MAGNUM WELDERS

OPERATION MANUAL
TIG200L AC/DC PRO

MENU

Machine Operating Safety

• Do not switch the function modes while the machine is operating. Switching of the function modes during welding can damage the machine. Damage caused in this manner will not be covered under warranty.

• Disconnect the electrode-holder cable from the machine before switching on the machine, to avoid arcing should the electrode be in
contact with the work piece.

• Operators should be trained and or qualified.

Electric shock: It can kill. Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and internal machine circuits are also live when power is on. In MIG/MAG welding, the wire, drive rollers, wire feed housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is dangerous.

• Connect the primary input cable according to Australian and New Zealand standards and regulations.

• Avoid all contact with live electrical parts of the welding/cutting circuit, electrodes and wires with bare hands.

• The operator must wear dry welding gloves while he/she performs the welding/cutting task.

• The operator should keep the work piece insulated from himself/herself.

• Keep cords dry, free of oil and grease, and protected from hot metal and sparks.

• Frequently inspect input power cable for wear and tear, replace the cable immediately if damaged, bare wiring is dangerous and can kill.

• Do not use damaged, under sized, or badly joined cables.

• Do not drape cables over your body.

• We recommend (RCD) safety switch is used with this equipment to detect any leakage of current to earth.

Fumes and gases are dangerous. Smoke and gas generated whilst welding or cutting can be harmful to people's health. Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health. Do not breathe the smoke and gas generated whilst welding or cutting, keep your head out of the fumes

• Keep the working area well ventilated, use fume extraction or ventilation to remove welding/cutting fumes and gases.

• In confined or heavy fume environments always wear an approved air-supplied respirator.

• Welding/cutting fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.

• Do not weld/cut in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

• Materials such as galvanized, lead, or cadmium plated steel, containing elements that can give off toxic fumes when welded/cut. Do not weld/cut these materials unless the area is very well ventilated, and or wearing an air supplied respirator.

Arc rays: harmful to people's eyes and skin. Arc rays from the welding/cutting process produce intense visible and invisible ultraviolet
and infrared rays that can burn eyes and skin.Always wear a welding helmet with correct shade of filter lens and suitable protective clothing including welding gloves whilst the welding/cutting operation is performed.

• Measures should be taken to protect people in or near the surrounding working area. Use protective screens or barriers to protect
others from flash,glare and sparks; warn others not to watch the arc.

Fire hazard. Welding/cutting on closed containers, such as tanks,drums, or pipes, can cause them to explode. Flying sparks from the
welding/cutting arc, hot work piece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding/cutting.

• The welding/cutting sparks & spatter may cause fire, therefore remove any flammable materials well away from the working area. Cover flammable materials and containers with approved covers if unable to be moved from the welding/cutting area.

• Do not weld/cut on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to the required Safety Standards to insure that flammable or toxic vapours and substances are totally removed, these can cause an explosion even though the vessel has been "cleaned". Vent hollow castings or containers before heating, cutting or welding. They may explode.

• Do not weld/cut where the atmosphere may contain flammable dust, gas, or liquid vapours (such as petrol)

• Have a fire extinguisher nearby and know how to use it. Be alert that welding/cutting sparks and hot materials from welding/cutting can easily go through small cracks and openings to adjacent areas. Be aware that welding/cutting on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.

Gas Cylinders. Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Because gas cylinders are normally part of the welding/cutting process, be sure to treat them carefully. CYLINDERS can explode if damaged.

• Protect gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.

• Insure cylinders are held secure and upright to prevent tipping or falling over.

• Never allow the welding/cutting electrode or earth clamp to touch the gas cylinder, do not drape welding cables over the cylinder.

• Never weld/cut on a pressurised gas cylinder, it will explode and kill you.

• Open the cylinder valve slowly and turn your face away from the cylinder outlet valve and gas regulator.

Gas build up. The build up of gas can causes a toxic environment, deplete the oxygen content in the air resulting in death or injury. Many gases use in welding/cutting are invisible and odourless.

• Shut off shielding gas supply when not in use.

• Always ventilate confined spaces or use approved air-supplied respirator.

Electronic magnetic fields. MAGNETIC FIELDS can affect Implanted Medical Devices.
• Wearers of Pacemakers and other Implanted Medical Devices should keep away.
• Implanted Medical Device wearers should consult their doctor and the device manufacturer before going near any electric welding, cutting or heating operation.

Noise can damage hearing. Noise from some processes or equipment can damage hearing.
• Wear approved ear protection if noise level is high.

Hot parts. Items being welded/cut generate and hold high heat and can cause severe burns.
Do not touch hot parts with bare hands. Allow a cooling period before working on the welding/cutting gun. Use insulated welding gloves
and clothing to handle hot parts and prevent burns.

CAUTION

1. Working Environment.

i. The environment in which this welding/cutting equipment is installed must be free of grinding dust, corrosive chemicals, flammable gas or
materials etc, and at no more than maximum of 80% humidity.

ii. When using the machine outdoors protect the machine from direct sun light, rain water and snow etc; the temperature of working environment
should be maintained within -10°C to +40°C.

iii. Keep this equipment 30cm distant from the wall.

iv. Ensure the working environment is well ventilated.

2. Safety Tips.

i. Ventilation

This equipment is small-sized, compact in structure, and of excellent performance in amperage output. The fan is used to dissipate heat generated by this equipment during the welding/cutting operation. Important: Maintain good ventilation of the louvres of this equipment. The minimum distance between this equipment and any other objects in or near the working area should be 30 cm. Good ventilation is of critical importance for the normal performance and service life of this equipment.

ii. Thermal Overload protection.

Should the machine be used to an excessive level, or in high temperature environment, poorly ventilated area or if the fan malfunctions the
Thermal Overload Switch will be activated and the machine will cease to operate. Under this circumstance, leave the machine switched on to
keep the built-in fan working to bring down the temperature inside the equipment. The machine will be ready for use again when the internal
temperature reaches safe level.

iii. Over-Voltage Supply

Regarding the power supply voltage range of the machine, please refer to “Main parameter” table. This equipment is of automatic voltage
compensation, which enables the maintaining of the voltage range within the given range. In case that

the voltage of input power supply
amperage exceeds the stipulated value, it is possible to cause damage to the components of this equipment. Please ensure your primary
power supply is correct.
iv. Do not come into contact with the output terminals while the machine is in operation. An electric shock may possibly occur.

ATTENTION! - CHECK FOR GAS LEAKAGE

At initial set up and at regular intervals we recommend to check for gas leakage
Recommended procedure is as follows:
1. Connect the regulator and gas hose assembly and tighten all connectors and clamps.
2. Slowly open the cylinder valve.
3. Set the flow rate on the regulator to approximately 8-10 L/min.
4. Close the cylinder valve and pay attention to the needle indicator of the contents pressure gauge on the regulator, if the needle drops away towards
zero there is a gas leak. Sometimes a gas leak can be slow and to identify it will require leaving the gas pressure in the regulator and line for an
extended time period. In this situation it is recommended to open the cylinder valve, set the flow rate to 8-10 L/min, close the cylinder valve and check
after a minimum of 15 minutes.
5. If there is a gas loss then check all connectors and clamps for leakage by brushing or spraying with soapy water, bubbles will appear at the leakage
point.
6. Tighten clamps or fittings to eliminate gas leakage.
IMPORTANT! - We strongly recommend that you check for gas leakage prior to operation of your machine. We recommend that you close the
cylinder valve when the machine is not in use.

OPERATION MANUAL

TIG-200L AC/DC TECHNICAL DATA

Overview

TIG-200L AC/DC is a LCD screen display argon arc welder. Minimalist style screen control system shows everything you need.No matter your welding skill level, you will enjoy your job. Flexibility and stability, both in its performance. TIG-200L using user-friendly interface enables the operators to set it easier. New functions “Synergic” possess master’s welding secret parameter. 2 steps allows you to weld like a master. 6 wave form options on AC mode, panel or remote control method. Controllable parameters include pre gas time, post gas time, start current, up slope and down slope time, end current level etc. Ensure you can reach welding perfection.
TIG-200L AC/DC is an Ideal machine for DIY, automotive, industrial and general fabrication, repair and maintenance…etc. This is a must have perfect for professional welder and freshman as well.

Features:

- Multi-Process, including TIG/STICK welding.
- Infineon IGBT technology deliver the best durability and the best welding experience.
- With synergy function, ultimate easy welding with expert settings.
- AC/DC mode options
- 6 AC wave form selections
- Panel or remote control methods
- Patented control system, alternative user interface with multilingual versions.
- Up to 18 job’s memory settings.

Accessories:

1.1 pcs of WP26 TIG remote flexible head torch (6 meters);
2.1 pcs of earth clamp(3 meters);
3. 4 meter MMA holder(torch)
4. 3 meter gas tube;
5 .2 pcs hose clamp

TECHNICAL DATA

TECHNICAL DATA	
MACHINE	TIG-200L AC/DC
PRIMARY INPUT VOLTAGE	240V +/- 15% Single Phase
SUPPLY PLUG	15AMP
RATED INPUT POWER (kVA)	9.6
RATED OUTPUT	TIG:10-200 Amps MMA:30-200 Amps
NO LOAD VOLTAGE(V)	62
PROTECTION CLASS	IP21
INSULATION CLASS	F
POWER FACTOR	0.73
DINSE CONNECTOR	35/50
STANDARD	CE
MATERIALS	Carbon Steel, Stainless Steel, Aluminum, Special
WARRANTY	2 YEARS

TIG SPECIFICATIONS	
TIG FUNCTION TYPE	AC/DC HF TIG
TIG WELDING CURRENT RANGE	10-200 Amps
TIG WELDING THICKNESS RANGE	0.5-5mm

STICK SPECIFICATIONS	
STICK WELDING CURRENT RANGE	30-200 Amps
STICK DUTY CYCLE @40 ° C	40%
STICK WEIDLING THICKNESS	1-6mm
ARC FORCE	1-100AMPS

SIZE&WEIGHT	
DIMENSIONS(MM)	460x220x375
WEIGHT(KG)	15.1

AC/DC TIG PARAMETERS	
PRE GAS	0-1s
START AMP	10-200 Amps
UP SLOPE	1-15s
PEAK AMP	10-200 Amps
AC BALANCE	10-90%
DOWN SLOPE	0-25s
FINISH AMP	10-200 Amps
POST GAS	0-10s
PULSE FREQUENCY	0.5-200Hz
PULSE DUTY	5-95%

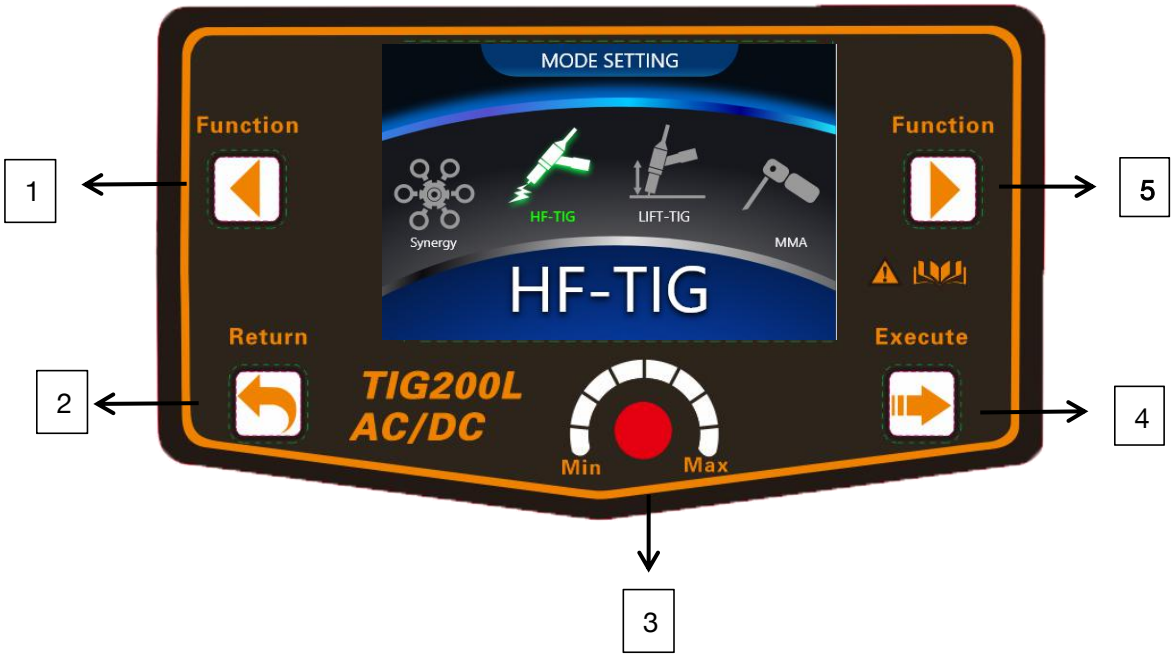
STICK SPECIFICATIONS	
STICK WELDING CURRENT RANGE	30-200 Amps
STICK DUTY CYCLE @40 ° C	40%
STICK WEIDLING THICKNESS	1-6mm
ARC FORCE	1-100AMPS

MACHINE INSTALLATION

TIG INSTALLATION (As the picture shown)
1.Connect the TIG torch to the remote torch socket, the second from the left and tighten it.
2.Insert the torch gas connector into the quick lock gas receptacle.
3.Connect the earth clamp to the positive terminal and tighten in.
4.Connect gas line to gas regulator and connect the gas regulator to the gas cylinder. Slowly open the valve on the gas cylinder and set gas flow to the required rate.
5.Connect the gas line to connector at the rear of the machine. Check for gas leaks.
6.Switch the machine using the On/Off switch at the rear of the machine.

MMA INSTALLATION
1.Connect the electrode holder to the **positive (+)** socket.
2.Connect the earth clamp to the **negative (-)** socket.

FRONT PANEL OPERATION



1	Function switch button to the left menu. Press over 5 seconds switch to data recall page. **Function selection:** When you choose a function, the relative icon will be highlighted.
2	Return button, switch to the parent menu, or return. Press over 5 seconds will back to factory settings.
3	Data adjusting knob. According left or right button, to switch the relative menu, and turn this knob can adjust the data. **Quick turning**: Press down and turn the knob at the same time for larger adjusting, faster. **Fine turning**: Just to adjust the knob for precise adjusting, slower.
4	Execute button, press it can enter into sub-menu, or execute the current operation. Press over 5 seconds will save current data.
5	Function switch button to the right menu. Press over 5 seconds switch to data storage page.

OPERATION MANUAL

1.WELDING MODE SETTING

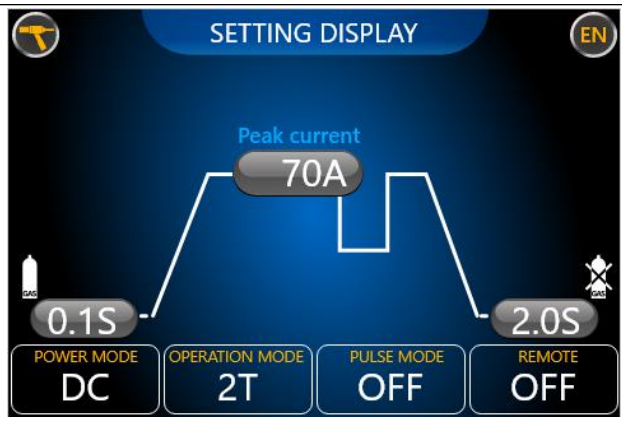
Press button  or  to select (or turn the red knob) the welding mode you want to do, then press  to next step (or press the red knob).

2.Synergy MODE

Under the synergy mode, you can select the material, thickness, then you can start your welding, the machine will recommend the welding current for you. Of cause you can adjust them yourself according the welding needs.

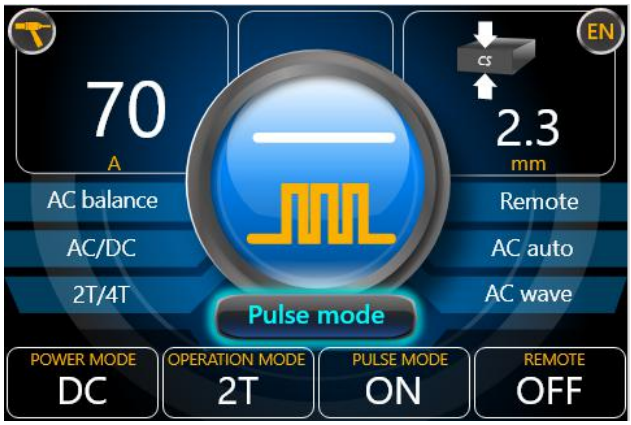
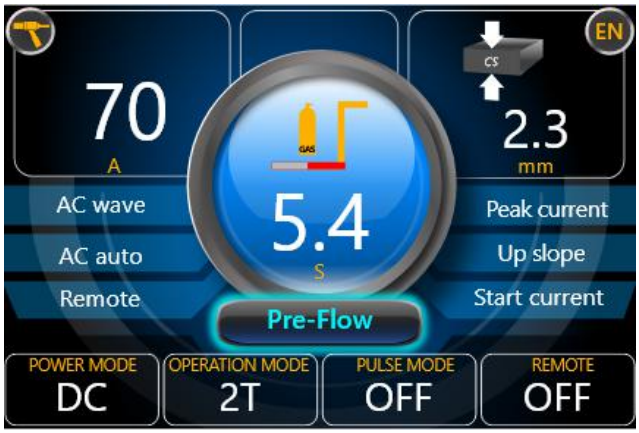
Note：if you re-set the material and thickness, the system will resume to default data.

	**1.Selection of material** Spin the knob to select welding material, then press  Or press the red knob confirm and switch to next. In TIG 200L PRO AC/DC you can weld carbon steel, stainless steel, Al-Si, Al-Mg, Cu-Si. For pure aluminum, please choose Al-Si.
	**2.Select of plate thickness** Spin and press the knob again to adjust plate thickness and finish your setting, the system will recommend the match welding current for you, you can start your welding. Plate thickness can choose from 0.5-5mm.

	**3.Welding current preceded adjustment** Fine adjust the welding current if necessary.

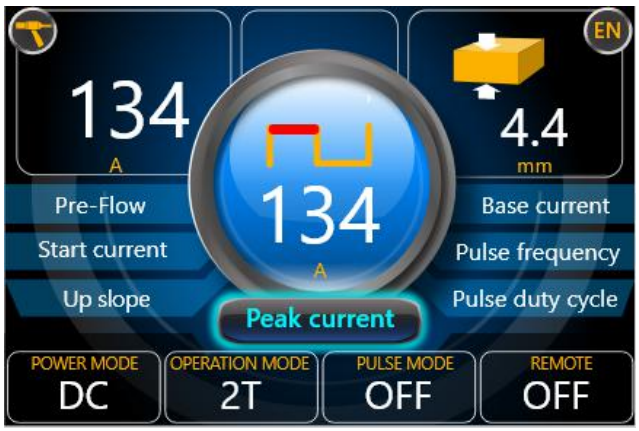
3. DC TIG WELDING SETUP

	**1. Selection of current mode** Aluminum - AC mode Stainless steel / mild steel / others - DC mode
	2. **Selection of handle mode** **2t mode**: When you press the torch, it start to weld by holding the button, when release, it stop welding. 4t mode: Press the torch, goes to pre-flow and up-slope, and then release, it start to peak welding current. When press again and holds, goes to down slope. Release to post-flow and crater. **4T mode is recommended in long time welding situation.**

<table>
<tr>
<td> 
</td>
<td>3. Selection of pulse functions
Possessing no pulse and pulse functions.
Pulse TIG welding is when the current output (amperage) changes between high and low current.</td>
</tr>
<tr>
<td> 
</td>
<td>4. Remote control
This welder can be matched with remote torch. Turn it on to activate remote control. （at the mean time peak current on panel control will shut down.）</td>
</tr>
<tr>
<td> 
</td>
<td>5.Pre-flow
Before welding, drain out the air in the torch and let the gas protect the welding line, recommended setting 0.1-0.5 seconds.</td>
</tr>
<tr>
<td> 
</td>
<td>6.Start current
On 4T mode, pull the trigger and hold to activate start current. Recommended setting is 50% of peak current.</td>
</tr>
</table>

7. Up slope

On 4T mode, the time from Start current to Peak current after release the torch trigger, recommended setting is 3 seconds.



8. Peak current

User can adjust the thickness and the system will recommend the peak current. If penetration is not enough, you can adjust it higher, but if burning through, adjust it lower and try again.

9. Pulse duty

On Pulse mode, the percentage of peak current in a cycle（peak current time and base current time）, recommended setting is 30%。

10. Pulse frequency

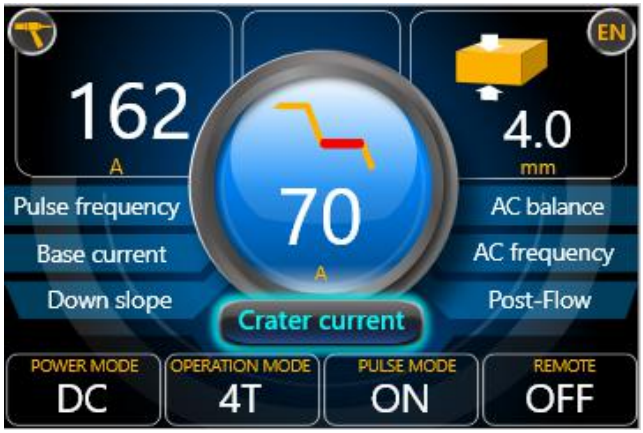
On Pulse mode, it's the switch speed from peak current to base current, recommended setting is 10Hz.

11. Base current

On Pulse mode, the lower current value, the recommended setting is the current of 30% of the peak current.

12.Down slope

On 4T mode, the time from peak current fall down to crater current after you pull the torch trigger, the recommended setting is 3 seconds.



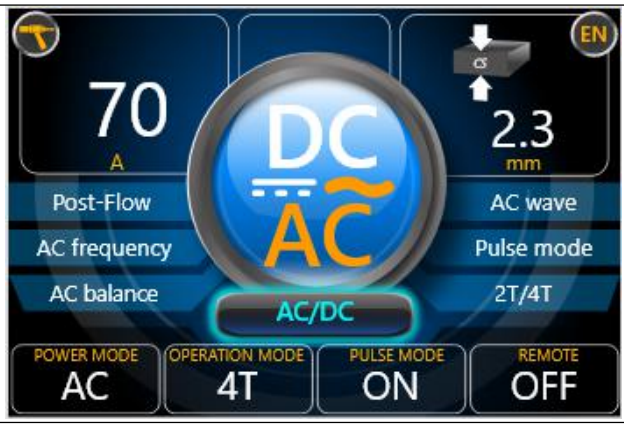
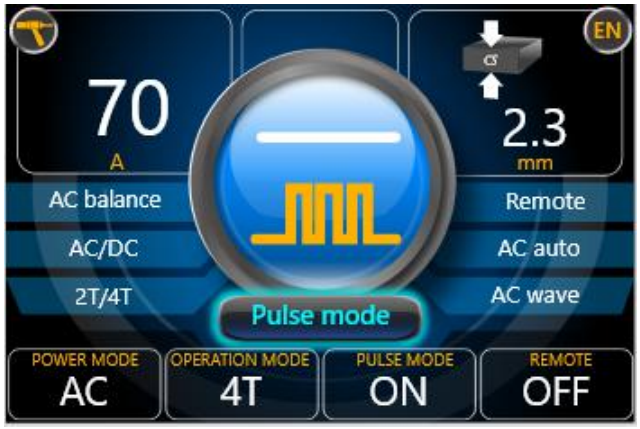
13. Crater current

Provides selection for the amount of amperage required at the end of the welding process.

14.Post flow

The gas flowing time after you stop welding, the welding line needs gas for keeping protection and for cooling. The recommended setting is 2 seconds.

4.AC TIG WELDING SETUP

	**1. Selection of current mode** Aluminum - AC mode Stainless steel / mild steel / others - DC mode
	2. **Selection of handle mode** **2t mode**: When you press the torch, it start to weld by holding the button, when release, it stop welding. 4t mode: welding: When you press the torch and then release, it start to weld. When press again, it stop welding. **4T mode is recommended in long time welding situation.**
	**3. Pulse mode** Possessing no pulse and pulse functions. Pulse TIG welding is when the current output (amperage) changes between high and low current.

4. AC Wave

a) Square wave

Wave which gives fast transitions for a responsive, dynamic and focused arc for better directional control.

b) Sine wave

Sine wave, which gives the soft-arc feel of a conventional power source, while using square transitions to eliminate the need for continuous HF.

c) Triangular wave

Wave which combines the effect of peak amperage while reducing overall heat input. Leads to quick puddle formation and, because of lowered heat input, reduced weld distortion, especially on thin material.

d) Front triangle wave

Like the Triangular wave with more penetration.

e) Back triangle wave

Like the Triangular wave with less penetration.

f) Trapezoidal wave

Wave that also call as soft square wave, which has less power and less penetration than advanced square wave. Narrower welding bead compare to sine wave.

5. AC Auto

If you are not professional, we strongly recommend witch on Synergism mode, the control system will recommend the matched AC frequency and AC balance value to you, so that you can find the satisfied data in a short time.

6. Remote control

This welder can matched with remote torch. Turn it on to activate remote control. （at the mean time peak current on panel control will shut down.）

7.Pre-flow

Before welding, drain out the air in the torch and let the gas protect the welding line, recommended setting 0.1-0.5 seconds.

8. start current

On 4T mode, the welding current of the first time pull the trigger till to release it, recommended setting is 50% of peak current.

9. Up slope

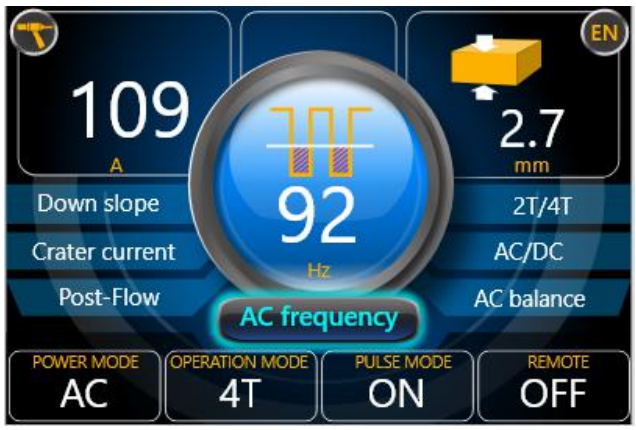
On 4T mode, the time from Start current to Peak current after release the torch trigger, recommended setting is 3 seconds.

10. Peak current

User can adjust the thickness and the system will recommend the peak current. If burning not enough, it can adjust it higher, but if burning through, adjust it lower and try again.

11. AC balance

Provides selection to adjust the balance of the AC wave form in AC TIG mode. Allows adjustment of the arc to be balanced, penetrating or oxide cleaning during AC TIG welding

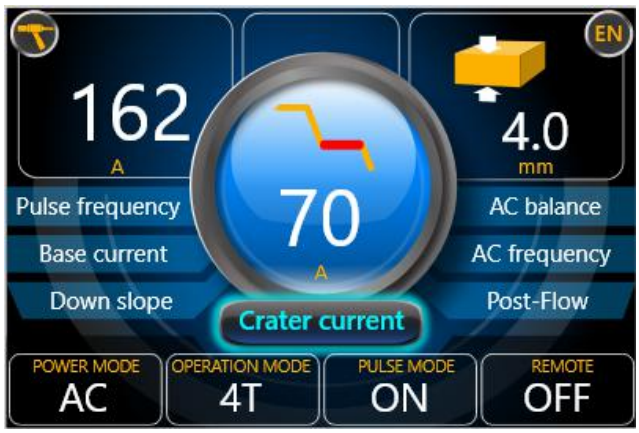


12. AC frequency

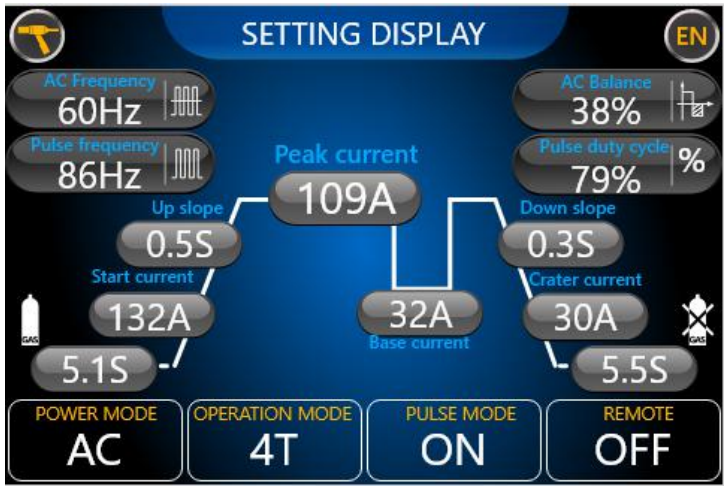
Provides selection to adjust the frequency of the AC square wave in AC TIG mode. Allows adjustment of frequency of the AC square wave cycle (transition from + to -) during AC TIG welding.

13. Base current

On Pulse mode, the lower current value, the recommended setting is the current of 30% of the peak current.

	**14. Down slope** On 4T mode, the time from peak current fall down to crater current after you pull the torch trigger, the recommended setting is 3 seconds.
	**15. Crater current** Provides selection for the amount of amperage required at the end of the weld.
	**16. Post Flow** Provides selection for continued gas flow time at the end of the welding after the arc is out.

5.SETTING DISPLAY AND PRECIDE ADJUSTMENT

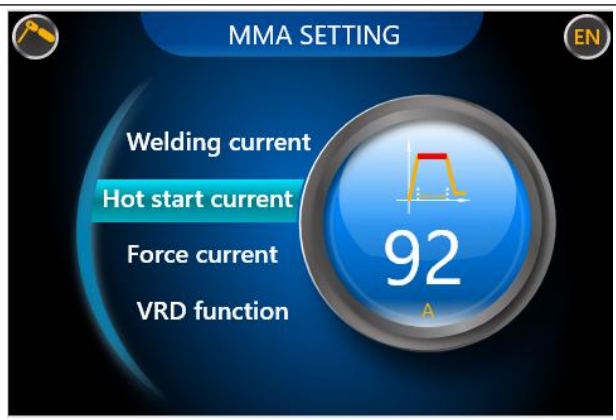
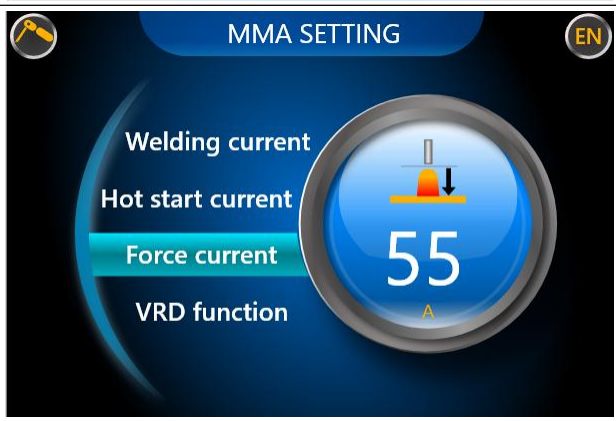


TIG WELDING CURRENT AND PLATE THICKNESS CHART			
Tungsten Diameter/ Plate Thicnkness	1.6mm Amps.	2mm Amps.	2.4mm Amps.
24ga（0.61mm）	10	/	/
22ga（0.8mm）	20	20	
20ga（1.0mm）	30	30	30
18ga（1.024mm）	40	40	40
17ga（1.5mm）	50	50	50
14ga（2.0mm）	65	65	65
1/8"ga (3.0mm)	80	80	80
5/36"ga (4.0mm)	100	100	100
5/36"ga ≥(4.0mm)	/	100-150	100-150

MMA WELDING

Arc welding is also called the MMA (Manual Arc Welding) method and is the oldest and most versatile arc welding method.

The MMA method uses a coated electrode, consisting of a metal core covered with a lagging. An electric arc is created between the end of the electrode and the material being welded. Arc ignition is created by touching the electrode with the end of the work piece. The welder feeds the electrode as it melts into the work piece so as to maintain a constant arc length and at the same time moves its melting end along the welding line. The melting coating of the electrode gives off protective gases that protect the liquid metal from the influence of the surrounding atmosphere, and then solidifies and forms a slag on the surface of the lake, which protects the coagulating weld from cooling too quickly and harmful environmental influences.

	**Selection of welding mode** Choose MMA welding mode.
	**Hot Current** a function that makes welding easier. When the arc strikes, the welding current is temporarily increased to heat up the material and electrode at the point of contact, and to properly shape the penetration and weld face at the initial stage of welding.
	**Force Current** Stabilizes the arc regardless of fluctuations in its length, reduces the amount of spatter. And avoid electrode from stick to the workpiece.

VRD function

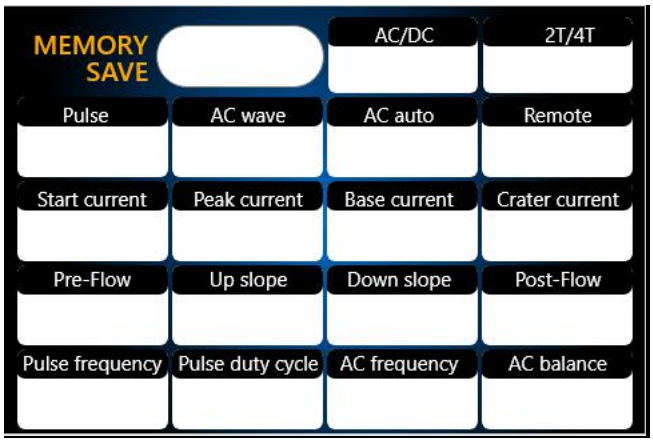
Press the button to activate VRD function. When the green light illuminate. It means the VRD function is activated. Press the button again to turn off. We recommend user turn on VRD when using MMA welding.

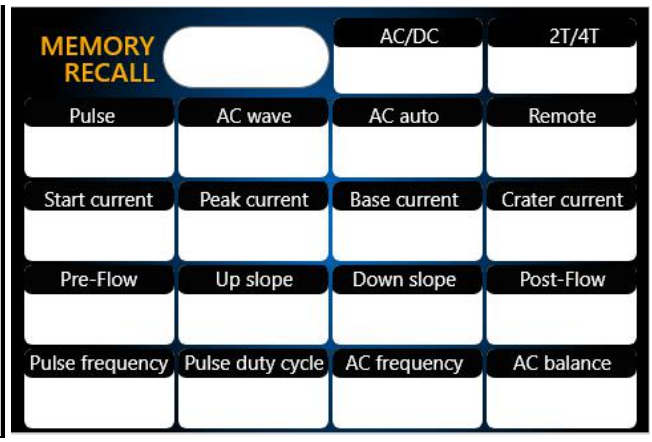
MEMORY SAVE AND CALL OUT

TIG-200L AC/DC provides memory save and call out function, it has up to 18 memories for your welding jobs.

Long press 5 seconds on the left function button to data recall page.

Long press 5 seconds on the right function button to data save page.





FACTORY DATA RESET

Just holding Return button over 5 seconds, the machines system will reset to factory setting

MMA WELDING ELECTRODE DIAMETER PLATE THICKNESS AND CURRENT DIAMETER			
Electrode Diameter/ Plate Thickness	2.5mm Amps.	3.2mm Amps.	4mm Amps.
17ga（1.5mm）	30	/	/
14ga（2.0mm）	50	50	/
1/8"ga (3.0mm)	70	70	70
5/36"ga (4.0mm)	90	90	90
1/16"(5.0mm)	/	140	140
1/4"(6.0mm)	/	/	200

TROUBLE SHOOTING

Malfunctions	Solution
The meter show nothing; Fan does not rotate; No welding output	➢ Confirm the power switch is on. ➢ Power supply available for input cable. ➢ Check if the three phase commute bridge is damaged. ➢ There is malfunction occurs in the supplementary power source on control board (contact dealers).
The meter shows; Fan works normally; No welding output	➢ Check if all the sockets in the machine are connected well. ➢ There is open circuit or badness of connect at the joint of output terminal. ➢ The control cable on the torch is broken off or the switch is damaged. ➢ The control circuit is damaged.(contact to dealers)
the meter shows; Fan works normally; Abnormal indicator lights.	➢ It might be over-current protection, please turn off the power switch; restart the machine after the abnormal indicator light winked. ➢ It might be overheating protection, please wait for about 2-3 minutes until the machine renew without turn off the power switch. ➢ It might be multi function of inverter circuit. (contact dealers)
Power indicator light is not on, fan does not turn, no welding press output	➢ Power switch is broken ➢ Verify that the electrical grid connected to the input electricity regulations has electricity ➢ Enter whether there is a break in the cable

The power switch indicator is on and the fan does not turn	➢ It is possible that the input is misconnected to the 380V power supply, causing the over-voltage protection circuit to start, which is changed to the 240V power supply, and it can be started again. ➢ 240V power instability (too long input line) or input line overlap on the grid,resulting in over voltage protection ➢ Open and close the power switch continuously for a short period of time, causing the over-voltage protection circuit to start, shut down and wait for 2-3 minutes before starting up again.
When the fan turns, the abnormal indicator light is not on and there is no high frequency discharge sound, and no gas flow from the cutting torch	➢ The vh-07 plug-in voltage of multi-meter to MOS panel should be about DC308V ➢ The auxiliary power on MOS panel has a green indicator light. If the light is not on, the auxiliary power is not working ➢ Control circuit problem, find the cause or contact the dealer to cut the control line on the gun.Cutting gun cable is broken.

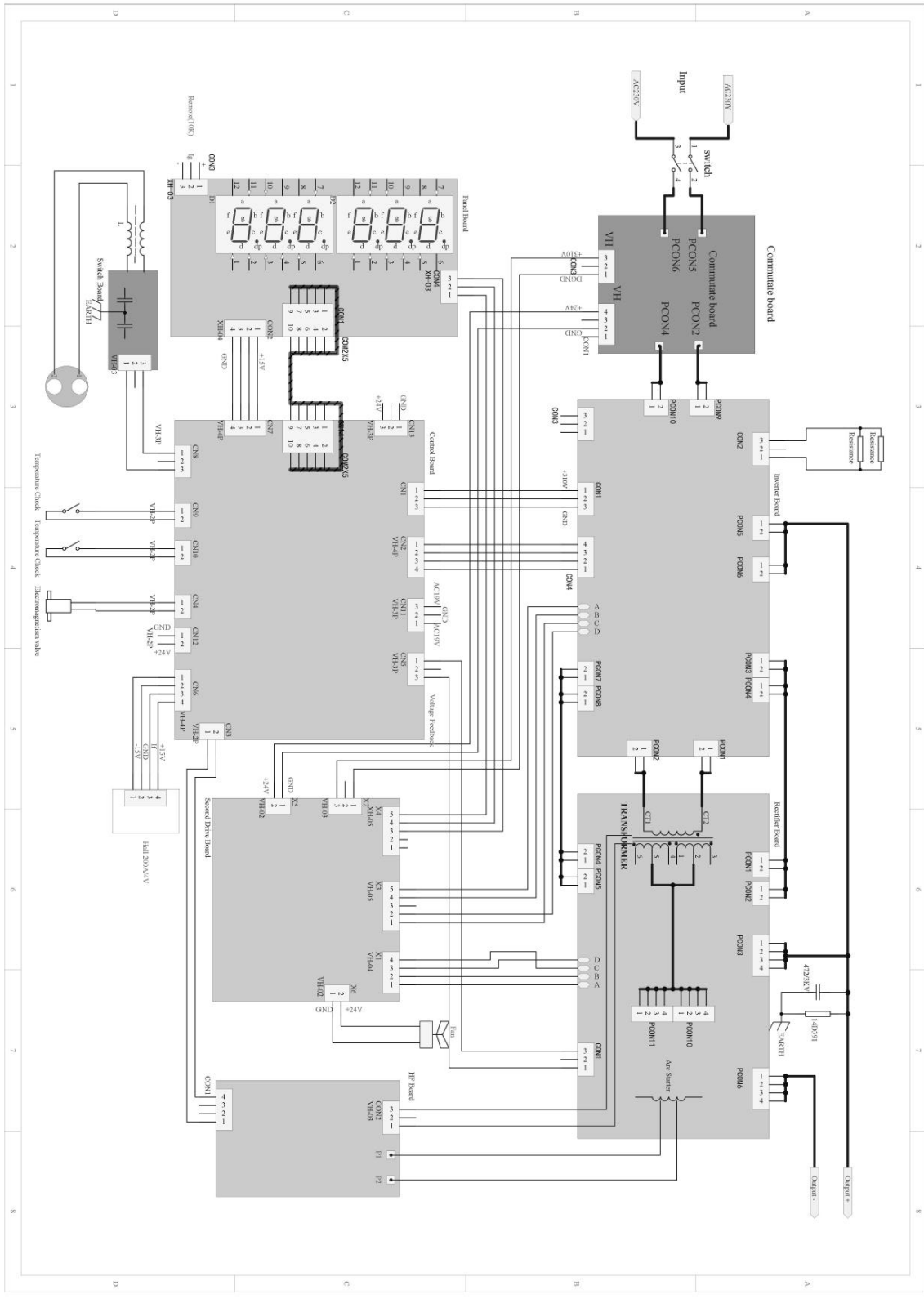
MAINTENANCE

Regularly remove dust with clean, compressed air. If the welding machine is working in smoky conditions, in heavily polluted air, remove accumulated dust daily.
The compressed air pressure should be maintained at such a level as not to damage small parts inside the device max. 2-4 bar.

Regularly check the internal systems of the welder, check the correctness and reliability of connections (especially equipment and parts). If you notice rust and loose the connection, remove the rust or oxide coating with sandpaper, reconnect and tighten.

Avoid situations where water or steam can enter the device. If the welder gets wet, dry it and then check the insulation of the device (also between joints and contacts). After checking that everything is OK, you can continue working.

CIRCUIT


Input
AC230V
switch
Commutate board
PCON5
PCON2
PCON6
PCON4
Panel Board
Switch Board
EARTH
Control Board
Inverter Board
Resistance
Temperature Check
Temperature Check
Electromagnetism valve
Second Drive Board
Hall 20A/4V
TRANSFORMER
Rectifier Board
HF Board
Arc Starter
Output -
Output +

WARRANTY

2 Years Warranty Parts and Labor.

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