

100M / 150M TWIN PHOTOELECTRIC BEAM SENSOR

2PH-100A Outdoor 300ft.(100m) / Indoor 600ft.(200m)

2PH-150A Outdoor 450ft.(150m) / Indoor 900ft.(300m)

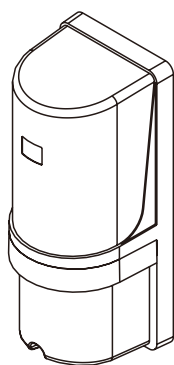
INSTRUCTION MANUAL

Please read this instruction Manual carefully for correct and effective use. If you do not understand these instructions, contact your supplier for further information.

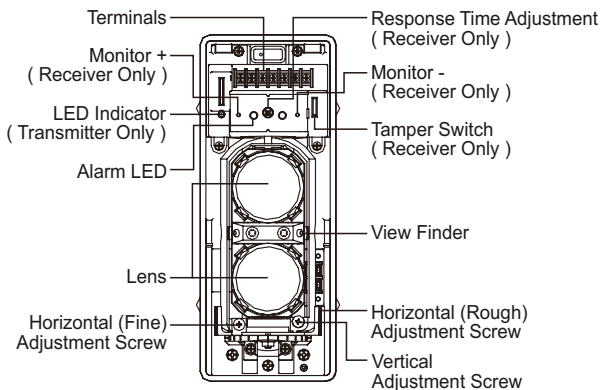
NOTE

This sensor is designed to detect intrusion and to activate an alarm. It only provides an alarm sign output, and is not an independent burglar-preventing device. If it's used abnormally, faulty installation, improper maintenance or Acts of God, it will cause damage.

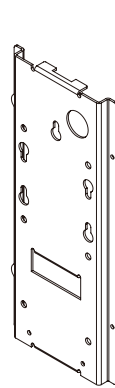
1. PRODUCT PARTS :



● Cover



● Unit Base



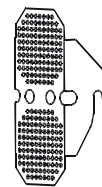
● Mounting Plate



● Screws



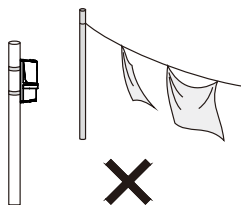
● U-Shaped Brackets



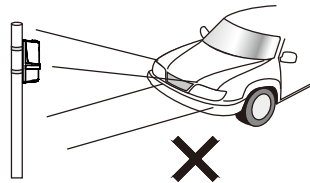
● Attenuation Sheet

2. CAUTIONS ON INSTALLATION :

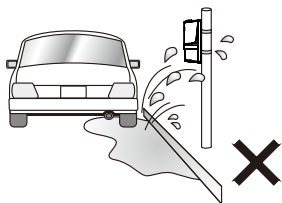
Wrong place



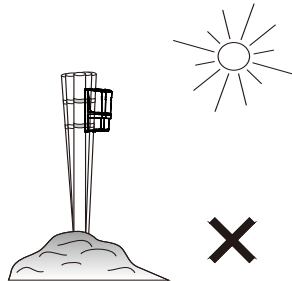
- Remove all obstructions (trees, clothes lines, etc.) between Transmitter and Receiver.



- Avoid strong light from the sun, headlights, and direct shining on the Transmitter / Receiver. When strong light stays in optical axis for a long time, it will hurt the product's life.



- Do not install the unit on places where it may be splashed by dirty water or direct sea spray.



- Do not install the unit on the unsteady place.

Detection Range

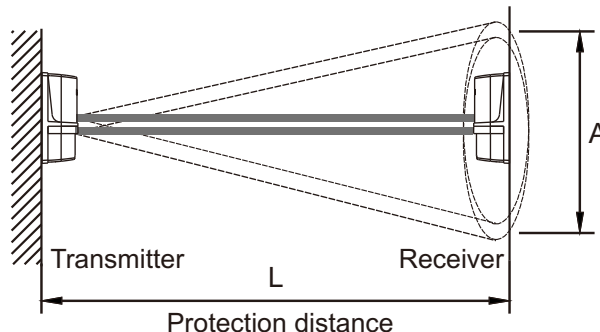
Please make the Transmitter and Receiver within the required range as belows :

2PH-100A Outdoor 300ft. (100m) / Indoor 600ft. (200m)
2PH-150A Outdoor 450ft. (150m) / Indoor 900ft. (300m)

Detection Width

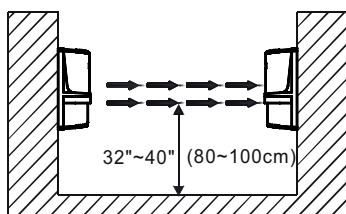
The detection width can be calculated with following formula :
Width A = 0.025 x Length (L)

L	A
180' (60m)	4.5' (1.5m)
300' (100m)	7.5' (2.5m)
450' (150m)	11.4' (3.8m)



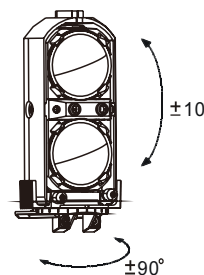
Installation Height

To detect the intruder efficiently, the sensors should be installed within 32"-40" (80-100 cm) height.



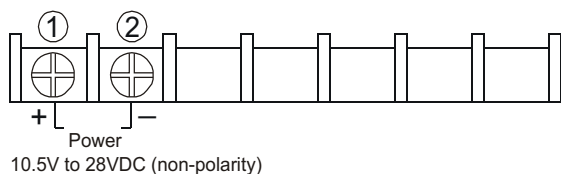
Alignment Angle

The sensors can be adjusted with Horizontal $\pm 90^\circ$ and Vertical $\pm 10^\circ$ to fit big detection range.

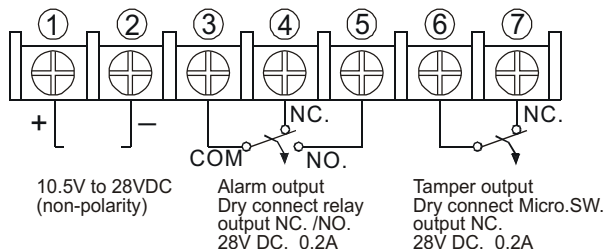


3. WIRING :

Transmitter



Receiver



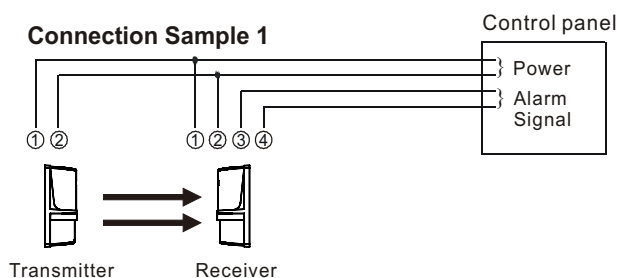
Wiring Distance

Model	2PH-100A		2PH-150A	
	12VDC	24VDC	12VDC	24VDC
Wire size Voltage				
AWG22 (0.65mm)	840' (280m)	7200' (2400m)	690' (230m)	6000' (2000m)
AWG20 (0.8mm)	1350' (450m)	12600' (4200m)	1110' (370m)	10500' (3500m)
AWG18 (1.0mm)	2100' (700m)	18600' (6200m)	1740' (580m)	15600' (5200m)
AWG17 (1.1mm)	2550' (850m)	22800' (7600m)	2130' (710m)	18900' (6300m)

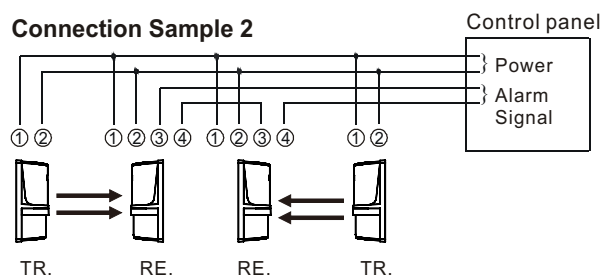
NOTE: 1. When two or more connections is required, maximum wiring distance is the value above divided by the number of sets
2. The power wires could not exceed the above mentioned lengths. .

Connection

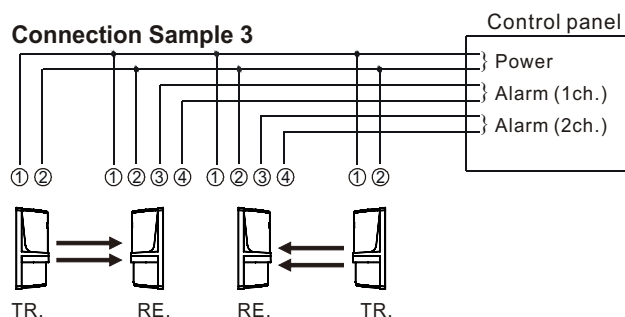
Connection Sample 1



Connection Sample 2

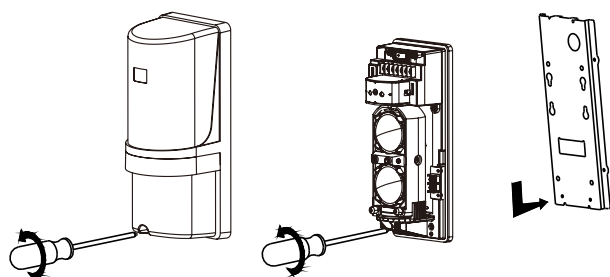


Connection Sample 3



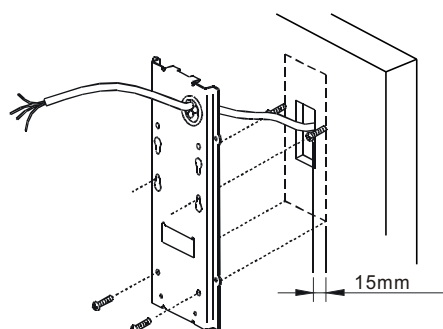
4. INSTALLATION :

The units can be mounted easily on a pole or flat surface.
Remove cover via screw at base of cover. And loosen the unit base mounting screw and remove mounting plate by sliding it down against the unit base.

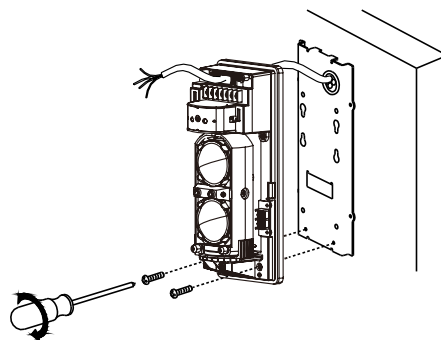


A. Wall Mounting

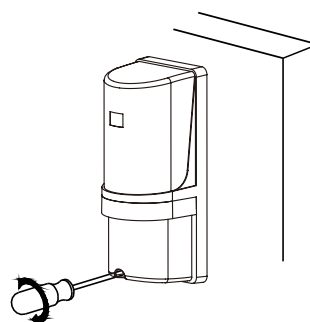
A-1. Pull out the wire through the wiring hole on the mounting plate and attach the plate to the wall with the screw (1/6" x 3/4")



A-2. Connect wire to the terminals.

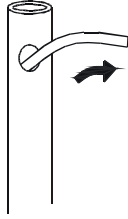


A-3. After checking optical alignment and operation check, (Please see 5. ALIGNMENT AND OPERATION) replace the cover, and fasten the cover lock screw tightly.

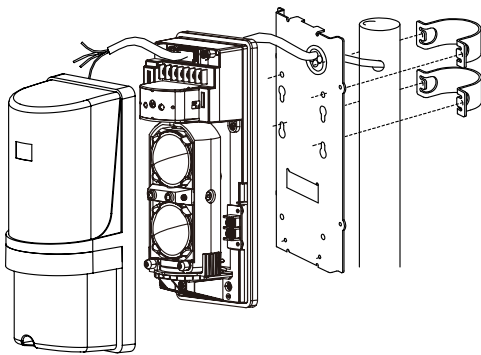


B. Pole Mounting

- B-1.** Unit mounts to a 1.66"-1.75" O.D. pole.
B-2. Drill a 1/4" hole through pole where the beam will be mounted for wiring.

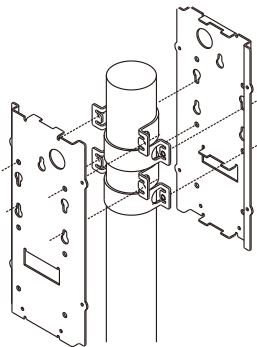


- B-3.** Place U-Shape brackets at the pole.
B-4. Pull out the wire through the wiring hole of the mounting plate, attached the mounting plate to the U-Shape bracket with screw.
B-5. Connect the wire to the terminals.
B-6. Checking optical alignment and operation check.(Please see 5. ALIGNMENT AND OPERATION)
B-7. Replace the cover, and fasten the cover lock screw tightly.



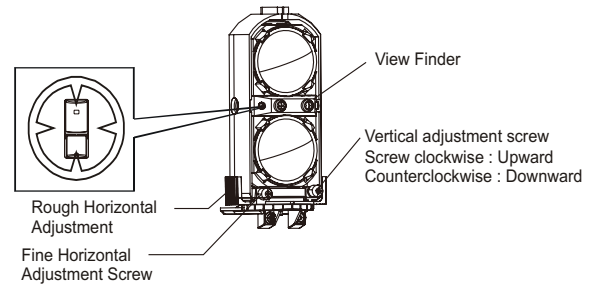
C. Two Units installation (Back to Back)

Fix two U-Shape brackets in layers on a pole, two units can be installed back to back on a pole at the same height.



5. ALIGNMENT AND OPERATION :

- 5-1. Apply power to both Transmitter and Receiver.
 5-2. Looking through the view finder, locate the other detector in the center of the sights by adjusting vertically and horizontally.



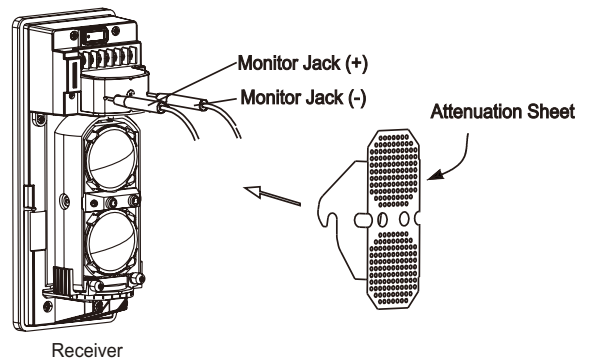
- 5-3. Connect the volt- meter (DC10V) to monitor jack input on Receiver's (+) and (-), then fine tune optical alignment.
 5-4. Fine adjust the optical alignment for Transmitter to obtain the maximum voltage from the monitor jack.
 5-5. Fine adjust the optical alignment for Receiver to obtain the maximum voltage from the monitor jack.
 5-6. Place attenuation sheet on Receiver lens repeating 5-4 & 5-5 to obtain the maximum voltage from the monitor jack.

SENSITIVITY CHART

Monitor Jack Output	Alignment Level
1.5 V Over	Best
750mV to 1.5 V	Good
750mV Under	Poor, Realign

NOTE:

- (1) Above readings is under attenuation sheet operation.
 (2) Carefully remove the attenuation sheet, and check the voltage from the monitor jack again.

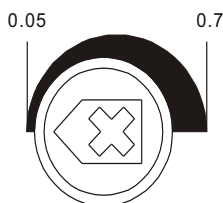


OPERATION CHECK :

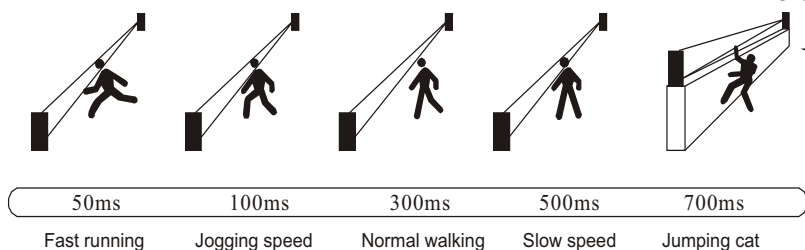
Monthly check is required, test operation by walk testing the beam.

6. RESPONSE TIME ADJUSTMENT :

Response time (sec.)



- The beam interruption time adjustment is on Receiver unit. Speeds shown below are the maximum detectable speeds for each setting.



NOTE: After installation, response time testing is required. This function allows you to match the units sensitivity to its surroundings.

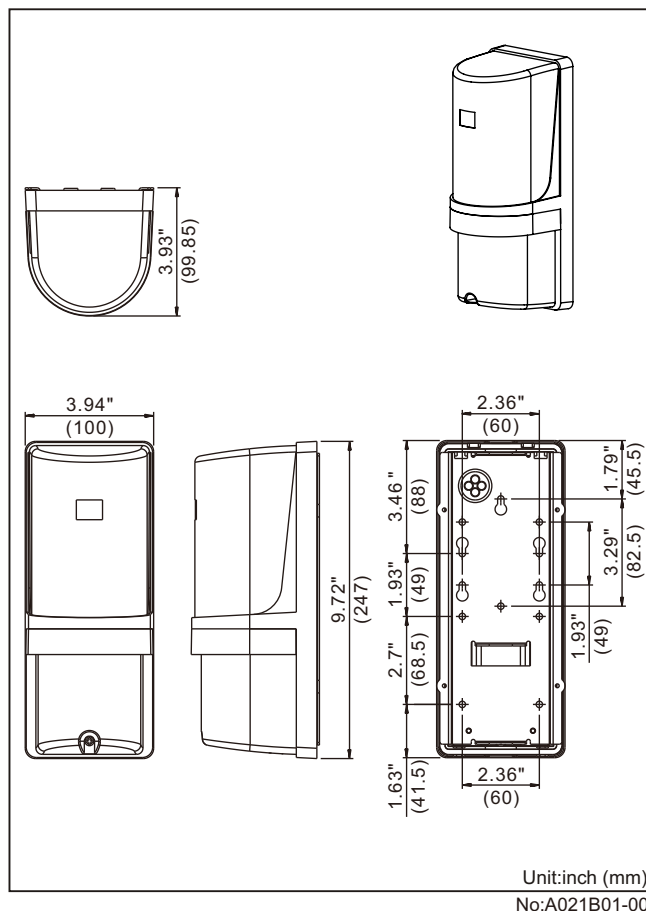
7. TROUBLE SHOOTING :

Trouble	Check	Corrective Action
Operation LED does not light. (Transmitter Unit)	1. No power supply. 2. Bad wiring connection or broken wire, short.	1. Turn on the power. 2. Checking wiring.
Alarm LED does not light when the beam is broken. (Receiver Unit)	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. Two 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. Remove the reflecting object or change beam direction. 4. Break two beams simultaneously. 5. Set the response time shorter.
Alarm LED continues to light. (Receiver Unit)	1. Beam alignment is out. 2. Shading object between Transmitter and Receiver. 3. Optics of units are soiled.	1. Check and adjust again. 2. Remove the shading object. 3. Clean the optics with a soft cloth.
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 2 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.)

8. SPECIFICATIONS :

MODEL	2PH - 100A	2PH - 150A
Detection Distance	Outdoor 300ft. (100m) / Indoor 600 ft. (200m)	Outdoor 450 ft. (150m) / Indoor 900 ft. (300m)
Max. Arrival Distance	3000 ft.(1000m)	4500 ft.(1500m)
Current Consumption	43mA (max)	50mA (max)
Power Supply	10.5V ~ 28VDC (Non _Polarity)	
Detection System	Infrared Photoelectric	
Response Time	50msec ~ 700msec (Adjustable)	
Alarm Output	Dry connect relay NC./ NO. 0.2A / 28VDC Contact action: 0.5 sec. To 2 sec.	
Tamper Output	Dry connect relay NC. 0.2A / 28VDC (NC. opens when cover is removed.)	
Alarm LED	Red LED (Receiver) lights when an alarm is initiated.	
Functions	Monitor jack output, AGC circuit, Frost proof cover.	
Alignment Angle	Horizontal $\pm 90^\circ$, Vertical $\pm 10^\circ$	
Operating Temperature	-13°F to +131°F (-25°C to +55°C)	
Mounting Positions	Indoor / Outdoor	
Wiring	Terminals	
Weight	63.7oz(1805g) Transmitter & Receiver	
Dimensions (inches/mm)	W3.94" x H9.72" x D3.94" (W100 x H247 x D100)	
Standard Accessories	U-Shaped brackets x 4 Attenuation Sheet x 1 Screws (4 x 20 Self tapping) x 8 Screws (M4 x 30) x 8	

9. DIMENSIONS :



NOTE:

- This unit is designed to detect an intruder and activate an alarm control panel. Being only a part of complete system, we cannot assume responsibility for theft or damages, should it occur.
- Specifications and design are subject to change without prior notice.



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