Selection of MULTI-BEAM Components

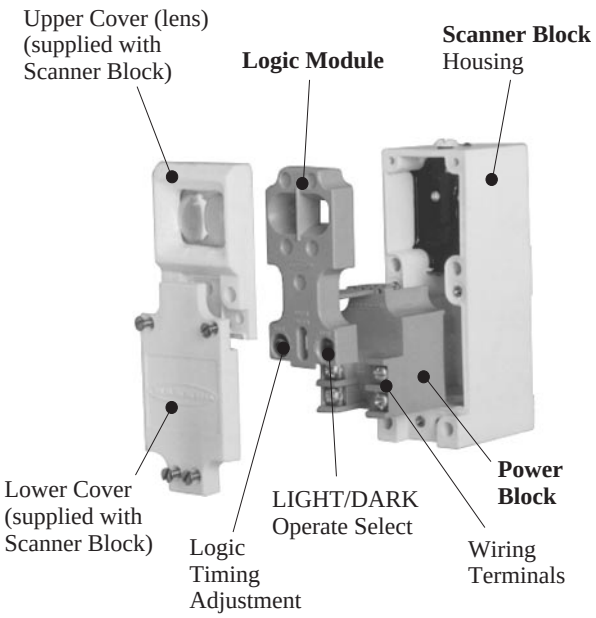
MULTI-BEAM sensors are made up of three components: scanner block, power block, and logic module. This is true for all MULTI-BEAMs with the exception of opposed mode emitter units which require only a power block (no logic module).

The first decision in the component selection process is to determine which family of MULTI-BEAM sensors is appropriate for the application: 3- and 4-wire, or 2-wire.

Next, decide which scanner block (within the selected family) is best for the application. The guidelines in the catalog introduction will help you to determine the best sensing mode. Then narrow the choice by comparing the specifications listed in the following charts and on the pages referenced in the charts.

Finally, choose a power block and logic module to complete the MULTI-BEAM assembly. Components snap together without interwiring to form a complete photoelectric sensing system that meets your exact requirements while maintaining the simplicity of a self-contained sensor.

If you have any questions about selecting MULTI-BEAM components, please contact your Banner sales engineer or call Banner's Applications Department at (612) 544-3164 during normal business hours.

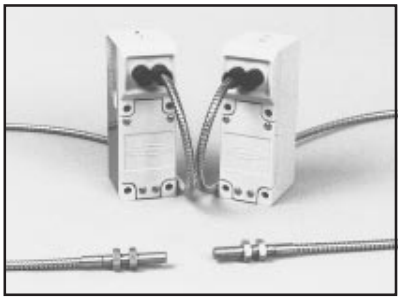


3- and 4-wire Systems **(pages 6 through 23)**

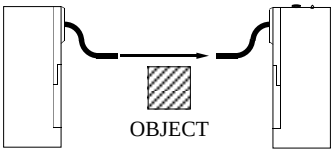
Scanner Blocks	Model	Sensing Mode	Range	Response	Page
	SBE & SBR1	Opposed: high speed	150 feet	1 millisecond	p. 7
	SBED & SBRD1	Opposed: high speed, narrow beam	10 feet	1 millisecond	p. 7
	SBEX & SBRX1	Opposed: high power, long range	700 feet	10 milliseconds	p. 7
	SBEV & SBRX1	Opposed: visible beam	100 feet	10 milliseconds	p. 7
	SBEXD & SBRXD1	Opposed: high power, wide beam angle	30 feet	10 milliseconds	p. 7
	SBLV1	Retroreflective: high speed, visible beam	30 feet	1 millisecond	p. 8
	SBLVAG1	Retroreflective: polarized beam (anti-glare)	15 feet	1 millisecond	p. 8
	SBL1	Retroreflective: high speed, infrared beam	30 feet	1 millisecond	p. 8
	SBLX1	Retroreflective: high power, long range	100 feet	10 milliseconds	p. 8
	SBD1	Diffuse (proximity): high speed	12 inches	1 millisecond	p. 9
	SBDL1	Diffuse (proximity): medium range	24 inches	1 millisecond	p. 9
	SBDX1	Diffuse (proximity): high power, long range	6 feet	10 milliseconds	p. 9
	SBDX1MD	Diffuse (proximity): wide beam angle	24 inches	10 milliseconds	p. 9
	SBCV1	Convergent beam: high speed, visible red	1.5-inch focus	1 millisecond	p. 10
	SBCVG1	Convergent beam: high speed, visible green	1.5-inch focus	1 millisecond	p. 10
	SBC1	Convergent beam: high speed, infrared	1.5-inch focus	1 millisecond	p. 10
	SBC1-4	Convergent beam: high speed, infrared	4-inch focus	1 millisecond	p. 10
	SBC1-6	Convergent beam: high speed, infrared	6-inch focus	1 millisecond	p. 10
	SBCX1	Convergent beam: high power, infrared	1.5-inch focus	10 milliseconds	p. 10
	SBCX1-4	Convergent beam: high power, infrared	4-inch focus	10 milliseconds	p. 10
	SBCX1-6	Convergent beam: high power, infrared	6-inch focus	10 milliseconds	p. 10
	SBEF & SBRF1	Opposed fiber optic (glass fibers): high speed	see specs	1 millisecond	p. 11
	SBEXF & SBRXF1	Opposed fiber optic (glass fibers): high power	see specs	10 milliseconds	p. 11
	SBFX1	Fiber optic (glass fibers): high power, infrared	see specs	10 milliseconds	p. 11
	SBF1	Fiber optic (glass fibers): high speed, infrared	see specs	1 millisecond	p. 12
	SBF1MHS	Fiber optic (glass fibers): very high speed	see specs	0.3 millisecond	p. 12
	SBFV1	Fiber optic (glass fibers): visible red	see specs	1 millisecond	p. 13
	SBFVG1	Fiber optic (glass fibers): visible green	see specs	1 millisecond	p. 13
	SBAR1	Ambient light receiver	see specs	10 milliseconds	p. 14
	SBAR1GH	Ambient light receiver: high gain	see specs	10 milliseconds	p. 14
	SBAR1GHF	Ambient light receiver: for glass fiber optics	see specs	10 milliseconds	p. 14

MULTI-BEAM 3- & 4-wire Scanner Blocks

Sensing Mode *Models* *Excess Gain* *Beam Pattern*



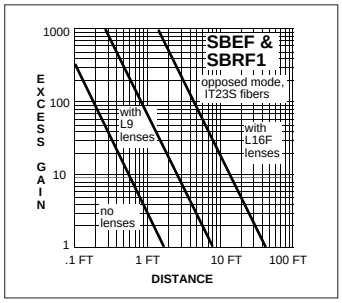
OPPOSED FIBER OPTIC Mode (glass fiber optics)

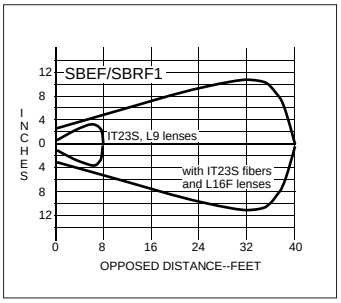


SBEF & SBRF1

Range: see excess gain curve
Response: 1ms on/off
Repeatability: 0.03ms
Beam: infrared, 880nm

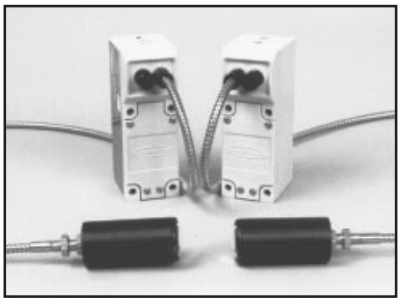
NOTE: fiber optic gain curves apply to 3-foot fiber lengths. Gain decreases by approximately 10% for each additional foot of fiberoptic cable.





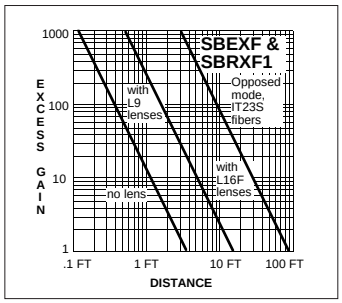
SBEF & SBRF1: use with individual glass fiber optic assemblies in lieu of model SBF1 where it is inconvenient to run fibers from a single scanner block.

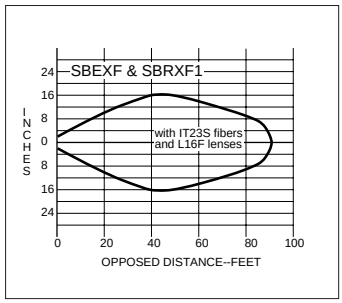
SBEXF & SBRXF1: use in place of model SBFX1 (shown below) for long-range opposed fiber optic sensing. Or use where high excess gain is required and it is difficult to run the fibers to both sides of the process from a single scanner block. Lenses for fiber optics are shown in the Banner product catalog.

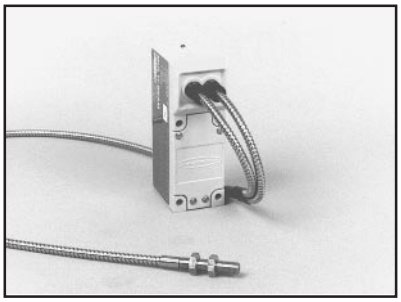


SBEXF & SBRXF1

Range: see excess gain curve
Response: 10ms on/off
Repeatability: 0.7ms
Beam: infrared, 880nm



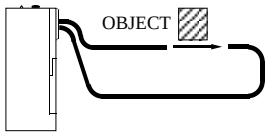




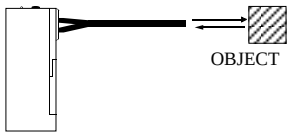
FIBER OPTIC Mode (glass fiber optics)

HIGH-POWER SCANNER BLOCK

OPPOSED MODE



DIFFUSE MODE



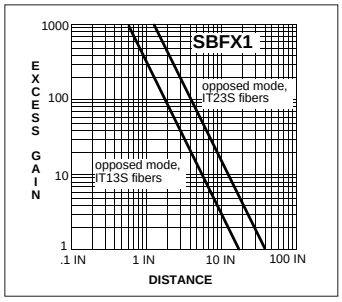
For complete information on glass fiber optic assemblies and accessories, see product catalog.

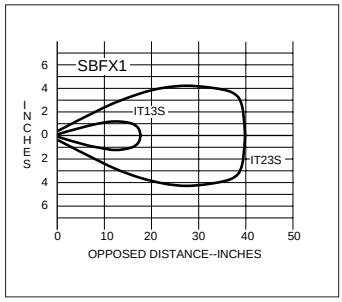
SBFX1

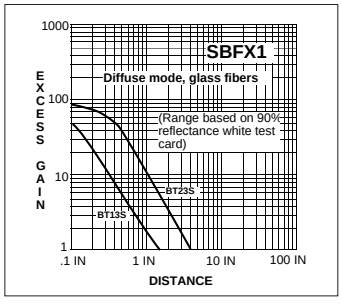
Range: see excess gain curves
Response: 10ms on/off
Repeatability: 1.5ms
Beam: infrared, 880nm

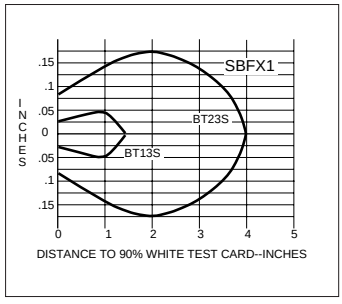
Fiber optic information:
IT13S: individual assembly .06 in (1,5mm) dia. bundle
IT23S: individual assembly .12 in. (3mm) dia. bundle
BT13S: bifurcated assembly, .06 in. (1.5mm) dia. bundle
BT23S: bifurcated assembly, .12 in. (3mm) dia. bundle

L9: .5in. (12mm) dia. lens
L16F: 1.0 in. (25mm) dia. lens









Model SBFX1 is the first choice for glass fiber optic applications, except in fiber optic retroreflective applications or where faster response speed or visible light are a requirement. Model SBFX1 contains both emitter and receiver and thus accepts either one bifurcated fiberoptic assembly or two individual fiber optic cables. The excess gain of model SBFX1 is the highest available in the photoelectric industry. As a result, opposed individual fibers operate reliably in many very hostile environments. Also, special miniature bifurcated fiber optic assemblies with bundle sizes as small as .020 inch (.5mm) in diameter may be used successfully with model SBFX1 for diffuse mode sensing. The excess gain curves and beam patterns illustrate response with standard .060 inch (1.5mm) diameter and .12 inch (3mm) diameter bundles. Response for smaller or larger bundle sizes may be interpolated. NOTE: opposed ranges shown are meant to illustrate excess gain only, and are limited by fiber length. Use scanner block models SBEXF and SBRXF1 (above) for long range opposed fiber optic sensing.