



RSSI METER

P/N RX-RSSI-001



SPECIFICATIONS

- Supply Voltage: 7 - 14 VDC.
RSSI Voltage: 0.0 - 5.0 VDC.
RSSI Impedance: 57K Ohms.
Size/Weight: 1.8 x 1.4 x 0.25 Inches (45 x 35 x 6 mm), 6 grams.
Typical Application: Wireless audio/video receiver signal strength display.

**** IMPORTANT NOTICE ****

The RSSI meter requires modifying your wireless video receiver, which will certainly void the manufacturer's warranty. So, please verify that the receiver has satisfactory performance BEFORE attempting the installation. Once you have removed any screws from your receiver, you have no recourse for returning it to the vendor if it is defective.

INSTALLATION

1. Remove the cover from the receiver. Inside you will find a large metal module (typically connected to the antenna). This is the RF tuner.
2. If you do not know which tuner pin has the RSSI signal then use your voltmeter to identify it. It is the pin (usually unused) that has a voltage that varies depending on received signal strength. For example, its voltage will dramatically change when you turn off the video transmitter that is operating nearby. Do **NOT** proceed if the measured RSSI voltage exceeds 5.0VDC at maximum or minimum signal strengths.
3. The meter's 3-pin header can be used with servo style cables and is labeled as follows:
[S] = RSSI Signal (<5.0VDC)
[+] = DC Power (7-14VDC)
[G] = Power/Signal Ground
4. Connect the RSSI meter's [S] pad to the tuner's RSSI pin.
5. Connect the RSSI meter's power [+] and ground [G] pads to the receiver. The ideal place for this is on the LM7808 (8V) or LM7809 (9V) voltage regulator that is found on a typical receiver's circuit board. Note: the meter's power supply voltage must be 7-14 VDC.
6. Figure 2 shows a installation example to a typical 900MHz video receiver. Installations will vary.



Figure 2, Typical Installation

7. Apply power to the receiver. During the first few seconds the meter will display some initialization messages, followed by the RSSI percentage value. However, the RSSI data is not valid yet because the meter requires calibration. The next section discusses that task.
8. The meter includes a reversible bezel faceplate and has holes for mounting to your custom case. The exact installation is up to you. Note: Do not operate the meter with unprotected/exposed circuitry.
9. If mounting the meter remotely from the receiver then a Toroid type choke (such as DPCAV's #TOR-004) should be installed on the 3-wire cable. The Toroid should be located at the receiver's end and have ten or more tight cable wraps on it.

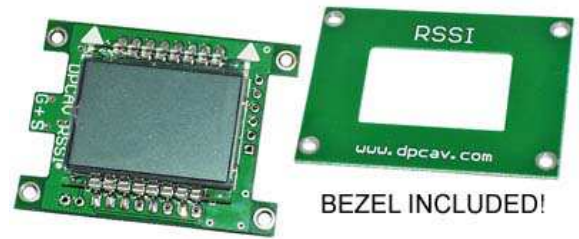


Figure 3

RSSI CALIBRATION

On the backside of the meter is a hidden pushbutton switch. This switch is used to configure the meter scaling for use with your particular receiver.

1. Apply power to the receiver and let it run for about fifteen minutes. This allows the RSSI circuitry to stabilize to the operating temperature. The transmitter should be off during the warm-up time.
2. Turn off receiver power. Press and hold the pushbutton switch while you apply power to the receiver. Release the switch when the flashing "CA" (cal-adjust) message is seen.
3. Verify that the display shows the letter "L" (low signal) and a downward moving bar. The meter is now waiting for the low signal (0%) level to be set. The default is to turn off the video transmitter, wait a few seconds, then press the switch; Release it when the two flashing dashes are seen.
4. Verify that the display shows the letter "H" (high signal) along with an upward moving bar. The meter is now waiting for the high signal (100%) level to be recorded. The default is to position the transmitter and receiver antennas about ten feet apart, wait a few seconds, then press the switch; Release it when the two flashing dashes are seen.
5. The RSSI meter is now calibrated. The settings are retained when power is removed. Recalibration may be required if changes are made to the wireless video system.

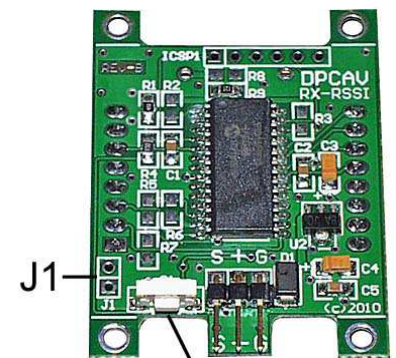


Figure 4

REMOTE PUSH SWITCH INSTALLATION

1. Although not needed for typical applications, an externally mounted push switch can be added to the meter. Simply solder a normally-open push switch (not included) to the meter's J1 pads (see Figure 4). Once installed, the external switch can be remotely mounted and will perform the same as the meter's push switch.

DSP DATA SMOOTHING

The RSSI meter uses digital signal processing (DSP) to smooth the appearance of the displayed numeric values. To review the currently selected setting, momentarily press the switch while the meter is in use. While it is pressed the selected setting will be shown. Do not press longer than two seconds or the current setting will be altered.

The three settings are as follows:

- F0: Data Smoothing turned off.
- F1: Normal Data Smoothing (default).
- F2: Maximum Data Smoothing.

To change the setting, press and hold the switch for more than two seconds. The setting will advance to the next choice. To make another selection just release the switch, then press and hold again. All new selections are retained when power is removed.

OTHER APPLICATIONS

The RSSI meter can be used in a wide variety of applications. For example, it can be installed on a ham radio, model airplane receiver, or even a power supply. It is useful anywhere there is an analog voltage range that needs to be displayed as 0-100%.

The only requirement is that the monitored RSSI signal voltage be between 0.0 and 5.0 VDC. Higher voltages will need external circuitry that attenuates the voltage levels. For example, a series resistor can be used to reduce RSSI voltages that exceed the 5.0VDC allowed maximum; Your resistor calculations should observe the meter's 57K Ω input.