

KeyGree

TIG-200 TIG-250

IGBT INVERTER WELDER

Do it easy, comfortable, trustable.

TIG-200 TIG-250

IGBT INVERTER WELDER



Thanks for your purchase of this series of welder products! This series of products are safe, reliable, firm, durable, convenient to maintain, and capable of greatly raising the welding productivity. This user's manual contains important information on use, maintenance and safety of the product. See technical parameters of the equipment in technical parameter in this manual. Please go through this manual for the first use. In order to ensure the personal safety of the operator and the safety of the working environment, please read the safety attentions in this manual carefully, and operate according to the instructions. For more details of our products, please contact us, consult authorized dealers

DECLARATION

Operate after reading this manual carefully.

1. Information in this manual is accurate and complete. The company will not be responsible for any mistakes and omissions due to the operation out of this manual.
 2. We has the right to modify this manual at any time without prior notice.
 3. Though contents in this manual have been carefully checked, inaccuracies might have occurred. for any inaccuracy, please contact us.
 4. Any copy, record, reprint or spread of the contents in this manual without preauthorization is prohibited.
 5. This manual was released in May, 2021.
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INCLUDES

- STICK&TIG Welding Machine
- 10 Feet Electrode Holder
- 10 Feet Earth Clamp
- 8 Feet Argon Gas Hose
- 13 Feet WP17 TIG TORCH
- Power Adapter 110/220V
- User's Manual

Notes:

**To avoid loss and personal injury, please be careful with the parts with "NOTE!".
Go through these chapters and articles, and operate according to this manual.**

SAFETY



OPERATE THIS EQUIPMENT BY TRAINED PROFESSIONAL ONLY!

- Use welding labor protection supplies with approval of safety supervisory authority.
- Operators must be the special workers with valid work permits of “ metal welding (gas cutting) operation ”.
 - Do not maintain and repair welder with power.



ELECTRIC SHOCK-MAY RESULT IN SERIOUS INJURY OR EVEN DEATH!

- Install grounding device according to application standard.
- Do not touch live parts with naked skin, wet gloves or wet clothes.
- Be sure you are insulated from ground and workpiece.
- Confirm the safety of your working position.



SMOKE-MAY BE HARMFUL TO YOUR HEALTH!

- Keep your head away from the smoke to avoid inhalation of waste gas in welding.
- Keep the working environment well ventilated with exhaust or ventilation equipment when welding.



SMOKE-MAY BE HARMFUL TO YOUR HEALTH!

- Use proper welding mask and wear protective clothing to protect your eyes and body.
- Use proper mask or curtain to protect onlooker from being injured.



IMPROPER USE AND OPERATION MAY RESULT IN FIRE OR EXPLOSION

- Welding spark may result in fire, so please make ensure there are no inflammables near the welding position, and pay attention to fire safety.
- Ensure there is fire extinguisher nearby, and make sure someone has been trained to operate the fire extinguisher.
- Do not weld closed container.
- Do not use this machine for pipe thawing.



HOT WORKPIECE CAN CAUSE SEVERE SCALD.

- Do not touch hot workpiece with bare hands.
- Cool the welding torch for a while after continuously working.



EXCESSIVE NOISE DOES GREAT HARM TO PEOPLE'S HEARING.

- Wear ear covers or other hearing protectors when welding.
- Give warning to onlooker that noise may be potentially hazardous to hearing.



EXCESSIVE NOISE DOES GREAT HARM TO PEOPLE'S HEARING.

- People with cardiac pacemaker should stay away from the welding spot without first talking to a doctor.



MOVING PARTS MAY INJURE YOUR BODY.





- Please keep away from moving parts (like fan).
- Each door, panel, cover, baffle plate, and protective device the like should be closed and located correctly.



SEEK PROFESSIONAL SUPPORT WHEN TROUBLE STRIKES.

- When trouble strikes in installation and operation, please inspect according to related contents in this manual.
- If you still cannot understand fully, or you still cannot solve the problem, please contact the dealer or the service center of awt to obtain professional support.

SYMBOL EXPLANATION

<p>WARNING</p> 	<p>Matters to be noticed in operation</p>
	<p>Objects to be specially described and pointed out</p>
	<p>More details in CD</p>
	<p>It is prohibited to dispose the electrical waste together with other common wastes. Please protect the environment.</p>

TECHNICAL PARAMETERS

MODEL		TIG-200	TIG-250	TIG-315
Rated Input Voltage(V)		1P AC220V±15%		3P AC380V 50/60Hz
Input Frequency(Hz)		50/60		
Rated Input Current(A)		17	35	16
Rated Input Power(KVA)	MMA	40-140	40-160	40-250
	TIG	10-160	10-190	10-300
No-Load Voltage(V)	MMA	25	27.2	30
	TIG	16	18	22
Rated Input Power(KVA)		3.8	5.6	9.2
No-Load Voltage(V)		45	65	65
Duty Cycle(%)		40		60
Gross Weight(KG)		8.3	8.4	28
Package Dimension(MM)		475×220×345	475×220×345	590×290×540

OPERATING CONTROLS

Operating Controls Location and Description The welding machine is equipped with power voltage compensation device. When the power voltage fluctuates between $\pm 15\%$ of rated voltage, it still can work normally. When the machine is used with longer cables than are provided, in order to prevent voltage from decreasing, increase the cable size is suggested

- Make sure intake of the machine is not blocked or covered to avoid malfunction of cooling system.
- Correctly connect the electrode holder and work clamp cables to match the type welding electrode you have selected. Reference the welding electrode manufacturer's polarity and amperage setting. Make sure the cable, electrode holder, work clamp, and twist lock connector is in good working condition and tight. Put the fastening plug into the fastening socket at the "+" polarity and fasten it clockwise
- Please pay attention to the connecting terminal, DC welding machine has two connecting ways: Positive connection and Negative connection. Positive connection: holder connects with "-" terminal, while work piece with the "+" terminal. Negative connection: work piece with the "-" terminal, holder with the "+" terminal. Choose suitable way according to working demands. If unsuitable choice, it will cause unstable arc, more spatters and conglutination. If such problems occur, please change the polarity of the fastening twist lock plug at the welding machine panel.
Make sure the voltage of power supply does not exceed permission range.
- The TIG Series welder can operate on both 110V and 220V input current. There are no adjustments or changes required, the welder will measure the input current and automatically adjust for the current. There is a 110/220V power cord adapter is provided to allow easy connecting of input power

WELDING SOURCE DESCRIPTION

General Description



- (A) Display screen
- (B) "+" output terminal
- (C) "-" output terminal
- (D) Control terminal: To connect the signal wire of the TIG torch trigger.
- (E) Gas terminal: To connect the gas hose tie-in of the TIG torch.

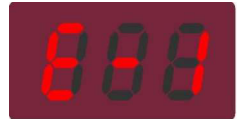
- (F) Power switch: Power ON/OFF switch.
- (G) Power input: Power input cable.
- (H) Cooling fan
- (I) Gas inlet: For shield gas input.

Parameter Autosaving

The parameters having been adjusted will be autosaved in the parameter group currently used (no autosaving will be done in the case that no operation is done after parameters are adjusted and the machine was turned off in 5s' time). When the machine is turned on next time, the parameters in this parameter group are just the parameters used last time. When the welding mode and operation mode are reselected, autosaving will be done in 10s. No special save key and manual saving operation is available for this machine.

Protection Function

When the overcurrent indicator illuminates and the digital meter displays "E-1", it indicates that overcurrent occurs. Restart the machine, and welding can be continued.



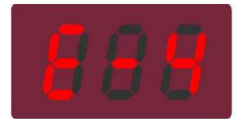
When the under-voltage indicator illuminates and the digital meter displays "E-2", it indicates that the mains voltage is overly low, and welding can be recovered when the mains voltage goes into normal.



When the overheating indicator illuminates and the digital meter displays "E-3", it indicates that welding is forced to stop because the main circuit of the machine gets overheated. In this condition, It is unnecessary to turn off the machine, but just wait a few minutes, and then welding can be continued.



When the current sensor fails and the digital meter displays "E-4", welding may still be carried out. However, the current value at this time is inaccurate.



Foot Control Option (Customized)

This machine can identify the foot control automatically. That is to say, the machine will enter into foot control mode automatically after the aviation plug of the foot control is connected to the welding machine and the machine is powered on again. In foot control mode, the maximum current is the preset current and the minimum current is 10A.

Voltage Indicator (Customized)

When this indicator illuminates, it indicates that there is voltage output at the output terminal of the welding machine. When TIG is selected as the welding mode, there will be voltage output only when the torch trigger is pressed continuously and after arc is ignited successfully. When MMA is selected as the welding mode, there will be voltage output whether arc is ignited or not.

INSTALLATION AND OPERATION

Note: Please install the machine strictly according to the following steps.

Turn off the power supply switch before any electric connection operation.

The housing protection grade of this machine is IP21S, so do not use it in rain.

Connect the power input terminal(AC230V INPUT)on the back panel of the machine to provisions of the Voltage and with a power cord of appropriate specification through a fuse with a capacity of 40A or more

Locate the welding source near the socket, and keep it well ventilated. To ensure good dissipation, the space around the welding source should not be less than 250mm.



Please protect the circuit with delay fuse of corresponding specifications to ensure normal work.

Grounding requirements:

In order to ensure normal work and personal safety and reduce the EMI, the welding source should be grounded reliably.

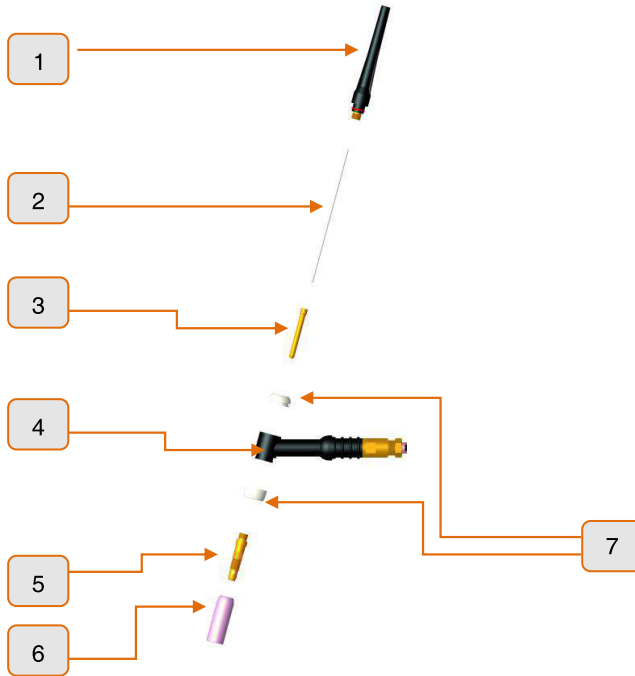
1. Installation Method

- 1) Connect the TIG torch correctly according to Fig. 9-1. Connect the connector of the TIG torch to the “-” quick socket on the machine panel, and tighten it clockwise.
- 2) Connect the aviation plug on the TIG torch to the corresponding socket on the machine panel, and tighten it clockwise.
- 3) Insert the quick plug on the earth cable into the “+” quick socket on the machine panel, and tighten it clockwise. Clamp the workpiece with the work clamp at the other end of the earth cable.
- 4) Tightly connect the gas hose to the gas inlet on the back panel of the machine. The gas path should include the cylinder, gas regulator and gas hose. The joint with the hose should be tightened with a hoop to prevent gas leakage and air mixing. Otherwise, weld bead cannot be well protected.
- 5) The enclosure of the machine must be grounded reliably.



TIG torch:

Main components of the torch



1. Long back cap
2. Tungsten electrode
3. Collet body
4. Torch head
5. Collet
6. Ceramic nozzle
7. Insulated cap for torch head

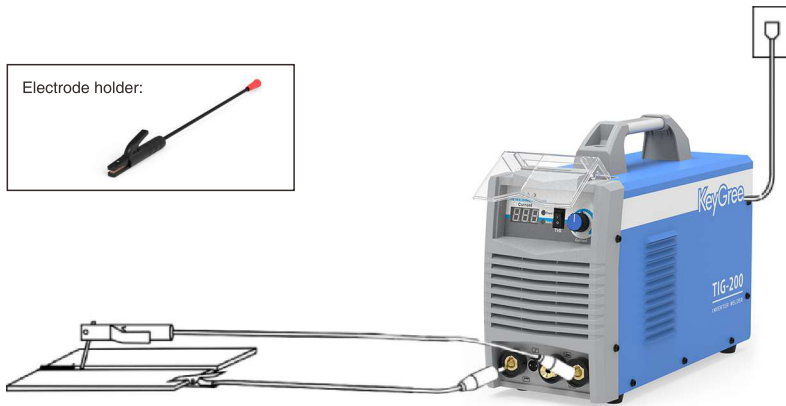
Install the torch according to this figure.



MMA:

- 1) Insert the cable plug with electrode holder into the “+” socket on the front panel of the welding machine, and tighten it clockwise.
- 2) Insert the cable plug with work clamp into the “-” socket on the front panel of the welding machine, and tighten it clockwise.
- 3) Ground connection is needed for safety purpose.

The connection as mentioned above in 4) and 5) is DCEP connection. Operator can choose DCEN connection according to workpiece and electrode application requirement. Generally, DCEP connection is recommended for basic electrode, while there is no special requirement for acid electrode.



2. Operation method

MMA:

Pay attention to the connection polarity. Generally, DCEP and DCEN are available in DC MMA.
DCEP: Connect the electrode holder to “+” output terminal, and the work clamp to “-” output terminal.

DCEN: Connect the electrode holder to “-” output terminal, and the work clamp to “+” output terminal.

Operators may choose connection mode according to workpiece and electrode application requirement. Phenomena such as unstable arc, excessive spatter, and electrode sticking will occur when improper connection mode is selected. Change the polarity by exchanging the quick connectors to solve the problem.

★ Anti-sticking function is available for this machine. ★

CAUTION

1. Working Environment

- 1) Welding should be carried out in dry environment with humidity of 90% or less.
- 2) The temperature of the working environment should be between -10℃ and 40℃.
- 3) Avoid welding in the open air unless sheltered from sunlight and rain. Keep it dry at all times and do not place it on wet ground or in puddles.
- 4) Avoid welding in dusty area or environment with corrosive chemical gas.
- 5) Gas shielded arc welding should be operated in environment without strong airflow.
- 6) Place the machine directly on a secure, level surface. Do not place or operate this machine on a surface with an incline greater than 15° from horizontal. The machine may topple over if this procedure is not followed.
- 7) The machines level of electro magnetic compatibility is class A. Equipment shall not apply to public low-voltage power supply system power supply of residential environment. Because of conduction and radiation harassment, in these environments are difficult to ensure electromagnetic compatibility.

2. Safety Tips

Overcurrent/overvoltage/overheating protection circuit is installed in this machine. When the mains voltage, output current or inner temperature exceeds the set standard, the machine will stop automatically. However, excessive use (e.g. too high voltage) of machine will lead to welder damage. Therefore, please note:

1) Ventilation

This welder can create powerful welding current that has strict cooling requirements that cannot be met with natural ventilation. Therefore the internal fan is very important in enabling the machine to work steadily with effective cooling. The operator should make sure that the louvers be uncovered and unblocked. The minimum distance between the machine and nearby objects should be 30cm. Good ventilation is of critical importance to the normal performance and lifespan of the machine.

2) Welding operation is forbidden while the machine is overload. Remember to observe the max load current at any moment (refer to the corresponding duty cycle). Make sure that the welding current should not exceed the maximum load current. Overload could obviously shorten the machine's lifespan, or even damage the machine.

3) Over-voltage is forbidden.

Regarding the power supply voltage range of the machine, please refer to "Technical Parameters" table. This machine is of automatic voltage compensation, which enables the maintaining of the voltage range within the given range. In case that the input voltage exceeds the stipulated value, it would possibly damage the components of the machine.

4) An earth terminal is available for the machine. Connect it with an earth cable to avoid the static and electric shock.

5) A sudden halt may occur with the overheating indicator on the front panel on while the machine is of overload status. Under this circumstance, it is unnecessary to restart the machine. Keep the built-in fan working to lower the temperature inside the machine. Welding can be continued after the inner temperature falls into the standard range and the overheating indicator is off.

STICK Welding Specifications

Item	Welding Current (A)						
	10~ 20	20 ~30	30 ~ 55	55~70	70 ~ 85	85 ~140	140 ~220
Electrode Diameter Φ mm	Φ 1.0~1.4	Φ 1.0~1.6	Φ 1.6~2.0	Φ 2.0~2.5	Φ 2.5~3.2	Φ 3.2~4.0	Φ 4.0~5.4
Workpiece Thickness (mm)	0.5~0. 8	1.0~1.5	1.5~2.5	2.5~3.0	3.0~4.0	4.0~5.0	>5.0

TIG Welding Specifications:

Item	Welding Current (A)			
	3~ 20	15~80	70~ 160	100~ 220
Tungsten electrode Diameter (mm)	Φ 0.5	Φ 1.0	Φ 1.6	Φ 2.0
Gas Flow (L/min)	4~5	5~7	6~8	8~12
Nozzle Diameter (mm)	Φ 4, Φ 6, Φ 8	Φ 6, Φ 8, Φ 10	Φ 8, Φ 10	Φ 10, Φ 12
Filled Wire Diameter (mm)	$\leq \Phi$ 1.0	$\leq \Phi$ 1.6	$\leq \Phi$ 1.0~ Φ 2.4	$\leq \Phi$ 1.6~ Φ 3.0

Connections and Installations

(MAKE SURE ALL POWER IS OFF DURING THIS SECTION WHEN MAKING CONNECTIONS)

WELDING IN STICK MODE

- Put the electrode holder and cable and the work clamp and cable connections into the output receptacle. Turn clockwise until tight. Connect the work clamp to the work piece.
- Polarity selection is done at the machine using the cable connections. You will need to switch the cables to match the polarity for the type of electrode you will be welding with. The most common is DC. For this the electrode cable will be on the + positive connection and the work will be on the - negative connection. Check the polarity directions of the electrode you are using, check with your welding dealer for settings.
- Place the electrode in the electrode holder.
- Turn the power switch to "ON".
- Adjust the Output AMP Control to the desired amp setting for the electrode you are using.
- Strike an arc and weld.

WELDING IN TIG MODE

- Connect the TIG torch and cable to the gas and power fitting and tighten.
- Connect the work clamp to the work piece and the cable connector to the + positive connection on the welder. The correct polarity setting for TIG is DC-for welding steel, stainless steel.

- Set the TIG/STICK switch to "TIG".
- Turn on the compressed cylinder valve and adjust the flow regulator to obtain desired flow. Make sure you are using the correct shielding gas for the material you are welding. Check with your local gas dealer if you have questions. Normally pure Argon is used.
- Turn the power switch to "ON"
- Set the Current Control on the control panel to the maximum desired amp setting for the material and thickness you will be welding. If you are using a remote AMP controller it will adjust the Amps as required during welding. If you are using a remote-control device make sure the machine is set to remote. Depress the contactor trigger control on the torch and establish an arc with the work piece. When the TIG/STICK switch is set to "TIG", depressing the torch trigger control this will start the shielding gas pre-flow before energizing the TIG torch. When the trigger control is released the TIG torch is de-energized and gas flow will continue post flow. When the polarity switch is set to DC, the TIG LIFT Arc Starter will turn on and off automatically to start and stabilize the arc. Hold the tungsten to the work and slight pull away to start the arc. Post flow is preset for DC.
- Put the TIG torch cable into the combination gas out and power connection and the work clamp and cable connections into the output receptacle, NOTE: work clamp connection on TIG is on the + connection. Turn clockwise until tight. Connect the work clamp to the work piece.
- **Polarity selection is done at the machine using the cable connections.**
You will need to switch the cables to match the polarity for TIG welding the most common is DC-. For this the TIG cable will be on the -negative connection and the work will be on the + positive connection. Check the polarity directions of the electrode you are using, check with your welding dealer for settings.

General TIG and Stick Welding Guidelines

- Read the operating instructions in this manual for set up procedures.
- Read all Safety instructions before welding. If you are not sure of any safety points or require additional safety instructions. Contact your local welding supply dealer.
- The charts and general welding settings and procedures are suggestions. You will need to make adjustments to your setting depending on metal, wires and external conditions at your welding site.
- Make sure the correct welding polarity and shield gas is used for the type welding wire and material you are welding
- Connect your work clamp to the base metal that is to be welded. Make sure the work clamp has good electrical contact to the base metal and the metal is clean and free of paint, grease, rust, oils, etc. It is recommended to place your ground clamp as close to the weld area as possible for best electrical flow.
- Make sure your work area is clean and no flammable materials are near the welding area. Read the safety section of the manual for additional information.
- Make sure all safety equipment is used. This includes safety eye protection, welding helmet with shaded lens, gloves, and protective clothing.
- Warn any persons in the general area that you will be welding. They should have protective equipment as well.
- Never look into the welding arc without protective shaded eye protection.
- Plug in the welder to an approved electrical receptacle; consult professional electrical assistance if you're not sure of voltage and ampere rating. If extension cords are used, make sure they are of correct size and length. Voltage drop can occur and damage welder if wrong cord sizes are used.

- Safely open the compressed gas cylinder if shielding gas is being used. Read the correct safety and hook up procedure in this manual.
- When you release the torch trigger, the welding process will stop. To continue welding, depress the trigger again.
- When you are finished, turn the welder power switch to the off position and turn the shielding gas cylinder valve to the closed position.
- Make sure the area around you is clear of any fire hazards, since the welding process created sparks that could have come in contact with material.
- It takes time to learn the proper technique, practice will help. Check with local schools for welding classes if you want to learn more on welding processes.
- Report any damaged equipment, so it can be safely repaired.
- SAFETY IS VERY IMPORTANT. Make sure you read all safety warning labels and the instruction manual.

Troubleshooting

STICK-striking is difficult and easy to pause: Make sure electrode is correct, If the electrode is not dried, it will cause unstable STICK, welding defect increases and the quality is down., If use extra-long cable, the output voltage will decrease, so please shorten the cable.

Output current not to rated value: When power voltage departs from the rated value, it will make the output current not matched with rated value; when voltage is lower than rated value, the max output may lower than rated value.

Current is not stabilizing when machine is been operating: It has something with factors as following., Electric voltage should been checked., There is harmful interference from electric wire net or **other equipment** When use Stick welding, **too much spatter:** Maybe the welding current is too high and the electrode diameter is too small. Output terminal polarity connection is wrong; it should apply the opposite polarity at the normal technique.

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