Thanks for your purchase of this series of welder products! This operating manual contains important information on the use and maintenance of this product, as well as safe handling of the product. Please refer to technical parameters of the equipment in Technical Parameter section in this manual, and read the manual carefully before using the equipment for the first time. For your own safety and that of your working environment, please pay particular attention to the safety instructions in the manual and operate the equipment according to the instructions. For more information on JASIC products, please contact JASIC Technology, consult an authorized JASIC dealer or visit JASIC website at www.jasictech.com.

Disclaimer

Shenzhen JASIC Technology Co., Ltd. solemnly promises that this product is manufactured according to relevant domestic and international standards, and that this product conforms to EN60974-1 International Safety Standard. Patents protect the relevant design scheme and manufacturing technology adopted in this product.

1. Whilst every effort has been made to ensure that the information contained within this manual is complete and accurate, no liability can be accepted for any errors or omissions. Please note products are subject to continual development and may be subject to change without notice.

2. Though contents in this manual have been carefully checked, there may be inaccuracies. Please do not hesitate to contact us in case of any inaccuracy.

3. Do not copy, record, reproduce or transmit the contents of this manual without prior permission from JASIC.

Manufacturer: Shenzhen JASIC Technology Co., Ltd.

Registered Trademark: JASIC

Registered Address: No.3 Qinglan 1st Road, Pingshan District, Shenzhen, Guangdong, China

Postcode: 518118

Tel:+86 (0755) 8670 6250 Fax: +86 (0755) 27364108

Website: www.jasictech.com E-mail: sales@jasictech.com

SAFETY GUIDANCE

Installation Precautions

	**Beware of electric shock!** ● Install grounding devices according to application standard. ● Do not touch live parts with naked skin, wet gloves or wet clothes. ● Be sure you are insulated from ground and workpiece. ● Cover the cover plate of the machine before power on to avoid an electric shock. ● Confirm the safety of your working position.
	**Beware of fire hazard!** ● To avoid fire hazard, please install the machine on non-combustible materials; ● To avoid fire hazard, please make sure there are no inflammables nearby.
	**Beware of explosion!** ● To avoid explosion, please do not install the machine in an explosive gas environment.

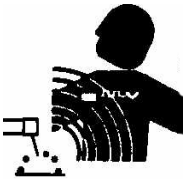
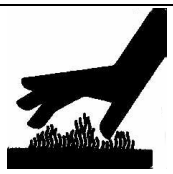
Moving the machine can be dangerous.

- Please make sure the input power switch is turned off before moving the machine.
- Do not stress the operation panel and cover plate while moving the machine so that to avoid falling items hurting others.
- Please fix the wheels tightly while moving the machine with a forklift.
- To avoid possible fire hazard or other damages, please do not install and operate this machine if it's found damaged or lack of components.

Replacing machine components can be dangerous.

- Only qualified personnel can replace the machine components. Make sure there are no foreign bodies such as wire leads, screws, gaskets and metal bars falling into the machine when replacing the components.
- Make sure the connecting wires inside the machine are correctly connected after replacing the PCBs, and then the machine can be run. Otherwise, there is a risk of damage to property.

Precautions for operation

	**Smoke-may be harmful to your health!** ● Keep your head away from the smoke to avoid inhalation of waste gas in welding. ● Keep the working environment well ventilated with exhaust or ventilation equipment when welding.
	**Arc radiation-may hurt your eyes and burn your skin!** ● Use proper mask and wear protective clothing to protect your eyes and body. ● Use proper mask or curtain to protect onlooker from being injured.
	**Magnetic field can make cardiac pacemaker a bit wonky.** ● People with cardiac pacemaker should consult the doctor before carrying out welding. ● Stay away from the power source to reduce the affect of magnetic filed.
	**Improper use and operation may result in a fire or an explosion.** ● Welding spark may result in a fire, so please make ensure there are no inflammables near the welding position, and pay attention to fire safety. ● Ensure there is fire extinguisher nearby, and make sure someone has been trained to operate the fire extinguisher. ● Do not weld closed container. ● Do not use this machine for pipe thawing.
	**Hot workpiece can cause severe scald.** ● Do not touch hot workpiece with bare hands. ● Cool the welding torch for a while after continuously working.
	**Excessive noise can be harmful to hearing.** ● Wear ear covers or other hearing protectors when welding. ● Give warning to nearby personnel that noise may be potentially hazardous to hearing.

	**Moving parts may injure your body.** ● Please keep away from moving parts (such as fan). ● All doors, panel, cover, baffle plate, and other protective device should be closed and well located.
	**Asking for professional support while trouble strikes.** ● When trouble strikes in installation and operation, please resort to this manual for according contents. ● If you still do not fully understand or cannot solve the problem after reading the instructions in this manual, you should contact the supplier or JASIC's service center immediately for professional help.

Precautions for discard

Pay attention to the following when discarding welding machine:

- Burning the electrolytic capacitors in the main circuit or on the PCBs may cause an explosion.
- Burning the plastic parts such as the front panel may produce poisonous gas.
- Dispose it as industrial waste.

CONTENTS

CHAPTER 1 GENERAL DESCRIPTION 2

1.1 Technical parameters 2

1.2 Dimension and weight 3

1.3 Composition and configuration of the welding machine system 4

1.4 Function and features 5

1.5 System characteristics 6

CHAPTER 2 INSTALLATION AND CONNECTION 7

2.1 Installation requirements 7

2.2 Electrical connection 8

2.3 Installation and commission 8

2.4 Connection of welding instruments 9

2.5 Precautions 9

2.6 Preparation before welding 10

CHAPTER 3 OPERATION 11

3.1 Panel of TIG200P 11

3.2 Panel functions 11

3.3 Operation panel functions of TIG200P 12

3.4 Welder operation description 14

3.5 Welder electrical connection block diagram 19

CHAPTER 4 MAINTENANCE 20

4.1 Daily maintenance 20

4.2 Periodic maintenance 21

CHAPTER 5 FAILURE DIAGNOSIS AND TROUBLESHOOTING 23

5.1 Common malfunction analysis and solution 23

5.2 Alarms and solutions 25

5.3 After-sales service 25

CHAPTER 1 GENERAL DESCRIPTION

1.1 Technical parameters

Table 1-1 General Technical Parameters

Items	Unit	TIG200P
Rated Input Power	/	Single Phase AC230V/220V±15% 50Hz/60Hz
Rated Input Capacity	kVA	MMA:9.1kVA TIG:6.4kVA
Rated Input Current	A	MMA:15.9A TIG:13.1A
Rated Output Current/Voltage	A/V	MMA:190A/27.6V TIG:200A/18.0V
Rated Duty Circle (@40℃	%	MMA:15% TIG:20%
No-load voltage	V	DC 62
VRD Voltage	V	DC 12
Output Current Range	A	MMA: 10--190 TIG: 10--200
Pulse Duty Ratio	%	5-95
Pulse Frequency	Hz	0.5-200
Down slope	s	0--15
Post-flow Time	s	0--15
SPOT welding time	s	0.5-5
Arc Ignition Type	/	HF
Enclosure Protection Class	/	IP21S
Insulation Grade	/	H
Power Factor	/	≥0.7
Efficiency	%	≥80%

1.2 Dimension and weight

Welder’s dimension and weight are as shown in Fig 1-2 and Table 1-2 .

Table 1-2 Welder Dimension and Weight

Item	Product Code
	TIG200P(W2L114)
Dimension(L*W*H)	360mm×152mm×246mm
Weight	5.0kg

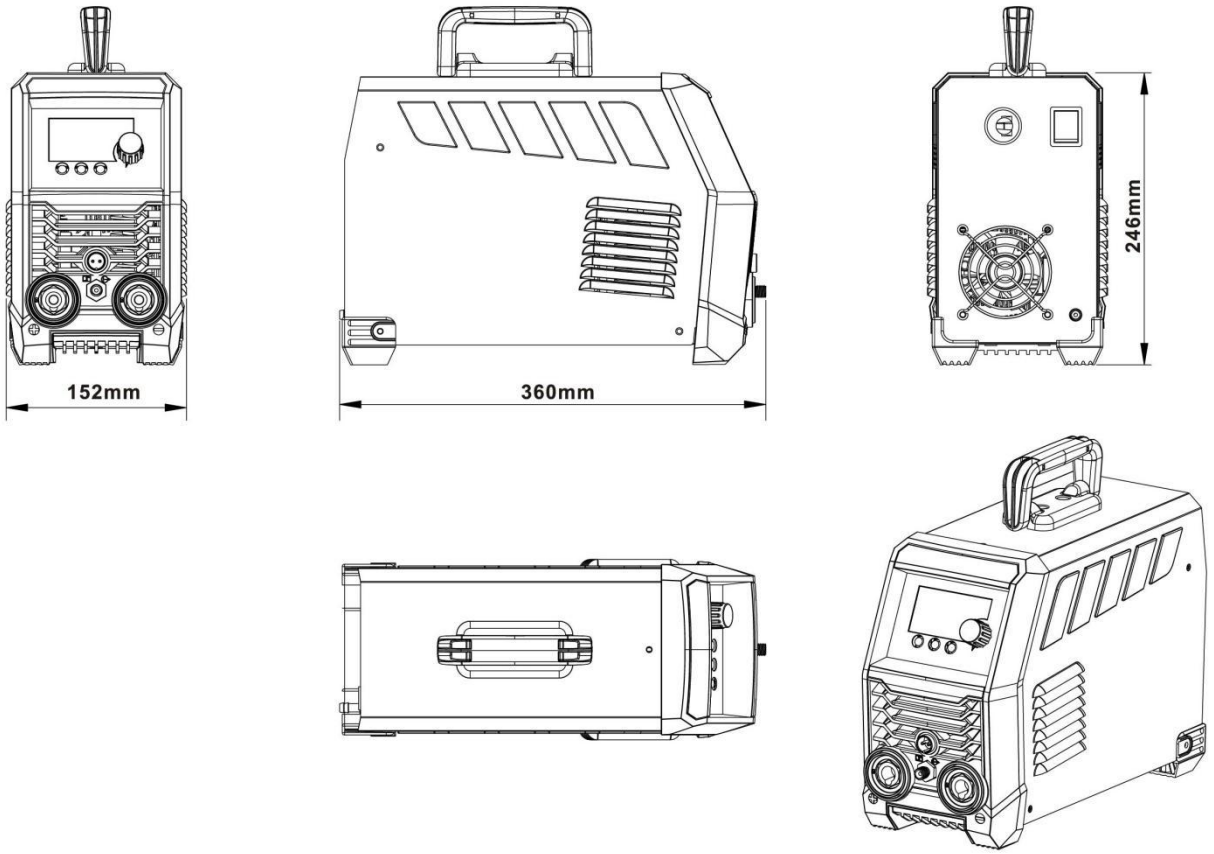


Fig 1-2 Welder Appearance and Dimension（Unit：mm）

1.3 Composition and configuration of the welding machine system

1.3.1 Welding system composition

Welder composition is shown as in Fig 1-3.

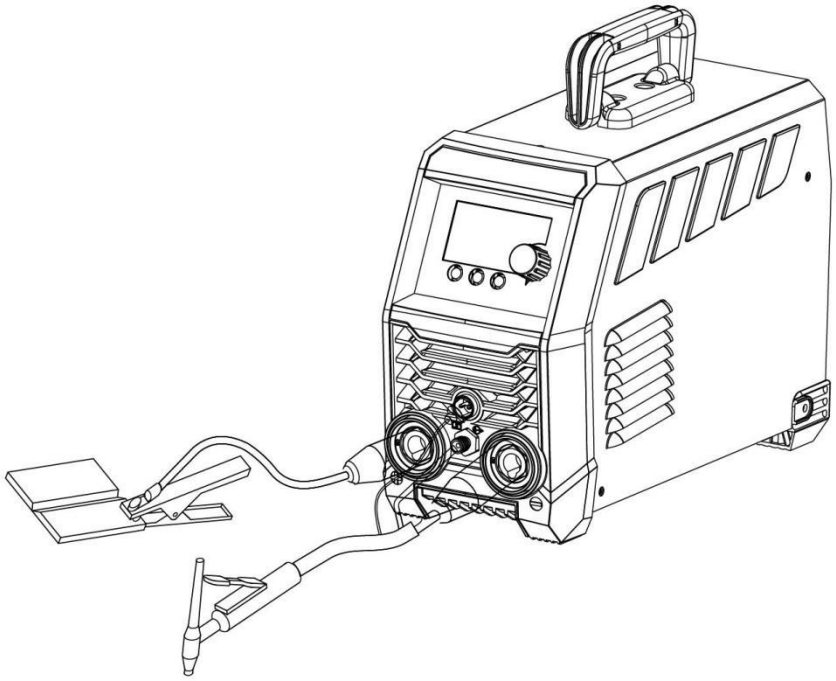


Fig 1-3 Welding System Composition

1.3.2 Configuration list

Welder system configuration list is as shown in Table 3-1.

Table 1-3 TIG200P(W2L114) System Configuration List

Name	Specification	Qty （Unit）	Remark
Welding torch	WP-26 4m air-cooling	1pcs	Standard
Earth Clamp	300A-16mm2-KDP50A(3m)	1set	Standard
Hose	8*12 3m	1pcs	Standard
Hose clamp	6-12mm	2pcs	Standard

1.4 Function and features

TIG series welders are inverter welders which are manufactured and are of mature technology and stable performances.

It adopts PWM technology and high power switching element IGBT (discrete) to rectify AC220V/AC230V /AC240 (50Hz/60Hz) PF voltage to DC 310V--DC340V;after inverting it to 45KHz 325V$\pm 15V$, there is a voltage step-down and rectification again; stable welder current is obtained by output current feedback and adjustment. Welder's weight and dimension, as well as losses are largely reduced due to the switch power supply inverter technology adopted; moreover, the machine's overall efficiency is improved more than 30%.

TIG200P are both MMA and TIG welding machine.

TIG welder is of constant current external characteristic. Welding current will not be changed per arc length but being kept at a very stable level.

Machine panel is equipped with digital LED screen, parameter adjustment knob and function buttons.

Machine panel is of abundant functions, concise distribution and convenient operation.

Remote control function available: supports foot pedal & analog torch (purchase additional if need)

1.5 System characteristics

Duty Circle

Rated duty circle means: Taking 10 min as a time cycle, the ratio of rated output time is taking in that time cycle.

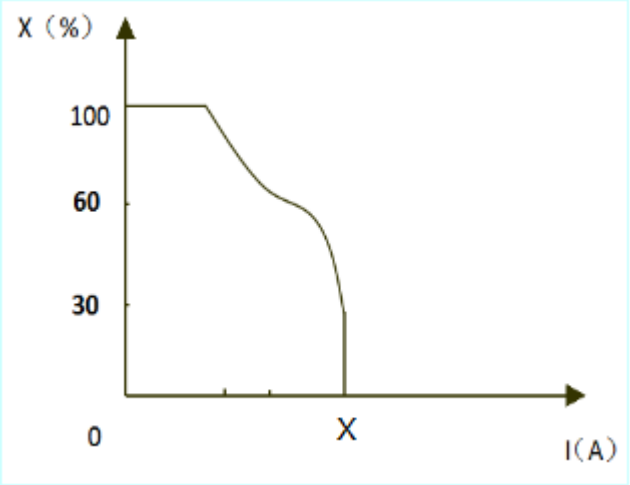


Fig 1-4 Duty Circle Sketch Map

Static External Characteristics

TIG series welders' power output is of dropping characteristics (constant current characteristics), as shown in Fig 1-5. Picture is only for reference.

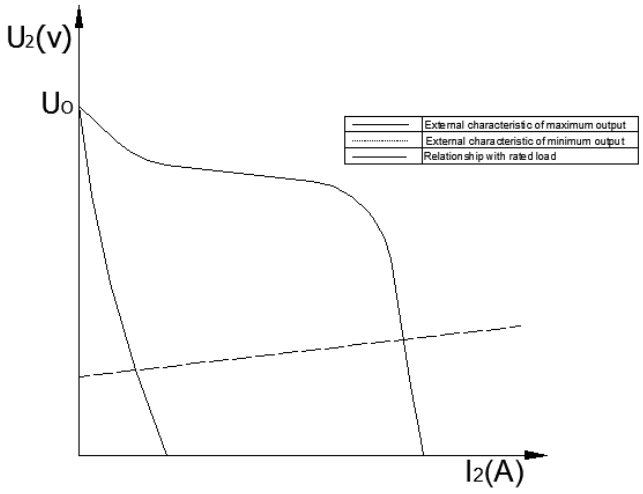


Fig 1-5 Output characteristic curves

CHAPTER 2 INSTALLATION AND CONNECTION

2.1 Installation requirements

Environment requirements

Please pay attention to the following when choosing installation site:

- Please avoid environment which contains too much dusts or metal powder.
- Avoid installation in area which is with corrosive or explosive gases.
- Ambient temperature should be within－10℃～＋40℃Please reinforce radiation or lessen power machine operation when temperature is over 40℃
- Installation should be carried out in dry environment with humidity less than 90%.
- Avoid welding in the open air with strong wind; please install windscreen if necessary, or else welding performances may be affected.
- Please consult and confirm in advance if there is any special installation requirement.
- If the Welding power is paced on tilt plane,pay attention to avoid it topple over.
- The Welding power be forbid to use thaw pipe.

Installation space requirements

Distance between welder and wall should be more than 20cm; distance between two abreast welders should be more than 30cm. You may refer to the below suggested reserved installation space in Table2-1 to confirm the installation position.

Table2-1 Reserved Space for Welder Installation

Department	Front	Left Side	Right Side	Back
Reserved Space	≥20cm	≥20cm	≥20cm	≥20cm

2.2 Electrical connection

Precautions：

1. All connection should be carried out by qualified professional electric operators.
2. All connection should be carried out when distribution box is switched off and safety is 100% confirmed.
3. Cable section area of the distribution box should withstand welder's max output.
4. Don't touch with bare hands.
5. Don't place heavy items on cables.
6. Water pipe, building metal may not be fully grounded; please don't use them as safe earth connection.
7. Every welder's yellow/green cable should be reliably grounded.

2.3 Installation and commission

A. Please connect TIG torch correctly according to Fig2-1. Connect the gas-electric connector and the aviation plug of the TIG torch to the corresponding connector on the machine panel, and tighten it clockwise.

B.Insert the quick plug on the earth cable into the "+" quick socket on the machine panel, and tighten it clockwise. Clamp the workpiece with the earth clamp at the other end of the earth cable. (See Figure 2-2.)

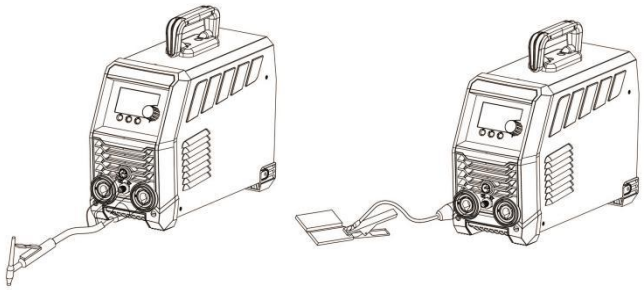


Fig 2-2

C. Gas connection: connect argon tube with welder back panel's brass mouthpiece tightly.

Air supply passage should include argon decompressed flowmeter, gas hose; please use a hose clamp or other fixing items to crew the hose connection part so that to avoid poor welding spot protection which is caused by gas leakage or air admission. (Figure2-3)

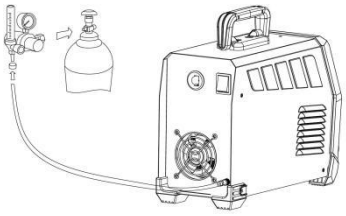


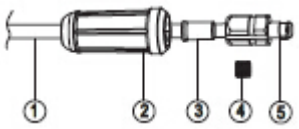
Fig 2-3

2.4 Connection of welding instruments



① Nozzle
② Ceramic sleeve
③ Torch body
④ Rubber sleeve
⑤ Output cable
⑥ Torch trigger
⑦ Back cap

Figure2-4: Connection of TIG torch



① Output cable
② Rubber sleeve
③ Copper sleeve
④ Bolt
⑤ Copper connector

Figure2-5: Connection of copper connector



① Output cable
② Copper clip
③ Bolt
④ Nut
⑤ Iron clip

Figure2-6: Connection of earth clamp

2.5 Precautions

1) Make sure the place to install the machine can bear the weight of welding machine.
2) Do not install the machine at places where water droplet splash may occur, such as near water pipes.

3) Welding should be carried out in dry environment with humidity less than 90%.

4) Avoid welding in the open air unless sheltered from sunlight and rain. Keep it dry and do not place it on wet ground or in puddles.

5) Do not carry out welding with the welding machine placed on a platform with a pitch greater than 10°.

This product is equipped with overcurrent/overheating protection circuit. When the mains voltage, output current or inner temperature exceeds the set standard, the machine will stop automatically. However, excessive use of machine may also damage the machine; therefore, please pay attention to the following:

- Good ventilation
  A working welder will generate big current and has strict cooling requirements that cannot be met with natural ventilation. Therefore the built-in fan is very important in enabling the machine to work stable with effective cooling. Operator should make sure that the louvers be uncovered and unblocked.
- Overvoltage is forbidden.
  This machine is of automatic mains voltage compensation, which ensures that the welding current varies within the given range. In case that the input mains voltage exceeds the tolerance value, it would possibly damage the machine; therefore, operators should understand take relevant precautions in advance.
- Overload is forbidden.
  Please observe the max load current at any moment (refer to the corresponding duty cycle). Make sure that welding current not exceeding the maximum load current. Overload could obviously shorten the machine's lifespan, or even damage the machine.
  A sudden halt may occur with the yellow LED on the front panel lighting while the machine is of over-load status. Under this circumstance, it is unnecessary to restart the machine. Keep the built-in fan working to lower the temperature inside the machine. Welding can be continued after the inner temperature falls into the standard range and the yellow LED is off.

2.6 Preparation before welding

1) Safety devices

- To avoid gas poisoning, suffocation, dust poisoning, please use air discharge equipment as required and wear respiratory protection devices.
- Please wear safety goggles or other protection devices which are of sufficient shading when welding or guiding welding.
- To avoid eyes being hurt by spatters, please wear protective goggles.
- Please wear welding specialized protective clothing, such as leather protective gloves, long-sleeved clothes, welding spats, aprons, etc.
- Please install protective barrier to protect standbys from hurting by arc light.
- Please wear sound insulation devices when noise is too huge.
- Please use ventilator for air exchanging; please take anti-wind measures so that to avoid poor welding performances resulted from direct blowing to arc.

2）Cable connection check

Fix welder—place welders on dry, flat position which is of good ventilation.

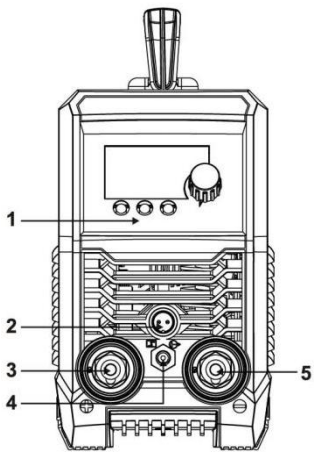
Please make sure the correct and tight connection of grounding cable, power input cable, welding cable and workpiece side cable.

3）Other items' check

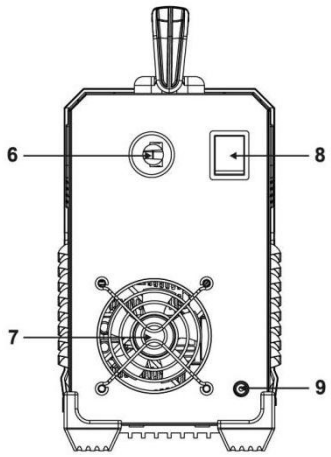
Please check the shielding gas, welding environment, welding torch and make sure they are all in good condition.

CHAPTER 3 OPERATION

3.1 Panel of TIG200P



Front panel of TIG200P



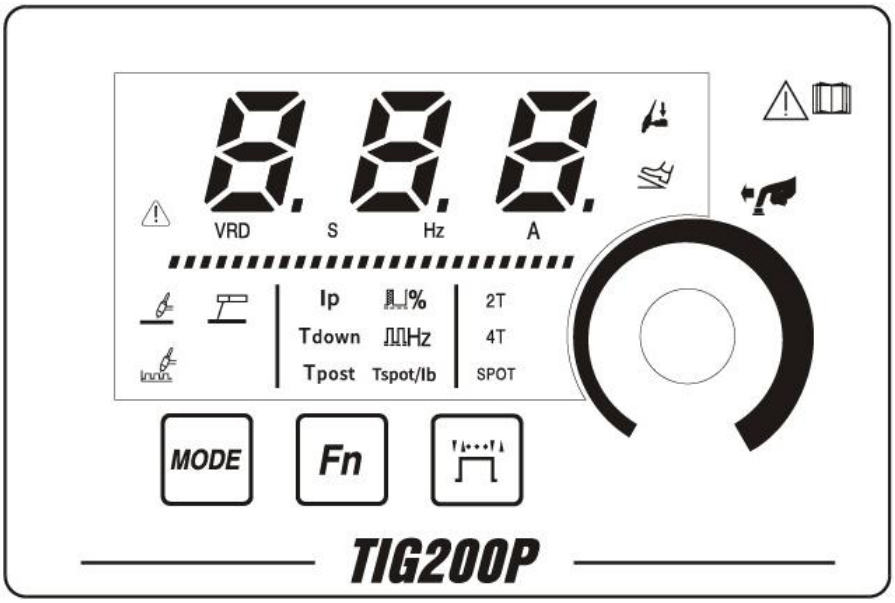
Rear panel of TIG200P

3.2 Panel functions

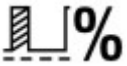
No.	Part name	Function
1	Operation panel	To adjust the welding parameters according user's needs; To display the welding parameters; To display the working status of the welding machine.
2	Interface for torch trigger	To connect the control signal of TIG torch.
3	"+" output terminal	To connect the earth clamp.
4	Gas connector	To connect the gas nut of TIG torch .
5	"-" output terminal	To connect the TIG torch or electrode holder.
6	Cable	For power supply input.
7	Cooling fan	For heat dissipation through forced air cooling.

8	Power switch	To control the ON/OFF of the input power of the machine.
9	Gas inlet	To connect the gas hose.

3.3 Operation panel functions of TIG200P



No.	Part name	Function
1	Parameter adjustment knob	Rotate the knob to adjust the welding parameters; Press the knob to switch Panel/Remote torch/Foot pedal mode.
2	Button "MODE"	For DC-TIG/Pulse TIG/MMA welding mode conversion.
3	Button "Fn"	1. For Peak Current/Down-slope time/Post-flow time/Pulse Duty Ratio/ Pulse frequency /Base current conversion. 2. In MMA mode,press and hold 5 seconds to turn on/off VRD function.
4	Button " "	For 2T/4T/SPOT welding methods conversion.
5		1.Displays the value of the welding parameter. 2.If there is no operation after 3 seconds,it will automatically display the value of the setting welding current. 3.When the product is not working correctly, an error code is displayed.
6		If the indicator is on, it indicates the DC-TIG Welding mode is selected.
7		If the indicator is on, it indicates the simple Pulse TIG Welding mode is selected.

8		If the indicator is on, it indicates the MMA Welding mode is selected.
9	Ip	It indicates the welding current.
10		It indicates the ratio of peak current time to pulse period.
11		It indicates the pulse frequency.
12	Tdown	It indicates the time until the peak current drops to zero.
13	Tpost	It indicates the shielding gas post-flow time.
14	Tspot/Ib	It indicates the spot time/ the pulse base current.
15	2T	It indicates that the machine is in 2T mode.
16	4T	It indicates that the machine is in 4T mode.
17	SPOT	It indicates that the machine is in Spot mode.
18	VRD	The VRD function is on when it is blinking.
19	S	Unit of Tdown/Tpost/Tspot.
20	Hz	Unit of Pulse Frequency.
21	A	Unit of current.
22		If the indicator is on, it indicates the Remote torch is selected(When it is in panel knob control mode, the indicator will not on).
23		If the indicator is on, it indicates the Foot pedal is selected(When it is in panel knob control mode, the indicator will not on).
24		The machine is on alarm state when it is blinking.

3.4 Welder operation description

3.4.1 DC TIG operation

1）Turn on the power switch

The power switch is located at the rear panel of the machine; set it in the "ON" position; then the panel indicator will light up, the fan will start to rotate, and the welder will start to work normally.

2）Select DC TIG welding mode

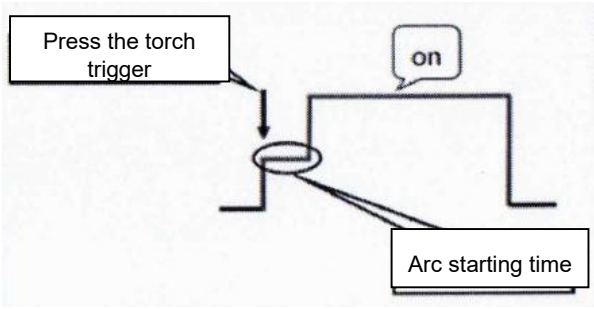
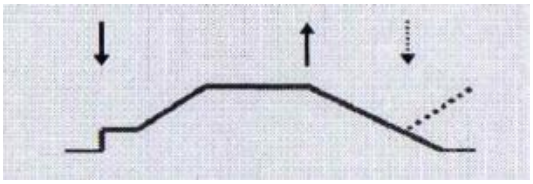
Press Button "MODE" to select DC TIG welding mode .

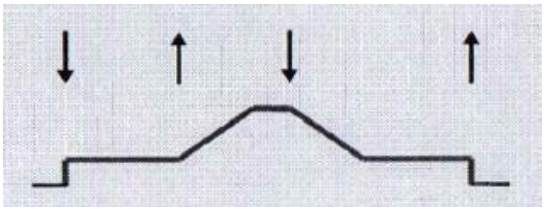
3）Select welding method

The welding methods are 2T , 4T welding and spot welding, and can be selected according to the actual conditions. Refer to Table 3-1 for details.

Table 3-1 Welding method description

Legend for commonly-used torch trigger operations			
↓	Press the torch trigger	↑	Release the torch trigger

Mode No.	Operation Schedule	Torch trigger operation and typical DC TIG current curve
1	Spot welding mode: 1. Press the torch trigger to start the arc to the set value; 2. The arc extinguishes after the spot welding finishes running for the set time.	
2	2T mode: 1. Press the torch trigger to increase the arc up to the designated peak current 2. Release the trigger to slowly extinguish the arc 3. If the trigger is pressed again before the arc is extinguished, it will slowly increase to the peak current	

3	4T mode: 1. Press the torch trigger to start the arc to the initial value 2. Release the trigger to slowly increase to the peak current 3. Press the trigger to slowly drop to the finish current 4. Release the trigger to extinguish the arc	

4）Set welding parameters

- Peak current (I_p): Set by the user according to the actual process requirements.
- Down-slope time (T_{down}): Down-slope time refers to the as when the current drops from the peak to the finish current, which can be determined according to the usage and process requirements.
- Post-flow time (T_{post}): Refers to time from cutting off the welding current to turning off the gas valve in the welder. It should be determined according to the usage conditions and process requirements; too long will cause waste of argon gas, but too short will cause oxidation of the weld.

The parameters are set as follows:

Enter DC TIG mode, and press button "Fn" to select the welding parameter to be set. If the parameter indicator is on, it indicates that the parameter is selected.

Press button "Fn" once. If the indicator is on, it indicates that the parameter has been selected for configuration; rotate it clockwise to increase the value, and counterclockwise to decrease the value.

Set all the welding parameters according to the above steps.

Choose the appropriate welding current, tungsten electrode, and shielding gas flow based on the welding requirements. Refer to the Table 3-2 for details.

5）DC TIG welding

Open the gas valve on the gas cylinder, adjust the argon gas flow, and realize TIG welding by lift arc starting or HF arc starting. After welding, release the torch trigger to extinguish the arc.

6）Turn off the power supply after welding

3.4.2 DC pulse TIG operation

1）Turn on the power switch

(Same as 3.4.1)

2）Select DC pulse TIG welding mode

Press Button "MODE" to select DC TIG welding mode .

3）Select welding method

In DC pulse TIG welding mode ,there are 2T and 4T methods for selection.(Refer to 3.4.1)

4）Set welding parameters

Pulse TIG includes all DC TIG parameters, except that the parameters are set differently. The parameters will not be explained again here. In addition, there are 4 adjustable parameters, which are explained separately in conjunction with the figure:

- Peak current (I_p): Maximum pulse current, adjusted according to the process requirements.
- Base current (I_b): Minimum pulse current, adjusted according to the process requirements.
- Pulse frequency (1/T): $T=T_p+T_b$, adjusted according to the process requirements.
- Duty cycle ($100\%*T_p/T$): the percentage of peak current duration in the pulse cycle, adjusted according to the process requirements.

The parameters are set as follows:

Enter DC pulse TIG mode, and press button "Fn" to select the welding parameters to be set. If the parameter indicator is on, it indicates that the parameter is selected.

Press button "Fn" once. If the indicator is on, it indicates that the parameter has been selected; press the encoder clockwise to increase the value, and counterclockwise to decrease it.

Set all welding parameters according to the above steps.

Choose the appropriate welding current, tungsten electrode, and shielding gas flow based on the welding requirements. Refer to the Table 3-2 for details.

5）DC pulse TIG welding

(Same as 3.4.1)

6）Turn off the power supply after welding

3.4.3 MMA operation

1）Turn on the power switch

(Same as 3.4.1)

2）Select DC pulse TIG welding mode

Press Button "MODE" to select MMA welding mode .

3）Set VRD

In MMA mode, press and hold "Fn" for 5 seconds to turn VRD on/off. VRD is disabled by default.

4）Set welding parameters

Welding current（I_p）: The current of the arc section during welding, which is set by the user based on the type and diameter of the welding electrode and the process requirements. Refer to Table 3-3.

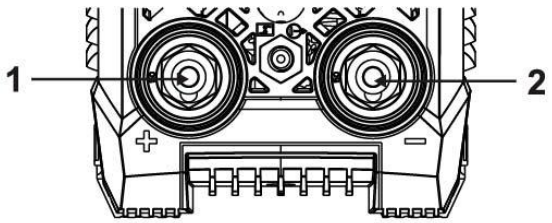
Arc-force:The current is 60A by default. With large arc force current, the metal transfers quickly and the droplets don't stick, but excessive current increases spatter; low current leads to small spatter and good weld seam formation, but sometimes the arc is soft, or causes droplets to stick. In particular, thick electrodes with low current welding require increased arc force.

Hot start current: The current is 60A by default. Stronger hot start current is conducive to arc start and reduces sticking between the welding electrode and workpiece during arc start.

This product has anti-stick function by default. If short circuit occurs for 2 seconds during the welding process, the machine will automatically enter anti-stick function and the welding current will automatically drop to 10A.

5）MMA welding

During MMA welding the heat on the positive and negative polarities of the welding arc is different. When welding using DC power supply, there are DCEN and DCEP connections. The DCEN connection refers to the welding electrode connected to the negative polarity of the power supply and the workpiece connected to the positive polarity of the power supply. In this mode the workpiece receives more heat, resulting in high temperature, deep penetration, easy to weld through, suitable for welding thick parts. The DCEP connection refers to the welding electrode connected to the positive polarity of the power supply and the workpiece connected to the negative polarity of the power supply. In this mode the workpiece receives less heat, resulting in low temperature, shallow pool, and less penetration. This is suitable for welding thin parts.



1-Positive polarity 2-Negative polarity

6）Turn off the power supply after welding

3.4 Welding parameters table

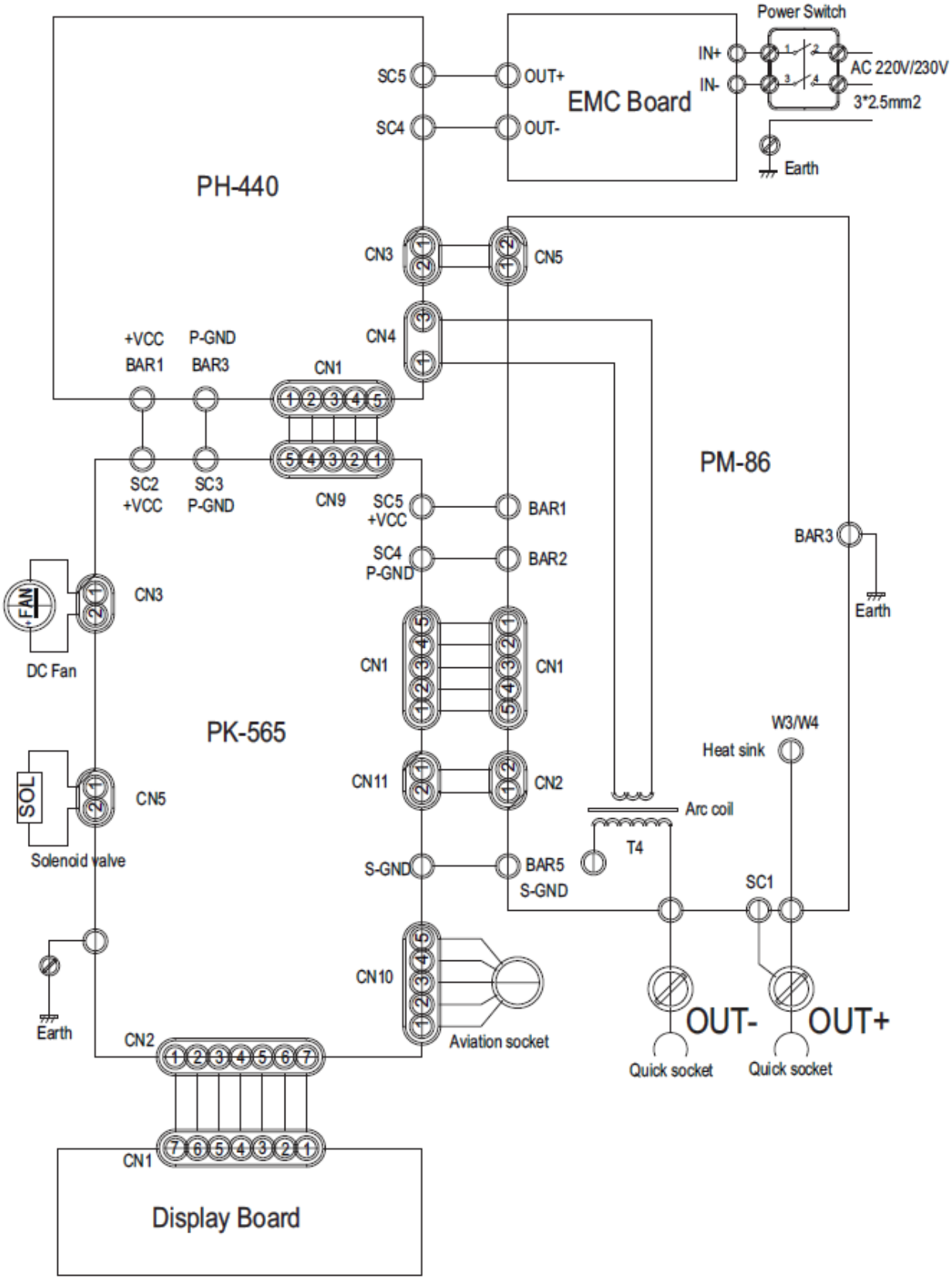
Table 3-2 Stainless steel plate-selection of parameters for manual TIG arc welding(for reference only)

Tungsten diameter (mm)	Thickness of stainless steel plate (mm)	Maximum current (A)	Maximum argon flow rate (l/min)
1~2	1~3	50	5
		50~80	6
2~4	3~6	80~120	7
		121~160	8
		161~200	9
		201~300	10

Table 3-3 Selection of welding electrode diameter and welding current(for reference only)

No.	Workpiece thickness (mm)	Welding electrode diameter range (mm)	Welding electrode diameter (mm)	Welding current (A)
1	-	-	1.6	25~40
2	≤4	2.0~3.2	2.0	40~65
			2.5	50~80
			3.2	100~130
3	4~12	3.2~4.0	3.2	100~130
			4.0	160~210
4	＞12	≥4	5.0	200~270
			6.0	220~300

3.5 Welder electrical connection block diagram



TIG200P electrical connection block diagram

CHAPTER 4 MAINTENANCE

4.1 Daily maintenance

Warning

The following operation requires professional knowledge on electric application and comprehensive safety knowledge. Operators should be licensed with related qualification certificates (still in validation) which can prove their skills and knowledge. To avoid personal injury accidents such as electric shock and burns, please make sure the power supply is cut off before uncovering the welding machine.

Tips:

1) Daily checking is very important in keeping the high performance and safe operation of this welding machine.
2) Do daily checking according to the table below, and clean or replace components when necessary.
3) In order to ensure the high performance of the machine, please choose components provided or recommended by dealer when replacing components.

Table 4-1: Daily checking of the welding machine

Item	Checking requirements	Remark
Front panel	Whether any of the components are damaged or loosely connected; Whether the output quick sockets are tightened; Whether the abnormity indicator illuminates.	Front panel quick socket is a required checking item. If unqualified, check the interior of the machine, and tighten or replace the components.
Back panel	Whether the input power cable and buckle are in good condition; Whether the air intake is unobstructed.	
Cover	Whether the bolts are loosely connected.	If unqualified, tighten or replace the components.
Chassis	Whether the side plate is loosely fixed.	
Side plates	Whether the screws are loosely connected.	
Routine	Whether the machine enclosure has color fading or overheating problems; Whether the fan sounds normal when the machine is running; Whether there is abnormal smell, abnormal vibration or noise when the machine is running.	If abnormal, check the interior of the machine.

Table 4-2 Daily checking of other items

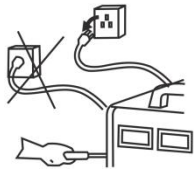
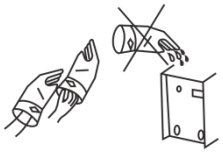
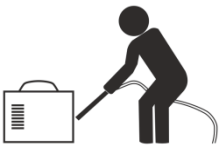
Item	Checking requirements	Remark
Earth cable	Whether the grounding wires (including workpiece GND wire and welding machine GND wire) are loosened.	If unqualified, tighten or replace the components.
Welding cable	Whether the insulating layer of the cable is worn, or the conductive part of the cable is exposed; Whether the cable is drawn by an external force; Whether the cable connected to the workpiece is well connected.	Use appropriate methods according to the work site situation to ensure safety and normal welding.
Gas hose	Whether gas hose is tightly connected; Whether hose clamp is tightly connected; Whether hose pipe is worn out or has any leakage.	If unqualified, tighten or replace the components.

4.2 Periodic maintenance

Warning

1. **To ensure your safety, periodic check can only be carried out by qualified professionals.**
2. **Please shut down the switching box and the welding machine before periodic check to avoid personal injury accidents such as electric shock and burns.**
3. **Due to capacitors' discharge, all checking should be carried out 5 minutes after the machine is powered off.**

Tips	Remarks
	**Safety** All maintenance and checking should be carry out after the power is completely cut off. Make sure the power plug of the machine is pulled out before uncovering the welding machine. When the machine is powered on, keep hands, hair and tools away from the moving parts such as cooling fan, to avoid personal injury or machine damage.

	**Periodic check** Check periodically whether inner circuit connection is in good condition (esp. input plugs or other components). Tighten the loose connection. If there is any oxidization, remove it with sandpaper before reconnect them. Check periodically whether the insulating layer of all cables is in good condition. If there is any dilapidation, rewrap it or replace it.
	**Beware of static** In order to protect the semiconductor components and PCBs from the static damage, please wear antistatic device or touch the metal part of the enclosure to remove static before any contacting with the conductors and PCBs of the machine internal wiring.
	**Keep it dry** Avoid rain, water and vapor infiltrating the machine. If there is any damp, dry it and check the insulation of the welding machine (including all wires connections and connections with the enclosure) with an ohmmeter. Only after the confirmation of no abnormity, w, can the machine be used. Put the machine into the original packing in dry places if will not be used for a long time.
	**Pay attention to maintenance** Periodic check should be carried out to ensure the long-time well operation of the machine. Be careful when doing the periodic check, including the inspection and cleaning of the machine interior. Generally, periodic check should be carried out every 6 months, and it should be carried out every 3 months if the welding environment is dusty or with heavy oily smoke.
	**Beware of corrosion** Please clean the plastic parts with neutral detergent.

CHAPTER 5 FAILURE DIAGNOSIS AND TROUBLESHOOTING

Warning

All welder maintenance should be carried out by qualified professional operators; any worong connection or installation will damage to PCB or components. To avoid electric shock, burning or other personal injuries, please do maintenance 5 minutes after welder is powered off.

Please do the following inspection before maintenance:

（1）Please check if welder input voltage is within 220-230V±15%.

（2）Please make sure the correct and tight connection of input cable.

（3）Please make sure the correct and tight connection of welding cable.

（4）Please make sure gas circulation is normal; please use pure argon gas and adjust gas flow per actual welding demands.

（5）Please make sure all PCB terminals are correctly and tightly connected.

5.1 Common malfunction analysis and solution

Elimination of general problems in MMA

Symptom	Reasons	Troubleshooting
After startup, the fan does not turn or the wire feeding speed is abnormal	The air temperature may be too low or the fan may be damaged	If the temperature is too low, leave the machine to work for a while. The temperature in standby will rise the fan and resume normal operation. If it is still not working, it is necessary to replace the fan.
Cannot start normal arc	The power cord is not connected properly	Connect the power cord
Hot electrode holder	The rated current of electrode holder is too low	Change the electrode holder with a high current one
Arc is easily interrupted	Low mains voltage	Use after the mains power is normal
Other faults		Please contact the maintenance personnel of Shenzhen JASIC Technology Co., Ltd.

Elimination of general problems in TIG

Symptom	Reasons	Troubleshooting
No current is output when torch trigger is pressed	Welding circuit is open	Check the welding circuit and reconnect it
No discharge when starting the arc at high frequency after pressing the torch trigger to start the arc	The torch switch is not plugged in	Plug in the torch switch
	The discharge nozzle gap on the discharge plate is too large or the nozzle is completely closed	Adjust the spark gap on the discharge plate (about 1mm)
Rapid tungsten electrode burnout	Welding torch is connected to the wrong polarity	Switch two plug positions
Blackening of solder joints	Welds are not effectively protected and become oxidized	(1) Ensure that the valve of argon cylinder is open and there is enough pressure. Generally, if the cylinder pressure is lower than 0.5 MPa, it must be refilled. (2) Check whether the argon flow rate is normal. You can select the flow rate according to the welding current condition, but too low a flow rate may lead to insufficient shielding gas to cover all weld joints. It is suggested that the argon flow rate be no less than 5L/min, no matter how small the current. (3) Check whether the gas path is leaking, or whether the gas purity is too low. (4) Check whether there is strong ambient air flow in the environment.
Hard to start arc Arc is easily interrupted	Poor quality or serious oxidation of the tungsten electrode	(1) Replace the tungsten grade with better quality. (2) Grind off the tungsten oxide layer. (3) Increase the post-flow delay time to avoid tungsten oxidation. (4) Adjust the spark gap on the discharge plate (about 1mm)

Unstable current when welding	The voltage of the power grid fluctuates seriously or poor contact with the power grid. Serious interference from other electrical equipment.	(1) Check whether the power grid is normal and connect the power connector. (2) Use different power cords to connect equipment that could seriously interfere with welder.
Other faults		Please contact the maintenance personnel of Shenzhen JASIC Technology Co., Ltd.

5.2 Alarms and solutions

Error code	Category	Possible cause	Countermeasure
E10	Overcurrent protection	Continuously output the maximum capacity current of welder	Restart the welder. If overcurrent protection alarm is still active, contact the after-sales department.
E31	Undervoltage protection	Input network voltage is too low	Turn off the machine and restart it. If this the alarm cannot be eliminated and the grid voltage remains too low, check the power grid voltage and wait for the grid to be normal before welding. If the grid voltage is normal and the alarm persists, contact professional maintenance personnel.
E34	Undervoltage protection	Undervoltage in driver	Turn off the machine and restart it. If this phenomenon cannot be eliminated, contact professional maintenance personnel.
E60	Overheat protection	Output rectifier diode temperature is too high	Do not turn off the machine. Wait for a while, and then continue welding after the indicator goes out.

5.3 After-sales service

Warranty card

Please read the warranty care carefully and fill in the related information.

Please keep the warranty card properly

Maintenance

For welder failures and welding process problems, please refer to “Table 5.1 Welder failure and welding process problems”.

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your local authorized Lincoln Electric Field Service Facility for technical assistance.