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EVO 808nm Diode Laser Machine



# **Diode Laser System L808-M User Manual**

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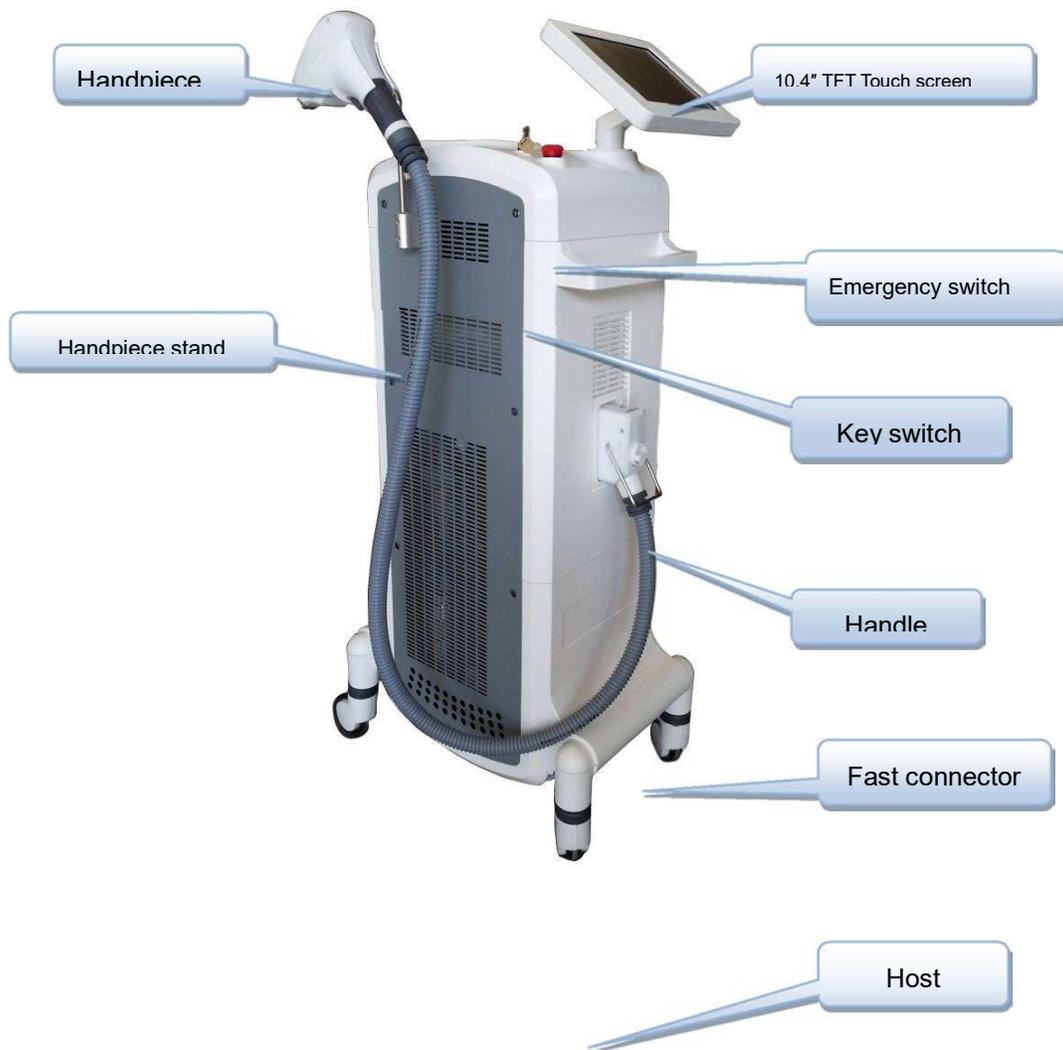
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## Chapter 1 Equipment Structure

### 1.1 Parts





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Handpiece stick×1



Footswitch×1



Funnel×1



Power line×1



Customer goggle×1



Beautician goggle×1



Key×2



Fuse×2



User manual×1

For side panel×16

Screw×6

Tool (3mm) ×1

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## Chapter 2 Safety

This chapter shows the safety measures need to be considered when you use this equipment. The operators and maintain personnel shall be familiar with the safety requirements and procedures when they use the equipment.

### 2.1 Optic Safety

- 1) Avoid any light reflected by jewelry, watch, mirror etc.;
- 2) Laser can harm eyes and cause fire or burning. When you use the equipment, all personnel including the operator and the customer shall wear glasses or use opacity material for eyes protection. Even with protection glasses do not look at the intense pulsed light or its reflected light directly;
- 3) When you use the equipment, keep your body far away from the light exit of the hand piece;
- 4) Forbid to use the hand pieces for any other using out of the manual;
- 5) The laser was conducted to the customer's skin by optical filter crystal and it can only be sent out from the optical filter crystal;
- 6) It may cause skin heat trauma when skin absorbs unexpected light;  
  
If you don't use the hand piece, please put it on the stand; When you use it, the light exit should face to the treated area;
- 7) After once hair removal, make system under standby situation to avoid unexpected shot;
- 8) You can try to make shots towards floor or sailing, not to mirror;
- 9) Keep the tip clean and keep cooling gel from leaking into hand piece;

### 2.2 Electric Safety

1. Be sure that rated input voltage written on the label is coincident with the supply in the location;

- 
2. The maintain process can only be carried out after the power has been shut off and the electric line has been unplugged. Otherwise, there is danger to the personnel or the equipment;
  3. There is dangerous high-voltage in the equipment. So no one is allowed to disassemble any parts of the equipment except the technical personnel appointed by our company;
  4. If you find the hand piece is leaking water, don't turn on the equipment; if it has turned on the equipment, you must turn it off at once;
  5. When in the urgency, please press the emergency switch to cut off the power supply;
  6. The switch key could avoid misuse of this equipment;
  7. Keep the crystal cleaning after using it. Do not let the cooling gel leak inside;
  8. This equipment connects with the earth ground through the yellow and green wires of the three cores power supply wire. Well grounding is most important for operation safety (look at following picture).

### **2.3 Fire Protection**

- 1) Take protective measures to prevent the intense pulse light from lighting the treating room or tenderness nearby;
- 2) Take measures to avoid laser from causing fire to nearby materials easy to get fire;
- 3) When medical alcohol has been used for cleaning purpose, please wait till it is dry. Do not start up the equipment until the equipment is totally dry.

### **2.4 Safety Device**

- 1) **Electricity breaker:** When electricity is abnormal, it will cut off electricity to protect equipment and human body; If don't use this equipment for long, please make it shows "OFF";
- 2) **Power switch**

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3) **Emergency switch:** At emergency press it to cut off equipment electricity and turn it right to start electricity;

4) **Fuse:** When electricity is abnormal, it will cut off electricity to protect equipment and human body;



Electricity breaker



Power switch



Emergency switch



Fuse

## 2.5 Safety Signs

- 1) "AC220V 50Hz" or "AC110V 60Hz" is power supply;
- 2) "AC250V 10A" or "AC110V 15A" is fuse type and rated value

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## Chapter 3 Specifications

### 3.1 Technical Specifications

LCD screen	10.4 "TFT color touch screen
Work mode	Pulse
Pulse width	2.9-348ms
Real time on line	Real time on line
Frequency	1Hz, 2Hz, 3Hz, 10Hz
Energy density	Max 120J/cm <sup>2</sup> (HR Mode), 25J/cm <sup>2</sup> (FHR Mode)
Laser wavelength	808nm±10nm
Laser power	Max 500W
Tip	12*12mm
Rated input power	<1400W
Power supply	AC220V, 50Hz/ AC110V, 60Hz
Temperature	15~28℃
Humidity	40%~70%
Atmospheric pressure	860hPa~1060hPa;
Hand piece	One (500W)
Net weight	55kg
Gross weight	70kg
Equipment size	380mm×540mm×1200mm

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### 3.2 Environmental Requirements

- 1) Work temperature: 15°C ~ 28°C
- 2) Work relative humidity: 40%~70%
- 3) Storage temperature: 5°C ~ 40°C
- 4) Storage relative humidity: ≤80%
- 5) Atmospheric pressure: 860hPa ~ 1060hPa
- 6) Environmental Requirement: Avoid intense light
- 7) Cooling water: deionized water

### 3.3 Skin Type

Skin color type					
I	II	III	IV	V	□
White skin	White with pigment	Yellow skin	Yellow with pigment	Brown skin	Black skin

### 3.4 HR (Traditional hair removal mode energy)

Treatment part	Skin type	I~ VI
	Light power	500W
	Electricity	100A
Axillary, Chest, Arm, Back, Leg	1HZ	1-120J/CM <sup>2</sup>
	2HZ	1-60J/CM <sup>2</sup>

	3HZ	1-40J/CM <sup>2</sup>
Hairline, Cheek, Lip, Beard, Bikini	1HZ	1-60J/CM <sup>2</sup>
	2HZ	1-40J/CM <sup>2</sup>
	3HZ	1-30J/CM <sup>2</sup>

**3.5 HR (Default value of traditional hair removal)**

Treatment Item \ Skin Type	Skin Type						Frequency
	I	II	III	IV	V	VI	
Axillary, Chest, Arm, Back, Leg	21 J/CM <sup>2</sup>	19 J/CM <sup>2</sup>	15 J/CM <sup>2</sup>	13 J/CM <sup>2</sup>	8 J/CM <sup>2</sup>	4 J/CM <sup>2</sup>	1HZ
	19 J/CM <sup>2</sup>	17 J/CM <sup>2</sup>	13 J/CM <sup>2</sup>	11 J/CM <sup>2</sup>	6 J/CM <sup>2</sup>	4 J/CM <sup>2</sup>	2HZ
	11 J/CM <sup>2</sup>	5 J/CM <sup>2</sup>	11 J/CM <sup>2</sup>	9 J/CM <sup>2</sup>	5 J/CM <sup>2</sup>	3 J/CM <sup>2</sup>	3HZ
Hairline, Cheek, Lip, Beard, Bikini	15 J/CM <sup>2</sup>	13 J/CM <sup>2</sup>	10 J/CM <sup>2</sup>	8 J/CM <sup>2</sup>	5 J/CM <sup>2</sup>	3 J/CM <sup>2</sup>	1HZ
	13 J/CM <sup>2</sup>	11 J/CM <sup>2</sup>	9 J/CM <sup>2</sup>	7 J/CM <sup>2</sup>	4 J/CM <sup>2</sup>	3 J/CM <sup>2</sup>	2HZ
	11 J/CM <sup>2</sup>	9 J/CM <sup>2</sup>	7 J/CM <sup>2</sup>	6 J/CM <sup>2</sup>	3 J/CM <sup>2</sup>	2 J/CM <sup>2</sup>	3HZ

**3.6 FHR (Energy of fast hair removal mode)**

Frequency	10Hz
Energy density	1-25J/CM <sup>2</sup>
Power	500W
Electricity	100A

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### 3.7 FHR (Default value energy of fast hair removal mode)

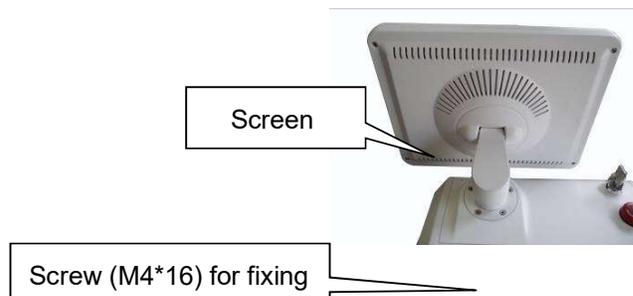
Treatment Items	Default Energy Level
Axillary, Chest, Arm, Back, Leg	8 J/CM <sup>2</sup>
Hairline, Cheek, Lip, Beard, Bikini	5 J/CM <sup>2</sup>

## Chapter 4 Installation

To ensure good ventilation, the system shall leave the walls or air obstructions at least 0.5m;

You can fix the equipment with the wheel lock if you like.

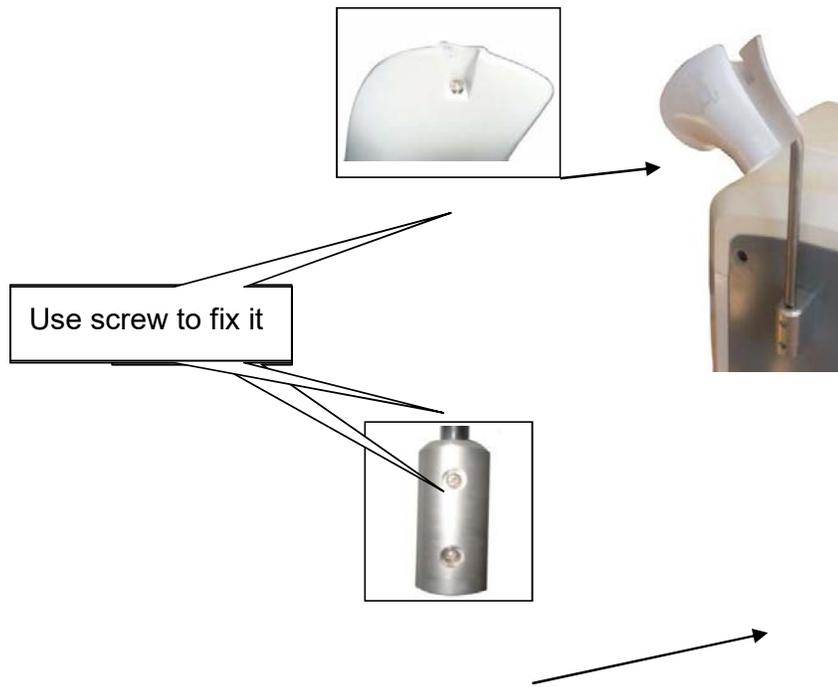
### 4.1 Screen Installation



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## 4.2 Hand piece Stand Installation

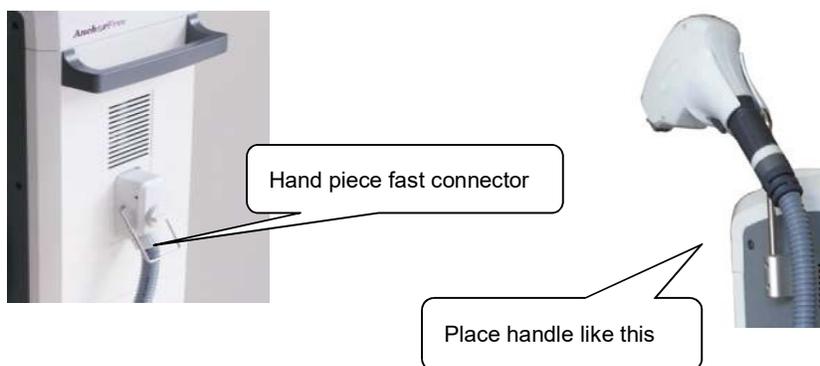
Hand piece stand is installed on the left board.



## 4.3 Hand piece Installation

Press the two keys of fast connector at the same time and insert it into the host, then

Turn 45° (make sure the fast connection is successful)



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#### 4.4 Fill Water

1. "Tank-exhaust" shall use the cap with a hole;
2. Connect funnel with Water/Drain connector (Picture 1) ;
3. Fill 3L deionized water slowly until it gets to level 5;
4. Take away filling water tools



Picture 1



Picture 2

#### 4.5 Drain Water

When environment temperature is lower than 0C°, water in the tank will freeze, which may damage the equipment. You can drain water to avoid this.

##### **Drain water procedure:**

- i. "Tank-exhaust" shall use the cap with a hole;
- ii. Put a container (about 3L) near the back panel;
- iii. Connect a clean water pipe with "**Water / Drain**" connector (Picture 2);
- iv. Water will flow out until there is no water in the tank (about 5 minutes);
- v. Take away the tools.

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## Chapter 5 Operation Guide

### 5.1 Start System

1. Connect power supply;
2. Release emergency switch;
3. Press power switch;
4. Turn key switch;
5. Screen shows initialization interface (Picture 1);

Picture 1

### 5.2 Password Interface

After system self- test, it shows password interface (Picture 2);



Picture 2

Input password to enter system. The first default password is 000000;

If you input wrong password, system will show following picture, press

GO BACK

to input password again;



**Note:** If forget password, input omnipotent password “815043” and then equipment’s password changes to ( 000000 ) ;

**Change Password:**



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Picture 3

In Picture 2, press  to enter Picture 3;

Input original password, new password, new password again;

Press , if setting is successful, system enters Picture 2;

If you failed, system will show Picture 4, press  to go back to Picture 2;



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Picture 4

### 5.3 Noting Interface

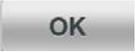


Picture 5

After inputting correct password, press  and system shows Picture 5;

Picture 5 notes you to wear goggle for protecting eyes from being injured by laser;

Warning : Laser can do harm to eyes;

Press  to enter mode selection interface;

## 5.4 Mode Selection

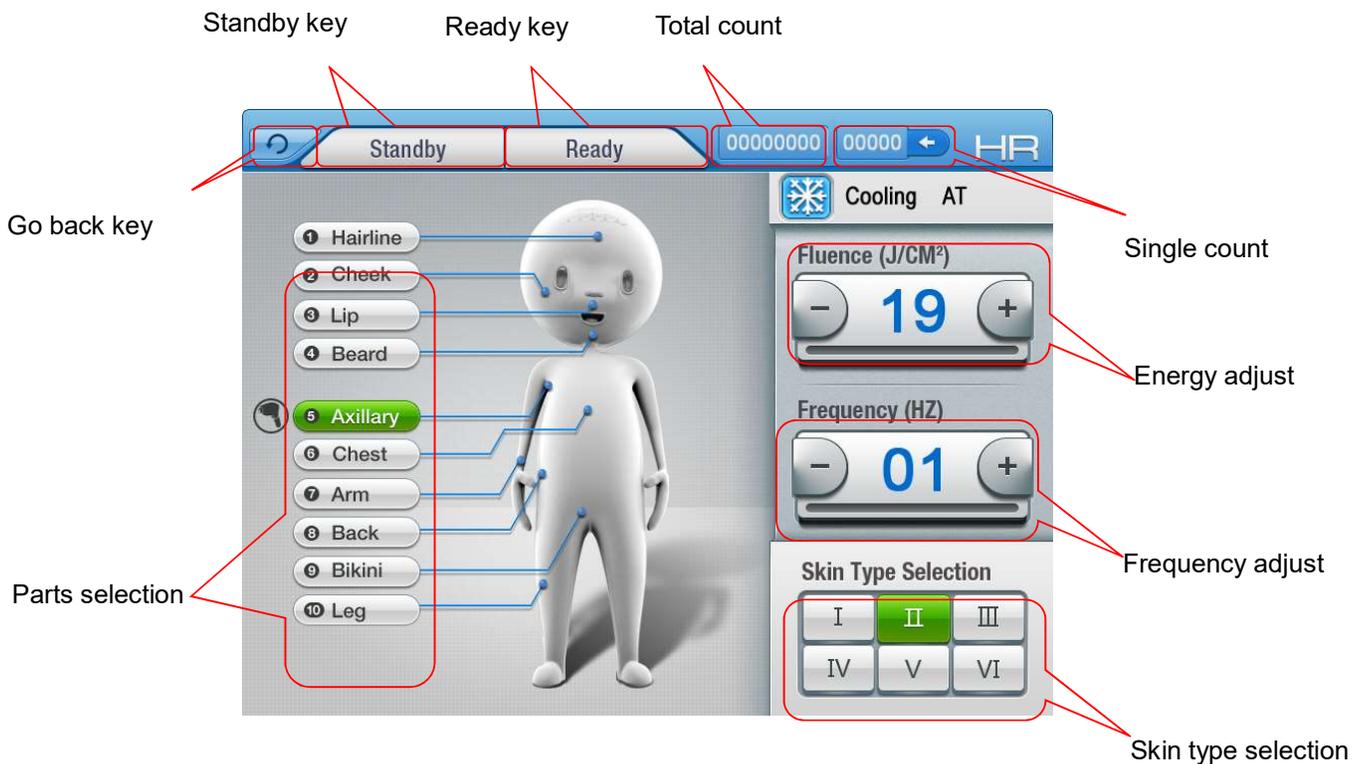
### 5.4 .1 Mode Selection Interface



Picture 6

### 5.4 .2 HR Mode

In picture 6, press  to enter Picture 7 (HR mode interface);



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Picture 7

 **Skin type selection:**

I~ VI skin types;

Each skin type has relative default parameters;

Energy decreases from I skin type to VI skin type (Refer to 3.5)

 **Parts selection:**

10 parts for selection;

Different skin type has different energy (Refer to 3.5)

 **Energy adjustment:**

At “Flounce (J/CM2)” area, press   to adjust energy;

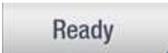
 **Frequency adjustment:**

At “Frequency (LZ)” area, press   to increase and decrease frequency;

Selective frequency is 1.0, 2.0, 3.0HZ;

Different frequency has different energy (Refer to 3.5)

Please use small frequency at first, when you have some experience, you can increase frequency;

 Press  for treatment;

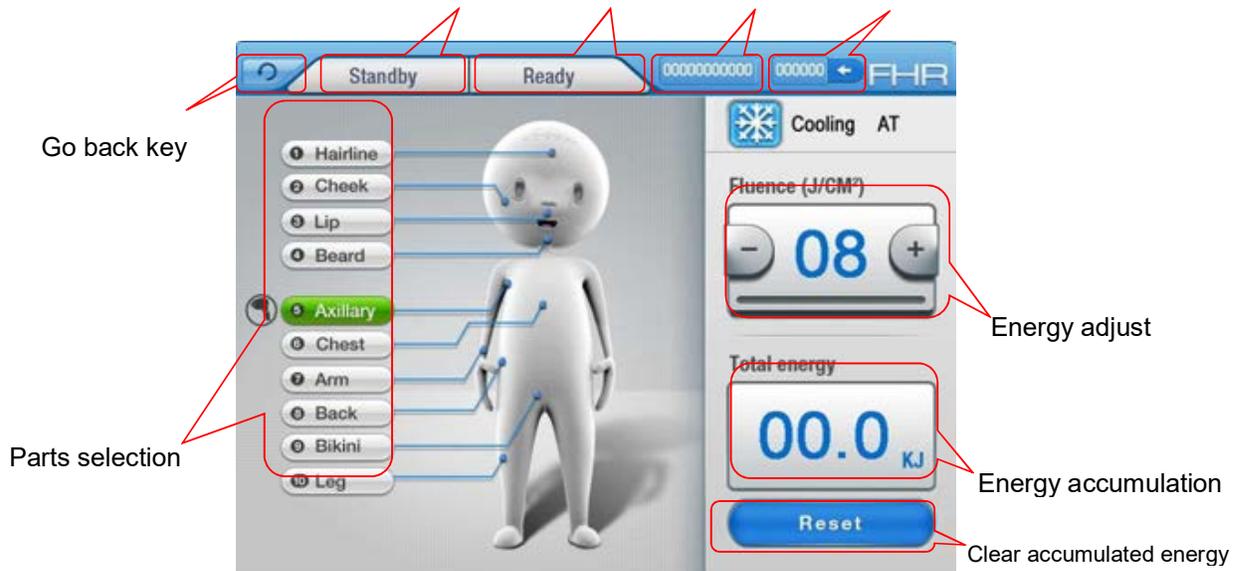
 Press  to exit ready condition;

 Press  to go back to Picture 7;

### 5.4 .3 FHR Mode

#### FHR mode interface:

Standby key    Ready key    Total count    Single count



Picture 8

The default frequency is 10HZ (could not be changed);

#### ✚ Parts selection:

10 parts for selection;

Different skin type has different energy (Refer to 3.7)

#### ✚ Energy adjustment:

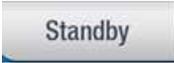
At “Floucnce (J/CM<sup>2</sup>)” area, press   to adjust energy;

#### ✚ Energy accumulation:

At “Total energy” area shows the accumulated energy during treatment;

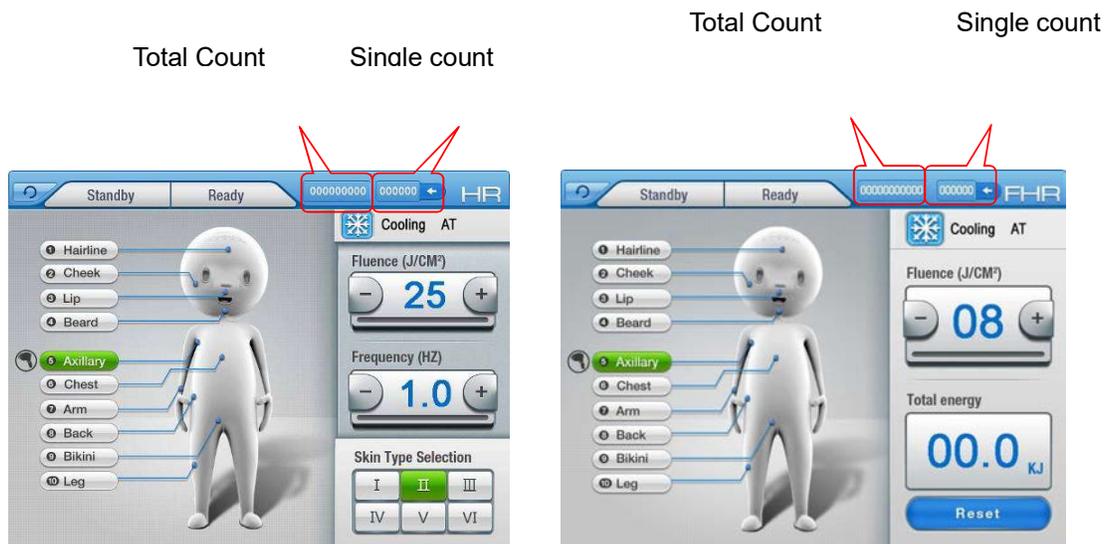
Press  key to clear the accumulated energy;

✚ Press  for treatment;

Press  to exit ready condition;

Press  to go back to Picture 8;

### 5.4.4 Total Count Function



**Note:** HR mode and FHR mode both have total count;

It increases 1 after each shot;

Total Count scope is 0~10, 000, 000 (shots);

Total count will not loss even turn off equipment.

Press  key, single count will change to "000000";

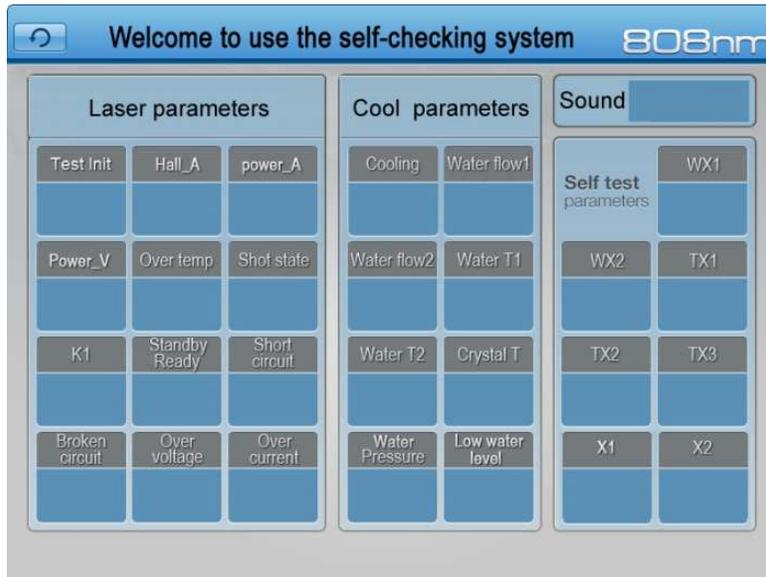
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When you change interface between HR and FHR, or the total count gets to 999, 999, single count will clear by itself;

**Note** : If total count gets to 10 , 000 , 000, this hand piece could not be used anymore and you need to change for a new one.

### 5.4.5 Self-check Interface

On interfaces of HR or FHR, press right up corner **HR** or **FHR** area to enter self-check interface:



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This is system self-test interface, it shows information of water test, water temperature, water pressure, crystal temperature parameter and laser power supply.

<b>NO.</b>	<b>Name</b>	<b>Illustration</b>	<b>Showing situation or scope</b>
1	Test Initial	Test initial parameter of laser power supply	ON or OFF
2	Hall A	Laser electricity collected by hall sensor	0-100A
3	Power A	Feedback output electricity of laser power supply	0-102 A
4	Power_V	Feedback voltage of laser power supply	0-11V
5	Over_temp	Over temperature	OK or warn
6	Shot state	Power supply has light/no light	Shot or OFF
7	Standby/Ready	Power supply start/not start	Stby or Redy
8	Short circuit	Power supply short circuit/normal	OK or warn
9	Over voltage	Power supply over voltage/normal	OK or warn
10	Over current	Power supply over current/normal	OK or warn
11	Water flow1	Handle water value 1	$W1 \geq 0.6L$
12	Water flow 2	Handle water value 2	$W2 \geq 0.6L$

13	Water T1	Laser water temperature (flow in) value	T1<40□
14	Water T2	Laser water temperature (flow out) value	T2<40□
15	Crystal T	Crystal temperature	T≤20□ shows green, T>20□ shows red
16	Low Water level	Lowest water level	OK or warn
17	Water Pressure	Pressure value	0-0.5MPa
18	WX1	Water 1	0-1 or 7-8V
19	WX2	Water 2	0-1 or 7-8V
20	TX1	Water temperature 1 check	3.3-4.1V
21	TX2	Water temperature 2 check	3.3-4.1V
22	TX3	Crystal temperature check	3.3-4.1V
23	X2	Cooling check	4-4.8V or 0V
24	Sound	Voice	ON: has voice, OFF: no voice
25	Cooling	Automatic cooling, MT: manual cooling	AT: automatic cooling, MT: manual cooling

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## Chapter 6 System Maintenance

### 6.1 Regular Maintenance

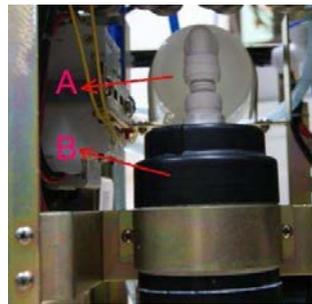
1. Change deionized water once per month;
2. Watch whether O shape ring of handle is broken, if yes, change it in time;
3. Internal check and clean once every three months;
4. Test output energy for equipment every month;

**5. Change ion filter and particulate filter together every 3-6 months, or the hand piece under warranty will be charged, not free any more.**

- 1) Drain water referring to 4.5 in Chapter 4;
- 2) Take down the two boards (A in Picture 1) of both sides;



Picture 1



Picture 2

- 3) In Picture 2, A is particulate filter and B is ion filter;
- 4) Just take down metal A and B in Picture 3;



Picture 3

5) Just take down the relative small blue rings directly;

For example, C in Picture 4;

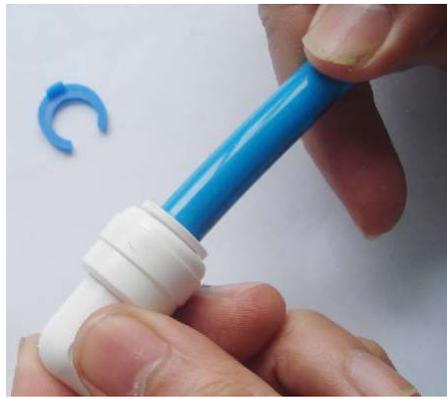


Picture 4

6) With one hand pressing the white part, the other hand pulls out the blue pipe (Picture 5)



Picture 5



Picture 6

- 7) Then change for new particulate filter and ion filter;
- 8) Insert the blue pipe into the white part directly (Picture 6);
- 9) Install the blue rings directly;
- 10) Install A and B in Picture 3

**Note:**

Only technical person authorized by Anchorfree Technology Co.,Ltd. can maintenance system internal;

**6.2 Daily Maintenance**

1. Use cotton with 70% alcohol to clean system cover after treatment;
2. Clean cooling gel on handle after treating with each part;
3. Each day use wet cloth clean the host;

**6.3 Service Information**

**Caution!**

Unmentioned, unauthorized maintenance and modify can make radiation to operator.

Unsuitable using and adjusting this system may lead to warranty agreement invalid.

## Chapter 7 Troubleshooting

Trouble	Reason	Solution
Failed to start the equipment	Power line isn't connected well	Check the power line and well connect it
	Emergency switch and power switch	Whether emergency switch is loss; Whether power supply switch is pressed;
	Electricity breaker shows OFF	Make it show ON and start equipment again; If it shows OFF again, you shall contact with us
	Fuse has trouble	Change the fuse
Warning tone is abnormal	Trouble with control panel	Change control panel and contact with us
	Voice is closed	Enter self-check interface to turn on voice
Touch screen has no response	Screen has trouble	Contact with us
	Trouble with control system	Turn off key switch and turn on equipment again; If it still has trouble, contact with us
No simmering	Trouble with hand piece	Change hand piece, if of no use, please contact with us
	Trouble with power supply	Change the power supply in the equipment and contact with us
	Trouble with control panel	Change control panel and contact with us
Trouble with cooling system	Trouble with power supply	Change power supply of cooling system and contact with us
	Trouble with relay of cooling system	Change relay of cooling system and contact with us
	Trouble with the	Change hand piece and contact with us

	semiconductor cooler	
Screen shows error	Trouble with control panel	Change control panel and contact with us
Can't make shots	The key in hand piece is broken	Contact with us
	Shots are used out	Change hand piece and make total shots zero clearing
	Trouble with control panel	Change control panel and contact with us
	Trouble with power supply	Change the power supply in the equipment and contact with us
Energy output is too weak	Laser aging	Reasonable increase energy level or change hand piece
	Some parts burn	
Water pressure alarm	Hand piece is not installed well	Check whether hand piece is connected well
	Water pipe of equipment curves	Change water pipe and contact with us
	Filter needs changing	Change filter and contact with us
	Water pressure sensor is broken	Change water pressure sensor and contact with us
Water level alarm	System lacks water	Add deionized water to the top level limit
	Water level sensor is broken	Change water level sensor and contact with us
Water flux	Lack water in tank	Full fill water into tank
	Air in the water pipe	Make sure that the air exhaust cap has a hole
	Trouble with water flow sensing unit	Contact with us

	Trouble with water pump	
	The water pipe is curved	
	Lack water in tank	
Water temperature alarm	Host water temperature is too high	Stop using it until host temperature returns to room temperature
	Temperature sensor is broken	Change temperature sensor and contact with us
	Trouble with control panel	Change control panel and contact with us
Laser power supply alarm	Laser power supply has trouble	Take record of relative alarming content and contact with us
9900,000 shots alarm	Shots will be used out	Contact with us for a new hand piece in advance
10,000,000 shots alarm	Shots has been used out	Change a new hand piece

**If trouble happens, contact with us with software number, equipment number and hand piece number;**

**Software number is on the initialization interface;**

**Equipment number is on the back panel;**

**Hand piece number is on the hand piece**

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## Chapter 8 Clinical Guide

L808-M semiconductor laser system shall be used by professional trained person.

### 8.1 Working Mechanism



#### Energy-stacking

It vividly shows that the gradual thermal  
Rise to the target therapeutic temperature,  
Without the risk of injury and with much  
Less pain for the patient.

#### ON-Motion

ON-Motion technology represents a  
breakthrough in patient comfort, speed  
of procedures and repeatable clinical  
Results provides a gradual thermal  
Rise to the target therapeutic  
Temperature, without the risk of injury  
And with much less pain for the patient.

### 8.2 Applications

- a) Hair removal: Hair of arms, legs, face, mouth, armpit and bikini;
- b) Rejuvenation: Rejuvenation effect while hair removal;

### 8.3 Inapplicability

- a) Cancer, especially skin cancer
- b) Pregnancy (including IVF)

- 
- c) Use photosensitive drugs and traditional Chinese Medicine
  - d) Irritable diseases with 808 nm wavelength
  - e) Exposure or artificial tanning before 3 to 4 weeks
  - f) Inflammation activity or herpes simplex infection in treatment areas
  - g) History of keloid
  - h) Diabetes mellitus (depend on insulin injection )
  - i) Emotional and sensitive skin
  - j) Endocrine disorders (intense light stimulus)
  - k) Use anti blood coagulation
  - l) Epilepsy
  - m) Blood coagulation history
  - n) Allergy skin
  - o) If customer accepted the same function, he shall accept this equipment one month after or longer;

#### **8.4 Treatment Course**

Deep hair 4-6 times/ course, the delay is 3-4 weeks;

Light hair 4-8 times/ course, the delay is 3-4 weeks;

#### **8.5 HR Mode Setting Parameters**

Adjust energy according to customer's feeling;

Light hot and light pain is the suitable energy level;

#### **Note:**

According to customer's skin color and stand, communicate with them about their feeling during treatment.

#### **8.6 FHR Mode Setting Parameters**

Use energy level 6 for the first energy level (increase energy level according to customer

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feedback);

Communicate with them about their feeling during treatment.

### **8.7 SR Mode Setting Parameters**

Use energy level from default energy level;

Use 2HZ frequency for customer's first treatment;

Light hot and light pain is the suitable energy level;

Not use high energy levels;

### **8.8 Treatment Matters**

#### **8.8.1 Communicate with Customer**

This equipment has set default parameters for customers;

Normally operator need not adjust energy parameters;

Adjust energy within the scope provided by our company

#### **8.8.2 Adjust Energy Level**

- a) Increase it gradually, never adjust much for once;
- b) Deep color skin uses low energy level;

#### **8.8.3 Notes during Treatment**

- 1) Before treatment, shave hair and leave them 2~3mm long to avoid hurt during treatment; ,
- 2) Forehead---use low energy level;
- 3) Cheek, nose part--- can stand higher energy;
- 4) Up lip and chin--- use low energy level;
- 5) Make tip fully contact with skin surface to ensure skin sufficiently absorbs heat and light;
- 6) (HR mode) the second time to treat on the same skin area, wait for 30s or longer

#### **8.8.4 Treatment procedure**

- 1) Prepare the operation tools, cooling gel, goggle, paper and record file;

- 
- 2) Clean the area for operation;
  - 3) Start equipment and adjust parameters (from low to high);
  - 4) Operator and customer wear goggles;
  - 5) Apply cooling gel on skin to be treated with;
  - 6) HR mode: first have a try to make several shots on skin to ensure parameters;  

Use for small areas like armpit, lip hair, bun, hand and fingers;

Make tip vertical to skin and press lightly;
  - 7) FHR mode: slide on skin evenly;  

Make tip vertical to skin and press lightly;

One time contains 3 moves and treat with skin 3-4 times;

Use for big area, like arm, leg, back and belly
  - 8) SR mode: (use frequency 2HZ、3HZ) ;
  - 9) Watch skin reflection during treatment and adjust it;
  - 10) Clean cooling gel after treatment;
  - 11) Cool compress for 20 minutes;

#### **8.8.5 Effective feature**

**a) Deep hair removal:** red papule appears and disappears in 12 hours;

Draw the hair and feel no pain;

**b) Light hair removal:** hot feeling disappear in one hour

**c) Rejuvenation:** skin finally turns very smooth, lift and tightens

#### **8.9 After Treatment**

Take good care of skin and avoid intense sunshine