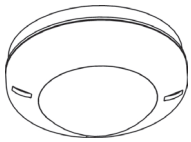
# PASSIVE INFRARED DETECTOR

# «PYRONE-6»



**Installation Guide**

## 1 General Information

1.1 Passive infrared detector «Pyrone-6» (hereinafter, the Detector) is intended for detecting intrusion into a closed protected space and generating an alarm message by the relay contacts opening.

1.2 The Detector ensures tamper protection by means of TAMPER microswitch relay contacts opening.

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

1.4 The Detector is designed for continuous operation around the clock.

1.5 The Detector ensures absence of false alarms cased by movement of small animals, background lighting, slow chanding of background temperature, voltage pulses in power supply circuit, electrostatic discharge, electromagnetic fields of FM band.

1.6 The Detector does not cause any interferences to comparable detectors or detectors of other type and designation, as well as to household appliances.

1.7 The Detector comprises two double-color LED indicators (red and green) for operability control. Microswitch provides derection of tanpering attempts.

1.8 The Detector comprises 4 dip-switches «1», «2», «3», «4», that provides detection range choosing in accordance with the height of installation, testing mode setting and LED indicators disabling.

1.9 The Detector generates 8 types of messages about it's state:

- warm up time – by the relay contacts opening followed by periodical red LED indicator blinking during 1 minute;
- normal state – by the relay contacts closing, at the same time LEDs are switched off;
- alarm – by the relay contacts opening followed by periodical red LED indicator blinking during not less than 2 s;
- in case of unauthorized access – by opening microswitch contacts after case decapsulation;
- about malfunction at:

1) voltage drop lower than $8{,}9_{-1}$ V – by opening relay contacts duplicated by periodical single-shot green-colored blinks of LED indicators during 15 minute;

2) ambient temperature rise exceeding $+60^{+5}$ °C – by opening relay contacts duplicated by periodical double-shot green-colored blinks of LED indicators during 15 minute;

3) self-testing failure – by opening relay contacts duplicated by periodical triple-shot green-colored blinks of LED indicators during 15 min;

## 2 Features

- The detector is designed for ceiling mounting.
- Sensing elements – two dual-element pyrodetectors.
- Digital temperature compensation.
- Unic lens provides wide-range detection zone with high filled density, ensuring reliable detection of the intrusion at any direction.
- Protection against intrusion of insects to 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

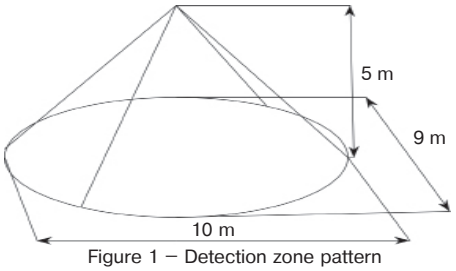



Figure 1 – Detection zone pattern

Table 1

| Parameter | Value |
|---|---|
| Detection zone diameter at mounting height:<br>- 5 m, not less than<br>- 2.5 m, not less than | <br>9 m<br>4,5 m |
| Power supply, DC | 9...15 V, current 17 mA |
| Output relay contacts | closed – «Norm» message, current 30 mA, voltage 72 V |
| Alarm message duration, not less than | 2 s |
| 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...+55 °C |
| Relative humidity at +25°C without moisture condensation | 98 % |
| IP Rating | IP41 |
| Dimensions (diameter x height), not more than | не более 105 x 45 mm |
| Weight, not more than | 100 g |
| Service life, not less than | 8 years |

## 4 Scope of Delivery

Table 2

| Name | QNT |
|---|---|
| Passive infrared detector «Pyrone-6» | 1 pc. |
| Passive infrared detector «Pyrone-6». Installation Guide | 1 copy |

## 5 Field of Application

The Detector can be used in private apartments, as well as in shops, offices, museums, production facilities.

## 6 Choosing the Installation Place

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. Maximal installation height is 5 m. Distance between the Detector and the farthest point of the monitored glass should not exceed 6 m. The Detector microphone should be oriented strictly towards the protected surface of a glass construction. The Detector wires should be laid far enough from power supply cables.

## 7 Installation of the Detector

- Put off the Detector cover by its turning counter-clockwise full on to the recess on the external ring of the Detector base and then rise the cover (see Figure 2).
- Put off the printed circuit board (PCB) by unlatching the fixing arm, located on the base.
- Drill the holes in the base (See Figure 3) for the Detector wiring and fastening.
- BChoose 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.
- Pass wiring throuh the hole in the base, leave several centimeters for fasening to leading-in-sockets inside the case.
- Fasten the base of the detector on the chosen place.
- Set down PCB on its place.

## 8 Connection

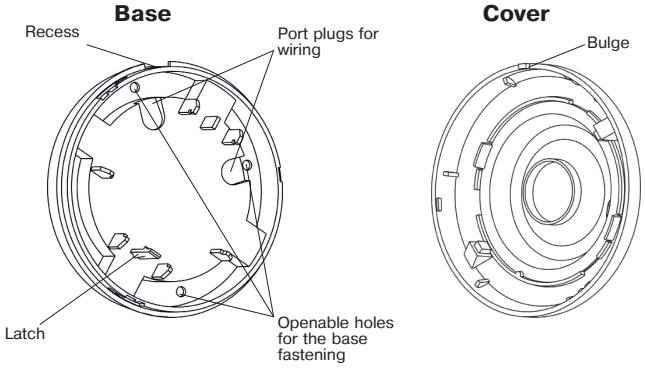



Figure 2 – Base and cover of the Detector

- Leading-in-sockets of the Detector are located on the PCB.
- Fulfill connections in accordance with Figure 3 a) for hooking up to one AL or Figure 3 b) with separate AL of tamper control.
- Set up the DIP-switches «1», «2», «3», «4» in accordance with particular application conditions and Cl8 of this Installation Guide.
- Install the Detector cover on its place. For this purpose insert the bulge on the base external ring, push the cover and turn it in clockwise order until tight.

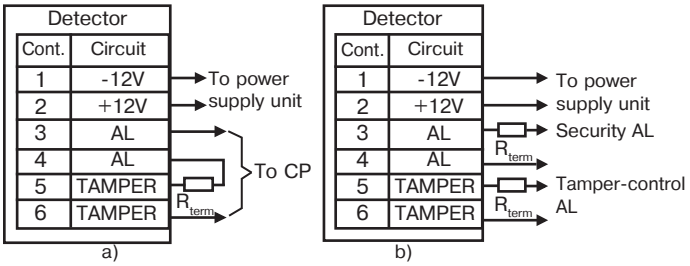



Figure 3

## 9 DIP-switches Positions

Table 3

| Mode | DIP-switch | DIP-switcch 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 Memory is disabled |

## 10 LED Indication

Two-colored LED indicators, that are located on the front cover are used for displaying the Detector state.

Table 4

| Message | LED light | LED indication mode. Duration |
|---|---|---|
| «Warm-up time» | red | Blinking with 1 Hz frequency during 60 s after energizing |
| «Norm» | - | No indication |
| «Alarm» | red | LED indication is lighting during 3 s |
| «Malfunction» | green | Single three-shot blinking with 3 s period in accordance with Cl.14 |
| «Alarm memory» | green | LED indication switches on for15 min after 5 min after alarm message triggering |
| Identification of detection zone location | red | Switching after each beam crossing .Duration of mode – 5 min after warm-up time |

## 11 The Detector Switching on and Checking

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

During 1 minute after enegizing the Detector executes self-testing (checking of power supply voltage, environment temperature as well as amplification path testing), the LED bliks red (independently from DIP switch «3»position), output contacts are opened.

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

## 12 Functional check

Upon the expiry of warmup time the Detector turns to standby mode and is able to generate alarm message. High filled density of the detection zone ensures detection of intruder moving in any direction. In order to define the detection zone limits procedure of testing and senssitivity check should be fulfilled.

***Testing mode***

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

This mode id assigned for identification of each detection zone beam position. After each beam crossing, the indicator switches for 0.25 s. Optimal movement speed maximum detection range distance is 0.5 m/s.

**Note** – In this mode there is no LED indication of alarm message, which is generated by the relay contacts opening.

Under absence of movement inside the detection zone, the indicator should not light. Testing mode duration is 5 min. Thereafter the Detector changes over to «Norm» mode, If DIP-switch «3» is in ON position, alarm message generation is displayed by LED indicator lighting during 3 sec.

***Sensitivity Check***

This mode is intended for the Detector sensitivity determination (the distance inside the detection zone, that is covered before alarm message generation). Alarm message is generated during 3 s after 2 – 5 steps iside the detection zone (depending on mounting height and direction of movement).

After each alarm message generation, stop moving ang make a pause till the LED is off, upon that wait for 8 – 10 s before proceeding movement inside the detection zone.

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

## 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 after 5 min of alarm message generation. LED indication duration is 15 min. Change-over of «4» DIP-switch 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 with signal amplifier;
- power supply voltage;
- environment temperature.

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

- power supply voltage drop lower than $8.9_{-1}$ V – by the relay contacts opening, duplicated by perionical one-fold LED indicator blinking green;
- maximum permissible temperature value exceedance – by the relay contacts opening, duplicated by perionical two-fold LED indicator blinking green;
- negative result of the receiver with signal amplifier testing – by the relay contacts opening, duplicated by perionical three-fold LED indicator blinking green;

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

**Attention!** The Detector must be checked at least annually in order to test its performance.

## 16 Storage and Transportation

16.1 The Detector in its package remains operational under the following conditionds:

- ambient temperature in the range minus 50 ... +55 °C;
- relative humidity 95 ± 3) % at a temperature +35 °C;
- impact of sinusoidal vibration with acceleration of 30m/s² within the frequency range 10 – 120 blows per minute or 15 000 blows with the same acceleration.

16.2 Technical rediness time afer transoirtation in conditions different from usage environment is not less than 4 hours.

16.3 Factory-packed detectors can be shipped by any transport means in covered vehicles (in railway cars, trucks, sealed heated compartments of aircraft, holds etc). Shipping of the Detector must be arranged according to rules and regulatory documents for different means of transport.

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

## 17 Manufacturer's Guarantees

17.1 The manufacturer guarantees conformity of the Detector to its Technical Specifications if provided that the transportation, storage, installation and operation conditions are observed.

17.2 The guaranteed shelf life of the Detector is 63 months since the date of manufacture.

17.3 The guaranteed useful life is 60 months since the day of putting into operation within the guaranteed shelf life.

17.4 The Detectors that are found non-conforming to the Technical Specifications shall be repaired by the manufacturer, provided the installation and operation rules have been complied with.

## 18 Acceptance and Packing Certificate

Passive infrared detector «Pyrone-6» 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

Rev. 3 of 11.05.2021
№00597
v5

Made in Russia

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