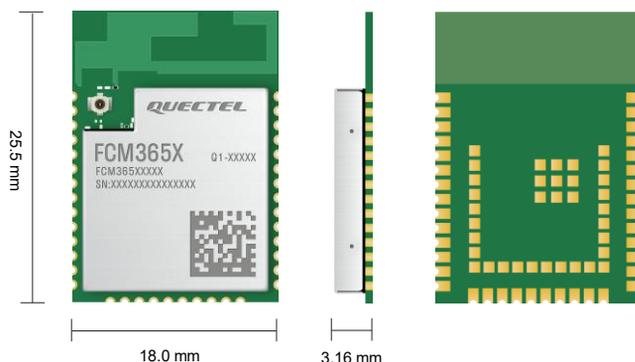




Quectel FCM365X

Wi-Fi 6 & BLE 5.4 &
IEEE 802.15.4 Module
Compact LCC + LGA Package



FCM365X is a cutting-edge MCU Wi-Fi, Bluetooth and IEEE 802.15.4 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, BLE 5.4 and IEEE 802.15.4 protocols. The module features built-in 1.2 MB SRAM and 8 MB flash, ensuring efficient performance. In addition, it complies with WPA-PSK, WPA2-PSK and WPA3-SAE security standards, providing an AES-128 encryption algorithm.

FCM365X is in LCC + LGA form factor with an ultra-compact package size of 25.5 mm × 18.0 mm × 3.16 mm, which optimizes the size and cost for end-products and is compatible with diverse designs.

FCM365X 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.

FCM365X 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 5.4)
- ✓ IEEE 802.15.4 (Thread, Zigbee)
- ✓ 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 5.4



Zigbee



Thread



LCC + LGA
Form Factor



Multiple
Interfaces



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



Compact Size



Large Memory

Version: 1.0.0 | Status: Preliminary

Quectel FCM365X

Wi-Fi 6 & BLE 5.4 & IEEE 802.15.4		FCM365X	
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 5.4		
IEEE 802.15.4	Thread/ Zigbee		
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 (Planning)	Europe: CE America: FCC Canada: IC Australia/New Zealand: RCM China: SRRC		
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

NOTE:

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

Quectel FCM365X

Wi-Fi 6 & BLE 5.4 & IEEE 802.15.4		FCM365X	
Bluetooth Performance			
		Receiver Sensitivity	Transmit Power
BLE (1 Mbps)		-97 dBm \pm 3 dB	8 dBm \pm 3 dB
BLE (2 Mbps)		-95 dBm \pm 3 dB	8 dBm \pm 3 dB
BLE (S = 2)		-98 dBm \pm 3 dB	8 dBm \pm 3 dB
BLE (S = 8)		-104 dBm \pm 3 dB	8 dBm \pm 3 dB
IEEE 802.15.4 Performance			
		Receiver Sensitivity	Transmit Power
2405 MHz		-99 dBm \pm 2.5 dB	8 dBm \pm 2.5 dB
2440 MHz		-99 dBm \pm 2.5 dB	8 dBm \pm 2.5 dB
2480 MHz		-93 dBm \pm 2.5 dB	-2 dBm \pm 2.5 dB

Ordering Code	PSRAM Expansion	LFRC Crystal	Antenna	Development Board (Only for Debugging)
FCM365XAAMD-0P-08	-	-	PCB antenna	
FCM365XAAMD-4X-08*	-	-	4 th generation RF coaxial connector	FCM365XABTB-0P-08
FCM365XABMD-0P-08*	Supported	Supported	PCB antenna	FCM365XACTB-0P-08*

NOTE:

* : In progress.