

# GENTLEMAX PRO

# USER MANUAL

*Alexandrite Long Pulse Laser 755nm*  
**GENTAL MAX PRO**



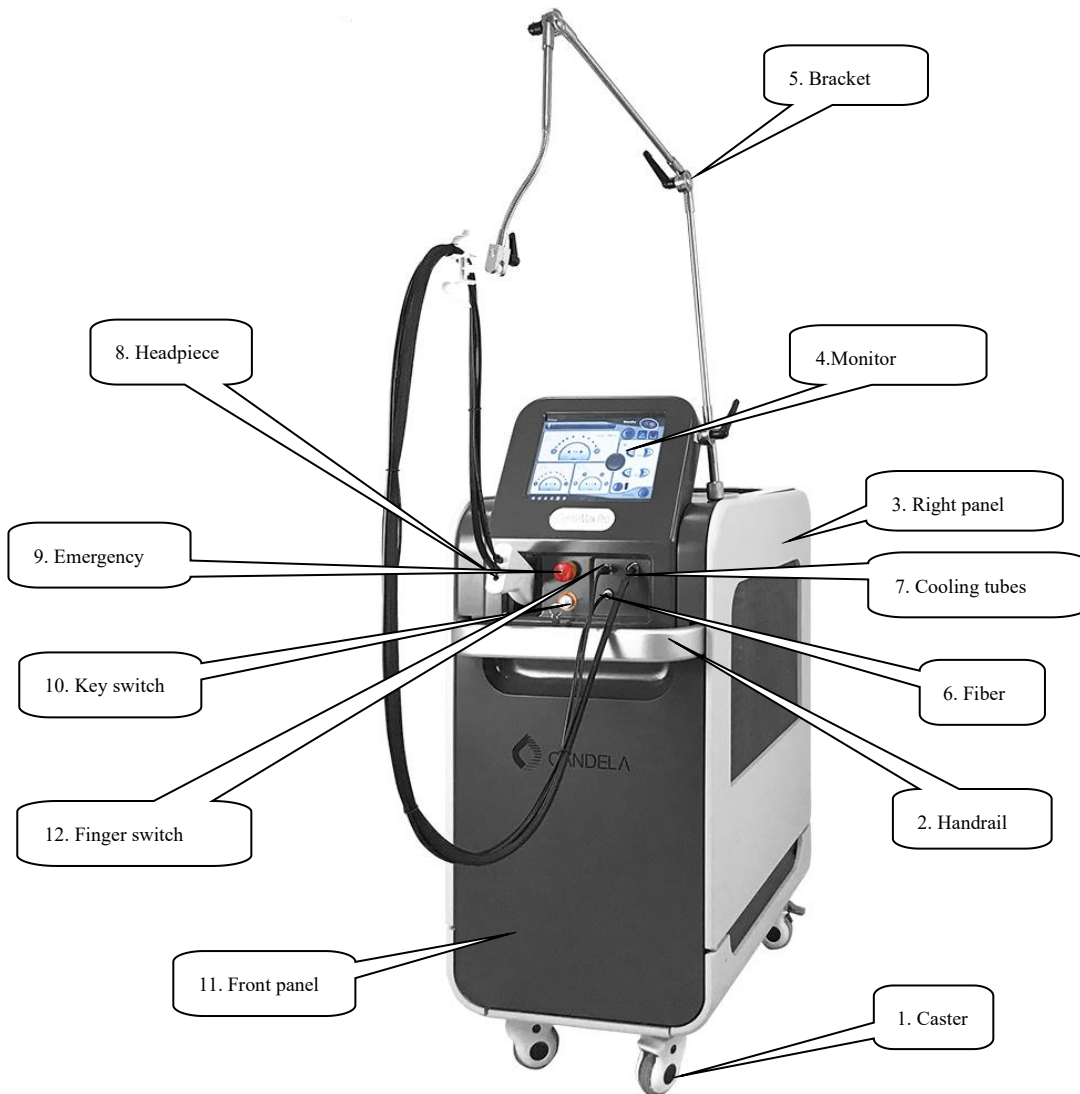
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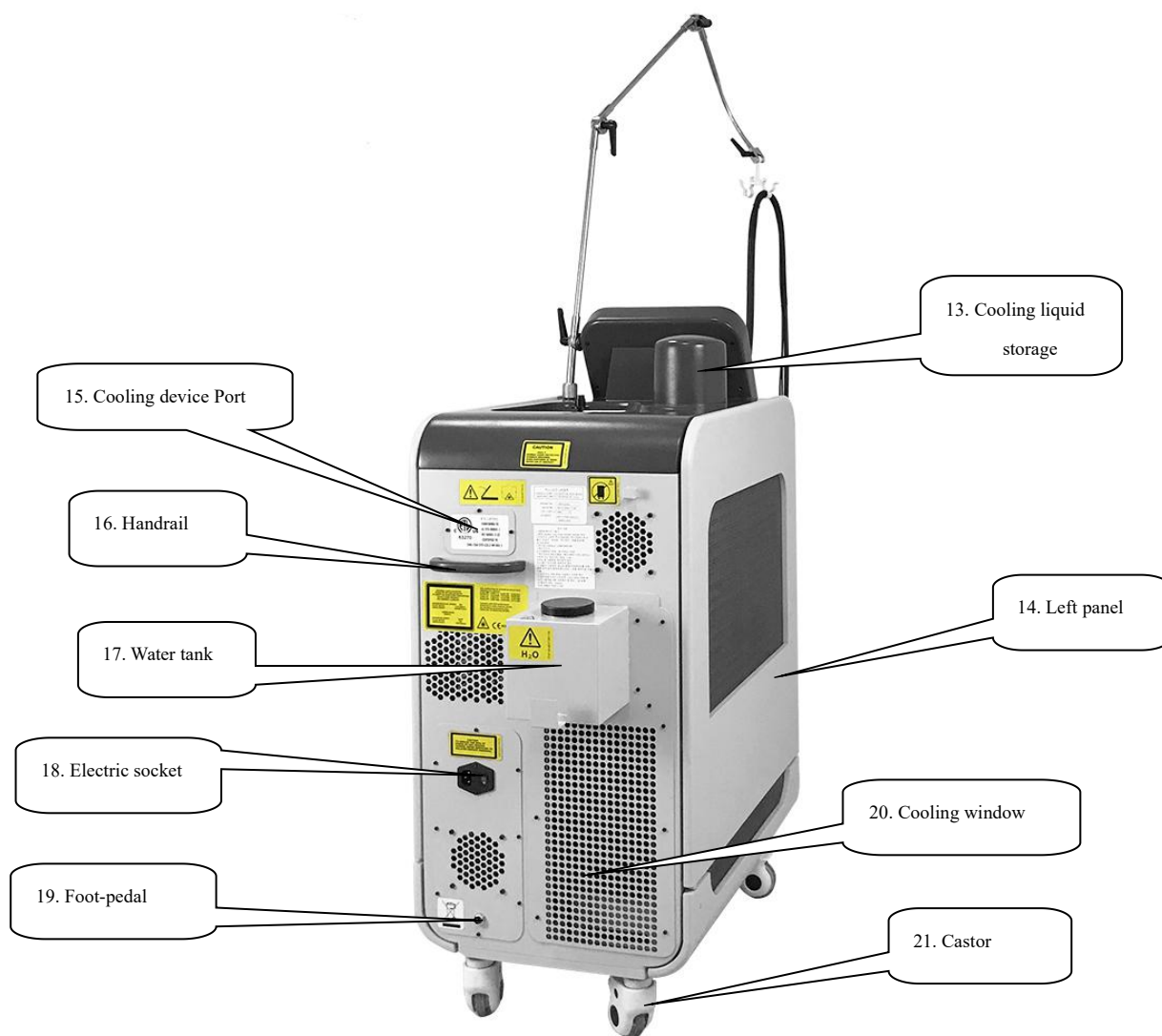
# 1. Appearance & Components

## 1.1 Appearance & Components



(Noted : This photo is only considered as a reference; please reply with the real laser which may has differences at some details from the photo showed above. )






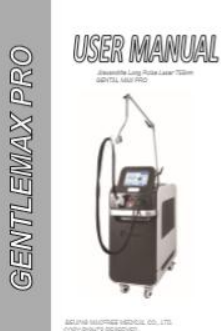

- 1. Caster : to support and transport the equipment.
- 2. Handrail: to move the equipment.
- 3. Right panel.
- 4. Monitor: to operation by software.
- 5. Bracket: to catch the headpiece.
- 6. Fiber: to conduct laser energy.
- 7. Cooling tubes: to hold t the wires and cooling tubes.
- 8. Headpiece: headpiece for treatment.
- 9. Emergency: to stop for emergency.
- 10. Key switch: to switch on the laser.
- 11. Front panel.
- 12. Finger switch.



- 13. Cooling liquid storage : to store the cooling liquid
- 14. Left panel.
- 15. Cooling device port: to connect a separate cooling device for skin.
- 16. Handrail.
- 17. Water tank: to store the cooling water for laser chamber.
- 18. Electric socket: to plug in power supply.
- 19. Foot-pedal: to connect a foot-pedal.
- 20. Cooling window.
- 21. Castor.

1.2 Packing list

		
<b>Laser bodyX1</b>		
		
<b>Headpiece with cold wind cooling, spot-size 6-18mm</b>		
		
<b>Electric cableX1</b>	<b>Foot switchX1</b>	<b>Water chanelX1</b>
		
<b>KeysX2</b>	<b>GogglesX1</b>	<b>Eye-patchX1</b>

			
<p><b>Ring rubber X3</b></p>	<p><b>FuseX2 Screw X1</b></p>		
			
<p><b>Qualified certificateX1</b></p>	<p><b>Packing listX1</b></p>	<p><b>Warranty cardX1</b></p>	<p><b>User manualX1</b></p>
			
<p><b>Separate Skin Cooling Device (only for optional)</b></p>			

## 2. Safety

This article shows the details of safety when operation. The operator and technician must be certified after professional training of safety, know well the requirements of safety and steps to operate the laser.

### 2.1 Electric safety

- 1 . Make sure the voltage of laser requiring will be adapted by local electricity supply.
2. 10 minutes after switching off and plug off the cable, only the maintenance can be started. No leave the laser without anyone taking care of by power on, or else injure will be happened to human or laser itself.
3. Ensure that all the operators and their assistants know how to operate the laser and know well how to switch off laser when emergency.
4. There is high voltage inside the laser, only qualified technicians or workers from Macfree can repair of maintain the laser.
5. The laser connects earth with a wire of yellow and green color, photo A. Fine earth connection is very important.



(Different regions may have a different style electric plug, above photo only can be reference.)

### 2.2 Optical safety

1. Laser headpiece is of high energy output, no look at directly without any protection.
2. Ensure the operating room is no mirrors or any articles which can function as a mirror to reflect the laser.
3. Ensure that all the operators and assistants know well the knowledge of optical safety.
4. Ensure that all the operators and assistants and workers are protected well by goggles, and the patients are wearing the eye-patch.
5. As the high laser peak power and density, operation error will damage the skin.
6. Laser 1064nm is invisible; the eyes will be blanked forever if wrongly shooing into.
7. Laser 755nm is visible red, and the eyes will be blanked forever if wrongly

shooting into. Also, staring for long while, discomfort will be caused.

8. Laser definitely cannot shoot at eyes even goggles and eye-patch are well wearing.

9. The remarkable area should plant a label plate “ Caution of Laser”

### 2.3 Safety Labels

#### 1. Product plate

Displays the product name, model no., and serial no., and voltage/frequency input and the date of manufacture

<b>PULSED LASER</b> CANDELA CORP., 530 BOSTON POST ROAD WAYLAND, MA 01778 MADE IN U.S.A.	
Model No.	GENTLEYAG
Serial No.	9914-0950-1736
220-230V $\sphericalangle$	3680 W
50-60HZ	Date of Manufacture
	MARCH 2019

#### 2.

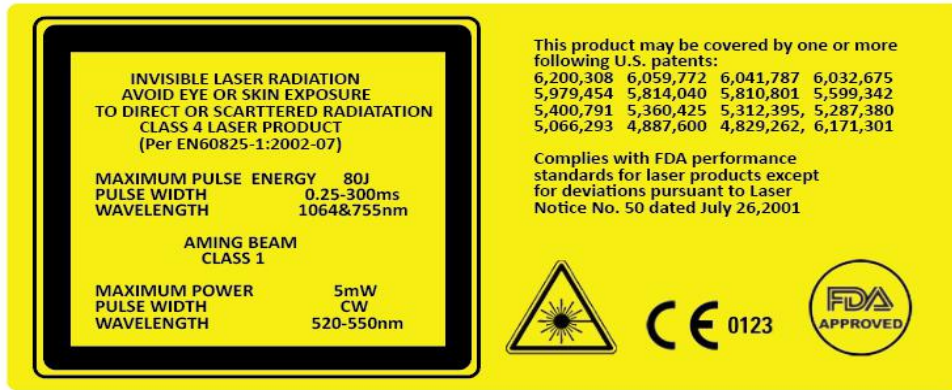


Laser label.

#### 3. ETL LISTED label



4. Invisible laser radiation, avoid eye or skin exposure, and the U.S. patents the product covered.



5. Water tank label



6. Hot water label



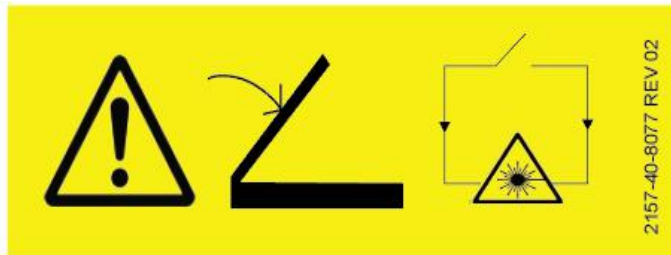
7. Caution, no remove the covers.



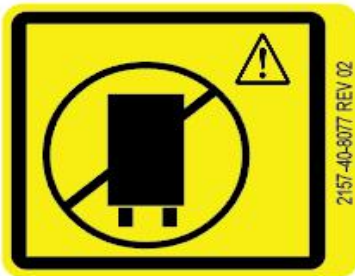
8. Caution for Class 4 laser.



9.



10.



11.




### 3 Specifications

#### 3.1 Machine specification

### 3.2 Headpiece

Candela Gentlemax Pro

Items	Details
<b>Control</b>	
Monitor	10 inches Digital Real Color LCD
Interface	Touch
Control system	Single chip
<b>Headpiece</b>	
Headpiece/spot-size	6-18mm spotsize with cold air cooling
Wave-length	1064nm&755nm
<b>Cooling</b>	
Cooling system	Water cooling
water temperature	5-25 oC auto control
Skin cooling	Peltier cooling+ Cold air cooling
<b>Interface</b>	
Energy	100J @ 1064nm, 60J@755nm
Pulse width	5-100ms
Pulse amount	1-5T
Pulse interval	5-100ms
Pulse frequency	0.25, 0.5, 1Hz,2Hz
Pilot beam	520nm green laser
<b>Power system</b>	
Power supply part	3680 watts with double IGBT
IGBT part	Made in Japan
Capacitance capacity	5000ufx8=40000uf
In charge voltage	400-600V DC
Capacitance	10000ufx8
<b>Laser board</b>	
Lamp	100x176x10mm Made by UK
Lamp amounts	2 pieces
Rod	Alexandrite Rod 755nm
LBO	PP-LN
Wavelength output	755nm
<b>Fiber</b>	
Laser fiber	Made by Japan, MITSUBISHI
Fiber spec	1mm diameter with 2200mm length
<b>Size &amp; Weight</b>	
Size	400(W)x800(L)x1150mm(H)
Net weight	95KG

		
Headpiece: A	Headpiece B	Headpiece: C
<p>A: Spot-size 6-18mm adjustable; Skin cooling temperature -5 to 5°C; Cold air skin cooling.</p>		

### 3.3 Environment

1. Air quality :

The system should work in a non-corrosive environment. Corrosive substances, such as acids, etc., may damage the surface of the wires and electronic equipment. Dust in the air should be kept to the minimum. Metal particles have a corrosive effect on the electronic device.

2. Temperature and humidity

Working temperature : 10-30oC

keep temperature : 0-55oC

Working Relative Humidity : max 80%

Storage relative humidity : Max 90%

3. Atmospheric pressure : 860hPA—1060hPA

4. Environmental requirements: Avoid the sunshine



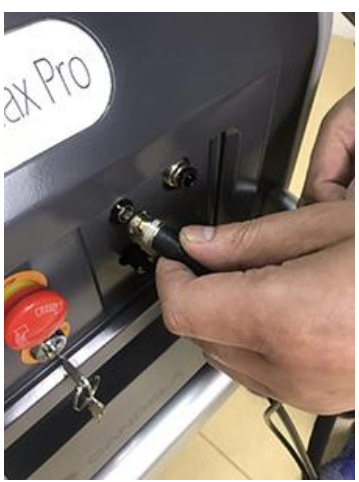



## 4 Assembling

### 4.1 Assembling




#### 1. Fiber support arm installation

		
1. Find the fiber support arm. Inset the arm.	2. Fix arm tightly with screws.	3. Adjust the angle and screw it.
		
4. Hang up.	5. Hang up.	6. Put the headpiece into the socket.

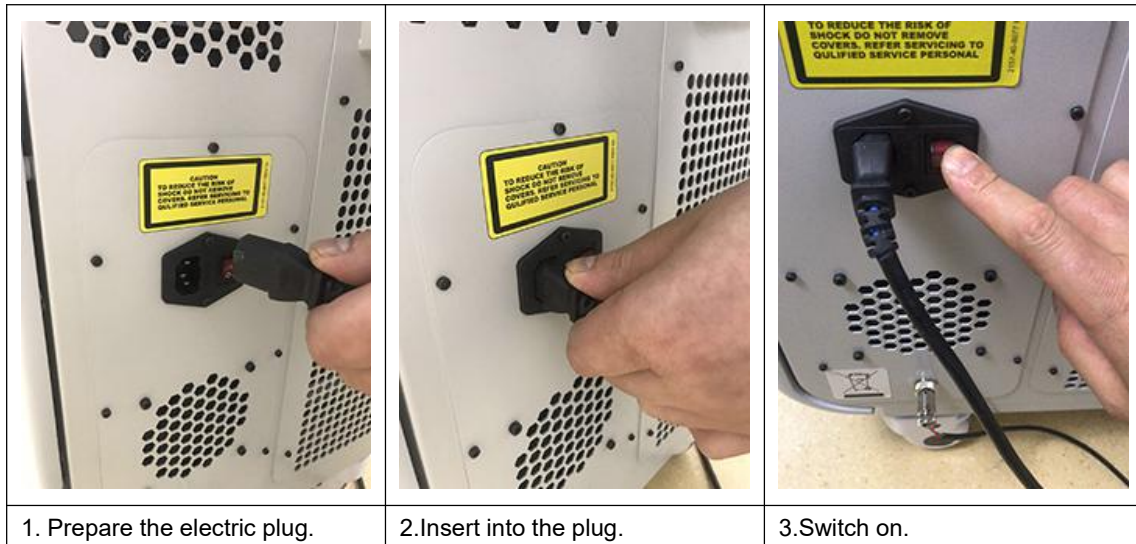
2.Headpiece connection.

		
1. Take out the cap of fiber and insert into the fiber port	2. Fix fiber tightly with screw.	3. Prepare the finger switch and insert into the port.
		
7. Fix fiber tightly with screw.	8. Prepare the cooling tube and insert into the port.	9. Insert into the port deeply.

3.Add water

		
1. Find the water tank back side.	2.Add water by water channel.	3.Put back the black cap

4.Connect foot-pedal and electric plug.



#### 4.2 Water-cooling system

Due to the generated huge heat of the xenon lamp when do treatment, and the treatment handle cooling the skin produce a lot of heat, so the machine needs to add a certain amount of pure water before work.

Water added standard : Distilled water or purified water ( avoid to use tap water or mineral water, otherwise it will seriously affect the working life of the machine and the cooling effect. )

1. Water tank capacity : 15L.
2. the shortest period of replace cooling water: three months.
3. Cooling water filling (see 4.1.3 step) :
  - a. Water monitoring program.
  - b. water monitored. Machine built-in flow monitoring devices. The machine starts to work, then flow monitoring module to work. If the water monitoring module can not feel water, the machine will automatically lock the user interface and prompt "Water is not circulating", accompanied by sound of the buzzer.
  - c. Water temperature monitoring. Machine built-in temperature monitoring sensor, monitoring the temperature of the cooling water into the water circulation system. The upper temperature limit is set to 50oC. If the cooling water temperature reaches the set limit, the user interface is automatically locked, and prompt "temperature too high", and accompanied by sound of the buzzer. Machine built-in radiator module, at room temperature (25oC), and operating room ventilation is good, the machine can guarantee continuous operation. If the room temperature is too high, or operation room ventilated effect is bad, or water filling not enough ,after the machine working for some time, it may reach the upper temperature limit, then alarm and stop working. At this approach: First, Wait for the machine cooled to room temperature. Second, change the water with normal temperature. If the summer temperature of some certain areas is too high (above 35oC), the

operating room should install air-conditioning equipment to ensure the temperature about 25°C before using the machine; otherwise the water temperature will be a sharp rise in a short time, which will not all shortens the working time of the machine, but also affect the service life of the machine.

- d. Water quality monitoring. Machine Built-in cooling water quality monitoring module. if the water is impurities, and water quality is bad, the machine will no longer monitor the water flow, suggesting that "water is not circulating." It should replace the cooling water in this time.
- e. water level monitoring. The machine has no built-level monitoring module or device.

External water level displays the current flow in the water tank. The water line should be 7 or more

## 5 Monitor Operations Guide

This chapter describe the treatment handle of Pico Second laser system, the propose treatment parameters and operation method.

Please make sure to read in detail before using the product.

### 5.1 System operation

#### 5.1.1 Start the machine.

1. Make sure the power cord is connected, insert the key, screw to the right, "Cartagena" sound, the start device inside the machine will start the machine, the user interface will light.

#### 5.1.2 Monitor operation guide

2. The main display of the machine is light, enter the initialization interface. In the same time variety of detection devices inside the machine run. The following welcome page shows on the screen (Figure 5.1.2).



Figure 5.1.2

This is the first logo page. Click anywhere of this page to enter next page for wavelength selection. (Figure 5.1.3)

3. At this page, please select the wavelength related for treatment. YAG is 1064nm, Alex is 755nm. Now we click "YAG" for example.



Figure 5.1.3

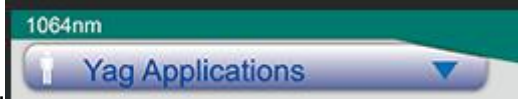
4. The below page shows the main operating page for parameters adjustment. ( Figure 5.1.4).



Figure 5.1.4



a. press this button back to wavelength selection page.



b. Press this button for applications reference,  
The page will show the as below,



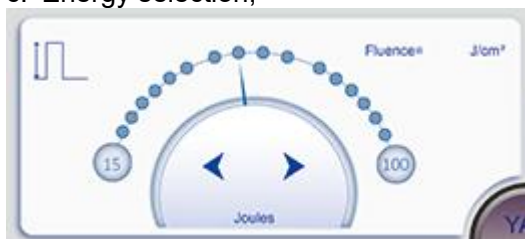
At this page, the YAG Applications can be selected by, Hair Removal, Diffuse Redness,

Vascular Lesions, and Facial Treatment. Or press this



back to the main page.

c. Energy selection,



15-100 Joules (1J=1000mj).

At this page, the energy can be selected from

d. Pulse width selection,

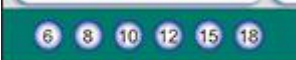


By this page, the pulse width can be selected from 10-100ms.


e. Frequency selection,




By this page, the frequency can be selected from 0.5-2.0HZ.


f.  By this page, the spot-size can be selected by 6mm(diameter), 8mm, 10mm, 12mm, 15mm, 18mm.

g.  The volume for cold air can be adjusted by three grade.


h.  Switch on or off the cold air cooling for skin.


i.  Press 5 seconds to enter into the engineer mode by password.

j.  To check clients information installed.

k.  Cold air blowing Pulse duration and Pulse interval selection. The pulse duration and pulse interval can be selected by 0ms, 50ms, 100ms, 500ms, 1000ms. If Pulse duration =1000ms, and Pulse Interval=0ms, it means the cold air is blowing the skin continually.

l.  The cooling liquid need to be replaced.

m.  Press red circle to simmer up laser, and then press foot-pedal or finger switch, the laser starts to shoot. Press blue circle, the laser simmer down for standby station.

 Press to shift wavelength from YAG to Alex.

4. "Alex" page. The alex page shows following,



The difference from YAG, the Alex page, only the energy adjust scale is from 10-60Joules, the others keeps same as YAG. So here we do not explain again for details.

## 5.2 Treatment parameter

Check the “Application” page.

## 5.3 Treatment progress

Take the 755nm wavelength as an example. 1064nm wavelength is the same, which will not be illustrated here again.

The steps are as following:

1. Make sure the machine is installed complete;
2. Make sure the water is full filled;
3. Position the machine correctly beside the treatment table; clean the treatment area;
4. Start the machine;
5. Enter the welcome page;
6. Enter the Alex page;
7. Set up the parameters as required; or come into the INDICATION page for reference.
8. Press “standby” key to ready for treatment;
9. Now the laser is ready to shoot.
10. Get the handpiece ready on the treatment area;
11. Step the pedal ( or finger switch) to get started; the light should be out on the skin and the hair should be burned.

Note: to keep the continuous treatment, the pedal should be stepped all the time. Release the pedal when the treatment needs to stop.

#### **5.4 Clinical treatment**

Take the 755nm wavelength as an example. 1064nm wavelength is the same, which will not be illustrated here again.

1. Enter the parameters according to different skin type, hair type and body condition, etc. or load the INDICATION parameters.
2. Removal all make up, clean the skin with water or soap, and take off the jewelry accessories;
3. Take photos before treatment, set up files, and to contract after treatment. Note: When taking photos, please turn off the strobe lights to make sure the picture with high resolution image;
4. Deal with hair. To cut the hair with root left only. Then clean the hair clippings totally;
5. Clean the skin again;
6. Make sure all the presence of personnel being protected well. The operator and the assistant need to ware protection goggles, the patient needs to wear eye-patch. If the eye-patch is not suitable for the patient's face, and leaks lights, please cut a strip of towel and put it on the eyes and ware eye-patch on;
7. Press "simmer" and "work", treat the testing skin. Note: Testing skin area should be in the center of treatment area and the skin is in average status.
8. Step the pedal, the long pulse light will out and the testing is end.
9. Observe the skin reaction, and communicate with patients for feelings, and then to adjust the parameters. If the parameter is suitable, then start the treatment.
10. After the treatment, the spot should be closed to each other, without space and repetition. If any emergency, press the emergency button, and close the machine immediately and stop the operation.
11. After the treatment, keep the patient stay in bed for 20 minutes to observe.

#### **5.5 System off**

1. In standby mode, shut off the red tracing system, press the back button, the system returns to the system selection interface
2. Turn left of the key, shut down, remove the key
3. Disconnect the power cord from the machine electrical outlet

## 6 Routine maintenance

### Warning:

1. After ten minutes off and pull out the power plug can maintain the machine, do not make the system is in a state of butt cap is unattended, otherwise you will have a personal injury or damage to the system
2. The machine has a high-pressure, non-professional workers do not open the back cover to maintain the machine.

### 6.1 Preventive maintenance

Preventive maintenance carried out by macfree laser company or its authorized technical personnel.

Submit an application, please provide the photo which is factory serial number of warranty card

Machine maintenance, should contact with our company or our authorized repair site.

#### Warning

Not mentioned in manual service or instrument correction, may make the operator or patient is at potential risk of electromagnetic and pulse optical radiation.

### 6.2 Routine maintenance

#### Warning

This machine produces high voltage and pulse light energy radiation;  
The instrument can only be repaired by authorized personnel of our company.

### 6.3 Visual inspection

Checking the external system weekly, to ensure that no loose cable and system is not damaged, the LCD

panel in good condition. If found the problems, please contact with the company.

### 6.4 Instrument Cleaning

1. After receiving the machine, cleaning the machine external and pedal.
2. Focus bald headed of lens cleaner should be used for more than 98% purity of alcohol and no velvet soft cloth.

### Periodic preventive maintenance

Every year, this machine needs to be tested and maintained by Specialists of our company,

Ensure the best operation condition, in the regular maintenance, equipment protection board need to open, so it must be maintained by the authorized personnel of our company

Tables for routine testing and maintenance

Inspection/service	Frequency	Operator
Focus bald clean	After each use	Clinical departments
External routine cleaning and disinfection	According to the clinical protocol	Clinical departments
Checking whether the cable and equipment surface damage or not	weekly	Clinical departments
Checking the electrical connections	weekly	Clinical departments
Detecting emergency stop switch	weekly	Clinical departments
Electrical safety testing	Each year (or in accordance with the calibration process)	Authorized personnel of our company
Test and perform power meter calibration	Each year, or the system can't specification, or An error information occurred	Authorized personnel of our company

### 6.5 Emergency stop switch test

Detection methods: boot, according to the main interface, when press the stop button, the system immediately shut off the device; Rotate in the direction shown by the arrow urgent stop switch button, start equipment

### 6.6 Replacement of insurance fuse

Steps:



- 6.8.1 Shut down the machine, unplug the power cord from the power socket; The lower part of the insurance tube position in power. As shown in picture 6.8.1
- 6.8.2 Aim the screwdriver, to dial outside, take out insurance tube module, As shown in picture 6.8.2
- 6.8.3 .Insurance tube module, there are two fuse. Slot inside the fuse is working state, behind the fuse box is a backup. Can spare fuse removed, replace the fuse inside the slot. As shown in picture 6.8.3

4. Ensure that insurance tube tight in the card slot.
5. Hand pushing Insurance Module, As shown in picture 6.8.4
6. Connect the power cord
7. Boot testing whether normal boot can or not

**NOTICE**

Ensure that the specifications of the new fuse is consistent with the original fuse

**6.7 Replace the cooling water**



1. Place a square water container at the bottom of the machine
2. Unscrew the overflow screw
3. Keep outlet screw to avoid losing
4. Unscrew the drain opening at the bottom of the machine screws until the water discharged

or

Directly to the machine pushed to the bathroom, turn on the bathroom floor drain, overflow unscrew the screw (Figure 6.9.2), unscrew the drain screw in the base of the machine, turn on the water until it is completed

**6.8 Move and transport the machine**

6.8.1 Move the machine

In medical practice, it is easy to move the machine in the two rooms. Use the installation at the top of the motor at the bottom of the handle knob to scroll wheel. Before moving between two rooms, remove the pedal and the power cord

6.8.2 Transport the machine

Ready:

1. Pull out equipment from a wall outlet
2. Unplug the power cord from the machine
3. Pull the pedal from the machine
4. Contact us about the transportation

Attention! Transportation equipment must be used in the process of the original packaging materials. If you do not use equipment in its original packaging materials and equipment damage caused, will damage the warranty terms. If you need to packaging materials or needs to be packing instructions, please contact our company

**6.9 Warranty**

see the warranty card

## **6.10 Troubleshooting**

### Troubleshooting Guide

## 7 Faulty Handling

### 7.1 Fault handling guide

The following table lists the some of the possible failure and the user can take measures:

The fault phenomenon	The possible reasons	Take measures
Can't boot up	Power cord is not connected	Check whether the power cord connection is reliable
	Leakage circuit breaker is not closed	Closing the leakage circuit breakers, reboot. If leakage breaker disconnect again, contact an authorized service personnel
	Fuse burn out	Replace the fuse
Prompt abnormal	Control panel fault	Change control board, please contact the authorized maintenance personnel
Touch screen no response	Touch screen failure	Please contact the authorized maintenance personnel
	Control system failure	Close the key switch to boot, such as fault phenomenon, please contact the authorized maintenance personnel
	LCD screen recalibration	Contact the authorized maintenance personnel
Not pre-boot	Laser generator failure	Contact the authorized maintenance personnel
	Power Failure	Replace the power supply, please contact the authorized maintenance personnel
	Control panel failure	Change control board, please contact the authorized maintenance personnel
Wavelength switching abnormal	Switching motor failure	Replace the motor, please contact the authorized maintenance personnel
	Control panel failure	Change control board, please contact the authorized maintenance personnel
	KTP crystal loss or damage	Maintenance KTP, please contact the authorized maintenance personnel
Garbled, missing lines	Control panel failure	Change control board, please contact the authorized maintenance personnel
Not light, but the screen display count	The pedals damage	please contact the authorized maintenance personnel
	Level set too low	Light energy level setting is too low, increase energy levels
	The life of the pump source depletion	Replace the pump light source
	Control panel failure	Change control board, please contact the authorized maintenance personnel

	Power Failure	Replace the power supply, please contact the authorized maintenance personnel
Laser energy output is low	The life of the pump light depletion	Appropriate to increase energy, can continue to use
	Water quality is not good	High quality water immediately replaced
	Laser generator polarization	Please contact the authorized maintenance personnel
No laser output, but the red aiming beam normal	The life of the pump light depletion	Replace the pump light source, please contact the authorized maintenance personnel
	Laser generator polarization	please contact the authorized maintenance personnel
	Control panel failure	Change control board, please contact the authorized maintenance personnel
	The light path deviation	The light path correction, please contact the authorized maintenance personnel
No laser output, No red aiming beam output	laser arm damage	Change laser arm, please contact the authorized maintenance personnel
	Control panel failure	Change control board, please contact the authorized maintenance personnel
Water flow alarm	Lack of water in the water tank	The water tank filled with water
	With air in the waterway	Confirm the vent plug for free vent plug
	Flow sensor damaged	please contact the authorized maintenance personnel
	Pump does not start	please contact the authorized maintenance personnel
	There are bent of waterway system	please contact the authorized maintenance personnel
	Pump damage	please contact the authorized maintenance personnel
The water temperature alarm	The water temperature is too high	Wait for cooling, or change of cooling water
	Operation room temperature is too high	Operation room ventilation, open air conditioning (if have)
	The water temperature module damage	please contact the authorized maintenance personnel
	Control panel is damaged	please contact the authorized maintenance personnel

- 1). If the machine is in the process of start or normal operation failure, please stop running immediately. Unless there is a short of water tank, other fault can only authorized by the Beijing macfree laser company maintenance personnel.
- 2). If the equipment malfunction, please record the fault state, and contact the maintenance department of the Beijing macfree laser company

3). If you have other trouble, please contact the maintenance department of the Beijing macfree laser company

## 8 Clinical

Q-switched skin analyzer laser should be operated by operators who have received professional training, Beijing Macfree laser company requires the operator who must take the operator professional training.

### 8.1 Mechanism of action

The principle of selective absorption of light. According to the principle of selective absorption of light, q-switched Nd: YAG specific wavelength of light pulse laser radiation is a high peak, different colors absorb light penetrates the organization of the ultrashort pulse width in ns, and light absorption of pigment, instant results. Pigment particles smash into pieces, it will return to the skin and other parts will be split into small particles can be phagocytes and lymphatic system and remove.

### 8.2 Suitable conditions

This machine is to remove the skin naturally or the acquired the artificial pigment laser system, provides a new concept of beauty, can not only significantly dispel skin pigment, and can effectively improve the skin condition, and does not require the customer to cease to rest that is suitable for various parts of the pigmentation remove.

#### 1 ) The scope of application:

- a) Rejuvenation wrinkle: improve skin laxity, deep rejuvenation.
- b) Tattoo removal: various colors of tattoo removal
- c) Get rid of skin pigmented include: hyperpigmentation, freckles, poikiloderma, age spots, melasma and other skin diseases due to the exposure of sunlight or photoaging
- d) Normal skin aging, large pores (Black doll treatment programs)
- e) Benign vascular skin changes include: telangiectasia (red blood), flushing (heat, force, oppression or transient erythema be caused by disease) and rosacea causes red nose, etc.
- f) Tattoos, tattoo eyeliner, lip liner, eyeliner
- g) Birthmark removal: get rid of congenital black or red birthmark

#### 2 ) Note: The following are not suitable for use native operating:

- a) Skin cancer or precancerous lesions
- b) Pregnancy
- c) Recent tanning or sunburn in the sun or intend holiday crowd.
- d) Photo sensitivity diseases (sunlight rash, lupus, epilepsy)
- e) Acute skin infections (herpes, frostbite)
- f) Recent (within one month) by taking photosensitive drugs
- g) Thinning (in the skin) dry skin

- h) Physical scars
- i) Diabetes, heart disease and patients who have unrealistic expectations
- j) patients with cardiac pacing
- k) Patients with metal in body (including the braces)
- l) There is prosthesis of the facial parts
- m) It is at skin allergies period
- n) Used effective products of the customer to stop at least one month or more to use this machine, and do not use effect type products in the process of laser operation

### **8.3 Cycle-time-setting**

3 to 5 times / cycles, each interval of 3 to 4 weeks

### **8.4 Discomfort feeling**

- 1) You will feel pain when you using
- 2) There may be a temporary redness/edema after using, usually in 3 ~ 7 days to keep, the swelling down
- 3) Existence minor risk of temporary pigmentation and skin texture change of side-effects.
- 4) May form callus or blister, need to 5 ~ 10 days to heal
- 5) Operating area or near the skin may become temporarily vulnerable (not cosmetic or friction)

### **8.5 Attention**

- 1) Asked the customer carefully, previously received any form of skin rejuvenation, hair removal, or other optical treatments to determine whether he / she fit the machine
- 2) Explain to the customer possible discomfort and limitations in use process, reassure, and customers unrealistic expectations.

### **8.6 Operation note matters**

For the convenience of users, this manual provides a parameter a default value. The default value is a kind of safety parameters, usually the operator does not need to be adjusted; According to my company to provide the reference level range (energy density) regulation

#### **8.6.1 Adjust the level range**

- a) Increased one by one principle: Prohibition substantial adjustment
- b) Test spot principle: before formal operation should be selected to treat the skin an average range, test spot, and observe for 5 minutes
- c) Darker skin using low-level
- d) Reduce the lower level to the air on the ground
- e) Proper use of goggles, and eye patch
- f) Correct Interface parameters

#### **8.6.2 Use effective characteristics**

- a) Rejuvenation freckle
  - Dimmed: melanin was shot down
  - Black: slight scab (off on their own after a week)
  - Surrounding tissues become red: local inflammation disappears (2 ~ 3 days)

- b) Acne bloodshot
- c) Dimmed: blood clotting  
Perivascular reddish: local inflammation (two to three days to disappear)
- d) Vasoconstriction, blood vessel walls collapse (color becomes shallow gradually  
Within 21 days)
- e) Tattoos, tattoo, lip liner, eyeliner: Pigments peeling, skin redness (usually disappear  
Within 2 hours), the next anti-color (deep skin reactions to the surface.)

#### 8.6.3 The main points of guidelines

- 1) Eyebrow, lip liner, eyeliner ----- sensitive parts, the laser energy is low as far as possible, the spot is too large, to avoid blasting the skin with a laser focus
- 2) Tattoo -- - according to tattoo color, choose suitable wavelength. Do not happen overnight, do not repeat the same parts
- 3) Chloasma, age spots, using 532 nm wavelength of green light, the spot size as far as possible choose slants big, can not only effectively remove pigment, does not burn the skin at the same time. Due to the capillary uptake of green light is stronger, avoid burn skin
- 4) Birthmarks - identify clearly, congenital birthmark is pigmentation, or capillary pathological changes. If the latter, the effect is not obvious

#### 8.6.4 Operation skills

- 1) For safety, always use the lower energy no upper part of the bone (for example: the forehead, temples and cheekbones, etc.)
- 2) We will focus on the head close to the skin, to ensure that the spot size and the scale corresponds to the value
- 3) Do not operate eye socket, the part of around the eye should be stretch to the bones above and operate again (guarantee the location of the protective goggles)
- 4) Try to avoid repeated irradiation

#### 8.6.5 Operation process

- 1) Ready to cold gel, benn plate, goggles, protective goggles, tissues, and records
- 2) Clean operation area
- 3) Boot into the main interface of corresponding items
- 4) Operating parameters according to the reference parameter Settings (start from low to high)
- 5) The operator and the customer should wear protective goggles
- 6) If there are any hair, remove
- 7) The skin anesthesia processing (if necessary)
- 8) Do the test spot (a light is perpendicular to the operation area and gently press to ensure the most widespread contact), according to the characteristics of effective adjustment level range and parameters were determined
- 9) All bit operation, at the same time, the sensitive parts of the pain, thin parts and skin darker parts should reduce some energy, and observe the skin reaction

throughout the process, in order to make adjustments in a timely manner

- 10) Cleaning operation area after operation.
- 11) Cold compress about 20 minutes
- 12) Moisturizing sunscreen

#### **8.7 Other items**

- 1) If after using native produced blisters or sores on the skin, can use antibiotic ointment or burn ointment blotted out
- 2) After using the machine within one month, Customers should use high-expansion sunscreen and moisturizing skin care products for care