

IRB-T115™

Thru Beam Photoeye

Operating Instruction



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INSTRUCTION MANUAL

The IRB-T115 thru beam photoeye is an external entrapment protection device type B1, non-contact sensor for use with industrial control systems. The photoeye provides a signal to the system that the beam is or is not obstructed. The IRB-T115 operates up to 115 feet in a weather-proof NEMA 4X housing. A red alignment indicator on the receiver provides status information at a glance, making set-up and alignment easy.

Cautions and Warnings



This product is an accessory or part of a system. Install the IRB-T115 according to instructions from the control system instructions. Comply with all applicable codes and safety regulations.

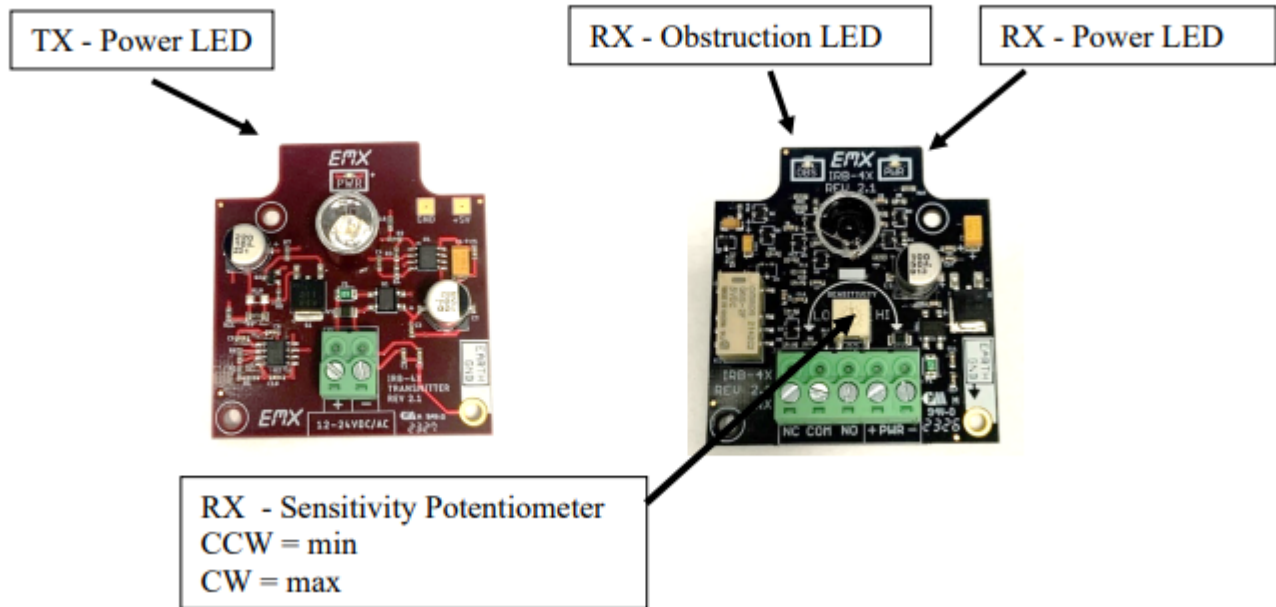
Specifications

Specifications	
Operating Range	Up to 115 ft. (35 m)
Power	12-24 VDC/AC
Current Draw of Transmitter	37 mA
Current Draw of Receiver	23 mA standby, 17 mA detect
Surge Protection	Thermal fuse
Relay Output Configuration	Form C contacts (NO, COM, NC)
Relay Contact Rating	1 A at 24 VDC / 120 VAC
Operating Temperature	-40° to 170°F (-40° to 77°C)
Dimensions (L x W x H)	2.3" (57 mm) x 2.6" (65 mm) x 3.7" (94 mm)
Environmental Rating	NEMA 4X

Ordering Information

- IRB-T115 KIT Thru beam photoeye kit, includes transmitter, receiver, protective hoods, and sunshield
- IRB-HD-SET Gold anodized aluminum protective hoods
- IRB-SH-SET Gray powder-coated steel protective hoods

Board Diagram



Installation

1. Unscrew the four front cover screws, then remove the transparent front cover. Wiring is to be fed through the opening in the bottom of the housing.
2. Connect 12-24 VDC/AC power to the "Power Input" terminals on the transmitter (marked "TX") and receiver (marked "RX"). The power input terminals are not polarity sensitive.
3. On the Rx, connect relay common (COM) to the control system's GND.
4. On the Rx, connect either the Normally Open (NO) or Normally Closed (NC) terminals to the control systems input as required by your application.

Optional Sunshield



Sunshield Installed

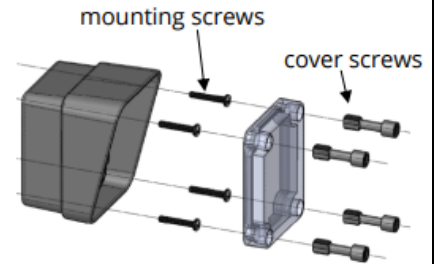


5. On the Rx, adjust the sensitivity potentiometer as needed by turning counterclockwise to increase gain. Use the minimum sensitivity setting needed to achieve reliable detection.

6. Mount the Rx and Tx on opposite sides of the detection area.

The mounting screws can only be placed in the correct holes with the front cover removed (see image to right).

For alignment to occur, there must be line of sight between the photo diodes (silver reflective part in top middle of board).



7. Apply power to the Rx and Tx. Verify the green LED of both Rx and Tx turn ON. If the photo eyes were already aligned, the Rx's RED LED will be off.

LED Indicators

Green transmitter LED on	Power
Green receiver LED on	Power
Red receiver LED on	Beam blocked or not aligned

8. Place an obstruction (ex. hand) between the IRB-T115 transmitter and receiver. The red LED on the receiver will turn on. Check the control system input and verify that it is recognized. Test the beam with an obstruction between the transmitter and receiver at multiple distances to confirm proper operation.

9. Remove the obstruction and red LED will turn off.

TIP:

- If IRB-T115 is aligned but not detecting an obstruction, consider slowly reducing the sensitivity (clockwise) on the receiver until the obstruction is detected. This may be applicable for installations with a detection zone of less than 20 ft.
- On some variable frequency drives and noisy installations, it may be necessary to connect the bottom right mounting hole labeled "Earth Ground" to a wire connected to earth ground. **Do not connect unless necessary.**

Troubleshooting

Symptom	Possible Cause	Solution
Does not detect obstruction	Sensitivity is too high Signal is reflecting off another surface	Decrease sensitivity potentiometer clockwise. Check area for highly reflective surfaces.
Receiver red LED on continuously, indicating an obstruction when one is not present	Sensitivity is too low Transmitter does not have power Receiver does not "see" transmitter Interfering light source	Increase sensitivity potentiometer counter - clockwise. Check power source of transmitter. Make sure transmitter and receiver are aligned and no objects are unintentionally between them. Shroud the receiver lens from nearby lights and see if alignment returns.
Receiver activates but does not transmit signal to operator	Faulty connection between receiver and operator control input	Verify all wires and terminal connections.
Output relay chatters constantly between open and close	Interference	Add EGND connection Turn-off other nearby equipment and see if functionality returns.

Warranty

EMX Industries, Inc. products have a warranty against defects in materials and workmanship for a period of two years from date of sale to our customer.