Garrison

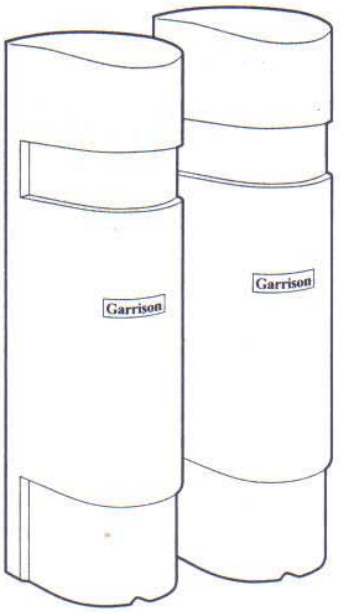
Quad-Beam

Infrared Photobeam Sensor

- LK-60HQ (Range outdoor 60m)
- LK-110HQ (Range outdoor 110m)
- LK-160HQ (Range outdoor 160m)
- LK-200HQ (Range outdoor 200m)

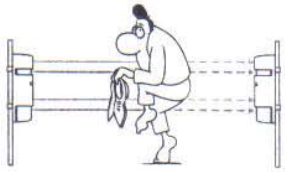
HQ

Installation Instructions



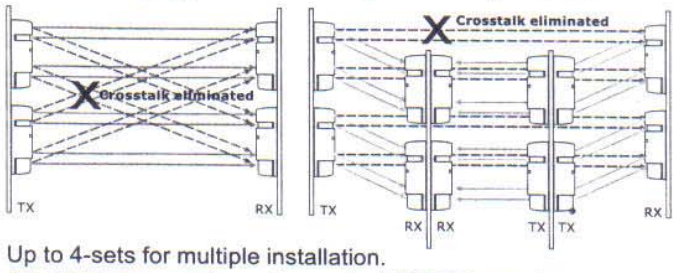
GENERAL

The LK-60HQ/110HQ/160HQ/200HQ are quad photoelectric detectors designed to activate an alarm relay upon the detection of intruder through 4 pulsed infrared beams.
For stable operation, the LK-60HQ/110HQ/160HQ/200HQ are equipped with the following features:



1. Quad Beam detection.
   Four synchronized pulsed infrared beams ensure ultimate stability in any applications.
   False alarms due to falling leaves and small animals are virtually eliminated
2. Easy optical alignment with LED indication
   ◎10-level LED indicator which can be checked the beam strength easily.
   ◎Highly accurate alignment with no need to use a voltmeter.
   ◎No need for beam blocking plate.
3. Selectable 8-channel beam frequencies.
   Selectable beam frequencies for beam stacking and long distance applications without crosstalk.

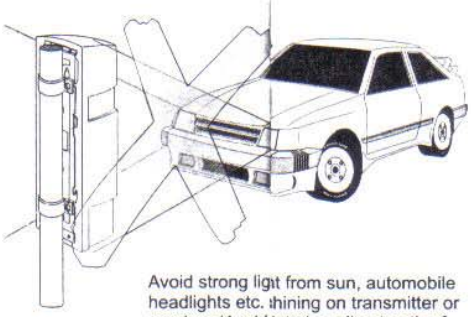
Beam stacking applications ***Long distance applications***



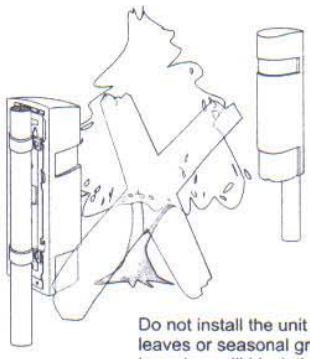
4. Up to 4-sets for multiple installation.
5. Adjustable beam interruption period (50-700 msec)
6. Lighting & Surge protection. Automatic gain control circuit.
7. Form C relay providing more applications.
8. Anti-Frost design.

INSTALLATION HINTS

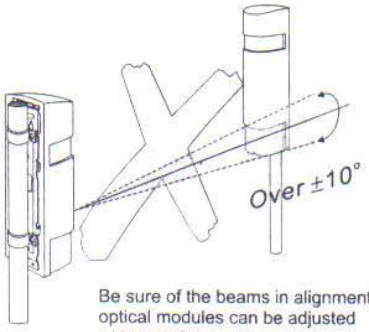
Mount the unit only on a solid location or surface-not on a moving surface of soft ground.



Avoid strong light from sun, automobile headlights etc. shining on transmitter or receiver (Avoid light in a direct path of ±2° of optical axis.)



Do not install the unit where falling leaves or seasonal growth of branches will block the beam.



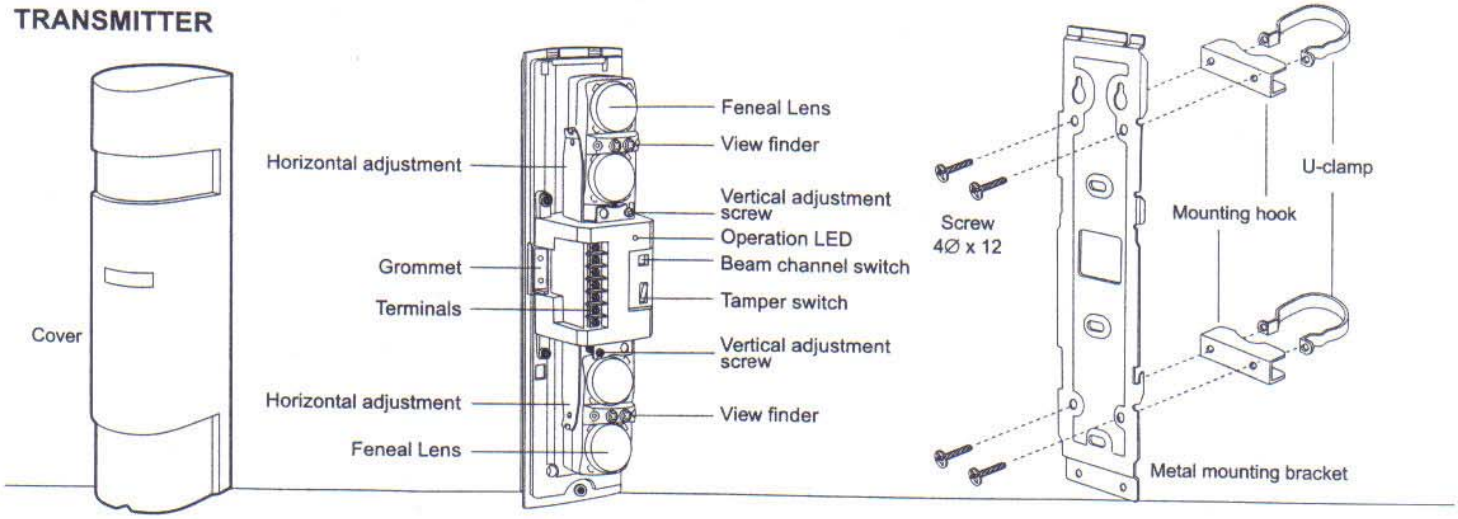
Be sure of the beams in alignment optical modules can be adjusted within ±90°horizontally ,and ±10° vertically.

Do not install the unit where there will be subject to corrosive liquid or sprays, or where a possibility exists of immersion in water.

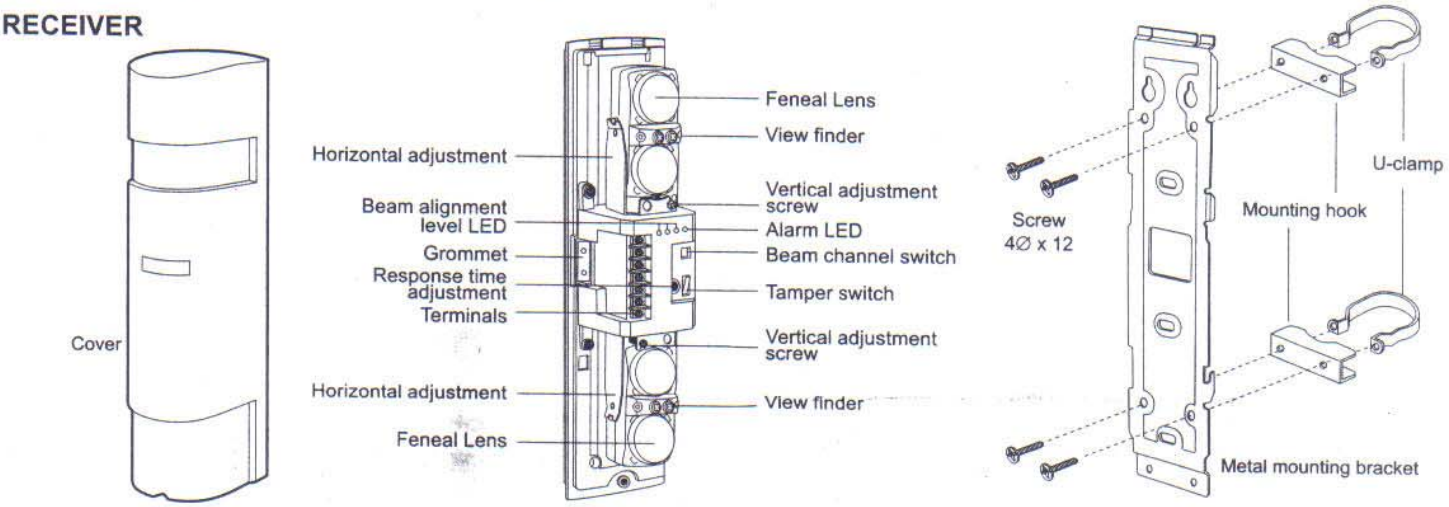
After the installation is completed, assure proper operation by walk test.

INSTALLATION PARTS DESCRIPTION

TRANSMITTER

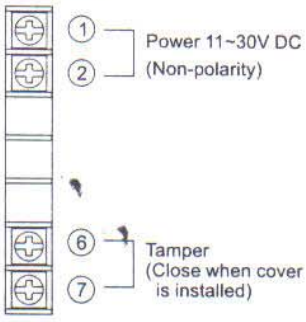


RECEIVER

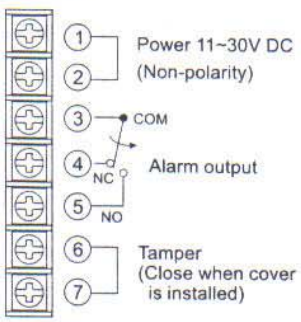


TERMINALS

Transmitter

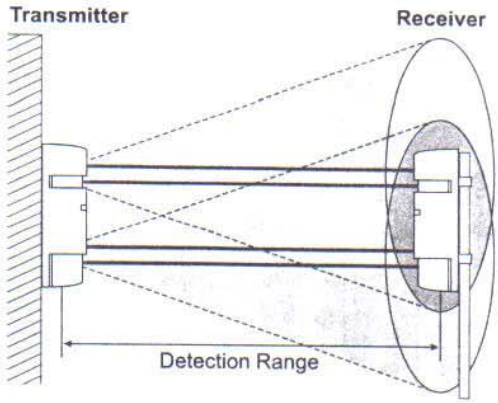


Receiver



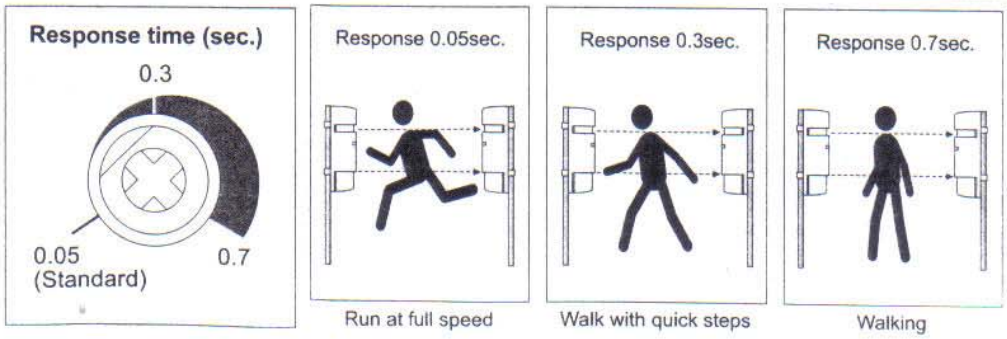
INSTALLATION HEIGHT AND PROTECTION DISTANCE

- In most cases, the beam should be installed at a height of 27" to 35" (70~90cm)
- Take into consideration the beam spread of each model type to avoid potential reflection from ground surface or nearby objects.
- LK-60HQ(60m)
  LK-110HQ(110m)
  LK-160HQ(160m)
  LK-200HQ(200m)



RESPONSE TIME

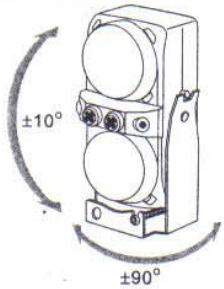
Adjust response time as follows.
The unit does not detect the passing object faster than the response time set. If the response time is set longer, the unit does not detect human beings. Adjust to a little longer response time in a site where large passing objects, such as birds, newspaper or carton box may move.

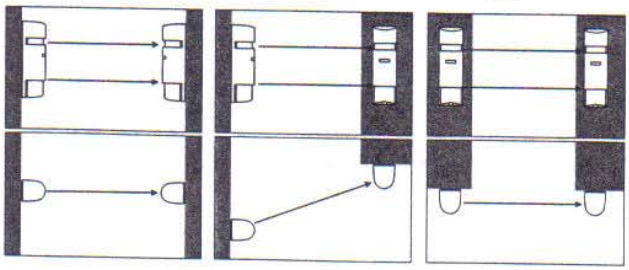


Mounting

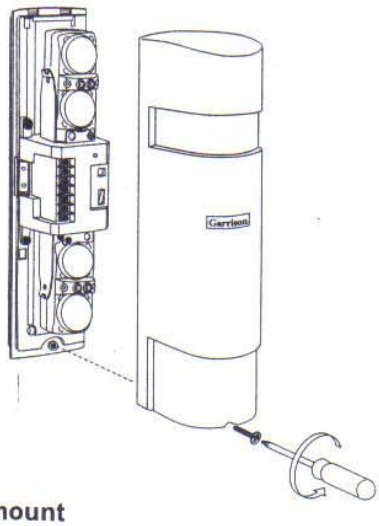
The units can be mounted easily on a pole or flat surface.

Direction by rotary mirror.
Using the adjustment dial and adjustment screws, the mirrors can move horizontally (±90 degrees) and vertically (±10 degrees) allowing the sensor to work in all directions.

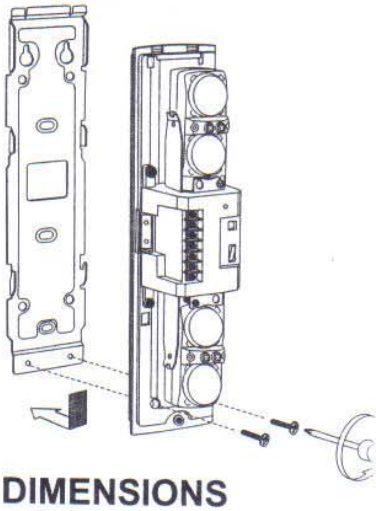




1. Remove cover via screw at base of cover.

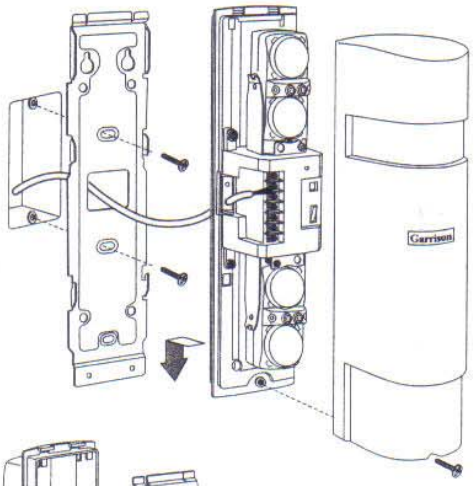


2. Loosen screws that fix the sen body on the metal mounting bracket, and slide the metal mounting bracket downward tc detach it.



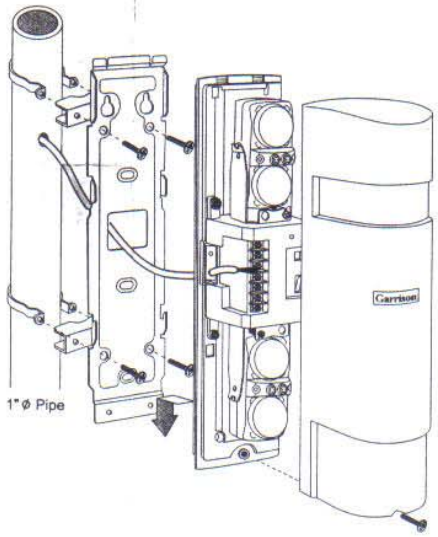
3. Wall mount

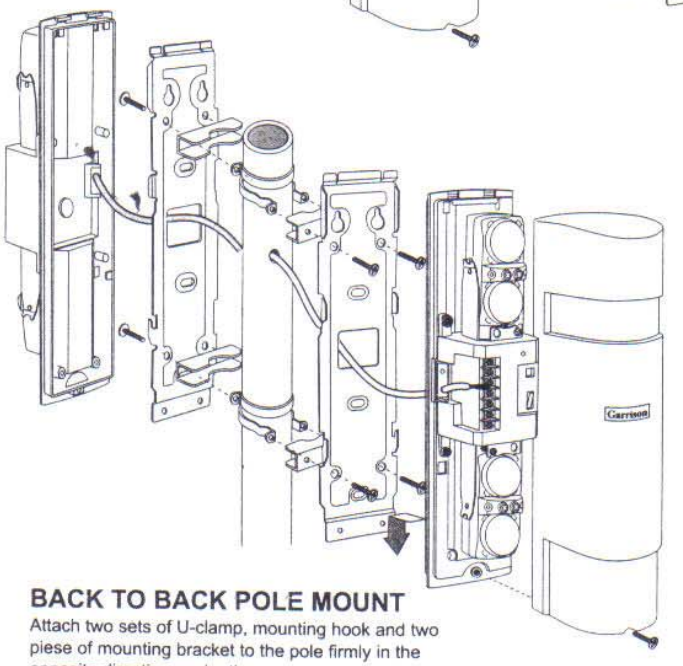
1. Route wiring through the mounting bracket, break grommet on the rear of unit and through the wiring entrance of the unit.
2. Detach the mounting bracket and install it on the wall vertically with the enclosed self-tapping screw.



4. Pole mount

1. Use mounting pole of 1" only.
2. Attach the U-clamp, mounting hook and mounting bracket to the pole firmly with two supplied screws.
3. Connect the cover the unit base and fasten the attached screw at the bottom of the cover.

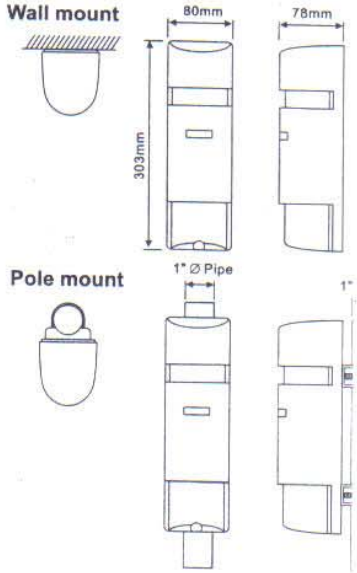




BACK TO BACK POLE MOUNT

Attach two sets of U-clamp, mounting hook and two piese of mounting bracket to the pole firmly in the opposite direction each other.

DIMENSIONS



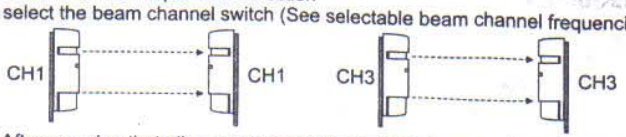
SPECIFICATIONS

Model	LK-60HQ	LK-110HQ	LK-160HQ	LK-200
Coverage outdoor use	60 m	110 m	160 m	200 r
Infrared beam	4-Beams(4 beams simultaneous interruption alarm activated			
Selectable beam frequency	CH1 ~ CH8 8 channels			
Response time	50~700msec (variable)			
Power input	11~30VDC (no polarity)			
Power consumption (at 12VDC input)	70 mA	80 mA	90 mA	100 m
Indication LED	Power LED : RED LED (transmitter) / ALARM LED : RED LED (rece BEAM alignment level LED : 3 RED LEDS (receiver)			
Alarm duration	1 ±0.5sec			
Relay output	Form C relay dry contact, 1A/120VAC,2A/24VDC (resistor load)			
Tamper	open when cover is removed (1A/120VAC)			
Alignment angle	Vertical 20° (±10°), horizontal 180° (±90°)			
Mounting	Wall mount or pole mount			
Operation temperature	-25°C ~ +55°C			
Weight	1310 g			
Accessories	Wall mount screw (8 pcs), pole mount screw (8 pcs), metal mounting bracket (2 pcs), mounting hook (4 pcs), U-clamp (4 pcs)			

The specifications are subject to change without notice.

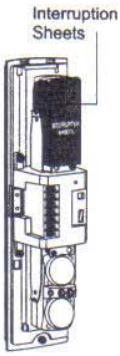
ALIGNMENT AND OPERATION

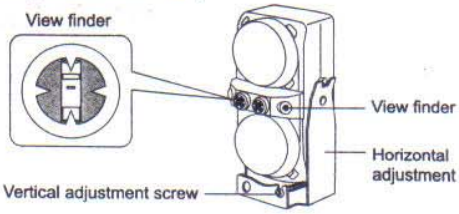
1. Beam channel frequencies selection
   select the beam channel switch (See selectable beam channel frequencies).

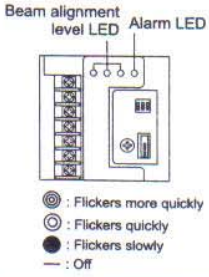


2. After assuring that all connections have been made properly, apply power to both Transmitter and Receiver. Make sure that Power LED of the transmitter illuminates.
3. Cover the lower optical modules of both transmitter and receiver with the supplied interruption sheets.
4. Initially, start with the transmitter to adjust alignment.
   Use the View Finder in the center of the Optical Module.
   (1) Position your eyes at an angle of 30° from the side of the unit, and then peep through the View Finder.
   (2) Adjust the Optical Module so that the receiver can be seen in the center of the view mirror.
   (3) Holding the fittings of the Optical Module, adjust the horizontal alignment by rotating the module (Angle 180° adjustable)
   (4) Use Vertical Tuning Screw to adjust vertically. (Angle ±10° adjustable)
   (5) Be careful not to cover the Optical Module during this operation.
5. Repeat the save operation for Receiver.
6. Beam Alignment LED
   As alignment suits, each LED indication changes this way: flickers more quickly → flickers quickly → flickers slowly → turns off. All three(3) LEDs must turn off for usage.

7. Remove the interruption sheets from lower optical modules and then cover upper optical modules of both transmitter and receiver. Repeat the above alignment processes for the lower optical modules.
8. When all LEDs turn off, the alignment is complete.
   Remove the interruption sheets from the optical modules.
9. Operation check
   Make sure that Alarm LED illuminates when 4 beams are interrupted simultaneously.







Beam alignment level LED			Alignment
◉	—	—	Poor
◎	—	—	
●	—	—	
—	◉	—	
—	◎	—	
—	●	—	
—	—	◉	
—	—	◎	
—	—	●	
—	—	—	Good

Note: Three (3) beam alignment LEDS indicate 10-phases of beam level that enables easy alignment without tester and beam blocking plate.

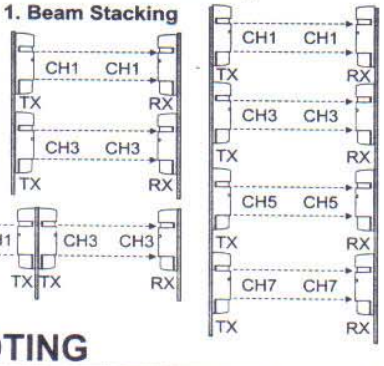
SELECTABLE BEAM CHANNEL FREQUENCIES

The selectable beam frequencies can be used to avoid unwanted crosstalk that occur when using multiple photobeams for long distance or beam stacking applications.

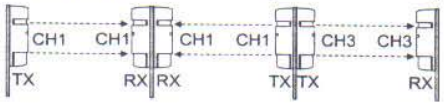
- To select between 8 separate beam frequencies use the switch provided
- Make sure the receiver and transmitter that are facing each other are set to the same channel.

Beam channel switch (Note: CH1 set at factory)

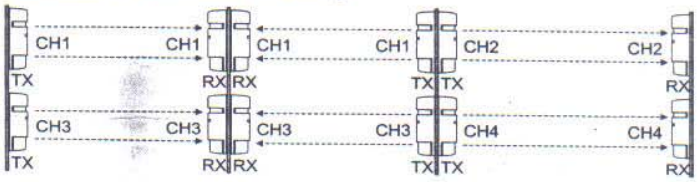
1. Beam Stacking



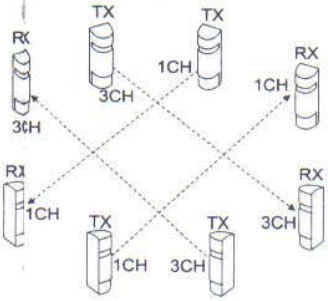
2. Long distance



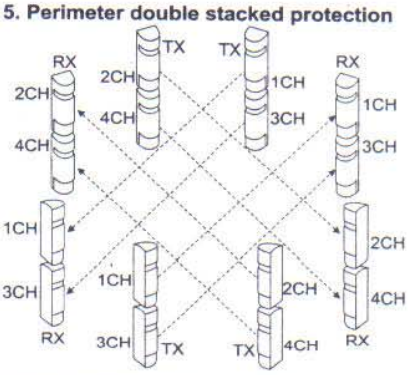
3. 2-beam Long distance stacking



4. Perimeter protection



5. Perimeter double stacked protection



TROUBLE SHOOTING

Symptom	Possible Cause	Remedy
Operation LED does not light. (Transmitter)	1. No power supply . 2. Bad wiring connection or broken wire, short.	1. Turn on the power 2. Check wiring
Alarm LED does not light When the beam is broken . (Receiver)	1. No power supply. 2. Bad wiring connection or broken wire, short. 3. Beam is reflected on another object and sent into the receiver. 4. 4 beams are not broken simultaneously 5. The beam interruption time is shorter than the set response time. .	1. Turn on the power supply. 2. Check wiring. 3. Select another separate beam frequency. 4. Break 4 beams simultaneously. 5. Set the response time shorter.
Alarm LED continues to light. (Receiver)	1. Beam alignment is out. 2. Shading object between Transmitter and Receiver. 3. Optics of units are soiled. 4. Frequency channel setting on fransimitter does not match with that on receiver	1. Check and adjust again. 2. Remove the shading object. 3. Clean the optics with a soft cloth. 4. Readjust to be the same channel.
Intermittent alarms.	1. Bad wiring connection. 2. Change of supply voltage. 3. Shading object between Transmitter and Receiver. 4. A large electric noise source, such as power machine, is located nearby Transmitter and Receiver. 5. Unstable installation of Transmitter and Receiver. 6. Soiled optics of Transmitter and Receiver. 7. Improper alignment. 8. Small animals may pass through the 4 beams.	1. Check again. 2. Stabilize supply voltage. 3. Remove the shading object. 4. Change the place for installation. 5. Stabilize. 6. Clean the optics with a soft cloth. 7. Check and adjust again. 8. Set the response time longer. (Impossible in a site where an intruder can run at full speed.)