



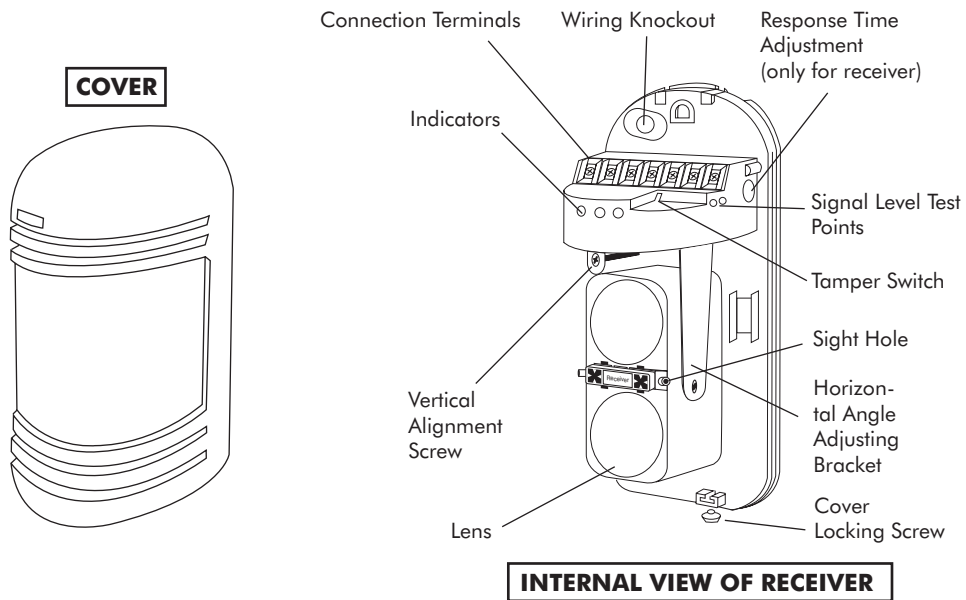
PHOTOELECTRIC DUAL BEAM DETECTOR

Owners Manual R4222

The GTO/PRO Photoelectric Dual Beam Detector uses dual beam and through beam technology to reduce false detections when detecting obstructions. When the beams detect the presence of a moving object, the detection will cause the gate(s) to stop and reverse to the fully open position. As long as the beam is obstructed the gate(s) will remain open. **Not compatible with solar powered gate operators.**

For use with use with all GTO/PRO and Mighty Mule AC and DC powered gate operators.

PARTS DESCRIPTION

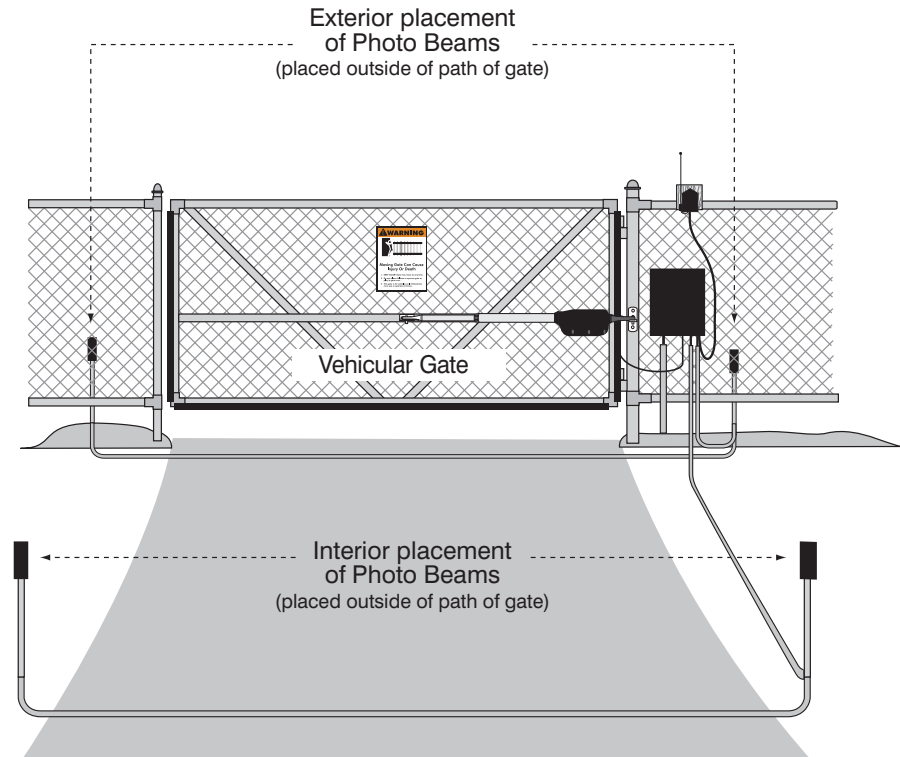


For more information on GTO's full line of automatic gate openers and access controls visit our website at www.gtoinc.com

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 Technical Service (800) 543-1236

Installation Overview

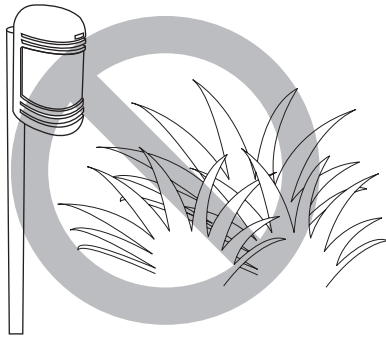
Diagram illustrates correct placement of photo beams in relation to the gate.



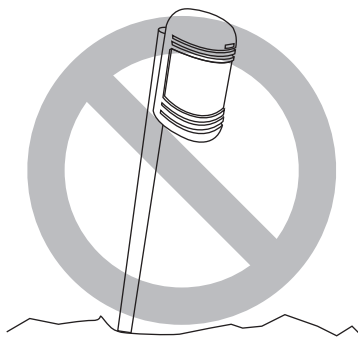
Mounting Cautions

Be sure that the optical axis is never obstructed. (The optical axis is both the vertical and horizontal range of detection, or beam, between the transmitter and receiver)

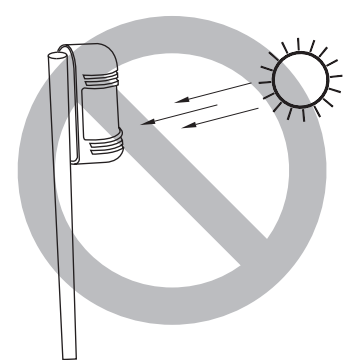
Do not mount the detector in the following conditions:



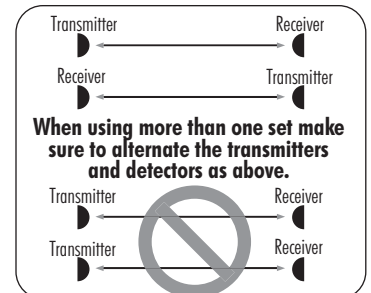
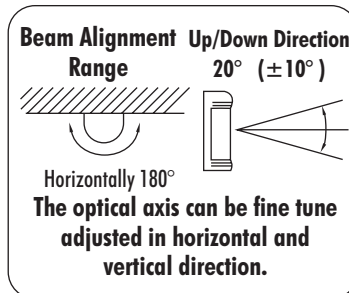
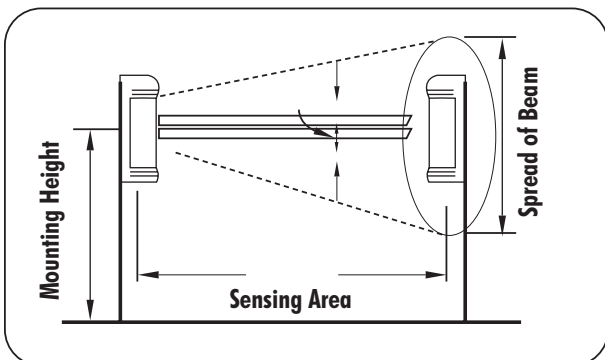
Where obstructions (plants, fences, etc.) are between the receiver and the sender.



Where the mounting surface is unstable.

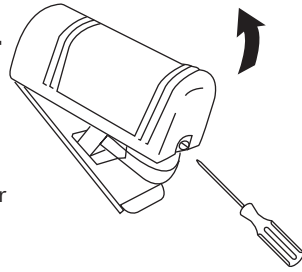


Where sunlight and headlights shine directly into the front of the receiver.

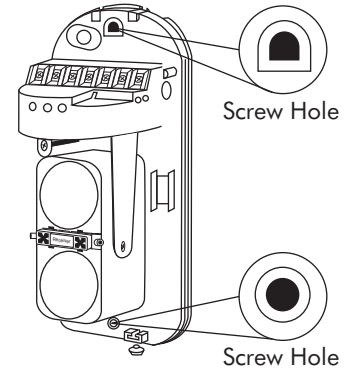


Wall Mounting

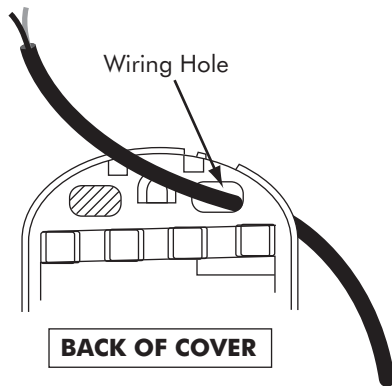
1. Loosen the cover-holding screw but **DO NOT REMOVE (NOTE: BE CAREFUL NOT TO DROP THE NUT THAT ACCOMPANIES SCREW)**. Now remove the outer cover slowly so nut doesn't fall.



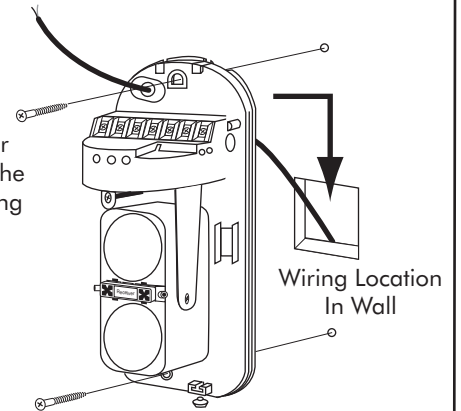
2. Remove the rubber knockout and use the screw holes to mount the unit.



3. Remove the rubber knock-out and pull the wire through.



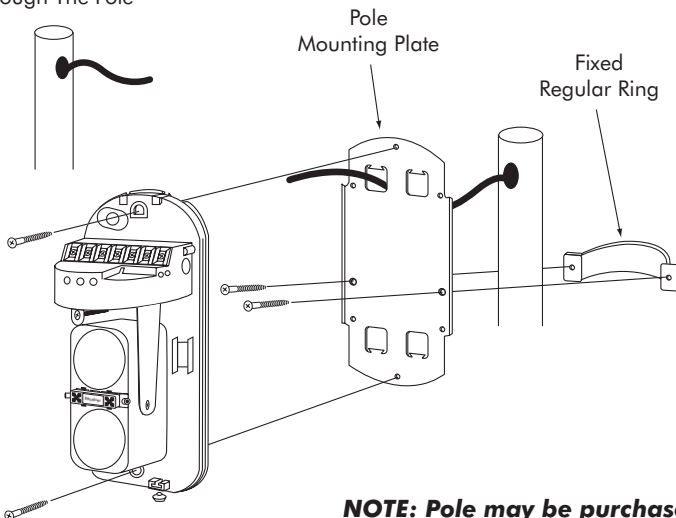
4. Mount the detector on the wall and run the wire through the wiring location in the wall.



Pole Mounting

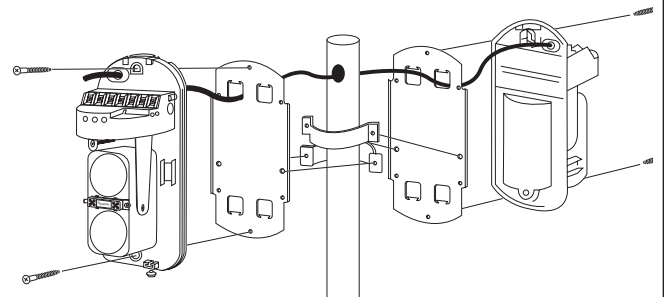
1. Feed the wire through the pole.

Feed the Wire Through The Pole



2. Remove the Photo Beam cover. (as shown above in step1)

3. Fix the base plate on the bracket.



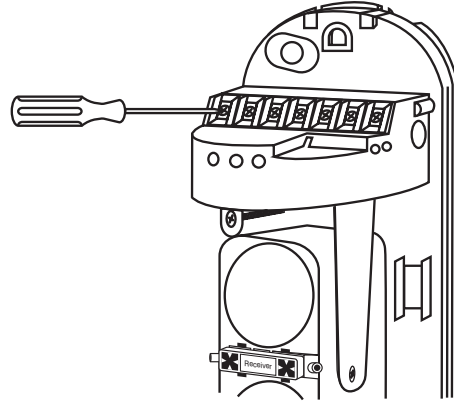
Back to Back Installation
(Refer to the figure above)

NOTE: Pole may be purchased at your local hardware store.

Connecting Photo Beams to GTO/PRO and Mighty Mule Control Boards

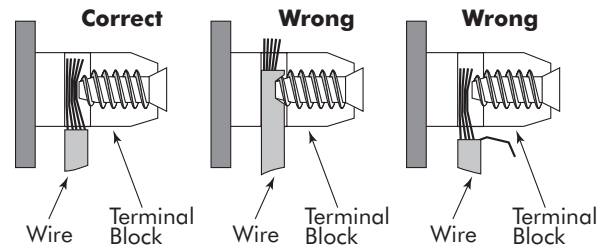
NOTE: DO NOT use with solar panels.

⚠ Make sure the power switch to the opener is turned off before connecting safety device wiring to the terminal blocks. Unplugging the transformer does not turn power to the opener OFF.



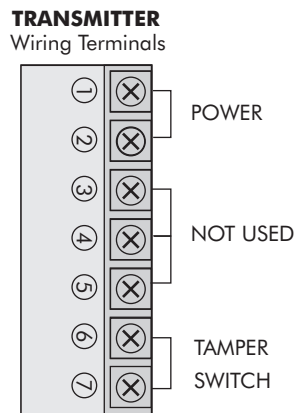
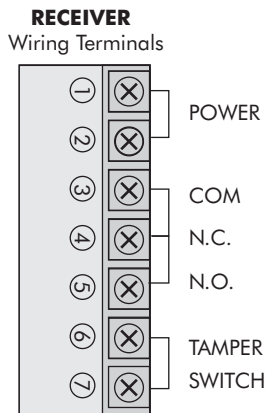
Connecting wires to the terminals (normally open wiring).

- Wire with 16awg minimum (RB509)
- 300 ft (91.4m) max length
- Be sure to capture the wire ends under the wire clamp plates.
- Avoid frayed ends on wires that might produce a short circuit.
- Be careful not to overtighten the screws as this may strip the threads in the plastic

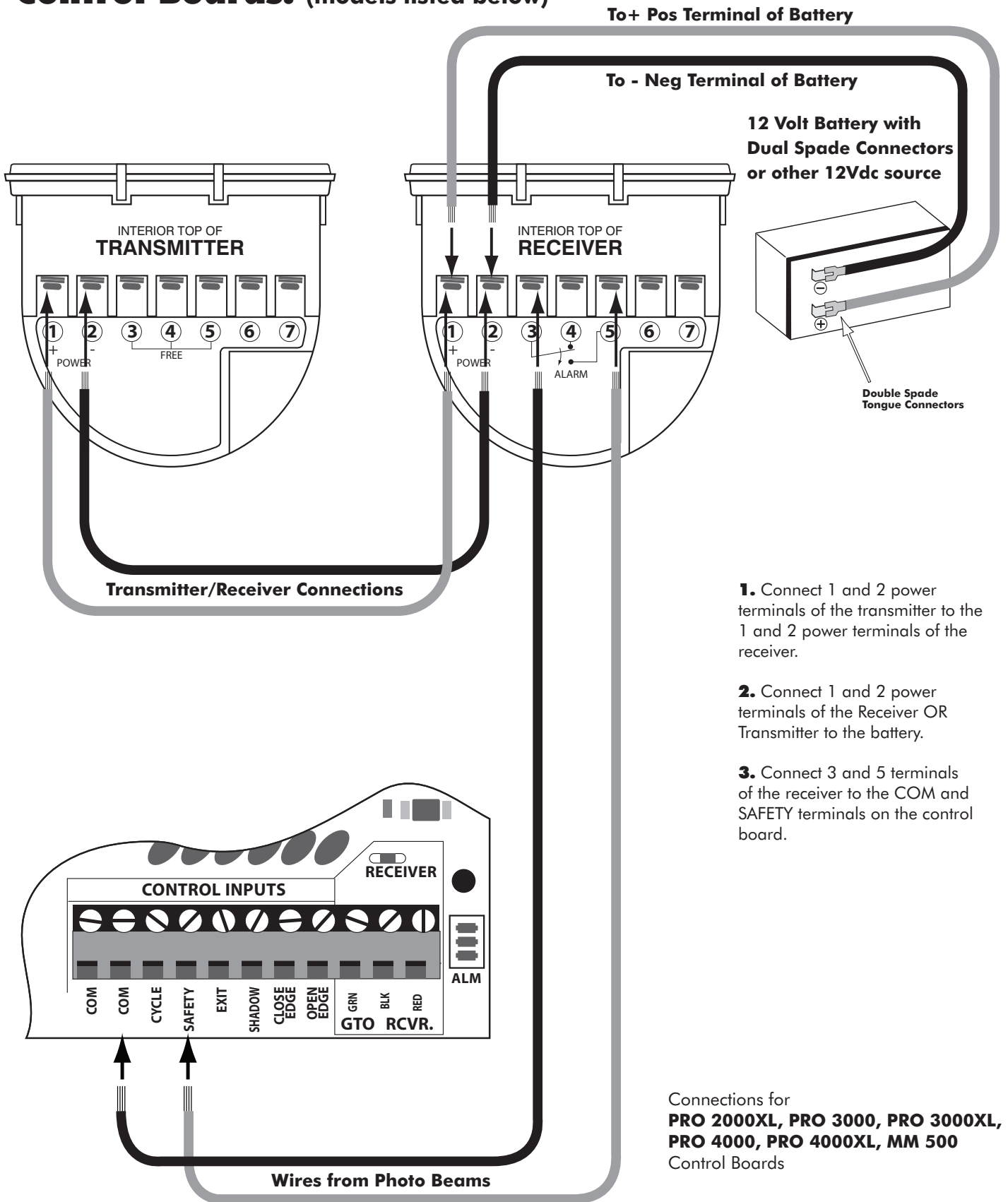


Terminal Strip Identification

The diagrams below represent the terminal strips on the receiver and transmitter and can be used for reference for connections.

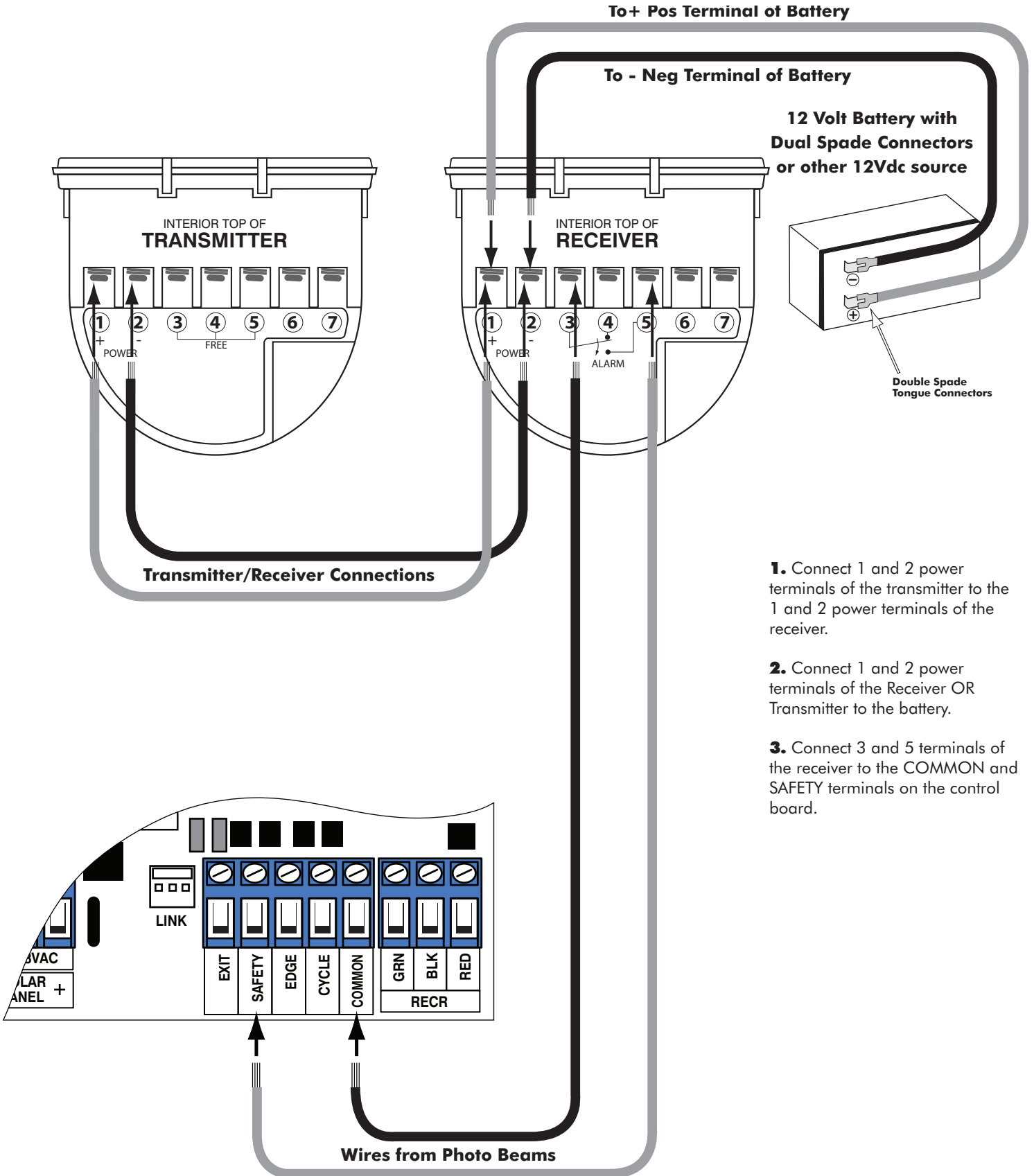


Wiring the Photo Beams to GTO/PRO and Mighty Mule Gen 3 (blue) or green Gate Opener Control Boards. (models listed below)



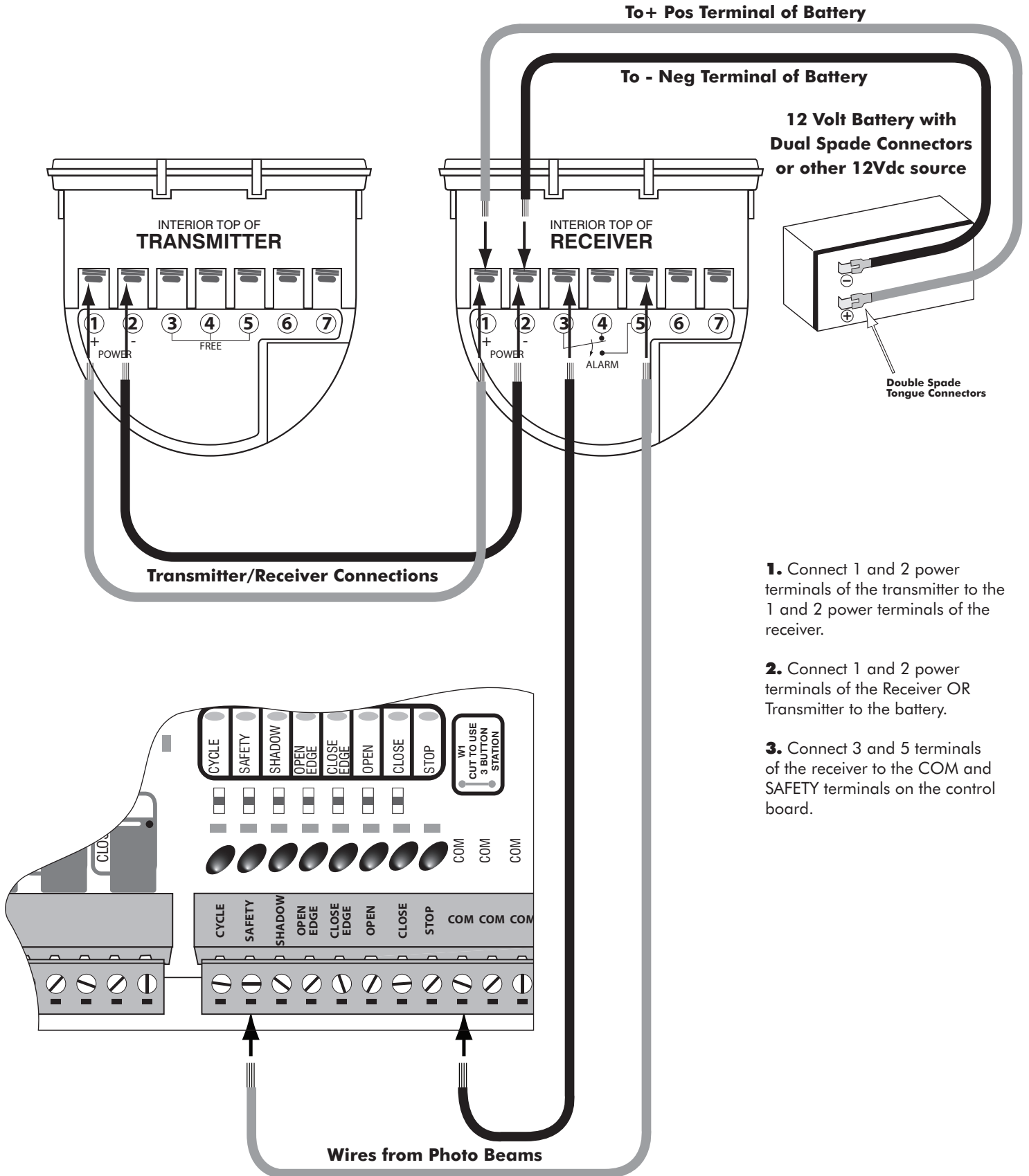
Connections for
**PRO 2000XL, PRO 3000, PRO 3000XL,
 PRO 4000, PRO 4000XL, MM 500**
 Control Boards

Wiring the Photo Beams to Mighty Mule FM-350 Gate Opener Control Board.

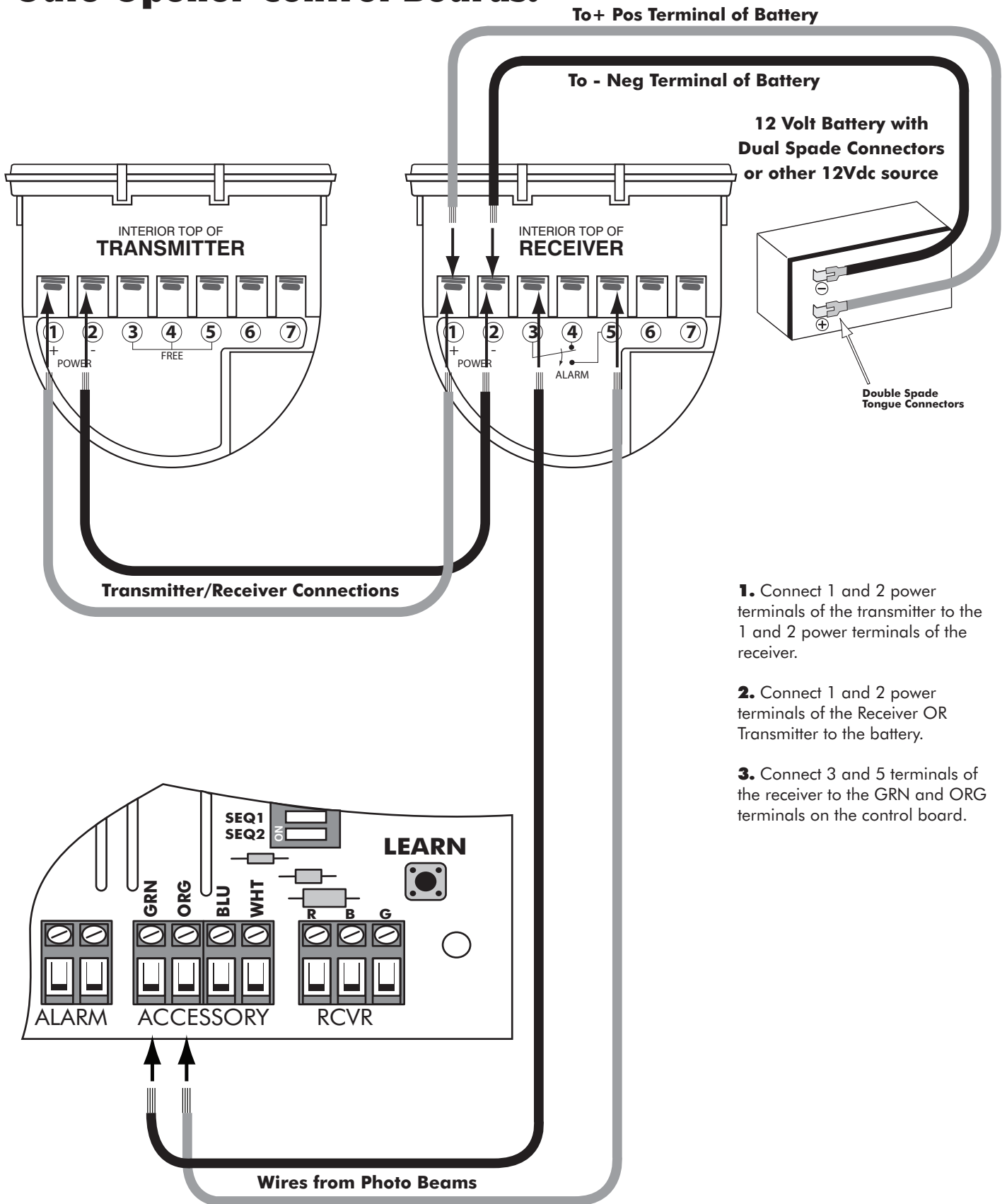


- 1.** Connect 1 and 2 power terminals of the transmitter to the 1 and 2 power terminals of the receiver.
- 2.** Connect 1 and 2 power terminals of the Receiver OR Transmitter to the battery.
- 3.** Connect 3 and 5 terminals of the receiver to the COMMON and SAFETY terminals on the control board.

Wiring the Photo Beams to GTO/PRO GP-SL100 and GP-SW100 Gate Opener Control Boards.



Wiring the Photo Beams to GTO/PRO, FM700/702 PRO-SL1000/2000 and PRO-SW1000/2000 Gate Opener Control Boards.

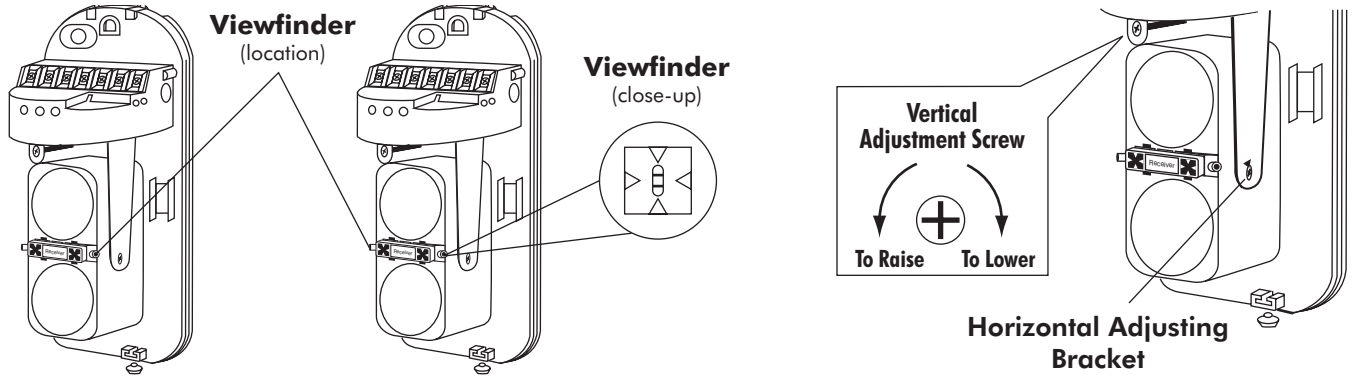


- 1.** Connect 1 and 2 power terminals of the transmitter to the 1 and 2 power terminals of the receiver.
- 2.** Connect 1 and 2 power terminals of the Receiver OR Transmitter to the battery.
- 3.** Connect 3 and 5 terminals of the receiver to the GRN and ORG terminals on the control board.

Beam Alignment

Adjusting Optical Axis with the Viewfinder

1. Remove the RECEIVER and TRANSMITTER covers (**Be careful not to drop screw and nut**) and make sure power is connected.
2. Adjust the horizontal pivot, and the vertical adjustment screw using the built-in viewer. Look through the viewfinder on either side and adjust to put the opposite sensor in the middle of the cross-hairs in the view finder. The GOOD LED should be on. (Adjust the light axis until the indication lamp is on).



- The **brighter** the Green **LEVEL LED**, the **more precise** the alignment of the beams.

RECEIVER INDICATORS

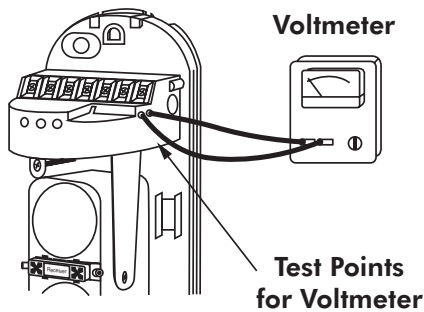
GOOD LEVEL ALARM

- **GOOD LED (green)** Use when adjusting beam alignment. ON when beams are aligned, OFF when beams are not aligned. (Refer to operation instructions)
- **LEVEL LED (green)** ON indicates received signal. Brightness varies, depending on how well beam is aligned.
- **ALARM LED (red)** ON indicates beam blocked. Use when setting response time. (Refer to operation instructions)

TRANSMITTER INDICATOR

POWER

- **POWER LED (green)** ON when light beam is transmitting.



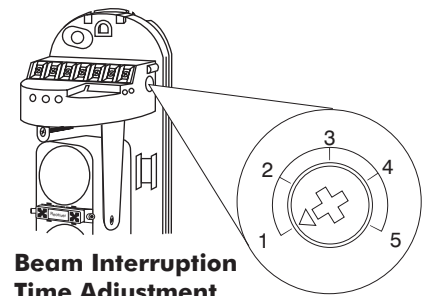
Adjusting Optical Axis with a Voltmeter

If you have a voltmeter, the best method of adjusting the optical axis is to measure the signal level at the test probe points.

1. Insert the voltmeter probes into the test points on the side of the receiver.
2. Adjust the horizontal angle and vertical angle until the voltage is at maximum.
3. If a voltage of 1.2v or above cannot be reached, the transmitter and/or receiver should be readjusted.

Beam Interruption Time Adjustment

Adjusts the amount of time between the beam being broken and the normally open relay closing. Adjust time adjustment dial from (1) detecting fast moving objects to (5) detecting slow moving objects depending on your type of application and environment.



VERIFY CORRECT OPERATION

After installation, confirm correct operation by suitable walking tests. Refer to the appropriate LED indicator during the walking test and ensure the gate opener operates in the correct manner.

	Condition	Indication
Transmitter	Transmitting	GOOD LED is ON
Receiver	Beam Not Blocked	GOOD and LEVEL LEDs are ON
	Beam Blocked	ALARM LED is ON

TROUBLESHOOTING

Symptom	Possible Cause	Remedy
Transmitter LED does not light.	Improper voltage supplied.	Check the power supply and wiring.
Receiver LED does not light.	Improper voltage supplied.	Check the power supply and wiring.
Alarm LED does not light, even when beams are blocked.	<ol style="list-style-type: none"> Beams reflect to the receiver by other objects. Both beams are not blocked simultaneously. Beam interruption time is too short. 	<ol style="list-style-type: none"> Remove the reflecting object or change optical axis direction. Block both beams. Increase beam interruption time adjustment.
When the beams are blocked, the receiver LED light is ON, but not alarm.	<ol style="list-style-type: none"> Wiring is short circuited. Wiring connection is not good. 	Check wiring and connection spot.
The alarm indication lamp of receiver is always on.	<ol style="list-style-type: none"> Optical axis is not properly adjusted. There are obstructions between the transmitter and the receiver. The outer covers are dirty. 	<ol style="list-style-type: none"> Adjust the optical axis. Remove the obstructions. Clean with window cleaner and a soft cloth.
Intermittent Alarm (detection) *If your experiencing false detections then increase the time adjustment by 1 increment at a time until the photo beam functions as desired.	<ol style="list-style-type: none"> Bad wiring. Fluctuating power supply / voltage. Intermittent blockage between the transmitter and the receiver. The receiver or transmitter is unstable. Blocked by other moving objects. Beam interruption time out of adjustment. 	<ol style="list-style-type: none"> Check wiring. Check the power supply. Remove the obstruction or relocate. Fix the mounting. Adjust the optical axis. Adjust interruption time or change installation position.

SPECIFICATIONS

		MODEL R4222	
For optimal efficiency, wipe the outer cover frequently with a soft, damp cloth.	Detection Method		Infrared photoelectric
	Range	Outdoor	98.4 ft (30m)
		Indoor	295.2 ft (90m)
Not compatible with Solar Panels.	Beam Characteristics		Pulsed infrared dual beams
	Response Time		50~700msec (selectable)
	Power Input		DC12.5~24V / AC11~18V
	Current Consumption		40mA max
	Output Pulse Duration		2Sec (±1)nominal
	Alarm Output		Form C relay (AC/DC 30V 0.5A max)
	Tamper Switch		N.O. contact is open when cover is removed (transmitter and receiver)
	Operating Temperature		-13°F (-25°C)~131°F (55°C)
	Environment Humidity		95% max
	Alignment Angle		20° ±10° vertical, ±90° horizontal
	Mounting		Wall or pole
	Weight		.66lbs (300g) Both transmitter and receiver
	Appearance		PC Resin (Black)