

NANO

Flight Recorder
(Including the NanoConfig Configuration Program)

Version 2.19



LXNAV d.o.o. • Kidričeva 24, 3000 Celje, Slovenia • tel +386 592 33 400 fax +386 599 33 522
info@lxnav.com • www.lxnav.com

| | | |
|-------------|---|-----------|
| 1 | Important Notices | 3 |
| 1.1 | Limited Warranty | 3 |
| 1.2 | Battery Information | 4 |
| 1.2.1 | Disposal of Old Electrical & Electronic Equipment | 4 |
| 1.2.2 | Disposal of Waste Batteries | 5 |
| 2 | Packing Lists | 6 |
| 3 | Basics | 7 |
| 3.1 | NANO at a Glance | 7 |
| 3.2 | Technical Data | 8 |
| 3.3 | Rocker Button | 8 |
| 3.4 | LEDs | 9 |
| 3.5 | NanoPower Cable | 10 |
| 4 | Operation | 12 |
| 4.1 | Powering On | 12 |
| 4.2 | Normal Operation | 12 |
| 4.3 | Battery Status | 13 |
| 4.4 | Powering Off | 13 |
| 4.5 | Security Void | 13 |
| 4.6 | Charging the Battery | 13 |
| 4.7 | Connecting to a Computer | 13 |
| 4.8 | Downloading Flights | 14 |
| 4.9 | Bluetooth Pairing | 15 |
| 4.10 | Storing the NANO | 15 |
| 4.11 | Replacing the Battery | 16 |
| 5 | Configuring the NANO | 17 |
| 5.1 | Uploading Flight Declarations | 17 |
| 5.1.1 | Using the NanoConfig Program | 17 |
| 5.1.1.1 | Pilot and Glider Information | 18 |
| 5.1.1.2 | Task Declaration | 18 |
| 5.1.2 | Using Bluetooth or Serial Interface | 18 |
| 5.2 | Changing Parameters | 19 |
| 5.2.1 | Flight Recording Interval | 19 |
| 5.2.2 | Automatically Finish Flight | 19 |
| 5.2.3 | Start Recording on Power On | 19 |
| 5.2.4 | Automatically Turn Off NANO When Flight is Finished | 20 |
| 5.2.5 | Bluetooth | 20 |
| 5.2.6 | NMEA Output | 20 |
| 5.3 | NanoConfig for Android Devices | 21 |
| 5.3.1 | Connecting and Pairing NANO | 21 |
| 5.3.2 | Main Page | 21 |
| 5.3.3 | Downloading Flights | 21 |
| 5.3.4 | Editing Pilot Information | 22 |
| 5.3.5 | Editing a Task for the Declaration | 22 |
| 5.3.6 | Configuring the NANO | 23 |
| 6 | Troubleshooting | 24 |
| 7 | Revision History | 26 |
| 1 | | |

1 Important Notices

The LXNAV system is designed for VFR use only as an aid to prudent navigation. All information is presented for reference only. Terrain, airports and airspace data are provided only as an aid to situation awareness.

Information in this document is subject to change without notice. LXNAV reserves the right to change or improve their products and to make changes in the content of this material without obligation to notify any person or organisation of such changes or improvements.



A Yellow triangle is shown for parts of the manual which should be read very carefully and are important for operating the system.



Notes with a red triangle describe procedures which are critical and may result in loss of data or any other critical situation.



A bulb icon is shown when a useful hint is provided to the reader.

1.1 Limited Warranty

This LXNAV product is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LXNAV will, at its sole discretion, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident, or unauthorised alterations or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL LXNAV BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. LXNAV retains the exclusive right to repair or replace the unit or software, or to offer a full refund of the purchase price, at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

To obtain warranty service, contact your local LXNAV dealer or contact LXNAV directly.

1.2 Battery Information

The NANO is powered by a rechargeable battery. The battery can be charged and discharged hundreds of times but it will eventually wear out. Only use the approved battery and recharge your battery only with approved chargers.

Unplug the charger from both the power supply and the device when not in use. Do not leave a fully charged battery connected to a charger as overcharging may shorten its life. If left unused, a fully charged battery will lose its charge over time. Use the battery only for its intended purpose. Never use any charger or battery that is damaged.

If the battery pack is mishandled, it can burst, cause a fire or even chemical burns. Observe the following precautions:

- Do not disassemble.
- Do not crush and do not expose the battery pack to any shock or force such as hammering, dropping or stepping on it.
- Do not short circuit or allow metal objects to come into contact with the battery terminals.
- Do not expose to high temperature above 60°C (140°F) such as in direct sunlight or in a glider parked in the sun.
- Do not incinerate.
- Do not handle damaged or leaking lithium-ion batteries.
- Be sure to charge the battery pack using the supplied battery charger or a device that can charge the battery pack.
- Keep the battery pack out of reach of small children.
- Keep the battery pack dry.
- Replace the battery pack only with the same or equivalent type recommended by LXNAV.
- Dispose of used battery packs promptly as described in these instructions.



1.2.1 Disposal of Old Electrical & Electronic Equipment

(Applicable in the European Union and other European countries with separate collection systems)



This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

1.2.2 Disposal of Waste Batteries

(Applicable in the European Union and other European countries with separate collection systems)



This symbol on the battery or on the packaging indicates that the battery provided with this product shall not be treated as household waste. By ensuring these batteries are disposed of correctly, you will help prevent potentially negative consequences for the environment and human health which could otherwise be caused by inappropriate waste handling of the battery. The recycling of the materials will help to conserve natural resources. In case of products that for safety, performance or data integrity reasons require a permanent connection with an incorporated battery, this battery should be replaced by qualified service staff only. To ensure that the battery will be treated properly, hand over the product at end-of-life to the applicable collection point for the recycling of electrical and electronic equipment. For all other batteries, please view the section on how to remove the battery from the product safely. Hand the battery over to the applicable collection point for the recycling of waste batteries. For more detailed information about recycling this product or battery, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

(Applicable for Customers in the U.S.A. and Canada)



Lithium-ion batteries are recyclable. You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you. For more information regarding recycling rechargeable batteries, call toll free 1-800-822-8837, or visit <http://www.rbc.org/>



Do not handle damaged or leaking Lithium-ion batteries.

2 Packing Lists

In the box you will find:

- The NANO flight recorder with the preloaded NanoConfig program and a user manual.



- A NanoPower cable



- A USB cable



- A Wall charger



- A Barogram calibration chart
- A Quick reference chart

3 Basics

3.1 NANO at a Glance

The NANO flight recorder is the smallest flight recorder designed in accordance with "All Flights" IGC specification. It has IGC approval for all flights including world records. It features an integrated 66-channel GPS receiver with built-in antenna, altitude sensor, ENL sensor, security micro-switch, Bluetooth module and an 1700mAh battery.

The internal battery allows up to 35 hours of stand-alone operation. The battery is charged when the flight recorder is connected to a computer, NanoPower or a wall charger.



Operation temperature for the NANO is from -20°C(-4°F) to +60°C(140°F). Higher temperatures may cause damage.

Bluetooth is used for easy data exchange with a PDA.



The housing is made of robust ABS plastic. On the left side there is a micro-SD card slot, rocker button and five status LEDs. The LEDs display the operational status.

A 2 GB SD card is used for flight data storage. Flights are stored directly in IGC format and are downloadable through a USB connection which is compatible with all operating systems (MS Windows, Linux and Mac OS).



On the right side there is small hole leading to a reset button. Use a pin to press the reset button. In normal operation, this button should never be used.



At the back there is a mini USB connector, which is used for charging and data transfer. The SD card is preloaded with the NanoConfig program, which is used for uploading flight declarations and changing the settings of the NANO. Flight declarations can be also uploaded using a serial interface cable or Bluetooth (see Chapter 5.1 for more details).

3.2 Technical Data

Hardware

- ARM7 core processor
- 4GBytes memory storage
- Three direction rocker button
- 66-channel GPS receiver
- Engine noise level sensor
- Pressure altitude sensor measuring up to 16000m

Input and Output

- USB interface (mass storage device)
- Integrated SD card reader
- Serial RS232 interface for PDA connection
- Bluetooth interface for PDA connection

Size and Weight

- Outline dimension: 66x43x23mm
- Weight: ~66g

3.3 Rocker Button

The rocker button has several actions; you can press it or move it up or down.



Press it and NANO flight recorder will power on. Press or move the rocker button for a long time and the NANO flight recorder will switch off. When flying press or move the button for a short time and a pilot-initiated event will be recorded and the flight recorder will then log 30 fixes with a recording rate of one per second.

At the same time the LEDs will indicate the battery status.























If you move the rocker button twice in direction towards the SD card, the NANO will toggle Bluetooth on and off.











3.4 LEDs

On the left side there are five LEDs; four green and one red. The LEDs show the status of the NANO flight recorder. During normal operation the first LED blinks when the NANO is powered on. The second LED blinks when the GPS status is ok. The third LED blinks when flight recording has started. The fourth LED blinks when the Bluetooth module is switched on.




The LED sequence after powering up the NANO via the rocker button is as follows (PWR-Power, BT-Bluetooth, Err-Error):

| PWR | GPS | LOG | BT | Err | Description |
|--|---|---|---|---|---|
| | | | |  | After pressing the rocker button. |
|  |  | | |  | One second later. |
|  |  |  |  |  | Startup sequence 1 OK. |
|  |  |  |  |  | Startup sequence 1 OK. |
|  | | | | | Power led blinks. |
| | |  |  |  | After short pressing of the rocker button up or down the battery level is indicated. |
| | | |  |  | If the rocker button is pressed for a long time, the NANO will turn off. The red and green LEDs will blink alternately. |

When the NANO is communicating with a PC via USB the LEDs will blink as follows:

| PWR | GPS | LOG | BT | Err | Description |
|-----|---|---|---|---|--|
| | | | | | NANO is off. |
| | | | |  | Connected to USB. |
| |  |  |  |  | Next second. |
| | |  |  |  | Next second (NANO is in USB mode). |
| | | |  |  | When USB is disconnected the off sequence will follow. |

(SD card error) The NANO is powered on via USB – only the reset button can turn the NANO off:

| PWR | GPS | LOG | BT | Err | Description |
|-----|---|---|----|---|----------------|
| |  |  | |  | SD card error. |

(SD card error) The NANO is powered on via the rocker button:

| PWR | GPS | LOG | BT | Err | Description |
|-----|-----|-----|----|-----|---|
| | | | | | After pressing the rocker button. |
| | | | | | One second later: SD card error (for 5 seconds). |
| | | | | | Startup sequence 1 OK. |
| | | | | | Startup sequence 1 OK. |
| | | | | | Power LED blinks. |
| | | | | | If the rocker button is pressed up or down for a short time the battery level will be displayed. |
| | | | | | If the rocker button is pressed for a long time, the NANO will turn off. The red and green LEDs will blink alternately. |

Digital signature failed:

| PWR | GPS | LOG | BT | Err | Description |
|-----|-----|-----|----|-----|---------------------------|
| | | | | | Digital signature failed. |

3.5 NanoPower Cable

The NanoPower is a special device which converts a 12V power supply to 5V for a NANO and PDA. It also translates serial signal levels to match the NANO signal level and PDA or computer signal level.



Connect the red and black wires to a 12V power supply.



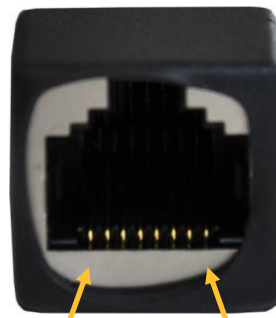
Maximum input voltage is 24 Volts.

The NanoPower has two plugs. On one side there is a standard USB-A connector. Use the included USB-A to mini-USB cable and plug the NANO into this side. Any standard USB-A to mini-USB cable is suitable. On the other side there is a RJ45 plug. This plug is designed for a PDA or a computer.



The RJ45 plug is NOT designed in accordance with the IGC standard. It can be used only with dedicated cable. Do not plug any unknown cable into it as it may damage the NanoPower circuits.

The pin description of the NanoPower RJ45 is given on the picture below.



1 2 3 4 5 6 7 8
Pin numbers

| Pin Number | Description |
|------------|--|
| 1,2 | Ground |
| 3 | (output) Transmit from NANO RS232 (e.g. computer, LX7000). |
| 4 | (input) Receive to NANO RS232 (e.g. computer, LX7000). |
| 5 | (output) Transmit from NANO TTL (e.g. Oudie, HP302). |
| 6 | (input) Receive to NANO TTL (e.g. Oudie, HP302). |
| 7,8 | 5V OUTPUT (maximum 1A) |

Available cables for the RJ45-port:

| Device | Order Nr. |
|-----------------------------|---------------|
| LOUDIE | CC-NP-LOUDIE |
| Normal RS232 | CC-NP-232 |
| IPAQ 310/314 | CC-NP-IPAQ310 |
| IPAQ 38/39xx and compatible | CC-NP-38 |
| MiniMap | CC-NP-LX |
| Butterfly Connect | CC-NP-BFC |

4 Operation

There are two modes of operation: **Data transfer** mode and **Normal operation** mode. When in **data transfer mode**, flights can be downloaded and NanoConfig can be run. **Normal operation** mode is when logger is ready for recording flights. The mode in which the NANO is operating can be determined from the LEDs. In **data transfer mode** the last two or three green LEDs will be permanently lit whereas in **normal operation mode** up to four LEDs will be blinking. See Chapter 4.2 for a detailed explanation of each LED.

4.1 Powering On

There are three ways to power on the NANO flight recorder.

Press the rocker button and the NANO will power on and will go directly into normal operation mode. The LEDs will first perform a self-test blinking from left to right and then the NANO will go to normal operation mode as indicated on the LEDs.

Connect the NANO to a computer using a USB cable. It will automatically power on and the last two or three LEDs will light up. This indicates that the NANO flight recorder is in data transfer mode. You may now run NanoConfig or copy flights using standard methods for copying files.

Connect the NANO to NanoPower. It will automatically power on and after approximately 20 seconds the NANO will perform a self-test with blinking LEDs from left to right and then it will go to normal operation mode as indicated on the LEDs.



If you press or move the rocker button when in data transfer mode, the NANO will revert to normal operation mode.

4.2 Normal Operation






















During normal operation the first LED blinks when NANO is powered on. The second LED blinks when GPS status is ok. The third LED blinks when flight recording is started. The fourth LED blinks when the Bluetooth module is switched on.



The fifth LED is red and indicates an error. See Chapter 6 for more details.

4.3 Battery Status

When you press the rocker button for a short time the LEDs will show the battery status. If all the LEDs are on it means that the battery is fully charged. During operation as each LED goes out it means 20% less battery capacity remains. Detailed explanation of the LEDs is given in the table below.

| PWR | GPS | LOG | BT | Err | Description |
|---|---|---|---|---|-------------|
|  |  |  |  |  | 100% |
|  |  |  |  |  | 95% |
| |  |  |  |  | 80% |
| | |  |  |  | 60% |
| | | |  |  | 40% |
| | | | |  | 20% |
| | | | |  | 5% |

4.4 Powering Off

Hold down the rocker button and the red LED and the adjacent green LED will start blinking. Once you see this you may release the button.

4.5 Security Void

When the security (secret key) is lost at power on the red light will be on and the remaining four green LEDs will start blinking. To continue press or move the rocker button for a longer period.



In order to produce IGC-certified files the NANO flight recorder must be returned to the dealer or manufacturer for resealing.

4.6 Charging the Battery

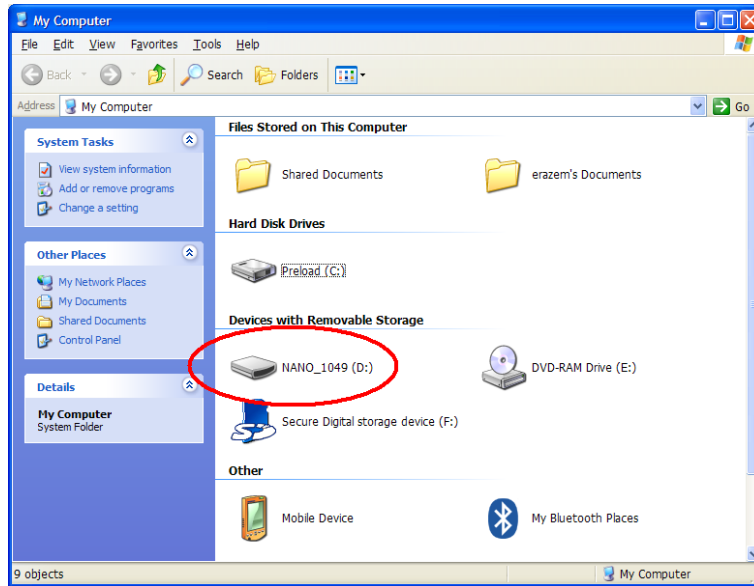
The battery is charged when the NANO is connected to external power via a USB port. It can be charged from a wall adapter or directly from a PC or from NanoPower.

If you want charge faster, you must connect the NANO to a power supply, wait for it to boot up and then press the rocker button to switch off. In this mode all NANO functions (GPS, Bluetooth, Memory) are off, which increases the charging speed. In this mode the NANO LEDs indicates the battery charge level. See also Chapter 4.3.

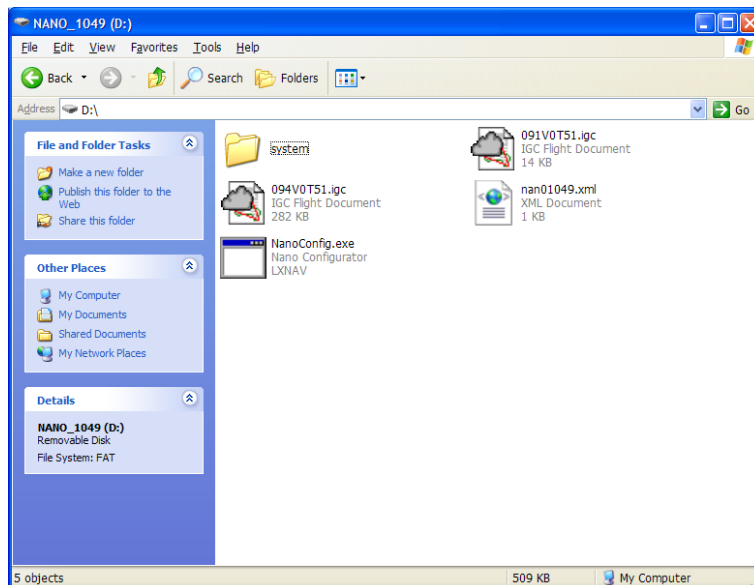
4.7 Connecting to a Computer

The NANO must be turned off before it is connected to a computer.

Connect it to a computer using the supplied USB cable or any other standard USB-A to mini-USB cable. The NANO flight computer will be identified automatically and a new removable storage device will be indicated. The name of device will be NANO_<SERIALNUMBER>.



Open this device to see its content:



In the root folder you will find flights created by the NANO and the NanoConfig program. The NanoConfig program will run only on Microsoft Windows operating systems. Double click to run it.



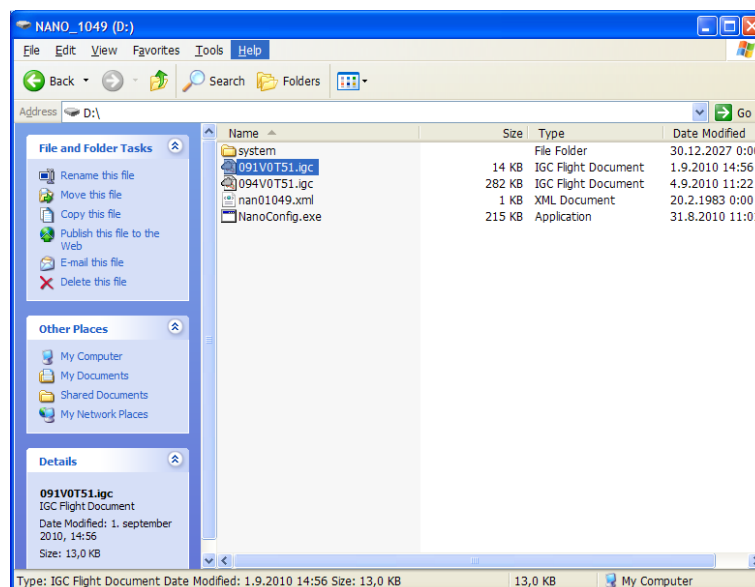
On the first connection of the NANO to a computer it may not be recognized immediately. Disconnect the NANO from the computer and connect it again in order for it to be recognized.

4.8 Downloading Flights

Turn off the NANO and connect it to a computer using a USB cable. Navigate to the root folder of the NANO and use your preferred method of copying files.



We recommend that you always copy your flights to a hard disk in order to have a backup in case of SD card failure.



Flights are stored in files with the IGC standard filename. If you find it difficult to decode this standard, we recommended that you switch to detailed view to see the date of the file. In the detailed view the file date and time show the landing time of the glider.



It is strongly recommended that you do not remove the SD card from the NANO to download flights. Use the USB cable to download flights from the NANO. The SD card should only be removed if it is malfunctioning.

Flights can be also downloaded using NanoConfig for Android devices. More details are in Chapter 5.3.

4.9 Bluetooth Pairing

In order to connect to the NANO via Bluetooth you have to search on a PDA for devices within range (see Chapter 5.2 for how to enable Bluetooth). The NANO will be identified as LXNAV-NANO-<SERIALNUMBER>. Click PAIR or CONNECT to connect to the NANO. A security pin must be entered. The pin code for the NANO is 1234 or 0000 and cannot be changed.

4.10 Storing the NANO

The NANO must be stored in a dry environment with temperature not exceeding 25°C (77° F).

If the NANO will not be used for an extended time it is recommended that you charge the battery fully beforehand.

In the NANO and the battery are protection circuits which protect the battery from being overcharged or overly discharged. If the NANO is stored with an empty battery eventually the battery will be discharged so far that it will not be possible to charge it. The reason is the internal circuitry, which protects the battery against being overly discharged.

4.11 Replacing the Battery

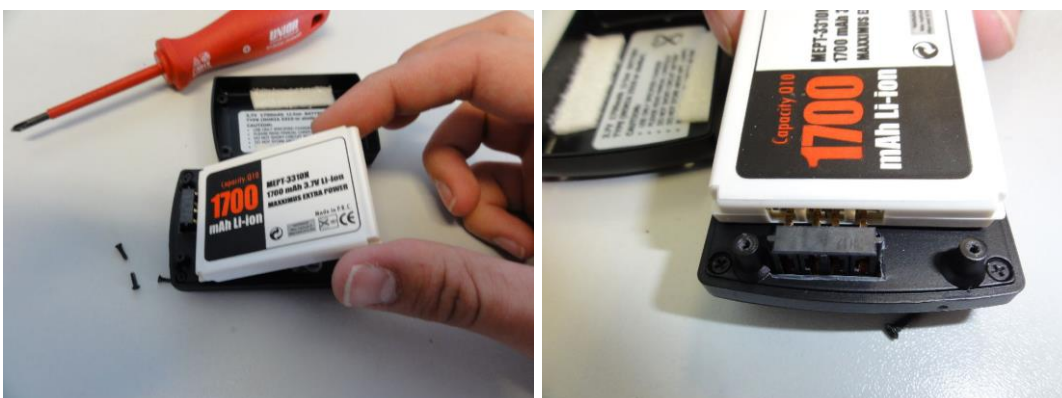
The battery can be replaced by the user. You will need a Philips screwdriver. Unscrew the three screws:



Open the cover and remove the battery:

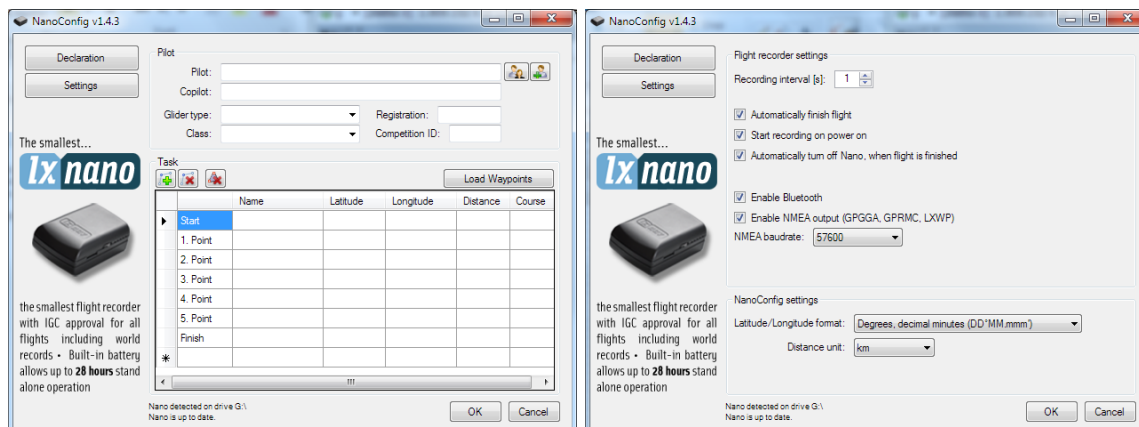


Insert a new Nokia 3310 battery (Li-Ion). Make sure that the contacts are properly aligned. Close the cover and carefully screw back the three screws:



5 Configuring the NANO

Use the NanoConfig program to configure the NANO. A flight declaration can be uploaded or various parameters can be modified using the program. The NanoConfig program consists of two major screens – the flight declaration screen and the settings screen:



You may toggle between these two screens by pressing the **Declaration** or **Settings** button in upper left corner of the NanoConfig program.

Press the **OK** button to confirm changes and exit from the program. Press **Cancel** to abandon changes and exit without saving data.



It is important to run the NanoConfig program directly from the NANO. Do not copy the NanoConfig program to another location as settings and declarations will not be written properly to the NANO.

The version of the program is written in the lower left corner of the NanoConfig window. When requesting support from LXNAV or reporting a bug please always include the version of the program in your email.



All NANO configuration variables are stored in the SYSTEM folder of the NANO in a file named "system.ini". It is strongly recommended that you do not modify this file yourself. If you need more information about the "system.ini" file please contact us.

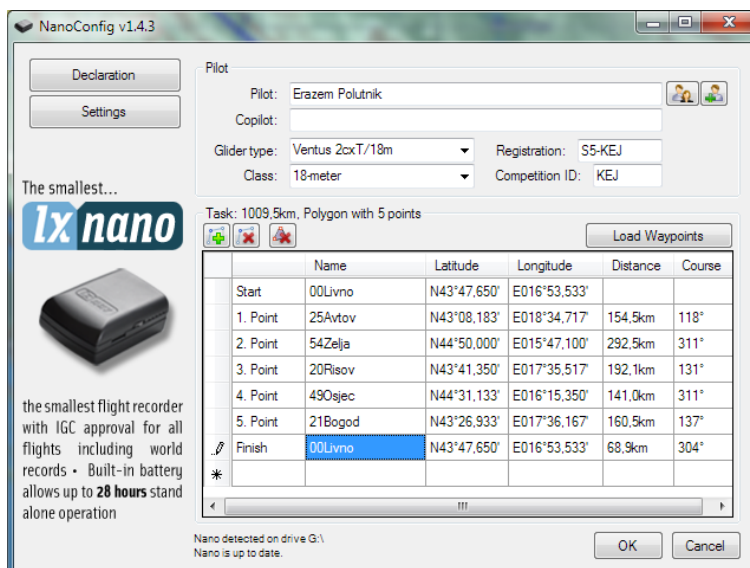
5.1 Uploading Flight Declarations

Flight declarations can be uploaded to the NANO in three different ways; using the NanoConfig program, Bluetooth or the serial interface

Declarations are stored in the SYSTEM folder in a file called **decl**. The declaration file is formatted as a standard IGC header file. It is recommended that you do not try to modify this file yourself.

5.1.1 Using the NanoConfig Program

Start the NanoConfig program and go to the declaration screen which is split into two groups. The Pilot and glider-related information is in the top group and the task declaration is shown in the bottom group.



5.1.1.1 Pilot and Glider Information

Enter pilot and glider information in the pilot section. In the top right you will find two icons; the first icon will show a list of stored pilot information and the second will add current pilot information to the list:

| Pilot | Copilot | Glider type | Registration | Class | Competition ID |
|-----------------|---------|-------------|--------------|----------|----------------|
| Erazem Polutnik | | LS8-18 | S5-3118 | Standard | EJ |
| Mitja Spes | | EB 28 | S5-KKM | Open | MS |
| Uros Krasovic | | HPH 304 | S5-JET | 18-meter | UK |

5.1.1.2 Task Declaration

Before creating a task you have to load the waypoints from which the task will be created. Press the **Load Waypoints** button to load waypoints. Waypoints can be loaded from a file in CUP format. Once waypoints are loaded you can create a task by entering the names of the waypoints. Use the icons in the upper left corner of the task declaration group to add or delete a point or to clear the whole task. Task way points can also be deleted by pressing the DEL key or can be inserted by pressing the INS key.

5.1.2 Using Bluetooth or Serial Interface

Flight declarations can also be uploaded using the serial interface or Bluetooth (see Chapter 4.9 for Bluetooth pairing). The NANO must be running in normal operating mode. The protocol used for uploading the declaration is same as used for Colibri, LX20, Posigraph or any other LX loggers.

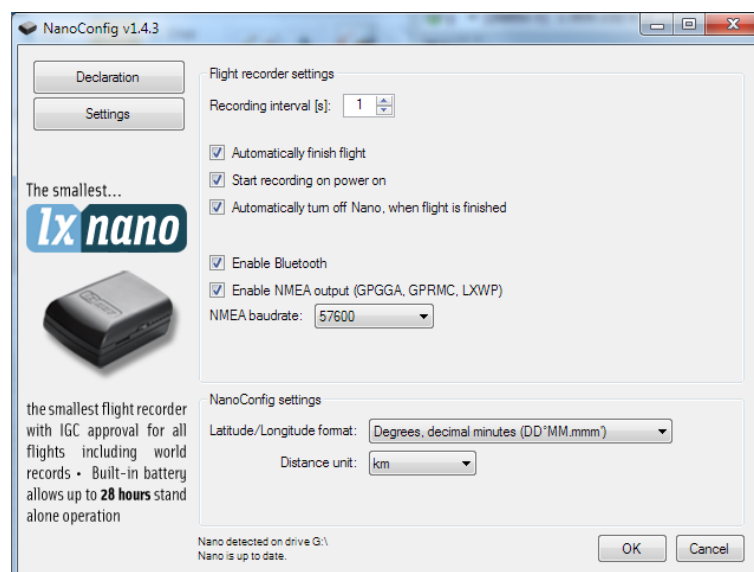


When connecting through the serial interface you should use the same baud rate as is set for the NMEA output on the NANO. When connected through Bluetooth baud rates are not important.

Please refer to the manual for the software used to upload flight declarations (e.g. SeeYou Mobile, pocket*Strepla, Winpilot, FlyWithCE).

5.2 Changing Parameters

Run the NanoConfig program and go to the settings screen which is split into two sections – settings dedicated to the NANO and settings for NanoConfig:



Parameters for the NANO include recording interval, NMEA output and Bluetooth enable settings.

Within NanoConfig you can change the distance units used in the task declaration and the format of latitude and longitude.

5.2.1 Flight Recording Interval

The flight recording interval is set to one second by default. It is recommended that you keep this setting. Even with the recording interval set to one second, the NANO is capable of storing approximately 14000 hours of flight. Having a recording interval of one second will allow you to carry out more accurate post-flight analysis and increases the probability of obtaining a data point in the observation zone.

If you wish to change these settings, use the up/down arrow or type a new value.

5.2.2 Automatically Finish Flight

If this option is enabled flights will be automatically finished and digitally signed once conditions for finishing flight are met. The NANO must fulfil the following conditions for 30 seconds: GPS status is ok, ground speed is below 4m/s, vertical speed is within 0.2m/s and altitude is below 3000m.

5.2.3 Start Recording on Power On

If this option is enabled, recording of a new flight will be automatically started when the NANO is powered on. If this option is disabled the NANO will start recording when the vertical speed is above 1m/s and ground speed is above 8m/s. This option is mostly useful for paragliders.



When this option is enabled, the option **Automatically finish flight** is ignored and also **automatically turn off** will not work.

5.2.4 Automatically Turn Off NANO When Flight is Finished

This option is very useful when a NANO is more or less permanently installed in the glider. If this option is enabled, the NANO will automatically switch off 30 minutes after the flight is finished.



This option will work only if **start recording at power on** is disabled.



This option can be used only when a NANO is permanently connected to an external power supply. It turns on when the external power supply is present and turns off after 30 minutes if no external supply is present and the flight is finished.

5.2.5 Bluetooth

Check the **Enable Bluetooth** checkbox if you want to turn it on. Bluetooth is disabled by default.



When Bluetooth is enabled, the NANO will consume more power and the total endurance of a new and charged battery will reduce to approximately 14 hours. When Bluetooth is enabled there will be no output on the wired serial interface and task declarations can only be uploaded via Bluetooth.

5.2.6 NMEA Output

Check **Enable NMEA output** to output NMEA data. The NANO will transmit the NMEA sentences GPGGA; GPRMC, LXWP0 every second and LXWP1 once per minute.

NMEA can be output to either the serial interface or Bluetooth but not to both simultaneously.

Change the NMEA **baud rate** if you want to output NMEA at different baud rates.

5.3 NanoConfig for Android Devices

NanoConfig is the configuration tool for NANO which can be downloaded from the LXNAV web site or Google Play Market. The user can easily modify flight recorder parameters, edit pilot and glider information, edit the declaration and transfer flights from the NANO to a smart phone.



NanoConfig consists of four tabs: Main, Logbook, Pilot, Task and Settings.



NanoConfig will work only with NANO version 2.03 or higher.

5.3.1 Connecting and Pairing NANO

When we run NanoConfig on a smart phone the program will first ask you to turn on BlueTooth if it is not already turned on.

The menu button provides access to the scan function which will scan for BlueTooth devices. If the NANO is turned on and BlueTooth functionality in the NANO is enabled, it will appear on the scanned list. Choose NANO. The first time it will be necessary to pair the NANO and the Smart Phone. More about pairing is written in Chapter 4.9.

5.3.2 Main Page

The main tab provides information about the NANO and its GPS status.

5.3.3 Downloading Flights

The first time you access this tab, NanoConfig will automatically start reading the logbook of the flights within the connected NANO. Downloading always goes from the most recent to

the oldest flight. If you have a lot of flights in the NANO's memory, the transfer of the logbook can be interrupted via the BACK button.

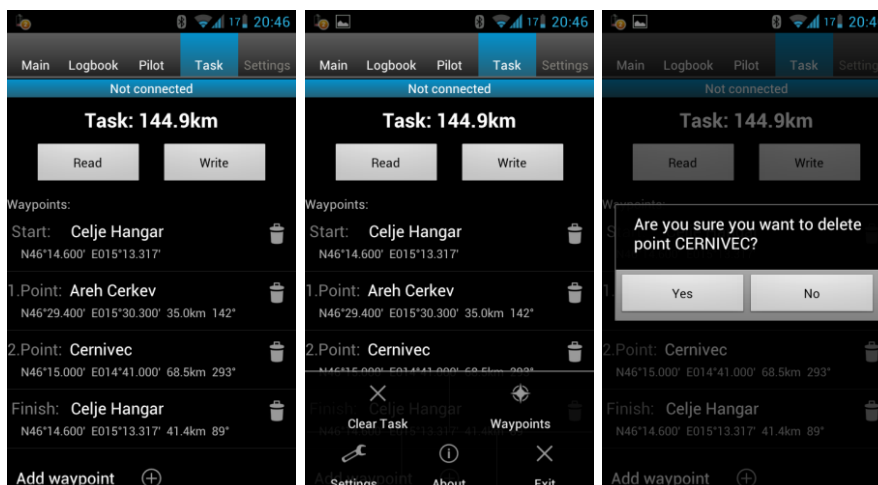



After the downloading of logbook data is finished a short press on the desired flight will start the download process. If the flight size is big, the download may take more than minute. Flights are downloaded into the NanoConfig folder. With a long press on the flight the downloaded flight can be shared with other applications installed on your smart phone (Gmail, SeeYou (not available), OLC (not available), Google Docs, Facebook).

5.3.4 Editing Pilot Information

The Pilot tab can be used to edit information about the glider and crew.

5.3.5 Editing a Task for the Declaration



Editing the task is very simple. First is necessary to choose a waypoint file in CUP (SeeYou) format. To select the CUP file, use the MENU button. On some devices you must press the menu button  for a long time. Press the Add waypoint button to add the waypoint to the last position. A long press on the waypoint will offer an option to insert a waypoint. On the right-hand side of waypoint name is the trash box. Press the trash box to delete the waypoint from the list. After a task has been entered, it can be transferred to the NANO by pressing the Write button.

5.3.6 Configuring the NANO

In this tab the recording interval, automatic power off and NMEA settings can be configured.

6 Troubleshooting

Q: My computer does not recognize the NANO as a USB mass storage device.

A: Make sure that that the NANO is turned off before connecting to computer.

Q: My flight has no security.

A: Switch off the NANO for five minutes and turn it on for normal operation. If the flight is still not secure contact us.

Q: When I power on I see all green LEDs blinking and the red LED is illuminated.

A: This means that your flight recorder has lost security. Contact us for further assistance.

Q: When I power on I see one green LED and the red LED is illuminated.

A: There is a problem with the SD card. We recommend that you eject the SD card and format it on your PC.

Q: Is the internal Li-ion battery for the NANO end-user replaceable or do I need to send the unit back to LXNAV or a dealer to have the battery replaced?

A: The user can replace Li-ion Battery. See Chapter 4.11.

Q: I can't read the NANO on my notebook.

A: Change the power management scheme on your notebook or connect the notebook to a power supply.

Q: When I connect the NANO to my notebook, the message "USB device connected" appears, disappears, appears again, etc. from the laptop screen.

A: Change the power management scheme on your notebook or connect the notebook to a power supply.

Q: Can I open files from the NANO on an Apple computer?

A: Yes.

Q: I run Ubuntu on my laptop so cannot run NanoConfig.exe.

A: NanoConfig is a Windows application which runs only on windows operating system.

Q: Can I declare a task with an OUDIE?

A: Yes, a declaration can be done via serial cable or over BlueTooth. Please read the step by step instructions:

<http://www.lxnav.com/downloads/manuals/FAQ Upload declaration from OUDIE%20to%20NANO.pdf>

Q: My NANO will not turn off or function. It is displaying from left to right: no light, green light, green light, no light, red light. How can I fix this?

A: That combination of LEDs appears only in case of an SD card error. That happens only if the SD card is not inserted properly in socket, where it is hard to eject it. Now you must remove the SD card and insert it back, then everything should be ok. To turn off the NANO from this situation the only way is to use the reset button with a paperclip or similar device.

Q: When I run NanoConfig I see errors.

A: Probably Microsoft Net Framework is not installed on your computer.

Q: I have previously used the NANO on several flights and it worked beautifully and gave good detail of the flights I made. It seems to have developed a problem where it no longer obtains GPS data. When I turned it on, the following lights were illuminated on the NANO: 2nd Light from the left (GPS), 3rd Light from the left (Flight Recorder), 5th Light (Red) indicating a problem. None of the lights are flashing - they are fixed solid. I am also unable to turn the unit off.

A: The SD card is not inserted properly. Use a paperclip to reset the NANO.

Q: When I press the rocker button for a few seconds to power up the unit, sometimes it does not do anything.

A: You must push harder to turn on NANO. The button is intentionally made like this in order to prevent accidental power ups.

Q: I did not figure out how to start recording by moving the rocker button, it shows battery charge and goes back to displaying the power+GPS LEDs. Am I doing something wrong?

A: Recording can be started only if you are moving faster than 40km/h, or vario is present. The rocker button function is only to check the battery or event (short press) or a long press for switching off.

7 Revision History

| | |
|----------------|---|
| September 2010 | Initial release of owner manual |
| April 2011 | Updated manual Detailed LED description (Chapter 3.4) Updated FAQ |
| September 2011 | Updated NanoConfig and changes for version 2.0 |
| December 2011 | Charging NANO battery (Chapter 4.6) |
| May 2012 | NanoConfig for Android (Chapter 5.3) Storing NANO (Chapter 4.10) |
| January 2015 | Table of available cables for NanoPower port Corrections |
| August 2016 | Updated chapters 5.2.3 and 5.2.4 and 3.4 |
| February 2017 | Updated chapter 5.3.5 |
| May 2018 | Corrections to English language text. |
| March 2018 | Updated chapter 4.9 |