

Product Description
SUP - AMF - A (V1.1)



Wuxi Super Laser Technology Co.,Ltd

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Update Record

Version	Updates	Time
V1.0	First Edition	/
V1.1	The main control board for the wire feeder has been updated from V2.3 to V2.31.	2025/9/12

I. Precautions





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 legs of this device are insulated support blocks. 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
	<p>Danger! High Voltage</p>
	<p>Must be grounded</p>
	<p>Must unplug</p>
	<p>Do not close the switch.</p>

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
	<p>Beware of mechanical injuries</p>
	<p>Beware of pinching your hand</p>
	<p>Do not start</p>

II. Product Overview

The instruction manual includes a summary of the product functions, installation and usage of the SUP-AMF-A series of multi-functional automatic wire feeders (hereinafter referred to as the wire feeders).

The wire feeder is equipped with auxiliary wire breaking function, supports multiple wire feeding modes, and is compatible with various welding wires to meet the wire feeding requirements of most laser wire filling welding. Since its launch in 2019, multiple versions have been upgraded. Please excuse that only the latest version will be described here.

III. Product Features

Main features and parameters:

- Speed range: 15 to 600cm/min;
- Maximum load: 20kg;
- Welding wire materials: carbon steel, stainless steel, aluminum;
- 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	Side door of the chassis	
3	Switch	The red light is on when 220V is on
4	Wire outlet	
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	84W	
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	12.8±0.3kg	
Suitable for 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 navigation plug-in interfaces on the back of the Wire feed are respectively the "Control Signal Interface" and the "Power Interface". There are differences between the standard version and the process library version. The accessory signal lines cannot be mixed. The power supply of the wire feeder is usually 220V AC input. The specific range is subject to the equipment nameplate.

The wire feeding enable signal of the Wire feed supports the ① (relay) passive conductive communication signal and ② (MOSFET) open-drain output signal output by the welding 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 feeder +
		2	Wire feed enable -GND	Solder control box - wire feeder -
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	220V-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 for Process Library Version

Interface Definitions - Process Library Edition				
Aviation socket	Corresponding attachment	Interface pins	Definition	Notes
Six-core aviation socket	Six-core aviation plug signal line	1	Wire feed enable -START	Connect the welding control box - [Wire feed +]
		2	Wire feed enable -GND	Connect the welding control box - [Wire feed -]
		3	Shield - ground wire	
		4	232 communication -GND	DB9 to double row terminal, insert the solder hold control box signal interface 4.
		5	232 communication-RX	
		6	232 communication-TX	
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	

4.2 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			
Suitable for welding wire	Material		Carbon steel
	Wire feeding wheel -V type	Standard	$\phi 0.8/1.0\text{mm}$ $\phi 1.2/1.6\text{mm}$
		Custom	$\phi 0.3/0.5\text{mm}$ $\phi 0.6/0.8\text{mm}$ $\phi 2.0/2.5\text{mm}$
Suitable for welding wire	Material		aluminum
	Wire feeding wheel - U type	Custom	$\phi 0.8/1.0\text{mm}$ $\phi 1.2/1.6\text{mm}$ $\phi 2.0/2.5\text{mm}$

The standard configuration of the Wire feed is two V-shaped wire feeders each with diameters of $\phi 0.8/1.0\text{mm}$ and $\phi 1.2/1.6\text{mm}$, which are used for feeding carbon steel welding wire. If the weld seam is wider, a custom $\phi 2.0/2.5\text{mm}$ wire feeding wheel should be used.



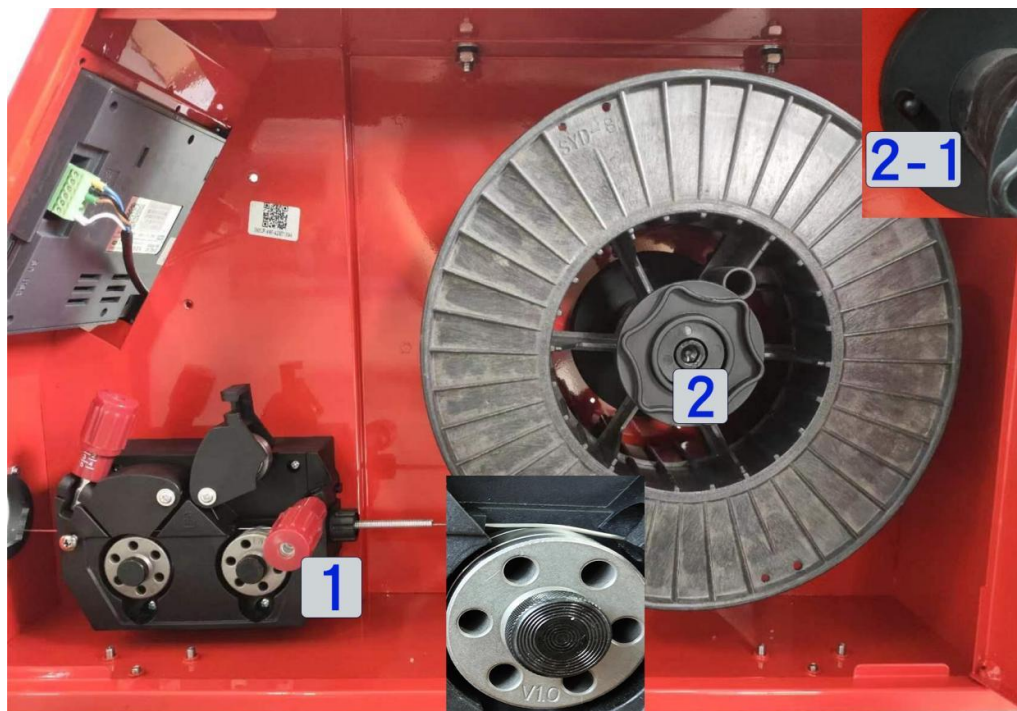
Figure 4.3 Schematic diagram of wire feeding tube and wire feeding wheel

If aluminium welding wire is to be used, the U-shaped wire feed wheel and the matching black graphite wire feed tube should be replaced.



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

4.2.2 Installation of the wire reel



Number	Name	Notes
1	Wire feeding wheel box	
2	Damping shaft	Maximum load: 20kg
2-1	Damping shaft - locating pin	Wire reel positioning

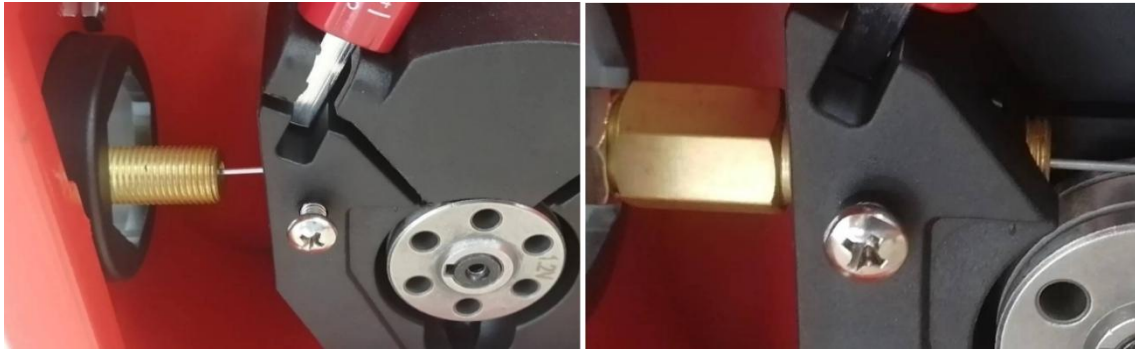
When installing the wire reel, note:

- 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 for V-shaped $\phi 1.0$ stainless steel wire, then the side of the wire feed wheel mark [V1.0] should face outward;
- The wire reel positioning holes should be aligned with the positioning pin of the damping shaft so that the wire reel and the damping shaft rotate smoothly and avoid friction between the wire reel and the damping shaft, which may 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 feeder is equipped with a 7-inch touchscreen with a resolution of 1024x600.

4.3.1 Interface 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 Feeding speed is not equal to Feeding speed
5	Status indication	The green light indicates that the motor is running	Click invalid
6-1	Feeding speed	Adjust the Feeding speed during welding	Effective in continuous mode
6-2	Average speed		It takes effect in Pulse mode
7	Pulse-specific parameters	Display dedicated parameters for Pulse mode	

4.3.2 Interface Settings page

Laser welding wire feeding system Help

8-1
9

Feeding speed (cm/min) ▲ ▼

Start-up delay (ms) ▲ ▼

Retract length (mm) ▲ ▼

Supplement length (mm) ▲ ▼

Supplement delay (ms) ▲ ▼

Language English

Manual feed speed (cm/min) ▲ ▼

Manual Retract speed (cm/min) ▲ ▼

System version - -

Save
Return

Laser welding wire feeding system Help

9
8-2

Common parameters

Start-up delay (ms) ▲ ▼

Retract length (mm) ▲ ▼

Supplement length (mm) ▲ ▼

Supplement delay (ms) ▲ ▼

Manual feed speed (cm/min) ▲ ▼

Manual Retract speed (cm/min) ▲ ▼

Pulse control mode parameters

Average speed (cm/min) ▲ ▼

Pulse cycle (ms) ▲ ▼

Pulse feed ratio (25%~80%) ▲ ▼

Equipment basic information

System version - -

Language English

Save
Return

Number	Key names	Functions	Notes
8-1	Feeding speed	Adjust the Feeding speed during welding	Effective in continuous mode
8-2	Average speed		Adjust the length of individual fish scales
	Pulse cycle		
	Pulse feed ratio	Adjust the clarity of the fish-scale pattern; the smaller it is, the more obvious it becomes	
9	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	
	Wire filling delay	The interval between threading and redrawing to avoid threading too fast and sticking	
	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	
10	System Version	Show the master board version and interface version	Avoid mixing the main control board with the screen
11	Language	Click to switch the operating interface language	The system supports 19 languages

V.Maintenance and servicing

5.1 Daily Maintenance

Daily use precautions:

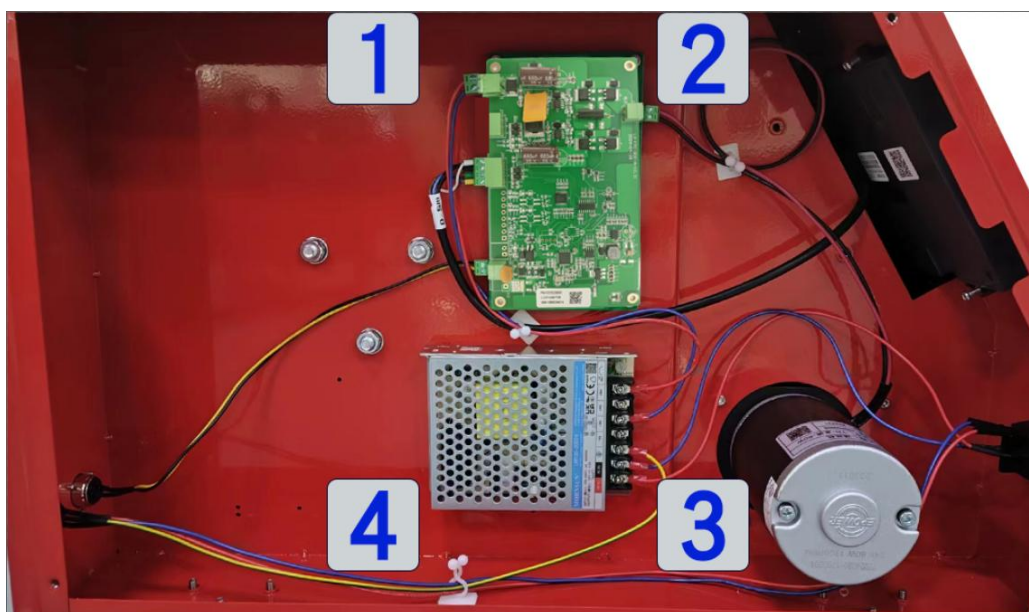
- The equipment should be effectively grounded;
- Protect the touchscreen from the screen panel being smashed;
- Properly install the welding wire, regularly inspect and unclog to avoid friction caused by improper assembly, which can lead to metal shavings blocking the wire feed wheel box and wire feed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

5.2 Troubleshooting

5.2.1 Control Logic

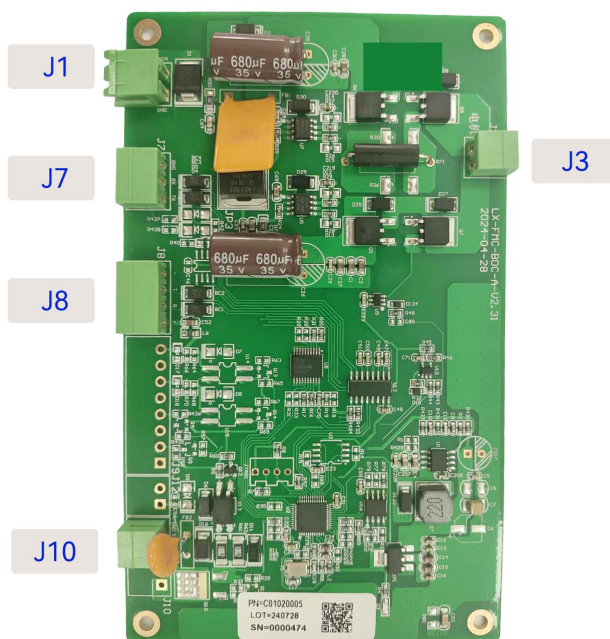
The wire feeder is connected to pin 5/6 of Signal interface 2 of the control box via a two-core plug signal line at the tail end, and the control box main board gives the wire feeder enable signal when the solder is exposed, and the wire feeder begins to work.

5.2.2 Chassis components



Number	Component name
1	The main control board of the Wire feed
2	Screen
3	Motor
4	24V switching power supply

5.2.3 Motherboard interface



Interface silk-screen	Interface Definition	Interface pins	Pin definition	Notes	
J1	24V power interface	1	WIN	Switching power supply	+V0
		2	GND		-V0
J3	Dc motor interface	1	Motor +	Motor	Red line
		2	Motor -		Black wire
J7	Communication interface	1	TX		TX
		2	RX		RX
		3	GND		GND
J8	Screen interface	1	-	Screen	GND
		2	T		RXD
		3	R		TXD
		4	+		VCC
J11	Wire feed enable signal interface	1	GND	Two-core aviation plug	2
		2	START		1

5.2.4 Common Faults

When troubleshooting wire feeder issues, ensure the wire feed enable signal on the welding control box is functioning correctly. You can preliminarily determine if the wire feeder is operating normally by observing the [Wire Feed Enable Signal] on the welding system's [Monitoring Page] or [Diagnostics Page]:

If the [Wire Feed Enable Signal] indicator (green) illuminates on the welding system's [Monitoring Page] after pressing the trigger, but the wire feeder does not actually feed wire; or if you enter the welding system's [Diagnostic Page], turn on the [Wire Feed Enable] switch, and the theoretical output status indicator (green) illuminates, but the wire feeder does not actually feed wire, then the wire feeder is preliminarily determined to be malfunctioning.

When pressing the [Manual Wire Feed] button, measure the voltage at [J3] on the wire feeder's main board. If voltage is present, the motor is faulty; if no voltage is present, the wire feeder's main board is faulty and needs to be replaced.



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