

Diode Laser

(Type: SDL-A)

Operation Manual

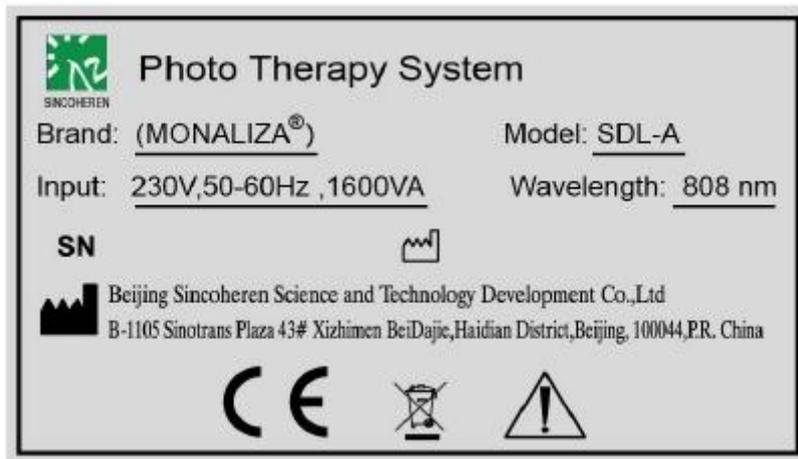
Beijing Sincere Science & Technology Development Co., Ltd

© Warranty Information

Welcome to use Diode Laser Hair Removal Therapy System.

This is to certify that Diode Laser Hair Removal Therapy System is guaranteed by Sincoheren Company to be free of all defects in materials and workmanship for a period of one year from the date of purchase. This warranty does not apply to any defect caused by negligence, misuse (including environmental factors), accident, alteration, or improper maintenance.

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NOTE:



: Symbol for “MANUFACTURER”



: Symbol for “DATE OF MANUFACTURE”



: Symbol for ‘CAUTION, CONSULT ACCOMPANYING DOCUMENTS’

SN

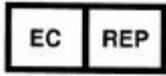
: Symbol for “SERIAL NUMBER”



: Symbol for “Type B applied part”



: Symbol for “Danger! Electricity!”



: Symbol for “AUTHORISED REPRESENTATIVE IN THE
EUROPEAN COMMUNITY

Table of Contents

Chapter 1	Safety.....	
1.1	Risk information.....	
1.2	Electrical Safety.....	
1.3	Movement and Transportation safety	
1.4	Optical safety	
Chapter 2	Installation and Adjustment.....	
2.1	List of components and accessories.....	
2.2	Introduction to the equipment.....	
2.3	System components diagram.....	
2.4	System components description.....	
2.5	Installation	
Chapter 3	Operation.....	
3.1	Turn on the machine	
3.2	Skin test (essential).....	
3.3	Treatment procedure.....	
3.4	Turning off machine.....	
Chapter 4	Specifications.....	
4.1	Specifications.....	
4.2	Relevant requirement.....	
Chapter 5	Treatment.....	
5.1	Principle of treatment.....	
5.2	Contraindications.....	
5.3	Indications	
5.4	Postoperative nursing.....	
Chapter 6	Maintenance and Troubleshooting	
6.1	Maintenance.....	
6.2	Trouble shooting.....	

Chapter 1 Safety

- 1.1 Risk Information
- 1.2 Electrical Safety
- 1.3 Movement and Transportation Safety
- 1.4 Optical Safety

1.1 Risk Information

The Risk information include the technical terms and icons which remind the operator the matters need attentions when he is using the machine by manual or the icons printed on the machine.



Warning: The unsafe operation if can't be avoided may do harm to you



Caution: The unsafe operation if can't be avoided may do harm to machine

Note: Additional information or the explain of the machine.

Normal Harm Description:



Warning:

- Only professionals can enter the treatment room;
- Make sure the staff in all treatment room will be familiar with the operation of equipment and know how to turn off the machine;
- Do not use the device in the flammable, explosive or other places where there is insecurity;



Caution:

- Portable and removable RF communications equipment can affect the semiconductor laser device;
- During the process of using, the semiconductor laser therapeutic apparatus cannot be stacked with or adjacent to other equipments. If it is necessary, please use it after the experimental semiconductor laser therapeutic apparatus come into the normal operation.

1.2 Electrical Safety

Security Type: I

The operating System used 230V input voltage, 50/60Hz alternating current.

 Warning

There is dangerous high voltage when the system working. Even power off, High-voltage device could still has residual voltage, careless open the protection cover may have serious shock hazard dangerous!

 Attention: The power supply of this operation system with a standard three core international connector ,please confirm that your power socket has protective earth line and safety grounding.

1.3 Movement and Transportation safety

- The machine contains delicate components and no allowance of long transportation after first installation and adjustment. During the movement, the shock-absorbing package originated from the manufacturer must be used. Otherwise, it might lead to optical system disorders and impact the energy output.

1.4 Optical safety

- Diode laser with the wavelength of 808nm, sourced from the system, can create safety hazard. All personnel including patients in the treatment room must wear protective glasses whenever the unit is in use.
- To be alert that the light of diode laser presents an eye hazard.
- Never permit putting reflective objects such as jewelry, mirrors and watches in the treatment room.
- Never look directly at the light of diode laser emitted from the treatment handle.
- Never shot the light of diode laser at any skin except the test patch and the target area.

Chapter 2 Installation and Adjustment

- 2.1 List of components and accessories
- 2.2 Introduction to the equipment
- 2.3 System components diagram
- 2.4 System components description
- 2.5 Installation

2.1 List of components and accessories

Parts	Number
Main Console	1
Treatment handle	1
Key Switch	1
Goggles	2
Cooling Gel	2
Power Cord	1
Funnela	1
Service Guaranteed Card	1
Shock Absorption	1

2.2 Introduction to the equipment

On the developing trend of laser hair removal market, SDL-A is the newest equipment for hair removal system by Sincoheren. It use special laser with long Pulse-Width 808nm, can penetrate to hair follicle. Using selective light absorption theory, laser can be preferentially absorbed by the melanin of the hair and then heating the hair shaft and hair follicle, moreover to destroy the hair follicle and oxygen organization around hair follicle. When laser outputs, system with special cooling technology, cool the skin and protect skin from being hurt and reach a very safe and comfortable treatment! The machine consists of a high-performance embedded system of centralized control, And it using 8-inch color touch screen, simple operation. Moreover, it has the super big spot (16mmX12MM for hair removal, which makes the treatment more quickly.

2.3 Component diagrams



2.4 System components description

Color Touch Screen: Display the specific information of control system

Emergency shut-off knob: Shut down the system on emergency

Key switch: Turns on and shuts off the system's power supply

Main console: Contains cooling system, power systems, control systems, and integrated circuits

Handle connector: connect the handle and machine

Handle bracket: place the treatment handle

Treatment handle: Emit the diode Laser



2.5 Installation

3) Installation Requirement of Environment

Confirm whether the installation area, environment and power supply meet requirements of this chapter or not, before removing the package.

The machine should be installed away from heat vents, and keep a certain distance with other objects.

This machine has been pre-set the local rated voltage, or within customer's request.

The corresponding electrical requirements of this equipment are as follows:

Single-phase 220V, 50/60Hz

The system is grounded through the grounding conductor in the power cable. This protective grounding is essential for safe operation.

The input voltage cannot have transient, and the peak, collapse or surge.

For the best operation, temperature of the treatment room should keep about 20°C, and the relative humidity should be below 70%. Air –

conditioning device is necessary in the treatment rooms when the weather is hot.

4) Installation steps

Remove package of the system and place the machine at expected place.

Remove package of the treatment handle and insert the handle into the main' interface.

Insert power cord

Insert key of switch and console key.

5) Water Fill

Before the power is connected, you can see the water inlet in the back of the machine, open the inlet lid and fill the tank with distilled water or pure water (2.0 liter), observe the water level indicator on the back of the equipment, do not spill water from the tank. **Never fill the tank with mineral water or tap water.**

Observe the water level indicator after run the system, if the water level decreased, recommended add some water. Insert the treatment handle and connect the power cable, let the system run about 1 minute. Then add water achieved. The cooling water need to change one time per month.

Chapter 3 Operation

3.1 Turn on the machine

3.2 Skin-test (Essential)

3.3 Treatment procedure

3.4 Turn off the machine

3.1. Turn on machine

Note:

Before the operation, please confirm the following items;

- 1) Ensure that the water level accord with the description. (see 2.5.3)
- 2) Check all the connection of the system.
- 3) Ensure that all personnel in the area are wearing protective glasses.
- 4) Make sure the emergency shut-off knob is loosed.

After these steps, turns the key clockwise, the waterway and screen begin to work, the system gets started. (In normal situation, you can hear the cycling of the inner waterway.)

3.2. Skin test

Skin test is essential before the optional treatment. The details are as following:

- 1) Select a representative area for skin test treatment. If do hair removal treatment for whole face, the test patch should be selected under the ears where not influencing the facial beauty. If for chest, neck or other area, it should be selected the area where not influencing the beauty. And make sure there is no injury or inflection for the tested area.
- 2) Before skin test, clean skin surface by scraping with a razor. Then daub the targeted area with a 2~3mm thick layer of transparent gel. Take out the laser treatment handle and make the treatment head

against the skin vertically and tightly. Then slide the treatment head follow with hairs' growth direction, and repeating this for 2~3 times. Wipe away the gel and observe the test results 5~10 minutes later.

If lightly swelling and/or reddening appear around the hair follicle area several minutes later, and there no obvious epidermal response proves proper best treatment result reached. Then continue the treatment with the same settings of energy level and pulse type.

If no visible changes at the test area appear, continue the test with 1-2J/cm² higher energy level.

If the skin show adverse effect or excessive reddening and/or swelling at the test area just after shot, continue the test with lower energy level.

Note:

- 1、 both patient and operator should wear protective glasses when the system is in use, patient should keep decubitus;
- 2、 Start the treatment from the ear-root, and spread to all around.
- 3、 Shave off the hairs and clean the surface of that area before the treatment. Be careful and do not damage the targeted skin, ensuring it's not infected
- 4、 Treatment handle should touch with skin tightly, and press properly;
- 5、 Should glide the handle follow the hair grow direction in sequence when do treatment;
- 6、 Take anaesthesia if treatment area skin is sensitive
- 7、 Keep communication with patient when do treatment, Pay attention to the patient' feeling and adjust the parameters timely and properly;
- 8、 Dark skin and thick hair patient should select lower energy density ,white skin and thin hair patient should select higher energy density;
- 9、 Should clean the treatment handle and eschar at any moment, keep the handle clean;

10, Ensure the machine is off when the treatment is over and keep cooling.

3.3. Treatment procedure

Make sure the emergency shut-off knob loosed, turns the key clockwise, ensure the waterway and screen begin to work, and then system get start.

1) After 5 second waiting the screen shows chromatic interface as follow



Laser power: power of laser, per centum, adjustable;

Pluse width: width of pluse, adjustable;

Repetition rate: Frequency, adjustable;

Fluence: density of energy, show automaticlly.

Laser head life monitor: monitor of laser head life;

total 10000*1000 shots: total shots is 10000*1000;

Now*1000: current treatment record is 1000 shots;

Treatment assistant: assistant of treatment;

set total shots energy for treatment area: total shots energy set for treatment area;

target energy: target energy, adjustable;

current energy: current energy; reset: reset.

Skin cooling level : cooling level, adjustable;

Status:status of equipment

Ready-ready to work; stand by- call waiting/standby;

2) Press reset before use to clean the parameter'

3) Adjust the power, pulse width and frequency of the system according to different treatment skin and part to suitable energy. General treatment fluence span is 10-40 J/cm².Set the TEC cooling to max when do treatment.

Please see the below table of the diode laser treatment parameters which based on the clinical practice on different skin type, (only for your reference):

Skin type	Energy density (J/cm ²)	Pulse width (ms)
I	40	20
II	30-40	15-30
III	25-35	30
IV	20-30	30
IV	15-25	30

Setup all the parameters, press the button "ready" to start.

 **Warning:**

Skin test is essential before the optional treatment. The energy should be adjusted from low to higher. During the adjustment, you should constantly take skin test to find the suitable energy, then to do treatment on target area.

4) After set up parameter, shave off the hairs and clean the targeted area. Apply a 2~3mm layer of transparent gel after disinfecting the targeted area.

5) Take out of the treatment handle and make sure it against the targeted area tightly and vertically (with some pressure). Press the button on the handle and

slide the treatment head quickly. You need to clean the treatment head with wet gauze oftenly

6) Make a medical record for every patient, which including the patient's information, such as skin type, treatment area, hair color, diameter of the hair, density of the hair and also the suitable energy for this patient. Also take photos before and after treatment.

Attention:

After simmering successful, the energy can not be adjusted. Operator need to re-adjust the energy by touching "standby" if find the energy not suitable, and re-set the relevant parameter ,then press ready to start.

press the Emergency Stop Switch If emergency happen

Make sure the treatment area not have any damage or infection.

Keep communicate with the patient when doing the treatment, and asking them the feeling in order to get the suitable energy for the treatment.

Please pay more attention to the cooling of the surface of skin. Especially for some patients with pain sensitive, big area treatment or need high energy to do treatment, we suggest that do the cold compress during the treatment.



Warning:

The treatment laser head could be used 10 million, the energy will be decreased after using 10 million, at the same time, the treatment handle will be out of warranty, we suggest that change a new treatment laser handle.

1) After the treatment, please turn off the machine, and clean the treatment head.

3.4 Trun-off the machine

Touch the "standby" on the screen, trun the key to "OFF", and then clean the treatment handle with alcohol sponge.

Chapter 4 Specifications

4.1 specifications

4.2 The relevant requirements

4.1. Specifications

Type of light source	Semiconductor laser
Wavelength	805nm±3nm
Security category	Class I
Pulse width	25-400ms
Frequency	1-20HZ
Spot size	16mm × 12mm
Energy density	Maximum 150J/CM ²
Cooling System	Sapphire and semiconductor cooling
Optical power	300W
Power	1600VA
Voltage	230VAC, 50-60HZ
Dimension	380mm* 410mm *1100mm

4.2. The relevant requirements

Ambient temperature when the system works: 10°C ~30°C ;

Relative Humidity: lower than 30% ~70%

Ambient temperature for transportation or storage

Relative humidity: ≤93%

Atmospheric pressure range: 500hPa~1060hPa

Chapter 5 Treatment

5.1 Treatment principle

5.2 Contraindication

5.3 Indication

5.4 Postoperative nursing

5.1 Treatment principle

The melanin in the hair follicle has a feature that it absorbs laser light of specific wavelength, which is produced by diode hair removal laser equipment. Conducted by the melanin, the laser energy reaches the inner hair follicle through the hair shaft, and destroys the hair follicle to stop it growing. As almost 15% of the energy can permeate into under dermis, those follicles containing melanin in both epidermis and dermis or in even deeper layer will degenerate and atrophy. Then permanent hair removal is achieved. The new technology has been innovated. The temperature of the targeted skin is available to be controlled and made at a minus status. It will protect the skin more effectively.

5.2 Contraindication

Those patients who accept traditional epilation within 8 weeks before diode laser treatment;

Those patients whose targeted area of skin gets active infected or has open wound;

Those who has photosensitivity or those who have had photosensitizer within 1 year before diode laser treatment;

The people with scar constitution;

Those who get sunburn within 1 month before diode laser treatment;

Those who are pregnant or in lactation;

There is tattoo on the targeted area or the targeted area once got skin transplantation surgery or other surgeries;

Those who get hypertension or serious heart diseases;

Those who get diabetes, AIDS, SLE or epilepsy. And those who accept glucocorticoid

5.3 Indication

Indication: hirsutism

5.4 Postoperative nursing

1) General nursing

it is a typical clinical symptom that there appears edema or erythema around the hair follicles after the diode laser hair removal treatment. Some patients may have a sense of pain. But the pain will disappear within several hours. So there is no need to deal with it. If the patient has a very strong sense of pain and hot or it appears red or edema, you need to apply cold compress with cold cloth or ice till the hot feeling fades out. It's also necessary to apply anti-inflammatory ointment like aureomycin ointment. You can wash the treated area slightly and carefully with clear water after 24 hours from finishing the treatment. But don't rub at the area hard. To avoid sweating, do not do sports on the day. Please keep the treatment area clean, and avoid hot water. No sun exposure. If you go out, you need to apply sunscreen of SPF>25. Eat bland and healthy food.

2) Prevention of postoperative complications

Few people especially those with thick and black hair encounter serious postoperative complications. For lightening inflammation and avoiding infection, you are supposed to apply cold compress for 20~30 min. No hot shower within 24h. Keep the treated area clean. No scratching the treated area. Observe the treated area at any time and make sure it non-infectious.

3) Nursing of postoperative complications

It's normal that it appears pigmentation and cicatrix. (1) The pigmentation is caused by essentials like skin type, hair color, treated area, high laser energy, lack of cooling system and non-applying of sunscreen. Besides the above measures, ask the patients to pay attention to avoid sunburn. Apply sunscreen and take appropriate vitamin C. You need to let the patients know that it'll take some time for the pigmentation to disappear. (2) Laser light of proper treatment parameters can destroy the melanin in hair follicles to stop hairs growing, without damage epidermis and dermis. No cicatrix will occur. But if the treatment is under improper parameters, blisters might occur on specific area. In case this area gets infectious, cicatrix might occur. So, it's quite essential to set proper parameters (from low energy level to higher ones). Applying cooling measures and disinfecting the treated area after the treatment are also needful.

4) Follow-up visit

Make phone calls to the patients regularly to get recovery information of the patients. Help those who need further help. Suggest them to accept the second treatment after 6~8 weeks.

Attention: Due to specific constitution, some patients might encounter problems like small blisters, pigmentation, cicatrix, bruise, or being red and swollen. If the treated area of skin is too hot, you are supposed to apply cold compress for 15~20 min. Wearing cosmetics is allowed only 7 days later.

Chapter 6 .Maintenance

6.1 Maintenance

6.2 Troubleshooting

6.1 Maintenance

Clean the parts

Use the soft paper to clean the surface of the machine with litmusless cleanser, pay attention do not make the cleanser inside of the machine.



Clean the handle

The handle should keep clean all the time, and ensure to clean it after each treatment. First, use soft papers wipe the crystal and then clean it again with anhydrous alcohol.

Disinfection

Use the dry soft paper clean the crystal with anhydrous alcohol.

6.2 Troubleshooting

1) Troubleshooting

If you are unable to solve your problem with the information below, please contact us.

Problem	Probable cause	Measures
No display	Power supply looseness	Make sure power supply connected
	Emergency button	Release the emergency button
	Others	Contact us
No reflection when you press the button on the screen		Contact us
The system does not work at all	Key switch	Turn the key clockwise
	Others	Contact us

2) Malfunction

Please stop the equipment at once, when the machine breakdown, contact us. Only the professional engineer that authorized by our company can repair it. Once disassembling without permission, our company is not responsible for the consequences.

3) Discard

Bio-safety disposal