



# 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!

# 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

## 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 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 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" 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
IRB-4X-T has a 0 – 15 second relay timer to extend the relay output time figure 2

## 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

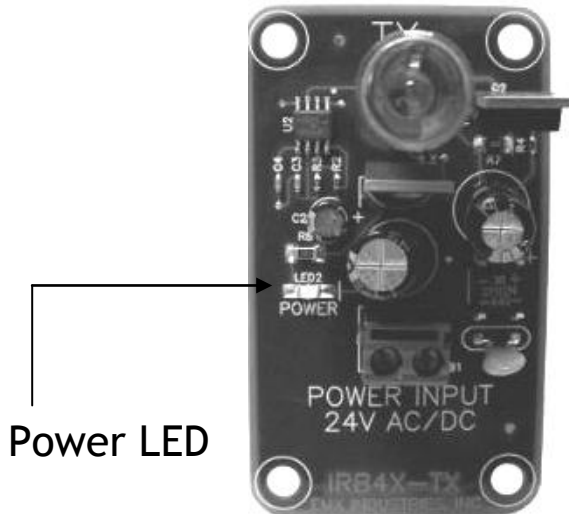


Figure 1

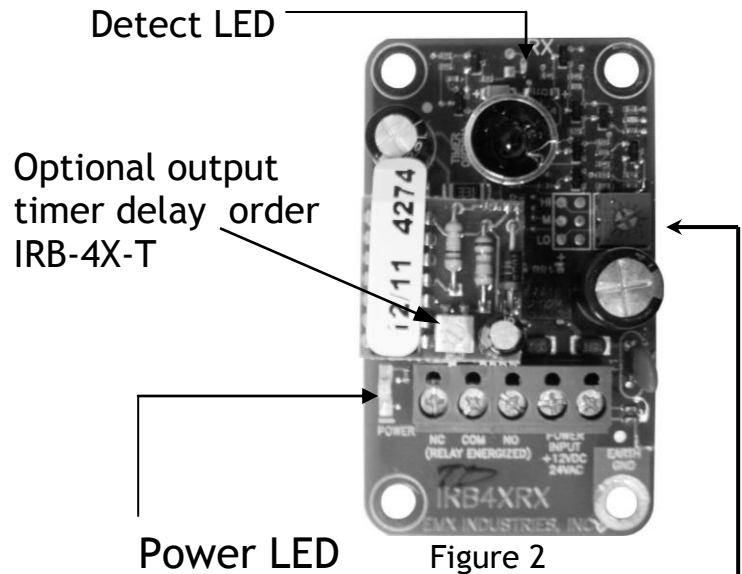


Figure 2

### 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.

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

Terminal output connections from left to right are:

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

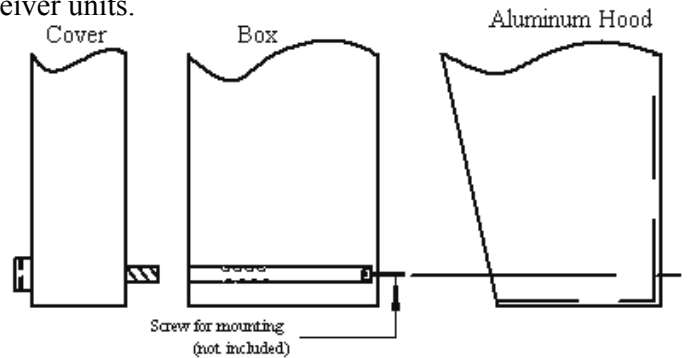
1. Connect power (12 – 24V AC/DC) to Power input terminals (no polarity)
2. Connect the Common to the operator control terminal per manufacturer
3. Connect either the Normally open or Normally Closed as needed to the Control input terminal specified by the operator manufacturer.
4. The Power LED will 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

---

## 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-4X, PC-3, P63, P44, P41)
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-4X-T	IRB Transmitter and Receiver in NEMA 4 enclosure with delay timer
IRB-EXP	IRB Transmitter and Receiver in Explosive environment housing

This manual covers the IRB-4X, IRB-4X-T, IRB-4XW-T, IRB-4XW-T5, IRB-EXP

## Accessories



IRB-SH-SET



IRB-HD-SET



IRB-SP



IRB-BR

---

**Installer notes:**





4564 Johnston Parkway  
Cleveland, Ohio 44128  
United States of America

WEB <http://www.emxinc.com>

Technical Support Telephone (216) 834-0761

E-mail [technical@emxinc.com](mailto:technical@emxinc.com)

Sales Telephone (216) 518-9888

Fax (216) 518-9884

Email [salesupport@emxinc.com](mailto:salesupport@emxinc.com)

