

# ND-100 USB GPS Dongle

## User's Guide



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Specifications subject to change without notice



## Document History

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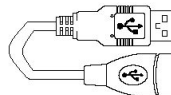
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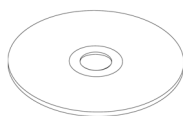
## PACKAGE CONTENTS



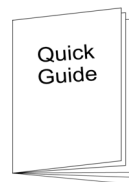
ND-100 Main Unit



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-100 requires the minimum to run on a laptop:

**Operating System:** Windows 2000 or Windows XP

**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 purchasing the GlobalSat ND-100 USB Dongle GPS Receiver. The ND-100 is a compact and portable device, which allows you to carry a GPS receiver for use on your notebook, UMPC (Ultra Mini Personal Computer) or tablet PC. No batteries or cable are required with the ND-100, only your favorite NMEA compliant navigation software is all that is needed to convert your computer into a powerful navigation system.

The ND-100 is compatible with Windows, Mac and Linux O/S computers. If navigation software is needed, you may visit [www.usglobalsat.com](http://www.usglobalsat.com) under "**Navigation Software**" column for recommendations.

## 1. GETTING STARTED

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

- Install the USB driver onto your laptop using the included CD-ROM (the files can also be downloaded directly from [www.usglobalsat.com](http://www.usglobalsat.com)).
- Plug the GPS receiver into your laptop's USB port.

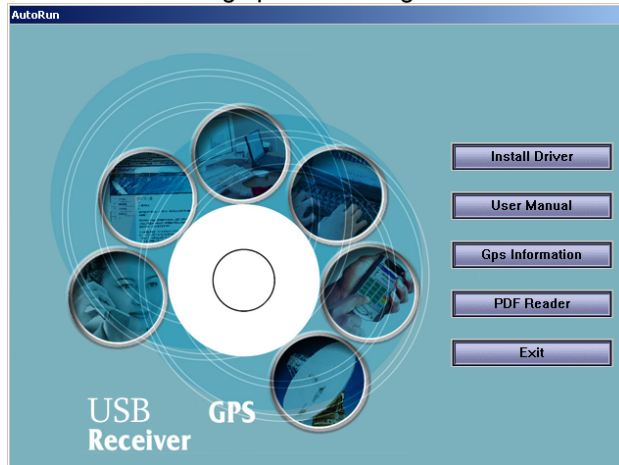
**NOTE:** From within your mapping or navigation software (including the supplied GPS Information utility), you will need to manually configure the COM port that was assigned to the ND-100 GPS receiver so that proper communication between the GPS receiver and a mapping program can occur. Most software 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. *Bits per second: 4800, Data Bit: 8, Parity: None, Stop Bit: 1, Flow Control: None*

## 2. INSTALLING THE USB DRIVER 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\_XP2KME98Driver\_Setup.exe" and "PL2303\_VistaDriver\_Setup.exe" in the \WIN\USB Driver\ directory of the CD-ROM and click to launch the install process.
5. You should see these two files:



6. If you are using Windows Vista, please double click on "PL-2303 Vista Driver Installer.exe" to begin installation. Follow the instructions to complete the installation process. If you are using Windows XP or 2000, double click on "PL-2303 Driver Installer.exe" to begin installation. Follow the



instruction to complete the installation process.

### 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 connected to your USB port.
3. Using Window XP's **Control Panel**, select **System > Hardware > Device Manager** or Using Window Vista's **Control Panel**, select **Device Manager**.
4. Then look under the category: **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 MiniCDU 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 MiniCDU 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 GPS RECEIVER

Before using your ND-100 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 MiniCDU 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.

Coordinate data with “zero” characters indicates the user port connection is established, but, satellite positioning data is not being received (possibly still initializing or in a bad area for satellite reception).

## 5. USING / TESTING YOUR GPS RECEIVER (Windows)

Once the USB GPS receiver's driver and your personal mapping software have been installed and configured properly, you can begin to use your navigation system by plugging the USB GPS into your laptop's USB port and launching your mapping software. If you don't have a mapping, or navigation software, we've included a GPS test utility called “MiniCDU” for the purpose of confirming your installation and configuration. This utility can be installed by clicking the [MiniCDU.exe](#) file from the Win directory on the CD-ROM or downloaded from our web-site [www.usglobalsat.com](http://www.usglobalsat.com).

### **ND-100 LED Indicator Status:**

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

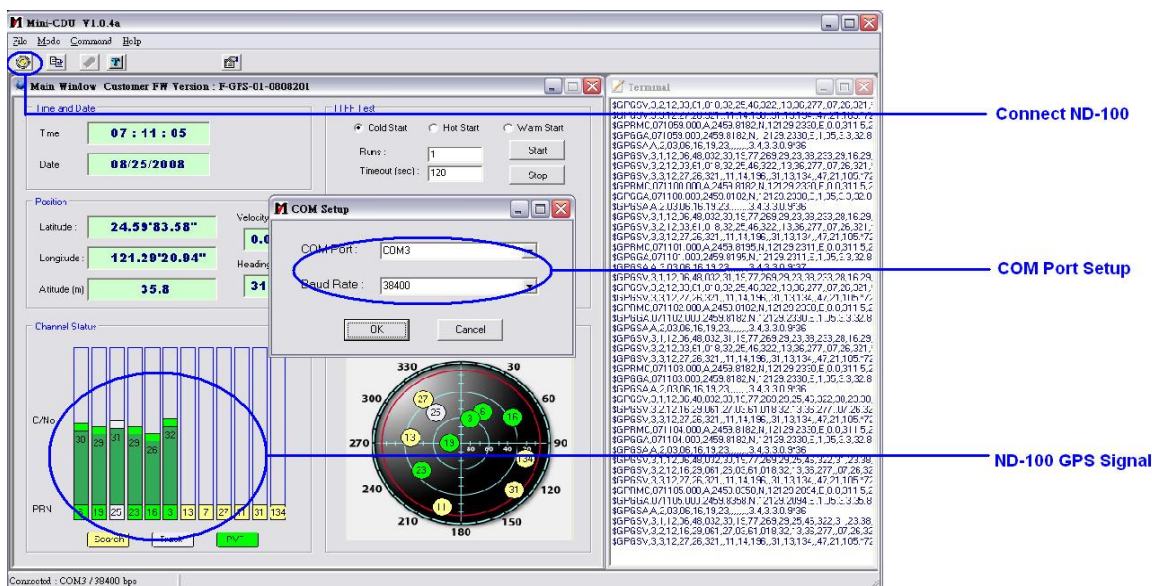
**LED ON:** No fix, searching for GPS signals.

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

Always select an area in the vehicle where the GPS unit will be secure and not obstruct normal driving, visibility and safety, but still maintaining a “view to the sky” in order to receive satellite data.

It is recommended that you first load and test your GPS receiver with the MiniCDU.exe. This process will confirm you have found correct COM port number and have configured it properly.

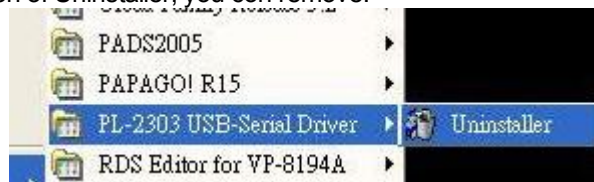
1. Run [MiniCDU.exe](#) to load the utility.
2. Enter the proper COM port for your GPS device (see COM Port Verification above)
3. Set COM port to Baud rate: 4800
4. If no errors have been made in configuration, there should be GPS data being displayed in the window, which is confirmation that the communication between the GPS device and the “MiniCDU” software is working properly.
5. If there is no GPS data displayed (or data with multiple zeros in them), please exit the software and unplug the GPS receiver from the USB port and reinsert it after 10 seconds to reset the device.



**NOTE:** Configuration (or selection) of an assigned COM port for the GPS device from within your mapping or charting software must be completed whenever using the software for the first time.

## 6. UNINSTALLING THE USB DRIVER (Windows)

If you want to remove the ND-100 driver, you can click to START>>PROGRAM>>PL-2303 USB-Serial Driver, the implementation of Uninstaller, you can remove.



## 7. FAQ's

### 1. Why does my mapping application not detect my GPS receiver's position data?

- A. 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 Com Port (COM x)"**). Then be sure this is the same COM port number configured in your application.
- B. Be sure your Baud rate is configured correctly at:
  - Baud Rate: 4800
  - Data bit: 8
  - Parity: None
  - Stop Bit: 1
  - Flow Control: None
- C. Re-boot your computer and then insert the USB GPS into a USB port.
- D. First, configure the MiniCDU utility with the correct COM Port and test your GPS receiver before using your navigation application.



## **2. Will the ND-100 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-100 should work well with most any NMEA compliant software in the market today.

## **3. How accurate is the GPS?**

The ND-100 is WAAS/EGNOS/MSAS capable. Units sold in North America through authorized resellers are WAAS/EGNOS/MSAS enabled unless otherwise stated. Accuracy can be approximately 5.0 meters with DGPS active. Otherwise, precision may decrease ranging from 5.0 to 10.0 Meters CEP without DGPS.

## **4. 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-100. You may need to give the GPS a few minutes to find or get a fix its location.

## **5. 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:** No fix, searching for GPS signals.

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

## **6. Why does the GPS not work near buildings and other tall objects?**

The GPS utilizes the satellite constellation orbiting the earth to triangulate positioning. Therefore, GPS receiver requires a clear sky view. Tall buildings and other objects that block the receiver's view to the sky make it infeasible to determine your location. In some cases, the satellites are not overhead but near the horizon. In these cases, the GPS receiver must have a clear horizon view.

## **8. CONTACT INFORMATION**

Globalsat Technology Corporation (Taiwan)

[www.globalsat.com.tw](http://www.globalsat.com.tw)

[service@globalsat.com.tw](mailto:service@globalsat.com.tw) (pre-sales GPS product questions only)

USGlobalsat, Inc.

[www.usglobalsat.com](http://www.usglobalsat.com)

[sales@globalsat.com](mailto: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 product technical support and/ or online support from our "Support Ticket" system from USGlobalsat's web-site. Using our online support will expedite in receiving product resolutions in a secure and prompt manner. Note, products purchased from an authorize USGlobalsat dealer, require account and product registration at : [www.usglobalsat.com/support/custadminlogin.asp](http://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: Be certain 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-100 SPECIFICATIONS

<b>GPS Characteristics</b>	
<b>GPS Chipset</b>	M-Star MSB2122
<b>Frequency</b>	L1, 1575.42 MHz
<b>C/A Code</b>	1.023 MHz
<b>Channels</b>	48 channel all-in-view tracking
<b>Sensitivity</b>	Tracking:-161dBm
<b>GPS Antenna Type</b>	Built-in ceramic patch antenna (18 x 18 x 4mm)
<b>Accuracy</b>	
<b>Position Horizontal</b>	< 5m 2D RMS WAAS/ EGNOS/ MSAS enabled (CEP with DGPS) > 5m ~ 10m 2D RMS WAAS disabled (CEP without DGPS)
<b>Velocity</b>	Velocity:0.1 m/s
<b>Time</b>	1ms RMS
<b>WAAS/ EGNOS/ MSAS</b>	Enabled
<b>Datum</b>	
<b>Datum</b>	Default: WGS-84
<b>Acquisition Rate</b>	
<b>Hot start</b>	1.5 sec., average
<b>Warm start</b>	32 sec., average
<b>Cold start</b>	34 sec., average
<b>Reacquisition</b>	< 1 sec. average
<b>Protocol</b>	
<b>GPS Protocol</b>	NMEA 0183 v3 GGA(1sec), GSA(1sec), GSV(5sec), RMC(1sec) (VTG and GLL are optional)
<b>GPS Transfer Rate</b>	4800 (Bits per Second: 4800, Data bits: 8, parity: None, Stop bits:1)
<b>GPS Update Rate</b>	1 Hz
<b>USB Protocol</b>	USB 2.0
<b>Operating Systems</b>	
<b>Windows</b>	98 / 2000 / XP / Vista
<b>Mac</b>	OSX 8&9 / 10.x
<b>Linux</b>	RedHat 7.3 / 8.0 / 9.0
<b>Dynamic Condition</b>	
<b>Acceleration Limit</b>	Less than 4g
<b>Altitude Limit</b>	18,000 meters (60,000 feet) max.
<b>Velocity Limit</b>	515 meters/sec. (1,000 knots) max.
<b>Temperature</b>	
<b>Operating</b>	-4~140°F (-20~60°C)
<b>Storage</b>	-22~ 158°F (-30~70°C)
<b>Humidity</b>	Up to 95% non-condensing
<b>Electrical Characteristics</b>	
<b>Voltage</b>	DC 5.0V, USB bus power
<b>Current</b>	< 55 mA
<b>Power Consumption</b>	< 275 mW
<b>Physical Characteristics</b>	
<b>Dimension</b>	2.6"L x 0.9"W x 0.4"H (65.5L x 23W x 11H mm)
<b>Unit Weight</b>	0.04 lbs (20g)
<b>Certifications</b>	
<b>FCC</b>	USA (Covers requirements for CANADA ICES-003)
<b>CE</b>	Europe

## 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 utilizes, exhibits 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.