ProMarker X Series
Unified User's Manual
For ProMarker X

Cloudray

www.cloudraylaser.com

February 2024

CLOUDRAY(JIANGSU)CO.,LTD

Huashen T-PARK, Yu Huatai Zone, NanJing, China

www.cloudraylaser.com

1

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

Introduction

This manual has been designated as a user's guide for Cloudray systems and fiber laser machine installation; The manual is divided into eight chapters, including General Information Instructions, Safety Instructions, Key Components of every Laser Systems and the Installation Steps, Operation Instructions and Maintenance Instructions from CLOUDRAY Company.

It should be emphasized that the installation of each system must meet the requirements, and be consistent with the installation requirements of CLOUDRAY. If not, the machine won't work properly, manifested as poor performance, shortened life-span, increase maintenance costs and even damage to the machine.

The note is about some specific requirements during system installation, and we hope every customer could try to understand these notes before installation and usage, so that you can correctly install and use it. If you meet any problems during installation, you can contact our technical personnel or Customer Service.

Content

Chapter 1. General

1.1 General Information

Please read this documentation carefully before installation and operation.

Injury, death, property loss, fire, electric shock, malfunction, reduced performance & machine life-span, and serious failures might happen unless you read, understand, and follow the Operation Manual!

Operation of the system is permitted only with equipment and spare parts supplied or listed in the *List of Spare Parts and Consumables*. The use of components from the 3rd Party may invalidate the warranty.

Auxiliary equipment must be adjusted to the base machine (contact us for further info).

The following symbols are used throughout the Operation Manual:

Caution: When operating the laser, keep alarmed all the time.

High Voltage: Be careful to prevent injury and/or death.

Laser Radiation: Keep away from the dangers of the laser beam.

Fire Hazard: High potential for fire. NEVER LEAVE IT UNATTENDED WHEN RUNNING!

Tips: Helpful notes or info can make it easier to use or understand.

www.cloudraylaser.com

4

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

1.2 Designated

The CLOUDRAY ProMarker X SERIES is intended exclusively for laser marking through the supplied marking software.

Materials such as metal, anodized aluminum, and several plastics can be processed by the laser.

As part of the intended use, the following points should also be observed:

1. The engraving process must only be performed with a perfectly adjusted machine.

2. Only mark approved materials with suitable parameters.

3. Use of the system in other areas is against the designated use. The manufacturer does not admit liability for damage to personal and/or equipment resulting from such use.

4. The system must only be operated, maintained and repaired, by personnel that are familiar with the designated field of use and the dangers of the machine!

5. Non-observance of the instructions for operation, maintenance and repair described in this operation Manual excludes any liability of the manufacturer if a defect occurs.

6. Caution when processing conductive materials (carbon fibers), conductive dust or particles in the ambient air might damage electrical components and lead to short circuits. Bear in mind that those defects are not warranted.

1.3 Disposal remarks
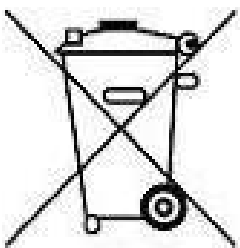
Do not dispose the machine with house refuse!

Electronic devices have to be disposed along with electric waste disposal according to the regional directives on electronic. For further questions, please ask your supplier. He might handle it properly.

1.4 Technical Parameter/Device Specification

Mechanics

	ProMarker X			
Max marking area	200*200mm/7.9″			
Max working area	200*200mm/7.9″			
Lens	Marking area	Max work height	Focus diameter	Focus length
F-160	4.3″×4.3″/110×110mm	7.9″/200mm	26μm	7.4″/186mm
F-210	5.7″×5.7″/145×145mm	5.7″/145mm	24μm	9.2″/233mm
F-290	7.9″×7.9″/200×200mm	1.2″/30mm	35μm	12.8″/324mm
Max marking speed	8m/sec, 800cps			
Z-axis	Motorized Z-axis, 15.4″/390mm			
Table	Alumina table, 14.7″×11.5″/374×293mm			
Net weight	72kgs/159lbs			
Housing dimensions(W*D*H)	29.7″×16.9″×30.9″/755*430*786mm			
PS	ProMarker X is fitted with F-210 as standard			

Laser Equipment

	ProMarker X
Laser power	100w(MOPA)
Wavelength	1064nm
Frequency	1-4000kHz
Pulse width	2-500ns
Cooling	Air cooled
Red dot pointer	Laser Power<1mW, 630-680nm

Control System

	ProMarker X
Computer	Microsoft Windows XP, VISTA, Win7, Win10,Win11
Interfaces	USB
Marking software	EzCad3
Correction software	Calibration Wizard
Auto-focus software	TL-tool
Laser power	adjustable from 0 - 100%

Electricity, Power, Breaker

	100WATT(MOPA)
Electricity requirement	110~240 Volt AC, 50 or 60Hz, Single phase
Power consumption	374W,115V 378W,230V
Current	3.7A,115V 2.1A,230V
Recommended circuit breaker	10A

Ambient Conditions

Ambient temperature   Operating temperature 0℃-40℃

Humidity   Maximum humidity 80%

Laser Safety

Laser class   Class Ⅱ

CE-Compliant approved by FDA

1.5 Manufacturer's Label

The Manufacturer's Label is on the backside of the machine (see picture below)

It is recommended to record all of the data for access anywhere anytime. You will need to supply your Serial

Number to our Support Team on occasion.

Chapter 2. Safety

2.1 General Safety Information

Any personnel involved in installation, set-up, operation, maintenance and repair of the machine, should have read and understood the Operation Manual, particularly for the "Safety" section. The user is recommended to assign specific company-internal personnel to implement each operation according to the qualifications the employees. And the receipt of the instruction/Operation Manual or the participation at introduction/training should be acknowledged in writing in each case.

Safety -conscious working

The machine must only be operated by trained and authorized personnel.

The scopes of different applicable operations of the machine must be clarified and observed in case of some problems related to safety. Especially for operations on the electric equipment, which must be performed by special experts only.

For all manipulations concerning modifications, maintenance, inspection and repair of installation, set-up, start-up, operation, conditions and operation methods, the switch-off procedures that may be provided in the Operation Manual must be observed.

Safety Information for the User and/or Operating Personnel

1. Any operating methods that will imperil the safety of the working machine are forbidden.

2. The operator must also ensure that no unauthorized person work with the machine (e.g. activating equipment without authorization).

3. It is the duty of the operator to check the machine before starting for externally-visible damage or flaws, and to report changes (including behavior during operation) that imperils the safety.

4. The user must ensure that the machine is only operated in sound condition.

5. The user must guarantee the cleanness and accessibility at and around the machine by corresponding instructions and controls.

6. No removing or interrupting safety components (we emphasize again the imminent dangers, for example severe burns, loss of eyesight, etc.). If the removal of safety components is required during repair and service, the replacement of the safety components must be performed immediately after repairing.

7. Preparation, retooling, change of work piece, maintenance and repair **must be performed only**

www.cloudraylaser.com

9

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

with equipment switched off and by trained personnel.

8. **Any attempt to perform unauthorized modifications and changes to the machine can INVALIDATE THE WARRANTY.** This does not conform to Cloudray's routine preventive & general maintenance, adjustment and alignment, etc.

2.2 Laser Safety Information

1. According to the assessment of the potential danger of the laser systems, the machine is classified into SECURITY CLASS 2. Cloudray ProMarker X series is a device of SECURITY CLASS 2, which is guaranteed by the protective housing and the safety installations.

Attention: Improper operation and maintenance of the device can change the security level and cause the emission of harmful radiation.

2. Without safety precautions, exposure to laser radiation will cause the following risks:

Eyes: Corneal burn

Skin: Burns

Clothing: Danger of fire

3. Never try to modify or disassemble the laser or start up a modified or disassembled system!

4. Other inappropriate operation or adjustment will cause dangerous radiation exposure other than those described here.

2.3 Safety Precautions when Operating the Device

Your Cloudray ProMarker X SERIES has an integrated safety system which immediately stops running when the protection cover (Lid) is opened. Opening the cover during the operation will interrupt the engraving.

Please remember the following safety precautions when working with this device:

1. CO_2 Fire extinguishers should be placed near laser. Always keep a properly maintained and inspected fire extinguisher on hand.

2. Do not store any inflammables inside of the device. Particularly, leftovers of processed materials have to be removed to prevent fire hazard.

3. Please maintain free airflow around this system all the time. Do not cover the machine during operation.

4. Stay with the laser. Do not leave the laser unattended when it is working.

1. These lasers emit invisible radiation, so safety glasses should be worn when maintaining these machines for protection.

2. Adjustment of the beam path must be performed only by professionally trained personnel. Any non-standard setting can lead to uncontrollable emission of the laser radiation.

1. Do not disable limit switches or safety devices as this can invalidate warranties and cause damage to you and the machine.

2. Before processing, please verify whether harmful materials can be generated and whether the equipment for exhaust and filtration is useful in dealing with the harmful materials. We need to emphasize that it is the responsibility of the user to consider the national and regional boundary value (the maximum permitted emission concentration) for dust, fogs and gases when selecting the system for exhaust and filtration.

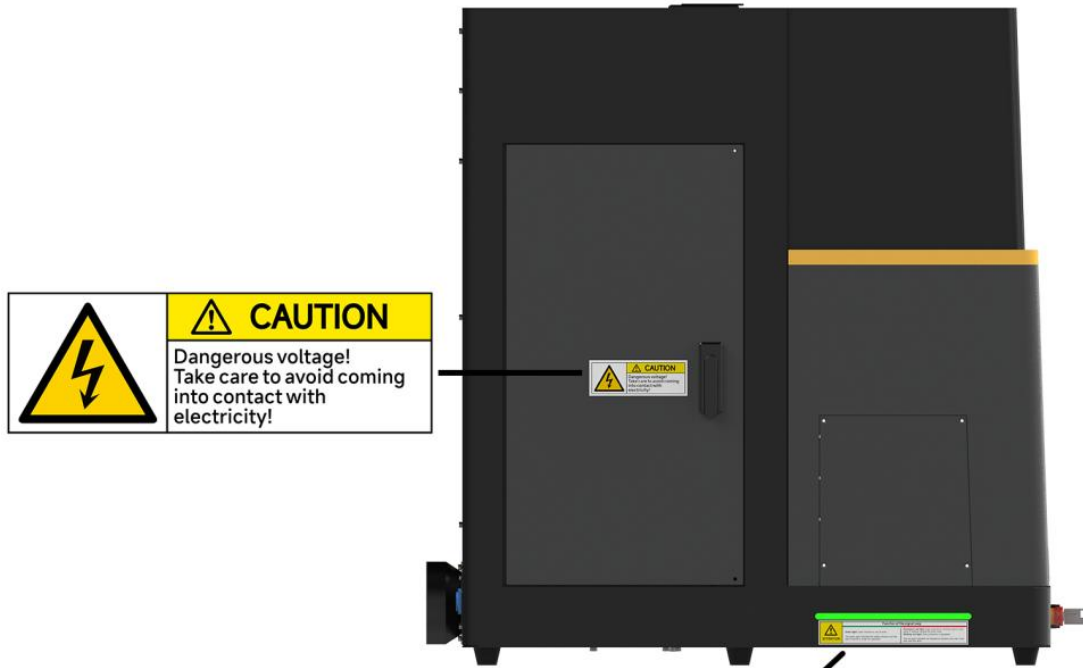3. Under no circumstances can PVC (polyvinyl chloride) be processed with the laser.

2.4 Warning and Information Labels

The warning and information labels in various locations of the machine should always be carefully read and understood. If labels are lost or damaged, they must be replaced immediately.

CAUTION
Dangerous voltage! Take care to avoid coming into contact with electricity!
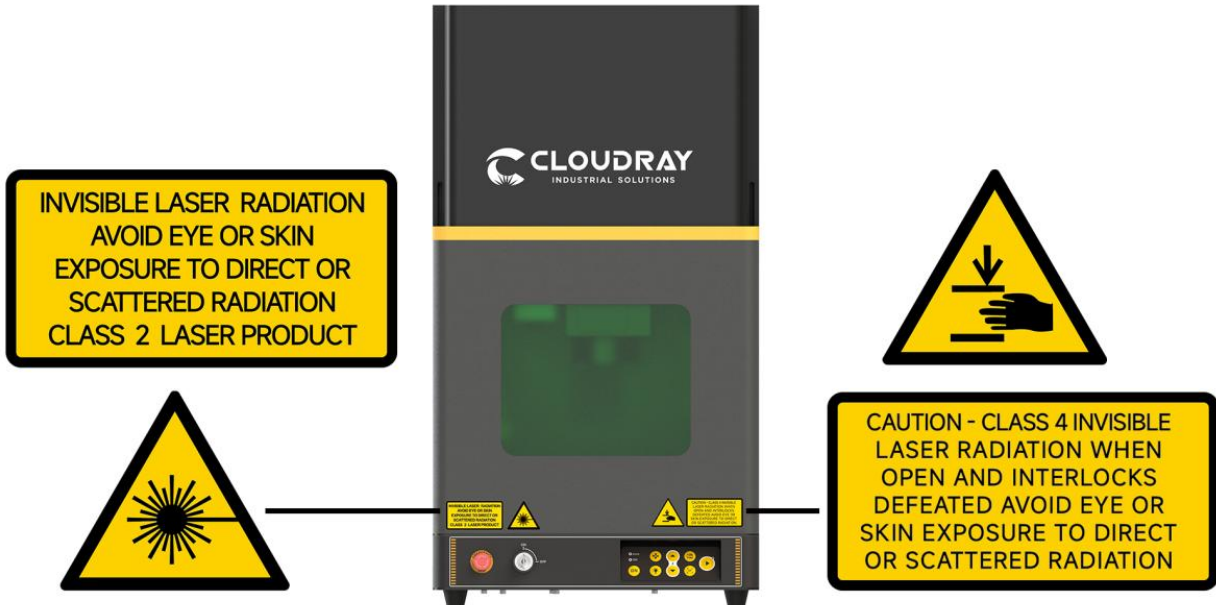
Function of the signal lamp

ATTENTION

Green light: Laser machine is not at work.

The green light indicates the safety situation and the laser machine is ready for operation.

Permanent red light: Laser machine is running a job or user starts it without closing the front cover.
Blinking red light: Door protection is bypassed.

The red light indicates the dangerous situation and user must stay with the laser.

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT

CLASSIFIED TO EN 60825-1:2014
Safety of laser products - Part 1:
Equipment classification and requirements
Emitted wavelength(s):630 - 680 nm
Maximum output of laser radiation:1 mW

CLASSIFIED TO EN 60825-1:2014
Safety of laser products - Part 1:
Equipment classification and requirements
Emitted wavelength(s):1.06μm
Maximum output of laser radiation:100w

EMERGENCY STOP

www.cloudraylaser.com

13

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

Chapter 3. Process of Installing

3.1 Unpacking

When you receive your CLOUDRAY 8 SERIES, it's packed in a wooden box which contains the laser machine and additional accessories. The steps for unpacking and assembling of the laser are as follows. Please follow them carefully.

Keep the packing box. You will need it in case of a return.

Dispose all waste according to the applicable waste disposal rules

1. Put the wooden box in a flat and spacious room for unpacking.

2. Remove the machine box; carefully remove the protective foam, wraps, films, etc.

3. Please keep the warranty certificate as well as the model and serial number of the machine. If you need tech support, please tell us these.

4. Then start to install the machine, carefully following the instructions in this manual.

3.2 Location

Before installing the fiber laser system, you should select an appropriate location. Follow the guidelines shown below:

1. Avoid locations of high temperature, much dust and high humidity. (The humidity should be kept within 70% and the recommended operating environment temperature range of the laser is 0-40℃.)

2. Avoid locations where the system is exposed to mechanical shocks.

1. Circuit Breaker protection: Do not connect other devices on the same circuit as that of the laser system. It requires a dedicated circuit.

2. DO NOT open any of the machine's access panels while the unit is plugged in. Opening any panel may expose the operator to severe electric shock, invisible laser radiation, mechanical pinch points, burns, blindness, and other hazards. POWER OFF AND UNPLUG after using!

3. DO NOT make or break any electrical connections to the system while the unit is turned on.

1. Avoid locations with poor air circulation; select a location close to ventilation (if available). Select a location, whose room temperature is between 15 °C and 25°C (59°F – 77° F).

2. This is fundamental to maintain consistent and reliable operation of a fiber laser and the machine itself. Avoid higher ambient temperatures and strong exposure of the engraver to strong sunlight. Use blinds, if needed.

3. Mechanical shock and vibration of the laser will have detrimental effects on the performance and life expectancy of the machine. It will manifest (over a period of time) with a noticeable decrease in performance and need for maintenance, even breakdown, possibly. Setting your Cloudray Fiber Laser up in s suitable controlled temperature, dust free, moisture free, level, stable surface (a level concrete floor) with the recommended maintenance method is critical to the ongoing performance of the machine. It is also a premise for warranty.

3.3 Connections

⚠️   Perform the connections exactly in the order described; otherwise the static electricity can damage your computer and/or the electronics of the laser system.

3.3.1 Connecting the Mains

Connect one end of the mains cable with the connection socket at the rear side of the laser device (see figures below) and the other end with a protected power outlet.

Mains voltage must correspond with the operating voltage (AC 110V~240V 50/60 Hz) – see information on label beside the connection socket.

⚠️   Under no circumstances should you switch on the device if the voltages do not correspond with each other.

Power input
AC:110V ~ 240V
50/60Hz

3.3.2 Connecting the Computer

● **ProMarker X**

Connecting the computer and the machine by using the USB cable, as shown in the picture below:
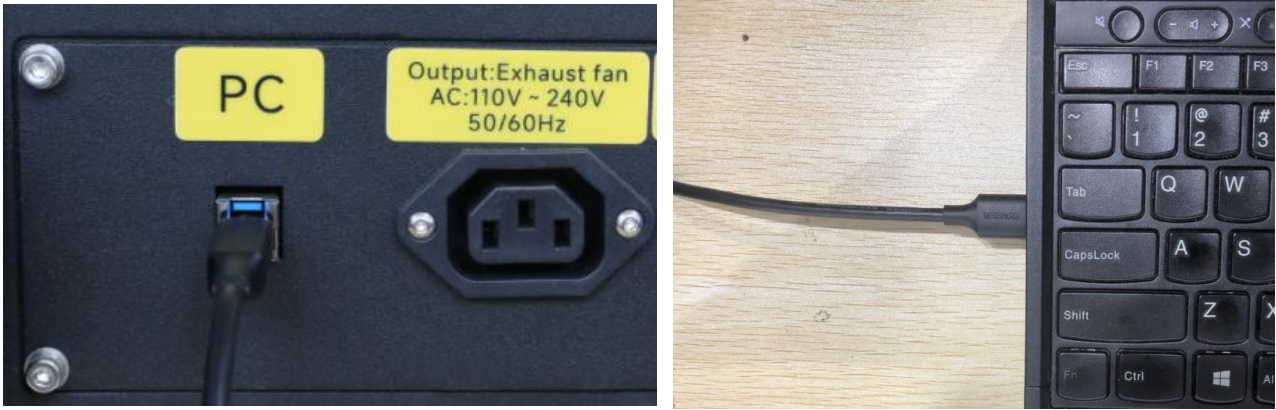
About how to start to use software EzCad2, refer to chapter 5.1 EzCad2.

The USB cable is placed inside the toolbox.

3.3.3 Connecting the exhaust system

Insert one side of the gray exhaust pipe into the fan inlet and the other side into the machine behind the exhaust tank. Insert one side of the other gray exhaust pipe into the fan outlet and put the other side of the pipe outside the operation room (If the machine is too far from the door of the room to discharge the gas manufactured; then you might need a dust/fume filter, it can keep good air quality of your working environment).

Please refer to the following pictures about how to install the exhaust pipe:

The input voltage must correspond to the required range (AC 110V~240V 50/60 Hz) – see information label beside the connection socket.

Output:Exhaust fan
AC:110V ~ 240V
50/60Hz

Chapter 4. Operation

4.1 Machine view

1. Left side door
On fiber laser, there are installed Z motor and Driver, Z limit switches.
Please open this door for checking these parts, but
you must pay attention to the electric current.

2. Camera
Using camera function.

3. Rotary connector
Use to connect the rotary.

4. Exhaust hole
This is for exhausting the fume.

5. Indicator light
If fiber laser machine is running, the signal lamp is in
red light.
If the laser machine is on standby, the signal lamp is
in green light.

6. Flap protection sensor
This is where the switch for flap protection exist. Laser will stop working once the cover is opened during
working.

7. Emergency stop button
Once there's an accident during operation, please press this button immediately. And then the laser power and
motion power will be cut off immediately.

8. Key switch
To turning the machine on.

9. Operate panel
Control auto-focus, galvo movement, etc.

10. F- lens
You can replace the field lens by rotating it.

11. Galvanometer
Composed of two parts: optical scanning device and servo control.
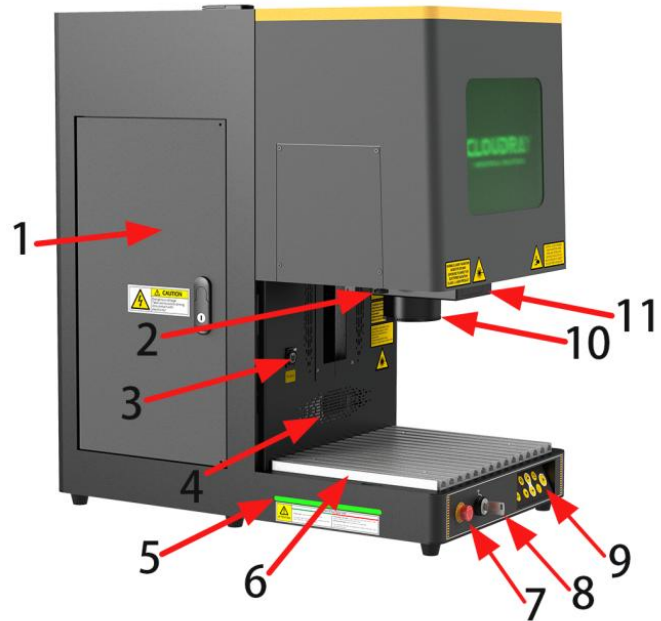
12. Front door

Close it to run a file.

13. Protection glass

Protect eyes from laser reflection.

14. Pass-through door

User can remove it to marking some longer objects.

15. Cooling fan

Cooling the electricity parts.

16. Exhaust hose

Install the exhaust pipe.

17. PC connection port (USB)

This USB is for connecting computer.

18. Main power socket
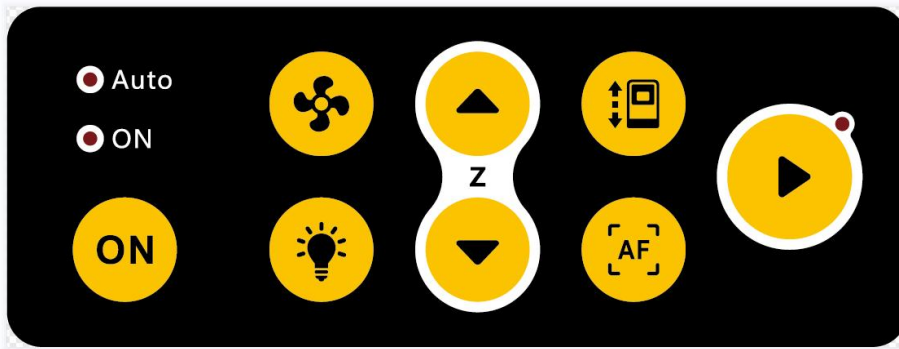
To connect the main power.

19. Manufacture's label

The device information is listed, such as serial number,

manufacturing date and etc.
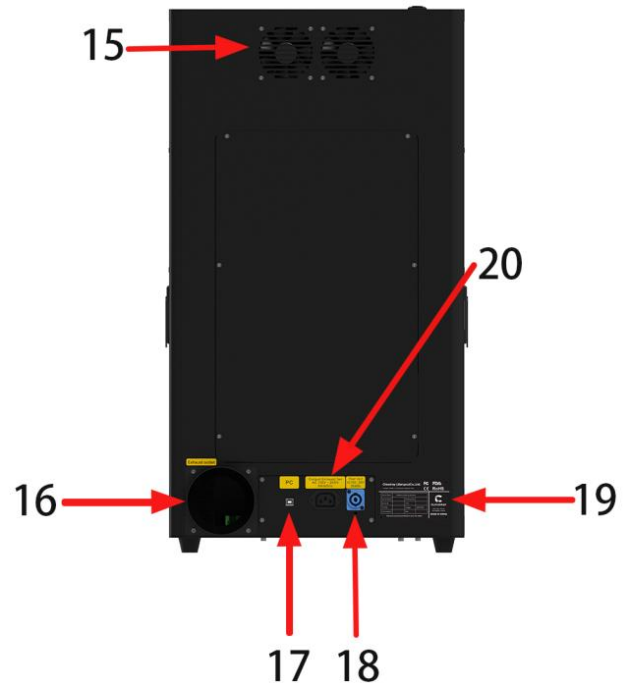
20. Exhaust fan socket

To connect the main power of exhaust fan.

4.2 How to use the display

Auto and ON: Auto is red means that an automatic door is installed on the laser, otherwise not.

On is red means the laser is ready, flashing means the laser needs to initialize.

Auto and On are all off means the emergency is pressed.

 On button: Initialize button, user needs press this button after rebooting the machine.

 Fan mode switching: In standard mode, the exhaust fan will always on. In auto mode, the fan will be on after marking.

 Light button: Control the lighting of the work table, the light is divided into four brightness (the brightest by default for the power on).

 Z button: Control the galvo to move.

 Door button: Control the front cover to open and close.

 Auto focus button: Press it, the galvo will adjust the focal length automatically.

 Start button: Press it to run the job.

www.cloudraylaser.com

21

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

4.3 How to use the camera

There is a camera equipped with ProMarker X.
You can check the marking progress through the camera.

Open the camera app of your computer, and use the rear camera. User can check the work table when marking, like below.

www.cloudraylaser.com

22

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
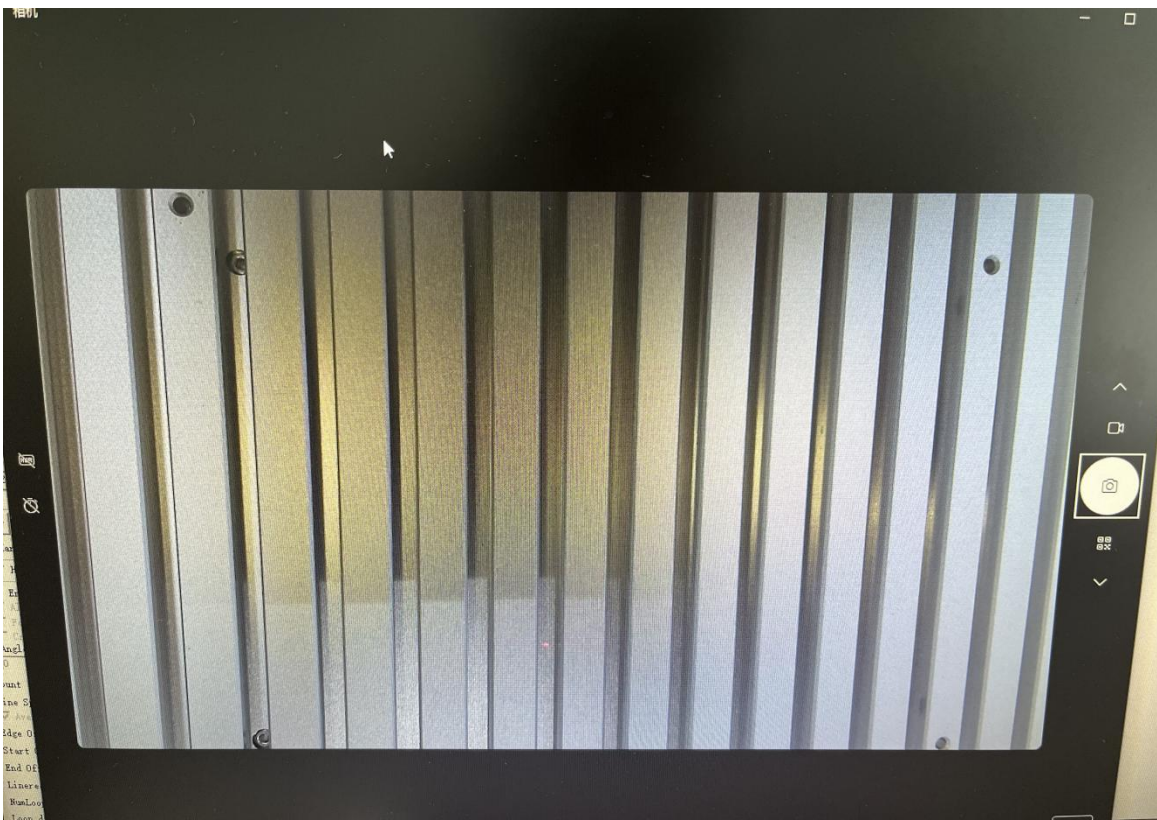
Chapter 5. Brief Introduction to Softwares

5.1 EzCad3

The standard computer hardware required for the operation of EzCad3 software: dual-core CPU, memory 2G, hard disk 10G, dual native USB interface. The computer system software is Microsoft Windows operating system WIN7 64-bit, WIN8 64-bit, WIN10 64-bit and WIN11 64-bit. The default operating system of the manual is Microsoft Windows.

Note: It is recommended to choose Professional or Enterprise Edition as the operating system.

EzCad3 software installation is very simple, users only need to copy the EzCad3 directory file on the installation CD directly to the hard disk. Then double-click the EzCad3.exe running software in the EzCad3 directory that has been installed. The computer must be authorized before the software runs, otherwise the software will not run normally.

The Software, Drive and Calibration file are in the U-disk that came with the fiber machine.

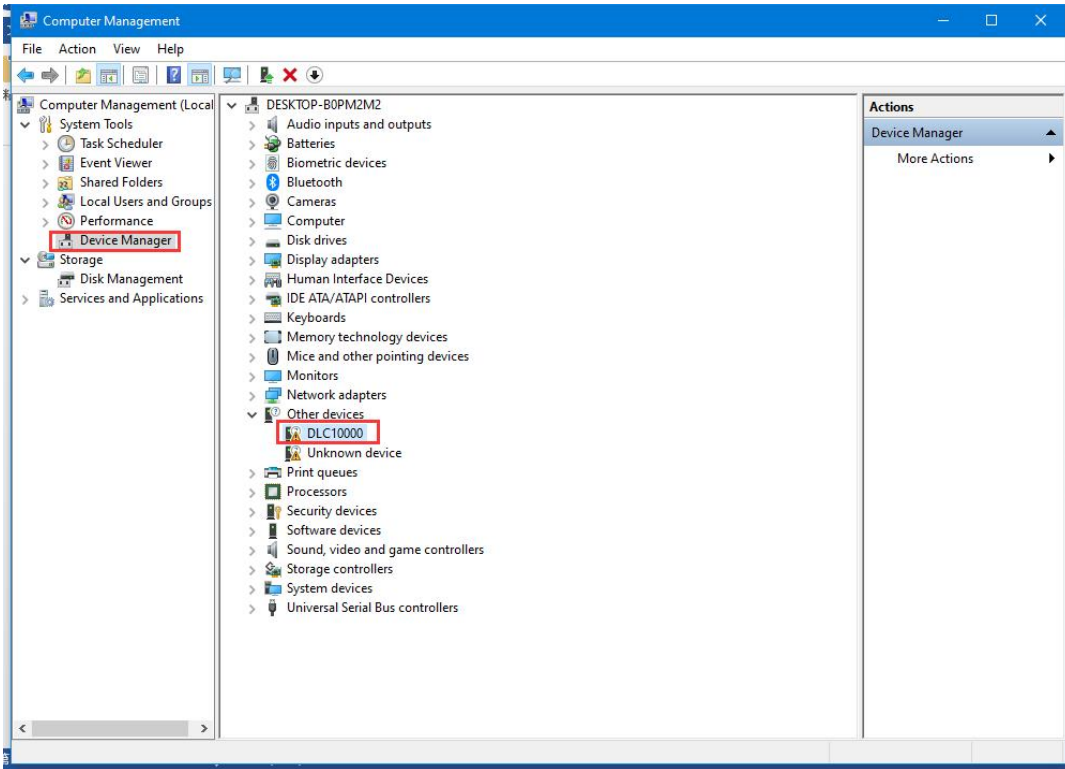## 5.1.1 Driver Installation

Turn on the fiber laser

1. Connect your fiber laser with PC via USB cable.

2. Before moving on to next step, please save the Driver file in the U-disk to your computer, and remember where it is.
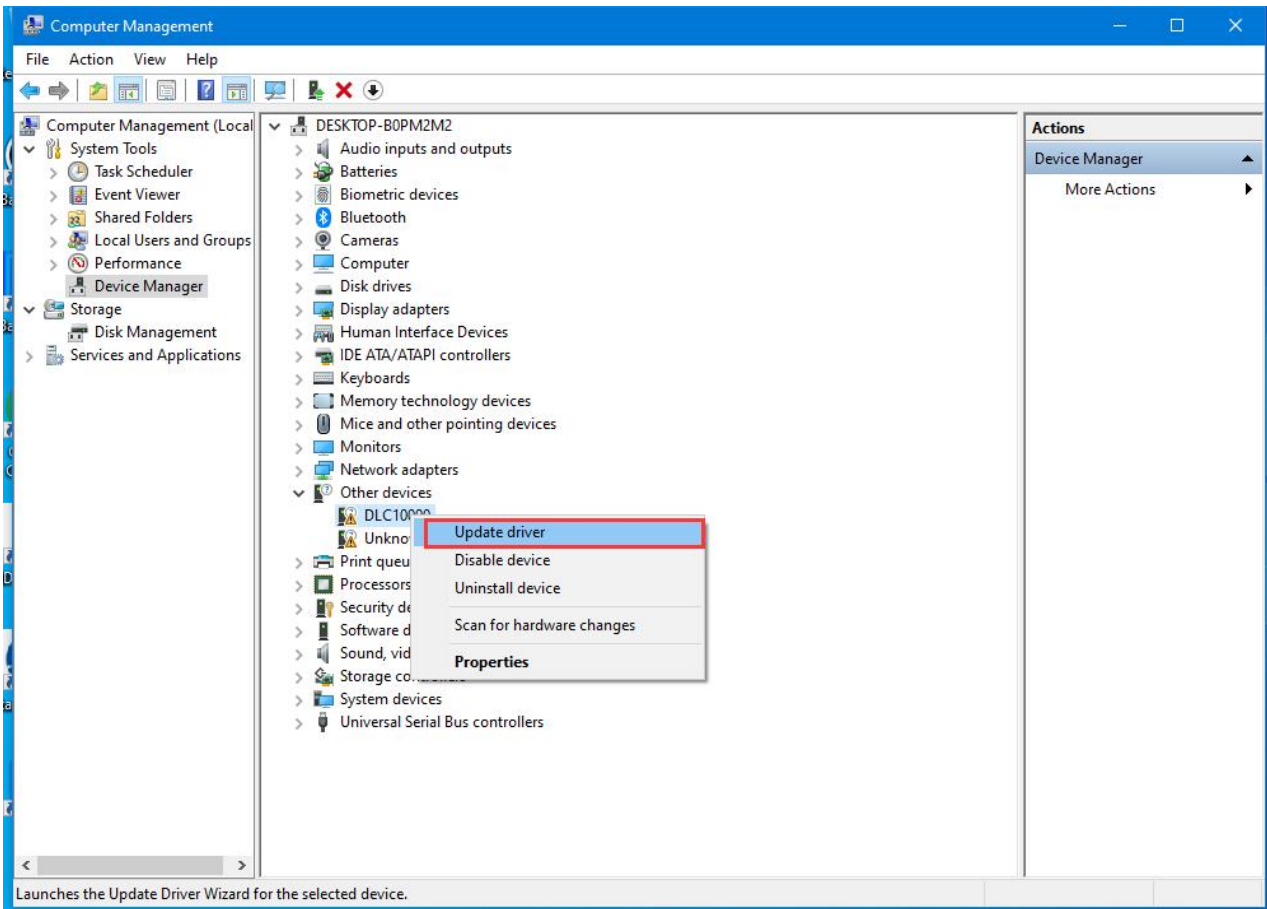

3. Go Manage>>Device manager>>Other devices>>DLC1000>>right click, Update driver>>Browse my computer for driver software>>Browse, and find the DLC1000 folder you saved from the U-disk that came with the fiber laser>>Select the DLC1000 driver>>Next>>Install, then the driver is installed successfully. See below pictures.

Pic1

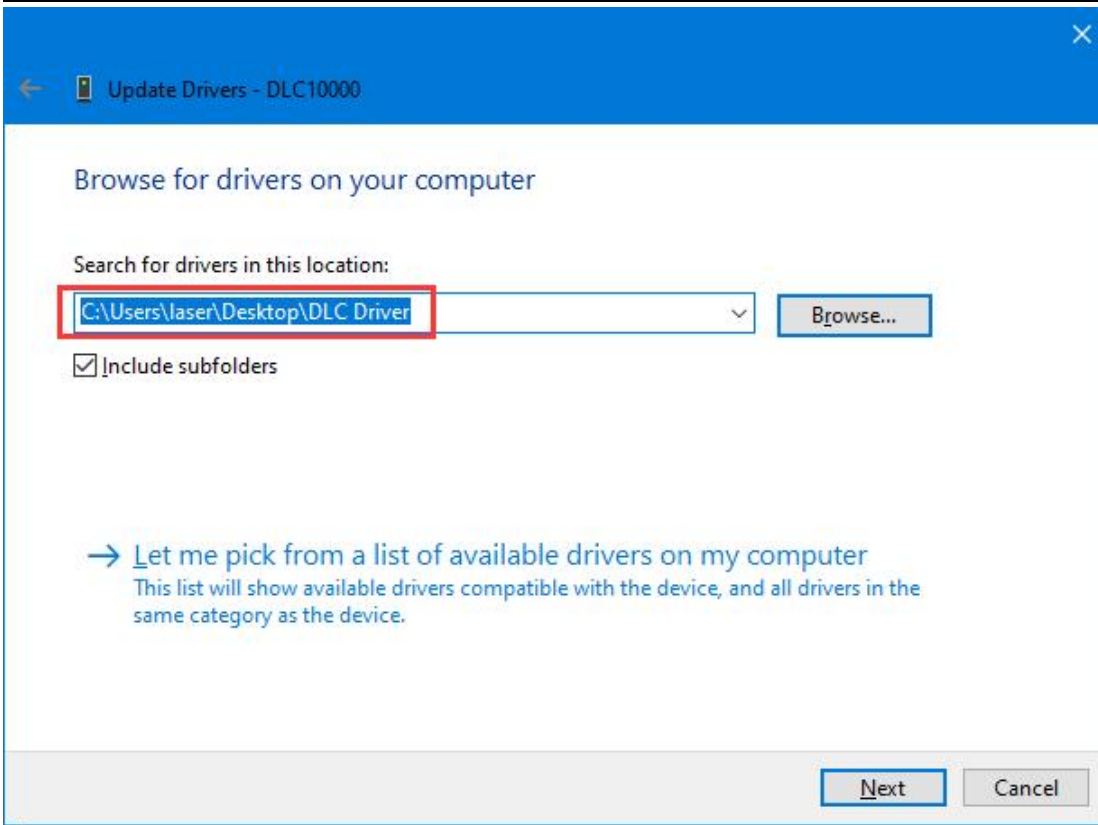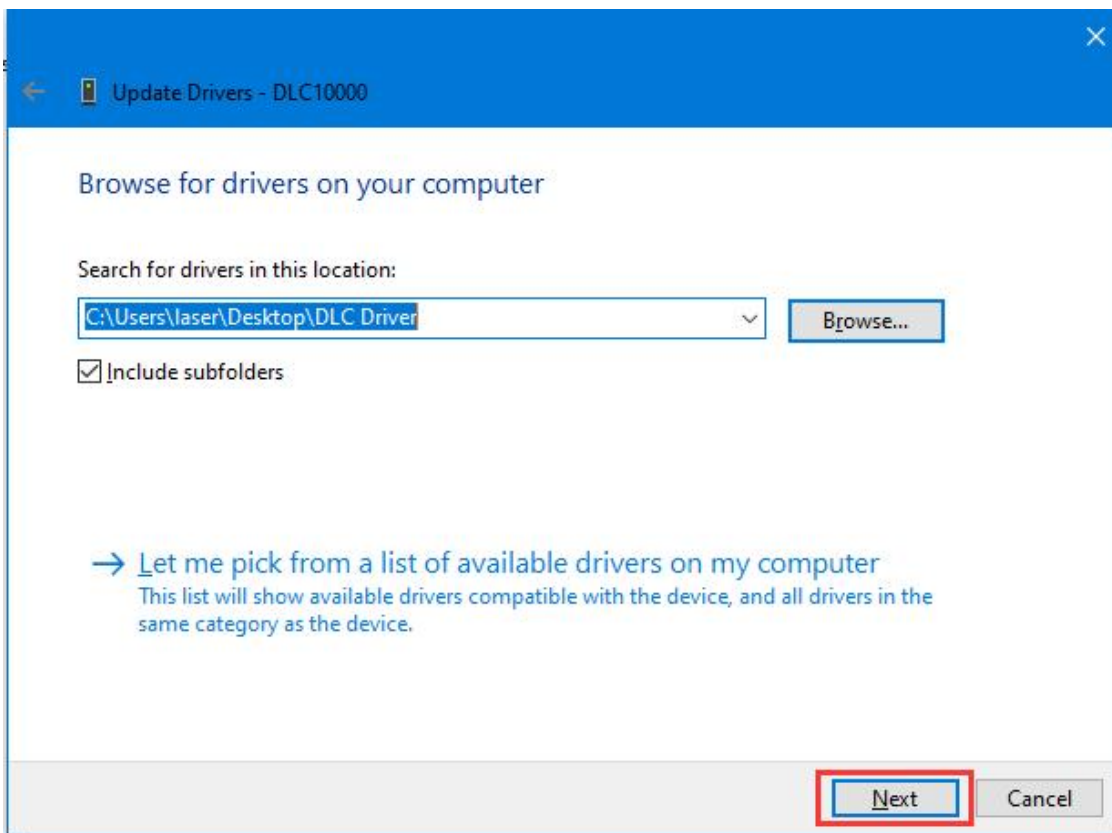www.cloudraylaser.com

24

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
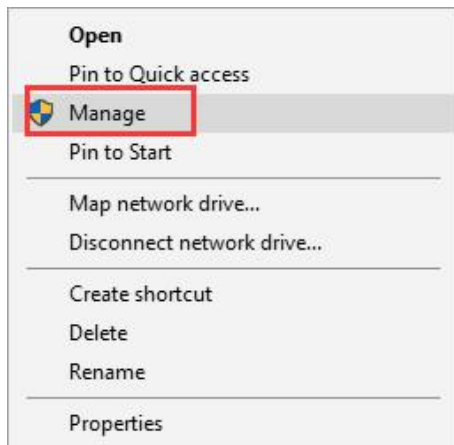
Pic2

Pic3
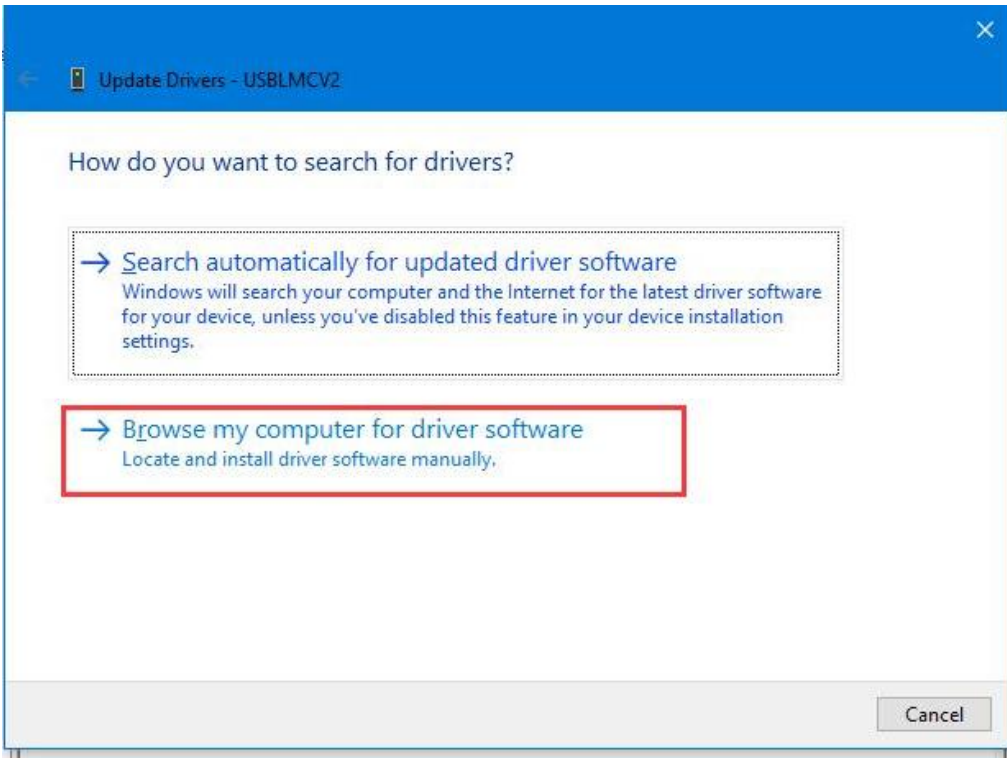
Pic4

Pic5

Pic6

Pic7

Pic8

Pic9

www.cloudraylaser.com

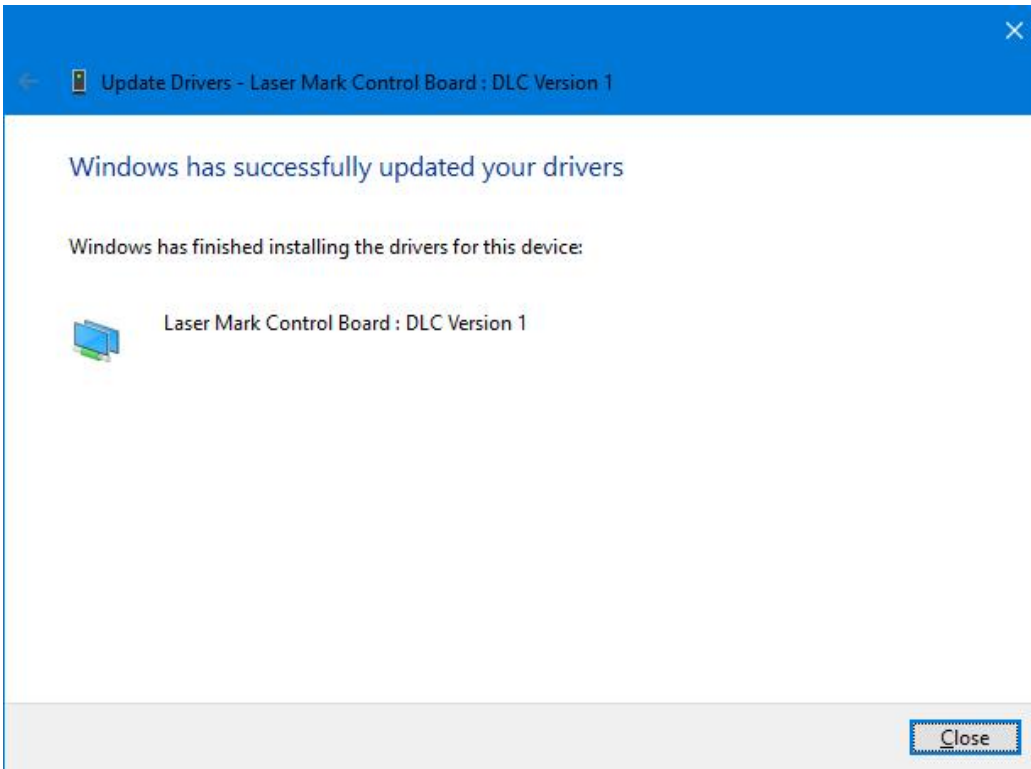28

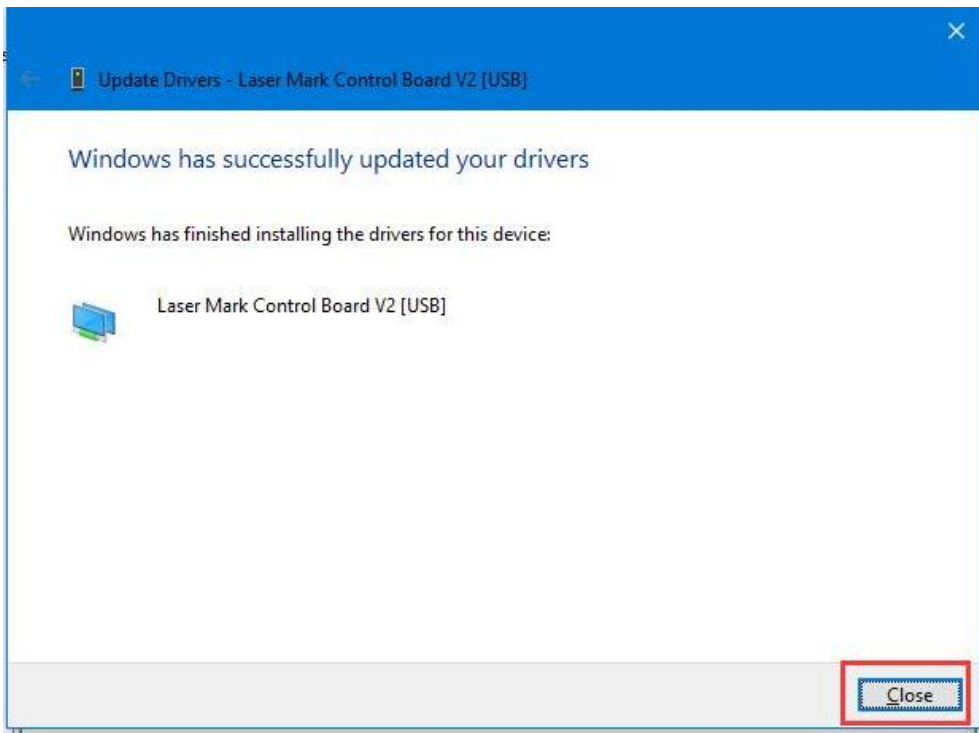Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
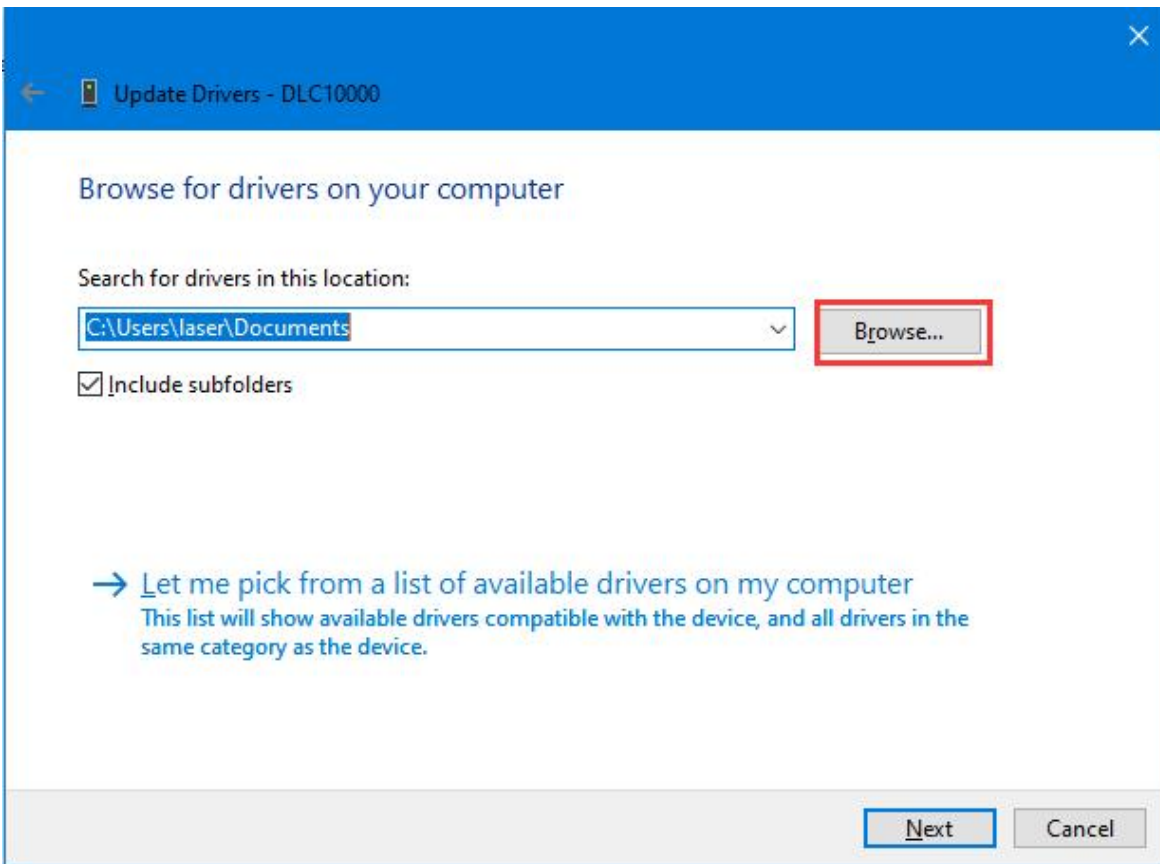
5.1.2 Activate the software
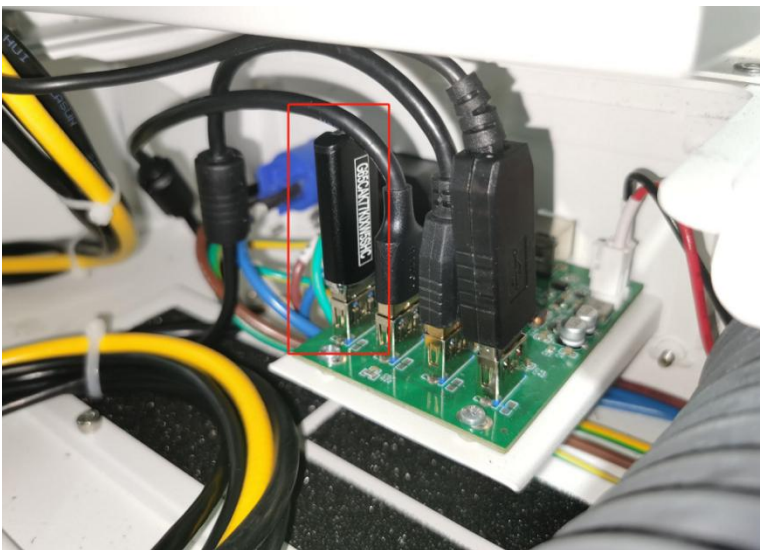
EzCad 3 needs to be activated before initial use.

● **Activating process**

The activation code is inside the text file.

You can find it in the U disk that come with the machine.

The dongle that came with the machine, with a string of activation codes on the back side. It's already inserted into the machine, as shown below:
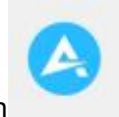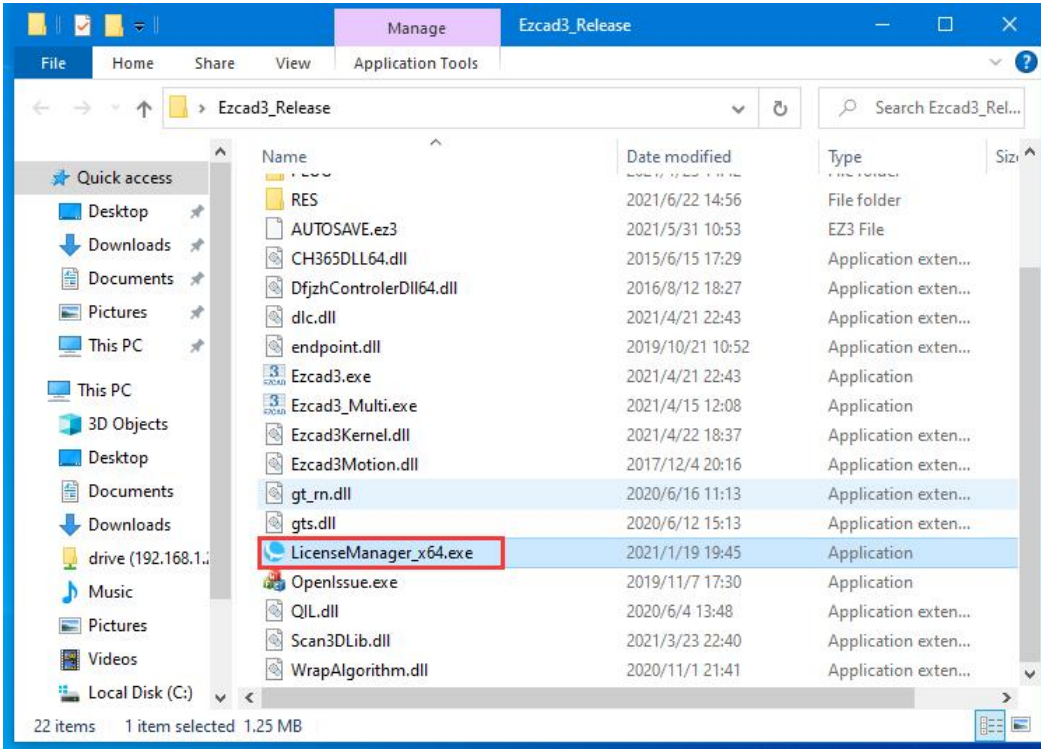

Don't unplug it!

www.cloudraylaser.com

29

Cloudray(Jiangsu)Co.,Ltd.
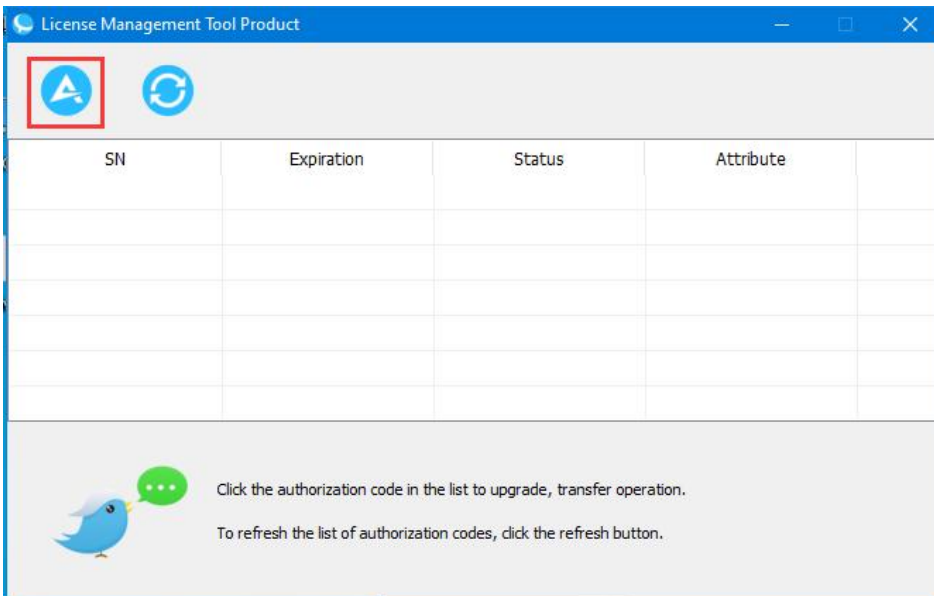Huashen T-PARK, Yu Huatai Zone, NanJing, China.

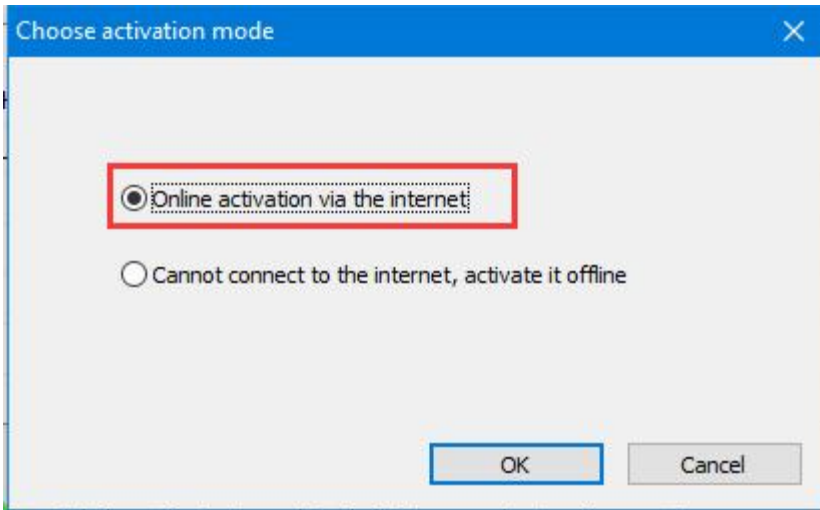## The activation code can only activate 5 computers!!!

1. Find the activation code and copy it.

2. Open the activated software LicenseManager X64 in fiber software folder.
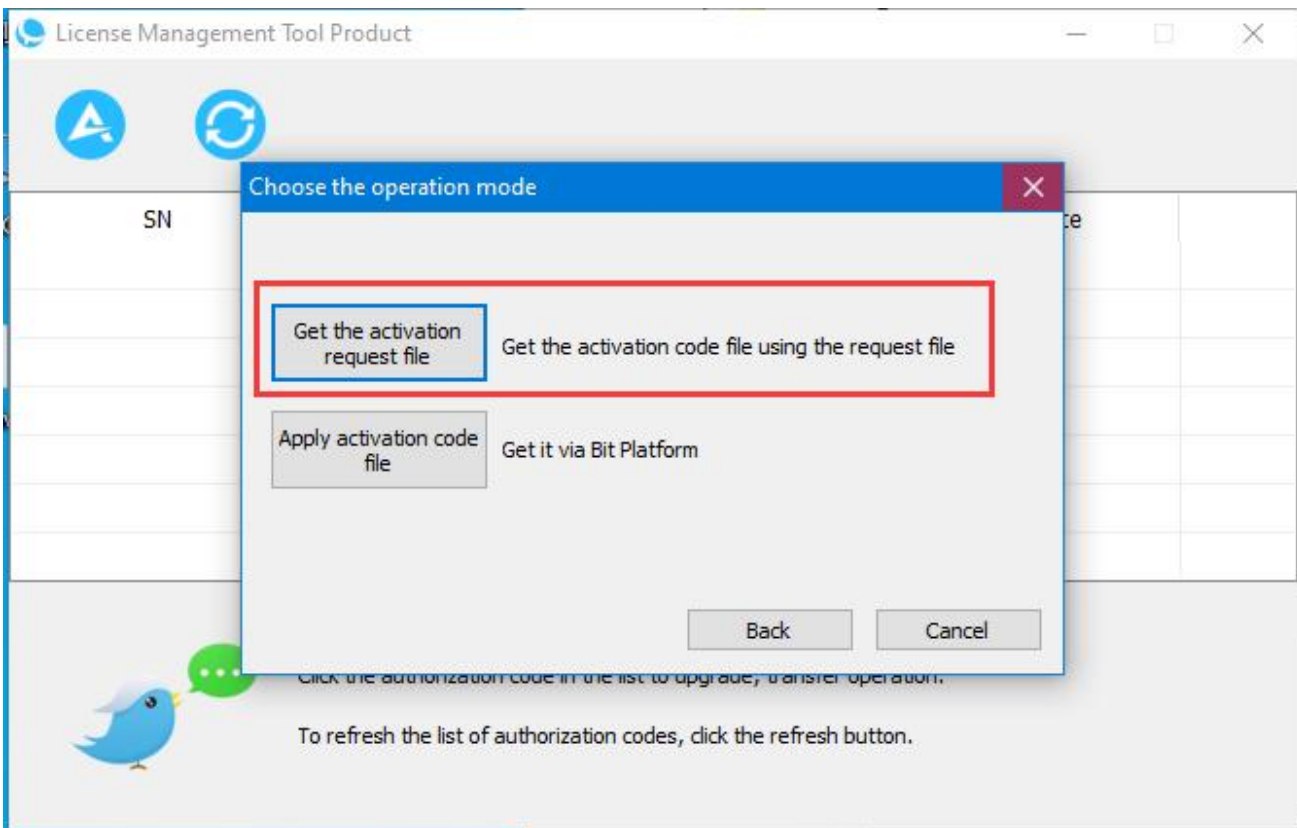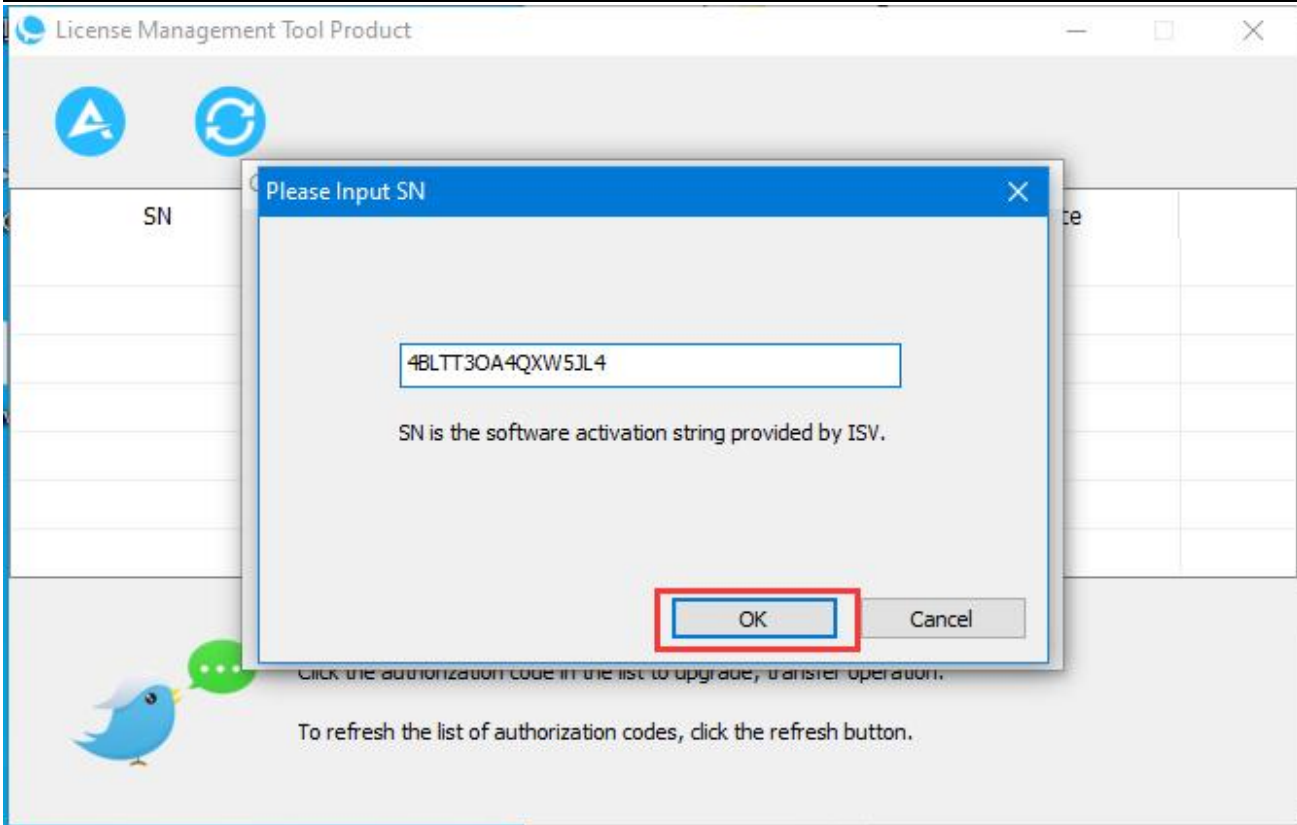

3. Click License activation icon

4. Click "online activation via the internet" and click "ok"

5. Click "Get the activation request file" and enter the activation code that you record. Then click "OK".

6. Then it will show "Activate SN successfully".
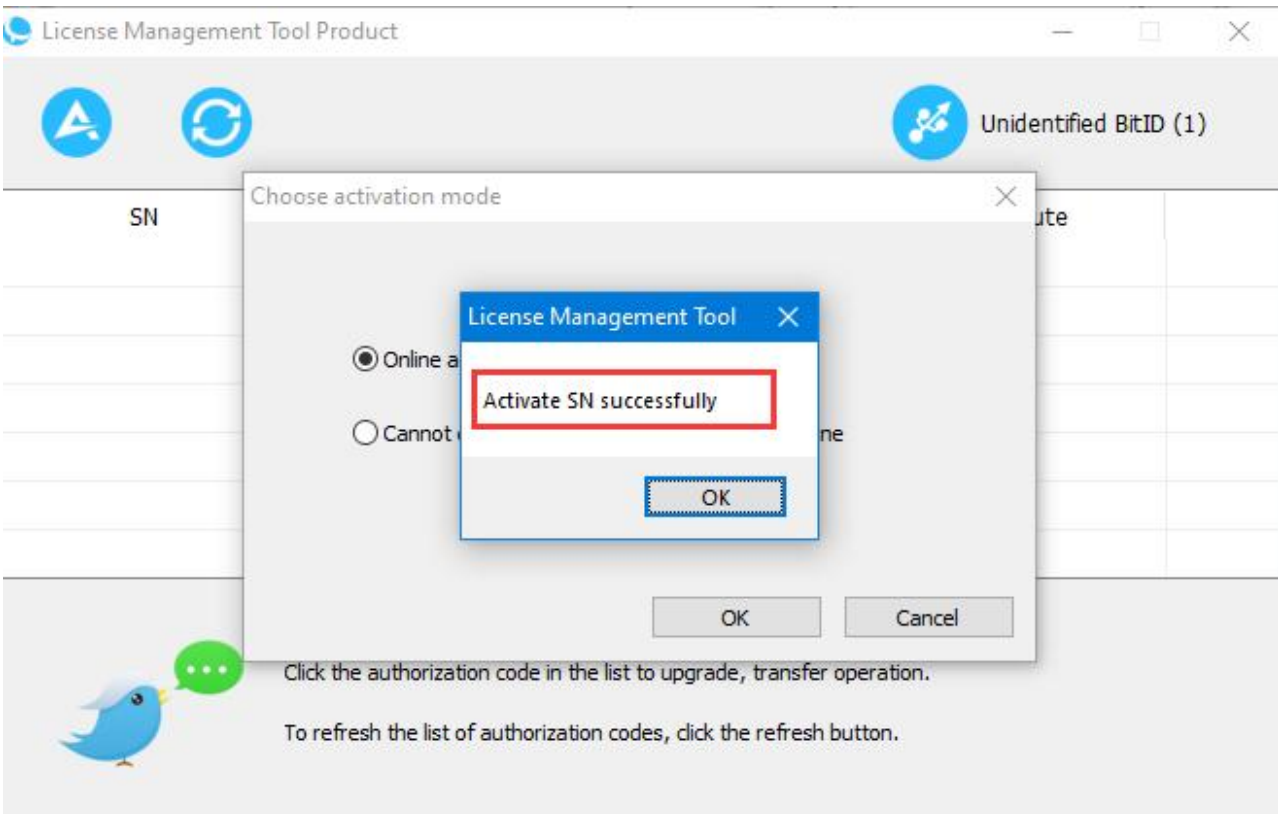
7. Now, the SN is activated successfully.
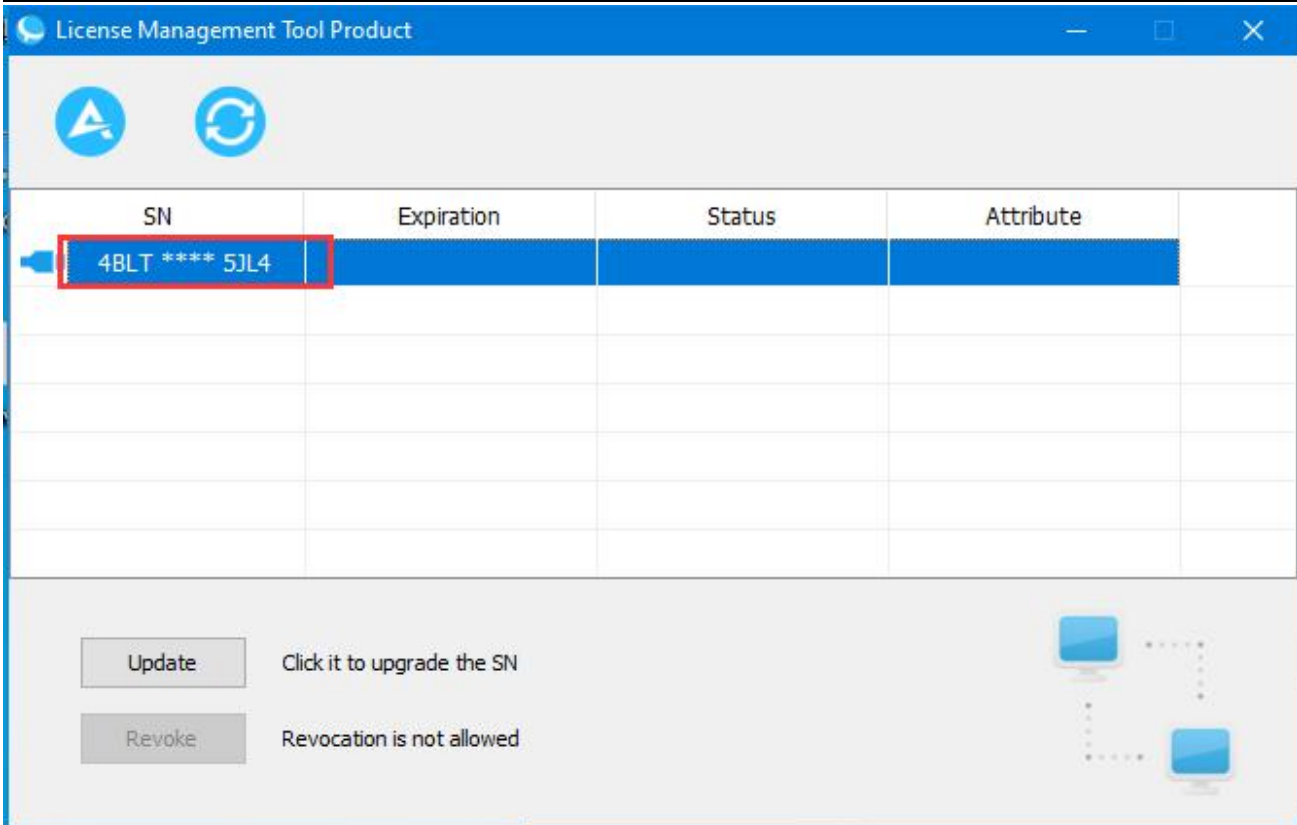
8.   Then you can open the EzCad3 software.

5.1.3 Software setting

1. General setting

We have made the correct settings in the software before the machine leaves the factory.

Please open the software to check if they are correct.

Open the software, then press "F3" and select items according to the picture below:

Laser type: FIBER

Frequency(kHz):

Min Value:1, Max Value:4000.

FIBER:

Type: IPG_YLPM(Type:D)

💡 The frequency ranges for different laser source.

MOPA laser	100W
Frequency	1-4000kHz

2. How to import the correction file.

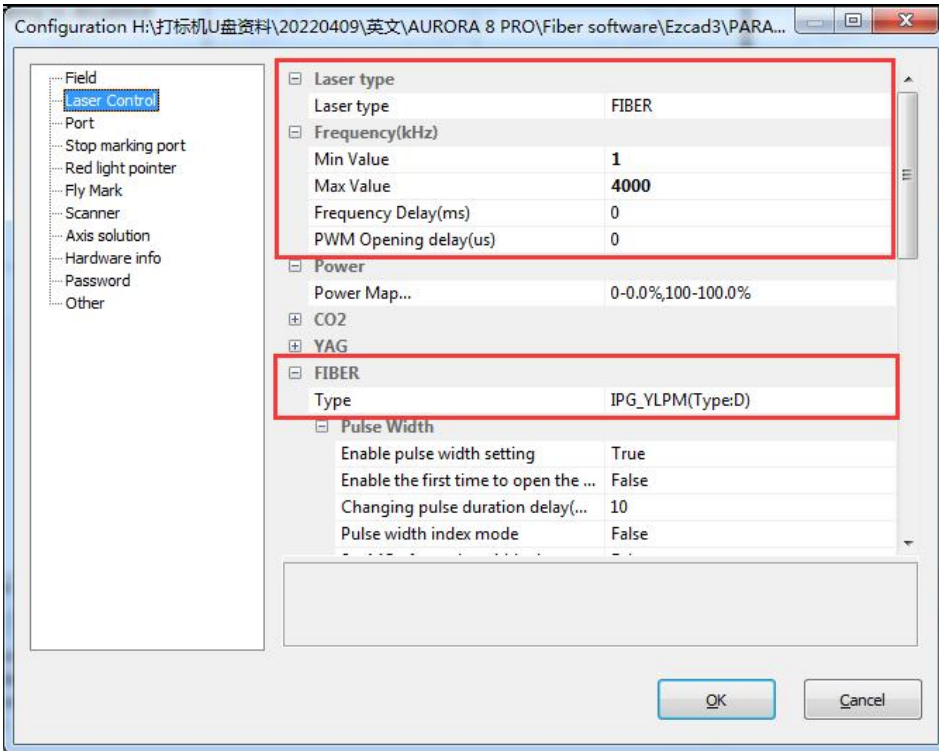💡 1. Before leaving the factory, we have done a correction test for each machine and imported the calibration file to fiber software, so the customer does not need to calibrate again.
2. Different field lenses have different calibrate files and cannot be used randomly.
3. If you've purchased other field lens with the fiber machine, we will prepare the calibration file and put it in the U disk too.
4. If you've purchased other field lens after the machine left the factory, contact us to get the calibration file.

Open the software>>Press "F3" button>>Field>>find the calibration file (let's say the name is 9×9.cor) in the USB disk that came with the machine.

www.cloudraylaser.com

35

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
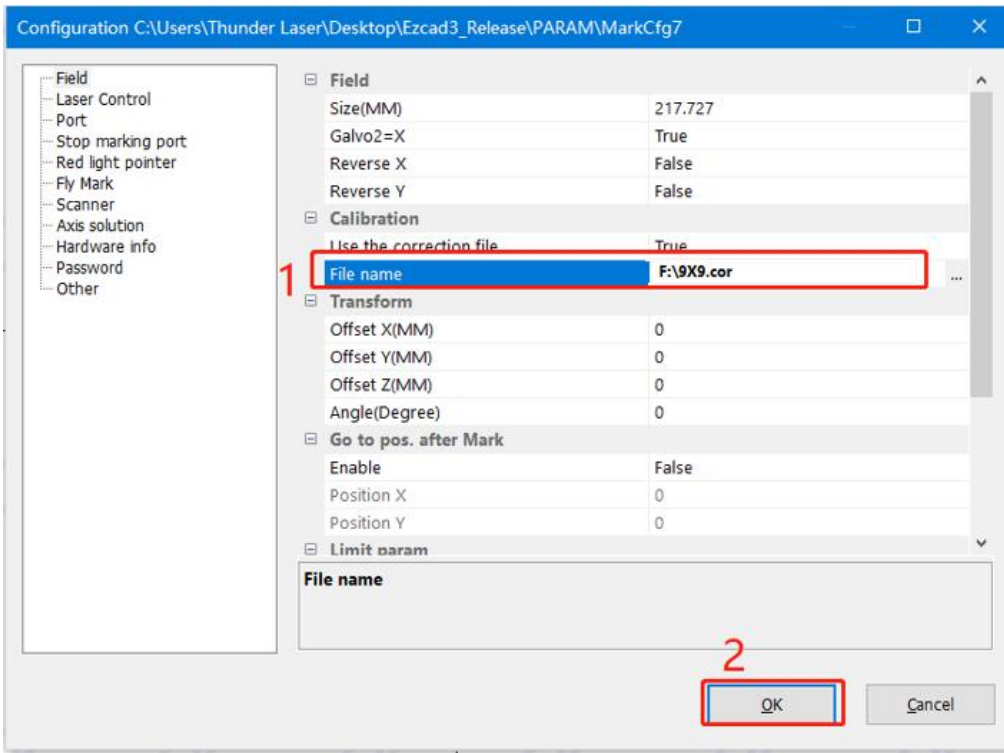
Chapter 6. How to set & adjust the focus length of Auto-focus

ProMarker X series marking machines can be equipped with F-210 field lenses. And the focal lengths of different field lenses are different. After changing the field lens, the user needs to adjust the focus of autofocus again.

● **How to set the focus length of Auto-focus**

1. Connect machine and computer with the USB cable.

2. Install USB driver: Right click "computer">>Management>>device manager>>Other devices>>USB

Serial>>Update Driver>>Browse my computer to driver software>>Find the Driver folder that came with the

machine CD340G-USB-Drive>>Next>>Install successfully.

Find the corresponding COM of the USB, and remember it.

The auto-focus software driver folder is in the U-disk that came with the Fiber machine.

Pic1

www.cloudraylaser.com

36

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

Pic2

Pic3

www.cloudraylaser.com

37

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
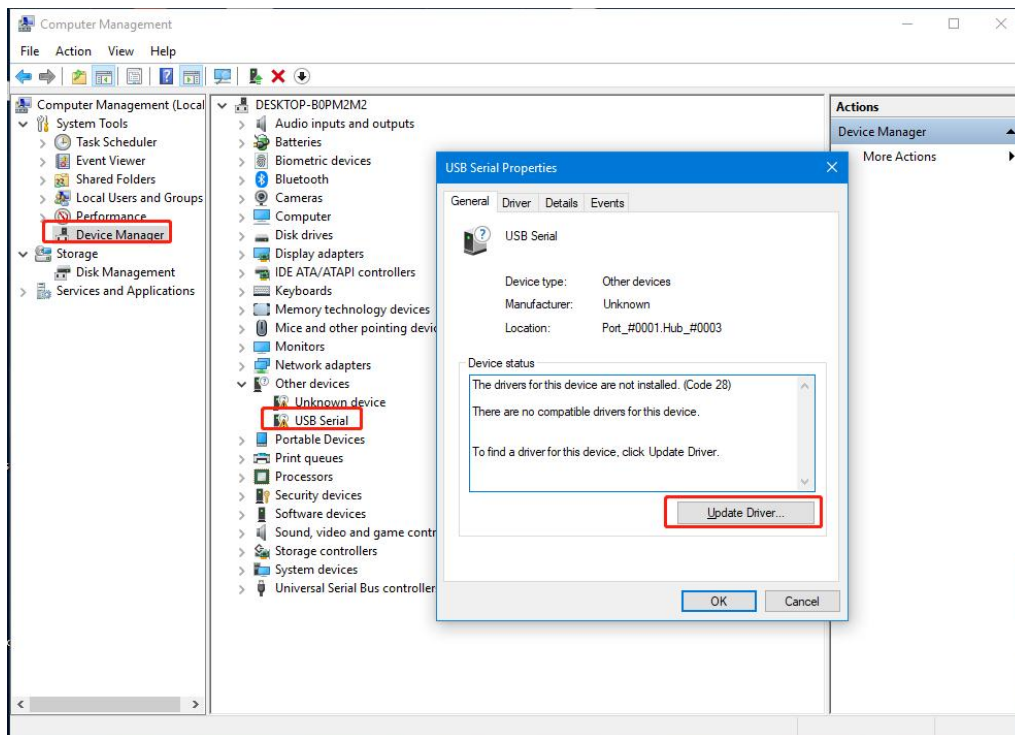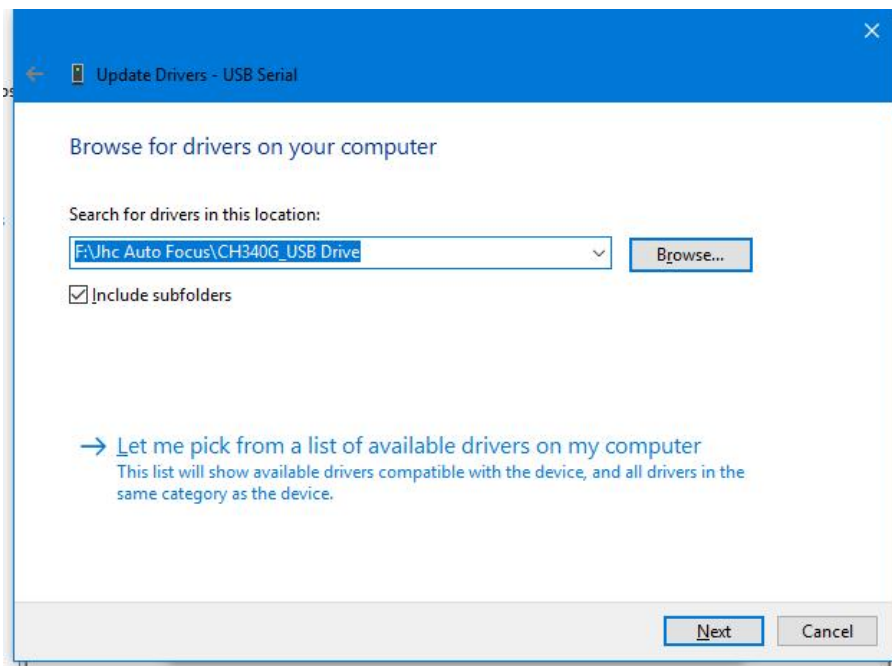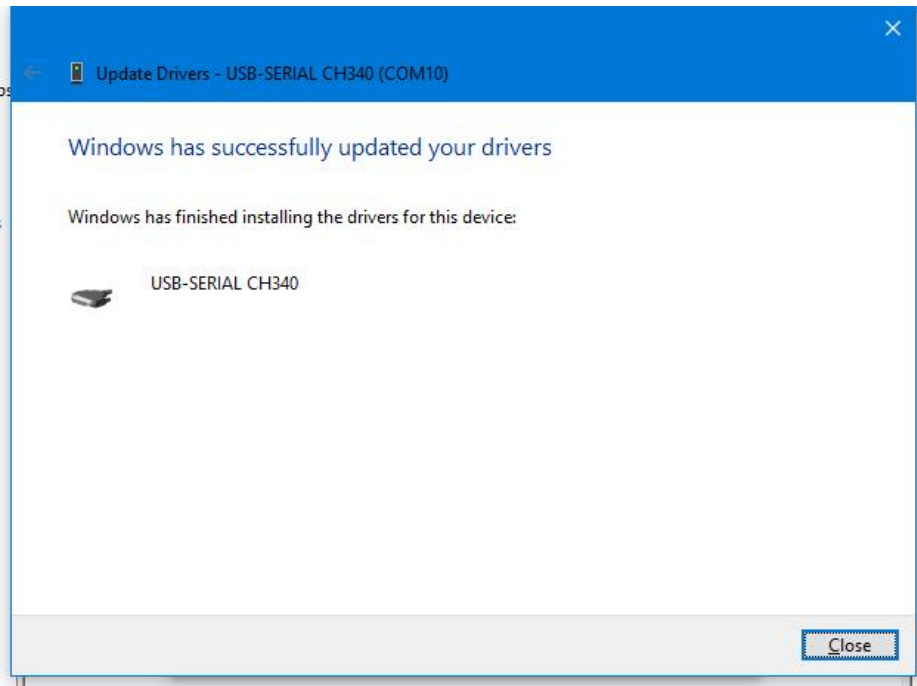
Pic4

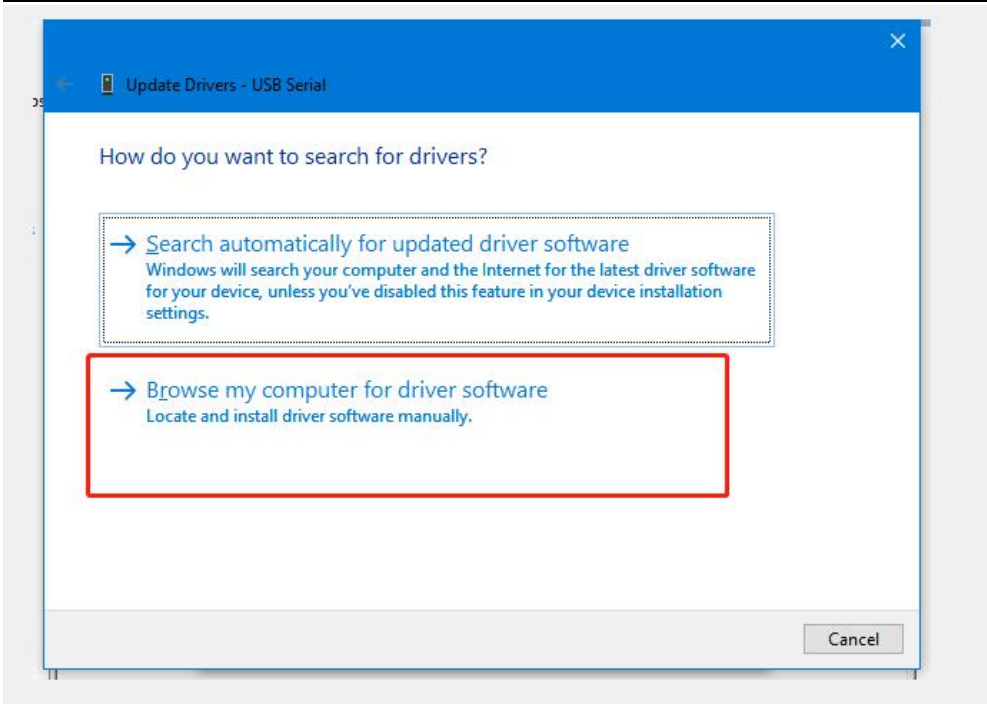4. Choose correct COM port and click connect, then set the screw pitch as 5, Pulse count as 5000. Speed as 2(divided into 9 gears, 1 fastest, 9 slowest, 1-9 speed decreasing), then click "Send", the window of "successfully set" will be presented. And input the focal length according to the reference form.

Focal Length for different lens (for reference only)

	F-160	F-210	F-290
ProMarker X	P:30%, S:100mm/s, PW:100ns		
Focus length range	220.56~222.64mm	303.84~306.56mm	395.52~397.1mm

www.cloudraylaser.com

38

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
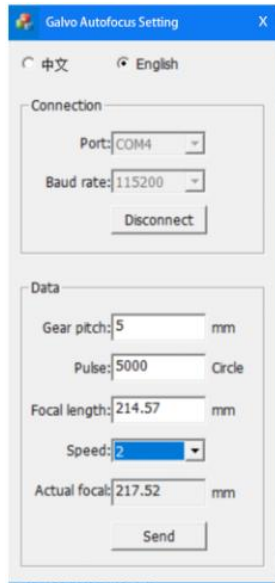
- **How to adjust the focus length**

1. Install the USB driver first, and set the Screw pitch, Pulse count and Speed according to the steps in the last part **How to set the focus length**.

2. Open the marking software, place a piece of metal material on the working platform, draw a 10*10mm square in the software, set the marking parameters. It is recommended to set the speed to 100mm/s and the power to 30%. Low-speed marking makes it easier to observe changes in focal length. Click on the red light, align the material, and click on the mark. During the marking process, press the up or down button of the marking machine to observe the beam. When the beam is at its brightest, the focus length is optimum. At the same time, it can be observed that the actual focal length column in the auto-focus adjustment software is constantly changing. Please record the actual focal length when the beam is at its brightest. About how to use the Fiber laser, you can refer to **Chapter 7.**

And the table below is for reference. You can input them in auto-focus software or adjust based on them.

	F-160	F-210	F-290
ProMarker X	P:30%, S:100mm/s, PW:100ns		
Focus length range	220.56~222.64mm	303.84~306.56mm	395.52~397.1mm

3. Input the recorded real focal length value into the input box of setting focal length, click "send" again, the software will return to the successful setting, the parameters will be stored by the software, and the system will automatically move to this position by clicking the auto-focus button again.
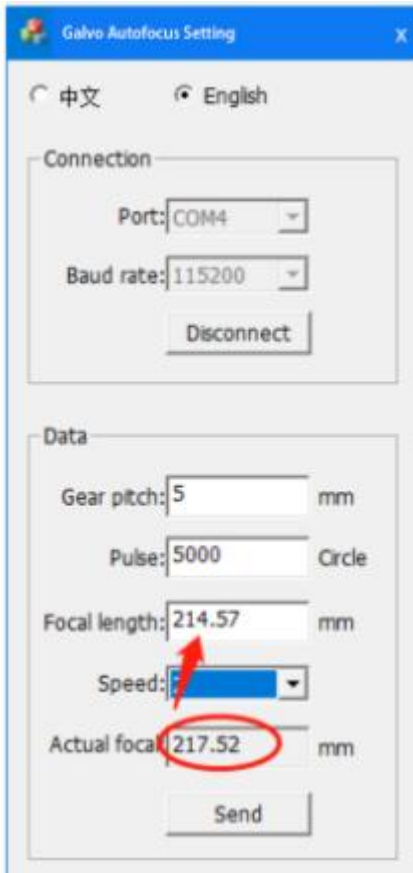
Chapter 7 The First Time to Run the Fiber Laser

7.1 The first time to run a fiber laser

⚠️ For your safety, never ever run the laser system unattended.

The first marking test

The following steps describe how to successfully engrave a pattern for the first time. Please follow the steps:

1. First ensure that the exhaust fan, computer and all mains are connected.

2. Turn on the key switch and emergency button.
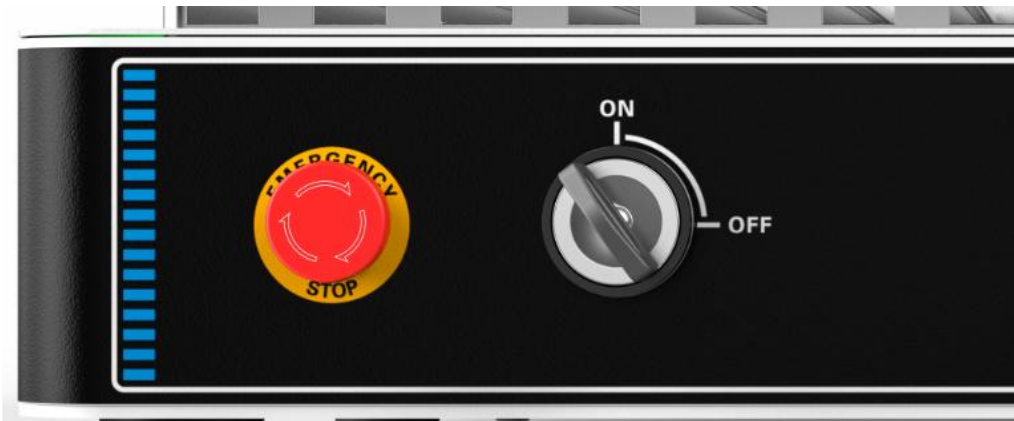
3. Press"ON" button to initialize the machine.

4. Place the material on the working platform.

5. Open the software EzCad3, then install driver and import the calibration file according to **Chapter**

5.1.3.

Please must follow the steps to turn on the machine：

Turn on the machine>> turn on the software, otherwise the software cannot connect with the machine.

6. Import your file to EzCad3

 This software supports these file types.

Vector Files
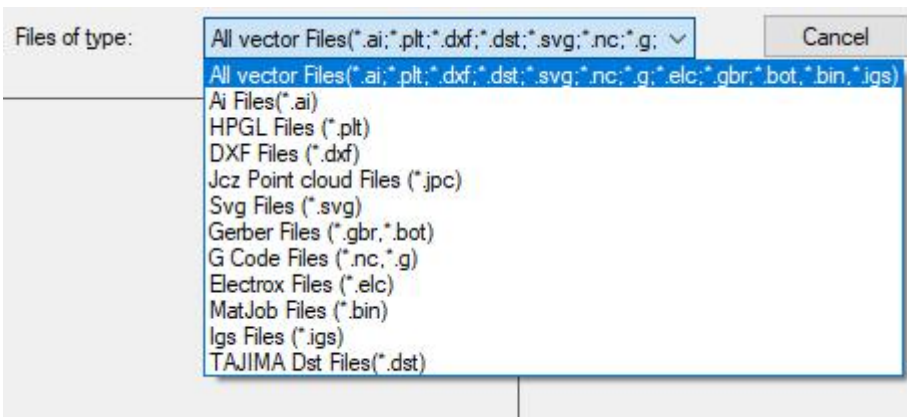
Image Files
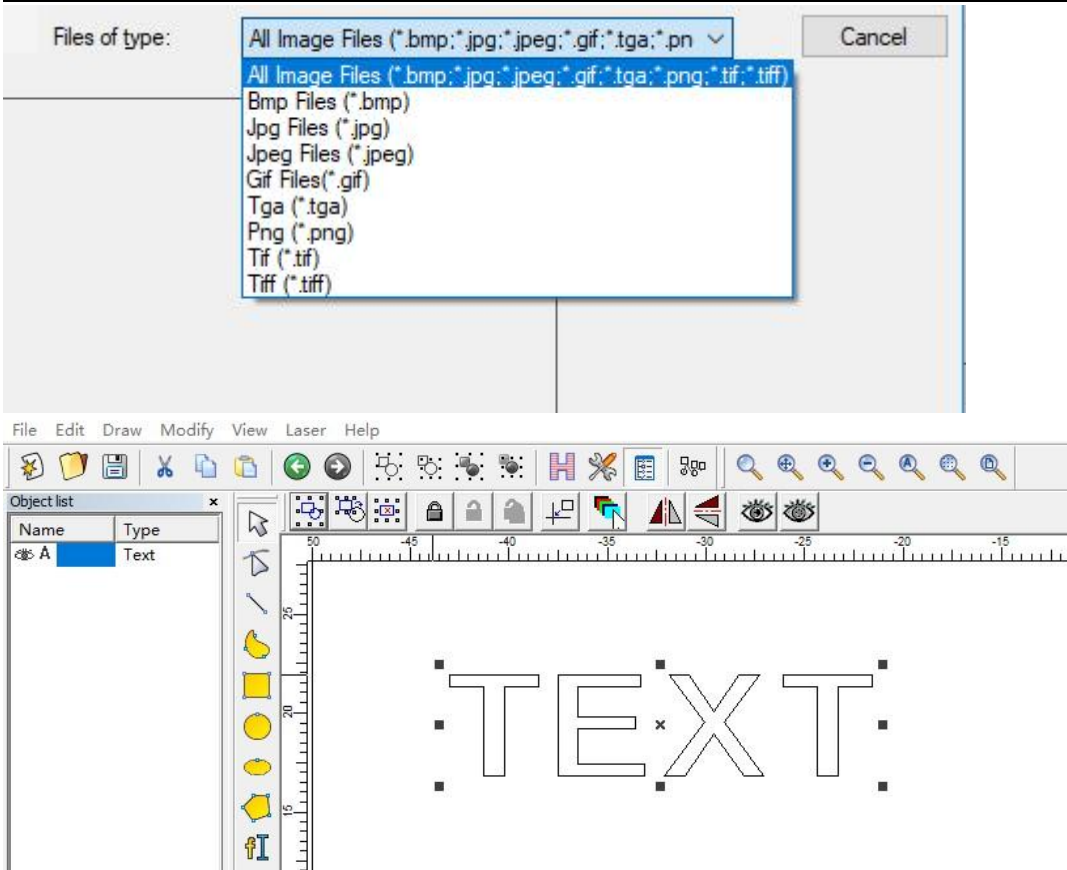
7. Press "Hatch", choose Hatch1(or you can choose the others as you need), set the Line space as 0.05mm (we recommend the range of 0.01-0.1mm), then press "OK".
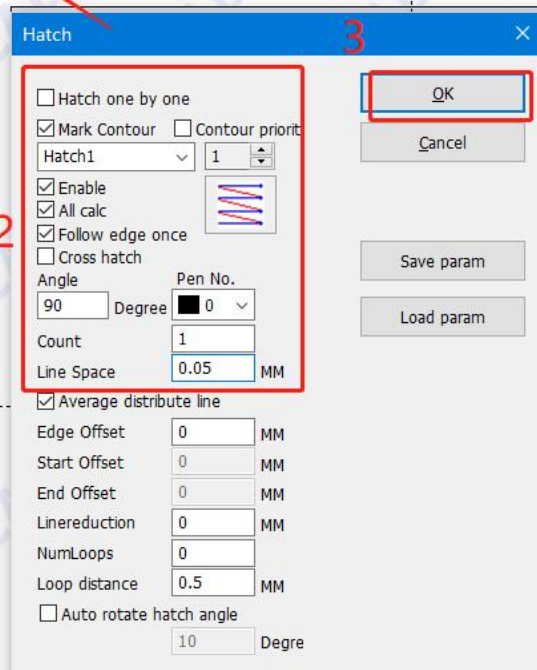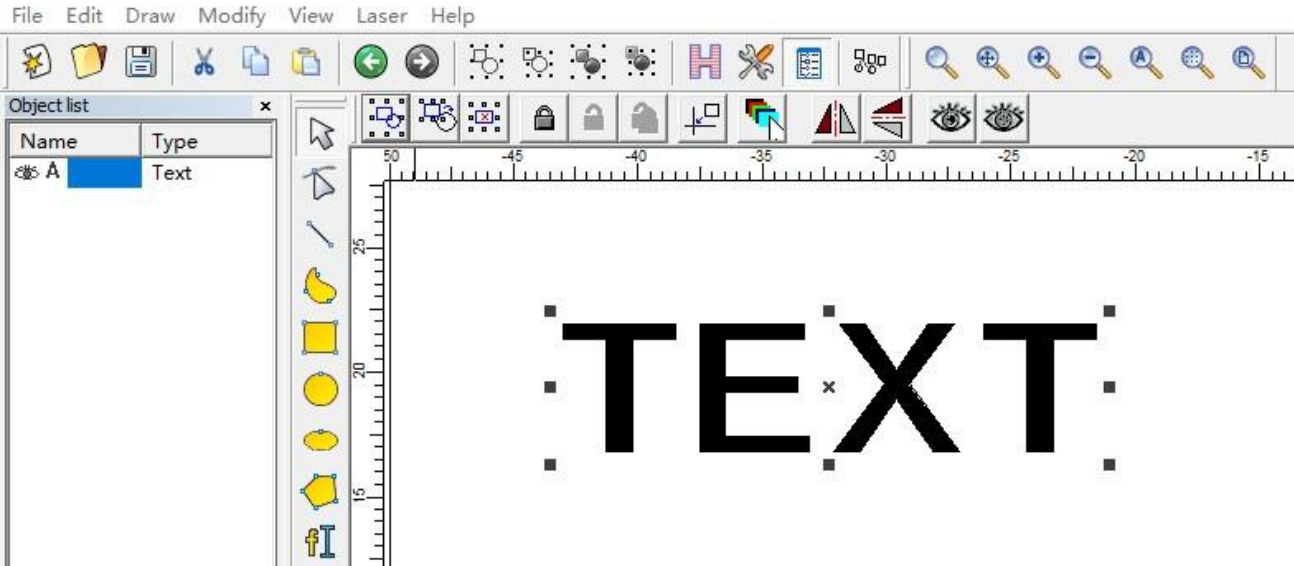
8. Set the marking parameters for your file. Adjust parameters as needed (you need to unselect "use the default para" for changing the parameters).

Set the Loop Count to 1, Speed to 1800mm/s, Power to 50%, and Frequency to 300KHz, Pulse width to 200ns.

Start TC(US) to 150, Laser Off TC(US) to140, End TC(US) to 300, Polygon TC(US) to 100.

Other settings needn't to change.

For different watts, the frequency range is different, please refer to the table below.

MOPA laser	100W
Frequency	1-4000kHz

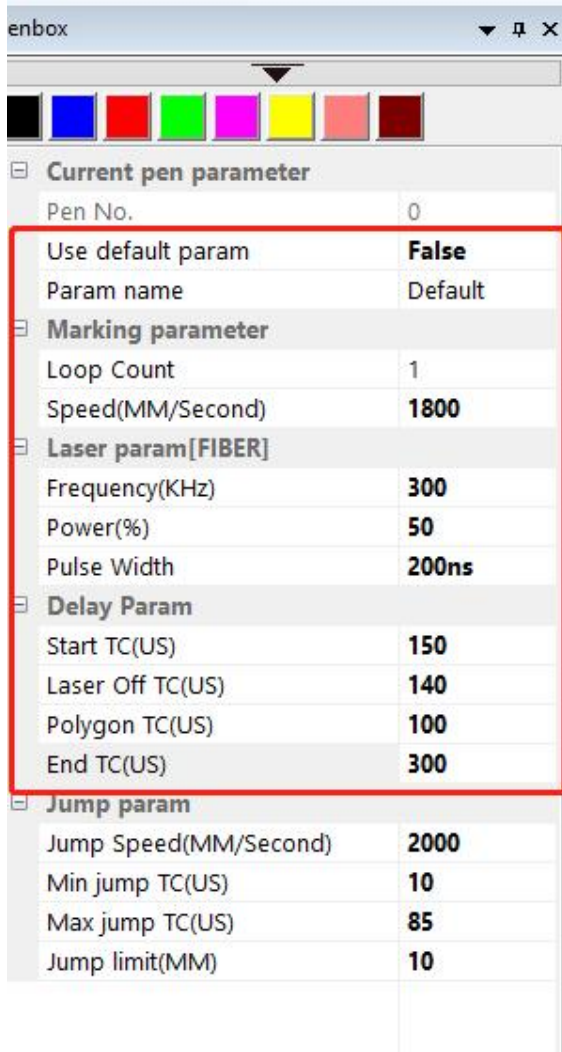| enbox	▼ 🗖 ✕
Current pen parameter	
Pen No.	0
Use default param	**False**
Param name	Default
Marking parameter	
Loop Count	1
Speed(MM/Second)	**1800**
Laser param[FIBER]	
Frequency(KHz)	**300**
Power(%)	**50**
Pulse Width	**200ns**
Delay Param	
Start TC(US)	**150**
Laser Off TC(US)	**140**
Polygon TC(US)	**100**
End TC(US)	**300**
Jump param	
Jump Speed(MM/Second)	**2000**
Min jump TC(US)	**10**
Max jump TC(US)	**85**
Jump limit(MM)	**10**

9. You can see a red dot on the work area, which comes from the galvanometer. So please put your material under the red dot, then press the "Auto focus" button. The galvanometer will adjust the focus distance automatically, which will last for 2-3 seconds. After hearing a beep (from the indicates light), the focus distance adjustment is complete.

www.cloudraylaser.com

45

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.
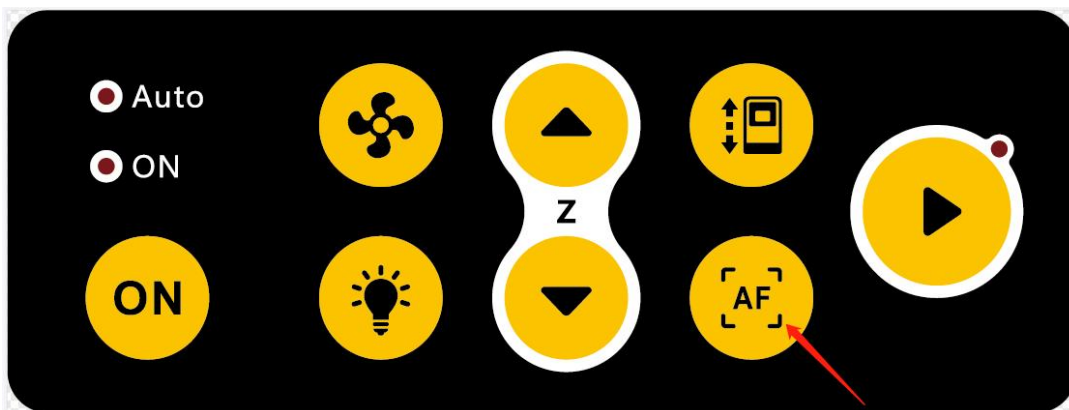
10. Press Key F1 or Red(F1) in software, then fiber will virtually mark out the size of your file. Adjust the position of your material according to the red area. See pictures below.

www.cloudraylaser.com

46

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

11. Close the door and press Key F2 or Mark(F2) in software. Or press "start" button to mark.

1. The controller can record the last file, if you want to run a file twice or more, you can just press "Start" button of the fiber machine.

2. You can start to mark with "Start" button also.

11. The fiber laser will mark your image.

www.cloudraylaser.com

47

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

Chapter 8 How to use the pass-through door

For some long materials, it is may to use a pass-through door, which can be used in the following way to use the pass-through door function.

1. Use a Phillips screwdriver to loose the screws in the door panels of the left and right front door covers, then remove and set aside.

2. Disable door protection function.

 &

Pressing the two buttons at the same time for about 5 seconds at the same time, if the 'ON' button light and side indicator light becomes red flashing, indicating that the door protection has been disabled successfully.

To enable the door protection, you need to press the two buttons again and hold for about 5 seconds, wait until the 'ON' button light and side indicator light turn to green. Or restart the machine again.

**NOTE:** After using the pass-through door function, please remember to install the metal door cover back and restore the door protection function.

www.cloudraylaser.com

48

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

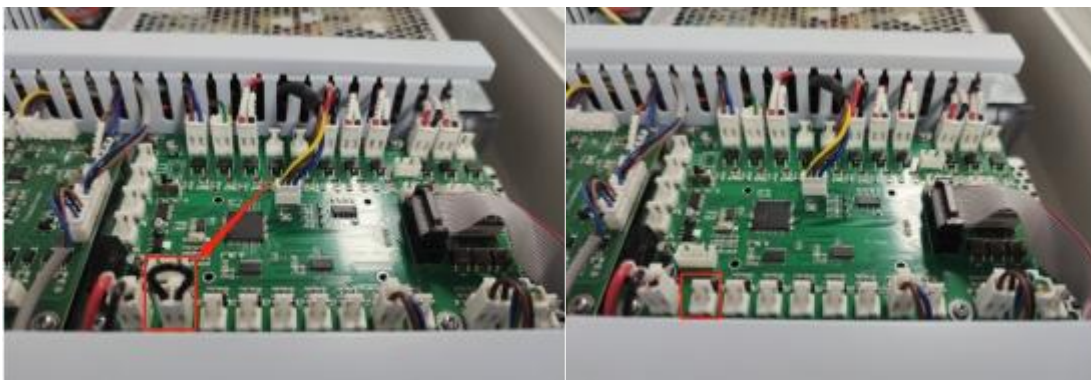# Chapter 9 How to modify an automatic door to a non-automatic door

1. Turn off the machine power and then open the top cover.

2. Unplug the motor cable of the automatic door drive.
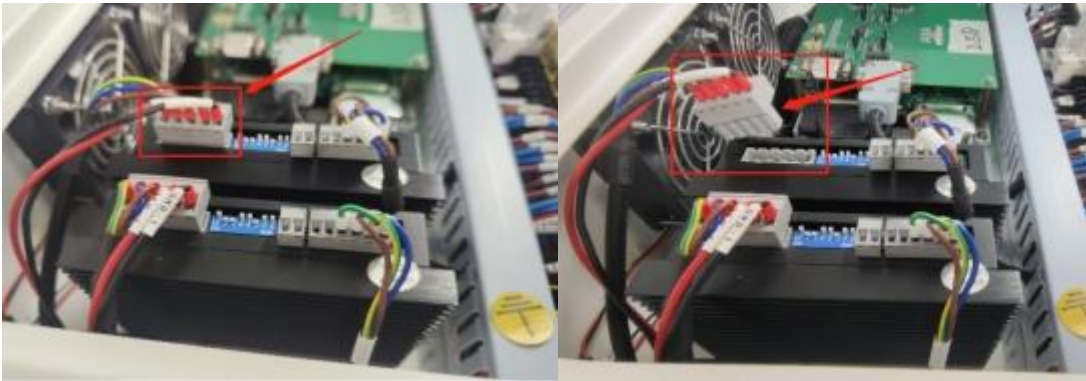
3. Unplug the IN1 port on the TL-Timer board.

4. Finally, please restart the machine.

Chapter 10 Maintenance

10.1 General Maintenance

⚠ Caution-**Before any maintenance efforts takes place, ensure that the power supply has been cut off and the system is powered off.**

All maintenance efforts must be carried out according to the safety regulations.

In order to ensure the maximum availability and lifespan of the system, we recommend that you regularly check the ventilation and keep the surrounding area clean.

10.2 Clean the Field lens

This system is equipped with high-quality optical components, which, under normal operating conditions, are free for maintenance within their lifespan. However, it may be necessary to clean output lenses, e.g. the scanner flat field lens (f-theta objective) needs cleaning if it is covered in dust or fumes.

1. Never touch the optical components with your fingers! Oily or dirty hands may damage the surfaces of lens.

2. Do not use any tools or hard objects to clean the surfaces. Scratches cannot be repaired.

3. Blow away large pieces of dirt by blowing up a balloon.

4. Spray the cleaning solution onto the Q-tip, and remove the remaining stains with it.

www.cloudraylaser.com

50

Cloudray(Jiangsu)Co.,Ltd.
Huashen T-PARK, Yu Huatai Zone, NanJing, China.

5. Distribute the cleaning fluid carefully by small circular motions. Start with the center of the lens and move outwards to the edge. Keep moving the Q-tip until the entire surface is clean.

6. Clean it again with a new clean and dry cotton swab.

7. Make sure that no water or stains remain on the surface of the lens after cleaning.

8. Do not wipe the lens with a dry cloth.

9. Do not exert any pressure on the lens.

10. Clean once half a year (depended on the usage).

The End.