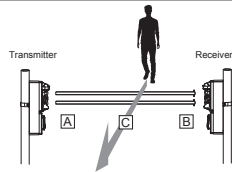


5-2 OPERATION CHECK

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

- 1 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 not illuminated. (transmitter/receiver)	Reversed battery polarity.	Check the battery polarity.
Alarm is not output.	Reflection from the floor or wall. Beam has not been blocked.	Align beams away from the floor or wall. 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.
Alarm is activated even if the light is not blocked.	Interruption time is too short. Surface of Transmitter/Receiver cover soiled. Optical alignment was not performed properly.	See "4-1 BEAM INTERRUPTION ADJUSTMENT" on page 3, set an appropriate interruption time. Clean the cover (wipe the cover with a soft cloth dampened with water or diluted neutral detergent). See "4-2 OPTICAL ALIGNMENT" on page 3 and make realignment.
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" on page 3 and make realignment.
Improper output	Problem with wiring.	Install the correct wiring.
Even if new batteries are used, Low battery indicator LED is ON.	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.

8 SPECIFICATIONS

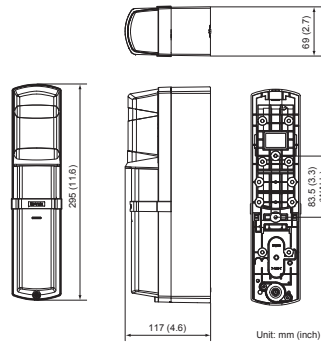
Model	SL-100TNR	SL-200TNR
Maximum detection range	30 m/100 ft.	60 m/200 ft.
Maximum arrival distance	265 m/800 ft.	530 m/1740 ft.
Detection method	Twin infrared beam interruption detection	
Interruption time	Variable between 50/100/250/500 ms (4 steps)	
Power source	3.9 VDC D size lithium batteries (SB-D02HP manufactured by VITZROCELL) 3.0 VDC CR123A lithium batteries	Each Transmitter and Receiver: 2 units (OPTION CRH-5: 2unit) Each Transmitter and Receiver: 8 units (OPTION CRH-5: 2unit)
Current draw (stand by /at 25°C)	3.9 VDC	Total: Approx. 500 µA Transmitter: Approx. 200 µA Receiver: Approx. 300 µA
	3.0 VDC	Total: Approx. 600 µA Transmitter: Approx. 200 µA Receiver: Approx. 400 µA
Battery life **	SB-D02HP by VITZROCELL Transmitter/Receiver	Approx. 6 years Approx. 5 years
	CRH-5 (CR123A by Panasonic) Transmitter/Receiver	Approx. 1.5 years Approx. 1 year
Output	Alarm output	Form C-Solid State Switch: 3.9 VDC, 0.01 A
	Alarm period	2 s (±1)
	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 LED	Alarm/ Level indicator (Receiver)	ON: Beam not received Blinking: Beam not received sufficiently OFF: Beam received
	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 (Total weight of Transmitter + Receiver, excluding accessories)	
International protection	IP65	

Specifications and design are subject to change without prior notice.

* The value is based on the condition that it is used within the ambient temperature range of 20 to 25°C.

** Using batteries other than those recommended may shorten the battery life.

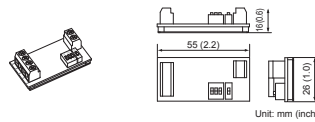
7 DIMENSIONS



9 OPTIONS

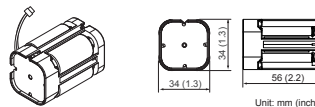
BCU-5 Battery Common use Unit (1 unit/set)

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



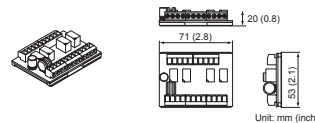
CRH-5 CR123A Battery Holder (2 units/set)

Battery holder when using CR123A as a power source



PCU-5 Power Converter Unit (1 unit/set, battery is sold separately.)

Voltage converter unit used to enable wired operation of the detector



NOTE

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. These products conform to the EMC Directive 2004/108/EC.



INSTALLATION INSTRUCTIONS



BATTERY OPERATED PHOTOELECTRIC DETECTOR

Smart Line™ series

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

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 page 4.) (BCU-5, CRH-5, PCU-5)

1 INTRODUCTION

1-1 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.

	Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in 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.

This symbol indicates recommendation.

1-2 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 beam.

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

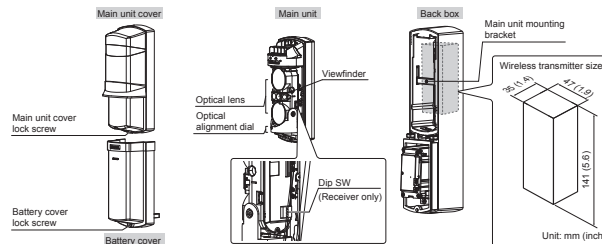
Do not allow the infrared beam from another detector to reach the receiver.

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

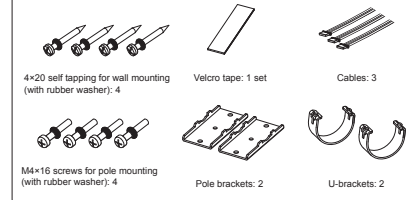
The pole size should be 43 to 48 mm dia. (1.69 to 1.89 inch dia.).

Install the unit at least 1 m (3.3 ft.) away from the wall or fence that may be running parallel to the beam.

1-3 PARTS IDENTIFICATION



Accessories>>



2 PREPARATIONS

Detector power source	Battery type	Wireless transmitter power source	BATTERY			OPTION*			
			D-size	CR123A	For Wireless transmitter	CRH-5	BCU-5	PCU-5	
Wireless	D size	From detector battery	4 pcs.	-	No	-	1 set	-	
		From independence battery	4 pcs.	-	Need	-	-	-	
	CR123A	From detector battery	-	16 pcs.	No	2 sets	1 set	-	
		From independence battery	-	16 pcs.	Need	2 sets	-	-	
Wired	D size	From detector battery	2 pcs.	-	No	-	1 set	1 set	
		From independence battery	2 pcs.	-	Need	-	-	1 set	
	CR123A	From detector battery	-	8 pcs.	No	1 set	1 set	1 set	
		From independence battery	-	8 pcs.	Need	1 set	-	1 set	
	Both Transmitter and Receiver	-	From detector battery	-	-	No	-	1 set	2 sets
		-	From independence battery	-	-	Need	-	-	2 sets

* Refer to "9 OPTIONS" on page 4.



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3 INSTALLATION

3-1 SEPARATING

- Remove the battery cover.
- Remove the main unit cover.
- Remove the connectors.
- Remove the main unit from the back box.
- Remove the main unit mounting bracket.

Caution

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

3-2 WALL MOUNTING

- Using a screwdriver or similar tool, break the knockout position (*2) in the back box as shown.
- Mount the back box to the wall.
- Using Velcro tape, fix the wireless transmitters in the back box.
- Mount the main unit.

Note>>

- When using BCU-4 (option), refer to BCU-4 manual.

- Attach the connectors.
- Replace batteries.
- Referring to "4 SETTING" on page 3, perform the necessary settings.
- Close the battery cover.
- Close the main unit cover.
- Close the battery cover.

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.

Caution

- 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.

3-3 POLE MOUNTING

- Using the guide below, break the knockout positions (*2) in the back box with a screwdriver.
- Fix the back box on the pole.
- Perform the wall mounting procedure of 3 to 9 on page 2.

Caution

- If you accidentally open an unnecessary knockout, be sure to fill the knockout. Not doing so may result in waterproof failure and malfunction of the product.

3-4 MOUNTING EXAMPLE AT PARTICULAR CASE

- Avoid installing the transmitter and 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

Receiver

Main unit Back box

Red Black Power Main control

Yellow Orange Brown COM Alarm

Green Blue Purple Grey Low battery Tamper

Wireless Transmitter

When connecting to BCU-5 (OPTION)

Main unit Back box

Red Black Power Main control

Yellow Orange Brown COM Alarm

Green Blue Purple Grey Low battery Tamper

Wireless Transmitter

BCU-5 Battery plate

When connecting to PCU-5 (OPTION)

Main unit Back box

Red Black Power Main control

Yellow Orange Brown COM Alarm

Green Blue Purple Grey Low battery Tamper

Wireless Transmitter

BCU-5 Battery plate

Warning

- When using BCU-5 (option), be sure to read the BCU-5 manual. Do not insert batteries into the wireless transmitter. Doing so may result in fire or explosion.

Note>>

- Monitor low battery levels separately for the receiver and the transmitter, install a wireless transmitter in each of them. When the low battery levels are monitored for both the receiver and transmitter centrally, install a wireless transmitter in only the receiver.
- If there is only an N.O. output on a wireless transmitter, the low battery output and tamper output cannot be used.
- The power supply can be shared between the back box and wireless transmitter by using BCU-5 (option).
- When using PCU-5 (option) with either only the transmitter or receiver, ensure the low battery signal is monitored. (Refer to PCU-5 manual.)

4 SETTINGS

4-1 FUNCTIONS

- DIP SWITCH (factory default) Refer to "1-3 PARTS IDENTIFICATION".
- BEAM INTERRUPTION ADJUSTMENT

Note>>

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

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 transmitters.

ON	OFF
SL-TNR	1 2 3 4

Alarm output: 1 output/ 2 minutes

4-2 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.

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

Alarm/Level indicator LED	Beam interrupted	Beam received
●	Fast blink	Slow blink
○	OFF	OFF

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.

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

5 OPERATION CHECK

5-1 LED INDICATION

Alarm/Level indicator LED (Receiver only)

Power/Low battery indicator LED

DETECTOR	LED
Beam Interruption	● ON (continue)
Beam not received sufficiently	○ or ●
OFF	○ OFF

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

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