

# XBee® Multipoint RF Modules

Embedded RF Modules for OEMs

Low-cost, easy-to-deploy modules provide critical end-point connectivity to Digi's Drop-in Networking product family.



## Overview

### XBee Product Family

The XBee family of embedded RF modules provides OEMs with a common footprint shared by multiple platforms, including multipoint and ZigBee/Mesh topologies, and both 2.4 GHz and 900 MHz solutions. OEMs deploying the XBee can substitute one XBee for another, depending upon dynamic application needs, with minimal development, reduced risk and shorter time-to-market.

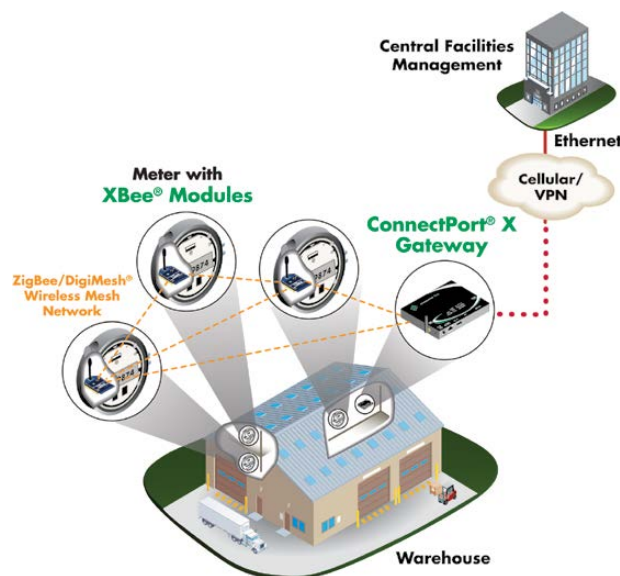
### Why XBee Multipoint RF Modules?

XBee multipoint RF modules are ideal for applications requiring low latency and predictable communication timing. Providing quick, robust communication in point-to-point, peer-to-peer, and multipoint/star configurations, XBee multipoint products enable robust end-point connectivity with ease. Whether deployed as a pure cable replacement for simple serial communication, or as part of a more complex hub-and-spoke network of sensors, XBee multipoint RF modules maximize wireless performance and ease of development.

### Drop-in Networking End-Point Connectivity

XBee OEM RF modules are part of Digi's Drop-in Networking family of end-to-end connectivity solutions. By seamlessly interfacing with compatible gateways, device adapters and extenders, XBee embedded RF modules provide developers with true beyond-the-horizon connectivity.

## Application Highlight



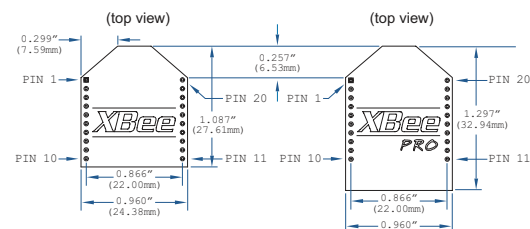
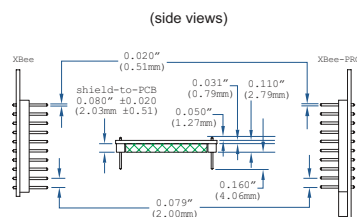
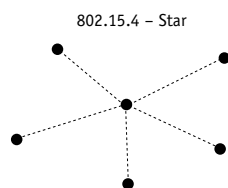
## Features/Benefits

- 802.15.4/Multipoint network topologies
- 2.4 GHz for worldwide deployment
- 900 MHz for long-range deployment
- Fully interoperable with other other Digi networking products, including gateways, device adapters and extenders
- Common XBee footprint for a variety of RF modules
- Low-power sleep modes
- Multiple antenna options
- Industrial temperature rating (-40° C to 85° C)
- Low-power and long-range variants available



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| Platform                         | XBee® 802.15.4 (Series 1)                 | XBee-PRO® 802.15.4 (Series 1)             | XBee-PRO® XSC                            |
|----------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------|
| <b>Performance</b>               |                                           |                                           |                                          |
| RF Data Rate                     | 250 kbps                                  | 250 kbps                                  | 10 kbps / 9.6 kbps                       |
| Indoor/Urban Range               | 100 ft (30 m)                             | 300 ft (100 m)                            | Up to 1200 ft (370 m)                    |
| Outdoor/RF Line-of-Sight Range   | 300 ft (100 m)                            | 1 mi (1.6 km)                             | Up to 6 mi (9.6 km)                      |
| Transmit Power                   | 1 mW (+0 dBm)                             | 60 mW (+18 dBm)*                          | 100 mW (+20 dBm)                         |
| Receiver Sensitivity (1% PER)    | -92 dBm                                   | -100 dBm                                  | -106 dBm                                 |
| <b>Features</b>                  |                                           |                                           |                                          |
| Serial Data Interface            | 3.3V CMOS UART                            | 3.3V CMOS UART                            | 3.3V CMOS UART (5V Tolerant)             |
| Configuration Method             | API or AT Commands, local or over-the-air | API or AT Commands, local or over-the-air | AT Commands                              |
| Frequency Band                   | 2.4 GHz                                   | 2.4 GHz                                   | 902 MHz to 928 MHz                       |
| Interference Immunity            | DSSS (Direct Sequence Spread Spectrum)    | DSSS (Direct Sequence Spread Spectrum)    | FHSS (Frequency Hopping Spread Spectrum) |
| Serial Data Rate                 | 1200 bps - 250 kbps                       | 1200 bps - 250 kbps                       | 1200 bps - 57.6 kbps                     |
| ADC Inputs                       | (6) 10-bit ADC inputs                     | (6) 10-bit ADC inputs                     | None                                     |
| Digital I/O                      | 8                                         | 8                                         | None                                     |
| Antenna Options                  | Chip, Wire Whip, U.FL, & RPSMA            | Chip, Wire Whip, U.FL, & RPSMA            | Wire Whip, U.FL, RPSMA                   |
| <b>Networking &amp; Security</b> |                                           |                                           |                                          |
| Encryption                       | 128-bit AES                               | 128-bit AES                               | No                                       |
| Reliable Packet Delivery         | Retries/Acknowledgments                   | Retries/Acknowledgments                   | Retries/Acknowledgements                 |
| IDs and Channels                 | PAN ID, 64-bit IEEE MAC, 16 Channels      | PAN ID, 64-bit IEEE MAC, 12 Channels      | PAN ID, 32-bit Address, 7 Channels       |
| <b>Power Requirements</b>        |                                           |                                           |                                          |
| Supply Voltage                   | 2.8 - 3.4VDC                              | 2.8 - 3.4VDC                              | 3.0 - 3.6VDC                             |
| Transmit Current                 | 45 mA @ 3.3VDC                            | 215 mA @ 3.3VDC                           | 265 mA typical                           |
| Receive Current                  | 50 mA @ 3.3VDC                            | 55 mA @ 3.3VDC                            | 65 mA typical                            |
| Power-Down Current               | <10 uA @ 25° C                            | <10 uA @ 25° C                            | 45 uA pin Sleep                          |
| <b>Regulatory Approvals</b>      |                                           |                                           |                                          |
| FCC (USA)                        | OUR-XBEE                                  | OUR-XBEEPRO                               | MCQ-XBEEEXSC                             |
| IC (Canada)                      | 4214A-XBEE                                | 4214A-XBEEPRO                             | 1846A-XBEEEXSC                           |
| ETSI (Europe)                    | Yes                                       | Yes* Max TX 10 mW                         | No                                       |
| C-TICK Australia                 | Yes                                       | Yes                                       | No                                       |
| Telec (Japan)                    | Yes                                       | Yes*                                      | No                                       |



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**Digi International  
France**  
+33-1-55-61-98-98  
[www.digi.fr](http://www.digi.fr)

**Digi International  
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