Daiwa CN-501H

Daiwa CN-501H HF/VHF Cross-Needle SWR & Power Meter User Manual

Model: CN-501H | Brand: Daiwa

1. Product Overview

The Daiwa CN-501H is a reliable, economy-series bench SWR and power meter designed for use in HF and VHF device environments. Its compact form factor and cross-needle meter allow simultaneous readings of forward power, reflected power, and SWR, eliminating the need to switch between modes or recalibrate during testing. Covering a broad frequency range from 1.8 MHz up to 150 MHz, this meter is extremely versatile, perfect for working with HF transceivers, 6m setups, or 2m device systems. It supports three forward power ranges (15 W / 150 W / 1.5 kW) so you can tune high or low-power transmitters. Its power-handling capacity is rated at up to 1.5 kW in the lower HF range (1.8–60 MHz) and 1 kW at 144 MHz, giving it the robustness needed for demanding tasks. One of the standout features is its sensitivity, with the ability to detect SWR at as low as 4 W. The meter's input and output are both 50-ohm, and it uses SO-239 connectors, making it compatible with a wide variety of standard amateur-device coax setups. The CN-501H also includes practical usability features: anti-slip edge guards help the unit stay put on your workbench, and a lamp terminal enables you to power up internal lighting (via 12 V) for better visibility in low-light environments.

2. Setup

Follow these steps to properly set up your Daiwa CN-501H SWR & Power Meter:

1. **Unpacking:** Carefully remove the meter from its packaging. Inspect for any visible damage.
2. **Placement:** Place the meter on a stable, flat surface. The anti-slip edge guards will help keep it secure.
3. **Connections:**
   - Connect your transceiver (radio) to the **TX (Input)** SO-239 connector on the rear of the meter using a 50-ohm coaxial cable.
   - Connect your antenna to the **ANT (Output)** SO-239 connector on the rear of the meter using a 50-ohm coaxial cable.
   - For low-light conditions, connect a 12V DC power source to the lamp terminal for internal meter illumination.

Figure 1: Rear view of the Daiwa CN-501H, highlighting the ANT and TX connectors and the 12V lamp terminal.

3. Operating Instructions

The Daiwa CN-501H features a cross-needle meter for simultaneous display of forward power, reflected power, and SWR. No recalibration is needed between measurements.

3.1 Front Panel Controls

Figure 2: Front angled view of the Daiwa CN-501H, showing the meter and control buttons.

- **Power Range Buttons (15W, 150W, 1.5kW):** Select the appropriate power range for your transmission. Always start with the highest power range to prevent damage to the meter if your output power is higher than expected.
- **FWD/REF Switch:** This switch determines whether the meter displays Forward Power (FWD) or Reflected Power (REF) when in Power mode.
- **SWR/POWER Switch:** This switch selects the operating mode of the meter. Choose SWR for Standing Wave Ratio measurements or POWER for power output measurements.
- **CAL Knob:** Used for calibrating the SWR measurement.

3.2 Measuring Power

1. Ensure all connections are secure as described in Section 2.
2. Set the **SWR/POWER** switch to **POWER**.
3. Set the **FWD/REF** switch to **FWD** (Forward Power).
4. Select the highest power range (e.g., 1.5kW) using the power range buttons.
5. Transmit a steady carrier signal from your transceiver.
6. Observe the needle on the meter. If the reading is low, switch to a lower power range (e.g., 150W, then 15W) for a more accurate reading.
7. The meter will display the forward power. To measure reflected power, switch the **FWD/REF** switch to **REF**.

3.3 Measuring SWR

SWR measurement requires calibration for accuracy.

1. Ensure all connections are secure as described in Section 2.
2. Set the **SWR/POWER** switch to **SWR**.
3. Set the **FWD/REF** switch to **FWD** (Forward Power).
4. Select an appropriate power range (e.g., 15W or 150W). The meter can detect SWR at as low as 4W.
5. Transmit a steady carrier signal from your transceiver.
6. While transmitting, adjust the **CAL** knob until the needle aligns with the 'SET' mark on the SWR scale.
7. Once calibrated, switch the **FWD/REF** switch to **REF** (Reflected Power).
8. The needle will now indicate the SWR value. An SWR reading in the green zone (typically below 2:1) indicates a good match between the antenna and transceiver. Readings in the red zone suggest a mismatch that should be addressed to prevent damage to your equipment.

4. Maintenance

To ensure the longevity and accuracy of your Daiwa CN-501H SWR & Power Meter, follow these maintenance guidelines:

- Keep the meter clean and free from dust and moisture. Use a soft, dry cloth for cleaning.
- Store the meter in a cool, dry place when not in use.
- Avoid exposing the meter to extreme temperatures or direct sunlight.
- Ensure all coaxial connections are tight and free from corrosion.

5. Troubleshooting

If you encounter issues with your meter, try the following:

- **No Meter Movement:**
  - Check all cable connections between the transceiver, meter, and antenna.
  - Ensure the transceiver is transmitting power.
  - Verify the selected power range is appropriate for the transmitted power.
- **Inaccurate SWR Readings:**
  - Recalibrate the SWR measurement using the CAL knob as described in Section 3.3.
  - Ensure the coaxial cables are 50-ohm and in good condition.
  - Check the antenna for proper tuning and condition.
- **Lamp Not Illuminating:**
  - Verify the 12V DC power source is connected and functioning correctly.
  - Check the polarity of the 12V connection.

6. Specifications

Feature	Specification
Frequency Range	1.8MHz to 150MHz
Forward Power Ranges	15 W / 150 W / 1.5 kW
Power Handling (1.8-60 MHz)	Up to 1.5 kW
Power Handling (144 MHz)	Up to 1 kW
Minimum SWR Detection	4 W
Input/Output Impedance	50-ohm
Connectors	SO-239 (UHF)
Item Weight	1.88 pounds
Package Dimensions	6.89 x 5 x 3.86 inches
Item Model Number	CN-501H
Waterproof Rating	IP68

7. Warranty

The Daiwa CN-501H SWR & Power Meter comes with a**1-YEAR** warranty from the date of purchase. Please retain your proof of purchase for warranty claims. The warranty covers manufacturing defects and malfunctions under normal use. It does not cover damage caused by misuse, accidents, unauthorized modifications, or improper installation.

8. Support

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact Daiwa customer support through their official website or the retailer from whom you purchased the product. Please have your model number (CN-501H) and proof of purchase ready when contacting support.