S7 TIG-250P

S7 TIG-250P Welder Instruction Manual

Model: TIG-250P

1. Introduction

Thank you for choosing the S7 TIG-250P 250A TIG Welder with Pulse. This versatile 110V/220V TIG/ARC Welding Machine features HF Start and 2T/4T modes, making it ideal for welding aluminum, stainless steel, and various metal fabrication tasks. This manual provides essential information for safe and effective operation, setup, and maintenance of your new welding machine.

The S7 TIG-250P is designed for both hobbyists and professionals, offering precise control for various welding applications. Its portable inverter design ensures flexibility for use in garages, workshops, and job sites.

Figure 1.1: The S7 TIG-250P 250A TIG Welder and its complete set of accessories.

2. Safety Information

Always prioritize safety when operating welding equipment. Failure to follow safety guidelines can result in serious injury or death. Read and understand all warnings and instructions before use.

- **Electrical Safety:** Ensure proper grounding. Do not operate in wet conditions. Always use appropriate voltage (110V or 220V) as indicated.
- **Fume Hazards:** Welding fumes can be hazardous. Work in a well-ventilated area or use a fume extractor.
- **Arc Rays:** Arc rays can burn eyes and skin. Always wear a welding helmet with appropriate shade, protective clothing, and gloves.
- **Fire and Explosion:** Keep flammable materials away from the welding area. Ensure a fire extinguisher is readily available.
- **Automatic Protection:** The TIG-250P features automatic protection functions for over-current, over-voltage, and over-heating. If the machine shuts down, allow it to cool before resuming operation.
- **Electromagnetic Fields (EMF):** Welding current creates electromagnetic fields. Consult a physician if you have a pacemaker or other medical implant.

Figure 2.1: Overview of the S7 TIG-250P's built-in safety features, including protection against overheating, overload, and electrostatic discharge, along with its IP21 protection standard.

3. Package Contents

Carefully unpack your S7 TIG-250P welder and verify that all items listed below are present and undamaged. If any items are missing or damaged, contact customer support immediately.

- S7 TIG-250P Welder Unit
- 13.2ft/4m WP-17 TIG Torch
- TIG Torch Consumables (collets, collet bodies, ceramic nozzles)
- 220V to 110V Adapter
- 6ft/2m Ground Clamp
- 6ft/2m Electrode Holder

Figure 3.1: Visual representation of the S7 TIG-250P welder and its standard accessories, including the TIG torch, ground clamp, electrode holder, and power adapter.

4. Setup

Follow these steps to set up your S7 TIG-250P welder for operation.

4.1 Connecting the Cables and Gas

1. **Power Connection:** Connect the power cable to a suitable 110V or 220V power outlet. Use the provided adapter if necessary. The machine automatically adapts to the input voltage.
2. **Ground Clamp:** Connect the ground clamp cable to the appropriate output terminal on the front panel. For DC TIG welding (steel), connect to the negative terminal (-). For AC TIG welding (aluminum), connect to the positive terminal (+). Secure the ground clamp to the workpiece.
3. **TIG Torch:** Connect the TIG torch cable to the corresponding terminal on the front panel. Ensure a secure connection.
4. **Gas Connection:** Connect your inert gas supply (e.g., Argon) to the gas inlet on the rear of the machine. Ensure the gas hose is securely attached and leak-free.
5. **Electrode Holder (for ARC/Stick Welding):** If performing ARC welding, connect the electrode holder cable to the appropriate terminal.

Figure 4.1: Detailed view of the S7 TIG-250P's front and rear panels, highlighting connection points and controls for proper setup.

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Video 4.1: A brief overview demonstrating the connection of cables and components to the S7 TIG-250P welding machine.

5. Operating Instructions

The S7 TIG-250P offers intuitive controls for various welding modes. Familiarize yourself with the control panel before beginning operation.

5.1 Control Panel Overview

The front panel features a digital display, mode selection buttons, and an amperage adjustment knob. Indicators show active welding mode (TIG/ARC, DC/AC) and pulse settings.

5.2 Welding Modes and Settings

- **TIG Welding:** Select TIG mode. For aluminum, use AC (Alternating Current) and ensure the torch is connected to the positive terminal (DCEP). For stainless/carbon steel, use DC (Direct Current) and connect the torch to the negative terminal (DCEN).
- **ARC/Stick Welding:** Select ARC mode for stick welding.
- **Pulse Function:** The pulse function allows for precise heat input control, ideal for thinner materials and improved weld bead appearance. Adjust pulse frequency, base current, and pulse width as needed.
- **2T/4T Modes:**
  - **2T (Two-Touch):** Press and hold the torch trigger to start the arc; release to stop. Suitable for short welds.
  - **4T (Four-Touch):** Press and release the trigger to start the arc; press and release again to stop. Provides flexible, finger-free control for longer welding jobs.
- **HF Start:** High-frequency non-touch arc starting ensures clean arc initiation without contaminating the workpiece.

5.3 Recommended Settings (TIG Welding)

The following table provides general guidelines for TIG welding settings. Adjustments may be necessary based on material type, thickness, and desired weld characteristics. Always use green tungsten for welding aluminum.

Welding Thickness	Welding Tungsten	Current Setting (A)	Argon Rate (L/min)
1mm (0.04 inch)	1.6mm (1/16")	25-30	8 L
2mm (0.08 inch)	2.4mm (3/32")	35-60	10 L
3-4mm (0.12-0.16 inch)	3.2mm (1/8")	65-100	12 L

Figure 5.1: The S7 TIG-250P is suitable for welding a wide range of materials, including aluminum, various steels, iron, and copper.

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Video 5.1: Demonstration of the S7 TIG-250P welder in operation, showcasing its performance on various materials.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your S7 TIG-250P welder. Always disconnect the power before performing any maintenance.

- **Cleaning:** Periodically clean the internal components using compressed air to remove dust and debris, especially from the cooling fan and vents.
- **Cable Inspection:** Inspect all cables, connections, and the TIG torch for wear, damage, or loose connections before each use. Replace damaged components immediately.
- **Consumables:** Regularly check and replace TIG torch consumables (tungsten, collets, collet bodies, ceramic nozzles) as they wear out to maintain weld quality.
- **Storage:** Store the welder in a clean, dry environment, protected from dust and moisture.

7. Troubleshooting

If you encounter issues with your S7 TIG-250P welder, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
No Power	Power switch off, loose power cable, tripped circuit breaker.	Ensure power switch is ON. Check power cable connection. Reset circuit breaker.
No Arc / Weak Arc	Improper ground connection, incorrect amperage setting, worn tungsten/consumables, no gas flow (TIG).	Check ground clamp connection to workpiece. Adjust amperage. Replace worn consumables. Verify gas supply and flow rate.
Overheat Indicator On	Prolonged use, insufficient cooling.	Allow the machine to cool down. Ensure cooling vents are clear and fan is operating. Reduce duty cycle.
Poor Weld Quality	Incorrect settings, contaminated material, improper technique, wrong gas type/flow.	Adjust amperage, pulse, and 2T/4T settings. Clean workpiece thoroughly. Practice welding technique. Verify correct gas and flow.

If the issue persists after attempting these steps, contact S7 customer support for further assistance.

8. Specifications

Key technical specifications for the S7 TIG-250P welder:

- **Model:** TIG-250P
- **Input Voltage:** 110V/220V (Automatic Adaptation)
- **Welding Current:** Up to 250A
- **Welding Modes:** TIG (DC/AC with Pulse), ARC (Stick)
- **Arc Starting:** High-Frequency (HF) Non-Touch
- **Control Modes:** 2T/4T
- **Protection Standard:** IP21
- **Item Weight:** Approximately 17.96 pounds
- **Package Dimensions:** Approximately 17.5 x 13.5 x 11 inches
- **Country of Origin:** China

Figure 8.1: Dimensions and power input details for the S7 TIG-250P welder.

9. Warranty and Support

For warranty information, product support, or to purchase replacement parts and accessories, please contact S7 customer service. Refer to your purchase documentation for specific warranty terms and contact details.

You can also visit the official S7 store for more information and product offerings:S7 Official Store.