# DIGI
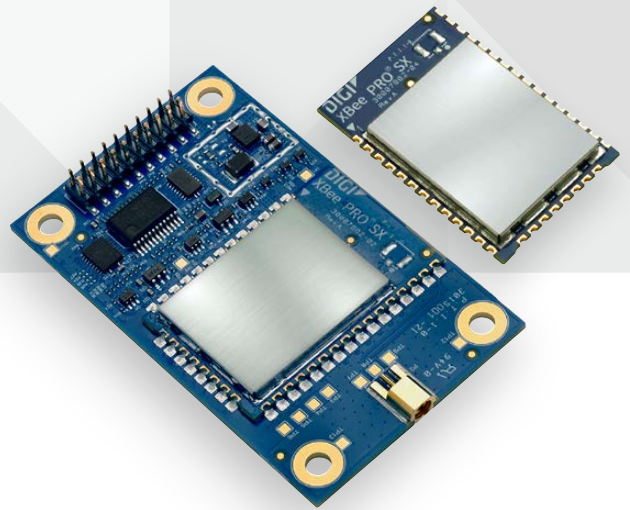
# XTEND® OEM RF MODULES

## Long-range wireless modules enable communication from UART serial data with peer-to-peer, point-to-multipoint, repeater and DigiMesh® networking topologies

The XTend OEM RF module provides unprecedented range in a low-cost wireless data solution. The module is easy to use, requires minimal power, provides reliable delivery of critical data between devices and is now available in the even smaller Digi XBee® Surface Mount form factor to save valuable PCB space.

The XTend module utilizes FHSS (Frequency Hopping Spread Spectrum) agility to avoid interference by hopping to a new frequency on every packet transmission or re-transmission. Its transmit power is software adjustable from 100 mW to 1 W—the maximum output power allowable by governments
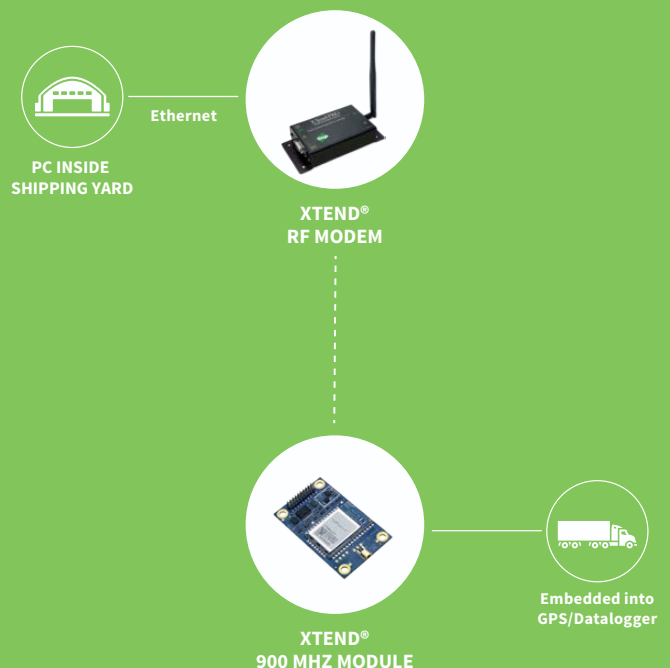
that use 900 MHz as a license-free band. The XTend module is approved for use in the United States, Canada, Australia and other countries (contact Digi for a complete listing).

Innovations stamped in its design enable the XTend module to supply two- to eight-times the range of other modules operating within the unlicensed 900 MHz frequency band. The range gained by OEMs and integrators is due to proprietary technologies embedded into each module, including superior RX (receiver) sensitivity, interference immunity, modulation/demodulation techniques and others.

## BENEFITS

– Indoor/urban range up to 1000 feet*
– Outdoor line-of-sight range up to 40 miles* (with high gain antenna)
– Outstanding receiver sensitivity (-110 dBm @ 9600 bps)
– Peer-to-peer, point-to-multipoint, repeater and DigiMesh networking topologies
– Adjustable power output from 100 mW to 1 W; up to 4 W EIRP (with 6 dBi antenna)
– Available in the XTend and Digi XBee SMT form factors

## APPLICATION EXAMPLE

PC INSIDE
SHIPPING YARD

Ethernet

XTEND®
RF MODEM

XTEND®
900 MHZ MODULE

Embedded into
GPS/Datalogger

## RELATED PRODUCTS

XTend®
RF Modem

ConnectPort®
X2

Digi XBee® 900HP
RF Modem

Digi XBee-PRO®
900HP Module

XCTU

| SPECIFICATIONS | XTend® VB Module | Digi XBee®-PRO XTC Module | Digi XBee® XTC Module |
|---|---|---|---|
| **PERFORMANCE** | | | |
| **FREQUENCY RANGE** | ISM 902 – 928 MHz | | |
| **INDOOR/URBAN RANGE \*** | Up to 1000 feet (305 m) with 2.1 dB dipole antenna | | Up to 360 ft (110 m) |
| **OUTDOOR RF LINE-OF-SIGHT RANGE\*** | Up to 40 miles (64 km) with high gain antenna; Up to 14 miles (22 km) with 2.1 dB dipole antenna | | Up to 5 miles with high gain antenna |
| **TRANSMIT POWER (SOFTWARE SELECTABLE)** | 100 mW - 1 W (20 - 30 dBm) | | Up to 13 dBm |
| **INTERFACE DATA RATE** | 1,200 - 230,400 bps (including non-standard baud rates) | | |
| **RECEIVER SENSITIVITY (1% PER)** | -110 dBm (@9,600 bps throughput data rate), -100 dBm (@115,200 bps) | | |
| **RF DATA RATE** | 10 kbps to 125 kbps | | |
| **HARDWARE INTERFACE** | 20 pin 2 mm pitch header | 37 castellated SMT pads | |
| **SIZE** | 3.7 cm x 6.1 cm x 4.8 cm | 3.38 cm x 2.21 cm x 1.29 cm | |
| **ANTENNA OPTIONS** | MMCX, RPSMA | RF Pad, U.FL | |
| **NETWORKING AND SECURITY** | | | |
| **SPREAD SPECTRUM** | FHSS (Frequency Hopping Spread Spectrum) | | |
| **MODULATION** | FSK (Frequency Shift Keying) | | |
| **SUPPORTED NETWORK TOPOLOGIES** | Point-to-Point, Point-to-Multipoint, Repeater, Mesh | | |
| **CHANNEL CAPACITY** | 10 hop sequences share 50 frequencies | | |
| **ENCRYPTION** | 256-bit / 128-bit AES | | |
| **POWER REQUIREMENTS** | | | |
| **SUPPLY VOLTAGE** | 2.8 - 5.5 VDC | 2.6 - 3.6 VDC | 2.4 - 3.6 VDC |
| **RX CURRENT** | 35 mA @ 5V | 40 mA @ 3.3V | |
| **TRANSMIT CURRENT** | Up to 710 mA @ 30 dBm | Up to 900 mA @ 30 dBm | Up to 55 mA @ 13 dBm |
| **SHUTDOWN MODE POWER DOWN** | 1 μA typical | | |
| **PIN SLEEP POWER DOWN** | < 147 μA | 2.5 uA | |
| **CYCLIC SLEEP (IDLE CURRENT)** | 0.3 – 0.8 mA (16 sec cyclic sleep) | | |
| **ENVIRONMENTAL** | | | |
| **OPERATING TEMPERATURE** | -40° C to 85° C (Industrial) | | |
| **CERTIFICATIONS** | | | |
| **FCC ID (U.S. CERTIFICATION PART 15.247)** | MCQ-XBPSX | MCQ-XBPSX | MCQ-XBSX |
| **IC ID (CANADA)** | 1846A-XBPSX | 1846A-XBPSX | 1846A-XBSX |
| **C-TICK (AUSTRALIA)** | RCM | | |

## LINE ART

**DIGI XBEE/DIGI XBEE-PRO XTC MODULE**



TOP          SIDE

**XTEND VB MODULE**



TOP
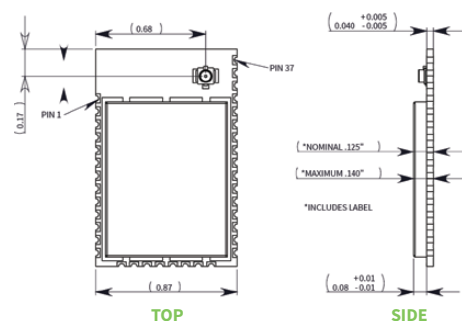


SIDE
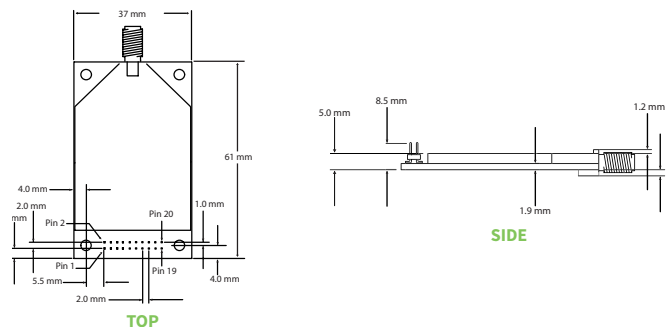
\*Range figure estimates are based on free-air terrain with limited sources of interference. Actual range will vary based on transmitting power, orientation of transmitter and receiver, height of transmitting antenna, height of receiving xtenna, weather conditions, interference sources in the area, and terrain between receiver and transmitter, including indoor and outdoor structures such as walls, trees, buildings, hills, and mountains.

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| PART NUMBERS | DESCRIPTION |
|---|---|
| **XTEND VB MODULES** | |
| XTP9B-DMS-001 | 9XTend Replacement, DigiMesh, RPSMA, North America |
| XTP9B-DMM-001 | 9XTend Replacement, DigiMesh, MMCX, North America |
| XTP9B-DPS-001 | 9XTend Replacement, P2MP, RPSMA, North America |
| XTP9B-DPM-001 | 9XTend Replacement, P2MP, MMCX, North America |
| XTP9B-DPS-721 | 9XTend Replacement, P2MP, RPSMA, 128 AES Australia |
| XTP9B-DPM-721 | 9XTend Replacement, P2MP, MMCX, 128 AES Australia |
| **DIGI XBEE/DIGI XBEE-PRO XTC (XTEND COMPATIBLE) MODULES** | |
| XBP9XT-DMRS-001 | Digi XBee-PRO XTC, 1W, DigiMesh, SMT, RF Pad, North America |
| XBP9XT-DMUS-001 | Digi XBee-PRO XTC, 1W, DigiMesh, SMT, U.FL, North America |
| XBP9XT-DPRS-001 | Digi XBee-PRO XTC, 1W, P2MP, SMT, RF Pad, North America |
| XBP9XT-DPUS-001 | Digi XBee-PRO XTC, 1W, P2MP, SMT, U.FL, North America |
| XB9XT-DMRS-001 | Digi XBee XTC, 20 mW, DigiMesh, SMT, RF Pad, North America |
| XB9XT-DMUS-001 | Digi XBee XTC, 20 mW, DigiMesh, SMT, U.FL, North America |
| XB9XT-DPRS-001 | Digi XBee XTC, 20 mW, P2MP, SMT, RF Pad, North America |
| XB9XT-DPUS-001 | Digi XBee XTC, 20 mW, P2MP, SMT, U.FL, North America |
| XB9XT-DPRS-721 | Digi XBee XTC, 20 mW, P2MP, SMT, RF Pad, 128 AES, Australia |
| XB9XT-DPUS-721 | Digi XBee XTC, 20 mW, P2MP, SMT, U.FL, 128 AES, Australia |
| XBP9XT-DPRS-721 | Digi XBee-PRO XTC, 1W, P2MP, SMT, RF Pad, 128 AES, Australia |
| XBP9XT-DPUS-721 | Digi XBee-PRO XTC, 1W, P2MP, SMT, U.FL, 128 AES, Australia |

# FOR MORE INFORMATION
# PLEASE VISIT WWW.DIGI.COM

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