
OrbitGPS User Guide

Serial GPS Receiver for Mobile Computer Vehicle Docking Cradles

Part Number: G1010 (Externally powered version)

Part Number: G1020 (Cradle powered version for cradles with power out)

Part Number G1030 (Cradle powered version for BlackBay MC70 cradle)

Part Number G1040 (Direct wire power cable version)



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Introduction

This User Guide provides information about OrbitGPS's Serial GPS receiver for vehicle docking cradles for mobile computers.



The OrbitGPS Serial GPS receiver is a SiRFstar III-based, WAAS-enabled GPS receiver that collects GPS satellite data and provides it to the mobile computer through the serial port of a vehicle docking cradle. GPS information is available to the handheld computer when docked. Two versions are available. One is powered by an external 12V cigarette lighter adaptor and can be used with all MC900XX and MC70 vehicle cradles. The second version can be used with MC70 cradle versions that output power through the serial connector.

There are four versions of OrbitGPS's Serial GPS receiver:

- G1010 – For use with all vehicle cradles. This version is powered by a 12V DC “cigarette lighter” adaptor.
- G1020 – For use with vehicle cradle with power out through the serial connector. This version is powered through the DB9 serial connector used to connect the receiver to the cradle's serial port.
- G1030 – For use with Blackbay's VMC2500 vehicle cradle for the Motorola MC70.
- G1040 – For use with all vehicle cradles. This version is powered by a 12V/24V DC direct-wire power adaptor with flying leads.

The OrbitGPS Serial GPS receiver outputs GPS information as industry standard NMEA sentences which are compatible with most GPS software applications. It can also be configured to output GPS information in the SiRF Binary format.

OrbitGPS's GPS receivers offer typical accuracies of 3-5 meters uncorrected, and 3 meters or better with Wide Area Augmentation System (WAAS) correction.¹ They are tested to comply with FCC and CE standards.

Note: Screens and windows pictured in this User Guide are samples and may vary.

Getting Started

Using the Serial GPS receiver with an existing GPS application

The Serial GPS receiver is designed to work "out-of-the-box" with GPS applications that accept data in the NMEA protocol format.

The National Marine Electronics Association regulates the NMEA 0183 specifications standard which defines a set of ASCII strings, called sentences, which relay GPS navigation information. This is the most commonly used standard for GPS communications.

To configure the Serial GPS receiver for use with a GPS application that supports the NMEA protocol, set the following parameters in the GPS application:

- GPS Com Port or Com Port: COM1
- Baud Rate: 4800
- Protocol: NMEA (Depending on the GPS application, you may not be asked to enter the protocol.)

Once these parameters have been set, the GPS application should begin automatically receiving GPS data from the Serial GPS receiver. Please consult the GPS application documentation for further information on how to communicate with an attached GPS receiver.

Using the Serial GPS receiver with WAAS and EGNOS

The OrbitGPS Serial GPS Receiver is configured to receive GPS correction data from the Wide Area Augmentation System (WAAS) and European Geostationary Navigation Overlay Service (EGNOS) differential correction systems. Simply put, WAAS and EGNOS broadcast additional correction data that is used to improve quality of the GPS data provided by GPS receivers. The OrbitGPS Serial GPS Receiver will automatically acquire and utilize the correction data of WAAS or EGNOS satellites available in the area of use.

For more information on WAAS visit:

<http://gps.faa.gov/programs/waas/currentnews-text.htm>

¹ *Accuracy is subject to degradation based on environmental and positional conditions. Rated accuracy provides 95% Circle Error Probability (CEP) position accuracies of <5 meters with WAAS correction and <10 meters uncorrected.

Connecting the OrbitGPS Serial GPS Receiver External Power Version (OrbitGPS Part Number G1010) to Vehicle Cradles

The OrbitGPS Serial GPS Receiver with cigarette lighter power adaptor (OrbitGPS Part G1010) can be used with MC90XX S (Short) and K (Brick) and MC70 vehicle cradles. Set up instructions are the same for all of these. In this installation, the GPS receiver draws power from a 12V DC “cigarette lighter” adaptor. As long as the adaptor is powered, the GPS receiver will operate. As such, the DC power jack needs to draw uninterrupted power from the vehicle for constant operation of the GPS receiver. Install the vehicle cradle before connecting the OrbitGPS Serial GPS Receiver.

When attached to the vehicle dock, the Serial GPS receiver allows the mobile computer, when docked in the cradle, to capture GPS data.

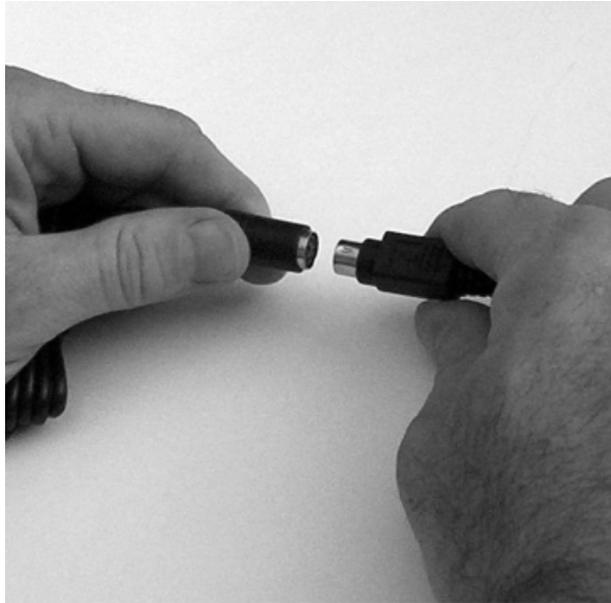
Step 1

To connect the Serial GPS to the vehicle cradle, plug the DB9 Serial connector into the serial port found on the bottom of the cradle to the left of the power cable. Tighten the DB9 serial connector with the thumbscrews to ensure a secure connection.



Step 2

Connect PS2 style connector coming from the DB9 Serial connector/power cable to the PS2 connector coming from the GPS receiver.



Step 3

Plug the cigarette lighter adaptor into a 12V DC power receptacle. The red LED light on the adaptor will be lit if power is available.



Step 4

Position the GPS receiver where it has a clear view of the sky for optimal performance. The receiver is magnetized for use with vehicle roofs.



Connecting the OrbitGPS Serial GPS Receiver Serial Powered Version (OrbitGPS Part Number G1020) to Intermec and Motorola Vehicle Cradles

Motorola MC70 Cradle (VCD7000): The serial powered version of the OrbitGPS Serial GPS Receiver (LP01632) can be used with RoHS-compliant versions of the MC70 vehicle cradle that offer power out through the DB9 serial connector. Consult Motorola documentation to determine if you have a compatible cradle. In this configuration, the GPS receiver draws power from the MC70 mobile computer through the DB9 serial connector and requires no additional power supply. As a result, the GPS is powered only when the mobile computer is docked in the cradle and a valid GPS com port is open in a running GPS application. If the mobile computer is undocked or goes into suspend mode, power is no longer supplied to the GPS receiver. This situation may lead to slightly longer GPS start times when the mobile computer is docked or is resumed after a suspend. Install the vehicle cradle before connecting the OrbitGPS Serial GPS Receiver.

Intermec CN3 & 700 series: The serial powered version of the OrbitGPS Serial GPS Receiver (LP01632) can be used CN3 and 700 series vehicle docks.

- 700 series – Use the serial port marked “A” on the back of the dock and follow the instructions below. The serial GPS receiver will not operate if used with the serial port marked “B.”
- CN3 – To connect the serial GPS to the dock, you will need the Intermec serial adaptor cable (Intermec part number 225-737-001).

When attached to the vehicle dock, the Serial GPS receiver allows the mobile computer, when docked in the cradle, to capture GPS data.

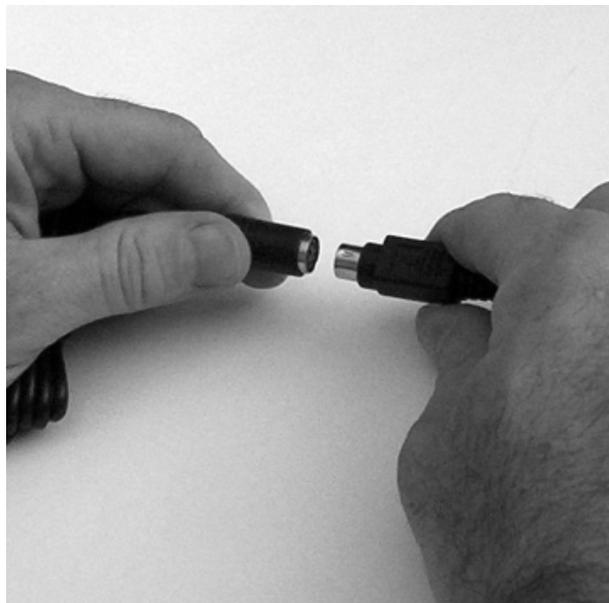
Step 1

To connect the Serial GPS to the vehicle cradle, plug the DB9 Serial connector into the serial port found on the bottom of the cradle to the left of the power cable. Tighten the DB9 serial connector with the thumbscrews to ensure a secure connection.



Step 2

Connect PS2 style connector coming from the DB9 Serial connector to the PS2 connector coming from the GPS receiver.



Step 3

Position the GPS receiver where it has a clear view of the sky for optimal performance. The receiver is magnetized for use with vehicle roofs.



Connecting the OrbitGPS Serial GPS Receiver Serial Powered Version (OrbitGPS Part Number G1030) to Blackbay MC70 Vehicle Cradles

Simply, plug the RJ45 connector at the end of the GPS Receiver cable into the RJ45 port on the back of the vehicle cradle. Note that older cradles may not have power out for the GPS. Contact Blackbay for information on how to activate power out through the RJ45 port.

Connecting the OrbitGPS Serial GPS Receiver Direct Wire Version (OrbitGPS Part Number G1040) to Vehicle Cradles

Step 1

To connect the Serial GPS to the vehicle cradle, plug the DB9 Serial connector into the serial port found on the bottom of the cradle to the left of the power cable. Tighten the DB9 serial connector with the thumbscrews to ensure a secure connection.

Step 2: Installation instructions for direct wire power cable

Read the following instructions completely before beginning.

WARNING: A properly trained technician must perform the power connection. Improper connection can damage the vehicle or GPS receiver.

To connect the GPS receiver power cable to power:

1. Locate the Vehicle Power Source.

Note: An accessory output in the vehicle's fuse panel is the ideal location for connecting the power cable. The power cable should be added to a circuit with a maximum load capacity for the GPS receiver and the original circuit. Refer to the vehicle's owner's manual for identification of circuit. If a fused output is not available, an inline fuse holder with UL-listed fuse should be used (fuse should be rated 4A for 24V operation and 5A for 12V operation). The fuse protects the vehicle from an electrical short on the power line to the GPS receiver.

To provide constant power to the GPS receiver, shut the vehicle's ignition, then connect the power cable to unswitched power.

2. Route the power cable from the connection with the GPS receiver to the connection point for the vehicle's power source.

Caution: The means of routing and securing the power input cable from the GPS receiver through to the vehicle power source is extremely important. Hazards associated with improper wiring can be severe. To avoid unintentional contact between the wire and any sharp edges, provide the cable with proper brushings and clamping where it passes through openings. If the wire is subject to sharp surfaces and excess engine vibration, the wiring harness can wear away, causing a short between the bare wires and chassis. This can start a fire.

3. Prepare the cable termination.
 - a. Red wire: connect to a +12/24V vehicle power source.
 - b. Black wire: connect to vehicle ground or chassis ground.

Note: How the cable terminates depends on the vehicle. If the vehicle has a power output connector, attach a mating connector to the end of the power cable. You may be able to connect to a fuse panel with a simple blade terminal or commercially available connector.

Consult the vehicle's owner's manual for information on how to access the vehicle's power supply.

4. Connect the male PS2-style connector on the power cable to the female PS2-style connector on the GPS receiver cable.

If the GPS receiver has power, the orange light on the top of the receiver will be lit. (Note, once the GPS receiver has obtained a location fix, the orange light will blink).

LED Light Status

- **No light** – No power to GPS receiver
- **Light on continuously** – GPS receiver has power, but has not acquired a GPS fix
- **Light flashing on and off** – GPS receiver has power and has acquired a GPS fix

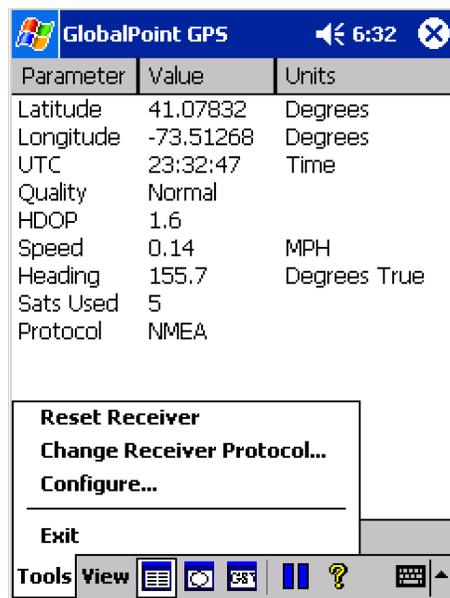
GPS Evaluation Software

The GlobalPoint GPS software provides a means to configure and confirm operation of the Serial GPS receiver. In the GlobalPoint GPS software you will be able to choose the mode of operation of the receiver and display positioning and performance information.

GlobalPoint GPS software can be downloaded at www.orbitgps.com/resources.html.

Tools Menu Options

Use the **Tools** menu to access configuration options or to exit the program.



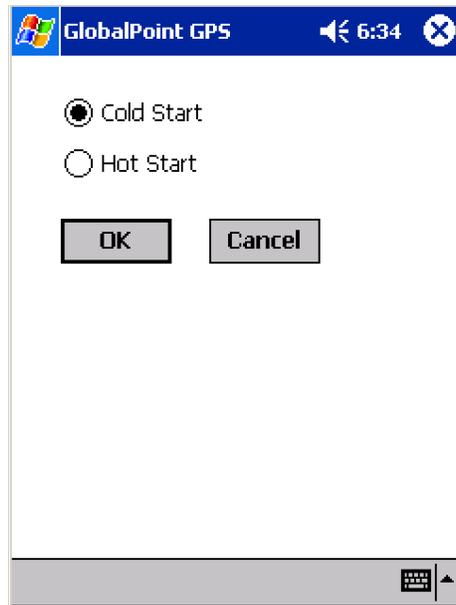
The tools menu contains the following options:

- Reset Receiver
- Change Receiver Protocol
- Configure
- Exit

Important Note: When first using the GlobalPoint GPS application, go to the **Configure...** option first to set up communication between the Serial GPS Receiver and mobile computer.

Reset Receiver

Use the *Reset Receiver* option to select the Start Mode and begin a new initialization of the receiver.



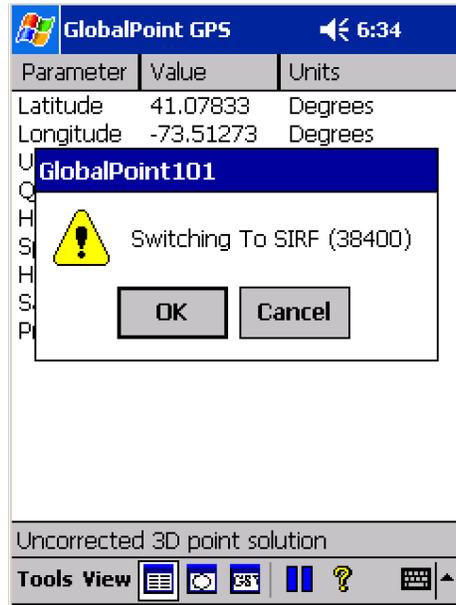
Cold Start causes the receiver to release any fix information and completely re-initialize navigation data (almanac, ephemeris, and clock). Typical "Time to First Fix" (TTFF) is 45 seconds or less.

Hot Start causes the receiver to keep existing navigation data and refresh the fix. Typical TTFF is 8 seconds or less.

Change Receiver Protocol

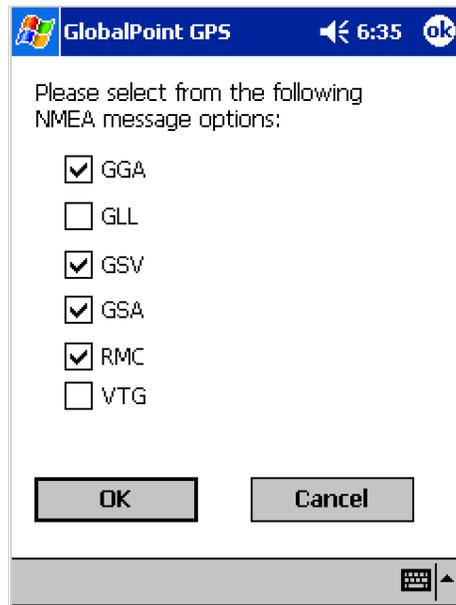
Change Receiver Protocol causes the receiver to switch between the two available modes of operation: NMEA or SiRF. NMEA is the default mode of operation for the Serial GPS Receiver for the mobile computers.

When in NMEA mode, choose this option to switch to SiRF mode.



The GlobalPoint GPS application requires the user to confirm switching the mode of operation from NMEA to SiRF. To cancel the **Change Receiver Protocol** command, tap on "Cancel."

When in SiRF mode, choose this option to switch to NMEA mode.



The GlobalPoint GPS application requires the user to confirm switching the mode of operation from SiRF to NMEA. To cancel the **Change Receiver Protocol** command, tap on "Cancel."

The **Change Receiver Protocol** also allows the user to choose which NMEA sentences are to be communicated from the Serial GPS receiver to the mobile computer. The following NMEA sentences are supported by the Serial GPS receiver:

GSV - Set this NMEA sentence to the update interval for the GNSS Satellites in view.

GLL - Set this NMEA sentence to the update interval for the Geographic Position: Latitude and Longitude.

RMC - Set this NMEA sentence to the update interval for the Recommended Minimum Specific GNSS Data.

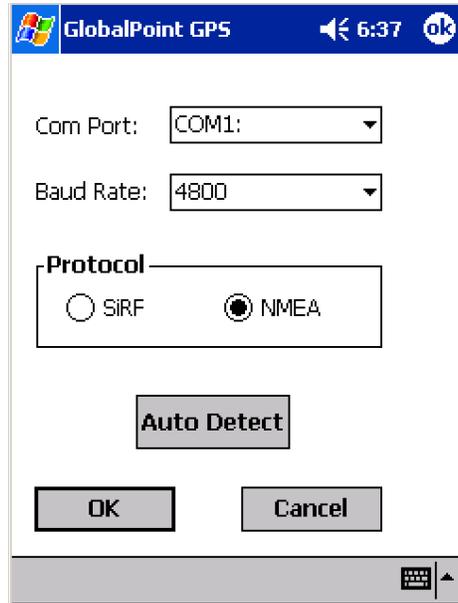
GSA - Set this NMEA sentence to the update interval for the GNSS DOP and Active Satellites.

VTG - Set this NMEA sentence to the update interval for the Course Over Ground and Ground Speed.

The default NMEA sentences for the Serial GPS receiver are GGA, GSV, GSA and RMC.

Configure

Use this option to configure the connection between the Serial GPS receiver and the mobile computer.



Com Port

This value determines the PC communications port the GPS receiver is connected to. **The default for the Serial GPS receiver is: COM1.**

Baud Rate

This value determines the Baud Rate (or data transfer rate) at which the GPS receiver communicates with the mobile computer. **The default for the Serial GPS is: 4800.**

Protocol

This value determines the mode of operation to be used by the Serial GPS receiver. **The default for the Serial GPS receiver is: NMEA.**

Auto Detect

Use this option to have the GlobalPoint GPS application automatically detect the Com Port, Baud Rate and Protocol in use by the GPS receiver attached to the mobile computer.

OK and Cancel

Select "OK" to save the settings selected or "Cancel" to disregard any changes.

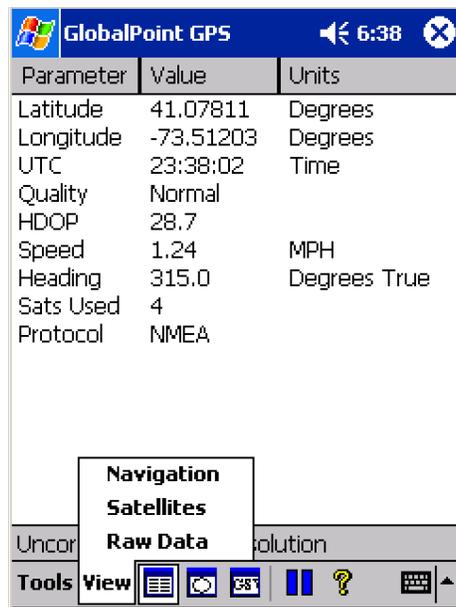
Exit

Use the **Exit** option to quit the GlobalPoint GPS application return to the Windows Mobile "Today" screen.

Important Note: To fully exit the GlobalPoint GPS application, the *Exit* option must be used. "Closing" the application by tapping on the "X" in the upper-right-hand portion of the screen will not exit the program, but cause it to be minimized where it will continue running in memory. If the GlobalPoint GPS application is running in memory, it will block other GPS applications from running properly on the mobile computer.

View Options

Use the **View** menu to choose how tracking information is displayed within the GlobalPoint GPS application.



The screenshot shows the GlobalPoint GPS application interface. At the top, there is a status bar with the Windows logo, the text "GlobalPoint GPS", a back arrow, the time "6:38", and a close button. Below this is a table with three columns: "Parameter", "Value", and "Units". The table contains the following data:

Parameter	Value	Units
Latitude	41.07811	Degrees
Longitude	-73.51203	Degrees
UTC	23:38:02	Time
Quality	Normal	
HDOP	28.7	
Speed	1.24	MPH
Heading	315.0	Degrees True
Sats Used	4	
Protocol	NMEA	

Below the table, there is a "Tools" menu with a "View" option. A pop-up menu is open over the "View" option, showing three options: "Navigation", "Satellites", and "Raw Data". The "View" menu also contains several icons: a list icon, a satellite icon, a question mark icon, and a keyboard icon.

The tools menu contains the following options:

- Navigation
- Satellites
- Raw Data

These options can also be selected by tapping on the following icons:



Navigation



Satellites



Raw Data

Fix Description

At the lower portion of the screen, just above the **Tools** menu, the GlobalPoint GPS application displays the type of fix currently acquired by the GPS receiver. This value can change over time as the receiver's viewable sky changes, or if the receiver is re-initialized. The types of fixes are:

- Invalid unavailable solution – This signifies that not enough satellite data is available to provide a fix. This occurs as the receiver is initialized or when an insufficient number of satellites are in the viewable sky.
- Corrected 3D point solution – This signifies that a three-dimensional GPS fix is available and that it is corrected using WAAS or EGNOS. If available, WAAS satellites are displayed in the satellite view as satellite numbers 35, 47, 48 and 51. EGNOS satellites are displayed as 33, 37, 39 and 44.
- Uncorrected 3D point solution - This signifies that a standard three-dimensional GPS fix is available.
- Uncorrected 2D point solution – This signifies that a two-dimensional GPS fix is acquired.

Navigation View

Use the "Navigation" view to display summary data for GPS fix information communicated from the GPS receiver.

Parameter	Value	Units
Latitude	41.07833	Degrees
Longitude	-73.51272	Degrees
UTC	23:30:14	Time
Quality	Normal	
HDOP	1.6	
Speed	0.31	MPH
Heading	155.7	Degrees True
Sats Used	5	
Protocol	NMEA	

Uncorrected 3D point solution

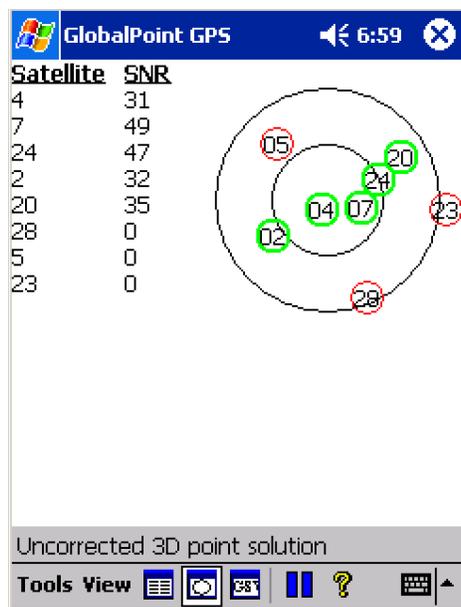
Tools View

Parameters displayed in the Navigation view are:

- **Latitude** – Displays the current location on the face of the Earth north or south of the Equator. Latitude is an angular measurement ranging from 0° at the Equator to 90° at the poles (90° N or 90° S). In the GlobalPoint GPS application, **North** is shown as a positive value and **South** is shown as a negative value.
- **Longitude** – Displays the current location on the face of the Earth east or west of a north-south line called the Prime Meridian. Longitude is an angular measurement ranging from 0° at the Prime Meridian to +180° eastward and –180° westward. In the GlobalPoint GPS application, **East** is shown as a positive value and **West** is shown as a negative value.
- **UTC** – “Coordinated Universal Time or UTC,” is the equivalent of Greenwich Mean Time, the astronomical basis for civil time.
- **Quality** – Displays whether current fix is a “Normal” uncorrected fix or a WAAS “Corrected” fix.
- **HDOP** – “Horizontal Dilution Of Precision” is a measure of how the satellite geometry influences the latitude and longitude data accuracy. A good satellite geometry and hence a good accuracy is obtained if the satellites being tracked are located as far away from each other as possible, while the geometry is poor if the satellites are located close to each other. If the HDOP value is higher than about 10 the latitude and longitude data likely to be inaccurate.
- **Speed** – Displays the current velocity in miles per hour.
- **Heading** – Displays the current direction of travel in degrees with North being 0°.
- **Sats Used** – The number of satellites used in the current fix. Note, WAAS and EGNOS satellites are not included in the number, even if they are being used.
- **Protocol** – The current mode of operation. This can be SiRF or NMEA.

Satellites View

Use the “Satellite” view to display summary data about the available satellites in the viewable sky.

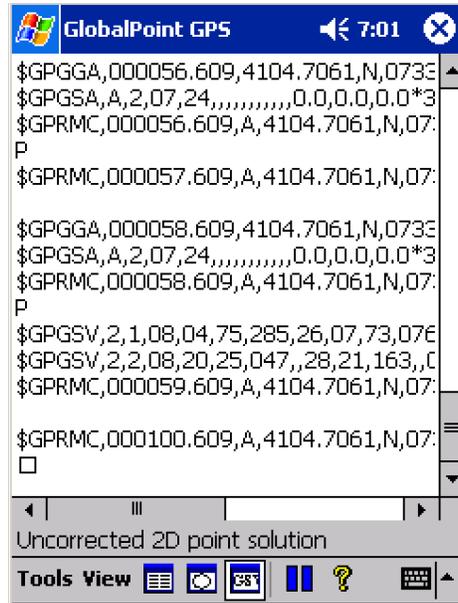


Parameters displayed in the Navigation view are:

- **Satellites** – This column displays all satellites available in the viewable sky by the identifying number of each satellite as determined by the GPS authorities.
- **SNR** - This value indicates the carrier signal to noise ratio for the signal received by the individual satellite. Typically, satellites with SNR values below 28 are not used in GPS fixes.
- **Satellite Sky Map** – This graphic image displays the relative position of the viewable satellites overhead.

Raw Data View

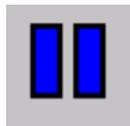
Use the “Raw Data” view to display raw GPS signal data being received by the GPS receiver.



Additional Options

Pause

Tapping the “Pause” icon temporarily pauses the GPS data stream being received by the GPS receiver. To resume the GPS data stream, tap on the pause icon. When active, the pause icon will have a gray background. When paused, the icon will have a white background.



Pause Icon (unpaused)



Pause Icon (paused)

Specifications

Supported Operating Systems

- Windows® Mobile 2003
- Windows® Mobile 2003 Phone Edition
- Windows® Mobile 5.0
- Windows® Mobile 5.0 Phone Edition
- Windows® Mobile 6.0
- Windows® Mobile 6.0 Phone Edition
- Windows® XP and Vista

Chipset

GPS Chipset:	SiRFstar III
Chipset Processor:	ARM7/TDMI – 49MHZ

Receiver

Frequency:	L1, CA code
Signal Acquisition:	1920 time/frequency search channels
Channels:	20 Channels; all-in-view tracking
Max. Update Rate:	10Hz
Sensitivity:	-159dBm
DGPS Source:	Default: None
DGPS Programmable:	WAAS/EGNOS
System Back Up:	Built-in Lithium-Ion rechargeable battery
Antenna Type:	Built-in Antenna (external antenna optional)

Position/Time Accuracy (without SA)

Autonomous:	<10 m
WAAS	<5m
Velocity:	0.1 meters/second
Time:	1 microsecond synchronized to GPS time

Datum: WGS-84

Acquisition Rate

Reacquisition: 100msec
Hot Start: <1 second
Warm Start: <38 seconds
Cold Start: <42 sec

Protocol

Default: NMEA-0183 (V2.20)- GGA(1), GSA(1), GSV(5), RMC(1)
Programmable: Additional NMEA- VTG, GLL / SiRF Binary

Power

Draw: 80mA at 3.3V; DC power adaptor
Internal Battery: 3v (for GPS module only)

Dynamic Conditions

Altitude: <18,000 meter
Velocity: < 515 meter/second
Acceleration: <4g

Environmental

Water Seal: IPX7
Operating Temperature: -20°C to +60°C
Storage Temperature: -40°C to 70°C
Humidity: 5% to 95%, non-condensing

Regulatory

Marks: FCC, CE, RoHS

Physical Interface to Vehicle Cradle

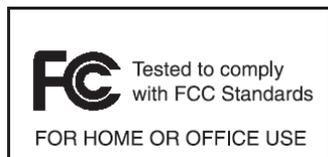
Connector: LP11631 - DB9 with cigarette lighter power adaptor;
LP11632 -DB9 with power on Pin9.

Dimensions

Depth:	62.0mm
Width:	46.1mm
Height:	18.0mm
Weight:	95g

Regulatory Information

Radio Frequency Interference Requirements



NOTE: 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

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

CE Marking and The European Economic Area (EEA)

OrbitGPS LLC hereby, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A



Warranty

(a) OrbitGPS's hardware Products are warranted against defects in workmanship and materials for a period of twelve (12) months from the date of shipment by OrbitGPS's reseller to its customer, but in no event more than fifteen (15) months from shipment of the Products by OrbitGPS, unless otherwise provided by OrbitGPS in writing, provided the Product remains unmodified and is operated under normal and proper conditions. Warranty provisions and durations on software, integrated installed systems, Product modified or designed to meet specific customer specifications ("Custom products"), remanufactured products, and reconditioned or upgraded products, shall be as provided in the applicable Product specification in effect at the time of purchase or in the accompanying software license; (b) Spare parts (i.e. Parts, components, or subassemblies sold by OrbitGPS for use in the service and maintenance of Products) are warranted against defects in workmanship and materials for a period of thirty (30) days from the date of shipment. Spare parts may be new or originate from returned units under the conditions set forth in subsection (d) below; (c) For repairs on OrbitGPS-branded hardware Products under this Agreement, including repairs covered by warranty, the repair services provided are warranted against defects in workmanship and materials on the repaired component of the Product for a period of thirty (30) days from the shipment date of the repaired Product, or until the end of the original warranty period, whichever is longer; and (d) Products may be serviced or manufactured with parts, components, or subassemblies that originate from returned products and that have been tested as meeting applicable specifications for equivalent new material and Products. The sole obligation of OrbitGPS for defective hardware Products is limited to repair or replacement (at OrbitGPS's option) on a "return to service depot" basis with prior OrbitGPS authorization. Solution Provider is responsible for shipment to OrbitGPS and assumes all costs and risks associated with this transportation; return shipment to the Solution Provider will be at OrbitGPS's expense. Solution Provider shall be responsible for return shipment charges for product returned where OrbitGPS determines there is no defect ("No Defect Found"), or for Product returned that OrbitGPS determines is not eligible for warranty repair. No charge will be made to Solution Provider for replacement parts for warranty repairs. OrbitGPS is not responsible for any damage to or loss of any software programs, data or removable data storage media, or the restoration or reinstallation of any software programs or data other than the software, if any, installed by OrbitGPS during the manufacture of the Product; (e) Except for the warranty applying solely to the repaired component arising from a repair service as provided in (c) above, the aforementioned provisions do not extend the original warranty period of any Product that had either been repaired or replaced by OrbitGPS; (f) The above warranty shall not apply to any Product (I) which has been repaired, tampered with, altered or modified, except by OrbitGPS's authorized service personnel; or (II) in which the defects or damage to the Product result from normal wear and tear, misuse, negligence, improper storage, water or other liquids, battery leakage, use of parts or accessories not approved or supplied by OrbitGPS, or failure to perform operator handling and scheduled maintenance instructions supplied by OrbitGPS; (III) which has been subjected to unusual physical or electrical stress, abuse, or accident, or forces or exposure beyond normal use within the specified operational and environmental parameters set forth in the applicable Product specification; nor shall the above warranty provisions apply to any expendable or consumable items, such as batteries, supplied with Product. 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Service Information

Before you use the Serial GPS receiver, it must be configured to operate with our mobile computer and applications.

If you have a problem using the Serial GPS receiver, contact your facility's Technical or Systems Support. If there is a problem with the equipment, they will contact the OrbitGPS Support Center:

Email: support@OrbitGPS.com

For the latest version of this guide go to <http://www.OrbitGPS.com/support>

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