



User Manual

Smart Outdoor Perimeter Beam

grandalarms.com
416-657-2100

User Manual

Smart Outdoor Perimeter Beam



Detector features

- Battery saving function
- 4-channel beam frequency selector
- IP55 waterproof rating (Not evaluated by UL)
- Environmental disqualification circuit for configuring behavior in adverse weather conditions
- Tamper function
- Outdoor detection range of 200 ft

Introduction

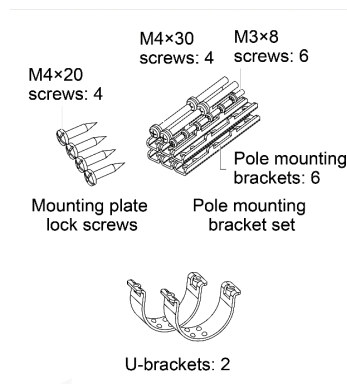
Warnings

- Do not use the product for purposes other than the detection of moving objects such as people and vehicles.
- Do not use the product for unintended purposes, such as activating a shutter, which may cause an accident.
- Do not touch the product when it is wet or touch the device base or power terminals of the product with wet hands. It may cause electric shock.
- Do not pour water over the product. It may cause damage to the devices.
- 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, that is, new and used batteries. Not observing these guidelines may result in an explosion, leakage of electrolyte, emission of toxic gases, or other outcomes that may be harmful to people and property.
- When handling batteries, do not recharge, short circuit, crush, disassemble, exceed heat above 100°C (212°F), incinerate, or expose the contents to water. Do not solder directly to the cell. Not observing these guidelines may result in fire, explosion, or severe burn hazard.
- Clean and check the product periodically for safe use. If any problem is found, stop using the product, and have the product repaired by a professional engineer or electrician.

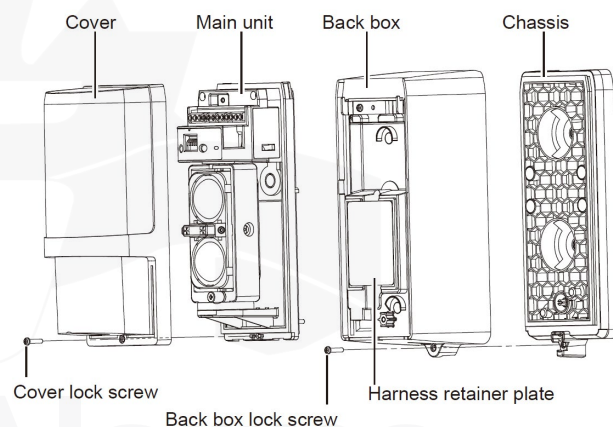
Box contents

Transmitter and receiver modules
Product documentation
Hardware pack

Accessories



Parts Identification

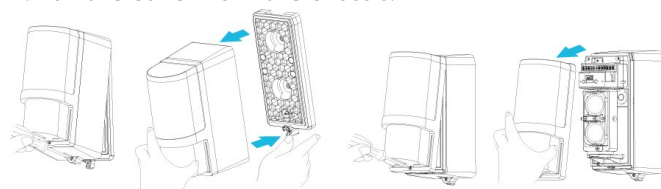


The specified batteries for the device are four (4) LSH20 batteries manufactured by SAFT, two for the transmitter and two for the receiver.

Disassembling the device

Disassemble the device before enrolling and mounting.

1. Loosen the back-box lock screw.
2. Press the tab on the bottom of the back box.
3. Loosen the screw at the bottom of the cover.
4. Pull the cover from the chassis.



Note: Complete the Disassembly process for both the transmitter and receiver before mounting the device.

User Manual

Smart Outdoor Perimeter Beam



Enrollment

Compatible panels

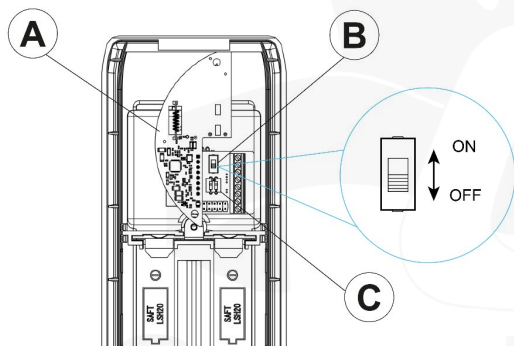
The device is compatible with the following panels:

- PowerSeries NEO (v1.37 and higher)
- PowerSeries Pro (v1.31 and higher)
- IQ2+ (v2.6.2 and higher)
- IQ Hub (v3.0.1 and higher)
- IQ4 (v4.0.1 and higher)

Enrolling the device

The enrollment process begins when you turn on the PowerG module. The PowerG module is a card in the detector.

Note: Enroll both the transmitter and receiver onto the control panel. The modules can be enrolled in any order.

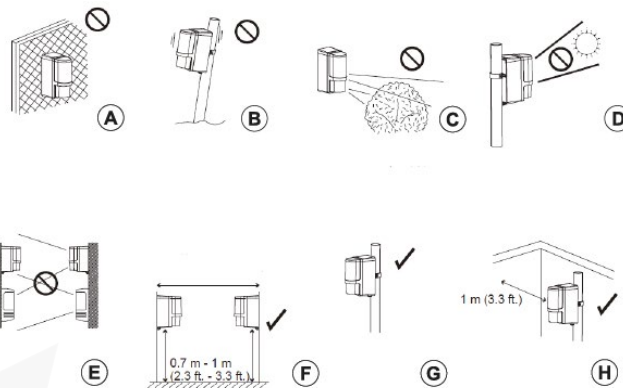


A	PowerG daughter card			
B	PowerG power switch			
C	Configuration dipswitches	Configuration	Dipswitch 1	Dipswitch 2
		Receiver	On	Off
		Transmitter	Off	Off

1. Ensure the control panel is in enrollment mode.
2. Install batteries in the detector.
3. Turn the PowerG module power switch located on the interface board to the ON position. Refer to the control panel installation manual for a complete set of enrollment instructions.
 - If the automatic enrollment procedure fails, refer to the control panel instructions and enroll the device manually.
4. Important! Turn the switch to the OFF position and remove the batteries. The batteries will be reinserted after you mount the device.

Note: Complete Enrolling the device for both the transmitter and receiver before mounting the device.

Mounting

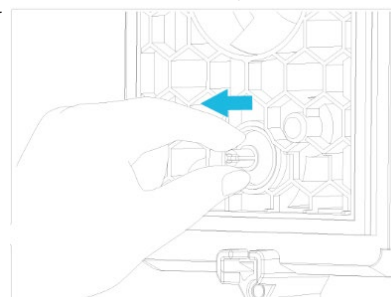


Callout	Description
A	Do not mount the device on an unstable surface
B	Do not mount the device on an unstable pole.
C	Do not mount the device near trees or other objects that may block the beam.
D	Avoid mounting the receiver in direct sunlight. Sunlight can affect receiver performance.
E	Do not mount the device where the infrared beam from a different model can reach the receiver
F	Mount the device at a height between 0.7 m to 1 m (2.3 ft to 3.3 ft)
G	When mounting on a pole, the pole diameter should be 34 - 48 mm (1.34" - 1.89").
H	Mount the device at least 1 m (3.3 ft.) away from a wall or fence that is parallel to the beam.

Caution: Completely install all components of the detector to comply with the IP55 standard requirements.

Mounting on a wall

1. Loosen the back-box lock screw.
2. Remove the chassis from the back-box.
3. Use the supplied M4x20 wall mounting screws to fix the chassis to the wall.
4. After mounting the chassis, pick up the tamper bushing with your thumb and index finger.
5. Position the tamper bushing so that it is upright and moves smoothly.

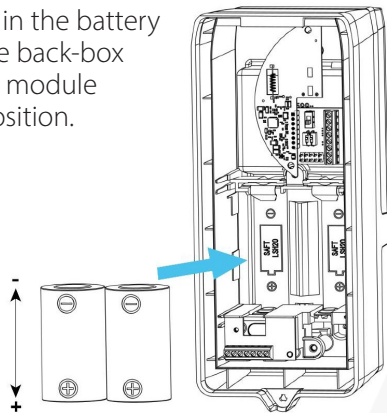


User Manual

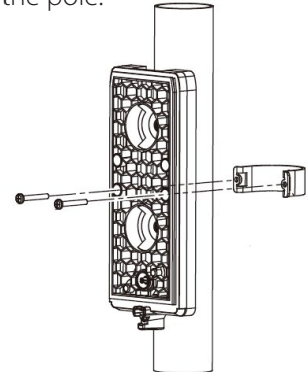
Smart Outdoor Perimeter Beam



6. Insert two batteries in the battery enclosure within the back-box and set the PowerG module switch to the ON position.



5. Use the supplied M4x30 screws and U bracket to mount the back-box on the pole.

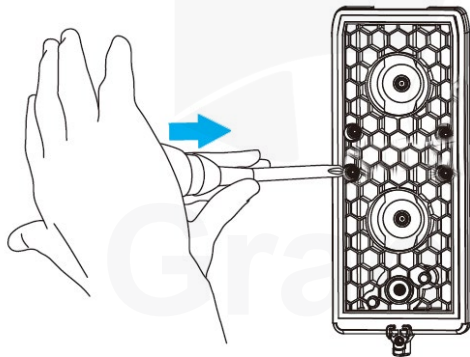


7. Secure the back-box to the chassis on the wall.
8. Tighten the back-box lock screw.

6. Complete steps 4 to 8 from the Mounting on a wall section.

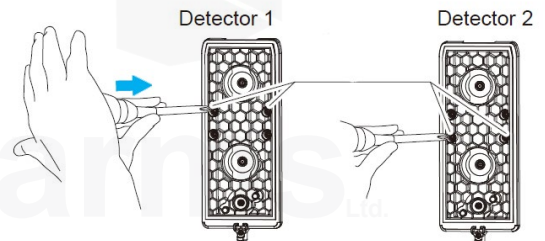
Mounting on a pole

1. Loosen the back-box lock screw.
2. Remove the chassis from the back-box.
3. Using a screwdriver or similar tool, break the knockouts on the chassis.

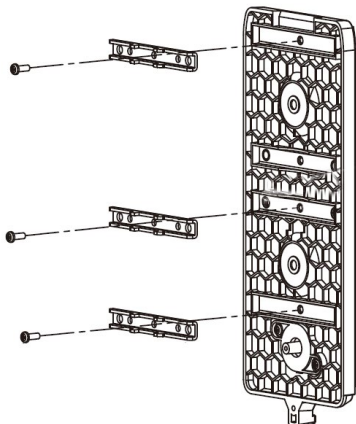


Mounting a second detector in the opposite direction on a pole

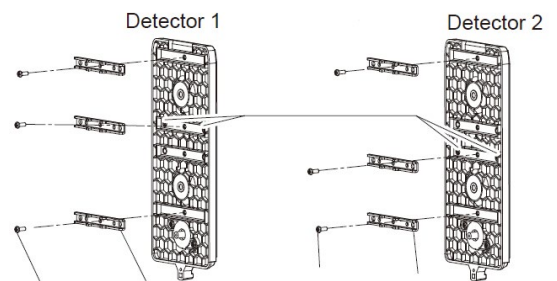
1. Remove the chassis from the back box.
2. Using a screwdriver or similar tool, break the knockouts on the chassis of each detector. Choose a different pair of knockouts for the second detector.



4. Use the supplied M3 x 8 screws to attach three pole mounting brackets to the chassis.



3. Use the supplied M3x8 screws to attach three mounting brackets to the chassis of each detector.

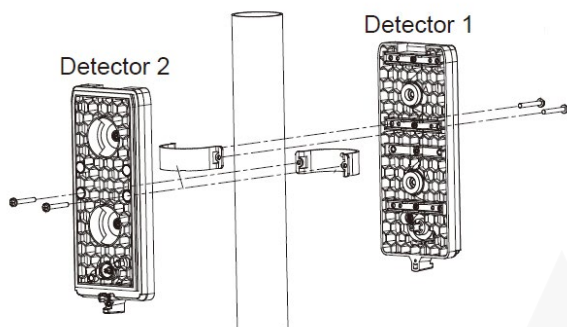


User Manual

Smart Outdoor Perimeter Beam

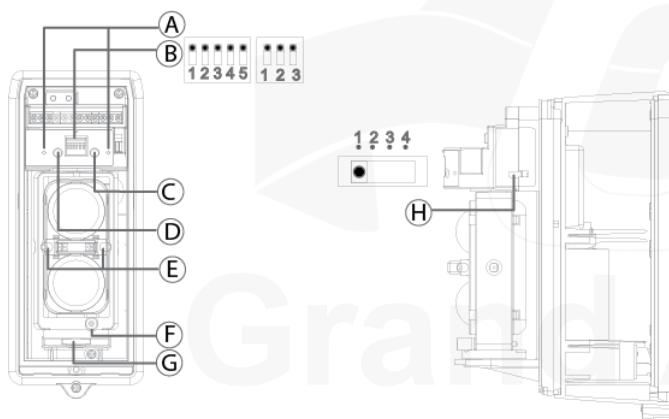


4. Use the supplied M4x30 screws and U-brackets to mount the chassis of each detector to the pole.



5. Complete steps 4 to 8 from the Mounting on a wall section for each detector.

Device settings



Callout	Component
A	Monitor jack (receiver only)
B	Switches
C	Receiver: Alarm indicator LED. Transmitter: Power LED
D	Low battery LED
E	View finder
F	Vertical alignment dial
G	Horizontal alignment dial
H	4-channel beam frequency selector

Switch functions

Warning: We do not recommend changing the default settings apart from the Battery saving timer. See Battery saving timer for more information. Changing other default settings can cause the device to

function incorrectly and increases the chance of failure or false alarms.

Receiver

- 1 and 2: Beam interruption adjustment switch
- 3: Battery saving timer switch
- 4: Not used. Do not change the position of this switch.
- 5: N.C./N.O. selection switch

Transmitter

- 1: Battery saving timer switch
- 2: Not used. Do not change the position of this switch.
- 3: N.C./N.O. selection switch

Setting the 4-channel beam frequency selector

1 2 3 4



The 4-channel beam frequency selector is used to avoid unwanted crosstalk that may occur when using multiple photo beams for long distance or beam stacking applications. To select between 4 separate beam frequencies, use the switch provided.

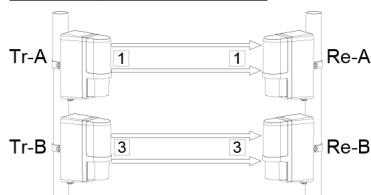
- Make sure the receiver and transmitter that are facing each other are set to the same channel.
- More than double stacked application is not possible.

Note: Always switch the frequencies two channels apart when stacking devices on top of one another. See the following example. The upper device is set on channel 1 while the lower is on channel 3, channels 2 and 4 could have also been used.

a) Double stacked protection

Because receiver B may receive the infrared beam from transmitter A, select the frequencies as shown in the figure. In the figure, each number in the square indicates a channel number.

Key	Component
Tr-A	Transmitter A
Re-A	Receiver A



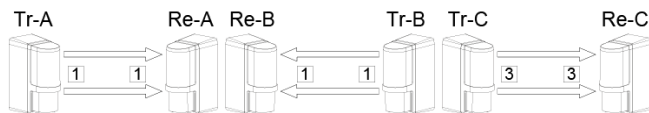
User Manual

Smart Outdoor Perimeter Beam

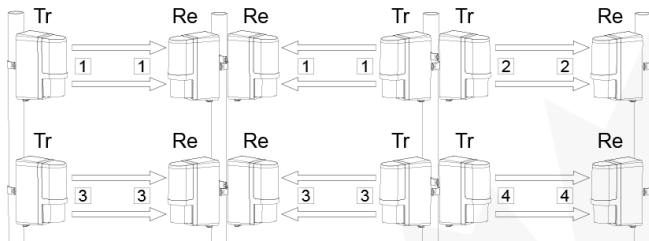


b) Long-distance protection

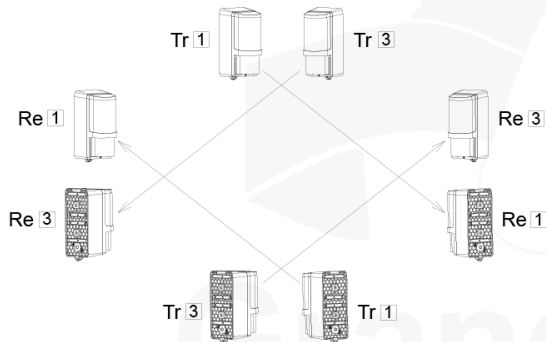
Since Receiver C may receive the infrared beam from Transmitter A, select their frequencies as shown in the figure on the left.



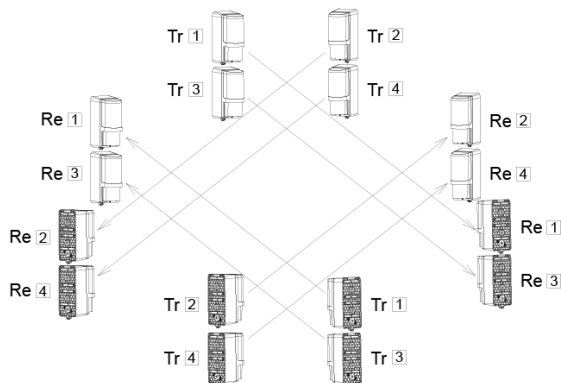
c) Double stacked long-distance protection



d) Perimeter protection



e) Perimeter protection in a two-stack configuration



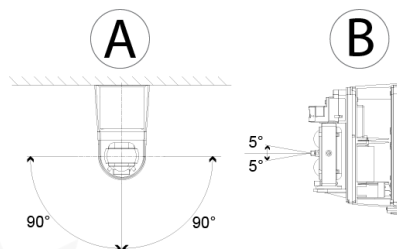
Warning:

- Do not attempt to install this product with any other photoelectric detectors. It may cause the detector to fail or cause a false alarm.

Optical Alignment

After mounting, perform an optical alignment to ensure the device functions reliably.

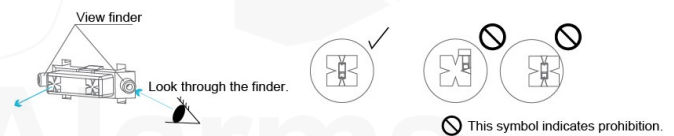
Alignment angles



Callout	Component
A	Horizontal alignment angle
B	Vertical alignment angle

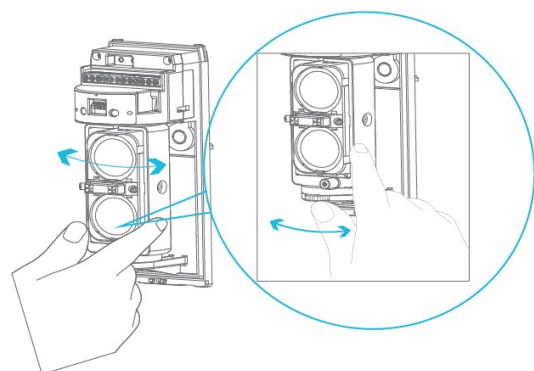
Aligning the device

- Ensure the beam frequency selector positions of the paired transmitter and receiver are the same. See the 4-channel beam frequency selector section.
- While looking through the view finder, adjust the horizontal and vertical angles so that the pairing detector is at the center of the sight.



- For rough alignment of the horizontal angle, hold and move the lens to the left or right.

For fine alignment of the horizontal angle, turn the horizontal alignment dial.

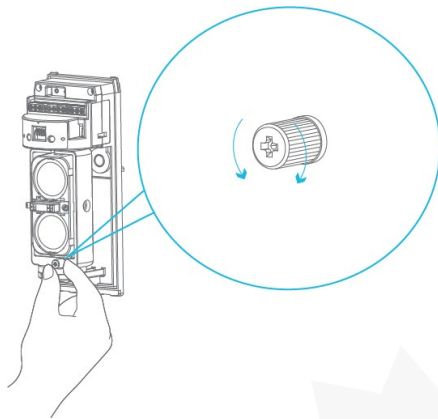


User Manual

Smart Outdoor Perimeter Beam



- b. For fine alignment of the vertical angle, turn the vertical alignment dial with a finger or Phillips screwdriver. Turn the dial clockwise to align the lens upward. Turn the dial counterclockwise to align the lens downward.



3. Adjust the horizontal and vertical angles while checking the Alarm indicator LED on the pairing receiver.

Alarm indicator LED	Beam not received	Beam received			
	ON (read)	Fast Blink	Slow Blink	OFF	
Adjustment level	Re-adjust angle		Fair	Good	Excelent
Mounting Jack output	0V		>1.0V	>2.0V	>2.5V

Note: The Alarm indicator LED is a supporting tool for easy alignment. Perform fine alignment to ensure the maximum output level through the monitor jack.

Troubleshooting

If the alarm indicator LED is off or blinking when the beam is interrupted, complete the following steps:

1. Perform the steps in the Optical alignment section again.
2. In a multi-detector configuration, the receiver may be receiving the infrared beam from an unrelated transmitter. See 4-channel beam frequency selector and check the 4-channel beam frequency selector setting.
3. The beam from the transmitter may reach the receiver by reflecting off the floor or wall of a building. Good reflectors of visible light are also good reflectors of infrared beams. Remove the reflective objects around the detector or install the detector in a different place and then align the optical axis again.

Battery saving timer

Enable the battery saving timer after installation to avoid extra battery consumption and multiple alarm events. Enabling the battery saving timer sets a period of time that begins once the detector detects and transmits an event. Only one event transmits during this period, and any other successive events do not transmit until the period ends.

Setting the battery saving timer

The table below indicates the periods

OFF	Receiver	Transmitter
	1 2 3 4 5	1 2 3
ON		

Function	Output duration for a single event
Alarm Output	2 minutes
DQ Output	2 minutes
Low battery output	15 minutes

Notes:

- The battery saving timer must be turned off to effectively test the device.
- The cover must be securely attached to the device to enable battery saving.

Replacing batteries

1. Remove all batteries from the device.
2. Turn the PowerG switch to the OFF position.
3. Replace all batteries.
4. Turn the PowerG switch to the ON position.

Note: Removing all batteries ensures that the low battery indicator LED resets.

Optional settings

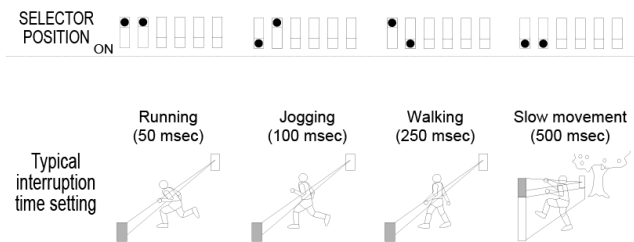
Warning: Changing other default settings can cause the device to function incorrectly and increases the chance of failure or false alarms.

Adjusting the beam interruption time

You can adjust the beam interruption time settings according for the detectors intended target using one of the four selector positions below. The default setting is 50 ms.

User Manual

Smart Outdoor Perimeter Beam



D.Q. output (environmental disqualification)

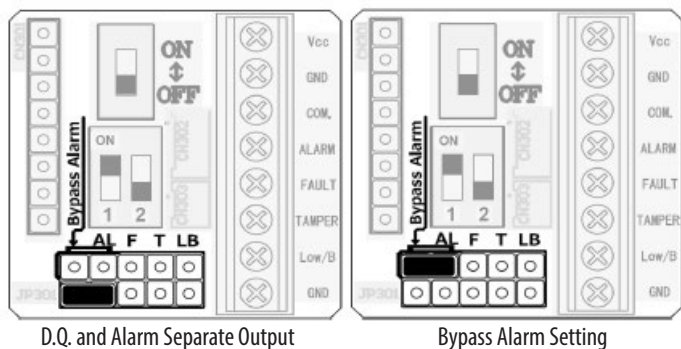
The D.Q. output feature detects when the beam strength is below acceptable levels due to environmental factors such as heavy rain, snow, or fog. If the beam strength is low for more than 20 seconds due to these conditions, a D.Q. output signal sends from the receiver. The signal returns to normal when the beam strength is at acceptable levels for more than two seconds.

Note: D.Q. output is not evaluated by UL.

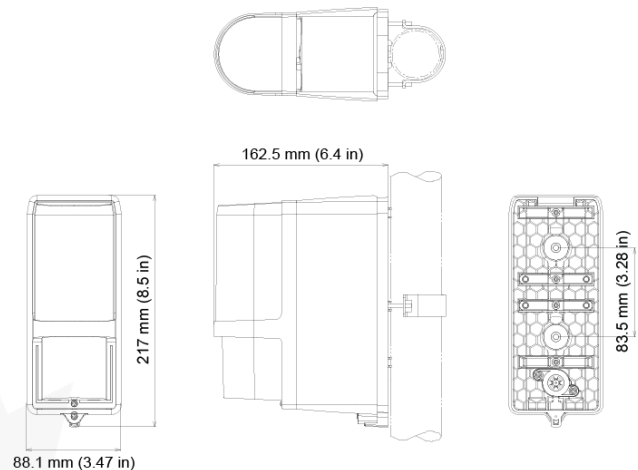
The D.Q. output signal can be configured for one of the following uses:

- **Separate Output:** Sends a signal to the panel that the detector is not working effectively due to weather conditions.
- **Bypass Alarm:** Bypasses the alarm when the D.Q. output is triggered by adverse weather conditions.

You can configure either option with the following jumper pin settings on interface board of the Receiver:



Dimensions



Specifications

GENERAL

Range: 200 ft (60 m)

Detection method: Infrared beam interruption detection

Beam frequency selection: 4 channels

Interruption period: Variable between 50, 100, 250, and 500 msec

Power Source: Recommend: 3.6 V, 13.0 Ah LSH20 lithium batteries manufactured by SAFT.

Current draw: 810 μ A T: 490 μ A + R: 320 μ A (at 77 °F (25 °C), 3.6 VDC)

Battery life: Transmitter: Approximately 3 years.

Receiver: Approximately 5 years *

INDICATORS

Alarm Indicator (Receiver): Light on - Beam not received. Flickering Light - IR Beams not received sufficiently. Light off - Beam received.

Power (Transmitter): Power ON: ON, Power OFF: OFF

Low battery: Voltage Reduction: blink

Operating temperature: -4°F to +140°F (-20°C to +60°C)

Operating ambient humidity: 95% (Max.)

Alignment angle: $\pm 90^\circ$ Horizontal, $\pm 5^\circ$ Vertical

Weight: 56.4 oz (1600 g) (total weight of transmitter and receiver, excluding accessories)

Waterproof rating: IP55

Frequency: 912-919 MHz 128/256 second intervals

Specifications and design are subject to change without prior notice.

User Manual

Smart Outdoor Perimeter Beam



*The battery life specification applies only when using recommended batteries. See Ordering Detector batteries.

Using other battery types may affect battery life expectancy or product performance.

Note: These devices are designed to detect an intruder and activate an alarm control panel. The devices are part of a complete system, therefore the manufacturer cannot accept responsibility for any damages or other consequences resulting from an intrusion.

