

Quick Start Guide

XStream™ OEM RF Module Development Kit

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Create a Long Range Wireless Link in Minutes!

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Introduction

This Quick Start Guide provides OEMs and integrators with an introduction to some of the module's most important features. This guide provides step-by-step instruction on how to setup a wireless link and test the module's ability to transport data over varying ranges and conditions.

Range Test Setup

Requirements for Range Test

- 2 OEM RF Modules
- 2 Interface Boards
- Accessories (Loopback adapter, RS-232 cable, 2 antennas, 2 power supplies)
- 1 PC (Windows 98 SE, 2000 or XP) loaded with X-CTU Software

Install X-CTU Software

Double-click "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' link of the following web page: www.maxstream.net/helpdesk/

The X-CTU Software interface is divided into the four following tabs:

- PC Settings - Setup PC serial com ports to interface with the module assembly
- Range Test - Test module's range under varying conditions
- Terminal - Read/Set module parameters and monitor data communications
- Modem Configuration - Read/Set module parameters

Hardware Setup

1. Set both Interface Board DIP Switches to **RS-232 Mode**. Switch 1 is ON (up) and the remaining 5 switches are OFF (down) [Figure 5].
2. Mount each **XStream Module** to a MaxStream **Interface Board** [Figure 1]. Assemblies will be referred to as "Radio1" and "Radio2".
3. Attach RPSMA antenna to the XStream Module that does not have an attached wire antenna.
4. Connect Radio1 to a PC using the included **RS-232 cable** [Figure 2].
5. Attach the **serial loopback adapter** to the DB-9 serial connector of Radio2. (The serial loopback adapter configures Radio2 to function as a repeater by looping data back into the module for retransmission. [Figure 2])
6. Power Radio1 & Radio2 through the interface boards using the included power supplies.

Figure 1.
Module Assembly

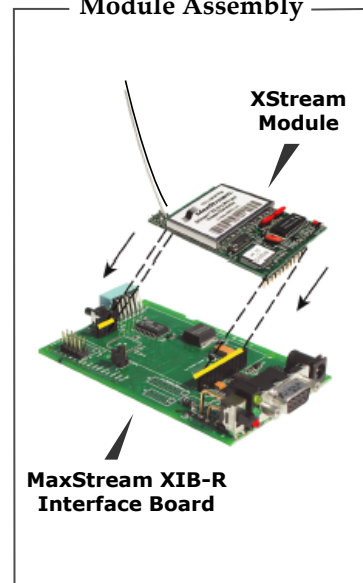
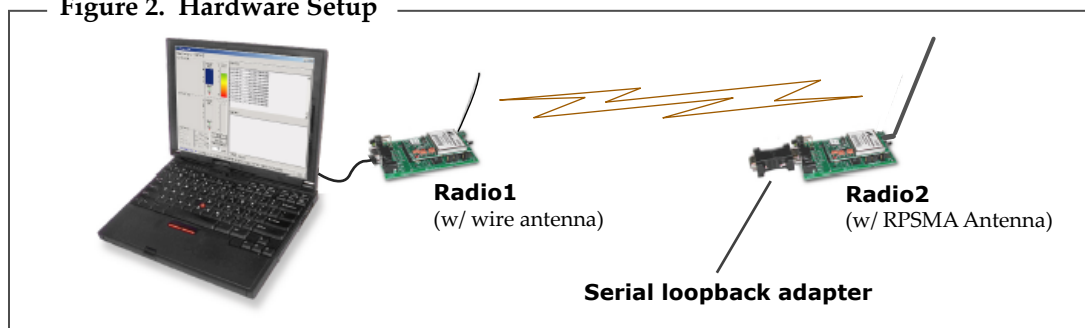


Figure 2. Hardware Setup



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 module assemblies [step 2 of "Range Test"]
- Measure XStream OEM RF Module's range [steps 1-7 of "Range Test"]

Range Test

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

Figure 3. PC Settings tab

2 PC Com Port

3 Default Values
Refer to XStream Module part number to determine its default (& fixed) RF data rate:

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

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

6 Start/(Stop) button

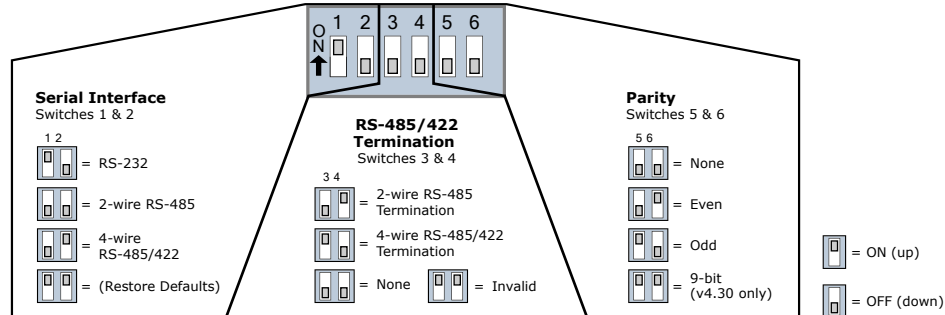
Figure 4. Range Test tab

Tips and Suggestions

Interface Board DIP Switch Configurations

The MaxStream Interface Board DIP Switch allows users an exterior method for configuring "Serial Interface" and "Termination" parameter settings.

Figure 5. DIP Switch Settings (Settings applied only during power-up sequence)



Restore Module to its Default AT Settable Parameter Values

To Restore Defaults (using X-CTU Software):

If module is not responding or cannot enter Command Mode, try restoring the modem to its original settings.

1. Connect module assembly to host PC [steps 1-2 of the 'Hardware Setup' instructions on page 2 of this guide].
2. Match PC Settings with those of the module [steps 1-3 of the 'Range Test' instructions on page 3].
3. Launch X-CTU Software & select "Modem Configuration" tab.
4. Select the "Restore" button.

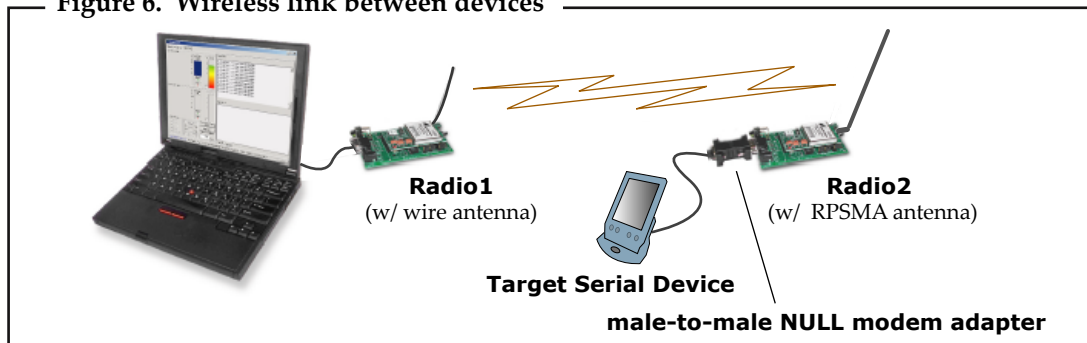
Create a Wireless Link between Serial Devices

A pair of module assemblies 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 creating a wireless link, consider the following:

- Use the **male-to-male NULL modem adapter** to connect Radio2 to a target serial device. [Figure 6] Pin 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 module assemblies 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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