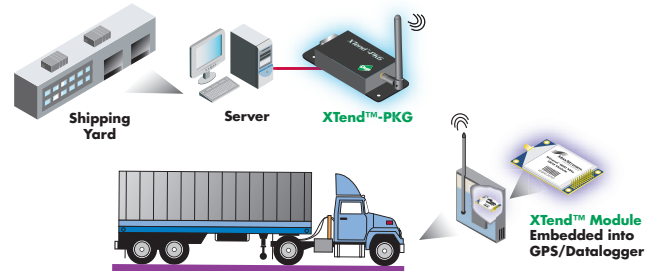# XTend™ OEM RF Modules

1 Watt/900 MHz OEM RF Modules

900 MHz OEM RF modules enable long range wireless communication from UART serial data with peer-to-peer, point-to-multipoint, repeater and DigiMesh™ networking topologies.

Shipping Yard   Server   XTend™-PKG

XTend™ Module
Embedded into
GPS/Datalogger

Features/Benefits

- **Indoor/urban range up to 3000 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 1 mW to 1 W; up to 4 W EIRP (with 6 dBi antenna)**

- **Low power consumption for power-sensitive applications**

  - **Pin, serial port and cyclic sleep modes available**

- **Fully interoperable with other Digi Drop-in Networking products, including extenders and XTend-PKG modems**

- **RPSMA and MMCX antenna options**

Overview

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 its small form factor saves valuable board 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 1 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.

No configuration is necessary for out-of-the-box RF communication. The XTend module's default configuration supports a wide range of data system applications. Advanced configurations can be implemented using simple AT or binary commands.

Features/Specifications

PERFORMANCE

- Indoor/Urban range (w/ 2.1 dB dipole antenna): Up to 3000 feet (900 m)
- Outdoor RF line-of-sight range (w/high gain antenna): Up to 40 miles (64 km)
- Outdoor RF line-of-sight range (w/ 2.1 dB dipole antenna): Up to 14 miles (22 km)
- Transmit power output (software selectable): 1mW - 1W (0 - 30 dBm)
- Interface data rate: 10 - 230,400 bps (including non-standard baud rates)
- Receiver sensitivity: -110 dBm (@9,600 bps throughput data rate), -100 dBm (@115,200 bps)
- Throughput data rate (software selectable): 9,600 or 115,200 bps
- RF data rate: 10,000 bps or 125,000 bps

ENVIRONMENTAL

- Operating temperature: -40º C to 85º C (Industrial)

CERTIFICATIONS

- FCC ID (U.S. Certification Part 15.247):
  - OUR-9XTEND
- IC ID (Canada):
  - 4214A-9XTEND
- Australia

POWER REQUIREMENTS

- Supply voltage: 2.8 – 5.5VDC
- RX current: 80 mA
- Transmit current: See chart below
- Shutdown pin power-down: < 1 μA
- Pin sleep power down: 147 μA
- Cyclic sleep (idle current): 0.3 – 0.8 mA (16 sec cyclic sleep)
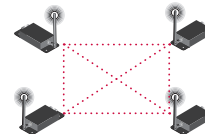
NETWORKING AND SECURITY

- Frequency range: ISM 902 – 928 MHz
- Spread Spectrum: FHSS (Frequency Hopping Spread Spectrum)
- Modulation: FSK (Frequency Shift Keying)
- Supported network topologies: Point-to-Point, Point-to-Multipoint, Repeater, Mesh (Mesh networking and 256-bit AES Encryption capabilities are currently only available in separate releases)
- Channel capacity: 10 hop sequences share 50 frequencies
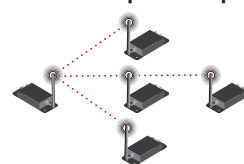- Encryption: 256-bit / 128-bit AES

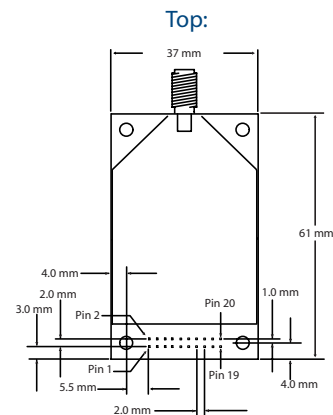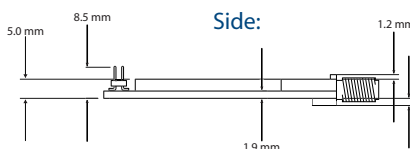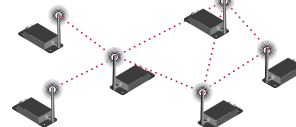## Network Architectures

Point-to-Point

Peer-to-Peer

Point-to-Multipoint & Repeater

Mesh

Top:

37 mm

61 mm

4.0 mm
2.0 mm
3.0 mm
Pin 2
Pin 20
1.0 mm
Pin 1
Pin 19
5.5 mm
4.0 mm
2.0 mm

Side:

5.0 mm
8.5 mm
1.2 mm
1.9 mm

Power Requirements (Relative to Each Transmit Power Output Option)

Transmit Power Output	1 mW	10 mW	100 mW	500 mW	1 W
Supply Voltage	2.8 - 5.5VDC	2.8 - 5.5VDC	2.8 - 5.5VDC	3.0 - 5.5VDC	4.75 - 5.5VDC
Transmit Current (5V) typical	110 mA	140 mA	270 mA	500 mA	730 mA
Transmit Current (3.3V) typical	90 mA	100 mA	260 mA	600 mA	N/A

Please visit www.digi.com for part numbers.

WHEN **RELIABILITY** *MATTERS™*

91001416
A2/408