



IpL SYSTEM

Model HR-TX001

-MANUAL-

Index

I . BRIEF INTRODUCTION.....	1
<i>1.Principle.....</i>	<i>1</i>
<i>2.Application.....</i>	<i>1</i>
<i>3.System Self-checking.....</i>	<i>1</i>
<i>4.Accessories & Connection Instruction.....</i>	<i>2</i>
II . STANDARD TREATMENT PROCESS.....	3
III. OPERATION INSTRUCTION.....	5
V . SAFTEY NOTICE.....	10
<i>4.1.Safety of E-light.....</i>	<i>10</i>
<i>4.2.Safety of Electricity & Machinery</i>	<i>11</i>
VI. TABOO INSTRUCTION.....	11
VII. ATTENTIONS AFTER TREATMENT.....	112
VIII. WARRANTY POLICY.....	12

I . Brief Introduction

E-light applies three core technology, IPL, RF, and epidermis cooling. It combines the advantage of IPL and RF, in one hand, the skin absorbs IPL energy selectively, and the skin also absorbs RF energy, on the other hand, the RF-surface-touch cooling technology removing the discomfort and complications by high heat of IPL. Therefore, the effect and safety of E-light makes a breakthrough.

1.Principle

Applying the technique of IPL and Bi-polar Radio Frequency, the equipment acts on the entire skin corium and connective tissue, stimulates the collagens of different depth to realign and grow, then gets treatment effect. Bio-polar RF release energy at the same time, with the selective absorption for the skin to light energy, various pathological tissues of corium and epidermis creates Photothermolysis effect. Since light energy is far below conventional IPL, the pigment tissue and vascular pathological tissue of the corium and epidermis would absorb more energy without injuring the epidermis, and then remove these pathological tissues better and get the effect.

2. Application:

1. Hair removal;
2. Skin rejuvenation;Wrinkle removal, fact lifting;
3. Removing freckle, age spots, sun spots, chloasma, pigmentation troubles, etc;
4. Vascular removal;
5. Acne treatment.

3. System Self-checking

The circuit of system entering the self-checking situation when the machine starts, leave the machine carry on the self-checking for 5-10 seconds, then continue the operation.

4. System Classification

Electric shock protection: Grade1 BF Grade

Corrosion prevention liquid: ordinary

Do not use the machine in the environment mixed of flammable narcotic and air or nitrogen

oxide mixture.

5. Equipment Consist, Specification, and Accessory List

1. Equipment Consist:

1.1. Mainframe

- A. Power supply system
- B. Microcomputer system
- C. Monitor
- D. Cooling System

1.2. E-light Handpiece

- A. Intense pulsed light source, xenon lamp
- B. Reflector and filter
- C. Sapphire wave guide

2. Technique Specification

- Light Energy: 1 – 50J/cm²
- RF energy: 1-30
- SR Spectra: 560-1200nm
- HR Spectra: 640-1200nm
- Cooling: water+air+semi-conductor
- Spot size: 15×50mm
- N.W.: 45kg
- Dimension: 140mm×355mm×515mm
- Voltage: 220V ± 10%, 50~60Hz; 230V ± 10%, 50~60Hz

3. Accessory List

No.	Item	Unit	Qty	Remark
1	Main frame	set	1	in the main case
2	SR Handpiece	pc	1	in the lateral foam box
3	HR Handpiece	pc	1	in the lateral foam box
4	Power Cord	pc	1	in the lateral foam box
5	Key Switch	pc	2	in the lateral foam box
6	Goggles for Operator	pair	1	in the lateral foam box
7	Goggles for Patient	pair	1	in the lateral foam box
8	Spare Water Plugs	pc	1	in the lateral foam box
9	Spare fuses	pc	1	in the lateral foam box
10	User Manual	pc	1	in the lateral foam box
11	Gel	pc	2	in the lateral foam box

II. Standard Treatment Process

2.1 Form filling

Fill in the blanks of the Client File, confirm the treatment program, remind the client pay attention to some points before and after treatment.

2.2 Face cleaning

Clean the face with gentle face cream for 3 minutes.

Remind: clean the hands of operator and the handpiece with bromogeramine.

2.3 Preheating

Start the equipment after face cleaning, preheat for not less than 3 minutes (without lighting the xenon lamp).

2.4 Shaving

Shave the unwanted hair of the treatment area(2 minutes).

2.5 Gel coating

Coating the gel evenly (2-3mm) on the skin.

Effect: light guide, cooling, anaesthetisin.

Attention: no coating on eyes, eyebrows, lips.

2.6 Eye protection

Operator: wear the safety goggles.

Patient: close the eyes, wear professional safety goggles or cover the eyes with eye patch.

2.7 Allergic test

Emit 2 or 3 light spots in the bottom of ears in safe parameter, observe for 3 minutes.

Effect: do not continue to operate if there is a allergic phenomena.

2.8 Operation

Carry on the operation with a suitable parameter to the operatee.

Attention:

2.8.1 Inform the operatee that there will be a slight pricking in operation before operating, to avoid panic.

2.8.2 Start the operation with a low energy grade, adjust the parameters in operating while asking

the feeling of the operatee.

2.8.3 Move the light spot by one spot overlapping the upper 1/3 part of the previous spot.

No emitting one area repeatedly, otherwise may cause inflaming or burns.

2.8.4 The handpiece should touch the skin vertically, no over pressing or leaving the skin.

2.8.5 Observing the reaction of skin while operating.

2.9 Cold compress

Keep gel coating for 20 minutes after operation ending; carry out cold compress in obvious slight reddish reaction till reddish fading away.

2.10 Cleaning

Clean the gel with cold water, coat corresponding cosmetics.

2.11 Treatment Course

Skin Rejuvenation Program: 30-45 days/time 4 times/course

Hair Removal Program: 2-3months/time 3times/course

2.12 **Special reminding**

2.12.1 Ask the client before treatment: is there a allergic or not; is there a bad reaction before for similar operation; fill the Client File concretely. Adjust the parameters on the basis of full acquaintance of the condition of operatee. Inform the operatee the possible reation in operation before operating.

2.12.2 In large area treatment or long time continuous operating, the water inside the equipment will warm up and the handpiece will be hot, interrupt the operation to refresh the water or leave the water cool down to continue operating.

2.12.3 Refresh the circulating water in one month; use purified water or medical distilled water.

III. Operation Instruction

3.1 Before starting the machine

3.1 Accessories connecting:

3.1.1 Connect the handpieces, filters, and probes:

3.1.1.1. Put the handpiece on the hanger

3.1.1.2. Connect the handpiece:

Connect water pipes (2), signal wires (2, black-to-black, red-to-red), xenon lamp wire, and RF

wire to the corresponding jacks on the backboard tightly.

3.1.2 Check the water holes of the backboard, make sure the water outlet hole is plugged well.

3.2 Water infusing:

3.2.1 pull out the plug of the water inlet hole, insert the water funnel

3.2.2 infuse water till water spill out from the spillway hole.

3.3 Checking

3.3.1 Make sure there is no water leaking;

3.3.2 Make sure there is no moisture or wet for electricity connecting parts;

3.3.3 Make sure the key switch is in the off position;

3.3.4 Make sure the emergency stop switch is in the on position.

3.4 Starting the equipment

3.4.1 Connect the power cord, turn on the key switch;

3.4.2 Double confirm there is no leaking of water circulation, fold the protective cover by turning it right.

3.5. Debugging

3.5.1. Make sure water and electric circuit is correct connected; then turn on the power to start the machine.

3.5.2. Turn on the master power switch on the backboard;

3.5.3. Turn on the emergency switch (clockwise turn) in the front side of the mainframe

3.5.4. Turn on the key switch (clockwise turn);

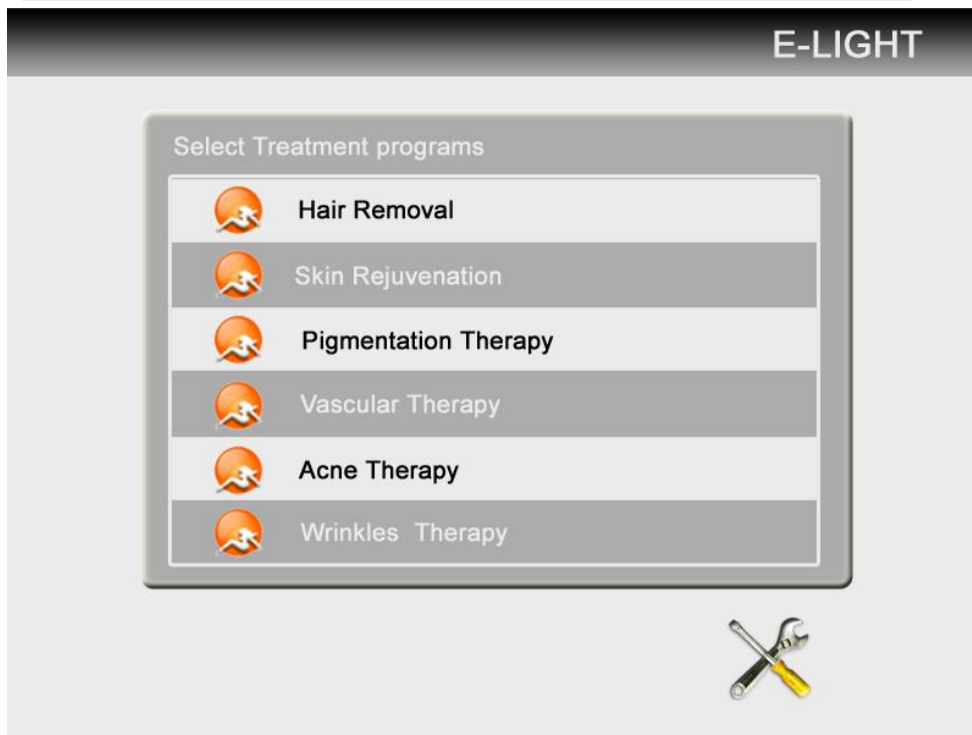
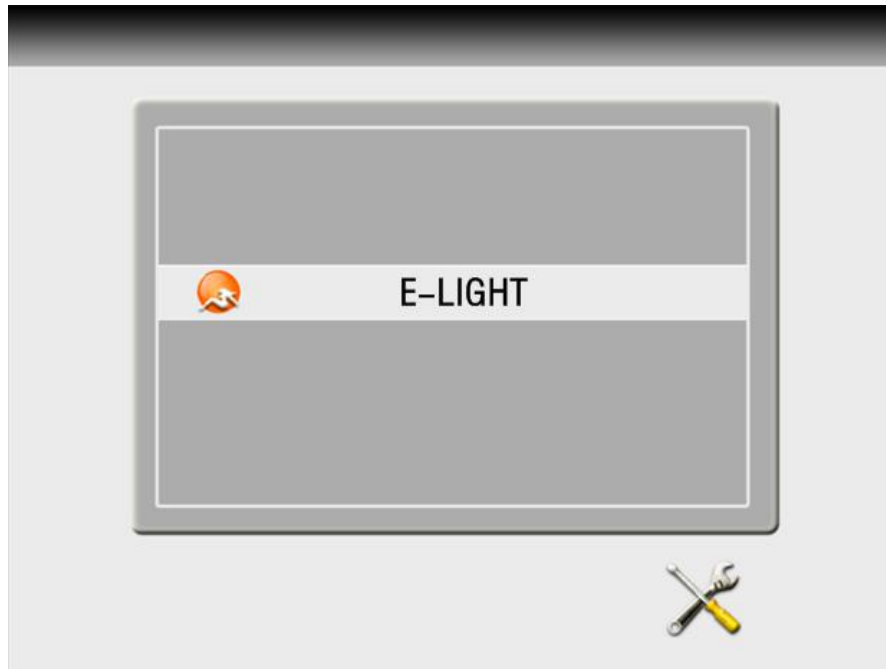
3.5.5. Check is there any leaking of the water connectors.

3.5.6. If the above is checked OK, put the wire cover into the neck on the backboard then turn deasil to get fixed.

3.6. Operation

Enter operation condition after debugging and no abnormalities found.

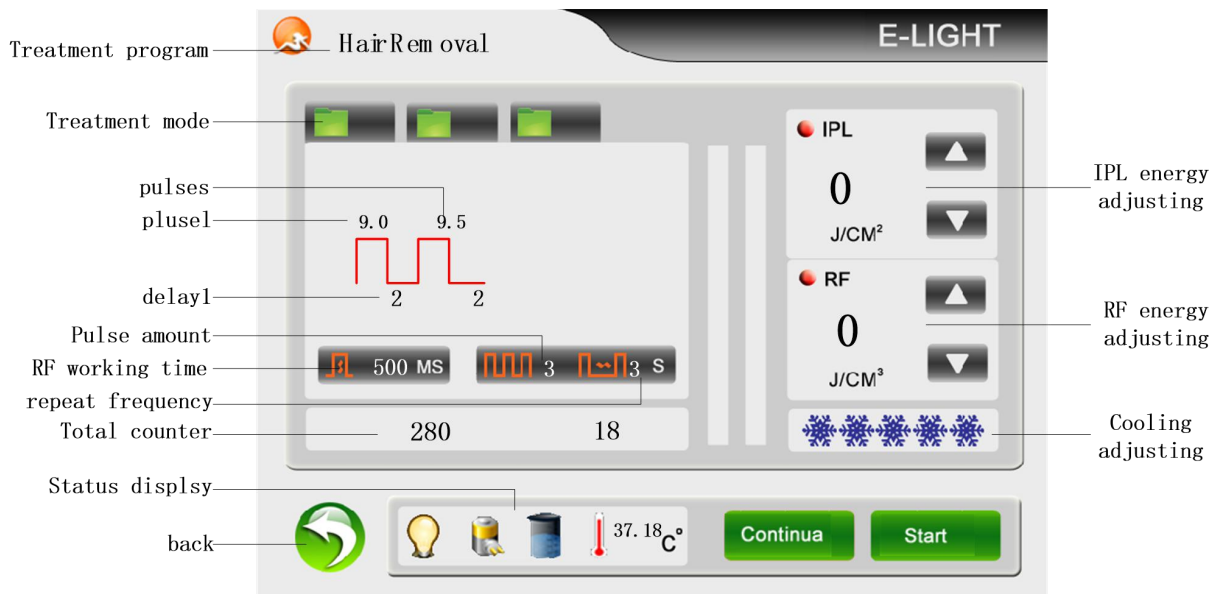
3.6.1. Treatment Selecting Interface



Treatment Selection Interface

Select the wanted treatment program by clicking.

3.6.2. Operation Interface



Operation Interface

Treatment mode: 3 groups of different parameters setting.

Pulse1: working time of the first pulse

Pluses: sub pulse width: irradiating time of other light except the first pulse.

Delay1: 1st pulse delay: delay time of the first pulse irradiating

Pulse amount adjusting: pulse amount of each irradiating

RF Working time: working time of RF

Repeat frequency: interval between two spots

Total counter: accumulated spot times of the xenon lamp;

Status display:



water circulating status



lamp status



charging status



Current temp

back: return to the previous interface

IPL energy adjusting: increase or decrease the IPL output energy.

RF energy adjusting: increase or decrease the RF output energy.

Cooling adjusting: adjusting the cooling level

pasue/continue: "continue", standby stautus, parameters could be set in this stauts; lamp is on, but could not make shots.

start/pause: click "start", zimmer the handle and the capacitor charge automatically; system will enter the treatment status when charge is ready. Click "stop", escape from treatment stauts.

3.8 Treatment Advice

3.8.1 Freckle, age pigment: strong pricking for the first treatment (under the tolerance of the operatee). One minute after receiving emitting, there will be a slight reddish, which will fade away in 10 minutes, (for someone special, maybe 30 minutes). Punctuate pigment will appear on the surface of skin and will be metabolized in 3-7 days. The one-off curing rate of freckles by using E-light is 60%-80%, normally freckles could be cured in one course of treatment.

Parameter control: Long pulse width, short interval, medium energy.

3.8.2 Chloasma: Light pain, light reddish, redness disappear in 5 minutes. After radiation, the pigments become darker first in 10 days, and decline in 15 days. Don't adjust big parameter value to treat chloasma. 1-2 treatment course needed for chloasma.

Parameter control: Short pulse width, long interval, low energy.

3.8.3 Epidermis spot: The most difficult one, so the treatment time is longer correspondingly. IPL+ is the best way of removing epidermis spot. With the cooperation of using laser, 7-8 times radiation will cure the spot.

Parameter control: Long pulse width, short interval, medium energy.

3.8.4 Acne scar and other pigmentation: Patient would have a strong pain (under the limit of patient). Pigmentation will decline in 3-7 days.

Parameter control: Long pulse width, short interval, high energy.

3.8.5 Vascular, redness: Using high pulse width on the basis of easing the skin.

Parameter control: Long pulse width, long interval, suitable energy.

3.8.6 Bulky pore, black head, acne: Strong pain under the limit. Blackhead and oil comeout in 2-3 days, and disappear in 7 days.

Parameter control: Long pulse width, short interval, high energy.

3.8.7 Winkle, pouch, black circle: Light pain.

Parameter control: Short pulse width, long interval, suitable energy.

3.8.8 Skin rejuvenation: Strong pain under the patient limit, reddish; redness disappear in 10 minutes. No suggesting repeat operation.

Parameter control: Long pulse width, long interval, high energy.

3.8.9 Hair Removal: Strong pain, follicular orifice will become a little reddish, with a burning smell. Caution for arms, lips, and legs hair removal, avoid pigmentation by over high energy. According to the growing period of hairs, growing period- maturation period-rest period, 3 times of treatment will remove the hair completely.

Parameter control: Long pulse width, long interval, suitable energy.

Special Attention:

For the sensitive and dark skin, there might be delayed reaction in 24-48 hours, therefore do not raise the energy casually. Adjust the parameter value according to the whiteness of skin. The whither, the higher endurance of the skin is. For dark skin, please pay more attention to use long interval and suitable energy of parameter value.

V. Safety Notice

4.1. Safety of E-light

The equipment takes maximum consideration of the safety of both operator and operatee in the designing, the following are some safe measures of it:

- Circuit self-checking after machine starting;
- Using filter/light guide crystal, strong pulse light comes out only from the front side of the handpiece.
- Designed with independent safety circuit, electricity could be shut down automatically when the IPL power is to high;
- Emergency stop switch, shut down the power in emergency;
- Key switch to avoid starting the machine by any people;
- Use high quality engineering plastic frame, preventing electricity creepage.

【Alarm】

All strong pulsed light device may cause hurt by improper handling. Operators should keep vigilant and take necessary protection measures according to the manual.

Operatee: Carry out the treatment in the professional treatment room; take effective eye protecting measure;

Operator: wearing protective glasses;

Treatment room: marked the treatment room clearly with in operating of IPL.

To ensure to the safe use of the equipment, please read the following instructions carefully.

- No one except technician authorized by the manufacture could dismantle or repair the equipment, especially for the power source, handpiece; high voltage electricity inside;
- Voltage rating: 220V;
- Maintaining the equipment after disconnecting the power cord;
- Keep the handpiece clean all the time; do not let the gel leaking into the handpiece;
- In case leaking of the handpiece, do not start the equipment; already started, turning off immediately;
- No emitting light to one area repeatedly, otherwise may cause inflaming or burns, and may leave pigmentation.

【Alarms of Strong IPL】

- IPL may hurt the eye or cause burns or fire, take all necessary prevention measures before operating;
- Emitting too much light to one part may burn the skin which may cause pigmentation;
- Do not watch the IPL light directly from the handpiece even wearing protective glasses;
- Do not emit the light to the air; keep the handpiece on the hanger when not using it.

4.2. Electricity & Machinery Safety

- Keep all the boards closed, open the board may bring danger;
- There is high voltage electricity inside, some parts still carry electricity even after turn off the power, therefore, do not dismantle the backboard without under supervising by our technicians;
- Do not move the equipment by pulling the handpiece;

- Do not use the equipment in inflammable and explosive environment;
- Do not use alcohol or acetone before treatment;
- Do not start operating before the handpiece dry enough after clean the handpiece or other parts of the equipment.

VI. TABOO

The following people is not suitable to be operated by the machine:

1. pregnant, high blood pressure, heart attack, diabetic;
2. allergic to IPL;
3. open wound parts;
4. people who could not avoid strong sun light;
5. scar, birthmark, or mole higher than the skin.

VII. Attentions After Treatment

1. Not using irritative makeups;
2. No hot water face wash or sauna in 7 days;
3. No stimulating food or pigmentary food as chocolate, coffee; no smocking; no drinking;
5. No scratch in case of scabbing;
6. Make a water replenishing care in 10 days.

VIII. Warranty Policy

The warranty of equipment is one year from the date of supply. During the warranty period, we undertake to repair free for the equipment supplied against all manufacturing and workmanship defects.

The standard of operation and environment should comply with the product specification and user manual.

The warranty does not extend to any equipment that:

- a. Malfunctions caused by abused operation
- b. Malfunctions caused by modification or repair by anyone except JMLB-24C or not authorized by JMLB-24C; from which JMLB-24C original serial number tag or product identification

- markings have been altered or removed
- c. Malfunctions caused by other artificial factors like move or tear down in proper motion, or collision, etc.
- d. Malfunction caused by uncontrollable natural force
- d. Energy reduce caused by wet environment and dust
- f. Consumable parts of the equipment: handpieces.

Q SWITCHED Nd:YAG LASER FOR TATTOO REMOVAL

MANUAL

A. Installation and Usage

I. Machine structure -----	3
II. Working condition-----	4
III. Power supply-----	4
IV. Installation-----	5
V. Operation -----	6

B. Maintenance

I. Basic maintenance-----	9
II. Maintenance connection-----	10

C. Appendix

I. Appendix 1: Notice when you treat black and blue pigmentations at 1064nm	11
II. Appendix 2: Notice when you treat brown and red pigmentations at 532nm	13
III. Appendix 3: The skills and methods to remove tattooed colors	15
IV. Appendix 4: Nursing and attention when treating with laser	17
D. Special attention	19
E. Taboo scope	20

A. Installation and Usage

I. Machine structure

The Nd:YAG Laser Tattoo Removal System is made up of light route system, power supply system, computer controlling system, cooling system, etc. The light route system is installed into the hand piece, but power supply, controlling and cooling system are installed into the machine box of power supply.

Main technical parameters:

Laser model: Q-switched Nd:YAG Laser

Laser wavelength: 1064/532 nm

Pulse energy: 1000mj

Pulse width: 8ns

Repetition frequency: 1, 2, 3,4,5,6 Hz

Cooling method: inner circulation water cooling

Power supply: AC220V± 10%, 50~60Hz; 230V±10%, 50~60Hz

Main physical parameters:

Dimensions: 370×275×245mm³

Total weight: 18kg

Each part's name and function:

1. Emergency switch: When accident happened suddenly, press the red knob swiftly, then the machine is out of power. Turn the button in the arrow direction to spring it up and power resumes again.
2. Key switch: This is the main power supply switch. The screen displays a long horizontal line. Press the "down" button to shut down the signaling voice.
3. Simm (simmer): Pressing the knob makes system enter into the standby state.
4. Freq (frequency adjusting) key: Set repeated frequency 1~6Hz.
5. Power (power adjusting) key: This is the keys that can adjust energy higher and lower. During operation, every time when "+" is pressed, its energy will increase by 20mj. Every time when "-" is pressed, its energy will decrease by 20mj.

II. Working condition

Normal working condition:

1. Temperature: 5°C-30°C
 2. Relative humidity: ≤70%
 3. Pressure: 860-1060hPa
 4. Power supply: AC220V± 10%, 50Hz; 60HZ
- Working mode: interval and continuous working mode. Best to pause for 5 minutes after each continuous outputting of 5000 pulses.
- Cooling: Circulatory water cooling with distilled water

III. Power supply

- power supply: AC AC220V± 10%, 50Hz; 60HZ
- Connection:

1. Safety fuse socket: The safety fuse is installed into the power supply socket, using safety

fuse(6A/ $\phi 5 \times 20$) which is used for over loading protection.

2. Power input socket: The machine should be connected to a power supply using a power cord.

IV. Installation

a) The Nd:Yag Laser System should be installed into operating room or therapy room fulfilling the following requirements:

Temperature: 5°C-30°C,

Humidity: $\leq 70\%$

b) Power supply is installed per the above requirements. Please have qualified electrician to perform checking and installation.

c) Installing navigated spin plugs: Plug navigated spin plugs into the INTERLOCK at the back of machine trunk. Machine will stop outputting laser after pulling out the INTERLOCK.

d) Installing pedal foot switch: Plug the pedal foot switch into the F00TS at the back of machine and then screw it on tightly.

e) Screwing off the stopper on the water tank, then screwing it on tightly after adding distilled water fully.

【Warning】

Expensive and fragile laser apparatus is installed in the hand piece (gun). Don't let it fall to the ground during use!

【Warning】

Machine performance will be influenced if it is not installed and used according to instructions. Dangers of laser radiation and electrical shock are possible.

V. Operation:

electrifying:

Plug in the power cord connecting the machine and the power supply.

powering on:

1. Make sure that the emergency switch is in the state of sprung up.

2. Put the key into lock switch and screw it to the state of powering on. At the moment, water pump starts to run and the system enters into the standby state.

3. Parameter setting: Pressing the repeated frequency button can set the frequency from 1~6Hz.

Laser output:

1. Softly press the “simm” key. The standby indicator light (yellow) will light up, and the system enters into the standby state.
2. Press key “+” or “-” to the suitable energy level.
3. Aim the hand piece at the needed therapy part of the skin. Then step on the pedal till it outputs laser with continuous humming sound. When you loosen your foot from the pedal, laser will stop outputting.

【notice】When the system is working, avoid aiming the hand piece at any dangerous parts of the body(such as eyes). You must first loosen your foot from the pedal after treatment, then you can loosen hand piece when laser stop outputting.

powering off:

1. Press “simm” button and the screen will display a long horizontal line. The system then enters to the standby state, and then it will power off after 1 minute.
2. Screw the key lock to the power off location, then take out the key and give it to the designated keeper.
3. Remove the power cord from the power supply to cut off power. The power indicator light will then be turned off.
4. If emergency happened when system is working, swiftly press emergency shut-off button to power off the machine.

disinfection:

Each time before and after treatment, you must use gauze or cotton lot dipping highly purified alcohol to wipe the head of hand piece once or twice for disinfection.

smoke discharge:

In the course of treatment, the pigment grains in the tissue may splash out as well as produce soot, so you are advised to use the smoke discharge equipment to remove smoke.

use of converter V532:

Screw off the aiming device on hand piece, then screw on the converter V532. When you are about to screw on tightly, adjust the marked line on converter V532 right to the middle of shell

on hand piece. This is the best position for green laser output. Other operating methods are the same.

【notice】 It is strictly prohibited to replace treatment head when system is working.

B. Maintenance

I. Basic maintenance

Cleansing output lens:

There is an output lens behind aiming device. User is suggested to examine whether there are some splashed substance attached on lens after each therapy. If yes, please take off the lens and then dip waterless ethanol with cotton to softly scrub it.

Replacing water:

User is suggested to replace water in the machine after using one month in order to extend the lifespan of the machine.

【Warning】

Strictly forbidden to examine and cleanse output lens when the system power is on.

Supply cooling water:

Usually, after using two to three months, pay attention to observe the cooling water level, if the cooling water level is lower than waterline (the system is in the state of power off), please inject

water into the water tank from the hole with injector till up to the waterline.

【 notice 】 cooling water must be distilled water. It is best to use distilled water supplied by hospital. Please keep in mind that it must not use the tap water or other unqualified water.

Exceptions

1. The system has set up a software anti-interference procedure. When the system is turned on and it detects that there is excessive interference when the machine changes from pause state to standby state, the system may restart and reset automatically.

2. Abrupt stoppage of electrical supply. When this happens, the system has a software protective function, and you can often turn on the machine again in one minute.

II. Maintenance contact

When your machine does not work normally, please contact our after service staff timely. If the machine is dismantled by unapproved personnel and resulted in any damages, it is out of the guarantee scope.

C. Appendix

I. Appendix 1: Notice when you treat black & blue pigmentations with laser at 1064nm

1. What you should do before treatment:

First, know that whether the patient has the constitution of scar: Previously, whether the patient washed eyebrow or tattoos using other way? Observe whether the scar has existed? Explain to patient that it is possible to have remained marks of pigmentations after removing imprinted tattoo color, which are the pigmentations caused by sunburn after tattoo. And explain to patient that the tattooed material is possibly constituted of complex colors, so when removing blue and black colors, it is likely to remain coffee or red color material. Patient can have a treatment with blue light after interval of two months.

Explain to patient the things that may happen in operation and after operation. Meantime, avoid the unnecessary dissension with patients for the reasons that patients have little understanding for the operation as well as recovering course after operation in the treatment course.

Before purifying eyebrow, it's better to shave the eyebrow in order to observe it well in operation.

2. Occurrence in operation:

When treating the deep tissue, it will produce stronger pigment explosion together with stronger noise because laser power is intensely absorbed by black pigment: the part of human body can appear turgidity owing to the smashed pigment; and the shallower pigment will explode out from scarfskin and form a seeping blood spot.

After the first treatment with laser, the tissue color will turn shallower, but after a period of time (ten minutes or several tens of minutes), the tattooed color will partly restore, which is also normal. Meantime, the gulping function and transport function of the patient's body cells will last for a rather long time (two to three weeks). During this period, the tattooed color of tissue will gradually turn shallow.

Advise that the second treatment should start two to three months after the first treatment.

3. Possible phenomena after operation:

Hair color will possibly fade and fall off, but in about four weeks new hair will grow again even stronger and darker than before, but eventually it will resume normal.

The treatment part will have blood seeping and turgidity, but its degree is different for different people.

After detumescence, the treatment part will feel itchy and you may be able to feel a hard tissue. These are all normal. These responses will disappear after two weeks to one month.

4. Doctor's advice after operation

It is forbidden to do possible infectious action, including drawing eyebrow and washing eyebrow with water for three to seven days, and guarding against sunburn. For patients who bleed more and swell seriously, they can take antibiotic medicine according to doctor's advice.

II. Appendix 2: Notice when you treat brown & red pigmentations with laser at 532nm

Laser at 532nm is called blue laser, which has a big difference to biologic tissue compared with laser at 1064nm.

The hemoglobin in human body and the tattooed brown as well as red pigmentations by man-made have a certain absorption to laser at 532nm, so after being illuminated by laser, the scarfskin tissue is possible to appear epidermis boiloff, and the capillary vessel tissue below scarfskin which absorbed laser at 532nm would occur to outburst and produce gore, the symptom is called "zidian sickness". The brown and red pigmentations absorbing laser at 532nm will blow up, spring out from body or be smashed by laser so that pigmentations are metabolized and discharged by body cell.

The possible side effects when removing brown and red pigmentations with laser at 532nm:

1. The surface of skin boils away and blanches, and scarfskin is also putrefied. The over-pigments possibly fade away or pigmentations become darkness.
2. The treatment part will produce redness and turgescence, if excessively damaged it will lead to scab and the recovering time is from twenty to sixty days according to different people.

When remove brown & red pigmentations with laser at 532nm, you should use the small energy densities (also big spot size) to have a near treatment, while the deeper pigmented layer you

should treat many times but each treatment interval is less than two months.

Before treatment, you should explain to patient the possible side effect and the possible iron hydronium which is contained in individual pigment can transform into iron oxide after absorbing laser so as to blacken and aggravate the tattooed color as well as lead to treatment failure.

After treatment, the patient should keep away from water and shouldn't touch the treatment part to avoid infection. Meantime, patient should avoid sunburn so as not to arouse pigmented darkness.

Human's eyes are very sensitive to laser at 532nm. Eyes illuminated with 532nm laser can lead to eye-twinkle or permanent blindness. So the operator must wear the laser protective glasses as well as keep the patient's eyes safe when treating. Other irrelevant people must leave the treatment room.

【 notice 】 The color material which contains iron hydronium can not be removed with laser.

III. Appendix 3: The skills and methods to remove tattooed colors (as for reference)

1. Eyebrow purifying

Purifying normal blue, black eyebrows:

Set the frequency of light (three or five times each second), the head of hand piece should keep distance of one finger from skin. After the first purifying eyebrows, there is a returned color within ten to twenty minutes, then go to the second purifying for further breaking the tattooed color while the head of hand piece should keep two or three fingers distance more or less from the treatment part in order to increase the absorption of body. After one month and a half, recheck whether the tattooed color is faded away completely. If not, purify again.

The eyebrows you used other way to wash it before and the skin has existing defectiveness:

Set out the frequency of light (three times each second), the head of hand piece should cling to skin tightly and increase its angle to skin, only purifying for one time is okay. After one month and a half, recheck whether the tattooed color has faded away. If not, purify again.

Purifying brown eyebrows:

Set out the frequency of light (two to three times each second). The head of hand piece should keep a distance of three fingers from skin. After the first purifying, if still remain deeper color on skin, purify once again. After one month and half, recheck it again. If only red color is remained on skin, purify it with green light. When treating with green light, the head of hand piece should keep distance of one to two fingers from skin.

2. Purifying eyelid

Set the frequency of light to three times each second. The head of hand piece should be kept at a distance of about one finger from skin, and yet it is difficult to purify eyelid. It needs two or three times treatments and each treatment interval should be two months for the best result.

3. Purifying tattoos

It is the same method to remove eyelid. If the tattoo area is too big, just use one time purifying in order to avoid great damage.

4. Purifying lip-line

If tattooed with red lip-line, choose one spot at lip end for testing. If the spot turns black at once after using laser, the tattooed color must contain the iron ion. Then the patient should never purify it with laser any more.

If tattooed with poppy, rose-colored lip-line and lip, choose white light used for purifying blue and black color for the first purifying. Set the frequency of light to three or four times each second, and the head of hand piece is kept at two to three fingers distance from skin. After one month and a half, recheck it.

The white light used for purifying blue and black color is the least damaging to skin, so when you purify any tattooed color you can use white light first to remove the deeper color of them, but the green light is harmful to skin when wash red material of color, so must be cautious to use green light.

IV. Appendix 4: Nursing and attention when treating with laser

1. After being treated with laser within twenty-four to forty-eight hours, the skin will possibly appear rube faction feedback like burnt by sunburn. It may even appear blain、turgidity、bleeding together with light ache, all which belong to the normal response of tissue. If need, you can take anodyne pills or put some ices on the treatment part at intervals.

2. The treatment part irradiated by laser will be scabbed within one to three days and the scab will fall off within five to fourteen days. The patient must keep in mind that he/she cannot denude the scab on his/her initiative, but let it fall off automatically in order to decrease chance of leaving scars on skin.

3. Keep the treatment area dry and clean. Before the scab falls off, the patient can wash it with clear water, and coat some ointment of bacteriophage on it. Alternatively, you can use the boracic acid.

4. When the scab falls off automatically, the treatment area is possible to take on shallow red or pink or slightly hollow. This phenomena will gradually disappear after several weeks or several months.

5. The area treated with laser should avoid direct sunlight within three to six months. The patient should use sun-cream of SPF(anti-sun index) —fifteen multiple or above when going out. The patient should also wear broad-edge cap and dress in long-sleeved shirt and trousers when going out.

6. The treatment part which is not protected properly against sunshine will take on brown spot or uneven pigment. This will fade away after several months. In rare cases this will not fade away for a long time.

7. The patient should have the persistence and confidence in treatment course. Generally, it can only be judged whether the treatment is effective for patient after one to three months.

8. After treated by laser, if the patient finds that the treatment area appears abnormal, for example, the wound effuse yellow liquid or the patient feels great ache, the patient should go to the

hospital for treatment at once.

D. Special attention

Precious, breakable, costly laser apparatus is installed in hand piece, so it is forbidden to drop and hit the hand piece.

Before using, you must screw off the stopper on water tank to check whether it has water in tank, if hasn't you must inject distilled water fully. It is seriously forbidden to power on without water. The aftereffect caused by this will be out of guarantee.

When use laser at 532nm, the operator must wear protective glasses and to avoid radiation to surrounding people. If don't wear, it will produce radiation, even lead to blindness.

E. Taboo scope

If the pigment dye containing iron ion is irradiated by laser, it will produce uneasily washed-out black particle of ferric oxide and result in operation failure. At the moment, you ought to stop treatment with laser.