

PHOTOSWITCH Micro Rectangular Sensors

Catalog Numbers 42KB-D1LNED-x, 42KB-D1LNEG-x, 42KB-D1LNSD-x, 42KB-D1LNSh-x, 42KB-D1LPED-x, 42KB-D1LPEG-x, 42KB-D1LPSD-x, 42KB-D1LPSH-x, 42KB-D2LNEH-x, 42KB-D2LNSG-x, 42KB-D2LPEH-x, 42KB-D2LPSG-x, 42KB-D2YNSG-x, 42KB-S1LNSB-x, 42KB-S1LPSB-x, 42KB-S2LNSA-x, 42KB-S2LPSA-x, 42KB-T1LNEl-x, 42KB-T1LNEQ-x, 42KB-T1LNSL-x, 42KB-T1LNSQ-x, 42KB-T1LPEL-x, 42KB-T1LPEQ-x, 42KB-T1LPSL-x, 42KB-T1LPSQx

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Description

Bulletin 42KB micro rectangular self-contained photoelectric sensors offer high performance in a compact 10 x 15 x 25 mm (0.39 x 0.59 x 0.98 in.) rectangular housing. These sensors offer extended sensing ranges and a fast 1 ms response time. Light or dark operation can be selected through a separate connection made at installation. Both side and end view optics are available to increase application flexibility.

Each Bulletin 42KB sensor comes complete with a steel right angle mounting bracket which provides a variety of mounting options. Retroreflective sensors also contain a compact, rectangular reflector suited to most applications. Other reflectors are available separately. Four different snap-on apertures can be purchased separately for transmitted beam sensing of extremely small objects.

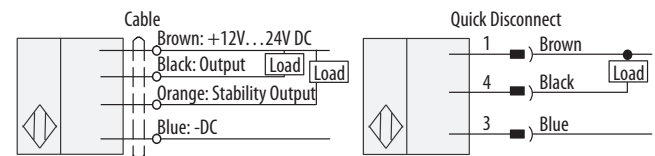
Features

- Pico quick-disconnect available
- Sensitivity adjustment potentiometer
- Dual LED indicators: output (red), stability (green)
- Short circuit protection on the sensor output (NPN output versions only)
- Stability output (NPN output versions only)
- Switch selectable light or dark operate
- Flat lens surface to minimize dust collection
- Reverse polarity, false pulse, and transient noise protection

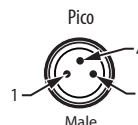
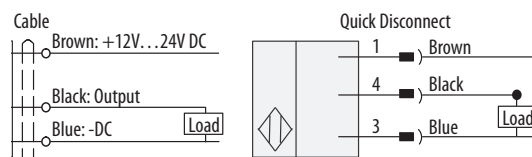
General Specifications

Attribute	Value
Relative Humidity	85% max.
Ambient Temperature	-25...+55 °C (-13...+131 °F)
Acrylic Lens Material	42KB-S2PSA-A2, -Y3 42KB-S2 NSA-A2, -Y3
Polycarbonate Lens Material	42KB-S1 NSB-A2, -Y3 42KB-S1 PSB-A2, -Y3 42KB-D1 NSD-A2, -Y3 42KB-D1 PSD-A2, -Y3 42KB-D1 NED-A2, -Y3 42KB-D1 PED-A2, -Y3 42KB-T1 NS -A2, -Y3 42KB-T1 PS -A2, -Y3 42KB-T1 NE -A2, -Y3 42KB-T1 PE -A2, -Y3
Polyarylate Lens Material	All other catalog numbers
Housing Material	Polyarylate
Operating Environment	NEMA 1, 4, 6, 12, 13, and IP67
Approval	UL Listed and CSA Certified, Class 2 source required
Weight	50 g (1.76 oz)

NPN Output Wiring



PNP Output Wiring



Dimensions

Figure 1 - End View Dimensions [mm (in.)]

- 42KB-T1LPEL-A2, -Y3
- 42KB-T1LNEL-A2, -Y3
- 42KB-T1LPEQ-A2, -Y3
- 42KB-T1LNEQ-A2, -Y3
- 42KB-D1LPED-A2, -Y3
- 42KB-D1LNED-A2, -Y3
- 42KB-D1LPEG-A2, -Y3
- 42KB-D1LNEG-A2, -Y3
- 42KB-D1LPEH-A2, -Y3
- 42KB-D1LNEH-A2, -Y3

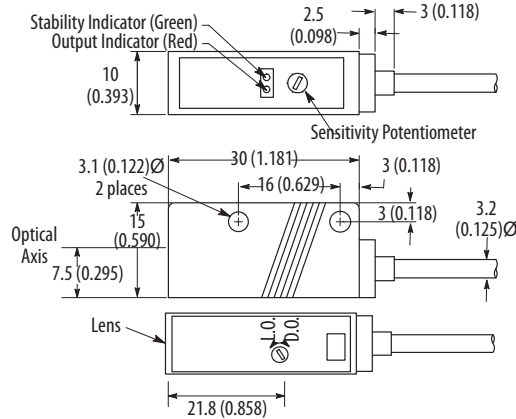


Figure 2 - Side View Dimensions [mm (in.)]

- 42KB-T1LPSL-A2, -Y3
- 42KB-T1LNLSL-A2, -Y3
- 42KB-T2LPSR-A2, -Y3
- 42KB-T2LNSR-A2, -Y3
- 42KB-T1LPSQ-A2, -Y3
- 42KB-T1LNSQ-A2, -Y3
- 42KB-D1LPSD-A2, -Y3
- 42KB-D1LNSD-A2, -Y3
- 42KB-D1LPSH-A2, -Y3
- 42KB-D1LNSH-A2, -Y3
- 42KB-D2LPSG-A2, -Y3
- 42KB-D2LNSG-A2, -Y3
- 42KB-U2LPSN-A2, -Y3
- 42KB-U2LNSN-A2, -Y3
- 42KB-S1LPSB-A2, -Y3
- 42KB-S1LNSB-A2, -Y3
- 42KB-S2LPSA-A2, -Y3
- 42KB-S2LNSA-A2, -Y3

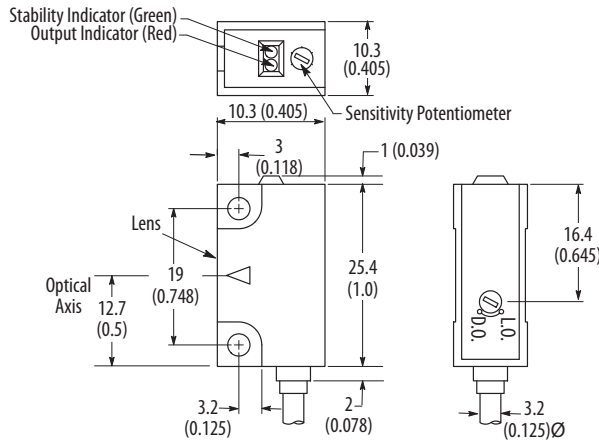


Table 1 - Retroreflective and Standard Diffuse (see footnotes on page 4)

	Retroreflective		Standard Diffuse	
Field of View	5°		Catalog numbers ending in D-A2: 20°. All others: 12°	
Transmitter LED	Visible red 660 nm		See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽¹⁾	Infrared 950 nm
			See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽²⁾	Infrared 900 nm
			See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽³⁾	Visible red 700 nm
Connections	42KB-U2PSN-A2	3-conductor 500 V PVC jacketed cable 2 m (6.5 ft)	PNP	3-conductor 500V PVC jacketed cable 2 m (6.5 ft)
	42KB-U2PSN-Y3	3-pin DC pico style male receptacle	PNP	3-pin DC pico style male receptacle
	42KB-U2NSN-A2	4-conductor 500V PVC jacketed cable 2 m (6.5 ft)	NPN	4-conductor 500V PVC jacketed cable 2 m (6.5 ft)
	42KB-U2NSN-Y3	3-pin DC pico style male receptacle	NPN	3-pin DC pico style male receptacle
1:1 Margin	2 m (6.5 ft)		See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽³⁾	70.1 mm (2.76 in.)
			See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽⁴⁾	199.90 mm (7.87 in.)
			See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽⁵⁾	299.97 mm (11.81 in.)
			See Standard Diffuse Selection (see footnotes on page 4) on page 3 ⁽⁶⁾	400.05 mm (15.75 in.)

Table 2 - Sharp Cutoff and Transmitted Beam (see footnotes on page 4)

Field of View	Sharp Cutoff Diffuse		Transmitted Beam	
	42KB-S1: 15 °	42KB-S2: 20 °	42KB-S1: 15 °	42KB-S2: 20 °
Transmitting LED	42KB-S1 PSB-A2 42KB-S1 PSB-Y3 42KB-S1 NSB-A2 42KB-S1 NSB-Y3	Infrared 900 nm	See Transmitted Beam on page 4 ⁽⁷⁾⁽⁸⁾	Infrared 880 nm
	42KB-S2 PSA-A2 42KB-S2 PSA-Y3 42KB-S2 NSA-A2 42KB-S2 NSA-Y3	Visible red 660 nm	See Transmitted Beam on page 4 ⁽⁹⁾	Visible Red 700 nm
Connection	PNP	3-conductor 500V PVC jacketed cable 2 m (6.5 ft)	Source	2-conductor 500V PVC jacketed cable 2 m (6.5 ft)
		3-pin DC pico style male receptacle	PNP Receiver	3-pin DC pico style male receptacle
	NPN	4-conductor 500V PVC jacketed cable 2 m (6.5 ft)	NPN Receiver	3-conductor 500V PVC jacketed cable 2 m (6.5 ft)
		3-pin DC pico style male receptacle		3-pin DC pico style male receptacle
1:1 Margin	42KB-S2LPSA-A2 42KB-S2LPSA-Y3 42KB-S2LNSA-A2 42KB-S2LNSA-Y3	3...30 mm (0.12...1.18 in.)	See Transmitted Beam on page 4 ⁽⁷⁾	1 m (3.2 ft)
	42KB-S2LPSB-A2 42KB-S2LPB-Y3 42KB-S2LNSB-A2 42KB-S2LNSB-Y3	1...40 mm (0.039...1.57 in.)	See Transmitted Beam on page 4 ⁽⁸⁾	7 m (22.96 ft)
			See Transmitted Beam on page 4 ⁽⁹⁾	10 m (32.8 ft)

Table 3 - Retroreflective Selection

Operating Voltage	Supply Current	Output Energized	Output Characteristics			Response Time	Size	Cat. No.
			Type	Max Load Current	Max Leakage Current			
12...24V DC ±10%	20 mA	Light/Dark Selectable	NPN	Output: 100 mA Stability: 50 mA	0.5 mA	350 µs	10.3 x 15 x 25.4 mm (0.40 x 0.59 x 1.0 in.)	42KB-U2LNSN-A2
	25 mA		PNP	Output: 100 mA				42KB-U2LNSN-Y3
								42KB-U2LPSN-A2
								42KB-U2LPSN-Y3

Table 4 - Standard Diffuse Selection (see footnotes on page 4)

Operating Voltage	Supply Current	Output Energized	Output Characteristics			Response Time	Size [mm (in.)]	Cat. No.	
			Type	Max Load Current	Max Leakage Current				
12...24V DC ±10%	20 mA	Light/Dark Selectable	NPN	Output: 100 mA, Stability: 50 mA	0.5 mA	350 µs	10 x 15 x 30 (0.39 x 0.59 x 1.18)	42KB-D2LNEH-A2 ⁽¹⁾⁽⁵⁾	
							10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D2LNEH-Y3 ⁽¹⁾⁽⁵⁾	
	25 mA		PNP	Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D2LPEH-A2 ⁽¹⁾⁽⁵⁾	42KB-D2LNSG-A2 ⁽¹⁾⁽⁶⁾	
								42KB-D2LPEH-Y3 ⁽¹⁾⁽⁵⁾	42KB-D2LNSG-Y3 ⁽¹⁾⁽⁶⁾
			22 mA	NPN	Output: 100 mA, Stability: 50 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D2LPSG-A2 ⁽¹⁾⁽⁶⁾	42KB-D1LNEG-A2 ⁽²⁾⁽⁴⁾
									42KB-D2LPSG-Y3 ⁽¹⁾⁽⁶⁾
	25 mA			PNP	Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D1LNSH-A2 ⁽²⁾⁽⁵⁾	42KB-D1LNSH-Y3 ⁽²⁾⁽⁵⁾
									42KB-D1LPEG-A2 ⁽²⁾⁽⁴⁾
			28 mA	NPN	Output: 100 mA, Stability: 50 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D1LPEG-Y3 ⁽²⁾⁽⁴⁾	42KB-D1LPSH-A2 ⁽²⁾⁽⁵⁾
									42KB-D1LPSH-Y3 ⁽²⁾⁽⁵⁾
	PNP			Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D1LNED-A2 ⁽³⁾	42KB-D1LNED-Y3 ⁽³⁾	
								42KB-D1LNED-Y3 ⁽³⁾	42KB-D1LNED-Y3 ⁽³⁾
	PNP		Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D1LNSD-A2 ⁽³⁾	42KB-D1LNSD-Y3 ⁽³⁾		
							42KB-D1LNSD-Y3 ⁽³⁾	42KB-D1LNSD-Y3 ⁽³⁾	
	PNP		Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D1LPED-A2 ⁽³⁾	42KB-D1LPED-Y3 ⁽³⁾		
							42KB-D1LPED-Y3 ⁽³⁾	42KB-D1LPED-Y3 ⁽³⁾	
PNP	Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	10.3 x 15 x 25.4 (0.40 x 0.59 x 1.0)	42KB-D1LPSD-A2 ⁽³⁾	42KB-D1LPSD-Y3 ⁽³⁾				
					42KB-D1LPSD-Y3 ⁽³⁾	42KB-D1LPSD-Y3 ⁽³⁾			

Table 5 - Sharp Cutoff Diffuse

Operating Voltage	Supply Current	Output Energized	Output Characteristics			Response Time	Size [mm (in.)]	Cat. No.
			Type	Max Load Current	Max Leakage Current			
12...24V DC ±10%	20 mA	Light/Dark Selectable	NPN	Output: 100 mA, Stability: 50 mA	0.5 mA	350 µs	10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)	42KB-S2LNSA-A2
	22 mA							42KB-S2LNSA-Y3
			25 mA	PNP				Output: 100 mA
	42KB-S1LNSB-Y3							
	42KB-S2LPSA-A2							
	42KB-S2LPSA-Y3							
	42KB-S1LPSB-A2							
42KB-S1LPSB-Y3								

Table 6 - Transmitted Beam

Operating Voltage	Supply Current	Output Energized	Output Characteristics			Response Time	Size [mm (in.)]	Cat. No.	
			Type	Max Load Current	Max Leakage Current				
12...24V DC ±10%	Source: 23 mA Receiver: 18 mA	Light/Dark Selectable	NPN	Output: 100 mA, Stability: 50 mA	0.5 mA	350 µs	10 x 15 x 30 (0.39 x 0.59 x 1.18)	42KB-T1LNEL-A2 ⁽¹⁰⁾	
								42KB-T1LNEL-Y3 ⁽¹⁰⁾	
							10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)	42KB-T1LNSL-A2 ⁽¹⁰⁾⁽¹¹⁾	
								42KB-T1LNSL-Y3 ⁽¹⁰⁾⁽¹¹⁾	
	10 x 15 x 30 (0.39 x 0.59 x 1.18)		42KB-T1LNEQ-A2						
			42KB-T1LNEQ-Y3						
	10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)		42KB-T1LNSQ-A2 ⁽¹¹⁾						
			42KB-T1LNSQ-Y3 ⁽¹¹⁾						
	10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)	42KB-T2LNSR-A2 ⁽¹¹⁾							
		42KB-T2LNSR-Y3 ⁽¹¹⁾							
	Source: 20 mA Receiver: 18 mA	Light/Dark Selectable	NPN	Output: 100 mA, Stability: 50 mA			10 x 15 x 30 (0.39 x 0.59 x 1.18)	42KB-T1LPEL-A2 ⁽¹⁰⁾	
								42KB-T1LPEL-Y3 ⁽¹⁰⁾	
							10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)	42KB-T1LPSL-A2 ⁽¹⁰⁾⁽¹¹⁾	
								42KB-T1LPSL-Y3 ⁽¹⁰⁾⁽¹¹⁾	
	Source: 23 mA Receiver: 21 mA		Light/Dark Selectable	PNP			Output: 100 mA	10 x 15 x 30 (0.39 x 0.59 x 1.18)	42KB-T1LPEQ-A2
									42KB-T1LPEQ-Y3
10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)					42KB-T1LPSQ-A2 ⁽¹¹⁾				
					42KB-T1LPSQ-Y3 ⁽¹¹⁾				
Source: 20 mA Receiver: 21 mA	Light/Dark Selectable	PNP		Output: 100 mA	10.3 x 15 x 25.4 0.40 x 0.59 x 1.0)	42KB-T1LPSR-A2 ⁽¹¹⁾			
						42KB-T1LPSR-Y3 ⁽¹¹⁾			

(1) Visible red 700 nm

(2) Infrared 900 nm

(3) Infrared 950 nm, 1:1 margin = 70.1 mm (2.76 in.)

(4) 1:1 margin = 199.90 mm (7.87 in.)

(5) 1:1 margin = 299.97 mm (11.81 in.)

(6) 1:1 margin = 400.05 mm (15.75 in.)

(7) 1:1 margin = 0.97 m (3.2 ft)

(8) 1:1 margin = 7 m (22.96 ft)

(9) 1:1 margin = 10 mm (32.8 ft)

(10) Adhesive apertures are included with these sensors.

(11) Optional metal apertures are available for these sensors under Accessories.

Rockwell Automation Support

For technical support, visit

<http://www.rockwellautomation.com/support/overview.page>.

Rockwell Automation maintains current product environmental information on its website at

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At the end of its life, this equipment can be collected separately from any unsorted municipal waste.

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