# DIGI XBEE RR

## Easy-to-add connectivity in a compact, low-power, low-profile footprint

Digi XBee® RR wireless modules accelerate time-to-market for designers, OEMs and solution providers by quickly enabling wireless connectivity and easy-to-add functionality. Building on industry-leading technology, pre-certified Digi XBee RR wireless modules offer the flexibility to switch between multiple frequencies and wireless protocols.

Digi XBee RR offers a fully interoperable ecosystem covering all vertical markets including building automation, smart energy, digital health, intelligent lighting, and others.

From edge computing to future migration, Digi XBee RR wireless modules offer size, weight, power and performance advantages ideal for scalable device connectivity, security and flexibility.

Digi Remote Manager® offers a central, cloud-based platform for configuring, monitoring and controlling your entire Digi XBee RR wireless network, via a gateway, as shown in the application example.

Built-in Digi TrustFence® security, identity and data privacy features use more than 175 controls to protect against new and evolving cyber threats. The Digi XBee Mobile App and Digi XCTU® simplify local setup, configuration, testing and adding or changing functionality.

A versatile addition to the expanding Digi XBee Ecosystem of wireless modules, adapters and software, the Digi XBee RR Series offers a complete solution engineered to accelerate development and deployment.

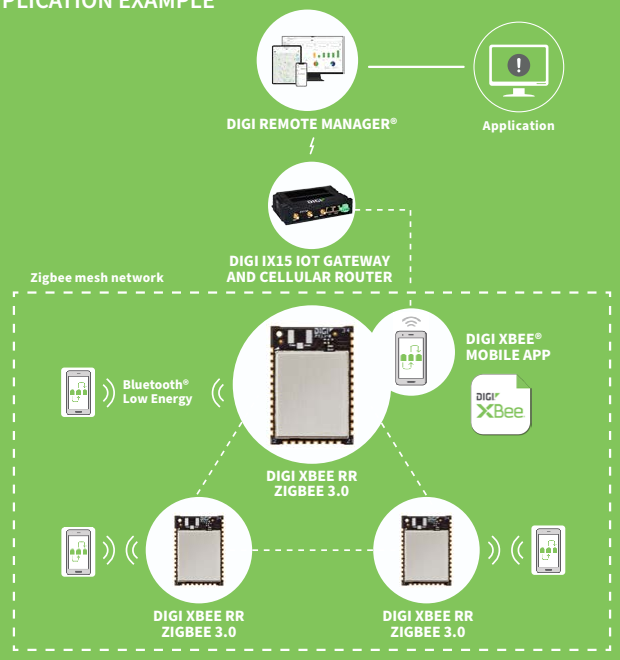
### SIZE AND FLEXIBILITY

- At 13 mm x 19 mm, the new Digi XBee RR micro form factor allows for more compact and portable applications
- Digi XBee RR is one module for all protocols including: Zigbee, 802.15.4, DigiMesh® and BLE (slave only), which can be locally configured via Digi XCTU and the Digi XBee Mobile App

### SECURITY

- Intrinsic IoT security with Digi TrustFence, a layered approach securing the edge device, through the gateway, into and out of the IoT

### APPLICATION EXAMPLE




### RELATED PRODUCTS AND SERVICES

Development Kits | Digi XCTU® | Digi TrustFence® | Digi Remote Manager® | Digi Design Services

원문: Digi 2.4GHz 지그비 무선 모듈 데이터시트(영문) · 제조사 원문 자료입니다. 사양은 제조사 사정에 따라 변경될 수 있습니다.

| SPECIFICATIONS | DIGI XBEE® RR | DIGI XBEE® RR PRO |
|---|---|---|
| ZIGBEE PERFORMANCE | | |
| TRANSCEIVER CHIPSET | Silicon Labs EFR32MG SoC | |
| DATA RATE | RF 250 Kbps, serial up to 1 Mbps | |
| INDOOR/URBAN RANGE* | Up to 60 m (200 ft) | Up to 90 m (300 ft) |
| OUTDOOR/RF LINE-OF-SIGHT RANGE* | Up to 1200 m (4000 ft) | Up to 3200 m (2 miles) |
| TRANSMIT POWER | 6.3 mW (+8 dBm); channel 26 max power: +3 dBm | 79 mW (+19 dBm); channel 26 max power: +3 dBm |
| RECEIVER SENSITIVITY (1% PER) | -103 dBm normal mode | |
| BLUETOOTH® PERFORMANCE | | |
| TRANSCEIVER CHIPSET | Silicon Labs EFR32MG SoC | |
| BLE VERSION | Supports Bluetooth Low Energy (BLE) 4.2 (slave only) and capable of interoperating with BLE 5.0 devices that support 1M PHY. Hardware is software upgradable to 5.0, but not yet enabled except payload extensions (future release). | |
| MAXIMUM DATA RATE | 1 Mbps | |
| INDOOR/URBAN RANGE* | Up to 15 m (49 ft) | |
| OUTDOOR/RF LINE-OF-SIGHT RANGE* | Up to 300 m (984 ft) | |
| TRANSMIT POWER | +8 dBm | |
| RECEIVER SENSITIVITY (1% PER) | -95 dBm normal mode | |
| FEATURES | | |
| SERIAL DATA INTERFACE | UART, SPI, I2C | |
| CONFIGURATION METHOD | API or AT commands, local or over-the-air (OTA) | |
| FREQUENCY BAND | ISM 2.4 GHz | |
| FORM FACTOR | Micro, through-hole, surface mount | |
| INTERFERENCE IMMUNITY | DSSS (Direct Sequence Spread Spectrum) | |
| ADC INPUTS | (4) 10-bit ADC inputs | |
| DIGITAL I/O | 13 | |
| ANTENNA OPTIONS | Through-hole: PCB antenna, U.FL connector, RPSMA connector<br>SMT: RF pad, PCB antenna, or U.FL connector<br>Micro: U.FL antenna, RF pad, chip antenna | |
| OPERATING TEMPERATURE | -40° C to 85° C (-40° F to 185° F) | |
| DIMENSIONS (L X W X H) | Through-hole: 2.438 x 2.761 cm (0.960 x 1.087 in)<br>SMT: 2.199 x 3.4 x 0.305 cm (0.866 x 1.33 x 0.120 in)<br>Micro: 13 x 19 x 2 mm (0.533 x 0.76 x 0.087 in) | |
| MEMORY | 1 MB / 96 kB RAM | |
| NETWORKING AND SECURITY | | |
| PROTOCOL | Zigbee 3.0 | |
| ENCRYPTION | 128/256 bit AES | |
| RELIABLE PACKET DELIVERY | Retries/acknowledgements | |
| IDS | PAN ID and addresses, cluster IDs and endpoints (optional) | |
| CHANNELS | 16 channels | |

*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.

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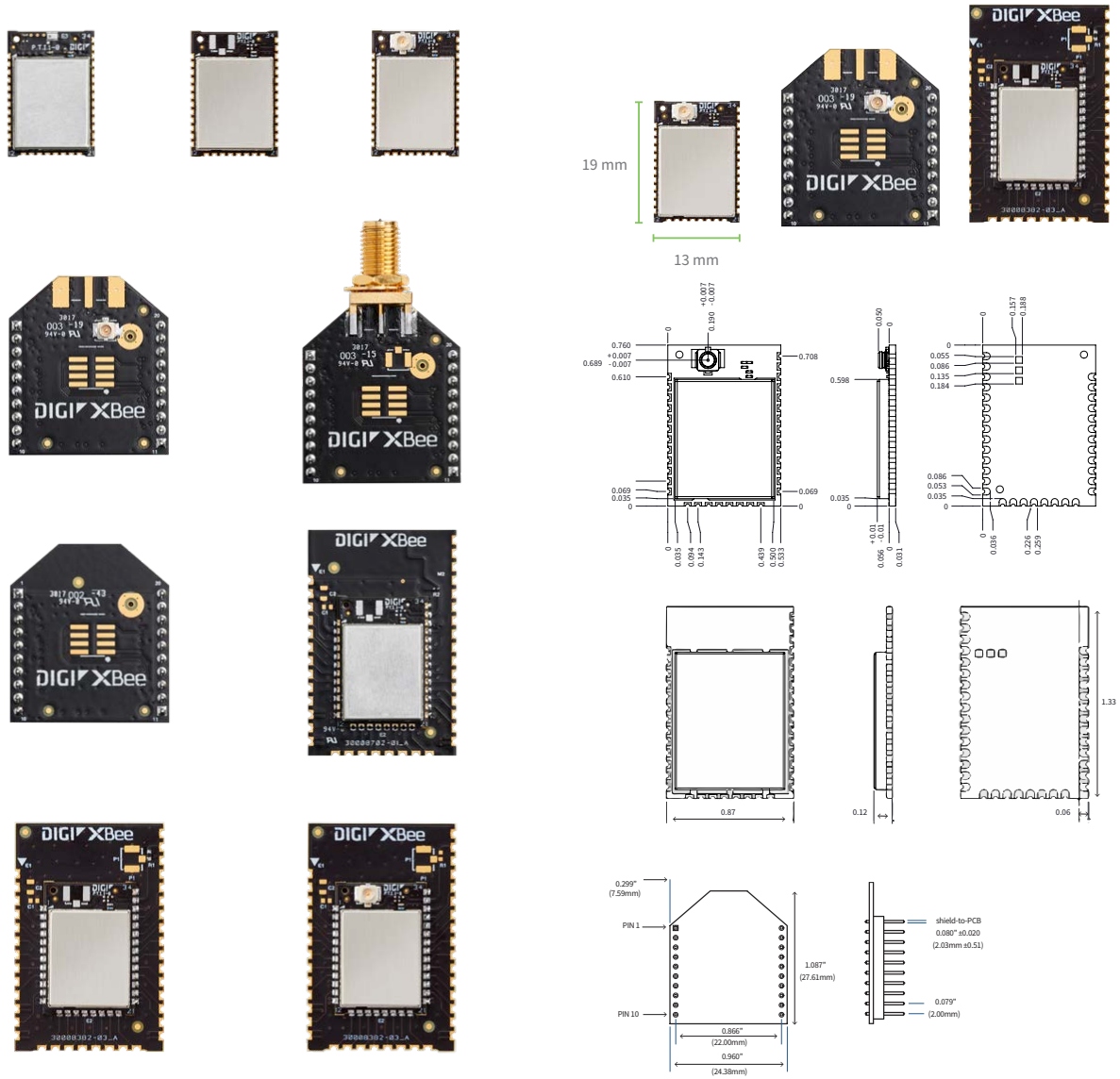
원문: Digi 2.4GHz 지그비 무선 모듈 데이터시트(영문) · 제조사 원문 자료입니다. 사양은 제조사 사정에 따라 변경될 수 있습니다.

| SPECIFICATIONS | DIGI XBEE® RR | DIGI XBEE® RR PRO |
|---|---|---|
| POWER REQUIREMENTS | | |
| SUPPLY VOLTAGE | 1.71 to 3.8 V | |
| TRANSMIT CURRENT | 32 mA at 3.3 V, +8 dBm | 193 mA at 3.3 V, +19 dBm |
| RECEIVE CURRENT | 14 mA | |
| SLEEP CURRENT | 8 µA at 25° C (77° F) | |
| REGULATORY APPROVALS | | |
| FCC, IC (NORTH AMERICA) | Yes | Yes |
| ETSI (EUROPE) | Yes | No |

## PRODUCT IMAGES AND DIMENSIONS

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## DIGI IX15 IOT GATEWAY AND CELLULAR ROUTER

The versatile Digi IX15 device functions as both gateway and router for customers seeking lower-cost, quicker-to-market alternatives to chip-down DIY designs for networking operations. Digi IX15 is an industrial-grade IoT gateway that connects Digi XBee® modules to cloud applications over cellular or Ethernet, providing the easiest path to Internet connectivity for the Digi XBee ecosystem of hardware, software, services and award-winning tools.

Learn more at www.digi.com/ix15

### DIGI XBEE RR AND THE DIGI IX15 IOT GATEWAY

- Connect Digi XBee® RR with the Digi IX15 IoT gateway and cellular router
- Configure, monitor and control your entire Digi XBee RR wireless network with Digi Remote Manager® — your central, cloud-based platform for easy setup, mass configuration, firmware updates, remote device management and out-of-band management — via the Digi IX15 IoT gateway and cellular router
- Provide the most optimal, resilient connecitivity between your XBee network and cloud-based applications

### FEATURES AND BENEFITS

- Digi XBee® (Zigbee®, DigiMesh®, 802.15.4), BLE and RS-232/485 for connection to local devices
- Open source Python environment for custom application development
- LTE Cat 4 cellular and 10/100 Ethernet WAN connectivity
- Full-featured industrial cellular routing platform
- Redundant connectivity with dual SIMs and Digi SureLink®
- Built-in Digi TrustFence® for device security, device identity and data privacy

## DIGI REMOTE MANAGER

Digi Remote Manager is the technology platform that brings networks to the next level, allowing networks — and the people who manage them — to work smarter. With Digi Remote Manager you can transform a multitude of dispersed IoT devices into a dynamic, intelligent network. Now you can easily deploy, monitor and diagnose thousands of mission-critical devices from a single point of command — on your desktop, tablet or phone. All the while, its software-defined security diligently safeguards your entire Digi ecosystem.

Learn more at www.digi.com/digi-remote-manager

### CAPABILITIES

- Activate, monitor and diagnose your mission-critical devices from a single point of command and control
- Schedule key operations — including firmware updates and file management — on a single device or on a group of devices, keeping your network functionality up-to-date and maintaining compliance standards
- Manage edge devices out-of-band via console terminal access
- Keep tabs on device health and connectivity across device deployments of any size
- Create detailed reports and enable real-time alerts for specified conditions
- Integrate device data through open APIs to gain deeper insights and control with third-party applications
- Report and alert on performance statistics, including connection history, signal quality, latency, data usage and packet loss

### INFRASTRUCTURE

- Hosted in a commercial-grade cloud server environment that meets SOC 1®, SOC 2® and SOC 3® standards
- Superior availability, operating to 99.9% or greater
- Open APIs available to support application development

### SECURITY

- More than 175 security controls in place to protect your data
- Member of the Center for Internet Security® (CIS®)
- Enables compliance with security frameworks like ISO27002, HIPAA, NIST and more
- Earned Skyhigh's CloudTrust™ Program highest rating of Enterprise-Ready

| PART NUMBERS | DIGI REMOTE MANAGER® |
|---|---|
| DIGI-RM-STD-1YR | Digi Remote Manager Standard — 1-year subscription |
| DIGI-RM-PRM-1YR | Digi Remote Manager Premier — 1-year subscription |
| DIGI-RM-PRM-3YR | Digi Remote Manager Premier — 3-year subscription |
| DIGI-RM-PRM-5YR | Digi Remote Manager Premier — 5-year subscription |

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원문: Digi 2.4GHz 지그비 무선 모듈 데이터시트(영문) · 제조사 원문 자료입니다. 사양은 제조사 사정에 따라 변경될 수 있습니다.

| PART NUMBERS | DIGI XBEE RR |
|---|---|
| DIGI XBEE RR WIRELESS MODULES | |
| XBRR-24ACM-J | Digi XBee RR, 2.4 Ghz, 802.15.4, Chip Ant, MMT |
| XBRR-24Z8CM-J | Digi XBee RR, 2.4 GHz, Zigbee, Chip Ant, MMT |
| XBRR-24Z8PS-J | Digi XBee RR, 2.4 GHz, Zigbee, PCB Ant, SMT |
| XBRR-24Z8PT-J | Digi XBee RR, 2.4 GHz, Zigbee, PCB Ant, Through-hole |
| XBRR-24Z8RM-J | Digi XBee RR, 2.4 GHz, Zigbee, RF Pad Ant, MMT |
| XBRR-24Z8ST-J | Digi XBee RR, 2.4 GHz, Zigbee, SMA Ant, Through-hole |
| XBRR-24Z8UM-J | Digi XBee RR, 2.4 GHz, Zigbee, U.FL Ant, MMT |
| XBRR-24Z8US-J | Digi XBee RR, 2.4 GHz, Zigbee, U.FL Ant, SMT |
| XBRR-24Z8UT-J | Digi XBee RR, 2.4 GHz, Zigbee, U.FL Ant, Through-hole |
| DIGI XBEE RR PRO WIRELESS MODULES | |
| XBRR-24ACM | Digi XBee RR PRO, 2.4 Ghz, 802.15.4, Chip Ant, MMT |
| XBRR-24DMUM | Digi XBee RR PRO, 2.4 GHz, DigiMesh, U.FL Ant, MMT |
| XBRR-24DRMR | Digi XBee RR PRO, 2.4 GHz, DigiMesh, RF Pad Ant, MMT |
| XBRR-24Z8CM | Digi XBee RR PRO, 2.4 GHz, Zigbee, Chip Ant, Through-hole |
| XBRR-24Z8PS | Digi XBee RR PRO, 2.4 GHz, Zigbee, PCB Ant, SMT |
| XBRR-24Z8PT | Digi XBee RR PRO, 2.4 GHz, Zigbee, PCB Ant, Through-hole |
| XBRR-24Z8RM | Digi XBee RR PRO, 2.4 GHz, Zigbee, RF Pad Ant, MMT |
| XBRR-24Z8RM-R15 | Digi XBee RR PRO, 2.4 GHz, Zigbee, RF Pad Ant, MMT, Tape & Reel |
| XBRR-24Z8ST | Digi XBee RR PRO, 2.4 GHz, Zigbee, SMA Ant, Through-hole |
| XBRR-24Z8UM | Digi XBee RR PRO, 2.4 GHz, Zigbee, U.FL Ant, MMT |
| XBRR-24Z8US | Digi XBee RR PRO, 2.4 GHz, Zigbee, U.FL Ant, SMT |
| XBRR-24Z8UT | Digi XBee RR PRO, 2.4 GHz, Zigbee, U.FL Ant, Through-hole |

| PART NUMBERS | DIGI IX15 GATEWAYS |
|---|---|
| IX15-00G4-XB2 | Digi IX15 - XBee 3, LTE Cat 4, (1) Ethernet, RS-232/485 |
| IX15-00G4-XBP2 | Digi IX15 - XBee 3 PRO, LTE Cat 4, (1) Ethernet, RS-232/485 |

## FOR MORE INFORMATION PLEASE VISIT DIGI.COM

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