iNode Nav

Instruction manual

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1. About iNode

We would like to introduce a family of iNode devices working in the Bluetooth Low Energy ®. We will show you that it's not just tags to find lost keys, whether location tags, but still something more.

Our devices are capable of:
- these are mainly battery device.
- work without battery replacement for up to 12 months, depending on the type of application and usage.
- have memory for logging events, readings of measurements, etc.
- contain precise temperature, humidity sensors, accelerometer or magnetometer which allow home automation control, care of older persons or vehicle detection.
- as a remote control device, although a small power consumption, have a large range and features unavailable to other competitive facilities - password protection, AES encryption, control directly from the smartphone with BT 4.0.
- a unique encryption technology ensures the safety of the JPEG images recorded by our cameras.
- BT4.0 - LAN or BT4.0 - GSM gateways connect iNode sensors with the Internet.

iNode can also help to control the movement of people or goods, saving the time of appearance and disappearance (active RFID ® long range). New features related to the development of the product is also not a problem – this allows to remote firmware update with PC or smartphone with Bluetooth 4.0 ® and Low Energy Bluetooth enabled ® (Smart Bluetooth ®).

iNode Nav is a wireless BT4.0 motion and magnetic field sensor with a built-in memory of events. Provides the location of objects in motion. It has a built-in 14 bit 3-axis accelerometer and 16-bit 3-axis magnetic sensor. Thanks to the fact that the state of the accelerometer and magnetometru can be sent in a broadcast frame, up to 25 times per second by their simultaneous reception in several places it is possible to determine the orientation of the **iNode Nav** quickly and precisely. To receive the data sent by the **iNode Nav** you can use **iNode LAN** or **iNode Serial Transceiver**.
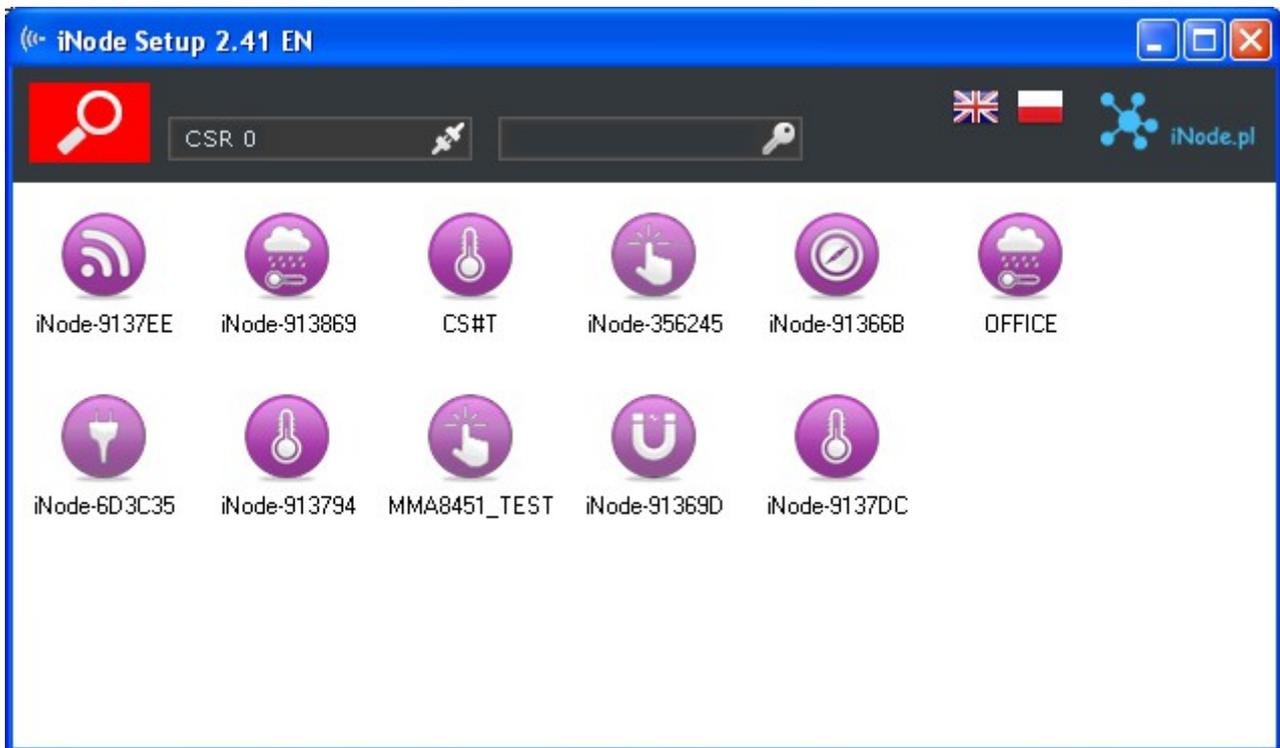
2.   iNode Nav

Install application **iNode Setup** and BT4.0 drivers on PC. Next run **iNode Setup** application (on Windows 7 to 10 with administrative rights), and press the red button with magnifying glass picture. If a BLE device you want connect to is password protected you should type the password in the text box with a key 🔑If you press the button 🔌 you can change the type of adapter which will be used to communication – standard BT4.0 adapter (signed CSR …), **iNode Serial Transceiver** (signed COM ...) or **iNode LAN** (signed the name of the device).

In case the application cannot start or system error you should try to install **Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package MFC Security Update** from that page: http://www.microsoft.com/en-us/download/confirmation.aspx?id=26347.

iNode Setup will find all nearby iNode devices and sort them regarding receiving signal strength. Each type of iNode device has a different icon. For **iNode Nav** it is the first picture in the first row in the window below.

To configure **iNode Nav** device you should double click on its icon. Application connects with this device and reads its settings:
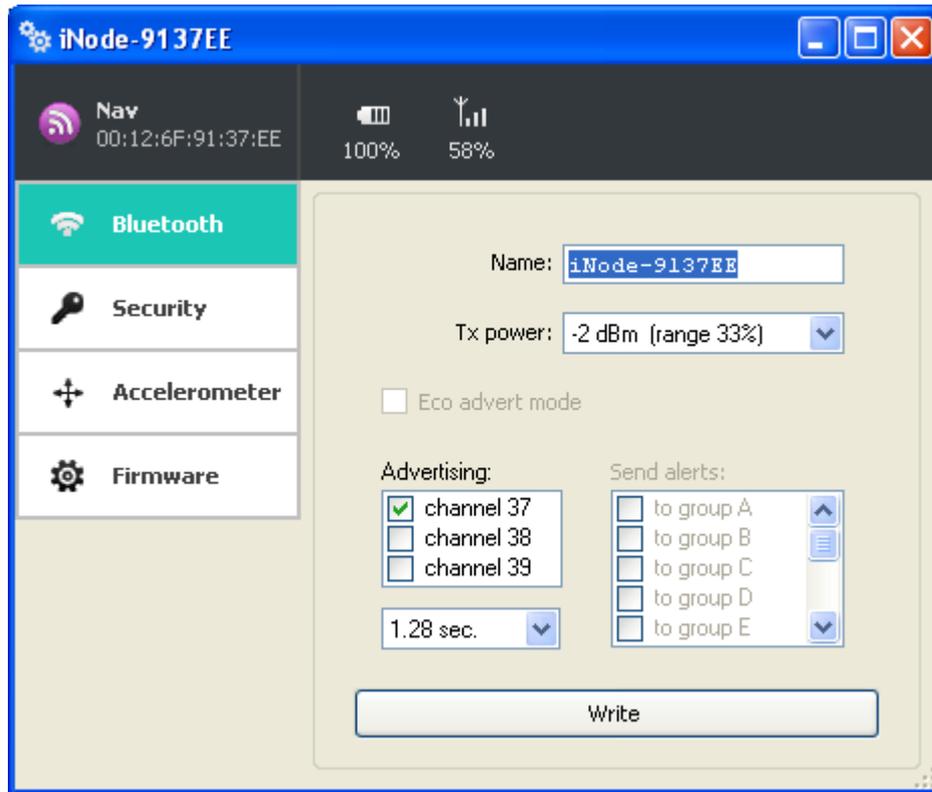
At the top of the window there is displayed following information:
- the name of the **iNode** family – in this case **iNode Nav;**
- the unique device identifier;
- battery level: 100% means 3V or greater, while 0% it is 1,8V;
- signal strength received by this device from the BT4.0 adapter or iNode LAN;

At the **Bluetooth** tab there are following items:
- **Name**: you can change default device name typing a new one in this text box. Its length is 16 characters maximum.
- **Tx power**: determine the power the device broadcasts and simultaneously the range the device can be scanned. If **iNode LAN** has set the scan range *~200m*, and **iNode Nav** has set the broadcast power *-2dBm range 33%* then effective distance from which the device can be scanned is equal *200m*0,33=66m*.
- **Advertising**: you can chose the channels the **iNode Nav** broadcasts advertising frames. This way the battery life can be extended but device can be more difficult to scan. Additionally the advertisement interval can be chosen. This time determine how fast you can connect with the device.

You can save modified settings by pressing the **Write** button.

The picture below shows the **Security** tab:
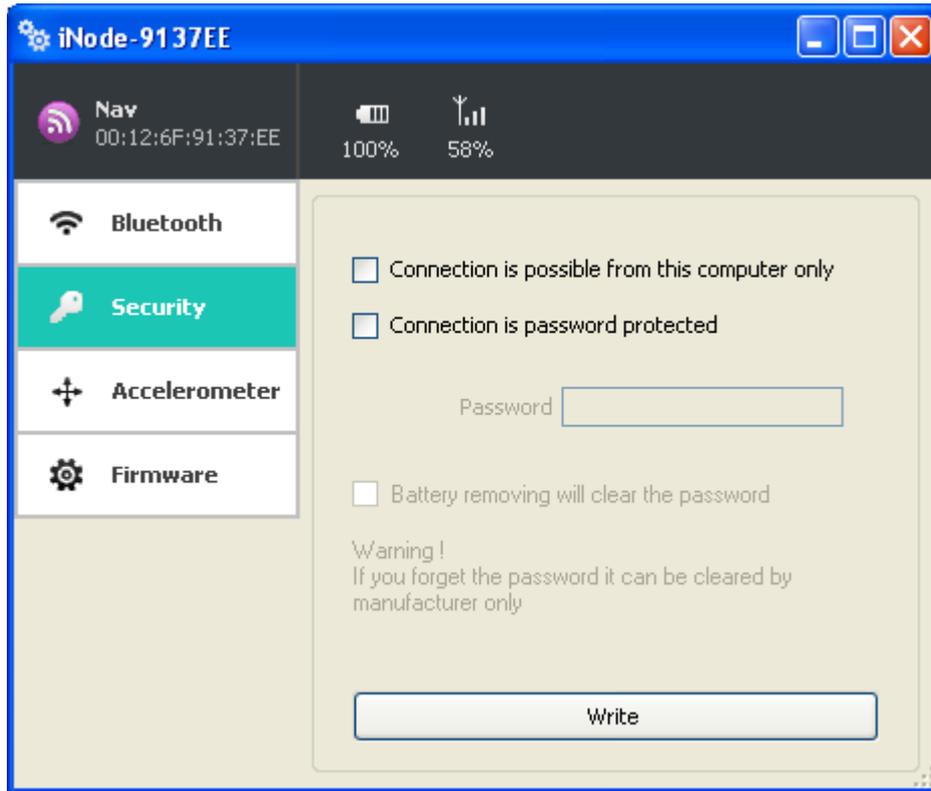
The following items can be set:
- **Connection is possible from this computer only**: this option enable you to protect the **iNode Nav** access from others PCs or phones. You can reset this protection by battery removing for at least one minute.
- **Connection is password protected**: access to the **iNode Nav** is password protected. Password length is 16 characters maximum.
- **Battery removing will clear the password**: if you unchecked this option than please remember that if you forget the password it can be cleared by manufacturer only.

You can save modified settings by pressing the **Write** button.

The picture below shows the **Accelerometer** tab:
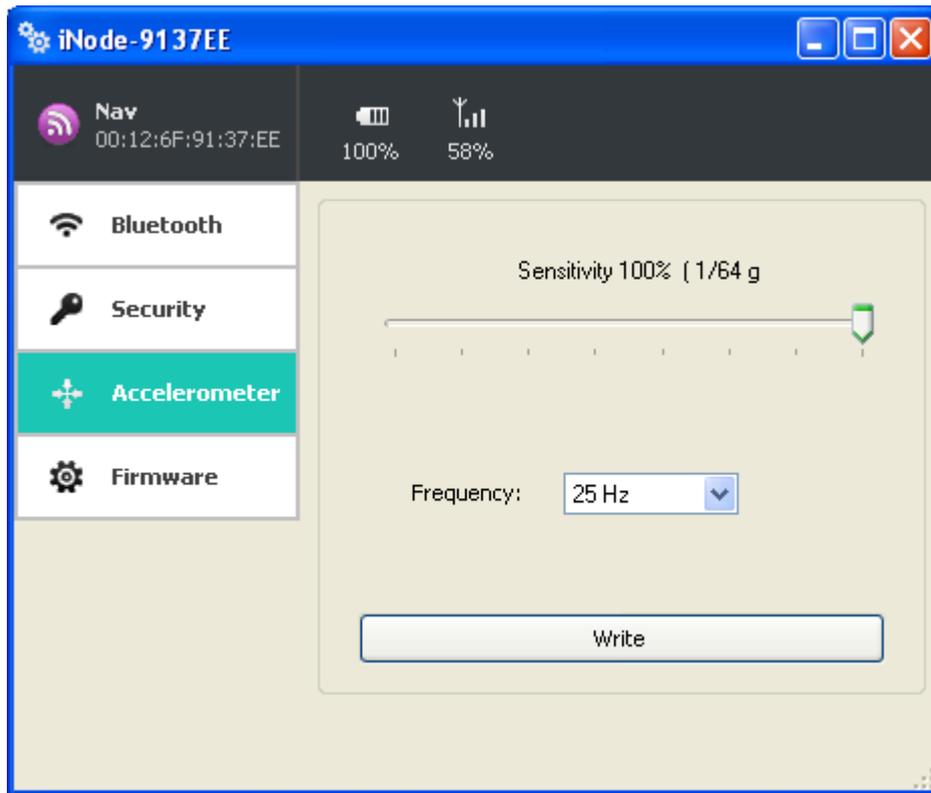
The following items can be set:

- **Sensitivity**: is expressed as a percentage of the accelerometer sensitivity: 100% the highest, 1% the lowest.
- **Frerquency**: you can change here how the advertisement frames are sent from device in case of movement.

You can save modified settings by pressing the **Write** button.

The picture below shows the **Firmware** tab:
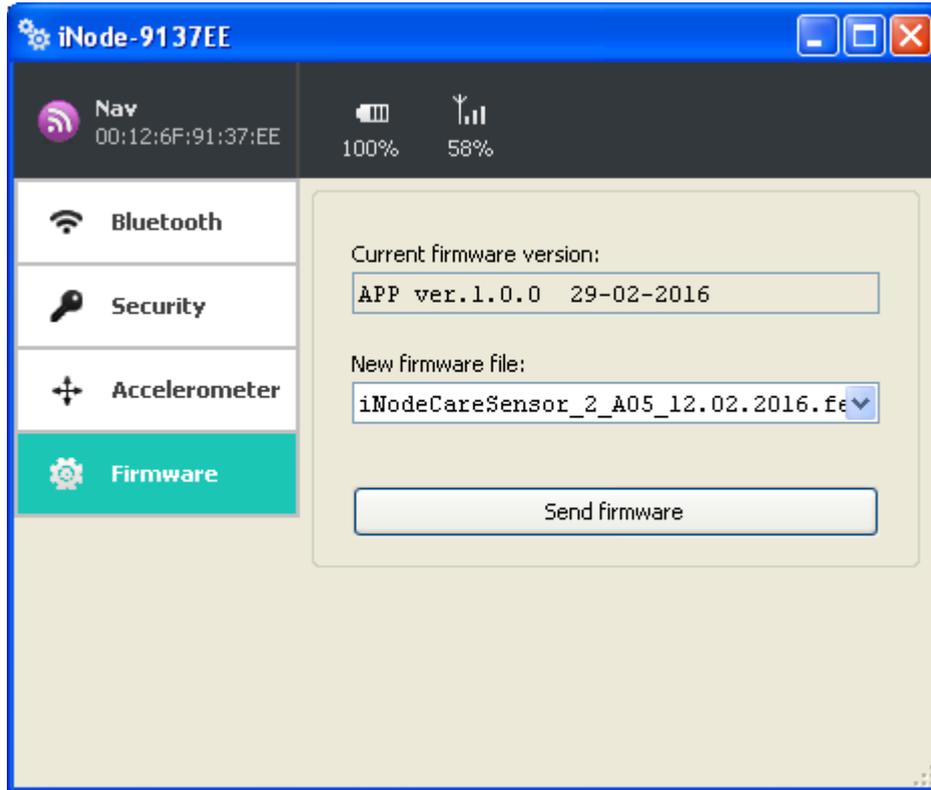
Current firmware version field shows the version and creation date of the firmware in the device.

To change the firmware in the device first select **New firmware file**.

Firmware is uploaded to the device after clicking **Send firmware** button. Application checks if this firmware is correct for this type of device to avoid situation that we want to upload the firmware which needs the button to be pressed for broadcasting in the device but this device doesn't have it.

The *fep* files with the firmware, manuals or other information you can find at our technical support: http://support.inode.pl/ user: *inode* no password.

3. Battery replacement

The CR2032 battery from **iNode Nav** should work up to 6 months. So really the speed of consumption depends on many factors such as operating temperature, frequency of collaboration with the PC or Smartphone (reading the recorded data), set the transmit power level, etc. Characteristics of the battery voltage as a function of time is over a long period of time, practically flat. Only at the end of the battery voltage begins to decrease sharply, and its internal resistance, which leads to rapid consumption.

In order to replace the battery:

1. Open the cover:
    > The iNode cover can be opened without the use of tools. The most comfortable way to do it like the walnut shell opens. Simply insert into the gap between the two parts of the casing nails of thumbs and opens it. Inside there is a printed circuit board, with the metal battery holder.
2. Remove the circuit board from the enclosure:
    > The battery is inserted into the holder on the side. It can not be removed if the plate is located in the housing.
3. Pull out the holder the old battery.
4. Insert the new battery:
    > The battery like a coin has two sides. On one of them there is a large "+" sign and usually the name of the manufacturer. The other party usually has no markings. Insert the battery so that the side marked "+" touches with metal handle (it has also the "+" sign). If the operation was carried out correctly the LED should start flashing.
5. Insert the circuit board into the housing:
    > The printed circuit board is not perfectly round has a slight chamfer on one side. Suits him a little bulge inside the case. By inserting the plate into the housing, pay attention to these two items were facing each other.
6. Close the cover:
    > On one of the parts of the enclosure there is a pin. You need to set it up so that it was in the vicinity of the beheading described in the previous paragraph. Only with this setting the cover will close properly

4.   Technical information

Bluetooth Low Energy:
- configurable from your PC:
    - the power with which the device operates in the range of-18 dBm + 8 dBm (maximum range up to 200 m in open space);
    - the name of the device;
    - accelerometer sensitivity;
    - the period of sending advertisement frames in case of movement;
    - the password of the user;
    - the password to access the device; independent of the user's password, the password for the authorization application on the smartphone or PC (protects against its copying and use by another client);

Power supply:
- the battery CR2032;

Housing:
- plastic;
- dimensions: Ø 32 mm x 9.5 mm;

Other:
- remote firmware update;
- counterfactual firmware: iNode Care Sensor #5;
- two LEDs;
- 14-bit motion sensor, 3-axis accelerometer;
- temperature sensor with a resolution of 1 °C;
- operating temperature: from -30 to 65 °C;
- humidity: 20-80 % RHG;
- weight: 5 g;

Additional magnetic field sensor FXOS8700:
- sensitivity:
    - from 1μT to 1200 μT;
- type:
    - 16 bit, 3-axis;
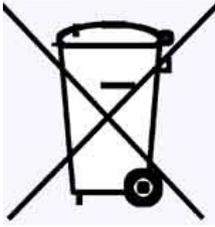
Equipment:
- the battery CR2032;

Software:
- Windows XP/Vista/7.0/8.0/8.1/10.0;
- Linux;

Chipset:
- CSR 101x;

5.   Disposal

All the packaging materials are recyclable and are labeled as such. Dispose of the packaging in accordance with local regulations. Keep the materials out of children reach, as the materials can pose a hazard.

Proper disposal:
- According to WEEE Directive (2012/19/UE) the crossed-out wheelie bin symbol (shown on the left) is used to label all electric and electronic devices requiring segregation.
- Do not dispose of the spent product with domestic waste: hand it over to an electric and electronic device collection and recycling point. The crossed-out wheelie bin symbol placed on the product, instruction manual or package communicates this requirement.
- Plastics contained in the device can be recycled in accordance with their specific marking. By recycling materials and spent equipment you will help to protect the environment.
- Information on electric and electronic devices collection locations is available from local government agencies or from the dealer.
- Spent or fully discharged single-use and rechargeable batteries must be discarded in dedicated labeled bins, handed over to hazardous waste collectors or returned to electric equipment dealers.

DECLARATION OF CONFORMITY 3/6/2015

(according to ISO/IEC Guide 22)

Producer: **ELSAT s.c.**
Address: Warszawska 32E/1, 05-500 Piaseczno k/Warszawy POLAND

Declares that the product:
Product: ***iNode Nav***
Model: **iNode:0x0807**

Conforms to the following Product Specifications and Regulations:

PN-EN 60950-1:2007/AC:2012
PN-ETSI EN 301 489-1 V1.9.2:2012
PN-ETSI EN 301 489-3 V1.6.1:2014-03
PN-ETSI EN 301 489-17 V2.2.1:2013-05
PN-ETSI EN 300 328 V1.8.1:2013-03
PN-EN 62479:2011/Ap1:2013-07

The product herewith complies with the requirements of the Low Voltage Directive 73/023/EEC, the EMC Directive 89/336/EEC, the RoHS Directive 2011/65/EU and carries the CE - marking accordingly.

Place of issue:
Piaseczno k/Warszawy

Signed on behalf of producer: Paweł Rzepecki
Function: Co-owner

Date of issue:
09.06.2015

Signature:
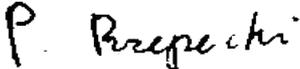
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