EasyReach Configurable BLE iBeacon

Overview

The **EasyReach configurable BLE** is a compact, rugged, and ultra-low-power Bluetooth® Low Energy (BLE) beacon designed for indoor positioning, proximity detection, and asset tracking applications. The device broadcasts Apple® iBeacon-compatible advertisement packets, enabling seamless integration with mobile applications, BLE gateways, and location-based systems. Please note, the Android Application can also scan the iBeacon advertisement format.

Figure 1 ER-Beacon-V1.2

The beacon supports configurable **UUID, Major, Minor, Advertisement Interval, and Transmission Power**, allowing flexible deployment across various environments. That makes it easy for developer community to develop custom iBeacon based applications. All configuration parameters can be updated wirelessly using the **nRF Connect** application through a secure BLE GATT interface, eliminating the need for firmware programming.

With low power consumption, reliable BLE performance, and non-volatile parameter storage, the EasyReach BLE iBeacon Device is suitable for long-term deployment in retail, healthcare, manufacturing, logistics, offices, museums, and other IoT applications.

BLE iBeacon Specifications

Parameter	Specification
Bluetooth Standard	Bluetooth® Low Energy (BLE 5.0)
Beacon Format	Apple iBeacon
Advertisement Type	Legacy Advertising
UUID Length	128-bit (16 Bytes)
Major Value	0 – 65535
Minor Value	0 – 65535
Advertisement Interval	Configurable
Transmission Power	Configurable (Up to +3 dBm)

Configuration Interface	BLE GATT Service
Mobile Configuration	nRF Connect (Android/iOS)
Password Protection	Yes
Default Password	1234
Configuration Storage	Non-Volatile Memory
Power Source	Depends on hardware variant
BLE Operation	Transmit (TX)
Configuration Method	Wireless over BLE
Operating Voltage	1.7 – 3.6 V
Configuration Activation	Applied after BLE disconnection
Battery Life	1 year
Dimensions	36 × 44 × 18 mm
Connectable	Yes

*Battery life depends upon parameters set such as advertising interval, transmit power, Rx mode time., etc.

Configuration Parameters

Parameter	Description
UUID	128-bit unique beacon identifier
Major	Primary grouping identifier
Minor	Secondary grouping identifier
Advertisement Interval	Controls beacon transmission rate
Transmission Power	Controls BLE transmission strength
Password	Secures configuration access

Supported Commands

Command	Description
RSU	Read UUID
RMJ	Read Major
RMN	Read Minor
RAI	Read Advertisement Interval

RTP	Read Transmission Power
RPS	Read Password
WSU	Update UUID
WMJ	Update Major
WMN	Update Minor
CAI	Change Advertisement Interval
CTP	Change Transmission Power
CPS	Change Password

Typical Use Case

The EasyReach BLE iBeacon Device continuously broadcasts Apple iBeacon advertisement packets that can be detected by BLE-enabled smart phones, tablets, gateways, and location engines. Depending on the deployment, nearby devices can identify the beacon using its **UUID, Major, and Minor** values to enable indoor navigation, asset tracking, proximity notifications, and location-aware applications.

Payload Structure

0x0201061AFFA50E0215FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF30

Byte(s)	Hex Value	Description	Decoded Value
0	02	Length	2 bytes
1	01	AD Type	Flags
2	06	Flags	LE General Discoverable Mode + BR/EDR Not Supported
3	1A	Length	26 bytes
4	FF	AD Type	Manufacturer Specific Data
5–6	A50E	Company Identifier	Apple (0x004C)
7	02	Beacon Type	iBeacon
8	15	Remaining Payload Length	21 bytes
9–24	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	UUID	3046FFF7-CDFF-0122-D94D-022E0AD004F1
25–26	FFFF	Major	3841
27–28	FFFF	Minor	35613
29	30	TX Power	48 dBm

Important Note

Note: Request User Guide to understand how to use nRF-Connect app to connect and configure the device.