



LO-E5 CONTROLLER MANUAL



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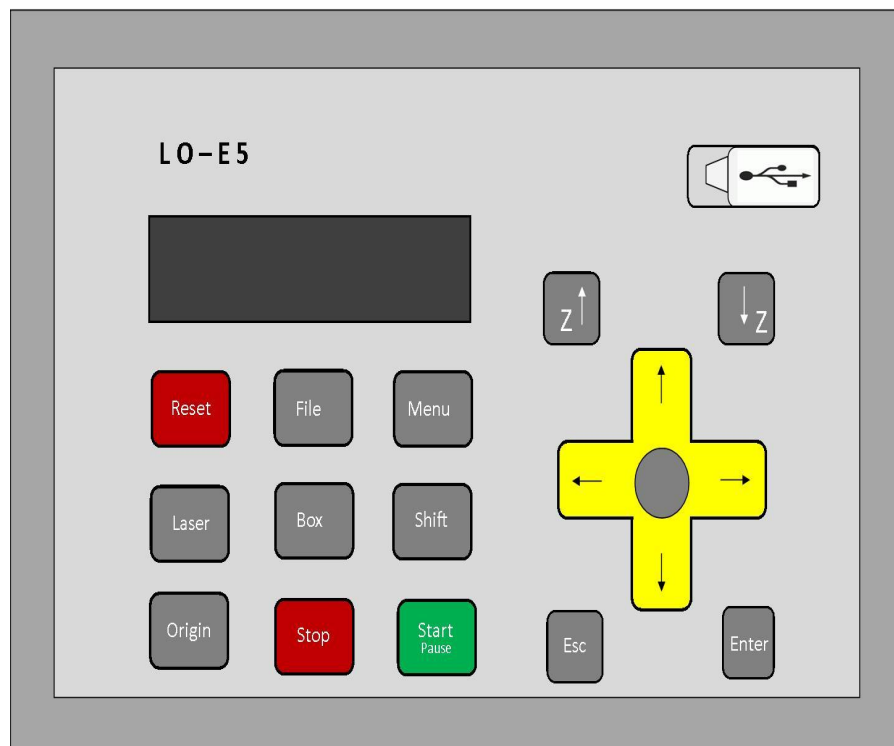
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What's Included with the E5?

- USB cable plug to mount on side of Laser Machine. (1)
- USB 2.0 Extension cable (1)



LO-E5 DSP Control Panel



Enters into the interface and applies settings.



Moves the z axis up and down and changes the numbers for setting optio



Z/U control settings, allows you to move the z and u axis up and down.

Button Functions:



Starts or pauses the project being done on the laser machine.



Stops the task being processed.



Resets the x , y , and z back to normal and applies any changes made to settings.



Tests the laser before starting the project.



Sets a position on the x and y axis as the point to return (Home).



Opens up saved files or any connected devices (USB)



Shows an invisible box preview of the dimensions of the project without any lasers.



Opens up the display settings.



Controls the movement of the laser tip and allows for movement within the display



Esc/Exits out of current setting and returns back to home page.



LO-E5 Main Screen and Menu Button Settings

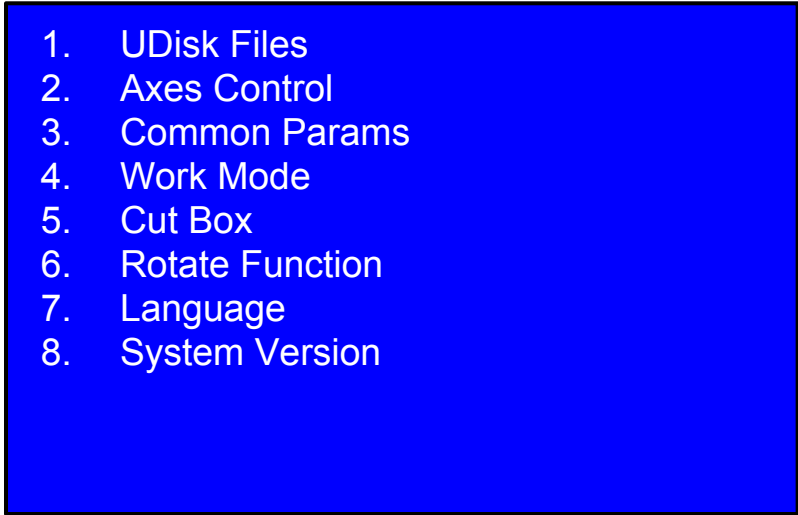
Main Screen



Power: 10.0 : 10.0%
Speed: 200.0

To change parameter settings in this page, press the enter button. Then use the up and down arrow keys to adjust the digits.

Menu Button Settings

- 
1. UDisk Files
 2. Axes Control
 3. Common Params
 4. Work Mode
 5. Cut Box
 6. Rotate Function
 7. Language
 8. System Version

1. UDisk Files:

documents that were imported from the USB or computer that were saved on the machine.

2.Axes Control:

The setting that resets the Z-axis and U-axis.

Z Autofocus
To Reset Z axis

3.Common Params:

Jog(mm): increments with each push

FocusDis: the distance between the laser and cutting material.

Jog (mm)
FocusDis:

4.Work Mode:

Origin: the location that the laser will return back to.

Origin:

5. Cut Box:

Allows users to start cutting a box/blank.

Start Cutting
Blank

6. Rotate Function:

Settings when using the rotary for round objects.

Rotate
Rotate Axis
Pulse Count
Diameter

7. Language:

Selects language used for machine

Language

8. System Version:

Displays System Name and Version

Name
Version

Introduction to LaserCAD v7 Software

Introduction:

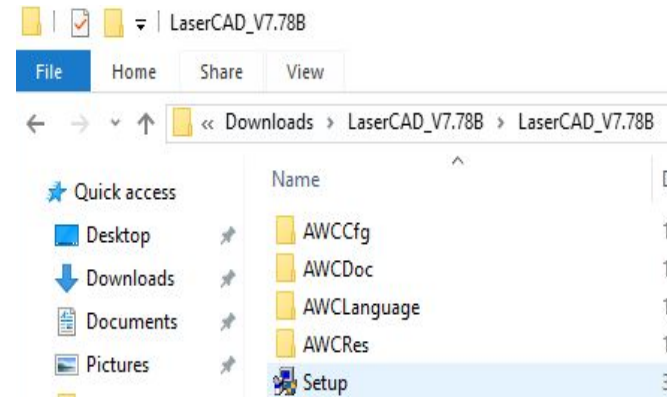
This system controls the laser CNC machine by computer and completes machining tasks according to different settings from the user. The system consists of a control system, control panel and compatible software. This manual is an introduction on how to use the software to complete machining tasks.

Composition

The control system consists of hardware (control card) and software. Hardware includes one motion control card, one LCD Panel, four connection cables, and laser control software. Control system software(three versions: General Version (LaserCAD) , CorelDraw based version, AutoCAD based version) and instruction manual are in the CD within the packaging box

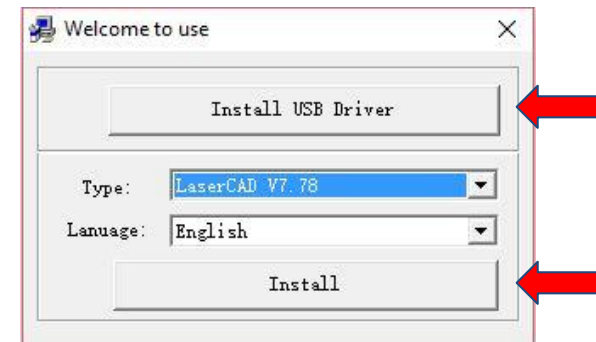
Operating System Requirements

- (1) Windows 2000, XP,Vista, Windows 7, 8, & 10)
- (2) Celeron 2.1Ghz or higher.
- (3) Minimum of 1Gb is suggested.



Installation

- Find and open LaserCAD_V7.78B folder
- Double click on "Setup" and click the "Install" button
- After the installation is complete, click the "Install USB driver" button as well.
- Once that is completed, the message "FTDI CDM Drivers have been successfully installed" should appear.
- Your installation is now complete



LaserCAD Main Interface

Menu Bar: Menu Bar includes 7 submenus: File, Edit, Draw, Tool, Options, View and Help.

Toolbar: There are some functions completed by command buttons in the Toolbar. Most of these functions are sorted from menu bar.

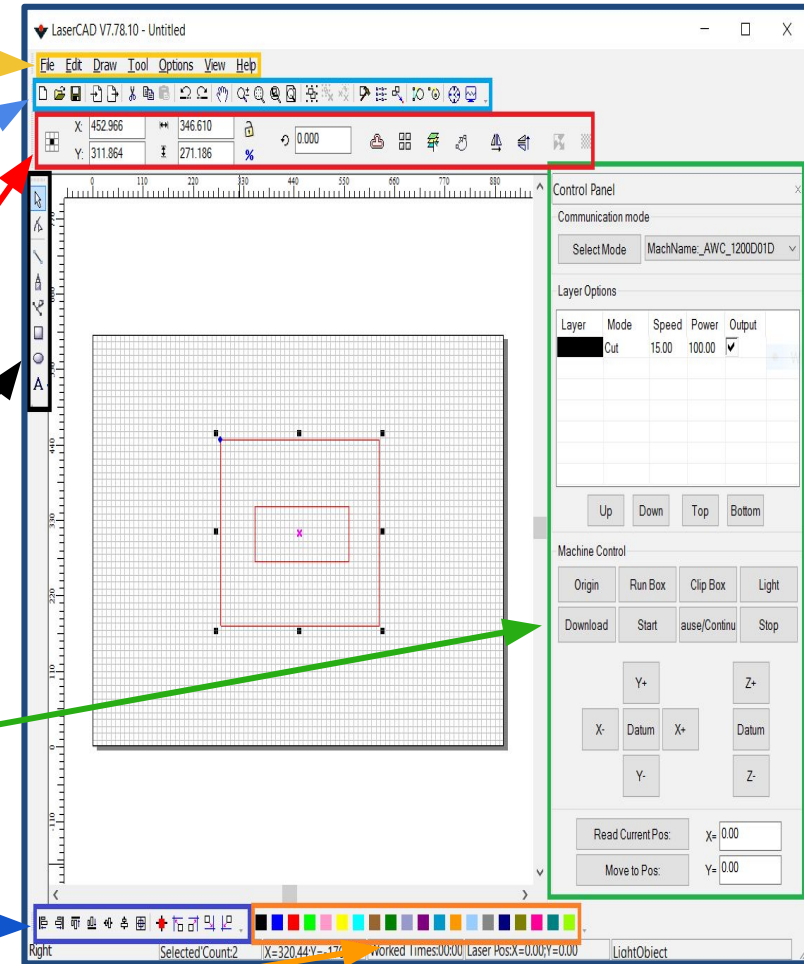
Object Bar: Allows selecting object during operation and relevant properties during using tool. It can control the change of object by setting relevant properties in property bar.

Draw Bar: With draw tool in draw bar, it makes operation more flexible and convenient.

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


Align Bar: Aligns multiple objects to perfect the layout of page.


Color Bar: Changing different colors allow different options for each layer to be set.





LaserCAD QuickStart

1. Open LaserCAD
2. Open, draw, or import selected image onto LaserCAD that is going to be cut or engraved.
3. Connect the USB-C from the computer to the laser machine.
4. For the first time, to add and recognize the laser machine, press the “Select mode” button on the right side. Then click the “add” button for USB connection and then “Find Com.”
5. Once this is done, press  located near the top of the screen to enter system options.
6. Enter the user parameters tab or manufacturer's parameters and click “READ.”
7. Once this is done the parameters should be set accordingly to the machine.
8. Double click on the layer on the right and it will bring up the Layer Parameters.
9. In this page, the power and speed of the laser can be adjusted. The option to cut or engrave is available on this page.
10. After everything is set on the computer remember to “SAVE”. Then, click on the Download button on the right side of LaserCAD > Download Document. This will send the project to the laser machine with the newly added settings.
11. After this is done, press “Reset” on the DSP controller to apply the new changes.
12. If everything on the display looks correct, try pressing “box” on the DSP controller to make sure that the dimensions of the image to be cut or engraved are correct.
13. If everything is set properly, press start to begin cutting or engraving the image.



Work Space

Nudge Offset: Determines the distance that laser head moves when arrow buttons are pressed on control panel.

Paste Offset: Offset distance when copying the offset distance of selected object.

Language: Determines language used.

Speed Unit: Determines the units of measure used in machine.

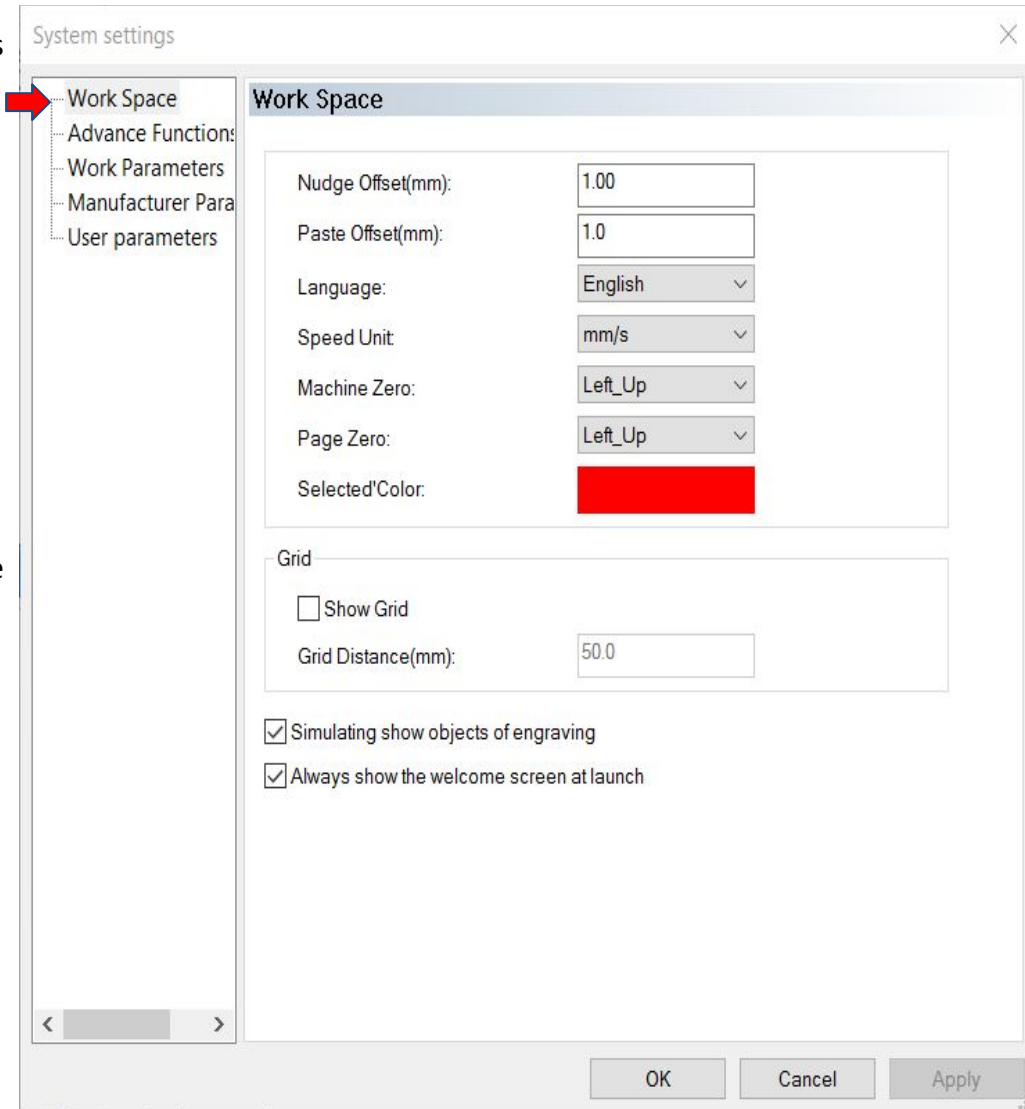
Machine Zero: Determines default origin of machine (Zero/Limit position). The setting must be exactly the same with the actual machine zero position, or the machined image could be reversed or flipped.

Selected Color: Determines color of selected object.

Show Grid: Toggle on or off to show grid on drawing area.

Grid Distance: Adjusts the distance of the grid lines.

Simulating show objects of engraving: System will simulate and show the engraving image. However, if the data volume of engraving image is too large, the system will render slowly when showing the view.



System settings

Work Space

Advance Functions

Work Parameters

Manufacturer Parameters

User parameters

Nudge Offset(mm): 1.00


Paste Offset(mm): 1.0

Language: English

Speed Unit: mm/s

Machine Zero: Left_Up

Page Zero: Left_Up

Selected Color: 

Grid

☐ Show Grid

Grid Distance(mm): 50.0

☒ Simulating show objects of engraving

☒ Always show the welcome screen at launch

OK Cancel Apply

Advanced Functions

Only use this tab only when using the rotational function on the laser machine. This is only for engraving on round/circular objects.

Enable Rotate Engrave: If selected, will make the outputting data of common engraving to be automatic.

Rotate axis con(um): When setting x-axis as the rotation axis, engraving method must be [one-way vertical] or shifted to rotate engrave data for it to realize the function of rotating engraving. For [two-way vertical], set Rotate axis control to be value of X axes pulse unit. When setting Y-axis to be rotation axis, engraving method must be [one-way Horizontal] or [two-way Horizontal], set rotate axis control to be value of Y axes pulse unit.

Step per rotate (pulse): Pulse numbers required from motor driver when rotation axes makes 1 cycle

Current diameter: Diameter of engraving objects.

System settings

Work Space
 Advance Functions
 Work Parameters
 Manufacturer Para
 User parameters

Advance Functions

Rotate Engrave

☐ Enable

Rotate axis con(um): 3.750000

Step per rotate(pulse): 1000.00

Current diameter(mm): 200.00

Divided Cutting

☐ Enable

☐ Auto Control Of Two LaserHead

Max Divide Height(mm): 200

Speed Optimize of cutting

☒ Enable

☒ Small Object Optimize ☐ All Object Optimize



Work Parameters

Curve Disperse: Curve smoothness setting. The smaller values set will increase accuracy, but reduce the speed.

Circle Speed: The system will automatically recognize whether processing objects are circles. The speed limit, and the computation speed will affect the process speed. Generally, choose a small value for organic glass cutting. For other cutting, use the default value 0.10. According to the diameter of circle, use the current set speed limit to process the circle. If parameter is set properly, it will greatly improve the circle cutting quality.

Click the add and delete and modify to set this parameter.

Engrave Reverse Offset: When applying two-way engraving image, it may cause the edges of the scanned image not to be smooth due to mechanical return gap. This can be corrected by increasing reverse offset. The specific speed has the specific reverse clearance. Generally, the faster the speed is, the bigger the reverse clearance is. The reverse gap value can be positive or negative.

System settings

Work Space
Advance Functions
Work Parameters
Manufacturer Para
User parameters

Work Parameters

Curve Disperse(mm): 0.100

Circle Speed

Diameter	Speed
1.00	10.00
2.00	15.00
3.00	20.00
4.00	25.00
5.00	30.00
6.00	35.00
7.00	40.00

☐ Enable

Add

Delete

Modify

Engrave Reverse offset

Speed	Reverse Offset
-------	----------------

☐ Enabel

Add

Delete

Modify

Cutting Backlash

X(mm): 0.00000 Y(mm): 0.00000

OK Cancel Apply

Manufacturer Parameters

Click **READ** on this page before adjusting anything as shown on the right and save the settings.

The Um/Pulse for the X-axis and the y-axis will be the main settings that will be adjusted. This is where you adjust the dimensions of the image to the expected value. This will make your image more precise.

X/Y/Z/U- Axis Parameter (Z axis: Elevating axis; U- axes: Feeding axis) (Refer to View 3-3-2) Click on [Z/U-Axis Options] to allow setting the parameter of Z axis and U axis

Pulse Unit: When sending a pulse to the motor, the absolute distance moved by the corresponding axis (unit: um). If the pulse unit setting is not correct, the processed image size will be different from the actual size.

Pulse Edge: Trigger edge when motor is rotated by motor driver. If the pulse edge setting is not correct, may lead to cutting error.

Datum: Axis moving direction when reset. When the axial resetting movement direction is not consistent with the shaft limit switch, modify this parameter.

Key Direction: LCD Panel key movement direction. When the direction is different from movement, modify this parameter.

Range: Machine workbench range; the max movement distance of corresponding axis.

Start Speed: Start speed of axis from stationary state. The greater the value, the faster the speed, which causes longer pauses. Necessary to make reasonable adjustments according to the characteristics of task being done. The typical setting should be within 5 ~ 20 mm/s.

System settings

- Work Space
- Advance Functions
- Work Parameters
- Manufacturer Parameters**
- User parameters

Manufacturer Parameters

X-Axis		Y-Axis	
Um/Pulse:	12.500000	Um/Pulse:	12.500000
Pulse edge:	Falling edge	Pulse edge:	Falling edge
Datum:	Negative	Datum:	Negative
Key direction:	Negative	Key direction:	Positive
LimitPolarity:	Negative	LimitPolarity:	Negative
Range:	300	Range:	200
Start Speed:	15.000	Start Speed:	15.000
Max_Acc:	10000.000	Max_Acc:	3000.000
Max_Speed:	500.000	Max_Speed:	400.000

IO

☐ Water Protect ☐ Open Protect ☐ Foot switch **Z/U Axes Options**

Laser Parameters

Laser Mode: Glass tube

TTL Level: Low level effective

PWM Frequency: 20000

Max_Power: 98

Function config

☒ XY axis home OnPower

☐ Hardware limit

☒ Return origin after work

Other Options

Buttons: Import, Export, **Read** (highlighted with red arrow), Save, OK, Cancel, Apply

Max Acceleration: Acceleration when axis increases or decreases movement. Too big of a setting may lead to motor losing steps or dither; too small of a setting may cause slow acceleration and then slow processing speed for whole image. For axis with big resistance, such as Y axis corresponding with beams, typical setting should be within in 800~3000mm/s² ; For axis with small resistance, such as X axis corresponding with carts, the typical setting should be within 10000 ~20000mm/s²;

Max Speed: The motor drive ability and resistance of moving axis decides the max speed that motion axis can reach. During engraving process, engraving speed can not surpass the max speed value corresponding with the engraving axis. During cutting process, the resultant speed can not surpass the min speed of X and Y axis. If speed setting is too large, controller will automatically limit the speed below max speed for safety.

IO Function Switch

Water Protect: The water protection ports of AWC708 control panel are Laser1.Protect and Laser2.Protect. When Water Protect is selected, system will apply real-time monitoring water protection signal of the 2 ports. If any of the port signals gets too high of a level, processing job will be suspended, and laser will be closed. Meanwhile “Water protect” will be shown on LCD Panel.

Open Protect: The open protect port of AWC708 control panel is IN1. When [Open protect] is selected, system will apply real-time monitoring protection signal of the port. If the port signal comes to be too low of a level, processing job will be suspended; when the port signal comes to a higher level, suspended job will resume.

System settings

Work Space
Advance Functions
Work Parameters
Manufacturer Parameters
User parameters

Manufacturer Parameters

X_Axis		Y_Axis	
Um/Pulse:	12.500000	Um/Pulse:	12.500000
Pulse edge:	Falling edge	Pulse edge:	Falling edge
Datum:	Negative	Datum:	Negative
Key direction:	Negative	Key direction:	Positive
LimitPolarity:	Negative	LimitPolarity:	Negative
Range:	300	Range:	200
Start Speed:	15.000	Start Speed:	15.000
Max_Acc:	10000.000	Max_Acc:	3000.000
Max_Speed:	500.000	Max_Speed:	400.000

☐ Water Protect ☐ Open Protect ☐ Foot switch Z/U Axes Options

Laser Parameters

Laser Mode: Glass tube
TTL Level: Low level effective
PWM Frequency: 20000
Max_Power: 98

Function config

☒ XY axis home OnPower
☐ Hardware limit
☒ Return origin after work

Other Options

Import Export Read Save

OK Cancel Apply

Foot Switch: The foot switch port of AWC708 control panel is IN2. When Foot Switch is selected, system will apply real-time monitoring protection signal of the port. If the port signal changes from a high level to a low level, the processing job will be suspended or suspended job will resume.

Laser Parameters

Laser Mode: Choose the parameters according to the external laser. The current lasers are mainly 3 kinds: domestic glass tube, RF laser (don't need burning pulse) and radio frequency laser (needs burning pulse).

TTL Level: Choose the parameters according to external laser power supply switch signals, AWC708 laser switch signals corresponds with Laser1.TTL and Laser2.TTL. If [Low level effective] is selected, when laser is on, the system will output the two signals for low level; when laser is off, the system will output the two signals for high level. If [High level effective] is selected, when laser is on, the system will output the two signals for high level; when laser is off, the system will output the two signals for low level.

PWM Frequency: Pulse frequency of control signal used by external laser. General setting will be within 20000~80000. If setting is too small, it will lead to unbalanced power with "Heavy Point" appearing during processing.

Max Power: Limit power value that can be set for laser, namely during operation. The power set by user cannot be above this value.

System settings

Work Space
Advance Functions
Work Parameters
Manufacturer Parameters
User parameters

Manufacturer Parameters

X_Axis	Y_Axis
Um/Pulse: 12.500000	Um/Pulse: 12.500000
Pulse edge: Falling edge	Pulse edge: Falling edge
Datum: Negative	Datum: Negative
Key direction: Negative	Key direction: Positive
LimitPolarity: Negative	LimitPolarity: Negative
Range: 300	Range: 200
Start Speed: 15.000	Start Speed: 15.000
Max_Acc: 10000.000	Max_Acc: 3000.000
Max_Speed: 500.000	Max_Speed: 400.000

IO
☐ Water Protect ☐ Open Protect ☐ Foot switch Z/U Axes Options

Laser Parameters

Laser Mode: Glass tube

TTL Level: Low level effective

PWM Frequency: 20000

Max_Power: 98

Function config
☒ XY axis home OnPower
☐ Hardware limit
☒ Return origin after work

Other Options

Import Export Read Save

OK Cancel Apply

Function configuration

XY axis home On Power: If selected, when machine starts, X axis and Y axis will run reset movement simultaneously (Shall select the option normally)

Z axis home On Power: If selected, when machine starts, Z axis will run reset movement (Shall not select the option normally)

U axis home On Power: If selected, when machine starts, U axis will run reset movement. (Shall not select the option normally)

U axis for feeding: If selected, start U axis feeding function. If it's not selected, U axis feeding function will not work. (Shall select the option normally)

Hardware limit: If selected, system will apply real-time monitoring on limit signal according to the direction of the movement. When detecting a limit signal as low level, ongoing work will suspend, and "Reach limit!" will be displayed on the LED.

Return origin after work: If selected, system will return to origin after job completes. Not selected, system will stay in place after job completes.

Import: allows import manufacturer's complete setting parameter files. Click Import and then locate the file and open.

Export: allows copying the current parameter settings. Click export and then locate the file and open. The exported parameter can be used to modify the current main board parameter through AWC708 main board U disk port.

The screenshot shows the 'System settings' window with the 'Manufacturer Parameters' tab selected. The 'Function config' section is highlighted with a red box, showing the following settings:

- ☒ XY axis home OnPower
- ☐ Hardware limit
- ☒ Return origin after work

Below the 'Function config' section, there are four buttons: 'Import', 'Export', 'Read', and 'Save', which are also highlighted with red boxes. At the bottom right of the dialog are 'OK', 'Cancel', and 'Apply' buttons.

Read: shows the current settings of the parameters on the machine. Click read and save the software interface settings into control panel RAM, and give control panel correct settings.

Save: sends the parameter settings to the laser machine. If you do not click save after setting the parameters, the settings will not be in applied.



User Parameters

Space Speed: During work, the max operation speed of laser head when laser off. The value range of this parameter is limited to Axis [Max Speed] of manufacturer parameter, shall not be bigger than max speed of the manufacture parameter.

Start Speed: Start speed during processing, the value range of this parameter is limited to Axis. Start Speed of manufacturer parameter, shall not be bigger than max speed of the manufacture parameter.

Speed Factor: Factor determining the turn speed in work. The bigger the factor is, the faster the work-speed is. Then bigger dither accordingly. Value range between 0~5, normally set at 2.

Space Jerk: Speed of acceleration during space process. The bigger the value is, the faster the space is; results in a bigger dither accordingly. Value range is between 10000~60000 normally.

Cut Jerk: Speed of acceleration during cutting process. The bigger the value is, the faster the cutting is; results in a bigger dither accordingly. Value range is between 5000~50000 normally.

Min Acc.: Min acceleration of axis movement during processing.

Cut Acc.: Max acceleration of laser head movement during processing when laser on. Normally set below 1500.

Space Acc.: Max acceleration of laser head movement during processing when laser off. Normally set below 2000.

Engrave Acc.: Max acceleration of laser head movement during processing when engraving. Normally set above 8000. Too small a setting will lead to too long of a distance before initial speed accelerates to engraving speed, causing a failed engraving because of out-of-range.

Work control parameters

Space_Speed:	<input type="text" value="100"/>	Min_Acc:	<input type="text" value="50"/>
Start_Speed:	<input type="text" value="5"/>	Cut_Acc:	<input type="text" value="200"/>
Speed_Factor:	<input type="text" value="2.00"/>	Space_Acc:	<input type="text" value="800"/>
Space_Jerk:	<input type="text" value="12000"/>	Engrave_Acc:	<input type="text" value="10000"/>
Cut_Jerk:	<input type="text" value="8000"/>		

Instant recovery:

Slower Params

Work control parameters

Space_Speed:	<input type="text" value="200"/>	Min_Acc:	<input type="text" value="100"/>
Start_Speed:	<input type="text" value="10"/>	Cut_Acc:	<input type="text" value="1500"/>
Speed_Factor:	<input type="text" value="2.00"/>	Space_Acc:	<input type="text" value="2000"/>
Space_Jerk:	<input type="text" value="40000"/>	Engrave_Acc:	<input type="text" value="10000"/>
Cut_Jerk:	<input type="text" value="25000"/>		

Instant recovery:

Normal Params

Work control parameters

Space_Speed:	<input type="text" value="300"/>	Min_Acc:	<input type="text" value="100"/>
Start_Speed:	<input type="text" value="10"/>	Cut_Acc:	<input type="text" value="1500"/>
Speed_Factor:	<input type="text" value="2.00"/>	Space_Acc:	<input type="text" value="2000"/>
Space_Jerk:	<input type="text" value="50000"/>	Engrave_Acc:	<input type="text" value="10000"/>
Cut_Jerk:	<input type="text" value="40000"/>		

Instant recovery:

Faster Params

Open & Save Files

The files used by the software is PWJ format. The pwj5 file saves the image information, all layer parameters, and all image elements processing sequence. By saving all imported image data as pwj5 format, it will make it easier for the image processing.

Import & Export Files:

As the file format used in this software is PWJ5, importing is required when you need to make or edit image. There are different formats for importing and exporting images so that it can apply to the software. Supported importing formats are DXF, AI, PLT, DST, DSB and so on; Supported exporting format is: PLT.

Import file

Click [Import] option or (Ctrl+I) in [File] menu and open dialog box as below, Select corresponding file and click [Open]

[Unite Lines]: Apply unite lines setting when importing the image. (Introduction of [Unite Lines], please refer to 3.13.5)

[DST,PLT Auto Smooth]: Apply auto smooth setting when importing the image. (Introduction of [Auto Smooth] please refer to 3.13.3)

[Auto Order]: Apply auto order setting when importing the image. (Introduction of [Auto Order], please refer to 3.13.2)

[PLT Unit]: Indicate the dimension of one unit in PLT file, different values make different importing image dimensions.

[Reserve the current document]: Upload data of imported file while keeping the original image data. So after importing, the image includes both the original data and the imported file data.

[Preview]: Preview the file image when selecting the file.

Export File

Click [Export] option or (Ctrl+E) in [File] menu, and open dialog box as below, Input file name and click [Save].

Creating Basic Graphics & Editing Nodes

Create Basic Graphics

How to :



Draw a **straight line**: Click [line] option in [Draw] menu, or click. Drag the mouse on screen to draw any line. Press “Ctrl” key and drag the mouse at the same time to draw horizontal line.



Draw a **polyline**: Click [Polyline] option in [Draw] menu, or click. Drag the mouse on screen to draw any line.



Draw a **Bezier**: Click [Bezier] option in [Draw] menu, or click. Drag the mouse on screen to draw Bezier.



Draw a **Rectangle**: Click [Rectangle] option in [Draw] menu, or click. Drag the mouse on screen to draw rectangle at any size. Press “Ctrl” key and drag the mouse at the same time to draw square.



Draw an **Ellipse**: Click [Ellipse] option in [Draw] menu, or click. Drag the mouse on screen to draw ellipse at any size. Press “Ctrl” key and drag the mouse at the same time to draw circle.




Edit a **text** : Click [Text] option in [Draw] menu, or click. Double click on the left mouse button, and open dialog box as shown:

Choose font, input or select font size, input text and then click [OK].




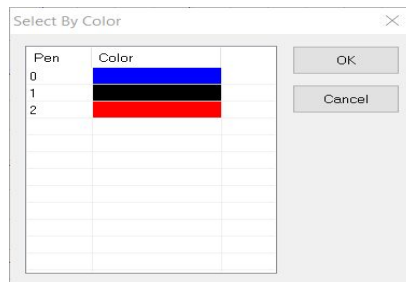
Selecting Object

During the process of drawing and editing a graphic, you first need to select an object. When an object is selected, there is a mark “x” in the center of the object, 8 control points around and profile color as “color of selected object.”

Click “select” or “draw” in the menu bar, or click  on toolbar, to switch to “Select”. Now you can select object.

The following are 5 ways of selecting objects.

1. Click **【Select all】** of **【edit】** in menu (shortcut key Ctrl+A) to select all objects.
2. Click to select single object.
3. **Box Selection:** Press the mouse and drag, all contacted objects will be selected.
4. Add/Deselect selected objects : **Add object:** Select the first object, then press “Shift” then click or box select the objects you want to add. **Deselect object:** Press “Shift” then click or box select objects already selected, then the objects will be deleted.
5. Click on  in object operations bar and open the window to select by color layers. Then click Ok to select all.



Box Selection: Press the mouse and drag, all contacted objects will be selected.

Add/Deselect selected objects : **Add object:** Select the first object, then press “Shift” then click or box select the objects you want to add. **Deselect object:** Press “Shift” then click or box select objects already selected, then the objects will be deleted.

Object color: allows users to click on any color in the layer bar to change object color. This makes it easier for those who want to cut/engrave only certain parts of an image.






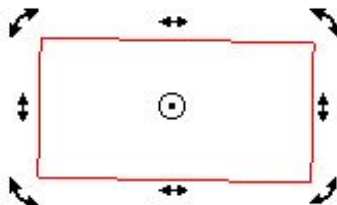
Object Transforming: is the operations to change the object's position, direction, size and such, and will not change the shape of the object and its character.

Mirror: Mirror means flipping objects horizontally or vertically by clicking  , will flip object horizontally. To flip the object vertically, click the butt 

Tilting and rotating objects is very simple.



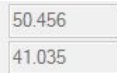
◆ Rotating Objects: there are 2 ways to rotate the object:



1. Click  0.00 and input rotate angle in 0.00 , then click to complete rotation.
2. Click  , and double click objects needed tilting or rotating, then get into rotating/tilting editing mode. At this mode, control points around objects changes to rotation control arrow and  tilting control arrow shown as below



Move mouse to control arrow, and move control point along arrow direction; during movement, profile line generates and rotate as below: Release mouse when rotating to correct position, then rotation is complete.

◆ **Tilting Objects:** Operation is the same as rotation.

Object Size: Most simple operation to zoom or change the size of objects is also using , click the object, and move the control points around objects, then allows to zoom object. The operation is simple, direct but with low accuracy. Click   and input horizontal size value and vertical size value in the text box,

and then press “Enter”, and object size is changed. Click  to , then horizontal (vertical) value will change accordingly when vertical (horizontal) value is changed.

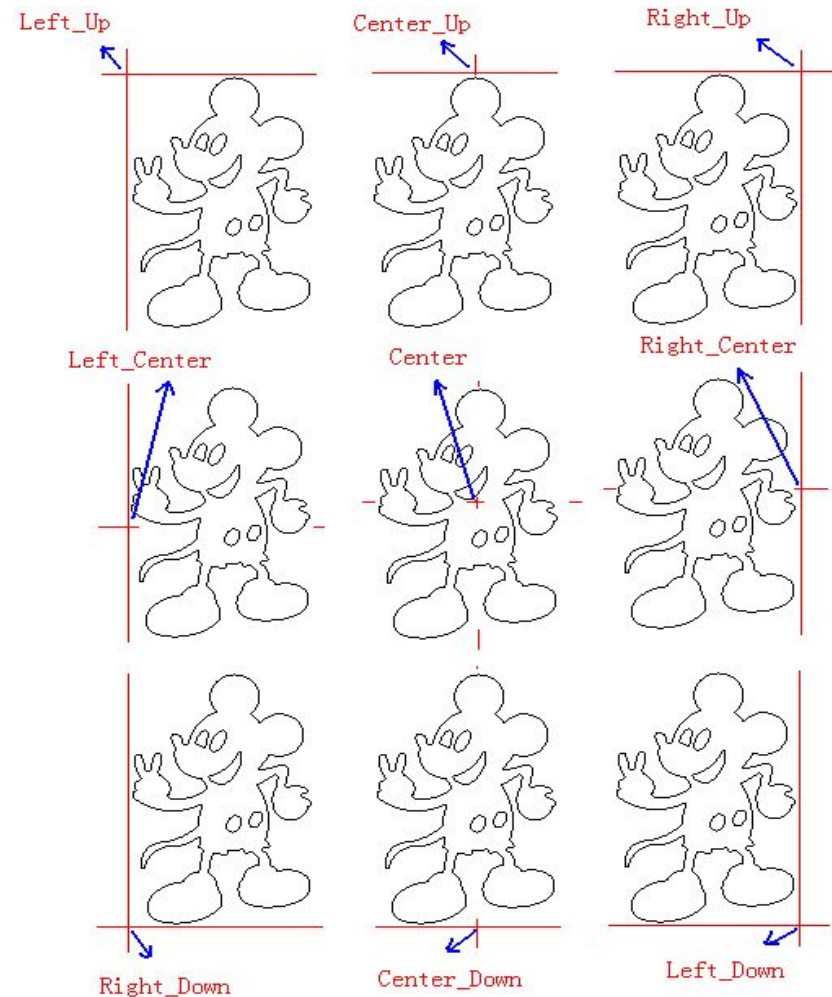
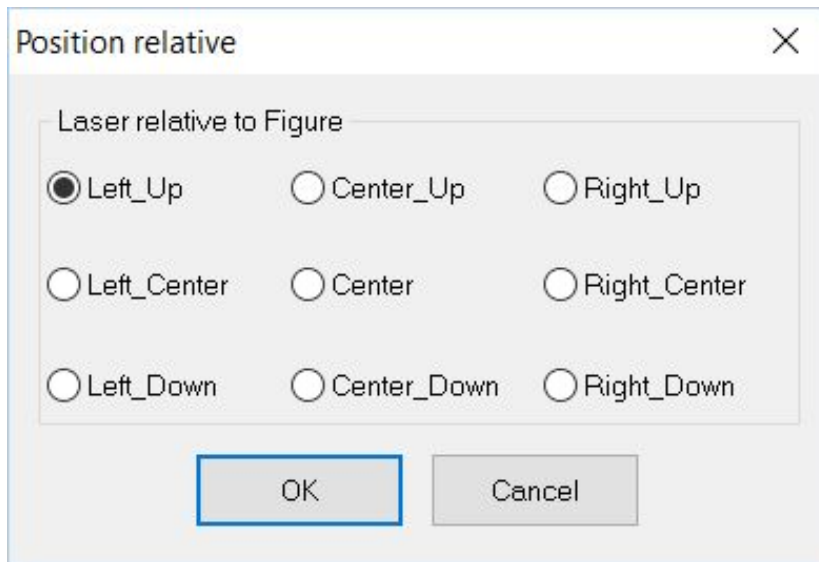


Position Relative

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Position relative: shows the position of laser head relative to figure.

To access this, first click the “options” on the toolbar. Then click on Position relative. Following are diagrams with different positions of laser head relative to figure (cross point of two red lines instead of laser head):



Array Output Options

Click Options, then array output options.

Cell width(X): Original size of datum

Cell height(Y): Original size of datum

Count: Rows and columns of datum to be output.

Offset: distance between every row or every column.

Width: Width of all datum after array.

Height: Height of all datum after array.

Auto convert calculation: According to the space, calculate the rows and columns needed automatically. Click Auto convert calculation

Array output options

Auto_convert Calculation

Cell height(Y): 105.82
 Cell width(X): 75.13
 Height(Y): 213.64
 Width(X): 227.40

Count(Y): 2
 Count(X): 3

☒ Odd Interval(Y): 0.00
☐ Even Interval(Y): 0.00
☐ Odd Interval(X): 0.00
☐ Even Interval(X): 0.00
☐ Offset(X): 2.00
☐ Offset(Y): 2.00
 Pulse Distance: 1.00

Up
 Left Right
 Down

Line Mirror
☐ X ☐ Y

Row Mirror
☐ X ☐ Y

Convert To Solidline

F2: Zoom to Objects
 F4: Zoom to page

Material width(X): Width of material to be dealt with(default as width of workbench)

Material height(Y): Height of material to be dealt with(default as width of workbench)

System will calculate the number of material to be dealt with according to material size.

Material size options

Material width(X): 900.00
 Material Height(Y): 600.00

☒ Auto Array Params

☒ Auto Interval(Y)
☒ Auto Interval(X)
☒ Auto Mirror

Min Interval(mm): 0.00

OK Cancel




Control Panel

Communication mode

Select Mode

MachName:_AWC_1200D01D

Layer Options

La...	Mode	Speed	Power	Ou...
	Cut	100.00	50.00	<input checked="" type="checkbox"/>
	Engrave	180.00	15.00	<input checked="" type="checkbox"/>
	Cut	100.00	50.00	<input checked="" type="checkbox"/>

Pen	Color
0	Blue
1	Black
2	Red

Layer:

Work Mode: Cut

Work Count: 1

☒ Laser PPI: 60

☐ If Air Switch Open

OK

Cancel

Cut Parameters

Laser1 / Laser2 / Laser3 / Laser4

MaxPower(%): 50.00

MinPower(%): 40.00

Speed: 100.00

...

Engrave Parameters

Laser1 / Laser2 / Laser3 / Laser4

Power(%): 15.00

Speed: 120.00

Scan gap(mm): 0.10000

Engrave Mode: X_swing

VertWiden(mm): 0.00

HoriWiden(mm): 0.00

BMP Optimize: ☒ Yes ☐ No

...

Hole Parameters...

Pen Parameters...



Pen	Color
0	Blue
1	Black
2	Red

Layer:

Work Mode: Cut

Work Count: 1

☒ Laser PPI: 60

☐ If Air Switch Open

Cut Parameters

Laser1 Laser2 Laser3 Laser4

MaxPower(%): 50.00

MinPower(%): 40.00

Speed: 100.00

...

OK

Cancel

Layer: Indicates current layer need to be altered. Click left layer bar to switch to the layer need to be altered.

Work mode: Includes “cut”, “engrave”, “cut after engraving”, “hole”, if current layer is BMP (like)it only includes “engrave”(It can be only used in engraving)。

Select “cut” or “cut after engraving” in【Work mode】, cut parameter is valid as below image:

Cut Parameters

Speed: Working speed of laser head during cutting.

Working power: Maximum power; To adjust the maximum value of laser power during processing

Corner power: Minimum power; the lowest power value during variable motion. It's the power of (Make sure laser intensity constant during process by adjusting above two parameters).

Overlap length: Due to tolerance with machine, probably it will happen that closed image can't be layer(Unit:%). It's the power of laser 1 of AWC708 control panel. Laser1 of AWC708 control panel. cut off. So this parameter can help to solve this problem. But this parameter should not be too large. Suggest adjusting precision of machine to solve this problem.



Laser Parameters: Engraving

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Engrave Parameters

Laser1 Laser2 Laser3 Laser4

Power(%): 15.00

Speed: 120.00

Scan gap(mm): 0.10000

Engrave Mode: X_swing

VertWiden(mm): 0.00

HoriWiden(mm): 0.00

BMP Optimize: ☒ Yes ☐ No

...

Hole Parameters...

Pen Parameters...

Engraving Parameters:

Speed: Scanning speed during engraving.

Working power: Adjust size of laser power during processing layer.(Unit: %)

Engrave gap: Gap between scanning line.

Engrave mode: Includes “X_swing”, “X_unilateralism”, “Y_swing”, “Y_unilateralism”

X_swing: Laser head releases laser to scan image back and forth in horizontal direction.

X_unilateralism: Laser head releases laser to scan image in horizontal direction, but only release laser when it's scanning in one direction. Such as: it releases laser when it's scanning from right to left, or it releases laser when it's scanning from left to right.

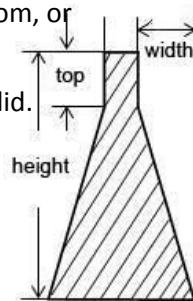
Y_swing: Laser head releases laser to scan image back and forth in vertical direction.

Y_unilateralism: Laser head releases laser to scan image in vertical direction, but only release laser when it's scanning in one direction. Such as: it releases laser when it's scanning from top to bottom, or it releases laser when it's scanning from bottom to top.

Grade engrave: Select “Yes”,【Grade length】and【Min. Power】are valid. Grade engraves is shown to the right.

Grade length: Show the “grade” in the graphic.

Min. Power: Minimum value of laser power during adjusting grade engraves. This value confirms the depth of grade. 【working power】 confirms depth of engraving





Machine control is to finish downloading of Image, starting & processing and some simple machine operation control.

Origin: set the current laser head position as origin

Start: start work for the current selected file in control panel

Use/continue: click **Use/continue** to suspend or continue the work.

Stop: stops machine from working.

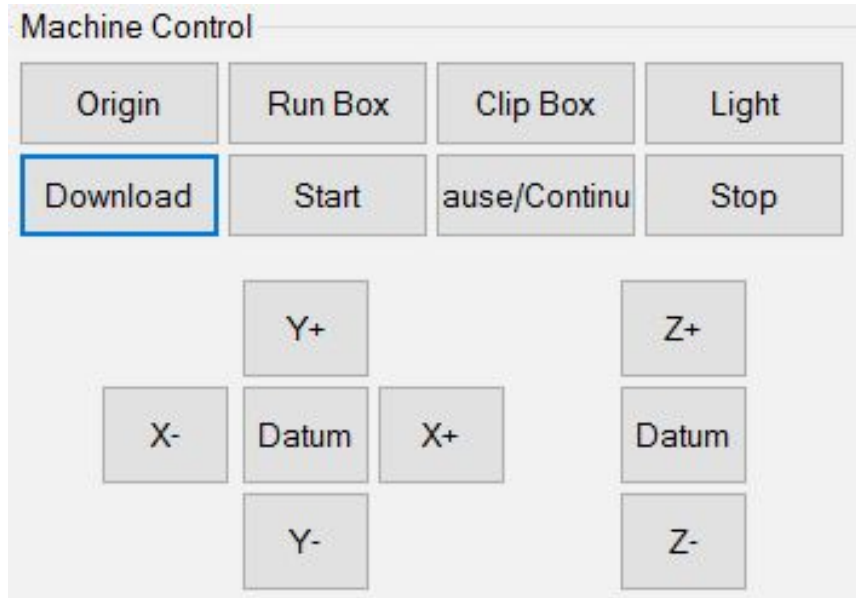
Run box: laser head will run rectangle shape according to the size of file data. The option is mainly used to confirm the placed position of parts to be processed

Clip box: cut completed part from working material

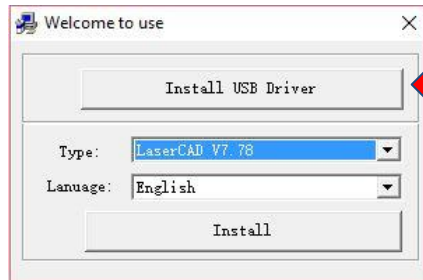
Light: press/Release [Light] to turn on or turn off the laser.

Datum: Click the button, laser head(or z-axes) will move to machine origin slowly, when reach the limit position of machine, will move quickly to located position. This can get rid of cumulative errors, and shall apply for one time before starting work normally.

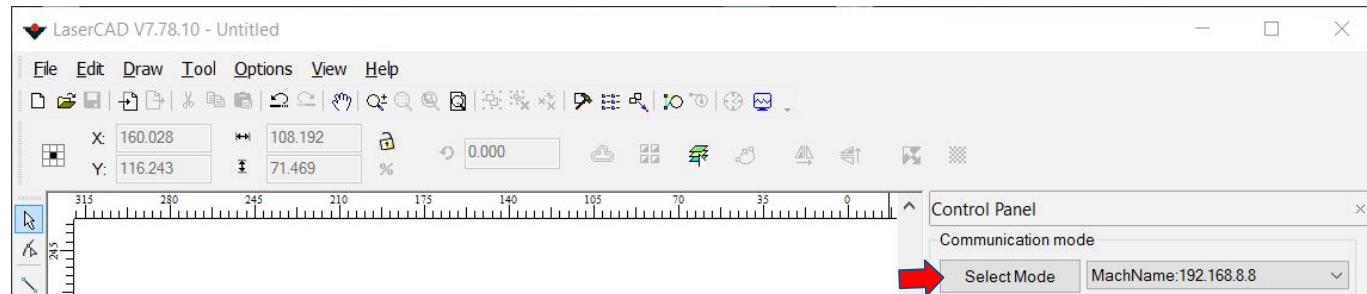
[X-] [X+] [Y-] [Y+] [Z-] [Z+] : Moves laser head(or Z-axes)。
Press the button, laser head (or Z-axis) starts to move; Release the button, laser head(or Z-axis) stops moving.



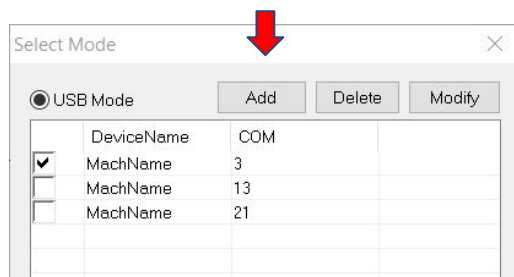
USB Connection Mode



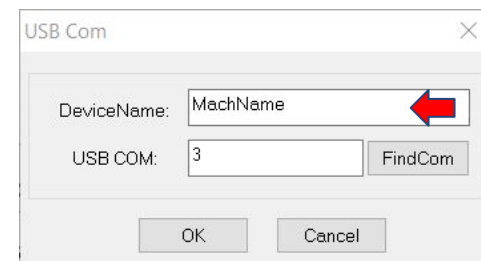
For the USB connection mode to work, the USB Driver has to be installed. This can be found in the setup when installing LaserCAD.



To connect your computer to the laser machine, be sure that the USB-PC is plugged in first. Then on the right side of LaserCAD, press “Select Mode”



The window above will appear. Then, click the “Add” button



In this next window, you can change the device name and press “FindCom” to find the laser machine. After that is done, press ok and your computer is connected to the laser.



Transferring to Laser Machine

Download current file data (image data of software) to the machine

Current documents options: means the options of document to be downloaded to main board.

Name: document name to be downloaded to main board

Work Times: the amount of times you want the task to be done. System will repeat the task of downloaded document automatically when started.

Repeat Delays: Delay time after 1 task when applying multiple tasks.



Press for advance options for feed length.

Feed Length: Moving distance of feeding axis (Z-axes) after each task completed.

Document Data Optimize: Will optimize settings of the current document.

Gap Optimize: Select this option then system will confirm the cutting direction automatically to offset mechanical reverse clearance when cutting complicated image, but will increase the space work move distance greatly, so generally the option is not recommended.

Line Cut Mode: this option is to avoid power "repeated point" during corner cutting, and effective to material cutting such as adhesive material. This will affect the work efficiency, so generally the option is not selected.

Re-order Objects: System will apply [Automatic Order] to document data when this option is selected.

Download Document

Num...	Document Name

Current Document options

Name:

Work times:

Repeat Delay(s):

...

Document Data Optimize

☐ Auto Group Engrave

☐ Gap Optimize

☐ GoCenter Mode

☒ Re-Order Objects

...

Refresh Work

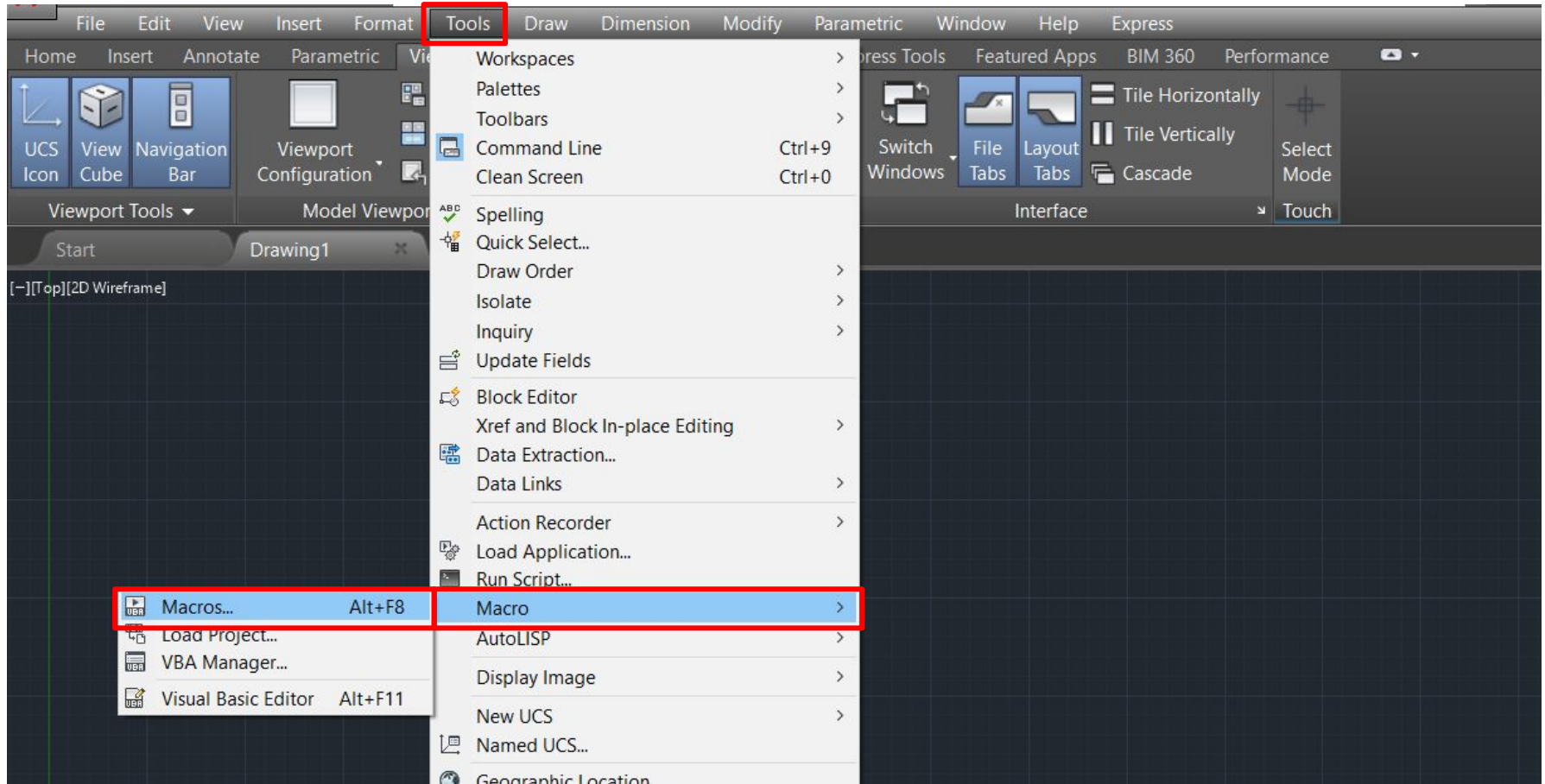
Delete All Delete

Download UFile Format

Save Document to UFile

Download Document

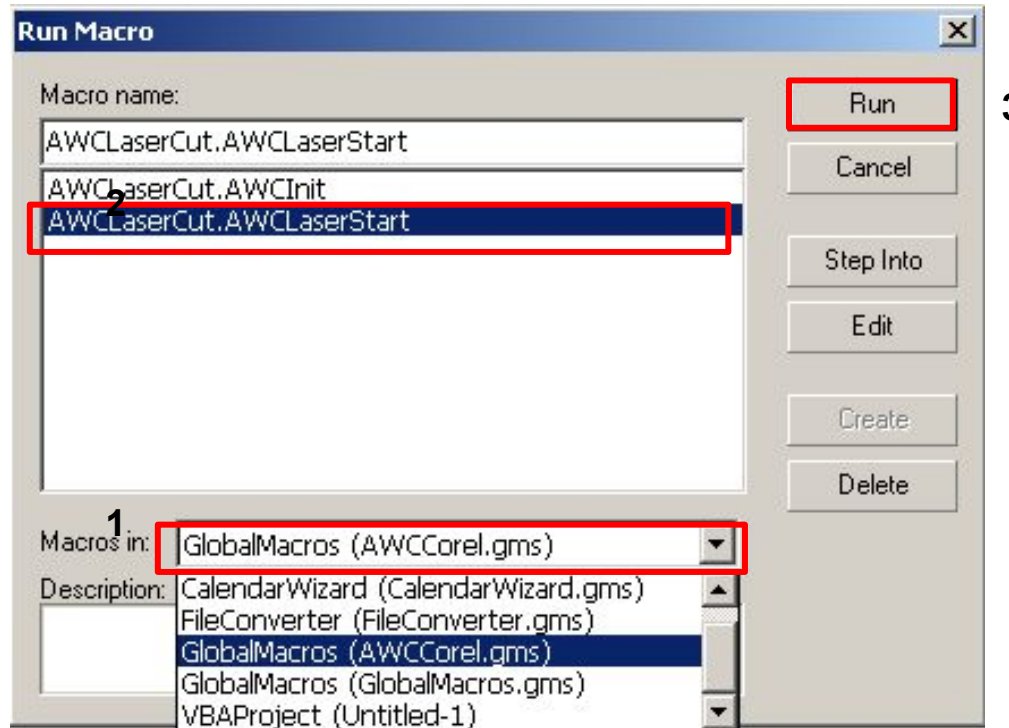
Coreldraw/AutoCAD Based Software



For manual download of AWCLaserCut Tool, Click Menu > Tools > Macros> Run Macro or Macro..

Note: Only supports AutoCAD versions 2004-2008 / CorelDraw x6

After Run Macro is selected, this window below will appear.



- 1 For [Macros in:] select the **AWCCorel.gms / AWCAutoCAD.gms** option.
- 2 Then in the [Macro name:] above, select **AWCLaserCut.AWCLaserStart**
- 3 Once that is done, click [Run] and the **AWCLaserCut** tool will be added.

These tools will be added that can be dragged into the toolbar by using the mouse.



Press this to transfer from Coreldraw/AutoCAD to LaserCAD



Press this to import/export DST/DSB files

If these tools disappear all of a sudden, users can right click on the toolbar and select the AWCLaserCut Tool again to appear.



LOE5 01-2016

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