

Digi XBee for Wi-SUN

A cutting-edge wireless solution supporting Wi-SUN technology with enhanced range, reliability and energy efficiency for smart cities and industrial IoT networks

Digi XBee® is a family of wireless communication modules designed for embedded solutions. Using the Wi-SUN® protocol, the **Digi XBee for Wi-SUN** solution forms a low-power, wide-area network (LPWAN) designed for mesh networking in large-scale outdoor and urban environments, such as smart cities, smart grids, and other Industrial IoT (Internet of Things) applications.

Its mesh-based, low-power communications make Digi XBee for Wi-SUN the ideal solution for smart energy, smart cities, industrial and agricultural use cases.

Open Wi-SUN protocol

Wi-SUN (Wireless Smart Ubiquitous Network) is an open standard protocol developed by the Wi-SUN Alliance. With over 300 alliance members and over 100 million devices deployed, the Digi XBee solution for Wi-Sun, is scalable, secure and standards-based.

Wi-SUN mesh networking works over long ranges and supports both battery-operated and mains-powered devices.

Complete edge-to-cloud solution

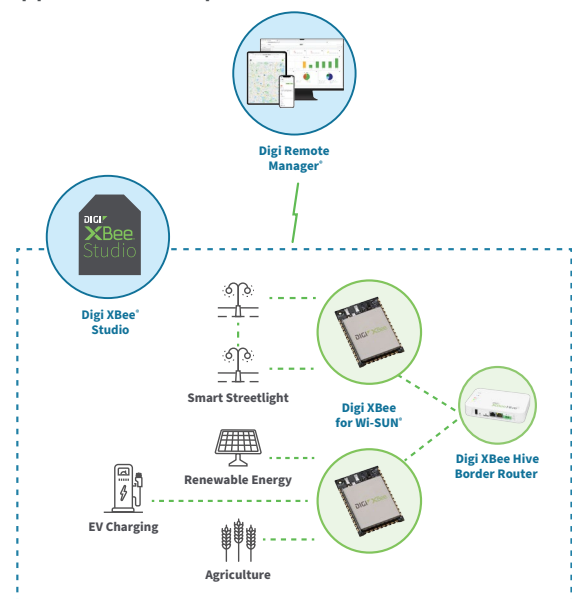
In addition to Digi XBee for Wi-SUN modules, Digi has Wi-SUN border routers to bridge the Wi-SUN network to the Internet via Ethernet, Wi-Fi or cellular connections. **Digi Remote Manager®** provides easy device deployment and secure provisioning with network control.

Digi Wireless Design Services (WDS) also offers custom design and build services, configuration, certification assistance and additional services to get your Wi-SUN products to market smarter and faster.

Key benefits of the Digi XBee for Wi-SUN solution

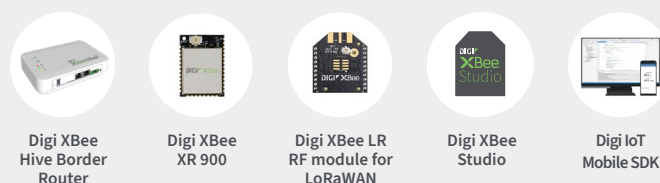
- Wi-SUN incorporates modern security features by design, including encryption and authentication, to protect data transmissions and ensure network integrity
- Standardized interoperability and compatibility with Wi-SUN compliant devices for flexible deployment options
- Operates in sub-GHz frequency bands, allowing long-range communication with reduced interference from other wireless devices, and Wi-SUN standard mesh networking relays messages and further extends the effective coverage area
- Power efficient, enabling battery-operated IoT devices to operate for extended periods without frequent battery replacements
- Pin-compatible with all Digi XBee modules, making it easy to deploy the exact module needed for any IoT application

Application example



Need custom engineering support?
Contact [Digi Wireless Design Services](#).

Related Digi devices and software



DIGI XBEE FOR WI-SUN

Specifications



Manage and configure Digi XBee for Wi-SUN modules with Digi XBee Studio

Specifications		Digi XBee for Wi-SUN (FG25)
HARDWARE		
PROCESSOR		Silicon Labs EFR32FG25
FREQUENCY BAND		902 MHz to 928 MHz — United States / Canada 920.5 MHz to 928.1 MHz — Japan 863 MHz to 870 MHz — European Union 865 MHz to 868 MHz — India
AVAILABLE FORM FACTORS		Micro-mount (MMT), surface-mount (SMT), and through-hole (TH)
ANTENNA OPTIONS		MMT: U.FL connector, RF pad SMT: U.FL connector, RF pad, chip antenna TH: U.FL connector
WEIGHT		MMT: 1.2 grams (0.042 oz) SMT: 3.0 grams (0.11 oz) TH: 3.1 grams (0.11 oz)
DIMENSIONS		MMT: 1.36 cm x 1.93 cm x 0.241 cm (0.534 in x 0.760 in x 0.095 in) SMT: 2.2 cm x 3.38 cm x 0.325 cm (0.866 in x 1.33 in x 0.128 in) TH: 2.44 cm x 2.76 cm x 0.688 cm (0.96 in x 1.088 in x 0.271 in)
PERFORMANCE*		
RF DATA RATE		FSK: 50 to 300 kbps; OFDM: 200 to 2400 kbps (depending on region)
UART DATA RATE		Up to 921.6 kbps
SPI DATA RATE		Up to 5 Mbps
LINE OF SIGHT RANGE**		Up to 7 km (~4.5 mi); Up to 1.5 km (1 mi) urban
INDOOR RANGE**		Up to 1.5 km (1 mi)
TRANSMIT POWER		Up to 19 dBm ERP (North America)
RECEIVER SENSITIVITY		-114 dBm at 50 kbps (FSK)
BLOCKING SELECTIVITY		>70 dB for out-of-band interference
FEATURES		
DIGITAL I/O		15
AVAILABLE CHANNEL FREQUENCIES		Channel spacing 50 to 600 kHz depending on region and data rate
ANALOG INPUTS		(4) 10-bit ADC inputs
OPERATING TEMPERATURE		-40 °C to 85 °C (-40 °F to 185 °F)
NETWORKING TOPOLOGIES		Mesh networking
SECURITY		Secure certificates via public-key infrastructure (PKI), IPv6 networking security, 128-bit AES Encryption, Silicon Labs Secure Vault
POWER		
SUPPLY VOLTAGE		2.4 - 3.8 VDC, 3.3 VDC typical
TRANSMIT CURRENT		18 dBm OFDM 195 mA; 16 dBm FSK 79 mA
RECEIVE CURRENT		12.2 mA
SLEEP CURRENT		1.5 uA

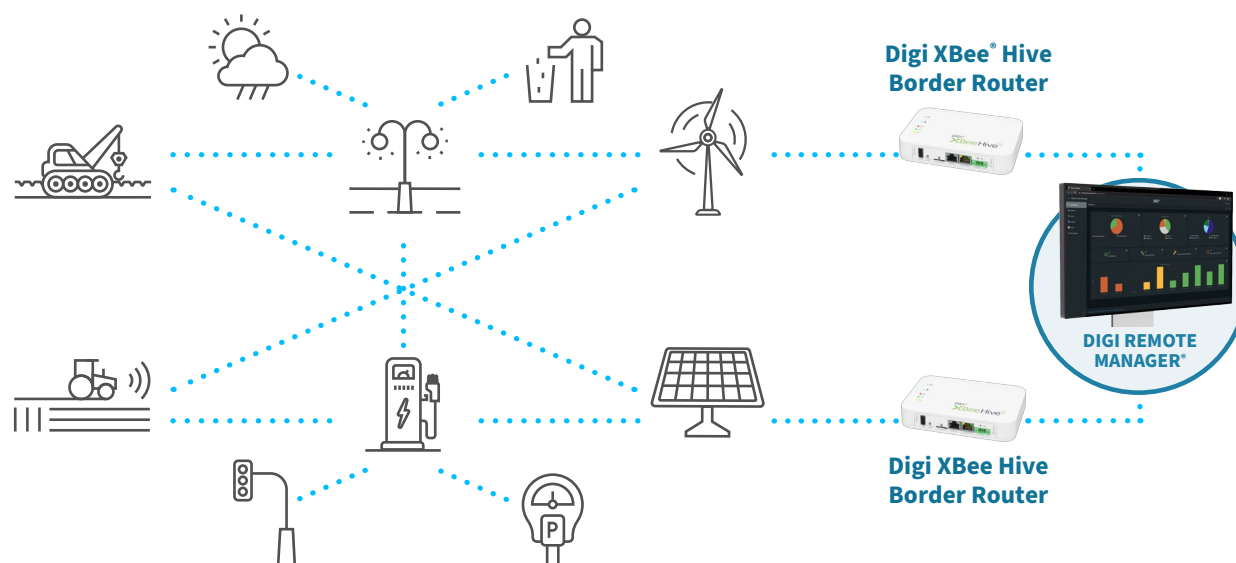
*Availability of specific data rates will be dependent on the region of operation.

**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 antenna, 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.

Specifications	Digi XBee for Wi-SUN (FG25)
REGULATORY APPROVALS*	
FCC (USA)	Compliant
ISED (CANADA)	Compliant
CE (EUROPE)	Compliant
MIC-TELEC (JAPAN)	Pending
WPC (INDIA)	Pending
NETWORKING AND SECURITY	
MODULATION	OFDM, FSK, and O-QPSK
SPREADING TECHNOLOGY	Frequency Hopping Spread Spectrum (FHSS)
GENERAL	
MANUFACTURING	ISO 9001:2000 registered standards
ANTENNA IMPEDANCE	50 ohms
MAXIMUM INPUT RF LEVEL AT ANTENNA PORT	6 dBm
WI-SUN FAN SUPPORT	Fan 1.1

*Visit digi.com/resources/certifications for latest updates.

Digi XBee for Wi-SUN solution example



Digi XBee Studio

Digi XBee Studio

Free multi-platform application that enables developers to manage Digi XBee devices through a simple-to-use graphical interface

Digi XBee Studio is the definitive tool to manage and configure Digi XBee devices. This next generation configuration tool suite supersedes **Digi XCTU**® and offers an advanced set of tools that make it easy to set up, configure, communicate with and test Digi XBee modules and devices.

The first thing you need to do in order to work with XBee devices in XBee Studio is to add them to the tool. In XBee Studio, this is easier than ever.

Simple setup and connectivity

Just after startup, XBee Studio will automatically look for XBee devices connected to your computer. As modules are found, they will appear in the Device Browser view. The Device Browser view displays all the devices connected to your computer.

View and manage your Digi XBee devices

View all of your Digi XBee devices in one table, or if they are geo-located, you can switch to the map view and see the location of each one.

Digi XBee Studio also offers a simple and step-by-step way to access and manage devices, including additional options for configuration, diagnostics, development, remote management and other utilities.

Proven experience and expert support

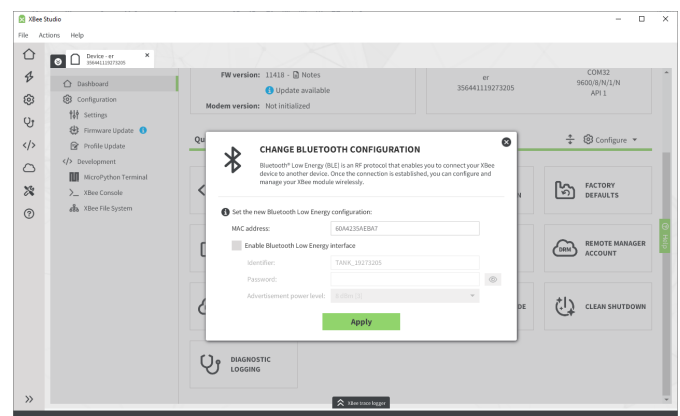
Our decades of embedded experience and millions of deployed devices tell our story; Digi is a trusted solutions provider dedicated to simplifying the way OEMs design, build, deploy and maintain secure connected products.

Digi Wireless Design Services (WDS) is an engineering team that provides additional connectivity integration support, certification assistance, and custom design and build services to get your products to market smarter and faster. The expert team of WDS engineers can support you wherever you are along your development path.



Key features

- **Deploy on multiple platforms:** Digi XBee Studio is compatible with the most popular operating systems, including Microsoft Windows, macOS and Linux.
- **Discover your devices:** Automatically discover XBee devices connected to your computer, regardless of their port connections or configured settings.
- **Configure any device:** Manage and configure multiple XBee devices at once, including devices enrolled in your Digi Remote Manager account located anywhere in the world.
- **Communicate with your devices:** Use the new smart XBee console to communicate with your devices regardless of whether they are configured for API mode or transparent mode..
- **Access a range of tools:** Use embedded tools to perform operations like creating XBee profiles or recovering your devices.
- **Get automatic updates:** Automatically update the application itself, as well as the radio firmware library, without downloading any extra files.

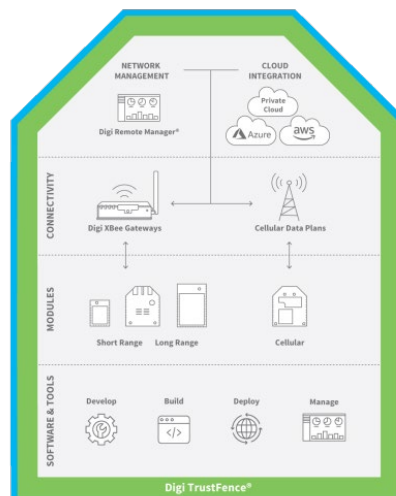


DIGI XBEE FOR WI-SUN

Digi XBee Ecosystem, Tools and Supporting Services

Digi XBee Ecosystem

The world-renowned XBee module is part of a family of cellular modems and RF modules that provide ultimate flexibility for IoT application developers, with three programmable form factors, and a range of popular wireless protocols. The XBee family also includes IoT gateways and management tools to connect, monitor and manage your XBee network. [Learn more at **digi.com/xbee**.](https://www.digi.com/xbee)



Digi XBee Tools

The **Digi XBee Ecosystem** is fully supported with the award-winning **Digi XBee Tools** suite. Designed to support the full product lifecycle, from prototyping and development to deployment and ongoing monitoring, Digi XBee Tools includes code libraries, testing and prototyping tools, product development and manufacturing support, and tools for deploying and managing end devices in the field.



DEVELOP



BUILD



DEPLOY



MANAGE

Digi Wireless Design Services



DEFINITION



DEVELOPMENT



CERTIFICATION



MANUFACTURING

Digi WDS Services

We offer services to support you wherever you are along your development path, with a record that speaks for itself.

- Proof of concept
- Architecture consultation
- Requirements definition
- System, software and electrical design
- Design reviews
- Certifications
- Prototype build
- Manufacturing test fixtures
- 250+ product development projects
- 100+ certification failure rescues
- 100 million connected devices around the globe

Get to market faster with Digi WDS

Digi Wireless Design Services (WDS) has a proven history of helping clients speed down the path to success by guiding them through the technological and regulatory certification pitfalls that botch budgets and disrupt product introductions.

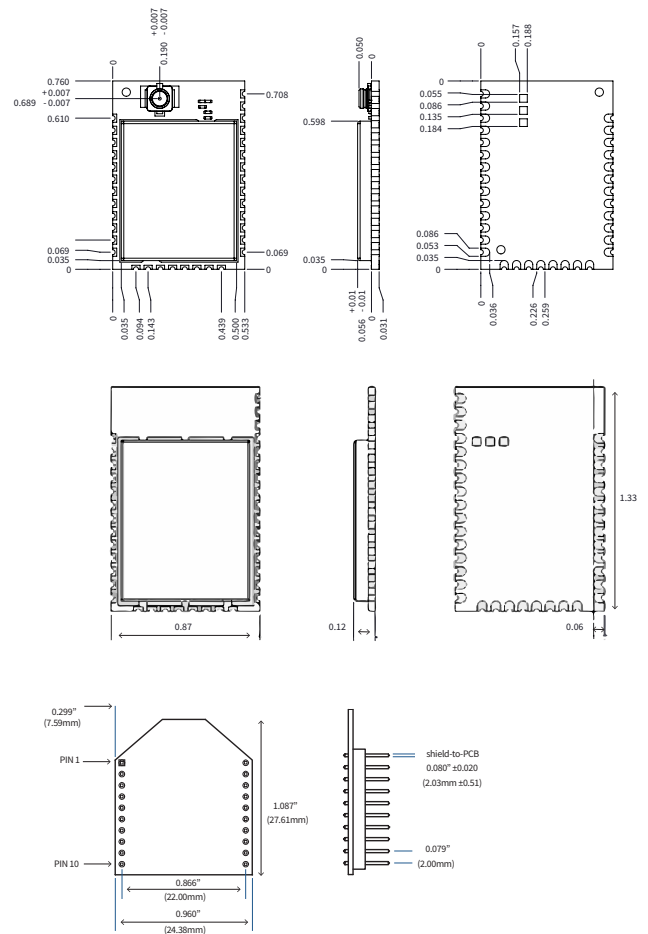
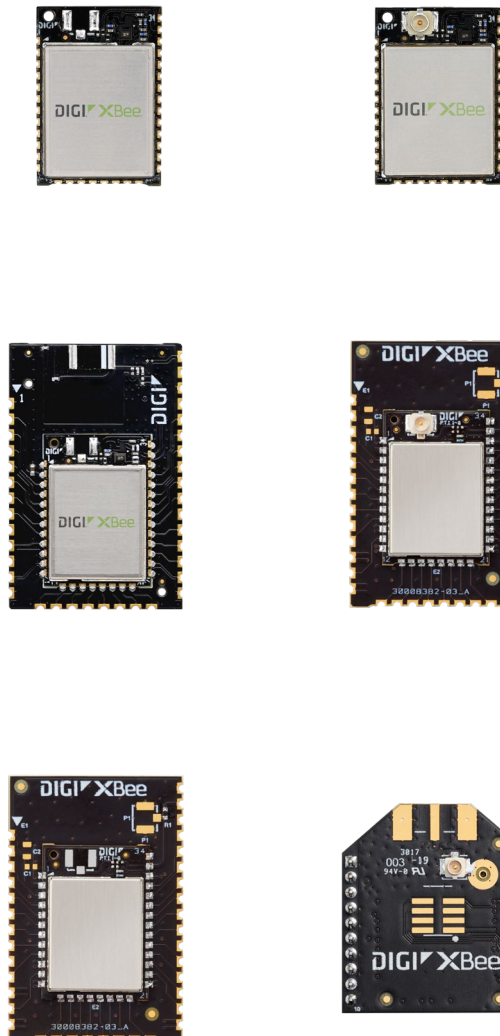
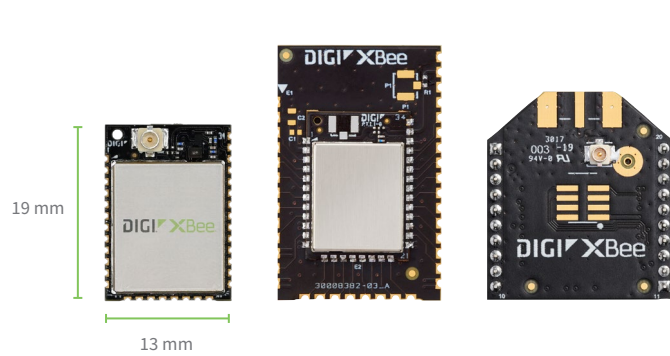
We begin by actively listening to your business and technical requirements, and then leverage our proven methodology, world-class engineering expertise and library of IP to design a cost-effective solution that is tailored to your specific needs. Accelerate toward the solution that is right for you and your customers.

Contact **Digi WDS** to find out how we can guide you to success.

DIGI XBEE FOR WI-SUN

Product Photos

Digi XBee for Wi-SUN photos and dimensions



DIGI XBEE FOR WI-SUN

Part Numbers

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Digi XBee for Wi-SUN — North America

DIGI XBEE FOR WI-SUN MICRO-MOUNT (MMT) — NORTH AMERICA

XB-WSB-UM-001	Digi XBee for Wi-SUN — 900 MHz, FFN, U.FL, MMT, North America
XB-WSB-RM-001	Digi XBee for Wi-SUN — 900 MHz, FFN, RF pad, MMT, North America

DIGI XBEE FOR WI-SUN SURFACE-MOUNT (SMT) — NORTH AMERICA

XB-WSB-US-001	Digi XBee for Wi-SUN — 900 MHz, FFN, U.FL, SMT, North America
XB-WSB-RS-001	Digi XBee for Wi-SUN — 900 MHz, FFN, RF pad, SMT, North America
XB-WSB-9S-001	Digi XBee for Wi-SUN — 900 MHz, FFN, chip, SMT, North America

DIGI XBEE FOR WI-SUN THROUGH-HOLE (TH) — NORTH AMERICA

XB-WSB-UT-001	Digi XBee for Wi-SUN — 900 MHz, FFN, U.FL, TH, North America
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Part Numbers

Digi XBee for Wi-SUN — Japan

DIGI XBEE FOR WI-SUN MICRO-MOUNT (MMT) — JAPAN

XB-WSB-UM-051	Digi XBee for Wi-SUN — 920 MHz, FFN, U.FL, MMT, Japan
XB-WSB-RM-051	Digi XBee for Wi-SUN — 920 MHz, FFN, RF pad, MMT, Japan

Part Numbers

Digi XBee for Wi-SUN — EMEA

DIGI XBEE FOR WI-SUN MICRO-MOUNT (MMT) — EMEA

XB-WSB-UM-081	Digi XBee for Wi-SUN — 868 MHz, FFN, U.FL, MMT, Europe
XB-WSB-RM-081	Digi XBee for Wi-SUN — 868 MHz, FFN, RF pad, MMT, Europe

DIGI XBEE FOR WI-SUN SURFACE-MOUNT (SMT) — EMEA

XB-WSB-US-081	Digi XBee for Wi-SUN — 868 MHz, FFN, U.FL, SMT, Europe
XB-WSB-RS-081	Digi XBee for Wi-SUN — 868 MHz, FFN, RF pad, SMT, Europe
XB-WSB-8S-081	Digi XBee for Wi-SUN — 868 MHz, FFN, chip, SMT, Europe

Part Numbers

Digi XBee for Wi-SUN — India

DIGI XBEE FOR WI-SUN MICRO-MOUNT (MMT) — INDIA

XB-WSB-UM-071	Digi XBee for Wi-SUN — 865 MHz, FFN, U.FL, MMT, India
XB-WSB-RM-071	Digi XBee for Wi-SUN — 865 MHz, FFN, RF pad, MMT, India

For more information, visit digi.com.



For more information about Digi XBee for Wi-SUN,
visit digi.com/xbee-for-wi-sun.

877-912-3444 | 952-912-3444

