

IRB-4X™

INCLUDES MODEL IRB-EXP

THRU BEAM PHOTOEYE
UL325 NON-COMPLIANT



IRB-EXP (for explosive environments)



4564 Johnston Parkway, Cleveland, Ohio 44128

P. 800 426 9912 F. 216 518 9884

Sales Inquiries: salesupport@emxinc.com

Technical Support: technical@emxinc.com

www.emxinc.com

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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

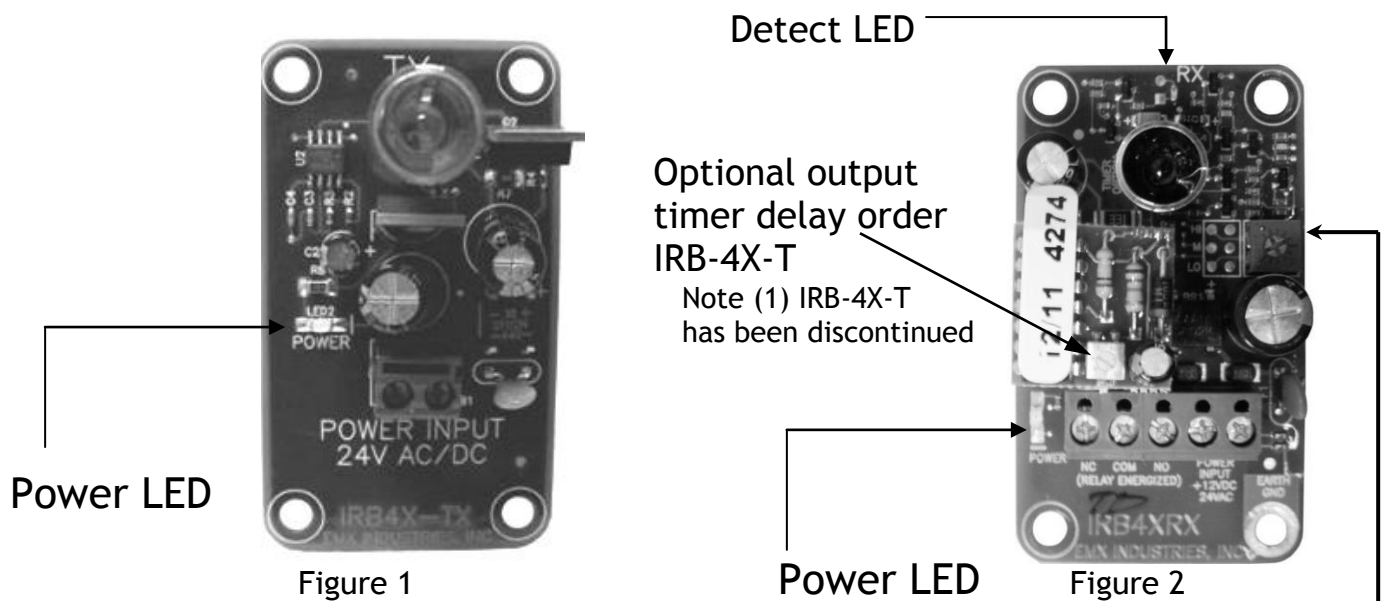
Receiver

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 +		

Operational settings



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**

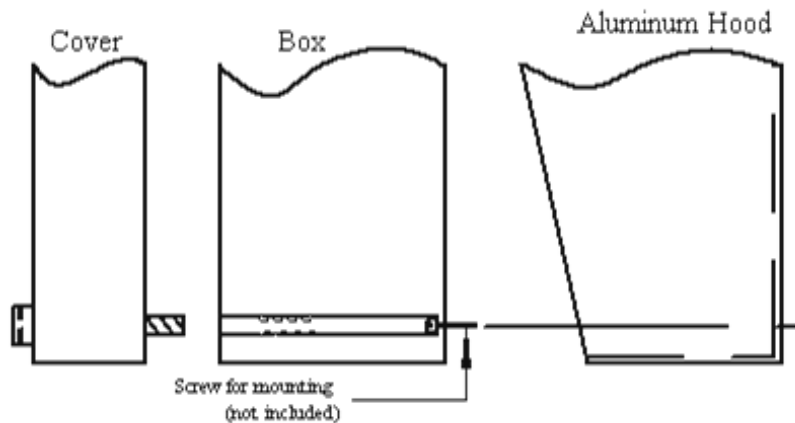
Use minimum gain setting needed to achieve reliable detection.

Troubleshooting

Symptom	Possible cause	Solution
Holds gate open	<ol style="list-style-type: none">1. No power on transmitter or receiver2. Transmitter not working3. Receiver not working4. Sensitivity set too low	<ol style="list-style-type: none">1. Check power LEDs and power source2. Install new transmitter3. Install new receiver4. Adjust sensitivity
Does not activate gate	<ol style="list-style-type: none">1. Bad connection or broken wires2. Relay contacts burned or stuck3. Interference from local source4. Not Connected to correct input terminals5. Sunlight "blinding" the receiver eye	<ol style="list-style-type: none">1. Check wires and connections2. Replace Receiver3. See step 7 under Operational Settings4. Check operator manual for terminals5. Change position of receiver to a little higher and tilt forward to shield the sensor from the direct sunlight
Chattering	<ol style="list-style-type: none">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.

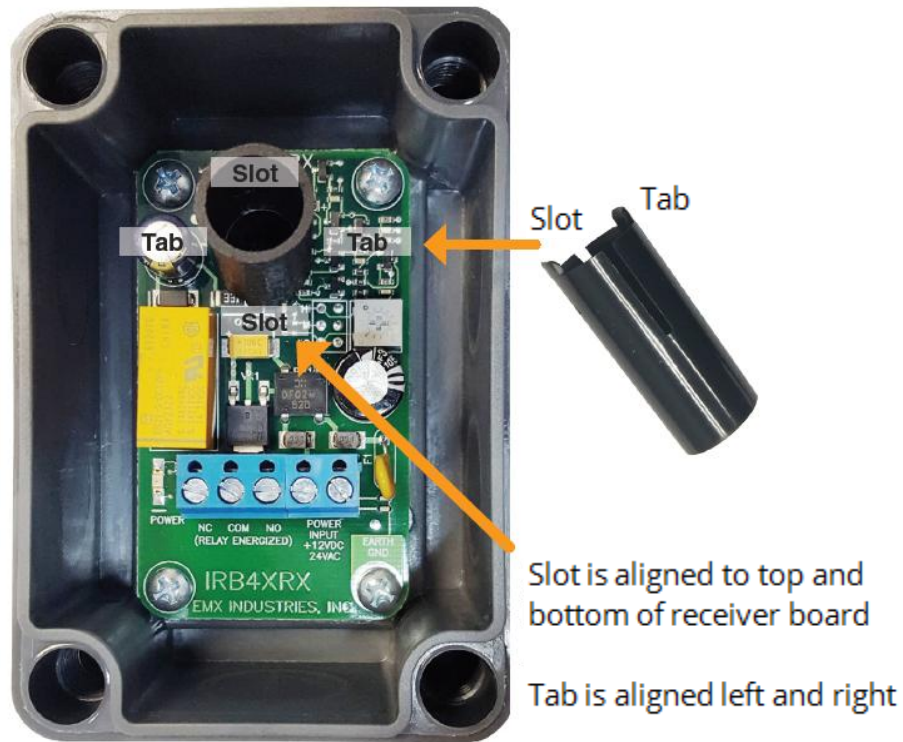


Installation (continued)

Sunshield Installation

(One shield included per TX/RX set)

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



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

Warranty

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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4564 Johnston Parkway
Cleveland, Ohio 44128
United States of America
www.emxinc.com

Technical Support: (216) 834-0761
technical@emxinc.com

Sales: (216) 518-9888
Fax: (216) 518-9884
salesupport@emxinc.com



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