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.

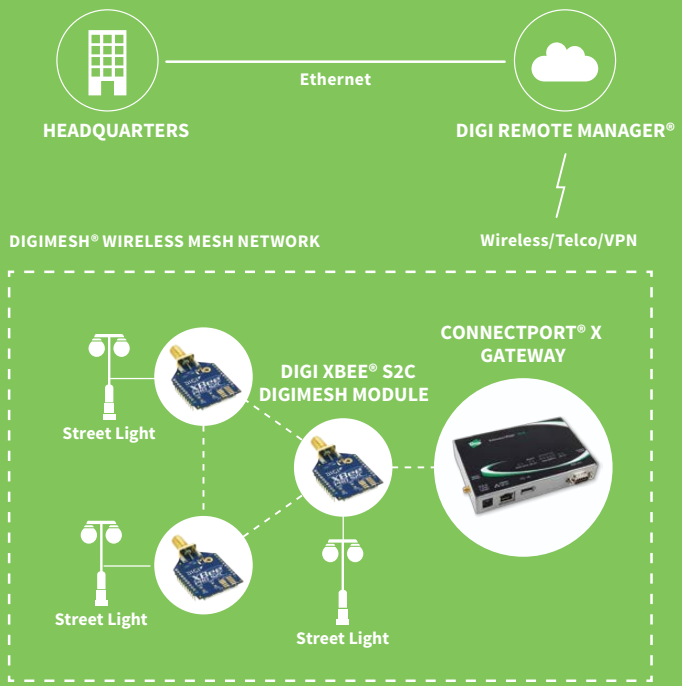
BENEFITS

- 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

RELATED PRODUCTS

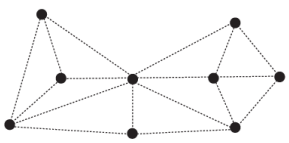
Gateways | Modules | Adapters | Network Extenders | Development Kits

APPLICATION EXAMPLE

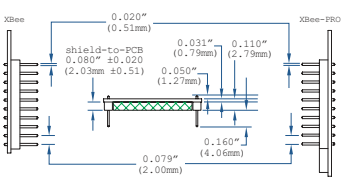


SPECIFICATIONS	Legacy Digi XBee DigiMesh® 2.4	Legacy Digi XBee-PRO DigiMesh® 2.4	Legacy Digi XBee-PRO DigiMesh® 2.4 (Int'l)
PERFORMANCE			
RF DATA RATE	250 Kbps	250 Kbps	250 Kbps
INDOR/URBAN RANGE	100 ft (30 m)	300 ft (90 m)	200 ft (60 m)
OUTDOOR/RF LINE-OF-SIGHT RANGE	300 ft (90 m)	1 mile (1.6 km)	2500 ft (750 m)
TRANSMIT POWER	1 mW (+0 dBm)	63 mW (+18 dBm)	10 mW (+10 dBm)
RECEIVER SENSITIVITY (1% PER)	-92 dBm	-100 dBm	-100 dBm
FEATURES			
SERIAL DATA INTERFACE	3.3V CMOS serial UART	3.3V CMOS serial UART	3.3V CMOS serial UART
CONFIGURATION METHOD	AT & API	AT & API	AT & API
FREQUENCY BAND	2.4 GHz ISM	2.4 GHz ISM	2.4 GHz ISM
INTERFERENCE IMMUNITY	DSSS (Direct Sequence Spread Spectrum)	DSSS (Direct Sequence Spread Spectrum)	DSSS (Direct Sequence Spread Spectrum)
SERIAL DATA RATE	Up to 115.2 Kbps	Up to 115.2 Kbps	Up to 115.2 Kbps
ADC INPUTS	(6) 10-bit ADC inputs	(6) 10-bit ADC inputs	(6) 10-bit ADC inputs
DIGITAL I/O	13	13	13
ANTENNA OPTIONS	Chip, Wire Whip, U.FL, RPSMA	Chip, Wire Whip, U.FL, RPSMA	Chip, Wire Whip, U.FL, RPSMA
NETWORKING & SECURITY			
ENCRYPTION	128-bit AES	128-bit AES	128-bit AES
RELIABLE PACKET DELIVERY	Retries/Acknowledgments	Retries/Acknowledgments	Retries/Acknowledgments
ADDRESSING OPTIONS	PAN ID, channel, 64-bit address	PAN ID, channel, 64-bit address	PAN ID, channel, 64-bit address
CHANNELS	16	12	12
POWER REQUIREMENTS			
SUPPLY VOLTAGE	2.8 – 3.4VDC	2.8 – 3.4VDC	2.8 – 3.4VDC
TRANSMIT CURRENT	45 mA	250 mA (Wire, Chip, U.FL), 340 mA (RPSMA)	150 mA (Wire, Chip, U.FL), 180 mA (RPSMA)
RECEIVE CURRENT	50 mA	55 mA	55 mA
POWER-DOWN CURRENT	<50 uA	<50 uA	<50 uA
REGULATORY APPROVALS			
FCC (USA)	Yes	Yes	Yes
IC (CANADA)	Yes	Yes	Yes
ETSI (EUROPE)	Yes	No	Yes
C-TICK AUSTRALIA	Yes	Yes	Yes
TELEC (JAPAN)	Yes	No	Yes
ANATEL (BRAZIL)	Yes	Yes	Yes

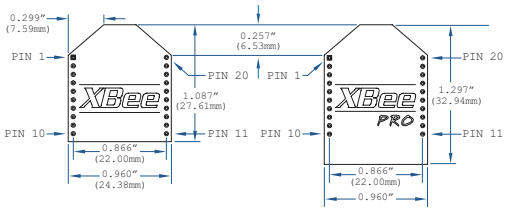
DigiMesh



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.

FOR MORE INFORMATION PLEASE VISIT WWW.DIGI.COM

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