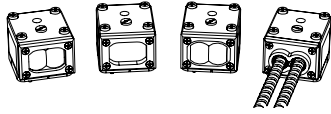


## Datasheet



- Modular design for easy exchange of all sensing components and wiring logic
- Interchangeable AC or DC power blocks
- Opposed, polarized and non-polarized retroreflective, diffuse, convergent, fixed-field, and glass or plastic fiber optic sensing modes available
- Interchangeable sensing heads with 90° increment rotation
- Optional output timing logic modules with programming ring
- Quad-ring sealed components resist dirt, dust, and moisture
- Banner Engineering's Alignment Indicating Device (AID) for indication of signal strength
- 15-turn potentiometer for manual adjustment of sensitivity
- Range up to 90 m
- Logic modules offer ON-delay, OFF-delay, ON/OFF-delay, One Shot, and Delayed One Shot output switching logic, depending on model
- Logic modules also offer 0.01 s to 1 s, 0.5 s to 15 s, or 0.1 s to 1 s delay, depending on model
- Power blocks plug into required RWB4 wiring base and feature two LED indicators for output and input status



### WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

## Overview

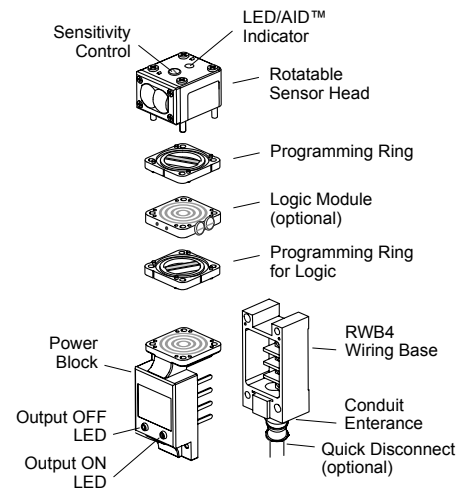
Banner MAXI-BEAM® sensors are highly versatile, self-contained, modularized photoelectric sensing controls that are ideally suited to industrial environments. The basic MAXI-BEAM is an ON/OFF switch consisting of three modules (sensor head, power block, and wiring base) and a unique, patented, rotatable programming ring that enables you to program your choice of light or dark operate mode, sensing range, and response time.

MAXI-BEAM sensor heads have an easily-accessible multi-turn sensitivity control for precise adjustment of system gain. Interchangeable sensor heads are rotatable in 90-degree increments and are available in retroreflective, diffuse, opposed, convergent, fixed-field proximity, and fiberoptic sensing modes. Each sensor head also includes Banner's exclusive, patented AID™ circuit (Alignment Indicating Device, US Patent no. 4356393), which features an LED alignment indicator that lights whenever the sensor sees its own modulated light source, and pulses at a rate proportional to the strength of the received light signal.

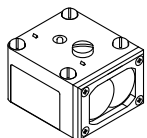
A wide selection of MAXI-BEAM power block modules is available to interface the sensor head to the circuit to be controlled. The plug-in design of the wiring base enables easy exchange of the entire sensing electronics without disturbing field wiring.

Optional customer-installable logic modules easily convert the basic ON/OFF MAXI-BEAM into either a one-shot or delay logic function control, with several programmable timing ranges for each function.

MAXI-BEAM sensors are ruggedly constructed of molded PBT to NEMA standards 1, 3, 4, 12, and 13, and have interchangeable molded acrylic lenses. Modules simply snap and bolt together, with no interwiring necessary. Module interfaces are o-ring and quad-ring sealed for the ultimate in dust, dirt, and moisture resistance.



## MAXI-BEAM Opposed Mode Emitter (E) and Receiver (R)

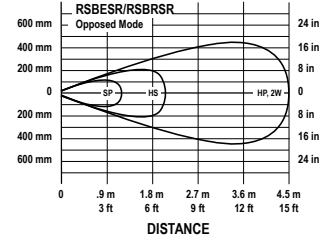
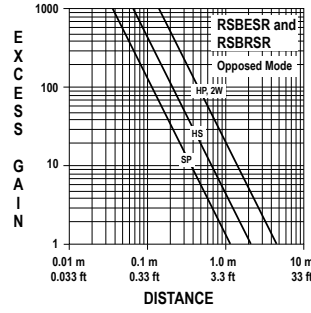
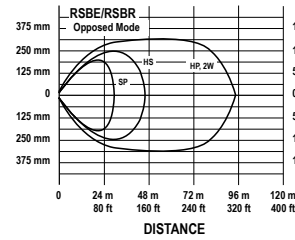
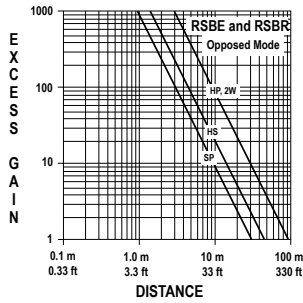


MAXI-BEAM emitters have a visible red "tracer beam". This beam is non-active, and is used as a means of visual alignment during installation. A retroreflector temporarily attached to the receiver lens provides an effective target for the tracer beam during alignment. The narrow beam of the RSBESR/RSBRSR pair is ideal for sensing small parts (effective beam diameter is 3.6 mm (0.14 in)).

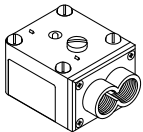
One emitter and one receiver are required for use.



Models	Range	Sensing Beam	Effective Beam	Response	Repeatability
RSBE RSBR	90 m (300 feet) in HP (high power) and 2W (2 wire) modes	Infrared, 880 nm with a visible red tracer beam	0.5-inch diameter	HP, 2W mode: 10 ms on/ 5 ms off HS mode: 1 ms on/0.5 ms off SP mode: 0.3 ms on/off	HP, 2W= 1.4 ms HS = 0.1 ms SP = 0.04 ms
RSBESR RSBRSR	4.5 m (15 feet ) in HP (high power) and 2W (2 wire) modes	Infrared, 880 nm	N/A	HP, 2W modes: 10 ms on/5 ms off HS mode: 1 ms on/0.5 ms off SP mode: 0.3 ms on/off	HP, 2W= 1.4 ms HS = 0.1 ms SP = 0.04 ms

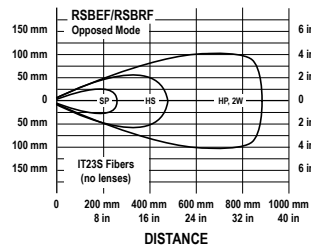
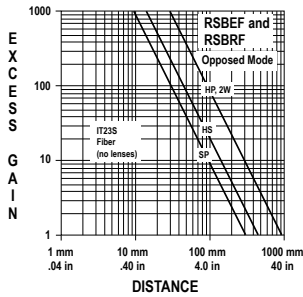


MAXI-BEAM Opposed Fiber Optic Mode (Glass Fibers)



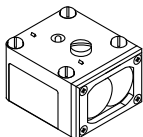
This sensor pair is designed for opposed mode operation using Banner glass fiber optics. Maximum range (HP mode) using L9 lenses is 12 feet. Maximum range using L16F lenses is 50 feet. One emitter and one receiver are required for use.

Models	Range	Sensing Beam	Response	Repeatability
RSBEF RSBRF	See the excess gain curves	Infrared, 880 nm	HP, 2W modes: 10 ms HS mode: 1 ms SP mode: 0.3 ms on/off	HP, 2W = 3.3 ms HS = 0.3 ms SP = 0.1 ms



Retroreflective Mode

Models	Range	Sensing Beam	Response	Repeatability
RSBLV	152 mm to 9 m (6 in to 30 ft) in all program modes	Visible red, 650 nm	HP, 2W, SP modes: 4 ms HS mode: 1 ms	HP, 2W, SP = 1.3 ms HS = 0.3 ms
RSBLVAG (anti-glare filter)	305 mm to 4.5 m (1 ft to 15 ft) in all program modes	Visible red, 650 nm, with polarizing filter	HP, 2W, SP modes: 4 ms HS mode: 1 ms	HP, 2W, SP = 1.3 ms HS = 0.3 ms



1. Select a sensor head module.
2. Select a power block module.
3. Select a wiring base. The wiring base is purchased separately from the power block.
4. Select a logic module (if needed).
5. Select accessories as needed (see [www.bannerengineering.com](http://www.bannerengineering.com)).

### Sensor Head Models

Sensor head modules are described in datasheet p/n 03416.

Model	Sensing Type	Range	Model	Sensing Type	Range
<b>RSBE</b> and <b>RSBR</b>	Opposed mode	91.4 m (300 ft)	<b>RSBF</b>	Infrared fiber optic; for glass fibers	Varies depending on the fiber optics used
<b>RSBESR</b> and <b>RSBRSR</b>	Opposed mode (short range; narrow beam)	4.6 m (15 ft)	<b>RSBFV</b>	Visible red fiber optic; for glass fibers	
<b>RSBLV</b>	Retroreflective mode	9.1 m (30 ft)	<b>RSBEF</b> and <b>RSBRF</b>	Infrared fiber optic opposed mode; for glass fibers	
<b>RSBLVAG</b>	Retroreflective mode (anti-glare filter)	4.6 m (15 ft)	<b>RSBFP</b>	Visible red fiber optic; for plastic fibers	
<b>RSBD</b>	Long range diffuse proximity mode	1.5 m (5 ft)	<b>RSBFF50</b>	Fixed-field proximity	
<b>RSBDSR</b>	Short-range diffuse proximity mode	762 mm (30 in)	<b>RSBFF100</b>		Sharp far-limit cutoff at 100 mm (3.9 in)
<b>RSBCV</b>	Visible red convergent mode,	Focus at: 38.1 mm (1.5 in)			
<b>RSBC</b>	Infrared convergent mode	Focus at: 38.1 mm (1.5 in)			

### Power Block Module Models

Power Block modules are described in datasheet p/n 03418.

Model	Supply Voltage	Output Type	Model	Supply Voltage	Output Type
<b>RPBT</b>	10–30 V dc	one sinking and one sourcing solid-state output	<b>RPBB</b>	210 V ac to 250 V ac (50/60 Hz)	SPST solid-state output
<b>RPBT-1</b>		for use with RSBE, ESR, EF emitters (no output circuit)	<b>RPBB-1</b>		use with emitter (no output circuit)
<b>RPBTLM</b>	10–30 V dc Low-profile power block (requires no RWB4 wiring base)		<b>R2PBB</b> , 2-wire operation		SPST solid-state output
<b>RPBA</b>	105–130 V ac (50/60 Hz)	SPST solid-state output	<b>RPBU</b>	12–250 V ac or 12–30 V dc	SPST solid-state output (ac or dc)
<b>RPBA-1</b>		for use with emitter (no output circuit)	<b>RPBR</b>	12–250 V ac (50/60 Hz) or 12–30 V dc	SPST E/M relay output
<b>R2PBA</b> , 2-wire operation		SPST solid-state output	<b>RPBR2</b>	V dc	SPDT E/M relay output

### Wiring Base Models

Wiring Base modules are described in datasheet p/n 03418.

Model	Description
<b>RWB4</b>	4-terminal wiring base for all models (except RPBTLM)

### Logic Module Models

Logic modules are described in datasheet p/n 03417.

Model	Description
<b>RLM5</b>	On/Off delay (both functions adjustable up to 15 seconds)
<b>RLM8</b>	Delayed One-Shot (delay and pulse adjustable up to 15 seconds)