

Wire Feeder User Manual

SUP-AMF-AE(V1.0)



Wuxi Super Laser Technology Co., Ltd.

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Update record





Version	Update content	With control box	Hardware version of wire feeder	Hardware version of welding system	Update Time
V 1.0	First edition		V3.0	V5.8~V6.3	2025.4.7
		Without control box	/	V6.4	

一. Safety Precautions

This product is a welding wire feeder. To ensure safe operation and proper functioning, users are advised to post the following safety labels on the equipment to inform all operators, maintenance personnel, and bystanders.




1.1 Electrical Safety

- ① This device is powered by a 24V output from a switching power supply, which uses 220V AC. Users must adhere to electrical safety protocols to avoid electric shock.
- ② The device features insulated support blocks. To ensure safe operation and prevent electrostatic damage or leakage, proper grounding is essential. Conductive parts should be connected to the protective (grounding) conductor in the fixed wiring to prevent them from becoming live if basic insulation fails. Additional safety measures (e.g., double insulation or reinforced insulation) may be applied as needed.
- ③ No user-serviceable parts are located inside the chassis. All installation, maintenance, or disassembly must be performed with the power disconnected.

Signs	Intention
	High Voltage
	Must be grounded
	Must unplug
	No switching on

1.2 Mechanical Safety

- ① The device contains motor-driven gears and rollers. Avoid contact during operation to prevent injury.
- ② During wire spool replacement, ensure the device is not accidentally activated to avoid injury.

Signs	Intention
	<p>Warning mechanical injury</p>
	<p>Watch Your Hand</p>
	<p>Do Not Power On</p>

二、Product Overview

This manual provides a comprehensive guide to the features, installation, and usage of the SUP-AMF-AE series multi-functional automatic wire feeder (hereinafter referred to as "wire feeder").

The wire feeder supports multiple feeding modes and is compatible with various welding wires, meeting the demands of most laser wire-feed welding applications.

三、Product Features

Main functions and parameters:

- Speed Range: 15~600cm/min;
- Max Load Capacity: 20kg;
- Compatible Wire Materials: Carbon Steel, Stainless Steel, Aluminum;
- Operation: Touchscreen;
- Control System: Proprietary, supports custom extensions;

3.1 Product Appearance



Drawing 3.1 Product appearance and part list drawing

Item	Specification	Note
1	Nameplate	
2	Welding wire outlet	
3	Cabinet side door	
4	2pins socket	2pins motor wire

3.2 Product Specifications

Key specifications are listed in Table 3.2 :

Power Supply		24V ± 10% AC 50/60Hz
Operating Temperature		-10~50°C
Max Power Consumption		84W
Feeding Speed		15~600cm/min
Feeding Modes		Continuous/Pulse
Compatible Wires		Carbon Steel Solid Wire,/Stainless Steel Solid Wire/ Aluminum Solid Wire
N.weight		12KG
Applicable reel	Shaft Dia:	Min 50mm
	Diameter:	Max 300mm
	Width:	Max 105mm
	Weight:	Max 20kg

四、 Installation & Usage

4.1 Equipment wiring

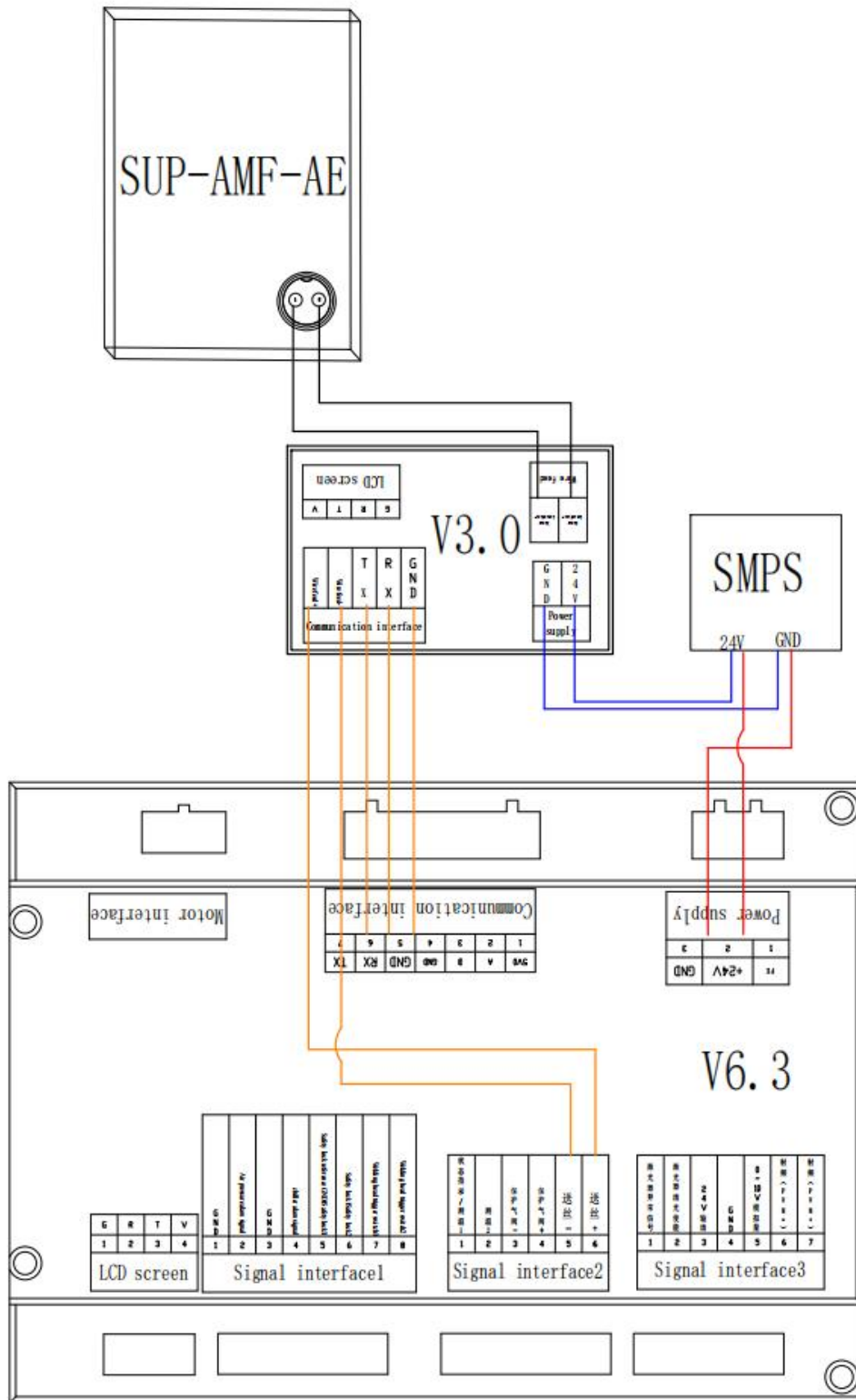
Collocation mode	Hardware version of wire feeder	Hardware version of welding system
With controller box	V3.0	V5.8~V6.3
Without controller box	/	V6.4

4.1.1 Matching welding system[V6.3]

When used with Welding System [V6.3], the wire feeder control box shares the same 24V power supply as the welding system. The control box communicates with the welding system via the [RS232] interface. The 2-pin aviation plug on the rear of the wire feeder connects to the control box. The welding system version must not be lower than process library [824-806]. For wiring details, see Figure 4.1. Interface definitions are listed in Table 4.1:

Drawing 4.1 Description of communication port wiring

Communication interface definition			
Wire feeder interface definition		Welding system interface definition	
Interface name	Interface definition	Welding system control box	
Wire feed-	Wire feed enable signal, according to the wire standard onnection	Signal interface 2	Wire feed-
wire feed+			wire feed+
TX	RS232_TXD。 When communicating, connect control box 【RX】	COM port	RX
RX	RS232_RXD。 When communicating, connect control box 【TX】		TX
GND	GND		GND

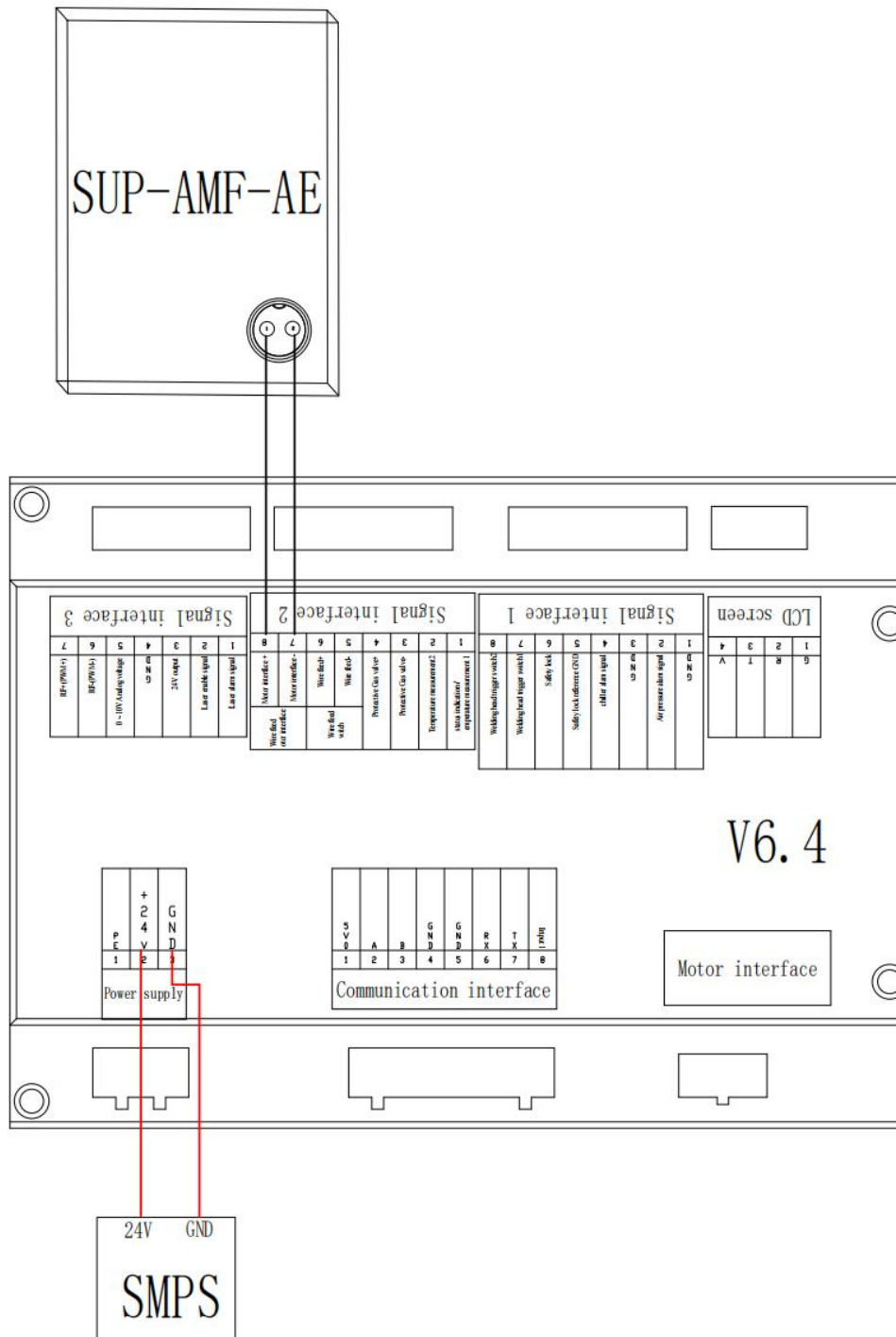


Drawing 4.1 Matching V6.3 welding system

4.1.2 Matching V6.3 welding system[V6.4]

When combined with the welding system [V6.4], the welding system is powered by 24V output from the power supply. The [wire feed motor interface] of the wire feeder is connected to the welding system control box. The welding system version shall not be lower than the process library [V6.4-835-809].

Detail ed wiring is shown in Figure 4.2:



Drawing 4.2 Matching V6.4 wiring diagram

4.1.3 Two pins cable definition



4.3 Two pins cable drawing

4.2 Two pins cable interface definition

Interface definition			
Socket	Interface pin	Definition	Note
2pins socket	1-pin	24V	Red wire
	2-pin	GND	Black wire

4.2 Welding wire Installation

4.2.1 Wire Feeding Tube & Wheel Selection

Select the appropriate feeding wheel and tube based on the wire material and diameter, and avoid bending the feeding tube.

Wire Feeding Wheel Models			
Applicable welding wire	Material		Carbon Steel, Stainless Steel
	Wheel-V mode	Standard	$\phi 0.8/1.0\text{mm}$ $\phi 1.2/1.6\text{mm}$
		Customized	$\phi 1.6/2.0\text{mm}$
Applicable welding wire	Material		Aluminum
	Wheel-U mode	Customized	$\phi 0.8/1.0\text{mm}$ $\phi 1.2/1.6\text{mm}$
			$\phi 1.6/2.0\text{mm}$

The standard configuration includes $\Phi 0.8/1.0$ mm and $\Phi 1.2/1.6$ mm V-wheels for carbon steel. For wider welding bead, it needs to customize $\Phi 2.0/2.5$ mm wheels or U-wheels for Aluminum.



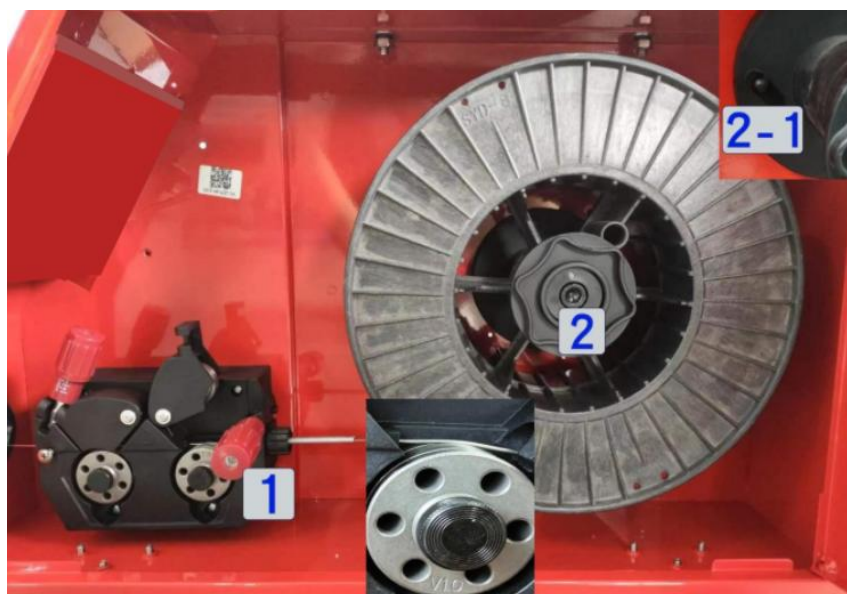
4.4 Wire feeding tube and wheel diagrammatic drawing

If you need to use aluminum welding wire, pls change the U-shaped wire feeding wheel and the matching black graphite wire feeding tube.



4.5 Wire feeding tube and wheel diagrammatic drawing

4.2.2 Welding wire reel installation



4.6 Front view of the wire reel

4.4 Damping unit shaft description

Item	Name	Note
1	Wire feeding wheel box	
2	Damping shaft	Maximum load 20kgs
2-1	Damping shaft - dowel pin	Position of wire reel

When installing the wire reel, pls note:

- Select the welding wire according to the welding material;
- The welding wire runs through the center of the groove;
- Use the wire feeding wheel that matches the welding wire, as shown in the figure for V-type $\phi 1.0$ stainless steel welding wire, the side of the wire feeding wheel label [V1.0] should face outward;
- The positioning hole of the wire reel should be aligned with the positioning pin of the damping shaft, so that the wire reel and the damping shaft can rotate smoothly to avoid friction between the wire reel and the damping shaft, resulting in unstable wire feeding.

4.2.3 Wire feeding tube installation

- Loosen the locking screw and insert the wire feed tube so that the wire feeding tube does not rub with the wire feeding wheel and it is convenient to insert the welding wire;
- After inserting the screws into the appropriate position, it is appropriate to shake the wire feed pipe without shaking.



4.2.4 Assembly of wire feeding tube and welding head

- Select a connection block based on the type of the welded joint;
- Ensure that the welding wire is stuck in the copper nozzle slot, and then lock the hex screw;
- Select the guide nozzle according to the wire diameter;
- Adjust the length of the wire guide according to the actual focal length of the welded joint.



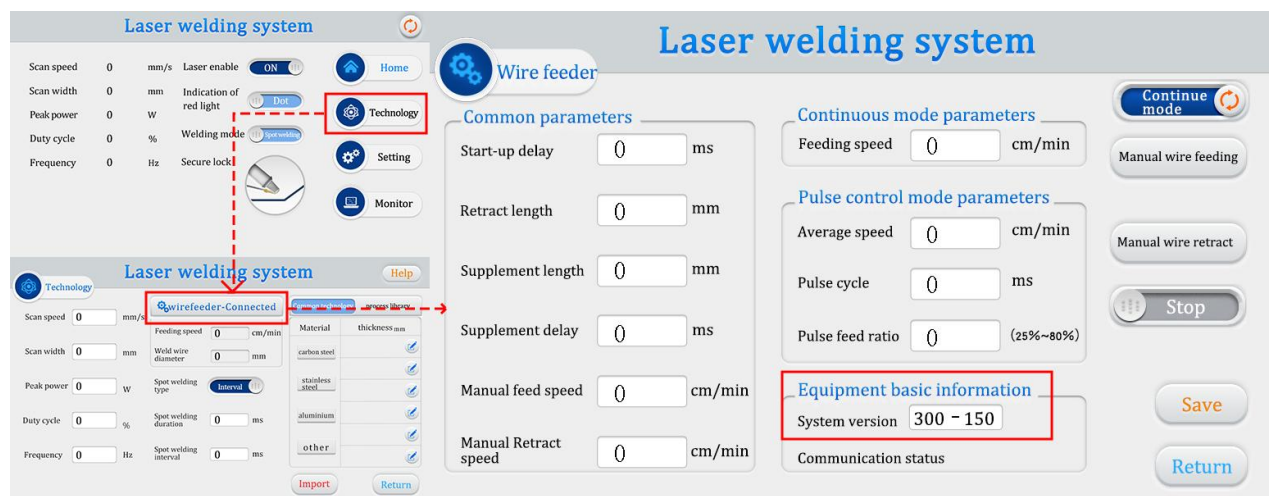
Drawing 4.7 Assembly of wire feeding tube and welding head

4.3 Operation interface

The wire feeder is used with the welding machine and shares a 7-inch touch screen with the welding system, with a resolution of 1024×600.

4.3.1 Operation interface description

When the welding system [V6.3] is combined, the wire feeder control box interface [J7] is connected with the welding system [communication port] and [signal interface 2]. Click [Wire feeder - Connected] in Figure 4.8 of the wire feeder page to enter the [wire feeder page], and the parameters of the wire feeder can be modified. Detailed parameter description is shown in Table 4.5:

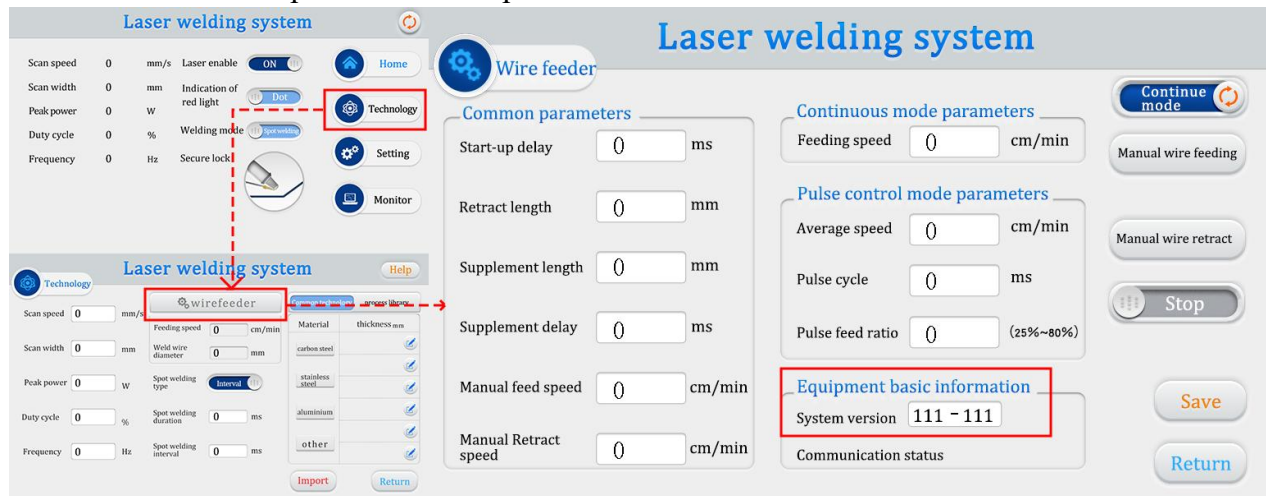


Drawing 4.8 Home page, process page, wire feeder page

Drawing 4.5 Parameter description of wire feeder

Key name	Function	Note
Pulse mode/ Continuous mode	Click Switch to another mode	Pulse mode is used for fish scale welding
Run/stop	Click to switch to the corresponding state	The two mutually exclusive, [stop] when the motor does not turn
Manual wire feed /Manual pullback	Click motor forward/reverse	Manual wire feed speed \neq wire feed speed
Wire Feed Speed	Adjust wire feed speed during welding	Valid in continuous mode
Average speed		Valid in pulse mode
Pulse period	Adjust the length of individual fish scales	
Flatness	Adjust the obvious degree of fish scale, the smaller the more obvious	
Start delay	With respect to the light signal from the welding head, the wire is delayed	Global validity
Pullback length	The motor is reversed when the wire is broken, which is used to assist the wire breaking	
Mending length	After pull-back, the motor is turned to balance pull-back	
Mending delay	The interval between mending and drawing to avoid fast mending and sticking	
Manual wire feed speed	Wire feed speed in forward rotation, used for manual adjustment	
Manual pullback speed	The pull-back speed of the motor reversal, uses for manual debugging	
System version	The version and interface of the mother board are displayed	Avoid mixing the mother board and the screen
Languages	Click to change the language of the operation interface	System supports 19 languages

When the welding system [V6.4] is combined, click [Wire feeder] in Figure 4.9 of the wire feeder to enter the [Wire feeder page], you can modify the parameters of the wire feeder. See Table 4.5 for detailed parameter description:



Drawing 4.9 Home page, process page, wire feeder page

五、Maintenance

5.1 Routine maintenance

- Devices should be effectively grounded;
- Protect the touch screen to avoid damage to the screen panel;
- Install the welding wire correctly and check and dredge it regularly to avoid friction caused by improper assembly, resulting in metal chips blocking the wire feed wheel box and wire feed pipe;
- When working in harsh environments, pay attention to water and dust proofing, and do not soak the equipment in water.

5.2 Fault handling

5.2.1 Control logic

The wire feeder is connected to the signal interface of the control box [J3] through the two-core motor line at the tail. When the light is welded out, the main board of the control box gives the wire feed enable signal, and the wire feeder starts to work.

5.2.2 Motherboard interface



Drawing 5.1 Parameter description of wire feeder

Interface identification	Interface definition	Interface pin	Pins definition	Note	
J1	24V power interface	1	WIN	Power supply	+V0
		2	GND		-V0
J3	DC motor interface	1	24V+	Motor	Red wire
		2	GND		Black wire
J7	Communication interface	1	GND	Control box	GND
		2	RX		TXD
		3	TX		RXD
		4	Feeding wire-		Feeding wire-
		5	Feeding wire+		Feeding wire+
J8	Display screen	1	G	Reserved port. The wire feeder is operated through the welding system display.	
		2	R		
		3	T		
		4	V		

5.2.3 Common fault

Problem description	Carrying system	Solution
Welding non-wire	V6.3	Ensure normal communication, 1, short wire transfer machine control box [wire +, wire -], no wire; Operation screen [manual wire feed/manual pullback]; Wire feeding: It is judged that the control box of the wire feeding machine is abnormal. No wire feed: unable to locate. 2. Further measure the voltage of the motor interface [motor +/- motor -] of the main board of the wire feeder. When manual wire feeding, there is voltage: it is judged that the control box of the wire feeding machine is normal and the motor is abnormal; If there is no voltage, it is judged that the control box of the wire feeder is abnormal.
	V6.4	Make sure that [Settings page] [Built-in Wire Feed driver] is selected as [AE]. Operation screen [manual wire feed/manual pullback], wire feed, judged as abnormal welding system; No wire feed: unable to locate. 2. Further measure the voltage of the motor interface [motor +/- motor -] of the welding motherboard. When manual wire feeding, there is voltage: it is judged that the welding control box is normal and the motor is abnormal; If there is no voltage, the welding control box is abnormal.
<p>Other troubleshooting:</p> <p>一、 Parameter setting error: Wire feeding will be performed only when the running state of the wire feeder interface is "Run", and no wire feed will be performed when "stop";</p> <p>二、 Component failure: need to check the wiring between the motherboard and the motor, repair and replace the faulty parts.</p> <ul style="list-style-type: none"> ● Check the power supply: After power-on, check whether the power indicator is on and the running indicator is blinking. If the power indicator is on and the running indicator is steady on or off, the motherboard is faulty; ● The power lamp and running lamp are normal. If there is no wire feed, check whether the interface of the two-core navigation cable has a signal after pressing the trigger. If there is no signal, the navigation cable is faulty. 		



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