



# OPTEX CX-702 Long Range PIR Detector Instruction Manual

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**OPTEX CX-702 Long Range PIR Detector**



## FEATURES

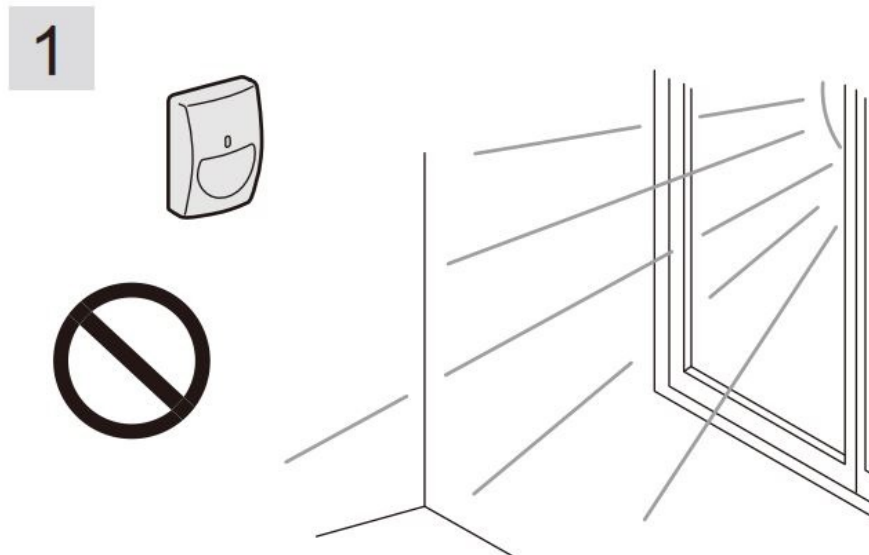
- Dual Purpose Lens: Selectable “WIDE ANGLE” and “LONG RANGE” detection patterns
- Double Conductive Shielding of the pyroelectric element Extremely High Light and RFI Immunity (Patent listed)
- Multifocus Optics Design (Patent listed)
- LED On / Off Switch
- Sealed Optics
- Easy Installation
- Alarm Memory (CX-702V Only)
- LED Remote Control Terminal (CX-702V Only)

## OPTION

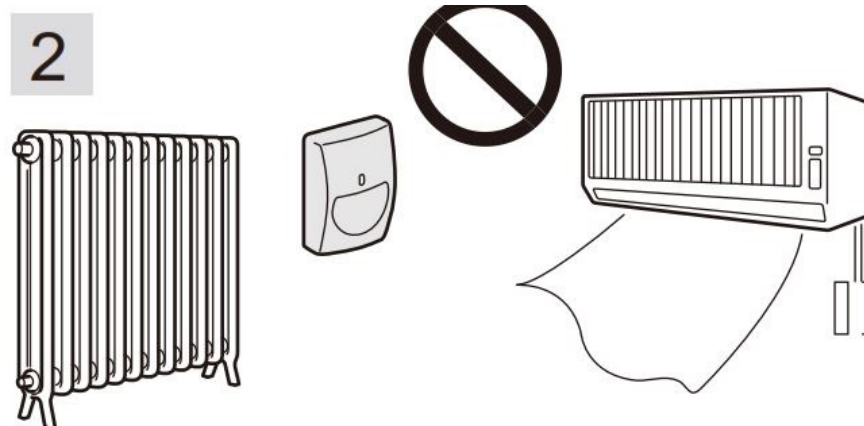
- **CA-1W:** Wall Mount Bracket: adjustable t45° (Horizontally). 0 to 20° (Vertically downwards)
- **CA-2C:** Ceiling Bracket: adjustable s45° (Horizontally). 0 to 20° (Vertically downwards)

## INSTALLATION HINTS

1. Avoid direct sunlight.



2. Avoid mounting detector where movement of Fans or Air Conditioning Fans can be detected.

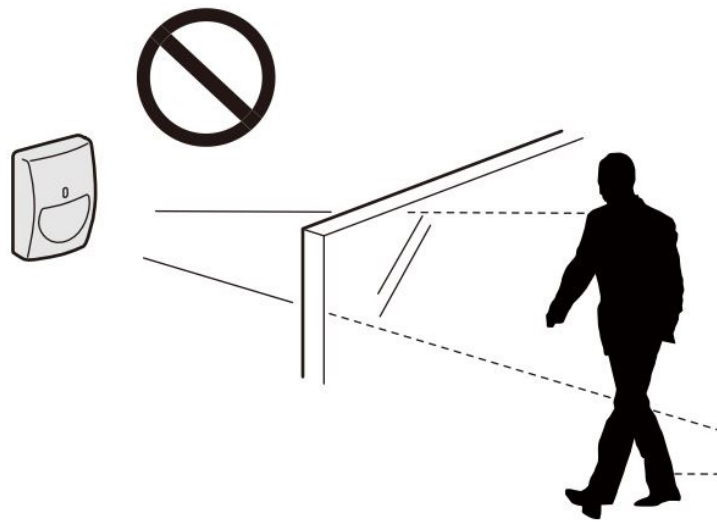


3. Avoid vapor or high humidity that can cause condensation.



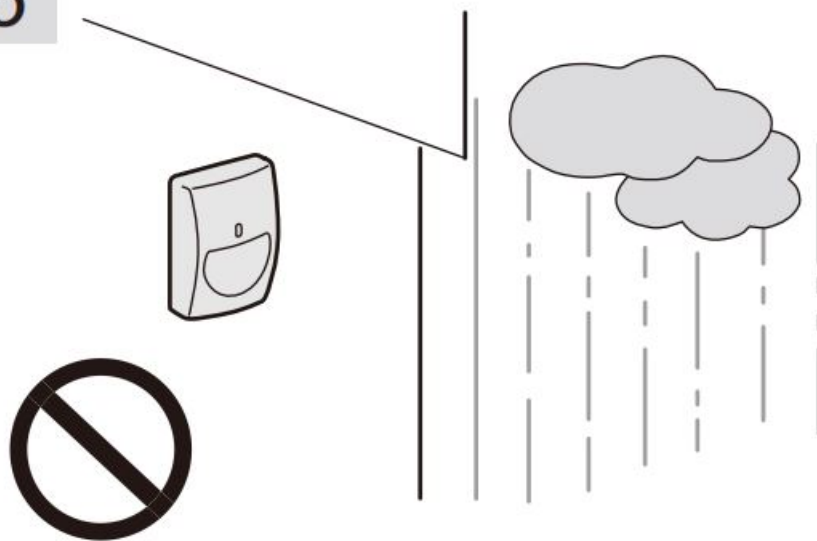
4. Avoid Curtain, Screen, etc. blocking detection area.


4




5. Do not install outdoors.

5

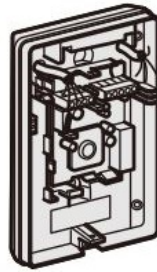


6.  **WARNING:** Never repair or modify product. It may cause accident, fire hazard or electric shock.

7.  **WARNING:** When damage has occurred to the product, i.e. water logged, abnormal things inside product, overheating or smoking, strange smells etc., immediately stop using product and contact your supplier. Otherwise, continued use in such condition may cause electric shock or fire hazard.



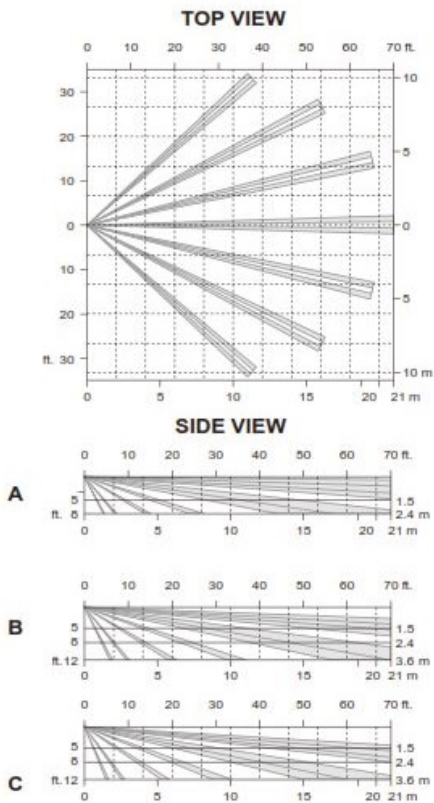
8. **CAUTION:** Mount securely. A falling product may cause injury.



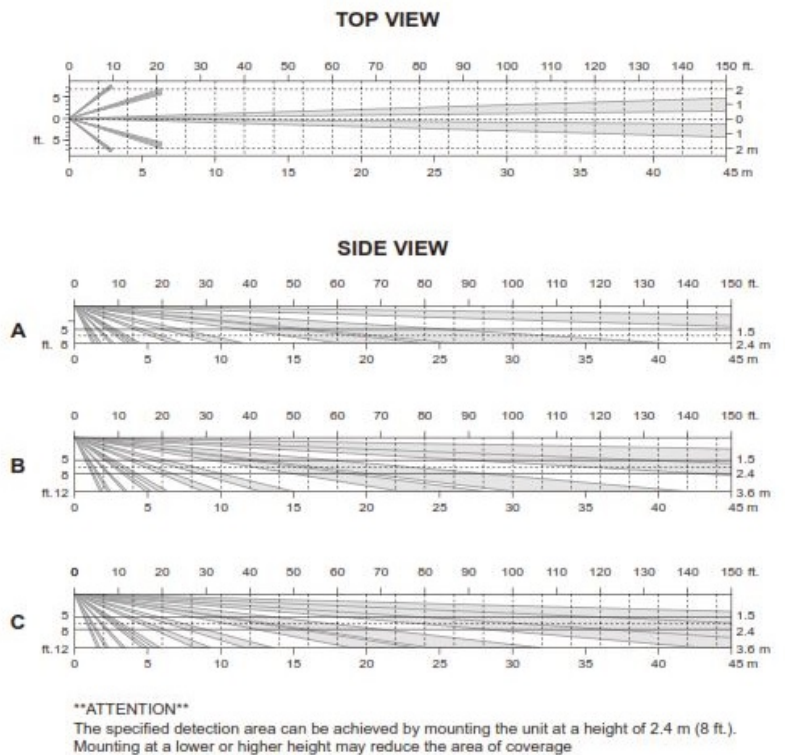
This symbol indicates prohibition.

## DETECTION AREA

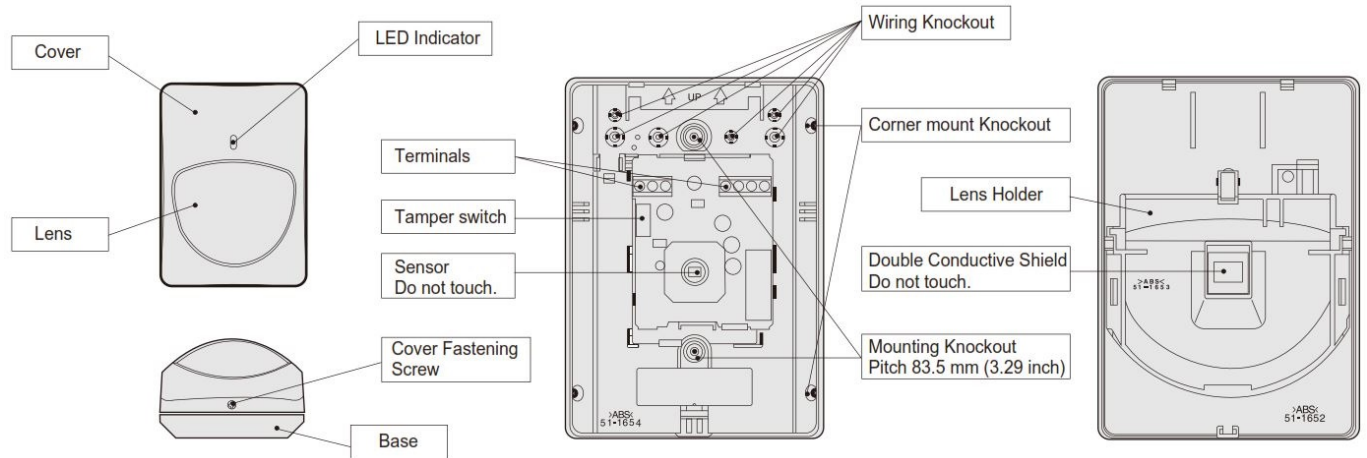
### WIDE ANGLE



### LONG RANGE

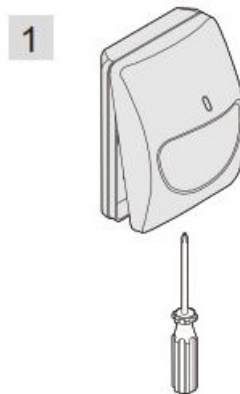


## DESCRIPTION AND OPERATION

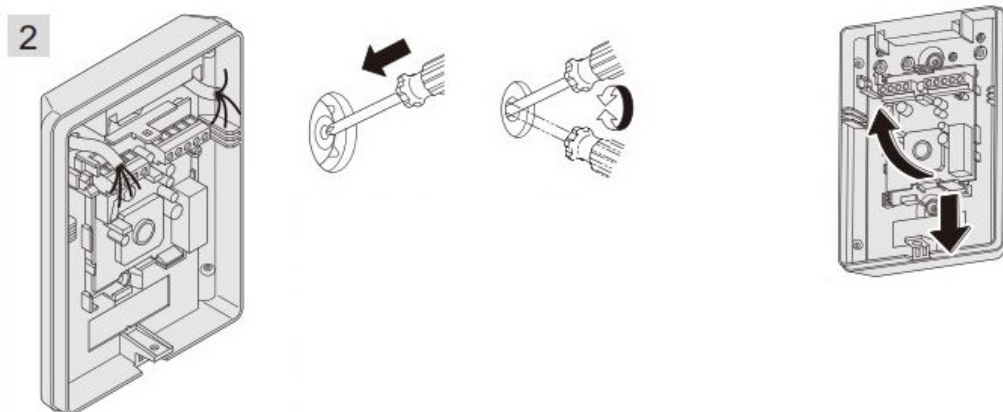


## INSTALLATION

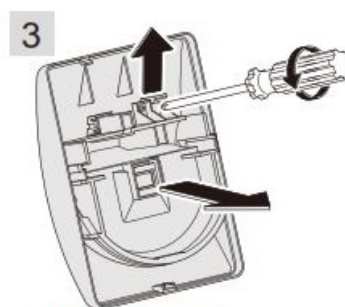
1. Loosen fastening screw and remove cover.



2. Lead in wires through knockouts along the wiring guide on the rear side of base. Mount base with supplied screws. When using a bracket, check matching knockout position before opening mounting holes. Wire according to Section 5.



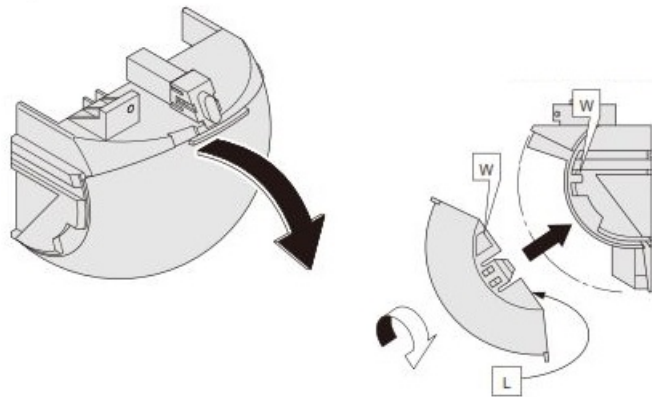
3. Remove the screw fixed the lens holder (CX-702V Only), open the cover's hook and then lens cover can be removed.



4. Remove lens holder carefully. Select wide angle or long range according to Section 6-2.

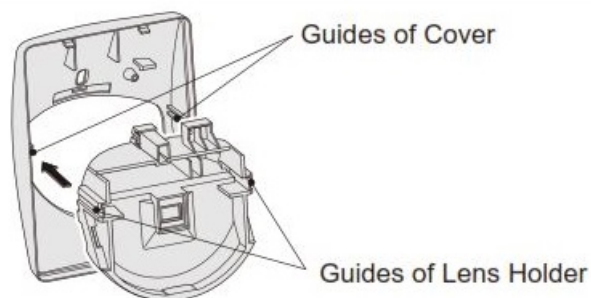
(**Note:** Factory default is WIDE ANGLE.)

4



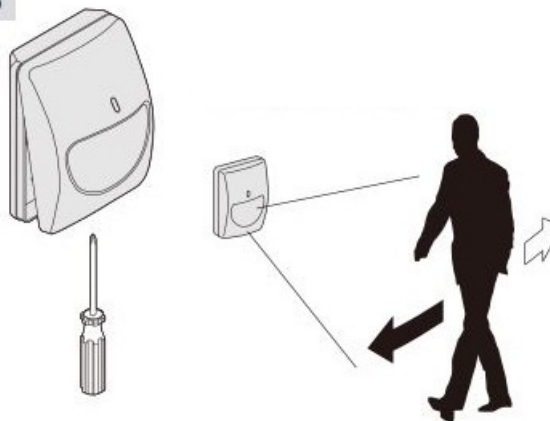
5. Check to confirm that the lens is in the desired position. Press down the lens holder until it clicks into place along the guide of cover. Fix the screw at the end.

5



6. Conduct a walk test and make adjustments (Section 7). Fit cover using fastening screw.

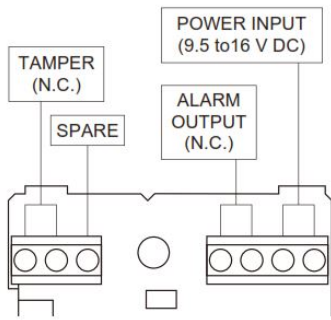
6



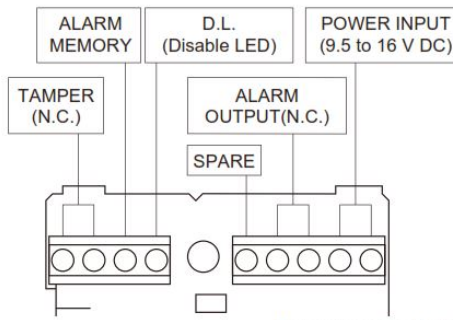


## WIRING

### CX-702



### CX-702V



[ Connect tamper terminals to a 24 hour supervisory loop. ]

Power wires should not exceed the following lengths.

WIRE SIZE	VOLTAGE	CX-702		CX-702V	
		12 V	14 V	12 V	14 V
AWG 22 (0.33 mm <sup>2</sup> )		520 m (1700 ft)	1130 m (3700 ft)	360 m (3700 ft)	770 m (2520 ft)
AWG 20 (0.52 mm <sup>2</sup> )		820 m (2690 ft)	1780 m (5830 ft)	560 m (1830 ft)	1220 m (4000 ft)
AWG 18 (0.83 mm <sup>2</sup> )		1310 m (4290 ft)	2850 m (9350 ft)	900 m (2950 ft)	1960 m (6430 ft)

- When using two or more units on one wire, the maximum length is obtained by dividing the maximum wire length listed above by the number of units used.
- UL requires CX-702 to be connected to a UL listed power supply capable of providing a nominal input of 12 V DC 11 mA (max.) and battery standby time of 4 hours.
- For UL Listed systems, do not connect field wiring more than 25 ft. to Alarm Memory, and DL terminals.
- The equipment shall be installed in accordance with the National Electrical Code NEDA 70.

## ADJUSTMENTS FOR REQUIRED AREA PATTERN

The CX-702 is designed to provide ideal detection areas for different patterns ranging from 12 m (40 ft.) to 21 m (70 ft.) Wide Angle, and 24 m (80 ft.) to 45 m (150 ft.) Long Range. The following adjustments will provide ideal detection areas for each of these requirements.

### 1. DETERMINE THE AREA PATTERN

Before making adjustments, determine the pattern area, detection range mounting height.

### 2. SELECTING WIDE ANGLE OR LONG RANGE DETECTION

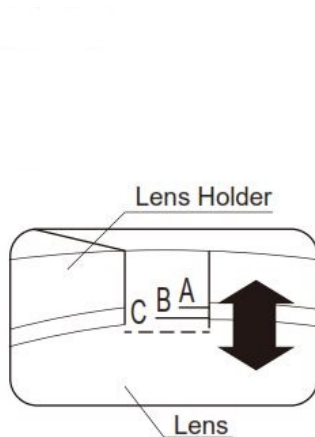
1. Inverting the lens will select either the Wide Angle or Long Range detection patterns.
2. Please note markings "W (Wide Angle)" and "L (Long Range)", on each side of lens.
3. For Wide Angle, "W" will be on top of lens
4. For Long Range, "L" will be on top of lens.

### 3. VERTICAL ADJUSTMENT OF DETECTION AREA

Adjust the vertical angle according to the desired detection range and mounting height.

1. Set the upper edge of the lens at either the "A", "B" or "C" position.
2. The following chart illustrates the different position setting.
3. Confirm the detection area by conducting a walktest.



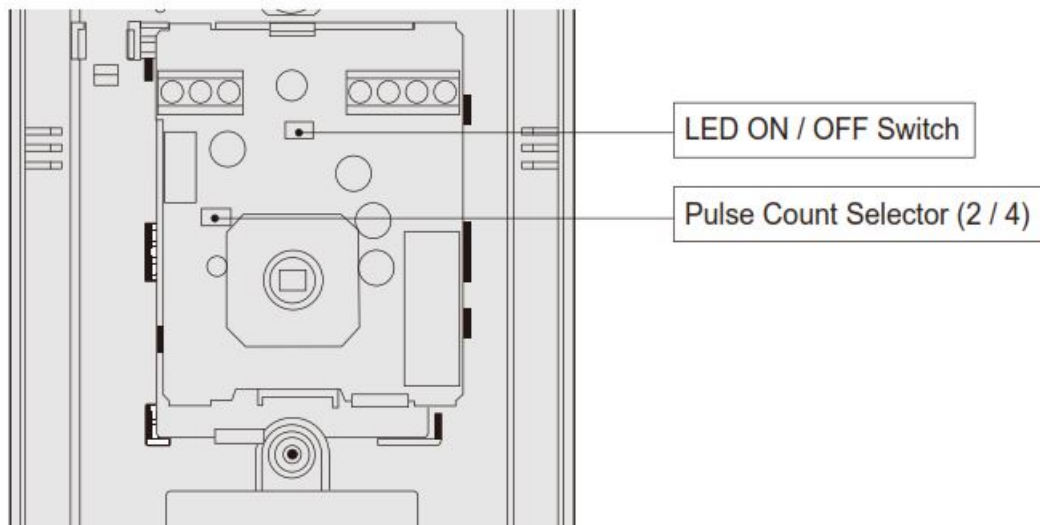


		W : WIDE ANGLE				m (ft.)
		DISTANCE				
		12 (40)	15 (50)	18 (60)	21 (70)	
HEIGHT	1.8 (6)	B	A	A	A	
	2.4 (8)	C	C	C	C	
	3.6 (12)	C	C	C	C	

		L : WIDE ANGLE				
		DISTANCE				
		24 (80)	30 (100)	36 (120)	45 (150)	
HEIGHT	1.8 (6)	B	B	A	A	
	2.4 (8)	C	C	C	C	
	3.6 (12)	C	C	C	C	

## FUNCTIONS



**CAUTION :** Always conduct a walktest after changing the position of this switch to ensure the detector is still providing optimum coverage.

### 1. LED ON/ OFF

**Jumper Pin Switch :** The Alarm LED indicator can be switched either “ON” or “OFF”.

D.L. terminal (CX-702V Only)

LED can be enabled or disabled remotely from control panel by D.L. terminal.

1. Place Jumper Pin Switch in OFF position.

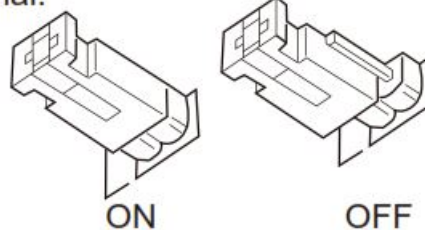
#### 2. LED “ON”:

Connect DL terminal to common ground with detector. (0 to 1 V DC, grounded)

#### LED “OFF”:

No Connection to the DL terminal. (OPEN Or +5 to 16 V DC)

terminal.



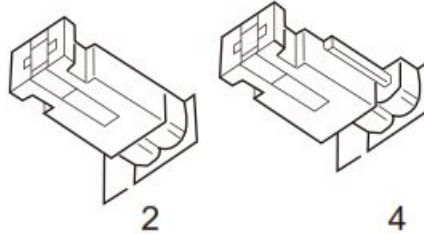
## 2. PULSE COUNT

The Detection Mode can be switched to either “2” or “4” mode depending on the environmental conditions of the installation.

**2:** For normal applications.

**4:** For use in hostile areas where there may be movement of small animals or other objects such as fax machines or curtains.

When the “4” is selected, the detector’s sensitivity may seem sluggish. It is therefore important to always conduct a walktest to ensure that the desired Coverage IS given.



**CAUTION :** Do not use pulse count 4 |for Long Range detection.

## 3. ALARM MEMORY ( CX-702V Only )

### 1. Alarm Memory

This function is used to indicate if the detector was activated while the panel was armed. It will cause the red LED on the Detector to illuminate once the panel has been disarmed. Compatible Control Panel is required for Alarm memory. Connect A.M. terminal to Control Panel’s Control Voltage Signal terminal (System Arming status Voltage Output).

### CONTROL VOLTAGE SIGNAL

	POSITIVE	NEGATIVE
System armed	OPEN or +5 to 16 V DC	0 to 1 V DC(grounded)
System Disarmed	0 to 1 V DC(grounded)	OPEN or +5 to 16 V DC

### 2. Operation

If the unit triggered during armed period, when the system is disarmed, LED will remain lit to confirm that it reported an alarm.

1. Alarm Memory will operate even when LED is switched OFF.
2. Alarm Memory will not operate while system is disarmed.
3. After Alarm Memory latches, Alarm Output and LED operate normally during armed period.

### 3. Reset

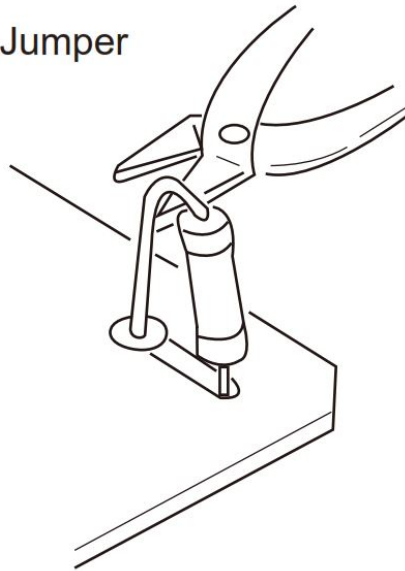
Alarm Memory resets automatically when system is re-armed.

**POSITIVE:** Leave AM Jumper as it is.

**NEGATIVE:** Cut AM Jumper as shown.

## AM Jumper

1.



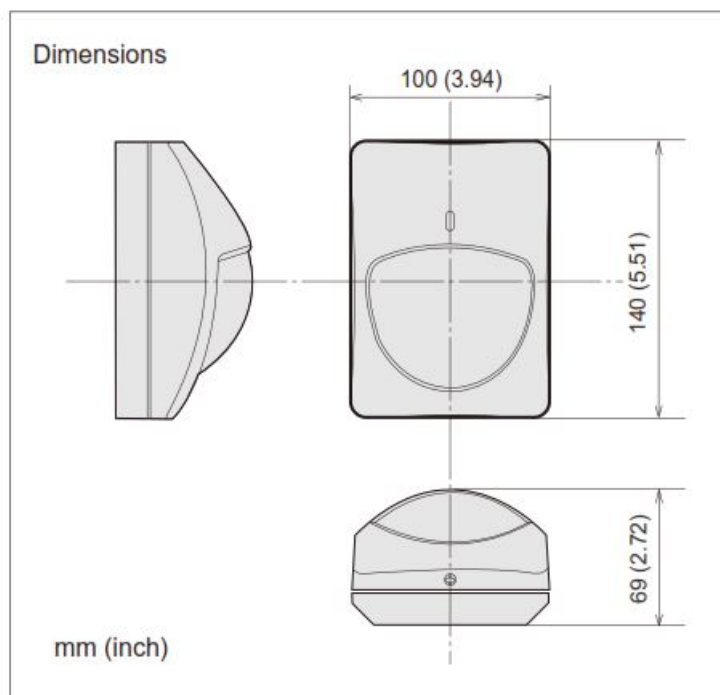
## TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
LED does not light.	Incorrect power supply voltage. (disconnection, or low voltage)	Correct supply voltage to 9.5 to 16 V DC. See Section 5.
	Improper detection area.	See Section 2.
	LED switch is OFF.	Turn on the switch.
	Improper polarity to detector.	Switch positive and negative at terminal.
LED lights even though no person within area.	Moving object within area. (curtain, wall hanging, etc.)	Remove the sources from the detection area.
	Temperature of object within area changing rapidly. (heater, air conditioning, etc.)	Remove object from the detection area.
LED lights but signal is not sent.	Relay contact is stuck or damaged due to overloading.	Check load of output. The unit needs repair or replacement.
LED continues to light.	Faulty Wiring.	Wire correctly.
	Poor connection of alarm memory.	Reconnect wire.
	Wrong control voltage from panel.	Must be 0 to 1 V DC (grounded) See Section 7-3.

## Specifications

Model		CX-702	CX-702V
Detection method		Passive infrared	
Coverage/		Wide angle 85° 21 m x 21 m (70 ft. x 70 ft.)/ 68 zones	
Detection zones		Long range 45 m x 2.4 m (150 ft. x 8 ft.)/ 22 zones	
Mounting height		1.5 to 3.6 m (5 to 12 ft.)	
Sensitivity		1.6°C at 0.6 m/s 2.4 m mounting height (3°F at ft./s 8 ft. mounting height)	
Detectable speed		0.3 to 1.5 m/s (1 to 5 ft./s)	
Alarm period		Approx. 2.5 s	
Pulse count		Approx. 20 s, 2 or 4	
Alarm memory		-	See Section 7-3.
DL terminal		-	See Section 7-1.
Power input		9.5 to 16 V DC	
Current draw	Normal	8 mA at 12 V DC	8 mA at 12 V DC
	Max.	11 mA at 12 V DC	16 mA at 12 V DC
Alarm output		N.C., 28 V DC, 0.2 A max. N.C., Opens when cover removed	
Tamper switch		28 V DC 0.1 A max.	
Warm-up period		Approx. 1 min.	
LED indicator		Alarm condition	
RF interference		No alarm 30 V/m	
Operation temperature		-20°C to +50°C (-4°F to +122°F)	
Environment humidity		95% max.	
Weight		200 g (7.0 oz.)	

Specifications are design are subject to change without prior notice.



**Note :**

- This unit is design to detect movement of an intruder and activate an alarm control panel.

- Being only a part of a complete system , we cannot accept responsibility for any damages or other consequences resulting from an intrusion.

## EU & UK contact information



<https://navi.optex.net/cert/contact>

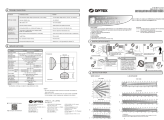
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OPTEX Co., LTD. (JAPAN) [www.optex.net](http://www.optex.net)

## Documents / Resources

	<p><a href="#">OPTEX CX-702 Long Range PIR Detector</a> [pdf] Instruction Manual CX-702, Long Range PIR Detector, CX-702 Long Range PIR Detector, Range PIR Detector, PIR Detector, Detector</p>
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