

VT-USB-AH-8108 Wi-Fi HaLow USB Dongle



Product Brief

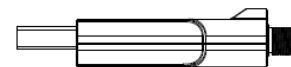
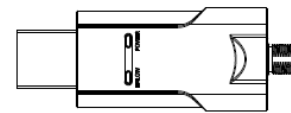
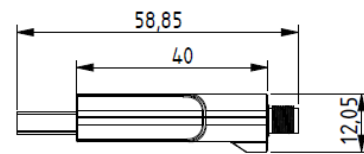
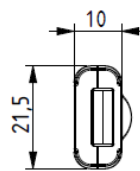
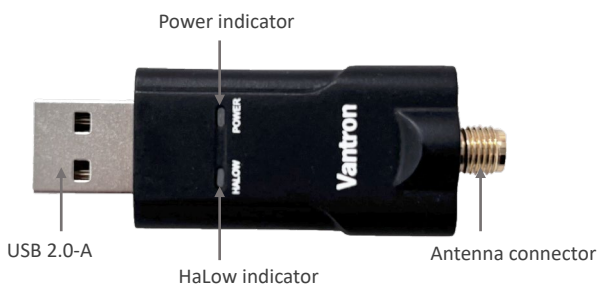
VT-USB-AH-8108 Wi-Fi HaLow dongle is designed to offer IEEE 802.11ah (Wi-Fi HaLow) connectivity as an add-on feature for IoT devices with USB 2.0 interfaces but lacking native Wi-Fi HaLow support, enabling rapid integration of HaLow capabilities.

Powered by Morse Micro's latest MM8108 chipset, VT-USB-AH-8108 delivers ultra-long-range, low-power communication in the sub-1 GHz license-exempt RF bands. The dongle supports four channel bandwidth options (1/2/4/8MHz), with single-stream data rates up to 43.33Mbps at 8 MHz bandwidth. The MAC layer supports both station (STA) and access point (AP) roles, making it versatile to deploy for different applications.

The dongle also features a comprehensive suite of security capabilities, including WPA3 protection, Protected Management Frames (PMF), Opportunistic Wireless Encryption (OWE), and hardware support for AES, SHA1 and SHA2 functions.

Once integrated, VT-USB-AH-8108 deployed in a wide range of applications, including surveillance systems, smart utility meters, industrial automation, and more.

Product Exterior



Features

- IEEE Std 802.11ah compliant
- Single-stream data rates up to 43.3 Mbps @8MHz
- Support worldwide Sub-1 GHz frequency bands
Frequency range: 850MHz~950 MHz
Channel bandwidth options: 1/2/4/8 MHz
- Support both STA and AP modes
- Signal processing
Packet detection & channel equalization
Automatic frequency and gain control
- Wide spectrum of security features
AES encryption engine
SHA1 and SHA2 hash functions (SHA-256, SHA-384, SHA-512)
WPA3, protected management frames (PMF)
Opportunistic Wireless Encryption (OWE)
- interface: USB 2.0 Type-A
- Modulation scheme
BPSK & QPSK, 16-QAM, 64-QAM, & 256-QAM modulation
Modulation and Coding Scheme (MCS) levels: MCS 0~ 10

Applications

- Home automation
Alarm system, security cameras, smart doorbells
Entertainment (media streaming adapters, speakers)
Baby monitors
Garage door openers
Door locks
Smart appliances
Energy management
Voice control frontends
Consumer robotics
- Portables & Wearables
Smart watches
Health trackers
- Building automation
Building access control & security
HVAC & air quality control
Smart city network
Commercial robotics
EV battery charger telemetry
- Retail & Logistics
Digital signage
Kiosks / POS / vending
Fleet management
Inventory management / scanners
- Industrial Automation
Autonomous mobile robotics

Specifications

VT-USB-AH-8108					
Major Chipset	Morse Micro MM8108 HaLow SoC				
I/O	Interface	USB 2.0 Type-A			
	Antenna	1 x SMA (male) connector (Omni-directional, 2.6dBi)			
	LED indicator	1 x Power indicator	1 x HaLow indicator		
HaLow Features	Wi-Fi standard	IEEE 802.11ah			
	Frequency range (Sub 1 GHz bands)	850MHz ~ 950MHz			
	Channel bandwidth	1 / 2 / 4 / 8 MHz			
	Data rate* (256-QAM)	1 MHz	2 MHz	4 MHz	8 MHz
		4.44Mbps (Max.)	8.67Mbps (Max.)	20Mbps (Max.)	43.3Mbps (Max.)
	Security	AES encryption engine			
		SHA1 and SHA2 hash algorithms (SHA-256, SHA-384, SHA-512)			
		WPA3			
		Protected management frames (PMF)			
	Opportunistic Wireless Encryption (OWE)				
Software	Driver	Provide driver for Linux (Kernel 5.10+)			
Mechanical	Dimensions	58.85mm x 21.5mm x 12.05mm			
	Voltage	5V/1A DC			
	Temperature	Operating: -40°C~+85°C	Storage: -40°C~+85°C		
	Humidity	Less than 85% (Non-condensing)			
Compliance	Certification	CE, FCC, UL			

* These represent theoretical maximum values for the 256-QAM modulation scheme.

Ordering Information

Ordering No.	SoC	I/O	Operating Temp.
VT-USB-AH-8108	Morse Micro MM8108	USB 2.0 Type-A, SMA antenna connector	-40°C ~ +85°C

Packing list	
VT-USB-AH-8108 Wi-Fi HaLow USB dongle	1
Wi-Fi HaLow antenna (for sample orders)	1

