XBee® & XBee-PRO® ZB

ZigBee® Embedded RF Module Family for OEMs

Embedded RF modules provide low-cost, low-power wireless connectivity using the ZigBee PRO Feature Set.

Overview

XBee and XBee-PRO ZB embedded RF modules provide cost-effective wireless connectivity to devices in ZigBee mesh networks. Utilizing the ZigBee PRO Feature Set, these modules are interoperable with other ZigBee devices, including devices from other vendors*.

Products in the XBee family are easy to use. They require no configuration or additional development; users can have their network up and running in a matter of minutes.

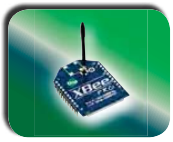
Programmable versions of the XBee-PRO ZB module make customizing ZigBee applications easy. Programming directly on the module eliminates the need for a separate processor. Because the wireless software is isolated, applications can be developed with no risk to RF performance or security.

XBee modules are available in a variety of protocols and frequencies. The common hardware footprint shared by Digi's XBee modules means users can substitute one XBee for another with minimal development time and risk.

*Interoperability requires the ZigBee Feature Set or ZigBee PRO Feature Set to be deployed on all devices. Contact Digi Support for details.

Related Products

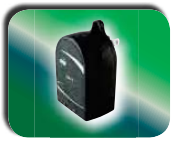
Gateways



Modules

Adapters

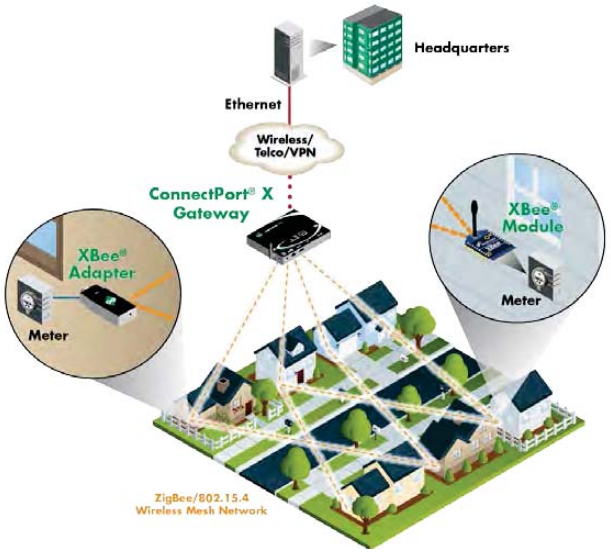
Development Kits



Network Extenders

Sensors

Application Highlight

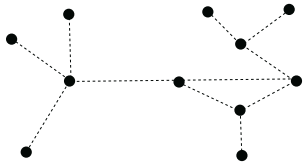


Features/Benefits

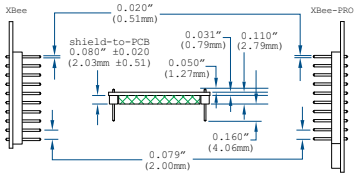
- Interoperability with ZigBee compliant devices*
- No configuration needed for out-of-the-box RF communications
- Common XBee footprint for a variety of RF modules
- ZigBee mesh networking protocol
  - Improved data traffic management
  - Remote firmware updates
  - Self-healing and discovery for network stability
- Programmable versions of the XBee-PRO ZB enable custom ZigBee application development
  - 8-bit Freescale™ S08 microprocessor brings intelligence to devices
  - CodeWarrior® development tools for easy customization

Platform	XBee® ZB	XBee-PRO® ZB	Programmable XBee-PRO® ZB
Performance			
RF Data Rate	250 Kbps		
Indoor/Urban Range	133 ft (40 m)	300 ft (90 m)	
Outdoor/RF Line-of-Sight Range	400 ft (120 m)	2 miles (3200 m) / Int'l 5000 ft (1500 m)	
Transmit Power	1.25 mW (+1 dBm) / 2 mW (+3 dBm) boost mode	63 mW (+18 dBm) / Int'l 10 mW (+10 dBm)	
Receiver Sensitivity (1% PER)	-96 dBm in boost mode	-102 dBm	
Features			
Adjustable Power	Yes		
I/O Interface	3.3V CMOS UART, ADC, DIO		3.3V CMOS UART, SPI, I2C, PWM, DIO, ADC
Configuration Method	API or AT commands, local or over-the-air		
Frequency Band	2.4 GHz		
Interference Immunity	DSSS (Direct Sequence Spread Spectrum)		
Serial Data Rate	1200 bps - 1 Mbps		
ADC Inputs	(4) 10-bit ADC inputs		
Digital I/O	10		
Antenna Options	Chip, Wire Whip, U.FL, RPSMA	PCB Embedded Antenna, Wire Whip, U.FL, RPSMA	
Operating Temperature	-40° C to +85° C, 0-95% humidity non-condensing		
Programmability			
Memory	N/A		32 KB Flash / 2 KB RAM
CPU/Clock Speed	N/A		HCS08 / Up to 50.33 MHz
Networking & Security			
Encryption	128-bit AES		
Reliable Packet Delivery	Retries/Acknowledgments		
IDs and Channels	PAN ID, 64-bit IEEE MAC, 16 channels	PAN ID, 64-bit IEEE MAC, 15 channels	
Power Requirements			
Supply Voltage	2.1 - 3.6VDC	2.7 - 3.6VDC	
Transmit Current	35 mA / 45 mA boost mode @ 3.3VDC	205 mA	220 mA
Receive Current	38 mA / 40 mA boost mode @ 3.3VDC	47 mA	62 mA
Power-Down Current	<1 uA @ 25° C	3.5 uA @ 25° C	4 uA @ 25° C
Regulatory Approvals			
FCC, IC (North America)	Yes		
ETSI (Europe)	Yes		
C-TICK (Australia)	Yes		
TELEC (Japan)	Yes	Yes (int'l unit only)	

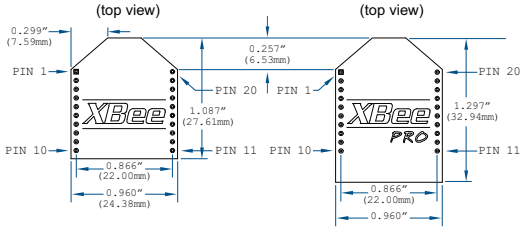
ZigBee – Mesh



(side views)



(top view)



(top view)

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