MATLOG

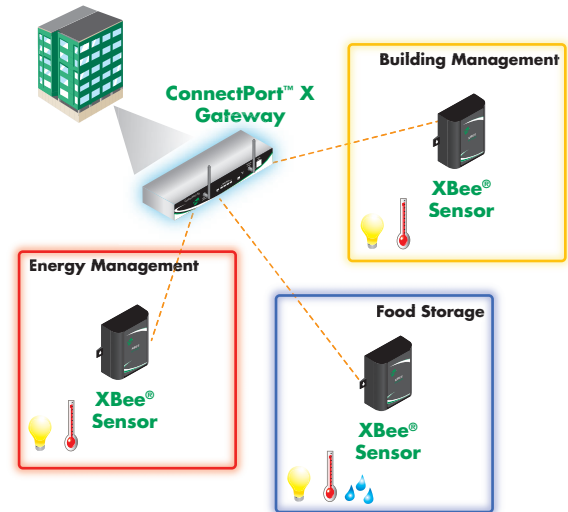# XBee® Sensors

Compact Battery Powered Sensors with Integrated ZigBee®

XBee sensors easily integrate into ZigBee networks, featuring long battery life and small size for unobtrusive installation anywhere.

Features/Benefits

- **ZigBee wireless sensors - Temperature, humidity, light**

- **Small form factor can be mounted anywhere**

- **Long-life battery**

- **Easy to install/configure**

- **Easy to integrate with Digi's Drop-in Networking family of gateways, adapters and modules on a ZigBee network**
  - **Integrate with custom Python® development environment for events, triggers and data logging**

- **Applications include building automation and security, energy management, food management, freight/vehicle monitoring**

Overview

ZigBee technology enables low-cost, low-power networking of sensors, controllers and other devices in self-configuring, self-healing wireless mesh networks. Part of Digi's Drop-in Networking solutions, XBee sensors offer the ability to provide real-time data from a variety of sensors (e.g., temperature, humidity, light) in a single solution for wireless communication across a ZigBee infrastructure.

Their small form factor and long-life battery power make XBee sensors easy to integrate with Digi's Drop-in Networking solutions to provide reliable, unobtrusive communications. Applications include building automation and security, energy management, food management, freight/vehicle monitoring and many more.

Installation is a snap. Simply insert batteries, add the XBee sensor to the ZigBee network, and configure the update interval. Next, mount the device in an out-of-the way location and start communicating.

XBee sensors can be used with ConnectPort™ X gateways, XBee embedded modules, XBee adapters or XBee wall routers to drop-in end-to-end device networks – without the need for a wired network infrastructure.

Digi®

Features/Specifications

FEATURES

General
- Frequency: 2.4 GHz (ISM)
- Internal antenna

Performance
- Indoor/Urban range: 133 ft (40 m)
- Outdoor RF line-of-sight range: 400 ft (120 m)
- Transmit power output: 1.25 mW (+1 dBm) / 2 mW (+3 dBm) boost mode
- RF data rate: 250,000 bps
- Receive sensitivity (1% PER): -97 dBm (-98 dBm boost mode)

Networking and Security
- Networking topologies: Point-to-Point, Point-to-Multipoint, Peer-to-Peer, Mesh
- Number of channels: 16 - 5 MHz channels (Direct Sequence Spread Spectrum)
- Filtration options: PAN ID, Channel, 2^64 (64-bit) addresses

LEDs
- Power: Solid when powered and not associated to network.
- Associate: Blinks when unit is associated to network

Push Button
- Device reset
- Configuration reset to factory defaults
- Identification/Commissioning mode

INTERFACES
- ZigBee - compatible with:
  - Digi XBee ZNet 2.5 (formerly Series 2) module
  - EmberZNet 2.5x mesh stack

INTEGRATED SENSORS

Temperature Sensor
- Range: -18° C to +55° C (-0.4° F to +131° F)
- Accuracy: +/- 2° C

Ambient Light Sensor
- Range of spectral bandwidth: 360 to 970 nm (similar to human eye)
- Wavelength of peak sensitivity: 570 nm

Humidity Sensor
- Range: 0 to 100% RH
- Interchangeability:
  +/- 5 %RH (0% RH to 59%RH)
  +/- 8 %RH (60% RH to 100%RH)
- Accuracy: +/- 3.5% RH

ENVIRONMENTAL
- Operating temperature: -18° C to 55° C (-0.4° F to 131° F)
- Power requirements: 3 x AA alkaline 1.5V batteries (batteries not included)

BATTERY LIFE

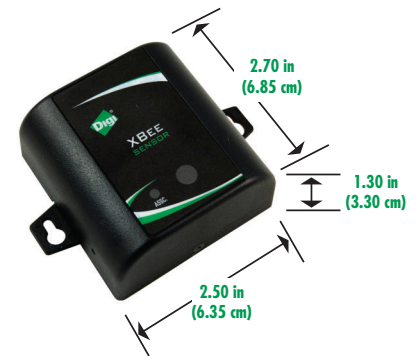| Duty Cycle	Battery Life Estimate
1 read per 30 sec	1.5 years
1 read per minute	2.5 years
1 read per hour (or less frequent)	6 years

- Assumptions based on:
  - Cyclic sleep enabled with single transmit per wake cycle
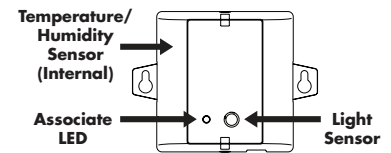 - At 21° C

REGULATORY APPROVALS (pending)
- FCC Part 15, Class B
- EN55022 Class B, EN 55024
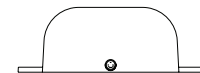- RoHS Compliant

DIMENSIONS
- Length: 2.70 in (6.85 cm)
- Width: 2.50 in (6.35 cm)
- Height: 1.30 in (3.30 cm)
- Weight: 0.35 lb (0.158 kg) w/batteries, 0.20 lb (0.091 kg) without batteries

2.70 in (6.85 cm)
1.30 in (3.30 cm)
2.50 in (6.35 cm)

XBee Sensor - Front

Temperature/Humidity Sensor (Internal)
Associate LED
Light Sensor

XBee Sensor - Top/Bottom

MODEL......................PART NUMBERS

Model	Worldwide
XBee Sensor - Battery powered temperature and light	XS-Z14-CB1RB
XBee Sensor - Battery powered temperature, humidity and light	XS-Z14-CB2RB

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