



# GL300M Series User Manual

EGPRS/LTE Cat-M1/LTE Cat-NB1/GNSS Tracker

QSZTRACGL300MUM0101

Version: 1.01

*International Telematics Solutions* **Innovator**

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## Contents

0. Revision History.....	1
1. Introduction .....	2
2. Product Overview.....	3
2.1. GL300M Series Products .....	3
2.2. Appearance .....	3
2.3. Button/Mini USB Interface Description.....	4
2.4. LED Description .....	4
2.5. External Power Interface.....	5
2.5.1. External DC Charger Interface .....	5
2.5.2. External Battery Interface .....	5
2.6. Ignition Detection.....	5
2.7. External Input Interface.....	6
3. Getting Started .....	7
3.1. Parts List .....	7
3.2. Battery Charging.....	7
3.3. GL300M Series External Cable Interface.....	8
3.4. Turn On/Turn Off .....	8
4. Troubleshooting and Safety Info .....	9
4.1. Troubleshooting .....	9
4.2. Safety Info .....	9

## 0. Revision History

Version	Date	Author	Description of Change
1.00	2017.12.16	Kevin Xiang	Initial
1.01	2018.08.21	Arry Wang	Amendment

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## 1. Introduction

The GL300M Series is water resistant GPS trackers designed for lone worker, vehicle, pet and asset tracking applications. The thumb sized button makes the series ideal for applications requiring rapid emergency alert or setting of geo-fences based on current locations. The built-in GPS receiver has superior sensitivity and fast initial positioning. The LTE allows the GL300M Series' location to be monitored in real time or periodically tracked by a backend server or other specified terminals. The built-in 3-axis accelerometer allows motion detection and sophisticated power management algorithms extend battery life. 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, geo-fence boundary crossings, low battery and scheduled GPS position reports.

## 2. Product Overview

### 2.1. GL300M Series Products

Model No.	Region	Technology	LTE Category	Operating Band	Certificate
GL300ME	Europe	GSM/LTE	eMTC/NB-IoT	GSM:900/1800MHz LTE: B3/B8/B20	
GL300MA	North America	LTE	eMTC	LTE: B2/B4/B12/B13	PTCRB FCC Verizon
GL300MC	China	GSM/LTE	eMTC/NB-IoT	GSM: 900/1800 MHz LTE: B1/B3/B5/B8/B39	

### 2.2. Appearance



### 2.3. Button/Mini USB Interface Description

Button/Mini USB Interface Description	
Power Key	<ul style="list-style-type: none"> <li>● Turn on GL300M Series</li> <li>● Turn off GL300M Series when it is not being charged (if the power key is enabled).</li> </ul>
Function Key	<ul style="list-style-type: none"> <li>● Geo-Fence mode Long press the key to enable/disable Geo-Fence ID0.</li> <li>● Geo-Fence around the current position mode Long press the key to enable/disable Geo-Fence ID0. If Geo-Fence ID0 is enabled, the current position is used as the center of Geo-Fence ID0.</li> <li>● SOS mode (default) Long press the key to activate SOS alarm.</li> </ul>
Mini USB Interface	<ul style="list-style-type: none"> <li>● Connecting a 5V DC adapter to power up GL300M Series and charge the internal battery.</li> <li>● Connecting a 3.7V Li-ion or Li-Polymer battery to power up GL300M Series.</li> <li>● Backend server developer or administrator can use the Data_Cable_M to configure GL300M Series.</li> </ul>

### 2.4. LED Description

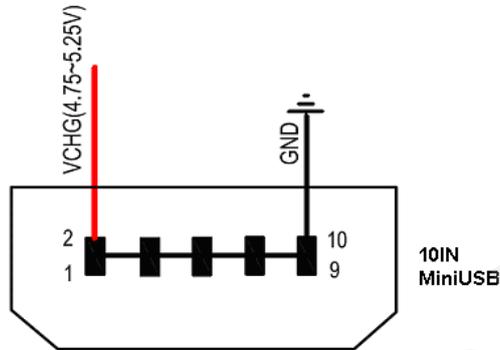
There are three LEDs on GL300M Series. For details, please see the table below.

LED	Event	State
CELL LED	Searching for network	Fast flash
	The device has been registered to network.	Slow flash
	Power off	Dark
	SIM-PIN locked	Solid
	<LED on> is 2.	Dark
GPS LED	GPS has fixed a position.	Solid
	GPS is in the process of fixing.	Fast flash
	GPS is on and GPS data is wrong.	Slow flash
	GPS is off.	Dark
	150 seconds have passed after power on when <LED on> is 0.	Dark
	<LED on> is 2.	Dark
PWR LED	Power on and normal	Dark
	Charger inserted and charging completed	Solid
	Charger inserted and charging	Fast flash
	Power key is pressed to power off the device.	Fast flash
	Abnormal	Fast flash
	Power low alert	Slow flash
	The power light is turned off by command.	Dark
	<LED on> is 2.	Dark

## 2.5. External Power Interface

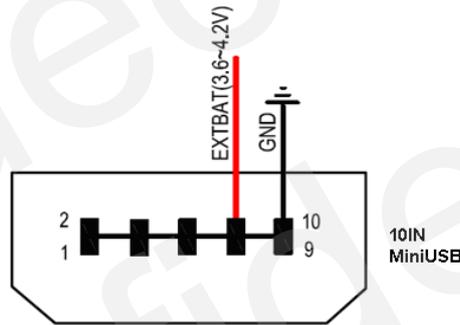
### 2.5.1. External DC Charger Interface

Pin 2 on the Mini-USB connector is used for charging and named as VCHG pin. It can be connected to a 5V DC power supply to power up GL300M Series and charge the internal battery.



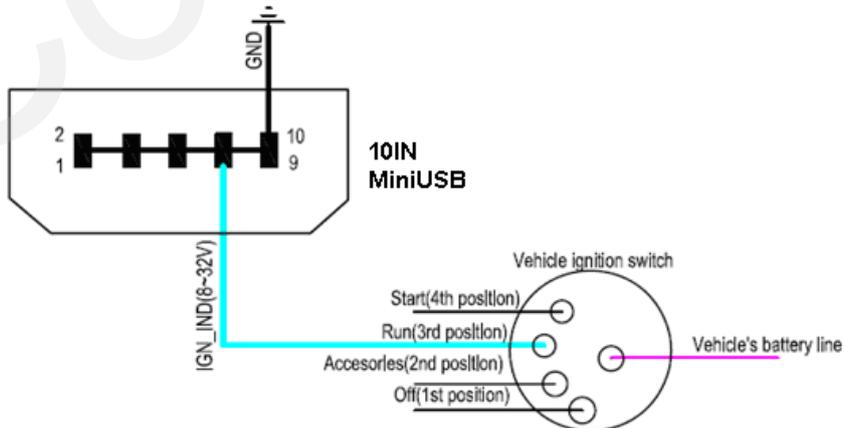
### 2.5.2. External Battery Interface

Pin 8 on the Mini-USB connector is for external battery and named as EXTBAT pin. It can be connected to a 3.7V Li-ion or Li-Polymer battery to power up GL300M Series.



## 2.6. Ignition Detection

Pin 7 on the Mini-USB connector is for ignition detection when GL300M Series is used in vehicle tracking application. It is named as IGN\_IND pin.



Another easy way is to connect PIN7 to a power output which is only enabled when the vehicle is ignition on (e.g. the power output for radio FM) in the fuse box of the vehicle.

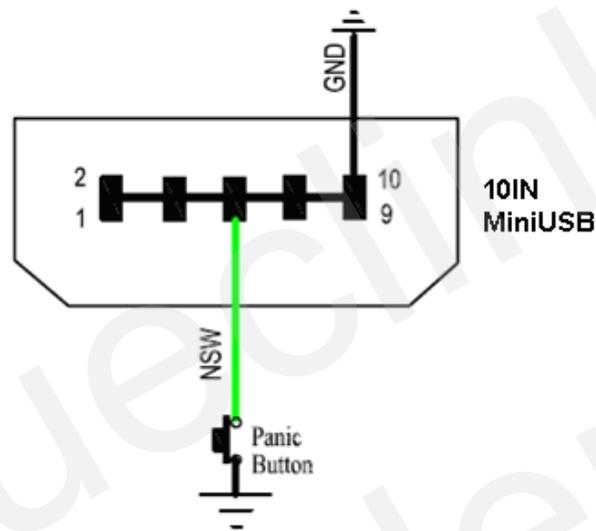
## 2.7. External Input Interface

Pin 5 on the Mini-USB connector is a negative trigger input in newer version hardware. It is named as NSW pin.

For negative trigger input, the electrical characteristics are:

Logic State	Electrical Characteristics
Active	0V to 0.8V
Inactive	1.7V to 32V or Open loop

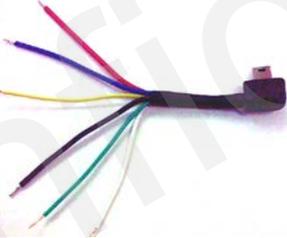
An input example is shown as the following figure:



Example of NSW pin connected to a panic button

## 3. Getting Started

### 3.1. Parts List

Name	Picture	Remark
GL300M Series Locator		GSM/LTE/Cat-M1/LTE Cat-NB1/GPRS/GSM/GNSS/GPS locator
AC-DC Power Adapter (Standard accessory)		Used to charge the internal battery of GL300M Series
GL300M Series Data Cable (Optional accessory)		USB data cable which can be used for firmware upgrade and configuration
GL300M Series External Cable (Optional accessory)		Extension cable which allows the connection to the charger interface and external battery interface as well as the ignition detection interface on GL300M Series

### 3.2. Battery Charging

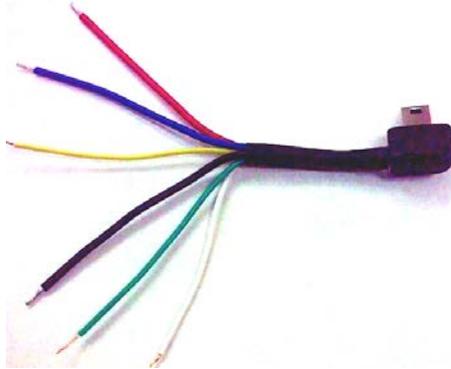
- Connect AC-DC power adapter to GL300M Series.
- Insert the AC-DC power adapter into the power socket.
- During charging, the PWR LED flashes fast. When the battery is fully charged, the PWR LED will be always on.
- You can also charge the battery via USB cable which connects GL300M Series to the PC.
- Charging time is about 5 hours.

**Note:**

Before using GL300M Series for the first time, please fully charge the battery.

### 3.3. GL300M Series External Cable Interface

GL300M Series External Cable has a Mini USB connector with six wires which allows the connection to the external power interface, ignition detection interface and input interface for GL300M Series. Please find the details in the following table.



Color	Name	Remark
RED	External DC IN (5V)	Please refer to Chapter 2.5.1 for details.
Black	Ground	Please refer to Chapter 2.5.1 for details.
Blue	External Battery IN (DC 3.4V to 4.2V)	Please refer to Chapter 2.5.2 for details.
White	Ignition Detection	Please refer to Chapter 2.6 for details.
Green	NSW (negative trigger input)	Please refer to Chapter 2.7 for details.
Yellow	N/A	

### 3.4. Turn On/Turn Off

- Turn on:
  - ◆ Method 1: Press the Power key at least 3 seconds and then release it to turn on GL300M Series. At the same time, PWR LED will also turn on.
  - ◆ Method 2: Connect the device to the charger or external battery. The device will turn on automatically, and PWR LED will also turn on.
- Turn off:
  - ◆ Method 1: Press the power key about 2 seconds. PWR LED will flash fast and then turn off. It indicates that GL300M Series is turned off. The time needed to power off the device depends on the quality of the network. The maximum time needed for power off is 90 seconds. This method is only valid for turning off the device when internal battery is used. Please note the end-user cannot power off GL300M Series through Method 1 when the power key is disabled by protocol.
  - ◆ Method 2: If external battery is used, the device will power off when the external battery is disconnected.

## 4. Troubleshooting and Safety Info

### 4.1. Troubleshooting

Trouble	Possible Reason	Solution
After GL300M Series is turned on, the CEL LED always flashes quickly.	The signal is too weak; GL300M Series isn't registered to the network.	Please move GL300M Series to a place with good LTE coverage.
Messages can't be reported to the backend server by GPRS.	APN is wrong. Some APNs cannot visit the internet directly.	Ask the network operator for the right APN.
	The IP address or port of the backend server is wrong.	Make sure the IP address for the backend server is an identified address in the internet.
GL300M Series is unable to power off.	The function of power key is disabled by <b>AT+GTFKS</b> .	Enable the function of power key by <b>AT+GTFKS</b> .
	GL300M Series is unable to power off if charger is connected or external battery is used.	Disconnect charger or external battery and try again.
There is no response from UART when GL300M Series is configured by using UART.	GL300M Series is in power saving mode.	Remove the Data_Cable_M, and plug it in again. After that, GL300M Series will exit from power saving mode for 10 seconds.
		Re-try GL300M Series Manager Tool to wake up the device.
GL300M Series can't get successful GPS fix.	The GPS signal is weak.	Please move GL300M Series to a place with open sky.
		It is better to let the top surface (which comes with LED indicators) face the sky.

### 4.2. Safety Info

- Do not disassemble the device by yourself.
- Do not put the device in the overheated or too humid place, and avoid exposure to direct sunlight. Too high temperature will damage the device or even cause battery explosion.
- Do not use GL300M Series on the airplane or near medical equipment.