ARITECH EV1012 Series PIR Detector Installation Guide

Contents

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Product Information

EV1012 Series PIR Detector

The EV1012 Series PIR Detector is a motion sensor device that is part of the EV1000 series. It comes in two models, EV1012 and EV1012AM. These detectors utilize a patented mirror, pyro, and signal processing technology to accurately detect motion.

Important Safety Information:

- The equipment is not earthed. Any external circuit connected to the equipment must be located within the same building and connected to a protective earthing conductor.
- Wire insulation of cables connected to the equipment must conform to IEC 60332-1-2 and IEC 60332-1-3 or IEC 603322-2, depending on the wire cross-sectional area, or IEC TS 60695-11-21, regardless of cross-sectional area. Alternatively, such wires must comply with UL 2556 VW-1.

Product Usage Instructions

1. Lift off the custom insert and remove the screw to open the detector.
2. Fix the base of the detector to the wall using screws in the appropriate positions. For flat mounting, use a minimum of two screws in positions A. For corner mounting, use screws in positions B or C. To install a pry-off tamper, use position A or B.
3. Wire the detector according to the provided diagrams (Figures 3 and 7).
4. Standard Connection (Factory Default): Connect the control panel (CP), walk test (WT), antimasking (AM), and day/night (D/N) remote test wires as per the standard connection diagram.
5. Dual Loop Connection: If required, follow the dual loop connection diagram to connect the control panel (CP) and walk test (WT) wires.
6. Perform a walk test to ensure proper functioning of the detector.

Explanation

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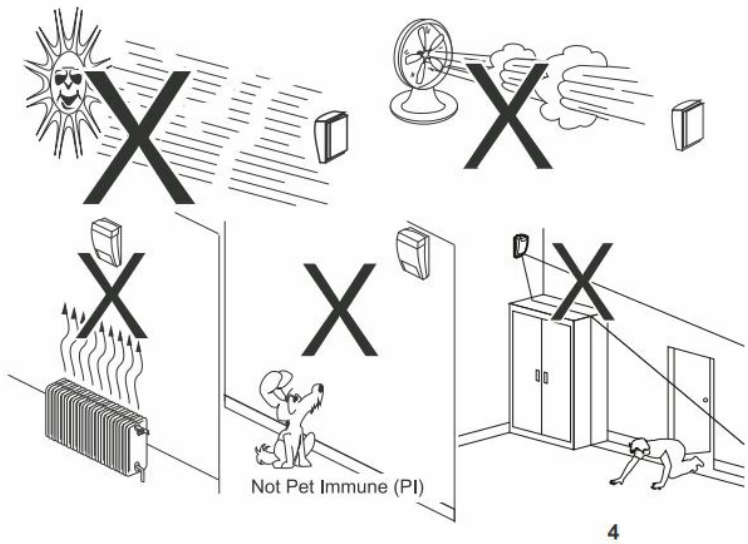

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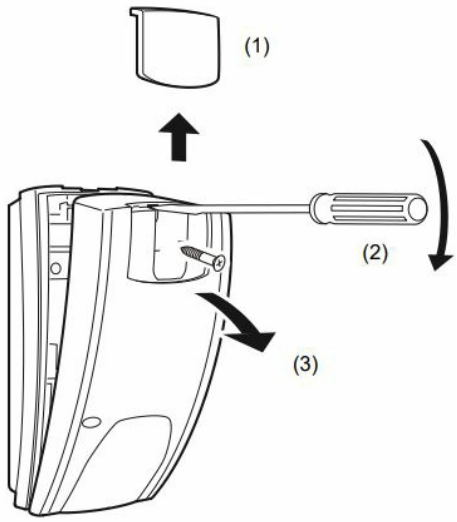

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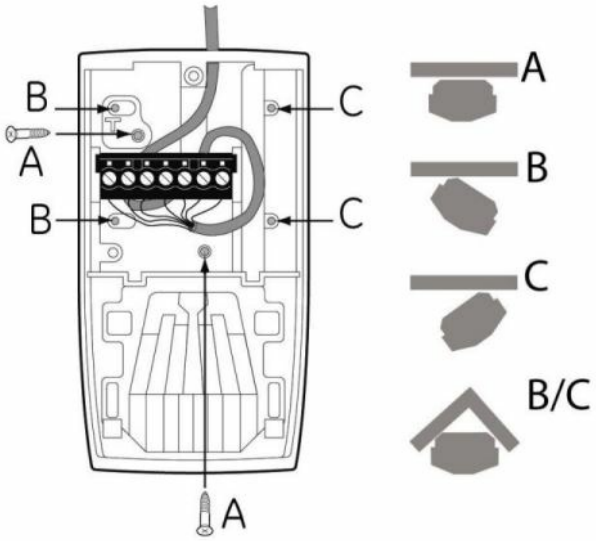

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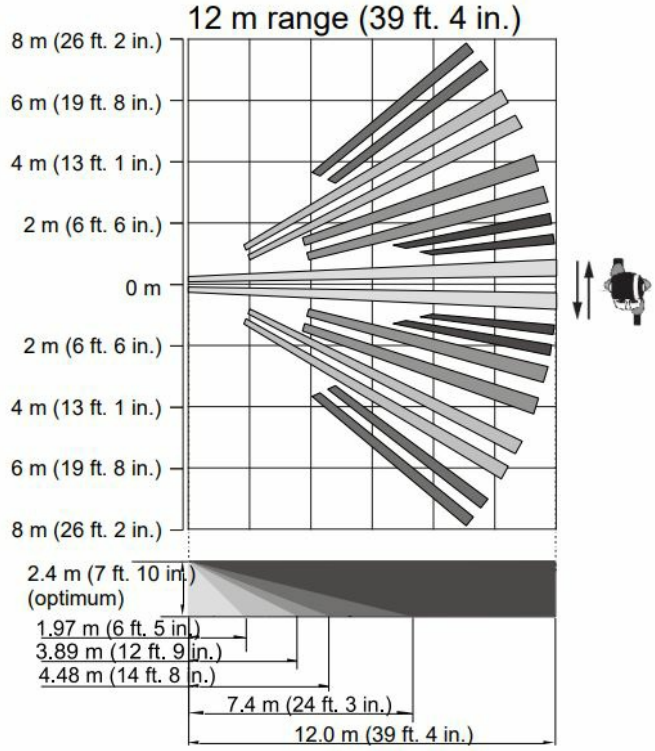

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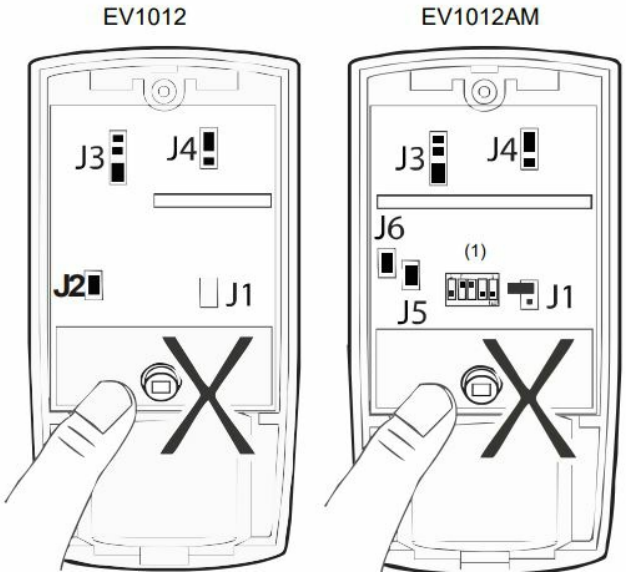

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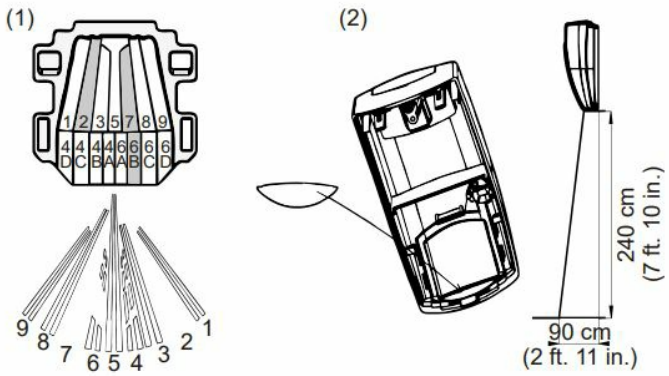

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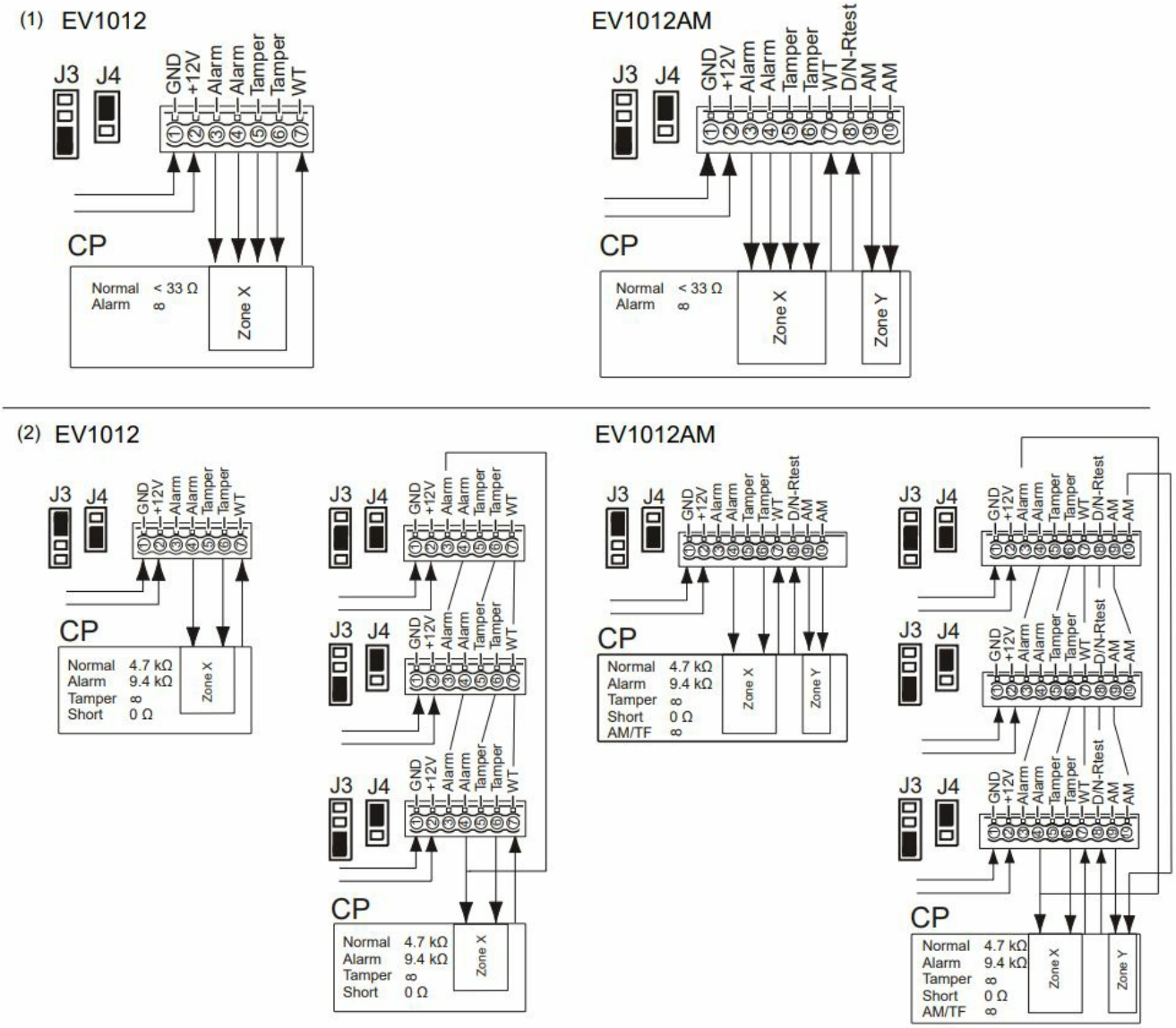

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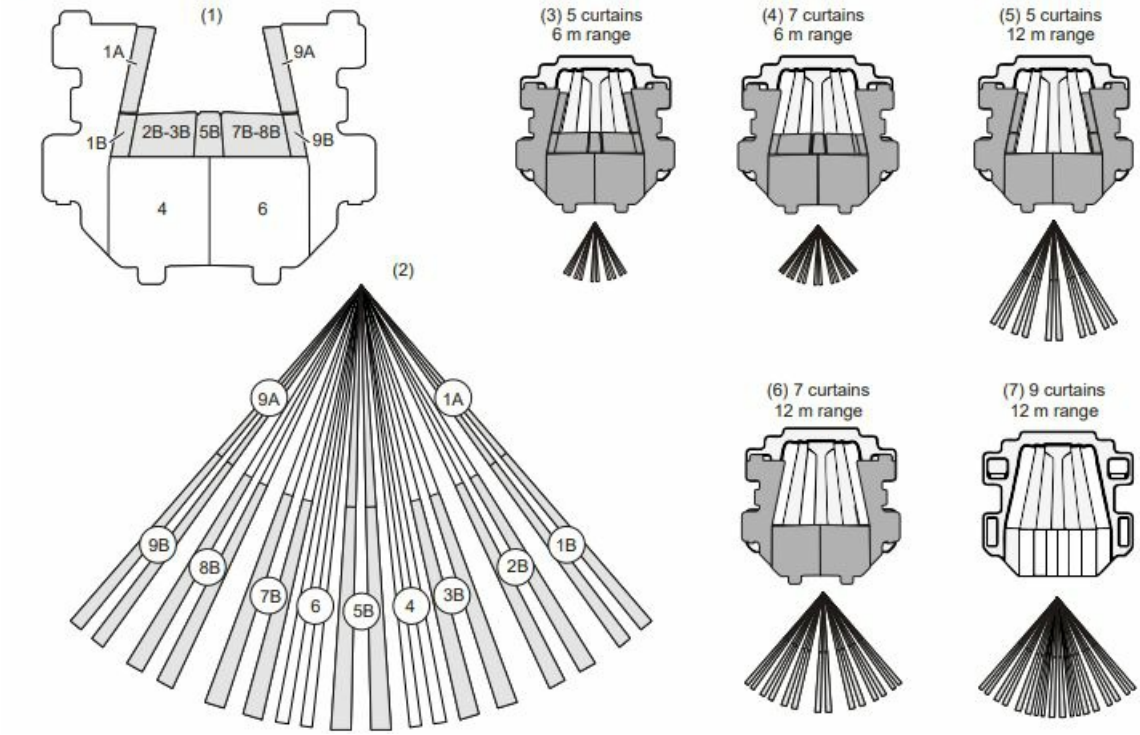


Installation Sheet

Introduction

- The EV1000 series includes models EV1012 and EV1012AM.
- These detectors have a patented mirror, pyro, and signal processing technology.
- **WARNING!** The equipment is not earthed. Any external circuit connected to the equipment must be located within the same building and connected to a protective earthing conductor.
- Wire insulation of cables connected to the equipment must conform to IEC 60332-1-2 and IEC 60332-1-3 or IEC 60332-2-2, depending on the wire cross sectional area, or IEC TS 60695-11-21, regardless of cross sectional area. Alternatively, such wires must comply with UL 2556 VW-1.

Installation guidelines

- The technology used in these detectors resists false alarm hazards. However, avoid potential causes of instability such as (see Figure 1):
- Direct sunlight on the detector
- Strong draughts onto the detector
- Heat sources within the detector field of view
- Large animals within the detector field of view
- Obscuring the detector field of view with large objects, such as furniture
- Objects within 50 cm (20 in.) of the anti-masking (AM) detector
- Installing two detectors facing each other and less than 50 cm (20 in.) apart

Installing the detector

Figure 7

- Standard connection (factory default)
- Dual loop connection
- CP Control panel
- WT Walk test
- AM Antimasking
- D/N Day/night
- Rtest Remote test

To install the detector:

1. Lift off the custom insert and remove the screw (see Figure 2, item 1).
2. Using a screwdriver, carefully prise open the detector (see Figure 2, items 2 and 3).
3. Fix the base to the wall. For flat mounting use a minimum of two screws (DIN 7998) in positions A. For cornermounting use screws in positions B or C (Figure 3). To install a pry-off tamper, use position A or B.
4. Wire the detector (see Figures 3 and 7).
5. Select the desired jumper and DIP switch settings (see Figure 5). See “Jumper settings” on page 4 for more information.
6. Remove the blinders and add the stickers, if required. See Configuring the coverage pattern” on page 5 for

more details.

7. For ceiling-mount applications that require a 90° coverage, use the SB01 swivel-mount bracket.
8. Close the cover.
9. Insert the screw and place the custom insert.

For EN 50131 Grade 3 installations, do not use mounting position C (only applicable for AM detectors).

Jumper settings

See Figure 5 for the jumper locations in the detector.

J1: Mode jumper (only available on EV1012AM models)

- **Note:** Bi-curtain jumper functionality is available in EV1012AM with firmware version 1.21 or later.
- **On:** BI-curtain mode. In this mode an extra level of processing is applied to provide enhanced stability in the presence of false alarm hazards. Bi-curtain is used to reduce the possibility of false alarms. It looks for signal verification and requires the intruder to be seen in two curtains.
- This mode is not suitable for single curtain applications.
- **Off:** Standard mode (default). This mode is suitable for most of the wide angle and single curtain applications. The mode must be used in EN 50131 compliant installations.

J2: PIR enabling the LED

- **On:** Enables the detector LED at all times (default).
- **Off:** Puts the LED under control of the WT (walktest) input. If the WT input is connected to GND (terminal 1), the red LED goes on for 3 seconds when a PIR intruder alarm is detected.
- If the WT input is connected to +12 V (terminal 2) or floating, the red LED is disabled.

J3 and J4: Dual loop setting

- This sets the alarm and tamper relays. It allows you to connect the detector to any control panel. Use jumpers 3 and 4. See Figure 7.

J5: D/N mode (Day/Night) or Rtest (remote test) setting

- Use this jumper to set terminal 8 to either D/N or Rtest. Carrier Fire & Security recommends that you use D/N to manage the AM/TF activation when required. Use Rtest to test the detector from the control panel. The detector will activate the Alarm relay if the test result is positive, and the AM relay if the test result is negative.
- **On:** Terminal 8 = D/N (default).
- **Off:** Terminal 8 = Remote test.

J6: Polarity setting of the control voltage (CV) On (factory default):

- The detector is in Day mode (system disarmed) when the D/N input is connected to GND (terminal 1)
- The detector is in Night mode (system armed) when the D/N input is connected to +12 V (terminal 2)

- The detector is in Walk Test Off mode (LEDs are disabled) when the WT input is connected to GND (terminal 1)
- The detector is on Walk Test On mode (LEDs are enabled) when the WT input is connected to +12 V (terminal 2)

Off:

- The detector is in Day mode (system disarmed) when the D/N input is connected to +12 V (screw terminal 2).
- The detector is in Night mode (system armed) when the D/N input is connected to GND (terminal 1).
- The detector is in Walk Test Off mode (LEDs are disabled) when the WT input is connected to +12 V (terminal 2).
- The detector is on Walk Test On mode (LEDs are enabled) when the WT input is connected to GND (terminal 1).

D/N and WT functionality

The D/N input:

- Controls the LED functionality together with the WT input.
- Resets the alarm memory
- Controls the AM relay functionality during the NIGHT mode together with SW1.
- The WT input controls the LED functionality together with the D/N input.
- When the detector is in the Day mode and Walk Test On mode, the LEDs of the detector can be activated. See “LED indication” on page 5 for more information.
- During the Night mode the LEDs are always switched off.
- If a PIR intruder alarm if detected in the Night mode and the detector switches back to Day mode, the red LED starts flashing to indicate an alarm in memory.
- The alarm memory is reset by switching the detector to Night mode.

DIP switch setting

- **SW** 1: When to signal AM (anti-masking) or TF (technical fault) output
- **On:** Signals AM or TF only when the system is in Day mode (default). Note that SW 5 must be in the OFF position for this functionality to be enabled.
- **Off:** Always signals AM or TF during Day and Night mode.

SW 2: AM sensitivity

- **On:** Advanced AM sensitivity. The detector signals the AM area masking (factory default).
- **Off:** Standard AM sensitivity. The detector signals the AM area approaching.

SW 3: Resetting the AM/TF output

- **On:** Resets the AM or TF status 40 seconds after a PIR alarm.
- **Off:** Resets the AM or TF status after a PIR alarm when the system is in Day and Walk Test status. The yellow

LED will blink quickly. When the system is in Night status, the yellow LED will turn off and the system is reset (default).

Notes

- For the advanced setting (SW 2 is On) the source of AM alarm needs to be removed before AM reset is allowed.
- If the AM alarm cannot be reset with an auto reset or authorized reset, disconnect the power supply and reconnect again.
- A walk test should be performed to ensure the device settings are appropriate for its application.

SW 4: Signaling AM or TF output

- **On:** Signals AM on both the AM and Alarm relays. Signals TF on the AM relay only (EN 50131).
- **Off:** Signals AM and TF on the AM relay (default).

SW 5: Setting LEDs

- **On:** Enables both LEDs on the detector at all times (default).
- **Off:** Puts both LEDs under the control of the Walk Test and Day/Night input. This activates the memory feature of the detector.

AM calibration

- During start-up the AM circuitry calibrates itself to its environment. It is important to make sure that there are no changes made to the environment within 1 m distance of the detector within 60 s after powering up, otherwise the detector may be vulnerable to false AM alarms and these alarms may be impossible to reset.

Configuring the coverage pattern

- Remove blinders (Figure 8, item 1) if necessary. The modified pattern is shown in Figure 8, items 3 to 7.
- **Note:** If both blinders are installed, the detector range is limited to 6 m (default).
- Modify the pattern by breaking out blinder parts (shown as gray in Figure 8, item 1). The corresponding curtain fragments are shown in Figure 8, item 2.
- Put the appropriate mirror stickers if necessary. See Figure 6, item 1 for details.
- **Caution:** Removing stickers can damage the mirror surface.
- When near objects directly under the detector, fit the mask to the inside of the window (default). This disables the part of the curtains looking down at the object, whose closeness might destabilize the detector. See Figure 6, item 2.

LED indication

PIR	Red LED	Alarm relay	To reset
Start up		Closed	Automatically after 25 s
Low voltage		Open (Alarm)	Apply correct voltage
PIR intruder alarm		Open (Alarm)	Automatically after 3 s

PIR/AM	Red LED	Yellow LED	Alarm relay	AM relay	To reset
Start up			Closed	Closed	Automatically after 60 s
Low voltage			Open (Alarm)	Open (Alarm)	Apply correct voltage
PIR intruder alarm			Open (Alarm)		Automatically after 3 s
Latched PIR (Memory)					Switch to Night mode
AM alarm			Open* (Alarm)	Open (Alarm)	See DIP switch 3
PIR/AM	**Red LED**	**Yellow LED**	**Alarm relay**	**AM relay**	**To reset**
After AM reset					Switch to Night mode
Technical fault				Open (Alarm)	Do a successful walk test

* Depends on the setting of the DIP switch SW4.

Continuously on Normal blinking (1 Hz) Fast (4 Hz)

Specifications

	EV1012	**EV1012AM**
Detector	PIR	PIR + AM
Signal processing	DSP	
Range	12 m	
Optical	9 high-density mirror curtains	
Memory	No	Yes
Input power	9 to 15 V (12 V nominal)	
Peak-to-peak ripple	2 V (at 12 V)	

Detector start-up time	25 s	60 s
Normal current consumption	4.4 mA	10 mA
Current consumption in alarm	1.2 mA	3.8 mA
Maximum current consumption	11 mA	24 mA
Mounting height	1.8 to 3.0 m (5.9 to 9.8 ft.)	2.0 to 3.0 m (6.6 to 9.8 ft.)
Target speed range	30 cm/s to 3 m/s (1 ft./s to 10 ft./s)	20 cm/s to 3 m/s (8 in./s to 10 ft./s)
Alarm (NC) / Tamper relay characteristic	80 mA 30 V resistive ,	80 mA 30 V
Pry-off tamper	N/A	Onboard (yes)
AM relay characteristic	—	80 mA at 30 V max.
Alarm time	3 s	
Operating temperature	–10 to +55°C (14 to 130°F)	
Dimensions (H x W x D)	108 × 60 × 46 mm (4.25 × 2.36 × 1.81 in.)	
Relative humidity	95% max. noncondensing	
Weight	120 g (4.2 oz.)	128 g (4.5 oz.)
IP/IK rating	IP30 IK02	

Regulatory information

- **Manufacturer** PLACED ON THE MARKET BY:
  - Carrier Fire & Security Americas Corporation Inc.
  - 13995 Pasteur Blvd
  - Palm Beach Gardens, FL 33418, USA
  - AUTHORIZED EU REPRESENTATIVE:
  - Carrier Fire & Security B.V.

- Kelvinstraat 7, 6003 DH Weert, Netherlands

- **Product warnings and disclaimers**
  - THESE PRODUCTS ARE INTENDED FOR SALE TO AND INSTALLATION BY QUALIFIED PROFESSIONALS. CARRIER FIRE & SECURITY CANNOT PROVIDE ANY ASSURANCE THAT ANY PERSON OR ENTITY BUYING ITS PRODUCTS, INCLUDING ANY AUTHORIZED DEALER" OR "AUTHORIZED RESELLER", IS PROPERLY TRAINED OR EXPERIENCED TO CORRECTLY INSTALL FIRE AND SECURITY RELATED PRODUCTS.
  - For more information on warranty disclaimers and product safety information, please check **https://firesecurityproducts.com/policy/productwarning/**or scan the QR code.

- **CE European Union directives**
  - Carrier Fire & Security hereby declares that this device is in compliance with the applicable requirements and provisions of the Directive 2014/30/EU and/or 2014/35/EU. For more information see firesecurityproducts.com or **www.aritech.com**.

- **REACH**
  - Product may contain substances that are also Candidate List substances in a concentration above 0.1% w/w, per the most recently published
  - Candidate List found at ECHA Web site. Safe use information can be found at **https://firesecurityproducts.com/en/content/intrusion-intro**
  - 2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: recyclethis.info

- **Product documentation**
  - Please consult the following weblink to retrieve the electronic version of the product documentation.
  - This link will guide you to the EMEA regional contact page. On this page you can request your login to the secured webportal where all manuals are stored. **https://firesecurityproducts.com/en/contact**.

Contact information

firesecurityproducts.com or www.aritech.com

Certification

Declaration of Conformity

- The EV1012-series is suitable for use in alarm systems designed to comply with PD6662 at security grade 2 and environmental class II.
- The EV1012AM-series is suitable for use in alarm systems designed to comply with PD6662 at security grade 3 and environmental class II.
- They conform to the relevant parts of the following standards: EN 50131-1 — Alarm systems-Intrusion systems Part 1: System requirements EN 50131-2-2 — Alarm systems. Intrusion systems. Intrusion detectors. Passive infrared detectors EV1012/EV1012PI have been tested and certified to EN 50131-2-2, EN 50131-1 for Security grade 2, Environmental class II, by the Dutch testing and certification body Telefication B.V. EV1012AM/EV1012AMD have been tested and certified to EN 50131-2-2, EN 50131-1 for Security grade 3, Environmental class II, by the Dutch testing and certification body Telefication B.V.
- **VdS** EV1012-D VdS Nr: G109507, Klasse: B

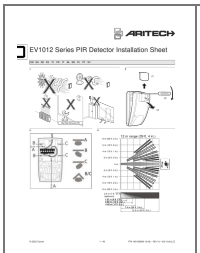
- **INCERT** EV1012/EV1012PI Nº: C-001-1546 EV1012AM Nº: C-001-1547

NF & A2P

- EV1012 : Nº 2620002900
- EV1012PI : Nº 2621100006
- NF-A2P Type 2
- Certifiés suivant les référentiels :
- TS 50131-2-2, RT 50131-2-2, NF324-H58
- Classe d'environnement : II
- CNPP certification www.cnpp.com
- AFNOR certification www.afnor.org
- IMQ
- EV1012AM Nº: CA1200972, Livello: 3

- **Nota:** per la conformità alle norme CIE 79.2 è obbligatorio l'utilizzo della protezione antirimozione.
- P/N 146169999-10-ML REV N ISS 19JUL22

Documents / Resources

	ARITECH EV1012 Series PIR Detector [pdf] Installation Guide EV1012, EV1012AM, EV1012 Series, EV1012 Series PIR Detector, PIR Detector, Detector

References

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- HOME
- AFNOR solutions – Les services du groupe en France et à l'international
- Aritech - Fire Security Products
- CNPP, votre expert en prévention et en maîtrise des risques - CNPP
- utcfireandsecurity.com/
- Contact us - Fire Security Products
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