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Dpofirs B09G2XZHVD

Dpofirs 0.5MHz-470MHz RF Signal Generator User Manual

Model: B09G2XZHVD

1. Product Overview

The Dpofirs 0.5MHz-470MHz RF Signal Generator is a compact and versatile instrument designed for various applications in electronics, communication, and manufacturing. It features a wide frequency range, built-in audio modulation, and analog/digital CTCSS sub-tone functions, making it suitable for FM debugging and testing radio receiving sensitivity. Its robust ABS shell ensures durability and resistance to oxidation.



Figure 1: Front view of the Dpofirs RF Signal Generator, showing the display and keypad.

2. Key Features

- **Wide Frequency Range:** Generates signals from 0.5MHz to 470MHz.
- **Audio Modulation:** Built-in 800Hz audio modulation for various testing scenarios.
- **Sub-Tone Functions:** Includes analog and digital CTCSS sub-tone capabilities for enhanced anti-interference.
- **Output Unit:** Output strength measured in DBM, with a general sensitivity range of -120DBM to -130DBM.
- **Durable Construction:** Shell made of ABS material, resistant to oxidation and corrosion, ensuring extended service life.
- **Compact Design:** Small and lightweight, allowing for easy one-handed operation and reduced user fatigue.
- **Integrated Module:** Audio generator module is integrally formed with a glossy shell, ensuring smooth installation without burrs.



Figure 2: The signal generator designed for high performance and anti-interference capabilities.

3. Applications

The Dpofirs RF Signal Generator is widely applicable across various fields due to its versatile capabilities:

- **FM Debugging:** Ideal for testing and debugging FM radio systems.
- **Aviation:** Used in aviation electronics for signal generation and testing.
- **Communication:** Essential for testing and maintaining communication equipment.
- **Automotive Electronics:** Applicable in the development and testing of automotive electronic systems.
- **Manufacturing:** Utilized in manufacturing processes requiring precise RF signal generation.
- **Education and DIY:** Suitable for college students, engineers, technicians, and electronics enthusiasts for learning and personal projects.



Figure 3: The signal generator's broad utility across various industries and educational settings.

4. Setup Instructions

The Dpofirs RF Signal Generator requires an external power supply. Please ensure you have a compatible power source before operation.

1. **Power Supply:** Connect an 8V-12V DC power supply to the unit. Ensure correct polarity (positive and negative). The power supply is not included and must be self-matched.
2. **RF Output Connection:** Connect the RF OUT port on the generator to your testing equipment (e.g., radio, spectrum analyzer) using an appropriate coaxial cable.
3. **Initial Power On:** Once connected, power on the unit. The display should illuminate, indicating readiness for operation.

Important Safety Note: It is absolutely forbidden to press the intercom button to transmit when testing with this generator, as this may damage the unit or connected equipment.

5. Operating Instructions

This section details the operation of the RF Signal Generator, including display interpretation and keypad functions.

5.1. Display Layout

The generator's display provides critical information about its current state and output parameters:

- **First Line (Left):** Displays the current frequency in MHz.
- **First Line (Right):** Shows the output level in DBM (dB referenced to 1 milliwatt). The adjustable range is typically -132 dBm to -70 dBm.
- **Second Line (First Item):** This value may appear as zeros initially. It is generally recommended to keep this set to zeros for standard operation.
- **Second Line (Second Item):** Indicates the narrow band FM sine wave modulation frequency (0, 1, 2, or 3 kHz). Setting this to 0 turns off the modulation.

- **Second Line (Last Item):** Typically displays the firmware version number.

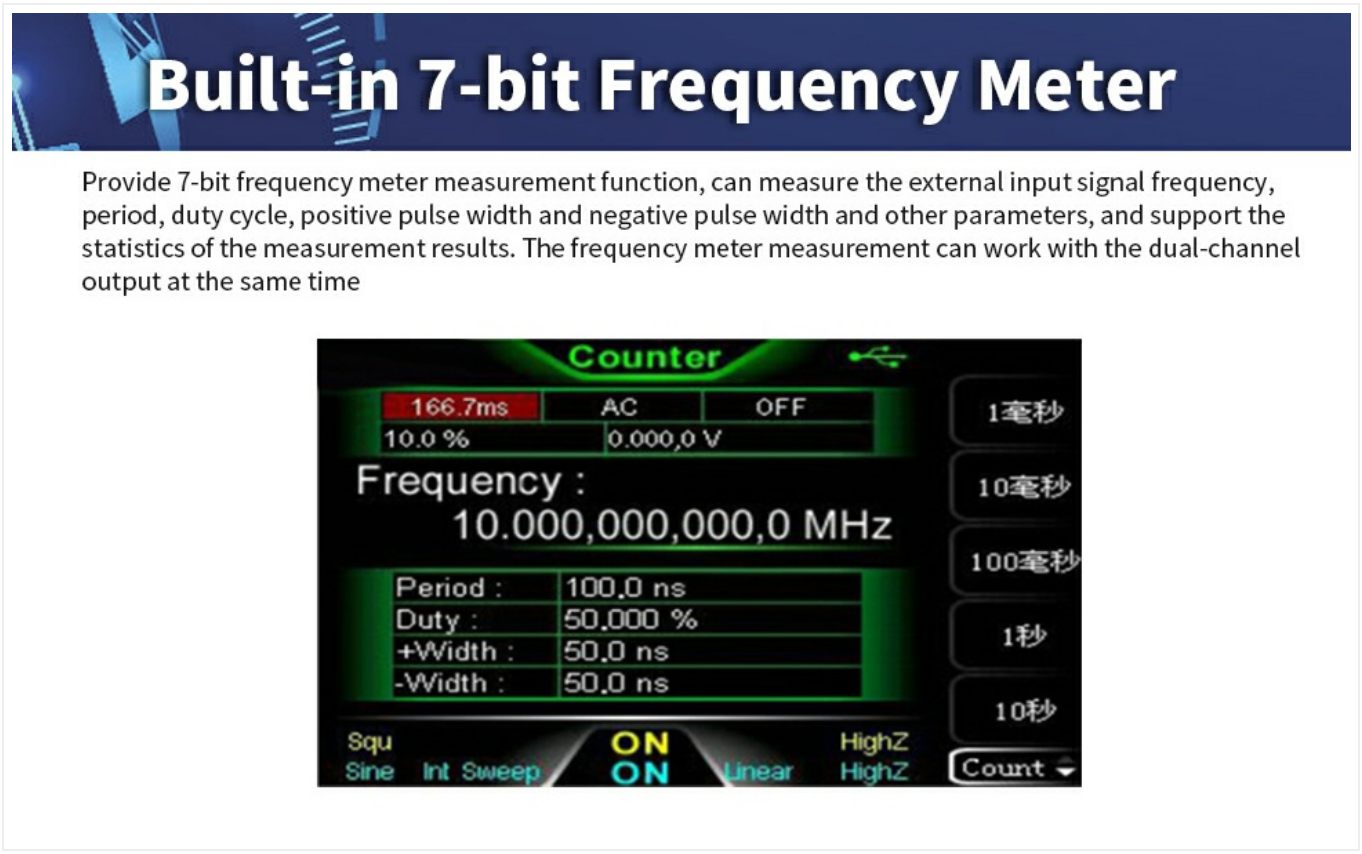


Figure 4: Example of the display showing frequency and other parameters.

5.2. Keypad Functions

The keypad consists of numerical keys (0-9), four function keys (F1-F4), and up/down arrows. A cursor, appearing as '<' or '>', indicates the currently selected parameter for adjustment.

- **Numerical Keys (0-9):** Used for direct data entry, primarily for setting frequency.
- **Up/Down Arrows (∧ / ∨):** Used to increment or decrement the selected parameter's value. Note that for DBM values, pressing the up arrow makes the value more negative (e.g., -120DBM to -121DBM).
- **F1 Key:** Selects the parameter to be entered numerically, changed by arrows, or operated on by F3 and F4.
- **F2 Key:** Functions as a Delete key, similar to a PC keyboard.
- **F3 Key:** Toggles RF output ON/OFF. This function only works when the cursor is pointing to the RF output value.
- **F4 Key:** Toggles FM modulation ON/OFF. This function also only works when the cursor is pointing to the modulation parameter.

5.3. Data Entry

When entering numerical values, especially for frequency, it is crucial to enter all leading and trailing zeros. For example, to set a frequency of 28.1500 MHz, you would typically enter "0281500". If an entered value for output level falls outside the valid range (-132 dBm to -70 dBm), the unit will automatically revert to the nearest valid value.

5.4. Testing Receiving Sensitivity

To test the actual receiving sensitivity of a radio using this generator:

1. Set the frequency of the signal generator to match the desired test frequency of your transceiver.
2. Initially set the source input transceiver to -100DB or any suitable value where the intercom has audio output.
3. Gradually reduce the output strength of the signal generator.
4. Observe the intercom audio. For example, if you just hear the intercom audio but with noise at -120DB, then the -120DB

value of this output is the receiving sensitivity of the radio.



Figure 5: Detail of the RF OUT port and display for connection and monitoring.

6. Maintenance

Proper maintenance ensures the longevity and optimal performance of your RF Signal Generator.

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the unit. Avoid using abrasive cleaners or solvents that could damage the ABS shell or display.
- **Storage:** Store the generator in a cool, dry place away from direct sunlight, extreme temperatures, and high humidity.
- **Handling:** Handle the unit with care to prevent drops or impacts that could damage internal components.
- **Power Supply:** Always disconnect the power supply when the unit is not in use for extended periods.

7. Troubleshooting

This section addresses common issues you might encounter with the RF Signal Generator.

Problem	Possible Cause	Solution
Unit does not power on.	No power supply connected, incorrect power supply voltage/polarity, faulty power supply.	Ensure an 8V-12V DC power supply is correctly connected with proper polarity. Test the power supply.
No RF signal output.	RF output is turned off (F3 key), incorrect frequency/output level settings, faulty connection.	Check if RF output is enabled using the F3 key. Verify frequency and output level settings. Ensure cables are securely connected.
Display shows random pixels or is unreadable.	Internal display issue, extreme operating conditions.	Power cycle the unit. Ensure operating within specified temperature ranges. If the problem persists, contact customer support.
Difficulty with data entry (e.g., numbers not registering).	Incorrect cursor position, rapid key presses, internal keypad issue.	Ensure the cursor is on the correct parameter. Press keys firmly and deliberately.

8. Specifications

Parameter	Value
Frequency Range	0.5MHz - 470MHz
Audio Modulation	800Hz (Built-in)
Sub-Tone Functions	Analog and Digital CTCSS
Output Unit	DBM
General Hand Sensitivity	-120DBM to -130DBM
Power Supply Requirement	8V-12V DC (Self-matched)
Shell Material	ABS
Package Dimensions	8.27 x 5.71 x 4.61 inches
Item Weight	13.44 ounces
Manufacturer	Dpofirs
ASIN	B09G2XZHVD

9. Warranty and Support

For any questions, technical assistance, or warranty inquiries regarding your Dpofirs RF Signal Generator, please contact the seller or manufacturer directly.
You can visit the official Dpofirs store for more information and support resources:Dpofirs Store on Amazon.

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