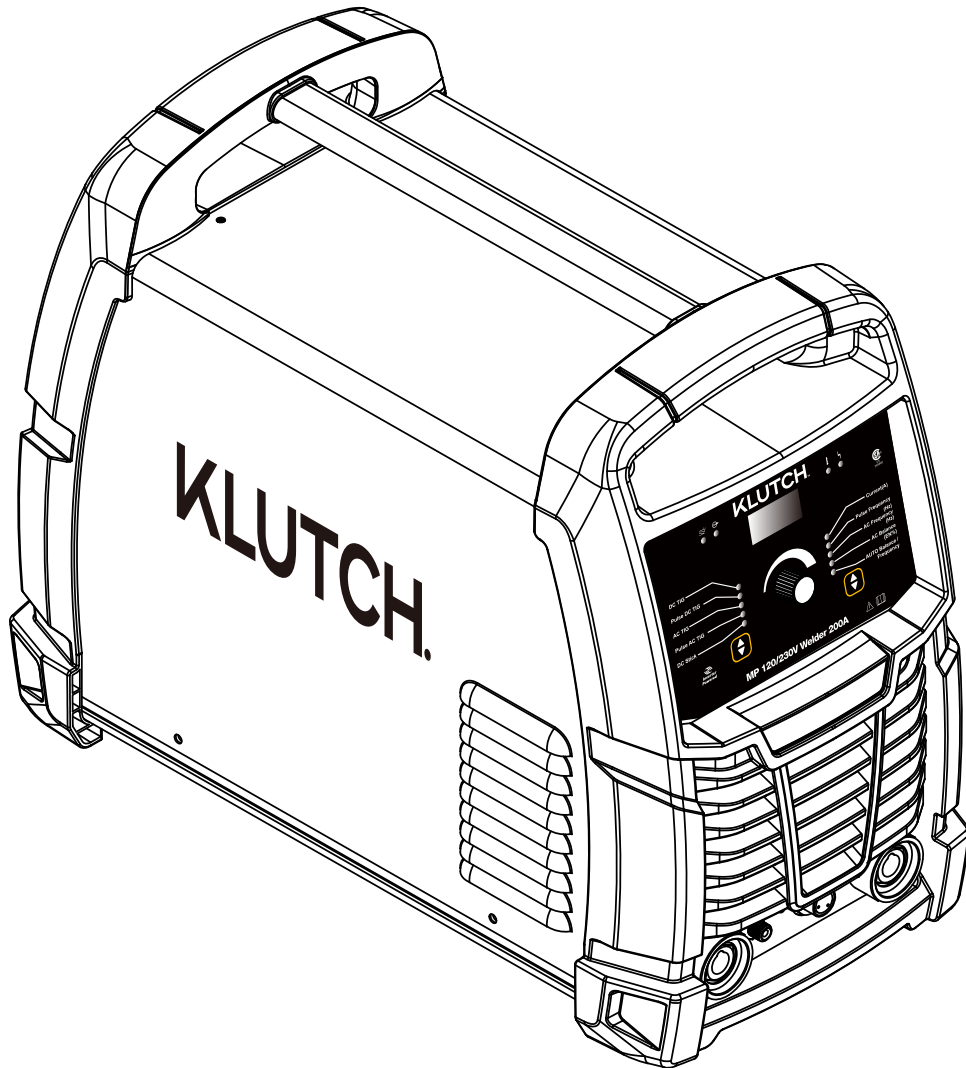


# KLUTCH™

## 200A DV AC/DC TIG



**WARNING:** Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #5875906

**READ & SAVE THESE INSTRUCTIONS**

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## GENERAL SAFETY RULES



**WARNING:** Read and understand all instructions. Failure to follow all instructions listed below may result in serious injury.



**CAUTION:** Do not allow persons to operate or assemble this MP 120/230V Welder 200A series welder until they have read this manual and have developed a thorough understanding of how the MP 120/230V Welder 200A SERIES welder works.



**WARNING:** The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

### 1.1 Your Welding Environment

- Keep the environment you will be welding in free from flammable materials.
- Always keep a fire extinguisher accessible to your welding environment.
- Always have a qualified person install and operate this equipment.
- Make sure the area is clean, dry and ventilated. Do not operate the welder in humid, wet or poorly ventilated areas.
- Always have your welder maintained by a qualified technician in accordance with local, state and national codes.
- Always be aware of your work environment. Be sure to keep other people, especially children, away from you while welding.
- Keep harmful arc rays shielded from the view of others.
- Mount the welder on a secure bench or cart that will keep the welder secure and prevent it from tipping over or falling.

### 1.2 Your Welder's Condition

- Check ground cable, power cord and welding cable to be sure the insulation is not damaged. Always replace or repair damaged components before using the welder.
- Check all components to ensure they are clean and in good operating condition before use.

### 1.3 Use of Your Welder

#### **▲ CAUTION**

Do not operate the welder if the output cable, electrode, torch is wet. Do not immerse them in water. These components and the welder must be completely dry before attempting to use them.

- Follow the instructions in this manual.
- Keep welder in the off position when not in use.
- Connect ground lead as close to the area being welded as possible to ensure a good ground.
- Do not allow any body part to come in contact with the welding wire if you are in contact with the material being welded, ground or electrode from another welder.
- Do not weld if you are in an awkward position. Always have a secure stance while welding to prevent accidents. Wear a safety harness if working above ground.
- Do not drape cables over or around your body.
- Wear a full coverage helmet with appropriate shade (see ANSI Z87.1 safety standard) and safety

glasses while welding.

- Wear proper gloves and protective clothing to prevent your skin from being exposed to hot metals, UV and IR rays.
- Do not overuse or overheat your welder. Allow proper cooling time between duty cycles.
- Keep hands and fingers away from moving parts.
- Do not point torch at any body part of yourself or anyone else.
- Always use this welder in the rated duty cycle to prevent excessive heat and failure.

#### 1.4 Specific Areas of Danger, Caution or Warning



##### **Electrical Shock**

##### **⚠ WARNING**

Electric arc welders can produce a shock that can cause injury or death. Touching electrically live parts can cause fatal shocks and severe burns. While welding, all metal components connected to the wire are electrically hot. Poor ground connections are a hazard, so secure the ground lead before welding.

- Wear dry protective apparel: coat, shirt, gloves and insulated footwear.
- Insulate yourself from the work piece. Avoid contacting the work piece or ground.
- Do not attempt to repair or maintain the welder while the power is on.
- Inspect all cables and cords for any exposed wire and replace immediately if found.
- Use only recommended replacement cables and cords.
- Always attach ground clamp to the work piece or work table as close to the weld area as possible.
- Do not touch the welding wire and the ground or grounded work piece at the same time.
- Do not use a welder to thaw frozen pipes.



##### **Fumes and Gases**

##### **⚠ WARNING**

- Fumes emitted from the welding process displace clean air and can result in injury or death.
- Do not breathe in fumes emitted by the welding process. Make sure your breathing air is clean and safe.
- Work only in a well-ventilated area or use a ventilation device to remove welding fumes from the environment where you will be working.
- Do not weld on coated materials (galvanized, cadmium plated or containing zinc, mercury or barium). They will emit harmful fumes that are dangerous to breathe. If necessary use a ventilator, respirator with air supply or remove the coating from the material in the weld area.
- The fumes emitted from some metals when heated are extremely toxic. Refer to the material safety data sheet for the manufacturer's instructions.
- Do not weld near materials that will emit toxic fumes when heated. Vapors from cleaners, sprays and degreasers can be highly toxic when heated.



##### **UV and IR Arc Rays**

##### **⚠ DANGER**

The welding arc produces ultraviolet (UV) and infrared (IR) rays that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.

- Always use a helmet that covers your full face from the neck to top of head and to the back of each ear.
- Use a lens that meets ANSI standards and safety glasses. For welders under 160 Amps output, use a shade 10 lens; for above 160 Amps, use a shade 12. Refer to the ANSI standard Z87.1 for more information.

- Cover all bare skin areas exposed to the arc with protective clothing and shoes. Flame-retardant cloth or leather shirts, coats, pants or coveralls are available for protection.
- Use screens or other barriers to protect other people from the arc rays emitted from your welding.
- Warn people in your welding area when you are going to strike an arc so they can protect themselves.



### **Fire Hazards**

**▲ WARNING**

Do not weld on containers or pipes that contain or have had flammable, gaseous or liquid combustibles in them. Welding creates sparks and heat that can ignite flammable and explosive materials.

- Do not operate any electric arc welder in areas where flammable or explosive materials are present.
- Remove all flammable materials within 35 feet of the welding arc. If removal is not possible, tightly cover them with fireproof covers.
- Take precautions to ensure that flying sparks do not cause fires or explosions in hidden areas, cracks or areas you cannot see.
- Keep a fire extinguisher close in the case of fire.
- Wear garments that are oil-free with no pockets or cuffs that will collect sparks.
- Do not have on your person any items that are combustible, such as lighters or matches.
- Keep work lead connected as close to the weld area as possible to prevent any unknown, unintended paths of electrical current from causing electrical shock and fire hazards.
- To prevent any unintended arcs, cut wire back to ¼" stick out after welding.



### **Hot Materials**

**▲ CAUTION**

Welded materials are hot and can cause severe burns if handled improperly.

- Do not touch welded materials with bare hands.
- Do not touch TIG gun nozzle after welding until it has had time to cool down.



### **Sparks/Flying Debris**

**▲ CAUTION**

Welding creates hot sparks that can cause injury. Chipping slag off welds creates flying debris.

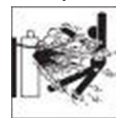
- Wear protective apparel at all times: ANSI-approved safety glasses or shield, welder's hat and ear plugs to keep sparks out of ears and hair.



### **Electromagnetic Field**

**▲ CAUTION**

- Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers.
- Consult your doctor before using any electric arc welder or cutting device
- Keep people with pacemakers away from your welding area when welding.
- Do not wrap cable around your body while welding.
- Wrap TIG gun and ground cable together whenever possible.
- Keep TIG gun and ground cables on the same side of your body.



### **Shielding Gas Cylinders Can Explode**

**▲ WARNING**

High pressure cylinders can explode if damaged, so treat them carefully.

- Never expose cylinders to high heat, sparks, open flames, mechanical shocks or arcs.
- Do not touch cylinder with TIG gun.

- Do not weld on the cylinder
- Always secure cylinder upright to a cart or stationary object.
- Keep cylinders away from welding or electrical circuits.
- Use the proper regulators, gas hose and fittings for the specific application.
- Do not look into the valve when opening it.
- Use protective cylinder cap whenever possible

## 1.5 Proper Care, Maintenance and Repair

### **⚠ DANGER**

- Always have power disconnected when working on internal components.
- Do not touch or handle PC board without being properly grounded with a wrist strap. Put PC board in static proof bag to move or ship.
- Do not put hands or fingers near moving parts such as drive rolls of fan

### **120/230V Welder 200A SERIES USE AND CARE**

- **Do not modify the 120/230V Welder 200A SERIES in any way.** Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. There are specific applications for which the **120/230V Welder 200A SERIES** was designed.
- **Always check of damaged or worn out parts before using the 120/230V Welder 200A SERIES.** Broken parts will affect the **120/230V Welder 200A** operation. Replace or repair damaged or worn parts immediately.
- **Store idle 120/230V Welder 200A.** When **120/230V Welder 200A SERIES** is not in use, store it in a secure place out of the reach of children. Inspect it for good working condition prior to storage and before re-use.

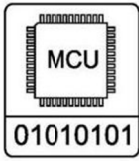


- Notice:** \* If the welder continues to work too long time, the Heat Protection Indicator on the panel would be on, indicating that the inner temperature rise inside the welder had exceed the designed permitted temperature. At this time, stop the welding work, wait until the welder cooled inside and the Heat Protection Indicator turned off, then continue to work again;
- \* Cut off the power switch and Argon valve, before leaving the welding place temporarily or after the welding worked finished;
  - \* Welders should wear canvas work clothes and welding face shield to prevent arc light and heat radiation;
  - \* Put light-proof screen around the work area to prevent others influenced by the arc lights.
  - \* Flammable, explosive items could not be put near the welding area;
  - \* Every outlet of the welder should be connected and earthed correctly.



- Notice:** The cover protection degree of the **120/230V Welder 200A SERIES** inverter TIG welder is IP21S. When the welder is operated, do not insert finger or round stick diameter less than 12.5mm (especially metal stick) into the welder; Do not allow to press heavily onto the welder.

## 1. DESCRIPTION



**120/230V Welder 200A** nverter AC / DC TIG welding machine, the MCU as the core processor, the welding machine and the entire welding process for efficient coordination, the state of the welding machine and welding process real-time monitoring and adjustment, thus ensuring that every welding Machine has a high degree of consistency, and access to reliable and stable welding results.

**120/230V Welder 200A** sequipped with PFC function, it can work under 85-265V input.

**P 120/230V Welder 200A** Real-time control of each waveform by the MCU during AC square wave welding greatly reduces sharp arc noise during AC welding and drastically reduces ac-commutation noise of the arc, reducing noise damage to the welder's ears , But also reduce the tungsten loss.

**120/230V Welder 200A** uses a special high-voltage arc-ignition method with low-frequency interference to reduce the impact on surrounding equipment and personnel.

In the process of adjusting the welding parameters, the accurate welding parameter values and the WYSIWYG values are displayed on the digital display table in real time so as to accurately adjust the welding parameters, precisely set the welding process and finally obtain the excellent welding results.



The use of improved IGBT inverter technology, reducing the size of the main transformer and reactor, thereby reducing the size and weight of the power supply machine, greatly reducing the copper loss, improve the power efficiency and power factor, the energy saving effect is very Significant.

- DC welding (DC-TIG)
- AC TIG welding (AC-TIG)
- DC pulse welding (DC-PTIG)
- AC pulse TIG (AC-PTIG)
- DC welding electrode manual welding (DC-MMA)

A variety of welding functions can be applied to almost all welding materials, including a variety of nonferrous metals such as carbon steel, cast iron, stainless steel, copper and their alloys, as well as various aluminum and magnesium alloys for welding.

## 2. TECHNICAL SPECIFICATION

### 2.1 Welder parameters

Welder Specifications	<b>120/230V Welder 200A</b>	
Rated Input Voltage	120V ± 15%, 50/60Hz	230V ± 15%, 50/60Hz
Maximum Input Current	21.9A	
Rated Input Capacity	2.6kVA	5kVA
Output No-load Voltage	60V	
Rated load Sustained Rate	35% (@40°C)	20% (@40°C)
Power Factor	≥0.99	
Insulation Level	F	
Enclosure Rating	IP21S	
Cooling Method	Cold wind	
Dimensions	inch	20.07 x 9.05 x 15.74
Net Weight	lbs	35.49

### 2.2 Welding parameters

Welder Model	<b>MP 120/230V Welder 200A</b>	
	120V	230V
<b>MMA</b>		
Rated Current	10A~80A	10A~160A
<b>TIG</b>		
Arc Way	HV	
<b>DC TIG</b>		
Rated Current	10A~120A	10A~200A
<b>DC PULSE TIG</b>		
Peak Current	10A~120A	10A~200A
Base Current	10%~90%	10%~90%
Pulse Frequency	0.2Hz~500Hz	0.2Hz~500Hz
Duty Cycle	10%~90%	10%~90%
<b>AC TIG</b>		
Rated Current	15A~120A	15A~200A
AC Frequency	50Hz~150Hz	50Hz~150Hz
AC Balance	50%~85%	50%~85%
<b>AC PULSE TIG</b>		
Peak Current	15A~120A	15A~200A
Base Current	10%~90%	10%~90%
AC Frequency	50Hz~150Hz	50Hz~150Hz
AC Balance	50%~85%	50%~85%
Pulse Frequency	0.2Hz~20Hz	0.2Hz~20Hz
Duty Cycle	10%~90%	10%~90%

## 2.3 Duty cycle

**! Overload work will damage the machine!**

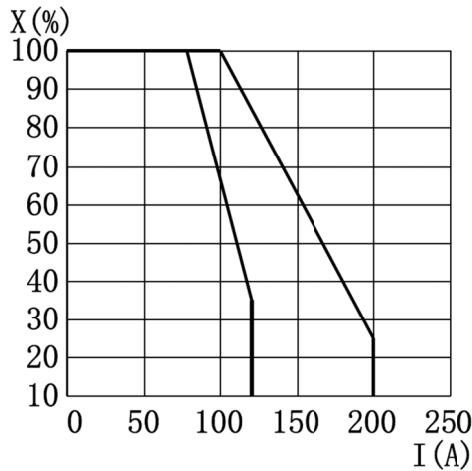


Table 2-1 Current load continuation rate curve

Please use the welder within the range of duty cycle welder, welder rated load sustained rate of 35% (35%@120V).

Rated load duration 35%



Working for 3.5 minutes



Rest 6.5 minutes



The duty cycle refers to the welding machine can be continuous welding within 10 minutes as a percentage of time.

Rated duty cycle refers to the welder at rated output current load sustained rate, when the current decreases load sustained rate will increase.



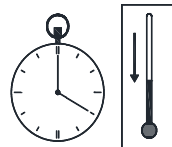
Welder for a long time in the work beyond the rated load sustained rate, the phenomenon may be overheating alarm, welder digital display will show "E81", "E82" and "E83", while overheating warning light (yellow) light, the welding machine to stop working.



Welder overheat alarm, and automatically stop working



Stop welding



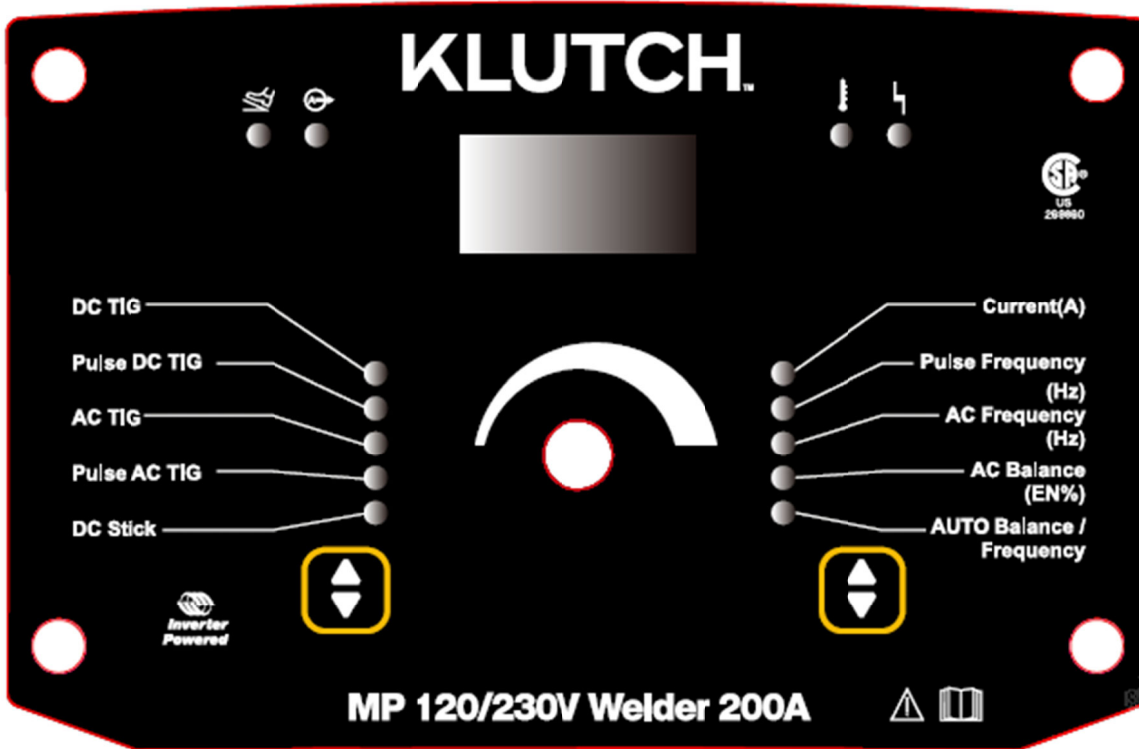
Wait for the main circuit of the welding machine to cool



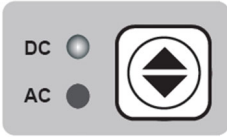
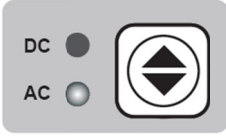
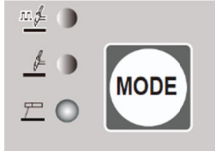
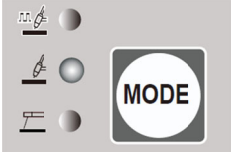
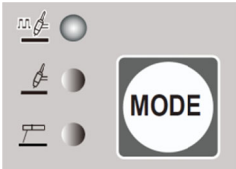
Welder automatically resume work, can continue welding

### 3. FRONT PANEL

#### 3.1 Front panel control board



#### 3.1.1 Welding mode selection

	 <p>DC Output</p>	 <p>AC Output</p>
 <p>MMA</p>	<p><b>DCMMA</b> Workable for basic electrode, acid electrode, low-hydrogen electrode</p>	
 <p>DCTIG</p>	<p><b>DCTIG</b> Power connection DCEN, workable for carbon steel, stainless steel and the alloy</p>	<p><b>ACTIG</b> Workable for Aluminium and Al Alloy</p>
 <p>DCTIG PULSE</p>	<p><b>DCPTIG</b> Set the machine at low frequency and it's ideal for welding of thin metal. Set it at higher frequency and it workable for medium and thick metal, one side weld, two sides welding .</p>	<p><b>ACPTIG</b> Workable for Aluminium and Al Alloy thin metal.</p>

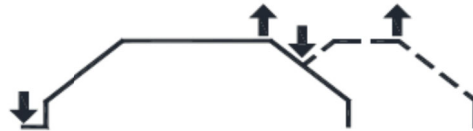
### 3.1.2 Torch trigger control

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2T control

Control process:

Press the trigger: pre-gas—arc ignition—slope up—welding  
 h—post-gas stop



↑ means release the trigger

---

4T control

The advantage of 4T is people can relax his finger during the weld. This is suitable to the long way welding.

Control process:

Press the trigger: pre-gas—arc ignition—slope up—welding

Release the trigger: welding continue

Press the trigger again: slope down—arc stop—post-gas stop

Don't release the trigger until post-gas stop



### 3.1.4 Warnings LED

---



#### Working properly

After start the welding machine, all the indicators on the panel are fully illuminated. After 2 seconds, the indicator will enter the normal display state, the work indicator will be on, and the welder can works normally.

---



#### Thermal protection

There are 3 levels of warning for overheating, E81, E82 and E83. It means different level of overheating. And the machine will stop working until it cooling down.

---



#### Boot abnormal

In order to prevent the torch from contacting the workpiece during operation, the torch switch is in the closed state when the machine is turned on, the welder will be in the fault protection state. when the torch switch is released, the welding machine will return to normal.

---



The output is abnormal and this fault cannot be recovered automatically.

In the MMA or TIG mode, there is no no-load voltage when the torch switch is pressed, indicating that the main circuit of the welding machine has failed, or the voltage feedback circuit has failed, and the welding machine will enter the fault protection state.

---

### 3.1.5 Parameter showing



Turn on the welding machine, digital display show welding current. Use parameter switching key, digital display will show corresponding parameter, and the corresponding indicator will light at the same time.

After all adjustment, the digital display will show the welding current in 5s if you do not adjust other parameter.

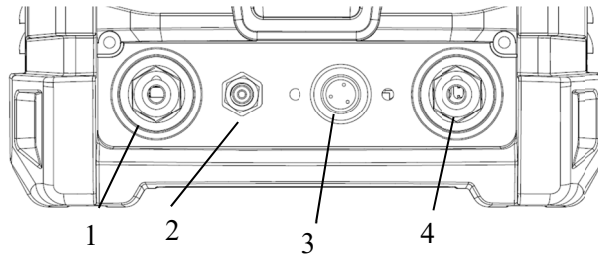
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### 3.1.6 Save and Load

Press Save/Load button to save the parameters set by the current panel, or call out the previously saved parameters. The adjustment knob of panel can select Save/Load channel.

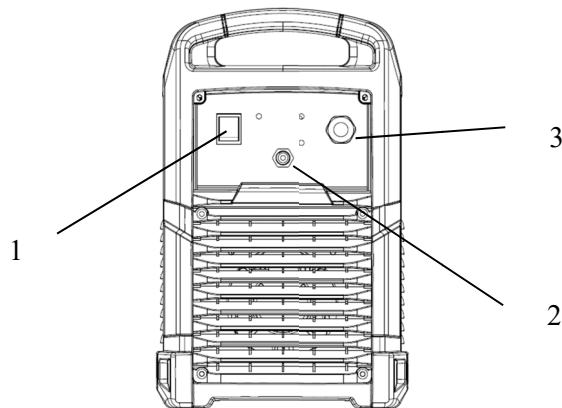


### 3.2 Output panel



1— MMA “-” /TIG torch connector	2 —Remote aviation socket
3— Gas connector	4—MMA “+” /TIG earth cable connector











### 3.3 Back panel



1— Power switch	2— Protect the gas input connector
3— Power cable	

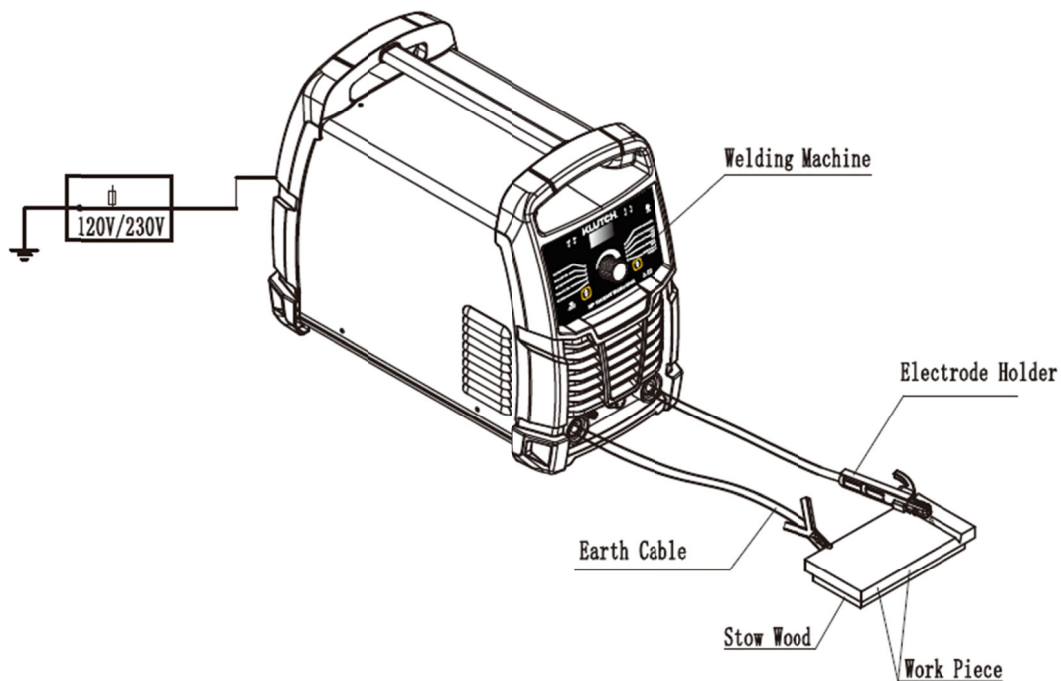
## 4. OPERATING INSTRUCTIONS

### 4.1 Security warning

<p><b>WARNING</b></p>	<ul style="list-style-type: none"> <li>● Must shut down the machine and distribution box power Electrical connection operation.</li> </ul>		
	<p><b>⚠ Danger!</b> <b>Electric shocks can be hurtful and deadly</b></p> <ul style="list-style-type: none"> <li>● Shut down the machine and distribution box power before connect wire!</li> <li>● Do not touch the bare electric connection parts in the machine.</li> </ul>		<p><b>Welding may cause fire or explosion!</b></p> <ul style="list-style-type: none"> <li>● Welding spatter may ignite around inflammable. Keep inflammable 10 m away from the welding area. Pay attention your clothes and body not contact the welding spatter.</li> </ul>
	<p><b>Welding smoke is bad for your health.</b></p> <ul style="list-style-type: none"> <li>● Do not smoke welding inhalation.</li> <li>● Clean the oil contamination on work piece.</li> <li>● Keep welding area air circulation.</li> <li>● Welding post need smoke extractor.</li> </ul>		<p><b>Arc injury your eyes and skin!</b></p> <ul style="list-style-type: none"> <li>● Strong arc can damage your eyes.</li> <li>● The welding arc produces ultraviolet (UV) and infrared (IR) rays that can cause injury to your eyes and skin. Use a helmet and cover all bare skin areas exposed to the arc with protective clothing and shoes.</li> </ul>
	<p><b>Welded materials are hot and can cause severe burns if handled improperly</b></p> <ul style="list-style-type: none"> <li>● Do not touch welded materials with bare hands.</li> <li>● Do not touch TIG gun nozzle after welding until it has had time to cool down.</li> </ul>		<p><b>High-speed moving device maybe cause injuries.</b></p> <ul style="list-style-type: none"> <li>● Don't put your hands or thin things into the fan.</li> <li>● Cover the fan case when operation.</li> </ul>
<p><b>To protect your eyes and skin, Please observe the labor safety and sanitary regulations, wear necessary protective gear.</b></p> <p><b>Operation should be performed in accordance with relevant labor safety operation procedures !</b></p> <div style="display: flex; justify-content: center; gap: 20px;">     </div>			

## 4.2 MMA flux-coated electrode


### 4.2.1 Assemble wire connection



### 4.2.2 Process reference




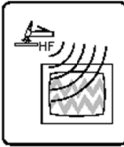
The following table is a manual welding rod electrode reference table, the table is for reference only.

Electrode diameter (mm)	Recommended welding current (A)	Electrode diameter (mm)	Recommended welding current (A)
1.0	20~60	3.2	108~148
1.6	44~84	4.0	140~180
2.0	60~100	4.8	180~220
2.4	80~120	6.0	220~260

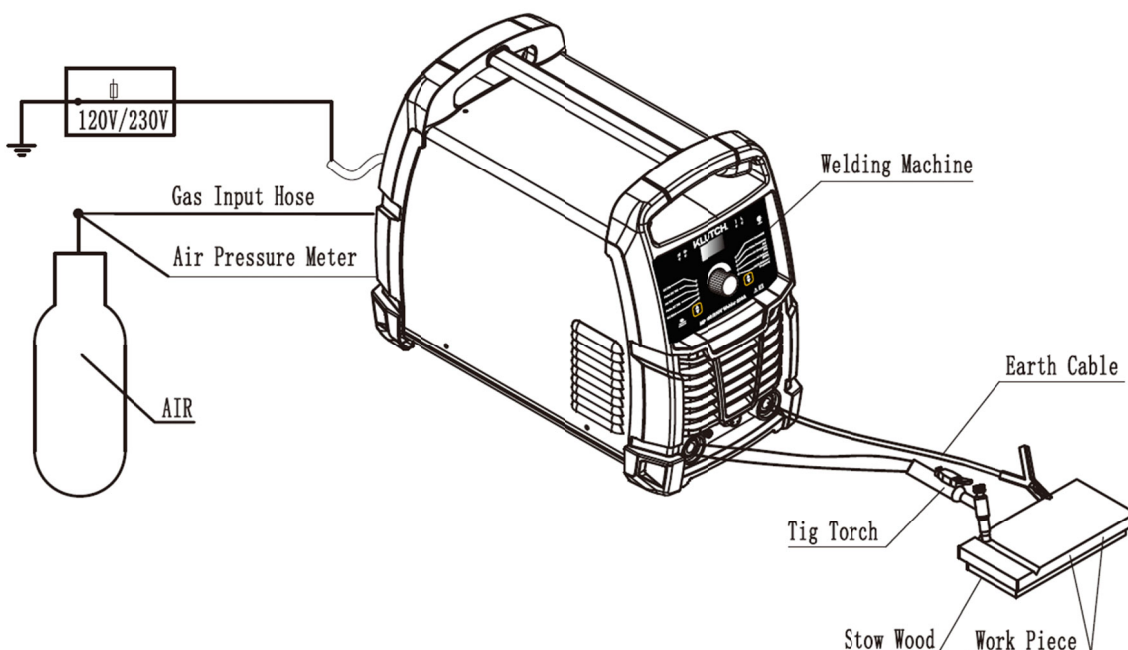
 This table is suitable for low carbon steel welding, other materials can refer to the relevant materials and process manuals.

## 4.3 TIG Welding

### 4.3.1 Security Warning

	<p><b>Inert gases harmful to body</b></p> <ul style="list-style-type: none"> <li>● Inert gases harmful to body even make the person suffocate, so please welding in a well-ventilated environment.</li> <li>● If you don't use, please close the cylinder valve.</li> </ul>		<p><b>Electrical Shock</b></p> <ul style="list-style-type: none"> <li>● Do not check gas toward anyone.</li> <li>● Inspect all cables and cords for any exposed wire and replace immediately if found.</li> </ul>
	<p><b>Shielding Gas Cylinders Can plode</b></p> <ul style="list-style-type: none"> <li>● Never expose cylinders to high heat</li> <li>● Keep cylinders away from welding or electrical circuits and fixed good.</li> </ul>		<ul style="list-style-type: none"> <li>● Keep people with pacemakers away from your welding area when welding. Consult your doctor before using any electric arc welder or cutting device</li> <li>● It maybe interfere with radio, computers, communications equipment and other electronic equipment.</li> </ul>

### 4.3.2 Install the wiring



### 4.3.3 Parameter adjustment

---



When you adjust, the digital display show time , unit is S.

Adjust slope up time and slope down time slope up time can preheat the work piece, slope down time can fill the ending arc pit.

Normally according the welding process card or setting on 0s.



When you adjust, the digital display show welding current, unit is A.

Adjust welding current

Arc welding current refers to the "MMA/TIG" mediation function mode the size of the welding current.

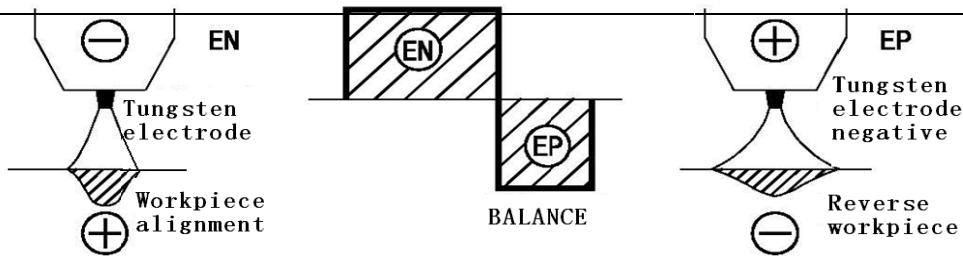
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👉 The upper parameter, each TIG mode can adjust.

The gas pre flow time has been set to 0.2s and the post flow time is automatically adjusted according to the current when welding.

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If use AC TIG, need adjust AC frequency and clean area width.



AC TIG welding, the welding current alternating positive and negative current.

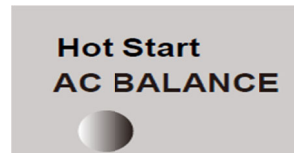
When the tungsten is negative, the work piece is positive, that is, DC positive or negative polarity of the tungsten (EN), when the arc energy gathered in the work piece, the arc is more concentrated, weld penetration is larger, the weld is narrow, this stage is welding stage.

When the tungsten is positive, the work piece is negative, that is, DC reverse polarity or tungsten positive (EP), this time to break the oxide film stage, the arc is scattered, shallow penetration, higher tungsten temperature. This phase is the cleaning time or cleaning time. Appropriate to adjust the cleaning width can reduce the weld inclusions, weld surface dark and other defects, but easy to burn tungsten, reducing the service life of tungsten.

EN + EP is a welding cycle, the cycle length can be set by adjusting the AC frequency. Higher frequency and smaller cleaning width can increase the AC arc stiffness, but the cleaning effect will be reduced.



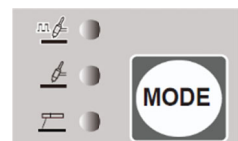
When you adjust, the digital display show AC frequency , unit is Hz.  
According to operation card adjust frequency , normally adjust to 60Hz.



When you adjust, the digital display show clean area width , unit is %.  
According to operation card adjust clean area width.

☞ The upper two parameter only adjust and show parameter when AC TIG, other situation is useless.

If choose pulse TIG, also need to adjust base current , pulse frequency and pulse ratio.



---

Pulse TIG:

1. Light gauge welding reduce welding input heat and thermal impact zone.
2. Medium plate butt welding, one side welding both sides formation.
3. Special automatic welding to get uniform fish-scale patterns.



**Base current**

Base current adjust range is: minimum value is min welding current. maximum value is the same to current peak current, if adjust peak current, base current will proportional change.

When you adjust, the digital display show base current, unit is % .

Please according to the actual situation to adjust base current.



**Peak current**

In pulse welding mode, if the current is with maximum value, the arc heat is very large, it is used to heat and weld the work piece.

When you adjust, the digital display show peak current, unit is A.



**Pulse frequency**

Pulse frequency range is related to AC or DC.

When you adjust, the digital display show pulse frequency parameter. Unit is Hz.

When DC pulse welding, pulse frequency from 0.3Hz to 200Hz.

When AC pulse welding, pulse frequency from 0.3Hz to 20.0Hz.



**Pulse ratio**

Pulse ratio means when pulse welding peak current time percentage rates of the whole pulse period.

When you adjust, the digital display show pulse ratio, unit is %.

Pulse ratio related to frequency, When frequency more than 100Hz, pulse ratio fix on 50%, other from 10%-90%.


Open the cylinder valve, adjust the suitable gas flow, welding.



#### 4.3.4 Process reference

The following Table is TIG welding process reference table, the table is for reference only.

	material	Connector	Work piece Thickness (mm)	Wire Diameter $\Phi$ (mm)	Weld current (A)	polarity	Argon flow rate (l/min)	Tungsten rods Diameter $\Phi$ (mm)	Cone angle	Flat top diameter $\Phi$ (mm)
DC	Not aluminum magnesium and its alloys	Straight edge docking	1.6~3.0	1.6~2.5	50~90	DC is positive	8~12	1.0	12~20°	0.12~0.25
		V-shaped groove	>3.0~6.0		70~120			1.6	25~30°	0.50~0.75
		X-shaped groove	>6.0~12	2.5~3.2	100~150		10~14	2.4	35~45°	0.75~1.10
AC	Aluminum magnesium and its alloys	Butt welding	1~2.5	1.6~2.5	45~90		2~6	2~3	90°	1.50
		V-shaped groove	3~6	2~4	90~180		10~12	3~4		
		X-shaped groove	8~12	4~5	150~220		12~16	4~5		

 This table is for reference only, the specific use of the welding process card shall prevail, or determined according to the process test.

#### 4.3.5 Remark

##### TIG:

**A.** Start the arc is not high success rate from the following aspects to solve:

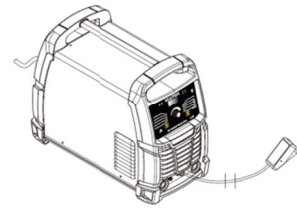
1. check the tungsten surface has been oxidized, if it has been oxidized, please wear off the oxide layer.
2. appropriate to increase the argon flow.
3. Please call the electrician to adjust the spark gap on the high-frequency arc-striking plate until the success rate of arc-striking is increased.

**B.** The welding machine with TIG welding non-contact arc ignition ability, please do not short-circuit the tungsten arc with the work piece, so as not to burn the tungsten and tungsten in the weld defects.

#### 4.4 Use of foot pedal and remote control



The foot pedal is a foot controller with a built-in adjustable potentiometer. The inside includes a torch switch and a 10KΩ potentiometer. When the pedal is depressed, it is equivalent to pressing the TIG torch switch; when released, it is equivalent to releasing the torch switch. When using the foot pedal, the “Current” and “Peak Current” parameters are adjusted on the panel to the maximum output current, and the digital display shows the maximum welding current. When the pedal is stepped on slowly, the welding current is gradually increased to the maximum welding current set by the panel. When the pedal is slowly released, the welding current is gradually reduced to the arc breaking.

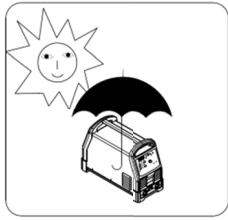

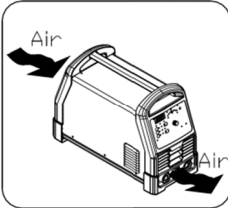
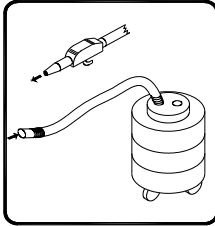
The remote control refers to a current regulating device that transfers the function of the “current” or “peak current” parameters on the control panel to the hand or near the welder. It can be a remote control box or a TIG torch integrated with a current regulating potentiometer.



Connect the aviation connector of the foot pedal or remote control to the “REMOTE” connector on the output panel as shown above.

## 5. MAINTENANCE

<b>WARNING</b>	<ol style="list-style-type: none"> <li>1. Do not open the machine case if you are not professional electrician.</li> <li>2. Shut down the machine and distribution box power before open the machine case.</li> </ol>
	<p><b>! Danger ! Electric shocks can be hurtful and deadly</b></p> <ul style="list-style-type: none"> <li>● Do not touch the bare electric connection parts in the machine.</li> <li>● Shut down the machine and distribution box power before open the machine case.</li> </ul>
	<p><b>! Danger ! Rotating fan maybe hurt operator !</b></p> <ul style="list-style-type: none"> <li>● Do not touch the rotating fan blade.</li> <li>● Assemble the case before open the machine.</li> </ul>

<p>1</p>  <ul style="list-style-type: none"> <li>● Do not expose the welding machine to sunlight for a long time.</li> <li>● It is best not to use the welding machine in strong sunlight.</li> </ul>	<p>2</p>  <ul style="list-style-type: none"> <li>● Do not pour welder in the rain.</li> <li>● Do not use or store the welder in an environment that is too humid.</li> </ul>
<p>3</p>  <ul style="list-style-type: none"> <li>● The welding machine should be used to ensure that the vents are not covered.</li> <li>● Welder should be used in a well-ventilated environment, storage.</li> </ul>	<p>4</p>  <ul style="list-style-type: none"> <li>● At least the cabinet should be opened every six months and the internal dust and metal scraps should be cleaned with a dry compressed air cleaning machine or a vacuum cleaner.</li> </ul>

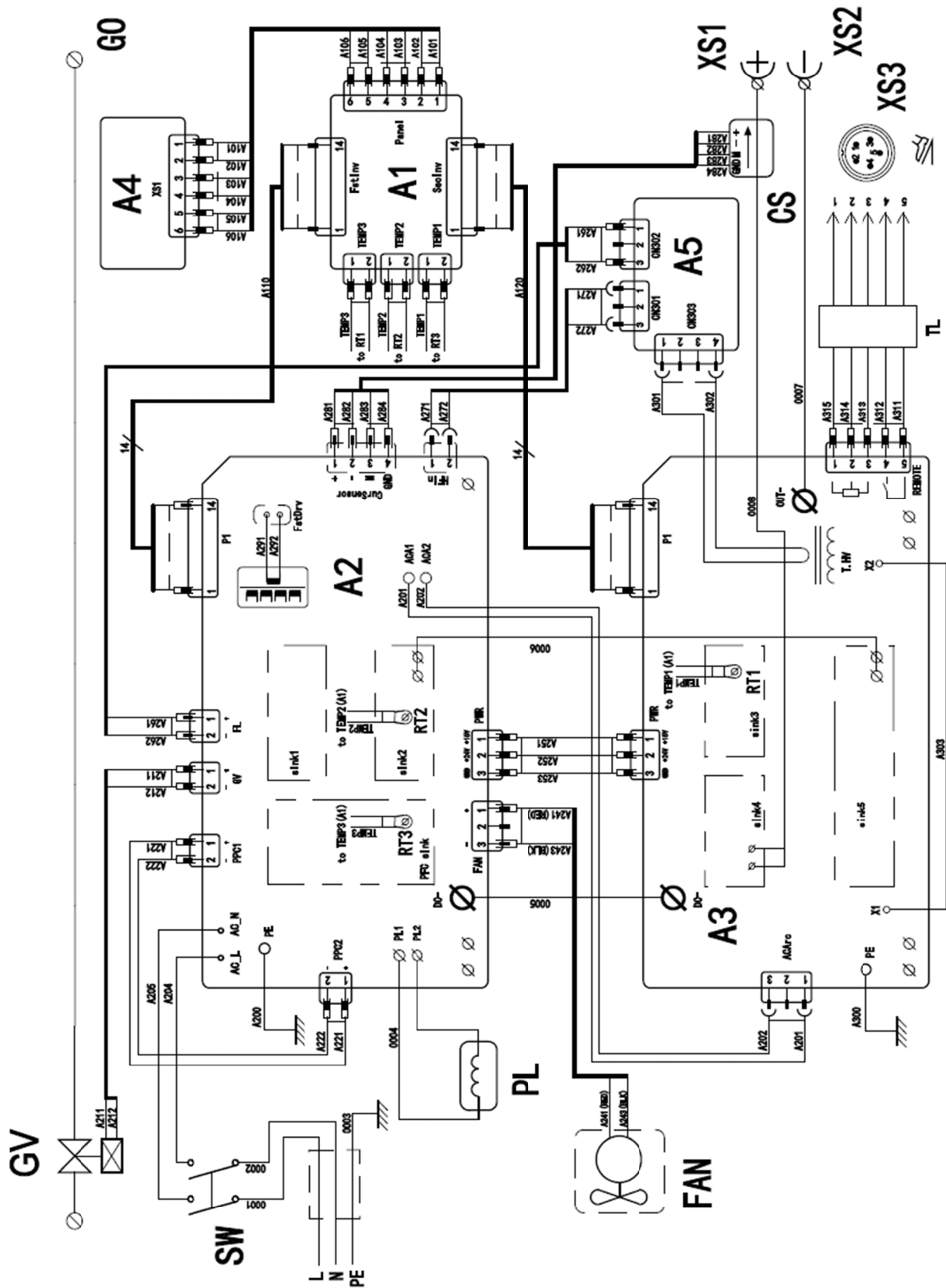
Regularly check whether all cable insulation of welding machine is damaged, band or replace the cable.

Regularly check all the electrical connections in the welding machine for loose parts and fasten the loose parts.

Please care for the equipment to avoid being damaged by human.

- 
- **Please professional electrician to open the case.**
  - **When performing maintenance on the welder, be sure to remove the three-phase cable from the distribution box.**
-

# 6. MIAN WIRING DIAGRAM





## Wiring diagram parts

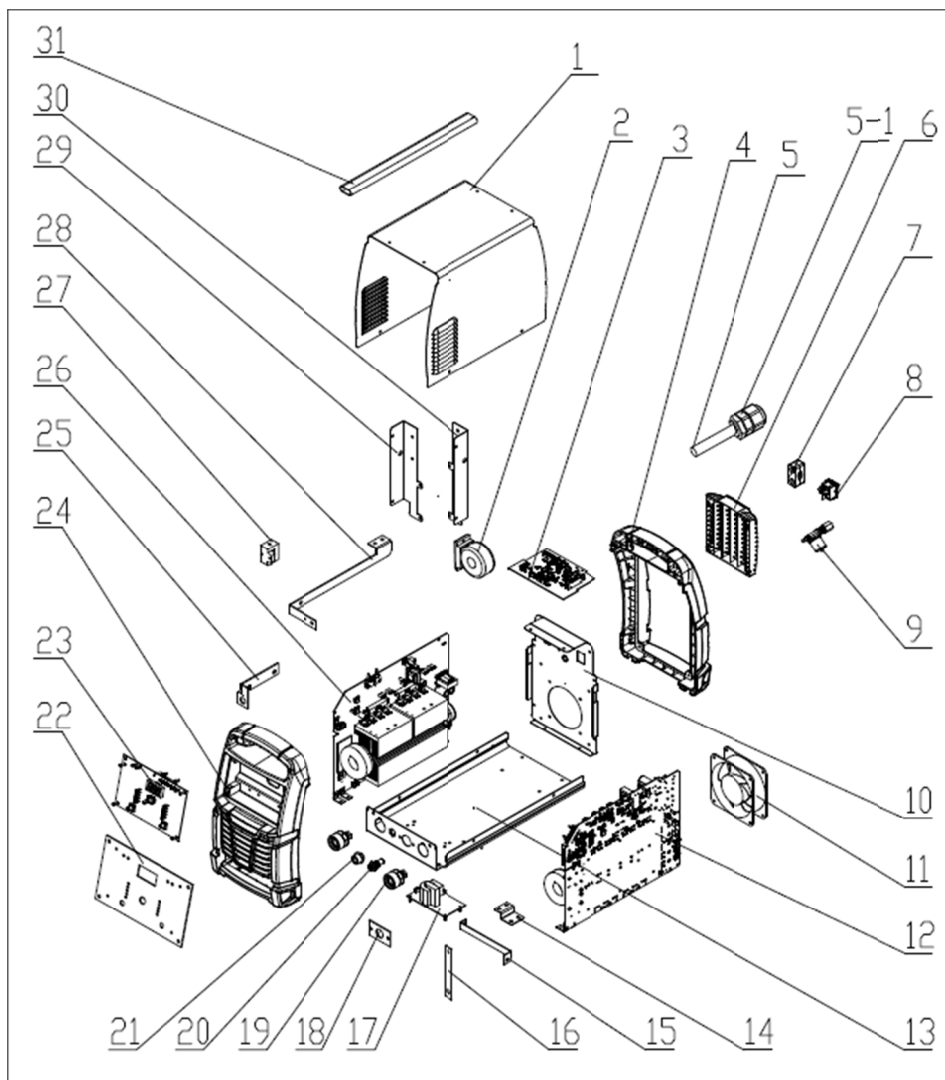
Number	Description
A1	Main control PCB board
A2	Primary inverter board
A3	Second inverter board
A4	Panel
A5	High voltage arc striking plate
SW	Rocker switch
FAN	Fan
GV	Electromagnetic valve
GO	Output gas connector
PL	PFC energy storage inductor
CS	Hall current sensor
RT1 ~ 3	Temperature Sensor
XS1	Fast output terminal (negative)
XS2	Fast output terminal (positive)
XS3	5-pin foot pedal control line aviation socket
TL	Magnetic ring

## 7. DIAGRAM & PARTS LIST

### 7.1 Security warning

<p><b>WARNING</b></p>	<ol style="list-style-type: none"> <li>1. Do not open the machine case if you are not professional electrician.</li> <li>2. Shut down the machine and distribution box power before open the machine case.</li> </ol>
	<p><b>! Danger! Electric shocks can be hurtful and deadly</b></p> <ul style="list-style-type: none"> <li>• Do not touch the bare electric connection parts in the machine.</li> <li>• Shut down the machine and distribution box power before open the machine case.</li> </ul>
	<p><b>! Danger! Rotating fan maybe hurt operator!</b></p> <ul style="list-style-type: none"> <li>• Do not touch the rotating fan blade.</li> <li>• Assemble the case before open the machine.</li> </ul>

### 7.2 Diagram



### 7.3 Parts list

Reference	Part Number	Part Description	Quantity
1	KLH5875906.1	Case	1
2	KLH5875906.2	PFC inductor	1
3	KLH5875906.3	Main control board	1
4	KLH5875906.4	Plastic frame	1
5	KLH5875906.5	Power cord with plug	1
5-1	KLH5875906.5.1	External forcing cable fixing head	1
6	KLH5875906.6	Plastic border blind	1
7	KLH5875906.7	Tension disc	2
8	KLH5875906.8	Rocker switch	1
9	KLH5875906.9	Gas valve	1
10	KLH5875906.10	Back panel	1
11	KLH5875906.11	Fan	1
12	KLH5875906.12	Primary inverter boardc	1
13	KLH5875906.13	Base plate	1
14	KLH5875906.14	Conducting strip I	1
15	KLH5875906.15	Conducting strip II	1
16	KLH5875906.16	Output busbar II	1
17	KLH5875906.17	High pressure arc starting plate	1
18	KLH5875906.18	Insulation board	1
19	KLH5875906.19	Qucik connector	2
20	KLH5875906.20	Gas connector	1
21	KLH5875906.21	Aviation socket	1
22	KLH5875906.22	Plate support board	1
23	KLH5875906.23	Panel control board	1
24	KLH5875906.24	Front plastic panel	1
25	KLH5875906.25	Output busbarIV	1
26	KLH5875906.26	Secondary inverter board	1
27	KLH5875906.27	Hall current sensor	1
28	KLH5875906.28	Output busbar I	1
29	KLH5875906.29	Main board fixing plate(left)	1
30	KLH5875906.30	Main board fixing plate(right)	1
31	KLH5875906.31	Handle	1

### 7.3 Parts list

Reference	Part Number	Part Description	Quantity
1	KLH5875906.M.1	120V Power adapter	1
2	KLH5875906.M.2	Grounding cable with clamp	1
3	KLH5875906.M.3	Welding cable with electrode holder	1
4	KLH5875906.M.4	Regulator	1
5	KLH5875906.M.5	Gas hose	1
6	KLH5875906.M.6	Long cap	1
7	KLH5875906.M.7	1.0mm Collect	1
8	KLH5875906.M.8	1.6mm Collect	1
9	KLH5875906.M.9	2.0mm Collect	1
10	KLH5875906.M.10	Nozzle 5#	1
11	KLH5875906.M.11	Nozzle 6#	1
12	KLH5875906.M.12	Tig torch	1
13	KLH5875906.M.13	Short cap	1
14	KLH5875906.M.14	Collect body	1
15	KLH5875906.M.15	Nozzle 4#	1
16	KLH5875906.M.16	Foot pedal	1



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