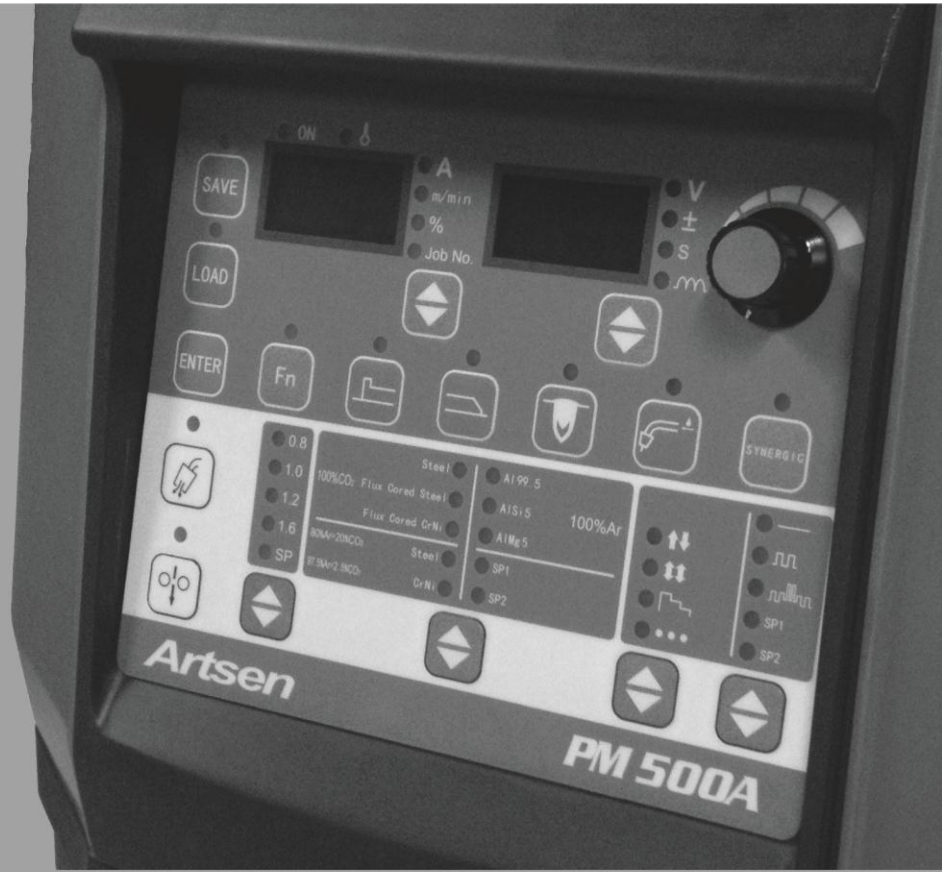


User Manual



Artsen Series Full Digital Heavy Duty IGBT CO₂/MAG/MIG Multifunctional Inverter Welder

Artsen CM350/400/500

Artsen PM400/500 F

Artsen PM400/500 N

Artsen PM400/500 A

MEGMEET

Full Digital Heavy Duty IGBT CO₂/MAG/MIG Intelligent Multifunctional Inverter Welder

User Manual

Version: V1.2

Item: R33010283

Shenzhen Megmeet Electric Co., Ltd. provides comprehensive technical support for customers, covering but not limited to, CAN communication, welder network monitors, robot collaboration, welding process database software upgrade, and after-sale service. Users can contact the nearest Megmeet's offices or customer service centers, or directly contact Megmeet headquarters.

Shenzhen Megmeet Electric Co., Ltd.

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Preface

Thank you for choosing Megmeet's Full Digital Heavy Duty IGBT CO₂/MAG/MIG Intelligent Multifunctional Inverter Welder (hereinafter referred to as the welder).

This document covers the precautions on installation and cable connection, parameter setup, troubleshooting, and daily maintenance. To ensure that the welder is installed and operated properly and can achieve its optimal performance, read this user manual before installation. This document must be kept properly and delivered to users of the welder.

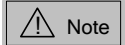
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Safety Precautions

Safe Definition



Follow instructions to perform operations. Failing to do so may result in death or serious injuries.



Follow instructions to perform operations. Failing to do so may result in medium injuries or property damages.

- Read this document before using the welder to ensure proper use.
- Although this welder is designed and manufactured with safety considerations, pay attention to the precautions specified in this document when using the welder, so as to ensure the safety of you and related personnel and prevent serious accidents.
- Misuse of this welder may cause injuries.

Safety Precautions



- Before moving the welder, cut off the input power of the distribution box.
- When using a crane to move the welder, make sure that the hoist ring has been tightened and the housing and cover plate of the welder have been installed.
- Do not lift the welder and other objects at the same time.
- Install the welder on non-inflammable objects to prevent fire risks.
- Do not place inflammable objects near the welder, failing to do so may result in fires.
- Do not install the welder in an environment with explosive gas; failing to do so may result in explosion risks.
- Cable connection must be performed by certified personnel; failing to do so may result in electric shock.
- Before cable connection, measure that the power input has been disconnected completely; failing to do so may result in electric shock.
- Before connecting the power supply, connect the grounding terminal of the welder properly; failing to do so may result in electric shock.
- Before connecting the power supply, install the cover plate; failing to do so may result in electric shock.
- Do not touch terminals when the power supply is connected; failing to do so may result in electric shock.
- Do not operate the welder with wet hands; failing to do so may result in electric shock.
- Perform maintenance 5 minutes only after the power supply is disconnected, the power indicator is completely off, and the voltage of the positive and negative bus bars is lower than 36 V; failing to do so may result in electric shock.
- Parts can be replaced only by professionals. Do not leave cable stubs or metal objects in the welder; failing to do so may result in fires.
- After replacing the control board, set the parameters correctly before using the welder; failing to do so may result in property damages.
- Use insulation tapes to wrap the copper nose that connects to cables; failing to do so may result in electric shock.
- The water tank power supply has a high voltage, which is AC 380 V. Disconnect the power supply before connecting cables; failing to do so may result in electric shock.



- Do not impose force on the control panel and cover plate when moving the welder; failing to do so may result in disconnection of the control panel and cover plate and damages of properties.
- When moving the welder using a forklift truck, fix the wheels of the welder.
- Install the welder only at the place where the welder can be held stably. Otherwise, the falling of the welder may result in injuries or property damages.
- Do not install the welder at the place where water spray may occur; failing to do so may result in property damages.
- Prevent bolts, washers, or metal rods from dropping into the welder. They may result in fires and property damages.
- If the welder is damaged or incomplete, do not install or use it; failing to do so may result in fires and injuries.
- Firmly connect the main loop terminal to the copper nose; failing to do so may result in property damages.

Usage Precautions



- To ensure safety, welding must be performed by personnel who understand safe operations and possess welding skills.
- Do not use the welder for purposes other than welding.
- Installation, commissioning, and maintenance of the welder can only be performed by professional personnel.
- People using heart pacemakers are not allowed to get close to the welder and welding sites without doctors' permission.
- Do not touch the live parts; failing to do so may lead to electric shock.
- Do not use cables with insufficient cross-sectional areas, cables with exposed conductors, and cables with damages.
- Do not remove the housing or cover plate when the welder is in use.
- Wear insulation gloves with good insulation performance and without damages.
- Take safety measures when doing tasks at high places.
- Disconnect the power supply of the welder and distribution box when the welder is not used.
- When performing welding in narrow or confined space, adopt supervision and ensure good ventilation or use respiratory protection tools; failing to do so may result in asphyxia due to hypoxia.
- Hazardous smoke, dust, and gas may be generated during welding. Ensure good ventilation or use respiratory protection tools; failing to do so may result in injuries.
- Do not weld pressure vessels that contain gas, such as gas tubes and seal pots.
- Do not move hot workpieces close to combustible materials.
- Do not perform welding near combustible materials.
- Deploy fire extinguishers near welding sites.
- Fix gas cylinders using only dedicated stands; failing to do so may result in injuries when the gas cylinders fall down.



- Do not connect electrodes with gas cylinders.
- Follow instructions to correctly use pressure reducing valves.
- Only professional personnel are allowed to disassemble and repair pressure reducing valves.
- Do not touch the rotating parts such as the fan and wire feeder when the welder is in use; failing to do so may result in injuries.
- When performing or supervising welding, use protective equipment with sufficient shading degree to prevent arc from harming eyes or skin.
- Use protection gears, such as welding-dedicated protection leather gloves, clothes with long sleeves, foot protection, aprons, and goggles, to protect against arc, spatter, and welding spatter.
- Set up protective barriers around welding sites to prevent arc from injuring others.
- Use soundproof devices to prevent noise hazards.



- Do not use this welder for tasks other than welding.
- Do not place heavy objects on the welder.
- Do not seal or block the air vents of the welder.
- Place the welder at places where metal objects such as spatters are unable to enter the welder.
- Keep the welder at least 30 cm away from walls and other welders.
- Use screens to prevent wind from directly blowing against arc.
- Fix the wheels to prevent the welder from sliding.
- To prevent electromagnetic hazards, implement electromagnetic shielding for cables and welding sites.
- The slope of the surface must be less than 15 degrees to prevent the welder from falling down.
- The protection class of the welder is IP23S and is applicable in the following conditions:
 - Operating temperature range: -10 °C to +40 °C
 - Transportation and storage temperature range: -40 °C to +70 °C
 - Operating humidity range: ≤ 75% RH at 40 °C; ≤ 95% RH at 20 °C
 - Altitude: ≤ 2000 m
- The operating environment must not have significant mechanical vibration or mechanical impact. The welder must not be tilted more than 15 °.
- The content of dust, metal dust, and corrosive gas must not exceed the normal level.
- Avoid the welder from rain and prevent the fan from taking in rain.
- When the ambient temperature is below 10 °C, use antifreeze dedicated to the water tank to prevent water tank damages.

Scrapping Precautions

Pay attention to the following when scrap the welder:

- The electrolytic capacitors on the main loop and the PCB may explode when getting burnt.
- Toxic gases may be emitted when plastic parts such as the front panel are burnt.
- Dispose the welder as industrial waste.

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Chapter 1 Product Overview

1.1 Welder Series Introduction

Products in the Artsen PM/CM series are full digital heavy duty IGBT CO₂/MAG/MIG intelligent multifunctional inverter welders designed for professional users. Connected to digitally controlled wire feeders, they can:

- Provide multiple intelligent welding control methods, including the DC, single-pulse, and double-pulse options based on real-time energy control.
- Weld various materials including carbon steel, stainless steel, and aluminum alloy.
- Weld solid wires and flux-cored wires.
- Be used by special welding control means.
- Work with automated equipment, including robots and intelligent equipment.
- Work with Megmeet's welding tractor to achieve higher mobility.
- Work with Megmeet's water cooling equipment to better cool the welding torch.

1.2 Applicable Domains

Products in the Artsen PM/CM series are applicable to various domains including automobile and parts, instrument manufacturing, machine and rail transportation, shipbuilding and offshore platform, and chemical engineering.

1.3 Technology Introduction

1.3.1 DC Short Arc Welding

Products in the Artsen CM series are equipped with the "short-circuiting transfer for special energy control" technology, which controls the welding current and voltage in real time to adjust the metal transfer feature and droplet shapes for better welding seam appearances, higher welding speeds, and less spatters. It is especially suitable for welding carbon steel plates with medium, low, or extra-low thickness and for backing welding.

Figure 1-1 shows the control waveform.

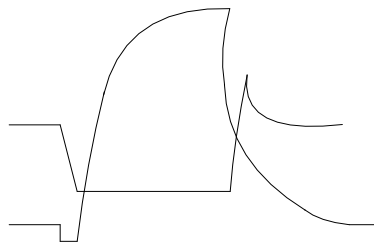


Figure 1-1 DC short arc welding

1.3.2 Single-pulse Welding

Products in the Artsen PM series are equipped with the "pulse energy adjustment" metal transfer control technology, which controls the pulse current to adjust the droplet size and shape for globular transfer, so as to increase the arc energy, optimize welding seam appearances, and reduce spatters. It is especially suitable for welding stainless steel, aluminum alloy, and some nonferrous metals.

Figure 1-2 shows the control waveform.

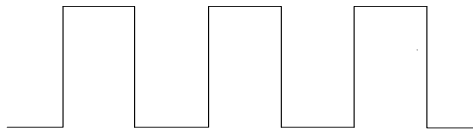


Figure 1-2 Single-pulse welding

1.3.3 Double-pulse Welding

Products in the Artsen PM are equipped with the collaborative pulse energy control technology based on variable wire inching speed, which periodically controls the wire inching speed, pulse current parameters, and arc length parameters to adjust the welding heat input for better welding seam appearances and higher welding seam quality. It is especially suitable for welding aluminum, aluminum alloy, and other metals.

Figure 1-3 shows the control waveform.

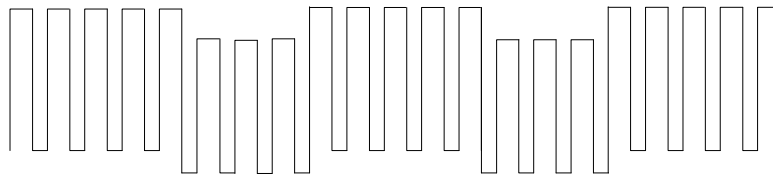


Figure 1-3 Double-pulse welding

1.4 System Components

Figure 1-4 shows the welding system.

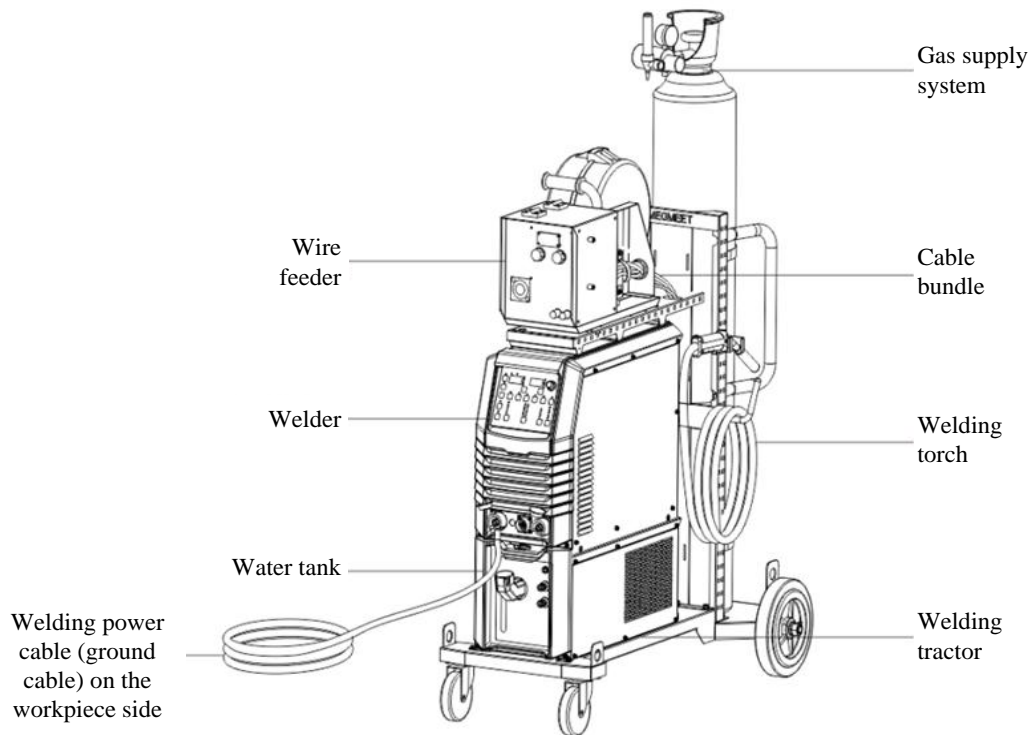


Figure 1-4 System components

1.5 External Dimensions and Gross Weight

Table 1-1 shows the external dimensions and gross weight of the welder with accessories.

Table 1-1 External dimensions and gross weight of the welder with accessories

Component	External Dimensions (L x W x H mm)	Gross Weight (kg)
Welder	620 x 300 x 480	55
Water tank	643 x 300 x 268	15
Manual wire feeder	630 x 250 x 400	14.5
Robotic wire feeder	300 x 170 x 200	6.5

1.6 Model Code Format

Figure 1-5 describes the welder model code format.

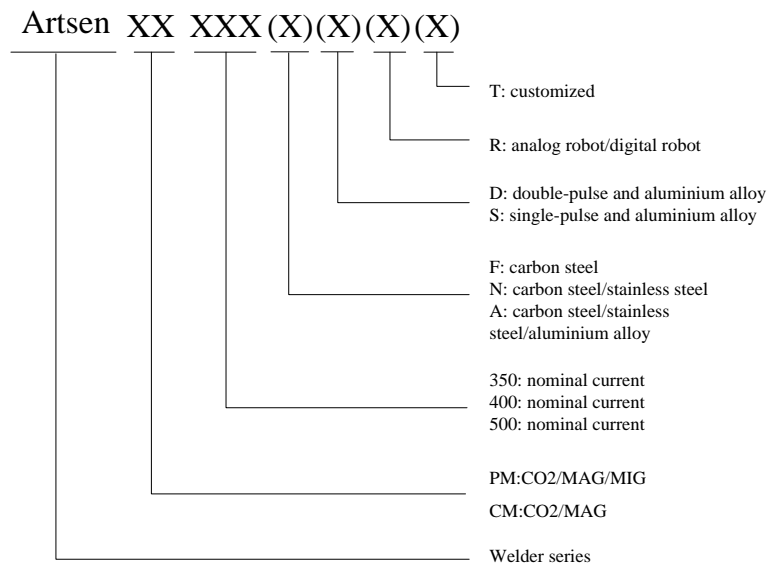


Figure 1-5 Model code format

Note: The fields in parentheses indicate welder models and are optional.

Example 1:

Artsen PM500ADR indicates a CO₂/MAG/MIG Double-pulse and aluminum-alloy robotic welder in the Artsen series whose nominal current is 500 A.

Example 2:

Artsen CM350 indicates a CO₂/MAG carbon-steel manual welder in the Artsen series whose nominal current is 350 A.

Chapter 2 Installation and Cable Connection

This chapter describes the welder installation requirements, installation procedure, and precautions.

2.1 Open-Package Inspection

1. Before opening the package, check whether the external package is intact.
2. After opening the package, check whether all the components of the welder are delivered and whether their models are correct.

Upon detection of missing or incorrect components, contact the supplier in a timely manner.

2.2 Installation Requirements

Environment Requirements

Pay attention to the following when selecting the installation environment:

The installation site must have good ventilation and vibration must be less than 5.9 m/s^2 (0.6g).

Do not install it in a site with lots of dust or metal dust.

Do not install it in a site with corrosive or explosive gas.

The ambient temperature must range from $-10 \text{ }^\circ\text{C}$ to $+40 \text{ }^\circ\text{C}$. When the temperature exceeds $40 \text{ }^\circ\text{C}$, forcible external cooling or temperature derating is required.

The humidity must be lower than 95% without condensation.

When necessary, use windbreak at the welding site to prevent wind from affecting the welding quality.

If you have special installation requirements, perform prior consultation and confirmation.

Installation Space Requirements

The welder must be at least 20 cm away from walls. If there are multiple welders, they must be at least 30 cm away from each other. You are recommended to reserve space for the welder as specified in Table 2-1.

Table 2-1 Space required for the welder

	Front	Top	Left	Right	Back
Space required	$\geq 20\text{cm}$	$\geq 10\text{cm}$	$\geq 20\text{cm}$	$\geq 20\text{cm}$	$\geq 20\text{cm}$

2.3 Transportation Precautions

1. Before moving the welder, cut off the input power of the distribution box.
2. When moving the welder using a forklift truck, fix the wheels of the welder.
3. Mounting the welder off the ground is dangerous. Therefore, it is not recommended.

2.4 Welder Specifications

Table 2-2 describes the welder specifications of the Artsen PM/CM series.

Table 2-2 Welder specifications

Item		Model Power		
		CM350	CM400/PM400	CM500/PM500
Rated power		Three phase 380 V AC 50Hz/60Hz	Three phase 380 V AC 0.50Hz/60Hz	Three phase 380 V AC 0.50Hz/60Hz
Power device capacity	Grid	30 kVA or greater	30 kVA or greater	30 kVA or greater
	Generator	50 kVA or greater	50 kVA or greater	50 kVA or greater
Input protection device (distribution box)	Air circuit breaker	Grade C and 63 A or greater	Grade C and 63 A or greater	Grade C and 63 A or greater
Power cable	Input of the welder	10 mm ² or greater	16 mm ² or greater	16 mm ² or greater
	Output of the welder	35 mm ² or greater	50 mm ² or greater	50 mm ² or greater
	Housing grounding cable	≥ power supply cable	≥ power supply cable	≥ power supply cable

Note: The welder specifications of the robot welder series are the same as those in the preceding table.



Safety Warning

When the operating site is wet and the welder is used on an iron plate or frame, install a ground fault circuit interrupter (GFCI).

2.5 Electric Connections



Safety Warning

1. Electric connections must be set up by certified professional electric device operators.
2. Electric connections can be set up only after the distribution box is switched off and necessary safety measures are taken.
3. Use specified cables.
4. Do not touch electric connections with wet hands.
5. Do not place heavy objects on the power cables.
6. Running water pipes and reinforcing bars of houses may not be adequately grounded. Do not connect grounding cables to them.
7. Connect this welder only to the matching or specified wire feeder, welding torch, gas meter, and water tank. Otherwise, the welding performance and quality will be affected.

2.5.1 Connecting the Welder

Firmly connect the connector of the welding power cable to the positive pole of the welder. Firmly connect the plug of the wire feeder control cable to the power jack of the welder. See Figure 2-1.

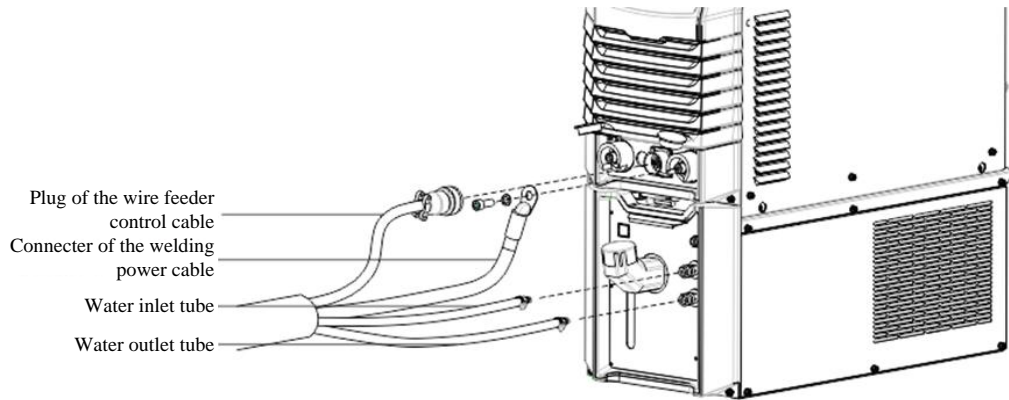


Figure 2-1 Schematic diagram of connecting the welder

2.5.2 Connecting the Water Tank

Connecting the Water Tank Power Cable

Connect one end of the water tank power cable to the welder and the other end to the water tank power jack. See Figure 2-2.

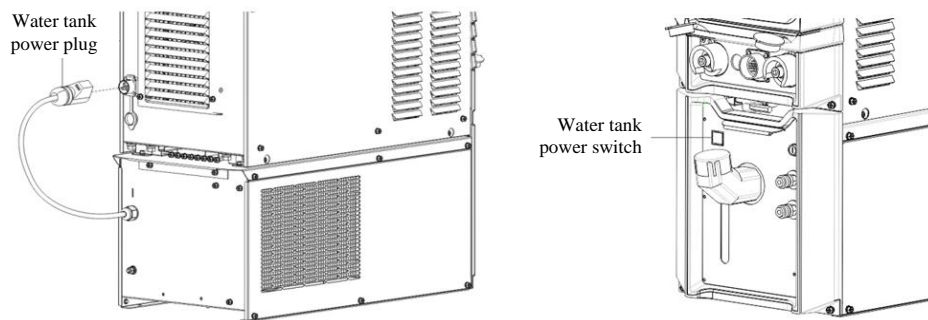


Figure 2-2 Schematic diagram of connecting the water tank power cable

Water Tube Connection

Connect the water inlet tube and water outlet tube in the cable bundle to the water inlet tube and water outlet tube of the water tank respectively. See Figure 2-1.

Safety Warning

1. When using the water tank, turn on the power switch of the water tank and enable the air-cooling/water-cooling function on the water tank panel. Otherwise, the welding torch may get burnt.
2. The water tank power supply has a high voltage, which is AC 380 V. Disconnect the power supply before connecting cables; failing to do so may lead to electric shock.
3. When the ambient temperature is below 10 °C, use antifreeze dedicated to the water tank to prevent water tank damages.

2.5.3 Connecting the Wire Feeder

1. Loose the fastener at the rear end of the wire feeder.
2. Use a but to firmly connect the welding power cable to the threaded rod on the wire feeder mother board.

3. Rotate the plug of the wire feeder control cable to connect the cable firmly to its jack. See Figure 2-3.

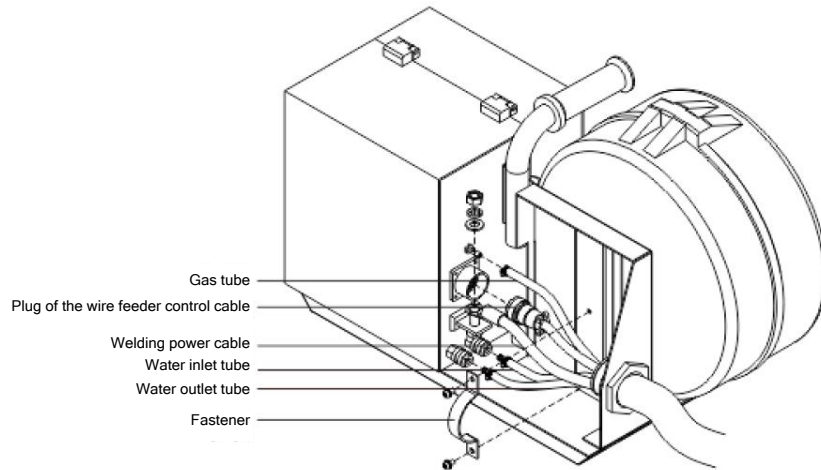


Figure 2-3 Schematic diagram of connecting the wire feeder

2.5.4 Connecting the Gas Supply System

Note

1. If the protective atmosphere containing CO₂ is adopted, use a carbon dioxide heating regulator.
2. The gas tube must be connected firmly to the wire feeder and gas meter to prevent gas leakage.

Connect one end of the gas tube to the gas tube connector on the wire feeder and tighten the gas tube hose clamp. Connect the other end to the gas tube connector of the gas meter and tighten the hose clamp. See Figure 2-4.

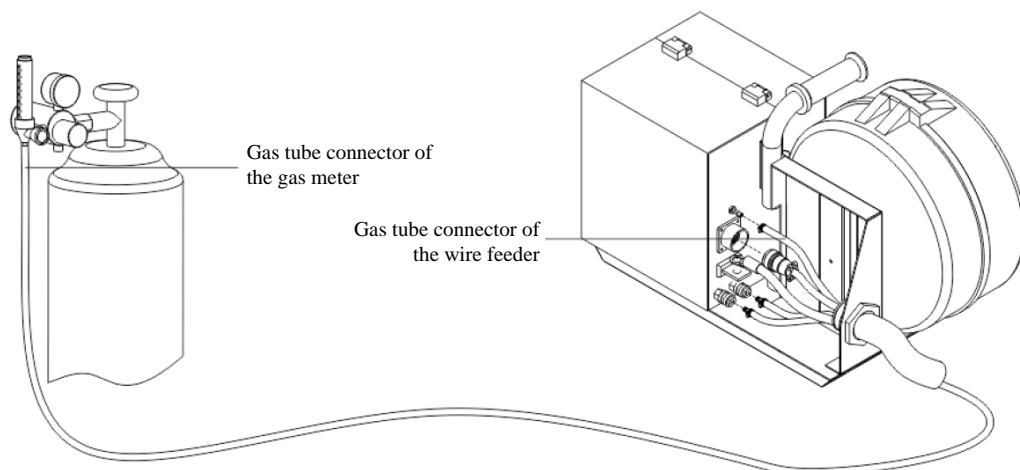


Figure 2-4 Schematic diagram of connecting the gas tube

2.5.5 Connecting the Welding Torch

Note

When installing the welding torch, check whether the welding torch contains a wire inching hose and whether the components are correct.

Install the welding torch to the welding torch jack on the wire feeder. Connect the water outlet tube and water inlet tube of the welding torch to the water outlet tube and water inlet tube of the wire feeder respectively. See Figure 2-5.

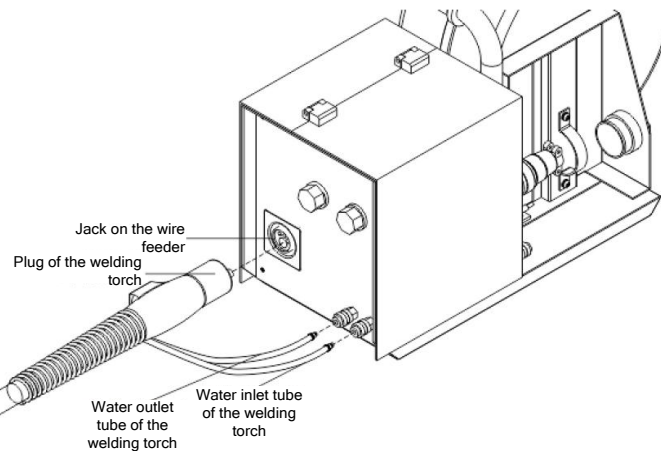


Figure 2-5 Schematic diagram of connecting the welding torch

2.5.6 Connecting the Welding Power Cable (Ground Cable) of the Workpiece

Firmly connect one end of the welding power cable (ground cable) of the workpiece side to the negative pole output terminal and the other end to the workpiece. See Figure 2-6.

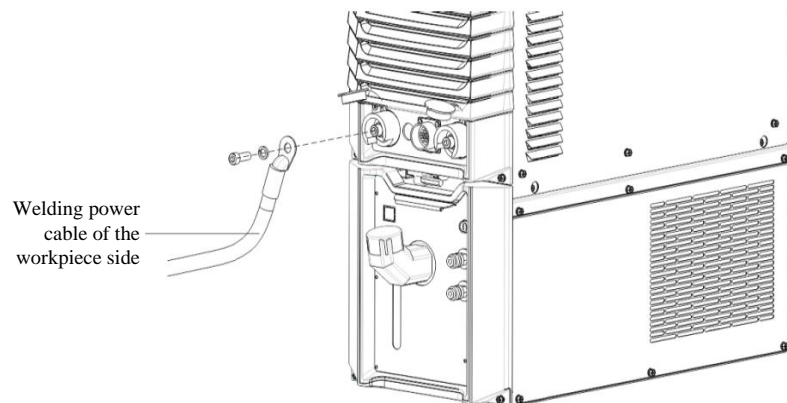


Figure 2-6 Schematic diagram of connecting the welding power cable (ground cable) of the workpiece

2.5.7 Connecting the Power Cable on the Power Input Side (AC 380 V)

- 1) Turn off the power switch of the distribution box (user equipment) and remove the input terminal cover.
- 2) Firmly connect one end of the input power cable to the power input terminal using the power cable clamp. Connect the ground cable to the M6 grounding threaded rod on the housing of the welder. See Figure 2-7.
- 3) Install the input terminal cover.
- 4) Connect the other end of the input power cable to the output terminal of the power switch of the distribution box.

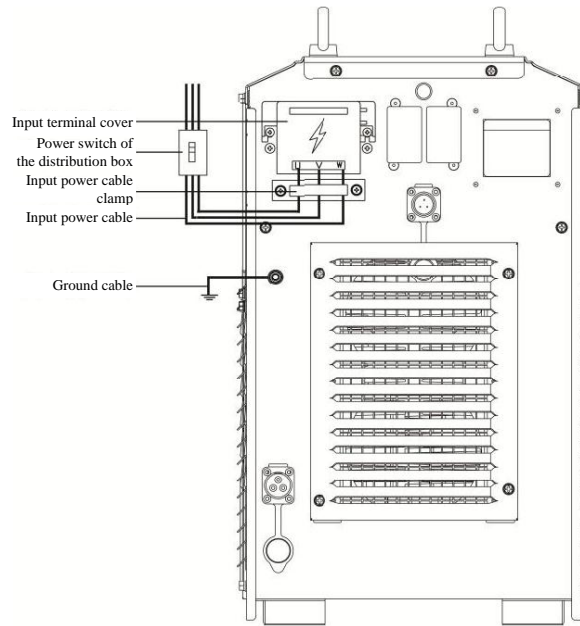


Figure 2-7 Schematic diagram of connecting the power cable on the power input side

 Note

The welder has no special requirement for the phase sequence of the three phase power supply from the grid. The cross-sectional area of the power cable for Artsen CM350 must be at least 10 mm^2 . The cross-sectional area of the power cable for Artsen PM/CM400 and Artsen PM/CM500 must be at least 16 mm^2 .

Chapter 3 Function Description and Usage

3.1 Welding Preparation

- a) Verify that the welder cables are connected properly.

For details, see Section 2.5 "Electric Connections."

- b) Install the welding wire.

See the *User Manual for CO₂/MAG/MIG Wire Feeder*.

- c) Turn on the power switches.

Turn on the power switches of the welder and water tank.

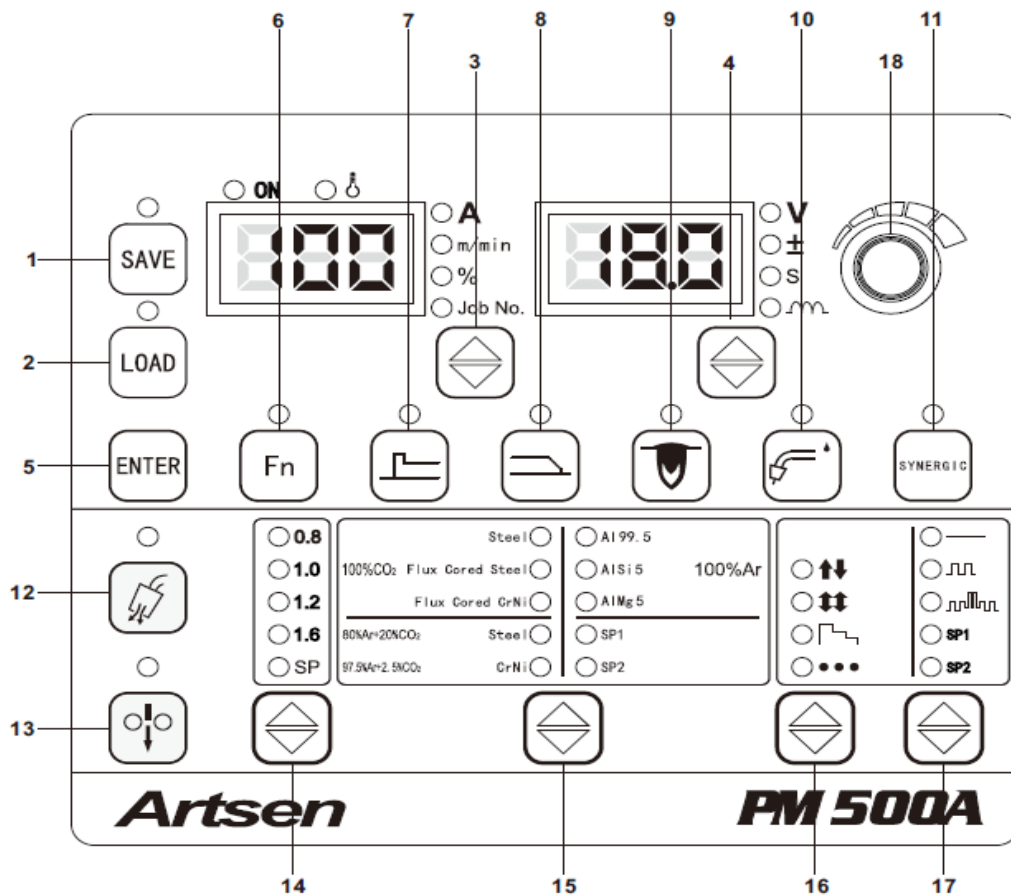
- d) Verify that the parameters on the control panel are set correctly.

When using the water-cooled welding torch, enable the air-cooling/water-cooling function on the control panel. For details, see Section 3.2.4 "Air-Cooling/Water-Cooling."

3.2 Function Description and Usage

Figure 3-1 shows the functions of the control panels of the welder and wire feeder.

The serial numbers on the control panel of the welder correspond individually to a button serial number in error codes.



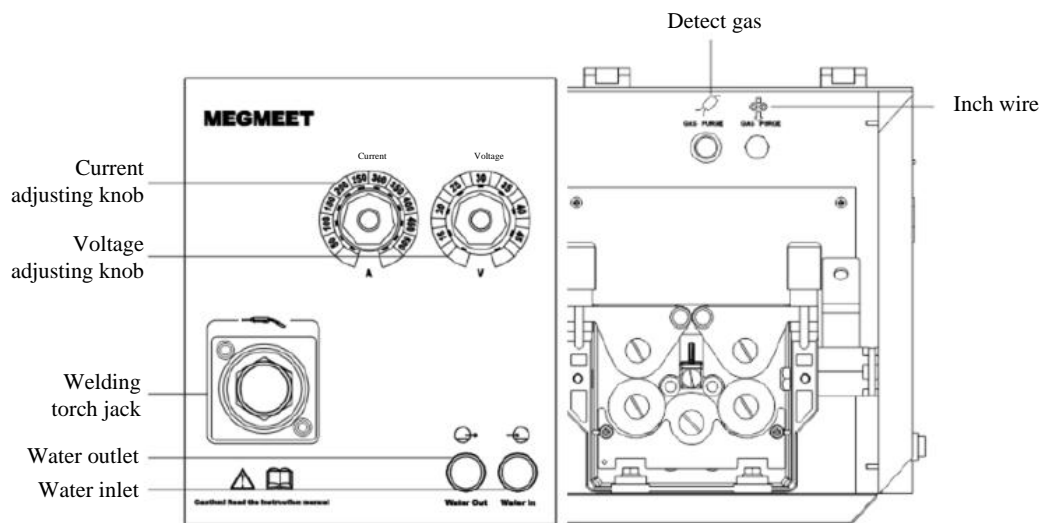














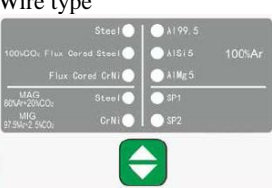






Figure 3-1 Description of functions of the control panes of the welder and wire feeder

Table 3-1 Function description

SN	Button	Function
1	SAVE 	Saves selected welding parameters.
2	LOAD 	Loads saved welding parameters.
3	Switch among the options of the left LED 	Changes the current, wire inching speed, percentage, and channel number.
4	Switch among the options of the right LED 	Changes the voltage, corrected voltage value, time parameter, and electric arc dynamic.
5	ENTER 	Confirms and locks parameters.
6	Fn 	Sets internal menu parameters.
7	Starting arc parameters 	Views starting arc parameters, including the current, wire inching speed, and voltage for starting arc, adjustable percentage of starting arc, corrected voltage for starting arc, starting arc generation time, and arc dynamic.
8	Ending arc parameters 	Views ending arc parameters, including the current, wire inching speed, and voltage for ending arc, adjustable percentage of ending arc, corrected voltage for ending arc, ending arc generation time, and arc dynamic.
9	Fusion depth control 	Ensures consistent fusion depth when wire stick-out is changed.
10	Air-cooling/Water-cooling 	Switches between the air-cooling and water-cooling functions.
11	SYNERGIC 	In synergic setup mode, the system sets the voltage according to the current. In the manual setup mode, the current and voltage are set independently.

SN	Button	Function
12	Detect gas 	Checks whether the protective atmosphere is used.
13	Inch wire 	Sends the welding wire to the tip of the welding torch in non-welding status.
14	Wire diameter 	Selects a wire diameter. The SP option indicates a wire diameter not specified.
15	Wire type 	Selects a wire type. The SP option indicates a wire type not specified.
16	Welding control 	Performs operations in different welding modes (welding without ending arc, welding with ending arc, welding with repeated ending arc, 2T, 4T, special 4T, and spot welding).
17	Welding method 	Selects a welding method among the DC, single-pulse, and double-pulse welding methods. The SP1 and SP2 options are used for other welding methods.
18	Adjusting knob on the control panel 	Adjusts welding parameters, lock parameters, and internal menu parameters.

3.2.1 Welding Parameters



The left LED screen displays: A, meter/minute, %, channel, locked parameters, and internal menu IDs, and error codes. When the **Switch among the options of the left LED**  button is pressed to select an option among the **A**, **m/min**, **%**, and **Job No.** options, the corresponding indicator appears on the LED screen.

A: welding current.

m/min: wire inching speed.

%: wire inching speed percentage.

Job No.: channel ID for saving and loading parameters.

The right LED screen displays: V, ±, second, arc dynamic, internal parameters, and error codes. When the **Switch among the options of the right LED**  button is pressed to select an option among the **V**, **±**, **S**, and arc dynamic  options, the corresponding indicator appears on the LED screen.

V: welding voltage.


±: **corrected voltage value for correcting the voltage in the synergic setup mode.**


S: time unit for time-related parameters.

Arc dynamic : arc hardness.


3.2.2 Detect Gas

It is used to detect gas and its flow volume.

Method 1: Press the **Detect gas**  button on the control panel of the welder, gas sending begins and lasts for 30 seconds, To stop gas sending, press the button again.

Method 2: Press and hold the **Detect gas**  button on the wire feeder. Gas is sent continuously. To stop gas sending, release the button.

3.2.3 Wire Inching

Method 1: Press and hold the **Wire Inching**  button on the control panel of the welder. Wire is fed continuously. To stop wire inching, release the button.

Method 2: Press and hold the **Wire Inching**  button on the wire feeder. Wire is fed continuously. To stop wire inching, release the button.


3.2.4 Air-Cooling/Water-Cooling



Note

1. If the welder is configured with a water tank and a water-cooled welding torch, select the water-cooling option and turn on the power switch of the water tank.
2. After you select the water-cooling option and turn on the power switch of the welder, the water tank works for 3 minutes automatically. If welding is not performed in the period, the water tank stops.
3. When welding starts, the motor of the water tank starts at the same time. After welding stops, the motor stops in 2 minutes.

The procedure is as follows:

Press the **Air-cooling/water-cooling**  button. When the LED indicator is on, turn on the power switches of the water tank. The water-cooling option is selected. For details, see Figure 2-2.

When the LED indicator is off, the air-cooling option is selected.

3.2.5 Arc Dynamic

You can adjust arc hardness based on process parameters.

It shows the schematic diagram of arc dynamic. For details, see below

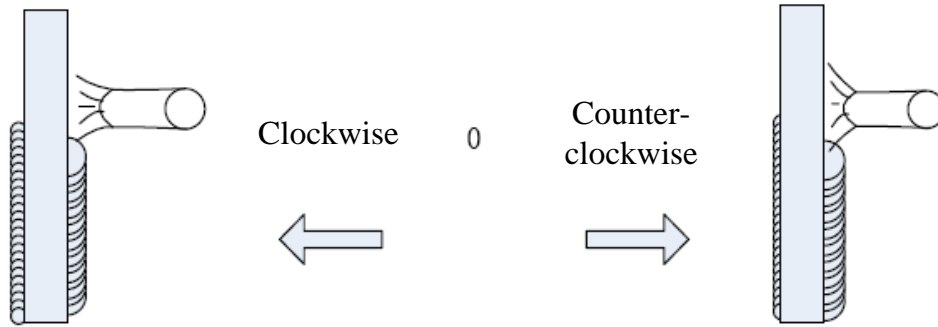





Figure 3-2 Schematic diagram of arc dynamic

Table 3-2 Arc dynamic

Arc Dynamic	Function
0	It indicates the default arc dynamic and is commonly used.
Hard arc: 0 to 9	The welding seam fusion depth is high and it can easily achieve weld penetration. It is suitable for full welding and high-speed welding. It can ensure arc stability when the power cable is extended.
Soft arc: 0 to -9	The welding seam fusion depth is low and it is not easy to achieve weld penetration. It is suitable for welding thin plates.

The procedure is as follows:

1. Set the welding parameters and press the **Switch among the options of the right LED**  button to select the **Arc dynamic**  option. The corresponding LED indicator is on.
2. Use the knob on the control panel to adjust the value. See Figure 3-3. Press the **ENTER**  button to complete the setup.

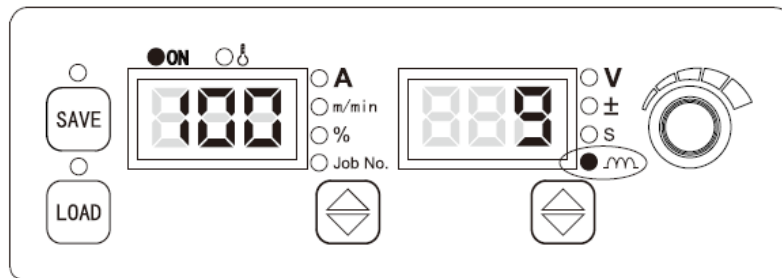


Figure 3-3 Setting arc dynamic

3.2.6 Fusion Depth Control

Changes in wire stick-out help ensure consistent fusion depth. See Figure 3-4.

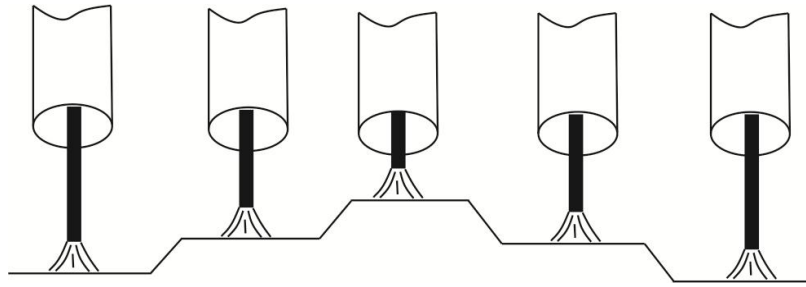



Figure 3-4 Schematic diagram of wire stick-out

The procedure is as follows:

Press the **Fusion depth control**  button, the corresponding LED indicator is on and the function is enabled. When the LED indicator is off, the function is disabled. See Figure 3-5.

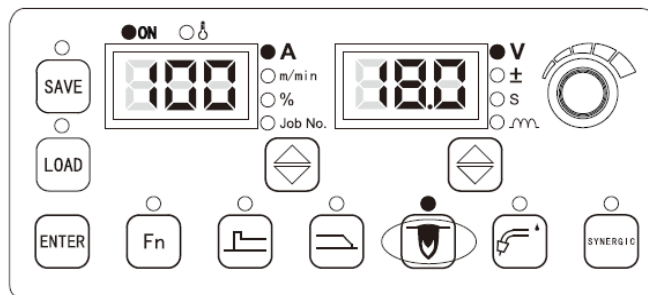





Figure 3-5 Setting the fusion depth

3.2.7 SYNERGIC

Synergic

The system automatically adjust the voltage based on the welding current and the value for voltage correction.

The procedure is as follows:

1. Press the **SYNERGIC**  button. When the corresponding LED indicator is on, the synergic setup mode is enabled.
2. Press the **Switch among the options of the right LED**  button to select the \pm option. When the indicator is on or flashes, use the voltage knob on the wire feeder or on the control panel of the welder to finely tune the voltage automatically set in the synergic setup mode. See Figure 3-6. You can press the **Switch among the options of the right LED**  button to view the voltage set by the system and the corrected arc length.

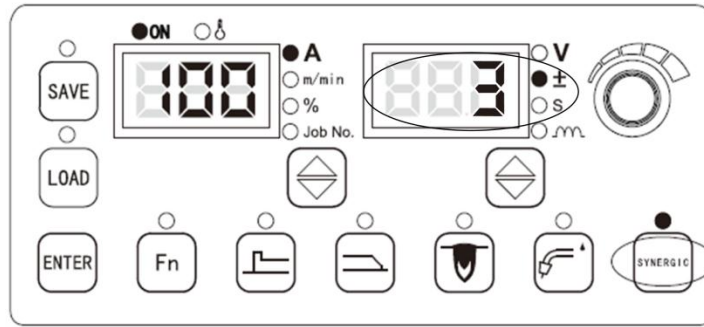


Figure 3-6 Correcting the voltage set by the system in the synergic setup mode


The default value for voltage correction in the synergic setup mode is 0. The value can be set between -30 and +30.

The voltage calculation formula is as follows:

$$\text{Voltage} = \text{Voltage set in the synergic setup mode} + (\text{Value for voltage correction}\%) \times (\text{Voltage set in the synergic setup mode})$$

Manual

The procedure is as follows:

Press the **SYNERGIC**  button. When the LED indicator is off, the manual setup mode is enabled. You can independently set the current and voltage.

Note

You can set the starting arc parameters and ending arc parameters only in the synergic setup mode.



3.2.8 Starting Arc Parameters

The parameters involved in starting arc include the wire inching speed, current, and voltage.

The wire inching speed calculation formula is as follows:

$$\text{Wire inching speed for starting arc} = \text{Preset wire inching speed} \times X\%$$

The procedure is as follows:

1. Press the **Starting arc parameters**  button. When the starting arc parameter indicator and the % indicator are on, you can set and view the starting arc parameters.
2. When the % indicator is on and the left LED screen flashes, use the knob on the control panel to set the wire inching speed percentage for starting arc. Then, press the **ENTER**  button. See Figure 3-7.

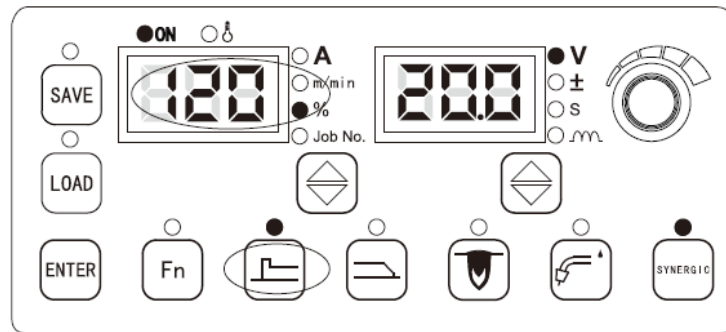







Figure 3-7 Setting the wire inching speed percentage for starting arc

3. You can use the **Switch among the options of the right LED**  button to set and view the \pm , **S**, and **Arc dynamic**  parameters. When the indicator corresponding to a parameter is on and the LED screen flashes, use the knob on the control panel to set the parameter. Then, press the **ENTER**  button to confirm the setting.
4. After setting the starting arc parameters, press the **Starting arc parameters**  button. The corresponding indicator is off and the setup function is disabled.

 **Note**

1. The preset wire inching speed for starting arc can be adjusted only based on the preset wire inching speed for welding proportionately. The wire inching speed and welding current represent the same variable.
2. The preset voltage for starting arc can be adjusted only based on the preset current.
3. The current and wire inching speed for starting arc can be viewed but cannot be adjusted.
4. The arc dynamic for starting arc and the arc dynamic for welding are not associated.
5. The starting arc generation time depends on the functional logic selected. the logic options include: 2T (welding without ending arc), 4T (welding with ending arc), special 4T, and welding with repeated ending arc.
6. The starting arc parameters that cannot be directly adjusted on the control panel can be adjusted using the internal menu. For details, see Section 3.2.13 "Internal Menu."



3.2.9 Ending Arc Parameters

The parameters involved in ending arc include the wire inching speed, current, and voltage.

The wire inching speed calculation formula is as follows:

$$\text{Wire inching speed for ending arc} = \text{Preset wire inching speed} \times X\%$$

The procedure is as follows:

1. Press the **Ending arc parameters**  button. When the ending arc parameter indicator and the % indicator are on, you can set and view the ending arc parameters.
2. When the % indicator is on and the left LED screen flashes, use the knob on the control panel to set the wire inching speed percentage for ending arc. Then, press the **ENTER**  button. See Figure 3-8.

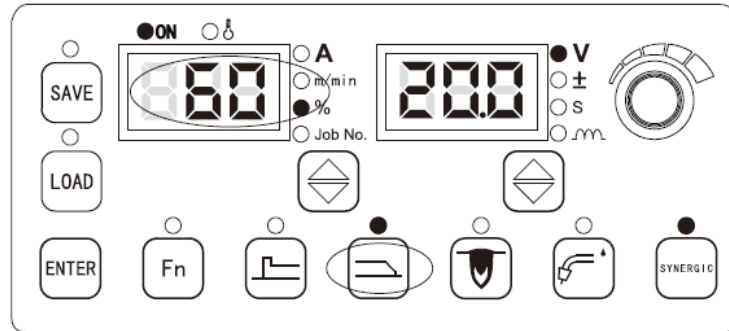






Figure 3-8 Setting the wire inching speed percentage for ending arc

3. You can use the **Switch among the options of the right LED**  button to set and view the $\pm S$, and **Arc dynamic**  parameters. When the indicator corresponding to a parameter is on and the LED screen flashes, use the knob in the control panel to set the parameter. Then, press the **ENTER**  button to confirm the setting.
4. After setting the ending arc parameters, press the **Ending arc parameters**  button. The corresponding indicator is off and the setup function is disabled.

Note

1. The preset wire inching speed for ending arc can be adjusted only based on the preset wire inching speed for welding proportionately. The wire inching speed and welding current represent the same variable.
2. The preset voltage for ending arc can be adjusted only based on the preset current.
3. The current and wire inching speed for ending arc can be viewed but cannot be adjusted.
4. The arc dynamic for ending arc and the arc dynamic for welding are not associated.
5. The ending arc generation time depends on the functional logic selected. the logic options include: 2T (welding without ending arc), 4T (welding with ending arc), special 4T, and welding with repeated ending arc.
6. The ending arc parameters that cannot be directly adjusted on the control panel can be adjusted using the internal menu. For details, see Section 3.2.13 "Internal Menu."

3.2.10 Welding Control

Spot Welding

Spot welding is performed to weld a workpiece at a fixed period.

When the power switch of the welding torch is released before the end of spot welding, spot welding is ended before schedule. See Figure 3-9.

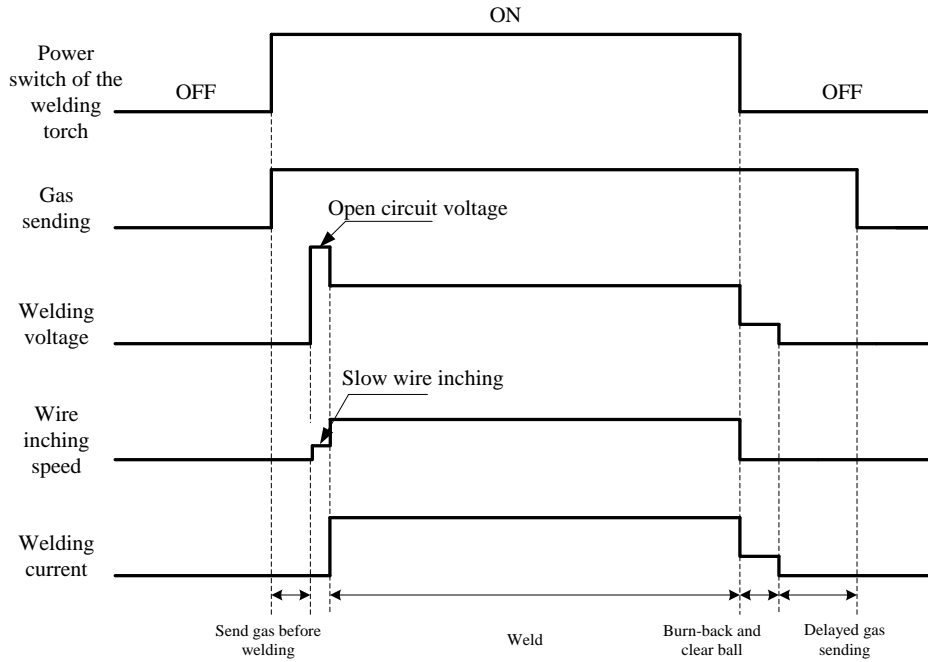


Figure 3-9 Spot welding logic 1

When the power switch of the welding torch is not released by the end of spot welding, spot welding is ended. See Figure 3-10.

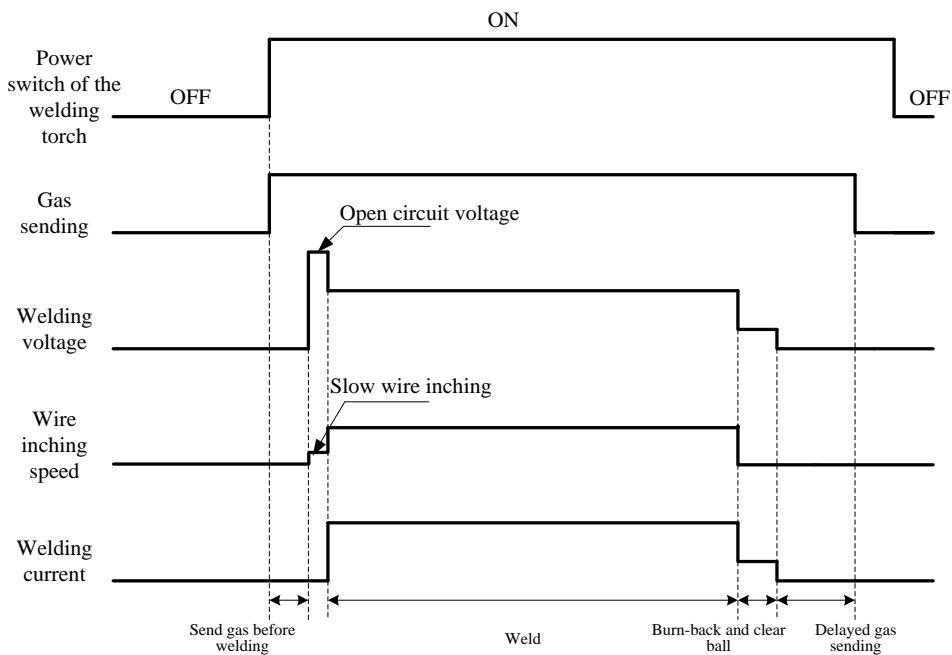




Figure 3-10 Spot welding logic 2

The procedure is as follows:

1. Press the **Welding control**  button and switch to the spot welding mode.

2. Use the **Switch among the options of the right LED**  button to switch to the time unit **S**. Use the knob on the control panel to set the spot welding period (0.1 s - 10 s). Then, press the **ENTER**  button to confirm the spot welding settings.

2T

Figure 3-11 shows the welding logic.

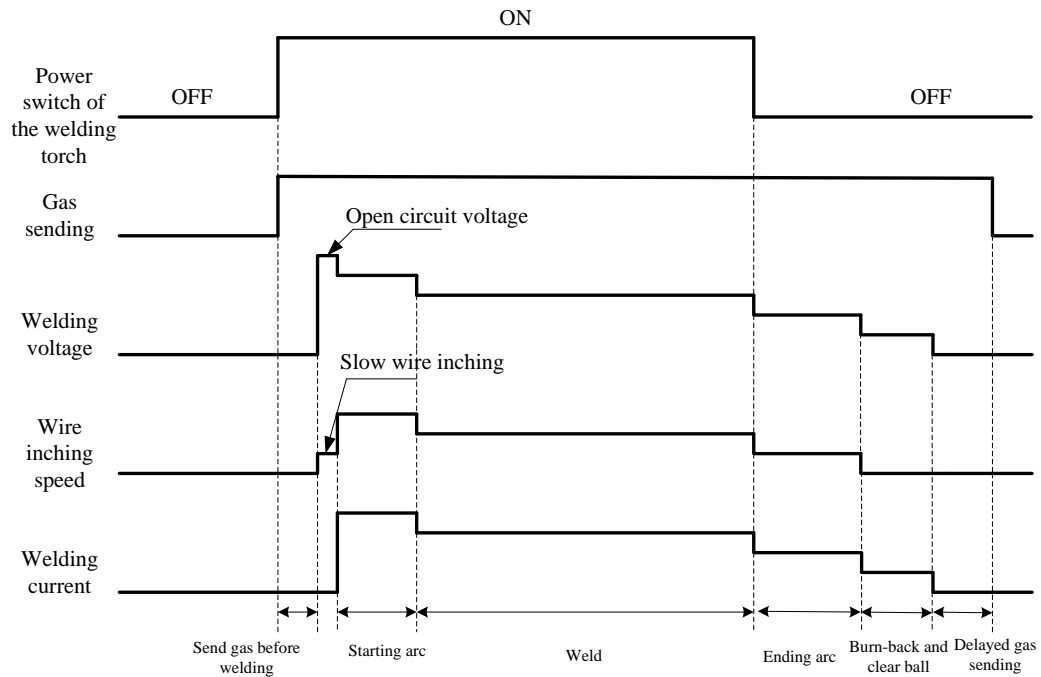




Figure 3-11 Logic of 2-step welding

Note

The starting arc generation time and ending arc generation time depend on the times on the control panel of the welder.

The procedure is as follows:

1. Press the **Welding control**  button and switch to the **2T (without ending arc)**  mode.
2. Set the starting arc parameters. For details, see the description of starting arc parameter setup.
3. Set the ending arc parameters. For details, see the description of ending arc parameter setup.

4T

Figure 3-12 shows the welding logic.

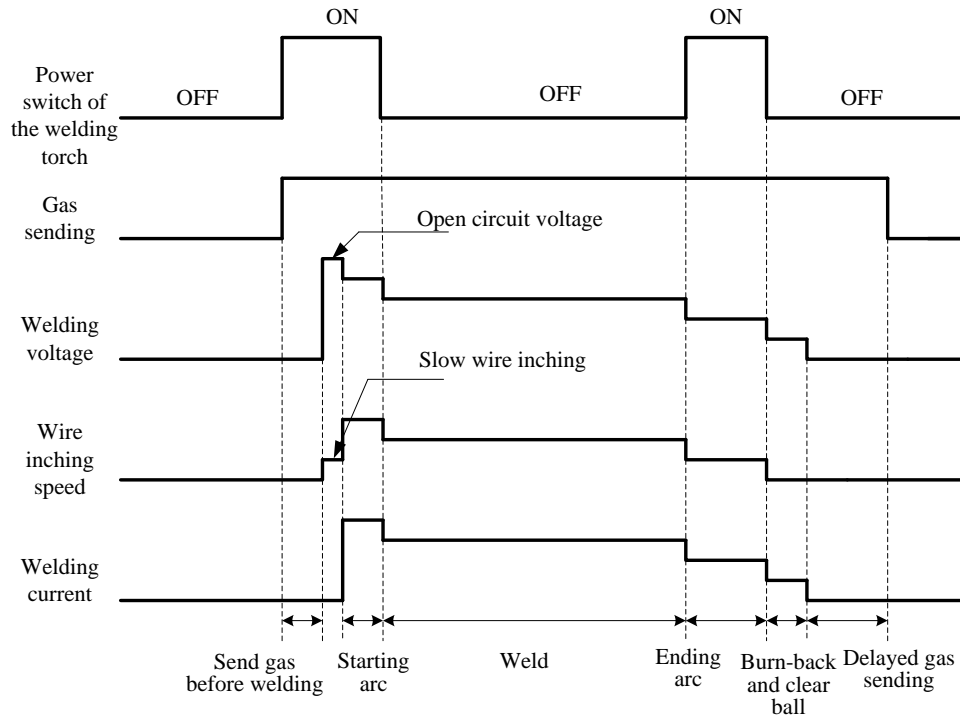




Figure 3-12 Logic of 4-step welding

 Note

The starting arc generation time depends on the starting arc generation time on the control panel of the welder. The ending arc generation time depends on the time when the power switch of the welding torch is turned on.

The procedure is as follows:

1. Press the **Welding control**  button and switch to the **4T (with ending arc)**  mode.
2. Set the starting arc parameters. For details, see the description of starting arc parameter setup.
3. Set the ending arc parameters. For details, see the description of ending arc parameter setup.

Special 4T

Figure 3-13 shows the welding logic.

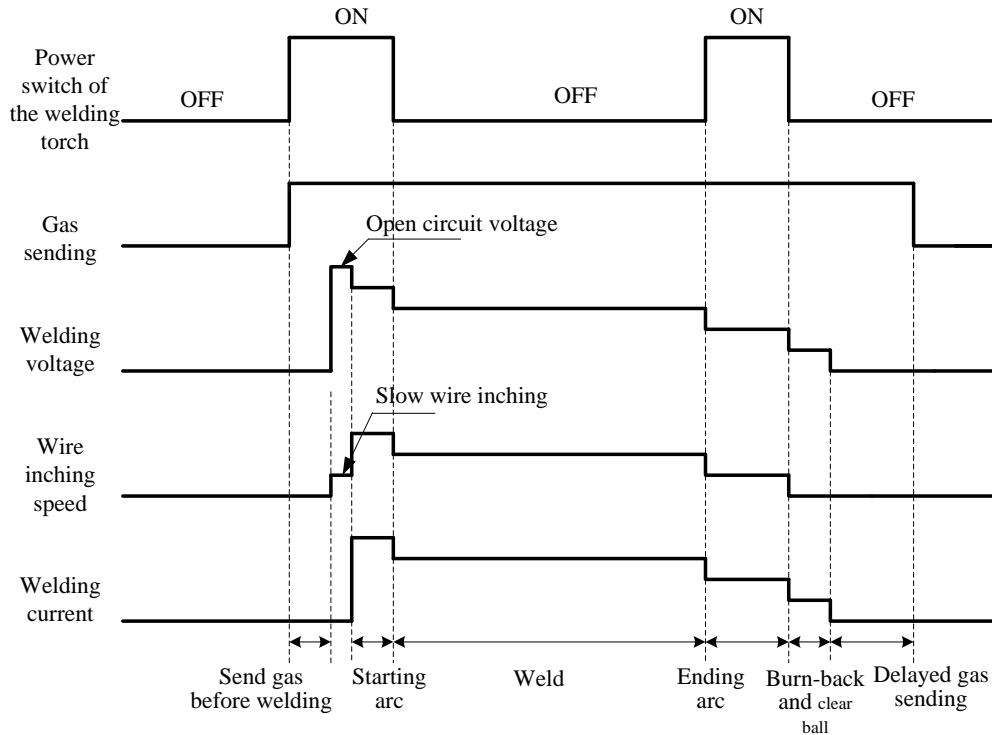




Figure 3-13 Logic of 4-special-step welding

The procedure is as follows:

1. Press the **Welding control**  button and switch to the **special 4T**  mode.
2. Set the starting arc parameters. For details, see the description of starting arc parameter setup.
3. Set the ending arc parameters. For details, see the description of ending arc parameter setup.



Note

The starting arc generation time and ending arc generation time depend on the time when the power switch of the welding torch is turned on.

Welding with Repeated Ending Arc

When the power switch of the welding torch is turned on, welding is performed based on the starting arc parameters. When the power switch is turned off, welding is performed based on the preset parameters. When the power switch is turned on again, welding is performed based on the ending arc parameters. When the power switch is turned off, welding stops. If the welding torch is not used within 2 seconds, welding with repeated ending arc stops. If the power switch is turned on within 2 seconds, welding is performed based on the ending arc parameters again. This procedure repeats when you repeat the preceding operation. Figure 3-14 shows the operations implemented on the welding torch for welding with repeated ending arc.

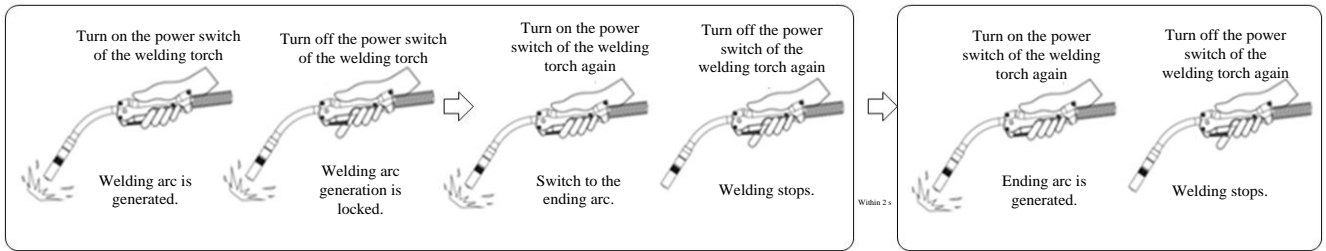


Figure 3-14 Schematic diagram of operations implemented on the welding torch for welding with repeated ending arc

Figure 3-15 shows the welding logic.

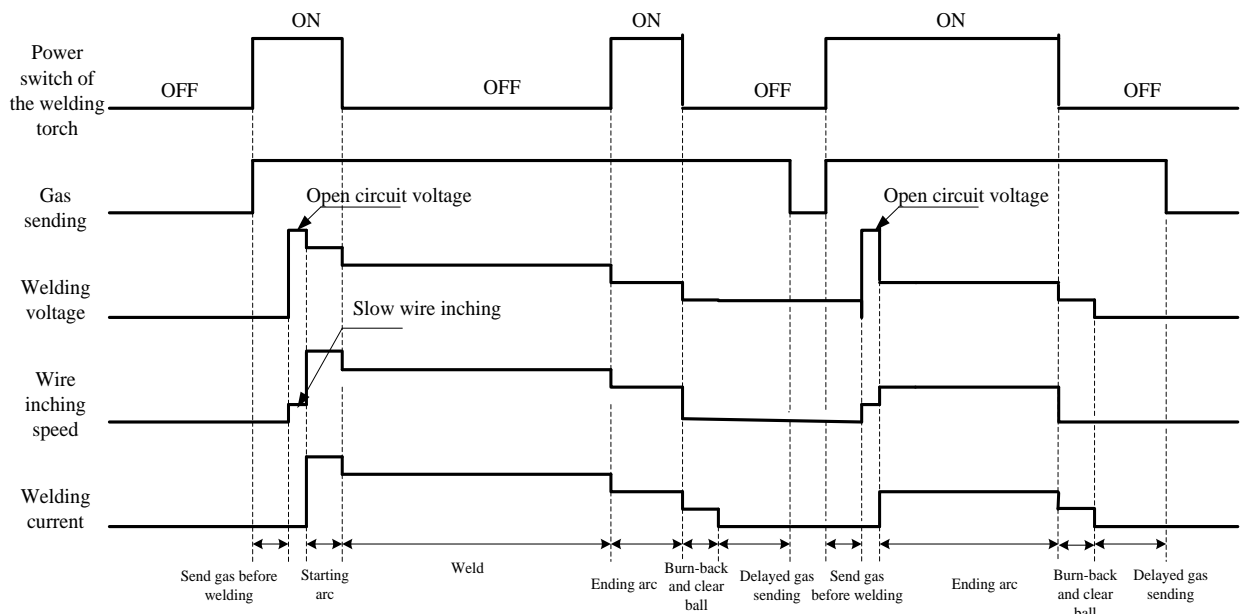




Figure 3-15 Logic of welding with repeated ending arc

 Note

The starting arc generation time depends on the starting arc generation time on the control panel of the welder. The ending arc generation time depends on the time when the power switch of the welding torch is turned on.

The procedure is as follows:

1. Press the **Welding control**  button and switch to the **Welding with repeated ending arc** mode.
2. Set the starting arc parameters. For details, see the description of starting arc parameter setup.
3. Set the ending arc parameters. For details, see the description of ending arc parameter setup.

3.2.11 SAVE and LOAD

3.2.11.1 SAVE

The function saves welding parameter settings.

1. Set welding parameters and press the **SAVE**  button. The parameter saving indicator flashes and at the same time the **Job No.** indicator is on. Channel ID selection is enabled.
2. Use the knob on the control panel to select a channel ID, which ranges from 0 to 49. Then, press the **ENTER**  button. See Figure 3-16.

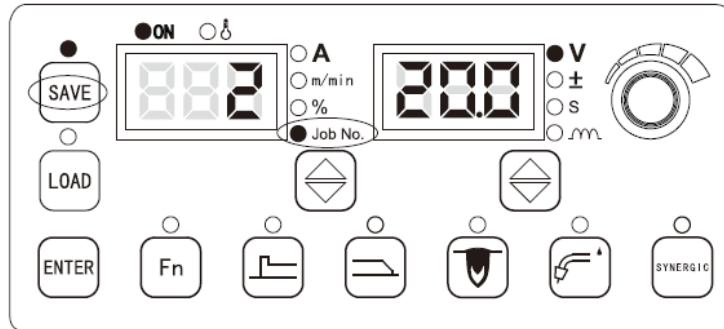





Figure 3-16 Saving parameter settings

Note

1. When the factory settings of the welder are restored, the saved parameters are not deleted.
2. If you do not press the **ENTER**  button when saving parameter settings, the settings are not saved.
3. When the storage space is full, original settings will be overwritten with new settings.
4. When different settings are saved using the same channel ID, the new settings will replace the original settings.

3.2.11.2 LOAD

The function loads saved welding parameter settings.

1. Press the **LOAD**  button. The LED indicator flashes and parameter loading is enabled.
2. Use the knob on the control panel to select a channel ID to be loaded, which ranges from 0 to 49. Then, press the **ENTER**  button. See Figure 3-17.

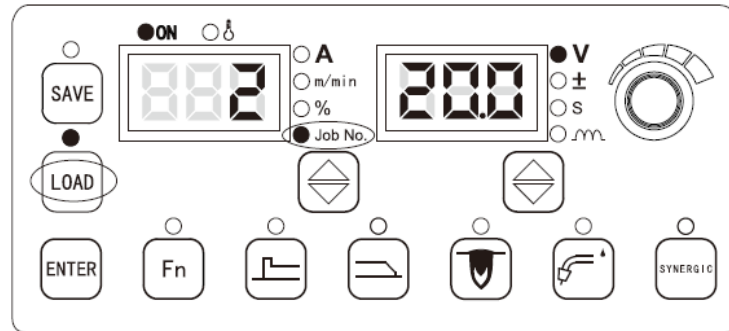







Figure 3-17 Loading parameter settings

3.2.12 Lock


Note

1. The initial password is set to **0000** before delivery. After it is changed, use the new password.
2. If you set a lock password, it is not deleted when the factory settings of the welder are restored.
3. Keep your password properly. If you forget your lock password, the welder cannot be unlocked. In this case, contact the manufacturer or supplier.

Locking can be implemented with the common lock or password lock. The password lock involves password setting and parameter range locking.

In the locked mode, the knobs of the preset voltage and preset current on the wire feeder can be used, and all the buttons and knobs (except the **SAVE** , **LOAD** , **ENTER** , **Inch wire** , and **Detect gas**  buttons) on the control panel of the welder cannot be used.

Purposes of the locking function:

1. The common lock only prevents the parameter settings completed on the control panel of the welder from being changed. You can press and hold the **ENTER**  button to unlock.
2. The password lock facilitates management of the welding process. After parameters are locked, their values can be adjusted only within the specified ranges. They can be unlocked only with the password.

Common Lock

The procedure is as follows:

1. Set welding parameters. Press and hold the **ENTER**  button for 3 seconds. When the left LED screen displays **L**, the **SAVE**  and **LOAD**  indicators flash and the common lock function is enabled. See Figure 3-18.

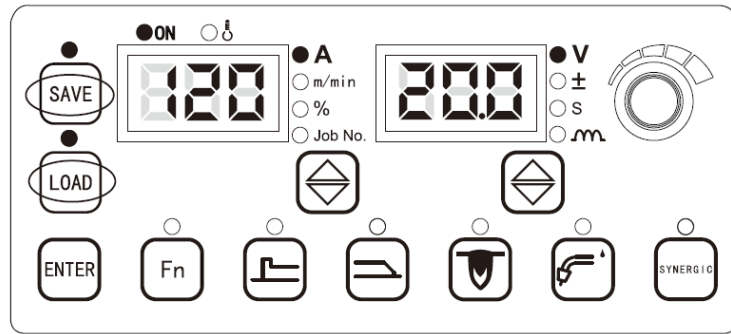


Figure 3-18 Enabling the common lock

2. Press and hold the **ENTER**  button. The **SAVE**  and **LOAD**  indicators turn off, the common lock function is disabled, and the parameters are unlocked. See Figure 3-19.

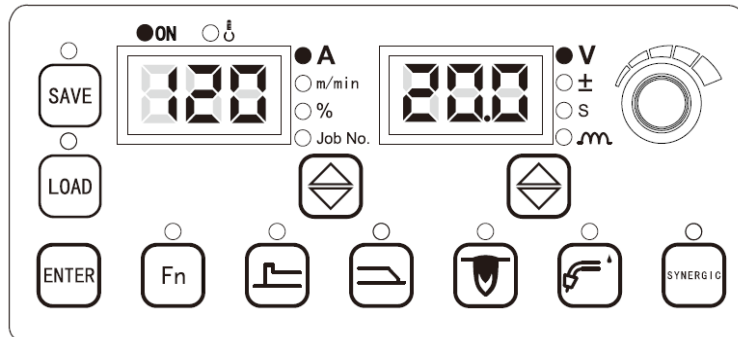





Figure 3-19 Disabling the common lock

Password Lock

The password lock involves password setting and parameter range locking.

A. Setting a password

1. Press and hold the **ENTER**  button. The common locking function is enabled.
2. Press and hold the **SAVE**  button, the LED screen displays **0- - - -**. See Figure 3-20. Adjust the knob on the control panel of the welder and enter the password character by character. Then, press the **LOAD**  button.

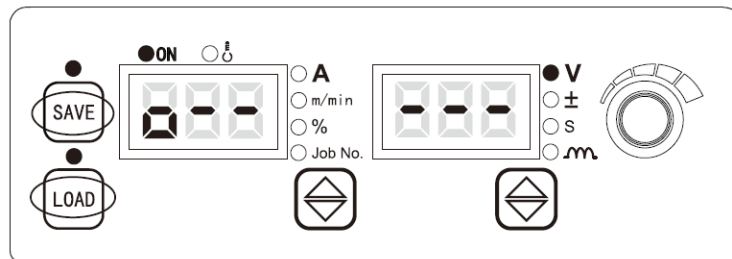


Figure 3-20 Setting a password

If the password is set correctly, the LED screen displays **good**. See Figure 3-21. The LED screen flashes and the new password setting screen is displayed.

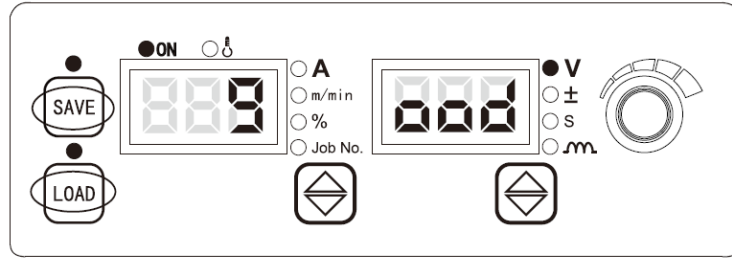


Figure 3-21 Message indicating that a password is set correctly

If the password is not set correctly, the LED screen displays **Fail**. See Figure 3-22. The password setting screen is displayed. Change the password until the LED screen displays **good**.

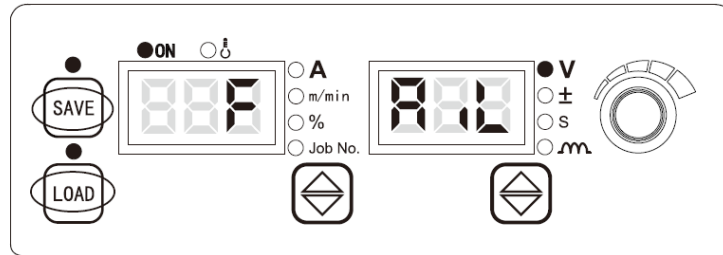



Figure 3-22 Message indicating that a password is not set correctly

- On the screen for setting a new password, the LED screen displays **1- - - -**. See Figure 3-23. Adjust the knob on the control panel of the welder and enter a new password character by character. Then, press the **LOAD**  button.

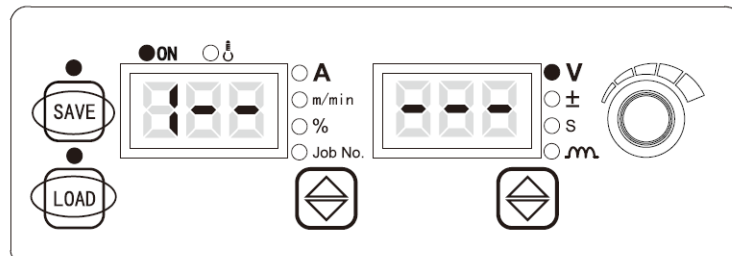



Figure 3-23 Setting a new password

- After the new password is set, the LED screen displays **good** and the new password confirmation screen is displayed.
- On the screen for confirming the new password, the LED screen displays **2- - - -**. See Figure 3-24. Adjust the knob on the control panel of the welder and enter the new password character by character. Then, press the **LOAD**  button.

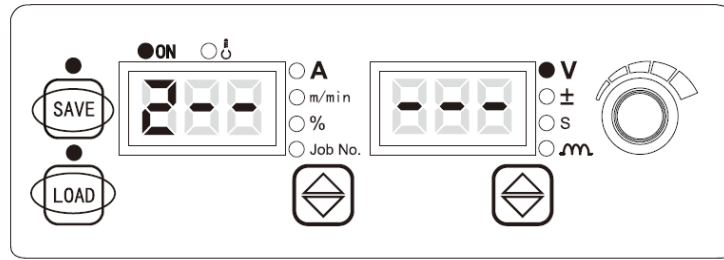





Figure 3-24 Confirming a new password

If the two passwords entered are the same, the LED screen displays **good** and the non-locking status is activated. The password setting is complete.

If the two passwords are different, the LED screen displays **Fail**. The password confirmation screen is displayed. Change the password until the LED screen displays **good**.

B. Locking parameter ranges

I. Enable the parameter range locking function.

1. Press and hold the **ENTER**  button. The common locking function is enabled. For details, see the description of the common lock for parameters.
2. Press and hold the **LOAD**  button. The parameter range locking function is enabled. Enter the password.
3. On the current adjustment range locking screen, follow the flashing instructions on the screen to use the knob on the control panel of the welder to set the current adjustment range. See Figure 3-25. The default range is $\pm 15A$. Then, press the **LOAD**  button to confirm the settings. The voltage adjustment range locking screen is displayed.

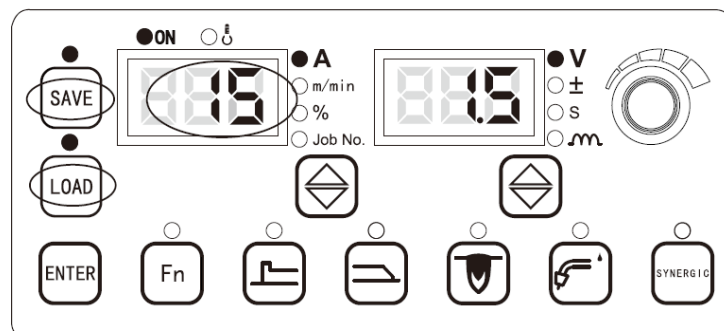



Figure 3-25 Current adjustment range locking screen

4. On the voltage adjustment range locking screen, follow the flashing instructions on the screen to use the knob on the control panel of the welder to set the voltage adjustment range. See Figure 3-26. The default adjustment range is $\pm 1.5V$. Then, press the **LOAD**  button to confirm the settings. The parameter range locking screen is displayed.

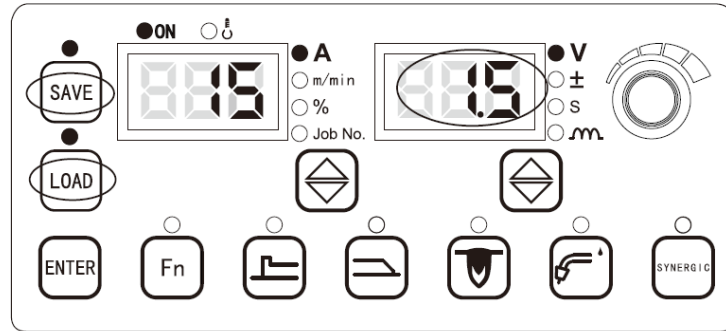


Figure 3-26 Voltage adjustment range locking screen

5. In the parameter range locking mode, the **SAVE**  and **LOAD**  indicators keep flashing. See Figure 3-27. The current and voltage can be adjusted only within the specified ranges.

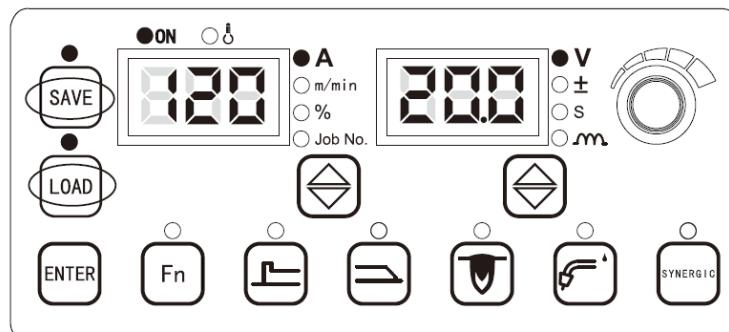






Figure 3-27 Parameter range locking screen



II. Unlocking parameter ranges


1. Press and hold the **ENTER**  button, enter a five-character password, and press the **LOAD**  button.

 Note:

1. If you press and hold the **ENTER**  button when setting the parameter locking range, the common parameter locking screen is displayed and the setting fails.
2. If the welder is powered off and then restarted when the parameter locking range is set, the common parameter locking screen is displayed. If the welder is powered off and then restarted when the parameter range locking mode is used, the module enters the mode again after being restarted.
3. When unlocking the parameter range, you need to enter the correct password.
4. The current and voltage adjustment ranges depend on the welder model. For details, see the technical specifications.

3.2.13 Internal Menu

- You can press and hold the **Fn**  button for 3 seconds to access the internal menu. The LED indicator turns on. Then, you can press the **Fn**  button to exit from the internal menu. The LED indicator turns off.

- In the internal menu, you can use the knob on the control panel of the welder to switch among menu items at the same level and adjust parameter values.
- The **ENTER**  button is used as the selection confirmation button for the internal menu.
- When setting parameters using the internal menu, **OFF** displayed on the LED screen indicates the default parameter value.

Slow Wire Inching Speed (F10)

It specifies the speed of wire inching before starting arc.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F10**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F10** parameter (see Table 3-3) and press the **ENTER**  button. The **F10** parameter is set.

Table 3-3 Slow wire inching speed

Parameter Name	Unit	Adjustment Range	Step	Default Value
F10	Meter/minute	1.4 - 18 meters/minute	0.1 meter/minute	1.4 meter/minute

Time to Send Gas Before Starting Arc (F11)

It specifies the time to send gas before starting arc.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F11**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F11** parameter (see Table 3-4) and press the **ENTER**  button. The **F11** parameter is set.

Table 3-4 Time to send gas before starting arc

Parameter Name	Unit	Adjustment Range	Step	Default Value
F11	Second	0 - 25 seconds	0.1 second	0.2 second

Soft Start Time (F12)

It specifies the time taken to change from the slow wire inching speed to the wire inching speed for starting arc or for welding.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F12**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F12** parameter (see Table 3-5) and press the **ENTER**  button. The **F12** parameter is set.

Table 3-5 Soft start time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F12	Second	0.001 - 0.999 seconds	0.001 second	Automatic matching

Wire Inching Speed Transition Time (F13)

It specifies the time taken to change from the wire inching speed for starting arc to the preset wire inching speed or from the preset wire inching speed to the wire inching speed for ending arc.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F13**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F13** parameter (see Table 3-6) and press the **ENTER**  button. The **F13** parameter is set.

Table 3-6 Wire inching speed transition time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F13	Second	0.01 - 9.99 seconds	0.01 second	0.1 second

Delayed Gas Sending Time (F14)

It specifies the time to send gas after ending arc.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F14**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F14** parameter (see Table 3-7) and press the **ENTER**  button. The **F14** parameter is set.

Table 3-7 Delayed gas sending time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F14	Second	0 - 25 seconds	0.1 second	1 second

Wire Inching Speed (F15)

It specifies the speed of wire inching before welding.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F15**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F15** parameter (see Table 3-8) and press the **ENTER**  button. The **F15** parameter is set.

Table 3-8 Wire inching speed

Parameter Name	Unit	Adjustment Range	Step	Default Value
F15	Meter/minute	1.4 - 24 meters/minute	0.1 meter/minute	Automatic matching

Reverse Wire Inching Speed (F16)

It specifies the speed of reverse wire inching before welding.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F16**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F16** parameter (see Table 3-9) and press the **ENTER**  button. The **F16** parameter is set.

Table 3-9 Reverse wire inching speed

Parameter Name	Unit	Adjustment Range	Step	Default Value
F16	Meter/minute	1.4 - 10 meters/minute	0.1 meter/minute	1.4 meter/minute

Reverse Wire Inching Time (F17)

It specifies the time to reverse wire inching before welding.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F17**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F17** parameter (see Table 3-10) and press the **ENTER**  button. The **F17** parameter is set.

Table 3-10 Reverse wire inching time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F17	Second	0 - 2 seconds	0.01 second	OFF



Note:

If the reverse wire inching time is set to **OFF**, the time is controlled by the reverse wire inching switch.

DC Welding Logic

See Figure 3-28.

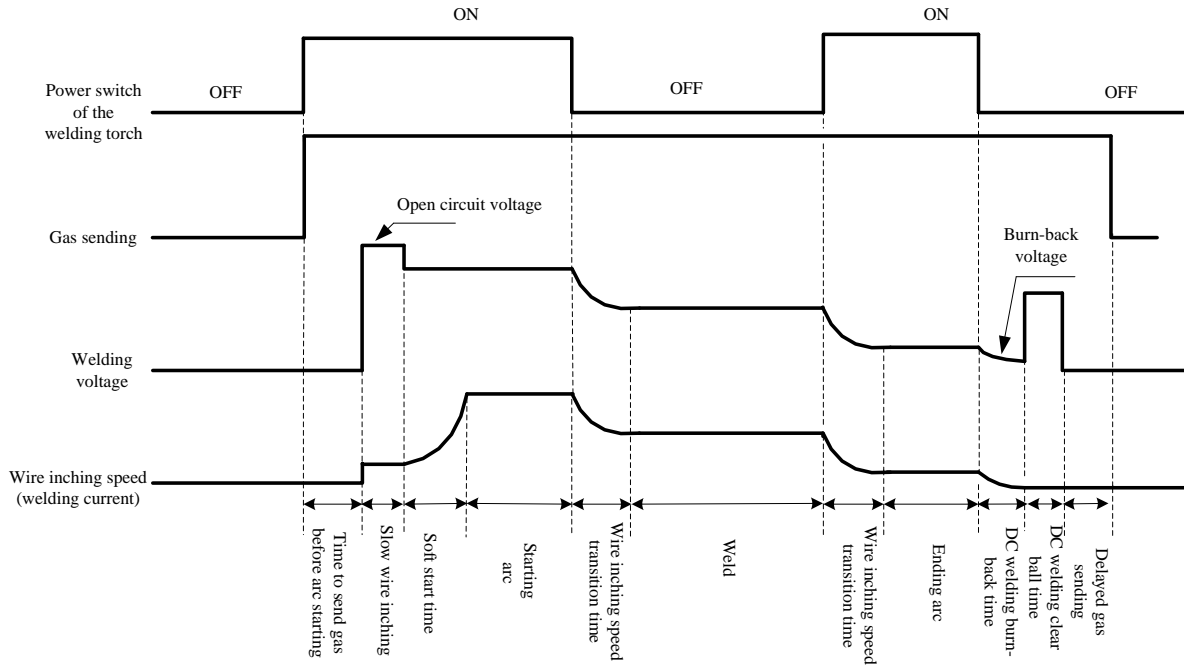


Figure 3-28 DC welding logic

DC Burn-back Voltage (F20)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F20**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F20** parameter (see Table 3-11) and press the **ENTER**  button. The **F20** parameter is set.

Table 3-11 DC burn-back voltage

Parameter Name	Unit	Adjustment Range	Step	Default Value
F20	V	12 - 45 V	0.1 V	12 V

DC Burn-back Time (F21)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F21**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F21** parameter (see Table 3-12) and press the **ENTER**  button. The **F21** parameter is set.

Table 3-12 DC burn-back time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F21	Second	0.00 - 1.00 seconds	0.01 second	Automatic matching

DC Clear Ball Time (F22)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F22**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F22** parameter (see Table 3-13) and press the **ENTER**  button. The **F22** parameter is set.

Table 3-13 DC clear ball time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F22	Second	0.00 - 1.00 seconds	0.01 second	0.24 second

the schematic diagram of the single-pulse and double-pulse welding logic

Figure 3-29 shows the schematic diagram of the single-pulse and double-pulse welding logic.

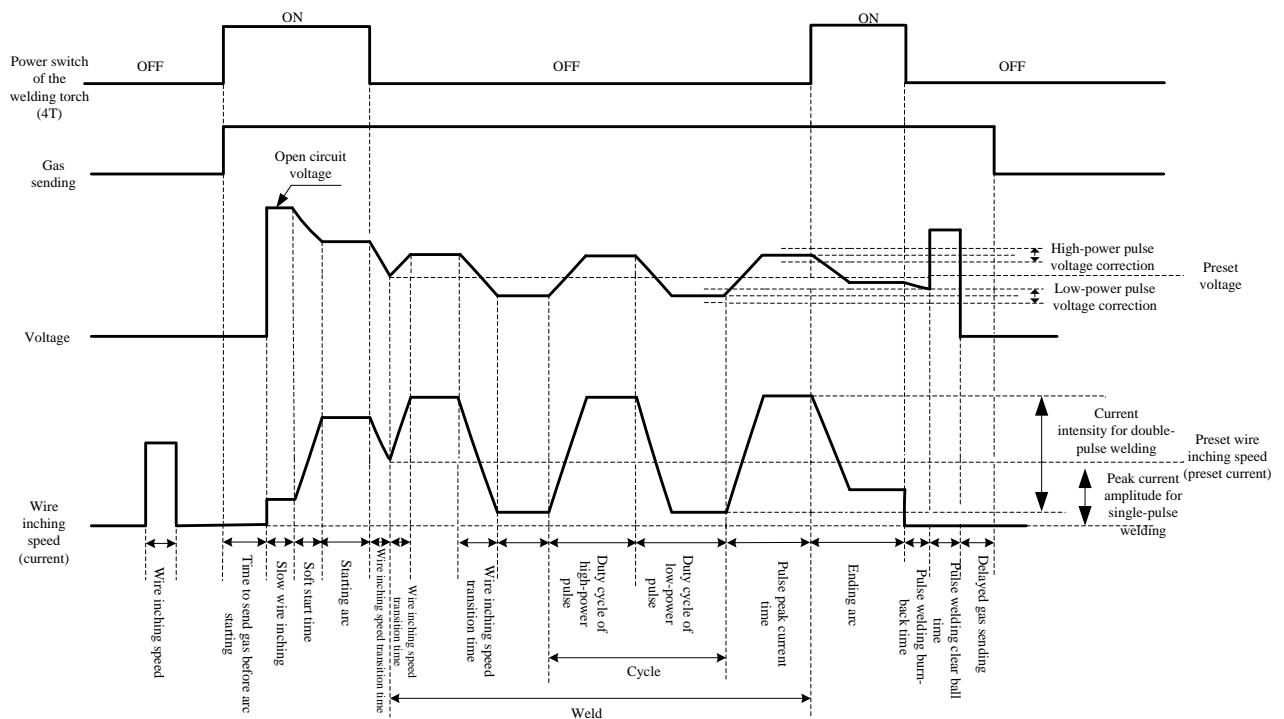


Figure 3-29 Schematic diagram of single-pulse and double-pulse welding logic

Peak Current Amplitude for Single-pulse Welding (F30)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F30**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F30** parameter (see Table 3-14) and press the **ENTER**  button. The **F30** parameter is set.

Table 3-14 Peak current amplitude for single-pulse welding

Parameter Name	Unit	Adjustment Range	Step	Default Value
F30	A	200 - 750 A	1 A	360 A

Pulse Peak Current Time (F31)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F31**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F31** parameter (see Table 3-15) and press the **ENTER**  button. The **F31** parameter is set.

Table 3-15 Pulse peak current time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F31	1/32 ms	16 - 160	1	50

Pulse Welding Burn-back Time (F34)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F34**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F34** parameter (see Table 3-16) and press the **ENTER**  button. The **F34** parameter is set.

Table 3-16 Pulse welding burn-back time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F34	Second	0 - 1 second	0.01 second	Automatic matching

Pulse Welding Clear Ball Time (F35)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F35**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F35** parameter (see Table 3-17) and press the **ENTER**  button. The **F35** parameter is set.

Table 3-17 Pulse welding clear ball time

Parameter Name	Unit	Adjustment Range	Step	Default Value
F35	1/32 ms	0 - 250	1	75

Double-pulse Welding Frequency (F40)

It specifies the number of times that the high-power pulse and low-power pulse alternate within 1 second.

$$f \text{ (frequency)} = \frac{1}{T \text{ (cycle)}}$$

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F40**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F40** parameter (see Table 3-18) and press the **ENTER**  button. The **F40** parameter is set.

Table 3-18 Double-pulse welding frequency

Parameter Name	Unit	Adjustment Range	Step	Default Value
F40	Hz	0.2~10	0.1	1

Duty Cycle for Double-pulse Welding (F41)

It specifies the percentage of time when the high-power pulse and low-power pulse persist within one cycle (T).

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F41**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F41** parameter (see Table 3-19) and press the **ENTER**  button. The **F41** parameter is set.

Table 3-19 Duty cycle for double-pulse welding

Parameter Name	Unit	Adjustment Range	Step	Default Value
F41	%	0 - 99	1	50

Currency Intensity for Double-pulse Welding (F42)

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F42**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F42** parameter (see Table 3-20) and press the **ENTER**  button. The **F42** parameter is set.

Table 3-20 Currency intensity for double-pulse welding

Parameter Name	Unit	Adjustment Range	Step	Default Value
F42	%	0 - 50	1	20

Low-Power Pulse Voltage Correction (F43)

It specifies correction of the low-power pulse voltage for double-pulse welding.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F43**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F43** parameter (see Table 3-21) and press the **ENTER**  button. The **F43** parameter is set.

Table 3-21 Low-power pulse voltage correction

Parameter Name	Unit	Adjustment Range	Step	Default Value
F43	%	-30 – +30	1	0

High-Power Pulse Voltage Correction (F44)

It specifies correction of the high-power pulse voltage for double-pulse welding.

The procedure is as follows:



1. Access the internal menu, switch the knob on the control panel of the welder to **F44**, and press the **ENTER**  button. The right LED screen flashes.
2. Use the knob to adjust the **F44** parameter (see Table 3-22) and press the **ENTER**  button. The **F44** parameter is set.

Table 3-22 High-power pulse voltage correction

Parameter Name	Unit	Adjustment Range	Step	Default Value
F44	%	-30 – +30	1	0

Robot Switch (FA0)



It is used to switch between manual welding and automatic welding. By default, the welding robot power module is turned on.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA0**. The LED screens display the message shown in Figure 3-30.



Figure 3-30 FA0 option screen

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value to **ON** and press the **ENTER**  button. FA0 setting is complete.

Near Control Switch (FA1)

Set the value to **OFF** to disable the near control switch, or set the value to **ON** to enable it.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA0**. The LED screens display the message shown in Figure 3-30.



Figure 3-31 FA1 display interface

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob on the control panel of the welder to **FA0**, and press the **ENTER**  button.

JOB Switch Time (FA2)

It is used to control the transition time of current and voltage when switching the JOB channel. The **OFF** mode indicates 0.1 second by default.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA2**. The LED screens display the message shown in Figure 3-32.

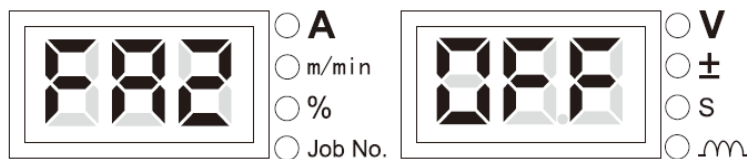




Figure 3-32 FA2 display interface

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value range of **FA2**, and press the **ENTER**  button.

Welder MAC ID (FA3)

It is the communication address set for the welder based on the bilateral communication protocol.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA3**. The LED screens display the message shown in Figure 3-33.

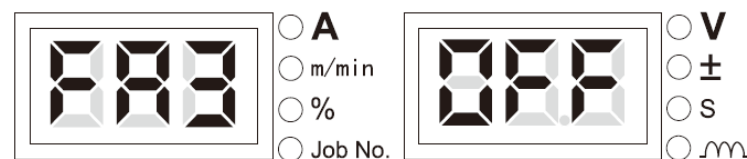




Figure 3-33 FA3 display interface

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value range of **FA3**, and press the **ENTER**  button.

Polarity Switch of Robot Locating Signals (FA4)

For details, see Table 3-23.

Table 3-23 Signal true values



Function	I/O Type	Locating Success	State
FA4	Output	Low level/"1"	OFF (default)
	Output	High level/"0"	ON

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA4**. The LED screens display the message shown in Figure 3-34.



Figure 3-34 FA4 option screen

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value of **FA4** and press the **ENTER**  button.

Polarity Switch of Welder Readiness Signals (FA5)

For details, see Table 3-24.

Table 3-24 Signal true values

Function	I/O Type	Preparation Success	State
FA5	Output	Low level/"1"	OFF (default)
	Output	High level/"0"	ON

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA5**. The LED screens display the message shown in Figure 3-35.

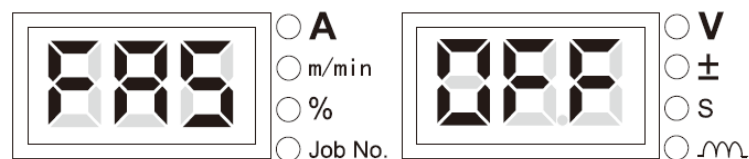




Figure 3-35 FA5 option screen

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value of **FA5** and press the **ENTER**  button.

Polarity Switch for Starting Arc Generation Success of Welding Robot (FA6)

For details, see Table 3-25.

Table 3-25 Signal true values



Function	I/O Type	Starting Arc Generation Success	State
FA5	Output	Low level/"1"	OFF (default)
	Output	High level/"0"	ON

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA6**. The LED screens display the message shown in Figure 3-36.



Figure 3-36 FA6 option screen

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value of **FA4** and press the **ENTER**  button.



Switch of Preset Signal Type for Welding Robot (FA7)

It specifies the type of preset signals received by the welding robot. The signals include the current signal and wire inching signal. The value **OFF** indicates that the current signal is received. The value **ON** indicates that the wire inching signal is received.

1. Access the internal menu, switch the knob on the control panel of the welder to **FA7**. The LED screens display the message shown in Figure 3-37.



Figure 3-37 FA7 option screen

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value of **FA7** and press the **ENTER**  button.

High-voltage Locating Switch (FA8)



The **OFF** mode indicates high-voltage locating by default. **HI** also indicates high-voltage locating, **LO** indicates low-voltage locating, and **CLO** indicates that the locating function is disabled.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA8**. The LED screens display the message shown in Figure 3-38.



Figure 3-38 FA8 display interface

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value to **FA8**, and press the **ENTER**  button.

Robot Communication Protocol Option (FA9)



The **OFF** mode indicates analog interface communication.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FA9**. The LED screens display the message shown in Figure 3-39.



Figure 3-39 FA9 display interface

2. Press the **ENTER**  button. The right LED screen flashes. Switch the knob to set the value to **FA9**, and press the **ENTER**  button.

Note

PA0 to PA9 are the configuration options for the welding robot mode. For details about application, see the *Welding Robot Operating Instruction*.

Query for Software and Hardware Version Numbers (FB0)

It is used to query the software and hardware version numbers of the welder.

1. Access the internal menu, switch the knob on the control panel of the welder to **FB0**. The LED screens display the message shown in Figure 3-40.

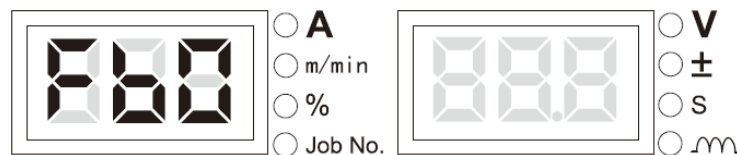


Figure 3-40 FB0 option screen


2. Press the **ENTER**  button and use the knob to query the software and hardware version numbers. See Figure 3-41.



Figure 3-41 Query screen

Fault Query (FB1)


It is used to query the records of faults that occur when the welder is used. There are 200 error codes. **F00** indicates a power-on self-test fault.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FB1**. The LED screens display the message shown in Figure 3-42.



Figure 3-42 Fault query screen

2. Press the **ENTER**  button. An error code appears. You can use the knob to view the fault record.

Model Query (FB2)

It is used to query the model of the welder.

The procedure is as follows:

1. Access the internal menu, switch the knob on the control panel of the welder to **FB2**. The LED screens display the message shown in Figure 3-43.

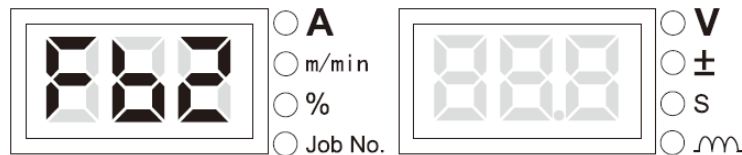


Figure 3-43 Model query screen


2. Press the **ENTER**  button. The model of the welder appears. See Figure 3-44.



Figure 3-44 Model information screen


Restoring the Factory Settings (F01)

The procedure is as follows:

1. Access the internal menu, the left LED screen displays **F01**. The LED screens display the message shown in Figure 3-45.



Figure 3-45 Restoring the factory settings

2. Press and hold the **ENTER**  button. The LED screens display **good** and flash. The factory settings are restored.

Note

After the factory settings are restored, all parameter settings except the saved parameter settings and lock password are replaced by the factory settings. Use this function with care.

3.3 Robot Communication Interfaces

Artsen PM/CM robotic models can be connected to welding robots using the analog and digital communication interfaces at the rear of the welder. See Figure 3-46.

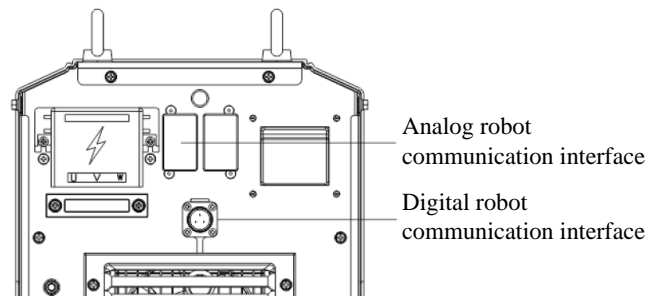


Figure 3-46 Welding robot communication interfaces

3.3.1 Digital Robot Communication Interface

Figure 3-47 shows the pin numbers of the aviation plug for the digital robot communication interface. For the pin definition, see Table 3-26.

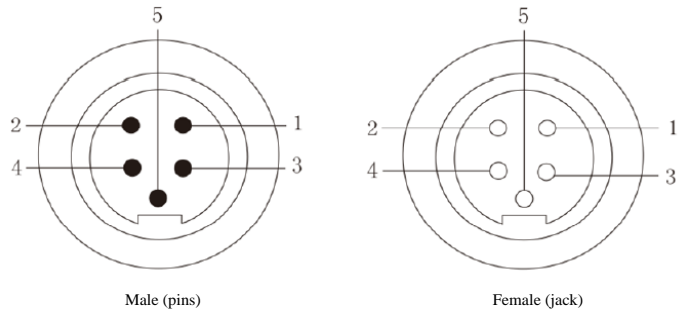


Figure 3-47 Pin numbers of the aviation plug

Table 3-26 Definition of the pins of the aviation plug

Pin Number	Color	Signal Number	Function
1	Red (18AWG)	24 V power supply signal	Robot power signal
2	White (22AWG)	CAN_H signal	CAN_H communication
3	Black (18AWG)	Grounding signal	Robot power supply grounding
4	Blue (22AWG)	CAN_L signal	CAN_L communication
5	Shielding wire (18AWG)	Shielding signal	Housing PE

Note

1. The welder provides 24 V power supply. If the welding robot has a 24 V power supply, it is not necessary to connect the robot to this power supply.
2. A 120 ohm resistor must be connected between the high and low levels of the digital robot communication port. If the welding robot has the resistor, you do not need to connect another resistor.

Functions of the Digital Robot Communication Interface

For details, see the welding robot user manual.

3.3.2 Analog Robot Communication Interface

Figure 3-48 shows the pin numbers of the DB15 connector. For the pin definition, see Table 3-27.

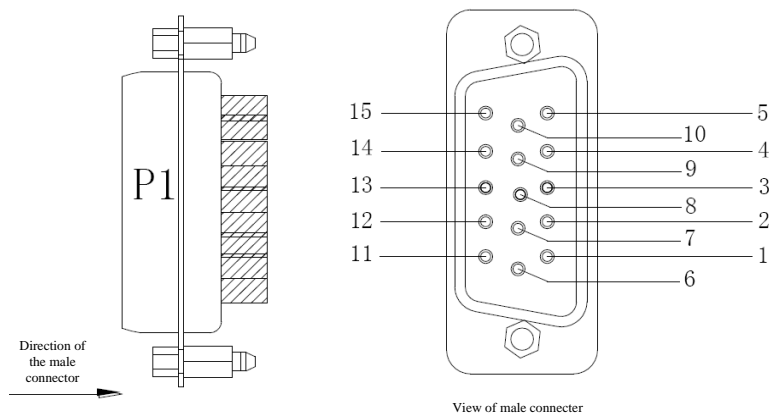


Figure 3-48 Pin numbers of the DB15 connector

Table 3-27 Definition of the pins of the DB15 connector

Pin Number	Wire Color	Signal Number	Function	Note
1	Black 1	24 V power supply signal	Positive electrode of the DC power supply; provided by the robot to the welder	Note 1
2	Black 2	Starting arc generation signal	Provided by the robot for the welder; effective at low level (default)	Note 2
3	Black 3	Reverse wire inching signal	Provided by the robot for the welder; effective at low level (default)	Note 2
4	Brown 1	Starting arc generation success signal	Provided by the welder for the robot; effective at low level (default)	Note 3
5	Brown 2	Preparation signal	Provided by the welder for the robot; effective at low level (default)	
6	Brown 3	Common grounding for analog signals	Common grounding for the analog signals of pins 7, 13, 14, and 15	
7	Orange 1	Welding current signal	Provided by the welder for the robot to indicate the actual welding current value	Note 4
8	Orange 2	Common grounding for I/O signals	Common grounding for the I/O signals of pins 1, 2, 3, 4, 9, and 11	
9	Orange 3	Wire inching signal	Provided by the robot for the welder; effective at low level (default)	Note 2
10	Purple 1	Robot emergency stop signal	Signal for robot emergency stop in case of a fault	
11	Purple 2	Gas detection signal	Provided by the robot for the welder; effective at low level (default)	Note 2
12	Purple 3	Locating signal	Provided by the welder for the robot; effective at low level (default)	
13	Blue 1	Preset voltage signal	Analog signal provided by the robot for the welder to indicate the preset voltage value	Note 7
14	Blue 2	Preset current signal	Analog signal provided by the robot for the welder to indicate the preset current value	Note 6
15	Blue 3	Welding voltage signal	Analog signal provided by the welder for the robot to indicate the actual welding voltage value	Note 5

Robot Analog Interface Function

For details about the function, see the *Welding Robot Operating Instruction*.

3.3.3 Intelligent Function Description

Energy Conservation Function of the Fan

- The fan starts working when the power switch is turned on, and stops working if no operation is performed within 5 minutes.
- It rotates at a low speed when the welding current is lower than 300 A, and rotates at a high speed when the welding current is higher than 300 A.
- It stops working 5 minutes after welding is ended.

Safety Protection Function for the Welding Torch

After start up, if the welding torch is turned on but is not used within 10 seconds, the main power output is disabled. This ensures safe usage.

Intelligent Water Tank Function

For details, see Section 3.2.4 "Air-Cooling/Water-Cooling."

3.4 Post-welding Tasks

Turn off the main switch of the gas cylinder and then turn off the power supply.

Turn off the power supply of the welder and then the power supply of the distribution box.



Note

Turn off the power supply of the welder 3 to 5 minutes after welding is complete. This facilitates internal cooling of the module.

Chapter 4 Troubleshooting

4.1 Failure of Indicators of the Welder

Note

During welding, differences between the current and voltage displayed on the LED screens and the preset current and voltage do not necessarily indicate a fault. The differences may be caused by the used gas, welding wire, lever extension, and welding method.

4.2 Error Codes of the Welder and Solutions

Figure 4-1 shows the error code screens.

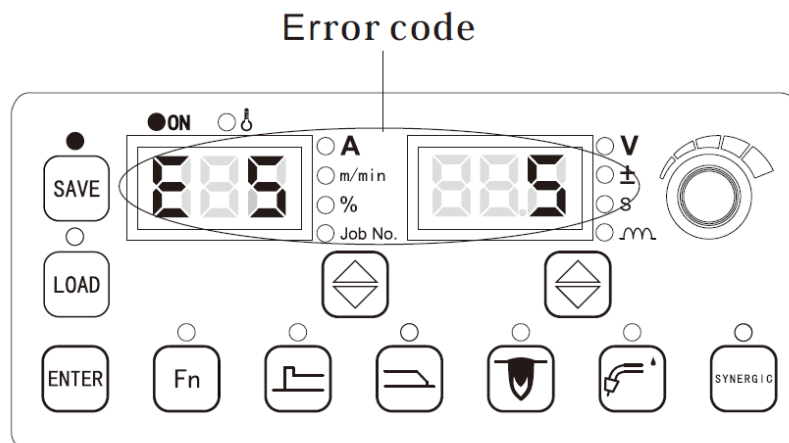


Figure 4-1 Error code screens

Table 4-1 describes the error codes of the welder as well as causes and solutions.

Table 4-1 Error codes of the welder, causes, and solutions

Fault	Error Code		Cause	Solution
	Left LED Screen	Right LED Screen		
Power-on self-test fault	F00	F00	/	/
Welding torch fault	E1	/	When the welder is turned on, the welding torch power switch is on or the switch is broken.	Turn off the switch or replace the welding torch.
Loose output terminal (Terminal over-temperature)	E2	1	The left terminal is loose (terminal over-temperature)	Reliably fasten the output terminals Use cables with greater cross-sectional areas. Select suitable cable terminals.
	E2	2	The right terminal is loose (terminal over-temperature)	
Abnormal input power	E3	1	Input power overvoltage occurs.	Verify that the input cables are connected properly. Verify that the input power is normal.
	E3	2	Input power under voltage occurs.	
	E3	3	Input power over frequency occurs.	

Fault	Error Code		Cause	Solution
	Left LED Screen	Right LED Screen		
	E3	4	Input power under frequency occurs.	
	E3	5	Input power phase imbalance occurs.	
	E3	6	The input power frequency exceeds the range.	
Inductor or diode over-temperature	E4	1	Inductor over-temperature	Ensure that it works within the rated duty cycle range. Verify that the air vent of the welder is not blocked. Remove dust from the radiator. Verify that the fan works properly.
	E4	2	Diode over-temperature	
Button error	E5	1 - 17	A button is stuck.	Check the buttons corresponding to the numbers (displayed on the right LED screen) shown in Figure 3-1.
Output overcurrent	E6	E 6	The output is short-circuited or the current is too high. The output diode module is broken.	Verify that the output is not short-circuited. Verify that the output diode module is not broken.
Communication fault	E7	1	Internal communication fails.	Contact after-sale service personnel.
	E7	2		
Output overvoltage	E8	E 8	The input voltage is too high. The main transformer is broken. The output cables are not connected correctly.	Verify that the input voltage is normal. Verify that the main transformer is not broken. Verify that the output cables are connected correctly.
Primary side overcurrent	E9	E 9	The main transformer is broken. The output diode module is broken. The main power board is broken.	Verify that the main transformer is not broken. Verify that the output diode module is not broken. Verify that the main power board is not broken.
Primary side overvoltage	E10	E10	The input voltage is too high.	Verify that the input voltage is normal.
Current Hall connector disconnection	E11	E11	The current Hall connector is disconnected.	Verify that the connector is connected.
Wire feeder motor overcurrent	E13	E13	The welding wire is blocked or stuck.	Verify that the welding wire is not blocked or stuck.
Gas valve fault	E14	1	The gas valve is short-circuited or broken.	Verify that the gas valve is not short-circuited or broken.
	E14	2	The gas valve is open-circuited or the cable is disconnected.	Verify that the gas valve is not open-circuited and the cable is not disconnected.
Code wheel open circuit	E17	E17	The control cable is loose or the wire feeder is stuck.	Verify that the control cable is not loose and the wire feeder is not stuck.
Robot emergency stop	E18	E18	An error occurs on the robot emergency stop signal.	Verify that the robot communication cables are connected properly.
Robot communication fault	E19	/	The communication between the robot connected using the digital communication port and the welder fails.	Verify that the communication cables are normal.

Chapter 5 Maintenance

5.1 Daily Inspection

Safety Warning

Daily inspection (except for appearance inspection that does or require contact of electrical conductors) can be performed only after the distribution box power supply and welder power supply are turned off. This aims to prevent injuries such as electric shocks and burns.

Usage Notes

1. Daily inspection is key to ensuring high performance and operation safety of the welder.
2. Perform daily inspection based on the items specified in the following table. Clean or replace components when needed.
3. To ensure high performance of the welder, use only the components provided or recommended by Megmeet when replacing components.

Table 5-1 Daily inspection on the welder

Item	Check Content	Remarks
Front panel	Check whether the mechanical components are damaged or loose. Check whether the cables at the lower part are fastened. Check whether the fault indicators flash.	Regularly check the components under the terminal cover at the lower part. If an issue is detected, perform internal inspection on the welder, and fasten or replace components.
Rear panel	Check whether the power supply terminal cover is intact. Check whether the air vent is blocked.	
Top plate	Check whether the hoist ring bolts and the other bolts are loose.	If an issue is detected, fasten or replace components.
Base plate	Check whether the casters are damaged or loose.	
Side panel	Check whether the side panels are loose.	
General	Check whether the appearance shows decolorization or is overheated. Check whether the sound emitted by the fan when the welder is operational is normal. Check whether a peculiar smell or unexpected vibration or noises are detected when the welder is operational.	If an exception is detected, perform internal inspection on the welder.

Power Cables

Table 5-2 Daily inspection on the cables

Item	Check Content	Remarks
Grounding cable	Check whether the grounding cables are disconnected, including the workpiece grounding cable and welder grounding cable.	If an issue is detected, fasten or replace components.
Welding cable	Check whether the insulation layer or other parts of the cable are damaged and whether the conductor is exposed. Check whether the cable is extended by unexpected external forces. Check whether the workpiece power cable and the workpiece are connected firmly.	To ensure safe and proper welding, take appropriate measures to perform inspection according to the site situations.

Other Components

Table 5-3 Daily inspection on the other components

Item	Check Content	Remarks
Welding torch	Follow the user manual of the welding torch to perform daily inspection.	/
Wire feeder	Follow the user manual of the wire feeder to perform daily inspection.	/
Water tank	Follow the user manual of the water tank to perform daily inspection.	
Gas meter	Follow the user manual of the gas meter to perform daily inspection.	/
Gas tube	Check whether the gas tub is connected firmly and whether the soft clamps (if any) are loose. Check whether the tube are damaged or leaky.	If an issue is detected, fasten or replace the tube.

5.2 Regular Inspection

Safety Warning

1. To ensure safety, regular inspection must be performed by certified personnel.
2. It can be performed only after the power supplies of the distribution box and the welder are turned off, so as to prevent injuries such as electric shocks and burns.
3. It can only be performed 5 minutes after the welder is powered off because of capacitor discharge.

Operation Notes:

1. To prevent static electricity from damaging semiconductors and PCBs, take ESD measures or touch the metal parts of the housing with your hand to remove static electricity before touching the conductors of internal cables and the PCBs of the welder.
2. Do not use the solution other than neutral detergents for household use to clean the plastic parts.

Regular Inspection Plan

1. Perform regular inspection to ensure a long service life of this welder.
2. Perform regular inspection carefully, including checking and cleaning the interior of the welder.
3. Generally, regular inspection must be performed every 6 months. However, if the site is dusty or has heavy oily smoke, perform regular inspection every 3 months.

Regular Inspection Items

(You can add inspection items to the following items according to the actual situations.)

1. Remove dust from inside the welder.

Remove the top plate and side plates of the welder. Use dry compressed air to blow off the spatters and dust from inside the welder. Then, remove the dirt and unexpected objects from inside the welder.

Note

Heavy dust on the radiator affects cooling and may easily cause over-temperature protection.

2. Check the welder.

Remove the top plate and side plates of the welder. Check for signs of peculiar smells, discoloration, or damages caused by excessive heat. Check whether the connections are loose.

3. Check the power cables and gas tubes.

In addition to daily inspection, check the grounding cables, power cables, and gas tubes more carefully and regularly resolve fastening issues.

Voltage Resistance Test and Insulation Test

The tests can be performed only by Megmeet's after-sale service personnel or professional personnel with knowledge on electric devices and welders.

The procedure is as follows:

1. Turn off the distribution box power supply.
2. Disconnect all the grounding cables of the housing.
3. Remove all peripherals including the wire feeder from the welder.
4. Connect the three input terminals of the input busbar to create a short circuit.
5. Turn the switch of the welder to the **ON** position.
6. Connect the positive output terminal, negative output terminal, and 19-core aviation plug (except the 19th core) using cables to create a short circuit.
7. The models of the cables used to create short circuits must be the same and the cross-sectional area of each cable must not be smaller than 1.25 mm².



Note

All changes and alteration performed for the voltage resistance test must be discarded after the test.

5.3 After-Sale Service

Warranty Card

Each welder has a warranty card. Fill in the form on the card.

Read and information on the card and maintain the card properly.

Repair

Refer to Section 4.2 "Error Codes of the Welder and Solutions" and perform preliminary troubleshooting or record fault information.

Contact the local reseller when components must be repaired or replaced. Use only the components or accessories provided or recommended by Megmeet.

Megmeet provides a one-year repair service for the welder. The service is effective from the purchase time recorded on the warranty card or invoice for the welder.

The warranty does not cover a product damage caused when the product is not used properly by the user. However, the damage can be handled in the repair process.

Appendix I Technical Specifications

Table 1-1 Technical specifications of the welder

Welder	Unit	CM350	CM400/PM400	CM500/PM500
Control mode	-	Full Digital		
Input voltage	-	3 phase 380 V AC \pm 25%		
Input frequency	Hz	45 Hz - 65Hz		
Input capacity	kVA/kW	15 KVA/12.7 KW	19.7 KVA/18 KW	24 KVA/22.3 KW
Power factor	-	0.94	0.94	0.93
Output characteristics	-	CV		
Rated output current	A	350 A	400 A	500 A
Rated output voltage	V	31.5 V	34 V	39 V
Rated duty cycle	%	DC: 100%	DC: 100%	DC: 60%
Rated open-circuit voltage	V	73.3 V	73.3 V	73.3 V
Output current	A	30 A - 400 A	30 A - 400 A	30A - 500 A
Output voltage	V	12 V - 45 V	12 V - 45 V	12V - 45 V
Analog robot communication interface		Yes (available only on robotic models)		
DEVICENET communication interface		Yes (available only on robotic models)		
Protection class	-	IP23S		
Storage temperature		-10 °C - +40 °C (The welder can be started at -39 °C.)		
Insulation class	-	H		

Table 1-2 Technical specifications of the wire feeder

Wire Feeder		
Wire feeder control mode	/	Digital control using encoder feedback + high-speed loop control by an independent chip
Rated current	A	3.5 A
Rated voltage	V	36 V
Wire inching speed	m/min	1.4 - 24 m/min
Wire inching roll diameter	mm	0.8 - 1.6
Wire reel type	/	All standard wire reels
Driving device	/	Four-wheel wire inching device
Welding torch interface	/	Interface compliant with the European system

Table 1-3 Technical specifications of the water tank

Water Tank		
Rated voltage	V	400 V AC \pm 10%
Cooling water capacity	L	6.5 L
Cooling water flow	L/min	3.5 L/min
Cooling water max. lift	m	26 m
Rated capacity	KW	1.5 KW(L/min)

Appendix II Electric Connections

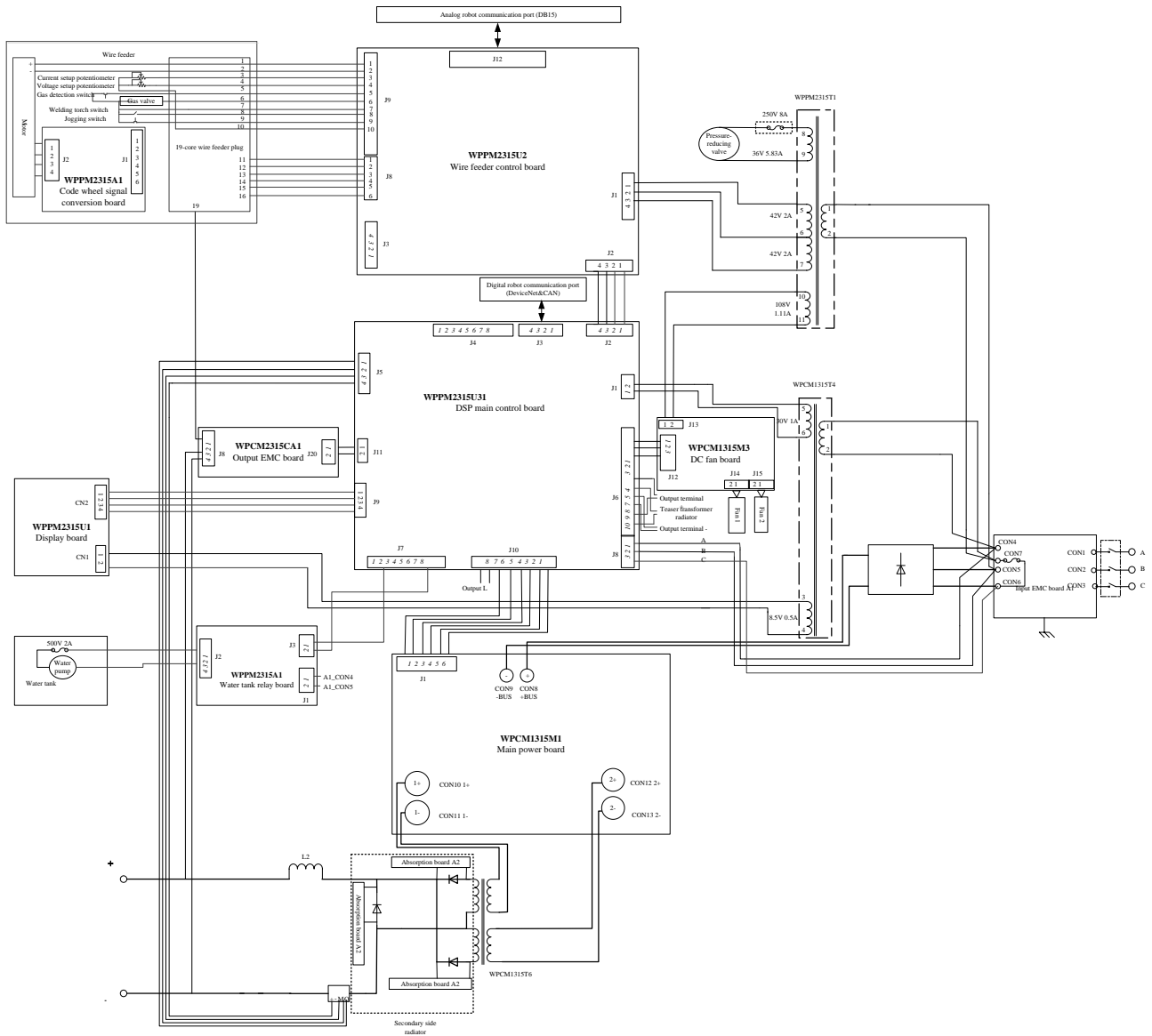


Figure 1 Electric connections for the Artsen PM/CM series

Note: The high-voltage locating function is configured for the welding robot only.

Appendix III System Configurations

Table 1-1 Manual welder configuration

Part			Model										
Name	Standard/Optional	Quantity	Artsen CM350	Artsen CM400	Artsen CM500	Artsen PM400F	Artsen PM500F	Artsen PM400N	Artsen PM500N	Artsen PM400AD	Artsen PM500AD	Artsen PM400AS	Artsen PM500AS
Welder	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Wire feeder	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Welding torch	Optional	1	○	○	○	○	○	○	○	○	○	○	○
Water tank	Optional	1	○	○	○	○	○	○	○	○	○	○	○
Cable bundle	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Welding power cable (ground cable) on the workpiece side	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Welding tractor	Optional	1	○	○	○	○	○	○	○	○	○	○	○
Gas meter	Optional	1	○	○	○	○	○	○	○	○	○	○	○

Table 1-2 Robotic welder configuration

Part			Model										
Name	Standard/Optional	Quantity	Artsen CM350R	Artsen CM400R	Artsen CM500R	Artsen PM400FR	Artsen PM500FR	Artsen PM400NR	Artsen PM500NR	Artsen PM400ADR	Artsen PM500ADR	Artsen PM400ASR	Artsen PM500ASR
Robotic welder	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Robotic wire feeder	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Robotic welding torch	Optional	1	○	○	○	○	○	○	○	○	○	○	○
Water tank	Optional	1	○	○	○	○	○	○	○	○	○	○	○
Cable bundle for the robotic wire feeder	Standard		●	●	●	●	●	●	●	●	●	●	●
Robot control cable	Standard		●	●	●	●	●	●	●	●	●	●	●
Welding power cable (ground cable) on the workpiece side	Standard	1	●	●	●	●	●	●	●	●	●	●	●
Welding tractor	Optional	1	○	○	○	○	○	○	○	○	○	○	○
Gas meter	Optional	1s	○	○	○	○	○	○	○	○	○	○	○

Note: ●: Standard part

○ Optional part

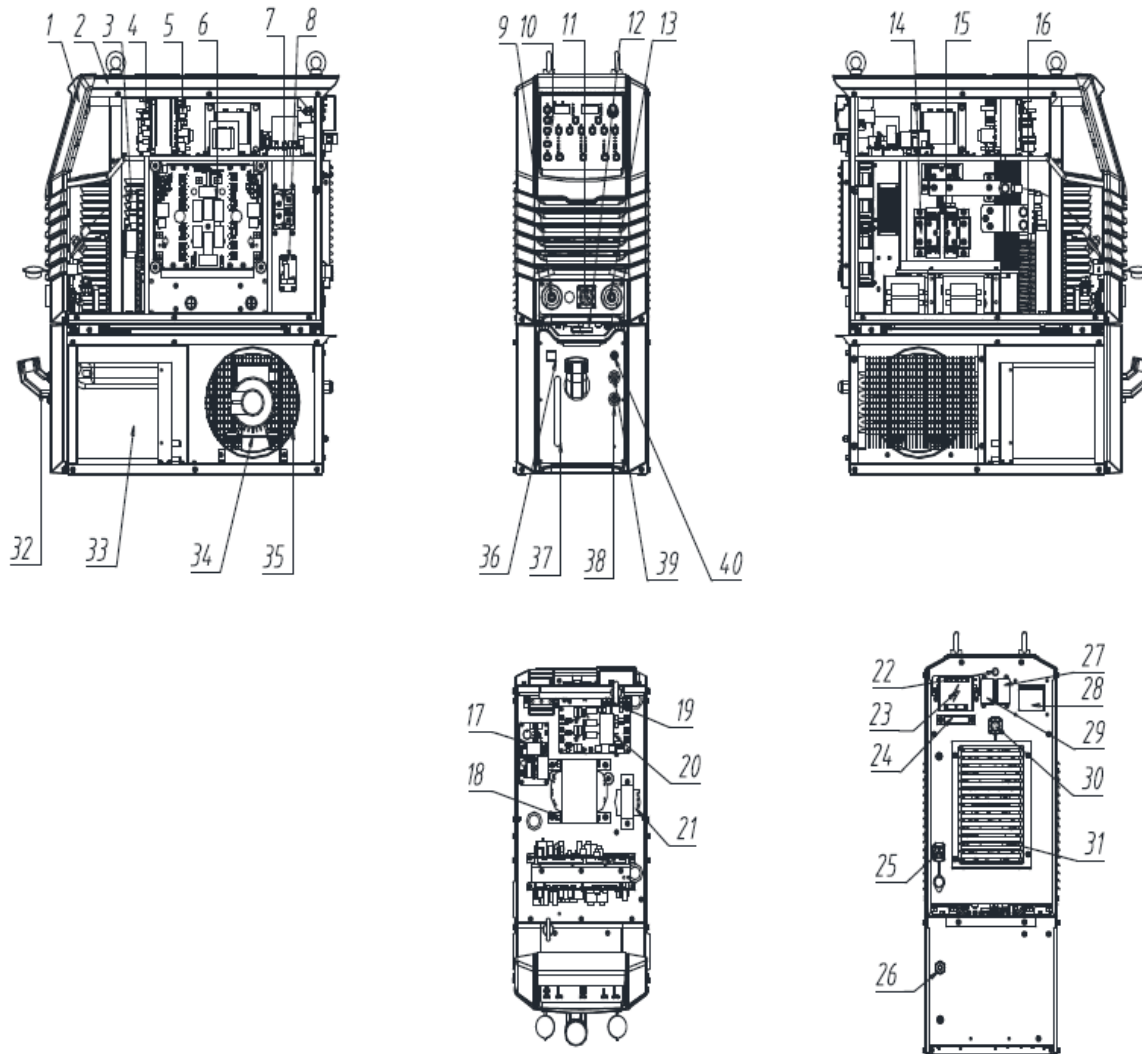
Appendix IV Processing Technique Details

Table 1-1 Processing Technique Details

Model	Welding Method	Wire Type							
		CO ₂ 100% solid carbon steel	CO ₂ 100% flux-core carbon steel	CO ₂ 100% flux-core stainless steel	80% Ar + 20% CO ₂ solid carbon steel	97.5% Ar + 1.5% CO ₂ solid stainless steel	100% Ar aluminum	100% Ar aluminum-silicon alloy	100% Ar aluminum-magnesium alloy
Artsen CM350	DC	0.8/1.0/1.2	1.2	1.2	0.8/1.0/1.2				
Artsen CM400	DC	0.8/1.0/1.2	1.2	1.2	0.8/1.0/1.2				
Artsen CM500	DC	0.8/1.0/1.2/1.6	1.2/1.6	1.2/1.6	0.8/1.0/1.2/1.6				
Artsen PM400F	DC	0.8/1.0/1.2	1.2	1.2	0.8/1.0/1.2				
	Single-pulse				0.8/1.0/1.2				
	Double-pulse				0.8/1.0/1.2				
Artsen PM500F	DC	0.8/1.0/1.2/1.6	1.2/1.6	1.2/1.6	0.8/1.0/1.2/1.6				
	Single-pulse				0.8/1.0/1.2/1.6				
	Double-pulse				0.8/1.0/1.2/1.6				
Artsen PM400N	DC	0.8/1.0/1.2	1.2	1.2	0.8/1.0/1.2				
	Single-pulse				0.8/1.0/1.2	1.0/1.2			
	Double-pulse				0.8/1.0/1.2	1.0/1.2			
Artsen PM500N	DC	0.8/1.0/1.2/1.6	1.2/1.6		0.8/1.0/1.2/1.6				
	Single-pulse			1.2/1.6	0.8/1.0/1.2/1.6	1.0/1.2/1.6			
	Double-pulse				0.8/1.0/1.2/1.6	1.0/1.2/1.6			
Artsen PM400AS	DC	0.8/1.0/1.2	1.2	1.2	0.8/1.0/1.2				
	Single-pulse				0.8/1.0/1.2	1.0/1.2	1.2	1.2	1.2
	Double-pulse				0.8/1.0/1.2	1.0/1.2			
Artsen PM500AS	DC	0.8/1.0/1.2/1.6	1.2/1.6	1.2/1.6	0.8/1.0/1.2/1.6				
	Single-pulse				0.8/1.0/1.2/1.6	1.0/1.2/1.6	1.2/1.6	1.0/1.2/1.6	1.0/1.2/1.6
	Double-pulse				0.8/1.0/1.2/1.6	1.0/1.2/1.6			
Artsen PM400AD	DC	0.8/1.0/1.2	1.2	1.2	0.8/1.0/1.2				
	Single-pulse				0.8/1.0/1.2	1.0/1.2	1.2	1.0/1.2	1.0/1.2
	Double-pulse				0.8/1.0/1.2	1.0/1.2	1.2	1.0/1.2	1.0/1.2
Artsen PM500AD	DC	0.8/1.0/1.2/1.6	1.2/1.6	1.2/1.6	0.8/1.0/1.2/1.6				
	Single-pulse				0.8/1.0/1.2/1.6	1.0/1.2/1.6	1.2/1.6	1.0/1.2/1.6	1.0/1.2/1.6
	Double-pulse				0.8/1.0/1.2/1.6	1.0/1.2/1.6	1.2/1.6	1.0/1.2/1.6	1.0/1.2/1.6

The preceding processing technique details apply to the robotic models. SP indicates customized technique.

Appendix V Structure Details



20 Input EMC board	40 Water tank fuse holder
19 Cable terminal block	39 Water tank outlet
18 Large line-frequency transformer	38 Water tank inlet
17 Fan control board	37 Water volume detection port
16 Inductor	36 Water tank switch
15 Output absorption board	35 Water tank motor
14 Diode	34 Water tank fan
13 Positive and negative output terminals	33 Water tank
12 Hex key	32 Water tank inlet cover
11 19-core control cable jack of the wire feeder	31 Welding power module fan
10 Button display board	30 Robot communication port
9 Negative output terminal	29 Reserved communication port
8 Water tank switch control board	28 Air circuit breaker
7 3-phase rectifier bridge	27 36 V electrically-heated CO ₂ pressure regulator jack
6 Main power board	26 Power cable connector of the welding power module
5 Main power control rate	25 Power cable connector of the water tank
4 Wire feeder control board	24 Input power cable clamp
3 Output EMC board	23 Input cable terminal cover
2 ZA chassis without load	22 Fuse base
1 Plastic panel	21 Small line-frequency transformer

Figure 1 Component configuration

MEGMEET Shenzhen Megmeet Electric Co., Ltd.

Welder Warranty Card

Company:	
Address:	
Zip code:	Contact person:
Tel:	Fax:
Machine model:	
Power:	Machine ID:
Contract ID:	Purchase date:
Service provider:	
Contact person:	Tel:
Repaired by:	Tel:
Repaired on:	
Service quality rating: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Common <input type="checkbox"/> Poor Other comments: User's signature (year) (month) (day)	
Return visit of customer service center: <input type="checkbox"/> By call <input type="checkbox"/> By mail Others: Signature of technical support engineer: (year) (month) (day)	

Note: This card is voided when it is unable to pay a user return visit.

MEGMEET Shenzhen Megmeet Electric Co., Ltd.

Welder Warranty Card

Company:	
Address:	
Zip code:	Contact person:
Tel:	Fax:
Machine model:	
Power:	Machine ID:
Contract ID:	Purchase date:
Service provider:	
Contact person:	Tel:
Repaired by:	Tel:
Repaired on:	
Service quality rating: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Common <input type="checkbox"/> Poor Other comments: User's signature (year) (month) (day)	
Return visit of customer service center: <input type="checkbox"/> By call <input type="checkbox"/> By mail Others: Signature of technical support engineer: (year) (month) (day)	

Note: This card is voided when it is unable to pay a user return visit.

User Notice

1. The warranty covers only the welder.
2. The warranty period is 12 months. Welder faults or damages caused during normal usage within the period will be fixed by Megmeet free of charge.
3. The warranty service is effective from the delivery date of the welder. The warranty period can be determined against only the welder ID. If the welder does not have an ID, it is handled in the same way as a welder whose warranty period has expired.
4. Megmeet will charge a fee for resolving the following issues even in the warranty period:
 - Welder fault resulting in a failure to comply with the user manual
 - Welder damage caused by a fire, flood, or voltage exception
 - Damage caused when the welder is used for purposes for which it is not intended
5. Megmeet will charge the service fee that incurs, unless otherwise stipulated in the contract.
6. Keep this card and present it to the maintenance organization when requesting the warranty service.
7. If you have any questions, contact the reseller or Megmeet.

Shenzhen Megmeet Electric Co., Ltd.
Customer Service Center

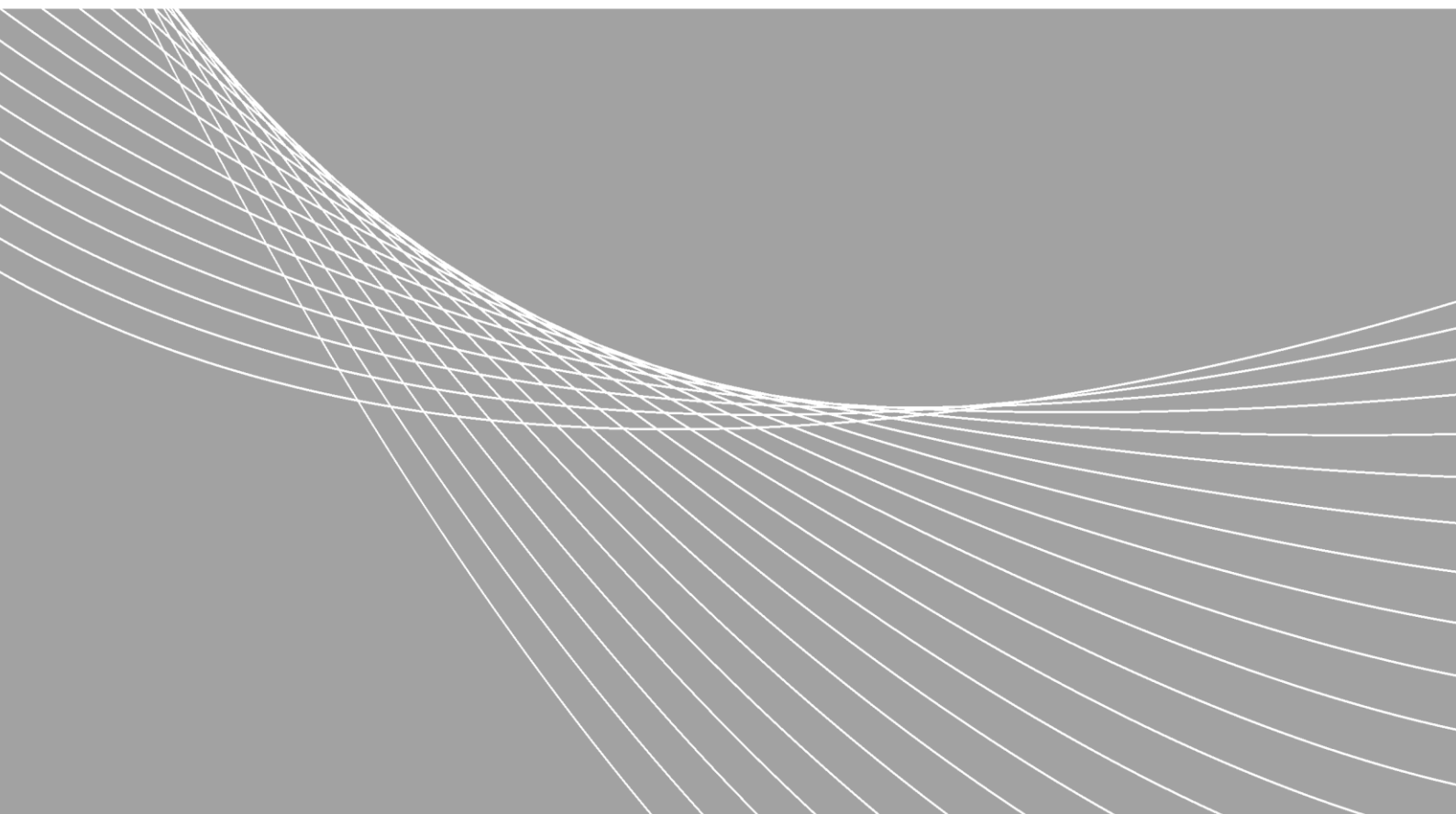
Address: 5th Floor Block B, Ziguang Information Harbor, Langshan Road, Shenzhen,
518057, China
Zip code: 518057
Customer service hotline: 4006662163

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Note: Megmeet continuously pursues development and innovation, and reserves the right to change technical parameters and appearances of products without prior notice.