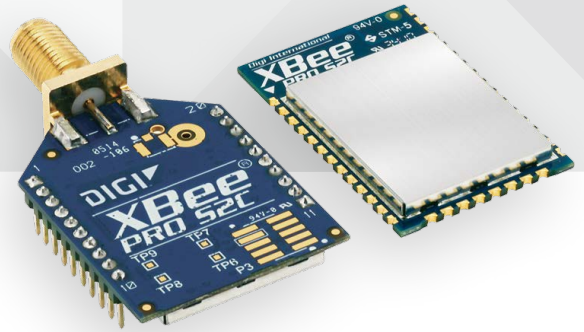




EMBEDDED RF  
MODULES FOR OEMS



# 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.

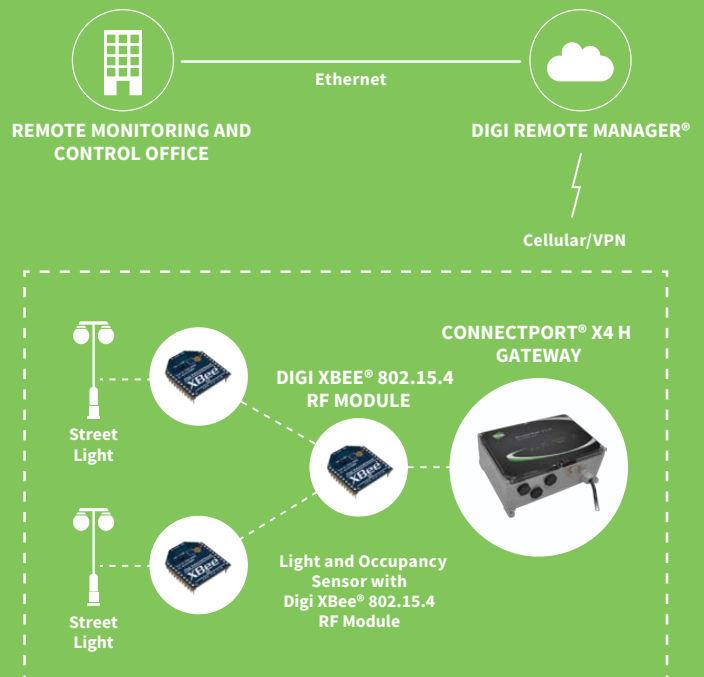
Digi XBee 802.15.4 modules seamlessly interface with compatible gateways, device adapters and range extenders, providing developers with true beyond-the-horizon connectivity.

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

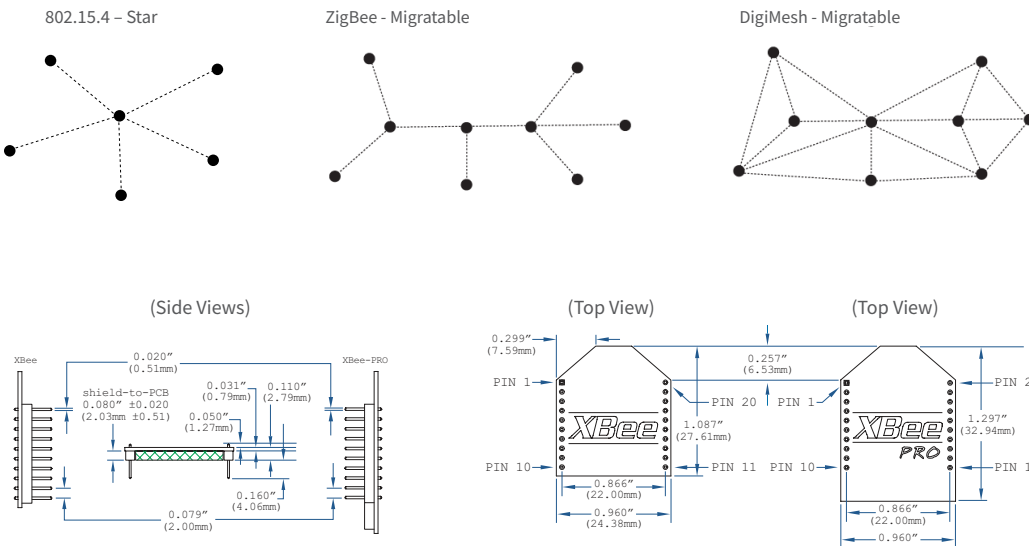
FCC, IC (NORTH AMERICA)	Yes	Yes
ETSI (EUROPE)	Yes	No
RCM (AUSTRALIA AND NEW ZEALAND)	No (Coming soon)	No (Coming soon)
TELEC (JAPAN)	No (Coming soon)	No (Coming soon)

\*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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