

# **CivilLaser**



## **Laser Instructions**

**PSU-W-LED**

**Product model: MGL-V-532**

**Product power: >10W**

**Product number: GA11919**

## I. Product components and accessories list

1. Laser Head



2. Power supply






3. Power cord




4. TNC



## II. Symbol usage


	<p>Warning: This symbol is used to warn operators of hazards easily caused by visible and invisible laser radiation!</p>
	<p>Note: Remind operators to prevent danger, pay attention to whether the operation is correct, the wrong operation and connection may lead to personnel injury or damage of goods.</p>
	<p>Danger: Beware of electric shock, high voltage danger!</p>

## III. Safety precautions and instructions

	<p>Warning: Laser radiation can cause damage to eyes and skin. The safety precautions and instructions mentioned in this manual must be followed in the process of installing or operating this laser system.</p> <p>All laser safety rules and standards are applicable. The safety precautions and instructions mentioned in this manual cannot replace the safety standards applicable with other countries.</p>
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### Optical safety

	<p>Please pay extra attention to laser products which wavelength range is greater than 700nm (invisible infrared light) or less than 400nm (invisible ultraviolet light). Because this invisible laser is very dangerous.</p>
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- 1.1. Do not observe laser or scattered laser radiation directly or indirectly
- 1.2. Monitor should also be used even when the Laser level below Class I, it cannot observe directly with naked eyes.
- 1.3. Wear appropriate laser goggles. Even though laser goggles can protect a person's vision, make sure that never look into the laser beam or highly reflective surface.

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- 1.4. Laser beam on highly reflective surfaces can cause serious injury, such as mirrors, glass, metal, etc. Reflected scattered lasers are also dangerous.
  - 1.5. Make sure not to aim the laser at random targets.
  - 1.6. Do not use lasers in places marked with "No Smoking" or "Flammable and Explosive", otherwise it may easily lead to danger.
  - 1.7. For invisible lasers, before using the laser, use an infrared detector or infrared display card to check whether the laser is working.
  - 1.8. When dealing with optical problems, use clean finger cots, latex gloves or other insulating equipment.
  - 1.9. Post warning signs in prominent locations in the laser operation area, set up reminder signs when the laser is working and restrict non-operating personnel from entering the laser working area.
  - 1.10. If the laser is not in use or unattended, it should be completely turned off.
  - 1.11. To avoid accidentally looking directly into the light spot, make sure the laser is not near eye level.



#### Electrical safety

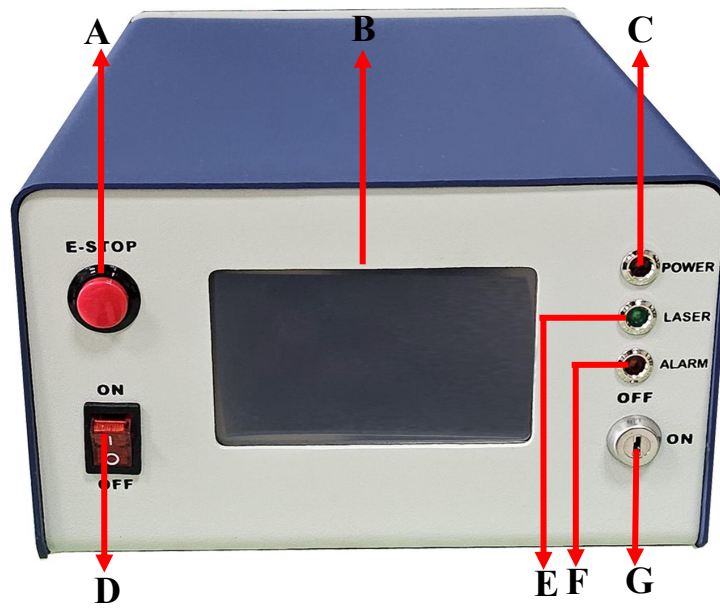


Unauthorized repair is not recommended and the risks arising therefrom shall be borne by the user. The non-tear tag fails will lose the warranty any unauthorized repair may invalidate the warranty.

- 2.1. When the equipment stops using, the main power cord should be cut off immediately, and the laser head should be kept tightly connected to the power supply of the same serial number to prevent static damage.
- 2.2. Any operation of disconnecting and connecting the laser head and the laser power supply needs to be performed with the power supply turned off.
- 2.3. If conditions permit, please keep a distance from the equipment to reduce the risk of electric shock.
- 2.4. After the power is turned on, do not touch the exposed circuits and components.
- 2.5. If you maintain or repair electrical equipment, please make sure to use insulated tools.
- 2.6. To avoid damage to the laser system caused by lightning strikes, static electricity, electrical interference, etc., ensure that the laser system is properly grounded.
- 2.7. To avoid fire or electric shock, please comply with all rated values on the product and product manual. Before connecting the product, please first check the product instructions for detailed information about the rated values.

## IV. Power supply description and function introduction

### Power front panel functions



### Power supply rear panel functions



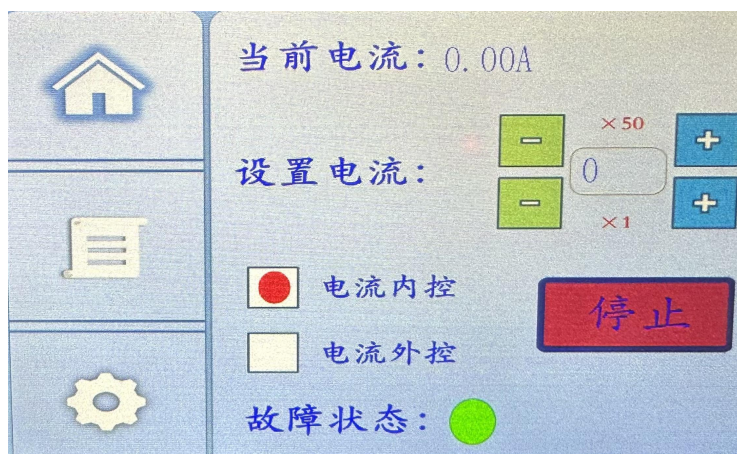
**Laser power supply function description**

	<b>Name</b>	<b>Function</b>
<b>A</b>	<b>Emergency button</b>	If an emergency occurs, press this button and the laser stops working. You need to restart the power switch and key switch to resume working.
<b>B</b>	<b>Touch screen</b>	Control the power supply of the laser.
<b>C</b>	<b>Power indicator light</b>	Connect the power supply to 100-240VAC and turn on the power switch. The "Power" light is on.
<b>D</b>	<b>Power switch</b>	The power switch is set to "OFF".
<b>E</b>	<b>Laser output indicator light</b>	When the laser starts working, the "Laser" light is on.
<b>F</b>	<b>Alarm indicator light</b>	The alarm indicator "Alarm" will light up in the following cases:
<b>G</b>	<b>Key switch</b>	①Press the emergency stop button or unplug the interlocking power supply.
<b>H</b>	<b>RS232</b>	②The power supply fails (please turn off the laser system and contact us in this case).
<b>I</b>	<b>Safety lock</b>	The key switch is set to "OFF".
<b>J</b>	<b>External signal interface</b>	Selected according to the product model, if you need to use this function, please contact our company.
<b>K</b>	<b>Power socket</b>	If the "internal lock" is unplugged, the laser stops working. After resetting, you need to restart the power switch and key switch to resume working.

## V. touch screen function introduction

### Settings interface

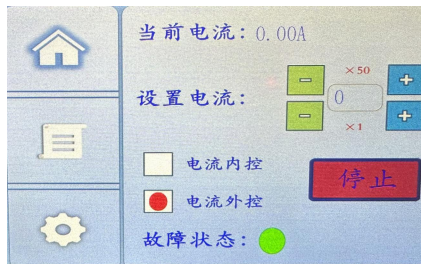
The setting interface displays the current working current, fault status, settings for working current and working mode, and control of switching light.



	Name	Function
1	Current current	Display the current working current of the laser.
2	Set current	×50 and ×1 are the coefficients of this line adjustment, that is, the adjustment step of "+" and "-" in the first line is 50, and the adjustment step of "+" and "-" in the second line is 1. 1000 is the full power current.
3	Current internal control	When the working mode is current internal control (as shown in the figure: there is a red dot in the front box), the laser outputs continuously according to the current setting on the panel. External signals cannot be input.
4	Current external control	When the working mode is current external control (there is a red dot in the front box), TTL modulation or analog modulation can be selected. "Refer to the TTL modulation/analog modulation switching instructions for details"
5	Start/stop	Click "Start" to start the laser, and click "Stop" to stop the laser output.

6	Fault status	<p>When the fault state is "green dot", the laser is working normally.</p> <p>When the fault state is "red dot", you need to turn off the key switch, turn off the power switch, and restart the laser.</p>
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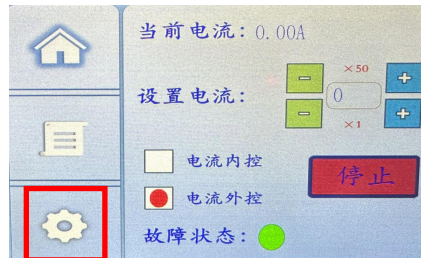
**TTL modulation/analog modulation switching instructions**



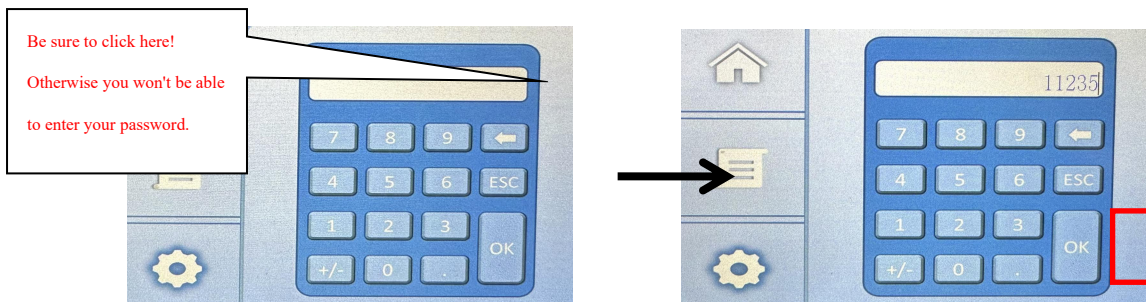
1. When the working mode is selected as "current external control", the laser outputs continuously, **so please pay attention to safety.**

**Note: Since the factory default setting is TTL modulation when the current is externally controlled, the laser outputs continuously when the current is externally controlled.**

2. When you need to switch the mode to analog modulation, click the setting interface in the lower left corner.



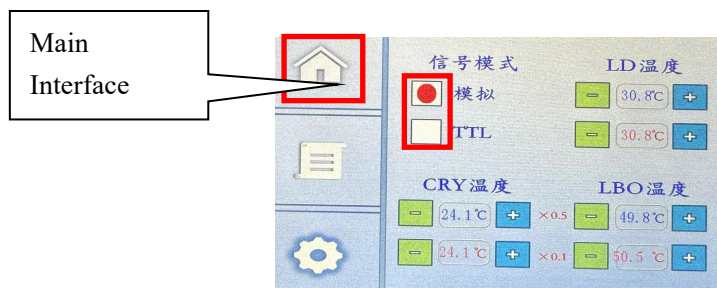
3. After entering the interface below, click the password input field (blank space) → enter the password: 11235 → click "OK"



4. After entering the switching interface, select analog modulation (there is a red dot in the front box). After switching the mode, return to the main interface.



Note: When analog modulation is selected, the laser has no laser output and an external signal must be connected to control the laser light output.



Note: Do not change other parameters in the setting interface except the switching mode, otherwise it will damage the laser and shorten its service life.

## VI. Usage Environment

	<p>If the control, adjustment and operation procedures specified by CivilLaser are not followed, harmful laser radiation may occur.</p>
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	<p>The laser must be turned on only after the laser housing temperature has returned to a level close to the operating temperature, to avoid damage to the device due to excessive temperature differences.</p>
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	<p>To extend the life of the laser, it is recommended not to use it beyond the temperature range given by CivilLaser. If the temperature exceeds its limit, the entire system will enter a protection state and the laser will not be able to output laser light. Failure to operate in accordance with this specification may cause fatal damage to the laser. All new industrial lasers have electrostatic discharge protection.</p>
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**The environmental conditions for the operation of the laser system are as follows:**

1. Temperature: 10-35°C (ambient temperature)
2. Maximum relative humidity: <80%
3. Main power supply voltage: not exceeding  $\pm 10\%$  of the rated voltage.

## VII. Pre-operation preparation

1. Check that the power switch is in the "OFF" state.
2. Supply voltage to the power supply according to the mark on the rear panel of the power supply.

## VIII. Installation and Operation Instructions



Make sure you have read and understood all safety instructions mentioned in the previous chapters.



Note: Laser systems must be installed and operated by professionals who understand all laser safety terms and equipment safety. Customers should take all necessary measures to ensure the safety of the laser system. Customers are fully responsible for implementing all laser safety laws and standards during installation, operation and testing. CivilLaser is not responsible for damage to the laser or any injury caused by improper installation and operation. If you have any questions, please contact us.



- We strongly recommend that you place the laser on a platform with good heat dissipation to maintain the heat balance of the laser. Otherwise, it will cause fatal damage to the laser.
- The temperature is required to change slowly within 10°C-35°C, otherwise the laser will not work well.
- Do not stick anything under the laser.。
- Make sure there is no obstruction at 0.05m-0.1m from the laser ventilation port to ensure a good heat dissipation environment.
- If the laser system needs to be installed inside other equipment, ensure good ventilation. If necessary, add an additional fan to dissipate heat. The direction of the cooling air must be consistent with the direction of the laser fan.

## Installation Operation



1.1 After loosening the metal ring on the plug counterclockwise, unplug the short connector (when the laser is not connected to the power supply, please press the short connector again to avoid damage to the laser).

1.2 After tightly connecting the plug on the laser head to the power supply, rotate the metal ring clockwise to lock it.

Note: The number on the laser head must correspond to the number on the power supply, otherwise it may affect the performance of the laser. The figure is for reference:

1.3 Connect the power socket to the external power supply through the power cord.

## Power-on operation

2.1 Open the shading mechanism.

2.2 Due to the high power of the laser, it is recommended to place a non-flammable and non-reflective black metal object in front of the laser light outlet to receive the laser. To avoid skin burns and fire.

2.3 Turn on the power switch. The red indicator light "Power" lights up.

2.4 Turn on the key switch. After about 18s, the green indicator light "Laser" lights up. Click the display screen, set the current to 1000, click Start, the laser starts working, and the laser outputs at full power after a period of time due to the slow increase of the current.

Note: Since the default current setting is 0 at the factory, if it is not increased, it is normal that there is no laser output when the machine is turned on.

2.5 After about 15 minutes at room temperature, the laser works stably.

2.6 The default setting at the factory is "current internal control" mode. At this time, the external modulation

signal cannot be connected. The laser's light on and off and current are controlled by the touch screen panel.

2.7 When the "current external control" mode is selected, the external modulation signal can be connected at this time, and "Set current" is not available. Control the laser on and off through the touch screen panel.

Note: When "current is externally controlled", you can switch between TTL modulation and analog modulation.

"Refer to the TTL modulation/analog modulation switching instructions for details"

2.8 When accessing modulation, you can refer to the "Laser TTL modulation instructions" or "Laser analog modulation instructions".

#### 2.8.1 Laser TTL modulation instructions

- A. When the external TTL signal is not input, the laser is in full power output state;
- B. When the external TTL signal is low level (0V) input, the laser is in no power output state;
- C. When the external TTL signal is high level (5V) input, the laser is in full power output state;
- D. The external input TTL signal voltage must not exceed 5.5V, otherwise there will be a risk of damaging the laser.

#### 2.8.2 Instructions for using laser analog modulation

- A. When the external analog signal is not input, the laser is in a state of no power output;
- B. When the external analog signal is input at a low level (0V), the laser is in a state of no power output;
- C. When the external analog signal is input at a high level (5V), the laser is in a state of full power output;
- D. When the external analog signal of 0-5V is input, the output power is different when 1V, 2V, 3V, 4V, and 5V are used.

2.9 If the red alarm indicator "Alarm" is on, please turn off the main power switch, and turn on the laser again after a few minutes, and the laser will enter the normal working state.

### **Shutdown Operation**

3.1 Turn off the laser: set the current to 0, press the stop button on the touch screen panel, turn off the key switch, turn off the power switch, and unplug the power plug.

**Note: It is recommended to set the current to 0 before shutting down to prevent danger the next time you**

start the machine.

3.2 Turn off the shading mechanism.

## IX. Warranty and Maintenance



**Warning: Please do not open or remove the cover of the laser or the housing of the laser power supply without authorization, otherwise there will be a risk of laser damage and the warranty will be invalid. If necessary, it is recommended to return the laser to Xinye for repair.**

1. The warranty period of this product is one year from the date of sale.
2. In any of the following situations, Xinye Industry Company is not responsible for warranty.
  - 2.1 Misuse, improper operation, improper storage or unauthorized operation and some dealers' self-processing operations;
  - 2.2 Removal, damage or change of the original printed number or label;
3. This product should be used in a clean, dry, dust-free and static-free environment.
4. When there is no processing task, the laser should be powered on regularly. It is best to run it once every two weeks for one hour each time to use the heat generated by the laser itself to reduce humidity and keep the electronic components from moisture. To maintain the best performance of the product and extend its service life.
5. If you have any questions during operation, please contact a Xinye Industry representative.
6. Please do not open the laser before reading the manual to avoid danger. Be sure to wear goggles and take special care measures when removing the laser cover.
7. Please operate according to the instruction manual.

## X. Appendix

	Accessory name	Included with the product Instructions	Included with the product Instructions
<b>A</b>	Optical fiber	/	/
<b>B</b>	Optical fiber holder	/	/

<b>C</b>	End collimator	/	/
<b>D</b>	Linear prism	/	/
<b>E</b>	Fiber coupler	/	/
<b>F</b>	Polarization attenuator	/	/
<b>G</b>	Beam expander	/	/
<b>H</b>	Fiber oscillator	/	/
<b>I</b>	RS232 driver CD	/	/
<b>G</b>	USB to RS232 cable	/	/
<b>K</b>	Circular variable attenuator	/	/
<b>L</b>	Filter	/	/
<b>M</b>	Half-wave plate	/	/
<b>N</b>	Plano-convex mirror	/	/
<b>O</b>	Heat dissipation tooling	/	/
<b>P</b>	Heat sink	/	/
<b>Q</b>	TNC	√	√
<b>R</b>	Infrared card	/	/
<b>S</b>	Laser protective goggles	/	/
<b>T</b>	Connection plate	/	/
<b>U</b>	Extension cord	/	/
<b>V</b>	Water tank	/	/