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RT-14400WP- Signal Generator User Manual



Stand-Alone Use Quick Setup:

- Connect an external 10MHz reference source to the rear REF MCX connector if desired. If no external source is detected, the unit will use its own internal source. Searching for an external frequency only occurs at boot-up, do not connect an external reference after the unit is already powered up.
- Press the red power button on the rear of the device. The screen will display the model number and firmware version. The unit will beep indicating boot-up and the green power LED should light up.
- The unit is now ready to change frequency up and down using the two small step buttons.
- **To cycle between button functions:** hold the “MODE” button for 0.5 seconds. The modes in order are: Integer frequency step, fractional frequency step, power output level control, power fine-tune (Vernier control), RF output state (ON/OFF), battery level check, and save current settings as default.
- The “RF” led indicates that the SG is successfully locked and outputting the desired frequency on the rear SMA port.

SCPI/COM/Computer Control Use Quick Setup:

- Connect the SG to a high-current USB port or 5 Volt power source using USB-C cable. A desktop, laptop computer, or smart-phone charger will work, a blue USB 3.0 port is recommended. Avoid using unpowered USB hubs or extra-long USB cables.
- Connect an external 10MHz reference source to the rear REF MCX connector if desired. If no external source is detected, the unit will use its own internal source. Reference auto-detection can be overridden in the GUI if desired.
- The screen will display the model number and firmware version. The unit will beep indicating boot-up and the green power LED should light up.
- Windows should now install the standard virtual COM port driver. Wait for this to complete.
- Download and open the Signal Generator Control GUI from the website.
- Select a COM port from the top select list and press CONNECT to try to control the unit. If the select box turns green then a connection has been established. The model number and firmware versions will appear in the green info box. If this box is turns red, the wrong COM port was selected or an error has occurred.
- At this point a user can enter a frequency and click APPLY or setup a frequency sweep.
- The blue STATUS led on the front of the SG unit indicates that the SG is successfully locked and outputting the desired frequency on the SMA port. The physical control buttons will be disabled when a COM port connection is established to prevent any accidental bumping of the buttons when under computer control.

Advanced GUI Options

The screenshot shows the DS Instruments RF Control software interface. The window title is "DS Instruments RF Control". The main title is "RT-14400WP Control" with version "V2.00" and "DS Instruments" link. The interface is divided into several sections:

- Options:** Includes a search box with "COM51", a "Connect" button, a device ID "RT-14400WP - SER:-1 - FW:12.93 REV 1", a "USB: 5.14V" readout, a "Save Name" button, a "Change Ref" button, and a "Send" button.
- Battery:** Shows a battery level of "4.28V".
- Controls:** Features a large frequency display "2000.0000" with minus and plus buttons, an "Apply" button, and a "Freq Step" of "1.0". Below it is a power display "Power: -10.00 dBm" with a dropdown menu and "RF OFF" and "RF ON" buttons.
- Sweep Controls:** A panel with dropdowns for "Mode" (Single), "Direction" (UP), and "Trigger" (SWEEP). It also has input fields for "Points" (11), "Dwell (mS)" (100), "Start (MHz)" (1000), "Stop (MHz)" (2000), "Step Size" (100.0000 MHz), and "Run Time" (~1.100 Sec). Buttons for "Save Sweep", "Abort!", and "Trigger!" are at the bottom.
- Output Power Vernier:** A slider control with a "0" readout and "Help!" link.

The status bar at the bottom displays: DS Instruments,RT-14400WP,-1,V12.93 0 OFF ON -10.0dBm 2000000000HZ

- If reference auto-detection is unreliable with your 10MHz input signal, it can be forced to external or internal using the select box and “Change Ref” button. A SG reset is recommended after this setting is changed.
- The “Send” button allows a user to send a raw SCPI command to the Signal Generator in the box to the left. Some common custom commands are pre-populated in the drop down menu.
- The “Save Name” button allows for a custom nickname or device inventory tag to be saved to non-volatile memory.
- The “Power” (Step Attenuator) setting adjusts output level in **0.5dB** steps.
- The “Output Power Vernier” allows fine power output control on both band 1 and 2. The resolution is approximately **~0.10dB**. Highest power output results when the slider is farthest to the right side. Note that moving the vernier past its default position (to the right: extra power) can result in output over +10dBm that can damage other equipment.
- The USB voltage readout warns if a low voltage is detected and unpredictable performance could occur.
- When plugged in, the RT-14400WP will charge the internal battery even if the red power button is inactive and the device appears to be off.


- A blinking RED status LED on the device means an error has occurred, to read the error, send the “SYST:ERR?” command.

Notes

- A complete SCPI command list is available for scripting and automated applications
- A full datasheet is available for more detailed specifications



Contact Information

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