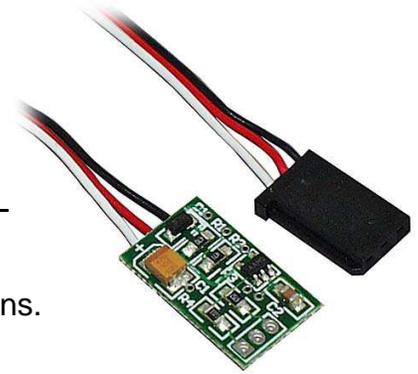




RSSI BUFFER

DPCAV Part No. ET-RSSI
Hardware Rev C



SPECIFICATIONS

Application: EagleTree Systems® eLogger OSD Pro installations.
Operating Voltage: 5VDC (powered by EagleTree eLogger).
Current Draw: 2 milliamps.
RSSI Range: 0 - 4.0 VDC.
RSSI Input ohms: > 1 megohm.
RSSI Impedance: Input IN1 = 330K ohms @ 1KHz.
Input IN2 = 47K ohms @ 1KHz.
Size/Weight: 0.45 x 0.73 inches (11 x 19 mm), 2 grams.

Overview

RSSI (*received signal strength indication*) is a low-level analog voltage that is found in many R/C receivers, usually on a pin of the FM detector IC. This voltage represents the received signal's RF signal level and it is a convenient thing to monitor to see if the R/C signal is adequate.

In some receivers the RSSI voltage is used to control the gain of its RF amplifier, so it is important to be very careful when using it for other purposes. A buffer circuit is recommended for protection from such issues.

The RSSI Buffer is a tiny-sized accessory that is used to isolate the R/C receiver's RSSI signal so that it can be safely applied to EagleTree System's eLogger V3. It uses an OPAMP (operational amplifier IC) which provides excellent signal isolation.

Notice: Installing the RSSI buffer requires expert soldering skills and superior technical knowledge. Please do NOT contact us for information on how to locate your specific R/C receiver's RSSI signal. Instead, please consult the data sheet to the FM detector IC used in your receiver.

When Is The RSSI Buffer Used?

The RSSI buffer is recommended for all EagleTree OSD-Pro installations that need to monitor a R/C receiver's *analog* RSSI signal.

However, it is NOT used in JR/Spektrum® *digital* R/C receiver installations. JR/Spektrum receivers that are equipped with the "FlightLog" data port feature will require EagleTree's special Spektrum Interface Cable, part number CAB-SPEK. This cable is available from the same retailers that offer EagleTree's OSD products.

Two RSSI Input Choices - Which Do I Use?

There are two different inputs on the RSSI Buffer board. The one you use will depend on the R/C receiver, as follows:

- Input IN1:** This input is for UHF based “LRS” R/C receivers or similar models that have high RSSI output impedances or require additional RSSI voltage filtering.
- Input IN2:** This is the standard RSSI input and is typically used in traditional AM/FM radio installations.

Note: If you are unsure of which input to use then try them both to determine what works best.

Installation

Installing the buffer involves soldering the receiver’s RSSI signal to the buffer board and plugging a cable into the eLogger module.

1. Begin by identifying the buffer’s RSSI input (IN1 or IN2) that is best for your R/C receiver. Please see the previous section for help choosing it.
2. Using small gauge 2-conductor wire, use one of the wires to connect the receiver’s DC ground to the “GND” pad on the buffer board. **This wire is required -- DO NOT OMIT.**
3. Use the other wire to connect IN1 or IN2 to the receiver’s RSSI signal.

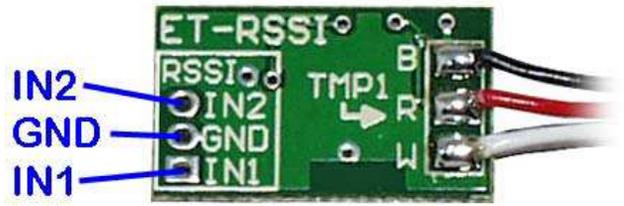


Figure 1, RSSI input

Note: To prevent coupling RFI noise we recommend installing a dpcav #TOR-005 toroid filter on this cable. The toroid should have 10-15 tight wraps of 2-conductor 30-35 AWG (gauge) wire on it and be located on the cable one to two inches from the receiver. See Figure 2.



Figure 2, Optional Toroid

4. Inspect your soldered connections and clean off the flux residue. Protect the buffer board with heat shrink or electrical insulation tape.
5. The buffer’s 3-pin cable plugs into the TMP1 connector on the EagleTree eLogger module. Orient the cable so that the black wire is on top. Please see Figure 3.
6. For proper RSSI operation it is important that you have at least one R/C servo cable installed between the eLogger module and the R/C receiver. This will provide the ground-return path that is needed.
7. The hardware installation is now complete.

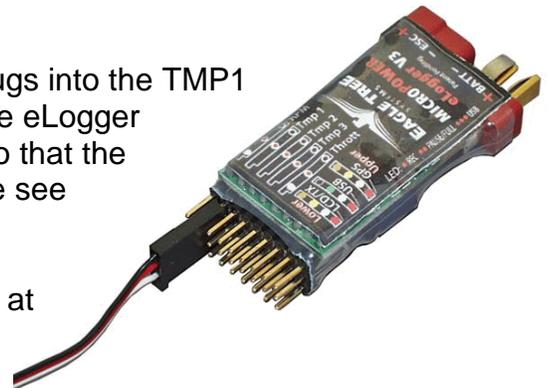


Figure 3, cable installation

Configuring the EagleTree OSD-Pro

You must configure your eLogger and OSD Pro modules to use the RSSI feature. The EagleTree software has a convenient "Wizard" to help you do this.

We recommend that you install the latest software versions now, even if you have recently done that. Firmware updates are available from the official EagleTree web site and they are constantly revised (sometimes weekly) to enhance product performance.

The exact procedure for setting up RSSI can vary with the software version. So, we recommend that you download the latest OSD Pro instructions and follow them.

A simplified summary for configuring the RSSI feature is as follows (reference only):

1. Upgrade your eLogger and OSD Pro to the latest software versions.
2. Run the "Choose Parameters to Display in Video OSD" page under the "Hardware" menu in the PC configuration software. Select the "Temperature A" parameter for display, at the screen location you prefer. The on-screen display name of the parameter should be changed to something appropriate, such as SIG, RSI, RC, etc.
3. In the OSD Pro on-screen menus, under the "Sensors and Units" menu, set "Use Temp1 Input for RSSI" to "Yes."
4. With the RSSI Buffer board fully installed, run the "Safety Mode Wizard." You will be prompted to turn off and turn on your R/C transmitter. When you do this, the OSD Pro calibrates the minimum (0%) and maximum (100%) RSSI levels.
5. There is a menu option under "Sensors and Units" that can be used to fine-tune the minimum RSSI reading. You can use this to set the 0% reading to represent the lowest safe signal (for example, before R/C failsafe starts to occur). A good time to do this is during your antenna-down range test; set the value to indicate 0% just before the servos start to twitch.
6. Verify that the displayed RSSI value decreases as you move the R/C transmitter further away from the receiver. Minor data jumping is normal but it shouldn't be excessively unstable.

**** IMPORTANT INFORMATION ****

Digital Products Company (DPCAV) is not affiliated with EagleTree Systems. DPCAV or its resellers will not be held responsible for ANY problems that may occur due to the use of this device! Soldering wires to your R/C receiver may void its warranty! **Use at your own risk!**
