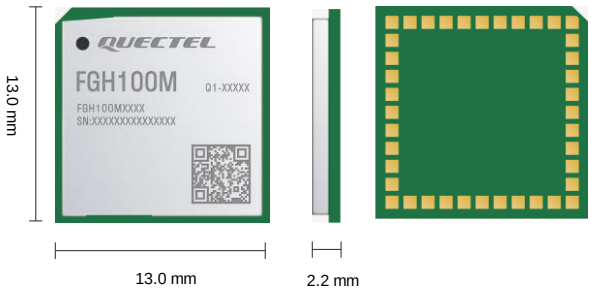
Quectel FGH100M

Wi-Fi HaLow Module
Compact LGA Package



FGH100M is Quectel's new long-range, low-power Wi-Fi HaLow module compliant with IEEE 802.11ah standard. It operates in 850–950 MHz bands with 1/2/4/8 MHz channel width and features 21 dBm maximum output power and 32.5 Mbps maximum transmission rate theoretically.

Wi-Fi HaLow is an open, standard Wi-Fi technology operating in the license-exempt Sub-1 GHz range, designed to meet the unique IoT requirements, thereby expanding the smart home or smart city network with its Sub-1 GHz signal coverage, and allowing users to control IoT devices in a radius of 1 km.

The surface-mount technology enhances its durability and robustness. The LGA package ensures easy embedding of the module into size-constrained applications and provides reliable connectivity. The advanced package allows for largescale automated manufacturing, which has strict requirements on cost and efficiency.

With its ultra-compact 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 operating frequency
- AES, SHA-256, SHA-384, SHA-512, WPA3
- SDIO 2.0 interface, long-distance transmission and lower power consumption
- Fast time-to-market via simple design
- Wide operating temperature range: -30 °C to +85 °C


Ultra-compact Size

LGA Package


IEEE 802.11ah

HaLow

SDIO 2.0 Interface


Operating Temperature Range: -30 °C to +85 °C

Version: 1.0.0 | Status: Preliminary

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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	
Dimension	13.0 mm × 13.0 mm × 2.2 mm	
Weight	0.72 g	
Temperature Range		
Operating Temperature Range	-30 °C to +85 °C	
Data Rate (Max.)		
802.11ah	32.5 Mbps	
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	VDDIO: 1.8–3.6 V, typ. 3.3 V	
Power Consumption	TBD	
Certifications		
Regulatory (Planning)	**Europe:** CE **America:** FCC **Canada:** IC	
Wi-Fi Performance		
	Receiver Sensitivity (Typ.) (dBm)	**Transmit Power (Typ.) (dBm)**
MCS 0 (1 MHz)	-108	21
MCS 0 (2 MHz)	-104	21
MCS 0 (4 MHz)	-102	21
MCS 0 (8 MHz)	-98	21
MCS 7 (1 MHz)	-88	17
MCS 7 (2 MHz)	-84	17
MCS 7 (4 MHz)	-82	17
MCS 7 (8 MHz)	-77.5	17
MCS 10 (1 MHz)	-109	21

Model	Ordering Code	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FGH100M	FGH100MAAMD	One Wi-Fi antenna	-	-	FGH100MAAM2

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