WIRELESS PASSIVE INFRARED DETECTOR WITH PET IMMUNITY «Foton-19RK»

Installation Guide

1 Introduction

1.1 Wireless passive infrared detector with ret immunity «Foton-19RK» (hereinafter, the Detector) is intended for detecting intrusion into a closed protected space and generating an alarm message. The Detector is intended to operate as a component of a system that is operated by any control panel (hereinafter, CP) supporting «Rielta-Contact-R» wireless two-way data exchange protocol.

1.2 The Detector comprises a jumper for sensitivity level choosing. Reset contacts provide possibility of a Detector changeover to «Binding» mode.

1.3 The Detector generates status messages via a two-way wireless channel within the 433,05 - 434,79 MHz frequency range according to «Rielta-Contact-R» wireless two-way data exchange protocol.

1.4 Transmitted power does not exceed 10 mW.

1.5 Two frequencies are used for wireless signal exchange with the CP: the main frequency and the reserve one. Switch to the reserve operating frequency is fulfilled automatically.

1.6 The following rates of control radio exchange may be assigned: 10 s, 15 s, 30 s, 60 s, 120 s, 300 s, or 600 s during binding procedure with CP. Alarm messages are transmitted immediately.

1.7 The Detector is powered by two batteries, the main – CR123A and the backup one – CR2450.

1.8 The Detector state is displayed by two LED indicators.

1.9 The Detector generates and transmits by radio communication channel the following messages about:

- norm state;
- alarm;
- case tampering;
- main battery discharge when it's voltage drops lower than $2.2^{-0.2}$ V;
- backup battery discharge when it's voltage drops lower than $2.2^{-0.2}$ V.

1.10 The Detector is resistant to the ambient light impact and radio interference;

1.11 The Detector does not generate false alarms caused by the movement of:

a) small pet-breed animals weighting up to 10 kg, that are moving on the floor within the detection zone at a distance not closer than 2 meters;

b)short-haired pets weighting up to 20 kg (with temperature contrast 8 °C) that are moving on the floor within the detection zone at a distance not closer than 2 meters;

c) long-haired pets weighing up to 40 kg (with temperature contrast 6 °C) that are moving on the floor within the detection zone at a distance not closer than 2 meters.

1.12 The Detector is installed directly on a wall or in a corner of a room.

2 Specifications

Table 1

Parameter	Value
Detection zones	8 long-range zones, 4 short-range zones 10 x 10 m
Maximum detection range	10 m
Detectable speed range	from 0.3 to 3 m/s
Pet immunity	Jumper «10kg» installed – 10 kg
	Jumper «10kg» removed – 20 kg (contrast 8 °C) or 40 kg (contrast 6 °C)
Temperature measurement tolerance, max.	± 2.0 °C
Technical readiness time, max.	60 s
IP rating	IP41
Dimensions, maximum	105 x 75 x 56 mm
Weight, maximum	0.1 kg
Battery life (under normal climatic conditions , from both batteries, with a radio exchange period equal to at least 60 s) and disabled LED indication - from the main battery - from the backup battery	 up to 8 years not less than 2 months
Average service life	8 years
Operational conditions	
Operating temperature	from minus 20 °C to +55 °C
Permissible relative humidity at a temperature of +25 ° C, with moisture condensation	up to 98%

3 Special features

- Dual-element pyrodetector.
- Distortions absence and immunity to pets in the detection zone ensured by means of spherical lens;
- Protection against ingress of insects to the pyrodetector;
- Pet immunity adjustment (10, 20 or 40 kg pet weight);
- Thermal compensation of detecting ability.
- Built-in main and backup power supply.
- Transmission of measured temperature values over the wireless.

4 Field of Application

The Detector can be installed in apartments, as well as in shops, offices, museums and industrial facilities. The Detector may be installed in premises, that are inhabited by pets weighing up to 40 kg (20 kg).

5 Scope of Delivery

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

Table 2

Name	QNT
Wireless PIR detector «Foton-19RK»	1 pc.
Screw 3-3x30.016	2 pcs.
Wall plug NAT 5x25 SORMAT	2 pcs.
CR123A lithium power supply battery	1 pc.*
CR2450 lithium power supply battery	1 pc.*
Swivel bracket	**
Wireless PIR detector «Foton-19RK». Installation Guide	1 copy

* Installed
** Supplied optionally

6 Detection Pattern

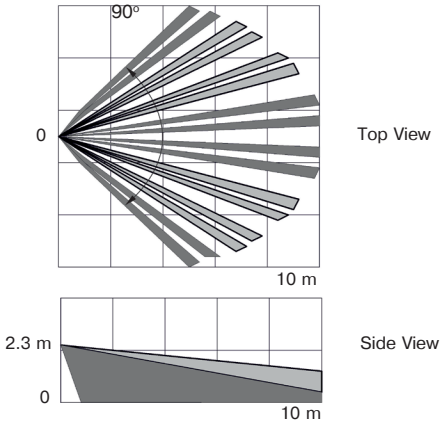

Figure 1

7 LED Indication

Table 3

Status	Indication	Notes
Linking mode completion	Turn on the red indicator light for 2–3 s	
Linking mode	Periodic turning on of the green indicator light	Registering a Detector in the CP
«Identification» indication	Alternately turning on the red and green indicator lights for 15 minutes or until the case is opened	The corresponding command has been received from the CP
«Alarm»	Single turning on of the red indicator light for 4 s*	Status indication is on and «Identification» indication is off
Connection quality assessment	See «Connection quality assessment» paragraph	

* Light indication of the Detector status turns on and remains on during the first 15 minutes after closing the case in the absence of other types of indication, provided that during this time a notification about unauthorized access is not generated or a command from the CP is not transmitted to prohibit the indication

8 Binding with the CP

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

8.1 Prepare the CP for the Detector logging in accordance to the CP manual.

8.2 Install the CR2450 backup power-supply battery into the holder located on the reverse side of the Detector printed circuit board (PCB) or remove the insulator.

8.3 Install the PCB into the Detector case, and then install the CR123A main power-supply battery (if the battery is installed, remove the insulator).

8.4 Blinking of the LED indicator green displays the Detector readiness for the binding procedure.

8.5 In case the LED indicator does not blink, close the RESET contacts for 2–3 sec.

8.6 After a successful binding with the CP, the LED indicator lights red for 2–3 sec.

8.7 The «Binding» procedure is limited to 70 sec. To resume «Binding» mode, RESET contacts should be temporary closed.

9 Choosing an Installation Place for the Detector

The Detector must be located in the radio-coverage zone of it's CP. Therefore, it is advisable to appraise quality of communication beforehand. The procedure of communication quality appraising is described in the chapter «Communication Quality Appraising».

When choosing the Detector installation place, it is advisable to take note of the fact that the detection zone may be limited by non-transparent objects (curtains, houseplants, cabinets, bookcases, etc.), as well as glass and mesh partitions. There must be no windows, air conditioners, space heaters or heating radiators in the Detector visibility zone. The presence of furniture items on which an animal may climb in the detection zone may cause a false alarm.

Recommended installation height – 2.3 m from the floor.

The Detector should be installed at least 0.5 m distance from electric cables.

10 Communication Quality Appraising

Before installing the Detector to it's place of operation, it is advisable to appraise the CP communication quality as follows.

10.1 Prepare the Detector for operation and put it on its location place with a closed cover.

10.2 Open the Detector case, whereupon the Detector will indicate the quality of CP communication.

Table 4

LED indication	Communication Quality Appraisal	Recommendations
LED indicator blinks green three times	Excellent	Install the Detector at this place
LED indicator blinks green two times	Good	
LED indicator blinks green one time	Communication established	Use «Ladoga-RK» system repeater
LED indicator blinks red four times	No communication	

11 Installing the Detector

Before installing the Detector, remove it's cover and the PCB. For this purpose:

- remove the cover of the Detector;
- loosen the screw fastening the PCB, move it upwards and remove it from the Detector base;
- drill the holes (Figure 2) in the base of the Detector case. They will be used for fastening the Detector;
- choose the installation place, mark out and drill the installation places in the wall with regard for the position of the holes on the Detector base;
- fasten the Detector base in the chosen place;
- reinstall the PCB;
- put on the cover.

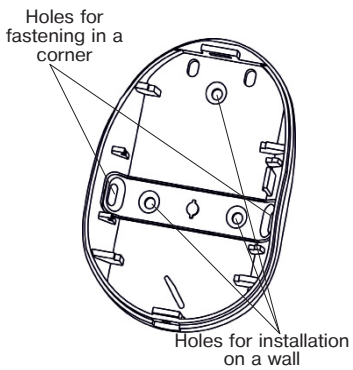

Figure 2 - The base of the Detector

Note – To exclude false alarms in the pet immunity mode, the Detector should be installed vertically.

12 Functional Testing

In presence of the pets weighing up to 40 kg in the room, remove the «10 kg» jumper, in presence of the pets weighting less than 10 kg in the room, install the «10 kg» jumper.

It is advisable to remove the «10 kg» jumper in the premises with a high interference level.

Start walking across the detection zone. After 3–4 steps across the detection zone, the Detector should display the detection by the LED indicator red blink. Wait for 10 sec and continue walking across the detection zone. There must be no indication in absence of moving objects in the room. If the Detector fails to detect moving objects in the detection zone, it's position on the swivel bracket should be changed.

13 Detector Behavior

13.1 The Detector is powered on and off by installation and removal of the main power-supply battery.

13.2 After loss of communication with the CP, the Detector will continue to search for the CP. In case the CP is disabled for a long time, it is recommended to power off the Detector (see Cl. 13.1).

13.3 It must be taken into account, that in case of the Detector operation within +5 °C to minus 20 °C temperature range, the battery life may be less than 8 years.

ATTENTION! The Detector must be checked at least annually in order to test it's performance.

14 Storage and Transportation

14.1 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.

14.2 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.

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

14.4 During storage period lithium batteries should be removed from the holders or isolators should be installed between a battery and a holder.

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

15 Manufacturer's Guarantees

15.1 The Manufacturer guarantees conformity of the Detector to its 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.

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

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

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

16 Packing Certificate

Wireless passive infrared detector «Foton-19RK» 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

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Made in Russia

«Development and Production Enterprise RIELTA» LLC
Petrogradskaya nab., 34, letter B, Saint Petersburg, Russia, 197046
www.rielta.com, rielta@rielta.com
Tel./fax: +7 (812) 233-0302, 703-1360, support@rielta.com
Technical support, tel.: +7 (812) 233-29-53, 703-13-57, support@rielta.com