The GTO Access Systems 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 all GTO Access Systems and Mighty Mule AC and DC powered gate operators.

**PARTS DESCRIPTION**

- Connection Terminals
- Wiring Knockout
- Response Time Adjustment (only for receiver)
- Signal Level Test Points
- Tamper Switch
- Sight Hole
- Horizontal Angle Adjusting Bracket
- Cover Locking Screw
- Vertical Alignment Screw
- Lens
- Indicators

**INTERNAL VIEW OF RECEIVER**

For more information on GTO's full line of automatic gate openers and access controls visit our website at [www.gtoaccess.com](http://www.gtoaccess.com)

GTO • 3121 Hartsfield Road • Tallahassee, Florida 32303 • (800) 543-4283 • www.gtoinc.com

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.

Mounting Height Sensing Area

Spread of Beam

Beam Alignment

Up/Down Direction

Range

20° (±10°)

Horizontally 180°

The optical axis can be fine tune adjusted in horizontal and vertical direction.

When using more than one set make sure to alternate the transmitters and detectors as above.
**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.

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 Access Systems 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 Access Systems and Mighty Mule Gen 3 (blue) or green Gate Opener Control Boards. (models listed below)

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 4 terminals of the receiver to the COM and SAFETY terminals on the control board.

NOTE: Wiring has changed from previous model. Terminal 4 is used instead of terminal 5. Terminal 5 is no longer used.

Connections for
GTO Access 2000XL, 3000, 3000XL, 4000, 4000XL, MM 500 Control Boards
Wiring the Photo Beams to Mighty Mule FM-350 Gate Opener Control Board.

**Transmitter/Receiver Connections**

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 4 terminals of the receiver to the COMMON and SAFETY terminals on the control board.

**NOTE:** Wiring has changed from previous model. Terminal 4 is used instead of terminal 5. Terminal 5 is no longer used.

**12 Volt Battery with Dual Spade Connectors or other 12Vdc source**

**Transmitter/Receiver Connections**

Wires from Photo Beams
Wiring the Photo Beams to GTO Access Systems GP-SL050, GP-SW050, GP-SL100 and GP-SW100 Gate Opener Control Boards.

**Transmitter/Receiver Connections**

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 4 terminals of the receiver to the COM and SAFETY terminals on the control board.

**NOTE:** Wiring has changed from previous model. Terminal 4 is used instead of terminal 5. Terminal 5 is no longer used.

12 Volt Battery with Dual Spade Connectors or other 12Vdc source
Wiring the Photo Beams to GTO Access Systems
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 4 terminals of the receiver to the GRN and ORG terminals on the control board.

NOTE: Wiring has changed from previous model. Terminal 4 is used instead of terminal 5. Terminal 5 is no longer used.
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 LEVEL LEDs should be on. (Adjust the light axis to achieve the highest LEVEL LED is on)

- The higher the Red LEVEL LED number (5 being highest), the higher the signal strength is.

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. The factory setting is set to 1 to detect fast moving objects.
### VERIFY CORRECT OPERATION

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

<table>
<thead>
<tr>
<th>Condition</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transmitter</strong></td>
<td></td>
</tr>
<tr>
<td>Transmitting</td>
<td>one or more LEVEL LEDs are ON</td>
</tr>
<tr>
<td><strong>Receiver</strong></td>
<td></td>
</tr>
<tr>
<td>Beam Not Blocked</td>
<td>SIG and LEVEL LEDs are ON</td>
</tr>
<tr>
<td>Beam Blocked</td>
<td>ALARM LED is ON</td>
</tr>
</tbody>
</table>

### TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmitter LED does not light.</td>
<td>Improper voltage supplied.</td>
<td>Check the power supply and wiring.</td>
</tr>
<tr>
<td>Receiver LEDs do not light.</td>
<td>Improper voltage supplied.</td>
<td>Check the power supply and wiring.</td>
</tr>
<tr>
<td>Alarm LED does not light, even when beams are blocked.</td>
<td>1. Beams reflect to the receiver by other objects.</td>
<td>1. Remove the reflecting object or change optical axis direction.</td>
</tr>
<tr>
<td></td>
<td>2. Both beams are not blocked simultaneously.</td>
<td>2. Block both beams.</td>
</tr>
<tr>
<td></td>
<td>3. Beam interruption time is too short.</td>
<td>3. Increase beam interruption time adjustment.</td>
</tr>
<tr>
<td>When beams are blocked, receiver LED lights are ON, but not alarm.</td>
<td>1. Wiring is short circuited.</td>
<td>Check wiring and connection point.</td>
</tr>
<tr>
<td></td>
<td>2. Wiring connection is not good.</td>
<td></td>
</tr>
<tr>
<td>The alarm indication lamp of receiver is always on.</td>
<td>1. Optical axis is not properly adjusted.</td>
<td>1. Adjust the optical axis.</td>
</tr>
<tr>
<td></td>
<td>2. There are obstructions between the transmitter and the receiver.</td>
<td>2. Remove the obstructions.</td>
</tr>
<tr>
<td></td>
<td>3. The outer covers are dirty.</td>
<td>3. Clean with window cleaner and a soft cloth.</td>
</tr>
<tr>
<td>Intermittent Alarm (detection)</td>
<td>1. Bad wiring.</td>
<td>1. Check wiring.</td>
</tr>
<tr>
<td></td>
<td>2. Fluctuating power supply / voltage.</td>
<td>2. Check the power supply.</td>
</tr>
<tr>
<td></td>
<td>3. Intermittent blockage between the transmitter and the receiver.</td>
<td>3. Remove the obstruction or relocate.</td>
</tr>
<tr>
<td></td>
<td>4. The receiver or transmitter is unstable.</td>
<td>4. Fix the mounting.</td>
</tr>
<tr>
<td></td>
<td>5. Blocked by other moving objects.</td>
<td>5. Adjust the optical axis.</td>
</tr>
<tr>
<td></td>
<td>6. Beam interruption time out of adjustment.</td>
<td>6. Adjust interruption time or change installation position.</td>
</tr>
</tbody>
</table>

*If you are experiencing false detections then increase the time adjustment by 1 increment at a time until the photo beam functions as desired.*

For online Technical Support visit the Online Troubleshooter Wizard 24 hrs/day 7 days/week at [http://support.gtoinc.com/support/troubleshooter.aspx](http://support.gtoinc.com/support/troubleshooter.aspx) and open a Tech Ticket

Technical Support Hours: MON - FRI 8:00AM - 7:00PM (ET) (800) 543-1236

### SPECIFICATIONS

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<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
</tr>
</tbody>
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For optimal efficiency, wipe the outer cover frequently with a soft, damp cloth.

Not compatible with Solar Panels.