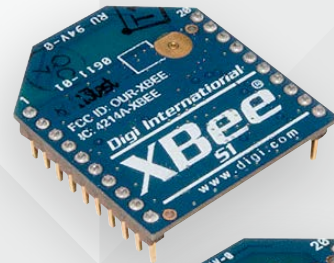


MESH NETWORKING  
EMBEDDED RF  
MODULES FOR OEMS



# DIGI XBEE® DIGIMESH® 2.4

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

Digi XBee and Digi XBee-PRO DigiMesh 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 and support for sleeping routers, extending the operational life of battery dependent networks.

Digi XBee modules are ideal for low-power applications. Digi XBee-PRO modules are power-amplified versions of Digi XBee modules for extended-range applications. Products in the Digi XBee family are easy to use, share a common

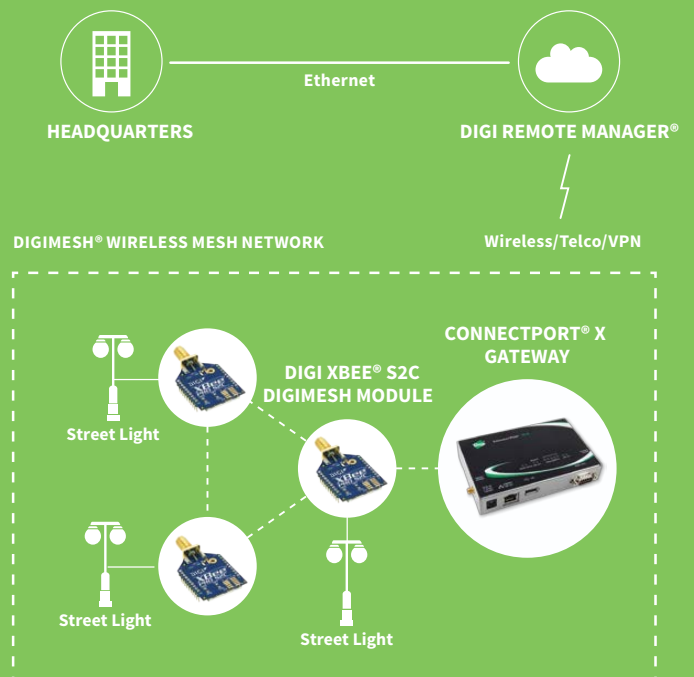
hardware footprint, and are fully interoperable with other Digi XBee products utilizing the same technology. They are available in a variety of different protocols to suit different applications, enabling users to substitute one Digi XBee module for another with minimal development time and risk.

Digi's unsurpassed offering of Digi XBee products provide users with seamless communication between devices. Digi XBee adapters deliver wireless connectivity to electronic devices in wired networks. ConnectPort® X gateways enable users to access and configure remote devices in a network.

## 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
- Low-power Digi XBee or extended-range Digi XBee-PRO (pin/over-the-air compatible)
- Multiple antenna options
- Outdoor RF line-of-sight range up to 1 mile (1.6 km) with high-gain antennas
- DigiMesh peer-to-peer mesh networking protocol
  - Self-healing and discovery for network stability
  - Sleeping routers supported for long battery life

## APPLICATION EXAMPLE



## RELATED PRODUCTS



Gateways



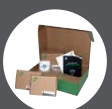
Modules



Adapters



Network  
Extenders



Development  
Kits

# SPECIFICATIONS

Legacy Digi XBee DigiMesh® 2.4

Legacy Digi XBee-PRO DigiMesh® 2.4

Legacy Digi XBee-PRO DigiMesh® 2.4 (Int'l)

## PERFORMANCE

<b>RF DATA RATE</b>	250 Kbps	250 Kbps	250 Kbps
<b>INDOR/URBAN RANGE</b>	100 ft (30 m)	300 ft (90 m)	200 ft (60 m)
<b>OUTDOOR/RF LINE-OF-SIGHT RANGE</b>	300 ft (90 m)	1 mile (1.6 km)	2500 ft (750 m)
<b>TRANSMIT POWER</b>	1 mW (+0 dBm)	63 mW (+18 dBm)	10 mW (+10 dBm)
<b>RECEIVER SENSITIVITY (1% PER)</b>	-92 dBm	-100 dBm	-100 dBm

## FEATURES

<b>SERIAL DATA INTERFACE</b>	3.3V CMOS serial UART	3.3V CMOS serial UART	3.3V CMOS serial UART
<b>CONFIGURATION METHOD</b>	AT & API	AT & API	AT & API
<b>FREQUENCY BAND</b>	2.4 GHz ISM	2.4 GHz ISM	2.4 GHz ISM
<b>INTERFERENCE IMMUNITY</b>	DSSS (Direct Sequence Spread Spectrum)	DSSS (Direct Sequence Spread Spectrum)	DSSS (Direct Sequence Spread Spectrum)
<b>SERIAL DATA RATE</b>	Up to 115.2 Kbps	Up to 115.2 Kbps	Up to 115.2 Kbps
<b>ADC INPUTS</b>	(6) 10-bit ADC inputs	(6) 10-bit ADC inputs	(6) 10-bit ADC inputs
<b>DIGITAL I/O</b>	13	13	13
<b>ANTENNA OPTIONS</b>	Chip, Wire Whip, U.FL, RPSMA	Chip, Wire Whip, U.FL, RPSMA	Chip, Wire Whip, U.FL, RPSMA

## NETWORKING & SECURITY

<b>ENCRYPTION</b>	128-bit AES	128-bit AES	128-bit AES
<b>RELIABLE PACKET DELIVERY</b>	Retries/Acknowledgments	Retries/Acknowledgments	Retries/Acknowledgments
<b>ADDRESSING OPTIONS</b>	PAN ID, channel, 64-bit address	PAN ID, channel, 64-bit address	PAN ID, channel, 64-bit address
<b>CHANNELS</b>	16	12	12

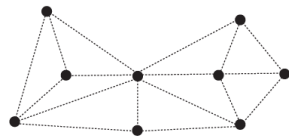
## POWER REQUIREMENTS

<b>SUPPLY VOLTAGE</b>	2.8 – 3.4VDC	2.8 – 3.4VDC	2.8 – 3.4VDC
<b>TRANSMIT CURRENT</b>	45 mA	250 mA (Wire, Chip, U.FL), 340 mA (RPSMA)	150 mA (Wire, Chip, U.FL), 180 mA (RPSMA)
<b>RECEIVE CURRENT</b>	50 mA	55 mA	55 mA
<b>POWER-DOWN CURRENT</b>	<50 uA	<50 uA	<50 uA

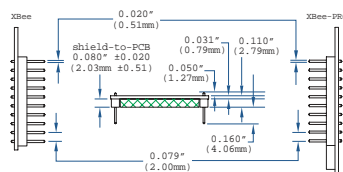
## REGULATORY APPROVALS

<b>FCC (USA)</b>	Yes	Yes	Yes
<b>IC (CANADA)</b>	Yes	Yes	Yes
<b>ETSI (EUROPE)</b>	Yes	No	Yes
<b>C-TICK AUSTRALIA</b>	Yes	Yes	Yes
<b>TELEC (JAPAN)</b>	Yes	No	Yes
<b>ANATEL (BRAZIL)</b>	Yes	Yes	Yes

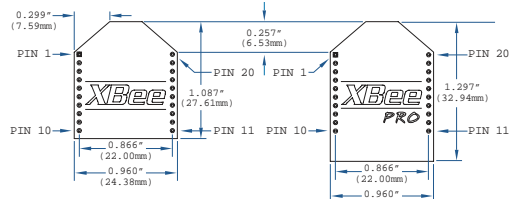
DigiMesh



Side Views



Top View



Top View

PART NUMBERS	DESCRIPTION
XB24-DMUIT-250	Digi XBee DigiMesh 2.4 low power module w/ U.FL connector
XB24-DMSIT-250	Digi XBee DigiMesh 2.4 low power module w/ RPSMA connector
XB24-DMWIT-250	Digi XBee DigiMesh 2.4 low power module w/ wire antenna
XB24-DMPIT-250	Digi XBee DigiMesh 2.4 low-power module w/ PCB antenna
XBP24-DMSIT-250	Digi XBee-PRO DigiMesh 2.4 extended range module w/ RPSMA connector
XBP24-DMSIT-250J	Digi XBee-PRO DigiMesh 2.4 extended range module w/ RPSMA connector (International)
XBP24-DMWIT-250	Digi XBee-PRO DigiMesh 2.4 extended range module w/ wire antenna
XBP24-DMWIT-250J	Digi XBee-PRO DigiMesh 2.4 extended range module w/ wire antenna (International)
XBP24-DMUIT-250	Digi XBee-PRO DigiMesh 2.4 extended range module w/ U.FL connector
XBP24-DMUIT-250J	Digi XBee-PRO DigiMesh 2.4 extended range module w/ U.FL connector (International)
XBP24-DMPIT-250	Digi XBee-PRO DigiMesh 2.4 extended range module w/ PCB antenna
XBP24-DMPIT-250J	Digi XBee-PRO DigiMesh 2.4 extended range module w/ PCB antenna (International)

Digi XBee S1 hardware will be obsoleted soon in favor of Digi XBee S2C or newer hardware.