TIG WELDER

TIG-250GC/GLC/MGC/MPLC

INSTRUCTION MANUAL

ANDELI

Read me first

Thank you for using welder ! For the important safety of your body, please read this manual book and understand its contents before operation. Thank you for your cooperation!

Content

Use and Characteristic

The WS series inverter DC argon arc welding machine integrates manual welding, ordinary argon arc welding, cold welding, and cleaning functions. It can weld carbon steel, stainless steel, copper, titanium and other materials. Because this series of welding machines have ideal performance, static and external characteristics and good dynamic characteristics, and relatively complete control functions, it exhibits the following characteristics:

- IGBT high-frequency soft switching conversion, high efficiency, small size and light weight;
- The advanced control scheme significantly improves the performance of the welding machine and meets the welding process requirements to a greater extent;
- Manual welding, ordinary argon arc welding, cold welding, cleaning-multi-purpose machine; 4.Cold welding is suitable for spot welding of thin plates, and the workpiece does not change color;
- Cleaning function, cleaning the color of the workpiece after ordinary argon arc welding
- Easy arc starting, stable arc, high welding quality; Manual arc welding ~ small spatter, stable current, high reliability, and good weld formation;
- Digital panel adjustment, complete functions, multi-parameter adjustment;

Safty Precaution

⚠ Generally Safety Precaution

- Ensure to follow precautions specified in this manual, or else, an accident may happen.
- The design and construction of input power supply, selection of installation site and use of high pressure gas shall be performed according to the relevant standards and rules.
- Irrelevant personnel are not allowed to enter the welding workplace. Only the qualified personnel can install, overhaul, maintain and operate the welding machine.
- Qualified staff is needed for installation, maintenance and use.
- Make sure the welding machine is not used for other purposes except welding (such as charging, heating and pipeline unfreezing, etc).
- If the ground is uneven, please avoid dumping welding machine.

⚠ Avoid electrical shock or burn

- Touching electric parts is forbidden.
- Ensure to invite professional electrician to ground the welding machine with copper conductor with specific cross section.
- Ensure to invite professional electrician to connect power source in welding machine with copper conductor with specific cross section. The insulating sheath cannot be damaged.
- Ensure to insulate the body and base metal when working in the wet and restricted area.
- Please use safety net when working at heights.
- Please close the input power when not in use.

⚠ Avoid welding fume and gas damaging human body

- Ensure to use specified exhaust equipment to avoid gas poisoning and suffocation.
- The protective gas will be deposited around the container bottom to cause suffocation. Pay attention to the ventilation.

⚠ Avoid welding arc, splash and welding slag damaging human body

- Ensure to wear protective glasses with enough overshadow. The arc will result in ocular inflammation and the welding splash and slag will burn eyes.
- Ensure to use protective supplies for welding, such as leather protective gloves, caftan, cap, welding spats and apron to avoid welding arc light, welding splash and slag burning skin.

⚠ Avoid fire, explosion and fracture and other accidents

- The welding place cannot have the combustibles because splash and hot weld joint will result in fire.
- The cables and base metal must be connected firmly, or else, it may be heat to result in fire.
- Must not weld in the combustible gas or container with the combustibles, or else, it may result in explosion.

- Ensure to prepare fire extinguisher just in case.

⚠ To prevent the rotating moving parts wounding

- Must not make fingers, hair and clothes close to the cooling fan and wire feed roll and other rotating parts.
- When feeding wire, must not make the welding gun end close to eyes, face and body to avoid wire damaging person.

⚠ Avoid falling gas cylinder and breaking gas regulator

- The gas cylinder shall be fixed reliably, or else it may dump to result in human injury.
- Must not put gas cylinder in a place with high temperature or sunshine.
- When opening gas cylinder valve, must not make face close to the gas outlet, or else high-pressure gas may damage person.
- Ensure to use gas regulator provided by the company and follow the use regulations.

⚠ Prevent the movement of welding

- Must not stand under the welding machine and motion direction when moving welding machine with fork lift truck or crane, or else, the welding machine may fall to cause injury.
- The rope sling shall bear enough pull force and cannot be broken when suspending. The angle between rope sling and hook shall be no more than 30°.

Precautions of electromagnetic compatibility

1. **Overview**

Welding brings electromagnetic interference.

Minimize the interference emission of arc welding equipment with proper installation way and correct application method.

The products described in the manual belong to Class A equipment (all occasions except residential area powered by public electrical power system).

Warning: Class A equipment is not applicable to residential area powered by public electrical power system. It is difficult to guarantee electromagnetic compatibility because of conduction and radiated interference.

2. **Advice of environment assessment**

Before installing the arc welding equipment, the user shall evaluate the potential electromagnetic disturbance of the surrounding. The considerations are as follows:

- Check surrounding of arc welding equipment for other power cables, control cables, signals and telephone wire.
- Check for broadcasting and television launching and receiving equipment;
- Check for computer and other controllers;
- Check for high security level equipment, such as industrial protective equipment;
- Consider the health of surrounding staffs, such as staffs with hearing aid and cardiac pacemaker;
- Check for calibrating or detection equipment;
- Pay attention to immunity to interference of other equipment. The user shall make sure that the surround equipment can be compatible. The additional protective measures may be required;
- Welding or other activity time.

The environmental range is decided based on the building structure and possible activities. This range may exceed the boundary of building.

3. Method of reducing radiation emission

- Public power supply system

The arc welding equipment shall be connected into public power supply system with the method recommended by the manufacturer. In case of interference, please take addition preventive measures, such as connecting filter with public power supply system. Ensure to consider power able shielding for fixed arc welding equipment. The power cables can be shielded with the metal pipe or other equivalent methods. Ensure to keep electrical continuity for shielding.

◆ Maintenance of arc welding equipment

Ensure to perform routine maintenance for arc welding equipment according to the method recommended by the manufacturer. When welding equipment runs, all equipment inlets, auxiliary doors and panels shall be closed and tightened appropriately. The arc welding equipment cannot be changed in any form, unless the relevant change and adjustment are allowed in the manual. The spark gap of arc initiation device and arc stabilizing device shall be adjusted and serviced according to the suggestion of manufacturer.

◆ Welding cable

The welding cable shall be short as much as possible and close to each other. Moreover, welding cable shall be next to or close to ground cable.

◆ Equipotential lap

Pay attention to lapping of metal objects in the surrounding. The lapping of metal objects and workpiece will increase job hazard. When the operator touches these metal objects and electrode, he may suffer from electrical shock. The operator shall be insulated from these metal objects.

◆ Workpiece earthing

The workpiece may be not provided with earthing because of electrical safety or workpiece position, such as hull or building steel frame. When earthing is available for workpiece, radiation emission may be reduced.But it is not always the case. Therefore, we must prevent the increased risk of electric shock of users caused by the workpiece earthing or the damage of other electric equipment. When necessary, some workpiece should be directly earthed, but directly grounding is not allowed in some countries, user can achieve this effect only by selecting the appropriate capacitor according to the regulations of the host countries.

◆ Shielding

The shielding of surrounding equipment and other cables can reduce the electromagnetic interference. The whole welding area can be shielded for special applications.

Main technical information

1. Main technical parameter

Model	TIG-200	
Rated input voltage(V)	1PH AC220V±15%，50/60Hz	
	MMA	TIG
Rated input power(KVA)	4.6	3.5
Rated input current(A)	21	16
No-load voltage(V)	56V	
Output current(A)	20-130	20-150
Rated Output	130A/25.2V	150A/16V
Rated duty cycle(%)	40%	
Efficiency(%)	70	
Insulation grade	F	
Protection grade	IP21	
WeightKg)	5	
Dimension	396*142*268	

Installation

1. Environment

- Install in a dry environment with humidity less than 90% at 20℃ and 50% at 40℃.
- The temperature should be in the range of -10℃-40℃ when welding, and -20℃-55℃ for storage and transportation.
- Shelter the machine from direct sunshine and rain. Avoid raindrops.
- Avoid using it in an environment with strong air flow when TIG welding.
- The inclination of the welding power is less than 10^0 the altitude no more than 1000m.
- Avoid using it in a dusty, acid or other corrosive environment.
- The machine should be placed more than 20cm from the wall, and more than 10cm from other welding machines.

2. Requirement of the input power source

- Waveform: standard pure sine wave
- Fluctuation range: 220V ±15%
- Frequency: 50Hz/60Hz

3. **Input power**

Model		TIG-200
Input power		1PH AC220V±15%，50/60Hz
Min. power of power grid		7
Input protection	Fuse	40
	Circuit breaker	63
Cable	input	2.5mm^2
	output	16mm^2
	ground	2.5mm^2

Enlarge the input , output and grounding cable according to the cable length.

Remark: the specifications of fuse and circuit breaker in the table above are only for reference.

4. **Installation of the machine**

The power supply of this series of products should be single phase AC 220V 50/60Hz. Use a distribution cabinet with an automatic air switch. Ensure safe grounding.

4.1 **MMA welding：**

- Connect welding cable to the machine.
- Turn off the machine.
- Connect the input cable to the distribution cabinet, switch on.

4.2 **Hot/Cold TIG welding：**

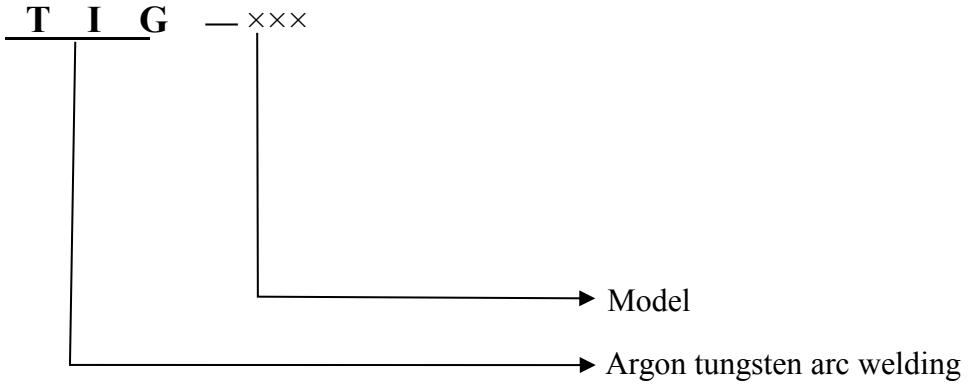
- Connect the earth cable to the positive pole, TIG torch to the negative pole.
- Connect the hose to the machine and gas bottle.
- Turn off the machine.
- Connect the input cable to the distribution cabinet, switch on.

4.3 **Clean welding：**

- Connect the earth cable to the positive pole, TIG torch to the negative pole.
- Turn off the machine.
- Connect the input cable to the distribution cabinet, switch on.

Model establishment and illustration

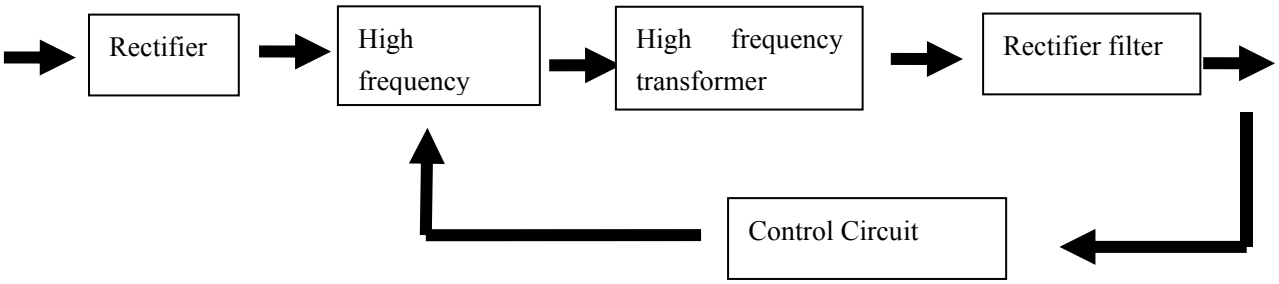
TIG series welding machine model establishment and description as shown in figure 1：



(Figure 1) TIG series welding machine model establishment and description.

Brief description of the principle

The schematic diagram of the TIG series welding machine is show figure 2：

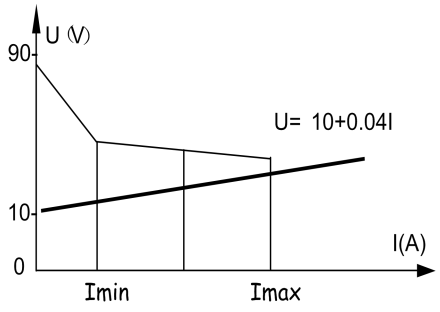


（ Figure 2） Welding machine schematic

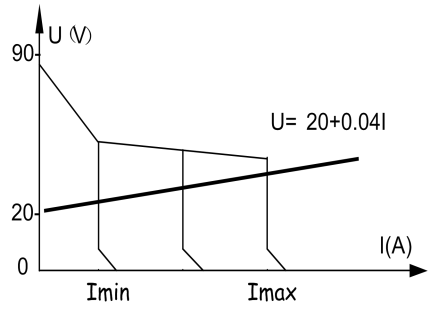
The welding machine adopts IGBT high frequency inverter technology, power frequency 220V or 380V power input，direct rectification and then sent to the inverter composed of IGBT and other components to become high frequency alternating current, high frequency alternating current obtained after inverter is passed through high frequency transformer after the step-down,high frequency rectifier rectifies and filters, the output is suitable for the DC current of the welding. Through this process, the dynamic response of the welder is improved, the volume and weight of the transformer and the reactor are reduced, and the efficiency of the whole machine is improved.

The design of the control circuit enables the welder to always achieve good welding process performance when external conditions change(such as grid voltage fluctuations and different output cable lengths).It is easy to arc,the are is stable,the weld is well formed,and the welding current can be continuously adjusted.

TIG-p series welding machine output characteristics such as shown in figure 3:



(3a)TIG welding output characteristics



（3b)MMA welding output characteristics

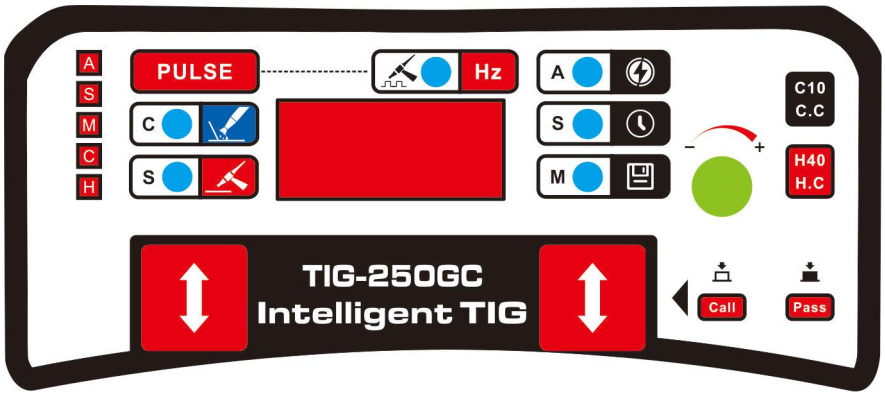
MMA/TIG welding output characteristics：Drooping characteristics.

Operation and instruction

1． Function

1.1 Welding machine front panel

As shown in table 4, control panel is used for selecting functions and setting data of welding machine. Control panel including digital display、 adjusting knobs、 selection keys and LED indicator lights.



(Figure 4) TIG-250GC Panel

1.1.1 Function、parameter introduction

① Function selector： (The left first)

Function selector：Switch Clean and TIG function；Under TIG model, long press to enter interval mode(interval lights on)；

② Function selector： (The right first)

Function selector： Switch current、Gas time delay、long press save； Switch interval and current under Interval mode；

③ Parameter adjustment button：

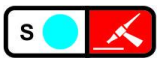
Adjust the value of each parameter, keep long press can adjust roughly；

④ Digital tube：

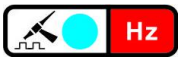
Display the values of each parameter；

⑤ Welding function indicator light：

Clean，clean the color of the workpiece after argon arc welding；



TIG；



TIG Interval，similar to automatic spot welding function；

⑥ Parameter light：

Current light；adjust the current value under Clean and TIG mode；

Cold clean C5-C9, hot clean H10-H40 under Clean mode；

Under TIG interval mode, the lamp is on to adjust the current value, and the lamp is off to adjust the interval time；

Gas delay indicator；Under TIG mode,the time range of adjusting gas delay is 0-10s；

Under TIG interval mode, gas delay time fixed in 2.5S；

Storage indicator；Under TIG、TIG interval mode，long press the parameter selection button to store welding parameters and built-in parameters；There are 9 channels respectively, channel 0-4 store the self-tuning parameters and channel 5-8 save the Built-in parameters；

Save Function：For example, select channel 0 in advance, adjust the corresponding parameters, and then long press the parameter selection button to automatically jump to the next channel, and the parameters of channel 0 will be saved;And so on;

Built-in parameters in TIG welding mode：U5-D0.8，spot welding 0.8mm workpiece ；

U6-L0.8，Continuous welding 0.8mm workpiece；

U7-D3.0，spot welding 3.0mm workpiece；

U8-L3.0，Continuous welding 3.0mm workpiece；

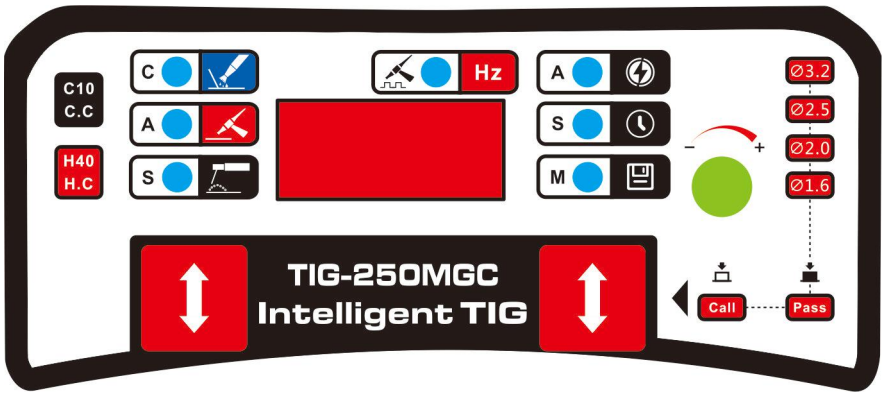
Built-in parameters in TIG interval welding mode：P5-P8，weld 0.6mm，1.0mm，1.5mm，3.0mm workpiece；

⑦ protected code：

Display OC, indicating welding machine overheat or overcurrent protection；

Overheat protection is that the internal temperature of the machine is overheated, and the machine can be restored to normal after cooling without load；

Overcurrent protection is unrecoverable when the machine is turned on without load, and there may be original damage inside the machine. This situation needs to be carefully handled and confirmed before starting the machine； If it is a misjudgment, just restart the machine。



(Figure 5) TIG-250MGC Panel

① Function selector  (The left first)

Function selector：switch Clean、TIG、electrowelding functions；In TIG welding mode, long press to enter interval mode (interval light is on)；

② Parameter selection key  (The right first)

Function selector：switch current、gas delay time、long press save；Under interval mode, switch interval、current；

③ Parameter adjustment knob：

Adjust the value of each parameter, keep long press can adjust roughly；

Under MMA mode： Light touch knob, select the electrode diameter (1.6/2.0/2.5/3.2) from small to large, and adjust the knob to change the current on the electrode；

④ Digital tube： 

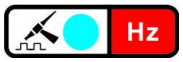
Display the values of each parameter;

⑤ Welding function indicator light:

CLEAN, clean the color of the workpiece after argon arc welding;

TIG;

MMA;



TIG Interval, similar to automatic spot welding function;

⑥ Parameter light:

Current light; adjust the current value under Clean and TIG mode;

Cold clean C5-C9, hot clean H10-H40 under Clean mode;

Under TIG interval mode, the lamp is on to adjust the current value, and the lamp is off to adjust the interval time;

Gas delay indicator; Under TIG mode,the time range of adjusting gas delay is 0-10s;

Under TIG interval mode, gas delay time fixed in 2.5S;

Storage indicator; Under TIG、TIG interval mode, long press the parameter selection button to store welding parameters and built-in parameters ; There are 9 channels respectively, channel 0-4 store the self-tuning parameters and channel 5-8 save the Built-in parameters;

Save Function : For example, select channel 0 in advance, adjust the corresponding parameters,and then long press the parameter selection button to automatically jump to the next channel, and the parameters of channel 0 will be saved;And so on;

Built-in parameters in TIG welding mode: U5-D0.8, spot welding 0.8mm workpiece;

U6-L0.8, Continuous welding 0.8mm workpiece;

U7-D3.0, spot welding 3.0mm workpiece;

U8-L3.0, Continuous welding 3.0mm workpiece;

Built-in parameters in TIG interval welding mode: P5-P8, weld 0.6mm, 1.0mm, 1.5mm, 3.0mm

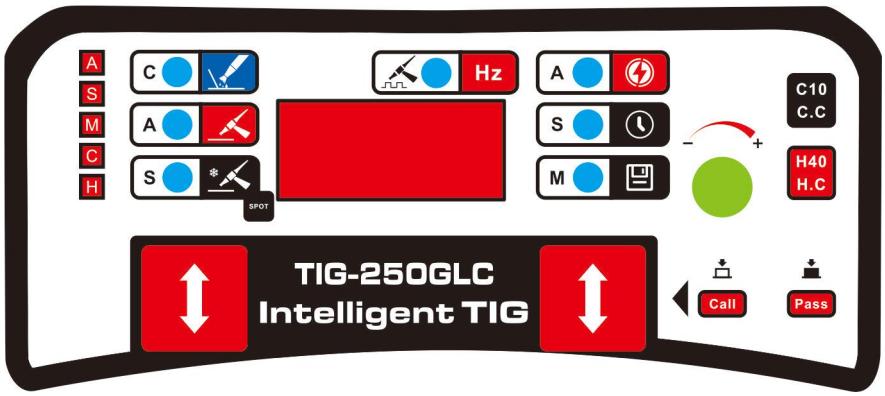
workpiece；

⑧ protected code：

Display OC, indicating welding machine overheat or overcurrent protection；

Overheat protection is that the internal temperature of the machine is overheated, and the machine can be restored to normal after cooling without load；

Overcurrent protection is unrecoverable when the machine is turned on without load, and there may be original damage inside the machine. This situation needs to be carefully handled and confirmed before starting the machine； If it is a misjudgment, just restart the machine。



(Figure 6) TIG-250GLC Panel

① Function selector： (The left first)

Function selector：switch Clean、TIG、Cold；

② Function selector: (The right first)

Function selector：switch current、gas delay、cold welding time、long press to save；

③ Parameter adjustment knob：

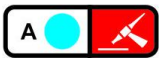
Adjust the value of each parameter, keep long press can adjust roughly；

④ Digital tube：

Display the values of each parameter；

⑤ Welding function indicator light：

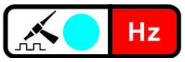
CLEAN，clean the color of the workpiece after argon arc welding；



TIG；

COLD， Suitable for sheet welding, can reduce the degree of workpiece discoloration；

⑥ Parameter light：



Adjust interval time under Cold welding mode；

Current indicator light； Adjust current value under Clean、TIG mode；

Cold clean C5-C9, hot clean H10-H40 under Clean mode；

It’s useless under Cold welding mode；

Gas delay indicator；Under TIG mode, adjust the gas delay time 0-10S；Set the gas delay time of cold welding in the mean time ；

Under Cold mode：Adjusting welding time 1-250ms，It has the effect of reducing welding temperature. The range of 1-200ms has the effect of reducing the welding temperature. The smaller the value, the lower the temperature, and the smaller the degree of workpiece discoloration； The range of 200-250ms has the effect of heat interval pulse, continuous spot welding output to meet the requirements of penetration control, the degree of workpiece color is close to ordinary argon arc welding；

Save indicator light； Long press the parameter selection key to store welding parameters and built-in parameters under TIG and COLD mode；Both mode have 9 channels, 0-4 channels store self-adjusting parameters and 5-8 built-in parameters;

Storage function: for example, select channel 0 in advance, adjust the corresponding parameters, and then long press the parameter selection key to automatically jump to the next channel, and the parameters of channel 0 will be saved;And so on...

Built-in parameters in TIG welding mode：U5-D0.8，spot welding 0.8mm workpiece；

U6-L0.8，Continuous welding 0.8mm workpiece；

U7-D3.0，spot welding 3.0mm workpiece；

U8-L3.0，Continuous welding 3.0mm workpiece；

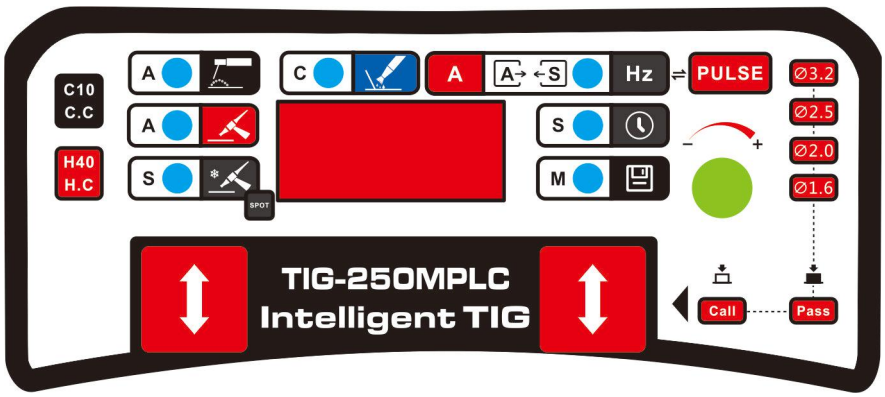
Built-in parameters in cold welding mode: C5-C8, welding 0.4mm,0.8mm,1.5mm,2.0mm workpiece;

⑨ protected code：

Display OC, indicating welding machine overheat or overcurrent protection；

Overheat protection is that the internal temperature of the machine is overheated, and the machine can be restored to normal after cooling without load；

Overcurrent protection is unrecoverable when the machine is turned on without load, and there may be original damage inside the machine. This situation needs to be carefully handled and confirmed before starting the machine； If it is a misjudgment, just restart the machine。



(Figure 7) TIG-250MPLC Panel

① function selector  (the left first)

function selector：switch MMA、TIG、COLD、CLEAN functions；

② function selector：  (the right first)

Parameter selection key：Switch current、gas delay、cold welding time、interval time、long press to save；

③ Parameter adjustment knob：

Adjust the size of each parameter value, keep long press can adjust roughly；

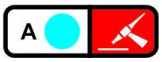
Under MMA：Gently touch the knob to select the electrode diameter (1.6/2.0/2.5/3.2) from small to large, and adjust the knob to change the current on the corresponding electrode；

④ Digital tube： 

Display the values of each parameter；

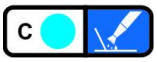
⑤ Welding function indicator light：

MMA；



TIG；

COLD， Suitable for sheet welding, can reduce the degree of workpiece discoloration；



CLEAN ,clean the color of the workpiece after argon arc welding；

⑥ Parameter light：

Current, interval indicator; adjust the current value under cleaning and TIG mode；

Adjust the interval time under Cold mode；

Cold clean C5-C9, hot clean H10-H40 under Clean mode；

Gas delay indicator；Under TIG mode, adjust the gas delay time 0-10S；Set the gas delay time of cold welding in the mean time ；

Under Cold moode： Adjust the welding time 1-250ms, 1-200ms range has the effect of reducing the welding temperature, the smaller the value, the lower the temperature, the smaller the degree of workpiece discoloration ； The range of 200-250ms has the effect of inter-heat insulation pulse, continuous spot welding output, to meet the requirements of penetration control, the degree of workpiece color is close to ordinary argon arc welding;

Save indicator light； Long press the parameter selection key to store welding parameters and built-in parameters under TIG and COLD mode；Both mode have 9 channels, 0-4 channels store self-adjusting parameters and 5-8 built-in parameters;

Storage function: for example, select channel 0 in advance, adjust the corresponding parameters, and then long press the parameter selection key to automatically jump to the next channel, and the parameters of channel 0 will be saved; And so on...

Built-in parameters in TIG welding mode：U5-D0.8，spot welding 0.8mm workpiece；

U6-L0.8，Continuous welding 0.8mm workpiece；

U7-D3.0，spot welding 3.0mm workpiece；

U8-L3.0，Continuous welding 3.0mm workpiece；

Built-in parameters in cold welding mode:C5-C8 0.4mm,0.8mm,1.5mm,2.0mm workpiece;

⑨ protected code：

Display OC, indicating welding machine overheat or overcurrent protection；

Overheat protection is that the internal temperature of the machine is overheated, and the machine can be restored to normal after cooling without load；

Overcurrent protection is unrecoverable when the machine is turned on without load, and there may be original damage inside the machine. This situation needs to be carefully handled and confirmed before starting the machine； If it is a misjudgment, just restart the machine。

1.1.2 Welding output interface

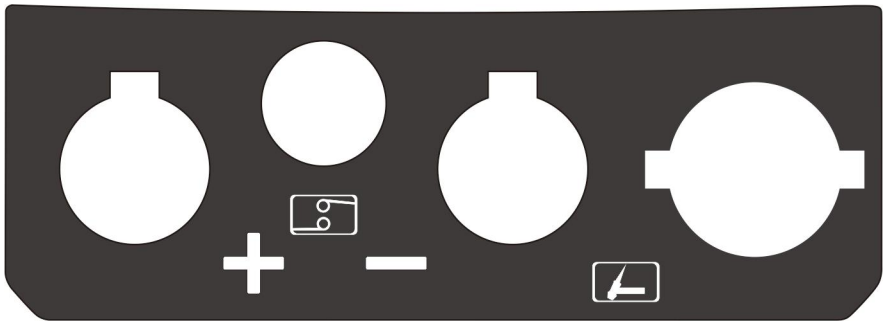
From the left in order is：

① Positive output fast socket：connect the electrode holder when on MMA mode；connect ground clamp when hot welding、cold welding、clean；

② Welding torch switch：connect with TIG torch and cleaning torch switch；

③ Negative output fast socket：connect the ground clamp when on MMA mode；connect the cleaning torch fasst plug when on CLEAN mode；

④ Negative output gas-electric connector: connect the TIG torch electrical contact when hot welding and cold welding；



2.**Installation instruction：**

Note: Please strictly follow below steps to install and debug!

Before electrical connect operation the user has to turn off the power switch of the distribution panel!

This equipment protection level is IP21,avoid using in rain!

- Connect the welding input power wire to the corresponding voltage level and ≥60A circuit breaker (connect the power wire ≥4²);
- The input power wire should be in good contact with the correspond power terminal or switch ,to prevent oxidation
- Use a multimeter to measure whether the input voltage is in the fluctuation range;
- Connect the yellow-green wire on the power cable and the grounding screw on the rear panel to ≥4² wire and ground well.；
- If the welder is placed on an inclined plane, the welder should be secured so that it does not slip；
- Each welder is equipped with an insulated handle, which can be lifted by hand when moving

the welder

2.1 MMA welding

- DC EP：Cathode connect with work piece（“-”），welding torch connect with anode（“+”）。
- DC EN：Anode connect with work piece（“+”），cathode connect with TIG torch（“-”）。

The operator can according the base metal and electrode material choose the connection method,Generally, the alkaline electrode is recommended to use DC reverse connection method. Acid welding electrode are not specified.

Quick check list of welding process（Only for reference）

Electrode diameter（mm）	Recommended welding current（A）	Recommended welding voltage（V）
1.0	20-60	20.8-22.4
1.6	44-84	21.76-23.36
2.0	60-100	22.4-24.0
2.5	80-120	23.2-24.8
3.2	108-148	23.32-24.92
4.0	140-180	24.6-27.2

Note: this table is suitable for low carbon steel welding, other materials can refer to the relevant materials and process manual.

2.2 TIG welding

① Tightly connect the air pipe with the air inlet of the welding machine rear plate；The air supply path should include gas bottle, argon decompression flowmeter and air tube. The connecting part of the air tube should be tied tightly with hose clamp to prevent leakage and air entry.

② Insert the gas-electric integration interface of the argon welding torch and the welding torch switch into the corresponding position on the panel, and tighten it clockwise.

③ Connect the ground clamp to the positive pole socket.

④ Set the required current and gas delay time, set the distance between the tungsten electrode of the argon welding torch and the workpiece as 2-4mm, press the torch switch, ignition arc, then it can work.

Titanium and alloy-TIG parameter for reference

Thickness（mm）	Groove shape	Welding layer	Tungsten diameter（mm）	Wire diameter（mm）	current（A）	Argon gas volume（L/min）			Nozzle diameter（mm）
0.5	I-shape	1	1.5	1.0	30-50	8-10	6-8	14-16	10
1.0		1	2.0	1.0-2.0	40-60	8-10	6-8	14-16	10
1.5		1	2.0	1.0-2.0	60-80	10-12	8-10	14-16	10-12
2.0		1	2.0-3.0	1.0-2.0	80-110	12-14	10-12	16-20	12-14
2.5		1	2.0-3.0	2.0	110-120	12-14	10-12	16-20	12-14
3.0	Y-shape	1-2	3.0	2.0-3.0	120-140	12-14	10-12	16-20	14-18
4.0		2	3.0-4.0	2.0-3.0	130-150	14-16	12-14	20-25	18-20
5.0		2-3	4.0	3.0	130-150	14-16	12-14	20-25	18-20
6.0		2-3	4.0	3.0-4.0	140-180	14-16	12-14	25-28	18-20
7.0		2-3	4.0	3.0-4.0	140-180	14-16	12-14	25-28	20-22
8.0		3-4	4.0	3.0-4.0	140-180	14-16	12-14	25-28	20-22
10	Double Y shape	4-6	4.0	3.0-4.0	160-200	14-16	12-14	25-28	20-22
20		12	4.0	4.0	200-240	12-14	10-12	20	18
22		12	4.0	4.0-5.0	230-250	15-18	18-20	18-20	20
25		15-16	4.0	3.0-4.0	200-220	16-18	20-26	26-30	22
30		17-18	4.0	3.0-4.0	200-220	16-18	20-26	26-30	22

Thin stainless steel sheet——TIG parameter (only for reference)

thickness（mm）	Joint type	Tungsten diameter（mm）	Wire diameter（mm）	Current type	current（A）	Argon gas volume（L/min）	speed（cm/min）
1.0	butt	2	1.6	DCEN	7-28	3-4	12-47
1.2	butt	2	1.6	DCEN	15	3-4	25
1.5	butt	2	1.6	DCEN	5-19	3-4	8-32

2.3 Cold welding

⑤ Tightly connect the air pipe with the air inlet of the welding machine rear plate；The air supply path should include gas bottle, argon decompression flowmeter and air tube. The connecting part of the air tube should be tied tightly with hose clamp to prevent leakage and air entry.

⑥ Insert the gas-electric integration interface of the argon welding torch and the welding torch switch into the corresponding position on the panel, and tighten it clockwise.

① Connect the ground clamp to the positive pole socket.

⑦ Set the required current and gas delay time, set the distance between the tungsten electrode of the argon welding torch and the workpiece as 2-4mm, press the torch switch, ignition arc, then it can work.

The longer the interval, the lower the temperature, welding time 1-250ms, The range of 1-200ms has the effect of reducing the welding temperature. The smaller the value, the lower the temperature, and the smaller the degree of workpiece discoloration; The range of 200-250ms has the effect of heat insulation pulse, continuous spot welding output, to meet the requirements of penetration control, the degree of workpiece color is close to ordinary argon arc welding.

2.4 Cleaning

① Connect the fast plug of the cleaning torch to the negative fast socket, insert the torch switch, and tighten clockwise；

② Connect the ground clamp to the positive pole socket.

② Set the required welding current, the cleaning torch with cleaning fluid, contact the discoloration welding seam, press the torch switch, ignition arc, then work.

③ When the current value is C5-C9, it is suitable to use the brush type cleaning torch to clean the thin plate, and when H10-H40, it is suitable to use the binding cloth type cleaning torch to clean the thick plate.

Welding machine precautions and maintenance

1. Safety points

The welding machine is quipped with overcurrent and overheat protection circuits.When the gird voltage,output current and internal temperature exceed the set standard the welding machine will automatically stop working,but excessive use(such as excessive voltage) will still lead to welding,The machine is damaged,so you still need to pay attention to the following:

◆ Make sure the ventilation is good！

When the machine is in operation,a large working current passes,natural ventilation can not meet the cooling requirements of the welder,so a fan is installed to effectively cool the welder to make it work smoothly.The user should confirm that the ventilation area is not covered or blocked,and the distance from the surrounding objects should be no less than 0.3 meters.Users should always pay attention to maintain good ventilation.which is very important for better working of the welding machine and guaranteeing longer service life of.

◆ It is forbidden to overload！

The user should pay attention to the use of the welder according to the allowable load duration of the welder(refer to the welder nameplate parameters) to keep the welding current not exceeding the maximum allowable load current Current overload will significantly shorten the life of the welder and may even burn the welder.Load continuation rate:that is the current welding time under the load continuation rate,10 minutes is a cycle,working time+rest time=10 minutes;For example,30%,200 A/28 V,that is the output current 200 A state,should work for 3 minutes.Rest for 7 minutes;60%,141 A/25.6 V,in the state of output current 141 A,should work for 5 minutes,rest for 4 minutes.

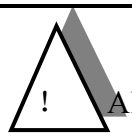
Current overload will significantly shorten the life of the welder

◆ Forbidden voltage too high!

The power supply voltage is listed in the "main performance parameters" table. In general, the automatic voltage compensation circuit in the welding machine will ensure that the welding current remains within the allowable range. If the power supply voltage exceeds the allowable value, it will damage the welder. The user should fully understand this situation and take corresponding preventive measures。

- It is forbidden to use the welding machine for thawing pipes。
- The back of each welding machine is attached with a ground screw, and marked with a ground mark. Before use, select a cable with a section greater than 2.5mm2 and ground the welding machine shell reliably to release static electricity or prevent accidents that may occur due to electricity leakage.
- If the welding machine exceeds the standard load duration, the welding machine may suddenly enter the protection state and stop working, which means that the welding machine exceeds the standard load duration. If the temperature is too high, the temperature control switch will be triggered and the welding machine will stop working. Meanwhile, the yellow indicator light on the front panel will be on. In this case, you do not need to unplug the power supply so that the cooling fan can continue working to cool the welder. When the yellow indicator light is off, the temperature drops to the standard range and the welding can be resumed.

2. **Maintenance**



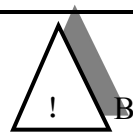
Warning:

All maintenance, service and cleaning work must be performed with power removed. Make sure you have unplugged the power cord before opening the casing.

- Dedust regularly. Use dry, clean compressed air to clean up the system. Dedust every day when operating in smoky conditions or severely polluted air.
- The compressed air should be delivered at the required pressure to avoid the destruction of the internal components.
- Check the internal contact areas to insure a tight connection (especially the plug-in joints or components) and reinforce the loose contact. If any rusting or oxidation occurs, use sandpaper to remove the oxide film and reconnect.
- Avoid water and moisture penetration. If this situation happens, apply a drying treatment to the inside of the welder and then start a megger insulation test which should include the insulation between connection joints as well as joints and casing. The welding operation could be continued only if no error detected.
- If the welder is not used for a long period of time, seal it in the original packaging and store

in dry condition.

3. Before maintenance



Warning：

Blind experiments and imprudent overhaul could lead to the expansion of failure,and difficulty for a formal maintenance.Electronic equipment in the state of the exposed part of a voltage can lead to dangers.any direct or indirect contacts may lead to electric shocks incidents,and serious electric shock will cause death!!!

Attention： During the warranty period, if not allowed by this Company, if there is any wrong maintenance to any fault of the welding power source, the suppliers will not provide free repairs.