Product Description
SUP - AMF - D (V1.2)

Wuxi Super Laser Technology Co.Ltd

Catalogs

Copyright Statement

Update Record

Version	Updates	Hardware version	Software version	Screen version	Time
V1.1	Upgrade the main control board and related programs	V2.3（A/B）	674/651	623	24.04
V1.2	Interface Program optimization	V1.0	803	628	25.12.18

I. Notes

This product belongs to welding wire feeding equipment. To ensure safe production and normal operation of the equipment, it is recommended that users post the following safety signs on the equipment to inform all personnel using, maintaining and approaching the equipment of the following safety matters.

1.1 Electrical Safety

① This device is powered by 220V AC. Users should pay attention to electrical safety and avoid electric shock.

② The four feet of this device are insulated rolling wheels. To ensure the normal operation of the equipment and to prevent static damage and leakage of the equipment. The equipment should pay attention to safety grounding measures, that is, connecting the easily conductive parts to the protective (grounding) wire in the fixed wiring of the product, so that the easily accessible conductive parts will not become electrified when the basic insulation fails. Additional safety measures (such as double insulation or reinforced insulation) may be added as appropriate.

③ This product does not contain accessories that require user operation on the inner side of the chassis. Any installation, maintenance or disassembly of this product should be carried out with the switch open and the power off.

Marking	Name
	Danger！High Voltage
	It must be grounded
	Must unplug
	Do not close the circuit

1.2 Mechanical Safety

① This equipment contains motor-driven gear, rollers and other structures that should be protected from injury from touching during operation.

② In the process of replacing the wire reel of this equipment, avoid accidental startup and injury.

Marking	Name
	Beware of mechanical injuries
	Beware of pinching your hand
	Do not start

II. Product Overview

The manual includes a general description of the product functions, installation and usage, and other aspects of the SUP-AMF-D series multi-functional double-wire automatic Wire feed (hereinafter referred to as the Wire feed).

The Wire feed is equipped with an auxiliary wire breaking function, supports multiple wire feeding modes, and is compatible with various welding wires, meeting the wire feeding requirements of most laser wire filling welding.

III. Product Features

Main features and parameters:

- Speed range: 15 to 600cm/min;
- Maximum load: 20kg two;
- Wire material: carbon steel, stainless steel, aluminium;
- Operation mode: Touchscreen;
- Control system: Self-developed, supporting various custom expansion functions.

3.1 Product Appearance

Figure 3.1 Product appearance diagram

Table 3.1 List of Components of the product

Number	Name	Notes
1	Screen	7-inch touchscreen
2	Switch	The red light is on when 220V is on
3-1	Wire outlet - A	
3-2	Thread outlet -B	
4	Side door	
5	Nameplate	
6-1	Two-core aviation socket	Standard version - Control Signal interface
6-2	Six-core navigation socket	Process Library Edition - Control Signal Interface
7	Three-core navigation socket	220V power interface

3.2 Product Parameters

Key product parameters are shown in Table 3.2:

Table 3.2 List of Key Product Parameters

Supply voltage		220V±10% AC 50/60Hz
Operating ambient temperature		-10 to 50 ° C
Maximum power		144W
Wire feeding speed		15 to 600cm/min
Wire feeding mode		Continuous mode, pulse mode
Applicable to welding wire		Carbon steel solid core wire, stainless steel solid core wire, aluminium solid core wire
Net weight		25.1 ±0.3 Kg
Applicable to wire reels	Shaft diameter	Min 50mm
	Outer diameter	Max 300mm
	Width	Max 105mm
	Weight	Max 20kg

IV.Installation and Use

4.1 Equipment Wiring

The two air plug interfaces on the back of the wire feeder are [Control Signal Interface] and [Power Interface], which are different between the standard version and the process library version. Accessory signal lines cannot be used interchangeably. The power supply of the wire feeder is usually 220V AC input, and the specific range is subject to the nameplate of the equipment.

The wire feeding enable signal of the wire feeder supports the ① (relay) passive conduction signal and ②(MOSFET) open-drain output signal output of the soldering control box. The customer should connect the lines according to the [+, -] signs on the line markings.

4.1.1 Standard Version definitions

Figure 4.1 Standard Edition Aviation Illustration

Table 4.1 Definition of Standard Aviation Plug-in Interface

Interface Definitions - Standard Edition				
Aviation socket	Corresponding attachment	Interface pins	Definition	Notes
Two-core aviation socket	Two-core aviation plug signal line	1	Wire feed enable -START	Welding control box - Wire feed +
		2	Wire feed enable -GND	Welding control box - Wire feed
Three-core navigation socket	Plug the three-core power cord	1	220V-L	Plug in a 220V power supply with a three-pin plug.
		2	220V-N	
		3	PE	

4.1.2 Process Library version definitions

Figure 4.2 Process Library Edition Navigation Illustration

Table 4.2 Definition of Aviation Plug-in Interface in Process Library Version

Interface Definitions - Process Library Edition				
Aviation socket	Corresponding attachment	Number	Definition	Notes
Six-core aviation socket	Six-core aviation plug signal line	Wire feeding +	Wire feed enable -START	Connect the welding control box - Wire feed +
		Wire feeding -	Wire feed enable -GND	Connect the welding control box - Wire feed -
		GND	Shielding layer - grounding wire	
			232 communication -GND	DB9 to double row terminal, insert the solder hold control box signal interface 4.
		RXD	232 communication-RX	
		TXD	232 communication-TX	
Three-core navigation socket	Plug the three-core power cord	/	220V-L	Plug in a 220V power supply with a three-pin plug.
			220V-N	
			PE	

4.2 Wire installation

4.2.1 Wire feeding tube and wire feeding wheel selection

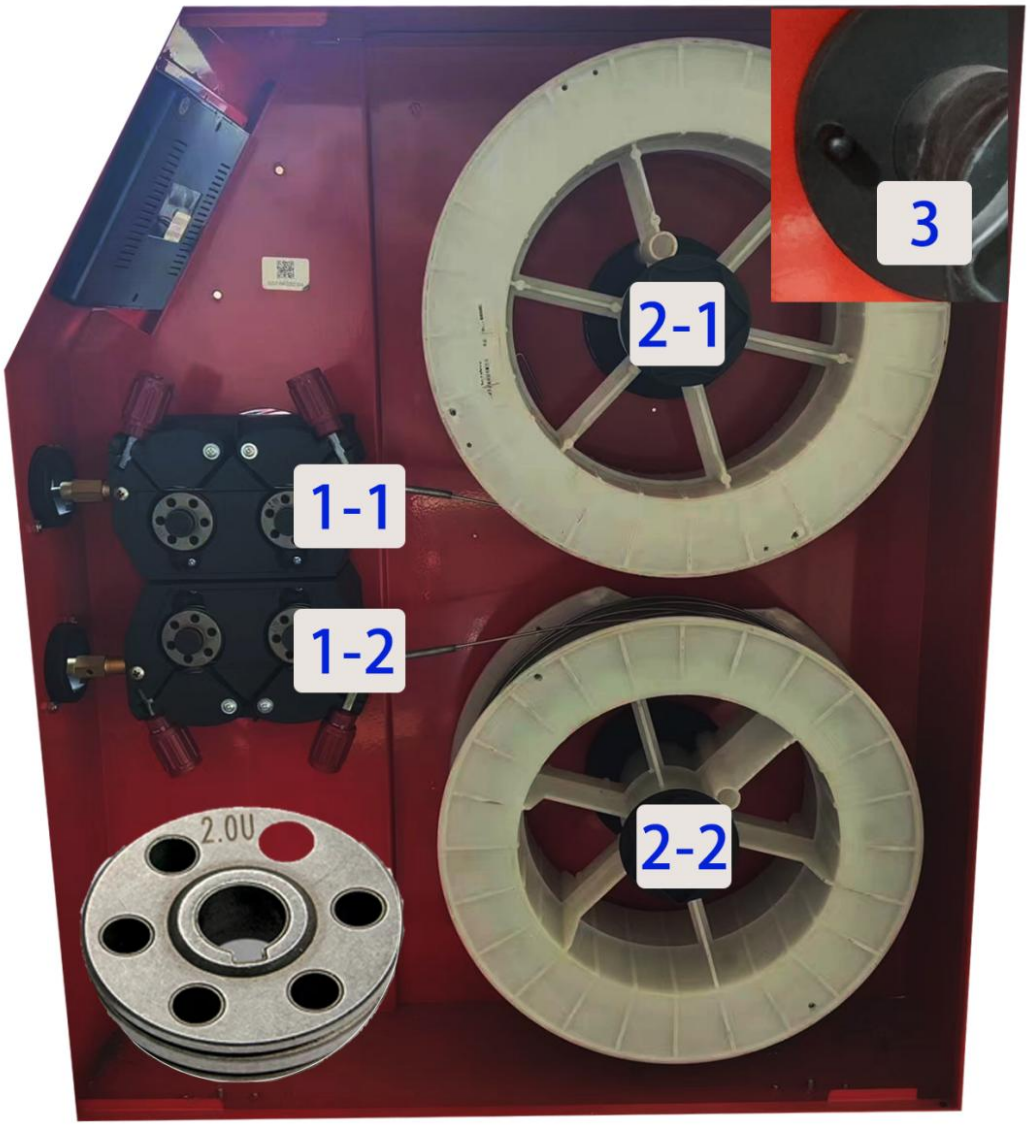
Please select the corresponding wire feeding wheel and wire feeding tube according to the wire material and diameter, and avoid bending the wire feeding tube when in use.

Table 4.3 List of Wire feeding wheel models

Wire feeding wheel model			
Applicable welding wire	Material		Carbon steel
	Wire feeding wheel -V type	Standard	φ0.8/1.0mm φ1.2/1.6mm φ2.0/2.5mm
Suitable for welding wire	Material		aluminum
	Wire feeding wheel - U-shaped	Custom	φ0.8/1.0mm φ1.2/1.6mm

Figure 4.4 Schematic diagram of wire feeding tube and wire feeding wheel

4.2.2 Installation of the wire reel



Number	Name	Remarks
1-1	Wire feeding wheel box -A	
1-2	Wire feeding wheel box -B	
2-1	Damping shaft -A	Maximum load: 20kg
2-2	Damping axle-b	
3	Damping shaft - locating pin	Wire reel positioning

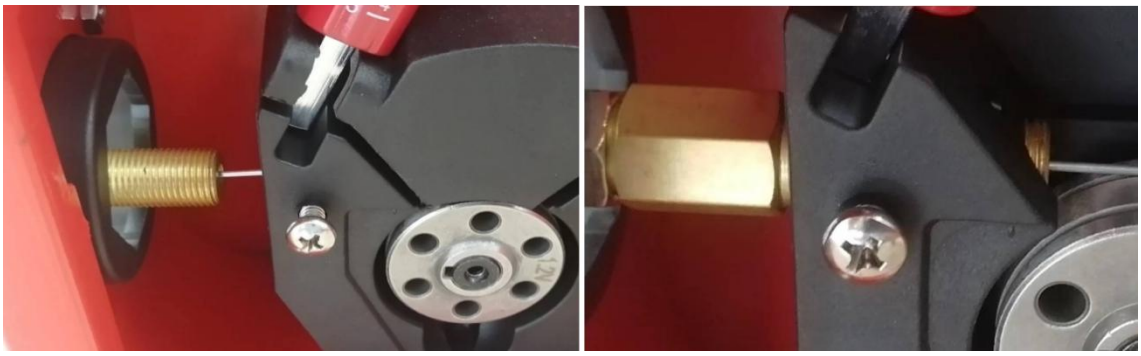
When installing the wire reel, note:

- Select the wire according to the welding material;
- The wire passes through the center of the groove;
- Use a wire feed wheel that matches the wire, as shown in the figure is a U-shaped φ2.0 wire feed wheel;
- The positioning hole on the wire spool must align with the locating pin on the damping shaft, enabling the damping shaft to rotate smoothly with the wire spool. This prevents wobbling between the wire spool and damping shaft, which could cause unstable wire feeding.

4.2.3 Installation of the wire feeding tube

When installing the wire feeder, note:

- Loosen the locking screw and insert the wire feeding tube so that the wire feeding tube does not rub against the wire feeding wheel and it is convenient to insert the welding wire;
- After inserting it into the appropriate position, tighten the screws until the hand-cranked wire feeding tube does not shake.



4.2.4 Assembly of the wire feeder with the welding head

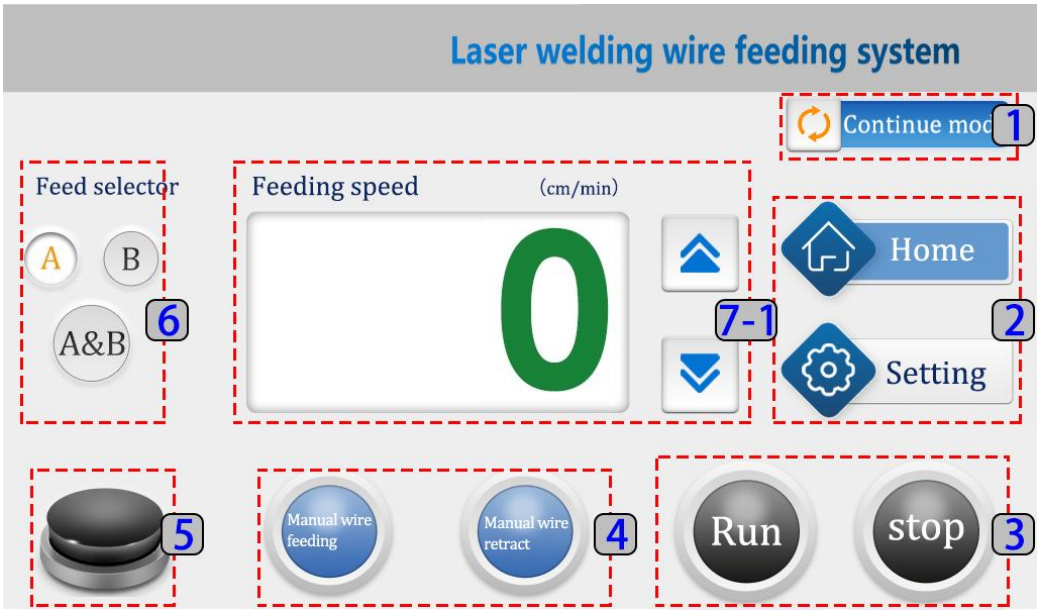
When assembling the wire feeding tube and the welding head, note:

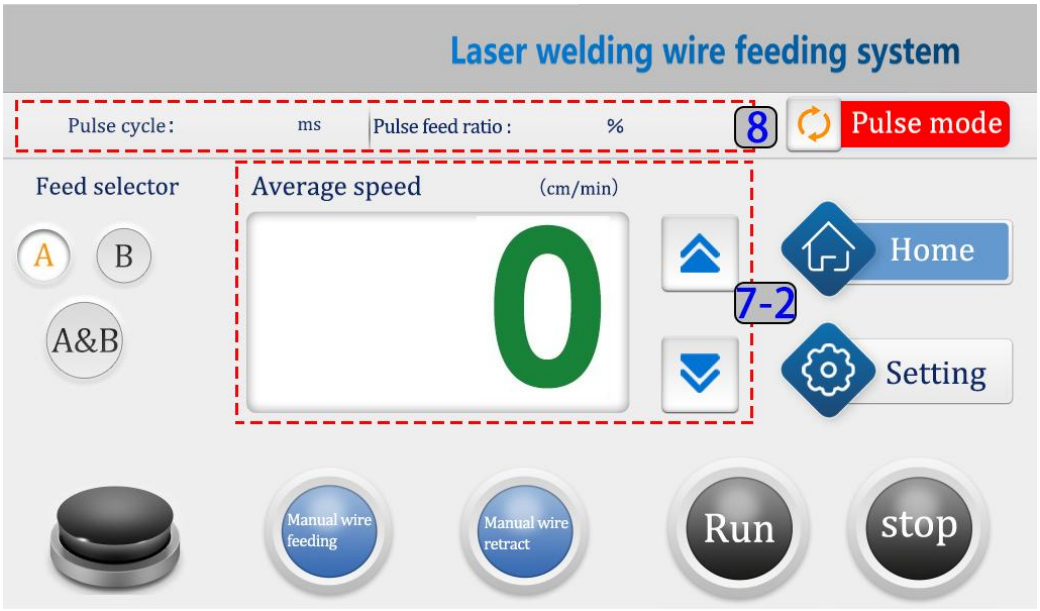
- Select the corresponding connection block according to the model of the welding head;
- Make sure the wire is stuck in the copper mouth slot and then tighten the hexagon socket screw;
- Select the wire guide according to the wire diameter;
- Adjust the length of the guide tube according to the actual focal length of the welding head.

4.3 Operating Interface

The Wire feed is equipped with a 7-inch touch screen with a resolution of 1024x600.

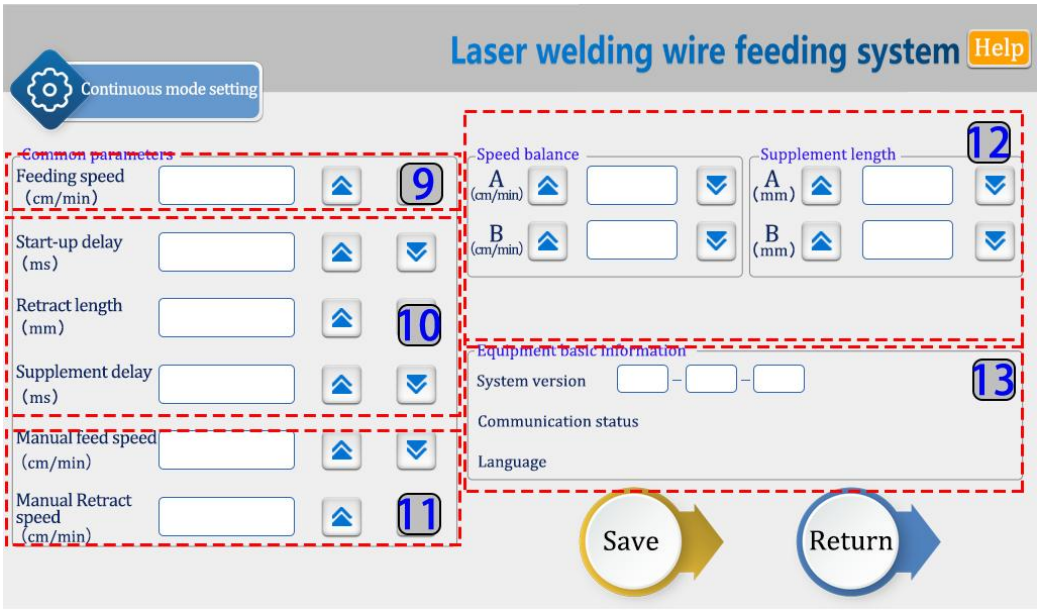
4.3.1 Home Page

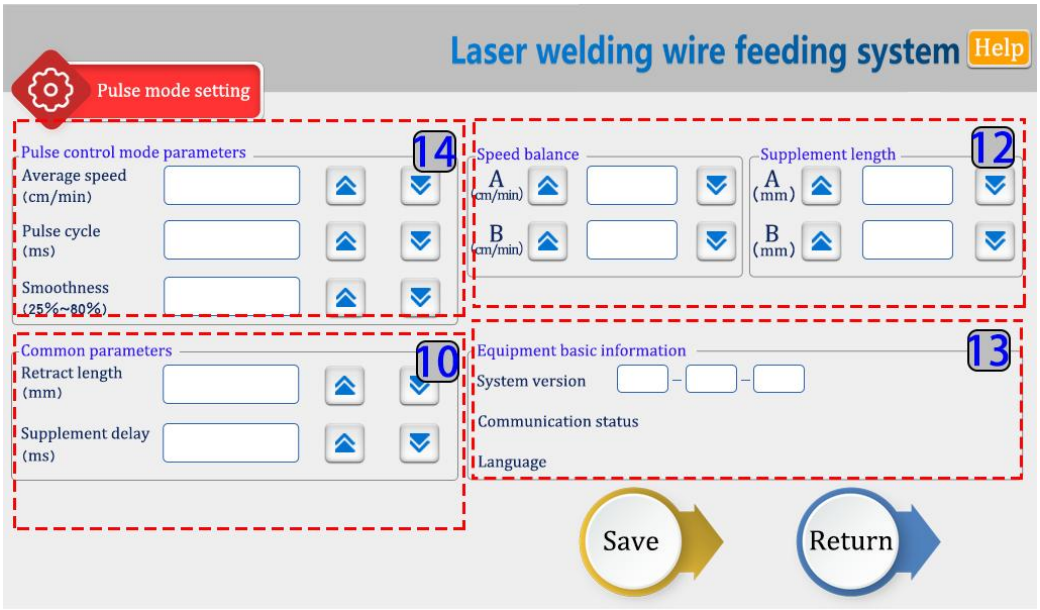




Number	Key names	Functions	Notes
1	Pulse mode/ continuous mode	Click to switch to another mode	Pulse mode is used for fish-scale pattern welding
2	Settings	Click to enter the Settings page	
3	Run/Stop	Click to switch to the corresponding state	Both are mutually exclusive, and the motor does not rotate when [stop]
4	Manual wire feeding/manual retraction	Click the motor forward/reverse	Manual wire feeding speed ≠ wire feeding speed
5	Status indication	The green light indicates that the motor is running	Click invalid
6	Motor selection	Select the motor for wire feeding	
7-1	Wire feeding speed	Adjust the speed of wire feeding during welding	It takes effect in continuous mode
7-2	Average speed		Effective in pulse mode
8	Pulse-specific parameters	Show pulse mode-specific parameters	

4.3.2 Settings page





Number	Key names	Functions	Notes
9	Wire feeding speed	Adjust the speed of wire feeding during welding	Effective in continuous mode
14	Average speed		Effective in pulse mode
	Pulse period	Adjust the length of each individual fish scale pattern	
	Smoothness	Adjust the visibility of the fish-scale pattern, the smaller the more noticeable	
10	Start the delay	Delay wire ejection relative to the light signal of the welding head	Global effect
	Retraction length	When the wire breaks, the motor reverses to assist in breaking the wire	
	Patch length	The motor rotates forward after the retraction for balancing the retraction	
	Manual wire feeding speed	The wire feeding speed for the forward rotation of the motor, for manual debugging	
	Manual retraction speed	Motor reverse retraction speed for manual debugging	
13	System Version	Show the master board version and interface version	Basic Information
	Communication Status	Display system communication transitions	
	Language	For switching languages	
12	Speed Balance A	Actual speed = Wire feeding speed + speed balance	Adjustment consistency
	Speed balance B		
	Patch length A	Adjust the patch lengths separately	
	Patch length B		

V.Maintenance and upkeep

5.1 Daily Maintenance

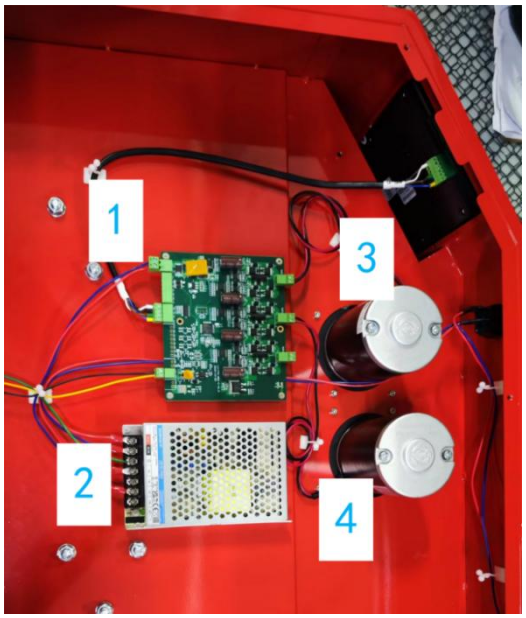
Daily use precautions:

- The equipment should be effectively grounded;
- Protect the touchscreen from the screen panel being smashed;
- Properly install the welding wire, regularly inspect and unclog to avoid friction caused by improper assembly, which can lead to metal shavings blocking the wire feed wheel box and wire feed pipe;
- When working in harsh conditions, pay attention to waterproofing and dustproofing, and do not immerse the equipment in water.

5.2 Troubleshooting

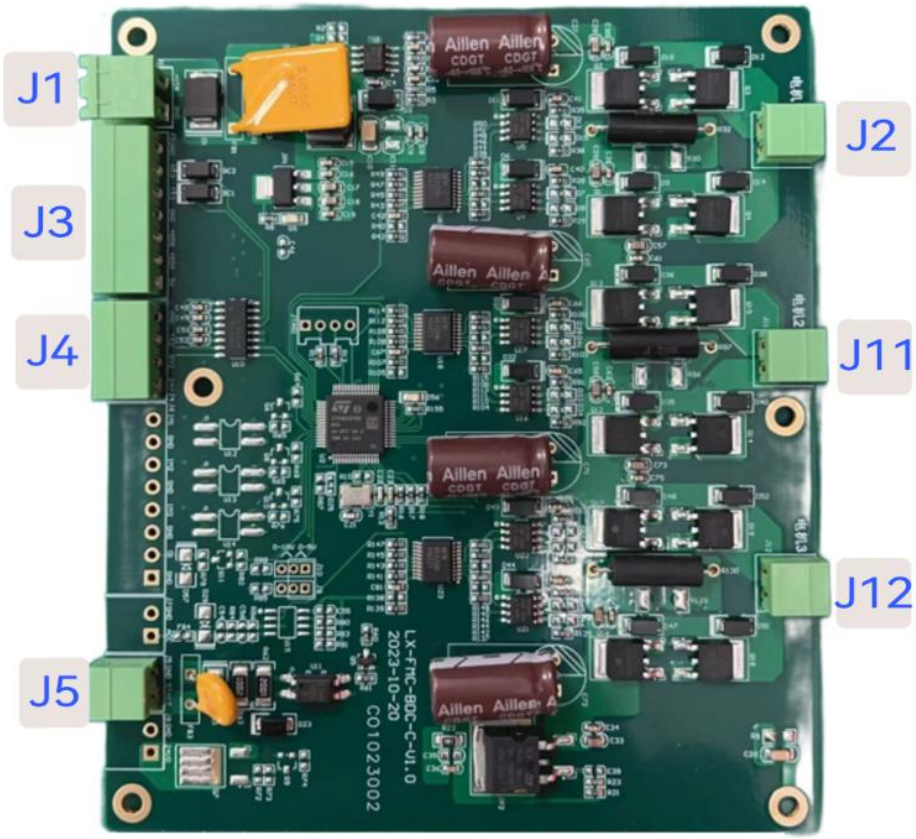
The wire feeder connects to pins 5/6 of signal interface 2 on the control box via the dual-core plug signal cable at its rear end. When the control box motherboard detects a weld completion signal, it issues a wire feed enable signal, activating the wire feeder.

5.2.1 Control Logic



Number	Component Name
1	Wire feeder main control board
2	24V switching power supply
3	Motor A
4	Motor B

5.2.3 Motherboard interface



Interface silk-screen	Interface Definition	Interface pins	Pin definition	Corresponding interface	
J1	24V power interface	1	WIN	Switching power supply	+V0
		2	GND		-V0
J3	Communication interface	Reserved interfaces are usually not connected			
J4	Screen interface	1	-	Screen	GND
		2	T		RXD
		3	R		TXD
		4	+		VCC
J5	Wire feeding enable interface	1	GND	Two-core aviation plug	2
		2	START		1
J2	Dc motor interface	1	Motor +	A- Motor	Red line
		2	Motor -		Black wire
J11	Dc motor interface	1	Motor +	B- Motor	Red line
		2	Motor -		Black wire
J12	Dc motor interface	1	Motor +	C- motor	Red line
		2	Motor -		Black wire

5.2.4 Common Faults

When troubleshooting the Wire feed, it is necessary to ensure that the wire feeding enable signal of the welding control box is normal. The normal operation of the Wire feed can be initially determined by observing the "Wire Feeding Enable Signal" on the "Monitoring Page" or "Diagnosis Page" of the welding system.

If the trigger is pressed, the "Wire Feeding Enable Signal" indicator light on the "Monitoring Page" of the welding system lights up (green), but the Wire feed does not actually feed wire. Or enter the "Diagnosis Page" of the welding system, turn on the "Wire Feeding Enable" switch, and the theoretical output status light will be on (green). However, if the Wire feed does not actually feed wire, it is initially determined that the Wire feed is not working properly.

II、Component failure: Check the wiring of the chassis. Refer to 5.2.2 and 5.2.3 to report and replace faulty components.

Note:

- Cut off the power supply first, then disconnect the lines;
- When measuring the J3 voltage, you need to hold down the 【 Manual wire feeding 】 button.
- To determine if J11 is conducting, you can use a wire or metal to short-circuit the J11 interface on the main board for a quick judgment;
- Switching power supply anomalies are manifested as the power indicator light flashing or not being lit.
- When replacing components, refer to the wiring description in 5.2. Do not mix different versions.

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电话：0510-8538 8626
传真：0510-8538 3850
地址：无锡市新吴区鸿山街道锡协路201号
网址：WWW.SUPLASER.CN

WUXI SUPER LASER TECHNOLOGY CO., LTD
ADD: 201 Xixie Road, Hongshan Street, Xinwu District, Wuxi City ,China
Emai: sale@suplaser.cn
Website: www.gefasstsuplaser.com