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

Product Brief

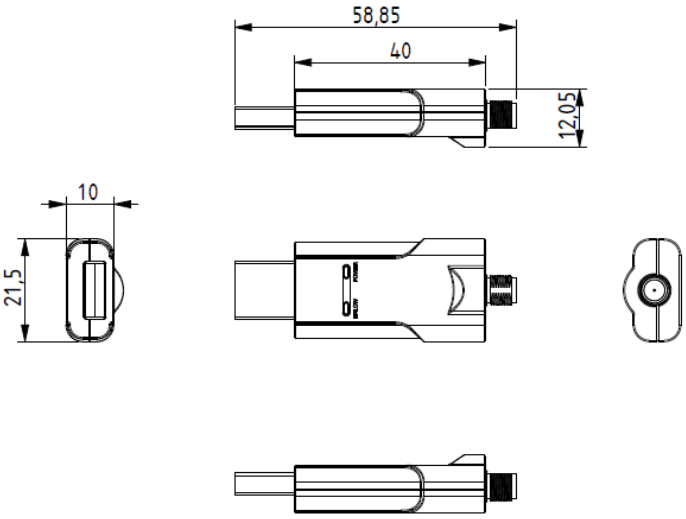
VT-USB-AH-8108 Wi-Fi HaLow dongle is designed to offer IEEE 802.11ah (Wi-Fi HaLow) connectivity as an add-on feature for IoT devices with USB 2.0 interfaces but lacking native Wi-Fi HaLow support, enabling rapid integration of HaLow capabilities.

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℃~+85℃		Storage: -40℃~+85℃	
	Humidity	Less than 85% (Non-condensing)			

* 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℃ ~ +85℃

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