

# Installation Instructions

## PHOTOSWITCH® Bulletin 42BA Miniature Rectangular

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

### Description

Background suppression sensing is designed to sense small objects over a short range. Objects beyond its range of sensing are generally rejected. The near and far limits of the sensing range are dependent upon the reflectivity of the object and the sensitivity setting.

Two package sizes are available. Smaller 10.3mm x 15mm x 25.4mm sensors can be selected when precise, short range sensing is required. Larger sensors offer greater sensing ranges to 7.87in (200mm).

Each bulletin 42BA comes complete with a steel right angle mounting bracket which provides a variety of mounting options.

### Features

- 350 μs response time
- Dual LED indicators: output (red), stability (green)
- Sensitivity adjustment potentiometer
- Choice of visible red or infrared light source
- Switch selectable light or dark operate
- Stability diagnostic output (NPN output versions only)
- Short-circuit protection (sensor output only)

### Features (continued)

- Reverse polarity protection
- False pulse protection
- Transient noise protection

### General Specifications

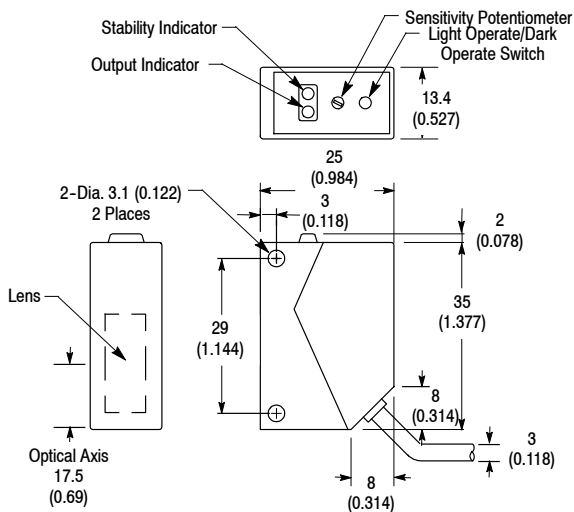
<b>Relative Humidity</b>	85% max
<b>Ambient Temperature</b>	-13°F to +131°F (-25°C to +55°C)
<b>Lens Material</b>	Polyarylate (units with 3cm or 5cm sensing range) or Polyether resin (units with 10cm or 20cm sensing range)
<b>Housing Material</b>	Polyarylate (units with 3cm or 5cm sensing range) or ABS resin (units with 10cm or 20cm sensing range)
<b>Operating Environment</b>	NEMA, 1, 4, 6P, 12, 13 and IP67
<b>Approvals</b>	UL listed and CSA certified, class 2 source required
<b>Weight</b>	50 grams (1.76 oz.) 42BA-S2LPAA-A2 42BA-S2LNAC-A2 42BA-S2LPAC-A2 42BA-S2LNAA-A2  80 grams (2.8 oz.) 42BA-S2LPAE-A2 42BA-S2LNAG-A2 42BA-S2LPAG-A2 42BA-S2LNAE-A2

### Dimensions—mm (inches)

#### Cable Versions

42BA-S2LNAE-A2  
42BA-S2LPAE-A2

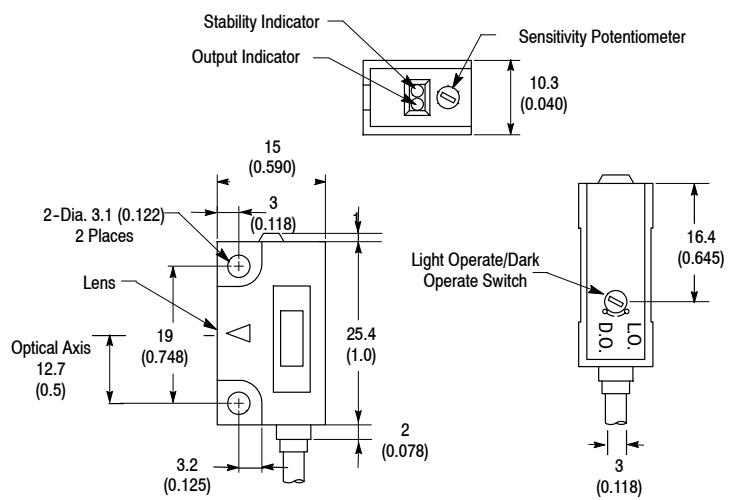
42BA-S1LNAG-A2  
42BA-S1LPAG-A2



#### Cable Versions

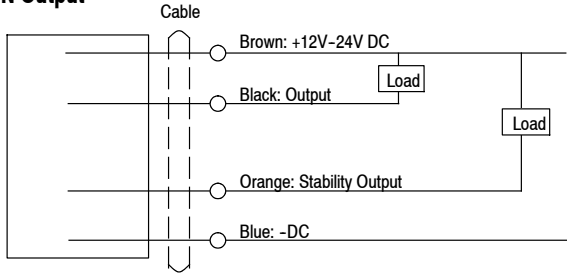
42BA-S2LNAA-A2  
42BA-S2LPAA-A2

42BA-S2LNAC-A2  
42BA-S2LPAC-A2

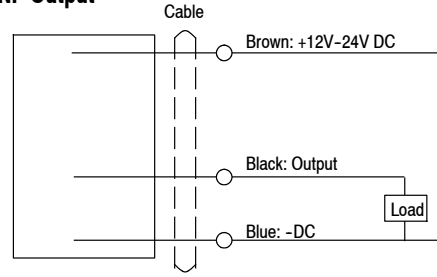


## Wiring

### NPN Output



### PNP Output

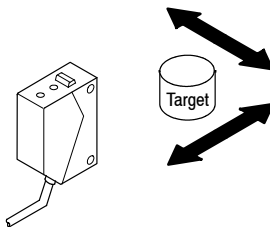


**Note:** Details regarding connection of Allen-Bradley Bulletin 42BA photoelectric sensors to Allen-Bradley programmable controllers can be found in publication 42BCFK-7.0.

### Detection Direction

Due to the detection method, the sensor must be positioned such that the target passes in one of the following directions.

Motion in up/down direction cannot be detected.



### Background Suppression

#### Operating Distance with White Paper

Min Sensitivity	Max Sensitivity	Catalog Number
1.2cm-2.5cm (0.47in-0.98in)	0.2cm-3cm (0.078in-1.18in)	42BA-S2LNAA-A2 42BA-S2LPAA-A2
0.95cm-3.9cm (0.37in-1.54in)	0.27cm-5cm (0.106in-1.97in)	42BA-S2LNAC-A2 42BA-S2LPAC-A2
1.7cm-7.5cm (0.67in-2.95in)	0.6cm-10cm (0.24in-3.94in)	42BA-S2LNAE-A2 42BA-S2LPAE-A2
2.5cm-16cm (0.98in-6.29in)	0.1cm-20cm (0.039in-7.87in)	42BA-S1LNAG-A2 42BA-S1LPAG-A2

Background Suppression	
Field of View	42BA-S2: 9° 42BA-S1: 5°
Transmitting LED	Infrared 880nm for 42BA-S1LNAG-A2 and 42BA-S1LPAG-A2 Visible red 700nm for all other models
Connections	4-conductor 500V PVC jacketed cable 6.5ft (2m) 3-conductor 500V PVC jacketed cable 6.5ft (2m)

Operating Voltage	Supply Current	Output Energized	Output Characteristics			Response Time	Size	Catalog Number	
			Type	Max Load Current	Max Leakage Current			Cable	
12-24V DC $\pm$ 10%	27mA	Light/Dark Selectable	NPN	Output: 100mA, Stability: 50mA	0.5mA	350 $\mu$ s	10.3mm x 15mm x 25.4mm	42BA-S2LNAA-A2 42BA-S2LNAC-A2	
	30mA						13.4mm x 25mm x 35mm	42BA-S2LNAE-A2 42BA-S1LNAG-A2	
							33mA	PNP	Output: 100mA
			13.4mm x 25mm x 35mm	42BA-S2LPAE-A2 42BA-S1LPAG-A2					

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### Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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