

«Ladoga MK-RK» ver. 4

Installation Guide

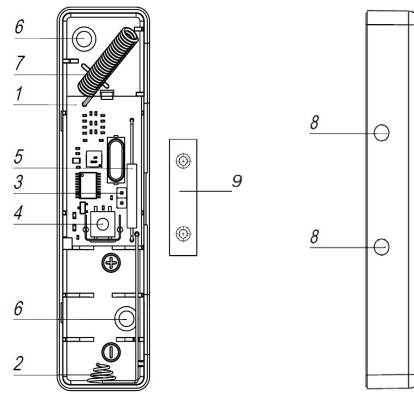


Figure 1 – «Ladoga MK-RK» ver. 4

1 General Information

1.1 Wireless magnetic contact security Detector «Ladoga MK-RK» ver. 4 (hereinafter, the Detector) is 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 communication by the «Rielta-Contact-R» protocol.

1.2 Opening or shifting control is fulfilled by built-in magnetic contact state monitoring.

1.3 The Detector operates within 433.05 – 434.79 MHz frequency range. Transmission power does not exceed 10 mW.

1.4 The Detector ensures operation at the main and backup operating frequencies. The changeover to backup operating frequency is fulfilled automatically.

1.5 Radio communication is initiated by the Detector 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.

1.6 The Detector is powered by the one lithium power supply battery CR123A.

1.7 The Detector generates and transmits the following messages:
 - «Norm» – under closed built-in magnetic contact;
 - «Alarm» – under opened built-in magnetic contact;
 - «Tamper» – in the event of case tampering;
 - «Power Supply Low Battery» – under the power supply battery voltage drop over 2.2_{0.2} V.

1.8 The Detector is designed to operate continuously, around the clock.

1.9 The Detector has 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 20 mm less than 5 mm
Operating temperature	From minus 20 to +55 °C
Permissible relative humidity at +25 °C temperature	up to 98 %
Ambient class	Boreal climate*
IP rating	IP30
Dimensions, maximum	97 x 25 x 21 mm
Weight, maximum	0.05 kg
Battery life under normal climatic conditions, disabled indication and assigned radio exchange period up to 30 sec, not less than	60 months
Average service life, not less than	10 years
* – background temperature 15 – 35 °C, relative humidity 25 – 75 %, air-pressure 86 – 106 kPa	

3 Scope of Delivery

Each Detector unit package contains the items listed in Table 2.

Table 2

Name	QNT
Wireless magnetic contact security Detector «Ladoga MK-RK» ver. 4	1 pc.
Master element (magnet)	1 pc.
Master element case	1 pc.*
Screw 3-3x30.016	4 pcs.
Power supply lithium battery CR123A	1 pc.
Wireless magnetic contact security detector «Ladoga MK-RK» ver. 4. Installation Guide	1 copy
* – is supplied non-assembled	

4 Design

The Detector consists of a case cover and a base with installed printed circuit board (PCB) (1). In the base openable fixation holes are located in the bottom (6) and in side wall (8). The PCB comprises: battery holder (2), RESET contacts (3), tamper contacts (4), built-in magnetic contact (5) and antenna (7).

For built-in magnetic contact management, master element (magnet) (9) is used (supplied).

5 LED Indication

The following types of indication are generated by the Detector:

- «Binding» – procedure of logging of the Detector in the CP;
- «Identification» indication is activated by relevant commands received from the CP, remains active during 15 min or until the Detector cover is opened;
- 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.

The modes of LED indication are listed in Table 3.

Table 3

The Detector State	Indication	Note
«Binding» procedure	LED indicator periodical blinking green	The Detector logging in the CP
End of the «Binding» procedure	LED indicator lighting red for 2 – 3 sec	–
«Identification» indication	LED indicator alternate blinking red and green	By the relevant command from the CP
«Alarm»	Single-shot LED indicator lighting red for 4 sec	State indication is ON, «Identification» indication is OFF
Communication Quality Appraisal	See sect. «Communication Quality Appraising»	
«Norm»	LED is OFF	–

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 Observing the polarity install power supply battery to the holder if power supply battery is installed in the holder (2), remove an insulating film.

6.3 Periodical LED indicator blinking green is evidence of binding process.

6.4 In case of mentioned above LED indication absence, short-circuit «RESET» terminals for 2 – 3 sec.

6.5 Successful binding procedure complying is indicated by LED indicator lighting red for 2 – 3 sec.

6.6 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 appraising it is necessary to:

- 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 Installation

8.1 Arrange the magnet at the side where built-in magnetic contact is located, as it is shown in Figure 1.

8.2 It is not recommended to install the Detector on metal surfaces. In case of installation on metal, use empty case of master element as an insulating layer between surface and magnet.

8.3 A distance between the Detector or magnet and magnetically conductive material should not be less than 10 mm.

8.4 At any possible positions of the monitored structure, the Detector and magnet should not be exposed to any mechanical impacts (compression, blows, etc.).

9 Storage and Transportation

9.1 The Detectors in their original packing may be shipped by any transport means in covered vehicles (in railway, cars, trucks, ship cargo holds, etc). The Detector is resistant to:

a) transport jolting with the acceleration 30 m/sec^2 with impact frequency 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 After transportation under the conditions different to exploitation conditions the Detector shall be ready to operate after a maximum of six hours.

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

10 Manufacturer's Guarantees

10.1 «RIELTA» JSC guarantees conformity of the Detector 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 battery.

11 Packing Date

Wireless magnetic contact security Detector «Ladoga MK-RK» ver. 4 has been manufactured in compliance with the active technical documentation and classified as fit for operation and packed by «RIELTA» JSC.

month, year