



IRB-HB

Safety Photo Beam

UL325-2010 MONITORED DEVICE



Operating Instructions

CAUTIONS AND WARNINGS



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!

1. Read and follow all operation instructions
2. Always follow gate operator manufacturer installation instructions regarding installation of Type B1 sensor to the operator.
3. Disable the gate so it is unable to move

GENERAL DESCRIPTION

The IRB-HB is a safety photo beam and may be used as an external entrapment protection device type B1, non-contact sensor for use with automatic gates and doors. The light beam is near infrared and pulses at a rate of 300/second (300Hz). The IRB-HB provides a signal to the gate or door operator that the beam is not obstructed. The operating range is up to 115ft. The IRB-HB operates over a wide range of 6-35VDC.

A green alignment indicator on the receiver provides status information at a glance, making set-up and alignment easy.

The IRB-HB includes two selectable operating configurations providing compatibility with most operators that accommodate monitored external entrapment protection devices per UL325-2010.

Refer to operator installation instructions for proper configuration selection:

- **CONFIGURATION 1 – MONITORED, HEARTBEAT 300Hz / 0Hz**
Intended for use with operators designed to accept a “heartbeat” form of monitoring, 300Hz when aligned, no obstruction, 0Hz when beam is obstructed.
- **CONFIGURATION 2 – MONITORED, HEARTBEAT 300Hz / 2Hz / 0Hz**
Intended for use with operators designed to accept a “heartbeat” form of monitoring, 300Hz when aligned, no obstruction, 2Hz when beam is obstructed, and 0Hz for a failure.

Configuration settings

SW4	SW3	SW2	SW1	FUNCTION
X	X	X	OFF	Configuration 1 - heartbeat output, 300Hz, 0Hz
X	X	X	ON	Configuration 2 - heartbeat output, 300Hz, 2Hz, 0Hz

Green status indicator

IRB-HB-T (transmitter)	ON	Power
IRB-HB-R (receiver)	Flashing	Blocked beam or not aligned
IRB-HB-R (receiver)	ON	Aligned

SPECIFICATIONS

Operating range	up to 115 ft. (35m)
Detection angle	24°
Sensitivity adjustment	potentiometer
Power indicator	Green LED
Detect indicator	Green LED
Configuration selection switch	2 modes, pulsed (3 frequency), pulsed (2 frequency)
Power protection	Thermal fuse
Power Supply	6...35 VDC
Current	15mA (12VDC, includes TX and RX wired in parallel)
Operating temperature	-40°F...170°F (-40°...77°C)
Environmental	NEMA 4X
Dimensions (L x W x H)	2.3" (57mm) x 2.6" (65mm) x 3.7" (94mm)
Weight	TX - 0.35 lbs (159 g), RX 0.35 lbs (159 g)
Connections	TX-2 terminal, RX-2 terminal

INSTALLATION



Install the IRB-HB according to instructions from the gate operator manufacturer. The intent of External Entrapment Protection Device Type B1 non-contact sensor is to protect a person from being accidentally injured by the moving gate or door.

1. Disconnect the IRB-HB from power before installing or servicing the device.
2. Always follow the instructions of the gate operator manufacturer regarding installation of type B1 sensors on the gate operator. The instructions of the gate operator manufacturer always supersede any instructions given in this or any other instructions by EMX Industries Inc.
3. Connect the IRB-HB power supply per requirements indicated in the specification table.

4. Connect power to the terminals on the transmitter marked “TX”, polarity is not required. Refer to your gate operator instructions for proper photo eye connections.
5. Connect power to terminals marked “POWER INPUT” on the receiver, marked “RX” polarity is not required. Refer to your gate operator instructions for proper photo eye connections.
6. The IRB-HB is housed in a NEMA 4X enclosure. To insure the integrity of the enclosure make sure the covers are attached and closed tight using all four plastic screws provided. The wiring to the enclosure must enter via UL Listed watertight fitting such as a strain relief or watertight conduit connector.
7. The IRB-HB must be powered by Class 2 circuits only, wiring must be segregated from other circuits or insulation must be provided that is suitable for the highest voltage for those circuits.

VERIFY INSTALLATION AND OPERATION



Verify proper operation of the IRB-HB according to instructions from the gate operator manufacturer. The intent of External Entrapment Protection Device Type B1 non-contact sensor is to protect a person from being accidentally injured by the moving gate or door.

1. Verify that the IRB-HB transmitter and receiver in line of sight and apply power.
2. Place an obstruction (ex. hand) between the IRB-HB transmitter and receiver. The green LED on the receiver is flashing. Check the operator control board that the safety input is actuated.
3. Remove the obstruction and green LED will be on.
4. If the IRB-HB does not respond to the obstruction, lower the sensitivity by adjusting the SENSITIVITY pot counter-clockwise.
5. If the IRB-HB indicates an obstruction when there is no obstruction, check the alignment by improving the aim of the TX (transmitter). Otherwise, increase the sensitivity by adjusting the SENSITIVITY pot clockwise.
6. Follow gate/door manufacturer's installation instructions and safety checks to verify that the IRB-HB is operating properly.

TROUBLESHOOTING GUIDE

Symptom	Possible cause	Solution
Does not detect obstruction of beam	Sensitivity too high	Adjust SENSITIVITY pot counter-clockwise
	Signal is reflecting off another surface	Check area for highly reflective surfaces
Green LED flashes continuously (indicating an obstruction when an obstruction is not present)	Sensitivity too low	Adjust SENSITIVITY pot clockwise
	Transmitter does not have power	Check power source for transmitter
	Receiver does not “see” transmitter	Make sure transmitter and receiver have line of sight alignment
Receiver activates but does not transmit signal to operator	Faulty connection between receiver and operator control input	Check wires and terminal connections to make sure they are good

ORDERING INFORMATION

IRB-HB	Safety Photo Beam includes transmitter and receiver
IRB-HD-SET	Protective hoods, aluminum, gold anodized
IRB-SH-SET	Protective hoods, steel, gray powder-coat
IRB-BR	Mounting bracket, “L” shape
IRB-SP	Strain relief, water-tight
IRB-S	Nylon screws, set of 2

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4564 Johnston Parkway
Cleveland, Ohio 44128
United States of America
WEB <http://www.emxinc.com>

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

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



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