

# 4G Transit Gateway

## VHG87B-0T1B0

## VHG87B-061B0



### Get Vehicles On-Line at Instant

VHG87B-0x1B0 are Cat-4/6 LTE-based gateways that bring simplicity to wireless connection process. With worldwide LTE spectrum, it enables WAN connectivity for moving vehicles and contribute a reliable bi-directional communication for other on-board electronic devices. Intelligent network monitoring allows VHG87B-0x1B0 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-0x1B0 equip 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-0x1B0 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.

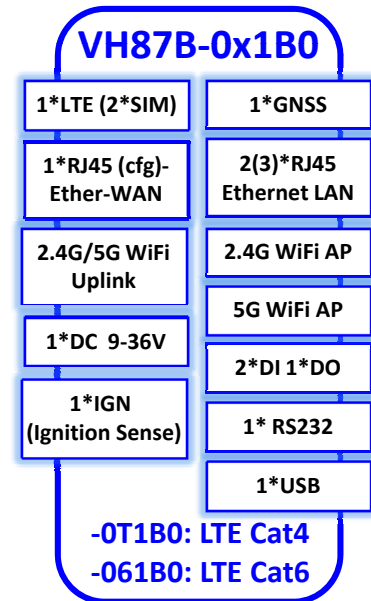
### In-Vehicle Networking

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-0x1B0 adopt special hardware components that are compliant to ISO7637-2 and MIL STD-810G requirements. VHG87B-0x1B0 also got E-Mark approval to show their confidences while they are on the road.

### Block Diagram



### Applications & Industries

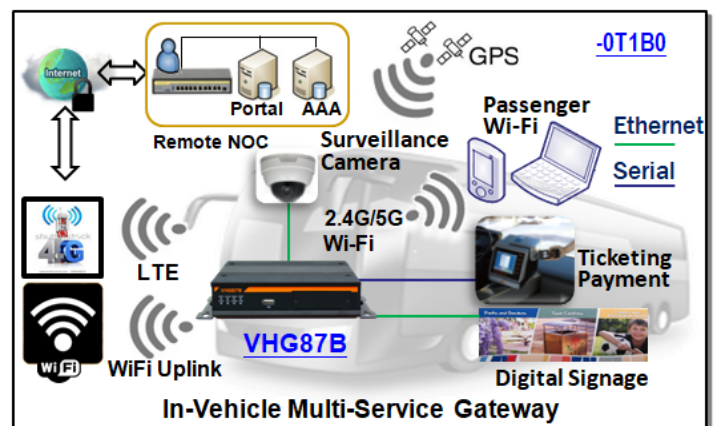
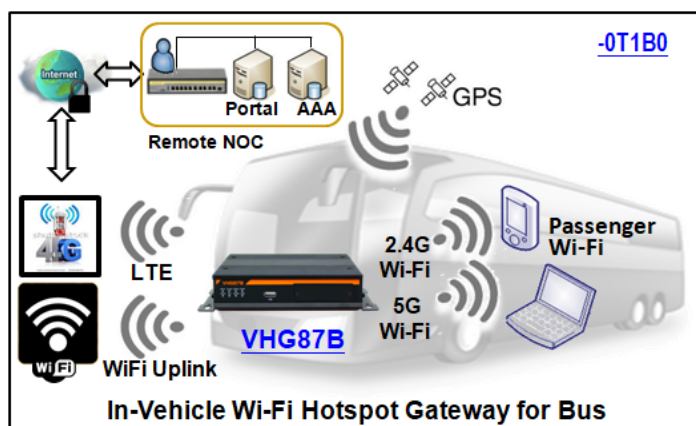
#### • Applications:

- ✓ 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
- ✓ Cold-chain Management

### Connection Diagram



## Specification Summary

### Device Interface

- **LTE Module:** 1\*LTE-Cat.4, 2\*SIM, with GNSS (-0T1B0)
- **Ethernet:** 3\*RJ45 GE
- **WiFi:** 1\*11n-2\*2 , 1\*11ac-2\*2 High Power
- **Field Bus:** 1\*RS232 (TX/RX)
- **Log Storage:** 1\*USB
- **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.:** 2\*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 Content

- 1\*VHG87B-0TxB0
- 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

## SKU Information

VHG87B-0T1B0-00-yy : LTE Cat.4

VHG87B-061B0-00-yy : LTE Cat.6

'yy': Area Variant. As below table

yy	Skew	Band	Module Certi.	System Cert.
E0	EU Taiwan	B1/3/7/8/20/28	CE,GCF NCC	CE
U0	US	B2/B4/B5/B12/B13/B14/ B66/B71	PTCRB, AT&T Verizon	TBC
J0	Japan	B1/8/9/18/19/21/41	Telec, NTT,KDDI, Softbank	Telec
C0	China	B3/39/40/41	MII, SRRC	TBC
A0	Australia	B1/3/5/7/28/40	RCM	TBC

## Mechanic Drawing

(1) Front View



(2) Back View



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

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