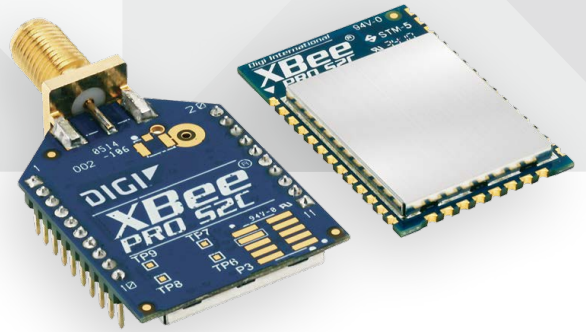




EMBEDDED RF
MODULES FOR OEMS



DIGI XBEE® S2C 802.15.4 RF MODULES

Low-cost, 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.

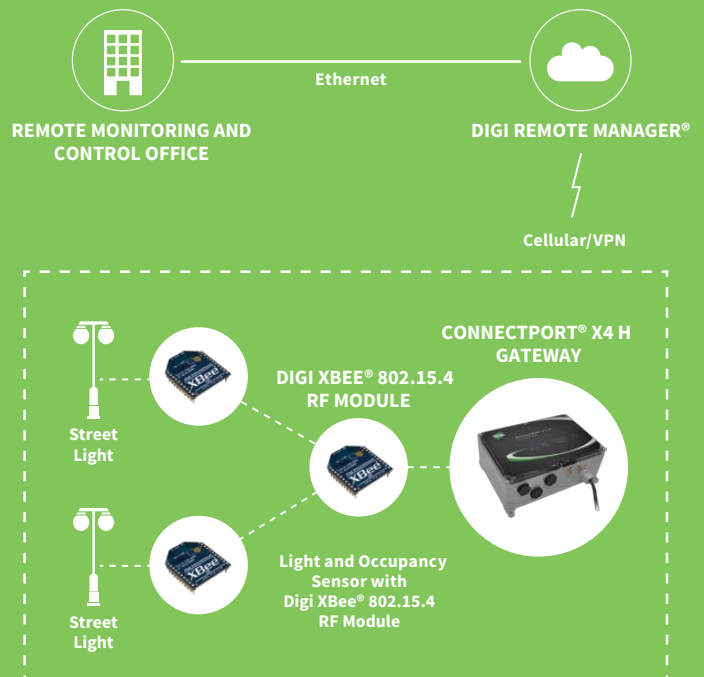
Digi XBee 802.15.4 modules seamlessly interface with compatible gateways, device adapters and range extenders, providing developers with true beyond-the-horizon connectivity.

The updated Digi XBee S2C 802.15.4 module is built with the SiliconLabs EM357 SoC and offers improved power consumption, support for over-the-air firmware updates, and provides an upgrade path to DigiMesh® or ZigBee® mesh protocols if desired.

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
- Industry leading sleep current of sub 1uA
- Firmware upgrades via UART, SPI or over the air
- Migratable to DigiMesh and ZigBee PRO protocols and vice-versa

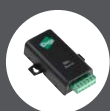
APPLICATION EXAMPLE



RELATED PRODUCTS



ConnectPort®
X4/X4H Gateways



XBee®
Adapters



XCTU



Digi Remote
Manager®



Development
Kits

SPECIFICATIONS

Digi XBee® S2C 802.15.4

| Digi XBee-PRO® S2C 802.15.4

PERFORMANCE

| | | |
|---------------------------------|--|------------------------|
| TRANSCEIVER CHIPSET | Silicon Labs EM357 SoC | |
| DATA RATE | RF 250 Kbps, Serial up to 1 Mbps | |
| INDOOR/URBAN RANGE* | Up to 200 ft (60 m) | Up to 300 ft (90 m) |
| OUTDOOR/RF LINE-OF-SIGHT RANGE* | Up to 4000 ft (1200 m) | Up to 2 miles (3200 m) |
| TRANSMIT POWER | 3.1 mW (+5 dBm) / 6.3 mW (+8 dBm) boost mode | 63 mW (+18 dBm) |
| RECEIVER SENSITIVITY (1% PER) | -100 dBm / -102 dBm boost mode | -101 dBm |

FEATURES

| | | |
|-----------------------------------|---|--|
| SERIAL DATA INTERFACE | UART, SPI | |
| CONFIGURATION METHOD | API or AT commands, local or over-the-air (OTA) | |
| FREQUENCY BAND | ISM 2.4 GHz | |
| FORM FACTOR | Through-Hole, Surface Mount | |
| HARDWARE | S2C | |
| ADC INPUTS | (4) 10-bit ADC inputs | |
| DIGITAL I/O | 15 | |
| ANTENNA OPTIONS | Through-Hole: PCB Antenna, U.FL Connector, RPSMA Connector, or Integrated Wire SMT: RF Pad, PCB Antenna, or U.FL Connector | |
| OPERATING TEMPERATURE | -40° C to +85° C | |
| DIMENSIONS (L X W X H) AND WEIGHT | Through-Hole: 0.960 x 1.087 in (2.438 x 2.761 cm) SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm) | Through-Hole: 0.960 x 1.297 in (2.438 x 3.294 cm) SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm) |

NETWORKING AND SECURITY

| | | |
|--------------------------------|--|-------------|
| PROTOCOL | Digi XBee 802.15.4 (Proprietary 802.15.4) | |
| UPDATABLE TO DIGIMESH PROTOCOL | Yes | |
| UPDATABLE TO ZIGBEE PROTOCOL | Yes | |
| INTERFERENCE IMMUNITY | DSSS (Direct Sequence Spread Spectrum) | |
| ENCRYPTION | 128-bit AES | |
| RELIABLE PACKET DELIVERY | Retries/Acknowledgements | |
| IDS | PAN ID and addresses, cluster IDs and endpoints (optional) | |
| CHANNELS | 16 channels | 15 channels |

POWER REQUIREMENTS

| | | |
|--------------------|---------------------------------------|------------------|
| SUPPLY VOLTAGE | 2.1 to 3.6V | 2.7 to 3.6V |
| TRANSMIT CURRENT | 33 mA @ 3.3 VDC / 45 mA boost mode | 120 mA @ 3.3 VDC |
| RECEIVE CURRENT | 28 mA @ 3.3 VDC / 31 mA boost mode | 31 mA @ 3.3 VDC |
| POWER-DOWN CURRENT | <1 µA @ 25° C | <1 µA @ 25° C |

REGULATORY APPROVALS

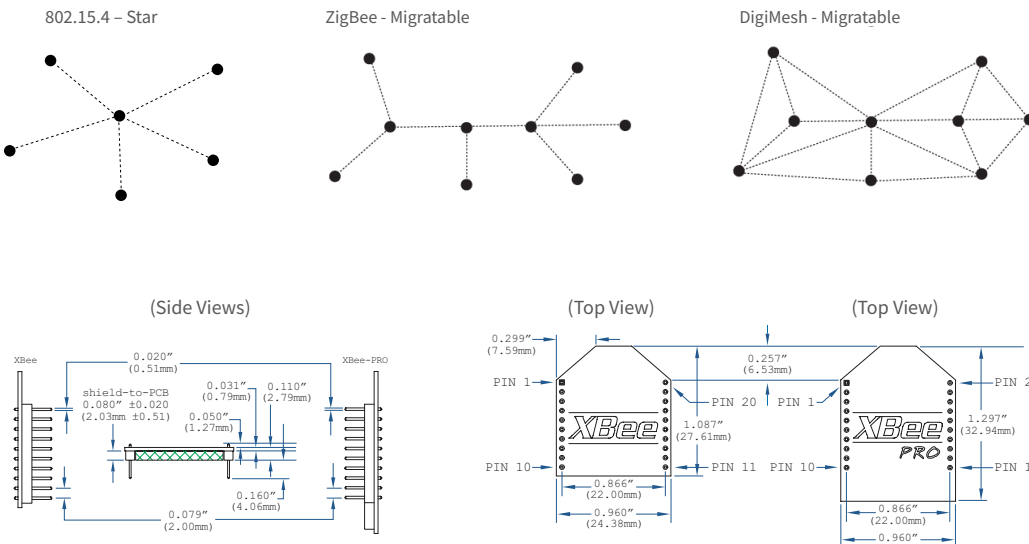
| | | |
|---------------------------------|------------------|------------------|
| FCC, IC (NORTH AMERICA) | Yes | Yes |
| ETSI (EUROPE) | Yes | No |
| RCM (AUSTRALIA AND NEW ZEALAND) | No (Coming soon) | No (Coming soon) |
| TELEC (JAPAN) | No (Coming soon) | No (Coming soon) |

*Range figure estimates are based on free-air terrain with limited sources of interference. Actual range will vary based on transmitting power, orientation of transmitter and receiver, height of transmitting antenna, height of receiving antenna, weather conditions, interference sources in the area, and terrain between receiver and transmitter, including indoor and outdoor structures such as walls, trees, buildings, hills, and mountains.

PART NUMBERS

DESCRIPTION

| KIT | |
|----------------|---|
| XKB2-A2T-WWC | Wireless Connectivity Kit with Digi XBee 802.15.4 (S2C) |
| MODULES | |
| XB24CAWIT-001 | Digi XBee 802.15.4 through-hole module w/ wire antenna |
| XB24CAPIT-001 | Digi XBee 802.15.4 through-hole module w/ PCB antenna |
| XB24CAUIT-001 | Digi XBee 802.15.4 through-hole module w/ U.fl connector |
| XB24CASIT-001 | Digi XBee 802.15.4 through-hole module w/ RPSMA connector |
| XB24CAPIS-001 | Digi XBee 802.15.4 SMT module w/ PCB antenna |
| XB24CAUIS-001 | Digi XBee 802.15.4 SMT module w/ U.fl connector |
| XB24CARIS-001 | Digi XBee 802.15.4 SMT module w/ RF Pad connector |
| XBP24CAWIT-001 | Digi XBee-PRO 802.15.4 through-hole module w/ wire antenna |
| XBP24CAPIT-001 | Digi XBee-PRO 802.15.4 through-hole module w/ PCB antenna |
| XBP24CAUIT-001 | Digi XBee-PRO 802.15.4 through-hole module w/ U.fl connector |
| XBP24CASIT-001 | Digi XBee-PRO 802.15.4 through-hole module w/ RPSMA connector |
| XBP24CAPIS-001 | Digi XBee-PRO 802.15.4 SMT module w/ PCB antenna |
| XBP24CAUIS-001 | Digi XBee-PRO 802.15.4 SMT module w/ U.fl connector |
| XBP24CARIS-001 | Digi XBee-PRO 802.15.4 SMT module w/ RF Pad connector |



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