


WIRELESS MODEL
HX-40RAM Battery operated with 2 PIRs and anti-masking

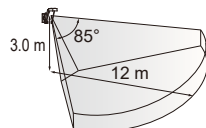
Multilingual instructions

Visit to the Web site to find
various language versions.

<https://navi.optex.net/manual/08618/>

EN

< FEATURES >



- Long battery life
- 3.0 m high mount detection area (12 m)
- Unique pyro element
- Intelligent AND detection logic
- Dual signal processing circuit
- Vegetation sway analysis logic
- Digital anti-masking
- Ideal detection area setting

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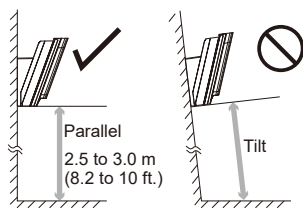
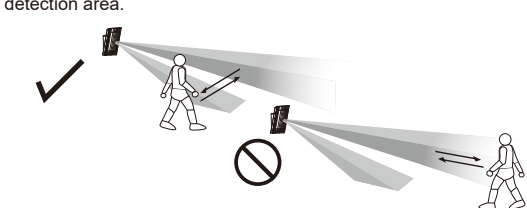
1 INTRODUCTION

1-1 BEFORE YOUR OPERATION

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

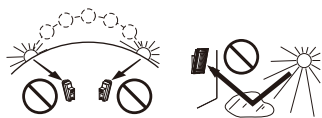
The check  mark indicates recommendation. The nix  sign indicates prohibition.

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

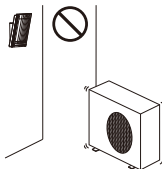
Keep the detector parallel to the ground. 	Consider the direction of the intruder, for the setting of the detection area. 
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Install the detector in a place where it is free from false alarm factors. For example:

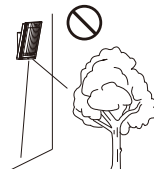
• Sunlight and reflection



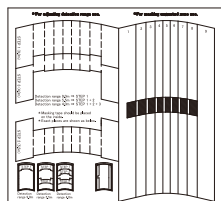
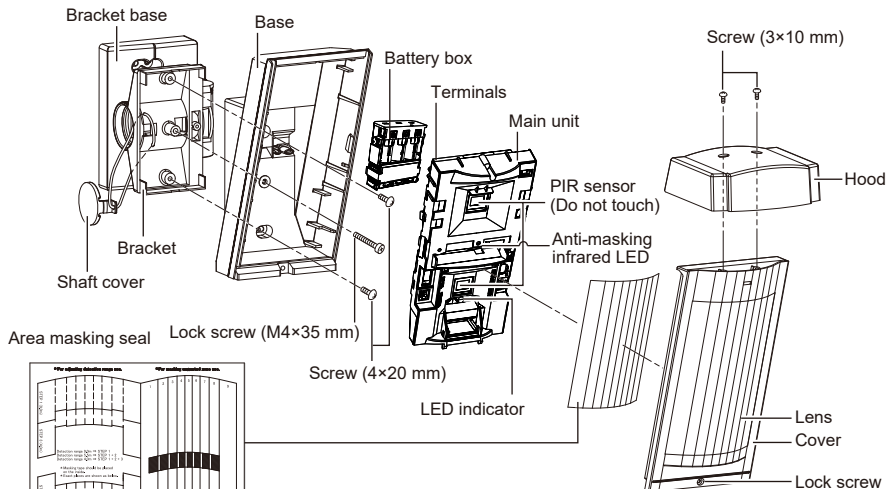
• Heat source



• Objects moving in the wind



1-2 PARTS IDENTIFICATION



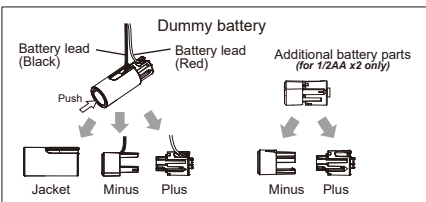
Accessories

- Screw kit**
- For joint (4 × 20 mm)
 - For wall mounting (4 × 20 mm)
 - For hood (3 × 10 mm)

*Lock screw attached on bracket base.
Transmitter and battery are not included.

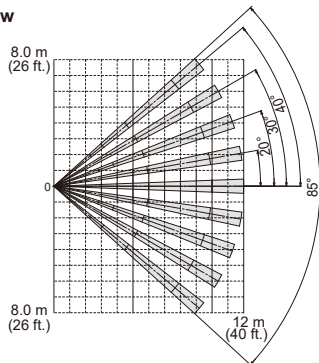
Alarm cable

Velcro tapes



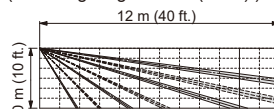
1-3 DETECTION AREA

Top view

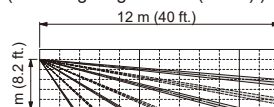


Side view

(Mounting height 3.0 m (10 ft.))



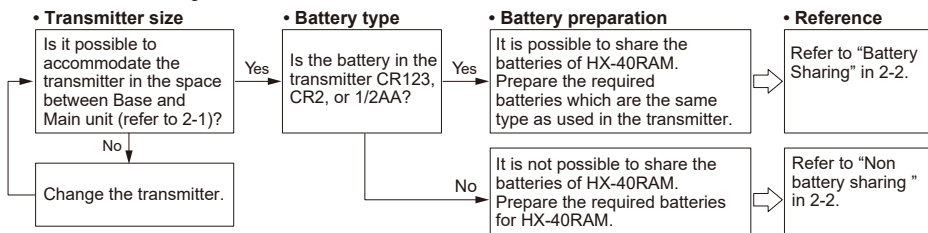
(Mounting height 2.5 m (8.2 ft.))



• vertical angle : 2.5 degrees (1 click)
upward (Refer to "caution" in 3-4).

2 PREPARATIONS

To use HX-40RAM, a wireless transmitter and batteries should be prepared.
First check the following flowchart.

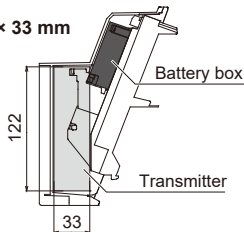


2-1 TRANSMITTER PREPARATION

The transmitter that HX-40RAM can accommodate are either 1 or 2 below:
Note that a transmitter with greater dimensions than these is not applicable.
Installation position for the transmitter and the battery box differ depending on their dimensions.

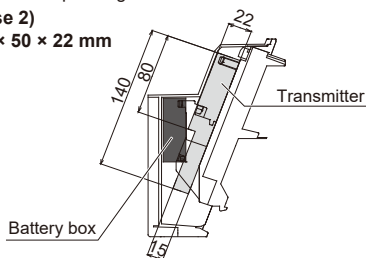
Case 1)

122 × 50 × 33 mm



Case 2)

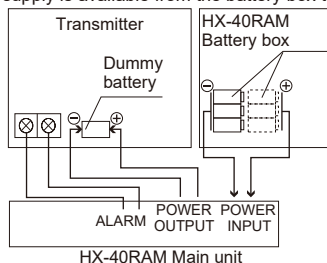
80 × 50 × 22 mm



2-2 BATTERY PREPARATION

-Battery Sharing

Power supply is available from the battery box to both HX-40RAM and the transmitter.



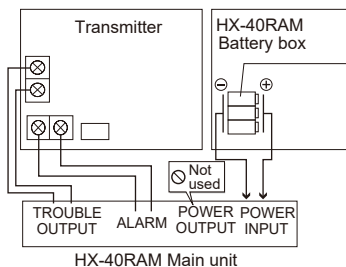
Note that the battery type shall be the same as that used for the transmitter.

Type	CR123A	CR2	1/2AA	1/2AA(*1)
Voltage	3.0 VDC	3.0 VDC	3.6 VDC	7.2 VDC (*1)
Number of cells to use	3 cells	3 cells	3 cells	6 cells (*1)

*1: 3.6 VDC 1/2 AA battery in series.

-Non battery sharing

Separate batteries for HX-40RAM and the transmitter.



Type	CR123A
Voltage	3.0 VDC
Number of cells to use	3 cells

If CR123A battery cells are unavailable, three CR2 battery cells (3.0 VDC) can be substituted.
Do not use 1/2AA batteries.

* Do not use the attached dummy batteries or battery lead.

3 INSTALLATION

-Installation procedure

DETERMINING THE
DETECTION LENGTH



INSTALLING THE BATTERY
-Battery Sharing
-Non Battery Sharing



INSTALLING THE TRANSMITTER
AND BATTERY BOX

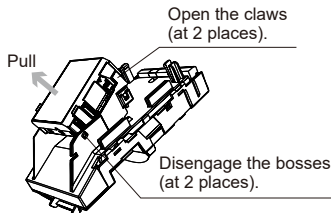
3-1 MOUNTING THE BATTERY

-Battery Sharing

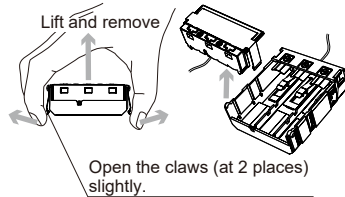
⚠ Warning

Do not use batteries of different residual quantities (i.e.: mixing new and used batteries) or of different manufacturers and/or types together. Not observing the above may result in an explosion, leakage of electrolyte, emission of toxic gases or other outcomes that may be harmful to people and property.

1 Remove the battery box from the main unit.



2 Remove the battery box cover.



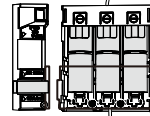
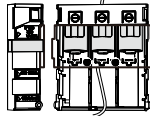
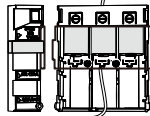
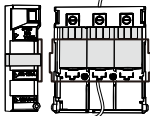
3 Mount batteries and put the cover onto the right position indicated on the side of the battery box. Hook the cover firmly by the claws on the right and left sides.

CR123A×3 (3.0 VDC)

CR2×3 (3.0 VDC)

1/2AA×3 (3.6 VDC)

1/2AA×6 (7.2 VDC×3) (*1)



*1: 3.6 VDC 1/2 AA battery in series.

⚠ Caution

Do not contact the ends of the red and black wires to avoid shortcircuit.



4 Open the transmitter cover and remove the battery.

5 Place the dummy battery in the battery case of transmitter.



⚠ Caution

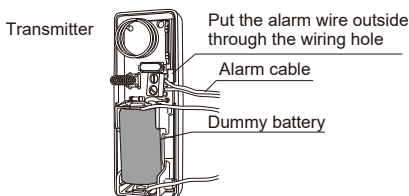
Do not pull the wire when taking out the dummy battery from the wireless transmitter.

Note>>

- When the dummy battery assembly, do not connect battery leads to power source.
- Make sure that the device is not energized when combining units.

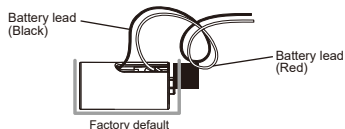
* Refer to followings how to set the dummy battery unit adopting to each battery size.

6 Connect the alarm cable to the transmitter and close the cover.



Dummy Battery unit

CR123A For CR123A, use the unit as the factory default setting.



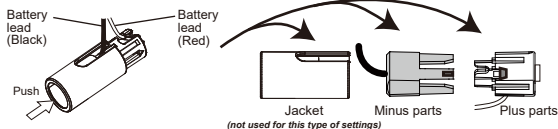
Once disassembled, see the steps below to reassemble the unit.



CR2

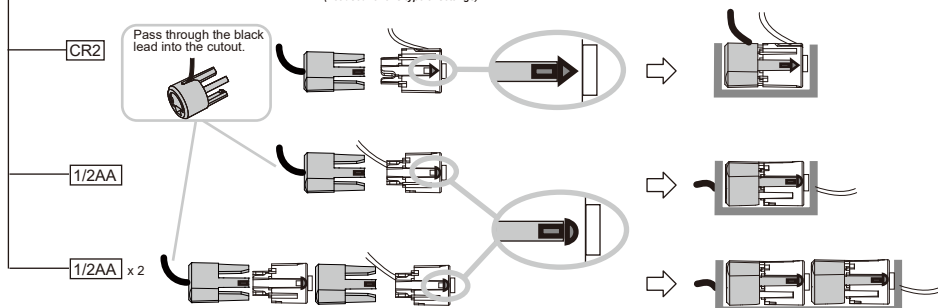
1/2AA

1/2AA x 2



Warning

- Do not touch the ends of the red and black wires to avoid short-circuit.
- Do not pull the wire when taking out the parts from the jacket.

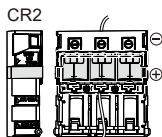
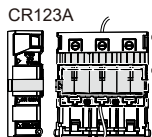


-Non battery sharing

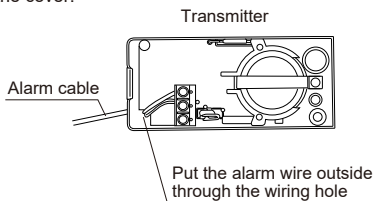
Arrange 3 cells each of CR-123A (recommended) or CR2.

Follow the steps from **1** to **2** of "Battery Sharing" on the previous page.

- 3** After installing the batteries, check the guide on the side and install the cover. Hook the cover firmly by the claws on the right and left sides.



- 4** Connect the alarm cable to the transmitter and close the cover.



Caution

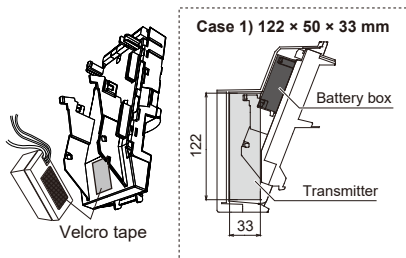
Do not contact the ends of the red and black wires to avoid shortcircuit.



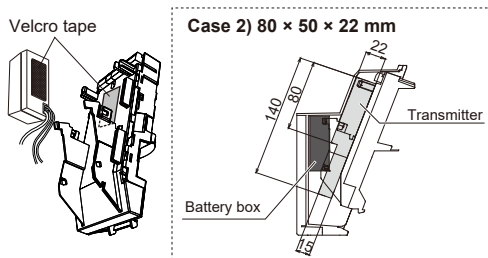
3-2 MOUNTING THE TRANSMITTER AND THE BATTERY BOX

- 1 Using a Velcro tape (included in the set), fix the transmitter to the main unit.

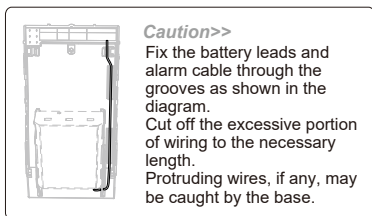
Example of Case 1



Example of Case 2

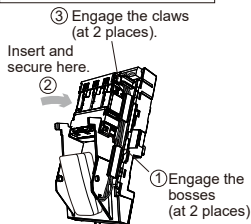


- 2 Connect the alarm cable to the terminal block of the main unit.

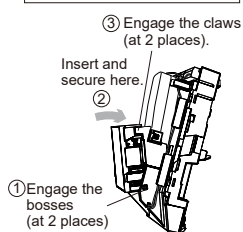


- 3 Install the battery box into the main unit and connect the necessary wires to the terminal block. (refer to "3-5 Wiring")

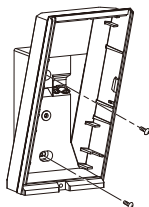
Example of Case 1



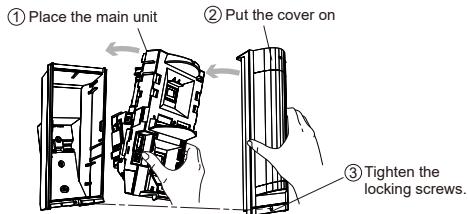
Example of Case 2



- 4 Fix the base to the wall surface.



- 5 Mount the main unit and the lens onto the base.



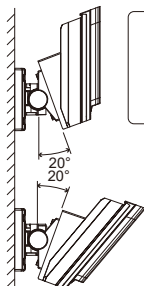
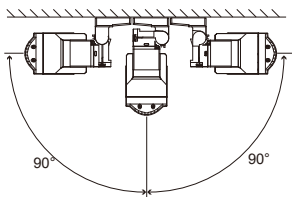
Caution>>

If the main unit does not easily fit on to the base, the transmitter may be in contact or the wiring may have become caught.

3-3 MOUNTING THE BRACKET

Using the bracket makes it possible to adjust the unit horizontally by ± 90 degrees.

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 (refer to 3-4).

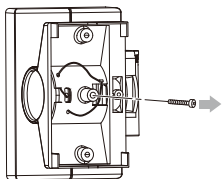


Caution>>

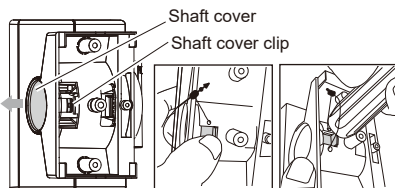
Do not change the detection length with bracket.
Use the masking seal to adjust the detection length.

-Bracket installation

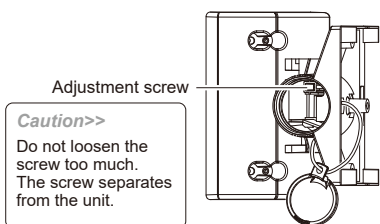
- 1 Remove the up-down lock screw.



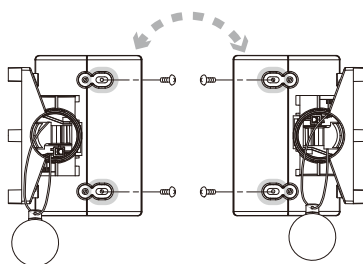
- 2 Push the shaft cover clip straightforwardly with your thumb. In case the clip is stuck, use a suitable tool. e.g. back side of a screw driver.



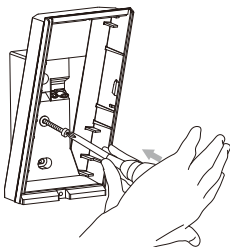
- 3 Loosen the adjustment screw two turns.



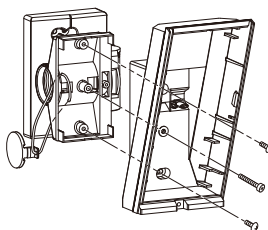
- 4



- 5 Open the up-down lock screw knockout for bracket.

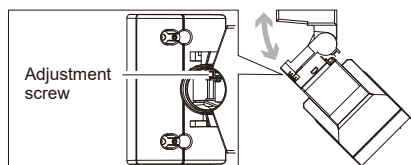


- 6 Install the base on the bracket.



Caution>>
Do not tighten the up-down lock screw.

- 7 Decide the horizontal angle, and tighten the adjustment screw clockwise.



- 8 Install the Main unit and cover on the base.

- 9 Complete the 3-4 "ADJUSTING THE VERTICAL ANGLE".

- 10 Remove the cover and the main unit to tighten the up-down lock screw, and install the Main unit and cover on the base again.

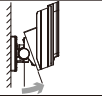
- 11 Fit the shaft cover into the place.

3-4 ADJUSTING THE VERTICAL ANGLE

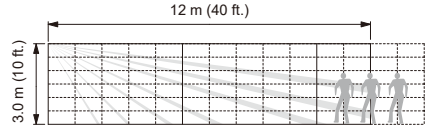
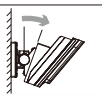
To have the right performance, set the vertical angle parallel to a ground.
Decide the detection length at first. If you choose 9.0 m/5.5 m/4.0 m, mask the unwanted lens with masking seals.

Carry out the 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 outside the designated distance, change the vertical angle downward.



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

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

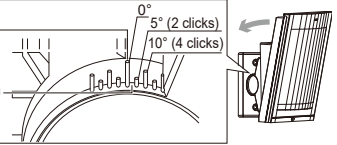
Caution>>

If the base of the unit is already parallel to the ground,

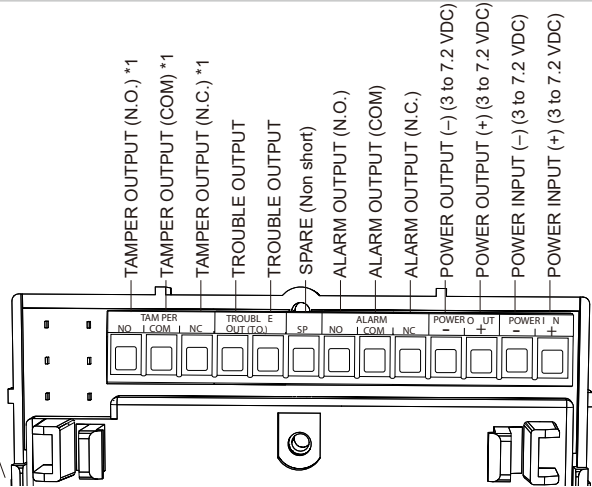
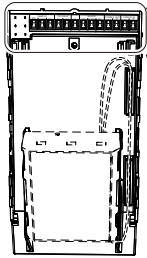
- Do not change the detection distance by tilting the unit up or down. Detection area and length should be adjusted with masking tapes. Refer to 1-3 for the details.
- Walk test the unit to ensure that the desired detection distance is achieved.

0° is the right setting for 3.0 m (10 ft.) height installation.

Adjust 1 click (2.5° upward) for 2.5 m (8.2 ft.) height installation to maintain the 12 m (40 ft.) detection range.

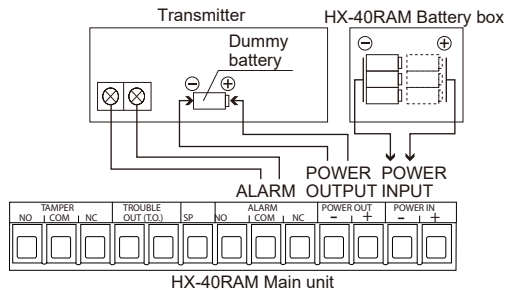


3-5 WIRING



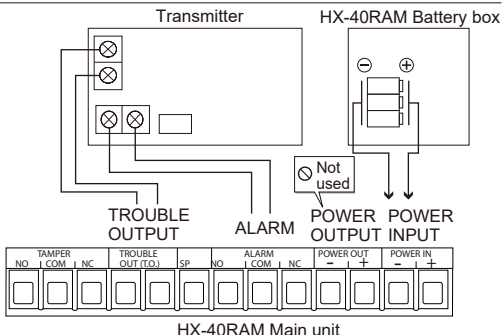
-Battery Sharing

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



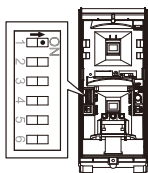
-Non Battery Sharing

- Use a transmitter with 2 inputs or low battery terminal and connect to TROUBLE OUTPUT.
- Use 2 small transmitter units and connect one unit to the alarm wiring and the other to the trouble wiring (the size of such transmitters should be small enough to be accommodated in the HX-40RAM internal case 1) / 2)).
- To output LOW BATTERY SIGNAL to TROUBLE OUTPUT terminal, set DIP-SW 5 (see p10) "OFF" to "ON".

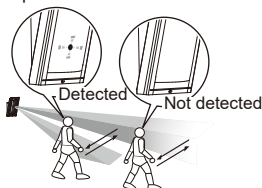


4 WALK TEST

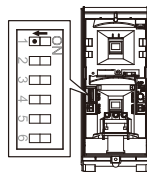
- 1 Set the DIP switch 1 to "ON" (default).



- 2 Check if detector reacts in intended detection area. Successful installation shows, LED light for two seconds after a person walks into detection area.



- 3 Set the DIP switch 1 to "NORM" and switch 6 to "OFF".



Note>>

- For the walk test, move more than 1.0 m (3.3 ft.) away from the detector.
- Conduct a walk test at least once a year.

Caution>>

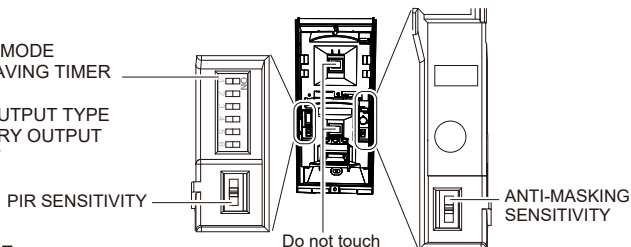
After completing a walk test, always set the unit to NORM position for operation. Using the unit in TEST mode will shorten the battery life.

5 SETTING

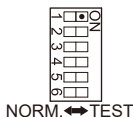
5-1 FUNCTION

Dip SW

1. WALK TEST MODE
2. BATTERY SAVING TIMER
3. IMMUNITY
4. TROUBLE OUTPUT TYPE
5. LOW BATTERY OUTPUT
6. LED ON/OFF



-WALK TEST MODE



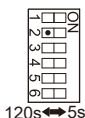
DIP switch 1

POSITION	FUNCTION
TEST (Factory default)	• LED will lights at the time of detection regardless DIP-SW 6. (Lights up irrespective of the LED ON/OFF (DIPSW 6, see p10) setting) • Alarm will be generated at the time of detection regardless DIP-SW 2.
NORM.	• Normal operation. (Battery saving mode.) • LED is off. (When LED ON/OFF is OFF.)

-BATTERY SAVING TIMER

DIP switch 2

Even if there are continuous alarm events, the alarm is generated only once in the timer period to save the battery life.

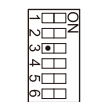


120s ↔ 5s

POSITION	FUNCTION
120s (Factory default)	120 seconds
5s	5 seconds.

-IMMUNITY SWITCH

DIP switch 3



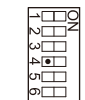
STD ↔ IMMUNITY

POSITION	FUNCTION
STD (Factory default)	Normal sensitivity.
IMMUNITY	Sensitivity will be relaxed under the hostile environment.

-TROUBLE OUTPUT TYPE

DIP switch 4

Select the contact point output form with the TROUBLE OUTPUT TERMINAL.



N.C. ↔ N.O.

POSITION	FUNCTION
N.C. (Factory default)	N.C. signal is output to the TROUBLE OUTPUT TERMINAL.
N.O.	N.O. signal is output to the TROUBLE OUTPUT TERMINAL.

Trouble signal output>>

Trouble signal at regular intervals is output after trouble condition continues for a certain period.

• ANTI MASKING OUTPUT

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.

Anti-Masking output will be automatically reset within about one minute after a masking object is removed.

• LOW BATTERY OUTPUT (when LOW BATTERY OUTPUT/Dip switch 5 is ON)

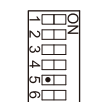
When the battery capacity becomes low, the unit automatically outputs fixed time transmission to call attention. When LOW BATTERY signal is output, Anti-Masking function will be canceled in order to extend the battery life. When LOW BATTERY signal is output, replace all the batteries with new ones.

Warning

Do not use batteries of different capacities (i.e.: mixing new and used batteries) or of different manufacturers and/or types together. Not observing the above may result in an explosion, leakage of electrolyte, emission of toxic gases or other outcomes that may be harmful to people and property.

-LOW BATTERY OUTPUT

DIP switch 5

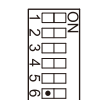


OFF ↔ ON

POSITION	FUNCTION
OFF (Factory default)	Low battery output is not operational.
ON	Low battery signal is output from the TROUBLE OUTPUT.

-LED ON/OFF

DIP switch 6



OFF ↔ ON

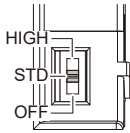
POSITION	FUNCTION
OFF (Factory default)	The LED does not light even at the time of detection.
ON	The LED lights when someone is detected.

-PIR SENSITIVITY



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

-ANTI-MASKING SENSITIVITY



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

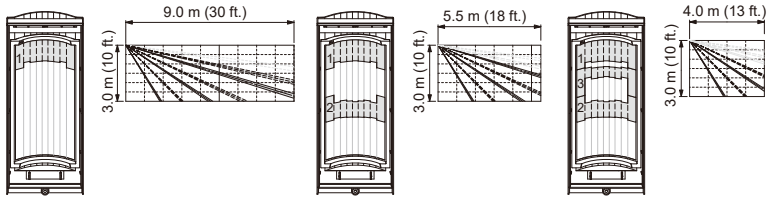
Caution>>

When turning on the power, do not leave any object with 1.0 m (3.3 ft.) from the unit.

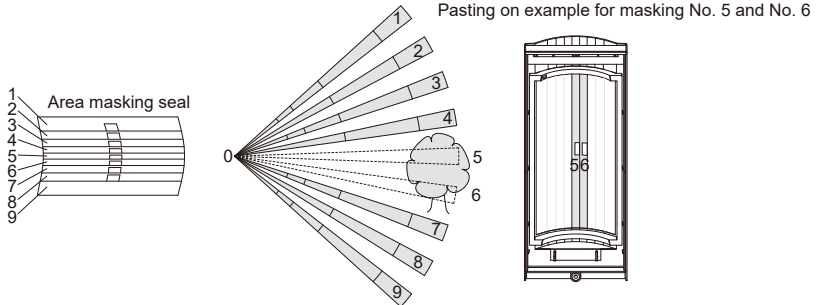
5-2 AREA ADJUSTMENT

-DETECTION LENGTH ADJUSTMENT

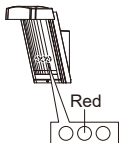
To limit the detection length, apply the appropriate masking seal. Note that there are three different types of seal.



-AREA MASKING



6 LED INDICATION



Blink
 Light
 OFF

DETECTOR CONDITION		LED INDICATOR (RED ONLY)
Warm-up		→ Blinks for approx. 90 sec.
Alarm		→ Lights for 2 sec.
Trouble output	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.
	Low Battery	→ → → → Blinks 4 times and goes off for 3 sec. and then repeats.

NOTE: To distinguish a trouble output caused by low battery power, the low battery power LED display will light up when the cover is opened even if the LED ON/OFF (DIP-SW 6, see p10) is set to OFF.

7 SPECIFICATIONS

7-1 SPECIFICATIONS

Model	HX-40RAM
Detection method	Passive infrared
PIR Coverage	12 m (40 ft.) 85° wide / 94 zones
PIR distance limit	4.0 m, 5.5 m, 9.0 m, 12 m (13 ft, 18 ft, 30 ft, 40 ft.)
Detectable speed	0.3 to 1.5 m/s (1 to 5 ft/s)
Sensitivity	2.0°C (3.6°F) at 0.6 m/s
Power input	3.0 to 7.2 VDC Lithium Battery (CR123A×3, CR2×3, 1/2AA×3, 1/2AA×6)
Operating Voltage	2.5 to 9 VDC
Current draw	30 µA(standby) / 4 mA (max) at 3 VDC
Alarm period	2.0 ± 1 sec
Warm-up period	Approx. 90 sec(LED blinks)
Alarm output	Form C -Solid State Switch- 10 VDC 0.01 A max
Trouble output	N.C./N.O. Selectable -Solid State Switch- 10 VDC 0.01 A max
Tamper output	Form C. 28 VDC, 0.1 A max. changes when cover removed.
LED indicator	Disable: During normal operation. Enable: During WALK TEST or LED SW on. Red: Warm-up, Alarm, Trouble, Low battery
Operating temperature	-20°C to +60°C (-4°F to +140°F)
Environment humidity	95% max
Weatherproof	IP55
Mounting	Wall (Outdoor, Indoor)
Mounting height	2.5 to 3.0 m (8.2 to 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) Velcro tape×2, Alarm cable, Dummy battery (with/without lead)

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

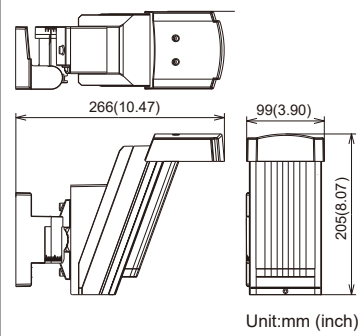
The HX-40 series is only a part of a complete system, we cannot accept complete responsibility for any damages or other consequences resulting from an intrusion. Due to our policy of continuous improvement Optex reserves the right to change specification without prior notice.

As a rough indication of battery change timing, enter the battery type and the date it was first used.

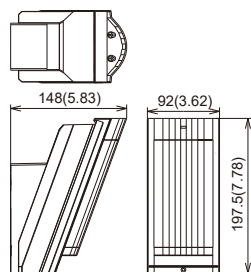
Battery type _____ Date (Year/Month) _____

7-2 DIMENSIONS

Using bracket and hood



Without bracket and hood



Unit:mm (inch)

■ EU & UK contact information

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



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