Product Description

SUP-AMF-G1(V1.4)

Wuxi Super Laser Technology Co.Ltd

Catalogue

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update record

version	Update content	Hardware version	software release	Interface version	Time
V1.0	first edition	V1.1	900	700	25.7.12
V1.1	1、Optimize interface operation logic 2、Wire Harness Replacement（The six-pin aviation connector cable has been upgraded to a seven-pin aviation connector cable.）	V 1.1	902	701	25.11.5
V1.2	Visual update	V 1.1	902	701	25.12.3
V1.3	1. Structural Optimization 2. Wire feeding speed increased from 15－200 cm/min to 5－400 cm/min	V1.1	905	702	25.12.18
V1.4	Optimize wire feed speed to 5－300 cm/min	V1.1	906	703	26.01.08

I. Matters needing attention

This product belongs to welding wire feeding equipment. In order to ensure safe production and normal operation of the equipment, users are advised to post the following safety signs on the equipment to inform all personnel who use, maintain and approach the equipment to pay attention to the following safety matters.

1.1 electrical safety

① This equipment is powered by 24V DC, so users should pay attention to electricity safety to avoid electric shock.

② in order to ensure the normal operation of the equipment, avoid electrostatic damage and equipment leakage. Equipment should pay attention to safety grounding measures, that is, connect the easily conductive part to the protective (grounding) conductor in the fixed wiring of the product, so that the easily accessible conductive part will not become a live part when the basic insulation fails. Depending on the situation, additional safety measures (such as double insulation or reinforced insulation) can be attached.

③ The inside of the chassis of this product does not contain accessories that need user's operation. Any installation, maintenance and disassembly of this product should be carried out under the condition of gate opening and power failure.

Mark	Nominal name
	Beware of electric shock
	Must be grounded
	The plug must be pulled out.
	No closing

1.2 mechanical safety

① This equipment includes gears, rollers and other structures driven by motors, so as to avoid injury caused by touching during operation.
② In the process of replacing the welding wire reel, this equipment should avoid accidental starting and injury.

Mark	Nominal name
	Beware of mechanical injuries.
	Be careful of pinching your hands.
	Prohibition of starting

Ⅱ. The product overview

This series of products are auxiliary wire feeding equipment used in laser platform welding field, and can also be used in robot welding wire feeding and other related fields. Suitable for carbon steel, stainless steel and aluminum welding wires. SUP-AMF-G1 is a single-pull automatic wire feeder (hereinafter referred to as "wire feeder").

Ⅲ.Product Accessories and Features

Main functions and parameters:

- Speed range: 5 ~ 300 cm/min;
- Maximum load: 20kg;
- Welding wire material: carbon steel, stainless steel, aluminium alloy;
- Operation mode: 1.3-inch knob screen;
- Control system: independent research and development, supporting various customized expansion functions.

3.1 Product appearance

The size of the wire feeder is shown in Figure 3.1:

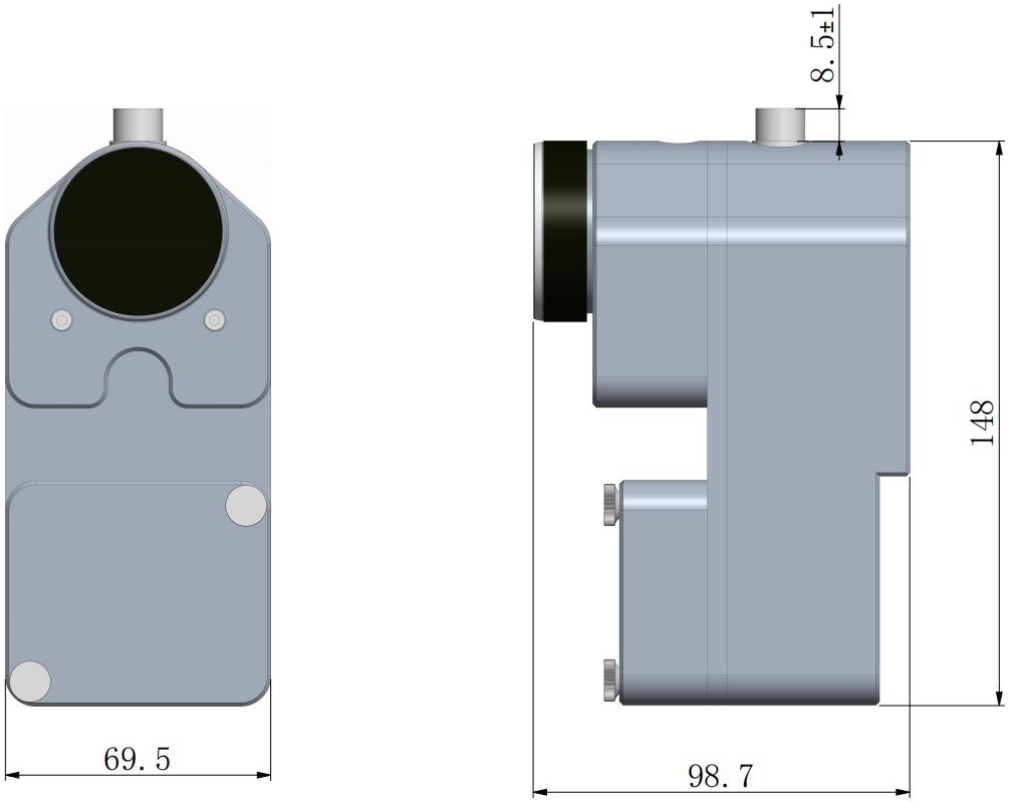


Figure 3.1 Dimension drawing

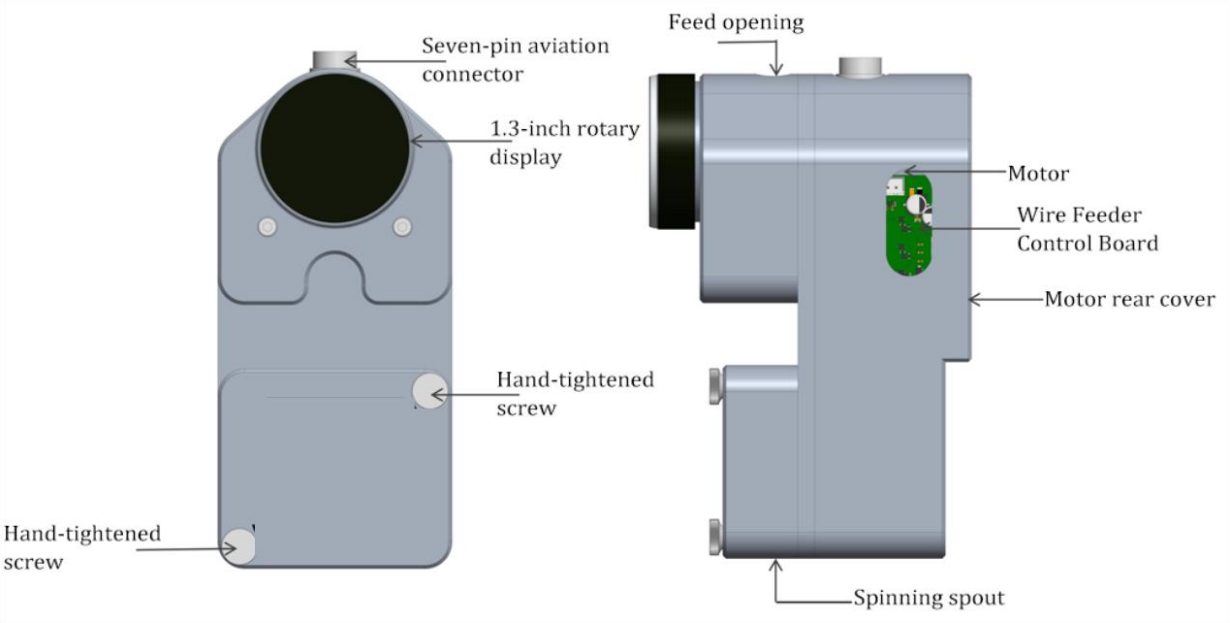


Figure 3.2 Product Component Diagram

3.2 Product parameters

The key parameters of the product are shown in Table 3.1:

Table 3.1 List of Product Key Parameters

supply voltage	24V DC
operating ambient temperature	-10～50℃
Maximum power	36W
wire feed rate	5～300cm/min
Wire feeding mode	Continuous mode, pulse mode
Suitable welding wire	Carbon steel welding wire, stainless steel welding wire, aluminium alloy welding wire
net weight	1.2±0.1Kg
Maximum load of damping shaft	20Kg

3.3 Contents of the box

Taking the standard version as an example, the product delivery list is as shown in Table 3.2: Should the physical item differ from the schematic diagram, please refer to the specific order.

Table 3.2 Product Factory Configuration List

SUP-AMF-G1 Packing List				
Number	material number	Name	Norm	Quantities
1	A03080001	Single-pull automatic wire feeder	SUP-AMF-G1	1
2	E01070004	Damping shaft	/	1
3	F01040003	Screw Nut	M8	3
4	F01040004	Screw Flat washer	M8	3
5	F01040005	Screw Spring washer	M8	3
6	K06010026	Seven-core aviation connector cable	10M	1
7	E01064001	Wire feed roller	G1 V0810	1
8	E01064002	Wire feed roller	G1 V1216	1
9	E01064003	Wire feed roller	G1 U0810（Optional）	1
10	E01064004	Wire feed roller	G1 U1216（Optional）	1
11	B06020011	copper nozzle	D-25	1
12	B01013010	Wire Feeding Adjustment Fixed Block	Platform welding with wire feeding	1
13	F01020058	Hexagon socket screw	M4*12	1
14	E01050027	Guide-wire tip	0.8-20	1
15	E01050028	Guide-wire tip	1.0-20	1
16	E01050029	Guide-wire tip	1.2-20	1
17	E01050030	Guide-wire tip	1.6-20	1
18	B01018130	Filler wire guide plate	/	1
19	CP04040054	Single-pull feed tube	2025-3M Single-ended	1
20	CP04040052	Single-pull feed tube	0816-300MM（Selection of welding torch focal length）	1

Figure 3.3 Product unboxing images

Ⅳ.installation and use

4.1 Equipment wiring

The detailed wiring diagram of the wire feeder is as follows

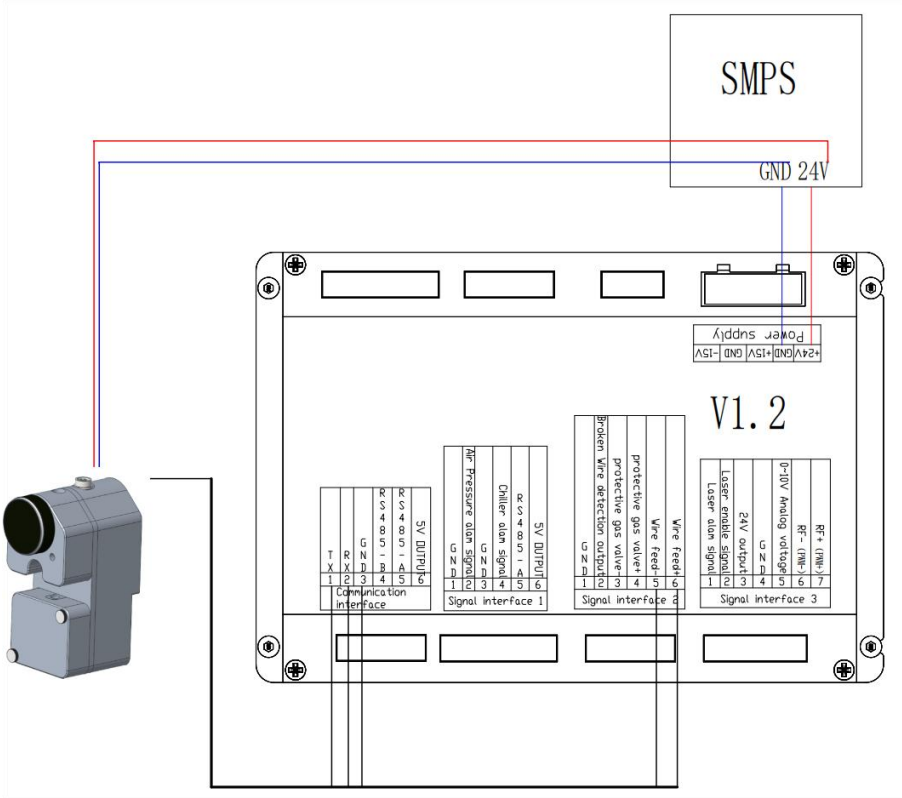


Figure 4.1 Equipment Wiring Diagram

4.2 definition of aerial interpolation

The pinout definition for the seven-core aviation connector on the wire feeder is shown in Figure 4.2:

Figure 4.2 Aerial Insertion Interface Diagram

Table 4.1 Seven-Core Aviation Connector Pin Assignment

Seven-Core Aviation Connector Pin Assignment				
Aviation socket	Corresponding attachment	Interface foot position	Definition	Number tube
Seven-Pin Aviation Connector	Seven-core aviation connector cable	1	24V power supply+	24V
		2	Wire feeder enable+	Wire feeding+
		3	GND	GND
		4	232-TXD	TX
		5	232-RXD	RX
		6	Wire feed enable-	Wire feeding-
		7	GND	GND

4.3 Equipment installation

4.3.1 Selection of wire feeding tube and wire feeding wheel

Please select the corresponding wire feeding wheel and wire feeding tube according to the diameter of welding wire, and avoid bending the wire feeding tube when using.

Figure 4.3 illustrates the wire feed tube and wire feed roller: ① denotes the single-pull wire feed tube [2025-3M single-end (standard configuration)]; ② denotes the single-pull wire feed tube [0816-300MM (optional)]; ③ denotes the V-type wire feed roller [G1 V0810 (standard configuration)]; ④ denotes the U-type wire guide roller [G1 U0810 (optional)].

Table 4.2 Model List of Wire Feed Wheel

Suitable welding wire		Wire feeding wheel
Material	Carbon steel, stainless steel，Aluminum	V type U type（Optional）
Wire diameter	ϕ 0.8 mm/1.0 mm、 ϕ 1.2 mm/1.6 mm	

Fig. 4.3 Schematic diagram of wire feeding tube and wire feeding wheel

4.3.2 Installation of wire feeding tube

When installing the wire feed tube, proceed as shown in Figure 4.4:

- Standard configuration includes one set of two wire feeders: a single-pull wire feeder (0816-300MM) with an outlet port and welding gun, and a single-pull wire feeder (2025-3M single-end) with an inlet port and wire reel. Avoid mixing these components.
- Insert the single-wire feed tube into the wire feeder and secure it using three M4 grub screws.
- Rotate the anti-slip screw and nut to open the rotating bracket, feed the welding wire into the wire feed tube, then tighten the rotating bracket.

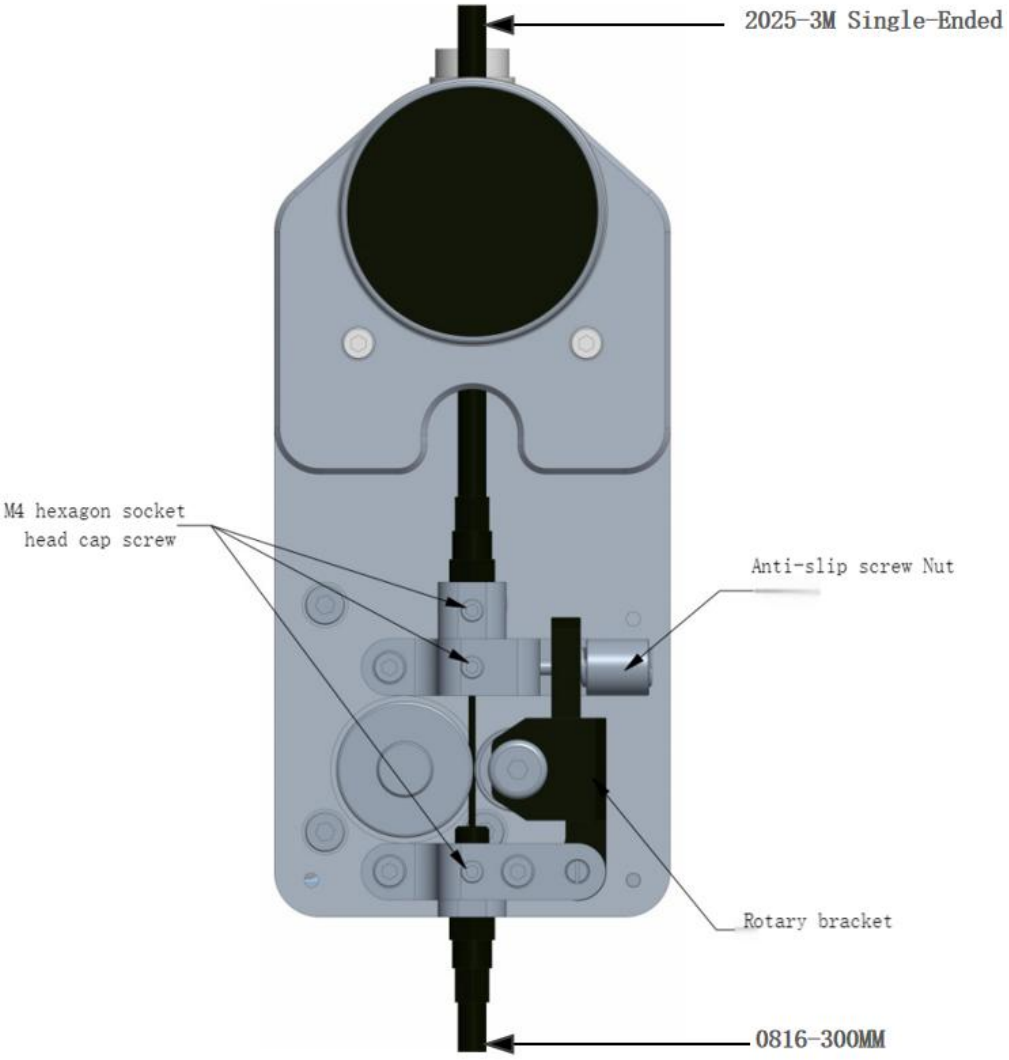


Figure 4.4 Wire Feeder Installation Diagram

4.3.3 Wire feeder and welding head assembly

Taking the 25AM dual-pendulum welding torch as an example, the wire feeder assembly is as shown in Figure 4.6:

- Select the corresponding single-pull wire feed tube according to the welding torch model; for example, when using a 25AM welding torch with a focal length of F250, choose the single-pull wire feed tube (0816-350MM); insert the single-pull wire feed tube into the wire outlet.
- Secure the wire feeder to the base plate via the adapter plate, then attach the base plate to the welding torch.
- The mounting dimensions for the adapter plate and base plate are shown in Figure 4.5; Adapter plates and base plates must be purchased separately according to the welding torch model and are not included in the shipping list;
- Secure the copper nozzle（D-25） and wire feed adjustment clamp to the welding torch. After adjusting the torch focal length, fix the wire outlet of the single-pull wire feed tube to the wire feed adjustment clamp.

Note: When adjusting the torch focal length, ensure the wire feed adjustment block is oriented correctly to facilitate connection with the wire outlet.

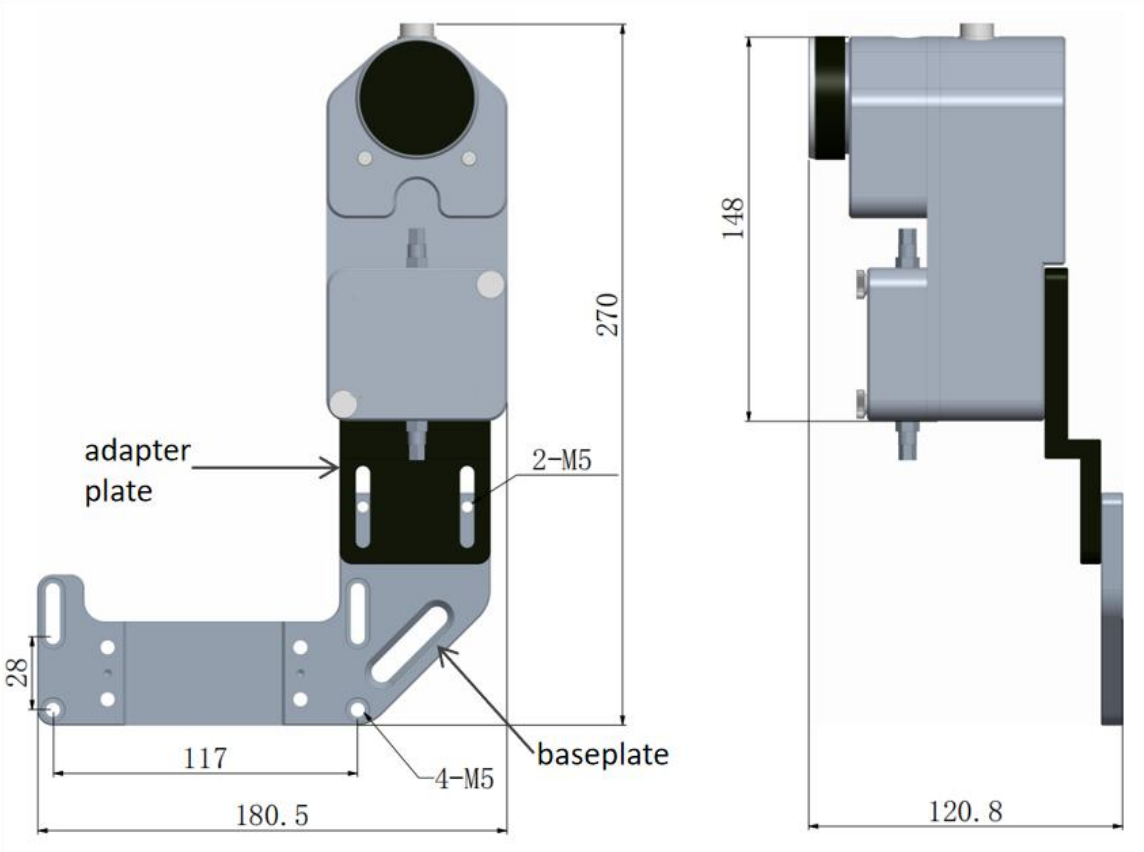


Figure 4.4 Installation dimension drawing

Figure 4.6 Assembly Effect Diagram

4.3.4 Installation of welding wire reel

When installing the welding wire reel, attention should be paid to:

- When selecting wire spools, note the spool weight, which must not exceed the maximum load capacity (standard 20kg).
- The positioning hole of the welding wire reel should be aligned with the positioning pin of the damping shaft, so that the welding wire reel and the damping shaft can rotate smoothly, and the friction between the welding wire reel and the damping shaft can be avoided, resulting in unstable wire feeding.

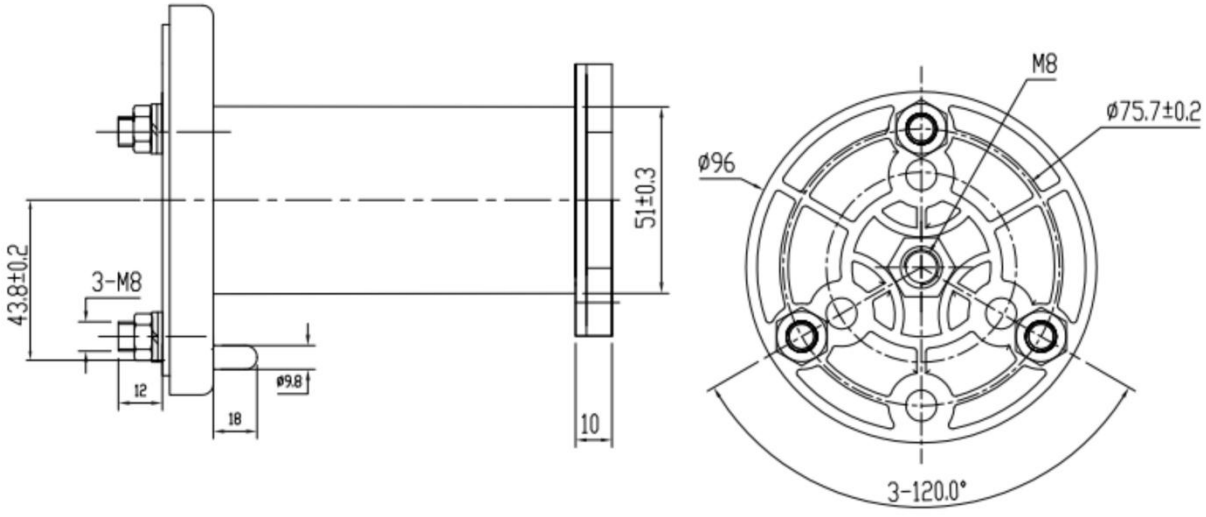


Figure 4.5 20kg damping shaft size

V. Interface operation

AMF-G1 wire feeder with 1.3-inch knob screen. There are only two operations on this screen: [Rotate] and [Press]. The resolution is 240*240.

5.1 Boot Page

After power-on, the screen display is shown in Figure 5.1. There is no operation on the screen, and it goes to sleep after more than 180s s. As shown in figure 5.2, it is static (no wire feeding) sleep; As shown in Figure 5.3, it is dynamic (wire feeding) dormancy:

Figure 5.1 Boot Page

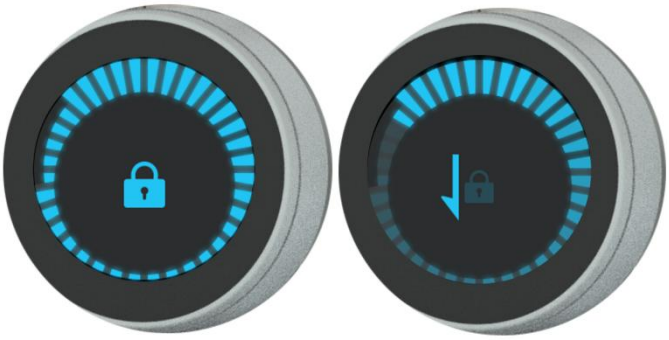


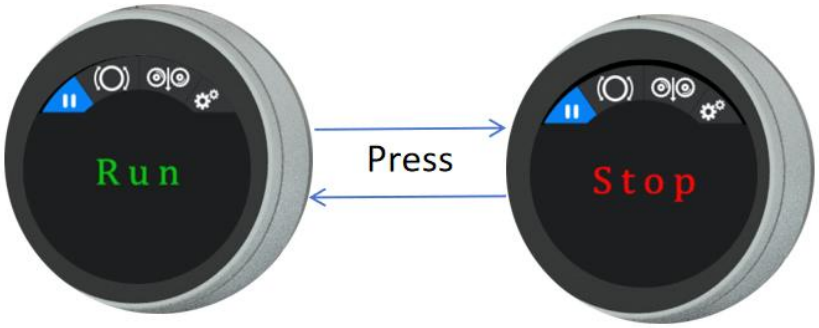
Figure 5.2 Static Dormancy Figure 5.3 Runtime Dormancy

5.2 Home Page

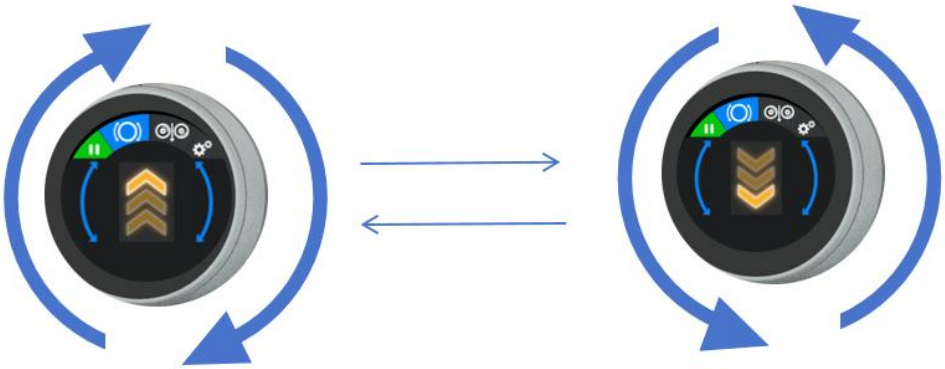
After startup, the system automatically enters the home page from the startup page, as shown in Figure 5.4. The home page includes ① : running status; ② Rotation adjustment; ③ Automatic wire feeding speed; ④ Settings page. Switch four interfaces via the [Rotate] screen;

Figure 5.4 Interface Introduction

① Running status: Control the running status of the wire feeder by pressing [Press] to switch running/stop.No wire feed during stopping.



② Adjustment: Press to enter the adjustment interface, rotate the screen counterclockwise, with the arrow pointing up to indicate pulling back; [Clockwise] Rotate the screen, with the arrow pointing down, for [wire feeding].



③ Speed: Automatic wire feed speed in continuous mode/pulse mode.

④ Settings: Press to enter the Settings page, and rotate to select the parameters that need to be modified. After entering the Settings page, you need to select [Back] and [Press] the screen to exit the Settings page.

5.3 Settings Page

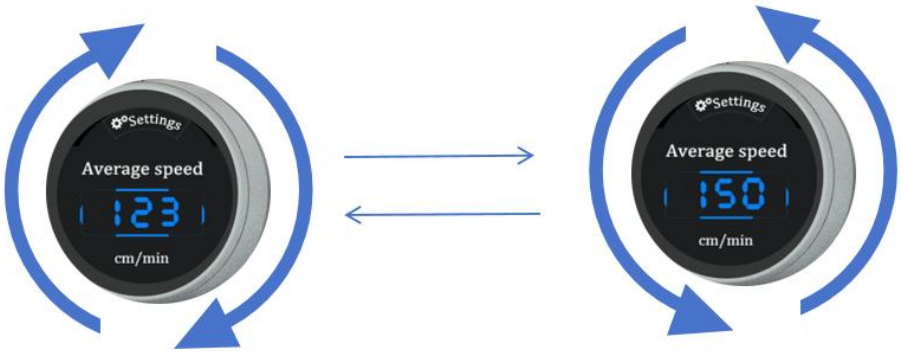
The Settings page contains the following parameters as shown in Table 5.1

Table 5.1 List of Primary Interfaces

Number	Name	Features	Notes
1	Average speed	The speed of wire feeding during welding	It takes effect in Pulse mode
2	Manual filament change	Modify the speed of manual wire feeding/retraction; Select the manual wire feeding/retraction mode. Select [Back] to exit the interface	Press the screen within 1.5 seconds and the motor will run or stop with the press action; Press for more than 1.5 seconds and the manual wire feeding/retraction status is locked. Press the screen again to unlock
3	Retraction length	When the wire breaks, the motor reverses to assist in breaking the wire	Global effect
4	Patch length	Supplement the length of the retraction	
5	Fillet delay	The interval between threading and retracting to avoid threading too fast and sticking	
6	Startup delay	Delay the wire ejection relative to the light ejection signal of the welding head	
7	Wire feeding mode	Switch to continuous/pulse mode	
8	Smoothness	Adjust the visibility of the fish-scale pattern, the smaller the more noticeable	Pulse mode takes effect
9	Pulse period	Adjust the length of individual fish scales	
10	Device Information	View version information and switch languages	Global effect

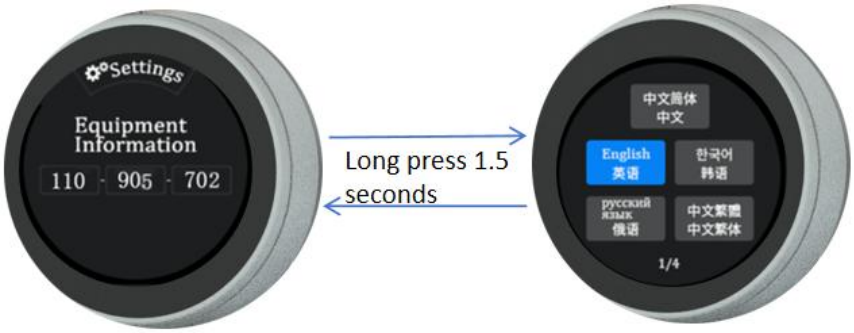
5.3.1 Parameter Modifications

Take [average speed] as an example. Show Settings page parameter modifications. On the Settings page, select the parameter you want to modify and press the screen to enter the parameter interface. [Counterclockwise] rotate the value to reduce it; [Clockwise] The rotation value increases.



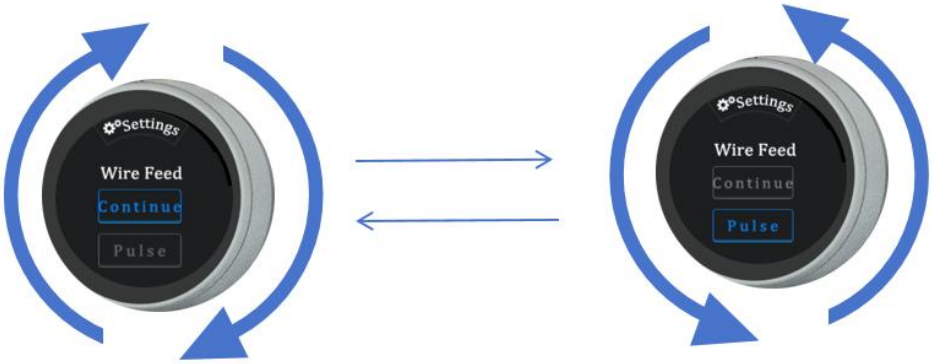
5.3.2 Device Information

[Rotate] to select [Device Information], [Press] to enter the information interface. Press and hold the screen for 1.5 seconds to enter the language switch interface. [Rotate] Screen select language.



5.3.3 Wire feeding mode

After entering the [Wire Feeding Mode] interface, switch the wire feeding mode by [Rotating]. Press to return to the Settings page.



VI. Maintenance

6.1 Daily maintenance

Matters needing attention in daily use:

- Equipment shall be effectively grounded;
- Protect the screen to prevent the screen panel from being squeezed and bruised;
- Install welding wire correctly, check and dredge it regularly to avoid friction caused by improper assembly, which will lead to metal chips blocking the wire feeding wheel box and wire feeding tube;
- When working in harsh environment, pay attention to waterproof and dustproof, and the equipment should not be soaked in water.

6.2 Fault handling

6.2.1 Control logic

The wire feeder is connected to pin 5/6 (standard wire feeder+/-) of the signal interface II of the V1.2 control box through the Seven-core aviation connector cable at the tail to control wire output. When welding light, the main board of the control box gives the wire feeding enable signal, and the main control board of the wire feeder drives the motor to run, and the wire feeder starts to work.

6.2.2 Motherboard Interface

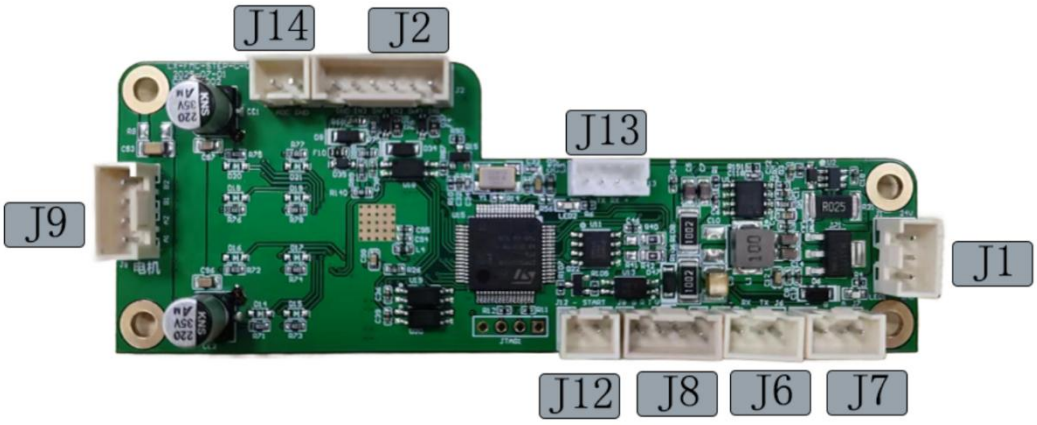


Figure 6.1 V1.1 main board of wire feeder

Table 6.1 Definition Table of Feet of Main Board of Wire Feeder

Wire feed main board				External devices	
Interface screen printing	Interface definition	Interface foot position	Foot position definition	Corresponding interface	
J1	24V power interface	1	24V input	Switching power supply	+V0
		2	NC		hang in the air
		3	GND		-V0
J6	232 communication port	1	TX	Control box-communication port	RX
		2	RX		TX
		3	GND		GND
J7	485 communication port	1	A	Reserved 485	
		2	B		
		3	GND		
J8	Reserved screen interface	1	24V output	reserve	
		2	R		
		3	T		
		4	GND		
J9	Motor 1	1	A1	Step motor 1	A +
		2	A2		A -
		3	B1		B +
		4	B2		A -
J12	Wire feeding enabling interface	1	GND	Control box-signal interface 2	2
		2	START		1
J13	1.3-inch screen interface	1	GND	Screen interface	GND
		2	T		RX
		3	R		TX
		4	5V output		5V
J14	Reserved interface	1	ADC	Reserved interface	
		2	GND		

6.2.3 Common anomalies and their treatment

problem description	solution
Abnormal wire feeding, obvious delay in wire delivery.	Adjust the wire feed tube to reduce the curvature and maintain as straight a path as possible.
No wire is produced during welding.	Ensure that the wire feeding enable signal of the communication and welding control box is normal. Whether the wire feeder is normal or not is preliminarily judged by observing the wire feeding enable signal on the Monitoring Page or Diagnosis Page of the welding system: If after the trigger is pressed, the indicator light of Wire Feeding Enable Signal on the Monitoring Page of the welding system is on (green), but the wire feeder 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 is on (green), but the wire feeder actually does not feed wire, so it is preliminarily judged that the wire feeder is not working normally.
Other troubleshooting: Parameter setting error: Wire feeder interface will be fed only when it is running, and will not be fed when it is stopped; Component failure: it is necessary to check the wiring between the motherboard and the motor, and repair and replace the faulty components. Check the power supply: After power-on, whether the power indicator light is on and whether the running light is flashing. The power indicator is on, and the running light is on or off for a long time, which is the fault of the main board of the wire feeder; Power light and running light are normal. Press the trigger and no wire is fed. Check whether the [START] interface of [J12] is conductive to [GND]. If conductive but no wire feeding occurs, determine as a wire feeding mainboard malfunction. If not conductive and no wire feeding occurs, determine as an external wire feeding signal malfunction.	

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