

MEITRACK T633L User Guide



Change History

File Name	MEITRACK T633L User Guide		
Project	T633L	Creation Date	2019-04-11
		Update Date	2020-06-05
Subproject	User Guide	Total Pages	18
Hardware version	V1.0	Software version	V202 or later
Version	V1.2	Confidential	External Documentation

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2 Product Introduction

2.1 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.

2.2 Product Functions

2.2.1 Position Tracking

- GPS + LBS positioning
- Real-time location query
- Track by time interval
- Track by distance
- Cornering report
- Track by mobile phone

2.2.2 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

2.2.3 Monitoring

- Harsh acceleration and braking detection
- Idling detection
- Fatigue driving reminder and monitoring
- Speeding reminder and monitoring
- Driver authorization detection
- Fuel level monitoring
- Temperature monitoring
- Vehicle CANBUS data monitoring

2.2.4 Other Functions

- SMS/GPRS (TCP/UDP) communication (Meitrack protocol)
- Built-in 8 MB buffer for recording driving routes (Store 4,096 GPRS cache records, 64 SMS cache records, and 65,536 GPS logs)
- Mileage report
- Low power alert for internal battery
- Build-in 3-axis accelerometer
- Over-the-Air (OTA) update

2.2.5 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.
	Ultrasonic fuel level sensor	Detect the fuel level.
4 RS485 ports	2 camera ports	Photographing and monitoring
	2 A82 LED Nixie Tube Display ports	Display driving speed in real time.

	Magnetic/RFID Reader	Ultrasonic Fuel Sensor	Camera	A82 LED Nixie Tube Display
RS232-1	✓	✓		
RS232-2	✓	✓		
RS485-1			✓	
RS485-2			✓	
LED1_RS485				✓
LED2_RS485				✓

All above are the peripheral that T633L already supported. If necessary, Meitrack is capable of customizing any peripherals like cameras, ultrasonic fuel sensor, LED display connected to T633L as long as they support RS232/RS485.

2.3 Product Features

2.3.1 Harsh Acceleration/Braking Alert

You can detect the harsh acceleration/braking alert by setting the limit value.

Cautions on device installation:

1. The device should be installed into the vehicle according to the following direction.
2. The device installation angle cannot exceed 15 degrees.



The default harsh acceleration and braking alert values are 230 mG and -300 mG respectively.

Accelerate and decelerate alarm

Accelerate alarm value	230	mG
Decelerate alarm value	-300	mG

Note: 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 Meitrack Manager software to adjust the harsh acceleration and braking alert values by every 10 mG. You can also use the D79 command to set the values.

2.3.2 Idling Detection

When the device detects that the vehicle stops moving for a long time and the ACC is on, an idling alert will be generated and the buzzer will make sounds every 0.5 seconds. When the ACC is off or the vehicle starts moving, the device will exit the idling state and the buzzer will not make sounds.

To implement this function, you must connect device's input 3 to ACC detection cable and output 2 to the buzzer, or connect device's input 3 to ACC detection cable and ensure that the magnetic card reader supports buzzer alerts.

For details, see the section 3.7.2 "Setting the Idling Alert – B14."

2.3.3 Fatigue Driving Detection

When the device detects that the driver has been driving a vehicle for a long time, a fatigue driving alert will be generated the buzzer will beep twice every 1 second.

To implement this function, you must connect device's input 3 to ACC detection cable and output 2 to the buzzer, or connect device's input 3 to ACC detection cable and ensure that the magnetic card reader supports buzzer alerts.

For details, see the section 3.7.3 "Setting Fatigue Driving – B15."

2.3.4 Controlling Buzzer Sounds

When the device detects speeding, the buzzer will make sounds (BI-BI-BI-BI).

To implement this function, you must connect device's output 2 to the buzzer or ensure that the magnetic card reader supports buzzer alerts.

For details, see the section 3.7.1 "Setting the Speeding Alert(only work with OUT2 Port) – B07."

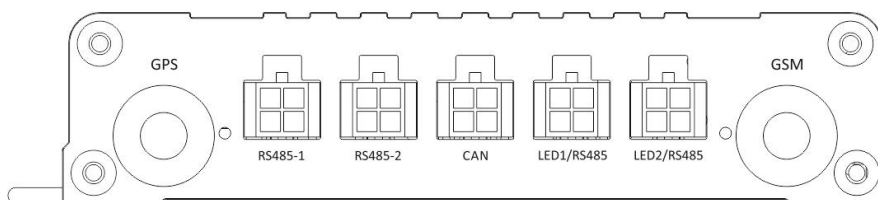
2.3.5 CAN Interface

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, 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.

1	3
5V(+)	CANH
2	4
GND(-)	CANL

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.

2.4 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: 11 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 : 2G GSM:B3(1800)/B8(900) 3G WCDMA:B1(2100)/B8(900) 4G FDD:B1(2100)/B3(1800)/B7(2600)/B8(900)/B20(800)/B28A(700) T633L-A : 3G WCDMA:B2(1900)/B4(1700/2100)/B5(850) 4G FDD: B2(1900)/B4(2300)/B12(700) T633L-AU : 2G GSM:B2(1900)/B3(1800)/B5(850)/B8(900) 3G WCDMA:B1(2100)/B2(1900)/B5(850)/B8(900) 4G FDD:B1(2100)/B2(1900)/B3(1800)/B4(2300)/B5(850)/B7(2600)/B8(900)/B28(700) LTE TDD:B40
GPS sensitivity	-163 dB
Positioning accuracy	2.5m
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 magnetic card reader 1 extended RS232 port (4 pins) for connecting to the RFID reader 1 audio port (3.5 mm) 1 Micro USB port

2.5 T633L and Accessories

T633L and standard accessories:

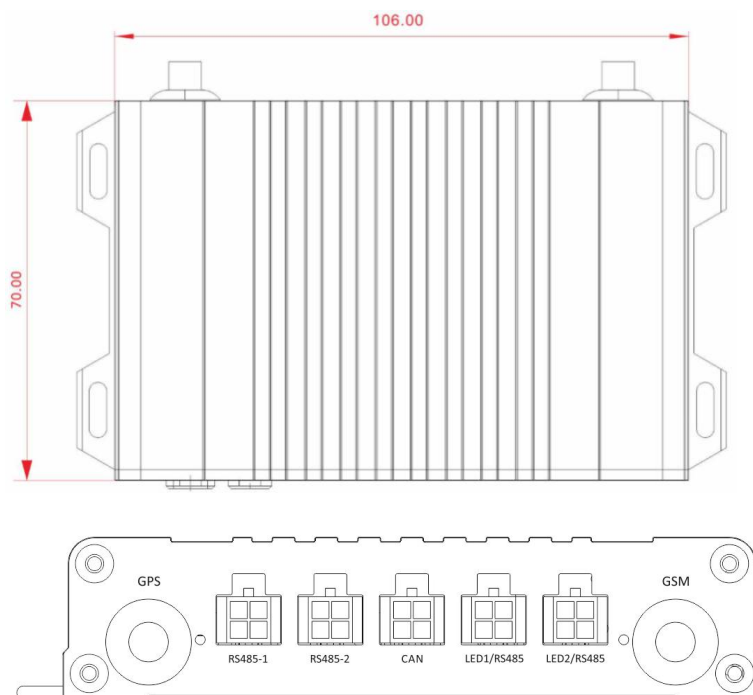
- T633L tracker
- External 4G antenna
- External GPS antenna
- I/O cable with an SOS button (2 meters)
- CD download card
- USB cable
- CANBUS convertor cable

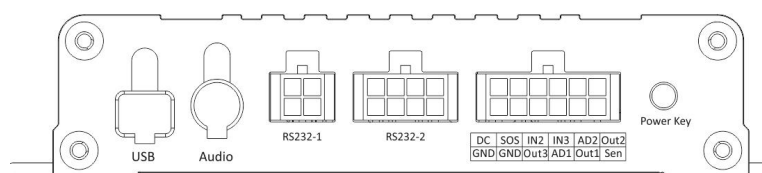
Optional accessories:

- iButton
- Relay (12 V/24 V)
- A53 fuel level sensor (voltage sensor)
- A52 digital temperature sensor
- RFID reader
- Magnetic reader
- Buzzer
- Camera
- A82 LED Nixie Tube Display
- Speaker and microphone

2.6 About the T633L

2.6.1 Appearance





2.6.2 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.
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.

2.6.3 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.

1 Power(+)	3 Input1	5 Input2	7 Input3	9 Fuel sensor	11 Output 2
2 GND(-)	4 GND(-)	6 Output3	8 AD input 1	10 Output 1	12 1-wire

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. 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.

Noted:

Based on all above, T633L could 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)

3 First Use

3.1 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 phone number to call the device.

3.2 Charging the Device

When you use the device for the first time, connect the device's GND (-Black) and Power (+Red) wires to 12 V or 24 V external power supply for charging. Ensure that the device is charged at least three hours. Eight hours are recommended.

The device can be installed on a vehicle only after it is configured and tested.

3.3 Configuring Device Parameters by Meitrack Manager

This section describes how to use Meitrack Manager (version 6.0.0.11 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*.

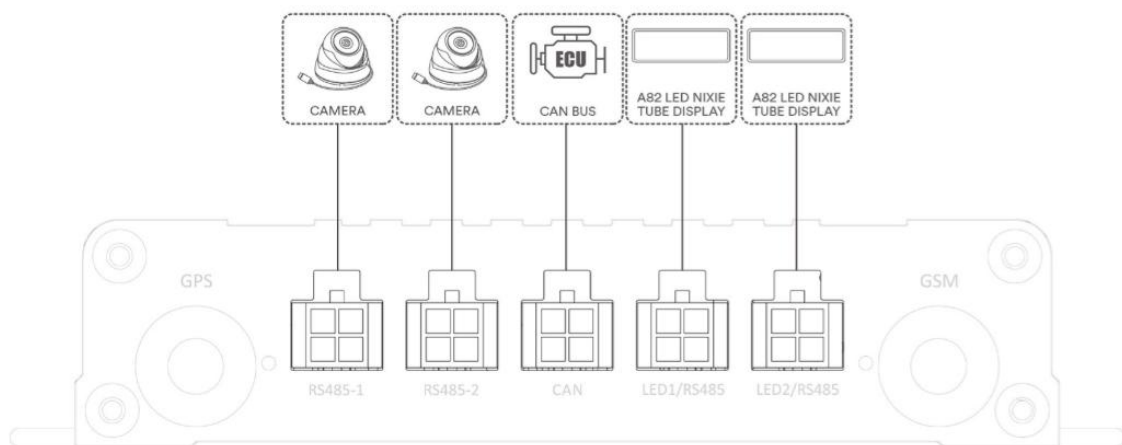
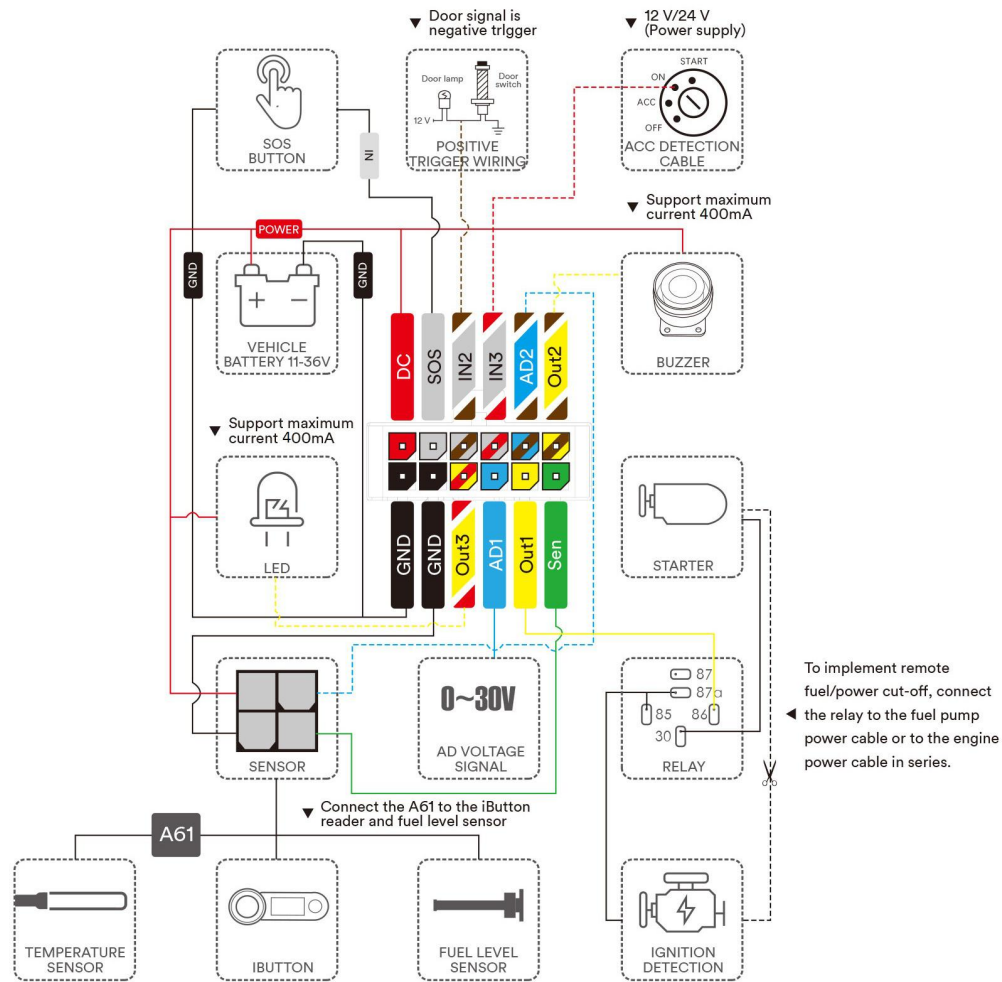
3.4 Installing GPS and GSM Antennas

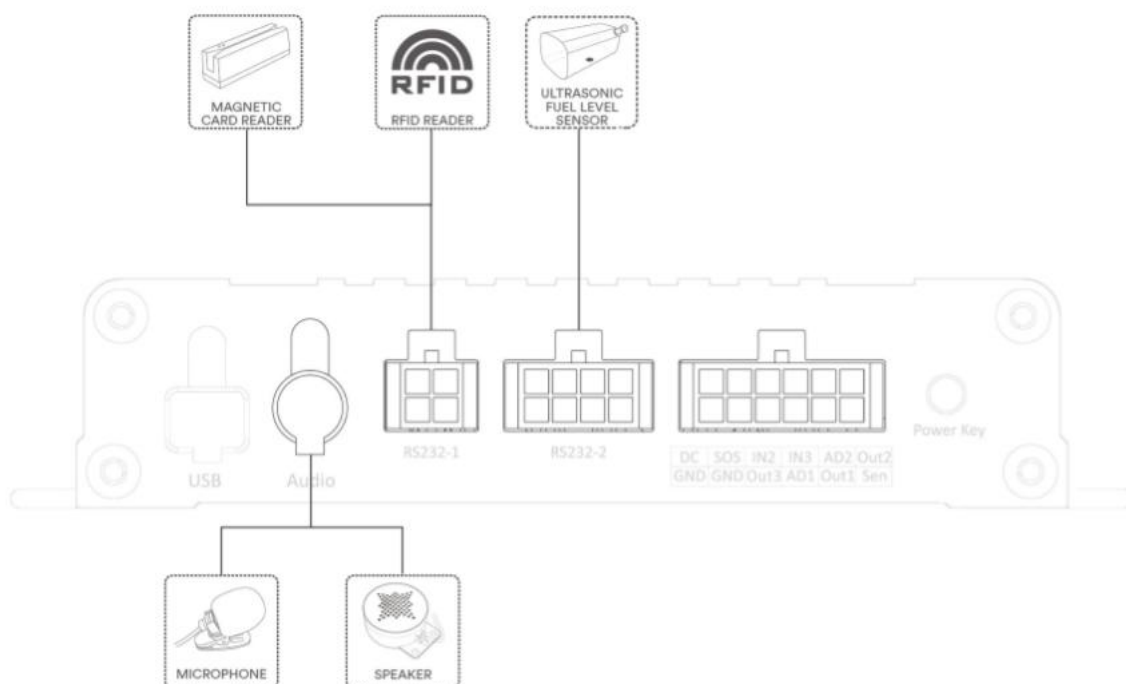
Connect the GSM antenna to the connector which is labeled "GSM". The GSM antenna is non-directional, so you can hide it in any place of a vehicle.

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.

3.5 Device Connection Diagram



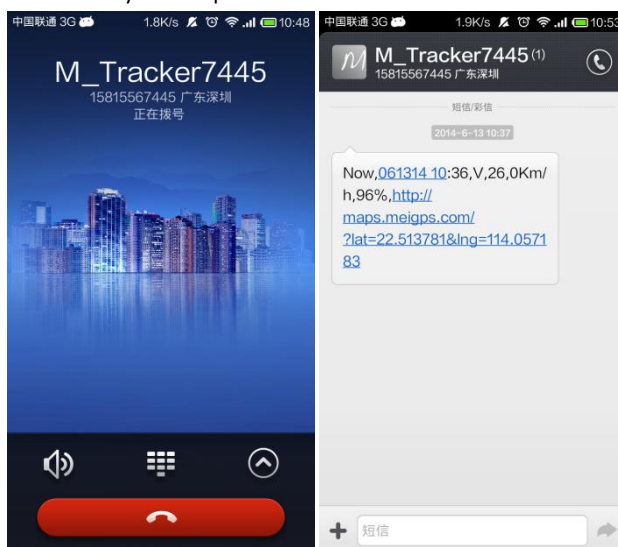


3.6 Tracking by Mobile Phone

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
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



3.7 Common SMS Commands

3.7.1 Setting the Speeding Alert(only work with OUT2 Port) – B07

SMS sending: 0000,B07,Driving speed,Buzzer mark

SMS reply: IMEI,B07,OK

Description:

Driving speed: The parameter value ranges from 0 to 255. Unit: km/h. When the driving speed is **0**, the speeding alert will be disabled.

When the buzzer mark is **0** (default) and speeding is detected, the buzzer will make sounds to alert users.

When the buzzer mark is **1** and speeding is detected, the buzzer will not make sounds.

Example:

Sending: 0000,B07,40,0

Reply: 353358017784062,B07,OK

3.7.2 Setting the Idling Alert – B14

SMS sending: 0000,B14,Duration of low speed,*Driving speed*,Alert time

SMS reply: IMEI,B14,OK

Description:

Duration of low speed: The parameter value ranges from 0 to 60000. The default value is **900**. Unit: second.

Driving speed: The parameter value ranges from 0 to 200. The default value is **5**. Unit: km/h.

Alert time: The parameter value ranges from 0 to 60000. The default value is **120**. Unit: second.

If you want to read idling parameters, send **0000,B14**.

Example:

Sending: 0000,B14,180,5,120

Reply: 353358017784062,B14,OK

3.7.3 Setting Fatigue Driving – B15

SMS sending: 0000,B15,Consecutive driving time,Alert time,ACC off time

SMS reply: IMEI,B15,OK

Description:

Consecutive driving time: The parameter value ranges from 0 to 1000. The default value is **240**. Unit: minute.

Alert time: The parameter value ranges from 0 to 60000. The default value is **300**. Unit: second.

ACC off time: The parameter value ranges from 0 to 1000. The default value is **20**. Unit: minute.

If you want to read fatigue driving parameters, send **0000,B15**.

Example:

Sending: 0000,B14,180,5,120

Reply: 353358017784062,B14,OK

3.7.4 Setting the Driving License Type – C50

SMS sending: 0000,C50,Driving license type 1,Driving license type 2,...Driving license type n

SMS reply: IMEI,C50,OK

Description:

Driving license type: The parameter value ranges from 0 to 65535. At most 16 types of driving licenses are supported.

The default parameter value is **0**, indicating that no driving license type is set.

If you want to read all types of driving licenses, send **C50**.

After a new parameter value is set, the existing parameter values will be deleted.

Example:

Sending: 0000,C50,24,12

Reply: 353358017784062,C50,OK

3.7.5 Setting the Duration of Buzzing(only work with OUT2 Port) – C51

SMS sending: 0000,C51,Time

SMS reply: IMEI,C51,OK

Description:

Time: indicates the maximum duration that the buzzer sounds. Unit: minute; value range: 0–255; default value: 10.

When the parameter value is **0**, the buzzer will sound all the time once it is pressed.

Example:

Sending: 0000,C51,10

Reply: 353358017784062,C51,OK

For details about SMS commands, see the *MEITRACK SMS Protocol*.

Note:

1. The default SMS command password is **0000**. You can change the password by using Meitrack Manager and SMS command.
2. The device can be configured by SMS command with a correct password. After an authorized phone number is set, only the authorized phone number can receive the preset SMS event report.

4 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.