

PODOTECK

PICO PRO

Λείζερ Picosecond BM32

Μονός, διπλός και πολλαπλός παλμός

ΕΓΧΕΙΡΙΔΙΟ ΧΡΗΣΗΣ

Μοντέλο: BM32



Attention

Dear user:

Thank you for using our company's products, to make full use of the products, we sincerely suggest following:

- Read the instructions carefully and keep them for further reading and reference.
- Follow the instructions to install and operate the machine correctly.
- Forbid others to change and maintain the machine except professionals.
- Please contact us if there is any problem during the operation.
- This product does not belong to medicine, please not for the treatment of disease.

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Chapter 1 Safety

1.1.Introduction

This chapter introduces the safety precautions for PicoSecond Q-Switch Nd-Yag laser Machine from Newangie Co., Ltd.

In order to use safely, the design and manufacture of this machine are strictly implemented and in accordance with the requirements of relevant national standards to eliminate the damage of laser to personnel and the surrounding environment as much as possible.



Note:

This system can only be operated by doctors trained by Newangie Co., Ltd or individuals with operating licenses;

Personnel who operate or maintain the system must read this manual carefully before operating the system.

However, if the operation is not done properly, the laser beam will still cause serious injury to the operator, the patient and the surrounding environment, which may cause: burning, blindness, fire, explosion, etc.

1.2.System Safety Measures

The system was designed to maximize safety for both patient and personnel. The following are some of the preventive safety measures:

1.2.1. Security Classification of Devices

According to the laser radiation safety classification, this machine from Newangie Co., Ltd belongs to Class IV laser products.

1.2.2. Electrical Safety

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- ▶ The machine is divided into class I according to the type of anti-electric shock; it is divided into type B according to the degree of anti-electric shock; Equipment used in the case of mixed gas of nitrous oxide; according to the working system, it is divided into intermittent loading and continuous work.
- ▶ This machine uses 220V power supply, and the maximum input current is not more than 10A.

The power supply connected to this machine must use a single-phase three-wire power socket that meets the national standard and is well grounded, with a specification of 10A.

- ▶ There is high voltage in the machine when it is running - the charging voltage of the energy storage capacitor can be as high as 1.5KV.

The equipment chassis is equipped with circuit system, cooling system and control system. It is forbidden to adjust the internal system of the equipment without the authorization of Newangie technology Co., Ltd.

- ▶ When the equipment is being repaired, the maintenance work must be carried out with the machine turned off.
- ▶ Make sure that the input power supply voltage is consistent with the equipment requirements.
- ▶ Keep the waterway of the equipment running well, and cut off the power immediately if any water leakage is found. The gross weight of this equipment after adding water is about 80Kg, please be careful when moving it to avoid damage.



Note:

When the equipment is running, there is high voltage in the internal memory of the case; after the power is turned off, the high-voltage components may still have residual voltage, and opening the protective cover of the case at will may cause high-voltage electric shock hazard!

The power cord of this machine is equipped with a standard three-core national standard plug. Make sure that your network power socket has a protective ground wire and ensure reliable grounding.

1.2.3. Treatment Room

- ▶ Inflammable and explosive anesthetics, liquids, and gases (such as alcohol, ether, oxygen or nitrous oxide mixed gas, etc.) in the treatment room should be kept away from the laser radiation area, and protective measures should be taken.
- ▶ After using alcohol to clean the focusing mirror, it must be completely dry before starting to work.
- ▶ During the treatment process, it is forbidden to point the laser window towards the eyes and non-treatment areas, let alone look directly at the laser window.

The laser label must be affixed in an obvious position at the entrance of the treatment room.

- ▶ Sufficient lighting and lighting should be maintained in the laser room to facilitate the operator's observation of the patient's treatment area and reduce the operator's visual fatigue during treatment.
- ▶ In order to prevent the laser from harming the eyes during accidental operation, the therapist must wear laser protective glasses during the treatment, and the patient must wear protective goggles during the treatment.

1.3. Warnings Related to Laser Emission



Note:

Nd: YAG laser is invisible 1064nm infrared light, and 532nm visible light. All personnel (including patients) in the laser operation area must wear protective glasses!

The laser window is located at the end of the light section arm! Avoid exposure to laser radiation from this window!

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1.3.1. Equipment use safety

- ▶ Do not look directly at the end exit of the articulated arm and any reflected laser beams.
- ▶ When the instrument is working, the laser window should not face the casing or display to avoid laser damage to the casing and display.
- ▶ In addition to the affected area to be treated and the target surface for laser adjustment, it is strictly forbidden to irradiate other places with laser light; when moving the joint arm during treatment and placing the joint arm after treatment, the end exit of the joint arm must point to a safe place.
- ▶ Keep the focusing lens of the laser output window clean. After each patient is treated, it should be turned off and wiped clean to avoid damage to the lens during high energy.

1.3.2. Direct and Reflected Eye Exposure Hazard



Note:

The single laser pulse energy of this machine can reach 1500mJ, and its pulse width is 10ns±3ns. The laser emitted from the laser window (exit at the end of the joint arm) is convergent within 70mm from the exit, and the focal length of the focusing lens is 170mm; no focusing lens is installed. , the divergence angle of the laser output is about 2mrad. Most of the damage caused by infrared laser to the eye is absorbed by the cornea, and part of it enters the lens of the eye. The laser beam directly into the eye from any part of the treatment room is enough to damage the vitreous body and retina of the eye, resulting in permanent blindness.



Note:

All personnel in the laser operating area must wear protective glasses.
Strict and effective eye protection must be provided to patients.

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- ▶ Personnel in the operating area must wear laser protective glasses, and the applicable wavelength is 200-1100nm.
- ▶ Laser protective glasses cannot safely protect direct laser light or laser light reflected by glass, mirrors, and smooth metal surfaces. Therefore, it is strictly forbidden to look directly at the above-mentioned direct light and reflected light with protective glasses.
- ▶ Covering with gauze, wearing protective goggles, tarsus covering, etc. are all effective to protect the patient's eyes.
- ▶ Do not use reflective objects during operation, such as watches, necklaces, bracelets, mirrors and other accessories that can reflect laser light.
- ▶ Metal instruments can cause laser reflection. During surgery, laser light should not be directly irradiated on these instruments, and non-reflective instruments should be used.
- ▶ A laser radiation warning sign should be posted at the entrance of the laser treatment room. It is strictly forbidden for people to enter and exit during the use of the laser. It is recommended to install a door machine interlock device.

1.4.Transportation Safety

This machine is a photoelectric integrated precision instrument, and the whole machine does not allow users to move it for a long distance. Due to the modular design of the machine, the whole machine must be disassembled during transportation, and the host and articulated arm must be packaged and transported separately. The shock-absorbing packaging provided by the original factory must be used during transportation, otherwise the laser system may be out of adjustment and affect the laser output energy.

The optical path part of this equipment is a precise part and design, and the optical path must be calibrated by professional staff when moving the machine. If the professional staff of our company has not disassembled the machine and calibrated the optical path, Newangie Co., Ltd will not be responsible for any problems with the equipment.

1.5.System Safety Protection Device

This product is designed with the following safety protection devices:

Security measures:

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1.5.1. Circuit - the independent safety circuit system will automatically cut off the laser output when necessary to avoid overheating and abnormal operation of the whole machine.

1.5.2. Leakage switch - when there is leakage in the equipment casing or power supply, it can automatically cut off the power supply to avoid danger.

1.5.3. Water flow switch - the equipment can automatically cut off the laser output when there is no water or insufficient water to avoid abnormal operation of the machine.

1.5.4. Key switch - this device is the main power switch of the equipment. After shutting down, remove the key and keep it by a special person to prevent unauthorized operation. Avoid the danger of laser radiation caused by other personnel switching on and off by mistake!

1.5.5. Emergency stop switch - this switch can immediately cut off the circuit power supply when necessary

1.5.6. Status indication——When the equipment is ready to emit laser, the status change will be displayed on the upper part of the display.



Note:

The emergency stop button should be used with caution, if it is used frequently, the device software will be damaged.

1.6.Device Labels

The key switch label is affixed directly above the instrument key switch;

The label of the emergency stop switch is pasted directly above the emergency stop switch of the instrument;

The high-voltage danger label is pasted on the high-voltage generation and output parts inside the power supply of the instrument;

Chapter 2 Principle

2.1. The Principle of Pico Laser

- ▶ Based on the theory of selective photothermal effect, this device uses its powerful instantaneous power to directly vaporize and crush the spots (tattoos), and then excrete them through lymphatic tissues without affecting the surrounding normal tissues.
- ▶ Generally speaking, it will not rebound, but laser freckle removal has certain selectivity.
- ▶ This instrument can produce different wavelengths of laser light for freckle removal, mainly for black and brown pigments,
- ▶ Pigments combine light and pigments to decompose them. When the pigments are gradually absorbed by the body, the color of the spots will become lighter.
- ▶ The whole operation only takes tens of minutes, no bleeding, no surgery, and the effect of freckle removal can be seen after the operation, which is currently the most effective method of freckle removal.
- ▶ Under normal circumstances, such as freckles, malar moles, liver spots, Ota mother's spots, age spots, sun spots can be treated with laser. Tattoos and semi-permanent makeup can also be removed with lasers.

Chapter 3 Product Description

3.1. Basic Technical Parameters

Name	Value
Wavelength	1064nm/532nm/755nm (585&650 Optional)
PICO Energy	100-1200mj(1064nm); 50-600mJ(532nm) 100-1200mj(755nm)35-450mj(585nm) 20-280mj(650nm)
Dual-pulse Mode Energy	200-2400mj(1064nm); 100-1200mJ(532nm) 200-2400mj(755nm)
Multi-pulse Mode (Three-pulse Mode) Energy	300-3600mj(1064nm); 1500-1800mJ(532nm) 300-3600mj(755nm)
Long Pulse Mode	Energy :15-50J Frequency:1-5Hz
Spot size	1-10mm
Frequency	10Hz (Except for long pulse)
Pulse width	6ns
Working time	8 Hours continuously (Room temperature:25℃)
Cooling	Air Cooling + Semiconductor Cooling
Environmental temperature	16℃ ~ 30℃
Relative humidity	≤85%
Voltage	220-240V, 10A 50-60Hz 90-110V, 20A 50-60Hz
Instrument Weight	85KG
Packaging Dimensions	115*57*133CM

Chapter 3 Product Description

3.1. Equipment composition

The host of this equipment is composed of laser, articulated arm, laser power supply, cooling system and display control system.

3.1.1. Laser Module

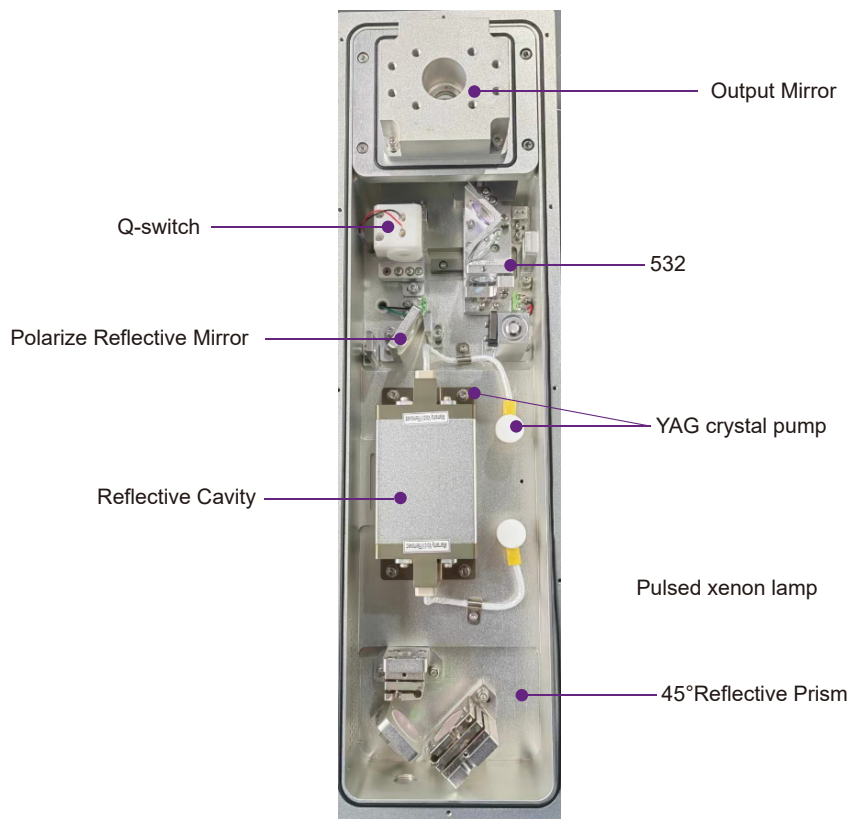


Figure (1)

In Figure (1), a high-voltage pulsed xenon lamp and a YAG crystal rod that can generate laser light are installed in the laser cavity. When a certain amount of energy is injected into the laser xenon lamp, the xenon lamp emits light and excites the YAG crystal rod to emit 1064nm laser. The laser cavity, front mirror, and rear mirror in the laser form the laser resonant part, which is triggered by the Q crystal for a short time, and then reflected by two 45-degree mirrors to emit laser light through the light guide arm.

The laser xenon lamp generates a lot of heat energy in the process of emitting light; the heat is released after passing through the water circulation system.

3.1.2. Self-balancing YAG light guide arm

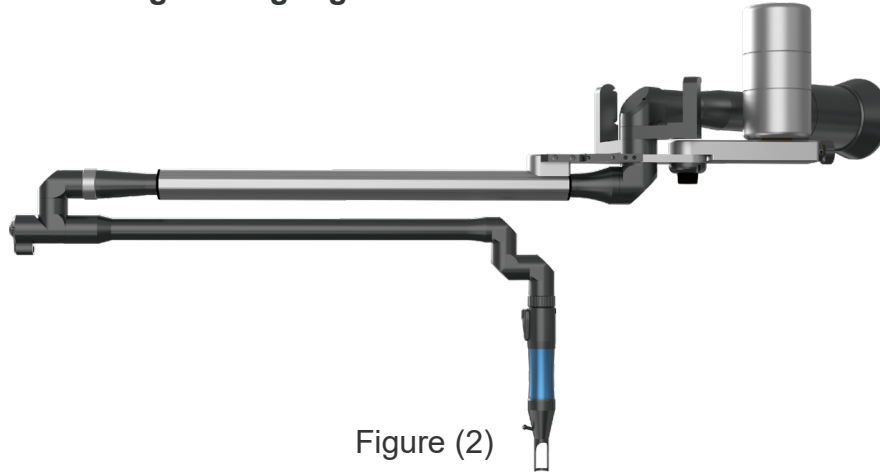


Figure (2)

In Figure (2), the laser light outlet is the laser focus point, and the spot diameter of the focus point is 1 mm to 10 mm. When the laser convergent equidistant point is in contact with the skin, the spot diameter of the convergent focus point is 1 mm. When it is not in contact with the patient, adjusting the distance between the laser convergent equidistant point and the patient's skin is to adjust the spot diameter of the convergent focus point and adjust the laser convergent equidistant. The distance between the point and the patient's skin is in the range of 0mm to 3mm, and the diameter of the corresponding converging focus spot is adjusted within 1mm to 10mm. If the distance is too far, the therapeutic effect will not be achieved.

The laser launch light inlet(Reference picture (2)) should be inserted into the laser light guide arm seat, and then lock the base with the locking device.



Note:

It is forbidden for users to open the side cover of the equipment and disassemble the internal components of the equipment without authorization.

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3.2. Equipment Appearance

3.2.1. Parts name



3.2.2. Function of each part

[3-1] Light guide arm: seven-joint light transmission part, used in conjunction with the laser base; used to transmit the laser to the operator's needs to

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the patient site.

[3-2] Display: As an exchange interface between the operator and the equipment, it is used to display the working status and the parameters to be adjusted; The display screen is designed with an inclined surface.

[3-3] Key switch: used to turn on and off the power of the whole machine, only the key provided by Newangie Co., Ltd can be used.

[4-1] Power jack: single-phase with grounding interface, external power line interface; only the power interface equipped by our company can be used.

[4-2] Foot switch jack: There are four-pin connectors inside, which are connected to the foot switch interface; it is specially equipped with the foot switch provided by the company.

[4-3] Power switch: Start the machine.

[4-4] Filter: to ensure pure water quality and prolong the service life of the machine.

[4-5] Vent: to ensure that water can be smoothly injected into the water tank.

[4-6] Water level display: Display the water level, prompting to fill or replace the water in the water tank in time.

[4-7] Water injection/water release hole: water injection/drainage.

Chapter 4 Main technical parameters and performance indicators

4.1. Basic parameters

- ▶ Geometric dimensions (excluding articulated arm, length×width×height, mm):
920×400×930mm.
- ▶ Net weight of the machine: 80kg; light guide wall 4kg; gross weight 102kg.
- ▶ Power: 2000W.
- ▶ Overcurrent protector model: 220V, 10A.
- ▶ Working laser wavelength: 1064nm; 755nm; 532nm.
- ▶ Laser output frequency: 1-10hz.
- ▶ Spot diameter: 2-10mm adjustable.
- ▶ Maximum single pulse output energy: 1064nm (1064: 0.1~2.0j); 755nm (0.05~1.0-j); 532nm (0.05~1.0j).
- ▶ Eye hazard distance: It is harmful to the eyes in the sealed operating room, and protective glasses must be worn.
- ▶ Cooling method: built-in closed circulation water cooling.

4.2. Working conditions

- ▶ Ambient temperature: 10~30℃
- ▶ Relative humidity: ≤75%
- ▶ Atmospheric pressure: 860~1060hpa
- ▶ Power supply: AC110V/220V±10%, 50Hz±2%
- ▶ Cooling water: use deionized water or pure distilled water, the minimum standard of pure water.

Chapter 5 Instrument installation and use

5.1. Environmental Requirements

- ▶ The instrument should be installed and used in an independent studio. It must be more than twice the space of the device volume.
- ▶ The components of the instrument have precise optical accessories, which are easily damaged by dust. At the same time, dust can also cause a short circuit in the controller circuit system. The working room should be clean and dust-proof.
- ▶ The temperature and humidity of the environment where the instrument is used should be relatively stable. If the requirements cannot be met, the user should be equipped with an air conditioner, dehumidifier, and voltage regulator.

5.2. Shipping Requirements

- ▶ Stack them correctly according to the marks on the packing box, and prevent heavy pressure, impact, severe vibration, etc.
- ▶ Storage temperature range $-40 \sim 55^{\circ}\text{C}$, relative humidity: $\leq 75\%$; no corrosive gas and strong vibration, clean and well-ventilated indoor environment.

5.3. Installation

Please check the accessories list before installing the machine, and check whether the components and accessories are complete and intact according to the list. If there is a special agreement between the user and the manufacturer, please contact the customer before installing the instrument in order to obtain good technical support. During installation, users and engineers please refer to and pay attention to the following sections:

- ▶ Carefully unpack the package, place the instrument at the pre-selected location, select the equipment placement area, and place the host. Take out other supporting components, and place the components in the installation room until the temperature is consistent before installing to avoid water mist on the mirror surface if the temperature difference is too large.

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- ▶ The laser transmission part (light guide arm) is installed at the output port of the laser (refer to Figure (2) [2-1]), insert it into the socket and then tighten the nut.
- ▶ The machine needs to add water, pour 6 liters of distilled water or pure water into the water tank, it is forbidden to use tap water or mineral water, distilled water must be used for circulating water, because distilled water has no impurities, it can avoid rusting and corrosion of the radiator to the greatest extent, thus Affect the life of the water circulation system. The water filling port on the rear side of the machine (refer to Figure (4) [4-7]) is connected to the quick connector for water injection. When filling water, unscrew the water plug of the overflow port at the rear and lower part of the machine until the water is filled until the water comes out of the overflow port.
- ▶ After completing the above installation, please check the installation steps again, if there is no mistake, you can start the test machine.

5.4. Operation Method

5.4.1. Requirements for the operator:

The operator of the instrument should understand the professional knowledge of medical lasers, and it should be used by professional medical personnel who have been trained and qualified.

5.4.2. Display control panel and key functions

The content displayed on the LCD screen is as follows:

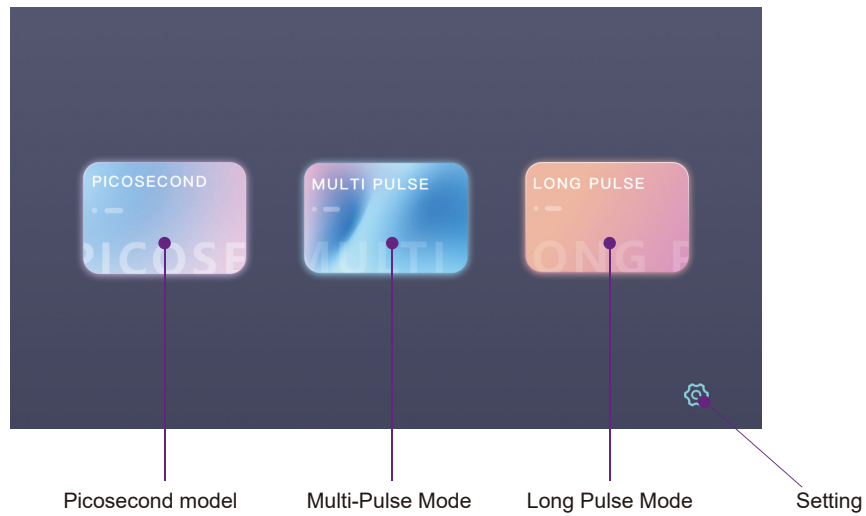
1.Power-On Page



Click to Enter the Next Page

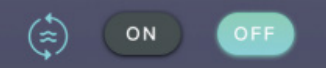
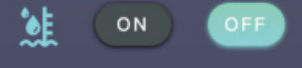
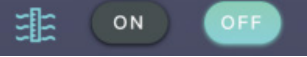
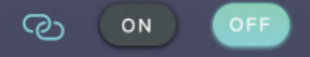
Figure (5)

2.Function Selection Screen



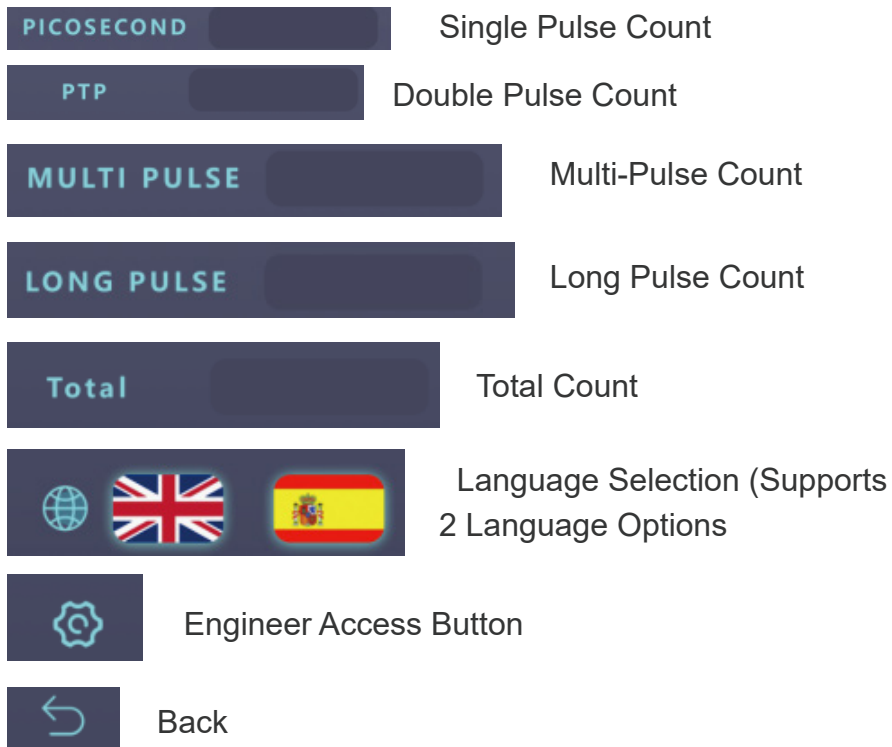
3.Settings Screen



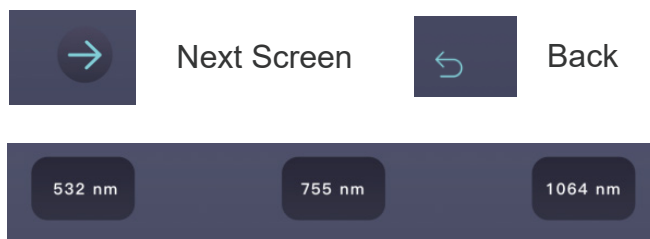
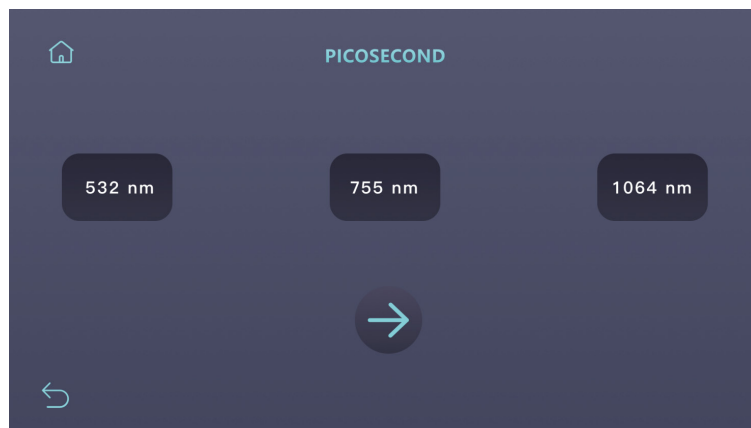
	Water Flow Setting	ON & OFF
	Water Temperature Setting	ON & OFF
	Water Level Setting	ON & OFF
	Door interlock function	ON & OFF

(The "door interlock function" is a safety feature designed to ensure that the laser can only operate when all access doors are securely closed and locked. This mechanism is in place to prevent accidental exposure to laser radiation. When any access door is opened, the interlock system is triggered, immediately interrupting the laser emission and deactivating the laser beam. This helps protect individuals operating the laser machine and others in the vicinity, ensuring a safe working environment. Newangie supports customizing this feature.)

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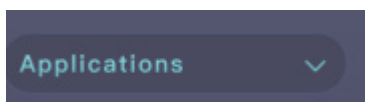
4. PICO Wavelength Selection Page



Select respectively: 532nm, 755nm, 1064nm

Note: (When the device is configured with 585nm and 650nm, you can choose both wavelengths)

5.PICO Operating Interface

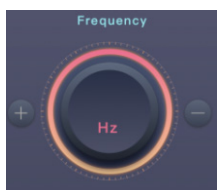


Energy Adjustment



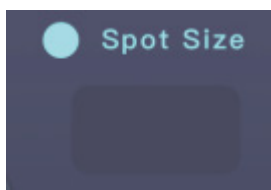
Energy Adjustment

(After selecting the treatment project, suggested parameter values are automatically generated. Users can adjust based on actual conditions using the "+" and "-" buttons.)



Frequency Adjustment

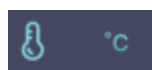
(After selecting the treatment project, suggested parameter values are automatically generated. Users can adjust based on actual conditions using the "+" and "-" buttons.)



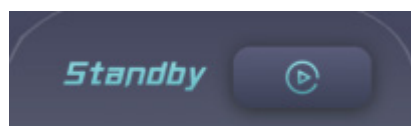
Spot Display (Manual adjustment with light guide arm)



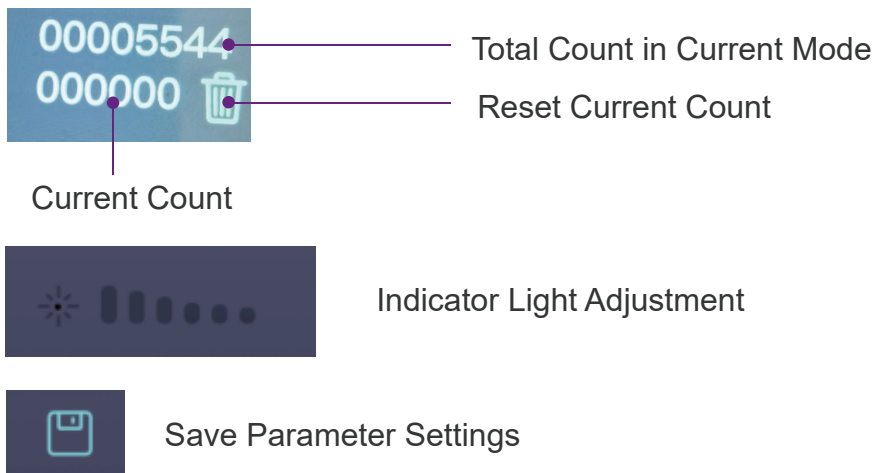
Water Flow Display(36L/min)



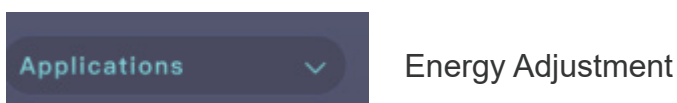
Water Temperature Display (21-40 °C)



Prepare/Start

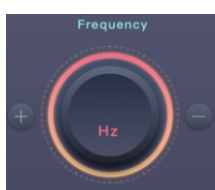


6.Multi-Pulse Operating Interface



Energy Adjustment

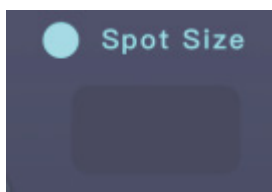
(After selecting the treatment project, suggested parameter values are automatically generated. Users can adjust based on actual conditions using the "+" and "-" buttons.)



Frequency Adjustment

(After selecting the treatment project, suggested parameter values are automatically generated. Users can adjust based on actual conditions using the "+" and "-" buttons.)

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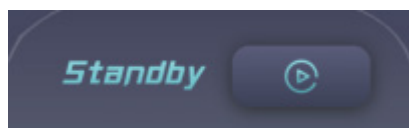
Spot Display (Manual adjustment with light guide arm)



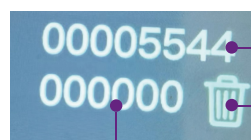
Water Flow Display(36L/min)



Water Temperature Display (21-40 °C)



Prepare/Start



Total Count in Current Mode

Reset Current Count

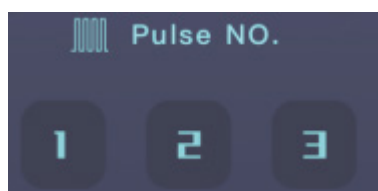
Current Count



Indicator Light Adjustment



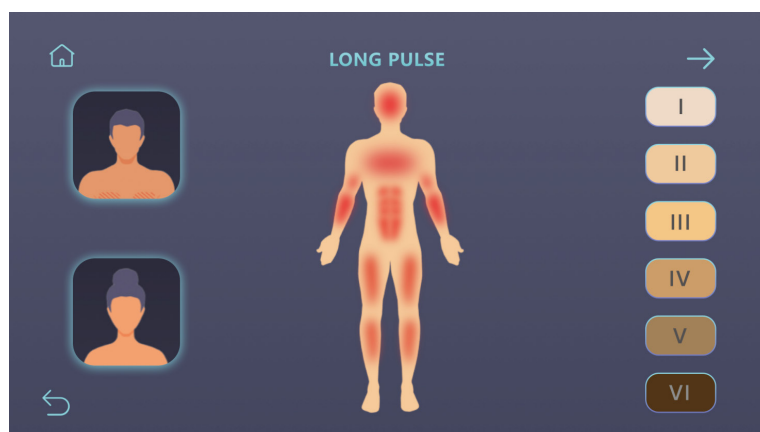
Save Parameter Settings



Pulse Mode Adjustment

(1 for single-pulse output, 2 for double-pulse output, 3 for multi-pulse output)

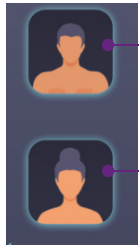
7.Long Pulse Treatment Site Selection Screen



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Back



Male

Female

Male/Female Selection



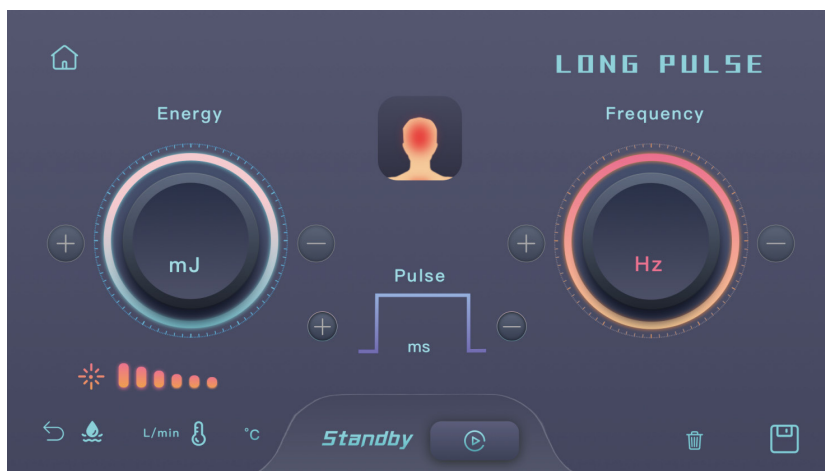
Treatment Site Selection



Skin Type Selection

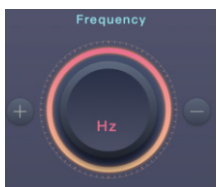


Enter Working Page



Energy Adjustment

(After selecting the treatment project, suggested parameter values are automatically generated. Users can adjust based on actual conditions using the "+" and "-" buttons.)



Frequency Adjustment

(After selecting the treatment project, suggested parameter values are automatically generated. Users can adjust based on actual conditions using the "+" and "-" buttons.)

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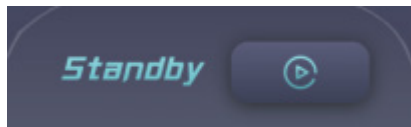
Back



Water Flow Display(36L/min)



Water Temperature Display (21-40 °C)



Prepare/Start



Total Count in Current Mode

Reset Current Count

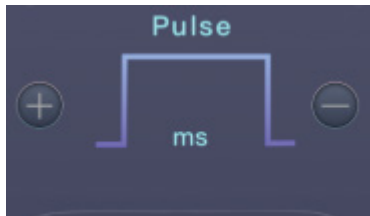
Current Count



Indicator Light Adjustment

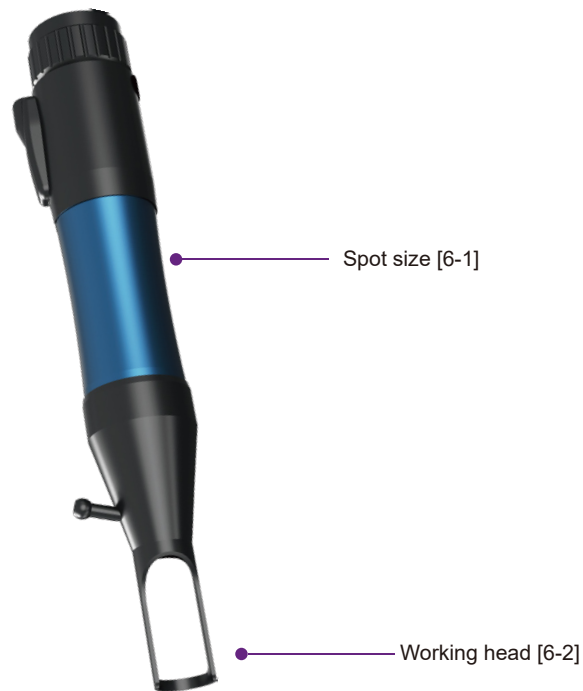


Save Parameter Settings



Pulse Width Adjustment

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5.4.4. Operation steps

5.4.4.1. Power on

- ① Turn on the power
- ② When the emergency stop switch is turned on, turn the key switch to the right;
- ③ The upper left corner of the display screen  displays the wavelength switching interface; press the button to select the wavelength to be used.
- ④ Lightly press the selection key (cursor) key on the display screen to select function adjustment.
- ⑤ Press the energy adjustment key on the display lightly; adjust the appropriate energy value required for treatment, step on the foot switch, and the instrument starts to emit light. Note: the laser window should point to a safe place before turning on the machine and after the machine is running.

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5.4.4.2. Treatment

Aim the output port of the articulated arm at the site to be treated, control the distance between the output port of the articulated arm and the treatment site, that is, control the size of the spot diameter, and step on the foot switch for treatment.

5.4.4.3. Shut down

- ①Release the foot switch;
- ②Return the joint arm;
- ③Press the work button lightly to change the status from work (R) to (STANDBY);
- ④Turn off the key switch;
- ⑤Turn off the main power supply;
- ⑥Keep the power key by a special person



Note:

Dangerous laser radiation will be produced if the operation is not carried out according to the instructions in the manual from Newangie Co., Ltd.

Chapter 6 Treatment parameters

6.1. Indications

This instrument is mainly used to clinically remove some exogenous and endogenous blue, black and brown pigment lesions of the skin, such as: tattoos, eyebrow tattoos, freckles, nevus of Ota, etc.

6.2. Treatment parameters

6.2.1. Remove pigmentation

The reference picture (7) is the parameters for removing pigmentation (reference). Please judge according to the actual situation of the customer and choose the appropriate parameters for treatment.

Treatment parameters for tattoo and pigmentation removal						
	Frequency	Spot size	Energy	Methods of observation	Treatments	Caveat
Tattoo	1-2Hz	3-4mm	Adjust from 0.2J	Gasification whitish	1064nm: 1-1.5 months/time 1-3 times/course of treatment 532nm: 2-3 months/time 1-3 times/course of treatment	1064nm: black and blue 532nm: red and brown 755nm: color tattoo
Chloasma	5Hz	7mm or more	Adjust from the smallest	slight heat tingling	Once every 15-30 days, 10 times a course of treatment	Use 1064nm
Dermal spot	5Hz	4-5mm	Adjust from the smallest	slight congestion	Once every 2-3 months, 5-6 times a course of treatment	Use 1064nm
Freckles	5Hz	4-5mm	Adjust from 0.2J	spot color turning white	Once every 1-2 months, 3 times a course of treatment	Use 1064nm
Age spot	2Hz	4-5mm	Adjust from 0.2J	spot color turning white	Once every 1-2 months, 10 times a course of treatment	"Use 1064nm Disabled in summer"
Mole of ota	3Hz	5mm	Adjust from 0.2J	"Shot until bleeding, into a mesh shape, leaving a good skin Facilitates skin repair"	3-6 times/course of treatment 5-6 months/time	Use 1064nm
Mole	3Hz	5mm	Adjust from 0.2J	Congestion under the skin, some may bleed	3-5 times/course of treatment 3-5 months/time	Use 1064nm
Café-au-lait spots	1-2Hz	4-5mm	lowest energy	Gasification whitish	2-3 times/course of treatment 3-6 months/time	"use 532nm The same position cannot be repeated (only once), light Stick to the skin Dark spots use small energy, light spots use big energy"
Semi-permanent eyebrow/ lip/ eyeliner tattoo	1-2Hz	3-4mm	Adjust from 0.2J	Gasification whitish	"1064nm: 1-1.5 months/time 1-3 times/course of treatment 532nm: 2-3 months/time 1-3 times/course of treatment"	"1064nm: black and blue 532nm: red and brown 755nm: color tattoo"

Figure (7)

6.2.2. Skin Rejuvenation

Refer to Figure (8) for skin rejuvenation parameters (reference). Please judge according to the actual situation of the customer and choose the appropriate parameters for treatment.

Skin Rejuvenation Treatment Parameters -- Pico laser					
Wavelength	Range of treatment	Energy reference	Spot size reference	Frequency reference	Treatment endpoint
755nm	Whitening, skin rejuvenation, facial yellowing, chloasma	0.3-0.6J	9mm	5HZ	Reddish face or slightly hot face
The above parameters are only for reference					

6.3. Treatment Interval

The two treatments should be separated by about two months, so that the crushed pigment particles have enough time to be absorbed. (Please judge according to the actual situation of the customer.)

6.4. Number of treatments

In general cases, multiple treatments are required to obtain better results. The number of treatments for specific patients depends on the concentration and depth of the pigment in the affected area, the composition of the pigment, the laser dose used for each treatment, and the absorption of pigment particles by macrophages in the patient's body. and other factors decide. Generally, more than 3 treatments are required for exogenous pigments, and more than 5 treatments are required for endogenous pigments to obtain satisfactory results. A small number of patients still have unsatisfactory results after multiple treatments.

6.5. Preoperative precautions

- ▶ People with rich blood vessels in the treatment area should avoid drinking alcohol and using aspirin drugs three days before treatment and two weeks after treatment to prevent decreased blood coagulation
- ▶ Women should not be treated during menstruation, and those with blood coagulation defects, epilepsy, hypertension, heart disease and scar constitution should be treated with caution.

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- ▶ Patients should clean the local skin during treatment and remove local cosmetics and other drugs
- ▶ Patients with repeated lines, embroidery, eyebrow cutting and those who have undergone local surgery in the past four weeks or within should be treated with caution. According to the nature of the lesion, the depth of the pigment and the location, individual differences and previous treatment conditions, the number of treatments needs to be different, and a satisfactory treatment effect is gradually achieved. The interval between each treatment is 1-3 months.

6.6. Postoperative precautions

- ▶ There may be slight pain during and after treatment, whitening of the skin surface, bleeding of the epidermis, temporary redness and swelling, and blackening.
- ▶ Even purpura can be absorbed by itself without being too nervous.
- ▶ If there is a scab, it will fall off by itself in 7-14 days. Do not remove it artificially, so as not to delay skin healing and form pigmentation.
- ▶ Due to individual differences or climate changes, within a few days after treatment, the treatment area should not be in direct contact with water or other solutions to prevent infection. Try to eat less spicy food and excessive drinking and smoking.
- ▶ Few individuals may have normal skin pigmentation after treatment, which will gradually fade after 1-3 months.
- ▶ Avoid activities and sun exposure in the sun after surgery to avoid the occurrence and aggravation of pigmentation.
- ▶ If any abnormalities are found after the operation, please go to clinic for consultation and treatment in time.

6.7. Toxic and side effects contraindications

- ▶ For patients with darker skin, when using this device for treatment, the epidermis will be slightly damaged due to the absorption of laser light by the superficial pigment of the skin patient. It is recommended to use this device for treatment after skin whitening.

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- ▶ After laser irradiation surgery, redness, swelling, subcutaneous bleeding and inflammation will appear on the skin. After the operation, the treated part should be frozen, and ointment to prevent burns and scars will be used.
- ▶ For some pigments containing metal ions (such as iron ions), black chemical substances (such as ferrous oxide) that are not easily absorbed will appear after laser irradiation, which will deepen the color of the treatment area. This is due to the different composition of the pigments, not the instrument own quality problems.
- ▶ The postoperative treatment area should be kept clean and dry to avoid infection.
- ▶ If boils appear after surgery, they should be allowed to fall off on their own to prevent scars from being forcibly removed.
- ▶ It is forbidden to continuously and repeatedly irradiate the same part during treatment, otherwise the tissue will be damaged due to heat accumulation.

6.8. Precautions and instructions

- ▶ The actual use parameters of each component of this product have been adjusted and locked, and the components with special requirements are sealed when the product leaves the factory. The user is not allowed to unpack, disassemble, adjust and change the locked parameters at will, otherwise, the user shall be responsible for the consequences.
- ▶ The radiation shield, remote control interlock device, key switch, laser radiation emission warning, beam termination device, etc. are set up for the safety protection of laser radiation according to the regulations. Users are not allowed to dismantle these devices arbitrarily to avoid affecting Protective security.
- ▶ This laser skin treatment instrument is a precision instrument integrating light, machine and electricity. Therefore, operators must be trained. Untrained personnel are not allowed to operate the machine.
- ▶ Before using this instrument, you should read this manual carefully. Newangie Co., Ltd is not responsible for medical accidents and disputes caused by not reading the manual carefully or using the instrument in violation of regulations.
- ▶ Care must be taken during treatment to keep the laser away from non-treatment areas.

Chapter 7 Maintenance

7.1. Maintenance and Repair

- ▶ This product is mainly composed of a precision laser generator and microelectronic instruments. Its maintenance and repair should comply with the general regulations for precision optical instruments and microelectronic instruments. Strictly prevent bumping, collision, extrusion and vibration during storage and use. It should be reset after each use, and the ones used every day should be covered with special packaging and stored in a dust-proof manner.
- ▶ The end of the articulated arm is equipped with an output lens. It is recommended that after each treatment, check whether there is any splash on the surface of the lens; if so, please put the articulated arm vertically upward, unscrew the handle, and gently wipe the lens with a cotton swab dipped in absolute ethanol.



Note:

It is strictly forbidden to check and clean the output lens in the power-on state.