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0. Revision history

Revision	Date	Author	Description of change
1.00	2018-11-22	Vincent.tang	Initial

1. Introduction

The GV500MA is a vehicle tracking device that plugs into a vehicle's OBD II port. Its compact design allows easy installation. Its built in GNSS receiver has superior sensitivity and fast time to first fix. Its subsystem supports GPRS/EGPRS/LTE allowing the GV500MA's location to be monitored in real time or periodically tracked by a backend server and mobile devices. Its built in 3-axis accelerometer allows motion detection, BLE device allows near field location and communication, and extended backup battery life through sophisticated power management algorithms. 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, driver behaviour, low battery or scheduled GNSS position and many other useful functions.

The device contains FCC ID: XMR201707BG96.

1.1. Reference

Table 1: GV500MA Protocol Reference

SN	Document name	Remark
[1]	GV500MA @Track Air Interface Protocol	The air protocol interface between GV500MA and backend server.

1.2. Terms and Abbreviations

Table2: Terms and Abbreviations

Abbreviation	Description
PWR	External Power Supply
GND	Ground
OBD	On-Board Diagnostics
SAE	Society of Automotive Engineers
HS_CAN	High Speed CAN
MS_CAN	Medium Speed CAN

2. Product Overview

2.1. Description

GV500MA is based on the OBD II interface GNSS vehicle tracking device, compact design and easy to install. GV500MA contains a 5PIN micro USB connector, an internal GPRS/EGPRS/LTE antenna, two internal GNSS antennas and two LEDs.



Figure 1. Appearance of GV500MA

2.2. Parts List

Table 3: Part List

Name	Picture
GV500MA Locator	49.49mm*48.5mm*21.9mm

2.3. Interface Definition

The GV500MA has an OBD II connector. The sequence and definition of the OBD II connector are shown in following figure:



Figure 2. The OBD II connector on the GV500MA

Table 4: Description of OBD II Connections

Index	Description	Comment
1	reserved	
2	reserved	
3	NC	No connect
4	GND	Power and digital ground
5	GND	Power and digital ground
6	NC	No connect
7	reserved	
8	reserved	
9	reserved	
10	reserved	
11	NC	No connect
12	reserved	
13	reserved	
14	NC	No connect

15	reserved	
16	PWR	External DC power input, 8-32V

3. GettingStarted

3.1. Opening the Case

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



Figure 3. Opening the Case

3.2. Closing the Case

The step of closing case is shown as following:



Figure 4. Closing the Case

3.3. Installing a SIM Card

Open the rubber plug and insert the SIM card into the holder as shown below



Figure 5. SIM Card Installation

3.4. Device Status LED



Figure 6. GV500MA LED on the Case

Table 5: Definition of Device status and LED

LED	Device status	LED status
CELL (note1)	Device is searching GPRS/EGPRS/LTE network	Fast flashing (Note3)
	Device has registered to GPRS/EGPRS/LTE network.	Slow flashing (Note4)
GNSS (note 2)	GNSS chip is powered off	OFF
	GNSS sends no data or data format error.	Slow flashing
	GNSS chip is searching GNSS info.	Fast flashing
	GNSS chip has gotten GNSS info.	ON

Note:

- 1 - CELL LED cannot be configured.
- 2 - GNSS 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

3.5. 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.

NOTE:

The frequency for LTE:

Band2:1850-1910MHz,Band4:1710-1755MHz,Band5:824-849MHz.

Band12:699-716MHz,Band13:777-787MHz, Band26:814-849MHz.

The LTE module FCC ID: XMR201707BG96.

The frequency for 2G:

GPRS/EGPRS850:824-849MHz

GPRS/EGPRS1900:1850-1910MHz

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& your body.