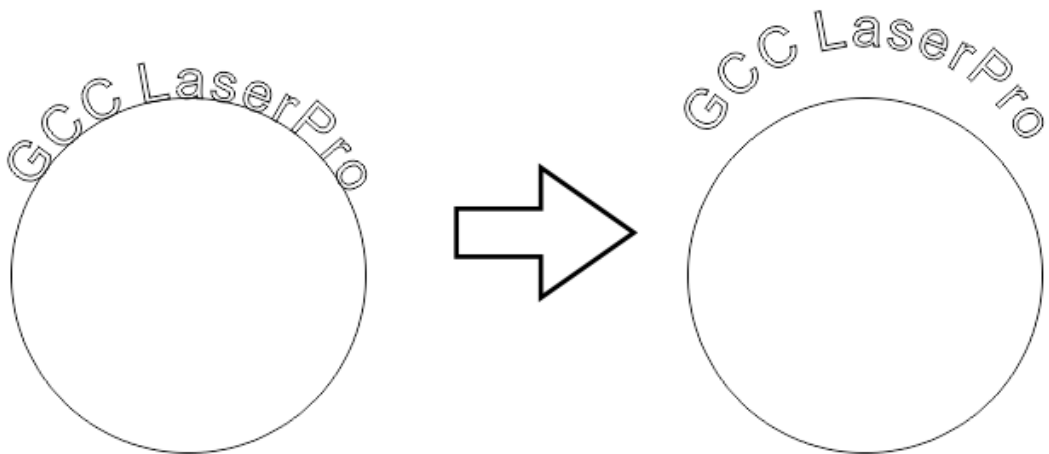
7.21 Baseline

Align selected text along with a designate path. First select the text, then click “Edit – Baseline” from Menu Bar, the mouse pointer will become as, and then select the path such as line, arc, or curve.



7.22 Split

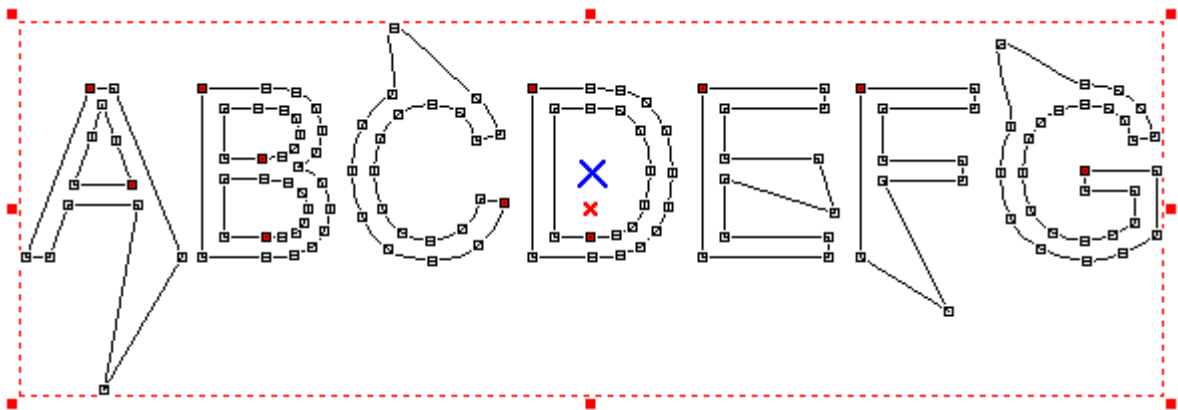
Cancel the baseline function.



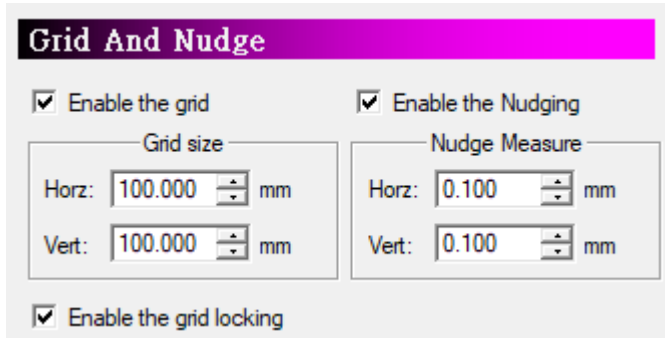
7.23 Trans-Curve

Transfer a curved line into a series of individual lines. Allow these single lines to be manipulated individually such as using “Edit Vertex” function to change the object’s shape.

- * Only curve objects are able to use “Add Vertex” and “Edit Vertex” functions.
- * This function can only be used on non-image objects.

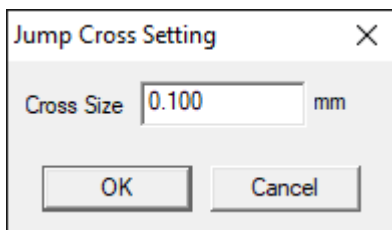


7.24 Nudge...

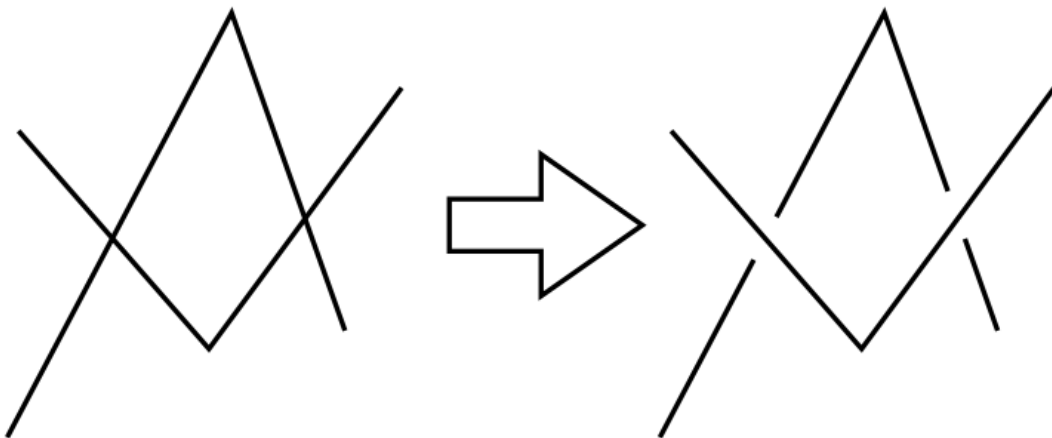


Set the nudge measure of an object when using the direction key of keyboard to move that object.

7.25 Jump Cross



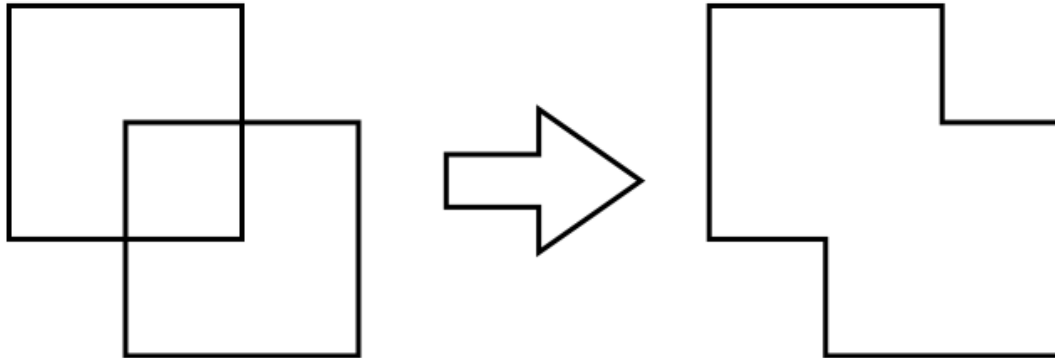
Make two figures with the line intersecting turn to be no crossing. The cross size is best to be set as between 0.008mm and 0.1mm.



7.26 Welding

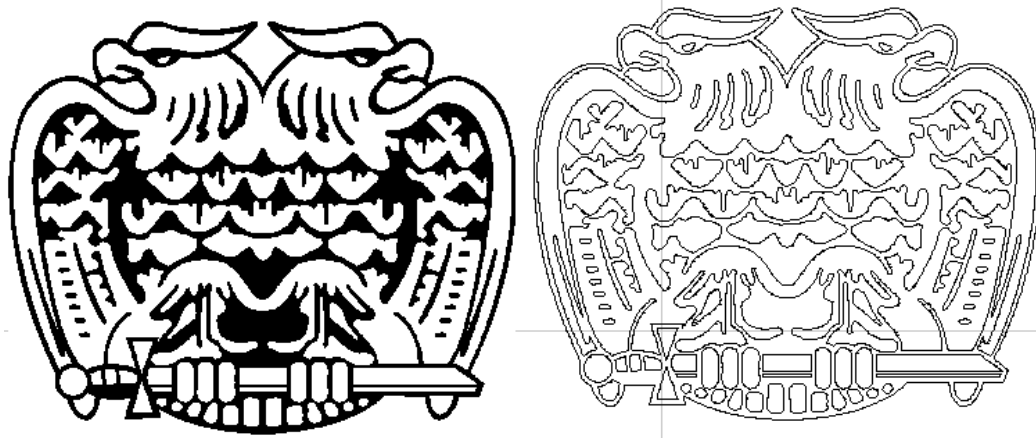
Combine two or more objects and eliminate the overlapping lines.

* This function is only work for the none-text and none-image objects. If users want to use this function for texts, they have to break the text into several segments first.

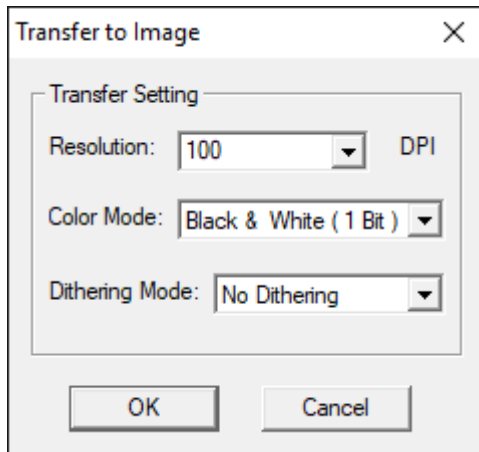


7.27 Contour

This function can derive the frame of a selected bitmap image. Before executing this function, users have to set the contour filter first.

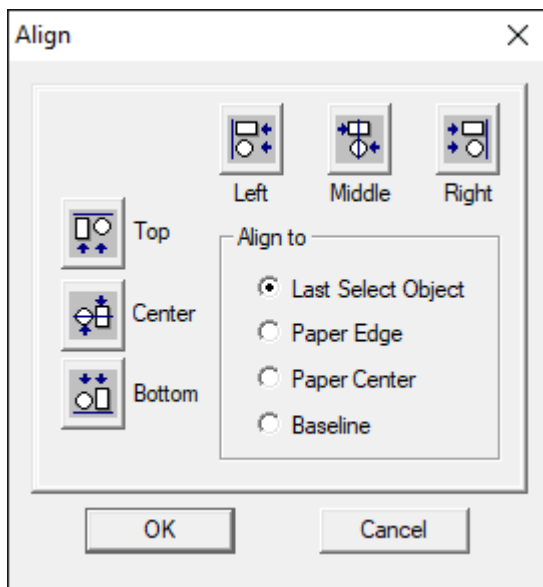


7.28 Transfer to Image



Transfer the selected objects into an image. The dialogue box can change the resolution, color, and dithering mode.

7.29 Align...



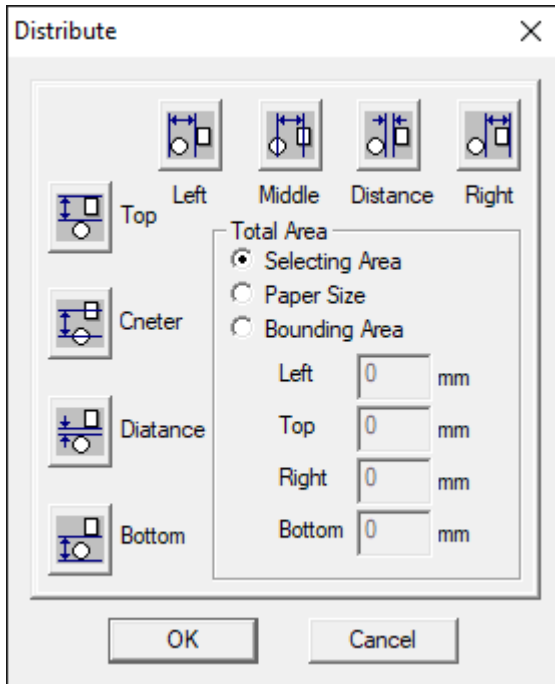
Use this function to align the selected objects.

- **Left** – Align to the left
- **Middle** – Align to the middle
- **Right** – Align to the right
- **Top** – Align to the top
- **Center** – Align to the center
- **Bottom** – Align to the bottom

- **Align to Last Select Object** – Align to the last selected object

- **Align to Paper Edge** – Align to the paper edge
- **Align to Paper Center** – Align to the paper center
- **Align to Baseline** – Align to the baseline

7.30 Distribute...

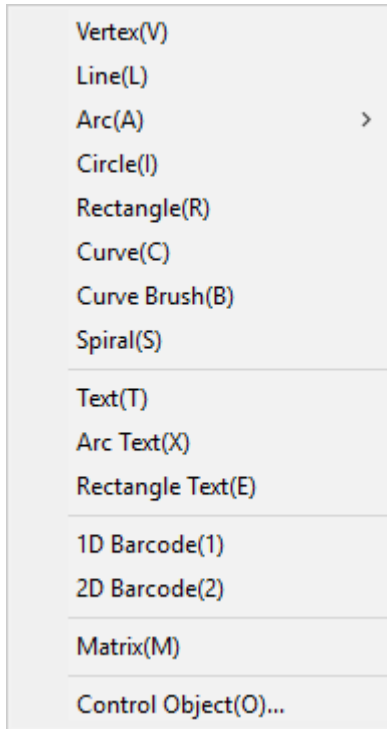


Adjust the selected objects' position according to the assigned distribution.

- **Left** – adjust the distance between the left-edge of each object.
- **Middle** – adjust the distance between the middle of each object
- **Distance** – adjust the distance between the space of each object
- **Right** – adjust the distance between the right-edge of each object
- **Top** – adjust the distance between the top of each object
- **Center** – adjust the distance between the center of each object
- **Distance** – adjust the distance between the space of each object
- **Bottom** – adjust the distance between the bottom of each object
- **Total Area** - The distribute area is according to a selected area, paper area, or an adjustable border area.

Chapter 8

Draw Menu



Use the Draw Menu or the Tool Bar to activate the different tools used for creating data on the Work Area.

8.1 Vertex

Insert a vertex object in the Working Area.

There are two ways for vertex marking. One is “Spot Delay” mode and the other is “Laser Shot” mode.

8.2 Line

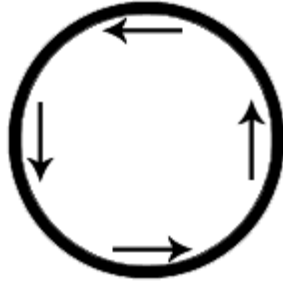
To draw a line, first click the “Line” function. The next step is to select a start point and click the left button of mouse, and then move the mouse to the end point and click the left button again. Click left button at third point to draw another line or click right button to end this function. Or press “C” to make the line become a close path and end function.

8.3 Arc

Press the left button of mouse to set the start point of arc, then move the mouse to the second point and press left button again. And then move to the third point and click the button to set the end point. Users can press the right button of mouse to end this function or press “C” to make the curve become a close path and end the function.

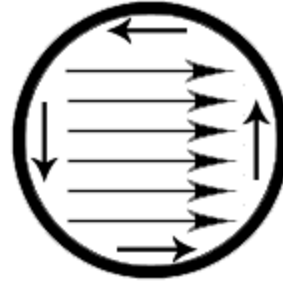
8.4 Circle

Create circles or ovals. Select a start point on the working area. Press the left mouse button and move the mouse to decide the size and shape and then click the left button again to finish drawing. Press the right button to stop this function. Press “Ctrl” when drawing will get a circle.



No Fill

Marking starts from 0 degree following levorotary direction

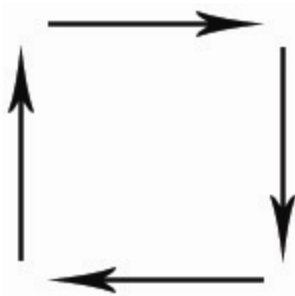


Fill

Marking starts from left to right internal and then marks external frame.

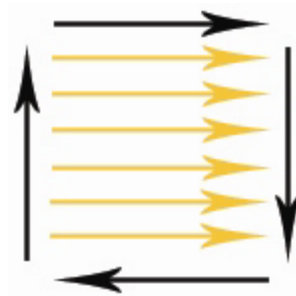
8.5 Rectangle

Create squares and rectangles. Select a start point on the working area. Press the left mouse button and move the mouse to decide the size and shape and then click the left button again to finish drawing. Press the right button to stop this function. Press “Ctrl” when drawing will get a square.



No Fill

Marking starts from 0 degree following levorotary direction



Fill

Marking starts from left to right internal and then marks external frame.

8.6 Curve

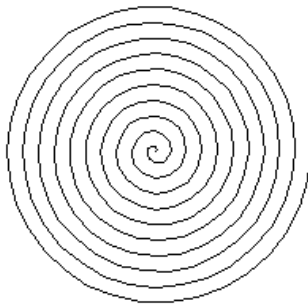
Select the start point of the curve, holding the mouse left button and decide the direction of tangent line of that point. Then move to another point and decide the direction of tangent line again and complete a curve. Users can continue drawing the curve through moving the mouse; press “C” to make that curve become a closed path curve or press the right button to end this function.

8.7 Curve Brush

Holding the left button of mouse and moving the mouse. A curve will display on the working area according to the move path of mouse. Release the left button to complete drawing and press right button to end this function.

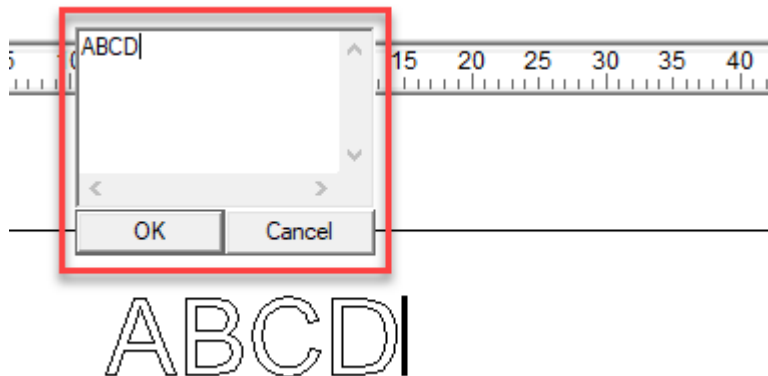
8.8 Spiral

Create Spiral. Select a center point on the working area. Click the left mouse button to draw a spiral.



8.9 Text

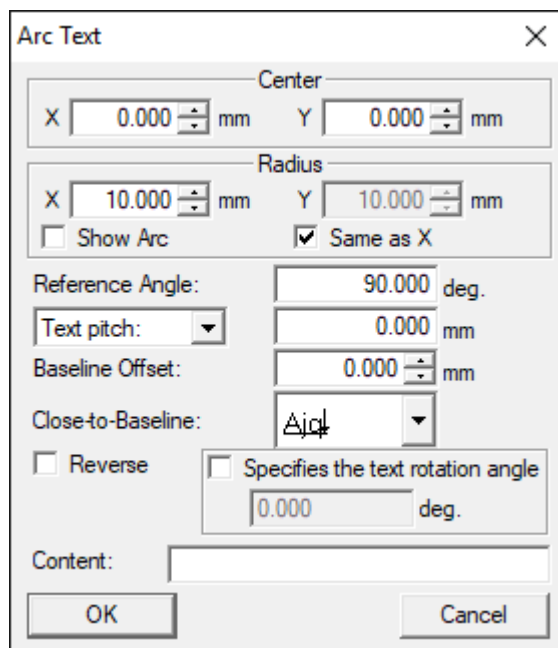
Select this function. Decide the position of the text and a dialog box will be displayed, see the red area.



Input the content of the text. Press “Enter” to do line feed or click right button of mouse to end this function.

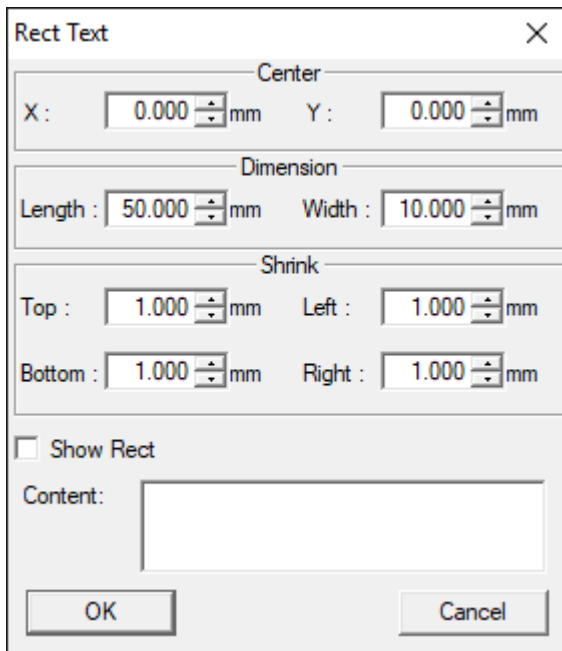
8.10 Arc Text

Using this function, the system will show a window. Input the content and click “OK” to end this function.



8.11 Rectangle Text

Users can input the text within a specified rectangle. The font size of text will be changed according to the amount of characters.

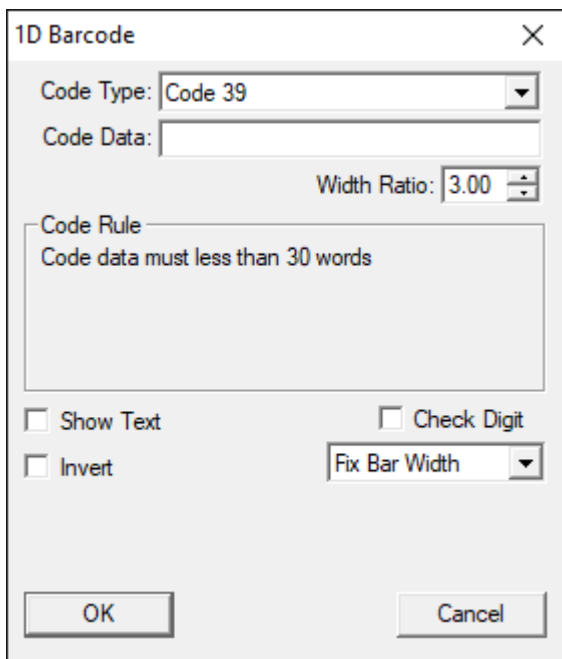


The 'Rect Text' dialog box is used to define the position, dimensions, and shrinkage of a text rectangle. It includes the following sections:

- Center:** X: 0.000 mm, Y: 0.000 mm
- Dimension:** Length: 50.000 mm, Width: 10.000 mm
- Shrink:** Top: 1.000 mm, Left: 1.000 mm, Bottom: 1.000 mm, Right: 1.000 mm
- Show Rect
- Content:** [Empty text input field]
- Buttons:** OK, Cancel

8.12 1D Barcode

Select this function and a dialog box will open for user to choose code type and enter code data. Click "OK" when finish entering all information to close this dialog box and insert the 1D Barcode on working area.

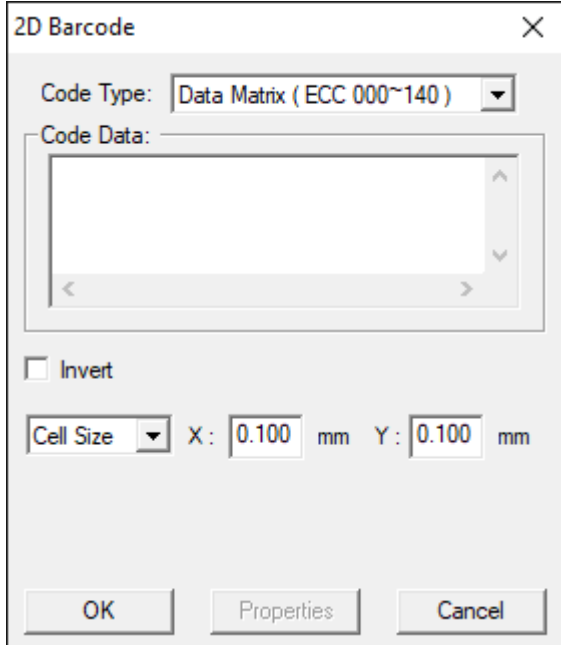


The '1D Barcode' dialog box is used to configure a 1D barcode. It includes the following sections:

- Code Type:** Code 39
- Code Data:** [Empty text input field]
- Width Ratio:** 3.00
- Code Rule:** Code data must less than 30 words
- Show Text
- Check Digit
- Invert
- Fix Bar Width:** [Dropdown menu]
- Buttons:** OK, Cancel

8.13 2D Barcode




Select this function and a dialog box will open for user to choose code type and enter code data. Click “OK” when finish entering all information to close this dialog box and insert the 2D Barcode on working area.



8.14 Matrix

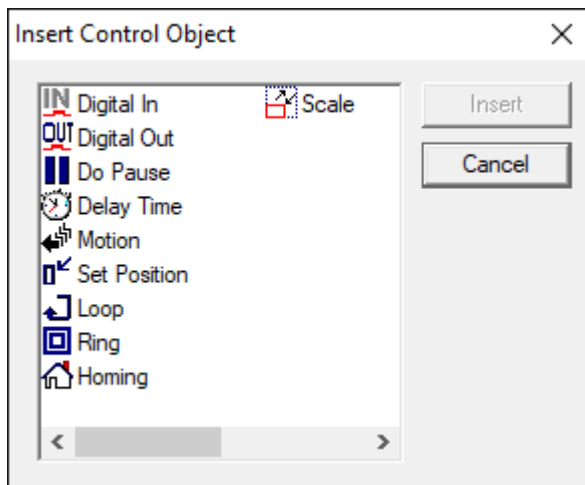
Matrix function uses one or more objects as a sample to create an assigned amount of objects with same parameters and figure. Executing this function, a 2x2 matrix object will be created on working area.



and a toolbar  will show for users to edit the content of matrix. Decider the amount of row and column of matrix and click button  or double click the mouse left button on one cell to edit the matrix content. Then click button  to finish the editing and all cells will show the same content.

8.15 Control Object

To insert a control object into the output sequence; the control objects include delays and pauses, and input/output signals to auxiliary equipment.

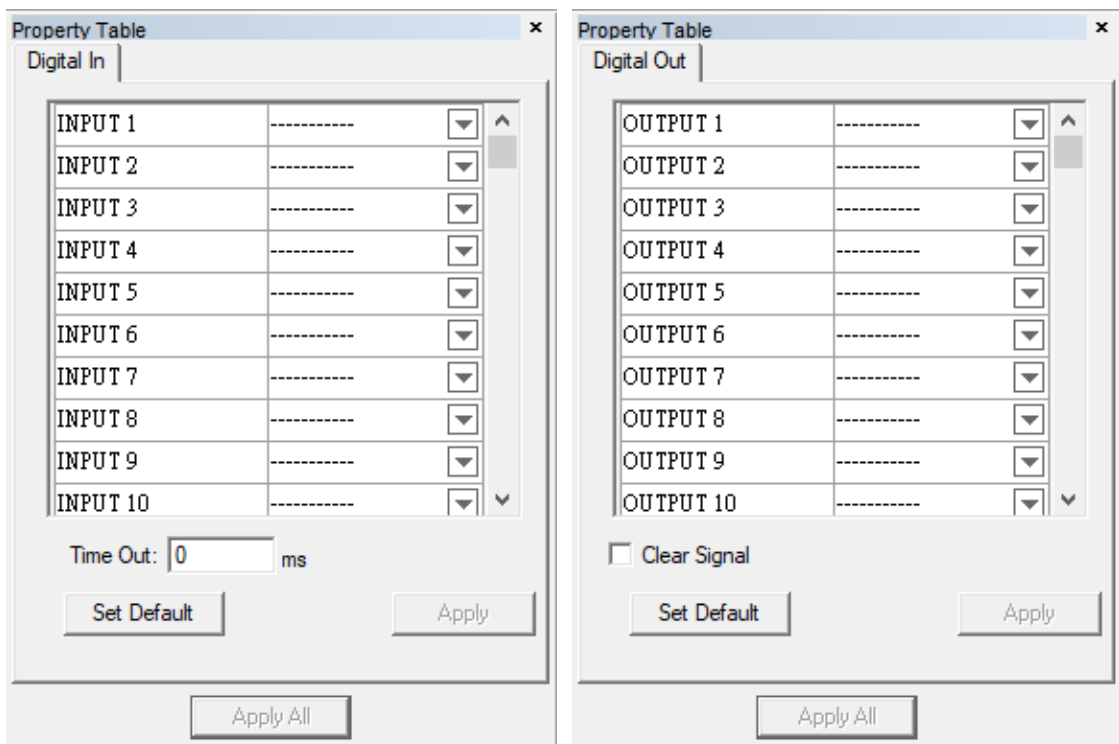


The StellarMark™ and your computer may be connected to a network of equipment that can be controlled by G-Mark marking software. G-Mark marking software can be programmed to communicate with other devices such as conveyer belts, packaging machines and other machines capable of communicating with a computer through a standard D-Type connector.

Your StellarMark™ marking machine may be positioned above a mechanical belt, which automatically rotates the materials in sequence. Communicate with that machine you would need to send and receive signals.

- **Digital_Out & Digital_In** – Tells your computer to send out a signal, while Digital_In tells your computer to wait for a signal response. To adjust the information contained in each incoming and outgoing pulse, select Digital_out or Digital_in in the Object Browser. Using the right mouse button, click on Property Table.

The Property Table should reveal the eight-input/output positions that can be modified. Select SET to input a value of one or CLEAR to input a value of zero. To send or receive a pulse that has a signature code of 10100001, you should input SET CLEAR SET.



- **Pause& Delay** – To insert a pause into the marking sequence, select Draw → Control → Do_Pause.

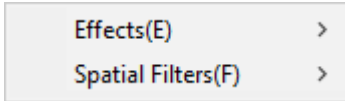
When the marking sequence reaches this step, the G-Mark Advance™ software will notify the StellarMark™ to stop and wait for you to resume the marking progress.

To insert a delay into the marking sequence, select Draw (Control / Wait_time). You can adjust the duration of the delay by using the right mouse button to click on Delay Time in the Object Browser. Use this to display the Property Table. The Property Table will allow you to increase the delay time. NOTE: The value of the delay time is registered in milliseconds (1000ms=1sec).

Chapter 9

Image

Image function allows user to modify effect and select filter of the image.



9.1 Effect

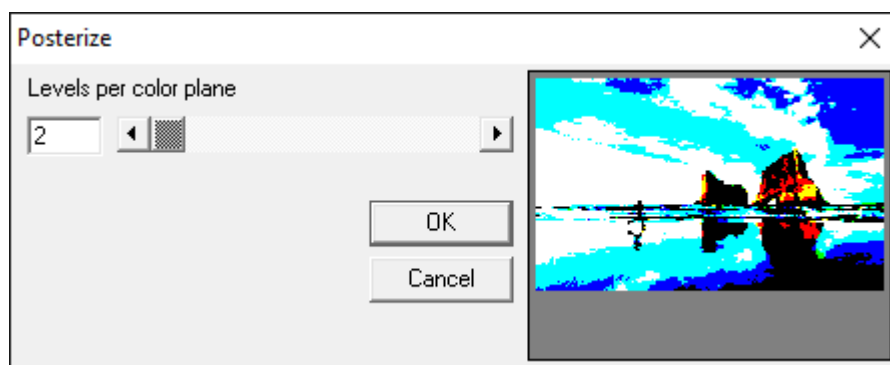
This function allows user to modify the image effect.

The original time.



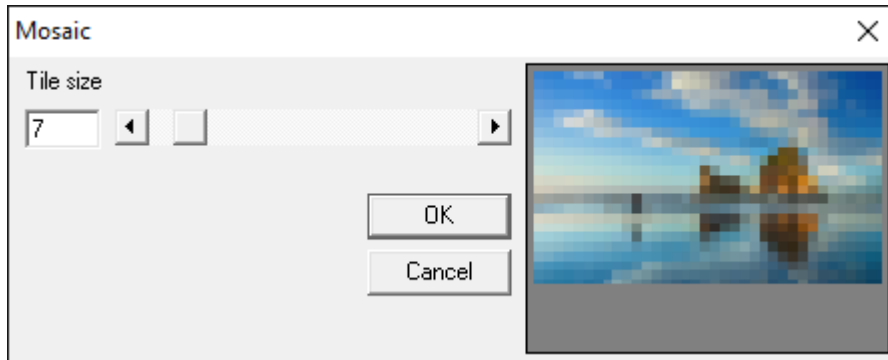
9.1.1 Posterize

This function allows user to adjust the color levels for an image.



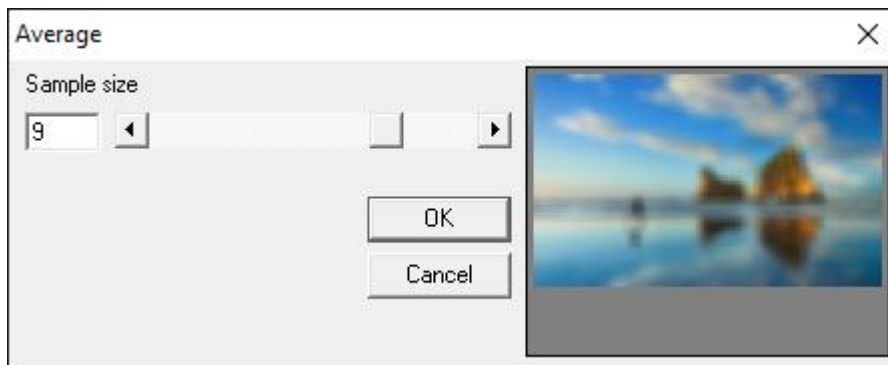
9.1.2 Mosaic

This function will cause a blurred by magnifying the pixel size of the image.



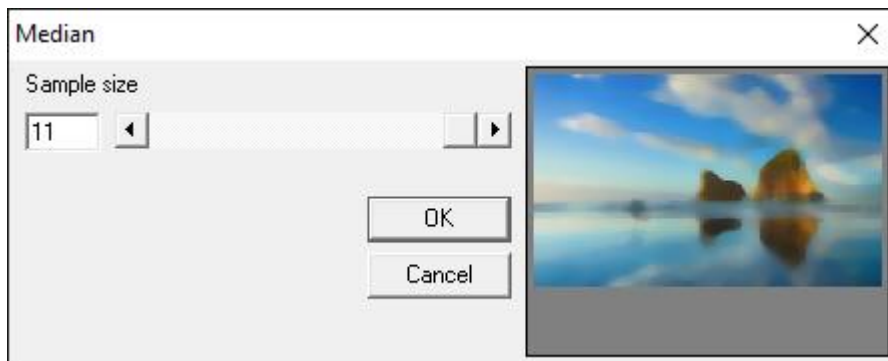
9.1.3 Average

This function will cause a blurred by adjusting the average sample size of the image.



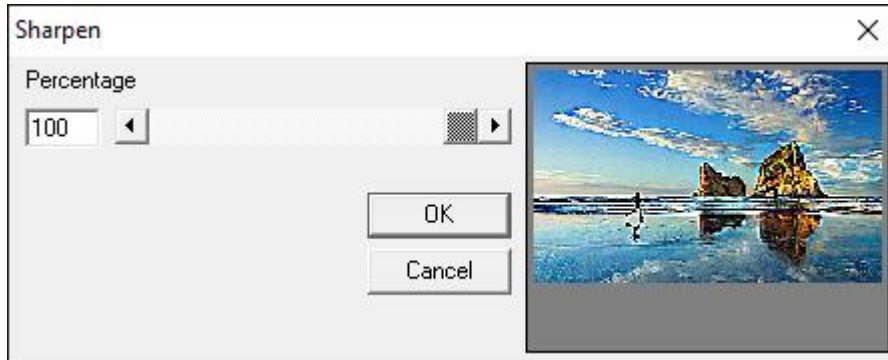
9.1.4 Median

Adjust the sample size of image to cause the median effect and make the image become blurred.



9.1.5 Sharpen

Adjust to percentage of image to increase the resolution and emphasize the contrast.



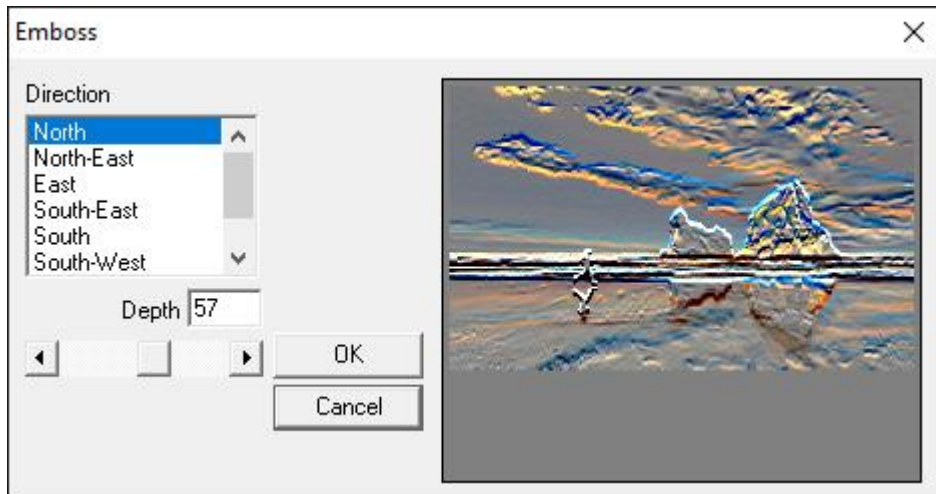
9.1.6 Add Noise

Add white noise to the image according to the noise level and channel. There are four types of channel to choose: Master, Red, Green and Blue.



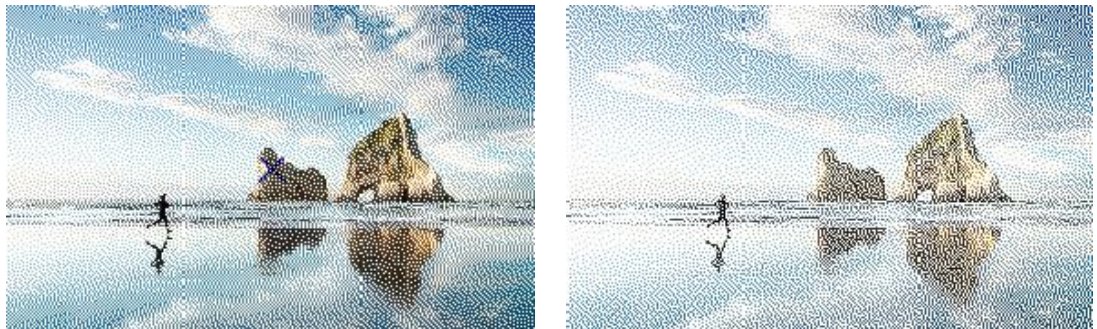
9.1.7 Emboss

Create an embossed effect for the image by adjusting the direction and depth.



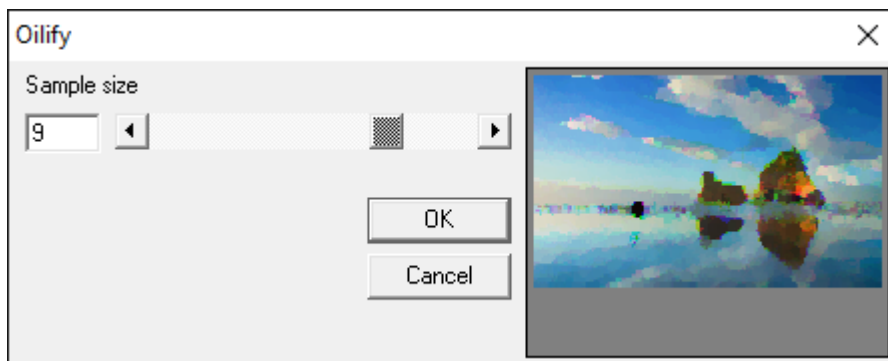
9.1.8 Edge Enhance

Enhance the edge of image.



9.1.9 Oilify

Adjust the sample size to create an oil painting effect for the image.

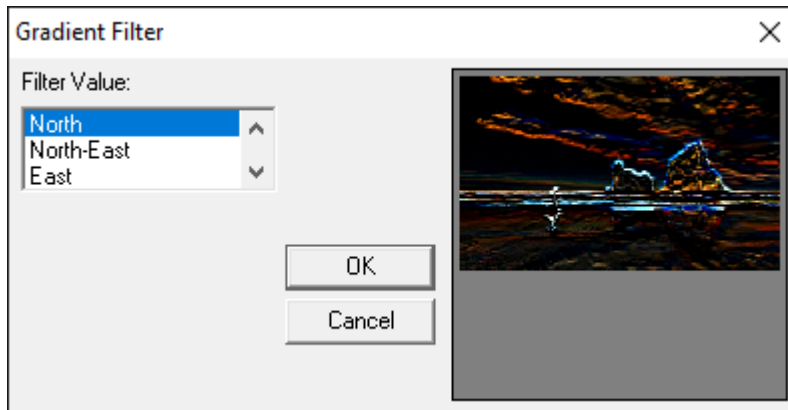


9.2 Spatial Filters

This function allows user to select and adjust the image filter.

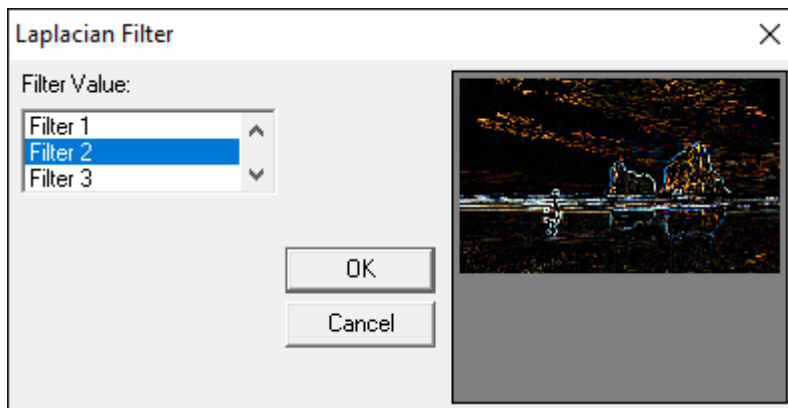
9.2.1 Gradient

Adjust the Filter Value according to the direction



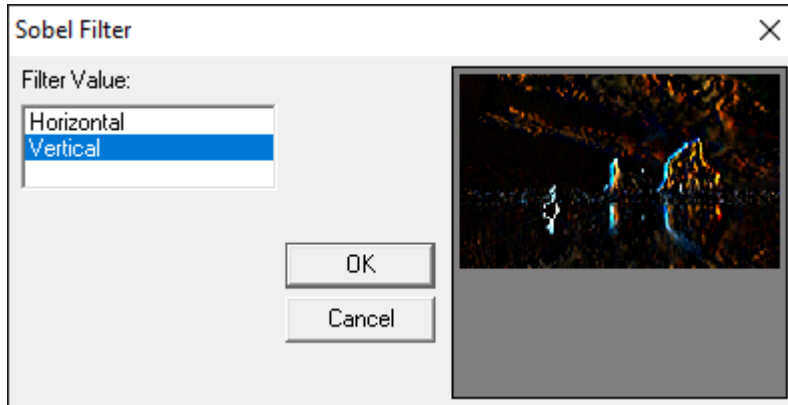
9.2.2 Laplacian

Select Filter from Filter Value list to adjust the image.



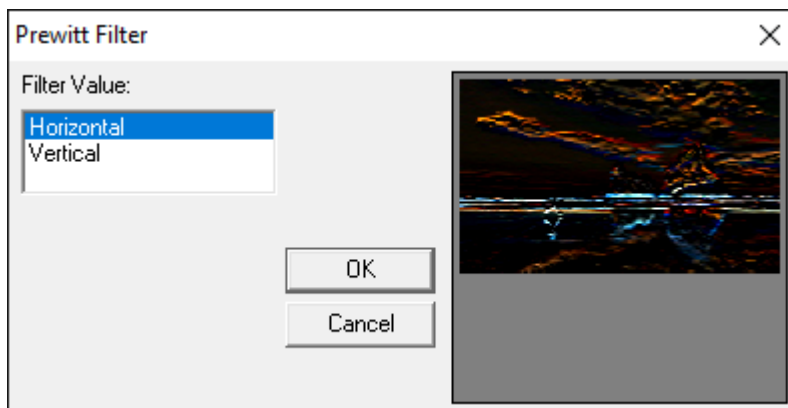
9.2.3 Sobel

Adjust the image by selecting the Filter Value to get Sobel effect.



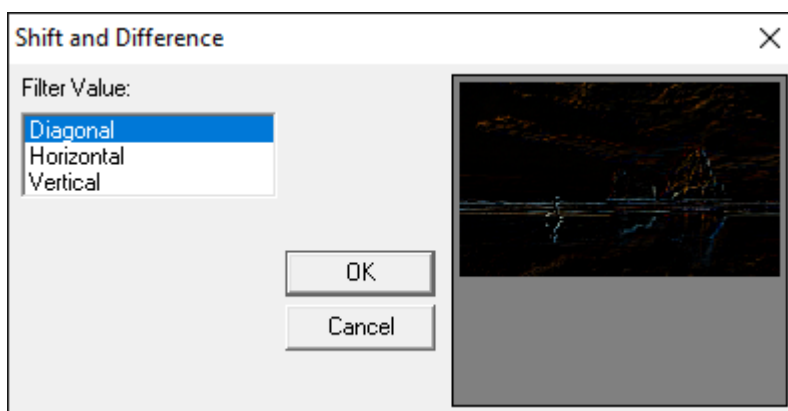
9.2.4 Prewitt

Adjust the image by selecting the Filter Value to get Prewitt effect.



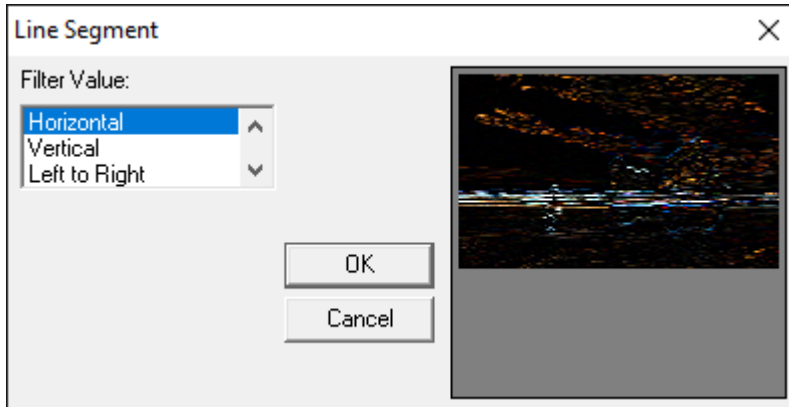
9.2.5 Shift & Difference

Adjust the image effect by selecting the Filter Value.



9.2.6 Line Segment

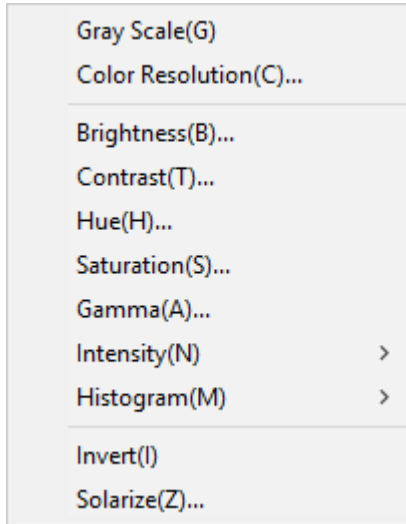
Adjust the image effect by selecting the Filter Value.



Chapter 10

Color

Color function allows user to adjust the color of the image.



10.1 Gray Scale

Transform a colored image into an 8-bit grayscale image.

10.2 Color Resolution

Change the image resolution by adjusting the Bits Per Pixel and the Color Order or Dither Method and Palette (Dither Method and Palette must be under 8-bit mode).



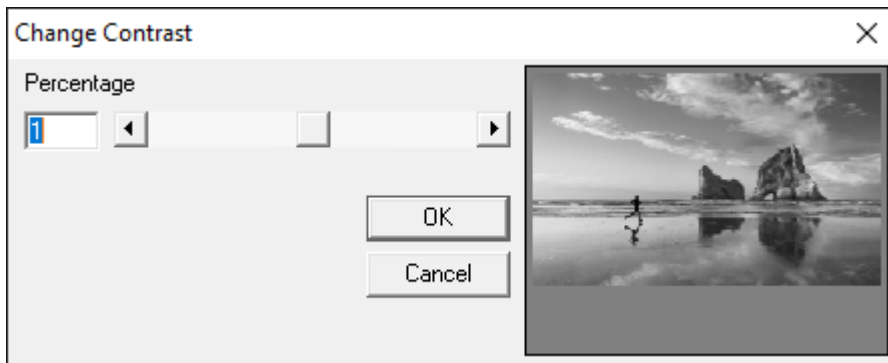
10.3 Brightness

Change the brightness of image by adjusting the Percentage.



10.4 Contrast

Change the contrast of image by adjusting the Percentage.



10.5 Hue

Adjusting the degrees to change the hue of image.



10.6 Saturation

Change the contrast of image by adjusting the Percentage.



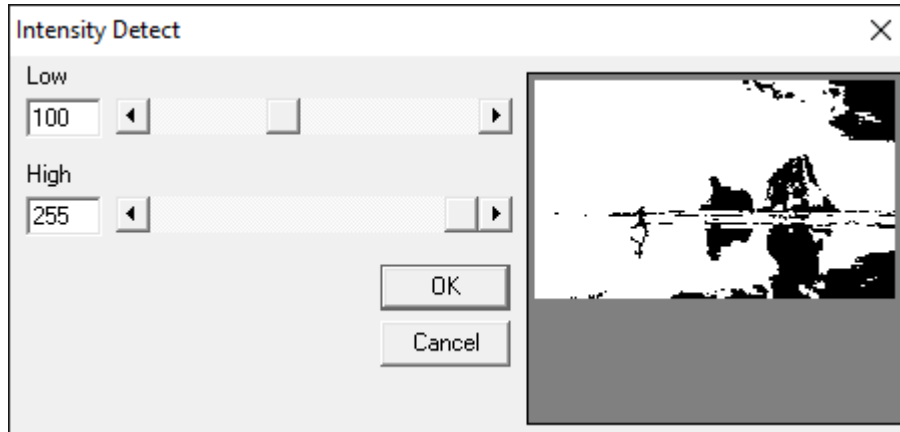
10.7 Gamma

Change the image color by adjusting the Gamma value.



10.8 Intensity

- **Detect** – Adjust image intensity according to the Low and High value.



- **Stretch** – Change the image intensity according to the previous settings.



10.9 Histogram

- **Equalize** – Equalize the image automatically.



- **Contrast** – Change the image contrast by adjusting the percentage.



10.10 Invert

Invert the color of the image.



10.11 Solarize

Create an exposure effect for the image by adjusting threshold value.



Chapter 11

Execute

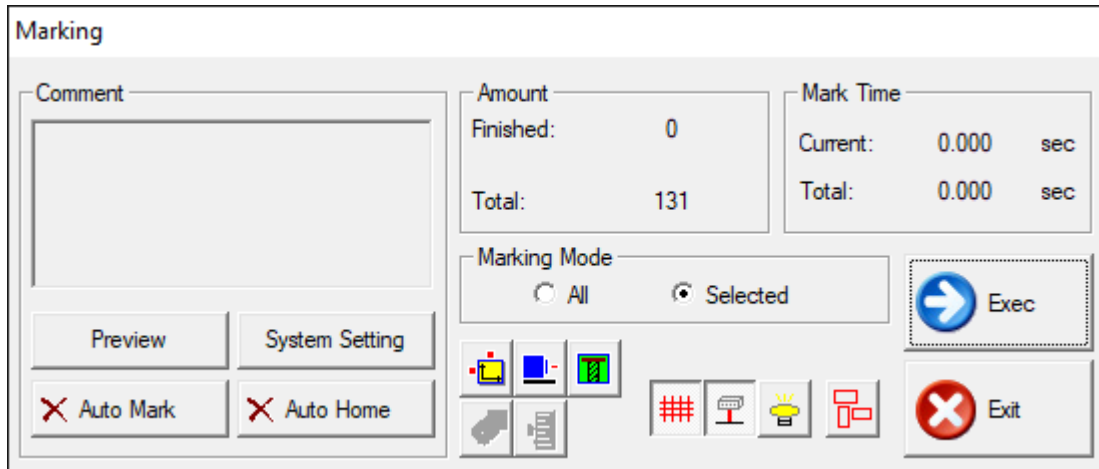
The Execute Menu controls the communication between G-Mark marking software and the StellarMark™.

Marking(M)...	F5
Remote Control(R)...	
Estimated Time of Process(E)	
Preview(P)	F9
Mark Sample(S)	F10
Quick Mark(Q)...	F6
Align Test(A)...	
Export Cloud Marking Model(E)...	
User Level(U)...	F4
Mark Parameter List(K)...	
Auto Text Manager(T)...	
Rotary Marking(R)...	
Computer Vision Positioning Pannel(C)...	
Laser Setting(L)	
Altimetry (Y)	

11.1 Marking

This function will begin the marking sequence.

NOTE: Press ESC to pause and restart the marking process

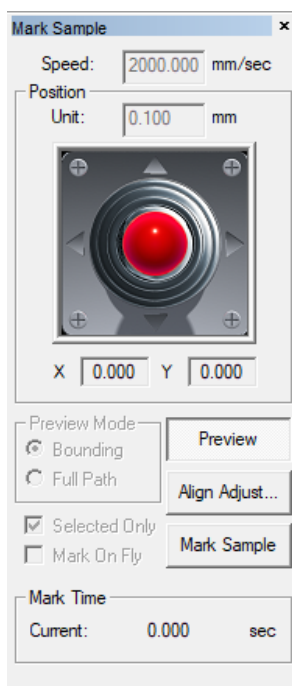


11.2 Remote Control

Use remote control function to connect two computers to mark.

11.3 Preview

This function is used to position the marking object. It uses align light instead of laser to display marking route on work piece. Users can adjust the position of work piece to fit the marking area through this function.



To exit preview, click on the upper right of the interface.

Speed: Moving speed of align light.

Position: Click the four arrows around the control lever in the joystick to move the align light, and the moving distance depends on X or Y value which is set at “Unit.”

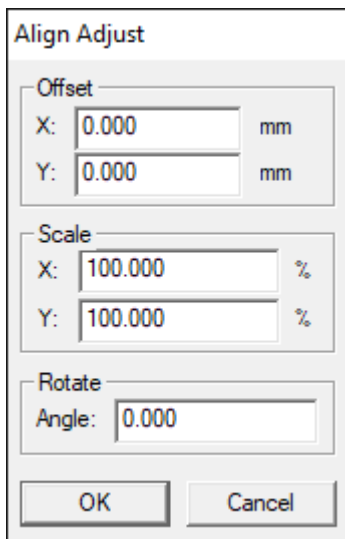


Preview Mode

- Bounding: The preview only shows the marking frame.
- Full Path: The preview shows the whole marking path.
- Selected Only: Preview the selected object only.
- Mark On Fly: Preview the marking position under “Mark On Fly” mode.
- Preview: Start preview.

Align Adjust

If the position of laser does not match with align light, users can use this function to adjust the offset, scale, and rotate angle of the align light.



- Offset: Adjust the align light’s offset of X or Y direction.
- Scale: Adjust the align light’s scale of X or Y.
- Rotate: Adjust the angle of align light.
- Mark Sample: Execute marking directly.

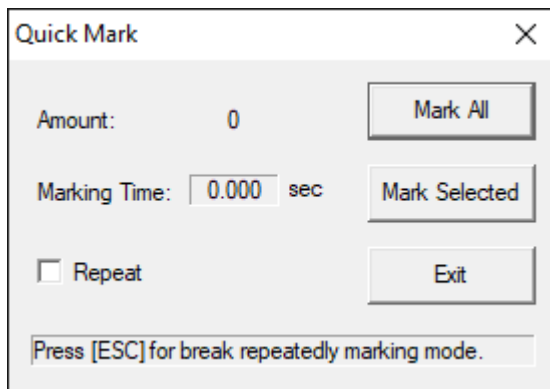
11.4 Mark Sample

Select this function and enter the preview mode to do “Mark Sample.”

11.5 Quick Mark

You can F3 the quick key to execute the laser firing instead of pressing the “Marking” button.

The Quick Mark window will show marking information: the marking time and amount of marking times.



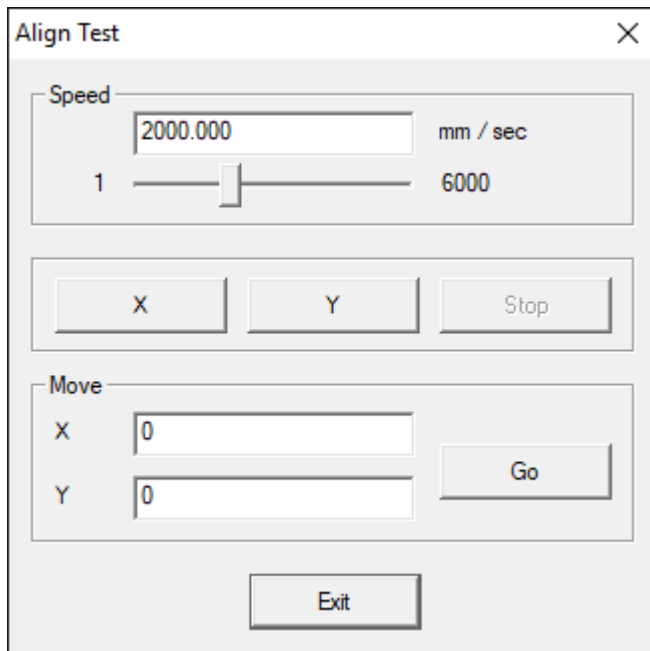
- Amount: The total marking amount.
- Marking Time: The time cost of current marking process.
- Repeat: Repeat marking. Users can press “Esc” to stop marking.
- Mark All: Mark all the objects.
- Mark Selected: Mark the selected objects.
- Exit: Exit this mode.

The difference between “Marking” and “Quick Marking” is that “Auto Text” and “Control Object” functions will be ignored under “Quick Marking” mode.

11.6 Align Test

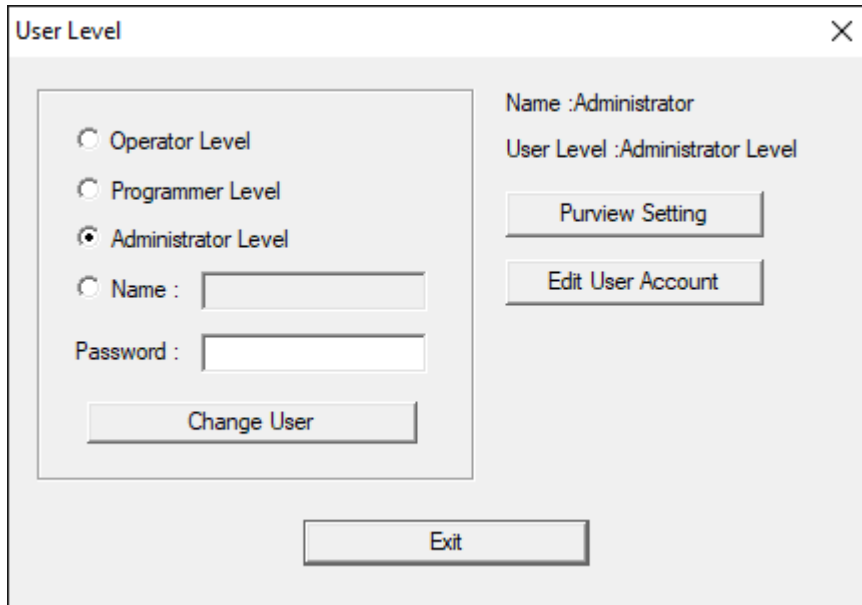
This is to test if the X and Y motors of scan head are working normal.

- ◆ Speed: How fast you want the scan head moves.
- ◆ X / Y: When you press the X, only the X motor will move.
- ◆ Move: The moving angle of the X and Y motor.
The max. angle is 20 degrees.

A screenshot of a software dialog box titled "Align Test". The dialog has a close button (X) in the top right corner. It contains three main sections: 1. "Speed": A text input field with "2000.000" and "mm / sec" to its right. Below it is a slider control with a vertical bar in the middle, and the numbers "1" and "6000" at the ends. 2. Action buttons: Three buttons labeled "X", "Y", and "Stop" arranged horizontally. 3. "Move": Two text input fields, one for "X" containing "0" and one for "Y" containing "0". To the right of these fields is a "Go" button. At the bottom center of the dialog is an "Exit" button.

11.7 User Level

For those people who need to integrate StellarMark into a production line, it may be too risky to open all the functions in G-Mark marking software to the users who are not familiar with the software, as unnecessary mistakes may occur during production, therefore users are classified into three levels in G-Mark marking software:



◆ Operator Level

Operator level users are not only allowed to use all the functions of edit, draw, save and automation control in G-Mark Advance, they are also allowed to modify the passwords of Operator level and Programmer Level.

◆ Programmer Level

This level is below the Administrator Level and above Operator level.

It will allow the Programmer level users to use the edit, draw and save functions but will not be able to change the job sequences of automation control.

◆ Administrator Level

This is the bottom level and it will only allow users to output an existing job and do nothing else.

◆ Purview Setting

Need administrator authority. Allow administrator to assign different access right to different level user. Administrator could assign the following parts: File, Edit, Draw, Image, Color, Execute, View, Property table, Tracker.

Purview Setting ✕

Category : File ▾

User Level	Administrator	Programmer Level	Operator Level
New	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Open	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Close	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Save	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Save As	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Option	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Import	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Export DXF	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Export JPG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Select TWAIN Device	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
TWAIN Acquire	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Configuration Import/Export	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Language	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Exit

11.8 Mark Parameter List

This will allow you to save the laser parameter for all kinds of materials used. If you find the material is very similar with the one you have done before, then you can reload the parameter which you had previously saved as a reference.

Mark Parameter List

Parameter Path... C:\Program Files (x86)\G-Mark Lib\MarkParam

Item Name					
Pass					
Color					
Frame					
Fill					
Fill First					
Speed[mm/s]					
Power[%]					
Freq[kHz]					
Times					
Start Point Delay[ms]					
Poly Delay[ms]					
End Point Delay[ms]					
Mark Delay					
Jump Speed[mm/s]					
Jump Delay[ms]					
Spot Delay[ms]					

New(N) Copy(C) Delete(D) OK(O)

11.9 Auto Text Manager

This is used to activate the Auto Text Manager for auto text setting.

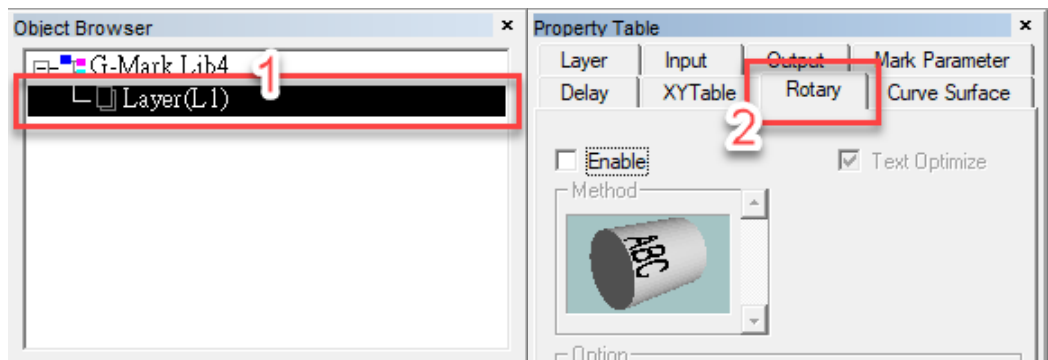
The screenshot shows the 'Auto Text Manager' dialog box. It has a title bar with a close button (X). The main area is divided into two sections. The top section, titled 'Auto Text Item', contains a dropdown menu for 'Auto Text Item' (set to 'Engine Item 1'), a text field for 'Rename' (also 'Engine Item 1'), and buttons for 'Delete Item', 'Create Item', and 'OK'. The bottom section, titled 'Auto Text Item Setting', contains a dropdown for 'Auto Text Mode' (set to 'Serial No.'). Below this is a 'Serial No.' section with a 'Prefix' text field and a 'Content' area. The 'Content' area includes spinners for 'Start' (0), 'Repeat' (1), 'Step' (1), 'End' (100), and 'Digit' (0). It also has a 'Lead' text field, a 'Base' dropdown (set to 'Decimal'), a 'Recycle' checkbox (checked), and a 'Special carry' button. A 'Postfix' text field is located at the bottom of the 'Auto Text Item Setting' section. A 'Close' button is at the bottom right of the dialog.

11.10 Rotary Marking

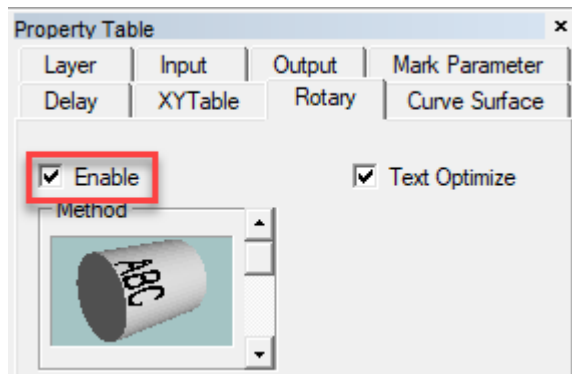
G-Mark marking software can be set up to mark materials that are rounded but not flat. For example, if you wanted to mark a logo on a ball, you would need to enable the Rotary Marking function and edit the levels to accommodate the radius of the portion that is to be engraved and the angle of the round object.

11.11.1 Enable the function of rotary marking

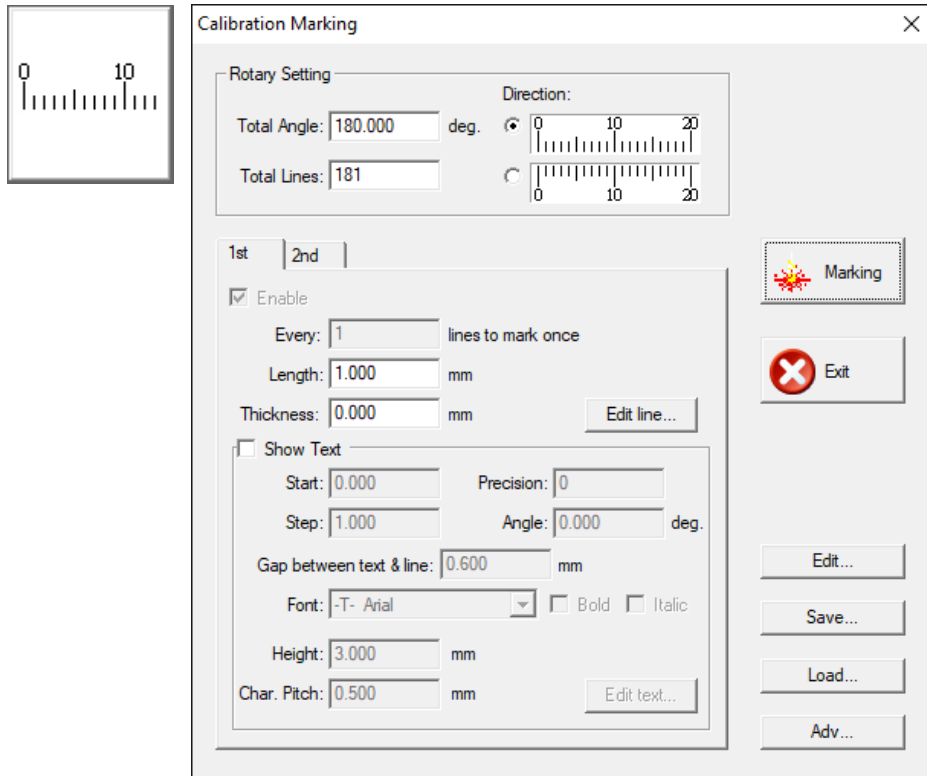
Before you begin with rotary marking, you will need to click on 'layer' of Object Browser, and the "Rotary" under property table will open.



Then click on "enable" to activate rotary marking function from the Property table.



11.11.2 Rotary Setup Wizard – Scale



This will allow you to test the scale marking of rotary attachment. Click on the “scale” picture, a “Calibration Marking” window will open.

(1) Total Angle

What are the total rotating angles you want it to be marked.

(2) Total Line

How many scale lines you want it to be marked.

(3) Direction

Which directions you want the scale to be marked.

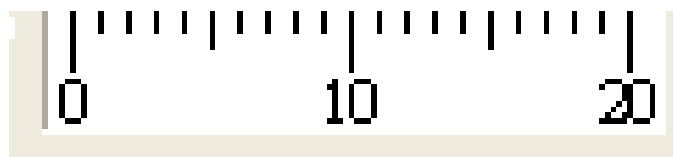
(4) Laser Setting

The setting is set as default, so you will no need to adjust it.

(5) 1st & 2nd

This page is for scale lines and text settings.

You can use 1st and 2nd windows to create long and short scale lines with texts.



(5.1) Length

What length of the scale lines you want it to be marked.

(5.2) Show Text

◆ Start:

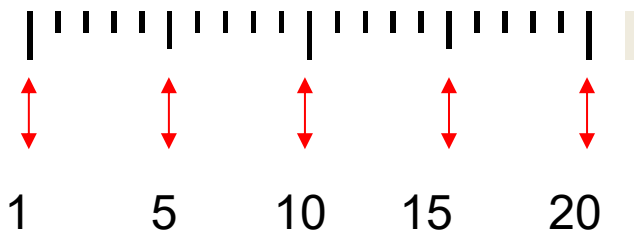
Where you want the text to begin along the scale.

◆ Step:

If you want every 5 lines to be marked with text, then you will need to select 5.

◆ Gap between Text and Line:

You can select the distance between the text and line.



◆ Height:

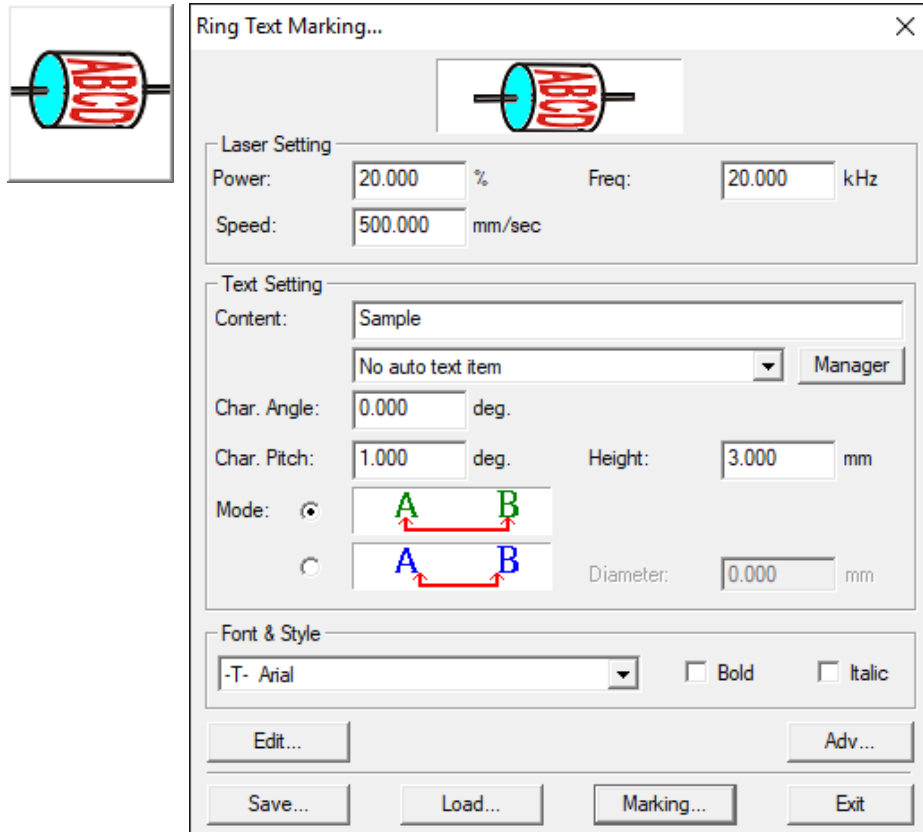
Allows you to select the desired size of text.

◆ Chart Pitch:

The gap between the character.

(5.3) Marking

You can execute the scale of marking by pressing the button.



(1) Laser setting:

The settings are set as default, you won't need to adjust the settings.

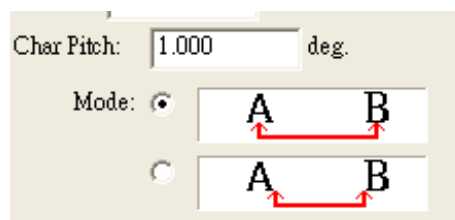
(2) Text setting:

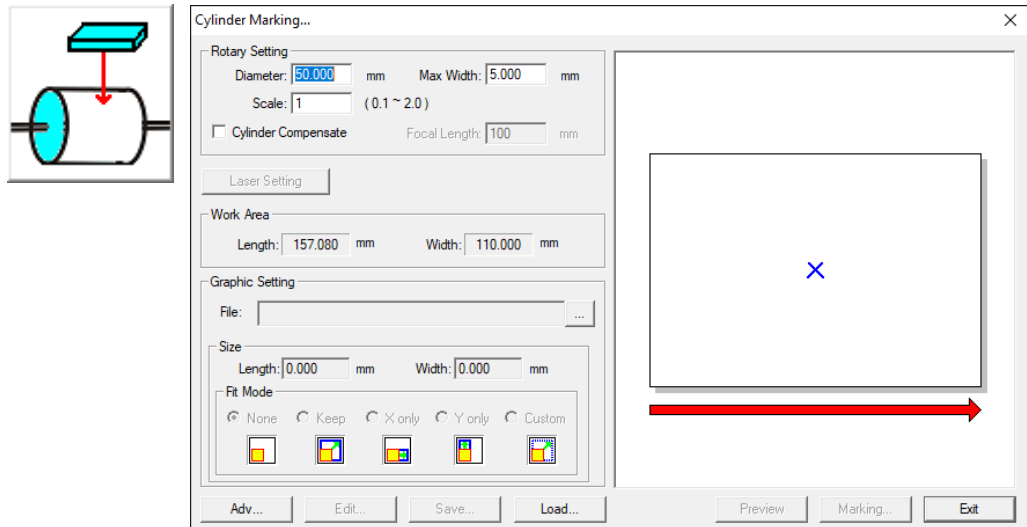
(2.1) Content: The content of text you want to mark.

(2.2) Height: The height of text you want to mark.

(2.3) Char Pitch: The gap between two texts.

(2.4) Mode: To select the mode where you want to start to calculate the gap between the two texts.





This will allow you to test the rotary marking with dxf. files.

(1) Rotary Setting

(1.1) Diameter

Key in the diameter of your round object.

(1.2) Max. Width

The max. area you want the laser to mark every time when rotary is rotated.

(2) Laser Setting

The settings are set as default so you won't need to adjust it.

(3) Fit mode

You can select different mode to make the dxf file to meet the marking area.

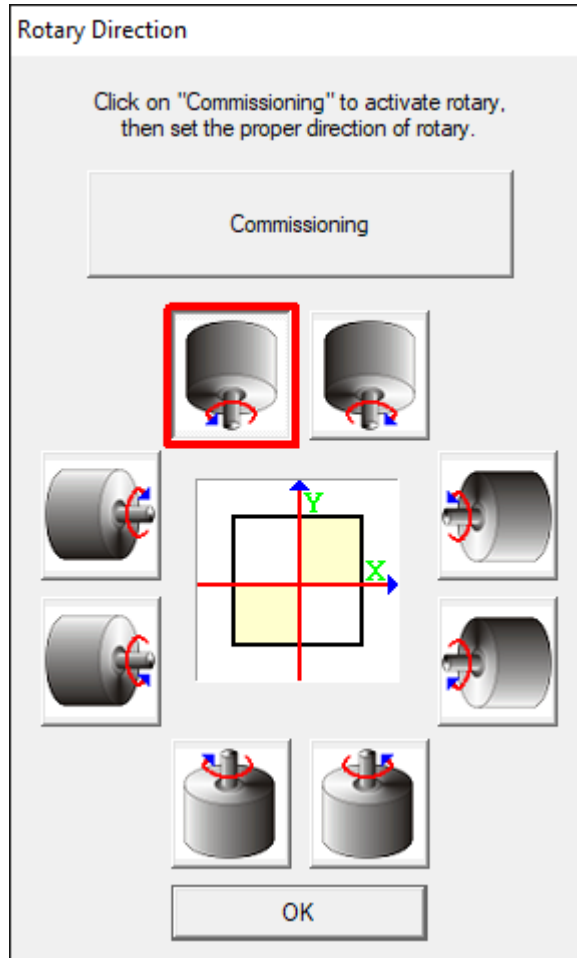
If you select custom, then you can resize of your dxf file manually.

Rotary Setup	
Program Org. [deg.]	0
Axis Unit [pulse/rev.]	2800
Speed [deg./sec]	20
Backlash [deg.]	0
Motor Reverse	<input type="checkbox"/>
Jog Reverse	<input type="checkbox"/>
Limit Trigger Level(0/1)	1
Home Trigger Level(0/1)	1
Inpos Trigger Level(0/1)	1
Acc/Dec Times [sec]	0.1
Init. Speed [deg./sec]	10
Inpos Timeout [sec]	0.02
Inpos Delay [sec]	0.02
Rotary Direction	...
Method of Mark End	Reverse Direction
Ext I/O Home	Null

Speed Range ~ %

- Program Org. [deg] – The program will consider this point as the program origin.
- Axis Unit [Pulse/deg] – The pulse needed for rotary to move 1 millimeter
- Speed [deg/sec] – The rotating speed of the rotary axis.
- Backlash [deg.] – The transmission deviation between motor and axis.
- Motor Reverse – Reverse the motor rotating direction.
- Jog Reverse – When rotary axis is placed in the different direction with the software's control panel, this parameter can make it rotate following the right direction.
-
- Limit Trigger Level (0/1) – 0: active low; 1: active high
- Home Trigger Level (0/1) – 0: active low; 1: active high
- InPos Trigger Level (0/1) – 0: active low; 1: active high
- Acc/Dec Time [sec] – The time motor needs to reach the setting speed.
- Init. Speed [mm/sec] – The initial speed of motor.
- Inpos Timeout [sec] – The program will consider rotary axis completed position after passing the time setting here.
- Inpos Delay [sec] – The program will wait for the setting time here to execute the next command.
- Rotary Direction – Click to do further settings for the rotating direction of

the rotary axis.



- Method of Mark End – Five ways for laser to go back to the origin after finishing marking job.
 - ✧ Reverse Direction: Go back to the origin by backward direction.
 - ✧ Shortest Path: Go back to the origin by shortest path.
 - ✧ Reset As Origin A: Set the mark end point as the new origin and the start point for the next marking.
 - ✧ Reset As Origin B: Set the mark end point as the new origin, but the rotary will move some distance (based on the distance of the object and the upper edge of software's working area) and then start the next marking.
 - ✧ Forward Direction: Go back to the origin by forward direction.
- Ext I/O Home – Using external controller (I/O) to do homing.
- Ext I/O Jog+ – Using external controller (I/O) to do positive shift.

- Ext I/O Jog- Using external controller (I/O) to do negative shift.
- Home Speed [deg/sec] – The homing speed of rotary axis.
- Home Back Speed [deg/sec] – The speed motor needs to move from home position to the edge of home sensor after reaching the home position (only for PMC2 & PCMark).
- Home Reverse – Reverse the direction of homing.
- Home Sensor Touching Mode (0/1) – Decide that rotary axis will stop or do home in reverse direction when touching the limit sensor during homing. 0 is stop, and 1 is homing reversely.
- Home End Point – Rotary axis will move to the assigned position (P0~P9) after homing.
- Limit Stop Mode – Decide the motor stop rapidly (0) or slowly (1) when moving to limit sensor.
- P0~P9 [deg.] – Set the position of P0~P9.

Chapter 12

View Menu

<input checked="" type="checkbox"/>	Standard Bar(T)	
<input checked="" type="checkbox"/>	Zoom Bar(Z)	
<input checked="" type="checkbox"/>	Draw Bar(D)	
<input checked="" type="checkbox"/>	Layer Bar(L)	
<input checked="" type="checkbox"/>	Object Browser(O)	F2
<input checked="" type="checkbox"/>	Modify Bar(F)	
	Dimension Bar(B)	F3
<input checked="" type="checkbox"/>	Obj Property Bar(Y)	
<input checked="" type="checkbox"/>	Mark Sample Bar(R)	F7
	Manual Split Bar(A)	
	Data Wizard	
	Make Font Bar(K)	
	Text Property Bar(T)	
	Vector Box(V)	
	Property Table(P)...	
<input checked="" type="checkbox"/>	Control Tool(C)	
<input checked="" type="checkbox"/>	Mark Panel(M)	
<input checked="" type="checkbox"/>	Status bar(S)	
	Desktop Mode(X)	
	Composing(G)	>
	Zoom In(I)	
	Zoom Out(U)	
	Zoom Previous(V)	
	Zoom All(A)	
	Zoom Extend(E)	
	Zoom Select Object	
	Hand Tool(H)	











The View Menu will allow you to configure the Property Table, Object Browser, Tool Box, and Work Area grid. The Menu will also enable you to activate and edit the Grid and Zoom functions. More information on these functions is listed in previous sections. The Show Order function will list the marking sequence on the Working Area.

NOTE: The marking order numbers will not show up on the marked object.

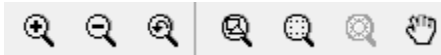
12.1 Standard Bar










The Standard Bar provides some basic functions for users to edit the file

New		Create a new document.
Open		Load files.
Save		Save the current document using the existing file name.
Undo		Back to the previous action.
Redo		Cancel the Undo action.
Import		Import a graphic file and convert it into the marking format.
Replace		Replace the selected object by a new one.
Cut		Remove selected data and store it in the clipboard for another use.
Copy		Duplicate selected data and store it in the clipboard for another use.
Paste		Attach data from the clipboard to an assigned document.

12.2 Zoom Bar



















View the objects by zooming them


Zoom in		Create a new document.
Zoom out		Load files.
Zoom Previous		Save the current document using the existing file name.
Zoom all		Back to the previous action.
Zoom extend		Cancel the Undo action.
Zoom Selected Object		Import a graphic file and convert it into the marking format.
Hand Tool		Move your working page around its window by dragging.

12.3 Draw Bar



The Drawing Bar provides the drawing functions.




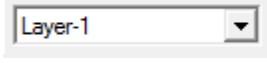





Selection		Select objects
Edit Vertex		Edit the vertexes of curve objects
Vertex		Draw a dot
Line		Draw a line
Arc		Draw an arc
Circle		Draw a circle or oval
Rectangle		Draw a square or rectangle
Curve		Draw a curve
Curve Brush		Draw a freehand line using the mouse
Text		Insert a text object
Arc Text		Insert an arc text object
Rect Text		Insert an rect text object
1D Barcode		Create a 1D barcode
2D Barcode		Create a 2D barcode
Matrix		Create a matrix object
Spiral		Draw a matrix object

Import		Imports a graphics files and converts it into the mark (.mrk) format.
--------	---	---

12.4 Layer Bar

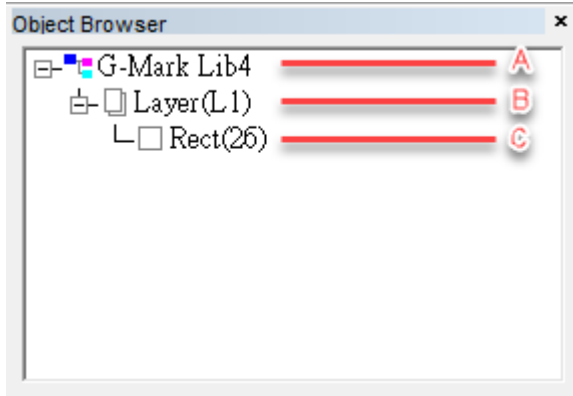


The Layer Bar allows users to edit the layers

Layer Manager		The layer page of Property Table will show up for editing.
New Layer		Create a new layer.
Delete the Active Layer		Delete the selected layer.
Current Layer		Select the layer.
Layer Color		Set the layer color.
View Layer		Enable or disable to view the selected layer.
Edit Layer		Enable or disable to edit the selected layer.
Output Layer		Enable or disable to output the selected layer.
Show the Selected Layer		Show the selected layer only.

12.5 Object Browser

The Object Browser allows users to edit the parameters of layer. Object Browser can not only view the whole layers and objects but can also change the order or rename the layer and object.














- A. Select the file: When click the file, like MarkingMate2, all the layers and objects will also be selected and users can edit the parameters of System-Related Property Table.
- B. Select the layer: When click the layer, all the objects under this layer will also be selected and users can edit the layer's parameters at Layer Page of Property Table.
- C. Select the object: Users can edit the object's parameters when clicking the object's name.

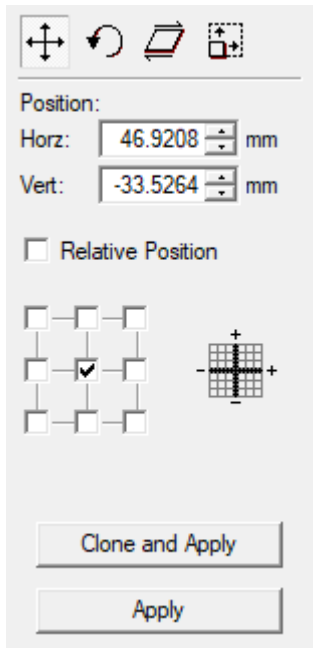
12.6 Modify Bar




The Modify Bar is for users to modify the object's parameters such as length and width. Please notice that "Enter" must be pressed after input the value so that the modification will be effective.

X of Center		The X-axis value of the object's center.
Y of Center		The Y-axis value of the object's center.
Length		The length of the selected object.
Width		The width of the selected object.
X of Scale		The scale of the selected object's length.
Y of Scale		The scale of the selected object's length.
Lock to Same Ratio		Enable this function, the length and width will be adjusted with the same ratio at the same time.
Angle of Rotating		The rotary angle of the selected object.
X of Rotating Center		Set the X-axis value of rotating center.
Y of Rotating Center		Set the Y-axis value of rotating center.
Move to the Center		Move the object to the center of working area.

12.7 Dimension Bar



Users can freely transform, rotate or resize the working objects in the dimensional bar.

- (1)  Position

This will identify the position of your marking object on the working area and you can also copy the object to anywhere you want by just clicking the 9 squares.

- (2)  Rotate

This will allow you to rotate the marking object at any rotating point, and also allow you to copy the object by clicking on one of the 9 squares and rotate the copy object at any angle you want.

- (3)  Aslope

To freely transform a working object.

- (4)  Scale

To scale up or scale down a working object in G-Mark marking software.





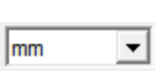






12.8 Obj Property Bar

The followings are the introductions of Object Property Bar.

A. Page Tool Bar

The Page Tool Bar will be shown on screen when there is no object been selected.


















X of Center		The X-axis value of start point of working area.
Y of Center		The Y-axis value of start point of working area.
Length		The length of working area.
Width		The width of working area.
X of Scale		The unit of the ruler (mm or inch).
Y of Scale		Edit the trimming base of X.
Lock to Same Ratio		Edit the trimming base of Y.
Angle of Rotating		Edit the X grid line.
X of Rotating Center		Edit the Y grid line.
Y of Rotating Center		Click this button to enter the Options page.
Move to the Center		Click this button to show or hide the Property Table.

B. General Tool Bar



The General Tool Bar will be shown on screen when select a non-text object.

General Selection		The selected object is in general situation.
Transparent Selection		The selected object is been grouped.
Combine		Combine two or more objects into one. This function allows several objects to share the same property settings.
Break		Divide a combined object into several individual objects.
Group		Classify two or more objects into one group. This function allowseach object to have its own property settings.
UnGroup		Cancel the group effect of an object.
Welding		Combine two or more objects and eliminate the overlapping lines.
Alignment		Align the selected objects to the assigned position.
Distribute		Distribute the selected objects (at least 2) based on the assigned setting.
Mirror Horizontally		Invert an object on its horizontal axis.
Mirror Vertically		Invert an image on its vertical axis.
Move to the Center		Move the selected object to the center of working area.
Sort		Combine the objects which vertex are not connect to each other first, and then using this function to sort these confused objects
Transfer to Curve Show or Hide the Property Table		Transfer an un-curved object into a curve.

Show or Hide the Property Table		Click this button to show or hide the Property Table.
---------------------------------	---	---








12.9 Mark Sample Bar

Open the Mark Preview function (for more detail please refer to 11.3).

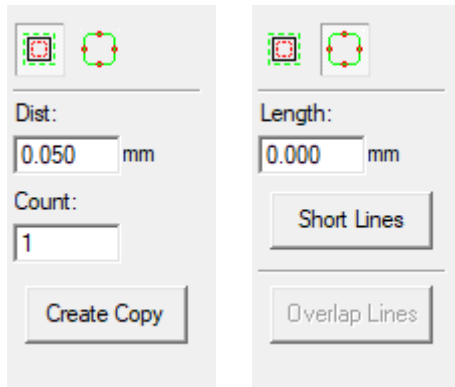
12.10 Manual Split Bar




Manual Split Bar allows users to adjust the tiling settings under Manual Split mode.

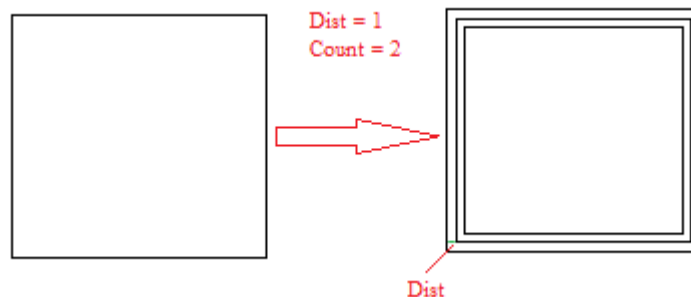
Edit Split Bands		Enter or Exit Manual Split Mode.
Current Layer	Layer-1	Current editing layer.
Auto Create Bands		Auto-generate all bands.
Clear All Bands		Clear all existed bands.
Create A New Band		Create a new band.
Delete Bands		Delete selected band(s).
Order The Bands		Show the order of bands.
Tiling Setting		Open Tiling dialog.


12.11 Data Wizard



Using this function to adjust the selected object(s).

Beam Compensation		Create (a) shrink or dilate object(s) from a closed path object according to the distance and count.
Dist		The shrink or dilate distance (+value: shrink; -value: dilate).
Count		The amount of new created object(s)
Create Copy		Create new objects.






Beam Compensation		Optimize the selected objects by eliminating the short or overlapping lines.
Length		Set the length of short lines user wants to eliminate.
Short Lines		Eliminate the set short lines.
Overlap Lines		Eliminate the overlapping lines.

12.12 Make Font Bar




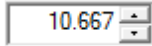









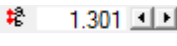


Allow users to create a new font type

	Enter or Exit Make Font mode.
	Using the default edge to set the new font.
	Adjust the right and up edge of the font.

12.13 Text Property Bar



When select a text object, the Text Tool Bar will also be shown on the screen.

Font		Select font.
Size		Adjust font size
Italic Style		<i>Italic</i>
Bold Style		Bold Style
Underline		<u>Underline</u>
Hori. Arrangement		Horizontal text
Vert. Arrangement		Vertical text
None alignment		None alignment
Left alignment		Left alignment
Center alignment		Center alignment
Right alignment		Right alignment
Line Pitch		Space between each line
Text Pitch		Space between each character
Edit Text		Set up content of the text

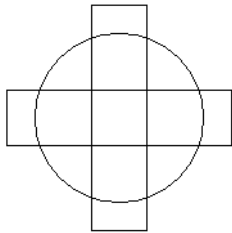
12.14 Vector Box



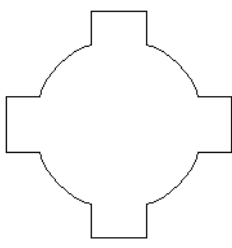
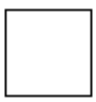


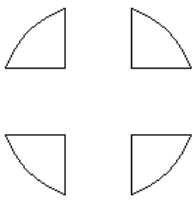
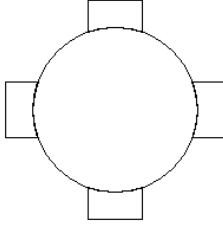


Provide several welding choices for users to apply.

Application

The following picture is the original appearance.



 Or: Retain the none-overlapping part of the objects	 And: Retain the overlapping part of objects
	
 Subtract: Retain the none-overlapping part of main object	 Main: Retain the main object and the none-overlapping parts of the other objects
	










12.15 Property Table

Click to open property table

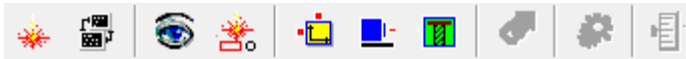
12.16 Control Tool











The Control Object Tool Bar allows user to insert control objects, for more detail descriptions, please refer to section 8.15.


Digital In		Set digital in signals.
Digital Out		Set digital out signals.
Do Pause		Insert a pause object into the marking sequence.
Delay Time		Insert a delay time object into the marking sequence.
Motion		Move the object to an assigned position.
Set Position		Set the current position as the assigned position.
Loop		Create a loop path in the marking sequence.
Ring		Insert a ring object into the marking sequence.
Homing		Insert an auto-home object.

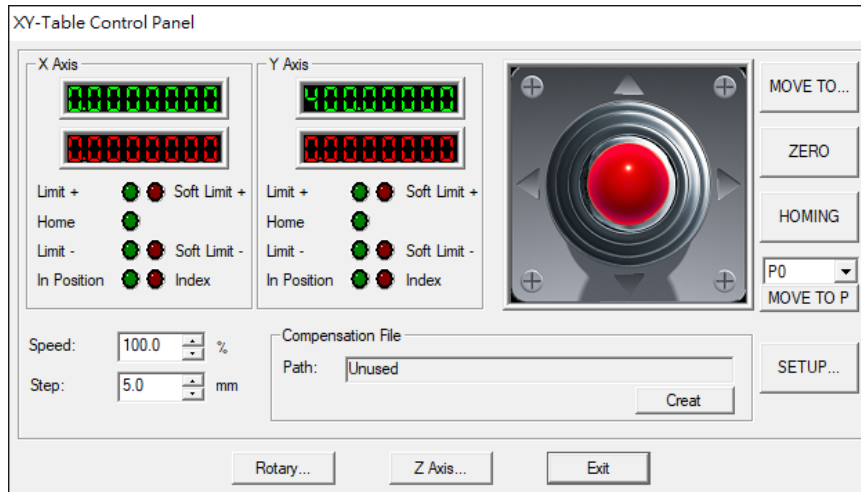
12.17 Mark Panel



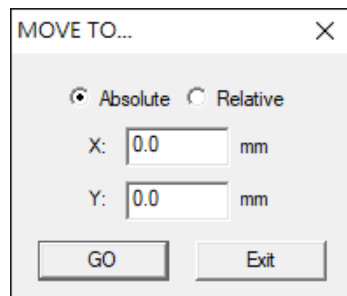
The Mark Panel offers users to quickly execute some marking related functions

Marking		Execute the marking function, please refer to section 11.1
Remote Control		Use remote control function to connect two computers to mark, please refer to section 11.2
Preview		Enter the Preview mode, please refer to section 6.15
Mark Sample		Enter the Mark Sample mode, please refer to section 11.4
X-Y Table		Allow users to adjust X-Y Table settings, please refer to section 12.17.1.
Rotary Control Panel		Allow users to adjust rotary axis settings, please refer to section.
Z Axis Control Panel		Allow users to adjust Z axis settings, please refer to section.
CCD Panel		CCD control setting, please refer to CCD Panel User Manual.

To control the XY Table, users must first activate the XY table function by clicking the layer object in Object Browser and then go to the XY Table page of Property Table and enable this function. After doing this, click  button and do the further setting



- 1) Click “MOVE TO...” button and input the value in the dialog box and click “GO,” the Z Axis will move to that specific position. The moving speed can be adjusted from “Speed” parameter.

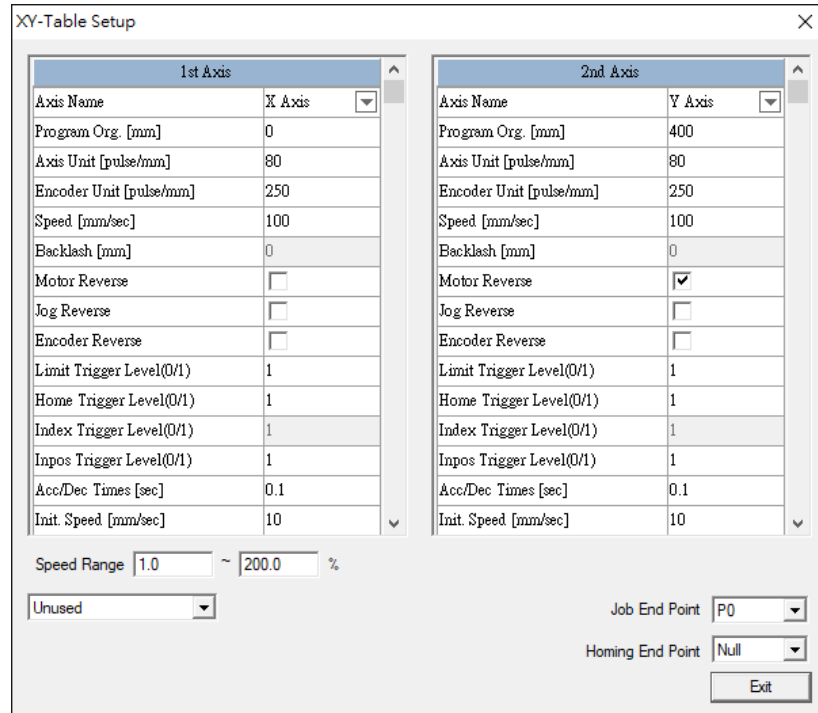


- 2) Click the four direction buttons to move the XY Table.



- 3) Click “ZERO” and the program will set the present position as (0,0).

- 4) Click “HOMING” and the XY Table will move to program origin.
- 5) Click “MOVE TO P”, the XY Table will directly move to the setting position (P0~P9). Users can click “SETUP...” button to set the value of these points.
- 6) Click “SETUP...” and do more detail settings



1st Axis		2nd Axis	
Axis Name	X Axis	Axis Name	Y Axis
Program Org. [mm]	0	Program Org. [mm]	400
Axis Unit [pulse/mm]	80	Axis Unit [pulse/mm]	80
Encoder Unit [pulse/mm]	250	Encoder Unit [pulse/mm]	250
Speed [mm/sec]	100	Speed [mm/sec]	100
Backlash [mm]	0	Backlash [mm]	0
Motor Reverse	<input type="checkbox"/>	Motor Reverse	<input checked="" type="checkbox"/>
Jog Reverse	<input type="checkbox"/>	Jog Reverse	<input type="checkbox"/>
Encoder Reverse	<input type="checkbox"/>	Encoder Reverse	<input type="checkbox"/>
Limit Trigger Level(0/1)	1	Limit Trigger Level(0/1)	1
Home Trigger Level(0/1)	1	Home Trigger Level(0/1)	1
Index Trigger Level(0/1)	1	Index Trigger Level(0/1)	1
Inpos Trigger Level(0/1)	1	Inpos Trigger Level(0/1)	1
Acc/Dec Times [sec]	0.1	Acc/Dec Times [sec]	0.1
Init. Speed [mm/sec]	10	Init. Speed [mm/sec]	10

Speed Range: 1.0 ~ 200.0 %

Job End Point: P0

Homing End Point: Null

Exit

- **Axis Name** – Users can set the 1st Axis as X or Y, and the 2nd Axis as Y or X.
- **Program Org. [mm]** – The program will consider this point as the program origin.
- **Axis Unit [pulse/mm]** – The pulse needed for X/Y Axis to move 1 millimeter (must refer to the motor’s specification).
- **Encoder Unit [pulse/mm]** – The pulse the encoder releases when moving 1 millimeter (must refer to the encoder’s specification).
- **Speed [mm/sec]** – The moving speed of X/Y Axis.
- **Backlash [mm]** – The transmission deviation between motor and axis.
- **Motor Reverse** – Reverse the motor moving direction.
- **Jog Reverse** – When XY Table is placed in a different direction with the software’s control panel, this parameter can make the X/Y axis move following the right direction.
- **Encoder Reverse** – Reverse the direction of the encoder.

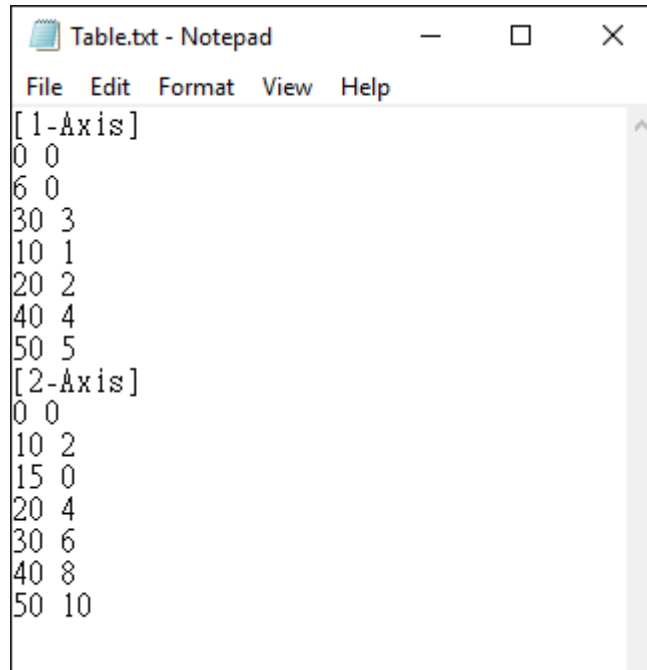
- **Limit Trigger Level (0/1)** – 0: active low; 1: active high
- **Home Trigger Level (0/1)** – 0: active low; 1: active high
- **InPos Trigger Level (0/1)** – 0: active low; 1: active high
- **Acc/Dec Times [sec]** – The time motor needs to reach the setting speed.
- **Init. Speed [mm/sec]** – The initial speed of motor.
- **Inpos Timeout [sec]** – The program will consider X/Y axis completed position after passing the time setting here.
- **Inpos Delay [sec]** – The program will wait for the setting time here to execute the next command.
- **Ext I/O Home** – Using external controller (I/O) to do homing.
- **Ext I/O Jog+** – Using external controller (I/O) to do positive shift.
- **Home Speed [mm/sec]** – The homing speed of the motor.
- **Home Back Speed [mm/sec]** – The speed motor needs to move from home position to the edge of home sensor after reaching the home position.
- **Home Reverse** – Reverse the direction of homing.
- **Home Sensor Touching Mode (0/1)** – Decide that XY-Table will stop or do home in reverse direction when touching the limit sensor during homing. 0 is stop, and 1 is homing reversely.
- **Limit Stop Mode** – Decide the motor stop rapidly (0) or slowly (1) when moving to limit sensor.
- **Distance of Travel [mm]** – The maximum available travel distance X/Y Axis can reach.
- **P0~P9 [mm]** – Set the position of P0~P9.
- **Job End Point** – YY-Table will move to the assigned position (P0~P9) after marking is completed.
- **Homing End Point** – XY-Table will move to the assigned position (P0~P9) after homing.

7) Click “Rotary...” button can do Rotary control setting, please refer to section 1.7.16.2

8) Click “Z-Axis...” button can do Z-Axis control setting, please refer to

section 1.7.16.3.

- 9) Load Compensation File - Click “Load Compensation File” to load the compensation file. The following picture is an example of the compensation file.




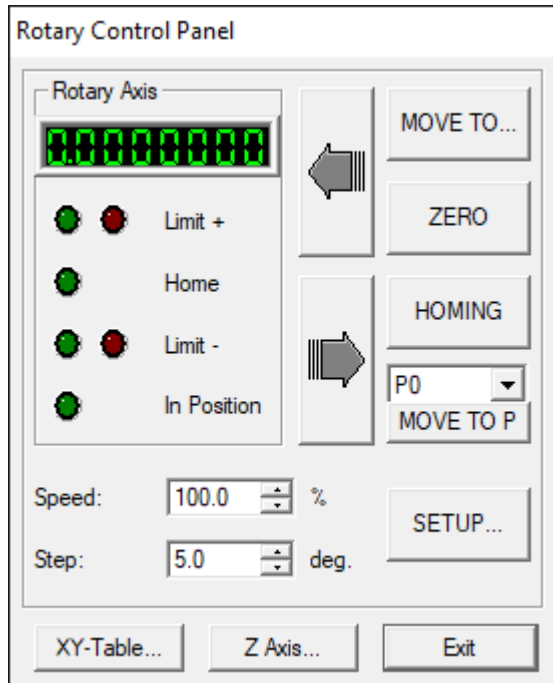
```
Table.txt - Notepad
File Edit Format View Help
[1-Axis]
0 0
6 0
30 3
10 1
20 2
40 4
50 5
[2-Axis]
0 0
10 2
15 0
20 4
30 6
40 8
50 10
```

In this text file, [1-Axis] represents the compensation value of the first axis, while [2-Axis] means the second one. Take the line “30 3” for example. When the program makes a command of moving 30mm but the actual movement was only 27mm, users can add the value “30 3” in the compensation file. As a result, when get an order of moving 30mm, the program will change to 33mm automatically to do compensation.

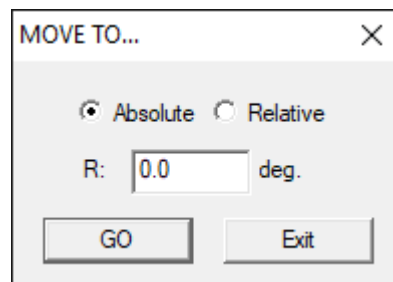
It is no need to sort the position of compensation values; the program will automatically do the sorting. And there is no limitation for numbers. If the position is not in the file, the program will calculate the compensation automatically using interpolation method. If the value of position is larger than the maximum compensation value, the program will set the maximum compensation value as the compensation of that position. And the minimum compensation value will be the compensation value when the position is smaller than it.

12.17.2 Rotary Control Panel

To control the Rotary Axis, users must first activate the Rotary function by clicking the layer object in Object Browser and then go to the Rotary page of Property Table and enable this function. After doing this, click  button and do the further setting



- 1) Click “MOVE TO...” button and input the degree value in the dialog box and click “GO,” the rotary axis will rotate to that specific angle. The rotating speed can be adjusted from “Speed” parameter.



- 2) Click the two direction buttons to move the rotary axis.
- 3) Click “ZERO” and the program will set the present position as (0,0).
- 4) Click “HOMING” and the rotary will move to program origin.
- 5) Click “MOVE TO P”, the rotary axis will directly move to the setting position (P0~P9). Users can click “SETUP...” button to set the value of these points.
- 6) Click “SETUP...” and do more detail settings, for more detail setting

please refer to 11.11.5


Rotary Setup

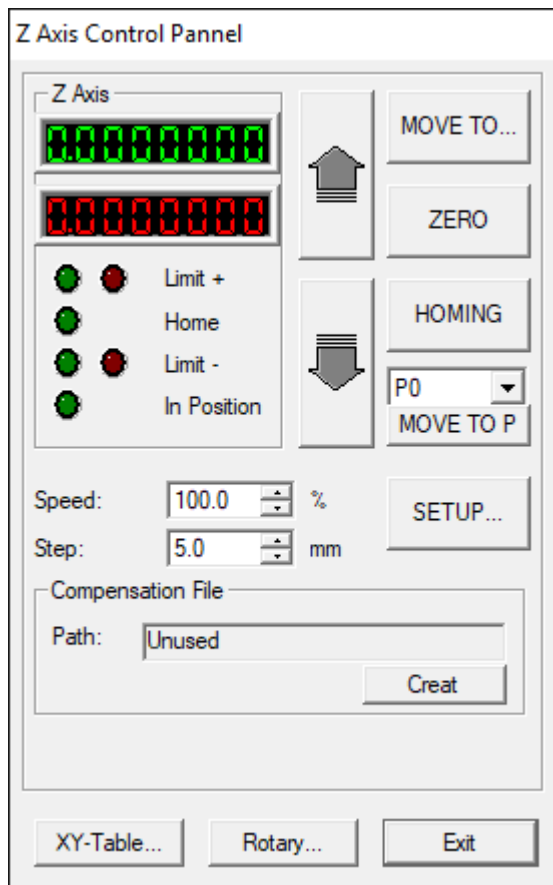
Program Org. [deg.]	0
Axis Unit [pulse/rev.]	2800
Speed [deg./sec]	20
Backlash [deg.]	0
Motor Reverse	<input type="checkbox"/>
Jog Reverse	<input type="checkbox"/>
Limit Trigger Level(0/1)	1
Home Trigger Level(0/1)	1
Inpos Trigger Level(0/1)	1
Acc/Dec Times [sec]	0.1
Init. Speed [deg./sec]	10
Inpos Timeout [sec]	0.02
Inpos Delay [sec]	0.02
Rotary Direction	...
Method of Mark End	Reverse Direction
Ext I/O Home	Null

Speed Range 1.0 ~ 200.0 %

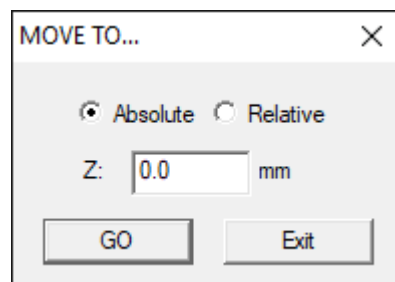
Exit

- 7) Click “XY-Table...” button can do X/Y Table control setting, please refer to section 12.17.1
- 8) Click “Z-Axis...” button can do Z-Axis control setting, please refer to section 12.17.3

Please note that only PMC2 driver supports Z Axis control. Click  button and do the further setting

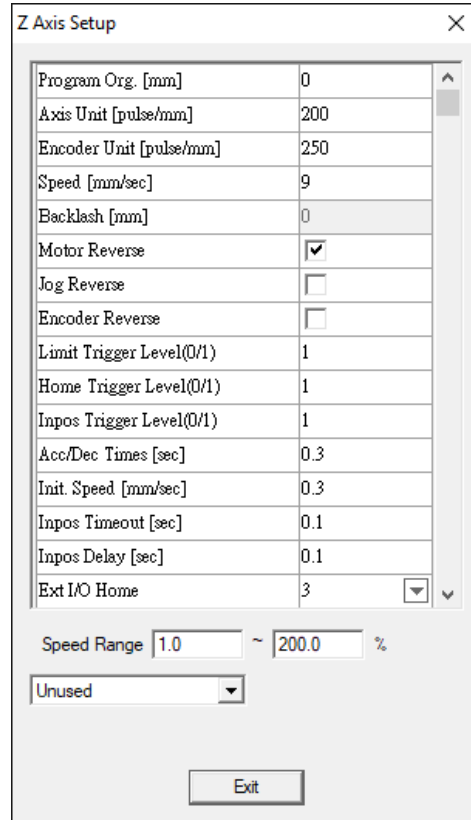


- 1) Click “MOVE TO...” button and input the value in the dialog box and click “GO,” the Z Axis will move to that specific position. The moving speed can be adjusted from “Speed” parameter.



- 2) Click the two direction buttons to move the Z axis.
- 3) Click “ZERO” and the program will set the present position as the program origin. Users can also click “SETUP...” button to set the program origin.
- 4) Click “HOMING” and the Z axis will move to program origin.

- 5) Click “MOVE TO P”, the Z axis will directly move to the setting position (P0~P9). Users can click “SETUP...” button to set the value of these points.
- 6) Click “SETUP...” and do more detail settings



Parameter	Value
Program Org. [mm]	0
Axis Unit [pulse/mm]	200
Encoder Unit [pulse/mm]	250
Speed [mm/sec]	9
Backlash [mm]	0
Motor Reverse	<input checked="" type="checkbox"/>
Jog Reverse	<input type="checkbox"/>
Encoder Reverse	<input type="checkbox"/>
Limit Trigger Level(0/1)	1
Home Trigger Level(0/1)	1
Inpos Trigger Level(0/1)	1
Acc/Dec Times [sec]	0.3
Init. Speed [mm/sec]	0.3
Inpos Timeout [sec]	0.1
Inpos Delay [sec]	0.1
Ext I/O Home	3

Speed Range: 1.0 ~ 200.0 %

Unused

Exit

- **Program Org. [mm]** - The program will consider this point as the program origin.
- **Axis Unit [pulse/mm]** - The pulse needed for X/Y Axis to move 1 millimeter (must refer to the motor’s specification).
- **Encoder Unit [pulse/mm]** - The pulse the encoder releases when moving 1 millimeter (must refer to the encoder’s specification).
- **Speed [mm/sec]** - The moving speed of X/Y Axis.
- **Backlash [mm]** - The transmission deviation between motor and axis.
- **Motor Reverse** - Reverse the motor moving direction.
- **Jog Reverse** - When XY Table is placed in a different direction with the software’s control panel, this parameter can make the X/Y axis move following the right direction.
- **Encoder Reverse** - Reverse the direction of the encoder.

- **Limit Trigger Level (0/1)** - 0: active low; 1: active high
 - **Home Trigger Level (0/1)** - 0: active low; 1: active high
 - **InPos Trigger Level (0/1)** - 0: active low; 1: active high
 - **Acc/Dec Times [sec]** - The time motor needs to reach the setting speed.
 - **Init. Speed [mm/sec]** - The initial speed of motor.
 - **Inpos Timeout [sec]** - The program will consider X/Y axis completed position after passing the time setting here.
 - **Inpos Delay [sec]** - The program will wait for the setting time here to execute the next command.
 - **Ext I/O Home** - Using external controller (I/O) to do homing.
 - **Ext I/O Jog+** - Using external controller (I/O) to do positive shift.
 - **Home Speed [mm/sec]** - The homing speed of the motor.
 - **Home Back Speed [mm/sec]** - The speed motor needs to move from home position to the edge of home sensor after reaching the home position.
 - **Home Reverse** - Reverse the direction of homing.
 - **Home Sensor Touching Mode (0/1)** - Decide that XY-Table will stop or do home in reverse direction when touching the limit sensor during homing. 0 is stop, and 1 is homing reversely.
 - **Limit Stop Mode** - Decide the motor stop rapidly (0) or slowly (1) when moving to limit sensor.
 - **Distance of Travel [mm]** - The maximum available travel distance X/Y Axis can reach.
 - **P0~P9 [mm]** - Set the position of P0~P9.
- 7) Click “XY-Table...” button can do X/Y Table control setting, please refer to section 12.17.2
- 8) Click “Rotary...” button can do Rotary control setting, please refer to section 12.17.3

12.18 Status Bar

Enable or disable the Status Bar which display on the bottom of the software.

Ready	Level: Administrator	-86.914 , 15.502
-------	----------------------	------------------

Display the function description positioned by the mouse.

Show the user level.

The X, Y-axis value of the mouse position

1. When press the Caps Lock key, the CAP will appear.
2. When press the Num Lock key, the NUM will appear.
3. When press the Scroll Lock key, the SCRL will appear.

12.19 Desktop Mode

Change the setting Desktop Mode.

12.20 Composing

Include tooltips, ruler, grid, and grid lock settings here. The toolbar with a mark means that function has been opened.

12.20.1 Show Order

Use this function can see the mark order of each object

12.20.2 Tooltips / Tooltips Setting

The tooltips setting descriptions please refer to 6.6.21

12.20.3 Ruler / Ruler Setting

The ruler setting descriptions please refer to 6.6.19

12.20.4 Grid / Grid Setting

The grid setting descriptions please refer to 6.6.20

12.21 Zoom In

Enlarge a specific area.

12.22 Zoom Out

Shrink a specific area

12.23 Zoom Previous

Go back to the previous view.

12.24 Zoom All

Show the whole work area.

12.25 Zoom Extend

Show all objects.

12.26 Zoom Select Object

Zoom the selected objects to fit the whole editing area.

Chapter 13

Window Menu



“**Window**” menu offers the following functions:

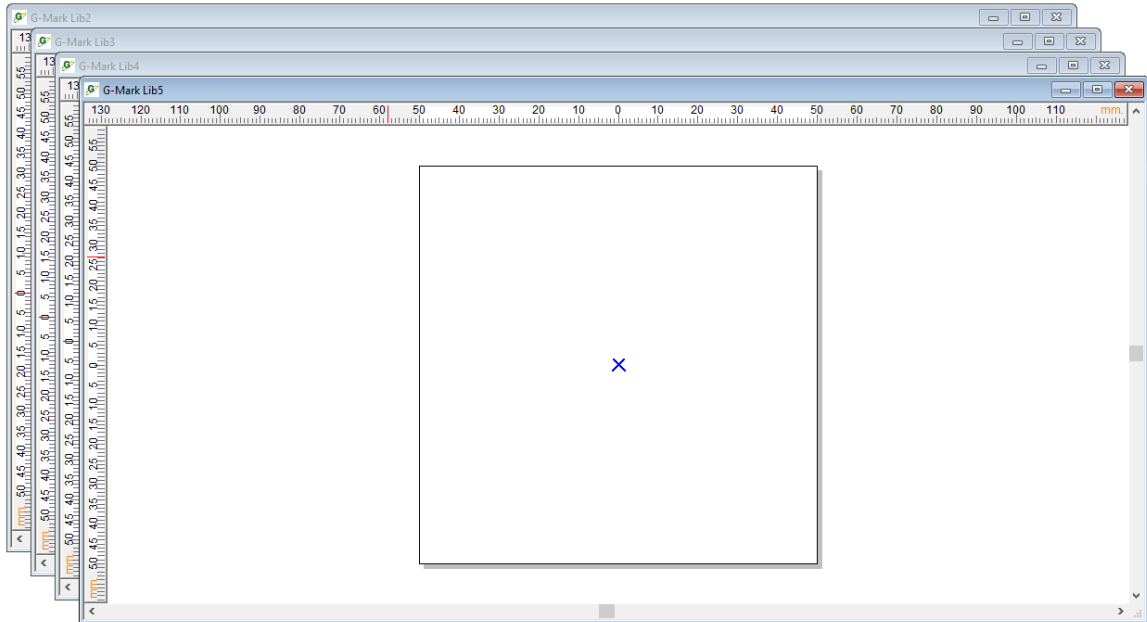
New	Create new window
Cascade	Allow all open windows overlapping
Tile	Show all open windows without overlapping
Arrange	Rearrange the windows
Close All	Close all windows

13.1 New

Create new window, and the content of the new window will be the same with the one user is using. Users can create multiple windows to view the different parts of the content. The modifications in any one of the window will also be displayed in other windows.

13.2 Cascade

Display all open windows in an overlapping way.



13.3 Tile

Show all open windows side by side.



13.4 Arrange

Rearrange the windows. The shrink window will be list at the bottom of G-Mark marking software.

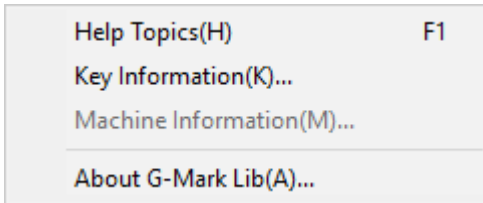


13.5 Close All

Close all opened windows.

Chapter 14

Help Menu



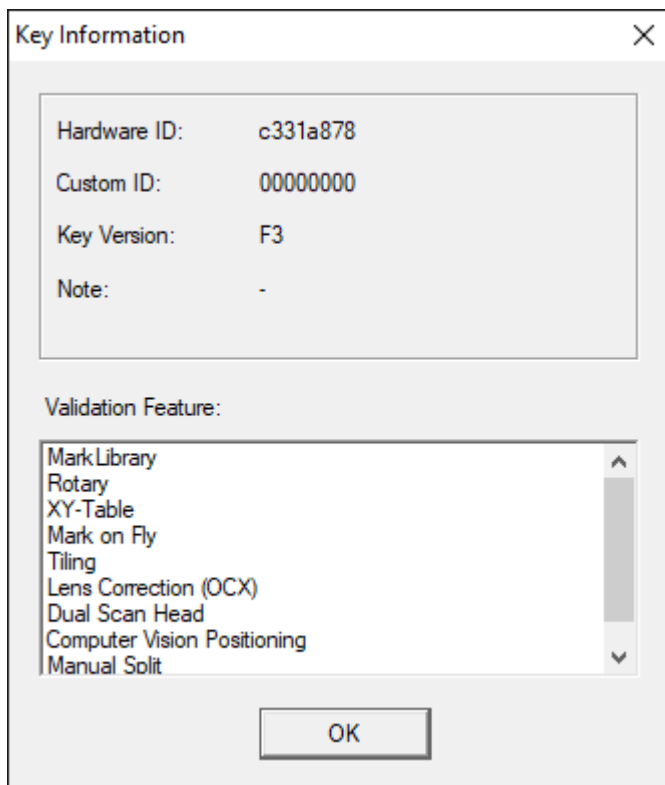
“Help” menu will assist you to use this software

14.1 Help Topics

Offers the manual of the software

14.2 Key Information

The Key version and content.



14.3 Machine Information

Show the information of the laser machine.

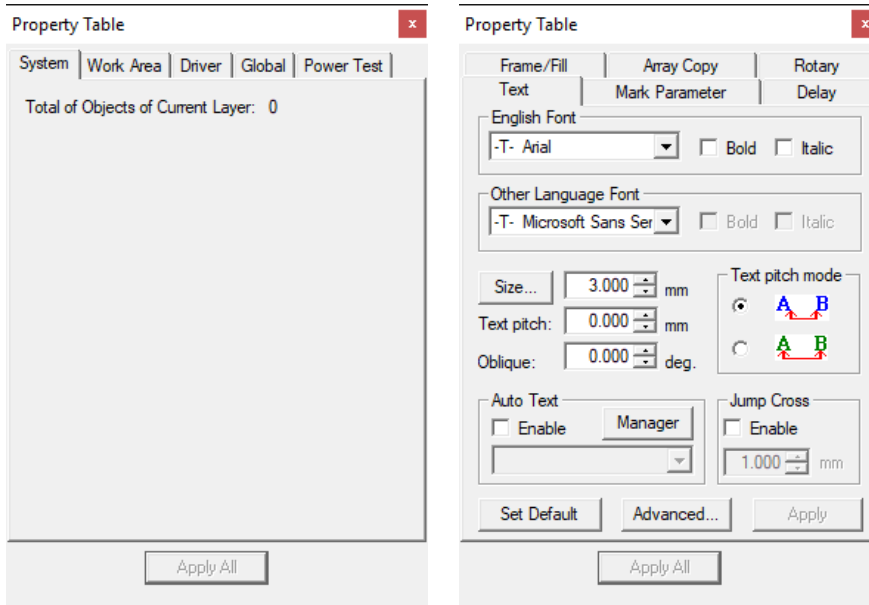
14.4 About

Show the current using version and driver of G-Mark marking software.



Chapter 15

Introduction of Property Table



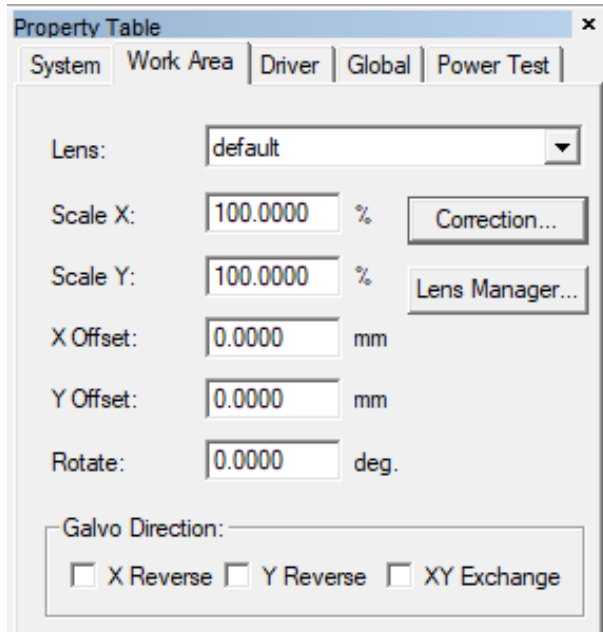
All objects created or imported on the Work Area have their own unique sets of properties. These properties define how each specific object or groups are displayed on the Work Area or marked by the StellarMark™. To display the properties of an object or a group, simply highlight it and the specific property details should reveal themselves on the Property Table. If the Property Table is not currently active, press the right mouse button and click on Property Table. Review the following information to find out more about the Property Table's editing capabilities.

NOTE: After you have edited one of the parameters in the Property Table, click on Apply, or Apply to All, in order to insert your changes.

15.1 Work Area

This editing function is used to adjust the working area and correct irregularities between the computer image and the marked image.

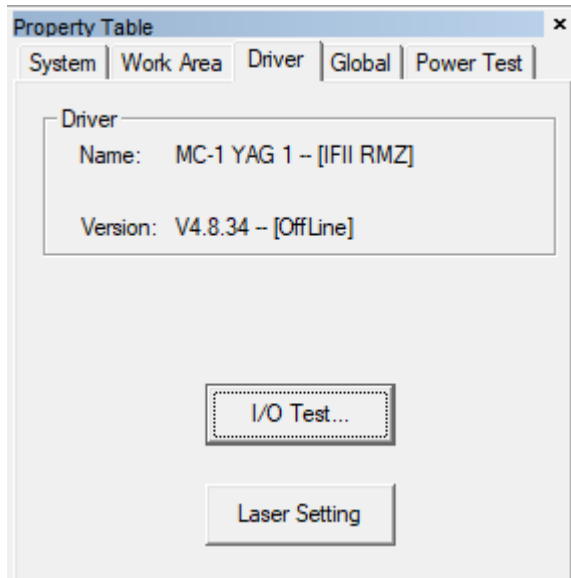
The Work Area is allowed to accommodate the different sized scan lenses.



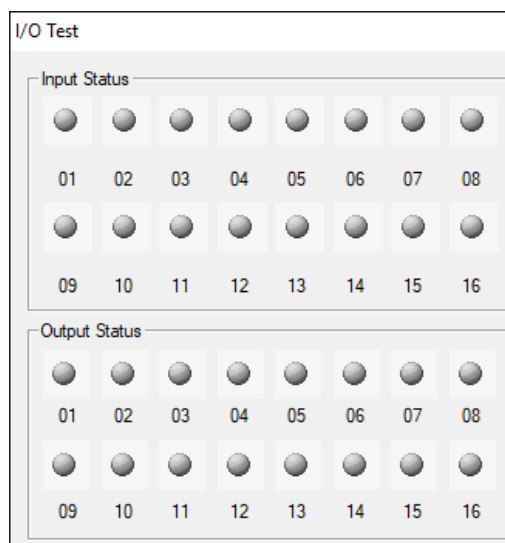
- **Lens** – Users can select the lens they want to use from here.
- **Correction / Lens Manager** – This button is used for lens correction or lens management.
- **Scale X/Y** – If the scale is too small, please enter a number larger than 100 (because unit is percentage); on the contrary, please enter a value smaller than 100.
- **X/Y Offset** – If the position of marking result has 5mm shift to the right side, users can enter -5mm in the X column. The other situations are the same.
- **Rotate** – Set the angle of the marking result to fit the marking platform when the platform or work piece cannot be placed appropriately.
- **Galvo Direction**
 - **X reverse / Y reverse / XY reverse** – Provides X reverse, Y reverse, and XY exchange for users to apply when they need to adjust the axis' direction of working area.

15.2 Driver

The page displays the driver's name and version.

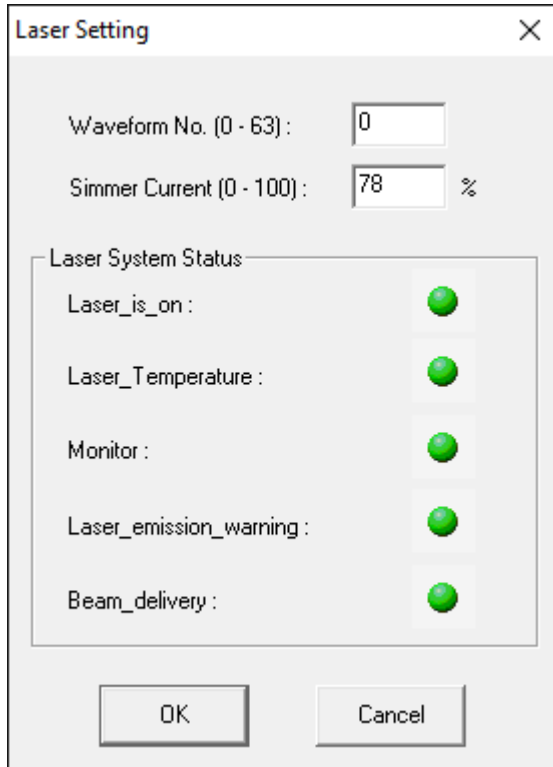


- **I/O Test** – This will allow you to check the I/O status



- **Input Status** – When a signal is inputted and the green light will light up.
- **Output Status** – An output signal can be simulated by click on the light.

- **Laser Setting** – Only when use SPI laser can active the dialog box.



Laser Setting

Waveform No. (0 - 63):

Simmer Current (0 - 100): %

Laser System Status

Laser_is_on:

Laser_Temperature:

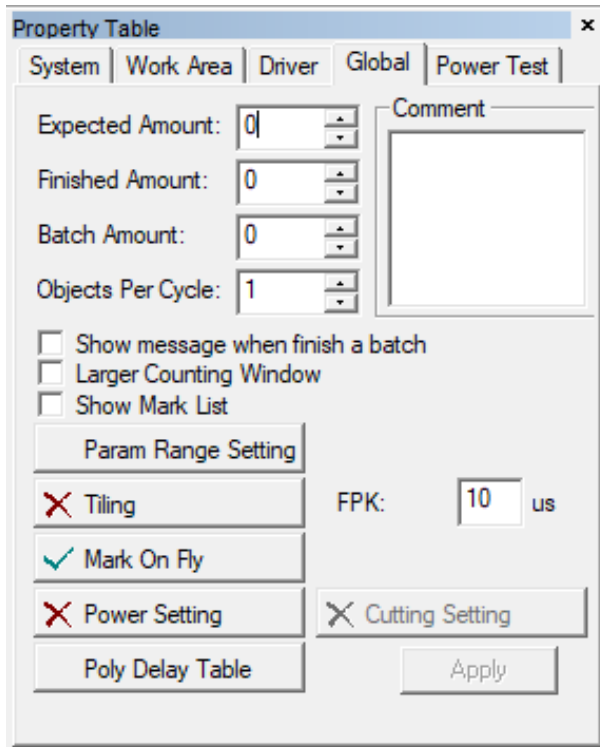
Monitor:

Laser_emission_warning:

Beam_delivery:

OK Cancel

15.3 Global



Property Table

System | Work Area | Driver | **Global** | Power Test

Expected Amount:

Finished Amount:

Batch Amount:

Objects Per Cycle:

Comment

Show message when finish a batch

Larger Counting Window

Show Mark List

Param Range Setting

Tiling FPK: us

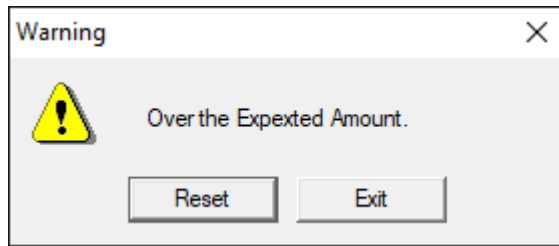
Mark On Fly

Power Setting Cutting Setting

Poly Delay Table Apply

15.3.1 Expected Amount

Set the expected marking amount. If the marking reaches the setting value, the system will pop up a warning box.



15.3.2 Finished Amount

Enable users to record how many work pieces they have already marked.

15.3.3 Batch Amount

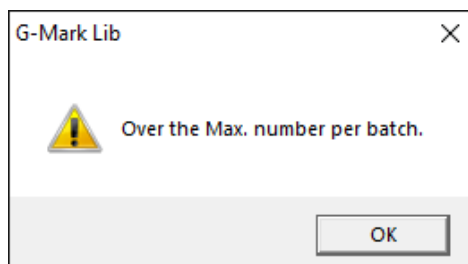
Set the marking amount of each batch.

15.3.4 Object Per Cycle

Set the marking times of one marking cycle. For example, suppose this value is 5, then it will automatically mark 5 times when execute marking. If execute marking again, it will also mark 5 time in this cycle, and the finished amount will show 10 when this cycle complete.

15.3.5 Show message when finish a batch

The system will pop up a warning dialog box, when reach the value of Batch Amount if the option has been checked.



15.3.6 Large Counting Window

If users activate this option, then the system will display a large window to show the information of marking amount.

Amount	
Finished:	6
Total:	138

15.3.7 Comment

Display the notation of the marking file. It shows the function and the notes of that file.

15.3.8 Param Range Setting

Set the range of speed, power and frequency.

Param Range Setting ✕

Speed Range:

Max: mm/sec

Power Range:

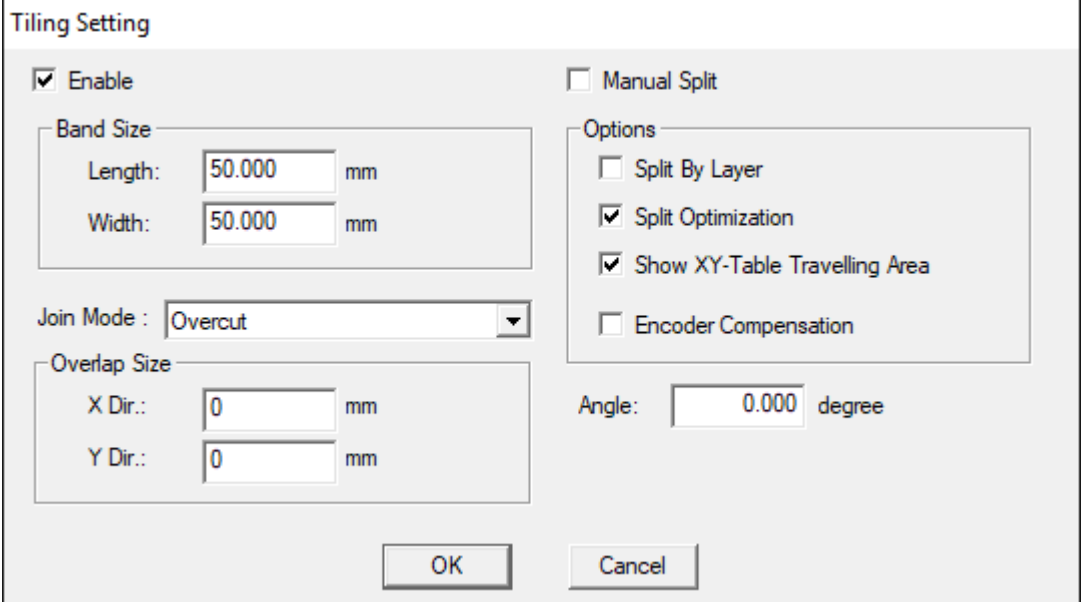
0% : 100% :

Frequency Range:

Min: kHz Max: kHz

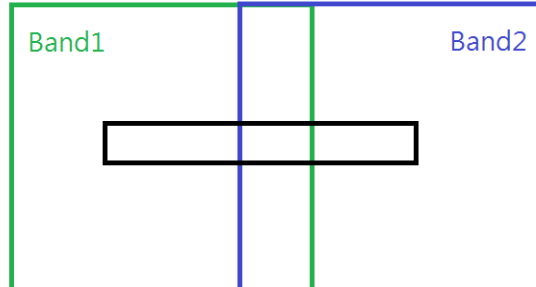
15.3.9 Tiling

This function is used to divide an object into several parts when the object's size is larger than the working area or is used to fit the users special demands. It is default disabled. Users need to click the "Tiling" button to activate this function.

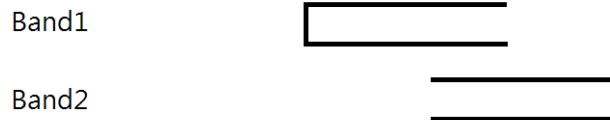


- **Enable** – Enable this function
- **Band Size**
 - **Length** – Length of each divided part.
 - **Width** – Width of each divided part.
- **Overlap Size**
 - **X Dir** – Length of the allowed overlap part.
 - **Y Dir** – Width of the allowed overlap part.
- **Manual Split** – Enable manual split function, and the manual split bar will be activated.
- **Options**
 - **Split By Layers** – Split graphic by layer.
 - **Split Optimization** – Optimize the split path. If a graphic is smaller than the Band Size, this option will ensure it to be marked at one time. Please note that this option will be disabled under manual split mode.
- **Show XY-Table Traveling Area** – Decide to show the traveling area of XY-Table or not.

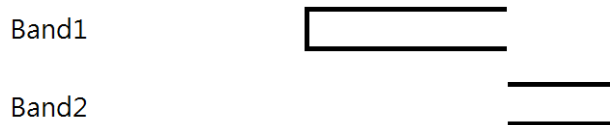
- **Show the Bands** – Show the bands while not in the band edit mode.
- **Avoid duplicate marking** – Make sure will not mark same object twice.



Disable

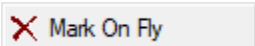
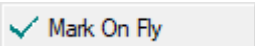


Enable

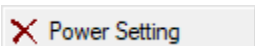
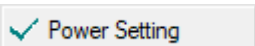


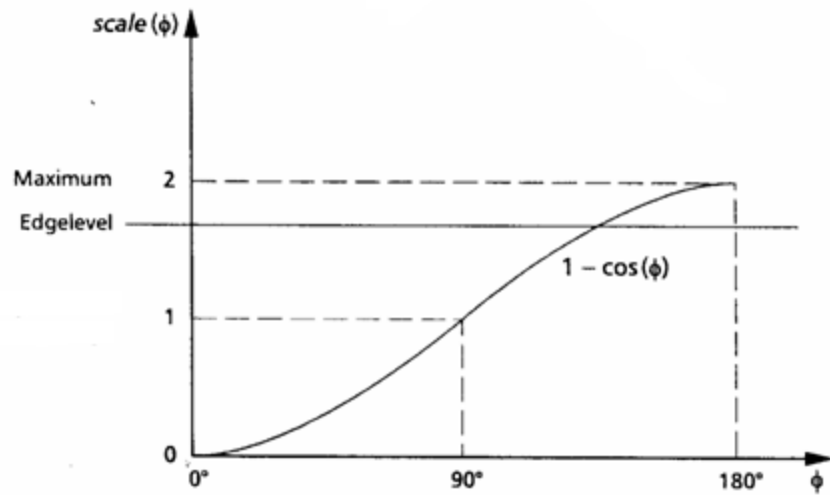
- **Encoder Compensation** – Decide to use encoder to do compensation.

15.3.10 Mark On Fly

The button  means this function is disabled. When it is enabled, the  button will become to this. Please refer to the description of section 6.6.3

15.3.11 Power Setting

The button  means this function is disabled. When it is enabled, the  button will become to this. Please refer to

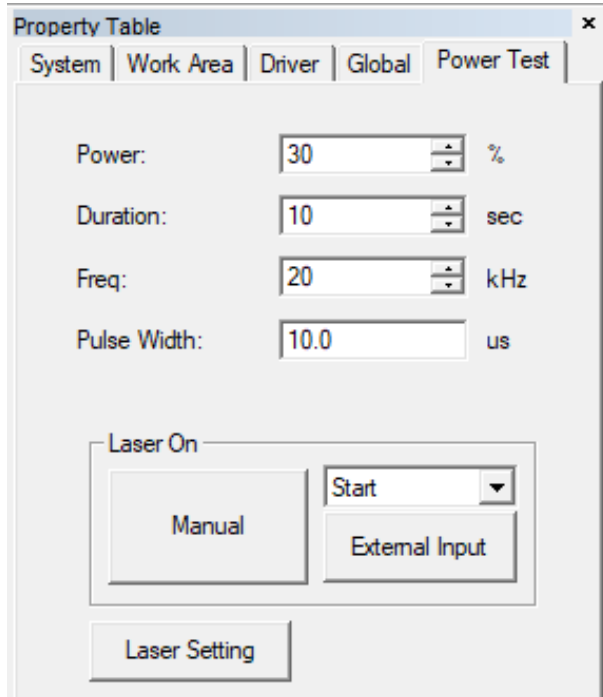


Click “Add” button and a dialogue box “Poly Delay Table Editor” will pop up, for users to enter the new value of angle and scale. Besides, users can select an angle and click “Edit” to edit that angle.

The dialog box is titled "Poly Delay Editor" and has a close button (X) in the top right corner. It contains two input fields: "Angle" with a text box containing "0" and "deg." to its right, and "Scale" with a text box containing "0". At the bottom, there are two buttons: "OK" and "Cancel".

15.4 Power Test

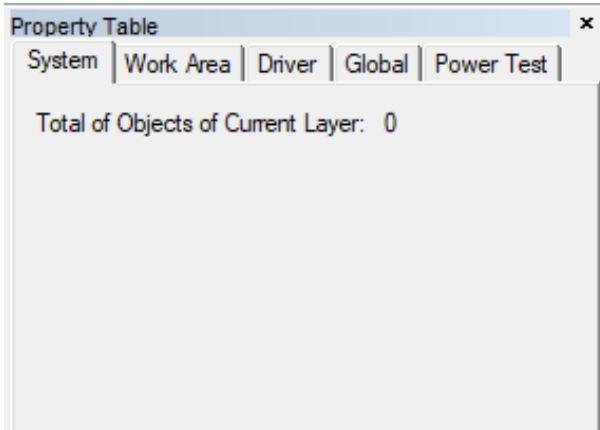
This function is for users to realize the difference between the setting power and real power output through opening the laser for a period of time for users to measure the power.



- **Power** – For CO2 laser, this value means the ratio of power. For example, if the maximum power of CO2 laser is 10W and the value is 30%, then the output power should be 3W. As to YAG/Fiber laser, this value means the electric current of laser. For instance, suppose the electric current range is 0~10V, then the output value will be 3V when users set 30%.
- **Duration** – The beam out duration of laser. Unless users shut down the laser, the laser will keep opening till the setting duration.
- **Freq.** – Set the frequency of laser.
- **Pulse Width** – Set the pulse width when using fiber laser.
- **Laser On** – Click the “Manual” button or select an external signal input from the list and then click “External Input” button to start the laser.
- **Laser Setting** – Please refer to chapter 17.

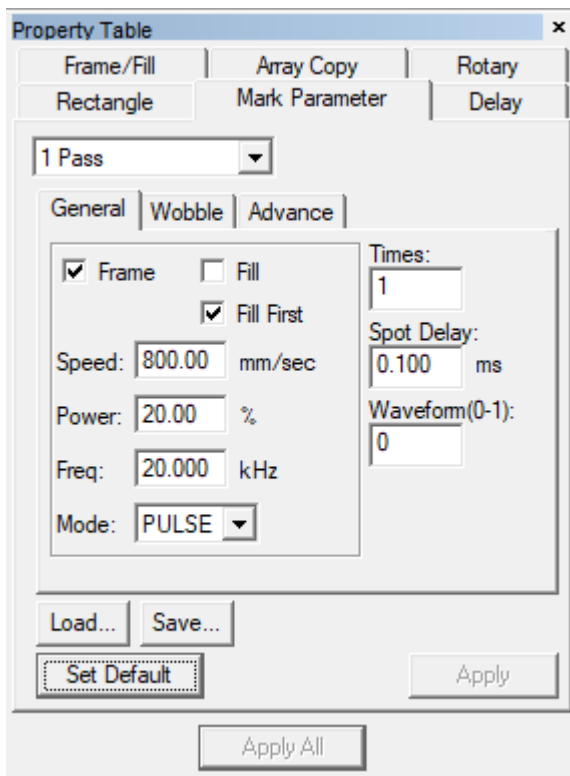
15.5 System

This page shows the total objects of the selected layer.



15.6 Mark Parameter

Provide maximum five marking passes for users to set. Users can edit different marking parameters for each pass.



● General

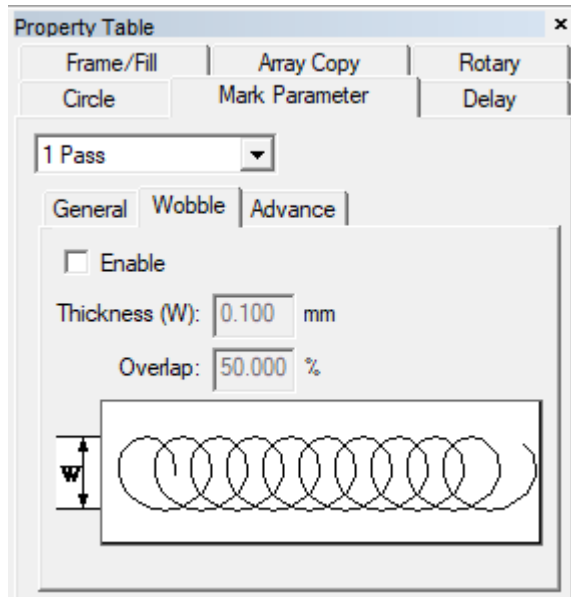
- **Frame / Fill** – Decide whether to mark the object's frame or fill the object at each pass.
- **Fill First** – Do filling first when marking.
- **Speed** – Set the marking speed. This value cannot exceed the maximum

speed of the system.

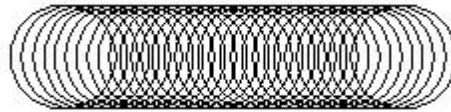
- **Power** – Current percentage (Fiber) or percentage of PWM high signal (CO2).
- **Frequency** – The cycle of laser's trigger. This item is useless in some CO2 system controlled by voltage.
- **Pitch (Under Dot Mode)** – The gap between each dot.
- **Delay (Under Dot Mode)** – The waiting time laser needs to start marking after moving to next dot.
- **Mode** – Select "PULSE," "MCW" or "CW" mode to mark.
- **Times** – Set the marking times for a work piece using the same marking parameters. If this value is 3, the object will be marked on the work piece three times at one process. If the value is 0, the object won't be marked.
- **Spot Delay** – The required time for laser to mark a spot or the marking time for each pixel when marking image objects. If this value is 0.5ms that means each spot will be marked for 0.5ms.
- **Pulse Width** – Set the pulse width (YAG driver only).
- **Waveform No. (0~63)** – Set the Waveform Number (SPI driver only). Each waveform has its default frequency. For more details, please contact to SPI laser providers.

● Wobble

Mark by spiral type and make the line segment become thicker.

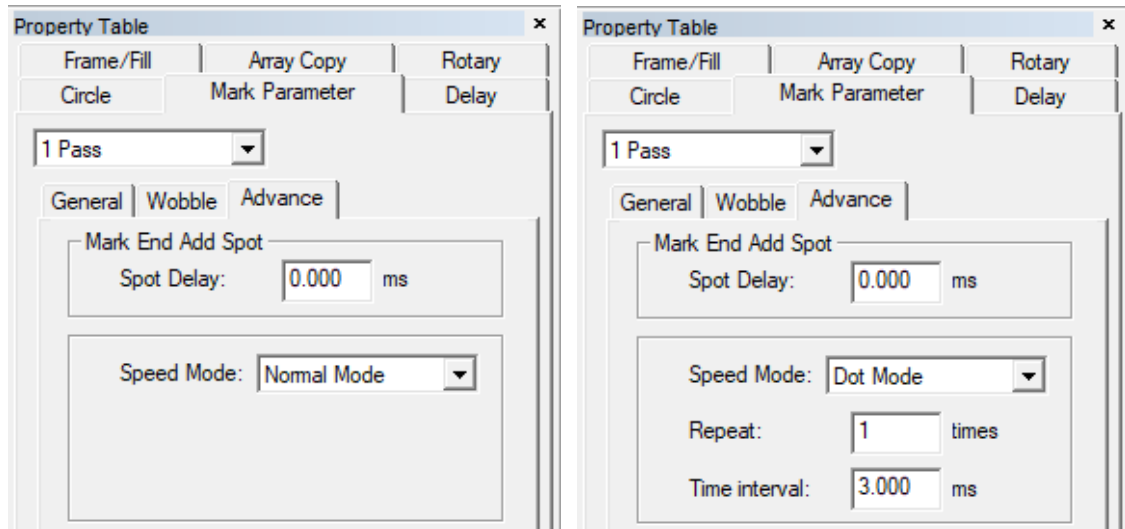


- **Thick(W)** – The diameter of the circle.
- **Overlap** – Higher overlap percentage will get thicker line segment.



● Advance

Provide users some further mark settings.



- **Mark End Add Spot** – Set the Spot Delay to mark a spot again at the mark end position.

- **Speed Mode** – Users can select to use Dot Mode or Normal Mode when marking.
- **Repeat** – Set the repeat times for each dot.
- **Time Interval** – The time interval between each dot on one spot.

- **Load**

Load the previous saved parameter setting.

- **Save**

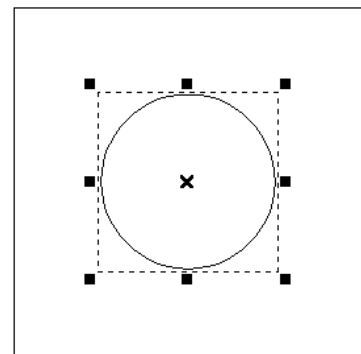
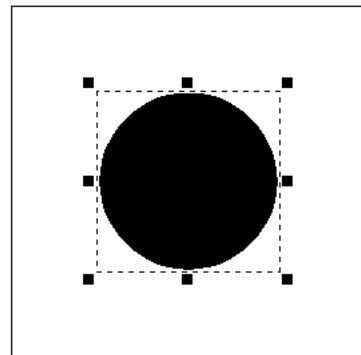
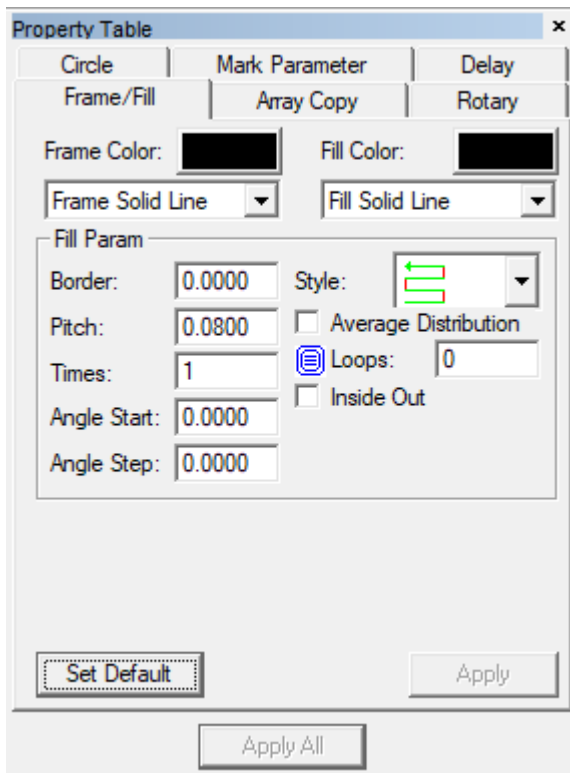
Save the current setting.

- **Set Default**

Set the current setting as the default setting.

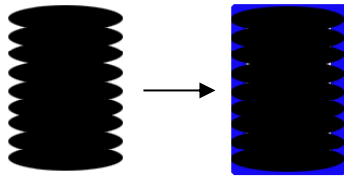
15.7 Frame/Fill

Set the frame color, fill color and fill style.

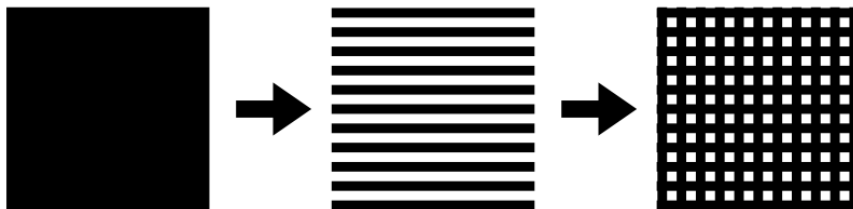


- **Frame / Fill Color** – Select the frame of fill color.

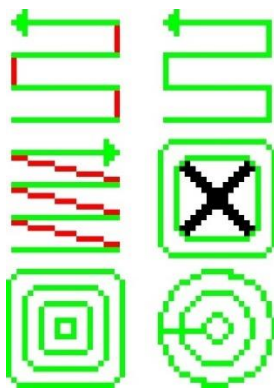
- **Fill Param** – Modify the related parameters when fill.
- **Border** – The distance between hatch line and the frame.



- **Pitch** – It is the numbers of lined images that you wish to be marked.
For instance, a lined image is set with parameters of angle start: 0, and angle step: 90, at time: 2, the lined image will be marked as below:



- **Average Distribution** – Distribute the hatch line averagely based on the pitch and the frame.
- **Times** – The fill repetition times.
- **Angle Start** – A lined image can be rotated by Angle start.
- **Angle Step** – This is how much angle of a lined image you would like to rotate at second time.
- **Style** – Decide the traveling path mode of laser when fill. There are five styles for users to select.

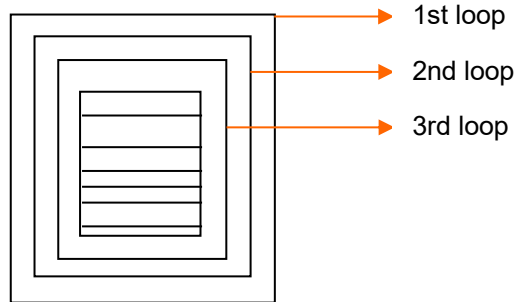


- **Loops** – Numbers of loops you want to fill out the marking object.



For example:

If you key in the value of 3, then it will show as below:



- **Mark Inversely** – Only when the object is Text, Arc Text or Rect Text. The system will mark the non-text part instead of mark the text object when using this function.

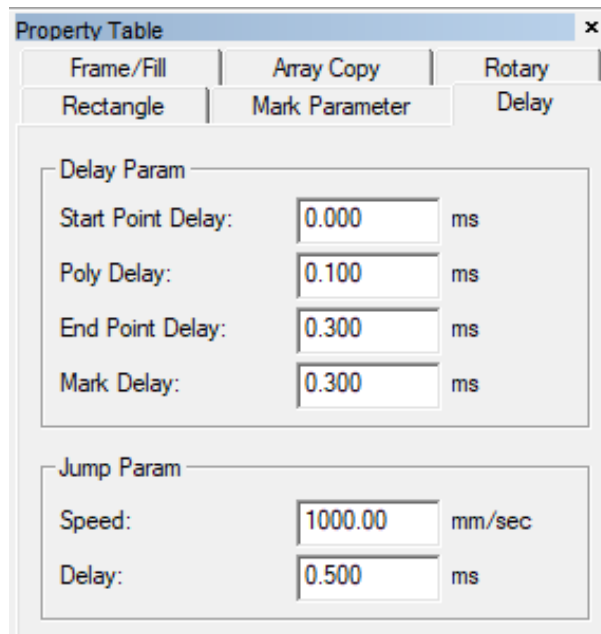
This function allows you to insert a delay at the beginning, midpoint, or end of each selected line.

Due to the speed at which the galvo motors travel, a delay may be needed to overcome the problem of mirror inertia. If your marked line appears faded in either the beginning, middle or end portions, you may need to add a slight delay to compensate for the mirror inertia.

NOTE:

Too little delay will result in faded or incomplete lines; too much delay will create hot spots or excess marking.

Delay Properties



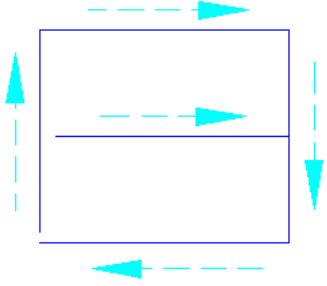
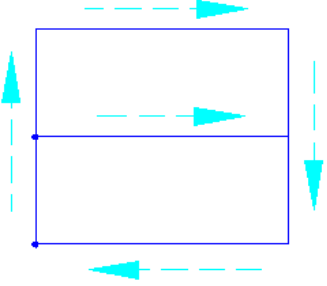
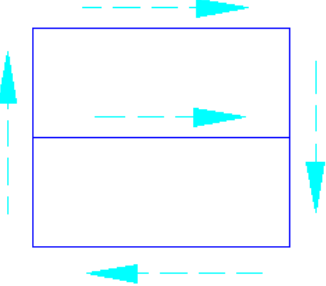
Property Table		
Frame/Fill	Array Copy	Rotary
Rectangle	Mark Parameter	Delay
Delay Param		
Start Point Delay:	0.000	ms
Poly Delay:	0.100	ms
End Point Delay:	0.300	ms
Mark Delay:	0.300	ms
Jump Param		
Speed:	1000.00	mm/sec
Delay:	0.500	ms

15.8.1 Delay Param

Provides four parameters for users to regulate. Users can adjust the required delay time based on the mark result.

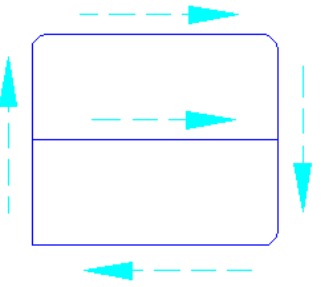
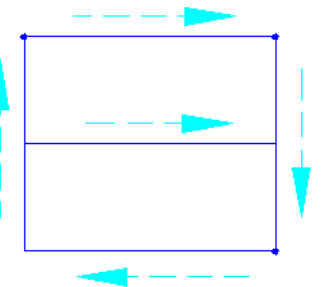
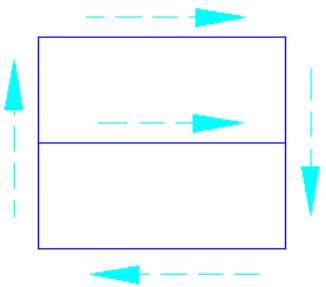
- **Start Point Delay**

The time difference between the lens starts moving and the laser starts hitting. The default value is 0. It can be set depending on user needs. This value can also be negative, and it means the lens will start moving after the laser hitting through the setting time. The following picture shows the different result under different Start Point Delay Time.

The delay time is too long.	The delay time is too short.	The delay time is suitable.
		

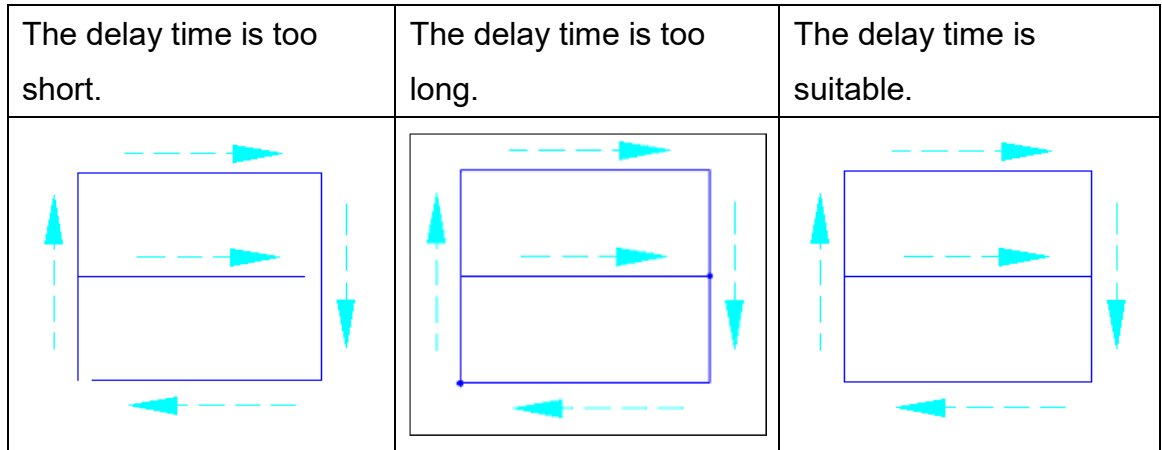
- **Poly Delay**

The time value will affect the mark quality of the connection part of two segments. The following picture shows the mark result under different settings.

The delay time is too short.	The delay time is too long.	The delay time is suitable.
		

- **End Point Delay**

The time value will affect the accuracy on the ending of the object. The following picture shows the mark result under different settings.



- **Mark Delay**

The delay time that ensures the scanner will reach the assigned position before the next command (mark or jump) starts. This delay time includes the End Point Delay.

15.8.2 Jump Param

Set the parameters about the moving of lens.

- **Speed**

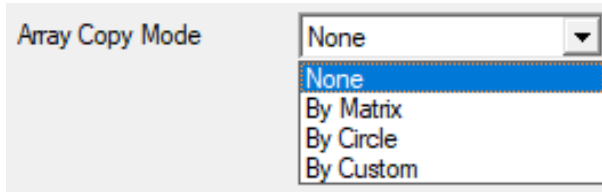
The moving speed of lens. The maximum value must refer to the manual of the lens.

- **Delay**

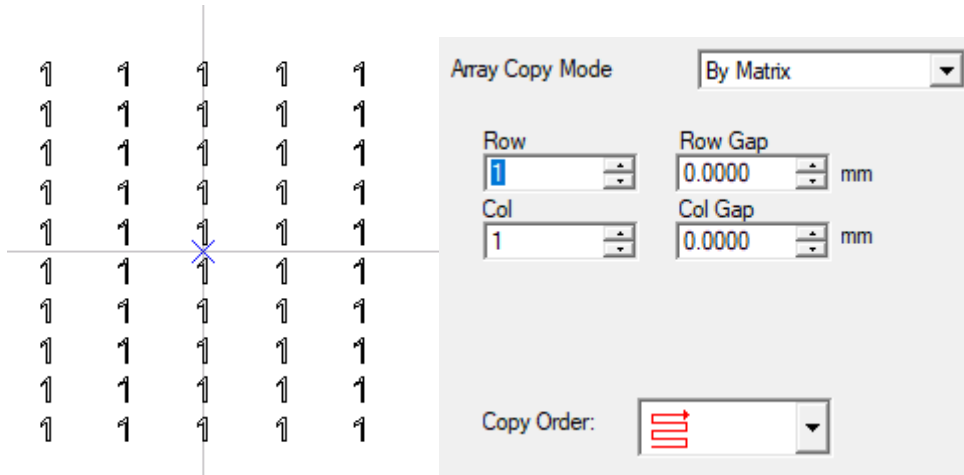
The waiting time laser needs to start hitting after the lens moves to the mark position.

15.9 Array Copy

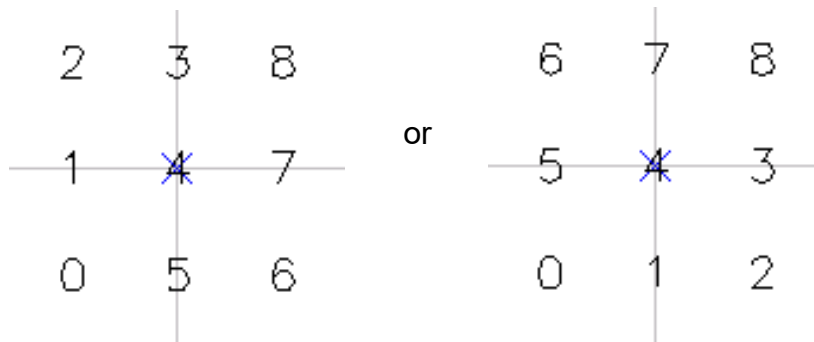
There are two array copy mode for users to select: By Matrix and By Circle.



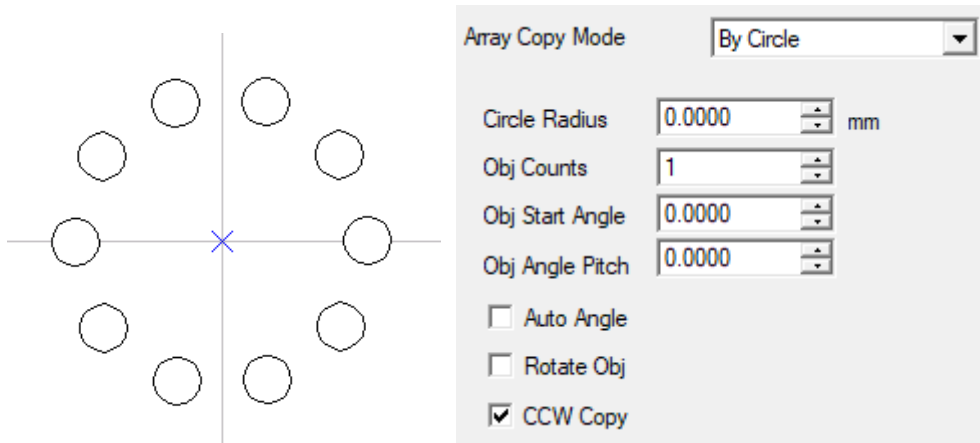
● Matrix



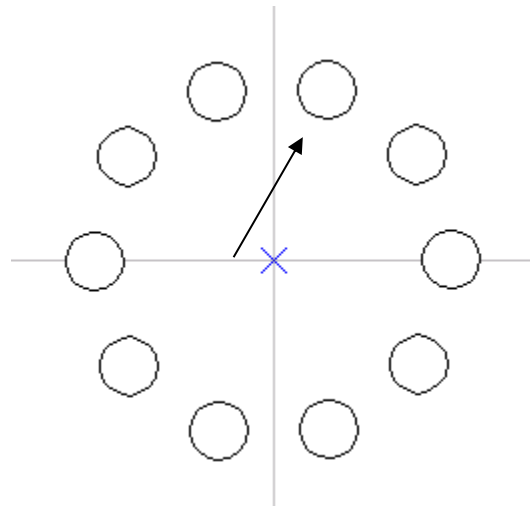
- **Row / Column** – You can duplicate the object as many as you want by key-in the value for the Row x Colum.
- **Copy Order** – You can choose the duplicate path.



● Circle

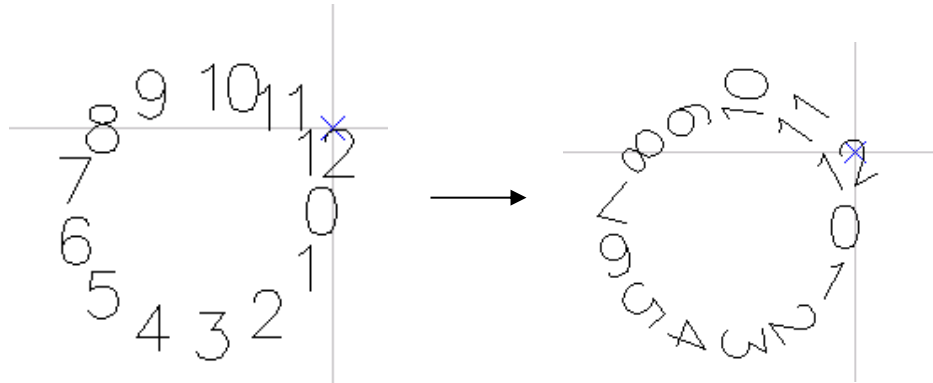


- **Circle Radius** – The size of circle you want to create.



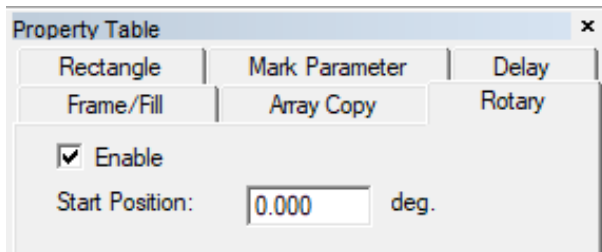
- **Obj Counts** – Numbers of object you want to duplicate.
- **Obj Angle Pitch** – The object will be duplicated for every certain angle by key in the desired value manually.
- **Auto angle** – The object will be duplicated for every certain angle automatically.

- **Rotate Obj** – You can rotate the angle of each duplicated object.



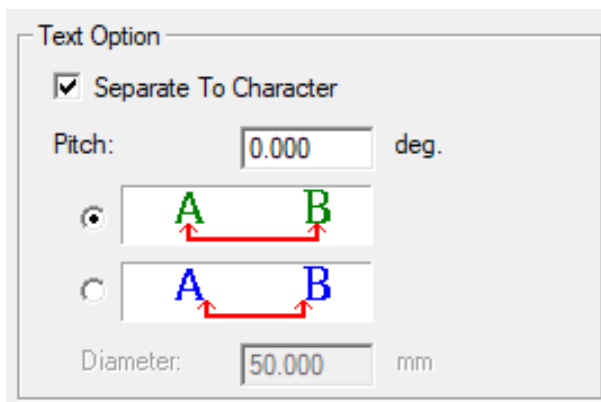
15.10 Rotary

This page allows users to enable rotary marking for individual object.

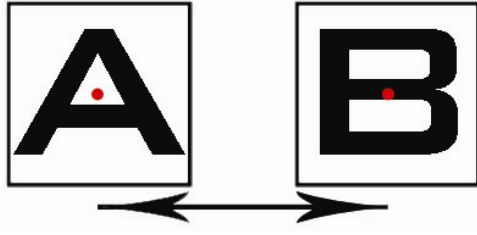


The following is the property page when selecting a general object

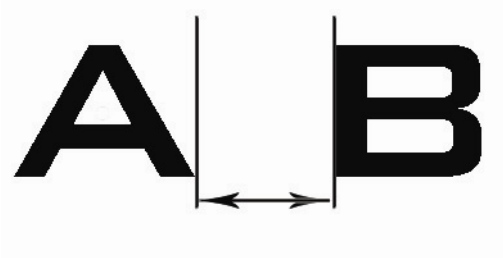
- **Enable** – Allow users to enable or disable the rotary axis function.
- **Start Position** – The initial angle of the rotary.
- **Text Object** – When a general text object has being selected, the Rotary Page has some particular options.



- **Separate To Character** – Separate the selected text into individual characters.
- **Pitch** – The distance between each character.
- **Center** – Calculate the pitch based on the center of the character.



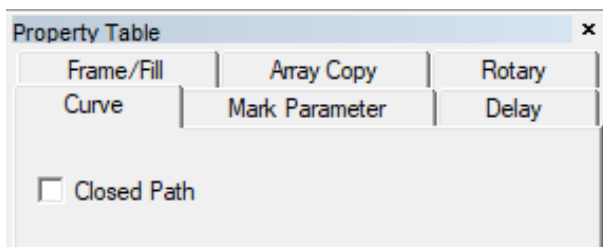
- **Edge** – Calculate the pitch based on the edge of the character.



- **Diameter** – The software needs the diameter of the working-piece to calculate the pitch when select Edge mode.

15.11 Curve

This function applies to curves or other linear objects. Click on Closed Path to join the nearest ends of the curve or line.



For example, if you create only 330° of a circle, the Closed Path function would automatically fill in the remaining 30°.

15.12 Arc

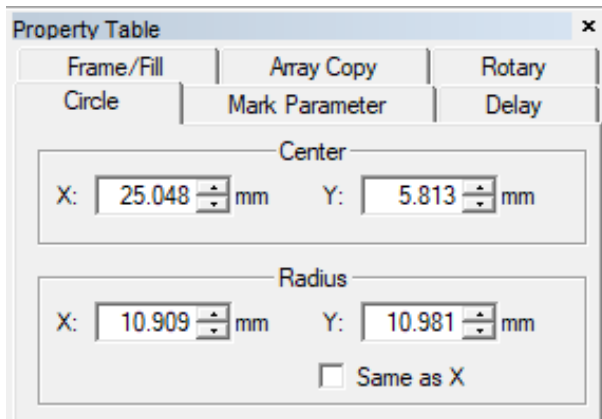
Create an arc object, and its parameter page will show as below

Property Table		x	
Frame/Fill	Array Copy	Rotary	
Arc	Mark Parameter	Delay	
Center			
X:	<input type="text" value="-26.115"/> mm	Y:	<input type="text" value="5.487"/> mm
Radius			
X:	<input type="text" value="7.379"/> mm	Y:	<input type="text" value="7.379"/> mm
<input checked="" type="checkbox"/> Same as X			
Start Dot			
X:	<input type="text" value="-32.799"/> mm	Y:	<input type="text" value="8.612"/> mm
Start Angle:	<input type="text" value="154.940"/> deg.		
End Dot			
X:	<input type="text" value="-30.789"/> mm	Y:	<input type="text" value="11.196"/> mm
End Angle:	<input type="text" value="129.310"/> deg.		

- **Center** – Adjust the center position of the arc.
- **Radius** – Adjust the radius of the arc.
- **Same as X** – Make the radius of Y same as X.
- **Start Dot** – Set the start point angle of the arc. X and Y value will change automatically following the angle.
- **End Dot** – Set the end point angle of the arc. X and Y value will change automatically following the angle.

15.13 Circle

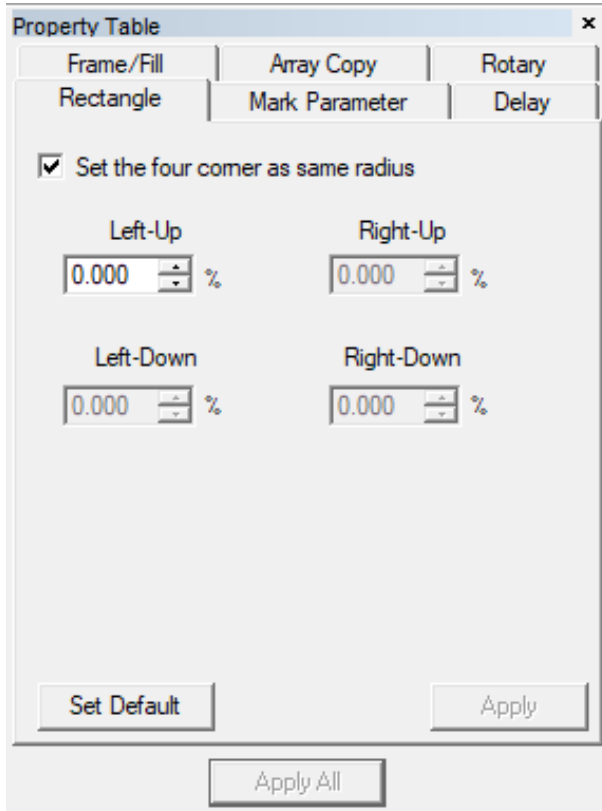
Create a circle object and the parameter page will show as below



- **Center** – Adjust the center position of the circle.
- **Radius** – Adjust the radius of the circle.
- **Same as X** – Make the radius of Y same as X.

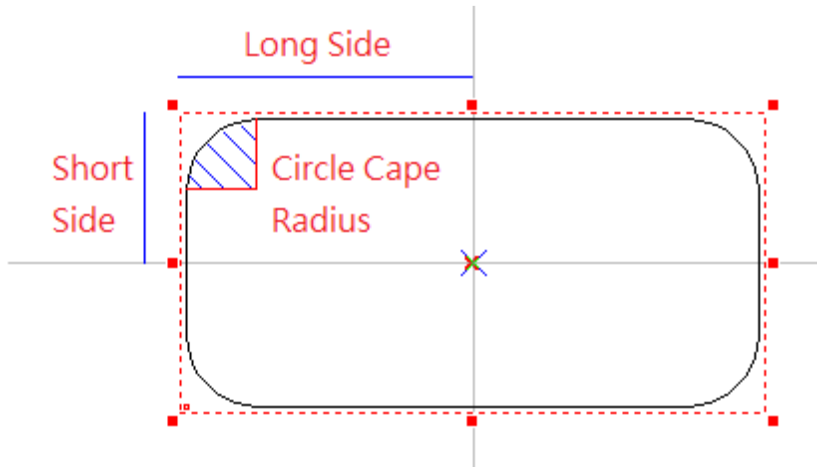
15.14 Rectangle

Create a rectangle object and the parameter page will show as below, users can set the four corners of rectangle as circle cape. The radius of circle cape can be set individually or set as same radius.



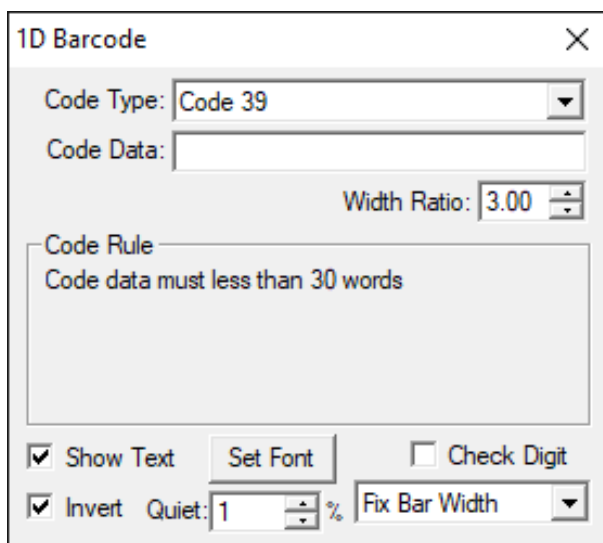
- **Set the four corners as same radius** – Corner radius is the radian of the

rectangle's four angles. The radius is set according to the percentage of the rectangle's short side or the square's side.



15.15 1D Barcode

Create a 1D Barcode object and the parameter page will show as below



- **Code Type** – There are several code types for users to select: Code 39, Code 128, Code 128A, Code 128B, Code 128C, Code 93, Code Bar, ITF, MSI Code, Us PosNet, UPC-A, UPC-E, EAN 8, EAN 13, UCC 128, EAN 128, FIM, Code 25 or ITF 25.
- **Code Data** – Input the code data here.
- **Width Ratio** – Set the ratio of narrow bar to wide bar. This value is between .0~3.0
- **Code Rule** – Display the special rule of selected code type.

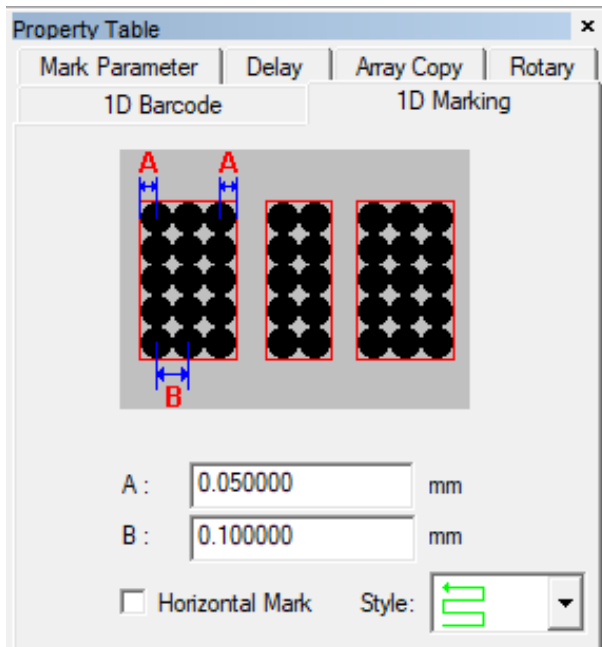
- **Show Text** – Decide to show the code data under barcode or not.
- **Set Font** – Change the font, font style and font size of code data.
- **Invert** – Invert the bar and space of the bar code. This application is when the work piece is black.



- **Quiet** – The size of quiet area when using Invert function
- **Check Digit** – A check digit is calculated automatically and added.
- **Auto Text** – Use auto text as the content of code data.
- **Manager** – Manage the auto text.

15.16 1D Marking

Some marking-related settings.

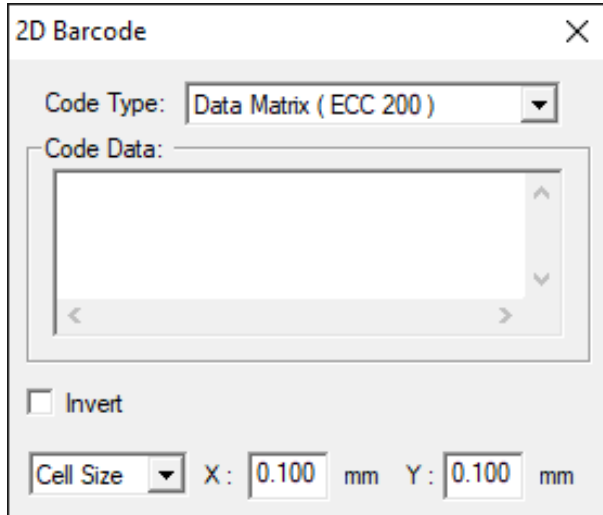


- **A** – The distance between laser spot center and the edge of barcode.
- **B** – The distance between laser spots (according to the spot center)
- **Horizontal Mark** – Mark the barcode in horizontal way (generally is in vertical)

way)

15.17 2D Barcode

Create a 2D Barcode object and parameter page will show as below



- **Copy Type** – There are several code types for users to select: Data Matrix (ECC 000~140), Data Matrix (ECC 200), PDF417, QR Code, and Maxi Code, PDF417 Truncated 、 Micro PDF417 、 Micro QR Code.
- **Invert** – Invert the bar and space of the bar code. This application is when the work piece is black.



Original



Invert

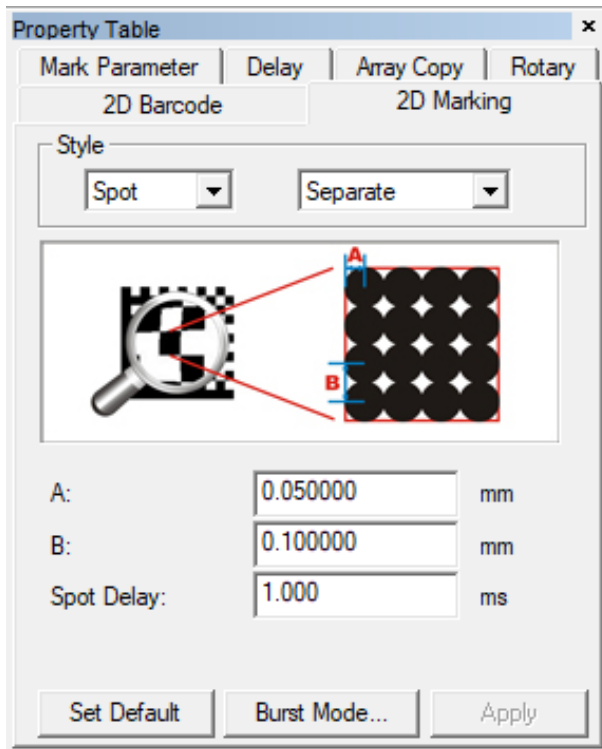
Border

- **Border** – The size of quiet area when using Invert function.

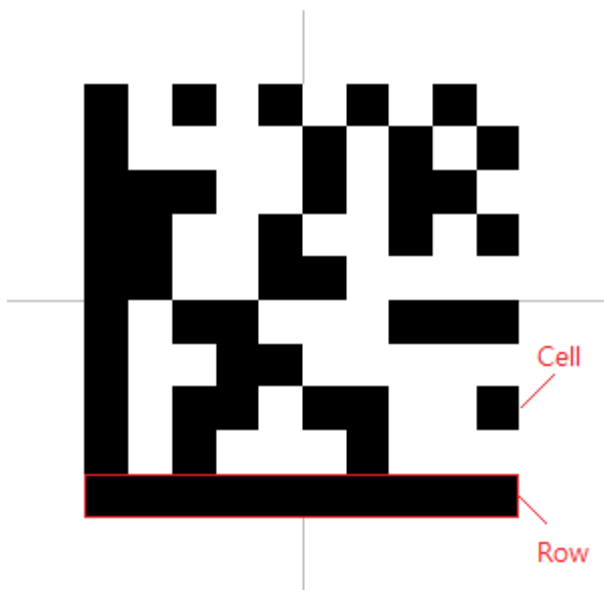
- **Auto Text** – Use auto text as the content of code data.
- **Manager** – Manage the auto text.
- **Properties** – Select the rectangular size and format of 2D Barcode.








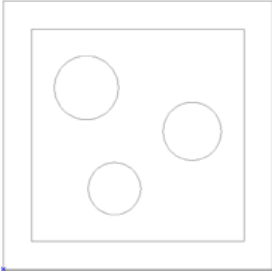

15.18 2D Marking

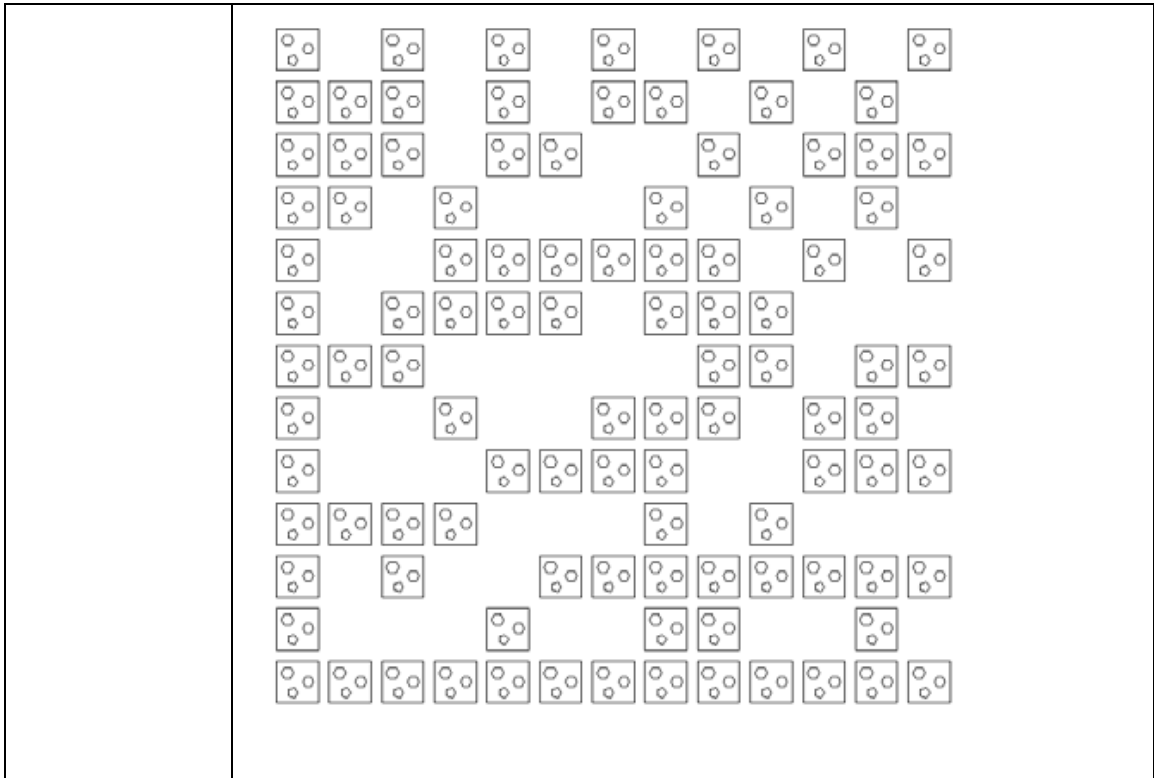
Some marking-related options.



- **Style** – 2D barcode is divided into many cells and has three marks style to mark each cell. Besides, in order to make the instruction more lucid, we consider that 2D Barcode has two parts: cell and row.




	<p>Spot: Mark each cell in spot manner.</p>
	<p>Line: Mark each cell in line manner.</p>
	<p>Rectangle: Mark each cell in as a rectangle</p>
	<p>Spiral: Mark each cell as a spiral.</p>
	<p>Circle: Mark each cell as a circle.</p>
<p>Custom</p>	<p>Custom: After user choosing Custom and press on Apply, will appear 2D Barcode toolbar . Clicking on  to enter edit mode. If we draw as , after clicking on  to leave edit mode, 2D barcode will be seen as like below.</p>



● Spot and Rectangle Style

- Orderly – Mark following the cell's order.
- Separate – This method can avoid the blurred result cause thermal effects.
- Spot delay – The required time for laser to mark a spot.
- Poly delay – Set the poly delay. For more details about Poly Delay, please refer to Section 15.7.1
- Burst Mode – Click “Burst Mode...” button the dialogue box of options will appear to set up the Burst Mode settings. (please refer to 6.6.17)


● Line Style

- Continuous – Consider all the cells on the same row as one unit and mark.
- By Cell – Mark all the cells one by one and follow the row's order.
- Non-Stop – Mark all the cells (By Cell) or each row (Continuous) by  style.
- Alternate Line – Mark without following the row's order to avoid the blurred result caused thermal effects.
- A – The distance between laser spot center and the edge of barcode.
- B – The distance between two laser spots (according to the spot center).

- **Spiral Style**

- Out ring circle – Mark an outer ring after each spiral is marking completed.
- Outer to inner – Setting spiral marking direction is from outer to inner.
- CCW – Setting spiral marking direction is counter clockwise.

- **Spiral Style**

- By Cell – Mark all the cells one by one and follow the row's order.
- Non-Stop – Mark all the cells (By Cell) or each row (Continuous) by  style.
- Alternate Line – Mark without following the row's order to avoid the blurred result caused thermal effects.

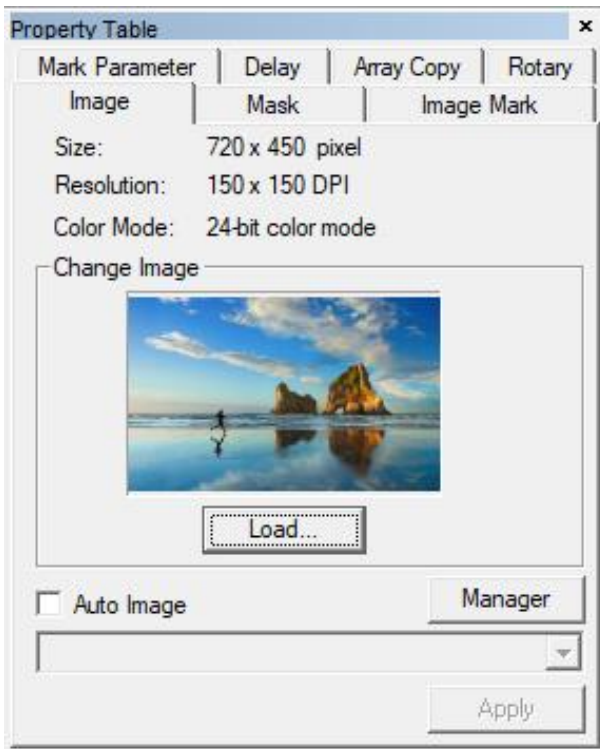
- **A** – The distance between laser spot center and the edge of barcode.

- **B** – The distance between two laser spots (according to the spot center).

15.19 Image

Import an image, and the property table will show the related information of this

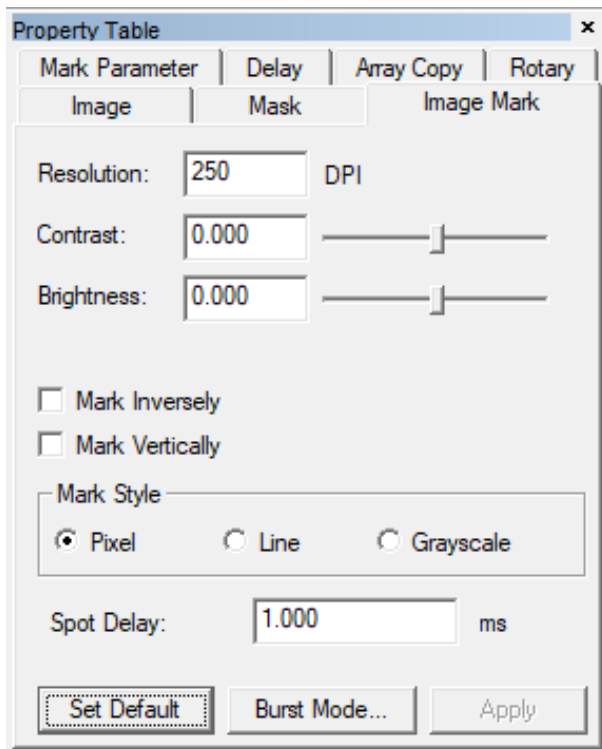
image.



- **Auto Image** – Mark the image based on the application of Auto Text when there has a series of images to mark.

15.20 Image Mark

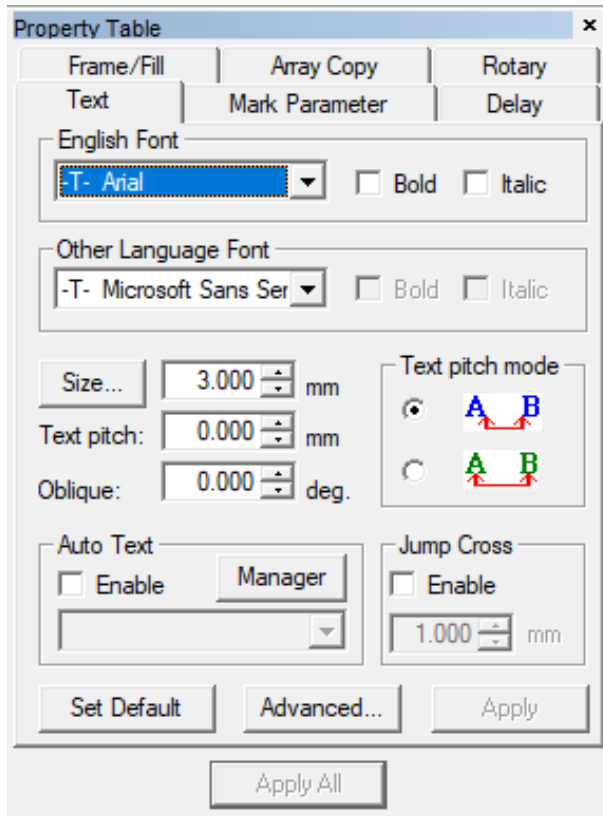
Adjust the mark settings of the image.





- **Resolution** – The resolution of the image. DPI means “Dots Per Inch.”
- **Contrast / Brightness** – Adjust the contrast/brightness of the image.
- **Mark Inversely** – This function is used when the color of work piece is black.
- **Mark Vertically** – Mark the image in vertical way.
- **Mark Style** – An image is composed by pixels which are according to the size of the image. For example, if the size of the image is 600×800, then the amount of pixels of that image will be 480,000.
 - **Pixel** – Mark the image as dots.
 - **Line** – Connect the pixels on the same row as a line and mark the image.
 - **Grayscale** – Transfer the image into a black-and-white color image.
- **Spot Delay** – The required time for laser to mark a spot.
- **Burst Mode** – Click “Burst Mode...” button the dialogue box of options will appear to set up the Burst Mode settings (please refer to 6.6.17).

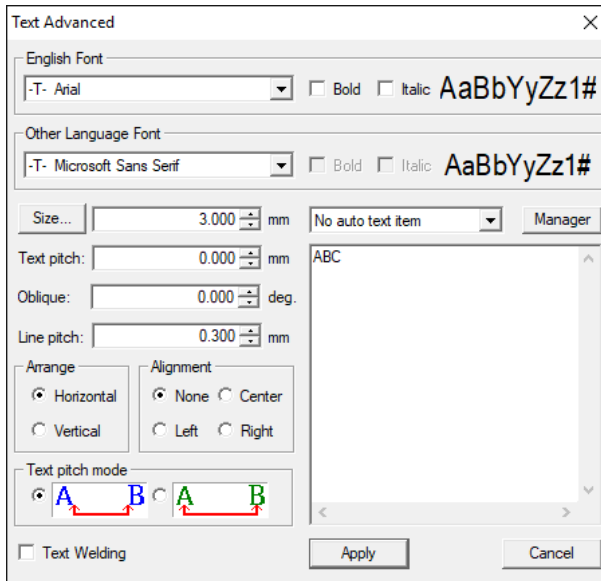
15.21 Text

Create a Text object, and the Text Property Page will display like as below

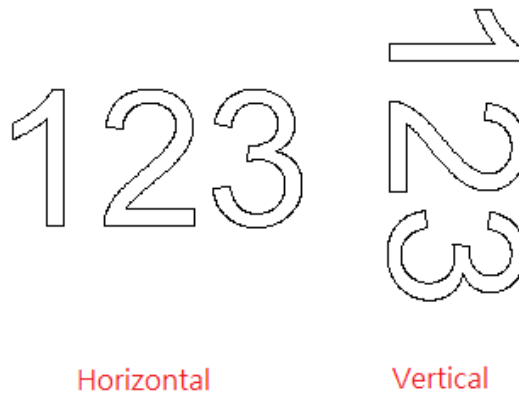


- **English Font** – Select the font for letters of the alphabet and numerals.
- **Other Language Font** – Select the font for other language characters.
- **Bold / Italic** – Select the font type as bold, italic or both.
- **Size** – Adjust the font size.
- **Text Pitch** – Adjust the spacing between two characters.
- **Oblique** – Adjust the tilt angle of the text.
- **Text Pitch Mode** – Select the text pitch base. There are two modes for users to apply: based on the edge of characters  or based on the center .
- **Auto Text** – Apply the Auto Text function.
- **Jump Cross** – Enable or disable the jump cross function. For more details please refer to 7.25.

- **Advance** – Offer further settings for text

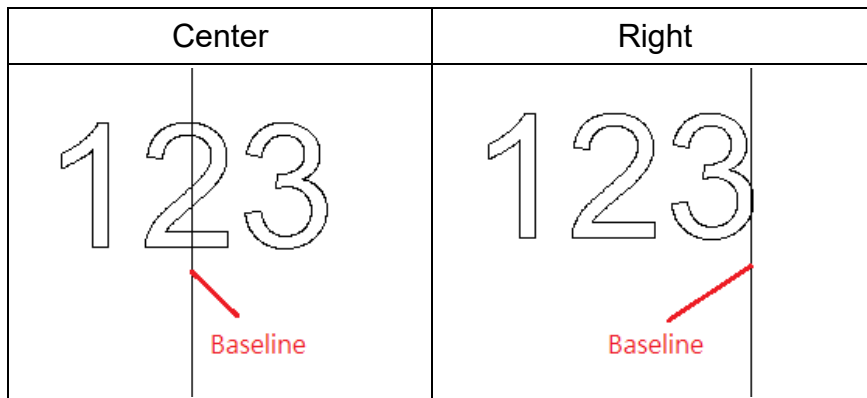
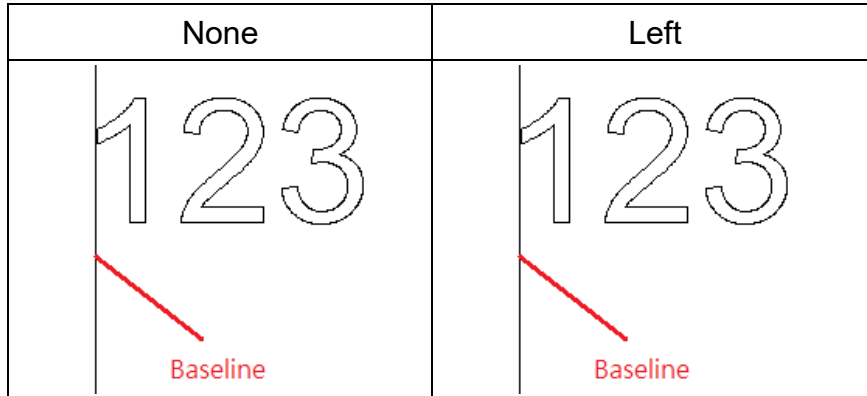


- **Line Pitch** – Adjust the spacing between each line.
- **Arrange** – Select the character arrange style.



- **Alignment** – Use the insert position as the baseline, and align the text object

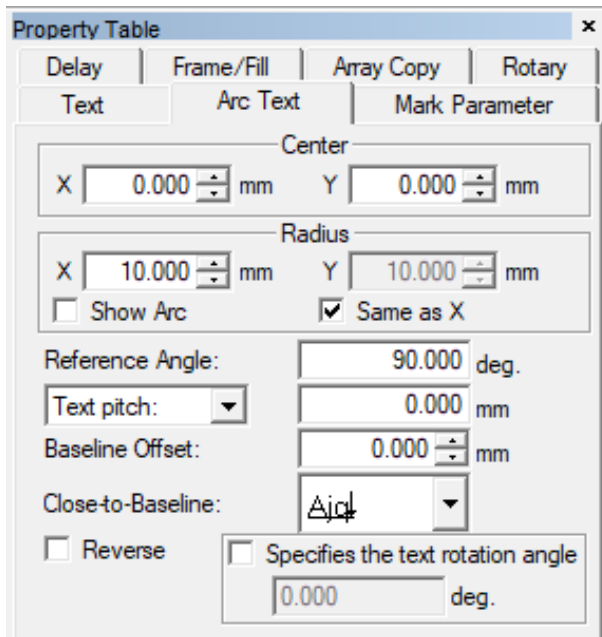
along that baseline.



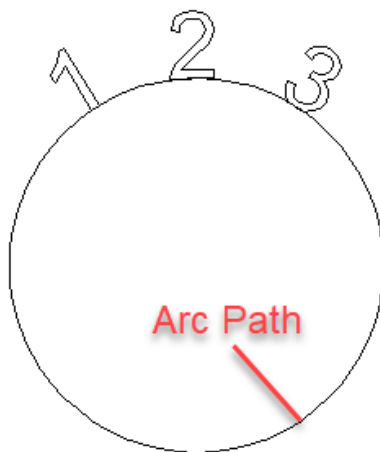
- **Text Welding** – Use to avoid the overlapping part of character's strokes.

15.22 Arc Text

Create an Arc Text object, and the Arc Text Property Page will be displayed as below.



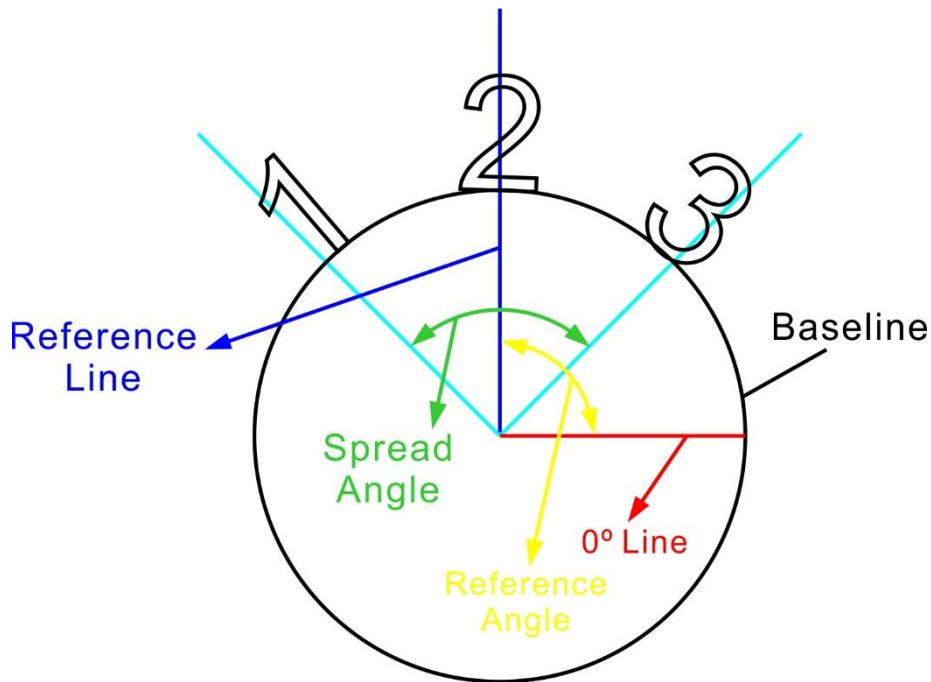
- **Center** – Set the center position of the arc.
- **Radius** – Set the arc's radius.
- **Show Arc** – Show the arc path



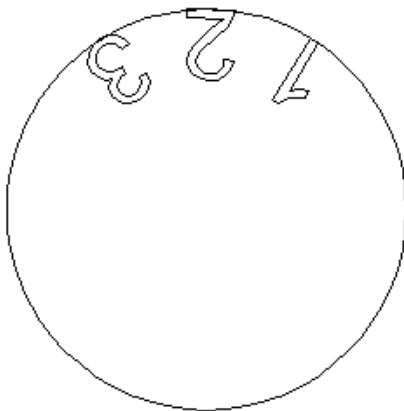
- **Same as X** – Make the arc has the same radius (becomes a circle).

- **Reference Angle** – Set the angle between 0° line and reference line. Users can

adjust the text's alignment from Text Tool Bar or Text Property Table – Advance. Please note that the system will suppose the reference line as the alignment baseline when using Arc Text.

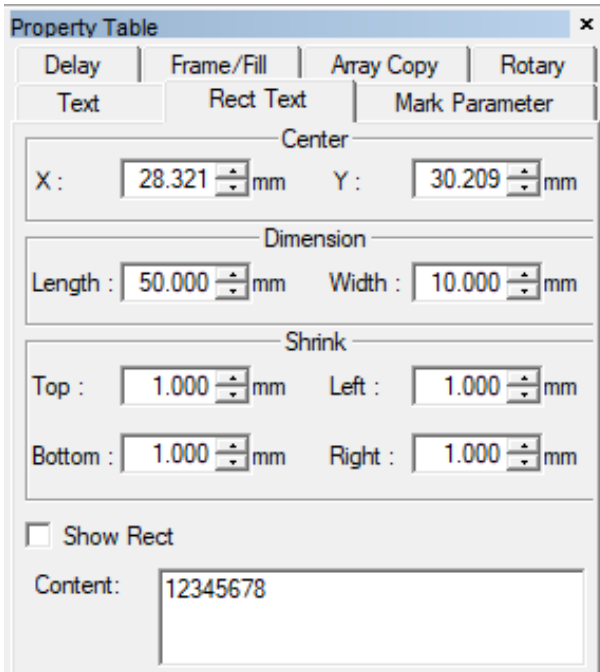


- **Text Position** – Adjust the spacing between characters.
- **Spread Angle** – Set the spread angle and the characters will distribute averagely in this range.
- **Baseline Offset** – Set the spacing between the text and the baseline.
- **Close-to-Baseline** – Select the position of text based on the baseline.
- **Reverse** – Reverse the text part of the arc text.



15.23 Rectangle Text

Create a Rectangle Text object, and the Rectangle Text Property Page will be displayed like as below

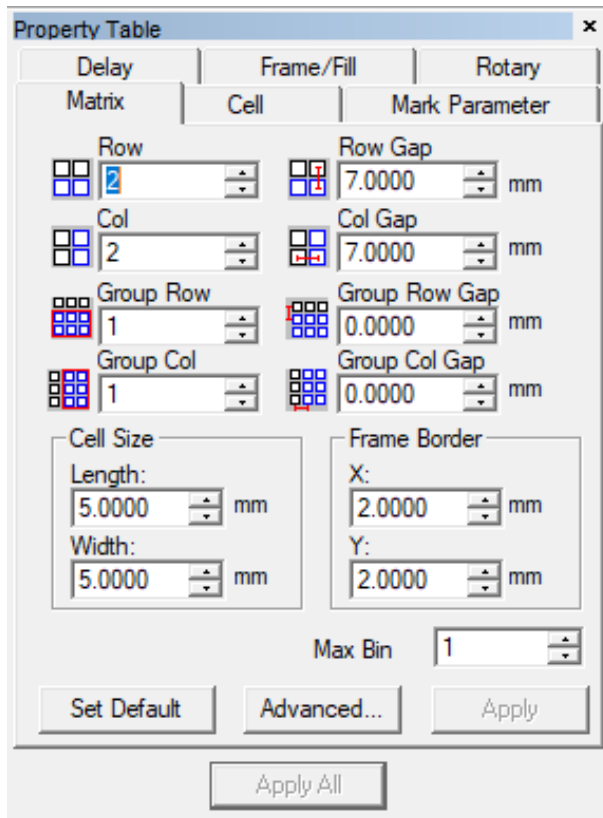


Delay	Frame/Fill	Array Copy	Rotary
Text	Rect Text	Mark Parameter	
Center			
X :	28.321 mm	Y :	30.209 mm
Dimension			
Length :	50.000 mm	Width :	10.000 mm
Shrink			
Top :	1.000 mm	Left :	1.000 mm
Bottom :	1.000 mm	Right :	1.000 mm
<input type="checkbox"/> Show Rect			
Content: 12345678			

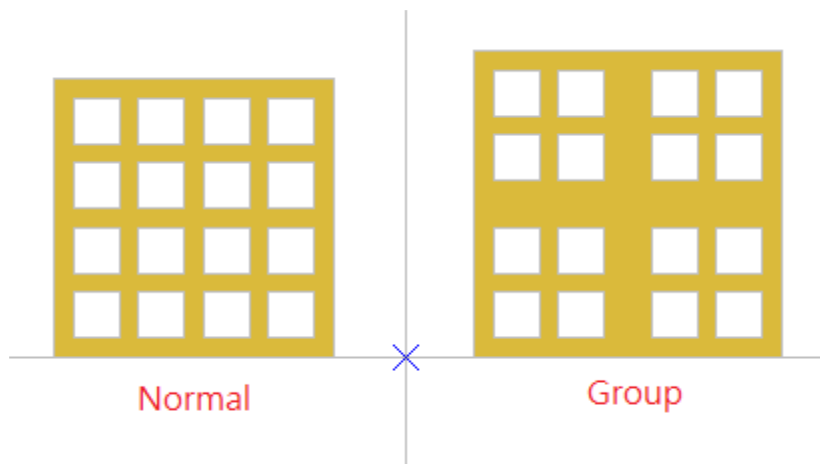
- **Center** – Set the center position of the Rectangle.
- **Dimension** – Set the rectangle width and height
- **Shrink** – Set the gap between text and rectangle edge
- **Show Rect** – Reveal rectangle
- **Content** – Text content

15.24 Matrix

Create a matrix object, and the Matrix Property Page will be displayed like as below

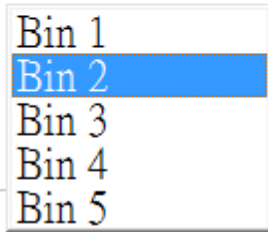
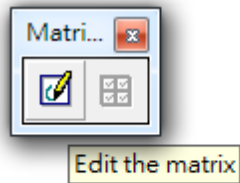


- **Row / Col** – The amount of cells in a row/ column.
- **Row / Col Gap** – The spacing between each row/ column.
- **Group Row / Col** – Set the amount of the cells in a row/ column as a group

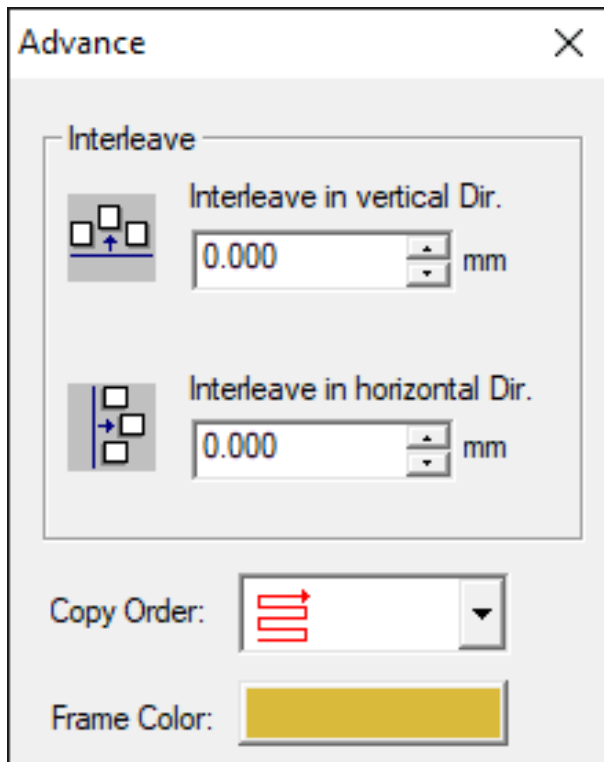


- **Group Row / Col Gap** – The row/column spacing between each group.
- **Cell Size** – The length/ width of each cell.
- **Frame Border** – The frame size of the matrix.

- **Max Bin** – Create new bins (layers) to edit different objects for matrix to use. The range of bins is 1~16. Users can select different bins to edit from Matrix Tool Bar



- **Advance** – Further settings for matrix



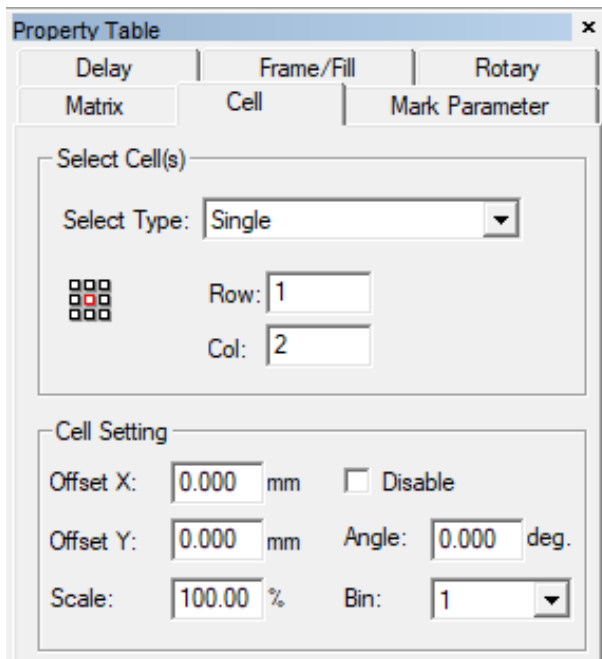
- **Interleave** – Adjust the vertical or horizontal position of even rows or columns.



- **Copy Order** – Choose the copy order of the cells.
- **Frame Color** – Choose the color of the matrix's frame.

15.25 Cell

Allow users to select which cell they want to edit



Property Table

Delay	Frame/Fill	Rotary
Matrix	Cell	Mark Parameter

Select Cell(s)

Select Type:

Row:

Col:

Cell Setting

Offset X: mm Disable

Offset Y: mm Angle: deg.

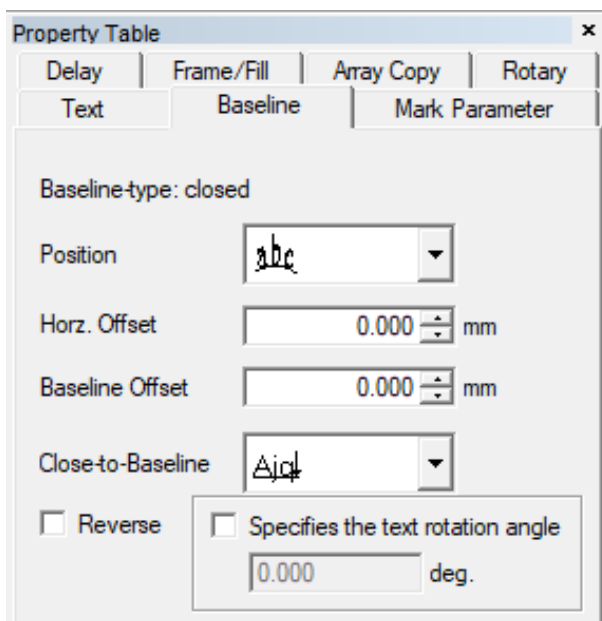
Scale: % Bin:

- **Select Cell(s)**
 - **Select Type** – There are four editing types: Single, Row, Column and Rectangle Area. Users can assign which cell, row, column or area they want to edit by input the value in row/ col.
- **Cell Setting**

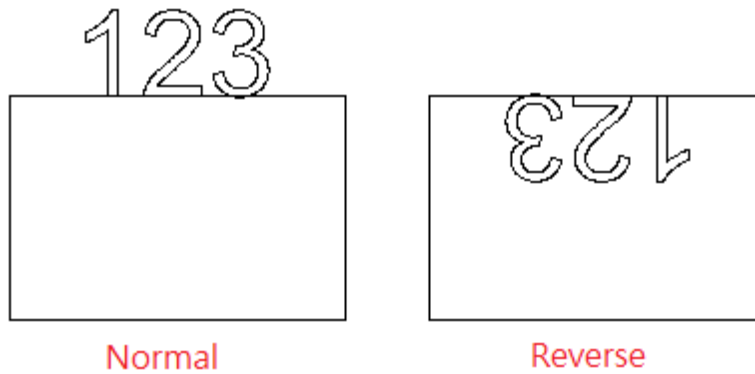
- **Offset X/Y** – The X/ Y offset of the selected cell(s).
- **Scale** – Set the scale of the selected cell(s).
- **Disable** – The selected cell(s) will be hidden and won't be marked.
- **Angle** – The rotary angle of the selected cell(s).
- **Bin** – Select the bin users want to edit.

15.26 Baseline

The Baseline Property Page will be displayed when using “Baseline” function. There are two different positions according to the baseline-type.

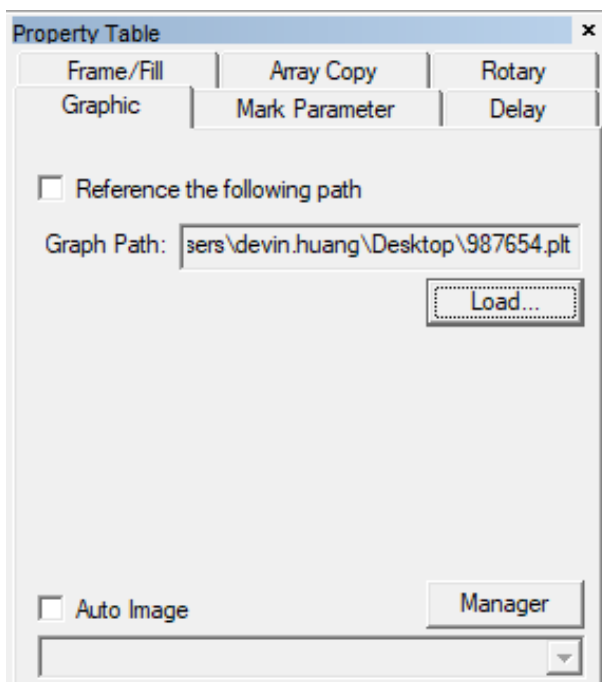


- **Baseline type** – The baseline-type is based on the curve types (closed or open) users used.
- **Position** – Decide the text position. For example, when the baseline is an open curve, the position can be chosen to align center (default), left or right.
- **Horz. Offset** – The horizontal offset between the text and the selected position.
- **Baseline Offset** – The space between the text and baseline.
- **Close-to-Baseline** – Select the position of text based on the baseline.
- **Reverse** – Reverse the text



15.27 Graphic

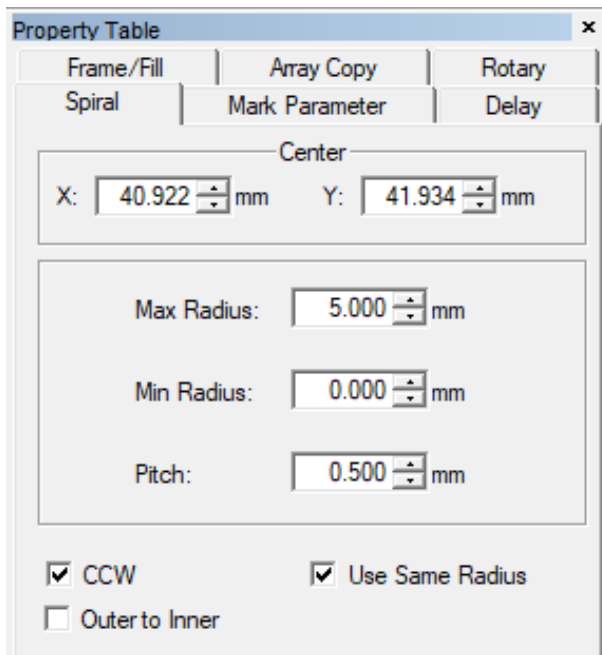
When users import a “*.dxf” file, the Graphic Property Page will be display like as below.



- **Reference The Following Path** – Suppose that users click this option and import a “*.dxf” file and then save it as a “*.ezm” file. If the graphic of the assigned Graph Path has been modified, the graphic of the “*.ezm” file will update automatically when users load that “*.ezm” file next time.
- **Load...** – This option can only import a “*.dxf” file.

15.28 Spiral

While a spiral object has been created, spiral property table will show as below.



Frame/Fill	Array Copy	Rotary
Spiral	Mark Parameter	Delay
Center		
X: 40.922 mm	Y: 41.934 mm	
Max Radius: 5.000 mm		
Min Radius: 0.000 mm		
Pitch: 0.500 mm		
<input checked="" type="checkbox"/> CCW	<input checked="" type="checkbox"/> Use Same Radius	
<input type="checkbox"/> Outer to Inner		

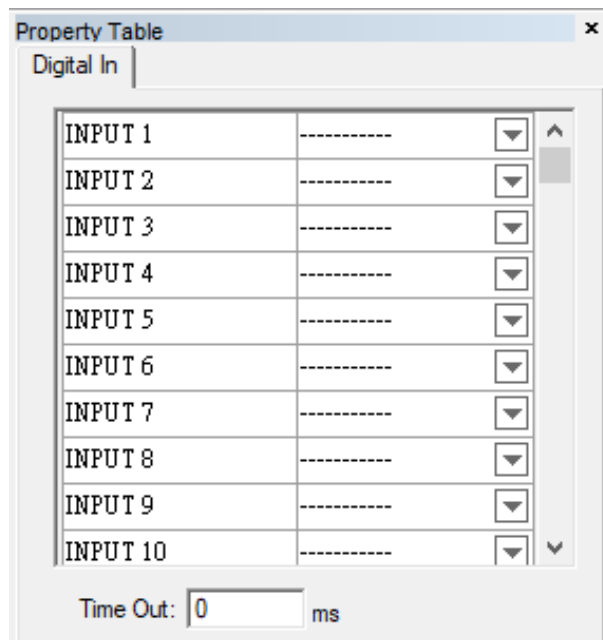
- **Center** – The center position of the spiral.
- **Max. Radius** – The spiral outer ring radius.
- **Min, Radius** – The spiral inner ring radius.
- **Pitch** – The interval distance between two spiral lines.
- **CCW** – Spiral is generated as counter-clockwise direction.
- **Use Same Radius** – Let spiral could fit into a perfect circle.
- **Outer to inner** – Spiral is generated from outer to inner instead of from inner to outer.

15.29 Control Object

When insert a control object in Work Area, or select the control object in the Object Browser, the Property Table of this object will be displayed. Users are allowed to edit the parameters of this object.

15.28.1 Digital In

“Digital In” is used to check the input potential signal is correct or not when marking. Users can set potential signal (high or low) at IN 1~8. If the input signal is correct, then the system will do the next step.



The screenshot shows a 'Property Table' window for a 'Digital In' object. It contains a table with 10 rows, each labeled 'INPUT 1' through 'INPUT 10'. Each row has a dashed line in the middle and a dropdown arrow on the right. Below the table is a 'Time Out' field with the value '0' and the unit 'ms'.

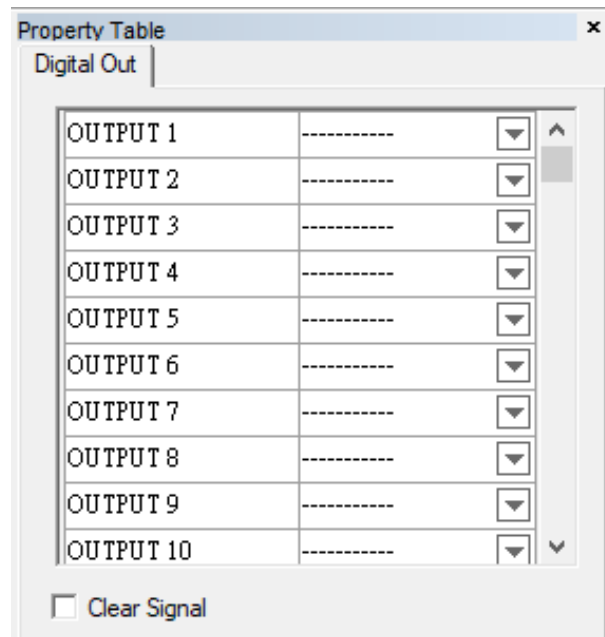
Input	Signal	Action
INPUT 1	-----	▼
INPUT 2	-----	▼
INPUT 3	-----	▼
INPUT 4	-----	▼
INPUT 5	-----	▼
INPUT 6	-----	▼
INPUT 7	-----	▼
INPUT 8	-----	▼
INPUT 9	-----	▼
INPUT 10	-----	▼

Time Out: ms

- **SET** – High potential.
- **CLEAR** – Low potential.
- ----- – Ignore
- **Time Out** – The time that system needs to wait for the input signal.
Example: Suppose that this value is 10ms. If there is no signal input within 10ms, then the system will start to mark the next object.

15.28.2 Digital Out

Set the output potential signal (high or low) at OUT 1~8. When the mark process execute to “Digital Out” object, the system will follow the settings on this page and do the next step.



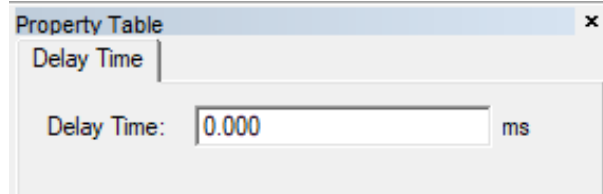
- **SET** – High potential.
- **CLEAR** – Low potential.
- ----- – Ignore
- **Clear Signal** – Activate this function and then users can set the Wait Time. The system will change the high potential signal (SET) to low potential signal (CLEAR) after passing the Wait Time.

15.28.3 Do Pause

Stop marking and wait for the Start signal.

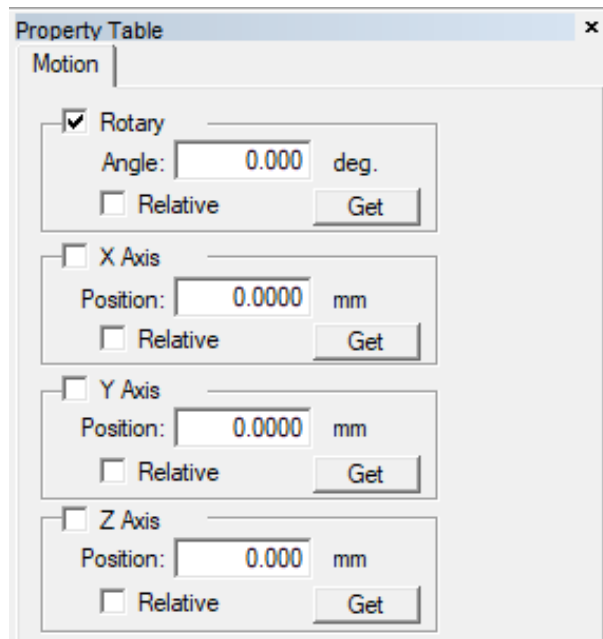
15.28.4 Delay Time

Suppose a mark process order is “Object A”→“Delay Time Object”→“Object B.” After Object A has been marked, the system will wait for the setting delay time and then start to mark Object B. The Delay Time can be set at Delay Time Property Table.



15.28.5 Motion

When the mark process execute to “Motion” object, the axis will move to the assigned position or angle (Only PMC2 driver supports Z axis control)

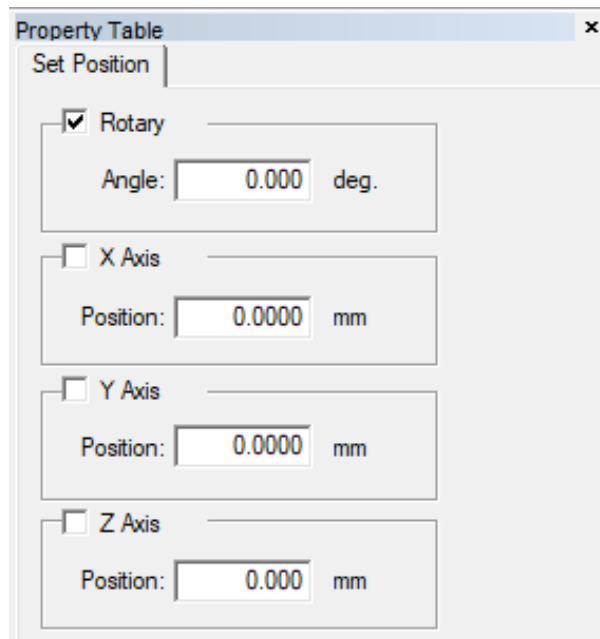


- **Relative** – If check the box, the assigned position will be considered as a relative position, otherwise, it will be considered as an absolute position.

15.28.6 Set Position

The system will consider the current position as the assigned position

when the mark process execute to “Set Position” object (Only PMC2 driver supports Z axis control). Users can assign the position at Set Position Property Table

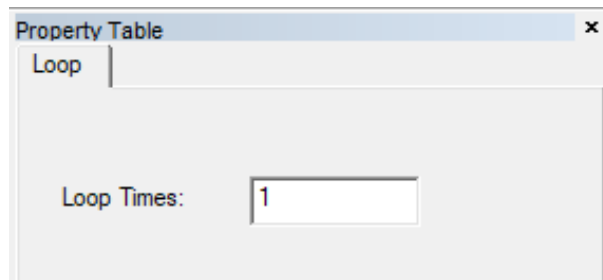
A screenshot of a software dialog box titled "Property Table" with a close button (x) in the top right corner. The dialog has a tab labeled "Set Position". It contains four sections, each with a checkbox and a text input field:

- Rotary: Angle: 0.000 deg.
- X Axis: Position: 0.0000 mm
- Y Axis: Position: 0.0000 mm
- Z Axis: Position: 0.000 mm

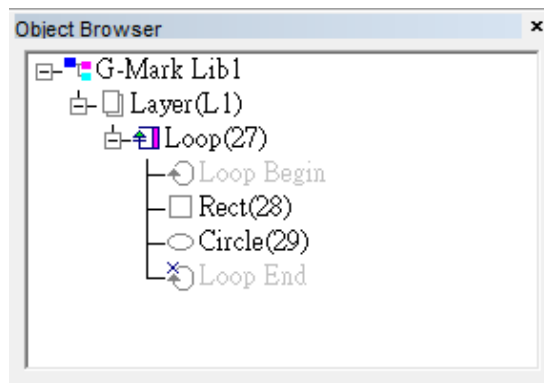
15.28.7 Loop

“Loop” is used to mark the selected objects repeatedly. Users can set the

repeated time at Loop Property Table.



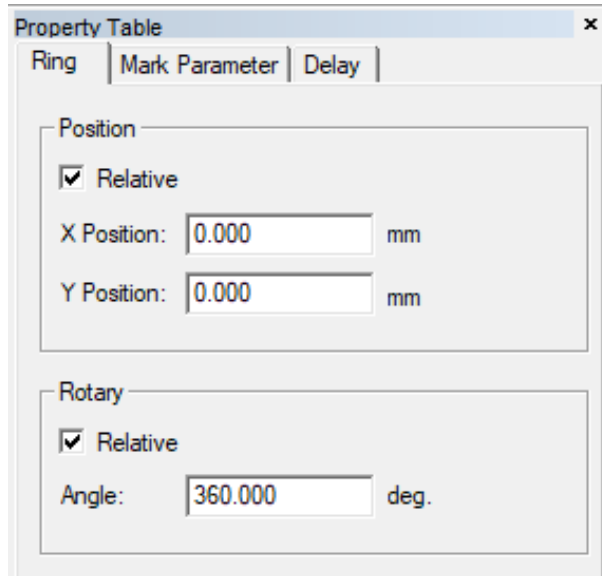
When insert this object, users will see two sub-objects (Loop Begin and Loop End) in the Object Browser and then drag the objects users want to repeated mark into the loop



15.28.8 Ring

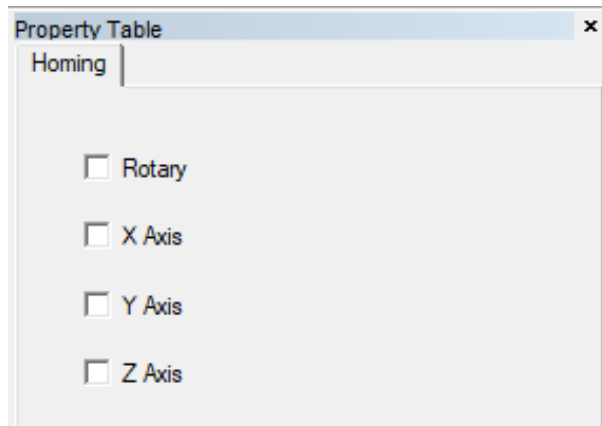
“Ring” object must be used accompanied with rotary axis.

When the mark process executes to “Ring” object, the Galvo will move to the X/Y position users set at Property Table first and the laser will start to hit. When the rotary axis rotate to the assigned angle, the laser will be turned off. Please note that the “Position” here means the Galvo’s position, not X/Y Table.



15.28.9 Homing

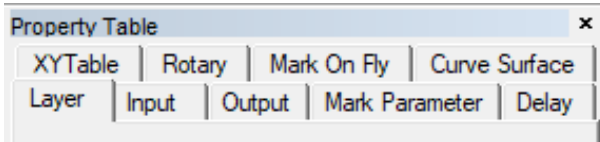
When the mark process execute to “Home” object, the axis users select at Property Table will go back to origin.



15.30 Layer

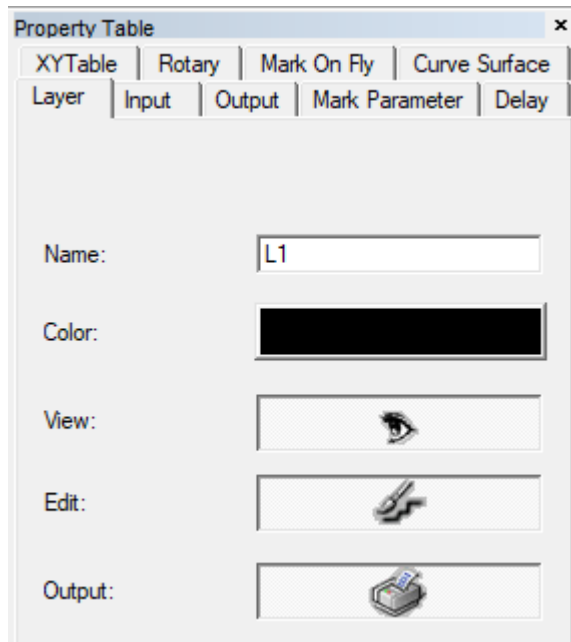
When a layer object in the Object Browser has being selected, the Property Table

will display the layer-related property page for uses to edit.



15.29.1 Layer

The Layer Property Page allows users to set the parameters of the selected layer.

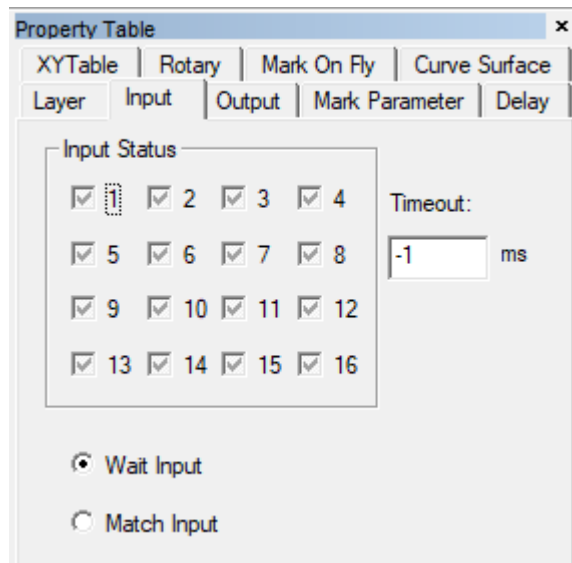


- **Name** – Edit the layer’s name.
- **Color** – Edit the layer’s color.
- **View** – Enable or disable to view the layer.
- **Edit** – Enable or disable to edit the layer.
- **Output** – Enable or disable to output the layer.

15.29.2 Input

The Input Property Page allows users to set up the input status of the

layer. The system will first check the Input Status settings and then start to mark the layer's objects.

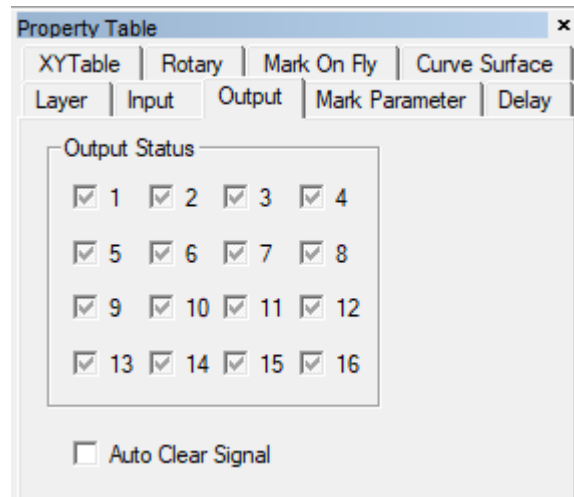


- **Input Status** – Set the potential (high or low) of the input points.
 - High Potential
 - Low Potential
 - Ignore
- **Timeout** – The time system needs to wait for the input signal. The default is -1.
- **Wait Input** – Wait until all input status exist, otherwise wait for Timeout.
- **Match Input** – Wait until all input status exist, otherwise skip the layer.

15.29.3 Output

Use this function to set up the output status of the layer.

The system will first handle the graph and then the output status.



- **Output Status** – High or low voltage of the output points.
 - High Potential
 - Low Potential
 - Ignore
- **Auto Clear Signal** – Wait for Delay Time and auto clear signal after the voltage settings are done.

15.29.1 Mark Parameter

The Mark Parameter Property Page here is for the selected layer. Its setting method is the same with the individual object. Please refer to the section 15.6 Mark Parameter.

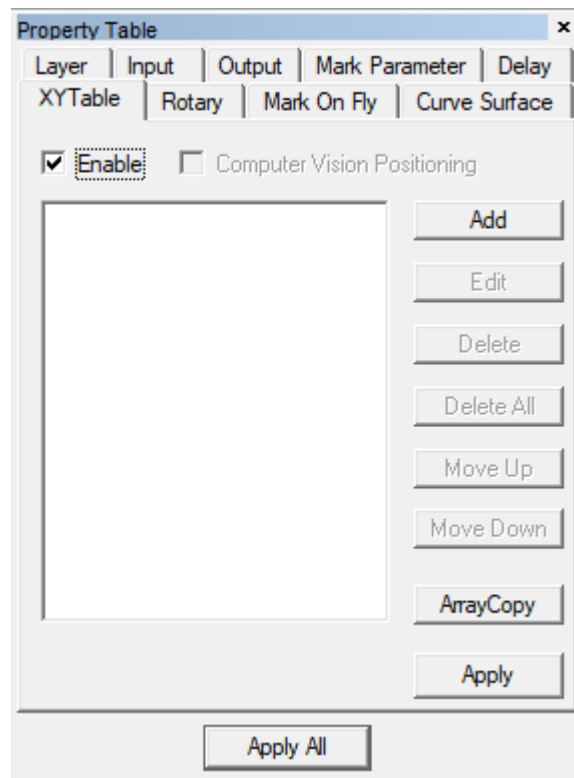
15.29.2 Delay

The Delay Parameter Property Page here is for the selected layer. Its setting method is the same with the individual object. Please refer to the section 15.8 Delay.

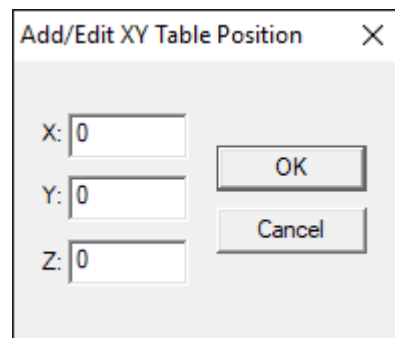
15.29.3 XY(/Z) Table

Allow users to enable XY (/Z) Table. Users can add coordinates and then

the XY(/Z) axis will move to the assigned positions in order

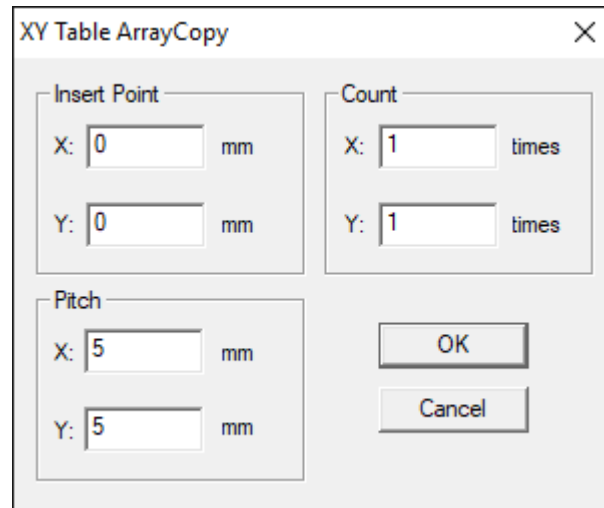


- **Add / Edit** – Add or edit the XY (/Z) position.



- **Delete / Delete All** – Delete the selected position or delete all setting positions.
- **Move Up / Move Down** – Move up/down the selected position to change its order.

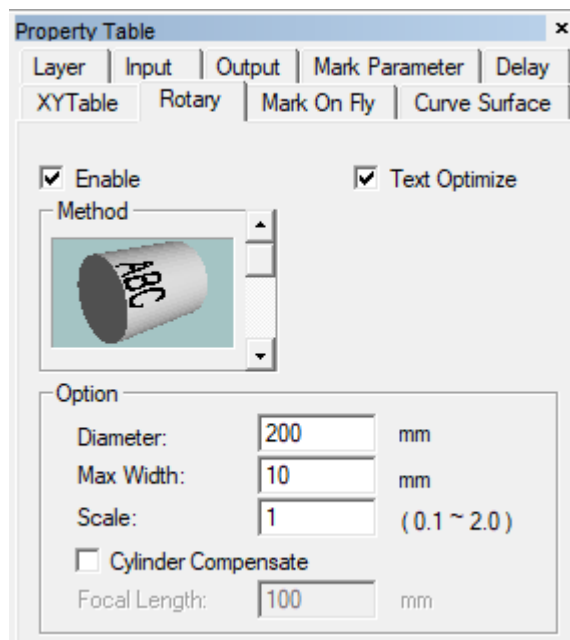
- **Array Copy** – Create several positions at one time based on array principle.



- **Insert Point** – Set the start point.
- **Count** – The duplicate amount.
- **Pitch** – The interval of each point.

15.29.4 Rotary

Allow users to enable rotary to mark. There are two methods of rotary: Cylinder Mode and Disc Mode. The difference between cylinder and disc is the figure of the rotary axis.



● Cylinder Mode

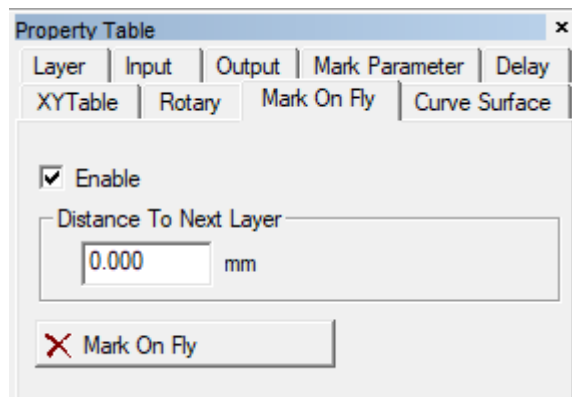
- **Diameter** – The diameter of the object.
- **Max Width** – The ideal section width when marking. This value is based on the radius of axle.

- **Scale** - Adjust the ratio of radius to reach the optimum marking effect. The default value is 1. Please refer to the following example and figures.
 - **Cylinder Compensate** – The default value of this function is disable. Enable the function, StellarMark system software will fix the overlapping of marking result according to the object’s radius and the Focal Length.
 - **Focal Length** – Input the focal length of the lens.
- **Disc Mode**
- **Step Angle** – Set the rotary angle for each step of marking.

15.29.5 Mark On Fly

This function is set up when using “Mark on Fly” function for marking,

enable or disable the delay marking between layers.



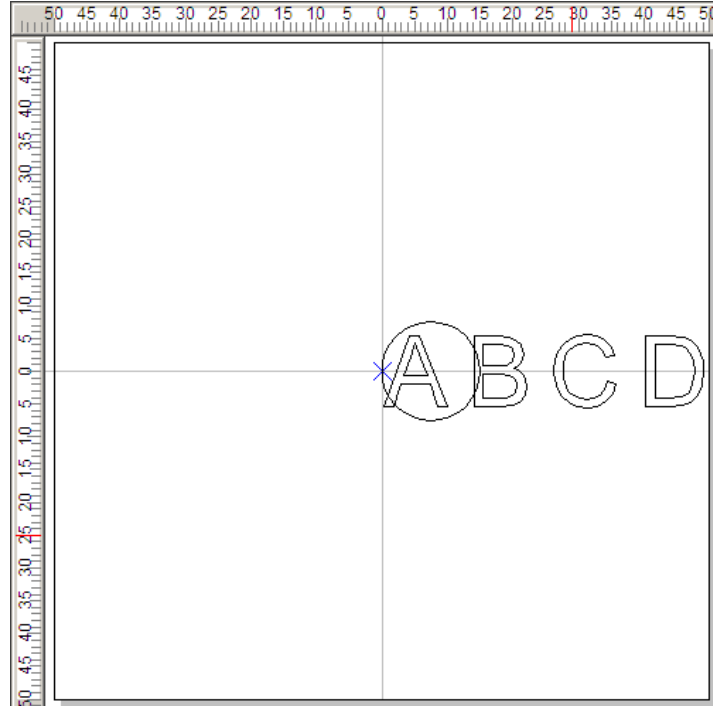
Enable this function, the system will mark the first layer and then wait for conveyor moving this setting distance, and then continue the next layer's marking. The distance between layers is the calculation of encoder factor multiplied by encoder feedback value. Encoder factor is set up at the page of "Mark on Fly" setting on Options dialogue box (please refer to section 6.6.3).

The following lists are conditions for enable this function:

- 1) Diver need to support encoder function, and make sure encoder have connected to controller. About encoder connection method, please refer to encoder manual.
- 2) Need to enable the "Mark on Fly" function, and checked the "Encoder" options, in addition, input the rational value at "Factor" section. About the Mark on Fly Settings, please refer to section 6.6.3
- 3) Input a rational value for "Distance to Next Layer" option. This value need larger than the distance which conveyor has moved while marking this layer. When system has finished marking this layer's objects, will wait until conveyor has moved this distance, and then start marking next layer's objects. If the setting value is less than the distance conveyor has moved when marking this layer, it will cause incorrect result.

For example:

Suppose the EZM file has a circle object and a text object and the “Mark on Fly” function is enabled and the “Encoder” option is checked



1. If two objects are in the same layer, the result of marking will like as below



2. If in different layer which the circle object is in layer 1, and the text object is in Layer 2, and the moving direction of objects is right-to-left, the system will reset encoder position, and consider the current position as the origin point while marking different layers.

- (a) If Layer 1 (circle object) disable the encoder delay function, the marking result will like as below.



Distance between red arrows pointed means which conveyer has moved while executing Layer 1 marking process. Because of disable the layer encoder delay function, so the system will reset encoder position after finishing marking Layer 1, and then consider the current position as the origin point to mark Layer 2. This distance will be changed depends on the marking speed.

- (b) If Layer 1 (circle object) enable the encoder delay function, the marking result will like as below.

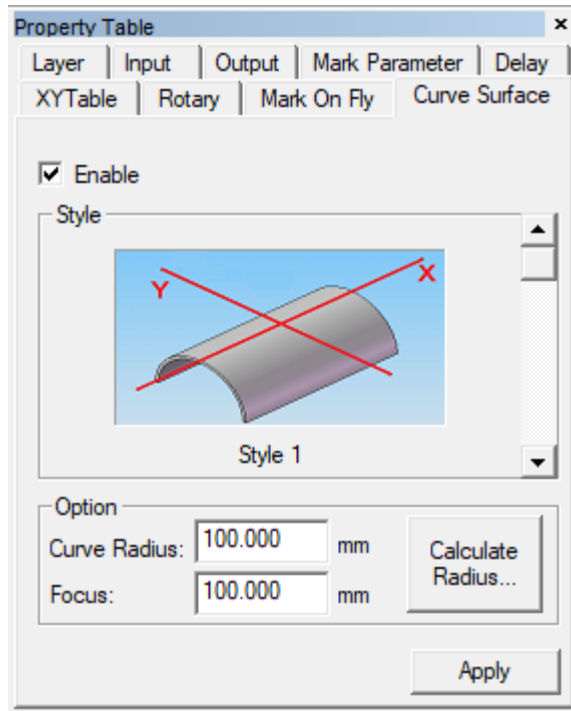


Distance between red arrows pointed means the setting value of “Distance to Next Layer” at Encoder page. This value cannot be less than the distance which conveyer has moved when marking this layer. Otherwise, it will cause incorrect result.

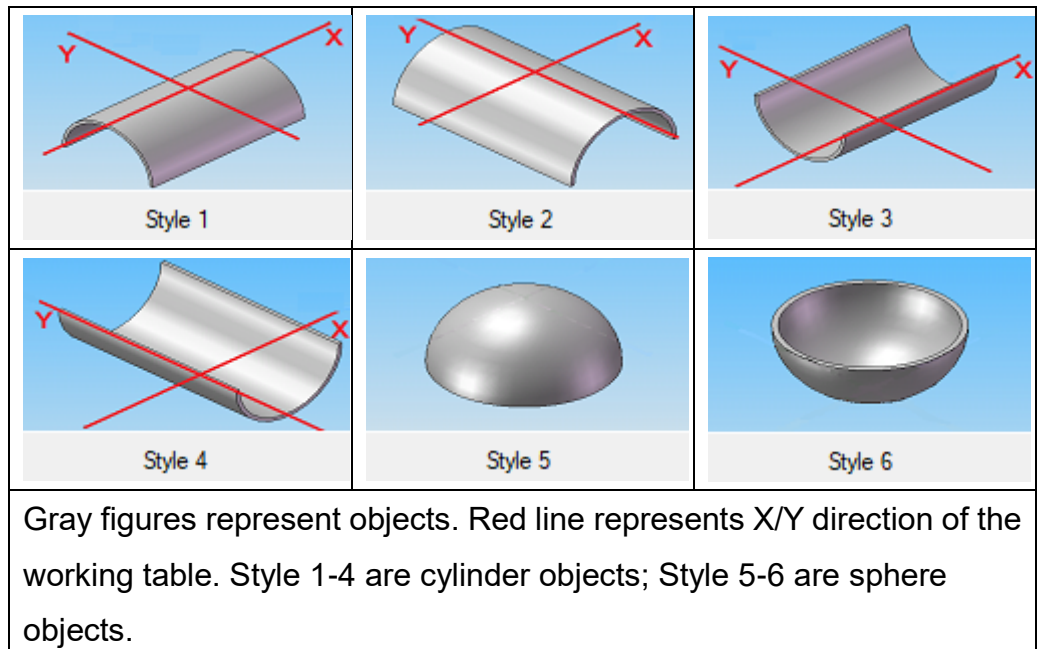
Suppose when finishing marking Layer 1, conveyer has moved 30 mm, just as triangle position as the figure. Because of enable the layer delay function, so after system finishing marking Layer 1, the system will wait until conveyer has moved 50 mm as settings. In this example, conveyer only moved 30 mm after finish marking Layer 1, so the system will wait for conveyer to continue moving 20 mm, such as distance between orange arrows pointed. After conveyer has moved 50 mm, the system will reset encoder position, and consider the current position as origin point to execute marking Layer 2.

15.29.6 Curve Surface

When Curve Surface function is enabled, the objects of this layer will be marked according to the setting parameters.

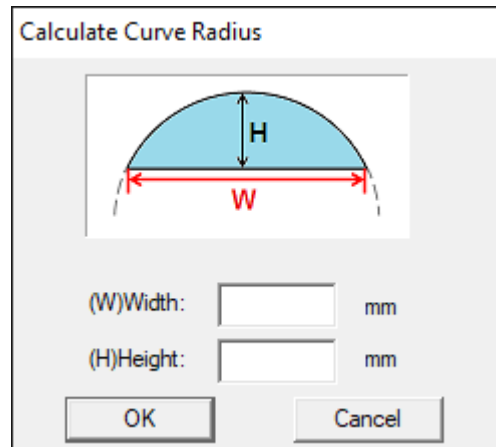


- **Enable** – Check this box to enable this function. The default setting is disabled.
- **Style** – There are several styles of the object are listed at Table.



- **Option**
 - Curve Radius – radius of the curve.

- Focus – focus of the lens.
- **Calculate Radius** – Click the button will see the dialog box
Blue area represents object.



- **Width** – width of the object.
 - **Height** - the distance between the top point and the surface.
- Click “OK” button to renew the curve radius.

Chapter 16

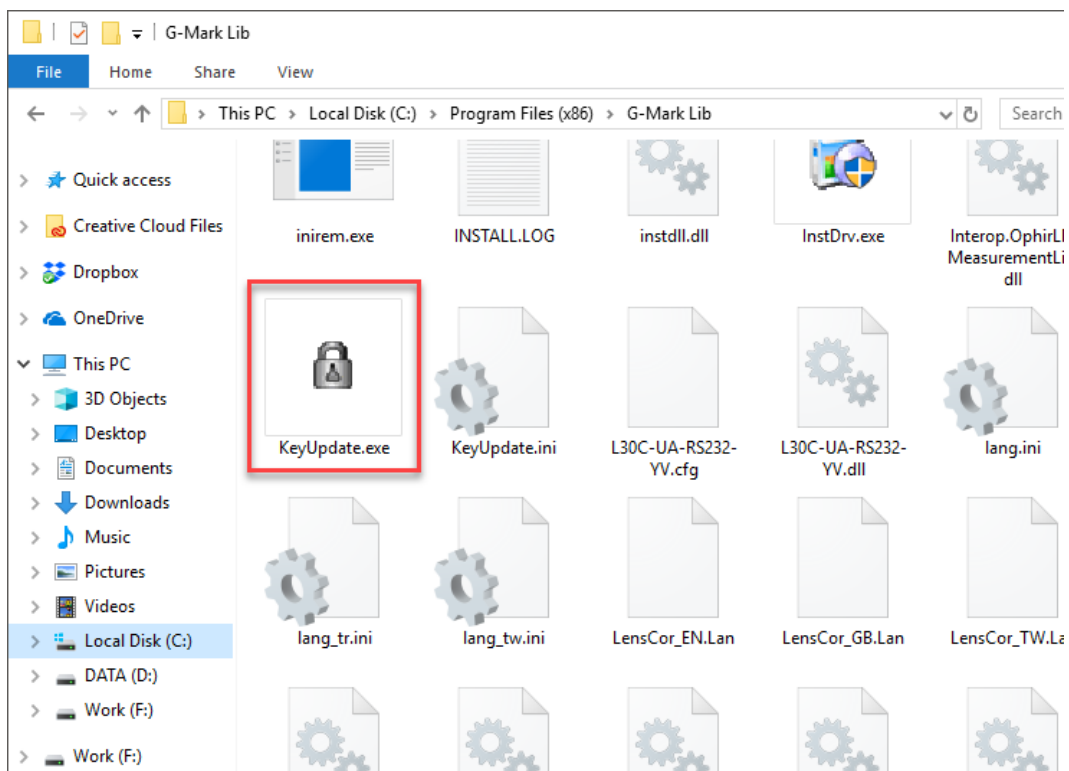
Upgrade Module

GCC provides various modules of G-Mark software to increase different applications.

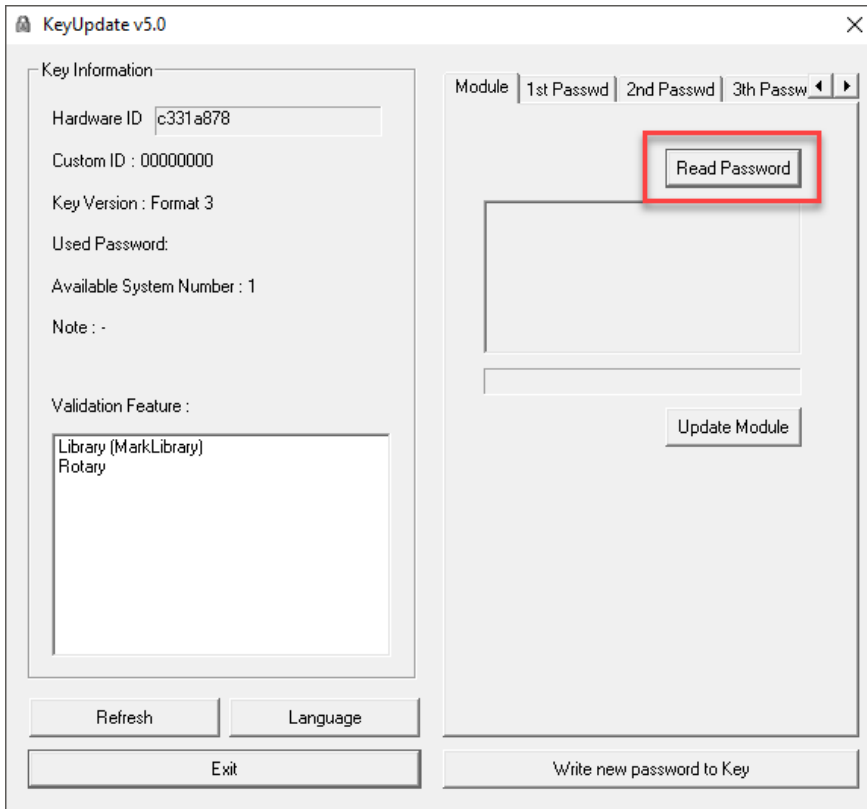
You may contact with local dealers or distributors to purchase the modules for your G-Mark software.

Please conduct the following steps to upgrade the module to your keypro.

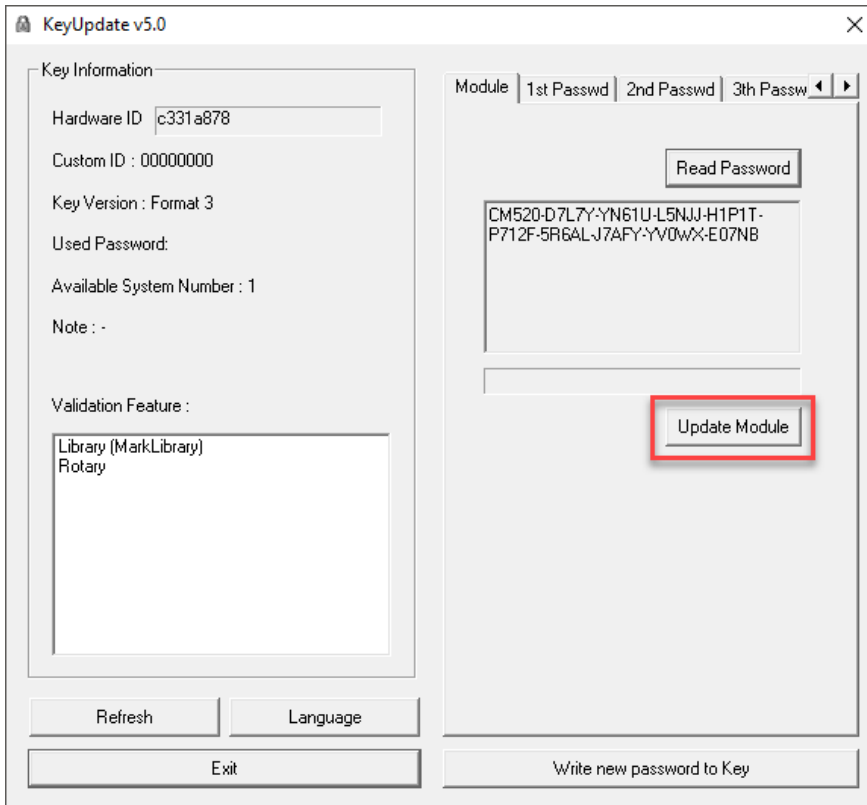
1. Plug the software keypro to a USB port on your PC or Laptop.
2. GO to x:\Program Files (x86)\G-Mark Lib and open the KeyUpdate program.



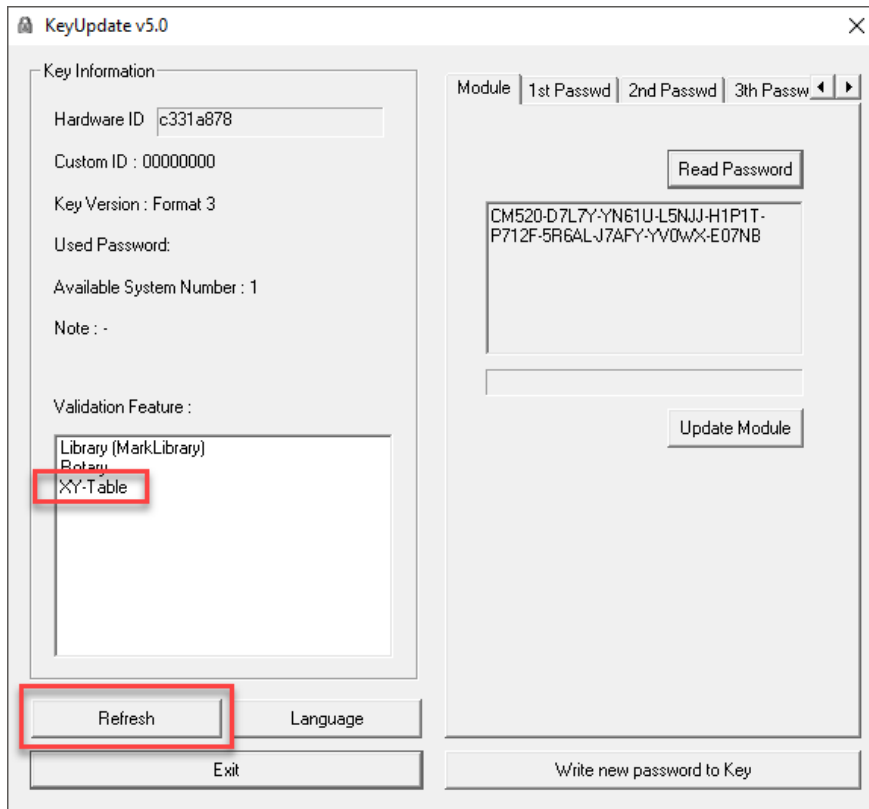
3. Click on “Read Password” to open a dialogue and choose the upgrade file.



4. Click on “Update Module” to upgrade the module to Keypro.



5. Click on “Refresh” to make sure the module has been shown in the list of Validation Feature.



6. Upgrade module is completed.