DIGI

XBEE® SENSOR

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

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 XBee 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 battery life power make XBee sensors easy to integrate with Digi's XBee gateway solutions to provide reliable, unobtrusive communications. Applications include building automation and security, energy management, food storage management, freight/vehicle monitoring and many more.
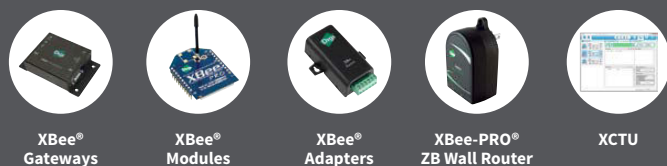
Installation is a snap. Simply insert batteries, add the XBee sensor to the ZigBee network, and configure the update interval. Next, mount the device in an out-of-the way location and start communicating.

If using the same ZigBee protocol, XBee sensors can be used with XBee 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.
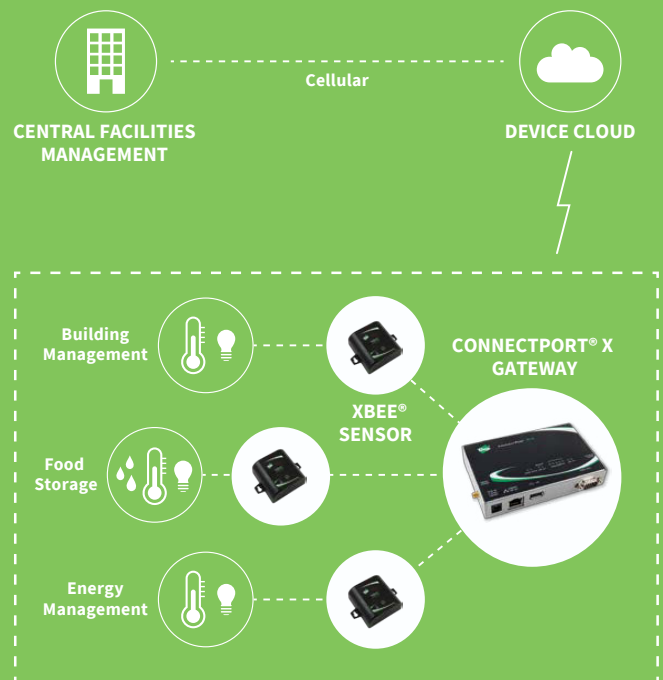
BENEFITS

– ZigBee wireless sensors for temperature, humidity, light
– Small form factor can be mounted anywhere
– Long battery life
– Easy to install/configure
– Easy to integrate with Digi's XBee ZigBee 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 and food storage management
  - Freight/vehicle monitoring

APPLICATION EXAMPLE

CENTRAL FACILITIES MANAGEMENT — Cellular — DEVICE CLOUD

Building Management

Food Storage

Energy Management

XBEE® SENSOR

CONNECTPORT® X GATEWAY

RELATED PRODUCTS

XBee® Gateways

XBee® Modules

XBee® Adapters

XBee-PRO® ZB Wall Router

XCTU

SPECIFICATIONS — XBee® Sensor

PERFORMANCE

FREQUENCY BAND	ISM 2.4 GHz
RF DATA RATE	250,000 bps
INDOOR/URBAN RANGE	133 ft (40 m)
OUTDOOR RF LINE-OF-SIGHT RANGE	400 ft (120 m)
TRANSMIT POWER	1.25 mW (+1 dBm) normal mode; 2 mW (+3 dBm) boost mode
RECEIVER SENSITIVITY (1% PER)	-96 dBm boost mode; -95 dBm normal mode

FEATURES

INTERFACES	ZigBee: Integrated XBee ZB module supports ZigBee PRO Feature Set
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
ANTENNA OPTIONS	Internal

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%RHto59%RH), +/-8%RH(60%RHto100%RH); Accuracy: +/- 3.5% RH

NETWORKING & SECURITY

NETWORKING TOPOLOGIES	Mesh, Point-to-point, Point-to-multipoint
NUMBER OF CHANNELS	16 (Direct Sequence Spread Spectrum)
FILTRATION OPTIONS	PAN ID, Channel, 64-bit Addresses

GENERAL

DIMENSIONS (L X W X H)	2.70 in x 2.50 in x 1.30 in (6.85 cm x 6.35 cm x 3.30 cm)
WEIGHT	0.35 lb (0.158 kg) w/batteries, 0.20 lb (0.091 kg) without batteries
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

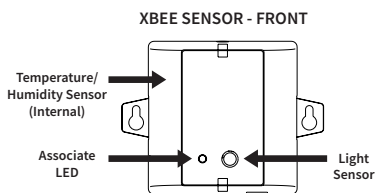|	
DUTY CYCLE/BATTERY LIFE ESTIMATE	1 read per 30 sec / 1.5 years 1 read per minute / 2.5 years 1 read per hour (or less frequent) / 6 years Assumptions based on: Cyclic sleep enabled with single transmit per wake cycle; Ambient temperature at 21° C

REGULATORY APPROVALS - PENDING

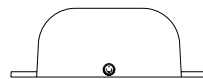|	
EMISSIONS/IMMUNITY	FCC Part 15 Class B, EN55022 Class B, EN55024
ROHS COMPLIANT	Yes

PART NUMBERS

PART NUMBERS	DESCRIPTION
XS-Z16-CB1R	XBee Sensor - ZigBee - Battery-powered temperature and light
XS-Z16-CB2R	XBee Sensor - ZigBee - Battery-powered, temperature, humidity and light

XBEE SENSOR - FRONT
Temperature/Humidity Sensor (Internal) · Associate LED · Light Sensor

XBEE SENSOR - TOP/BOTTOM

91001457
E1/915

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