

Pico second laser machine

Operator's Manual



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Chapter One Description of the whole machine

1.1 Accessories description

Name	number	unit	Name	number	unit
jointed articulated arm	1	set	Glasses	1	piece
Contains the following accessories			Eye patch	1	piece
7 jointed articulated arm	1	piece	Chain Terminals	1	piece
Focusing head	1	piece	Foot switch	1	piece
Fixed bracket	1	set	Power Wire	1	piece
Counterweight	3	piece	Add Water	1	set

			funnel		
Base	1	piece	CPC	2	piece
Inner hexagon spanner	3	piece	Machines keys	2	piece
Optional accessories					
585nm	1	piece	650nm	1	piece
Focus lens	1	piece	Cellular	1	piece
					
jointed articulated arm					
					
7 jointed articulated arm			Focusing head		

	
<p>Focus lens Hang Up</p>	<p>Counterweight</p>
	
<p>Base</p>	<p>Inner hexagon spanner and keys</p>
	
<p>Glasses and Eye patch</p>	<p>Chain Terminals</p>

	
<p>Foot-switch pore</p>	<p>Power cable</p>

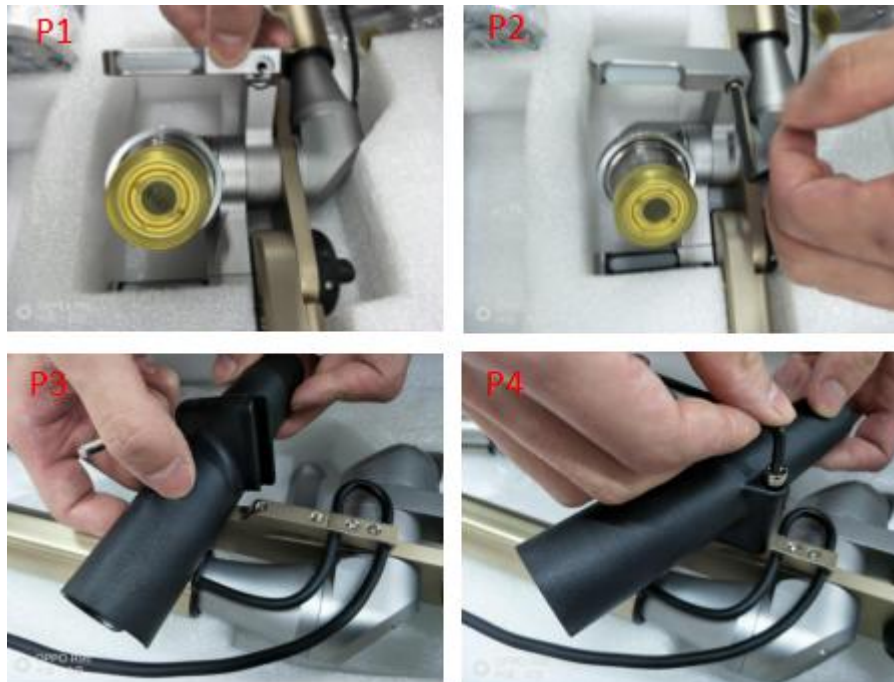
	
<p>Add water funnel and CPC</p>	
	
<p>585nm cartridges</p>	<p>650nm cartridges</p>
	
<p>Fractional lens</p>	<p>Cellular lens</p>

1.2 Installed

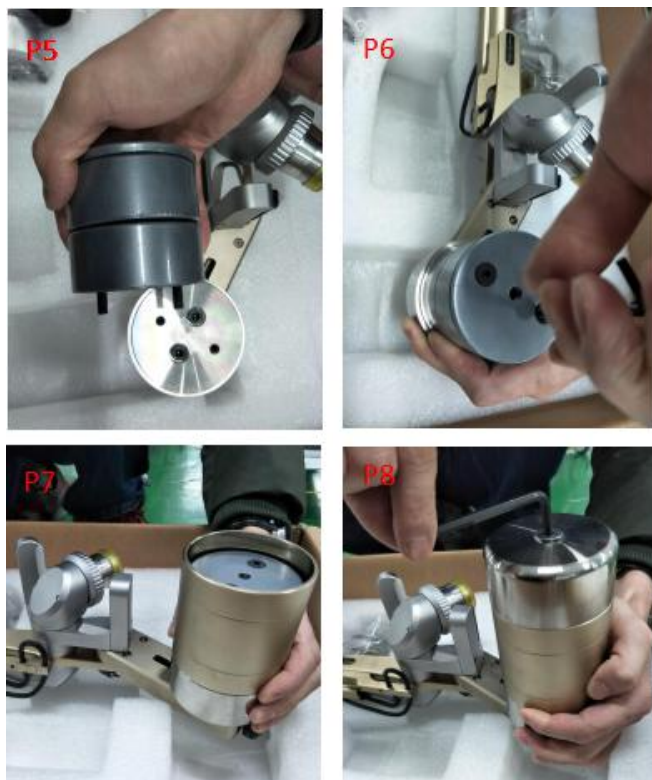
Remove the machine parts and place the room for 30 minutes and do the following.

Step 1: Install the fractional lens holder that rotate the exit port 180° as

indicated by P1

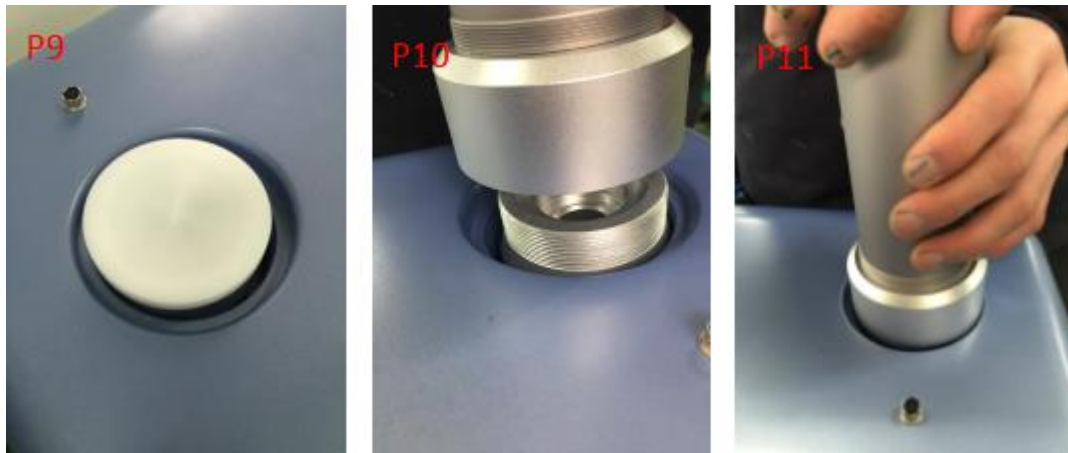


Step 2: Install the joints arm weight.



Step 2: Install the joints arm base - Remove the dust cover from the

optical port as shown in Figure P9, and place it here vertically, as shown in P10; Rotate the fixed joints arm base,as shown in P11.



Step 3: Link the joints arm - Place the joints arm vertically into the base, as shown in P12,It is firmed when it can't rotate ,as shown in P13.



Step 4: Insert focused head and data line.



Step 5: Add water,like the picture,insert CPC(white part)into Over flow,then add 6L pure water,after fill it up,when you see water come out from water output is ok.please keep CPC in the over flow all the time,when you use machine.it is for air come out.



Step 6: 。 Install the pedal, the interlocking terminal and the power supply line.



1.3 Specification

Machine power	3000W
Wavelength	1064nm, 532nm (650nm and 585nm Optional)
Output power	Single: 1064nm: Max 800mj 532nm: Max 400mj Double: 1064nm: Max 1600mj 532nm: Max 800mj
Pulse Duration	700ps
Frequency	1-10Hz adjustable
Spot Size	Φ2-10mm
Cooling system	Water cooling , air cooling,
Power requirement	AC220V±20% 10A, 50Hz AC110V±20% 10A, 60Hz
Dimensions	90×45×170cm
Weight	85Kg

Chapter 2 System Introduction

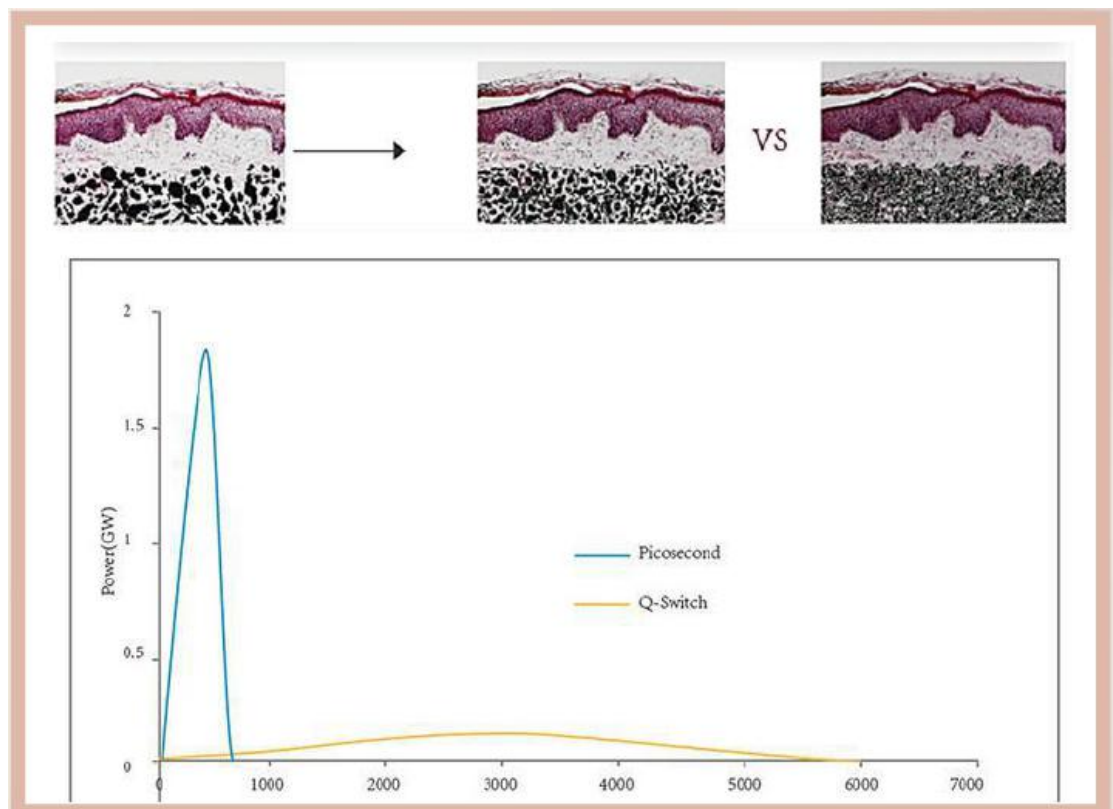
2.1 Working Principle

Currently, the world's pico-second devices are mainly used: Q switch alexandrite 755nm, Q switch Nd: YAG1064 and frequency 532nm.

According to the principle of selective photolysis, the shorter time of laser action, the less laser energy absorbed by the target tissue is less likely to spread to the surrounding tissue, and the energy is limited to the target that needs to be treated for protecting the normal tissue, So the more stronger of selective treatment. Pico second laser pulse width is only one percent of the traditional Q-switched laser, in this ultra-short pulse width, the light can not be convert into heat, almost no light and heat effect, and the target target absorption after the volume of its rapid expansion, Light mechanical effects are burst and tear into pieces, more selective, which can make the pigment lesions in the shorter treatment time, resulting in a stronger effect. In a word, "pico second laser smashes

more on pigment particles and less damage to surrounding tissue." From the treatment point of view, the effective rate of more than 94% (Ota nevus almost 100%).

755nm and 1064nm wavelength for the absorption of melanin specificity is the highest of all laser spotting, the higher the specificity, the more obvious the effect of removing melanin, the removal rate is high, can shorten the number of treatment, the higher the skin safety.



The energy of each emitted light in picosecond (ps) laser treatment only stay in the skin for a very short time (minimum 550×10^{-12}), more faster than the general laser (QS 1064nm rubidium chrome, 5×10^{-9}), the application of fast picosecond time can produce melanin "rapid

mechanical light shock wave", and instantly lead to a strong shock of melanin, a complete shattered melanin into a dusty state, it can quickly metabolize, significantly reduce thermal damage, to avoid anti- Rapid re-plateau. The treatment effect is better than all the exfoliation laser instruments.

The rapid shock wave time of PicoSure picosecond mechanical laser is superior to the general laser speed of the skin to produce thermal damage significantly reduced the probability of stimulation of melanin proliferation (anti-black) risk is also reduced.

If we compare the original pigment particles to rocks, the traditional Q-switched laser can crush these rocks into cobblestone sizes, and use picosecond to crush them into fine sand, so that the efficiency of the absorption of pigment fragments Greatly improved.

2.2Application

1. Freckles, sunburn, the elderly spots, chloasma, liver spots, dermatogens and other intractable stains.
- 2.Rejuvenation whitening, fine pores
3. neven color, dull and dull
4. Acne Marks, pox pit, pock
5. Wrinkles

6. Red moles

7. Large area of tattoo and Red tattoo, Blue tattoo.

contraindication

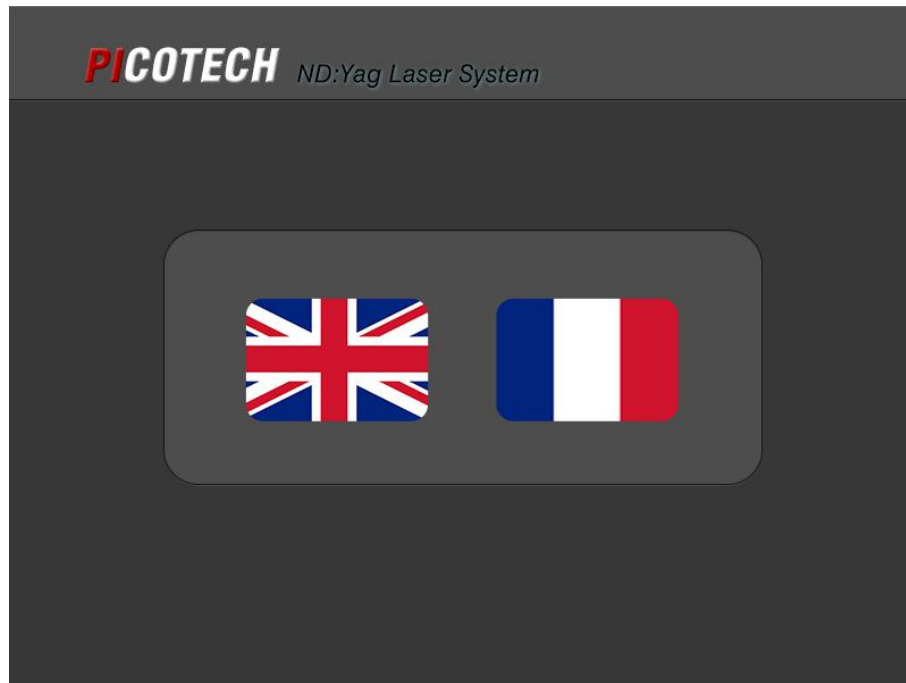
1. Have a trauma treatment area
2. Scar constitution
3. critical patients

2.3 Interface Description.

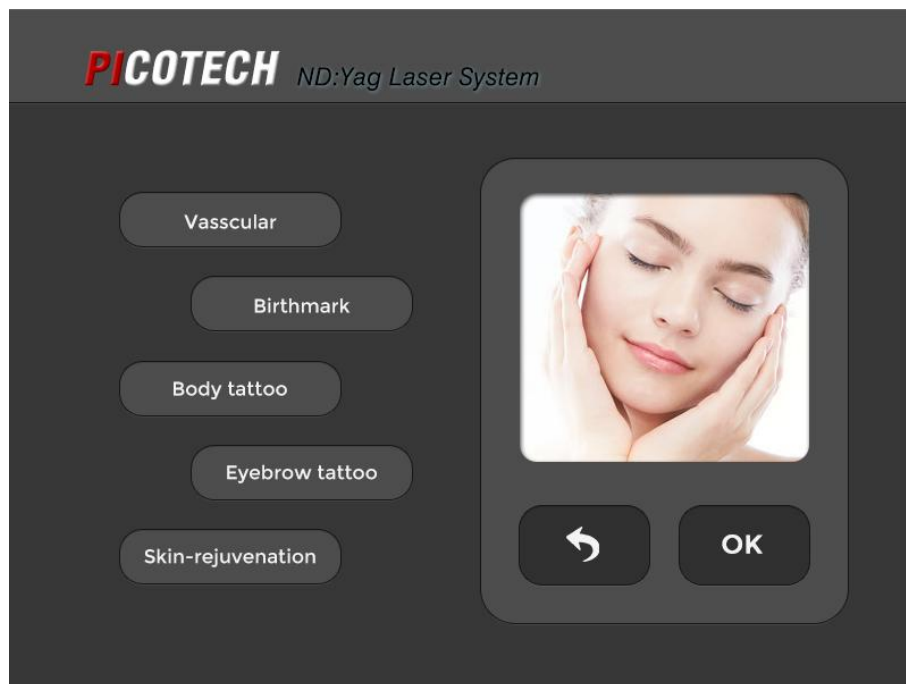
The first Interface of machine.



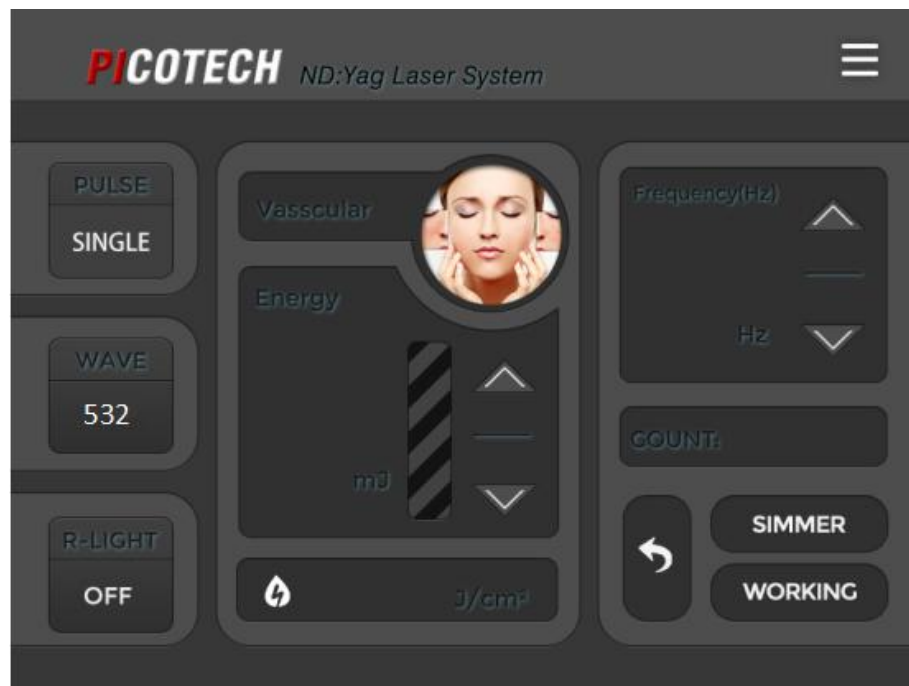
The Interface of language selection.



The Interface of Function selection.



The Interface of Vascular removal.



PULSE:SINGLE and Double (adjustable);

WAVE:only 532nm;

R-LIGHT:ON is open the machine, OFF is close the machine;

Energy:Single pulse time: 100-800mJ(adjustable); Double pulse time: 100-1600mJ(adjustable), Set the energy, frequency and focal length, the bottom automatically calculate the energy density;

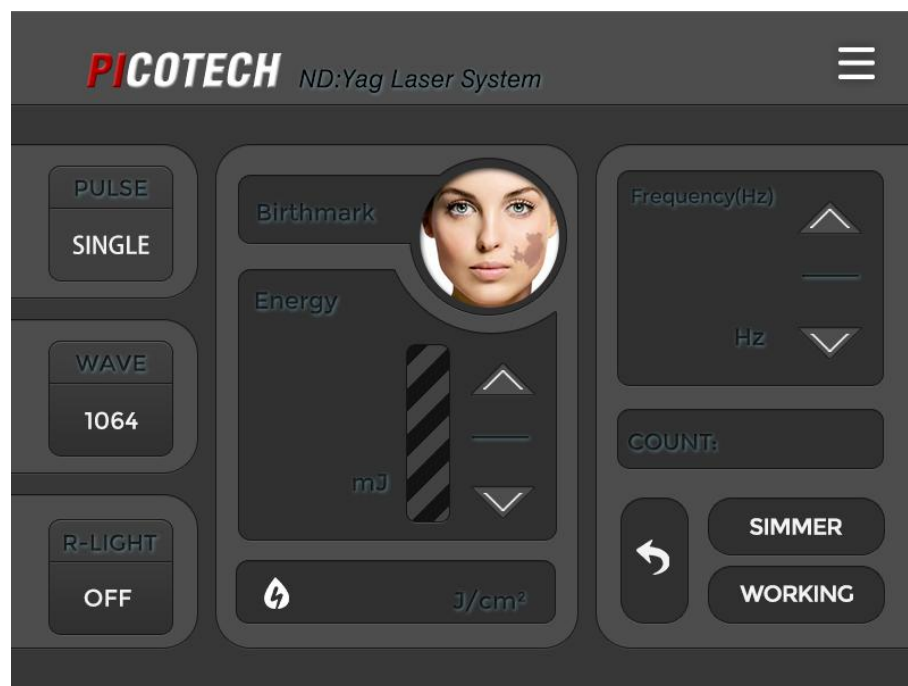
Frequency: How much the laser light come out when you step up the foot switch, 1-10Hz(adjustable);

COUNT: Click one time to clear.

SIMMER:signal of Pre-combustion;

WORKING:working button;

Birthmarks removal



PULSE:SINGLE and Double （adjustable）；

WAVE:output laser wavelength, 1064nm and 532nm can choose;

R-LIGHT:red lead light, ON and OFF

Energy:Single pulse:

1064nm wavelength 100-800mJ （adjustable）, 532nm wavelength 100-400mJ (adjustable);

Double pulse :

1064nm wavelength, 100-1600mJ (adjustable) 532nm wavelength 100-800mJ (adjustable), adjust the energy, frequency and distance, there

will have a automatic Energy Density

below

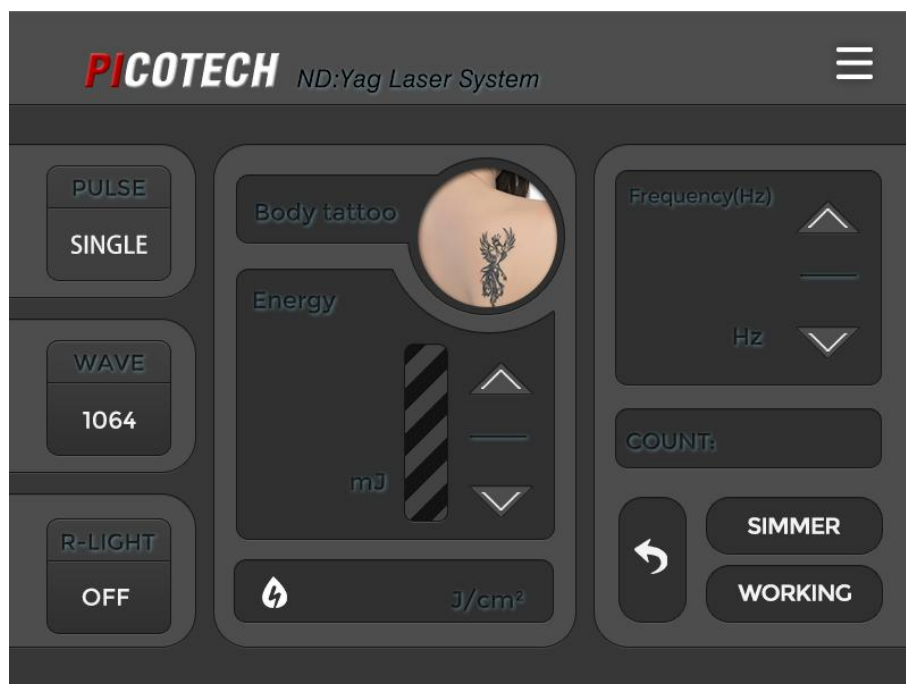
Frequency:step up foot switch how many times laser output,1-10(adjustable)

COUNT: Current count, Click once to clear it;

SIMMER: Pre - burning signal;

WORKING:work button;

Tattoo removal



PULSE:SINGLE and Double (adjustable) ;

WAVE:output laser wavelength, 1064nm and 532nm can choose;

R-LIGHT:red lead light, ON and OFF

Energy:Single pulse :

1064nm wavelength 100-800mJ (adjustable) , 532nm wavelength
100-400mJ (adjustable);

Double pulse :

1064nm wavelength, 100-1600mJ (adjustable) 532nm wavelength
100-800mJ (adjustable), adjust the energy, frequency and distance , there
will have a automatic Energy Density
below

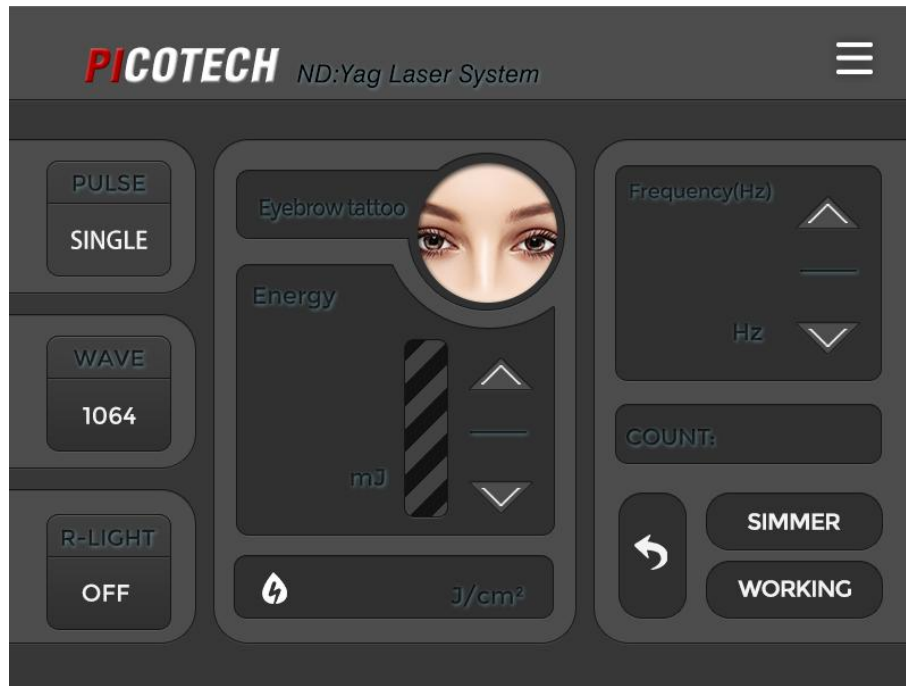
Frequency:step up foot switch how many times laser
output, 1-10 (adjustable)

COUNT: Current count, Click once to clear it;

SIMMER:Pre - burning signal;

WORKING:work button;

Eyebrow tattoo removal



PULSE:SINGLE and Double （adjustable）；

WAVE:output laser wavelength, 1064nm and 532nm can choose;

R-LIGHT:red lead light, ON and OFF;

Energy:Single pulse：

1064nm wavelength 100-800mJ （adjustable），532nm wavelength 100-400mJ (adjustable);

Double pulse：

1064nm wavelength,100-1600mJ(adjustable) 532nm wavelength 100-800mJ(adjustable),adjust the energy,frequency and distance，there

will have a automatic Energy Density

below

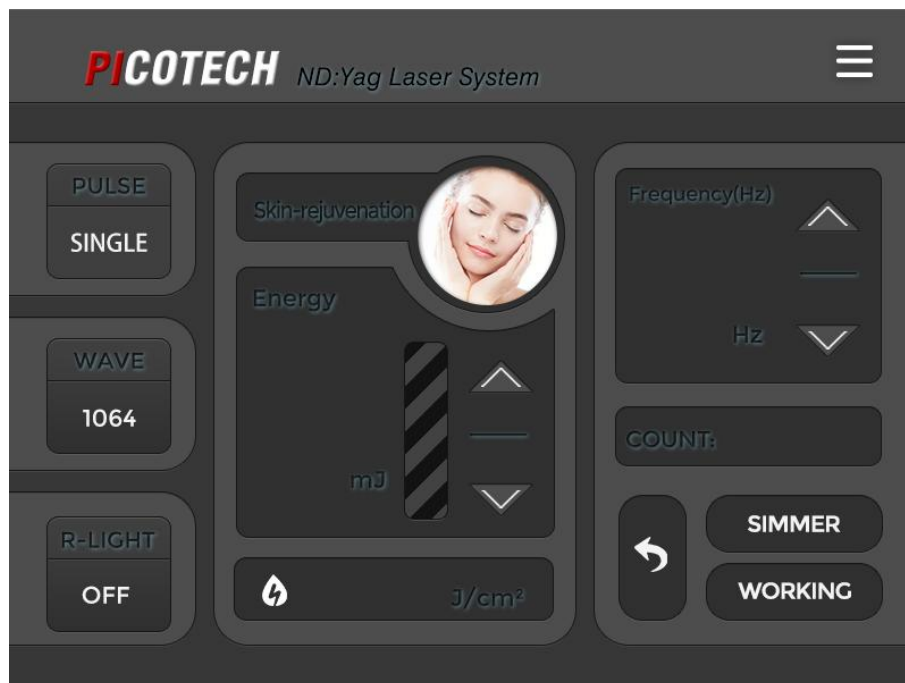
Frequency:step up foot switch how many times laser output,1-10(adjustable)

COUNT: Current count, Click once to clear it;

SIMMER:Pre - burning signal;

WORKING:work button;

Skin-rejuvenation



PULSE:SINGLE and Double (adjustable) ;

WAVE:output laser wavelength, only 1064nm;

R-LIGHT:red lead light, ON and OFF;

Energy:Single pulse: 1064nm wavelength 100-800mJ (adjustable)

Double pulse :1064nm wavelength, 100-1600mJ(adjustable)adjust the energy,frequency and distance , there will have a automatic Energy Density below

Frequency:step up foot switch how many times laser output,1-10(adjustable)

COUNT: Current count, Click once to clear it;

SIMMER:Pre - burning signal;

WORKING:work button;

Chapter 3 Treatment

3.1 treatment

3.1.1 patient selection

You can divide the patient's skin into five categories , and the first and second skin types are generally treated, and energy can be regulated in a wide range, The fifth type of skin,need to be operated carefully.

3.1.2 preoperative skin care

Bleaching of the skin with a mixture of A and 4% hydroquinone 3-4 weeks prior to surgery can lead to severe dehydration, which is not necessary before treatment for one or two types of skin. But for three or four types of skin patients, it is important to do this bleaching , If you want to make a large area of regeneration or grinding, you can use sedative medication before treatment,so that patients are relax , One hour before surgery, One hours before operation, clean treatment area and sme

ar lidocaine (a local anesthetic), after covering the plastic cladding to promote absorption. In addition to the use of lidocaine, gel compound, but also need to increase the skin moisture so that laser treatment more refined to reduce the injury during treatment.

3.1.3 Operation procedure

- (1) cleaning treatment site;
- (2) wearing a goggles for the healer;
- (3) Provide comfortable cold air environment for patients during treatment.

3.1.4 course of treatment

- (1) The removal of color spots generally look after treatment recovery situation, freckles treatment 1-2 times, Chloasma 4--6 times
- (2) tattoo is mainly based on the fuel of natural dyes 3 times, other fuels according to the restoration of supplementary treatment, each interval 3--4 weeks

(3) Fractional skin rejuvenation is generally a month interval, three times for a course of treatment.

(4) Remove the vascular interval for a month, according to their own recovery to add additional treatment, because there will be repair function, may need to be treated several times after the vascular is no longer repeated.

3.2 Postoperative care

(1) May be some pain after treatment, skin surface will be white, epidermal bleeding, short time of redness, anti-black, even the emergence of purpura can be self-absorption, do not have too nervous.

(2) The scab will fall off their own about 7-14 days, do not try to remove it, so as not to delay skin healing and the formation of pigmentation.

(3) Due to individual differences or climate change, within a few days after treatment, to prevent infection, the treatment area should not be in direct contact with water or other solutions, don't eat or eat less spicy food and alcohol, smoking. (4) Few individuals may experience normal pigmentation after treatment, generally after 1 - 3 months will gradually fade.

(5) After surgery should avoid the activities of the sun and exposure, so as to produce and increase the pigmentation.

(6) If any abnormalities found in the post, please go to the door to consultation treatment.

3.3 Treatment parameters

3.4 Treatment advantages

(1) High energy & Short pulse duration

The energy can be released into the skin tissue within a few trillionth of a second, the pigment can be broken down into smaller fragments.

Compare with traditional Q-switch nd:yag laser, pigments can be

absorbed more easily and faster。

(2) Low risk & Painless

Since the pulse duration has been reduced by a thousand times, skin damage is reduced. The treatment is more safe, painless。

(3) No anesthesia during treatment, no inflammation.

(4) Fast

For tattoo removal, traditional Q: Switching lasers usually need 6-8 treatments. Use the picosecond lasers only need 3-4 treatments to be completely removed.

(5) High performance

Use the picosecond laser technology can completely remove tattoos and pigments.

(6) Trial of any type of skin, no apparent pigmentation after treatment

Chapter IV Maintenance

4.1 Use considerations

(1) At room temperature 25 °C for treatment operation, room temperature can not be too high.

(2) thoroughly wash the skin,do the treatment after the skin dry..

(3) Staring at the 532nm wavelength laser may cause blindness, and all people present in the treatment room must wear protective glasses.

(4) using the 585nm and 650nm treatment heads when the incident beam is 532nm, that means the operating interface selects 532nm working.

(5) When the machine is working, Don't put the laser on the reflective object.

(6) Can't turn off the machine when the machine is working, ready state is ok, That means not to be fired.

(7) Wash the focus head with alcohol every time after the treatment.



4.2 Other considerations

(1) **The laser arm is fixed to firmly**, installing the machine according to the installation procedure.

(2) Can't get into the dust, during installing the machine.

(3) The interlock terminals are fixed before the boot.

(4) Fill the machine with water before the boot.

(5) Change the water once a month, must be pure water or distilled water.

(6) CPC must be always inserted in the exhaust port.

(7) The beam of laser output can not directly illuminate the eyes or other healthy skin in any case.

(8) Avoid the aiming laser beam on the reflective surface of the light, such as stainless steel, mirror. The reflection of the laser beam can damage the eyes or skin

(9) The laser beam must be away from flammable and explosive materials

(10) There is a high voltage inside the equipment, and non-professionals may not open the cabinet to avoid the risk of electric shock.

(11) During Storage and using must prevent bumps, bumps, squeeze, vibration. Reset after every time you use it, must be covered with special packaging after daily using, dust storage.