

BR101-R Outdoor Wi-Fi HaLow Unit



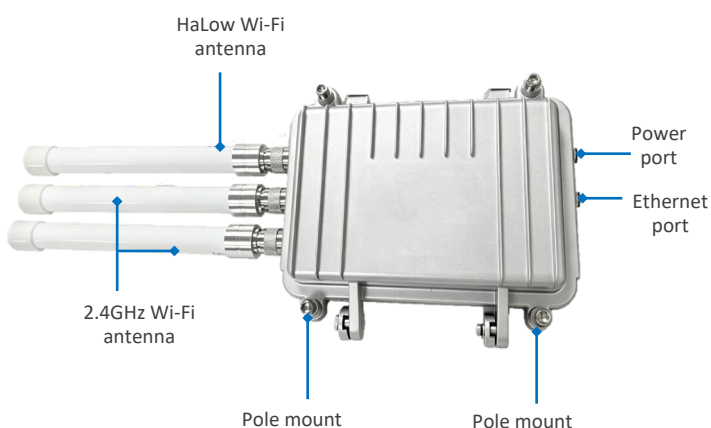
Product Brief

The BR101-R Outdoor Wi-Fi HaLow Unit works as the “nerve endings” of HaLow networking, extending connectivity to outdoor environments to providing reliable network access for clusters of outdoor devices. Compliant with the prominent IEEE 802.11ah (Wi-Fi HaLow) and IEEE 802.11 b/g/n (2.4GHz Wi-Fi) standards, it offers a comprehensive Wi-Fi solution for IoT developers seeking wireless connections with energy efficiency, extended coverage, strong obstacle penetration, and easy accessibility.

The BR101-R supports a coverage range of up to 1 km with ultra-low power consumption while maintaining high performance with data rates of up to 150 Mbps (2.4GHz Wi-Fi) and 32.5 Mbps (Wi-Fi HaLow). By complying with the IEEE 802.11ah standard, it supports operation in the sub 1GHz license-exempt RF bands, effectively avoiding interference in the crowded 2.4GHz frequency band. The 2.4GHz Wi-Fi offers connectivity for client devices without HaLow capability as a supplementary option.

The BR101-R allows quick toggling between HaLow operation modes via software configurations. It is designed for long-distance sub-GHz networking scenarios such as smart home appliances, surveillance systems, industrial process control, logistics and asset management, and smart city facilities.

Exterior and Features



BR101-R

-  Wi-Fi HaLow and 2.4GHz Wi-Fi supported
-  Sub-1 GHz frequency bands supported
-  Enhanced coverage range up to 1 km
-  Data rates: up to 150 Mbps (2.4GHz Wi-Fi) / 32.5 Mbps (Wi-Fi HaLow)
-  Ultra-low power consumption
-  Better penetration through walls and obstacles
-  Enhanced Wi-Fi security protections
-  Wide range of edge IoT applications
-  DPP quick pairing supported
-  IP66 rated for water and dust resistance

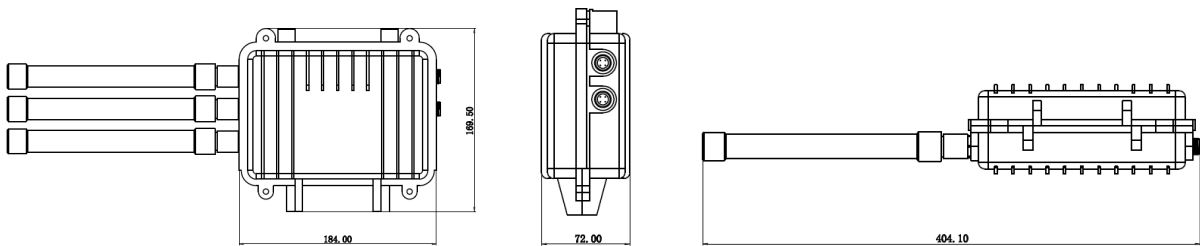
BR101-R Outdoor Wi-Fi HaLow Unit Datasheet

BR101-R			
System	CPU	MediaTek 580MHz MIPS® 24KEc™ CPU	
	Wi-Fi HaLow SoC	Morse Micro MM6108	
	Memory	256MB	
	Storage	64MB Flash	
WLAN Features	2.4GHz Wi-Fi	Standard: IEEE 802.11 b/g/n	
		Frequency range: 2.412GHz ~ 2.462GHz	
		Channel bandwidth: 20/40 MHz	
		Data rate: up to 150 Mbps	
		Fast connection: WPS fast connection supported	
		Working mode: AP	
	Wi-Fi HaLow	Standard: IEEE 802.11 ah	
		Frequency range: 903.5MHz~926.5MHz (US)	
		Channel bandwidth: 1/2/4/8 MHz, dynamic channel selection (DCS) supported	
		Transmit power: 23dBm	
		Data rate: up to 32.5 Mbps @8MHz or 15 Mbps @4MHz	
		Application mode: Mesh, Bridge WAN	
		Fast connection: DPP fast connection supported	
		Working modes: STA, Mesh	
I/O	Ethernet	1 x M12 jack, 10/100 Mbps (Provide a M12 to RJ45 Ethernet cable)	
	Serial port	1 x RS485	
	Antenna	1 x Wi-Fi HaLow antenna	2 x 2.4GHz Wi-Fi antenna
System Control	LED indicators	1 x Power indicator	1 x Wi-Fi HaLow activity indicator
		1 x Wi-Fi activity indicator	1 x Uplink indicator
		1 x Downlink indicator	1 x System indicator
		1 x Reboot indicator	1 x Fault indicator
	Button	1 x Reset/Pair button	
	DIP switch	2 x DIP switch (Mesh & Standard, STA & Bridge)	
Mechanical	Dimensions	184.00mm (L) x 169.50mm (W) x 72.00mm (H), not including antennas	
	Casing material	6063 Aluminum alloy	
	Installation	Wall mounting	
	IP rating	IP66	
Power	Input	9V ~ 40V DC, 1 x Power port	
	Cable	1 x 12V 1A Power pigtail cable (For customer configuration)	

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Software	Operating system	VantronOS	
	Device management	Vantron BlueSphere GWM (Optional)	
	Upgrade	Local upgrade, OTA upgrade	
	Network protocol	IPV4, HTTPS, TCP & UPD, NTP client, ARP, TLS	
	Link detection	Heartbeat detection, auto reconnection	
	IP application	Ping, Traceroute, DHCP Server/Client	
	IP routing	Static routing, dynamic routing	
Security	2.4GHz Wi-Fi	TKIP, WPA, WPA2, AES, WPS	
	Wi-Fi HaLow	WPA3	
	Firewall	Stateful	
	Access control	MAC address, IP address, URL	
Environmental Condition	Temperature	Operating: -20°C ~ +70°C	Storage: -40°C ~ +85°C
	Humidity	≤ 95% RH (non-condensing)	
Compliance	Certification	FCC, ISED, CE	

Product Outlines



Ordering Information

Ordering No.	Memory & Storage	Main I/O & Power Input	IP Rating	Installation
BR101-R	256MB + 64MB	RS485, M12, DIP switch, 9V~40V DC input	IP66	Wall mounting

Packing List				
BR101-R Outdoor Wi-Fi HaLow Unit	1	2.4GHz Wi-Fi antenna	2	
Wi-Fi HaLow antenna	1	12V 1A Power pigtail cable	1	
M12 to RJ45 Ethernet cable	1	-	-	

Since 2002 established by two Silicon Valley entrepreneurs, Vantron Technology has been a pioneer in connected IoT devices and IoT platform solutions. Today, Vantron is serving customers all over the world, including many Global Fortune 500 companies. The product lines cover intelligent edge hardware, IoT communication devices, industrial displays and the cloud-based BlueSphere device management platform.

Vantron offers IoT communication devices that enable multi-protocol connections for industrial equipment and local data processing through edge computing. With abundant wired and wireless connectivity options, remote operations and maintenance have become easier than ever. Such devices can be deployed across different sectors such as smart retail, medical and warehousing. Moreover, Vantron’s IoT solutions are designed to facilitate enterprises’ digital transformation, streamline operations, enhance productivity, etc.