

Equipo vertical Laser Diodo Depilación. Anle Laser Ice Platinum 808 755 1064nm

User manual



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Chapter one—Introduction of equipment

I. Theory

Diode Laser Hair Removal Instrument is a device which adopts the high-energy and continuous diode laser to realize the conversion of electricity, light and heat energy, and thus achieves disease treatment. Therefore, this is a laser therapeutic product that integrates laser technology, electronic technology, computer science and medical science.

Working principle of diode laser hair removal instrument is as follows: under the control of microprocessor, laser power supply can provide the adjustable constant current for the laser module, the high power laser diode in the laser module can transform the electric energy into the light, generate the continuous laser beam with a wavelength of 808nm. Through the light crystal, the laser beam can irradiate the tissue to be de-haired, pass through the external layer of skin and arrive the roots of hair follicles, the light energy is absorbed and converted into the thermal energy for destroying hair follicles, so that make the hair to be lost and lose the regeneration capacity, reaching the permanent hair removal purposes.

Parameters that needed in the treatment course, such as laser energy density etc, shall be set by users according to actual conditions.

II. Specifications

Laser type	diode laser
Display	15" color touch LCD screen
Laser wavelength	808 nm&755nm&1064nm
Treatment laser spot	12 × 12 mm ²
Pulse width	8 ~685 ms (continuously adjustable)
Energy density	2~120J/cm ² (continuously adjustable)
Pulse frequency	0.5~10Hz
Cooling mode	close-cycle water cooling contact cooling for the lasing head is 0 ~ 3°C
Power Supply	AC 220/50Hz ; AC 110/60Hz
Size	50*44*110 cm
Net weight	56.4 kg
Packing	Aluminum alloy case

III. Application:

Diode laser hair removal instrument (hereinafter referred to as the hair removal instrument), is applicable to removing the patients' hair.



IV. Features

1. 808nm&755nm&1064nm USA laser
2. Professional OEM/ODM services: professional services on software & hardware design and production
3. Quick: big spot size 12 x 12 mm², just move the probe on skin only which can achieve a big area treatment
4. Efficiency: 808 nm&755nm&1064nm effective to absorb melanin and goes through dermis to reach to adipose tissue, acting on different area and depth of hair. Excellent treatment result can be expected at the first treatment and suitable to all types of hair
5. Comfortable: painless—sapphire temperature cool down 0~3⁰C, comfortable in the whole treatment; also no scar in/after treatment
6. Perfect cooling system: semiconductor + air + water, good performance for long time working
7. High quality of machine shell: ABS material



v. Warnings to users:

1. If it is the first time for you to use Diode Laser Hair Removal Instrument, be sure to carefully read this manual before powering on the appliance.
2. It is suggested that do not use the hair removal instrument with the existence of electromagnetic interference, vibration and other environmental conditions with interference. During operation, the hair removal instrument does not interfere other equipments/devices.
3. Avoid using this Diode Laser Hair Removal Instrument when there are the flammable anesthetics or oxidative gases such as nitrous oxide (N₂O) and oxygen. When there is enough oxygen in the air, some materials, for example, the cotton and wool materials may easily be ignited by the high temperature resulting from the normal operation of laser equipment. The solvent and combustible solution for cleaning or sterilization purpose shall be volatilized before using laser equipment.
4. The abandoned components from the scrapping or replacement of Diode Laser Hair Removal Instrument should be delivered to the designated agency or manufacturer for joint treatment, so as to avoid environmental pollution.
5. All contents of this document are under the protection of copyright laws.
6. This manual may not be reproduced or stored in database or retrieval system by any organization or individual without the express written permission of our company.

Special Tips



Warning

Diode Laser Hair Removal Instrument can emit high-intensity infrared laser beam, in order to protect the eyes, the users and patients are requested to wear appropriate safety goggles in accordance with (NOHD) standard.

Pay attention to the following precautions:

※DO NOT point the laser directly to the eyes and skin.

※DO NOT cut off power supply when the instrument is working.

※Be sure to get familiar with structures and specifications of the instrument before using.

7. Working conditions

- a) Ambient temperature range: 16°C~28°C;
- b) Relative humidity range: ≤80%;
- c) Atmospheric pressure range: 860hPa~1060hPa;
- d) Power supply: 220V+10%, 50Hz; or 110V+10%, 60Hz

8. Transportation and storage conditions

- a) Ambient temperature range:-10°C~60°C;
- b) Relative humidity range: ≤100%;
- c) Atmospheric pressure range: 500hPa~1060hPa.

9. Notice:

- a) Place the appliance in the special working area as above requirements.
- b) Mount the handpiece holder on main machine with screws
- c) Plug in the handle connector on main machine and ensure good connection.



Chapter Two--Security Instruction



I. Safety Matters

These who have been trained can use this system. No matter the operator , the assistant, or the maintainer need to understand this chapter well. However, people's safety is most important, it has been taken into consideration during the design process.

- a. when the device is turned on, the auto-inspection safety system is also initiated and keep working through whole treatment process.
- b. independent safety circuit design can cut off the power supply while electric leakage happens
- c. red "Emergency" button can cut off the power supply immediately in emergency situation.
- d.



Please ready following notice carefully for safe operation.

- a. except the authorized mechanic, any others have no right to examine and repair the system, especially the inside components including electrical source, cooling system, optic organs and treatment head
- b. make sure the voltage is accordant to your resident voltage
- c. maintenance must be done after turning off the machine and unplug the power cord. Or there is risk to injure people or damage the equipment.
- d. stop turning on machine when finding slack on treatment head. If the machine is ON, turn off right now.

[Main Warning]

To guarantee a safe operation, the following safety warning need to be read before operation.

1. Except our company's technicians, no one is allowed to open the machine, or do any Internal overhaul, power/ head internal adjust is also not allowed.
2. Please check and confirm the voltage is the same as your local one. (220V/AC or 110V/AC)
3. Only the power is shut down, machine can be maintain. Maintaining while machine is on power can damage the operators/ patients and machine itself.
4. Keep the treatment area, which will be connected with the treatment head, clean and dry.



II. Electrical and mechanical safety

1. keep all panels and covers closed, or there may be danger.

2. there is high pressure inside the equipment. It's possible to deposit electricity in some parts even after switching off. So it's not allowed to open equipment except the authorized mechanics.
3. when do maintenance, please unplug power, cover board, and observe in person.
4. moving the machine incorrectly may cause personal injury. The machine is well balanced and is movable, but only move slowly and carefully.
5. the machine via three-wire power cord grounding the earth, good ground is essential for safe operation.

【PREVENT FIRE】

- a) The temperature will raise after absorbing light energy, so please take actions to reduce the flammable risk on treatment parts or around area.
- b) Do not use ethanol, acetone or other flammable things on skin before treatment. If necessary, please use soap or water.
- c) When listerizing the treatment head or other parts with alcohol, please wait till dry.

【SAFETY SETTINGS】

There are some safety settings with equipment, so please know their places and using methods.

- a) **Keys:** it's used to switch ON/OFF the power, only provided by the manufacturer.
- b) **Emergency button:** the red switch is used to switch off power on emergency. Press it can switch off the power immediately. Turn it clockwise, the machine will be go on working. Or the machine keeps turning off.

【AUTOMATIC INSPECTION】

After turning on the machine, the system will do an automatic inspection. About 1-3 minutes running automatically, then it enters into the next step.

【CLASS OF EQUIPMENT】

- a) Class: II b
- b) Anti-corrosive liquid: general
- c) Not allowed to use in the air mixed flammable anesthetic and nitrous oxide
- d) Operation manner: continuous operation



Chapter Three-- Installation of machine

I. Packing Box



The way to open the exterior packing box:

- a. Turn the lever in picture 1 to the position show as picture 2
- b. Switch the lever, then we can open the packing box.

II. Packaged items

The following are the main unit and accessories of Diode Laser Hair Removal Instrument:

No.	Name	Type / Specifications	Qty.
1	Main unit of Diode Laser Hair Removal Instrument	----	1 set
2	User manual	----	1 copy
3	Foot switch (IPX1)	MDFS01	1 set
4	Safety goggles	SD-4	2 pairs
5	Remote interlock switch	LA.M31	1 set
6	Fuse tube	UFE0010A 10A/250VAC	1 set
7	Start-up key	----	2 sets
8	Filter	----	2 pieces
9	Tool for water inlet	----	1 piece



handpiece



goggles for doctor



goggles for clients



keys



power cord



pedal

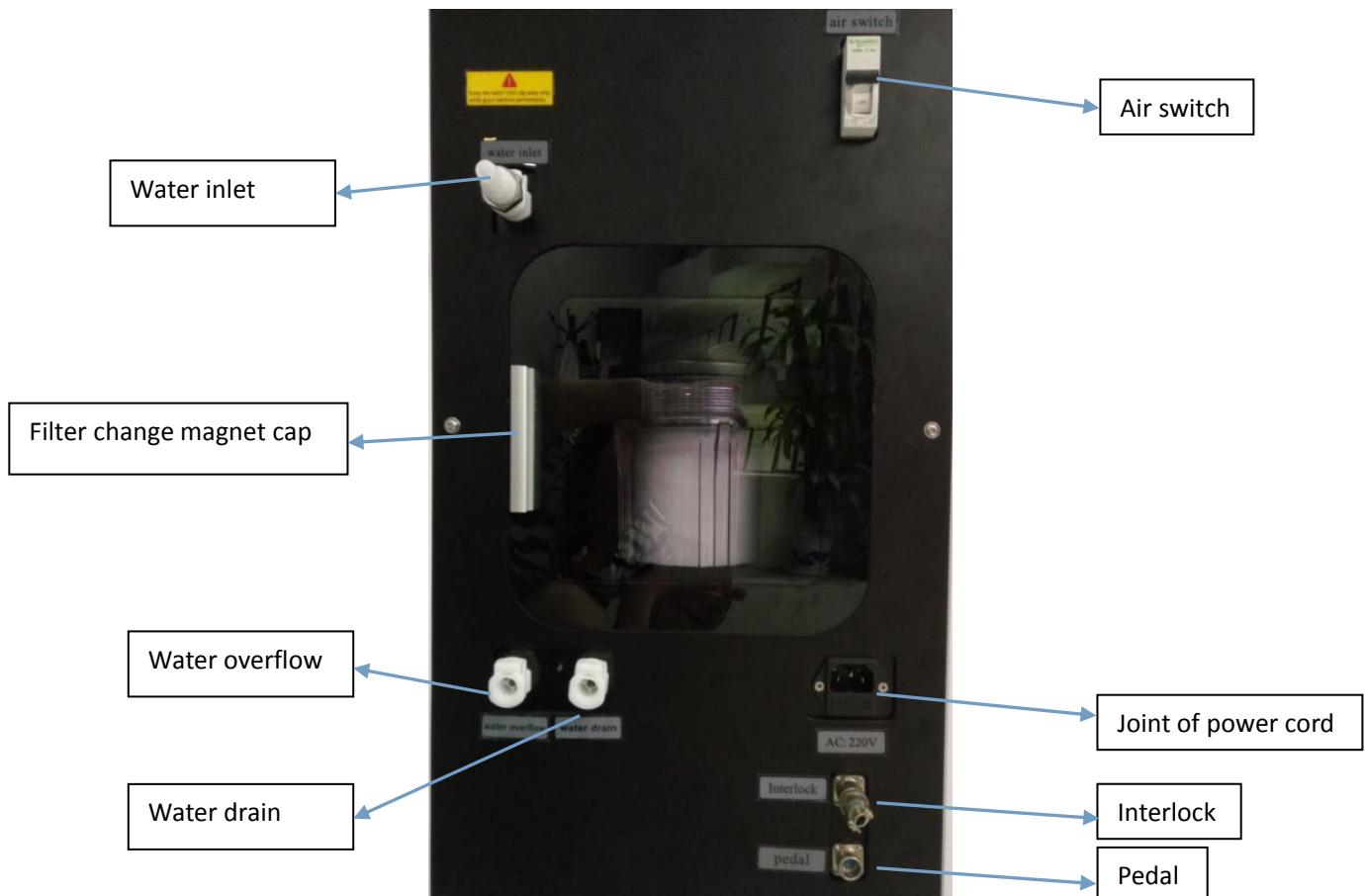


tool for water inlet

III. Main Unit Control

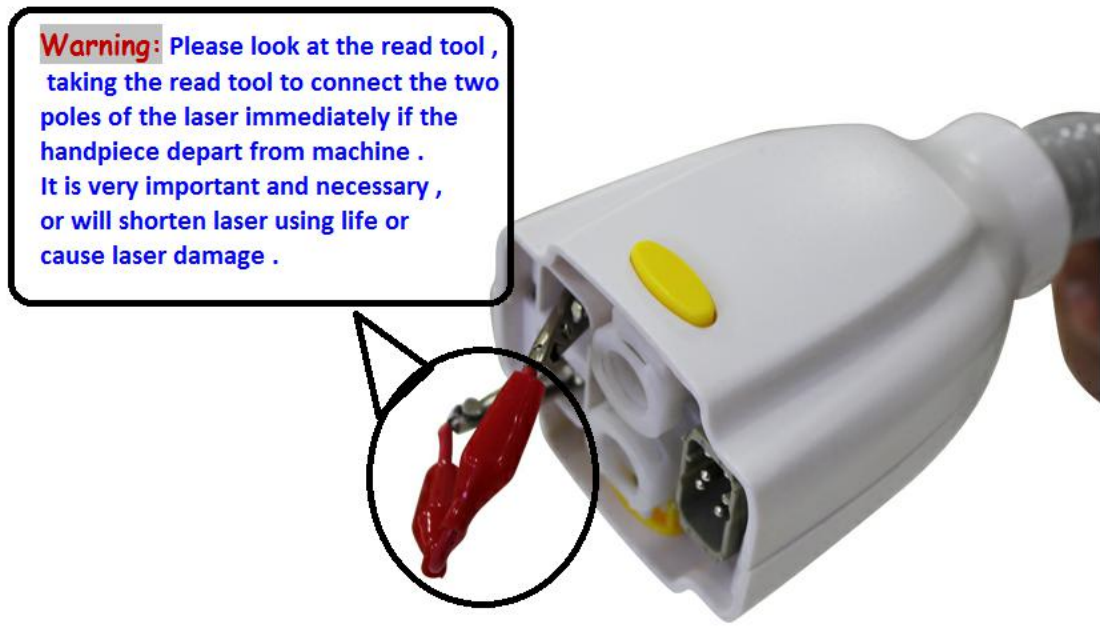
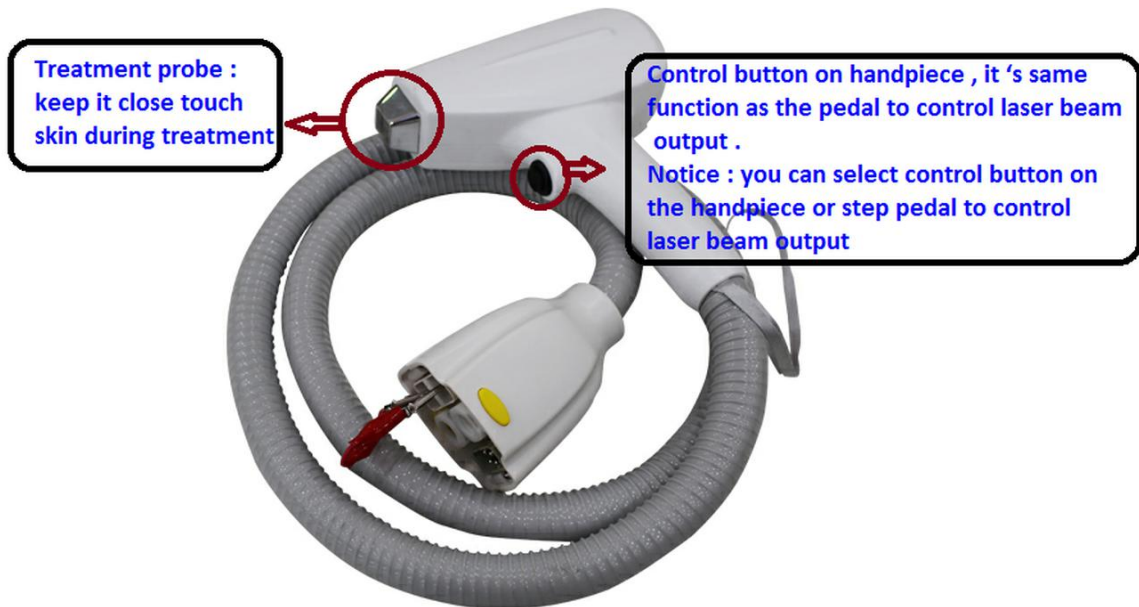


IV. Installation of spare parts



As shown in Figure above, the control section of main unit includes the following six parts: touch screen, key switch, foot switch, button switch, emergency stop switch and indicating lamps. The touch screens is the major operation and display devices for the laser hair removal instrument, except for displaying the current work status and work parameters of the device, it also provide simple and intuitive operation interface for users, as shown in Figure as above. All the functions that including the shutdown, the laser parameters setting and laser-activated can be implemented through the touch screen, among which, the treatment parameter settings, mode switching, the turn-on and off the refrigerator, could only be carried out under the standby mode.

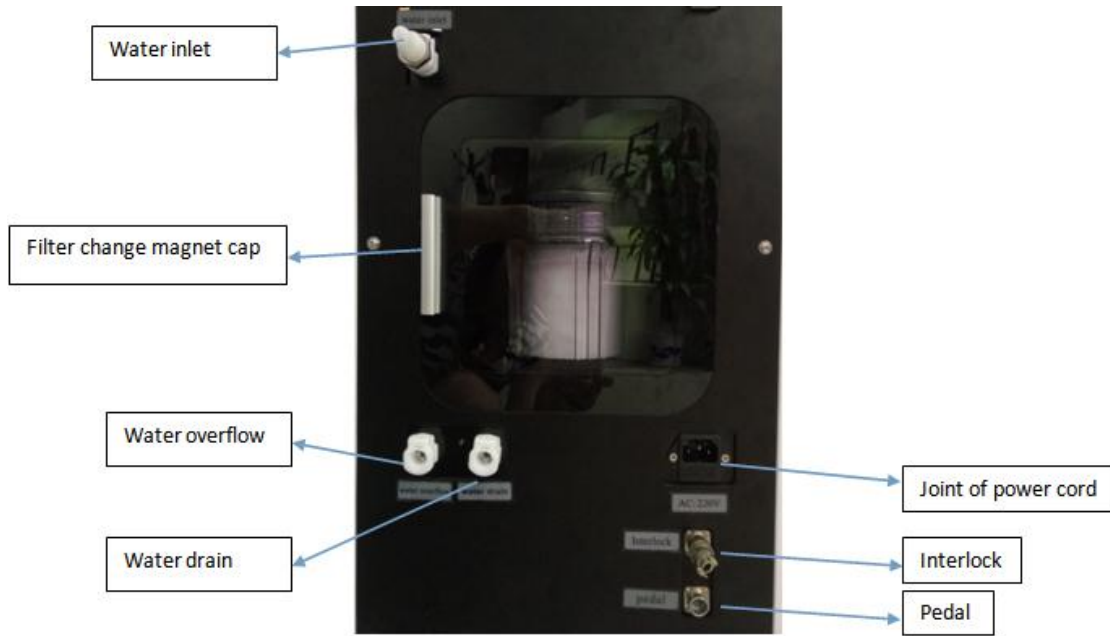
About handpiece: (laser handpiece is fragile, please take care for using)



Warning:

1. It's not allowed to disconnect handpiece from machine at the status of machine turning on
2. it's allowed to disconnect handpiece from machine at the status of fans stopping working when turn off machine

V. Startup Procedures



1. How to input water:

Open rear machine shell and side shell, as following:

Step 1: keeps the capes for water inlet and water overflow off both

Step 2: connect the tool for water inlet to water inlet

Step 3: input pure water or distilled water till water spill automatically from water overflow, which means input enough water inside.

Step 4: connect hand piece to machine, please look at following demo.

Step 5: connect power cord and pedal

Step 6: turn on machine and waiting for the 1st screen display, then turn off machine; repeat the operation for 3 times.

Step 7: turn on machine and touch the sapphire (handpiece probe) 3-5 minutes later, if sapphire is cold, you can take further operation or treatment; if sapphire is not cold, pls turn off machine immediately and contact the factory at the first time. It's not allowed to do any operation if the sapphire is not cold.

Step 8: you can keep the capes for water inlet and water overflow on both after sapphire cold.

2. How to change water?

Notice:

- a. water source: pure water or distilled water allowed only;
- b. change water every month.

Step 1: turn off machine

Step 2: disconnect power supply

Step 3: keeps the capes for water drain and water overflow off both

Step 4: water over flow from water drain

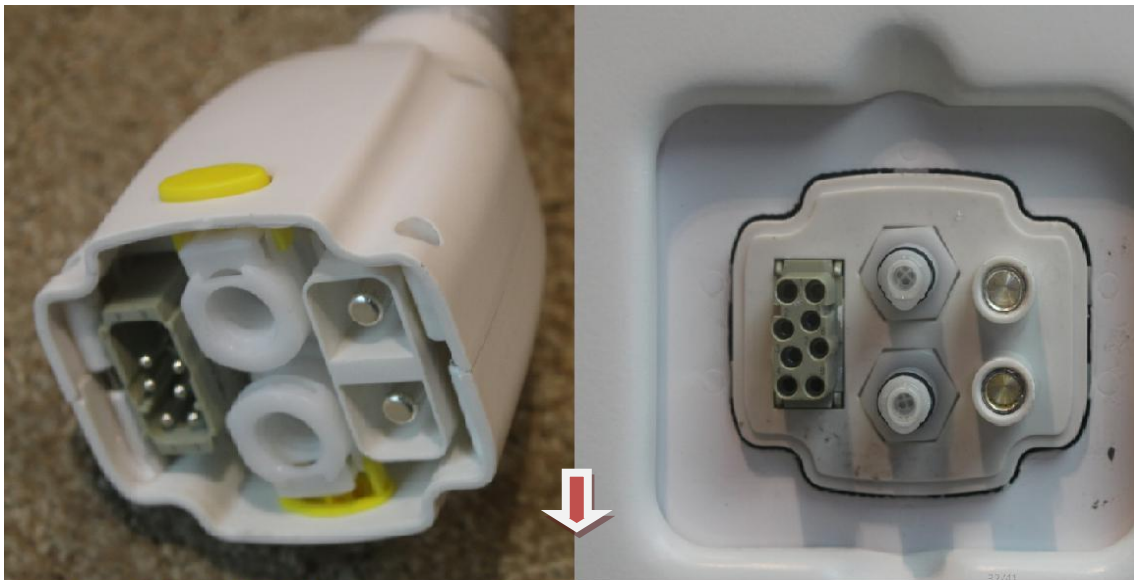
Step 5: input water as above illustration of “how to input water”

3. Connection of handpiece

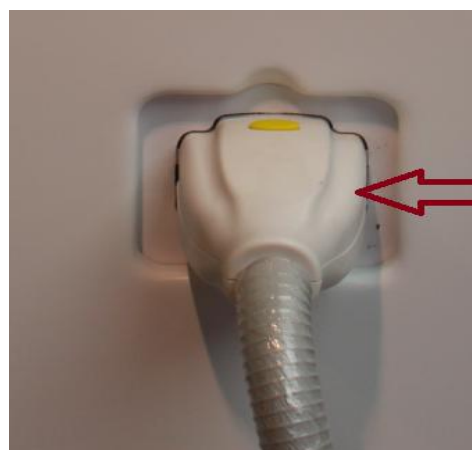
Step 1: press the white button on handle plug firstly, is important and necessary in case of each handpiece plug to machine;

Step 2: aiming to handpiece socket (on machine side) and plug

(notice: the white button on handle plug will rebound as well as click sound following at the same time. It means successfully plug handle to machine) .

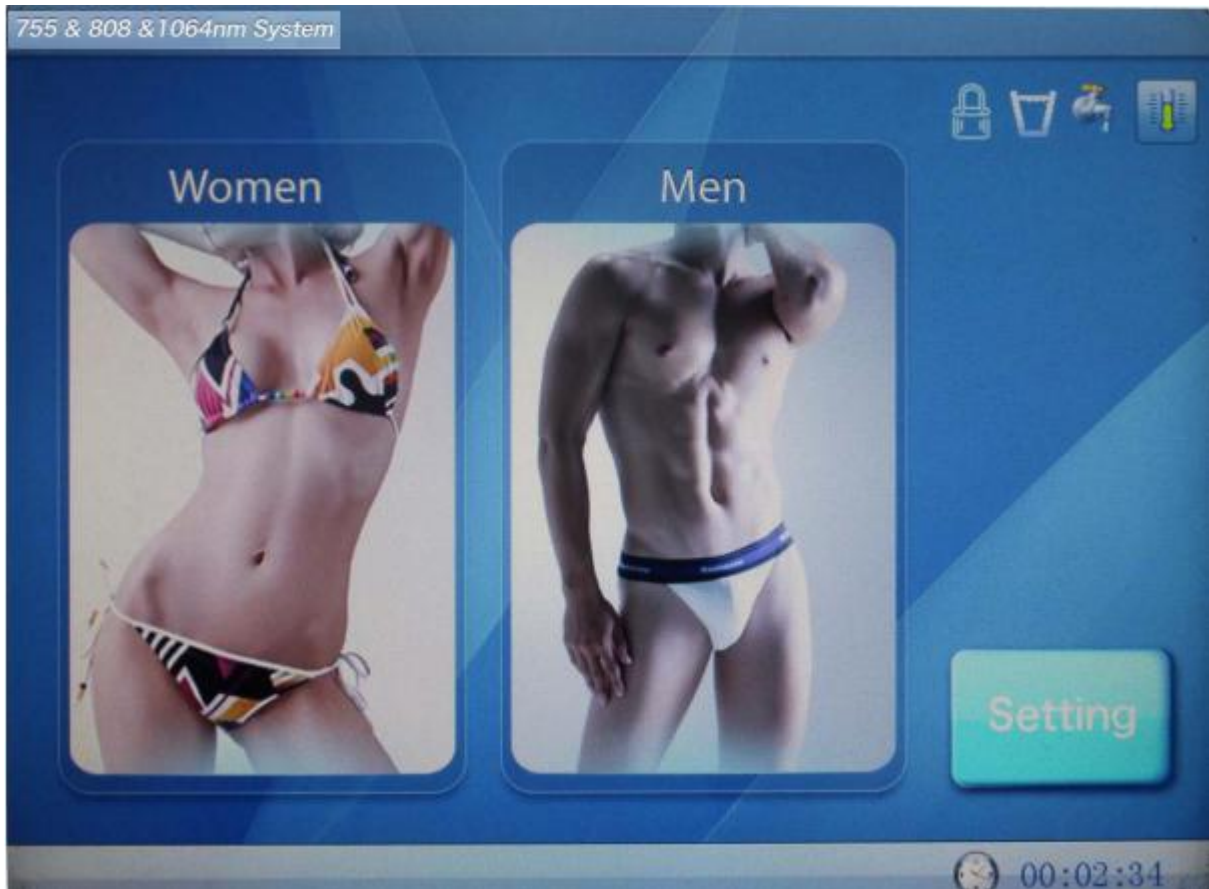


Handle Plug

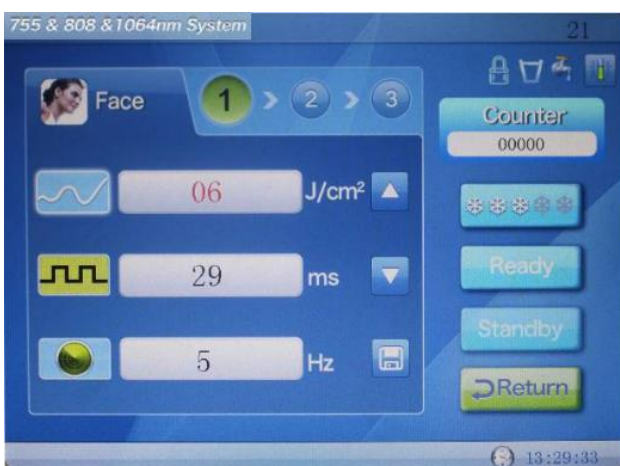


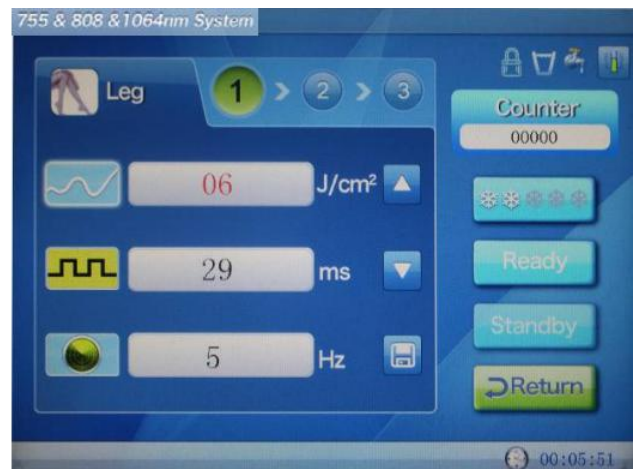
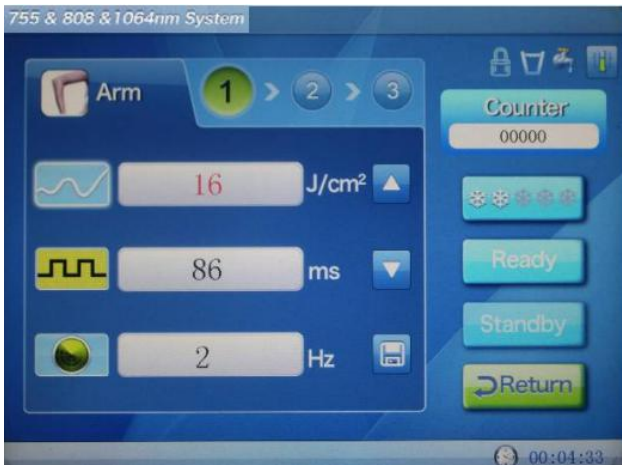
**Plug downwards
till one “click” sound ,
means good
handle connection**

VI. Software introduction



For women:



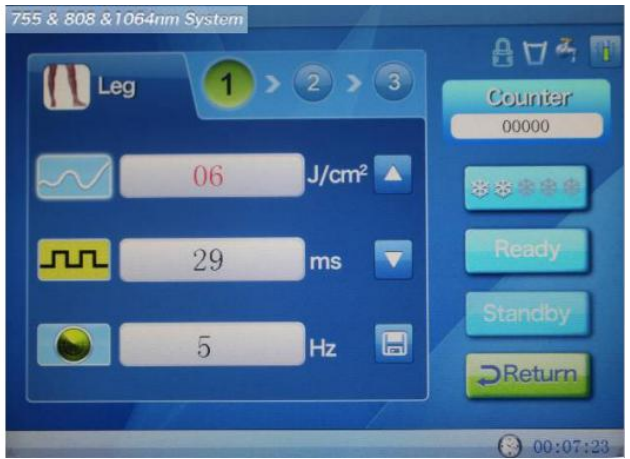
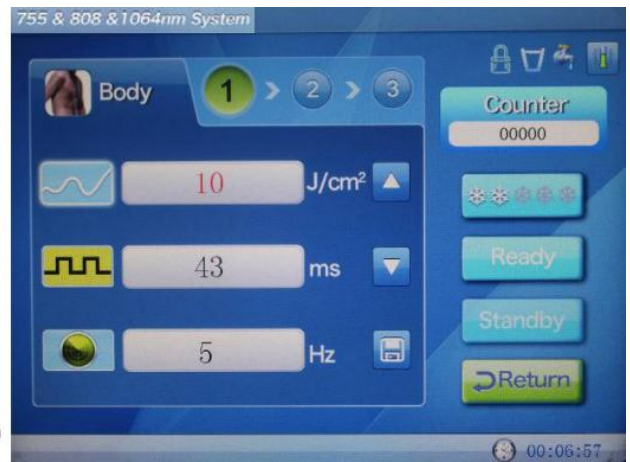


For men,





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Handle is the work component for hair removal instrument therapy. According to the treatment parameters set by main unit, yield the laser for treatment. The red button is the emergency switch. Press this button in emergency to disconnect the power supply of control system and laser, then, turn right and spring the button in order to restore normality.

Footswitch or buttons switch (alternatively) are used to execute irradiation in ready state.

There is rocker switch at the back of main unit, which is used to control power-on and off of main unit, when the device is not used, the key on the key switch should be rotated to “OFF” and taken away; the rocker switch is set to OFF, in order to prevent inappropriate use.

<p>Warning: before application or on operation, if not using control device and regulating device in the laser system or conducting operation according to the specified methods, dangerous exposure will be produced.</p>




Chapter Four--Operation Instructions



I. System control

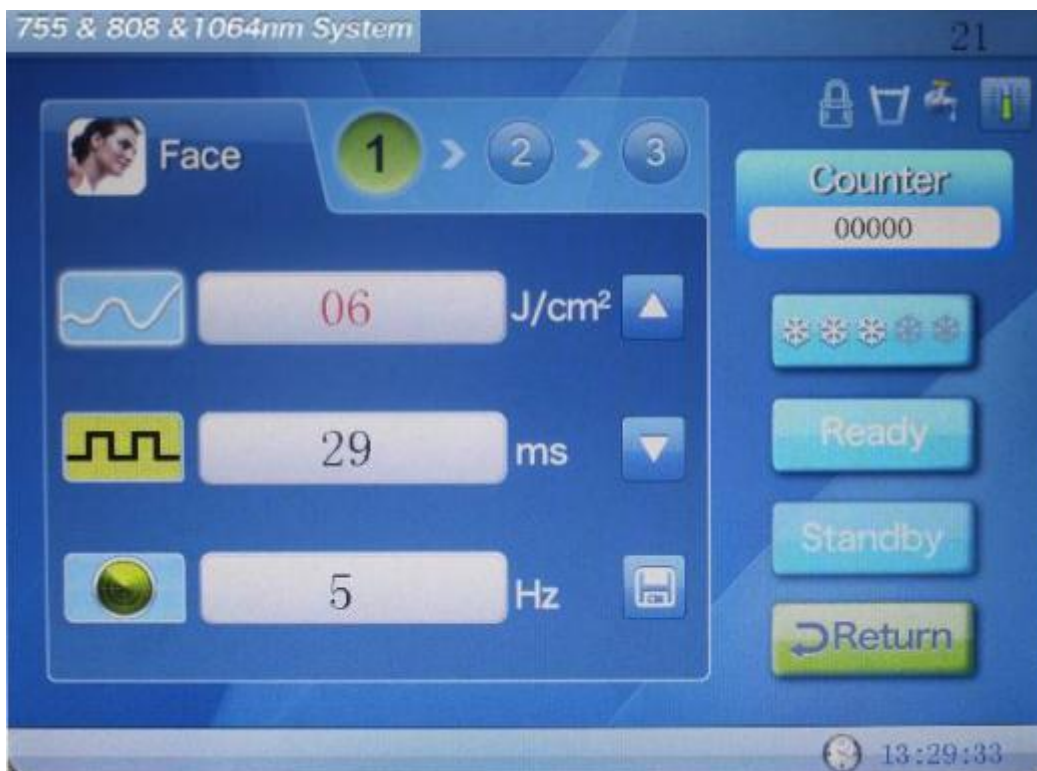
Parameter settings for the hair removal instrument can only be carried out in the standby mode.

1. Parameter Setup

Method: First click on “” character, and then click two blue triangle button with



In touch screen, thus ,the numerical step of $2\text{J}/\text{cm}^2$ can be pressed to increase or decrease the extent of energy density, the setting range is from $2 \sim 120 \text{ J} / \text{cm}^2$.



Attention:



- 1 means parameters for black skin
- 2 means parameters for yellow skin
- 3 means parameters for white skin



sequence from left to right: alarm for interlock, water flow, water level, water temperature. Any abnormal condition, it will alarm automatically at the first time and stop all working immediately.

A. Turn-on and off of refrigeration device

On power-on, touch “ready” and automatically stimulate “cooling system”, and no need to touch “cooling” once again.

B. Pulse width settings

Same Method of adjustment as for energy adjustment, the setting range is from 8~720ms.

C. Frequency setting

Same Method of adjustment as for energy adjustment, the setting range is from 0.5~10Hz.

Through measurement and analysis, the deviation between the nominal value of maximum output and the actual value and the estimated incremental value from hair removal instrument is less than 10%.

2. Ready and Enable

In “Standby/ Ready” buttons, “Standby” shows stop working mode, “Ready” shows working mode.

Notes: Laser works must press control button handpiece and step pedal at the same time after touching “Ready” on LCD screen

3. Foot Switch, Button Switch

Footswitch or button switch are used to execute emitting laser at ready state. They are optional.

When the system is in ready state with no abnormalities in self-test (including: safety interlock switch, flow switch, water temperature, fiber interlock switch and over-current), the operation for emitting laser can be performed on stepping on foot switch or pressing the button switch optional.

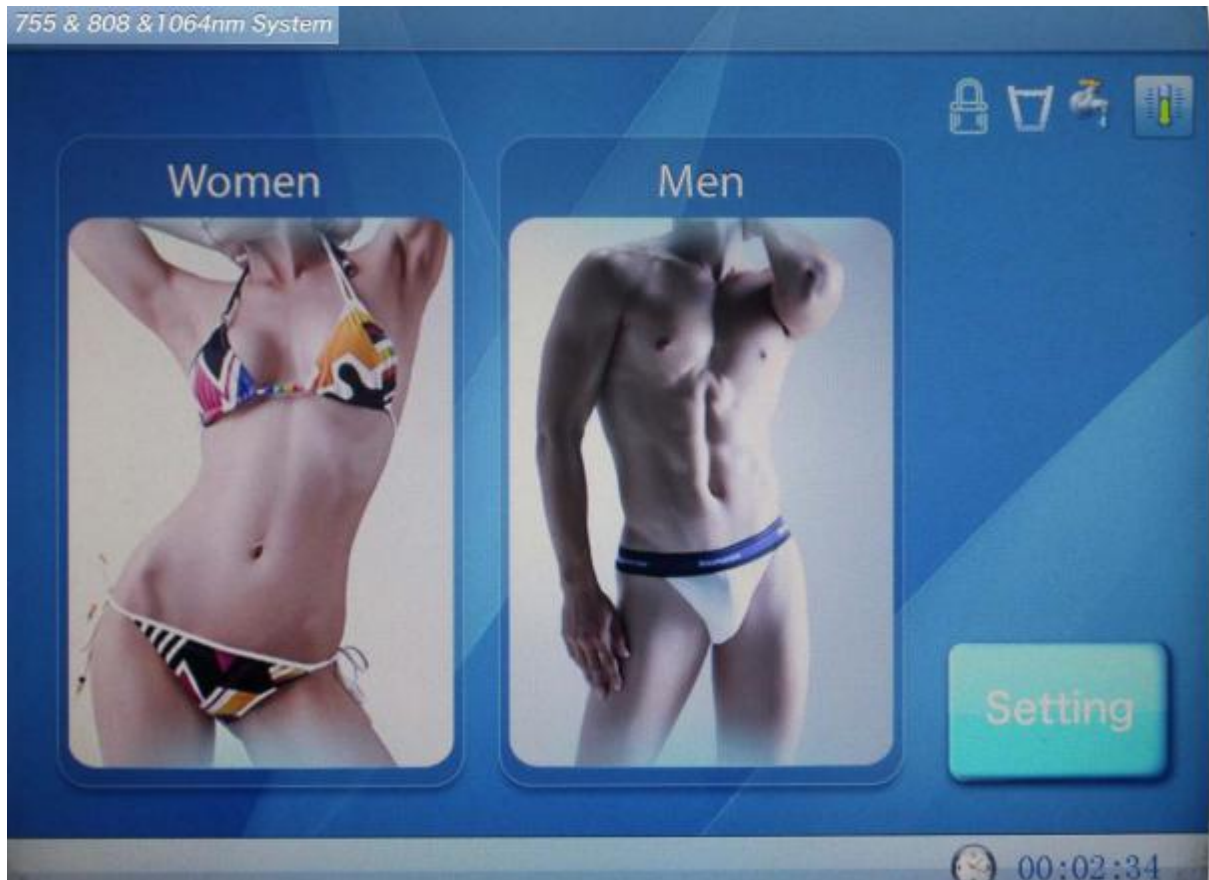
4. Fault Alarm

The hair removal instrument has multiple protection function and fault alarm system, including: safety interlock switches, flow switches, water temperature and fiber interlock switch, the over-current protector.

When there is abnormal condition in the main unit, the system will disconnect the laser power and reveal itself in the way of indicators from the protecting designator of touch screen (under the normal circumstances, the indicator shows green, in the event of a failure, the indicator shows red), at the same time, the buzzer will make continuous and buzzing alarm sound. Once the fault clearance is detected, the alarm screen and the alarm sound will automatically disappear. On application course, if the same warning screen appears more than three times, please contact the personnel of after-sale maintenance.

Corresponding treatment measures for the safety interlock switch alarm:

Checking whether the shell is opened or loose or, whether the remote interlock is in open circuit condition, if there are no above mentioned conditions, please contact the personnel of after-sale maintenance.



- 1) Flow switch alarm
Corresponding treatment measures: check whether there are water shortages from the water tank, or leakage from water pipes and radiator, if there are no above mentioned conditions, please contact the personnel of after-sale maintenance.
- 2) Flow level alarm
Higher or lower flow level, it can not work normally. You need to check up enough water input or not
At the first time and turn off machine immediately.
- 3) Water temperature alarm
Corresponding treatment measures:
Restart the appliance after stoppage or stopping emitting laser for some time .If the alarm as above is still present, please contact the personnel of after-sale maintenance.
- 4) Optical fiber interlock switch alarm
Corresponding treatment measures:
Check whether the optical fiber has been connected to the optical fiber output .If the alarm still exist, please contact the personnel of after-sale maintenance.
- 5) Over-current alarm
Corresponding treatment measures:
Stop operation, shutdown, restart, re-operation, if the alarm still exist, please contact the personnel of after-sale maintenance.

II. Shutdown Procedures

After applying the hair removal instrument, the user need to click on “standby”, the system will automatically stop the current treatment system.



Chapter Five--Clinical Application

I. Contraindications:

1. The patients with the keloid history and photosensitivity diseases.
2. Having the history of skin infections or herpes simplex in the treatment region.
3. Within 6 weeks, other ways for hair removal had been used.
4. The patients who are allergic to hydroquinone drugs or other bleaching agents.
5. Pregnant women and the patients with the malignant tumor.
6. The patients with the history of taking Isotretinoin within 6 months.

Note: The hair removal instrument has no significant effect on the white hair, at the same time, the person with suntanned skin should be cautious on application.

II. Clinical Features

1. Treatment features

The basic working principle of diode laser hair removal instrument is based on biological effect. This product adopts the laser with the wavelength of 808 nm for irradiation, which are particularly sensitive to the melanocyte of hair follicle with no damage to normal epidermis. The light can be absorbed by the melanin in the hair shaft and hair follicles and is transformed into heat, thus increase the hair follicle temperature, when the temperature rose to a higher extent, the irreversible damage can be produced to the structure of hair follicle, thus, the damaged hair follicles can be removed after a natural physiological process, so as to achieve the purpose of permanent hair removal.

This product is of novel design with stable operation; also, it is short for the irradiation time with lasting effects; it is easy to operate and have good clinical efficacy with high safety factor.

2. Clinical effects:

Safety: Diode laser of 808 nm has stable performance, long service life; also, it adopts the Intelligent microprocessor for real-time control. Quick: big square laser spot of

12 mm * 12 mm, provide large-area hair removal with high efficiency and speed.

Effective: Laser wavelength of 808 nm, is in the spectrum of near infrared (0.75 ~1.50 μ m) region with good melanin absorption, can penetrate the deep dermis and subcutaneous adipose tissue, acting on the different sites and depth of the hair.

Painless: The sapphire cooling window can cool the epidermis to 0~3°C. The whole course cooling provides appropriate feeling with no pain.

Convenient: The human-machine interface - touch screen, intuitive and easy-to-use, therefore, its operation is simple and convenient.

Permanent hair removal: Suitable for the hair from all types of skin color with good hair removal effect.



III. Potential Risks

The most common complications for using diode laser hair removal instrument are postoperative local erythema and follicular edema, most of them can disappear of themselves after a few hours. Rare complications are the local scab, purpura, blisters, pigmentation or hypopigmentation and increased sebum secretion. The occurrence of adverse reactions after laser hair removal, mainly relate with the energy density and the epidermal melanin content, meanwhile, it has obvious relationship with the seasonal changes, treatment sites and solar radiation, the adverse reactions can be minimized on abiding by the preoperative and postoperative guidance and the correct operation.



IV. Treatment Method

(The following treatment steps and methods are for reference only, the actual parameters and operation procedures are subject to the clinical use)

1 . Preoperative Preparation

A:

For the patients with black skin color, the solar radiation should be avoided as far as possible before operation, it is best to use sunblock for 4~6 weeks, the persons with the tendency of pigmentation, may add hydroquinone drugs for prevention.

B:

The skin preparation for treatment area must be made prior to the treatment, thus, the hair, grease and dirt should be thoroughly scraped off.

2. Anesthesia

Whether the anesthesia is needed in treatment should be decided based on the treatment site and size and whether it is the sensitive area and the patient's pain threshold. Generally, the surface anesthesia can be used only.

3. Treatment Method

A:

The operators and the patients being operated should wear protective glasses deployed by manufacturers, prevent the eye damage from laser; smear the transparent gel outside treatment area to reduce local skin temperature and the pain during the treatment.

B:

Set treatment parameters according to the operation method of “parameter settings” from Chapter 6.3.1, first give the experimental treatment, after obtaining the best effect in the energy density test, the comprehensive treatment can be performed. The general pulse width adopt 30~ms and for the energy, select 20~J/cm². It is best to make personalized setup for the treatment parameters according to clinical manifestations and treatment conditions of patients, in general, if the energy density to be set is reasonable, in the treatment course, the patients being operated will feel the needle-stick pain from each hair follicle; if there was absolutely no feeling, the energy to be set may be too low; when hair follicle density from some region is too high, the laser energy for treatment should also be reduced appropriately.

C:

During the treatment course, it should exert certain pressure on laser handle, which can maintain good contact between handle and skin, this can also drive off the local blood, reduce the oxyhemoglobin to absorb laser energy. In order to obtain the appropriate epidermal cooling effect, the handle need to maintain contact with skin for 0.25 ~0.50s before lasing. After treatment, immediately lift the handle and move towards the next treatment point. In addition, in the treatment course, it should pay attention to maintain the cleanliness of optical crystals; the external dust will increase the light absorption and produce the heat, therefore, increase epidermal injury and pain.

D:

During the treatment course, light spot overlap should be appropriate, since repeated exposure will aggravate skin damage, meanwhile, too wide spacing will affect therapeutic effect, and in general, the light spot overlap should be less than 10%.

E:

Based on the different regions, the hair have different growth cycle, therefore, the treatment interval should be different, for instance, the hair from head has a relatively short period of telogen (about 12~16 weeks),thus, giving treatment with an interval of 1 month may enable it to evolve into the growing period. The telogen of hair from trunk and limbs is 12~24 weeks, so, 2 months is appropriate for the treatment interval. Generally speaking, the next treatment should be given when the hair regeneration begins and the effect is best at this time.

F:

After the end of each treatment, the aureomycin eye ointment or erythromycin ointment should be smeared in time at the treatment region, preventing from local

V. Clinic parameter suggestion

Reference parameters setting for diode laser hair removal

Value range	Energy	Width of pulse	frequency
	2-120J/cm ²	8-685ms	0.5-10Hz

	Energy	Width of pulse	frequency
Reference parameter setting (suitable for black, brown, white skin)	Start from 5J and then adjustable as actual patient's condition Note: the energy value is most important value setup in the whole treatment, so please adjust from lower to higher in step.	This value will rise at the same time as energy rising. Please look at the following trend of parameters setting	Can start from 2-4Hz and then adjustable; please look at the following trend of parameters setting
Clinic phenomenon	<p>For a right parameters setting, the client will have the feeling of acupuncture under skin tissue obviously, then feel warm at the same time; but all feeling must be acceptable by clients. Generally, skin turn to little red after treatment and will disappear in future 1 hour.</p> <p>Frequency of spots: repeat treatment for 20-30 shots at the same place, but not mean keep 20-30 shots staying at the same place in one time. For instance, you want a treatment for the whole leg. Firstly should set up</p> <p style="text-align: center;">→</p> <p>correct parameters → vertical put probe on skin (leg) and make sure probe</p> <p style="text-align: center;">→</p> <p>closing touch skin → touch "ready" on LCD display → continuously step and</p> <p style="text-align: center;">→</p> <p>press control button on handpiece at the same time → laser shooting → slide</p> <p>handpiece from one side of leg to another side, and then repeat from one side to another side on leg till 20-30shots to each place.</p>		

Value change	Energy	Width of pulse	frequency
	2J	10ms	0.5-10Hz adjustable
	3J	14ms	

	4-5J	19ms	
	6-7J	29ms	
	8J	38ms	
	9J	38ms	0.5-9Hz adjustable
	10J	38ms	0.5-8Hz adjustable
	11J	52ms	0.5-8Hz adjustable
	12J	52ms	0.5-7Hz adjustable
	13J	52ms	0.5-6Hz adjustable
	14-15J	67ms	0.5-6Hz adjustable
	16J	67ms	0.5-5Hz adjustable
	17J	67ms	0.5-5Hz adjustable
	17J	67ms	0.5-4Hz adjustable
	18-21J	86ms	0.5-4Hz adjustable
	22J	86ms	0.5-3Hz adjustable
	23-27J	110ms	0.5-3Hz adjustable
	--	--	--
Note:	The value of pulse width will rise as energy value rising automatically. You can have a try by yourself for a better understanding before real treatment.		



VI. Attentions in clinic

1. Generally it's close related to the energy density, treatment result and inflammation condition after skin impaired. High energy density will make a better effects but bigger inflammation reaction at the same time; as well as deep skin impaired accordingly. Energy starts from lower energy in treatment, and increase energy density little by little till a better effect.
2. The biggest permitted energy and skin's pigment are in reverse proportion. Generally dark skin with lower energy density, to reduce laser absorbing at epidermis or turn to warm. Good cooling system is very important in treatment and protects skin burning greatly, much better to the dark skin.
3. Shave the unwanted hair before operation, because the visual hair will absorb laser energy and create heating at epidermis, which may causes partial skin burning and damage laser probe.
4. Good cooling system will reduce temperature at epidermis. Cool probe is helpful to increase permitted energy density and partial anesthesia. Strong suggest adopt cooling mode in the whole treatment, specially to the dark skin. Dark skin is more easy to absorb energy than light skin.
5. After treatment, take soft gauze mat for laser probe 100% cleaning and keep it dry.



Chapter Six: Daily Maintenance

Maintenance is necessary to ensure that the hair removal instrument works in a good condition. Great care shall be taken in maintaining the hair removal instrument since the laser medical device is a precision appliance.

1. Check or replace the power fuse

Shut down all the power switch, pull out the power cord plugs; Use one small flat screw driver to gently turn the protective tube casing in an counterclockwise manner and then take out the protective tube, then take out the fuse from protective sheath; Only the fuses with standard type which specified by the manufacturers can be used for replacement (fuse type: 10A/250VAC); put in the fuse tube and the sheath and tighten the sheath up clockwise, re-insert the power cord to the back of instrument, then connect the electricity, turn the power switch and key switch on, verify that whether the instrument is working correctly.

2. Main unit maintenance for the hair removal instrument

A shield should be covered if the equipment is not used for long time, this can prevent the pollutants as dust and water vapor from entering into the inside of main unit, these pollutants could lead to the decrease of laser output energy, and even affect their normal operation, therefore, it is requested that the equipment installation sites must be clean, dry and dust-free, also, the ambient temperature is preferably maintained at 15°C~28°C. In order to avoid the appliance casing and components aging, the main unit can't be put in strong direct sunlight; it should be installed in a dry, ventilated place with no corrosive gases. In the region with the temperatures below 0 °C, it is proposed that the cooling water in the main unit should be emptied out during transport process or not to be in use for long time, this can prevent the liquid icing and expansion and damage the related components in the equipment (it is recommended that the discharge should be conducted by the qualified professionals from manufacturers or directly contact to the manufacturers).

3. Maintenance of laser handle

Laser handles is composed of precision optical components, therefore, it should avoid falling and getting blunt force, the laser handles couldn't be collided or turned on arbitrarily, otherwise, the laser module will not emit light normally; the cleanliness of end plane of light guide crystal has significant impact on the laser output, so the inspection and proper cleaning must be given before application. When using the handle transmission system, it should try to avoid the damage caused by extreme bending.

4. Maintenance of Cooling System

Regularly check to ensure the cooling fan works normally. If the cooling fan or

cooling module fails, therefore, the appliance lose heat exchange path with the external environment and heat will accumulate inside the appliance, and as a result, the laser may fail to work normally, or even cause damage to hair removal instrument. On overhauling the appliance, the maintenance personnel should detect the storage volume of water tank and water quality, as well as refrigerating capacity of the appliance, if any exception occurs, the cooling water should be added or replaced timely.



Note: the cooling water used for the hair removal instrument is the special water with special requirements, if replacement is needed, please contacts the manufacturer to provide the special water.

5. During transport process, if want to lift the appliance, the force point must be in the frame, the casing and the handle may not be imposed on force, since the handle is only for movement. On normal application (emitting laser beam), the hair removal instrument can not be moved and can not be over-tilt (gradient \leq 5 °).
6. Non-professional maintenance personnel shouldn't dismount the main unit, laser handle, foot switch as well as other accessories, if there are quality problems, please contact your local dealer.
7. During storing process, the hair removal instrument should be tested once a week, the power-on and off condition for “power switch”, “key switch” and “emergency stop switch” are detected. If any exception occurs, please pull out the plug of power supply and contact the manufacturer.