



ZIGBEE® RF MODULES  
FOR OEMS



# XBEE® AND XBEE-PRO® ZIGBEE

Embedded ZigBee modules provide OEMs with a simple way to integrate mesh technology into their application

XBee and XBee-PRO ZigBee RF modules provide cost-effective wireless connectivity to electronic devices. They are interoperable with other ZigBee PRO feature set devices, including devices from other vendors\*.

XBee and XBee-PRO ZigBee modules are ideal for applications in the energy and controls markets where manufacturing efficiencies are critical. The Serial Peripheral Interface (SPI) provides a high-speed interface and optimizes integration with embedded microcontrollers, lowering development costs and reducing time to market. Features like binding and multicasting also allow for simple integration into a Home Automation device.

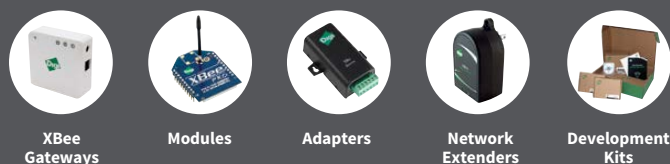
Products in the XBee family require no configuration or additional development. Programmable versions of the XBee and XBee-PRO ZigBee module make customizing applications easy. Programming directly on the module eliminates the need for a separate processor. Because the wireless software is isolated,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

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

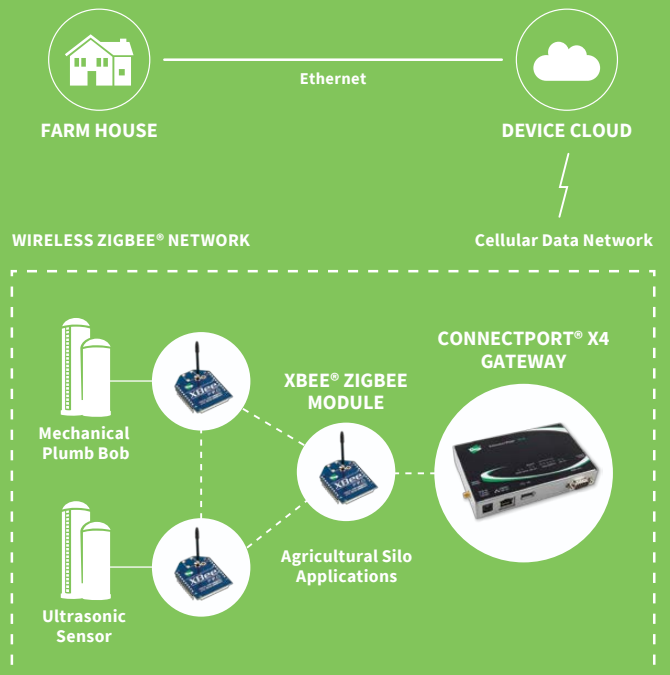
## BENEFITS

- Interoperable with other ZigBee compliant devices\*
- Programmable versions with on-board microprocessor enable custom ZigBee application development
- Supports binding and multicasting, for easy integration into a Home Automation platform
- Through-Hole and Surface Mount form factors enable flexible design options
- 15 general-purpose I/O lines
- Link budgets of 110 dB for XBee and 119 dB for XBee-PRO ZB
- Industry leading sleep current of sub 1uA
- Firmware upgrades via UART, SPI or over the air

## RELATED PRODUCTS



## APPLICATION EXAMPLE



# SPECIFICATIONS

## XBee® ZigBee

Standard

| Programmable

## XBee-PRO® ZigBee

Standard

| Programmable

### PERFORMANCE

<b>DATA RATE</b>	RF 250 Kbps, Serial up to 1 Mbps		
<b>INDOOR/URBAN RANGE</b>	200 ft (60 m)	300 ft (90 m)	
<b>OUTDOOR/RF LINE-OF-SIGHT RANGE</b>	4000 ft (1200 m)	2 miles (3200 m)	
<b>TRANSMIT POWER</b>	3.1 mW (+5 dBm) / 6.3 mW(+8 dBm) boost mode		63 mW (+18 dBm)
<b>RECEIVER SENSITIVITY (1% PER)</b>	-100 dBm / -102 dBm boost mode		-101 dBm

### FEATURES

<b>SERIAL DATA INTERFACE</b>	UART, SPI		
<b>CONFIGURATION METHOD</b>	API or AT commands, local or over-the-air		
<b>FREQUENCY BAND</b>	ISM 2.4 GHz		
<b>FORM FACTOR</b>	Through-Hole, Surface Mount		
<b>INTERFERENCE IMMUNITY</b>	DSSS (Direct Sequence Spread Spectrum)		
<b>ADC INPUTS</b>	(4) 10-bit ADC inputs		
<b>DIGITAL I/O</b>	15		
<b>ANTENNA OPTIONS</b>	Through-Hole: PCB Antenna, U.FL Connector, RPSMA Connector, or Integrated Wire SMT: RF Pad, PCB Antenna, or U.FL Connector		
<b>OPERATING TEMPERATURE</b>	-40° C to +85° C		
<b>DIMENSIONS (L X W X H) AND WEIGHT</b>	Through-Hole: 0.960 x 1.087 in (2.438 x 2.761 cm) SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm)	Through-Hole: 0.960 x 1.297 in (2.438 x 3.294 cm) SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm)	

### PROGRAMMABILITY

<b>MEMORY</b>	N/A	32 KB Flash / 2 KB RAM	N/A	32 KB Flash / 2 KB RAM
<b>CPU/CLOCK SPEED</b>	N/A	HCS08 / up to 50.33 MHz	N/A	HCS08 / up to 50.33 MHz

### NETWORKING AND SECURITY

<b>PROTOCOL</b>	ZigBee PRO 2007, HA-Ready with support for binding/multicasting		
<b>ENCRYPTION</b>	128-bit AES		
<b>RELIABLE PACKET DELIVERY</b>	Retries/Acknowledgements		
<b>IDS</b>	PAN ID and addresses, cluster IDs and endpoints (optional)		
<b>CHANNELS</b>	16 channels	15 channels	

### POWER REQUIREMENTS

<b>SUPPLY VOLTAGE</b>	2.1 to 3.6V		2.7 to 3.6V	
<b>TRANSMIT CURRENT</b>	33 mA @ 3.3 VDC / 45 mA boost mode	47 mA @ 3.3 VDC / 59 mA boost mode	120 mA @ 3.3 VDC	120 mA @ 3.3 VDC
<b>RECEIVE CURRENT</b>	28 mA @ 3.3 VDC / 31 mA boost mode	42 mA @ 3.3 VDC / 45 mA boost mode	31 mA @ 3.3 VDC	45 mA @ 3.3 VDC
<b>POWER-DOWN CURRENT</b>	<1 uA @ 25° C	1.5 uA @ 25° C	<1 uA @ 25° C	1.5 uA @ 25° C

### REGULATORY APPROVALS

<b>FCC, IC (NORTH AMERICA)</b>	Yes	Yes		
<b>ETSI (EUROPE)</b>	Yes	No		
<b>C-TICK (AUSTRALIA)</b>	Yes	Yes		
<b>TELEC (JAPAN)</b>	Yes	No		

PART NUMBERS	DESCRIPTION
XB24CZ7PIT-004	XBee ZigBee Through-Hole (PCB Antenna)
XB24CZ7WIT-004	XBee ZigBee Through-Hole (Wire Antenna)
XB24CZ7UIT-004	XBee ZigBee Through-Hole (U.FL Antenna)
XB24CZ7SIT-004	XBee ZigBee Through-Hole (RPSMA Antenna)
XB24CZ7PITB003	Programmable XBee ZigBee Through-Hole (PCB Antenna)
XB24CZ7WITB003	Programmable XBee ZigBee Through-Hole (Wire Antenna)
XB24CZ7UITB003	Programmable XBee ZigBee Through-Hole (U.FL Antenna)
XB24CZ7SITB003	Programmable XBee ZigBee Through-Hole (RPSMA Antenna)
XB24CZ7PIS-004	XBee ZigBee SMT (PCB Antenna)
XB24CZ7RIS-004	XBee ZigBee SMT (RF Pad Antenna)
XB24CZ7UIS-004	XBee ZigBee SMT (U.FL Antenna)
XB24CZ7PISB003	Programmable XBee ZigBee SMT (PCB Antenna)
XB24CZ7RISB003	Programmable XBee ZigBee SMT (RF Pad Antenna)
XB24CZ7UISB003	Programmable XBee ZigBee SMT (U.FL Antenna)
XBP24CZ7PIT-004	XBee-PRO ZigBee Through-Hole (PCB Antenna)
XBP24CZ7WIT-004	XBee-PRO ZigBee Through-Hole (Wire Antenna)
XBP24CZ7UIT-004	XBee-PRO ZigBee Through-Hole (U.FL Antenna)
XBP24CZ7SIT-004	XBee-PRO ZigBee Through-Hole (RPSMA Antenna)
XBP24CZ7PITB003	Programmable XBee-PRO ZigBee Through-Hole (PCB Antenna)
XBP24CZ7WITB003	Programmable XBee-PRO ZigBee Through-Hole (U.FL Antenna)
XBP24CZ7SITB003	Programmable XBee-PRO ZigBee Through-Hole (RPSMA Antenna)
XBP24CZ7PIS-004	XBee-PRO ZigBee SMT (PCB Antenna)
XBP24CZ7RIS-004	XBee-PRO ZigBee SMT (RF Pad Antenna)
XBP24CZ7UIS-004	XBee-PRO ZigBee SMT (U.FL Antenna)
XBP24CZ7PISB003	Programmable XBee-PRO ZigBee SMT (PCB Antenna)
XBP24CZ7RISB003	Programmable XBee-PRO ZigBee SMT (RF Pad Antenna)
XBP24CZ7UISB003	Programmable XBee-PRO ZigBee SMT (U.FL Antenna)
XK2-Z7SB0	Programmable XBee-PRO ZigBee SMT 32K Dev Kit, US and Australia
XK2-Z7SBJ0	Programmable XBee-PRO ZB SMT 32K Dev Kit, Japan (International)
XK2-Z7SBE0	Programmable XBee ZB SMT 32K Dev Kit, EMEA (International)
XKA2C-Z7T-U	XBee ZigBee Cloud Kit
XK-Z11-S	XBee ZigBee RF SMT Module Development Kit
XK-Z11-S-WA	XBee ZigBee RF SMT Module Development Kit, Australia (International)

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