



GL50MG User Manual

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

QSZTRACGL50MGUM0100

Version: 1.00

International Telematics Solutions Innovator

www.queclink.com

Document Title	GL50MG User Manual
Version	1.00
Date	2020-08-25
Status	Released
Document Control ID	QSZTRACGL50MGUM0100

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0. Revision History

Revision	Date	Author	Description of Change
1.00	2020-08-25	Heymi Lin	Initial

1. Introduction

GL50MG is an IP68 waterproof GNSS tracker that features up to 3 years standby time powered by internal batteries and supports wireless charging. The device is ideal for lot management and other tracking applications that require real-time monitoring on temperature and light. GL50MG supports LTE Cat M1/NB1 network on multiple bands for operation in America, Europe, and Oceania with a fallback to GPRS.

1.1. GL50MG Product

Table 1. GL50MG Product

Model No.	Region	Technology	Operating Band (MHz)
GL50MG	Worldwide	eMTC/NB-IoT	GSM:GSM850/PCS1900 LTE-FDD: B2/B4/B5/B12/B13/B26

1.2. Reference

Table 2. GL50MG Protocol Reference

SN	Document Name	Remark
[1]	GL50MG @Track Air Interface Protocol	The air interface protocol between GL50MG and backend server

1.3. Terms and Abbreviations

Table 3. GL50MG Terms and Abbreviations

Abbreviation	Description
RXD	Receive Data
TXD	Transmit Data
GND	Ground

2. Product Overview

2.1. Product Appearance



Figure 1. GL50MG Product View

2.2. Key Description

Table 4. GL50MG Key Description

Key Functions	To power on: Long press for more than 3 seconds To check the device status: Press the key for one time To power off (needs to be configured): Long press for more than 3s after power on
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2.3. LED Description



Figure 2. GL50MG LEDs

There are two LEDs on GL50MG. They can work separately and in combination to indicate the status of the device. For the details when they work separately, please see the table below:

Table 5. GL50MG LED Description (work separately)

LED	Event	State
Status LED (Green)	Searching network	Fast flash
	The device has been registered on network	Slow flash
	SIM is locked by PIN	Solid on
	Network modem off	Solid off
GPS LED (Blue)	GPS is in the process of fixing	Fast flash
	GPS is on and GPS gets fix	Slow flash
	GPS off	Solid off

Fast flash: 100ms on/200ms off

Slow flash: 200ms on/1000ms off

Note: The LEDs will be on about 5 minutes after power on. After that, they will always be off.

When they work in combination, the details are described as below:

Table 6. GL50MG LED Description (work in combination)

During power on	The STATUS LED will be on for about 5s, and then both the LEDs will flash alternatively.
When checking the device status	Both the LEDs will be on to indicate the device still works.
During power off	Both the LEDs will flash simultaneously to indicate the device is being powered off.

2.4. Parts List

Table 7. GL50MG Parts List

Name	Picture	Description
GL50MG Locater		EGPRS/LTE Cat-M1/LTE Cat-NB1/GNSS Tracker
GL50MG Back Glue		Used to install GL50MG
GL50MG Data Cable (Optional)		USB data cable which can be used for firmware upgrade and configuration

3. Interface Definition

GL50MG has an internal 4-pin connector. It can be used to configure the device. The definition of the pins is in the following table.

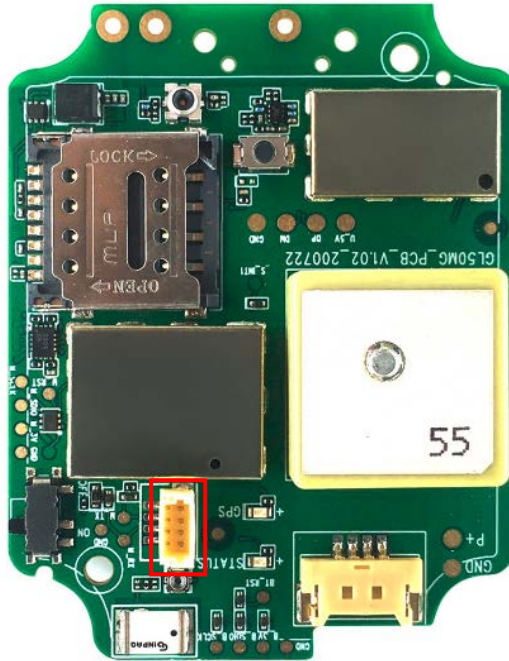


Figure 3. 4-pin Connector of the GL50MG

Table 8. Description of 4-pin Connections

Index	Pin Name	Description
1	USB_5V	Not used
2	RXD	MCU UART RXD
3	TXD	MCU UART TXD
4	GND	Power and digital ground

4. Getting Started

4.1. Opening and Closing the Case

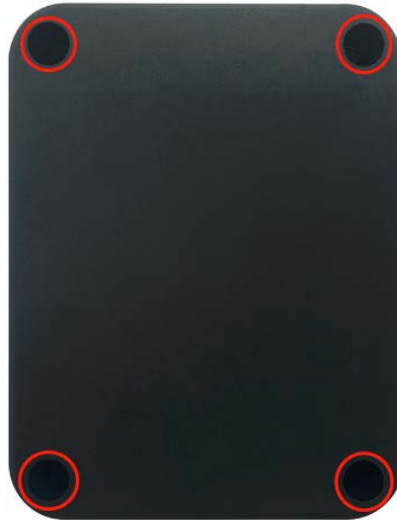


Figure 4. GL50MG Screw Position

To open/close the case: Unfasten or tighten the 4 screws at backside.

4.2. Turning on/off the Device

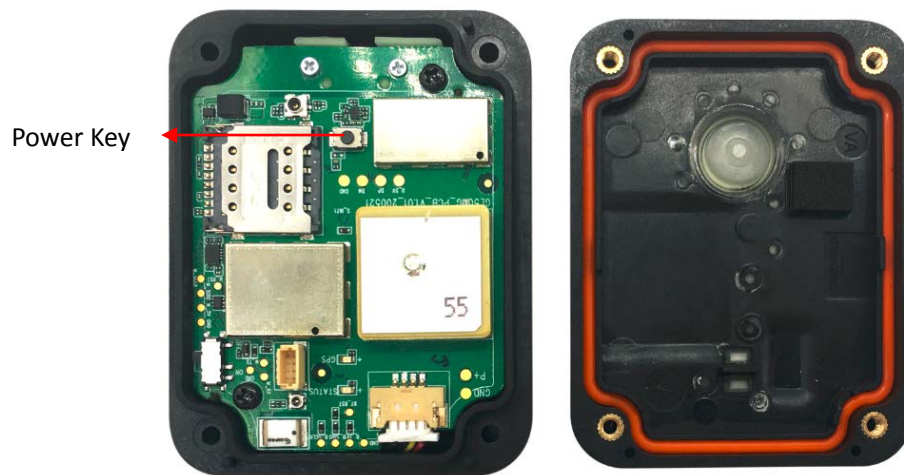


Figure 5. GL50MG Battery Switch and Key

To turn on: Long press the key for more than 3 seconds.

To turn off (needs to be configured): Long press for more than 3s after power on.

4.3. Installing a SIM Card

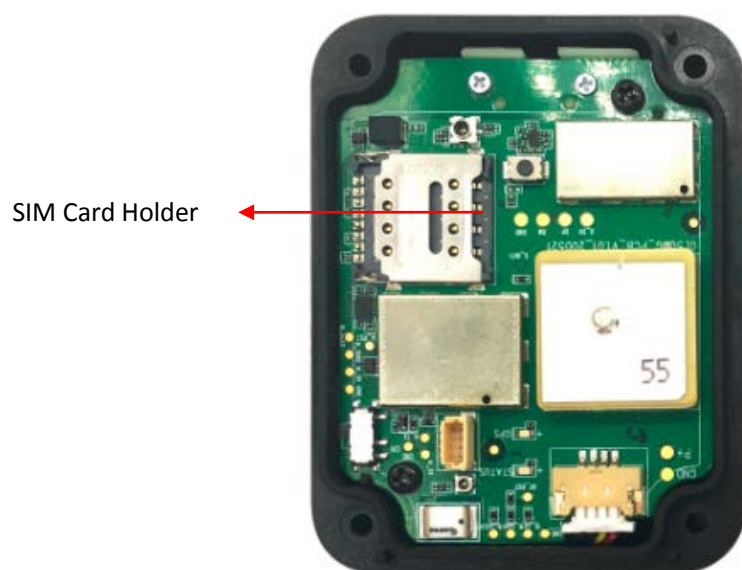


Figure 6. GL50MG SIM Card Holder

Power off the device first and then install the SIM card.

5. Installation Precautions

- ◆ Firmly install the device to a reliable surface to prevent falling off.
- ◆ Make the side with antenna face sky to have better signal reception.
- ◆ Do not install the device under metal surface or in enclosed environments having difficulty in getting GPS and network signal.

6. Troubleshooting and Safety Info

6.1. Troubleshooting

Table 9. GL50MG Troubleshooting List

Trouble	Possible Reason	Solution
After the device is turned on, the Status LED always flashes quickly.	The signal is too weak. The device isn't registered to the network.	Please move the device to a place with good network coverage.
Messages can't be reported to the backend server by network.	APN is not right.	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.
There is no response from UART when the device is configured by using UART.	The port is not ready or the device is not powered on.	Please check the port and the device to ensure they are working properly.
The device can't get GPS fix.	The GPS signal is weak.	Move the device to a place under open sky.
		It is better to make the side with antenna face the sky.

6.2. 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 the device on the airplane or near medical equipment.

7. Appendix: Supported Accessories

- GL50MG Data Cable (optional)

Bluetooth

The device role of Bluetooth could be Master and Slave. When the device role is Slave, the device will provide below services: device information service, battery information service, virtual serial port service. Other devices can read or use these services after connecting devices. When the device role is Master, the device will provide below services: the others devices can read or use the above services after connecting devices, connect the designated device to read the data or related information of the designated Bluetooth devices. After reading the data, the server can be reported to the server by the corresponding message.

FCC Statement :

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

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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

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