Quick Start Guide

The XStream-PKG-R™ RS-232/485 RF Modem

Hardware Setup

Range Test

Advanced Modem Configuration (optional)

Tips and Suggestions
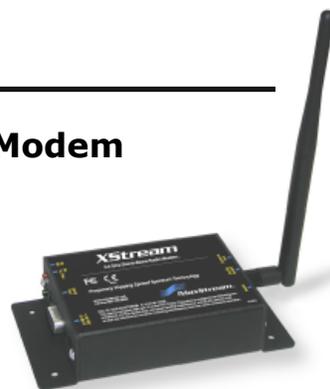
Create Long Range Wireless Link in Minutes!

Hardware Setup (for range test)

Requirements for Range Test

One computer (Windows 98 SE, 2000 or XP) with an available RS-232 (DB-9) serial com port

**X-CTU Software** - MaxStream-provided software that can be used to:

- **Setup** PC serial com ports to communicate with XStream RF Modems
- **Test** XStream RF Modem range
- **Configure** XStream RF Modem parameters

Install X-CTU Software steps-to-follow

Double-click the "setup_X-CTU.exe" file and follow prompts of the installation screens. This file is located in the 'software' folder of the MaxStream CD and under the 'Downloads' section of the following web page: www.maxstream.net/helpdesk/

Hardware Setup steps-to-follow

1. Set both DIP Switches to RS-232 Mode. Switch 1 is up (on) and the remaining five switches are off (down) [see Figure 5].
2. Connect Radio1 to a PC using an **RS-232 cable** (included with XStream RF Modem part numbers that end with an "-RA" suffix).
3. Attach the **serial loopback adapter** to the DB-9 serial port of Radio2. (The serial loopback adapter configures Radio2 to function as a repeater by looping data back into the modem for retransmission.)
4. Attach **RPSMA antennas** to Radio1 & Radio2.
5. **Power** Radio1 & Radio2 through their power connectors.

Figure 1. Hardware Setup

Radio1
XStream-PKG-R

Radio2
XStream-PKG-R

serial loopback adapter
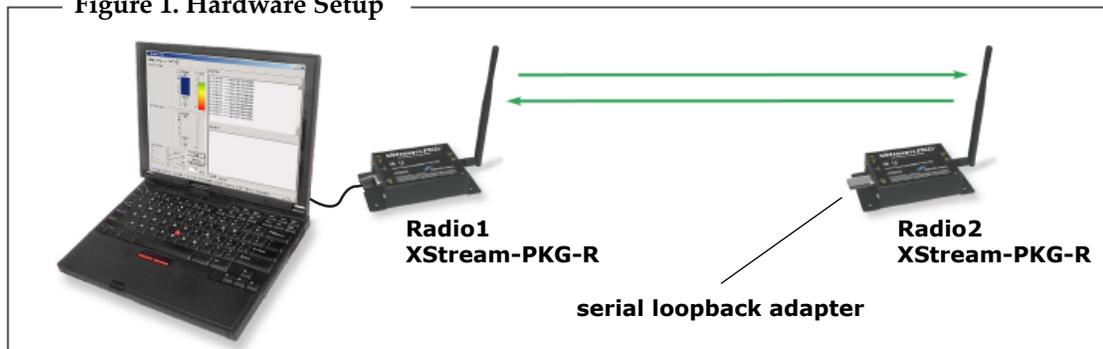
Range Test

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 steps-to-follow

1. Launch the X-CTU Software: *(Start --> Programs --> MaxStream --> X-CTU)*
2. Under the "PC Settings" tab [Figure 2], select the PC serial com port from the dropdown list that will be used to connect to Radio1.
3. Select the Baud rate that matches the fixed RF data rate (over-the-air baud) of Radio1. Use default values for remaining fields. [Figure 2]
4. Click on the "Range Test" tab. [Figure 3]
5. (Optional) Check the box in the "RSSI" section to enable its display.
6. Click the "Start" button to begin range test.
7. Move Radio2 (with loopback connector) away from Radio1 to measure the modem's range.

Figure 2. PC Settings tab

② **PC Serial Com Port**

③ **Default Values**
**Refer to XStream RF Modem part number
to determine its fixed RF data rate (baud):**

X09-009...	=	9600 bps
X09-019...	=	19200
X24-009...	=	9600
X24-019...	=	19200

Remaining Default Values:
Flow Control = None
Data Bits = 8
Parity = None
Stop Bits = 1

Figure 3. Range Test tab

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

⑥ **Start/(Stop)** button

(Packet Information)
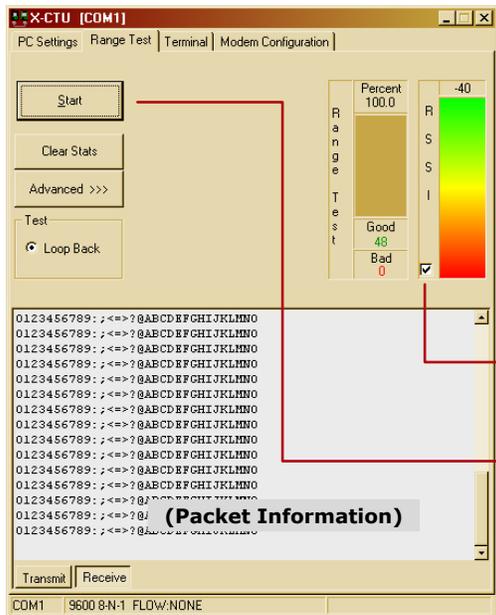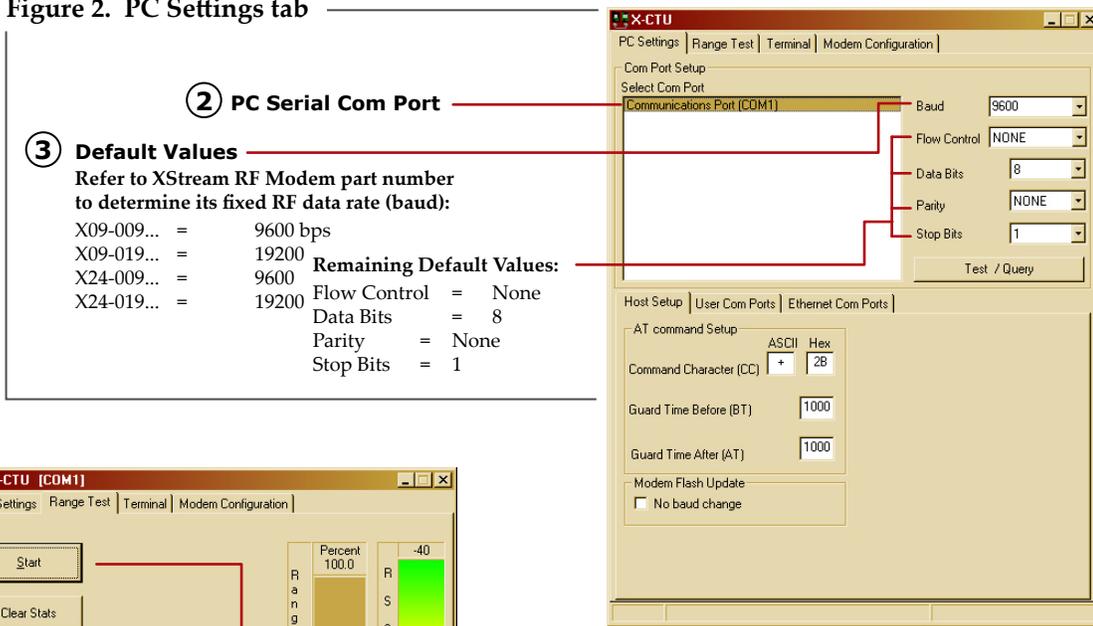
Advanced Modem Configuration (Optional)

XStream RF Modems operate out-of-box without configuration, yet users can use the "Modem Configuration" tab of the X-CTU Software to activate advanced functionality that includes the following:

- Serial Interfacing Options *("Change Baud Rate" steps shown below)*
- Sleep (Low Power) Modes
- Advanced Networking and Addressing
- Diagnostics

Change Serial Interfacing Baud Rate of RF Modem

OEMs and integrators can interface with XStream Modems at different baud rates than the modem defaults (though actual RF data rate is fixed). To change a modem's serial data rate, use the "PC Settings" tab to first select the PC com port baud rate that matches the modem's default [steps 1-2]. Then change the baud rate of the modem itself [steps 3-7] using the "Modem Configuration" tab. Then lastly, go back to the "PC Settings" tab and select the PC com port baud rate that matches the newly set baud rate of the modem [step 8].

Change Baud Rate steps-to-follow

1. Setup connection to a PC by following steps 1,2 & 5 of the "Hardware Setup" steps-to-follow [page 1].

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".

3. Click on the "Modem Configuration" tab. [Figure 4]

④ Click the "Read" button.

⑤ In the Command & Parameter Hierarchical Tree, open the "Serial Interfacing Options" folder by clicking its plus (+) sign.

⑥ Click the "Baud Rate" entry, then select a new baud rate from the dropdown list.

⑦ Click "Write" button to save new settings to the RF Modem.

8. Click on the "PC Settings" tab [Figure 2] and select the value from the "Baud" dropdown list that matches the newly selected baud rate. This configures the PC Com Port to communicate at the new baud rate.

Figure 4. Modem Configuration tab

④ **Read** parameters button

⑦ **Write** parameters button

⑤ **Serial Interfacing Options** folder

⑥ **Baud Rate dropdown** list
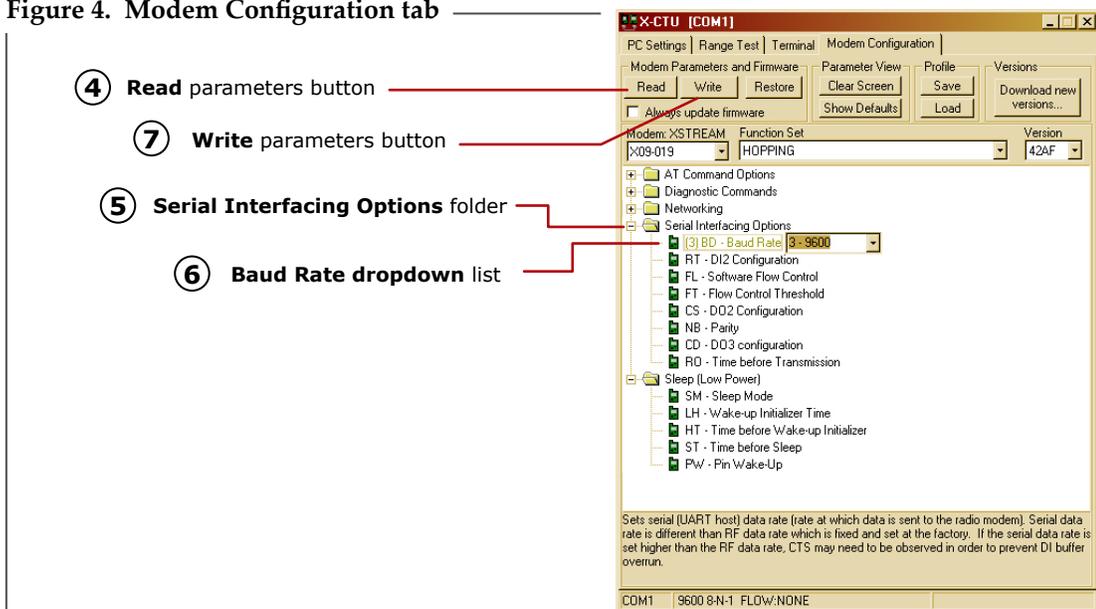
Tips and Suggestions

XStream-PKG-R DIP Switch

The XStream-PKG-R DIP Switch allows users to configure "Serial Interface", "Termination" and "Parity" command parameter settings.

Figure 5. DIP Switch Settings (Settings applied only while powering on)
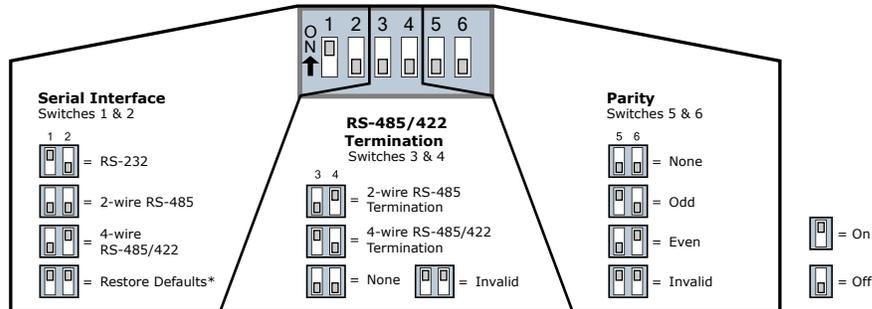
* The 'Restore Defaults' setting, for switches 1 & 2, can be used to restore modem parameters to their default states. (Restoration occurs after power-up) See "Restoring..." section below for more information.

Restore RF Modem to its Default Parameter Values

If the RF Modem is not responding or cannot enter into "AT Command Mode", restore the modem to its original settings.

To Restore Defaults (DIP Switch Method):

1. Set switches 1 & 2 of the DIP Switch to their on (up) positions and the remaining four switches to their off (down) positions.
2. Power off (for at least one second), then on again, the RF modem.

Create a Wireless Link between Serial Devices

A pair of RF Modems can be used in lieu of a serial 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 building a wireless link, 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 serial 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

Radio1
XStream-PKG-R

Target Serial Device

Radio2
XStream-PKG-R
(w/ male-to-male
NULL modem adapter)
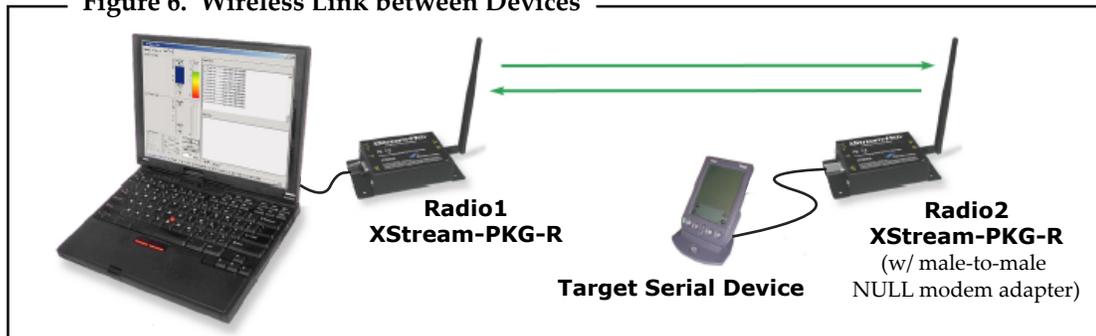
Contact MaxStream (Office hours are 8am – 5pm U.S. mountain standard time)

Phone: (801) 765-9885, Live Chat: www.maxstream.net, E-Mail: rf-xperts@maxstream.net