GPS Tracker

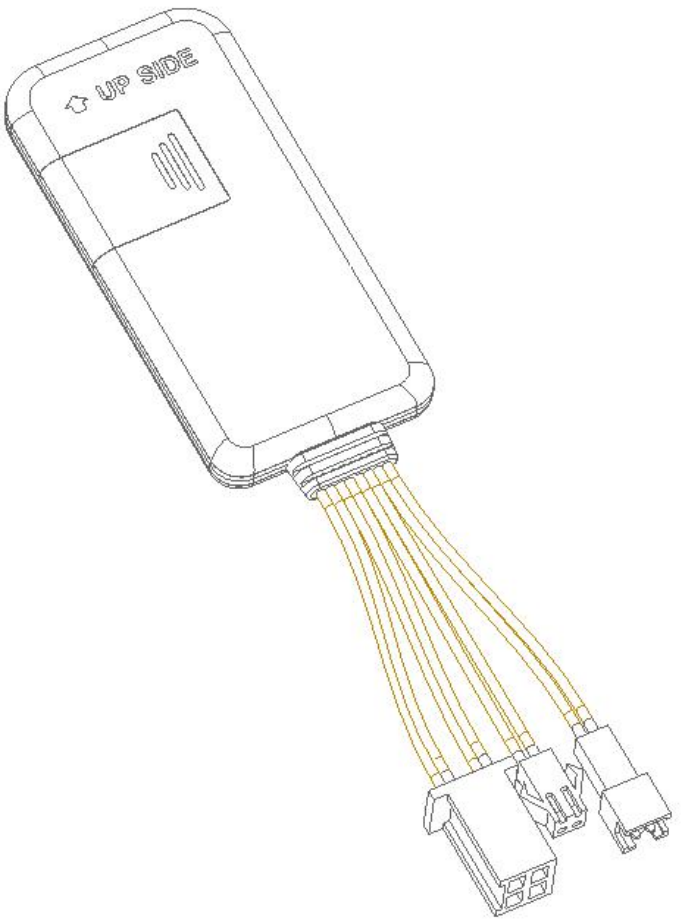
For Vehicle

<GPS+GSM+SMS/GPRS>

User Manual

V1.6

MODEL： TK116



Professional Tracking System

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Welcome to use our product， please read this manual to install and operate the terminal exactly. This user manual is for reference only. If some contents and operation steps are inconsistent with those for the actual product, the latter will prevail.

Using TK116 GPS tracker, we can position、monitor and control the vehicle on the position server via GPRS, GPS and Internet. It can help customers to manage transparently, reduce cost, maintain security and raise efficiency. Now it is widely used in business traffic, logistics distribution, automobile lease, intelligent transportation, shipping market, army and police, rescuing, Safety Supervision, Intelligent city…

I. Product Features

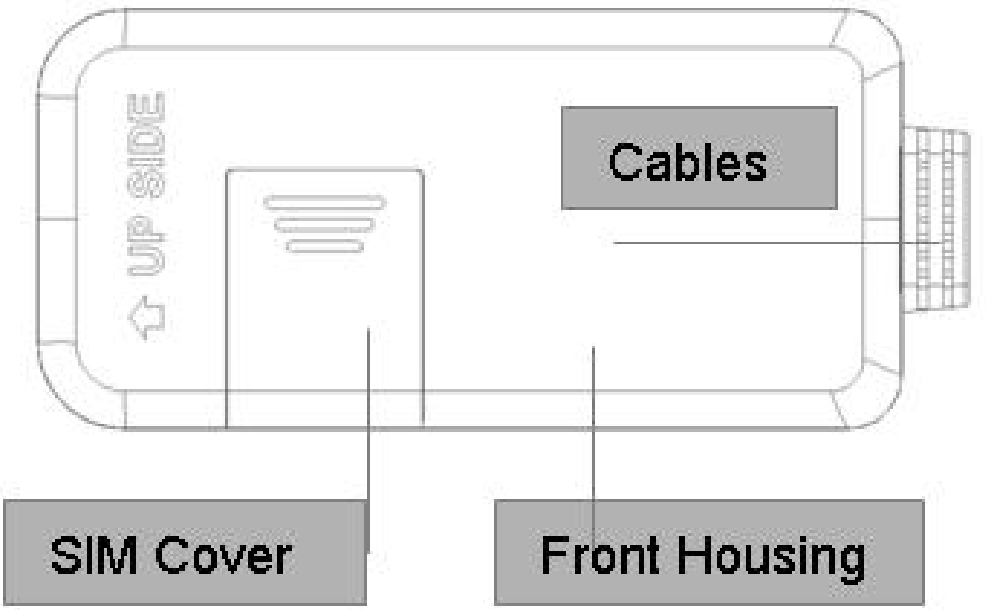
- Supports quad bands, i.e. 850/900/1800/1900MHz, universal in the world.
- Wide Input Voltage： 6-36V DC.
- GPS precise positioning with A-GPS, uploaded by GPRS regularly, Supports real-time tracking and history track playback.
- Web browser platform, Smart phone app platform and SMS query.
- Built-in battery, Power disconnect alarm & Low battery alarm.
- Built-in acceleration-Sensor, Support Vibration/ collision/ falling alarm.
- Supports ACC status checking and vehicle status notifying.
- Use relay to remotely control the vehicle.
- Use SOS button for SOS call.
- Use external MIC to remotely monitor.
- Multiple protocol support, OTA upgrade program.

Basic Specifications

Voltage	12VDC/24VDC
Work current	<30mA@12V
Standby Current	<10mA@12V
GPS positioning accuracy	15m
GSM positioning accuracy	100m
GPS Frequency	1575MHz
GSM Frequency	850/900/1800/1900MHz
Hot/warm/cold start time	<3s，<15s，<60s
Battery capacity	200mAh
Dimensions (mm)	79.5(L)X38.5(W)X10.5(H)
Operating temperature	-20℃~70℃
Operating humidity	20%～80%RH
Net Weight	45 g

II. Components and Accessories

2.1 Components

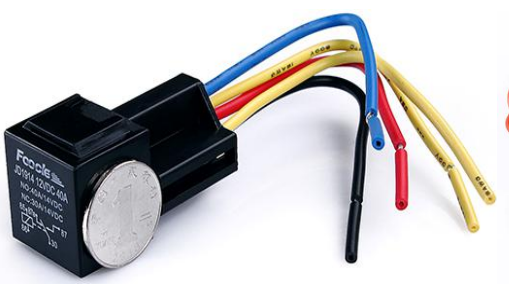


-Top Front-

Accessories （Reference pictures）

Power Cables（Default）

Microphone（Optional）



Relay（Optional）

SOS Cables（Optional）

Relay for remote cut off / resume oil, SOS button for SOS help, microphone for remote monitoring. Please note that these functions need the device equipped with the matched accessories.

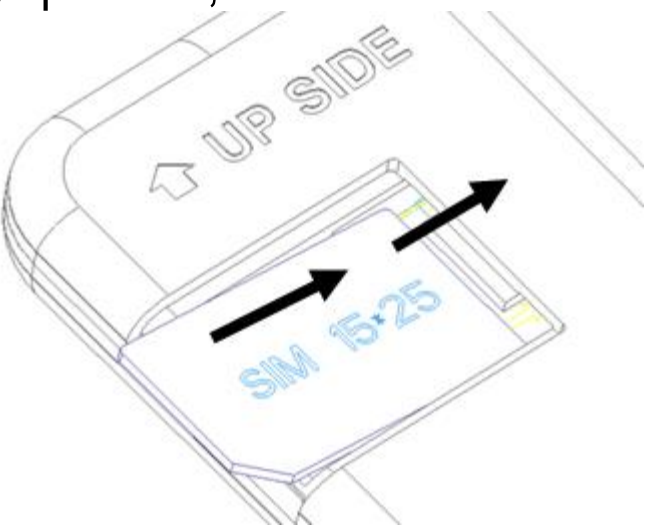
III. SIM card Installation

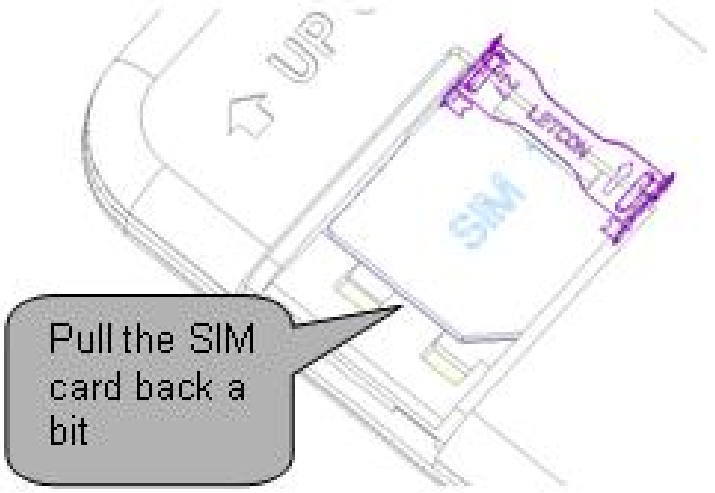
3.1 Before Installation

Open the packing case, then check if the terminal is OK and the accessories are intact, or please contact your dealer;

3.2 Install the SIM card

You need a suitable SIM card for using the terminal, please contact your dealer if you have any question;

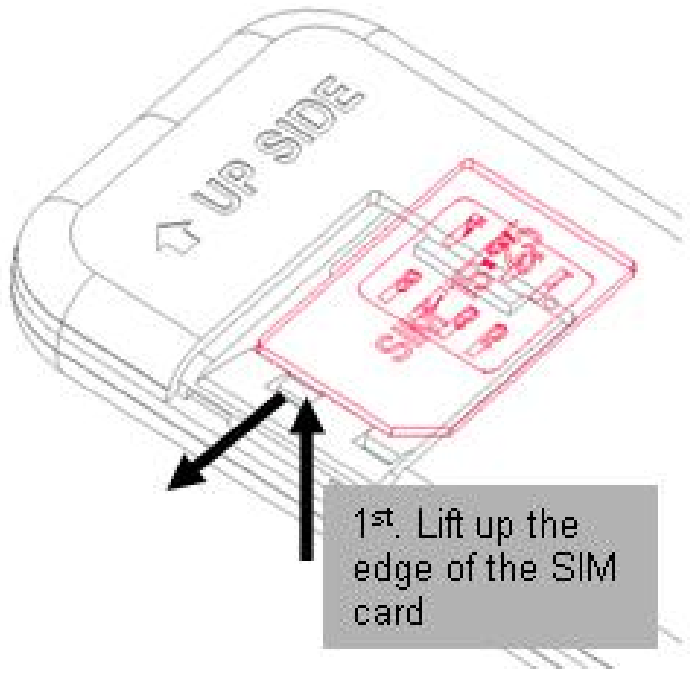




1. Insert the SIM card until cannot move it inside anymore;
2. Pull the SIM card back a bit;

3.3 Uninstall the SIM card

Lift up the edge of the SIM card, next pull it out.



1. Lift up the edge of the SIM card;

2. Pull out the SIM card.

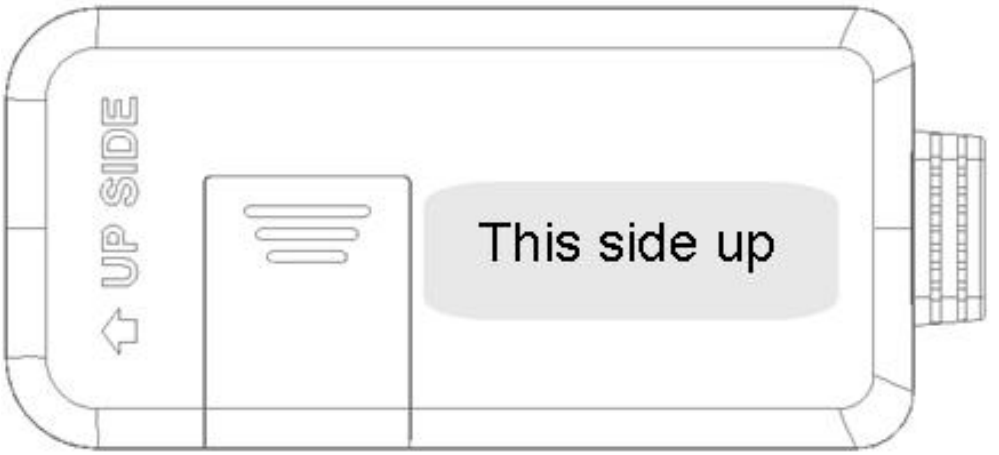
Note:

- Please cut off the power before installing or uninstalling the SIM card.
- The SIM card should support GPRS and the GPRS should be opening.
- Inquiry by call needs the SIM card supporting the calling line identification presentation.
- If you enable the PIN code of the SIM card, please use your mobile phone to disable the PIN code.
- Please make sure that the SIM card has sufficient balance.

IV. Terminal Installation

4.1 Install the terminal

4.1.1 Suggest to install the terminal concealed by the dealer designated professional body.



Please make sure to install the terminal with this side upward, and use wide strong double-sided adhesive sponge to fix it.

4.1.2 Installation Notice

- Hide the terminal properly inside the car body in order to avoid damages.

- Keep the terminal away from RF emission sources such as backing radar, car burglar alarm and other vehicle mounted communication devices.

- Suggest to use wide strong double-sided adhesive sponge to fix it, or use cable ties and other liable methods to fix it.

- Device Built-in GSM antenna and GPS antenna, Installation should ensure that the receiving side facing up (towards the sky) without metal cover on the top of it, otherwise may weaken the antenna signal, Cause the device to not work correctly.

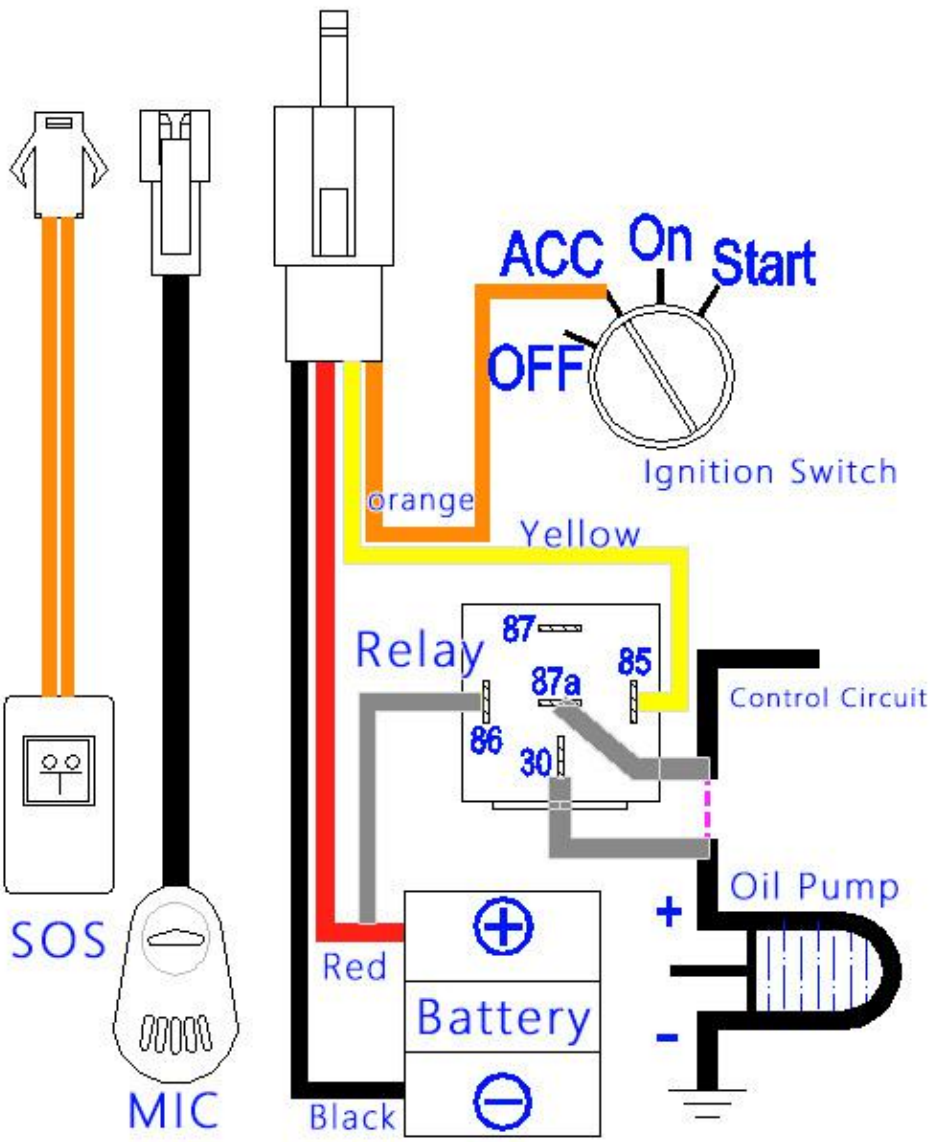
The recommended installation location:

1） The hiding place below the front windshield trim panel;

2） The hiding place around the front dash(if the surface is not made of metal);

3） The place under the rear windshield;

4.2 Terminal wiring definition

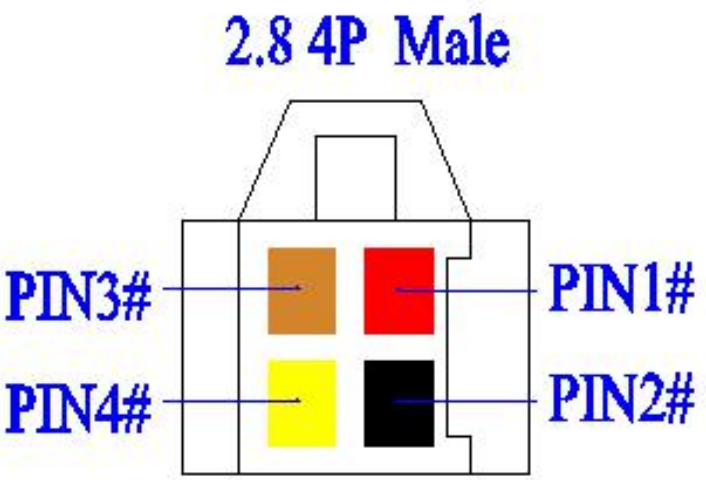


4.2.1 Power cables and interface for remote control

The standard input voltage of the terminal is 6V-36VDC, so please choose the our original power cables, the red cable is positive and the black cable is negative; Please ground the negative pole separately or ground it to ground connection, not to any other ground.

Connect the ACC cable (orange cable) to ACC switch of the vehicle, then the position server can get the information about the vehicle power; the ACC cable can also be connected directly to the positive pole of the vehicle power, then the position server think that the vehicle is always ignited.

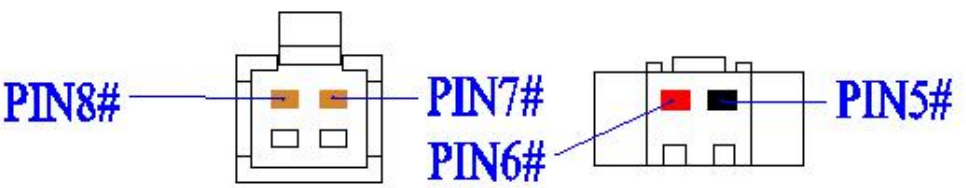
Connect the 4# cable (yellow cable) to the 86 terminal(with small yellow cable) of the relay. Use cable ties to fix the relay to waterproof place, or use plastic bags to cover the relay..



4.2.2 Other accessories' interfaces

1#	Power +, Red	
2#	Power −, Black	
3#	ACC, Orange	
4#	Relay, Yellow	

2.54 2P SM Female 2.54 2P SM Male



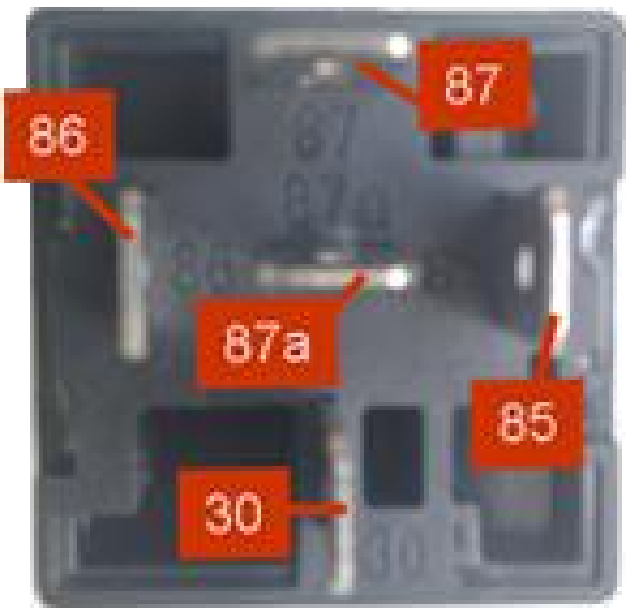
5#	MIC-, Black
6#	MIC+, Red
7#	SOS, Orange
8#	SOS, Orange

4.3 Relay wiring

Relay wiring diagram shows how to wire the relay to control the fuel pump:

4.3.1 Connect the 86 port to the positive pole of the vehicle power (+12V/+24V), connect the 85 port to the 4# cable (Yellow) of the terminal.

4.3.2 Cut off the positive pole of the fuel pump, next serial connects the positive pole to the 87a port of the relay, and connect another pole to 30 port, showing as in the figure.



Bottom of Relay Wiring Diagram

Notice: Be sure that the voltage of the vehicle power should match up to the working voltage of the relay, or the relay will be damaged.

4.4 External MIC

Using the external MIC cable we can have remote voice monitoring.

4.5 SOS cables

Using SOS cables device can send SOS Alarm

V. Power on the terminal

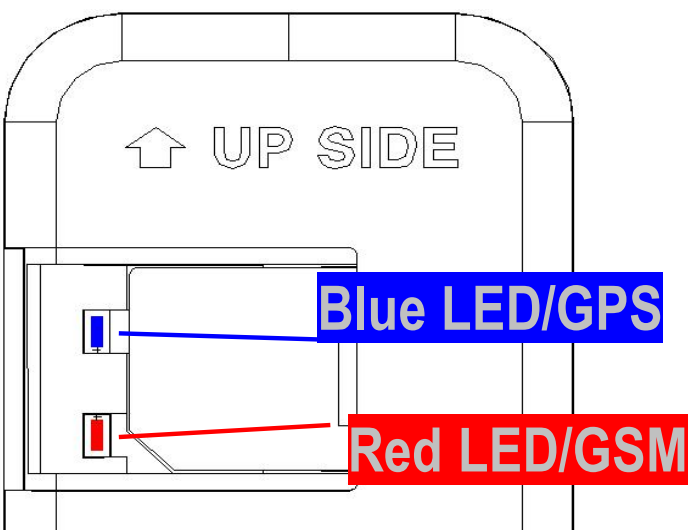
5.1 Power on

Power on: insert a valid SIM card and wire all the cables, then the terminal power on itself.

5.2 LED Indicators

The red LED flickers fast when the terminal is searching for GSM network, it flickers intermittently when the terminal connect with GSM network successfully.

The blue LED flickers fast when the terminal is searching for the GPS satellite signal, it flickers intermittently when the terminal has searched the satellites and can be positioned.



1. Red LED (indicates GSM working state)

Fast flicker	Searching for GSM network
Intermittently flicker	GSM/GPRS works normally

2. Blue LED (indicates GPS signal state)

Fast flicker	Searching GPS Satellites
Intermittently flicker	GPS works normally

5.3 Power off

Disconnect the external power and take off SIM card, after a while the terminal will shut down.

VI. Inquiry/Monitoring/Cut Oil

6.1 Inquiry by SMS

You can write a positioning SMS sending to the terminal to inquiry terminal position, the terminal will reply position SMS or map link. The SMS commands please refer to the Operation Commands

6.2 Inquiry by Service Platform

6.2.1 Web Browser platform

You can login the service platform and Register &

enter your ID and password to check the position of your terminal. Ask your dealer about the URL of Web platform.

6.2.2 Smart phone applications platform

You can use a smart phone to check the terminal's position. We have prepared for you the Android client (Android), Apple clients (IOS), please check with your dealer to get installation package.

6.3 Terminal Monitoring

6.3.1 Monitoring by dialing terminal

When the setting administrator number (such as center number, SOS administrator number) dial the terminal, the terminal will automatically connect the call after 8 seconds ring. Non-administrators can not monitor terminal by dialing, and this feature requires the terminal has the Caller ID.

6.3.2 Monitoring by Command

Sent monitor command to the terminal (see "Operating Instructions"), the terminal will cycle dial the number specified in the command for three times until getting through.

6.4 Cut off/Recover Oil circuits

6.4.1 Cut off oil circuits

Server(GPRS) or Center number (SMS) can send

cut-off fuel commands when needed. The fuel of the vehicle will be cut off on the premise of safety, and the vehicle will not be powered on.

To make sure the safety of the vehicle, the fuel of the vehicle will be cut off only if the terminal has positioned by GPS and the speed of the vehicle is less than 20KM/h or the vehicle is not moving.

6.4.2 Recover oil circuits

Server(GPRS) or Center number (SMS) can send recover-fuel-circuit commands to the terminal when needed, the terminal will recover the fuel circuits of the vehicle.

VII. Set up Terminal

Please refer to <**Operation Commands>**

VIII. Terminal Alarm

8.1 Vibration Alarm

Conditions: When the Vehicle Vibration occurs.

Note: You need to set vibration sensitivity and time, there are arm / disarm switch.

8.2 Collision / falling Alarm

Conditions: When Vehicle Collision or falling occurs.

8.3 Speed Alarm

Conditions: When the vehicle over and below the set speed.

Note: You need to set the low speed limit and high-speed limit.

8.4 Geo-fence Alarm

Conditions: when the vehicle entry / exit / across the Geo-fence.

Note: You need to set the conditions of crossing fence, fence types and so on.

8.5 Power Disconnect Alarm

Conditions: When the device is disconnected from external Power.

8.6 Low Battery Alarm

Conditions: When the device is disconnected from external Power and built-in battery power falls below a certain value.

8.7 SOS Alarm (need SOS Cable)

Conditions: When the SOS button is long pressed for 3 seconds.

Note: SOS button must be installed (optional accessory), and SOS administrator number must be set. When the SOS alarm occurs, terminal will dial the set SOS administrator number 3 times until get through.

Note: When above alarm occurs, the terminal will send alarm to service platform, meanwhile send a SMS message to the administrator number if the number is set.

Note: Alarm parameters must be set before work in 8.1, 8.3, 8,4 and 8.7, Please refer to the **<Operation Commands>**

IX. Trouble Shooting

9.1 Cannot connect to the platform

If terminal is never online on the position server after installation, please check as below:

1） If the power cables are wired correctly? Pay attention not connect them to the controlling cables of vehicle.

2） If SIM card is installed correctly? Please refer to the installation instructions.

3） Check status of the LED indicators. If the red LED and blue LED intermittently flick.

4） Inquiry the parameters of terminal via commands and check if parameters are correct.

9.2 Offline status on the platform

First check if LED indicators are OK, if cannot check them, you need to check the SIM card:

1）call the SIM card of the terminal and check if you can hear a connecting ring.

2） Check GSM signal of the area is OK or not.

3） Check if one terminal or all terminals are offline in the area in the same time. If all terminals are offline, you should check GSM network operator.

4） Check if the SIM card has enough balance.

5）If terminal becomes offline on the last day of one month, check GPRS service is still available or not.

6）Inquiry the parameters of terminal via commands and check if parameters are correct.

9.3 Not positioning for a long time

If GPS is active, but terminal cannot be positioned for long time, please check terminal:

1） Check GPS signal of the area is OK or not.

2） Upside of terminal face toward sky or not.

3） GSM and GPS signal may be weakened if the terminal is installed in the place with electromagnetic wave absorption material(such as metal blocks), lead to device can not be positioned.

9.4 Position drift

Serious position drift will be found in places where GPS signal is poor. Please drive the vehicle to the open places.

9.5 Commands receiving abnormally

1） Check the commands format.

2） Check if the vehicle is in the places where there is GSM signal.

3） Check if the SIM card is properly installed.

X. Warranty Rules

10.1 Special statement

1） Technology change without notice.

2） If the color and appearance are inconsistent with those for the actual product, Please according to the actual device received.

3） Warranty card is only valid for the terminals with the following IMEI.

4） Please take care of the warranty card and show it with the original purchase receipts when enjoying the warranty service.

10.2 Warranty period

One year warranty from the purchase date if it is not artificially damaged.

10.3 After sales

Any of the following circumstances not covered by the warranty, but may be appropriate to pay repair:

1） More than the warranty period.

2） Unauthorized removal or repair damaged.

3） Damage caused by improper installation, use, maintenance, custody.

4） The IMEI label is torn or Obscure.

5） Warranty certificate and product models do not match or warranty certificate be altered.

6） Damage caused by force majeure.

Warranty Card

NAME _____

TEL _____

Address _____

_____

Model _____

IMEI Number

Selling Unit _____

_____

Purchase Date

_____YY_____MM_____DD

Maintenance Records

Date	Description	Records	Completion Date	Engineer