RIELTA

Ochrana

PASSIVE INFRARED DETECTOR

«FOTON-21»

Installation Guide

1 General Information

Passive infrared detector «Foton-21» (hereinafter, the Detector) is intended for detecting intrusion into a closed protected space and generating an alarm message by relay output contacts opening.

The Detector ensures tamper protection by means of «Tamper» microswitch relay contacts opening.

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

The Detector ensures absence of false alarms cased by movement of small animals: mice, rats, birds in cages at a distance to them not less than 2.5 m.

The Detector is distinct in: attractive design, ease of installation and maintenance.

2 Features

- The Detector is designed for ceiling mounting.
- Sensing elements – two dual-element pyrodetectors.
- Digital temperature compensation.
- Unique lens provides wide-range detection zone with high filled density, ensuring reliable detection of the intrusion in any direction.
- Protection against intrusion of insects to a pyrodetector.
- Microprocessor-based signal processing.
- Choosing of installation height as well as the following modes: testing, alarm memory, and LED indication.
- Self-test mode ensuranse.
- The Detector is supplied from DC current supply unit with output voltage (9 ... 15) V.

3 Specifications

Table 1

Parameter	Value
Detection zone diameter at mounting height: 5 m, not less than 2.5 m, not less than	 9 m 4.5 m
Power supply	9...15 V DC, current 17 mA
Output relay contacts	Energized Form A (NC) relay, max. current 30 mA, voltage 72 V
Alarm message duration, not less than	2 sec
Detection zone	Wide-angle, cone-shaped. Zones: 10 long-range, 1 middle-range, 1 short-range
Detection range at the installation height 5 m and 2.5 m	Is chosen by «1» DIP-switch
Operating temperature	minus 40 ... +50 °C
Relative humidity at 25 °C without moisture condensation	95 %
IP Rating	IP41
Dimensions (diameter x height), not more than	105 x 45 mm
Weight, not more than	100 g

Detection zone pattern is shown in Figure 1.

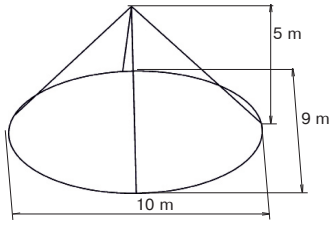

Figure 1 – Detection zone pattern

Ambient class: Boreal Climate (background temperature 15 – 35 °C, relative humidity 25 – 75 %, air-pressure 86 – 106 kPa), permissible relative humidity at +25 °C without moisture condensation.

4 Scope of Delivery

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

Table 2

Name	QNT.
Passive infrared detector «Foton-21»	1 pc.
Passive infrared detector «Foton-21». Installation Guide	1 copy

5 Field of Application

The Detector can be applied in flats, shops, offices, museums, industrial facilities.

6 Choosing the Installation Place

The Detector is designed for operation in heated closed premises.

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 by glass and mesh partitions. There must be no windows, air conditioners, space heaters or heating radiators in the PIR-detection zone.

The Detector wires should be laid far enough from power supply cables.

7 Installation of the Detector

- Put off the Detector cover by it's turning counter-clockwise until tight to the recess on the external ring of the Detector base and then rise the cover (Figure 2).

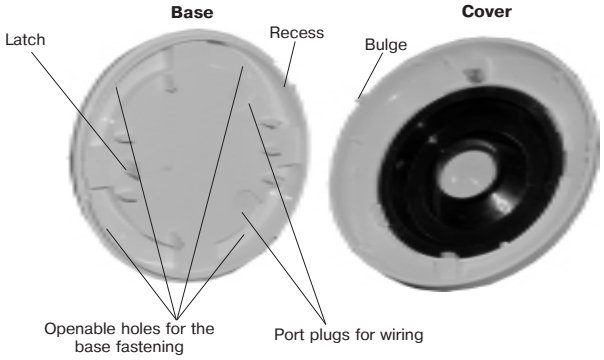

Figure 2 – Base and cover of the Detector

- Put off the printed circuit board (PCB) by unfastening the latch, located on the base.
- Drill the holes in the base (See Figure 3) for the Detector wiring and fastening the base.
- Choose the place of installation, mark the places for mounting holes with regard to the openings on the Detector base, drill holes in the place of installation.
- Insert wires into the hole in the base leaving several centimeters for fixation inside the case and connection to the leading-in sockets.
- Fix the base of the detector on the chosen place.
- Set down PCB on their places.

8 Connection

- Leading-in sockets for the Detector connection are located on the PCB.
- Fulfill connections in accordance with Figure 3a (for hooking up to single AL) or Figure 3b (to single tamper control AL).
- Set up the DIP-switches «1», «2», «3», «4» in accordance with particular application conditions and Cl.9 of herein Installation Guide.
- Install the Detector cover on it's place. For this purpose insert the bulge to the recess on the base external ring, push the cover and turn it in clockwise

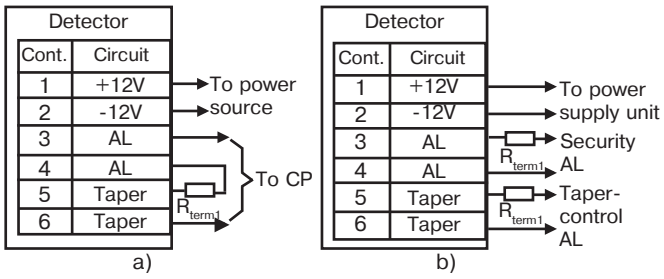

Figure 3

9 DIP-switches Positions

Table 2

Mode	DIP-switch	DIP-switch position	
		ON	OFF
Installation height	«1»	«5 m»	«2.5 m»
Detection zone testing (sizing)	«2»	«ZONE» Testing	«ALARM» Normal operation
Alarm indication	«3»	«IND» is ON	«OFF» is OFF
Alarm memory	«4»	«MEM» is ON	«OFF» is disabled

10 LED Indication

Two-color LEDs on the front cover are used for the Detector state displaying.

Table 3

Message	LED Color	LED State
«Warm-up time»	red	Blinking at a frequency 1 Hz during 55 sec after energizing
«Norm»	-	Indication is OFF
«Alarm»	red	Indication is ON during 3 sec
«Failure»	green	Single three-shot switching with a period of 3 sec in accordance with Cl. 15
«Alarm Memory»	green	LED indication is ON in 5 min.after «Alarm» message for 15 min
Detection zone positioning	red	Switching for 0.25 sec under crossing of each ray of the DZ. Mode duration is 5 min after warm-up time

11 The Detector Switching on and Checking

For mounting height 5 m set up DIP-switch «1» to ON position (5 m). If the ceiling hight of the room is less than 3 m, it is recommended to set up DIP-switch «1» to OFF position (2.5 m). Thus, the higher sensitivity level is provided. It is recommended to use the Detector in this mode in small rooms with severe interference conditions.

After enegizing the Detector executes self-testing (checking of power supply, environment temperature as well as amplification path testing), the LED blinks red (independently from DIP-switch «3» position), output contacts are opened.

During self-testing procedure it is necessary to exclude any movement in the detection zone, asi can result in failure message generation.

12 Functional Check

Upon expity «Warm-up Time», the Detector changes to standby mode and is able to generate an alarm message.

High filled density of the Detection zone provides to detect intruder moving in any direction. Testing and sensitivity adjustment is fulfilled so as to determine the detection zone borders.

Testing mode

DIP-switches position: «3» – ON, «2» – ON.

This mode ensures determination of each detection zone beam position. After each beam crossing, the indicator switches for 0.25 sec. Optimal movement speed at maximal distance is 0.5 m/sec.

Note – In this mode there is no LED indication of alarm message.

Under absence of movement inside the detection zone, the indicator should not light. The testing mode is performed during 5 min, whereafter the Detector changes over to «Norm» mode.

Sensitivity Check

DIP switches position: «3» – ON, «2» – OFF. This mode is intended for the Detector sensitivity appraisal (the distance inside the detection zone, which is covered before alarm message generation). Alarm message is generated after 2 – 5 steps inside the detection zone (depending on mounting height and direction of movement) during 3 sec.

After each alarm message generation, stop and make a pause till the LED is off, after it wait for 8 – 10 sec before proceeding movement inside the detection zone.

Note – In the temperature range near 36 °C, temperature compensation is switched on, providing maintainance of detection ability of the Detector.

13 LED Indicator Disabling

For the Detector operation masking, LED indicator disabling mode is provided. DIP-switch «3» is in OFF position. In this mode LED is functioning only in first minute of operation after the Detector energizing, as well as in modes «Alarm memory» and «Failure».

14 Alarm memory

DIP-switch «4» is ON. The LED is lighting green in 5 min after alarm message generation. LED indication duration is 15 min. Change-over of DIP-switch «4» from ON to OFF position results in the «Alarm memory» indication reset.

15 Self-testing and Failure Indication

The Detector fulfills self-testing automatically, thereby the following parameters are checked:

- availability of the receiver and signal amplifier;
- power supply voltage;
- environment temperature.

The Detector generates «Failure» message with 15 min period under the following conditions:

- power supply voltage drop lower than 9.0$_1$ V – by the relay contacts opening, duplicated by perionical single LED indicator blinking green;
- maximal permissible temperature value exceedance – by the relay contacts opening, duplicated by perionical twofold LED indicator blinking green;
- negative result of the receiver with signal amplifier testing – by the relay contacts opening, duplicated by perionical threefold LED indicator blinking green.

After removal of the failure cause, the Detector turnes over to the «Standby» mode automatically in 15 min. Premature reset of «Failure» LED indication can be fulfilled by changing DIP-switch «2» position from ON to OFF (or vice versa).

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

16 Storage and Transportation

16.1 The Detectors in their original packing may be shipped by any transport means in covered vehicles (in railway, cars, trucks, sealed heated compartments of aircraft, ship cargo holds, etc). The storage room should be free from current-conducting dust, acid vapors, alkali and gases that cause corrosion and destroy insulation.

16.2 The Detectors in their original packing may be stored not more than 3 months. During this period the Detector package should not have bloodshot spots and impurities.

16.3 Upon the expiry of 3 months, the Detector should be released from the package.

17 Manufacturer's Guarantees

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.

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

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.

18 Acceptance and Packing Certificate

Passive infrared detector «Foton-21»,

serial 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_____ _____.

day, year, month

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Made in Russia

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