

INDUSTRIAL PRODUCT DATASHEET

Wi-Fi HaLow Transceiver for Seeed Studio XIAO

Compact Wi-Fi HaLow transceiver for Seeed Studio XIAO based on FGH100M-H module, delivering 902-928 MHz IEEE 802.11ah long-range connectivity (up to 1 km), low power, and WPA3 security for IoT applications.

SKU

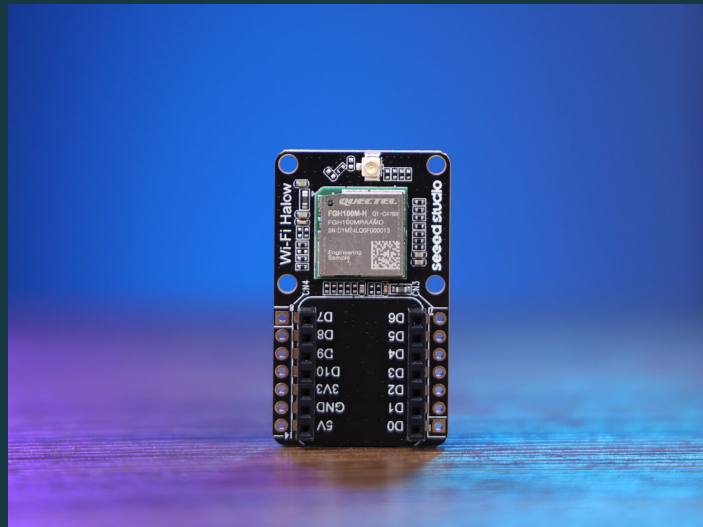
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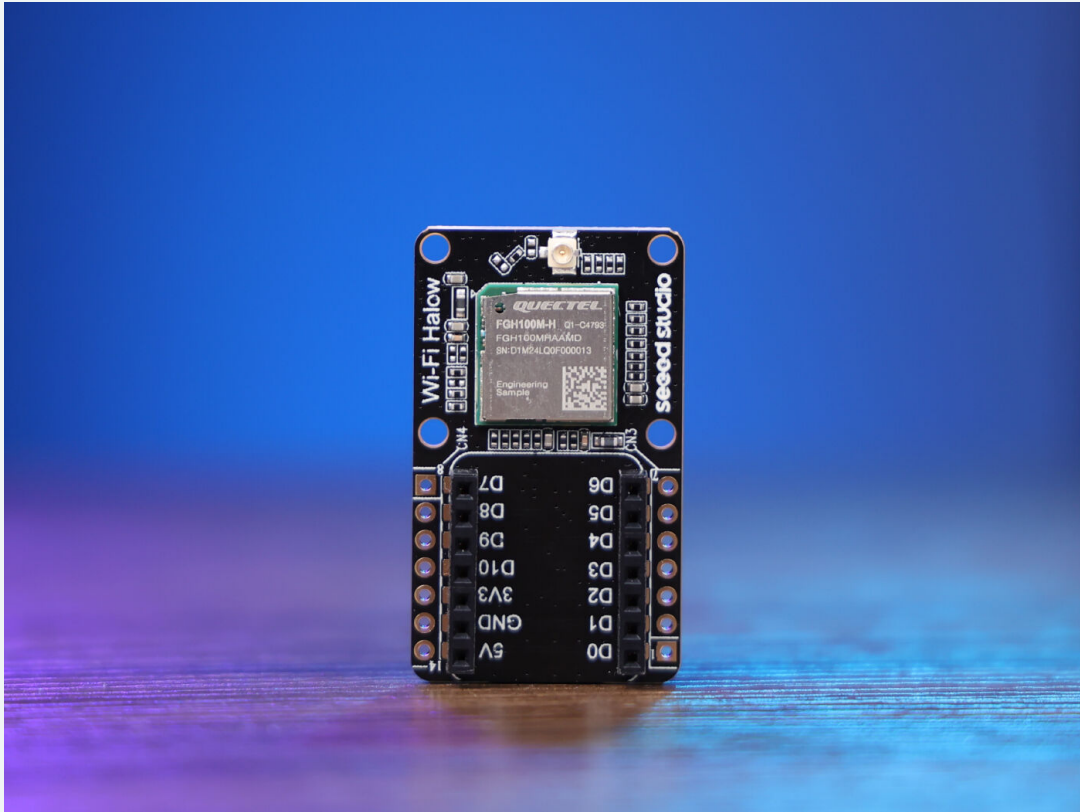
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PRICE

\$14.90(Excl. VAT)



Overview



The Wi-Fi HaLow Transceiver for Seeed Studio XIAO is a compact 42 x 25 mm expansion board based on the FGH100M-H module, offering IEEE 802.11ah connectivity in the 902-928 MHz band with up to 1 km range, low power consumption, and robust WPA3 security with AES, SHA-256, SHA-384, and SHA-512 encryption. It snap-on integrates with Seeed Studio XIAO Boards (Pre-Soldered) and is recommended for XIAO ESP32 series (note: not currently directly compatible with XIAO nRF54L15 series because Arduino is not supported, but hardware interface is compatible and official software support is under development), making it suitable for smart home devices, industrial automation control, smart city infrastructure, agricultural IoT monitoring, and environmental monitoring systems.

Key Features

Note:

This expansion board is currently not directly compatible with the XIAO nRF54L15 series because Arduino is not supported.

However, the hardware interface is fully compatible, and developers can manually adapt the software if needed.

Official software support from Seeed Studio is under development — stay tuned for updates!

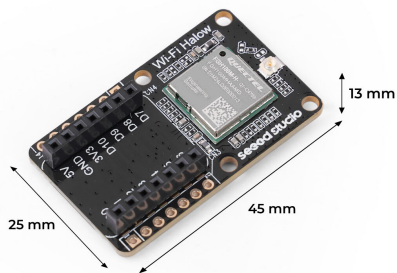
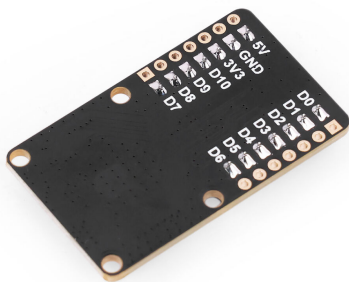
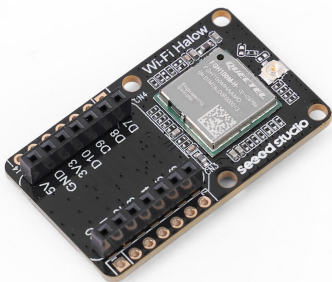
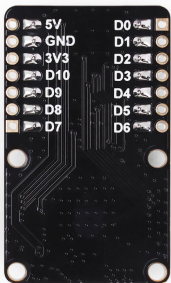
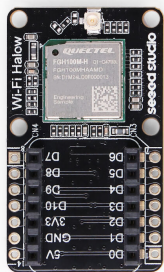
The Wi-Fi HaLow Board based on the FGH100M-H module is a high-performance, long-range Wi-Fi HaLow solution. Operating in the 902-928 MHz frequency band, it offers excellent penetration and coverage, making it ideal for smart home and IoT applications. With its compact design and compatibility with the Seeed Studio XIAO ecosystem, this card ensures reliable and efficient connectivity for various projects.

- **Long-Range Connectivity:** Complies with IEEE 802.11ah standard, operating in 902-928 MHz frequency band, providing coverage up to 1 km with superior penetration performance.
- **Low Power Consumption:** Optimized power efficiency design, making it ideal for power-sensitive IoT applications.
- **Robust Security:** Implements comprehensive security features including AES, SHA-256, SHA-384, SHA-512, and WPA3 encryption.
- **Seamless Integration with Seeed Studio XIAO Boards:** Sized at 42 x 25mm, it's compatible with the [Seeed Studio XIAO Boards \(Pre-Soldered\)](#) via easy snap-on. ([We recommended to use XIAO ESP32 series.](#))

Note:

You may need to prepare additional antennas suitable for WiFi-HaLow use. Here are the verified, recommended antenna models [2.6dBi Long Range Antenna](#) and [SMA to I-PEX Antenna Cable](#).

Product Gallery



Specification

Parameters	Details
WLAN Protocol	IEEE 802.11ah
Wi-Fi Frequency Band	902-928 MHz

Wi-Fi Antenna	1 x 1
Wi-Fi Modulation Mode	OFDM,BPSK, QPSK, 16QAM, 64QAM
Encryption Mode	AES, SHA-256, SHA-384, SHA-512, WPA3
Wi-Fi Operating Mode	STA
Operating Temperature Range	-30 °C to +85 °C
Extended Temperature Range	-40 °C to +85 °C
Physical Rate (Max.)	802.11ah: 32.5 Mbps
Power Supply Voltage	VBAT: 3.0–3.6 V, typ. 3.3 V
I/O Power Supply Voltage	VDD_IO: 1.62–3.6 V, typ. 1.8/3.3 V
FEM Power Supply Voltage	VDD_FEM: 3.0–5.25 V, typ. 5 V

Applications

- **Smart Home Devices**
- **Industrial Automation Control**
- **Smart City Infrastructure**
- **Agricultural IoT Monitoring**
- **Environmental Monitoring Systems**

Part List

Wi-Fi HaLow Module	x1
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Compliance & Logistics



HSCODE	8517799000
USHSCODE	8517790000
UPC	
EUHSCODE	8517180000
COO	CHINA

FCC Requirement

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

15.21

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy.

If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Resource Links

- <https://www.seeedstudio.com/Wio-WM6180-Wi-Fi-HaLow-Module-for-XIAO-p-6395.html>

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