

**YIELD TECHNOLOGY Co., LTD.**



**SUPERGUARD  
GPS VEHICLE TRACKING SYSTEM**

----- **Operation Manual** -----

**YIELD TECHNOLOGY Co., LTD.**  
No. 5-7 Shia Shin Nan, Chungli  
Taoyuan, TAIWAN R.O.C.  
TEL: (+886) 3-4533655  
FAX: (+886) 3-4531391

E-MAIL: [helge@ytc.com.tw](mailto:helge@ytc.com.tw)

**Compact GPS/GPRS Fleet Management Device VT-05C**

.....  
: Thank you for purchasing the  
: SuperGuard GPS/ GPRS Fleet  
: Management and Tracking device.  
: Please read all instructions carefully  
: before operation, to ensure your  
: complete understanding and to obtain  
: the best possible performance from  
: the unit.  
:.....

### Warranty

The Yield Technology Co., Ltd. (YTC) warrants to the purchaser that this product, under normal use and conditions, will be free from defects in materials and workmanship for a period of 12 months from the date of original purchase. If a product proves defective during this warranty period, YTC, at its option, either will repair the defective product without charge for parts and labor, or will provide an exchange for the defective product.

In order to obtain service under this warranty, the purchaser must notify YTC of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The purchaser shall be responsible for appropriate packaging and shipping with a carrier designated by YTC, with shipping charges paid by recipient (YTC).

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care, alterations, mishandling or accidents. YTC shall not be obligated to furnish service under this warranty to costs incurred for installation, to correction of antenna problems, removal or reinstallation or to damage to video tapes, discs, speakers, accessories or vehicle electrical system.

The extend of YTC's liability under this warranty is limited to the repair or replacement provided above and, in no event, shall the company's liability exceed the purchase price paid for this product.

THIS WARRANTY IS GIVEN BY YTC IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. YTC AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. YTC'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE PURCHASER FOR BREACH OF THIS WARRANTY. YTC AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER YTC OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

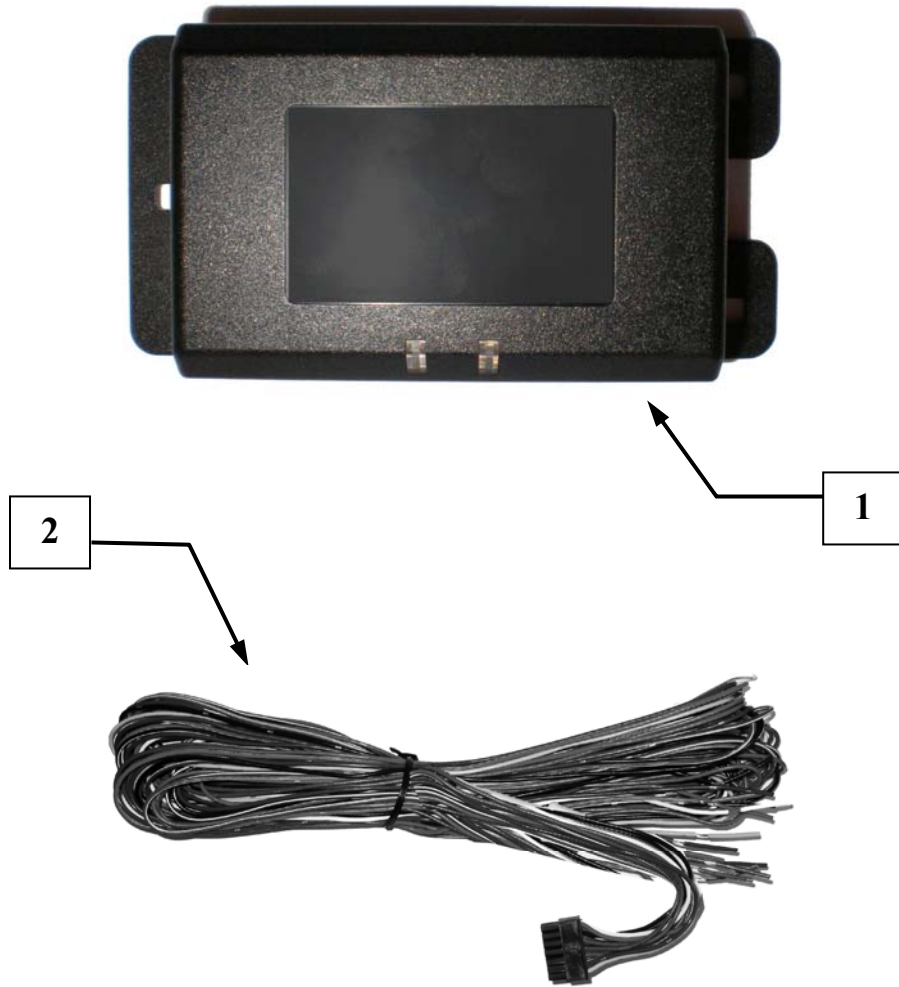
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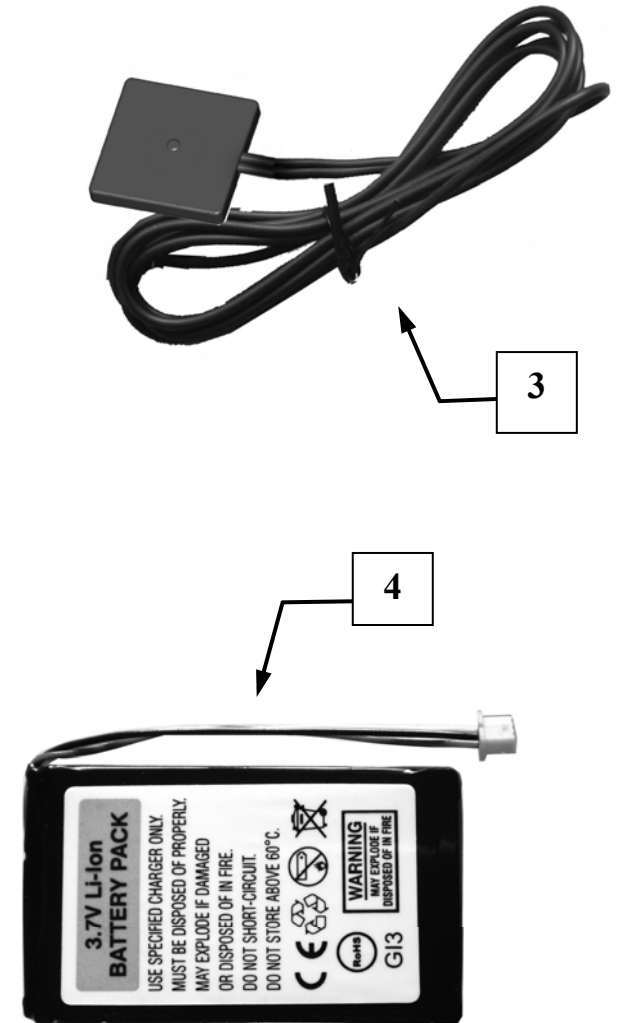
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# 1. Parts & Accessories

On receipt of your SuperGuard system, please check that all contents are complete and correct.



1. SuperGuard GPS/GPRS Main Unit
2. 16-PIN Wiring Harness
3. SOS Emergency Button
4. 3.7V Rechargeable Li-Ion Battery pack
5. Engine Immobilizer Relay



## 2. SuperGuard Vehicle Unit – Features

The SuperGuard SG-VT05 is a GPS vehicle tracking device, ideal for fleet management and commercial data centers.

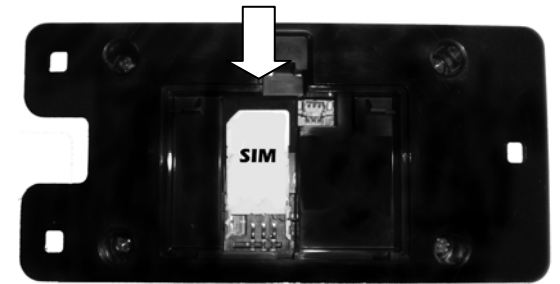
- The SG-VT-05 is easy and quick to install, saving costly installation time and fees.
- Data exchange between device and server is maintained over GPRS and Internet connection. All commands and configuration details can be sent either through GPRS or SMS. An SMS only mode is also available.
- Up to 3 authorized contact numbers can be configured to inquire vehicle location through 2-RING phone call or short message command. Alternately, you will be able to query device location and status over Internet Website or GPRS enabled cell phones at all times.
- You can setup and configure monitoring activities and alerts, using Control Base software or Tracking Web services via Internet Explorer or mobile on GPRS enabled cell phones.
- Tracking schedules, live tracking and parameters including trip information such as total travelled distance or trip distance in km can be configured according to your needs.
- You can define and load up to 4 restricted areas (Geo-Fence areas) to the device and setup maximum speed alert.
- The engine immobilizer allows you to disable the vehicle ignition according to specified trigger times through GPRS or SMS command.
- The device comes with one SOS Push Button designed for emergency alarms to be sent to server and contact numbers. It should be placed at a hidden place within reach of the driver on the dashboard.
- You can configure and activate three power saving modes according to ignition off time, no movement or no communication time.

## 3. Preparations

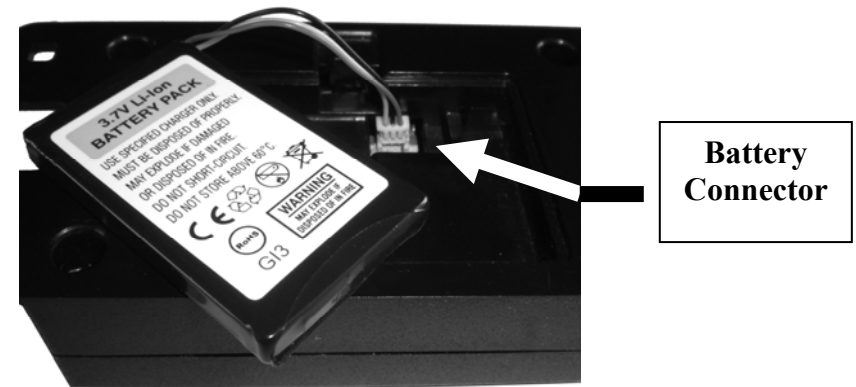
In order to install the SuperGuard Vehicle Unit properly, the following preparations should be carried out:

Prepare one operational GSM SIM card. Make sure that the SIM card can operate without PIN protection and has GPRS with unrestricted Internet access enabled (ask your GSM operator for APN and GPRS dial up requirements). Empty the SMS storage of the SIM card using operational GSM phone (please refer your GSM phone manual to do this).

1. Open the battery cover on the bottom side of the device and remove the battery.
2. Insert the SIM card into the SIM holder in the direction as shown in picture.



3. Place the battery in the compartment and connect it to the battery cable.



4. Replace the battery cover.

## 4. Installation

*NOTE: Please note that installation methods may vary between vehicle models. For expert wiring and connecting please contact a professional car electronics workshop for installation support and maintenance.*

The Vehicle Unit will only operate on 12 V systems with negative earth (Negative to body).

- Before starting installation, disconnect the vehicle battery and observe other manufacturers safety instructions regarding alarm systems, airbags or anti theft radio coding.
- If you want to install the Vehicle Unit in the passenger compartment, make sure that all antenna cables and wiring is protected from sharp edges and is routed in such a manner that it will not be pinched.
- The device comes with built-in GPS antenna. It shall be mounted vertically with its top facing the sky. The ideal location is under the dashboard, close to the windscreen. The device will not work if it is placed beneath metal or metallic glass coatings.
- The SOS button should be installed at a place on the dashboard. It should be hidden but easily accessed in emergency cases. It should be placed separate from dashboard controls and car audio devices.
- Do not connect the spare battery to the Vehicle Unit before you have completed all electrical wiring and connections to the device.

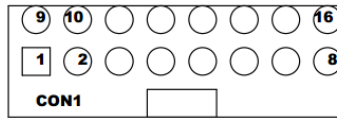
### Connecting The Vehicle Unit:

*NOTE: Finish all wiring and connections to the correct vehicle outputs and inputs before you apply the connector to the Vehicle Unit !*

When connecting, refer to the cable description and wiring diagrams on the following pages.

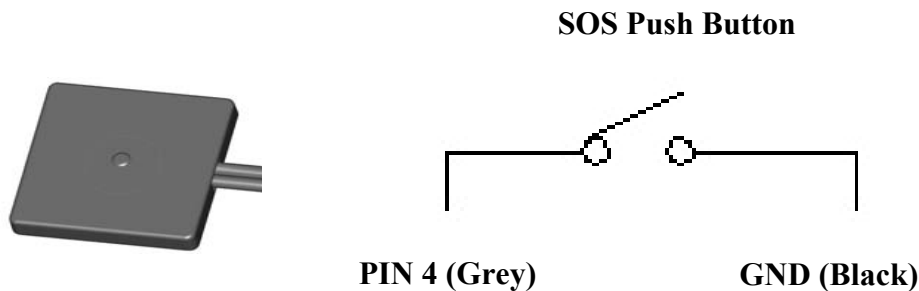


## 16-pin Wire Harness Description and Colors

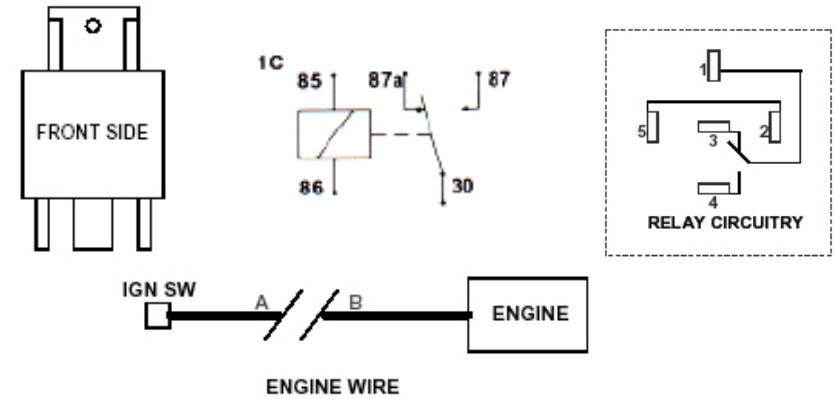


PIN No.	Cable Description	Color
1	+12V Battery Power Input (+)	Red
2	Power Ground (GND)	Black
3	ACC input (+12V)	Yellow
4	Connect to SOS Emergency Button (+)	Grey
5	Connect to door sensor input	Grey/ White
6	Immobilizer relay coil 85 (+)	Green
7	Immobilizer relay coil 86 (-)	Green/White
8	Analog input (AD1)	Red/ Black
9	Ground (GND)	Red/ White
10	Analog input (AD2)	Orange
11	Ground (GND)	Orange/White
12	Switch Input/ Output (AD3)	Blue
13	<i>reserved (do not connect)</i>	Blue/White
14	RS232 Rx in	Purple
15	RS232 Tx out	Pink
16	RS232 (GND)	Black

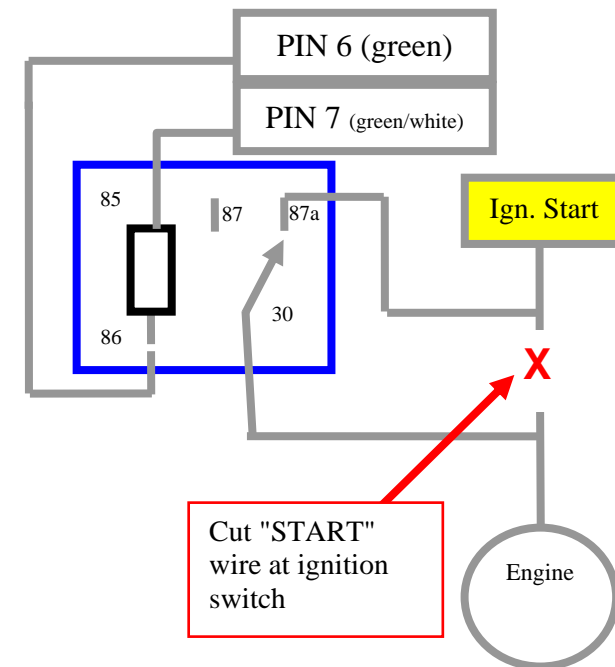
## Installation of SOS Emergency Push Button



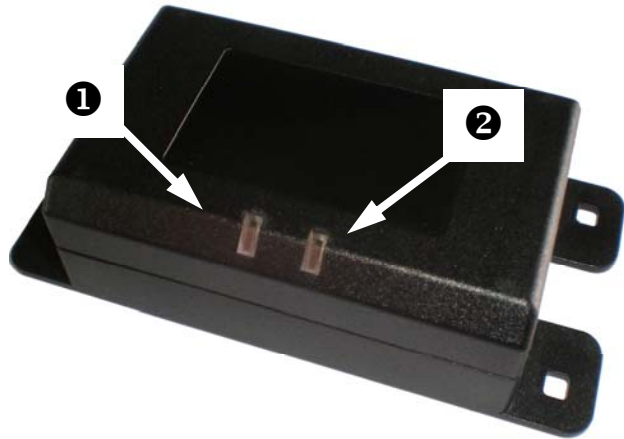
## Installation of Relay for Immobilizer function:



To apply the Engine Enable/ Disable Relay, connect the following cables to the relay socket:



## 5. Vehicle Unit – LED Indicators



- 1 GSM Status LED (green)**
- If LED flashes once every 2 seconds (1/2s):  
Device has registered successfully to GSM network.
  - If LED flashes once per second (1/1s):  
Device is connected to GPRS network. Device is online and able to receive commands over GPRS and SMS and send data to server.
  - If LED stays on continuously:  
Device Device is transmitting GPRS data to server or is in a phone call.
  - If LED flashes rapidly (twice per second):  
GSM error detected, such as SIM card not found or communication command error.
- 2 GPS LED (blue)**
- If LED flashes (once per second):  
Device has GPS lock.
  - If LED stays off:  
Device is scanning for GPS signal, no GPS fix.
  - If LED stays on continuously:  
Device is transmitting GPRS data to server.

## 6. Getting Started

After applying the wire harness to the Vehicle Unit, the device will power up and automatically attempt to register to GSM network. Provided that your vehicle and the device is positioned in a location with clear un-obstructed view of the sky, the device will then start scanning for GPS satellites to obtain its first GPS lock. This first fix can take several minutes.

Before the device is able to operate properly, some mandatory setup parameters need to be configured from the Control Base software or Tracking Websites.

The following basic initializations, SIM card details and GPRS dial-up information are required to be sent by SMS command in order to establish communication with the server:

- **CCNO (included in SuperGuard Service):** GSM number assigned as Control Base number with full authorization
- **ID:** Device ID (8 digits)
- **APN (Access Point Nodes) for GPRS dial-up**
- **UserID and Password for GPRS dial-up (if required)**
- **IP and Port of host server for data exchange**

TO ACTIVATE YOUR EZT DEVICE, PLEASE CONTACT YOUR DEALER OR TRACKING SERVICE PROVIDER.

**IMPORTANT NOTE:** Once your device has been initialized, all following commands sent through the Control Base have to use the same GSM number (Control Center Number). To switch to a different Control Center number at a later time, you will need to send an Initialization command with the modified Control Center number using the original GSM number at the Control Base.



## 7. SOS Emergency Button



The SuperGuard system includes an SOS button that can save your life in case of accidents, hijacking or emergency cases.

The SOS button can be installed at a hidden place within reach of the driver. Pressing this button will start the following actions:

The Vehicle Unit will send an alarm message and GPS coordinates to the Control Base. The Control Base software will find the street name and closest intersection from a map server and send these details through SMS short messages to all Contact numbers.

## 8. Activate/ Disable Vehicle Engine



Authorized contact numbers and Control Base can enable or disable the engine through the engine immobilizer via short message commands:

- To use SMS command to lock the vehicle engine, type and send this command to the Vehicle Unit command:

**\$ENG,1**

- To use SMS command to unlock the vehicle engine, type and send this command to the Vehicle Unit:

**\$ENG,0**

## 9. Locating and Tracking



Authorized users can interrogate the Vehicle Unit to receive locations, street names and details. In addition, they can poll and track their vehicles through Control Base software or Tracking Web services via Internet Explorer or mobile on GPRS enabled cell phones.

### Vehicle Tracking

- From authorized contact numbers, you can get location details directly from the VT-05C by sending the command \$GOOGLE per SMS to the device. The device will reply with Google Street information, if available.
- From the the Tracking Website or GPRS enabled cell phones you are able to receive updated GPS locations any time and display them on a map, and view online tracking history event and communication reports.
- From the Control Base or Websites, you are also able to query locations, view real time movement and setup Tracking schedules in intervals starting from 10 seconds.
- The GPS odometer function can be configured to send travelled distances for each trip (ignition on/ off signal required), and total distance travelled.
- Up to 500 positions can be stored to the device and uploaded as batch data. ou will also be able to configure sleeping modes for the GPS engine to reduce power consumption.



## 10. Vehicle Monitoring



Users are able to setup and configure monitoring activities and alerts to the Vehicle Unit, using Control Base software or Tracking Web services via Internet Explorer or mobile on GPRS enabled cell phones.

### *Geo-Fence Alarms*

- The Vehicle Unit can be configured with a set of up to four restricted geographic areas (Geo-Fences).  
The Vehicle Unit will send an alarm message and GPS coordinates to the Control Base. The Control Base software will find the street name and closest intersection from a map server and send these details through SMS short messages to authorized Contact numbers.

### *Over Speed Alarms*

- If the Vehicle Unit has been configured with a maximum speed limit, the following activities will be triggered when the vehicle speed exceeds the speed limit:  
The Vehicle Unit will send an alarm message and GPS coordinates to the Control Base. The Control Base software will find the street name and closest intersection from a map server and send these details through SMS short messages to all Contact numbers.  
The device will continue collecting data for over speed report until the vehicle speed falls under a specified threshold.

## 11. Technical Specifications

**SIZE (L/W/H):** 88 (119) x 58 x 30 mm

**POWER SUPPLY:** DC 9V ~ DC 24V

- 4mA ~ 10mA Standby current
  - 100mA ~ 120mA operating (SMS)
  - 250mA ~ 350mA operating (Talk time)
  - 100mA ~ 150mA operating (GPRS online)

**SPARE BATTERY:** 3.7V 700 mAh

- Battery standby time: 6 hours (apprx.)
- Battery charging time: 2 hours (apprx.)

**OPERATING TEMPERATURE:** -20°C ~ +70°C

**GSM MODULE:** TELIT (quad band)

- Operating Frequency:
  - GSM-850 (TX : 824Mhz ~849Mhz); (RX : 869Mhz ~894Mhz)
  - E-GSM-900 (TX : 880~915Mhz); (RX: 925Mhz ~ 960Mhz)
  - DCS-1800 (TX : 1710Mhz ~ 1785Mhz); (RX: 1805Mhz ~ 1880Mhz)
  - PCS-1900: ( TX : 1850.2Mhz ~ 1909.8Mhz ); ( RX : 1930.2Mhz ~ 1989.8Mhz )
- TX Output Power:
  - GSM-850:  
Max: 33dBm ± 5dB ; Min: 5dBm ± 5dB
  - E-GSM-900:  
Max : 33dBm ± 5dB ; Min : 5dBm ± 5dB
  - DCS-1800  
Max : 30dBm ± 5dB ; Min : 0dBm ± 5dB
  - PCS-1900:  
Max : 30dBm ± 5dB ; Min : 0dBm ± 5dB

- **Sensitivity:**
  - **GSM-850: < -106 dBm**
  - **E-GSM-900: < -106 dBm**
  - **DCS-1800: < 104 dBm**
  - **PCS-1900 : < 104 dBm**

#### **GPS MODULE**

- **Module: uBlox**
- **Sensitivity: > -160 dBm**
- **Protocol: NMEA-0183 V3.0**
- **Projection: WGS-84**

#### **GPS ANTENNA:**

- **Frequency band:  $1575.42 \pm 2$  Mhz**
- **Gain: +24 dBi Active Antenna**
- **Output Impedance: 50  $\Omega$**

#### **INPUTS:**

- **SOS Emergency button**
- **Vehicle ignition (ACC)**
- **Door Sensor**
- **Analog Input 1**
- **Analog Input 2**

#### **OUTPUTS:**

- **RS232**
- **Engine Out (relay to cut engine circuit)**