

GV303TPCG User Manual

LTE/GPS Tracker

QSZTGV303TPCGUM001

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International Telematics Solutions Innovator

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0.Revision History

Revision	Date	Author	Description of change
1.00	2025-06-30	Finn Fu	Initial

1.Introduction

The GV303TPCG is a powerful GPS locator designed for vehicle or asset tracking. It has superior receiver sensitivity, fast TTFF (Time to First Fix) and supports LTE. Its location can be monitored in real time or periodically tracked by a backend server or other specified terminals. It has Bluetooth. The GV303TPCG has multiple input/output interfaces that can be used for monitoring or controlling external devices. Based on the integrated @Track protocol pro, the GV303TPCG can communicate with a backend server through the LTE network to transfer reports of emergency, geo-fence boundary crossings, low backup battery and scheduled GPS position as well as many other useful functions. Users can also use GV303TPCG to monitor the status of a vehicle and control the vehicle by its external relay output. System integrators can easily set up their tracking systems based on the full-featured @Track protocol.

1.1Reference

Table 1.GV303TPCG Protocol Reference

SN	Document name	Remark
[1]	GV303TPCG @Track Protocol Pro	The air protocol interface between GV303TPCG and backend server.

1.2Terms and Abbreviations

Table 2.Terms and Abbreviations

Abbreviation	Description
AGND	Analog Ground
AIN	Analog Input
DIN	Digital Input
DOUT	Digital Output
GND	Ground
MIC	Microphone
RXD	Receive Data
TXD	Transmit Data
SPKN	Speaker Negative
SPKP	Speaker Positive

2.Product Overview

2.1.Check Parts List

Before starting, check whether all the following items have been included with your GV303TPCG. If anything is missing, please contact your supplier.



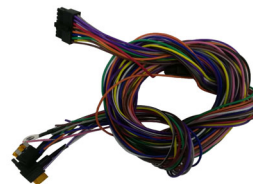
Figure 1.Appearance of GV303TPCG

2.2.Parts List

Table 3.Parts List

Name	Picture
GV303TPCG Locator	122*85.2*24.2 mm

Cable



2.3.Interface Definition

The GV303TPCG has one 12 PIN interface connector. It contains the connections for power, I/O, RS232, High speed CAN, Low speed CAN. The sequence and definition of these two connectors are shown in the following figure:

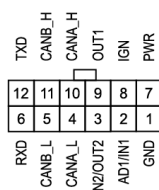


Figure 2.The 12 PIN Connector on the GV303TPCG

Table 4.Description of 12 PIN Connections

Index	PIN Name	Description
1	GND	Ground
2	AD1/IN1	Analog Input 1/ Negative Triggered 1
3	IN2/OUT2	Voltage output 2(12V)/ Negative Output2/ Negative Triggered 2
4	CANA_L	High Speed can bus CAN L
5	CANB_L	High Speed can bus CAN L
6	RXD	RS232 Connect to external device RX
7	PWR	External DC power input, 8-32V
8	IGN	Ignition input, positive trigger
9	OUT1	Negative Output 1
10	CANB_H	High Speed can bus CAN H
11	CANB_H	High Speed can bus CAN H
12	TXD	Analog Input 2/ Negative Triggered 2 RS232 Connect to external device TX

3. Get Started

3.1. Open the Case

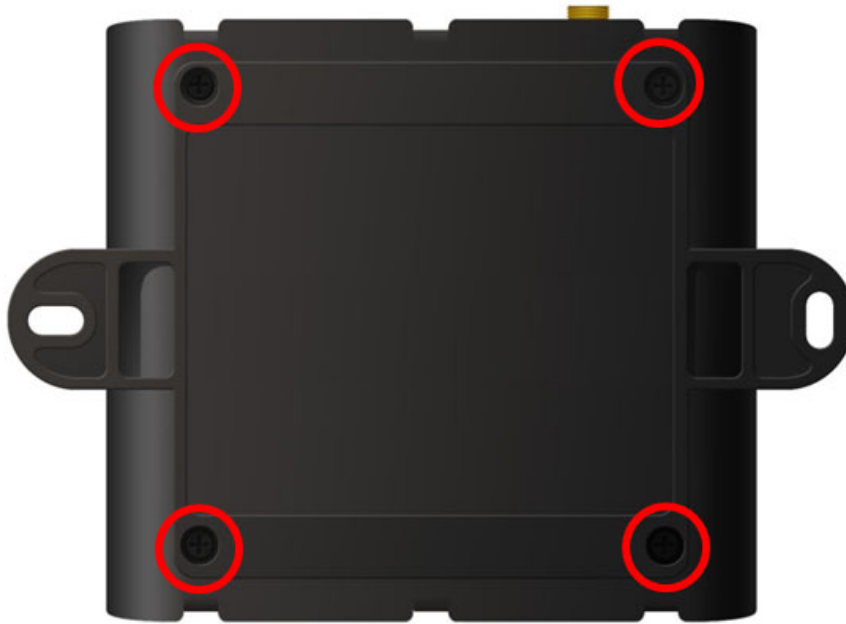


Figure 3. Open the Case

3.2. Install a SIM Card

Open the case and ensure the unit is not powered (unplug the 16Pin cable and switch the internal battery to the OFF position). Slide the holder right to open the SIM card holder. Insert the SIM card into the slot as shown below with the yellow colour contact area facing down. Take care to align the cut mark. Close the SIM card holder. Close the case.

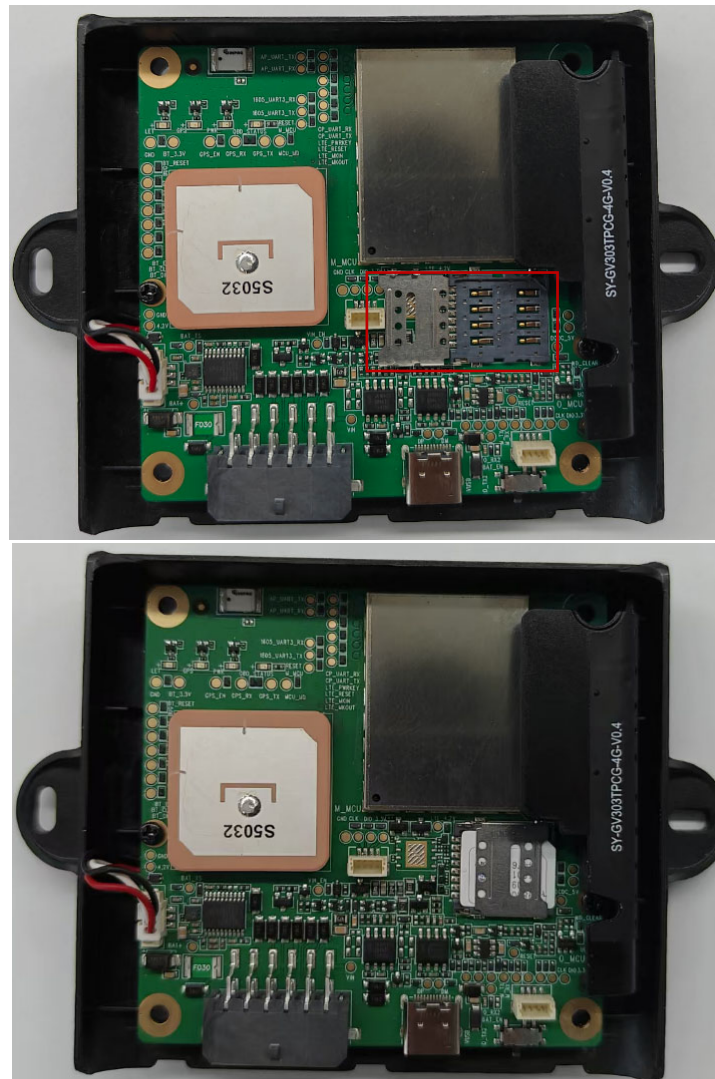


Figure 4.SIM Card Installation

3.3.Install the Internal Backup Battery

GV303TPCG has an internal backup Li-ion battery, put the battery line on the right of plastic clip which can avoid the battery line to be damaged when install the screw of PCBA.

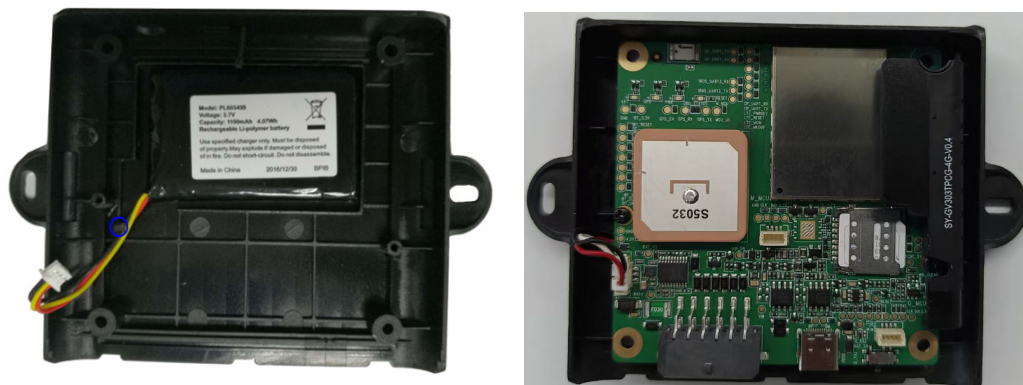


Figure 5.Backup Battery Installation

3.4.Switch on the Backup Battery

To use the GV303TPCG backup battery, the switch must be in the ON position. The switch on the case and the ON/OFF position are shown below.

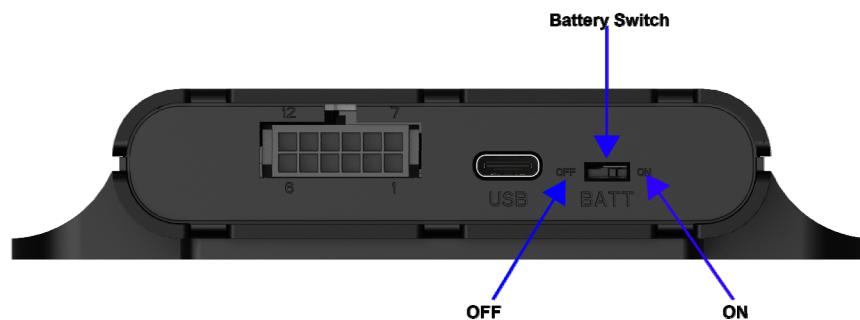


Figure 6.Switch and ON/OFF Position

Note:

1. The switch must be in the “OFF” position when the GV303TPCG is shipped on an aircraft.
2. When the switch is in the “OFF” position, the battery cannot be charged or discharged.

3.5.Power Connection

PWR (PIN11)/GND (PIN6) is the power input pin. The input voltage range for this device is from 8V to 32V. The device is designed to be installed in vehicles that operate on 12V or 24V systems without the need for external transformers.

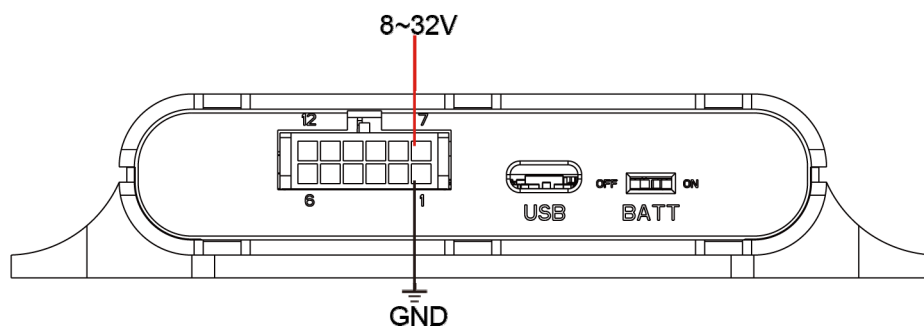


Figure 7.Typical Power Connection

3.6.Ignition Detection

Table 5.Electrical Characteristics of Ignition Detection

Logical status	Electrical characteristics
Active	5.0V to 32V
Inactive	0V to 3V or open

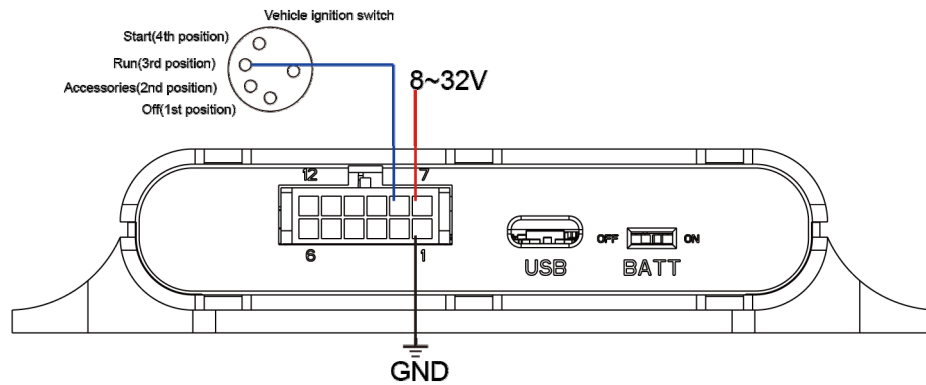


Figure 8. Typical Ignition Detection

IGN (PIN3) is used for ignition detection. It is strongly recommended to connect this pin to ignition key “RUN” position as shown above.

An alternative to connecting to the ignition switch is to find a non-permanent power source that is only available when the vehicle is running, for example, the power source for the FM radio.

IGN signal can be configured to start transmitting information to the backend server when ignition is on, and enter the power saving mode when ignition is off.

3.7.Digital Inputs

There are three general purpose digital inputs on GV303TPCG. They are all negative triggers.

Table 6. Electrical Characteristics of the Digital Inputs

Logical status	Electrical characteristics
Active	0V to 0.8V
Inactive	Open

The following diagram shows the recommended connection of a digital input.

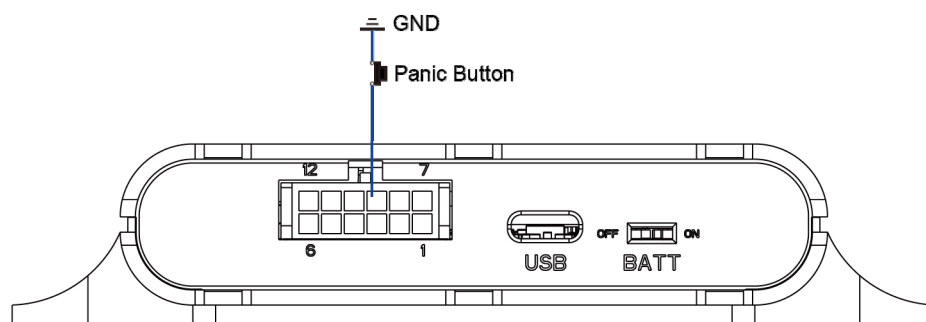


Figure 9. Typical Digital Input Connection

3.8. Analog Inputs

There are two analog inputs on GV303TPCG, and the analog input voltage range is from 0 to 32V.

The following diagram shows the recommended connection.

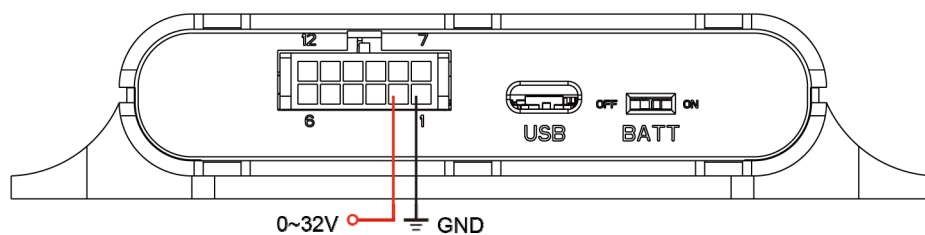


Figure 10. Typical Analog Input Connection

Note:

PIN 2 is a multifunction pins: it can be configured as a digital input or an analog input.

PIN3 is a multifunction pin: it can be configured as a digital input, a negative output or 12V positive output.

3.9.Digital Outputs

There are two digital outputs on GV303TPCG for negative outputs (PIN3, PIN9). One of them(PIN3) can be configurable as positive outputs. As negative outputs, all are open drain type and the maximum drain current is 150 mA; As positive outputs, PIN3 can output voltage 12V@200mA for 12V system. Each output has the built-in over current PTC resettable fuse.

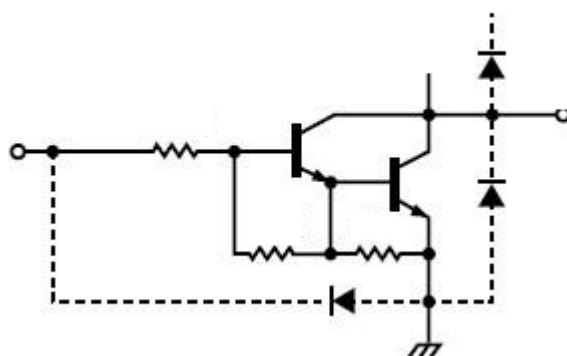


Figure 11. Digital Output Internal Drive Circuit

Table 7. Electrical Characteristics of Digital Outputs

Logical status	Electrical characteristics
Enable	<1.5V @150 mA
Disable	Open drain

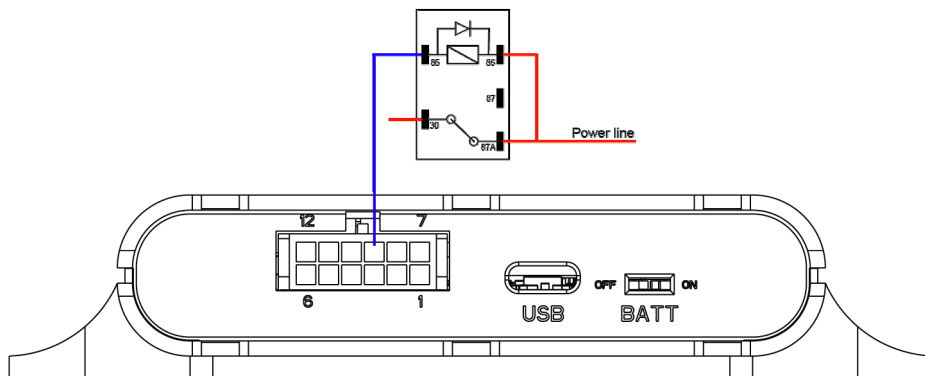


Figure 12. Typical Connection with Relay (Negative Output)

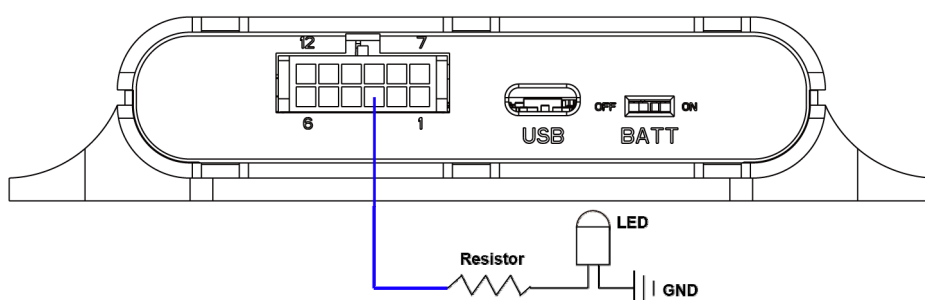


Figure 13. Typical Connection with LED (Positive Output)

Note:

1. OUT1 will latch the output state during reset.
2. Many modern relays come with a flyback diode pre-installed internal to the relay itself. If the relay has this diode, ensure the relay polarity is properly connected. If this diode is not internal, it should be added externally. A common diode such as a 1N4004 will work in most circumstances.

3.10. Device Status LED

Figure 14. GV303TPCG LED on the Case

Table 8. Definition of Device Status and LED

LED	Device status	LED status
LTE (Note 1)	Device is searching LTE network.	Fast flashing (Note 3)
	Device has registered to LTE network.	Slow flashing (Note 4)
	SIM card needs pin code to unlock.	ON
GPS (Note 2)	GPS chip is powered off.	OFF
	GPS sends no data or data format error occurs.	Slow flashing
	GPS chip is searching GPS info.	Fast flashing
	GPS chip has gotten GPS info.	ON
PWR (Note 2)	No external power and internal battery voltage is lower than 3.35V.	OFF
	No external power and internal battery voltage is below 3.5V.	Slow flashing
	External power in and internal battery is charging.	Fast flashing
	External power in and internal battery is fully charged.	ON

Note:

1. LTE LED cannot be configured.
2. GPS LED and PWR LED can be configured to turn off after a period of time by using the configuration tool.
3. Fast flashing: for GSM LED is about 60 ms ON/780 ms OFF; for GPS LED and PWR LED is about 100 ms ON/100 ms OFF.
4. Slow flashing: for GSM LED is about 60 ms ON/1940 ms OFF; for GPS LED and PWR LED is about 600 ms ON/600 ms OFF.

3.11. Serial Port/UART Interface

There are two lines dedicated to the Serial Port/UART interface (TXD and RXD). TXD/RXD is standard RS232 signal.

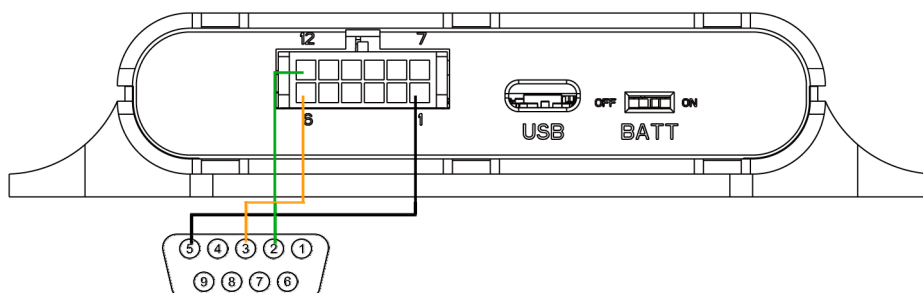


Figure 15. Typical Connection with RS232 Port

FCC regulatory conformance:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.