




3- and 4-wire Systems (pages 6 through 23)

Power Blocks	Model	Input Voltage	Output Configuration	Agency Approvals	Page
	PBT	10 to 30V dc	SPST NPN (sink), 250mA maximum	UL & CSA	p. 15
	PBT2	10 to 30V dc	SPDT NPN (sink), 250mA each output		p. 15
	PBP	10 to 30V dc	SPST PNP (source), 250mA maximum	UL & CSA	p. 15
	PBT-1	10 to 30V dc	No output: for powering emitters	UL & CSA	p. 16
	PBT48	44 to 52V dc	SPST NPN (sink), 250mA maximum		p. 15
	PBP48	44 to 52V dc	SPST PNP (source), 250mA maximum		p. 15
	PBT48-1	44 to 52V dc	No output: for powering emitters		p. 16
	PBD-2	11 to 13V ac (50/60Hz)	SPST SCR, 3/4 amp maximum		p. 17
	PBD	22 to 28V ac (50/60Hz)	SPST SCR, 3/4 amp maximum	UL & CSA	p. 17
	PBD-1	22 to 28V ac (50/60Hz)	No output: for powering emitters		p. 19
	PBA	105 to 130V ac (50/60Hz)	SPST SCR, 3/4 amp maximum	UL & CSA	p. 17
	PBAQ	105 to 130V ac (50/60Hz)	SPST SCR, normally closed, 3/4 amp max.	UL & CSA	p. 19
	PBAT	105 to 130V ac (50/60Hz)	SPST isolated transistor, 100mA max. (ac or dc)	UL & CSA	p. 18
	PBO	105 to 130V ac (50/60Hz)	SPST isolated transistor, 50mA max. (dc only)	UL & CSA	p. 18
	PBAM	105 to 130V ac (50/60Hz)	Voltage source: 8V dc at 8ma max.	UL & CSA	p. 18
	PBA-1	105 to 130V ac (50/60Hz)	No output: for powering emitters	UL & CSA	p. 19
	PBB	210 to 250V ac (50/60Hz)	SPST SCR, 3/4 amp maximum	UL & CSA	p. 17
	PBBT	210 to 250V ac (50/60Hz)	SPST isolated transistor, 100mA max. (ac or dc)	UL & CSA	p. 18
PBOB	210 to 250V ac (50/60Hz)	SPST isolated transistor, 50mA max. (dc only)	UL & CSA	p. 18	
PBB-1	210 to 250V ac (50/60Hz)	No output: for powering emitters	UL & CSA	p. 19	

Logic Modules	Model	Timing Logic Function	Time Range(s)	Page
	LM1	ON/OFF (no timing function), light operate only	<i>NOTE for items below: other time ranges available (p. 23)</i>	p. 21
	LM3	ON/OFF (no timing function), light or dark operate		p. 21
	LM5	ON-delay	.15 to 15 seconds	p. 22
	LM5R	OFF-delay	.15 to 15 seconds	p. 22
	LM5-14	ON & OFF delay	.15 to 15 seconds (both delays)	p. 22
	LM5T	Limit timer (time-limited ON/OFF)	.15 to 15 seconds	p. 22
	LM4-2	One-shot, retriggerable	.01 to 1 second	p. 21
	LM4-2NR	One-shot, non-retriggerable	.01 to 1 second	p. 22
	LM8-1	Delayed one-shot	.15 to 15 seconds (both times)	p. 23
	LM8A	ON-delay one-shot	.15 to 15 seconds (both times)	p. 23
	LM6-1	Rate sensor	60 to 1200 pulses per minute	p. 22
	LM8	Repeat cycle timer	.15 to 15 seconds (both times)	p. 23
	LM2	Alternate action, divide by 2		p. 21
	LM10	Alternate action, divide by 10		p. 23
	LMT	Test module		p. 23

2-wire Systems (pages 24 through 29)

Scanner Blocks	Model	Sensing Mode	Range	Response	Page
	SBE & 2SBR	Opposed	150 feet	10 milliseconds	p. 25
	2SBL1	Retroreflective	30 feet	10 milliseconds	p. 25
	2SBD1	Diffuse (proximity): short range	12 inches	10 milliseconds	p. 26
	2SBDX1	Diffuse (proximity): long range	30 inches	10 milliseconds	p. 26
	2SBC1	Convergent beam	1.5-inch focus	10 milliseconds	p. 25
	2SBC1-4	Convergent beam	4-inch focus	10 milliseconds	p. 25
	2SBF1	Fiberoptic	see specs	10 milliseconds	p. 26

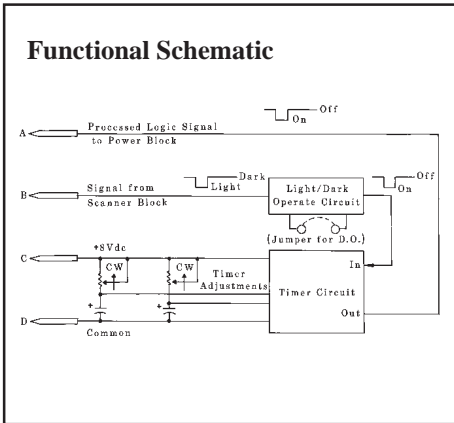
MULTI-BEAM 3- & 4-wire Logic Modules



The logic module interconnects the power block and scanner block both electrically and mechanically using a unique blade-and-socket connector concept. It also provides the LIGHT/DARK operate function (except in the LM1) and the timing functions, all of which are fully adjustable.

In the diagrams below, the "signal" represents the light condition (in LIGHT operate) or the DARK condition (in DARK operate), and the "output" represents the energized condition of the solid-state output switch (power block). "Delay" refers to the time delay before the output operates, and "hold" refers to the time that the output remains "on" after the event has occurred.

The photo (left) shows a typical logic module for 3- or 4-wire operation. Note that all 3- & 4-wire logic modules are color-coded red. The time ranges listed for the logic modules in the table below are standard time ranges. Other time ranges are available; see page 23 for information.



Specifications, 3- and 4-wire Logic Modules

CONSTRUCTION: molded VALOX® housing; electronic components epoxy encapsulated. Gold plated blade connectors.







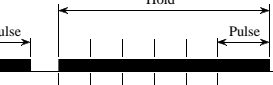

OPERATING TEMPERATURE: -40 to +70 degrees C (-40 to +158 degrees F).

TIMING ADJUSTMENT(S): one or two single turn potentiometers with slot for blade-type screwdriver adjustment. NOTE: when turning time adjustments fully clockwise or counterclockwise, avoid excessive torque to prevent damage to potentiometers.

TIMING REPEATABILITY: plus or minus 2% of maximum range under constant power supply and temperature conditions; plus or minus 5% of maximum range under all conditions of supply voltage and temperature.

RESPONSE TIME: response time will be that for the scanner block (plus power block) plus the programmed delay (if the logic includes a delay function).

TIMING RANGE: useful range is from maximum time down to 10% of maximum (e.g.- from 1 to 0.1 seconds, or from 15 to 1.5 seconds). When timing potentiometer is set fully counterclockwise, time will be approximately 1% of maximum.

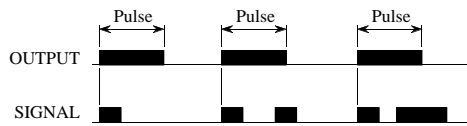
Model and Function	Description of Logic
<p>LM1 on-off</p> <p>OUTPUT </p> <p>SIGNAL </p>	<p>LM1 is an on-off logic module that causes the power block output to "follow the action" of the scanner block: when the scanner block sees a LIGHT signal, the output is energized; when the scanner block sees a DARK signal, the output is de-energized. This is referred to as the LIGHT operate mode. If the application calls for DARK operate mode, the LM1 may be used with normally-closed type power blocks such as PBAQ or PBT2.</p>
<p>LM2 alternate action</p> <p>OUTPUT </p> <p>SIGNAL </p>	<p>The LM2 provides "flip-flop" or toggling action of the power block output, such that each time the scanner block changes from a DARK state to a LIGHT state, the output changes state. The output remains in the last state until another change occurs. The LM2 is frequently used to operate a diverter gate that splits a production line into two lines. It may also be used to operate room lighting by breaking a photoelectric beam: if the lights are OFF, breaking the beam turns them ON; if the lights are ON, breaking the beam turns them OFF.</p>
<p>LM3 on-off</p> <p>OUTPUT </p> <p>SIGNAL </p>	<p>The LM3 is an on-off logic module that has the ability to be programmed for either LIGHT operate or DARK operate. It comes with a jumper wire installed: with the jumper in place, the output is DARK operated; with the jumper removed, the output is LIGHT operated. The LM3 is the most commonly used logic module when no timing function is desired, particularly if it is not known at the time of ordering which mode (LIGHT or DARK operate) will be needed.</p>
<p>LM4-2 one-shot (retriggerable)</p> <p>OUTPUT </p> <p>SIGNAL </p> <p>Setable time range: .1 to 1 second.</p>	<p>The LM4-2 provides a one-shot ("single shot") output pulse each time there is a transition from LIGHT to DARK (jumper installed) or from DARK to LIGHT (jumper removed). The output pulse time range is adjustable from 0.1 to 1 second. The duration of the pulse is independent of the duration of the input signal. The timing of the LM4-2 is restarted each time the input signal is removed and then recurs. This is referred to as a "retriggerable" one shot, and this feature may be applied to some rate sensing applications (use LM6-1 for true rate sensing).</p>

MULTI-BEAM 3- & 4-wire Logic Modules

Model and Function

Description of Logic

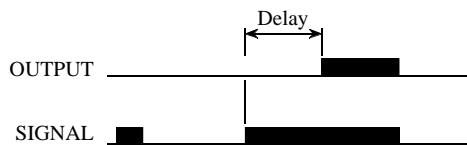
LM4-2NR one-shot (non-retriggerable)



Setable time range: .1 to 1 second.

The **LM4-2NR** provides a one-shot ("single shot") output pulse each time there is a transition from LIGHT to DARK (jumper installed) or from DARK to LIGHT (jumper removed). The output pulse time range is adjustable from 0.1 to 1 second. The duration of the pulse is independent of the duration of the input signal. The output pulse of the LM4-2NR must complete before it recognizes another input transition. This is called a "non-retriggerable" one shot, which sometimes offers an advantage in indexing or registration control applications where multiple input signals are possible during advance of the product.

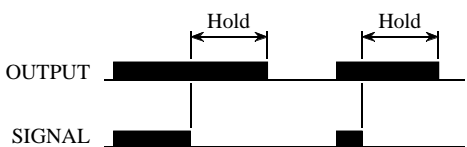
LM5 on-delay



Setable time range: 1.5 to 15 seconds.

The **LM5** is a true "on-delay" type logic module. The input signal must be present for a predetermined length of time before the output is energized. The output then remains energized until the input signal is removed. If the input signal is not present for the predetermined time period, no output occurs. If the input signal is removed momentarily and then reestablished, the timing function starts over again from the beginning. A LIGHT/DARK operation selection jumper is included. The standard time range is adjustable from 1.5 to 15 seconds (field adjustable), and other ranges are available. The LM5 is often used to detect jams on a conveyor line, where a beam broken for longer than a preset period of time implies a product jammed in the light beam.

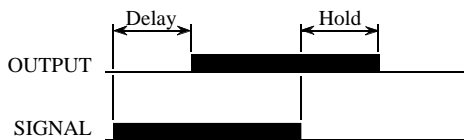
LM5R off-delay



Setable time range: 1.5 to 15 seconds.

The **LM5R** is an "off-delay" logic module, similar to the LM5, except that timing begins on the trailing edge of the input signal. When the input occurs, the output is immediately energized; if the input is then removed, the output remains energized for the adjustable pre-determined time period, then de-energizes. If the input is removed but then re-established while the timing holds the output energized, a new output cycle is begun. The LM5R might typically be used to tell when no products have broken a beam for a predetermined length of time, therefore indicating a jam or an empty reservoir upstream. The LIGHT/DARK operate jumper wire is included. Timing range is adjustable from 1.5 to 15 seconds, and optional ranges are available.

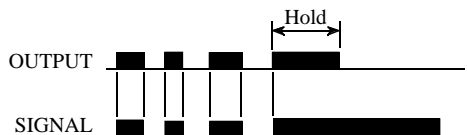
LM5-14 on- & off-delay



Setable time range: 1.5 to 15 seconds.

The **LM5-14** combines the function of an "on-delay" and an "off-delay" into one logic module. When the signal is present for more than the on-delay time, the output energizes. The off-delay circuit is now active, and holds the output on even if the input signal disappears for short periods of time. If the input signal is gone for longer than the off-delay time, the output finally drops out. The most common use for the LM5-14 is to control fill level, for example in a bin: when the bin is full, a beam is broken, and a predetermined time later, the flow is stopped. After the level has fallen below the beam for a time, the flow is restarted. The time delays control the high and low levels. Each delay is independently adjustable for 1.5 to 15 seconds.

LM5T limit timer



Setable time range: 1.5 to 15 seconds.

The **LM5T** "limit" timer combines the function of on-off logic and on-delay logic. As long as the signal is present for only short periods of time, the output "follows the action" of the input signal. If the input signal is present for longer than the predetermined time, the output deenergizes. The output only reenergizes when the input signal is removed and then reestablished. Interval timers are used to operate loads which must not run continuously for long periods of time, such as intermittent duty solenoids and conveyor motors. The LM5T may be used to run a supermarket checkout conveyor, always bringing the product up to the sensor beam and then stopping the motor. When the last item is removed, the motor times out and stops. Timing range is .15 to 15 seconds.

LM6-1 rate sensor



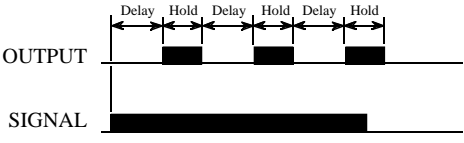
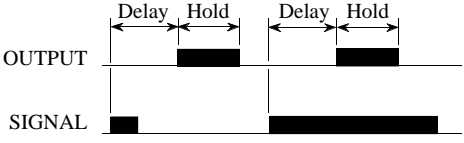
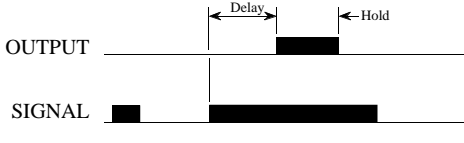


Setable rate: 60 to 1200 pulses per minute.

The **LM6-1** is a true overspeed or underspeed sensing logic module that monitors signals from a scanner block and continuously calculates the time between input signals, and compares that time with the reference set by the "HOLD" potentiometer. A jumper allows the mode to be changed from *overspeed* (jumper installed) to *underspeed* (jumper removed). In the overspeed mode, the output will drop if the preset rate is exceeded. In the underspeed mode, the output remains energized until the input rate drops below the preset. The output will not "pulse" at low speeds as retriggerable one-shots do. A "DELAY" adjustment allows the LM6-1 to ignore data for the first several seconds after power is applied, to permit the rate to accelerate to operating speed without false underspeed outputs. The sensing rate may be adjusted from 60 to 1200 pulses per minute (.05 to 1.0 second per pulse), and the power-up inhibit from 1 to 15 seconds.

MULTI-BEAM 3- & 4-wire Logic Modules

Model and Function

Description of Logic

<p>LM8 repeat cycler</p>  <p>Setable time range: 1.5 to 15 seconds.</p>	<p>The LM8 is a repeat cycle timing module with independently adjustable delay and hold times. When an input signal is received from the scanner block, a delay period begins during which there is no output. If the signal remains, the delay period is followed by a hold period, during which the output is energized. If the signal still remains, the hold period times out, releasing the output and starting a new delay period. This sequence continues indefinitely until the input signal is removed. The LM8 is used in edgeguide and other registration control schemes where it is desired to "pulse" the correction motor to avoid overcorrection that might occur with a continuous output. Both time ranges are independently adjustable from 1.5 to 15 seconds. NOTE: use of the LIGHT/DARK operate jumper is reversed: remove for DARK, leave in place for LIGHT.</p>
<p>LM8-1 delayed one-shot</p>  <p>Setable time range: 1.5 to 15 seconds.</p>	<p>The LM8-1 is a delayed one-shot that functions very much like two individual one-shots, with the end of the first initiating the second. When an input signal occurs, a delay period is initiated, during which time the output is not energized. After the delay, the output is energized for the hold period, then deenergized. No further action takes place unless the signal is removed and then reestablished. This sequence is independent of the duration of the input signal. The LM8-1 is frequently used to sense a product, and then act on that product a short time later when it is clear of the inspection station. An example might be to inspect cartons for open flaps, and to eject the faulty cartons when they have completely passed the inspection point. Both time ranges are adjustable from 1.5 to 15 seconds.</p>
<p>LM8A on-delay one-shot</p>  <p>Setable time range: 1.5 to 15 seconds.</p>	<p>The LM8A differs slightly from the LM8-1. It too incorporates both a delay and a hold time, except that the delay is a true on-delay. If the input signal does not last for the total duration of the delay time, no output action ever occurs (with the LM8-1, even a momentary signal generates one complete cycle of timing). If the delay time passes, the one-shot output occurs, regardless of what happens to the input signal. Removing the input signal and reapplying it begins a new cycle. The LM8A is used to eject a part that has remained in the sensor beam longer than the delay time (for instance, a jammed part). Both time ranges are independently adjustable from 1.5 to 15 seconds. NOTE: use of the LIGHT/DARK operate jumper is reversed: remove for DARK, leave in place for LIGHT.</p>
<p>LM10 ÷10 counter</p> 	<p>The LM10 is a fixed-count divide-by-ten logic module, with neither timing nor LIGHT/DARK operate functions. When power is first applied, the output is OFF; with each dark-to-light transition, the LM10 enters one count in its memory. After five counts, the output is energized, and it remains energized until the tenth count. It then deenergizes, and the sequence continues. The LM10 is intended for product counting applications using programmable logic controllers or computers, where the scan time of the input section of the controller is too slow to permit "catching" high speed count rates. It may also be used with electromechanical totalizers, which suffer from this same slow response. In operation, of course, the registered count must be multiplied by ten to get the true count (ambiguity of five).</p>
<p>LMT test logic</p> 	<p>LMT is a plug-in test logic module for use when troubleshooting MULTI-BEAM sensors. It contains LED indicator lights in place of the timing potentiometers and a miniature switch in place of the LIGHT/DARK operate jumper. The indicator lights display the operation of the scanner block and power block to verify proper functioning, and the switch permits manual operation of the load to verify the output switching circuit. The step-by-step testing procedure included with the LMT will allow a MULTI-BEAM to be completely tested without removing it from the installation, and, if there is a faulty scanner block, power block, or logic module, the LMT will identify it. <i>The LMT may also be used with all 2-wire MULTI-BEAMS (see pages 24 to 29).</i></p>

Logic Module Modifications

The time ranges of any MULTI-BEAM 3- & 4-wire logic module may be factory modified. Time range modification is often necessary to improve the setability of the timing function. Some time range modifications are carried in stock. The current Banner products price list is the best source of this information. Other time range modifications may be quoted. When ordering modified logic modules, add the letter "M" after the model number, followed by the maximum time desired (in seconds). The table below lists possible modifications.

Model Number Suffix	Setable Time Range
M.01	.001 to .01 seconds
M.1	.01 to .1 seconds
M.5	.05 to .5 seconds
M1	.1 to 1 second
M5	.5 to 5 seconds
M15	1.5 to 15 seconds

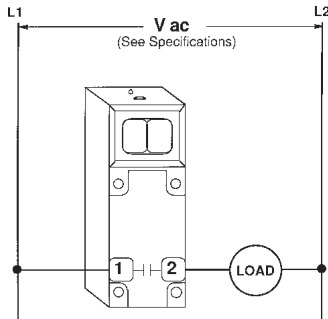
- For logic modules with a single timing function, specify the maximum desired time in seconds (e.g., LM5M5 indicates an LM5 on-delay with the delay time adjustable up to 5 seconds).

- For logic modules with dual timing functions, specify the maximum desired delay and hold time in seconds (e.g., LM5-14M1M5 indicates an LM5-14 on-off delay with an on-delay adjustable up to 1 second and an off-delay adjustable up to 5 seconds). Always specify both timing ranges, even if only one is to be modified.

- For fixed timing, the letter "F" should always be followed by the desired time, in seconds (e.g., LM5MF1 would be an LM5 on-delay with a fixed 1 second delay time). For fractions of seconds, use decimal equivalents, such as LM5MF.5, or LM5MF.01, etc.

MULTI-BEAM 2-wire Sensors

2-wire MULTI-BEAM

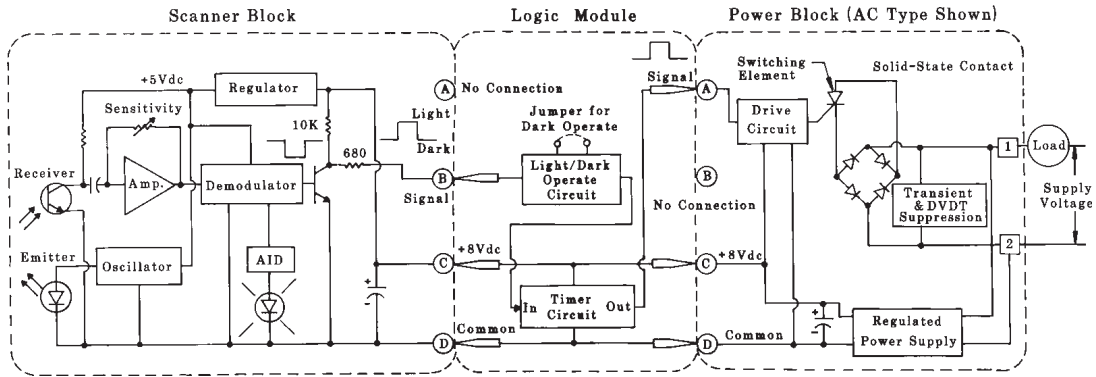


The components of the MULTI-BEAM 2-wire family of modular self-contained sensors are physically identical to the 3- & 4-wire components. However, the 2-wire components are designed to wire directly in series with an ac load, exactly like a limit switch. This design makes the 2-wire MULTI-BEAM impossible to wire backward.

MULTI-BEAM 2-wire scanner blocks with their 10 millisecond response time have approximately the same optical performance as the 1-millisecond 3- & 4-wire scanner block models.

The off-state leakage current of 2-wire MULTI-BEAM sensors is less than 1 milliamp, the lowest value of any 2-wire photoelectric sensor. This makes the MULTI-BEAM 2-wire photoelectric device the most probable such device to interface directly with ac inputs of programmable logic controllers (PLCs).

Functional Schematic, 2-wire MULTI-BEAM



MULTI-BEAM 2-Wire Scanner Blocks

SPECIFICATIONS

SUPPLY VOLTAGE: connections are made via a 2-wire power block (see page 27).

RESPONSE TIME: 10 milliseconds ON and OFF (3000 operations per minute). NOTE: a built-in false pulse protection circuit holds the output off for 100 milliseconds after power is initially applied to the sensor.

REPEATABILITY OF RESPONSE: see individual sensor specs.

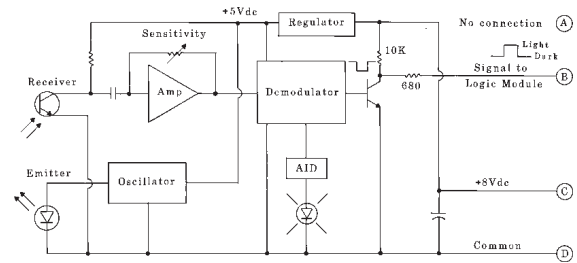
SENSITIVITY ADJUSTMENT: easily accessible, located on top of scanner block beneath o-ring gasketed screw cover. 15-turn clutched control (rotate clockwise with a small screwdriver to increase gain).

ALIGNMENT INDICATOR: red LED on top of scanner block. Banner's exclusive, patented Alignment Indicating Device (AID™) circuit lights the LED whenever the sensor detects its own modulated light source, and pulses the LED at a rate proportional to the received light level.

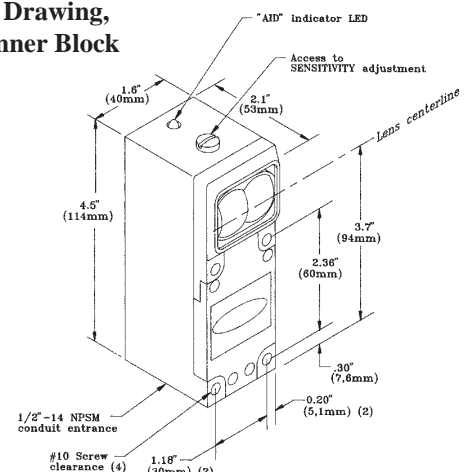
CONSTRUCTION: reinforced VALOX® housing with components totally encapsulated. Stainless steel hardware. Meets NEMA standards 1, 3, 12, and 13.

OPERATING TEMPERATURE RANGE: -40 to +70 degrees C (-40 to +158 degrees F).

Functional Schematic, 2-wire Scanner Block



Dimension Drawing, 2-wire Scanner Block



MULTI-BEAM 2-wire Scanner Blocks

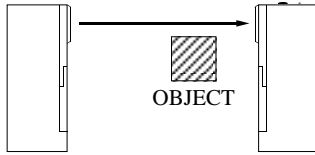
Sensing Mode

Models

Excess Gain

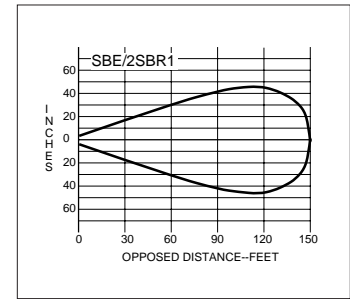
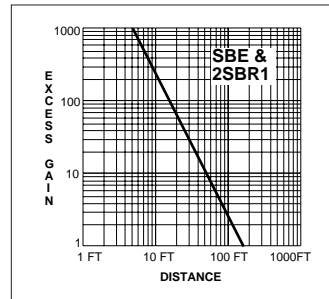
Beam Pattern

OPPOSED Mode



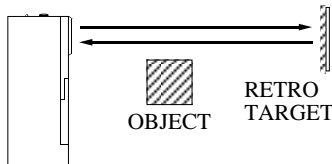
SBE & 2SBR1

Range: 150 feet (45m)
Response: 10ms on/off
Repeatability: 0.03ms
Beam: infrared, 940nm
Effective beam: 1" dia.



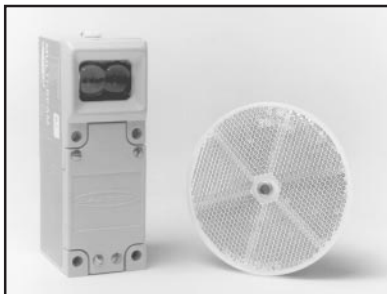
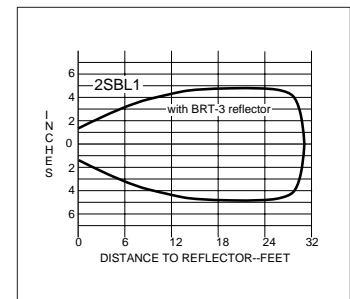
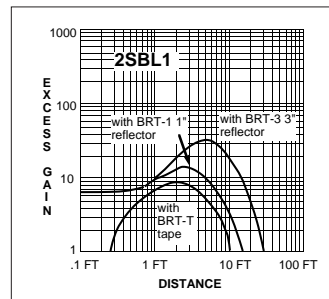
Model 2SBR1 receiver is used with the SBE emitter, which is the same emitter used with the 1 millisecond 3- & 4-wire receiver model SBR1. The response time, however, is determined by the receiver, and is 10 milliseconds. This pair will work reliably in slightly dirty (average manufacturing plant) conditions up to 60 feet opposed, and outdoors up to 20 feet. When more distance (or excess gain) is required, use 3- & 4-wire receiver model SBRX1 with the SBEX emitter. The 2SBR1 will not work with the visible emitter SBEV. Use opposed mode sensors as a first choice in any application, except where the material to be sensed is translucent to light or so small that it will not break the effective beam diameter. The SBE emitter uses a 3 & 4 wire power block. Powerblocks for use with SBE include models PBA-1, PBB-1, PBD-1, PBT-1, and PBT48-1 (see pages 16 and 19 for information on these powerblocks).

RETROREFLECTIVE



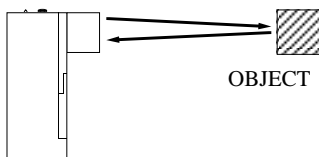
2SBL1

Range: 1 in. to 30 feet
 (2.5cm to 9m)
Response: 10ms on/off
Repeatability: 2.5ms
Beam: infrared, 940nm



Model 2SBL1 is the retroreflective mode scanner block in the 2-wire MULTI-BEAM family. It has the same excellent optical performance as model SBL1 in the 3- & 4-wire family. If the application calls for breaking a retroreflective beam with shiny objects such as metal cans or cellophane-wrapped packages, mount the 2SBL1 and its retroreflector at an angle of 10 degrees or more to the shiny surface to eliminate any direct reflections from the object itself, or consider using 3- & 4-wire scanner block model SBLVAG1 (page 8). Alternatively, the MAXI-BEAM, VALU-BEAM, and MINI-BEAM families offer 2-wire ac visible and polarized retroreflective models. Notice from the excess gain curve that the gain falls off at very close sensing ranges, so much so that retroreflectors cannot be used reliably closer than one inch from the sensor.

CONVERGENT Mode

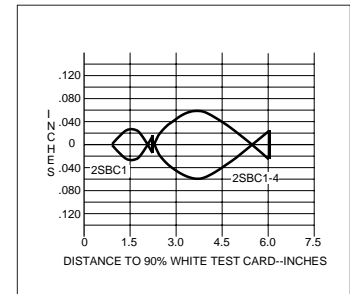
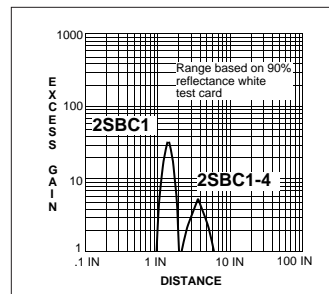


2SBC1

Focus at: 1.5inches
 (38mm)

2SBC1-4

Focus at: 4 inches
 (10cm)
Response: 10ms on/off
Repeatability: 2.5ms
Beam: infrared, 940nm



These convergent mode 2-wire scanner blocks are identical in performance to their 3- & 4-wire equivalents, except for the 10 millisecond response time. They are designed for 2-wire applications where background objects might be seen by proximity mode sensors, or where the precision of a small focused image is important (e.g. - edge-guiding or position control). Model 2SBC1 provides much more excess gain at its focus point as compared to the diffuse mode sensors. Convergent mode sensors are preferable to diffuse mode sensors if the distance from the sensor to the object to be detected can be kept constant. Models 2SBC1 and 2SBC1-4 may be derived from retro model 2SBL1 by exchange of the upper cover assembly. Model 2SBC1 uses upper cover UC-C, and model 2SBC1-4 uses upper cover model UC-C4. These may be interchanged. A 6-inch convergent model may be created from either model by substituting upper cover UC-C6. See the Upper Cover Interchangeability Chart in the Banner product catalog for more information.

MULTI-BEAM 2-wire Scanner Blocks

Sensing Mode

Models

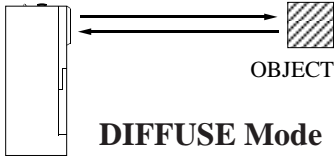
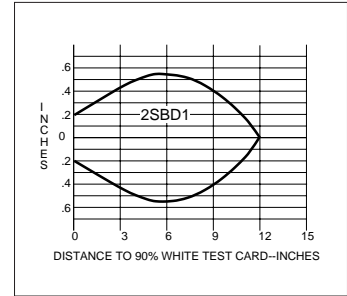
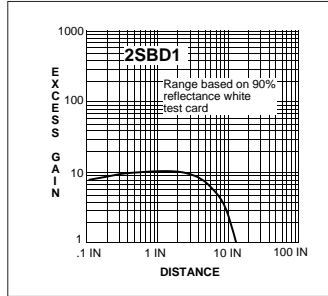
Excess Gain

Beam Pattern



2SBD1

Range: 12 inches (30cm)
Response: 10ms on/off
Repeatability: 2.5ms
Beam: infrared, 880nm

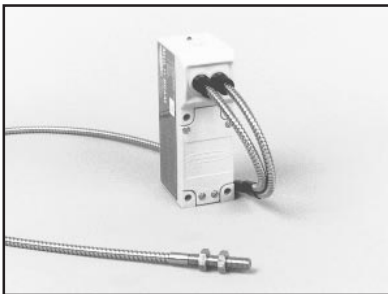
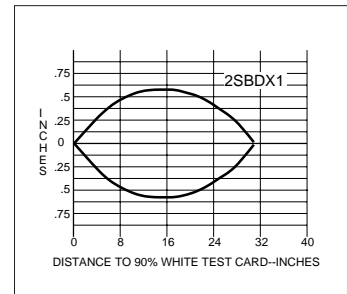
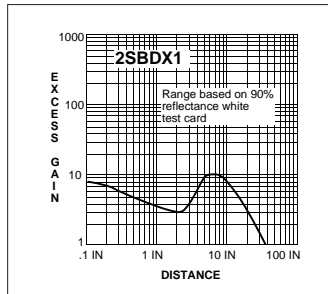


Models **2SBD1** and **2SBDX1** diffuse (proximity) mode scanner blocks are identical except for their lenses. Model **2SBD1** uses upper cover model UC-D, and the **2SBDX1** uses UC-L (see MULTI-BEAM Accessories, pages 30-31). While the UC-L lens extends the range to over 30 inches, it creates a "dip" in the excess gain at closer ranges. As a result, the **2SBDX1** may sense a dark colored object at 10 inches, but it may not see it at all at 2 inches. If the application is not completely defined, either scanner block may be ordered, along with the complementary upper cover as an accessory.



2SBDX1

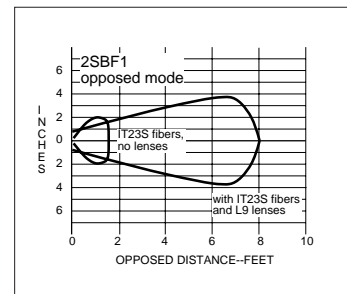
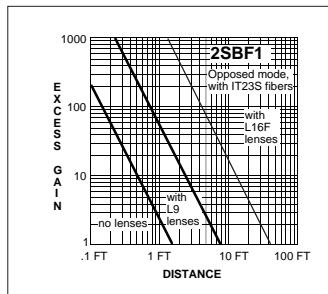
Range: 30 inches (76cm)
Response: 10ms on/off
Repeatability: 2.5ms
Beam: infrared, 880nm



2SBF1

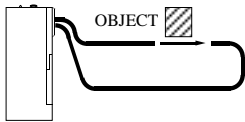
Range: see E.G. curves
Response: 10ms on/off
Repeatability: 2.5ms
Beam: infrared, 880nm

Scanner block **2SBF1** combines the simplicity of 2-wire hookup with the sophistication and versatility of optical fibers. The infrared source of this model will work with any Banner glass fiber optic assembly, except bifurcated assemblies with bundle diameters less than 1/16". Since fibers are frequently used for sensing small parts, fast response time is often a consideration. If the application requires response near the 10 millisecond specification of the **2SBF1**, consider the faster 3- & 4-wire model **SBF1**.

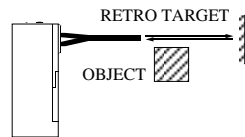


FIBER OPTIC Mode (glass fibers)

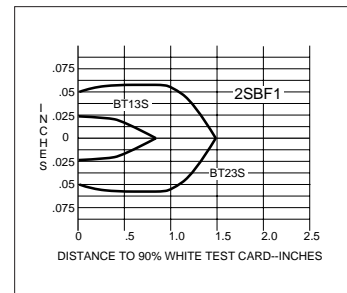
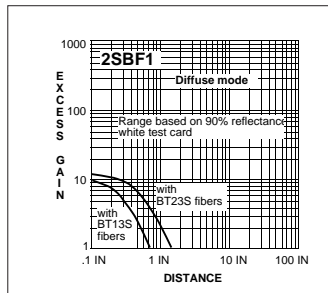
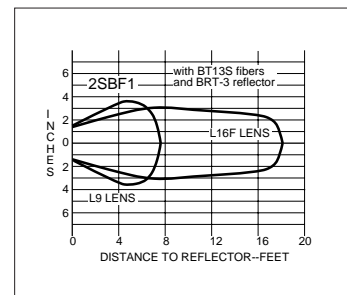
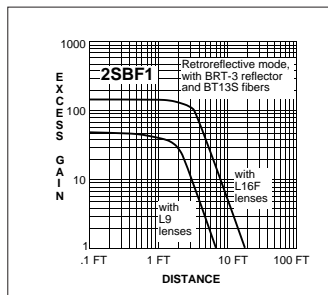
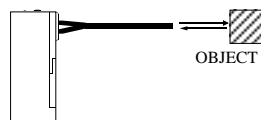
OPPOSED MODE



RETROREFLECTIVE MODE



DIFFUSE MODE



For complete information on glass fiber optic assemblies, see the Banner product catalog.