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› Diamond SX-200 SWR & Power Meter Instruction Manual

Diamond Antenna SX-200

Diamond SX-200 SWR & Power Meter Instruction Manual

Model: SX-200

INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of your Diamond SX-200 SWR & Power Meter. The SX-200 is designed for accurate measurement of Standing Wave Ratio (SWR) and RF power in the frequency range of 1.8 to 200 MHz. Please read this manual thoroughly before using the device to ensure safe and optimal performance.

SAFETY INFORMATION

- Always ensure the device is connected to a stable 13.8V DC power source.
- Do not exceed the maximum power rating of 200W.
- Avoid operating the device in wet or excessively humid environments.
- Ensure all connections are secure before applying power or transmitting.
- Do not open the casing; there are no user-serviceable parts inside. Refer servicing to qualified personnel.
- Keep the device away from strong magnetic fields.

PRODUCT OVERVIEW

The Diamond SX-200 is a compact and reliable SWR and power meter. It features a clear analog display for easy reading of forward power, reflected power, and SWR. The rear panel provides connections for your antenna, transceiver, and DC power input.



Figure 1: Front Panel of the Diamond SX-200. This image displays the front of the SWR & Power Meter, showing the large analog meter, power range selector switch, and SWR calibration knob. The meter indicates both forward and reflected power, as well as SWR readings.



Figure 2: Rear Panel of the Diamond SX-200. This image shows the rear connections of the SX-200. From left to right, it includes the DC 13.8V power input, the "ANT" connector for the antenna, and the "TX" connector for the transceiver. The model number "SX-200" and brand "DIAMOND ANTENNA" are clearly visible, along with the CE marking.

Controls and Connectors:

- **Analog Meter:** Displays SWR, Forward Power, and Reflected Power.
- **Power Range Switch:** Selects between 5W, 20W, and 200W full-scale ranges.
- **SWR Calibration Knob:** Used to calibrate the SWR reading.
- **ANT Connector (MJ):** Connects to your antenna system.
- **TX Connector (MJ):** Connects to your transceiver/transmitter output.
- **DC 13.8V Input:** Power input for the meter's internal circuitry (e.g., meter illumination).

SETUP

1. **Power Connection:** Connect a stable 13.8V DC power supply to the "DC 13.8V" input on the rear panel. Ensure correct polarity. This power is primarily for meter illumination and internal circuitry.
2. **Transceiver Connection:** Connect the output of your transceiver (radio) to the "TX" connector on the rear panel using a suitable coaxial cable.
3. **Antenna Connection:** Connect your antenna system to the "ANT" connector on the rear panel using a suitable coaxial cable.
4. **Placement:** Place the SX-200 on a stable, flat surface, ensuring adequate ventilation.

OPERATING INSTRUCTIONS

The Diamond SX-200 allows for measurement of Forward Power, Reflected Power, and SWR. Follow these steps for accurate readings:

Measuring Forward and Reflected Power:

1. **Select Power Range:** Set the power range switch to an appropriate setting (5W, 20W, or 200W) that is higher than your expected transmit power.
2. **Transmit:** Briefly transmit a continuous carrier (e.g., using FM or CW mode) at your desired power level.
3. **Read Forward Power:** The meter will indicate the forward power.
4. **Read Reflected Power:** The meter will also indicate the reflected power.

Measuring SWR (Standing Wave Ratio):

1. **Select Power Range:** Set the power range switch to an appropriate setting.
2. **Set to FWD:** Ensure the meter is set to read Forward Power (usually indicated by a switch or mode).
3. **Transmit:** Briefly transmit a continuous carrier.
4. **Calibrate:** While transmitting, adjust the SWR calibration knob until the meter needle points to the "SET" or full-scale mark on the SWR scale.
5. **Read SWR:** Switch the meter to read Reflected Power or SWR (if available as a direct reading mode). The meter will now display the SWR value.
6. **Release Transmit:** Stop transmitting.

Note: For accurate SWR readings, it is crucial to calibrate the meter using the forward power before reading the SWR. A lower SWR value (ideally 1.0:1 to 1.5:1) indicates a better match between your antenna and transceiver.

PEP (Peak Envelope Power) Monitoring:

The SX-200 can monitor PEP, which is particularly useful for SSB (Single Sideband) transmissions. When transmitting SSB, the meter will respond to the peak power of your voice. Ensure the meter is set to a power range that accommodates your peak power output.

MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Do not use abrasive cleaners or solvents.
- **Storage:** When not in use for extended periods, store the device in a dry, dust-free environment.
- **Inspection:** Periodically check all cable connections for wear or damage.
- **No User Serviceable Parts:** The SX-200 contains no user-serviceable parts. Do not attempt to open or repair the unit yourself.

TROUBLESHOOTING

Problem	Possible Cause	Solution
No meter movement when transmitting.	Incorrect power range selected. Loose or faulty coaxial cable connections. No RF power output from transceiver. Faulty meter.	Select a lower power range (e.g., 5W for low power tests). Check and secure all coaxial cable connections. Verify transceiver operation with a dummy load. Contact support if meter is suspected faulty.

Problem	Possible Cause	Solution
High SWR reading.	Antenna mismatch. Faulty antenna or feedline. Incorrect frequency for antenna.	Check antenna tuning and resonance. Inspect antenna and feedline for damage. Ensure operating frequency is within antenna's design range.
Meter illumination not working.	No 13.8V DC power connected. Incorrect DC polarity. Faulty bulb/LED (if applicable).	Connect 13.8V DC power supply. Verify correct DC polarity. Contact support for repair.

SPECIFICATIONS

Frequency Range	1.8 - 200 MHz
Power Ranges	5W, 20W, 200W (Full Scale)
Power Measurement Accuracy	± 10%
Insertion Loss	Less than 0.15 dB (1.8-60 MHz), Less than 0.2 dB (140-200 MHz)
Operating Voltage	13.8 Volts DC
Connectors	MJ (UHF-type)
Dimensions (W x H x D)	190 x 85 x 135 mm
Compliance	CE, UL, IEC 61010-1

WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your authorized Diamond Antenna dealer. Keep your proof of purchase for warranty claims.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

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