MEITRACK T633L User Guide



Change History

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Document Changelog

Version	Date	Modification
3.0	2024-05-21	Add L1+L5 and L1+L5+DR versions; Add a description of the functionality of L1+L5+DR version; Add FOTA functionality; Add tire pressure sensor and passenger flow sensor accessories; Modify standby working current.

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1 Product Introduction

1.1 Product Overview

The T633L is a brand new 4G vehicle tracker with multiple RS232 and RS485 interfaces. This unit can connect to multiple accessories: RFID card reader, camera and LED Nixie Tube Display. At the same time, the T633L has a CAN interface, which support to monitor the CANBUS data of the vehicle. In addition, it supports driving behavior analysis, fuel level monitoring and temperature monitoring and its performance has been significantly improved.

Simultaneously add T633L dual-frequency positioning (L1+L5) and inertial navigation (L1+L5+DR) versions. The dual-frequency positioning version provides more accurate and stable positioning compared to the single-frequency version, with better resistance to interference, effectively avoiding drift issues. The inertial navigation version, based on the dual-frequency positioning version, adds compensation positioning functionality when there is no GPS signal, such as in tunnels, underground parking garages, or environments with strong GPS interference, enabling effective high-precision positioning tracking.

1.2 Product Functions

1.2.1 Position Tracking

- GPS + LBS positioning
- L1+L5 dual-frequency positioning (optional)
- L1+L5+DR dual-frequency +DR (optional)
- Real-time location query
- Track by time interval
- Track by distance
- Cornering report
- Track by mobile phone

1.2.2 Anti-Theft

- SOS alert
- GPS antenna cut-off alert
- External power supply cut-off alert
- GPS blind spot alert
- Remote vehicle fuel/power cut-off
- Engine or vehicle door status alert
- Towing alert
- Geo-fence alert

1.2.3 Monitoring

- Harsh acceleration and braking detection
- Idling detection
- Fatigue driving reminder and monitoring
- Speeding reminder and monitoring
- Driver authorization detection

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- Fuel level monitoring
- Temperature monitoring
- Vehicle CANBUS data monitoring
- Harsh cornering detection
- Impact detection
- Rollover detection

1.2.4 Other Functions

- SMS/GPRS (TCP/UDP) communication (Meitrack protocol)
- Built-in 8 MB buffer for recording driving routes
- Mileage report
- Low power alert for internal battery
- Build-in 3-axis accelerometer
- Over-the-Air (OTA) update
- Device status inquiry
- supports offline FOTA function
- supports dual-server data transmission

1.2.5 Functions of Optional Accessories

Optional Accessory		Function
Microphone & Speaker		Two-way calling OR monitoring
iButton		Identify the driver ID and grant permission to start the vehicle.
A53 resistive fuel level sensor		Detect the fuel level.
A52 digital temperature sensor + A61 sensor box		Detect temperature.
2 RS232 ports	RFID reader	Identify the driver ID and grant permission to start the vehicle. Monitor driver attendance by RFID report.
	Tire pressure sensor	used to detect tire pressure and temperature status.
	Ultrasonic fuel level sensor	Detect the fuel level.
4 RS485 ports	2 camera ports	Photographing and monitoring
	Passenger flow sensor (ASPC102)	used to collect and analyze pedestrian traffic data.
	2 A81 LED Nixie Tube Display ports	Display driving speed in real time and temperature.

1.3 Product Features

1.3.1 Analysis of driver driving behavior

The analysis of driving behavior includes Idle Overtime detection, Fatigue Driving detection, Overspeed detection, Harsh Braking detection, Harsh Acceleration detection and Harsh Cornering detection, etc

Idle Overtime detection: If the speed is less than 5km/h for 180 seconds, the alarm will be activated, parameters can be modified by the B14 command or Meitrack Manager.

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Fatigue Driving detection: If the vehicle has been driving for 240 minutes, the fatigue driving alarm will be activated, parameters can be modified by the B15 command or Meitrack Manager.

Overspeed detection: Disabled by default, parameters can be modified by the B07 command or Meitrack Manager.

Harsh Braking, Harsh Acceleration and Harsh Cornering detection: the alert results vary according to the device installation, vehicle model, vehicle weight, and driving behaviors. After the device has been installed properly, you can use the BBD command,BC6 command and Meitrack Manager software to adjust the harsh acceleration and braking alert values.

1.3.2 Emergency Alarm Detection



SOS Emergency Alarm: After the SOS button is pressed, the SOS alarm alarm will be triggered

Vehicle Impact Detection Emergency Alarm: The alert results vary according to the device installation, vehicle model and vehicle weigh. After the device has been installed properly, you can use the CB4 command and Meitrack Manager software to adjust the Impact Detection alert values. It is recommended to securely install the device, otherwise this alarm may not be triggered accurately.

Vehicle Rollover Detection Emergency Alarm: When the rollover Angle is greater than 45° and lasts for 10 seconds, there will be a Rollover Alarm. The CC7 command can be used to calibrate the horizontal plane of the vehicle

1.3.3 Maximize I/O flexibility

T633L Offer outstanding configuration flexibility to cater to a wide variety of requirements and support at most 9 digital inputs, 8 outputs, 4 AD ports:.

	Set to DIN high level trigger	Set to DIN low level trigger	Set to AD	Set to output
Pin 3(white)		√ (IN1)		
Pin 5(White&Brown)	√ (IN2)	√ (IN2)	√ (AD3)	√ (OUT5)
Pin 6(Yellow&Red)	√ (IN6)	√ (IN6)		√ (OUT3)
Pin 7(White&Red)	√ (IN3)	√ (IN3)	√ (AD6)	√ (OUT6)
Pin 8(Blue)	√ (IN4)	√ (IN4)	√ (AD1)	√ (OUT7)
Pin 9(Blue&Brown)	√ (IN5)	√ (IN5)	√ (AD2)	√ (OUT8)
Pin 10(Yellow)	√ (IN7)	√ (IN7)		√ (OUT1)
Pin 11(Yellow&Brown)	√ (IN8)	√ (IN8)		√ (OUT2)
Pin 12(Green)		√ (IN9)		√ (OUT4)

1.3.4 CAN Interface

The device can read CAN bus data of a vehicle that supports the FMS protocol.

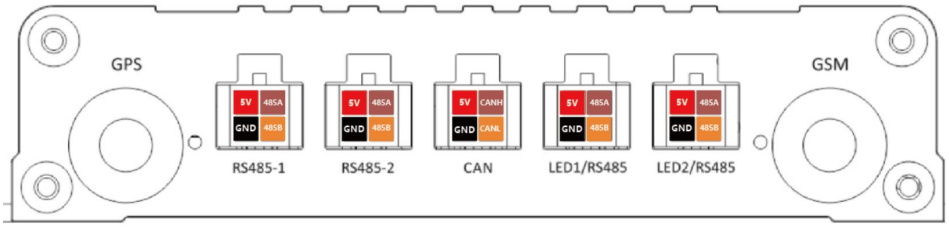
The following data can be read: vehicle speed, vehicle control status, accelerator pedal position (%), total fuel consumption, engine rotational speed, total engine run time, total mileage, engine coolant temperature, fuel level,

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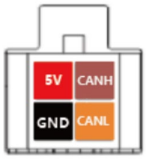
engine torque, ambient temperature, torque at current speed, fuel consumption rate, axle weight, service distance, and instantaneous fuel consumption.

Note:

1. To obtain the preceding data, the vehicle must support the FMS protocol.
2. Install the device based on vehicle types. Connect vehicle's CANH and CANL wires to tracker's CANH and CANL connectors respectively.



The CAN cable is a 4-pin cable, including: 5V power cable, ground cable, CANH and CANL.



CAN

Pin Number	Color	Description
1(5V Power +)	Red	Power output Output voltage: 5 V
2(GND)	Black	Ground wire
3(CANH)	Brown	Used to connect a CAN bus peripheral.
4(CANL)	Orange	Used to connect a CAN bus peripheral.

1.3.5 Dual-frequency positioning + DR (only supported by L1+L5+DR version).

Supports L1+L5 dual-frequency positioning version, which effectively suppresses drift caused by single frequency and provides more stable positioning accuracy. It also supports L1+L5+DR functionality, where the device automatically activates the DR inertial navigation feature when entering tunnels, underground parking lots, or areas with no GPS signal, ensuring continuous updating of the position.



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1.4 Specifications

Item	Specifications
Dimension	106 mm x 24.5 mm x 70 mm
Weight	190g
Power supply	DC 11.4–36 V/1.5 A
Backup battery	400 mAh/3.7 V
Power consumption	Current in sleep mode: 8 mA
Operating temperature	-20°C to 55°C(normal-temperature battery) -5°C to 75°C(high-temperature battery)
Operating humidity	5% to 95%
Working hour	45 hours in power-saving mode 4 hours in normal mode
LED indicator	Green indicator showing the GSM signal Blue indicator showing the GPS signal
Button/Switch	1 SOS button (for sending SMSs or dialing) 1 power button
Memory	8 MB byte
Sensor	3-axis accelerometer (used to wake the device up by vibration and detect towing alerts)
Frequency band	**T633L-E：** GSM:B3/B8 WCDMA:B1/B8 FDD:B1/B3/B7/B8/B20/B28A **T633L-A：** WCDMA:B2/B4/B5 FDD: B2/B4/B12 **T633L-AU：** GSM:B2/B3/B5/B8 WCDMA:B1/B2/B5/B8 FDD:B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD:B40 **T633L-J:** LTE CAT1: FDD:B1/B3/ B8/B18/ B19/B26 **T633L-G：** LTE CAT1: FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 TDD:B38/B39/B40/B41 WCDMA:B1/B2/B4/B5/B6/B8/B19 GSM：850/900/1800/1900MHz

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	T633L-ER GSM:900/1800 LTE-FDD:B1/B3/B7/B8/B20/B28 LTE-TDD:B38/B40 **T633L-EA** GSM:900/1800 WCDMA:B1/B5/B8 LTE-FDD:B1/B3/B5/B7/B8/B20/B28/B28A/B28B LTE-TDD:B38/B40
CAN protocol	J1939（FMS）
Positioning accuracy	Standard L1: 2.5m L1+L5 or L1+L5+DR (optional): 1m.
GNSS	Standard L1: GPS/BEIDOU L1+L5 or L1+L5+DR (optional): GPS/GLONASS/BEIDOU/GALILEO/QZSS
I/O port	The device supports 3 digital input ports, 3 output ports, 2 AD input ports, and 1 1-Wire digital temperature sensor (iButton) interface by default. At most 9 negative input OR 7 positive ports, 8 output ports, or 4 AD input ports can be configured. For details, see the section 2.6.3 "I/O Cable." 2 RS485 ports (4 pins) for connecting to the LED Nixie Tube Display 2 RS485 ports (4 pins) for connecting to the camera 1 CAN bus interface (FMS protocol) 1 RS232 port (8 pins) for connecting to the RFID card reader or ultrasonic fuel sensor 1 extended RS232 port (4 pins) for connecting to the RFID reader or ultrasonic fuel sensor 1 audio port (3.5 mm) 1 Micro USB port

1.5 T633L and Accessories

T633L and standard accessories:

- T633L tracker
- External 4G antenna
- External GPS antenna
- I/O cable with an SOS button (2 meters)
- CD download card
- CANBUS convertor cable

Optional accessories:

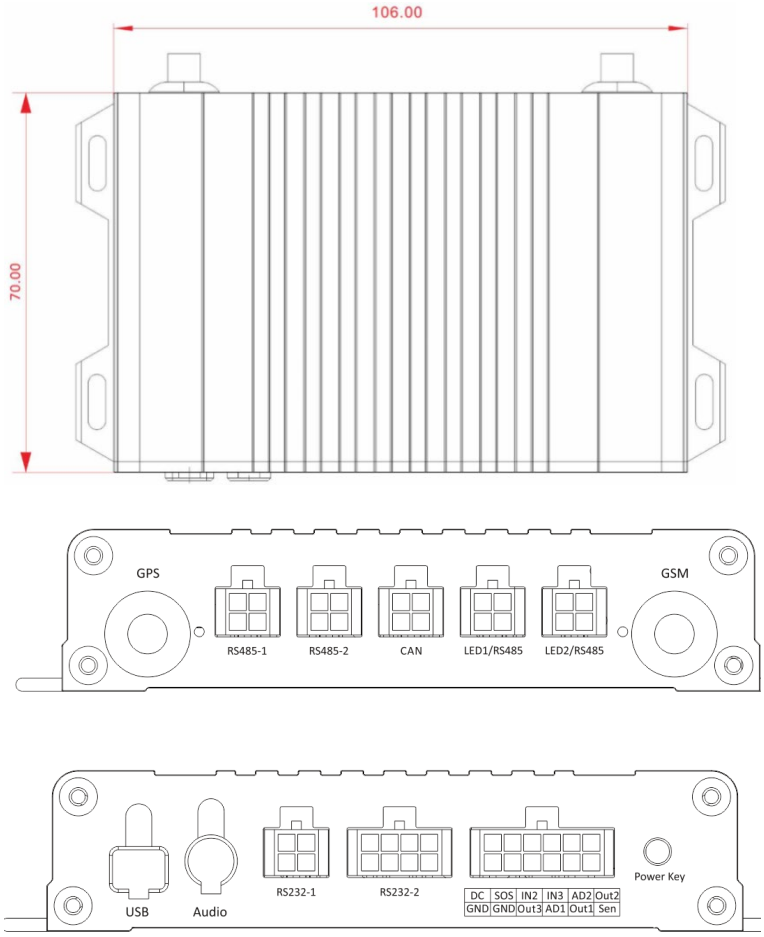
- iButton
- Relay (12 V/24 V)
- A53 fuel level sensor (voltage sensor)
- A52 digital temperature sensor
- RFID reader
- Buzzer
- Camera
- A81 LED Nixie Tube Display

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- Speaker and microphone
- USB cable
- Ultrasonic fuel level sensor
- Passenger flow sensor (ASPC102)
- Tire pressure sensor

1.6 About the T633L

1.6.1 Appearance



1.6.2 LED Indicator

Press and hold down the power button for 3–5 seconds to start the device.

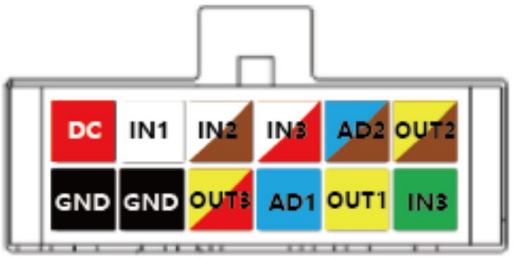
GPS Indicator (Blue)	
Steady on	A button or an input is triggered.
Blink (every 0.1 seconds)	The device is being initialized or the battery power is low.
Blink (0.1 seconds on and 2.9 seconds off)	A GPS signal is received.
Blink (1 second on and 2 seconds off)	No GPS signal is received.
GSM Indicator (Green)	
Steady on	A call is coming in.

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Blink (every 0.1 seconds)	The device is being initialized.
Blink (0.1 seconds on and 2.9 seconds off)	A base station signal is received.
Blink (1 second on and 2 seconds off)	No base station signal is received.
Blink (3 second on and 1 seconds off for 90 seconds)	CAN data retrieved successfully

1.6.3 I/O Cable

The I/O cable is a 12-pin cable, including the power, analog input, digital temperature sensor input, and negative/positive input and output interfaces.



DC	SOS	IN2	IN3	AD2	Out2
GND	GND	Out3	AD1	Out1	Sen

Pin Number	Color	Description
1 (Power +)	Red	Positive charge of the power input, connected to the positive charge of the vehicle battery. Input voltage: 11.4–36 V.
2 (GND)	Black	Ground wire, connected to the negative charge of the vehicle battery or to the negative terminal.
3 (Input 1)	White	Digital input 1, negative trigger (SOS button by default)
4 (GND)	Black	Ground wire, connected to input 1 (SOS button)
5 (Input 2)	White & brown	Digital input 2 (negative trigger) Connect to a door trigger signal cable to detect vehicle door status. (Most Chinese, Korean, and Japanese cars are negative edge-triggered.) The port can be set to positive trigger, AD input 3 (0–30 V), or output 5.
6 (Output 3)	Yellow & red	Output 3 Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 40 V Maximum current for output low voltage (valid): 500 mA Connect to an external relay to remotely cut off the vehicle fuel cable or engine power supply. The port can be set to positive or negative input 6.
7 (Input 3)	White & red	Digital input 3 (positive trigger) Connect to the vehicle ACC cable by default to detect the vehicle ACC status.

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		The port can be set to negative trigger, AD input 6 (0–30 V), output 6.
8 (AD Input 1)	Blue	Analog input 1 with 12-bit resolution and valid voltage 0–30 V Connect to an external sensor, such as the fuel level sensor. The port can be set to positive or negative input 4 or output 7.
9 (Fuel level sensor input)	Blue & brown	Analog input 2 with 12-bit resolution and valid voltage 0–30 V There is a white plug on the AD cable, and the cable is connected to the A53 fuel level sensor by default. The port can be set to positive or negative input 5 or output 8.
10 (Output 1)	Yellow	Output 1 Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 40 V Maximum current for output low voltage (valid): 400 mA Connect to an external relay to remotely cut off the vehicle fuel cable or engine power supply. The port can be set to positive or negative input 7.
11 (Output 2)	Yellow & brown	Output 2 Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 40 V Maximum current for output low voltage (valid): 400 mA Connect to a buzzer. The port can be set to positive or negative input 8.
12 (1-wire, Digital temperature sensor or iButton input port)	Green	TTL3.3V level Connect to the A52 digital temperature sensor or iButton by default by using the A61 sensor box. The port can be set to negative input 9 or output 4. Note: The DC or AC voltage that is greater than 3.3 V is not allowed. Otherwise, the device may be damaged.

2 First Use

2.1 Installing the SIM Card

1. Loosen the screws, and remove the front cover of the device.
2. Insert the SIM card into the card slot with its gold-plated contacts facing towards the Printed Circuit Board (PCB).
3. Close the cover, and tighten the screws.

Note:

- Power off the device before installing the SIM card.
- Ensure that the SIM card has sufficient balance.
- Ensure that the phone card PIN lock has been closed properly.
- Ensure that the SIM card in the device has subscribed the caller ID service if you want to use your authorized

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phone number to call the device.

2.2 Configuring Device Parameters by Meitrack Manager

This section describes how to use Meitrack Manager (version 6.0.2.4 or later) to configure the device on a computer.

Procedure:

1. Install the USB driver and Meitrack Manager.
2. Connect the device to a computer by using the USB cable.
3. Run Meitrack Manager, then the following dialog box will appear:



Turn on the device, then Meitrack Manager will detect the device model automatically and the parameter page will appear accordingly.

For details about Meitrack Manager, see the *MEITRACK Manager User Guide*.

2.3 Installing GPS and GSM Antennas

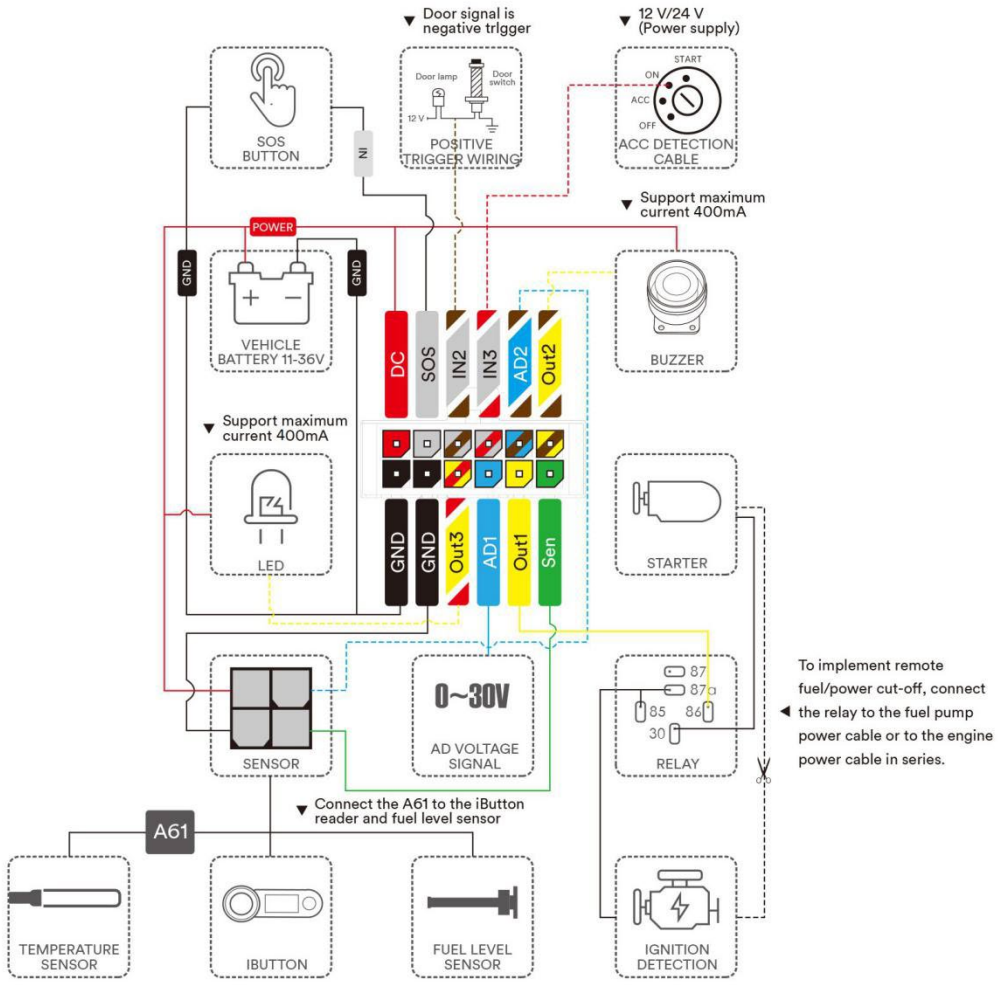
Connect the GSM antenna to the connector which is labeled "GSM". The GSM antenna is non-directional, so you can hide it in any place of a vehicle.

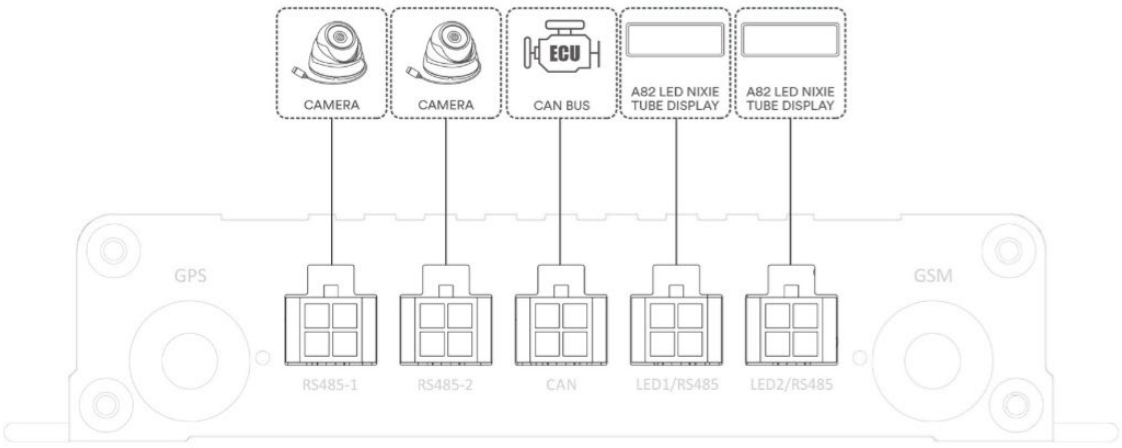
Connect the GPS antenna to the connector which is labeled "GPS". It is recommended that the antenna is facing up to the sky and the antenna side with words is downwards. Secure the antenna by using double sided tapes.

Note: Do not install the GPS antenna at a metal covered place.

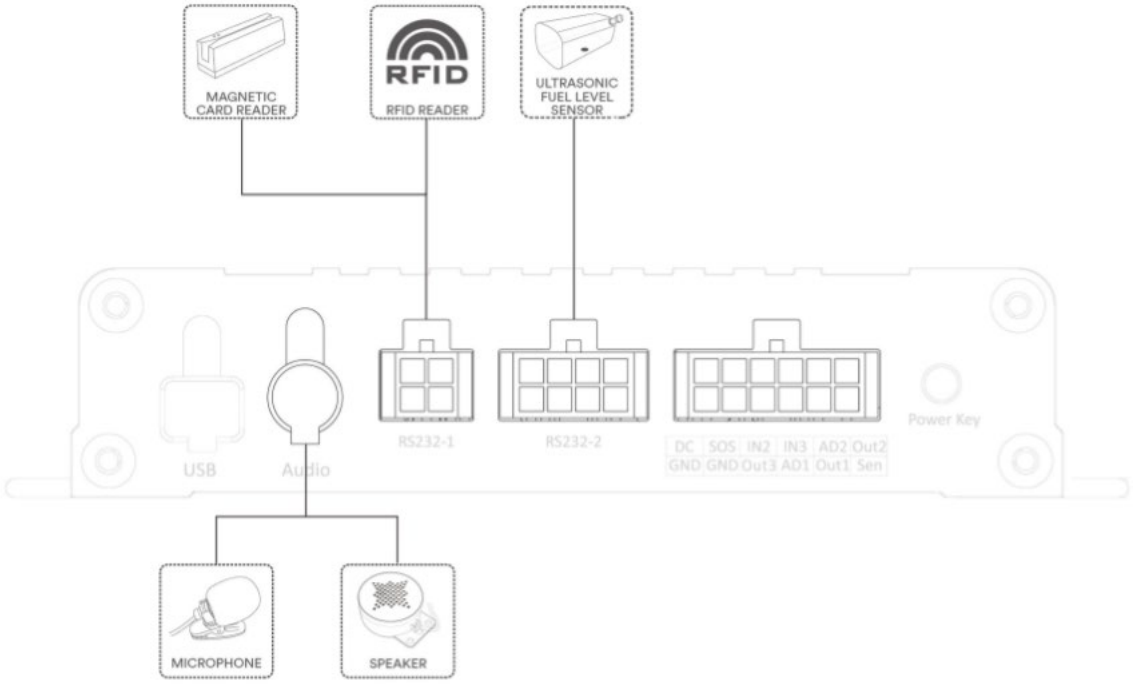
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2.4 Device Connection Diagram





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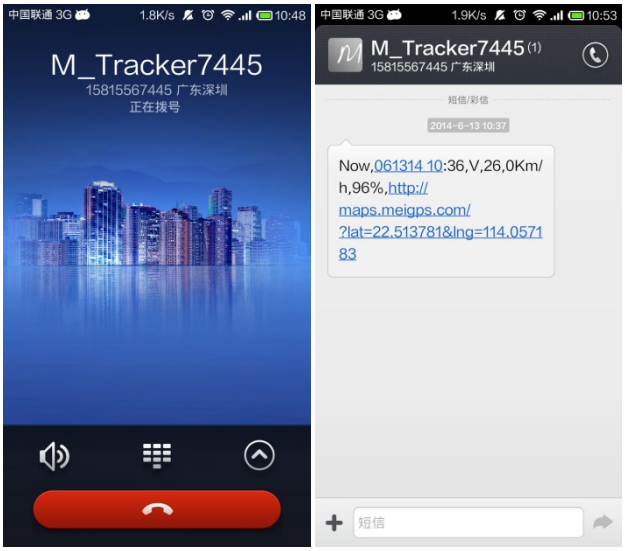


2.5 Tracking by Mobile Phone

Call or send the **0000,A00** command by SMS to the device's SIM card number. The device will reply to an SMS with a map link.

Click the SMS link. The device's location will be displayed on Google Maps on your mobile phone.

Note: Ensure that the device's SIM card number has subscribed the caller ID service. Otherwise, the tracking function by mobile phone will be unavailable.



SMS example:

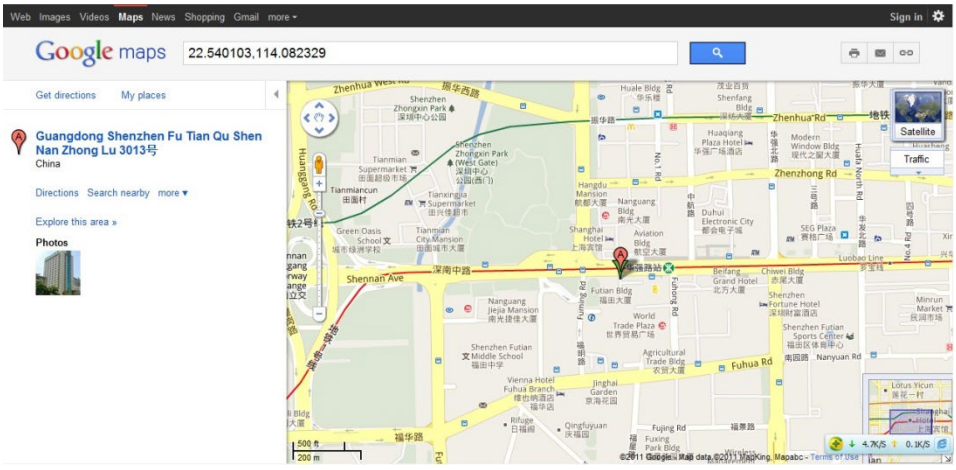
Now,061314 10:36,V,26,0Km/h,96%,http://maps.meigps.com/?lat=22.513781&lng=114.057183

The following table describes the SMS format:

Parameter	Description	Remarks

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Now	Indicates the current location.	SMS header: indicates the current location or the alert type.
061314 10:36	Indicates the date and time in **MMDDYY hh:mm** format.	None
V	The GPS is invalid.	A = Valid V = Invalid
26	Indicates the GSM signal strength.	Value: 1–32 The larger the value is, the stronger the signal is. If the value is greater than 12, GPRS reaches the normal level.
0Km/h	Indicates the speed.	Unit: km/h
96%	Indicates the remaining battery power.	None
http://maps.meigps.com/?lat=22.513781&lng=114.057183	Indicates the map link. Latitude: 22.513781 Longitude: 114.057183	None



3 MS03 Tracking System

Visit http://ms03.trackingmate.com, enter the user name and password, and log in to the MS03. (Purchase the login account from your provider.)

For more information about how to add a tracker, see the *MEITRACK GPS Tracking System MS03 User Guide* (chapter 4 "Getting Started").

The MS03 supports the following functions:

- Track by time interval or distance.
- Query historical trips.
- Set polygonal geo-fences.
- Bind driver and vehicle information.
- View various reports.
- Send commands in batches.
- Support OTA updates.

For details, see the *MEITRACK GPS Tracking System MS03 User Guide*.

If you have any questions, do not hesitate to email us at info@meitrack.com.

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