



# ***DIGITAL ARC121i***



**Operator's Manual**

**LINLONG LIMITED**  
[www.weldpro.com](http://www.weldpro.com)

**THANK  
YOU**

**for your  
purchase!**



Take a moment and subscribe to our youtube channel. Weldpro is committed to releasing lots of tutorial and how-to videos to help you fine tune your welding skill.



Dear Valued customer,

We at Weldpro would like to thank you very much for being our valued customer. We take great pride in providing quality welding equipment at an affordable price.

As an experienced welder, your feedback (no matter positive or negative) will be an important factor for us to improve the quality of our product and our customer service. We would greatly appreciate if you would take a moment to provide feedback for the product that you purchased.

Weldpro is always there to assist you should you have any questions.

Sincerely, your friends at Weldpro!



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## **IMPORTANT**




**For any questions, concerns, or  
problems contact Weldpro  
Support directly at  
651-329-2686**

## Introduction

This manual includes hardware description and operating introductions for the equipment. Please take a moment to read this manual before attempting to operate this equipment for your safety and to insure proper use.

## Attention

Pay attention to the words following the signs below.

| Sign   | Description  |
|--|--|
|  <b>DANGER</b>    | The words after this sign mean there is great potential danger, which may cause serious injury, damage or even death, if it is not followed. |
|  <b>WARNING</b>   | The words after this sign mean there is some potential danger, which may cause injury or damage, if it is not followed.                      |
|  <b>ATTENTION</b> | The words after this sign mean there is potential risk, which may cause equipment fault or failure, if it is not followed.                   |

## Edition

The contents of this manual are updated regularly as the product is updated. The manual is only used as an operations guide. No warranties of any kind, either express or implied are made in relation to the description, information or suggestions or any other contents of the manual.

The images shown here are indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.

# CONTENTS









|  |    |
|--|----|
| 1 SAFETY WARNING.....                    | 5  |
| 2 PRODUCT DESCRIPTION.....               | 10 |
| 3 THREE YEARS WARRANTY.....              | 11 |
| 4 TECHNICAL PARAMETERS.....              | 13 |
| 5 INSTRUCTIONS FOR THE INSTALLATION..... | 14 |
| SET UP FOR STICK WELDING.....            | 14 |
| SET UP FOR LIFT TIG WELDING.....         | 15 |
| 6 OPERATING .....                        | 20 |
| PANEL LAYOUT.....                        | 20 |
| OPERATING INSTRUCTIONS.....              | 21 |
| WELDING ENVIRONMENT AND SAFETY.....      | 21 |
| WELDING PROBLEMS AND RESOLUTIONS.....    | 22 |
| 7 DAILY MAINTENANCE AND CHECKING.....    | 23 |
| 8 TROUBLESHOOTING AND FAULT FINDING..... | 26 |

# SAFETY WARNING

The safety notes listed in this manual are to ensure correct use of the machine and to keep you and other people from being hurt.

The design and manufacture of this welding machine is done with safety in mind. Please refer to the safety warning listed in the manual to avoid accidents.

Different damages could be caused by wrong operation of the equipment as indicated below. Please read the user manual carefully to help prevent such damage.

| Sign  | Description  |
|---|--|
|    | <ul style="list-style-type: none"> <li>Any contact of electric parts may cause fatal electric shock or burn.</li> </ul>  |
|    | <ul style="list-style-type: none"> <li>Gas and fumes are harmful to health.</li> <li>Operation in narrow space should be avoided.</li> </ul>   |
|    | <ul style="list-style-type: none"> <li>Sparks and hot work pieces after welding may cause fire.</li> <li>Cables incorrectly connected may cause fire.</li> <li>Incomplete connection of work piece side circuit may cause fire.</li> <li>Never weld near flammable materials, it may cause fire or explosions.</li> <li>Never weld airtight containers they may expand and burst.</li> </ul> |
|  | <ul style="list-style-type: none"> <li>Arc ray may cause eye inflammation or skin burn or permanent injury.</li> <li>Sparks and residue will burn your eyes and skin.</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>Secure all gas cylinders to prevent injury or damage.</li> <li>Wrong use of the gas cylinder will lead to high-pressure gas eruption and cause injuries.</li> </ul>   |
|  | <ul style="list-style-type: none"> <li>Never let fingers, hair, clothes, etc. near the moving parts such as the fan.</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>The wire shoot out of the torch may stab eyes, face and other exposed body parts.</li> </ul>  |
|  | <ul style="list-style-type: none"> <li>Never stand in front of the swang equipment or under it, or it may fail and cause injury.</li> </ul>  |



**DANGER Please follow the rules below to avoid accidents.**

- Never use the equipment to do anything else but welding.
- Follow related regulations for the construction of the input-driven power source, choice of place, usage of high-pressure gas, storage, configuration, safekeeping of work piece after welding and disposal of waste, etc.
- Nonessentials do not enter the welding area.
- People using a heart pacemaker are not allowed to get close to the welding machine or area without doctor's permission. The magnetism created by energizing the welding machine can effect on the pacemaker.
- Installation, operation, check and maintenance of the equipment should be carried out by professionals.
- Understand the contents of this user manual for safety.



**DANGER Please follow the rules below to avoid electric shock**

- Keep away from any electric parts.
- Earth the machine and work piece by professional personnel.
- Cut off the power before installation or checking, and restart 5 minutes later. The capacitance is chargeable device. Please ensure it has no voltage before starting again even if the power source is cut off.
- Do not use wire with inadequate gage size or damaged insulation sleeve or even exposed conductors. Conform to electrical codes.
- Ensure proper isolation of wire connection.
- Never use the device when the enclosure is removed.
- Never use broken or wet insulation gloves.
- Use fire net when working at high position.
- Check and maintain regularly, do not use it until the broken parts are fixed properly.
- Turn off the power when not in used, and close all gas tanks.
- Always follow the national or local related standard and regulations when using this welding equipment.



**DANGER** Please follow the below notes to avoid fire and explosions, etc.

- No combustibles in welding area.
- Keep any combustable tanks or valves off when welding.
- Keep hot work piece after welding away from flammable gas.
- Be sure anything flammable is removed from the area including the ground and walls.
- The wire connection of base metal should be placed as close to the welding work as possible.
- Never weld those facilities with gas pipe or airtight slot.
- Put fire extinguisher around the welding area to prevent fire.



**WARNING** The gas and fumes are harmful to health; please wear protective devices according to regulations.

- Wear proper breathing apparatus to prevent gas poisoning or choking.
- Use proper exhaust and ventilating equipment to prevent poisoning by gas and other powder.
- To prevent oxygen-deficiency, air out the gas-filled room, which is full of CO<sub>2</sub> and argon on the bottom, when operating on trunks, boilers, cabins, etc.
- Please accept the supervisor's inspection when operating in a narrow space. Air the room and wear breathing aides and all necessary safety equipment.
- Never operate in areas where chemicals are being used or introduced into the air.
- Avoid breathing galvanized or shielded steel when welding for it will cause poisonous dust and gas.



**WARNING** The arc, spark, residue and noise are harmful to health, please wear protective appliance.

- Eye protection against arc is necessary when welding or supervising welding.
- Please wear preventive glasses or goggles.
- Welder's gloves, welder's goggles, long sleeve clothes, leather apron, and other standard protective equipment must be worn for welding operations.
- A screen to protect other people against the arc must be set in the welding place.





**WARNING Please follow the notes below to avoid gas cylinder toppling over or broken.**

- Use the gas cylinder correctly as designed to be used.
- Use the equipped or recommended gaseous regulator.
- Read the manual of gaseous regulator carefully before using it, and pay attention to the safety notes.
- Fix the gas cylinder with appropriate holder and other relative parts.
- Never put the cylinder under high temperature or sunshine environment.
- Keep your face away from the gas cylinder exit when opening it.
- Close the gas valve when it is not used.
- Never put the torch on the gas cylinder. The electrode cannot meet the gas cylinder.



**WARNING Never operate with protective cover off, please note the following:**

- Never use the machine when the enclosure is off.
- Installation, operation, check and maintenance the machine by a professional.
- Keep your fingers, hair, clothes etc. away from the moving parts such as the fan.



**WARNING The wire end may cause damage, please note the following:**

- Never look into the electric conduction hole when checking whether the wire feeding is normal or not, also, never look at the shooting wire which may cause injuries to your eyes and face.
- Keep your eyes, face or other exposed body parts away from the end of the torch when feeding the wire manually or pressing the switch.



**ATTENTION For better work efficiency and power source maintenance, please note the following.**

- Precautions against toppling over.
- Never use the welding equipment for pipe thawing.
- Lift the power source from the side when using a forklift truck to avoid toppling over.
- When using the crane for lift, tie the rope to the ears with an angle no more than  $\phi 15$  to the vertical direction.

- When lifting the welding machine, which is equipped with a gas cylinder and a wire feeder, download them from the power source and ensure the machine is in horizontal position. Fix the gas cylinder with a belt or chain and valve cover when moving it to avoid body injuries.
- Ensure fastness and insulation when lifting the wire feeder through the swing ring for welding.



**ATTENTION Electromagnetic interference needing attention.**

- When the equipment is used in certain locations, it may need extra preventive measures.
- Before the installation, please estimate the potential electromagnetism problems of the environment as follows.
  - a) Upper and lower parts of the welding equipment and other power cables, control cables, signal cables and phone cables.
  - b) Wireless electronic devices as well as TV radiation and reception equipment.
  - c) Computer and other control equipment.
  - d) Safety-recognition equipment etc. Such as supervision of industrial equipment.
  - e) Health of people around. Such as personnel using heart pacemakers or audiphones.
  - f) Equipment for adjustment and measurement.
  - g) Anti-disturb capability of other used equipment .Users should ensure these equipment and the environment are compatible, which may need extra preventive measures.
  - h) Practical state of the welding and other activities.
- Users should observe the following dos and don'ts to decrease radiation interference.
  - a) Connect the welding equipment to the power supply lines.
  - b) Maintain the welding equipment regularly.
  - c) The cable should be short enough to be close to each other and the ground.
  - d) Ensure the safety of all the welding metal parts and other parts nearby.
  - e) The work piece should be well earth grounded.
  - f) Shield or protect the other cable and equipment to decrease the effects of disturbances. The welding equipment can be complete shielded in some special conditions.
- Remember, the users are responsible for interference due to welding.

# PRODUCT DESCRIPTION

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MMA series welding machine applies the most advanced inversion technology in the world.

The principles of inverter technology is to transform the power frequency of 60Hz into direct current and invert it into high frequency (50kHz) through high-power device IGBT, then perform voltage-drop and commutation with the output high-power D.C power supply via full digital Pulse Width Modulation (PWM) control technology. Since the switch power inversion technology is adopted, the weight and volume decrease greatly while the conversion efficiency increase by more than 30%.

Our welding power source offers stronger, more concentrated and a more stable arc. When the welding rod and work piece short circuit, the response time is quicker. It means that it is easy to design a welding machine with different dynamic characteristics, and it can even adjust the characteristics to make the arc softer or harder.

Under MMA mode, the machine has slope characteristic. The welding current, push current and heat arc initiation current are set by the same knob synchronously, which makes good performance of arc initiation, stable power output, welding shape and internal quality.

MMA series welding machine is widely used to weld different materials, such as carbon steel, stainless steel, alloy steel, copper, non-ferrous metal, etc. It can apply to different electrode, including acid electrode, basic electrode and cellulose electrode. Compared with the other products, it has many advantages, such as light, handy, easy to install and operate, it is efficient and energy saving. The conversion rate is above 80%. It applies for higher levels welding, field work and indoors operation.

Thanks for purchasing our products and looking forward to your precious advice, we will try our best to perfect our products and service.



## WARNING

**The machine is mainly used in industrial fields. It will cause radio interference if used indoors. Please take the appropriate precaution measures.**

# THREE YEARS WARRANTY

## WELDPRO Warranty and Return Terms

## Welders and Plasma Cutters

All Weldpro welders and plasma cutters are covered under the following specific terms of warranty. All welders and plasma cutters are warrantied to the original purchaser only, when purchased through an authorized seller of Weldpro products for a period of three (3) years from the date of purchase, to be free of manufacturers defect or failure. Proof of purchase and date of purchase paperwork will be required by Weldpro at the time of the claim.

Extended warranty coverage may be available for Weldpro welders and plasma cutters at an additional cost. Always check with Weldpro.

The Weldpro warranty is limited to defects, malfunctions or failure of the equipment to operate properly based specifically and solely from manufacturer defects. Any malfunctions from improper use, lack of maintenance, incorrect or insufficient source supply power to the units, shipping damage, and similar failures not related to specific manufacturers defect will not be honored.

Weldpro will not be responsible in the event of a product failure, for lost time in operation or use of said product. Rather it will honor solely the product itself only.

Further, the warranty will cover the repair or replacement of the unit in question for the term of the warranty with either a new or a refurbished unit, or in some cases replacement parts of the same model, at the discretion of Weldpro. As a term of the Weldpro warranty, if and when applicable, individual parts are needed, they may be supplied to the customer rather than replacing the entire unit. Situations like this may include, but are not limited to items such as foot pedals, torches, mig wire rollers, feed spools, or any other item Weldpro deems more practical to supply individually.

Weldpro will provide free shipping return of the damaged product due to manufacturers defect for the first 30 days of the warranty term if shipping is within the lower 48 United States. Customers outside this area must check with Weldpro for further shipping instructions. Failures after the initial 30-day period, and due to manufacturers defect, may not enjoy free return shipping.

If it is determined when the product is returned to Weldpro that there is no malfunction, or that the assumed malfunction by the customer was user error, Weldpro may request a shipping fee refund prior to the return of the item to the customer.

Prior to returning any item thought to be malfunctioning or damaged due to

manufacturers defect, customers are required to contact Weldpro first, to explain the failure and to obtain a Return Merchandise Authorization number, or the item may not be covered under the terms of this warranty.

Weldpro ships in the USA from third party shippers such as, but not limited to UPS, FedEx, and the USPS. Weldpro is not responsible for damage that occurs during shipping. It is the customer's responsibility to check the item at the time of delivery. If a customer receives an item damaged, they must immediately contact both Weldpro and the shipper to document and report the damage as soon as possible, and in no circumstances later than 48 hours after delivery. All shipping and delivery dates are tracked for arrival. Weldpro may require photo image of the damage at their discretion. Returned items within the first 30 days. Undamaged items in good working condition may be returned within the first 30 days of purchase. In such a case, these items are not eligible for the free return shipping policy associated with items that have manufacturers defects. A restocking fee will be charged for said return of up to 25% on any item returned with a valid RMA number that are undamaged and not covered or subject under the terms of this warranty. The amount of the restocking fee is solely at the discretion of Weldpro and based on the condition of the returned item and its accessory parts and packaging. Further, should Weldpro receive an item in good working condition that has sustained physical damage, Weldpro has the right to refuse acceptance of said returned item completely, and the customer will be responsible for return shipping of the product to them.

Weldpro does not imply or suggest any interpretation of the above warranty beyond what is stated in this print of its terms.

Weldpro is not responsible for injury due to improper use of the equipment or failure to heed all of the safety precautions associated with the dangers of welding or cutting metals.

The terms and conditions of the Weldpro warranty are subject to change without notice. Be sure to check the terms of the Weldpro warranty prior to your purchase.

# TECHNICAL PARAMETERS

| Parameters \ Model              | DIGITAL ARC121i     |                |
|---------------------------------|---------------------|----------------|
| <b>Supply voltage (V)</b>       | 1 phase<br>115V±15% |                |
| <b>Frequency (Hz)</b>           | 50/60               |                |
| <b>Input current (A)</b>        | MMA: 24.3           | TIG: 14.5      |
| <b>Open circuit voltage (V)</b> | 67                  |                |
| <b>Output current (A)</b>       | MMA: 10-120         | TIG: 10-120    |
| <b>Output voltage (V)</b>       | MMA: 20.4-24.8      | TIG: 10.4-14.8 |
| <b>Duty cycle (%)</b>           | 30                  |                |
| <b>Power factor</b>             | ≥ 0.73              |                |
| <b>Efficiency (%)</b>           | ≥ 80                |                |
| <b>Housing protection class</b> | Ip21                |                |
| <b>Insulation class</b>         | F                   |                |
| <b>Cooling method</b>           | Fan-cooled          |                |
| <b>Weight (lb)</b>              | 6.6                 |                |
| <b>Dimensions (in)</b>          | 9.65x8.07x5.1       |                |

# INSTRUCTIONS FOR THE INSTALLATION

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**\* - In order to take advantage of the full potential of this welder consider a 30 amp 110 circuit. Please consult your electrician for connection.**

The welding equipment is equipped with a power voltage compensation device. It keeps the machine working normally when power voltage fluctuating  $\pm 15\%$  of rated voltage.

When using long cable, in order to reduce voltage drop, larger size cable is suggested. If the cable is too long, it will affect the performance of arcing and other system function, it is suggested that you use the recommend length.

1. Make sure the intake of the machine is not covered or blocked to avoid the malfunction of the cooling system.
2. Use ground cable whose section is no less than 9AWG to connect the housing and earth. The method is to connect the grounded interface in the back to the earth device, or make sure the earth end of power interface has been reliably and independently grounded. Both ways can be used together for better security.

## SET UP FOR STICK WELDING

### Installation Procedures

1. Make sure cable with electrode holder and work clamp quick plug (dinse connectors) are connected securely. Connect the quick plugs to the sockets “-” and “+” of the machine, and fasten them clockwise tightly.
2. Be sure the electrode holder securely holds the welding rod and the work ground is securely connected to clean bright metal to insure a proper circuit.
3. Please pay attention to the connecting terminals. DC welding machines have two connecting methods using two differing polarities. DC straight polarity, where the electrode welding rod holder is connected to the “-” dinse connector while the work clamp is connected to the “+” dinse connector, and the much more commonly used connection, DC reverse polarity, where the electrode holder for the welding rod is connected to the “+” dinse connector while the work clamp is connected to the “-” dinse connector. While reverse polarity (electrode “+”) is by

far more common, please refer to the welding rod mfg. For the welding rod you are using to determine the recommended polarity for that specific welding rod.

**A qualified electrician should perform this procedure!**

Connect proper power cable to the distribution box with corresponding capacity according to the input voltage and current (See technical parameter table). Do not connect to the inappropriate voltage and make sure that the difference of power supply is within permitted range.

| <b>180 ST STICK SET-UP CHART</b> |                           |                           |              |              |             |              |
|----------------------------------|---------------------------|---------------------------|--------------|--------------|-------------|--------------|
| <b>MATERIAL<br/>(Wire)</b>       | <b>ELECTRODE<br/>TYPE</b> | <b>ELECTRODE DIAMETER</b> |              |              |             |              |
|                                  |                           | <b>1/16"</b>              | <b>5/64"</b> | <b>3/32"</b> | <b>1/8"</b> | <b>5/32"</b> |
| <b>Regulation Knob</b>           |                           | <b>A</b>                  | <b>A</b>     | <b>A</b>     | <b>A</b>    | <b>A</b>     |
| <b>Mild Steel</b>                | E6013                     | 10-50A                    | 30-80A       | 40-90A       | 50-120A     | 90-120A      |
|                                  | E7018                     | —                         | —            | 50-100A      | 80-120A     | 90-120A      |
| <b>Stainless Steel</b>           | E308L                     | —                         | —            | 40-70A       | 50-80A      | 70-120A      |
| <b>CANNOT WELD ALUMINUM</b>      |                           |                           |              |              |             |              |

## SET UP FOR LIFT TIG WELDING

The DIGITAL ARC121i, while small in size and very portable is also a very powerful and capable machine. One extremely valuable ability of this machine is to perform excellent DC Lift TIG welding. Weldpro offers an easy to use, optional accessory kit for anyone interested in taking advantage of the TIG welding feature this machine offers.

The Lift TIG welding kit includes a specially designed TIG torch that has a gas flow on/off valve at the top of it's handle. Also there will be a starting set of consumables which include a tungsten, a collet, a collet body, a ceramic cup and a back cap. The kit will also include a flow regulator to meter the Argon gas to your torch.



## Set up and use

Be sure to follow all safety measures including the use of safety glasses, proper welding equipment such as welding gloves, welding helmet, and welding apron. Working safely is extremely important to prevent clothes from burning or harm to any part of your body. Always have a fire extinguisher on hand.

The first thing to do before assembling your TIG torch components is to grind the tip on the tungsten to a point, much like sharpening a pencil. A good rule of thumb in terms of grinding that tip is to grind it approximately 2 to 2.5 times the diameter of the tungsten that you are using. When grinding tungsten it's best to use a dedicated surface used solely to grind that tungsten. Be it a bench grinder or belt sander, the important thing is that its not going to be used and exposed to other metals, especially soft metals or wood or any other material that can contaminate the tungsten. Additionally when grinding your tungsten be sure that the grind marks run lengthwise to the tungsten rather than at a 90 degree angle to it. This helps to guarantee the arc starts are not wandering, but rather are directed to the point on your work that you intend. Once you shaped the tungsten you can install the consumables into your TIG torch head.

First screw your collet body into the front of your torch head and then slide your collet into the torch head from behind. Also from behind the torch head slide your tungsten into the torch through the collet and collet body until it protrudes from the front a certain distance, which we will discuss in a moment. Next, screw the back cap on the back side of your TIG torch and lightly snug it until you're tungsten does not move in the collet.

Next screw your ceramic cup to your collet body from the front. Ceramic Cups have numbers on them. Numbers 5 through 8 are very common size ceramic cups. The numbers on the cups are a designation of the diameter opening of the cup. The number actually represents sixteenths of an inch. So a number 5 cup would be 5/16 of an inch opening in diameter. Likewise a number 6 cup will be 6/16 of an inch or 3/8 of an inch diameter opening. The rule of thumb here is not to allow your tungsten to protrude from the ceramic cup farther than the diameter of that cup. At this point you can lightly loosen your back cap and position your tungsten for the proper exposure and then re tighten your back cap. With your torch fully assembled, before moving on to the next step just check the valve on your torch head and be sure it is closed.

In order to TIG weld you will need to have a dedicated tank of 100% pure Argon gas. DO NOT use any mix of gas such as carbon dioxide and argon mix commonly used in MIG welding. Your gas must be 100% pure Argon.

Connect your regulator to your argon tank keeping the flow meter as vertical as possible, and snug the flow regulator to the argon tank. Do not over tighten. Next connect your argon line from your TIG torch to the flow regulator. Again snug but do not over tighten.

You are almost ready to begin welding. Next take your TIG torch over by your argon tank and open your argon tank valve all the way and be sure that you back seat the argon tank valve to prevent leaks. Next open the valve on your TIG torch and observe the ball float in your flow regulator. Turn the adjusting knob on the regulator to set your regulator at approximately 20 cubic feet per hour (CFH) or if you're gauge measures in liters per minute (LPM) set your regulator to approximately 9 or 10 liters per minute. Close the valve on the head of your TIG torch once you have set your flow meter.

Be sure the power to your welder is off. Connect your torch and your work clamp to the DIGITAL ARC121i. When connecting your TIG torch to the DIGITAL ARC121i be sure to connect the TIG torch to the minus (-) connection dinse connector, and your work clamp to the plus (+) connection of the dinse connector. TIG welding is done using Straight polarity you're TIG electrode tungsten is minus.

Because this is a lift tig style of welding, on this machine we do not have a trigger switch or a foot pedal or a current on off switch. Once your machine is powered on, your TIG torch and your work clamp are electrically hot! So be sure you have your TIG torch in a proper holder to avoid shorting out. Do not lay it on a metal surface do not allow it to come in contact with your work clamp or any conductors in between.

Be sure the work you're going to weld is clean and dry. Be sure no combustibles are nearby when you begin to weld. Put on your gloves and welding helmet.





Power ON your DIGITAL ARC121i and touch the toggle on the front of the machine for TIG/STICK to TIG.

We recommend if you are new to TIG welding to practice just a little bit without any filler Rod. Simply allow your TIG torch to create a weld bead on the steel you are going to be welding as you move it along.

To initiate the arc once your safety equipment in place, your work clamp is secure to the work that you will be welding, set your amperage control to approximately 70 amps and with your helmet down, open the gas valve on your torch head. Touch the tungsten to your work and quickly lift it to about 1/16 to 1/8 of an inch or so above your work. An arc will start. As you see a puddle form you can slowly move your torch along melting the metal as you go.

When you are done with your bead the only way to end your weld is to pull the torch quickly away from the work. Once you've ended your Arc, shut off the gas valve on your torch, secure your TIG torch to a safe place to prevent arcing because as we said, this connection is still electrically hot. Shut the power off to your welder.

Following these instructions will get you started with your Lift Tig welding. There are many resources available on the internet for learning more about the procedure.

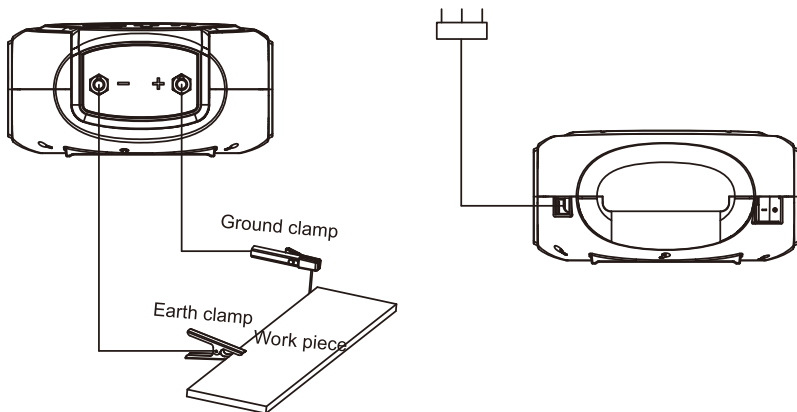
| <b>180 ST TIG SET-UP CHART</b> |            |   |   |   |   |
|--------------------------------|------------|---|---|---|---|
| <b>MATERIAL (Wire)</b>         | <b>GAS</b> | <b>MATERIAL THICKNESS</b>   |   |   |   |
|                                |            | 24 Gauge<br> | 16 Gauge<br> | 12 Gauge<br> | 10 Gauge<br> |
| <b>Regulation Knob</b>         |            | <b>A</b>  | <b>A</b>  | <b>A</b>  | <b>A</b>  |
| <b>Mild Steel</b>              | 100% Argon | 25-35A  | 70-85A  | 80-100A   | 90-120A   |
| <b>CANNOT WELD ALUMINUM</b>    |            |   |   |   |   |

### Optional accessories

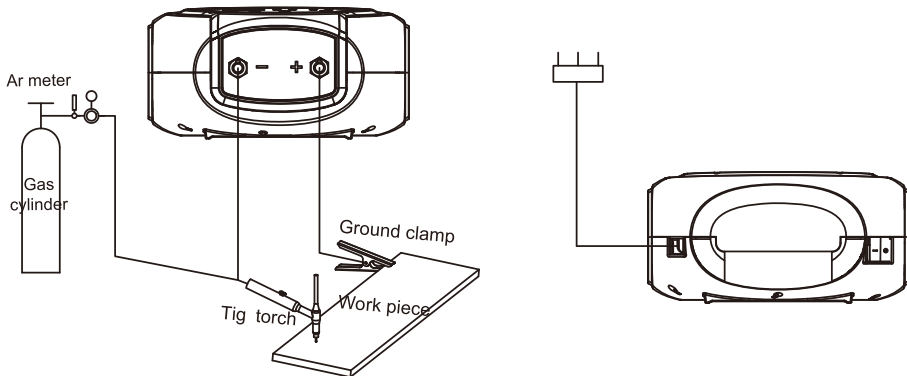
|                             |            |   |
|-----------------------------|------------|---|
| TIG kit for Digital Arc121i | SKU:L22024 | <ol style="list-style-type: none"> <li>1. Lift Tig torch.</li> <li>2. Gas regulator.</li> <li>3. Consumable kit : 3/32" collect body, 3/32" collect, 3/32" purple E3 tungsten, 3/32" blue tungsten, size 5 cup, long back cap.</li> </ol> |
|-----------------------------|------------|---|

## Explanatory drawing for installation

### MMA MODE:



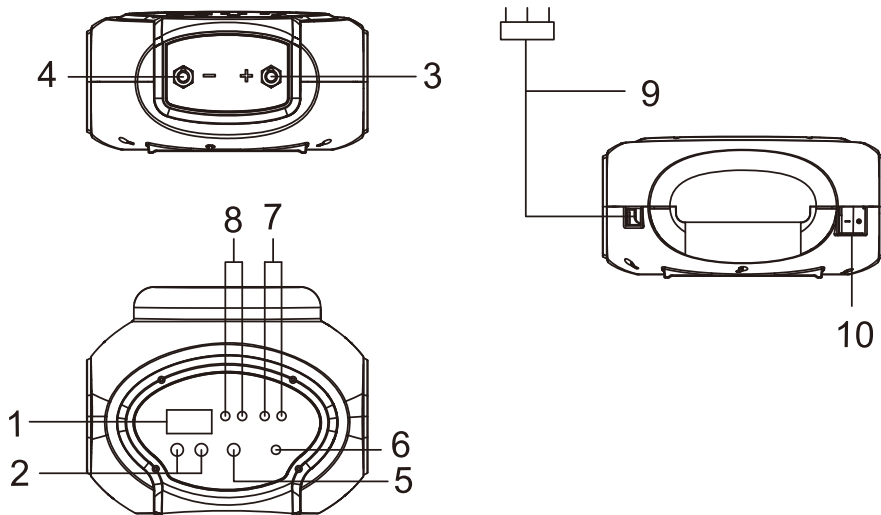
### TIG MODE:



The panel picture above is for reference only. If any difference with the real machine, please follow with the real machine. Optional TIG MODE requires optional TIG Torch and 100% argon gas.

# OPERATION

## PANEL LAYOUT



|   |                            |    |                          |
|---|----------------------------|----|--------------------------|
| 1 | Current meter              | 6  | Abnormal indicator       |
| 2 | Welding current adjustment | 7  | VRD indicator            |
| 3 | Positive output terminal   | 8  | MMA/TIG switch indicator |
| 4 | Negative output terminal   | 9  | Power supply input       |
| 5 | MMA/TIG switch button      | 10 | Power switch             |

**5\* - Under MMA mode, press this button for 12s,VRD function start work, press this button again for 12s to turn off the VRD function.VRD function does not work under TIG mode.**

The panel picture above is for reference only. If any difference with the real machine, please follow with the real machine. VRD (voltage reduction device) function lowers open circuit voltage as a safety measure. It can result in ever so slightly more difficult arc starts as the initial voltage is lower. This function can be toggled off or on as noted above. Usually, the operator will not notice arc start difference.

# OPERATING INSTRUCTIONS

1. Turn on the power switch, the power indicator will light on, and the fan will start running.
2. Set the welding current according to the welding requirement.

## WELDING ENVIRONMENT AND SAFETY

### 1 Working surrounding

- a) Welding should be carried out in dry surroundings. The air humidity level should not be higher than 90%.
- b) The temperature should be between -10C to 40C.
- c) Avoid exposing welding machines to intense heat from sunlight or in rain. Keep it away from water.
- d) Do not use the machines in the places of dust or corrosive, flammable particles in the air.
- e) TIG welding with shielding gas should not be carried out in breezy environments.

### 2 Safety norms

Protection circuit of over-voltage, over-current and over-heat circuits are designed in the welding machines. It will stop working automatically when the input voltage, output current or internal temperature exceed the rated value. However, if the machines are excessively used, such as with input voltage higher than the rated, the machine might be damage. Please pay close attention to the following matters.

#### a) **Keep good ventilation!**

The welding machines work with high welding current. Nature airflow cannot reach the requirement of heat dissipation. So the fans are installed as a cooling system to ensure stable performance.

Make sure the ventilation windows are not covered or blocked. The distance between the machines and things around should not be less than 0.3m. Good ventilation is good for welding performance and operational life.

#### b) **Never over load!**

Check the maximum rated current (according to the Duty Cycle chosen). Make

sure the welding current is never higher than the rated value. Over current running will obviously shorten the operation life, even damage the machine.

c) **Never over voltage!**

The Input Voltage can be found in Technical data diagram. The auto-compensation function will keep the welding current in the rated range. If the input voltage exceed the permissible value, the machine could be damaged. Users should take protective measures in advance to avoid it.

d) **Make sure earth is connected before operation.**

You can find a screw for earth connection on the rear panel of welding machine. It must be ground connected with cable whose section is bigger than 9AWG before operation, to avoid accidents caused by static or electricity leak.

## **WELDING PROBLEMS AND RESOLUTIONS**

The phenomenon listed below may happen due to relevant accessories used, welding material, surroundings and power supply. Please improve surroundings and avoid these problems.

### **1 Arc starting difficulty. Arc interruption happens easily**

- a) Examine whether grounding wire clamp contacts with the work pieces well, clean work piece.
- b) Examine whether each joint has improper contact.

### **2 The output current fails to reach rated value.**

The deviation of power voltage from rated value may cause that the output current does no accord with adjusted value. When the power voltage is lower than rated value, the maximum output current may be lower than rated value.

### **2 The current cannot maintain stability during operation**

This situation may relate to the following factors:

- a) The voltage of electric power network changes;
- b) Serious interference from electric power network or other electric facilities.

# DAILY MAINTENANCE AND CHECKING

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## Daily Maintenance:

- a) Remove dust regularly with dry compressed air. If the welding machine is used in surroundings with heavy smoke and polluted air, it is necessary to remove dust at least once a month.
- b) Avoid excessive compressed air pressure to prevent any component damage internally.
- c) Examine inside electric joints and ensure clean contacts (Especially plugs and sockets). Fasten the loosing joints. In case of oxidation, remove oxide film with sand paper and connect again.
- d) Prevent water from entering into the machine and prevent the machine from getting moist. If any, blow and dry. Measure the insulation with megohmmeter to make sure it is qualified to use.
- e) If the welding machine is not used for a long time, pack the machine in original package and store in dry surroundings.
- f) Every time the wire feeder operates for 300hours, grind the electrical carbon brush and clear up the armature commutator. Rinse speed reducer, apply 2# Molybdenum Disulfide lubricant to the turbine, whirlpool rod and bearing.



## WARNING

**All the maintenance and testing must be carried out when the power supply is totally cut off. Please make sure the power is off before opening the closure.**



## WELDING POWER

| Position                | Checking keys   | Remarks   |
|-------------------------|---|---|
| Operation control board | <ol style="list-style-type: none"> <li>1. The surge protector is working. Turn off the machine then, after several minutes turn it on again.</li> <li>2. Check the state of the power indicator light.</li> </ol>                           | Lead to unstable arc and wire sending               |
| Cool-down fan           | <ol style="list-style-type: none"> <li>1. Check if the fan state and the sound is normal or not.</li> </ol>   | Clean the residue and check the reason and solve it |
| Power part              | <ol style="list-style-type: none"> <li>1. Check if there is abnormal liberation and sound when the power is on</li> <li>2. Check if there is smell when the power is on</li> <li>3. Whether the outside color change or get warm</li> </ol> |   |
| Outer parts             | <ol style="list-style-type: none"> <li>1. Whether the wire feeder pipe is broken, and the connector is loosen</li> <li>2. Whether the outer shell or other connect parts are loosen</li> </ol>  |   |

# CABLE

| Position     | Checking keys   | Remarks  |
|--------------|---|--|
| Output cable | <ol style="list-style-type: none"> <li>1. Wearing-out of the cable insulated material</li> <li>2. Cable connecting head bare (insulation damage), or loosen (the end of power supply, and cable of main material connecting point)</li> </ol> | For life security and stable welding, adopt suitable method to check according to working place                                |
| Input cable  | <ol style="list-style-type: none"> <li>1. If the connection between the plug and the power socket is firm</li> <li>2. If the power input end cable fixed</li> <li>3. If the input cable is worn out and bares the conductor</li> </ol>        | <ol style="list-style-type: none"> <li>1. Simple check daily</li> <li>2. Careful and in-depth check on fixed period</li> </ol> |
| Earth cable  | <ol style="list-style-type: none"> <li>1. If the earth cable that connects the main part is broken and connects tightly</li> </ol>  | In case of leakage and to ensure safety, please do perform daily checking  |

# TROUBLESHOOTING AND FAULT FINDING

**Note:** The following operations must be performed by qualified electricians with valid certifications. Before maintenance, it is suggested that you contact a local distributor to verify qualification.

| Malfunctions   | Solution   |
|--|--|
| <p>The meter shows nothing;<br/>Fan does not rotate;<br/>No welding output</p> | <ol style="list-style-type: none"> <li>1. Confirm the power switch is on.</li> <li>2. Power supply available for input cable.</li> <li>3. Check if the silicon bridge is damaged.</li> <li>4. Malfunction occurs in the supplementary power source on control board (contact dealers).</li> </ol>  |
| <p>The meter shows;<br/>Fan works normally;<br/>No welding output</p>          | <ol style="list-style-type: none"> <li>1. Check if all the sockets in the machine are connected properly.</li> <li>2. There is open circuit or bad connection at the joint of output terminal.</li> <li>3. The control cable on the torch is broken off or the switch is damaged.</li> <li>4. The control circuit is damaged.(contact to dealers).</li> </ol>  |
| <p>the meter shows;<br/>Fan works normally;<br/>Abnormal indicator lights.</p> | <ol style="list-style-type: none"> <li>1. It might be over-current protection, please turn off the power switch; restart the machine after the abnormal indicator light winked.</li> <li>2. It might be overheating protection, please wait for about 2-3 minutes until the machine renew without turning off the power switch.</li> <li>3. It might be multifunction of inverter circuit. (contact dealers).</li> </ol> |



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