Frax Ultra
CO2 Fractional Laser



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Chapter 1 Instrument Introduction

With the continuous change of people's aesthetic concept, in addition to the plastic surgery of the face and body appearance, private part plastic surgery has gradually become a new fashion, which is sought after by the majority of women and

is popular all over the world. In the past, vaginal laxity could only be solved by surgery. However, surgery is high risk and side effects, so many women give up treatment, which affects their health and quality of life. With the advent of the innovative treatment plan for microvascular reconstruction of CO2 laser, the volume of vaginal tightening treatment has grown rapidly, becoming a new growth point in the cosmetic surgery industry.

Private Youth Laser provides a revolutionary and precise painless solution for common female problems such as vaginal relaxation, vaginal environment disturbance, poor sensitivity, or accompanied by urinary incontinence: no anesthesia, no pain throughout the process, no pain During the vacation period, the treatment can be completed in 15 minutes, and the firming effect can be maintained for a long time. It is the most popular new body shaping project for women today.

Through the microvascular reconstruction effect of CO2 laser, the private youth laser will increase the oxygen content of the vaginal tissue, the release of ATP from mitochondria will increase, and the cell function will become more active, thereby enhancing the secretion of the vaginal mucosa, lightening the color and enhancing the lubrication effect. At the same time, By restoring the vaginal mucosa, normalizing pH and microflora, it reduces infection recurrence and restores female reproductive tissue to a more youthful level. In addition, the private laser completely subverts the traditional way of repairing the birth canal: it is painless and non-invasive to solve the problems of urinary leakage, relaxation, decreased sensitivity and lubrication, and repeated inflammation of the postpartum

reproductive tract.

Chapter 2 Operational Safety Regulations

2.1 Optical security

1. Burning

The CO2 scanning laser has a wavelength of 10.6 microns, a spectral line in the far infrared range, invisible to the human eye. The maximum laser power output of this instrument can reach 60 watts, which can cause 3rd degree burns even without focusing. Therefore, it should be given enough attention.

2. Hazards of reflection and direct rays to human eyes

The instrument outputs visible red semiconductor laser and invisible CO2 laser, both of which are harmful to human body. Do not look directly at the red semiconductor laser at any time, even if it will not cause burns to the human eyes, it will still cause a certain degree of damage.



The harmful distance of CO2 laser is very large, direct exposure to human eyes will cause blindness, and it is irreversible. Operators should be extra careful.

Since the surface of an object, especially smooth metal or glass, can form a mirror surface and reflect light, pay attention to the path of the laser to remove such objects or surfaces that may produce reflections. In other words, do not irradiate the laser light on objects with the property of reflecting light to prevent the reflected or scattered laser light from causing harm to the human body.

2.2 Flammability and explosiveness

Do not use this laser instrument at the site with inflammable and explosive materials, and do not place or store inflammable and explosive materials around the instrument. Flammable and explosive items include: gasoline, alcohol, some narcotics, some solvents, desiccants, ointments, synthetic resins, etc.

2.3 Safe operation steps

1. Before surgery

1. Keep the instrument surface clean.
2. Get the instrument key.
3. Ask the surgeon how to position the instruments and the patient.
4. Put a laser warning sign in a prominent location.
5. For general anesthesia, prepare a damp towel for the patient.
6. Prepare all necessary equipment and tools.
7. Check that the instrument is working properly.
8. After inserting the switch key into the key of the instrument, power on the instrument. The instrument should perform self-check first, select the working mode and then enter the standby working state.
9. If necessary, press the SET button to reset the working parameters.
10. Check the same optical path. 11. Press the setting key to return to the standby working state or turn off the instrument until the operation is performed.

3. **After the operation**

1. Shut down and remove the instrument.
2. Pull out the switch key and keep it properly.
3. Place the light guide arm in its normal position.
4. If necessary, remove optical accessories and other tools for cleaning or disinfection.

Chapter 3 Technical parameters

Laser type	CO 2 laser
Power	60W
Wavelength	10600nm
Scan graphics	Circle、Triangle、Square、Rectangle、Hexagon、 Straight line
Output mode	Continuous、Single、Pulse
Scan scope	0.1mm-20mm
Distance	0.2-2.6mm
Optical transmission	6-joint light guide arm
Cooling system	Closed Internal Circulating Water Cooling
Packaging dimensions	59*49*37cm

Gross weight	27kg

Chapter 4 Instrument Installation

4.1 Unpacking inspection

This instrument has passed performance debugging and quality inspection before transportation. We guarantee the quality of the product. Therefore, after unpacking, it should be directly installed and used.



Note: If any damage or other quality problems are found after unpacking, you should contact our company or the agent immediately.

4.2 Equipment list

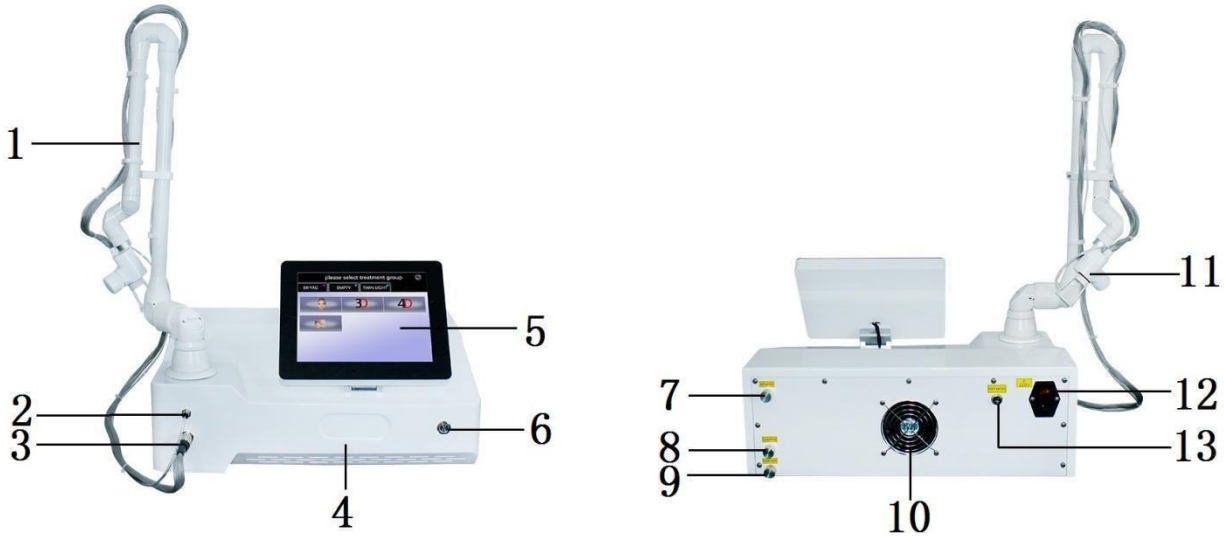
The dot matrix skin beauty instrument includes the following components:

			
Instrument host	Light guide arm	power cable	pedal

			
funnel	Privacy casing	private operating head	Vulvar Mode Operating Head
			
Vulvar Mode Operating Head	Dot matrix operation head	Pulse mode operating head	

4.3 Construction of the instrument

This instrument consists of the following parts :



1.Light guide arm

The laser beam transmission is done by the light guide arm. The function of the light guide arm is to transmit the laser light to the part of the patient to be operated on (the target surface).

2.Blow trachea

Used to connect the blowing system and dissipate excess smoke

3.Signal output line

Used for the connection between the galvanometer and the machine

4.Instrument host

Includes high voltage power supply, low voltage power supply, control system, cooling system, laser system and air blowing system.

5.Touch the display panel for parameter

setting

6.Start switch

Press the switch to turn on the instrument, then press the switch to pop up and turn off the instrument.

7.Affusion **8.Overflow** **9.Drainage**

10.Radiator fan

11.Scanner

Equipped with a graphic scanner, it can scan and output rectangles, circles, hexagons, triangles and other graphics, and the maximum scanning area is about 20×20mm^2;

12.Power switch/power cord socket

13.Foot switch

4.4 Installation

Step 1: install the light guide arm

Rotate the B end in (Figure 1) to the direction indicated by the C end, lock the a end circlip in the figure to the direction indicated in the figure automatically (if it is necessary to restore to the original position, turn the a end circlip to the direction

indicated in the figure), insert the B end into the main base, and finally lock the lock nut D of the light guide arm as shown in (Figure 2)

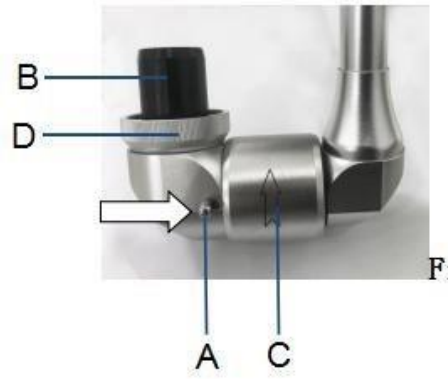


Figure 1


Figure 2

Step 2: install the signal output line as shown in Figure 3

1. first remove the pulse mode hand tool from the light guide arm, as shown in (Figure 4)

2. align the protruding point (Figure 5) with the recessed hole (Figure 6) and press it vertically

As shown in Figure 7, lock the nut finally

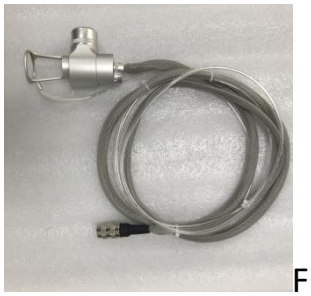

Figure 3


Figure 4


Figure 5


Figure 6


Figure 7

Step 3: install the fractional mode hand tool

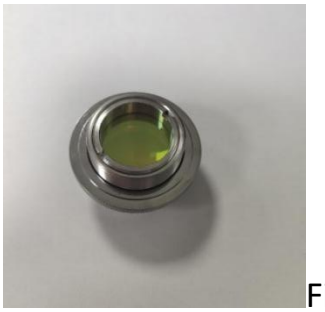
1. Install a dot matrix mode tool such as (Figure 8), adjust parameters for dot opening mode, and operate by stepping on the foot


Figure 8

Step 4: Install Private Mode Tools

1. Firstly, install the crystal (Figure 9) as shown in (Figure 10),Install the retractable hand tool (Figure 11)

2. Note: Private three-piece handsets such as (Figure 12) share a single crystal, in other words, they all need to be installed before they can be used.


Figure 9

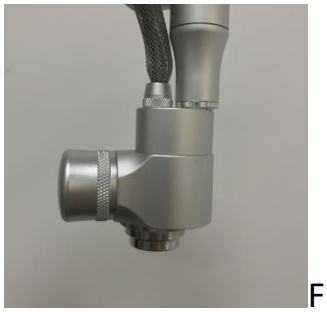

Figure 10


Figure 11


Figure 12

Step 5: Install the laser foot pedal

1. Align the recessed points (Figure 13) to the projected points (Figure 14), press them vertically (Figure 15), and lock the lock mother at last.


Figure 13


Figure 14

Figure 15

Step 6: Instrument Add Water

1. Install the filling funnel on the filling hole (Figure 16)
2. Fill distilled/purified water from the filling funnel until water flows out of the overflow hole, proving that the water tank is full



Figure 16

Reminder:

1. Change water once every 15 days when the instrument is used frequently; Change the water once a month if the instrument is not used frequently.

(2) When changing water: unscrew the drainage hole, release all water, screw on the nut, repeat steps 6“1,2” above to add water

Step 7: Turn on the instrument

1. Plug in the power cord (Figure 17)

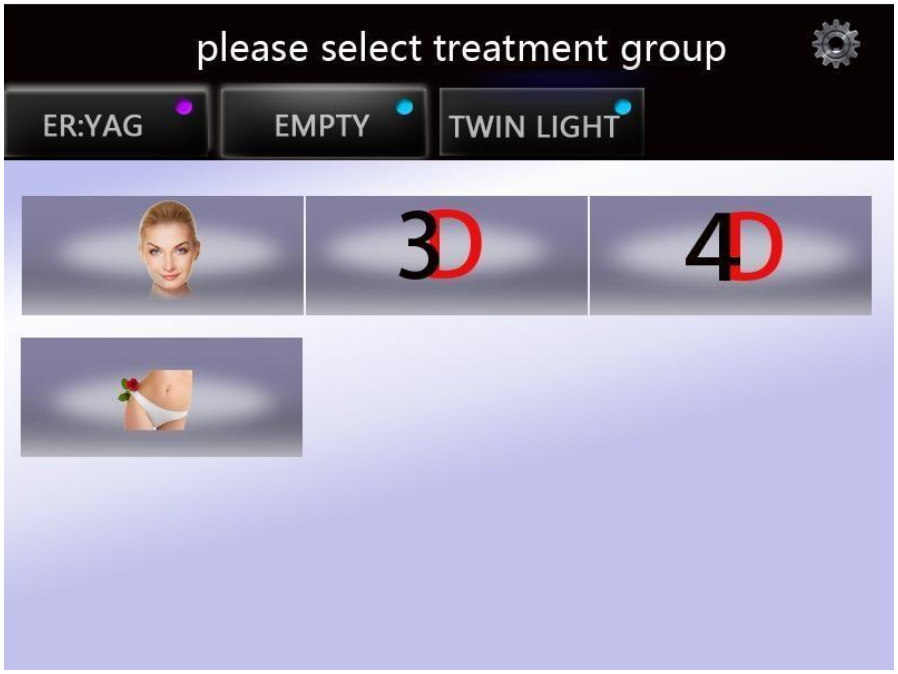
2. Press the on button to start the machine.

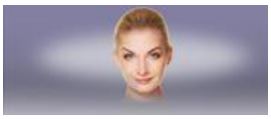

Figure 17


Figure 18

Chapter 5 Operation Steps

5.1 Mode selection interface





Lattice mode button,Click to enter the dot lattice mode interface



Pulse mode button,Click to enter the pulse mode interface.



Private mode button,Click to enter the private mode interface



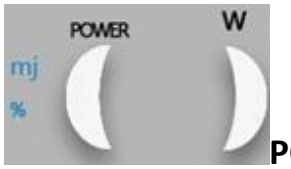
Vulva mode button,Click to enter the external genitalia mode interface



Set button,Click to enter the settings interface

5.2 Lattice mode





POWER: Use parameter buttons to adjust and control the laser output power from 1-30W



RESIDENCE TIME: Use parameter buttons to adjust and control the

laser action time at each point during the scanning process from 0.1ms to 10ms



INTERVAL TIME: Use parameter buttons to adjust and control the scanning gap time between the point and the next point during the scanning process, ranging from 1-5000ms



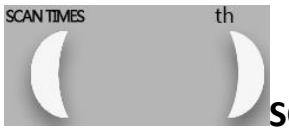
POINT SPACING: Use the parameter buttons to adjust and control the distance between points in the dot matrix from 0.2 to 2.6mm, achieving the goal of controlling the density of the dot matrix



SCAN MODE: Use the parameter buttons to adjust and control the scanning methods of the dot matrix, which can be divided into three types

Sequential mode: Scan points are sequentially performed from one side to the other

Random mode: Scan points are not in order and are performed randomly **Half mode:**Mid range mode: The scanning point maintains a half distance of the dot matrix from the next scanning point in the same row



SCAN TIMES: Use parameter buttons to adjust and control the scanning frequency of the dot matrix from 1-20th



PREVIEW: When the preview button is pressed, the scanner will emit an indicator light to preview the selected shape

Use the up and down addition and subtraction buttons to adjust the maximum length of the dot matrix graph in the up and down directions to 020mm, and use the left and right addition and subtraction buttons to adjust the maximum length of the dot matrix graph in the left and right directions to 0-20mm **KEEP:**Click to save all the currently set parameters





GET READY: After adjusting the parameters, press the prepare button, align the scanner with the position, and press the foot pedal to emit laser scanning

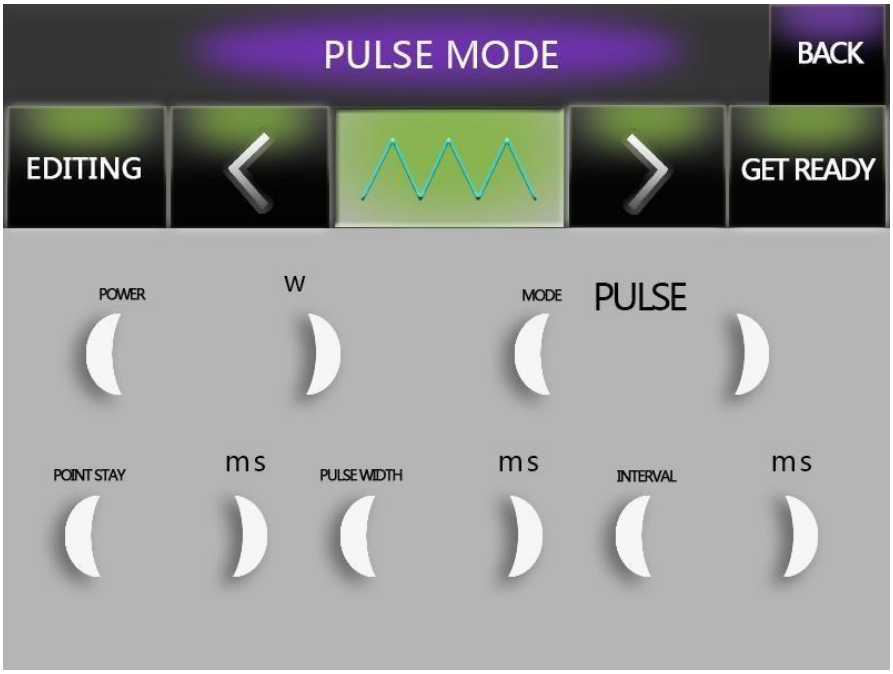




EDITING:cancel job

BACK: Click to return to the main interface

5.3 Pulse mode





POWER: Use parameter buttons to adjust and control the laser output power from 1-30W

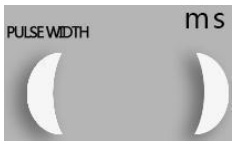


Output mode: Use parameter buttons to adjust and control the scanning methods into three types:

1.**SINGLE mode:**After stepping on the foot switch, only one laser beam is emitted,Duration by 

Control 1-100ms

2. **CONTINUOUS mode:**Press the foot switch and continue to emit laser. Lift the foot switch and the emission ends

3.**PULSE mode:**Laser continuously emits pulses after stepping on the foot pedal,Pulse width and interval time by 



adjust,When the pulse width and interval values are small, it is considered a superpulse, and the emission ends when the foot is raised.



GET READY: After adjusting the parameters, press the prepare button, align the scanner with the position, and press the foot pedal to emit laser scanning



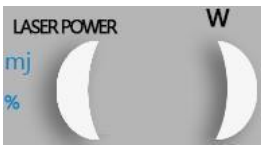


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BACK: Click to return to the main interface

5.4 Private mode



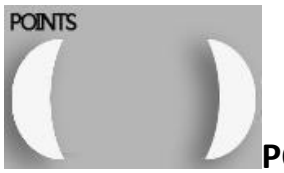


LASER POWER: Use

parameter buttons to adjust and control the laser output power from 1-30W



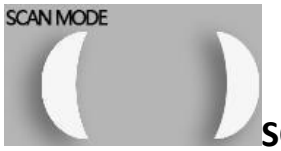
RESIDENCE TIME: Use parameter buttons to adjust and control the laser action time at each point during the scanning process from 0.1ms to 10ms



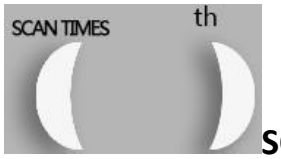
POINTS: Use the parameter buttons to adjust and control the distance between points in the dot matrix from 0.1 to 2.6mm, achieving the goal of controlling the density of the dot matrix



ROW SPACING: It is only effective during vertebral body treatment (with a circular scanning pattern), controlling the distance between rows of the lattice, with an adjustment range of 2-40mm, to achieve the goal of controlling the density of the lattice



SCAN MODE: There are three scanning modes: sequential, split, and random, which are the same as the dot matrix



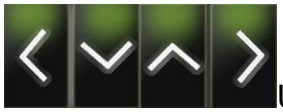
SCAN TIMES: Use parameter buttons to adjust and control the scanning frequency of the dot matrix from 1-20th



SCAN LINE NUMBER: Only effective during vertebral body treatment (when the scanning pattern is circular), control the number of rows output during scanning, with an adjustment range of 1-10



PREVIEW: When the preview button is pressed, the scanner will emit an indicator light to preview the selected shape


Use the up, down, left, right, and subtraction buttons to adjust the position of the center point of the scanned image





KEEP: Click to save all the currently set parameters

GET READY: After adjusting the parameters, press the prepare button, align the scanner with the position, and press the foot pedal to emit laser scanning





EDITING:cancel job

BACK: Click to return to the main interface

5.5 Vulva mode

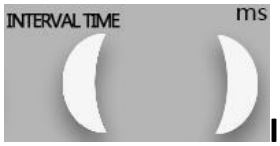




POWER: Use parameter buttons to adjust and control the laser output power from 1-30W



RESIDENCE TIME: Use parameter buttons to adjust and control the laser action time at each point during the scanning process from 0.1ms to 10ms



INTERVAL TIME: Use parameter buttons to adjust and control the scanning gap time between the point and the next point during the scanning process, ranging from 1-5000ms

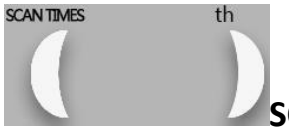


POINT SPACING: Use the parameter buttons to adjust and control

the distance between points in the dot matrix from 0.2to 2.6mm, achieving the goal of controlling the density of the dot matrix



SCAN MODE: There are three scanning modes: sequential, split, and random, which are the same as the dot matrix



SCAN TIMES: Use parameter buttons to adjust and control the scanning frequency of the dot matrix from 1-20th



PREVIEW: When the preview button is pressed, the scanner will emit an indicator light to preview the selected shape


Use the up, down, left, right, and subtraction buttons to adjust the position of the center point of the scanned image **KEEP:**Click to save all the currently set parameters





GET READY: After adjusting the parameters, press the prepare button, align the scanner with the position, and press the foot pedal to emit laser scanning

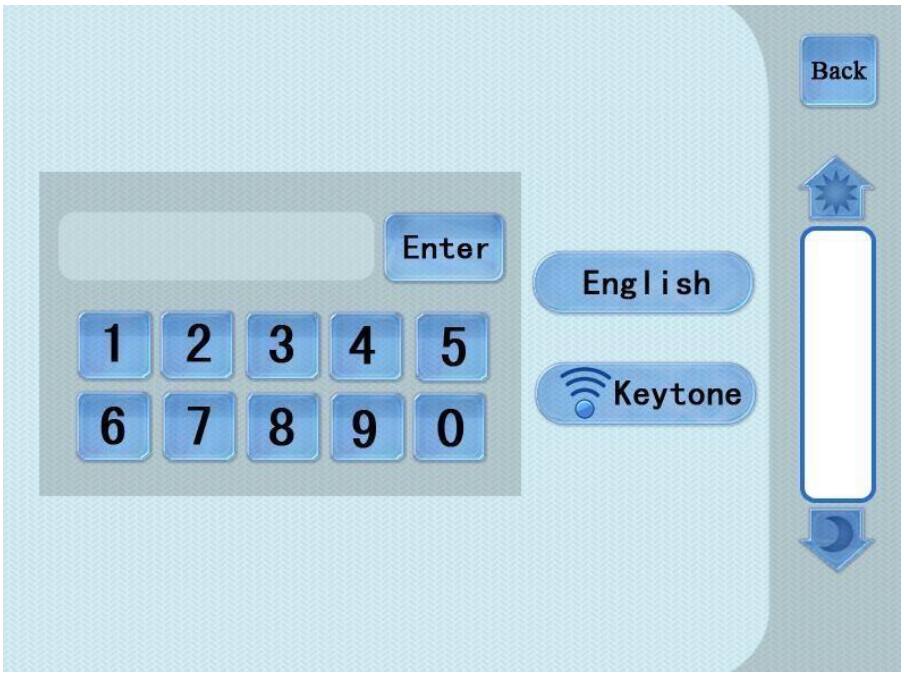




EDITING:cancel job

BACK: Click to return to the main interface

5.6 Setting interface





Click to turn sound on or off



Adjust the intensity of the indicator light



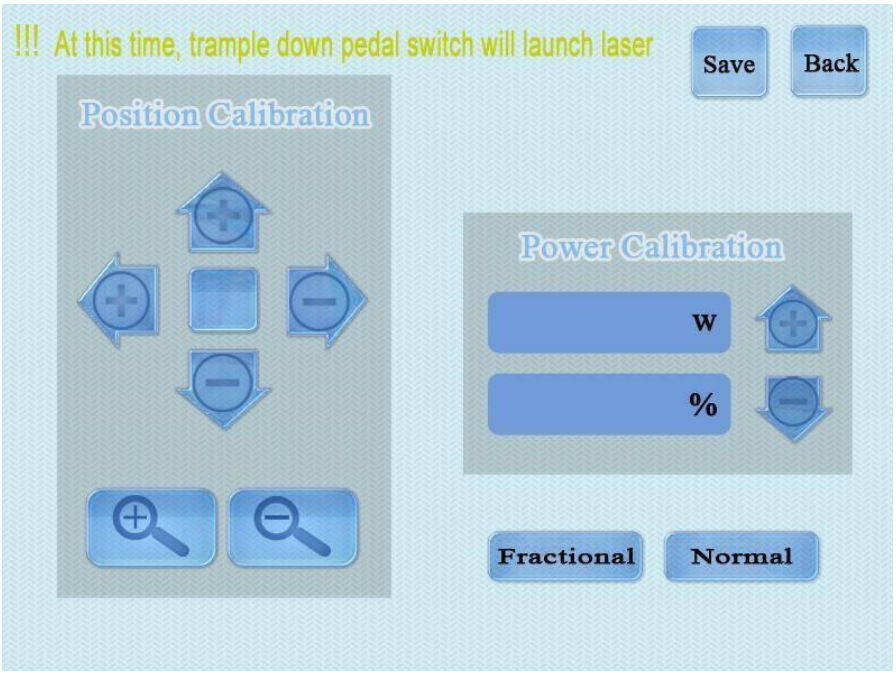
After entering password 123456, enter the calibration



interface

Click to return to the main interface

5.7 Calibration interface





At this point, stepping on the pedal can emit laser light



Position Calibration



Power Calibration



Fractional mode



Normal mode



Save



Back

Power calibration: select 

, select the power value to be calibrated, and then select 

, adjust the value and use the laser power meter to measure the

actual laser power at this time, so that "power display value to be calibrated"="maximum laser power" × Please save the 'actual power percentage to be calibrated' before exiting.

Attention: Under the power calibration interface, press the foot pedal to directly emit laser. After calibration and adjustment, press the save button to save, and then press the return button to return to the main interface.



Notice:



Setup button is the factory internal debug button,Parameters have been set at factory time,No setup required.

5.8 Switching off the instrument

1. After using the instrument, it is recommended to return to the standby state before turning off the instrument, and then turn the key switch to the "off" position to turn off the instrument.
2. The light guide arm is replayed to a natural position without force to maintain a good optical path.
3. Remove the cutter head and other tools for cleaning and disinfection.

4. When the instrument is not in use, unplug the key and keep it safe to prevent unauthorized personnel from using or operating the instrument.

Chapter 6 Troubleshooting Guide

If the instrument fails, according to its failure phenomenon, refer to the following table to find out the possible cause of the failure, and take appropriate measures to eliminate the failure. If you cannot solve the problem by yourself, please contact the after-sales service department of our company.

Warn: When the instrument is working normally, it may generate high voltage and CO2 laser radiation. A little carelessness will cause harm to the human body. Therefore, be careful when maintaining the instrument.

Table 6-1 is the fault information that can be displayed on the control panel and is relatively easy to solve.

Table 6-2 shows the situations in which the fault information cannot be displayed on the control panel. The table lists more detailed fault causes and troubleshooting methods.

Table 6-1 Service guides that can display fault information

accident details	Trouble causes and troubleshooting methods

There is no display when the instrument is powered on	A. The instrument is not connected to the AC power supply B. Check whether the power cord is plugged into the power socket, whether the main power control switch, the emergency stop switch is turned on, and whether the connection sockets are well connected C. The low-voltage switching power supply is faulty D. Check the low-voltage switching power supply Whether the input, output sockets, input and output voltages are normal E. The control board is faulty F. The LCD display is faulty G. Contact the after-sales service department of our company
Foot switch failure	A. The foot switch is not connected well B. The foot switch is damaged and needs to be replaced
High voltage power failure	A. The high-voltage power supply is not powered or the main SSR is faulty B. The high-voltage power supply is faulty, and high-voltage power supply needs to be replaced

Table 6-2 Service Guide for No Fault Information Displayed

fault phenomenon	**Fault reason and repair method**

When the switch key is turned to the "ON" position,the instrument has no action	A. The AC power supply is not connected B. The emergency stop switch is not turned on C. The main control switch on the rear panel is not turned on D. The low-voltage power supply is damaged or the main control board fails to work
Aiming indicator light is too weak	A. Rotate the position of the adjustment knob of the aiming light B. The lens of the light guide system has too much dust, and the dust needs to be removed or the light guide arm needs to be replaced C. The semiconductor laser is damaged, and the semiconductor laser needs to be replaced
CO2 does not fall on the aiming beam spot	same optical path offset
No air blow when the instrument is ready	A. The air pump is not connected to 220V AC power B. The air pipe is not connected C. The air pump is damaged and needs to be replaced D. Other electrical faults
No CO2 laser emission when the foot switch is pressed	A. The connection of the foot switch is not in good contact B. The instrument is not in the ready state C. The laser tube is damaged D. The high voltage power supply is faulty E. Other electrical faults

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