



**Specifications**

<b>Environmental</b>	
Certifications	UL, CSA and CE Marked for all applicable directives
Operating Environment	NEMA 4X, 6P, IP67, 1200 psi (8270 kPa) washdown
Operating Temperature [C (F)]	-20...+70° (-4...+158°)
Vibration	10...55 Hz, 1 mm amplitude, meets or exceeds IEC 60947-5-2
Shock	30 g with 1 ms pulse duration, meets or exceeds IEC 60947-5-2
Relative Humidity	5...95%

<b>Optical</b>	
Sensing Modes	Retrotreflective, polarized retroreflective, diffuse, wide angle diffuse, fixed focus diffuse, transmitted beam, fiber optic
Sensing Range	See Product Selection table on page 1-45
Field of View	See Product Selection table on page 1-45
Light Source	Visible red LED (660 nm), infrared LED (880 nm)
LED Indicators	See User Interface below
Adjustments	Multi-turn potentiometer

<b>Electrical</b>	
Voltage	10.8...30V DC, 21.6...250V AC/DC
Current Consumption	30 mA max. (DC)
Sensor Protection	Overload, short circuit, reverse polarity, false pulse

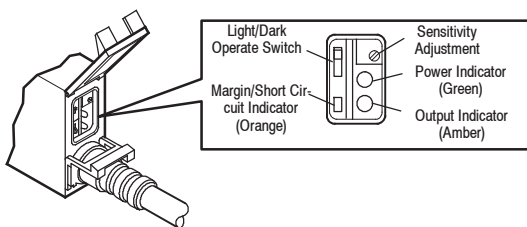
<b>Outputs</b>	
Response Time	See Product Selection table on page 1-45
Output Type	PNP and NPN (DC), MOSFET (AC/DC)
Output Mode	Light operate or dark operate selectable
Output Current	100 mA @ 30V DC max
Output Leakage Current	0.1 mA max (DC), 1.7 mA (AC/DC)

<b>Mechanical</b>	
Housing Material	Noryl 190X
Lens Material	Acrylic
Connection Types	2 m cable (24 AWG), 4-pin DC micro (M12) QD, 3-pin AC micro (M12)
Supplied Accessories	75012-097-01 18 mm locknut
Optional Accessories	See mounting brackets, reflectors, and cordsets on page 1-47

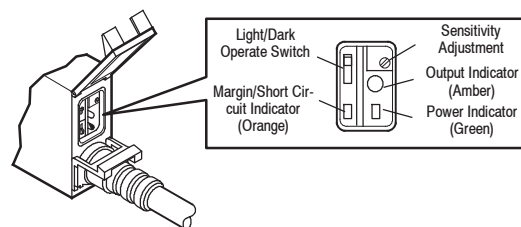
**Features**

- Compact rectangular size with standard 18 mm mounting nose
- Visible indicators for power, output, and 2.5X margin/short circuit
- Short circuit protection in all versions, including two-wire universal voltage versions
- False pulse protection
- Switch selectable light or dark operation
- Access to sensor adjustments through captive cover that does not require tools for access
- Eight sensing modes available
- Rated to withstand high temperature 1200 psi washdowns
- 300 μs high speed DC versions
- No tools are required to attach fiber optic cables to either glass or plastic fiber optic sensors

**User Interface**



**NOTE:** The power indicator will turn off when the output indicator is on. The cat. no. for the Rear Snap Cover is 60-2679.

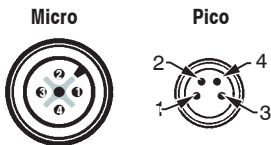
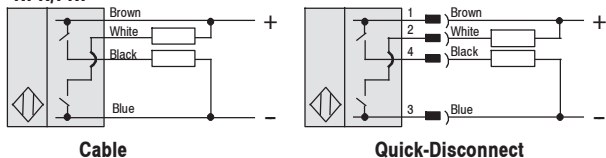


**NOTE:** The power indicator will turn off when the output indicator is on. The cat. no. for the Rear Snap Cover is 60-2679.

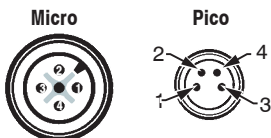
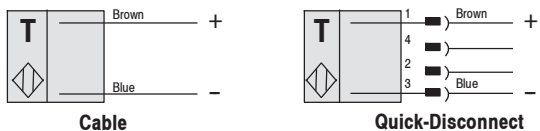
Wiring Diagrams①②

11...30V DC Sensors

NPN/PNP

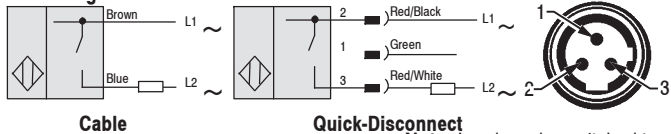


Transmitted Beam Source

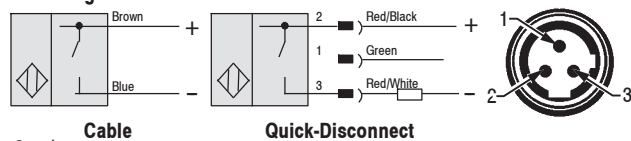


22...250V AC/DC Sensors

AC Wiring

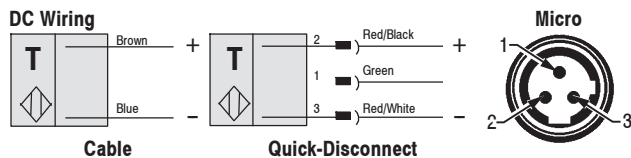
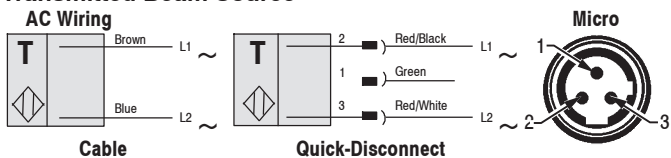


DC Wiring



Note: Load can be switched to pin 2 or brown.

Transmitted Beam Source

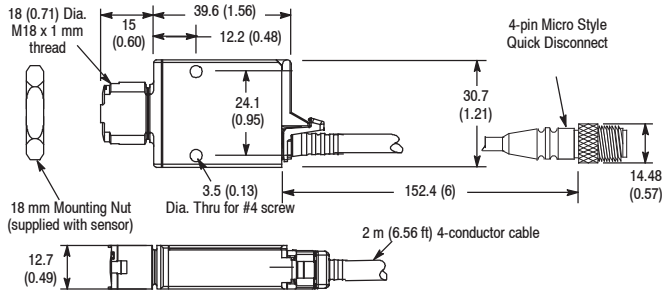


① For Rockwell Automation programmable controller compatible interface, refer to PHOTOSWITCH® Photoelectric Sensors and Programmable Controller Interface Manual at [www.ab.com/literature](http://www.ab.com/literature).

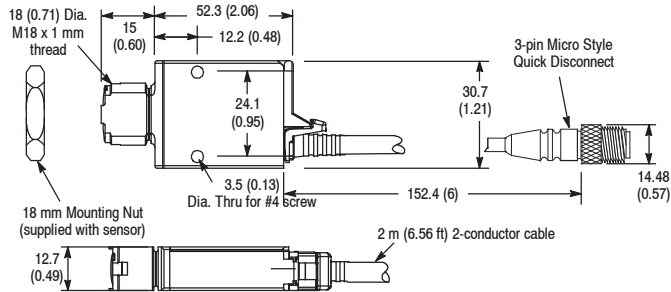
② Quick-disconnect wiring codes shown are valid for Rockwell Automation cables only.

Approximate Dimensions [mm (in.)]

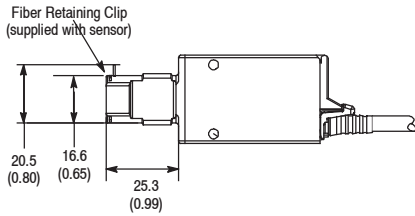
DC Sensors



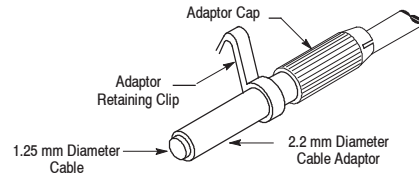
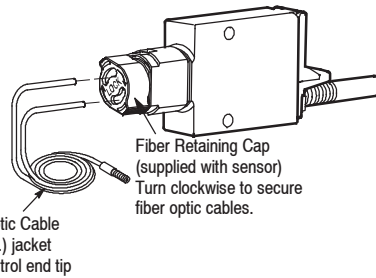
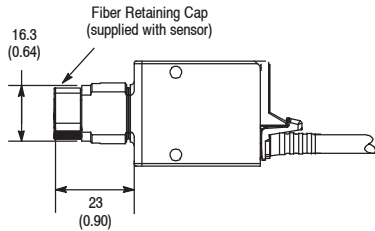
AC/DC Sensors



Infrared Glass Fiber Optic Sensors



Visible Red Plastic Fiber Optic Sensors



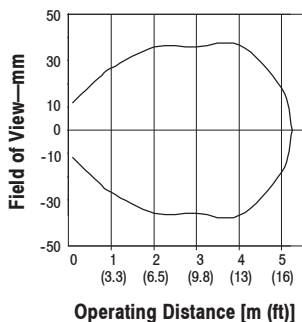
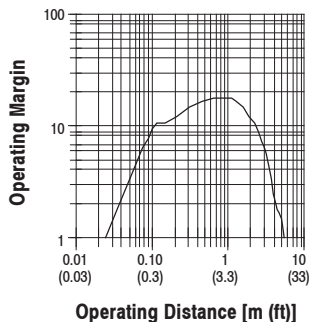
Special Glass Fiber Optic cables are also available with 2.2 mm (0.09 in.) diameter control end tips.

**NOTE:** Cat. No. 61-6731 adaptors are required for smaller fiber optic cables with jacket diameters of 1.25 mm (0.05 in.).

Typical Response Curve

Beam Pattern

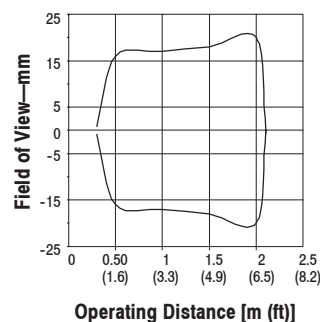
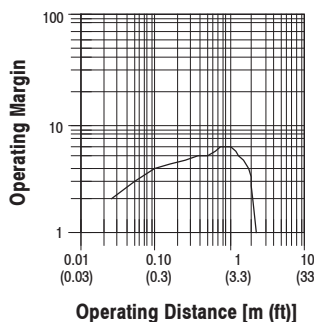
Retroreflective



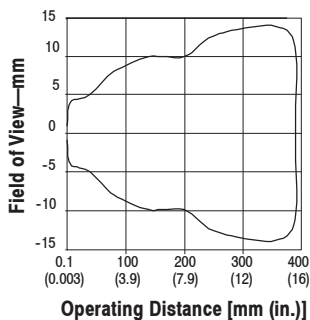
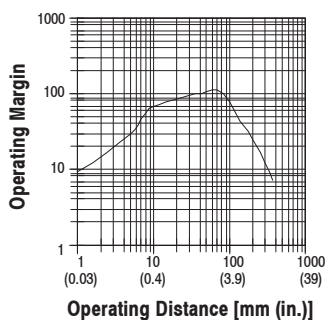
Typical Response Curve

Beam Pattern

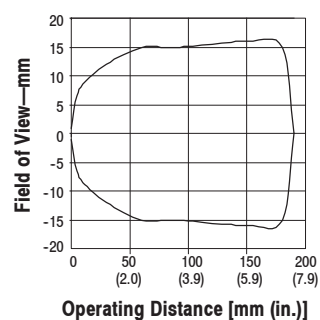
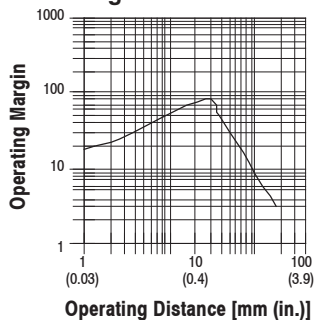
Polarized Retroreflective



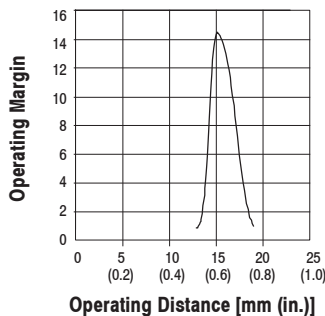
Standard Diffuse



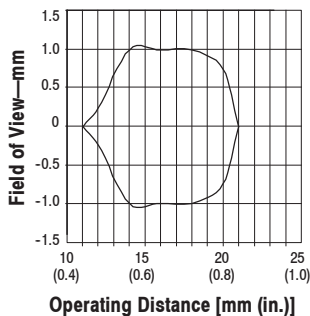
Wide Angle Diffuse



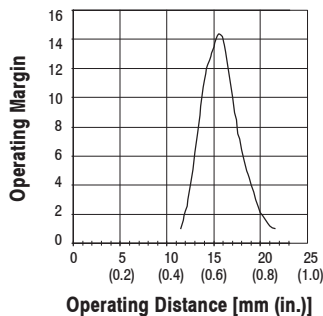
Fixed Focus Diffuse  
16 mm Red LED



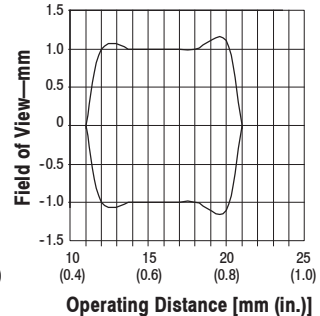
16 mm Red LED



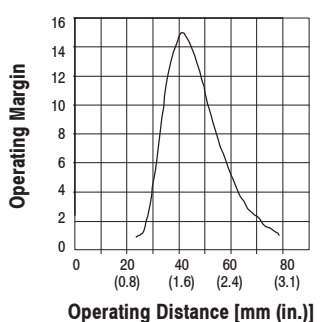
Fixed Focus Diffuse  
16 mm Green LED



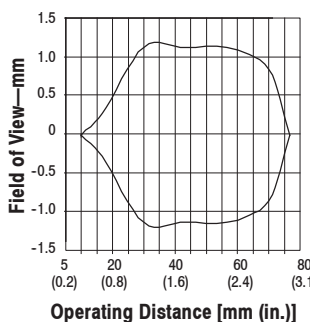
16 mm Green LED



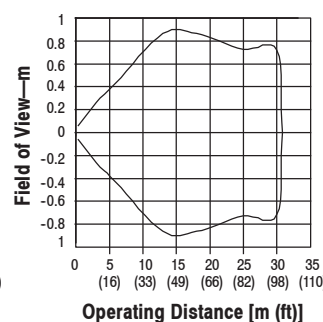
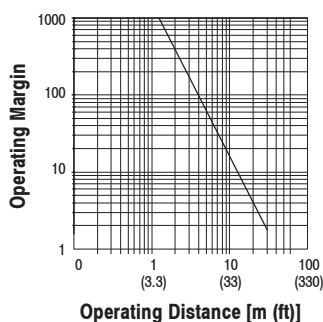
Fixed Focus Diffuse  
43 mm Red LED



43 mm Red LED

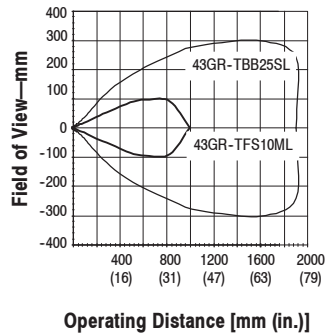
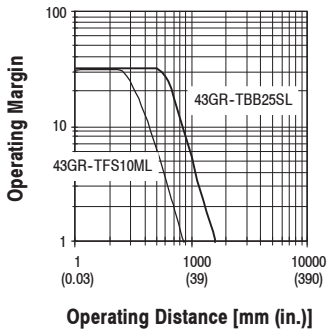


Transmitted Beam



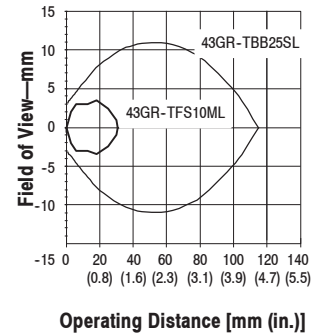
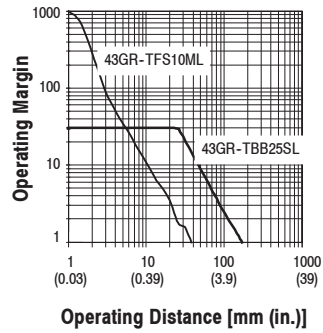
Typical Response Curve Beam Pattern

Large Aperture Fiber Optic  
Retroreflective (using 3 in. dia. reflector)

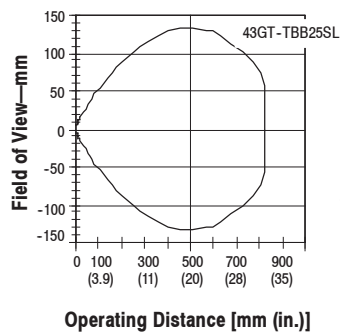
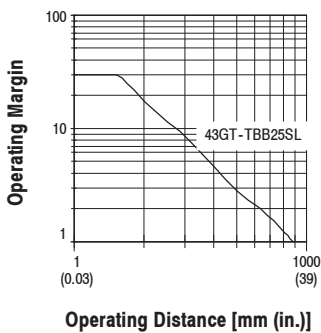


Typical Response Curve Beam Pattern

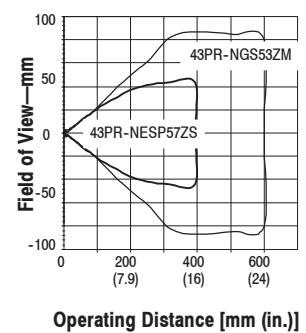
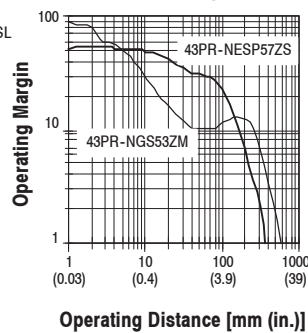
Large Aperture Fiber Optic  
Diffuse



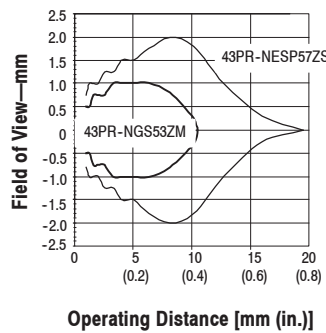
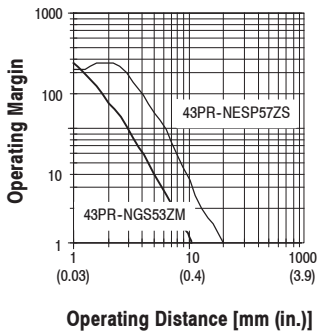
Large Aperture Fiber Optic  
Transmitted Beam



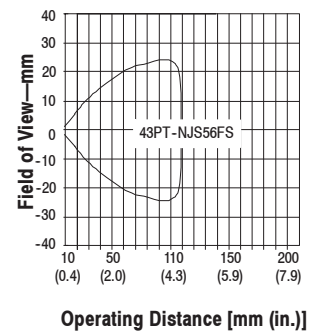
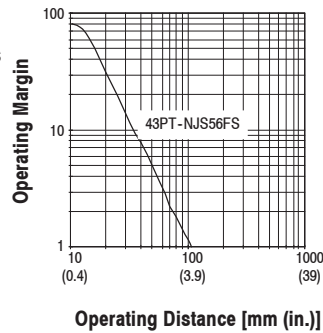
Small Aperture Fiber Optic  
Retroreflective (using 3 in. dia. reflector)



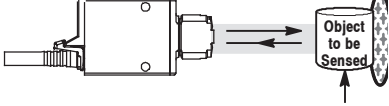
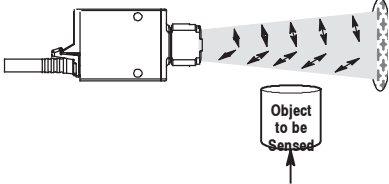
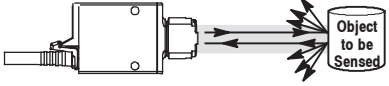
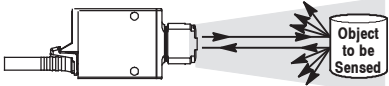
Small Aperture Fiber Optic  
Diffuse



Small Aperture Fiber Optic  
Transmitted Beam

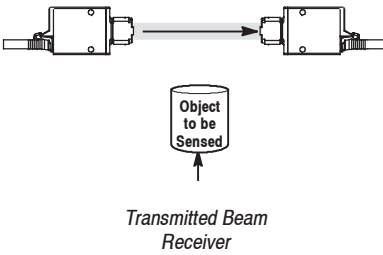
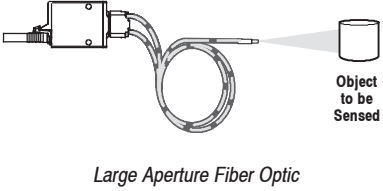
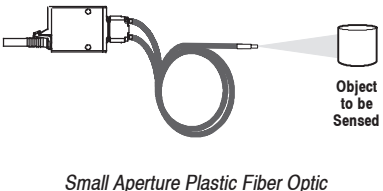


Product Selection

Sensing Mode	Operating Voltage Supply Current	Sensing Distance	Output Energized	Output Type Capacity Response Time	Connection Type	Cat. No.
 <p><i>Retroreflective</i></p> <p><b>Field of View:</b> 1.5° <b>Emitter LED:</b> Visible red 660 nm</p>	10.8...30V DC 35 mA	25 mm...5 m (0.98 in...16.4 ft)	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-U2LB-A2
		21.6...250V AC/DC			25 mm...2.5 m (0.98 in...8.2 ft)	4-pin DC micro
	4-pin pico QD					42KL-U2LB-Y4
	2 m 300V cable			42KL-U2LBQ-A2		
	21.6...250V AC/DC	25 mm...2.5 m (0.98 in...8.2 ft)		4-pin DC micro	42KL-U2LBQ-F4	
				4-pin pico QD	42KL-U2LBQ-Y4	
21.6...250V AC/DC	25 mm...5 m (0.98 in...16.4 ft)	Power MOSFET 2-wire 100 mA 8.3 ms	2 m 300V cable	42KL-U2TC-A2		
			3-pin AC micro	<b>42KL-U2TC-G3</b>		
 <p><i>Polarized Retroreflective</i></p> <p><b>Field of View:</b> 1.5° <b>Emitter LED:</b> Visible red 660 nm</p>	10.8...30V DC 35 mA	25 mm...2 m (0.98 in...6.6 ft)	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-P2LB-A2
		21.6...250V AC/DC			25 mm...1 m (0.98 in...3.3 ft)	4-pin DC micro
	4-pin pico QD					42KL-P2LB-Y4
	2 m 300V cable			42KL-P2LBQ-A2		
	21.6...250V AC/DC	25 mm...2 m (0.98 in...6.6 ft)		Power MOSFET 2 wire 100 mA 8.3 ms	4-pin DC micro	42KL-P2LBQ-F4
					4-pin pico QD	42KL-P2LBQ-Y4
21.6...250V AC/DC	25 mm...2 m (0.98 in...6.6 ft)	Power MOSFET 2 wire 100 mA 8.3 ms	2 m 300V cable	42KL-P2TC-A2		
			3-pin AC micro	<b>42KL-P2TC-G3</b>		
 <p><i>Standard Diffuse</i></p> <p><b>Field of View:</b> 5° <b>Emitter LED:</b> Infrared 880 nm</p>	10.8...30V DC 35 mA	1...380 mm (0.04...15 in.)	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-D1LB-A2
		21.6...250V AC/DC			1...190 mm (0.04...7.5 in.)	4-pin DC micro
	4-pin pico QD					42KL-D1LB-Y4
	2 m 300V cable			42KL-D1LBQ-A2		
	21.6...250V AC/DC	1...380 mm (0.04...15 in.)		Power MOSFET 2 wire 100 mA 8.3 ms	4-pin DC micro	42KL-D1LBQ-F4
					4-pin pico QD	42KL-D1LBQ-Y4
21.6...250V AC/DC	1...380 mm (0.04...15 in.)	Power MOSFET 2 wire 100 mA 8.3 ms	2 m 300V cable	42KL-D1TC-A2		
			3-pin AC micro	<b>42KL-D1TC-G3</b>		
 <p><i>Wide Angle Diffuse</i></p> <p><b>Field of View:</b> 18° <b>Emitter LED:</b> Infrared 880 nm</p>	10.8...30V DC 35 mA	1...180 mm (0.04...7.0 in.)	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-W1LB-A2
		21.6...250V AC/DC			1...90 mm (0.04...3.5 in.)	4-pin DC micro
	4-pin pico QD					42KL-W1LB-Y4
	2 m 300V cable			42KL-W1LBQ-A2		
	21.6...250V AC/DC	1...90 mm (0.04...3.5 in.)		Power MOSFET 2 wire 100 mA 8.3 ms	4-pin DC micro	42KL-W1LBQ-F4
					4-pin pico QD	42KL-W1LBQ-Y4
21.6...250V AC/DC	1...90 mm (0.04...3.5 in.)	Power MOSFET 2 wire 100 mA 8.3 ms	2 m 300V cable	42KL-W1TC-A2		
			3-pin AC micro	<b>42KL-W1TC-G3</b>		

Refer to page 1-47 for cordsets and accessories.

Product Selection (continued)

Sensing Mode	Operating Voltage Supply Current	Sensing Distance	Output Energized	Output Type Capacity Response Time	Connection Type	Cat. No.	
 <p>Transmitted Beam Receiver</p> <p>Field of View: 7° Emitter LED: Infrared 880 nm</p>	10.8...30V DC 25 mA	30 m (98 ft)	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-RLB-A2	
	21.6...250V AC/DC				4-pin DC micro	42KL-RLB-F4	
					4-pin pico QD	42KL-RLB-Y4	
	10.8...30V DC 25 mA	10 m (33 ft)	Light/Dark Selectable	NPN/PNP 100 mA 900 µs	2 m 300V cable	42KL-RLBQ-A2	
	21.6...250V AC/DC				4-pin DC micro	42KL-RLBQ-F4	
					4-pin pico QD	42KL-RLBQ-Y4	
 <p>Large Aperture Fiber Optic</p> <p>Field of View: Depends on Fiber Optic cable selected Emitter LED: Infrared 880 nm</p>	10.8...30V DC 35 mA	Depends on Fiber Optic cable selected	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-G1LB-A2	
	21.6...250V AC/DC				4-pin DC micro	42KL-G1LB-F4	
					4-pin pico QD	42KL-G1LB-Y4	
	21.6...250V AC/DC			21.6...250V AC/DC	NPN/PNP 100 mA 300 µs	2 m 300V cable	42KL-G1LBQ-A2
						4-pin DC micro	42KL-G1LBQ-F4
						4-pin pico QD	42KL-G1LBQ-Y4
 <p>Small Aperture Plastic Fiber Optic</p> <p>Field of View: Depends on Fiber Optic cable selected Emitter LED: Visible red 660nm</p>	10.8...30V DC 35 mA	Depends on Fiber Optic cable selected	Light/Dark Selectable	NPN/PNP 100 mA 1 ms	2 m 300V cable	42KL-L2LB-A2	
	21.6...250V AC/DC				4-pin DC micro	42KL-L2LB-F4	
					4-pin pico QD	42KL-L2LB-Y4	
	21.6...250V AC/DC			21.6...250V AC/DC	NPN/PNP 100 mA 300 µs	2 m 300V cable	42KL-L2LBQ-A2
						4-pin DC micro	42KL-L2LBQ-F4
						4-pin pico QD	42KL-L2LBQ-Y4
21.6...250V AC/DC	21.6...250V AC/DC	Power MOSFET 2-wire 100 mA 8.3 ms	2 m 300V cable	42KL-L2TC-A2			
			3-pin AC micro	42KL-L2TC-G3			

⊗ For fiber optic selection guide, see pages 1-231.

Cordsets and Accessories

Description	Cat. No.	Description	Cat. No.	Description	Cat. No.
DC Micro QD Cordset, Straight, 4-pin, 2 m	889D-F4AC-2	Pico QD Cordset, Straight, 4-pin, 2 m	889P-F4AB-2	32 mm (1.25 in.) Diameter Reflector	92-47
AC Micro QD Cordset, Straight, 3-pin, 2 m	889R-F3AEA-2	76 mm (3 in.) Diameter Reflector	92-39		

Transmitted Beam—Maximum Operating Distance with Apertures

Aperture Slot Size	Maximum Range		Cat. No.
	Standard Speed	High Speed	
1 mm	2.1 m (6.9 ft)	0.7 m (2.3 ft)	60-2673
2 mm	10.5 m (34.5 ft)	3.5 m (11.4 ft)	60-2674
4 mm	18.6 m (61.0 ft)	6.1 m (20.1 ft)	60-2675
1, 2, 4 mm kit	—	—	60-2676