GV55W User Manual

GSM/GPRS/WCDMA/GNSS Tracker

TRACGV55WUM001

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International Telematics Solutions Innovator

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0.Revision History

Version	Date	Author	Description of Change
1.00	2018-02-08	Alan Zhao	Initial

1.Introduction

GV55W is a powerful GPS locator designed for vehicle or asset tracking. It has superior receiver sensitivity, fast TTFF (Time to First Fix) and supports Dual-Band GSM frequencies 850/900/1800/1900, its location can be monitored in real time or periodically tracked by a backend server or other specified terminals. GV55W has multiple input/output interfaces that can be used for monitoring or controlling external devices. Based on the integrated @Track protocol, the GV55W can communicate with a backend server through the GPRS/GSM network to transfer reports of emergency, geo-fence boundary crossings, low backup battery or scheduled GPS position as well as many other useful functions. Users can also use GV55W 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.

1.1. Reference

Table 1. GV55W Protocol Reference

SN	Document Name	Remark
[1]	GV55W @Track Air Interface Protocol	The air protocol interface between GV55W 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. Check Parts List

Before starting, check all the following items have been included with your GV55W. If anything is missing, please contact your supplier.

Figure 1. Appearance of GV55W

2.2. Parts List

Table 3. Parts List

Name	Picture
GV55W Locator	63mm*50mm*21.8mm 
User Cable	

DATA_CABLE_W (Optional)	

2.3. Interface Definition

GV55W has a 6PIN interface connector. It contains the connections for power, and I/O. The sequence and definition of the 6PIN connector are shown in the following figure:

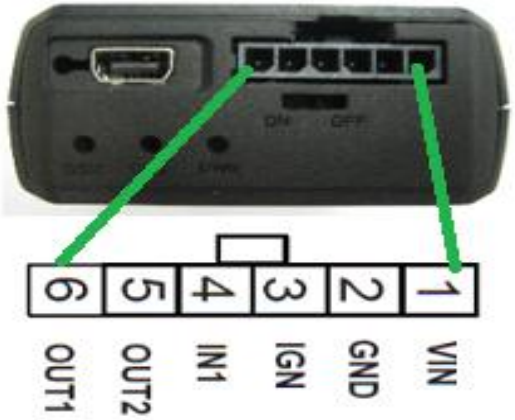

Figure 2. The 6PIN Connector on GV55W

Table 4. Description of 6 PIN Connections

Index	Description	Remark
1	VIN	External DC power input, 8-32V
2	GND	GND
3	IGN	Ignition input, positive trigger
4	IN1	Digital input, negative trigger
5	OUT2	Open drain, 150mA max
6	OUT1	Open drain, 150mA max, with latch circuit

2.4. GV55W User Cable Color

Table 5. GV55W User Cable Color Definition

Definition	Color	PIN No.	Cable
VIN	Red	1	
GND	Black	2	
IGN	White	3	
IN1	Orange	4	
OUT2	Green	5	
OUT1	Blue	6	

3.Getting Started

3.1. Open the Case

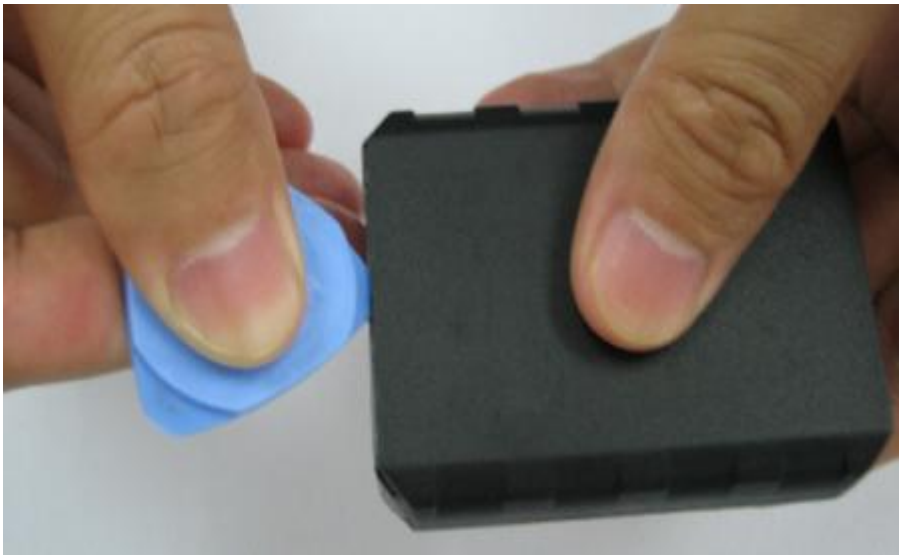

Figure 3. Open the Case

Insert the triangular-pry-opener into the gap of the case as shown above, and push the opener up until the case is unsnapped.

3.2. Close the Case

Figure 4. Close the Case

Place the cover on the bottom. Gently slide the cover until it snaps.

3.3. Install a SIM Card

Open the case and ensure the unit is not powered (unplug the 6Pin cable and switch the internal battery to OFF position). Slide the holder right to open the SIM card holder. Insert the SIM card into the holder as shown below with the gold-colored contact area facing down. Take care to align the cut mark. Close the SIM card holder. Close the case.

Figure 5. SIM Card Installation

3.4. Install the Internal Backup Battery

Figure 6. Backup Battery Installation

GV55W has an internal backup Li-ion battery.

3.5. Switch on the Backup Battery

To use the GV55W backup battery, the switch must be in the ON position. The switch on the case and ON/OFF position are shown below.

Figure 7. Switch and ON/OFF Position

Note:

1. The switch must be in the “OFF” position when the GV55W is shipped on an aircraft.
2. When the switch is in the “OFF” position, the battery cannot be charged or discharged.
3. To reset the device: Remove the external DC power and switch off the backup battery. Then supply the external power and switch on the backup battery.

3.6. Power Connection

PWR (PIN1) / GND (PIN2) 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 vehicle without the need for external transformers.

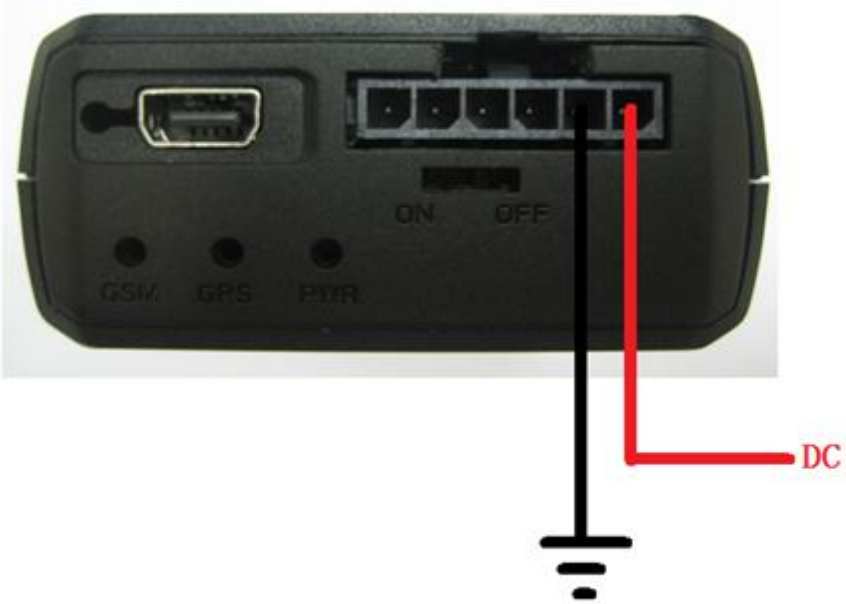

Figure 8. Typical Power Connection

3.7. Ignition Detection

Table 6. Electrical Characteristics of Ignition Detection

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

Figure 9. 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 for the device to start transmitting information to the backend server when the ignition is on and enter power saving mode when the ignition is off.

3.8. Digital Input

There is one general purpose digital input on GV55W, i.e. IN1 (PIN3). It is negative trigger.

Table 7. Electrical Characteristics of Digital Input

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

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

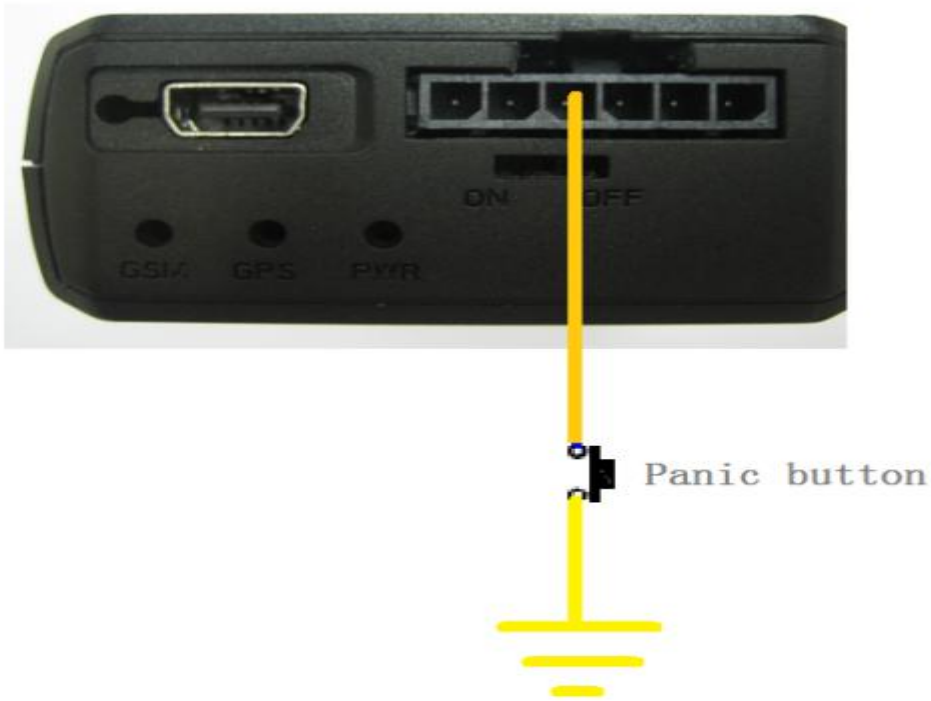

Figure 10. Typical Digital Input Connection

3.9. Digital Outputs

There are two digital outputs on GV55W. Both are of open drain type and the maximum drain current is 150mA. Each output has the built-in over current protection self-recovery PTC fuse.

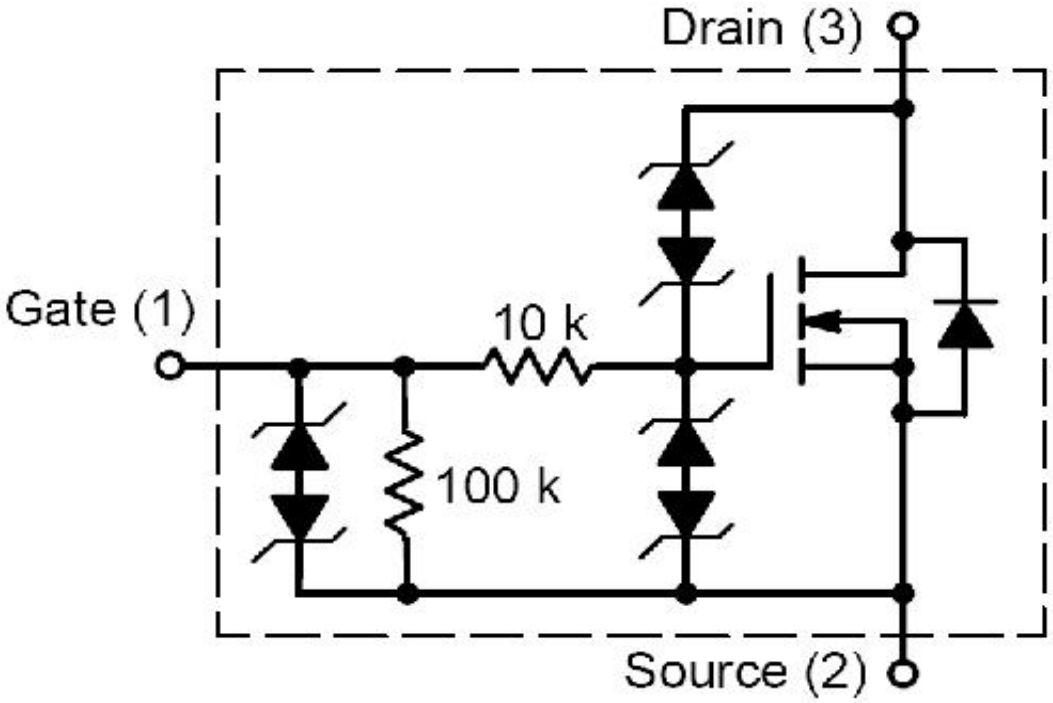

Figure 11. Digital Output Internal Drive Circuit

Table 8. Electrical Characteristics of Digital Outputs

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

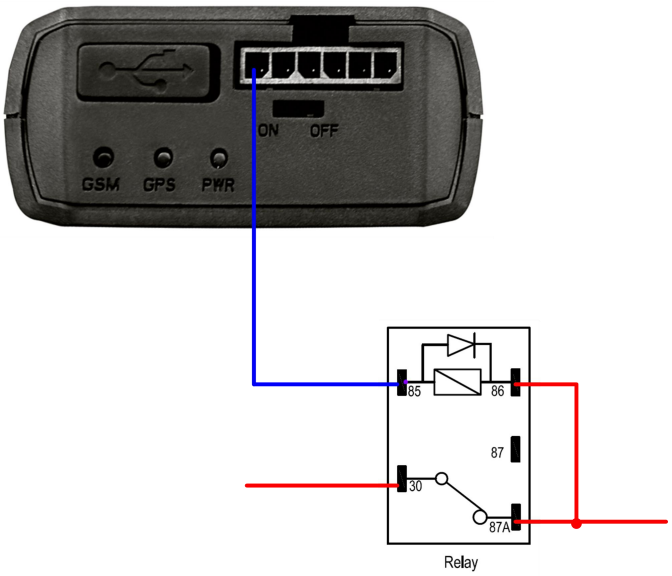

Figure 12. Typical Connection with Relay

Figure 13. Typical Connection with LED

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

GV55W has three status LEDs that are GSM LED, GPS LED, and PWR LED.

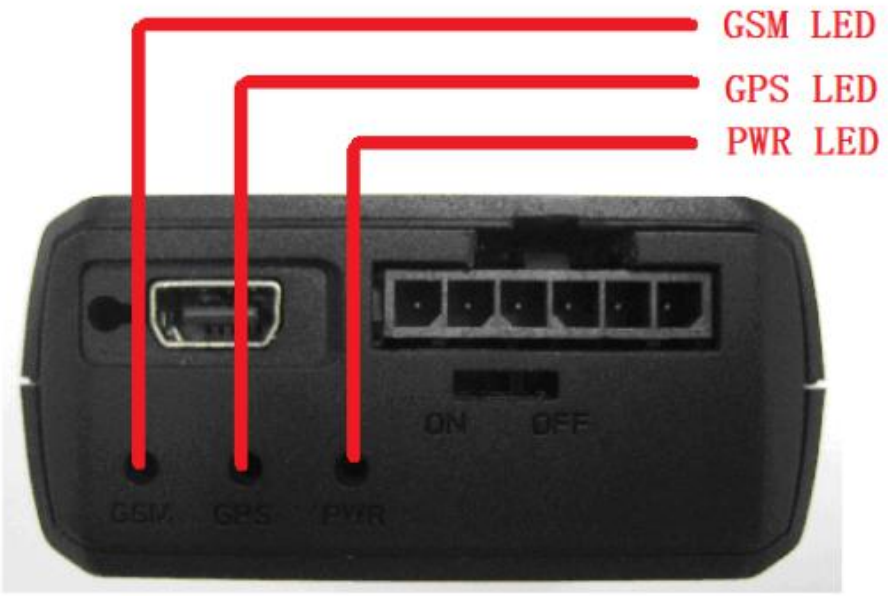

Figure 14. GV55W LED on the Case

Table 9. Definition of Device Status and LED

LED	Device Status	LED Status
GSM (Note 1)	Device is searching GSM network.	Fast flashing (Note 3)
	Device has registered to GSM 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 information.	Fast flashing
	GPS chip has gotten GPS information.	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 in the range of 3.35V~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. GSM LED cannot be configured.
2. GPS LED and PWR 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.

3.11. Motion Sensor Direction

GV55W has an internal 3-axis accelerometer supporting driving behavior monitoring, power conservation and motion detection. The following shows the directions of the motion sensor.

This equipment complies with FCC and IC 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.

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,and (2) this device must accept any interference received, including interference that may cause undesired operation.

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.

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
- This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.