

KeyGree

FLUX-135

IGBT INVERTER WELDER

Do it easy, comfortable, trustable.

PREFACE

Dear users, thank you for using our inverter welder ("welder" or "product"). For your correct operation of our product, please read this manual carefully before use and keep it properly for future reference.

SPECIAL NOTICE:

1. When the welder is placed on an inclined plane, care should be taken to prevent it from tipping over;
2. As the protection level of this welder series is IP21S, it is not suitable for use in the rain;
3. This product conforms to GB/T 15579.1-2013 standard.
4. This product complies with the electromagnetic compatibility requirements for type A equipment.

This Manual is subject to change without prior notice.



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SPECIFICATIONS

Output amperage range (A)	Maximum Output No Load Voltage (V)	Maximum input Amperage (A)	Input voltage (V)	Rated Duty Cycle	Wire Feeder Speed (m/min)	Welding Wire Spool Sizes	Weight	Overall Diameter
30-135	60V	20A	220VAC 60Hz	60%	2-11	D100 0.8/1.0mm .030"/.039"	7kg 15lbs	490×310×320 mm 19.3×12.2×12.6 inch

Wire Type	Flux Cored
Diameter	.030"/.039" 0.8/1.0mm

UNPACKING

When unpacking your KEYGREE FLUX135, check to make sure all of the parts listed below are included:

- (1) FLUX135 Welder
- (2) MIG Gun Cable Assembly (8ft.)
- (3) Ground Cable Assembly (8ft.)
- (4) Wire Brush
- (5) Contact Tips
- (6) Instructions

DUTY CYCLE

The rated Duty cycle refers to the amount of welding that can be done within an amount of time. It is easiest to look at your welding time in blocks of 10 Minutes and the Duty Cycle being a percentage of that 10 Minutes. If welding at 135 Amps with a 60% Duty Cycle, within a 10 Minute block of time you can weld for 6 Minutes with 4 Minutes of cooling for the welder.

SAFETY INFORMATION

The following explanations are displayed in this manual, on the labeling, and on all other information provided with this product:

▲ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

⚠ NOTICE

NOTICE is used to address practices not related to personal injury.



⚠ READ INSTRUCTIONS

Thoroughly read and understand this manual before using. Save for future reference.



⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of an electric Welder can cause electric shock, injury and death! Read all precautions described in the Welder Manual to reduce the possibility of electric shock.
- Disconnect Welder from power supply before assembly, disassembly or maintenance of the torch, contact tip and when installing or removing nozzles.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear. Use suitable clothing made from durable flame-resistant material to protect your skin.
- Always operate the Welder in a clean, dry, well ventilated area. Do not operate the Welder in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically “hot” when the Welder is on. Do not allow these “hot” parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- Always attach the Ground Clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.



⚠ DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Electric welding produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.
- DO NOT operate electric arc Welder in areas where flammable or explosive vapors are present.
- DO NOT use near combustible surfaces. Remove all flammable items from the work area where welding sparks can reach (min. of 35 feet).
- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted and or flammable surfaces; rubber weather-stripping, dash boards, engines, etc.
- Ensure power supply has properly rated wiring to handle power usage.

SAFETY INFORMATION



⚠ WARNING ELECTROMAGNETIC FIELDS CAN BE A HEALTH HAZARD!

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known.



⚠ WARNING ARC RAYS CAN INJURE EYES AND BURN!

- Arc rays produce intense ultraviolet radiation which can burn exposed skin and cause eye damage. Use a shield with the proper filter (a minimum of #11) to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks and arc rays.



⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation. Wear an OSHA-approved respirator when welding.
- Always work in a properly ventilated area.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.



⚠ CAUTION HOT METAL AND TOOLS WILL BURN!!

- Electric welding heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using KEYGREE or any other welding equipment. Never touch welded work surface, torch tip or nozzle until they have completely cooled.

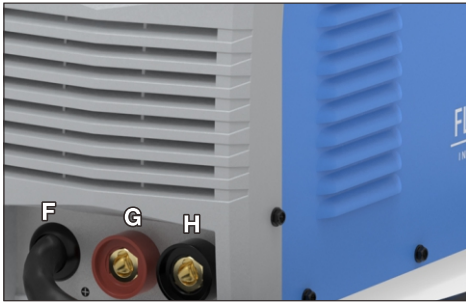


⚠ CAUTION FLYING METAL CHIPS CAN CAUSE INJURY!

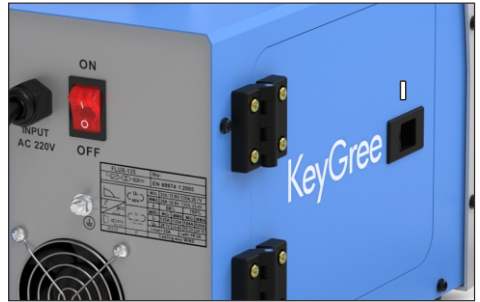
- Grinding and sanding will eject metal chips, dust, debris and sparks at high velocity. To prevent eye injury wear approved safety glasses.
- Wear an OSHA-approved respirator when grinding or sanding.
- Read all manuals included with specific grinders, sanders or other power tools used before and after the welding process. Be aware of all power tool safety warnings.

CONTROL AND DISPLAY PANEL FUNCTION CONTROLS

- (A) MENU button - select the welding mode (MMA / LIFT TIG) and the welding wire length (0.8mm / 1.0mm)
- (B) Voltage Knob-Slightly adjust from-5V to 5V (Low to High)
- (C) Wire Feed Speed/Ampere Knob- adjusting welding current from 20A to 135A. Wire feed speed will automatically change with the welding current
- (D) Thermal Protection LED
- (E) Power Indicator LED



- (F) MIG torch cable
- (G) Positive Brass Connector of the Ground Clamp
- (H) Negative Brass Connector of the Ground Clamp



- (I) Latch

INSTALLATION

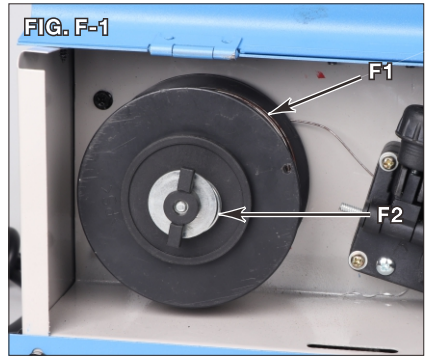
⚠ DANGER ELECTRIC SHOCK HAZARD!

Turn welder off and unplug from electrical outlet before disassembling, assembling, or replacing torch consumables, or changing wire spool.

INSTALLING THE GROUND CLAMP

Insert the terminal connection of the ground clamp through the destined hole in the front of the unit.

⚠ DANGER **ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!**
Disconnect welder from power supply before beginning.



INSTALLING WIRE SPOOL

1. Open the door of the welder and remove the wing nut (**FIG.F2**), spacer (**FIG.F1**) from the Spool Spindle;
2. Place the 4" Wire Spool onto the spindle and reinstall the spacer and the wing nut in a safe place if it is needed in the future;
3. To set the tension on the wire, tighten the wing nut till there is a slight resistance to spin the Wire Spool on the spindle. If the tension is set too loose the wire spool will spin on the shaft and unspool all of the wire. If the tension is too tight, the drive roller will have issues pilling the wire off and some slipping may occur. NOTE: Hold the exposed wire end to keep the spool from unraveling.



CONNECTING THE WELDER TO A POWER SOURCE

The KeyGree FLUX135 welder requires a dedicated 220 VAC 30 Amp grounded outlet protected by a breaker. If using an extension cord, use a 12 AWG cord for up to 50'.

CHANGING THE DRIVER ROLLER

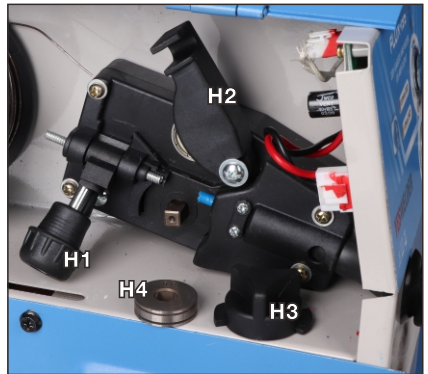
The wire feed drive roller on the drive motor has 1 groove, .030"(0.8mm) welding wire and .039"(1.0mm) welding wire. Your FLUX135 comes with the drive roller installed for using .030"(0.8mm) wire. In the event that .039" welding wire is to be used, the Drive Roller needs to be changed to correct size.

⚠ DANGER **ELECTRIC SHOCK HAZARD!**
Turn welder off and unplug from electrical outlet before removing or installing the Drive Roller.

1. Unlock the Pressure Adjuster (**FIG. H1**) by pulling the top wing nut towards the rear of the welder.
2. Lift the Rocker Arm (**FIG. H2**) and rotate the drive roller by hand until you have access to the set screw in the center of the roller.
3. Loosen the set screw (**FIG. H3**).
4. Slide the drive roller (**FIG. H4**) off the shaft.
5. Determine which size wire is going to be used and slide the Drive Roller back onto the shaft by lining up the set screw with the flat area on the shaft.

NOTE: The stamped marking on the side of the Drive Roller indicates the size of the groove on the opposite side of the roller. The groove closest to the drive motor is the groove that will be used. If setting up to use .030" (0.8mm) wire, the '0.8' stamping should be facing the user when installing it.

6. Tighten the set screw on the Drive Roller and lower the Rocker Arm (**FIG. H2**) back into place.
7. Lift up the Pressure Adjuster (**FIG. H1**) to put back in place and adjust as necessary.



PREPARING TO WELD

1. Plug the power cord into a properly grounded, 220V-120V VAC, 50/60HZ, 50AMP outlet (220V)
2. Make sure the Ground Clamp is connected with the workpiece.
3. Please plug the Brass Connector of the Ground Clamp into the Brass Receptacle on the front panel.

WELDER SET-UP FOR GASLESS WELDING

1. Be sure the power cord is unplugged and the power switch is in the "off" position.
2. Insert the Brass Connector of the Ground Clamp cable into the Positive (+) Brass Receptacle on the front panel.
3. Connect the Ground Clamp to the workpiece as close to the welding area as possible. To ensure good ground, clean up any rust, grease, oils or paint on the ground area.
4. Ensure the Wire spool is installed in a right position ,check the tention on the wire.
5. Place a right drive roller into the wire feeder; The FLUX-135 (220V)can be used with either a 0.8mm or a 1.0mm drive roller
6. Thread welding wire through the dive roller to the torch.
7. Turn on the power switch at the rear panel of the welder.
8. Spin the UPPER KNOB to set the voltage.
9. Spin the LOWER KNOB to choose the best current you want, and then press the MIG TORCH SWITCH for wire feeding manually.
10. During the welding process, voltage and inductance can be adjusted by manually.

MIG WELDING OPERATION

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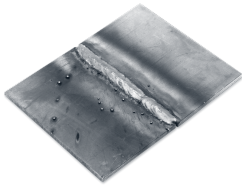
WELDING PROCESS

Carefully read the figure below, choose the different current for different thickness of working plate. And the welding voltage and wire feed speed will be synergic and automatically adjusted according to the data of machine CPU. Make Welding Simple and Easy~.The knob is for you to adjust the welding voltage slightly (-5V~5V)

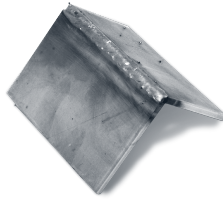
FLUX WIRE						
Wire diameter Ømm	1.0mm 0.035"					
Workpiece thickness mm	1mm .039"	1.5mm .059"	2mm .079"	2.5mm .098"	3mm .118"	4mm .157"
Welding voltage V	14.5	15.3	16.3	16.5	16.8	17.4
Welding current A	63	94	115	150	176	200

Wire diameter Ømm	0.8mm 0.030"					
Workpiece thickness mm	1mm .039"	1.5mm .059"	2mm .079"	2.5mm .098"	3mm .118"	4mm .157"
Welding voltage V	14	15.6	16.6	16.9	17	18
Welding current A	63	94	115	150	176	200

TYPES OF WELD JOINTS



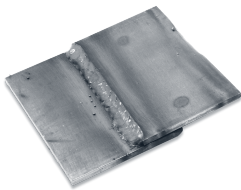
BUTT WELD is a joint between two pieces that are laying in the same direction.



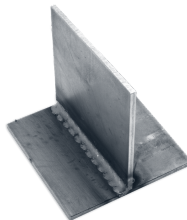
CORNER WELD is a joint between two pieces that meet at or near perpendicular at their edges.



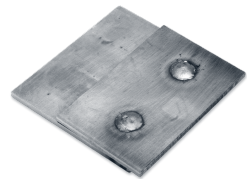
EDGE WELD is a joint between two pieces where the edges are being joined.



LAP WELD is a joint between two overlapping pieces.



TEE WELD is a joint between two pieces where one is perpendicular to the other.



PLUG WELD is a joint which joins two overlapping pieces by filling in a hole punched in the top piece.

SHEET METAL WELDING TECHNIQUES

When welding sheet metal, usually a different approach is taken to account for how thin the metal is and how easy it is to warp. The approach most often used is called Stitch Welding and this process is described below:

1. Clean the metal to be welded of any paint, rust, oil, grease, dirt or any other contaminants that may be on the surface of the piece.
2. Secure the pieces to be welded in place using clamps. Be sure to leave a small gap between the two pieces of sheet metal for the weld to flow into. In this way, it will result in a lower bead height which will require minimal finishing.
3. Consult the Suggested Settings Chart and set the Ampere and Wire Speed knob appropriately.
4. Get some pieces of scrap metal of the same thickness and verify that the settings will work for the specific weld you will be making.
5. Once the settings have been fine tuned tack weld your final pieces in places and remove the clamps if they are in the way of the weld.
6. The Stitch Welding technique can now be utilized which is basically a series of tacks connecting together. To perform the technique, trigger the gun to form a tack weld and then continue to trigger the gun on and off making a series of connected tack welds following along the path of the weld joint. Continue the series of tacks for an inch or so and then move to a different section of the weld and perform the process there. It is essential to keep moving around to spread out the heat making sure not to get one section too hot and warp the metal.
7. Once the entire weld has been completed, allow the metal to cool. If necessary, follow up with a flap disc to grind the weld bead flush.

HEAVY GAUGE METAL WELDING TECHNIQUES

When welding sheet metal, a different approach is usually taken to account for how thin the metal is and it's susceptible to warping it is. The approach most often used is called Stitch Welding and this process is described below:

When welding heavy gauge metal, there are two basic approaches to create the weld. The first is a continuous bead with steady torch movement along the length of the joint. The second type of weld is a Stringer or Weave bead. This is accomplished by moving the torch in a circular or zig zag pattern. Either of these techniques will create strong welds but in some cases the Stringer or Weave type will create a more aesthetically appealing weld bead.

OVERLOAD PROTECTION

Your KEYGREE FLUX135 is equipped with a temperature controller as well as an overload breaker. These two protection devices will protect your welder if the duty cycle is exceeded. If the output is exceeded, the internal breaker will trip and stop power supply to the drive motor although the fan will still run to cool the unit.

If the breaker tripped resulting from an overload, the circuit breaker button on the rear of the welder will extend out. This circuit breaker must be reset manually. Before resetting the circuit breaker button allow the welder to cool for a minimum of 15 minutes.

If there is no voltage output and the circuit breaker was not tipped, the internal thermal protector may have shut off the welder until it cools to normal operating temperature. This is an automatic function and does not require the user to manually reset anything.

MIG WELD TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Burn Through	High Voltage	Adjust voltage output to lower setting.
	Lack of Tack Welds	Adjust wire speed to slower setting.
	Slow Gun Travel	Increase your travel speed with the Welding Gun.
Lack of Penetration	Low Voltage	Adjust voltage output to higher setting.
	Slow Wire Speed	Adjust wire speed to faster setting.
	Fast Gun Travel	Slow your travel speed of the Welding Gun making sure to pull or drag the molten metal puddle.
	Excessive Wire Protruding	Move the Contact Tip on the Welding Gun closer to the work piece to shorten the length of exposed wire.
	Material Too Thick	The FLUX-135 is rated for a maximum thickness of 3/8", exceeding this will result in poor penetration.
	Poor Material Prep	If welding heavy gauge metals, it may be necessary to increase the welding gap between the two pieces and also bevel the edges on the weld side of the pieces.
Excessive Penetration	High Voltage	Adjust voltage output to lower setting.
	Fast Wire Speed	Adjust wire speed to slower setting.
	Slow Gun Travel	Increase your travel speed with the Welding Gun.
Warping	Lack of Tack Welds	Tack weld the pieces in multiple areas to keep the pieces from pulling apart.
	No Clamping	Use welding clamps to secure the pieces in the proper shape.
	Poor Technique	To prevent warping, allow the workpiece to cool after welding small sections at a time. Move your welding areas around by not completing all the welding in one section all at once, rather, welding a small amount in one area and then move to another section area to spread out the heat in the piece.
Poor Fusion	Low Voltage	Adjust voltage output to a higher setting.
	Slow Wire Speed	Adjust wire speed to a higher setting.
	Dirty Base Metal	Remove all paint, rust, oil, grease, dirt, or any other contaminants that may be on the surface of the piece.
	Excessive Wire Stick Out	Move the contact tip on the welding gun closer to the work piece to shorten the length of exposed welding wire.
	Cold Base Metal	If welding a large piece, particularly cast pieces, which may absorb a lot of heat, it may be necessary to pre heat your part with a torch.

MIG WELD TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Porosity	Poor Shielding Gas	Increase the flow rate of the shielding gas. Take note of any cross winds that may be blowing the gas away from the welding zone.
	Wrong Shielding Gas	Make sure that you are using a 75% Argon / 25% C02 Shield Gas.
	Dirty Base Metal	Remove all paint, rust, oil, grease, dirt, or any other contaminants that may be on the surface of the piece.
	Excessive Wire Stick Out	Move the contact tip on the welding gun closer to the work piece to shorten the length of exposed welding wire.
Excessive Spatter	Fast Wire Speed	Adjust wire speed to slower setting.
	Dirty Base Metal	Remove all paint, rust, oil, grease, dirt, or any other contaminants that may be on the surface of the piece.
	Poor Shielding Gas	Increase the flow rate of the shielding gas. Take note of any cross winds that may be blowing the gas away from the welding zone.
	Wrong Shielding Gas	Make sure that you are using a 75% Argon / 25% C02 Shield Gas.
	Wrong Welding Wire	Check wire for type and make sure it is appropriate for the material and process being used.
	Excessive Wire Stick Out	Move the contact tip on the welding gun closer to the work piece to shorten the length of exposed welding wire.

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