

Weller WES51

Weller WES51 Analog Soldering Station User Manual

Model: WES51

1. INTRODUCTION

The Weller WES51 Analog Soldering Station is designed for a variety of soldering applications, including industrial manufacturing, rework, and repairs. This station features precise temperature control, rapid heat-up, and recovery times, ensuring efficient and reliable soldering performance. It is equipped with safety features such as temperature lockout and automatic shut-off to protect components and conserve energy.

2. SAFETY INFORMATION

Always observe the following safety precautions when operating the Weller WES51 Soldering Station:

- **Electrical Safety:** Ensure the station is connected to a properly grounded 120V AC power outlet. Do not operate with wet hands or in damp conditions.
- **Heat Hazard:** The soldering iron tip reaches high temperatures (350°F to 850°F / 177°C to 454°C). Avoid direct contact with the tip and allow it to cool completely before handling or storing. Always place the iron in its stand when not in use.
- **Fume Inhalation:** Soldering produces fumes. Work in a well-ventilated area or use a fume extractor to avoid inhaling harmful fumes.
- **Eye Protection:** Always wear safety glasses to protect your eyes from solder splashes or flying debris.
- **ESD Protection:** The WES51 is ESD safe. When working with static-sensitive components, ensure your workstation is properly grounded and use appropriate ESD precautions.
- **Flammable Materials:** Keep flammable materials away from the soldering area.
- **Maintenance:** Disconnect the power cord before performing any maintenance or changing tips.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- WES51PU Power Unit
- PES51 Soldering Pencil
- PH50 Soldering Pencil Stand

- Sponge



Figure 3.1: The Weller WES51 Analog Soldering Station, including the power unit, soldering pencil, and stand.



Figure 3.2: The PES51 Soldering Pencil, featuring a comfortable foam grip and durable construction.



Figure 3.3: The PH50 Soldering Pencil Stand, designed to safely hold the soldering iron and includes a sponge for tip cleaning.

4. SETUP INSTRUCTIONS

1. **Unpack Components:** Carefully remove all components from the packaging.
2. **Position the Station:** Place the WES51PU Power Unit on a stable, heat-resistant surface in a well-ventilated area.
3. **Assemble the Stand:** Position the PH50 Soldering Pencil Stand near the power unit. Insert the sponge into the designated tray in the stand and dampen it with distilled water.
4. **Connect the Soldering Pencil:** Plug the PES51 Soldering Pencil into the receptacle on the front of the WES51PU Power Unit. Ensure a secure connection.
5. **Power Connection:** Plug the power cord of the WES51PU Power Unit into a grounded 120V AC electrical outlet.

5. OPERATING INSTRUCTIONS

1. **Power On:** Turn on the power unit using the main power switch. The LED indicator will illuminate.
2. **Set Temperature:** Use the rotary dial on the power unit to set the desired temperature. The temperature is adjustable from 350°F to 850°F (177°C to 454°C). The unit will quickly heat to the set temperature.
3. **Temperature Lockout:** The station features a wireless temperature lockout function. This prevents the operator from setting the temperature above a pre-defined maximum, protecting sensitive components. Refer to the full product manual for details on setting or overriding this feature.
4. **Tinning the Tip:** Before first use and periodically during operation, tin the soldering tip by applying a small amount of solder to the heated tip. This helps prevent oxidation and ensures efficient heat transfer.
5. **Soldering:** Place the soldering iron tip on the joint to be soldered, ensuring good contact with both the component lead and the PCB pad. Apply solder to the joint, not directly to the iron tip. Allow the solder to flow and form a shiny, smooth connection.
6. **Cleaning the Tip:** Regularly wipe the soldering tip on the damp sponge in the PH50 stand to remove excess solder and flux residue. This maintains tip cleanliness and performance.
7. **Automatic Shut-off:** The station automatically powers down the soldering pencil after 99 minutes of inactivity. This feature conserves energy and extends the life of the soldering tip.
8. **Power Off:** When finished, turn off the power unit and allow the soldering iron to cool completely in its stand before storing.

6. MAINTENANCE

- **Tip Cleaning:** Always keep the soldering tip clean by wiping it on a damp sponge. Replace tips when they become pitted or excessively oxidized and cannot be tinned. The PES51 Soldering Pencil is compatible with Weller ET series tips.
- **Sponge Maintenance:** Keep the sponge damp during operation. Replace the sponge when it becomes worn or heavily soiled.
- **General Cleaning:** Periodically wipe the power unit and stand with a damp cloth. Do not use abrasive cleaners or solvents. Ensure the unit is unplugged before cleaning.

- **Iron Receptacle:** The power unit features an improved iron plug and receptacle for easier iron changes. Ensure the connection remains clean and free of debris.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Soldering iron not heating	No power to unit	Check power cord and outlet.
	Loose connection of soldering pencil	Ensure soldering pencil is securely plugged into the power unit.
	Faulty heating element/tip	Replace the soldering tip or pencil if necessary.
Poor solder joints	Tip not clean or tinned	Clean and re-tin the soldering tip.
	Incorrect temperature setting	Adjust temperature to appropriate level for solder and components.
	Old or contaminated solder	Use fresh, high-quality solder.
Temperature fluctuates	Loose tip or heating element	Ensure tip is securely seated.
	Sensor issue	Contact customer support if problem persists.

8. SPECIFICATIONS

Model Number	WES51
Input Voltage	120 Volts AC
Wattage	50 Watts
Temperature Range	350°F - 850°F (177°C - 454°C)
Temperature Accuracy	+/- 9°F
Temperature Stability	200°F
Display Type	Analog
Included Components	Power Unit, Soldering Pencil (PES51), Stand (PH50), Sponge
Dimensions (L x W x H)	11.42 x 8.82 x 4.25 inches
Item Weight	4 pounds
Safety Certifications	UL/CUL Listed, ESD Safe

9. WARRANTY AND SUPPORT

The Weller WES51 Soldering Station is backed by a **one-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use.

For technical support, warranty claims, or to purchase replacement parts and accessories (such as Weller ET series tips), please visit the official Weller website or contact their customer service department. Ensure you have your model number (WES51) and proof of purchase available when seeking support.

Manufacturer: Cooper Hand Tools