

PHOTOSWITCH® Photoelectric Sensors  
**42BC Long Range Background Suppression**  
 Slim Housing Style



**General Specifications**

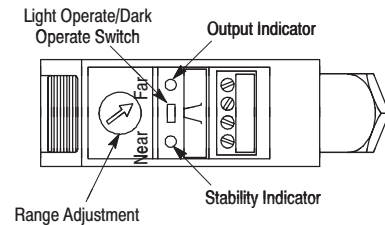
<b>Unit Protection</b>	Output short circuit (SS version only), reverse polarity, false pulse, transient noise
<b>Supply Voltage</b>	12-24V DC
<b>Current Consumption</b>	30mA maximum
<b>Output Type</b>	NPN and PNP (DC version) SPST N.O. relay (AC version)
<b>Output Mode</b>	Light/dark operate selectable
<b>Output Rating</b>	100mA@24V DC 3A@240V AC
<b>Max Leakage Current</b>	0.5mA
<b>Response Time</b>	20ms maximum (DC version) 30ms maximum (AC version)
<b>Housing Material</b>	Polycarbonate
<b>Lens Material</b>	Acrylic
<b>LED Indicators</b>	See User Interface below
<b>Connection Types</b>	Screw terminal, 16 AWG (1.3mm <sup>2</sup> )
<b>Supplied Accessories</b>	Right angle mounting bracket
<b>Optional Accessories</b>	Cordsets, mounting brackets—see page NO TAG
<b>Operating Environment</b>	NEMA 1, 12, 13 IP65 (IEC529)
<b>Vibration</b>	10-55Hz, 1mm amplitude, Meets or exceeds IEC 60947-5-2
<b>Shock</b>	30g with 1ms pulse duration, Meets or exceeds IEC 60947-5-2
<b>Operating Temperature</b>	-25°C to +55°C (-13°F to +131°F)
<b>Relative Humidity</b>	5...85%
<b>Approvals</b>	UL listed, CSA certified, and CE marked for all applicable directives

**Features**

- Long range background suppression diffuse sensing mode
- Adjustable range settings
- Slim housing style
- Highly visible LED Indicators
- Screw terminal connections
- Both NPN and PNP outputs (DC)
- SPST relay output (AC)
- Short-circuit protected outputs

**User Interface Panel**

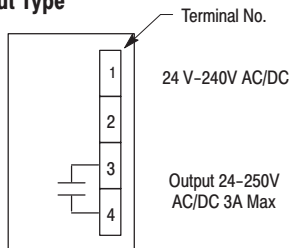
Label	Color	State	Status
Margin	Green	OFF	0.8<math>\text{margin}<1.2</math>
		ON	0.8<math>\text{margin}>1.2</math>
Output	Red	OFF	Output not activated
		ON	Output activated



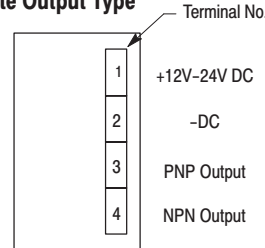
**Wiring Diagrams**

**Terminal Version**

**Relay Output Type**

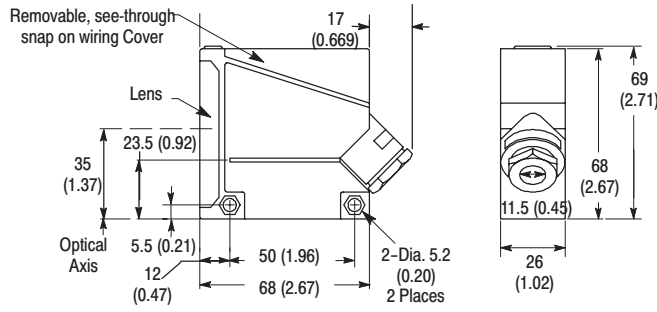


**Solid State Output Type**



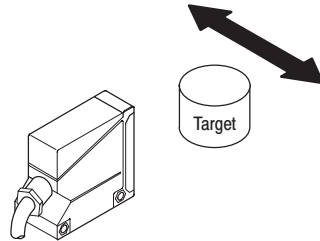
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**Dimensions—mm (inches)**



**Detection Direction**

Due to the detection method, the sensor must be positioned such that the target passes in the direction illustrated. Motion in up/down direction cannot be detected.



**Minimum Sensing Distances**

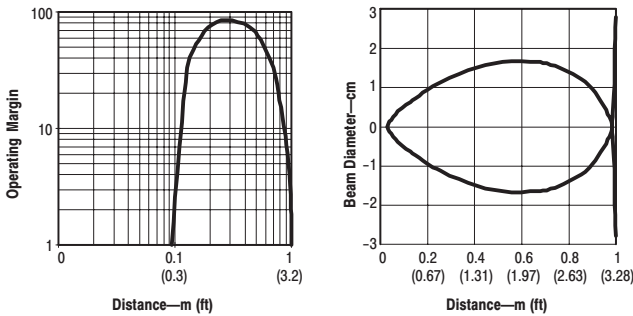
Near Setting

2.5% black 8cm (3.15in) at 2X margin  
 100% white 3cm (1.18in) at 2X margin

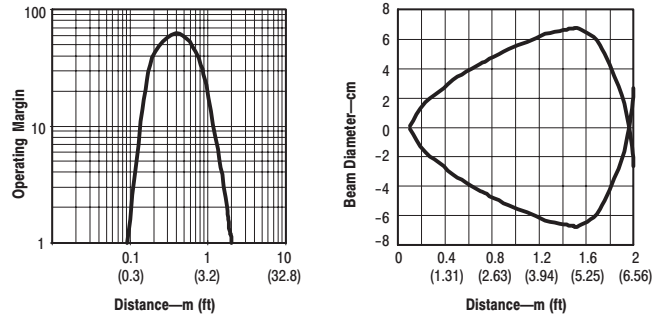
Far Setting

2.5% black 20cm (7.9in) at 2X margin  
 100% white 4cm (1.57in) at 2X margin

**Typical Response Curve Beam Pattern**  
**1m Background Suppression**



**Typical Response Curve Beam Pattern**  
**2m Background Suppression**



**Product Selection**

Sensing Mode	Operating Voltage Supply Current	Sensing Distance	Output Energized	Output Type Capacity Response Time	Connection Type	Catalog Number	
<p><b>Background Suppression</b></p> <p>Field of View: 3.5°                      Minimum Sensing Distance: 30mm (1.2in)                      Emitter LED: Infrared 880nm</p>	12-24V DC ±10% 30mA	1m (3.3ft)	Light/Dark Selectable	NPN/PNP Selectable 100mA 20ms	Screw terminals accepts up to (2) 16AWG (1.3mm sq.) conductors	42BC-B1LBAL-T4	
		2m (6.6ft)				42BC-B1LBAN-T4	
	24-240V AC/DC ±10% 30mA (DC) 15mA (AC)	1m (3.3ft)				S.P.S.T. N.O. Relay 3A (250V AC, 750VA) 3A (30V DC, 90W) 30ms	42BC-B1CRAL-T4
		2m (6.6ft)				42BC-B1CRAN-T4	

**Cordsets**

Description	Catalog Number
DC Micro QD Cordset, Straight, 4-pin, 2m	889D-F4AC-2
AC Micro QD Cordset, Straight, 4-pin, 2m	889R-F4AEA-2
Pico QD Cordset, Straight, 4-pin, 2m	889P-F4AB-2