Operation Manual

Bench-top Fiber-coupled Light Source

Keep this manual properly.
Read and follow the safety procedures before operation.

SIMTRUM China
Telephone: +86 133 2643 0008
Email:info@simtrum.com

SIMTRUM Singapore
Telephone: +65 6996 0391
Email: info@simtrum.com

SIMTRUM

Safety Warnings and Precautions

- Operators must strictly comply with relevant safety regulations and precautions.
- Regularly inspect the equipment and ensure all personnel adhere to safety protocols.
- Avoid laser exposure to eyes or skin, as lasers can cause damage to the retina, conjunctiva, and skin.
- Do not touch the fiber end face directly with hands to prevent contamination.
- Keep the device away from high-temperature, high-pressure, or humid environments.

To prevent electrostatic damage,
take appropriate protective measures when handling the device!

Laser radiation may damage electronic devices, accelerate material aging,
and harm humans or sensitive substances!

Version: V25.1 Date: 2025-6-17

SIMTRUM China
Telephone: +86 133 2643 0008
Email:info@simtrum.com

SIMTRUM Singapore
Telephone: +65 6996 0391
Email: info@simtrum.com

Product Overview

This laser employs high-reliability semiconductor laser chips. Its professionally designed drive circuit and temperature control circuitry ensure long-term safe operation. Laser output is coupled through either single-mode non-PM (low polarization) fiber or single-mode PM (high polarization) fiber. With precision feedback control, optical parameters including spectrum and power maintain long-term stability.

Suitable for applications such as fiber sensing, optical communication, and photonic device R&D/production testing. We can provide products with various customizable packaging configurations.

Features

- Benchtop or modular design
- Stable spectrum and power
- Single-mode polarization-maintaining output

or

Applications

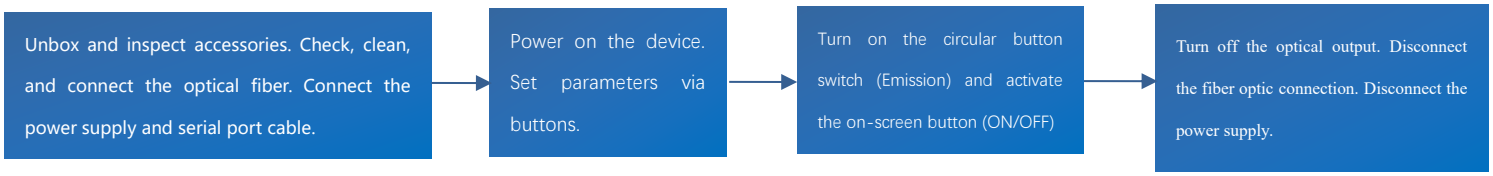
- Fiber-optic communication
- Fiber-optic sensing
- Optical device testing

Standard Accessories

	Name	Description
1	Laser (Benchtop)	1 unit
2	USB-RS232 DB9 Data Cable	1 unit
3	AC Power Cord	1 unit
4	Product Test Sheet	1 unit
5	Operation Manual	1 unit
6	Output fiber	1 (Pre-installed)

Verify all accessories upon delivery.

Basic Operating Procedures



Step 1. Unboxing and Assembly. Before assembly, verify all accessories are complete, including the power cord/adapter, fiber jumper, operation manual, and test report. **Power Connection**: For benchtop units, connect directly to AC power. For modular units, use a DC switching power supply or regulated power source that meets the required specifications. **Fiber Connection**: Connect the fiber jumper to the laser output port. The output port typically features a fixed, non-removable fiber jumper. When using a fiber adapter, ensure the connector types of the fiber jumpers match.

Step 2. Power On: Turn on the power switch located on the rear panel. **Note**: The laser will operate using the last saved current and power settings. Adjust parameters via the touchscreen or PC software if needed. Factory defaults are set to the minimum current and output power.

Step 3: After setting the appropriate output power, press the circular button switch (**Enable**) on the panel and tap the activation button (**Active**) on the screen to initiate laser output. Adjust the output power promptly as needed during the experiment. Strictly prohibit any disconnection / reconnection of fiber jumpers or handling of fiber end-faces while the laser is active (i.e., when the Active button is engaged). Such actions may severely damage the fiber connector end-faces or the laser source itself, leading to equipment failure.

Step 4: Upon completion, turn off the circular switch (**Enable**) to deactivate the laser output, and finally power down the system.

■ Operating Instructions

1. Design

Front Panel: Output fiber port | Touchscreen | Circular **Enable** switch (with indicator)

Rear Panel: Cooling fan | RS232 DB9 port | AC power socket (100-240V) & main switch

2. Display Screen:

• Upper-left: Real-time parameters - Output Power | Pump Current | LD Temp (Laser Diode Temperature)

• Lower-right: Wavelength (current output wavelength/spectral range)

• Control/Input Area: Remainder of screen

• Lower-left: Active button (laser activation control)

3. Fiber Connection

Open the dust cap of the optical fiber connector and carefully check the optical fiber end face with an optical fiber end face inspector. After confirming that there is no pollution or damage, connect the optical fiber to other optical fiber devices or test equipment. If there is pollution or damage, the connector of the output optical fiber must be cleaned or replaced first. For high-power light source models, it is recommended to use fusion fiber connection;

4. Power adjustment

For broadband light source products with adjustable power, you can directly click △ and ▽ area to increase or decrease the power value. Long press for quick adjustment, short press for slow and fine adjustment. You can also click the **Power Set** area, enter the required optical power value in the pop-up keyboard, and click Enter to take effect after setting, as shown below; click mW, the power unit will switch between mW and dBm;

5. Output Activation

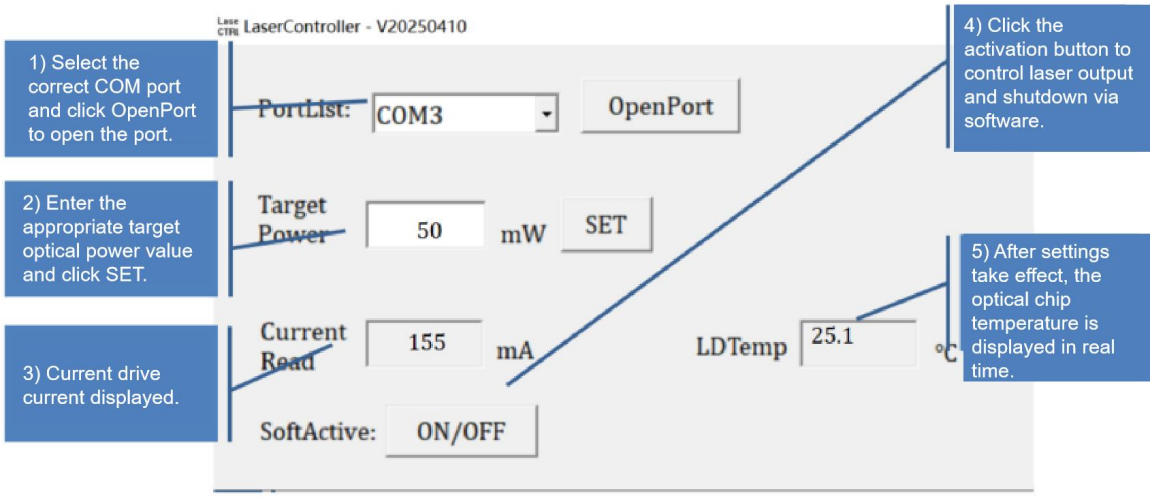
The output activation of the light source is dual controlled by the circular switch (**Enable**) on the right side of the panel and the Active button on the screen.The Active area in the lower left corner is used to control and display the current light source output activation status. OFF means no amplified light output, and ON

means the amplified laser is outputting. Each time you click on this screen area, the light source output status switches between output and no output (it can only be switched to the ON state after the **Enable** switch is pressed. If the **Enable** switch of a light source in the output state is pressed, the light output will stop immediately).

6. PC Software Control

This product supports PC software control. The default communication port is RS232 DB9, located on the rear panel. The dedicated PC software and communication protocol code are included with the product.

Connection Procedure: Use the original USB-RS232 serial data cable (provided with the laser module) to connect the module to a computer. Note: The computer must first install the dedicated serial port driver to recognize the USB-RS232 cable. Without this driver, the software cannot establish proper communication with the laser module. Request the driver from our company. Software Features: For adjustable power models: The output optical power can be adjusted via the PC software. Use the SoftActive button in the software to enable/disable the laser output. For fixed power models: The SoftActive button can only enable/disable the laser output (power adjustment is unavailable).



7. Detailed PC Software Operation

Launch the PC Software: After starting the software, select the correct serial port number from the PortList dropdown. Click the OpenPort button to establish communication. The Current Read and LDTemp windows will display the module's operating current and laser diode temperature.

Set Target Power: Enter the desired target optical power value in the TargetPower field. Click the SET button to apply the settings.

Activate Output: Ensure both the hardware switch (Emission) on the laser module and the SoftActive button in the software are turned ON. The laser will now output light at the configured power level.

Critical Notes:

Driver Requirement: The computer must first install the USB-232 serial port driver; otherwise, communication between the software and laser module will fail. Contact our company for driver support.

Software Version: Ensure the software version matches the one specified in the product test report (attached with each unit).

Automatic Saving: Parameters and status configured via the software are automatically saved within the laser module.

Connection Optional: If no parameter adjustments are needed, connecting to the PC is unnecessary.

Operation precautions and maintenance

1. Single-Mode Fiber Handling: Single-mode fibers (e.g., Hi-1060, PM980, G652D, PM1550) with clean end faces can theoretically tolerate up to 200 mW of continuous optical power. For light sources with output power below 200 mW, their fiber connectors may be connected to other single-mode fiber devices using an adapter (fiber optic flange). Warning: Contaminated fiber end faces are highly susceptible to burning, even at low laser power. Before connecting fibers:

Thoroughly clean the end face using dedicated fiber cleaning tools. Inspect the end face with a fiber inspection microscope to ensure no dust or contamination.

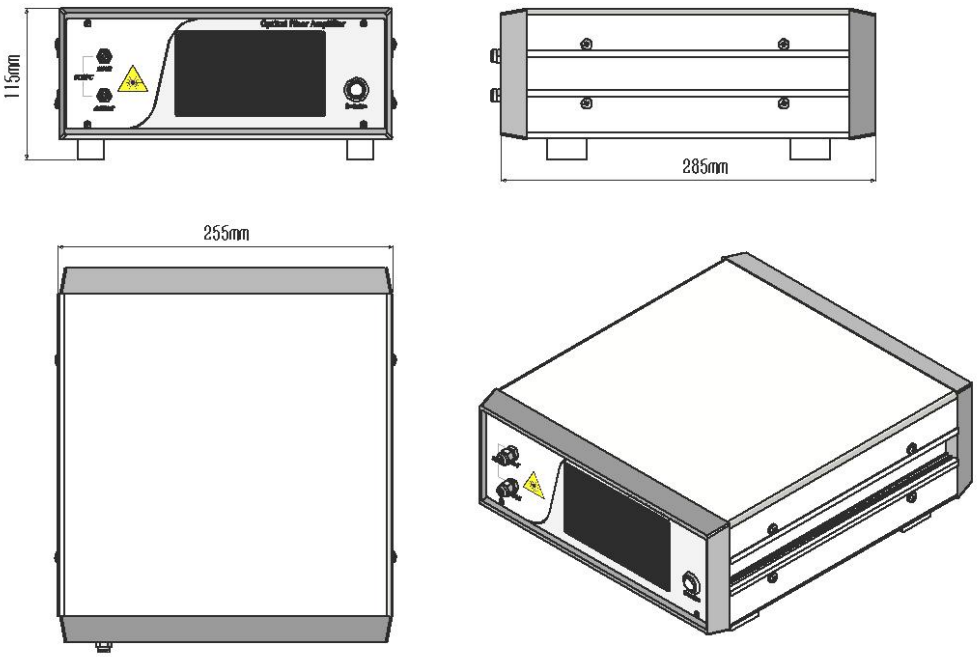
2. Safe Connection Practices: Always ensure the laser output is turned OFF during fiber end face cleaning, inspection, or connection. After disconnecting fibers, immediately cover the connectors with dust caps.
3. High-Power Models (≥200 mW): Output fibers may include FC/APC connectors. These connectors are recommended only for: Power measurement (using an optical power meter). Connecting to FC-interface collimators for free-space laser beam alignment. Avoid direct mating with other user fibers or devices via flanges, as this risks damaging connectors or the laser itself. For permanent connections, use fusion splicing and ensure fiber types are compatible.
4. Minimize Frequent Plugging/Unplugging: Repeated disconnection increases the risk of dust contamination, insertion loss, or end face damage.
5. Power On/Off Sequence:

Startup: Confirm the power switch and activation button are OFF before connecting the power supply.

Shutdown: Turn off the laser output first (via the key switch), wait for the output indicator to extinguish, then disconnect the power. Never abruptly cut power during operation.

6. Storage and Environment: Store the device in a dry, dust-free environment. Protect against moisture, dust, and corrosive substances.

Dimensions



Warranty and After-Sales Service

1. Warranty Period: The product is covered by a 1-year limited warranty starting from the date of delivery. During this period, if any non-human-induced quality issue arises, the customer is entitled to free replacement of components or the entire unit. After 1 year, paid repair services will be provided.

2. Warranty Coverage: Within the free warranty period, defects caused by product quality will be repaired or replaced at no cost. However, free repairs are not applicable under the following circumstances:

1) Damage caused by natural factors or environmental conditions (e.g., electric shock, dust contamination).

2) Damage resulting from improper operation by the user.

3) Obvious signs of human-induced physical damage.

4) Unauthorized disassembly, modification, or repair of the product.

5) Tampered or incomplete warranty label on the laser housing.

SIMTRUM China
Telephone: +86 133 2643 0008
Email:info@simtrum.com

SIMTRUM Singapore
Telephone: +65 6996 0391
Email: info@simtrum.com

6) Damage or loss incurred during transportation.

Product warranty card	
Product Name	
Product Name (PN)	
Series Number(SN)	
Purchase date	
Description of product defect	
User name	
Contact address	
Contact phone	
E-mail	