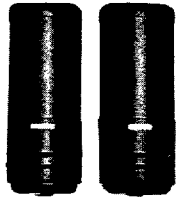


PHOTOELECTRIC DETECTOR

WONDEREX AX-70T, AX-130T



Read instructions completely before beginning installation.

FEATURES

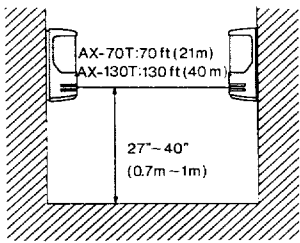
- Rain, Fog and Snow immunity (Powerful twin synchronized beams):
Maximum arrival distance is 10 times as long as the rated operating distance.
Simultaneous breaking of beams is required to release an alarm.
- Beam interruption time : 50 to 500 msec. (variable)
- Anti Frost Design : Ensures minimum stable beam energy even when the cover is completely frosted over.
- Attractive, rugged polycarbonate housing.
- Monitor jack and tamper provisions.

1. GENERAL

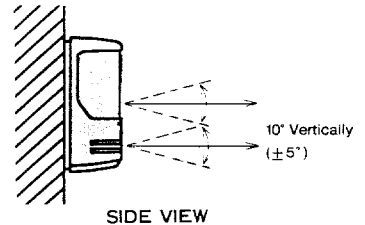
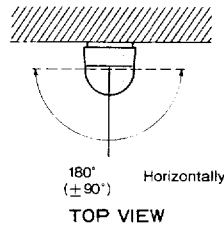
Photoelectric Detectors AX-70T and AX-130T detect intruders when both the upper and lower invisible infrared beams between are simultaneously broken.

Maximum outdoor detection range is 70ft.(21m) for AX-70T and 130ft.(40m) for AX-130T.

Maximum indoor range is 165ft.(50m) for AX-70T and 330ft.(100m) for AX-130T.

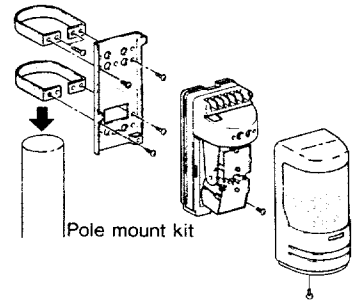
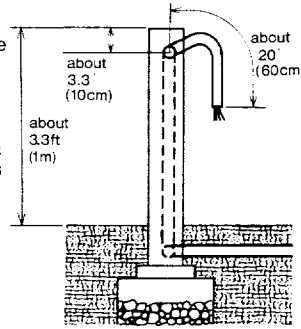


ALIGNMENT ANGLE (Both of AX-70T and AX-130T)

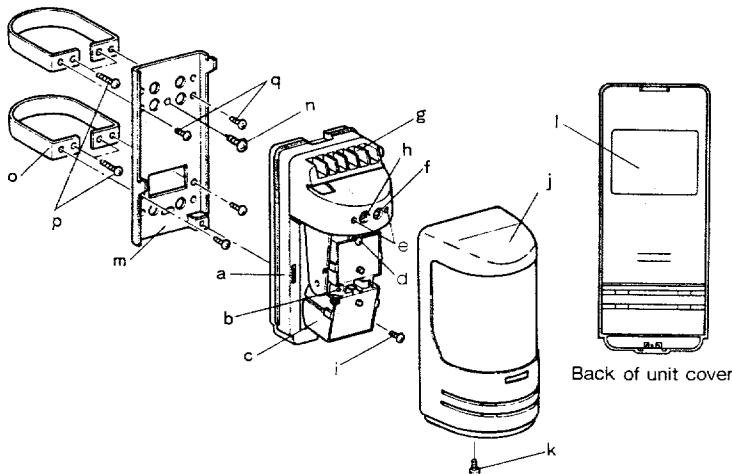


POLE MOUNTING

- An installation pole with an outside diameter of 1.66" (43mm) must be used. (Standard U.S. 1 1/4" pipe has an outside diameter of 1.66".)
- Feed at least 20 inches (60cm) of cable out of pole for wiring.
- Face transmitter and receiver towards each other.
- Avoid aerial wiring.
- For indoor applications, wiring is similar to the installation of a telephone or intercom. For outdoor wiring, apply piping as far as possible. Some sites will require metal coated cables or underground wiring work.
- Use supplied pole mount kit for pole mounting.



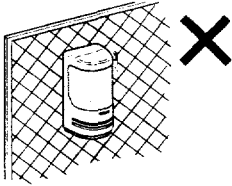
2. PARTS IDENTIFICATION



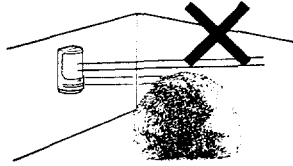
- | | |
|--|--|
| <ul style="list-style-type: none"> a. Unit base b. Alignment viewfinder c. Reflective mirror d. Vertical adjustment screw e. Monitor jack f. LED indicator
Transmitter-green,
Receiver-red g. Terminals h. Beam interruption
time adjustment i. Unit setting screw j. Front cover k. Cover locking screw l. Sensitivity chart m. Mounting plate | <ul style="list-style-type: none"> n. Mounting screw
4pcs(0.16"×3/8 bolt) o. Pole mount bracket 4pcs. p. Pole locking screw q. Bracket fixing screw
8pcs(M4×6) |
|--|--|

Back of unit cover

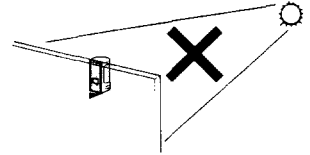
3. INSTALLATION HINTS



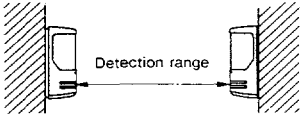
Mount unit only on a solid surface.



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



Prevent direct or reflected sunlight from entering into internal optics.

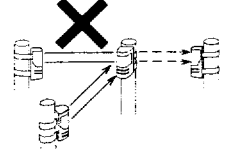


AX-130T: 130ft. (40 m) or under
AX-70T: 70ft. (21 m) or under

Detection range should not exceed 70ft. (AX-70T), and 130ft (AX-130T).



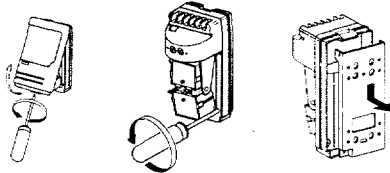
After the installation is completed, assure proper operation by walk test.



When several systems are used, do not install any unit in the way of another's beam.

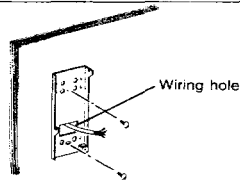
4. INSTALLATION METHOD

1. Wall mount



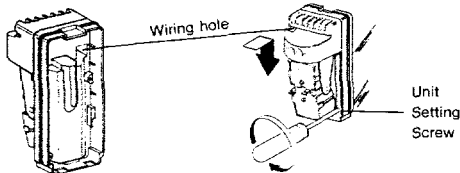
Loosen the cover locking screw and remove the cover. Loosen the unit setting screw at lower part of unit base. Slide the mounting plate downwards and remove it.

2.



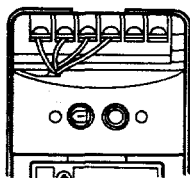
Fix the mounting plate firmly on the wall with mounting screws. For inner wall wiring, feed the wires through wiring holes on the mounting plate before fixing on the wall.

3.



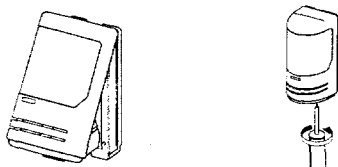
After feeding wire through wiring holes in the unit base, install the unit with supplied unit setting screws.

4.



Connect wires to the terminals (See "TERMINAL" for details). Tighten screws of unused terminals, e.g. tamper terminal.

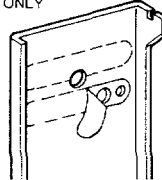
5.



After completing the optical alignment and operation check (see Section 5 "Optical Alignment" and 7 "Operation Check" for details), replace the cover and fasten with supplied screws.

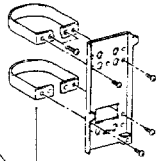
1. Pole mount

USE MOUNTING POLE OF 1.66" ONLY



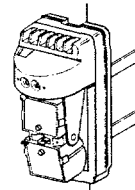
Peel off one of the two sealings along the half cut line.

2.



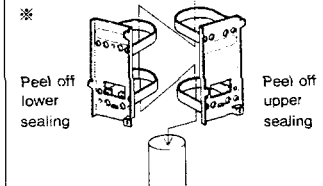
Fix bracket onto mounting plate with supplied screws (M4 × 6, 4pcs). Place the bracket around the pole and tighten firmly with pole locking screws.

3.



Feed wires through the wiring hole. Follow instructions in "Wall Mount 3-5"

*

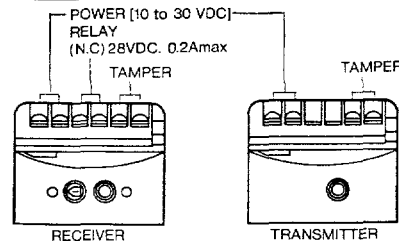


Peel off lower sealing

Peel off upper sealing

When mounting two units on one pole, use the upper bracket mounting holes on one unit and the lower holes on the other. This allows both units to be mounted at the same height on pole.

TERMINAL



The unit requires a UL listed supply with a min. standby capacity. of 4 hours. 10 to 30 VDC, current consumption 39mA, (AX-130T), 35mA, (AX-70T).

WIRING

ATTENTION

- ⊠ Tighten the tamper terminal screws if unused.
- ⊠ When using two or more units on one wire, the maximum length is obtained by dividing the maximum wire length listed below by the number of units used.
- ⊠ Power wires should not exceed the following lengths:

Wire	AX-70T	AX-130T
	12VDC	24VDC
AWG22(0.33mm ²)	1,640ft. (500m)	9,840ft. (3,000m)
AWG20(0.52mm ²)	2,630ft. (800m)	15,750ft. (4,800m)
AWG18(0.83mm ²)	3,940ft. (1,200m)	23,620ft. (7,200m)
AWG16(1.31 mm ²)	6,560ft. (2,000m)	39,360ft. (12,000m)

5. OPTICAL ALIGNMENT

Be sure to align both the Transmitter and Receiver precisely. Reliability depends much on the alignment.

1. Set volt-meter to 0-10VDC range.
2. Do not supply power until all wiring is completed.
3. Remove the cover while alignment is made.

HORIZONTAL AND VERTICAL ALIGNMENT

①

Because the viewing field of the view finder is narrow, visually locate the other unit before looking into view finder.

②

Look into one of the two view finders at 45° angle. Turn the mirror to adjust the horizontal angle, until the other unit can be seen in the center of both circles of view.

③

Adjust the vertical adjustment screw.

If a clear view can not be obtained, place a sheet of white paper in the back of the other unit to identify it from the background. Keeping your eye about 2 (5cm) away from the view finder will result in clearest view of the other unit.

MONITOR JACK (VOLTAGE METER AIMING JACK)

Read voltage from monitor jack with volt-meter to confirm level of optical alignment, and to obtain highest reliability. Attain maximum voltage by adjusting beams.

Remove cover of both Transmitter and Receiver.

Monitor Jack

Set the meter to 10VDC range. Insert positive polarity probe to (+) terminal and negative polarity probe to (-) terminal of the receiver.

For horizontal alignment, turn mirror to obtain maximum voltage level from monitor jack. For vertical alignment, use adjusting screw.

< Sensitivity Chart >

For relationship between monitor output and sensitivity tolerances, see figure above or on the back of unit cover. Precisely adjust the optical alignment of both Transmitter and Receiver until the maximum output level from monitor jack is obtained. Proper sensitivity will be obtained if the output levels are within or over the range of "Good"

Monitor Jack Output (V)	Outdoor	Indoor
3.1V or over	Excel.	Excel.
2.8V //	Fair	Fair
2.5V //	Good	Fair
1.0V //	Good	Good
1.0V under	Realign	Realign

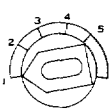
CAUTION

During measuring level of monitor out put for alignment, avoid interrupting beam with hand etc.

6. BEAM INTERRUPTION TIME ADJUSTMENT

The beam interruption time adjustment is on Receiver unit. This function allows you to match the units sensitivity to its surroundings. Slower settings reduce sensitivity.

BEAM INTERRUPTION TIME ADJUSTMENT



No1. Normal position	No2. Position	No3. Position	No4. Position	No5. Position
Fast running (50m sec)	Jogging speed (100msec)	Fast walking (200msec)	Normal walking (350msec)	Slow speed (500msec)

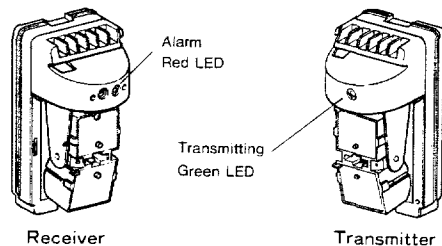
CAUTION

Speeds shown above are the maximum detectable speeds for each setting. Faster speeds will not be detected. Where birds, newspapers or flying debris can occasionally interrupt the beams, adjust setting to a slower speed (longer interruption period).

7. OPERATION CHECK

1. After completing the optical alignment, interrupt the beams to confirm operation of Receiver's Red LED.
2. If LED remains ON although nothing is interrupting the beam, re-adjust optical alignment.
3. Walk test must be made to check operation after completing the installation.
If beams are interrupted, red LED should turn on.
4. Both the upper and lower beams must be interrupted for an alarm.
5. Conduct an operation check at least once per year.

	CONDITION	LED STATUS
Transmitter	Transmitting	Green LED On
Receiver	Normal	Red LED Off
	Alarm	Red LED On



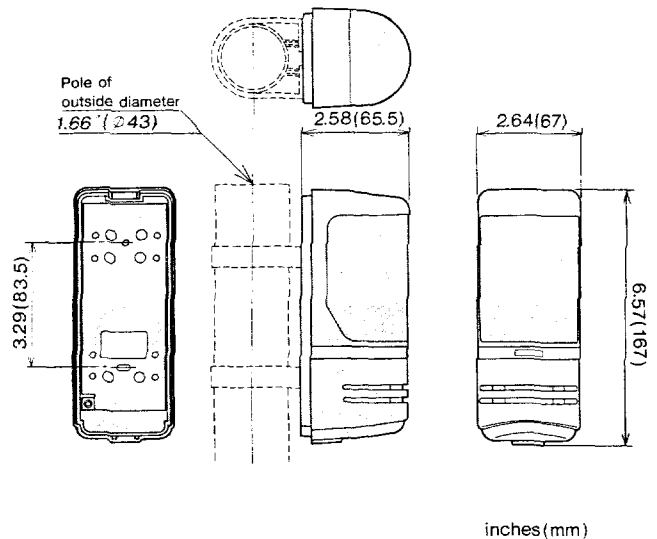
8. TROUBLE SHOOTING

Problem	Cause	Remedy
Transmitters LED does not light	Improper power supply voltage. (disconnection, voltage drop)	Correct supply voltage to 10~30 VDC
Receiver is interrupted but LED does not light	Insufficient voltage.	Correct supply voltage.
	Beam is reflected into Receiver.(e. g. water)	Remove reflective object.
	Both beams are not interrupted simultaneously.	Re-install.
Receiver is interrupted and LED lights but alarm is not generated	Alarm signal cables are short-circuited.	Check the wiring. Check load of output.
	Relay contact stuck due to overloading.	Unit needs repair.
Red alarm LED stays on.	Beams are not aligned.	Re-align.
	Something is blocking beams.	Remove the object.
	Cover needs cleaning.	Clean the cover.
False alarm caused by fog, snow or heavy rain.	Poor alignment.	Re-align the beam
False alarm caused by birds or flying debris.	Interruption period is set too quick.	Increase interruption period required for alarm.
	Installation location is improper.	Change installation location.

9. SPECIFICATIONS

MODEL	AX-70T	AX-130T
DETECTION METHOD	Infrared Photoelectric	
RANGE	outdoor 70ft. (21m) indoor 165ft. (50m)	outdoor 130ft. (40m) indoor 330ft. (100m)
MAXIMUM ARRIVAL DISTANCE	700ft. (210m)	1,300ft. (400m)
BEAM CHARACTERISTICS	1,000pps. 8,800Å pulsed infrared.	
INTERRUPTION PERIOD	50 to 500msec (variable)	
POWER INPUT	10 to 30 VDC	
CURRENT DRAW	35mA max (10~30VDC)	39mA max (10~30VDC)
INDICATOR	Transmitter-Green LED On when transmitting condition Receiver-Red LED On in alarm condition	
ALARM PERIOD	2 sec. (± 1) nominal	
ALARM OUTPUT	N.C. 28VDC, 0.2A max	
TAMPER SWITCH	Opens when cover is removed.	
OPERATING TEMPERATURE	-13° F to 131° F (-25°C to 55°C)	
ENVIRONMENT HUMIDITY	95% max	
ALIGNMENT ANGLE	$\pm 5^\circ$ Vertical, $\pm 90^\circ$ Horizontal	
MOUNTING	Wall and Pole	
DIMENSIONS	6.57" H \times 2.52" W \times 2.58" D (167mm H \times 64mm W \times 65.5mm D)	
WEIGHT	24.3oz (690g)	
STANDARD ACCESSORIES	Screws (0.16" \times 3/4" self tapping) \times 4 Pole mount kit	

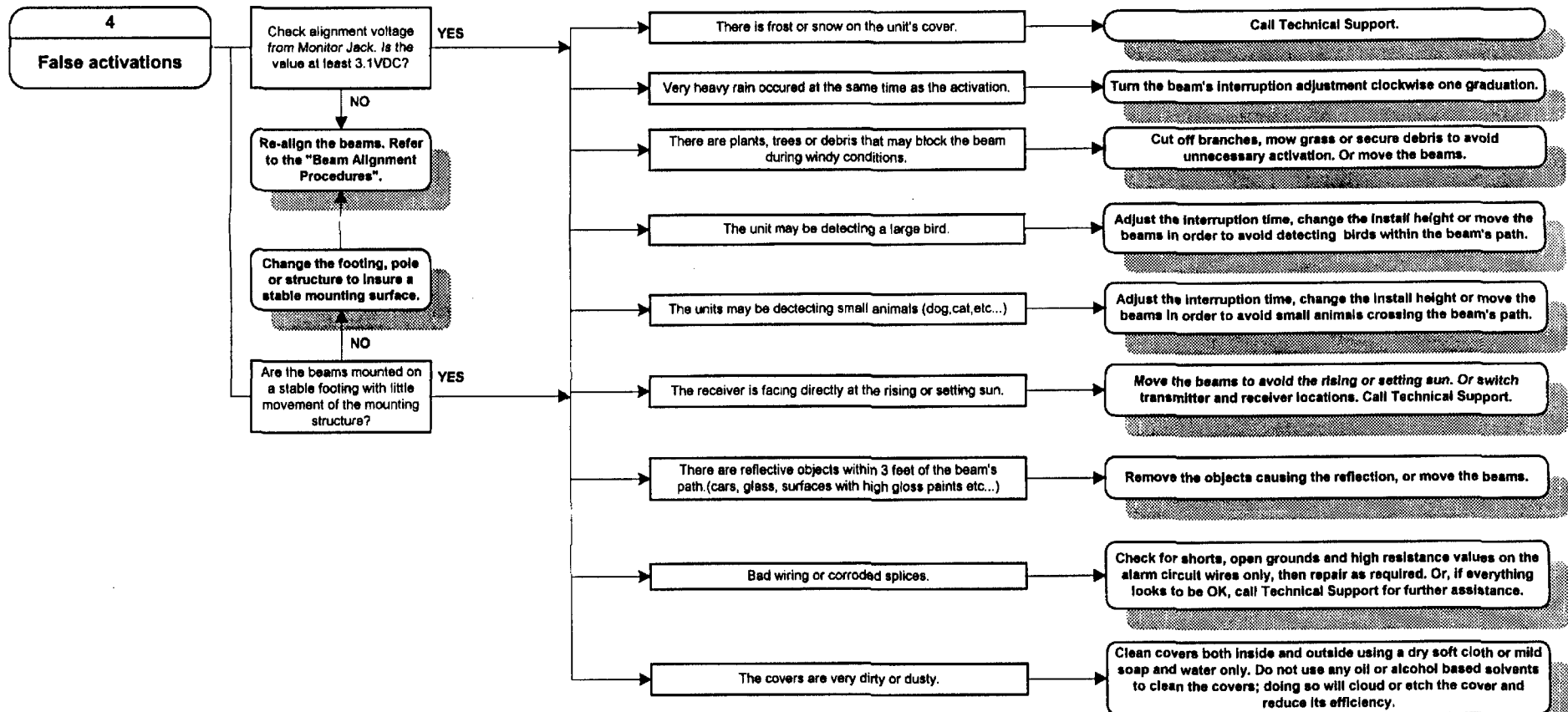
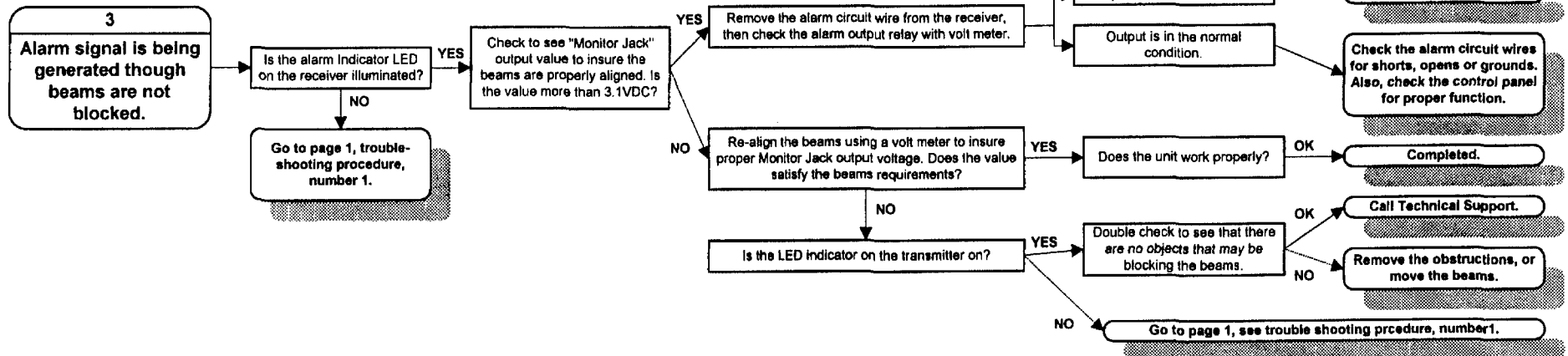
10. DIMENSIONS



Specifications are subject to change without notice for improvement.

NOTE

This unit is designed to detect movement and activate an alarm control panel. Being only part of a complete alarm system, we cannot assume responsibility for theft or damages, should it occur.



Important :
 The majority of false activations can be attributed to poor beam alignment. When aligning outdoor beams accept no less than an "EXCEL" value (3.1VDC) for the most stable and trouble free system!! Refer to the installation manual for acceptable Monitor Jack values.

Trouble Shooting Check Sheet for AX-70T/130T

When defective conditions are encountered, proceed with the following. If you have any questions on these procedures, call Technical Support.

