

ND-100S USB GPS Dongle User's Guide

V1.0



Globalsat Technology Corporation

16F., No. 186, Jian-Yi Road, Chung-Ho City,
Taipei Hsien 235, Taiwan

Tel: 886-2-8226-3799/ Fax: 886-2-8226-3899

service@globalsat.com.tw

www.globalsat.com.tw

USGlobalSat, Inc.

1308 John Reed Court, City of Industry,
CA 91745

Tel: 626-968-4145 / Fax: 626-968-4373

oem@usglobalsat.com

www.usglobalsat.com

DOCUMENT REVISIONS

REV NO.	DATE	DESCRIPTION	BY
0.1	2010/3/17	Initial document	TWG
0.2	2010/3/23	Modify PC Utility descript	TWG
1.0	2010/3/24	Official Version	TWG

© 2010 Globalsat Technology Corporation/USGlobalsat, Inc. All rights reserved. The Globalsat logo is a trademark of Globalsat Corporation. Windows is a registered trademark of Microsoft Corporation. Acrobat is a registered trademark of Adobe Systems Incorporated. Mac is a registered trademark of the Apple Corporation. All other trademarks or registered trademarks are acknowledged as the exclusive property of their respective owners.

All rights reserved. No part of this manual may be reproduced, transmitted, copied, or stored in any storage medium, for any purpose, without prior written consent from Globalsat Technology Corporation or USGlobalsat, Inc. Globalsat/USGlobalsat hereby grants the right to download one (1) copy of this manual onto a hard drive for personal use. This manual is copyrighted and may contain proprietary information that is subject to change without notice.

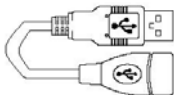
Table of Contents

PACKAGE CONTENTS.....	4
SYSTEM REQUIREMENTS.....	4
WELCOME	4
1. GETTING STARTED	4
2. INSTALL THE USB PC TOOLS FOR WINDOWS LAPTOP	5
3. COM PORT VERIFICATION (Windows)	5
4. INITIALIZING YOUR ND-100S.....	6
5. USING ND-100S (Windows).....	6
ND-100S AP interface Description.....	7
Starting using the ND-100S with AP	8
Cold Start / Hot Start / Warm Start	9
NMEA DATA Log.....	9
6. UNINSTALLING THE USB DRIVER and PC Utility(Windows).....	11
7. FAQ's.....	11
8. CONTACT INFORMATION	12
9. SAFETY AND LEGAL NOTICES	13
10. LIMITED WARRANTY	13
11. ND-100S SPECIFICATIONS.....	15
12. FCC NOTICE	16

PACKAGE CONTENTS



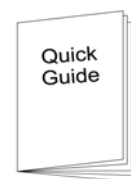
ND-100S Main Unit



USB Cable



CD-ROM (User Guide, Driver, etc)



Quick Start Guide

Note:

If any item is found to be damaged or missing, please contact your local retailer for assistance.

SYSTEM REQUIREMENTS

The ND-100S requires the minimum to run on a laptop:

Operating System: Windows 2000 / XP / Vista / Windows7

CPU: 500 MHz, Pentium III

System Memory (RAM): 128MB RAM

Hard Disk: 50MB free space

Display: 1024x768, "16-bit High Color" screen

WELCOME

Thank you for your purchase of the GlobalSat ND-100S USB Dongle GPS Receiver. The ND-100S is a compact and portable device, which allows you to carry a GPS receiver for use on your laptop whenever you travel. The ND-100S requires no battery or cables, only your favorite NMEA compliant navigation software is all that's needed to turn a laptop into a powerful navigation system.

Works with Windows, Mac and Linux O/S notebooks and laptops. If you need navigation software, you can check-out www.usglobalsat.com under the Navigation Software section for recommendations.

1. GETTING STARTED

There are only a few simple steps that you need to follow before using your ND-100S:

- Install the USB driver onto your laptop using the included CD-ROM
- Plug the GPS receiver into your laptop's USB port.

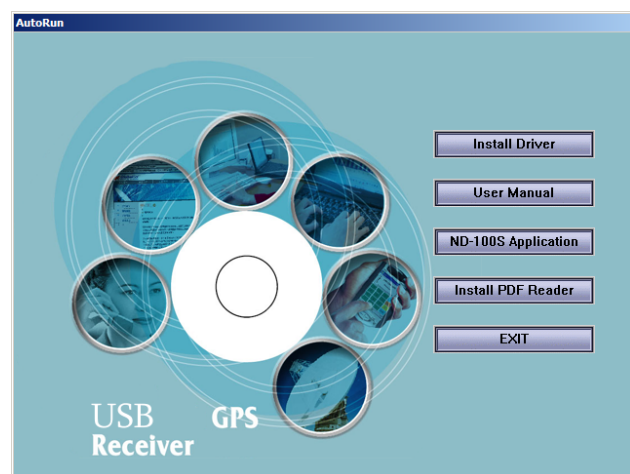
NOTE: From within your mapping or navigation software (including the supplied GPS Information utility), you will need to manually configure the COM port that was assigned to the ND-100S GPS receiver so that proper communication between the GPS receiver and a mapping program can occur. Most software requires that you manually configure the COM port setting for any GPS device being used.

IMPORTANT:

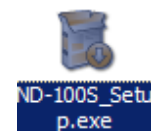
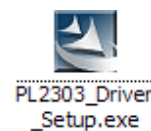
1. You must change the default rate setting of your mapping software's Baud Rate to 4800, if this is not set then the GPS data cannot be received.
2. **Set Baud Rate 4800, Data Bit: 8, Parity: None, Stop Bit: 1, Flow Control: None**

2. INSTALL THE USB PC TOOLS FOR WINDOWS LAPTOP

1. Place the product CD-ROM into your CD-ROM drive.
2. Auto-run should detect the CD and bring up the following screen below.
3. Click on the button titled **"Install Driver"** from the main screen as shown above.



4. Should "Auto-Run" be disabled on your PC, use Windows Explorer or File Manager to locate the file titled "PL2303_Driver_Setup.exe" in the \WIN\USB Driver\ directory of the CD-ROM and click to launch the install process.
5. You should see the files:
6. Should "Auto-Run" be disabled on your PC, use Windows Explorer or File Manager to locate the file titled "ND-100S_Setup.exe" in the \WIN\USB Driver\ directory of the CD-ROM and click to launch the install process.
7. You should see the files:



3. COM PORT VERIFICATION (Windows)

1. Once your USB Driver has been installed, you will need to confirm which COM Port your PC has assigned to it in order to properly configure any software that will be utilizing the GPS data being received.

2. Your USB GPS **MUST** be plugged into your USB port at this time.
3. Using Window's **Control Panel**, select **System > Hardware > Device Manager**
4. Then look under the heading of: **PORTS (Com & LPT)**
5. There should be a listing for: **Prolific Serial-to-USB Com Port (COM x)**
(where "x" is the number your PC has assigned the USB GPS receiver).
6. Once you have identified the COM port number, any software that you utilize must be configured to read GPS data from this COM port.

We strongly suggest that you first test your USB GPS with the included GPS Info utility program to confirm that the GPS receiver is functioning properly on your PC and that you have successfully configured the right COM Port setting. Once this has been done, close the GPS Info program and start your application for COM port configuration.

NOTE: By default, your PC will not allow you to run multiple applications from a single COM port. It is important that you close any previously opened GPS application before switching to another GPS application as the GPS receiver and data will not be found by the new program.

There are special utilities available to split data into multiple COM ports for use by more than one application simultaneously. See: <http://franson.com/gpsgate/>

4. INITIALIZING YOUR ND-100S

Before using your ND-100S receiver for navigation (especially for the first time), the receiver must obtain a local GPS fix (coordinates) of the current position. To do this, take your laptop (with your USB driver and the mapping software loaded and configurable) to an open area that has a clear view to the sky (such as a park or empty field). Start your software (or the included GPS Info utility program) and wait for initialization of the GPS to complete. This may take a few minutes depending on various factors such as the distance of the current coordinates from the last time the GPS receiver was activated, GPS signal strength and surrounding terrain (tall trees and buildings can block the satellite signals). Once the RAW GPS data is displayed onto the screen, if applicable for your software, a fix has been initialized (blue LED on the GPS will also start to flash). In some cases initialization can take up to several minutes depending on the conditions mentioned above before complete GPS data will be displayed on the screen.

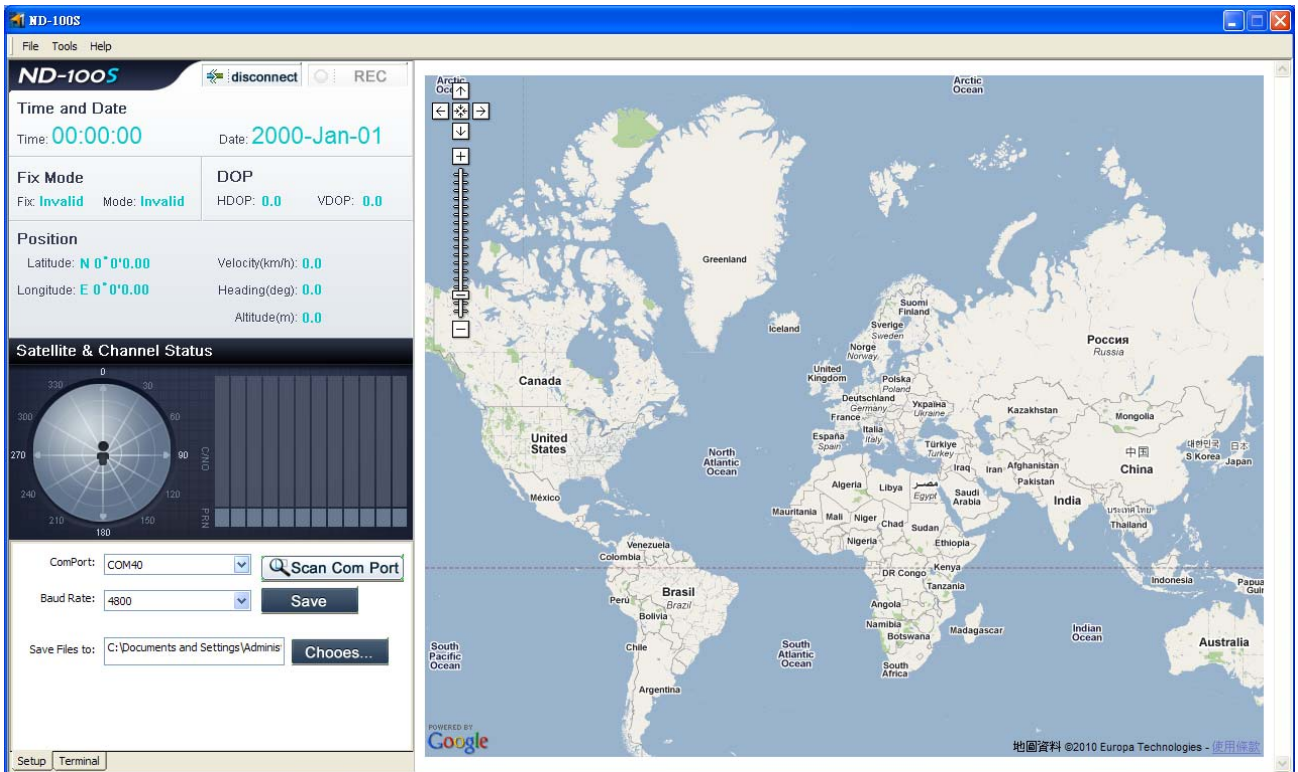
Coordinates with scrolling zeros mean that the port connection is complete but the satellite data is not being received yet (possibly still initializing or in a bad area for satellite reception).

5. USING ND-100S (Windows)

After completing the application installation and ND-100S connecting with the NB properly, we will

be able to open the application on the desktop click  ND-100S

ND-100S AP interface Description



MENU

Executable ND-100S Cold Start / Warm Start / Hot Start and set the format type of Log File

MAP Portion

When the notebook is connected with internet, ND-100S AP's MAP is go to show world map.

Time and Date	
Time: 09:57:17	Date: 2010-Mar-16
Fix Mode	
Fix: Fixed Mode: 3D	DOP
	HDOP: 13.7 VDOP: 14.1
Position	
Latitude: N 24° 59' 55.26	Velocity(km/h): 0.3
Longitude: E 121° 29' 11.36	Heading(deg): 113.3
	Altitude(m): -16.8

Time and Date:

Shows the current date and time

Fix Mode:

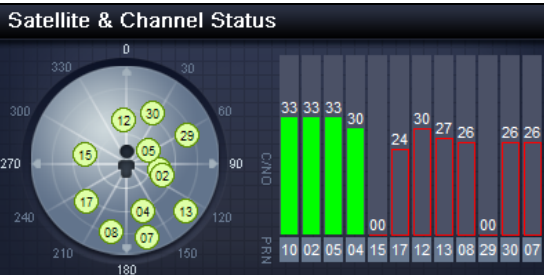
Show the state position.

DOP:

Show ND-100S positioning accuracy

Position:

Show ND-100S location latitude and longitude coordinates, height and direction of the angle.



Satellite & Channel Status

100S is receiving..






The circle shows the current distribution of satellite; Solid green bar indicates positioning satellite intensity.

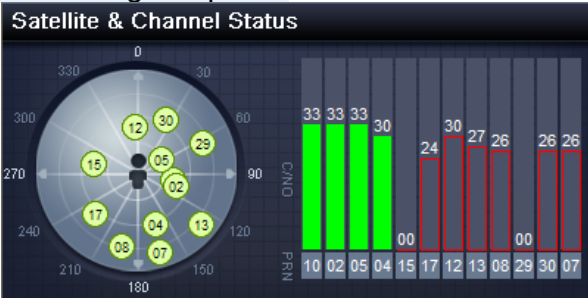

Red Bar shows non-positioning satellite intensity.

	<p>SETUP Show the ND-100S Setting in NB COM PORT.</p>
	<p>Terminal Show the ND-100S receiving NMEA DATA.</p>

★**Note:** If the notebook is not connected with internet, ND-100S AP's MAP can not to show.

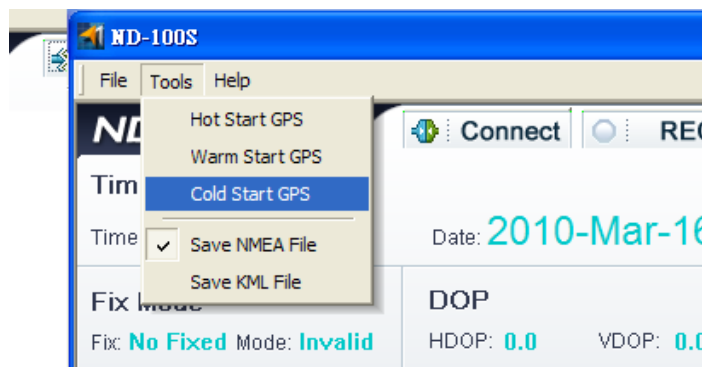
Starting using the ND-100S with AP

<p>In the SETUP PAGE, click , ND-100S AP will automatically set the com port of ND-100S, Baud Rate is set 4800, click  and then click , the icon will become , ND-100S begins working.</p>	
<p>Click , ND-100S AP will to show ND-100S receiving NMEA DATA.</p>	
<p>In positioning process, ND-100S indicates the receipt of satellite intensity and distribution.</p>	<p>NO Fixed</p>

	<p>Positioning completed</p> 
<p>When ND-100S completes positioning, it shows the current time, location mode and position.</p>	<p>Time and Date Time: 09:57:17 Date: 2010-Mar-16</p> <p>Fix Mode Fix: Fixed Mode: 3D DOP HDOP: 13.7 VDOP: 14.1</p> <p>Position Latitude: N 24°59'55.26 Velocity(km/h): 0.3 Longitude: E 121°29'11.36 Heading(deg): 113.3 Altitude(m): -16.8</p>
<p>When the notebook connects with internet, current position shows on the right hand side of the map.</p>	

Cold Start / Hot Start / Warm Start

If ND-100S needs Cold Start. Just click function tab: **Tools>Cold Start** to get Cold Start.

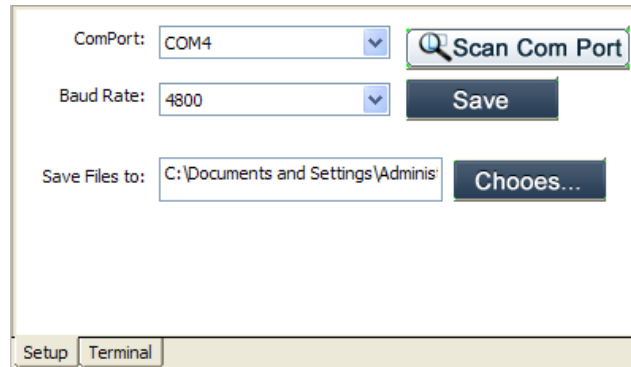


NMEA DATA Log

ND-100S also provides a simple DATA Log feature. You can save it as TXT format or KML format ND-100S default Log File format is TXT File format.

While ND-100S is plugged into the USB PORT and implement ND-100S AP on the NB, we can start ND-100S Log function.

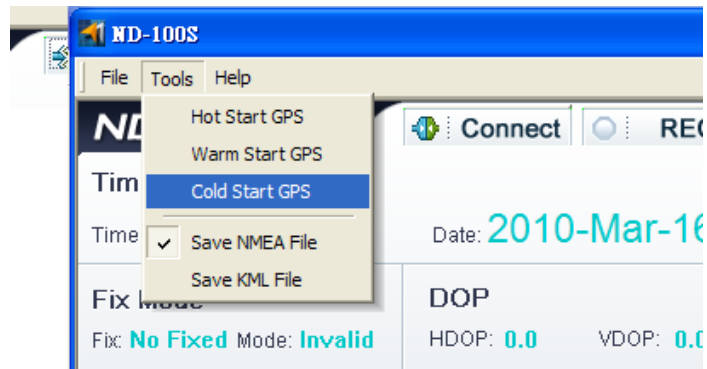
In SETUP portion, click **Chooses...**, then you can choose file folder to save log file. For example, Desktop.



Click REC, bullet will change to REC. ND100S will start logging NMEA.

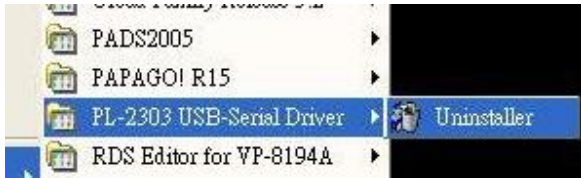
Click REC, bullet will change to REC. ND100S will stop logging NMEA.

If you want to change Log File format, Just click function tab **Tools** to change it to KML format. (Default setup is NMEA Txt format)

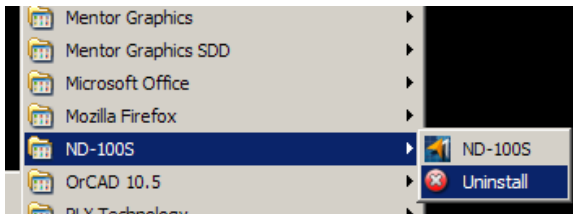


6. UNINSTALLING THE USB DRIVER and PC Utility(Windows)

To uninstall the ND-100S driver, click the Windows START button >>PROGRAMS>>PL-2303 USB-Serial Driver and select UNINSTALLER from the menu.



To uninstall the ND-100S PC Utility, click the Windows START button >>PROGRAMS>>ND-100S and select Uninstall from the menu.



7. FAQ's

I am not getting GPS data into my application.

1. Check your DEVICE MANAGER to confirm the COM Port number assigned to the GPS Receiver (it will be listed under the **PORTS (COM & LPT)** heading as Prolific **Serial-to-USB Comm**. Then be sure this is the same COM port number configured in your application.
2. Be sure your Baud rate is configured correctly at:
Baud Rate: 4800
Data bit: 8
Parity: None
Stop Bit: 1
Flow Control: None
3. Re-boot your computer and then insert the USB GPS into a USB port.
4. Configure the GPS Info utility with the correct COM Port and test your GPS receiver first before using it in your application.

Will the ND-100S work with Street Map, Marine Chart or Aviation software?

Globalsat USB GPS receivers provide standard NMEA data for mapping software to use and convert to coordinates. Data from the ND-100S should work well with most any NMEA compliant software on the market today.

How accurate is the GPS?

The ND-100S is WAAS/EGNOS capable. Units sold in North America through authorized resellers are WAAS/EGNOS enabled unless otherwise stated. Accuracy can be up to 2.2 Meters CEP without DGPS

What is ideal GPS environment?

The GPS requires an open, clear view of the sky. Buildings, covered parking areas, tunnels and dense foliage can cause the GPS receiver to be unable to get a location fix.

If you are parked in a covered parking lot or near a tall building, it is recommended that you drive away until you have a clear view of the sky before using the ND-100S. You may need to give the GPS a few minutes to find or get a fix its location.

How do I know if the GPS is ON?

Your USB GPS must be plugged into your laptop's USB port to get power. If your PC is on and the COM port was configured properly, the GPS receiver is on and receiving the streaming GPS data. This can be verified by opening your mapping software program. In addition, the Globalsat USB GPS has a built-in LED status indicator that shows the following:

LED OFF: GPS receiver is off (no power).

LED ON (solid): No fix, searching for GPS signals.

LED FLASHING: Position fix established and GPS signals are being received.

Why does the GPS not work near buildings and other tall objects?

The GPS uses satellites in the space to find out where it is. Therefore it needs a clear view of the sky. Tall buildings and other objects that block the receiver's view to the sky make it infeasible to determine your location. Sometimes the satellites are not overhead but near the horizon. In these cases the GPS must have a clear view of the horizon.

8. CONTACT INFORMATION

Globalsat Technology Corporation (Taiwan)

www.globalsat.com.tw

service@globalsat.com.tw (pre-sales GPS product questions only)

USGlobalsat, Inc.

www.usglobalsat.com

sales@globalsat.com (pre-sales GPS product questions only)

Technical Support (North America)

See our **DOWNLOADS** and **FAQ** section on our web-site for GPS driver updates.

<http://www.usglobalsat.com>

Pre-registration is required before receiving any type of technical support and using our online "Support Ticket" from USGlobalsat's web-site will expedite in getting your issues handles in a secure and prompt manner. If products were purchased from a dealer other that USGlobalSat, please create your account and register your product at :

www.usglobalsat.com/support/custadminlogin.asp

9. SAFETY AND LEGAL NOTICES

Please read this section carefully before using the GPS receiver

Globalsat Technology Corporation / USGlobalsat, Inc. will not accept any responsibility whatsoever for accidents resulting from failure to observe common sense precautions. Your personal judgment, traffic regulations, and common sense must always take precedence over any directions produced by GPS receiver or the mapping software

WARNING: Make sure that the GPS receiver is secure and does not interfere with driving visibility and safety.

It is your responsibility as the vehicle operator to securely place the GPS unit and antenna so that they will not interfere with driving and prevent operations of any safety device (such as the Airbag) in your vehicle. Do not mount the devices in a place where the driver or passengers may receive injury during vehicle operation or collision. For your safety, take care to route all cables away from shifters, pedals, accessory controls and mechanisms.

WARNING: Drive safely and use common sense.

It is your responsibility as the vehicle operator to drive safely, observe all traffic rules and above all use your own personal judgment while driving. If you feel that a route suggested by the navigation software instructs you to perform an unsafe or illegal maneuver, places you in an unsafe situation, or routes you into an area which you consider unsafe, do not follow the instructions.

WARNING: Keep your eyes on the road.

It is your responsibility as the vehicle operator to keep your eyes on the road and be an alert driver at all times, especially when the vehicle is moving. The vehicle's operator should not be distracted by the navigation equipment or software. Should there be a distraction with the ability to drive responsibly, please turn off the device. Should you want to look at the display for a prolonged time, park the car safely, while following all traffic regulations before looking at the display.

WARNING: To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture. Do not remove covers or open housings, there are no user serviceable parts inside. Refer servicing to qualified personnel only.

10. LIMITED WARRANTY

Globalsat/USGlobalsat warrants product hardware against manufacturing defects in material and workmanship under normal use for a period of one (1) year from the original date of purchase (unless the product states otherwise), and only when purchased from a recognized "authorized dealer". Products purchased from any unauthorized source, such as unauthorized e-Bay resellers, will not qualify for free warranty service/support and may require the end-user to pre-pay fees associated with, but not limited to the support, repair, replacement and shipping of the product to and from the service center.

Except as provided herein, Globalsat/USGlobalsat makes no express warranties', including but not limited to any warranties of merchantability or fitness for particular use, or non-infringement. You acknowledge that your use of the product or service is at your sole risk and you agree that the information provided are without warranty of any kind by Globalsat/USGlobalsat.

Under no circumstances, including negligence, will Globalsat/USGlobalsat or any of its affiliates, directors, officers or employees, or any third party be liable for any direct, indirect, incidental, special or consequential damages that results from your use, or your inability to use, or the performance of the product(s) with respect to any liability, loss, or arising out of any breach of this warranty, including, but not limited to any damages resulting from inconvenience, loss of time, data, property, revenue, or profit or any indirect, special incidental or consequential damages. You acknowledge that this limitation applies to all content information or other services available from Globalsat/USGlobalsat, and whether or not Globalsat/USGlobalsat has notice of the possibility of such damages, and whether or not to circumstances giving rise to such damages may have been within the control of Globalsat/USGlobalsat.

Some states do not allow the exclusion of certain warranties, so some of the above exclusions may not apply to you. In those states, liability is limited to the fullest extent allowed by law. By using the product(s), you agree to indemnify Globalsat/USGlobalsat and its parents, subsidiaries, affiliates, officers and employees and hold them harmless from any and all claims and expenses, including reasonable attorney's fees, asserted third party due to, or arising out of your use of the service and the site.

In the event of a product defect during the first 30-days of the warranty period, return product and the sales receipt as proof of purchase date to place of original purchase. Defect discovered after 30-days from date of purchase, you must contact Globalsat/USGlobalsat's Technical support for a Return Merchandise Authorization (RMA) number for return to manufacturer.

Globalsat/USGlobalsat will, at its option, unless otherwise provided by law:

- a.) Correct the defect by product repair without charge for parts and labor;
- b.) Replace the product with one of the same or similar design; or

Refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of Globalsat/USGlobalsat. New or reconditioned parts may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover:

- a.) Damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow the instructions, improper installation or maintenance, alteration, lighting or other incidence of excess voltage or current;
- b.) Any repairs other than those provided by Globalsat/USGlobalsat;
- c.) Consumables such as fuses or batteries;
- d.) Cosmetic damage;
- e.) Transportation, shipping or insurance costs;
- f.) Costs of product removal, installation, set-up service adjustment or reinstallation.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state.

Additional products bundled in this package not manufactured by Globalsat/USGlobalsat will hold separate warranties as expressed by the individual manufacturer of that product(s). Product specifications, functions and features are subject to change without notice.

11. ND-100S SPECIFICATIONS

Electrical Characteristics	
GPS Chipset	SiRF Star III e/LP
Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	20 all-in-view tracking
Sensitivity	-159 dBm
Accuracy	
Position Horizontal	5m 2D RMS WAAS enabled 10m 2D RMS WAAS disabled
Velocity	0.1m/sec 95% (SA off),
Time	1 micro-second synchronized to GPS time
Datum	
Datum	WGS-84
Acquisition Rate	
Hot start	1 sec., average (with ephemeris and almanac valid)
Warm start	38 sec., average (with almanac but not ephemeris)
Cold start	42 sec., average (neither almanac nor ephemeris)
Reacquisition	0.1 sec. average (interruption recovery time)
Protocol	
GPS Protocol	Default: NMEA 0183 (Secondary: SiRF binary)
GPS Output Data	NMEA 0183 MEA0183 V2.2 protocol, and supports command: GGA, GSA, GSV, RMC, VTG, GLL v2.2
GPS transfer rate	Software command setting (Default : 4800,n,8,1 for NMEA)
Dynamic Condition	
Acceleration Limit	Less than 4g
Altitude Limit	18,000 meters (60,000 feet) max.
Velocity Limit	515 meters/sec. (1,000 knots) max.
Jerk Limit	20 m/sec**3
Temperature	
Operating	-20°~ 70°C
Storage	-20°~ 80°C
Humidity	Up to 95% non-condensing
Power	
Voltage	4.5 ~ 5.5V DC Input
Current	50mA typical
Physical Characteristics	
Dimension	2.6"L x 0.9"W x 0.4"H (65.5L x 23W x 11H mm)
Unit Weight	0.04 lbs (20g)
Certifications	
FCC	USA (Covers requirements for CANADA ICES-003)
CE	Europe

Due to continuous product improvements, all specifications are subject to change without notice.

12. FCC NOTICE

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.