

GV30CAU User Manual

GSM/GPRS/LTE Cat1/GNSS Tracker

TRACGV30CAUUM001

Version: 1.00



Document Title	GV30CAU User Manual
Revision	1.00
Date	2025-03-27
Status	Release
Document Control ID	TRACGV30CAUUM001

General Notes

Queclink offers this information as a service to its customers, to support application and engineering efforts that use the products designed by Queclink. The information provided is based upon requirements specifically provided to Queclink by the customers. Queclink has not undertaken any independent search for additional relevant information, including any information that may be in the customer's possession. Furthermore, system validation of this product designed by Queclink within a larger electronic system remains the responsibility of the customer or the customer's system integrator. All specifications supplied herein are subject to change.

Copyright

This document contains proprietary technical information which is the property of Queclink Wireless Solutions Co., Ltd. The copying of this document, distribution to others, and communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of a patent grant or registration of a utility model or design. All specifications supplied herein are subject to change without notice at any time.

Contents

Contents	2
Table Index	3
Figure Index	4
0. Revision History	5
1. Introduction	6
1.1. Reference	6
1.2. Terms and Abbreviations	6
2. Product Overview	7
2.1. Appearance	7
2.2. Interface Definition	7
2.3. Wiring Scheme	8
2.4. LED Description	8
2.5. Power Connection	9
2.6. Ignition Detection/Analog Input	9
2.7. Digital Output	9
2.8. Digital Input	10
3. Get Started	11
3.1. Parts List	11
3.2. External Cable Interface	11
3.3. Turn on/Turn off	11
3.4. Open the Case	12
3.5. Install a SIM Card	12
3.6. Close the Case	13
3.7. Motion Sensor Direction	13
4. Troubleshooting and Safety Information	15
4.1. Troubleshooting	15
4.2. Safety Information	15

Table Index

Table 1: GV30CAU Protocol Reference	6
Table 2: Terms and Abbreviations	6
Table 3: Description of 5-PIN Connections	7
Table 4: LED Description	8
Table 5: Electrical Characteristics of Ignition Detection	9
Table 6: Electrical Characteristics of Digital Output.....	9
Table 7: Electrical Characteristics of Digital Input.....	10
Table 8: Parts List	11
Table 9: User Cable Color Definition	11
Table 10: Solutions to Possible Trouble	15

Figure Index

Figure 1: Appearance of GV30CAU	7
Figure 2: Digital Output Internal Drive Circuit	9
Figure 3: Open the Case	12
Figure 4: SIM Card Installation	12
Figure 5: Close the Case	13
Figure 6: Motion Sensor Direction	14

0. Revision History

Revision	Date	Author	Description of Change
1.00	2025-03-27	Willie Liu	1. Initial.

1. Introduction

The GV30CAU is an ultra-low cost LTE Cat 1 Fallback 2G GNSS tracker. Its extremely compact design facilitates easy and covert installation. The full-featured @Track Air Interface Protocol provides the complete documentation, so it's easy to learn system integration. The protocol supports a wide variety of reports including emergency alarm, geo-fence boundary crossings, external power supply monitoring and position reports. Its compact size and powerful features make it an ideal choice for a wide range of transportation monitoring applications such as automobile finance, stolen vehicle recovery, car leasing, and logistics.

1.1. Reference

Table 1: GV30CAU Protocol Reference

SN	Document Name	Remark
[1]	GV30CAU @Track Air Interface Protocol	The air protocol interface between GV30CAU and the backend server.

1.2. Terms and Abbreviations

Table 2: Terms and Abbreviations

Abbreviation	Description
VIN	External DC power input, 9-32V
GND	Power and digital ground
IGN/AIN	Ignition input, positive trigger; Analog Input(0-32V)
/IN	Digital Input, negative trigger
OUT	Digital output

2. Product Overview

2.1. Appearance



Figure 1: Appearance of GV30CAU

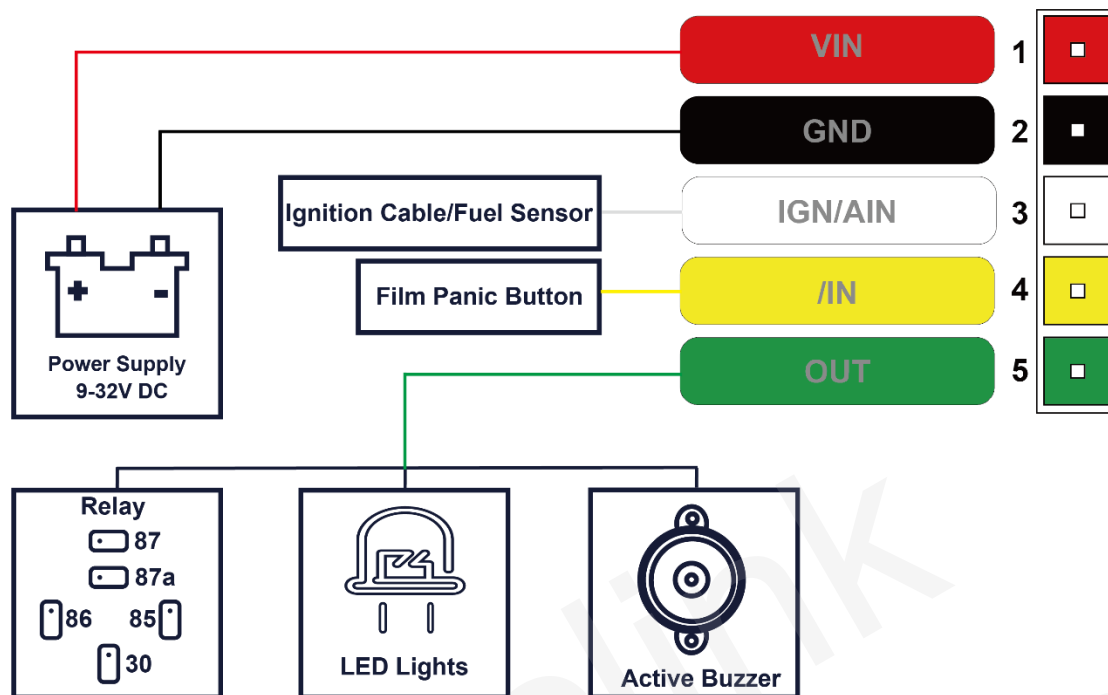
2.2. Interface Definition

GV30CAU has a 5-PIN interface connector. It contains the connections for power, and I/O. The sequence and definition of the 5-PIN connector are shown in the following figure:

Table 3: Description of 5-PIN Connections

Interface	PIN Number	PIN Name	Description
 1 	1	VIN	External DC Power Input, 9-32V
 2 	2	GND	Power and digital ground
 3 	3	IGN/AIN	Ignition input, positive trigger; Analog Input(0-32V)
 4 	4	/IN	Digital Input, negative trigger
 5 	5	OUT	Digital Output, open drain, 150mA max, with latch circuit

2.3. Wiring Scheme



2.4. LED Description

GV30CAU has two status LED lights, namely GNSS LED and CEL LED.

Table 4: LED Description

LED	Device Status	LED Status
GNSS	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 gotten GNSS information.	ON
CEL	The device is searching network.	Fast flashing
	The device has been registered on the network.	Slow flashing
	SIM card needs pin code to unlock.	ON

Note:

- GNSS LED and CEL LED can be configured to be turned off after a period time by using the configuration tool.
- Fast flashing: For CEL LED, it is about 60ms ON/780ms OFF. For GNSS LED, it is about 100ms ON/100ms OFF.
- Slow flashing: For CEL LED, it is about 60ms ON/1940ms OFF. For GNSS LED, it is about 600ms

ON/600ms OFF.

2.5. Power Connection

VIN(Red)/GND(Black) are the power input pins. The input voltage range for this device is from 9V to 32V. The device is designed to be installed in vehicles that operate on 9V to 32V vehicle without the need for external transformers.

2.6. Ignition Detection/Analog Input

Table 5: Electrical Characteristics of Ignition Detection

Logical State	Electrical State
Active	9.0V to 32V
Inactive	0V to 3V or Open

There is one input can be configured as an Analog input or an Ignition input on GV30CAU. For the Ignition input, it is a positive trigger. For the Analog input, the range of input voltage is from 0V to 16V.

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 the backend server when the ignition is on, and enter power saving mode when the ignition is off.

2.7. Digital Output

The digital output is an open-drain digital output. The maximum drain current for the device is 150mA.

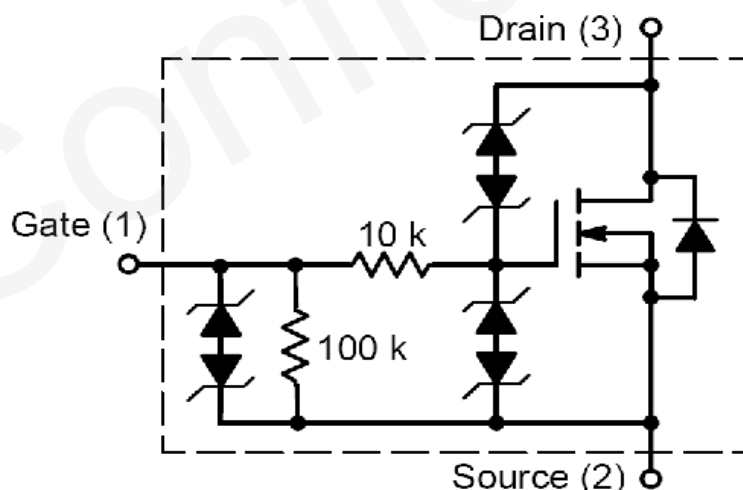


Figure 2: Digital Output Internal Drive Circuit

Table 6: Electrical Characteristics of Digital Output

Logical State	Electrical Characteristics
---------------	----------------------------

Enable	<1.5V @150mA
Disable	Open drain

2.8. Digital Input

There is one digital input on GV30CAU, and it is a negative trigger.

Table 7: Electrical Characteristics of Digital Input

Logical State	Electrical Characteristics
Active	0 to 0.5V
Inactive	Open

3. Get Started

3.1. Parts List

Table 8: Parts List

Name	Picture
GV30CAU Locator	
GV500M_Download_Cable_1M (Micro USB,Optional)	

3.2. External Cable Interface

Table 9: User Cable Color Definition

Interface	PIN Number	PIN Name	Description
	1	VIN	External DC Power Input, 9-32V
	2	GND	Power and digital ground
	3	IGN/AIN	Ignition input, positive trigger; Analog Inputs
	4	/IN	Digital Input, negative trigger
	5	OUT	Digital Output, open drain, 150mA max, with latch circuit

3.3. Turn on/Turn off

- Turn on: Connect the device to external power, and it will be turned on automatically. The CEL light is on first, then both the GNSS and CEL lights are on.
- Turn off: Remove the external power and turn the internal battery to OFF.

3.4. Open the Case



Figure 3: Open the Case

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

When GV30CAU is shipped, the case of GV30CAU is not closed completely, which allows the user to open it relatively easily for SIM card installation.

3.5. Install a SIM Card

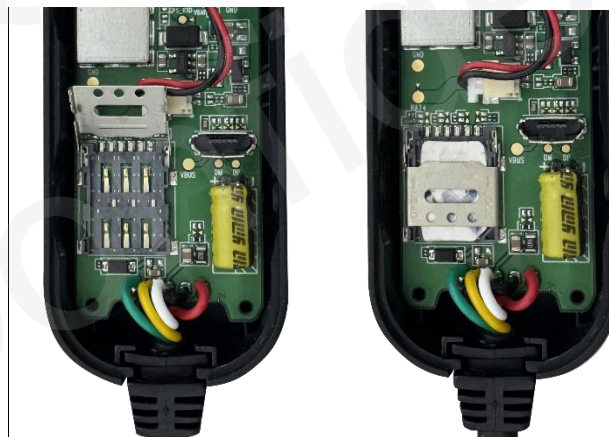


Figure 4: SIM Card Installation

Open the case and ensure the unit is not powered. Slide the holder up to open the SIM card holder. Insert the SIM card into the holder as shown above with the gold-colored contact area facing down. Take care to align the cut mark. Close the SIM card holder. Close the case.

3.6. Close the Case



Figure 5: Close the Case

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

3.7. Motion Sensor Direction

GV30CAU has an internal 3-axis accelerometer supporting driving behavior monitoring, crash detection and motion detection. The following figure shows the directions of the motion sensor.

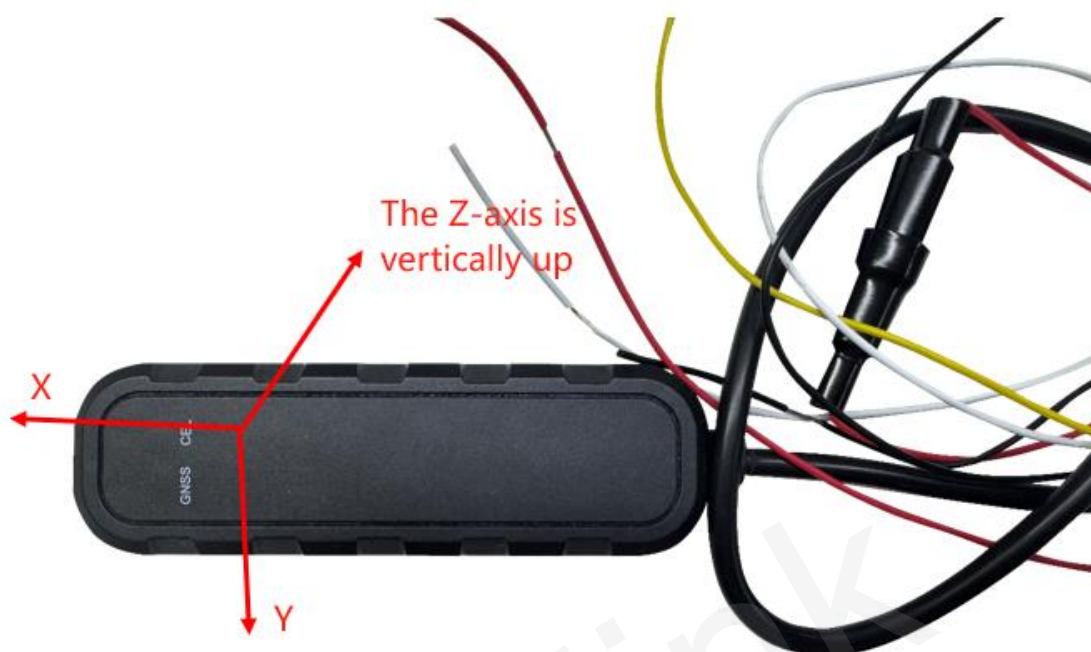


Figure 6: Motion Sensor Direction

Note:

1. The opposite direction of the cable bundle is the positive direction of the X-axis.
2. The Z-axis is in the positive direction above the front housing surface.
3. The positive directions of the three axes are perpendicular to each other, as shown in the above figure.

4. Troubleshooting and Safety Information

4.1. Troubleshooting

Table 10: Solutions to Possible Trouble

Trouble	Possible Reason	Solution
After GV30CAU is turned on, the CEL LED always flashes quickly.	The signal is too weak, and GV30CAU cannot be registered on the network.	Please move GV30CAU to 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 GV30CAU.	Unable to power off GV30CAU if charger is connected.	Disconnect charger, and try again.
GV30CAU cannot get successful GNSS fix.	The GNSS signal is weak.	Please move GV30CAU 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 GV30CAU on the airplane or near medical equipment.

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.