The JA-159P wireless outdoor PIR detector

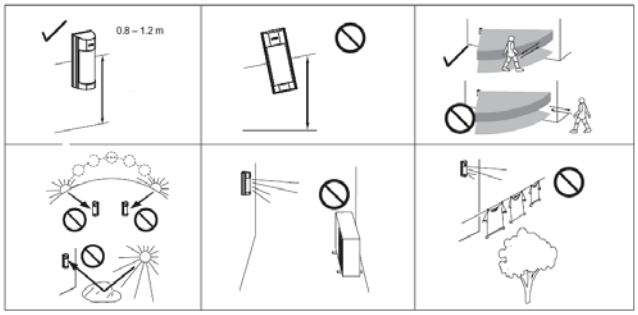
The JA-159P wireless outdoor intruder detector is designed to detect human body movement in a protected area. It supplements a double-zone PIR sensor produced by Optex with a Jablotron transmitter enabling the detector to be used within the JABLOTRON 100 system. The optical part of the detector has 2 PIR sensors and high immunity to false alarms and the detection of small animals. The detector includes an Anti-masking function – protection against covering the view and it also has two tampers (front and back) built in. They immediately report opening the detector or attempting tampering. The detector does a self-test periodically and sends its status to the control panel. The detector should be installed by a trained technician with a valid certificate issued by an authorised distributor.

Installation

Choose a proper place for detector installation according to the following:

1. The detector has to be installed onto a vertical wall (in a position where its bottom surface is parallel to the watched zone).
2. The detector should be installed 0.8 – 1.2 m above the ground.
3. The best movement detection is provided when the detection beams intersect.
4. No other moving objects (bushes, trees, high grass, air-conditioners, etc.) should be situated in the field of sight of the detector. Avoid direct action by strong sources of light (sun reflections, etc.).

Note: If multiple JA-159P detectors are used, they mustn´t be installed face to face with each other and its recommended to install them with a minimum 1 m distance.



Procedure:

1. Unscrew the locking screw placed on bottom of the upper cover of the detector (1) and remove the detection part cover (1).
2. Unscrew the 2 screws which hold the detector´s main board (2) and pull it out by tilting as you pull it out.
3. Remove the battery holder.
4. Remove the rear box cap (5).
5. Unscrew the 2 screws which link the rear cover (3) with the mounting plate (4).
6. The detector can be mounted onto a level mounting place by the 2 screws through the mounting plate (4). Or it can be mounted on pole by ties.
7. Put the detectors parts back together in the opposite order when it´s finally fixed to the mounting place (4).

Warning: Do not touch the detector sensing face during handling.

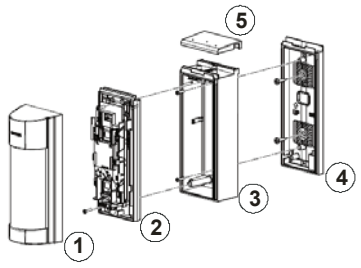


Fig. 1.: 1 – front cover, 2 – detector main board, 3 – rear cover, 4 – mounting plate, 5 – rear cover cap

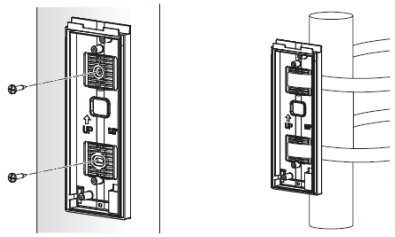


Fig. 2.: Detector installation. Standard wall installation and fixing by ties.

Enrolling the detector to the system

The signal transmitter for wireless communication is located under the main board part of the detector. The batteries are inserted into the battery holder of the OPTEX motion detector. **Use two CR123A (3 V, 1500 mAh) lithium batteries from the same manufacturer and replace both batteries at the same time. If an increased lifetime is needed, you can also use a third battery.** The correct position of the batteries is indicated on the battery holder. Alternatively, LS(T) 14500 (3.6V, AA) lithium batteries can be used. When inserting the batteries, it is necessary to remove the part of the holder held in place with a metal clip.

Enrollment procedure to the system:

a. **There must be a JA-110R radio module installed in the control panel.**
b. Go to the ***F-Link*** software, select the required position in the ***Devices*** window and launch the enrollment mode by clicking on the *Enroll* option.
c. Insert the batteries (mind the correct polarity). When the first battery has been inserted into the battery holder an enrollment signal is transmitted to the control panel and the detector is enrolled to the selected position. Assemble the detector.

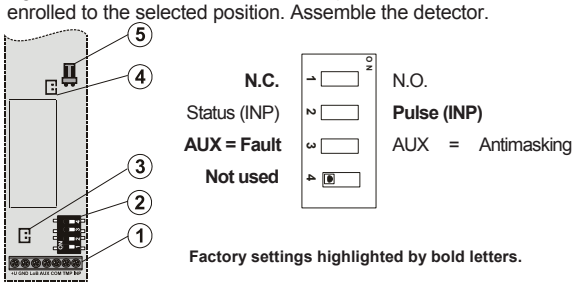


Fig. 3 - Transmitter: 1 – terminals, 2 – option DIP switch (pre-set from factory, 3 – external tamper connector, 4 – external antenna jumper, 5 – external antenna connector

If needed the transmitter can be equipped with an AN-80 or AN-81 external antenna connected to the connector (5) and disconnect the jumper (4).

Setting up the optical part of the detector

The optical part of the detector includes 2 PIR sensors with AND logic. They detect movement in two planes. The detecting angle of the lower PIR sensor can be adjusted. The alarm signal is triggered if only both detecting planes are triggered at the same time. By shifting the lens set up the tilt of the lower detecting plane according to the following picture and table.

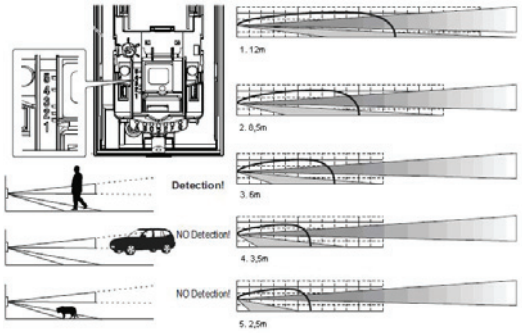


Fig. 4.

The following table represents the values included in the figure:

Position	*Maximum range of the lower detecting part*	
	Average value	*see following limits:*
1	12 m	10 to 17 m
2	8.5 m	7 to 12 m
3	6 m	5 to 8.5 m
4	3.5 m	3 to 6 m
5	2.5 m	2 to 3.5 m

Table 1.

Warning: The maximum detection length of the lower detection plane may vary as above due to environmental thermal conditions. This must be taken into consideration during detection range adjustment.

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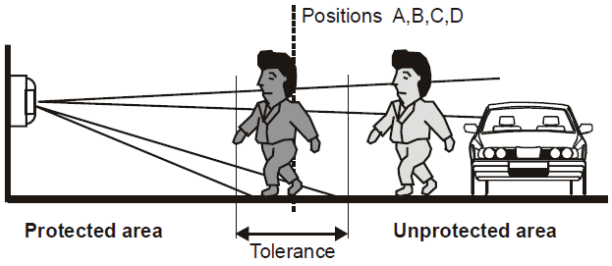


Fig. 5.

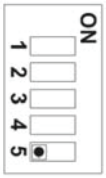
The detection area angle is 90°. The direction can be adjusted from position A – G by rotating the detector´s plastic part. Each step is circumscribed. The detector lens covers the whole angle of 180° - therefore it does not require any adjustment.

You can restrict the detection angle by adhesive masking strips supplied with the package. This way you can eliminate problematic parts of the detection area. The strips are to be stuck on the relevant lens segment from the inner side.

The PIR detection sensitivity can be configured by a 3-pole switch located under the upper sensor. The letters correspond to sensitivity levels as follows:

- **L** low – applicable to bad conditions
- **M** middle
- **H** high

Other parameters can be configured using a DIP switch:

NORM		**TEST**
120s		5s
N.C.		N.O.
LED OFF		LED ON
Antimasking OFF		**Antimasking ON**

Factory settings highlighted by bold letters.

The LED serves for PIR detector testing – checking the coverage. The detector always sends information to the control panel. For normal detector operation the LED should be turned off in order to save the battery.

The power save mode can be set up by DIP switch no. 2, select 5 s / 120 s.

Testing (coverage test)

By DIP switch no. 1, enter test mode and by DIP switch no. 4 turn on the LED indication. Close the detector. Test the detection range of the protected area and immunity out of the protected area.

Bear in mind the potential changing of detecting distance influenced by the environment.

Each movement is indicated by LED and it sends the information to the control panel (can be checked by F-link software in the Diagnostics tab).

We recommend turning off the indication LED when the testing procedure is finished. And set up the power save mode to 120s to get a longer battery lifetime.

Normal operating mode

The detector sends a radio signal about activation when it is triggered. In the case of tampering with the detector or tearing the detector off its position the detector sends a tamper signal. Every 9 minutes status report is sent to the control panel.

Replacing the batteries

The detector checks its battery status automatically and if the batteries are running low it informs the system. The detector remains fully functional. The batteries should be changed as soon as possible (within 1 week).

Before battery replacement the control panel has to be switched to service mode (see installation manual of the control panel) and then it is possible to open the cover of the detector. Always use CR123A (3V, 1500 mAh) batteries or alternatively LS(T) 14500 (3,6V AA) batteries.

***Note**: Always use 2x lithium batteries. If needed put 3x batteries in to increase the detector's lifetime.*

Troubleshooting

Problem	Problem cause	Solution
The detector makes false intrusion alarms	Lower detection area is unnecessarily long.	Set the detection area properly.
	The detector is exposed to direct/reflected light (sun light, car light etc.).	Remove the reflector, mask the area exposed to the reflection of light or change the detector position.
	There is a moving object in the area (laundry on the clothes-line, plants etc.).	Remove the moving object or change the detector position. Or put the stickers on part of the lens to avoid detection in a problematical place.
Occasionally no reaction to movement	Lower detection area is unnecessarily short	Set the detection area properly
	Sensitivity is set to low (L).	Change sensitivity to medium (M) or high (H).
	The detector is in battery-save mode	While testing operation, set the battery-save timer to 5 seconds.
Detector ignores any movements	Low battery	Replace the battery
	LED indicator lights but there is no reaction in the control panel.	The control panel is out of range, check the battery, try to reposition detector or control panel

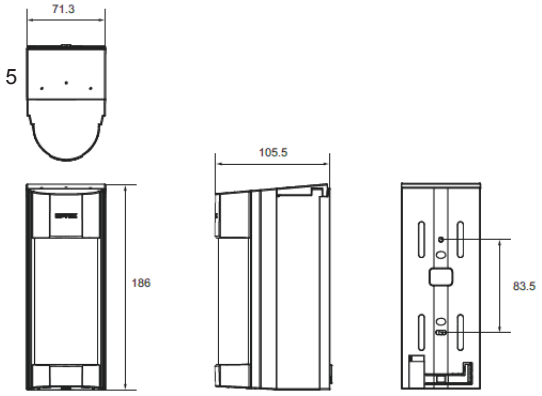


Fig. 6. Detector dimensions (mm)

Technical specifications

Power:	*2x Lithium battery CR123A (3 V, 1500mAh)*
Average battery lifetime	*2 x (3 x) CR123A, approx. 3 years (4 years)**
Alternative power	*2 x Lithium battery LS(T)14500 (3.6 V,AA)*
Average battery lifetime	*2 x (3 x) LS(T) 14500, approx. 3 years (4years)**
	**-valid for enabled 120s saving mode*
Communication band	*868.1 MHz*
RF range – communication range	*up to 300 m (open area)*
Optex detector parameter	
Detection characteristics	*12 m / 90 °; 16 segments*
Recommended installation height	*0.8 – 1.2 m*
Object motion speed	*0.3 – 1.5 ms^{-1}*
Battery saving timer	*adjustable 5 s or 120 s*
Operational environment according to EN 50131-1	*IV*
Security grade	*according to Optex*
Operating temperature range	*-20 °C to +60 °C*
Detector cover conformance	*IP55*
Max. relative humidity of the environment	*95 %*
Dimensions	*186 x 71.3 x 105.5 mm*
Weight	*500 g*
Complies with	*ETSI EN 300 220, EN 50130-4, EN 55022, EN 60950-1, EN 50581*
Can be operated according to	*ERC RED 70-03*

JABLOTRON ALARMS a.s. hereby declares that the *JA-159P* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC and 2011/65/EU. The original of the conformity assessment can be found at www.jablotron.com - Technical Support section.

Note: Although this product does not contain any harmful materials we suggest you return the product to the dealer or directly to the producer after use. For more detailed information visit www.jablotron.com.