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ANDELI TIG-205 PRO

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Instruction Manual

Model: TIG-205 PRO | Brand: ANDELI

1. PRODUCT OVERVIEW

The ANDELI TIG-205 PRO is a versatile 10-in-1 multiprocess welding machine designed for a wide range of welding applications. It supports AC+DC TIG, Stick (MMA), DC TIG, DC PULSE TIG, AC TIG, AC PULSE TIG, Lift TIG, AC Cold welding, DC Cold welding, and Spot Welding. This inverter welder is suitable for precision welding on materials such as aluminum, carbon steel, stainless steel, and titanium, making it ideal for auto repairs, fabrication, and DIY projects.



Figure 1.1: ANDELI TIG-205 PRO Welder and Welding Helmet.

Equipped with a 4.3-inch large LCD digital display, the TIG-205 PRO offers an easily accessible menu for precise control and parameter adjustment. Its advanced IGBT inverter technology ensures high efficiency and reliability, providing an increased duty cycle and excellent welding effects for both beginners and professionals.

2. SAFETY PRECAUTIONS

Welding operations involve significant risks. Always adhere to safety guidelines to prevent injury or damage. Read and understand all instructions before operating the machine.

- **Electric Shock:** Welding current can cause fatal electric shock. Ensure proper grounding. Do not touch live electrical parts. Wear dry, insulated gloves and protective clothing.
- **Fumes and Gases:** Welding fumes and gases can be hazardous to health. Work in a well-ventilated area. Use a fume extractor if necessary.
- **Arc Rays:** Arc rays can burn eyes and skin. Wear a welding helmet with appropriate shade filter and protective clothing.
- **Fire and Explosion:** Welding sparks and hot metal can cause fire or explosions. Keep flammable materials away from the welding area. Have a fire extinguisher readily available.

- **Burns:** Hot metal and equipment can cause severe burns. Allow equipment to cool before handling.
- **Noise:** Excessive noise can damage hearing. Wear ear protection if noise levels are high.
- **Cylinders:** Gas cylinders can explode if damaged. Secure cylinders properly.

3. PRODUCT FEATURES

The ANDELI TIG-205 PRO offers a comprehensive set of features for advanced welding performance:

- **10-in-1 Multiprocess Welder:** Combines AC+DC TIG, Stick (MMA), DC TIG, DC PULSE TIG, AC TIG, AC PULSE TIG, Lift TIG, AC Cold welding, DC Cold welding, and Spot Welding.
- **4.3-inch Large LCD Digital Display:** Provides an intuitive interface for selecting welding modes, 2T/4T settings, and workpiece thickness, clearly displaying all parameters for accurate control.
- **Triple Hands-Free Cold Welding Control:** Features a dedicated cold welding mode that minimizes deformation and discoloration, resulting in silver-white welds on aluminum and stainless steel. Requires pure argon gas.
- **Advanced IGBT Inverter Technology:** Utilizes multiple IGBT inverters for high efficiency, reliability, and increased duty cycle, ensuring excellent welding effects.
- **Multiple AC Waveforms:** Includes PULSE, SQUARE, SINE, and TRAPEZOIDAL waveforms to optimize welding for different materials and applications.
- **Memory Function:** Allows saving up to 10 presets for consistent welding results across different jobs.

Professional Parameter Settings

It supports the setting of various parameters, such as frequency and duty cycle, allowing you to better configure the device to meet your welding needs.



Powerful Memory Function

Allows you to save up to 10 presets, ensuring welding consistency



Figure 3.1: Professional Parameter Settings on the LCD Display.

10-IN 1 AC DC Aluminum TIG Welder

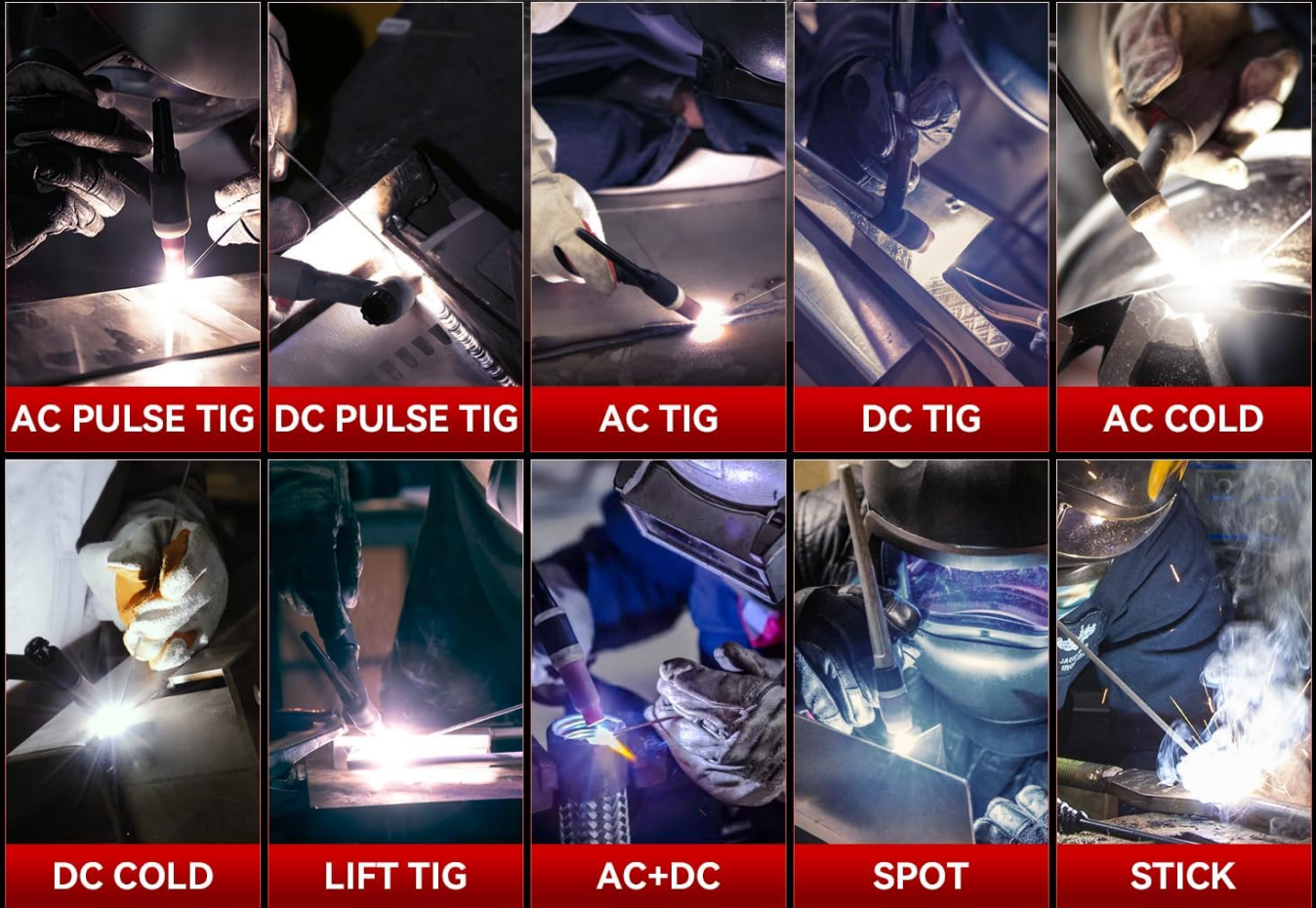


Figure 3.2: Various AC Waveforms and 2T/4T Settings.

4. SETUP GUIDE

4.1 Unpacking and Inspection

1. Carefully remove the welder and all accessories from the packaging.
2. Inspect all components for any signs of shipping damage. Contact your supplier immediately if any damage is found.
3. Verify that all items listed in the packing list are present.

4.2 Power Connection

The TIG-205 PRO supports dual voltage input (110V/220V) with automatic detection.

- Ensure the power source matches the machine's requirements.
- Connect the power cord to a suitable grounded electrical outlet.

- Use appropriate circuit breakers and fuses as per local electrical codes.

4.3 Gas Connection (for TIG/Cold Welding)

For TIG and Cold Welding, a shielding gas supply is required. Pure argon is recommended for optimal results, especially for cold welding.

1. Connect the gas hose from the welder to your argon gas cylinder's regulator.
2. Ensure all connections are tight to prevent gas leaks.
3. Set the gas flow rate according to your welding application (typically 10-15 L/min for TIG).

4.4 Torch, Ground Clamp, and Foot Pedal Connection



Figure 4.1: Welder with Accessories.

1. Connect the TIG torch cable to the appropriate connector on the front panel of the welder. Ensure it is securely tightened.
2. Connect the ground clamp cable to the designated ground terminal on the welder. Attach the ground clamp firmly to the workpiece.
3. If using a foot pedal for current control, connect it to the foot pedal port on the welder.

5. OPERATING INSTRUCTIONS

5.1 Control Panel Overview

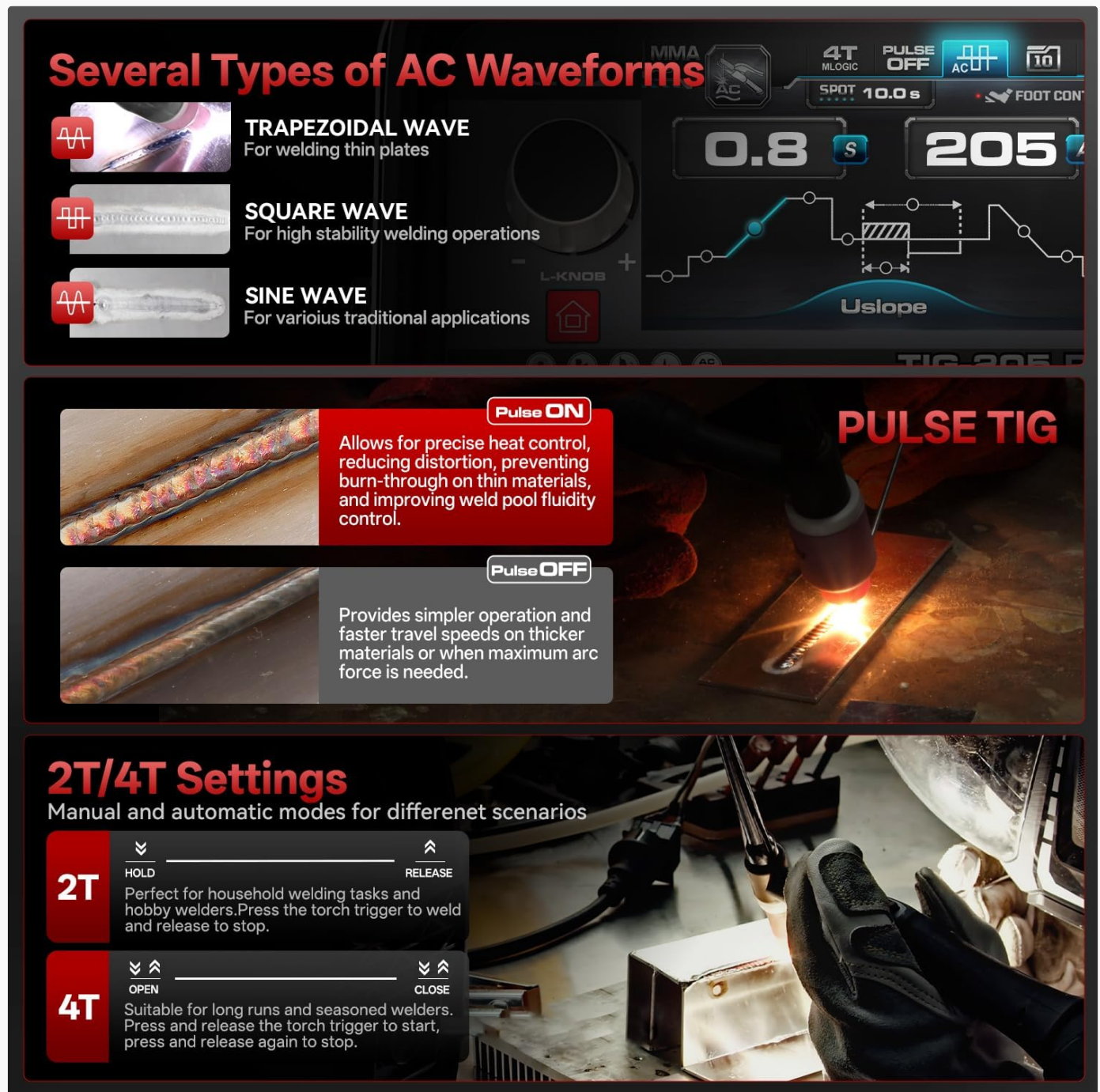


Figure 5.1: 4.3-inch Large LCD Display.

The 4.3-inch LCD display provides comprehensive control and monitoring. Use the rotary knobs and buttons to navigate the menu and adjust parameters.

- **Mode Selection:** Rotate and press the main knob to select welding modes (TIG AC/DC, MMA, Cold, Spot).
- **Parameter Adjustment:** Adjust welding current, pulse frequency, AC balance, pre/post gas flow, and other parameters as displayed on the screen.
- **2T/4T Mode:** Select between 2T (trigger held for arc) and 4T (trigger press to start, press again to stop) for torch control.
- **Memory Function (JOB):** Save and recall up to 10 welding parameter presets for quick setup.

5.2 Welding Modes and Waveforms

The TIG-205 PRO offers various welding modes and AC waveforms to suit different materials and welding requirements:

- **AC TIG:** Ideal for aluminum and magnesium alloys. Allows for cleaning action and penetration control.
- **DC TIG:** Suitable for stainless steel, carbon steel, copper, and titanium. Provides deep penetration.
- **Pulse TIG:** Reduces heat input, minimizes material distortion, and improves weld pool fluidity. Excellent for thin materials.
- **Cold Welding:** A specialized mode for minimal heat input, reducing deformation and discoloration. Produces silver-white welds on aluminum and stainless steel. Requires pure argon.
- **MMA (Stick):** For general purpose stick welding with coated electrodes.
- **Spot Welding:** For precise, timed spot welds.

AC Waveforms:

- **SQUARE WAVE:** Provides a stable dynamic arc and forms a stable molten pool, suitable for high stability welding operations.
- **SINE WAVE:** Offers lower noise levels, suitable for various traditional applications.
- **TRAPEZOIDAL WAVE:** Characterized by low heat output, enabling rapid prototyping when welding thin plates.

5.3 Cold Welding Specifics

The cold welding function is designed for applications where minimal heat input and distortion are critical. It is particularly effective for aluminum and stainless steel, yielding clean, silver-white welds.

- **Gas Requirement:** Always use pure argon gas for cold welding.
- **Material Compatibility:** Applicable to aluminum, stainless steel, and molds.
- **Control:** The machine allows control via foot pedal or TIG torch, enabling hands-free operation for precise focus on the weld.

TIG Aluminum Welding and Cold Welding



MATERIAL:
STAINLESS STEEL 1 MM
FUNCTION:
COLD WELDING TIG DC

PRE - GAS PURGE: 0.2 S

WELDING TIME: 30 MS

WELDING FREQUENCY: 0 HZ

WELDING CURRENT: 100 A

POST - GAS PURGE: 2.5 S



MATERIAL:
ALUMINUM 5 MM
FUNCTION: TIG AC

PRE - GAS PURGE: 0.1 S

INITIAL CURRENT: 160 A

WELDING CURRENT: 140 A

AC BALANCE: 30%

FINAL CURRENT: 15 A

CURRENT RAMP - UP: 0.1 S

AC FREQUENCY: 120 HZ

CURRENT RAMP - DOWN: 0.1 S

POST - GAS PURGE: 2.5 S

Figure 5.2: Cold Welding Results on Stainless Steel and Aluminum.

6. MAINTENANCE AND CARE

Regular maintenance ensures the longevity and optimal performance of your ANDELI TIG-205 PRO welder.

- **Cleaning:** Regularly clean the machine's exterior with a dry, soft cloth. Use compressed air to blow out dust from inside the machine through the vents, ensuring the power is disconnected.
- **Cable and Connection Inspection:** Periodically inspect all cables, connections, and the TIG torch for wear, damage, or loose connections. Replace damaged parts immediately.
- **Electrode and Nozzle:** Inspect and replace the tungsten electrode and ceramic nozzle on the TIG torch as needed to maintain weld quality.
- **Gas System:** Check gas hoses and fittings for leaks. Ensure the gas regulator is functioning correctly.
- **Storage:** Store the welder in a clean, dry environment, away from excessive dust, moisture, and corrosive substances.

7. TROUBLESHOOTING GUIDE

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No power/Machine does not turn on	Power cord unplugged; Circuit breaker tripped; Machine fault	Check power connection; Reset circuit breaker; Contact customer support
No arc/Arc unstable	Poor ground connection; Incorrect current setting; Contaminated tungsten; Gas flow issue	Ensure good ground contact; Adjust current; Clean/replace tungsten; Check gas supply/flow
Poor weld quality (porosity, discoloration)	Insufficient shielding gas; Contaminated workpiece; Incorrect parameters; Drafts in welding area	Increase gas flow; Clean workpiece; Adjust parameters; Shield welding area from drafts
Overheating/Thermal overload light on	Exceeded duty cycle; Blocked ventilation; High ambient temperature	Allow machine to cool down; Clear vents; Work in cooler environment
Gas not flowing	Cylinder valve closed; Regulator faulty; Hose kinked/leaking	Open cylinder valve; Check/replace regulator; Inspect hose for kinks/leaks

If you encounter issues not listed here or if the suggested solutions do not resolve the problem, please contact ANDELI customer support.

8. TECHNICAL SPECIFICATIONS

Key technical specifications for the ANDELI TIG-205 PRO welder:

Specification	Value
Model	TIG-205 PRO with MONERRC LED
Input Voltage	110V/220V Dual Voltage
Welding Current (Max)	205 Amp
Welding Processes	AC+DC TIG, Stick (MMA), DC TIG, DC PULSE TIG, AC TIG, AC PULSE TIG, Lift TIG, AC Cold welding, DC Cold welding, Spot Welding
Display	4.3-inch Large LCD Digital Display
Technology	IGBT Inverter
ASIN	B0FHKNZ4TP
Date First Available	December 10, 2024

9. WARRANTY AND CUSTOMER SUPPORT

ANDELI products are manufactured to high-quality standards and are backed by a manufacturer's warranty. Please refer to the warranty card included with your product or visit the official ANDELI website for detailed warranty terms and conditions.

For technical assistance, troubleshooting, or warranty claims, please contact ANDELI customer support through the following channels:

- **Online Support:** Visit the ANDELI official website for FAQs and support resources.
- **Email Support:** Refer to your product documentation for the specific support email address.
- **Phone Support:** Contact numbers may be available on the official website or product packaging.

When contacting support, please have your product model (TIG-205 PRO) and purchase information readily available.

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Question

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

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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