

Quick Start Guide

XStream-PKG-U™ USB RF Modem

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Create a long range wireless link in minutes!

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Range Test Setup

Requirements for Range Test

- One XStream-PKG-U™ USB RF Modem
- One XStream-PKG-R™ RS-232/485 RF Modem
- Accessories (USB cable, Loopback Adapter, 1 Power Supply, 2 RPSMA Antennas)
- One computer (Windows 98 SE, 2000 or XP) that has an available USB port and is loaded with the following software: X-CTU Software & USB RF Modem drivers

Install X-CTU Software

Select the 'Install X-CTU' button that is located on the MaxStream CD user interface or double-click the 'setup_X-CTU.exe' file. This file is located on the MaxStream CD and on the following web page: www.maxstream.net/helpdesk/download.php

Install USB RF Modem Drivers (Hardware USB Bus & Virtual Com Port drivers)

The following steps reflect usage of the Windows XP operating system.

1. Connect the XStream-PKG-U RF Modem to a PC using a USB cable.
--> The PKG-U RF Modem is a "plug-and-play" device that should automatically be detected by the PC.

"Found New Hardware Wizard" dialog box appears

2. [Verify the MaxStream CD is inserted into the drive.]
3. Select the 'Install from specific list or location (Advanced)' option; then select the 'Next' button.
- 4a. Select the "Search for best driver in these locations" option and check the 'Search removable media (CD-ROM...)' box.
- 4b. Select the 'Next' button.

Hardware Installation "Windows Logo Testing" alert box appears

5. Select the 'Continue Anyway' button.
6. Select the 'Finish' button.
7. Repeat steps 2 through 6 to install the second driver.
8. (Re-boot computer if prompted to do so.)

Range Test Setup (continued)

Verify Driver Installations

1. Connect the PKG-U RF Modem "Radio1" to the USB port of a PC.
[Figure 1 - Illuminated bottom-left red LED indicates a successful USB link.]
2. Launch the X-CTU Software and select the "PC Settings" tab.
[Start --> All Programs --> MaxStream --> X-CTU]
3. Under the 'Com Port Setup' section of the "PC Settings" tab, select the PKG-U RF Modem that is connected to the USB port [Figure 2]. Com ports dedicated to a USB RF modem have "MaxStream-PKG-U" in the com port name.
This PC com port will be used when executing the range test.

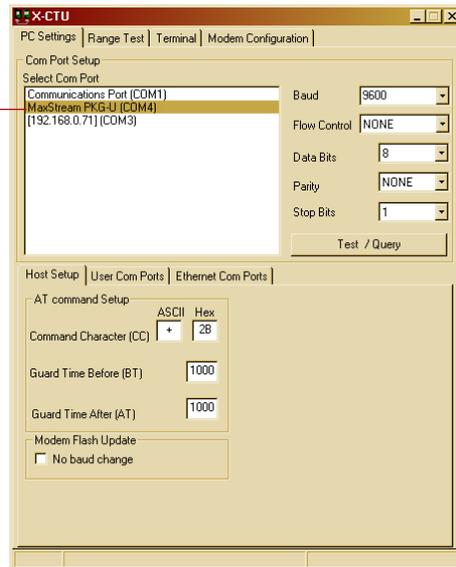
Figure 1. LED indication of successful USB link
(Left-bottom Red LED is illuminated.)



Figure 2. PC Settings tab

Com Port dedicated to the PKG-U RF Modem "MaxStream PKG-U (COM#)"

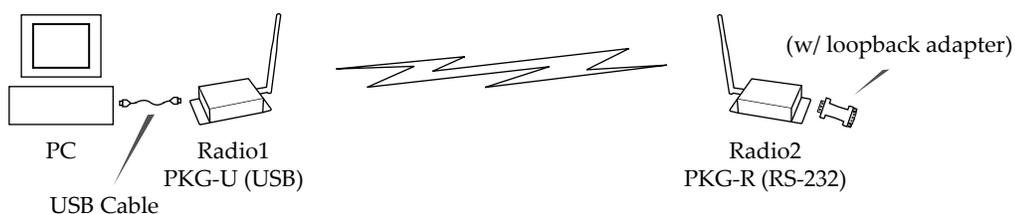
PC com port enumerations can also be viewed through the "Ports (COM & LPT)" entry of the Microsoft Windows Device Manager.



Hardware Setup

1. Verify PKG-U RF Modem ("Radio1") was successfully connected to the USB port of the PC [Figure 1].
2. Attach serial loopback adapter to the female DB-9 serial connector of the PKG-R RF Modem (Radio2).
--> The serial loopback adapter configures Radio2 to function as a repeater by looping data back into the modem for retransmission.
3. Attach RPSMA antennas to Radio1 & Radio2.
4. Power Radio2 through its power connector. (Radio1 is already powered through one of the pins of the USB connection)

Figure 3. Hardware Setup



Range Test Execution

Use the "PC Settings" and "Range Test" tabs of the X-CTU Software to:

- Assign which PC serial com port to use when communicating with XStream RF Modems [step 2 of "Range Test" below]
- Measure XStream RF Modem's range [steps 1-7 shown below]

Range Test

1. Launch X-CTU Software: (*Start --> Programs --> MaxStream --> X-CTU*)
- 2 Select the "PC Settings" tab [Figure 4], then select the PC com port from the dropdown list that will be used to connect to Radio1.
Com ports dedicated to USB RF Modems will always begin with "MaxStream PKG-U...".
- 3 Select the Baud rate that matches the default RF data rate (over-the-air baud) of Radio1. Use default values for remaining fields. [Figure 4]
4. Select the "Range Test" tab. [Figure 5]
- 5 (Optional) Check the check box in the 'RSSI' section to enable its display.
- 6 Select the "Start" button to begin range test.
7. Move Radio2 (with loopback adapter) away from Radio1 and observe packet information to determine the range of the wireless link.

Figure 4. PC Settings tab

2 **PC Com Port**

3 **Default Values**
Refer to XStream RF Modem part number to determine its default RF data rate:

X09-009...	=	9600 bps	
X09-019...	=	19200	
X24-009...	=	9600	Remaining Default Values:
X24-019...	=	19200	Flow Control = NONE
			Data Bits = 8
			Parity = NONE
			Stop Bits = 1

Figure 5. Range Test tab

5 **RSSI** check box
RSSI stands for "Received Signal Strength Indicator".

6 **Start/(Stop) button**

(Packet Information)

Tips and Suggestions

Modify Interface Data Rate of RF Modem (Optional)

OEMs and integrators can interface with XStream RF Modems at different baud rates than the modem defaults (though actual RF data rate is fixed). To change the modem's serial interfacing rate, first select the PC com port baud rate that matches the modem's default [steps 1-2 below]. Then change the baud rate of the modem itself [steps 3-7]. Lastly, select the baud rate of the PC com port to match the newly set baud rate of the modem [step 8].

Modify Interface Data Rate (Optional)

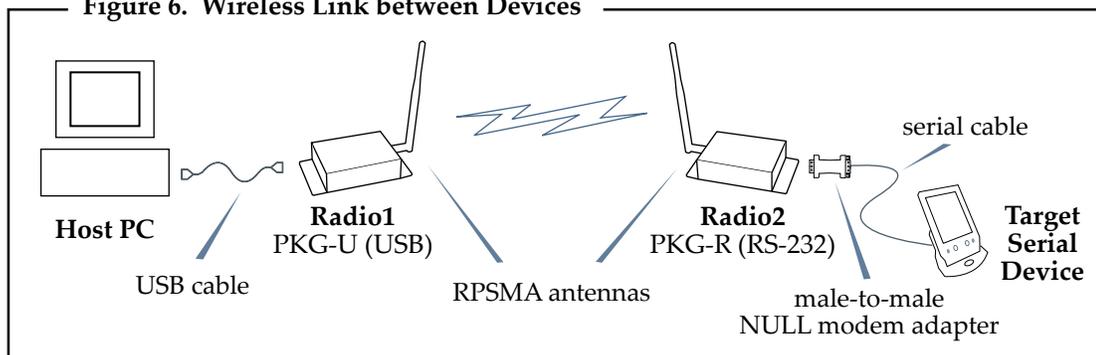
1. Setup a connection to a PC by following the steps of the installation instruction outlined on page 1 of this guide.
2. Select the PC Com port baud rate that matches the RF Modem's fixed RF data rate by following steps 1, 2 and 3 of the "Range Test". [page 3]
3. Select the "Modem Configuration" tab of the X-CTU Software.
4. Select the 'Read' button to view currently stored parameter values.
5. In the Commands/Parameters hierarchical tree, open the 'Serial Interfacing Options' folder by selecting its plus (+) sign.
6. Select the 'Baud Rate' entry, then select a desired baud rate from the dropdown list.
7. Select 'Write' button to save new settings to non-volatile memory.
8. Select the "PC Settings" tab [Figure 4], then select the value from the 'Baud' dropdown list that matches the newly set baud rate. This configures the PC Com Port to communicate at the new baud rate.

Create a Wireless Link between Devices

A pair of RF Modems can be used in lieu of a cable to create a wireless link between devices. The topology below illustrates a basic wireless strategy that can be used when connecting to target devices such as automatic meter readers, fleet management devices, remote weather stations and a host of other applications. When connecting devices, consider the following:

- Use the **male-to-male NULL modem adapter** to connect Radio2 to a target serial device [Figure 6]. Signals crossover inside the adapter.
- To verify cabling is functioning properly, insert a **female-to-female NULL modem adapter** in place of Radio1 and Radio2, then test communications without the RF modems in the link.

Figure 6. Wireless Link between Devices



Contact MaxStream (Office hours are 8am – 5pm U.S. mountain standard time)

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