5G Vehicle Gateway

V300

5G Redcap | 5G LAN | WiFi 6 WIFI 6 | Remote Management | RS232 | RS485 | GPS | Dual-SIM

Introduction

V300 is a rugged 5G in-vehicle gateway with GNSS, dual-band WiFi, edge computing, and M12 connectors, delivering fast, stable, and secure connectivity for efficient and scalable vehicle networking and management across diverse automotive scenarios.

Industrial-grade Design

- Passed vehicle vibration testing
- High-performance industrial-grade processor
- Metal casing, protection level is IP40
- Vehicle-grade M12 aviation and FAKRA connectors for secure
- Wide power input (DC 9–48V), compatible with various vehicle power systems

Stability & Reliability

- WDT Watchdog design to ensure system stability
- Adopt a complete anti-drop mechanism to ensure that the data terminal is always online
- Built-in 1.5KV electromagnetic isolation protection for Ethernet interface
- RS232/RS485 interface power and data isolation, with CSA, UL, and IEC standards
- SIM/UIM card interface built-in 15KV ESD protection
- Built-in reverse phase protection and over voltage protection for power interface

Standard & Convenience

- Provide standard RS232, RS485, Ethernet and WIFI interfaces
- Intelligent data terminal, can enter data transmission state after power on
- Convenient system configuration and maintenance interface (local, WEB or CLI)
- Supports wall mounted installation

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High Performance

- Supports 5G LAN function
- Supports FRP intranet penetration
- Supports Ethernet link status detection, speed reporting, and latency reporting
- Supports intelligent dual-link backup switching between 4G/5G and wired WAN
- Supports VPN: PPTP/L2TP/GRE/IPSec/OpenVPN
- Supports remote management: SYSLOG, SNMP, TELNET, SSHD, HTTPS
- Supports SPI firewall, VPN passthrough, access control, and URL filtering
- Wi-Fi supports multiple encryption methods: WEP, WPA, WPA2, and MAC address filtering
- SIM/UIM card interface with built-in 15KV ESD protection
- Supports frequency locking, cell locking, EOIP, bridge mode, VXLAN, virtual IP, GRETAP
- Supports multiple DHCP servers, MAC address binding, DDNS, firewall, NAT, DMZ host
- Supports VLAN, MAC address cloning, PPPoE server
- Supports various online/offline triggering modes, including serial and network data
- Supports seamless integration with Yifan Cloud for easier operation and maintenance

Product Specification

Cellular Specification		
Model	**V300-5G**	**V300-5R**
Items	**Contents**	
Standard and Frequency	**5G NR:** n1/n2/n3/n5/n7/n8/n20/n28/n41/n66/n71/n77/n78/ n79 **LTE:** B1/B2/B3/B4(66)/B5(18/19/26)/B7/B8/B12(17)/B13 /B14/B20/B25/B26/B28/B29/B30/B38/B39/B40/B4 1/B42/B43/ B46/ B48/B71	**5G NR:** n1/n3/n5/n8/n28/n41/n78/n79 **LTE-FDD:** B1/B3/B5/B8 **LTE-TDD:** B34/B38/B39/B40/B41
	Note: Different modules can be selected based on customer requirements to support various network standards.	
Theoretical Bandwidth	**5G NR**：downlink 3.4Gbps, uplink 350Mbps **LTE Cat20**：downlink 2.0Gbps, uplink 150Mbps **HSPA+**：downlink 42Mbps, uplink 5.76 Mbps	**5G NR**：downlink 226Mbps, uplink 120Mbps **LTE**：downlink 200Mbps, uplink 100Mbps
Hardware System		
Items	**Contents**	
CPU	CPU@880MHz，Dual Core	
FLASH	128MB	
DDR3	512MB	

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WIFI Specification		
Model	V300-5G	V300-5R
Items	**Contents**	
WIFI Protocol	IEEE802.11 a/b/g/n/ac/ax (WIFI 6)	
Frequency	2.4GHz + 5GHz	
Theoretical Bandwidth	2.4GHz 2x2MIMO 11ax (WIFI 6), 0.573 Gbps 5GHz 2x2MIMO 11ax (WIFI 6), 1.2 Gbps	
WIFI Bandwidth	20MHz, 40MHz, 80MHz	
MESH Network	Support Yifan router and CPE to build the MESH network	
Interfaces		
Items	**Contents**	
Power	M12 A-coded male connector with built-in reverse power protection	
Ethernet	M12 X-coded female connector 4× 1GE Ethernet ports (RJ45), auto MDI/MDIX; ETH1 is LAN by default and configurable as WAN	
Serial	1× RS232: RX, TX, GND, 1× RS485: A, B	
Indicator	LED Indicators: PWR, SYS, WiFi, Online ACT, Signal (3-level signal strength indicator) ETH1, ETH2, ETH3, ETH4	
SIM Card	2× Nano SIM cards (eSIM compatible)	
Antenna	**Cellular:** 4× FAKRA D-coded male, purple (dual antennas for 4G or RedCap) **WiFi:** 2× FAKRA I-coded male, beige **GNSS:** 1× FAKRA C-coded male (for positioning models), blue	
Reset Button	Supports restoring parameters to factory defaults	
Certification		
Items	**Contents**	
Certification	Third-party test reports (IP40 protection level test, vibration test, etc.)	
Physical Properties		
Items	**Contents**	
Casing	Metal housing, IP40	
Dimensions	226 × 160 × 36 mm (excluding antennas and accessories)	
Weight	930g	
Operating Temperature	-35 to +75ºC	
Storage Temperature	-40 to +85ºC	
Humidity	95% (non-condensing)	

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GNSS Specification（Optional）		
Type	Beidou	GPS
Items	Contents	
Satellite Reception Frequency	BDS：B1I，B1C	BDS/GPS
Total Channels	88	Supports full-constellation BDS and GPS simultaneous reception
Data Update Rate	Default 1Hz	Default 1Hz, configurable up to 10Hz
Positioning Accuracy	<2m CEP	<2.5m CEP
Speed Accuracy	<0.1m/s CEP	<0.1m/s（1σ）
Time to First Fix (TTFF)	Hot Start: ≤1s, Cold Start: ≤32s	
Data Format	NMEA 0183 Protocol	
Power Consumption	<19mA@3.3V	<25mA @3.3V
Average Power Consumption	< 500mA (12V)	

Dimension (mm)

Order Information

Models	Description
V300-5G	Cellular (5G NR), 2.4G/5.8G WIFI, SIM*2(or eSIM), GPS/Beidou Optional
V300-5R	Cellular (5G RedCap), 2.4G/5.8G WIFI, SIM*2(or eSIM)，GPS/Beidou Optional

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