

MT-F10/20/30/50 Fiber Laser Marking Machine

User Manuel

Please read User Manuel carefully before installation and use

1. Hardware Part

1.1 Appearance



1.2 Hardware Structure

- ① Laser Parts: Fiber laser source ,Galvanometer head and F-theta lens;
- ② Electronic Parts: Main-control box,Laser power supply ,Galvanometer head power supply ,Industrial computer/laptop .

1.3 Turn on the machine

- ① Power Switch
- ② Computer
- ③ Scanner Head
- ④ Laser Switch

1.4 Turn off the machine

- ① Laser Switch
- ② Scanner Head
- ③ Computer
- ④ Power Switch

● Whenever turn on the machine ,please remember to turn on the **Laser Switch AFTER** Power Switch, Computer and Scanner head. Otherwise, it may be caused by uncontrollable laser beam damage.

2. Software Part (EzCAD)

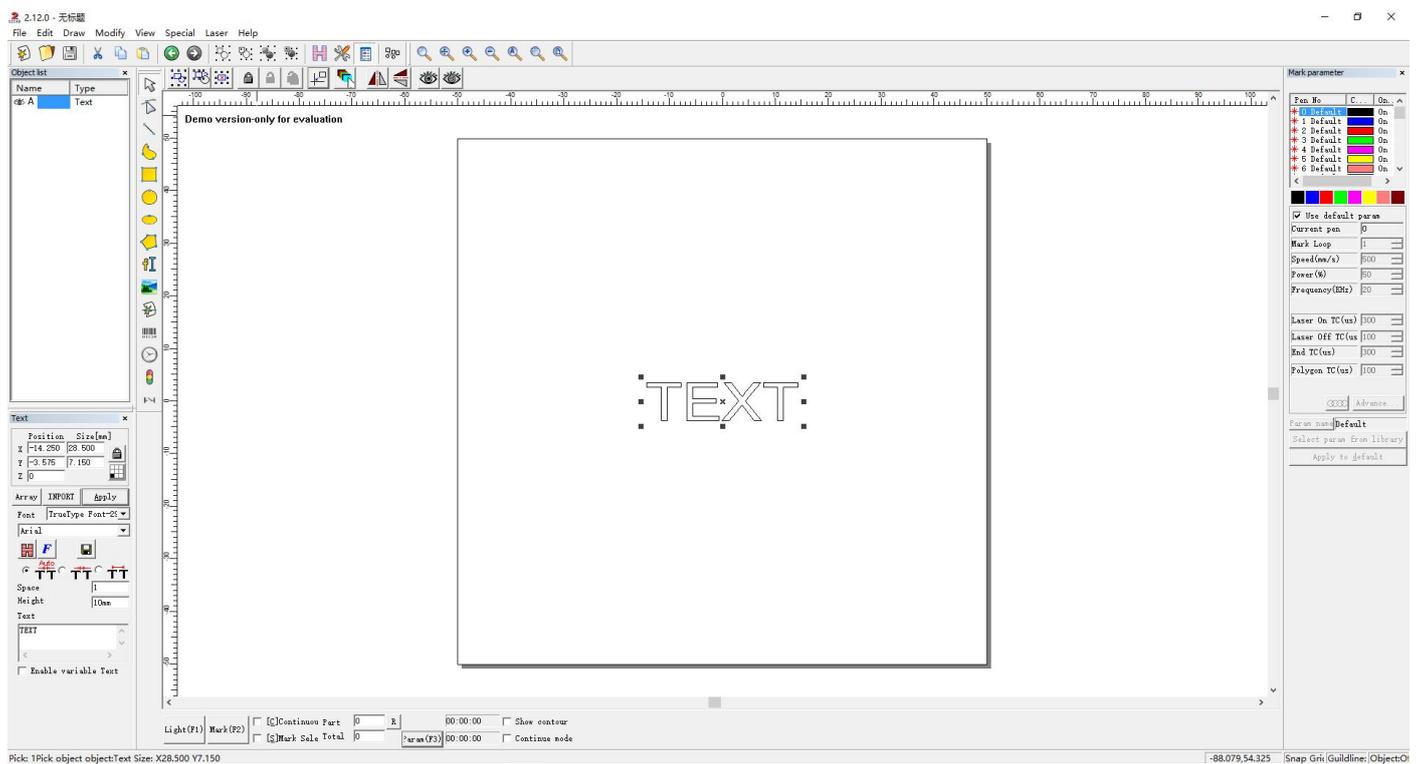
2.1 Interface Introduction

Software starting interface

The picture (Figure 1-1) appears while running the program, and meanwhile the initial operations takes place in the background.



Main Interface (Figure 1-2)



2.2 File Menu

The File Menu is used for common file functions such as opening, saving, importing images from Twain equipment, etc. (Figure 2-1)

2.2.1 New (N)

"New" is used to create a blank work space to construct objects, and its shortcut key is "Ctrl + N". When "New" is clicked, the software will close the documents which you are editing and meanwhile create a new file. If the documents you are working on have not been saved yet, the

software will prompt if you would like to save it.

The icon of "New" in toolbar is . Click on this icon will achieve the same operation.

"Open" is used to load a saved ".ezd" file, and its shortcut key is "Ctrl + O".

"Save" file is used to save the current state of a mark Document to disk.

"Save As" is used to write the current mark Document to disk by another name. Writing a file to its current name is the same as the Save function.

"Import Vector File" used to upload the finished files, support files are : *.plt, *.ai, *.dxf, *.dst, *.jpc, *.svg, *.nc, *.bot etc.

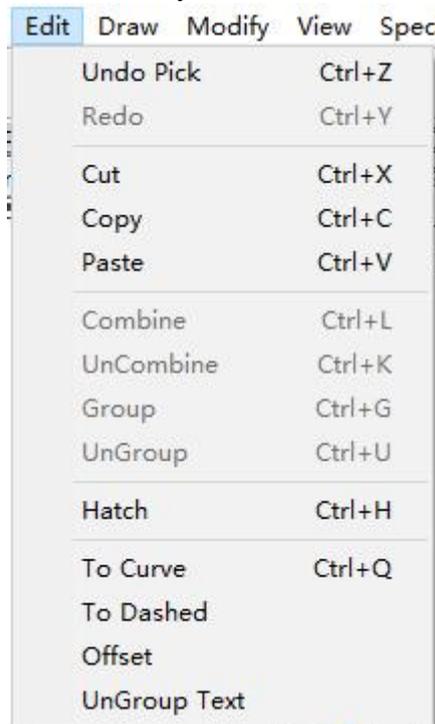
"Import Bitmap File" used to upload bitmap files, support files are *.bmp, *.jpg, *.jpeg, *.gif, *.png, *.tif, *.tiff, *.tga etc.

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¹ "Ctrl + N" refers to press the key 'N' while press the key 'Ctrl'. The following contents do the same.

2.3 Edit Menu

"Edit Menu" carries out the editing operation of an object.



Edit	Draw	Modify	View	Spec
Undo Pick				Ctrl+Z
Redo				Ctrl+Y
Cut				Ctrl+X
Copy				Ctrl+C
Paste				Ctrl+V
Combine				Ctrl+L
UnCombine				Ctrl+K
Group				Ctrl+G
UnGroup				Ctrl+U
Hatch				Ctrl+H
To Curve				Ctrl+Q
To Dashed				
Offset				
UnGroup Text				

Figure 3-1

2.4 Draw Menu

"Draw Menu" consists of various common items for drawing, for instant, Dot, Line, Curve, Polygon, etc. Draw Menu has a Toolbar correspondingly, and all the operations can be achieved by pressing the icon on the Toolbar. For example, as Figure 4-1 shows, when you have selected the drawing command or the icon in Toolbar, the Present Command Toolbar on the top of the main window will be changed to show some options of the current command.

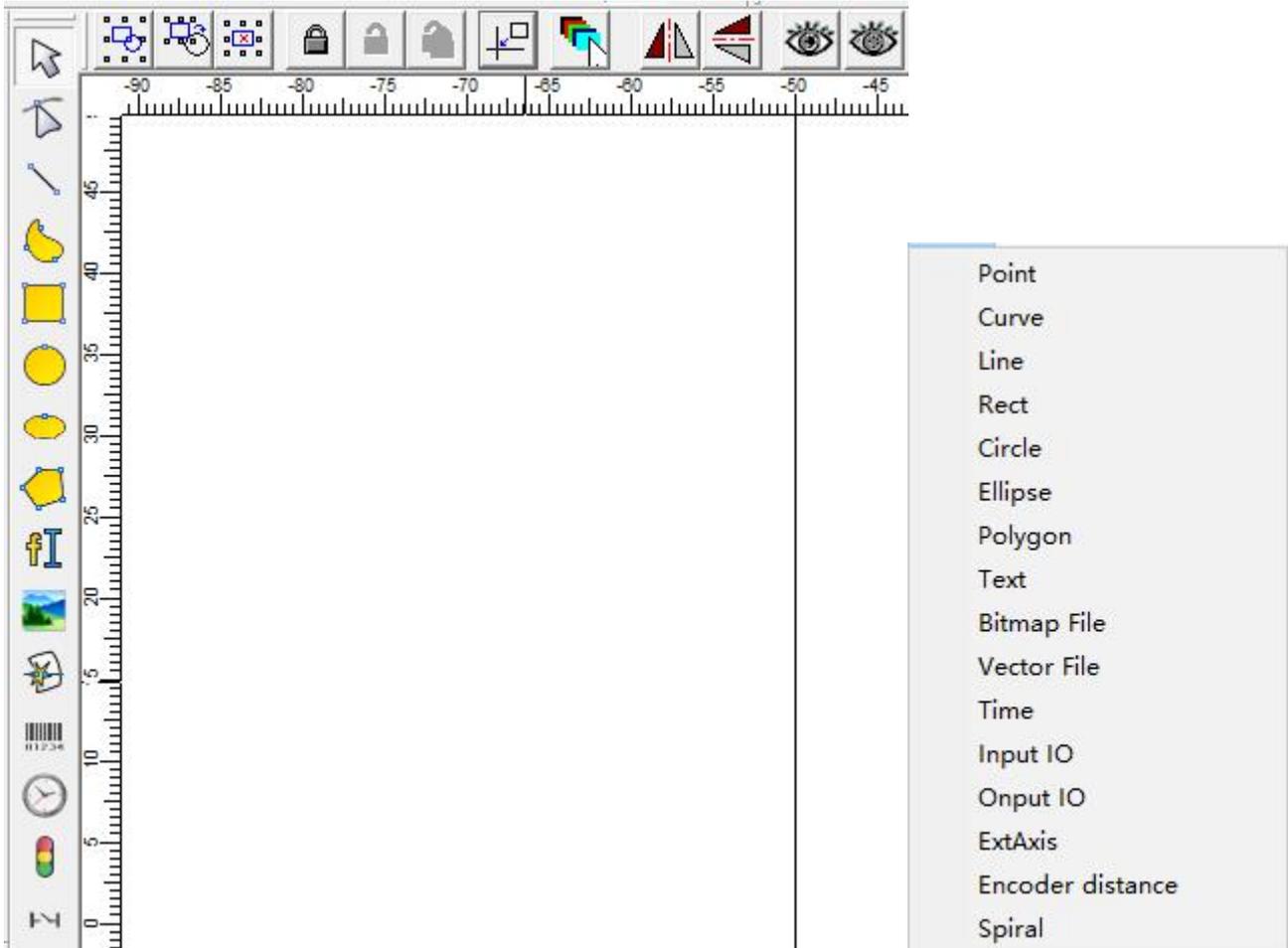


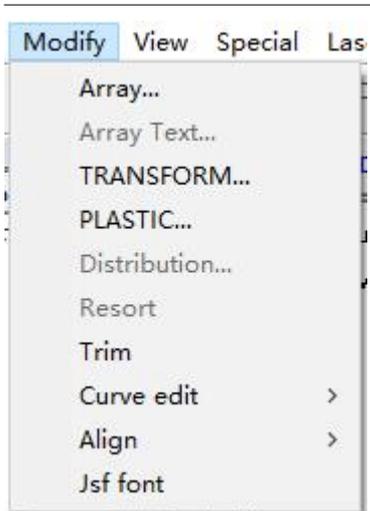
Figure 4-1 Draw Menu

On the top of Draw Menu is , which is to choose. If there is no other running commands, this icon is displayed for press which means select. Meantime, you can click Mouse to choose item. EzCad software has auto capture function, when you move the Mouse in the working space, mouse will automatically change to  when it move next to the curve, then you can choose the item by clicking left mouse

You can also press the left mouse while moving the mouse to select the item, while mouse through the area there will be a dotted box. If the mouse moving direction is from left to right, then the only completely surrounded in the object to be selected in the box the dotted line. If the direction of the mouse movement is from right to left, then all the dotted box had contact with the object will be selected.

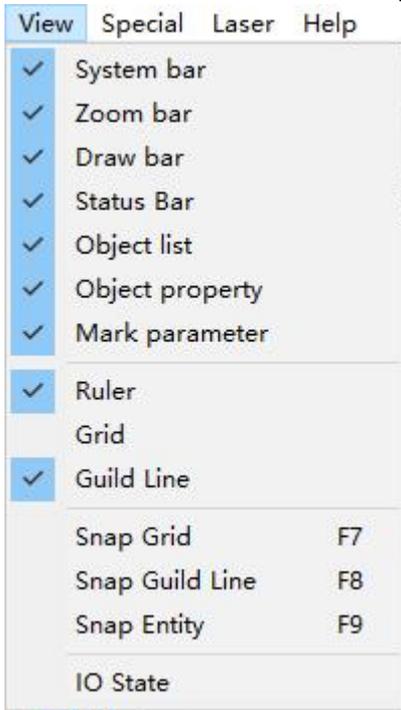
2.5 Modify Menu

Commands in Modify Menu will take easy operations on selected objects, such as Transformation, Plastic, Curve Editing, Aligning, etc. (Figure 5-1)

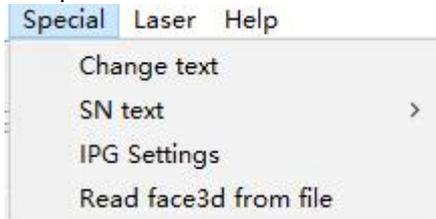


2.6 View Menu

The View Menu is used to set every option for view in the EzCad2 window, as Figure 6-1 shows.

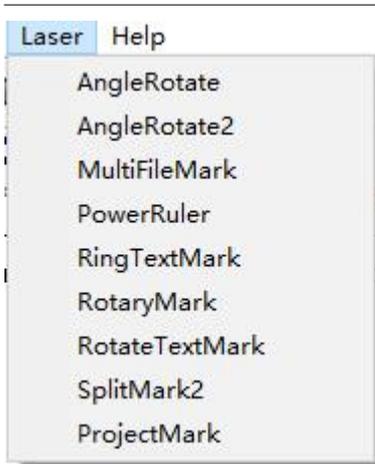


2.7 Special



2.8 Laser Menu

Laser menu mainly aims at expansion axis control, it includes following modules. As is shown in Figure 8-1:



3. Marking

Figure 10-1 is the Marking Properties Table. In EzCad2, every document file has 256 pens, 0 to 255 numbered, and they are located in the top of the Marking Properties Table. Each pen is corresponding to a group of marking parameter and the parameter base's name is after the color.

: This item indicates that objects with selected pen's number will be marked. Users may customize the color by double-clicking the color sticker.

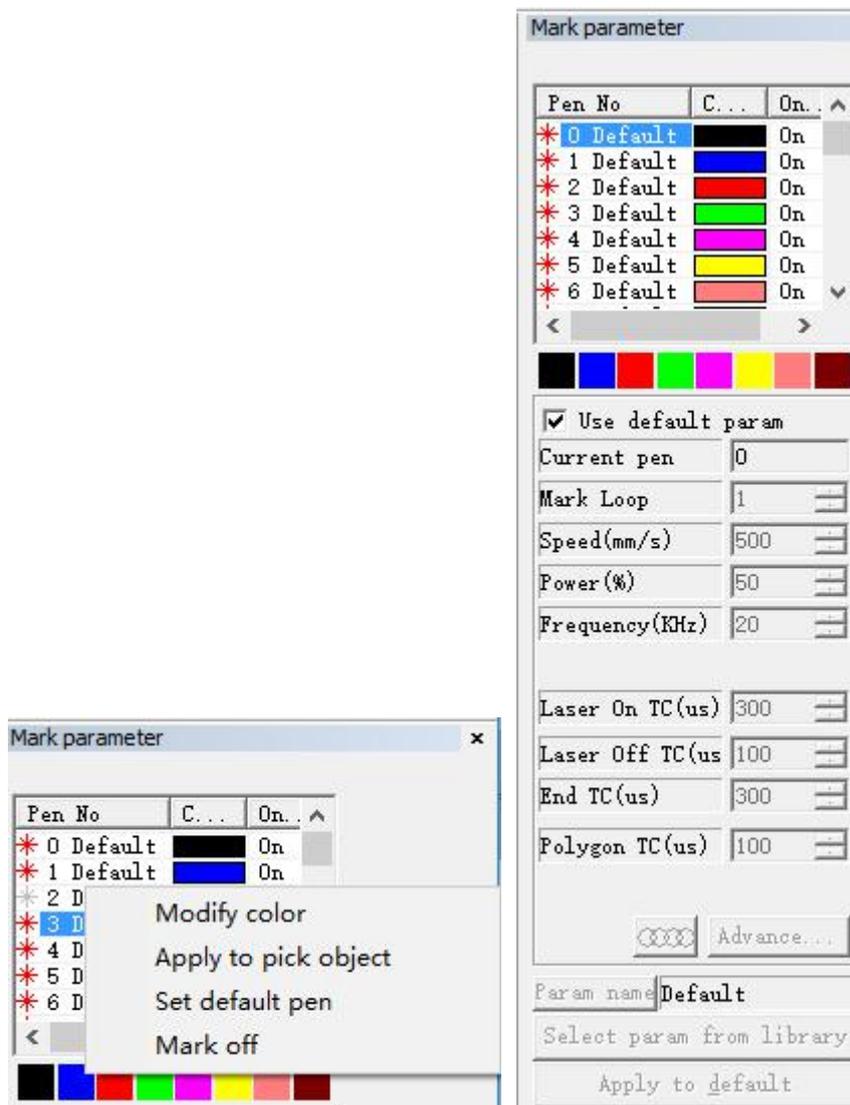
: This item indicates that the current object has not been marked with a pen's number, and it will not be marked.

Color: the current pen's color

Apply Parameter Button: The buttons show as Figure 10-2

When pressed the button, the pen number of the current object will be changed to the one that the color stands for.

When pressing the right button of the mouse, a shortcut menu will appear as Figure 10-3 shows.



10.2 Marking Parameter Base

Marking Parameter Base is a base filled with all marking parameters which have been set by users already. Figure 10-4 is a Marking Parameter List.

YAG: YAG indicates that the current Marking Parameter is for YAG laser machine, and if not, it is for CO2 laser machine.

Select param from library: When press this button, a dialog will pop up as figure 10.2-1 shows. We can save the parameters to disk files, or to delete parameters from files.

Curr param Save As:

“Curr param Save As” is used to name the current marking parameter to disk as another parameter base’s name.

Delete: to delete the current parameter base name.

Apply to Default: save all the current parameter to “default” parameter base name

Loop count: loop times to mark an object

Speed: the current marking speed

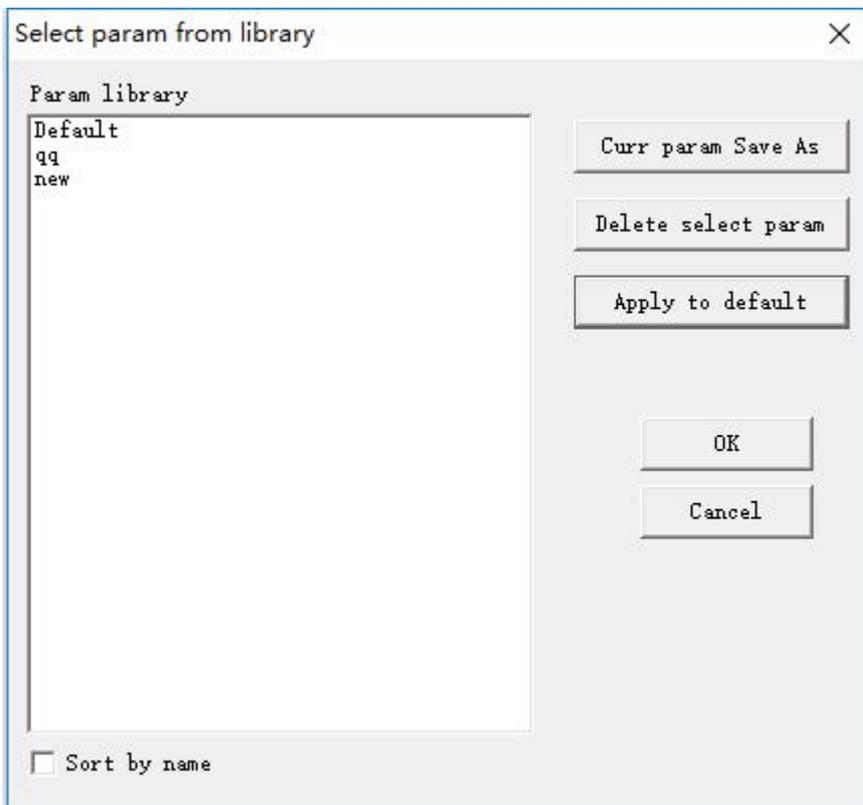
Power / Current: In CO2 mode, this item indicates the power percentage of the current marking parameter, and 100% refers to the biggest power of the laser equipment. In YAG mode, this item indicates the current of the Q-switch.

Frequency: the laser machine’s frequency in the marking parameter

Q pulse Width: the high-level’s time of the Q pulse if the laser equipment is Q-switch YAG laser machine

Start TC: When the scanhead has to execute a mark command, the scanner mirrors first have to be accelerated up to the defined marking speed. In the beginning of the movement, the laser focus moves very slowly which may result to burn-in effect at the start point. To avoid this, We insert a delay (Start TC) at the beginning of each mark command. When the laser eventually turns on, the mirrors have already reached a certain velocity. However, if this value is too large, the first part of the vector will be cut off. Also negative value is supported.

Laser Off TC: The delay time of the laser shutting down after marking finished. Proper time can wipe off the burn-in effect at the end. This value cannot be negative.



10.3 Mark-Control Bar

The Mark-Control Bar is located at the bottom of the main interface window, as Figure 10-17 shows.



Light: This item is used to mark the frame of the object without laser output so that users are convenient to orient the workpiece. This function is available in those laser machines which have guide light.

Key “F1” is the shortcut key of this function for guide light show.

Mark: to execute marking

Key “F2” is the shortcut key of this function.

Continuous: mark the objects repeatly until user stop the mark

Mark Selected: only those selected objects would be marked

Part: the total counts that the mark command has been executed

Total: The total counts that the mark command should be executed. The value would decrease 1 automatically after the mark command has been executed each time. It is unavailable under the mode of Continuous Marking. When in marking process, if the amount number is more than 1, the marking operation will not stop until the marking number is 0.

Parameter: machine parameter

Key “F3” is the shortcut key of this function.

- **When start marking at the time , please adjust the laser focus length. Shake the lifting handle to move the scanner**

head distance, when the laser is the most strong on the marking material, there is the focus length .

- All above are brief description , details please check software manuel .