

INSTALLATION INSTRUCTIONS



N219



High Mount
Outdoor Detector

HX-40/40AM

By utilising the OPTEX's unique pyro-element, HX series achieves high reliable detection performance against false and missed alarms. HX series provides stable and accurate detection in outdoor severe environmental conditions.

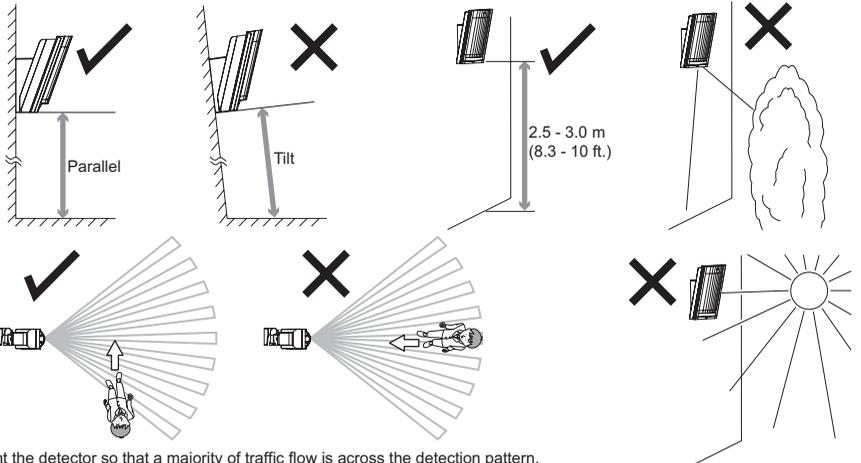
- HX-40** : standard model with two PIRs
- HX-40AM** : HX-40 with IR anti-masking feature

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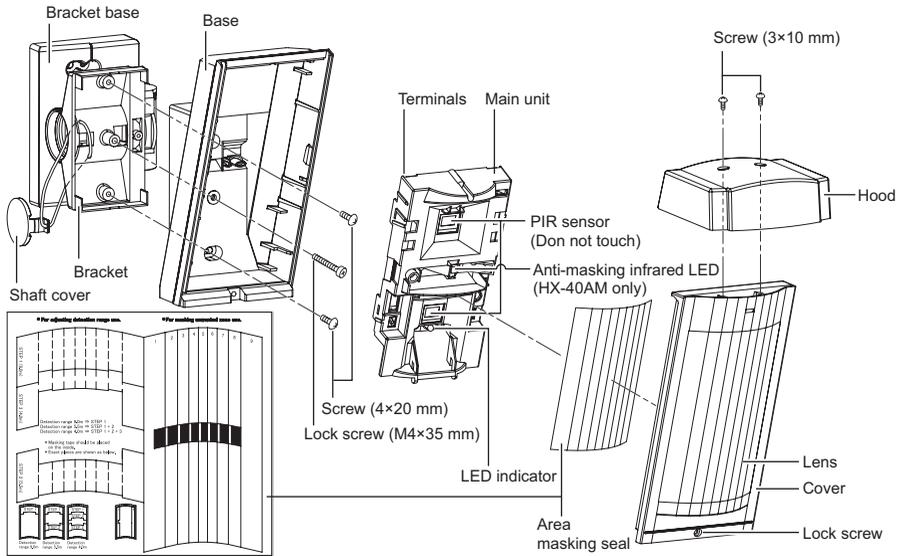
1 INSTALLATION HINTS

⚠ Warning	⚠ Warning	⚠ Caution
<p>Never repair or modify product</p>	<p>Do not pour water over the product</p>	<p>Mount securely</p>



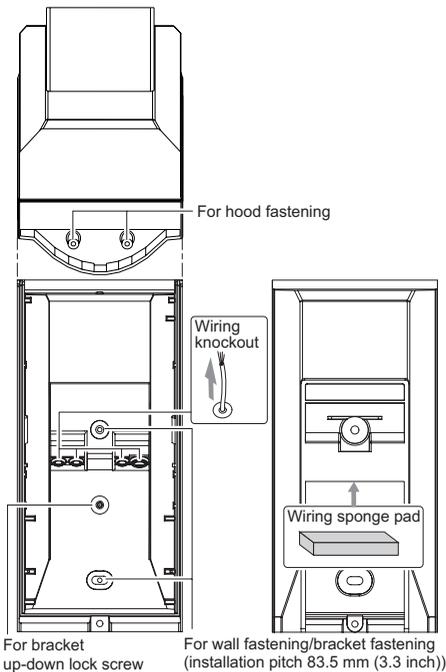
Mount the detector so that a majority of traffic flow is across the detection pattern.

2 PARTS IDENTIFICATION

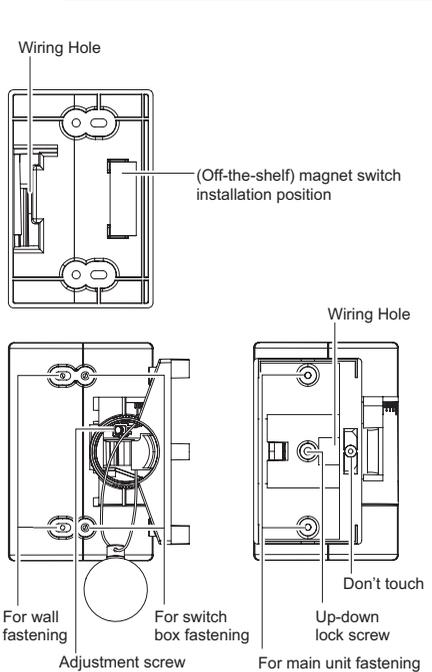


3 KNOCKOUTS

3-A Main unit



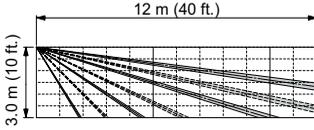
3-B Bracket



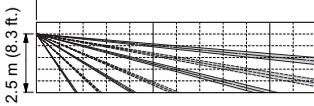
4 DETECTION AREA SETTING

4-A Detection Area

Side view of detection area
(Installation height 3.0 m (1 ft.))

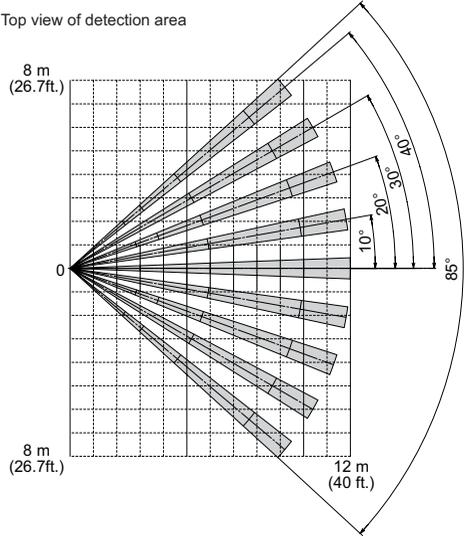


(Installation height 2.5 m)
12 m (40 ft.)



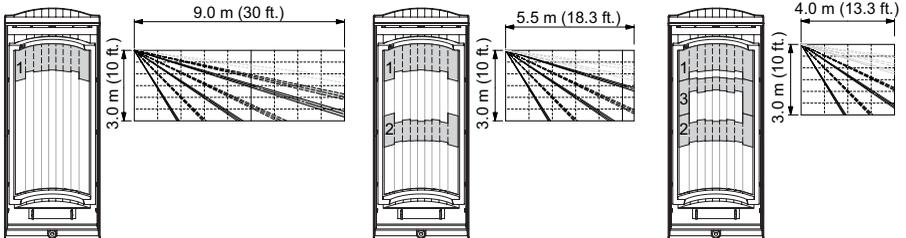
- Accessory bracket is required when the HX is installed at 2.5 m (8.3 ft.) height.
 - The vertical angle of HX needs to be adjusted 1 click (2.5° upward) to keep the 12 m (40 ft.) detection range.
- See the "Caution" of 6-B for the details.

Top view of detection area



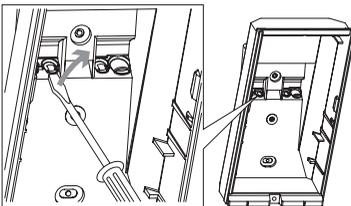
4-B Detection Length Adjustment

To limit the detection distance, apply the appropriate masking seal. Note that there are three different types of seal.

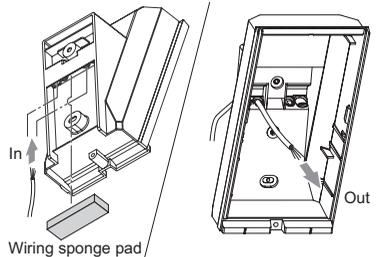


5 INSTALLATION

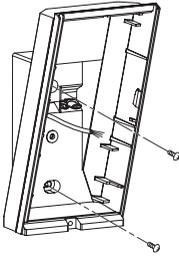
- 1 Open the wiring knockout with suitable tool e.g. screwdriver.



- 2 Pass the wire through the base knockout.



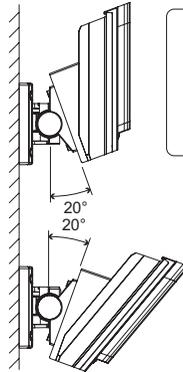
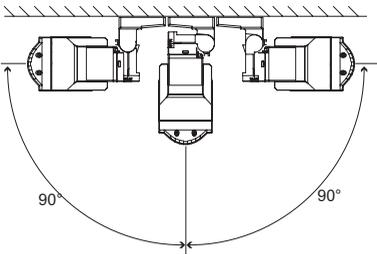
- 3 Fasten the base to the wall.



- 4 Put the main unit and lens.

6 BRACKET INSTALLATION AND ADJUSTMENT

Using the bracket makes it possible to adjust the unit through 180° degree. In cases where the ground is uneven and therefore not parallel with the base of the unit, it is possible to adjust the unit vertically by ± 20 degree (see section 6-B)

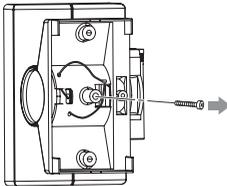


Caution>>

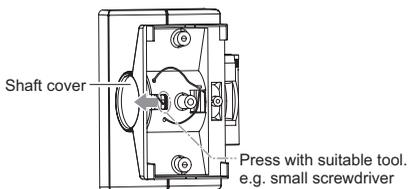
Do not change the detection distance with bracket. Use the masking seal to adjust the detection distance.

6-A Bracket installation

- 1 Remove the up-down lock screw.



- 2 Push the shaft cover clip outwards to remove the shaft cover.

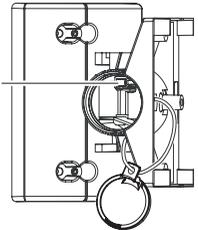


- 3 Loosen the adjustment screw two turns.

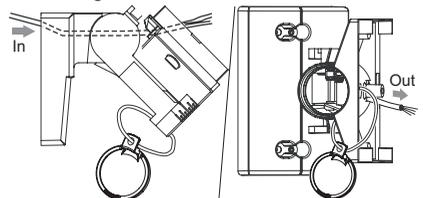
Adjustment screw

Caution>>

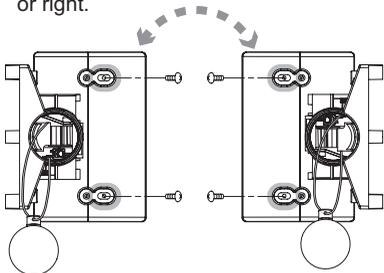
Do not loosen the screw too much. The screw separates from the unit.



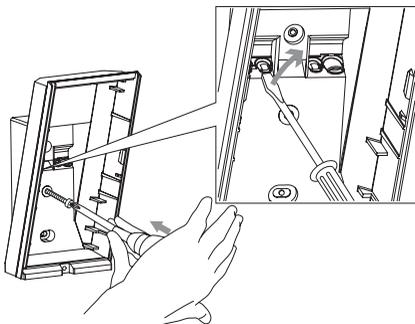
- 4 Tilt the bracket about 45° and pass through the wire.



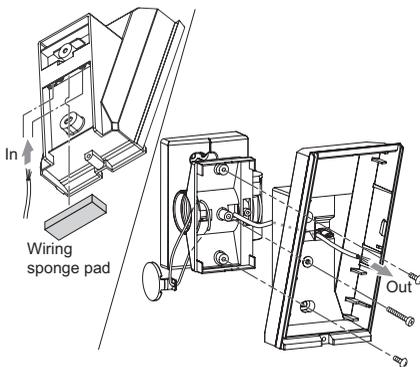
- 5** Fasten the bracket to the wall. Change the bracket direction according to whether the Main unit is to face left or right.



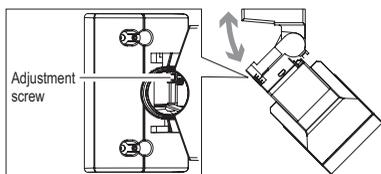
- 6** Open the wiring knockout and up-down lock screw knockout for bracket.



- 7** Pass the wire through the base knockout and install the base on the bracket.



- 8** Tighten the adjustment screw clockwise.



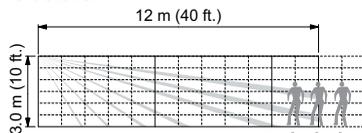
- 9** Wire to the terminal and install the Main unit and lens on the base.

- 10** Do the 6-B. "Set the vertical angle to the ground" before fit the shaft cover into place otherwise the horizontal adjustment cannot readjust.

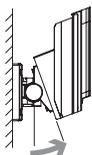
6-B Set the vertical angle

To have the right performance, set the vertical angle perpendicular to a ground. Decide the wanted detection length at first. If you choose 9.0m/5.5m/4.0m, mask the unwanted lens with masking seals. Refer to the 4-B for the details.

Act walk test to check if the vertical angle is perpendicular or not.

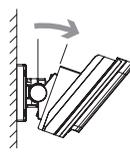


If you see the detection only inside the designated distance, change the vertical angle upward.



If you see the detection at the designated distance, no adjustment is needed.

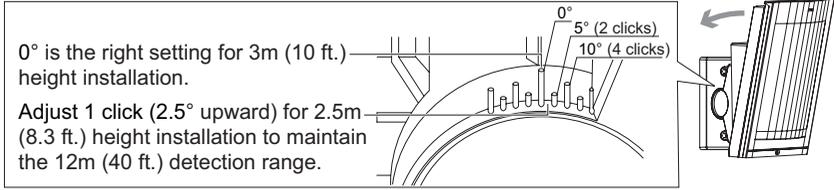
If you see the detection outside the designated distance, change the vertical angle downward.



* This is the case to have 12 meters detection length.

Caution>>

- If the base of the unit is already parallel to the ground,
- Do not change the detection distance by tilting the unit up or down. Detection area and length should be adjusted with masking tapes. Refer to 4-A and 4-B for the details.
 - Walk test the unit to ensure that the desired detection distance is achieved.

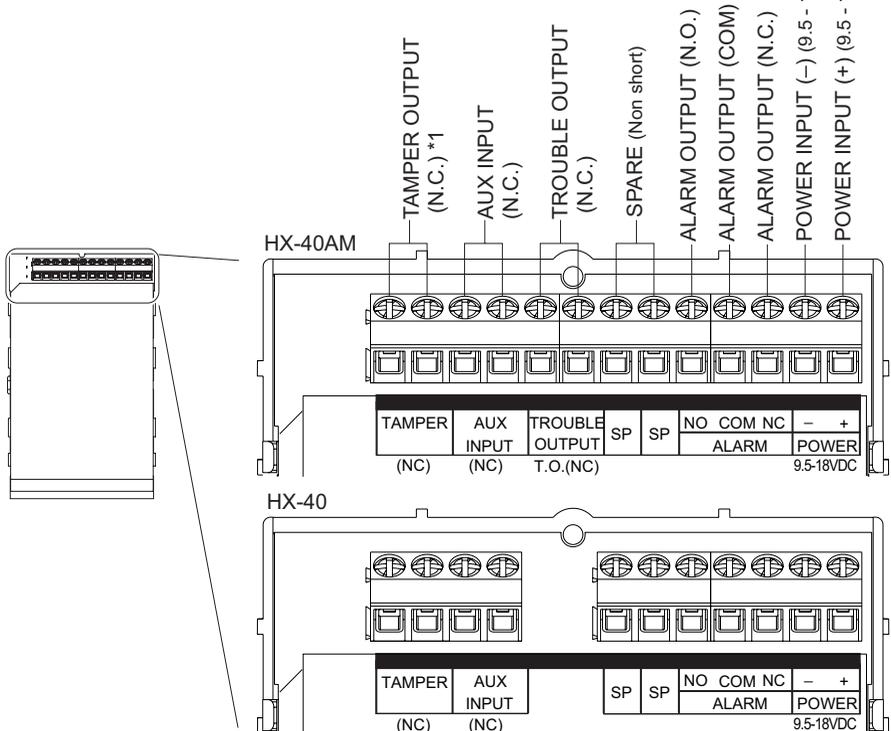


NOTE: This setting is available only for the HX is installed vertically to the ground.

7 WIRING

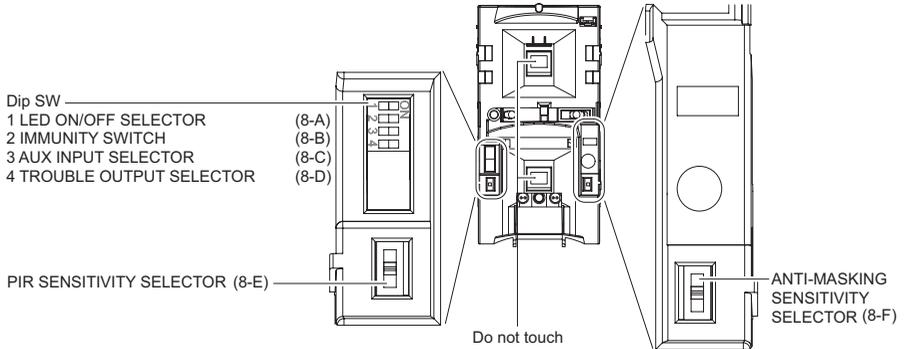
Power wires should not exceed the following lengths.

WIRE GAUGE	HX-40		HX-40AM	
	12V	14V	12V	14V
AWG22 (0.33 mm ²)	160m (520ft)	360m (1180ft)	140m (460ft)	310m (1020ft)
AWG20 (0.52 mm ²)	260m (850ft)	560m (1840ft)	230m (750ft)	490m (1610ft)
AWG18 (0.83 mm ²)	410m (1350ft)	900m (2950ft)	360m (1180ft)	780m (2560ft)



*1: TAMPER terminals to be connected to a 24 hour supervisory loop.

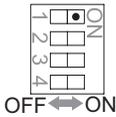
8 FUNCTION SETTING



8-A LED ON/OFF

Dip switch 1

HX-40
HX-40AM



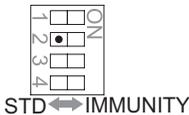
POSITION	FUNCTION
ON (factory default)	The LED lights when someone is detected.
OFF	The LED does not light even if someone is detected.

NOTE: For the walk test, move more than 1 m (3.3 ft.) away from the detector.

8-B IMMUNITY SWITCH

Dip switch 2

HX-40
HX-40AM

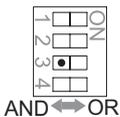


POSITION	FUNCTION
STD (factory default)	Suitable for standard applications.
IMMUNITY	Set this when used in a location with small animal, small size pet or hostile environment.

8-C AUX INPUT

Dip switch 3

HX-40
HX-40AM



By connecting a satellite unit (another warning sensor), you can expand the detection area and correct false alarms.

As a satellite unit, you can use any general no-voltage contact output (NC) warning sensor, including the following.

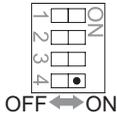
<Infrared (AIR) sensors, thermal line (PIR) sensors, magnet switches, etc.>

POSITION	FUNCTION
AND (factory default)	When both the Main unit and the satellite detect someone, the alarm is output is activated. Set to this when not connecting a satellite unit. Note: The alarm is not output unless both the Main unit and the satellite detect someone within 60 seconds.
OR	When either the Main unit or the satellite detects someone, the alarm is output.

8-D TROUBLE OUTPUT

Dip switch 4

HX-40
HX-40AM



Trouble output is used for anti-masking signal.

When an object is placed close to the lens surface, for a period of more than 180 seconds, the IR Anti-Masking circuit will activate and generate a trouble signal.

POSITION	OUTPUT TERMINAL
ON (factory default)	TROUBLE
OFF	TROUBLE and ALARM Use this when not wiring a dedicated trouble input terminal on the control panel.

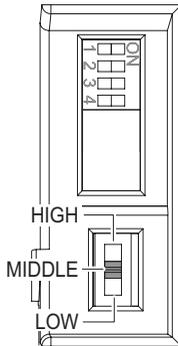
LED Operation>>

DETECTOR STATUS	LED Indication	LED operation
Anti-Masking booting (Anti-Masking start up)	Red blinks 2 times and goes off for 5 sec. This movement is repeated.	Red
Anti-Masking	Red blinks 3 times and goes off for 3 sec. This movement is repeated.	Red

8-E PIR SENSITIVITY

PIR SENSITIVITY
SELECTOR

HX-40
HX-40AM

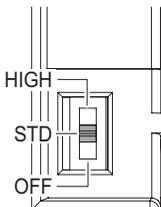


POSITION	FUNCTION
HIGH	Suitable for sites requiring greater sensitivity applications
MIDDLE (factory default)	Suitable for standard applications
LOW	Suitable for hostile and narrow area

8-F ANTI-MASKING

ANTI-MASKING
SENSITIVITY SELECTOR

HX-40
HX-40AM



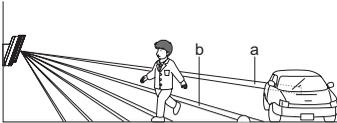
POSITION	FUNCTION
HIGH	Suitable for sites requiring greater sensitivity applications.
STD (factory default)	Suitable for standard applications.
OFF	Suitable for sites requiring no anti-masking function.

9-A Example of adjustment for false alarms

If there is a road where people or vehicles can pass in front of the detection area, and can trigger false alarms, adjust the area as follows.

- 1 Delete the unnecessary detection area (a) using the appropriate masking seal(s) 1 2 or 3.

(Reduce the distance from 12m, 9m, 5.5m ,4m (40ft., 30ft.,18.3ft., 13.3ft.) as determined by the walk testing.)



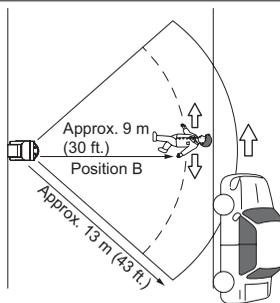
- 2 Actually move and check that the system does not detect movement on the road (a) but does detect when you enter the detection area (b).

Caution>>

The detection area might increase when there is a big temperature difference between the moving object and the background.

For example, when the detection distance is set to 12 m (40 ft.), sometimes vehicles 13 m (43 ft.) away may be detected.

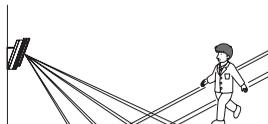
In this case, set the detection distance to 9 m (30 ft.). This shortens the alarm area but it can reduce false alarms due to vehicles.

**Caution>>**

A heat source beyond the detection area may cause the detector to cause a false alarm by reflecting off the ground.

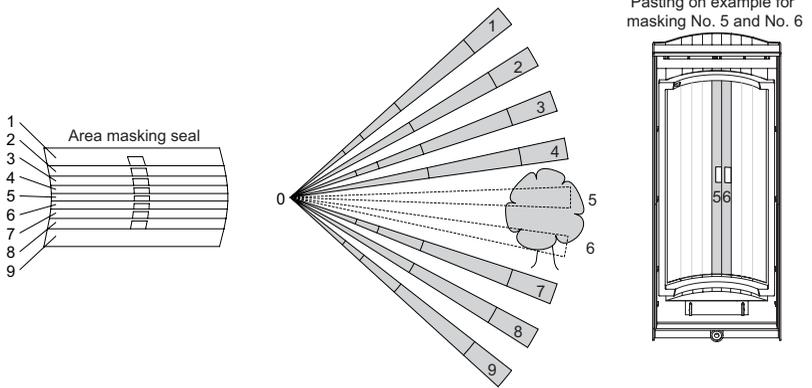
Examples of reflective ground is water (puddle), wet road, smooth surface concrete and asphalt road.

The heat source is strong and / or reflection rate is high, detectors detection distance will be longer than required and may detect unwanted objects beyond. According to the ground condition of the installation site, select the detection range position.



9-B Area Masking

To limit the detection range, apply the area masking seal to the section you want to hide on the lens inside. Configure the area in such a way as to avoid having anything cut across the area.



10 LED FUNCTIONS



HX-40

DETECTOR STATUS	LED Indication	LED operation
Alarm	Red light	○ ● ○
Warm-up period	Red blinks	○ ●* ○

HX-40AM

DETECTOR STATUS	LED Indication	LED operation
Alarm	Red light	○ ● ○
Warm-up period	Red blinks	○ ●* ○
Trouble output	Anti-Masking booting (Anti-Masking start up)	Red blinks 2 times and goes off for 5 sec. This movement is repeated.
	Anti-Masking	Red blinks 3 times and goes off for 3 sec. This movement is repeated.

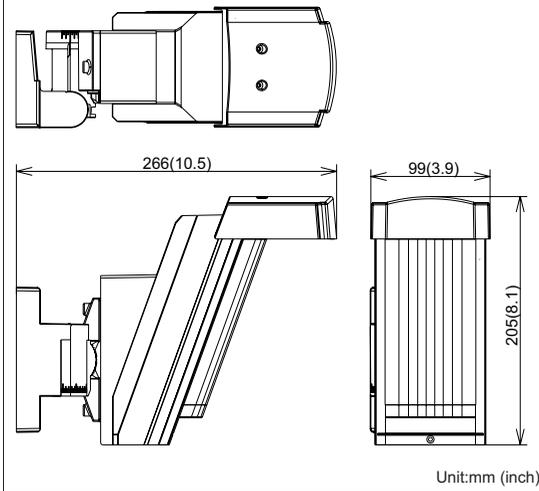
11 SPECIFICATIONS

Model	HX-40	HX-40 AM
Detection method	Passive infrared	
PIR Coverage	12 m (40 ft.) 85° wide / 94 zones	
Distance limit	4 m, 5.5 m, 9 m, 12 m (13 ft, 18 ft, 30 ft, 40 ft.)	
Detectable speed	0.3 – 1.5 m/s (1 – 5 ft/s)	
Sensitivity	2.0°C (3.6°F) at 0.6 m/s	
Power input	9.5 – 18VDC	
Current draw	35 mA (max) at 12VDC	40 mA (max) at 12VDC
Alarm period	2.0 ± 1 sec	
Warm-up period	Approx. 60 sec(LED blinks)	
Alarm output	Form C 28VDC 0.2A max	
Tamper output	N.C. 28V DC, 0.1A max. N.C. open when cover removed.	
Trouble output	–	N.C. 28V DC, 0.1A max
Aux input	N.C. 28V DC, 0.1A max	
LED indicator	Red:Warm-up, Alarm	Red:Warm-up, Alarm, Trouble
RF Interference	No alarm 10 V/m	
Operating temperature	-20 – +60°C (-4 – +140°F)	
Environment humidity	95% max	
Weatherproof	IP55	
Mounting	Wall (Outdoor, Indoor)	
Mounting height	2.5 - 3.0 m (8.3 - 10 ft.)	
Bracket adjust angle	Vertical: ± 20° Horizon: ± 95°	
Weight	600 g (21.2 oz)	
Accessories	Bracket, Hood, Area masking seal, Screw kit (3×10-2, 4×20-4)	

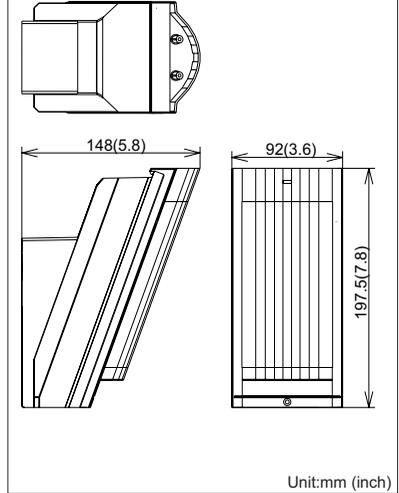
* Specifications and design are subject to change without prior notice.

DIMENSIONS

Using bracket and hood



Without bracket and hood



The HX-40 series is designed to detect movement of an intruder and activate an alarm control panel. Being only a part of a complete system, we cannot accept complete responsibility for any damages or other consequences resulting from an intrusion. Due to our policy of continuous improvement Optex reserves the right to change specification without prior notice.



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