



# Sensor Maestros

Bluetooth Low Energy  
BLE 4.2 Radio PCBA

Model Number: smB1110, smB1111

Data Sheet

## Description

smB1110 BLE PCBA utilizes the Nordic nRF52810-QCAA SoC with a PCB trace antenna.

smB1111 BLE PCBA utilizes the Nordic nRF52811-QCAA SoC with a PCB trace antenna. The nRF52811 BLE SoC is simply a slightly newer version of the nRF52810 BLE SoC and provides the exact same radio functionality.

smB1110/smB1111 operates as a 'Connectable-Beacon' and transmits its beacon information at a fixed interval that can be adjusted from 1 to 2.2 seconds and at a Tx power of 0dBm. It can optionally be provided with a MEMs accelerometer for simple motion detection.

For the nRF52810-QCAA and nRF52811-QCAA SoC, refers to the nRF52810/nRF52811 Product Specification and the SDK is available from the Nordic Semiconductor website.

## Main Features

- Complete Bluetooth® low energy SoC (4.2 specification)
- 32-bit ARM Cortex-M4F processor @ 64MHz
- Size : 32pin QFN 5x5x0.85mm
- Operating Frequency : 2,402MHz ~ 2,480MHz
- Up to 24kB SRAM and 192kB Flash
- Certified for FCC and Bluetooth
- Rx sensitivity : Typical -93dBm
- Operational Temperature range : -20°C to 70°C

## Applications

- Asset Tracking
- Remote Monitoring

The (Family model **smB1110/smB1111**) two models of Main Board share the same PCB layout.

The only difference is the SMB1111 uses a slightly newer BLE SoC in the nRF52811-QCAA.

- **smB1110 uses the nRF52810-QCAA BLE SoC**
- **smB1111 uses the nRF52811-QCAA BLE SoC**

Model	Item Description	Placement	Type/ Model	Manufacturer Name	Manufacturers. Part Number	Remark
<b>smB1110</b>	Bluetooth PCBA with PCB Trace Antenna	U2	nRF52810	Nordic Semiconductor	nRF52810-QCAA	N/A
<b>smB1111</b>	Bluetooth PCBA with PCB Trace Antenna	U2	nRF52811	Nordic Semiconductor	nRF52811-QCAA	N/A

Antenna Approved for use with smB1110 and smB1111

Part Number	Max Gain (dBi)	Supplier	Notes
PCB Trace	3.3	PCBA Trace	Inverted F PCB Trace Antenna

This unit is sold pre-programmed with its Radio Transmit interval, BLE UUID, and Transmit Power defined and is encompassed into a plastic enclosure so there is not a detailed user manual.

## Federal Communication Commission Interference Statement

This equipment was 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 off and on, the user is encouraged to try to correct the interference by one 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.

## FCC Caution

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

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.

## Important Note

### Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA.

### This device is intended only for OEM integrators under the following conditions:

- 1.The antenna must be installed such that 20 centimeters is maintained between the antenna and users, and
- 2.The transmitter module may not be co-located with any other transmitter or antenna,
- 3.For all products market in US, OEM must limit the operation channels in CH0 to CH39 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end user regarding to Regulatory Domain change.

If the conditions above are met, further transmitter test are not required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

## Important Note

In the event that these conditions cannot be met (for example, certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator is responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization

## End Product Labeling

This transmitter module is authorized only for use in a device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: Contains FCC ID: XXXX-XXXX

## Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.