

InVehicle G810 Series

All-in-one Vehicle Gateway for Public Transport



-  5G/4G high speed cellular network
-  Dual-concurrent Gigabit Wi-Fi, Gigabit Ethernet
-  Extensive interfaces including CAN Bus, I/O, Bluetooth and serial ports
-  GNSS & inertial navigation
-  Edge computing
-  Programmable vehicle gateway
-  MS Azure, AWS and 3rd party IoT clouds
-  Virtual private network (VPN)
-  Industrial design, IP40 protection

   ECE-R10, ECE-R118, EN50155, EN50121-3-2
 EN61373, EN45545-2  

The InVehicle G810 is a series of high-performance cellular gateway that delivers high-speed and secure network access customers in public transportation.

The VG810 series offers 5G and high-speed 4G network access, Wi-Fi 5 and Gigabit Ethernet. It is available with CAN Bus interfaces for real-time collection of vehicle diagnostic data, as well as extensive interfaces for a wide range of devices on board. The gateway is equipped with powerful edge computing capabilities. With support for Python and Docker, it allows users to program their own applications based on their needs. It also supports integration to major IoT clouds such as Microsoft Azure and AWS IoT.

The VG810, which is ITxPT compliant, comes with two models. The one for road transport, which is built with FAKRA RF connectors and M12 connectors for Ethernet ports, is designed for buses and coaches, while the model for railway applications, equipped with TNC RF connectors and M12 connectors, is a perfect match for trams, metros, light rail and trains.

PRODUCT ADVANTAGES

High-speed in-vehicle networks

- + Supports 5G NSA/SA eMBB, uRLLC
- + Available with LTE CAT6/CAT4
- + Dual-concurrent Gigabit Wi-Fi
- + Gigabit Ethernet

Comprehensive security mechanisms

- + Encryption tunnels via VPN
- + Remote centralized user verification
- + Access control
- + HTTPS/SSH secure management protocols
- + Firewalls

Real-time monitoring of vehicle status

- + Integrated dual CAN Bus collect vehicle diagnostic data and upload to the platform in real time
- + Real-time monitoring of dangerous driving behavior

Developer features

- + Open platform for users to program their own applications
- + Supports Python 3.0 + Docker

Global satellite positioning (GNSS)

- + High precision, high sensitivity global satellite positioning system
- + Real-time vehicle location tracking
- + Inertial navigation
- + Supports GPS, BeiDou, Galileo and GLONASS

Access to fleet management platform

- + Fleet management functions including task distribution, routing, vehicle tracking, real-time update, geofencing, etc.
- + Centralized management of vehicle gateways

Multiple interfaces for communications

- + Multiple I/Os
- + RS232, RS485
- + USB 3.0
- + FARKA/TNC connectors
- + Vehicle diagnostic interfaces

Purposely built for vehicles

- + Industrial-grade processor, communication modules and electronic components
- + IP40 protection rating
- + Compliant with vehicle standards that resist pressure, vibration, humidity, heat and low temperature
- + Compliant with technical standards of vehicle electronic devices



MODEL SELECTION GUIDE

Model code: VG814-<WMNN>-<W>-<G>-<R/V>

Model	Region	<WMNN>: Cellular Type & Module		CAN bus	Antenna Connector	<W>: WLAN	<G/NA>: GNSS	<R/V>: Railway/Road
		UE Category	Band & Frequency					
VG814-NRQ0-W-G-R	Global (excl. North America)		G NR NSA n38*/n41/n71/n77/n78/n79 5G NR SA n1/n2/n3/n5/n7/n8/n12/n20/n25/n28*/n38/n40/n41/n48/n66/n71/n77/n78/n79 LTE-FDD Band 1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71 LTE-TDD Band 34/38/39/40/41/42/43/48 WCDMA Band 1/2/3/4/5/8/19	2	TNC	Wi-Fi 5	✓	For Railway
VG814-FS59-W-G-R	Europe Africa APAC Oceania	LTE CAT6	LTE-FDD Band 1/3/5/7/8/18/19/20/26/28A/28B LTE-TDD Band 38/39/40/41 UMTS/HSPA+ Band1/3/5/6/8 TD-SCDMA Band34/39 GSM/GPRS/EDGE 900/1800MHz	2	TNC	Wi-Fi 5	✓	For Railway
VG814-NRQ0-W-G-V	Global (excl. North America)		5G NR NSA n38*/n41/n71/n77/n78/n79 5G NR SA n1/n2/n3/n5/n7/n8/n12/n20/n25/n28*/n38/n40/n41/n48/n66/n71/n77/n78/n79 LTE-FDD Band 1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71 LTE-TDD Band 34/38/39/40/41/42/43/48 WCDMA Band 1/2/3/4/5/8/19	2	FAKRA	Wi-Fi 5	✓	For Road
VG814-2FS59-2W-G-V	Europe Africa APAC Oceania	2*LTE CAT6	LTE-FDD Band 1/3/5/7/8/18/19/20/26/28A/28B LTE-TDD Band 38/39/40/41 UMTS/HSPA+Band1/3/5/6/8 TD-SCDMA Band 34/39 GSM/GPRS/EDGE 900/1800MHz	2	FAKRA	2*Wi-Fi 5	✓	For Road
VG814-FS59-W-G-V	Europe Africa APAC Oceania		LTE-FDD Band 2/4/5/12/13/17/29 UMTS/HSPA+ Band 2/4/5 GSM/GPRS/EDGE 850/900/1800/1900MHz	2	FAKRA	Wi-Fi 5	✓	For Road
Example:	VG814-FS59-W-G-R Vehicle Gateway VG814 Wi-Fi 5, 4GE-M12, 1FMS, EXT:2*RS232, 1*RS485, 6*DO 1*CAN2.0B AUX :11*DI 1*DO, ITxPT, TNC Antenna Connector							

InVehicle G710 Series

Smart Vehicle Gateway



The InVehicle G710 is a series of high-performance vehicle gateways that provides high-speed and highly-reliable network access for data demanding mobile scenarios, such as first responder operations, school buses, special-purpose vehicles, engineering vehicles, logistics and hazardous materials transport. Working with a cloud-based management platform, it allows efficient operations including logistics management, asset tracking, mobile officing and safety surveillance.

The transport grade gateway provides in-vehicle network access, including high-speed 5G/4G network to allow fast and secure communications for vehicles and vehicle-mounted devices. It supports CAN Bus for real-time collection of vehicle diagnostic data, and advanced satellite navigation for accurate vehicle positioning. Through a remote analysis platform, it supports driving behaviors monitoring to enforce safety on the road.

The open development platform makes it easy for users to program their own applications. Powerful edge computing capabilities facilitate quick implementation of custom applications. With support for Azure IoT edge, Wialon, Smart Fleet and FlexAPI that works for third-party platforms, the product is designed for an open IoT ecosystem with more choices for developers.

PRODUCT ADVANTAGES

High-speed network on-the-go

- + High-speed 4G LTE, compatible with 5G
- + Dual-concurrent Gigabit Wi-Fi, Gigabit Ethernet
- + Supports secure VPN encrypted transmission

Purposely built for vehicles

- + Transport grade chip, communication module, and electronic components
- + Complies with standards for vehicle-mounted electronic devices on resistance to shock and vibration, high temperatures and humidity
- + IP64 protection
- + Stable power supply

Developer features

- + Supports Python and Docker
- + Integrated development environment (IDE) and software development kit (SDK)
- + Open FlexAPI over MQTT/HTTP/TCP for system integration
- + Supports MS Azure IoT Edge, AWS IoT, etc.

In-vehicle OTA upgrade service

- + Quickly repairs system defects
- + Quick and easy product upgrade

Global satellite positioning (GNSS)

- + Supports GPS, GLONASS, GALILEO and BeiDou satellite systems
- + Inertial navigation

Powerful edge computing

- + ARM Cortex-A7 (quad-core) processor
- + Up to 1GB DDR3 RAM
- + 8GB eMMC

Rich expansion

- + Rich AI/DI/DO interfaces to connect a wide range of sensors
- + Industrial-grade RS232/RS485 serial port, built-in USB Type B port
- + Integrated OBD-II/J1939 vehicle diagnostic interface
- + Standard CAN Bus
- + Built-in 3D accelerometer and gyroscope for driving behavior monitoring



MODEL SELECTION GUIDE

Model code: VG710-<H/L/NA>-<WMNN>									
Model	Region	<WMNN>: Cellular Type & Module			RAM	CAN bus	GNSS	Wi-Fi	Bluetooth
		UE Category	Band & Frequency						
VG710-H-NRQ0	Global (excl. North America)		5G NR NSA: n38*/n41/n71/n77/n78/n79 5G NR SA: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28*/n38/n40/n41/n48/n66/n71/n77/n78/n79 LTE-FDD Band 1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71 LTE-TDD Band 34/38/39/40/41/42/43/48 WCDMA: B1/B2/B3/B4/B5/B8/B19		1GB	✓	✓	✓	✓
VG710-H-NRQ3	North America		5G NR NSA: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 5G NR SA: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B9/B12(B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/B39/B40/B41/B42/B43/B48 LAA: B46 LTE Category: DL CAT20/UL CAT18 WCDMA Bands: B1/B2/B3/B4/B5/B6/B8/B19		1GB	✓	✓	✓	✓
VG710-L-FS39	North America Latin America Caribbean Coast	LTE CAT6	LTE-FDD Band 2/4/5/12/13/17/29 UMTS/HSPA+ Band 2/4/5 GSM/GPRS/EDGE 850/900/1800/1900MHz		1GB	✓	✓	✓	✓
VG710-L-FS59	Europe, Africa Asia, Oceania	LTE CAT6	LTE-FDD Band 1/3/5/7/8/18/19/20/26/28A/28B UMTS/HSPA+ Band 1/3/5/6/8 LTE-TDD Band 38/39/40/41 GSM/GPRS/EDGE 900/1800MHz TD-SCDMA Band 34/39		1GB	✓	✓	✓	✓
VG710-L-FQ78	Latin America Australia, New Zealand	LTE CAT4	LTE-FDD Band 1/2/3/4/5/7/8/28 LTE-TDD Band 40 WCDMA Band 1/2/5/8 GSM/EDGE Band 2/3/5/8		1GB	✓	✓	✓	✓
VG710-L-LQ20	China	LTE CAT4	LTE-FDD Band 1/3/5/8 LTE-TDD Band 38/39/40/41 TD-SCDMA Band 34/39 UMTS (DC-HSPA+) Band 1/8 EVDO800MHzCDMA-1x800MHz EDGE/GPRS/GSM 850/900/1800/1900MHz		1GB	✓	✓	✓	✓
VG710-FS39	North America Latin America Caribbean Coast	LTE CAT6	LTE-FDD Band 2/4/5/12/13/17/29 UMTS/HSPA+ Band 2/4/5 GSM/GPRS/EDGE 850/900/1800/1900MHz		512MB	✓	✓	✓	✓
VG710-FS59	Europe, Africa Asia, Oceania China	LTE CAT6	LTE-FDD Band 1/3/5/7/8/18/19/20/26/28A/28B UMTS/HSPA+ Band 1/3/5/6/8 LTE-TDD Band 38/39/40/41 GSM/GPRS/EDGE 900/1800MHz TD-SCDMA Band 34/39		512MB	✓	✓	✓	✓
VG710-LQ20	China	LTE CAT4	LTE-FDD Band 1/3/5/8 LTE-TDD Band 38/39/40/41 TD-SCDMA Band 34/39 UMTS (DC-HSPA+) Band 1/8 EVDO800MHzCDMA-1x800MHz EDGE/GPRS/GSM 850/900/1800/1900MHz		512MB	✓	✓	✓	✓
VG710-FQ78	Latin America Australia, New Zealand	LTE CAT4	LTE-FDD Band 1/2/3/4/5/7/8/28 LTE-TDD Band 40 WCDMA Band 1/2/5/8 GSM/EDGE Band 2/3/5/8		512MB	✓	✓	✓	✓
Example :	VG710-FS59 vehicle-mounted gateway, 4 Ethernet interfaces, one DB-9 RS232 serial port, RS485 serial port, MicroUSB2.0 serial port, supports DC-HSPA+ networks, supports CANBUS, GNSS global satellite positioning, WLAN dual-band Gigabit wireless LAN, and bluetooth, can be used in Europe, Asia Pacific, and China.								

Antenna	Order Code	Specifications
LTE 4G Antenna	AANT090025	LTE/GSM/CDMA/DCS/PCS/WCDMA/UMTS/HSDPA/GPRS/EDGE 824-960MHz, 1710-2700MHz 1M RG-174 cable with SMA-J1.5 connector, dimensions: 2000±20mm
GNSS Antenna	AANT040005	GPS/GALILEO: 27±2 dB@1575.42MHz GLONASS: 27±2 dB@1602MHz, dimensions: 55.6x50.5mm
Wi-Fi Antenna (Rubber Ducky)	AANT060016	2400~2500MHz / 4900~5850MHz, peak gain 5±0.5dBi,
Wi-Fi Antenna (Antenna Adhesive)	AANT060018	2400~2500MHz / 4900~5850MHz, peak gain ≤ 3dBi, dimensions: 2000±20mm
Bluetooth Antenna (Rubber Ducky)	AANT060017	2.4GHz, peak gain ≤ 2dBi

Cable	Order Code	Specifications
Power Cable	SCAB000216	The cable has A and B ends: A is 4PIN end to connect to VG710; B is open end, suitable for field engineering projects. To perform indoor testing, a power adapter needs to be prepared separately.
20 PIN Extension Cord	SCAB000219	The cable has A and B ends: A is 20PIN end to connect to VG710; B is open end, suitable for field engineering projects and testing.
OBD-II Power Cable	SCAB000235	P1 is 20PIN; P2 is 4PIN power terminal; P3 is OBD-II male; P4 is I/O open end, suitable for engineering projects; P5 is ignition signal cable, please connect to the ignition signal of the vehicle before use. Suitable for field engineering projects.
J1939 9PIN Power Cable	SCAB000234	P1 is 20PIN; P2 is 4PIN power terminal; P3 is J1939 9PIN female; P4 is I/O open end, suitable for engineering projects; P5 is ignition signal cable, please connect to the ignition signal of the vehicle before use. Suitable for field engineering projects.
J1939 6PIN Power Cable	SCAB000233	P1 is 20PIN; P2 is 4PIN power terminal; P3 is J1939 6PIN female; P4 is I/O open end, suitable for engineering projects; P5 is ignition signal cable, please connect to the ignition signal of the vehicle before use. Suitable for field engineering projects.
20 PIN to OBD-II	SCAB000215	This cable has A, B, C and D ends: A is 20PIN female; B is OBD female; C is A duplicate but male; D is OBD male, suitable for field engineering projects and testing.