



**NAVILOCK®**



**NL-6004P u-blox NEO-6P MD6/serial receiver roof mount  
Operation manual (62447)**

# 1. Introduction

The NL-6004P is a MD6/serial GNSS receiver with internal antenna and ublox NEO-6P GPS module. This module allows a positioning accuracy of under one metre through a combination of PPP (Precision Point Positioning) and SBAS technologies. The MD6/serial interface enables connection to a notebook, UMPC, tablet or car PC. The receiver bottom side is rubberized and magnetic, which allows for universal positioning. Thanks to its compact design and its high precision positioning technology, it is the ideal companion at work and at leisure.

## Contents\*

- 1x Navilock NL-6004P
- 1x 8 cm CD ROM including operation manual

\* Before using the device, please make sure that all the parts are included in the package. If any parts are missing or damaged, please contact your dealer immediately.

### Important health and safety information

When using this product, take the following precautions in order to avoid possible damages and legal consequences. Always follow all safety and operation manuals exactly and keep them for future reference. Observe all warnings in the operation manual and on the product. In order to avoid injuries, electrocution, fire and damages to the product, observe the following precautions:

### ELECTRIC SECURITY

This product is designed for operation with power supply via the USB or PS/2 port. Any other operation mode can be dangerous and may void the warranty claims for this product. This unit contains an internal back-up battery.

**NOTE: RECYCLE OR DISPOSE OF USED BATTERIES OR RECHARGEABLE BATTERIES IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS AND THE INSTRUCTIONS INCLUDED WITH THE PRODUCT.**



### PRECAUTIONS REGARDING DIRECT SUNLIGHT

Make sure the unit is not exposed to very high humidity and temperatures. Never leave the unit, the battery or the rechargeable battery for an extended period in a vehicle or plate, where the temperature can increase to over 60 °C (140 °F), for example on the dashboard of a car, the window sill or behind a pane of glass, which is directly exposed to the sun or very strong UV light. Otherwise the unit or the vehicle may be damaged, and the battery or the rechargeable battery may overheat.

### Damages requiring repairs

Disconnect the unit from the AC supply in the following cases; also disconnect the rechargeable battery and contact an authorized repair man or your dealer.

- Liquid or an object has entered the product.
- The product has fallen down or was damaged.
- There are visible signs of overheating.
- When operated normally, the product does not function flawlessly.

### Avoid using the unit directly after strong temperature changes.

If the unit is exposed to strong temperature and humidity fluctuations, condensation can form in the unit. In order to avoid damage to the unit, please wait until the condensation has dried off before using the unit.

**NOTE: If you bring the unit from a cold to a warm environment, or vice versa, first let it get accustomed to the new temperature before turning it on.**

## 2. Starting operation

You may connect the NL-6004P either to the serial interface of your PC using an MD6 to DB9 adapter cable, or to the USB interface of your PC using an MD6 to USB adapter cable.

MD6 to DB9: [http://www.navalock.de/produkte/G\\_61265/merkmale.html?setLanguage=en](http://www.navalock.de/produkte/G_61265/merkmale.html?setLanguage=en)

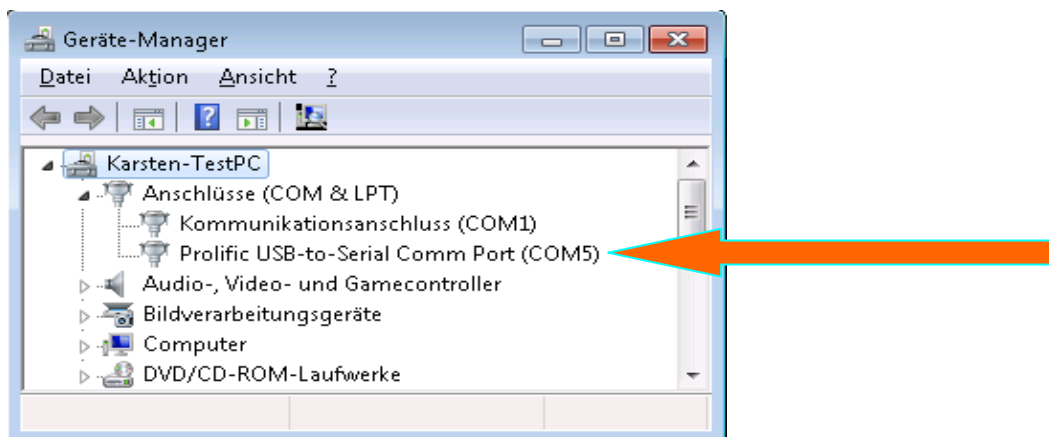
MD6 to USB: [http://www.navalock.de/produkte/G\\_61264/merkmale.html?setLanguage=en](http://www.navalock.de/produkte/G_61264/merkmale.html?setLanguage=en)

All values for the serial connection via DB9, such as COM Port, Baud rate etc., result from the settings of this interface on your PC.

Use the following guide for USB adaptation:

Plug the USB cable into a free USB connector of your notebook, etc. Your Windows operating system then detects the NL-6004P and attempts to install a driver. When automatic detection does not work, install the Prolific USB driver from the supplied CD under the Installation -> NL-6004P menu item.

Please restart your computer after the installation is completed. Afterwards, the GPS COM Port will be available in the device manager under connections. Set this port in your navigation or route planner software. Do not simultaneously use any other program accessing this COM Port.



## 3. LED indicator

- this receiver comes without LED

## 4. Application environment

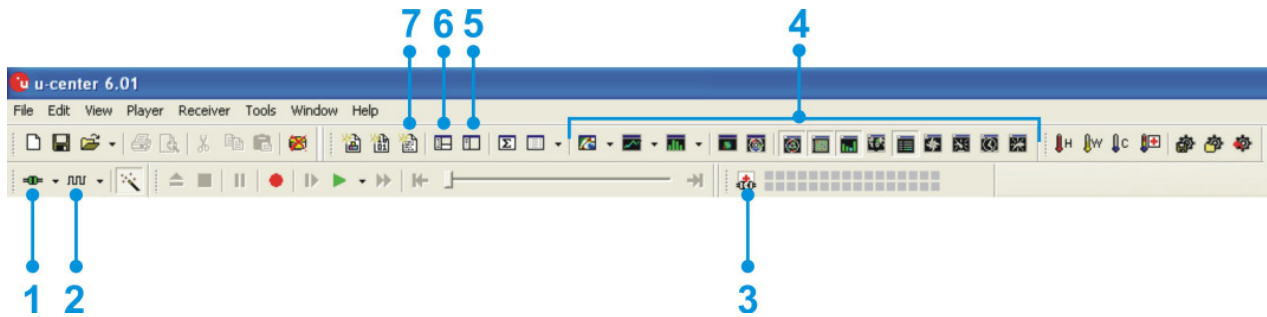
The NL-6004P can be used as a MD6/Serial GPS receiver under Windows CE/2000/XP/Vista/7/8. The corresponding driver is available on the CD-ROM.

## 5. Functional test with u-center 7.xx

Download u-center from:

[http://www.navalock.de/produkte/G\\_60095/software.html?setLanguage=en](http://www.navalock.de/produkte/G_60095/software.html?setLanguage=en). Install the u-center software on your unit. Select the version suitable for your system. U-center is a pure test program and cannot be used for navigation or orientation. It must always be closed after the test. It blocks the COM port and does not allow any access of the navigation or route software to the COM port. It also serves for updating the Assist GPS data and switching to EGNOS or WAAS etc.

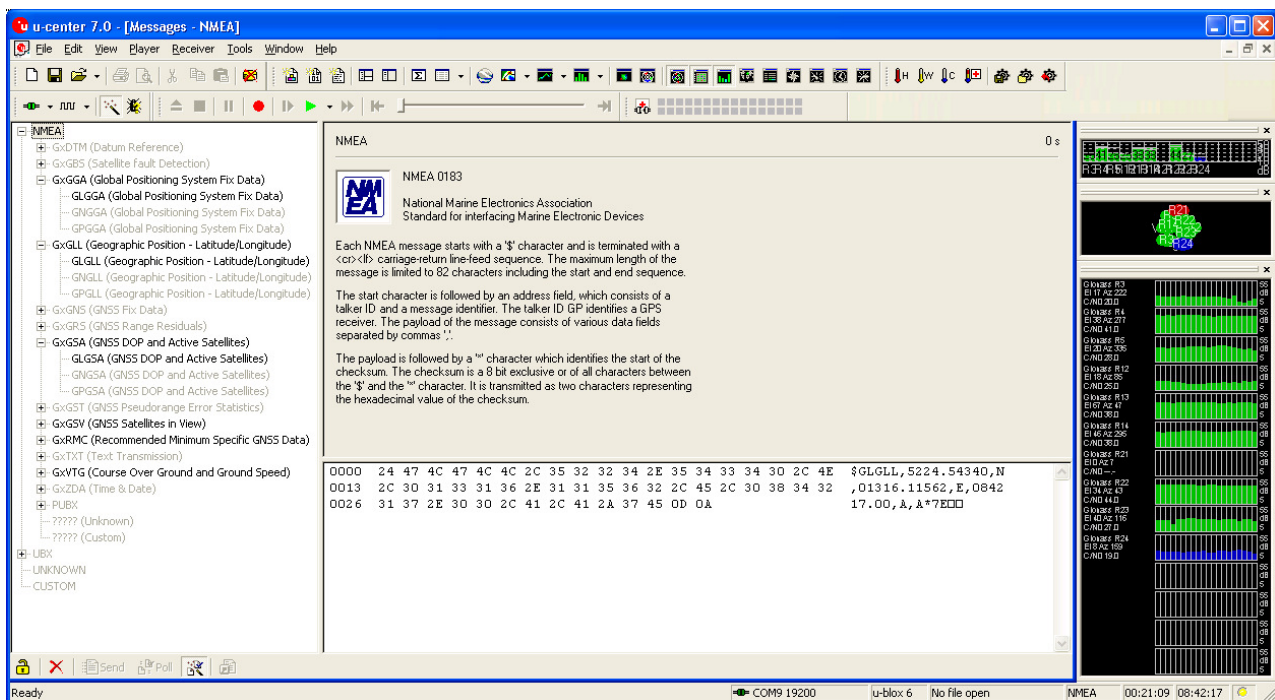
If the NMEA protocol is displayed in u-center, but you cannot find a receiver in the application software, the connection problem is not with the receiver, but with the selected software setting. In this case, the software manufacturer support center may be able to help you.



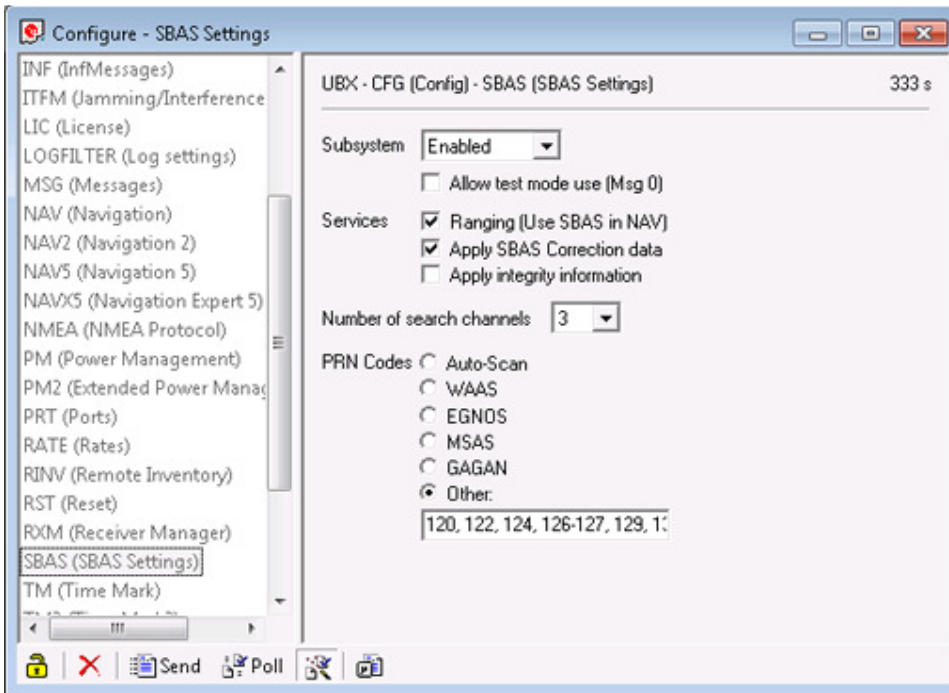
After starting the u-center software, check the functionality of your NL-6004P.

1. Selecting the COM port
2. Selecting the baud rate
3. Downloading Assist GPS and updating the receiver
4. Visual display of the NMEA data
5. Configuration manager
6. NMEA/UBX message console
7. NMEA text console

As seen below, you can set up your u-center by yourself. Everything important can be connected and displayed immediately. The green bars at the bottom of the picture show the reception quality at your position. If no bars are displayed, please change your position. The NL-6004P cannot receive anything in a closed building. If the blue bars are displayed, the receiver is still acquiring the data and verifying the receipt data.



## 6. EGNOS configuration with u-center 7.xx



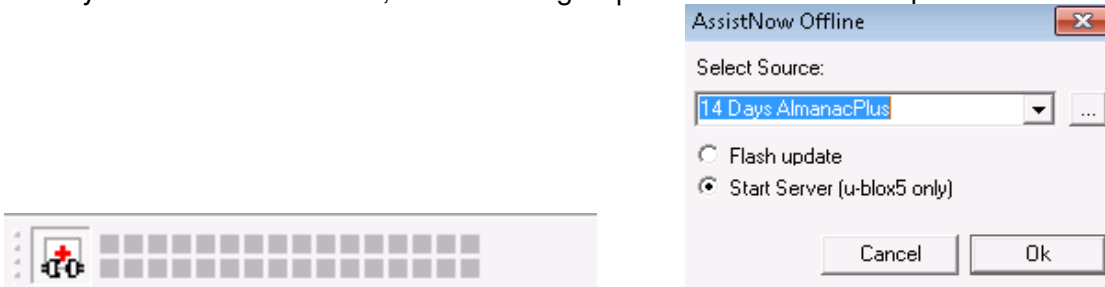
NL-6004P use EGNOS as default. In the configuration menu you can check these options. For detailed information please use the documentation from u-blox <http://www.u-blox.com>.

## 7. Assist GPS configuration with u-center 7.xx

The NL-6004P supports AssistNow!

AssistNow is a standard A- GNSS service, which increases the performance of the GNSS receiver, by calculating a position almost immediately, even under difficult reception conditions. A- GNSS improves all GNSS capable applications, especially those that require a continuous state of readiness, for example applications for fleet management or GNSS capable hand-held devices, whose users would like to access local services immediately, independently of the reception conditions.

Without A- GNSS, a GNSS receiver must localize at least 4 satellites in direct line of vision, and then download their location data. This process takes 30 seconds under optimal reception conditions, but under less favorable conditions it may take much longer, e.g. in an urban environment or in a building, where the GNSS reception is weaker. AssistNow sends the data directly to the GNSS receiver, thus enabling a quick calculation of the position.



Further information to the u-Center can be found in the u-blox documentation under [http://www.u-blox.com/products/u\\_center.html](http://www.u-blox.com/products/u_center.html)

If you have any questions, please contact u-blox directly.

## 8. Possible sources of error and their elimination

**8.1** After connecting to the appropriate port you can not find the above mentioned Com port and the receiver has no function. Test if the port with another device. If another device operate it, please contact support.

**8.2** You will not receive satellite fix even after a very long wait. The NL-6004P requires up to 20 minutes for its first satellite fix on another continent. For this, a clear view of the sky is needed. Insert the NL-6004P as far as possible away from the wall. Wall of a house very much reflects and contributes to the delay of the Satfix.

**8.3** Your PC doesn't support the auto start function, and doesn't start the CD-ROM automatically. Please check under <http://msdn2.microsoft.com/en-us/library/Aa969329.aspx> .

**8.4** The NL-6004P came in touch with jet water (water jet from a shower head or strong rain (when it was mounted on a car roof). Do not connect the receiver with the notebook etc. under any circumstances, because it will otherwise be completely and irreparably destroyed. Return the receiver to our support center, mentioning "water damage". The support center will disassemble the receiver, dry it and check its functionality.

The Navilock repair center tries to be as obliging as possible, so please tell us the real reason for the defect. During the error analysis, we can generally detect if the cause for the defect was an external cause, water damage, fall, over-voltage or the wrong handling of the unit.



Failures are often the result of little causes. It is not always necessary to exchange the product immediately, because this will not solve the cause of the failure if it is not a GPS hardware problem.

Before visiting your dealer, please contact the Navilock support center. They will try to help you quickly and without further ado, so that the circumstances of an exchange, which might in any case be unnecessary, are avoided.

In this case, please write down a detailed description of the error, add this information to your end device and the software used in this device, as well as the operation environment (operating system, service pack version, CUP size and type, storage size, hard disk drive and interface etc.), and send an e-mail to [support@navilock.de](mailto:support@navilock.de) .

A support member will look into your problem and work out a solution.

We hope your Navilock product brings you fun and enjoyment!

## 9. Specifications

Chip set manufacturer/type: ublox NEO-6P GPS  
Channels: 50 channels  
Sensitivity: -160 dBm  
GPS Frequency: L1, 1,575.42 MHz  
GPS C/A Code: 1.023 MHz chip rate

Target precisions:

GPS

Position Horizontal: SBAS + PPP < 1 m (2D, R50)  
SBAS + PPP < 2 m (3D, R50)

Demonstrated under following conditions: 24 hours, stationary, first 600 seconds of data discarded. HDOP < 1.5 during measurement period, strong signals. Continuous availability of valid SBAS correction data during full test period.

Date: WGS84

Protocol: NMEA-0183 V3.01 GGA, GSA, GSV, RMC, VTG

Detection rates:

Hot start 1 s average (with ephemerides and almanac)  
Warmstart: 32 s average (neither ephemerides nor almanac)  
Cold start 32 s average  
Re-Acquisition 1 s average (recovery time after interruption)

Update Rate: 1 Hz

Dynamic prerequisites:

Acceleration limit: smaller than 4 g  
Height limit 50000 m  
Speed limit 5 m/s

Performance:

Power supply 5 Volt  
via PS/2 using MD6 to DB9 adapter  
via USB using MD6 to USB adapter

Connection: MD6/serial baud rate up to 115,200 (preset to 38,400)

Cable length: 5 m

Operating temperature: -20°C ~ 65°C

Dimensions: 62 mm x 21 mm

Weight(main unit): 78g

## 10. Certificate

- CE
- FCC

## 11. Warranty period

Your GPS receiver will be repaired free of charge within the legal warranty period, unless it was damaged due to external cases, humidity dropping or other damages due to improper usage. Your dealer is always ready to help you. Please send your unit for repairs directly to:

**Navilock Repair Center**  
**Beeskowdamm 13/15**  
**D-14167 Berlin-Zehlendorf**

Postage must always be paid by the client.

Please add a proof of purchase and a detailed error description. "Doesn't work" or "defective" is not a detailed error description. Time-based error, meaning how often an error occurs, must be expressly mentioned. **For logistic reasons, we cannot accept returned packages without the postage being paid by the client.**

## 12. Support

For additional support questions, please contact our support center:  
support@navilock.de / www.navilock.com or by telephone: +49 30 84716503\*.  
You can also call the Service Hotline at the following hours: Mo – Fr.: 9:00 – 16:30.

\* You will be charged a connection fee for a telephone call to Germany/Berlin, in accordance with the connection fee overview of your telephone service provider. Callers from Germany, who subscribed to a national telephone flat-rate service and can call nation-wide fixed-telephone numbers free of charge, can call us without incurring additional charges.

You can also find current product information on our homepage. [www.navilock.com](http://www.navilock.com)

## 13. Final provision

The information and data contained in this manual may be changed without prior notice. Errors and misprints reserved.

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## 15. Brands of third parties

Brands, trade names, product names and logos of third parties mentioned in this documentation may be trademarks or registered trademarks of the respective owners.

### Conformity declaration

Please download the Declaration of Conformity from <http://www.navilock.de/support/> in the conformity area.



### WEEE note

The WEEE (Waste Electrical and Electronic Equipment) directive, which came into force on 13 February 2003, lead to a comprehensive change in the disposal of used electric products. It is the main purpose of this directive to avoid electric waste products (WEEE), while simultaneously promoting the re-usage, recycling and other forms of reconditioning in order to reduce the amount of waste. The WEEE logo on the product and the package shows that the product should not be disposed of with regular garbage. You are responsible for disposing all used electric and electronic devices at the corresponding collection sites. The separate collection and meaningful re-usage of electronic waste helps to deal with natural resources more economically. In addition, re-using electronic waste contributes to the preservation of the environment and human health. Additional information regarding the disposal of electric and electronic devices, their re-usage and the collection sites can be found at your local authorities, disposal companies, specialist shops and the manufacturer of the product.

### RoHS conformity

This product complies with the directive 2002/95/EC of the European parliament and the council from January 27th 2003 concerning the restricted use of dangerous substances in electrical and electronical devices (RoHS) as well as its modification. This product complies with the directive 2011/65/EU from January 3rd 2013.

### FCC Class

An FCC certification of radiation limits on digital devices. Class A certification is for business use. Class B, for residential use, is more stringent in order to avoid interference with TVs and other home devices. See Part 15, Subpart B, of the Federal Register (CFR 47, Parts 0-19).

### EU Import:

Tragant Handels- und Beteiligungs GmbH Beeskowdamm 13/15, 14167 Berlin, Germany