

Installation Guide

1 General Information

1.1 Wireless magnetic contact security Detectors «Ladoga MK-RK» and «Ladoga MK-RK» version 1 (hereinafter, the Detectors) are intended for opening or shifting control of doors, windows or other structural elements with transmission of messages to the control panel (hereinafter, CP) via two-way wireless channel by the «Rielta-Contact-R» protocol.

1.2 Opening or shifting control is fulfilled by built-in magnetic contact monitoring. The Detectors comprise the plugs for external inertia detectors (hereinafter, the EID) hooking up.

1.3 Two versions of Detectors are manufactured:

- «Ladoga MK-RK» – single-zone, provides a possibility for one EID hooking up;
- «Ladoga MK-RK» version 1 – two-zone, provides a possibility for two EID hooking up to «Loop 1» and «Loop 2».

The built-in magnetic contact and «Loop 1» are integrated in one zone.

The built-in magnetic contact is disabled by jumper «Hermetic Contact» (see Figure 1) applying.

1.4 Detectors operate within 433.05 – 434.79 MHz frequency range. Their transmission power does not exceed 10 mW.

1.5 The Detectors ensure operation at the main and backup operating frequencies. The changeover to backup operating frequency is fulfilled automatically.

1.6 Radio communication is initiated by the Detectors at 10, 15, 30 sec, 1, 5, 10 min intervals assigned in the process of their binding with the CP. Alarm and tamper messages are transmitted immediately.

1.7 The Detectors are powered from main (CR123A) and backup (CR2032) power supply batteries.

1.8 Operation modes of the Detectors are displayed by a two-color LED indicator. The detector «Ladoga MK-RK» version 1 provides complementary sound indication of the Detector state.

1.9 The Detectors generate and transmit the following messages:

- «Norm» – under closed built-in magnetic contacts in «Loop 1» or resistance value in «Loop 1» less than 3.4 or more than 6.9 k Ω ;
- «Intrusion to Zone 1» – under opened built-in magnetic contacts in «Loop 1» or resistance value in «Loop 1» less than 3.4 or more than 6.9 k Ω ;
- «Intrusion to Zone 2» (only for «Ladoga MK-RK» version 1) – under resistance value in «Loop 2» less than 3.4 or more than 6.9 k Ω ;
- «Tamper» – in the event of case tampering or removal from the installation surface;
- «Main Power Supply Low Battery» – under the main power supply battery voltage drop over 2.8_{-0.4} V;
- «Backup Power Supply Low Battery» – under the backup power supply battery voltage drop over 2.8_{-0.4} V.

1.10 The Detectors are designed to operate continuously, around the clock.

1.11 The Detectors have immunity to electromagnetic interference.

2 Specifications

Table 1

Parameter	Value
Distance between the Detector and the magnet, mm: - when the contact is opened - when the contact is closed	more than 15 less than 5
Monitored loop resistance range, k Ω - in the «Norm» state - in the «Alarm» state	3.6 to 6.5 less than 3.4 or more than 6.9
Operating temperatures range, °C	minus 20 to +50
Permissible relative humidity at 35 °C temperature, %	up to 95
Dimensions, mm, max	112 x 41 x 32
Weight, kg, max	0.1
Average service life, years	8
The operation duration under normal climate conditions and specified broadcast period than 30 sec, not less: - main power supply battery, months - backup power supply battery, months	60 2
IP rating	IP30

3 Scope of Delivery

The scope of delivery is listed in the Table 2.

Table 2

Name	Version	
	-	-01
Wireless magnetic contact security Detector «Ladoga MK-RK»	1 pc.	
Wireless magnetic contact security Detector «Ladoga MK-RK» version 1		1 pc.
CR123A power supply battery	1 pc.	1 pc.
CR2032 power supply battery	1 pc.	1 pc.
Magnetic contact inertia security Detector	1 pc.	2 pc.
Resistor 5.1 k Ω 0.125 W	1 pc.	2 pcs.
Screw 3-3x30.016	6 pcs.	10 pcs.
Wireless magnetic contact security Detectors «Ladoga MK-RK».	1 copy	1 copy
Installation Guide		

4 Design of the Detector

The Detector consists of a case and a printed circuit board (PCB). On the front side of the PCB (1) there are located: antenna (2), built-in hermetic contact (3), jumper for disabling of built-in magnetic contact (5), tamper (4), two-color LED indicator (7), terminal blocks for EID hooking up (8), main battery holder (9), «RESET» contacts (11). There is a sound indicator situated on the face side of the «Ladoga MK-RK» version 1. The backup power supply battery holder and the wall tamper are located on the reverse side of the PCB. The PCB is fixed on the base with a latch (10).

Magnet (6) of the inertial detector (supplied) is used for the built-in hermetic contact control. The magnet should be installed opposite to the recess in the sidewall of the base.

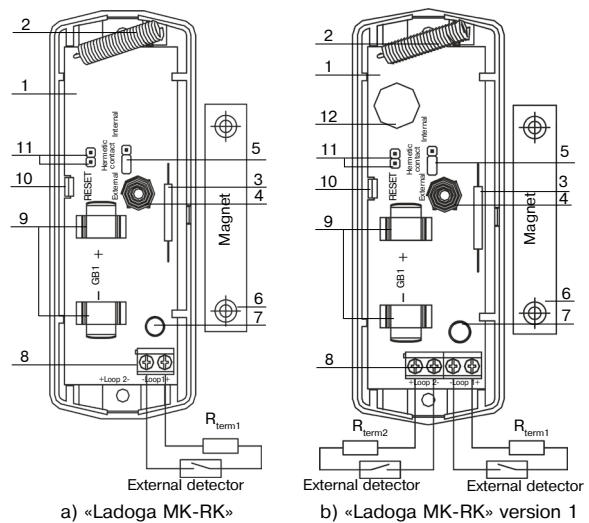


Figure 1

5 Indication

The following types of indication are generated by the Detectors:

- a) «Binding» – procedure of logging of the Detector in the CP;
- b) «Identification» indication is activated by relevant commands received from the CP and deactivated after the Detector cover is closed under conditions:
 - other LED indication types absence;
 - alarm «Tamper» message is not generated during this time;
 - absence of command from the CP disabling the Detector state indication.

Sound indication (only for «Ladoga MK-RK» version 1) is activated by the relevant command from the CP.

The types of LED indication are listed in the Table 3.

Table 3

The Detector State	Indication	Note
End of the «Binding» procedure	LED indicator lighting red for 2 – 3 sec	
«Binding» procedure	LED indicator lighting green	The Detector logging in the CP
«Identification» indication	LED indicator alternate blinking red and green	By the relevant command from the CP
«Intrusion to Zone 1» «Intrusion to Zone 2»	Single-shot LED indicator lighting red for 4 sec*	State indication is ON, «Identification» indication is OFF
Generation of: «Intrusion to Zone 1» «Intrusion to Zone 2»	Two-shot sound indication unmute **	State sound indication is ON
Restart after: «Intrusion to Zone 1» «Intrusion to Zone 2»	Single-shot sound indication unmute **	
Communication Quality Appraisal	See sect. Communication Quality Appraisal	
«Norm»	Indication is OFF	

* – LED indication of the Detector
** – sound indication of the Detector

6 Binding with the CP

The «Binding» mode is intended for the Detector logging in the CP and service information exchange.

- 6.1 Prepare the CP in accordance with CP Installation Guide.
- 6.2 Set the backup power supply battery to the holder plate on the PCB other side.
- 6.3 Set the main power supply battery to the holder (9).
- 6.4 Periodical LED indicator blinking green is evidence of binding process.
- 6.5 In case of mentioned above LED indication absence, short-circuit «RESET» terminals for 2 – 3 sec.
- 6.6 Successful binding procedure complying is indicated by LED indicator lighting red for 2 – 3 sec.
- 6.7 The time limit for the binding process of the Detector is 100 sec. To restart the binding procedure, short-circuit «RESET» terminals for 2 – 3 sec.

7 Communication Quality Appraising

- 7.1 For radio communication quality appraising it is necessary to:
 - place firstly backup and then main power supply batteries to the correspondent holder plates;
 - install the PCB to the base;
 - set the Detector on the assumed place of installation;
 - push and then release case tamper.
- 7.2 After case tamper releasing the Detector generates case tamper alarm message, transmits it via radio communication channel and represents communication quality with CP by LED indication in accordance with the Table 4.

Table 4

LED Indication		Communication Quality Appraisal	Recommendations
Color	Mode		
Green	Three blinks	Excellent	Install the Detector at this place
Green	Two blinks	Good	
Green	One blink	Communication established	Choose another place for installation or use a repeater*)
Red	Four blinks	No communication	

*) «Ladoga BRSS-RK-RTR» or «Ladoga BRSS-RK-RTR» ver. 1

8 Installation of the Detectors

8.1 Before installing a Detector, remove it's cover and withdraw the PCB. The cover is fastened to the base by latches. To withdraw the PCB, push up the latch (10) at the base of the Detector.

8.2 Choose the place of installation. Mark the holes layout, for the purpose the base of the Detector can be used (See Figure 2).

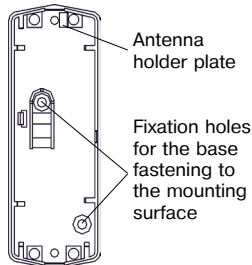


Figure 2 – The Base

Fasten the base with screws. For the wall tampering control fasten the screws as shown in Figure 2. Install the PCB, connect the wires of monitored loops to terminal blocks (8) and close the cover. The length of the loops must not exceed 5 m. Install the terminal (EOL) resistor Rterm (5.1 kΩ) at the end of the loop as shown in Figure 1. The connections must be soldered or screwed.

8.3 When the only built-in magnetic contact is used, EOL resistor Rterm should be connected directly to the «Loop 1» terminals.

8.4 In case when the built-in magnetic contact is not used, the built-in hermetic contact jumper «Hermetic Contact» (5) should be installed.

8.5 It is not recommended to install the Detectors on metal surfaces. The distance between the Detectors and a magnet or magnetically conductive material should be at least 25 mm.

8.6 Irrespectively of the permissible position of the monitored structure, the Detectors and the magnet should not be subjected to mechanical impacts (compression, blows, etc.).

9 Storage and Transportation

9.1 The Detector in original package without power supply batteries is resistant to:

- a) transport jolting with the acceleration of 30 m/sec² with impact frequency rate from 10 to 120 impacts/sec or 15000 impacts with the same acceleration;
- b) the ambient temperature minus 50 ... +50 °C;
- c) relative air humidity (95 ± 3) % at the ambient temperature +35 °C.

9.2 The Detectors in original package may be transported by any transport facility in closed vehicles over any distances in compliance with the existing shipping rules concerning the respective means of transport.

9.3 After transportation under the conditions different to exploitation conditions, the Detector shall be ready to operate after a maximum of six hours.

10 Manufacturer's Guarantees

10.1 «RIELTA» JSC guarantees conformity of the Detectors to the requirements of technical conditions provided the transportation, storage, installation and operation conditions are observed.

10.2 The guaranteed shelf life of the Detector is 63 months since the date of manufacture.

10.3 The guaranteed useful life is 60 months since the day of putting into operation.

10.4 The Detectors that are found non-conforming to the requirements of technical conditions shall be repaired by the manufacturer, provided the installation and operation rules have been complied.

Note – Warranty obligations are not applied to power supply batteries.

11 Acceptance and Packing Certificate

Wireless magnetic contact security Detector

- «Ladoga MK-RK»,
- «Ladoga MK-RK» version 1,

batch number _____,

has been manufactured in compliance with the active technical documentation and classified as fit for operation and packed by «RIELTA» JSC.

Person in charge of acceptance and packing

QC representative _____

Date, month, year _____