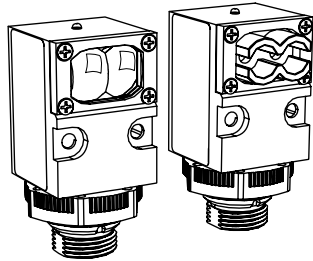


# VALU-BEAM 915 Series Sensors



## Datasheet

With Electromechanical Relay Output



- Models available for:
  - 12 V ac/dc to 28 V ac/dc
  - 90 V ac to 130 V ac
  - 210 V ac to 250 V ac
- SPDT electromechanical relay output is rated for up to 5 amps switching capacity
- Rear panel sensitivity adjustment; top-mounted alignment indicator
- Visible red beam on most models, simplifies alignment
- Choose models with integral 2 m (6.5 ft) cable or mini-style quick disconnect connector; 9 m (30 ft) cables are also available



### 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.

## Models

### Opposed Mode Emitter (E) and Receiver (R)

Opposed Mode sensors have higher excess gain than other models, and should be used whenever possible. The visible red tracer beam simplifies sensor alignment.

Models	Cable <sup>1</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMA91E	2 m (6.5 ft)	<b>Emitter:</b> 10 V ac/dc to 250 V ac/dc <b>Receiver:</b> 12 V ac/dc to 28 V ac/dc	Infrared, 880 nm	60 m (200 ft)	SPDT E/m Relay
SMW95R					
SMA91EQD	3-Pin mini quick disconnect				
SMW95RQD	5-Pin mini quick disconnect				
SMA91E	2 m (6.5 ft)	<b>Emitter:</b> 10 V ac/dc to 250 V ac/dc <b>Receiver:</b> 90 V ac to 130 V ac	Infrared, 880 nm	60 m (200 ft)	SPDT E/m Relay
SMA95R					
SMA91EQD	3-Pin mini quick disconnect				
SMA95RQD	5-Pin mini quick disconnect				
SMA91E	2 m (6.5 ft)	<b>Emitter:</b> 10 V ac/dc to 250 V ac/dc <b>Receiver:</b> 210 V ac to 250 V ac	Infrared, 880 nm	60 m (200 ft)	SPDT E/m Relay
SMB95R					
SMA91EQD	3-Pin mini quick disconnect				
SMB95RQD	5-Pin Mini quick disconnect				

ESR and RSR models' small effective beam size enables them to reliably detect relatively small objects. Their wide beam angle allows forgiving alignment within 10 ft range.

Models	Cable <sup>1</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMA91ESR	2 m (6.5 ft)	<b>Emitter:</b> 10 V ac/dc to 250 V ac/dc <b>Receiver:</b> 12 V dc to 28 V dc	Infrared, 880 nm	3 m (10 ft)	SPDT E/m Relay
SMW95RSR					
SMA91ESRQD	3-Pin mini quick disconnect				
SMW95RSRQD	5-Pin mini quick disconnect				

<sup>1</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMA91E W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.



Models	Cable <sup>1</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMA91ESR	2 m (6.5 ft)	<b>Emitter:</b> 10 V ac/dc to 250 V ac/dc <b>Receiver:</b> 90 V ac to 130 V ac			
SMA95RSR					
SMA91ESRQD	3-Pin mini quick disconnect				
SMA95RSRQD	5-Pin mini quick disconnect				
SMA91ESR	2 m (6.5 ft)	<b>Emitter:</b> 10 V ac/dc to 250 V ac/dc <b>Receiver:</b> 210 V ac to 250 V ac			
SMB95RSR					
SMA91ESRQD	3-Pin mini quick disconnect				
SMB95RSRQD	5-Pin mini quick disconnect				

## Retroreflective Mode

Retroreflective mode sensors are an alternative when opposed mode sensing is not possible. A visible red beam reduces the potential for false signals from reflective objects (proxing) and simplifies alignment. AG (anti-glare) models polarize the emitted light and filter out unwanted reflections.

Models	Cable <sup>2</sup>	Supply Voltage	Range <sup>3</sup>	Sensing Beam	Output Type
<b>Non-Polarized</b>					
SMW915LV	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc	0.15 m to 9 m (6 in to 30 ft)	Visible red, 650 nm	SPDT E/m Relay
SMW915LVQD	5-Pin Mini Quick-Disconnect				
SMA915LV	2 m (6.5 ft)	90 V ac to 130 V ac			
SMA915LVQD	5-Pin Mini Quick-Disconnect				
SMB915LV	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915LVQD	5-Pin Mini Quick-Disconnect				
<b>Polarized</b>					
SMW915LVAG	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc	0.3 m to 4.5 m (1 ft to 15 ft)	Visible red, 650 nm	SPDT E/m Relay
SMW915LVAGQD	5-Pin Mini Quick-Disconnect				
SMA915LVAG	2 m (6.5 ft)	90 V ac to 130 V ac			
SMA915LVAGQD	5-Pin Mini Quick-Disconnect				
SMB915LVAG	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915LVAGQD	5-Pin Mini Quick-Disconnect				

## Diffuse Mode

Diffuse mode sensors detect the reflection of their own light from the object being sensed, and so require no special reflectors. They are ideal for applications where the reflectivity and profile of the object are sufficient to return a large portion of the emitted light back to the sensor. Choose DSR models for best response to objects at close range.

Models	Cable <sup>4</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMW915D	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc	Infrared, 880	760 mm (30 in)	SPDT E/m Relay
SMW915DQD	5-Pin Mini Quick Disconnect				
SMA915D	2 m (6.5 ft)	90 V dc to 130 V dc			
SMA915DQD	5-Pin Mini Quick Disconnect				
SMB915D	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915DQD	5-Pin Mini Quick Disconnect				
SMW915DSR	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc		380 mm (15 in)	
SMW915DSRQD	5-Pin Mini Quick Disconnect				
SMA915DSR	2 m (6.5 ft)	90 V ac to 130 V dc			
SMA915DSRQD	5-Pin Mini Quick Disconnect				

<sup>2</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMW915LV W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.

<sup>3</sup> Retroreflective range is specified using one model BRT-3 retroreflector (3 in diameter). Actual sensing range may be more or less than specified, depending upon the efficiency and reflective area of the retroreflector(s) in use. See [www.bannerengineering.com](http://www.bannerengineering.com) for more information.

<sup>4</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMW915D W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.

Models	Cable <sup>4</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMB915DSR	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915DSRQD	5-Pin Mini Quick Disconnect				

## Convergent Mode

Due to their narrow depth of field, convergent mode sensors excel at detecting small objects only a fraction of an inch in front of their backgrounds. The precise 1.5 mm (0.06 in) diameter sensing spot focuses 38.1 mm (1.5 in) in front of the sensor lens. The visible red beam simplifies alignment.

Models	Cable <sup>5</sup>	Supply Voltage	Sensing Beam	Focus	Output Type
SMW915CV	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc		38 mm (1.5 in)	SPDT E/m relay
SMW915CVQD	5-Pin Mini Quick Disconnect				
SMA915CV	2 m (6.5 ft)	90 V ac to 130 V ac	Visible red, 650 nm	<b>Spot Size at Focus:</b> 1.5 mm (0.06 in)	
SMA915CVQD	5-Pin Mini Quick Disconnect				
SMB915CV	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915CVQD	5-Pin Mini Quick Disconnect				

## Glass Fiber Optic Sensors

Glass fiber optic sensors can be used where sensing must be accomplished in tight, inaccessible, or volatile areas. The sensors can withstand vibration and shock, and are immune to electrical noise. Glass fibers withstand high temperatures, extreme moisture, and corrosive materials. Not recommended for applications requiring bending or repeated flexing of fibers.

Models	Cable <sup>6</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMW915F	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc		Range varies by sensing mode and fiber used	SPDT E/m Relay
SMW915FQD	5-Pin Mini Quick Disconnect				
SMA915F	2 m (6.5 ft)	90 V ac to 30 V ac	Infrared, 880 nm		
SMA915FQD	5-Pin Mini Quick Disconnect				
SMB915F	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915FQD	5-Pin Mini Quick Disconnect				

## Plastic Fiber Optic Sensors

Plastic fiber optic sensors are compatible with more Banner plastic fiber optic assemblies. Excellent option for sensing in tight, inaccessible or volatile areas. It can withstand vibration and shock, and are immune to electrical noise. The sensor functions well at temperatures between -30 °C and +70 °C (-20 °F and +158 °F), and withstands repeated flexing. Most are easy to shorten in the field. Not recommended for severe environments.

Models	Cable <sup>7</sup>	Supply Voltage	Sensing Beam	Range	Output Type
SMW915FP	2 m (6.5 ft)	12 V ac/dc to 28 V ac/dc		Range varies by sensing mode and fiber used	SPDT E/m Relay
SMW915FPQD	5-Pin Mini Quick Disconnect				
SMA915FP	2 m (6.5 ft)	90 V ac to 130 V ac	Visible red, 650 nm		
SMA915FPQD	5-Pin Mini Quick Disconnect				
SMB915FP	2 m (6.5 ft)	210 V ac to 250 V ac			
SMB915FPQD	5-Pin Mini Quick Disconnect				

<sup>4</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMW915D W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.

<sup>5</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMW915CV W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.

<sup>6</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMW915F W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.

<sup>7</sup> To order the 9 m (30 ft) PVC cable model, replace the suffix "Q" with "W/30" in the model number. For example, SMW915FP W/30. Models with a quick disconnect require a mating cordset. See [Quick Disconnect Cables](#) on p. 9 for more information.

## Overview

VALU-BEAM® 915 Series sensors are rugged, self-contained photoelectric sensors designed for especially demanding industrial applications where economy, performance, and durability are important. They feature SPDT (single-pole, double-throw, form C) electromechanical relay output and operate from a variety of supply voltages.

Powerful, modulated LED light sources provide a wide sensing range. The sensors are extremely robust; being totally epoxy-encapsulated, they are highly resistant to shock, vibration, moisture, and corrosion.

915 Series sensors may be mounted from either the front or the rear, using the two through-mount holes, or by their threaded base (mounting nut supplied), making them ideal for conveyor and other production line applications.

The easy-to-see top-mounted red LED indicator simplifies alignment and system monitoring; see [Figure 1](#) on p. 4. It lights whenever the sensor sees its own modulated light source. Turn the Sensitivity control (on the sensor back panel) clockwise to increase gain.

Light or dark operate is selected by connecting the appropriate output relay contact to the circuit under control; see [Wiring Diagrams](#) on p. 4.

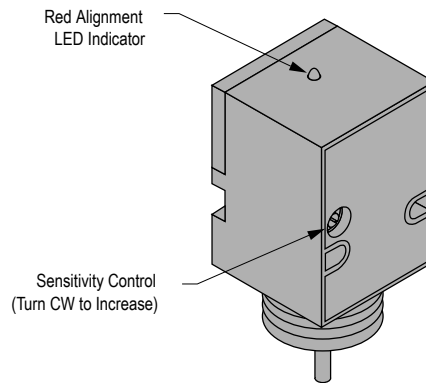


Figure 1. VALU-BEAM 915 Series sensor features

## Fiber Optic Models

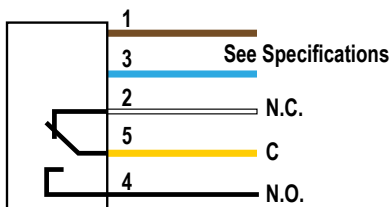
Banner offers a complete line of both plastic and glass fiber optic assemblies to fit VALU-BEAM 915 Series fiber optic model sensors. Glass fiber assemblies are recommended for environments with high temperatures, extreme moisture, and corrosive materials; they are not recommended for applications requiring bending or repeated flexing of fibers.

Plastic fiber optics are an economical alternative for piping photoelectric sensing light into and out of confined areas where the environmental conditions allow, and they can withstand repeated flexing. Banner plastic fiber optic assemblies are available in several core sizes; the highest excess gain will be obtained with the larger fiber cores. Standard plastic fiber optic assemblies are unterminated on the control (sensor) end. These assemblies are approximately 2 m (6 ft) long and may be used as-is, or may be cut to length as needed, using the supplied fiber cutter. Cutting and installation instructions also are included with the fiber assembly.

Both plastic and glass fibers are offered in individual and bifurcated styles. Individual fibers are used in pairs in the opposed sensing mode; one fiber transmits the light to the sensing location, while the other fiber returns the received light to the sensor. Bifurcated plastic fiber assemblies are two-way fibers, having a single sensing end that both emits and receives light and dual control (sensor) ends, which attach separately to the sensor. Fiber optic assemblies are available with a wide variety of sensing end styles. See [www.bannerengineering.com](http://www.bannerengineering.com) for a full selection.

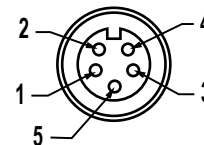
## Wiring Diagrams

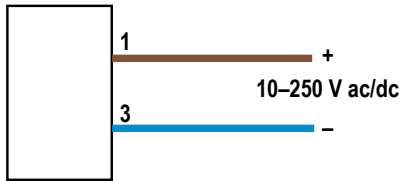
Quick disconnect wiring diagrams are functionally identical.



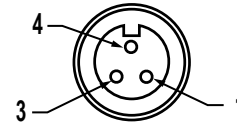
### Key

- 1 = Brown
- 2 = White (Dark Operate)
- 3 = Blue
- 4 = Black (Light Operate)
- 5 = Yellow





Key  
 1 = Brown  
 3 = Blue  
 4 = Black (not used)



## Specifications

### Supply Voltage and Current

**SMW915 Series:** 12 V ac/dc to 30 V ac/dc at 50 mA maximum, exclusive of load

**SMA915 Series:** 90 V ac to 130 V ac (50 Hz to 60 Hz) at 20 mA maximum, exclusive of load

**SMB915 Series:** 210 V ac to 250 V ac (50 Hz to 60 Hz) at 20 mA maximum, exclusive of load

**Exceptions:** SMA91E and ESR emitters, which operate from 10 V ac to 250 V ac (50 Hz to 60 Hz) or dc (10 mA maximum)

### Supply Protection Circuitry

Protected against transient voltages

### Output Configuration

One internal form C (single-pole double-throw) electromechanical relay

### Output Rating

**Max. switching power (resistive load):** 150 W, 600 VA

**Max. switching voltage (resistive load):** 250 V ac or 30 V dc (120 V ac max. per UL and CSA)

**Max. switching current (resistive load):** 5A

**Min. voltage and current:** 1 amp at 5 V dc, 0.1 amp at 24 V dc

**Peak switching voltage:** 750 V ac (transient suppression recommended)

**Mechanical life of relay:** 10,000,000 operations

### Output Protection Circuitry

Protected against false pulse on power-up

### Output Response Time

20 milliseconds ON and OFF; independent of signal strength

(NOTE: 100 millisecond delay on power-up; relay de-energized during this time)

### Adjustments

Sensitivity control on rear of sensor allows precise gain setting (turn clockwise to increase gain)

### Indicators

Top-mounted red LED indicator lights whenever the sensor sees light condition  
 Models SMA91E and SMA91ESR emitters have visible-red tracer beam which indicates power on and enables easy line-of-sight alignment

### Construction

Reinforced black thermoplastic polyester housing, totally encapsulated, molded acrylic lenses and stainless steel hardware

### Environmental Rating

NEMA 1, NEMA 2, NEMA 3, NEMA 3S, NEMA 4, NEMA 4X, NEMA 12, NEMA 13, IEC IP66

### Connections

**Emitters:** 2 m (6.5 ft) unterminated 3-wire PVC-jacketed cable or 9 m (30 ft) unterminated PVC-jacketed cable, or 3-Pin Mini-style quick disconnect fitting available.

**All Other Sensors:** 2 m (6.5 ft) unterminated 3-wire PVC-jacketed cable or 9 m (30 ft) unterminated PVC-jacketed cable, or 5-Pin Mini-style quick disconnect fitting available.

### Operating Conditions

**Temperature:** -40 °C to +50 °C (-40 °F to +122 °F)

90% at +50 °C maximum relative humidity (non-condensing)

### Applications Notes

Install transient suppressor (MOV) across any output contact which switches an inductive load

### Certifications



## Dimensions

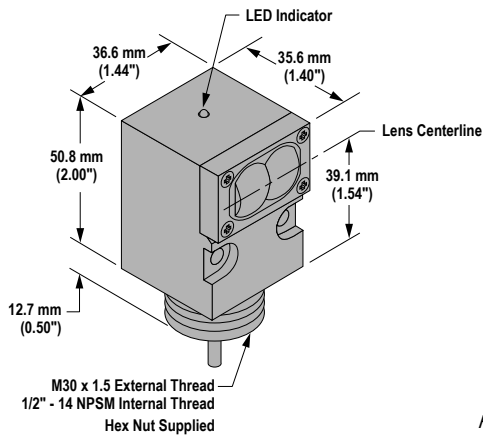


Figure 2. Opposed, Retro, and Diffuse Sensing Modes (model suffix E, ESR, R, LV, D, and DSR) - With Attached Cable

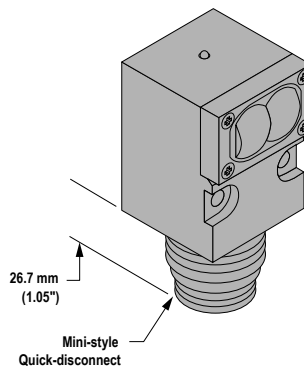


Figure 3. Opposed, Retro, and Diffuse Sensing Modes (model suffix E, ESR, R, LV, D, and DSR) - With Quick Disconnect

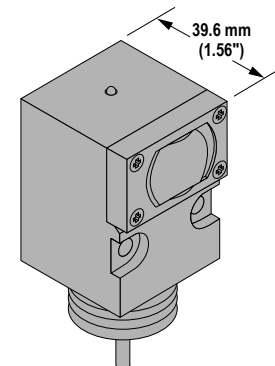


Figure 4. Convergent Sensing Mode (model suffix LVAG and CV)

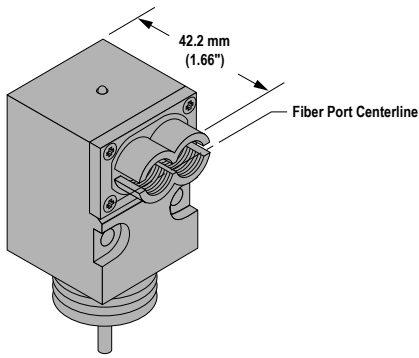


Figure 5. Glass Fiber Optic Models (model suffix F)

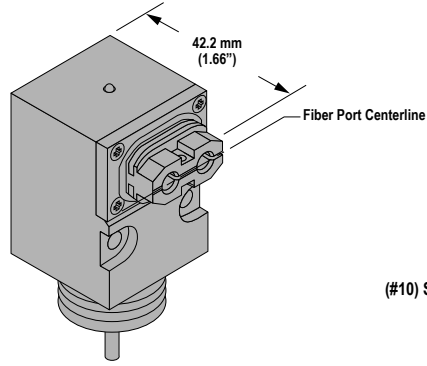


Figure 6. Plastic Fiber Optic Models (model suffix FP)

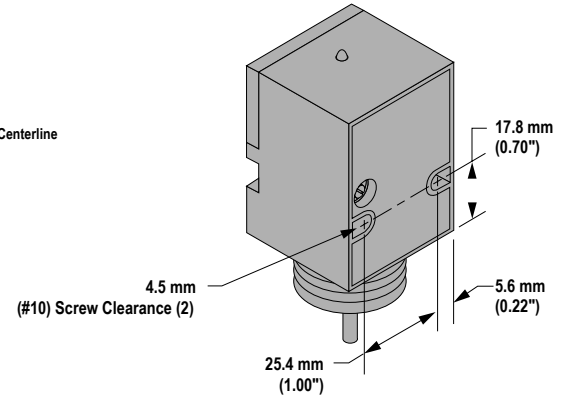
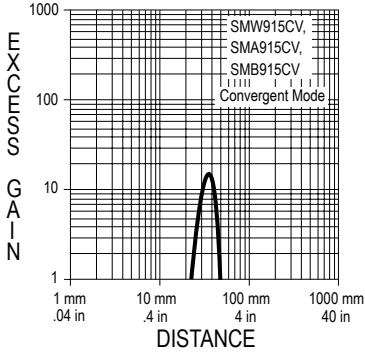
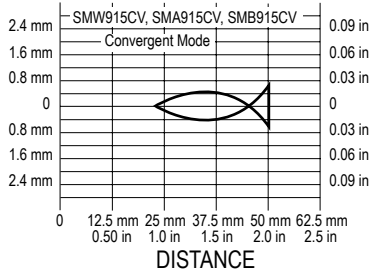
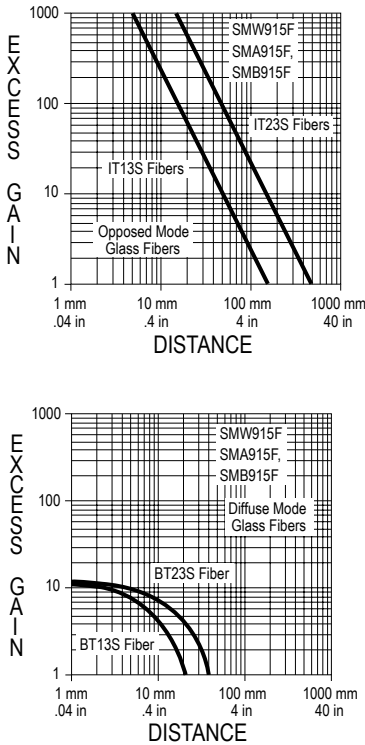
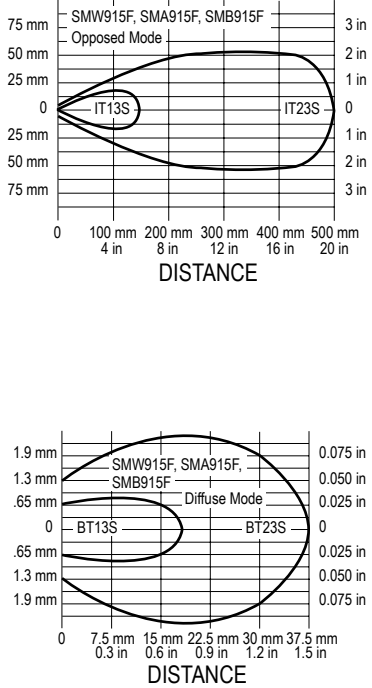


Figure 7. Rear View, All Models

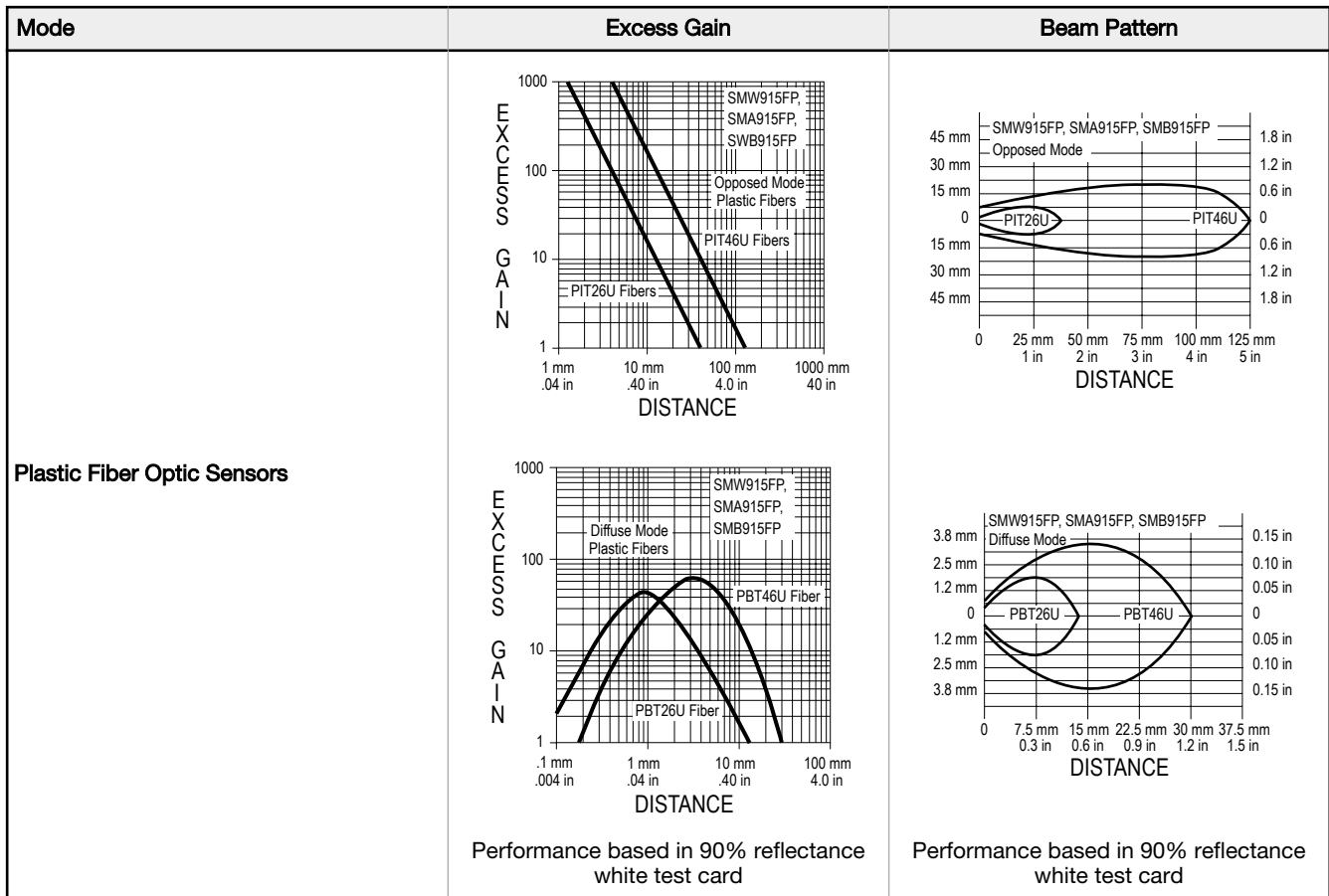
Performance Curves

Mode	Excess Gain	Beam Pattern
Opposed		
Opposed (ESR and RSR models)		

Mode	Excess Gain	Beam Pattern
<p><b>Retroreflective (Non-polarized)</b></p>		
<p><b>Retroreflective (Polarized)</b></p>		
<p><b>Diffuse</b></p>	<p style="text-align: center;">Performance based in 90% reflectance white test card</p>	<p style="text-align: center;">Performance based in 90% reflectance white test card</p>

Mode	Excess Gain	Beam Pattern
<p><b>Convergent</b></p>	 <p>Performance based in 90% reflectance white test card</p>	 <p>Performance based in 90% reflectance white test card</p>
<p><b>Glass Fiber Optic Sensors</b></p>	 <p>Performance based in 90% reflectance white test card</p>	 <p>Performance based in 90% reflectance white test card</p>






Accessories

Quick Disconnect Cables

3-Pin Mini-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MBCC-306	1.83 m (6 ft)	Straight		<p>1 = Brown 3 = Blue 4 = Black</p>
MBCC-312	3.66 m (12 ft)			
MBCC-330	9.14 m (30 ft)			

5-Pin Mini-Style Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MBCC-506	1.83 m (6 ft)	Straight		<p>1 = Black 2 = Blue 3 = Yellow 4 = Brown 5 = White</p>
MBCC-512	3.66 m (12 ft)			
MBCC-530	9.14 m (30 ft)			

## Cabling Accessories

Model	Description	
AC-6	2 m (6.5 ft) armored cable jacket	I.D. 5/16-in; O.D. 7/16-in
PVC-6	2 m (6.5 ft) flexible PVC tubing (not for QD models)	I.D. 1/4-in; O.D. 3/8-in
RF1-2NPS	Compression fitting for attaching armored cable or PVC tubing	-
HF1-2NPS	<ul style="list-style-type: none"> <li>Flexible black nylon cable protector</li> <li>Includes a neoprene gland that compresses around the VALU-BEAM cable to provide an additional seal against moisture</li> <li>Resistant to gasoline, alcohol, oil, grease, solvents and weak acids</li> <li>Working temperature range of -30 °C to +100 °C (-22 °F to +212 °F)</li> </ul>	

## Extension Cables (without connectors)

The following cables are available for extending the length of existing sensor cable. These are 30 m (100 ft) lengths of VALU-BEAM cable. This cable may be spliced to existing cable. Connectors, if used, must be user-supplied.

Model	Type	Used With:
EC312A-100	2-conductor	For all emitters
EC915-100	5-conductor	915 Series sensors other than emitters

## Replacement Lens Assemblies

VALU-BEAM lens assemblies are field-replaceable. In addition, some lenses may be used to convert from one sensing mode to another, or to change the sensing range of a particular sensor. The possible conversions are listed in the table below.

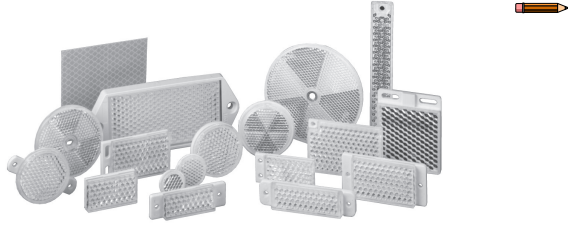
Models	Description	Possible Sensing Mode or Range Changes
UC-900AG	Replacement lens for LVAG	Change LV to LVAG
UC-900C	Replacement lens for C and CV	Change LV to CV
UC-900DSR	Replacement lens for DSR, ESR, and RSR	Change D or F to DSR, EF to ESR, and RF to RSR
UC-900F	Replacement lens for F	Change D to F and DSR to F
UC-900FP	Replacement lens for FP	-
UC-900L	Replacement lens for E, R, LV, and D	Change LVAG to LV, CV to LV, DSR to D, and F to D
UC-900J	Attach to E, R, ESR, RSR, LV, and D models	Flat polycarbonate dust cover

## Retroreflective Tape

Model	Reflectivity Factor	Maximum Temperature	Size
BRT-THG-3X3-10	0.7	+60 °C (+140 °F)	75 × 75 mm
BRT-THG-4X4-5	0.7	+60 °C (+140 °F)	100 × 100 mm
BRT-THG-8.5X11-2	0.7	+60 °C (+140 °F)	216 × 280 mm
BRT-THG-18X36	0.7	+60 °C (+140 °F)	457 × 914 mm
BRT-THG-1-100	0.7	+60 °C (+140 °F)	25 mm (1 in) wide, 2.5 m (100 in) long
BRT-THG-2-100	0.7	+60 °C (+140 °F)	50 mm (2 in) wide, 2.5 m (100 in) long
BRT-THG-3-100	0.7	+60 °C (+140 °F)	75 mm (3 in) wide, 2.5 m (100 in) long

Model	Reflectivity Factor	Maximum Temperature	Size
BRT-THT-100 <sup>8</sup>	0.07	+175 °C (+347 °F)	25 mm wide, 2.5 m (100 in) long

## Retroreflective Targets



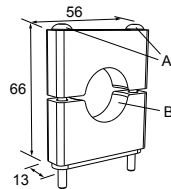
**Note:** The range of all retroreflective sensors is specified using target model BRT-3. Sensing range and signal strength at any given sensor-to-target distance will vary due to target reflectivity and target area. A "Reflectivity Factor" is included for each target model to help predict sensor performance, relative to the excess gain curve plotted for target model BRT-3. Consider, also, target area when predicting performance.

Model	Reflectivity Factor	Maximum Temperature	Size	Model	Reflectivity Factor	Maximum Temperature	Size
<b>Round Retroreflectors</b>				<b>Miscellaneous Retroreflectors</b>			
BRT-.6	1.0	60 °C (140 °F)	20.3 mm diameter	BRT-35X20A	1.4	60 °C (140 °F)	23.5 mm × 55 mm
BRT-1	1.0	60 °C (140 °F)	25 mm diameter	BRT-40X18A	1.0	60 °C (140 °F)	18 mm × 60 mm
BRT-1.5	1.0	60 °C (140 °F)	46 mm diameter	BRT-40X23	1.4	60 °C (140 °F)	23.5 mm × 40 mm
BRT-2B	1.0	65 °C (150 °F)	60.5 mm diameter	BRT-40X23B	1.4	60 °C (140 °F)	23.5 mm × 47.5 mm
BRT-3 <sup>9</sup>	1.0	60 °C (140 °F)	84 mm diameter	BRT-48X32	1.0	60 °C (140 °F)	32.5 mm × 48 mm
BRT-25R	1.0	60 °C (140 °F)	25.2 mm diameter	BRT-48X32A	1.0	60 °C (140 °F)	32 mm × 65 mm
BRT-41AHT	1.0	200°C (390°F)	74 mm diameter	BRT-48X32B	1.0	60 °C (140 °F)	32.5 mm × 57 mm
BRT-42A	1.0	60 °C (140 °F)	42 mm diameter	BRT-53X19A	1.4	60 °C (140 °F)	19 mm × 72 mm
BRT-42D	1.0	60 °C (140 °F)	42 mm diameter	BRT-60X40C <sup>9</sup>	1.4	60 °C (140 °F)	40.5 mm × 60 mm
BRT-50	1.0	60 °C (140 °F)	50.8 mm diameter	BRT-100X18A	1.4	60 °C (140 °F)	18.5 mm × 120 mm
BRT-50D <sup>9</sup>	1.0	60 °C (140 °F)	50.8 mm diameter	BRT-100X50	1.5	60 °C (140 °F)	101 mm × 50.6 mm
BRT-50R <sup>9</sup>	1.0	60 °C (140 °F)	50.8 mm diameter	BRT-100X55A	1.5	60 °C (140 °F)	132 mm × 56 mm
<b>Square Retroreflectors</b>				BRT-L	0.8	65 °C (150 °F)	165 mm × 19 mm
BRT-2X2	1.0	50 °C (120 °F)	61 mm × 51 mm				
BRT-77X77C <sup>9</sup>	2.0	60 °C (140 °F)	84.5 mm × 84.5 mm				
BRT-92X92C <sup>9</sup>	3.0	60 °C (140 °F)	100 mm × 100 mm				
BRT-4HT <sup>9 10</sup>	.15	480 °C (900 °F)	100 mm × 100 mm				

## MINI-BEAM Mounting Brackets

### SMB30C

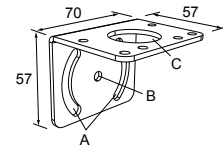
- 30 mm split clamp, black PBT bracket
- Stainless steel mounting hardware included
- Mounting hole for 30 mm sensor



**Hole center spacing:** A=∅ 45  
**Hole size:** B=∅ 27.2

### SMB30MM

- 12-ga. stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (1/4 in) hardware
- Mounting hole for 30 mm sensor



**Hole center spacing:** A = 51, A to B = 25.4  
**Hole size:** A = 42.6 x 7, B = ∅ 6.4, C = ∅ 30.1

<sup>8</sup> These targets are not recommended for polarized retroreflective sensors.

<sup>9</sup> Optional brackets are available; see <http://www.bannerengineering.com>.

<sup>10</sup> This target has micro-prism geometry.