

# Picosecond Laser All colors pigment removal

## User's manual



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## —、CAUTION

This chapter presents the comprehensive pigment dispel instrument operation should pay attention to safety matters. In order to use the safe, HENKO - 2 both in design and manufacture of strict enforcement and eliminate according to the requirements of relevant national standard laser damage to personnel and the surrounding environment.

**CAUTION** : This system only by our company is specialized training of doctors or operating licences to operate; Operation or maintenance of the system of personnel must be carefully read this manual before operating the system.

However, if the improper operation, laser beam will cause serious damage to the operator, the patient and the surrounding environment, may cause: burning, blindness, fire, explosion, etc.

### (一) LASER Safty

#### 1) Device safty:

- 1、 Can't look straight into the joints arms exports, and at the end of the laser beam reflected。
- 2、 Laser window should not work with the instrument chassis or display, avoid laser damage to casing and display。
- 3、 In addition to the affected area for the patient and adjust the light with the target surface, it is forbidden to use laser elsewhere; Mobile joint arm in the process of treatment and treatment after placing arm joints, joint at the end of the arm exports must point to a safe place.。
- 4、 Keep the laser output window focus lens clean, every time after treatment of the patients should be wiped off, avoid big energy damage lens。

#### 2) Therapy and its fire safety

- 1、 Narcotic drugs for the treatment of indoor inflammable, explosive, liquid, gas (such as alcohol, ether, oxygen or nitrous oxideMixed gas, etc.) should be far away from the laser radiation zone, and the protective measures.
- 2、 Alcohol after cleaning the window focus lens must be completely dry before they can start work
- 3、 **Treatment shall be prohibited in the process of laser window eyes toward**

**the area and the treatment outside, more can't look straight into the laser window.**

- 4、 Laser tag must be posted in the obvious position at the entrance of therapy
- 5、 Laser indoor should maintain enough daylighting and illumine, to facilitate the operator of the patient at the treatment area and reduce the operator in the treatment of visual fatigue
- 6、 In order to prevent the accident injury to the eye laser operation, the healer laser protective goggles must be worn during treatment, patients must wear protective goggles during treatment

**NOTE: Large spot corresponding to the energy density of small little spot corresponding to the larger energy density, such as the laser window to pick up a focal length of head.**

## (二) EYE protective

laser single pulse energy can be achieved 8000mJ, pulse width  $10\text{ns}\pm 3\text{ns}$ , Exports from laser window (joint arm end) injection laser is convergent in the 70 mm away from exports, focus lens focal length is 170 mm;Do not install the focal length lens, the divergence Angle of the laser output is about 2 mrad.。

**Infrared laser eyes most of the damage absorbed by cornea, part into the crystal eyes.With any therapy, direct into eye laser is enough to make the eyes of vitreous and retina injury, cause blindness!**



**All personnel must wear protective glasses in the laser operation area!**

**Must provide strict and effective eye protection to patients!**

- 1、 Metal devices can cause reflection, laser surgery should be avoided during laser direct irradiation on the equipment, and to use reflective device
- 2、 Operation should be avoided when the watch and necklace, bracelet, etc can be reflected laser accessories.。
- 3、 Must provide patients with strict and effective eye protection, such as covered with gauze, wear protective goggles, meibomian shelter, etc.。
- 4、 Warning sign at the entrance of laser therapy carries a laser radiation, laser

forbidden access in the course of using, suggest adding door interlock。

Body tissue of pigment on the absorption of laser is different, the choice of treatment when the dosage should be since the childhood, the output power is too large may burn the skin

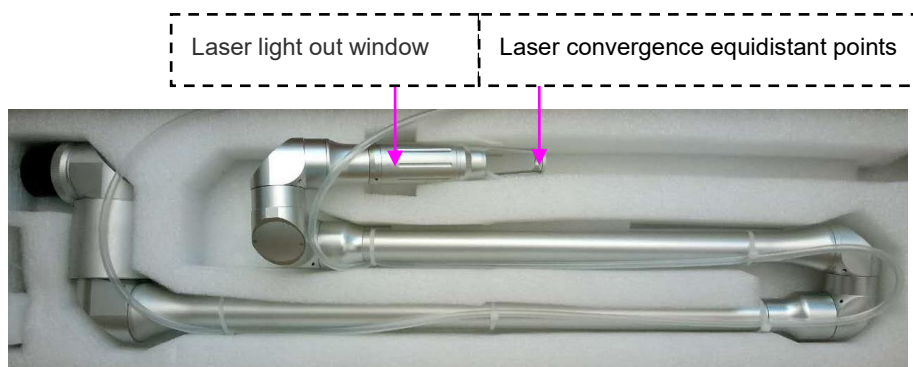
## 二、 product description

### (一)、 Constitute

Skin laser treatment instrument host, laser/laser joint arm/ laser power/ cooling system/display control system Several modules

Laser cavity when laser can produce high voltage pulse xenon lamp and YAG crystal bar. When laser xenon lamp injection of xenon lamp light after a certain amount of energy, stimulate the YAG crystal rods to launch the **755/1064/532 nm** laser, polaroid is emitted laser unified to the same direction, make the emitted laser single better. After laser in the laser cavity, before the mirror, mirror of the laser resonant part, after short time trigger Q crystals, again after two 45 degree mirror reflection by emitting laser light arms. In the process of laser xenon lamp in the light of have a large amount of heat produced; After water circulating system will be hot

**Commonly known as the light arm joint arm:**



Laser smooth is convergent laser focus, focus spot diameter of **2 ~ 10 mm**. When

laser gathering isometric point contact with the skin convergence focal spot diameter is **1 mm**, when not in contact with the patient position, adjust the laser convergence isometric point and the distance between the patients with skin is adjust convergence focal spot diameter, adjusting the laser gathering isometric point and the distance between the patients with skin range from **0 to 3 mm**, the corresponding convergence focal spot diameter for adjustment, in 2 ~ 10 mm distance after short of effective treatment. Laser light launched into mouth will into the laser light arm inside, and then use locking device lock base

According to the operator of the handle, can adjust the center of gravity of light arms, appropriately adjust the way as the center of rotation of the adjustment block fixed nut !

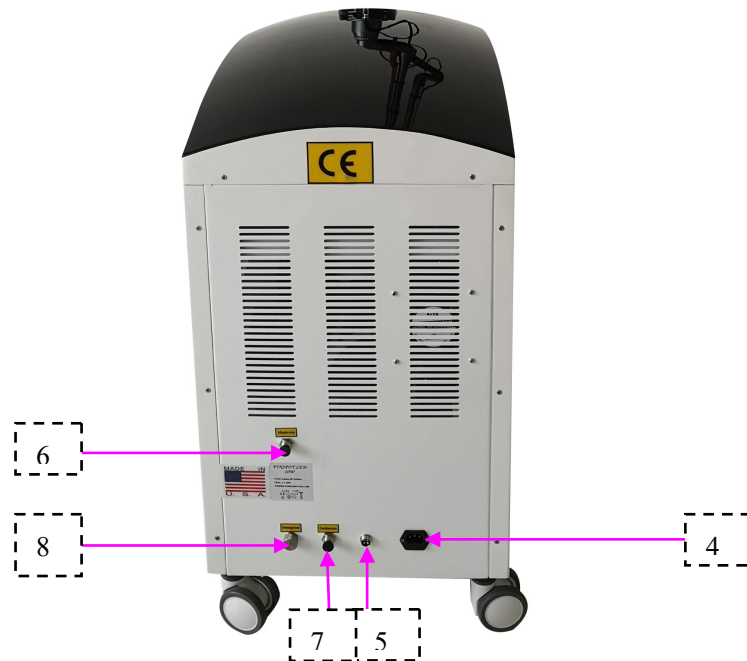


***Prohibit unauthorized users open the equipment side platens and remove the internal components***

## (二) 、 Appearance and part name

### 1、 part name





- 1、 display : As exchange interface of operating personnel and equipment, used to display working state and the parameters must be adjusted;Display designs for the inclined plane。
- 2、 keyswitch: Used to connect and shut down the engine power, can only use the company provide the key to it.
- 3、 light arm: Six joint optical transmission parts, used with laser base;Used for the transmission of the laser to the operator to patients
- 4、 Power Jack: Single-phase grounding interface, external interface power cord;Can only use our company is equipped with power supply interface
- 5 、 Foot switch socket : There were two pin connector, connect the pedal switch interface;Designed with the company to provide the foot joint.。
- 6、 affusion hole
- 7、 overflow hole
- 8、 drawing hole

### 三、 Treatment principle

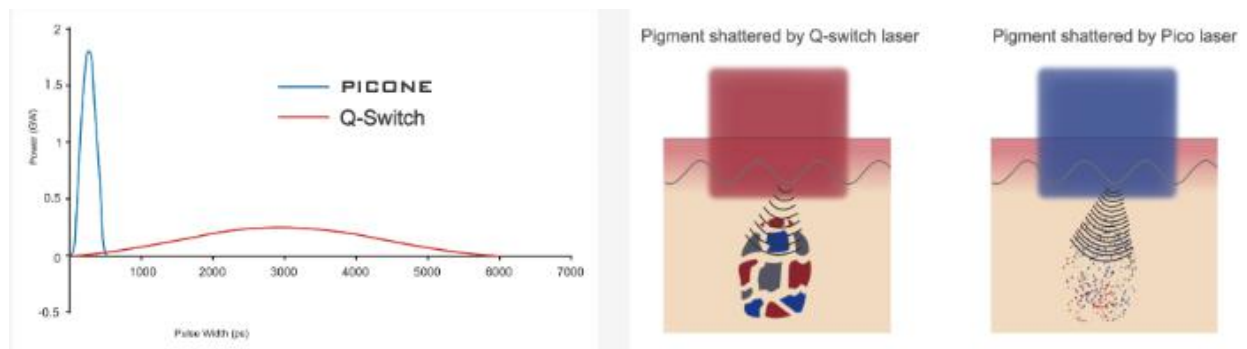
The PicoSecond Laser uses ultra-short pulses (one trillionth of a second in length) to hit the melanin with a great pressure, the melanin shatters into tiny dust-like particles. Because the particles are so small, they are more readily absorbed and eliminated by the body. This can mean better clearance of the melanin and less treatments overall.

PicoSecond Laser is a quick and easy non-surgical, non-invasive laser skin treatment for the body including chest or decollete, face, hands, legs, and more.

#### Picosecond laser VS Q-switch

At Picosecond laser pulse width, the generated photomechanical stress target pigment particle, making its volume expansion instantaneously and resulting in breakup of target into micro-particles, which is much easier for phagocytes to clear. Q-switch laser has pulse width of 5ns or more, its photomechanical stress is not efficient compared to picosecond laser, it creates large particles, and with long pulse width, scattering energy goes toward surrounding tissue, resulting in risks of thermal damage.

Therefore, Picosecond laser provide a more effective and more safe treatment than Q-switch laser





## 四、 Technical parameters

- 1、 size (excluding joint arm, high length x width x, mm): 124×70×134cm;
- 2、 machine Net weight: 110kg; joint arm:4kg; total weight:116kg
- 3、 power: 2000W;
- 4、 over-current protector model: 220V, 10A
- 5、 work: laser wavelength: 1064nm; 755nm; 532nm
- 6、 laser output frequency: 1-10hz;
- 7、 spot diameter: 2-10mm adjust;
- 8、 Maximum output energy of single pulse:  
1064nm(100-1200mj); 755nm (100-1200mj); 532nm(50-600mj);
- 9、 Eye hazard distance: NOHD 100m, In the seal of the operating room for the eyes are harmful, must wear protective glasses!
- 10、 cooling water: Use deionized water or pure distilled water。
- 11、 Cooling mode: Built in closed cycle water cooled type;

## 五、 program and method

### (一)、 Installation

- ◇ before installed, please check random spare parts list, according to the listing inventory component and stochastic parts whether complete or damage.If use Households and manufacturers have special agreement, please call us before installation therapy apparatus manufacturer customer service telephone, in order to obtain good technical support.When installation, users and engineers refer to and pay attention to the following parts:
- ◇ carefully unwrapped the package and put the instrument in primary position, choose good equipment install the host was laid.Remove the other necessary components, and install the components placed in room temperature, avoid mirror up water mist temperature difference is too big.
- ◇ laser transmission part (the light arm) installed in laser lose at the exit, set into the socket and then tighten the nut.

- ✧ finish above after installation, please check the installation steps again, if correct then turns on commissioning.

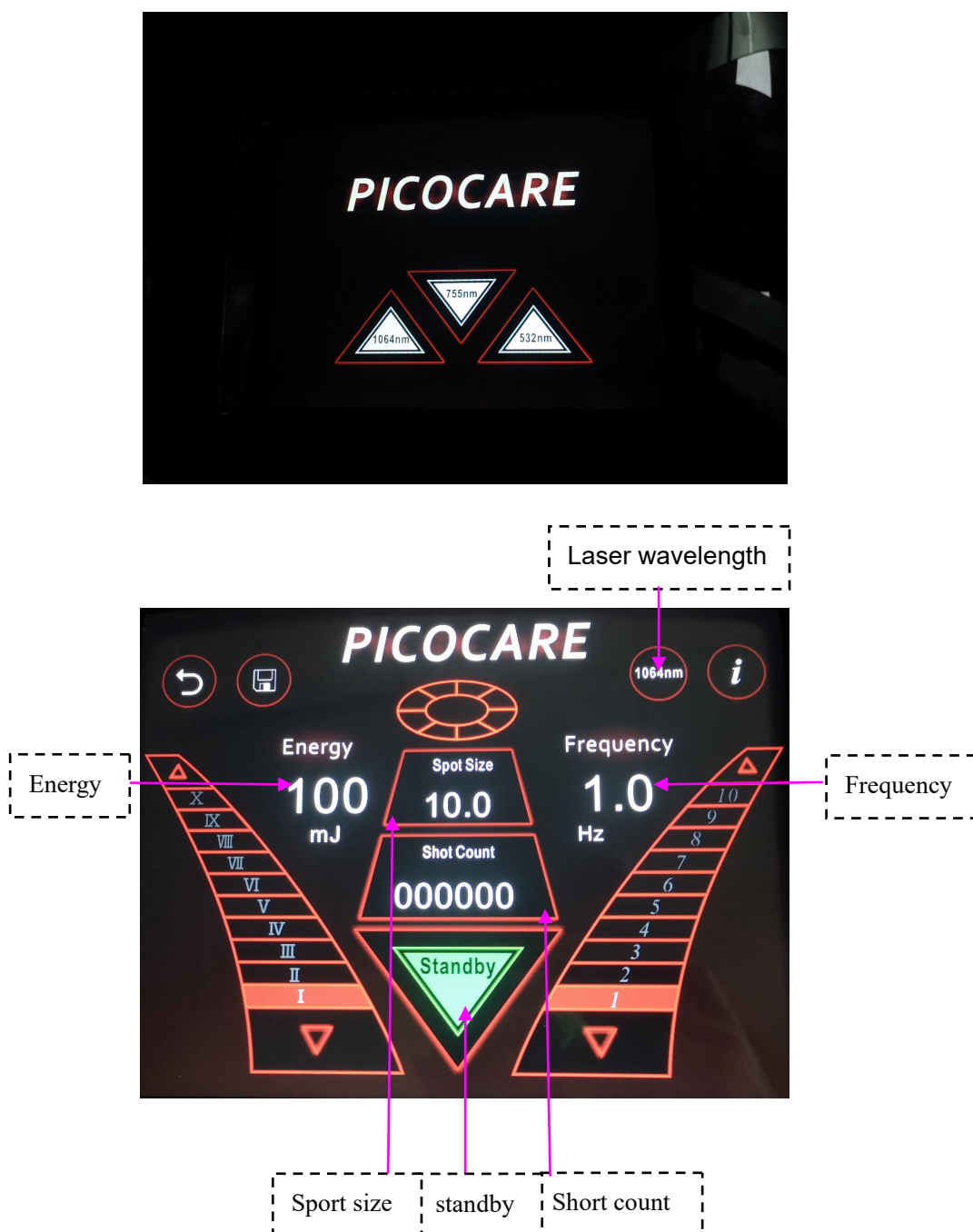
## (二)、operator

### 1、Requirements for operators:

Instrument of the operator should know the professional knowledge, medical laser by using after training qualified professional staff。

### 2、According to the control panel and buttons function

LCD screen display content is as follows:



- 1、 **laser wavelength**: used for wavelength conversion (click select need operating wavelength,)  
(1064nm, 755nm,, 532nm)
- 2、 **Energy (mj)**: Used to adjust the pulse laser energy。
- 3、 **frequency (Hz)**: Used to adjust the pulse laser output frequency
- 4、 **spot diameter (mm)** : 2-10 mm adjust
- 4、 **PULSE COUNT**: Used to record the number of pulse output。
5. **WAVELENGTH**: Shows 755 and 1064 and three 532 wavelengths
- 6、 **Work/prepare key (precombustion)** :Used to switch on standby and ready to working condition

### 三)、 **Steps:**

#### 1)、 starting

- ①plug in power
- ②In the case of urgent stop switch, right key switch;
- ③ Display interface display, 1064 and 532, two wavelengths of interface;The wavelength of the button to choose to use
- ④To display the choice of key (cursor) key, choose function adjustment
- ⑤ Gently press the energy display adjustment;Adjust the treatment of appropriate energy, stepped on the foot switch instrument started out the light,

**note**: After and before starting the machine laser window should point to a safe place

#### 2)、 treatment

Aim the joint arm output port is needed treatment, the control output port and distance treatment parts of the joints which control the size of the light spot diameter, stepped on the foot switch for treatment.

#### 3)、 power off

- (1) loosen the pedal switch.
- (2) the joint arm place;
- (3) light press work, make the state from work (R) into (STANDBY);
- (4) turn off the key switch;

- (5) Turn off the power;
- (6) keys shall keep the power supply

## **六、 Adaptive symptom**

### **1、 Treatment Area of pico laser machine**

All color tattoo, eyeliner and lip line removal  
 Epidermis and dermis pigment  
 Nevus of Ota, blue naevus, black nevus, coffee spot  
 Senile plaques, freckle, sunburn spot and chloasma  
 Skin whitening and wrinkle removal etc Advantages of pico laser machine

### **2、 Advantage**

#### **1 High-Tech**

Picosecond laser machine used unique Honeycomb Focused technology to form a skin effect vacuolization, which can protect skin from damage during treatment.

#### **2 Fast Effective**

Picosecond laser machine make tattoo & pigment removal treatment process from 5 to 10 times reduced to 2 to 4 times, greatly reduce the treatment and recovery time, with fast and obvious effective.

#### **3 Comfortable & Safe**

It can remove all kinds of pigment and tattoo effectively and safely, because picosecond laser use precise positioning of the target tissue therapy to reduce damage to the skin to achieve the freckle effect

#### **4 No melanin precipitate**

The Picosecond laser uses ultra-short pulses (one trillionth of a second in length) to hit the melanin with a great pressure, the melanin shatters into tiny dust-like particles. Because the particles are so small, they are more readily absorbed and eliminated by the body. It will significantly reduce postoperative swelling, melanin precipitate phenomenon.

### **3、 Treatment of interval**

Treatment should be two intervals of one month or so, in order to make the pigment particles break will have enough time to do is absorbed.

### **4、 Treatment times**

General cases shall be repeated treatment to achieve the ideal effect, for the treatment of patients with specific times by the affected part of the pigment

Degrees, depth, pigment ingredients, each treatment using laser doses, patient's body macrophages to factors such as the absorption of pigment particles is

decided. Exogenous pigment must be more than 3 times treatment commonly, endogenous pigment must be more than 5 times treatment can obtain satisfactory results, a few patients after treatment with multiple effect is still not ideal

## 5、Preoperative considerations

(1) Area rich blood vessels is three days before treatment and after treatment two weeks should avoid alcohol and aspirin drugs to prevent hemorrhage。

(2) Women should not be menstruation treatment, blood coagulation function defects, epilepsy, high blood pressure, heart disease and scar constitution of patients should be treated carefully。

(3) Patients in the treatment of local skin should be clean, remove local cosmetics and other drugs

(4) Have repeatedly lines, embroidered, cut eyebrow and nearly all around and within the local operation of life of patients should be treated carefully。

(5) According to the nature of the lesion and the depth of the pigment and the local area, individual differences and previous treatment should be treated with the number of times, and gradually achieve satisfactory therapeutic effect, each time interval to 1-3 months

## 6、Postoperative considerations

After treatment and treatment may appear slight pain, white skin, the skin permeability of blood, short red, black, appear even purpura can absorb itself need not too nervous。

(1) If there is scabby 7-14 days to fall off, avoid by all means remove, so as not to delay the healing and the formation of pigmentation of the skin。

(2) Due to individual differences or different climate change within a few days after treatment, so as to prevent infection treatment area shall not directly contact with water or other solution. Try to eat less spicy food and binge drinking, smoking。

(3) Few individuals may appear normal skin pigmentation after treatment, generally subside after 1-3 month

(4) Postoperative should try to avoid the sun activity and exposure, lest produce heavier and pigmentation

(5) Postoperative if found any abnormal phenomenon, please Jane counseling in a timely manner to the door.

## **七、Taboo matters**

- 1、 For patients with deep color of skin, the use of the instrument, due to the shallow pigment of skin with the absorption of the laser, can make the skin by slight damage, Suggestions for skin whitening treatment before using this instrument。
- 2、 After laser surgery, skin will appear red, infiltration of blood and inflammation, postoperative treatment parts for refrigeration, and use to prevent the occurrence of scars after burn and ointment。
- 3、 For some containing metal ions, such as iron ion pigment, can appear after laser irradiation is not easy to be absorbed in black chemicals such as ferrous oxide color burn treatment areas, this is caused by different pigment composition, rather than the quality problem of the instrument itself。
- 4、 Postoperative treatment area should be kept clean and dry, avoid infection。
- 5、 Postoperative occurrence knot furuncle, should make its own loss, prevent forced peeling a scar.
- 6、 Treatment of ban for continuous repetition of the same parts of the light, or due to the accumulation of heat will damage to tissue.

## **八、Precautions and instructions**

- 1、 his product in actual use of components of parameters has been adjusted the locking, have special requirements of parts shall be sealed when the products leave the factory.User may not arbitrarily unsealed, disassembly, has targeted the parameters of the adjustment and changes, otherwise, the consequences shall be undertaken by the user.
- 2、 Radial body guard, remote control interlock, key switch, the laser beam radiation emission warning, termination devices, etc., is based on the provisions of

GB7247-2001, for laser radiation safety protection Settings, the user shall not be any tear open change these devices, lest affect safety protection.

- 3、 HENKO - 2 laser therapeutic apparatus is the skin with integration of optical, mechanical and electrical precision instruments.As a result, the operator must be trained.The trained personnel shall not operate the machine.
- 4、 Should read this manual before using the instrument, for not carefully read the instructions or use this instrument in violation of the regulations of medical accidents and disputes the company irresponsible.
- 5、 Treatment process must pay attention to keep the laser from the treatment area。

#### **Matters needing attention**

- A, 2-4 weeks do not need excessive exposure to sunlight, positive sunscreen, recommend the use of SPF 30 coefficient above active moisturizing.
- B acid skin care products do not use within 2-4 weeks, exfoliating products and other optoelectronic laser treatment, to avoid excessive skin damage.
- C, after treatment to avoid the spa and swimming and other activities, influence the healing process.
- D, after the treatment of pigmentation: slightly swollen red, please help the ice for 15-30 minutes, after the treatment of applying antibiotic ointment. The result in the treatment of callus after 10-30 minutes.
- E, after the treatment of tattoos: ice, wipe ointment and artificial skin to help protect the treatment site

#### **Common problem:**

**Q: I was afraid of pain, what treatment pain? Each treatment need how much time?**

A: treatment process there will be CICI hot feeling, the pigment distribution in more places will be more obvious sense, according to the indications and therapeutic dose, the doctor will recommend the use of appropriate local anesthetic ointment and the air cooler to reduce discomfort, usually the treatment time is about 5-15 minutes, depending on the size of the treatment area and skin problems.

**Q: my spot treatment too many times, if you go to the treatment of words will not leave a scar?**

A:PicoSure of picosecond technology only need to use the general laser dose of 1/3~1/2 can achieve effective treatment, tissue to accept the lower dose stimulation, traumatic relative also reduced, not easy to produce the wound and cause the scar of the probability.

Q: picosecond laser tattoo removal effect is good?

A: the current effect is particularly significant is the use of picosecond laser tattoo, it does not produce heat damage to the surrounding tissue, so it will not leave a scar.

Q: heard that laser treatment can easily have anti black, with picosecond laser treatment will also have anti black problems?

A: picosecond laser energy focusing probe using "honeycomb lens", instantaneous effect can reduce the excessive stimulation, coupled with the instant high energy picosecond laser than traditional laser (switched Q) smashed the pigment particles shorter and more quickly, reduce the heat damage, protect the tissue of melanoma cells is not subject to excessive stimulation, can greatly reduce the normal cells were stimulated with long red problem

D, after the treatment of pigmentation: slightly swollen red, please help the ice for 15-30 minutes, after the treatment of applying antibiotic ointment. The result in the treatment of callus after 10-30 minutes.

E, after the treatment of tattoos: ice, wipe ointment and artificial skin to help protect the treatment site

## 九、 Maintenance and repair

- 1、 This product is mainly composed of precision laser generator and microelectronic devices. The maintenance and repair should be consistent with precision optics and microelectronics the general provisions of the instrument. Storage and use of carefully knock against, collision, extrusion, vibration. Be reset after each use, a day out to special packaging cover, dustproof storage。
- 2、 Clean output lens: the end of the arm joints Joint arm ends is equipped with output lens, it is suggested that after each treatment, check the surface of the lens for flying objects attached; If yes, please will arm vertical joints, unscrew the handle, dip in with cotton swabs anhydrous ethanol and gently wipe the lens.

**It is strictly prohibited in the boot state check and clean output lens!**



## 十、Product configuration list

Host machine	one
laserJoint arm	one
Foot switch	one
Power line	one
Power keys	two
Laser protect glasses	one
Eye Glasses	two