

GV56 User Manual

GSM/GPRS/GNSS Tracker

TRACGV56UM001

Version: 1.06



International Telematics Solutions Innovator

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0. Revision History

Version	Date	Author	Description of Change
1.00	2018-06-01	Hazard Zhang	1. Initial.
1.01	2018-10-18	Oliver Ding	1. Updated Figure 6 in Chapter 2.6.
1.02	2018-12-20	Frank Zhang	1. Updated picture of GV56.
1.03	2019-01-17	Frank Zhang	1. Added content regarding how to open the case (Chapter 3.4) and how to install a SIM card (Chapter 3.5).
1.04	2019-03-07	Frank Zhang	1. Added Chapter 4.3 regarding motion sensor direction.
1.05	2019-06-12	Frank Zhang	1. Updated the pictures in Chapter 3.4, Chapter 3.5 and Chapter 3.6.
1.06	2023-04-26	Nancy Yin	1. GV56 hardware version 1.06 starts to support the configuration of PIN1 for analog input or digital input, and updated the related description.

1. Introduction

The GV56 is a micro GNSS tracker designed for a wide variety of vehicle tracking applications. It has multiple digital/analog I/Os and a 1-wire interface. Its built-in GNSS receiver has Best-in-Class sensitivity and fast time to first fix. It has built-in Bluetooth which supports both data and voice transmission. System integration is straightforward as complete documentation is provided for the full featured @Track protocol. The @Track protocol supports a wide variety of reports including emergency alarm, geo-fence boundary crossings, as well as external power supply monitoring and position reports.

1.1 Reference

Table 1: GV56 Protocol Reference

SN	Document Name	Remark
[1]	GV56 @Track Air Interface Protocol	The air protocol interface between GV56 and backend server.

1.2 Terms 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 Appearance



Figure 1: GV56 Appearance

2.2 Interface Definition

GV56 has a 7PIN interface connector. It contains the connections for power, and I/O. The sequence and definition of the 7PIN connector are shown in the following figure:



Figure 2: 7PIN Wire Harness of GV56

Table 3: Description of 7PIN Connections

Index	Description	Remark
1	Blue[AIN/IN]	Digital input / Analog input, 0V-30V
2	Orange[One_Wire_Data]	1-wire data bus
3	Yellow[Vdd_One_Wire]	1-wire device power output
4	Green[OUT]	Open drain, 150mA max
5	White[IGN]	Ignition input, positive trigger
6	Black[GND]	GND
7	Red[VIN]	External DC power input, 8V-32V

2.3 LED Description

GV56 has two status LEDs which are CELL LED and GNSS LED.

Table 4: LED Description

LED	Device Status	LED Status
CELL (Note 1)	Device is searching network.	Fast flashing
	Device has been registered on the network.	Slow flashing
GNSS (Note 2)	GNSS chip is powered off.	OFF
	GNSS sends no data or data format error occurs.	Slow flashing
	GNSS chip is searching GNSS information.	Fast flashing
	GNSS chip has got GNSS information.	ON

Note:

1. CELL LED cannot be configured.
2. GNSS LED can be configured to turn off after a period of time using the configuration tool.
3. Fast flashing is about 60ms ON / 780ms OFF.
4. Slow flashing is about 60ms ON / 1940ms OFF.
5. When <LED On> is 2, each time the device powers on, both LEDs will work for 10 minutes and then turn off.

2.4 Power Connection

VIN(red)/GND(black) are the power input pins. 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 vehicle without the need for external transformers.



Figure 3: Typical Power Connection

2.5 Ignition Detection

Table 5: Electrical Characteristics of Ignition Detection

Logical State	Electrical State
Active	5.0V to 32V
Inactive	0V to 3V or Open

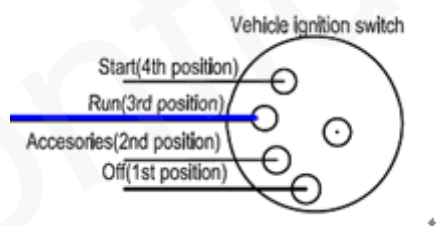


Figure 4: Typical Ignition Detection

IGN(White) 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 backend server when the ignition is on, and enter power saving mode when the ignition is off.

2.6 Digital Output

There is a digital output (OUT) on GV56. It is of open drain type and the maximum drain current is 150mA.

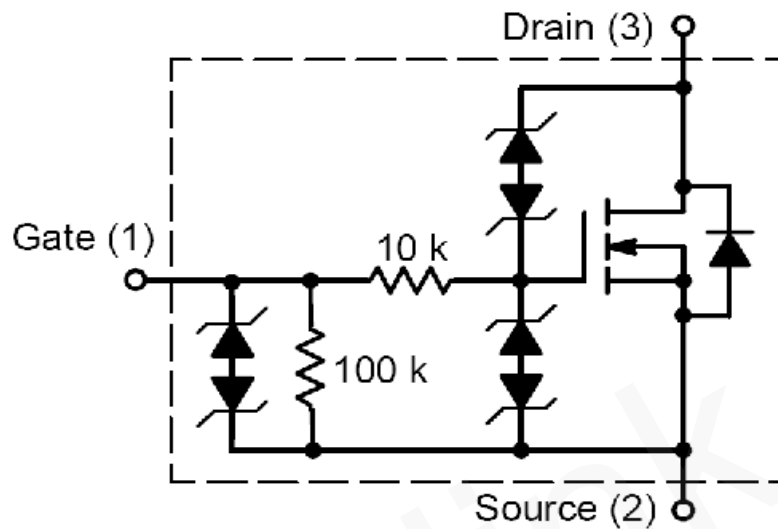


Figure 5: Digital Output Internal Drive Circuit

Table 6: Electrical Characteristics of Digital Output

Logical State	Electrical Characteristics
Enable	<1.5V @150mA
Disable	Open drain

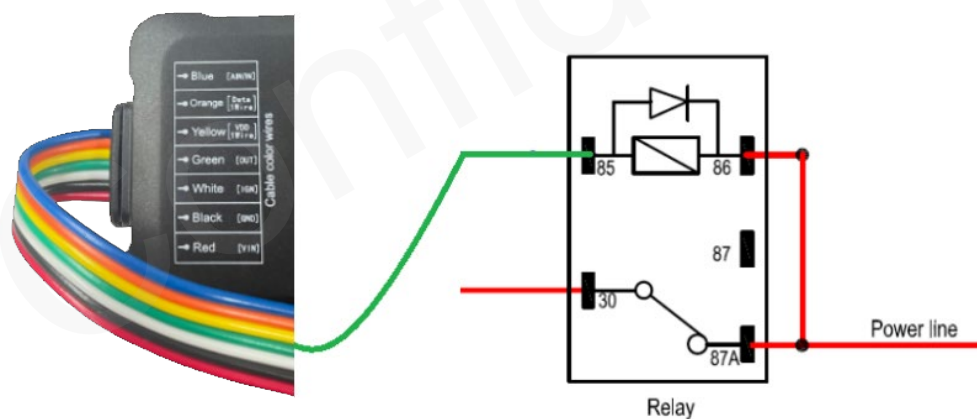


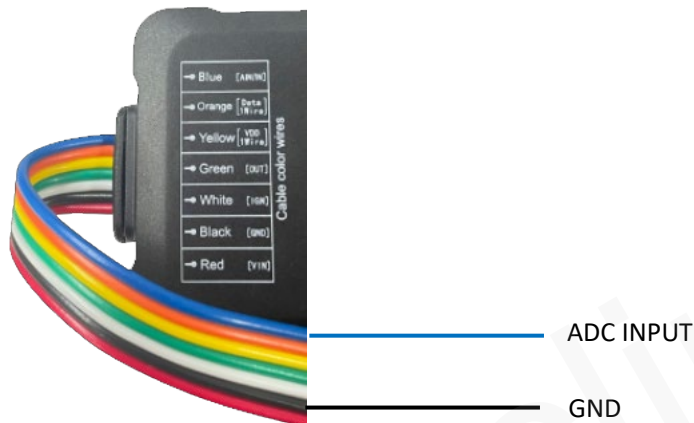
Figure 6: Typical Connection with Relay

2.7 Analog Input/Digital Input

There is one input can be configured as an analog input or a negative trigger digital input on GV56.

The range of input voltage is from 0V to 30V.

The following diagram shows the recommended connection.



Note: For hardware versions earlier than GV56hw_version 1.06, only analog input is supported.

Table 7: Electrical Characteristics as Digital Input

Logical State	Electrical Characteristics
Active	0V to 0.8V
Inactive	Open

2.8 1-wire Device Connection

There is 1-wire bus on GV56, which supports temperature sensors and iButton. The bus includes 3 signals, VDD 1Wire(Yellow), Data 1Wire(Orange) and GND(Black). VDD 1Wire is the power output for 1-wire device, and Data 1Wire is the data signal, with which GV56 can get information from 1-wire device.

The following diagrams show the recommended connection of 1-wire device.

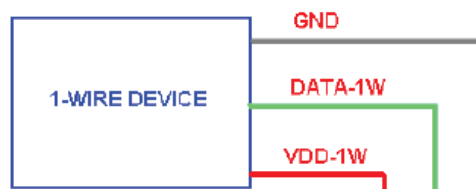


Figure 7: Typical Connection with 1-wire Device



Figure 8: Typical Connection with iButton Reader





Figure 9: Typical Connection with Temperature Sensor

3. Get Started


3.1 Parts List

Table 8: Parts List

Name	Picture
GV56 Tracker	79.5mm*44.3mm*11.9mm 
Data_Cable_M_V4 (Optional)	

3.2 GV56 External Cable Interface

Table 9: GV56 User Cable Colour Definition

Definition	Colour	PIN No	Cable
AIN/IN	Blue	1	
Data 1Wire	Orange	2	
VDD 1Wire	Yellow	3	
OUT	Green	4	
IGN	White	5	
GND	Black	6	
VIN	Red	7	

3.3 Turn on/Turn off

To turn on the device, connect it to an external battery. CELL LED will be on.

To turn off the device, disable the backup battery (i.e. set *<Backup Battery On>* in **AT+GTCFG** to 0) and then disconnect the device from the external battery.

3.4 Open the Case



Figure 10: Open the Case

When GV56 is shipped, the case of GV56 is not closed completely, which allows the user to open it relatively easily for SIM card and battery installation.

3.5 Install a SIM Card

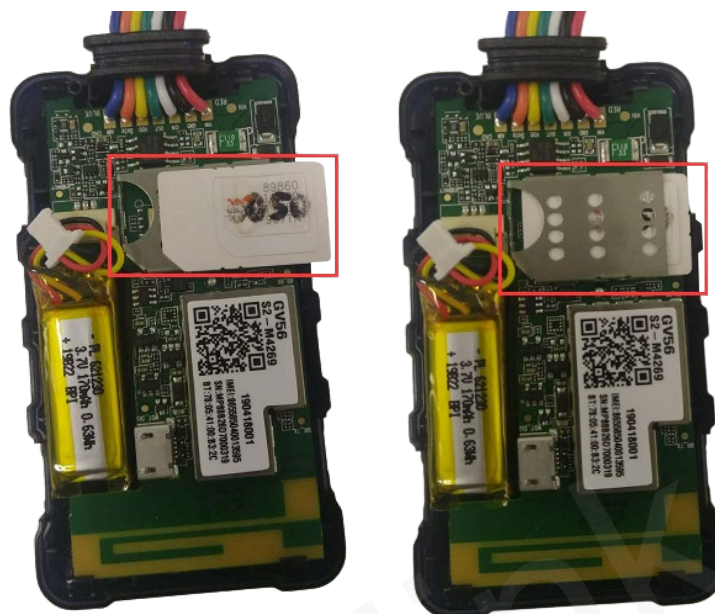


Figure 11: SIM Card Installation

Open the case and ensure the device is powered off. Insert the SIM card into the holder as shown above with the gold-colored contact area facing down. Close the case.

3.6 Install the Internal Battery



Figure 12: Battery Installation

When GV56 is shipped, the internal battery is not installed. Thus, the battery needs to be installed as shown above before use.

3.7 Close the Case



Figure 13: Close the Case

Put the upper cover on the lower cover, press the covers to make sure they are closed completely.

4. Troubleshooting and Safety Information

4.1 Troubleshooting

Trouble	Possible Reason	Solution
After GV56 is turned on, the CELL LED always flashes quickly.	The signal is too weak; GV56 cannot be registered to the network.	Please move GV56 into places with good GSM coverage.
Messages cannot be reported to the backend server.	The IP address or port of the backend server is wrong.	Make sure the IP address for the backend server is an identified address on the Internet.
Unable to power off GV56.	Charger is connected.	Disconnect charger, and try again.
GV56 cannot get successful GNSS fix.	The GNSS signal is weak.	Please move GV56 to a place with open sky.
		It is better to let the top surface (the surface with LED indicator) face the sky.

4.2 Safety Information

- Please do not disassemble the device by yourself.
- Please do not put the device on overheated or too humid place, and avoid exposure to direct sunlight. Too high temperature will damage the device or even cause battery explosion.
- Please do not use GV56 on the airplane or near medical equipment.

4.3 Motion Sensor Direction

GV56 has an internal 3-axis accelerometer supporting driving behavior monitoring, power conservation and motion detection. The following shows the directions of the motion sensor.



Figure 14: Motion Sensor Direction

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