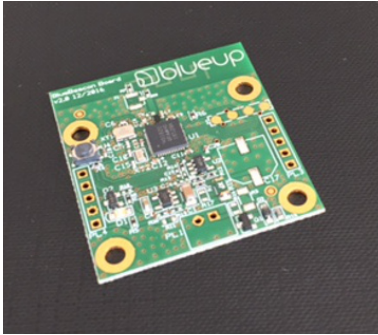


BlueBeacon Board

Bluetooth Low Energy proximity-beacon

Data sheet v. 1.0

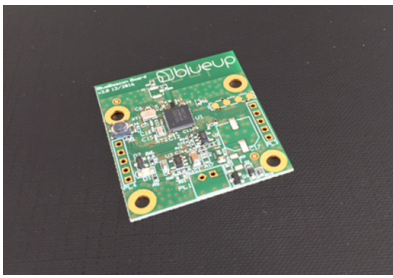


BlueBeacon Board is a general-purpose Bluetooth Smart proximity-beacon board. It supports simultaneous advertising of multiple frames with iBeacon, Eddystone (full support) and Quuppa format. BlueBeacon Board is provided as a single board, and can be integrated in third-party electronics for proximity-based applications. It offers two alternative antenna options: with integrated antenna or with UFL connector for external antenna. BlueBeacon Board is also supplied in an IP65 boxed version, powered by lithium battery or external DC power supply. BlueBeacon Board is especially suited for industrial applications.

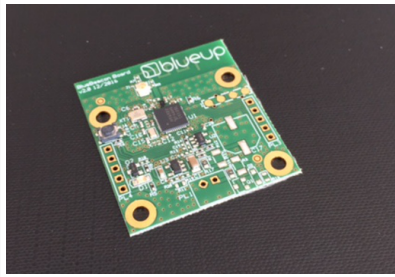
Advertising	
Up to 4 slots configurable for Eddystone frame types: UID, URL, TLM, EID. Full support for specifications Eddystone Configuration GATT Service by Google	
Up to 4 slots configurable for the following frame types: iBeacon, Quuppa, Sensors	
TX power	-40, -30, -20 to 4 dBm (with 4dB steps). Programmable for each slot
Advertising interval	0.1 to 5 secs. Programmable for each slot
Global configuration options	non-connectable mode, anonymous mode, programmable time period, locked/unlocked mode, change password
Default settings	
Eddystone-URL: URL = https://www.blueupbeacons.com , ADV interval = 1000 msec, TX power = -8dBm	
iBeacon: UUID = ACFD065E-C3C0-11E3-9BBE-1A514932AC01, major = 0, minor = S/N, ADV interval = 400 msec, TX power = -8dBm	
Global configuration	connectable, locked
Device specifications	
Electrical specifications	
Core module	Nordic nRF51822 SoC (MCU and radio transceiver)
MCU core	ARM Cortex-M0 32-bit CPU
Current consumption	Radio TX: 8mA (@ 0dBm) Radio RX: 9.7 mA Idle mode: 3 uA Sleep mode: 1.5 uA
Radio specifications	
Standard	Bluetooth 4. 0 (Bluetooth Low Energy or Bluetooth Smart)
Frequency band	2.402 to 2.480 GHz (according Bluetooth 4.0 specifications, worldwide ISM band)
Advertising channels	CH37 (2.402 GHz), CH38 (2.426 GHz), CH39 (2.480 GHz) (according Bluetooth 4.0 specifications)
Channel spacing	2 MHz (according Bluetooth 4.0 specifications)
TX power	Conducted: +4 dBm (max)

Available versions	
BlueBeacon Board/S	OEM single-board version
BlueBeacon 06/ANT	with integrated antenna
BlueBeacon 06/UFL	with UFL connector for external antenna
BlueBeacon Board/B	IP65-enclosure boxed version
BlueBeacon 06/ANT-BAT	with integrated antenna and battery-powered
BlueBeacon 06/ANT-VDC	with integrated antenna and external DC supply

Specifications for each version are listed in the following tables.

BlueBeacon Board OEM: integrated antenna (cod: BlueBeacon 06/ANT)	
	<p>BlueBeacon 06/ANT is a low-profile single-board BLE beacon, with integrated omnidirectional PCB antenna.</p> <p>It can be powered with a wide range of DC voltage values, including standard DC voltage values for electronic systems: 3, 3.3, 5, 12, 24 V</p> <p>It is suitable for integration in electric and electronic equipments.</p> <p>Firmware can be customized for adding specific functionalities: sensor/actuators integration, receiver operation.</p>
Antenna	
Type	Integrated meandered planar inverted F-antenna (PIFA)
Gain	2dB (max.)
Radiation diagram	Omnidirectional
Power	
Power supply	External DC voltage
Connector	2-pole 2.54mm connector header (customizable)
Voltage	2.7 – 30 VDC
Current	10mA (peak) 0.2mA (average, at PTX = 0dBm and ADV = 100msec)
Mechanical specifications	
Aspect	Single-board PCB
Size	37 x 40 mm
Fastening	4x M3 screws (plastic screws are suggested)
Protection	none
Flammability	UL 94 HB
Environmental specifications	
Operating temperature	-30°C to +75°C
Storage temperature	-40°C to +85°C

BlueBeacon Board OEM: UFL connector for external antenna (cod: BlueBeacon 06/UFL)



BlueBeacon 06/UFL is a low-profile single-board BLE beacon, with UFL connector for external antenna.
 It can be used when an external directive antenna is required or when the board is installed into a metallic enclosure.
 It can be powered with a wide range of DC voltage values, including standard DC voltage values for electronic systems: 3, 3.3, 5, 12, 24 V
 It is suitable for integration in electric and electronic equipments.
 Firmware can be customized for adding specific functionalities: sensor/actuators integration, receiver operation.

Antenna

Type	External (UFL connector)
Gain	depends on selected antenna
Radiation diagram	depends on selected antenna

Power

Power supply	External DC voltage
Connector	2-pole 2.54mm connector header (customizable)
Voltage	2.7 – 30 VDC
Current	10mA (peak) 0.2mA (average, at PTX = 0dBm and ADV = 100msec)

Mechanical specifications

Aspect	Single-board PCB
Size	37 x 40 mm
Fastening	4x M3 screws (plastic screws are suggested)
Protection	none
Flammability	UL 94 HB

Environmental specifications

Operating temperature	-30°C to +75°C
Storage temperature	-40°C to +85°C

BlueBeacon Board boxed: integrated antenna, battery-powered (cod: BlueBeacon 06/ANT-BAT)



BlueBeacon 06/ANT-BAT is a battery-powered boxed version with integrated omnidirectional PCB antenna, suitable for applications in outdoor or harsh environments. It uses an IP65/NEMA4 rugged industrial enclosure. It is powered by a replaceable industrial lithium thionyl chloride (3.6V) battery, available in two sizes: default 3.6Ah and optional 7.7Ah capacity for a virtually infinite operating life.

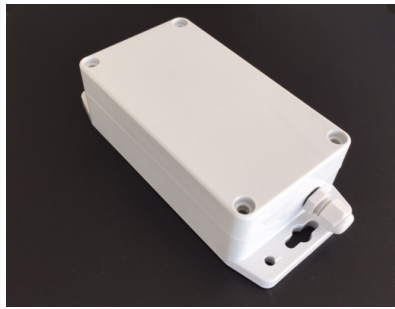
Antenna	
Type	Integrated meandered planar inverted F-antenna (PIFA)
Gain	2dB (max.)
Radiation diagram	Omnidirectional
Power	
Power supply	Battery (replaceable)
Type	lithium thionyl chloride (3.6V nominal voltage)
Model	SAFT LS17500 (typical capacity 3600 mAh @25°C) SAFT LS26500 (typical capacity 7700 mAh @25°C) - optional on request
Expected life	2 to 19 years, 24/7 at room temperature (w/ SAFT LS17500) 6 years with default settings (w/ SAFT LS17500)
Mechanical specifications	
Aspect	Polycarbonate plastic enclosure
Color	Light grey RAL7035
Size	115 x 65 x 40 mm
Wall fastening	Flanges with screws
Opening	Front cover with screws
Protection	IP65 / NEMA4
Flammability	UL 94 HB
Environmental specifications	
Operating temperature	-30°C to +75°C
Storage temperature	-40°C to +85°C (without battery)

Expected battery life-time (in months) – LS17500 / LS26500

TX power	Advertising interval					
	100 msec	300 msec	500 msec	700 msec	1000 msec	5000 msec
0 dBm	26 / 56	66 / 136	94 / 192	115 / 232	138 / 276	221 / 421
-8 dBm	29 / 60	70 / 146	100 / 203	121 / 243	144 / 287	224 / 426
-20 dBm	31 / 66	76 / 156	106 / 215	128 / 256	151 / 299	227 / 431

*Expected battery life-time is estimated assuming nominal battery capacity, self-discharge and room operating temperature.
 Enabling Eddystone-EID and eTLM advertising reduces battery life-time of about 15/20%*

BlueBeacon Board boxed: integrated antenna, external-supply (cod: BlueBeacon 06/ANT-VDC)



BlueBeacon 06/ANT-VDC is a external-supply boxed version with integrated omnidirectional PCB antenna, suitable for applications in outdoor or harsh environments.
 It uses an IP65/NEMA4 rugged industrial enclosure.
 It is powered by external DC voltage, up to 30VDC.

Antenna

Type	Integrated meandered planar inverted F-antenna (PIFA)
Gain	2dB (max.)
Radiation diagram	Omnidirectional

Power

Power supply	External DC voltage
Connector	Internal screw connector (with cable gland)
Voltage	2.7 – 30 VDC
Current	10mA (peak) 0.2mA (average, at PTX = 0dBm and ADV = 100msec)

Mechanical specifications

Aspect	Polycarbonate plastic enclosure
Color	Light grey RAL7035 (silk-screen printing available on demand)
Size	115 x 65 x 40 mm
Wall fastening	Flanges with screws
Opening	Front cover with screws
Protection	IP65 / NEMA4
Flammability	UL 94 HB

Environmental specifications

Operating temperature	-30°C to +75°C
Storage temperature	-40°C to +85°C

All versions:

Certifications

CE (Directive 2014/53/UE RED, 2011/65/UE RoHS2)
 iBeacon, Eddystone, Quuppa

BlueUp reserves the right to change product specifications at any time without prior notice.

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