

VL502

LTE OBDII GNSS TRACKER

User Manual V1.0

The product specifications and information in this document are for reference only and no prior notice will be given if any change is made. Unless otherwise stated, the content of this document is not a guarantee in any form.

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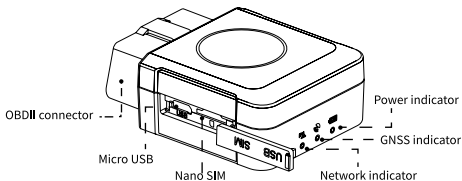
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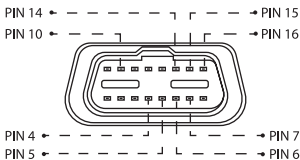
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Overview

1.1 Appearance



1.2 Pinout



Pin Number	Pin Name	description
4	GND(-)	Ground
5	GND(-)	Ground
6	CAN_H	CAN high
7	K-Line	
14	CAN_L	CAN low
15	L-Line	
16	VCC(9-36)V DC(+)	Power supply(9-36V DC)

1.3 Status LED Indication

Power indicator(Red)

Fast blink [0.1s-0.1s(on-off)]	The battery is low.
Slow blink [2s-2s(on-off)]	The device is charging.
Solid on	The charging is complete.
Slow blink [0.1s-2s(on-off)]	The device operates correctly.
Off	The battery is under voltage or encounters an internal failure.

GNSS indicator(Blue)

Fast blink [0.3s-0.3s(on-off)]	The device is searching for satellite signals.
Solid on	The GNSS module is already fixed a position.
Off	Device is in sleep mode or not operating.

Network indicator(Green)

Fast blink [0.3s-0.3s(on-off)]	The GMS is initializing.
Solid on	The device is in a call/online.
Off	Network error or no SIM card.

Installation

2.1 SIM Card Attachment

- Step 1 Prepare a Nano-SIM.



Standard ❌



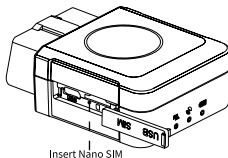
Micro ❌



Nano ✔️

- Step 2 Attach the SIM.

Place the Nano-SIM card on the SIM card tray and insert it into the SIM card slot.



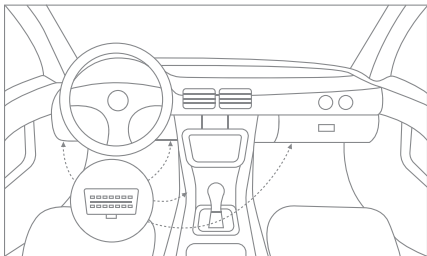
Tips:

- After the SIM is inserted, the device powers on using the backup battery. If the device fails to power due to low battery, you can connect the device to the OBDII connector of the vehicle to obtain power.
- The SIM card must be inserted correctly. If the SIM is identified and requires a PIN, please disable the PIN request.

2.2 Installing the Device

- Connecting the device to the vehicle:

Find OBDII Connector in your vehicle (the following figure shows most of common OBD II connector locations).



Quick SMS configuration

3.1 Configuring APN and Server Parameters

To ensure the device gets online and operates correctly, you are advised to check the APN and server settings. You can set the APN and the server via SMS commands if necessarily.

- APN settings

It is recommended to contact your network operator to confirm the APN information. Then you can use your phone to deliver the following SMS command to the VL502:

APN, apnname#

For example: APN, internet#

Or if your local APN contains a user name and password, you can use the following command to set the APN:

APN, apnname, user, password#

For example: APN, internet, CLENTE, AMENA#

- Server settings

It is recommended to contact your platform service provide to confirm the domain name and IP address of their serve. Then you can use your phone to deliver the following command to the VL502:

SERVER, mode, domain name/IP, port, protocol#

For example:

SERVER,1, www. ydpat. com,8011,0#

SERVER,0,211.154.135.113,8011,0#

"Mode=1" means to set the server parameters via the domain name;

"Mode=0" means to set the server parameters via the IP address.

"Protocol=0" means to connect to the server using TCP protocol.

3.2 Default configuration settings

- Movement and ignition detection:

Ⓛ Vehicle movement will be detected by accelerometer.

Ⓜ Ignition will be detected by vehicle power voltage between 9-36 V.

- Device will send a alert notification to the server if one of these events happen:

Ⓢ Vehicle keeps moving at speeds above the threshold for a preset duration.

Ⓣ Driver steps on the brake or gas pedal hard, corners rapidly.

Ⓤ The device is plugged or unplugged from the OBDII connector.

Introduction

4.1 Features

- Communication via 4G LTE networks. Two complementary positioning systems ensure the locations to be accurately displayed on cloud platform.
- Obtains real data of vehicle (accurate mileage, fault code, ACC status, fuel consumption statistics, battery voltage, engine speed, etc.)
- Two complementary positioning systems ensure the locations to be accurately displayed on cloud platform
- Get instant alerts for 4 kinds of dangerous driving behavior, depending on your needs.
- Instant alerts for atypical events such as car fault, collision, overspeed, device pull-out, engine idling, low battery, geo-fence entry/exit, etc.
- Through bluetooth connection you can configure parameters, upgrade software, and debug.
- Ensures constant tracking in the area with poor GPS signal or even without it.
- Simply plug this device into OBD II socket, you don't have to turn to professionals.

4.2 Basic characteristics

GNSS

Positioning system	GPS/BDS
Frequency	L1
Positioning accuracy	<2.5m CEP
Track sensitivity	-162 dBm
Acquisition sensitivity	-148 dBm (cold) /-156 dBM (hot)
TTFF (open sky)	Avg. hot start <1sec
	Avg. cold start ≤ 32sec

Cellular

Communication network	LTE Cat M1&NB
Frequency	Cat M1: B2/ B4/B5 /B12/B13 Cat NB2: B2 /B4/B5/B12/B13

Power

Battery	160mA/3.7V
Input voltage	9-36VDC

OBD interface

Data	K-Line, CAN Bus Data
Data Reading	Allow information to be read from OBDII port supports OBD protocols: ISO 9141-2 (5 baud init, 10.4 kbaud) ISO 14230-4 KWP (5 baud init, 10.4 kbaud) ISO 14230-4 KWP (fast init, 10.4 kbaud) ISO 15765-4 CAN (11 bit ID, 250 kbaud) ISO 15765-4 CAN (11 bit ID, 500 kbaud) ISO 15765-4 CAN (29 bit ID, 250 kbaud) ISO 15765-4 CAN (29 bit ID, 500 kbaud) SAE J1939 CAN (29 bit ID, 250 kbaud) SAE J1939 CAN (29 bit ID, 500 kbaud)

Interface

Connection	OBD II socket
GNSS antenna	Internal High Gain
USB	2.0 Micro-USB
LED indication	3 status LED lights
SIM	Nano-SIM
Data storage	4+4MB

Physical specification

Dimensions	65(L)*50(W)*25(H) mm
Weight	65 g

Operating environment

Operating temperature	-20 °C to 70 °C
Operating humidity	5%~95%, non-condensing

Feature

Sensors	Accelerometer
BLE	Support BLE 4.0 protocol
Ignition detection	External Power Voltage, Accelerometer Engine RPM
Scenarios	Vehicle movement alert, Over-speed alert Geo-fence, Vehicle battery detection, Power supply disconnection
Driving behavior analysis	Harsh acceleration, Harsh braking Harsh cornering, Collision
SMS	Configuration, Events, Debug
Fuel monitoring	OBD II

Precautions About Battery

Please use batteries that are specified by the manufacturer of the device. The manufacturer will assume no repair liabilities for damages resulting from the use of non-original accessories.

- Avoid metal objects as they may cause short circuits on battery contacts.
- Do not bend or forcibly open the battery.
- Do not soak the battery in water or expose it to fire.
- It is forbidden to use batteries that are deformed, discolored, spilled, or package-damaged.
- It is forbidden to disassemble or modify the battery.

Warranty Instructions and Service

6.1 Special Note

- No prior notice will be given if the product is upgraded due to technological reasons.
- The appearance or color of the product is subject to the actual.
- The warranty card applies to the services of repair, replacement and refund of the product with the following IMEI.
- Please keep this warranty card and the original purchase receipt together in a safe place, as these will be needed at time of services.

6.2 Warranty Terms

- For damages not caused by human factors, this warranty lasts for one year starting from the date of purchase.
- You can choose to pay for the repair services in any of the following cases:
 - ① The warranty card expires;
 - ② No warranty card or valid proof of purchase;
 - ③ The product, including its accessories, is not in the warranty period;
 - ④ Quality issues resulted from unauthorized repair, crash, liquid spillage, accident, modification, or incorrect voltage input; or the label, IMEI, or counterfeit mark of the device is broken or scribbled;
 - ⑤ Damage caused by installing or using the device without following the instructions in this User Manual;
 - ⑥ The warranty does not cover damages resulted from soaking in liquid;
 - ⑦ The product model is inconsistent with that on the warranty card or the warranty card was altered;
 - ⑧ Damage caused by force majeure such as fire, flood, or lightning.

6.3 Note

- For vehicle trackers
As of January 1, 2016, the warranty lasts for 1 (one) year from the date of purchase.
- The specific terms are
 1. A full replacement, including accessories, if the product is found defective during the unpacking check (that is, the device has neither been installed nor used);
 2. If a defect occurs within one year after installation, then:
 - ① ©Replace only the mainboard if the housing is intact and doesn't affect normal use; or
 - ② @Replace the housing and the mainboard if the housing is defective and affects normal use (Please be noted that man-made damages will void the replacement service for the housing).
 3. Free repair services will be given to the product if a defect is found during the first year under proper use.

Troubleshooting

When an issue arises with the device, you can troubleshoot it by the following solution. If the issue persists, please don't hesitate to contact your dealer or service provider.

Common Issues	Possible Causes	Solutions
Poor signal	The device is used in an area where radio waves cannot reach, such as near high-rise buildings or in a basement.	Try it in a place where satellite signals can be well received.
Power-on failure	No SIM	Insert a SIM.
	The battery is exhausted.	Charge the device.
Failed to access the network	The SIM card may be attached improperly.	Check the SIM.
	The metal side of the SIM card is stained.	Clean it with an eraser.
	The SIM card is invalid.	Please contact your network service provider.
	The device is out of cellular service areas.	Try it in a service area.
	The signal is extremely weak.	Try it in an area with strong signals.
Failed to query a location		
	The device keeps replying with "No data found, please try again".	Please contact your dealer.

Warranty Card

Customer Information

Customer Name		IMEI No.	
Mailing Address			
Product Model		Phone	
Date of Purchase		Invoice No.	
Purchased From			
Address			
Phone			

*This is the basic document for warranty services. Please carefully fill in and safely keep this card.

Maintenance Record

Service Start Date	Problem and Solution	Service End Date	Customer Signature

Important

Please keep this warranty card in a safe place, as it is the proof for one-year free warranty services. If this card is lost, the Company will determine the date of purchase to be the thirtieth (30th) day after the date of production.

FCC Warning : NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help
- This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body