



DIGI® WIRELESS CONNECTIVITY KIT

Provides a hands-on way to learn how to use Digi XBee® RF modules for device connectivity and sensor networking

Starting with very simple examples, we provide step-by-step guidance in assembling the kit components to create reliable wireless communications, working control systems, and sensing networks with incredible battery life and robust security. The kit is designed for anyone getting started in the world of Digi XBee: hardware/software engineers, product managers, educators, students and even young inventors.

All examples are explained in-depth and include videos showcasing wireless communication in action. Some examples also incorporate the Digi XBee Java Library, which can be used to integrate Digi XBees modules into Java-based devices and applications. Each example is designed to be easy for anyone to use, and those with some programming background should find it simple to extend the examples to additional applications or use-cases.

Digi XBee 802.15.4 Modules Included in the Kit

Digi XBee and XBee-PRO 802.15.4 modules are embedded solutions providing wireless connectivity to devices. These modules use the IEEE 802.15.4 networking protocol for fast point-to-multipoint or peer-to-peer networking. They are designed for high-throughput applications requiring low latency and predictable communication timing.

The Kit Includes:

- ✓ 2 Digi XBee Grove Development Boards
- ✓ 2 Digi XBee 802.15.4 Modules
- ✓ 2 Micro-USB Cables
- ✓ 2 Digi XBee Stickers

| PART NUMBER | DESCRIPTION |
|--------------|---|
| XKB2-AT-WWC | Wireless Connectivity Kit w/ Digi XBee S1 802.15.4 |
| XKB2-A2T-WWC | Wireless Connectivity Kit w/ Digi XBee S2C 802.15.4 |

Digi XBee 802.15.4 modules are ideal for low-power, low-cost applications. These modules are easy-to-use, share a common footprint, and are fully interoperable with other XBee products utilizing the same technology. Module users have the ability to substitute one Digi XBee module for another with minimal development time and risk.

SPECIFICATIONS

Digi XBee® S2C 802.15.4

| Digi XBee-PRO® S2C 802.15.4

PERFORMANCE

| | | |
|--------------------------------|--|------------------|
| TRANSCEIVER CHIPSET | Silicon Labs EM357 SoC | |
| DATA RATE | RF 250 Kbps, Serial up to 1 Mbps | |
| INDOOR/URBAN RANGE | 200 ft (60 m) | 300 ft (90 m) |
| OUTDOOR/RF LINE-OF-SIGHT RANGE | 4000 ft (1200 m) | 2 miles (3200 m) |
| TRANSMIT POWER | 3.1 mW (+5 dBm) / 6.3 mW (+8 dBm) boost mode | 63 mW (+18 dBm) |
| RECEIVER SENSITIVITY (1% PER) | -100 dBm / -102 dBm boost mode | -101 dBm |

FEATURES

| | | |
|-----------------------------------|---|--|
| SERIAL DATA INTERFACE | UART, SPI | |
| CONFIGURATION METHOD | API or AT commands, local or over-the-air (OTA) | |
| FREQUENCY BAND | ISM 2.4 GHz | |
| FORM FACTOR | Through-Hole, Surface Mount | |
| HARDWARE | S2C | |
| INTERFERENCE IMMUNITY | DSSS (Direct Sequence Spread Spectrum) | |
| ADC INPUTS | (4) 10-bit ADC inputs | |
| DIGITAL I/O | 15 | |
| ANTENNA OPTIONS | Through-Hole: PCB Antenna, U.FL Connector, RPSMA Connector, or Integrated Wire SMT: RF Pad, PCB Antenna, or U.FL Connector | |
| OPERATING TEMPERATURE | -40° C to +85° C | |
| DIMENSIONS (L X W X H) AND WEIGHT | 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) |

NETWORKING AND SECURITY

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

POWER REQUIREMENTS

| | | |
|--------------------|------------------------------------|------------------|
| SUPPLY VOLTAGE | 2.1 to 3.6V | 2.7 to 3.6V |
| TRANSMIT CURRENT | 33 mA @ 3.3 VDC / 45 mA boost mode | 120 mA @ 3.3 VDC |
| RECEIVE CURRENT | 28 mA @ 3.3 VDC / 31 mA boost mode | 31 mA @ 3.3 VDC |
| POWER-DOWN CURRENT | <1 µA @ 25° C | <1 µA @ 25° C |

REGULATORY APPROVALS

| | | |
|---------------------------------|------------------|------------------|
| FCC, IC (NORTH AMERICA) | Yes | Yes |
| ETSI (EUROPE) | Yes | No |
| RCM (AUSTRALIA AND NEW ZEALAND) | No (Coming soon) | No (Coming soon) |
| TELEC (JAPAN) | No (Coming soon) | No |

| SPECIFICATIONS | | Legacy Digi XBee® S1 802.15.4 | Legacy Digi XBee-PRO® S1 802.15.4 |
|--------------------------------|---|-------------------------------|-----------------------------------|
| PERFORMANCE | | | |
| RF DATA RATE | 250 kbps | 250 kbps | |
| INDOR/URBAN RANGE | 100 ft (30 m) | 300 ft (100 m) | |
| OUTDOOR/RF LINE-OF-SIGHT RANGE | 300 ft (100 m) | 1 mi (1.6 km) | |
| TRANSMIT POWER | 1 mW (+0 dBm) | 60 mW (+18 dBm)* | |
| RECEIVER SENSITIVITY (1% PER) | -92 dBm | -100 dBm | |
| DIGI HARDWARE | S1 | | |
| TRANSCEIVER CHIPSET | Freescall MC13212 | | |
| FEATURES | | | |
| SERIAL DATA INTERFACE | 3.3V CMOS UART | | |
| 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 - 250 kbps | | |
| ADC INPUTS | (6) 10-bit ADC inputs | | |
| DIGITAL I/O | 8 | | |
| ANTENNA OPTIONS | Chip, Wire Whip, U.FL, & RPSMA | | |
| NETWORKING & SECURITY | | | |
| ENCRYPTION | 128-bit AES | | |
| RELIABLE PACKET DELIVERY | Retries/Acknowledgments | | |
| IDS AND CHANNELS | PAN ID, 64-bit IEEE MAC, 16 Channels | | |
| POWER REQUIREMENTS | | | |
| SUPPLY VOLTAGE | 2.8 - 3.4VDC | 2.8 - 3.4VDC | |
| TRANSMIT CURRENT | 45 mA @ 3.3VDC | 215 mA @ 3.3VDC | |
| RECEIVE CURRENT | 50 mA @ 3.3VDC | 55 mA @ 3.3VDC | |
| POWER-DOWN CURRENT | <10 uA @ 25° C | | |
| REGULATORY APPROVALS | | | |
| FCC (USA) | OUR-XBEE | OUR-XBEEPRO | |
| IC (CANADA) | 4214A-XBEE | 4214A-XBEEPRO | |
| ETSI (EUROPE) | Yes | Yes - Max TX 10 mW | |
| C-TICK AUSTRALIA | Yes | | |
| TELEC (JAPAN) | Yes | | |

It's the easy and fast way to build a wireless sensor network using Digi XBee modules. To learn more visit docs.digi.com.



877-912-3444 | 952-912-3444

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