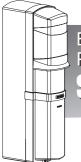


# **INSTALLATION INSTRUCTIONS**

CE



# BATTERY OPERATED PHOTOELECTRIC DETECTOR SINGITY LINE SOLIES

MODEL	DETECTION RANGE	
SL-100 TNR	30 m / 100 ft.	
SL-200 TNR	60 m / 200 ft.	

#### **FEATURES**

- · Battery operated detector
- D size lithium battery or CR123A lithium battery (OPTION CRH-5)
- · Simplified optical adjustment
- Sniper View Finder with ×2 magnification
- Avoids having to install a wireless transmitter in the photoelectric transmitter.
- IR signal transmission technology transfers the low battery signal to the receiver
- Possible to connect the power and alarm cables to both the receiver and the transmitter or either of them
  - OPTION PCU-5

- · Long battery life
- · Battery saving function
- · Intermittent output function
- · Slim body design
- · Easy to see vivid interior color for optical alignment
- · IP65 waterproof structure
- Tamper function
- Indicator LED for an easy alignment
- Various options (Refer to "2 PREPARATIONS" and "9 OPTIONS").) (CRH-5, BCU-5, PCU-5)

#### CONTENTS

4SETTINGS
4-1 FUNCTIONS
4-2 OPTICAL ALIGNMENT
5 OPERATION CHECK
5-1 LED INDICATION
5-2 OPERATION CHECK
6TROUBLESHOOTING
7DIMENSIONS
8SPECIFICATIONS
9OPTIONS

# INTRODUCTION

#### **BEFORE YOUR OPERATION**

- Read this instruction manual carefully prior to installation.
- After reading, store this manual carefully in an easily accessible place for reference.
- This manual uses the following warning indications for correct use of the product, harm to you or other people and damage to your assets, which are described below. Be sure to understand the description before reading the rest of this manual.

/!\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.

This symbol indicates prohibition. The specific prohibited action is provided in and/or around the figure.

This symbol requires an action or gives an instruction.

# ⚠ Warning

Do not use the product for purposes other than the detection of moving objects such as people and vehicles. Do not use the product to activate a shutter, etc., which may cause an accident.



Do not touch the unit base or power terminals of the product with a wet hand (do not touch when the product is wet with rain, etc.). It may cause electric shock.



Never attempt to disassemble or repair the product. It may cause fire or damage to the devices.



Do not use batteries that have different levels of power remaining (i.e., new and used batteries). 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.



[Handling of Batteries] Do not recharge, short circuit, crush, disassemble, exceed heat above 100°C (212°F), incinerate, or expose contents to water. Do not solder directly to the cell.



#### ⚠ Caution

Do not pour water over the product with a bucket, hose, etc. The water may enter, which may cause damage to the devices.



Clean and check the product periodically for safe use. If any problem is found, do not attempt to use the product as it is and have the product repaired by a professional engineer or electrician.



#### **PRECAUTIONS**

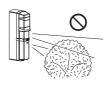
Do not install the unit on an unstable surface.



Do not install the pole in a location where sufficient stability can not be ensured.



Do not install the unit in trees, leaves, or other objects that may swing in the wind and block the



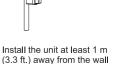
Do not install the receiver in a location where it is exposed to direct sunlight.

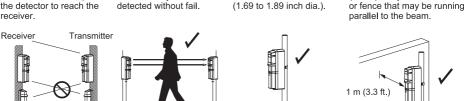


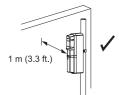
Do not allow the infrared beam from an other pair of the detector to reach the receiver.

Install the unit at a height where an object can be detected without fail.

The pole size should be 43 to 48 mm dia. (1.69 to 1.89 inch dia.).





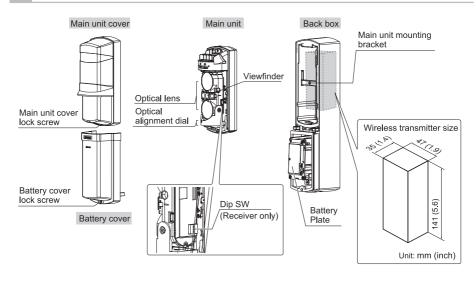


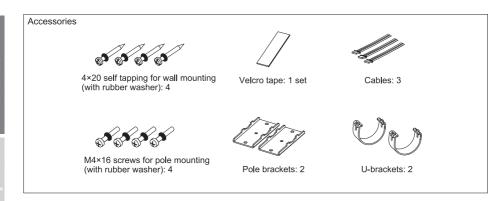




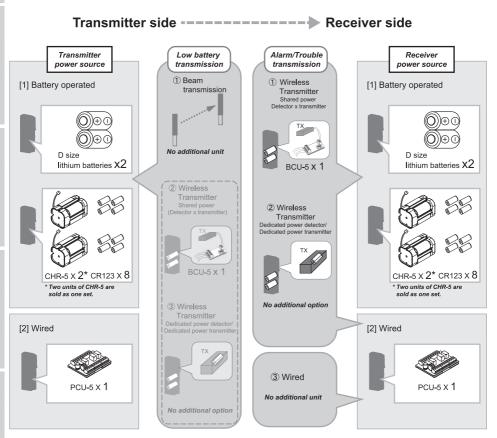
This symbol indicates recommendation.

# PARTS IDENTIFICATION



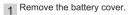


# 2 PREPARATIONS



# INSTALLATION

#### **SEPARATING**



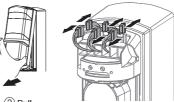


1 Loosen the battery cover lock screw.

- 2 Remove the main unit cover.



3 Remove the connectors.

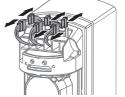


2 Pull

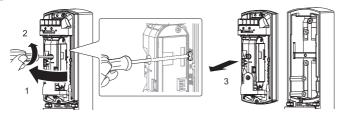


1 Loosen the main unit cover lock screw.

2 Pull



Remove the main unit from the back box.



1 Turn the optical unit 90 degrees and loosen the screw.

- 2 Take the main unit out of the back box.
- Remove the main unit mounting bracket.



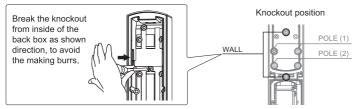
# 

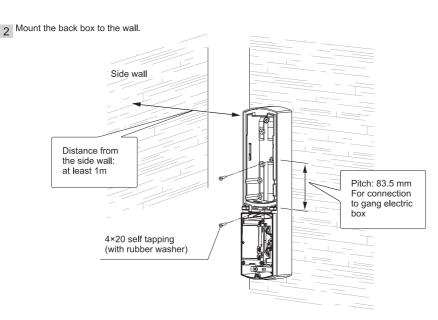
Do not place the main unit where it is exposed to direct sunlight. Doing so may cause damage to the product.



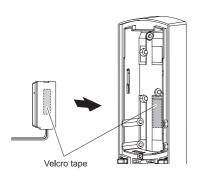
#### WALL MOUNTING

Using a screwdriver or similar tool, break the knockout position (×2) in the back box as shown.





3 Using Velcro tape, fix the wireless transmitters in the back box. For more information on wiring, see "3-5 WIRING".

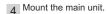




Cut the supplied Velcro tape to an appropriate length and apply.

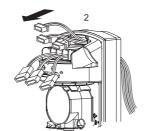
#### Note>>

• When using BCU-5 (option), refer to BCU-5 manual.

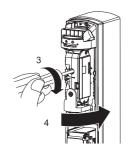




1 Attach the main unit mounting bracket to the back box.



② Route the three connectors of the back box through the slits on the upper part of the main unit.



3 Tighten the main unit fixing screw and turn the optical unit 90 degrees.

5 Attach the connectors.



#### Note>>

 Avoid placing the cables in a position where they can be caught between the main unit and cover.





#### 6 Insert batteries.

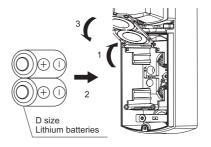
Apply the same procedure for the battery replacement.

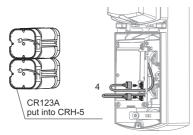
#### < When using D size battery >

- ① Open the battery plate in the direction of the arrow.
- ② Insert the two batteries into their compartment. Ensure the positive terminals are facing toward the front.
- (3) Close the battery plate.

#### < When using CR123A battery >

- ① Open the battery plate in the direction of the arrow.
- ② Set CR123A in the CRH-5 and insert two CRH-5 into their compartment. Ensure the positive terminals are facing toward the front.
- 3 Close the battery plate.
- 4 Connect the CRH-5 male connectors to the female connectors of the battery plate.





# ⚠ Warning

- · Do not mix D size lithium batteries with CRH-5 batteries.
- Do not mix batteries that have different levels of power remaining (i.e., new and used batteries or batteries of different manufacturers). 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.



# **⚠** Caution

• Remove all batteries prior to replacing with new ones. If this is not followed, the low battery indicator LED will not reset and will continue to blink.



· When returning this detector to the supplier, remove all batteries from both transmitter and receiver.





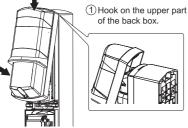
#### Disposal method for batteries

Dispose of used batteries in accordance with local government regulations/laws and EU Battery Directive (2013/56/EU).



Referring to "4 SETTINGS", perform the necessary settings.

Close the main unit cover.



2 Push the lower part of the main unit cover.

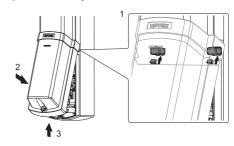


(3) Fasten the main unit cover lock screw.

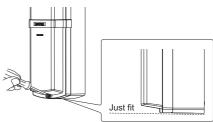
#### 

 Do not touch the optical unit when mounting the cover. Otherwise, the resulting shift of the optical axis may result in malfunction of the unit and require readjustment.

- 9 Close the battery cover.
- 1 Close the battery cover.



2 Tighten the fixing screw for the battery cover.



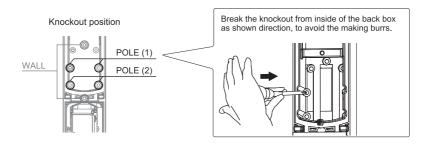
# **⚠** Caution

When closing the cover, be careful that the cables are not caught by the cover.



## 3-3 POLE MOUNTING

Using a screwdriver or similar tool, break the knockout position (×2) in the back box as shown.

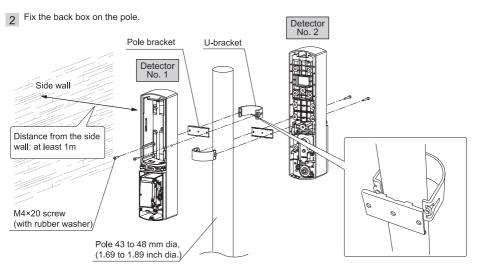


Instruction	Knockout position		
condition	Detector No. 1	Detector No. 2	
One detector	POLE (1)	-	
Two detectors in opposing directions	POLE (1)	POLE (2)	

#### 

 Unnecessary knockout broken wrong, should be closed with a waterproof material. Otherwise, it may result in waterproof failure and malfunction of the product.





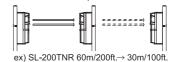
3 Perform the same procedure as 3 to 9 of "3-2 WALL MOUNTING".

#### MOUNTING EXAMPLE AT PARTICULAR CASE

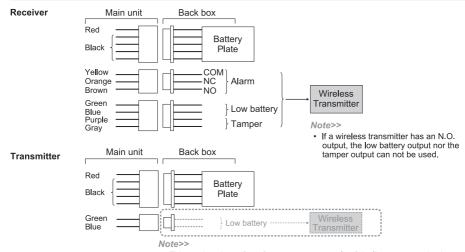
It is not recommended to be installed the transmitter and the receiver facing each other through the corner of the cover.



In doing this installation, the maximum detection range shall be half of the original detection range. (This is to compensate the attenuation of beam by the corner of the cover.)

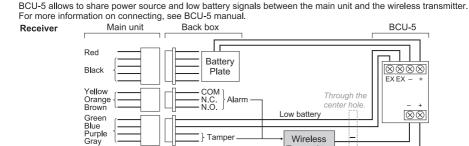


#### 3-5 WIRING



- · This section shows for reference as an example of duplicate communication.
- It can usually be omitted because the low battery signal of the transmitter is to be sent to the receiver through the infrared beam.

manual.

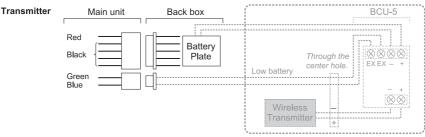


#### Note>>

Transmitter

If a wireless transmitter has an N.O. output, the low battery output nor the tamper output can not be used.

+



# **⚠** Warning

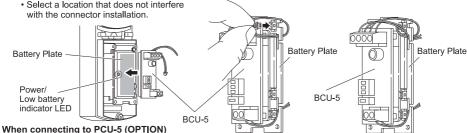
Do not insert batteres into the wireless transmitter, when using BCU-5 option. Doing so may result in fire or explosion.

Note>>

- This section shows for reference as an example of duplicate communication.
- It can usually be omitted because the low battery signal of the transmitter is to be sent to the receiver through the infrared beam.
- Attach the BCU-5 to the battery plate using double-sided adhesive tape.
  - · Be careful not to cover the power/low
  - battery indicator LED.

Connect the Power line (Red/Black) to the Battery Plate.

Wire the Red/Black line through the groove of the Battery Plate, so that the Battery Cover does not pinch the line.



PCU-5 is used to enable wired operation. For more information about this option, see PCU-5

#### Note>>

- · Route the cables through the center hole.
- · When using PCU-5 (option) with either the transmitter or receiver, ensure that the low battery signal is monitored at the other which is battery operated. Refer to PCU-5 manual.



# 4 SETTINGS

## 4-1 FUNCTIONS

#### 1 DIP SWITCH

Refer to "1-3 PARTS IDENTIFICATION".

Beam interruption adjustment switch 1
Beam interruption adjustment switch 2
Battery saving timer switch
Intermittent output function switch

SELECTOR POSITION



#### Note>>

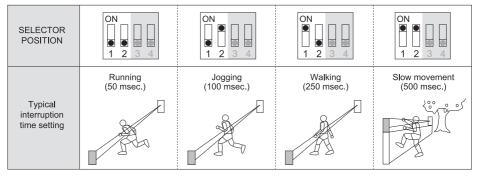
 Do not press the tamper when you set the DIP switches. Otherwise the settings will not actually be changed.



#### 2 BEAM INTERRUPTION ADJUSTMENT

Initial setting is at 50 ms for normal work. According to the speed of a supposed target you select one specific setting out of 4 steps.

Set the beam interruption adjustment switches of the Receiver according to the speed of the human object to detect.



# 3 BATTERY SAVING TIMER

The battery saving timer enforces 2 min intervals between alarm outputs. If the site of security involves a lot of traffic or in/out of people over a detection zone, wireless transmitters may wear out batteries quickly. The battery saving timer cancels alarms for two minutes after the initial output. preserving powers of wireless

#### Receiver

transmitters.



ON = Alarm output : 1 output/ 2 minutes

#### 4 INTERMITTENT OUTPUT FUNCTION

Intermittent output function enforces outputs to reset while beams continues to be interrupted.

This function is effective if your wireless transmitters do not have supervised features to monitor relay status. Intermittent output function repeats alarms with intervals to let the system be aware of interrupted status.

#### Receiver

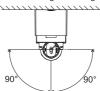


ON = Alarm output: 1 output/ 1 minute

#### -2 OPTICAL ALIGNMENT

Optical alignment is an important procedure to increase reliability. Be sure to take alignment step 1 through 2 described below to attain the maximum level of the output through the monitor jack.

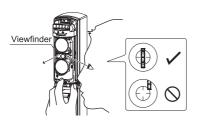
#### Horizontal alignment angle



#### Vertical alignment angle



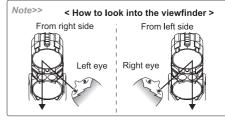
1 Look into the viewfinder and perform fine alignment of the horizontal and vertical angles using the alignment dial.





#### < Horizontal alignment >

Turn the horizontal alignment dial by fingers to make alignment





#### < Vertical alignment >

Turn the vertical alignment dial with a screwdriver to make alignment

2 Checking the Indicator LED and fine alignment

#### Checking of the illumination

- After the rough alignment using the view finder, check the light receiving status by the Alarm/Level Indicator.
- < Receiver >



Alarm/Level Indicator LED

#### Fine adjustment with monitor jack

 After checking the receiving level of optical axis by using the alarm indicator, make sure to make fine alignment for both transmitter and receiver with voltmeter until it reaches maximum monitor output over "Good" level.

#### < Receiver >

Set the voltmeter range to 5 to 10VDC and connect the voltmeter probes ⊕ and ⊝ to ⊕ and ⊝ of the monitor jack respectively.

#### Note>>

 When making the adjustments by the monitor jack, be careful not to cover the optical unit with your hand, the voltmeter pin cord, etc.

A1 /	Beam interrupted					
Alarm/ Level indicator	ON	Fast blink Slow blink OFF		FF		
LED		· .	·.	$\bigcirc$		
Adjustment level	Rea	lign	Fair	Good	Excellent	
Monitor jack output	0 V Þ	0.1 VDC		C > 2.8	VDC >	

#### 

•The Alarm/Level indicator LED is a supporting tool for easy alignment. Be sure to perform fine alignment to ensure the maximum output level through the monitor jack.



# 5 OPERATION CHECK

#### 5-1 LED INDICATION

#### Alarm/Level indicator LED (Receiver only)

#### Note>>

The operation of the Alarm/Level indicator LED will not be changed by the battery saving timer setting. Whenever
the beam is interrupted, the indicator will turn ON.



DETECTOR	LED
Beam Interruption	ON (continue)
Beam not received sufficiently	Fast blink or Slow blink
Beam received sufficiently	OFF

#### Power/Low battery indicator LED



#### Receiver

110001101	
BATTERY CONDITION	LED
Normal	ON (continue)
Receiver is low battery	
Transmitter is low battery	
Both Receiver and Transmitter are low battery	

#### Transmitter

BATTERY CONDITION	LED			
Normal	ON (continue)			
Transmitter is low battery				

#### 

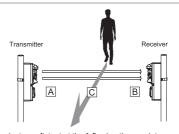
 Remove all batteries prior to replacing with new ones. If this is not followed, the low battery indicator LED will not reset and continue to blink.



# 5-2 OPERATION CHECK

After installation is complete, be sure to check the operation.

- Make sure that the Alarm/Level indicator LED is OFF. If it is illuminated even when the beams are not blocked, make optical alignment again.
- 2 Check that the Power/Low battery indicator LEDs on both transmitter and receiver are ON. If the Power/Low battery indicator LED is blinking, the battery power is low. Replace with new batteries.
- 3 Conduct a walk test to check that Alarm/Level indicator LED on the receiver turns ON as the walker interrupts the beams.



Be sure to conduct a walk test at the following three points: A. In front of the transmitter

- B. In front of the receiver
- C. At the mid point between the transmitter and receiver

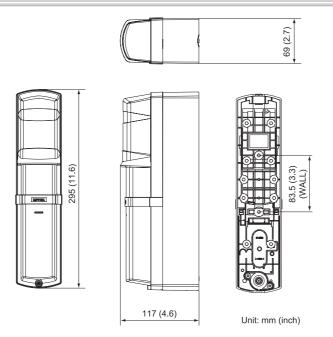
The detector is installed properly when Alarm/Level indicator LED turns ON in the tests at all the three points.

6

# **TROUBLESHOOTING**

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Power/Low battery indicator LEDs are	Reversed battery polarity.	Check the battery polarity.
not illuminated. (transmitter/receiver)	Batteries are run or running out.	Replace all batteries.
Alarm is not output.	Reflection from the floor or wall.	Align beams away from the floor or wall.
Marin is not output.	Beam has not been blocked.	Block all two beams.
When the beam is blocked, the "ALARM" indicator LED is illuminated but the alarm is not activated.	Signal line short-circuited	Check the wiring.
	Interruption time is too short.	See "4-1 BEAM INTERRUPTION ADJUSTMENT", set an appropriate interruption time.
Alarm is activated even if the beams are not blocked.	Surface of Transmitter/Receiver cover soiled.	Clean the cover (wipe the cover with a soft cloth dampened with water or diluted neutral detergent).
	Optical alignment was not performed properly.	See "4-2 OPTICAL ALIGNMENT" and make realignment.
	Batteries are run or running out.	Replace all batteries.
Batteries are running out too quickly.	Problem with tamper output.	Set the cover properly.
Frost, snow or heavy rain causes false alarm.	Optical alignment not optimized.	See "4-2 OPTICAL ALIGNMENT" and make realignment.
Improper output	Problem with wiring.	Check wiring again for proper installation.
Even if new batteries are used, Power/Low battery indicator LED is blinking.	Batteries are inactive condition.	Open and close the battery cover 20 times with two seconds intervals.  After this, open the battery plate and then close it.

# 7 DIMENSIONS



# **SPECIFICATIONS**

				1			
Model				SL-100TNR		SL-200TNR	
Maximum detection range				30 m/100 ft.		60 m/200 ft.	
Maximum arrival distance				265 m/870 ft.		530 m/1740 ft.	
Detection method					Twin infrared beam i	nterruption detection	
Interruption	on time			Sel	ectable from 50/100/2	50/500 ms (4 selections)	
Power source				3.6 to 3.9 VDC D size lithium batteries Each Transmitter and Receiver: 2 units (Recommended SB-D02HP manufactured by VITZROCELL) 3.0 VDC CR123A lithium batteries Each Transmitter and Receiver: 8 units			
3.6 to 3.9 V DC D size Lithium Current draw battery		Total:	Approx. 500 μΑ Approx. 200 μΑ Approx. 200 μΑ Approx. 300 μΑ	/ holder CRH-5: 2 units)  Total: Approx. 600 μA  Transmitter: Approx. 300 μA  Receiver: Approx. 300 μA			
(stand by	3.0 V D CR123.			Total: Transmitter: Receiver:	Approx. 600 μA Approx. 200 μA Approx. 400 μA	Total: Approx. 700 μA Transmitter: Approx. 300 μA Receiver: Approx. 400 μA	
	D size Lith	nium	Transmitter	Approx. 6 years		Approx. 5 years	
Battery life	battery		Receiver	Approx. 5 years		Approx. 5 years	
*	CR123A		Transmitter	Approx. 1.5 years		Approx. 1 year	
	OITIZOA		Receiver	Approx. 1 year		Approx. 1 year	
	Alarm output		Form C-Solid State Switch: 3.9 VDC, 0.01 A				
	Alarm period		2 s (±1)				
Output	Low battery output		N.C. (Solid State Switch): 3.9 VDC, 0.01 A				
	Cover tamper output (Receiver)		N.C. (Solid State Switch): 3.9 VDC, 0.01 A Opens when the battery cover removed.				
Indicator	Alarm/ Level indicator (Receiver)		ON: Beam not received Blinking: Beam not received sufficiently OFF: Beam received				
LED	Power/ Low battery indicator (Transmitter and Receiver)		ON: Power ON Blinking: Voltage reduction OFF: Power OFF				
Operating temperature				-20°C to +60°C (-4°F to 140°F)			
Operating humidity				95 % (max.)			
Alignment angle				±90° Horizontal, ±5° Vertical			
Dimension				H × W × D mm (inch): 295 (11.6) × 69 (2.7) × 117 (4.6)			
Weight				1200 g (42.4 oz.) (Total weight of Transmitter + Receiver, excluding accessories)			
International protection				IP65			

Specifications and design are subject to change without prior notice.

<sup>\*</sup>Above battery life are confirmed with SB-D02HP manufactured by VITZROCELL or CR-123A manufactured by PANASONIC that they are used within the ambient temperature range of 20 to 25 °C. By using batteries other than these recommended and due to the site conditions, the battery life can be shortened and low battery signal can be generated in extremely short period. In such case, periodic battery replacement is recommended.

# 9 OPTIONS

#### CRH-5: CR123A Battery Holder (2 units/set, batteries are sold separately)

Battery holder when using CR123A as a power source







Unit: mm (inch)

#### BCU-5: Battery Common use Unit (1 unit/set)

Share power source and low battery signals between the main unit and the wireless transmitter.





Unit: mm (inch)

#### PCU-5: Power Convertor Unit (1 unit/set)

Voltage convertor unit used to enable wired operation of the detector





0000000000



Unit: mm (inch)

#### ■ EU contact information

#### Manufacturer:

OPTEX CO., LTD.

5-8-12 Ogoto, Otsu, Shiga, 520-0101 JAPAN

#### Authorised representative in Europe:

OPTEX (EUROPE) LTD. / EMEA HEADQUARTERS Marandaz House 1 Cordwallis Park, Clivemont Road, Maidenhead, Berkshire, SL6 7BU U.K.

#### NOTE

120 (0.8)

These units are designed to detect 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.



#### OPTEX CO., LTD.(JAPAN)

URL: http://www.optex.net

URL: http://www.optexamerica.com

OPTEX INC. (U.S.)

OPTEX DO BRASIL LTDA. (Brazil) URL: http://www.optex.net/br/es/sec

OPTEX (EUROPE) LTD. / EMEA HQ (U.K.)
URL: http://www.optex-europe.com

OPTEX TECHNOLOGIES B.V. (The Netherlands)
URL: http://www.optex.eu

OPTEX SECURITY SAS (France)
URL: http://www.optex-security.com

OPTEX SECURITY Sp.z o.o. (Poland)
URL: http://www.optex.com.pl

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OPTEX KOREA CO.,LTD. (Korea) URL: http://www.optexkorea.com

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