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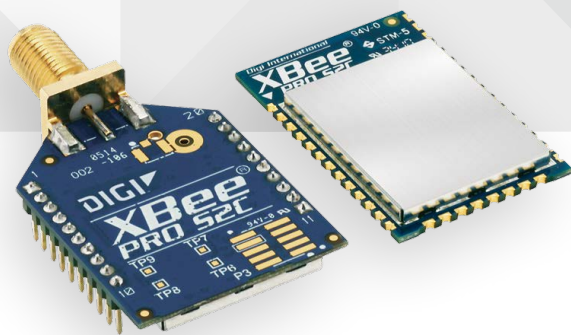
XBEE® S2C 802.15.4 RF MODULES

Low-cost, easy-to-deploy modules provide critical end-point connectivity to devices and sensors

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

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, 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, XBee 802.15.4 RF modules maximize performance and ease of development.

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 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.
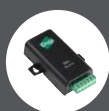
BENEFITS

– Simple, out-of-the-box RF communications, no configuration needed
– Point-to-multipoint network topology
– 2.4 GHz for worldwide deployment
– Common 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

REMOTE MONITORING AND CONTROL OFFICE

Ethernet

DEVICE CLOUD

Cellular/VPN

CONNECTPORT® X4 H GATEWAY

XBEE® 802.15.4 RF MODULE

Street Light

Street Light

Light and Occupancy Sensor with XBee® 802.15.4 RF Module

RELATED PRODUCTS

ConnectPort® X4/X4H Gateways

XBee® Adapters

XCTU

Digi Device Cloud℠

Development Kits
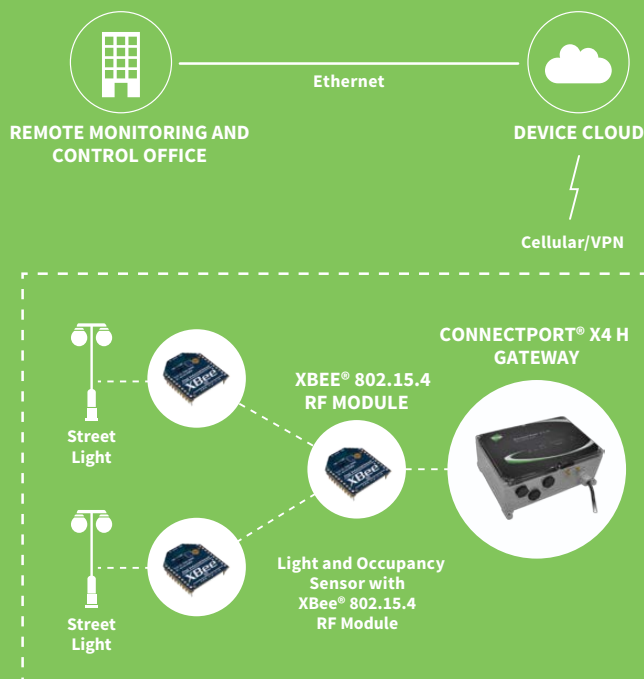
| SPECIFICATIONS	XBee® S2C 802.15.4	XBee-PRO® S2C 802.15.4
PERFORMANCE		
TRANSCEIVER CHIPSET	Silicon Labs EM357 SoC	
DATA RATE	RF 250 Kbps, Serial up to 1 Mbps	
INDOOR/URBAN RANGE	200 ft (60 m)	300 ft (90 m)
OUTDOOR/RF LINE-OF-SIGHT RANGE	4000 ft (1200 m)	2 miles (3200 m)
TRANSMIT POWER	3.1 mW (+5 dBm) / 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	-40º C to +85º 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	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 @ 25º C	<1 µA @ 25º 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)

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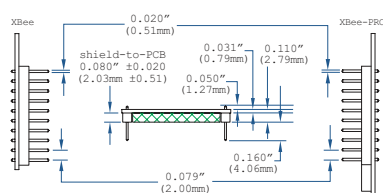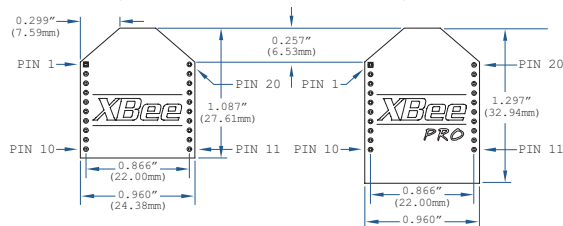| PART NUMBERS	DESCRIPTION
KIT	
XKB2-A2T-WWC	Wireless Connectivity Kit with XBee 802.15.4 (S2C)
MODULES	
XB24CAWIT-001	XBee 802.15.4 through-hole module w/ wire antenna
XB24CAPIT-001	XBee 802.15.4 through-hole module w/ PCB antenna
XB24CAUIT-001	XBee 802.15.4 through-hole module w/ U.fl connector
XB24CASIT-001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

802.15.4 – Star
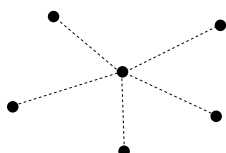
ZigBee - Migratable
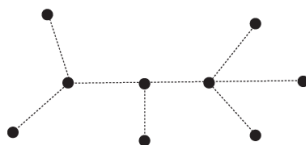
DigiMesh - Migratable
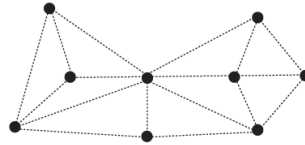
(Side Views)

(Top View)

(Top View)

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