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GM-44

<USB>

**GPS MOBILE
LOCATOR**



USER'S MANUAL



Limited Warranty

GM-44 is a GPS receiver as part of navigational aids, and is not intended to replace other means of navigation or aids. SANJOSE NAVIGATION, INC. warrants this GPS receiver and accessories to be free of defect for a period of 12 months from the date of original purchase.

THIS WARRANTY APPLIES ONLY TO ORIGINAL PURCHASE.

In any event of a product defect while in normal usage, SAN JOSE NAVIGATION will replace or repair the product with no charge to the original purchaser for parts and labor. However, SAN JOSE NAVIGATION reserves the right of determination to replace or repair the defective product. The replacement or repaired product will be warranted for total of (ninety) 90 days from the date of return shipment, or for the balance of the original warranty, whichever is longer.

PURCHASER'S DUTIES

The purchaser must return the GPS receiver postpaid, with proof of the date of original purchase with the return address to:

SAN JOSE NAVIGATION, INC.
9F, No.105, Shi-Cheng Road, Pan-Chiao City
Taipei Hsien, Taiwan, R.O.C. (220)
TEL: 886-2-26879500
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Wiring Diagram



GM-44 GPS APPLICATIONS

Mobile Navigation.

Avionics, INS and NAV GPS interface.

GPS Telematics

AVL external turn-key solution for GPS/antenna

Fleet Management System GPS signal source.



GPS Specification

Characteristics

Performance

<i>Receiver</i>	<i>All view 12 channel parallel.</i>
<i>Receiver frequency</i>	<i>1575.42MHz, C/A code</i>
<i>Antenna LNA</i>	<i>Gain: 23+/-2dB, NF: 2.0 max.</i>
<i>Acquisition time</i>	<i>18 second typical (warm start)</i>
<i>Position accuracy</i>	<i>15m or 50 feet RMS*(DOP<3)</i>
<i>Velocity accuracy</i>	<i>0.1 knots RMS steady state</i>
<i>Update rate</i>	<i>1 second continuous</i>

Interface

<i>Communication</i>	<i>USB</i>
<i>Output protocol</i>	<i>NMEA0183</i>

Physical

<i>Size</i>	<i>76mm(L)x48mm(W)x30mm(H)</i>
<i>Weight</i>	<i>0.3lb (136 grams)</i>
<i>Enclosure</i>	<i>High impact, corrosion-proof PC (polycarbonate) resin</i>
<i>Construction</i>	<i>Ultrasonic welded,fully waterproof</i>
<i>Mounting(standard)</i>	<i>Magnet base & screw mount</i>
<i>Optional</i>	<i>Center-feed (permanent mount)</i>

Environmental

<i>Operating temp. range</i>	<i>-30~+75 degree C</i>
<i>Storage</i>	<i>-40~+85 degree C</i>
<i>Humidity</i>	<i>95% non-condensing</i>

Power

<i>Source</i>	<i>DC 5V</i>
<i>Consumption</i>	<i>0.9 watt max.</i>



Introduction

Welcome to GM-44 GPS Mobile Locator

Congratulation on your purchase of the GM -44 Mobile Locator GPS receiver/antenna. The latest in Plug-Navigate-Position innovations from SANJOSE Navigation, manufacturer of OEM GPS receiver & antenna around the globe.This new concept of Mobile navigation solution integrated with your Personal Computer running a Map software to display your real time location is only plug away from reality. Your navigation needs is unlimited in this all-weather rugged design for external mounting on your vehicle. Before you get started with your GM-44 make sure to read the PC hardware requirements to run the Mapping software.

Inventory Packing List

After opening your package make sure that the the following items are not missing or damaged.

*Contact SAN JOSE Navigation immediately at
Tel :886-2-26879500 Fax: 886-2-26878893*

- GM-44 Mobile Locator*
- User's Manual*
- USB Driver Disk*

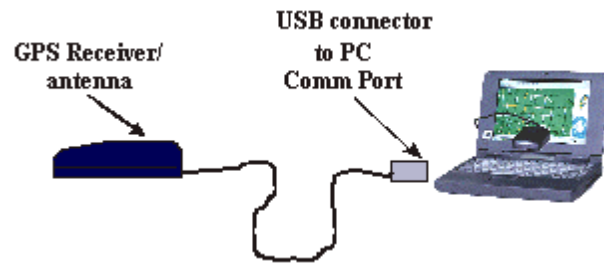
Getting Started

This section will introduce you to your new GM-44 GPS Mobile locator and show you how to integrate to your PC.

GM-44 Description

The GM-44 is a compact GPS receiver/antenna design for general purpose navigational and position locating when integrated with a computing device for mapping display (Notebook PC, PDA or Palmtop).

Hardware standard lay-out and optional center feed lay-out.



Computing Device Requirements

Computer

*486 or Faster CPU, VGA Display,
Sound board(optional), 16MB DRAM,
3.5" FDD, Window base, Com1 port.
CD-ROM optional*

USB

PC-USB as a host must support device node.

PDA

*PDA-USB as a host must support device node or
use a docking-station USB hub.*

APPENDIX

WHAT IS GPS?

The Global Positioning System consists of a total 24 SV that orbit on earth, enabling you to calculate your position anywhere in the world, 24 hours a day if, one has a GPS receiver to receive satellites L1 band signal. However, these satellites are controlled by the U.S Department of Defense and they continue to administer and control the satellite for military navigation systems, so commercial use of these signal is limited to Standard Positioning Service (SPS)

Accuracy

Most commercial GPS receiver that is intended for general use will have an accuracy of 25 meters or better. The DoD has introduced Selective Availability (SA) to maintain a military advantage. SA is a random error that is asserted to the SPS receiver. The size of this errors changes, but rarely exceeds over 100 meters.

The DoD civil GPS receiver users policy is that GPS accuracy as effected by SA is sufficient for general navigation.



APPENDIX

Troubleshooting Tips

1. No update display in your PC while moving.
 - Check cable connections and COM port.
 - Check raw data by using Window Terminal 4800bps
2. No ASCII NMEA data when running terminal program in COM-n,4800 8N1
 - Check Control Panel/System Properties/Device Manager/USB port
3. Navigational software does not auto detect the GPS receiver
 - Check Installation & Operating procedure for USB drivers
4. No GPS data after program initialize.
 - Check USB connection.
 - Check for GPS obstruction toward the sky.
5. GPS data are visible but no activity on the MAP SOFTWARE.
 - Check to see if the Map software desire NMEA sentences (GPRMC,GPGGA,GPGLL,GPVTG,GPGSV, GPGSA) are present in viewing using Terminal Windows set at 4800bps __



Operating Procedure

Installation & Operating procedure:

After examining your new GM-44 you are ready to interface your GPS to a Personal computer. GPS cold start time is approximately <4 min. to satellites acquisition.

DO NOT TRY TO DO STEPS, WHILE VEHICLE IS IN MOTION.

- Step 1: First time interface, turn-on your NB/PC and run your windows OS systems*
- Step 2: Locate your USB PC com-port and insert your new GM44 GPS locator USB connector.*
- Step 3: Your window operating system will detect a new hardware and a message box appear, please insert your USB GM44 utility disk lable"USB-Serial Cable Diskette" disk to your DRIVE .*
- Step 4: Follow your window query until your USB driver (applicable to GM-38 USB, GM-44 USB and GM-48 USB) are loaded.*
- Step 5: To make sure you have successfully loaded, please see your computer Control panel, System properties, Device manager and Port. It should show "Serial on USB(COM n) n=1,2,3,4*
- Step 6: In your Map software com-port select make sure you select the com-port that is recorded in step 5.*
- Step 7:Position your GM-44 outside your vehicle roof top to view the satellites, your GM-44 is a magnet-mount base for quick installation & removal.*
- Note: your GM-44 is on, as soon as the USB connector is connected to PC.*

KEEP YOUR EYES ON THE ROAD

Example ASCII NMEA 0183 data.

*"\$GPRMCxxxxxx,x,xxxxxxx,x,xxxxxxx,x,xxx.x,xxx.x,xxxxx,*xx"*



Installation Illustration

Installation of your new GM-44 GPS Mobile Locator on your vehicle, requires that it has good view of the sky at all times. The GM-44 magnetic base easy mount will grab any metal it has in contact with, so be very carefully in mounting it to the roof of vehicle. Since the GPS receive signal is in L1 band frequency it will go through glass & plastic with-out degrading the low signal noise. So your GM-44 could also be mounted inside your vehicle behind your windshield, but sometimes your satellites in view will decrease, this in turn will lost tracking update..



Figure 1. Illustration

Mapping software Information with WORLD /USA maps Available navigational software you could download from the Internet. This software from Robin Lovelock is been use around the world and speaks many languages.

<http://www.gpss.co.uk>



Systems Overview

GPS & PC

Frequently Ask Question;

Where? How?Why?

Maybe you wonder how can this be possible? To have a commercial off the shelf equipment, and navigate yourself 24 hours a day anywhere in the world land or sea with no FEE for using these signal to your navigational system. This technology was introduce by the US Department of Defense for the military use until recently.

A GPS receiver acquires the satellites signal from the 24 orbiting satellites with real time UTC, then measures the interval between transmission and receipt of the signal to determine the distance between the receiver and the satellites; this is ranging. Once the receiver has computed range for at least three satellites, its location on the surface of the globe can be determined. A change of your position will change your LAT/LON co-ordinance, this in turn update your position in your PC running a mapping software.