



# IRB-4X<sup>TM</sup>

Includes Model IRB-EXP

## Through Beam Photoeye

UL 325 Non-compliant



IRB-EXP (For Explosive Environments)



## Operating Instructions

This product is an accessory or part of a system. Always read and follow the manufacturer's instructions for the equipment you are connecting this product to. Comply with all applicable codes and safety regulations. Failure to do so may result in damage, injury or death!

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## Product Overview

The IRB-4X photoeye system does not have a focusing lens and the generous 24° sensing angle makes it one of the easiest to align. The use of the hoods is recommended to prevent distortion from rain on the lens area.



### **WARNING ... Not to be used for Personnel Protection**

Never use product as sensing devices for personnel protection. Doing so could cause serious injury or death.

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. UL 325 Non-compliant

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## Technical Specifications

|                        |   |
|------------------------|---|
| Power Supply           | 12-24 VDC 24 VAC  |
| Power Supply Tolerance | 20%   |
| Current Draw           | TX=37mA RX= 23mA standby 17ma detect  |
| Housing Material       | Polystyrene and Polycarbonate cover<br>IRB-EXP aluminum epoxy coating   |
| Relay Type             | Form C SPDT contact rating 1A @ 24VDC / 120VAC  |
| Temperature Range      | -40F - 170F   |
| Connector              | Terminal block  |
| Power on Indicator     | Green LED on board  |
| Detect Indicator       | Red LED   |
| Power protection       | Thermal fuse  |
| Environmental          | IRB-4X: NEMA 4<br>IRB-EXP: NEMA 4 & 7, NEC Class I, Groups B, C & D, Class II, Groups E, F & G CSA certified, CENELEC certified, EExd IIC |
| Size                   | IRB-4X: 3.7" x 2.56" x 2.24"<br>IRB-EXP: 4.69" x 4.5" x 3.44"   |
| Detection Angle        | 24°   |
| Sensitivity Adjustment | Potentiometer   |
| Response Time          | 10mS (max.)   |
| Range                  | 3 to 115 feet   |

## Indicators

|                 |             |
|-----------------|-------------|
|                 | Transmitter |
| Green LED       |             |
| Power Indicator |             |

|                 |                      |
|-----------------|----------------------|
|                 | Receiver             |
| Green LED       | Red LED              |
| Power Indicator | Detection Indication |

## Controls

|  |
|--|
| Receiver   |
| Sensitivity  |
| Continuously adjustable single turn potentiometer figure 2                           |
| (1)IRB-4X-T has a 0 – 15 second relay timer to extend the relay output time figure 2 |

Note (1) IRB-4X-T has been discontinued

## Connections

|  | Transmitter        | Receiver                              |
|--|--------------------|---------------------------------------|
| Power  | Power Positive (+) | Power Positive (+)                    |
| Power  | Power Negative (-) | Power Negative (-)                    |
| Common   |                    | Internal Relay Common Output          |
| Normally Closed  |                    | Internal Relay Normally Closed Output |
| Normally Open  |                    | Internal Relay Normally Open Output   |
| Terminal connection on receiver from left to right are N/C Com, N/O, Power -, Power+ |                    |                                       |

## Operational settings

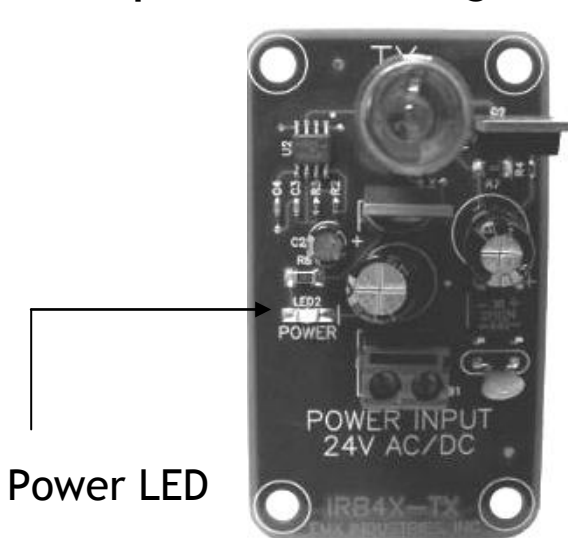


Figure 1

### IRB-4X Transmitter connections (figure 1)

1. Connect power (12 – 24V AC/DC) to Power input terminals (no polarity) LED2 Power LED will glow green when powered.

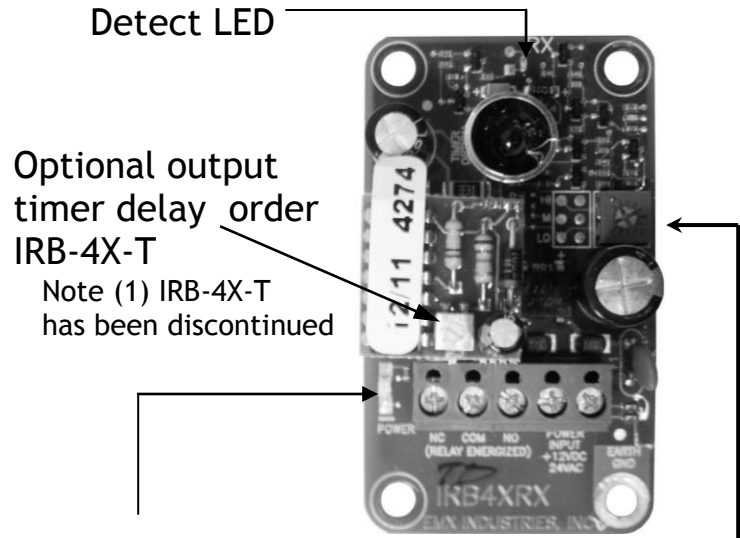


Figure 2

### IRB-4X Receiver connections (figure 2)

Terminal output connections from left to right are:

***Normally closed, Common, Normally open, Power, Power***

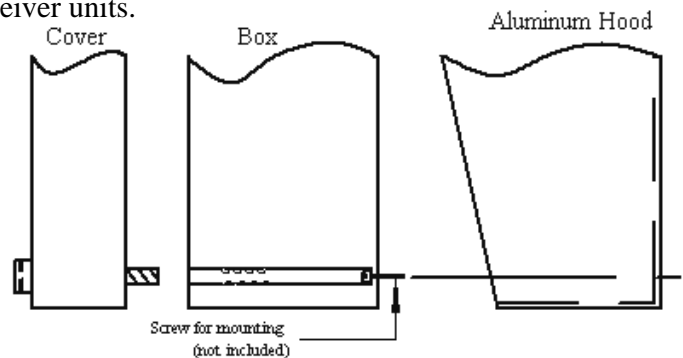
1. Connect power (12 – 24V AC/DC) to Power input terminals (no polarity)
2. Connect the Common to the operator control terminal per manufacturer
3. Connect either the Normally open or Normally Closed as needed to the Control input terminal specified by the operator manufacturer.
4. The Power LED will glow green when powered.
5. Adjust sensitivity potentiometer as needed by turning counter clockwise to increase gain. (range is 3 to 115 feet). (see arrow)
6. The detect Led will glow red when an obstruction occurs.
7. 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**

Use minimum gain setting needed to achieve reliable detection.

## Installation

1. Mount to operator manufacturer and local ordinance requirements.
2. Remove grey front cover by removing (4) plastic retaining screws
3. Drill (4) mounting holes in surface of IRB-4X mounting location.
4. Place gold Aluminum hood or Powder coat Steel hood around IRB-4X unit to be mounted, place mounting screws through IRB-4X box and hood and attach to surface.
5. Make all connections to the transmitter and receiver.
6. Adjust receiver as described above to correct gain needed.
7. Replace front covers on the transmitter and receiver units.
8. Installation is complete.



## TROUBLE SHOOTING GUIDE

| Symptom                | Possible Cause                           | Possible Solution   |
|------------------------|--|---|
| Holds gate open        | No power on transmitter or receiver      | Check power LEDs and power source   |
|                        | Transmitter not working                  | Install new transmitter   |
|                        | Receiver not working                     | Install new receiver  |
|                        | Sensitivity set too low                  | Adjust sensitivity  |
| Does not activate gate | Bad connection or broken wires           | Check wires and connections   |
|                        | Relay contacts burned or stuck           | Replace receiver  |
|                        | Interference from local source           | See step 7 under Operational settings   |
|                        | Not connected to correct input terminals | Check operator manual for terminals   |
|                        | Sunlight "blinding" the receiver eye     | Change position of receiver to a little higher and tilt forward to shield the sensor from the direct sunlight             |
| Chattering             | Interference or stray bounced signal     | See step 7 under Operational settings and see if any reflective surfaces could be sending signal into the receiver sensor |

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## Ordering Information

|  |   |
|--|---|
| IRB-4X   | IRB Transmitter and Receiver in NEMA 4 enclosure              |
| IRB-BX   | Replacement NEMA Enclosure                                    |
| IRB-SP   | Set of 2 watertight spouts PG-11                              |
| IRB-TX   | Replacement Transmitter board only                            |
| IRB-RX   | Replacement Receiver board only                               |
| IRB-BR   | Set of 2 L Brackets   |
| IRB-HD-SET                                       | Set of 2 Gold Aluminum hoods                                  |
| IRB-SH-SET                                       | Set of 2 Gray Powder coated steel hoods                       |
| IRB-S  | Set of 2 Nylon screws with nuts                               |
| IRB-EXP  | IRB Transmitter and Receiver in Explosive environment housing |
| This manual covers the IRB-4X and IRB-EXP models |   |

### OBSOLETE PRODUCTS

|                                 |   |
|---------------------------------|---|
| IRB-4X-T                        | IRB Transmitter and Receiver in NEMA 4 enclosure with delay timer |
| IRB-4X-T, IRB-4XW-T, IRB-4XW-T5 |   |

## Accessories



IRB-SH-SET



IRB-HD-SET



IRB-SP



IRB-BR

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## Installer notes:





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