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BEAM DETECTOR

NR 4 0 T X (120ft./40m Range)

NR 8 0 T X (240ft./80m Range)

INSTALLATION INSTRUCTION

We appreciate your purchase of ATSUMI Beam Detector.
Please read the following installation instruction carefully for appropriate use of the product.

1 FOR SAFETY INSTALLATION

This Installation Instruction provides the information and warning essential for installing this unit in a safe manner and for maintaining it in safe operating condition. Prior to installing this unit, make sure to carefully read the following safety notes.

WARNING !	Indicate that incorrect operation causes significant danger of accident resulting in death or serious injury to the user.
CAUTION !	Indicate that incorrect operation causes possibility of injury to the user or damage to the unit.

1. Read the following prior to installation.

- CAUTION ! :**
- Do not install the unit where installation is unstable.
 - Do not install the unit where intense source of light can be reflected directly into the receiver optics.
 - Avoid foul water or sea sprays.
 - Avoid corrosive or explosive gas.
 - Avoid strong electrical noise or RFI.
 - Avoid strong vibration.
 - Use the unit within the maximum range only.
 - Do not install the unit where tree, plants, or falling leaves will block the beams.
 - Do not install the unit in pet alleys.

2. Read the following prior to wiring and regular maintenance.

- WARNING ! :**
- Do not disassemble or modify the unit.
 - Do not perform installation when it thunders.
 - Do not supply power until all wiring is completed.
 - Keep power between 10 - 28 VDC anytime.

- CAUTION ! :**
- Make sure that the beams in alignment optical modules can be adjusted within $\pm 90^\circ$ horizontally, and $\pm 5^\circ$ vertically.

2 COMPONENTS

Make sure that the following items are included in the package prior to installation.

Description	Quantity	Description	Quantity
Detector (Transmitter and Receiver)	1set	Clamping Screw (M4 x 6)	4pcs
Mounting Plate	2pcs	Clamping Screw (M4 x 14)	4pcs
U-Clamp	2pcs	Installation Instruction	1pc

3 GENERAL INFORMATION

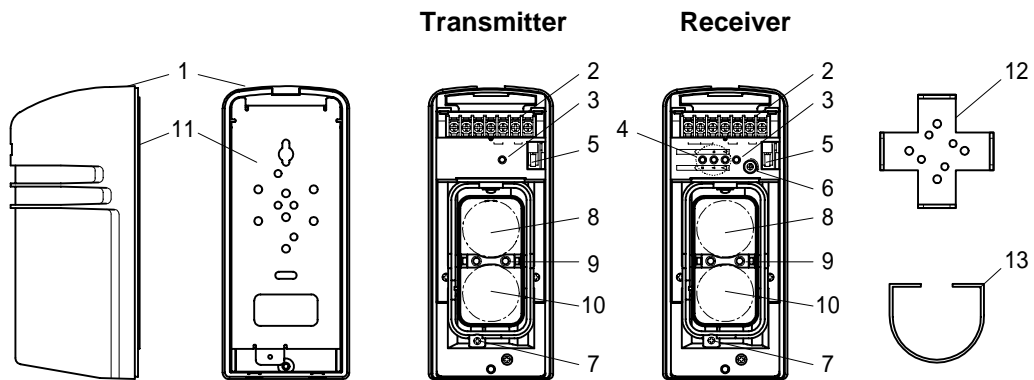
The NR40TX and NR80TX are Beam Detectors designed to provide an alarm relay activation upon detection of an intruder moving through a pair of invisible pulsed infrared beams.

The units detect intruders only when both upper and lower beams are simultaneously interrupted, preventing nuisance alarms due to fallen leaves, etc.

Over 100 times of sensitivity allowance eliminates false alarm due to rain, fog or frost.

Three(3) Beam Alignment LEDs indicate 10 phases of beam level that enables easy alignment without tester.

4 PARTS DESCRIPTION



Transmitter

- 1.Cover
- 2.Terminal Block
- 3.Power LED
- 4.-----
- 5.Tamper Switch
- 6.-----
- 7.Vertical Tuning Screw
- 8.Upper Optical Module
- 9.View Finder
- 10.Lower Optical Module
- 11.Chassis
- 12.Mounting Plate
- 13.U-Clamp

Receiver

- 1.Cover
- 2.Terminal Block
- 3.Alarm LED
- 4.Beam Alignment LED
- 5.Tamper Switch
- 6.Adjuster for Beam Interruption Time
- 7.Vertical Tuning Screw
- 8.Upper Optical Module
- 9.View Finder
- 10.Lower Optical Module
- 11.Chassis
- 12.Mounting Plate
- 13.U-Clamp

5 INSTALLATION

1.Wall mounting

Loosen the Cover mounting screw and remove the Cover.

Loosen the Unit mounting screw and remove the Chassis by sliding it down against the Unit.

Place the Chassis on the wall, and fasten it with the two mounting screws.

Route wiring through the wiring entrance of the Chassis, and through the wiring entrance of the Unit.

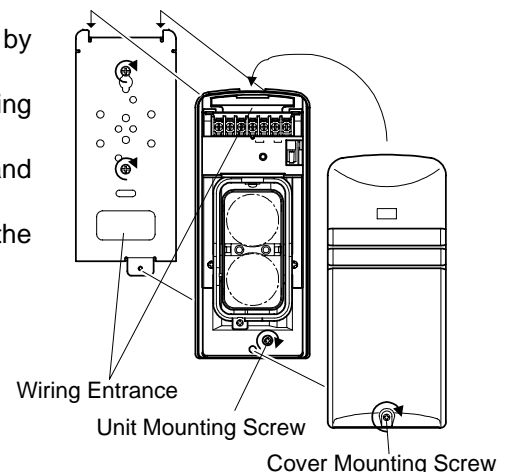
Hang the Chassis and tighten the Unit mounting screw to the Chassis. Connect wires to the terminals.

(See "6.WIRING" for details.)

Align the beam and check the operation.

(See "7.SET UP AND BEAM ALIGNMENT" for details.)

Attach the Cover and fasten the Cover mounting screw tightly.



2.Pole mounting (Use the pole of 1.5"-1.7" or 38.10 ~ 43.18mm.)

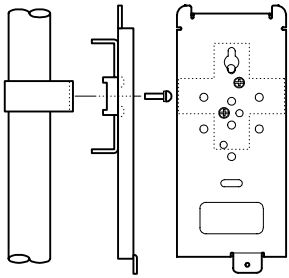
Loosen the Cover mounting screw and remove the Cover.

Loosen the Unit mounting screw and remove the Chassis by sliding it down against the Unit.

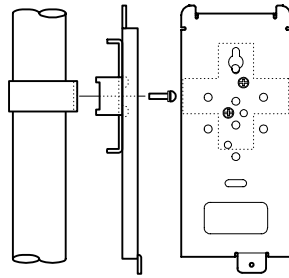
Attach the U-Clamp, Mounting Plate and Chassis to the pole firmly with the supplied four(4) Clamping screws.

Follow the mounting sequence starting at step of Wall mounting.

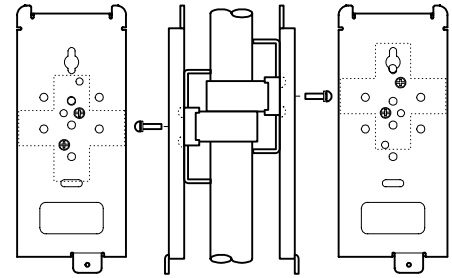
For pole of 1.5"-1.6"
(38.10 ~ 40.64mm)



For pole of 1.6"-1.7"
(40.64 ~ 43.18mm)



Back to back pole mounting



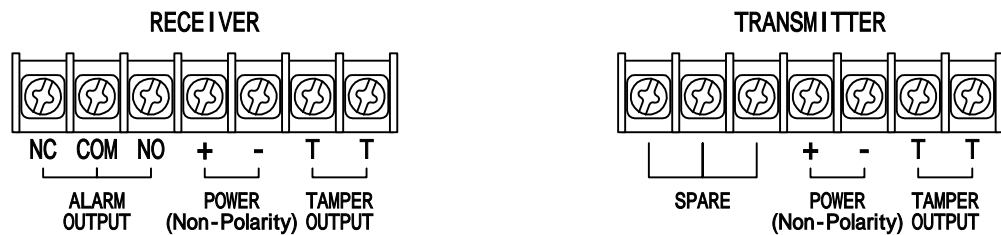
6 WIRING

Use the following table to determine the minimum gage or wire size needed for the length of wire run between the power source and the last unit on the run.

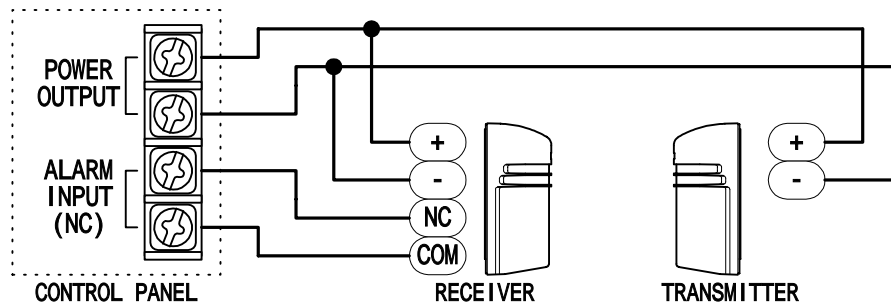
If more than one unit is used on the run, the maximum length per gage decreases, and is determined by dividing the length found in the table by the number of unit on the run.

SIZE	12VDC	24VDC
AWG22 0.35mm ² 0.65mmdia.	1170ft. (350m)	8700ft. (2.6Km)
AWG20 0.5mm ² 0.8mmdia.	2000ft. (600m)	14000ft. (4.3Km)
AWG18 0.8mm ² 1.0mmdia.	3200ft. (950m)	23000ft. (6.8Km)
AWG16 1.3mm ² 1.25mmdia.	5000ft. (1.5Km)	33000ft. (10.0Km)

Terminals



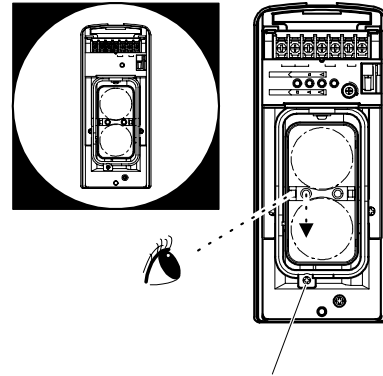
Example



- Do not supply power until all wiring is completed.
- Connect the unit to UL listed power supply or control panel capable of providing stand-by power for at least 4 hours.
- Refer to the National Electrical Code, NFPA70.

7 SET UP AND BEAM ALIGNMENT

- 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.
- Initially, start with the transmitter to adjust alignment. Use the View Finder in the center of the Optical Module.
 - Position your eyes at an angle of 30 ° from the side of the unit, and then peep through the View Finder:
 - Adjust the Optical Module so that the receiver can be seen in the center of the view mirror.
 - Holding the fittings of the Optical Module, adjust the horizontal alignment by rotating the module.(Angle 180 ° adjustable)
 - Use Vertical Turning Screw to adjust vertically. (Angle 10 ° adjustable)
 - Be careful not to cover the Optical Module during this operation.



Vertical Turning Screw

- Repeat the same operation for Receiver.

4.Beam Alignment LED

As alignment suits, each LED indication changes this way: illuminates flickers quickly flickers slowly turns off. All three(3) LEDs must turn off for outdoor usage and two(2) or more LEDs must turn off for indoor usage.

5.Operation check

Make sure that Alarm LED illuminates for three(3) seconds when both beams are interrupted simultaneously.

Beam Alignment LED	OUTDOOR	INDOOR
		POOR
-	POOR	
-		
-		
-		GOOD
-	GOOD	

: on / : flickers quickly / : flickers slowly / - : off

Note:

In the indoor, range is twice as long as outdoor usage. However the Beam Alignment LED might neither turn off nor flicker slowly when the range comes to more than about 1.5 times of the outdoor max.range.

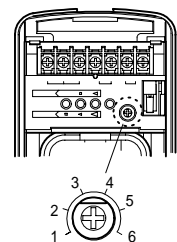
8 BEAM INTERRUPTION TIME ADJUSTMENT

The sensitivity control allows the unit to accommodate a variety of environmental conditions.

Adjust the interruption time longer in the case where birds, papers or litter might interrupt the beams.

Do not adjust the interruption time too long as the unit is unable to detect the intruder.

1	2	3	4	5	6
Running	Jogging	Fast walking	Fast more than normal walking	Normal walking	Slow moving
50msec	100msec	200msec	300msec	400msec	500msec



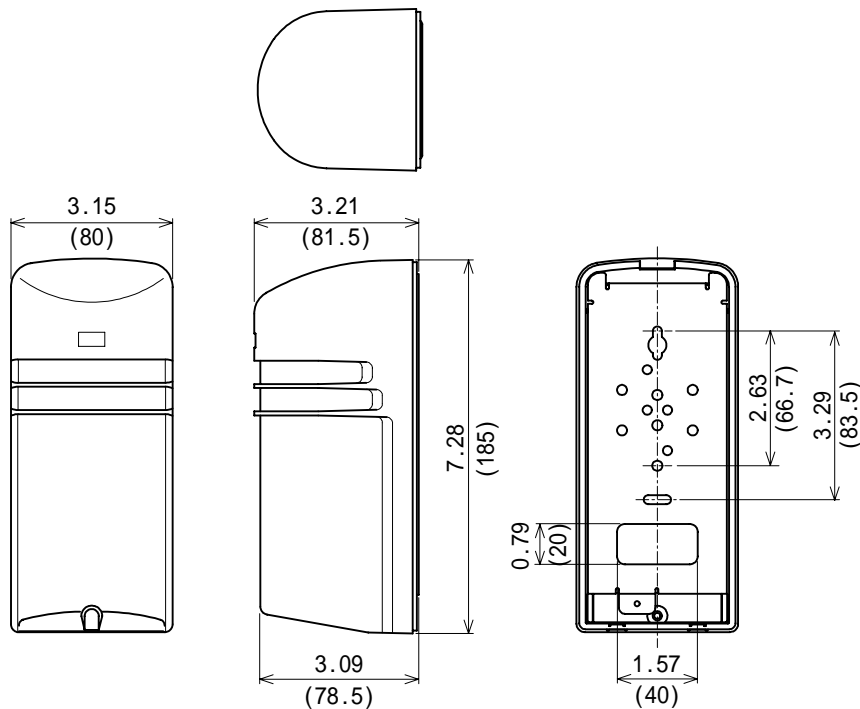
Note: 1) Beam interruption time exceeding 100msec does not comply with the requirements in UL639, intrusion detection units.

2) Above "msec" figures are approximate.

9 TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	REMEDY
Power LED does not illuminate.	Improper power supply voltage (Disconnection, Voltage drop)	Correct power supply voltage.
Alarm LED does not illuminate when beams are blocked.	Improper power supply voltage (Disconnection, Voltage drop)	Correct power supply voltage.
	Beams are reflected into Receiver.	Remove the reflective object or change the installation site.
	Beam interruption time is set too long.	Adjust beam interruption time shorter.
Alarm LED illuminates but no alarm output.	Disconnection, Poor connection, Short or Poor insulation of the wire	Check with Tester, then fasten terminal screws securely.
Alarm output is generated continuously.	Something is blocking beams.	Remove the blocking object.
	Optical module or Cover needs cleaning.	Clean the Optical module or Cover.
False Alarm is often caused.	Something moving is blocking beams.	Remove the blocking object.
	Beam interruption time is set too short.	Adjust beam interruption time longer.
	Poor alignment	Re-align.
	Improper power supply voltage (Voltage drop)	Correct power supply voltage.
	Unstable installation site	Install firmly.
	Installed near by source of electrical noise or RFI.	Change the installation site.

10 DIMENSIONS



Unit: inch(mm)

11 SPECIFICATIONS

Description	BEAM DETECTOR	
Model	NR40TX	NR80TX
Power input	10 ~ 28VDC (non-polarity)	
Current draw	Transmitter 12mA(Max.) , Receiver 42mA(Max.)	
Operating Temperature & Humidity	-13 °F ~ +131 °F(-25 ~ +55) , RH35 ~ 95%	
Storage Temperature & Humidity	-13 °F ~ +140 °F(-25 ~ +60) , RH35 ~ 95%	
Range	Outdoor 120ft.(40m) Indoor 240ft.(80m)	Outdoor 240ft.(80m) Indoor 480ft.(160m)
Detection method	Pulsed Infrared Beams	
LED indication	Power LED : Red LED (Transmitter) Alarm LED : Red LED (Receiver) Beam Alignment LED : 3 Orange LEDs (Receiver)	
Alarm output	Form 1c Off delay time 3 ± 1sec. , Open when power off (1a/1b used) 30VDC,0.1A (Resistor load)	
Tamper output	Form 1b When the cover is removed 30VDC,0.1A (Resistor load)	
Interruption period	50 ~ 500msec.(Variable)	
Optical module	Adjustable ± 90 ° horizontally, ± 5 ° vertically	
Mounting	Outdoor / Indoor (Wall / Pole Mount)	
Weight	Transmitter 430g , Receiver 430g	

*The specifications are subject to change without prior notice.

12 OPTIONAL ACCESSORIES

Item No.	Description	
BP-1	Pole D:1 3/4"(42.7mm), H:3' 1"(950mm)	2-pcs
BP-2	Pole D:1 3/4"(42.7mm), H:3' 11"(1200mm)	2-pcs
BP-3	Wall Mount Pole D:1 3/4"(42.7mm), H:16' 9/16"(420mm)	2-pcs

*The specifications are subject to change without prior notice.

13 OTHER INFORMATION

Maintenance:

The unit is to be connected (directly or indirectly) to a Listed, Class 2 power source capable of providing stand-by power for at least four(4) hours.

In order for the reliability of the tamper circuitry, connect the tamper output terminals of the terminal block to a 24 hour supervisory loop.

This unit should be tested once a year to ensure proper functioning.

NOTE: This unit is 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.



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