S2000-PIRON

ADDRESSABLE VOLUIMETRIC PIR MOTION DETECTOR

INSTRUCTION MANUAL

1. General

1.1 S2000-Piron Addressable Volumetric PIR Motion Detector (hereinafter referred to as the detector) is designed to detect intrusions both indoor and outdoor sending alarms via the addressable multiplex polling loop (PL) to a polling loop controller S2000-KDL or S2000-KDL-2l.

1.2 The detector is powered via the polling loop.

1.3 The detector is equipped with:
- Three passive IR channels for detecting intrusions into a monitored area;
- A micro switch for detecting attempts to open the detector housing;
- A red LED for monitoring for operability of the detector; indication can be disabled if necessary;
- A SENS / "ЧУВСТВ" jumper for selecting the sensitivity of the detector.

1.4 The detector generates address messages of three types, namely "Norm", "Intrusion Alarm", and "Tamper Alarm".

1.4.1 A "Norm" message is generated while there is no external influence;

1.4.2 An "Intrusion Alarm" message is generated when a typical target (human) moves as per GOST R 50777-95 with the velocity of 0.3 to 3 m/s within the coverage area for a distance 3 m max;

1.4.3 A "Tamper Alarm" message is generated if the housing of the detector has been open.

1.5 Messages are sent via the addressable polling loop using the data transfer protocol V2.51.

1.6 An individual address of every detector is defined during adjusting (see Section 9) and stored in its non-volatile memory.

1.7 The detector is immune to:
- Pet animals up to 20 kg;
- Backlight variations up to 8500 lx;
- Changing of the background temperature (up to 5°C/min).

1.8 The detector is resistive to EMI as per GOST R 50009-2000.

1.9 Industrial radio frequency interference from the detector's operation doesn't exceed the standard values established by GOST R 50009-2000 for residential, commercial and industrial areas with low energy consumption.

1.10 The detector design provides its outdoor round-the-clock operation.

2. Detector's Features

The detector comes with a swivel mounting bracket providing adjusting the detection area and a screen hood to protect the detector against precipitations.

3. Specifications

Table 1

Parameter	Value
Detection Range	
- For mounting height 2 to 2.3 m	12 m
- For mounting height 2.5 to 3 m	10 m
Target Velocity	0.3 to 3 m/c
Mounting Height	2 to 3 meters
Detection Angle	90°
Max Consumed Current in Quiescent Mode (no data are communicated via the polling loop)	0.5 mA
Operating Temperature	Minus 40°C to +50°C
Relative Humidity at+ 25°C	Up to 100%
Climatic Category GOST 15150-69	"УХЛ1"
Ingress Protection Rating (GOST 14254-96)	IP54
Overall Dimensions	180 × 70 × 60 mm
Weight	0.2 kg max

4. Standard Delivery

Table 2

S2000-Piron Addressable Volumetric PIR Motion Detector	1 pc.
Swivel Mount Bracket	1 pc.
Weather-proof Screen Hood	1 pc.
PG7 Cable Gland	1 pc.
Wall Plug NAT 5×25 SORMAT	2 pcs.
Woodscrews 3×30	2 pcs.
Plastic Sealant	1.0±0.5 g
Instruction Manual	1 copy

5. Design of the Detector

5.1 The detector (see Figure 1) consists of a base (3), a PC board (4), and a cover (7). Also the swivel mount bracket (1) and weather protecting screen hood (2) are supplied with the detector.

The base is attached to the mount bracket by the bolt (1d) via the knock-out hole (9). The PCB is fastened on the base by the latch (11) and the bolt (6). The cover is attached to the base by four bolts (8). The PCB incorporates the terminal block (5) for connecting the detector to the polling loop, three PIR detectors, the SENS / "ЧУВСТВ" jumper (12), the tamper switch (13) and the LED (14).
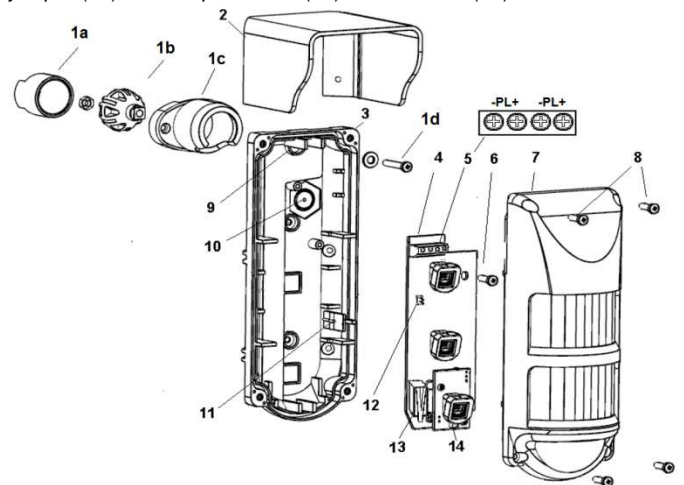

Figure 1. Structure of the Detector

1: Swivel mount bracket (1a:Fitting, 1b: Ball-joint, 1c: Bracket, 1d: Bolt)
2: Screen Hood
3: Base
4: PCB
5: Terminal blocks
6: Bolt for fastening the PCB
7: Cover
8: Bolts for fastening the cover
9: Knock-out hole for attaching the bracket
10: Knock-out hole for cable gland
11: Latch
12: SENS / "ЧУВСТВ" jumper
13: Tamper switch
14: LED

5.2 Mounting Location Considerations

Mounting the detector at a height of 2.3±0.1 m from the floor provides detection range up to 12 meters. If the detector is attached at a height of 2.5 to 3 m its detection range decreases down to 10 meters.

It should be taken into account that the detection zone can be restricted by any non-transparent and semi-transparent objects such as glass or mesh partitions. There must not be any swaying things (tree or shrub branches etc.).

PL wires should be at least 0.5 m far from electric cables. The detection pattern is shown in Figure 2.

6. Mounting

Prior to mounting the detector, separate its cover and PC board from the detector's base.

6.1 Before installing the detector assemble the parts of the swivel mount bracket provided:
1) Insert the nut into the notch of the ball-joint (1b);
2) Insert the boll-joint (1b) into the bracket body (1 c) and then insert the fitting (1a).

6.2 Attach the assembled mount bracket to the wall (ceiling) by means of wood screws at the selected mounting location. The body of the mounting bracket can be used as a mounting pattern for marking mounting holes on the mounting surface.

6.3 Knock out the hole (9) in the detector base for fastening the base to the mount bracket and the hole (10) for installing the cable gland and inputting the polling loop wires.

6.4 Assemble the cable gland PG7 (Ø13 mm) and fasten it in the hole (10).

6.5 Input the polling loop wires through the cable gland.

6.6 Seal the wire hole (10) by tightening the cable gland nut.

6.7 Fasten the detector base to the mount bracket by means of the bolt (1d).

6.8 After tightening the bolt (1d) seal the hole by the sealant provided.

6.9 When the base of the detector is fastened at the selected location put the PC board back locking it by the latch (11) and the bolt (6).

6.10 Connect the detector to the polling loop in line with Figure 3 following the instructions of the S2000-KDL user's manual. Fasten the wires by bolts and put the cover back onto the base.
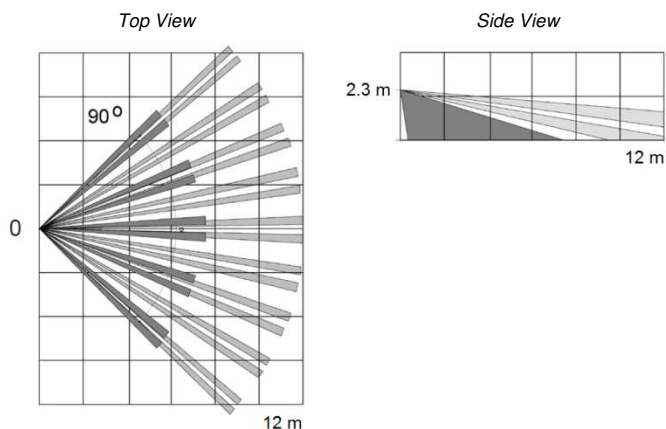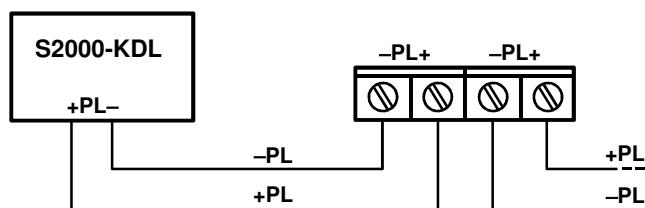

Figure 2. Detector Coverage Pattern

Figure 3. Connection Diagram

7. Setting the Address

The detector comes with the address of 127. The detector address is stored in its non-volatile memory (EEPROM). The address range is 1 to 127. To change the detector address, send the *Change Device Address* command from the network controller with the old and new addresses of the detector as parameters. Observe the messages about disconnecting the detector with the old address and connecting the detector with the new address displayed by the network controller.

If two or more detectors have the same addresses then use the *Set Device Address* command. For doing so, send this command specifying the new address from the network controller. Then remove the detector's cover and ensure the detector has entered the programming mode indicating this by LED's flickering once per 2 seconds. Next, perform a combination of presses on the detector's tamper switch – LLLS, where "L" is for a long press (longer than 0.5 s) and "S" is for a short press (shorter than 0.5 s). A pause between presses shall not exceed 1 s.

Changing the address shall be confirmed by steady illumination of the LED which indicates detector's software reset; and the network controller shall display a message about connecting the detector with the newly programmed address.

If the combination of presses is performed incorrectly, do nothing for two seconds and try pressing again.

To get more information about setting addresses of the devices connected into the polling loop please refer to the manuals for S2000-KDL, S2000M panel, and Orion Pro Workstation.

8. Enabling/Disabling LED Indication

Detector's LED indication can be operated either via PC or by means of the detector's tamper switch.

If LED indication is to be controlled via a PC, the connected S2000-KDL should be specifically configured from the PC using the UProg Configuration Tool. The parameter *Device Indication Control* of the S2000-KDL polling loop input zone which is assigned to the S2000-Piron should be set to a proper value. The value can be 0 (indication is inhibited), 1 (local indication), or 2 (indication is controlled remotely by the PL controller). By default, Device Indication Control is set to the value of 1, providing LED indication in accordance with the detector's own pre-determined algorithm. To disable indication, set this parameter to zero.

If LED indication is to be defined using the tamper switch, the algorithm is as follows. A combination of presses **LLSS** – **L** stands for a long press (longer than 0.5 s) and **S** stands for a short press (shorter than 0.5 s), with pauses between presses each being less than 1 s - switches the detector to the mode of local controlling for 5 minutes. A combination of presses **LLSL** switches the indication off for 5 minutes. In 5 minutes the indication starts being controlled as set in the configuration for this address point.

9. Walk Test

Connect the polling loop to the detector as shown in Figure 3. Switch power on and wait for about two minutes. Start moving through the detection area with the velocity 0.5 to 1 m/c. The detector shall trigger an alarm (by LED's flashing) after 3–4 steps within the detection zone. Wait until the LED stops flashing and pass through the detection zone from the other side. The detector shall trigger an alarm.

Detector's triggering an alarm when nobody moves within the detection zone means high interference environment. If so, select a lower sensitivity level by removing the SENS / "ЧУВСТВ" jumper. This reduces the detection range of the detector down to 8 m instead of 12 m but also improves its noise immunity.

After changing detector's sensitivity please test the coverage area again.

WARNING: The detector should be tested at least annually.

10. Transportation and Storage

10.1 The detectors in their original packing may be shipped by any transport in covered vehicles (in railway cars, trucks, sealed heated compartments of aircrafts, ship cargo holds, etc.).

10.2 The conditions of transporting the detector shall meet the requirements of Storage Condition 5 as per GOST 15150-69.

10.3 After transportation of the detector with conditions different from the operation ones the detector is ready for operation in 6 hours maximum.

10.4 Storage of the detector in transport packing shall meet the requirements of Conditions 1 as per GOST 15150-69.

10.5 In the premises where the detector is stored there must not be conductive dust, vapors of acids, alkalis, and gases that cause corrosion and break insulation.

11. Manufacturer Warranty

11.1 RIELTA CJSC guarantees that the detector meets the technical requirements specified in its Technical Specifications within 63 months since the date of manufacturing provided that the user follows the instructions for shipment, storage, installation, and usage.

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

11.3 The detectors that are found to not meet their Technical Requirements during the warranty period shall be repaired by the RIELTA CJSC, provided that the installation and operation rules were observed.

12. Acceptance and Packaging Certificate

The S2000-Piron addressable volumetric PIR motion detector of the batch number_____ is manufactured in line with actual technical documentation, approved as proper for operation, and packaged by RIELTA CJSC.

Responsible for Acceptance and Packaging

Quality Assurance _____ _____.

Month, Year

Ed.0 by 10.03.15

Made in Russia