MAXI-BEAM® Logic Modules

Datasheet



WARNING: Not To Be Used for Personnel Protection

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Overview

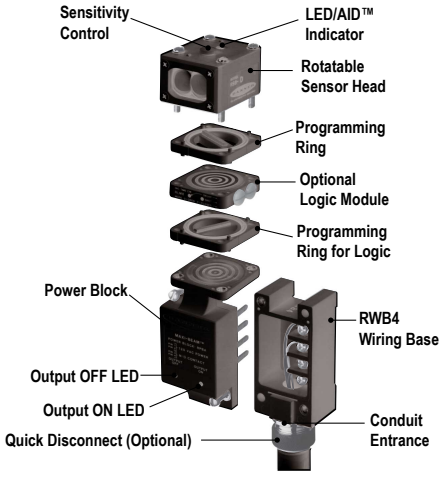
Banner MAXI-BEAM® sensors are highly versatile, self-contained, modularized photoelectric sensing controls that are ideally suited to industrial environments. The basic MAXI-BEAM is an ON/OFF switch consisting of three modules (sensor head, power block, and wiring base) and a unique, patented, rotatable 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.

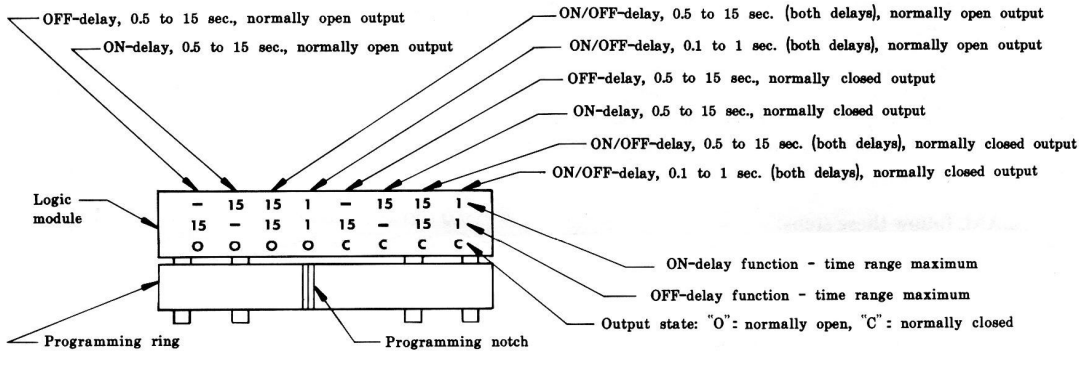
MAXI-BEAM sensors are ruggedly constructed of molded PBT to NEMA standards 1, 3, 4, 12, and 13, and have interchangeable molded acrylic lenses. Modules simply snap and bolt together, with no interwiring necessary. Module interfaces are o-ring and quad-ring sealed for the ultimate in dust, dirt, and moisture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



Model RLM5 ON/OFF Delay Logic Module

Program choices:

1. Timing Logic Function:
    a. ON-delay
    b. OFF-delay
    c. ON/OFF-delay
2. Timing Adjustment Range (see options below)
3. Output State:
    a. Normally open (NO)
    b. Normally closed (NC)



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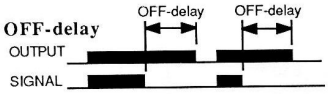
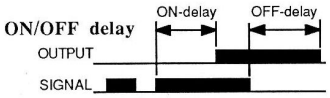
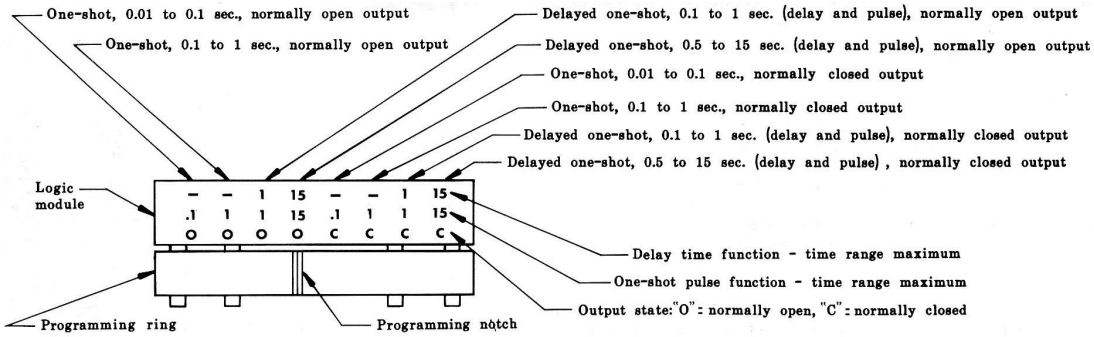


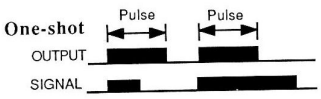


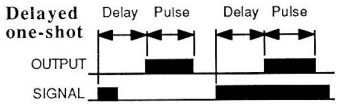
Model RLM8 Delayed One-Shot Logic Module

Program choices:

1. Timing Logic Function:
   a. One-Shot
   b. Delayed One-Shot
2. Timing Adjustment Range (see options below)
3. Output State:
   a. Normally open (NO)
   b. Normally closed (NC)







Program the Logic Module

1. Find the programming notch that aligns with the desired program.

   Note: The programming ring may have to be turned upside-down to find a notch that lines up with the desired program.

2. Press the programming ring and logic module together.
   They are temporarily held together by their interlocking pegs.
3. Orient the logic module for the easiest access to the timing adjustments.
4. Assemble the logic module between the programming ring of the sensor head and the power block.
5. Bolt all parts together with the long bolts that are supplied with the logic module.
6. Apply power to the MAXI-BEAM.
7. Adjust the timing using a small flatblade screwdriver.

   Timing potentiometers are located behind the nylon o-ring gasketed cover screws.

Specifications

Timing Adjustment
Two 15-turn clutched potentiometers with brass elements, accessible from outside

Timing Repeatability
Plus or minus 2% of maximum time range (assumes conditions of constant temperature and power supply voltage)

Useful Time Range
Useful range is from maximum time down to 10% of maximum (for example, from 1 to 0.1 seconds, or from 15 to 1.5 seconds). When timing potentiometer is set fully counterclockwise, time will be approximately I % of maximum.

Response Time
RLM5: Adds a sensor response delay of approximately 2% of maximum time range
RLM8: The sensor response is that programmed for the sensor head (no added response time)

Construction
Reinforced molded PBT housing, quad-ring gasketed components

Environmental Rating
Electronic components fully epoxy encapsulated
NEMA 1, 3, 4, 12, and 13

Operating Temperature
–40 °C to +70 °C (–40 °F to +158 °F)

Certifications

IND. CONT. EQ. 447Y

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to *www.bannerengineering.com*.

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Ordering Information

To order a MAXI-BEAM, follow these steps:
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*).

Sensor Head Models

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

Model	Sensing Type	Range
RSBE and **RSBR**	Opposed mode	91.4 m (300 ft)
RSBESR and **RSBRSR**	Opposed mode (short range; narrow beam)	4.6 m (15 ft)
RSBLV	Retroreflective mode	9.1 m (30 ft)
RSBLVAG	Retroreflective mode (anti-glare filter)	4.6 m (15 ft)
RSBD	Long range diffuse proximity mode	1.5 m (5 ft)
RSBDSR	Short-range diffuse proximity mode	762 mm (30 in)
RSBCV	Visible red convergent mode,	Focus at: 38.1 mm (1.5 in)
RSBC	Infrared convergent mode	Focus at: 38.1 mm (1.5 in)

Model	Sensing Type	Range
RSBF	Infrared fiber optic; for glass fibers	Varies depending on the fiber optics used
RSBFV	Visible red fiber optic; for glass fibers	
RSBEF and **RSBRF**	Infrared fiber optic opposed mode; for glass fibers	
RSBFP	Visible red fiber optic; for plastic fibers	
RSBFF50	Fixed-field proximity	Sharp far-limit cutoff at 50 mm (2 in)
RSBFF100		Sharp far-limit cutoff at 100 mm (3.9 in)

Power Block Module Models

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

Model	Supply Voltage	Output Type
RPBT	10–30 V dc	one sinking and one sourcing solid-state output
RPBT-1		for use with RSBE, ESR, EF emitters (no output circuit)
RPBTLM	10–30 V dc Low-profile power block (requires no RWB4 wiring base)	
RPBA	105–130 V ac (50/60 Hz)	SPST solid-state output
RPBA-1		for use with emitter (no output circuit)
R2PBA, 2-wire operation		SPST solid-state output

Model	Supply Voltage	Output Type
RPBB	210 V ac to 250 V ac (50/60 Hz)	SPST solid-state output
RPBB-1		use with emitter (no output circuit)
R2PBB, 2-wire operation		SPST solid-state output
RPBU	12–250 V ac or 12–30 V dc	SPST solid-state output (ac or dc)
RPBR	12–250 V ac (50/60 Hz) or 12–30 V dc	SPST E/M relay output
RPBR2		SPDT E/M relay output

Wiring Base Models

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

Model	Description
RWB4	4-terminal wiring base for all models (except RPBTLM)

Logic Module Models

Logic modules are described in datasheet p/n 03417.

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

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