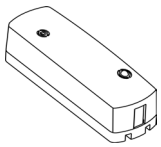
WIRELESS MAGNETIC CONTACT SECURITY DETECTORS



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

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

The built-in Gerkon and «G 1» loop are integrated in a single control zone, operation tactics of which is set by the «XP2» jumper (see Cl. 8).

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 (CR2450) 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 and «G 1» loop resistance value in the range 3.6 ... 6.5 kΩ;
- «Intrusion to Zone 1» – under opened built-in magnetic contacts and «G 1» loop resistance value less than 3.4 or more than 6.9 kΩ;
- «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 $2.2_{-0.2}$ V;
- «Backup Power Supply Low Battery» – under the backup power supply battery voltage drop over $2.2_{-0.2}$ 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: - for magnetic contact opening - for magnetic contact restoration	 more than 15 less than 5
Monitored loop resistance range, kΩ - 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 +55
Permissible relative humidity at 25 °C temperature, %	up to 98
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.

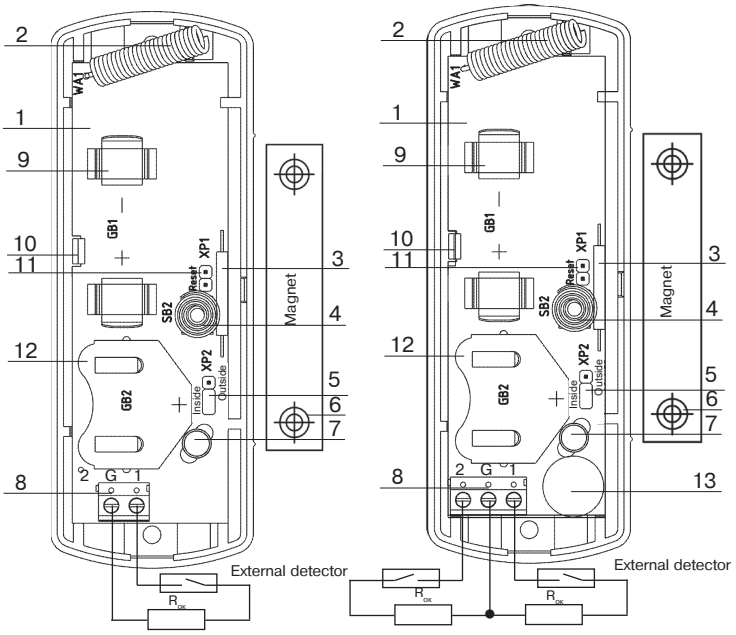
Table 2

Name	Version	
	-	-01
Wireless magnetic contact security Detector «Ladoga MK-RK»	1 pc.	
Wireless magnetic contact security Detector «Ladoga MK-RK» version1		1 pc.
CR123A power supply battery	1 pc.	1 pc.
CR2450 power supply battery	1 pc.	1 pc.
Magnetic contact inertia security Detector	1 pc.	2 pc.
Resistor 5.1 kΩ 0.125 W	1 pc.	2 pcs.
Screw 3-3x30.016	6 pcs.	10 pcs.
Wireless magnetic contact security Detectors «Ladoga MK-RK». Installation Guide	1 copy	1 copy

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), builtin hermetic contact (3), jumper «XP2» (5), tamper (4), two-color LED indicator (7), terminal blocks for EID hooking up (8), main battery holder (9), backup battery holder (12), «RESET» contacts (11). There is a sound indicator situated on the face side of the «Ladoga MK-RK» version 1. Tamper is located on the back side of PCB. PCB is fixed on the base by 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.



a) «Ladoga MK-RK» b) «Ladoga MK-RK» version 1

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, remains active during 15 min or until the Detector cover is opened;

c) LED indication of the Detector state is activated after the Detector cover is closed and remains active during 15 min 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 (12) (if the battery is installed by manufacturer, remove an isolator).

6.3 Set the main power supply battery to the holder (9) (if the battery is installed by manufacturer, remove an isolator).

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 70 sec. To restart the binding procedure, short-circuit «RESET» terminals for 2 – 3 sec.

7 Communication Quality Appraising

7.1 For radio communication quality appraisingl it is necessary to:
- 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-RK» system repeater			

8 Operating Features

8.1 Built-in magnetic contact «XP2» may be disabled by «XP2» limper installation to the «Outside» position.

8.2 «G 1» loop control can be switched off by setting «XP2» jumper to «Inside» position. In this case nothing should be connected to «G 1» loop.

9 Installation of the Detectors

9.1 Choose the place of installation. Mark the holes layout, for the purpose the base of the Detector can be used (see Figure 2). Fasten the base by screws. To ensure wall tampering control, fasten the screw in the wall tamper holder.

9.2 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.

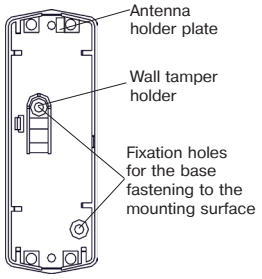


Figure 2 – The Base

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

9.4 Irrespectively of any permissible positions of the monitored structure, the Detector and the magnet should not be subjected to mechanical impacts (compression, blows, etc.).

ATTENTION! Antenna should be installed vertically on the holder (see Figure 2). Otherwise radio communication range will be essentially reduced.

10 Storage and Transportation

10.1 The detector in their original packaging are resistant to:
- transport jolting with the acceleration up to 30 m/sec^2 at impact frequency range from 10 to 120 per minute or 15 000 strikes;
- ambient temperature range minus 50 ... +50 °C;
- relative air humidity (95 ± 3) % at a temperature +35 °C.

10.2 The detector in original package may be transported by any means of transportation in closed vehicles over any distances in compliance with the existing shipping rules concerning the respective means of transportation.

10.3 After transportation under the conditions different to exploitation conditions the detector shall be ready to operate after a maximum of six hours.

10.4 The storage room shall be free from current-conducting dust, acid vapors, alkali and gases that cause corrosion and destroy insulation.

11 Manufacturer's Guarantees

11.1 The Manufacturer guarantees conformity of the Detector to it's Technical Specifications if conditions of transportation, storage, assembling and operation are observed. The guaranteed storage period is 63 months since the date of manufacturing the Detector.

11.2 The guaranteed period of operation is 60 months since the date of commissioning within the storage period guaranteed.

11.3 The Detectors that are found to non-conforming to it's Technical Requirements shall be repaired by the Manufacturer, provided the installation and operation rules have been complied with.

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

12 Packing Certificate

Wireless magnetic contact security Detector

☐ «Ladoga MK-RK»

☐ «Ladoga MK-RK» version 1

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

Packing date _____
month, year

Rev. 13 of 17.05.18
v.12

Made in Russia

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