



## Vehicle Cellular Series VHG87B-LT1B0 Vehicle Multi-Service Gateway

### Get Vehicles On-Line at Instant

VHG87B-LT1B0 is a Cat-4 dual-LTE gateway that brings simplicity to wireless connection process. With worldwide LTE spectrum, it enables WAN connectivity for moving vehicles and contributes a reliable bi-directional communication for high-bandwidth requirements. Intelligent network monitoring allows VHG87B-LT1B0 gateway to re-connect automatically or fail over to alternative SIM.

### Mobile WiFi Hotspot

Providing Internet and WiFi access to riders has become an essential service. VHG87B-LT1B0 equips dual WiFi radios that can support con-current 2.4GHz and 5GHz dual-band WiFi hotspot for buses or tourist coaches. Working with external portal server enables an efficient way of user authentication and billing. QoS and bandwidth management also guarantee a better quality of experience.

### Geo Location Tracking

VHG87B-LT1B0 have built-in GPS receivers that can retrieve location data from global GPS satellite system, and then forward to remote servers or save in local storage. It is helpful to track locations of vehicles and integrate with LBS (Location-Based Service) or AVL (Automatic Vehicle Location) applications. With NMEA 0183 standard format, it is much easier for backend servers integration.

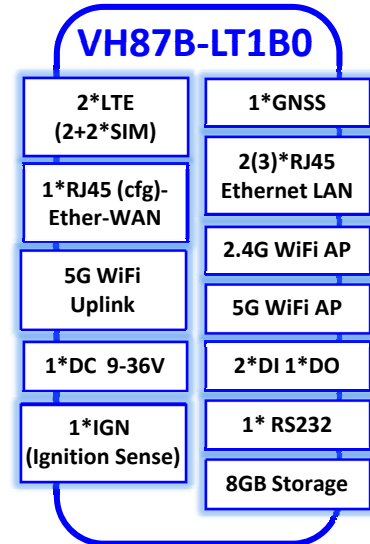
### In-Vehicle Networking

Thanks to multiple interfaces on VHG87B, it makes VHG87B as a communication hub for other on-board electronic devices. Through its 3-port gigabit Ethernet, digital IO, and serial, it's easier to connect surveillance system, payment system, ticketing system, passenger information system, sensors, and alarms aboard. Ignition sense allows VHG87B to keep working after vehicle engine is shut off.

### Dedicated to Harsh Environment

Many challenges in the way for electronic devices in vehicles, including unstable power source, transients, vibration, and extreme temperature. To overcome those problems, VHG87B-LT1B0 adopts special hardware components that are compliant to ISO7637-2 and MIL STD-810G requirements. VHG87B-LT1B0 also got E-Mark approval to show its confidence while it performs on the road.

### Block Diagram



### Applications & Industries

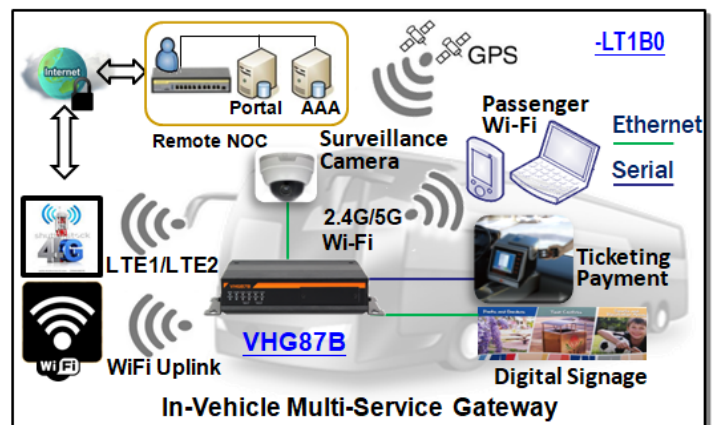
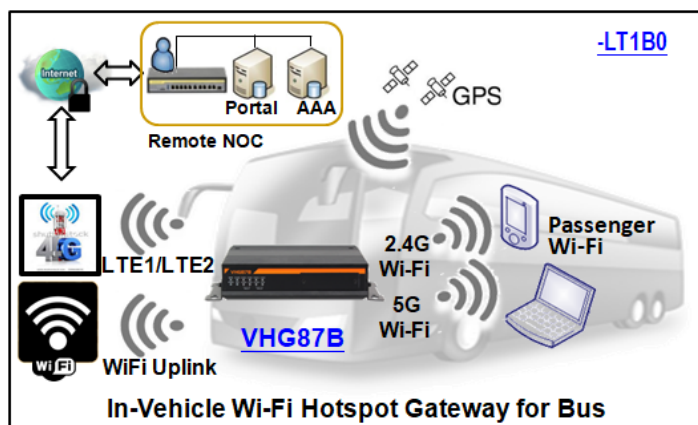
#### • Applications:

- ✓ Passenger WiFi
- ✓ Location tracking
- ✓ Service hour recorder
- ✓ Integration with on-board passenger information system, signage, cashless payment, ticketing, surveillance system

#### • Industries:

- ✓ Transportation
- ✓ Mission Critical
- ✓ Service Vehicle

### Connection Diagram



## Specification Summary

### Device Interface

- **LTE Module:** 2\*LTE-Cat.4, 2\*2 SIM, with GNSS (-LT1B0)
- **Ethernet:** 3\*RJ45 GE
- **WiFi:** 1\*11n-2\*2 , 1\*11ac-2\*2 High Power
- **Field Bus:** 1\*RS232 (TX/RX)
- **Log Storage:** Embedded 8GB
- **I/O:** 2\*DI ("Logic 0": 0~1V, "Logic 1": 5V~30V),  
1\*DO (Relay Mode, maximum voltage is 36V)
- **Power Input :** 1\* DC 9V ~ 36V (Terminal Block)
- **Antenna Con.:** 4\*SMA (F)-LTE , 2\*SMA(M)-WiFi, 1\* SMA(F)-GPS

### WAN & Uplink

- **WAN:** Cellular & Config. Ether-WAN; Failover, Load Balance,
- **Cellular:** 3GPP, 2G/3G/LTE, IP Pass-through, IPv4/6
- **Ether-WAN:** Dynamic IP, Static IP, PPPoE , PPTP, L2TP
- **Wi-Fi uplink:** Auto AP scan, profile for APs link priority
- **Network Monitor:** ICMP/DNS Query

### WiFi

- **Standard:** 802.11 Industry Compliance
- **Mode:** AP Router, WDS, WDS Hybrid Modes
- **Functions:** Multi-SSID, WMM
- **Security:** WEP, WPA, WPA2, WPA-PSK, WPA2-PSK, 802.1x
- **Captive Portal:** External & Internal web portal

### Protocol

- **LAN & VLAN:** DHCP Server/Relay , Port/Tag based VLAN
- **IPv6:** Dual Stack, 6-in-4, 6-to-4
- **Port Forward:** NAT 1-1, 1-many, transversal, DMZ, Virtual Server & Computer, VPN Pass-through
- **Routing:** Static, Dynamic - RIP1/RIP2, OSPF, BGP
- **QoS:** Policy-based, 802.1q and TOS for priority queues

### Object

- **Scheduling:** Time Schedule List
- **Grouping:** Host Grouping List
- **Ext. Server:** Email, Syslog, RADIUS, SCEP, FTP, DDNS, IGMP
- **Certificate:** My Certificate, Trusted Certificate, Issue Certificate

### Service

- **Cellular Toolkit:** Data Usage, SMS, SIM PIN, USSD, Network Scan
- **Event Handling:** User Defined Manage/Notify Event; Action & Trigger by SMS, Mail, Syslog, SNMP Trap, I/O, System HW
- **GNSS:** GPS Location Tracking / Viewer
- **Power Control:** Ignition Sense

### Security

- **VPN Tunneling:** IPSec, OpenVPN, PPTP, L2TP, GRE
- **Scenario:** Site/Host to Site/host; Hub and Spoke; Dynamic VPN
- **VPN Capability:** IPSec: up to 16 tunnels
- **Firewall:** SPI Firewall with Stealth Mode, IPS
- **Access Control:** Packet Filter, URL Blocking, MAC Filter
- **Authentication:** MAC based, Portal based Int./Ext LDAP/AD DB

### Field Com

- **Virtual COM:** RFC2217, TCP Client, TCP Server, UDP

### Administration

- **Configuration:** Web UI, CLI, Command Script, Python
- **Management:** SNMPv3 Std. & AMIT MIB , TR069
- **System:** Upgrade, Backup & Restore, Reboot & Reset, SysLog
- **FTP:** FTP Server, User Account
- **Diagnostic:** Packet Analyzer, Diagnostic Tools

### Environment

- **Operation Temp.:** -30°C ~ 70°C
- **Storage Temp.:** -40°C ~ 85°C
- **Humidity:** 10%~95% (non-condensing)
- **Enclosure:** Metal, Bracket
- **Dimension:** 160x125x47mm(w/o bracket kit)  
200x125x48mm(with Bracket kit)

### Certification

- CE
  - ✓ EMI: EN 55032: 2015 +AC: 2016 Class B
  - ✓ EMS: EN 55024, IEC 61000,
  - ✓ Radio: EN 301 489, EN 300 328 ,EN 301 893, EN50385
  - ✓ Safety: EN 60950-1
- E-Mark ECE R10

### Shock/Vibration

- MIL STD-810G

### Package Accessory

- 1\*VHG87B-LT1B0
- 2\*Cellular Antenna (3dBi), 2\*WiFi Antenna (5dBi)
- 1\*Terminal Block (8-pin for DC Power, IGN, DI/DO, RS232)
- 2\*Mounting Brackets, 1\*Screw Bag
- 1\*CD (User Manual)

## SKU Information

### VHG87B-LT1B0-00-yy : LTE Cat.4

'yy': Area Variant. As below table

yy	Skew	Band	Module Cert.	System Cert.	GNSS
E0	EU	B1/3/5/7/8/20/38/40/41	CE,GCF	CE	GPS
R0	Russia	B3/7/20	-	EAC	GPS
U0	US	B2/4	PTCRB, AT&T	TBC	GPS
J0	Japan	B1/9/18/19/21	TELEC, NTT, KDDI	TBC	GPS
J1	Japan	B1/8/41	TELEC, Softbank	TBC	GPS
T0	Taiwan	B3/7/8/28	NCC	TBC	GPS
C0	China	B3/39/40/41	SRRRC	TBC	GPS
A0	Australia	B1/3/5/7/28/40	RCM	TBC	GPS

- Specifications are subject to change without prior notice.
- Besides CE, other regional certification needs to be checked for availability.

## Mechanic Drawing

(1) Front View



(2) Back View

