Quectel FCM363X

Wi-Fi 6 & BLE 5.3 Module
Compact LCC + LGA Package

25.5 mm

18.0 mm

3.16 mm
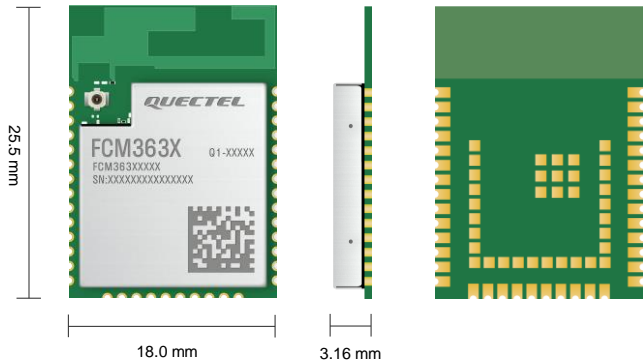
FCM363X is a cutting-edge MCU Wi-Fi and Bluetooth module launched by Quectel. It boasts a high-performance processor (ARM Cortex-M33) with a frequency of up to 260 MHz and supports IEEE 802.11a/b/g/n/ac/ax protocol and BLE 5.3. The module features built-in 1.2 MB SRAM and 8 MB flash, ensuring efficient performance. The module also offers optional PSRAM expansion for more complex applications. In addition, it complies with WPA-PSK, WPA2-PSK and WPA3-SAE security standards, providing an AES-128 encryption algorithm.

FCM363X is in LCC + LGA form factor with an ultra-compact package size of 25.5 × 18.0 × 3.16 mm, which optimizes the size and cost for end-products and is compatible with diverse designs.

FCM363X supports GPIO, SDIO, UART, USB, SPI and JTAG interfaces by default and I2C, I2S, ADC, LCD and PWM interfaces in QuecOpen® solution, and many low power consumption modes and keep-alive mechanism, which provide flexibility and versatility for a range of applications, especially in smart homes and industrial IoT scenarios.

FCM363X supports QuecOpen® solution and standard AT commands, with a compact protocol, and can realize efficient product development for customers.

Key Features

✔ Wi-Fi 6 module, 2.4 GHz & 5 GHz Wi-Fi bands, 1 × 1 antenna

✔ Bluetooth Low Energy (BLE 5.3)

✔ Large memory, 1.2 MB SRAM and 8 MB flash

✔ PSRAM expansion (optional)

✔ Supports GPIO, SDIO, UART, USB, SPI, JTAG and etc.

✔ RF coaxial connector*, PCB antenna (optional)

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

BLE 5.3

Large Memory

Compact Size

LCC + LGA Form Factor

Multiple Interfaces

Operating Temperature Range: -40 °C to +85 °C

Version: 1.0 | Status: Released

Wi-Fi 6 & BLE 5.3	FCM363X
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax
Wi-Fi Frequency Band	2.4 GHz/5 GHz
Wi-Fi Modulation Mode	DSSS/OFDM/DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM
Wi-Fi Operating Mode	AP/ STA
Bluetooth Protocol	BLE 5.3
Encryption Mode	WPA-PSK/WPA2-PSK/WPA3-SAE/AES-128
Internet Protocol	IPv6
Kernel	ARM Cortex-M33 Processor (up to 260 MHz)
SRAM	1.2 MB
Flash	8 MB
PSRAM Expansion (optional)	up to 8 MB
Dimensions	25.5 mm × 18.0 mm × 3.16 mm
Weight	Approx. 1.51 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-45 °C to +95 °C
Certification	
Regulatory	**Europe:** CE* **America:** FCC* **Canada:** IC* **China:** SRRC* **Australia/New Zealand:** RCM*
Others	Bluetooth*
Interfaces	
Antenna (Interface)	× 1 (RF coaxial connector*, PCB antenna) (Optional)
Other Interfaces ①	UART/USB/GPIO/SDIO/SPI/JTAG/I2C/I2S/ADC/LCD/PWM
Electrical Features	
Power Supply Voltage	3.14–3.46 V, Typ. 3.3 V

Wi-Fi Performance

		Receiver Sensitivity	Transmit Power
2.4 GHz	802.11b/1 Mbps	-96 dBm ±2 dB	19 dBm ±2 dB
	802.11b/11 Mbps	-87 dBm ±2 dB	19 dBm ±2 dB
	802.11g/6 Mbps	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11g/54 Mbps	-73 dBm ±2 dB	17 dBm ±2 dB
	802.11n/HT20 MCS 0	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT20 MCS 7	-71 dBm ±2 dB	16 dBm ±2 dB
	802.11ax/HE20 MCS 0	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11ax/HE20 MCS 9	-66 dBm ±2 dB	15 dBm ±2 dB
5 GHz	802.11a/6 Mbps	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11a/54 Mbps	-73 dBm ±2 dB	16 dBm ±2 dB
	802.11n/HT20 MCS 0	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT20 MCS 7	-71 dBm ±2 dB	15.5 dBm ±2 dB
	802.11ac/VHT20 MCS 0	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11ac/VHT20 MCS 8	-67 dBm ±2 dB	14.5 dBm ±2 dB
	802.11ax/HE20 MCS 0	-88 dBm ±2 dB	18 dBm ±2 dB
	802.11ax/HE20 MCS 9	-65 dBm ±2 dB	13.5 dBm ±2 dB

Bluetooth Performance

	Receiver Sensitivity	Transmit Power
BLE (1 Mbps)	-97 dBm ±2 dB	8 dBm ±2 dB
BLE (2 Mbps)	-95 dBm ±2 dB	8 dBm ±2 dB
BLE (S = 2)	-98 dBm ±2 dB	8 dBm ±2 dB
BLE (S = 8)	-104 dBm ±2 dB	8 dBm ±2 dB

Ordering Code	PSRAM Expansion	LFRC crystal	Antenna	Development Board (Only for Debugging)
FCM363XABMD-0P-08	-	-	PCB antenna	FCM363XABTB-0P-08
FCM363XABMD-4X-08*	-	-	4th generation RF coaxial connector	FCM363XABTB-4X-08*
FCM363XACMD-0P-08*	Supported	Supported	PCB antenna	FCM363XACTB-0P-08*

NOTE:

1. ①: See hardware design manual for details of the module interfaces.
2. * : In progress.

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