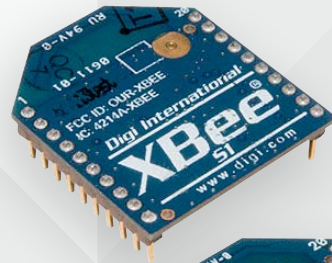




EMBEDDED RF  
MODULES FOR OEMS



# DIGI XBEE® S1 802.15.4 RF MODULES

Easy-to-deploy modules provide critical end-point connectivity to devices and sensors

Digi XBee RF modules provide 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 Digi XBee can substitute one Digi XBee for another, depending upon dynamic application needs, with minimal development, reduced risk and shorter time-to-market.

Digi XBee 802.15.4 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, Digi XBee

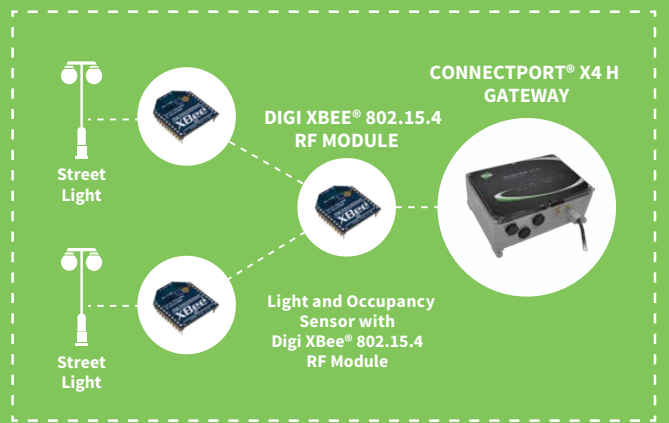
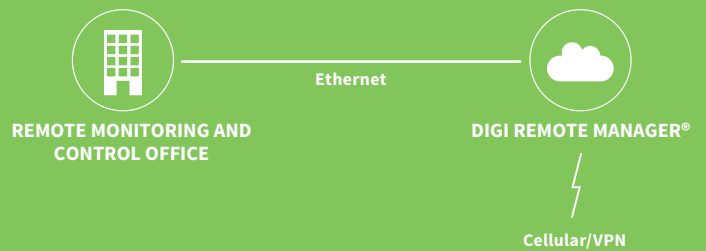
802.15.4 products enable robust end-point connectivity with ease. Whether deployed as a pure cable replacement for simple serial communication, or as part of a more complex hub-and-spoke network of sensors, Digi XBee 802.15.4 RF modules maximize performance and ease of development.

Digi XBee 802.15.4 modules seamlessly interface with compatible gateways, device adapters and range extenders, providing developers with true beyond-the-horizon connectivity.

## BENEFITS

- Simple, out-of-the-box RF communications, no configuration needed
- Point-to-multipoint network topology
- 2.4 GHz for worldwide deployment
- Common Digi XBee footprint for a variety of RF modules
- Low-power sleep modes
- Multiple antenna options

## APPLICATION EXAMPLE



## RELATED PRODUCTS



ConnectPort® X4/X4H Gateways



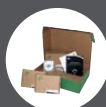
Digi XBee® Adapters



XCTU



Digi Remote Manager®



Development Kits

# SPECIFICATIONS

Legacy Digi XBee® S1 802.15.4

| Legacy Digi XBee-PRO® S1 802.15.4

## PERFORMANCE

|                                |                   |                  |
|--------------------------------|-------------------|------------------|
| RF DATA RATE                   | 250 kbps          | 250 kbps         |
| INDOR/URBAN RANGE              | 100 ft (30 m)     | 300 ft (100 m)   |
| OUTDOOR/RF LINE-OF-SIGHT RANGE | 300 ft (100 m)    | 1 mi (1.6 km)    |
| TRANSMIT POWER                 | 1 mW (+0 dBm)     | 60 mW (+18 dBm)* |
| RECEIVER SENSITIVITY (1% PER)  | -92 dBm           | -100 dBm         |
| DIGI HARDWARE                  | S1                |                  |
| TRANSCEIVER CHIPSET            | Freescale MC13212 |                  |

## FEATURES

|                       |   |
|-----------------------|---|
| SERIAL DATA INTERFACE | 3.3V CMOS UART                            |
| CONFIGURATION METHOD  | API or AT Commands, local or over-the-air |
| FREQUENCY BAND        | 2.4 GHz                                   |
| INTERFERENCE IMMUNITY | DSSS (Direct Sequence Spread Spectrum)    |
| SERIAL DATA RATE      | 1200 bps - 250 kbps                       |
| ADC INPUTS            | (6) 10-bit ADC inputs                     |
| DIGITAL I/O           | 8   |
| ANTENNA OPTIONS       | Chip, Wire Whip, U.FL, & RPSMA            |

## NETWORKING & SECURITY

|                          |                                      |
|--------------------------|--------------------------------------|
| ENCRYPTION               | 128-bit AES                          |
| RELIABLE PACKET DELIVERY | Retries/Acknowledgments              |
| IDS AND CHANNELS         | PAN ID, 64-bit IEEE MAC, 16 Channels |

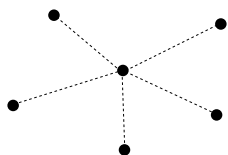
## POWER REQUIREMENTS

|                    |                |                 |
|--------------------|----------------|-----------------|
| SUPPLY VOLTAGE     | 2.8 - 3.4VDC   | 2.8 - 3.4VDC    |
| TRANSMIT CURRENT   | 45 mA @ 3.3VDC | 215 mA @ 3.3VDC |
| RECEIVE CURRENT    | 50 mA @ 3.3VDC | 55 mA @ 3.3VDC  |
| POWER-DOWN CURRENT | <10 uA @ 25° C |                 |

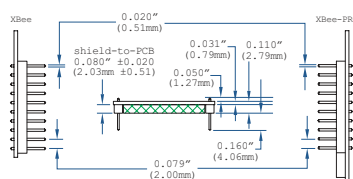
## REGULATORY APPROVALS

|                  |                 |                    |
|------------------|-----------------|--------------------|
| FCC (USA)        | OUR-Digi XBee   | OUR-Digi XBeePRO   |
| IC (CANADA)      | 4214A-Digi XBee | 4214A-Digi XBeePRO |
| ETSI (EUROPE)    | Yes             | Yes - Max TX 10 mW |
| C-TICK AUSTRALIA | Yes             |                    |
| TELEC (JAPAN)    | Yes             |                    |

802.15.4 - Star

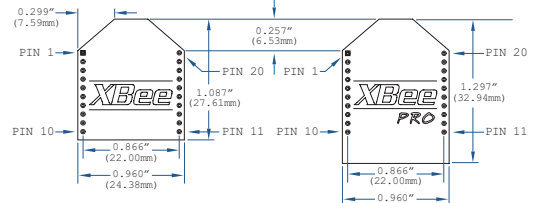


(Side Views)



(Top View)

(Top View)



## PART NUMBERS

## DESCRIPTION

## MODULES

|                |  |
|----------------|--|
| XB24-AWI-001   | Digi XBee S1 802.15.4 low-power module w/ wire antenna                             |
| XB24-API-001   | Digi XBee S1 802.15.4 low-power module w/ PCB antenna                              |
| XB24-AUI-001   | Digi XBee S1 802.15.4 low-power module w/ U.fl connector                           |
| XB24-ASI-001   | Digi XBee S1 802.15.4 low-power module w/ RPSMA connector                          |
| XBP24-AWI-001  | Digi XBee-PRO S1 802.15.4 extended-range module w/ wire antenna                    |
| XBP24-AWI-001J | Digi XBee-PRO S1 802.15.4 extended-range module w/ wire antenna (International)    |
| XBP24-AUI-001  | Digi XBee-PRO S1 802.15.4 extended-range module w/ U.fl connector                  |
| XBP24-AUI-001J | Digi XBee-PRO S1 802.15.4 extended-range module w/ U.fl connector (International)  |
| XBP24-ASI-001  | Digi XBee-PRO S1 802.15.4 extended-range module w/ RPSMA connector                 |
| XBP24-ASI-001J | Digi XBee-PRO S1 802.15.4 extended-range module w/ RPSMA connector (International) |
| XBP24-API-001  | Digi XBee-PRO S1 802.15.4 extended-range module w/ PCB antenna                     |
| XBP24-API-001J | Digi XBee-PRO S1 802.15.4 extended-range module w/ PCB antenna (International)     |

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