Vehicle GPS Tracker (MT13)

User Manual

(V1.1)

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Warm Notice

The contents of this manual might be renewed from time to time without prior notice; KINGWO will improve or update the products or operation procedures described in the manual at any time. If there is a discrepancy between the real product and the manual, the real product shall prevail. KINGWO has the final interpretation rights for this manual.

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Chapter 1: Product Overview

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Chapter 2: Technical Specification

2.1 Specification

Mechanical	Size
	Weight
Interface	RS232 interface
Data transmission	Packet data GPRS and SMS
Positioning method	GPS
Storage	4MB FLASH, up to 20000 GPS data storage
Power	Working Voltage
	Working Current
GPS	Channels: 50 Sensitivity: -147dBm Position accuracy:5-10m Accuracy: 5m CEP Cold start: <27s Hot start: <1s
Cellular	Frequency Module: QUECTEL MC25 GSM/GPRS 850/900/1800/1900 MHz Working voltage: 3.3 – 4.5 V (recommend 4.0V) Transmitted power: 2 W，850/900 MHz 1 W，1800/1900 MHz
Chipset	STM32F070CB
Battery	Built in 850mAH battery,3.6V，Lithium polymer battery, 8 hours working

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Chapter 3: Functions

【Position】Position function

Real time position

Including timely upload, blind zone compensation, speed mileage statistics, area monitoring and other functions, the backend sends positioning commands, and the terminal uploads data including longitude, latitude, speed, direction, and status information.

Timely monitor

The vehicle GPS terminal can be set to upload the position and status information of the vehicle to the backend at a certain time or a certain period or at a certain time interval.

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Blind Zone Compensation

When the terminal enters the GPRS blind zone, the track data will be saved at the shortest 15S interval, and the blind zone data will be uploaded to the backend when the GPRS is back online. The blind zone compensation data can be saved up to 20000.

Cornering Compensation

When the vehicle enters the curve lane, the terminal detects that the driving direction has a certain angular deviation (default 20 degrees), and a timing feedback message is added to ensure that the driving track is more accurate.

LBS

The terminal uses GPS positioning by default. When the GPS enters the blind zone and cannot be accurately located, the terminal automatically switches to the base station location. The terminal acquires the base station information every 30S and uploads the base station information, the server interprets the specific location.

AGPS

The terminal has the AGPS function. When the terminal is connected to the GPRS, the AGPS function can be used to speed up the positioning speed of the GPS module and improve the positioning accuracy.

Alarm function

If the SMS alarm function is enabled, the configured number will receive SMS alarms as well.

Emergency alarm

Press the SOS button, the backend will receive the SOS alarm, to protect the vehicle from robbery and handle emergency cases

Speeding alarm

When the vehicle speed is higher than the overspeed alarm value, the vehicle terminal will notify the backend. Similarly, when the vehicle speed is lower than the low speed alarm value, a low speed alarm will be reported to the backend. The alarm value is configurable.

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Main power off alarm

If the main battery is damaged and can not supply power, the built in back up battery could keep the terminal working, and send a main power failure alarm to the backend

Displacement alarm

An alarm is generated when the device is set to a displacement of more than 100 meters (message mode prompt), and the alarm information is reported when the displacement radius exceeds 100 meters when the device is turned off. (Note: displacement range 100~2000m)

Low Voltage Alarm

When the battery voltage on the vehicle is too low (0-11V or 19-22V), the vehicle terminal reports a low voltage alarm to the backend

Vibration Alarm

The device activates the vibration alarm function. After the device is turned off for more than 10 minutes (the fortification range: 1~20 minutes), the device generates vibration and the ACC is not connected within 3 minutes (delay range: 1~10 minutes), and the device will report the vibration alarm information.

【Intelligent function】

Intelligent Power Save

The terminal has a built-in high-sensitivity G-sensor accelerometer that monitors the vehicle for motion in real time. When no motion is detected for a long time, the terminal automatically enters the power saving state, turns off the GPS/BD module,

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and GSM enters the heartbeat return state(Range 0-999). In this state, the power consumption of the device is extremely low, which can greatly reduce the battery usage of the vehicle.

Intelligent Self-Diagnosis

The vehicle terminal can perform self-diagnosis. In the event of a fault, it will send a fault notification to the center, such as GPS, GSM, etc., and can automatically take relevant measures. The backend can also query the current model, version, configuration, running status, and device functions of the terminal.

Remote Control

Remotely controlling the vehicle lock, unlocking, and disable the abnormal state of the terminal through the backend, the vehicle terminal receives the command, and then performs corresponding operations on the vehicle circuit or the oil circuit, and returns a power-off/oil confirmation message to the center, and simultaneously implements uploading the current Vehicle status. Once the vehicle receives the power/fuel cut off command, the vehicle terminal will memorize the status until the center issues a recovery command.

Static Drift Suppression

The terminal has a built-in high-sensitivity G-sensor accelerometer and a complete positioning data-filtering algorithm that filters out most of the static drift data to ensure the accuracy of GPS data.

Mileage Statistics

The vehicle mileage data is returned to the backend along with the vehicle positioning data; the initial mileage can be set when the vehicle is installed.

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Remote Configuration

To remote set the terminal parameters including IP, center number and various of monitoring parameters via the backend

Vehicle Battery Protection

The terminal has high and low voltage protection, main power reverse connection protection, power saving status, etc., to ensure that the car battery will not be affected or damaged by the terminal.

Remote Upgrade(OTA)

As long as GPRS is available, remote firmware upgrade can be done wirelessly

SMS operation

To use SMS to set the terminal or query the working status of the terminal for easier maintenance

Device is allowed to connect different accessories including fuel sensor, cameras, temperature sensor and LED display etc

Optional function (Protocol is required for integration)

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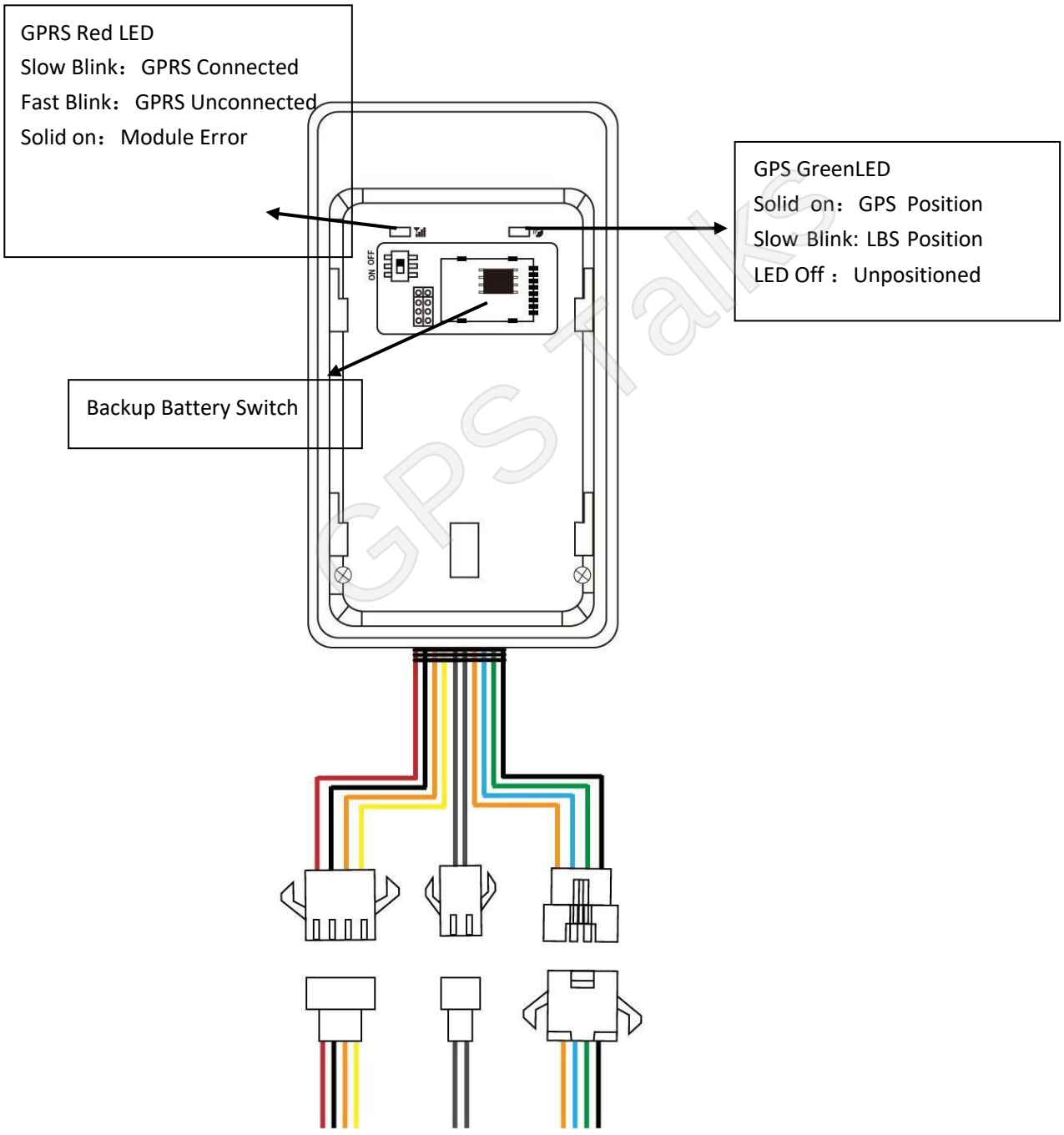
Chapter 4: Installation guide

Installation Diagram



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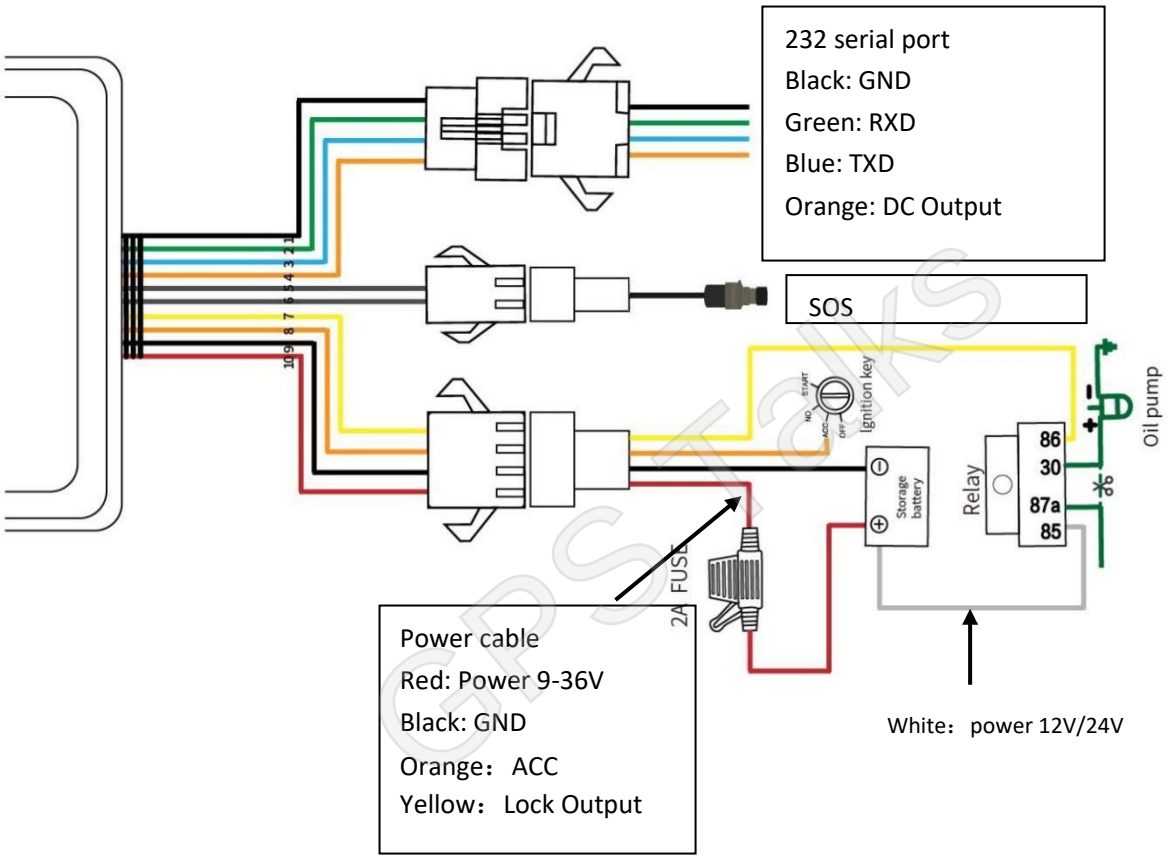
Front Side



Pin No	Color	Pin Name	Description
1	Black	GND	(-)Ground
2	Green	RXD	Serial Data Interface Rx
3	Blue	TXD	Serial Data Interface Tx
4	Orange	VDD 4V8	VDD 4V8_C
5	Grey	GND	Ground
6	Grey	SOS	SOS

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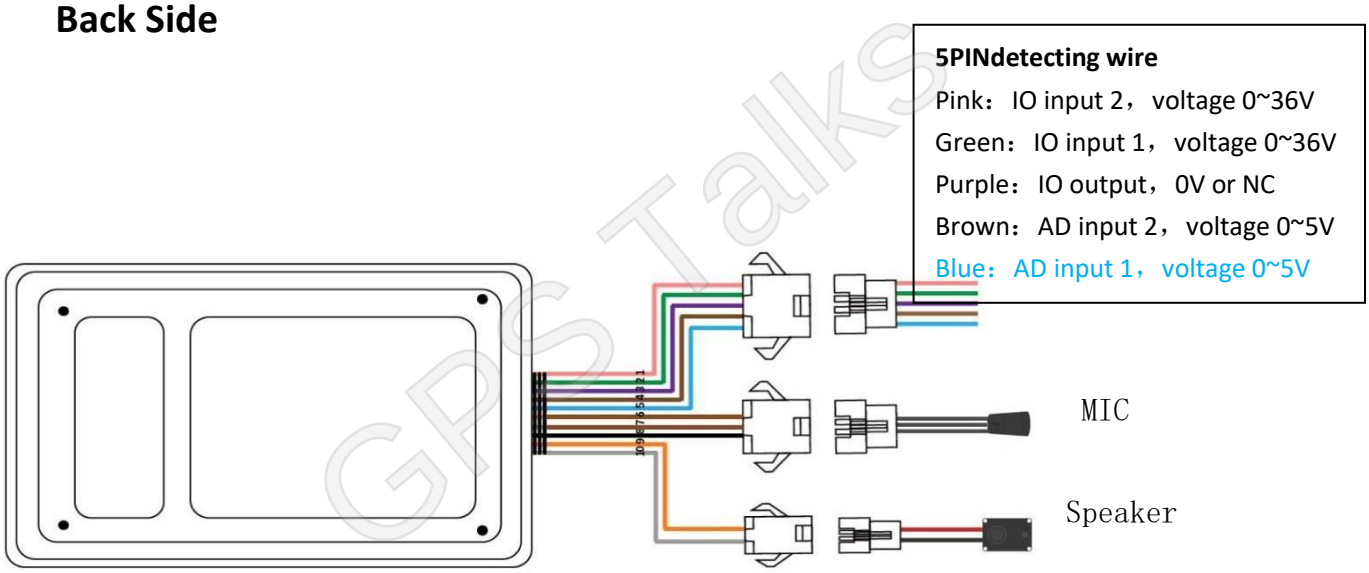
7	Yellow	Fuel	CUT Fuel
8	Orange	ACC	ACCIN
9	Black	GND	(-)Ground
10	Red	VCC+	Power 9-36V

Back Side



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Pin No	Color	Pin Name	Description
1	Pink	DIN2	Digital Input2，Voltage range 0-36V
2	Green	DIN1	Digital Input1，Voltage range 0-36V
3	Purple	DOUT1	Digital output1
4	Brown	AD2	AD Input2voltage range 0-5V
5	Blue	AD1	AD Input1 voltage range 0-5V

6	Brown	MIC+	MIC+
7	Brown	MIC-	MIC-
8	Black	GND	(-)Ground
9	Orange	SPK+	SPK+
10	Grey	SPK-	SPK-

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Installation and debugging process

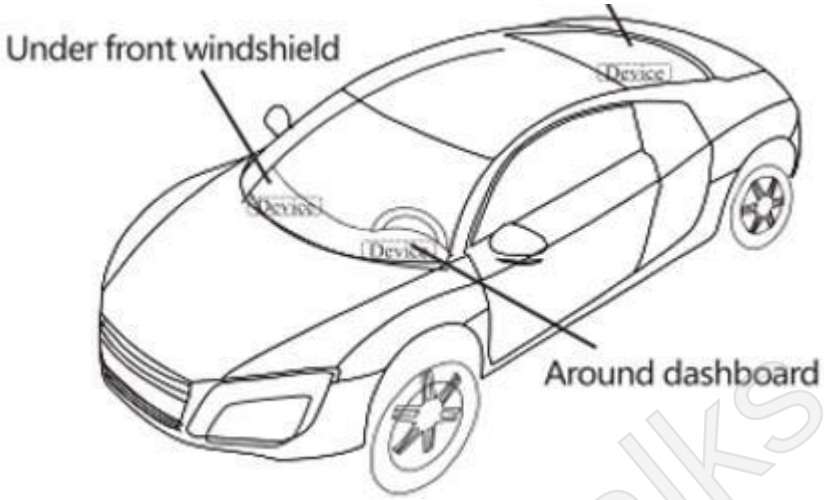
SIM installation

Open the top cover of the device, insert the prepared SIM card into the SIM cardholder, and then confirm that the SIM card button is in place. Please make sure that the SIM card has the GPRS function enabled in advance and record the SIM card number in advance

Main unit power on

After installing the SIM card, turn the battery switch to the ON position. Meanwhile, the red light starts to blink, indicating that the device is power on.

Recommended Installation place



Parameter setting by SMS

Note: The device is with unique ID number, the factory can preset t IP, port and APN for customers, generally there is no need for customers to do parameter setting; However in case any configuration needs to be done, please follow below instructions and make sure the SIMs has SMS functions available:

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APN,apn,user,pswd#	Set APN, User name and password For example：APN,CMNET,internet,internet# APN:CMNET Username: internet Password: internet
IP,ip or dns,port,type#	IP,119.23.233.52,6000,1# Set the primary server IP:119.23.233.52，port 6000，communication type:TCP IP,www.365qczx.com,6000,0# Set the primary server domain:www.365qczx.com，Port 6000，communication type UDP
HC,<T1>,<T2>,<T3>#	Set the upload interval in real time tracking mode: T1: upload interval in ignition on status, range,5-30s ,default 90s T2: Upload interval in ignition off status ,range 5-600 s, default 120 s T3：Sleep return interval, range 10-1800 s, default 180 For example: HC,30,90# Set the upload interval as 30s and 90s in ignition on HC,30,90,300# Set the upload interval as 30s, 90 s in ignition off and 300s while in sleep mode
UTC,TTTT#	Set time zone，unit minutes, default UTC+8:00 For example: UTC,480# Time zone UTC+8:00 UTC,330# Time zone UTC+5:30 UTC,-480# Time zone UTC-8:00 UTC,-210# Time zone UTC-3:30
WY,<A>[,R,M]#	Set towing alarm: A: On and off，1:On 0:Off Default is off R: Towing radius，Default 500 meters，Range：100-2000 meters M: Alarm mode，Optional M=0:GPRS,M=1:SMS+GPRS Eg：WY,1,100,1# towing alarm on，radius 100 meters notification mode:GPRS+SMS

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LOCKACCOFF,A#	Set vehicle lock A=0 Receive lock command, execute immediately A=1 Receive lock command, if ACC is off, execute immediately, if ACC is on, store this command until ACC off A=2 Store the command, lock vehicle from ACC Off to On, if the communication is well, lock vehicle, otherwise wait for next turn For example：LOCKACCOFF,0# means execute the lock command immediately after receiving it
*22*1#	Restore to factory setting
*22*2#	Lock vehicle
*22*3#	Unlock vehicle
*22*4#	Reboot device

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MT13 usage requirements

The device is strictly forbidden to use according to the operating instructions ,disassemble, collide, charge, soak, over 80 °C, human failure, force majeure damage, etc. may cause short circuit, insufficient working time, battery deformation, liquid leakage, explosion, no warranty and compensation will be provided by KINGWO.

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