

High Mount  
Outdoor Detector

# HX-80N/80NAM

NO.59-1619-0

## INSTALLATION INSTRUCTIONS



N219

HX-80N	2 PIRs standard model
HX-80NAM	HX-80N with anti-masking



- Long distance detection area (24.0 m)
- Flexible detection area setting with plates and flaps
- Unique pyro element
- Intelligent AND logic
- Dual signal processing logic
- Vegetation sway analysis logic
- Digital anti-masking (AM model)

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# 1 INSTALLATION PRECAUTIONS

## 1-1 BEFORE INSTALLATION

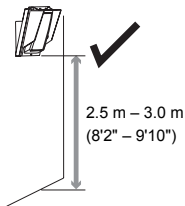
 <b>Warning</b>	Failure to follow the instructions provided with this indication and improper handling may cause death or serious injury.
 <b>Caution</b>	Failure to follow the instructions provided with this indication and improper handling may cause injury and/or property damage.

The check  mark indicates recommendation.

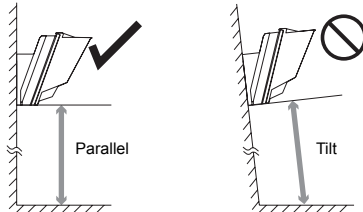
The nix  sign indicates prohibition.

 <b>Warning</b>	 <b>Warning</b>	 <b>Caution</b>
		
Do not repair or modify product	Keep product away from water	Mount the unit securely

Mounting height



Keep the detector parallel to the ground.

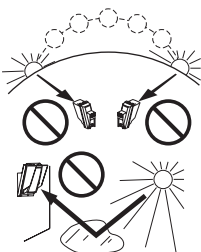


Consider the direction a person is approaching from, as well as the detection area.

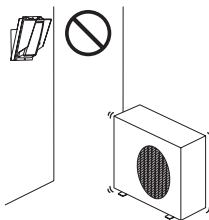


Install the detector in a place where it is free from false alarm factors. For example:

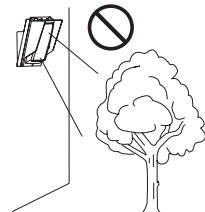
- Sunlight and reflection



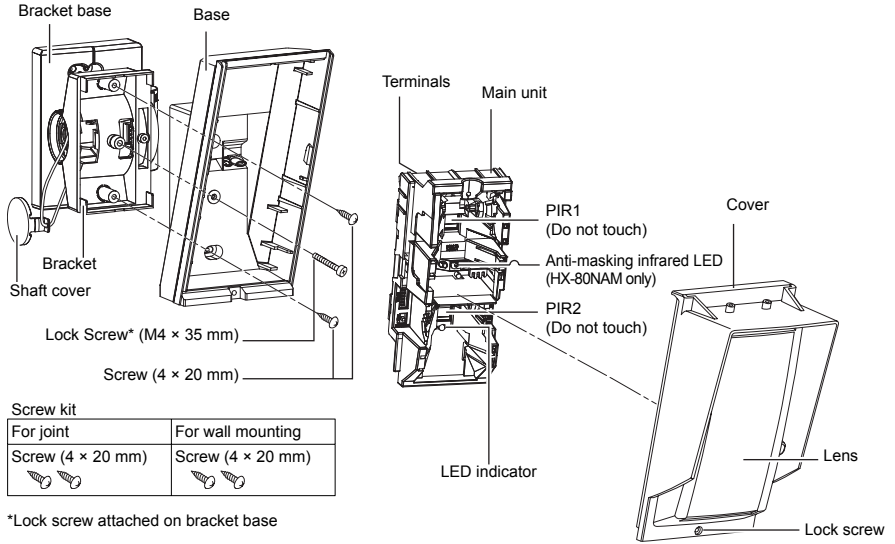
- Heat source



- Objects moving in the wind

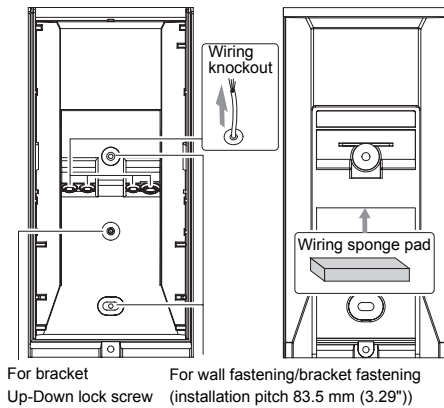


## 1-2 PARTS IDENTIFICATION

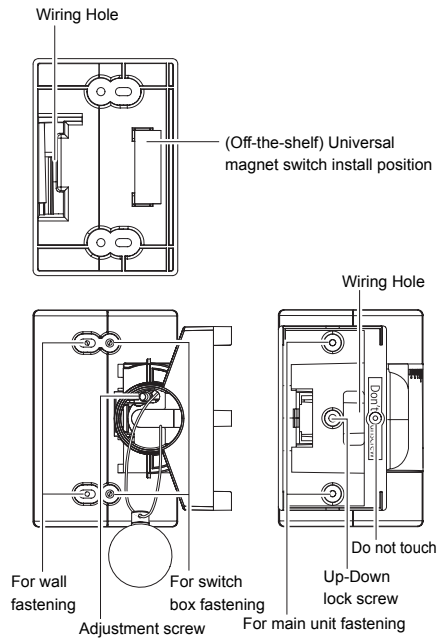


## 1-3 KNOCKOUTS

### Main unit



### Bracket

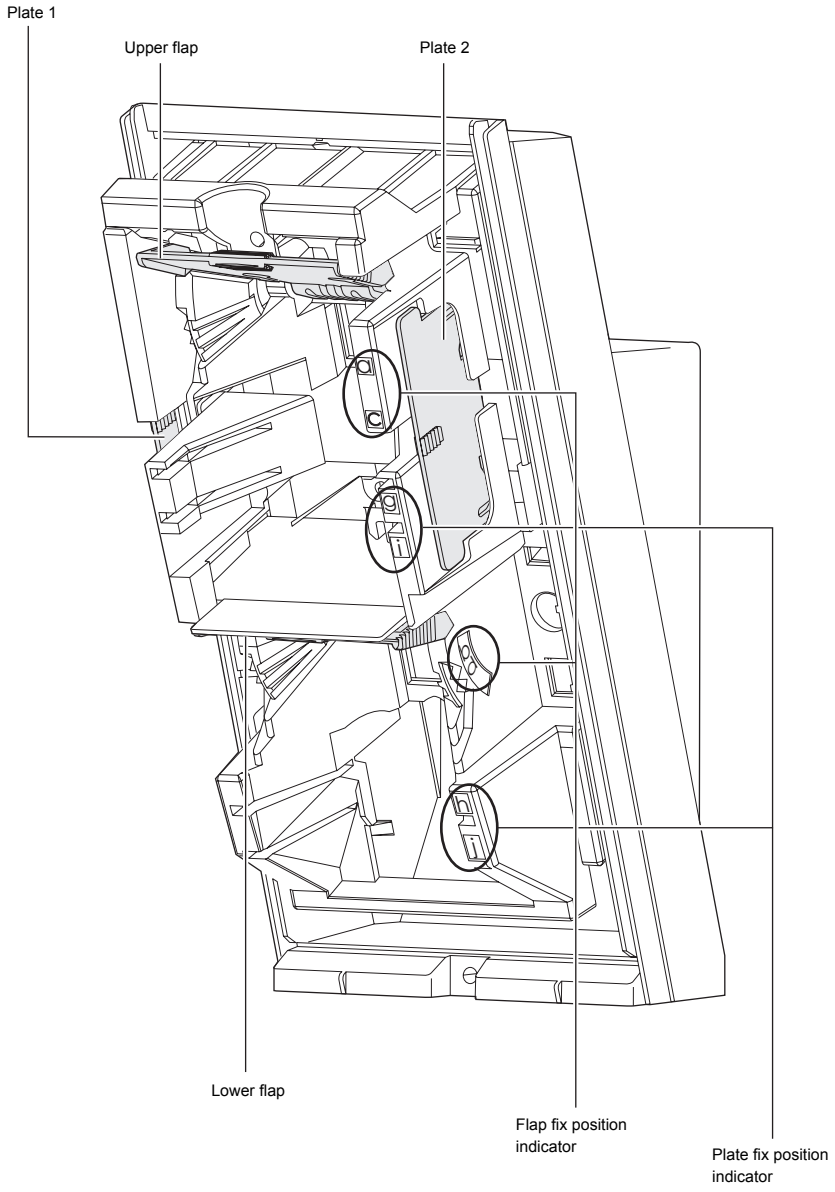


# 2

## DETECTION AREA

### 2-1

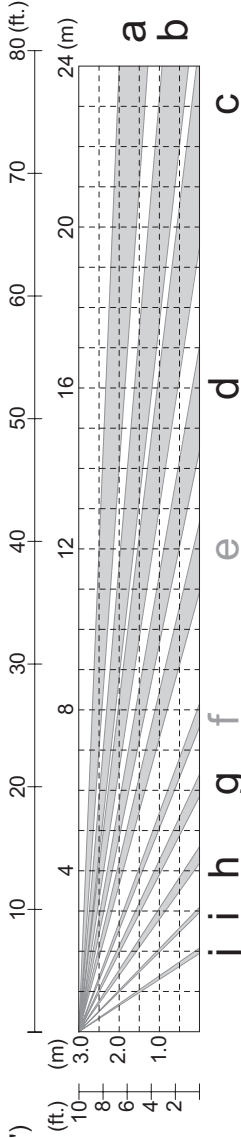
### OUTLINE OF DETECTION AREA



# DETECTION AREA (factory default)

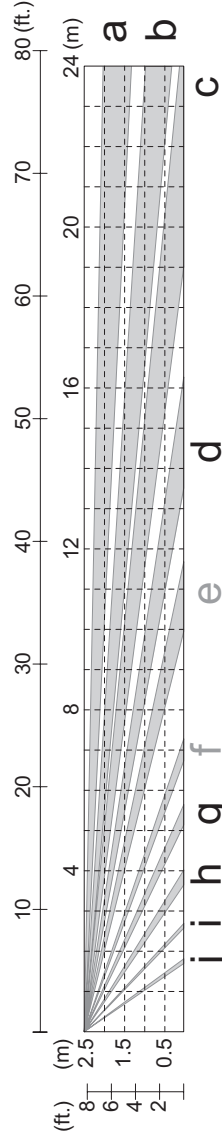
Side View

3.0 m (9'10")



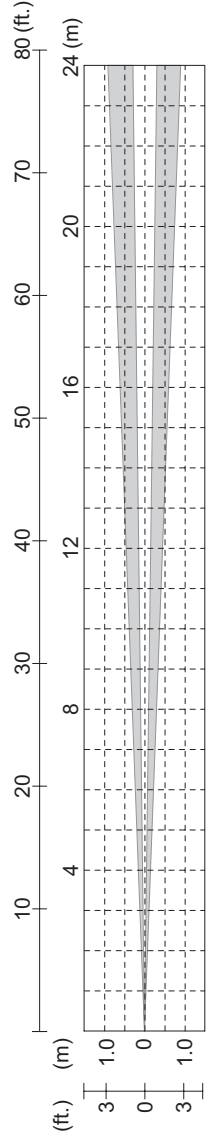
• Adjust 1 click (1.25° upward) for 3.0 m (9'10") height installation. (Refer to 3-2)

2.5 m (8'2")



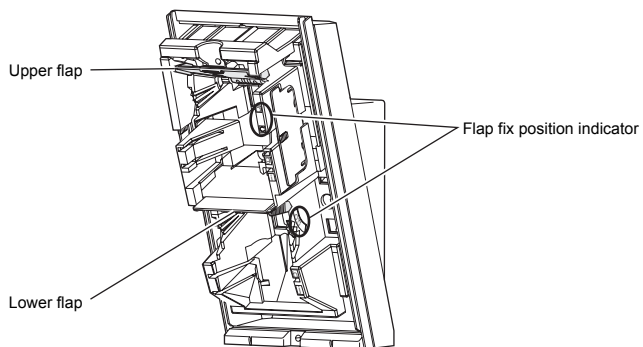
• Adjust 2 clicks (2.5° upward) for 2.5 m (8'2") height installation. (Refer to 3-2)

Top View

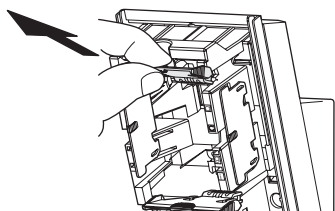


## 2-2 HOW TO REDUCE THE LONG RANGE DETECTION AREA

To adjust the LONG range of detection, set the upper and lower flaps as follows:

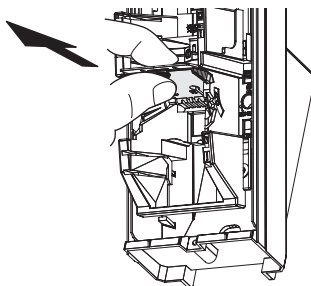


- 1 Pull out the flap.

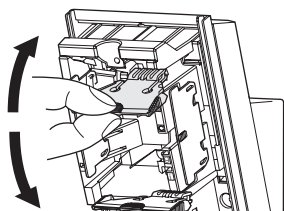


### **Note>>**

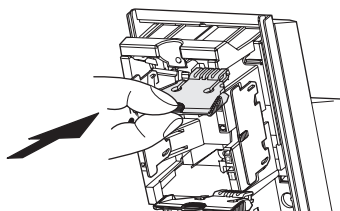
If the lower flap is located at the factory default position, slide it out with your thumb.



- 2 Move the flap to the position that corresponds with the desired detection distance.



- 3 Push the flap until it clicks into position.



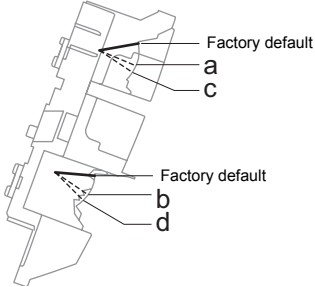
# PIR long range detection area reduction

The detection distance in the following table can be limited by combining the positions of the upper and lower flaps.

Use the following table to determine the positions of the upper and lower flaps that set the required max. detection distance.

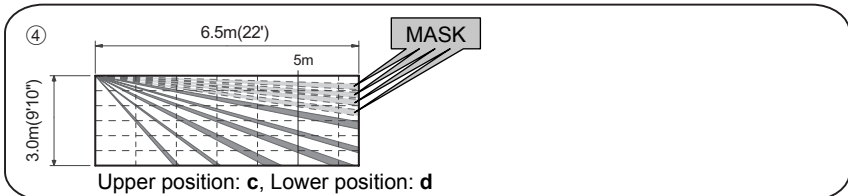
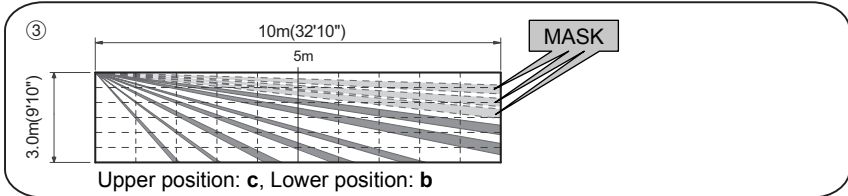
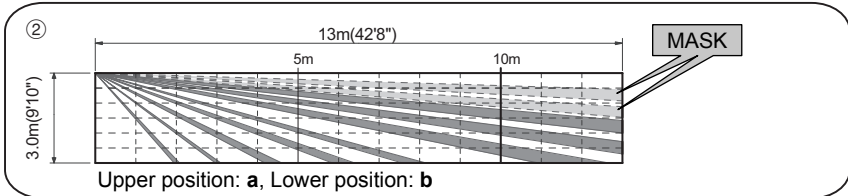
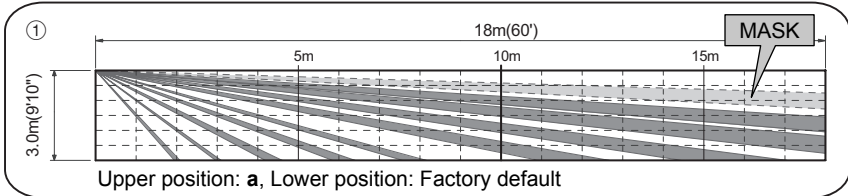
NOTES:

1. The distance may vary due to environmental conditions.
2. Always walk test the detector to confirm the detection distance.

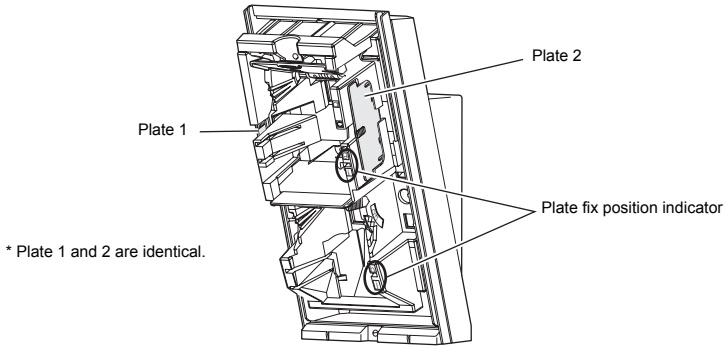


Lower \ Upper	Factory default	b	d
Factory default	24.0 m (80')	N.A.	N.A.
a	① 18.0 m (60')	② 13.0 m (42'8")	N.A.
c	N.A.	③ 10.0 m (32'10")	④ 6.5 m (22')

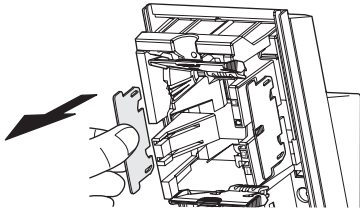
NOTE: Use only the following combinations for the flap settings.



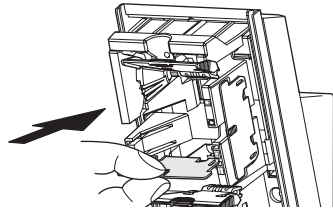
To adjust the SHORT range of detection, set the upper and lower plates as follows:



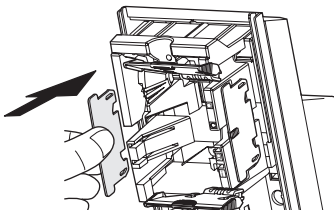
**1** Remove the plate.



**2** Insert the plate into the position determined by the required masking distance until it clicks.



**3** If any plate is not used, place it in the storage position.



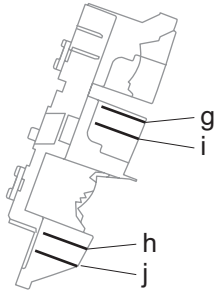
**Note>>**

Be careful not to lose the plates.



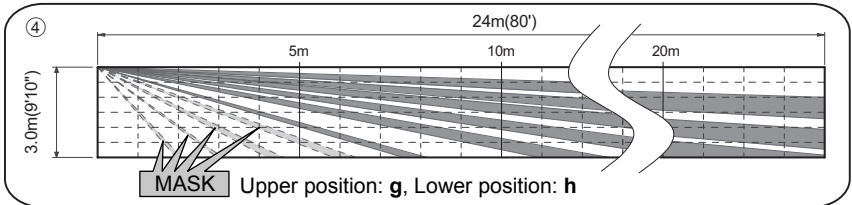
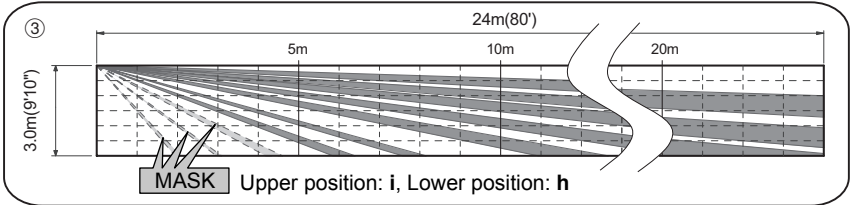
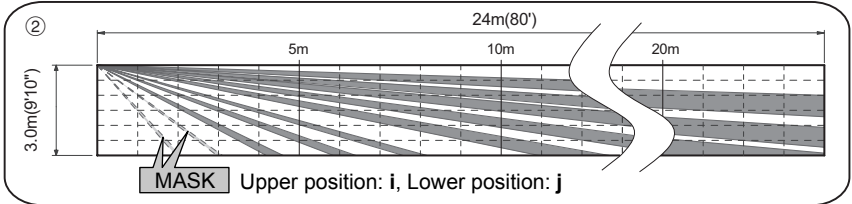
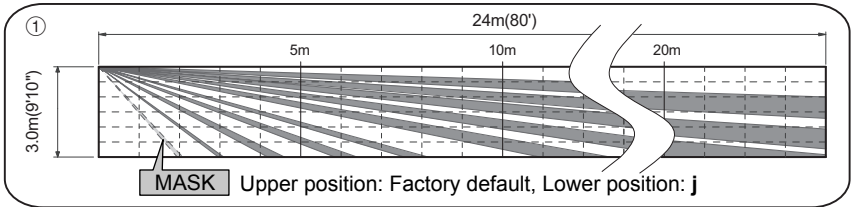
# PIR short range detection area deactivation

Use the following table to determine the positions of the plates that set the required masked area.



Lower	Not used	j	h
Upper	Not used	①	N.A.
Not used	Factory default	②	③
i	N.A.	②	③
g	N.A.	N.A.	④

NOTE: Use only the following combinations for the plate settings.



# 3

## INSTALLATION

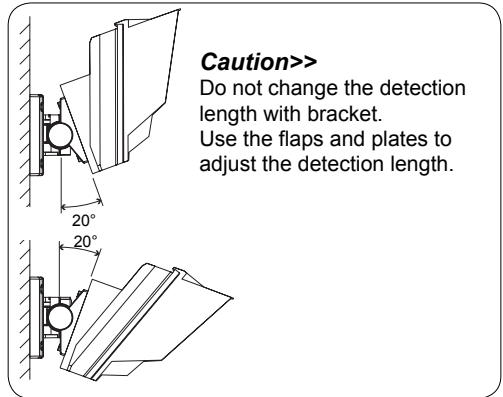
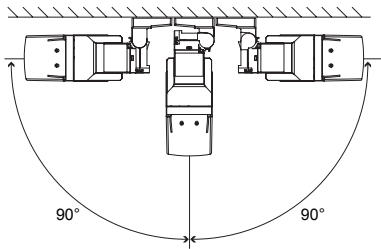
Use the bracket for normal installation. The unit may be installed directly on the wall, without the bracket, only if the following three conditions are met;

- The mounting height is less than 3m (9'10").
- Horizontal adjustment is not necessary.
- The ground must be level.

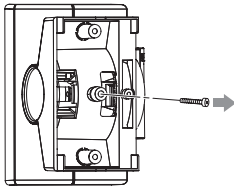
### 3-1 INSTALLING WITH BRACKET

Using the bracket makes it possible to adjust the unit horizontally by  $\pm 90^\circ$ .

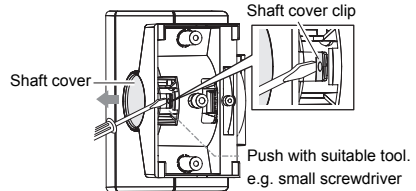
In cases where the ground is uneven and/or not parallel with the base of the unit, it is possible to adjust the unit vertically by  $\pm 20^\circ$ .



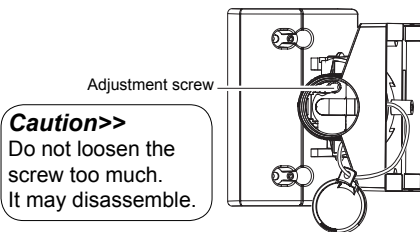
- 1 Remove the Up-Down lock screw.



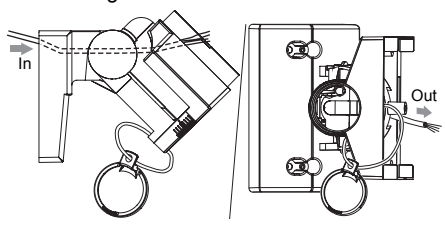
- 2 Push the shaft cover clip straightly to remove the shaft cover.



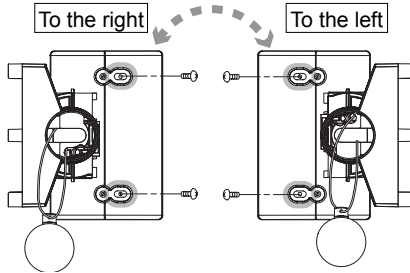
- 3 Loosen the adjustment screw two turns.



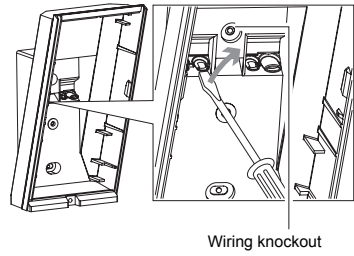
- 4 Tilt the bracket about  $45^\circ$  and pass through the wire.



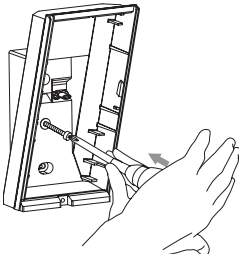
- 5** Determine the horizontal direction (left or right) of the detector before installing the bracket on the wall.



- 6** Open the wiring knockout.

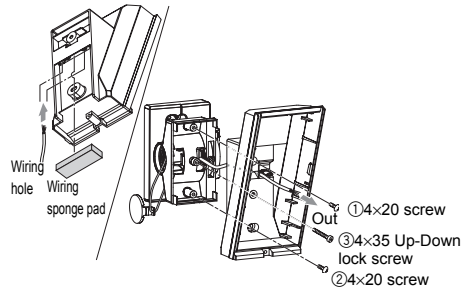


- 7** Open the Up-Down lock screw knockout for connecting the bracket.

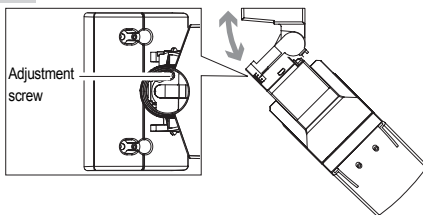


Knockout with 4×20 tapping screw (screwkit)

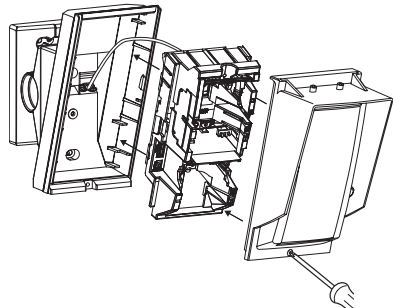
- 8** Tighten screws ① and ②, adjust the bracket angle (refer to 3-2), then tighten screw ③.  
Perform an area check. If re-adjustment is required, loosen screw ③ and change the bracket angle.  
After the adjustment is complete, tighten screw ③ again.



- 9** Tighten the adjustment screw clockwise.



- 10** Wire to the terminal and install the main unit and lens on the base.

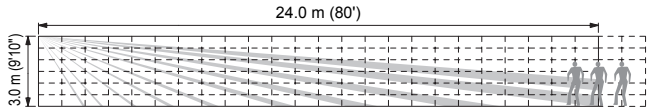


- 11** Install shaft cover into place.

## 3-2 ADJUSTING THE VERTICAL ANGLE

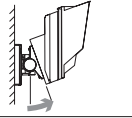
For best performance, install detector parallel to the ground.  
Decide the detection length. To change the detection length, adjust the flap and plate positions. Refer to the 2-2, 2-3 for the details.

Perform walk test to ensure detector is parallel to the ground.

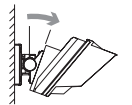


\* This description assumes the detection length to be 0 m (0') to 24.0 m (80').

If the detection length is shorter than that which was setup (refer to page 7), change the detector angle upwards.



If the detection length is longer than that which was setup (refer to page 7), change the detector angle downwards.



If the detection length is equal to that which was setup (refer to page 7), the adjustment is complete.

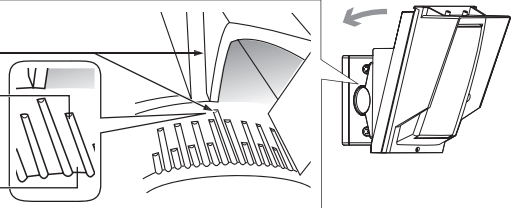
### Caution>>

- If the base of the unit is already parallel to the ground, do not change the detection length by tilting the main unit up or down. Refer to 3-1 for the details.

Example (the ground is level)  
0° is the origin.

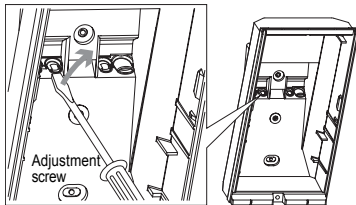
Adjust 2 clicks (2.5° upward) for  
2.5 m (8'2") height installation.

Adjust 1 click (1.25° upward) for  
3.0 m (9'10") height installation.

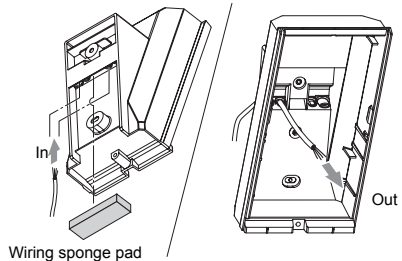


## 3-3 INSTALLING WITHOUT BRACKET

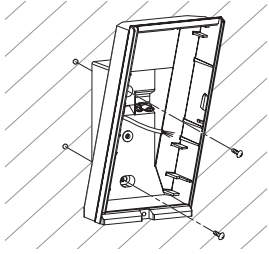
- 1 Open the wiring knockout with suitable tool e.g. screwdriver.



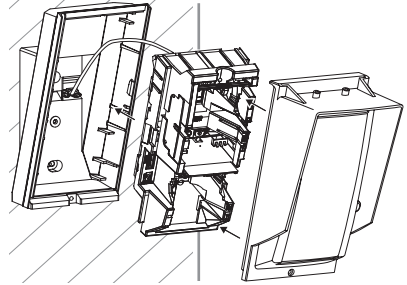
- 2 Pull the wire through the base knockout.



3 Fasten the base to the wall.



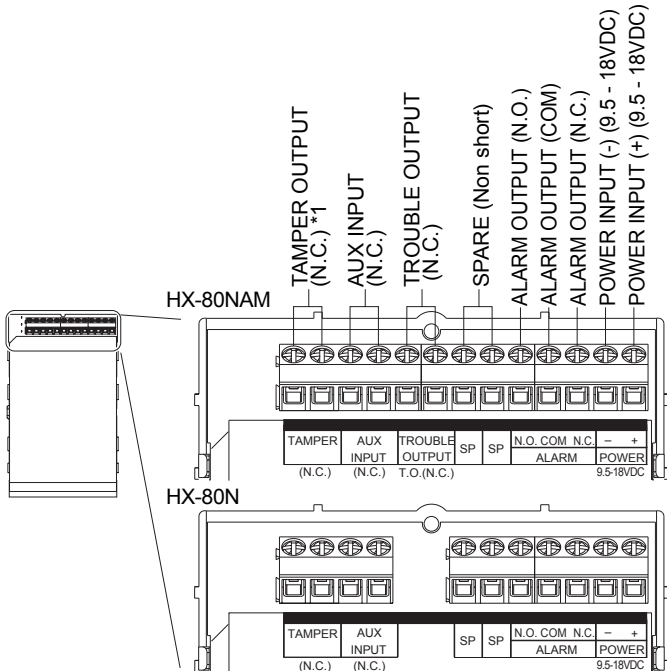
4 Install main unit after wiring to the terminal.



### 3-4 WIRING

Power wires should not exceed the following lengths.

WIRE GAUGE	HX-80N		HX-80NAM	
	12 V	14 V	12 V	14 V
AWG22 (0.33 mm <sup>2</sup> )	160 m (520')	360 m (1,180')	140 m (460')	310 m (1,020')
AWG20 (0.52 mm <sup>2</sup> )	260 m (850')	560 m (1,840')	230 m (750')	490 m (1,610')
AWG18 (0.83 mm <sup>2</sup> )	410 m (1,350')	900 m (2,950')	360 m (1,180')	780 m (2,560')



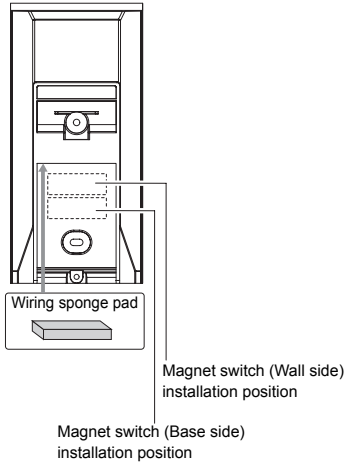
\*1: TAMPER terminals to be connected to a 24 hour supervisory loop.

## 3-5 WALL TAMPER (OPTION)

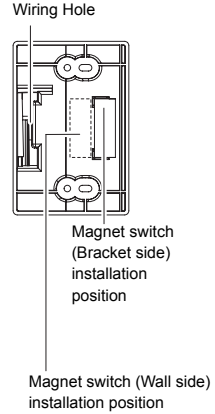
Universal magnet switch may be mounted as a wall tamper.

Installation space for magnet switch is provided on the back of the main unit and the bracket.  
Maximum size of an applicable magnet switch: D 9 mm (0.35") × W 40 mm (1.57") × H 9 mm (0.35")  
Magnet switch is not included.

### Main unit

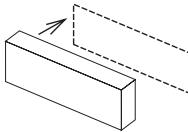


### Bracket

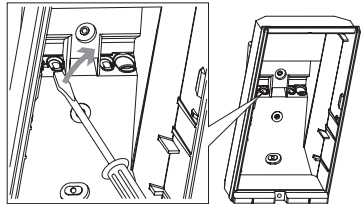


## -Installation

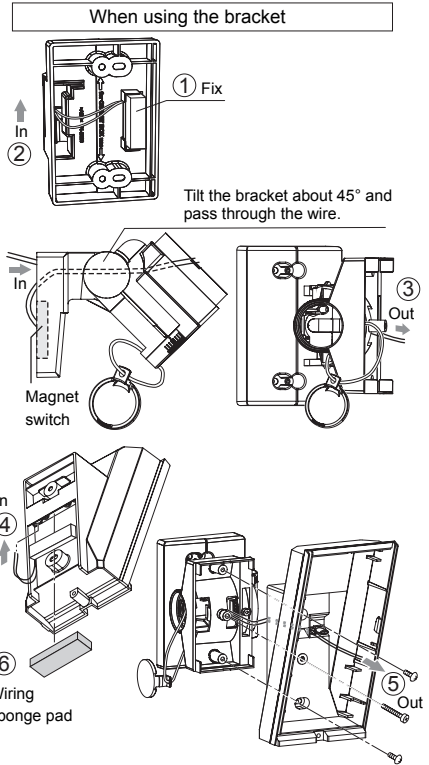
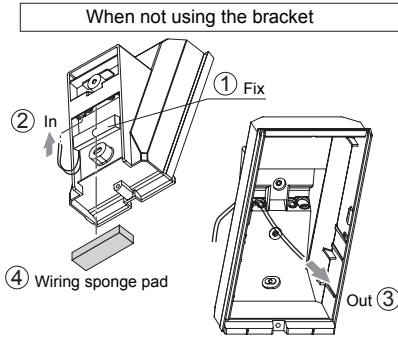
- 1 Install the magnet switch (wall side) to the wall. To determine the installation position, use the "Installation position template" provided on the inside cover of the product package.



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



- 3** Install the other portion of the magnet switch to the back of the main unit or the bracket. Pull the wiring through the knockouts.

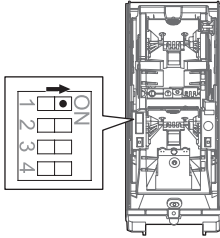


- 4** Install bracket and the main unit to the walls surface.

- 5** Connect the magnet switch wiring to the tamper terminal of the main unit.

## 4 WALK TEST

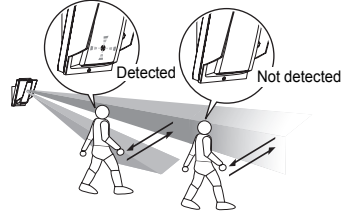
- 1 Set the DIP switch 1 (LED ON/OFF) to "ON".



**Note>>**

The switch is set "ON" by factory default.

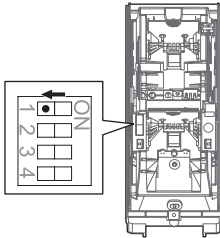
- 2 Check that the detector detects an object in the intended detection area. The installation has been successful if the LED lights for two seconds after a person walks into the detection area.



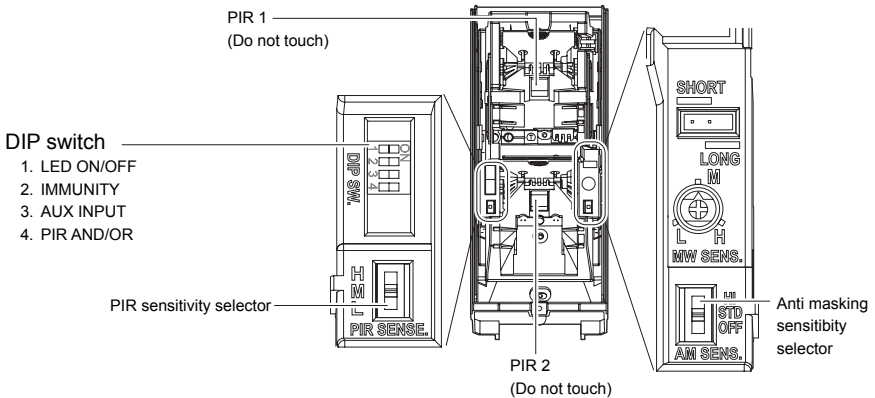
**Note>>**

For the walk test, move more than 1.0 m (3'3") away from the detector.

- 3 If the LED indication is not required at all times, set the DIP switch 1 (LED ON/OFF) to "OFF".



## 5 SETTING

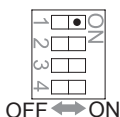




## -LED ON/OFF

DIP switch 1

HX-80N  
HX-80NAM

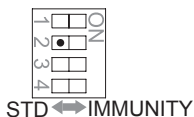


POSITION	FUNCTION
ON (Factory default)	The LED lights when someone is detected.
OFF	The LED does not light even if someone is detected.

## -IMMUNITY

DIP switch 2

HX-80N  
HX-80NAM



POSITION	FUNCTION
STD (Factory default)	IMMUNITY logic is not activated.
IMMUNITY	IMMUNITY logic is activated. Use this under harsh environment (e.g. vegetation sway).

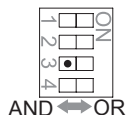
## -AUX INPUT

DIP switch 3

HX-80N  
HX-80NAM

By connecting a secondary unit (another warning sensor), you can extend the detection area and correct false alarms. The secondary unit must have a voltage free N.C. output such as another PIR detector or AIR detector.

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



POSITION	FUNCTION
AND (Factory default)	When both the main unit and the secondary detect someone, the alarm is activated. Choose this setting when a secondary unit is not connected.
OR	When either the main unit or the secondary detects someone, the alarm is activated.

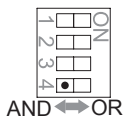
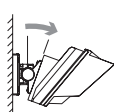
### Notes>>

- The alarm is only activated if both the main unit and the secondary unit are activated within 60 sec.
- In OR mode, a secondary detector must be fitted. If not fitted, the unit will generate an alarm continuously.

## -PIR AND/OR

DIP switch 4

HX-80N  
HX-80NAM



POSITION	FUNCTION
AND (Factory default)	An alarm is output when both PIR1 and PIR2 detect an object.
OR	An alarm is output when either PIR1 or PIR2 detects an object. Selecting "OR" mode makes detection range longer than "AND" mode. Walk test to readjust the detection range is required when "OR" is selected. <u>Actual adjustment should be conducted by adjusting the bracket angle.</u> ← OR mode only

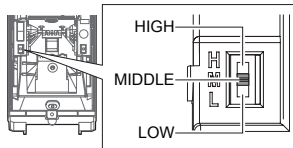
### Note>>

"OR" mode is appropriate for the sites that require more detectability rather than false alarm tolerance such as lighting control and camera activation.

## -PIR SENSITIVITY

PIR  
SENSITIVITY SELECTOR

HX-80N  
HX-80NAM

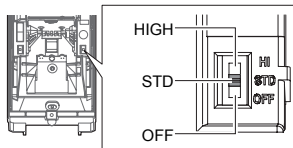


POSITION	FUNCTION
HIGH	High sensitivity
MIDDLE (Factory default)	Middle sensitivity
LOW	Low sensitivity

## -ANTI-MASKING SENSITIVITY

ANTI-MASKING  
SENSITIVITY SELECTOR

HX-80N  
HX-80NAM



POSITION	FUNCTION
HIGH	High sensitivity
STD (Factory default)	Normal sensitivity
OFF	Disabled

### Caution>>

After closing the cover, do not leave any objects closer than 1 meter from the unit.

## 6 LED INDICATION



DETECTOR CONDITION		LED INDICATOR (RED ONLY)
Warm-up		→ Blinks for approx. 60 sec.
Alarm		→ Lights for 2 sec.
Trouble output (HX- 80NAM only)	Anti-Masking booting (Anti-Masking start up)	→  → Blinks 2 times and goes off for 5 sec. and then repeats for 180 sec.
	Masking detection	→  →  → Blinks 3 times and goes off for 3 sec. and then repeats.

## 7

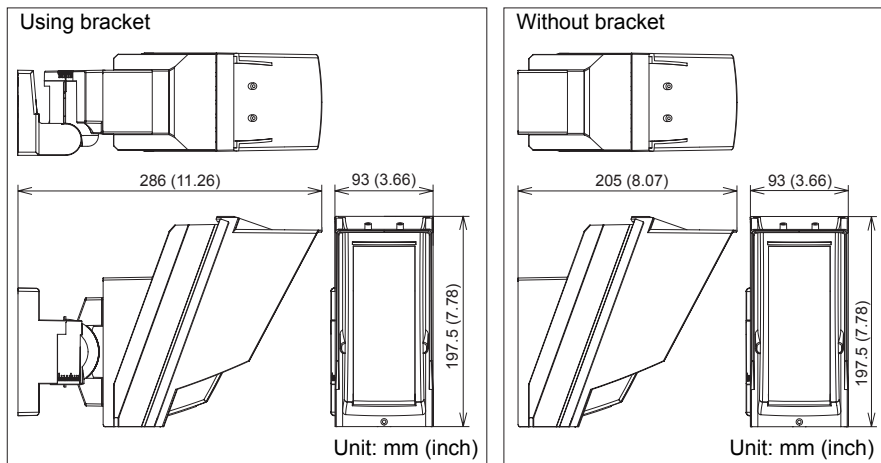
## SPECIFICATIONS

## 7-1 SPECIFICATIONS

Model	HX-80N	HX-80NAM
Detection method	Passive infrared	
PIR Coverage	24.0 m × 2.0 m (80' × 6'7") narrow / 20 zones	
PIR distance limit	6.5 m, 10.0 m, 13.0 m, 18.0 m (22', 33', 42', 59')	
Detectable speed	0.3 m/s – 1.5 m/s (1'/s – 4'11"/s)	
Sensitivity	2.0°C (3.6°F) at 0.6 m/s	
Power input	9.5 – 18 V DC	
Current draw	35 mA (max.) at 12 V DC	40 mA (max.) at 12 V DC
Alarm period	2.0 ±1 sec.	
Warm-up period	Approx. 60 sec. (LED blinks)	
Alarm output	Form C 28 V DC 0.2 A (max.)	
Tamper output	N.C. 28 V DC, 0.1 A (max.) N.C. open when cover removed.	
Trouble output	–	N.C. 28 V DC, 0.1 A (max.)
Aux input	N.C. 28 V DC, 0.1 A (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	
Mounting height	2.5 – 3.0 m (8'2" – 9'10")	
Bracket adjust angle	Vertical: ±20° Horizontal: ±95°	
Weight	720 g (25.4 oz.)	
Accessories	Bracket, Screw (4 × 20 mm) × 4	

\*Specifications and designs are subject to change without prior notice.

## 7-2 DIMENSIONS



The HX-80N series is only a part of a complete system, therefore we cannot accept complete responsibility for any damages or other consequences resulting from an intrusion.



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