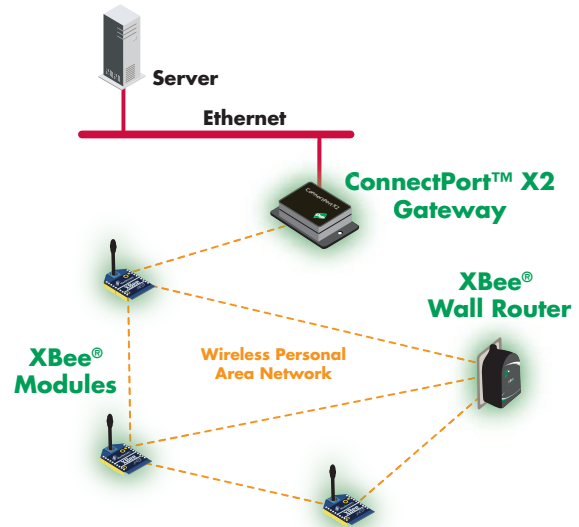


# Drop-in Networking Professional Development Kit

Proof-of-Concept Low-Power Wireless Connectivity Kit

Cost-effective, out-of-the-box kit for the evaluation and development of wireless sensor/device networks. Can be used as a mobile measurement tool to monitor equipment health, sense environmental conditions or take temporary measurements where short-term data is needed to validate a process or conditions.



## Features/Benefits

- Easily configure a low-power mesh or multipoint sensor/device network
- Conduct a basic wireless range test
- Provide IP connectivity to the network using the ConnectPort X2 gateway
- Monitor light and temperature readings from the XBee wall router (mesh kit version)
- Laptop or PC access to the WPAN via the XBee USB adapter (multipoint kit version)

## Overview

The Drop-in Networking Professional Development Kit provides the hardware and software tools to rapidly deploy a real-world wireless sensor/device network and proof-of-concept system. All hardware components are pre-configured to run either mesh or multipoint networking software, which is optimized for low-power, battery-fueled operation.

The kit includes:

- 3 XBee modules (1 XBee and 2 XBee-PRO<sup>®</sup>) and 3 interface boards (1 USB and 2 RS-232) to simulate endpoints in the Wireless Personal Area Network (WPAN).
- 1 ConnectPort<sup>™</sup> X2 gateway which concentrates data from the XBee modules for connectivity to a PC or the IP network. The gateway provides a Python-based programming engine for custom application development.
- 1 XBee wall router (mesh kit versions) OR 1 XBee USB adapter (multipoint kit versions)
  - The wall router provides network extension and plugs into a standard power outlet. It also includes integrated light and temperature sensors that can be monitored via the gateway.
  - The XBee USB adapter provides easy local connectivity to the WPAN via a laptop or PC.
- Power supplies, user documentation and configuration CD. The CD also provides a set of Python<sup>®</sup> programming tools to assist with custom application development.

To see the full range of Digi's Drop-in Networking solutions, including off-the-shelf XBee adapters for connecting legacy devices to mesh and multipoint networks, as well as cellular and Wi-Fi gateway models, visit <http://www.digi.com/products/wirelessdropinnetworking/>.



| Product Type                                     | XBee® & XBee-PRO® ZNet 2.5 Modules   |   | XBee® & XBee-PRO® 802.15.4 Modules               |   |
|--|--|---|--|---|
| Model  | Regular  | PRO                                     | Regular  | PRO   |
| <b>Performance</b>                               |  |   |  |   |
| RF Data Rate                                     | 250 Kbps   | 250 Kbps                                | 250 Kbps   | 250 Kbps  |
| Indoor/Urban Range                               | Up to 133 ft (40 m)  | Up to 300 ft (90 m)                     | Up to 100 ft (30 m)                              | Up to 300 ft (90 m)   |
| Outdoor/Line-of-Sight Range                      | Up to 400 ft (20 m)  | Up to 1 mile (1.6 km)                   | Up to 300 ft (90 m)                              | Up to 1 mile (1.6 km)   |
| Transmit Power                                   | 1.25 mW (+1 dBm) / 2 mW (+3 dBm) boost mode  | 50 mW (+17 dBm) / Int'l 10 mW (+10 dBm) | 1 mW (0 dBm)                                     | 60 mW (+18 dBm)* / Int'l 10 mW (+10 dBm)                          |
| Receiver Sensitivity (1% PER)                    | -96 dBm in boost mode  | -102 dBm                                | -92 dBm  | -100 dBm  |
| <b>General</b>                                   |  |   |  |   |
| Frequency Band                                   | 2.4 GHz  |   |  |   |
| Sleep Modes                                      | Low-power sleep modes enable power-down currents less than 10 uA   |   |  |   |
| Operating Temperature                            | -40° C to +85° C (Industrial)  |   |  |   |
| <b>Product Type</b>                              |  |   |  |   |
| <b>ConnectPort™ X2 Gateway</b>                   |  |   |  |   |
| <b>General</b>                                   |  |   |  |   |
| Network Protocols                                | UDP/TCP, DHCP  |   |  |   |
| Interfaces                                       | Physical: 1 RJ-45 Ethernet port; RF: 1 XBee-PRO module, 2.4 GHz  |   |  |   |
| LEDs   | Ethernet status, power, XBee link/activity   |   |  |   |
| Router/Security Features                         | NAT, port forwarding, access control lists (IP filtering)  |   |  |   |
| Management                                       | HTTP web interface, password access control, IP service port control, optional secure enterprise management via Digi Connectware® Manager, Python application customization tool for programmability |   |  |   |
| <b>Power Requirements</b>                        |  |   |  |   |
| Power Input                                      | 9-30VDC  |   |  |   |
| Power Supply                                     | 12VDC power supply included  |   |  |   |
| Power Consumption                                | 1.2 W (idle) / 3.4 W (max)   |   |  |   |
| <b>Product Type</b>                              |  |   |  |   |
| <b>XBee® Wall Router</b>                         |  | <b>XBee® USB Adapter</b>                |  |   |
| <b>General</b>                                   |  |   |  |   |
| Antenna  | Internal   |   | Integrated whip antenna                          |   |
| Locking Mechanism                                | Unit secures to power outlet using center outlet screw (U.S. only)   |   | N/A  |   |
| LEDs   | Power: Solid when external power is supplied<br>Associate: Blinks when unit is associated to an RF network   |   | N/A  |   |
| Push Button                                      | Device reset, configuration reset to factory defaults, identification/commissioning mode   |   | N/A  |   |
| <b>Integrated Temperature &amp; Light Sensor</b> |  |   |  |   |
| Temperature Sensor                               | Range: -20° C to +70° C (-4° F to +158° F)<br>Accuracy: +/- 2° C   |   | N/A  |   |
| Ambient Light Sensor                             | Range of spectral bandwidth: 360 to 970 nm (similar to human eye) Wavelength of peak sensitivity: 570 nm   |   | N/A  |   |
| <b>Power Requirements</b>                        |  |   |  |   |
| Power Input                                      | Universal AC input (85VAC to 265VAC)   |   | Bus-powered (+5V)                                |   |
| Power Consumption                                | N/A  |   | 70 mA (normal operation) / 200 uA (suspend mode) | 70 mA Rx and 250 mA Tx (normal operation) / 200 uA (suspend mode) |



Please visit [www.digi.com](http://www.digi.com) for part numbers.

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**Digi International**, the leader in device networking for business, develops reliable products and technologies to connect and securely manage local or remote electronic devices over the network or via the web. With over 20 million ports shipped worldwide since 1985, Digi offers the highest levels of performance, flexibility and quality.

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