



## IoT Connectivity for Buses with InVehicle G710

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As a supplier of advanced technology solutions for the public transport sector, we are very careful with the choice of our partners and system components. InHand and their VG710 therefore fit in very well as an easy choice for us in our latest project of 130+ buses connected to TriNorth Cloud services.”

Peter Bjertung,  
CEO, TriNorth

### Background

In a fast-moving world, it is required that everything on the road be connected to the Internet - sensors and applications mounted on vehicles, real-time location and operation status, driving behaviors, etc. should be constantly managed.

Being a world-class provider of information and safety systems for transport, TriNorth Solutions AB seeks a high-performance, all-inclusive solution that delivers fast, secure and reliable communications for different vehicles, tracks real-time location, monitors driving behaviors, and conducts vehicle diagnostics so that preventive maintenance can be done when necessary.

### Challenges

- Fast, reliable and uninterrupted networking of vehicles
- Plenty of interfaces for connection to a variety of devices and applications
- Sophisticated data security mechanism and encrypted data transmission
- Connected to cloud for easier management and deployment
- Industrial design, stable operation for long time in harsh environments



TriNorth Solutions AB delivers information and safety systems in public transport, contracting and field operations companies. It also performs installations and service of its products in the areas of passenger information, passenger billing, security systems, camera surveillance and GPS tracking.



## Solution

To meet TriNorth’s needs, InHand Networks offered a solution using its **InVehicle G710** vehicle gateway, delivering fast and reliable connectivity for vehicles installed with TriNorth’s systems.

The **VG710** connected a wide range of applications on board, including the monitor, control unit, driver awareness panel, passenger counter, etc. for real-time monitoring purposes. Integrating OBD-II and J1939, the **VG710** keeps updating the operation status of each bus. With high-precision GNSS and inertial navigation system, the **VG710** continuously tracks the bus’s location whether GNSS signal is available or not.

Data from different interfaces are constantly transmitted over high-speed LTE CAT6 network via secure VPN tunnels. From the Remote Maintenance Center, each bus can be monitored in real time, and when a fault occurs, the problem equipment can be immediately identified, which facilitates troubleshooting and reduces downtime.

## Features



**InVehicle G710**

- Fast and reliable 4G network, available with LTE CAT6
- Dual SIM for carrier failover
- Extensive interfaces, able to connected to a large number of devices on board
- High-accuracy location and inertial navigation keep track of the vehicle
- Powerful edge computing capabilities, integrating Python SDK and Docker, friendly for application developers
- Support for major IoT cloud services including AWS and Microsoft Azure
- Metal enclosure, IP64 protection, enduring in harsh environments



## Benefits

### Fast, Reliable and Uninterrupted 4G Connectivity

The **VG710** delivers continuous access to high speed LTE CAT6 networks. With multi-layer auto link detection and recovery, the **VG710** ensures that all the buses are online 24/7.

### Multiple Interfaces for a Wide Range of Peripherals

Featuring extensive interfaces, the **VG710** is able to host a variety of devices on board. Be it sensor or meter, the **VG710** collects data from various sources simultaneously, providing users with all-around understanding of the buses.

### Real-time Monitoring of Vehicle Status

Integrating OBD-II and J1939, the **VG710** keeps monitoring location, oil consumption, temperature, etc. on the bus, enabling customers to better manage energy use and ensuring driving safety.

### Uninterrupted High-accuracy Vehicle Location

Embedded with 72-channel high-accuracy GNSS positioning system, the **VG710** delivers real-time location information of the vehicles. With inertial navigation system, buses are constantly tracked even when GNSS signal is unavailable.

## More Application Areas

The **VG710** is a new vehicle LTE gateway developed specially for the Vehicle Area Network. It provides high-speed and secure connectivity for mission critical applications in a wide range of scenarios, such as police cars, heavy equipment, ambulances, and logistics. Equipped with cloud-based remote fleet management platform, it offers ubiquitous networking and uninterrupted monitoring for logistics management, asset tracking, mobile office and public security.

Learn more at:

<https://inhandnetworks.com/products/invehicle710-vehicle-gateway.html>



Stable and reliable connectivity in real time for managing the on-board systems, transmit data and information to & from the buses is something we take for granted to just work. By our solutions we provide our customers with features that save them loads of time and money in fleet management as well as make them able to provide their customers with extra ordinary services and a safe trip.”

Johan Rytterlund,  
CTO, TriNorth



3900 Jermantown Rd., Suite 150, Fairfax,

VA 22030, USA

T: +1 (703) 348-2988

E: [info@inhandnetworks.com](mailto:info@inhandnetworks.com)

[www.inhandnetworks.com](http://www.inhandnetworks.com)



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