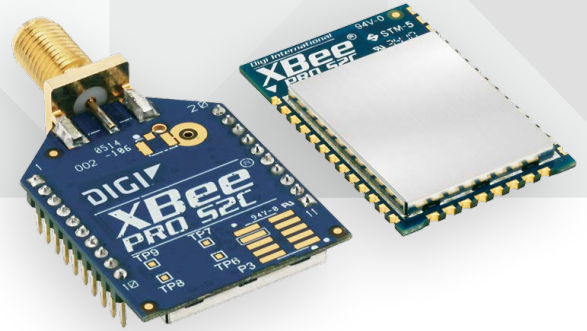




MESH NETWORKING
EMBEDDED RF
MODULES FOR OEMS



DIGI XBEE S2C DIGIMESH 2.4

Embedded RF modules deliver wireless connectivity using the innovative and easy-to-deploy DigiMesh® protocol

Digi XBee® DigiMesh® S2C 2.4 embedded RF modules provide wireless connectivity to electronic devices using a globally deployable 2.4 GHz transceiver. These modules use the DigiMesh networking protocol. This innovative, peer-to-peer mesh network offers users added network stability through self-healing, dense network operation, extending the operational life of battery dependent networks.

Digi XBee modules are ideal for low-power applications. Products in the Digi XBee family are easy to use, share a common hardware footprint, and are fully interoperable with other Digi XBee products utilizing the same technology.

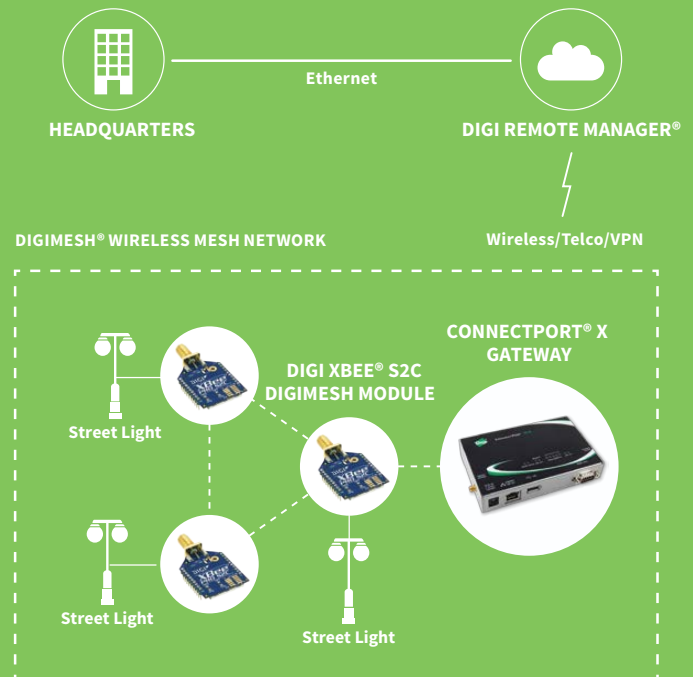
Digi XBee modules are available in a variety of different protocols to suit different applications, enabling users to substitute one Digi XBee module for another with minimal development time and risk.

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

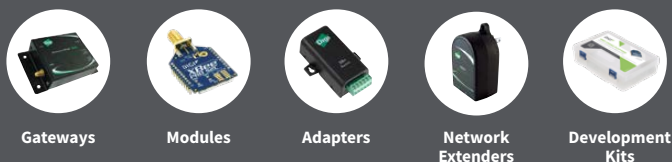
BENEFITS

- No configuration needed for out-of-the-box RF communications
- Common Digi XBee footprint for a variety of RF modules
- Simple topology to deploy and grow
- 2.4 GHz for worldwide deployment
- Multiple antenna options
- Outdoor RF line-of-sight range up to 3.2 km (2 miles)* with high-gain antennas
- DigiMesh peer-to-peer mesh networking protocol
 - Supports self-healing and discovery for network stability

APPLICATION EXAMPLE



RELATED PRODUCTS



SPECIFICATIONS

Digi XBee® S2C DigiMesh® 2.4

PERFORMANCE

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

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 (-40° F to 185° F)
DIMENSIONS (L X W X H) AND WEIGHT	Through-hole: 2.438 x 2.761 cm (0.960 x 1.087 in) SMT: 2.199 x 3.4 x 0.305 cm (0.866 x 1.33 x 0.120 in)

NETWORKING AND SECURITY

PROTOCOL	Digi XBee® DigiMesh® 2.4 (proprietary 802.15.4 based mesh protocol)
UPDATABLE TO DIGI 802.15.4 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

POWER REQUIREMENTS

SUPPLY VOLTAGE	2.1 to 3.6 V
TRANSMIT CURRENT	33 mA @ 3.3 VDC / 45 mA boost mode
RECEIVE CURRENT	28 mA @ 3.3 VDC / 31 mA boost mode
POWER-DOWN CURRENT	<1 µA @ 25° C (77° F)

REGULATORY APPROVALS

FCC, IC (NORTH AMERICA)	Yes
ETSI (EUROPE)	Yes
RCM (AUSTRALIA AND NEW ZEALAND)	Yes
TELEC (JAPAN)	Yes

*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

SMT MODELS

XB24CDMPIS-001	Digi XBee, S2C DigiMesh 2.4, SMT, PCB antenna
XB24CDMUIS-001	Digi XBee, S2C DigiMesh 2.4, SMT, U.FL
XB24CDMRIS-001	Digi XBee, S2C DigiMesh 2.4, SMT, RF Pad

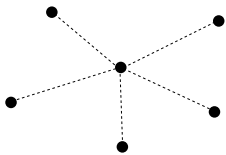
THROUGH-HOLE MODELS

XB24CDMPIT-001	Digi XBee, S2C DigiMesh 2.4, TH, PCB antenna
XB24CDMUIT-001	Digi XBee, S2C DigiMesh 2.4, TH, U.FL
XB24CDMSIT-001	Digi XBee, S2C DigiMesh 2.4, TH, RPSMA
XB24CDMWIT-001	Digi XBee, S2C DigiMesh 2.4, TH, WIRE antenna

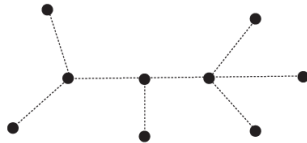
KIT

XX-WDM	Digi XBee S2C DigiMesh Development Kit with XB24DMPIS-001 module
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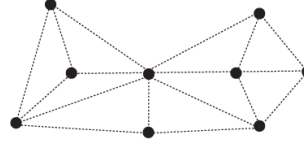
802.15.4 – Star



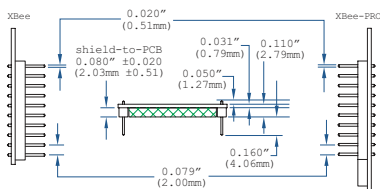
ZigBee - Open Standard Mesh



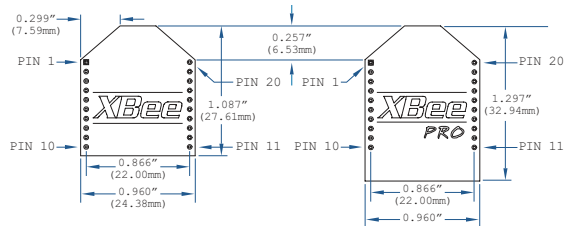
DigiMesh - Proprietary Mesh



(Side Views)



(Top View)



(Top View)

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