



GPS-207, GPS-207DC USER MANUAL

CES WIRELESS TECHNOLOGIES, CORP.
925-122 South Semoran Boulevard
Winter Park, Florida 32792

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REGULATORY COMPLIANCE

FCC

The GPRS modem was tested and certified to meet FCC Parts 15 in a stand-alone configuration, which demonstrated that it complies with Part 15 emission limits. The GPS-207 uses an Enfora manufactured GPRS modem. FCC Part 22 & Part 24 is covered by the "modular approval" process for a transmitter. This approach, described by FCC Public Notice DA 00-131407 released June 26, 2000, is intended to afford relief to equipment manufacturers by eliminating the requirement for obtaining a new equipment authorization for the same transmitter when installed in a new device.

In order to approve it without additional FCC certification approvals, the installation must meet the following conditions:

For the transmitter to meet the MPE categorical exclusion requirements of 2.1091, the ERP must be less than 1.5 watts for personnel separation distance of at least 20 cm (7.9 in). Therefore, the maximum antenna gain cannot exceed +3.3dBi. If greater than 1.5 watts exists, then additional testing and FCC approval is required.

R&TTE -

The GPRS modem has been fully tested and complies with all the requirements of EN301 489-1, EN301 489-7 and EN60950-1:2001. Compliance to EN301 511 has been demonstrated by testing on the GPS-207.

Disclaimer

The information and instructions contained within this publication comply with all FCC, GCF, PTCRB, R&TTE, IMEI and other applicable codes that are in effect at the time of publication. The GPS-207 uses an Enfora manufactured GPRS modem.

CES Wireless Technologies disclaims all responsibility for any act or omissions, or for breach of law, code or regulation, including local or state codes, performed by a third party.

CES Wireless Technologies strongly recommends that all installations, hookups, transmissions, etc., be performed by persons who are experienced in the fields of radio frequency technologies. CES Wireless Technologies acknowledges that the installation, setup and transmission guidelines contained within this publication are guidelines, and that each installation may have variables outside of the guidelines contained herein. Said variables must be taken into consideration when installing or using the product, and CES Wireless Technologies shall not be responsible for installations or transmissions that fall outside of the parameters set forth in this publication.

CES Wireless Technologies shall not be liable for consequential or incidental damages, injury to any person or property, anticipated or lost profits, loss of time, or other losses incurred by Customer or any third party in connection with the installation of the Products or Customer's failure to comply with the information and instructions contained herein.

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WARRANTY

Complete Warranty details can be found at the CES Wireless web site: www.ceswireless.com

CES Wireless Technologies Corp., (CES Wireless), warrants this product to be free from defects in material and workmanship for 12 months from date of shipment. If such malfunction occurs, it will be repaired or replaced (at our option) without charge for materials or labor if returned to the factory. This warranty does not apply to parts damaged due to improper use- including accident, neglect, unreasonable use, and improper installation - or to unauthorized alterations or modifications of the equipment. It does not extend to damage incurred by natural causes such as lightning, fire, floods, or other such catastrophes, or to damage caused by environmental extremes, such as power surges and or transients. It does not extend to microprocessors if it is determined that the failure of a micro is due to static damage, application of improper voltages to the unit, or other problems not related to circuit design. In such case or in the case of a desire to update the micro to a different version of software, such request must be specified in writing, and there will be a charge agreed upon by both parties.

Software products provided by CES Wireless are only compatible with currently supported Microsoft® operating systems.

This product is warranted to meet published specifications and to operation as specified only properly programmed and installed. CES Wireless is not responsible for any operational problems caused by system design, cellular coverage, outside interference, or improper installation. A qualified two-way radio technician or engineer must complete installation and programming of this CES Wireless product.

Equipment for repair must be returned to the factory, freight prepaid, only with prior authorization. Please call 407-679-9440 for an RMA number. A brief letter describing the nature of the defect should be included with the merchandise. Repair by other than CES Wireless will void this warranty. In-warranty merchandise must be shipped, freight prepaid, to CES. CES Wireless will return the repaired or replaced equipment prepaid to purchaser, within the United States. Outside the US the customer must pay freight.

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CHANGE LOG

Date	Author	Release	Description
2010-08-26	Doug Hamilton	A.0	Initial release (A.0)
2011-01-06	Doug Hamilton	A.1	Added Change Log. Added note that SIM card should be removed before programming the device (3.1)
2011-01-28	Doug Hamilton	A.2	Modified the instructions for opening the enclosure to reflect the process for the current enclosure. Removed the old instructions.
2011-12-08	Doug Hamilton	1.0	Added information about version of GPS207 that has a DC cable.
2012-04-17	Doug Hamilton	1.1	Added additional information in regards to the GPS-207DC.

1.0 Introduction

There are two versions of the GPS-207. One (CES P/N GPS-207) is designed for monitoring the position of non-powered mobile and fixed assets. The other (CES P/N GPS-207DC) is designed for monitoring the position of sometimes-powered mobile and fixed assets.

GPS-207: There is no need for an external power source or antenna. This device is optimized for assets that are fixed or move infrequently. This device is programmed with the GPS-207S software.

GPS-207DC: There is no need for an external power source or antenna but the device comes with a DC cable that can be attached to an external power source if it is available. The GPS-207DC features a non-charging power option for those applications that may move and need more frequent reporting while powered and/or mobile. The GPS-207DC is programmed with the GPS207S_Expwr software.

Note: All information that follows applies to both versions of the GPS-207 unless specifically stated otherwise.

This GPS-207 is a water resistant device (IP-67 rating). The IP-67 rating indicates that the GPS-207 is protected against high pressure jets of water and dust. The GPS-207 is not designed for underwater use.

The GPS-207 can operate for up to three years or more of operation (configuration dependent).

GPS data is made available on-board the GPS-207 for transmission to FleetLinc™ (CES web based subscriber fleet management service).

The GPS-207 can also be licensed for use with POWER-trak™ PC/Server software. Please contact CES for further direction with this.

1.1 About the GPS-207

The GPS-207 is an Automated Vehicle Locating (AVL) device that utilizes a GSM/GPRS cellular modem and a Global Positioning Satellite (GPS) module. Working together, these technologies allow the GPS-207 to simultaneously act as a stand alone GPS reporting device and wireless data retrieval unit. The GPS-207 provides a flexible AVL solution. The GPS-207 is designed to work as a stand-alone device. There is no need for an external antenna. The GPS-207 requires no external power connections whereas the GPS-207DC can optionally be connected to an external power source.

1.2 About This Manual

This manual contains instructions on how to install and configure the GPS-207. Please follow the instructions closely to avoid damaging the GPS-207.

1.3 Basic Package Contents

The basic package will contain the following:

- GPS-207 - GPS/GSM/GPRS Tracking and Asset Management Device
- or
- GPS-207DC - GPS/GSM/GPRS Tracking and Asset Management Device with DC Power Cable

1.4 Accessories

The following accessories are available from CES Wireless Technologies:

- PRG-xx: Programming Cable - USB-A to 5-Pin Mini USB cable.

- GPS-207S: Programming Software for the GPS-207 (available on the CD-SOFT1 CD).
- GPS207_Expwr: Programming Software for the GPS-207DC (available on the CD-SOFT1 CD).

1.5 System Requirements

It is necessary to have a computer running Windows 2000, Windows XP or Windows Server 2003 to program the device. The system must include a USB 2.0 port in order to configure the GPS-207.

1.6 GPS-207 Top, Internal and Bottom View



Figure 1: Top View of the GPS-207.

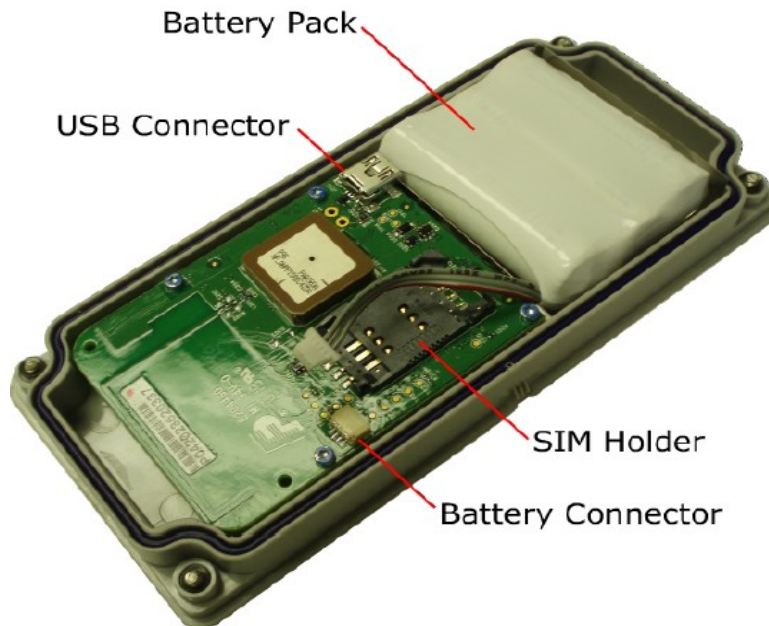


Figure 2: Internal View of the GPS-207.

Note the locations of the SIM Holder, Battery Connector, Battery Pack and USB Connector.

LED Indicator and Power Switch

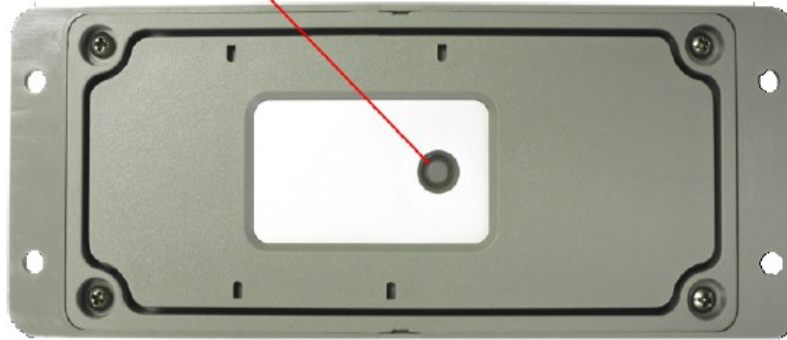


Figure 3: Bottom View of the GPS-207

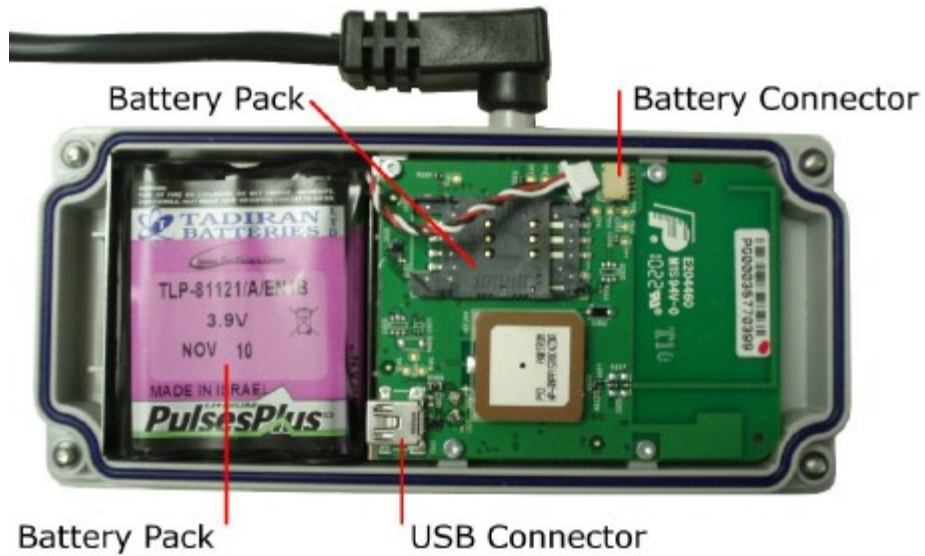


Figure 4: Internal view of the GPS-207DC



Figure 5: Top view of the GPS-207DC

LED Indicator and Power Switch



Figure 6: Bottom view of the GPS-207DC

1.7 GPS-207 Activation and Deactivation

On the bottom of the GPS-207 is the LED Indicator and Power Switch. The Power Switch has two functions – it acts as a power switch and as an activation switch.

Deactivate: Press and hold the power switch, located on the underside of the unit, for three to five seconds to deactivate the GPS-207. The LED will go solid red and then go off. When the LED is off the unit has been deactivated.

Activate: To activate the GPS-207 press and hold the power switch for three to five seconds until the LED blinks.

- LED blinks 12 times within a 3 second period - the battery is in its highest range
- LED goes on for one second, goes off for one second and then goes back on for one second - the battery is within its normal voltage range

When the LED is off the unit is activated.

2.0 Specifications

Note: Specifications subject to change without notice.

2.1 System Information

Dimensions	170 x 69 x 21 mm L x W x H
Dimensions (GPS-207DC)	170 x 87 x 21 mm L x W x H
Weight (GPS-207)	207 grams with battery 150 grams without battery
Weight (GPS-207DC)	358 grams with battery 301 grams without battery
Housing:	Rugged plastic enclosure
TX Power:	Class 4 (2W @850/900 MHz) Class 1 (1W @1800/1900 MHz)
Frequency:	850/900/1800/1900
Sensitivity:	108 dBm (typical)

2.2 GPRS Packet Data

Mode:	Class B, Multislot 10
Protocol:	GSM/GPRS Rel 97 AMR Rel 99
Coding Schemes:	CS1-CS4
Packet Channel:	PBCCH/PCCCH

2.3 GPS Functionality

Connector:	None
Antenna:	Internal

2.4 Environment

Operating:	-30°C to +85°C
Storage:	-40°C to +85°C

2.5 Certifications

FCC:	Part 15, 22 & 24
GCF:	Version 3.30.1
PTCRB:	Version 4.0.0
Industry Canada	Yes
CE Mark	Yes
RoHS Compliant	Yes

2.6 SIM Card/Interface/I/O

SIM Access:	External
GSM Antenna:	Internal

2.7 Battery Specifications

The GPS-207 uses an internal Lithium-Thionyl Chloride battery pack (CES P/N: BATTxx). The battery specifications are as follows:

Cell Size	AA
Operating Temperature	-40 to 85° C (-40 to 185° F)
Maximum Rated Voltage	3.9VDC
Capacity	4200 mAh @ 500 mA
Shelf Life	10 years @ < 30° C (86° F)
Lithium Metal Content	Approximately 1.3g
Weight	60g (maximum)

3.0 Installation

After the GPS-207 has been programmed with the GPS207S programming software the device is ready to be installed. The instructions in this section describe the hardware installation of the GPS-207.

3.1 Installing the SIM (Subscriber Identity Module) Card

NOTE: Program the GPS-207 before installing the SIM card. If reprogramming the device the SIM card should be removed before connecting the device to the computer.

The SIM card is an integral part of any GSM terminal device. The SIM card holder is located inside the GPS-207.

Open the device if it is not already opened by loosening the 4 screws on the bottom of the device until they “click” (note that the screws are captive and cannot be removed). Next, take a small screwdriver and place it in the indentation about half way down the case. Pry the case open. There is an indentation on the other side as well. Repeat this process there.

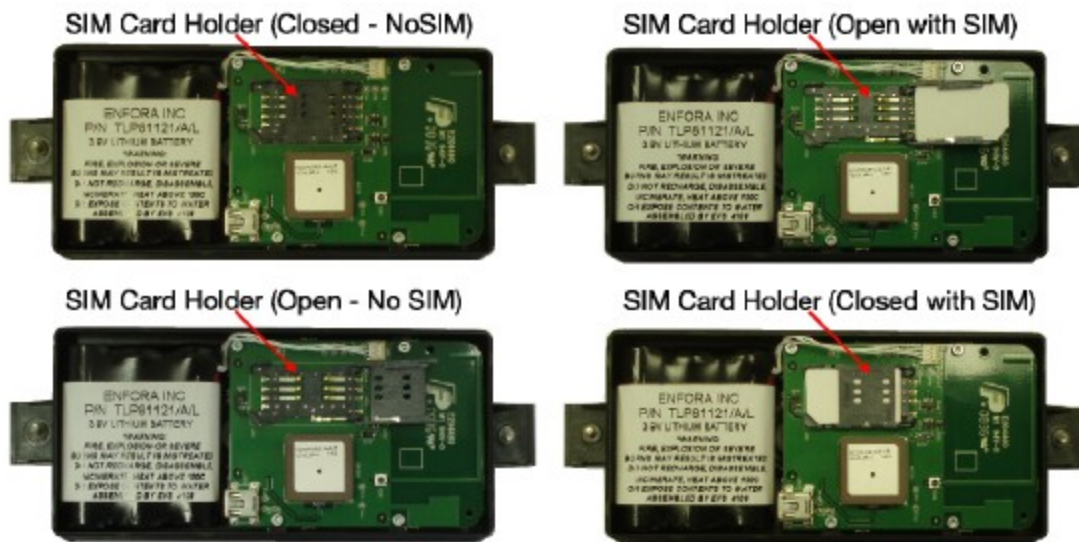


Figure 7: SIM Card Installation

The SIM card holder is a standard flip type holder. To open the holder slide the top of the holder gently to the right. The holder will now flip open. Insert the SIM into the holder making sure the SIM card notch is lined up properly. Close the holder and slide the top to the left to lock it in place.

NOTE: Always take care to protect the SIM card. The GPS-207’s GSM/GPRS related functionality will not operate without the SIM card installed.

3.2 Connecting the Battery

Place the battery in the GPS-207 enclosure with the label shown and with the battery cable next to the circuit board as shown below.

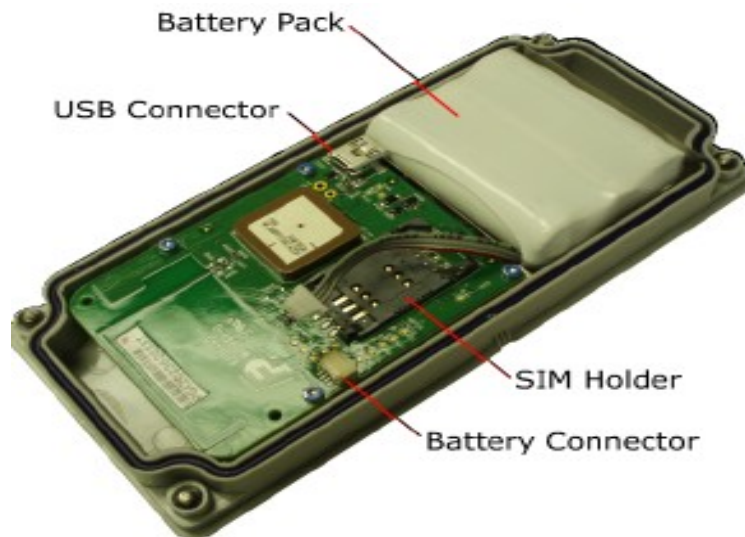


Figure 8: Battery position

Next, plug the battery connector into the mating connector on the circuit board.

The GPS-207 can now be closed. Replace the top cover, snap it into place and tighten the screws.

3.3 Choose a location

The GPS-207 should be mounted outdoors, ensuring that the top of the device has a clear view of the sky.



The installer should conduct several tests in a variety of locations and situations to ensure the device has a clear view of the sky. The test should verify that the device is able to transmit data and acquire a GPS fix. Only locations where the device can do both are acceptable locations.

Other items to consider in choosing a location for the device.

- For maximum antenna performance the GPS-207 should be mounted with the label facing down towards the ground. This will give the top of the unit a clear view of the sky.
- If the mounting noted above is not possible the device can be mounted on the side of the asset such that the top of the devices points towards the sky as much as possible.
- Ensure that water cannot pool around the device.
- When drilling holes to mount the device take great care to avoid damaging wires, plumbing or electronics.
- Select a location where the GPS-207 will be protected from impact.

Installation: The GPS-207 can be mounted to various surfaces including wood, plastic and metal.

Suggestions for mounting hardware (not included) are:

- #8 Washers (4) and #8 Self-drilling Sheet Metal Screws (4)
- Cable Ties
- Double Sided Pressure Sensitive Tape
- User Defined

3.4 Mounting

Once the proper location has been selected the GPS-207 should be used as a template to mark the 4 screw holes for installation. The mounting holes are designed for a number 8 screw.



Figure 9: GPS-207 Screw Holes (GPS-207 shown)

Once the center points of the mounting screw holes have been marked drill the holes using the appropriate size drill bit.

3.5 External Power Cable (GPS-207DC Only)

The connections for the external power cable are:

Power (7-18Vdc)	Blue
Ground	White

4.0 Battery Replacement

When the battery needs to be replaced in the GPS-207 follow these steps to remove it. Section 3.2 details the steps required to insert the new battery.

First, remove the GPS-207 from its installed location and open it by loosening the 4 screws. Remove the top. Disconnect the existing battery by grasping the battery cable close to the connector and pulling gently sideways. Remove the battery and dispose of it properly.

Insert the new battery as shown in Section 3.2.

5.0 Turning the GPS-207 On and Off

The button/LED on the bottom of the GPS-207 has two functions. It acts as both the power switch and the activation switch. Once the GPS-207 has been programmed with the GPS-207S programming software it will be activated. If you do not wish to immediately deploy the device it should be turned off so that the battery is not drained unnecessarily.

5.1 Turn off the GPS-207

To turn off the GPS-207 the button on the bottom of the device should be pressed and held for three to five seconds. The LED will go solid and then off. Once off the device is turned off.

5.2 Turn on the GPS-207

To turn on the GPS-207 the button on the bottom of the device should be pressed and held for three to five seconds. The LED will blink and then go off. Once off the device is turned on.

6.0 Support

If you need help, we are easily accessible

Telephone: Call 407-679-9440, and ask for product support.

Fax: 407-679-8110

Email: support@ceswireless.com

Skype: Please email support@ceswireless.com to obtain your currently assigned support engineer's Skype address.

Product support may ask you to **E-MAIL** a copy of the programmed parameters to us for analysis. To do this, go to **FILE** on the DP-1000S main menu, and click on **SAVE AS**. Note the path to the saved file in the save file dialog. Attach this file to an e-mail and send it to you product support representative or to the e-mail address noted above.

Product support may ask you to **PRINT** a copy of the programmed parameters, and fax to for analysis. To do this, go to **FILE** on the DP-1000S main menu, and click on **PRINT**.

Support Resources: www.ceswireless.com

FTP Site: Please go to www.ceswireless.com and register for an FTP site User Name and Password