SKG1001 用户指南

User Manual

1.0 版 Version

修订日期 Revision date：2019-09-23

1 产品概述 Product Description

SKG1001 是一款 4G 全频或 4G LTE 全频 GPS 跟踪器，专为广泛的车辆跟踪而设计。内置 GPS 天线，灵敏度高，定位速度快。它有 4 个数字输入（2 个正触发，2 个负触发），2 个数字输出，1 个串行端口，2 个模拟输入等。它可以应用于更灵活、更复杂的项目需求。

SKG1001 is a 4G full frequency or 4G LTE full frequency GPS tracker, designed for extensive vehicle tracking. Built-in GPS antenna, high sensitivity, fast positioning speed. It has 4 digital inputs (2 positive triggers, 2 negative triggers), 2 digital outputs, 1 serial port, 2 analog inputs, etc. It can be applied to more flexible and complex project requirements.

3 产品功能 Function

项目 Items	功能 Function
通讯 communication	位置数据传输 GPRS 网络（TCP/UDP）Location data transmission GPRS network (TCP/UDP)
	命令-SMS/GPRS 网络/串行端口 Command-SMS/GPRS network/serial port
位置跟踪 Location tracking	实时位置监控/查询 Real-time location monitoring/query
	移动跟踪（时间间隔）Movement tracking (time interval)
	停车线（时间间隔）Stop line (time interval)
	按距离跟踪 Track by distance
	转弯报告 Turn report
GPS 里程 GPS mileage	GPS 里程报告/GPS 里程系数可调 GPS mileage report/GPS mileage coefficient is adjustable
地理围栏 Geofence	25 个矩形地理围栏 25 rectangular geofences
警报（事件）Alert (event)	SOS 报警（短信/GPRS 网络）SOS alarm (SMS/GPRS network)
	主电源切断（短信/GPRS 网络）Main power cut off (SMS/GPRS network)
	点火报告（GPRS 网络）Ignition report (GPRS network)
	超速报警（GPRS 网络）Speeding alarm (GPRS network)
	地理围栏报警（GPRS 网络）Geo-fence alarm (GPRS network)
	牵引报警（GPRS 网络）Traction alarm (GPRS network)
	紧急制动报警（GPRS 网络）Emergency brake alarm (GPRS network)
	加速度报警（GPRS 网络）Acceleration alarm (GPRS network)
输入/输出 Input/Output	**4 数字输入：**点火检测，SOS 按钮，1 个预留正触发（空调），1 个预留负触发（门检测） **2 数字输出：**燃油泵/发动机电路断路或蜂鸣器 4 digital inputs: ignition detection, SOS button, 1 reserved positive trigger (air conditioning), 1 reserved negative

	trigger (door detection) 2 Digital output: fuel pump/engine circuit break or buzzer
其他 Other	**1 个串行端口**（RS232） 支持摄像头、温度传感器、燃油油位传感器等。 **2 模拟输入** 支持负载传感器，燃油油位传感器（0-5V 电压输出） 1 serial port (RS232) Support cameras, temperature sensors, fuel level sensors, etc. 2 analog input Support load sensor, fuel level sensor (0-5V voltage output)
盲区 Blind spot	数据在缓冲区时在 GPRS 网络盲区，可选 5K-40K 条盲区历史数据，默认为 5K 条。 When the data is in the buffer zone, it is in the blind zone of the GPRS network. 5K-40K historical blind zone data can be selected, and the default is 5K.
初始化 initialization	通过短信/GPRS 网络/串行端口初始化跟踪器参数 Initialize tracker parameters via SMS/GPRS network/serial port
升级 Upgrade	通过 OTA 或串行端口升级固件 Upgrade firmware via OTA or serial port

Items	Specifications			
Gift Box Dimension	177*120*50mm			
Tracker Dimension	100*54*17 mm			
Tracker Color	Black			
Weight	Tracker weight	0.08kg	Total package	0.18kg
Power Supply	DC 9V -- 55V/1A			
Working current	<200 mA (DC 12V)			
Processor	ARM7			
Back-up battery	Built-in 300mAh, support 2 hour working when fully charged.			
Operating temperature	-40°C --85°C			
Operating humidity	5% -- 95%			
LED Light indicators	Green led light indicate GPS status Red led light indicate GPRS Network status Blue led indicate power status			
Power Switch	1 Backup battery switch on Mainboard			
I/O Ports	4 digital inputs	Ignition detecting - positive trigger		

		SOS detecting-negative trigger
		Input1 (Reserved)- positive trigger
		Input2 (Reserved)- negative trigger
	2 digital output	Fuel pump/engine circuit cut
Others	1 serial port(RS232) 2 Analog input	
GSM Module	Chipset	QUECTEL EC2X
	Frequency	Depending on the operator and module model in each country **EC25-A** (North America) LTE FDD: B2/B4/B12 WCDMA: B2/B4/B5 GSM/EDGE: - **EC25-E** (EMEA,Korea,Thailand,India) LTE FDD: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8 GSM/EDGE: B3/B8
GPS Module	Chipset	Gotop GT-1612-MTR (MT3337)
	Positioning accuracy	< 5m (95%)
	Cold start time	< 23s(in average)
	Warm start time	< 3 s (in average)
	Acquisition Sensitivity	-165dbm
	Acquisition channel	66-channel
	GPS Frequency	1575.42 MHz

4 规格 Specification

EC25 Specification

Frequency		EC25-E	EC25-EU	EC25-EC	EC25-EUX[4]	EC25-A	EC25-V	EC25-AF
LTE	LTE-FDD	B1/B3/B5/B7/B8/B20	B1/B3/B7/B8/B20/B28A	B1/B3/B7/B8/B20/B28A	B1/B3/B7/B8/B20/B28A	B2/B4/B12	B4/B13	B2/B4/B5/B12/B13/B14/B66/B71
	LTE-TDD	B38/B40/B41	B38/B40/B41		B38/B40/B41			
WCDMA		B1/B5/B8	B1/B8	B1/B8	B1/B8	B2/B4/B5		B2/B4/B5
GSM/EDGE		B3/B8	B3/B8	B3/B8	B3/B8			
Embedded GNSS		Optional	Optional	N	Optional	Optional	Optional	Optional
Wi-Fi/BT Interface		Y	Y	N	N	Y	Y	Y
Region		EMEA, Korea, Thailand, India	EMEA, Korea, Thailand, India	EMEA, Korea, Thailand, India	EMEA	North America	Verizon	North America FirstNet
Certification		**Carrier:** Vodafone/ Deutsche Telekom/ SKT/ Telefónica / T-Mobile*/ KT*/ LGU+* **Regulatory:** GCF/ CE/ KC/ NCC/ RCM/ FAC/ NBTC/ ICASA **Others:** WHQL	**Carrier:** Deutsche Telekom/ British Telecom **Regulatory:** GCF/ CE/ RCM/ NCC **Others:** WHQL	**Carrier:** British Telecom **Regulatory:** GCF/ CE/ RCM **Others:** WHQL	**Regulatory:** CE/ NCC/ RCM/ GCF* **Others:** WHQL	**Carrier:** AT&T/ T-Mobile/ Rogers/ Telus **Regulatory:** FCC/ IC/ PTCRB **Others:** WHQL	**Carrier:** Verizon **Regulatory:** GCF/ FCC **Others:** WHQL	**Carrier:** Verizon/ AT&T/ T-Mobile/ Rogers/ U.S. Cellular/ Bell*/ Telus* **Regulatory:** GCF/ FCC/ IC/ PTCRB **Others:** WHQL

Frequency		EC25-AFX	EC25-MX①	EC25-AUT	EC25-AU	EC25-AUX	EC25-AUTL	EC25-J
LTE	LTE-FDD	B2/ B4/ B5/ B12/ B13/B14/ B66/ B71	B2/ B4/ B5/ B7/B28/ B66	B1/B3/B5/ B7/B28	B1/B2②/ B3/B4/B5/ B7/B8/B28	B1/ B2②/ B3/ B4/ B5/ B7/ B8/ B28	B3/B7/B28	B1/B3/B8/ B18/B19/B26
	LTE-TDD				B40	B40		B41
WCDMA		B2/ B4/ B5	B2/ B4/ B5	B1/B5	B1/B2/B5/ B8	B1/ B2/ B5/ B8/ B4		B1/B6/B8/ B19
GSM/EDGE					Quad-band	Quad-band		
Embedded GNSS		Optional	N	Optional	Optional	Optional		Optional
Wi-Fi/BT Interface			N	Y	Y	Y		Y
Region		North America FirstNet	Mexico	Australia Telstra	Latin America, New Zeland, Taiwan	Latin America/ Australia/ New Zealand/ Taiwan	Australia Telstra	Japan
Certification		**Carrier:** Verizon*/ AT&T*/ T-Mobile*/ U.S. Cellular*/ Rogers*/ Bell*/ Telus* **Regulatory:** GCF*/ FCC*/ PTCRB*/ IC* **Others:** WHQL	**Regulatory:** FCC/ IFETEL* **Others:** WHQL	**Regulatory:** RCM **Others:** WHQL	**Carrier:** Telstra* **Regulatory:** FCC/ Anatel/ NCC/ RCM/ GCF* **Others:** WHQL	**Regulatory:** Anatel*/ NCC*/ RCM* **Others:** WHQL	**Regulatory:** RCM **Others:** WHQL	**Carrier:** NTT DOCOMO/ SoftBank/ KDDI **Regulatory:** JATE/ TELEC **Others:** WHQL

5 标准包装和可选配件 Standard packaging and optional accessories

姓名 Name	图片 Picture	标准/可选零件 optional
主机 Host		标准 Standard
线束 Cable		标准 Standard
魔术磁带 Magic tape		标准 Standard

继电器 Relay		可选的 Option
SOS 按钮 SOS Button		可选的 Option
Micro-USB 配置和升级电缆 Cable for config and upgrade		可选的 Option

6 外观和结构 Appearance & Structure

7 首次使用 First Time to Use

7.1 插入 SIM 卡 Insert Sim Card

插入SIM卡前，请先关闭追踪器电源，关闭追踪器（SIM卡现场安装，可能导致SIM卡故障或烧坏），确认手机卡有足够的余额，并设置SIM卡的服务密码，确认SIM卡的短信和GPRS功能已开启。

操作步骤：

拆下硅胶防水条。

将 Micro-SIM 卡插入卡槽。当您听到一声咔嗒声时，表示它已正确安装。

向右滑动 SIM 卡固定器以将其锁定到位

别忘了打开电源开关。

Before inserting the SIM card, please turn off the power of the tracker, turn off the tracker (installation of the SIM card on site may cause the SIM card to malfunction or burn out), confirm that the mobile phone card has enough balance, and set the service code of the SIM card to confirm the SIM card The SMS and GPRS functions have been turned on.

Steps:

- Remove the silicone waterproof strip.
- Insert the Micro-SIM card into the card slot. When you hear a click, it means it has been installed correctly.
- Slide the SIM card holder to the right to lock it in place
- Don't forget to turn on the power switch.

提醒 Warming:

- 确保 SIM 卡的短信/GPRS 网络服务可用。
- 确保电话卡密码锁已正确关闭。
- 当连接外部电源时，备用电池可以充电。

Remind Warming:

- Make sure the SMS/GPRS network service of the SIM card is available.
- Make sure that the calling card code lock is properly closed.
- When connected to an external power source, the backup battery can be charged.
-

7.2 设备通电 Power On Device

- 将电源线（红色）和地线（黑色）分别连接到车辆蓄电池的正极和负极上。

- 详细的线束定义。参见 9.1 线束定义
- 如果你在办公室测试了 SKG1001 设备，最好使用交直流电源,如下图：
- Connect the power wire (red) and ground wire (black) to the positive and negative terminals of the vehicle battery, respectively.
- Detailed wiring harness definition. See 9.1 Harness definition
- If you have tested the SKG1001 equipment in the office, it is best to use an AC and DC power supply, as shown in the figure below:

7.3 指示灯 Led Light

LED 灯	开/关指示 On/off indication		说明 Description
	亮起 Flashes	熄灯 Lights out	
绿色 Green		关 Off	GPS 有效，位置固定 GPS is valid, location is fixed
	每 1 秒闪烁一次 Flashes every 1 second		GPS 信号搜索 GPS signal search
	每 0.5 秒闪烁一次 Flashing every 0.5 seconds		正在初始化 initializing
红色 Red	每 1 秒闪烁一次 Flashes every 1 second		搜索 GPRS 网络 Search GPRS network
		关 Off	连接到 GPRS 网络 Connect to GPRS network
蓝色 Blue	开机 Boot up	关闭电源 Turn off the power	

7.4 通过短信命令初始化设备参数 7.4 通过短信命令初始化设备参数

7.4. Initialize device parameters through SMS commands 7.4 Initialize device parameters through SMS commands

SKG1001 可通过短信进行配置。请参阅下面的命令列表：

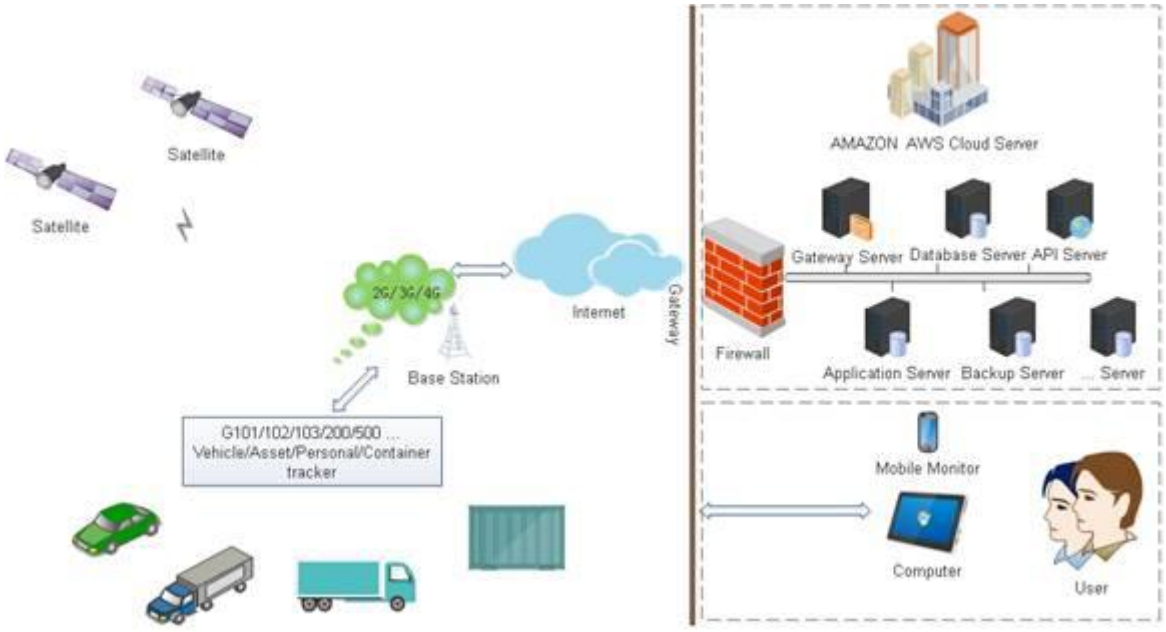
SKG1001 can be configured via SMS. See the list of commands below:

No.	Function Name	SMS Command Content	Response from SKG1001	Description
1	Set the authorized phone number	*SPJLX*P:753869*S:13012345678,13112345678,13212345678,#	XXX,XXX,XXX, set ok	(max: 3 phone numbers)
2	Set server IP address/Port	*SPJLX*P:753869*U:13.228.118.160,12000,1,# Or Domain name *SPJLX*P:753869*U:tracker.mobicomtracking.com,12000,1,#		Reply content is "IP" "Port", Server **IP Address: 13.228.118.160 Port:12000** Transfer type: 0: UDP 1: TCP Note: Please get Server IP and Port from Mobicom Technical support engineer.
3	Set APN	*SPJLX*P:753869*A:CMNET,USER,PWD# CMNET is china mobile's APN, USER is for user name for APN, PWD is for password.		if no user name and password.the SMS is: ***SPJLX*P:753869*A:CMNET,,#**
4	Setup upload interval	*SPJLX*P:753869*E:1,30,60#		30means when ACC On 60 means when ACC Off
5	Query Current Position	*WHERE2#	http://maps.google.com/maps?hl=en&q=+22.59303,+113.87110	if can't get GPS signal after received the command within 5 Min, reply "Check Location Fail"
6	Cut fuel pump	*SPJLX*P:753869*D:021#		
7	Recover fuel	*SPJLX*P:753869*D:020#		
8	Restart Device	*SPJLX*P:753869*B:#		Device restart
9	Restore Factory settting	*SPJLX*P:753869*F:#		All parameters recover to factory, except IP/Port/ID/APN

8 在 GPS 系统中跟踪设备 Track the device in the GPS system

SKG1001 设备不像 GPS 导航仪，它不能独立工作，必须与 GPS 跟踪系统一起工作。

SKG1001 device is not like GPS navigator, it cannot work independently, it must work with GPS tracking system.



8.2 获取登录 ID/Get login ID

请从平台提供商处获取 GPS 跟踪系统的登录 ID，并监控跟踪器的当前位置和其他信息。

Please obtain the login ID of the GPS tracking system from the platform provider, and monitor the current location and other information of the tracker.

8.3 登录软件平台 Log in to the software platform

请从平台提供商处获取 Web 应用程序链接/基于 PC 的软件/Android/IOS 应用程序和手册，并在软件平台中管理您的资产。

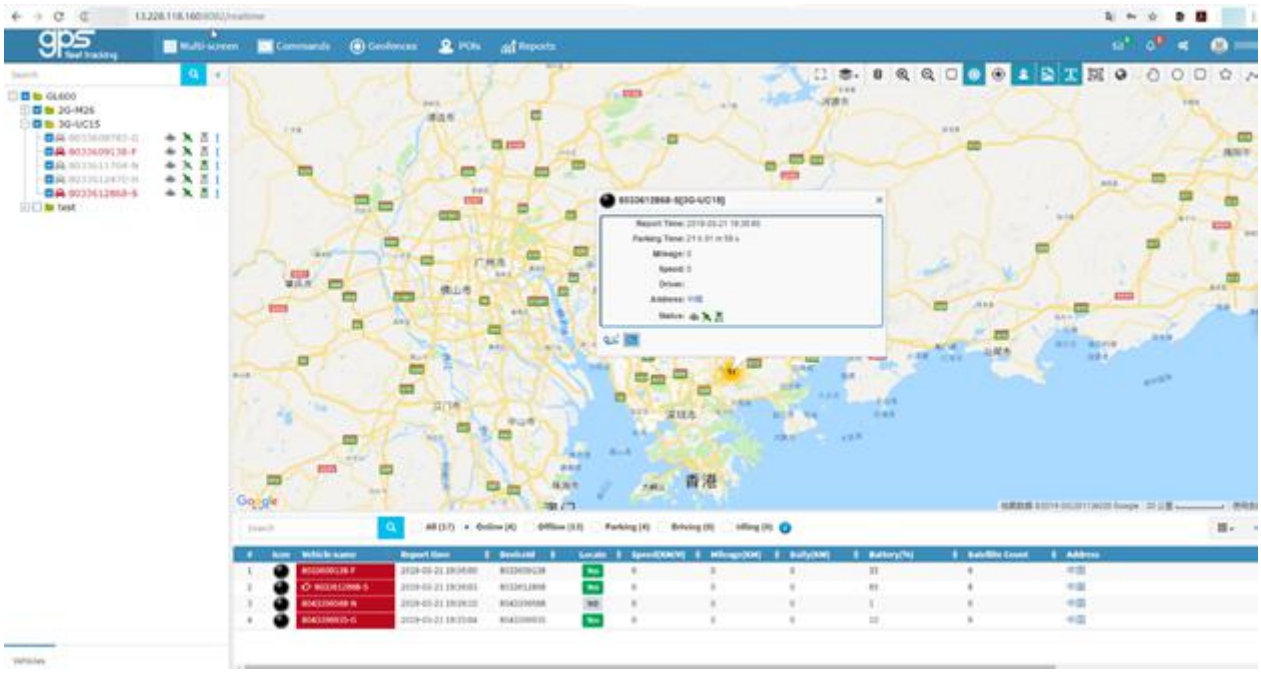
登录界面如下：

Please obtain the web application link/PC-based software/Android/IOS application and manual from the platform provider, and manage your assets in the software platform.

The login interface is as follows:

主界面如下：

The main interface is as follows:



9 在车内安装装置 Install the device in the car

警告：如果没有经验丰富的安装人员，连接电线输入可能会对安装人员和车辆电气系统造成危险。本文档假设您了解在车辆内和车辆周围工作的固有危险，并对电力有一定的了解。

Warning: If there is no experienced installer, connecting the wire input may cause danger to the installer and the vehicle electrical system. This document assumes that you understand the inherent hazards of working in and around vehicles, and have a certain understanding of electricity.

9.1 线束定义 Cable Definition

1 号-6 号主电源线 Main power cable：

Pin No.	Pin Name	Wire Color (Extended wire harness color)	Description
M6	GND	Black	Ground

M5	PWR	Red	DC 9V-55V input (Standard 12/24 V)
M4	Fuel pump control	Yellow	Digital Negative Output (For controlling Fuel pump circuit) Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 45 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.
M3	Ignition (ACC)	White	Digital Input (Positive Triggered for Ignition Detected) Positive trigger: Valid: Voltage input>6.2V Invalid: Voltage input<4V
M2	SOS	Blue	Negative Triggered (SOS button) Negative Trigger: Valid: Voltage input<0.7V Invalid: Voltage input>4V
M1	High reserved (Air-conditio n)	Brown	Positive Trigger-Reserved digital input Positive trigger: Valid: Voltage input>6.2V Invalid: Voltage input<4V

7-10 串口线 Serial line

Pin No.	Pin Name	Wire Color (Extended wire harness color)	Description
C7	PWR	Red	DC 5V output
C8	GND	Black	Ground
C9	TXD	White	
C10	RXD	Blue	

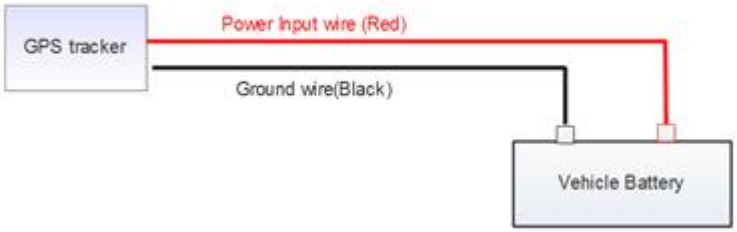
11-14 号输入/输出线 Input/output line：

Pin No.	Pin Name	Wire Color (Extended wire harness color)	Description
I11	Low reserved1 (Vehicle Door)	Red	Negative Triggered-Reserved digital input Negative Trigger: Valid: Voltage input<0.7V Invalid: Voltage input>4V
I12	Analog Input1	Black	Voltage input 0 to 5 Volts
I13	Analog Input2	White	Voltage input 0 to 5 Volts
I14	Output2 (Buzzer)	Yellow	Digital Negative Output Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 45 V Maximum current for output low voltage (valid): 500 mA Connect to an external relay to control other circuit

9.2 连接电源线 Connect the power cable

将电源线（红色）和地线（黑色）分别连接到车辆蓄电池的正极和负极上。

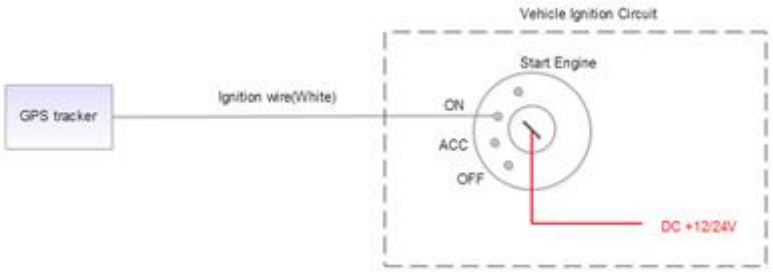
Connect the power wire (red) and ground wire (black) to the positive and negative terminals of the vehicle battery, respectively.



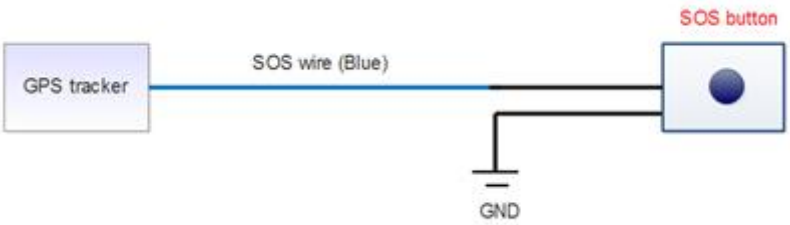
9.3 连接数字输入-点火 Connect digital input-ignition

请在车辆方向盘附近找到指示点火开关打开/关闭状态的信号线，然后将其连接。实际上，无需将跟踪器的点火检测线连接到车辆的真实点火线上。下图显示了车辆的点火结构。

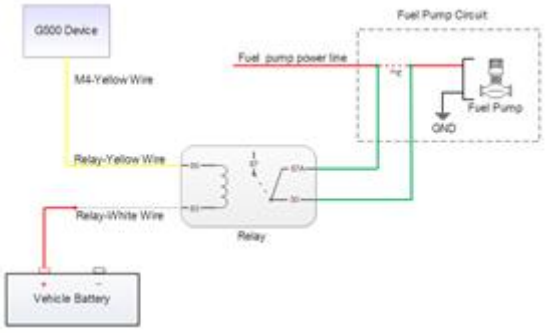
Please find the signal wire indicating the ignition switch on/off status near the steering wheel of the vehicle, and then connect it. In fact, there is no need to connect the ignition detection wire of the tracker to the actual ignition wire of the vehicle. The figure below shows the ignition structure of the vehicle.



9.4 连接数字输入-SOS 按钮 Connect digital input-SOS button



9.5 连接数字输出-M4 燃油泵控制 Connect digital output-M4 fuel pump control



注：切断燃油泵电路时，请使用 12/24V 直流常闭继电器。是否使用 12V 或 24V 继电器取决于车辆蓄电池电压（卡车 24V，汽车 12V）。

Note: When cutting off the fuel pump circuit, please use a 12/24V DC normally closed relay. Whether to use a 12V or 24V relay depends on the vehicle battery voltage (24V for trucks, 12V for cars).

9.6 安装装置 Install the device

将设备安装在仪表板周围或挡风玻璃下。确保没有金属盖或水。同时与您的技术工程师核实，确认设备在线，并在 GPS 跟踪系统中进行 GPS 定位。下图显示了小型车的安装位置。

Install the device around the dashboard or under the windshield. Make sure there are no metal covers or water. At the same time, check with your technical engineer to confirm that the device is online, and perform GPS positioning in the GPS tracking system. The following figure shows the installation location of a small car.