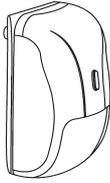




PASSIVE INFRARED DETECTOR «FOTON-12-1»



Installation Guide

1 General Information

1.1 Passive infrared detector «Foton-12-1» (hereinafter, the detector) is intended for detecting intrusion into the indoor protected area and generating an alarm message by the alarm loop (AL) current step-up.

- 1.2 The detector is equipped with:
- microprocessor-based signal processing;
 - AL and Tamper output contacts;
 - red LED indicator;
 - ON/OFF LED indicator jumper.

1.3 The detector generates the following messages: «Warm-Up Time», «Normal», «Alarm» and «Tamper».

1.4 The detector is powered from AL.

1.5 The «Alarm» message is generated by the detector consumption current start-up, the «Tamper» message – by output contacts opening provided by the detector case tampering.

The detector has immunity to:

- small pets;
- ambient background illumination differential up to 6500 lx;
- convective air flows;
- changes of background temperature with max rate 1 °C/min;
- vibration with the amplitude up to 0.981 m/sec² within 10 – 55 Hz frequency range;
- single blows with a hammer with impact energy up to 1.9 ± 0.1 J.

1.7 The detector is resistant to electromagnetic interferences.

1.8 Industrial radio interference created by the detector does not exceed the norms for technical facilities used in residential and commercial areas and in low energy consumption industrial areas.

1.9 The detector is intended for continuous round-the-clock operation.

2 Features

- Immunity to insects intrusion to the pyrodetector.
- Temperature compensation of detectability.

3 Specifications

Table 1

Parameter	Value
Maximum detection range, max	12 m
Detection zone angle in horizontal plane	90°
Movement speed range	0.3 – 3 m/sec
Power supply	8 ... 30 V DC
Current consumption in «Standby» mode, max	0.1 mA
Current consumption in «Alarm» mode, max	2 – 12 mA
Warm-up time, max	60 sec
«Alarm» message duration, not less	2 sec
«Standby» mode restoration time after «Alarm» message generation, not more	10 sec
Ambient class	Boreal Climate
Operating temperatures	from minus 30 to +50 °C
Relative humidity at +25 °C	up to 95 %
IP Rating	IP41
Dimensions, max	92 x 57 x 48 mm
Weight, max	0.1 kg

4 Scope of Delivery

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

Name	QNT.
Passive infrared detector «Foton-12-1»	1 pc.
Swivel bracket	1 pc.
Screw 3-3x30.016	2 pcs.
Passive infrared detector «Foton-12-1». Installation Guide	1 copy

5 Detection Pattern

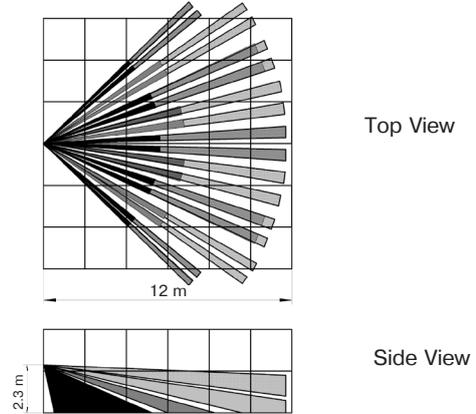
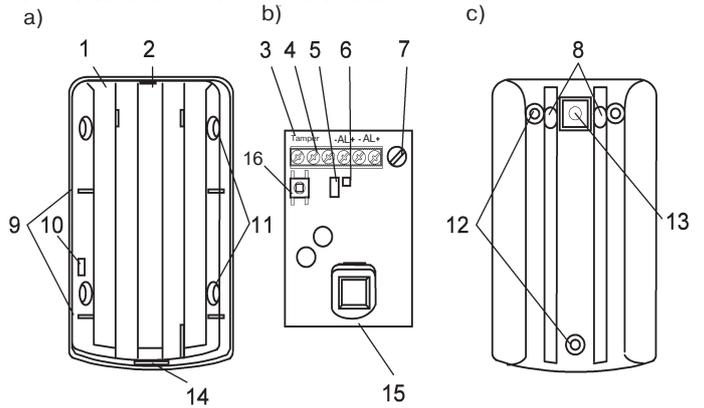


Figure 1 – «Foton-12-1» Detection Pattern

5 The Detector Components

The detector comprises the base (1), PCB (2) and a cover (not shown). The cover is fastened to the base by lock-up (2) situated upside and the latch (14) – downside. The PCB is fixed to the base by two lock-ups (9) and a latch (10). Before the detector installation remove cover and PCB from the base.



a) The base top view b) PCB c) The base reverse side

Figure 2 – The Base with PCB

The PCB comprises marked terminals (4) for hooking up to the control panel (hereinafter, CP), tamper microswitch (16), ON/OFF LED indicator jumper (5), LED indicator (6), potentiometer for current consumption control under the «Alarm» message generation, and pyrodetector (15).

6 Choosing Place of Installation

Recommended installation height:

- without swivel bracket – 2 – 3 m;
- by means of the swivel bracket – 2 – 5 m.

The detector without swivel bracket can be installed on the wall or in the corner. Swivel bracket usage extends the capability of the detection zone positioning.

When choosing the detector installation place, 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 range.

Alarm loop leads should be located far enough from power feed cables.

7 Installation

To install the detector without swivel bracket execute act as follows:

7.1 Unseal the necessary openings (8) for leads entry, as well as fastening holes:

- either holes (12) for the wall installation;
- or (11) for the corner mounting.

7.2 Pull the leads through the mounting holes in the base and fix the base of the detector on the wall (corner).

7.3 Install the detector on the swivel bracket:

- assemble the swivel bracket in accordance with the Figure 3;

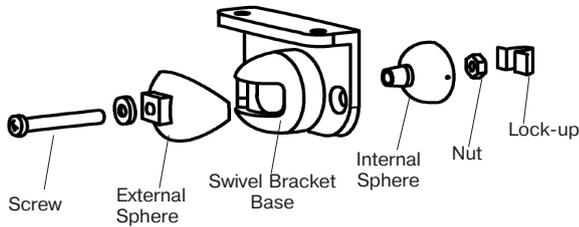


Figure 3 – Swivel Bracket Components

- fix the swivel bracket in assembly to the wall (ceiling) by the screws;

- unseal the opening (13) on the base for installation on the swivel bracket;

- pull the leads to case;

- keeping hold the swivel bracket assembled, fit the opening (13) of the swivel bracket external sphere with the corresponded the square bulge on the opposite side of the detector base. Fix the connection by the cap screw with the forcing, ensuring immobilization of the swivel bracket components.

7.4 Install PCB on it's place.

Note – It is allowed to use the swivel bracket and the detector bases as a templet for drilling holes marking on the installation surface.

7.5 Recommended case tilt degrees relation to the swivel bracket installation height and to correspondent distances from the base bottom edge to the wall are listed in Table 3.

Table 3

Installation Height	Detection Tilt	Distance to wall (L), mm
2 – 3 m	0°	25
3 – 4 m	6°	16
4 – 5 m	12°	9

The tilt degree and the distance values listed in Table 2 are only reference data. Check the detection zone positioning (See sect. 11).

8 Connection

The detector should be hooked up to the CP in compliance with the CP Installation Guide. Marked terminals (pos. 4 in the Figure 2) for the detector hooking up to CP are located at the PCB top.

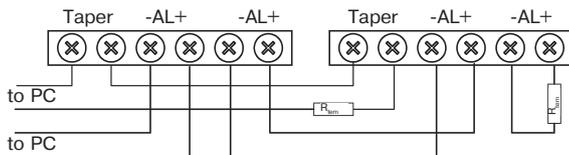


Figure 4 – Several Detectors Hooking up to CP.
Connection Diagram

Several detectors hooking up to one CP is acceptable. Recommended connection diagram is displayed in Figure 4.

9 Operating Modes

During 60 sec since energizing, the detector operates in the «Warm-up time» mode, accompanied by the LED indicator continuous lighting. Thereafter the detector turns to «Standby» mode and is able to generate «Alarm» message. In case of detection of the intrusion to the detection zone, the «Alarm» message is generated by consumption current step-up for the time not less than 2 sec and is repeated by the LED indication lighting.

The detector operating in «Standby» mode is processing the ambient temperature.

If the ambient temperature is related to the human one, the sensitivity threshold shift takes place, whereupon the detectability upgrades automatically.

10 Adjustment

The detector adjustment includes the following:

- consumption current control;
- ON/OFF LED jumper applying/removal.

The detector is produced initially configured to the optimal consumption current. If necessary the current consumption change, the detector should be hooked up to the power supply unit with current control. Set up the required current value by means of potentiometer (7) (See Figure 1) located on the detector PCB.

The current utilized by the LED indicator constitute a significant proportion of the detector current consumption in the «Alarm» mode. In the process of the current adjustment, the «IND» jumper should be set in position, relevant to the detector application tactics.

11 Testing

The detector testing should be carried out with the ON/OFF LED indicator jumper applied. Energize the detector and wait for a minute. Start movement across the detection zone with the speed 0.5 – 1 m/sec.

The detector should generate an alarm message (repeated by LED lighting) after 2 – 4 steps within the detection zone. After every alarm message generation stop and wait until the LED indicator is switched off. Thereupon wait for 8 – 10 sec before continue movement.

If the detector fails to detect moving objects in the detection zone, it's position on the swivel bracket should be changed. Under the movement absence in the secured zone, the detector should not generate the «Alarm» message.

Attention! Detectors «Foton-12-1» must be checked at least annually in order to test their performance.

12 Transportation and Storage

12.1 The detectors in original transportation package may be transported by any means of transportation in closed vehicles (railway wagons, closed motor vehicles, sealed and heated airplane compartments, vessel holds, etc.) over all distances.

12.2 When transporting the detectors, the rules and regulations applicable to various means of transportation must be adhered.

12.3 Storage premises must not contain any current-conducting dust, acid and alkali fumes, as well as corrosive gases or those destroying insulation.

13 Manufacturer's Guarantees

13.1 The manufacturer guarantees conformity of the detector to the requirements of specifications provided the transportation, storage, installation and operation conditions are observed.

13.2 The guaranteed shelf life of the detector is 63 months since the date of manufacture. The guaranteed useful life is 60 months since the day of putting into operation within the guaranteed shelf life.

The detector that is found non-conforming to the requirements of specifications should be repaired by the manufacturer.

14 Packing Certificate

Passive infrared detector «Foton-12-1» has been manufactured in compliance with the active technical documentation and classified as fit for operation and packed by «Development and Production Enterprise RIELTA » LLC.

Packing date _____
month, year