

VL111

LTE Vehicle Terminal

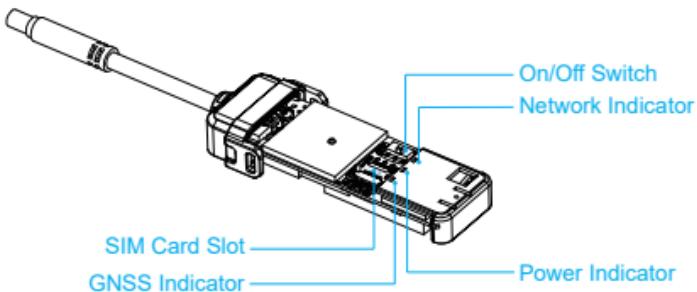
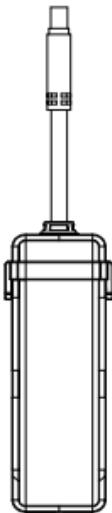
User Manual V1.2

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Hereby, VL111 declares that the radio equipment type LTE Vehicle Terminal is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <https://www.jimiot.com.cn/>

Product overview

The VL111 is a compact 4G LTE tracking terminal has a built-in GNSS module that supports GPS and BeiDou to determine the location of vehicle in real time and a built-in relay that allows the manager or operator to remotely cut off the fuel supply to the vehicle if an exception occurs. The VL111 also offers such features as historical trip playback and automatic power disconnection in the event of a low external battery.



Packing List

VL111	1	Unit	/
Power cable	1	Pcs	Cable length(1.5m)

Interface Specifications

Pin	Color	Description
V+	Red	Power + (9–30VDC)
V–	Black	Power – / GND
ACC	Orange	Vehicle startup detection
Relay Input (2 pins)	White	Input terminal that is used to cut off the fuel supply to the vehicle
Relay Output (2 pins)	Gray	Output terminal that is used to cut off the fuel supply to the vehicle
BUZ	Yellow	Control buzzer

LED Indication

Red (Power)

On for 0.3s and off for 0.3s	Low internal battery
On for 1s and off for 3s	Fully charged
On for 0.1s and off for 3s	Work correctly
Solid on	Charging (whose priority is higher than that of the low internal battery item)

Off	Internal battery insufficient/internal failure
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Blue (GNSS)

On for 0.3s and off for 0.3s	In search of GNSS signals
Solid on	Positioned fixed
Off	The GNSS module is in sleep or not working

Green (Cellular)

On for 0.3s and off for 0.3s	Network initializing
On for 1s and off for 3s	Receive network signals normally
On for 0.1s and off for 3s	Device online
Off	No cellular signals are received or no SIM card is attached

External Battery Status

The red, green, and blue indicators are on for 3 seconds	Connect or disconnect the external battery
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Note

The three indicators will go out after the terminal has been operating correctly for a while. They can be enabled to work for a while by disconnecting and reconnecting the external power supply, or you can send a command to make them always work.

Introduction

Specifications

Communication network	4G & 2G
	VL111S_LA01_6111_1010_JMS Cat1 LTE-FDD B1/B2/B3/B4/B5 /B7/B8/B28 GSM B2/B3/B5/B8
Frequency bands	VL111S_EM01_6111_1010_JMS Cat1 LTE-FDD B1/B3/B7/ B8/B20/B28; LTE-TDD B34/B38/B39/B40/B41 GSM B2/B3/B5/B8
GNSS	GPS + BDS
Positioning accuracy	< 2.5m CEP
TTFF (open sky)	Avg. hot start: 1s Avg. cold start: 32s
LED indication	GNSS (Blue) , Cellular (Green) , Power (Red)
Battery	270mAh/3.7V industry-grade Li-polymer battery
Operating voltage	9–90VDC
Ingress rating	IP66
Operating temperature	–20°C to +70°C
Product weight	42.9g
Dimensions	92x28x14mm

Output Power

GSM

Mode	Conducted Power (dBm)
GSM 900	25.15
GSM 1800	22.58

LTE

Mode	Conducted Power (dBm)
LTE B1	23.04
LTE B3	23.17
LTE B7	22.94
LTE B8	23.09

LTE B20	22.63
LTE B28	23.3
LTE B34	23.39
LTE B38	23.34
LTE B40	23.7
LTE B41	23.23

Mode	Bluetooth
EIRP (dBm)	6.70

Functions

Live tracking	The terminal is accurate to within 2.5m (CEP) radius under open sky.
Power-off alert	This type of alert is triggered by a sudden power disconnection or a cut of the connection cable.
Low external battery alert	This type of alert will be triggered if the terminal detects the voltage of the external battery is lower than a preset threshold.
Power-off due to low external battery	If the terminal detects that the voltage of the external battery is lower than a preset threshold, it will automatically disconnect from the external battery to protect the vehicle battery from over discharge.
Remote fuel cutoff	If the terminal detects an exception of the vehicle, it will notify the user, who can send a command to request the terminal to cut off the fuel supply to the vehicle.
Vibrating alert	This type of alert will be triggered if the terminal detects any unexpected vibration of the ignition-off vehicle.

Installation

Terminal Check

Visually check if the terminal is in good condition and if all accessories are included.

SIM Card Attachment

Prepare a standard SIM card. For the card size, see the following figure:



Standard ✕

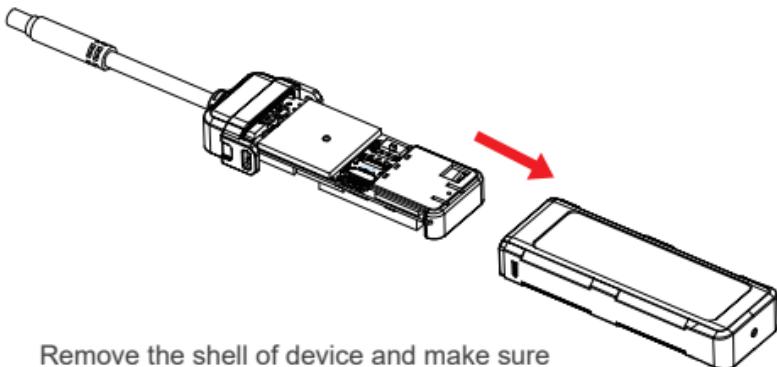


Micro ✕

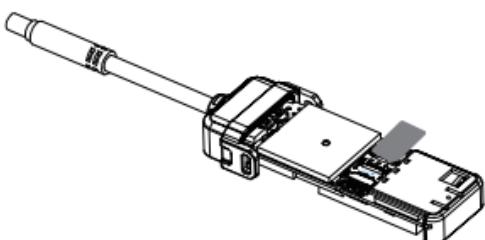


Nano ✓

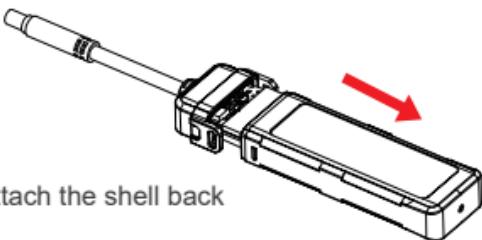
Attach the SIM card, as shown in the following figure:



Remove the shell of device and make sure the switch is OFF



Insert SIM card into the slot and toggle the switch to ON



Attach the shell back

Note:

The SIM card must be inserted correctly, has GPRS services activated, and is not in arrears. Before removing the SIM card, make sure that the external power supply is disconnected and that the internal battery switch is in the OFF position.

Wiring Diagram

Tips for finding the right wires:

1. Use a multimeter to find out the positive and negative of vehicle battery.

Note: The battery voltage will display on the multimeter regardless of the ignition status of the vehicle.

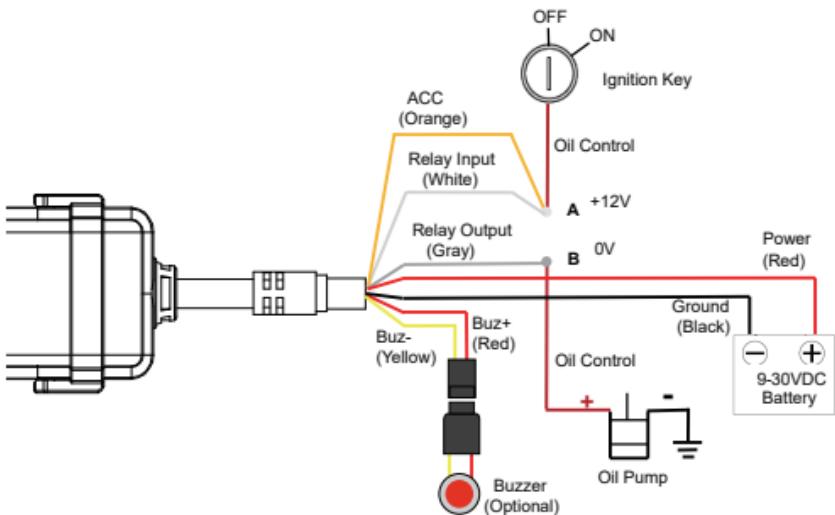
2. The way to find out the oil pump control wire:

When ignition key in the ON positions, disconnect the wires closed to the ignition key one by one and check the engine status. If the oil pump control wire is disconnected, vehicle will cut off the oil immediately, and it will not be able to start the engine again.

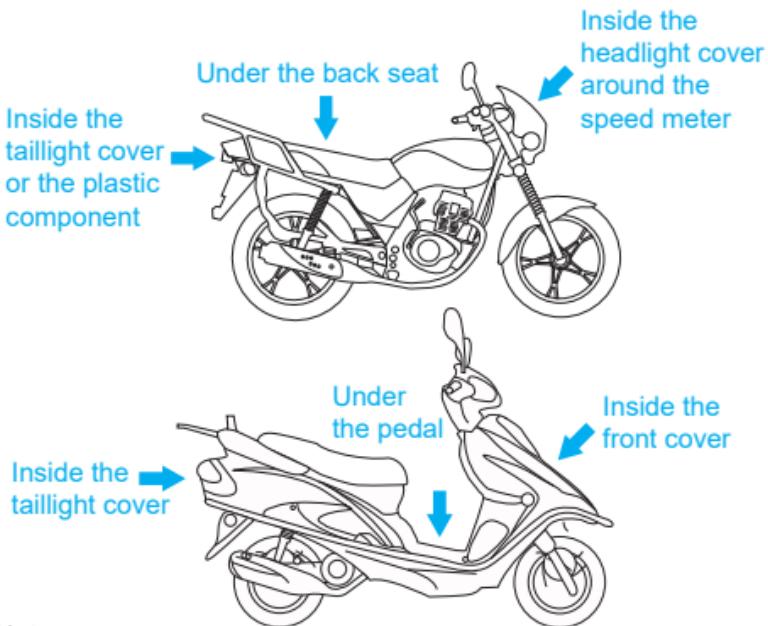
3. Find out the oil control direction:

Disconnect the oil pump control wire, and when the ignition key is in the ON positions, measure the voltage at both ends (the A and B as shown in the following picture) of the oil control line. The wire with 12V voltage is used as the input (A as an example), and wire with 0V voltage is used as the output (B as an example).

4. At last, connect the tracker relay input white wire and ACC orange wire to wire A of vehicle, connect the relay output gray line to wire B of vehicle.



Installation Diagram for Motorcycles



Note:

1. The device should face up to sky.
2. Metal thermal barrier or heating layer, which are always installed on windshield, may affect the signal, please avoid installing the device under these objects.

Platform Operations

Logging In to the Platform

You can configure and control the terminal via the platform designated by your dealer.

You can download the mobile app via the URL provided by your dealer.



iOS



Android

Battery Safety

Please use batteries that are specified by the manufacturer of the terminal. The use of any non-original accessories will void the warranty services. 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.

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.

Issues	Description	Solutions
Poor satellite signal	The terminal may be used in a place where the satellite signals cannot be perfectly penetrated, such as at lower stories of a high-rise building or in a basement.	Try it in a place where satellite signals can be well received.
	The terminal is facing downward or is blocked by metal objects.	Adjust the terminal so its front side facing upward or install it in another position.
Power-on failure	The internal battery is low.	Connect the device to an external power source to recharge the battery.
	Fuse burn-out	Contact your dealer for a replacement.
Failure to access the network	The SIM card is attached incorrectly.	Re-attach it.
	The metal side of the SIM card is stained.	Wipe it with a clean cloth.
	The SIM card is damaged or invalid.	Replace it.
	The terminal is out of the cellular service area.	Try it in a service area.
	The signal is poor.	Try it in an area with strong signals.
	The contact is poor.	Check if the power cable is connected securely.
Failure to query a location	Your SIM card has no GPRS services activated.	Please contact the network operator and activate GPRS services.
	The SIM card is in arrears.	Recharge it.
	The terminal doesn't respond to a command.	Check to ensure that the terminal can access the network and the SIM card is activated with text feature.

Warranty instructions

1. The warranty is valid only when the warranty card is properly completed, and upon presentation of the proof of purchase consisting of original invoice indicating the date of purchase, model and serial No.of the product. We reserve the right to refuse warranty if this information has been removed or changed after the original purchase of the product from the dealer.
2. Our obligations are limited to repair of the defect or replacement the defective part or at its discretion replacement of the product itself.
3. Warranty repairs must be carried out by our Authorized Service Centre. Warranty cover will be void, even if a repair has been attempted by any unauthorized service centre.
4. Repair or replacement under the terms of this warranty does not provide right to extension or renewal of the warranty period.
5. The warranty is not applicable to cases other than defects in material, design and workmanship.

Maintenance Record

Date		Service by	
Product Model			
IMEI Number			
Failure Description			
Comments			

FCC compliance statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types LTE Vehicle Terminal (FCC ID: 2AMLF-VL111) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for use on the body is 1.28 W/kg. This device was tested for typical body-worn operations with the back of the LTE Vehicle Terminal kept 5mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 5mm separation distance between the user's body and the back of the LTE Vehicle Terminal. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.