S2000-IK Rev.02
Addressable Volumetric PIR Motion Detector

OPERATING AND INSTALLATION MANUAL

GENERAL

S2000-IK Revision 02 Addressable Volumetric Passive Infrared (PIR) Motion Detector (hereinafter referred to as the detector) is designed to detect intrusion into the protected premises with sending alarms to the connected polling loop controller S2000-KDL or S2000-KDL-2I via its two-wire multiplex addressable polling loop (PL).

The detector is intended to operate as a part of an Orion fire and intrusion alarm system.

The detector features volumetric detection zone providing pet immunity for animals up to 20 kg.

The detector is immune against lighting and radio frequency interference.

KEY FEATURES

- ✓ Dual-element pyro-electric infrared sensor
- ✓ High-density coverage offering high probability of detecting an intruder
- ✓ Protected against insects entering to the pyro-electric infrared sensors
- ✓ Sabotage-resistant zones just beneath the detector prevents unauthorized access to the detector
- ✓ Digital signal processing
- ✓ Powered via the multiplex addressable polling loop of a PL controller
- ✓ Supports DPLS_v2.51 protocol

SPECIFICATIONS

Detection Zone	Volumetric (see Figure 1)
Detection Range	10 m
Input Voltage	From the PL controller
Consumed Current	0.5 mA max w/o indication
Horizontal Field-of-View	90°
Operating Temperatures	−30 to +50℃
Relative Humidity	95% at 25℃, non-condensing
Ingress Protection Rating	IP41
Overall Dimensions (H x W x D)	105 mm $\times$ 75 mm $\times$ 56 mm max
Weight	0.1 kg max
Mounting Height	2.3 meters

MOUNTING LOCATION CONSIDERATIONS

The detector is intended to be used indoors. Considering a location to mount the detector, please take into account that the detection zone must not be obscured by any non-transparent objects such as curtains, houseplants, cabinets, room dividers, etc. as well as by glass or mesh partitions.

Do not locate the detector where it can be exposed to false alarm sources such as windows, air conditioners, heaters, radiators, etc.

Wires of the multiplex addressable polling loop should be located away from high-voltage electric cables.

The detector allows wall or corner mounting at a height of 2.3 m above the floor. This provides the detection range at least 10 meters. The detection pattern is shown in Figure 1.
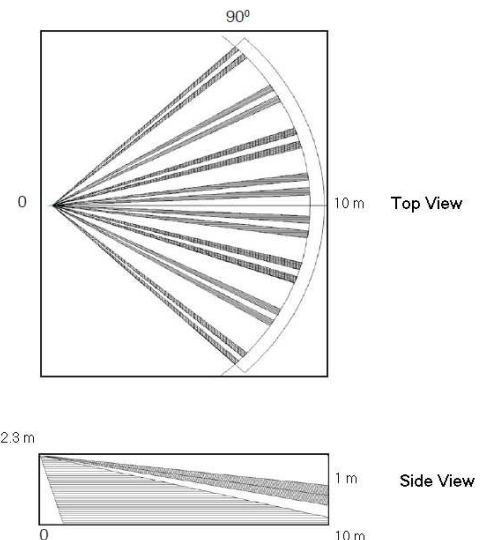

Figure 1: S2000-IK Rev.02 Detection Pattern

INSTALLING THE DETECTOR

1. Using a screwdriver remove the locking screw in the lower part of the rear housing (see Figure 2) and separate the front housing.
2. Using a screwdriver remove the screw keeping the PCB and lift the PCB out of the rear housing.
3. Drill out the required mount and wiring holes in the rear housing (see Figure 2).
4. Having selected the mounting location, mark the positions of the fixing holes on the wall taking into account positions of mounting holes in the rear housing or mount bracket (see Figure 3) and drill holes at the marked places.
5. Slide the wires into the wire holes in the mount bracket or rear housing.
6. Leave some centimeters of each wire for connecting to the terminal blocks.
7. Attach the rear housing or mount bracket at the selected location. For mounting with the swivel mounting bracket, unscrew the bolt from the ball-joint (see Figure 3) and align the square part of the ball-joint with the relevant notch in the upper part of the rear housing. Insert the bolt into the hole at the upper part of the rear housing, turn the rear housing to the proper position, and tighten the bolt.
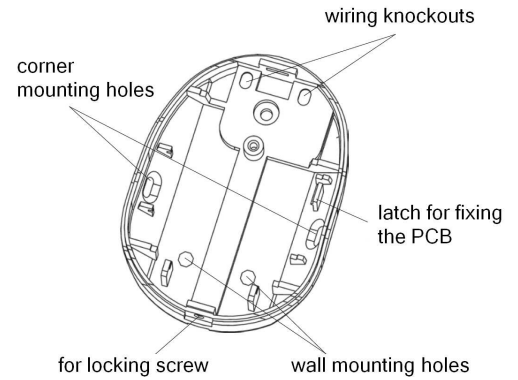8. Finally, place the PCB and tighten the PCB screw.
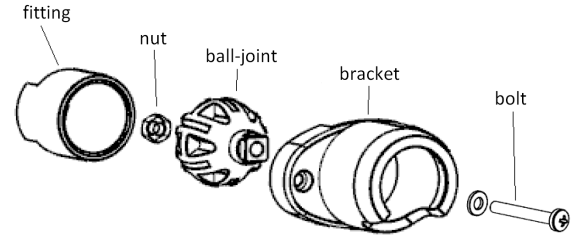
   Note: To prevent false alarms due to animals reliably, the detector shall not be deflected relative to the vertical direction by more than two degrees.

Figure 2: Rear Housing of the Detector

Figure 3: Mount Bracket Structure

WIRING

Figure 4 shows the way to connect detector's PL contacts which are situated at the top of its PCB to the relevant contacts of the S2000-KDL.

Figure 5 shows the wiring diagram for connecting the detector to the multiplex addressable polling loop of the S2000-KDL controller which is in turns connected to the network controller and the power supply.
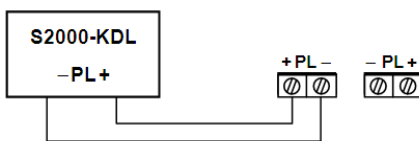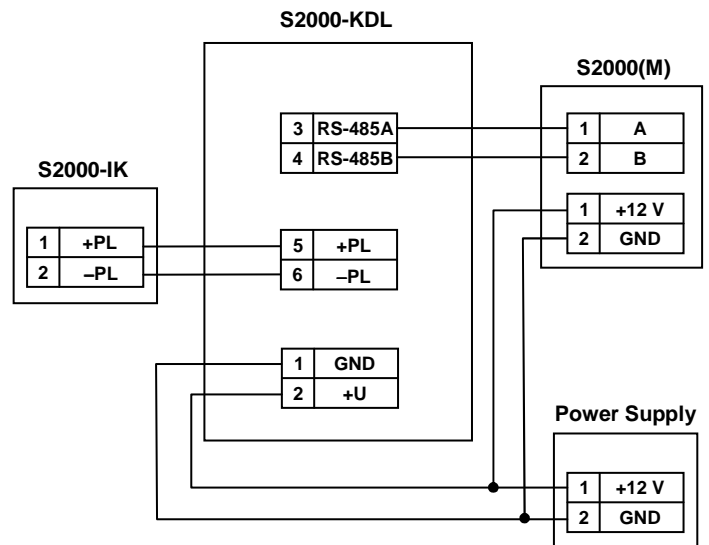

Figure 4. Connection Terminals

Figure 5. Connecting the Detector for Testing and Operation

PROGRAMMING

The detector comes with the address of 127. The address of the detector within the polling loop is stored in the detector's microprocessor non-volatile memory (EEPROM). The address ranges from 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 front housing 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.

WALK TEST

Connect the detector to the multiplex addressable polling loop as shown in Figure 4. Then power on the controller and wait for about two minutes. Next, walk through the detection zone. The detector shall issue an alarm after your three or four steps, with its LED being flashing. Wait until the LED finishes flashing, and then continue crossing the detection zone. The detector should issue an alarm. If nobody is moving within the detection zone, no alarms shall be issued.

WARNING

To ensure proper operation, walk test the S2000-IK rev.02 annually as described above.

ENABLING/DISABLING LED INDICATION

LED indication can be controlled either *via a PC* or by means of the *detector tamper switch*.

If LED indication is to be controlled via a PC, by the connected S2000-KDL, the 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-IK rev.02 should be set to a proper value. The value can be 0 (indication is inhibited), 1 (local indication), or 2 (indication 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. A combination of presses **LLSL** switches the indication off for 5 minutes. In 5 minutes the indication starts be controlled as set in the configuration for this address point.