Workman SWR-3P

Workman SWR3P CB Radio Power/SWR Meter Instruction Manual

Model: SWR-3P | Brand: Workman

Introduction

This manual provides detailed instructions for the proper setup, operation, and maintenance of your Workman SWR3P CB Radio Power/SWR Meter. This device is designed to measure power output and Standing Wave Ratio (SWR) for CB radio systems, ensuring optimal performance and antenna tuning.

Key Features

- Measures power from 0-10 watts and 0-100 watts.
- Frequency range: 1.7 to 30 MHz.
- Impedance: 52 ohm.
- Equipped with Input and Output SO-239 Connectors.
- Durable heavy-duty metal case construction.
- Includes a short antenna for Field Strength Testing.
- Supplied with a 3-foot Black Workman CX-3-PL-PL Coax Jumper cable.

Setup and Components Overview

Before operation, familiarize yourself with the meter's components and connections.

The Workman SWR3P Power/SWR Meter, shown with its included 3-foot jumper cable. The meter features a clear analog display for SWR and power readings, along with various switches and a calibration knob on the front panel. The robust metal casing ensures durability.

The meter features a front panel with an analog display, switches, and a calibration knob. The rear panel includes connection sockets.

Rear Panel Connections

The rear panel of the meter includes the following:

- **Power Socket (DC 5V-12V):** Located on the left, this small socket is for connecting a power supply (5 to 12V) to illuminate the indicator needle.
- **ANT Socket:** This connector is for attaching your antenna.
- **TX Socket:** This connector is for attaching your radio transmitter.

Front Panel Controls

The front panel provides controls for operation and display:

- **M Lock Switch:** An ON/OFF switch for the meter. Always turn off and lock the meter when not in use to prevent damage.
- **CAL Knob:** Used for calibrating SWR measurements.
- **Power Range Switch (12W / 120W):** Selects the power measurement range (12 Watts or 120 Watts).
- **Mode Switch (WATT / SWR):** Toggles between Power (Watt) and SWR measurement modes.
- **Measurement Type Switch (FW / RW / CAL):** In WATT mode, this selects between Forward Power (FW) and Reverse Power (RW). In SWR mode, it selects between SWR measurement and Calibration (CAL).

Display Readings

The analog display features three sets of numbers:

- **Power Readings (W):** The top two rows indicate power. The upper row is for 120W range, and the lower row is for 12W range.
- **SWR Readings:** The bottom scale indicates SWR.
- **SWR Zones:** The green zone indicates an acceptable SWR range, while the red zone indicates poor acceptability,

suggesting an antenna mismatch.

Instructional Video (Surecom SW-112HF Demonstration)

The following video demonstrates the operation of a similar SWR & Power Meter, the Surecom SW-112HF. While the model differs, the operational principles and controls are largely analogous to the Workman SWR3P.

Your browser does not support the video tag.

Video Description: This video provides a visual guide on how to connect and operate an SWR & Power Meter. It covers identifying the ANT and TX sockets, setting power ranges (12W/120W), switching between Watt and SWR modes, and performing SWR calibration. The demonstration includes testing power measurement with a dummy load and SWR measurement with an antenna, highlighting acceptable and unacceptable SWR readings.

Operating Instructions

Power Measurement

1. Connect your radio transmitter to the **TX** socket and a dummy load or antenna to the **ANT** socket using appropriate coaxial cables.
2. Set the **Power Range Switch** to either **12W** or **120W**, depending on your radio's output power.
3. Set the **Mode Switch** to **WATT**.
4. Set the **Measurement Type Switch** to **FW** (Forward Power) to measure the power transmitted from your radio.
5. Activate your radio's transmission. The meter's needle will indicate the forward power in watts.
6. To measure reflected power, set the **Measurement Type Switch** to **RW** (Reverse Power) and transmit again.

SWR Measurement

1. Ensure your radio transmitter is connected to the **TX** socket and your antenna is connected to the **ANT** socket.
2. Set the **Power Range Switch** to an appropriate setting (e.g., 120W for higher power radios).
3. Set the **Mode Switch** to **SWR**.
4. Set the **Measurement Type Switch** to **CAL**.
5. While transmitting from your radio, adjust the **CAL Knob** until the meter's needle points to the "CAL" mark (typically at the end of the red zone on the SWR scale).
6. Once calibrated, set the **Measurement Type Switch** to **SWR**.
7. Transmit again. The meter's needle will now indicate the SWR reading. Aim for a reading in the green zone (typically below 1.5:1 or 2:1) for optimal antenna performance.

Specifications

Feature	Specification
Model	SWR-3P
Power Measurement	0-10 Watts, 0-100 Watts
Frequency Range	1.7 to 30 MHz
Impedance	52 Ohm
Connectors	SO-239 UHF (Input/Output)
Case Material	Heavy Duty Metal
Dimensions	Approximately 5 x 2.5 x 2.5 inches (12.7 x 6.35 x 6.35 cm)
Item Weight	10.4 ounces (295 grams)
Power for Illumination	DC 5V-12V (for indicator needle lighting)

Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the meter. Avoid abrasive cleaners or solvents.
- **Storage:** Store the meter in a cool, dry place away from direct sunlight and extreme temperatures.
- **Connections:** Periodically check all cable connections for tightness and wear. Loose connections can affect measurement accuracy.
- **Handling:** Handle the meter with care to prevent damage to the internal components and the delicate analog needle.

Troubleshooting

- **No Needle Movement:**
  - Ensure the meter is correctly connected between the radio and antenna/dummy load.
  - Verify the radio is transmitting power.
  - Check the selected power range (12W/120W) matches the expected power output.
- **Inaccurate Readings:**
  - Ensure all connections are secure.
  - Perform SWR calibration as described in the "SWR Measurement" section.
  - Verify the antenna is properly tuned for the operating frequency.
  - Check the condition of the coaxial cables for damage.
- **High SWR Readings (Red Zone):**
  - This indicates an antenna mismatch. Adjust your antenna tuning or consider a different antenna suitable for your operating frequency.
  - Inspect the antenna and coaxial cable for damage or shorts.

Warranty and Support

The Workman SWR3P Power/SWR Meter is unconditionally guaranteed for 1 year from the date of purchase. For warranty claims or technical support, please contact Workman customer service. Keep your proof of purchase for warranty validation.