FactorySense RFID
BLE Beacon User Manual

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Table of Contents

Introduction

FactorySense BLE beacons are ruggedized asset tracking tags purpose-built for harsh conditions typically seen with industrial use. With integrated LED light ring and buzzer functionality, FactorySense BLE beacons are an excellent choice for most location tracking and environmental sensing applications.

Electrical & Environmental Specifications

Electrical Specifications

Device Type
Bluetooth® Low Energy Beacon, Battery Powered

Wireless Interface Protocol
Bluetooth® 4.2

Certifications (Declaration of Conformity)
USA (FCC), Europe (CE)

Operational Frequency
2.4GHz

System-on-Chip
Nordic nRF 52832

Sensors
Various, see Models section below

Sensitivity
-96dBm sensitivity (Bluetooth® Low Energy)

Read Range
>100 meter range in open space

Battery Type
User-replaceable CR2450

Environmental Resistance

Storage Temperature
-0°C to +40°C

Operating Temperature
-20°C to +60°C

Water Resistance
IP67

Vibration Resistance
10g at vibration frequency 2kHz

ESD Immunity
IEC 61000-4-2 Rating: ±4kV contact discharge, ±8kV air discharge

Chemical Resistance
Generally good resistance with moderate concentrations of acids, alcohols, alkalis, detergents, and cleaners.

Acetone should be avoided.

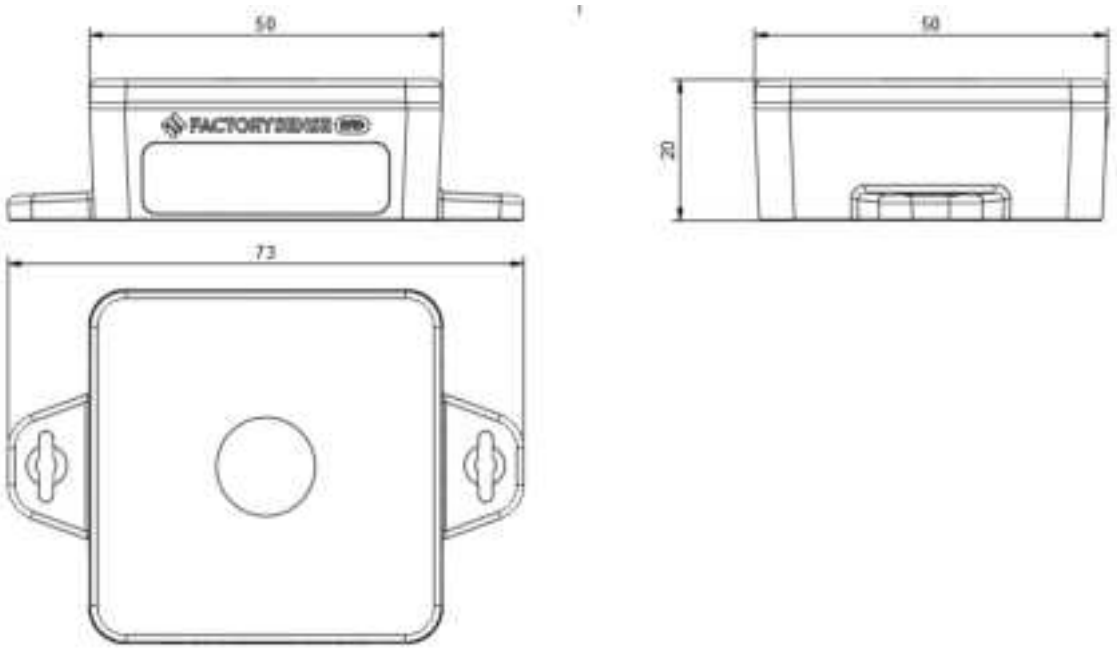
Attachment Mechanisms
Rivet, Screw, Tie Wrap, Epoxy, and others

Important Note: The values provided above were measured under ideal laboratory conditions. Actual resistance to environmental factors may vary depending on several relevant conditions. We recommend requesting a sample to validate performance in your specific environment before making a purchase. Please note that battery life is optimized for long-term use but can be significantly influenced by operating mode settings and ambient temperature.

Applications

Location Tracking, Activity Monitoring, Security, Sensor Networks, Building Automation, Industrial Automation, Access Control

Mechanical Specifications and Dimensions



Length: 73 mm (±2.87”)
Width: 50 mm (±1.97”)
Thickness: 20 mm (±0.79”)
Weight: 39 grams (approx.)

LED Status Ring

The FactorySense BLE beacon contains an integral LED status ring, which is used during asset locating processes, and to indicate various status conditions.

Status Ring Color	Description
Green, after 5s button press	The device has been woken up and will begin sending advertising packets
Red, after 5s button press	The device has been put into sleep mode and will not send advertising packets until it has been woken up again
Yellow rapid flashing (approximately every one second)	The device is in “find me” mode. The flashing will continue until either one minute has passed since “find me” mode was triggered or the integrated button is pressed, whichever is sooner.
Yellow slow flashing (approximately every eight seconds)	The battery is low (<10%) and needs immediate replacement.

Integrated Buzzer

The FactorySense BLE beacon also contains an integral audio buzzer. When the device is placed into “find me” mode, the buzzer will emit periodic beeps for one minute or until the integrated button is pressed, whichever is sooner.

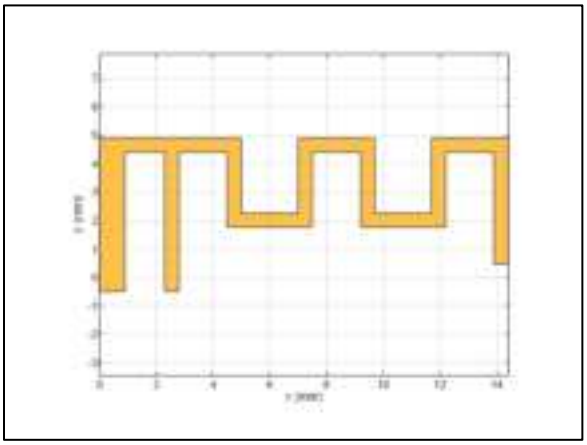
Device Wake-Up and Sleep Mode

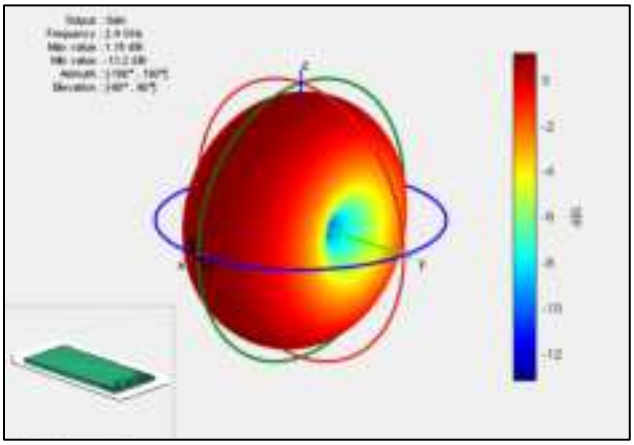
When arriving from the factory, the FactorySense RFID beacon will be in sleep mode to preserve battery life. It is recommended that the device remain in sleep mode until it is needed. To wake the device up, simply press the button on the top of the device. The LED ring will momentarily illuminate green, indicating that the device has been woken up and is transmitting advertising packets.

To place the device back into sleep mode, simply press and hold the button for five seconds. The LED ring will momentarily illuminate red to indicate that the device has been placed back into sleep mode.

Antenna and Radiation Pattern

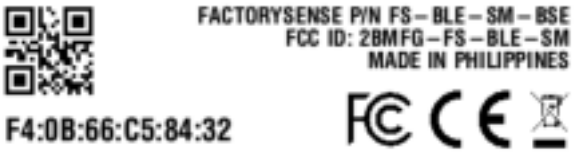
The antenna is positioned toward the top of the beacon, very near its face (the side with the button).





Marking

FactorySense BLE beacons include a permanent, environmentally resistant label on the top with the following format:



Packaging

Beacons are sold in boxes of 48 each, as illustrated here.

They may be purchased in master boxes, with each master box container 6 inner boxes (total of 288 individual beacons).

Waste Electrical and Electronic Equipment

This product complies with the Waste Electrical and Electronic Equipment (WEEE) Directive, which promotes the responsible re-use, recovery, and recycling of electronic products.

The crossed-out wheeled-bin symbol on the product indicates that it should not be disposed of as household waste. Instead, it must be taken to an appropriate collection facility for the

recycling of electrical and electronic equipment, in accordance with local environmental regulations.

By ensuring proper disposal, you help prevent potential environmental hazards, reduce landfill waste, and support the sustainable recovery of valuable materials. For more information on proper disposal and recycling options, please contact your local waste management authorities or visit an authorized electronic waste collection center.

Thank you for supporting responsible recycling and environmental sustainability.

Models

Part Number	Description
FS-BLE-SM-BSE	FactorySense BLE Asset Tracking Beacon with LED ring and Buzzer

FCC ID: 2BMFG-FS-BLE-SM

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment o and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device meets the FCC and IC requirements for RF exposure in public or uncontrolled environments.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

Important Notes and Disclaimers

The FactorySense BLE Beacons and related services are provided in accordance with our standard terms and conditions of sale, as outlined in the applicable distributor or sales agreement. While all information, recommendations, and advice provided herein are shared in good faith, FactorySense makes no warranty or guarantee, express or implied, regarding:

- The achievement of specific results under end-use conditions, or
- The effectiveness or safety of any design incorporating FactorySense products, services, recommendations, or advice.

Except as explicitly stated in FactorySense's standard terms and conditions of sale, neither FactorySense nor its representatives shall be liable for any loss or damages resulting from the use of its products, services, or the information provided herein.

It is the sole responsibility of the user to determine the suitability of FactorySense BLE Beacons, materials, services, recommendations, or advice for their specific use case. Users must independently conduct all necessary tests and analyses to ensure the performance and safety of their finished systems incorporating FactorySense BLE Beacons under their intended operating conditions.

This disclaimer does not alter, override, or replace any provisions outlined in our standard terms and conditions of sale unless explicitly agreed to in a written agreement signed by FactorySense.

This is professional equipment not intended for use in locations where children are present.