Xtreme Power Systems

XtReMeLiNK ™

JR11x VERSION

(Internal RF Module Replacement)

Installation And Usage Manual

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Firmware v3.10

Manual v1.0

Revision Date: October 1, 2013

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Introduction

Thank you for purchasing the XtremeLink® system. This system is a direct replacement for your stock RF module.

Please read through this **entire** manual **before** you attempt the installation and usage of your XtremeLink® system!

Installation Requirements

The installation of the XtremeLink® RF module is not difficult. If after reading through this manual, you believe you cannot perform the installation, please seek someone who can assist you.

This manual should provide ample information and clarity to install and use this product.

Warranty Information

The XtremeLink® system carries a limited lifetime warranty. Units subject to improper installation, misuse, abuse, crash damage, or modifications will not be covered under this warranty.

Xtreme Power Systems may at its discretion either repair or replace the unit covered under warranty. The customer will pay all freight charges to and from Xtreme Power Systems. Xtreme Power Systems must be contacted to obtain a return authorization. Any product returned without authorization will be returned without repair or replacement.

Liability

By using this product, you agree to hold Xtreme Power Systems free from any type of liability either directly or indirectly while using this product.

Legal Information

The 'look and feel' and functionality of this product are protected by U.S. copyright laws. Various terminology and feature names are protected under U.S. trademark laws.

SECTION 1 – INSTALLATION

Step 1 – Removing the stock RF module

Lay your transmitter face down on a towel or something similar to protect it. Using a thin object like an X-acto blade or flat-tipped screw driver, gently pry one side of the back cover upwards. Each side of the cover has plastic tangs the full height of the cover, so it will take some effort to remove the cover. See Figure 1. Set the cover aside. It is no longer needed. Pull-up on the entire RF module just enough so that it becomes unplugged from the transmitter. See Figure 2. Locate the stock RF antenna connector and carefully remove the connector from the stock RF board by pulling straight up – not at an angle! DO NOT pull on the coax cable going into the gold the connector! Remove the entire RF assembly. See Figures 3 through 5 for details.

Figure 1 – Removing the back cover

**Figure 2 – Pull up to unplug stock RF module board**
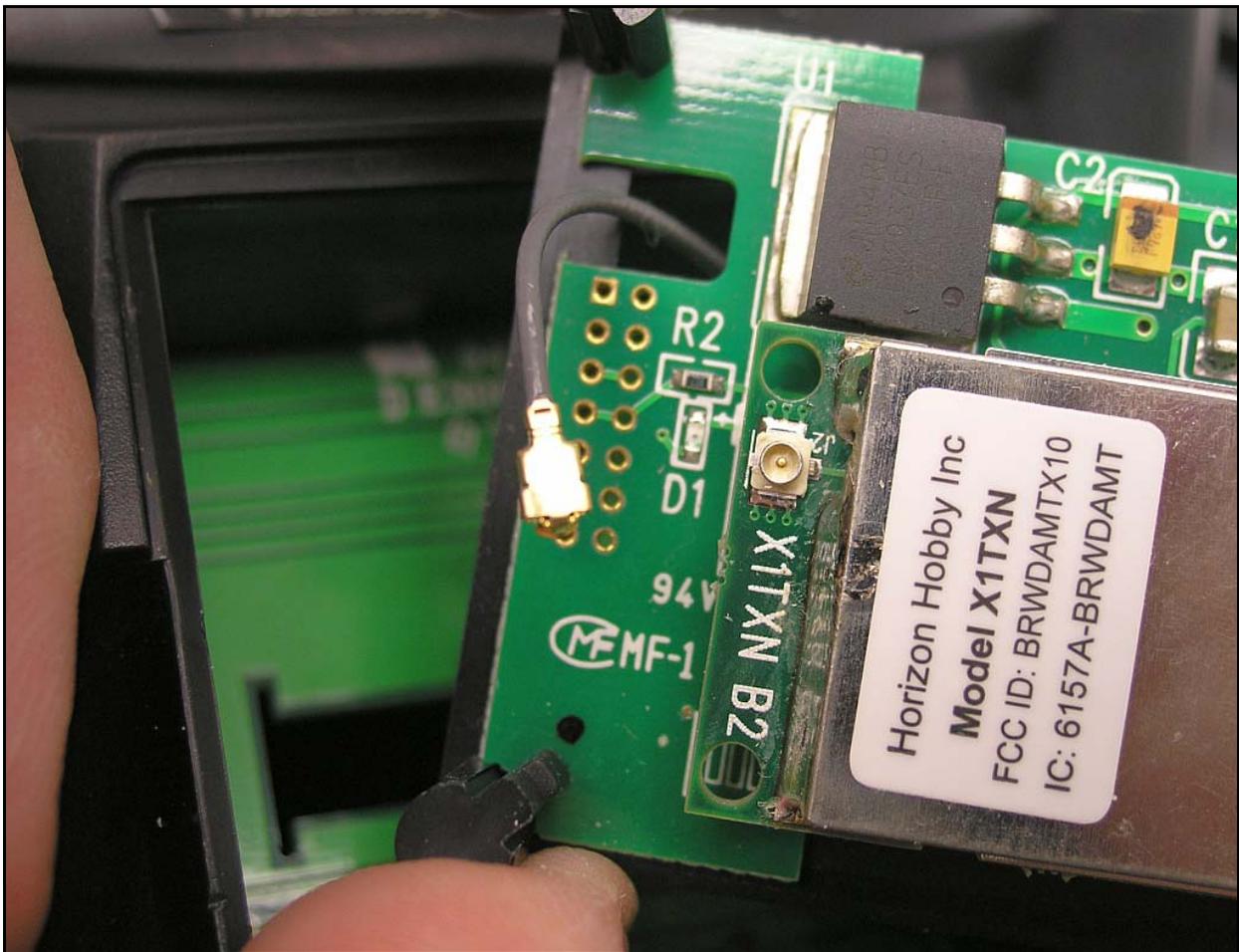
Figure 3 – Remove antenna connector from the RF board

Figure 4 – Remove RF board assembly
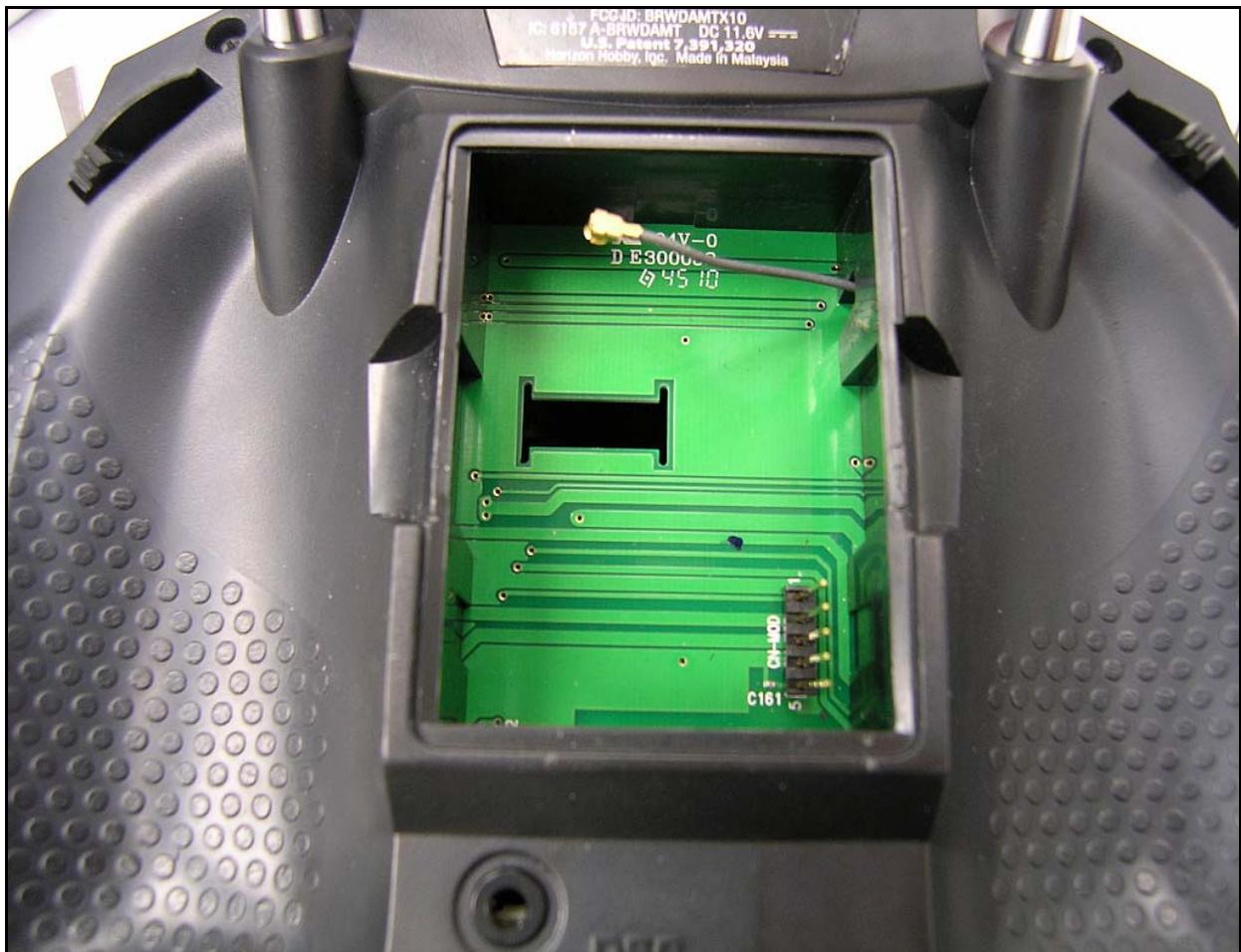
**Figure 5 – Empty RF module location**

Step 2 – Installing the XtremeLink® RF Module

Place the XtremeLink® module's plastic case into the empty RF module location and pass the antenna connector through the hole in the case. See Figure 6.

Take the XtremeLink® RF module and place it at an angle into the plastic case. Firmly push the antenna connector on to the XtremeLink® RF module's antenna connector port. MAKE SURE that you press this connector straight down, not at an angle! There should be a definite "snap" feeling when a proper connection is made. Orient the cable as shown. See Figure 7.

**Figure 6 – Inserting cable into plastic case**

Figure 7 – Attaching antenna cable to XtremeLink® RF module

With the cable routed properly, position the XtremeLink® RF module completely into the base of the plastic case. See Figure 8.

Figure 8 – Put the XtremeLink® RF module fully into plastic case

Keeping the case at an angle, take the XtremeLink® RF module's lid and place it over top of the plastic case, making sure that the push button switch passes through the hole labeled "PROG". The bottom of the lid has two tangs that will need to be snapped into the case. With the lid fully over top of the case, press on the bottom of the lid until it snaps flush with the case. See Figures 9 and 10 for details.
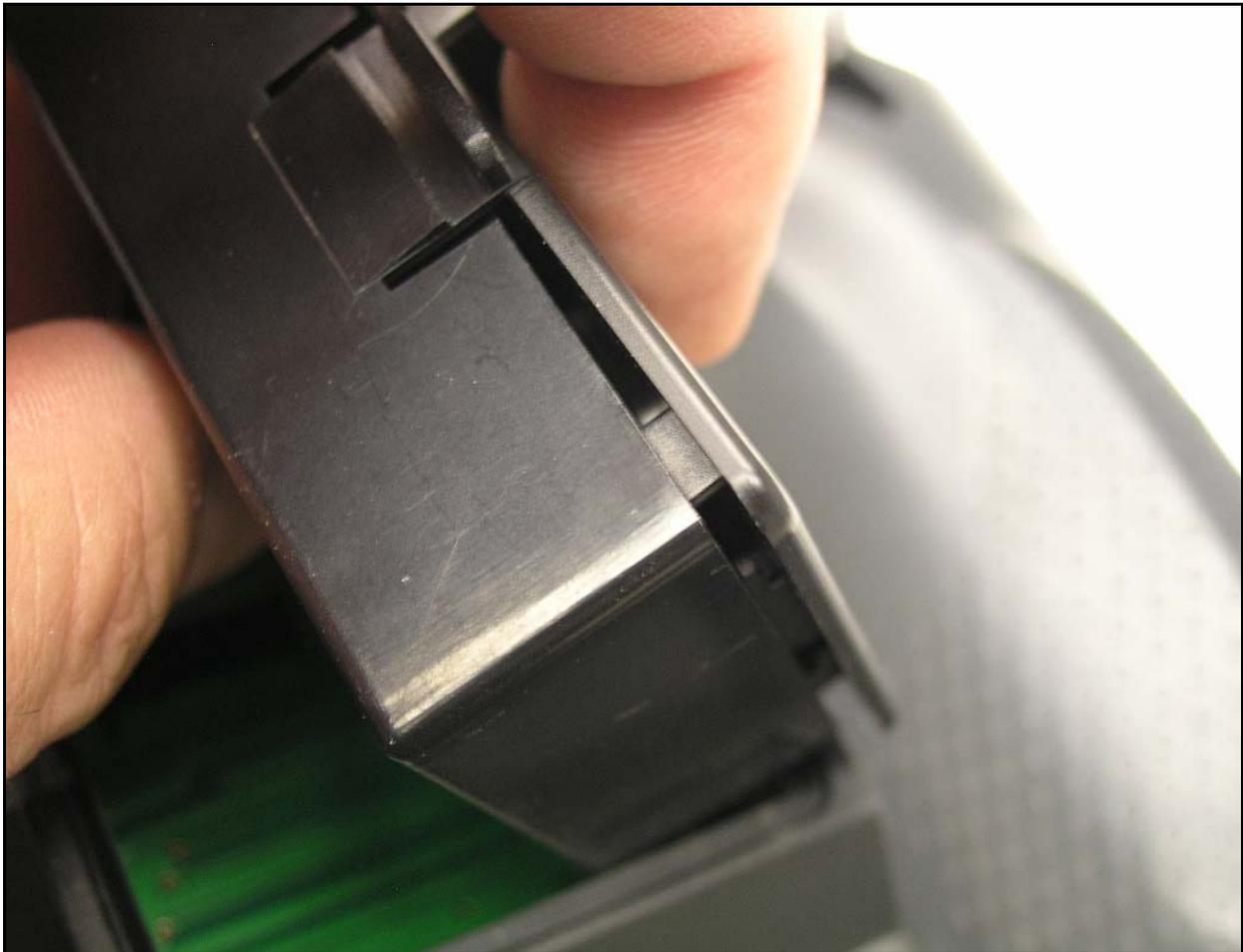
Figure 9 – Set the lid over top of the plastic case
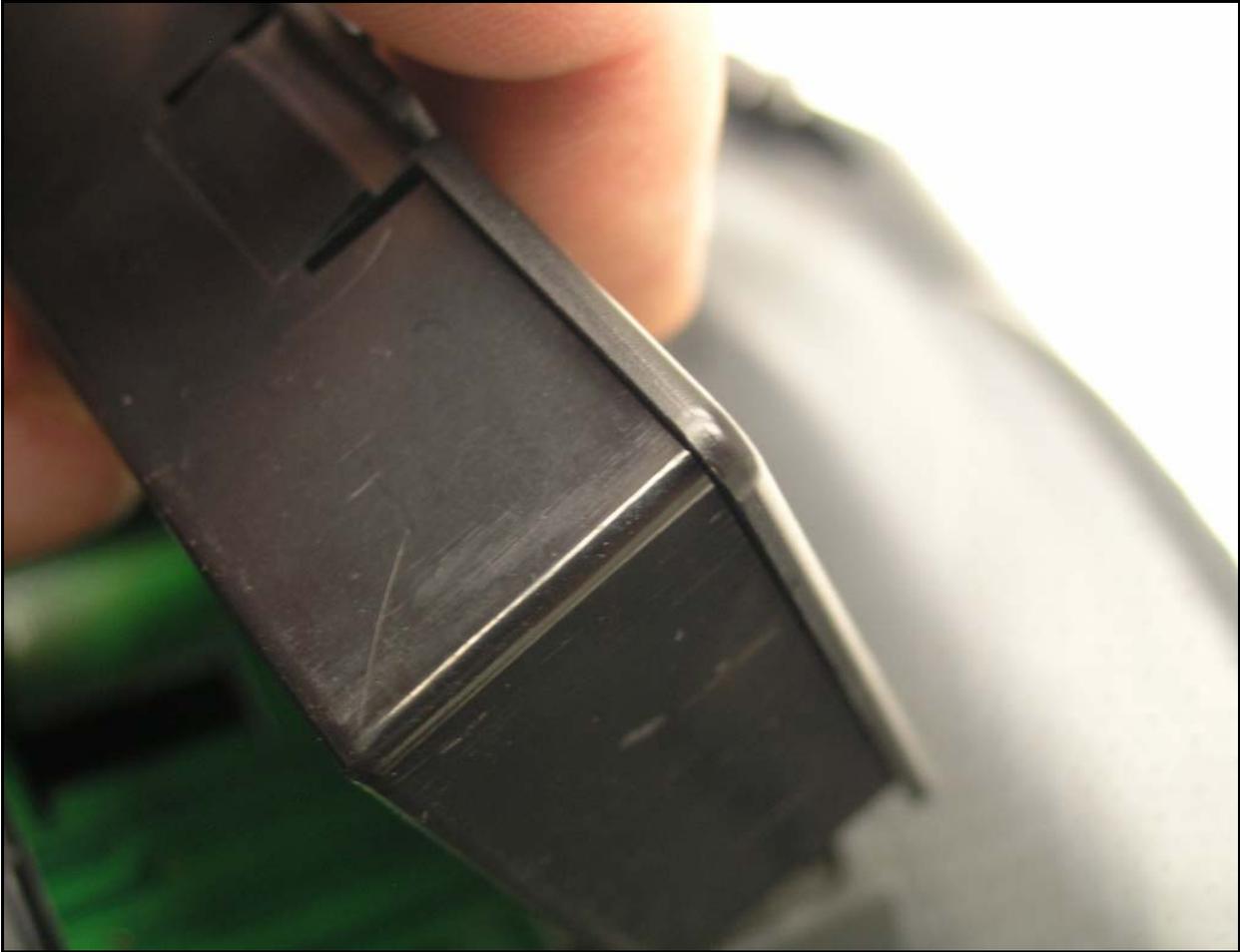
Figure 10 – Apply pressure to snap the lid flush with the case

Without removing the plastic case from the module location, carefully rotate the plastic case and set it in the place. MAKE SURE that the RF cable is not being pinched. There should be plenty of space for the RF cable to slide inside of the RF module enclosure as it is rotated. See Figure 11.

Figure 11 – Set module assembly in place

Firmly press the module in place. The two large center tangs should lock the module into the transmitter housing. See Figure 12. Use the two screws provided to fasten the top of the case. Installation is now complete.

Figure 12 – Module fully seated

SECTION 2 – TRANSMITTER MODULE USAGE

After turning on your transmitter, the STATUS LED on the XtremeLink® RF module will begin flashing red. Flashing red means that there is no connection to an XtremeLink® receiver. If the LED does not light up at all, contact Xtreme Power Systems' technical support for more information.

When a connection is established, the STATUS LED will light solid green. If there are telemetry sensors attached to the receiver, the STATUS LED will flash orange every time telemetry data is received.

Advanced Programming Features

Advanced programming mode allows various features to be changed.

NOTE - Any XtremeLink® receiver that has been "bound" to the XtremeLink® RF module must be turned off prior to powering on the transmitter.

To enter advanced programming mode, press and hold the PROG button and then turn on the power to the transmitter. Hold the button until the STATUS LED changes from off, to green, and then finally to red. This process will take approximately 7 seconds.

Once you are in programming mode, each time you press and release the PROG button, the STATUS LED color will change. Below is a table of STATUS LED colors and their meanings:

STATUS LED	FUNCTION
Solid Red	Set Power Level
Solid Green	Set Hopping Mode

If you press and hold the PROG button while the STATUS LED is any one of these colors, you will enter the programming for that function.

Additional features will be added in the future.

SET POWER LEVEL

Range: 1 to 5

With the STATUS LED solid red, press and hold the PROG button until the STATUS LED turns off. The STATUS LED will now slowly flash green the number of times equal to the current power setting. For example, the default power level is 5, so the STATUS LED will flash green five times.

After the flashing stops you have five seconds to change the power level. To change the power level, press and release the PROG button one time for each level of power you would like. For example, if you wanted the power level to be the lowest possible value, you would press and release the PROG button just once. If you wanted the power level to be 3, you would press and release the button three times.

If you do not press the PROG button within five seconds, or if the value you enter exceeds what is allowed, the STATUS LED will alternately flash red and green (error condition occurred) and no change will be made. At this point, you are back at the programming mode start (where you can select a programming option).

If you do make a change, the STATUS LED will blink green/red/orange in rapid succession to let you know that the change was successful.

Below is a table of required power levels for various countries.

Country	Allowable setting
North America	**1-5**
Australia & U.K.	**1-5**
Japan & France	**1-2 Hop Mode 1, otherwise 1-5**
Europe	**1-2 Hop Mode 1, otherwise 1-5**

SET HOPPING MODE

Range: 1 to 5

With the STATUS LED solid green, press and hold the PROG button until the STATUS LED turns off. The STATUS LED will now slowly flash green the number of times equal to the current hopping mode setting. For example, if hopping mode is currently set to 3, the STATUS LED will flash green three times.

After the flashing stops you have five seconds to change the hopping mode. To change the hopping mode, press and release the PROG button as many times as necessary to equal the hopping mode you would like. For example, if you wanted the hopping mode to be 3, you would press and release the button three times.

If you do not press the PROG button within five seconds, or if the value you enter exceeds what is allowed, the STATUS LED will alternately flash red and green (error condition occurred) and no change will be made. At this point, you are back at the programming mode start (where you can select a programming option).

If you do make a change, the STATUS LED will blink green/red/orange in rapid succession to let you know that the change was successful.

Below is a table of available hopping modes.

Hopping Mode	Setting
Single frequency w/predictive	1
FCC Full Time	2
FCC Full Time w/adaptive	3
ETSI Full Time	4
ETSI Full Time w/adaptive	5

The difference between the FCC and ETSI hopping schemes is the number of frequencies used. Until this product is re-certified to use more frequencies (like what has already been done with ETSI testing in Europe), the frequencies for the U.S. and other FCC compliant countries are same as the Single frequency w/predictive hopping mode. ETSI hopping increases the number of frequencies used in hopping sequence.

Note: adaptive mode is still in development and subject to change.

SECTION 3 – USING THE SYSTEM

Before the XtremeLink™ system can be used, the XtremeLink™ receiver must be instructed to communicate only with a single XtremeLink™ RF module (transmitter). This process, known as "binding" is required only once, for each new XtremeLink™ receiver.

Binding the XtremeLink™ System

Receiver (8/10 Channel) – Power on your XtremeLink® receiver. After a few seconds the STATUS LED will begin flashing red. Press and hold the programming button (located inside of the receiver, next to the antenna) using a 3/32nd or equivalent blunt object (note: screwdriver tips will damage the receiver) until the STATUS LED changes from off to green, and release the button.

Receiver (Nano) – Power on your XtremeLink® receiver and wait for the STATUS LED to begin flashing red. Now, connect the binding plug to the port labeled "B". When the STATUS LED will turns solid red remove the binding plug. The STATUS LED will then flash red at a different rate, indicating that it is in binding mode.

Transmitter – Press and hold the PROG button the XtremeLink™ RF module while powering on the transmitter. Hold the button until the STATUS LED changes from off to green and then release the PROG button. The STATUS LED will begin flashing orange. This indicates that the transmitter is waiting for an XtremeLink® receiver to bind to.

Once the button is released, the units should bind. Both STATUS LED on the transmitter module will turn green when a successful bind has occurred.

YOU MUST power off your transmitter and receiver(s) after binding! Your XtremeLink® system is now ready for use!

NOTES - The XtremeLink® receiver's STATUS LED will be green during normal operation if the power level of the transmitter module is set higher than 1, and red when the power level is set to 1.

YOU MUST SET THE HOPPING MODE PRIOR TO BINDING. THE HOPPING INFORMATION IS TRANSFERRED DURING THE BINDING PROCESS. IF YOU CHANGE HOPPING MODES, YOU MUST REBIND ALL RECEIVERS.

MULTIPLE RECEIVER SUPPORT IS NOT AVAILABLE IN HOPPING MODE 1. ONLY MODES 2-5 SUPPORT MULTIPLE SLAVE RECEIVERS!

*** HOPPING MODES 2-5 WARNING! ***

IF TWO OR MORE RECEIVERS ARE TURNED ON AT THE SAME TIME, AND THE TRANSMITTER IS THEN TURNED ON, *ANY* OF THE RECEIVERS MAY LOCK ON TO THE TRANSMITTER. THE OTHER RECEIVERS WILL NOT LOCK (UNLESS SET AS A SLAVE).
TURNING ON AND OFF YOUR TRANSMITTER WILL CAUSE RECEIVERS TO LOCK AND UNLOCK! FOR THIS REASON, PLEASE MAKE SURE THAT YOUR LAST MODEL IS TURNED OFF BEFORE FLYING THE NEXT MODEL! ALTHOUGH THIS IS THE SAME BEHAIVOR AS 35MHz/72MHz AND SOME OTHER 2.4GHz SYSTEMS, WE ARE LOOKING INTO SOLUTIONS TO ELIMINATE THIS POSSIBILITY.

Range Testing

To perform a range test of the XtremeLink® system, follow the instructions below. Have someone help you during this procedure.

Range test for full range receivers (including Nano receivers):

1. Install the receiver in the R/C device as it will be used.
2. Turn on the radio system so servo movement can be observed.
3. Using flat ground (pavement, low cut grass, or dirt) place the R/C device so that the receiver antenna is no less than 6" from the ground. This might require you elevating the R/C device during the testing.
4. Hold your transmitter waist high, away from your body.
5. Press and **hold** the PROG button on the transmitter module.
6. Walk to a distance of at least 125 feet. If at any time you experience a pause in controls, try to reproduce it again and release the button to see if the pause no longer occurs. If the problem does not occur now, check to make sure that your receiver is at least 6" from the ground while testing.
7. With the PROG button still pressed down, walk away from the R/C device while moving the sticks until there is intermittent control. Releasing the PROG button should restore 100% control. If it does not, **do not use the system and contact Xtreme Power Systems for assistance!**
8. Test complete.

Range test for original surface or park flyer receivers:

Follow the instructions of above. The range test will be limited to approximately 35 feet instead of at least 125 feet for full range receivers.

WARNING! DO NOT PRESS AND HOLD THE PROG BUTTON DURING THE NORMAL OPERATION (FLYING, DRIVING, ETC.) OF YOUR R/C DEVICE!

Contains FCC ID: OUR-XBEE / OUR-XBEEPRO * The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (*i.*) this device may not cause harmful interference and (*ii.*) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.