

Bluetooth® 4.0 Single Mode Low Energy Programmable Universal Sensor Key Fob



nSensor™ BR-FOB-SEN-LE4.0-S2A

OUTLINE

- **AT HOME. AT WORK. ON THE ROAD. USING BLUETOOTH LOW ENERGY WIRELESS TECHNOLOGY MEANS TOTAL FREEDOM FROM THE CONSTRAINTS AND CLUTTER OF WIRES IN YOUR LIFE.**
- 8 different sensor application modes in one device:
 - ✓ Remote Control / Panic Alarm
 - ✓ Proximity & out of range detection
 - ✓ Acceleration, shock, and motion detection $\pm 2g / \pm 4 / \pm 8g$
 - ✓ Water detection 16-bit ADC
 - ✓ Light sensing 0 – 5000 LUX
 - ✓ Temperature sensor -40°C to $+85^{\circ}\text{C}$ ($\pm 0.5^{\circ}\text{C}$)
- Configurable 2-button control and LED status
- Code space for client applications (130kB Flash / 50kB w/parser, 2.5kB RAM)
- Analog, RTC, and battery monitor
- Offers universal compatibility with *Bluetooth* Low Energy Single and Dual mode devices
- Can be placed on a key ring for convenient use
- Custom build options to populate only required features to reduce overall cost



FEATURES

- **Proven, Reliable Technology:** 120 meters (400 feet) est. distance line of site (LOS), adjustable range.
- **Small and Convenient:** Can be carried with keys in pocket or handbag
- **Software Adjustable:** Transmitter power from short to long range applications
- **Low power consumption:**
- **Long Battery Life:** Single 3.0 volt coin battery can support 1 second connection intervals for 1 year and easily replaceable.
- **Auto deep sleep** - 0.5uA, 120uS wakeup
- 2-way communication and future options for broadcast
- LED status for connection state (red), sensor mode (green), and low battery
- Remote RF configuration

SPECIFICATIONS

- **Operating Temperature:** $-40\sim+60^{\circ}\text{C}$.
- **Dimensions:** 56.769mm X 34.036mm X 11.430mm (2.235" x 1.340" x 0.450")
- **Key Fob Construction:** ABS translucent plastic with rubber buttons
- **Weight:** 16gm (0.5 oz.)
- **Security:** Secure and robust communication link with billions of unique codes
 - ✓ FHSS (Frequency Hopping Spread Spectrum)
 - ✓ 24 bit CRC Error correction for guaranteed packet delivery
 - ✓ AES-128 encryption using CCM for encryption and authentication of packets.

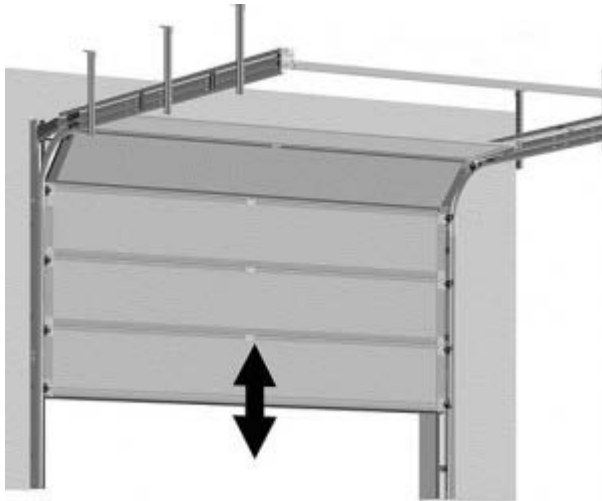
• **BR-IND-LE4.0-S2A (Industrial version)**

Main circuit board electronics and battery fits into industrial ABS black or white plastic box below:

52.832 mm X 32.512mm X 11.430mm (2.080" X 1.280" X 0.450")



EXAMPLE APPLICATIONS



- Use 3-axis accelerometer to sense garage or side door entrance open, closed, or movement. Remote open/close garage door. Also mount on glass windows for glass breakage detection.
- ADC to detect presence of water
- Sensor for detecting if lights are left on
- Asset tracking of shipping containers and to monitor environments in transit
- Key Fob to secure personal computer, laptop, or cell phone when out of range of user.

*For technical details of the products in this page, refer to Sales Dept., BlueRadios, Inc.

Benefits of BLE over traditional *Bluetooth*

IP aware, automatically interacts directly with the web application, phone PC, STB, or gateway is a pass through no special applications required on the Gateway which is a transparent pipe from device to an IP address.

- Broadcast support
- Connectionless always off technology
- Proximity and out of range detection
- 3 msec. connect time and low data latency
- First low power wireless technology standard

Price and Order information

http://www.blueradios.com/orderinfo_new.htm

Bluetooth Low Energy, part of *Bluetooth* Ver. 4.0, specifies two types of implementation: **single** mode and **dual** mode. Single mode chips implement the low energy specification and consume just a fraction of the power of classic *Bluetooth*, allowing the short-range wireless standard to extend to coin cell battery applications for the first time. Dual mode chips combine low energy with the power of classic *Bluetooth* and are likely to become a de facto feature in almost all new *Bluetooth* enabled cellular phones and computers.

Note: Single mode *Bluetooth* 4.0 Low Energy is not backwards compatible with previous *Bluetooth* standards. Dual mode *Bluetooth* 4.0 Low Energy is backwards compatible but is not practical for low power devices but targeted to gateway products.