High Power Therapy Laser For Physiotherapy

Operation Instructions Manual
Model: BS-DL3 (Phy)

LUMSAIL INDUSTRIAL INC.
PHY - MEDICAL

Table of Contents

1. INTRODUCTION

The Physiotherapy High Power Therapy Laser, Model Number BS-DL3, it is classified as a Class IV laser device. There are a variety of therapeutic applications.

1.1 Device Description

The laser source of this device is a solid-state system. It produces near infrared laser energy at 810nm and/or 980nm wavelengths. The delivery system consists of a flexible optical fiber threaded through a lightweight handpiece. Activation occurs when the operator enables the laser by pressing the foot/finger switch. Pressing the foot/finger switch again will deactivate the laser. A convenient and easy-to-use touch-screen display panel allows the operator to adjust or set laser output level with minimal effort. The laser can operate in continuous wave mode or controlled pulse mode.

1.2 Usage Prerequisites

Every clinic utilizing this device is encouraged to adopt a **Laser Training and Safety Program**.

1.3 Protective Eyewear

All individuals present during the operation of this device must wear protective eyewear with an optical density of 5.0 or greater at 810nm and 980nm wavelengths.

Protective glasses are included with the original purchase of this device. For additional pairs of protective eyewear, contact LUMSAIL INDUSTRAIL for help.

CAUTION: DO NOT remove protective eyewear until the operator returns the laser device to Standby mode. To do this, the operator must press the foot/finger switch again, touch the Ready screen button on the display panel, and visually observes the laser device returning to Standby.

1.4 Air Cooled Design

The laser device is air-cooled and designed for use in indoor and outdoor environments.

2. SAFETY

This section provides a collection of safety guidelines and safety-related statements relevant to the safe and effective operation of the laser. Additional statements and protocols regarding safety appear elsewhere in this document. Use this laser device according to all printed guidelines cautionary statements, and protocols.

2.1 General Information

DANGER: LASER RADIATION – AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION!

WARNING: TO AVOID RISK OF ELECTRIC SHOCK, AC POWER CORD MUST ONLY BE CONNECTED TO A PROPERLY GROUNDED POWER SOURCE!

The user should read and be thoroughly familiar with this manual before operating this device. The equipment should be routinely inspected and maintained in accordance with the instructions given in the maintenance section of this manual. Use of controls or adjustments or performance or procedures other than those specified herein may result in hazardous radiation exposure.

Unauthorized accessories which are not provided by the manufacturer may result in potential hazard. All clinical procedures performed with High Power Therapy Laser must be subjected to the same clinical judgment and care as traditional techniques. Patient risk must always be considered and fully understood before clinical treatment. The clinician must completely understand the patient's medical history prior to treatment. Exercise caution for general medical conditions that might contraindicate a local procedure. Such conditions may include allergy to local or topical anesthetics, heart disease, lung disease, bleeding disorders, sleep apnea, or an immune system deficiency. Medical clearance from a patient's physician is advisable before treatment.

Note: Opening this unit or adjusting components inside the unit will void the warranty since such actions may compromise the performance of the laser system. Failure to comply with the stated precautions and warnings may lead to exposure to electrical shock and/or exposure to radiation sources. Please comply with all safety instructions and warnings.

2.2Warnings

Please read and adhere to the following warnings:

Note: If laser fails to operate properly, contact LUMSAIL immediately.

- This laser device produces 810nm and 980nm laser energy that is invisible and can be an extreme hazard to the eyes of any living being. Irreparable corneal and/or retinal damage may occur if a person exposes one or both eyes to direct or indirect (reflected) laser energy.

- IMPROPER USE OF SYSTEM CONTROLS or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

- FAILURE TO COMPLY with all safety instructions and warnings may expose all participants to harmful levels of laser radiation and/or dangerous levels of electrical current.

- NEVER direct the laser beam at anything other than the area being treated.
- NEVER direct the laser beam toward an animal's eye or thyroid gland.
- NEVER allow the eyes of any living being to look directly into the distal end of a hand piece that is connected to an active laser device - WITH or WITHOUT wearing appropriate laser-emission protective eyewear.

- DO NOT allow any reflective object to fall into or obstruct the path of the laser energy produced by this device. Scattered or reflected laser energy can cause serious damage to eyes and skin. The operator, all assistants, and the patient must remove all reflective objects (such as rings, metal watchbands, collars, tags, leashes and jewelry) prior to treatment with this device.

- THERE ARE NO USER-SERVICEABLE COMPONENTS inside

this laser device. Therefore, do not attempt to gain access to any internal device component. Doing so may cause serious and/or irreversible injury.

- DO NOT remove protective eyewear until the operator returns the laser device to Standby mode. To do this, the operator presses the foot/finger switch again, touches the Ready screen button on the display panel, and visually observes the laser device returning to Standby.
- AVOID THE USE of flammable anesthetics or oxidizing gases such as nitrous oxide (N2O) and oxygen. The high temperatures produced in normal use of the laser equipment may ignite some material, for example cotton or wool, when saturated with oxygen. Solvents, adhesives and flammable solutions used for cleaning and disinfecting should be allowed to evaporate before the laser equipment is used.

2.3 Precautions

Please read and adhere to the following precautions:

- Never allow untrained personnel to operate this device unless directly supervised by a properly trained and experienced individual.

- This laser device produces 810nm and 980nm near infrared laser energy that is invisible and can be an extreme hazard to the eyes of any living being. Irreparable corneal and/or retinal damage many occur if a person exposes one or both eyes to direct or indirect (reflected) laser energy.

- The protective eyewear supplied with this device has an optical density rating >5 at 810nm and 980nm. All personnel present during device operation must wear protective eyewear. If needed, Contact LUMSAIL INDUSTRIAL INC to purchase additional sets of protective eyewear.

- DO NOT remove protective eyewear until the operator returns the laser device to Standby mode. To do this, the operator presses the foot/finger switch again, touches the Ready screen button on the display panel, and visually observes the laser device returning to Standby.

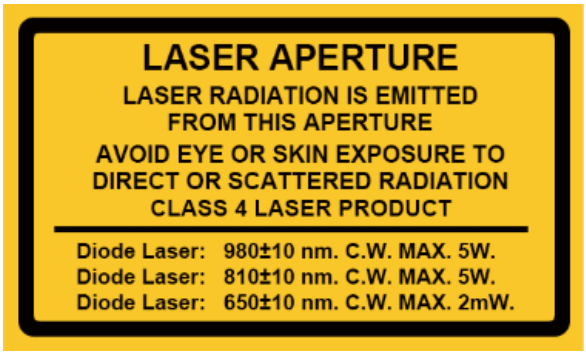
- Select a secure, properly equipped, and well-ventilated location in which to install and operate the laser.

- Place “Laser in Use” signs at location entrances where people will use the laser device.
- Always put the laser in Standby mode or switch the device off prior to connecting or disconnecting the handpiece.
- Never leave this device in the READY mode unattended.
- Turn the device off before moving, lifting or relocating the laser device.
- Never press the foot/finger switch button without first verifying the safe orientation and proper positioning of the handpiece and ensuring compliance with all safety precautions.
- During any laser procedure, do not allow any nonessential personnel into the treatment area.

2.4 Laser Safety Labels and Symbols

The following labels appear on the laser device.

General Safety Declaration Label (See Figure) Located on the back panel of the device and warns of the radiation exposure hazard potential to eyes and skin.

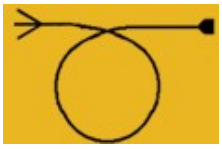


Laser Warning label – Hazard symbol (See Figure) Located at the top of the laser emission port.

Emergency Stop label (See Figure) Located at the bottom of

Emergency power off Switch.

Laser Emission (Aperture) (See Figure) Located at the bottom of the laser emission port on the front of the device, the laser emission label indicates that the laser energy emission occurs at the distal end of a properly connected handpiece.



2.5 Safety Device Features

The device has specific safety-related features. All individuals who use this laser device should be familiar with the purpose and the operation of these features.

Front view:

Back View:

Laser Emission Port

This port is located on the front panel of the device. Laser cannot emit without the fiber attached. A metal emission port cap can be secured on the emission port when fiber is not connected. Store the cap properly when fiber is connected.

Handpiece socket is optional for some non-electric controlled handpieces, if so, just ignore it when install the machine.

This device is equipped with a door locker (remote interlock) located at the back of the device. If the interlock is not inserted into the connector, all electrical power to the laser components is terminated and there is a warning message on the display. The remote interlock MUST be inserted before the device can power on.

Indication Light

Located on the front of the laser device, the LED panel is illuminated continuously whenever the user activates the main switch and the emergency power off switch is disabled.

Laser-Emission Indicator

The laser emission indicator 

on the LCD display during the emission mode.

Operation Errors

1) The device shall not leave STANDBY mode and enter READY mode and error message shall show if any of the following conditions occur.

• Optical fiber is not properly inserted

• Safety interlock is not properly installed

• Foot/finger Switch is not properly installed

• Foot/finger Switch is pressed

2) Also, the device shall not keep in READY mode or EMISSION mode and error message shall show if any of the following conditions occur.

• Optical fiber is not properly inserted

• Safety interlock is not properly installed

• Foot/finger Switch is not properly installed

2.6 Laser Eye Protection

The protective laser eyewear supplied with this device has an optical density rating > 5.0 for 810nm and 980nm laser emission. **All** personnel present during device operation must wear this eyewear.

3. Treatment Information

The proper use of the High Power Therapy Laser requires appropriate laser safety practices and knowledge of laser/tissue interaction. In addition, an understanding of laser wavelength, frequency, target tissue, and anatomy are essential.

It is recommended that proper diagnosis and treatment plans are to be completed by or under the direct supervision of a licensed professional.

Preparation of Patient for Laser Therapy Treatment

- The area to be treated must be exposed.
- The treatment area should be clean and free of surface dirt or oils.

- Use rubbing alcohol to clean all instrument surfaces in contact with the patient.

CAUTION! Assure alcohol on the instrument has fully evaporated before activating the laser.

- Thermal effects vary with hair and pigmentation – darker pigments absorb more. If there is a withdrawal response, increase distance and/or move the handpiece more rapidly, and/or reduce power.

Laser Therapy Treatment Considerations

- Treatments can be done in conjunction with stretching or Range Of Motion.
- Monitor for superficial thermal discomfort.
- Keep beam perpendicular to muscle fibers.
- Keep beam parallel to joint surfaces.
- Treat muscles connecting to a painful joint in addition to tendon attachments.
- Higher energy densities are required for deeper penetration.

Laser Therapy Treatment Techniques

- Treat area from proximal to distal.
- Treat biomechanical connected muscles and joints in the kinematics chain.
- Post-Operative or acute injuries use shorter times and/or lower power.

Treatment Contraindications

Contraindications for Laser Therapy are based upon prudence as opposed to experimental or clinical data. The following contraindications are presented as a precaution for safe and effective treatment.

Laser Therapy should not be administered in the following situations:

- **Eyes: Direct Irradiation of the Eyes**

Lasers are potentially harmful to the retina of the eye. Never shine laser light into the eye at any time, even while wearing safety goggles. The technician administering laser therapy and all individuals including those holding the animal should wear safety goggles at all times.

Eye Protection

Protective eyewear is necessary for both Class III and Class IV lasers. The High Power Therapy Laser emits visible and Infrared (which is invisible) radiation and it is imperative that the supplied eye protect is worn,

Safety Warnings

It is safe to operate the laser only when the users follow all suggested safety measures:

Post clearly visible warnings in the area where the laser beam passes to alert those present. Keep all unauthorized personnel out of the area where the laser is operated. Maintain the laser in Standby mode or OFF when not in use. Never look directly into the laser beam path or scattered laser light from any reflective surfaces. Never look directly into the laser source.

As a precaution against accidental exposures to the laser beam or its reflection, operators should wear laser safety goggles.

4. Laser Cleaning Guide: Equipment Care

Assembly and Disassembly

It is recommended that the laser remain assembled and ready for use. If this is not appropriate, make sure the laser aperture is never left open.

The fiber or protective plug should always be in place to ensure no dust, dirt, hair, or dander enters the optical fiber socket.

General Cleaning

Always turn off the system and unplug the power cord from the wall outlet before cleaning.

Always use protective eyewear and gloves when cleaning and disinfecting any equipment.

• **Laser** The outer casing can be wiped with dry soft cloth.

• **Fiber Handling and Care** The maximum permissible bending radius of optical fiber is 10 cm. Short term (during use): Radius = 10 cm

5. CLINICAL APPLICATIONS

5.1 Introduction

Please review this section carefully before using this device in a clinical situation.

5.2 Indications for use

The High Power Therapy Laser is intended for topical heating for the purpose of elevating tissue temperature for a temporary relief of minor muscle and joint pain and stiffness, minor arthritis pain, or muscle spasm, minor sprains and strains, and minor muscular back pain; the temporary increase in local blood circulation; the temporary relaxation of muscle.

5.3 Laser therapy

The High Power Therapy Laser is designed to provide near-infrared laser energy to a tissue surface for the purpose of temporary pain relief when applied with the Handpiece. The pain therapy procedure is the process by which tissue temperature is elevated for the temporary relief of minor pain, the temporary increase in local blood circulation, and the temporary relaxation of muscle, as stated in the Indications for Use.

Affected muscles and/or joints have to be exposed to an adequate level of therapeutic energy over a short period of time to provide effective therapeutic effects. Some patients may require more than one laser application or a series of treatments before significant improvement is reported. Repeat the therapy as necessary and monitor the progress of the patient's condition throughout the treatment.

CAUTION: Always use clinical judgment when selecting power to ensure optimal clinical results. Observe the clinical effects on the treatment area at all times and adjust settings parameters accordingly.

NOTE:The therapy pre-sets installed at the factory are based on clinical recommendations and feedback from experienced laser medical practitioners.

Some reddening of the skin at the treatment site is normal due to increased circulation; however, in very rare cases burning or blistering of the skin may occur. Immediately stop treatment, rinse the area with cool water or place a cold pack to the affected area for at least 5 minutes, then apply a burn ointment or spray. DO NOT USE ICE.

Patients should be monitored for discomfort and visual skin changes. Redness has been associated with increased temperature at the site of application and increased absorption properties of the skin. If discomfort or redness of the skin occurs at any time during the treatment, you have the following options:

- Move the handpiece relative to the affected anatomy
- Defocus the energy by moving the handpiece further away from the skin
- Decrease the power setting
- Stop treatment

6. SYSTEMSET-UP

6.1 Unpacking

Using the packing list, unpack the Laser System and its accessories from the shipping carton. Check for missing parts and inspect the unit carefully for damage such as cracks, dents or bent parts.

If items are missing or any physical damage is apparent, please contact LUMSAIL INDUSTRIAL INC for assistance.

6.2 Usage Prerequisites

RECOMMENDATION

Individuals planning to use the laser system should attend laser orientation and education sessions to achieve operational proficiency.

Every facility or institution utilizing this device is encouraged to adopt an ongoing training and safety program.

6.3 Setup

WARNING： DO NOT attempt to gain access to any internal device components. THERE ARE NO USER- SERVICEABLE COMPONENTS inside this laser device. Doing so may cause serious and/or irreversible injury.

CAUTION：

ALWAYS post Warning Signs for Class IV laser products. ALWAYS post Warning Signs in the area of the laser beam to alert those present.

ALWAYS place “Laser in Use ” signs a t location entrances where people will use the laser device.

ALWAYS Turn the device OFF before relocating, lifting or moving this equipment.

6.3.1 Select a secure, properly equipped, and well-ventilated location in which to install and operate the laser device.

6.3.2 Ensure that the surface on which the device is placed will properly support the entire device.

6.3.3 Ensure adequate airflow around the device. The laser device is air-cooled and designed for use in a well-ventilated environment.

6.3.3.1 Select a flat hard surface (not a surface that will inhibit airflow through the bottom of the device).

6.3.3.2 There must be a minimum 20cm clearance around the rear of the device.

6.3.4 Locate and uncoil the AC power cord and adapter.

6.3.5 Plug the adapter power cord into the DC input on the rear of the laser device. Plugging the device in should only be done last, after all hardware has been attached.

6.3.6 Connect the foot/finger switch connector into foot/finger switch jack on back panel.

6.3.7 Remove the dust cap from the emission port DO NOT touch the fiber tip to any surface. If the fiber tip or the emission port is contaminated then the device might be damaged during laser beam output emission. Install the fiber optic into the emission port connector. Securely tightened the screw nut to the emission port. The fiber shall not be bent at a bend radius smaller than 10cm during the operation. Improper inserting, steeply bending and improper securing the fiber optic may lead to the damage to the fiber optic or delivery system and /or harm to the users.

6.3.8**IMPORTANT! Please DO NOT** remove the fiber from the emission port once it has been secured for the first time unless the device is being packaged or transported to another location. Repeated insertion and removal of the fiber before and after every procedure will increase the chance of emission port and fiber tip contamination. If you must disconnect the fiber from the device then immediately attach the fiber tip cap.

6.3.9 Use Handpiece

WARNING： DO NOT use Handpiece without Handpiece applicator or inadequately secured (mounted) Handpiece applicator on the Handpiece
Handle. Doing so may cause serious and/or irreversible injury.

Handpiece applicator

NEVER USE the laser without appropriate protective goggles.

The hand piece is composed of 2 different parts: The handle and the hand piece applicator.

WARNING! NEVER use the laser without hand piece applicator.

WARNING! NEVER use the laser when the hand piece applicator is inadequately secured.

The different hand piece applicator:

Exchange the hand piece applicator:

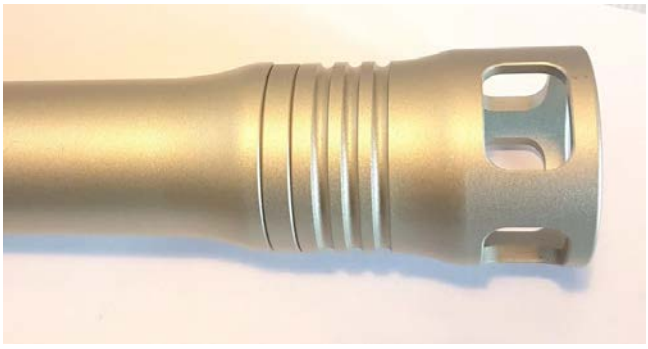
- Warning! ALWAYS turn off the laser device before changing the hand piece applicator.
- Remove the hand piece applicator. Do not touch the distal end of the hand piece handle.
- Securely tighten the new hand piece applicator to the handle.

The Ball-type radial Applicator

This radial hand piece applicator is use for treatment on soft tissues where contact is needed. The massage ball is not recommended on open wound, bone, or areas that would be sensitive to contact.

The optical glass made ball can be used at any desired power up to 10 W while moving at a rate of 2-8 cm per seconds.

The General Applicator



This hand piece applicator is the standard applicator.
The big Cone can be used at any power up to 10 W while moving the applicator at a rate of 2 to 8 cm per second.

It can be used with or without direct contact.

Caution:

Please do not disconnect the hand piece from its connector once it has been correctly installed, unless it is really necessary.
Insert and disconnect the hand piece before each treatment increase the risk of contamination of the emission fiber connector. If the emission fiber connector is contaminated, the unit can be damaged during the laser emission.
The cap delivered with the hand piece is use to avoid dust to contaminate the laser emission connector during transportation and installation. It's not intended to be use during a normal use of the laser. Please keep it in case of a necessary transportation.

We recommend you the following procedure:

1- Before using the unit for the first time, securely connect the hand piece fiber connector to the emission port of the laser.

2- Use the unit as recommended.

3- When you have finished using the unit, turn of the unit and leave the hand piece connected.

FIRE AND EXPLOSION HAZARDS

Please read and adhere to the following precautions:

- 

The laser beam can inflame almost all non-metallic material.
- 

A fire extinguisher should be near and ready to use.
- 

This laser shouldn't be used in areas subject to explosion hazards such as flammable materials, gases or substances. A fire or explosion could occur.
- 

AVOID THE USE of flammable anesthetics or oxidizing gases such as nitrous oxide (N2O) and oxygen. The high temperatures produced in normal use of the laser equipment may ignite some material, for example cotton or wool, when saturated with oxygen.
- 

Never direct the laser beam on paper, plastic or other dark surfaces. Doing so may damage or inflame the material due to high temperature.
- 

This laser device produces 810nm and 980nm near infrared laser energy that is invisible and can be an extreme hazard to the eyes of any living being. Irreparable corneal and/or retinal damage many occur if a person exposes one or both eyes to direct or indirect (reflected) laser energy.
- 

Select a secure, properly equipped, and well-ventilated location in which to install and operate the laser.

How to prepare a patient for a laser therapy treatment:

1- The treatment area must be exposed.

2- The treatment area should be clean, and not oiled.

3- Clean with 90° alcohol all instrument's surfaces that will be in contact with the patient.

Solvents, adhesives and flammable solutions used for cleaning and disinfecting should be allowed to evaporate before the laser equipment is used.

4. If there is a withdrawal response of the patient, increase distance and/or move the beam more rapidly, and/or reduce the power.

7. OPERATION

WARNING :

DO NOT use the System Controls or perform procedures other than those specified in this manual. Failure to comply may result in hazardous radiation exposure.

FAILURE TO COMPLY with all safety instructions and warnings may expose all participants to harmful levels of laser radiation and/or dangerous levels of electrical current.

AVOID THE USE of flammable solvents, anesthetics, oxidizing gases such as nitrous oxide (N2O) and oxygen or endogenous gases. The high temperatures produced in normal use of the laser equipment may ignite some material, for example cotton or wool, when saturated with oxygen. The solvents of adhesives and flammable solutions used for cleaning and disinfecting should be allowed to evaporate before the laser equipment is used.

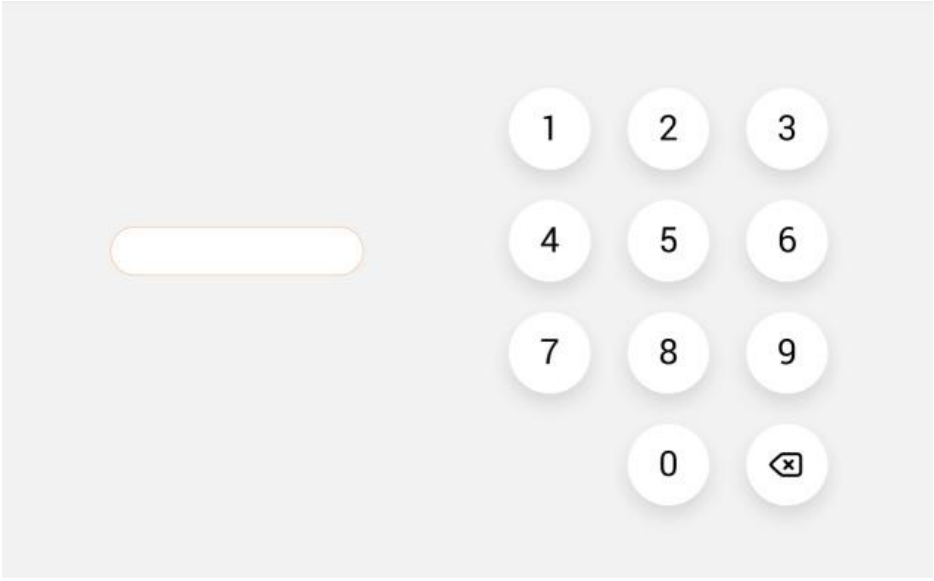
CAUTION

NEVER allow untrained personnel to operate this device unless directly supervised by a properly trained and experienced individual.

DO NOT allow any nonessential personnel into the treatment area during any laser procedure.

7.1 Power On

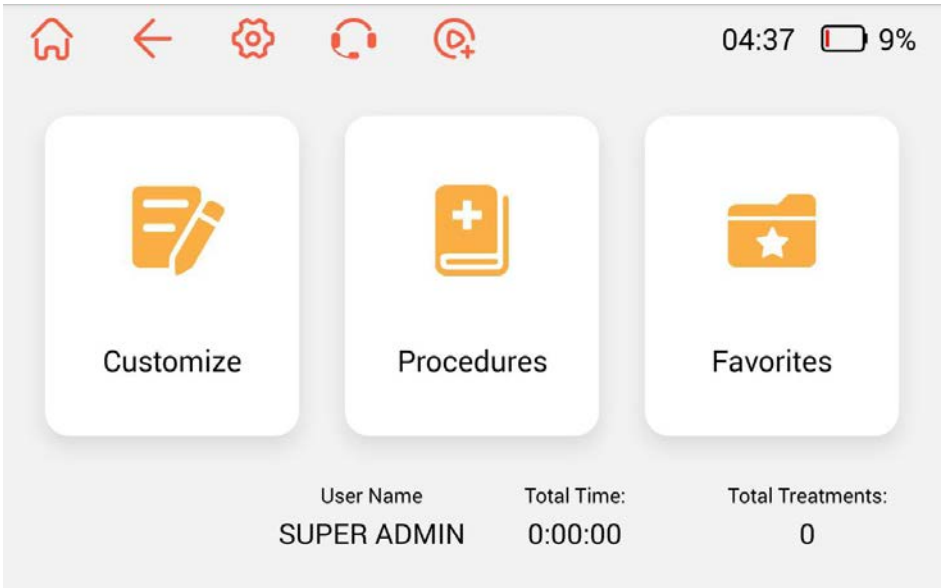
The initiation of the power-on sequence shall be accompanied by audible alerts, and then the HOME Screen (as below) will be displayed.



Input default pass code 1234 to login.

7.2 Treatment Screen

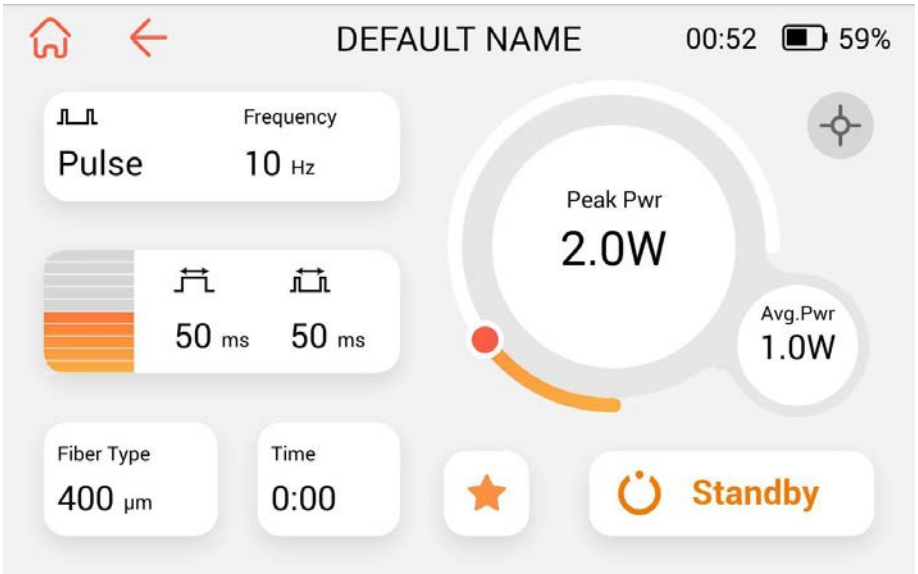
The treatment screen offers several options for choose:



The main interface has the following details：

Number	Buttons/Labels	Meaning
1	Customize	Custom protocol;
2	Procedures	Authoritative protocol;
3	Favorites	Collection protocol;
4	SUPER ADMIN	Administrator username: username will be changed if select other users;
5	Total Time	Operation time: The light out exceeds 10s count once;
6	Total Treatment	Operations quantity: The light out exceeds 10s in one protocol count once;
7		Video: Can play video, users can also copy video to the device;
8		Contact information;
8		Setting;

Click ‘Customize’ then get into custom protocol interface, can establish new protocol.



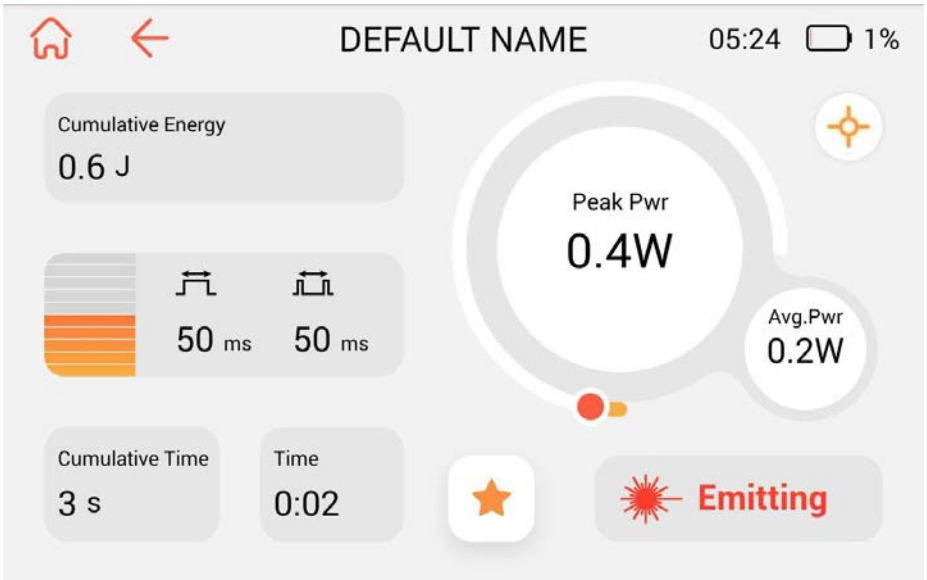
The customized protocols selecting interface has the following details:

Number	Buttons/Labels	Meanings
1		Positive pulse width: The value can be set;
2		Negative pulse width: The value can be set;
3		Indicator beam switch: When the color is , indicator beam is on, when , beam is off;
4	Time 0:00	Timing function: Counting when beam is on from 00:00; can be countdown to control the beam after setting the time;
5	Standby	Laser beam indication button: The default state is standby mode Standby; click the button when the treatment protocol is set, Ready get into ready state, then press the handpiece switch to lase.
6		Back to previous;
7		Back to main interface;

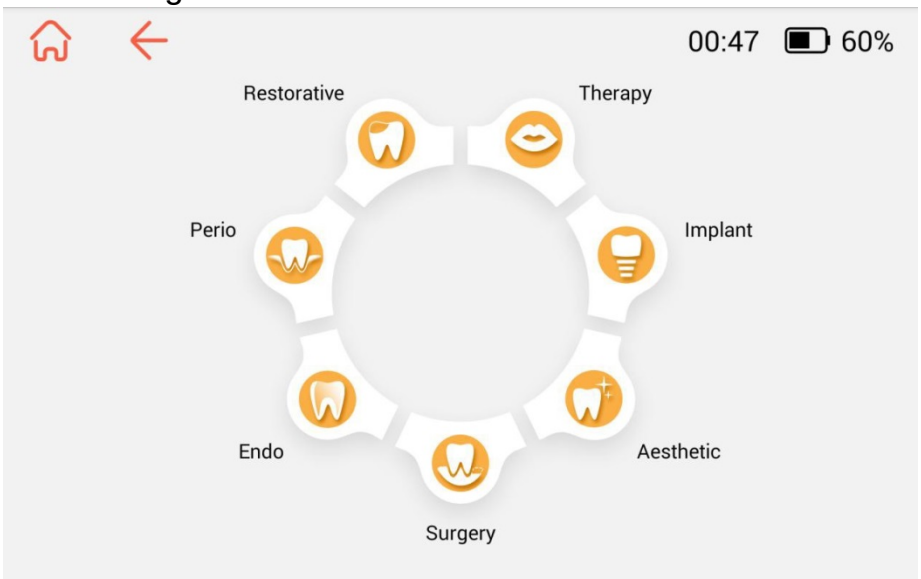
8	★	Collect this protocol;
9	Pulse	Pulse width unit (can be changed);
10	Fiber Type	Select the fiber type;
11	Peak Pwr	Current power: Set by sliding;
12	Avg Pwr	Average power;

Click ‘Pulse’ can select the lase mode: CW (Continuous Wave) / PULSE / SINGLE PULSE.

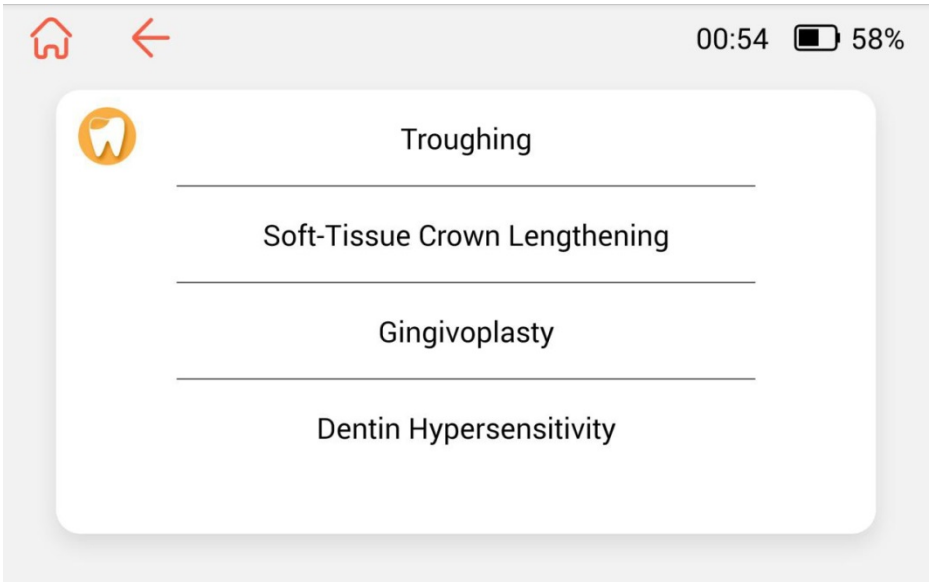
Click ‘Standby’, step on the foot switch when display ‘Ready’, get into custom protocol running interface



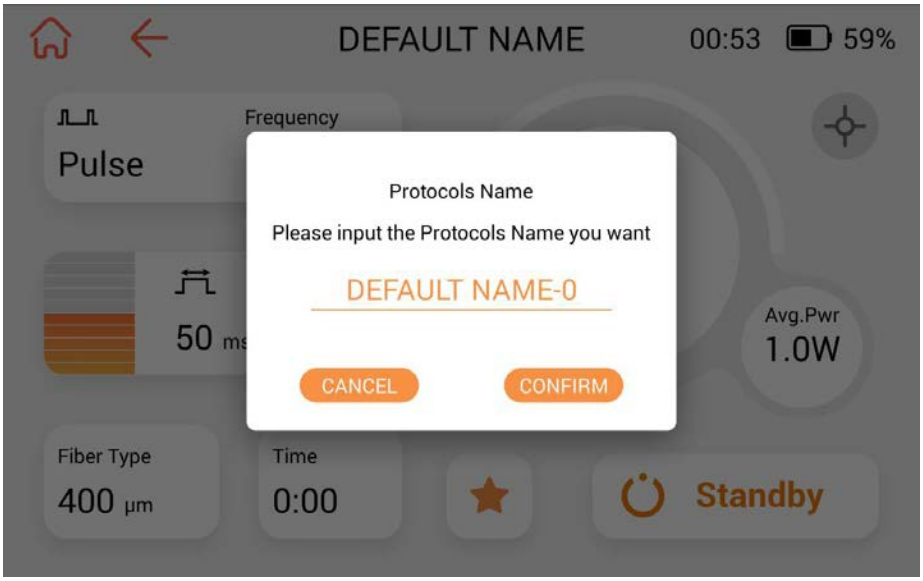
Click ‘Procedures’ in main interface and get into the authoritative protocols selecting interface.



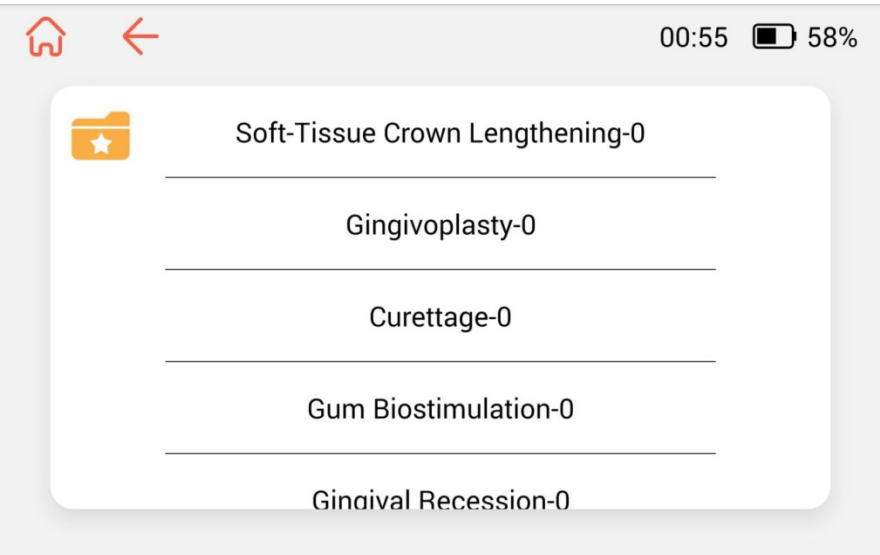
Select the desired category to enter the ‘List of specific protocols’ interface.



In the treatment interface menu, users can change the treatment power, pulse frequency, wavelength selection and other parameters for each stage of treatment according to actual needs

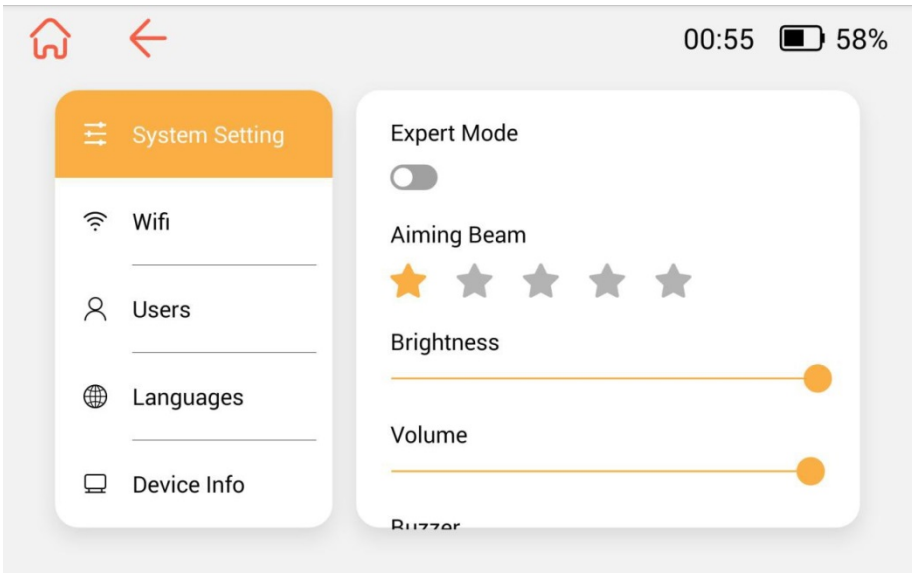


From the main interface, enter the ‘Favorites’ to view saved protocols, and long press to delete saved protocols.



Enter the video list interface from the main interface and click on the video thumbnails from the video list interface then enter the video playback interface, click the play button to start the video. Slide your finger up and down the left half of the screen to adjust the brightness of the screen; finger swipe up and down on the right half screen to adjust the size of the sound playing on the video screen, and finger swipe left and right on the full screen to quickly adjust the playback progress.

Click "Settings" in the main interface to enter the setting parameters interface.

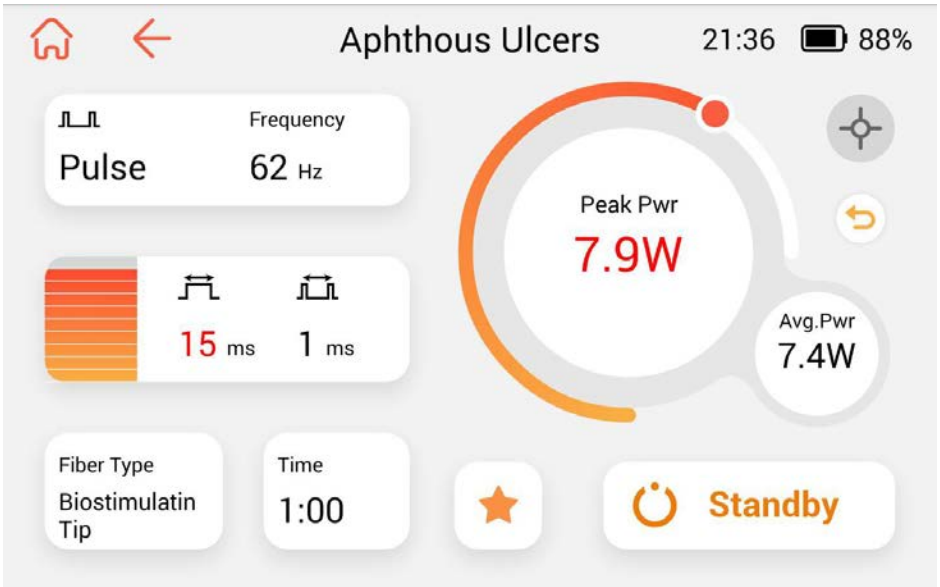


7.3 Expert mode

Adjust the current user mode, turn on to expert mode, turn off to novice mode, the top status bar will show the mode status in real time.

In Expert mode, users can modify the parameters of the authorized protocols by entering the interface, and can save the parameters of this protocol when being ready, when selecting this protocol again and the system will load the modified data. The authorized protocols parameters cannot be changed in Novice mode, and even if they are changed in Expert mode, the users read the same parameters as the original authorized protocols.

It is possible to modify the parameters of the authorized protocols if it is in the Expert mode, parameters are displayed in red when they do not match the original parameters, once the ‘Collecting’ button is clicked or being ‘Ready’, the parameters will be saved. Next entry in expert mode will show modified parameters, inconsistent parameters will be highlighted in red. In Expert mode, there will be another undo button on the interface, when clicked; each parameter will be restored to the original data, while the red parameters will be restored to white ones.



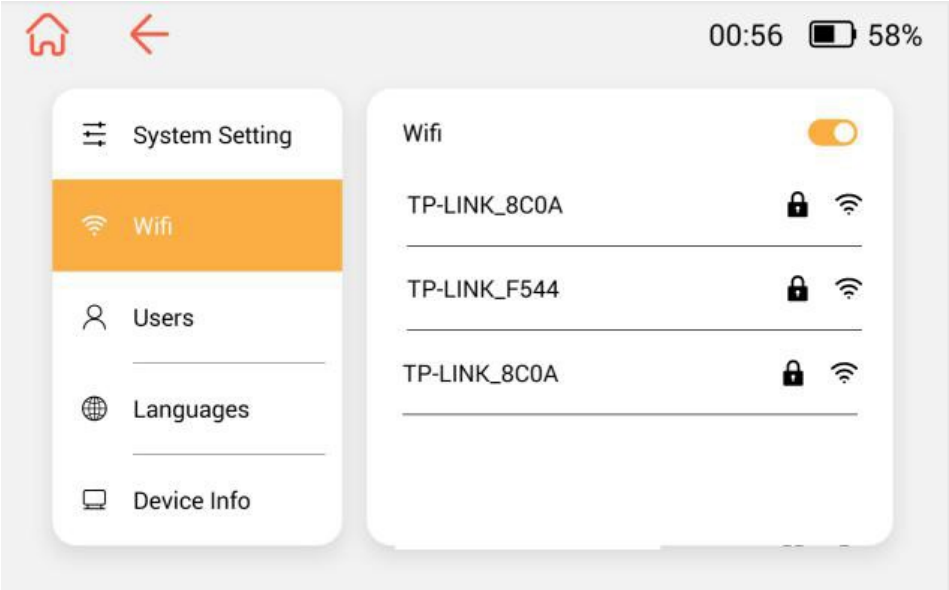
Other modes:

Aiming Mode: Adjusts the brightness of the indicator beam, with a 5-level brightness adjustment function

Customizations: Set brightness, sound size and unit

Date&Time: Time setting

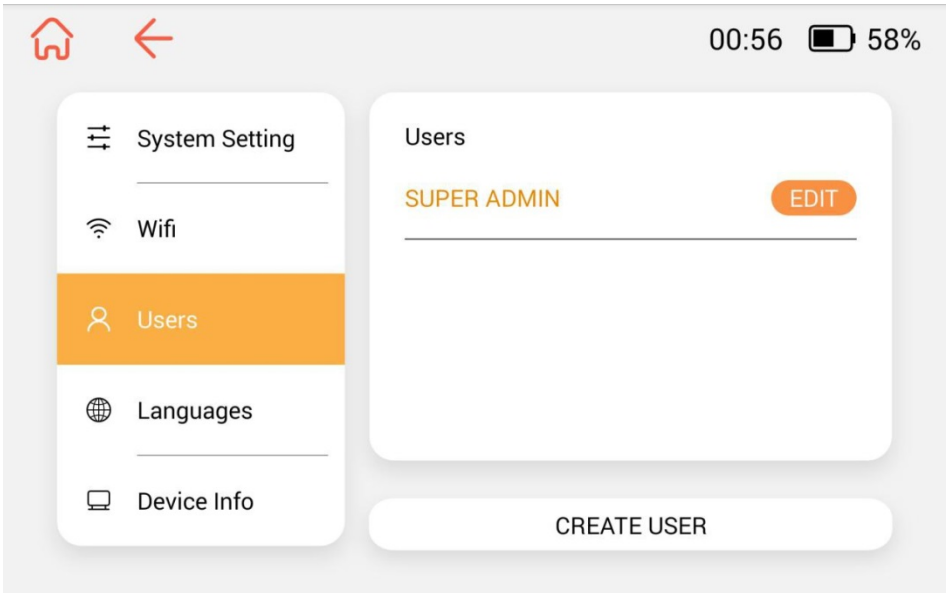
WIFI: Wi-Fi connecting interface, click ‘WIFI’, click ‘ON’, wireless network connection is possible, can search different Wi-Fi when the function is on. Enter password to connect to Wi-Fi, the password will be remembered by system, long press to forget the password.



Users: Multi-user management interface, providing the ability to create new users and modify user information.

The superuser: super admin can modify; create; delete, other unauthorized users can only browse the list of users.

The superuser can modify the information of ‘super admin’ but cannot delete it. The authorized protocols of each user is the same, but protocols changed by personnel and personal collection protocols and information about time and quantity of device usage is different, such information is independent from each other.



8. Maintenance

8.1 Fiber Maintenance and Cleaning

1. The fiber end which connects to the SMA905 connector is the output to the fiber-coupled diode laser.

2. If the fiber end face is not flat or contaminated, the output power of laser will be affected. When the laser emitting high power, the end face can melt or carbonize. This will lower the output power of laser drastically.

3. Please note the SMA905 connector cannot be immersed into liquids or fiber can be damaged or the laser destroyed.

8.2 Main Unit Maintenance

High Power Therapy Laser System is a precise instrument and should only be maintained by personnel authorized by the Company to ensure compliance with all Warranty Requirements.

1. When the fiber is removed, cover the Aperture with the protective cap.

2. Do not touch the screen with hard or sharp objects or scrub the screen with reagent. Clean with soft material.

3. Avoid shaking or hitting the laser device during transportation.

9.Specification

Model	BS-DL3 Series
Laser Classification	IV (4)
Laser Type	Solid state, Semiconductor laser
Treatment Laser Wavelength	810±10 nm or 980±10 nm
Laser Power	10W
Power Accuracy	±20%
Spot Size	>15mm
Operation Modes	Continuous Wave (CW), Repeat Pulse
Aiming Laser Wavelength	650±20nm
Aiming Laser Power	<2mW
Pulse Frequency	0 – 10kHz
Optical Delivery Fiber	Diameter ≥ 400um
Foot/finger Switch Operation	ON/OFF
Power Requirement	12VDC 5A
Operation Temperature	10 to 30°C
Storage	0 to 55°C

====== END OF DOCUMENT ======

LUMSAIL INDUSTRIAL INC.
Please contact with us if you meet any issue
during operating the unit.
Tel: 0086 21 62528275 / 62528276
Web: www.lumsail.com
Email: info@lumsail.com