

# Technical Specification for SV900 – 5G Vehicle Gateway

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VERSION NUMBER:V3.1

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# Product Overview

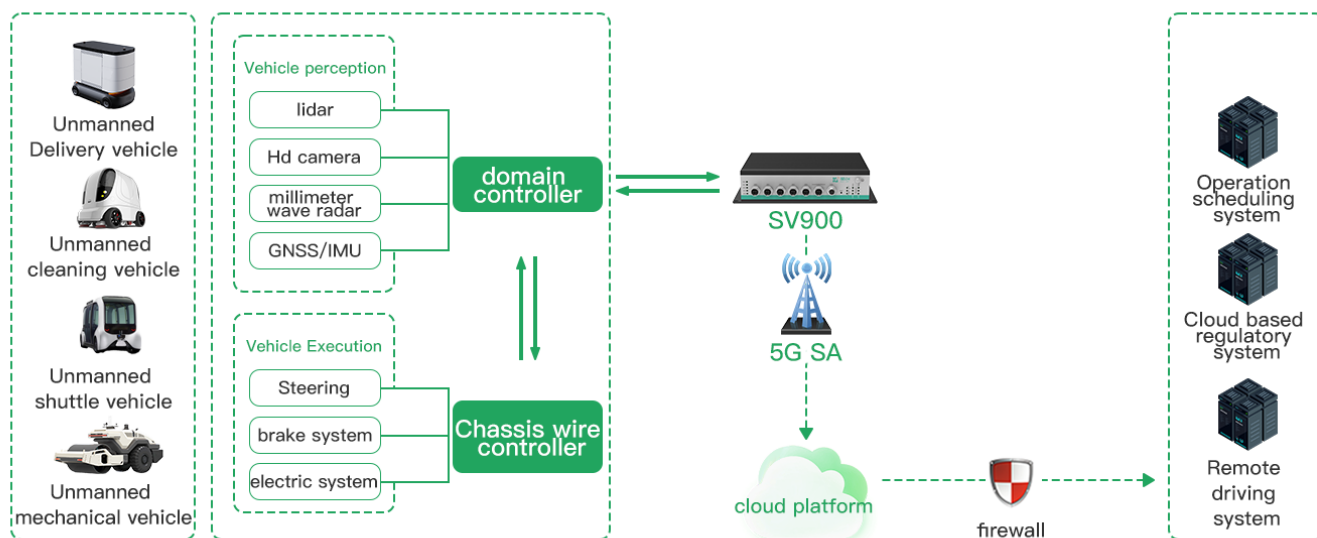
StarRouter 900 (SV900) series products are IoT wireless routers integrating 4G/5G network and Virtual Private Network (VPN) technologies. Equipped with 4G/5G Wireless Wide-Area Network (WWAN) and Wi-Fi Wireless Local-Area Network (WLAN) technologies, this device provides uninterrupted access to multiple network connections. With comprehensive security features and wireless service capabilities, it delivers high-speed and stable data transmission channels for users.

## Product Features

- Supports dual-mode configurations with optional dual 5G or 5G+4G/Redcap modules
- Supports SIM/eSIM cards
- Features M12 automotive-grade connectors for secure and reliable performance
- Supports GPS/BeiDou (optional)
- Supports WIFI6 (optional)
- Supports Linux system for secondary development, with comprehensive development guidelines provided



# Topology Diagram



## Technical Parameters

### Hardware Performance

|                    |  |
|--------------------|--|
| Memory             | 512MB  |
| FLASH              | EMMC 4GB, expandable to 8GB  |
| WIFI (optional)    | Supports 2.4G/5.8G dual-band with a theoretical maximum speed of 866.7Mbps. Optional WIFI6 with a theoretical maximum speed of 1774Mbps  |
| Network support    | 5G:<br>N1/N3/N5/N7/N8/N20/N28/N38/N40/N41/N71/N75/N76/N77/N78/N79<br>4G:<br>FDD-LTE: B1/B3/B5/B7/B8/B20/B28/B32/B71<br>TDD-LTE: B38/B40/B41/B42/B43/<br>3G: WCDMA: B1/B2/B4/B5/B8<br>Note: Frequency bands not listed can be supported by replacing the module |
| System Time        | Time synchronization using NTP technology with built-in RTC  |
| <b>Interfaces</b>  |  |
| Ethernet Interface | 5 × M12 aviation connectors (1000/100 Mbps) as LAN ports, configurable as WAN via software   |
| SIM Card Interface | 2 (drawer-style card slot, supports 1.8V/3V SIM/UIM cards), compatible with ESIM   |
| Reset              | 1 (reset button)   |

|                                      |  |
|--------------------------------------|--|
| Antenna Interface                    | 8 (5G/4G antennas, 50 ohm impedance, Fakra connector)<br>4 (WiFi antennas, 50 ohm impedance, Fakra connector)  |
| Power Interface                      | 1, 4-pin aviation connector with built-in reverse polarity and overvoltage protection  |
| Serial Port, CAN Port                | 1*RS232, 1*RS485, 1*CAN, M12 aviation connector  |
| Indicators                           | 14 indicators (1 PWR, 1 SYS, 1 WIFI, 1 NET, 3 signal strength, SIM1, SIM2, 5 Ethernet)   |
| <b>Power Characteristics</b>         |  |
| Power Supply                         | External power adapter (12V 2A)  |
| Operating Voltage                    | Wide power input DC 9~48V (expandable to 9~60V)  |
| Standby Power Consumption            | 300~350mA@12V DC   |
| Operating Power Consumption          | 450-600mA@12V DC   |
| <b>Operating Conditions</b>          |  |
| Operating Temperature                | -35~+75°C (-31~+167°F)   |
| Storage Temperature                  | -40~+85°C (-40~+185°F)   |
| Operating Humidity                   | 5%~95% (non-condensing)  |
| Device Ventilation                   | Natural heat dissipation, no seless  |
| <b>Physical Characteristics</b>      |  |
| Casing Material                      | Aluminum alloy housing   |
| Dimensions                           | Length*width*height:245*171*61mm (excluding antenna and mounting components)   |
| Installation Method                  | Desktop placement  |
| Weight                               | Net weight: 1.6KG (excluding antenna and mounting components)<br>Gross weight: 2.7KG (with accessories and packaging box)  |
| <b>Device Safety and Reliability</b> |  |
| Safety and Reliability               | Power reverse polarity protection, overvoltage protection, overcurrent protection; Ethernet interface with 1.5KV electromagnetic isolation protection; RS232/RS485 interface with 15KV ESD protection; SIM/UIM card interface with 15KV ESD protection |
| Protection Level                     | IP40   |
| Certification                        | Compliant with CCC, RoHS   |
| MTBF                                 | ≥100,000 hours   |
| <b>Software Features</b>             |  |
| Cellular Network                     | Optional dual 5G or 5G + 4G / RedCap configuration, supporting band locking and mode locking   |
| 5G LAN(optional)                     | Supports 5G LAN  |
| Bridge Mode                          | Supports bridge mode, allowing the IP address obtained from the cellular network dial-up connection to be directly assigned to the downstream device   |
| WAN Protocol                         | Supports static IP, DHCP, PPPoE, PPP   |

|                                  |  |
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| IP Applications                  | Supports Ping, Trace, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, Telnet  |
| WiFi                             | Supports AP and STA (Client) modes   |
| VLAN                             | Supports VLAN, including both Tagged and Untagged modes for VLAN ID assignment   |
| Multi-link Management            | Supports link detection and link backup, with flexible combinations of dual 5G, WAN, and Wi-Fi for redundancy  |
| Static Routing                   | Supports adding static routes  |
| Dynamic Routing                  | Supports dynamic routing protocols OSPF and RIP  |
| Policy Routing                   | Supports policy-based routing for traffic segmentation and load distribution   |
| Firewall&Network Security        |  |
| Firewall                         | Full-State Packet Monitoring (SPI), Denial-of-Service (DoS) Attack Prevention, Multicast Ping Packet Filtering, Port Mapping, IP-MAC Binding   |
| VPN                              | IPsec VPN/VxLAN/L2TP/PPTP/GRE /GRD TAP/OPEN VPN/CA Certificate   |
| NAT                              | Supports DMZ and Port Forwarding   |
| Address Filtering                | Supports IP, domain name, and MAC filtering; allows configuration of blacklists and whitelists   |
| Applications                     |  |
| DTU                              | Supports TCP, UDP, MQTT, HTTP, HJ212-2017, NTRIP, MODBUS TCP, MODBUS RTU, and MODBUS TCP-to-MODBUS RTU protocols   |
| Data Acquisition                 | Southbound: Supports Modbus RTU/TCP and Siemens S7 protocols<br>Northbound: Supports TCP, MQTT, HTTP, JSON, HJ212-2017; supports up to 5 configurable servers with different protocols |
| Status Reporting&Retrieval       | Supports querying and scheduled reporting of device status via TCP, MQTT, or HTTP, including dial-up status, operational status, and link usage  |
| Traffic Statistics               | Supports total device traffic and per-IP traffic statistics; supports bandwidth control for excessive traffic  |
| Scheduled Tasks                  | Supports scheduled reboot and customizable scheduled tasks   |
| Cloud Device Management Platform | Supports remote configuration, remote upgrade, and remote monitoring   |
| Location Services                | Supports cell tower-based positioning; optionally supports GPS/BeiDou; can report either Base Station or GPS information   |
| SNMP                             | Supports SNMP v1/v2/v3   |
| WLAN (Optional)                  |  |
| Protocol Standards               | IEEE 802.11b/g/n/ac/ax (optional)  |
| Rate                             | IEEE 802.11ax (Wi-Fi 6): Maximum data rate up to 1774 Mbps<br>IEEE 802.11ac (Wi-Fi 5): Maximum data rate up to 866 Mbps  |
| Security Features                | Open system, shared key, WPA/WPA2 authentication, WEP/TKIP/AES encryption  |



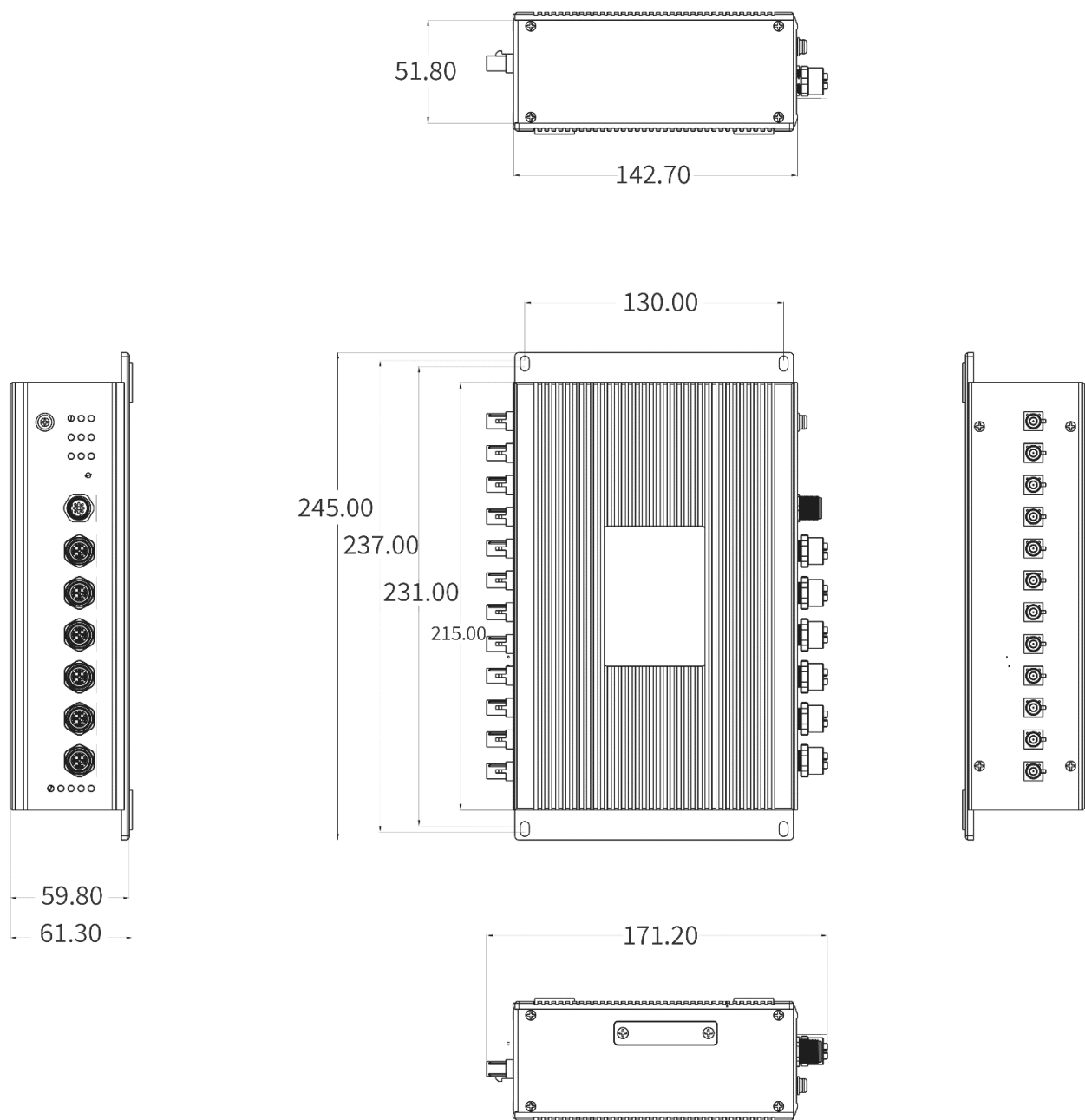


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|-----------------------|---|
| Working Modes         | AP and Client (WiFi STA)  |
| System Settings       |   |
| Logging Functionality | Supports local system log viewing, remote logging, and serial output logs; supports log retention during power outage |
| Configuration Mode    | Supports Telnet, WEB, SSH, and Console configurations   |
| Upgrade Mode          | Supports WEB upgrade and FOTA upgrade   |
| System Time Settings  | Built-in RTC clock; supports NTP network time synchronization, manual time setting, and GPS time synchronization      |
| Maintenance tools     | Ping, Route tracing   |
| Status Query          | System status, modem status, network connection status, route status  |

## Product Interface



# Product Dimension



# Product Selection

| model | PID | Version Description              |
|-------|-----|----------------------------------|
| SV900 | 00  | Supports 2*5G modules            |
| SV900 | 02  | Supports 1*5G module+1*4G module |
| SV900 | 03  | Supports 1*4G modules            |
| SV900 | 04  | Supports 1*5G modules            |

