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› ANDELI TIG-250PL-1 AC DC Pulse Cold TIG Welding Machine User Manual

ANDELI TIG-250PL-1

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Model: TIG-250PL-1

1. INTRODUCTION

This manual provides essential information for the safe and effective operation, setup, and maintenance of your ANDELI TIG-250PL-1 AC DC Pulse Cold TIG Welding Machine. Please read this manual thoroughly before operating the equipment to ensure proper usage and to prevent injury or damage.

The ANDELI TIG-250PL-1 is a versatile welding machine capable of Pulse TIG, HF TIG, Cold Pulse, and Cold Welding functions. It supports both AC and DC current, making it suitable for welding various materials including aluminum, stainless steel, and mild steel.



Figure 1: ANDELI TIG-250PL-1 AC DC Pulse Cold TIG Welding Machine (Front View)

This image displays the front view of the ANDELI TIG-250PL-1 welding machine, highlighting its control panel, output terminals, and overall compact design.

2. SAFETY INFORMATION

Always prioritize safety when operating welding equipment. Failure to follow safety precautions can result in serious injury or death.

- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade lenses to protect against arc flash and sparks.
- **Body Protection:** Wear flame-resistant clothing, gloves, and safety shoes.
- **Ventilation:** Ensure adequate ventilation to remove welding fumes. Work in a well-ventilated area or use a fume extractor.

- **Electrical Safety:** Ensure the machine is properly grounded. Do not operate in wet conditions. 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.
- **Gas Cylinders:** Secure gas cylinders to prevent tipping. Use appropriate regulators and hoses.
- **Children and Bystanders:** Keep unauthorized personnel, especially children, away from the welding area.

3. PRODUCT OVERVIEW AND FEATURES

The ANDELI TIG-250PL-1 is designed for precision welding with advanced features:

- **Dual Voltage Input:** Operates on both 110V and 220V power supplies.
- **AC/DC TIG Welding:** Provides flexibility for welding aluminum (AC) and stainless steel/carbon steel (DC).
- **Pulse TIG:** Offers enhanced control over heat input, reducing distortion and improving weld quality.
- **Cold Welding Mode:** Minimizes heat deformation and discoloration, resulting in clean, silver-white stainless steel weld beads. Requires pure argon gas.
- **HF Arc Starting:** High-frequency arc ignition for non-contact starts, reducing tungsten contamination.

Cold Welding Machine TIG-250PL

BARE



Feature

110V/220V

AC / DC

No distortion, No discoloration

Weight : 12.6KG

Dimension : 500×238×390MM



Ground Clamp 2M

Figure 2: Product Features and Dimensions

This image illustrates key features such as 110V/220V AC/DC capability, minimal distortion and discoloration, and provides the machine's weight (12.6 KG) and dimensions (500x238x390 MM).

4. SETUP

4.1 Unpacking and Inspection

1. Carefully remove the welding machine and all accessories from the packaging.
2. Inspect the machine for any signs of shipping damage. If damage is found, contact your supplier immediately.
3. Verify that all components listed in the packing list are present.

4.2 Power Connection

The TIG-250PL-1 supports dual voltage input (110V/220V). Ensure the power source matches the machine's requirements and that the circuit breaker can handle the rated input current.

- Connect the power cable to a suitable grounded electrical outlet.

- The machine automatically detects the input voltage.

4.3 Gas Connection

For TIG welding, especially cold welding, a shielding gas (pure argon) is required.

1. Connect the gas tube from the regulator on your argon cylinder to the Gas Tube Connector on the rear panel of the welding machine.
2. Ensure all connections are tight to prevent gas leaks.
3. Set the gas flow rate according to your welding application (typically 10-15 liters/minute).

4.4 Ground Clamp and Torch Connection

1. Connect the ground clamp cable to the appropriate terminal on the front panel (usually the negative pole for DC TIG, or as indicated for AC TIG). Securely attach the ground clamp to the workpiece.
2. Connect the TIG torch cable to the Gas-power Connector on the front panel.
3. Ensure the torch's control cable (if applicable) is connected to the Remote Control port.



Figure 3: Rear Panel Connections

This image shows the rear panel of the welding machine, indicating the location of the ON/OFF Switch, Power Cable, and Gas Tube Connector.



Figure 4: Front Panel Connections

This image details the front panel, highlighting the Screen, Function buttons, Adjustment Knob, Parameter buttons, Remote Control port, Negative Pole, Positive Pole, Gas-power Connector, and Two-core Connector.

5. OPERATING INSTRUCTIONS

5.1 Control Panel Overview

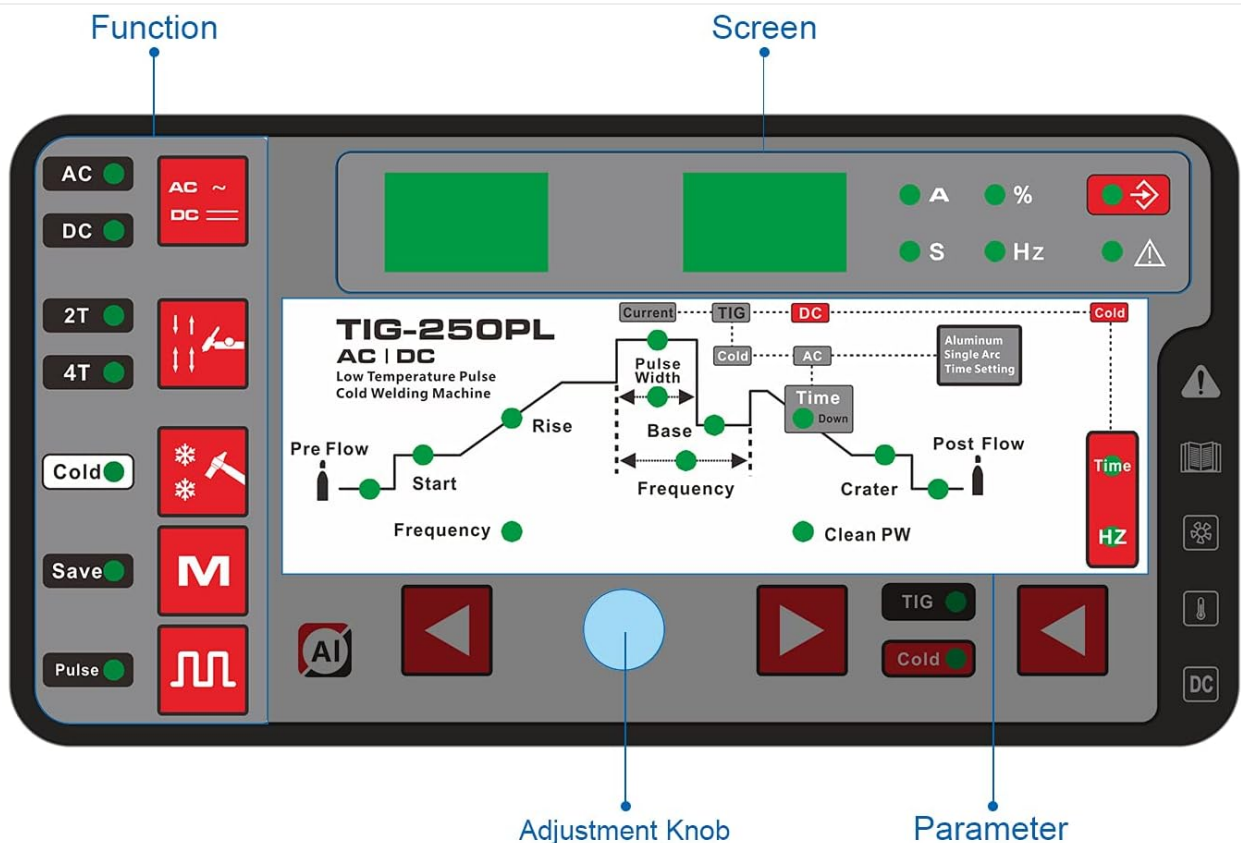


Figure 5: Control Panel and Welding Examples

This diagram illustrates the main components of the control panel: Function buttons (AC, DC, 2T, 4T, Cold, Save, Pulse), Screen displays, Adjustment Knob, and Parameter buttons. It also shows examples of Hot, Cold, Aluminum, and Pulse welding beads.

The control panel allows you to select welding modes and adjust parameters. Refer to Figure 5 for button locations.

- **Function Buttons:** Select AC/DC, 2T/4T, Cold welding, Pulse welding, and Save settings.
- **Screen:** Displays current welding parameters.
- **Adjustment Knob:** Used to modify selected parameters.
- **Parameter Buttons:** Select specific parameters for adjustment (e.g., Pre-Flow, Start Current, Welding Current, Frequency, Pulse Width, Base Current, Crater, Post-Flow, Clean PW).

5.2 Welding Modes and Parameter Settings

1. **Power On:** Flip the ON/OFF switch on the rear panel.
2. **Select Welding Process:** Press the appropriate function button for AC TIG, DC TIG, Pulse TIG, or Cold Welding.
3. **2T/4T Mode:** Select 2T for standard trigger operation (press and hold for arc, release to stop) or 4T for continuous welding (press to start, press again to stop).
4. **Adjust Parameters:** Use the parameter buttons to cycle through adjustable settings. Turn the Adjustment Knob to

change values. Common parameters include:

- **Pre-Gas Time:** Duration of gas flow before arc ignition.
 - **Start Current (A):** Current at the beginning of the weld.
 - **Welding Current (A):** Main welding current.
 - **Crater Arc Current (A):** Current at the end of the weld to fill the crater.
 - **Downslope Time (S):** Time for current to decrease from welding to crater current.
 - **Post-Gas Time (S):** Duration of gas flow after arc extinction to protect the weld pool.
 - **Frequency (Hz):** AC frequency for aluminum welding.
 - **Pulse Width (%):** Percentage of time at peak current during pulse welding.
 - **Clean PW (%):** AC balance for cleaning action on aluminum.
5. **Cold Welding:** When selecting Cold mode, ensure pure argon gas is used. This mode is designed to minimize heat input, reducing material deformation and discoloration. The resulting stainless steel weld bead will typically be silver-white.
6. **Saving Settings:** Press the 'Save' button to store frequently used parameter sets.

5.3 Real Welding Effects



Figure 6: Real Welding Effects

This image displays various welding results on different materials and modes: AC Cold on 0.5mm Aluminum Plate, AC Pulse on 3mm Aluminum Plate, AC Hot TIG on 3mm Aluminum Plate, DC Cold on 0.5mm Stainless Steel, DC Pulse on 3mm Stainless Steel, and DC Hot TIG on 1mm Square Tube. These examples illustrate the distinct characteristics of each welding process.

6. MAINTENANCE

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 blow out dust from the cooling vents. Ensure the machine is unplugged before cleaning.
- **Torch and Consumables:** Inspect the TIG torch, collets, collet bodies, and tungsten electrodes regularly. Replace worn or damaged parts. Sharpen tungsten electrodes as needed.

- **Cables and Connections:** Check all welding cables, power cords, and gas hoses for cuts, abrasions, or loose connections. Replace damaged cables immediately.
- **Gas System:** Verify that gas lines are free of leaks and that the regulator is functioning correctly.

7. TROUBLESHOOTING

This section addresses common issues you might encounter. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution
No arc ignition	No power, poor ground connection, gas flow issue, incorrect torch setup.	Check power supply, ensure ground clamp is secure, verify gas flow, inspect torch consumables.
Poor weld quality (porosity, discoloration)	Insufficient shielding gas, contaminated workpiece, incorrect parameters, dirty tungsten.	Increase gas flow, clean workpiece, adjust welding parameters, replace/sharpen tungsten.
Machine overheats and shuts down	Exceeding duty cycle, blocked ventilation, high ambient temperature.	Allow machine to cool, ensure clear ventilation, reduce welding time or current.
Unstable arc	Incorrect tungsten type/size, contaminated tungsten, improper gas flow, poor ground.	Use correct tungsten, clean/sharpen tungsten, check gas flow, secure ground.

8. SPECIFICATIONS

Technical specifications for the ANDELI TIG-250PL-1 AC DC Pulse Cold TIG Welding Machine:

TIG-250PL ACDC		
Input power	110 / 220V	
Frequency	50 / 60 Hz	
Rated input current (A)	26	
Rated input power (KW)	5.7	
Power factor	0.76	
Max no-load voltage(V)	64	
Adjustment range of start current (A)	AC	DC
	10~welding current	5~welding current
Adjustment range of welding current (A)	10~200	5~200
Adjustment range of crater arc current (A)	10~200	5~200
Adjustment range of downslope time (S)	0~5	
Pre-gas time (S)	0.1~1	
Adjustment range of post-gas time (S)	0.1~10	
Clearance effect (%)	15~50	
Efficiency duty cycle	AC	DC
	25% 200A	25% 200A
	60% 129A	60% 129A
	100% 100A	100% 100A
Protection class	IP21S	
Insulation class	H	
Dimensions of machine(mm)	500×238×390	
Weight(Kg)	12.6	

Figure 7: Technical Specifications

This image presents a detailed table of technical specifications for the TIG-250PL-1 ACDC model, including input power, frequency, rated input current, power factor, max no-load voltage, adjustment ranges for various currents and times, clearance effect, efficiency duty cycle, protection class, insulation class, dimensions, and weight.

Parameter	Value
Input Power	110V / 220V
Frequency	50 / 60 Hz
Rated Input Current (A)	26
Rated Input Power (kW)	5.7
Power Factor	0.76
Max No-Load Voltage (V)	64
Adjustment Range of Start Current (A)	AC: 10~200, DC: 5~200
Adjustment Range of Welding Current (A)	AC: 10~200, DC: 5~200
Adjustment Range of Crater Arc Current (A)	AC: 10~200, DC: 5~200
Adjustment Range of Downslope Time (S)	0~5
Pre-Gas Time (S)	0.1~1
Post-Gas Time (S)	0.1~10

Parameter	Value
Clearance Effect (%)	15~50
Efficiency Duty Cycle	25% 200A, 60% 129A, 100% 100A
Protection Class	IP21S
Insulation Class	H
Dimensions (mm)	500 x 238 x 390
Weight (kg)	12.6

9. WARRANTY AND SUPPORT

The ANDELI TIG-250PL-1 welding machine typically comes with a manufacturer's warranty. Please refer to your purchase documentation for specific warranty terms and duration. For technical support, service, or warranty claims, please contact the ANDELI Official Store or your authorized dealer. For further assistance, you may visit the [ANDELI Store on Amazon](#).

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