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ANDELI TIG-205 PRO

ANDELI TIG-205 PRO AC/DC Aluminum TIG Welder Instruction Manual

Model: TIG-205 PRO

1. Product Overview

The ANDELI TIG-205 PRO is a versatile 10-in-1 AC/DC multiprocess TIG welding machine designed for precision welding across various materials. 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 dual-voltage (110V/220V) inverter welder is suitable for welding aluminum, carbon steel, stainless steel, and titanium, making it ideal for automotive repairs, fabrication, and DIY projects.

The machine features a large 4.3-inch LCD digital display for easy navigation and precise parameter adjustments, including pulse frequency and duty cycle. It also offers a powerful memory function to save up to 10 job presets for consistent welding results.

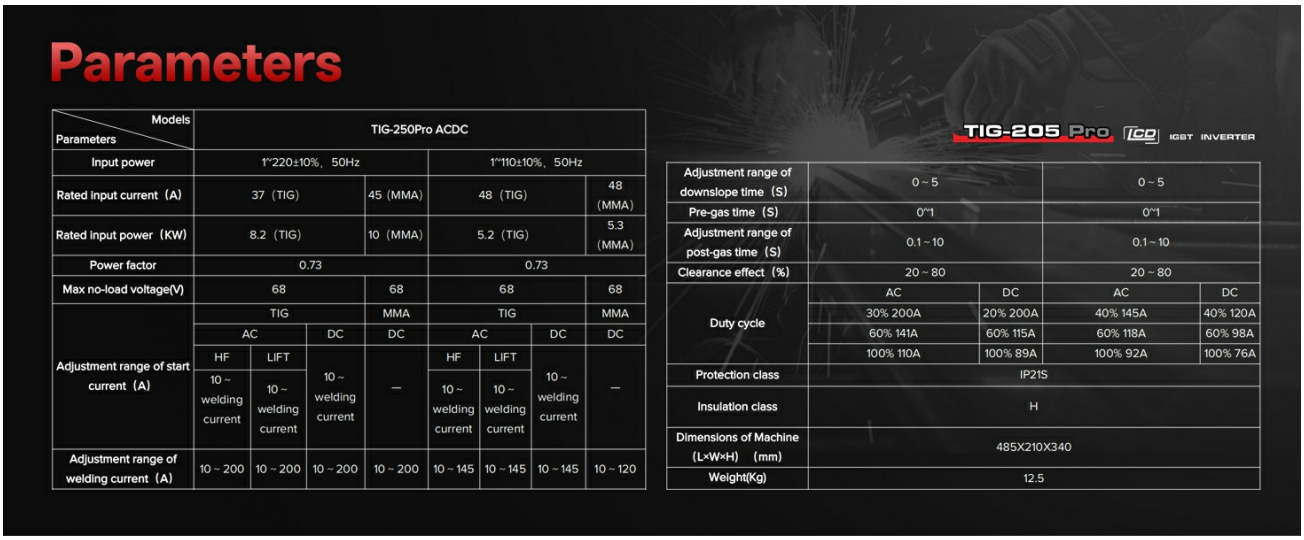


Figure 1.1: The ANDELI TIG-205 PRO AC/DC Welder with included accessories, showcasing its compact design and comprehensive kit.

2. Package Contents

Upon unboxing, please verify that all components listed below are present and in good condition:

- 1 x TIG-205 PRO ACDC Welding Machine (110V / 220V compatible)
- 1 x American Standard Plug
- 1 x Grounding Clamp (2m cable)
- 1 x Aluminum Torch WP-26D (4m cable)
- 1 x Cold Welding Torch WP-9
- 20 x Nozzles (various sizes)
- 20 x Collets (various sizes)
- 2 x House Clamps
- 20 x Tungsten Electrodes (various types)
- 2 x TIG Welding Foot Pedals (one 2-pin control pedal, one 5-pin variable pedal)



Models / Parameters	TIG-250Pro ACDC							
Input power	1~220±10%, 50Hz				1~110±10%, 50Hz			
Rated input current (A)	37 (TIG)			45 (MMA)	48 (TIG)			48 (MMA)
Rated input power (KW)	8.2 (TIG)			10 (MMA)	5.2 (TIG)			5.3 (MMA)
Power factor	0.73				0.73			
Max no-load voltage(V)	68			68	68			68
Adjustment range of start current (A)	TIG			MMA	TIG			MMA
	AC		DC	DC	AC		DC	DC
	HF	LIFT			HF	LIFT		
	10 ~ welding current	10 ~ welding current	10 ~ welding current	—	10 ~ welding current	10 ~ welding current	10 ~ welding current	—
Adjustment range of welding current (A)	10 ~ 200	10 ~ 200	10 ~ 200	10 ~ 200	10 ~ 145	10 ~ 145	10 ~ 145	10 ~ 120

Adjustment range of downslope time (S)	0 ~ 5		0 ~ 5	
Pre-gas time (S)	0^1		0^1	
Adjustment range of post-gas time (S)	0.1 ~ 10		0.1 ~ 10	
Clearance effect (%)	20 ~ 80		20 ~ 80	
Duty cycle	AC	DC	AC	DC
	30% 200A	20% 200A	40% 145A	40% 120A
	60% 141A	60% 115A	60% 118A	60% 98A
	100% 110A	100% 89A	100% 92A	100% 76A
Protection class	IP21S			
Insulation class	H			
Dimensions of Machine (L×W×H) (mm)	485X210X340			
Weight(Kg)	12.5			

Figure 2.1: Visual representation of all items included in the ANDELI TIG-205 PRO package, ensuring a complete setup for various welding tasks.

3. Setup Instructions

1. **Placement:** Place the welder on a stable, level surface in a well-ventilated area, away from flammable materials. Ensure adequate clearance around the machine for airflow.
2. **Power Connection:** Connect the power cable to a suitable 110V or 220V AC power outlet. The machine automatically detects the input voltage. Ensure the power source matches the machine's requirements.
3. **Ground Clamp Connection:** Attach the grounding clamp cable to the negative output receptacle on the front panel of the welder. Securely connect the ground clamp to the workpiece or welding table to ensure a proper electrical circuit.
4. **TIG Torch Connection:** Connect the WP-26D Aluminum Torch or WP-9 Cold Welding Torch to the positive output receptacle. Ensure the gas hose from the torch is connected to the gas inlet on the rear panel of the welder. Connect your argon gas supply to the gas inlet using a suitable regulator (not included).
5. **Foot Pedal Connection:** For hands-free control, connect the TIG Welding Foot Pedal to the designated 5-pin trigger receptacle on the front panel. Alternatively, a 2-pin control pedal can be used with its respective receptacle.
6. **Tungsten Electrode Installation:** Install the appropriate tungsten electrode into the TIG torch collet. Ensure the electrode is properly sharpened and extends the correct distance from the ceramic nozzle for your application.



Figure 3.1: Detailed view of the welder's front and rear panels, indicating connection points for power, ground, torches, and foot pedals.

4. Operating Instructions

4.1. LCD Digital Display and Navigation

The 4.3-inch LCD display provides an intuitive interface for selecting welding modes and adjusting parameters. Use the rotating and pressing buttons (L-KNOB and R-KNOB) to navigate through menus and modify settings.

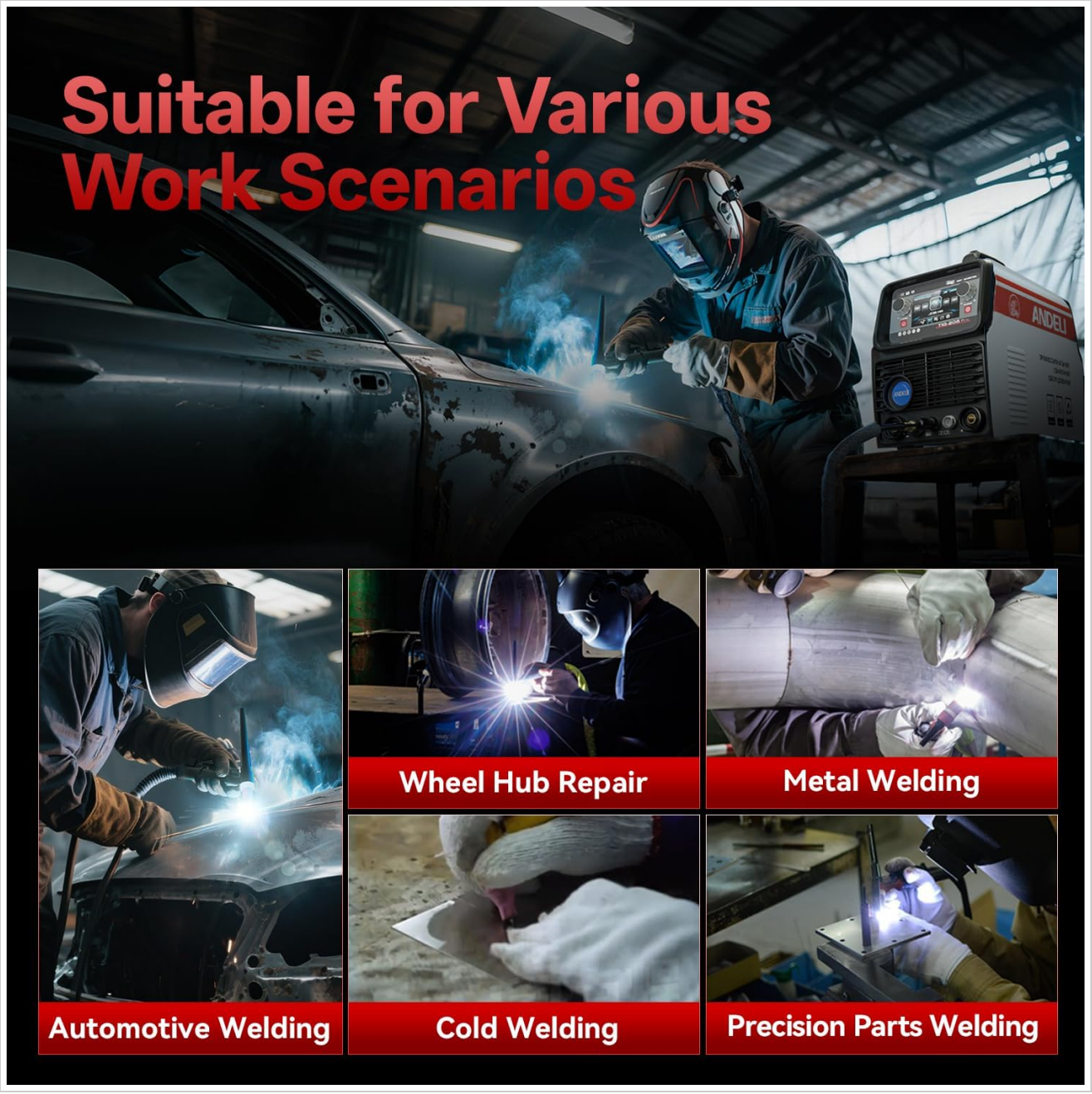


Figure 4.1: The large LCD display offers comprehensive information and easy parameter adjustment compared to smaller, traditional displays.



Figure 4.2: The LCD interface showing professional parameter settings, including frequency and duty cycle, for precise welding control.



Figure 4.3: Illustration of the triple hands-free welding control options: foot pedal, TIG torch trigger, and cold welding helmet control (helmet sold separately).

4.2. Welding Modes

The TIG-205 PRO offers 10 welding functions:

- **AC+DC TIG:** Combines AC and DC TIG capabilities.
- **Stick (MMA):** Manual Metal Arc welding.
- **DC TIG:** Direct Current TIG welding, suitable for stainless steel, carbon steel, and copper.
- **DC PULSE TIG:** DC TIG with pulsed current for reduced heat input and better control on thin materials.
- **AC TIG:** Alternating Current TIG welding, primarily for aluminum and magnesium.
- **AC PULSE TIG:** AC TIG with pulsed current for enhanced control on aluminum.
- **Lift TIG:** A simplified TIG start method without high-frequency arc initiation.
- **AC Cold Welding:** Specialized AC mode for minimal heat input, reducing deformation and discoloration on aluminum.
- **DC Cold Welding:** Specialized DC mode for minimal heat input, reducing deformation and discoloration on stainless steel.
- **Spot Welding:** For quick, precise spot welds.



Figure 4.4: Overview of the 10 distinct welding modes available on the ANDELI TIG-205 PRO, highlighting its versatility.

4.3. Waveform Selection (AC TIG)

For AC TIG welding, the machine offers different waveforms to optimize welding performance:

- **Trapezoidal Wave:** Ideal for welding thin plates, providing low heat output and rapid prototyping.
- **Square Wave:** Offers a stable dynamic arc, forming a stable molten pool, suitable for high stability welding operations.
- **Sine Wave:** Produces lower noise levels, enhancing the welding experience for traditional applications.



Figure 4.5: Illustration of various AC waveforms (Trapezoidal, Square, Sine) and their applications, along with explanations of 2T/4T trigger settings.

4.4. 2T/4T Settings

- **2T (Two-Touch):** Press and hold the torch trigger to weld; release to stop. Perfect for household welding tasks and hobby welders.
- **4T (Four-Touch):** Press and release the torch trigger to start welding; press and release again to stop. Suitable for long runs and seasoned welders, allowing for more comfortable operation.

4.5. Cold Welding

Cold welding mode minimizes heat input, significantly reducing deformation and discoloration of materials. For aluminum and stainless steel, welds in this mode appear silver-white. Pure argon gas is required for optimal results in cold welding.



Figure 4.6: Example parameter settings for cold welding stainless steel and TIG AC welding aluminum, demonstrating precise control for different materials.

5. Maintenance

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

- **Cleaning:** Regularly clean the exterior of the machine with a dry, soft cloth. Ensure cooling vents are free from dust and debris to prevent overheating.
- **Torch and Cable Inspection:** Inspect the TIG torch, cables, and connections for any signs of wear, damage, or loose connections before each use. Replace worn parts immediately.
- **Electrode and Nozzle Replacement:** Replace tungsten electrodes and ceramic nozzles as they wear out or become damaged to maintain weld quality.
- **Gas System Check:** Periodically check gas hoses and connections for leaks. Ensure your argon gas cylinder and regulator are functioning correctly.
- **Internal Cleaning (Professional):** For internal cleaning and inspection, it is recommended to consult a qualified service technician.



Figure 5.1: The internal components and safety features of the ANDELI welder, highlighting its robust design and quality control

processes.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your welder.

Problem	Possible Cause	Solution
No power to machine	Loose power connection, tripped circuit breaker, faulty power cable.	Check power plug and outlet. Reset circuit breaker. Inspect power cable for damage.
No arc initiation	Improper ground connection, incorrect torch setup, worn tungsten electrode, gas flow issue.	Ensure ground clamp is securely attached. Verify torch connections. Replace or re-sharpen tungsten. Check argon gas supply and flow rate.
Poor weld quality (porosity, inconsistent bead)	Insufficient shielding gas, contaminated workpiece, incorrect parameters, improper torch angle.	Increase gas flow. Clean workpiece thoroughly. Adjust current, pulse settings, or waveform. Maintain correct torch angle and travel speed.
Overheat indicator active	Exceeded duty cycle, blocked ventilation, high ambient temperature.	Allow machine to cool down. Clear any obstructions from vents. Operate in a cooler environment if possible.

7. Specifications

Feature	Detail
Model Number	TIG-205 PRO
Manufacturer	ANDELI
Power Source	AC (110V/220V Dual Voltage)
Item Weight	44.9 pounds
Package Dimensions	23 x 21 x 12 inches
Included Components	TIG-205 PRO ACDC 110V / 220V, American standard plug, Grounding clamp 2m, Aluminum torch WP-26D 4m, Cold welding torch WP-9, Nozzle * 20, Collet * 20, House clamp * 2, Tungsten electrodes * 20, TIG Welding Foot Pedal * 2.
Customer Reviews	4.8 out of 5 stars (10 ratings)
Date First Available	December 3, 2024



Figure 7.1: Comprehensive technical specifications for the ANDELI TIG-205 PRO, including input power, current ranges, and duty cycle.

8. Warranty and Support

ANDELI is committed to providing high-quality products and excellent customer service. While specific warranty details are not provided in this manual, ANDELI offers 7x24 after-sales support to assist with any inquiries or issues you may encounter.

For support, please visit the official ANDELI store on Amazon or contact their customer service through the platform where you purchased the product.

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