SECURITY COMBINED PIR + GLASS BREAK DETECTOR

«Pyrone-7i»

Installation Guide

1 General Information

1.1 Security combined detector «Pyrone-7i» (hereinafter, the Detector) is designed for application as a component of security systems.

The Detector has the following two independent detection channels:

- glass break channel (hereinafter, GB channel);
- passive infrared channel (hereinafter, PIR channel).

GB channel is intended for detecting destruction of engineering structures made of plate glasses as well as glass bricks with further «Alarm» message generation by GB channel relay contacts opening (hereinafter, «ALARM1»).

1.2 PIR channel is assigned for detecting intrusion into protected area of closed premises (movement within protected area) with further «Alarm» message generation by PIR channel relay contacts opening (hereinafter, «ALARM2»).

1.3 PIR channel provides wide-angle detection zone and pet immunity to animals up to 20 kg with thermal contrast t = 8 °C.

1.4 Power supply of the Detector is ensured from DC-current power supply (V = 12 V with ripple amplitude not more than 0,1 V).

1.5 The Detector is resistant to to the impacts of ambient light, radio noise, as well as disturbance from small animals: mice, rats, birds in cages.

1.6 The Detector is designed to operate continuously around the clock.

1.7 The Detector provides:

a) Discrete sensitivity adjustment of GB channel;
b) Discrete sensitivity adjustment of PIR channel;
c) LED indication of both detection channels state;
d) Indication of high level of interference for GB channel.

1.8 The Detector is constructed in the shape of mono-block. The Detector design provides possibility to mount it direct to the wall or in the corner of a room, as well as on the wall or in the corner of a room by means of swivel bracket.

1.9 PIR channel provides wide-angle detection zone.

2 Features

- Microprocessor-based signal processing;
- Self-test mode;
- Possibility of GB channel sensitivity adjustment;
- Pet immunity;
- Ensures case tamper protection;
- Temperature compensation of a detection sensitivity.

3 LED Indication

Indication of messages is fulfilled in accordance with the Table 1.

Table 1

State	LED Indicator			Contacts		
	red	yellow	green	ALARM1	ALARM2	TAMPER
Norm	OFF	OFF	OFF	Closed	Closed	Closed
Switching ON	ON 50 s	-	ON 3 s	Opened for not less than 2 s	Opened for not less than 50 s	Closed
GB channel alarm	ON	ON	ON	Opened for not less than 2 s	-	-
PIR channel alarm	ON	-	-	-	Opened for not less than 2 s	-
Supply voltage drop	Blinking at 1 Hz frequency	Blinking at 1 Hz frequency	Blinking at 1 Hz frequency	Opened for not less than 2 s	Opened for not less than 2 s	-
First frequency interference	-	ON	-	-	-	-
Second frequency interference	-	-	ON	-	-	-
Tamper	-	-	-	-	-	Opened

4 Specifications

Table 2

Parameter	Value
PIR channel detection zone	10 x 10 m
Maximum detection range: - GB channel - PIR channel	 6/10 m 8/10 m
Maximal commutated current, under the voltage not more than 42 V	30 mA
Sensitivity: - GB channel - PIR channel	Choose: minimum/+12 dB high/normal
Pet Immunity	10/20 kg
Warm-up time after switching on	60 s
Alarm message duration	2 s
Detection angle of PIR channel in horizontal plane	90_{-2}^{0}
Consumption current, not more than	35 mA
Minimal area of protected glass	0,1 m^2
Operating voltage	9 ... 17 V
Operating temperature	from minus 20 up to +55° C
Relative humidity at +25 °C without moisture condensation	98 %
IP rating	IP30
Dimensions	110 x 58 x 45 mm
Weight, not more	0,1 kg
Average service life	8 years

The Detector ensures safe operation under the impact of:

- sinusoidal vibration with acceleration of 0,981 m/s² (0,1 g) within the frequency range 10 – 55 Hz.
- aluminum alloy hammer ($AlCu_4SiMg$) blow at a speed (1,500 ± 0,125) m/s, with impact energy (1,9 ± 0,1) J.

5 Scope of Delivery

5.1 Each Detector unit package contains the items listed in Table 3.

Table 3

Name	QNT
Security combined detector «Pyrone-7i»	1 pc.
Swivel bracket	1 pc.
Security combined detector «Pyrone-7i». Installation Guide	1 copy

6 Field of Application

The Detector can be installed in flats, shops, offices, museums and other confined areas.

7 Choosing Place of Installation

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.

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.

In case of 1 m^2 area monitoring maximal distance to the Detector should be increased up to 10 m. Recommended installation height is (2,3 ± 0,1) m

The Detector wires should be laid at a distance not less than 0,5 m from power supply cables.

To exclude false alarms it is recommended to install the detector vertically.

PIR channel detection zone pattern is shown in Figure 1.

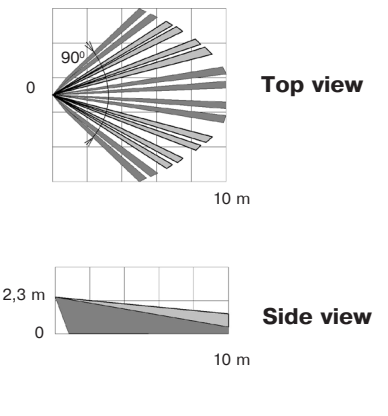

Figure 1 – PIR channel detection zone pattern

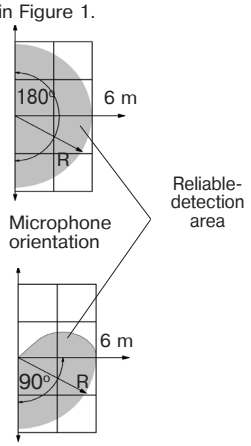

Figure 2 – GB channel detection zone pattern

8 Installation of the Detector

- Put off access hole of the Detector (2);
- Remove cover with the printed circuit board (PCB) (4,3) from the base (1) by pulling towards yourself and downward;
- Open holes in the base 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;
- Pass the wire through the mounting holes in the base, leaving enough length of the wire for hooking up to the Detector terminals;
- Fix the base of the detector on the chosen place;

In case of mounting on swivel bracket, align the square protrusion of the sphere with the corresponding recess in the upper part of the detector base. Insert the screw into the hole in the upper part of the base, rotate the base to the desired position, tighten the screw;

- Install cover with PCB to the base.

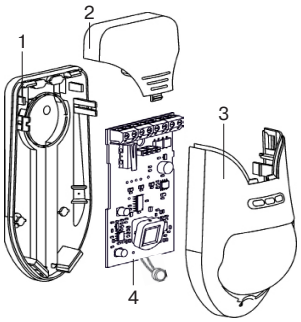

Figure 3 – The Detector Design

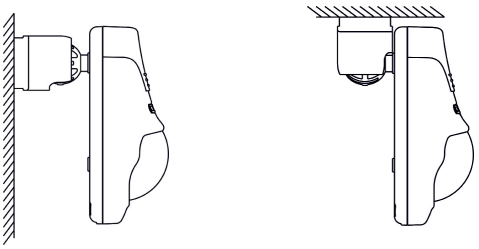
a) on the wall b) on the ceiling

Figure 4 – The Detector mounted on swivel bracket

9 Connection

- Terminals for wire hooking up are located at the top of the PCB;
- Fulfill connections in accordance with Figure 5;

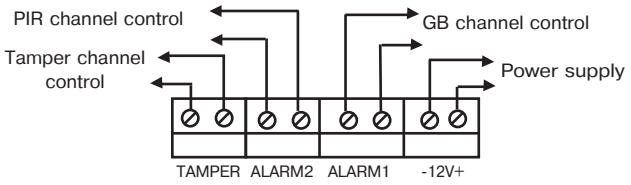

Figure 5

- Set operation mode by means of jumpers in accordance with particular application conditions (See Table 4);
- Install the access hole.

Table 4

Jumper	Installed	Removed
SENS GB	+12 dB	min
SENS PIR	10 m 10 kg	8 m 20 kg

10 Switching On and Testing

After energizing the Detector is starting operation in standby mode during 50 s. It is displayed by green and red LED indicator lighting. The green indicator switches off in 3 – 5 s, the red one – in 45 – 50 s, thus confirming the Detector availability and it's proceeding to the standby mode.

11 Functional Testing

During operation in standby mode, the Detector generates «Norm» message (by GB and PIR channels relay contacts closing). For correctness of the installation place choice checking, it is necessary to fulfill functional testing of GB and PIR channels.

1. PIR Channel Testing

Energize the detector and wait for 60 – 70 s before test starting. Define border of the Detection zone by the LED indicator switching ON. Start moving across the detection zone at different distances from the Detector (including maximal distance too). After 3 – 5 steps, the Detector should generate «Alarm» message, repeated by LED indicator switching on. Under the absence of movement inside the detection zone, alarm message should not be generated.

2. GB Channel Testing

Remove the «SENS GB» jumper (minimal sensitivity).

Suspend a steel ball 21-22 mm in diameter weighting (40 ± 8) g on a 35 cm long thread near the monitored glass standing clear of it, deflect it at an angle of 30 – 70° (see Table 5). Deliver a test blow to the remote section of the protected glass. Don't occlude the Detector during blow delivering. If the test blow is accompanied by green LED indicator switching on, the Detector is considered to be adjusted. If green LED remains in OFF position, it is necessary to increase the sensitivity value by means of «SENS GB» jumper applying and repeat of GB testing procedure.

Install cover on the Detector and fulfill the same testing by delivering blows to different places of the other monitored glasses (after each blow green LED indicator should switch ON). If it is necessary, repeat sensitivity adjustment.

Table 5

Glass thickness, mm	<3	3–4	4–5	5–6	6–7	>7
Ball deflection angle for ordinary, armed and ornamental glass, °	30	35	40	45*	50	55
Ball deflection angle for hardened and laminated glass, °	45	50	55	60	65	70
*) – Inclination angle for glass blocks						

12 Self-Testing Mode

The Detector fulfills self-testing automatically. During self-testing power supply voltage value is checked. If power supply voltage drops lower than $8{,}9^{+}_{-1}$ V, «Supply voltage drop» message is generated by GB and PIR channels relay contacts opening. «Supply voltage drop» message is followed by all LED indicators blinking during failure period. After failure reasons elimination, the Detector switches to standby mode.

In case of the Detector operation in the temperature range close to a human body temperature, sensitivity threshold changes providing maintenance of the detection sensitivity.

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

13 Storage and Transportation

The Detectors in their original packaging 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.

The storage premises should not contain any current-conducting dust, acid and alkali fumes, or corrosive or destroying insulation gases.

14 Manufacturer's Guarantees

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

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 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.

15 Packing Certificate

Security combined detector «Pyrone-7i» has been manufactured in compliance with the active technical documentation and classified as fit for operation and packed by «RIELTA» JSC.

Packing date _____
month, year

Rev. 2 of 26.09.19
v.4

Made in Russia

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