VAP11S-5G Product Specification

The VAP11S-5G is an industrial-grade 5G wireless bridge meticulously developed by Houtian Network. It combines repeater and WiFi router functionality, utilizing digital-analog temperature-compensated frequency stabilization technology (TAFC) to deliver more stable WiFi signals with reduced disconnections. Its key features include:

- Industrial 5G WiFi bridge/repeater/router;
- Support wide voltage DC5V-DC24V power supply,Reverse protection, two-stage automatic overvoltage protection (Protection voltage upper limit 29V);
- Support 802.11AC, 802.11A, 802.11N WiFi transmission protocol;
- WiFi transmission rate: 900Mbps;
- RF Power: 19dBm/23dBm optional;
- Point-to-point maximum transmission distance: 500 meters;
- Built in intelligent automatic start stop cooling fan;
- 2pcs 3dBi external antennas, can be extended by extension cable (optional);
- **Two 10/100Mbps adaptive Ethernet ports, and provide option accessories for expanding Ethernet port (one expansion);**
- WiFi hotspot memory, maximum memory 100 hotspots;
- Support connecting more than 20pcs WiFi terminal at the same time;
- Adopt VDNS virtual domain configuration technology to solve the user's trouble of configuration;
- Support manually close SSID broadcast, WiFi hardware;
- Support SSA signal strength detection reporting function to realize WiFi mobile positioning;
- Support configuration parameter import and export function to facilitate batch configuration of engineering projects;
- Support IP layer transparent transmission and MAC layer transparent transmission two bridge modes to meet various bridge applications:
  IP layer transparent transmission (factory default), transparent transmission of IP layer data, can meet most of the bridge applications;
  MAC layer transparent transmission all data above the MAC layer (link layer) and the MAC layer, including IP layer data; MAC transparent transmission can solve some special applications for MAC layer encryption, such as GoPro camera, Cisco AP, Hikvision monitoring. system, etc.
- Adopt temperature compensated auto frequency control technology (TAFC), WiFi signal is more stable and not easy to drop;
- Working environment temperature: -20 °C to 55 °C;

One: Hardware Spec

External interface	1）USB/DC power supply cable; 2）10/100M Adaptive Ethernet cable; 3）10/100M Adaptive Ethernet port (A dedicated Ethernet port expander can be used)
LED	Status Indicator: Ethernet port (cable) Status Light (Yellow); WiFi Connection Status Light (Green); System Status Light (Blue);
Antenna	2*3dBi Whip antennas
Button	Reset button (Long press 5 seconds then release)
Module Size	94mm x 45mm x 24mm（L x W x H）
Product Weight	98.5g (Including Antennas)

Two: WiFi Related

Protocol Standards	IEEE 802.11AC、IEEE 802.11A、IEEE 802.11N;
WiFi Transmission Rate	900Mbps
Basic Function	1) Router mode, support WiFi WAN access and WAN/LAN exchange; 2) Transparent bridge (IP layer transparent, MAC layer transparent); 3) SSID broadcast exchange, WiFi hardware exchange; 4) WiFi mode option: 11AC/AN/A, 11AC/AN, 11A/N, 11A, 11N; 5) WiFi hotspot automatic reconnection, two hotspot matching methods: Full match authentication mode, SSID and password authentication mode; 6) SSA signal strength detection and reporting function ; 7) Hotspot connection parameter import and export function; 8) Fan switch control;
Supported Band	36、40、44、48、52、56、60、64、100、104、108、112、116、120、124、128、132、136、140、149、153、157、161、165
WiFi RF	Normal Power: 19dBm;

Power	Enhanced Power: 23dBm.
Compliance acceptance sensitivity	-75dbm
LNA Sensitivity	14dBi
Application Method	WiFi Router; WiFi Repeater (WiFi signal repeater), can extend WiFi transmission distance; WiFi Bridge: IP layer transparent transmission, MAC layer transparent transmission; WiFi access point (AP);
WiFi Security	64/128/WEP encryption; WPA-PSK/WPA2-PSK、WPA/WPA2 security mechanism
System Function	Firmware Upgrade Reboot device Reset factory Account and password revise

Three: Electrical performance parameters

1.Power supply parameters

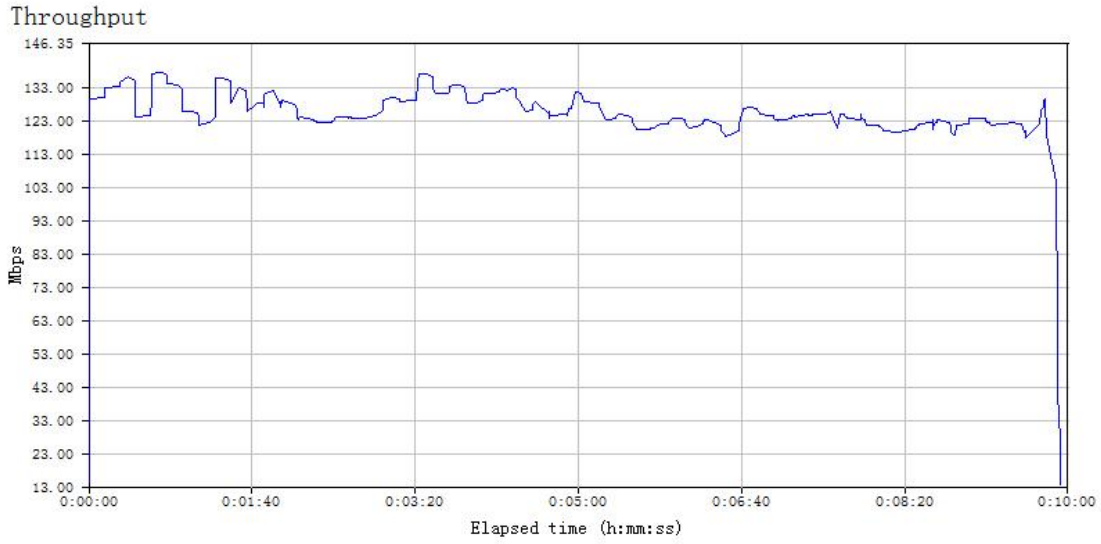
Supply Voltage Range	Input Power	Typical Power Supply	Ripple	Overvoltage protection
DC5-24V	≥10W	5V/2A	<100mV	29V

2.Working Electrical Performance Parameter Measurement Form (Environment Temperature: 26℃)

Working frequency band	Supply Voltage	Work Stage	Work Current（mA）	Main Chip Temperatur（℃）
5G	12V	Booting Up	130-450	30-35
		Standby	350-450	45-55
		Transfer Data	450-750	60-70

Four: Network Throughput Test Report

Throughput Test Fluctuation Chart



Five: RF Test Report (10.0)

Channel (Band)	36 (5180M)	52 (5260M)	64 (5320M)	100 (5500M)	128 (5640M)	149 (5745M)	157 (5785M)	165 (5825M)
Transmit Power 1	20.4	20.2	20.3	20.5	20.5	20.4	20.5	20.4
EVM1	-33	-33	33.5	-33	-33.5	-33	-33.5	-33
Transmit Power 2	23.4	23.4	23.3	23.3	24.2	23.5	23.3	23.5
EVM2	-29.5	-29	-29	-28.5	-30	-30	-29.5	-29.5

Six: Antenna Matching Test Report

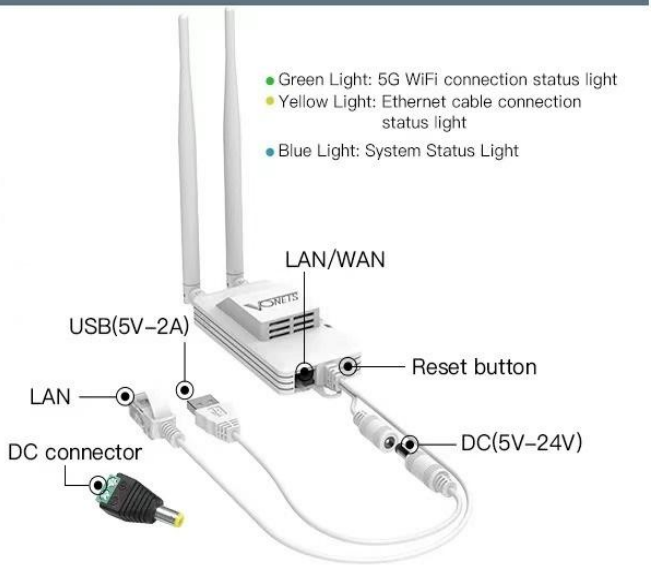
Standing Wave Ratio Parameters Form (Hardware Version: 10.0)					
Band / Antenna Channel	5.180GHz	5.350GHz	5.550GHz	5.700GHz	5.825GHz
ANT1	1.6	1.53	1.75	1.82	1.84
ANT2	1.52	1.68	1.5	1.32	1.6

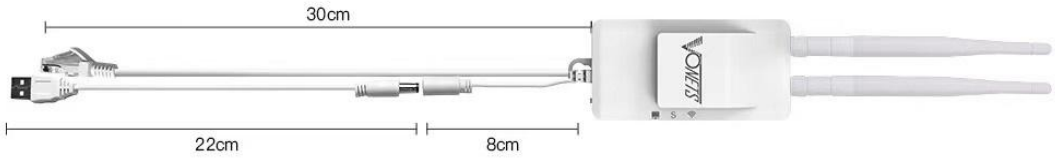
Seven: Product Picture

- Device

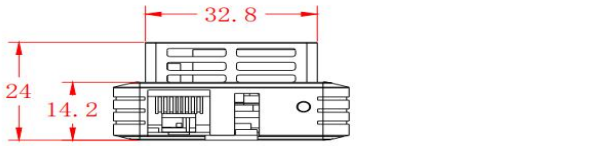
Product Specification

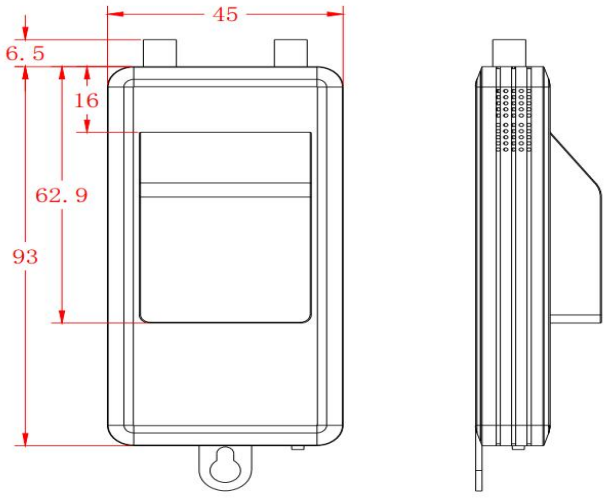
Product Name	VAP11S-5G (With fan version)
Color	White
WiFi Function	Repeater/bridge/router
WiFi Protocol	802.11 AC/A/N
transmission rate	900Mbps
WiFi Band	5GHz
Work Voltage	5V-24V(Typical 5V/2A)
Device size	94X45X15mm
Package Size	140X95X36mm
Product Weight	98.5g





Eight：product size





- Other Accessories

1. Industrial power supply DC connector（Standard Accessories）	2. Industrial chassis track hook kit （Standard Accessories）
	
3. Antenna extension cable (Option Accessories)	4. Extended Ethernet Port (Option Accessories)
	

Product application and secondary development precautions

1. Problems related to wireless interference:

1.1 Use the ping command to test the wireless transmission performance. If it is found that the delay of the ping packet response is extremely uneven, and there are many responses with a large delay, it can basically be judged that the wireless has been strongly interfered;

1.2 The product antenna should be kept as far away as possible from sources of interference, such as switching power supplies, antennas of other modules or wireless products, etc.;

1.3 If it is too close to the antenna of other wireless products, it will cause mutual interference, resulting in an increase in the transmission bit error rate and a slower transmission rate. At this point, the wireless signal must be properly attenuated. The methods of attenuating the signal include adding obstacles, extending the distance, and adding a resistor in series between the antenna feed point and the antenna, etc., to meet the actual application requirements;

2. Selecting a suitable power supply is the key to good and stable wireless transmission and stable operation of the product. Improper power supply will cause damage to the product or poor wireless performance. The selected power supply must meet the voltage range and input power requirements of the power supply input, and the ripple must be less than the required maximum power supply ripple (100mV);