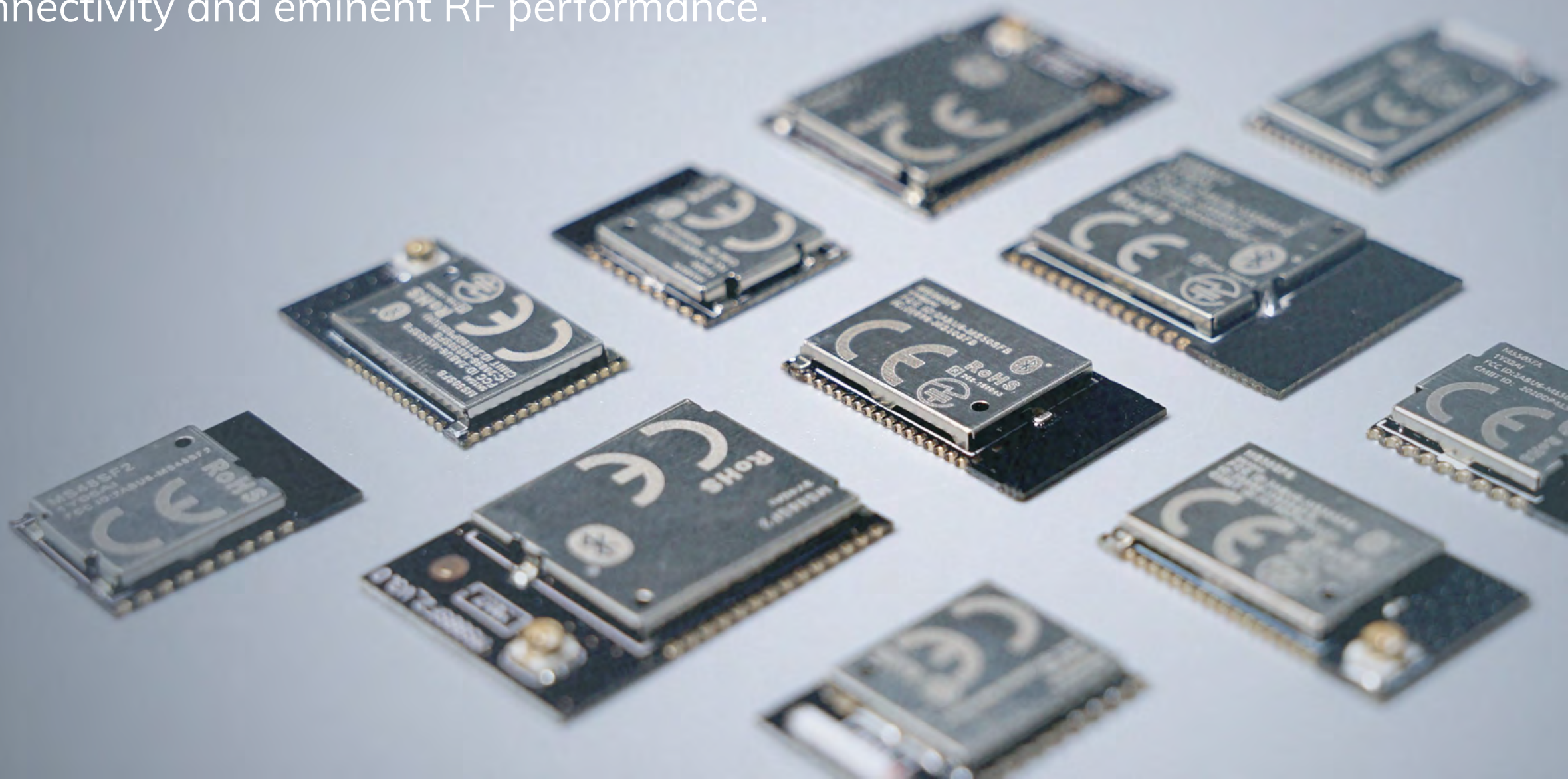




Bluetooth® Low Energy (BLE) Module Roadmap

MineW BLE 5.0/5.1 module integrates low consumption, powerful Nordic Semiconductor state of art nRF52 series SoCs, implemented with excellent Bluetooth® connectivity and eminent RF performance.



Bluetooth® Low Energy Module Collections

Cutting edge Nordic Semiconductor nRF52 series SoCs enables Minew Bluetooth Low Energy module collections with multiple protocol capabilities, high flexibility and ultra low power. Global certifications and preloaded Minew Uart firmware reduce customers' BOM cost and time-to-market for multi IoT applications. With multi Nordic nRF52805/nRF52810/nRF52832/nRF52833/nRF52840 SoCs, higher performance PCB/Ceramic and u.FL antenna type, integrated DCDC and 32.768Khz crystal oscillator, Minew module will meet your requirements in different IoT industries.



Model No.	MS46SF11	MS48SF2	MS50SFA1	MS50SFA2	MS50SFB1	MS50SFB2	MS50SFB3	MS88SF23	MS88SF21	MS88SF3
Antenna	PCB	PCB	PCB	Ceramic	PCB	Ceramic	IPEX/U.FL	IPEX/U.FL	PCB	PCB
Chipset	nRF52805	m1805	nRF52832/810	nRF52832/810	nRF52832/811/810	nRF52832/811/810	nRF52832/811/810	nRF52840/833	nRF52840/833	nRF52840/833
Range	10-60M	10-60M	10-60M	10-60M	10-60M	10-60M	/	60-300M	60-300M	60-300M
Dimension(mm)	15.8*12*2	15.8*12*2	15.8*12*2	15.8*12*2	20*12*2	20*12*2	20*12*2	23.2*17.4*2	23.2*17.4*2	18.5*12.5*2.0
Flash	192KB	512KB	512/192KB	512/192KB	512/192KB	512/192KB	512/192KB	1MB	1MB	1MB
RAM	24KB	138KB	64/24KB	64/24KB	64/24KB	64/24KB	64/24KB	256KB	256KB	256KB
Sensitivity(RX)	-96dBm	-97dBm	-96dBm	-96dBm	-96dBm	-96dBm	-96dBm	-95~ -103dBm	-95~ -103dBm	-95~ -103dBm
Transmission Power	-20~+4dBm	-20~+5dBm	-20~+4dBm	-20~+4dBm	-20~+4dBm	-20~+4dBm	-20~+4dBm	-20~+8dBm	-20~+8dBm	-20~+8dBm
Current(TX)	0dBm-5.3mA /4.6mA	8mA/0dBm	0dBm-5.3mA /4.6mA	0dBm-5.3mA /4.6mA	0dBm-5.3mA /4.6mA	0dBm-5.3mA /4.6mA	0dBm-5.3mA /4.6mA	4.8mA/0dBm	4.8mA/0dBm	4.8mA/0dBm
Current(RX)	5.4/4.6mA	8mA	5.4/4.6mA	5.4/4.6mA	5.4/4.6mA	5.4/4.6mA	5.4/4.6mA	4.6mA	4.6mA	4.6mA
GPIO	6	12	13	13	32	32	32	20	20	42/48
Certification	FCC,CE,IC,RoHs	FCC,CE	BQB,FCC,CE,KC, RoHS	BQB,FCC,CE, RoHS	BQB,FCC,CE,IC, TELEC,WPC,RCM, RoHS&Reach	BQB,FCC,CE,IC, TELEC,WPC,RCM, RoHS&Reach	BQB,FCC,CE,IC, TELEC,WPC,RCM, RoHS&Reach	BQB,FCC,CE,IC, TELEC,WPC,RCM, RoHS&Reach	BQB,FCC,CE,IC, TELEC,WPC,RCM, RoHS&Reach	BQB,FCC,CE
Firmware	1. For module based on nRF52811/833/840, it is null module without any firmware preloaded in default. 2. For module based on nRF52805/810/832, it has the UART-Slave/Master firmware preloaded in default. We can provide UART command list if needed.									

MS46SF11

MS46SF11 is a compact size, highly flexible, ultra-low power wireless BLE 5.0 Module based on nRF52805 SoC. With a powerful 32-bit ARM Cortex® M4 CPU, a 192KB flash memory, a 24KB RAM and integrating a 2.4 GHz Transceiver, the module can offer perfect solution for Bluetooth® connectivity. MS46SF11 is ideal for cost constraint applications. It is the best choice for applications such as beacons, disposable medical devices, sensors etc.



Bluetooth®
5.0



NORDIC®



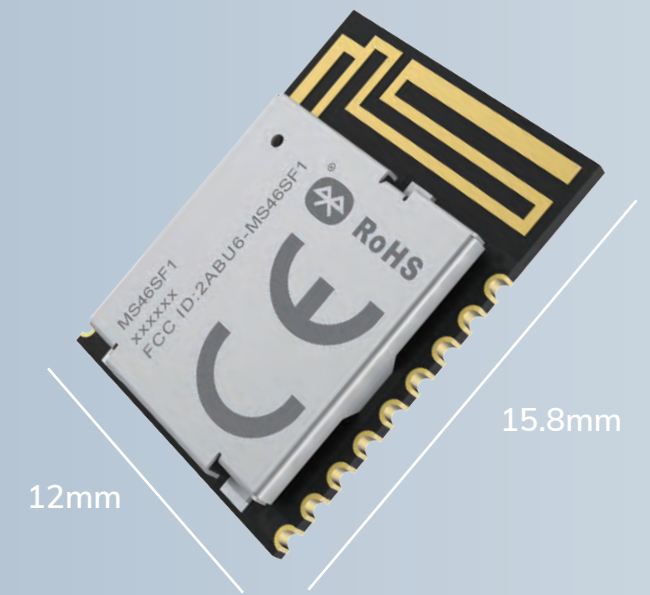
Cost
Effective



iBeacon Broad-
cast Mode



Compact
Size



Application:

Beacons, Disposable Medical Devices, Simple Network Processor, Sensors, Styluses and Presenters

Specification:

- Small Size: 15.8*12*2mm, with up to 6 GPIOs
- Bluetooth® Smart Connectivity with BLE 5.0(802.15.4)
- Bluetooth® 5 data rate support: 2M / 1M / 500k
- 2.4 GHz proprietary protocol supports Ultra-low-power 2.4 GHz multiprotocol radio

FC CE IC RoHS

Electrical & Sensitivity:

- Power Supply: 1.7V to 3.6V
- Transmit Power: Max. +4dBm
- Receiver Sensitivity: -97dBm
- Power Consumption Transmission: 5.3 mA/4.6 mA at 0dBm(TX)
5.4/4.6 mA(RX)
- Power Consumption Sleep: Less 1uA
- Temperature Range: -40°C to +85°C

Highly Integrated Solution:

- With Nordic nRF52805 ARM Cortex-M4 processor
- Integrated external 32.768K crystal oscillator
- PCB Trace Antenna supports external antenna connection, Metal Shield
- 192KB Flash and 24KB RAM
- Support Preloaded Minew High Speed Slave Uart Firmware
- Support iBeacon Broadcast Mode

Development Tools:

- MS85MX5 Development Kit
- MS50EXA Carrier Board
- C2-7001 USB Dongle

Datasheet:

[MS46SF11 nRF52805 Datasheet](#)



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Publish Date: 01.2021

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MS48SF2

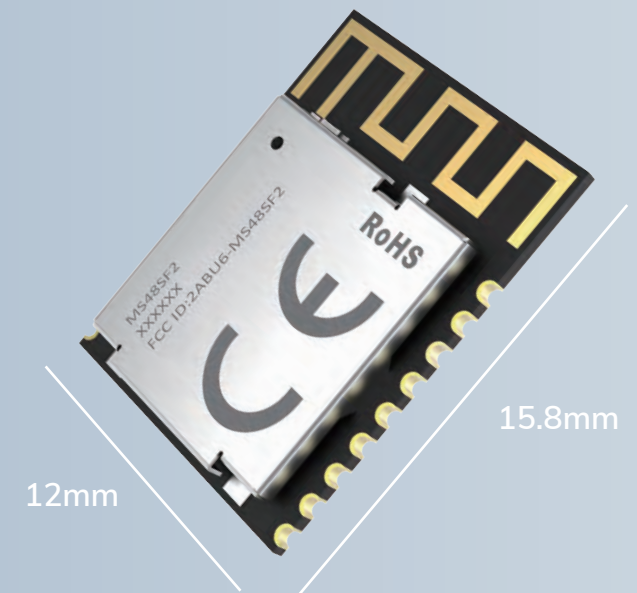
The MS48SF2 module is a compact size, cost effective, highly flexible, ultra-low power wireless BLE 4.0 Module based on Minew m1805 SoC with a high performance PCB antenna and supporting external antenna connection. Its complete regulatory certifications enable faster time to market and reduce development risk of your Bluetooth® design.



Bluetooth®
4.0



Cost
Effective



Application:

Smart Toy, Smart Remote, Smart Vehicle, Smart Wearable, Interactive Entertainment Devices

Specification:

- Small Footprint: 15.8*12*2mm, with up to 12 GPIOs
- Bluetooth® Smart Connectivity with BLE 4.0 (802.15.4)
- Bluetooth® 4 data rate support
- 2.4 GHz proprietary protocol supports Ultra-low-power 2.4 GHz multiprotocol radio
- Support for OTA Firmware update



Electrical & Sensitivity:

- Power Supply: 1.7V to 3.6V
- Transmit Power: Up to 5 dBm
- Receiver Sensitivity: -97dBm
- Power Consumption Transmission: 8 mA at 0dBm(TX)
8 mA(RX)
- Power Consumption Sleep: 0,9µA
- Temperature Range: -40°C to +85°C

Highly Integrated Solution:

- With Minew m1805 SoCs, with ARM Cortex-M4 processor
- Integrated external 32.768K crystal oscillator
- Available with PCB Antenna and support external antenna connection, metal shield
- 512KB Flash, 128KB ROM and 138KB SRAM
- Support Preloaded Minew Slave Uart Firmware
- Support iBeacon Broadcast Mode

Development Tools:

- MS85MX5 Development Kit
- MS48EX2 Carrer PCB
- C2-7001 USB Dongle

Datasheet:

[MS48SF2 m1805 Datasheet](#)



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Publish Date: 01.2021

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MS50SFA

MS50SFA series brings out all nRF52810/nRF52832 hardware features and capabilities including high-speed 2 Mbps, ANT and 2.4 GHz proprietary protocols. Integrated DCDC inductor and an external 32.768K crystal oscillator reduce design complexity and BOM cost. Complete regulatory certifications enable faster time to market and reduce development risk of your Bluetooth® design.



Bluetooth®
5.0



NORDIC®



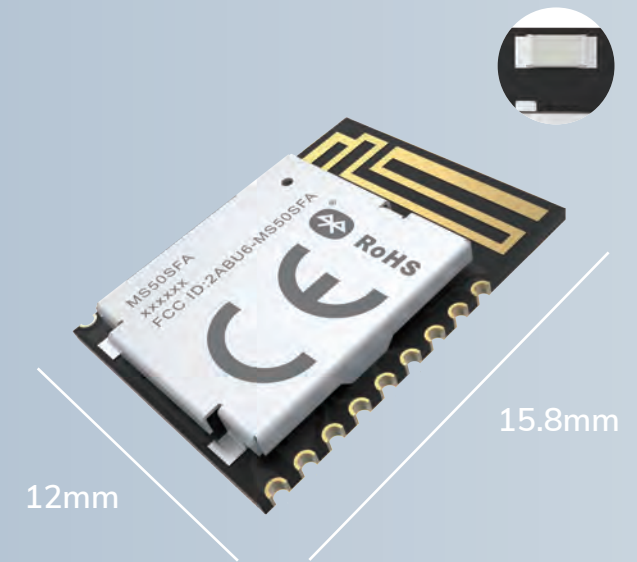
OTA DFU



Flashed Firm-
ware Already



Compact
Size



Application:

Beacons, Network Processor, Remote Controls, Logistics and Tagging, Fitness Sensors

Specification:

- Small Footprint: 15.8*12*2mm, with 13 GPIOs
- Bluetooth® Smart Connectivity with BLE 5.0(802.15.4)
- Bluetooth® 5 data rate support: 2M / 1M / 500k
- 2.4 GHz proprietary protocol supports Ultra-low-power 2.4 GHz multiprotocol radio
- Support for OTA Firmware update

BQB FC CE SRRC RoHS

Electrical & Sensitivity:

- Power Supply: 1.8V to 3.6V
- Transmit Power: Max. +4dBm
- Receiver Sensitivity: -96dBm
- Power Consumption Transmission: 5.3 mA/4.6 mA at 0dBm(RX)
5.4/4.6 mA(TX)
- Power Consumption Sleep: Less 1uA
- Temperature Range: -40°C to +85°C

Highly Integrated Solution:

- Available with Nordic nRF52810/nRF52832 SoCs, with ARM Cortex-M4 processor
- Integrated external 32.768K crystal oscillator
- Available with PCB Trace and Ceramic Antenna, support external antenna connection, Metal Shield
- 512/192KB Flash and 64/24KB RAM
- Support Preloaded Minew High Speed Master/Slave Uart Firmware
- Support iBeacon Broadcast Mode

Development Tools:

- MS85MX5 Development Kit
- MS50EXA Carrier Board
- C2-7001 USB Dongle

Datasheet:

[MS50SFA nRF52810 Datasheet](#)

[MS50SFA nRF52832 Datasheet](#)



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MS50SFB

The MS50SFB module is a powerful, compact size, highly flexible, ultra-low power wireless BLE 5.0/5.1 Module based on Multi Nordic nRF52 series SoCs with an optimized and complete radio design of 3 types of antenna available: PCB/Ceramic antenna or u.FL(IPEX) connector for external antenna. Its complete regulatory certifications enable faster time to market and reduced development risk of your Bluetooth® design.



Bluetooth®
5.0 / 5.1



Bluetooth®
Mesh



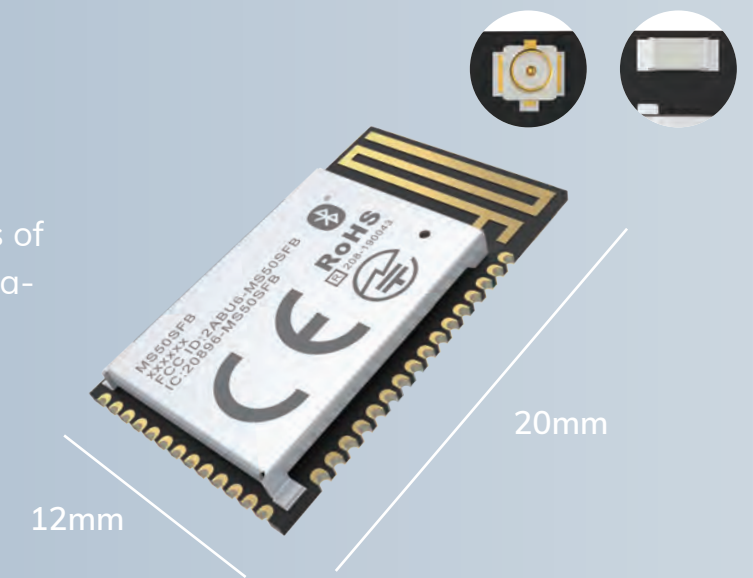
NORDIC®



Bluetooth® 5
Long Range



NFC



Application:

Smart Home, Sensor Networks, Medical Devices,
Remote Control, Smart Toys, Smart Wearable

Specification:

- Small Footprint: 20*12*2mm, with up to 32 GPIOs
- Bluetooth® Smart Connectivity with BLE 5.0/5.1 (802.15.4)
- Bluetooth® 5 data rate support: 2M / 1M / 500k
- 2.4 GHz proprietary protocol supports Ultra-low-power 2.4 GHz multiprotocol radio
- Support for OTA Firmware update

BQB FC CE IC RCM TELEC WPC SRRC RoHS Reach

Electrical & Sensitivity:

- Power Supply: 1.7V to 3.6V
- Transmit Power: Up to 4 dBm (programmable)
- Receiver Sensitivity: -96dBm
- Power Consumption Transmission: 5.3 mA/4.6 mA at 0dBm(RX)
5.4/4.6 mA(TX)
- Power Consumption Sleep: 0,9µA
- Temperature Range: -40°C to +85°C

Highly Integrated Solution:

- Available with Nordic nRF52810/nRF52811/nRF52832 SoCs, with ARM Cortex-M4 processor
- Integrated external 32.768K crystal oscillator
- Available with PCB Trace/Ceramic Antenna and u.FL connector, Metal Shield
- 512/192KB Flash and 64/24KB RAM
- Support Preloaded Minew High Speed Master/Slave Uart Firmware (Except nRF52811 version)
- Support iBeacon Broadcast Mode

Development Tools:

- MS85MX5 Development Kit
- MS50EXB Carrier Board
- C2-7001 USB Dongle

Datasheet:

- [MS50SFB nRF52810 Datasheet](#)
- [MS50SFB nRF52832 Datasheet](#)
- [MS50SFB nRF52811 Datasheet](#)



MS88SF2

The MS88SF2 module is an advanced, compact size, highly flexible, ultra-low power wireless BLE 5.0/5.1 Module based on Nordic nRF52840/52833 SoC with an optimized and complete radio design of 2 types of antenna available: PCB antenna or u.FL(IPEX) connector for external antenna. MS88SF2 series brings out all nRF52840/nRF52833 hardware features and capabilities including USB access, up to +8 dBm transmit power, up to 5.5V supply considerations, and 802.15.4 (Thread/Zigbee) implementation, Bluetooth®5 Long Range and advanced security.



Bluetooth®
5.0 / 5.1



Bluetooth®
Mesh



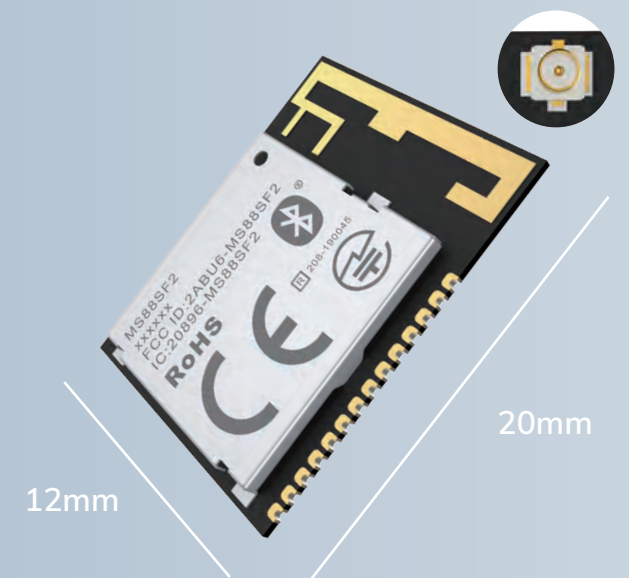
NORDIC®



Bluetooth® 5
Long Range



NFC



Application:

Smart Home, Industrial Mesh Networks, Medical Devices, Remote Control, Smart Lighting, Smart Toys, Smart Wearable

Specification:

- Small Footprint: 23.2*17.4*2mm, with up to 20 GPIOs
- Bluetooth® Smart Connectivity with BLE 5.0/5.1 (802.15.4)
- Bluetooth® 5 data rate support: 2M / 1M / 500k / 125kbps
- 2.4 GHz proprietary protocol supports Ultra-low-power 2.4 GHz multiprotocol radio
- Support for OTA Firmware update
- Multi digital interfaces SPI/2-wire/I²S/UART/PDM/QDEC with EasyDMA

BQB FC CE IC RCM TELEC WPC SRRC RoHS Reach

Electrical & Sensitivity:

- Power Supply: 1.7V to 5.5V
- Transmit Power: Up to 8 dBm (programmable)
- Receiver Sensitivity: -103 dBm
- Power Consumption Transmission: 4.8 mA at 0dBm(TX)/4.6 mA(RX)
- Power Consumption Sleep: 0,9µA
- Temperature Range: -40°C to +85°C(nRF52840)
/-40°C to +85°+105°C(nRF52833)

Highly Integrated Solution:

- Available with Nordic nRF52840/nRF52833 SoCs, with ARM Cortex-M4 processor
- Integrated external 32.768K crystal oscillator
- Available with PCB Trace and u.FL connector, Metal Shield
- 1MB/512KB Flash and 256/128KB RAM
- Support Preloaded Customer Firmware

Development Tools:

- MS85MX5 Development Kit
- MS88EX2 Carrier Board
- C2-7001 USB Dongle

Datasheet:

[MS88SF2 nRF52840 Datasheet](#)

[MS88SF2 nRF52833 Datasheet](#)



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Publish Date: 01.2021

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MS88SF3

The MS88SF3 module is an advanced, ultra compact size, highly flexible, ultra-low power wireless BLE 5.0/5.1 Module based on Nordic nRF52840/nRF52833 SoC with an optimized and complete radio design of PCB antenna. MS88SF3 brings out all nRF52840/nRF52833 hardware features and capabilities including USB access, up to +8 dBm transmit power, up to 5.5V supply considerations, and 802.15.4 (Thread/Zigbee) implementation, Bluetooth® 5 Long Range and advanced security.



Bluetooth®
5.0 / 5.1



Bluetooth®
Mesh



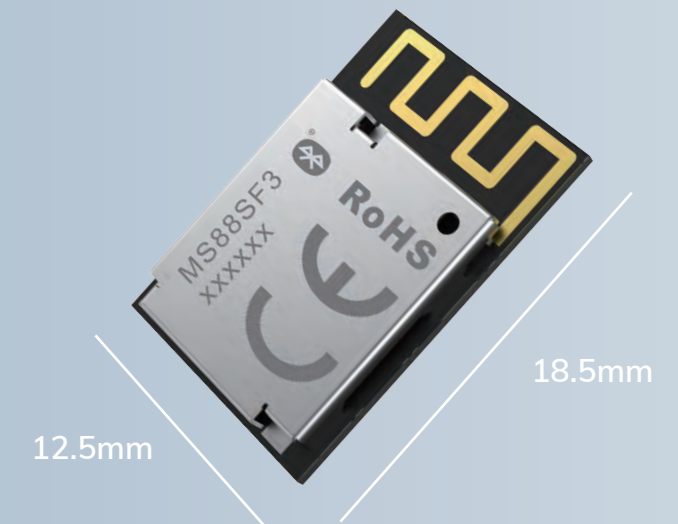
NORDIC®



Bluetooth® 5
Long Range



NFC



Application:

Smart Home, Industrial Mesh Networks, Medical Devices, Remote Control, Smart Lighting, Smart Toys, Smart Wearable

Specification:

- Small Footprint: 18.5*12.5*2mm, with up to 48 GPIOs
- Bluetooth® Smart Connectivity with BLE 5.0/5.1 (802.15.4)
- Bluetooth® 5 data rate support: 2M / 1M / 500k / 125kbps
- 2.4 GHz proprietary protocol supports Ultra-low-power 2.4 GHz multiprotocol radio
- Support for OTA Firmware update
- Multi digital interfaces SPI/2-wire/I²S/UART/PDM/QDEC with EasyDMA

BQB FC CE RoHS

Electrical & Sensitivity:

- Power Supply: 1.7V to 5.5V
- Transmit Power: Up to 8 dBm (programmable)
- Receiver Sensitivity: -103 dBm
- Power Consumption Transmission: 4.8 mA at 0dBm(TX)/4.6 mA(RX)
- Power Consumption Sleep: 0,9µA
- Temperature Range: -40°C to +85°C(nRF52840)
/-40°C to +85°+105°C(nRF52833)

Highly Integrated Solution:

- Available with Nordic nRF52840/nRF52833 SoCs, with ARM Cortex-M4 processor
- Integrated external 32.768K crystal oscillator
- Available with high performance PCB Trace antenna and support external antenna connection
- 1MB/512KB Flash and 256/128KB RAM
- Support Preloaded Customer Firmware

Development Tools:

- MS85MX5 Development Kit
- MS88EX3 Carrier Board
- C2-7001 USB Dongle

Datasheet:

[MS88SF3 nRF52840 Datasheet](#)

[MS88SF3 nRF52833 Datasheet](#)



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Development Kit

Minew development kit is designed to help users reduce their development process and time.

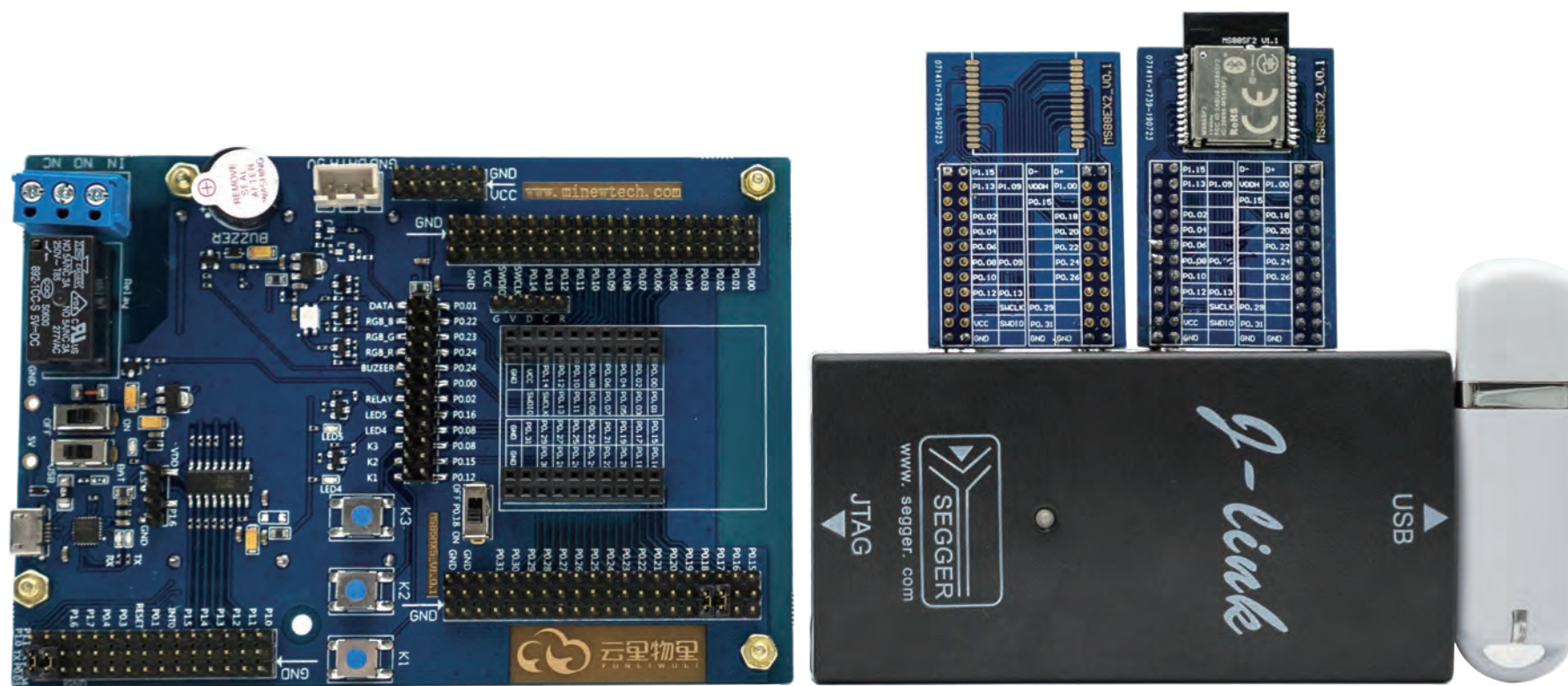
The MS85MX5 development board allows for stand-alone use of the Minew module featuring the Nordic nRF52 Series RF System on Chip (SoC). It provides a great starting point for almost any Bluetooth 5 Low Energy, Thread, or Zigbee project(nRF52840).

The nRF52840 Dongle (C2-7001) is the preferred hardware to be used with the nRF Connect for Desktop software package to develop and test your nRF-based wireless solutions. The hardware supports all the short range wireless standards available on the nRF52 family of devices.

Datasheet:

[MS85MX5](#)

[C2-7001](#)



Minew MS Series BLE Module Selection Guide

BLE Module Part Numbering Decoder

MS50SFA — 1 Y 32 A I R

MSXXSFX — X X XX X X X

Module Package

R: Reel
T: Tray

RF Signal Output

I: Internal Output(Through PCB, Ceramic Antenna and u.FL/IPEC Connector)
E: External Output(Through ANT Pin)

Chipset Package

A: QFAA
B: QFAB

Chipset

05: m1805/nRF52805
10: nRF52810
11: nRF52811
32: nRF52832
33: nRF52833
40: nRF52840

Low Frequency
Crystal Oscillator

Y: Yes, integrated with external 32.768k crystal oscillator
N: No, without external 32.768k crystal oscillator

Antenna Type

None: No Antenna
1. PCB Antenna
2. Ceramic Antenna
3. u.FL/IPEX Connector for External Antenna

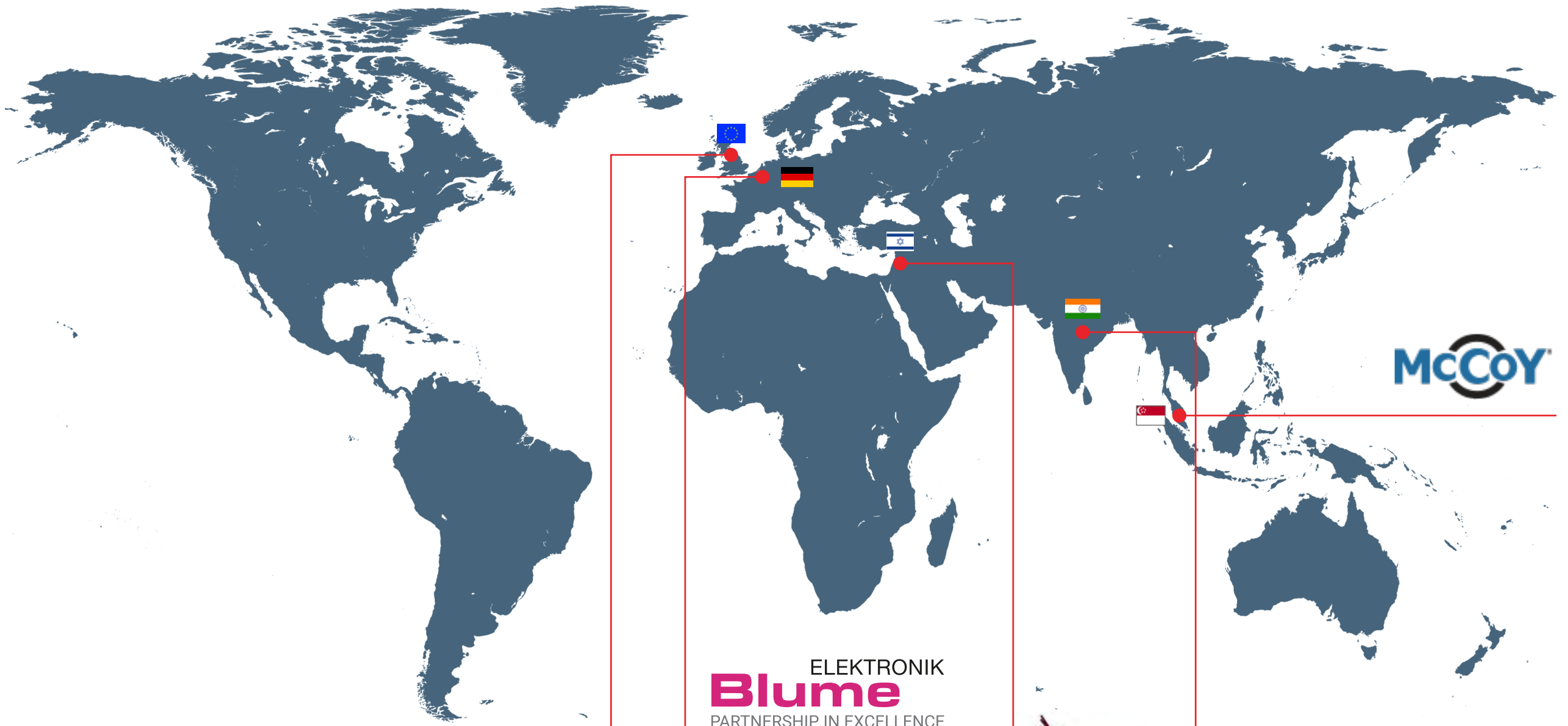
Fixed Model No.

M: Minew
S: Self Owned
XX 50: Serial No. for nRF52 series
48: Serial No. for m1805 series
46/50/88: Serial No. for nRF52 series

SF: Transceiver and Receiver Module

X: Module Serial No.
A For MS50SFA
B For MS50SFB

Worldwide Presence



ELEKTRONIK
Blume
PARTNERSHIP IN EXCELLENCE



BORAN
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