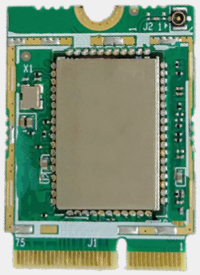
VT-MOB-AH-M2 Wi-Fi HaLow Module

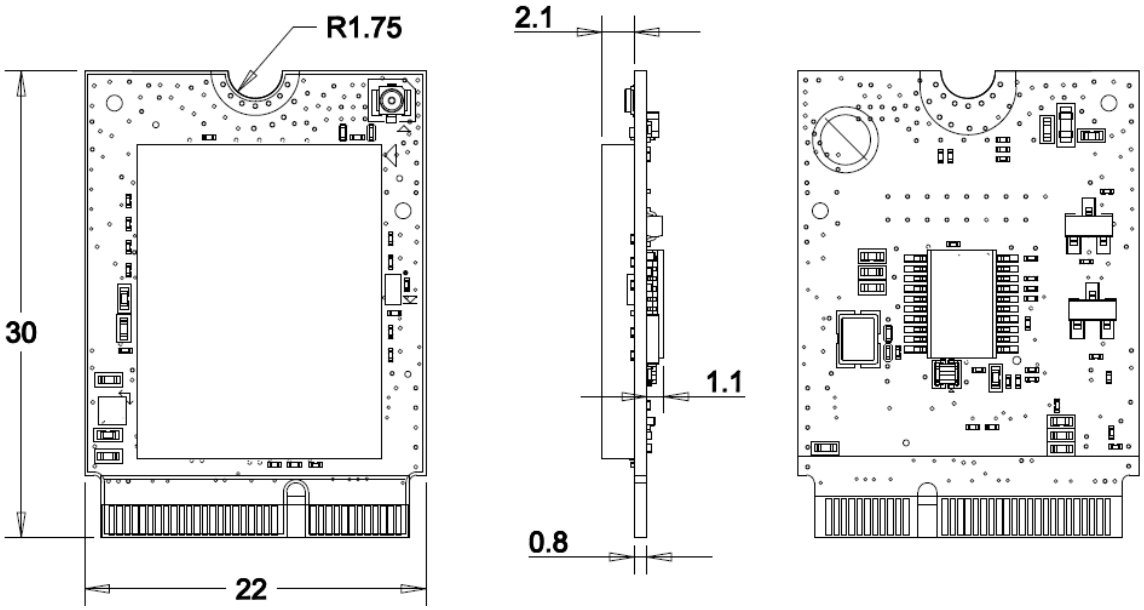


Product Brief

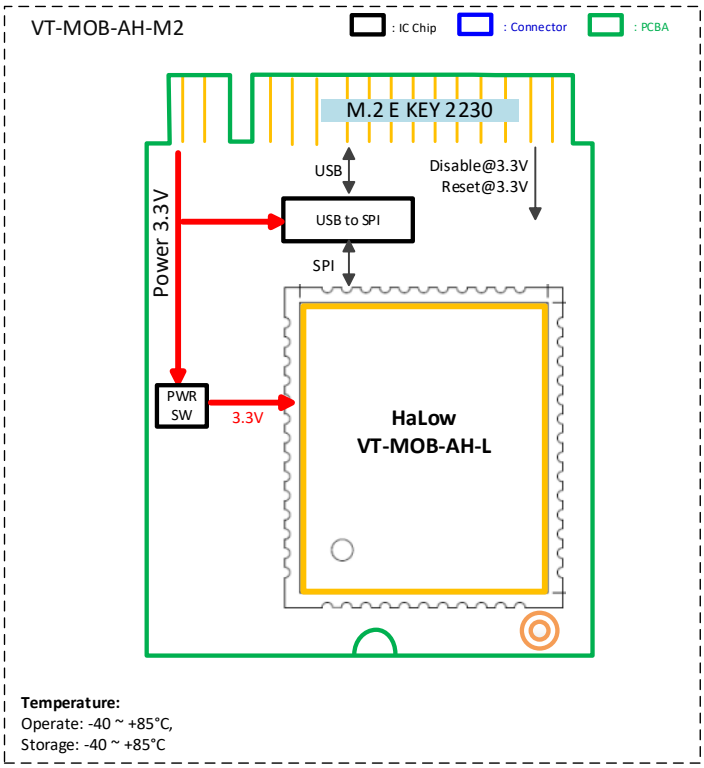
VT-MOB-AH-M2 is a Wi-Fi HaLow module coming with an M.2 (2230) form factor. When paired with an M.2 to USB adapter, it provides a convenient plug-and-play solution for a variety of applications. The module incorporates the Morse Micro MM6108 single-chip SoC, which includes radio, PHY, and MAC sections designed in accordance with IEEE 802.11ah standard. The standard provides support for operation in the sub 1GHz license exempt RF bands. The module features an ultra-long-reach power amplifier (PA), a high linearity low-noise amplifier (LNA), a transmit/receive (T/R) switch, and a 32 MHz crystal. It is designed for providing a simplified Wi-Fi HaLow connection to an external host for applications where customers want to easily replace their prior RF technology with a Wi-Fi HaLow connection while using the latest WPA3 security protocol.

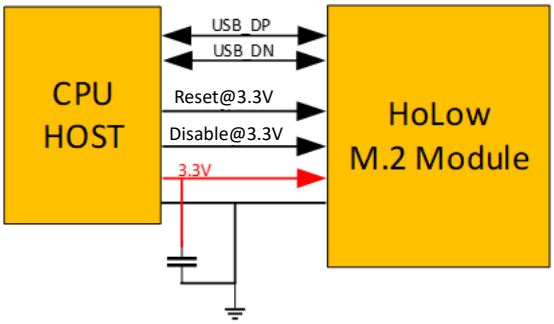
With coverage of up to 1km, VT-MOB-AH-M2 operates in the station (STA) role, making it versatile for deployment in devices without HaLow capabilities and be applied in such scenarios as transportation and logistics, smart city networking, and smart home appliances when connected to an access point.

Product Outlines



Block Diagram





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-MOB-AH-M2					
Major Chipset	Morse Micro MM6108 HaLow SoC				
I/O	Interface	USB			
	Antenna	1 x U.FL connector			
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	1 MHz	2 MHz	4 MHz	8 MHz
		3.33Mbps (Max.)	7.22Mbps (Max.)	15Mbps (Max.)	32.5Mbps (Max.)
	Security	AES encryption engine SHA1 and SHA2 hash algorithms (SHA-256, SHA-384, SHA-512) WPA3 including protected management frames (PMF)			
Software	Driver	Provide driver for Linux (Kernel 5.10+ recommended)			
Mechanical	Dimensions	30mm x 22mm x 4.0mm			
	Voltage	VCC: 3.3V			
	Temperature	Operating: -40℃~+85℃	Storage: -40℃~+85℃		
	Humidity	Less than 85% (Non-condensing)			

Pinout

74	3.3V	GND	75
72	3.3V		73
70			71
68		GND	69
66			67
64			65
62		GND	63
60			61
58			59
56	Disable @3.3V	GND	57
54	Reset @3.3V		55
52			53
50		GND	51
48			49
46			47
44		GND	45
42			43
40			41
38		GND	39
36			37
34			35
32		GND	33
30			31
28			29
26			27
24			25
22			23
20			21
18	GND		19
16			17
14			15
12			13
10			11
8			9
6		GND	7
4	3.3V	USB_DN	5
2	3.3V	USB_DP	3
		GND	1

Ordering Information

Ordering No.	SoC	Main I/Os	Operating Temp.
VT-MOB-AH-M2	Morse Micro MM6108	USB, U.FL connector	-40℃ ~ +85℃

Packing list	
VT-MOB-AH-M2 Wi-Fi HaLow module	1
Wi-Fi HaLow antenna (for sample orders)	1

Optional accessory	
M.2 to USB adapter	1

Assembly with an M.2 to USB Adapter

M.2 HaLow module

M.2 to USB adapter (Optional)

Assembled

Company Profile

Since its establishment in 2002 by two Silicon Valley entrepreneurs, Vantron Technology has been at the forefront of the connected IoT devices and IoT platform solutions. Today, Vantron boasts a global customer base that includes several Fortune 500 companies. Its product lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud device management platforms.

With over 20 years of experience in R&D of embedded edge intelligent hardware, Vantron has provided users with diverse embedded solutions featuring ARM and X86 architectures. Its offerings range from Linux to Windows, from embedded to desktop level, and from gateway to server. In addition, it provides users with system clipping, driver transplantation and other related services.