



# Quick Start Guide

## XTend-PKG-U™ USB RF Modem



Create a long range wireless link in minutes.

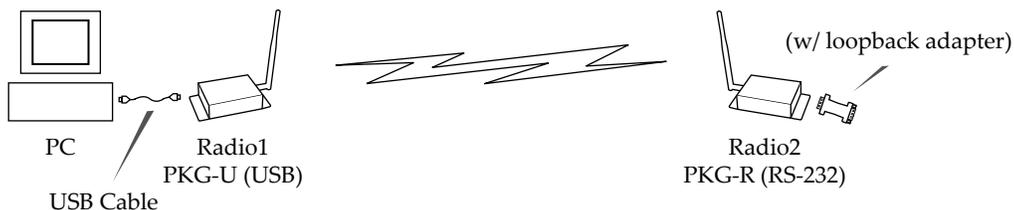
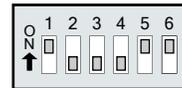
## Connect Hardware

To install the modem and test modem range, you need:

- One XTend-PKG-U™ USB RF Modem
- One XTend-PKG-R™ RS-232/485 RF Modem
- Accessories (USB cable, Loopback Adapter, 2 Power Supplies, 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

### Hardware Setup

1. Verify PKG-U RF Modem ("Radio1") was successfully connected to the USB port of the PC.
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. Configure Radio2 (PKG-R RF Modem) for RS-232 operation using its built-in DIP Switch (Switches 1, 5 & 6 are ON (up) and the remaining switches are OFF (down)).
4. Attach RPSMA antennas to Radio1 & Radio2.
5. Power Radio1 & Radio2 through their respective power connectors. Radio1 can be powered through the USB connection (Bus power mode); however, its power output is limited to 100 mW.



# Install Software

## Install X-CTU Software

Double-click the file **setup\_X-CTU.exe**, located on the Digi-MaxStream Software and Documentation CD, and on the following web page: [www.maxstream.net/helpdesk/download.php](http://www.maxstream.net/helpdesk/download.php). Or, click the **Install X-CTU** button on the Software and Documentation CD user interface.

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

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

1. Connect the XTend-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. The **Found New Hardware Wizard** is displayed.
2. Verify the Digi CD is inserted into the drive.
3. Select the **Install from specific list or location (Advanced)** option; then click **Next**.
- 4a. Select the **Search for best driver in these locations** option and check the **Search removable media (CD-ROM...)** box.
- 4b. Click **Next**.  
The **Hardware Installation Windows Logo Testing** alert box is displayed.
5. Click **Continue Anyway**.
6. Click **Finish**.
7. Repeat steps 2 through 6 to install the second driver.
8. Re-boot computer if prompted to do so.

## Verify Driver Installations

1. Connect the PKG-U RF Modem "Radio1" to the USB port of a PC. An 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 > Digi-MaxStream > X-CTU**)
3. In the **Com Port Setup** section of the **PC Settings** tab, select the PKG-U RF Modem that is connected to the USB port. Com ports dedicated to a USB RF modem have "Digi PKG-U" in the com port name.

This PC com port will be used when executing the range test.

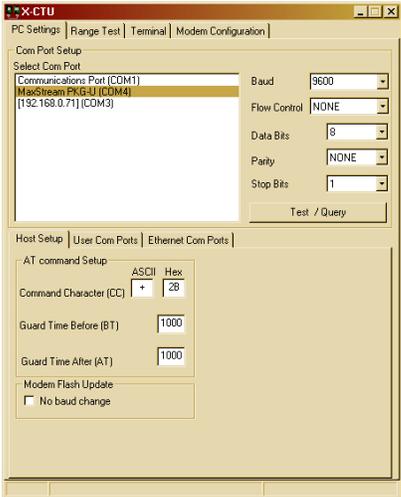
**LED indication of successful USB link**  
(Left-bottom Red LED is illuminated.)



## PC Settings tab

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

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



# Configure Serial Port-Modem Communications

Configure a PC serial port to communicate with the modem:

1. Launch X-CTU Software: **Start > Programs > Digi > X-CTU**
- ② Click the PC Settings tab. From the dropdown list, select the PC com port that will be used to connect to Radio1. Com ports dedicated to USB RF Modems will always begin with "Digi 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.

**PC Settings tab**

② **PC Com Port**

③ **Interface Data Rate (Baud)**  
By default, the XTend-PKG-U RF data rate is set to 9600 baud (bps).

**Remaining Default Values:**

- Flow Control = NONE
- Data Bits = 8
- Parity = NONE
- Stop Bits = 1

## Determine the RF Modem's Range

1. Click the **Range Test** tab.
- ② (Optional) Check the check box in the **RSSI** section to enable display of signal strength.
- ③ Click the **Start** button to begin range test.
4. Move Radio2 (with loopback adapter) away from Radio1 and observe packet information to determine the range of the wireless link.

**Range Test tab**

② **RSSI** check box  
RSSI stands for "Received Signal Strength Indicator".

③ **Start/(Stop)** button

**(Packet Information)**

# Tips and Suggestions

## Modify Interface Data Rate of RF Modem (Optional)

OEMs and integrators can interface with XTend RF Modems at different baud rates than the modem defaults. 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]. Finally, select the baud rate of the PC com port to match the newly set baud rate of the modem [step 8].

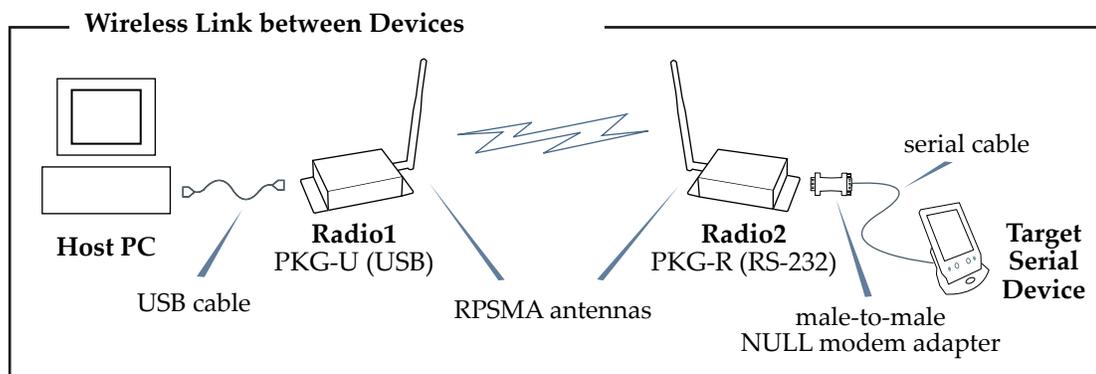
1. Set up a connection to a PC by following the steps of the Hardware Setup instructions on page 1.
2. Select the PC Com port baud rate that matches the RF Modem's fixed RF data rate by following steps in Configure PC-Modem Communications on page 3.
3. In the X-CTU Software, click the **Modem Configuration** tab.
4. Click 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. Click the **Write** button to save new settings to non-volatile memory.
8. Click the **PC Settings** tab, 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.



## Contact Digi

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

Phone: (801) 765-9885, Live Chat: [www.maxstream.net](http://www.maxstream.net), E-mail: [rf-xperts@maxstream.net](mailto:rf-xperts@maxstream.net)