

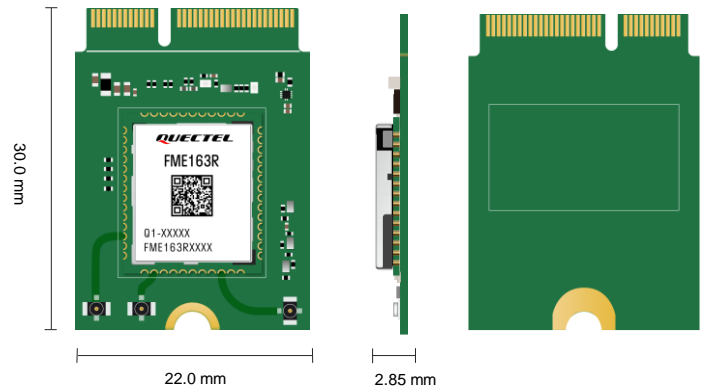


Quectel FME163R

2 × 2 MIMO

M.2 2230 Key-E Package

Wi-Fi 6 & Bluetooth 5.2 Module



FME163R is a high-performance Wi-Fi 6 and Bluetooth 5.2 module launched by Quectel, which can be used for WLAN and Bluetooth connections. With its compact size of 22.0 mm × 30.0 mm × 2.85 mm, the module fits into the M.2 2230 Key-E package and is easy to integrate into the host device. It can also effectively lower production cost, increase production efficiency, and fulfill the demands of complicated environments.

FME163R supports 2 × 2 MIMO with a maximum physical layer data transmission rate of 1201 Mbps.

Based on the reliable PCIe 1.1 interface, FME163R achieves low-power and high-speed data transmission. Coupled with its higher power consistency and accuracy and ultra-wide temperature range, the module can meet the requirements of industries, consumer goods and laptop applications.



Key Features

- ✓ 2.4 GHz/ 5 GHz Wi-Fi bands and Bluetooth 5.2
- ✓ PCIe 1.1 interface, with higher data transmission rate and lower power consumption
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide temperature range: -20 °C to +70 °C or -40 °C to + 85 °C



IEEE 802.11
a/b/g/n/ac/ax



Bluetooth 5.2



PCIe 1.1 Interface



Temperature Range:
-20 °C to +70 °C or
-40 °C to + 85 °C



M.2 Package

Wi-Fi 6 & Bluetooth 5.2	FME163R
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz
Wi-Fi Antenna	2 × 2 MIMO
Wi-Fi Modulation Mode	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM
2.4 GHz Channel Bandwidth	20 MHz/ 40 MHz
5 GHz Channel Bandwidth	20 MHz/ 40 MHz/ 80 MHz
Encryption Mode	WPA3
Wi-Fi Operating Mode	AP/ STA
Bluetooth Protocol	Bluetooth 5.2
Dimensions	22.0 mm × 30.0 mm × 2.85 mm
Weight	Approx. 2.28 g
Temperature Range	
Operating Temperature	-20 °C to +70 °C or -40 °C to + 85 °C (Optional)
Storage Temperature	-55 °C to +125 °C
Physical Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	300 Mbps
802.11ac	866 Mbps
802.11ax	1201 Mbps
Interfaces	
PCIe 1.1	× 1 (For Wi-Fi)
PCM	× 1 (For Bluetooth)
UART	× 1 (For Bluetooth)
Enable Pins	WLAN_EN, BT_EN
Wi-Fi Antenna Interfaces ^①	× 2 (ANT_WIFI0, ANT_WIFI1/BT) (Optional)
Bluetooth Antenna Interface	× 1 (ANT_BT) (Optional)
Electrical Features	
Power Supply Voltage	VCC: 3.0–3.6 V, Typ. 3.3 V
Certifications	
Regulatory (Planning)	China: SRRC Europe: CE America: FCC Canada: IC Australia/New Zealand: RCM Japan: JATE/ TELEC South Korea: KC

NOTE:

①: ANT_WIFI1/BT serves as a Wi-Fi and Bluetooth antenna interface in two-antenna solution and only Wi-Fi antenna interface in three-antenna solution.

Wi-Fi 6 & Bluetooth 5.2 FME163R

Wi-Fi Performance		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
2.4 GHz	802.11b/1 Mbps	-98 dBm	19.5 dBm
	802.11b/11 Mbps	-90 dBm	19.5 dBm
	802.11g/6 Mbps	-95 dBm	19.5 dBm
	802.11g/54 Mbps	-77 dBm	18 dBm
	802.11n/HT20 MCS 0	-95 dBm	19.5 dBm
	802.11n/HT20 MCS 7	-76 dBm	17 dBm
	802.11n/HT40 MCS 0	-92 dBm	19.5 dBm
	802.11n/HT40 MCS 7	-72 dBm	17 dBm
	802.11ax/HE20 MCS 0	-95 dBm	19.5 dBm
	802.11ax/HE20 MCS 11	-67 dBm	13 dBm
	802.11ax/HE40 MCS 0	-92 dBm	19.5 dBm
	802.11ax/HE40 MCS 11	-63 dBm	13 dBm
5 GHz	802.11a/6 Mbps	-93 dBm	19.5 dBm
	802.11a/54 Mbps	-76 dBm	18 dBm
	802.11n/HT20 MCS 0	-93 dBm	19.5 dBm
	802.11n/HT20 MCS 7	-74 dBm	17 dBm
	802.11n/HT40 MCS 0	-90 dBm	19.5 dBm
	802.11n/HT40 MCS 7	-71 dBm	17 dBm
	802.11ac/VHT20 MCS 0	-93 dBm	19.5 dBm
	802.11ac/VHT20 MCS 8	-70 dBm	16 dBm
	802.11ac/VHT40 MCS 0	-90 dBm	19.5 dBm
	802.11ac/VHT40 MCS 9	-65 dBm	15 dBm
	802.11ac/VHT80 MCS 0	-87 dBm	19.5 dBm
	802.11ac/VHT80 MCS 9	-62 dBm	15 dBm
	802.11ax/HE20 MCS 0	-93 dBm	19.5 dBm
	802.11ax/HE20 MCS 11	-65 dBm	13 dBm
	802.11ax/HE40 MCS 0	-90 dBm	19.5 dBm
	802.11ax/HE40 MCS 11	-63 dBm	13 dBm
	802.11ax/HE80 MCS 0	-88 dBm	19.5 dBm
	802.11ax/HE80 MCS 11	-60 dBm	13 dBm

Bluetooth Performance		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
BR (GFSK)		-82 dBm	5 dBm
EDR ($\pi/4$ -DQPSK)		-84 dBm	5 dBm
EDR (8-DQPSK)		-79 dBm	5 dBm
BLE (1 Mbps)		-87 dBm	5 dBm
BLE (2 Mbps)		-84 dBm	5 dBm
BLE (S = 2)		-87 dBm	5 dBm
BLE (S = 8)		-96 dBm	5 dBm

Model	Ordering Code	Antenna	Temperature Range	Development Board (Only for Debugging)
FME163R	FME163RAAMD	Two antennas	-20 °C to +70 °C	RK3568-WF-EVB-KIT
FME163R	FME163RBAAMD	Three antennas	-20 °C to +70 °C	RK3568-WF-EVB-KIT
FME163R	FME163RABMD	Two antennas	-40 °C to +85 °C	RK3568-WF-EVB-KIT
FME163R	FME163RBABMD	Three antennas	-40 °C to +85 °C	RK3568-WF-EVB-KIT