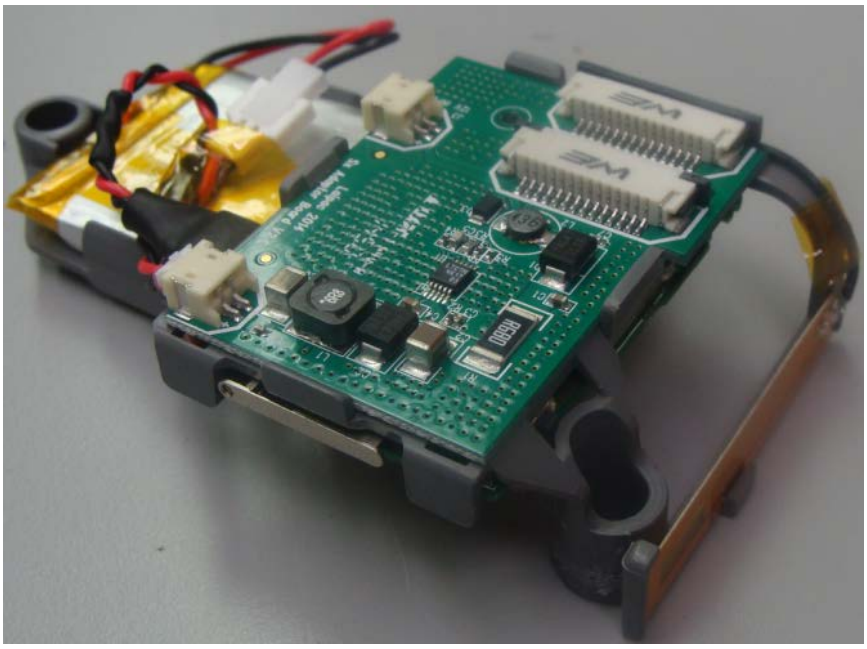
LOLA-HT User Manual

Version 1.2

March 22, 2015



LAIPAC

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- Chapter 1-

Introduction

1.1 What is LOLA-HT?

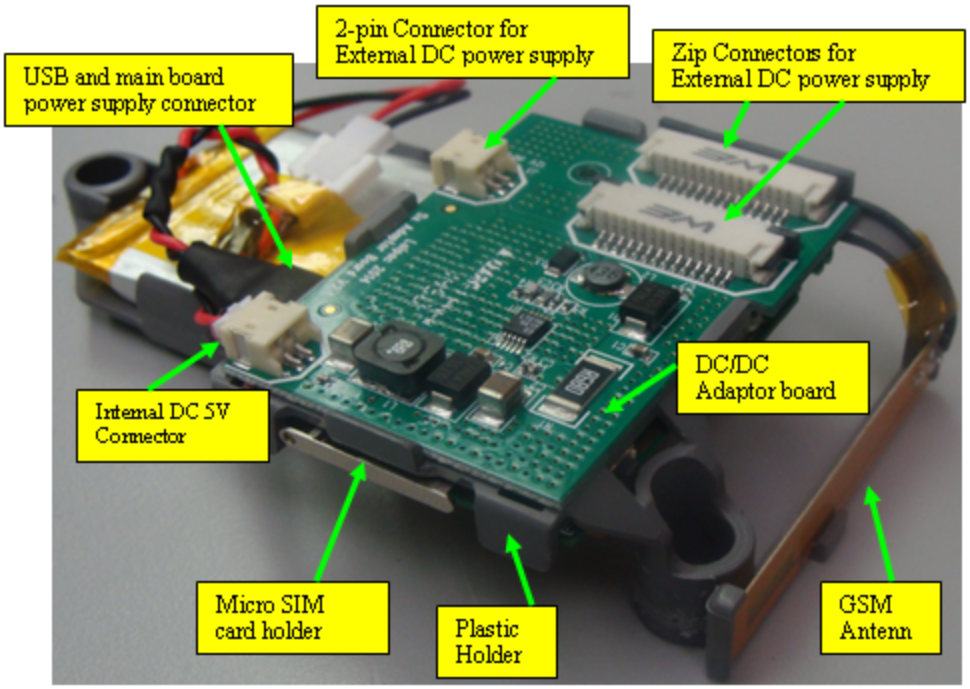
LOLA-HT is a stand-alone GPS tracking module. Due to its all-in-one compact design, it can be easily embedded into the valuable measurement equipment or machinery. By means of GSM/GPRS networks and utilizes a high sensitivity GPS receiver, the owner of those assets can track his asset's real time position.

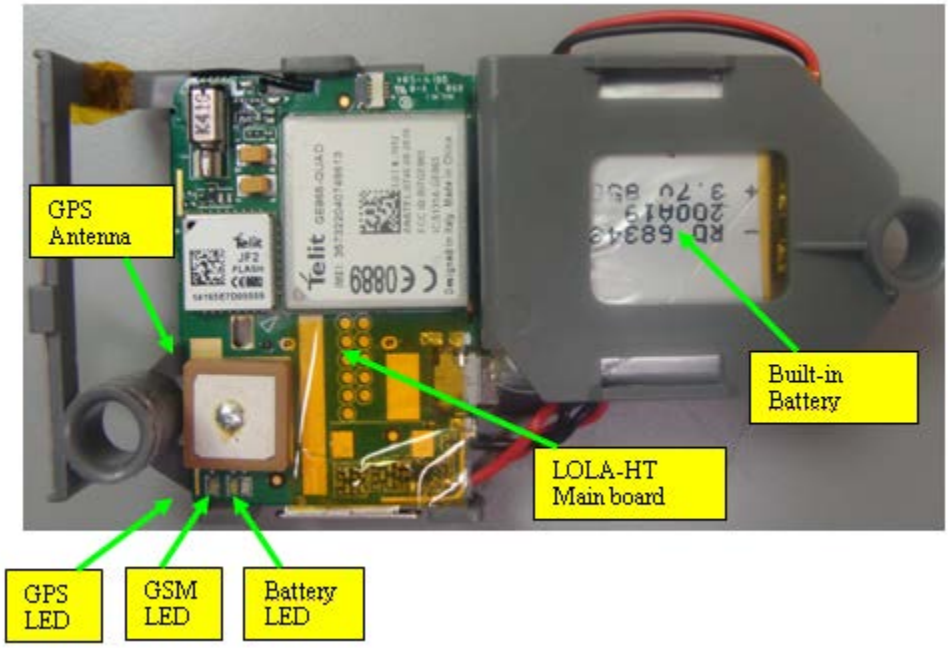
In order to use LOLA-HT, user must have GSM/GPRS service from a wireless service provider and subscribe a service from a Location-based-service platform, such as, LaiLocationNow.com, which is from Laipac Technology Inc.

1.2 Main Features

- Available for GSM/GPRS in 850/1900 900/1800 MHz
- Complies with FCC, CE, and PTCRB (under certificating process now)
- Compact and robust design for its installation inside of the measurement equipment or machinery
- LEDs for indicating GPS, GSM & Battery charging Status.
- Built-in Li-Ion Polymer rechargeable battery for continuous position tracking and enabled event alert when external DC input power supply does not exist.
- New generation of High-Sensitivity GPS receiver with AGPS support
- Power button for powering on/off this module
- Intelligent logger, Smart Logger, designed to store dynamic waypoint information in the area without GSM/GPRS network coverage. And it can re-transmit the information to the remote server once it is back to the area with GSM/GPRS coverage
- Through GPRS or SMS to report its real-time position by pre-set-up time interval or distance traveled
- Versatile multi-Geo-fence, up to 20, with alert selection of Geo-fence in, out as well as both in & out
- Geo-fence alert report and alert email with address information
- Over-speed warning report
- Impact/shock alert report
- Versatile working mode for different application

1.3. Know more about LOLA-HT





- Chapter 2-

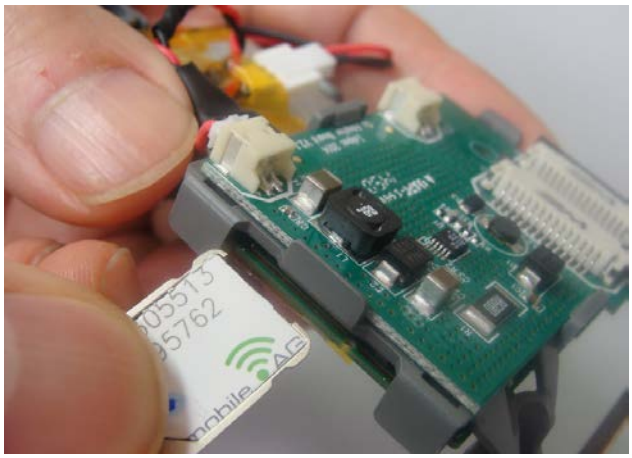
SIM Card requirement and its installation

2.1 Requirement for SIM Card

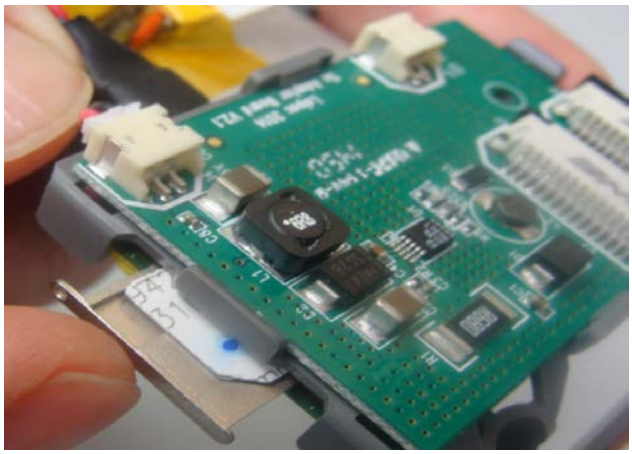
In order to use the LOLA-HT, user should have a valid 2G Micro SIM (Subscribe Identity Module) card provided by your local GSM/GPRS service provider. This card should have SMS functions and with valid data plan enabled, otherwise, his LOLA-HT will not able to access the Location Based Service platform, such as, LocationNow.com, which requires a SIM card with the data communication plan enabled.

2.2 Installation of SIM Card

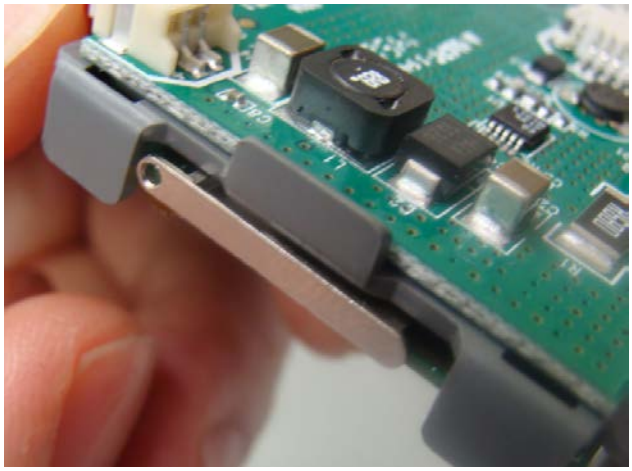
Follow the steps below to install the SIM Card into LOLA-HT.



Step1 Put micro SIM card on the SIM card tray



Step 2 Insert SIM card tray to the socket on the board



Step 3 Push the SIM card tray to the end

- Chapter 3 -

Configuration, Updating and Utility

3.1 Introduction to utility software

As a position tracking product, if the LOLA-HT, wants to work with certain Tracking Service provider's platform, such as, **www.LocationNow.com** from Laipac Technology Inc., it should be properly configured by using a software tool, LocationNow Suite

Please download this utility software by using the link below

www.LocationNow.com .

This web-based **LocationNow Suite** is always coming with latest application firmware of LOLA-HT.

3.2 Configuration, Firmware Update of LOLA-HT

Refer to another document, **"LOLA-HT Operation Manual"**.

It includes the following processes

- How to install LocationNowSuite utility software and its USB driver on your computer, which being with Microsoft Windows OS.
- How to configure LOLA-HT
- How to update LOLA-HT's application firmwar

- Chapter 4 -

Operation Instruction

4.1Function button and its operation

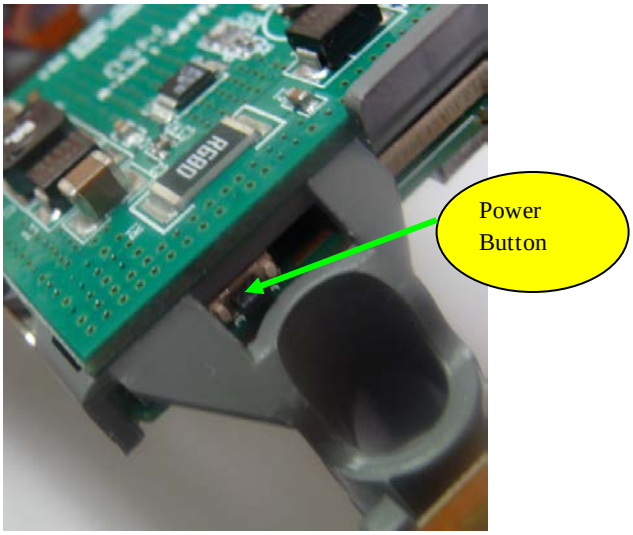


Fig. 4.1

There is only one function buttons, Power, on your LOLA-HT, user can find its positions in Fig. 4.1. This button is used for turning on or off LOLA-HT.

Turn On: Press this button over 3 seconds, both GPS LED and GSM LED are going to light on or start flashing

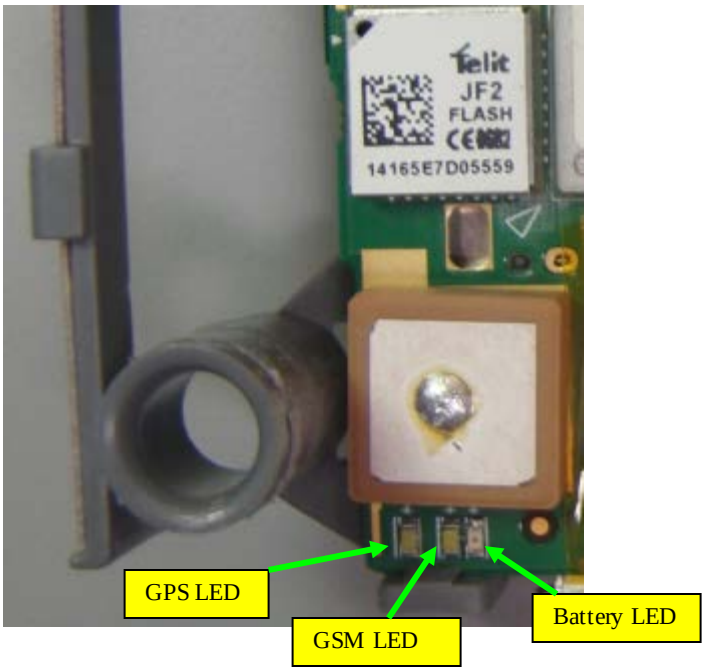
Turn Off: Press this button for over 3 seconds, both GPS LED and GSM LED will no long light on or start flashing

Note:

When LOLA-HT is with external input DC power supply and module is under working status, Turn-Off operation will force module stop working and start its fast charging process of built-in battery. After completion of battery charging, module will be powered off automatically

4.2 LED indicators and LOLA-HT's working status

There are 3 color LED indicators on LOLA-HT



- GPS LED (White color)
- GSM LED (White color)
- Battery LED (Red color)

Table 4.2 describes how to identify the LOLA-HT's working status by observing the behavior of those 3 LED indicators.

Working status	GPS LED white	GSM LED white	Battery LED red
1.Powered off by power button, or 2. Built-in battery has used up its capacity and need charging	Off	Off	
Built-in battery is being charged			On
Position is not located Not registered on GSM network yet	Flashing	Flashing	
Position is located	**On**		
Registered on GSM network	**On**		

Table 4.2

4.3 Introduction to LOLA-HT's working mode

According to the working status of the LOLA-HT's major functional parts below

- Central controller
- GSM/GPRS communication channel (GSM/GPRS)
- GPS receiver (GPS)
- Motion sensor (G-sensor)

The LOLA-HT can be arranged to work at four kinds of different working modes;

- Normal Mode
- Stand-by Mode
- Sleep Mode
- Asset Tracking Mode

Table 4.1 shows the working status of those major function parts under these four kinds of Working Mode.

Note: Table 4.1 is attached to the end of this manual, Appendix Table 4.1

Those versatile working mode allow the LOLA-HT's user to have more choice, according to his application, to achieve longer battery time or working hours.

4.4 Set up working mode

You can setup the LOLA-HT's working mode by using either the LocationNow Suite utility software or LocationNow.com. For further details, please refer to the LOLA-HT's operation manual and its Appendix A.

4.5 Care and Maintenance

LOLA-HT is a product of superior design and craftsmanship. The suggestions below will be helpful for ensuring full warranty coverage.

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode the electronic circuits.

- Do not store the device in hot and high humidity areas. High temperature and humidity can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics

- Do not attempt to de-assembly or assembly the device without the knowledge of an authorized technician.

- Do not drop, knock, or shake the device on purpose. It will trigger tamper alerts if internal motion sensor is enabled.

- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.

- Chapter 5 -

Specifications

5.1 Electrical & Environmental Specs

Item	Min	Typical	Max	Units
850mAh Built-in Li-Ion polymer Battery Voltage	3	3.7	4.2	V
External DC input power supply voltage range	9	12	32	V
Current Consumption while connecting	50	210	218	mA
Current Consumption in operation mode (Idling)	20	25	33	mA
Current consumption in operation mode (Reporting)	90	120	138	mA
Current Consumption in Power off Mode	-	4	-	mA
Peak Current (< 100mS)	-	-	500	mA
Ambient operating temperature	-20	-	60	° C
Storage temperature	-40	-	85	° C

Table 5.1

Note:

Lola-HT is working on Idling mode in most time. Current consumption is subject to change in areas with lower signal's strength vs higher strength

5.2 GPS Engine Specification

Item	Value	Units
Channels	48	Channels
RF Frequency	1575.42	MHz
Position update rate	1	Hz
Position accuracy	< 10	Meters
Velocity accuracy	0.1	m/s
Time accuracy	1	uS
Cold start acquisition time	35	Seconds
Warm start acquisition time	35	Seconds
Hot start acquisition time	< 1	Seconds
Maximum velocity tracked	514	m/s
Maximum altitude tracked	18,288	Meters
Tracking Sensitivity	-163	dBm
Navigation Sensitivity	-160	dBm

Table 5.2

5.3 GSM Module Specification

- Quad-band GSM/GPRS component (850/900/1800/1900 MHz)
- Class 4 (2W @ 850 / 900 MHz)
- Class 1 (1W @ 1800 / 1900 MHz)
- R&TTE, GCF, FCC, PTCRB, IC
- Embedded TCP/IP stack.
- GPRS Class 10

5.4 Certification Information and Statement

FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT:

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

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.

Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following "Contains FCC ID: TET-LOLA-HT" any similar wording that expresses the same meaning may be used.

CE MARKING:

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters "CE". The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for productions it applies to: the manufacture affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number SZEM1207004274RFV after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

Marking: The product shall bear the CE mark, the notified body number(s) as depicted to the right. CE SZEM1207004274RFV.

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

INDUSTRY CANADA CERTIFICATION (IC):

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Please notice that if the IC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: " Contains IC: 11280A-LOLA-HT" any similar wording that expresses the same meaning may be used.

l'appareil hôte doit porter une étiquette donnant le numéro de certification du module d'Industrie Canada , précédé des mots « Contient un module d'émission », du mot « Contient » ou d'une formulation similaire exprimant le même sens, comme suit

Appendix: **Table 4.1**

Major Function parts	Working Mode			
	Normal	**Stand-by**	**Sleeping**	**Asset Tracking**
Description	Report device's position to server based on time and distant interval setting. As typical application case, it is every 15 minutes or 20 Km to generate a report. Or, sending its position when it has event alert trigger as below, • Impact/Accident • Geo-fence in/out	Device is waiting for receiving server's command for sending its position or status. Device only sends its position and status actively when it experiences • Impact/Accident	Device only wakes up once every 12 hours. During its wake-up, it will try to locate its position and check its sensor and battery's status. It will report its position and status to server. Also, it sends its position actively when it experiences • Impact/Accident	According to time interval setting, device will wake up periodically. During its wake-up, it will try to locate its position and check its sensor and battery's status. It will report its position and status to server.
Central controller	Full speed	Full speed	idle	idle
GSM/GPRS	Full functional or idle	Full functional or idle	Wake up a while twice a day	Wake up periodically
GPS	Full functional or idle	Shut down	Wake up a while twice a day	Wake up periodically
G-sensor Alert	Moving Detection enabled Impact Detection enabled	Moving detection enabled Impact detection enabled	Only Impact detection enabled	Moving detection disabled Impact detection disabled
Working time	Up to 30 hours	Up to 2 days	Up to 5 days	Up to 6 days

Note:

As a typical position report or alert event report uploading process, it includes about 100 to120 bytes (ASCII code) raw data.