IRB-4X™

INCLUDES MODEL IRB-EXP

THRU BEAM PHOTOEYE
UL325 NON-COMPLIANT

IRB-EXP (for explosive environments)

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Cautions and Warnings

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

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

Product Overview

The IRB-4X is used as a safety, reversing, or opening device when used in conjunction with automatic operators, garage doors, rolling doors and parking barriers. Its generous 24° sensing angle makes this reliable photoeye easy to align. The use of the hoods is recommended to prevent distortion from rain on the lens area.

Specifications

Specifications	
Power Supply	12-24 VDC, 24 VAC
Range	3 to 115 feet
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 4X
	IRB-EXP: NEMA 4 & 7, NEC Class 1, 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.)

Controls and Indicators

Indicators

Transmitter

Green LED	Power Indicator

Receiver

Green LED	Power Indicator
Red LED	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

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 +		

Detect LED

Power LED

Optional output
timer delay order
IRB-4X-T
Note (1) IRB-4X-T
has been discontinued
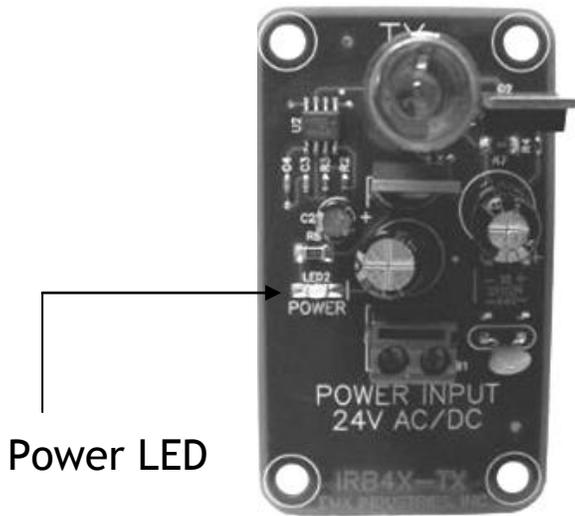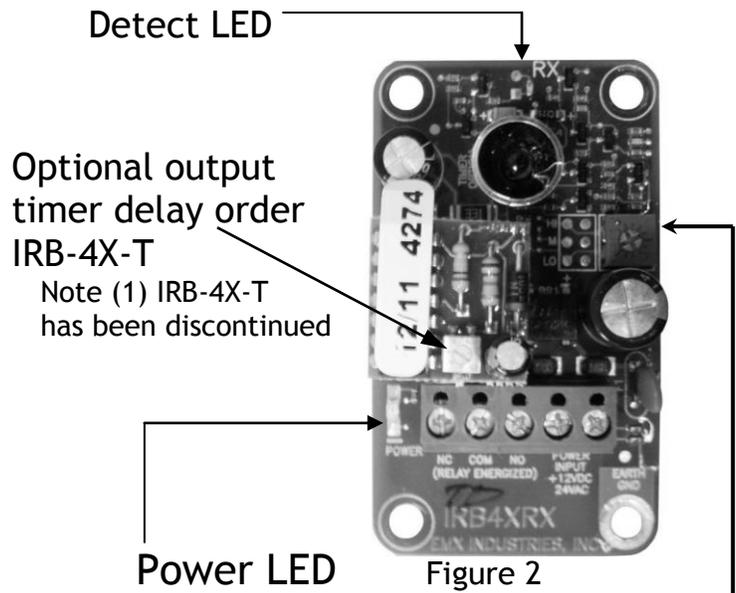
Power LED

Sensitivity Gain Adjustment

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.

Troubleshooting

| Symptom	Possible cause	Solution
Holds gate open	1. No power on transmitter or receiver 2. Transmitter not working 3. Receiver not working 4. Sensitivity set too low	1. Check power LEDs and power source 2. Install new transmitter 3. Install new receiver 4. Adjust sensitivity
Does not activate gate	1. Bad connection or broken wires 2. Relay contacts burned or stuck 3. Interference from local source 4. Not Connected to correct input terminals 5. Sunlight "blinding" the receiver eye	1. Check wires and connections 2. Replace Receiver 3. See step 7 under Operational Settings 4. Check operator manual for terminals 5. Change position of receiver to a little higher and tilt forward to shield the sensor from the direct sunlight
Chattering	1. Interference	See step 7 under Operational settings and see if any reflective surfaces could be sending a signal into the receiver sensor

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.

Cover   Box   Aluminum Hood
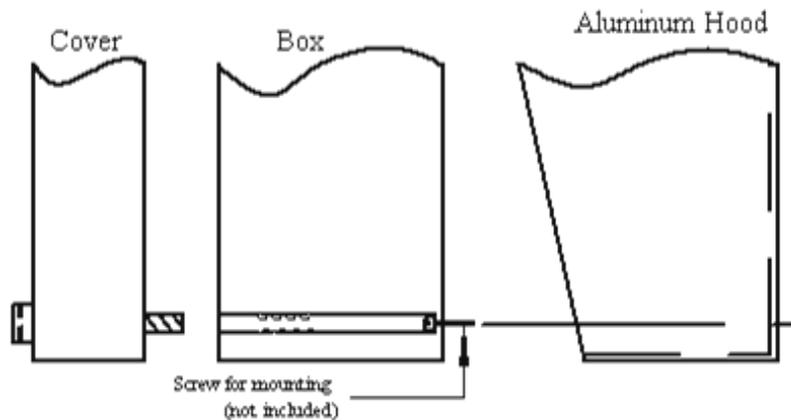
Screw for mounting
(not included)

Sunshield Installation

(One shield included per TX/RX set)

Install shield on receiver in case of solar interference or cross talk

Slot

Tab

Tab

Slot

Tab

Tab

Slot

Slot

IRB4XRX
EMX INDUSTRIES, INC.

POWER   NC COM NO   POWER
(RELAY ENERGIZED)   INPUT
+12VDC
24VAC

EARTH
GND

Slot is aligned to top and
bottom of receiver board

Tab is aligned left and right
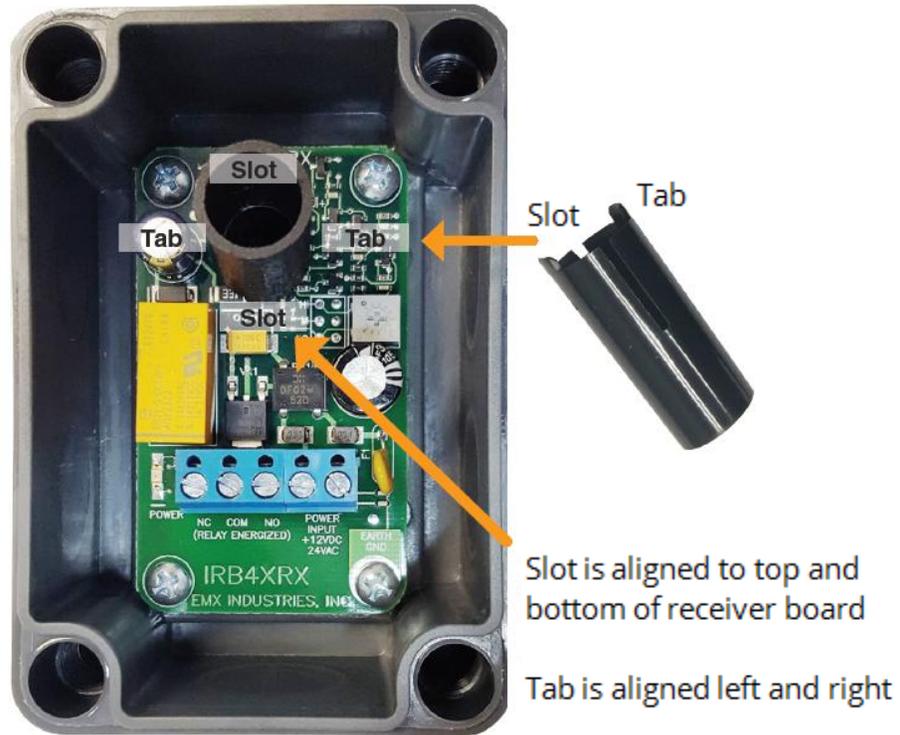
Install additional shield on transmitter to minimize cross talk*
*optional, purchase separately

Ordering Information

- **IRB-4X**   **Infrared photoeye includes transmitter and receiver**
- **IRB-TX**   **Replacement transmitter board only**
- **IRB-RX**   **Replacement receiver board only**
- **IRB-BX**   **Replacement NEMA 4X enclosure**
- **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-HD-SET**   **Protective hood, aluminum, gold anodized**
- **IRB-SH-SET**   **Protective hood, steel, gray powder-coat**
- **IRB-BR**   **Mounting bracket, "L" shape**
- **IRB-SP**   **Strain relief, water-tight, set of 2**
- **IRB-S**   **Nylon screws, set of 2 with nuts**
- **IRB-RX-SH**   **Receiver sunshield**

EMX Industries Incorporated warrants all products to be free of defects in materials and workmanship for a period of two years under normal use and service from the date of sale to our customer. This warranty does not cover normal wear and tear, abuse, misuse, overloading, altered products, damage caused by incorrect connections, lightning damage, or use other than intended design.

There is no warranty of merchantability. There are no warranties expressed or implied or any affirmation of fact or representation except as set forth herein.

EMX Industries Inc. sole responsibility and liability, and the purchaser's exclusive remedy shall be limited to the repair or replacement at EMX Industries option of a part or parts found not conforming to the warranty. In no event shall EMX Industries Inc. be liable for damages, including but not limited to damages resulting from non-conformity, defect in material or workmanship.

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