ROSSLARE
SECURITY PRODUCTS

Installation Instructions

PYR-3011

Wireless Passive Infrared Ceiling-Mount Motion Detector

1.   Introduction

The PYR-3011 Digital Wireless Passive Infrared (PIR) ceiling-mount motion detector is a high-performance, ultra low power intrusion sensor with advanced design ideal for residential and commercial applications. This unit works with Rosslare's control panels like HomeLogiX™, which is wireless, and AuraSys™, which is wired. For the PYR-3011 to work with AuraSys™, the AuraSys™ panel must have the XR-16 wireless expansion.

The PIR senses slight motion within a coverage area by detecting infrared energy with a Pyroelectric sensor. Serving as an anti-intrusion sensor, the PIR can monitor open space within line of sight.

"Walk & Radio" test is an easy, as well as friendly, ceiling installation that makes it very comfortable for placing and setting.

The PYR-3011 uses fuzzy logic to improve detections and reduce false alarms.

It also provides digital temperature compensation and self-test capability.

The PYR-3011 is supplied with front and back tampers for high security.

As a wireless device, it includes a supervised mechanism as well as a battery-checker and tamper announcement.

Note 1:   This product must be installed professionally, and has only one available channel.

Note 2:   Pursuant to FCC §15.21 [54 FR 17714 , Apr. 25, 1989, as amended at 68 FR 68545 , Dec. 9, 2003], changes or modifications made to equipment, which are not expressly approved by Rosslare Enterprises, Ltd., may void the user's authority to operate the equipment.

2.   Technical Specifications

2.1   Optical Characteristics

Lens Type: High density Polytilan lens

Optical Filter: White light protection

Maximum Coverage: 7m (23ft) diameter at 2.4M (7.874ft) height.

2.2   Electrical Characteristics

Battery type: CR123 (3V/1300mhA)

Current Consumptions: Standby 15µa, 10ma transmission.

Battery Life (nominal): 3 years (150tr/day)

Detector Type: Quad-matrix PYRO IR element (IR filter 5um÷14um)

Alarm Signaling: Red LED 2 seconds on (push button setting)

Events Transmission: Alarm, Tamper, Low battery.

Sensitivity: 3 levels fuzzy logic (jumper setting)

Speed Detect: 0.2m/s ÷ 3m/s Δ t= 1.1°C (0.66 ft/s ÷ 9.84 ft /s Δ t= 34° F)

Temperature Compensation: Digital dual slope (+/- 1°C)

Tamper Switches: Back and front Cover tampers

Supervisory Signals: Electronic malfunction, temperature out of range (by flashing LED)

Arming types:

Normal- 2 minutes sleep, followed by last alarm

Dynamic- 2 minutes sleep, followed by last movement (retriggerable)

Test modes- walk test (no sleep) 1 min

Radio Test- 10 transmissions

2.3   RF Transmission Characteristics

Frequency: model H = 868.35 MHz; model G = 433.92 MHz

Range: 200 meters (656 ft) open field conditions

Supervision transmission: automatic, at 20-minute intervals

Self check: 3 hours from last alarm (retriggered)

2.4   Environmental Characteristics

Operating Environment: Indoor use

Operating Temperature: -10 to 60°C (14 to 140°F)

Operating Humidity: 0 to 95% (non-condensing)

RFI Protection: >20 V/m up to 1000 MHz
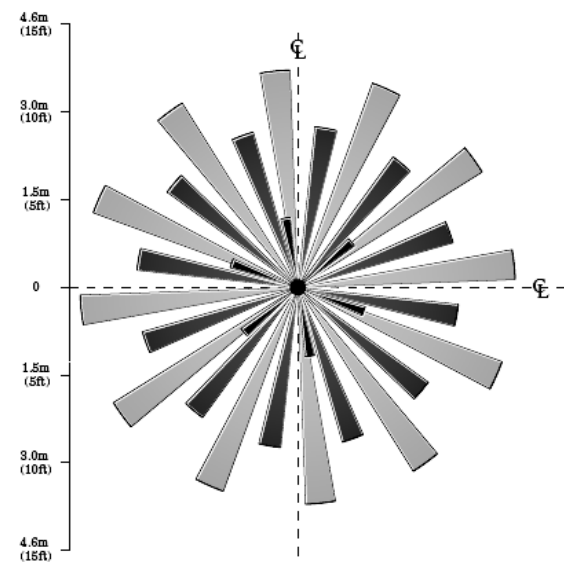
2.5

Physical Characteristics

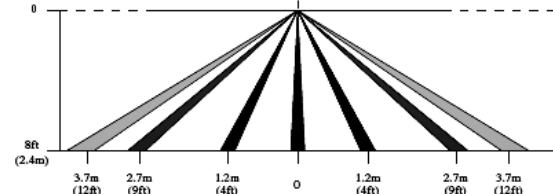**Dimensions top diameter x height x bottom diameter:** 106 x 31 x 71 mm (4.2 x 1.2 x 2.8 inch)

Weight: 106 grams (3.8 oz)

Note: The PYR-3011 is an indoor use PIR, and should not be used in outdoor applications.

TOP VIEW:

SIDE VIEW:

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3.   PYR-3011 Features

- **Advanced micro-controller electronics:** 10 bit A to D & advanced algorithms for superior movement speed spectrum analysis
- **Shielded quad-element Pyro:** Inside a dust-proof chamber designed to reduce thermal changes and insect protection
- **Three levels of sensitivity:** High, medium or low; jumper selection
- **Power saving:** Two transmission modes by jumper
- **Extra wide free height installation:** The detector may be installed at heights between 2 and 4 Meters without PCB adjustment.
- **Back and Front Cover tamper switches:** Protection against cover or wall removal for higher security.
- **Easy comfortable installation:** Without removal of PCB.

- **Walk & Radio test:** Check both in snappiness, with LED indication and without open case.
- **Energy detection system:** By using fuzzy logic algorithms, detection is improved and false alarms are reduced
- **Environment temperature compensation:** Maintains constant detection capability
- **Adaptive filter:** Compensates for changes in a detected object's speed
- **Continuous monitoring:** Sends visual alerts in case of malfunction (digital and analog) and temperature out of range

4.   Installation

4.1   False Alarm Reduction Effort

To reduce false alarms caused by detector installation:

- **AVOID:** Wiring of the PYR-3011 in such a way that it is parallel to and sitting close to 110V AC or 220V AC transmission equipment or mains power line.
- **AVOID:** Placing near or under heat and air ducts, ovens, heat sources, radiators, and air conditioners as this may cause a false detection.
- **AVOID:** Placing near PL lamps, electrical ballasts, above cookers, and ovens, and above steam sources.
- **NEVER:** Touch the Pyro-electric sensor on the PCB as this causes permanent damage and loss of sensitivity.

Important Note: PIR works according to field of view and cannot detect through walls. Avoid placing near obstructions such as large plants, curtains, behind open doors, and continuously moving objects.

4.2   Selecting the Physical Location

You need to select the best physical location to install the PIR.

To select a physical location:

1. Select a flat ceiling in a room or hallway that best matches the criteria in False Alarm Reduction Effort.
2. Make sure that the PIR is mounted on a non-moving, non-vibrating surface of the room.
3. The field of view of the detector is about 50° vertical and the coverage area depends on the installation height, refer to the following table.

Installation height(M)	Coverage area (diameters M)
2M	4.8
2.5M	7
3.3M	9
4M	13

Table 1: coverage area based on installation height

4. Mount the PIR in the selected location. (refer below to Mounting the PIR section)
5. After the installation, perform a walk test from the mounting location to ensure that the sensor pattern can detect within the coverage area (see Testing the Detector)

4.3   Mounting the PYR-3011 PIR

The PYR-3011G PIR is designed for easy & quick mounting onto a ceiling

To mount the PIR onto the ceiling:

1. There are 4 opened holes on the back of the casing. Two L-shaped holes (A) and two "water-drop" holes (B)
2. Open the back cover by twisting the top cover counter clock wise.
3. Place the back cover over the installation location. Ensure that the screws are aligned with holes B.
4. Mark the location for the mounting screws in holes B (wide end), and drill holes in the ceiling
5. Place the plugs in the drilled holes and screw in the screws leaving it out by about 4mm.
6. Pass the screws through the wide end of holes B. turn the back cover counter clock wise until the screws rest at the narrow end of holes B. Tighten the screws.
7. Insert the battery (check for correct polarity).
8. Replace the top cover over the back end as shown in the drawing below (please note the arrow marks)
9. At this point, the detector starts a warm up period which performs a self check for about 1-2 minutes. At the end, you can start a walk test (refer to signaling and testing sections).
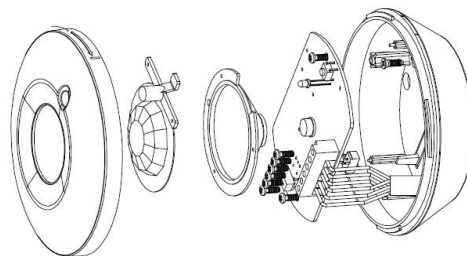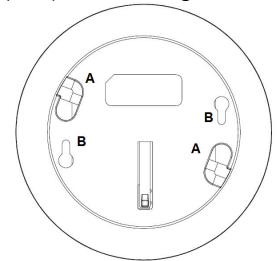

Figure 1 Closing the top over bottom casing

5.   Jumper and Tamper Setting

PYR-3011 has two jumpers, JP1 and JP2 and one tact switch S3 (test mode) operated by the guide light switch on the external casing.

5.1   Sensitive Level Jumper (JP2)

To prevent false alarms in harsh environments, three sensitivity modes were designated:

- **Low** – for harsh environments, jumper on pins 2 and 3
- **Medium** – for normal usage, jumper off
- **High** – for high sensitivity when there is little chance of false alarms, jumper on pins 1 and 2

5.2 APS – Auto Power Save Mode (JP1)

To save power, the PYR-3011 goes into sleep mode after sending an alarm. The time the device will be latent is set by the radio mode jumper, JP1.

- **Normal** (always 2 minutes between alarms) – no jumper.
- **Dynamic** (2 minutes retriggered between alarms) – jumper on.

When the dynamic mode is set, an alarm event will be sent only if there were 2 minutes of silence prior to the current alarm. This setting is useful for places with a high level of traffic, such as factories, shops, etc.

5.3 Back Tamper (R11)

The PYR-3011 has both front and back tamper detection. Front tamper detection is on by default and it is activated when the cover is opened cannot be changed. The back tamper detection is activated when the detector is pulled off the ceiling and is disabled by default, to enable the back tamper detection cut the back tamper wire - R11 - which is marked on the PCB as a scissor print.

5.4 Test Mode Switch (S3)

This pushbutton is used for walk test or radio test, as follows:

Walk Test – press for 1 second only; PIR functionality will be evaluated during the calibration process, for a 1 minute period.

(After self check at power up the walk test is automatic enable for 2 minutes.)

Radio Test – press for more than 3 seconds; the red indicator illuminates. 10 Alarms events are transmitted with 4 second intervals for a total transmission time of approximately 40 seconds.

This test is to insure clear RF passes between the detector and the control panel.

In all modes the LED will remain activate at all trouble announcements.
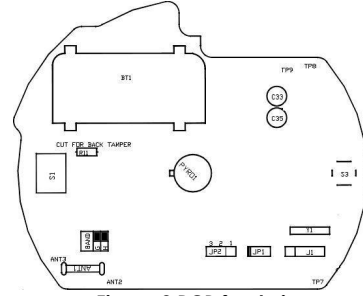
Refer also to panel manual for RF testing details.

Figure 2 PCB front view

6.   Testing the Detector

The PYR-3011 PIR has a built-in walk test function where the LED of the PIR is enabled. This test is used to check the detection of the PIR and the coverage pattern.

To perform a walk test:
1. Ensure all of the settings in the PIR are adjusted as necessary for the location according to the installation instructions above.

2. Insert battery in the closed case as described above. The LED flashes on for 2 seconds and off for 2 seconds for a period of 1 minute. Then the LED turns off. At this point a walk test can be performed. As default, perform a walk test of 2 minute at the end of the self test. If more than 2 minute goes past, refer to paragraph 3.

3. Place a magnet over the right side of the lens for 1 second only.

4. With the LED enabled the LED flashes every time the detector detects motion. There is a two second wait period before the next detection.

5. It is recommended that the installer test the detection by going over the protected area and seeing that the detection pattern is good.

6. After 1 minute, the LED goes off. If a new walk test is needed, go again to paragraph 3.

7.   Signaling Table

The LED on the front of the PYR-3011 is used to send several signals to the user. The following table describes the signals for different activities:

Activity	LED Signal
Warm-Up	The LED flashes on for 2 seconds and off for 2 seconds for a period of 1 minute. If the warm-up is successful, the LED stops flashing and the system is ready for detection.
Detect Condition	The LED flashes on for 2 seconds and then turns off.
PIR Problem	The LED flashes on for 1 second and then off for 1 second. A PIR check is conducted every 3 hours.
Temperature Problem	The LED flashes on in short bursts.
Weak Battery	LED OFF and ON alternately during Alarm, Tamper event

8.   Testing the Detector

The PYR-3011 PIR has a built-in walk test function where the LED of the PIR is enabled. This test is used to check the detection of the PIR and the coverage pattern.

To perform a walk test:
1. Ensure all of the settings in the PIR are adjusted as necessary for the location according to the installation instructions above.

2. Insert battery in the closed case as described above. The LED flashes on for 2 seconds and off for 2 seconds for a period of 1 minute. Then the LED turns off. At this point a walk test can be performed. As default, perform a walk test of 1 minute at the end of the self test. If more than 1 minute pasts, refer to paragraph 3.

3. Push the guide light according to the required LED mode. (Refer to setting test Mode, above)

4. With the LED enabled the LED flashes every time the detector detects motion. There is a two second wait period before the next detection.

5. It is recommended that the installer test the detection by going over the protected area and seeing that the detection pattern is good.

6. After 1 minute, the LED goes off. If a new walk test is needed, go again to paragraph 3.

9.   Low Battery Supervision

Prior to each RF transmission, the battery voltage is sampled. If the voltage is low (as indicated by the red blinking light) for 3 sequential samples, a special message is sent. Once the battery level returns to the minimum preset value, fault transmissions cease.

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10. Enrolling the Detector

After ending the self test, the detector can be enrolled. The easiest way to enroll the detector is by opening and closing the front tamper.

For specific steps to be followed for the enrolling, refer to the manual supplied with the alarm panel.

11. Limited Warranty

ROSSLARE ENTERPRISES LIMITED S (Rosslare) ONE YEAR LIMITED WARRANTY is applicable worldwide. This warranty supersedes any other warranty. Rosslare's ONE YEAR LIMITED WARRANTY is subject to the following conditions:

Warranty

Warranty of Rosslare's products extends to the original purchaser (Customer) of the Rosslare product and is not transferable.

Products Covered By This Warranty and Duration

ROSSLARE ENTERPRISES LTD. AND / OR SUBSIDIARIES (ROSSLARE) warrants that the PYR-3011 Wireless Passive Infrared Ceiling-Mount Motion Detector, to be free from defects in materials and assembly in the course of normal use and service. The warranty period commences with the date of shipment to the original purchaser and extends for a period of 1 year (12 Months).

Warranty Remedy Coverage

In the event of a breach of warranty, ROSSLARE will credit Customer with the price of the Product paid by Customer, provided that the warranty claim is delivered to ROSSLARE by the Customer during the warranty period in accordance with the terms of this warranty. Unless otherwise requested by ROSSLARE ENTERPRISES LTD. AND / OR SUBSIDIARIES representative, return of the failed product(s) is not immediately required.

If ROSSLARE has not contacted the Customer within a sixty (60) day holding period following the delivery of the warranty claim, Customer will not be required to return the failed product(s). All returned Product(s), as may be requested at ROSSLARE ENTERPRISES LTD. AND /OR SUBSIDIARY'S sole discretion, shall become the property of ROSSLARE ENTERPRISES LTD. AND /OR SUBSIDIARIES.

To exercise the warranty, the user must contact Rosslare Enterprises Ltd. to obtain an RMA number after which, the product must be returned to the Manufacturer freight prepaid and insured

In the event ROSSLARE chooses to perform a product evaluation within the sixty (60) day holding period and no defect is found, a minimum US$ 50.00 or equivalent charge will be applied to each Product for labor required in the evaluation.

Rosslare will repair or replace, at its discretion, any product that under normal conditions of use and service proves to be defective in material or workmanship. No charge will be applied for labor or parts with respect to defects covered by this warranty, provided that the work is done by Rosslare or a Rosslare authorized service center.

Exclusions and Limitations

ROSSLARE shall not be responsible or liable for any damage or loss resulting from the operation or performance of any Product or any systems in which a Product is incorporated. This warranty shall not extend to any ancillary equipment not furnished by ROSSLARE, which is attached to or used in conjunction with a Product, nor to any Product that is used with any ancillary equipment, which is not furnished by ROSSLARE.

This warranty does not cover expenses incurred in the transportation, freight cost to the repair center, removal or reinstallation of the product, whether or not proven defective.

Specifically excluded from this warranty are any failures resulting from Customer's improper testing, operation, installation, or damage resulting from use of the Product in other than its normal and customary manner, or any maintenance, modification, alteration, or adjustment or any type of abuse, neglect, accident, misuse, improper operation, normal wear, defects or damage due to lightning or other electrical discharge. This warranty does not cover repair or replacement where normal use has exhausted the life of a part or instrument, or any modification or abuse of, or tampering with, the Product if Product disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

ROSSLARE does not warrant the installation, maintenance, or service of the Product. Service life of the product is dependent upon the care it receives and the conditions under which it has to operate.

In no event shall Rosslare be liable for incidental or consequential damages.

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THIS WARRANTY SETS FORTH THE FULL EXTENT OF ROSSLARE ENTERPRISES LTD. AND IT'S SUBSIDIARY'S WARRANTY.

THE TERMS OF THIS WARRANTY MAY NOT BE VARIED BY ANY PERSON, WHETHER OR NOT PURPORTING TO REPRESENT OR ACT ON BEHALF OF ROSSLARE.

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THIS WARRANTY SHALL BECOME NULL AND VOID IN THE EVENT OF A VIOLATION OF THE PROVISIONS OF THIS LIMITED WARRANTY.

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