

The detector automatically reduces the level of the emitted signal if the level of received signals is too high. This automatic mode is made so that the operator can correctly compare the levels of received harmonics (second and third). The level of the emitted signal has four steps (3 dB each) and is displayed (if the attenuator is in OFF mode) on the yellow scale LED D3 (all lit LEDs - max power). The level of the emitted signal is an important parameter that must be taken into account in order to correctly interpret the power of the responses.

If the object has so strong non-linear properties and the level of the harmonics signal is too high (all lit LEDs D2), you can turn ON the receiver attenuator. Then it will be possible to see levels of powerful responses in order to distinguish and refine the location of such objects.

**NOTE:**

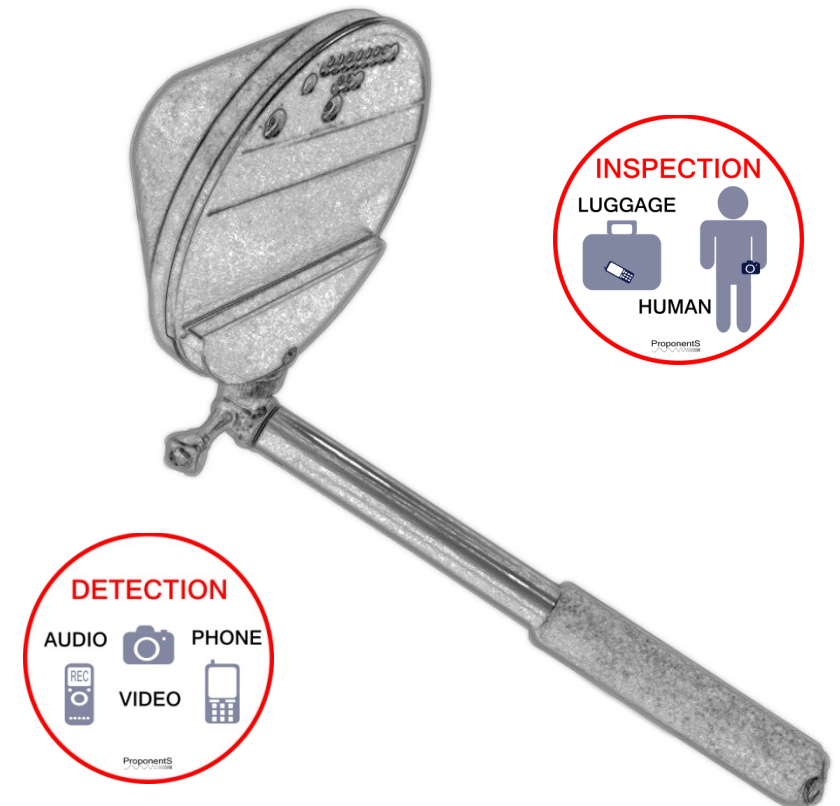
If your device version includes an internal charger, then to charge the batteries you must turn off the device and connect the plug to the connector on the battery cover. The LED D1 should light red during charging and turns off when the batteries are fully charged.

When storing the device for a long time, it is advisable to remove the batteries.

Non-linear junction detector

«EH-NLJD-regular»

Operating manual



## Description and operation

EH-NLJD-regular device is designed to detect any electronic equipment hidden in walls, furniture, containers and person's body in /or under clothes and also in hand luggage (bags, packages and etc).

### Technical characteristics

Name	Value
Range of detection:	
SIM card	70-100 mm
Mobile Phone	150 -250 mm
Transceiver	EIRP less then 500mW (frequency 2,4 GHz band) second harmonic signal sensitivity -135dBm
Antenna	Helical, Circularly polarized
Alarm	Visual, Sound
Power supply	2 rechargeable battery Li-ion or LiFePO4 type 14500 (AA size)
Current consumption	Less than 300 mA
Continuous operating time	Not less than 2 hours
Operating conditions: operating temperature range operating temperature limits during transportation and storage	+5C...+40C  -10C...+50C
Dimensions of the main unit (not more than)	150*150*80 mm
Weight of the product (not more than)	400g

If the voltage drops below the critical one, the D2 scale will constantly burn through one LED and then the device will turn off.

To switch off the Detector, press and hold the K1 button.

### Detection process

The detection process is to bring closer the antenna of the device to the objects. To ensure maximum detection of faint signals, slowly move your detector sideways toward the target's suspected position at a speed of about 5 to 10 cm per second, monitoring the LED indicators (sound signals).

The level of the received signal at the second harmonic is indicated by red diodes D2 that light up sequentially. The received signal level at the third harmonic is displayed by two green LEDs D2. By moving towards Non-linear objects the number of lit LEDs D2 will increase.

Electronic devices typically have a higher level at the second harmonic than at the third. Electronic devices have many different non-linear junctions (diodes, transistors, etc.) and they are detected by the device in any state (on or completely off). But the level of response depends on many factors: the type of component, distance, covering surface and the relative position of the object and the antenna of the device.

However, apart from electronic devices, two dissimilar metals, joined or touching, and corroded metals return harmonic signals too. Such nonlinear objects usually have a higher level at the third harmonic than at the second. Usually, such corrosive-metal objects have mechanically unstable non-linear properties. That is, the response signal changes greatly under mechanical action (tapping, etc.) on the object. This allows the operator an additional opportunity to distinguish them from electronic devices.

Switching on and testing the EH-NLJD-regular device:

- Switch on the device by pushing the K1 button, the Power On LED D1 indicator will light green (Fig.2). Point the antenna system in a direction where there are no any objects at a distance of at least 2 meters. Then LED D2 indicator goes off (the rarely flashing of the first LED D2 indicator is acceptable).

Testing the detector:

- Slowly bring closer (up to distance of 50-20 mm) SIM card to the antenna system of the device. The closer the SIM card is the higher the number of flashing LEDs D2 should be, up to full brightness of all LEDs D2.
- By increasing the distance between the SIM card and the antenna of the device – the number of flashing LEDs D2 will decrease and, finally, all LEDs D2 turn off.

When the EH-NLJD-regular device is ON, the system will automatically install the following parameters:

- receiver attenuator is in OFF mode;
- transmitter is ON;
- without sound.

To Add/remove the sound, shortly press the K1 button.

To add 24dB attenuator to receiver use K2 button. Short press the K2 button switches attenuator ON/OFF mode. If the attenuator is OFF (maximum receiver sensitivity), LED D1 is constantly on and yellow LED D3 indicates the level of transmitted power (all LEDs – max power). If the attenuator is ON, LED D1 flashes and yellow LED D3 indicates the voltage level of battery (all LEDs – max charge).

## EH-NLJD-regular parts

The complete set of parts include:

Name	Quantity
Main unit	1
Telescopic stick	1
Batteries	2
Charger	1
Regular packing and User manual	1

## Features

EH-NLJD-regular is a hand-held device in which main unit integrated the transceiver, antenna, power supply, control and indicating panel.

- 1) A synthesized transceiver with frequency stability. Frequency 2.4 GHz ISM band and power EIRP less than 500mW conformance with Short Range Devices standard (EN 300 440).
- 2) Circularly polarized transmitting and receiving antennas remove the risk of missing a threat due to incorrect antennas polarization.
- 3) The combination of high sensitivity and low transmitted power provides adequate detectability. A simple and user-friendly interface allows you to work quickly and easily analyze the results.
- 4) The telescopic stick is connected with a standard 1.4 inch mount and can be easily changed.
- 5) The use of standard batteries allows the user to easily replace them if necessary.

## Construction

Structurally the construction of EH-NLJD-regular main unit consists of the following components: the internal transceiver, the combo antenna, the battery compartment, the control and indicating panel.

The appearance of the product is shown in Figure 1.

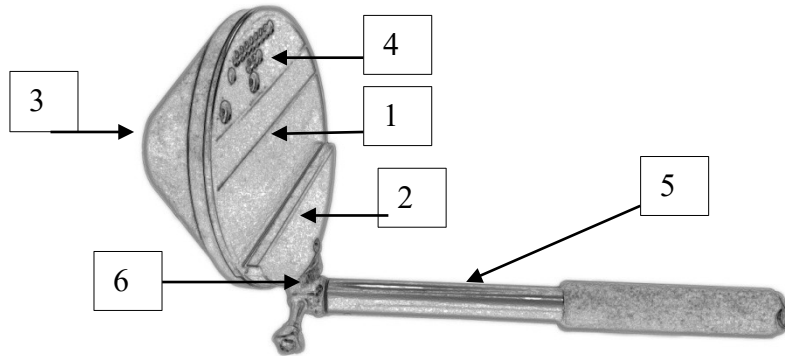


Figure 1

The internal transceiver (1), batteries cover (2), antennas (3) control panel (4) are located in main unit.

Connecting the telescopic rod (5) and the main unit through a standard 1.4 inch mount (6).

To access the batteries, unscrew the screw and remove the battery compartment cover.

EH-NLJD-regular controls are located on the face panel of the main unit.

Description of the buttons and scales are shown in Figure 2.

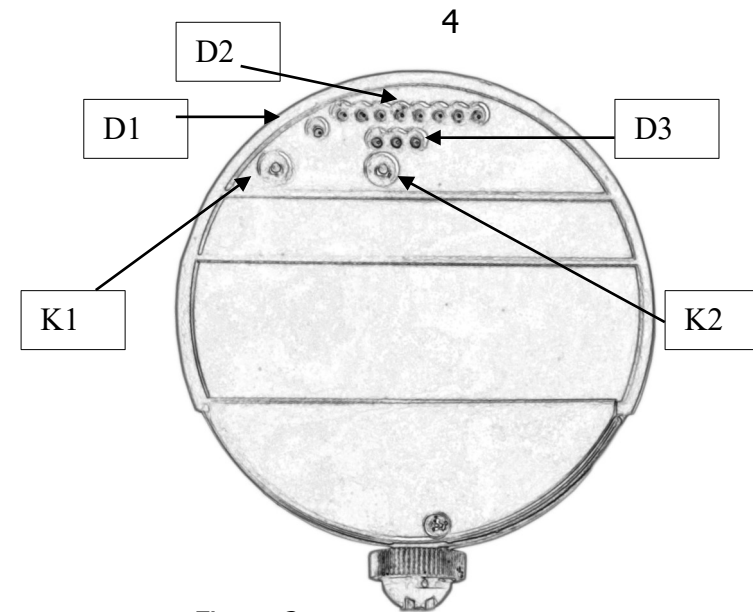


Figure 2

D1– Power On LED indicator;

D2 – LED indicators of received second (red) and third (green) harmonic signal intensity (3dB step, all scale is 24dB);

D3 – yellow LED indicators of transmitted power (receiver attenuator is in OFF mode) or battery voltage (receiver attenuator is in ON mode);

K1 – ON/OFF Power and Sound button;

K2 – receiver attenuator 24dB ON/OFF mode Button;

## Operation with EH-NLJD-regular

Prepare the device to work in the following order:

- Remove the device from its packaging;
- Remove the battery cover to insert two Li batteries. Make sure the positive and negative ends are facing the correct direction. Replace the battery compartment cover;
- Connect the telescopic rod.