RIELTA

WIRELESS HAND-HELD FIRE DETECTOR

«Ladoga IPR-RK»

Installation Guide

1 Product overview

1.1 Wireless hand-held fire Detector «Ladoga IPR-RK» (hereinafter, the Detector) is designed for remote manual activation of a fire alarm signal at the control panel (hereinafter, the CP) via wireless two-way communication by the «Rielta-Contact-R» protocol.

1.2 The Detector generates the fire alarm signal (responds) upon pressing the actuator.

1.3 The Detector operates within 433.05 − 434.79 MHz frequency range. The radiated power of the Detector does not exceed 10 mW.

1.4 Two frequencies are used for wireless signal exchange with the CP: the main operating frequency and the reserve one. The Detector switches to the reserve operating frequency automatically.

1.5 The wireless signal exchange is initiated by the Detector with the following rates: every 10, 15, 30, 60 s, 2, 5, 10 min. Data exchange rates are chosen during the Detector logging in the CP. The alarm messages are transmitted immediately.

1.6 The Detector is powered by two lithium batteries (the main one and the backup one) type CR123A.

1.7 The Detector state is displayed by two LED indicators: red and green.

1.8 At the scheduled communication sessions the following messages can be delivered to the CP:
- «Norm» − in absence of other types of messages;
- «Fire» − upon the actuator pressing;
- «Tamper» − under the wall or case tampering;
- «Main power supply low battery» − if the main battery power supply voltage drops below (2.1±0.1) V;
- «Backup power supply low battery» − if the reserve battery power supply voltage drops below (2.1±0.1) V.

1.9 The Detector ensures safe operation continuously around the clock.

1.10 The Detector is resistant to the influence of electrical fast transient bursts, electrostatic discharges and radio-frequency electromagnetic fields.

1.11 The Detector ensures safe operation when subjected to:
- vibration at 0.5 g acceleration within 10 to 150 Hz frequency range;
- straight mechanical blows with impact energy up to 1.9 J.

2 Specifications

Table 1

Parameter	Value
Operating temperature	minus 20 ... +55 °C
Permissible relative air humidity at temperature +40 °C	up to 93 %
Dimensions, maximum	106 x 98 x 70 mm
Weight of the Detector (without batteries), maximum	0.2 kg
IP rating	IP54
Operation time upon preset wireless signal exchange rate 60 sec or more, normal climatic conditions and indication disabled, not less than: - from the main battery - from the reserve battery	5 years 2 months
Average service life, not less than	10 years

3 Scope of Delivery

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

Name	QNT.
Wireless Hand-held Fire Detector «Ladoga IPR-RK»	1 pc.
Key	1 pc.
Screw 3-3x30.016	3 pcs.
Nylon screw plug «SORMAT» NAT 5x25	3 pcs.
CR123A lithium power supply battery	2 pcs.*
Wireless Hand-held Fire Detector «Ladoga IPR-RK». Installation Guide	1 copy
* installed in case	

4 Design of the Detector

The Detector consists of case and printed circuit board (PCB). The case of the Detector comprises base, actuator assembly unit and transparent protective cover. On the PCB front side (1) the following elements are located: LED indicators (2), antenna (3), RESET contacts (5), case tamper (6), main power supply battery holder (7), reserve power supply battery holder (8). Wall tamper is located on the reverse side of the PCB. The PCB is fastened to the base of the Detector case by latch (4). On the base the following elements are located: two main fixing holes (9) and additional openable hole for fixing (11). An additional openable fixing hole (10) can be used for wall tamper control.
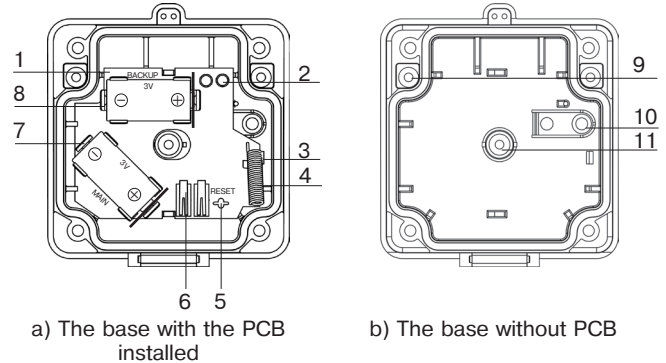

a) The base with the PCB installed   b) The base without PCB

Figure 1

5 LED Indication

LED indicators modes are listed in the Table 3.
Table 3

The Detector State	Indication
«Binding» mode	Green LED indicator periodical blinking
«Binding» procedure finishing	Red LED indicator lighting for 2 − 3 s
«Fire» message delivery confirmation	Green LED indicator lighting for 2 − 3 s
«Fire»	Red LED indicator blinking with 2 s period
«Identification» indication	Red and green indicators alternate blinking for 15 minutes or before opening the case in the absence of «Fire» notification
No communication with CP	Red LED indicator blinking with 20 s period
Communication quality appraising	See sect. «Communication Quality Appraising»
«Norm»	Green LED indicator short blinking with 20 s speriod

6 Binding with the CP

The binding procedure is intended for logging of the Detector in the CP and for transmission of service information to it.

6.1 Prepare the CP for the Detector logging in accordance to the CP Installation Guide.

6.2 At first install the backup power supply battery into the holder (8), and then install the main power supply battery into the holder (7), or remove isolators.

6.3 LED indicator blinking green means, that the Detector is in the «Binding» mode.

6.4 In case of the mentioned above LED indication absence, short-circuit the RESET contacts (5) for 2 − 3 s.

6.5 After a successful binding with the CP, the red LED indicator is lighting red for 2 − 3 s.

6.6 The time during which the Detector operates in the «Binding» mode is limited to 100 s. To restart the «Binding» mode, short-circuit the RESET contacts for 2 − 3 s.

7 Switching ON and Setting Up

7.1 To activate the Detector, open transparent cover and press the actuator. In the meantime the actuator recesses and fixes itself in a pressed position, and the Detector generates «Fire» message. Message delivery confirmation from the CP and further Detector operation in the «Fire» generation mode is accompanied by the relevant LED indication listed in the Table 3.

7.2 The Detector fallback to the standby mode after the «Fire» message generation is possible after fulfillment of two conditions:
- the actuator should be reset into its original location by means of the supplied key (see Figure 2);
- after the «Fire» message generation the Detector should get the command «Arm» from the CP in accordance to the «Rielta-Contact-R» protocol.
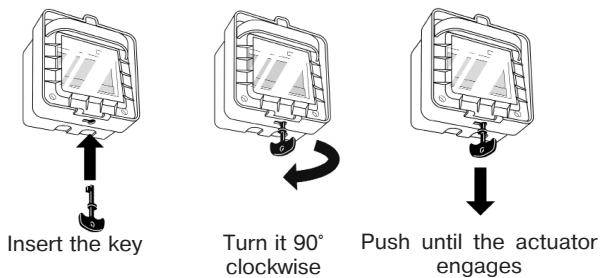
| Insert the key | Turn it 90°
clockwise | Push until the actuator
engages |

Figure 2

8 Communication Quality Appraising

8.1 To appraise the quality of communication with the CP act as follows:
- install the Detector which has been put into operation on the assumed place;
- press and then release case tamper contacts (6).

8.2 After the case is released, the Detector should generate case tamper message, transmit it via wireless communication and display the communication quality with the CP 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	Use «Ladoga-RK» system repeater
Red	Four blinks	No communication	

9 Installation

9.1 To install the Detector act as follows:
- open transparent protective cover;
- loosen four screws, fastening the actuator assembly unit, move them upwards and remove them from the Detector base;
- disconnect the actuator assembly unit from the base;
- remove the PCB by pulling outward the latch (4) located on the base.

9.2 Choose the Detector installation place, mark out the places of fastening with regard to the position of the fixing holes on the Detector base (see Figure 1b).

9.3 Fasten the base by two screws through the main fixing holes (9). If necessary fasten the third screw into an additional openable fixing hole (11). If the wall tamper function is needed, fasten the fourth screw into an additional openable fixing hole (10).

Applying of the additional openable fixing holes degrades pressure integrity of the Detector case.

9.4 Fasten the actuator assembly unit to the base by four screws.

9.5 Close transparent protective cover.

10 Storage and Transportation

10.1 The Detectors are transported without power supply battery. 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 During the storage of the device remove the lithium batteries from the battery holders or install insulators in between the "+" contact of the battery and the holder.

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

Attention! The Detector shall be tested at least annually to ensure it's operability control.

11 Manufacturer's Guarantees

11.1 The manufacturer guarantees conformity of the Detector to the technical requirements, provided the transportation, storage, installation and operation conditions are observed.

11.2 The guaranteed shelf life of the Detector is 42 months since the date of manufacture.

11.3 The guaranteed service life is 36 months since the day of putting into operation.

11.4 The Detectors that are found non-conforming to the technical requirements shall be repaired by the manufacturer, in case the installation and operation rules have been complied.

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

12 Packing Certificate

Wireless hand-held fire Detector «Ladoga IPR-RK» has been manufactured in compliance with the active technical documentation, classified as fit for operation and packed by «Development and Production Enterprise RIELTA» LLC.

Packing date _____
month, year