ANDELI TIG-250 ACDC

ANDELI TIG-250 ACDC Welder User Manual

Model: TIG-250 ACDC | Brand: ANDELI

1. Introduction

The ANDELI TIG-250 ACDC is a state-of-the-art digital inverter welding machine designed for both professional and hobbyist use. It offers multiple welding functions including AC/DC TIG, Pulse TIG, and MMA (Stick) welding, making it highly versatile for various materials and applications. With its advanced LED screen and precise controls, this welder provides exceptional performance for welding aluminum, stainless steel, and other thinner metals.

2. Important Safety Instructions

WARNING: Welding can be dangerous. Always follow safety precautions to prevent injury or death.

- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade lenses to protect your eyes and face from arc rays and sparks.
- **Body Protection:** Wear flame-resistant clothing, gloves, and sturdy footwear to protect against burns and electrical shock.
- **Ventilation:** Ensure adequate ventilation to remove welding fumes and gases, which can be hazardous to your health. Work in a well-ventilated area or use a fume extractor.
- **Electrical Safety:** Never touch live electrical parts. Ensure the welding machine is properly grounded. Inspect cables and connections for damage before each use.
- **Fire Prevention:** Keep flammable materials away from the welding area. Have a fire extinguisher readily available.
- **Work Area:** Keep your work area clean and free of clutter. Ensure stable footing and adequate lighting.

3. Package Contents

Verify that all components listed below are included in your package. If any items are missing or damaged, please contact customer support.



Image: ANDELI TIG-250 ACDC Welder with all included accessories.

- TIG-250 ACDC Welding Machine
- American Standard Plug (220V)
- Grounding Clamp (2m cable)
- WP-26 Aluminum TIG Torch (4m cable)
- Nozzles (10 pieces)
- Collets (10 pieces)
- House Clamps (2 pieces)
- Tungsten Poles (10 pieces)
- Foot Switch (1 piece)

4. Product Overview

4.1 High Definition LED Screen



Image: Detailed view of the LED control panel.

The TIG-250 ACDC features a high-definition LED screen that provides clear and intuitive control over all welding parameters. This digital interface simplifies operation, especially for beginners, allowing for precise adjustments of settings such as current, pulse frequency, AC balance, and more.

4.2 AC Balance Control

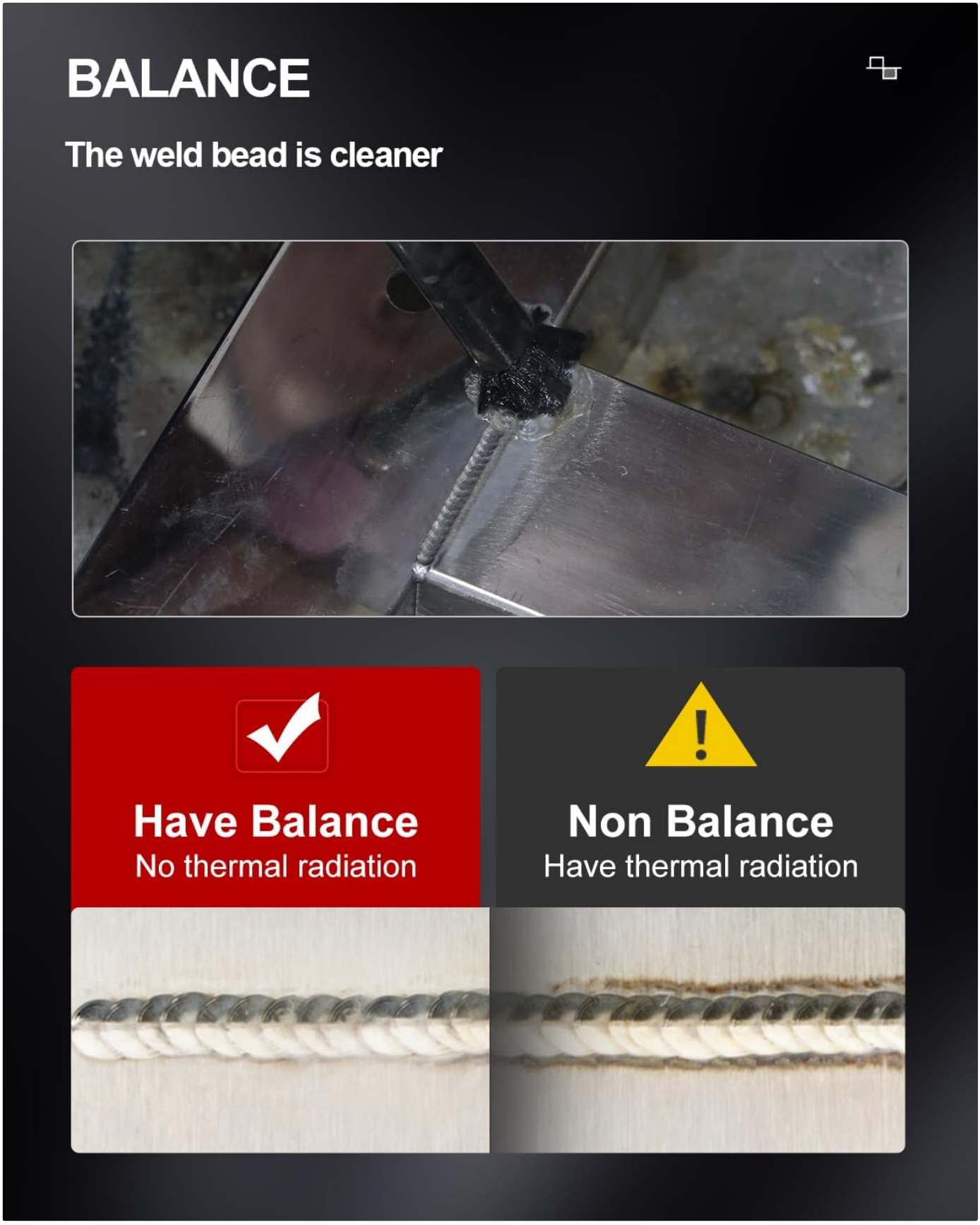


Image: Visual comparison demonstrating the effect of AC Balance on weld cleanliness.

The AC Balance function is crucial for achieving clean and high-quality welds, particularly when working with aluminum. It helps prevent the burning of materials and minimizes thermal distortion by optimizing the cleaning action and penetration during AC TIG welding.

4.3 Precise Remote Control (Foot Switch)



Image: The foot switch accessory for remote current regulation.

The included foot switch provides precise remote control over the welding current. This allows the operator to adjust the amperage during welding, offering greater control over the weld puddle and improving overall weld quality, especially for intricate work.

4.4 Advanced MCU Technology



Image: Internal view highlighting the advanced MCU technology for intelligent welding.

The TIG-250 ACDC incorporates advanced Microcontroller Unit (MCU) technology, enabling intelligent collaborative welding. This technology enhances the machine's efficiency, reliability, and responsiveness, contributing to a stable arc and consistent welding performance.

5. Setup

5.1 Power Connection

Connect the welding machine to a 220V power supply using the provided American standard plug. Ensure the power outlet is properly grounded and capable of supplying the required current (up to 200AMP output). It is recommended to use a dedicated circuit for optimal performance and safety.

5.2 Gas Connection

Connect your shielding gas cylinder (e.g., Argon for TIG welding) to the gas inlet on the rear of the machine using an appropriate gas hose and regulator. Ensure all connections are tight to prevent gas leaks. Set the gas flow rate according to your welding requirements and material thickness.

5.3 Torch and Ground Clamp Connection

Connect the WP-26 TIG torch to the appropriate positive (+) or negative (-) terminal on the front panel, depending on the welding mode (DCEN for DC TIG, AC for AC TIG). Connect the grounding clamp to the remaining terminal. Securely attach the grounding clamp to the workpiece or welding table to ensure a good electrical connection.

5.4 Foot Switch Connection

Plug the foot switch cable into the designated port on the front panel of the welding machine. The foot switch allows for remote control of the welding current during operation.

6. Operating Instructions

6.1 General Operation

Power on the machine using the main switch. The LED screen will illuminate, displaying the current settings. Use the control knob and buttons to navigate through the menus and adjust parameters. Refer to the parameter settings table for recommended values.

6.2 Welding Modes



Image: Examples of weld beads produced by different TIG modes.

AC TIG Welding



Image: A clean and aesthetically pleasing AC TIG weld.

AC TIG mode is primarily used for welding aluminum and magnesium alloys. It provides a cleaning action that breaks up the oxide layer on the material surface, resulting in a clean and strong weld. Adjust AC frequency and AC balance for optimal results.

DC TIG Welding



Image: A strong and consistent DC TIG weld.

DC TIG mode is suitable for welding stainless steel, carbon steel, copper, and other non-ferrous metals (except aluminum and magnesium). It offers a quick arc starting speed and strong penetration.

Pulse TIG Welding



Image: A stable and uniform Pulse TIG weld.

Pulse TIG welding provides stable and uniform solder joints, especially beneficial for welding thin materials or when heat input needs to be precisely controlled. It cycles between a peak current and a background current, reducing heat distortion.

LIFT TIG Welding



Image: A clean and easy-to-create solder joint using LIFT TIG.

LIFT TIG mode allows for arc initiation by touching the tungsten electrode to the workpiece and then lifting it. This method minimizes tungsten contamination and is useful in situations where high-frequency start is not desired or available.

MMA (Stick) Welding



Image: A typical weld bead from MMA (Stick) welding.

The machine also supports MMA (Manual Metal Arc) or Stick welding. This mode is suitable for a wide range of materials and applications, offering easy arc start and preventing the welding rod from sticking.

6.3 Parameter Adjustment



Image: The control panel with various adjustable welding characteristics.

The TIG-250 ACDC allows for comprehensive adjustment of welding parameters to suit different materials and thicknesses. Key adjustable parameters include:

- **Start and End Amps:** Control the current at the beginning and end of the weld.
- **Upslope and Downslope:** Manage the gradual increase and decrease of current.
- **Fully Adjustable Pulse:** Fine-tune pulse frequency and duration for precise heat control.
- **AC Balance:** Adjust the balance between cleaning and penetration for AC TIG.
- **AC Frequency:** Control the arc cone width and direction in AC TIG.
- **2T-4T:** Select between 2-stroke and 4-stroke trigger modes for torch control.

Recommended AL Parameter Settings (TIG-250 LED)

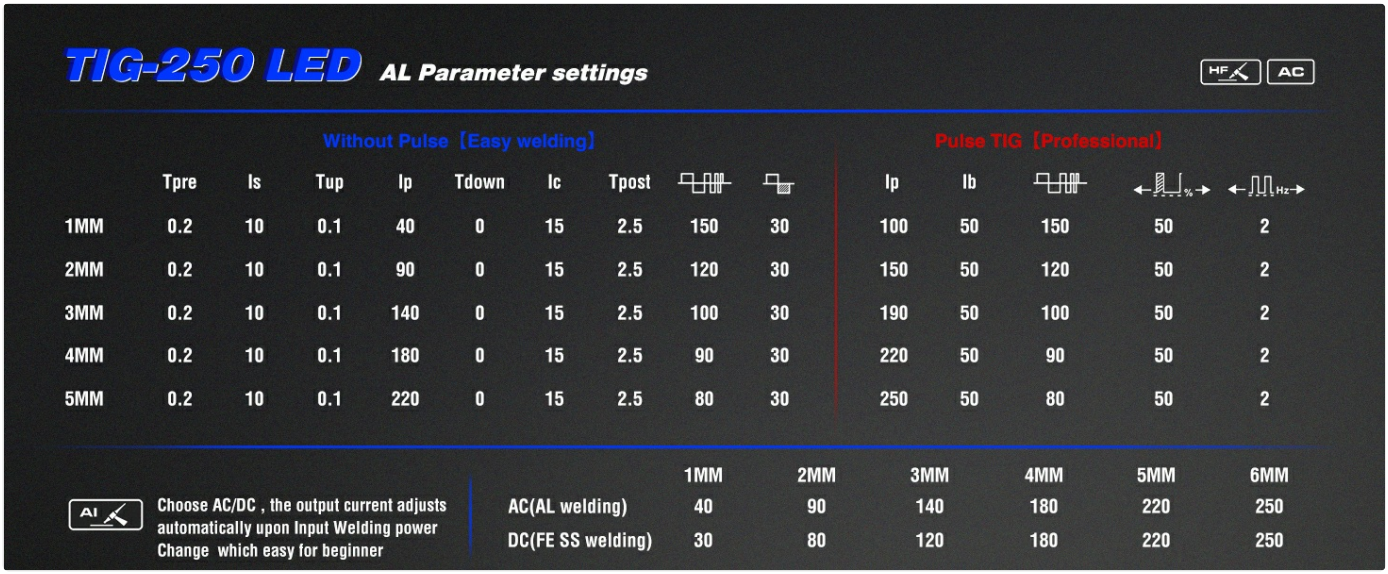


Image: Recommended parameter settings for aluminum welding.

AL Parameter Settings (Example for TIG-250 LED)

Thickness	Tpre (s)	Is (A)	Tup (s)	Ip (A)	Tdown (s)	Ic (A)	Tpost (s)	AC Freq (Hz)	AC Bal (%)
1mm	0.2	10	0.1	40	0	15	2.5	150	30
2mm	0.2	10	0.1	90	0	15	2.5	120	30
3mm	0.2	10	0.1	140	0	15	2.5	100	30
4mm	0.2	10	0.1	180	0	15	2.5	90	30
5mm	0.2	10	0.1	220	0	15	2.5	80	30

Note: These are general guidelines. Optimal settings may vary based on specific material composition, joint configuration, and operator technique. Always perform test welds on scrap material before beginning critical work.

7. Maintenance and Care

Regular maintenance ensures the longevity and optimal performance of your welding machine.

- **Cleaning:** Periodically clean the machine's exterior with a dry, soft cloth. Use compressed air to clear dust from ventilation openings. Ensure the machine is unplugged before cleaning.
- **Cable Inspection:** Regularly inspect all cables (power, torch, ground) for cuts, fraying, or damage. Replace damaged cables immediately.
- **Torch Consumables:** Check and replace worn-out nozzles, collets, and tungsten electrodes as needed to maintain arc stability and weld quality.
- **Connections:** Ensure all electrical and gas connections are secure and free from corrosion.
- **Storage:** Store the welder in a clean, dry environment, away from excessive dust, moisture, and extreme temperatures.

8. Troubleshooting Guide

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No power to machine	Power cable unplugged, circuit breaker tripped, faulty power switch	Check power cable connection, reset circuit breaker, contact support if switch is faulty
No arc or weak arc	Poor ground connection, incorrect current setting, contaminated tungsten, gas flow issue	Ensure ground clamp is secure, adjust current, clean/replace tungsten, check gas supply and flow rate
Poor weld quality (porosity, contamination)	Insufficient shielding gas, contaminated material, incorrect gas flow, dirty consumables	Check gas cylinder/regulator, clean workpiece, adjust gas flow, replace torch consumables
Machine overheats and shuts down	Exceeding duty cycle, blocked ventilation, high ambient temperature	Allow machine to cool down, ensure clear ventilation, operate in a cooler environment
Foot switch not responding	Loose connection, faulty foot switch	Check foot switch cable connection, test with another foot switch if available, contact support

9. Technical Specifications

Specification	Detail
Manufacturer	ANDELI
Part Number	TIG-250 ACDC
Item Weight	37.3 pounds
Package Dimensions	21 x 19.2 x 12.5 inches
Item Model Number	TIG-250 ACDC
Style	TIG-250 ACDC
Batteries Included?	No
Batteries Required?	No
Date First Available	July 4, 2023

10. Warranty Information and Customer Support

ANDELI products are manufactured to high-quality standards. For information regarding warranty coverage, please refer to the warranty card included with your product or visit the official ANDELI website. If you encounter any issues or require technical assistance, please contact ANDELI customer support through their official channels. Provide your model number and purchase date for faster service.

For more information and support, visit the ANDELI Store on Amazon.

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Example: How do I reset this device or fix this error?

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