2019
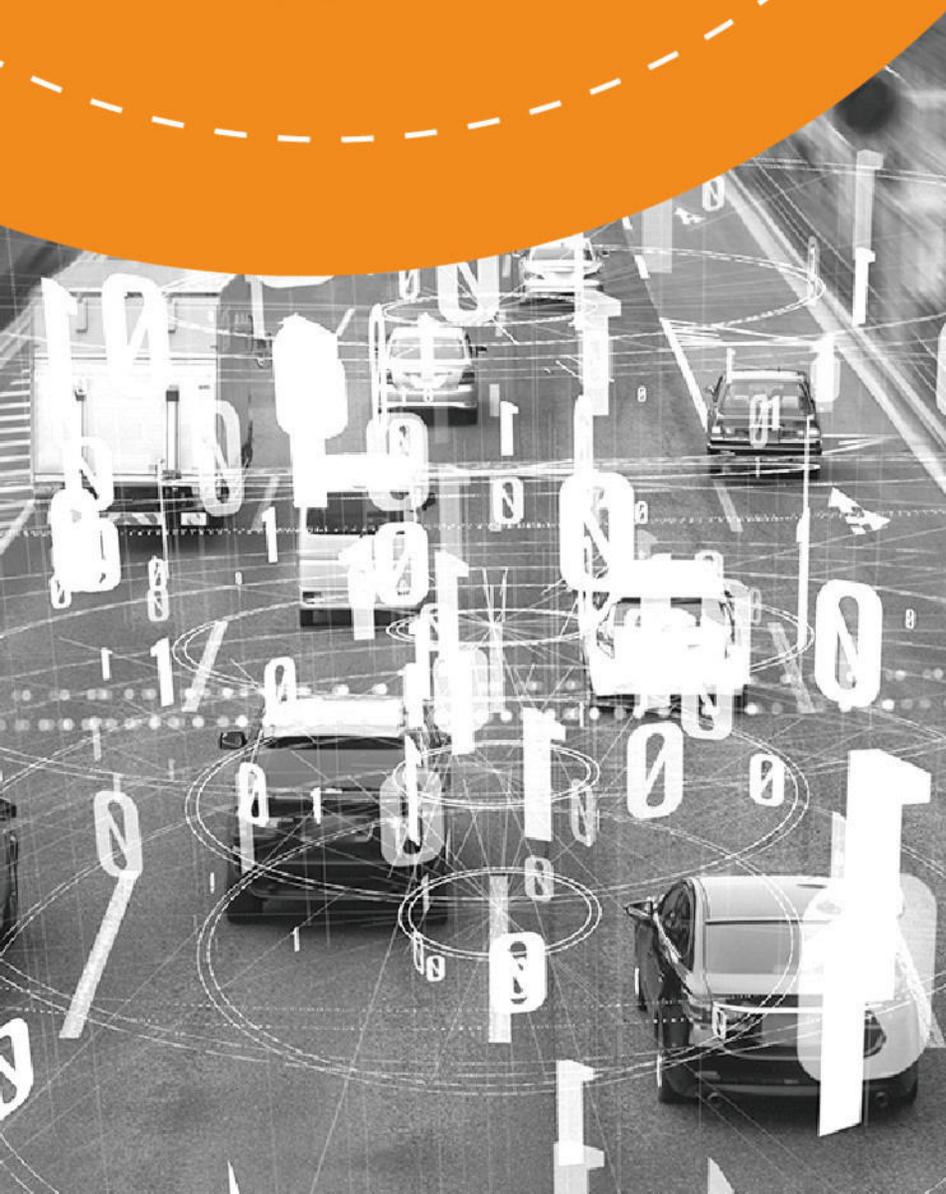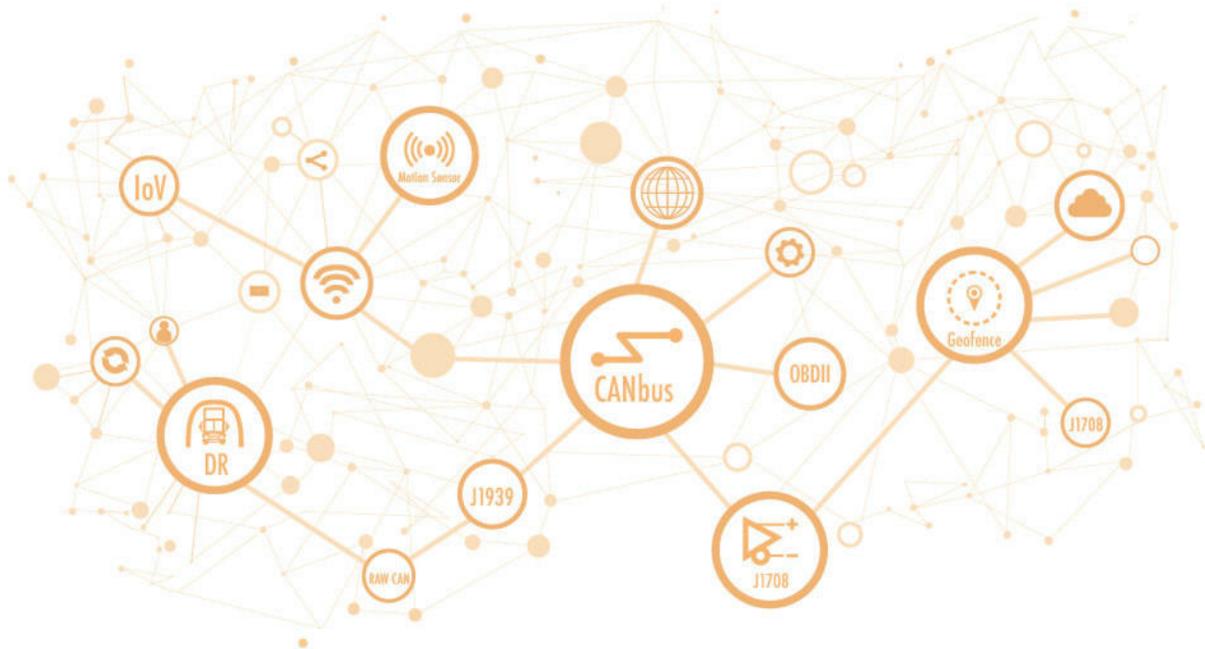
antzer

Antzer Tech CO., LTD.

DEDICATING IN INTERNET OF VEHICLE

Antzer Tech— a subsidiary of Innodisk Corporation (5289: Taiwan)— aims to provide our partners and customers the most advantageous solution for Fleet Management, Vehicle and Trailer Tracking, Telematics, Vehicle Inspection, and UBI (Usage-based Insurance). The key members in Antzer Tech come from top IPC companies and in-vehicle system providers. Targeting at the rapid growing IoV (Internet of Vehicles) market, Antzer Tech is dedicated to developing CANbus technology. The product of Antzer Tech include CANbus Modules, 3G/4G Cat-1/4G Cat-M1/NB-IoT/LoRa Vehicle Trackers, CANbus and Mobileye® Interpreter, Bluetooth Vehicle Diagnostic Tool, and Vehicle Signal Simulator.

Production

Products of Antzer Tech are manufactured by its parent company, Innodisk Corporation, with industrial-grade factories in Taiwan. The production of our products is in compliance with ISO/TS 16949.

Partners and Distributors

Antzer Tech's clients include industrial computer companies, in-vehicle computer companies, and system integrators of IoV & IoT solutions. The global sales regions extend from Taiwan to United States, Europe, Australia, New Zealand, South and North East Asia.
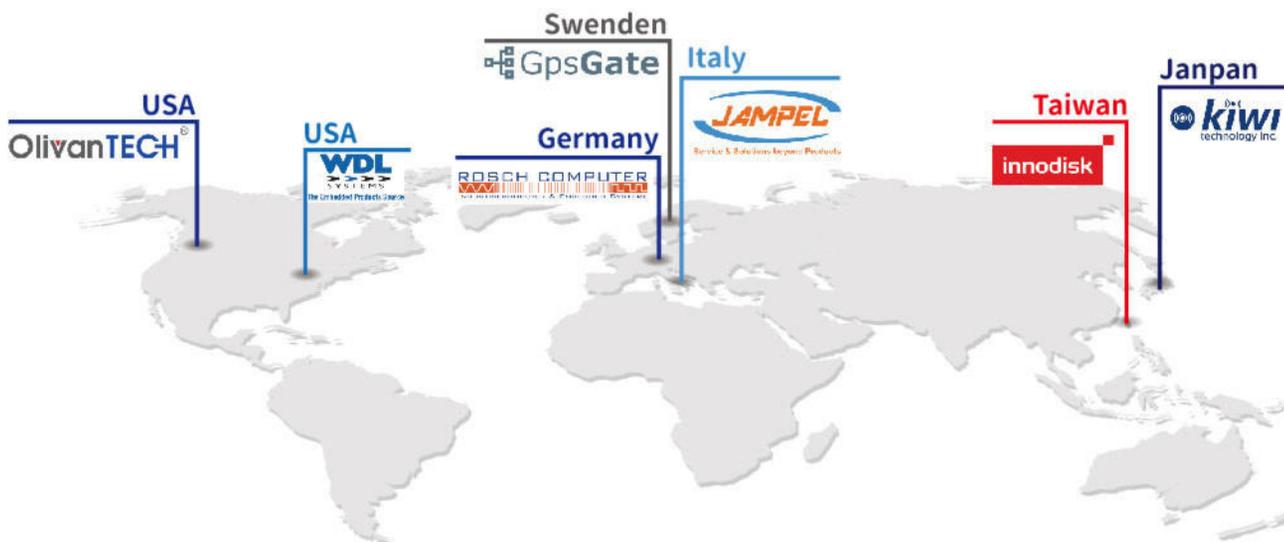
Fleet Management Solutions

Cost Saving with NB-IoT, Cat-M1 and LoRa

Dead Reckoning Technology for High Accuracy Positioning

Multiple Device Inputs and Outputs for Tracking Vehicle Conditions

Improve Fleet Safety and Driver Behavior

Benefits

- Optimize Fleet Routes
- Lower the Operational Cost
- Speed Up Emergency Response
- Lower the Communication Cost

- Allow Deployment in Wide Area
- Guard the Safety of Drivers and Passengers
- Ideal for Commercial Vehicles and Public Transit
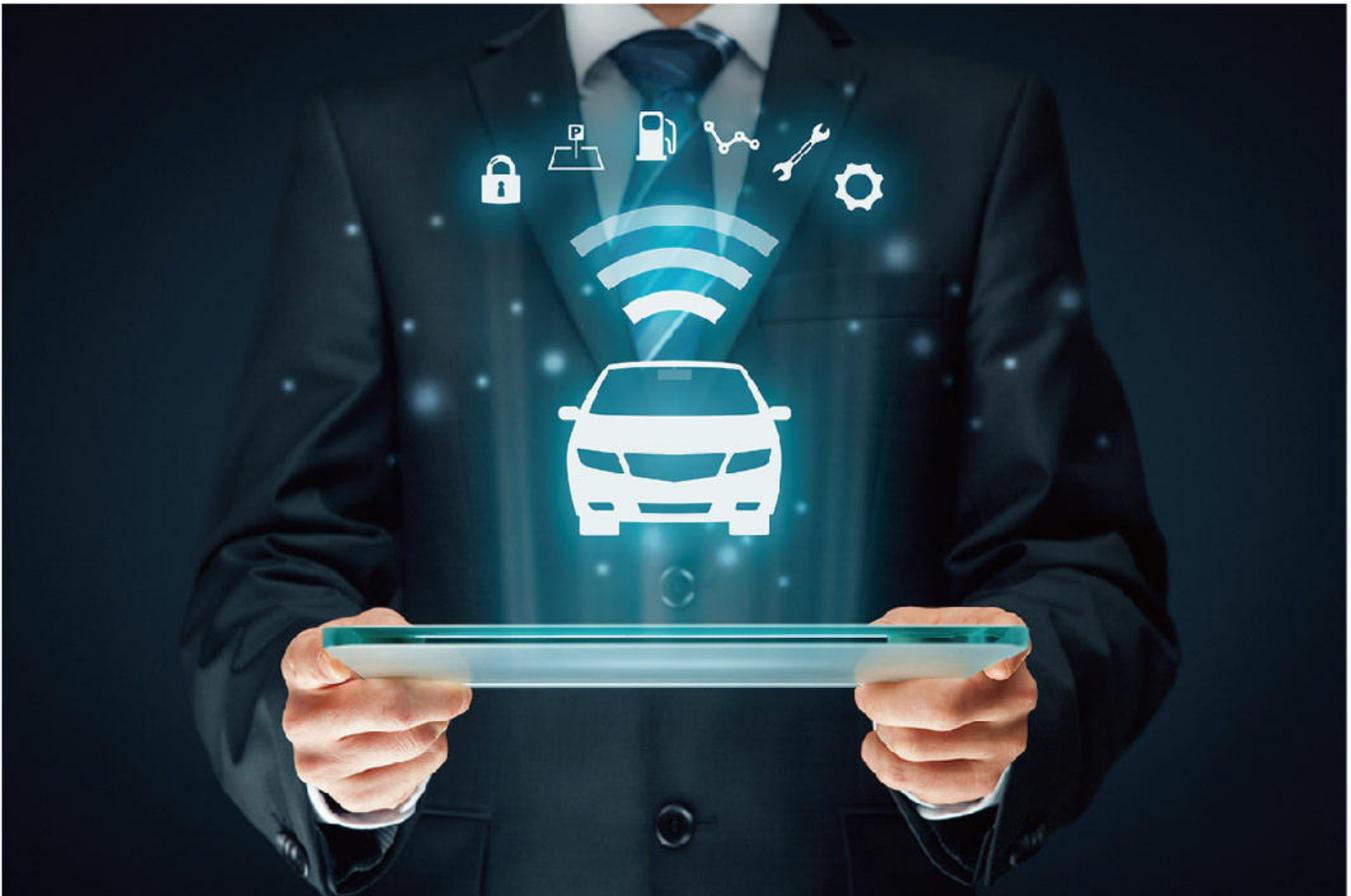
Cost Saving with NB-IoT, Cat-M1 and LoRa

Traditionaly, fleet management solutions communicate with cellular networks, such as 3G/4G LTE networks, which could be costly for applications that require only low data transmission. NB-IoT, LTE Cat-M1, and LoRa can greatly reduce the communication fee. With its low power consumption, the battery life can be greatly extended. Utilizing these features, Antzer Tech offers NB-IoT, LTE CAT-M1 and LoRa trackers to connect the fleet to the backend server.

	3G/4G	NB-IoT(R13)	Cat-M1	LoRa
Cellular Monthly Fee	High	Low	Medium	None
Network Type	Public	Public	Public	Private
Coverage (Range, Penetration)	Medium	Wide	Medium	Very Wide
Data Rate	High	Low	Medium	Very Low
Data Transmission Frequency	High	Low	Medium	Low
Latency	Low	High	Medium	High
Packet Size Capacity	High	Low	Medium	Very Low
Power Consumption	High	Low	Medium	Very Low

Comparison of NB-IoT & LTE Cat-M1 Tracker Field Test Results
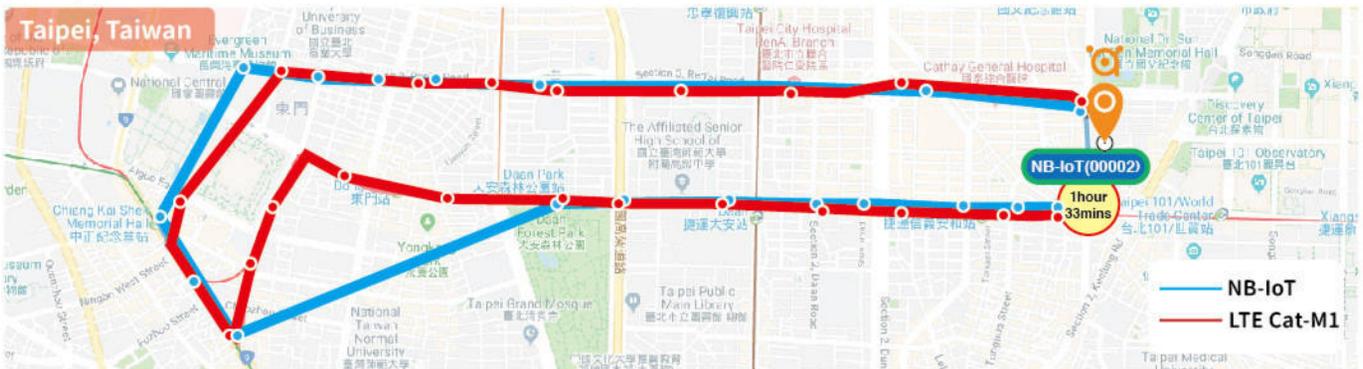
LoRa Tracker Transmission Range

City: 2~3km
Suburb: 15km

Positioning Vehicles in Areas with No GPS Signals

Locating fleet in areas with poor or no GPS signal is challenging. CANbus modules and vehicle trackers with GPS dead reckoning technology enable accurate positioning in signal poor or non-existent locations or environments. Antzer Tech offers t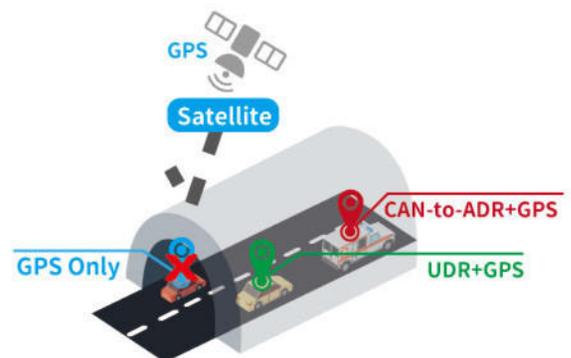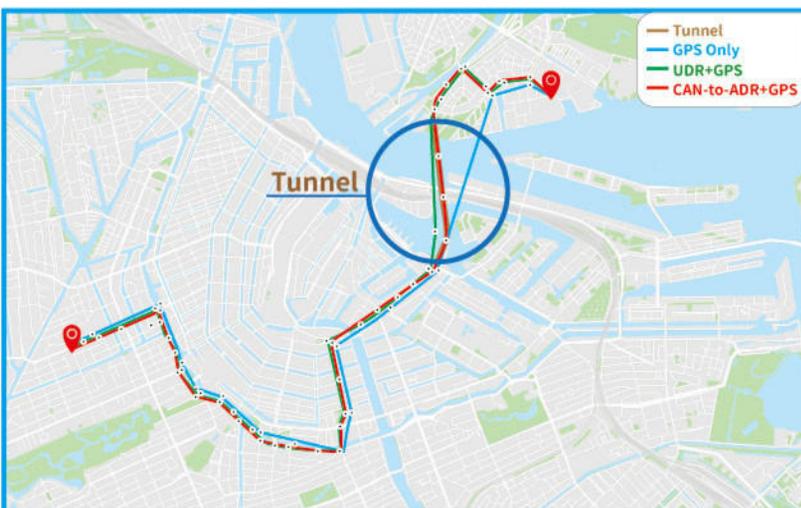hree different GPS dead reckoning technology, namely **ADR, CAN-to-ADR, and UDR.** Of the three, **CAN-to-ADR dead reckoning module utilizes Antzer Tech's own patented technology, which calculates position with speed and direction information obtained from CANbus.** The feature provides accurate positioning in long tunnel, underground, and dense cities, which is of great value for fleet management applications, such as public transit, armor cash carrier management and high-value asset tracking logistics.

Performance Comparison

Scenarios	GPS	GNSS	UDR	ADR	CAN-to-ADR
Unobstructed Area	●●●	●●●	●●●	●●●	●●●
Suburban area	● ●	●●●	●●●	●●●	●●●
Urban Canyon	●	●	● ●	●●●	●●●
Long Tunnel (e.g. 17 km)	○	○	●	● ●	● ●
Short Tunnel (e.g. < 1 km)	○	○	● ●	●●●	●●●
Error Rate	N/A	N/A	10%	2%	2%

Requirement	GPS	GNSS	UDR	ADR	CAN-to-ADR
Speed and RPM Wheel-tick Information	No	No	No	Yes	Yes
Electrical Connection to The Car	No	No	No	Yes	No

Comparison of GPS, UDR, and CAN-to-ADR

— Tunnel
— GPS Only
— UDR+GPS
— CAN-to-ADR+GPS

Tunnel

GPS
Satellite
CAN-to-ADR+GPS
GPS Only
UDR+GPS

Multiple Inputs and Outputs to Track Vehicle Conditions

When it comes to perishable goods, the environmental condition is crucial during the shipping process. Goods such as fish and vegetables may easily be spoiled or contaminated if the temperature or humidity of the environment during the shipment is mismanaged. Antzer Tech's multifunctional vehicle tracker is equipped with a micro-fit connector that supports additional I/O extensions such as digital input/output, RS-232, 1-wire sensor interface, and two-way voice communication. With an extensional temperature and humidity sensor, the condition of the shipped goods can be closely monitored and therefore the integrity ensured.

Door Sensor

Temperature and Humidity Sensor

RIFA-M

CAN

GPS

Satellite

3G/4G Cat-1
4G Cat-M1/NB-IoT/LoRa

Cellular Network

Heavy-duty Vehicle

3G/4G Cat-1
4G Cat-M1/NB-IoT/LoRa

Cloud

OBDII/J1939/CAN

Mobileye®

ADAS

RIFA-M

Bluetooth

Android Tablet

| Device Inputs and Outputs	RS-232	RS-232	1-Wire	Digital Input	RS-485	Analog Input	Digital Output
	TPMS	RFID Reader	Temp & Humidity Sensor	Button	Vehicle Battery	Fuel Sensor	Warning Light

Improve Fleet Safety and Driver Behavior

Driver's behavior is key to driver's safety, vehicle condition, and operational cost. Tracking vehicle speed, driving route, driving time, frequency of harsh-break and harsh-turns helps monitor the real time status of the drivers. The collected data can be analyzed to improve driving habits, to develop optimal routes, and to maintain driving records. Antzer Tech's products accquire vehicle data through Gyro, G-sensor, and CANbus which carries parameters of RAW CAN, OBDII and J1939 protocols.

For vehicles installed with Mobileye® ADAS, Antzer Tech's Mobileye® Interpreter transmits all Mobileye® ADAS events and alerts to in-vehicle computers, including Forward Collision Warning, Traffic Sign Recognition, Lane Departure Warning, and etc.

Event Alert	Device	G-Sensor	GPS	Dead Reckoning
Ignition Detection	●			
Low Battery Alert	●			
Removal Alert	●			
Main Power Lost Alert	●			
Crash Detection		●		
Towing Detection		●		
Deviation Angle Event		●		
Harsh Acceleration Event		●		
Harsh Brake Event		●		
Harsh Cornering Event		●		
Total Mileage			●	●
Vehicle Speed			●	●
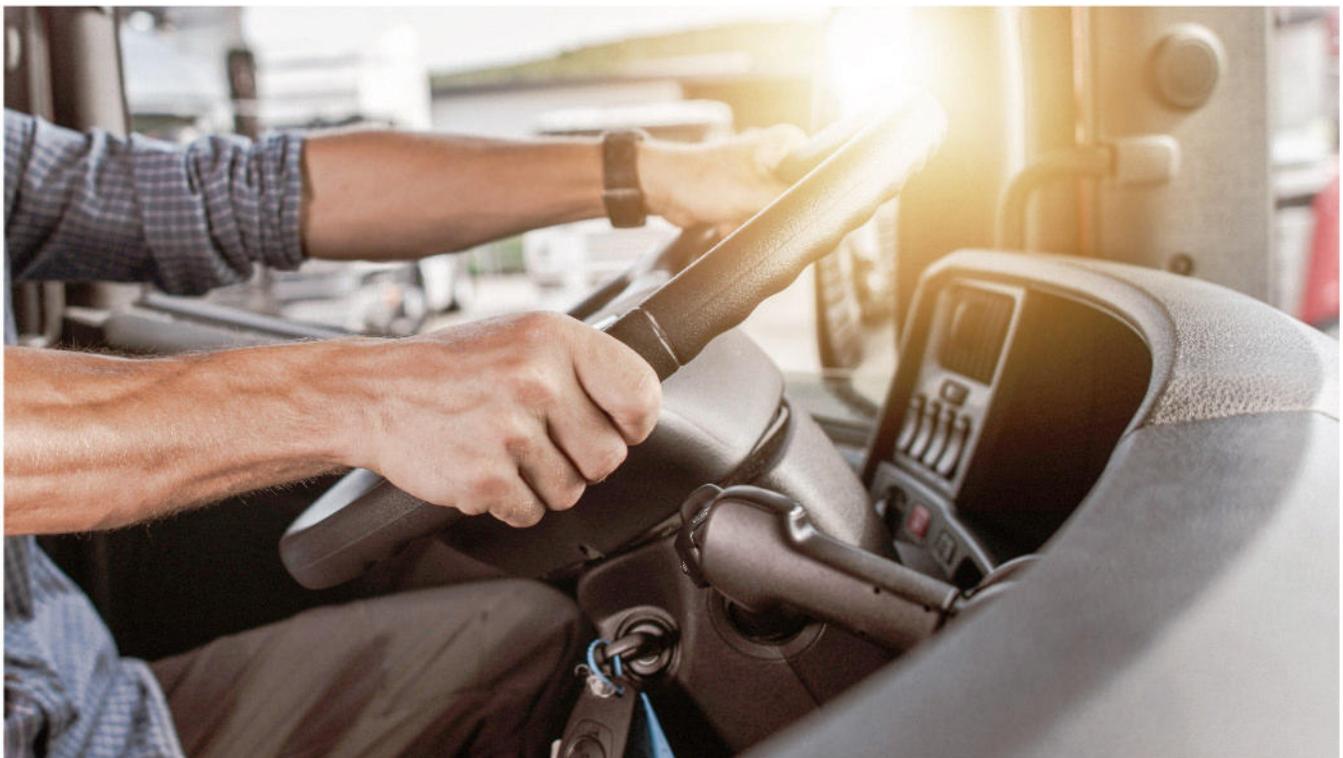
Product Information

DEDICATING IN INTERNET OF VEHICLE
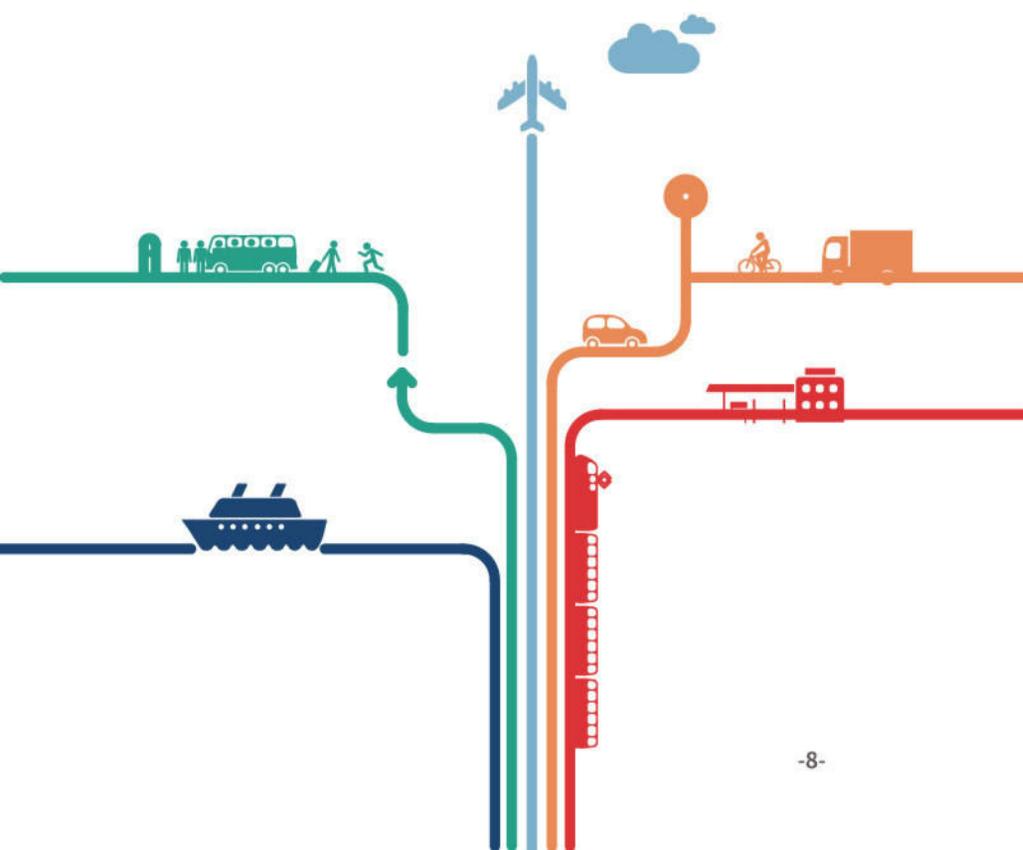
Product Features

Vehicle CANbus Module

FARO Series
- 2 Ch CANbus and 1 Ch J1708
- Baud Rate Setting: 125/250/500/800/1000Kbps
- RAW CAN, OBDII, J1939 and J1708
- 3D Gyroscope, 3D Accelerometer
- Linux Socket CAN Driver
- Windows & Linux SDK

Vehicle CANbus Module with GPS

GADN Series
- u-blox NEO-M8 GPS
- Navigation During GPS Signal Loss (GPS+DR)
- 2Ch CANbus and 1Ch J1708
- RAW CAN, OBDII, J1939 and J1708
- 3D Gyroscope, 3D Accelerometer
- Windows & Linux SDK

SDK	Linux Socket CAN	GPS Dead Reckoning ADR UDR	Dual Channel	CAN/OBDII/J1939	J1708	Motion Sensor

Easy Plug Vehicle Tracking Unit

((•)) NB-IoT/Cat-M1/LoRa

RIFA-B/RIFA-S Series
- OBDII/J1939
- 3G/4G Cat-1/4G Cat-M1/NB-IoT/LoRa
- Bluetooth 4.2
- Navigation During GPS Signal Loss (GPS+DR)
- Geofence (Polygon Zones)
- Harsh Driving Detection
- FOTA
- Small Size Version Available

Multifunctional Vehicle Tracking Unit

((•)) NB-IoT/Cat-M1/LoRa

RIFA-M Series
- RS232/RS485/x2 CAN/1-Wire/x2 DI/x2 DO
- OBDII/J1939
- 3G/4G Cat-1/4G Cat-M1/NB-IoT/LoRa
- Bluetooth 4.2
- Navigation During GPS Signal Loss (GPS+DR)
- Geofence (Polygon Zones)
- Harsh Driving Detection
- FOTA

DR	Geofence	Motion Sensor	FOTA

Product Features

Bluetooth Vehicle Diagnostic Tool

PARA Series
- OBDII/J1939
- Auto Detects CANbus Baud Rate
- 12V/24V Vehicle Power Sources
- Bluetooth 4.2
- Over 17 PIDs/ 20 PGNs (RPM, Fuel level, Odometer, etc.)
- Demo APP for Android Phone

*The product design is tentative. The appearance is subject to change without notice

12V/24V	Bluetooth	Demo App for Android Phone	OBDII/J1939	Over 17 Attributes

OBDII/J1939/Mobileye® Vehicle Interpreter

MART Series
- OBDII/J1939
- Auto Detects CANbus Baud Rate
- 2 Ch CANbus
- Host Interface: RS232 or USB
- Over 17 PIDs/20 PGNs (RPM, Fuel Level, Odometer, etc.)
- Mobileye® Compatible

Auto Detect Baud Rate	Mobileye® Compatible	Dual Channel	OBDII/J1939	Over 17 Attributes

CANbus Solution

RIFA GPS Tracker

FARO/GADN CANbus+GPS Module

MART Interpreter

Inside Vehicle

Signal:
RAW CAN
OBDII
J1939
J1708

Satellite

GPS

Cellular Network
3G/4G Cat-1
4G Cat-M1/NB-IoT/LoRa

Fleet Manager

RPM, MPH, Engine Temp, Vehicle Position

Backend Center
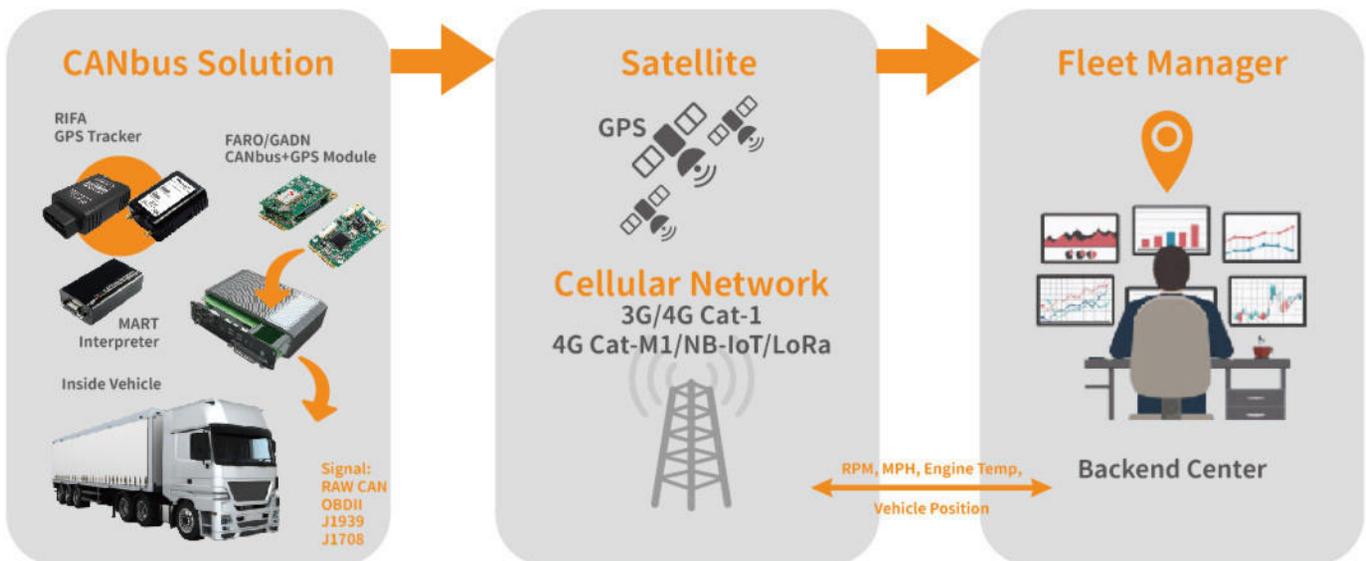
Product Catalog

Vehicle CANbus Module

Series	Part Number	Form Factor Half Mini PCIE	Form Factor Full Mini PCIE	Host Interface	Raw CAN	OBDII	J1939	J1708	Standard GPS	Dead Reckoning	Sensor	Driver	SDK	Operating Temperature	Dimension
FARO	FARO-HS100	●			●				N/A	N/A	3-Axis Gyroscope 3-Axis Accelerometer	Microsoft Windows 7/8/8.1/10 Linux Ubuntu 14.04 and Later SocketCAN (Source Code)	Microsoft Windows 7/8/8.1/10 Linux Ubuntu 14.04 and Later	-40°C ~ +85°C	26.8x30x 6.56 mm
	FARO-FS100		●		●										50.9x30x 6.56 mm
	FARO-HS700	●		USB 2.0 via PCI Express Mini Card Socket	●	●									26.8x30x 6.56 mm
	FARO-FS700		●		●	●									50.9x30x 6.56 mm
	FARO-FS900		●		●	●	●	●							50.9x30x 6.56 mm
GADN	GADN-FS1N0		●	USB 2.0 via PCI Express Mini Card Socket	●				●	N/A	3-Axis Gyroscope 3-Axis Accelerometer	Microsoft Windows 7/8/8.1/10 Linux Ubuntu 14.04 and Later SocketCAN (Source Code)	Microsoft Windows 7/8/8.1/10 Linux Ubuntu 14.04 and Later	-40°C ~ +85°C	50.9x30x 13.2 mm
	GADN-FS7N0		●		●	●	●		●						
	GADN-FS9N0		●		●	●	●	●	●						
	GADN-FS1U0		●		●				●	UDR					
	GADN-FS7U0		●		●	●	●		●						
	GADN-FS9U0		●		●	●	●	●	●						
	GADN-FS1L0		●		●				●	ADR					
	GADN-FS7L0		●		●	●	●		●						
	GADN-FS9L0		●		●	●	●	●	●						
	GADN-FG1LR		●		●				●	ADR/ CAN-to-ADR					
	GADN-FG9LR		●		●	●	●	●	●						

Vehicle Tracking Unit

Series	Part Number	Vehicle Interface	Comprehensive I/O	Network	Frequency Band	Data Protocol	OBDII	J1939	Mobileye®	G-Sensor	Antenna	GPS	Dead Reckoning	Bluetooth	Battery	Power Supply Input Range	Operating Temperature
RIFA-B	RIFA-B33	Built-in OBDII Connector	N/A	3G	GSM/GPRS: 850,900,1800,1900 Mhz HSPA/UMTS: 800,850,900,1700,1900,2100 Mhz	TCP,UDP,MQTT	●		N/A	3-Axis G-sensor	Internal	Ublox M8 Engine, 72 Channels support GPS, Galileo, GLONASS, BeiDou	With options of UDR/CAN-to-ADR	With the option of Ublox NINA-B1 2.4GHz Low Energy Bluetooth Class 2	With the option of Built-in 3.7V 130mAh Battery Lithium Ion Polymer Battery	9~32V DC Power Input	-30 to 70 °C (Without Battery)
	RIFA-B73						●	●									
	RIFA-B3L			LTE Cat-1	Band 4, 13 or Band 3,7,20		●										
	RIFA-B7L						●	●									
	RIFA-B3M			LTE Cat-M1/NB1	Band 2,3,4,5,8,12,13,20,28		●										
	RIFA-B7M						●	●									
	RIFA-B3R			LoRa	US915, EU868, AS923	LoRaWAN	●										
	RIFA-B7R						●	●									
RIFA-M	RIFA-M33	CANBus (OBDII/J1939)	• Dual CAN Ports for OBDII, J1939 or Mobileye® Signal Input • x1 RS-485 and x1 RS-232 • x2 Digital Input and x2 Digital Output (300mA) • x1 Analog Input and x1 1-wire Interface • x1 Ignition Input Detect, x1 Buzzer Out	3G	GSM/GPRS: 850,900,1800,1900 Mhz HSPA/UMTS: 800,850,900,1700,1900,2100 Mhz	TCP,UDP,MQTT	●		Optionally support Mobileye® Protocol	3-Axis G-sensor	External	Ublox M8 Engine, 72 Channels support GPS, Galileo, GLONASS, BeiDou	With options of UDR/CAN-to-ADR	With the option of Ublox NINA-B1 2.4GHz Low Energy Bluetooth Class 2	With the option of Built-in 3.7V 130mAh Battery Lithium Ion Polymer Battery	9~32V DC Power Input	-30 to 70 °C (Without Battery)
	RIFA-M73						●	●									
	RIFA-M3L			LTE Cat-1	Band 4, 13 or Band 3,7,20		●										
	RIFA-M7L						●	●									
	RIFA-M3M			LTE Cat-M1/NB1	Band 2,3,4,5,8,12,13,20,28		●										
	RIFA-M7M						●	●									
	RIFA-M3R			LoRa	US915, EU868, AS923	LoRaWAN	●										
	RIFA-M7R						●	●									

Vehicle Interpreter

Series	Part Number	OBDII	J1939	Mobileye®	Host Interface	CAN Interface	Channel	Voltage Range	Material	Operating Temperature	Dimension
MART	MART-R260-A0	●	●	●	1x RS232 D-Sub 9-Pin Female or 1x USB Type-A Male	1x D-Sub 9-Pin Male	2 Individual CAN (ISO 11898) Channels	Jumper-selectable 5V DC Input from any of D-Sub (Male) or D-Sub (Female) or USB connector	Aluminum	-20 to +70 °C	77.8 x 44 x 23 mm