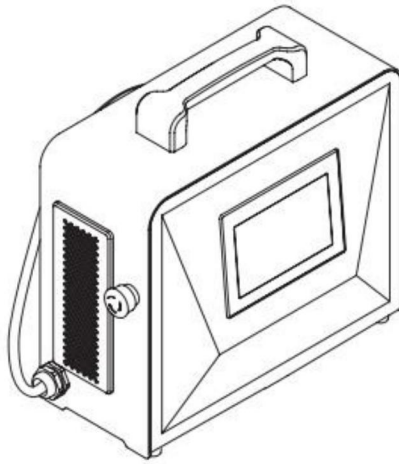


# User Manual



## Quick Operation Guide:

- ① Connect the air hose → ② Install the foot pedal → ③ Connect the power supply → ④ Release the emergency stop switch →
- ⑤ Click the Start button on the interface → ⑥ Press the foot pedal + trigger button on the spot welding pen. If the laser outputs normally, operation is successful.

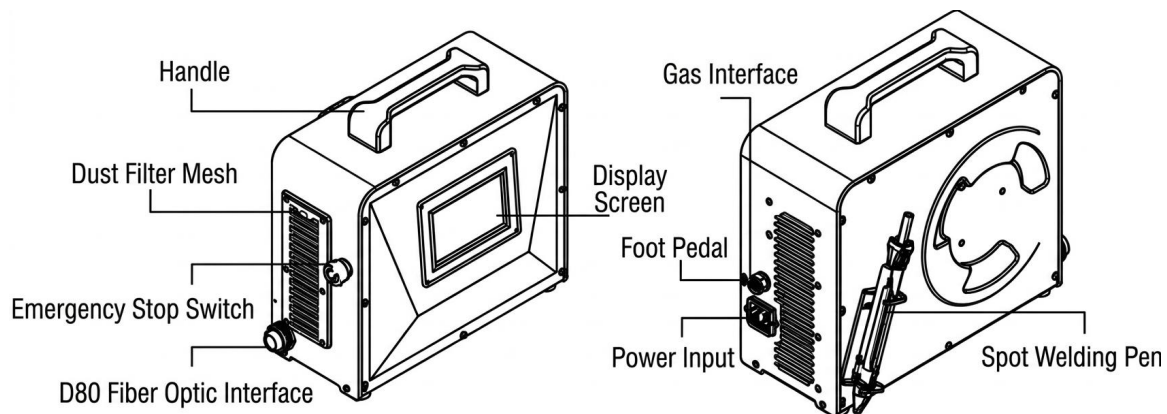
## Quick Troubleshooting:

If the laser output is weak or the device overheats (under the same power), please check and replace the protective lens.

## 1. Product Description

The portable laser spot welding machine is a high-precision welding device integrating quasi-continuous fiber laser technology. It adopts an integrated handheld design with compact size and light weight, combining process flexibility with industrial-grade performance. The equipment is optimized for precision welding in complex scenarios and is suitable for thin sheet welding, advertising letter welding, lighting product welding, and DIY fabrication.

### 1.1 Product Structure Diagram



### 1.2 Packing List:

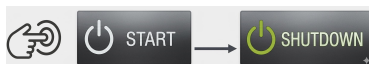
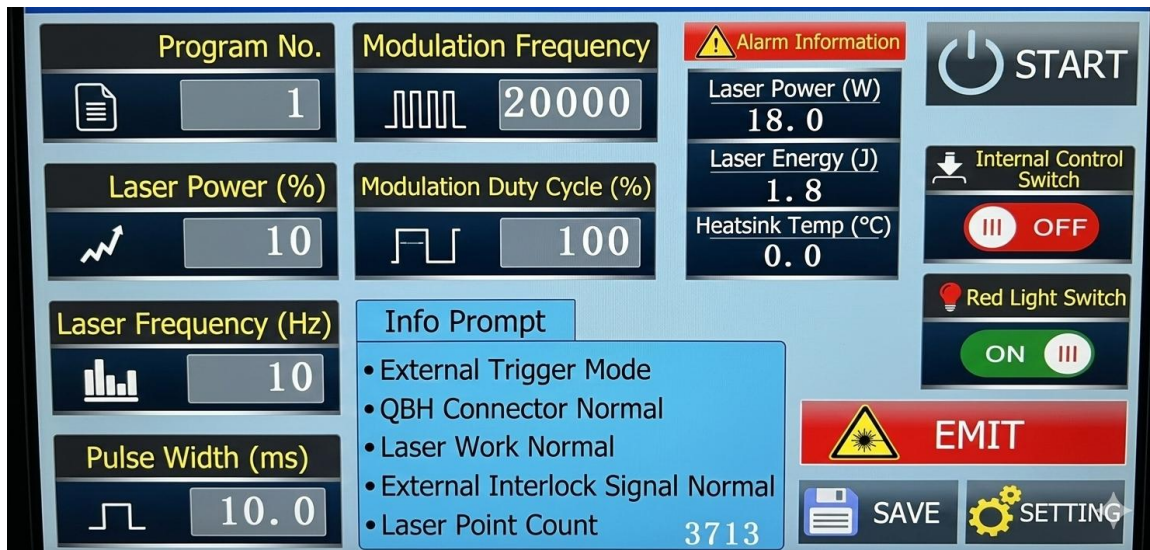
Spot Welding Machine x1, Power Cable x1, Laser Safety Glasses x1, Protective Lenses x5, Welding Pen Holder x1, Foot Pedal x1, Outer Corner Copper Nozzle x1, Cutting Nozzle x1, User Manual x1

### Screen Operation:

Start the device and release the emergency stop switch. The system will enter the startup interface.



## 2. Main Interface Introduction:



Click the power button to start the laser.

**Program Number:** Indicates the currently selected program number. Users can configure and store parameters for different welding processes. The system supports up to 19 customized program libraries.

**Laser Power:** Sets the laser output power of the current program, adjustable from 10% to 100%.

**Laser Frequency:** Configures the pulse frequency of the current program, i.e., the number of laser emission points per second.

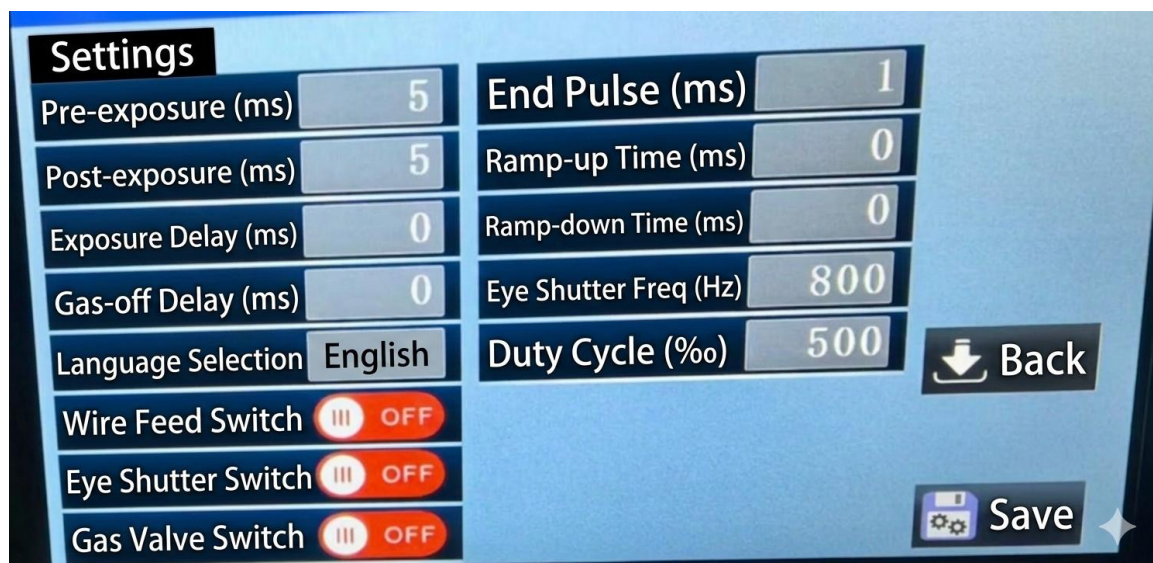
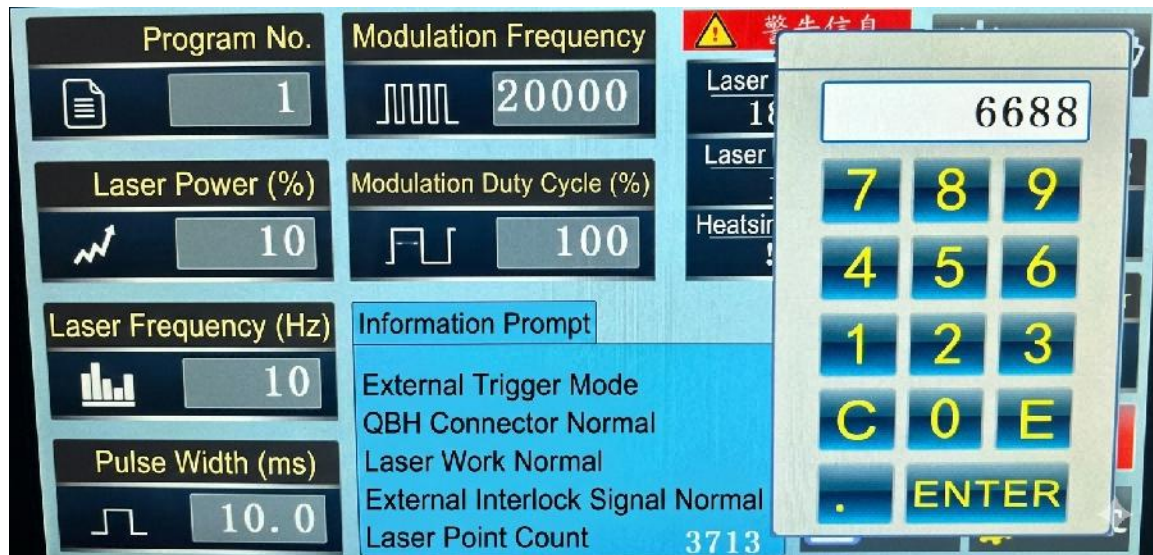
**Pulse Width:** Defines the pulse duration of the current program, controlling the laser action time for single- point energy output.

**Modulation Frequency:** Adjustable from 1–20000 Hz, used to set the base frequency of the PWM modulation signal.

**PWM Duty Cycle:** Provides stepless adjustment from 1%–100% for precise control of laser power modulation.

Please configure the appropriate laser parameters according to the characteristics of the welding material to achieve the best welding results.

### 3. Parameter Settings Interface



Click the Settings button and enter 6688.

Enter the parameter settings interface.

**Pre- Shutter:** Used to configure shading protection before laser emission (linked with the optical shutter). This function is not required for this model and does not need to be set by the user.

**Post- Shutter:** Used to configure shading protection after the laser stops (linked with the optical shutter). This function is not required for this model and does not need to be set by the user.

**Laser Output Delay:** Sets the delay time (ms) from trigger signal to actual laser output. It also allows the shielding gas to be released in advance to ensure proper weld protection.

**Gas Off Delay:** Sets the delay time (ms) for the shielding gas to close after the laser stops, ensuring full weld protection.

**Language Selection:** Switch the interface display language (options: Simplified Chinese / English / other languages).

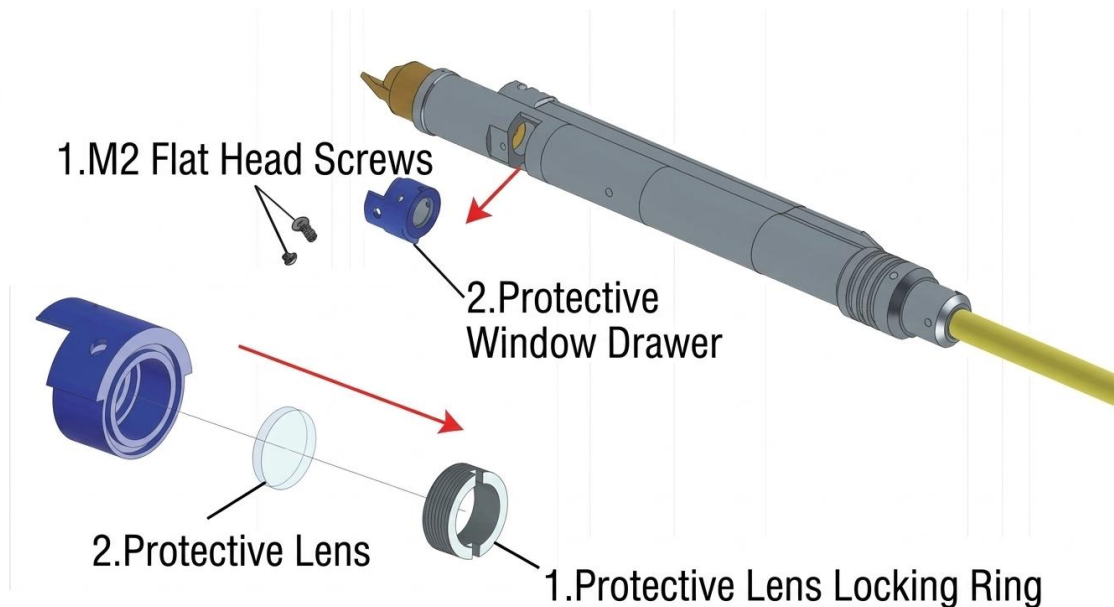
**Optical Shutter Switch:** Enables or disables the optical safety shutter linkage control.

**Gas Valve Switch:** Controls the on/off function of the shielding gas.

Click ENTER to return to the main interface; click Save to store the current parameters.

#### 4. Maintenance of the Spot Welding Machine:

##### 4.1 Replacing the Protective Lens:



##### Disassembly Steps:

Remove the M2 flat-head screws fixing the protective lens drawer and gently pull out the drawer assembly.

**Note:** After removing the drawer, immediately cover the cavity opening with a high- cleanliness protective film to prevent contaminants from entering the optical cavity.

Move the protective lens drawer to a clean environment (Class 100). Loosen the locking ring and carefully remove the lens to be serviced (see the indicated position in the

diagram). After replacing with a new lens, tighten the locking ring counterclockwise to the specified torque.

#### Cleaning and Replacement:

When cleaning, use lint-free lens tissue with an appropriate amount of anhydrous ethanol (or isopropyl alcohol) and gently wipe the lens surface in one direction.

Then blow away particles and debris with clean air.

Repeat the above cleaning process several times if necessary until the lens surface is clean and free of stains or particles.

Note: If the lens has stubborn contamination, coating damage, scratches, or cracks that cannot be removed, it must be replaced immediately.

#### Installation Steps:

Thoroughly clean the drawer rails and interface area, remove the temporary protective film from the cavity opening, and slide the assembly horizontally back into position. After ensuring it is fully seated, tighten with M2 flat-head screws.

#### 4.2 Removing the Filter Cover:

Remove the 6 M2 flat-head screws, take off the cover, and remove the internal dust filter.

#### Filter Cleaning:

##### 1. Air Blowing Method:

Use dry compressed air (the air pressure should not be too high; 0.3–0.6 MPa is recommended) to blow from the inside of the filter toward the outside, removing dust and debris. If compressed air is not available, a hair dryer (cool air mode) can be used as an alternative.

##### 2. Brushing Method (For Heavy Dust):

If there is a large amount of dust, first use a soft brush (such as a toothbrush) to gently remove the surface dust, and then use compressed air to blow it clean.

##### 3. Water Cleaning Method (Deep Cleaning):

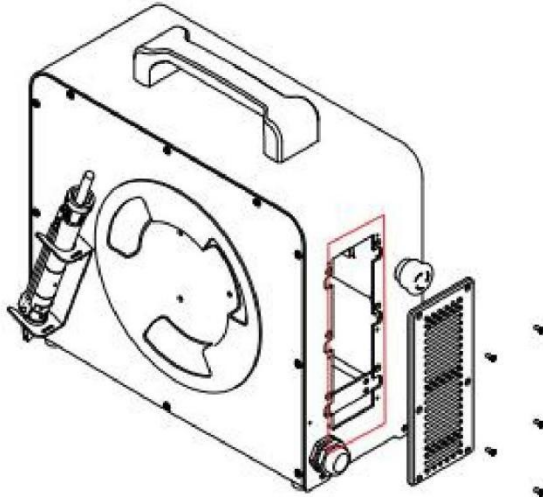
The filter can be rinsed with running clean water, with the water flowing from the inside toward the outside. Do not rub or scrub the filter, as this may damage the filter cotton.

After washing with water, ensure the filter is 100% completely dry before reinstalling it. Place the filter in a well-ventilated area to dry naturally. Do not use hot air drying or direct sunlight, as this may cause deformation of the filter.

#### Filter Installation:

Before installing the filter, use a vacuum cleaner or a soft cloth to clean the filter compartment inside the equipment.

Reinstall the completely dry filter, close the cover plate, and tighten the screws.



#### Regular Maintenance:

Determine the cleaning interval according to the working environment. Regularly cleaning the filter is a simple but essential practice that helps prevent machine failures caused by poor heat dissipation. It ensures the laser spot welding machine operates in optimal condition and extends its service life.