VAP11S-D232 Product Specification

The VAP11S-D232 is an industrial-grade dual-band 2.4G/5G wireless bridge meticulously developed by Houtian Network. It combines repeater and serial port forwarding functions, utilizing digital-analog temperature-compensated frequency stabilization technology (TAFC) for more stable WiFi signals and reduced disconnections. Its key features include:

- Industrial-grade 2.4G/5G band WiFi bridge/repeater/router/serial server/serial pass-through bridge;
- Serial port transparent transmission supports Ethernet broadcast transparent transmission, one serial port to one IP transparent transmission, and one serial port to multiple IP transparent transmission;
- Support wide voltage DC5V-24V power supply, two-stage automatic overvoltage protection, overvoltage protection point 29V, power supply reverse protection;
- Support 802.11ac, 802.11a, 802.11n and other WiFi transmission protocols;
- Wireless transmission rate: 300Mbps (2.4G)+900Mbps (5G);
- Transmission power: 2.4G is 15dBm, 5G is 19dBm/23dBm optional;
- Maximum point-to-point barrier-free transmission distance: 2.4G 200m;
- One 10/100Mbps adaptive Ethernet port RJ45 male;
- One RJ45 female base (2 * UART serial port - supporting TTL level (LVTTL-3.3V) or CMOS level - 3.3V);
- Optional accessories: support RS232: VDB9-232, VDB9-232-X2 (built-in RS232 chip);
- Support RS485/RS422: VRJ45-422-1 (built-in RS485/RS422 chip with toggle switch switching);
- Support TTL level (3.3V): VRJ45-5P adapter;
- Standard industrial rail fixed kit and industrial power DC connector;
- Support the simultaneous connection of more than 20 WiFi terminal devices;
- VDNS virtual domain name configuration technology is adopted to alleviate user configuration difficulties;

- Support manual closing of SSID broadcast and WiFi hardware;
- Support SSA signal strength detection and reporting function to realize WiFi mobile positioning;
- Support the import and export of configuration parameters to facilitate the batch configuration of engineering projects;
- Support IP layer transparent transmission and MAC layer transparent transmission to meet various bridge applications;
- IP layer transparent transmission (factory default), transparent transmission of IP layer data, can meet most of the bridge applications;
- The MAC layer transparently transmits all data above the MAC layer (link layer) and the MAC layer, including the IP layer data. MAC pass-through can solve some special applications for MAC layer encryption, such as AC-managed AP, GoPro camera, Cisco AP, Hikvision monitoring system, etc.
- Digital analog temperature compensation frequency stabilization technology is adopted to make WiFi signal more stable and not easy to drop;
- Working environment temperature: - 40 ℃ to 55 ℃.

One: Hardware Spec	
External interface	1）DC/USB power supply cable; 2）10/100M Adaptive Ethernet cable; 3）One RJ45 female socket (2*UART serial port-support TTL level (LVTTL-3.3V) or CMOS level -3.3V).
LED	Status Indication: Ethernet Port (Cable) Status Light (Yellow); WiFi Connection Status Light (Blue);
Antenna	2*3dBi 2.4G Whip antennas
Button	Reset button (Long press 5 seconds then release)
Module Size	93mm x 45mm x 25mm（L x W x H）
Product Weight	79.3g

Two: WiFi Related	
Protocol Standards	IEEE 802.11n、IEEE 802.11g、IEEE 802.11b、IEEE 802.11a、IEEE 802.11ac；
WiFi Transmission Rate	300Mbps+900Mbps
Basic Function	1) Bridge mode, supports WiFi access and serial port access (the forwarding function is enabled by default (instant forwarding, TCP/UDP protocol, broadcasting allowed); 2) Transparent bridge (IP layer transparent, MAC layer transparent); 3) Routing mode, support WiFi access; 4) SSID broadcast exchange, WiFi hardware exchange; 5) WiFi mode option: 11B/G/N、11B/G、11N、11G、11B; 6) WiFi hotspot automatic reconnection, two hotspot matching methods: Full match authentication mode, SSID and password authentication mode; 7) WiFi hotspot memory, maximum memory 100 hotspots; 8) SSA signal strength detection and reporting function: all-round intelligent motion detection, mobile applications that identify loops or regular paths, and automatically switch to points;
Supported Channel	1-14
WiFi RF Power	2.4G：15dBm； 5G: normal power: 19dBm; Enhanced power: 23dBm;
Compliance acceptance sensitivity	-69dbm (2.4G) -72dbm (5G)
LNA Sensitivity	14dBi
Application Method	WiFi Serial Server; WiFi Repeater (WiFi signal repeater), Can extend WiFi transmission distance; WiFi router; 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	Protection voltage upper limit	Upper limit of serial port voltage
DC12V-24V	≥10W	12V/1A	<100mV	29V	3.6V

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

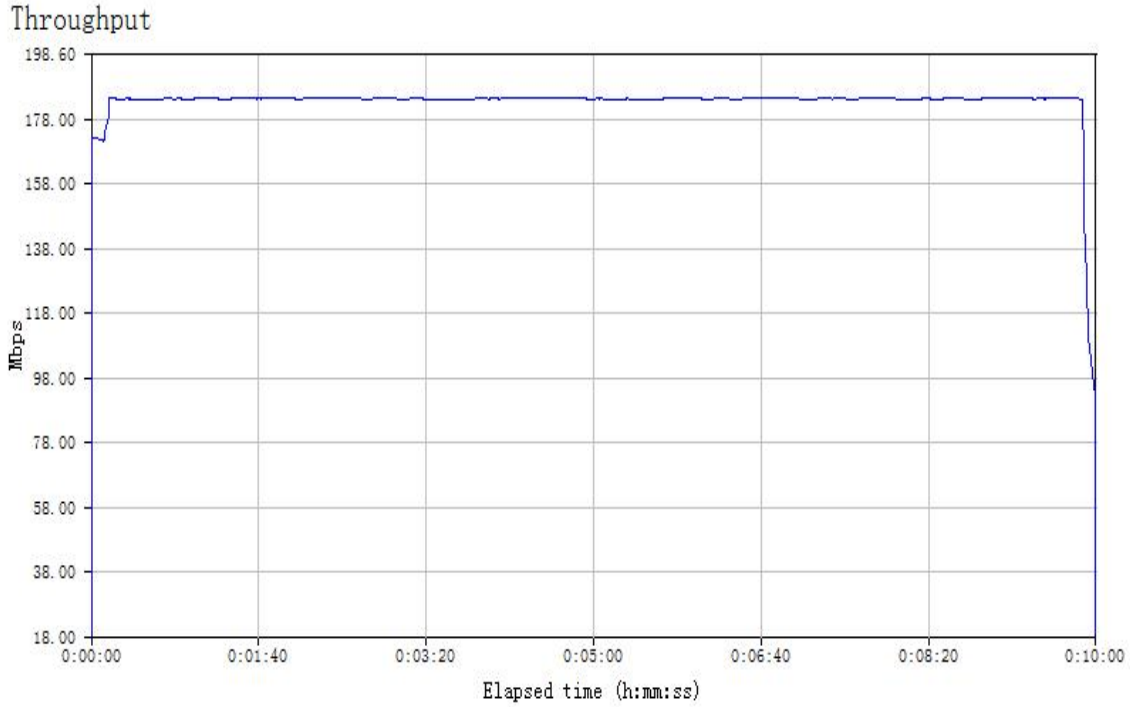
Supply Voltage	Work Stage	Work Current（mA）	Main Chip Temperature（℃）	Case Temperature
12V	Booting Up	40-180	27-43	27-33
	Standby	75-100	48	37
	Transfer Data	100-250	66	45

Four. RJ45 network port pin definition (Note: the power supply is not standard, it is an external power supply)

Pin	Pin definition	Pin description
1	VDD_3.3V	Internal working voltage of the device
2	COM1_CTL	COM1-RS485 control
3	COM2_CTL	COM2-RS485 control
4	COM2_TX	COM2-Transmit
5	COM2_RX	COM2-Receive
6	GND	Data ground
7	COM1_TX	COM1-Transmit
8	COM1_RX	COM1-Receive
Note: The internal working voltage is VDD-3.3V, this pin will affect the stability of the device. Do not use it		

Five: Network Throughput Test Report

Throughput Test Fluctuation Chart



Six: RF Test Report

Channel (Band)	1 (2412M)	3 (2422M)	6 (2437M)	7 (2442M)	9 (2452M)	11 (2462M)	13 (2472M)
Transmit Power 1	19.7	19.5	19.7	19.6	19.5	19.5	19.5
EVM1	-35	-35	-34	-34	-35	-34	-34
Transmit Power 2	22.3	22	22.0	22.1	22.1	21.9	21.9
EVM2	-30	-30	-30	-30	-30	-30	-30

Seven: Antenna Matching Test Report

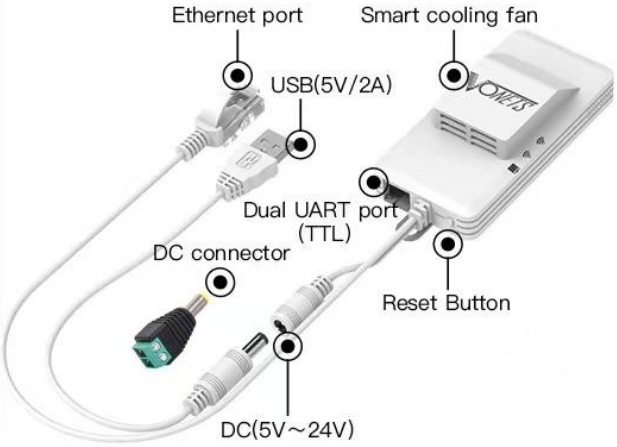
Standing Wave Ratio Parameters Form (Hardware Version: 2.0)					
Band / Antenna Channel	2.412GHz	2.432GHz	2.452GHz	2.462GHz	2.477GHz
ANT1	1.4	1.4	1.3	1.4	1.4
ANT2	1.4	1.4	1.3	1.3	1.4

Eight: Product Picture

- Device

Product Specification

Product Name	VAP11S-D232
WiFi Function	Router/Repeater Bridge/Serial Port
WiFi Band	2.4GHz/5.8GHz
WiFi Protocol	802.11ac/a/b/g/n
transmission rate	300Mbps+900Mbps
Work Voltage	5V-24V(Typical 5V/2A)
Color	White
Device size	93X45X24mm
Package	140X95X36mm
Weight	79.3g



- Green Light, 5G WiFi connection status light
- Blue Light, 2.4G WiFi connection status light
- Yellow Light, Ethernet cable connection light

- Other Accessories

1. Industrial power DC connector(standard accessories)	2. Industrial Chassis Rail Hook Kit (standard accessories)	3. VDB9-232 (optional)
		
4.VDB9-232-X2(optional)	5. VRJ45-5P (optional)	6.VRJ45-422-1(optional)
		

Accessories Instruction Sheet			
model	category	Specification Description	Function description
VDB9-232	DB9 female seat	RJ45 crystal head + DB9 interface (built-in RS232 chip)	The UART (TTL3.3V level) of the RJ45 female socket is converted into RS232
VDB9-232-X2	Double DB9 female seat	RJ45 crystal head + double DB9 interface (built-in RS232 chip)	The two UARTs (TTL3.3V level) of the RJ45 female socket are converted into two RS232
VRJ45-5P	5PIN terminal block	RJ45 crystal head to 5P connector	Convert RJ45 female socket to 5PIN terminal block
VRJ45-422-1	6PIN connector	Built-in RS485/RS422 chip with toggle switch RJ45 crystal head + 6P connector (black)	Convert the two UARTs of the RJ45 female socket to two RS485, or use the toggle switch to switch to one UART and convert to one RS422