GSM/GPRS/GPS Tracker **GL500**

User Manual

TRACGL500UM001

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Revision History

Revision	Date	Author	Description of change
1.00	2012-6-11	Cid Xu	Initial
1.01	2013-6-3	Tony Pei	Add the direction of GL500 placed
1.02	2014-3-20 2014-5-9	World Chu Pam Pan	Add the notice of using batteries and modify the definition of 8 pin connector Proofread writing

1. Introduction

GL500 is a powerful GPS tracker designed for fixed asset tracking applications. GL500 works with two CR123A lithium-batteries. GL500 wakes up every 1-40 hours and sends the information, then returning to deep sleep. GL500 has standby time of 1000 days. With the built-in motion sensor, GL500 can also detect the motion of asset all the time and give a warning message. Based on the integrated @track protocol, the GL500 can communicate with a backend server through the GPRS/GSM network to transfer reports of emergency, geo-fence boundary crossings, low battery or scheduled GPS position along with many other useful features. System integrators can easily set up their tracking systems based on the full-featured @Track protocol.

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.

1.1. Reference

Table 1. **GL500 Protocol Reference**

SN	Document name	Remark
[1]	GL500 @SMS & @Track Interface Protocol	The @SMS & @Track protocol interface between GL500 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 whether all the following items have been included with your GL500. If anything is missing, please contact your supplier.

Figure 1. Appearance of GL500

2.2. Parts List

Table 3. **Parts List**

Name	Picture
GL500 Locator	80*58*26.8 mm
CR123A Battery	
GL500 Data Cable (Optional)	
GL500 MCU Download Kit (Optional)	

2.3. Interface Definition

The GL500 has an 8 PIN interface connector. It contains the connections for power, RS232, MCU interface, etc. The sequence and definition of the 8 PIN connector are shown in the following figure:

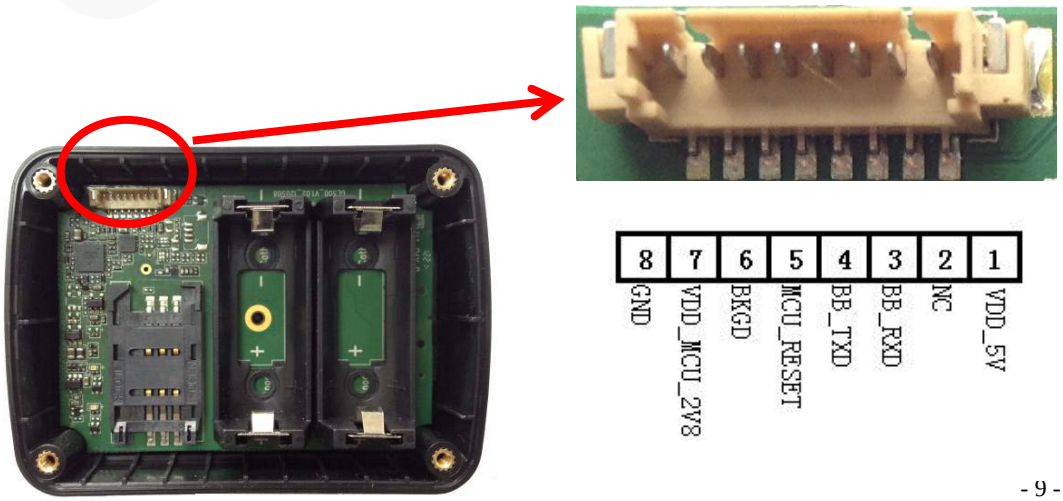

Figure 2. The 8 PIN Connector on the GL500

Table 4. **Description of 8 PIN Connections**

Index	Description	Comment
1	VDD_5V	External DC power input 5V only for debugging use
2	NC	Not connected
3	BB_RXD	BB UART RXD
4	BB_TXD	BB UART TXD
5	MCU_RESET	MCU Chip Reset Signal
6	BKGD	MCU Chip BKGD Signal
7	VDD_MCU_2V8	MCU Power Input, 2.8V
8	GND	Power and digital ground

3. Get Started

3.1. Open the Case

Figure 3. Open the Case

Use the screwdriver to remove the screws, and then open the case.

3.2. Close the Case

Figure 4. Close the Case

Place the cover in the correct position as shown in the figure above. Please note the battery direction and SIM card direction, and then tighten the screws with a screwdriver.

3.3. Install a SIM Card

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

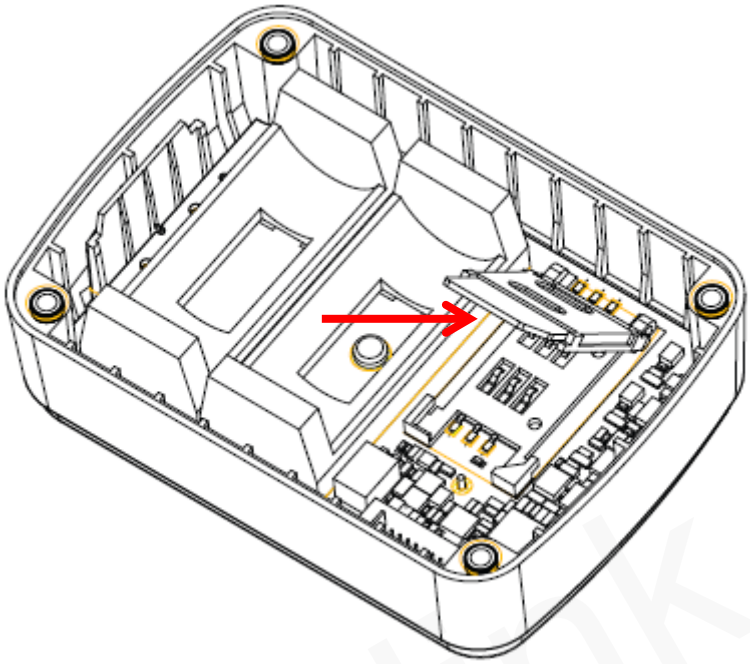

Figure 5. SIM Card Installation

3.4. Install the Internal Backup Battery

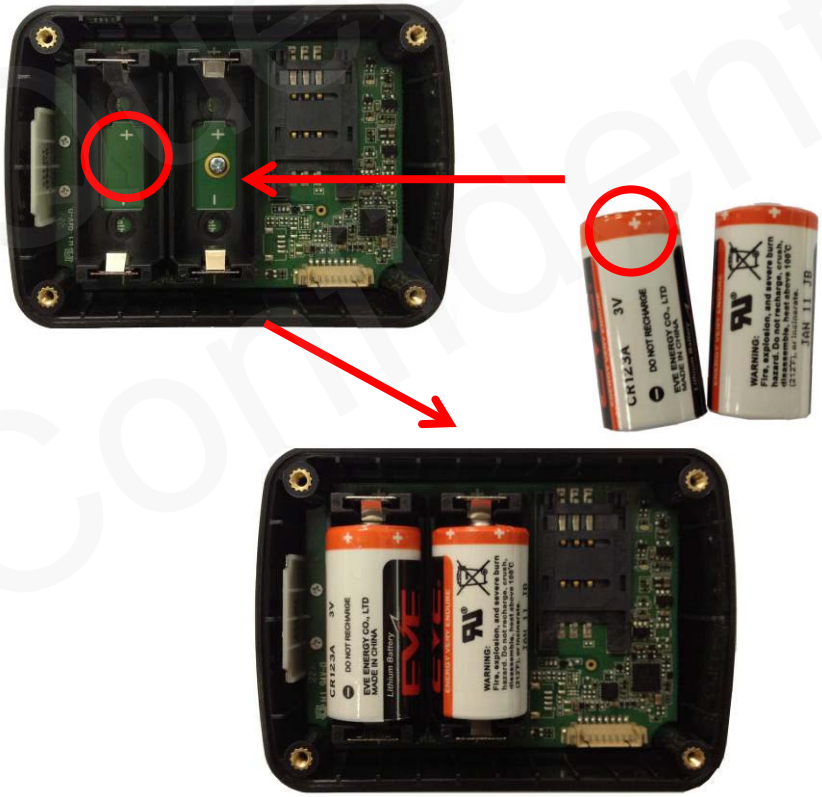

Figure 6. Backup Battery Installation

There are 2 pcs internal CR123A batteries for GL500. Insert the battery into the holder as shown in the figure above. Please note that the polarity mark of the battery and battery holder needs to be consistent.

Note: It is necessary and important to check the voltage of the two batteries before installation and use. You should not put the two batteries with different voltage in the same machine, which will result in damage of the machine or explosion at the worst. New batteries need to be installed after low battery indication (change the two batteries at the same time).

3.5. Power on the Device

After inserting the battery, GL500 will power on automatically, and the Status LED will start work, detail description in the next section.

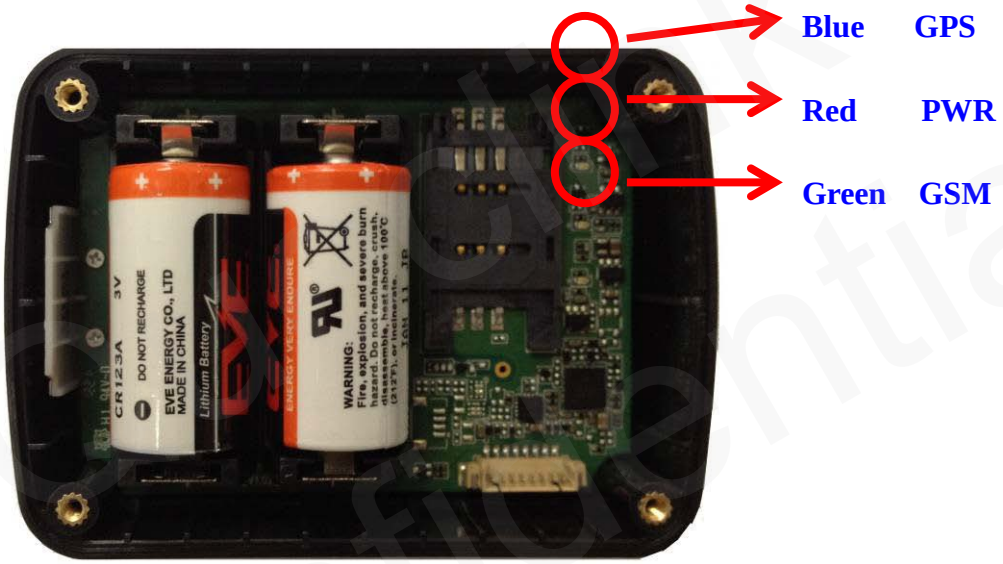

Figure 7. GL500 Status LED

3.6. Direction of GL500 Placed

The side with label should face towards the sky to ensure good GPS signal can be received.

Figure 8. Direction of GL500 Placed

3.7. Device Status LED

Table 5. **Definition of Device Status and LED**

LED	Device status	LED status
GSM (Green)	Device is searching GSM network.	Fast flashing (Note 1)
	Device has registered to GSM network.	Slow flashing (Note 2)
	SIM card needs pin code to unlock.	ON
GPS (Blue)	GPS chip is powered off.	OFF
	GPS sends no data or data format error occurs.	Slow flashing
	GPS chip is searching GPS info.	Fast flashing
	GPS chip has gotten GPS info.	ON
PWR (Red)	Battery voltage is lower than 0%.	OFF
	Battery voltage is below 10%.	Slow flashing
	Battery voltage is more than 10%.	ON

1 - Fast flashing is about 60 ms ON/780 ms OFF
2 - Slow flashing is about 60 ms ON/1940 ms OFF

Note:
1. In Battery mode, all LEDs are only enabled at the first 5 minutes after powering on the device, and then will be shut down and keep off all the time.