

# PHOTO EYE

## Infrared Through Beam

Part #550011

### INSTALLATION MANUAL



**Read all instructions before installing this product.**  
**Monitoring Method: N/C Contact**

The infrared photo eyes are a People and Property safety device intended for use with automatic gate operating systems. Swing gate operators require at least one external monitored entrapment device for gate operation and Slide gate operators require at least two external monitored entrapment devices (one for each direction) for gate operation per UL325 the standard for gate operator safety. See gate operator installation manual.

The transmitter can be powered by two 3.6 vdc lithium batteries (model - ER14505) or it may be hard-wired to the gate operator control board. The expected battery life should exceed 1 year.

Rated range up to 42 feet / 13 meters in most conditions.

#### TECHNICAL SPECIFICATIONS

Power supply TX:	3.6V
Battery voltage	2 x 3.6V
Battery capacity	2.4Ah
Battery type	ER14505
Expected battery life	15 months
Power supply RX	9 / 24 Vac/dc
Current consumption Transmitter	400 µA
Current consumption Receiver	20 mA
Double contact relay with serial exchange	yes
RX output contacts	1 NO / 1 NC
Max DC power on relay contacts	24W / 48V
Max AC power on relay contacts	60 VA / 48 V
Operating temperature	-4°F / +131°F
Housing protection	IP55
Rated range	42 ft / 13 m
Dimensions with hood: WxHxD	75 x 105 x 105 mm 2.95 x 4.13 x 4.13 in

#### PACKING LIST

ITEM	Qty
TX / TRANSMITTER	1
RX / RECEIVER	1
WIRING BOX	2
HOOD	2
MOUNTING BRACKETS	2
RUBBER SEAL	2
WIRING BOX MOUNTING SCREWS	8
#8 - 18 x 3/4 inch Self tapping sheet metal (20mm length)	
TX / RX MOUNTING SCREWS	8
#4 - 18 x 1/2 inch sheet metal (12.7mm length)	
COVER MOUNTING SCREWS	4
#4 - 1/4 inch black sheet metal (6.5mm length)	
BATTERY 3.6v LITHIUM	2

## 1. INSTALLATION

**NOTE:** Mounting brackets should be installed to a rigid object to prevent movement which could affect alignment and cause failures.

**IMPORTANT:** Conduit should be used from the control box to the photo eye wiring box to protect wires from damage and moisture. The wiring box has 1/2 inch knockouts located on the back and bottom for the conduit connection. Do not remove the TX-Transmitter wiring box knockout if using battery option.

1. Determine the best location for the photo eyes considering the correct distance from the ground, conduit for wiring, location of any irrigation system that might exist (avoid water spray) and mounting surfaces are aligned with one another.
2. Install the mounting brackets and verify they are aligned with each other. See figure 1.
3. Install the Transmitter and Receiver wiring box to the mounting brackets using 4 screws and nuts.
4. Install the conduit to the receiver wiring box. If hardwired installation install conduit for transmitter wiring box.
5. Install the receiver wires into the wiring box. If hardwired installation install transmitter wires into the wiring box.
6. Route wire through the photo eye back plate.
7. Install the Transmitter and Receiver photo eye back plate to the wiring box using the 4 sheet metal screws.
8. Connect wires per the wiring instructions.
9. Do not install covers at this time, this will be done after alignment is complete.

Fig. 1 Mounting Surface Alignment

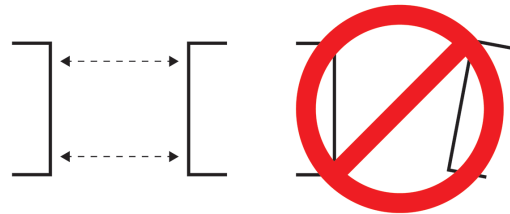
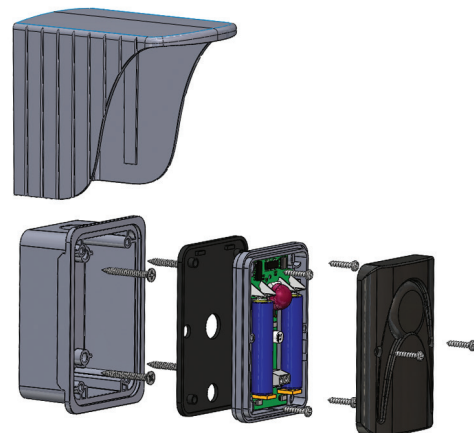


Fig. 2



## 2. ELECTRICAL CONNECTIONS

Wire size recommended 20 gauge stranded copper

**NOTE:** Identify the type of installation the photo eye is being used for.

### A. Monitored Entrapment Device per UL325

#### B. Vehicular Safety Device

#### A. Wiring for Monitored Entrapment Device Installation Receiver

1. Photo eye "12" vdc connects to the Photo Eye power connection on the gate operator control board.
2. Photo eye "0" ground connects to the common ground connection on the gate operator control board.
3. Photo eye "C" common connects to the common ground connection on the gate operator control board.
4. Photo eye "NC" normally closed connects to the control board input for the direction of travel you are protecting.

#### Transmitter

**NOTE:** No wiring is required if the battery power option is being used, if hard wired installation is being used wire as below.

1. Photo eye 12 vdc connects to the Photo Eye power connection on the gate operator control board. See figure 3.
2. Photo Eye ground wires to the common ground connection on the gate operator control board. See figure 3.

#### B. Wiring for Vehicular safety Device Installation Receiver

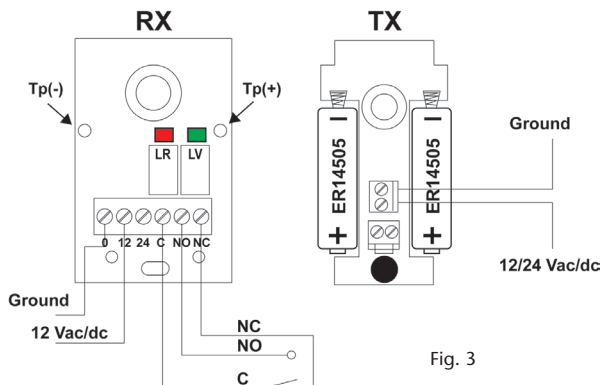
1. Photo eye "12" vdc connects to the Photo Eye power connection on the gate operator control board.
2. Photo eye "0" ground connects to the common ground connection on the gate operator control board.
3. Photo eye "C" common connects to the common ground connection on the gate operator control board.
4. Photo eye "NO" normally open connects to the control board "Safety Loop/Reversing Edge input"

#### Transmitter

**NOTE:** No wiring is required if the battery power option is being used, if hard wired installation is being used wire as below.

1. Photo eye 12 vdc connects to the Photo Eye power connection on the gate operator control board. See figure 3.
2. Photo Eye ground wires to the common ground connection on the gate operator control board. See figure 3.

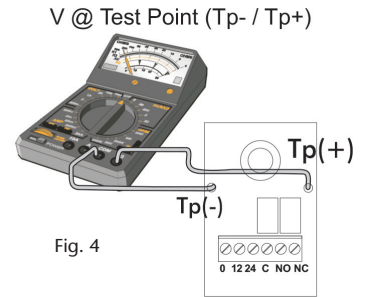
## ELECTRICAL CONNECTIONS



## 3. ALIGNMENT

The RX / Receiver has a red LED which will illuminate when power is applied to the RX / Receiver. When aligned with the TX / Transmitter, the red LED will go OFF and the green LED will come ON. When beam is broken, the red LED will come ON and the green LED will go OFF.

A feature to assist in the optimal alignment allows for a voltmeter to be connected to the TP- and TP+ test points located on the RX / Receiver. With voltmeter attached use alignment chart verify the optimal alignment.



#### Alignment Chart

TP-/TP+ readings DCV	Signal Strength	Red LED	Grn LED
0 Vdc	No Signal	ON	OFF
3 Vdc	Minimum useful signal	OFF	ON
5 Vdc	Maximum useful signal	OFF	ON

Once alignment is complete, install the covers using the 4 black screws. Install the hood onto each unit.

## 4. BATTERY INFORMATION

**TX / Transmitter battery Requirement** - Two 3.6 vdc lithium batteries (model - ER14505) or equivalent. When installing verify the correct polarity shown in figure 3.

**NOTE:** Please dispose of the batteries properly as they are hazardous waste.

## WARRANTY

USAutomatic, LLC warrants this product to be free of defects in materials and workmanship for 1 YEAR. For a period of 1 YEAR following purchase USAutomatic, LLC. will repair or replace the product free of charge, including parts, shop labor and return to customer shipping and handling. This 1 YEAR warranty does not cover the plastic case from normal wear or damage due to misuse.

To have the product sent for warranty consideration, it must be returned with the proof of purchase and a return authorization number. To obtain a return authorization number please call 1-888-204-0174 for assistance. The return authorization number must be clearly marked on the outside of the return package or it may not be accepted.