

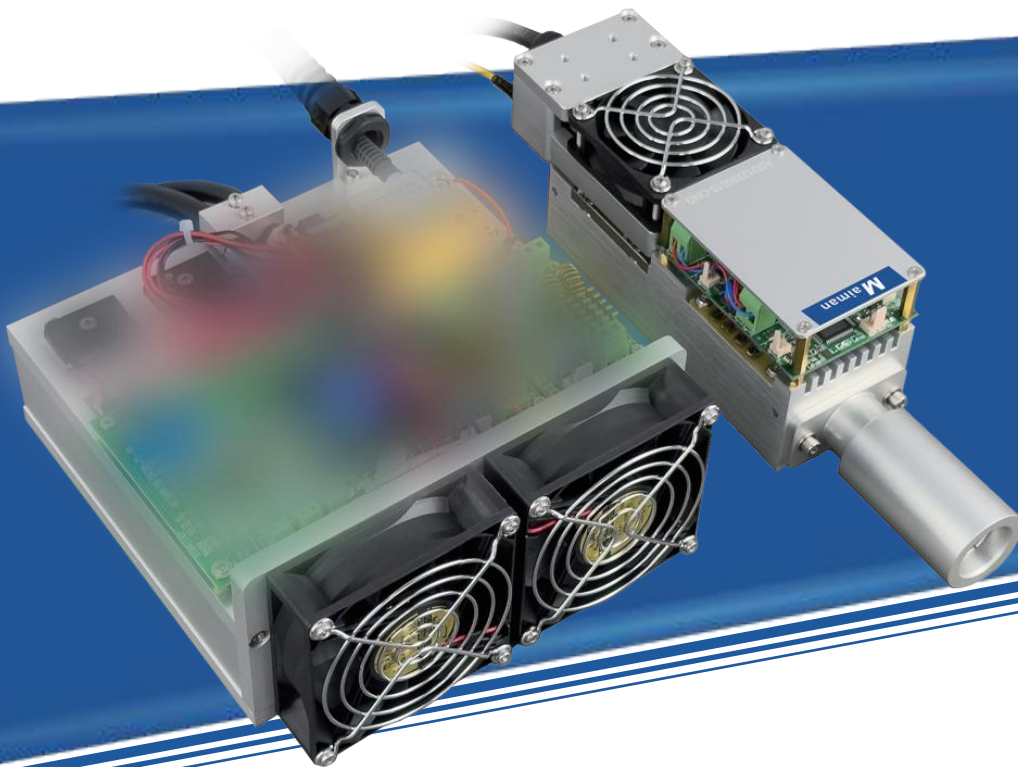
Maiman

Superb Technology & Optimum Quality

Diamond Series Mini UV laser

Instruction manual

VN: DSL20240628



Tianjin Maiman Laser Technology Co., Ltd.

Preface

This manual is applicable to engineers who have basic knowledge of hardware and have a certain understanding of laser equipment and device. Please read through this manual carefully before using the Maiman laser products and keep it properly. If you have any questions, please contact Tianjin Maiman Laser Technology Co., Ltd.

For more product and information, please visit our website
www.maimanlaser.com



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1. Maiman Laser Safety Instructions

1.1 Declaration of Safe Use

The manual must be read through carefully before using the Maiman laser, and operators must operate in strict accordance with the guidelines of the manual, so as to avoid the damage to the human body and property caused by improper operation. If the operator does not use the product in accordance with the guidelines of the manual, Tianjin Maiman Laser Technology Co., Ltd will not bear any legal responsibility for all personal and property damages arising therefrom.

1.2 Safety and Warning Signs/Labels

	<p>Laser radiation warning sign Viewing visible or invisible laser light emanating from the laser will cause serious injury and potential blindness, as is reflected, scattered, and diffuse light.</p>
	<p>Safety Warning sign The specific procedures need to be followed, otherwise your device or parts may be damaged or will bring danger. You need to follow specific procedures, otherwise your equipment or components may be damaged or dangerous.</p>
	<p>The production label</p>
	<p>Anti disassembly label I . No warranty if the label is damaged.</p>
	<p>Anti disassembly label II .No warranty if the label is damaged.</p>
	<p>Maiman's logo</p>
	<p>QR code</p>



1.3 Guidelines for Safety Operation of the Laser

- The laser products of our company belongs to class IV laser device ($>500\text{mw}$) according to its output power level, The laser radiation will cause serious harm to human body, as well as fire and other hazards. Only qualified personnel who have been trained and are well aware of the danger of laser are allowed to operate this product. Non operators should evacuate outside the danger area of laser radiation.
- Do not open the casing of the laser body under any circumstances.
- Establish a safe operation area around the laser and take necessary measures to prevent the leakage of the laser. Post Class IV laser warning signs and safety warning signs at obvious positions in the safe operation area to prevent untrained personnel from entering.
- Store the laser in a place with certain power protection conditions, and all parts of the laser should have good grounding protection.
- Wear professional laser protective glasses, gloves, protective clothing, etc. during operation. Do not look at the laser beam directly without protective measures, do not touch the laser beam directly to avoid damage to eyes, skin, clothing, etc.
- Do not wear jewelry or any reflective objects, and do not irradiate the light beam on the reflective surface, so as to avoid personal injury caused by the reflected light.
- Take measures to block the reflected beam, or use a working platform with CLASS IV protection grade when processing metal parts which may reflect beam strongly.
- Keep the laser beam above or below the human eyes during operation, do not keep it on the same level as the human eyes.
- If volatile substances are used in the laser operation area, cleaned them out of the operation area immediately after the operation.
- After operation, the operator should check with the UV fluorescent sheet to confirm that the laser has been turned off before leaving.
- The maintenance and repair of the device should be carried out by professionally trained personnel. Be sure to refer to the relevant contents in the manual.

1.4 Product Safety Features

- Power indicator light: Red - When the indicator lights up, it means the laser is powered on, but cannot judge whether the laser is on or off. Take great care at all times when using the laser. When the indicator light is off, it means that the laser is not powered on. At this time, the laser is in the off state.
- Work indicator light: Green - The indicator light is always on, indicating that the laser can work normally, and the indicator light flashes, indicating that the laser is in standby mode. However, neither of these two states can determine whether the laser is on or off. When using the laser, you need to be very careful at all times. When the indicator light does not light up, it means that the laser is not ready yet. At this time, the laser is turned off.

2. Product Installation Instructions

2.1 Laser Installation and Service Conditions

- Do not power on the laser during installation and disassembly, otherwise the laser will be burned; at the same time, pay attention to anti-static to avoid electrostatic breakdown of the internal laser diode;
- The laser power supply is a special switching power supply. Use the laser's own switching power supply. Do not replace it without permission. Connect the laser power supply cable correctly, otherwise the laser will be burned directly;



Remarks: beam expanders and window mirrors are not covered by warranty;

- Pay attention to the cleanliness of the fan. Excessive dust can easily cause blockage of the air duct inside the laser.
- Laser damage caused by human factors is not within the scope of warranty;
- No warranty if the anti disassembly label is damaged.

Category	Item	Specification
Electrical requirements	Switching power supply input voltage	AC100-240V, 50-60Hz
	Switching power supply output voltage/current	DC12V, 29A
	Laser input voltage/current	DC12V, 29A
	Running power	350W
Environmental requirements	Storage temperature	-10-40 C
	Storage humidity	<90%(No condensation)
	Operating temperature	10-35 C
	Operating humidity	<80%(No condensation)
	Dust	< 0.20mg/m ³
	Oil mist	Non
	Electromagnetic environment	GB Calss II
Shock	Isolate vibration sources	

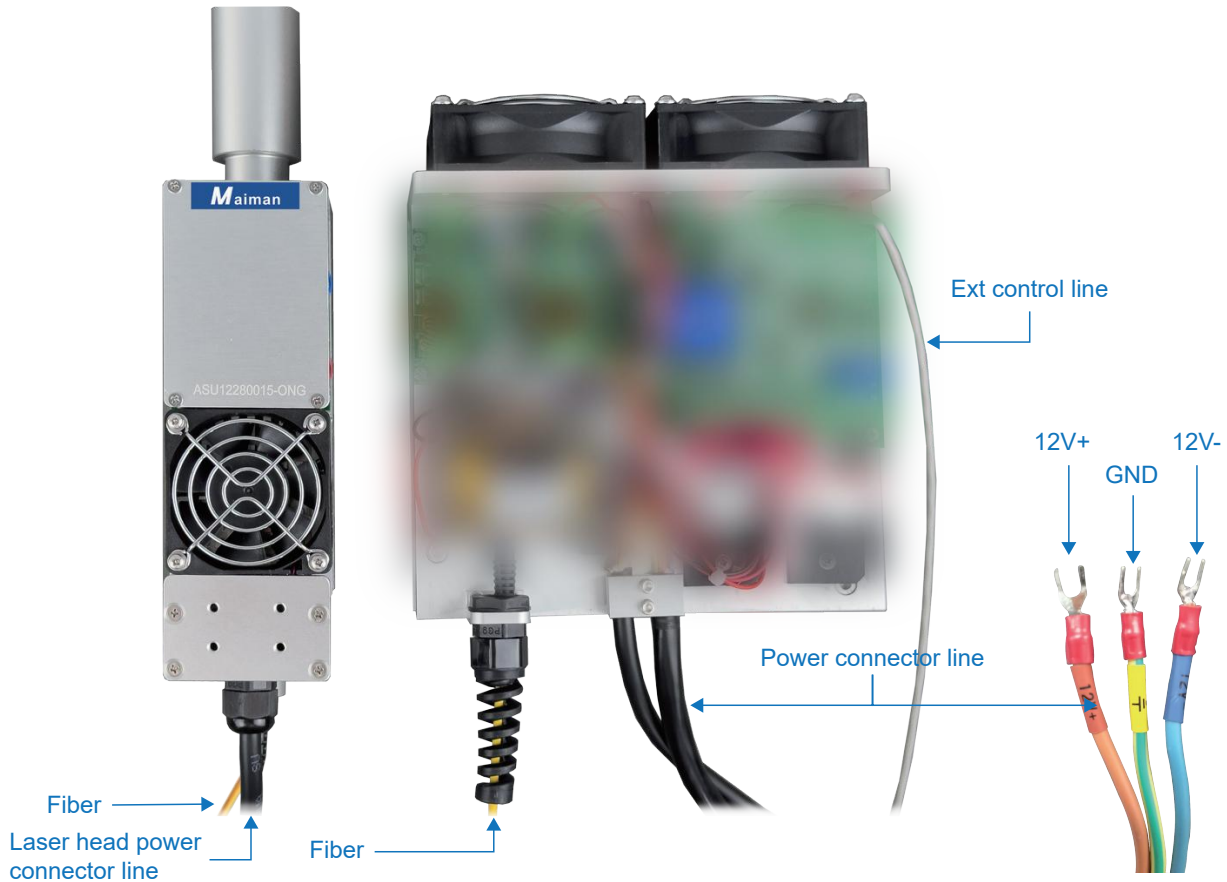


2.2 Supplied Accessories

No.	Item	Picture	Qty	Unit	Description
1	Mini UV lasers		1	set	1W
2	Switching power supply		1	piece	LRS-350-12

Remark: • The photos are for reference only, and the real object shall prevail.

2.3 Description of Laser Interface

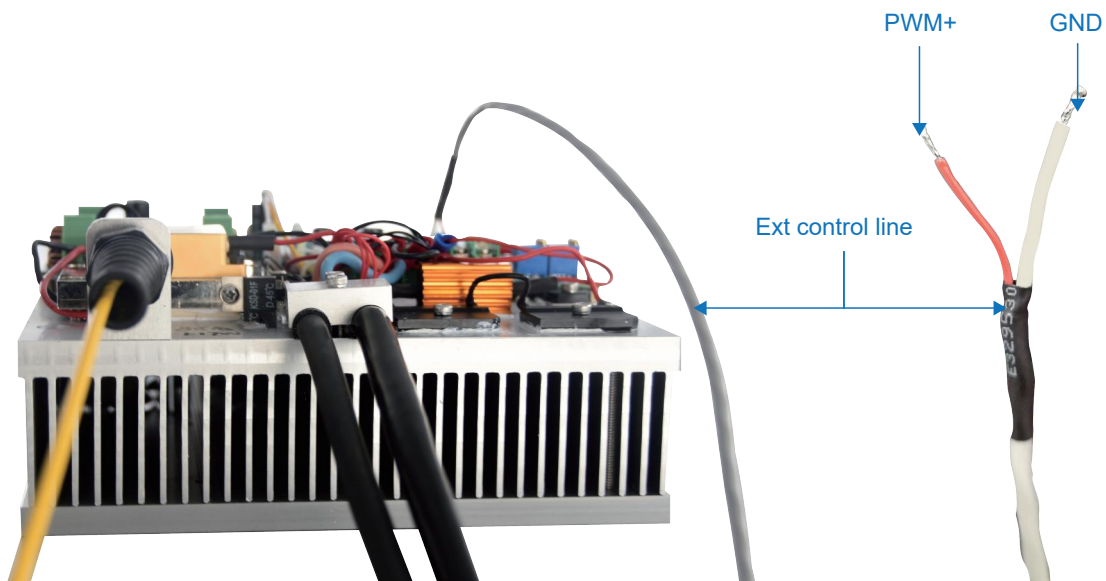


- **Laser head/ Power connector line**

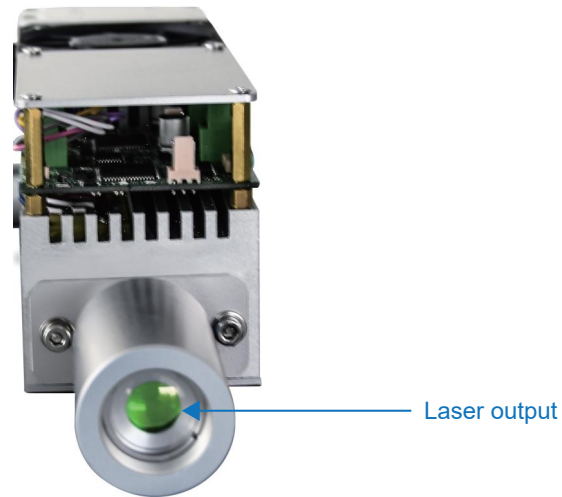
Provides DC constant voltage power supply for the laser. The laser is powered by the attached power supply cable and AC-DC switching power supply. Pay attention not to short circuit or connect incorrectly during wiring, otherwise the laser will be burned directly;

- **Ext control line**

Connect the external control interface of the drive source to the control system.



Line's color	Signal name	Description
Red	PWM+	
White (Black)	GND	



- Laser output

The laser output port has a beam expansion lens and needs to be used in a clean environment.

2.4 Installation Instructions

2.4.1 Installation Method of Laser

Installation process

- The miniature UV laser is extremely easy to install, firstly, connect the driving source with the 12V switching power supply, in which the red wire of the power cord is connected with the positive pole of the 12V switching power supply, the blue wire is connected with the negative pole of the 12V switching power supply, and the yellow and green wires are connected with the earth of the switching power supply;
- Connect the external control interface of the drive source with the control system, and the power of the laser is controlled by the frequency and duty cycle of the PWM signal.

Installation process

- Install the laser to the equipment side.

Note: The installation surface must be flat to ensure that the laser mounting feet can fully fit the flat surface.



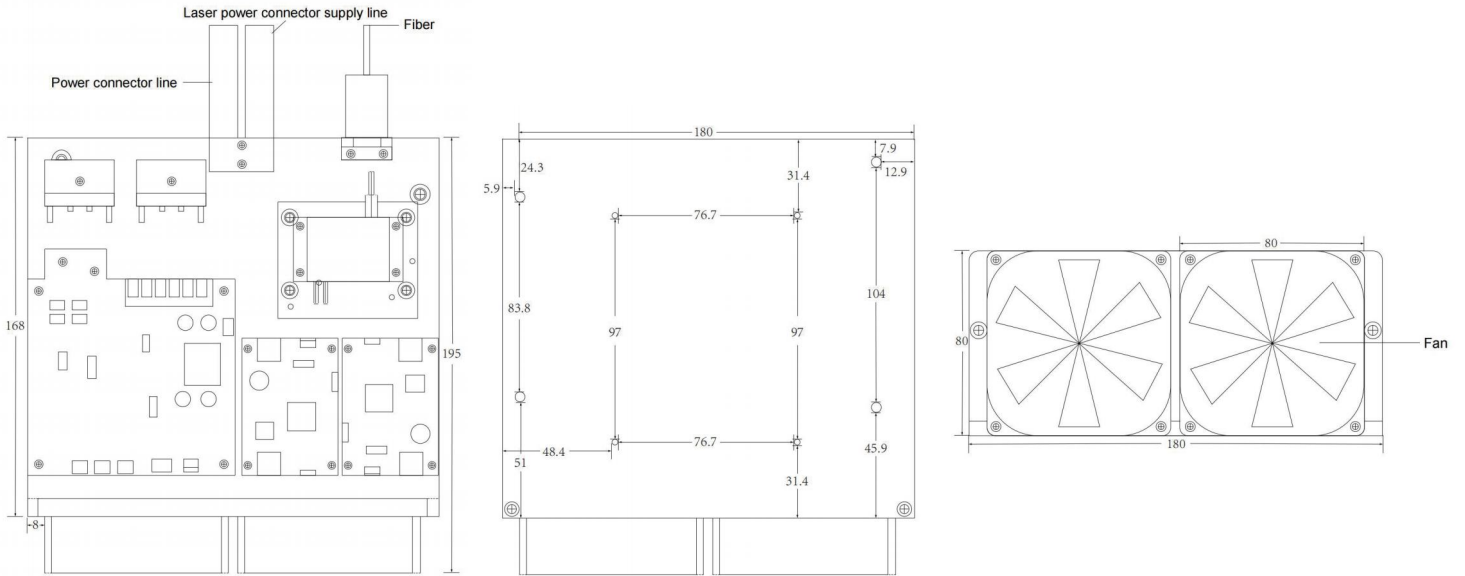
Laser ▲



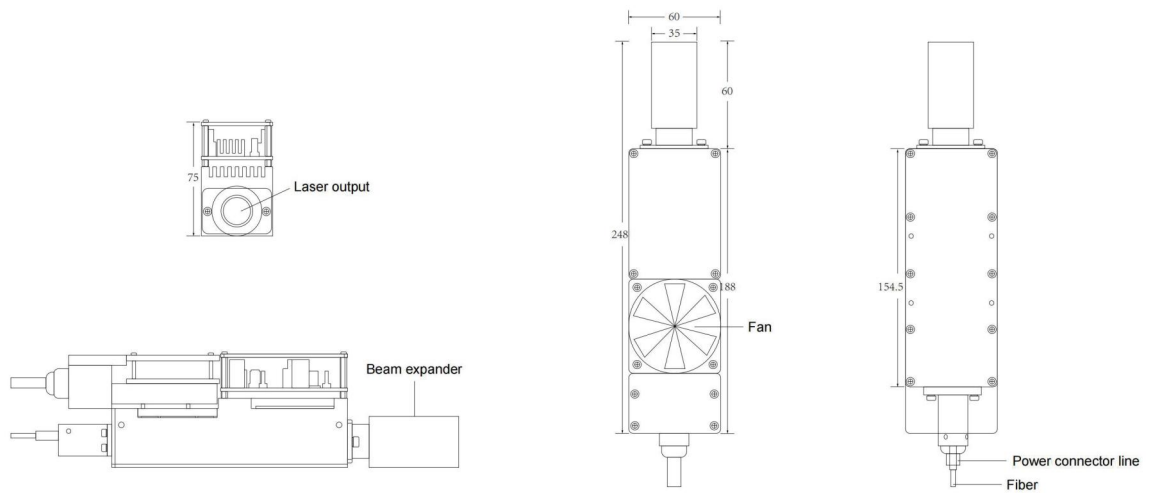
Bottom view of the laser ▲

2.5 Laser Dimensional Drawing

Drive

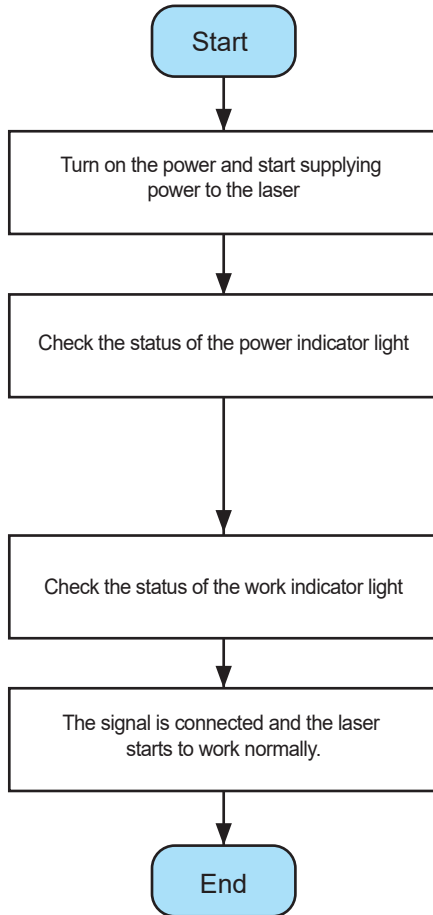


Laser output

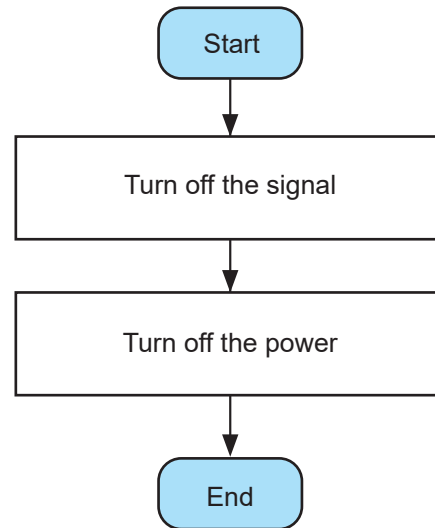


3. Laser Operation Instructions

3.1 Startup Process



3.2 Shutdown Process



⚠ Notice:

- Check the external environment before starting the laser, and make sure that the power and protection system are all normal before running the laser device.
- Before starting, Check and make sure that all interfaces are installed correctly without looseness. When the laser is working, do not unplug the connection between the switching power supply and the laser, otherwise the laser will be burned directly. If the cable is found to be loose or not connected, please turn off the power first, and then fasten or connect it.



4. Troubleshooting and Maintenance

4.1 What should I do if the laser does not emit laser?

- Whether the power is turned on, and whether the laser enters normal working status after the power is turned on.
- Check whether the control signal is correct.
- Confirm whether the signal cable plug is secure and whether there is poor contact.

4.2 The laser intensity becomes weak after working for a period of time?

- Check whether the ambient temperature is too high or too low, and whether the laser and power supply are well ventilated.

5. After sale service

5.1 Warranty

All laser source products from Tianjin Maiman Laser Technology Co., Ltd. come with an 18-month warranty period, which certifies that your laser is found to be free of any defects in material or workmanship. This warranty applies regardless of your laser application. It does not cover any issues that may arise due to operator negligence, environmental factors, accident, alterations, or improper maintenance. Tianjin Maiman Laser Technology Co., Ltd maintains the sole authority to make any claims or statements regarding warranty on its products. Maiman Laser reserves the right to make changes or improvements to product design without notice, and without expectation of equivalent changes in products previously manufactured or shipped.

5.2 Returns

If a failure should occur, please contact maimanlaser@maimanlaser.com or +86 17526524352. If a laser or accessories needs to be returned, a Return Merchandise Authorization(RMA) will be issued. Any laser returned without an RMA will be at your sole expense.

Typically, for failure within the 18 months, the client shall be responsible for shipping costs to Tianjin Maiman Laser Technology Co., Ltd. or its distributors. Maiman Laser or its distributors will pay all shipping costs to return the item(s) to the client.

When requesting an RMA please have the following information ready:

Date of purchase:

Date of receiving the laser:

Laser Model:

Date the issue was first discovered:

Brief description of the issue:

Find out the RMA as completely as possible. For any returns, please ship the item(s) to:

Tianjin Maiman Laser Technology Co., Ltd.

Attn: Overseas Department, Lynn Zhang

201, D6-A, East Huigu Industrial Park, Xiqing District, Tianjin, China

Include the laser and all accessories when returning the laser. This allows Maiman Laser to determine the source of the issue.

Tianjin Maiman Laser Technology Co., Ltd.

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