Quectel FGH100M

Wi-Fi HaLow Module
Compact LGA Package

13.0 mm
13.0 mm
2.2 mm
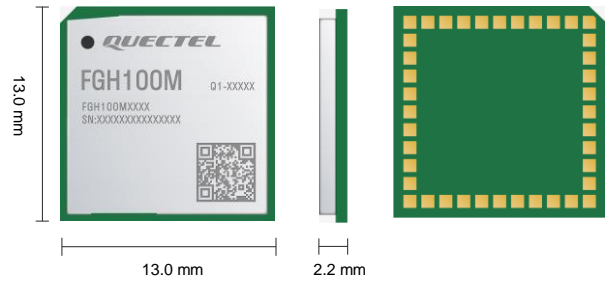
FGH100M is a long-range, low-power Wi-Fi HaLow module launched by Quectel, which complies with the IEEE 802.11ah standard. Wi-Fi HaLow is an open, standard Wi-Fi technology operating in the license-exempt Sub-1 GHz range.

FGH100M operates in the 850–950 MHz working frequency band with a channel width of 1/2/4/8 MHz. Its maximum physical rate is 32.5 Mbps[1], and its maximum output power is 21 dBm theoretically. Based on the Sub-1 GHz frequency band, the module has greater coverage and penetration performance, extending the reach of smart home or smart city networks and enabling users to control IoT devices in a radius of 1 km.

FGH100M has a low-power design and supports large-capacity access, and enables simultaneous access of up to 8191 devices to the same Wi-Fi access point theoretically, which is more suitable for the access requirements of large-scale IoT devices.

With its ultra-compact package size of 13.0 mm × 13.0 mm × 2.2 mm, FGH100M optimizes and effectively reduces end-product size and design cost, and fully meets the demands of size-sensitive applications.

Key Features

- ✓ Wi-Fi HaLow module, 850–950 MHz frequency band
- ✓ Encryption mode: AES, SHA-256, SHA-384, SHA-512, WPA3
- ✓ Long-range transmission, low-power consumption, large capacity, and good penetration performance
- ✓ Fast time-to-market via simple design

Long-range (1 km)

Low Power Consumption

Large Capacity

Good Penetration Performance

Ultra-compact Size

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

Wi-Fi HaLow	FGH100M
WLAN Protocol	IEEE 802.11ah
Wi-Fi Frequency Band	850–950 MHz
Wi-Fi Antenna	1 × 1
Wi-Fi Modulation Mode	OFDM, BPSK, QPSK, 16QAM, 64QAM
Encryption Mode	AES, SHA-256, SHA-384, SHA-512, WPA3
Wi-Fi Operating Mode	AP/ STA
Dimensions	13.0 mm × 13.0 mm × 2.2 mm
Weight	Approx. 0.72 g
Temperature Range	
Operating Temperature Range	-30 °C to +85 °C
Extended Temperature Range	-40 °C to +85 °C
Physical Rate (Max.)	
802.11ah	32.5 Mbps[①]
Interfaces	
SDIO	× 1
SPI	× 1
Wi-Fi Antenna Interface	× 1
Electrical Features	
Power Supply Voltage	VBAT: 3.0–3.6 V, typ. 3.3 V
I/O Power Supply Voltage	VDD_IO: 1.8–3.6 V, typ. 3.3 V
Certifications	
Regulatory	**Europe:** CE **America:** FCC **Canada:** IC **Australia/New Zealand:** RCM

Wi-Fi Performance

	FGH100MAAMD		FGH100MABMD	
	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
MCS 0 (1 MHz)	-108 dBm	11 dBm	-108 dBm	21 dBm
MCS 0 (2 MHz)	-	-	-104 dBm	20 dBm
MCS 0 (4 MHz)	-	-	-102 dBm	20 dBm
MCS 0 (8 MHz)	-	-	-98 dBm	20 dBm
MCS 7 (1 MHz)	-88 dBm	11 dBm	-88 dBm	17 dBm
MCS 7 (2 MHz)	-	-	-84 dBm	17 dBm
MCS 7 (4 MHz)	-	-	-82 dBm	17 dBm
MCS 7 (8 MHz)	-	-	-77 dBm	17 dBm
MCS 10 (1 MHz)	-109 dBm	11 dBm	-109 dBm	21 dBm

Model	Ordering Code	Antenna	Max. Physical Rate	Certification	Development Board (Only for Debugging)
FGH100M	FGH100MAAMD	One Wi-Fi antenna	3.3 Mbps	CE	FGH100MAAM2
FGH100M	FGH100MABMD	One Wi-Fi antenna	32.5 Mbps	FCC	FGH100MABM2

NOTE:

①: Optional. The maximum physical rate of different ordering codes is different. Please refer to the OC table for details.

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