

short panel

FCC COMPLIANCE STATEMENT

The following statement applies to Crossbow Base Station and Sensor Node:

To ensure compliance with FCC RF exposure requirements, the antenna used for this device must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or radio transmitter. Installers and end-users must follow the installation instructions provided in this user guide.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 2 dB. Antennas not included in this list or having a gain greater than 2 dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

Antenna List: Pulse (Model: W1030) 2dBi OMNI antenna

Crossbow 0dBi OMNI antenna

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

tel: 408-965-3300
www.xbow.com

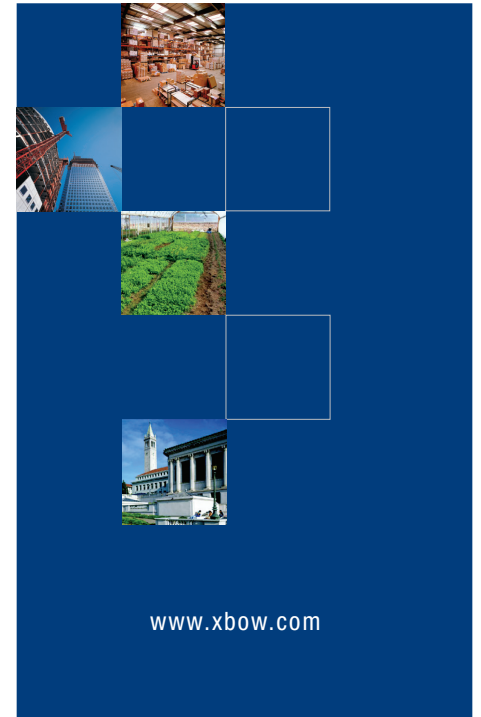
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Quick Start Guide

Wireless Sensor Network Kits



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This guide will step you through the process of setting up a simple wireless sensor network demonstration. The four main steps are to:

1. Install *MoteView* on your Windows® PC.
2. Install the USB drivers for the BU Series Base Station/Gateway.
3. Set up SN Series Sensor Nodes.
4. Start *MoteView* and log sensor data from the wireless network.

IMPORTANT: This section is intended for kit users only. If you purchased stand-alone boards, as opposed to a complete preprogrammed kit, then refer to the *MoteView User's manual*.

1: Install MoteView on your PC

Before you can use *MoteView* you have to install it on a PC. The requirements necessary to properly install *MoteView* are provided below:

- A PC with Windows XP® Home/Professional or Windows 2000 with SP4
- An NTFS file system
- Screen resolution must be at least 800 X 600 or the interface will require scrollbars
- Administrative privileges to write to the Windows registry

NOTE: Prior to installing MoteView, it is highly recommended that you shut down all the programs running on your computer.

Follow these installation steps:

- 1.1. Insert the *WSN Kit* CD into the computer's CD-ROM drive.
- 1.2. Double-click on **MoteView<version>_Setup.exe** in the "Mote View" folder.
- 1.3. Select the desired installation directory (the default installation directory is C:\Program Files\Crossbow\MoteView)
- 1.4. Check all the available installation tasks.

1.5. The InstallShield Wizard will guide you through the rest of the process and install the following:

- *MoteView* application
- PostgreSQL 8.0 database service
- PostgreSQL ODBC driver
- Microsoft .NET 1.1 framework

NOTE: If you receive an MDAC Windows compatibility warning, you may ignore this by clicking *Cancel* and continue with the installation.

2: Install the USB drivers for BU Series Base Station/Gateway

Connect one end of the USB extension cable to an available USB port on your PC. Connect the other to the Base Station's USB connector. Having plugged the Base Station/Gateway (MIB520) into your PC for the first time, Windows detects and reports it as new hardware. Follow these installation steps:

- 2.1. When the PC directs you to search for a suitable driver select "Install from a list or specific location (Advanced)".
- 2.2. Browse to the "USB Drivers" folder of the *WSN Kit* CD.
- 2.3. Follow the FTDI InstallShield Wizard through the rest of the installation process. When the drivers are installed, you will see two virtual COM ports associated with the Base Station/Gateway. Before communicating with Motes using the USB gateway, you need to see which ports were assigned to it. To find out, do the following:
 - Click on **Windows Start > Control Panel > System > Hardware > Device Manager > Ports (COM & LPT)**.
 - Make a note of the assigned COM port numbers for USB Serial Port.

NOTE: The two virtual serial ports for BU Series Base Station/Gateway are com<x> and com<x+1>. com<x> is for Node programming, and com<x+1> is for Node communication.

3: Set-up SN Series Sensor Nodes

All Sensor Nodes in your kit are labeled with a Unique Node ID

- 3.1. Insert batteries into the battery holder compartment of the Sensor Nodes and turn the power switch to the ON position.
- 3.2. Spread the nodes around on your desk or in the office area.
- 3.3. Make sure that the sensor nodes are resting on their bases with antenna pointing vertically upwards.

4: Start MoteView and Log Sensor Data from the Network

All the visualization tools in *MoteView* require being connected to a database. The database is in your PC ("localhost"), but can also be a remote PC/server. Instructions for logging and viewing data locally are described below:

- 4.1. Start *MoteView* by double-clicking the icon on the desktop.
- 4.2. Open the "Connect to WSN" wizard from "**File > Connect to WSN**".
- 4.3. In the Mode tab, check on "Acquire Live Data" as operation mode and "Local" as acquisition type and click on Next >>.
- 4.4. In the Gateway tab, select "MIB520" from the Interface Board drop-down and specify the "Serial Port" to the higher of the two com numbers assigned to the USB Gateway during the driver installation. For example if the COM ports for the MIB520 are 8 and 9, then enter in 9 for COM. Select the "57600" for the Baud rate from drop-down box and click on Next >>.
- 4.5. In the Sensor Board tab, select "XMTS400" from the XMesh Application Name pull-down menu (you may have to uncheck the View Alternate Table checkbox if previously checked). Click on Done.

Incoming data will be displayed shortly. Click on the *MoteView* window to view data, time plots of sensor values, and topology of the sensor network.

NOTE: In the topology tab, new nodes will appear in the top left corner. You need to drag and move them to view network topology.

Refer to the *MoteView User's manual* located in the "Manuals and Docs" folder of the CD for further details.