



Bluetooth® **Low Energy V5.0 Proximity Beacon Module with Accelerometer**

General Description

The EMBC22 is a high-performance, customizable Bluetooth V5.0 low energy proximity beacon with an accelerometer for tracking objects that move. Similar to the EMBC02, the EMBC22 comes in simple, easy to use coin-shape housing, and is now powered by the EM9304, the world's lowest power Bluetooth IC.

New features include:

- | Longer life from a CR2032 battery
- | Longer range (up to 200m LOS)
- | Over-the-air configurability
- | Multiple interleaved packet types
- | Modular RF certification
- | Optional connector for sensors or power source

The EMBC22 is compatible with all major beacon formats including iBeacon™, Eddystone™, AltBeacon™ and compatible with Quuppa Intelligent Locating System™. The beacon is fully customizable over the air or in manufacturing.

For example, the following parameters can be easily modified:

- | Packet types, including custom packet type
- | Device name, address, manufacturer name, model number, HW/SW revision
- | UUID, Major/Minor ID, UID or URL
- | Beacon interval, Transmitter power
- | Accelerometer function and sensitivity

The EMBC22 can be shipped pre-programmed with custom firmware or custom parameters and can be securely updated in the field with over-the-air programming from a mobile device (all major iOS® and Android™ devices supported).

The EMBC22 accelerometer can be used to implement efficient and low-energy algorithms for various applications. The accelerometer can be used to activate beaconing on movement, or gestures, for example. When not active, the beacon consumes minimal energy.

The EMBC22 can be stored in Warehouse Mode without significantly degrading the battery lifetime. When active for 6 hours per day and configured for 0dBm output power and 1 second advertising intervals, the battery lifetime is more than 4 years.

The EMBC22 can be delivered in any quantity with guaranteed unique ID. A 2D unique serial number is printed on the beacon housing for optical scanning.

The EMBC22 is also available in PCB module format without housing. The module comes with the switch and battery holder. The beacon comes standard with a Renata CR2032/ 225mAh battery. Other Renata Lithium primary batteries such as CR2016/90mAh, CR2450/540mAh and CR2477/950mAh can also be accommodated.

The EMBC22 comes in a waterproof housing, and operates over a -20C to +60C temperature range. The EMBC22 is modular Bluetooth V5.0, FCC, IC, and CE certified, RoHS and REACH compliant.

Features

- | Supports all popular beacon formats such as iBeacon™, Eddystone™, AltBeacon™, and compatible with Quuppa Intelligent Locating System™
- | Unique iBeacon ID and scannable QR-code come standard
- | Accelerometer can be used to activate beaconing on actions such as movement, or gestures
- | Secure over-the-air updates possible with all major mobile platforms in the field
- | Multiple interleaved packet types with customizable parameters:
 - | Packet types, including custom packet type
 - | Device name, address, manufacturer name, model number, HW/SW revision
 - | UUID, Major/Minor ID, UID or URL
 - | Beacon interval, Transmitter power
 - | Accelerometer function and sensitivity
- | Firmware can be customized and loaded at production for large quantity orders
- | Long battery lifetime
 - | Over 4 year battery lifetime at 0dBm and 1sec intervals, when active 6 hours/day
 - | Battery lifetime calculator available
- | Up to 200m range line-of-sight (LOS) at maximum output power
- | Push button with LED feedback (red and green)
- | Weatherproof Enclosure (IP-64 Rating)
 - | Key-fob or custom accessories available
- | Available with an optional connector for
 - | Software development
 - | Adding sensors
 - | Alternate power source
- | Available as PCB module with CR2032 battery standard
 - | Allows support of other Li coin-cell batteries (ie CR2016, CR2450, and CR2477) and custom housing designs
- | Temperature range from -20C to +60C
- | Modular Bluetooth V5.0, FCC, IC, and CE certified, RoHS and REACH compliant
- | Made with Swatch Electronics Group technologies:
 - | EM Microelectronic EM9304 Bluetooth V5.0 SOC
 - | Renata CR2032 coin-cell battery
 - | Micro Crystal 32.768kHz crystal



Product Dimensions

The EMBC22 accelerometer beacon module PCB is shown in Figure 1 with a 26mm diameter. An optional SlimStack™ connector (Molex PN 5037761610) can be used for software development (JTAG access), for connection to a daughter board with sensors for example, or to connect to a different power source such as a battery pack. The standard version comes with a CR2032 replaceable battery and battery holder. Other battery sizes such as CR2016, CR2450, or CR2477 batteries can also be accommodated.

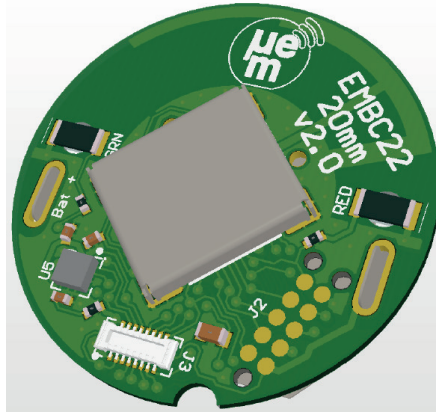


Figure 1: Accelerometer beacon module PCB with connector

Ordering Information

The EMBC22 is available as a finished product in a plastic housing with full FCC, IC, and CE certification. The EMBC22 ordering information is shown in Figure 2: and the order numbers are shown in Table 1.

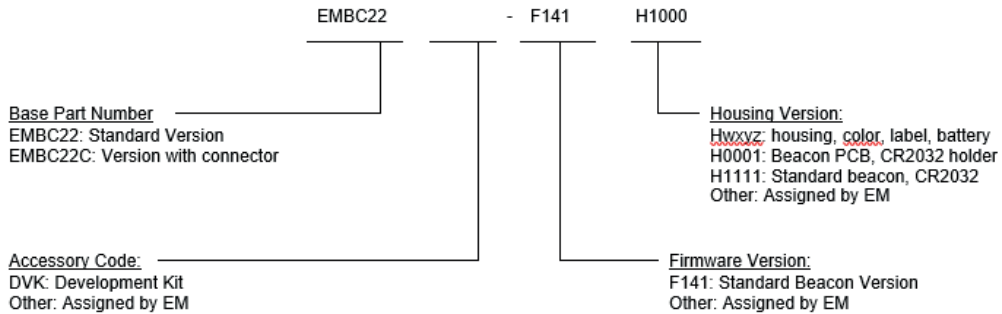


Figure 2: Ordering Information

Order Number	Description	Container	Units per Container	Minimum Order Quantity
EMBC22-F141-H1111	Standard Accelerometer beacon	Tray	100	100
EMBC22-F141-H0001	Accelerometer beacon PCB, CR2032 battery holder, switch, (no battery)	Tray	100	100
EMBC22DVK	EMBC22 Development Kit – includes 5 beacons with connectors	Box	1	1

Table 1: Ordering Information

Contact Information

Inquiries for lead-times, quotes, orders: EMDirect@emmicroelectronic.com