InHand Networks

High-performance, Powerful, Programmable



VG710 5G Vehicle Gateway

- 5G
- Wi-Fi 5
- Telematics
- Programmable Edge

1. Product Overview

VG710 5G gateway delivers secure high-speed in-vehicle networking for public transport, logistics, emergency fleets, and heavy-duty vehicles.

Key Features:

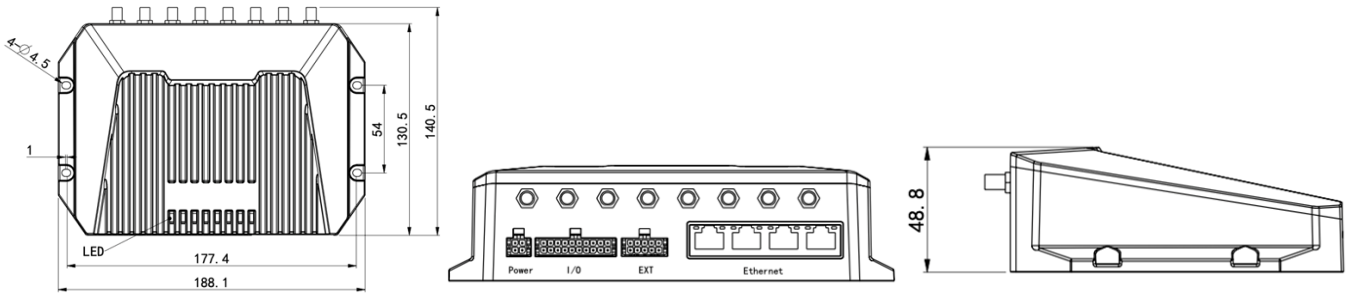
- **Robust 5G access:** Supports SA/NSA with high throughput and backward compatibility
- **Vehicle-ready ruggedness:** IP64 protection with wide temperature and voltage operation
- **Rich telematics I/O:** CAN/J1708/LIN/RS-232/RS-485/DI-DO-AI for multi-system integration
- **Accurate positioning:** GNSS multi-constellation plus inertial navigation support
- **Cloud and edge ready:** Python/C/C++/Docker with mainstream cloud connectivity

Core Technical Specifications

Technical Indicator	Specification
Cellular Network	5G SA/NSA Sub-6, with LTE/3G fallback (model dependent)
Positioning Capability	GPS/GLONASS/Galileo/Beidou + inertial navigation (DR)
Cloud & IoT Integration	Supports MQTT, DDS, AMQP, REST, and CoAP; compatible with Azure and third-party platforms
VPN & Security	Supports IPsec/L2TP/GRE/OpenVPN, with SPI firewall, ACL, AAA, and certificate management
WLAN & Bluetooth	Dual-band Wi-Fi 5 (AP/Client) + Bluetooth 4.1

Technical Indicator	Specification
Edge Computing	Supports Python, C/C++, and Docker; provides Python 3, Docker, and Azure IoT Edge SDKs
Dimensions	188.1 × 140.5 × 48.8 mm (7.41 × 5.53 × 1.92 in)
Weight	775 g (1.71 lb)
Interface Capability	4× Gigabit Ethernet, 2× CAN, J1708, LIN, RS-232, RS-485, DI/DO/AI, 1-WIRE
Input Voltage Range	9-36 V DC (configurable to 7-36 V DC)
Operating Temperature	-30 °C ~ +70 °C (-22 °F ~ +158 °F) (minimum startup at -35 °C)
Protection Rating	IP64

2. Product Dimensions



Top View | Interface Side View | Height Side View

Notes:

1. All dimensions are in millimeters (mm), with inches (in) in parentheses.
2. All dimensions are approximate and **for reference only**.
3. Drawings **must not be used for manufacturing**.
4. Dimensions are subject to part and manufacturing tolerances.
5. Specifications may change without prior notice.

3. Hardware Specifications

Category / Parameter	Specification
Performance Metrics	
CPU	ARM Cortex A7
Main Frequency	717 MHz
RAM	1 GB DDR3
Storage	8 GB eMMC
Connectivity	
Cellular	5G SA/NSA Sub-6 or LTE Cat.6 (model dependent)
Ethernet	4 × 10/100/1000 Mbps RJ45
microSD	Up to 32 GB
Bluetooth	Bluetooth 4.1
Antenna	SMA-K: Cellular/GNSS; RP-SMA-K: 2 × Wi-Fi + BLE
Satellite Navigation	
GNSS Receiver	GPS, GLONASS, Galileo, Beidou
Built-in Sensor	Accelerometer + gyroscope, supports DR
Position Accuracy	2.5 m CEP
Tracking Sensitivity	-160 dBm
Navigation Update Rate	Max 10 Hz
Wi-Fi	

Category / Parameter	Specification
Frequency	2.4 / 5 GHz dual-band
Protocol	Wi-Fi 5
Max Output	2.4G: 17 dBm; 5G: 17 dBm
Working Mode	AP / Client
Vehicle Interfaces	
Diagnostics	2 × CAN bus, 1 × J1708, 1 × LIN bus
DO/DI/AI	2 × DO, 4 × DI/AI or 2 × DI/AI
Audio/Voice	R, L, Mic
Serial Port	1 × RS-232, 1 × RS-485
Other	1-WIRE (driver ID / temperature)
Power	
Input Voltage	9–36 V DC (configurable to 7–36 V DC)
Pin Definition	V+, V-, ignition signal, NC (4 pins)
Protection	Built-in voltage transient protection with delayed ignition induction
Standby Power	0.006 W
Operating Power	12.00 W average
Peak Power	18.20 W peak
Mechanical & Environment	
Installation	Wall-mounting
Protection Rating	IP64

Category / Parameter	Specification
Cooling	Radiation cooling
Housing	Die-cast aluminum
Dimensions (W × D × H)	188.1 × 140.5 × 48.8 mm (7.41 × 5.53 × 1.92 in)
Weight	775 g (1.71 lb)
SIM	Dual-SIM, 2FF
Operating Temp.	-30 °C ~ +70 °C (-22 °F ~ +158 °F)
Storage Temp.	-40 °C ~ +85 °C (-40 °F ~ +185 °F)
Humidity	95% RH @ 60 °C
Startup Temp.	-35 °C
Standards & Certifications	
Vehicle Standard	ECE-R10, R118
Rail Standard	EN50155, EN50121, EN61373
Fire Prevention	EN45545-2:2020
Certification	CE, E-Mark, ITxPT, FCC, IC, PTCRB, RoHS, VZW, AT&T, TMO
Warranty	3 years

4. Software Specifications

Category / Parameter	Specification
Network Features	
Network Access	APN, VPDN
LAN Protocol	ARP, Ethernet
Authentication	CHAP/PAP/MS-CHAP/MS-CHAP V2
IP Application	IPv6, Ping, Traceroute, DHCP server/relay/client, DNS relay, DDNS, Telnet, SSH, HTTP, HTTPS, TFTP, FTP, SFTP, Portal
IP Routing	Static routing, RIP, OSPF, BGP, IGMP Proxy
Configuration	Local/remote HTTP, HTTPS, Telnet, SSH
Upgrade	Local/remote WEB, DM, TFTP, FTP, SFTP server
Diagnostics	Ping, Traceroute, Sniffer
Security	
Firewall	SPI, DoS defense, multicast/Ping filter, ACL, NAT/PAT/DMZ/port mapping/virtual server
User Level	Administrator / read-only
AAA	Local authentication, Radius, Tacacs+, LDAP
CA Certificate	PEM, PKCS12, SCEP
VPN	IPsec VPN, L2TP, GRE, OpenVPN, CA
Reliability	
Backup	Floating routing, VRRP, interface backup

Category / Parameter	Specification
Link Detection	Heartbeat detection, auto redial
Watchdog	Self-detection and auto-repair
Offline Storage	Built-in cache when network unavailable
WLAN	
Protocol	IEEE 802.11 b/g/n/a/ac
Security	Shared key, WPA/WPA2, WEP/TKIP/AES
Edge Computing	
Edge Platform	Integrated edge computing platform
Programmable	Python, C/C++, Docker
SDK	Python 3 SDK, Docker SDK, Azure IoT Edge SDK
IDE	Visual Studio Code
IoT Architecture	MQTT, DDS, AMQP, XMPP, JMS, REST, CoAP
3rd Party Cloud	MS Azure, SmartFleet, and APIs for third-party platforms
Docker Images	Node-RED, Ubuntu, Docker for ARM 32, etc.
Application Services	
Cloud Services	Device Manager and InConnect
Vehicle Telemetry	Rich interfaces for telemetry and asset tracking
Event Alarm	Customizable alarms for DI, network, service, power, temperature, voltage
Message Push	SMS, Email, App, digital output

5. Ordering Information

Model Rule

Model code: VG710-H-<WMNN>

<WMNN>: Cellular Type & Module

Product Models

Model	3GPP / Cellular Type	Region
VG710-H-NRQ5	5G NR SA/NSA + LTE-FDD/LTE-TDD + WCDMA (global multiband), 3GPP Rel-16	Global
VG710-H-NRQ3	5G NR SA/NSA + LTE-FDD/LTE-TDD + LAA + WCDMA (global multiband), 3GPP Rel-15	Global

6. Contact Us

- **Website:** InHand Networks
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7. Terminal Pin Definition

IO 20PIN Definition

PIN	Definition	PIN	Definition
1	L_Channel	11	R_Channel
2	Mic_IN	12	GND
3	RS_485A	13	RS_485B

PIN	Definition	PIN	Definition
4	GND	14	GND
5	RS232_TX	15	RS232_RX
6	1Wire	16	GNSS_1PPS
7	DO1	17	DO2
8	GND	18	GND
9	AI1/DI1	19	AI2/DI2
10	AI3/DI3/FWD*	20	AI4/DI4/WHEELTICK*

EXT 10PIN Definition

PIN	Definition	PIN	Definition
1	K_LINE	6	L_LINE
2	CAN1_H	7	CAN1_L
3	GND	8	GND
4	CAN2_H	9	CAN2_L
5	J1708_A	10	J1708_B