# Picosecond Laser Machine

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# User Manual

Thank you and congratulations on your choice of the Picosecond Laser Machine.

Before Installing or Operating this equipment, please read these instructions carefully, and keep near the device for future reference.

**CAUTION:**Operating the machine when the water tank has no water or not enough water is absolutely prohibited! the laser unit whilst water is in the tank.

## Manufacturer's Disclaimer Statement

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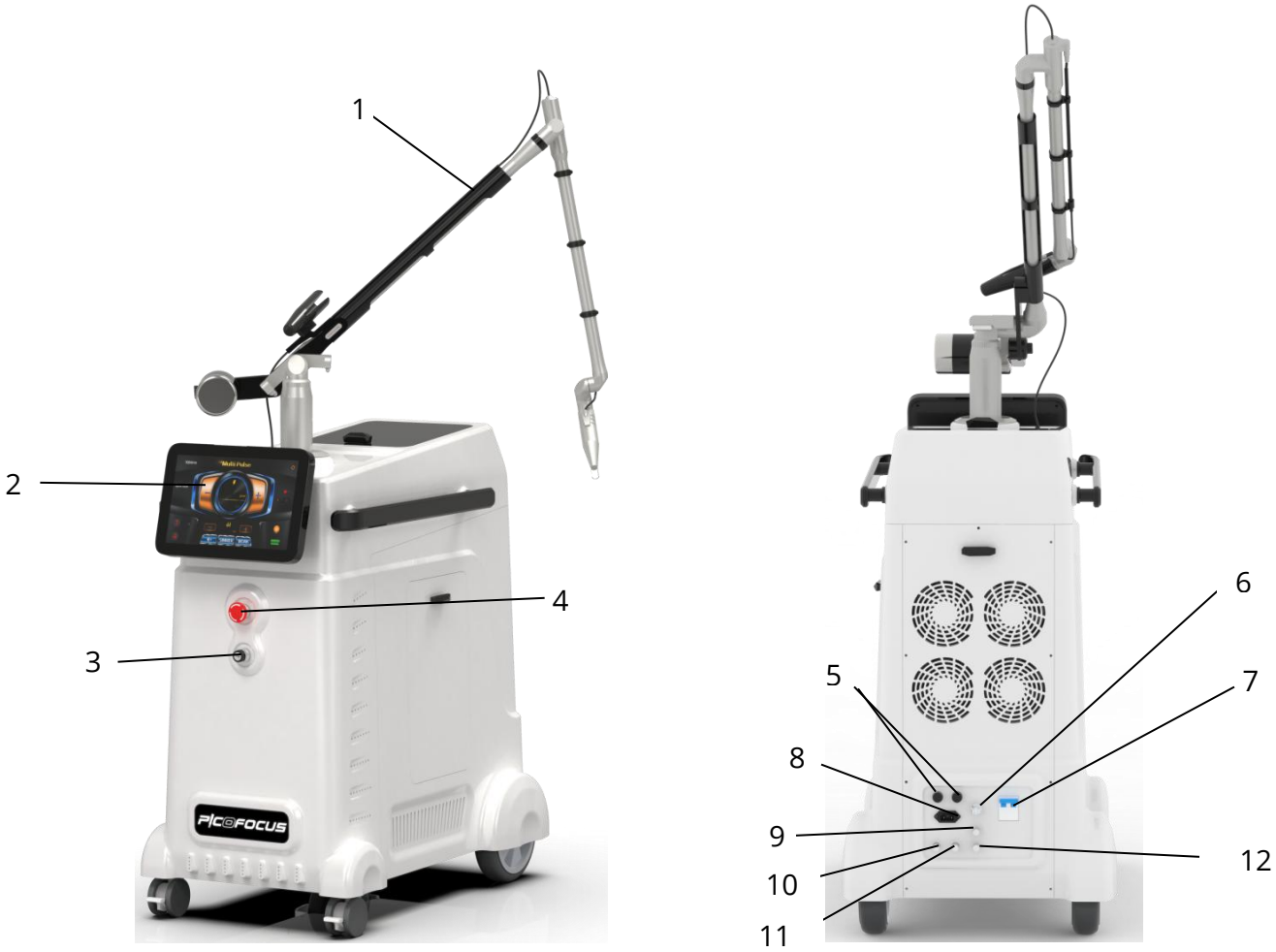
# Chapter 1 - Introduction of Picosecond Laser Machine

## 1.1 Treatment Principle

The Picosecond Laser delivers specific-wavelengths of light extremely quickly (in pico-seconds) and at a very high energy. These pulses are selectively absorbed by the pigment, shattering it into tiny fragments small enough for the body to recognise the particles as a foreign object, and over the next several weeks some of particles (in shallow cuticle) are discharged from the body and the other part (in deep tissue) are absorbed and digested by the body's macrophages and removed out of the body by the immune system. Since the specific wavelengths used can only be absorbed by pigment particles, usually no lasting injury happens to normal skin and normal tissues.

## 1.2 Device Structure

The Picosecond Laser machine structure consists of the following units:



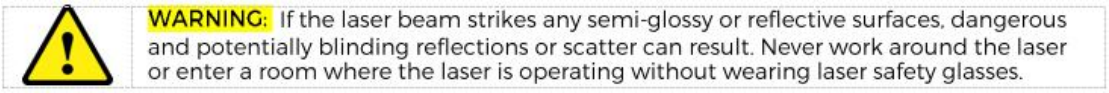

| | |
|---|---|
| 1. laser arm | 7. leakage protection |
| 2. touch screen | 8. power connector |
| 3. key switch | 9. pump exhaust |
| 4. emergency stop button | 10. water inlet |
| 5. fuse | 11. water outfall |
| 6. connector of pedal | 12. vent |

# Chapter 2 - Safety and Compliance

## 2.1 Client Safety

Client's safety mainly depends upon well-trained operators, client consultation, correct skin analysis and a suitable treatment room. The attending operators must inform the client of all the risks with the use of this device. Clients should be instructed to wear protective glasses or other tools (black out goggles, eye shield etc.) to protect the eyes during treatment.

## 2.2 Beam Reflection




To perform measurements to avoid reflections of the laser beam that may lead to assessment hazards, it is recommended that the following minimum measures should be taken:

◆Windows and shutters should be non-reflective, and may require fire protection when using higher power lasers.

◆Walls, ceilings and accessories should be painted with light-colored matte paint to enhance lighting and reduce specular reflections.

◆Avoid using reflective surfaces, such as cabinets with glass panels.

◆Make sure to cover any reflective surfaces when necessary.

◆Keep the optical trolley away from debris, take out jewelry, watches, etc.

The lighting in the operating room should be sufficient to allow the operator to observe the skin reaction and perform the operation. The high level of illumination will minimize pupil size and reduce the risk of stray laser light reaching the retina.

## 2.3 Safety Precautions


◆Please make sure to turn off the instrument when you clean the laser or the laser lens.

◆Never emit laser beams onto an area not to be treated.

◆The emergency cut off switch is used to shut down the device in case of any emergency. After engaging the emergency shut off button, turn the device off by rotating the key in a counter clockwise direction.

◆Rotating the emergency cut off switch in the direction indicated by the white arrows will release the button.

## 2.4 Electric Safety

To ensure safe use, the rated voltage of the operating system is 220V, the maximum input current is 10A or 110V, and the maximum input current is 15A. This machine is equipped with an automatic leakage protection device. When a leakage occurs, the machine will automatically cut off the protection system.

## 2.5 Fire Prevention

WARNING: High power lasers have a potential for igniting combustible materials.

◆The laser light device generates thermal energy. Avoid using combustible material such as acetone or alcohol near the device.

◆If alcohol based products are used to disinfect the laser device, ensure that the alcohol has completely evaporated prior to operation.

◆Flammable and explosive objects, anesthesia, drugs, alcohol, gas etc, should be removed from the laser treatment room.

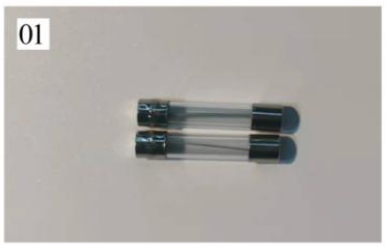
# Chapter 3 - Installation Procedure

The process of installation includes:

- ◆Unpacking the device and checking contents.
- ◆Assembly of its components and ensure that all connections are firmly in place.
- ◆Installation of Laser arm.
- ◆Fill the water tank with distilled water only.
- ◆Connect the power supply.
- ◆Switch on the device and test all functions / parameters of the system.

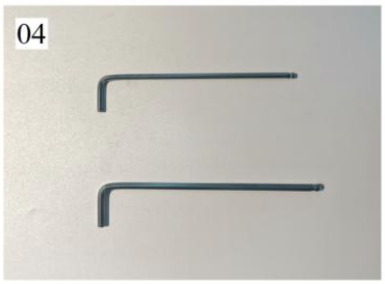
## 3.1 Accessories List

Unpack the unit, remove all packaging material, and examine for damages.
Do not proceed with installation if unit is damaged.

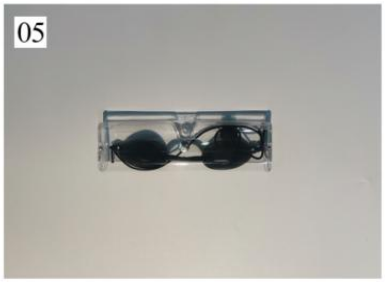




PICOSECOND
LASER MACHINE







| | |
|---|---|
| 1.Fuse | 5.Goggles |
| 2.Power cable | 6.Laser glasses |
| 3.Filters | 7.Funnel and tube |
| 4.Hex screwdriver | |

**IMPORTANAT ATTENTION:** Please keep all packaging for safe storage and in case of any warranty

returns or servicing.

It is forbidden to open the machine and tear down all the components without any authorization.

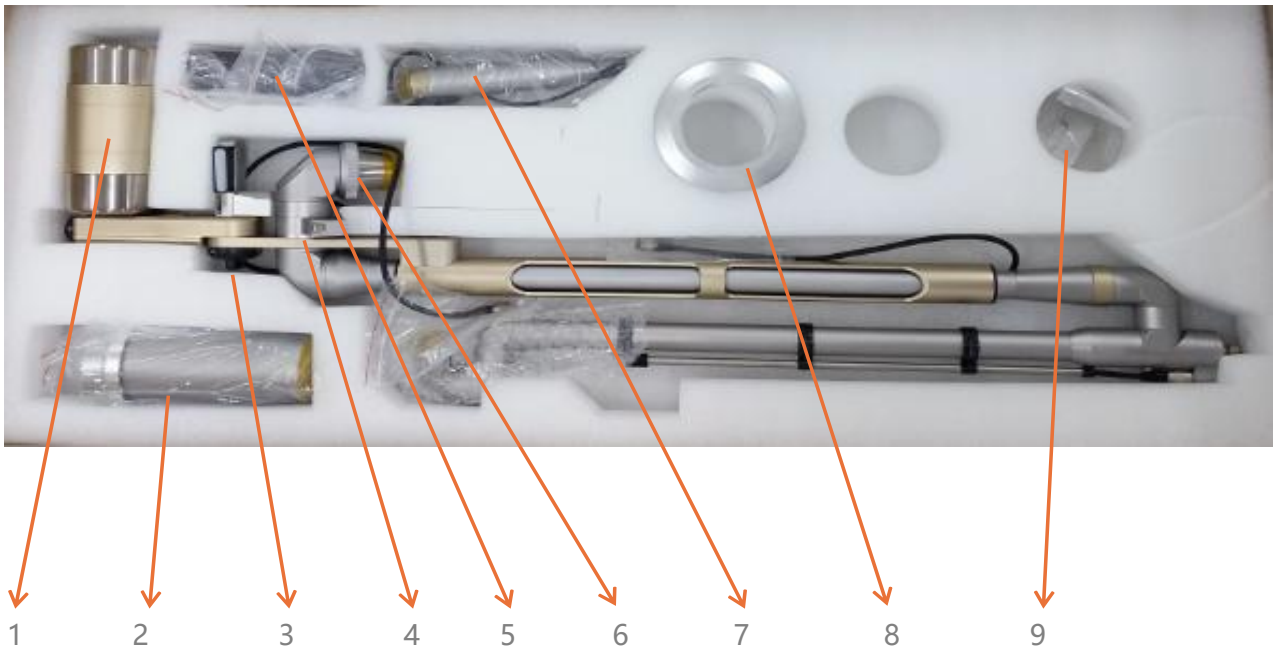
## 3.2 Installation Requirements

Place the equipment according to the requirements below:

- ◆Treatment Room Temperature: 10°C~30 °C
- ◆Relative humidity: ≤75%
- ◆Air pressure: 860-1060hpa
- ◆Power requirement: AC 220v±10%； 50Hz±2% ;
- ◆Water: Distilled water
- ◆Keep the fans and vents clear of any obstructions to maintain airflow and prevent overheating.

## 3.3 Installation of the Laser Guiding Arm

Below is a diagram of each component that makes up the complete guiding arm.

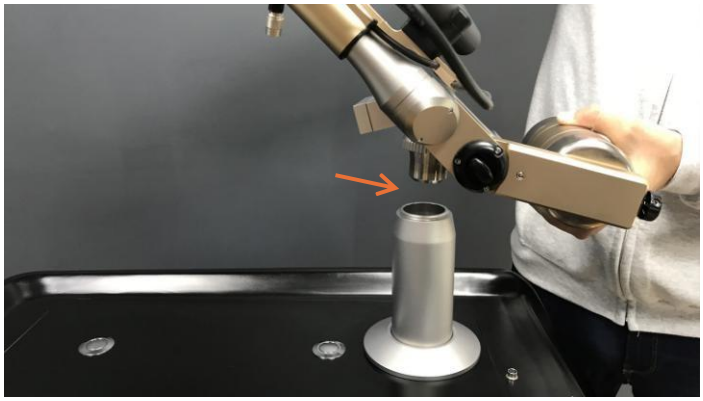



1. Bob-weight
2. Laser Entrance (Emitting Window)
3. Button for bob-weight adjustment
4. Main Joint Guiding arm
5. Handpiece Holder
6. Main Arm Connector
7. Handpiece
8. Locking Plate
9. Protector Plate

Below are picture by picture steps on installing the laser guiding arm:

**Step 1.** Screw laser entrance (2) into the machine

**Step 2.** Place locking plate (8) over the laser entrance and screw into place until tight



**Step 3.** Place Main Arm (4) into laser exit window at point

**Step 4.** Screw main arm locking plate (6) onto laser exit window

**Step 5.** Screw plastic handpiece holder (5) into main arm

**Step 6.** Screw handpiece (7) into guiding arm

**Step 7.** Connect handpiece cable into guiding arm

**Step 8.** Place handpiece into plastic holder

**Step 9.** Plug in cable at top of laser arm

**Step 10.** Plug in cable from main arm into machine

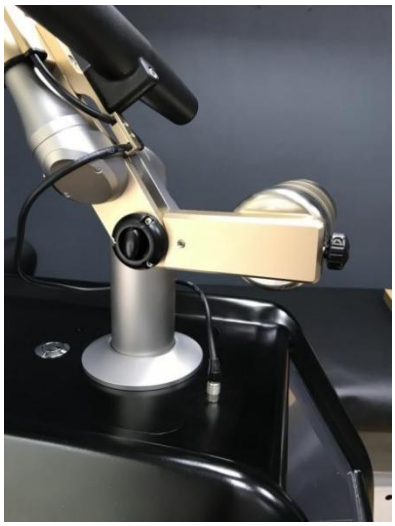
**Step 11.** Main Arm Protection Plate (9)

**Step 11.** This is where the Protection Plate (9) needs to be installed

**Step 11.** Picture once Protection Plate (9) is installed

**Step 12.** Bob-weight (1) starting position

**Step 12.** Twist button (3) and push in to adjust bob-weight position to 90°



**Step 12.** Bob-weight (1) finished position at 90° angle

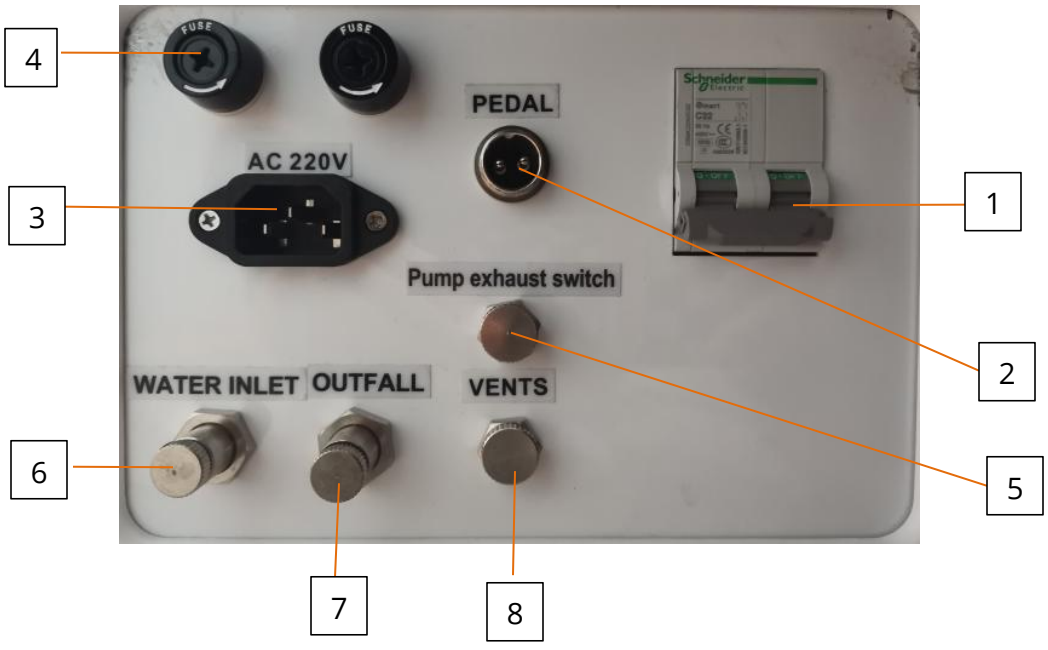
## Complete Laser Arm

## 3.4 Filling the Cooling Water Tank

CAUTION: Operating machine when the water tank has no water or has not enough water Is absolutely prohibited!

### 3.4.1 The overview of the machines' back

Picture of the back of the machine




1.Leakage protection. Main Power Switch.

2.Pedal switch socket. Foot pedal to operate machine.

3.Power supply socket. Mains cable goes into here.

4.Fuse. Avoid serious injury caused by internal failure of the machine.

5.Pump exhausted switch.

6.Water inlet. Attach hose onto inlet to fill machine with water.

7.Outfall. Water outlet, water comes out when emptying the machine.

8.Vents. Excess water comes out whilst filling up tank.

CAUTION: Only use distilled, de-ionised or pure water in this device, DO NOT use tap or bottled drinking water

We advise pure water, because normal water has scale, using normal water will result in:

- A risk of blocking the water pipe.
- Potential burn out of cavity.
- Weakening the power.
- Invalidate any warranty.

### 3.4.2 Procedure for injecting cooling water



**Step1.** Remove the screw caps of the water inlet and vent, and place a water container under the water outlet.


**Step2.** Connect the soft end of the water pipe to the water inlet and pour the water into the machine. Carefully pour distilled water into the funnel. Lift the funnel above the machine to facilitate filling.



**Step3.** Water will flow out of the vent. This means that the water injection has been completed and the water tank in the device is now full of water.

**Step4.** Tighten the vent and water inlet nut.

## 3.5 Install Foot Pedal



Connect foot pedal cable to rear of the machine and tighten the clockwise. Ensure the connection is firmly secure whilst being careful not to over tighten.

## 3.6 Connect Power Supply


Connect one end of the mains lead to the rear of the machine, and insert the plug into the mains outlet.

### 3.7 Leakage Protection


**OFF**


**ON**

After the mains lead is connected, flick the Leakage protection upwards and the machine is now ready for use.

**NOTICE:** Once the machine is turned on allow the water to properly circulate for 5 minutes before entering precombustion mode.

# Chapter 4- Operational Procedure

## 4.1 Requirement for Operators

◆The operator should be aware of the expertise required to use a medical laser, should be trained to meet local and national laws and adhere to best practice for the country the machine will be used in.

◆Complete Core of Knowledge Training

◆Have full insurance that covers Public Liability, Contents and Treatment Risk insurance.

## 4.2 Safe Operation

Make sure the operation room is clear when operating the equipment.

◆Operators must wear white or light coloured work clothes in order to reduce radiation to body.

◆The illumination in the operating room should be sufficient, so that the operator can observe skin reaction and perform the operation.

◆Have correct signage when laser is in use.

◆Don't use any reflective surfaces while you use the laser machine.

◆The operator must carry out a full consultation before any laser treatment and be informed about any diseases and symptoms of the clients and tell them the possible normal responses during and after operation.

◆Operators must keep the laser beam away from non-treated areas.

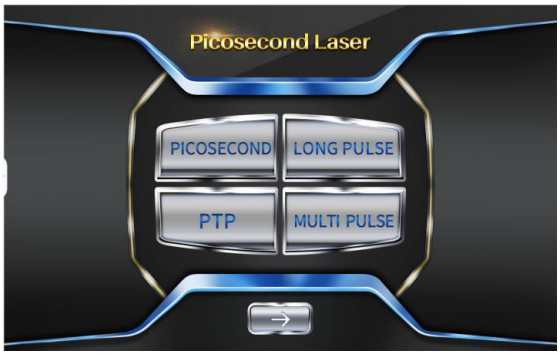
◆Operators must make sure the clients eyes are properly protected with the correct goggles/glasses for the specific treatment wavelength being used for treatment.

## 4.3 Examination

Examine to make sure the equipment is installed according to the installation instructions and requirements. Check the water level is normal and the working environment is suitable.

## 4.4 Specific Functions

There are four modes with different functions.



**PICOSECOND** 


This mode is the most commonly used mode and can be applied to most of the spots, birthmarks or tattoos, and it can also do the skin rejuvenation treatment.

**LONG PULSE** 


The pulse duration of 300μs makes the laser stay in the dermis of the skin for a longer time, and provides heat fiber cells, collagen energy to induce remodeling, increase elasticity and improve skin texture.

*Main functions of long pulse mode:*

Heating dermal cells
Promote the rapid rebuilding of collagen
Skin beautification, firming, whitening, shrinking pores
Remove fine wrinkles
Use toner to control oil and acne
Remove small red blood streaks

**PTP (Photoacoustic Twin Pulse)** 


The fast double-pulse PTP technology optimizes and divides the traditional single pulse into twin pulses with an interval of 80us. Each sub-pulse has a relatively weak peak energy compared with the standard single pulse. However, the double pulses are continuously irradiated at short intervals, and the energy is coordinated to accumulate, achieving a higher peak energy targeted to the melanosome than a single pulse. The PTP technology greatly reduces the peak power of the single pulse laser, to a certain extent. The photoacoustic effect of the laser reduces the possibility of potential side effects of single-pulse intense photothermal effect, and theoretically better interprets the therapeutic principle of subselective photothermal effect.

*Main functions of PTP mode:* Deep spot; Chloasma.

**MULTI PULSE** 


Mainly used for chloasma.

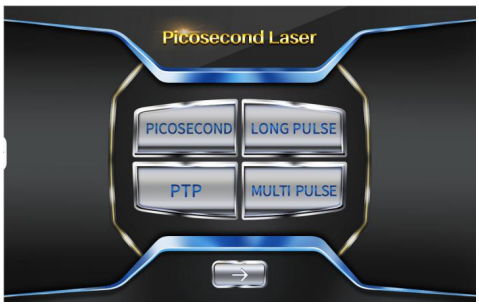
The first domestic laser to achieve three consecutive pulse output, which greatly improves the treatment efficiency of stubborn pigments such as melasma, improves the treatment effect and fully guarantees the treatment safety.

The function of this mode is basically the same as that of PTP mode, but there are three more pulses than PTP. Therefore, this model is more targeted for the treatment of chloasma, and the effect is better.

## 4.5 Interface Operation

After turning on the machine, you will see the following operation interfaces(Pic1).

(Pic1)



(Pic2)

Click the  button of welcome interface (Pic 1) to enter next interface of 4 treatment modes(Pic 2). Choose the treatment mode which you would like to use, and set the treatment parameters(relevant parameters please refer to 4.6).

### 4.5.1 PICOSECOND mode

Click 

to enter Picosecond Mode interface, there are two modes: AUTOMATIC MODE and MANUAL MODE.(Pic3).

(Pic3)

Click AUTOMATIC MODE or MANUAL MODE according to customer needs, if you choose AUTOMATIC MODE, then you will see the interface like (Pic4&Pic5), the default values of 11 common treatment items included in the system are convenient for customers to use. You can select the corresponding mode according to the customer's symptoms, enter the appropriate parameters, and then start treatment.

(Pic4)

(Pic5)

If you choose MANUAL MODE, you will see the following interface(Pic6&Pic7)

(Pic6)

(Pic7)

This mode equipped with two wavelengths:1064nm&532nm. Touch arrows  to choose 1064nm or 532nm wavelength.

This is the infrared indicator,  you can switch this button to choose whether to turn on the infrared indicator.

In the 1064nm wavelength or 532nm wavelength screen, the graph in the middle of the screen displays energy. Touch the signs  to adjust the energy. It is measured in units of millijoules (mj) and joules per square centimeter (J/cm²), and is commonly referred to as flux. The maximum power of 1064nm wavelength is 800mj, and the maximum power of 532nm wavelength is 400mj.

The middle part under the energy is the frequency setting (the number of transmissions per second, press the signs  to adjust the frequency. And the frequency is adjustable from 1-10hz.

### 4.5.2 LONG PULSE mode

This mode only equipped with 1064nm, and the interface as follow(Pic8):

(Pic8)

This is the infrared indicator,  you can switch this button to choose whether to turn on the infrared indicator.

The graph in the middle of the screen displays energy. Touch the signs  to adjust the energy. It is measured in units of millijoules (mj) and joules per square centimeter (J/cm²), and is commonly referred to as flux. The maximum power of 1064nm wavelength is 1500mj.

The middle part under the energy is the frequency setting (the number of transmissions per second, press

the signs  to adjust the frequency. And the frequency is adjustable from 1-10hz.

### 4.5.3 PTP mode

When you select the PTP Mode, there are also two wavelengths that you can choose, like the following(Pic9&Pic10):

(Pic9)

(Pic10)

This mode also has two wavelengths: 1064nm & 532nm. Touch the arrow  to select 1064nm or 532nm wavelength.

This is the infrared indicator,  you can switch this button to choose whether to turn on the infrared indicator.

In the 1064nm wavelength or 532nm wavelength screen, the graph in the middle of the screen displays energy. Touch the sign  to adjust the energy. It is measured in millijoules (mj) and joules per square centimeter (J/cm²), and is commonly referred to as flux. The maximum power of 1064nm wavelength is 1200mj, and the maximum power of 532nm wavelength is 600mj.

The middle part under the energy is the frequency setting (the number of transmissions per second, adjust the frequency according to the symbol  . The frequency is adjustable between 1-10hz.

### 4.5.4 MULTI PULSE mode

If you choose the Multi Pulse Mode, and you will see the following interface(Pic11&Pic12).

(Pic11)

(Pic12)

This mode is also equipped with two wavelengths:1064nm&532nm. Touch arrows  to choose 1064nm or 532nm wavelength.

This is the infrared indicator,  you can switch this button to choose whether to turn on the infrared indicator.

In the 1064nm wavelength or 532nm wavelength screen, the graph in the middle of the screen displays energy. Touch the signs  to adjust the energy. It is measured in units of millijoules (mj) and joules per square centimeter (J/cm²), and is commonly referred to as flux. The maximum power of 1064nm wavelength is 1500mj, and the maximum power of 532nm wavelength is 800mj.

The middle part under the energy is the frequency setting (the number of transmissions per second, press the signs  to adjust the frequency. And the frequency is adjustable from 1-10hz.

**NOTICE:** After setting all the treatment parameters, press the standby button to enter the precombustion mode. Standby will light up in blue. The light indicator will light up in orange. Press the ready button, then it will turn blue and the power button will light up green.

Both can be seen below:


The treatment spot size ranges from 2-10mm. The spot size selected will depend on the type of treatment. The size of the light spot on the handpice can be changed by pushing up and twisting. Changing the spot size will change the fluence energy level (J/cm²).

When machine is not in operation and you need to pause the machine you should first loosen the foot pedal and press  to change to  .

Alternatively you press the red “Emergency Switch” directly. The machine will be in safe condition, either option will stop the output of the laser light if the foot pedal is pressed down.

If you need to continue to operate the machine, press  to change to  .

Then press the foot pedal and the machine will operate again. Lift the emergency switch if it was pressed.

Water temperature:  Displays interval water temperature.

Water circulation:  Shows water circulation speed. If it has problem will show warning on Interface.

## 4.6 Treatment Operation

### Step1. Preparation of the treatment

◆Fully communicate with customer. Understanding the guest's needs, physical condition (whether there are injections, whether skin care products containing hormones are used, whether they have been exposed to

the sun recently), take photos, and fill in customer information files.

◆Check if the instrument is working properly, clean the lens before treatment.

◆Explain to clients how they might feel during treatment.

### Step2. Clean the skin and wear goggles for guest

◆Clean the treatment area with towel and the saline, make sure that there is no make up on the surface.

◆Wear the goggles for the guest.

### Step3. Turn on the machine and begin the treatment

◆Turn on the machine and select the mode you need and adjust the parameter. Adjust instrument parameters according to the treatment item. The following picture shows the suggested parameters for the different kinds of freckle.

| Type | Energy (MJ) | Frequency (Hz) | Spot size (mm) | Wavelength (nm) | Treatment distance | Interval (days) | Course of treatment (times) |
|---|---|---|---|---|---|---|---|
| Tattoos, eyebrows | 600-1000 | 1-3 | 5-8 | 1064 | 1-3 | 45-60 | 4-6 |
| | 100 | 1-2 | 5-7 | 532 | 1-3 | 45-60 | 3-5 |
| Rejuvenation | 700-1200 | 6-8 | 7-10 | 1064 | 1-3 | 30 | 10 |
| Freckle | 300-600 | 1-7 | 2-4 | 1064 | 1-2 | 30-40 | 1-4 |
| | 200 | 1-2 | 4-6 | 532 | Handle close to the skin | 45-60 | 2-4 |
| Coffee spot | 300-600 | 1-7 | 3-5 | 1064 | 1-2 | 45-60 | 3-4 |
| | 200 | 1-2 | 4-6 | 532 | Handle close to the skin | 45-60 | 3-4 |
| Seborrheic keratosis | 300-600 | 1-7 | 2-4 | 1064 | 1-2 | 30-45 | 2-4 |
| | 200-300 | 1-2 | 4-6 | 532 | Handle close to the skin | 45-60 | 2-4 |
| Sun spots | 300-600 | 1-7 | 4-6 | 1064 | 1-2 | 30-40 | 2-4 |
| Nevus fuscocaeruleus zygomaticus | 400-600 | 1-7 | 4-5 | 1064 | 1-2 | 60-90 | 4-5 |
| Nevus of Ota | 200-600 | 1-7 | 3-6 | 1064 | 1-2 | 60-90 | 5-7 |
| Nevus of Ito | 400-600 | 1-7 | 3-5 | 1064 | 1-2 | 40-60 | 4-6 |
| Mongolian spot | 400-600 | 1-7 | 3-5 | 1064 | 1-2 | 40-60 | 4-6 |
| Chloasma | 300-600 | 1-7 | 6-8 | 1064 | 1-2 | 10-15 | 5-10 |
| Pigmentation | 300-600 | 1-7 | 6-8 | 1064 | 1-2 | 10-15 | 5-10 |

◆Click the simmer button and then click the work button, then begin the treatment.

# Chapter 5 - The Operation of Laser Instrument

## 5.1 Client Consultation

Before any treatment, a thorough consultation and skin test must be carried out.

Consult privately and make the client feel comfortable. The consultation will enable you to determine whether the client is suitable for laser treatment. When consulting a client, you must explain all the points in this chapter.

During the consultation, you need to cover the following points and create a client profile to update in future appointments:

1. Complete skin type table
2. Obtain personal customer information
3. Complete medical records to determine whether the client is suitable for treatment
4. Spots or tattoo details
5. Explain how the removal process works
6. Matters affecting removal of spots or tattoos
7. Treat pain and side effects
8. Adverse reactions
9. Post-treatment care
10. Pre-treatment recommendations for future appointments
11. Consent
12. Treatment history

## 5.2 Adverse Reaction

Since different people have different reactions to laser removal of spots or tattoos, it is important for customers to pay attention to skin changes after treatment. It is normal for scabs, blisters, scabs, and swelling to appear within two weeks.

However, if they have any extreme reactions or experience any of the following symptoms, they must seek medical attention immediately:

- Persistent pain will not go away with over-the-counter pain medication.
- The treated area looks infected (yellow or honey-colored exudate and scabs)
- Fever exceeds 100°F.
- If the treated area becomes excessively swollen
- Excessive bleeding or any drainage.

## 5.3 Treatment Notice

### 5.3.1 About treatment

**Before treatment**

◆Fully communicate with customers, understand their needs, physical conditions (whether) there are injections, whether skin care products containing hormones are used, whether they have been exposed to the sun recently), take photos, and fill in customer information files.

◆Check whether the instrument is working properly and clean the lens before treatment.

◆Explain the feelings during treatment.

**In treatment**

◆Wear goggles. The laser light outlet can never be aimed at people's eyes.

◆The treatment handle should be perpendicular to the skin, and the same position operation cannot be repeated more than 3 times.

◆When stopping the treatment, first release the pedal and then remove the treatment head.

◆Soothing while treating, always observe the skin reaction of the guests, and adjust the treatment parameters in time.

**After treatment**

◆Apply repair products to remove redness and repair in time.

◆Explain the precautions after treatment and make an appointment for the next treatment time.

◆Turn off the instrument and record the parameters used by the guests.

### 5.3.2 Precautions before and after treatment

◆Do not expose to the sun within two weeks before and after treatment.

◆Do not use hormone products or functional skin care products within six months before and after treatment.

◆Do not use hot water in the treatment area on the day after treatment, or bathe in hot springs and saunas, and clean with warm or cold water.

◆Do not eat spicy foods, seafood, photosensitive foods, foods rich in B copper ions within one week after treatment.

◆After the treatment, local redness and swelling appear, apply a week of moisturizing and repairing mask after ice application in time.

◆Melanin metabolism will accelerate after treatment, and melanin is more active, so you must pay attention to sun protection.

◆If there is scab formation after treatment, be sure to allow the scab to fall off naturally to avoid leaving pigmentation.

◆Some guests will have some white pimples after the first treatment. This is an inflammatory reaction of the skin, and it can be recovered by applying the mask for three consecutive days.

### 5.3.3 Other things to know

The following are tips for the operator in the process of removing spots or tattoos:

◆If the client has not done this before, please shave the treatment area before starting the laser treatment.

◆Clean the treatment area, but the treatment area must be dry, otherwise it will affect the treatment.

◆Take pictures before and after each treatment for reference.

◆For tattoo removal, we recommend that you deal with large tattoos bit by bit in a separate treatment to avoid causing too much discomfort to the client. If you process too much at one time, your body may not be able to effectively remove ink fragments. You can also help build customer confidence by looking at the comparison before and after treatment.

◆Use lower energy in areas with thinner bones and skin.

◆The treatment time is usually no more than 30 minutes, including all paperwork and photos.

◆We recommend that customers wait 6-8 weeks between meetings.

◆Because of the more pigment, the effect of removing spots or tattoos in the first few treatments will be more obvious.

◆The digestion and transport function of macrophages can last a long time, during which the color will become lighter, sometimes as long as a year.

### 5.3.4 Taboo Crowd

◆Do not take this treatment during pregnancy.

◆Do not do the skin that has been exposed to the sun within two weeks.

◆People who are using hormones and functional skin care products are advised not to do photoelectric therapy.

◆Severe heart disease, high blood pressure, diabetes and other immune system diseases should not be done.

◆Don't do it during sensitive skin period. Avoid the wound. Avoid skin diseases such as eczema and urticaria.

◆Those who have been slightly filled and those with silicone parts cannot be treated with this treatment. The rest will be filled after three months.

◆Cautious operation of scar physique.

◆People who are photosensitive can't do it.

◆Those who have had gold wire implants all over the face are not allowed to do it on the face.

# Chapter 6 - Operation Skill and Technique

## 6.1 Demands Before Operation

◆Must adhere to all points set out in this User Manual.

◆Before each treatment, the user must check the functional performance of the device in order to avoid any risk of harm to patients or other persons. If the device is used together with peripheral units such as an air cooling device, the User Manuals for the peripheral units must also be read thoroughly and understood.

◆Operators should complete a consultation and build a client file.

## 6.2 Adjusting the Spot Size

The spot size can be adjusted by selecting on the handpiece as the pictures below show:


Hold section 1 and push upwards

Twist left or right to select desired spot size

## 6.3 Machine Information to Remember During Sessions

◆You must stop the machine if the accumulated number of shots fired during a sessions runs up to 10000 as it may become too hot. Change the state from “READY” to “STANDBY”. Leave for 10 minutes to allow the machine to cool down and then it can be started again.

◆When you want to turn the machine off, you should change working state form “READY” to “STANDBY” and wait for 3 minutes, and then turn the key switch.

◆Don’t turn the machine on and off frequently, make sure you leave interval of at least 2 minutes.

**Considerations:**

In the actual operation, conditions vary with each individual; the following points need to be considered when selecting the energy:

◆The skin type and thickness

◆Area of the body

- Spot or tattoo age
- Concentration and color of pigments for spots or tattoos

**Size of treatment area**

If the treatment area is large, the treatment may cause discomfort to the client and cause excessive trauma to the skin, resulting in local edema, blisters and exudates. If the treatment area is too large in one course of treatment, the body may not be effective in eliminating pigments. So when you deal with larger tattoos or spots, one by one will have a better treatment effect.

It is recommended to use a staggered treatment process, dividing the spots or tattoos into treatable parts, and treating them at 2-3 weeks intervals. You can also help build customer confidence by looking at the comparison before and after treatment.

**NOTICE:** If the customer requires partial removal, you can choose a smaller spot size for better accuracy, until the spots or tattoos fade enough to increase.

**NOTICE:** Dark skin types should use low-flux energy with a large spot size. Darker skin contains pigments that can absorb laser light, so it will increase the chance of pigmentation marks, such as underpigmentation or hyperpigmentation.

# Chapter 7 - Maintenance of Laser Instrument

For assuring a safe and reliable operation, periodic maintenance and good care are very important. This section describes daily and other regular maintenance of the Laser treatment system that can carried out by the operator.

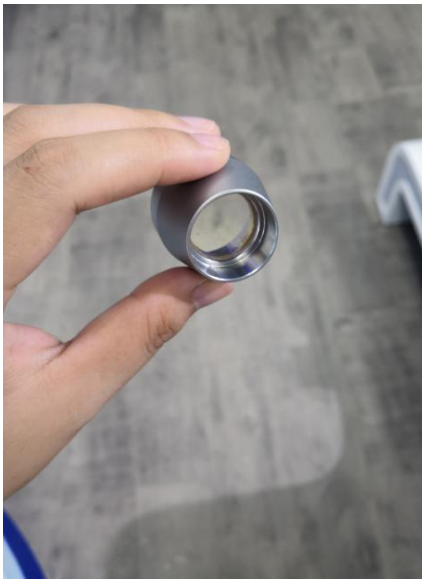
## 7.1 General Cleaning

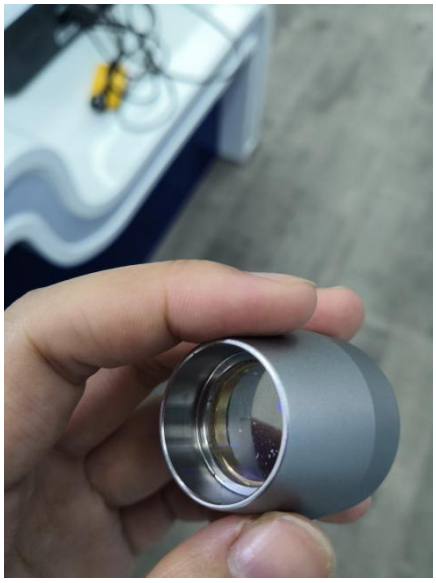
Clean the outer part of the equipment regularly with soft damp cloth or microfibre cloth. You may also use a neutral detergent, and alcohol free wipes. You should clean the lens regularly after use. The spatter of pigment and tissue may splash into the lens during the treatment period. This could influence the consistency of the light. Below is the process on cleaning the lens:

**Step1.**Remove laser guiding arm from plastic holder, but do not allow any liquid to seep into the machine.

**Step2.**Screw the last 2 connections down and separate them like this:

**Step3.**Pull out the last connection like below:





**Step4.**Clean the output lens with anhydrous alcohol and a cotton swab. Only clean the outside lens as this is where the pigment/carbon/dirt build up will be. Wait 3 minutes after cleaning and let the alcohol 100% dry, you can then resume operation.

You should clean the output lens once a week or when required such as during and after Carbon facial as there may be a carbon build up on the lens after treatment.

The output lens should always be free of dirt and attachment.

**Warning !**

**It is strictly prohibited to check and clean output lens during machine open!**

### 7.2 Regular Cooling Water Changes Are Required

The frequency of water change depends on the usage:

◆If the machine runs every day, the water should be replaced every 2/3 months.

◆If the machine runs once or twice a week, the water should be changed every 6 months.

◆No matter whether the machine is used or not, the cooling water must be replaced once a year.

See Chapter 3 for instructions on adding and removing water. After changing the water, you must allow the water to circulate normally for 5 minutes.

If the temperature in the treatment room (where the laser machine is located) is lower than 2°C, all cooling water in the laser device must be drained and replaced with new cooling water.

**PLEASE NOTE:** Only use distilled, de-ionised or pure water in this device. Bottled or tap water is not suitable to use, as the impurities in the water will cause scale build up which will affect the normal workings of the device and cause irreparable damage which will void any warranty.

### 7.3 Transport, Storage and Moving

◆Minimize transportation, because the risk of damage to the equipment is greater.

◆When moving or storing, please keep and use the original packaging.

◆If you move to another treatment room, please keep the equipment level when moving.

◆Do not shake or knock the device. The mirror of the laser guide arm may be misaligned.

◆The internal calibration of the laser cavity is very accurate, and it is easily affected by excessive force.

Be careful when storing and using, taking care to avoid knocks, collisions, squeezing and vibration. And the machine needs to be reset after each use and stored in dust proof.

◆The main technical parameters and technical requirements shall be calibrated and measured according to the following procedures, and the verification period shall not exceed 1 year.

◆When the environmental temperature of the instrument changes greatly, the power of laser blasting is weakened, the heating effect is strengthened, the test paper smokes, and the sound is full. The electro-optical switch should be adjusted by professional and technical personnel.

◆When the laser output value on the working surface deviates by plus or minus 20% from the preset value, professional response to instrument calibration and debugging. If a malfunction occurs during use, the user is not allowed to disassemble or replace the instrument and equipment at will, and should contact the dealer in time, and the company will send professional personnel to repair it.

◆ Before long-distance transportation, the cooling water in the water tank should be drained. When moving or storing, keep and use the original packaging. Don't move the device unless necessary. If you move to another treatment room, keep the equipment level when you carry it.

◆Avoid machine moisture condensation; ensure the safety and service life of the machine.

◆ 220V/110V, 2000W voltage stabilizer should be installed to prevent voltage instability and pulse interference from causing damage to the machine.

◆Before starting the machine, please make sure that the air-cooling and water-cooling systems are working properly.

◆The machine should be placed in a room with a temperature higher than 20ºC, and stay for at least 6 hours before use.

## 7.4 Troubleshooting Guide

This section outlines the most basic troubleshooting steps for the PICOSECOND LASER MACHINE.

### 7.4.1 The machine will not start

◆Check the power supply has electricity and the attaching plugs are securely inserted both ends and socket is switched on.

◆Check the red emergency button is released.

◆Check key is in correct position.

◆Examine fuse and replace if necessary.

### 7.4.2 The water cycle is abnormal when you start the machine

◆Check the water level, if there is not enough water inside to cycle properly this will trigger the water level cut- out switch.

◆Replace the cooling water inside as per instructions.

### 7.4.3 There is no laser beam output when you press the pedal

◆Check that the machine is in the correct working state.

◆Check the pedal, cable and connecting plug for damage, if any part is damaged contact us for a replacement.

◆Check the ready key is pressed.

### 7.4.4 The energy becomes weak or there is no light that comes out

◆Any impurities adhered to the treatment lens will lead to blocking the light, please check the lens. If there is any pigmentation, dirt or dust etc.; clean as directed.

◆You must stop working and not use the machine in 30 minutes if the apparatus has overheated.

◆Examine the optical lens to see if it is damaged.

### 7.4.5 You may get an electric shock when you touch the machine

◆You should use the three grounding plugs and the electrical outlet must be correctly earthed.

◆The voltage is unstable, you should introduce a voltage stabilizer.

### 7.4.6 There is no noise when you press the preheating key.

◆Please raise the temperature appropriately if indoor temperature is too low. You can install air conditioning.

◆The fans are broken or the fans have friction with other parts. Please change a new fan or clear the fans

obstruction.

- The indoor humidity is too high, keep the room dry.

## Contact Us

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