

Special Purpose

Inspection Sens

Laser Scanners Fiher Ontic Safety Systems

Safety Controllers 8

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control

Wireless Lighting & Indicators Safety



Task Lights page 404

- Bright, even illumination for enclosure, area and machine lighting, including control cabinets and panels
- · Rugged housings for use in wet and dirty environments
- LED light source for low-power consumption and long life
- A choice of sizes and housing materials for any size area and environment



Vision Lights

· A complete selection of lighting, including IP68-rated lights

- Rugged, maintenance-free LED lighting in red, green, blue, white and infrared
- High-intensity lighting with built-in universal strobe control and power regulation; no external controller or power supply required



TASK LIGHTS VISION LIGHTS INDICATORS ACTUATORS



page 427 Indicators

- Provides real-time operational status indication for workers and supervisors
- · Installs directly on machine quickly and easily with prewired or quick-disconnect options; no assembly required
- Features a completely self-contained design—no controller needed
- · Displays up to 5 colors, depending on model
- Available in over thirteen styles/housings, including tower and column lights, segmented displays, daylight visible for outdoor applications, call lights, and dome, T-style and barrel housings
- · Rated to IP67/IP69K for any manufacturing environment, depending on model
- · Includes models with steady and flashing colors, and audible alerts



Actuators page 443

- K50 and K80 single-point, pick-to-light sensors and push buttons for error-proofing bin-picking, order fulfillment and operator guidance operations
- PVD one-piece light array for part assembly, part pick and error-proofing
- PVA two-component light array for part-pick verification
- VTB verification touch buttons with illuminated base for indicating bin-picking sequence
- OTB/LTB optical touch buttons for zero-force ergonomic replacement of mechanical push buttons
- STB self-checking touch buttons for use with safety controls

LIGHTING & INDICATORS









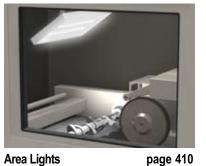


Work Lights

- page 405 • 50 mm light of flat or 30 mm base mounting in wet or dirty environments
- Standard or push-button models available



Strip Lights page 407 28 mm wide industrial strip lighting for enclosures and area lighting



Solid-state LED light for area and machine lighting





WL50 Work Lights

- Compact industrial lighting for excellent illumination where space is tight and light is critical
- 50 mm white light for flat or 30 mm base mounting
- · Standard or push-button models
- Robust IP69K (standard) or IP67 (push-button models) for use in wet and dirty environments
- LED light sources for long life (50,000 hours typical) with low power consumption (< 2 watts)
- · Cabled or quick-disconnect models
- Velcro and magnets for quick mounting and convenient repositioning of flat-mount models

Photoelectrics Sensors Fiber Optic

Sensors
Special Purpose
Sensors

Measurement & Inspection Sensors

Vision

Wireless

Lighting & Indicators

Safety

Light Screens

Laser Scanners

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Illuminators-WL50 Work Lights, 12 to 30V dc

Discr	iption	LED Color	Connection	Standard Models	Push-Button Models
	Flat manualt		2 m	WL50F	WL50FPB
	Flat mount [†]	M/L:t-	4-pin Euro QD	WL50FQ	WL50FPBQ
	20	White	2 m	WL50	WL50PB
	30 mm mount		4-pin Euro QD	WL50Q	WL50PBQ

Connection options: A model with a QD requires a mating cordset (see page 406).

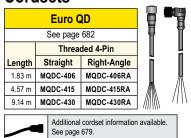
For 9 m cable, add suffix W/30 to 2 m model number (example, WL50F W/30).

QD models: For a 4-pin 150 mm Euro-style pigtail QD, add suffix QP to 2 m model number (example, WL50FQP).

[†] Flat-mount models include a 48 mm circular velcro mounting kit and circular magnet for easy mounting with no additional hardware.

Committee Walterna	404 0044 (404) 1 1)
Supply Voltage	12 to 30V dc (10% max. ripple)
	Max. current: 105 mA @ 12V dc; 55 mA @ 30V dc Max. input power: 1.7 watts
Power-up Response Time	Light ON: 1 millisecond max. (models without push button)
Light Characteristics	Color temperature (CCT): 5,000 to 10,000 K
	Color: Cool white
	Intensity (typical): 65 lumens; 50 lux @ 1 meter
Construction	Polycarbonate housing; Nickel-plated QD connector or PVC-jacketed cable
Environmental Rating	Standard models: IP69K per DIN 40050
	Push-button models: IEC IP67
Connections	Integral 4-pin Euro-style QD, 150 mm PVC pigtail with QD or 2 m integral cable, depending on model. QD cordsets are ordered
	separately. See page 406.
Operating Conditions	-40° to +50° C
Application Note	Push-button models: When power is initially applied to the device, push the push button to turn the light on.
	If power to the device is interrupted the light will turn off and will remain off when power is restored.
	To turn light back on, push the push button.
Certification	
	CE USTED
Hookup Diagrams	

Cordsets











WLS28 Work Light Strips

- · Low-profile, 28 mm wide housing for use inside or under any industrial control cabinet, or in work stations
- White LED lights in 145 to 1130 mm lighted lengths
- · Cascade models for connecting multiple lights end-to-end, minimizing wiring
- · High-power LEDs for superior illumination with an even pattern of light and no shadows
- Extremely long-lasting LED technology for >50,000 hours of continuous working life

AUTOCAD, STEP. **IGES & PDF**

- · Low power consumption of less than 9 watts per foot
- · Durable aluminum housing
- · Swivel mounting brackets included for convenient positioning of light
- · Cabled or quick-disconnect models for installation flexibility and convenient cascading of lights



Sensors Special Purpose Sensors

Measurement & Inspection Sensor

Wireless

Lighting & Indicators

Safety

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Safety Systems

Safety Controllers & Modules

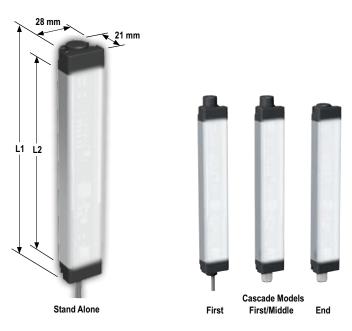
Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS WL50 WLS28 WLA VISION LIGHTS INDICATORS **ACTUATORS**





							-
Lig	ht Position*	Connection(s)**	Overall Height (L1)	Lighted Length (L2)	LED Color	Model	
(Ma)			183.5 mm	145 mm		WLS28XW145X	
			324.5 mm	285 mm		WLS28XW285X	
			465.5 mm	430 mm		WLS28XW430X	
	Otanal Alama Limbs	2 m/Endcap	606.5 mm	570 mm	\A //- '	WLS28XW570X	
	Stand-Alone Light	(no connection)	747.5 mm	710 mm	White	WLS28XW710X	V
			888.5 mm	850 mm		WLS28XW850X	
- Walt			1029.5 mm	990 mm		WLS28XW990X	Mo
- 1			1170.5 mm	1130 mm		WLS28XW1130X	on r

Connection Options: A model with a QD requires a mating cordset (see page 409).*

* Lights are available as either stand-alone models or as models that can be "daisy-chained" together for a continuous length of lighting. Stand-alone models: Lights have cable or male QD fitting at one end for power connection; no connection at opposite end. A stand-alone model with a QD may be used as the last in the cascade series.

Cascade models: Lights have cable or male QD at one end for power connection, female QD at opposite end for connection to other lights in the cascade. Cascade models with cable end can only be used as the first light in the cascade series. Double-ended cordsets must be used between each pair of lights in a cascade.

WLS28 Work Light Strip, 12-30V dc (cont'd)

Ligh	t Position*	Connection(s)**	Overall Height (L1)	Lighted Length (L2)	LED Color	Model
-			186 mm	145 mm		WLS28XW145XQ
			327 mm	285 mm		WLS28XW285XQ
	Stand-Alone Light		468 mm	430 mm		WLS28XW430XQ
	Or Or	4-pin Euro QD (Male)/	609 mm	570 mm	\A/la:t-a	WLS28XW570XQ
	End Light in a	Endcap (no connection)	750 mm	710 mm	White	WLS28XW710XQ
	Cascade	(891 mm	850 mm		WLS28XW850XQ
			1032 mm	990 mm		WLS28XW990XQ
			1173 mm	1130 mm		WLS28XW1130XQ
A.			191.5 mm	145 mm		WLS28CW145X
		First Light 2 m/ n a Cascade 4-pin Euro QD (Female)	332.5 mm	285 mm	White	WLS28CW285X
			473.5 mm	430 mm		WLS28CW430X
	First Light		614.5 mm	570 mm		WLS28CW570X
	in a Cascade		755.5 mm	710 mm		WLS28CW710X
			896.5 mm	850 mm		WLS28CW850X
- Special			1037.5 mm	990 mm		WLS28CW990X
			1178.5 mm	1130 mm		WLS28CW1130X
			194 mm	145 mm		WLS28CW145XQ
	First or Middle Light in a Cascade		335 mm	285 mm		WLS28CW285XQ
			476 mm	430 mm		WLS28CW430XQ
		4-pin Euro QD (Male)/	617 mm	570 mm	\M/b:to	WLS28CW570XQ
1.3		4-pin Euro QD (Female)	758 mm	710 mm	White	WLS28CW710XQ
			899 mm	850 mm		WLS28CW850XQ
			1040 mm	990 mm		WLS28CW990XQ
			1181 mm	1130 mm		WLS28CW1130XQ

Connection Options: A model with a QD requires a mating cordset (see page 409).*

* Lights are available as either stand-alone models or as models that can be "daisy-chained" together for a continuous length of lighting.

Stand-alone models: Lights have cable or male QD fitting at one end for power connection; no connection at opposite end.

A stand-alone model with a QD may be used as the last in the cascade series.

Cascade models: Lights have cable or male QD at one end for power connection, female QD at opposite end for connection to other lights in the cascade. Cascade models with cable end can only be used as the first light in the cascade series. Double-ended cordsets must be used between each pair of lights in a cascade.

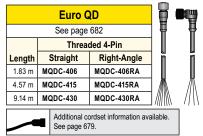
WLS28 Specifications

WL528 Specific	ations						
Supply Voltage and	12 to 30V dc (10%	2 to 30V dc (10% max. ripple)					
Current	Max. current per	length:					
	Light Length	12V dc	24V dc	30V dc	Watts	Lumens (Typical)	
	145 mm	0.5 A	0.25 A	0.2 A	6	120	
	285 mm	0.75 A	0.375 A	0.3 A	9	240	
	430 mm	1.25 A	0.625 A	0.5 A	15	360	
	570 mm	1.5 A	0.75 A	0.6 A	18	480	
	710 mm	2.0 A	1.0 A	0.8 A	24	600	
	850 mm	2.25 A	1.125 A	0.9 A	27	720	
	990 mm	2.75 A	1.375 A	1.1 A	33	840	
	1130 mm	3.0 A	1.5 A	1.2 A	36	960	
Light Characteristics	Color Temperatu	re (CCT): 5,0	00–8,300 K				
•	Color: Cool white	, ,	•				
Useful Life	When operating w	When operating within specifications, output will decrease less than 30% after 50,000 hours.					
Construction	Clear anodized all	uminum housi	ing; black painte	d zinc end cap	s; clear acrylic	window; zinc plated steel be	ackets
Mounting	(2) swivel brackets	(2) swivel brackets and (4) screws included					
	(2) SWIVEI DIACKER	s and (4) SCIE	ws included				
Environmental Rating	IP50						

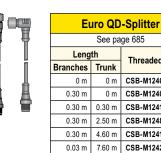


WLS28 Specifications (cont'd)				
Connections	Integral 4-pin Euro style QD or 2 m integral cable, depending on model. QD cordsets are ordered separately. See page 409.			
Operating Conditions	Temperature: -20° to +50° C Relative Humidity: 90% (non-condensing) Storage Temperature: -40° to +85° C			
Certifications	CE (LISTED			
Application Notes	When connecting cascadable lights in series it is important not to exceed maximum current limitations: Maximum linear feet of light at 12V dc = 1.5 m Maximum linear feet of light at 24V dc = 3.0 m Maximum linear feet of light at 30V dc = 3.1 m			
Hookup Diagrams	LI25 (p. 775)			

Cordsets



Euro QD-Double-Ended					
	See page 697				
	Threaded 4-Pin				
Length	Straight/Straight	Straight/Right-Angle			
0.91 m	MQDEC-403SS	MQDEC-403RS			
1.83 m	MQDEC-406SS	MQDEC-406RS			
3.66 m	MQDEC-412SS	MQDEC-412RS			
6.10 m	MQDEC-420SS	MQDEC-420RS			
9.14 m	MQDEC-430SS	MQDEC-430RS			
15.2 m	MQDEC-450SS	MQDEC-450RS			
		•			





Threaded 4-Pin

CSB-M1240M1240

CSB-M1240M1241

CSB-M1241M1241

CSB-M1248M1241

CSB-M12415M1241

CSB-M12425M1241

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Safety Interlock Switches

Emergency Stop & Stop Control

WL50 WLS28 WLA

TASK LIGHTS

VISION LIGHTS INDICATORS ACTUATORS

Brackets



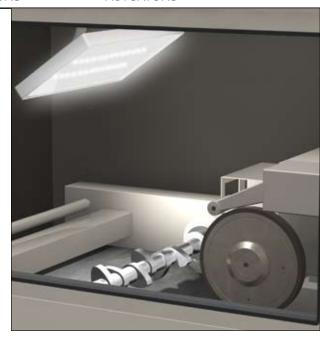


Additional bracket information available.

WLA

Area Work Light

- Solid-state LED light for area and machine lighting
- White LED lights in four sizes
- High-power LEDs for superior illumination with an even pattern of light and no shadows
- Extremely long-lasting LED technology for >50,000 hours of continuous working life
- Rugged, sealed thermoplastic housing; IP69K rated







WLA Area Work Light, 12 to 30V dc

Length (L)		LED Color	Connection	Models
	405.4		2 m	WLAW105X180
	105.1 mm		4-pin Euro QD	WLAW105X180Q
	180.1 mm	White	2 m	WLAW190X180
			4-pin Euro QD	WLAW190X180Q
-	275 mm		2 m	WLAW275X180
			4-pin Euro QD	WLAW275X180Q
	050.0		2 m	WLAW360X180
	356.6 mm		4-pin Euro QD	WLAW360X180Q

QD models: A model with a QD requires a mating cordset (see page 679).



WLA Specificati	ions						
Supply Voltage and Current	,	12 to 30V dc (10% max. ripple) Max. current per length:					
	Model	12V dc	24V dc	30V dc	Watts	Lumens (Typical)	
	WLAW150X180	1.0A	0.5A	0.4A	12	450	
	WLAW190X180	2.0A	1.0A	0.8A	24	900	
	WLAW275X180	3.0A	1.5A	1.2A	36	1350	
	WLAW360X180	4.0A	2.0A	1.6A	48	1800	
Light Characteristics	Color Temperature (Color Temperature (CCT): 5,000–8,300 K Color: Cool white					
Useful Life	When operating within	n specification	s, output will de	crease less tha	n 30% after 50	,000 hours.	
Construction	PBT housing; acrylic	PBT housing; acrylic window, nickel-plated brass connector					
Environmental Rating	IP69K, IP67						
Operating Conditions	Temperature: -20° t Relative Humidity: 9 Storage Temperatur	00% (non-cond	٠,				
Certifications	Approvals are pending	ıg					
Wiring Diagrams	LI25 (p. 775)						

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Safety Light Screens

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Emergency Stop & Stop Control

Cordsets

				100		
	Euro QD					
	See page 682					
		Threa	1 -			
Length		Straight	Right-Angle	Ĭ	i	
1.83 m	М	QDC-406	MQDC-406RA			
4.57 m	М	QDC-415	MQDC-415RA	\Box \blacksquare	/	
9.14 m	М	QDC-430	MQDC-430RA]////	//	
	4	Additional co	ordset information a 79.	vailable.		

Euro QD-Double-Ended					
See page 697					
	Threaded 4-Pin				
Length	Straight/Straight	Straight/Right-Angle			
0.91 m	MQDEC-403SS	MQDEC-403RS			
1.83 m	MQDEC-406SS	MQDEC-406RS			
3.66 m	MQDEC-412SS	MQDEC-412RS			
6.10 m	MQDEC-420SS	MQDEC-420RS			
9.14 m	MQDEC-430SS	MQDEC-430RS			
15.2 m	MQDEC-450SS	MQDEC-450RS			



Euro QD-Splitter					
See page 685					
Leng	th	Threaded 4-Pin			
Branches	Trunk	Illieaueu 4-Fill			
0 m	0 m	CSB-M1240M1240			
0.30 m	0 m	CSB-M1240M1241			
0.30 m	0.30 m	CSB-M1241M1241			
0.30 m	2.50 m	CSB-M1248M1241			
0.30 m	4.60 m	CSB-M12415M1241			
0.30 m	7.60 m	CSB-M12425M1241			



Brackets





WLA VISION LIGHTS INDICATORS ACTUATORS

TASK LIGHTS WL50

WLS28

VISION LIGHTS





Vision Lighting

page 413

- Hundreds of lighting solutions and accessories—the most by any single source
- A complete offering of sizes and colors, including:
 - Ring Lights
- Low-Angle Ring Lights
- Area Lights
- Spot Lights
- Backlights
- Tubular Fluorescent Lights
- Linear Array Lights
- Structured Lights
- On-Axis Lights
- Robust solutions rated to IP68/NEMA 4X
- LEDs for up to 50,0000+ hours of maintenance-free illumination
- Internal self-regulation for consistent illumination
- · Built-in universal strobe control
- · A comprehensive selection of lighting accessories





Vision Lighting

Critical Role in Successful Vision Sensing

No matter how powerful or robust a sensor is, successfully solving challenging vision applications relies heavily on matching the vision application with appropriate lighting. A properly chosen light can guarantee constant, consistent light conditions and can be used to create an optimally contrasted image. The correct light will highlight the features under inspection, disregard background objects and overpower any ambient light in the mix.

Banner offers a wide selection of high-intensity LED lights with built-in current and strobe control. A variety of specialty lights are available, including fluorescent lights. A complete selection of polarizing filter kits, colored filters and lighting diffusers are offered to improve lighting quality.

The innovation leader with more than 40 years of sensor development, Banner understands the challenges of the factory floor. Banner has over 3,000 factory and field representatives worldwide, as well as the largest force of application engineers in the industry who solve thousands of the most challenging applications every year. Banner offers one of the industry's most extensive selections of vision lighting solutions and continues its commitment of providing solutions for a variety of sensing needs.

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Ring Lights

Mounts directly to the sensor for easy setup and illuminates any object directly in front of



Area Lights page 418

Provides even illumination in a concentrated area



Installs behind the target, directly facing the sensor; has a highly diffused surface and uniform brightness

page 421

page 422



Linear Array Lights

Provides high-intensity illumination of large areas, at long distances



On-Axis Lights

Provides collimated illumination along the same optical path as camera



Low-Angle Ring Lights

page 422 Illuminates nearly perpendicular to the direction of an inspection



Spot Lights

page 423 Provides even illumination in a small concentrated spot



Tubular Fluorescent Lights

page 424 Features flicker-free high-intensity illumination of large areas



Structured Lights

page 424 Uses Class 2 laser line for 3-dimensional sensing

TASK LIGHTS VISION LIGHTS Ring Lights

Area Lights Backlights Linear Array Lights On-Axis Lights Low-Angle Lights Spot Lights Tubular Fluorescent Lights Structured Lights INDICATORS

ACTUATORS

			62 x 62 & 80 x 80 mm LED Ring Lights	70 mm High-Intensity LED Ring Lights	62 x 62 & 80 x 80 mm LED Area Lights	70 High-In LED Are	tensity	70 x 70 & 85 x 220 mm LED Backlights			
	Page		416	416	418	4	18	420			
	Red		630 nm	620-630 nm	62 x 62 mm: 630 nm 80 x 80 mm: 660 nm	620-6	30 nm	660 nm			
ngth)	White		5500 K	5000-8300 K	5500 K	5000-	3300 K	_			
Color (wavelength)	Blue		464 - 475 nm	465-485 nm	62 x 62 mm: 464-475 nm 80 x 80 mm: 470 nm	465-4	85 nm	_			
Color (Green		520 - 540 nm	520-535 nm	62 x 62 mm : 520-540 nm 80 x 80 mm : 525 nm	520-5	35 nm	_			
	Infrare	d	940 nm	850 nm	62 x 62 mm : 940 nm 80 x 80 mm : 850 nm	850	nm	940 nm			
	Operating Vo	oltage	24V dc ± 10%	24V dc ± 10%	24V dc ± 10%	24V dc	± 10%	24V dc ± 10%			
Current	Strobe Volta	ge	5-24V dc (Active Low)	5-24V dc (Active High or Low)	5-24V dc (Active Low)	-	V dc gh or Low)	5-24V dc (Active Low)			
Supply Voltage & Current	Current draw at Full	Infrared	62 x 62 mm : @ 100 mA max 80 x 80 mm : @ 180 mA max	350 mA max	62 x 62 mm : @ 150 mA max 80 x 80 mm : @ 250 mA max	350 mA max		70 x 70 mm: @ 250 mA max 85 x 220 mm: @ 500 mA max			
ns	Intensity	All others	62 x 62 mm: @ 130 mA max 80 x 80 mm: @ 250 mA max		62 x 62 mm: @ 200 mA max 80 x 80 mm: @ 250 mA max			65 x 220 mm: @ 500 m		65 X 220 Hilli. @ 500 HATHAX	
u	Housing		Steel with black zinc plating	Black anodized aluminum	Steel with black zinc plating	Black Anodized Aluminum	Nickel-plated aluminum or 316 Stainless Steel	Steel with black zinc plating			
Construction	Window		Clear Acrylic	Clear Diffused Acrylic	Clear Acrylic	Clear Diffused Acrylic	Clear Acrylic, Clear Glass or Clear Diffused Acrylic	White Acrylic			
	Rating		IP20; NEMA 1	IP50; NEMA 2	IP40; NEMA 1	IP50; NEMA 2	IP68; NEMA 4X	IP40; NEMA 1			
tion	Model	*	0.3 m 3-pin pigtail Pico QD	0.3 m 3-pin pigtail Pico QD	2 m 3-pin pigtail Pico QD	2 m 3-pin pigtail Pico QD	_	2 m 3-pin pigtail Pico QD			
Connection	number suffix	W or Q*	2 m or 9 m 3-conductor attached cable with flying leads	5-pin 0.15 m pigtail Euro QD	2 m or 9 m 3-conductor attached cable with flying leads	0.15 m 5-pin pigtail Euro QD	5-pin Integral Euro QD	2 m or 9 m 3-conductor attached cable with flying leads			
	Useful Life O ON time) Ho ng will increas		20,000	50,000	20,000	50,	000	20,000			
Operati	Operating Temperature		0° to +50° C	0° to +50° C	0° to +50° C	0° to	+50° C	0° to +50° C			
φ 🖘	Minimum (C	lear)	_	_	_	1	0"	_			
tange	Maximum (C	lear)	_	_	_	1	0'	_	1		
Effective Range (at Full Intensity)	Minimum (Clear Diffus	e)	3"	6"	3"	Ę	5"	_			
(at Et	Maximum (Clear Diffus	e)	62 mm : 12" 80 mm : 20"	4'	62 mm: 12" 80 mm: 20"		1'	_			

 $^{^{\}star}$ $\,$ Suffix M, W or Q added to model number denotes connection type.

^{**} Clear window model light patterns are slightly more intense and smaller than diffuse models.

[†] IP68-rated models are only available in lengths of 290, 435 and 580 mm.



75x150, 150x150, 225x150 & 300x150 mm LED Backlights	145, 290, 4 870 & 11 LED Linear A	60 mm	50 & 100 mm LED On-Axis Lights	150 mm LED Low-Angle Ring Lights	LED Spot Lights	High-Frequency Fluorescent Tubular Lights
420	421		422	422	423	424
633 nm	620-63	0 nm	630 nm	640 nm	627 nm	_
6500 K	5000-8	5000-8300 K		_	5500 K	4100 K ^{††}
469 nm	465-48	5 nm	470 nm	_	470 nm	_
525 nm	520-53	35 nm	530 nm	_	530 nm	_
850 nm	850	nm	880 nm	880 nm	_	_
24V dc ± 10%	IP50: 24V dc ± 10% IP68: 24V dc ± 10%		24V dc ± 10%	24V dc ± 10%	10-30V dc	24V dc, 110V ac, 220V ac or 120/277V ac
5-24V dc (Active High or Low)	5-24\ (Active Hig	- 	5-24V dc (Active Low)	5-24V dc (Active Low)	5-24V dc (Low)	_
75 x 150 mm: @ 550 mA 150 x 150 mm: @ 1.1 A	290 mm: @ 485 mm: @	1.5 A max	500 mA max.	350 mA max	10-30V dc	120V ac @ 0.15-0.26 A or 277V ac @ 0.07-0.11 A
225 x 150 mm: @ 1.65 A 300 x 150 mm: @ 2.2 A	580 mm: @ 870 mm: @ 1160 mm:	3 A max	500 MA Max.	500 mA max	@ 360 mA max	(Depending on bulb size/ wattage)
Black Valox Plastic	Black Anodized Aluminum	Nickel-plated aluminum or 316 Stainless Steel	Black anodized aluminum	Black anodized aluminum	Black anodized aluminum	Acrylic
White Acrylic	Clear Acrylic, Clea Diffused		Optical Glass with anti-reflective coating	_	Glass Lens	Clear Acrylic Tube
IP67, NEMA 6	IP50; NEMA 2	IP68; NEMA 4X	IP40; NEMA 1	IP0; NEMA 0	IP68; NEMA 4X	IP68; NEMA 4X
_	_	-	0.6 m 3-pin pigtail Pico QD	2 m 3-pin pigtail Pico QD	2 m 3-pin pigtail Pico QD	_
5-pin integral Euro QD	5-pin Integral Euro QD		_	2 m or 9 m 3-conductor attached cable with flying leads	2 m or 9 m 3-conductor attached cable with flying leads	2.5 m attached cable (unterminated or wall plug)
Green, White, Blue: 90,000 Red, Infrared: 100,000 50,000		20,000	20,000	50,000	_	
0° to +50° C	0° to +	50° C	0° to +50° C	0° to +50° C	-40° to +50° C	-18 ° to +40 ° C
_	9"		_	_	0"	_
_	20'	**	_	_	18"	_
_	6"	1	_	_	_	_
_	7' '	**	_	_	_	_

 $[\]dagger\,\dagger\,$ Color wavelength for ultraviolet(UVA) models is 350-400 nm.

Photoelectrics Sensors Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensors Vision

Lighting & Indicators

Safety Light Screens Safety Laser Scanners Fiber Optic Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Control Modules
Safety Interlock
Switches

Emergency Stop & Stop Control

TASK LIGHTS
VISION LIGHTS
Ring Lights
Area Lights
Backlights
Linear Array Lights
On-Axis Lights
Low-Angle Lights
Spot Lights
Tubular
Fluorescent Lights
Structured Lights
INDICATORS

ACTUATORS

Ring Lights

A ring light provides direct illumination over a small area. With the lens axis through the center opening of the ring light assembly, the ring light illuminates the area in front of the camera.

- Connects directly to PresencePLUS vision sensors or an external power supply
- · Brightly illuminates small objects
- · Mounts directly to the camera
- Includes models to withstand challenging industrial washdown environments (IP68 rated)





LED Ring Lights (IP20), 24V dc

	Pro N	lodels [†]	Pro Mini Camera [†]	P4 Models [†]	
	80 x 80 mm 62 x 62 mm		62 x 62 mm	80 x 80 mm	62 x 62 mm
Connection		2 m		0.3 m Threaded 3-	pin Pico Pigtail QD*
Red	LEDRR80X80W LEDRR62X62W		LEDRRM62X62W	LEDRR80X80M	LEDRR62X62M
White	LEDWR80X80W	LEDWR62X62W	LEDWRM62X62W	LEDWR80X80M	LEDWR62X62M
Blue	LEDBR80X80W	LEDBR62X62W	LEDBRM62X62W	LEDBR80X80M	LEDBR62X62M
Green	LEDGR80X80W LEDGR62X62W		LEDGRM62X62W	LEDGR80X80M	LEDGR62X62M
Infrared	LEDIR80X80W	LEDIR62X62W	LEDIRM62X62W	LEDIR80X80M	LEDIR62X62M



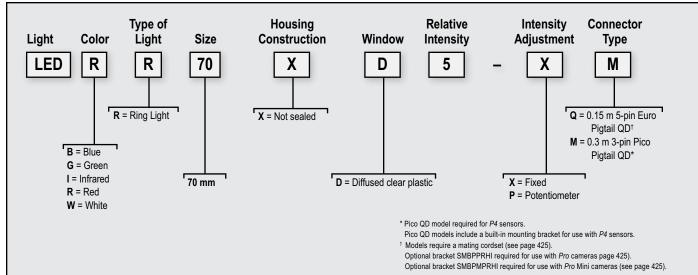


For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRR80X80W W/30).

* Splitter cordsets available for powering two lights (see page 425).



High-Intensity LED Ring Light (IP50) Model Key, 24V dc



 $^{^{\}dagger}\,$ For replacement windows and diffusers (see page 425).





Sealed Pro LED Ring Lights (IP68), 24V dc

Color	Housing	Connection	90 mm Diameter Models⁺		
COIOI	Housing	Connection	Glass Window	Plastic Window	
Red	Nickel-plated Aluminum		LEDRR90S-G	LEDRR90S-P	
Red	Stainless Steel		LEDRR90SS-G	LEDRR90SS-P	
White	Nickel-plated Aluminum		LEDWR90S-G	LEDWR90S-P	
AAIIIII (199	Stainless Steel	3-pin Pico QD	LEDWR90SS-G	LEDWR90SS-P	
Blue	Nickel-plated Aluminum		LEDBR90S-G	LEDBR90S-P	
blue	Stainless Steel		LEDBR90SS-G	LEDBR90SS-P	
Green	Nickel-plated Aluminum		LEDGR90S-G	LEDGR90S-P	
Green	Stainless Steel		LEDGR90SS-G	LEDGR90SS-P	
Infrared	Nickel-plated Aluminum		LEDIR90S-G	LEDIR90S-P	
IIIIIaieu	Stainless Steel		LEDIR90SS-G	LEDIR90SS-P	



Connection options: Models requires a mating cordset (see page 425).

Fiber Optic Sensors Special Purpose Sensors

Photoelectrics

Measurement & Inspection Sensor

Wireless

Lighting & Indicators

Safety

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers & Modules Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS VISION LIGHTS

Ring Lights

Area Lights Backlights Linear Array Lights On-Axis Lights Low-Angle Lights Spot Lights Tubular Fluorescent Lights Structured Lights INDICATORS ACTUATORS

[†] Windows are factory replaceable, contact factory at 1-888-373-6767.

Area Lights

An area light provides even illumination in a concentrated area. Well-placed area lights can create shadows and glare, allowing the vision sensor to detect the presence or absence of a feature.

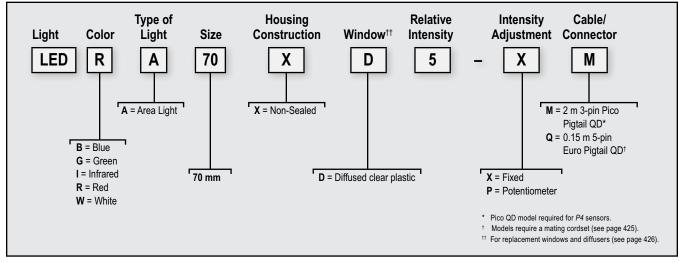
- Creates shadows to detect changes in depth, depending on mounting
- · Lights distances greater than 12 inches (high-intensity)







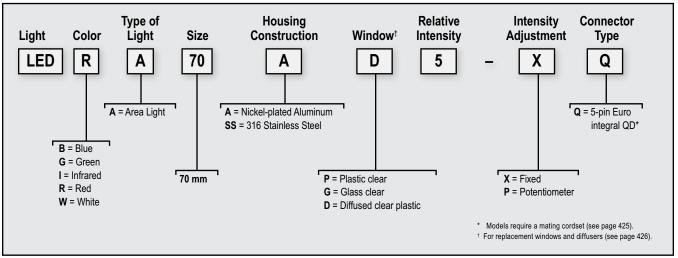








Sealed High-Intensity LED Area Light (IP68) Model Key, 24V dc



Fiber Optic Sensors Special Purpose

Sensors Measurement & Inspection Senso

Wireless

Lighting & Indicators

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control



LED Area Lights (IP40), 24V dc

Color	Commontion	Mod	dels [†]
Color	Connection	80 x 80 mm	62 x 62 mm
Red	2 m	LEDRA80X80W	LEDRA62X62W
	2 m Threaded 3-pin Pico Pigtail QD	LEDRA80X80M	LEDRA62X62M
White	2 m	LEDWA80X80W	LEDWA62X62W
	2 m Threaded 3-pin Pico Pigtail QD	LEDWA80X80M	LEDWA62X62M
Blue	2 m	LEDBA80X80W	LEDBA62X62W
Diue	2 m Threaded 3-pin Pico Pigtail QD	LEDBA80X80M	LEDBA62X62M
Green	2 m	LEDGA80X80W	LEDGA62X62W
Oreen	2 m Threaded 3-pin Pico Pigtail QD	LEDGA80X80M	LEDGA62X62M
Infrared	2 m	LEDIA80X80W	LEDIA62X62W
iiiiidleu	2 m Threaded 3-pin Pico Pigtail QD	LEDIA80X80M	LEDIA62X62M



Connection options:

For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRA80X80W W/30). QD models can be connected directly to P4 sensors; splitter cordset available for powering two lights (see page 425).

† For replacement windows and diffusers (see page 425).

TASK LIGHTS VISION LIGHTS Ring Lights Area Lights Backlights Linear Array Lights On-Axis Lights Low-Angle Lights Spot Lights Tubular Fluorescent Lights Structured Lights INDICATORS ACTUATORS

Backlights

A backlight provides even lighting. It is placed behind the target and aimed directly back towards the camera. The resulting silhouette can be inspected for proper size and shape.

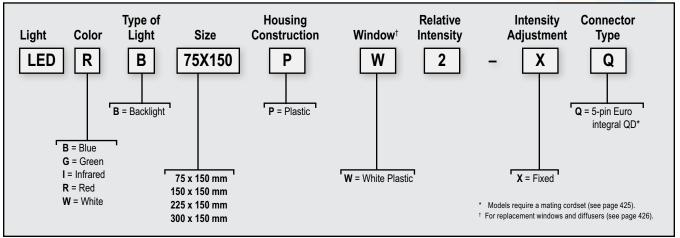
- Determines the shape and size of target objects
- · Offers a highly diffused surface and uniform brightness
- · Provides the most robust lighting for measuring and gauging
- Highlights through-holes in target objects





Sealed LED Backlights (IP67) Model Key, 24V dc





LED Backlights (IP40), 24V dc



Color	Connection	Models [†]		
COIOI	Connection	70 x 70 mm	85 x 220 mm	
Red	2 m	LEDRB70X70W	LEDRB85X220W	
Neu	2 m Threaded 3-pin Pico Pigtail QD	LEDRB70X70M	LEDRB85X220M	
Infrared	2 m	LEDIB70X70W	LEDIB85X220W	
IIIIaieu	2 m Threaded 3-pin Pico Pigtail QD	LEDIB70X70M	LEDIB85X220M	



For 9 m cable, add suffix **W**/30 to the 2 m model number (example, **LEDRB70X70W W**/30).

QD models can be connected directly to *P4* sensors; splitter cordsets available for powering two lights (see page 425).

 $^{^{\}dagger}$ For replacement windows and diffusers (see page 426)





Linear Array Lights

Linear array lights provide high-intensity illumination of large areas, at long distances. Available in 3 housings: nickel-plated aluminum (IP68), stainless steel (IP68) and black anodized aluminum (IP50).

- · Provides maintenance-free LED illumination of large objects from far away
- Provides super high-intensity illumination of large areas
- Available in models to withstand washdown (IP68)

Photoelectrics Sensors Fiber Optic Sensors

Special Purpose Sensors Measurement & Inspection Sensors

Vision

Wireless

Lighting & Indicators

Safety

Safety Light Screens

Safety Laser Scanners

Fiber Optic

Safety Systems
Safety Controllers & Modules

Modules
Safety Two-Hand
Control Modules

Safety Interlock Switches

Switches

Emergency Stop & Stop Control



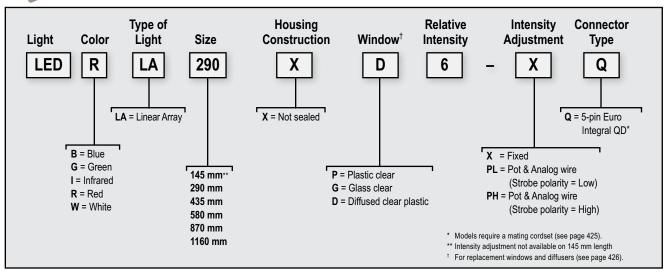
TASK LIGHTS VISION LIGHTS Ring Lights Area Lights Backlights Linear Array Lights On-Axis Lights Low-Angle Lights Spot Lights Tubular Fluorescent Lights

Structured Lights

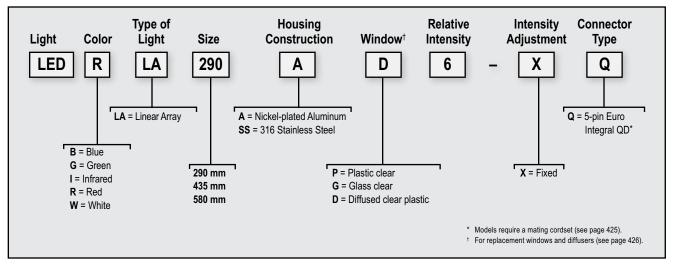
INDICATORS

ACTUATORS

High-Intensity LED Linear Array (IP50) Model Key, 24V dc



High-Intensity LED Linear Array (IP68) Model Key, 24V dc



On-Axis Lights

On-axis lighting provides even, diffused illumination. A beam splitter directs the light rays along the same axis as the camera lens. Reflective surfaces perpendicular to the camera appear bright. Surfaces at an angle to the camera and non-reflective surfaces appear dark.



- · Provides more uniform illumination than a ring light
- · Delivers collimated illumination in same optical path as camera



LED On-Axis (IP40) Lights, 24V dc

Color	Connection	Models [†]		
Color	Connection	100 x 100 mm	50 x 50 mm	
Red		LEDRO100M	LEDRO50M	
White		LEDWO100M	LEDWO50M	
Blue	0.6 m Threaded 3-pin Pico Pigtail QD	LEDBO100M	LEDBO50M	
Green		LEDGO100M	LEDGO50M	
Infrared		LEDIO100M	LEDIO50M	



QD cordsets with flying leads are available for connecting to models other than P4 (see page 425).

Low-Angle Ring Lights

Low-angle lighting enhances the contrast of surface features. The low-angle light is aimed nearly perpendicular to the imaged surface of the target object, highlighting changes in elevation.



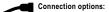


- Highlights changes in elevation
- · Illuminates from an angle nearly perpendicular to object



LED Low-Angle Ring Lights, 24V dc

Color	Connection	Size	Model
Red	2 m	150 mm dia.	LEDRI150-3W
Reu	2 m Threaded 3-pin Pico Pigtail QD	130 mm dia.	LEDRI150-3M
Infrared	2 m	150 mm dia.	LEDII150-3W
	2 m Threaded 3-pin Pico Pigtail QD	130 mm uia.	LEDII150-3M



For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRI150-3W W/30). QD models can be connected directly to P4 sensors.





[†] For models with dust cover, add suffix -D to model number (example, LEDRO100M-D).



Spot Lights

A spot light provides even light with a single high-powered LED. Well-placed spot lights can create shadows and glare, allowing the vision sensor to detect the presence or absence of a feature.



- · Provides off-axis illumination of small areas
- · Provides even light
- Withstands washdown (rated IP68)





Sealed LED Spot Lights (IP68), 10 to 30V dc

Color	Connection	Models
COIOI	Connection	30 mm
Red	2 m	LEDRSW
Neu	2 m Threaded 3-pin Pico Pigtail QD	LEDRSM
White	2 m	LEDWSW
W IIIII G	2 m Threaded 3-pin Pico Pigtail QD	LEDWSM
Blue	2 m	LEDBSW
Diue	2 m Threaded 3-pin Pico Pigtail QD	LEDBSM
Green	2 m	LEDGSW
Green	2 m Threaded 3-pin Pico Pigtail QD	LEDGSM

Connection options:

For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRSW W/30).

QD models can be connected directly to P4 sensors; splitter cordsets available for powering two lights (see page 425).



Special Purpose

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Safety

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS VISION LIGHTS

Ring Lights Area Lights Backlights Linear Array Lights On-Axis Lights Low-Angle Lights

Spot Lights Tubular Fluorescent Lights Structured Lights INDICATORS

ACTUATORS

High-Frequency Fluorescent Tubular Lights

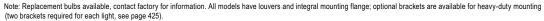
- · Provides affordable, flicker-free even illumination of large objects
- Uses waterproof housings (rated IP67) with integrated mounting brackets



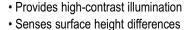


Sealed Fluorescent Tubular Lights (IP67)

, 4		COCCIII TUDUIUI	ge (e. /	
			Mo	dels
Length	Voltage	Ballast	White (4100 K)	Black UV (350-400 nm)
8"	24V dc		HFFW8DC	HFFB8DC
8"	110V ac	Integral	HFFW8AC110	HFFB8AC110
8"	230V ac		HFFW8AC230	HFFB8AC230
12"	24V dc		HFFW12DC	HFFB12DC
12"	120 to 277V ac		HFFW12AC	HFFB12AC
14"	24V dc		HFFW14DC	_
15"	110V ac		HFFW15AC110	_
15"	230V ac		HFFW15AC230	_
24"	120 to 277V ac		HFFW24AC	_
36"	120 to 277V ac		HFFW36AC	_
48"	120 to 277V ac		HFFW48AC	_
8"	120 to 277V ac		HFFW8ACR	HFFB8ACR
12"	120 to 277V ac		HFFW12ACR	HFFB12ACR
15"	120 to 277V ac	Domete	HFFW15ACR	_
24"	120 to 277V ac	Remote	HFFW24ACR	_
36"	120 to 277V ac		HFFW36ACR	_
48"	120 to 277V ac		HFFW48ACR	_



Laser Emitters for Structured Illumination





- Provides 3D inspection with a 2D camera





QS18 Laser Emitters, 10 to 30V dc

Description	Connection	Model
Extra Bright Horizontal Line (Class 2)	2 m	QS186LE212

Connection options:

For 9 m cable, add suffix W/30 to the 2 m model number (example, QS186LE212 W/30).



Photoelectrics

Cordsets

_						
	Euro QD					
See page 685						
	Threaded 5-Pin					
	Nickel-plated	Stainless Steel	Ĭ			
Length	Nut	Nut				
1.83 m	MQDC20-506	MQDC20SS-506	1 👗			
4.57 m	MQDC20-515	MQDC20SS-515] ////			
9.14 m	MQDC20-530	MQDC20SS-530] """"			

Pico QD				
See page 679				
	Threaded 3-Pin			
	Nickel-plated	Stainless Steel		
Length	Nut	Nut		
4.00 m	_	PKGV3M-4		
5.00 m	PKG3M-5	_		
7.00 m	PKG3M-7	PKGV3M-7		
10.0 m	PKG3M-10	PKGV3M-10		

See page 679	
Length	Threaded 3-Pin
0.35 m	PKG3M-35-PSG3M
2.00 m	PKG3M-2-PSG3M

	Pico	QD Splitter†	
	Se	e page 680	
Length		Threaded 3-Pin	Ì
Branches Trunk		i nreaded 3-Pin	
0.20 m	0.20 m	CSB-M831M831	
	Addition See pag	nal cordset information available.	
† Powers 2 li	ghts from o	ne P4 Sensor	-

	Pico QD Splitter	tt
	See page 680	
	Length	Model
Branches	Branch 1: 3-Pin Pico QD (0.3 m) Branch 2: 4-Pin Euro QD (0.3 m)	CSB-UNT213M831F1241
Trunk	4 m Flying Leads	

^{††} Enables strobe signal from P4 while obtaining power from an external source

Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensor Vision

Wireless

Lighting & Indicators

Safety Light Screens

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control

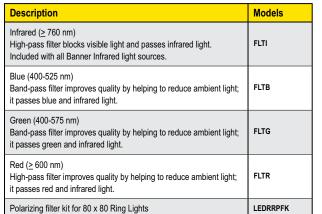
Brackets

	Area Lights	& Backlights	Linear Array	Ring Lights	On-	Axis
pg. 652	pg. 646	pg. 659	pg. 655	pg. 661	pg. 660	pg. 660
SMBBSSM	SMBACM	SMBP42ASM	SMBLASRA	SMBPMPRHI	SMBP4OAL	SMBPPOAL



Additional brackets and information available.

Color Filters



Polarizing Filters

Description	Models
Polarizing filter kit for 62 x 62 Ring Lights	LEDRRPFKS
Polarizing filter kit for 80 x 80 Area Lights and 70 x 70 Backlights	LEDAPFK
Polarizing filter kit for 62 x 62 Area Lights	LEDAPFKS
Polarizing filter kit for Sealed Ring Lights	LEDRPFK90
Kit with a variety of filters, diffusers and window replacements	LEDFLTK
Polarizing filter kit for 290 mm Linear Array Lights (IP68)	LEDLAPFK290S
Polarizing filter kit for 580 mm Linear Array Lights (IP68)	LEDLAPFK580S
Polarizing filter kit for 145 mm Linear Array Lights (IP50)	LEDLAPFK145
Polarizing filter kit for 290 mm Linear Array Lights (IP50)	LEDLAPFK290
Polarizing filter kit for 435 mm Linear Array Lights (IP50)	LEDLAPFK435
Polarizing filter kit for 580 mm Linear Array Lights (IP50)	LEDLAPFK580
Polarizing filter kit for 870 mm Linear Array Lights (IP50)	LEDLAPFK870
Polarizing filter kit for 1160 mm Linear Array Lights (IP50)	LEDLAPFK1160
Polarizing filter kit for 70 mm High-Intensity Area Lights	LEDAPFK70
Polarizing filter kit for 70 mm High-Intensity Ring Lights	LEDRPFK70
Polarizing filter kit for 70 mm IP68 High-Intensity Area Lights	LEDAPFK70S

TASK LIGHTS VISION LIGHTS

Ring Lights Area Lights Backlights Linear Array Lights On-Axis Lights Low-Angle Lights Spot Lights Tubular Fluorescent Lights Structured Lights

INDICATORS ACTUATORS

Window Replacements and Lighting Diffusers

Use With	Models
Clear Plastic	
62 x 62 mm Ring Lights	LEDRCWS
80 x 80 mm Ring Lights	LEDRCW
62 x 62 mm Area Lights	LEDAWS
80 x 80 mm Area Lights	LEDAW
70 mm Sealed High-Intensity Area Lights	LEDA70SW-P
145 mm IP50 Linear Array Lights	LEDLA145XW-P
290 mm IP50 Linear Array Lights	LEDLA290XW-P
290 mm Sealed IP68 Linear Array Lights	LEDLA290SW-P
435 mm IP50 Linear Array Lights	LEDLA435XW-P
435 mm Sealed IP68 Linear Array Lights	LEDLA435SW-P
580 mm IP50 Linear Array Lights	LEDLA580XW-P
580 mm Sealed IP68 Linear Array Lights	LEDLA580SW-P
870 mm Sealed IP50 Linear Array Lights	LEDLA870XW-P
1160 mm IP50 Linear Array Lights	LEDLA1160XW-P
Clear Plastic Diffuse	
80 x 80 mm Ring Lights	LEDRCDW
62 x 62 mm Right Lights	LEDRCDWS
70 mm High-Intensity Ring Lights	LEDR70CDW
70 mm High-Intensity Area Lights	LEDA70CDW
70 mm Sealed IP68 High-Intensity Area Lights	LEDA70SCDW-P
145 mm IP50 Linear Array Lights	LEDLA145XCDW-P
290 mm IP50 Linear Array Lights	LEDLA290XCDW-P
290 mm Sealed IP68 Linear Array Lights	LEDLA290SCDW-P
435 mm IP50 Linear Array Lights	LEDLA435XCDW-P
435 mm Sealed IP68 Linear Array Lights	LEDLA435SCDW-P
580 mm IP50 Linear Array Lights	LEDLA580XCDW-P
580 mm Sealed IP68 Linear Array Lights	LEDLA580SCDW-P
870 mm IP50 Linear Array Lights	LEDLA870XCDW-P
1160 mm IP50 Linear Array Lights	LEDLA1160XCDW-P
Clear Glass	
70 mm Sealed IP68 High-Intensity Area Lights	LEDA70SW-G
145 mm IP50 Linear Array Lights	LEDLA145XW-G
290 mm IP50 Linear Array Lights	LEDLA290XW-G
290 mm Sealed IP68 Linear Array Lights	LEDLA290SW-G
435 mm IP50 Linear Array Lights	LEDLA435XW-G
435 mm Sealed IP68 Linear Array Lights	LEDLA435SW-G
580 mm IP50 Linear Array Lights	LEDLA580XW-G
580 mm Sealed IP68 Linear Array Lights	LEDLA580SW-G
870 mm IP50 Linear Array Lights	LEDLA870XW-G
1160 mm IP50 Linear Array Lights	LEDLA1160XW-G

Use With	Models	
White Plastic		
70 x 70 mm Red Backlights	LEDBW	
70 x 70 mm Infrared Backlights	LEDBIW	
85 x 220 mm Red Backlights	LEDBWL	
85 x 220 mm Infrared Backlights	LEDBIWL	
White Plastic Diffuse		
62 x 62 mm Ring Lights	LEDRDWS	
80 x 80 mm Ring Lights	LEDRDW	
62 x 62 mm Area Lights	LEDADWS	
80 x 80 mm Area Lights	LEDADW	
70 mm Sealed High-Intensity Area Lights	LEDA70SWDW-P	
145 mm IP50 Linear Array Lights	LEDLA145XWDW-P	
290 mm IP50 Linear Array Lights	LEDLA290XWDW-P	
290 mm Sealed IP68 Linear Array Lights	LEDLA290SWDW-P	
435 mm IP50 Linear Array Lights	LEDLA435XWDW-P	
435 mm Sealed IP68 Linear Array Lights	LEDLA435SWDW-P	
580 mm IP50 Linear Array Lights	LEDLA580XWDW-P	
580 mm Sealed IP68 Linear Array Lights	LEDLA580SWDW-P	
870 mm IP50 Linear Array Lights	LEDLA870XWDW-P	
1160 mm IP50 Linear Array Lights	LEDLA1160XWDW-P	



Fiber Optic Sensors

Special Purpose Sensors

Measurement &

Inspection Senso Vision Wireless

INDICATORS







K₃₀L



K50L



Traffic

Lights

K50FL



Lighting & Indicators

Safety Light Screens

Laser Scanners Fiber Ontic

Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control









K80





K50LD

Daylight





Tower Lights

- page 428 • Preassembled and preconfigured
- multi-segment indicators
- Up to five colors in one tower light
- · Models for 30 mm base or flat surface mounting
- IP67-rated housing available
- · Available in models with adjustable audible intensity
- · Black or gray housing
- · Audible only models



Multi-Color. General-Purpose & page 432 **Multi-Function**

- · Multiple colors and preconfigured glowing, flashing or sequenced flashing cycles in one housing
- Up to 5 colors in one housing
- · Audible models with two decibel levels
- · Column lights, 30 or 50 mm dome, 18 mm barrel, and 8, 18 or 30 mm T-style housing
- Models with ac or dc supply voltage

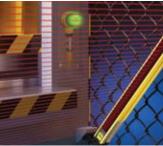


Sensor Emulators

sensor status

page 436 · Green and Yellow remote indication of

• 30 or 50 mm dome, 18 mm barrel, and 8, 18 or 30 mm T-style housing



Indicators for **Safety Devices**

page 437

- · Solid or flashing lights in a sealed housing to indicate the status of a machine or process
- · 30 or 50 mm dome, 18 mm barrel, and 18 or 30 mm T-style housing
- Models for use with EZ-SCREEN® Safety Light Screens and DUO-TOUCH® SG Run Bars

TASK LIGHTS VISION LIGHTS INDICATORS

Tower Lights General-Purpose Multi-Function Sensor Emulators Safety Indicators Segmented Display Call Light Daylight Visible Traffic Lights ACTUATORS



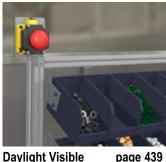
Segmented Displays page 438

- Up to 4 color segments in one housing
- · Quadrants can be lighted separately or in combination
- · K80L housing for flat or DIN mounting
- · Optional labels for those with limited color recognition



Call Lights

- page 439 · Illuminated dome for easy-to-see
- call-for-assistance indication · Battery powered
- Flashes ON/OFF
- · Switch activated



Daylight Visible

- · Indicators with intense levels of light output for outdoor applications
- · Up to three colors in one housing
- 50 mm diameter with flat profile and 30 mm mounting base
- · Models with ac or dc supply voltage



Traffic Lights

page 440

- Preassembled indicators for signaling and traffic control
- · Intense levels of light output for outdoor applications
- · Controlled field of view for signage and narrow lane use
- One, two or three indicators, with one or three colors

Tower Light EZ-LIGHT[™] Indicators

- · Delivers highly visible operational status indication for workers and supervisors
- · Preassembled and preconfigured multi-segment indicators; no assembly required

VISION LIGHTS

- Uses LED technology for low-power consumption (2W) and long life (100,000 hours typical)
- Offers choice of models for 30 mm base or flat surface mounting
- Features models with IP67-rated, water- and oil-tight industrial housings for direct machine mounting
- Displays up to five lights in a single tower, multiple lights can be on simultaneously
- · Includes models with audible alert; intensity adjustable
- · Installs directly on machine quickly and easily with prewired or quick-disconnect options
- Provides excellent yet non-aggressive light brilliance and visibility at long distances
- Eliminates false indication from ambient light; indicators appear gray when off
- Offers an extensive line of elevated mounting accessories, legend plates and brackets for almost any installation requirement







EZ-LIGHT™ TL50 Tower Lights

- Up to five colors in a single tower; choice of green, yellow, red, blue or white LED colors
- · Optional audible function with variable intensity control
- 30 mm threaded base for direct cabinet and panel mounting with a single drilled hole
- Black or gray housing with standard or high-brightness LEDs
- · IP67-rated housings
- Standoff pipe and adapters for elevated mounting





	1					
Color	Tower Height (H)					
Count	General-Purpose IP67	Audible [†] IP50	Audible IP67			
0	_	92.0 mm	74.4 mm			
1	61.2 mm	92.0 mm	115.1 mm			
2	101.9 mm	132.7 mm	155.8 mm			
3	142.6 mm	173.4 mm	196.5 mm			
4	183.3 mm	214.1 mm	237.2 mm			
5	224.0 mm	_	_			

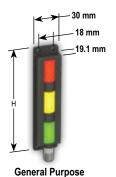
[†] Tower height (H) with top unscrewed approximately 3.5 mm to allow sound to escape.



EZ-LIGHT™ TL30F Tower Lights

- Models with five or three lights in a single tower
- Rugged, flat metal housing for mounting to horizontal or vertical surfaces
- · IP65-rated housing
- Extensive line of brackets for any installation requirement, including direct mounting to 28 mm pipe





TL30F

Color Count	Tower Height (H)
3	128.1 mm
5	204.3 mm

SureCross[™] Wireless I/O and EZ-LIGHT[™] Indicators

Machine monitoring enables an entirely new category of applications and machine diagnostics free from wired limitation. See page 383.





EZ-LIGHT™ TL50 General-Purpose Tower Lights, 18-30V dc or 24V ac

		Environmental				Мо	del
	LED Function*	Rating	Brightness	Connection	Input	Black Housing	Gray Housing
	1 Color: Red		Standard	4-Pin Euro QD		TL50RQ	TL50RCQ
46	1 000011100		High Brightness	11 III 2410 QD		TL50HRQ	TL50HRCQ
	2 Color: Green, Red		Standard	4-Pin Euro QD		TL50GRQ	TL50GRCQ
-	2 Goldi. Gleen, Ned		High Brightness	4-1 III Eulo QD		TL50HGRQ	TL50HGRCQ
	3 Color: Green, Yellow, Red		Standard	· 4-Pin Euro QD		TL50GYRQ	TL50GYRCQ
	o color. Green, Tenow, Tea	IP67	High Brightness	TI III Eulo QD	BiModal NPN/PNP	TL50HGYRQ	TL50HGYRCQ
	4 Color:		Standard	F B': F OD		TL50BGYRQ	TL50BGYRCQ
F	Blue, Green, Yellow, Red		High Brightness	5-Pin Euro QD		TL50HBGYRQ	TL50HBGYRCQ
	5 Color:		Standard	0 Bis Func CD		TL50WBGYRQ	TL50WBGYRCQ
	White, Blue, Green, Yellow, Red		High Brightness	8-Pin Euro QD		TL50HWBGYRQ	TL50HWBGYRCQ

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Se	nsors
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	dicators
	fety ht Screens
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	fety ser Scanners
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	per Optic lifety Systems
_	
	fety Controllers odules
22	fety Two-Hand
	ntrol Modules
Sa	fety Interlock
	vitches
En	nergency Stop &
Sto	op Control
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TASK LIGHTS VISION LIGHTS INDICATORS Tower Lights General-Purpose Multi-Function Sensor Emulators Safety Indicators Segmented Display Call Light Daylight Visible Traffic Lights ACTUATORS

EZ-LIGHT™ TL50 Audible Tower Lights, 18-30V dc or 24V ac

	LED	Environmental		Audible			Mo	del						
IP50 IP67	Function*	Rating	Brightness	Alarm [†]	Connection	Input	Black Housing	Gray Housing						
	_	IP50	_	92 dB @ 1 m	4-Pin Euro QD		TL50AQ	TL50ACQ						
åå		IP67	_	94 dB @ 1 m	4-PIN EURO QD	BiModal	TL50ALSQ	TL50ALSCQ						
- 6							IP50	Standard	92 dB @ 1 m		NPN/PNP	TL50RAQ	TL50RACQ	W
	1 Color: Red	1250	High Brightness	92 05 @ 1111	4-Pin Euro QD		TL50HRAQ	TL50HRACQ						
	i Color. Red	ID67	Standard	94 dB @ 1 m	4-FIII EUIO QD		TL50RALSQ	TL50RALSCQ	More on next					
क क		IP67	High Brightness	34 UD (() I III			TL50HRALSQ	TL50HRALSCQ						

Connection options: A model with a QD requires a mating cordset (see page 431).

Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, TL50GYRQP). For 2 m cable, omit suffix Q from model number (example, TL50GYR). Contact factory for other connector and cable options.

The first color listed is the bottom color, going up in successive order. Contact factory for other colors and color combinations, or visit bannerengineering.com/build_tl50 to configure your own TL50 model.

[†] Adjustable maximum intensity (typical) @ 1 m.

EZ-LIGHT™ TL50 Audible Tower Lights, 18-30V dc or 24V ac (cont'd

	LED	Environmental		Audible			Mo	del					
IP50 IP67	Function*	Rating	Brightness	Alarm⁺	Connection	Input	Black Housing	Gray Housing					
<i></i>		IP50	Standard	024001m			TL50GRAQ	TL50GRACQ					
	2 Color:	1F30	High Brightness	92 dB @ 1 m	4 Din Fura OD		TL50HGRAQ	TL50HGRACQ					
	Green, Red	IP67	Standard	94 dB @ 1 m	4-Pin Euro QD		TL50GRALSQ	TL50GRALSCQ					
क क		IF0/	High Brightness	94 00 @ 1111			TL50HGRALSQ	TL50HGRALSCQ					
	3 Color: Green, Yellow, Red				IP50	Standard	92 dB @ 1 m			TL50GYRAQ	TL50GYRACQ		
		IF30	High Brightness	92 05 (6) 1111	5-Pin Euro QD	Euro QD BiModal NPN/PNP	TL50HGYRAQ	TL50HGYRACQ					
		IP67	Standard	94 dB @ 1 m	5-PIII EUIO QD		TL50GYRALSQ	TL50GYRALSCQ					
4.4		IFO!	High Brightness	94 05 (@ 1111			TL50HGYRALSQ	TL50HGYRALSCQ					
							IP50	Standard	02 dB @ 1 m			TL50BGYRAQ	TL50BGYRACQ
	4 Color: Blue,	IF30	High Brightness	92 dB @ 1 m	8-Pin Euro QD		TL50HBGYRAQ	TL50HBGYRACQ					
	Green, Yellow, Red	IP67	Standard	04 dD @ 1 m	0-7III EUIU QD		TL50BGYRALSQ	TL50BGYRALSCQ					
4 4		IF0/	High Brightness	94 dB @ 1 m			TL50HBGYRALSQ	TL50HBGYRALSCQ					

Connection options: A model with a QD requires a mating cordset (see page 431).

Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, TL50GYRAQP). For 2 m cable, omit suffix Q from model number (example, TL50GYRA). Contact factory for other connector and cable options.

EZ-LIGHT™ TL30F General-Purpose Tower Lights, 18-30V dc or 24V ac

LED Function*	Environmental Rating	Connection	Input	Model
3 Color: Green, Yellow, Red		4-Pin Euro QD		TL30FGYRQ
5 Color: White, Blue, Green, Yellow, Red	IP65	8-Pin Euro QD	BiModal NPN/PNP	TL30FWBGYRQ

Connection options: A model with a QD requires a mating cordset (see page 431).

Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, TL30FGYRQP). For 2 m cable, omit suffix Q from model number (example, TL30FGYR). Contact factory for other connector and cable options.

^{*} The first color listed is the bottom color, going up in successive order. Contact factory for other colors and color combinations, or visit bannerengineering.com/build_tl50 to configure your own TL50 model.

[†] Adjustable maximum intensity (typical) @ 1 m.

^{*} The first color listed is the bottom color, going up in successive order.



Photoelectrics Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensor Vision Wireless Lighting & Indicators Safety Light Screens Safety Laser Scanners Fiber Optic Safety Systems Safety Controllers & Modules Safety Two-Hand Control Modules Safety Interlock Switches Emergency Stop & Stop Control

TASK LIGHTS VISION LIGHTS INDICATORS Tower Lights General-Purpose Multi-Function Sensor Emulators Safety Indicators Segmented Display Call Light

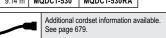
Daylight Visible Traffic Lights

ACTUATORS

EZ-LIGHT™ Tower L	ight Specifications
Supply Voltage and Current	TL50: 18 to 30V dc (10% max. ripple); or 21 to 27V ac Standard Brightness: Indicators: 45 mA max. current per LED color Standard Audible Alarm (IP50): @ 25 mA max. current Sealed Audible Alarm (IP67): 35 mA max. current High Brightness: max. current per LED color: Indicators: 18V dc—100 mA; 30V dc—60 mA; 21V ac—80 mA; 27V ac—70 mA Standard Audible (IP50): 25 mA max. current Sealed Audible Alarm (IP67): 35 mA max. current Audible only: @ 45mA max. TL30F: 18 to 30V dc (10% max. ripple); or 21 to 27V ac @ 15 mA max per LED color
Indicators	TL50: LEDs are independently selected— Green, Red, Yellow, Blue or White; 1-5 colors depending on model TL30F: LEDs are independently selected— Green, Red, Yellow, Blue or White; 3 or 5 colors depending on model
Supply Protection Circuity	Protected against reverse polarity and transient voltages
Input Response Time	Indicators ON/OFF: 10 milliseconds (max.)
Audible Alarm (TL50 Only)	Audible measurements are made in the direction sound exits the device. For standard audible models, this is the top of the unit (when mounted vertically, sound is directed toward the ceiling). For sealed audible models (IP67), sound exits the vented openings in the side of the unit, which should be oriented so that the sound is directed toward the machine operator(s). In environments with high ambient noise levels or high ceilings that absorb sound, the sealed version is recommended. Standard Audible Alarm: 2.7 KHz ± 500 Hz oscillation frequency; max. intensity 92 db @ 1 meter (typical) Sealed Audible Alarm: 29 KHz to 250 Hz oscillation frequency; max. intensity 94 db @ 1 meter (typical)
Audible Adjustments (TL50 Only)	Standard Audible Alarm: Unscrew the cover (up to 1.5 turns max.) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For max. intensity, rotate the center plug 180° counterclockwise to remove it. Sealed Audible Alarm: Rotate the front cover until the desired intensity is reached.
Construction	TL50: Bases and Covers—ABS Light Segment— Polycarbonate TL30F: Black painted aluminum housing; thermoplastic polyester end caps; acrylic light bar
Environmental Rating	TL50: General-Purpose— IEC IP67 Audible— IEC IP50 or IEC IP67, depending on model TL30F— IEC IP65
Connections	Integral 4-pin, 5-pin or 8-pin Euro-style QD, 150 mm PVC pigtail with QD, or 2 m integral cable, depending on model
Operating Conditions	General-Purpose: -40° to +50° C Audible: -20° to +50° C Relative Humidity: 95% @ 50° C (non-condensing)
Certifications	TL50: C E, ULSTED TL30F: C E
Hookup Diagrams	4-pin models: LI09 (p. 771) 5-pin: models: LI10 (p. 771) 8-pin models: LI11 (p. 771)

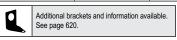
Cordsets

00.0	10010			_				
	Euro QD							
		See page 682		#	#			
	Thread	ded 4-Pin	Threaded 8-Pin	1				
Length	Straight	Right-Angle	Straight	Ĭ	ñ			
1.83 m	MQDC-406	MQDC-406RA	MQDC2S-806					
4.57 m	MQDC-415	MQDC-415RA	MQDC2S-815	M	M			
9.14 m	MQDC-430	MQDC-430RA	MQDC2S-830	1 /////	-//\			
	Thread	ded 5-Pin		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Length	Straight	Right-Angle						
1.83 m	MQDC1-506	MQDC1-506RA						
4.57 m	MQDC1-515	MQDC1-515RA						
9.14 m	MQDC1-530	MQDC1-530RA]					



Brackets







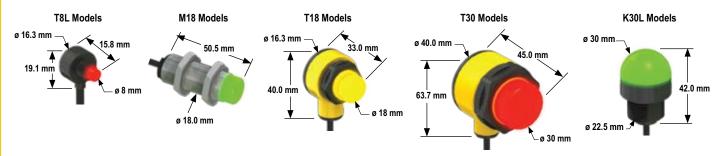
Elevated mounting accessories see page 724.

EZ-LIGHT[™] Controllers

	Description	Function	Model
	5 toggle switches	ON-OFF-FLASH	LC80T
pg. 740	12 position rotary switch	UN-UFF-FLASH	LC80R

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EZ-LIGHT™ Indicators





EZ-LIGHT™ Indicators-Multi-Color, General-Purpose

Cons	truction	LED Function*	Connection	Supply Voltage	Inputs	Model
		2 Color:			PNP	T8LGRXPQP
		Green, Red			NPN	T8LGRXNQP
F	8 mm mount	2 Color:	4-pin Euro	40 4 00 4 4	PNP	T8LGXYPQP
	ABS blend/polycarbonate	Green, Yellow	Pigtail QD	10 to 30V dc	NPN	T8LGXYNQP
		2 Color:			NPN T8LXRYN	T8LXRYPQP
		Red, Yellow				T8LXRYNQP
		3 Color: Green, Red, Yellow			PNP	M18GRYPQ
					NPN	M18GRYNQ
		2 Color:			PNP	M18GRXPQ
and a	18 mm mount	Green, Red	4-pin	10 to 201/ do	NPN	M18GRXNQ
	nickel-plated brass	2 Color:	Euro QD	10 to 30V dc	PNP	M18GXYPQ
		Green, Yellow			NPN	M18GXYNQ
		2 Color:			PNP	M18XRYPQ
		Red, Yellow			NPN	M18XRYNQ

Connection Option: A model with a QD requires a mating cordset (see page 442).

T8L models: 150 mm PVC Pigtail QD models are listed. For 2 m cable, omit suffix QP from model number (example, T8LGRXP).

Other Models: Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, M18GRXPQP).

For 2 m cable, omit suffix Q from model number (example, M18GRXP).

^{*} Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.



EZ-LIGHT™ Indicators-Multi-Color, General-Purpose (cont'd)

Const	truction	LED Function*	Connection	Supply Voltage	Inputs	Model
53.10		3 Color:			PNP	T18GRYPQ
		Green, Red, Yellow			NPN	T18GRYNQ
		2 Color:			PNP	T18GRXPQ
	18 mm mount	Green, Red	_4-pin		NPN	T18GRXNQ
	thermoplastic polyester	2 Color:	Euro QD	10 to 30V dc	PNP	T18GXYPQ
		Green, Yellow			NPN	T18GXYNQ
T		2 Color:			PNP	T18XRYPQ
		Red, Yellow			NPN	T18XRYNQ
		3 Color:			PNP	T30GRYPQ
		Green, Red, Yellow			NPN	T30GRYNQ
		2 Color:			PNP	T30GRXPQ
	30 mm mount	Green, Red	4-pin	40.1007/-1-	NPN	T30GRXNQ
	thermoplastic polyester	2 Color:	Euro QD	10 to 30V dc	PNP	T30GXYPQ
		Green, Yellow			NPN	T30GXYNQ
		2 Color:			PNP	T30XRYPQ
		Red, Yellow			NPN	T30XRYNQ
	30 mm dome/ 22 mm mount polycarbonate	3 Color:			PNP	K30LGRYPQ
		Green, Red, Yellow			NPN	K30LGRYNQ
		2 Color:			PNP	K30LGRXPQ
		Green, Red	4-pin Euro QD	10 to 30V dc	NPN	K30LGRXNQ
		2 Color:	Luio QD	10 to 300 ac	PNP	K30LGXYPQ
		Green, Yellow			NPN	K30LGXYNQ
		2 Color:			PNP	K30LXRYPQ
		Red, Yellow			NPN	K30LXRYNQ
		3 Color:	5-pin Micro QD	85-130V ac	85-130V ac	K50LGRYA120Q
		Green, Red, Yellow	4	18 to 30V dc	PNP	K50LGRYPQ
			4-pin Euro QD	10 10 30 0 00	NPN	K50LGRYNQ
	50 mm dome/ 30 mm mount	2 Color:			PNP	K50LGRXPQ
	polycarbonate	Green, Red			NPN	K50LGRXNQ
		2 Color:	4-pin Euro QD	18 to 30V dc	PNP	K50LGXYPQ
		Green, Yellow	Eulo QD	10 10 30 0 00	NPN	K50LGXYNQ
-		2 Color:			PNP	K50LXRYPQ
		Red, Yellow			NPN	K50LXRYNQ
		3 Color:			PNP	K50FLGRYPQ
		Green, Red, Yellow			NPN	K50FLGRYNQ
		2 Color:			PNP	K50FLGRXPQ
	50 mm dome/ Flat mount	Green, Red	4-pin Euro QD	18 to 30V dc	NPN	K50FLGRXNQ
	ABS/polycarbonate	2 Color:	Eu. 0 QD	10 10 00 7 40	PNP	K50FLGXYPQ
		Green, Yellow			NPN	K50FLGXYNQ
7		2 Color:			PNP	K50FLXRYPQ
		Red, Yellow			NPN	K50FLXRYNQ

Connection Option: A model with a QD requires a mating cordset (see page 442).

Integral QD models are listed. For 150 mm PVC pigtail with QD, replace $\bf Q$ with $\bf QP$ in model number (example, $\bf T18GRXPQP$). For 2 m cable, omit suffix $\bf Q$ from model number (example, $\bf T18GRXP$).

Photoelectrics Sensors Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensor

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Safety Two-Hand Control Modules Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS
VISION LIGHTS
INDICATORS
Tower Lights
General-Purpose
Multi-Function
Sensor Emulators
Safety Indicators
Segmented Display
Call Light
Daylight Visible
Traffic Lights
ACTUATORS

^{*} Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.

EZ-LIGHT™ Indicators–Multi-Color, General-Purpose (cont'd)

Cons	truction	LED Function*	Connection	Supply Voltage	Inputs	Model
		2 Calan	5-pin Micro QD	85-130V ac	85-130V ac	K80LGRYA120Q
		3 Color: Green, Red, Yellow	A min Franco OD	40 +- 201/	PNP	K80LGRYPQ
obo			4-pin Euro QD	18 to 30V dc	NPN	K80LGRYNQ
	50 mm dome/ Flat or DIN-mount	2 Color:			PNP	K80LGRXPQ
	polycarbonate	Green, Red	Green, Red 2 Color: Green, Yellow 4-pin Euro QD 2 Color:	18 to 30V dc	NPN	K80LGRXNQ
		2 Color:			PNP	K80LGXYPQ
		Green, Yellow		10 to 30 v dc	NPN	K80LGXYNQ
		2 Color:			PNP	K80LXRYPQ
		Red, Yellow			NPN	K80LXRYNQ
		3 Color:			PNP	CL50GRYPQ**
	Large single illuminated segment/	Green, Red, Yellow	4-pin Euro QD	18 to 30V dc	NPN	CL50GRYNQ**
	30 mm mount polycarbonate	2 Color:	Luio QD	10 10 30 0 00	PNP	CL50GRXPQ**
		Green, Red			NPN	CL50GRXNQ**



EZ-LIGHT[™] Indicators–Audible

Const	ruction	LED Function*	Environmental Rating	Connection	Supply Voltage	Typical Audible Tone [†]	Inputs	Model			
									Steady	PNP	K50LGRA1YPQ
						(75 dB @ 1 m)	NPN	K50LGRA1YNQ			
	50 mm dome/ 30 mm mount	3 Color: Green, Red,	IP50	5-pin Euro QD	18 to 30V dc	Pulsed	PNP	K50LGRA2YPQ			
	polycarbonate	Yellow	IF30	Euro QD	10 10 30 0 00	(75 dB @ 1 m)	NPN	K50LGRA2YNG			
						Loud Steady	PNP	K50LGRAL1YP			
						(92 dB @ 1 m)	NPN	K50LGRAL1YN			
						Steady	PNP	K80LGRA1YP0			
		3 Color: Green, Red, Yellow		5-pin 0 Euro QD	18 to 30V dc	(75 dB @ 1 m)	NPN	K80LGRA1YN0			
	50 mm dome/ Flat or DIN-mount polycarbonate		IP50			Pulsed (75 dB @ 1 m)	PNP	K80LGRA2YPO			
							NPN	K80LGRA2YN0			
						Loud Steady (92 dB @ 1 m)	PNP	K80LGRAL1YF			
							NPN	K80LGRAL1YN			
		2 Color:					PNP	CL50GRXAPQ			
		Green, Red	ID50			Adjustable	NPN	CL50GRXANQ			
	Laura sinala	3 Color:	IP50			Max Intensity: 92 dB @ 1 m	PNP	CL50GRYAPQ*			
	Large single illuminated segment/	Green, Red, Yellow		5-pin	40 (00) (1		NPN	CL50GRYANQ*			
IP50 IP67	30 mm mount	2 Color:		Euro QD	18 to 30V dc		PNP	CL50GRXALSP			
	polycarbonate	Green, Red	ID07	67		Adjustable Max Intensity: 95 dB @ 1 m	NPN	CL50GRXALSN			
		3 Color:					PNP	CL50GRYALSP			
		Green, Red, Yellow					NPN	CL50GRYALSN			

Connection options: A model with a QD requires a mating cordset (see page 442).

K80L Models: Integral QD models are listed. For terminal-wired models, omit suffix Q from model number (example, K80LGRA2YP). Other Models: Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in the model number (example, K50LGRA1YPQP). For a 2 m cable, omit suffix Q from model number (example, K50LGRA1YP).

Single-color models are available. Colors are independently selected. Contact factory for other color and color combinations.

Models with a black housing are listed. For models with a light gray housing, add suffix C to the 2 m model number (example, CL50GRYPC) or replace suffix Q with CQ on QD models (example, CL50GRYPCQ).

Minimum decibel levels: K50L and K80L (steady and pulsed)—66 dB @ 1 m K50L and K80L (loud steady) and CL50-84 dB @ 1 m



EZ-LIGHT™ Indicators–Multi-Color, Multi-Function

Constru	uction	LED Function*	Connection	Supply Voltage	Inputs	Model
TANA	18 mm mount	3 Color: Choose Green, Red or Yellow ON,	5-pin	10 to 30V dc	PNP	M18GRY2PQ
	піскеі-ріацей біаз	flashing or alternating	Euro QD [†]	10 to 300 dc	NPN	M18GRY2NQ
	30 mm mount	3 Color:	5-pin Euro QD [†]	40 1 20 1	PNP	T30GRY2PQ
	thermoplastic polyester	Choose Green, Red or Yellow ON, flashing or alternating		10 to 30V dc	NPN	T30GRY2NQ
		5 Color:	8-pin		PNP	K50LGRYBWPQ8
		Green, Red, Yellow, Blue or White ON, flashing or alternating	Euro QD		NPN	K50LGRYBWNQ8
	50 mm dome/ 30 mm mount	4 Color: Green, Red, Yellow or Blue ON,	5-pin	18 to 30V dc	PNP	K50LGRYB4PQ
	polycarbonate	flashing or alternating	Euro QD		NPN	K50LGRYB4NQ
		3 Color: Choose Green, Red or Yellow ON,	5-pin Euro QD [†]		PNP	K50LGRY2PQ
T		flashing or alternating	Euro QD.		NPN	K50LGRY2NQ
		5 Color: Green, Red, Yellow, Blue or White ON,	_ 8-pin		PNP	K50FLGRYBWPQ8
		flashing or alternating	Euro QD		NPN	K50FLGRYBWNQ8
	50 mm dome/	4 Color:	5-pin		PNP	K50FLGRYB4PQ
	Flat mount ABS/polycarbonate	Green, Red, Yellow or Blue ON, flashing or alternating	Euro QD	18 to 30V dc	NPN	K50FLGRYB4NQ
		3 Color:	5-pin		PNP	K50FLGRY2PQ
•		Green, Red or Yellow ON, flashing or alternating	Euro QD [†]		NPN	K50FLGRY2NQ
		5 Color:	8-pin		PNP	K80LGRYBWPQ8
000		Green, Red, Yellow, Blue or White ON, flashing or alternating	Euro QD		NPN	K80LGRYBWNQ8
	50 mm dome/ Flat or DIN-mount	4 Color:	5-pin	10 to 20\/ d=	PNP	K80LGRYB4PQ
	polycarbonate	Green, Red, Yellow or Blue ON, flashing or alternating	Euro QD	18 to 30V dc	NPN K80LGRYB4N0	
		3 Color: Green, Red or Yellow ON,	5-pin		PNP	K80LGRY2PQ
		flashing or alternating	Euro QD [†]		NPN	K80LGRY2NQ

Connection options: A model with a QD requires a mating cordset (see page 442).

K80L Models: Integral QD models are listed. For terminal-wired models, omit Q or Q8 from model number (example, K80LGRYBWP).

Other models: Integral QD models are listed. For 150 mm PVC pigtail QD, replace Q with QP (example, K50LGRYB4PQP) or Q8 with QP8 (example, K50LGRYBWPQP8).

For a 2 m cable, omit suffix Q or Q8 from model number (example, K50LGRYBWP).

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Wireless
Lighting & Indicators
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TASK LIGHTS
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INDICATORS
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Multi-Function
Sensor Emulators
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Segmented Display
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ACTUATORS

^{*} Contact factory for other colors and color combinations.

[†] Connects to Banner 4-pin Euro QD cordset. If cordset other than a Banner 4-pin Euro QD is used, a 5-pin cordset may be required.

EZ-LIGHT™ Indicators—Sensor Emulators

VISION LIGHTS

Cons	truction	LED Function*	Connection	Supply Voltage	Inputs	Model
	8 mm mount		4-pin		PNP	T8LGYX7PQP
4	ABS blend/polycarbonate		Euro Pigtail QD	10 to 30V dc	NPN	T8LGYX7NQP
460	18 mm mount		4-pin	10 to 30V dc	PNP	M18GYX7PQ
4400	nickel-plated brass		Euro QD	10 10 30 7 40	NPN	M18GYX7NQ
	18 mm mount		4-pin	10 to 30V dc	PNP	T18GYX7PQ
	thermoplastic polyester		Euro QD	10 to 30 v do	NPN	T18GYX7NQ
	30 mm mount		4-pin	10 to 30V dc	PNP	T30GYX7PQ
	thermoplastic polyester		Euro QD	10 to 30V dc	NPN	T30GYX7NQ
	30 mm dome/ 22 mm mount	Use with discrete output of photoelectric and proximity sensors to duplicate the	4-pin Euro QD	10 to 30V dc	PNP	K30LGYX7PQ
¥	polycarbonate	sensor's Green and Yellow indicator function. When the sensor is powered, the Green LED is ON. When the sensor's output is			NPN	K30LGYX7NQ
	50 mm dome/ 30 mm mount	energized, the Yellow LED is ON.	4-pin	18 to 30V dc	PNP	K50LGYX7PQ
	polycarbonate		Euro QD	10 10 00 7 40	NPN	K50LGYX7NQ
	50 mm dome/ Flat mount		4-pin	18 to 30V dc	PNP	K50FLGYX7PQ
	ABS/polycarbonate		Euro QD	10 to 30 V do	NPN	K50FLGYX7NQ
2	50 mm dome/Flat or		4-pin	18 to 30V dc	PNP	K80LGYX7PQ
	DIN-mount polycarbonate		Euro QD	10 to 30 V dC	NPN	K80LGYX7NQ

Connection options: A model with a QD requires a mating cordset (see page 442).

T8L models: 150 mm PVC Pigtail QD models are listed. For 2 m cable, omit suffix QP from model number (example, T8LGYX7P). K80L models: Integral QD models are listed. For terminal-wired models, omit suffix Q from model number (example, K80LGYX7P) Other Models: Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, M18GYX7PQP). For 2 m cordset, omit suffix Q from model number (example, M18GYX7P).

Contact factory for other colors and color combinations.



EZ-LIGHT™ Indicators for Safety Devices

Constru	ction	Connection	LED Function	Supply Voltage	Inputs	Model	Used With
-	18 mm mount nickel-plated brass	M12/ 8-pin Euro QD	2 Color: Red/Green indication follows OSSD output of the EZ-SCREEN receiver	24V dc	PNP	M18RGX8PQ8*	EZ-SCREEN
(18 mm mount thermoplastic polyester					T18RGX8PQ8	
	30 mm mount thermoplastic polyester					T30RGX8PQ8	
	30 mm dome/ 22 mm mount polycarbonate					K30LRGX8PQ8	
(50 mm dome/ 30 mm mount polycarbonate					K50LRGX8PQ8	
	50 mm dome/ Flat mount ABS/ polycarbonate					K50FLRGX8PQ8	
O	50 mm dome/ Flat or DIN-mount polycarbonate					K80LRGX8PQ8	,

Connection options: A model with a QD requires a mating cordset (see page 442).

Typically a CSB splitter and DEE2R-8..D cordsets are used.

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Safety Controllers & Modules
Safety Two-Hand Control Modules
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^{*} Available in a kit that includes one M18 EZ-LIGHT, one SMB18A mounting bracket and hardware for mounting to the side channel of an EZ-SCREEN housing (kit model number EZA-M18RGX8PQ8).

EZ-LIGHT™ Indicators for Safety Devices (cont'd)

Construction		Connection	LED Function	Supply Voltage	Inputs	Model	Used With
	30 mm mount thermoplastic polyester	2 m	4 Color: Green, Red, Yellow, Blue	24V dc	PNP	T30GRYB11P	- DUO-TOUCH SG Run Bars
	50 mm dome/ 30 mm mount polycarbonate					K50LGRYB11P	

EZ-LIGHT™ Indicators–Segmented Displays





EZ-LIGHT™ Segmented Indicator Label Kits

М	odel	Description	Size
1 2 4 3	SALK-K80L4	4-segment transparent laser label (Includes 30 labels and 1 protective cover label)	· 8.5" x 11"
1	SALK-K80L4-0	1-segment transparent laser label (Includes 30 labels)	

EZ-LIGHT™ Indicators-Segmented Displays

Construction		LED Colors*	Connection	Supply Voltage	Inputs	Model
1	Flat or DIN-mount polycarbonate	Color 1: Green Color 2: Red		18 to 30V dc	PNP	K80L4GRYB1PQ
		Color 3: Yellow Color 4: Blue			NPN	K80L4GRYB1NQ
		Color 1: Green Color 2: Red	5-pin Euro QD		PNP	K80L3THGRYX1PQ
		Color 3: Yellow			NPN	K80L3THGRYX1NQ
		Color 1: Green			PNP	K80L2HGRXX1PQ
		Color 2: Red			NPN	K80L2HGRXX1NQ
		Color 1: White			PNP	K80L1WXXX1PQ
		Color 1: Yellow Color 1: Red Color 1: Green				K80L1YXXX1PQ
						K80L1RXXX1PQ
						K80L1GXXX1PQ
3		Color 1: Blue				K80L1BXXX1PQ

Connection options: A model with a QD requires a mating cordset (see page 442).

Integral QD models are listed. For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, K80L4GRYB1PQP). For terminal-wired models, omit suffix Q from model number (example, K80L4GRYB1P).

^{*} Contact factory for other colors and color combinations



EZ-LIGHT™ Indicators—Call Light



EZ-LIGHT™ Indicators-K80 Call Light

Construction	LED Color	Flash Rate	Inputs	Models*
Flat or DIN-mount polycarbonate	Red	1 second	18V—two 9V batteries (batteries included)	K80CLR

^{*} All models include a 48 mm circular Velcro mounting kit for easy mounting with no additional hardware.

EZ-LIGHT™ Indicators—Daylight Visible





EZ-LIGHT™ Daylight Visible Sun Shield

N	/lodel	Description
	K50DS	30 mm mount polycarbonate

EZ-LIGHT™ Indicators–Daylight Visible

Construction		LED Function*	Connection	Supply Voltage	Inputs**	Models [†]
		3 Color:	4 Dia Funa OD	45 to 201/ do	PNP	K50LDGRYPQ
		Green, Red, Yellow (6 LEDs per color)	4-Pin Euro QD	15 to 30V dc	NPN	K50LDGRYNQ
		3 Color:	4 Dia Franco OD	45 to 201/ do	PNP	K50LDGRBPQ
		Green, Red, Blue (18 LEDs)	4-Pin Euro QD	15 to 30V dc	NPN	K50LDGRBNQ
		1 Color: Green	4-Pin Euro QD	15 to 30V dc	PNP/NPN	K50LDXGXPQ
4 Process		(18 LEDs)	3-Pin Micro QD	85 to 130V ac	85-130V ac	K50LDGA120Q
	30 mm mount polycarbonate	1 Color: Red (18 LEDs)	4-Pin Euro QD	15 to 30V dc	PNP/NPN	K50LDXRXPQ
			3-Pin Micro QD	85 to 130V ac	85-130V ac	K50LDRA120Q
THE STATE OF THE S		1 Color: Yellow (18 LEDs)	4-Pin Euro QD	15 to 30V dc	PNP/NPN	K50LDXYXPQ
			3-Pin Micro QD	85 to 130V ac	85-130V ac	K50LDYA120Q
		1 Color: White	4-Pin Euro QD	15 to 30V dc	PNP/NPN	K50LDXWXPQ
		(18 LEDs)	3-Pin Micro QD	85 to 130V ac	85-130V ac	K50LDWA120Q
		1 Color: Blue	4-Pin Euro QD	15 to 30V dc	PNP/NPN	K50LDXBXPQ
		(18 LEDs)	3-Pin Micro QD	85 to 130V ac	85-130V ac	K50LDBA120Q

Connection options: A model with a QD requires a mating cordset (see page 442).

Integral QD models are listed. For 2 m cable, omit suffix **Q** from model number (example, **K50LDGRYP**). QD models (dc only): For 150 mm PVC pigtail with QD, replace Q with QP in model number (example, K50LDGRYPQP).

- Optional sun shield model K50DS is available for enhanced visibility in bright sun.
- Contact factory for other colors and color combinations 3-color models: 6 LEDs per color
 - 1-color models: 18 LEDs per color
- 1-color dc models are PNP/NPN selectable, depending on hookup.

Fiber Optic

Special Purpose Measurement & Inspection Senso

Wireless

Lighting & Indicators

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers &

Safety Two-Hand Control Modules

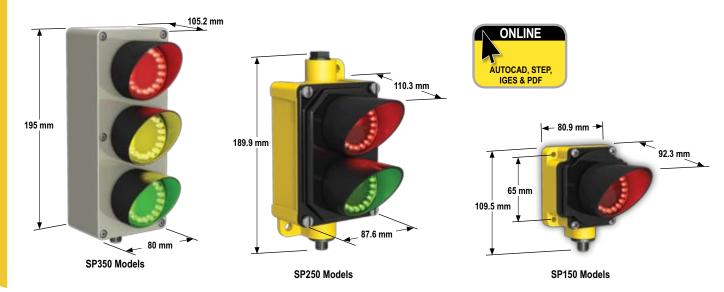
Safety Interlock Switches

Emergency Stop & Stop Control



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EZ-LIGHT[™] Indicators—Traffic Lights





EZ-LIGHT™ Indicators-Traffic Light

Constr	uction	Indicators	LED Function*	Connection	Supply Voltage	Inputs	Models
			3 Color: Green, Red, Yellow			PNP NPN	SP150GRYPQ SP150GRYNQ
			(6 LEDs per color)	4-Pin Euro QD	15 to 30V dc		SP150GRTNG
	Flat or DIN-mount polycarbonate	1	1 Color: Green (18 LEDs) 1 Color: Red (18 LEDs)			PNP/NPN selectable	SP150GPQ
	poryoursonate		1 Color: Green (18 LEDs)				SP150GA120
			1 Color: Red (18 LEDs)	Field-wired	85 to 130V ac	85 to 130V ac	SP150RA120
	Flat mount polycarbonate 2	1 0001.1100 (10 12253)	4-Pin	15 to 30V dc	PNP	SP250GRPQ	
		. 1 2	Top Indicator: Red (18 LEDs) Bottom Indicator: Green (18 LEDs)	Euro QD	13 to 30 v dc	NPN	SP250GRNQ
				Field-wired	85 to 130V ac	85 to 130V ac	SP250GRA12
	Flat mount polycarbonate 3	3	Top Indicator: Red (18 LEDs) Middle Indicator: Yellow (18 LEDs) Bottom Indicator: Green (18 LEDs)	4-Pin		PNP	SP350GYRP0
				Euro QD	15 to 30V dc	NPN	SP350GYRN
				Field-wired	85 to 130V ac	85 to 130V ac	SP350GYRA1

QD models: A model with a QD requires a mating cordset (see page 442).

DC models: Standard 4-pin Euro integral QD models are listed. For field-wired model, omit suffix **Q** from model number (example, **SP150GP**).

Contact factory for other colors and color combinations.



EZ-LIGHT™ Indication	ator Specifications
Supply Voltage and Current	DC models: T8L models: 10 to 30V dc @ 20 mA max. per LED color K30L, M18 and T18 General-Purpose models: 10 to 30V dc @ 25 mA max. per LED color K30L, M18 and T18 Emulators: 10 to 30V dc @ 30 mA max. M18 models Multi-Function: 10 to 30V dc @ 40 mA max. T30 models: 10 to 30V dc General-Purpose: @ 40 mA max. per LED color Multi-Function: @ 50 mA max. Emulators: @ 45 mA max. K50L, K50FL and K80L models: 18 to 30V dc Multi-Function: @ 50 mA max. Emulators: @ 45 mA max. All others: @ 40 mA max. per LED color (alarm) CL50 models: 18 to 30V dc (10% max. ripple) Indicators: @ 100 mA max. current at 18V dc; 70 mA max. current at 30V dc; Audible Alarm (IP50): @ 25 max. current Sealed Audible Alarm (IP67): @ 35 mA max. current Segmented displays: 18 to 30V dc K80L4: @ 35 mA max. with color, @ 90 mA max with all LEDs ON; K80L3 @ 50 mA max. with color 1 ON, @ 35 mA max. with colors 2 or 3 ON, @ 90 mA max. with all LEDs ON; K80L2: @ 50 mA max. with colors 1 or 2 ON, @ 90 mA max. with all LEDs ON; K80L1: @ 90 mA max Daylight Visible Models: 15 to 30V dc 1-Color: @ 120 mA max. per LED; 3-Color: @ 40 mA max. per LED color SP150/SP250/SP350 Models: 85 to 130V ac @ 15 mA max. Daylight Visible & SP150/250/350 Models: 85 to 130V ac @ 15 mA max. Daylight Visible & SP150/250/350 Models: 85 to 130V ac @ 75 to 120V dc @ 16 mA max. per LED color Indicators for use with Safety Devices: K30L, M18 and T18 Models: +24V dc @ 30 mA max. T30, K50L, K50FL and K80L Models: +24V dc @ 45 mA max. Call Lights: 18V (two 9V batteries); batteries included Type: 9V alkaline (2) Life expectancy: approximately 100 hours continuous operation with high-quality alkaline batteries
Indicators	Multi-Color, General-Purpose: Entire translucent diffuser or dome provides indication. LEDs are independently selected: Green, Red, Yellow; 1, 2 or 3 colors, depending on model. Multi-Color, Multi-Function: Entire translucent diffuser or dome provides indication. LEDs are independently selected: Green, Red, Yellow, Blue or White, ON steady or flashing; up to 5 colors, depending on model. 2-Color for Sensor Emulation: Entire translucent diffuser or dome provides indications. Green and Yellow, when connected to discrete output of 3-wire or 4-wire sensor. Audible: LEDs or audible independently selected: Green, Red, Yellow. Segmented and Daylight Visible: LEDs are independently selected: colors and operation, depending on model. SP150/SP250/SP350: LED colors are independently selected, depending on model. Indicators for use with EZ-SCREEN: Entire translucent dome provides indication. Red/Green indication follows EZ-SCREEN OFF/ON OSSD#1 output.
Input Response Time	Multi-Color, Multi-Function models: Indicator ON: 250 milliseconds max.; Indicator OFF: 10 milliseconds max. CL50, Daylight Visible (dc models), SP150/SP250/SP350 and Audible models: 10 milliseconds max. Indicator ON/OFF Daylight Visible (ac models): 500 microseconds max. Segmented models: Indicator ON: Initial light—250 milliseconds max. Additional lights—10 milliseconds max. Indicator OFF: 10 milliseconds max.
Indicator Flash Rate	Multi-Color Multi-Function models only: Single color: 1 second flash rate (500 milliseconds ON); 3-color: 1.5 second rotation rate (500 milliseconds per color) (4-Color: 2 second rotation rate (500 milliseconds per color) Call Light (Flash timing): Turn on response: 1 second Flash duration: 35 milliseconds Flash rate: 1 second
Oscillation Frequency (Audible only)	K50L and K80L models: A1 models—3 KHz ± 500 Hz A2 models—3 KHz ± 500 Hz; pulse rate 3 Hz ± 20% AL1 models—2.7 KHz ± 500 Hz CL50 models (IP50): 2.7 KHz ±500 Hz oscillation frequency; Max Intensity (Typical): IP50—92 dB @ 1 m CL50 models (IP67): 2.9 KHz ±250 Hz oscillation frequency; Max Intensity (Typical): IP67—94 db @ 1 m
Audible Adjustments (Audible only)	Standard CL50 models (IP50): Unscrew the cover (up to 1.5 turns max.) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For max. intensity, rotate the center plug 180° counterclockwise to remove it. Sealed CL50 models (IP67): Audible Alarm rotate the front cover until the desired intensity is reached.
Environmental Rating	Audible Models: Standard: IEC IP50 Sealed: IEC IP67 T8L Models: IEC IP67 (not encapsulated) K80L models: IEC IP67 (encapsulated electronics only) K50L and K50FL QD Models: Fully encapsulated, meet IP69K per DIN 40050-9. Cabled models meet IP69K if the cable and cable entrance are protected from high-pressure spray. SP150/SP250/SP350 Models: Fully encapsulated; Electronics: IP66 Enclosure: SP150—IEC IP67; SP250 & SP350: IEC IP65 Call Light: IP50 All others: Fully encapsulated, IEC IP67

Photoelectrics Sensors

Fiber Optic Sensors Special Purpose Sensors

Measurement & Inspection Sensor

Vision

Wireless Lighting & Indicators

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Safety Laser Scanners

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TASK LIGHTS VISION LIGHTS

INDICATORS Tower Lights General-Purpose Multi-Function Sensor Emulators Safety Indicators Segmented Display Call Light Daylight Visible

Traffic Lights ACTUATORS

EZ-LIGHT™ Indicator Specifications (cont'd) Connections

QD cordsets are ordered separately. See page 442.

DC models:

Multi-Color, General Purpose, Sensor Emulators and Daylight Visible:

K80L Models: 4-pin Euro-style integral QD. Terminal-wired models available for use with bulk cable; compression fitting is optional. Contact factory for cable information.

T8L Models: 2 m attached cable or 150 mm PVC pigtail with 4-pin Euro-style QD, depending on model.

Other Models: 2 m attached cable, 4-pin Euro-style integral QD, or 150 mm PVC pigtail with 4-pin Euro-style QD, depending on model.

Multi-Color, Multi-Function:

K80L Models: 5-pin (3- or 4-color) or 8-pin (5-color) Euro-style integral QD. Terminal-wired models available for use with

bulk cable; compression fitting is optional. Contact Factory for cable information.

Other Models: 2 m attached cable, 5-pin (3- or 4-color), or 8-pin (5-color) Euro-style integral QD or

150 mm PVC pigtail Euro-style QD.

K50L and CL50 Audible Models: 2 m attached cable, or 5-pin Euro-style integral QD or 150 mm PVC pigtail with 5-pin Euro-style QD. K80L Segmented and Audible Models: 5-pin Euro-style integral QD or 150 mm PVC pigtail with 5-pin Euro-style QD. Terminal-wired models available for use with bulk cable; compression fitting is optional. Contact factory for cable information.

SP150/SP250/SP350 Models: 4-pin Euro-style integral QD or 150 mm PVC pigtail with Euro-style QD. Terminal-wired models available for use with bulk cable (wire nuts included); ½-14 NPSM cord grip or conduit adapter are optional.

AC Models:

K50L and K80L: 2 m attached cable, 5-pin Micro-style integral QD or 150 mm PVC pigtail with 5-pin Micro-style QD, depending on model. Daylight Visible Models: 3-pin Micro-style integral QD or 2 m integral cable, depending on model

SP150/SP250/SP350 Models: Terminal-wired models available for use with bulk cable.

Indicators for use with EZ-SCREEN: 8-pin Euro-style integral QD.

	maiotatoro tor too mai == oon==m o pin ==mo otyto mografi					
Operating Temperature	Audible and Call Light models: -20° to +50°C	All others: -40° to +50° C				
Certifications	K50L & K80L: C 6 K50L & K30L: LISTED					
Hookups	General-purpose: DC: Ll12 (p. 771) Audible: K50L & K80L: Ll15 (p. 772) Multi-Function: 3- or 4-color: Ll16 (p. 772)	AC: L113 (p. 772) CL50: L1015 (p. 772) 5-color: L117 (p. 773)				

4.57 m MQDC1-515

9.14 m MQDC1-530

Segmented: Ll20 (p. 773) Sensor Emulators: LI18 (p. 773)

Daylight Visible: 1-color models (dc): LI21 (p. 774) DC Traffic Lights: SP150 models: LI12 (p. 771) AC Traffic Lights: see data sheet

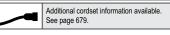
3-color models (dc): LI22 (p. 774) SP250 models: LI24 (p. 774)

AC models: LI23 (p. 774) SP350 models: see data sheet

Cordsets

Micro QD								
See page 698								
	Threa	ded 3-Pin	Threaded 5-F	Pin (With Shield)				
Length	Straight	Right-Angle	Straight	Right-Angle				
1.83 m	MQDC-306	MQDC-306RA	MQVR3S-506	MQVR3S-506RA				
4.57 m	MQDC-315	MQDC-315RA	MQVR3S-515	MQVR3S-515RA				
9.14 m	MQDC-330	MQDC-330RA	MQVR3S-530	MQVR3S-530RA				
	1							







See page 682							
	Threa	ded 4-Pin	Threaded 8-P				
Length	Straight	Straight					
1.83 m	MQDC-406	MQDC-406RA	MQDC2S-806				
4.57 m	MQDC-415	MQDC-415RA	MQDC2S-815				
9.14 m	MQDC-430	MQDC-430RA	MQDC2S-830				
	Threa						
Length	Straight	Right-Angle					
1.83 m	MQDC1-506	MQDC1-506RA					

MQDC1-515RA

MQDC1-530RA

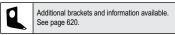
Furo OD



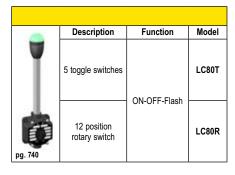
Brackets

T8L	T18/M18			
pg. 646	pg. 637	pg. 637		
SMB8MM	SMB18A	SMB1815SF		

T30/K50	DL/CL50	K30L	K80L
pg. 639	pg. 641	pg. 639	pg. 653
SMB30A	SMB30SC	SMB22A	SMBDX80DIN



EZ-LIGHT Controllers







Fiber Optic Sensors

Special Purpose Sensors Measurement & Inspection Senso Vision Wireless Lighting & Indicators Safety Light Screens Safety Laser Scanners Fiber Optic Safety Systems Safety Controllers & Modules Safety Two-Hand Control Modules Safety Interlock Switches Emergency Stop & Stop Control

ACTUATORS





K50 & K80 page 444

- · Highly visible 50 mm dome light is available in two housing styles.
- · Single-point sensor features a large integrated pick light.
- · Fixed-field background suppression, long-range retroreflective or push-button models are available.
- · Models are available for 30 mm, Flat or DIN-rail mounting.



page 448 • Large highly visible job lights indicate

- the action to perform and signal errors. · One-piece self-contained sensor
- requires no controller to operate. · Sensor automatically operates in
- either diffuse or retroreflective mode, depending on the application.
- Two lengths fit existing bin sizes and configurations.



· Highly visible LEDs on the emitter and receiver show the part-assembly sequence.

- · Four lengths are available to fit common bin sizes.
- Range is up to 2 m.
- · Array can also be used for detecting parts at least 35 mm in diameter.



VTB page 453

- Illuminated button base provides a bright, easy-to-see job light to guide assembly sequence.
- VTB buttons provide a cost-effective and easy-to-install solution for areas that cannot accommodate a light screen.
- Ergonomic design requires no physical pressure to operate, reducing hand, wrist and arm stress.



VISION LIGHTS INDICATORS ACTUATORS

K50/K80 PVD PVA VTB OTB/LTB

TASK LIGHTS

STB



OTB/LTB page 455

- · Replaces mechanical push buttons
- · Features ergonomic design to prevent repetitive motion stress
- · Senses light, not pressure
- · Provides a choice of momentary-action or alternate-action touch buttons



STB

- · LED power, output and fault indicators
- 10 to 30V dc or 20 to 30V ac/dc
- · Housing sealed to IP66
- · Optional field cover colors



page 459

- · Self-checking for use with safety controls

K50 & K80

Single-Point Actuators

- · Requires no controller to operate; completely self-contained
- Indicates job pick status with a large 50 mm translucent dome containing one, two or three colored lights
- Shows correct order for selecting parts using a green job light in all models
- · Models available with a red light to indicate detection of operator action or mispick
- Features models with background suppression to avoid sensing background objects in the sensor field of view, reliable retroreflective (break beam) mode or pressure activated push buttons
- Offers choice of models for 30 mm, Flat or DIN-rail mounting
- Ideal for use in abusive environments—fully encapsulated IP67 construction; rated to IP69K depending on installation
- · Offers AS-i module compatibility, depending on model
- Available without sensor for use as indicator light (EZ-LIGHT™ K50L & K80L, see page 432)







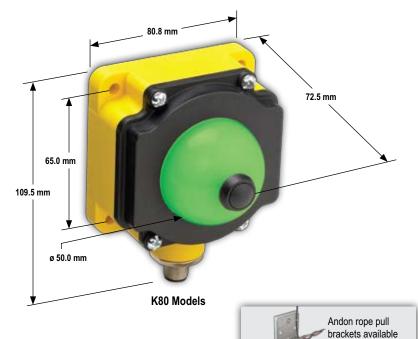












K50 and K80 Standard-Single Color, 12-30V dc

- Job light is ON at all times while job input is active.
- Presence of hand initiates output change of state.

→ Visible Red LED

for use in visual management systems (page 652)

Sensing Mode/LED	Housing	Range	Connection	Output	Job Light	PNP Models	NPN Models		
	50 mm dome/			2 m	NO		K50APLPGXD	K50ANLPGXD	
			4-pin Euro QD	NO	0	K50APLPGXDQ	K50ANLPGXDQ		
	30 mm mount polycarbonate	2 M	2 m		Green	K50RPLPGXD	K50RNLPGXD	Mo	
POLAR RETRO	polycalboliate	F-7	4-pin Euro QD	NC NC		K50RPLPGXDQ	K50RNLPGXDQ	on n	

Connection options: A model with a QD requires a mating cordset (see page 447).

QD models: For 150 mm 4-pin Euro-style PVC pigtail, add suffix QP to 2 m model number (example, K50APLPGXDQP). For 9 m cable, add suffix W/30 to the 2 m model number (example, K50APLPGXD W/30).

NO = Normally Open, NC = Normally Closed



K50 and K80 Standard-Single Color, 12-30V dc (cont'd)

- Job light is ON at all times while job input is active.
- Presence of hand initiates output change of state.

Infrared LE

Sensing Mode/LED	Housing	Range	Connection	Output	Job Light	PNP Models	NPN Models
			2 m	NO		K50APFF50GXD	K50ANFF50GXD
		50 mm	4-pin Euro QD	I NO		K50APFF50GXDQ	K50ANFF50GXDQ
		Cutoff	2 m	NC		K50RPFF50GXD	K50RNFF50GXD
	50 mm dome/ 30 mm mount		4-pin Euro QD	I NC	Green	K50RPFF50GXDQ	K50RNFF50GXDQ
	polycarbonate		2 m	NO	Green	K50APFF100GXD	K50ANFF100GXD
FIXED-FIELD		100 mm	4-pin Euro QD	NO		K50APFF100GXDQ	K50ANFF100GXDQ
		Cutoff	2 m	NC	NC	K50RPFF100GXD	K50RNFF100GXD
			4-pin Euro QD			K50RPFF100GXDQ	K50RNFF100GXDQ
			2 m	NO		K50APPBGXD	K50ANPBGXD
	50 mm dome/ 30 mm mount		4-pin Euro QD			K50APPBGXDQ	K50ANPBGXDQ
	polycarbonate	-	2 m	NC		K50RPPBGXD	K50RNPBGXD
			4-pin Euro QD	INC.		K50RPPBGXDQ	K50RNPBGXDQ
	50 mm dome/		2 m	NO	Green	K80APPBGXD	K80ANPBGXD
PUSH-BUTTON	Flat or DIN-mount		4-pin Euro QD	INU		K80APPBGXDQ	K80ANPBGXDQ
	polycarbonate	_	2 m	NC		K80RPPBGXD	K80RNPBGXD
			4-pin Euro QD	INC		K80RPPBGXDQ	K80RNPBGXDQ

	Photoelectrics Sensors
:D	Fiber Optic Sensors
ם:	Special Purpose Sensors
	Measurement & Inspection Sensors
	Vision
	Wireless
	Lighting & Indicators
	Safety Light Screens
-	Safety Laser Scanners
-	Fiber Optic Safety Systems
	Safety Controllers & Modules
	Safety Two-Hand Control Modules
	Safety Interlock Switches
	Emergency Stop & Stop Control
	ACCESSORIES

TASK LIGHTS VISION LIGHTS INDICATORS ACTUATORS

K50/K80 PVD PVA VTB OTB/LTB STB

K50 and K80 Specialty C-Series-Two Color, 12-30V dc

- Job light is Green while job input is active (unless hand is present.)
- Presence of hand (or pressing push button) initiates output change of state and turns light Red for visual verification that action was sensed.
- · Aids in alignment of retroreflective models by providing Red signal when retroreflective target is not aligned or present.

Visible	e Red LED 🔲 Infrared LE
NP	NPN
dels	Models

Auds in augminient of retroremective models by providing Ned signal when retroremective target is not augmed of present.						Visibl	e Red LED			
Sensing Mode/LED	Housing	Range	Connection	Output	Job [†] Light	PNP Models	NPN Models			
P	50 mm dome/ 30 mm mount	2 m	4 min Franco OD	NO		K50APLPGRCQ	K50ANLPGRCQ			
POLAR RETRO	polycarbonate	2 111	4-pin Euro QD	NC		K50RPLPGRCQ	K50RNLPGRCQ			
		50 mm	4-pin Euro QD	NO		K50APFF50GRCQ	K50ANFF50GRCQ			
	50 mm dome/ 30 mm mount		4-pin Euro QD	NC	Green (Red)	K50RPFF50GRCQ	K50RNFF50GRCQ			
FIXED-FIELD	polycarbonate	100 mm	A-nin E irr A -	NO		K50APFF100GRCQ	K50ANFF100GRCQ			
		Cutoff		NC		K50RPFF100GRCQ	K50RNFF100GRCQ			
	50 mm dome/ 30 mm mount	_	4-pin Euro QD	NO		K50APPBGRCQ	K50ANPBGRCQ			
	polycarbonate	_	- 4-pin Luio QD	NC		K50RPPBGRCQ	K50RNPBGRCQ			
PUSH-BUTTON	50 mm dome/		4-pin Euro QD	NO		K80APPBGRCQ	K80ANPBGRCQ			
	Flat or DIN-mount polycarbonate				_	+-piii ⊑ui0 QD	NC		K80RPPBGRCQ	K80RNPBGRCQ

Connection options: A model with a QD requires a mating cordset (see page 447).

QD models: For 150 mm 4-pin Euro-style PVC pigtail, replace suffix Q with QP (example, K50APLPGRCQP). For 2 m cable, remove Q from model number (example, K50APLPGRC) or 9 m cable, add suffix W/30 to the 2 m model number (example, K50APLPGRC W/30).

NO = Normally Open, NC = Normally Closed

For other color combinations, contact factory at 1-888-373-6767.

Connection

5-pin Euro

PUR Pigtail QD

5-pin Euro

PUR Pigtail QD

5-pin Euro

PUR Pigtail QD

K50 and K80 Specialty C-Series-Three Color, 12-30V dc

• Job light is ON at all times while job input is active (unless hand is present).

Housing

50 mm dome/

30 mm mount

polycarbonate

50 mm dome/

30 mm mount

polycarbonate

50 mm dome/ 30 mm mount

polycarbonate

50 mm dome/

Flat or DIN-mount

polycarbonate

- Presence of hand (or pressing button) activates output and turns job light Yellow for visual verification that action was sensed.
- Presence of hand (or pressing button) while job input is not active turns light Red signaling mispick.

Range

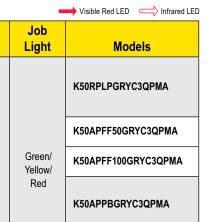
2 m

50 mm

Cutoff

100 mm

Cutoff



K80APPBGRYC3QPMA

Output[†]

Type

PNP

Output[†]

NC

NO

NO



Connection options: A model with a QD requires a mating cordset (see page 447).

5-pin 150 mm Euro-style PUR pigtail QD models are listed. Other cable and connector options are available, contact factory at 1-888-373-6767.

NO = Normally Open, NC = Normally Closed

Sensing Mode/LED

PUSH-BUTTON

PNP models are listed. For other output types, contact factory at 1-888-373-6767.

K50 and K80 Specialty E-Series-Two Color, 12-30V dc

- Job light is Green at all times while job input is active.
- Presence of hand (or pressing button) initiates output change of state.
- Presence of hand (or pressing button) while job input is inactive turns light Red, giving operator visual verification that sensor is functioning properly.

giving operator visua	al verification that sen		Visible	Red LED			
Sensing Mode/LED	Housing	Range	Connection	Output	Job [†] Light	PNP Models	NPN Models
P	50 mm dome/ 30 mm mount	2 m	4-pin Euro QD	NO		K50APLPGREQ	K50ANLPGREQ
POLAR RETRO	polycarbonate		NC NC		K50RPLPGREQ	K50RNLPGREQ	
		50 mm	4-pin Euro QD	NO		K50APFF50GREQ	K50ANFF50GREQ
	50 mm dome/ 30 mm mount	Cutoff	4-pili Eulo QD	NC		K50RPFF50GREQ	K50RNFF50GREQ
FIXED-FIELD	polycarbonate		4-nin Furn ΩD	NO		K50APFF100GREQ	K50ANFF100GREQ
PIALD-PILLD				NC	Green (Red)	K50RPFF100GREQ	K50RNFF100GREQ
	50 mm dome/ 30 mm mount			NO		K50APPBGREQ	K50ANPBGREQ
	polycarbonate		4-pin Euro QD	NC		K50RPPBGREQ	K50RNPBGREQ
PUSH-BUTTON	50 mm dome/ Flat or DIN-mount			NO		K80APPBGREQ	K80ANPBGREQ
	polycarbonate			NC		K80RPPBGREQ	K80RNPBGREQ

Connection options: A model with a QD requires a mating cordset (see page 447).

QD models: For 150 mm 4-pin Euro-style PVC pigtail, replace Q with QP (example, K50APLPGREQP).
For 2 m cable, remove Q from model number (example, K50APLPGRE) or 9 m cable, add suffix W/30 to the 2 m model number (example, K50APLPGRE W/30).

NO = Normally Open, NC = Normally Closed

[†] For other color combinations, contact factory at 1-888-373-6767.



K50 and K80 Spec	cifications
Supply Voltage and Current	12 to 30V dc, (10% max. ripple) C3 models: less than 90 mA max. current @ 12V dc (exclusive of load) less than 60 mA max. current @ 30V dc (exclusive of load) All others: less than 60 mA max. current @ 12V dc (exclusive of load) less than 40 mA max. current @ 30V dc (exclusive of load) AS-i Compatible
Supply Protection Circuitry	Protected against reverse polarity and transient voltages (fast transient and over-voltage) and reverse polarity
Output Configuration	PNP or NPN (depending on model)
Output Rating	150 mA max. C3 models: ON-state saturation voltage: PNP models: Less than 2V @ 10 mA dc; less than 2.5V @ 150 mA dc NPN models: Less than 1.5V @ 10 mA dc; less than 2V @ 150 mA dc OFF-state leakage current: Less than 10 μA @ 30V dc OFF-state leakage current: Less than 10 μA @ 30V dc ON-state voltage: less than 2V @ 10 mA dc; less than 2.5V @ 150 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of output
Output Response Time	C3 models: 5 milliseconds ON/OFF All others: 3 milliseconds ON/OFF
Job Light Enable Input	C3 models: Entire translucent dome provides indicator light. Job ("Pick") indicator—Green Pick Sensed indicator—Yellow Mispick indicator—Red All others: Entire translucent dome provides indicator light; either Job or Pick Sensed indicator inhibits the other light, depending on model. Job ("Pick") indicator—Green Pick Sensed indicator—Red or OFF, depending on model Input impedance: 8000Ω Sinking—Input low less than 1.5V Sourcing—Input high greater than 7V
Construction	Base and translucent dome: polycarbonate Lens: polycarbonate or acrylic Push Button: thermoplastic
Environmental Rating	Fully encapsulated; IEC IP67 Integral QD models: IP69K when using IP69K-rated cordsets Pigtail and cable models: IP69K when mounted with conduit
Connections	C3 models: 5-pin 150 mm PUR pigtail Euro-style QD (QPMA). QD cordsets are ordered separately. See page 447. All others: 2 m or 9 m 4-wire attached cable, 4-pin integral Euro-style QD (Q) or 4-pin 150 mm PVC pigtail Euro-style QD (QP), depending on model. QD cordsets are ordered separately. See page 447.
Ambient Light Immunity	Up to 5,000 lux
EMI/RFI Immunity	Immunity to EMI and RFI noise sources per IEC 947-5-2
Operating Conditions	Temperature: -40° to +50° C Relative Humidity: 90% at 50° C (non-condensing)
Certifications	K50 & K80: C C UL us

Photoelectrics Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensor Vision Wireless Lighting & Indicators Safety Light Screens Safety Laser Scanners Fiber Optic Safety Systems Safety Controllers & Modules Safety Two-Hand Control Modules Safety Interlock Switches

> TASK LIGHTS VISION LIGHTS INDICATORS ACTUATORS K50/K80 PVD PVA VTB OTB/LTB STB

Emergency Stop & Stop Control

Cordsets

Euro QD									
See page 682									
	Threaded 4-Pin Threaded 5-Pin								
Length	Straight	Straight Right-Angle Straight Right-Angl							
1.83 m	MQDC-406	MQDC-406RA	MQDC1-506	MQDC1-506RA					
4.57 m	MQDC-415 MQDC-415RA MQDC1-515 MQDC1-515RA								
9.14 m	MQDC-430	MQDC-430RA	MQDC1-530	MQDC1-530RA					

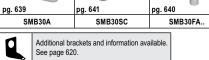
Additional cordset information available. See page 679.





Brackets

K50/K80						
pg. 639	pg. 641	pg. 640				
SMB30A	SMB30SC	SMB30FA				



Andon Solutions





PVD

One-Piece Pick-to-Light Sensor

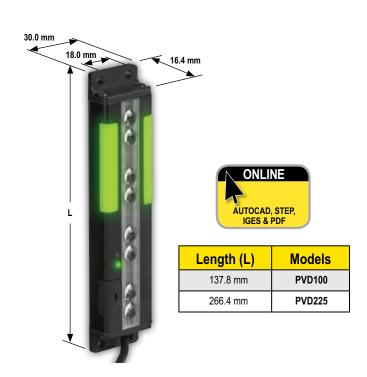
- Large green job light indicates action to perform, and red job light indicates an error.
- Two lengths are available to fit existing bins and configurations: 100 and 225 mm.
- Easy-to-use sensor suits many part assembly, pick-to-light and error-proofing applications.
- One-piece self-contained sensor requires no controller.
- Sensor automatically operates in either diffuse or retroreflective mode, depending on the application.
- Setup and adjustment are automated, and a wide beam pattern provides easy alignment.
- A choice of protective mounting brackets are available.

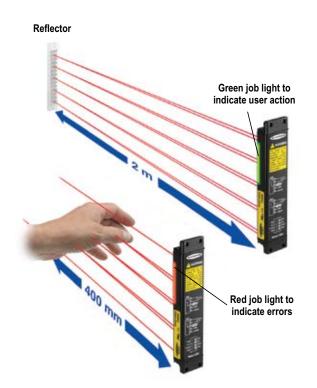












PVD, 12-30V dc

Visible Red LED

Sensing Mode/LED	Range	Array	Connection	Output	Models
	Retroreflective Mode:	100 mm	2 m		PVD100
RETRO	up to 2 m	(4 Beams)	5-pin Euro Pigtail QD	NPN/PNP	PVD100Q
	Diffuse Mode:	225 mm	2 m	INPIN/PINP	PVD225
DIFFUSE	up to 400 mm	(8 Beams)	5-pin Euro Pigtail QD		PVD225Q

Connection options: A model with a QD requires a mating cordset (see page 449).

For 9 m cable, add $\mbox{W/30}$ to the 2 m model number (example, $\mbox{PVD100 W/30}).$



PVD Specification	is and the second secon
Sensing Range	Retroreflective applications: 2 m, using 25 mm wide retroreflective tape Diffuse applications: 400 mm, with 18% reflectivity gray card target
Sensing Beam	630 nm, Visible red
Beam Spacing	28.6 mm
Sensing Height	4-channel models: 111 mm 8-channel models: 240 mm
Supply Voltage and Current	Input Voltage: 12 to 30V dc (10% max. ripple @ 10% duty cycle) Input Current: less than 40 mA @ 24V dc and less than 70 mA @ 12V dc (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient over-voltage
Sensing Resolution	Retroreflective: 51 mm at 406 mm range, 100 mm at 2 m Diffuse: 55 mm dia. at 400 mm range
Output Configuration	User-selectable via DIP switch: 1 open-collector PNP (current sourcing) or 1 open-collector NPN (current sinking)
Output Rating	150 mA max. OFF-state leakage current: less than 10 μA ON-state saturation voltage: NPN: less than 1.0V dc at 150 mA PNP: less than 2.0V dc at 150 mA
Output Protection Circuitry	Protected against false pulse at power-up and short circuit of outputs
Output Response Time	400 milliseconds (Includes standard 100 milliseconds ON-delay and 100 milliseconds OFF-delay)
Delay at Power-Up	Less than 1.0 second
Indicators	Green: LED to indicate power ON/OFF Yellow: LED to indicate output ON/OFF Job Light: (Diffused Green LED) Turned ON and OFF by applying an external signal to the Job input (white wire). The job lights will be active high or active low, depending on user selection of DIP switch 4. Error Light: (Diffused Red LED) Turned ON and OFF by detection of an output event when job light is not ON.
Adjustments	4 DIP switches, located behind access panel († denotes default setting): 1. PNP†/ NPN output 2. Normally Open operation†/Normally Closed 3. Job light ON solid†/Job light flashing 4. Job light input high†/Job light input low
Construction	Black painted aluminum housing; acrylic lenses; thermoplastic polyester end caps; thermoplastic elastomer programming switch cover; stainless steel mounting brackets and hardware
Environmental Rating	NEMA 2; IEC IP62
Connections	5-conductor PVC-jacketed 2 m cable which is either unterminated or terminated with a 5-pin Euro-style quick-disconnect connector, depending on model. Cable diameter is 3.3 mm. QD cordsets are ordered separately. See page 449.
Operating Conditions	Temperature: 0° to +50° C Relative humidity: 90% relative humidity @ 50° C (non-condensing)
Certifications	(€ c FL °us
Hookup Diagrams	LI03 (p. 769)

Photoelectrics Sensors Fiber Optic

Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensors

Vision

Wireless

Lighting & Indicators

Safety Light Screens

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control

TASK LIGHTS

VISION LIGHTS
INDICATORS
ACTUATORS

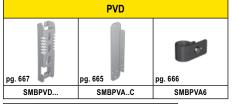
K50/K80 PVD PVA

OTB/LTB
STB

Cordsets

		Ę				
	₩	1				
Length	Straight	Ĭ	i			
1.83 m	MQDC1-506	MQDC1-506RA				
4.57 m	MQDC1-515	MQDC1-515RA	M			
9.14 m	MQDC1-530	MQDC1-530RA	l //////	/		
Additional cordset information available. See page 679.						

Brackets







PVA

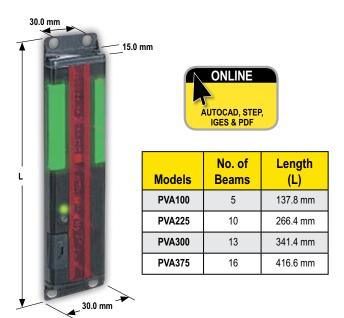
Pick-to-Light Parts Verification Array

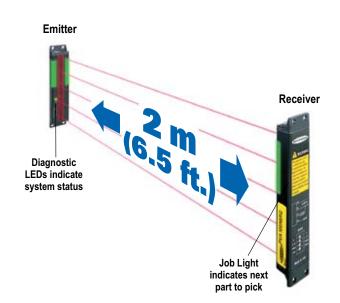
- Highly visible job lights on each emitter and receiver provides a reliable error-proofing system for assembly operations.
- Reduced chance of missed parts and parts assembled in the wrong order increases quality and decreases production costs.
- · Asynchronous emitter and receiver requires no controller.
- Sensor can also be used to sense objects larger than 35 mm in diameter.
- Emitter and receiver interface easily with the existing process controller, saving installation time, wiring costs and maintenance.
- Diagnostic LEDs indicate setup and system errors at a glance, and the wide field of view makes alignment easy.
- Operating range is up to 2 m.
- Four lengths are available: 100, 225, 300 and 375 mm.
- A choice of protective brackets are available.







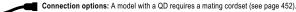




PVA, 12-30V dc

Infrared LED

Sensing Mode/LED	Description	Range	Array Length & Response Time	Connection	Job Light Input	NPN Models	PNP Models	
	Emitter/Receiver Pair					PVA100N6	PVA100P6	
	Emitter		100 mm	2 m	NPN:	PVA100N6E	PVA100P6E	
	Receiver	0	(5 Beams) 20 ms		0V dc PNP:	PVA100N6R	PVA100P6R	1
OPPOSED	Emitter/Receiver Pair	2 m		2 m		PVA100N6Q	PVA100P6Q	
OFFOSED	Emitter			4-pin Euro	+5 to 30V dc	PVA100N6EQ	PVA100P6EQ	More
	Receiver			Pigtail QD		PVA100N6RQ	PVA100P6RQ	on next page





PVA, 12-30V dc (cont'd)

Infrared LED

Sensing Mode/LED	Description	Range	Array Length & Response Time	Connection	Job Light Input	NPN Models	PNP Models
	Emitter/Receiver Pair		-			PVA225N6	PVA225P6
Re	Emitter		225 mm	2 m	NPN:	PVA225N6E	PVA225P6E
	Receiver		(10 Beams)		0V dc	PVA225N6R	PVA225P6R
	Emitter/Receiver Pair		40	2 m	PNP:	PVA225N6Q	PVA225P6Q
	Emitter		40 ms	4-pin Euro	+5 to 30V dc	PVA225N6EQ	PVA225P6EQ
	Receiver			Pigtail QD		PVA225N6RQ	PVA225P6RQ
	Emitter/Receiver Pair	300 mm			PVA300N6	PVA300P6	
	Emitter		300 mm (13 Beams) 52 ms	2 m 2 m 4-pin Euro Pigtail QD	NPN: 0V dc PNP: +5 to 30V dc	PVA300N6E	PVA300P6E
	Receiver	0				PVA300N6R	PVA300P6R
OPPOSED	Emitter/Receiver Pair	2 m				PVA300N6Q	PVA300P6Q
OFFOSED	Emitter					PVA300N6EQ	PVA300P6EQ
	Receiver	-				PVA300N6RQ	PVA300P6RQ
	Emitter/Receiver Pair				NPN:	PVA375N6	PVA375P6
	Emitter	-	375 mm	2 m		PVA375N6E	PVA375P6E
	Receiver		(16 Beams)		0V dc	PVA375N6R	PVA375P6R
	Emitter/Receiver Pair		C4	2 m	PNP: +5 to 30V dc	PVA375N6Q	PVA375P6Q
	Emitter		64 ms	4-pin Euro		PVA375N6EQ	PVA375P6EQ
	Receiver			Pigtail QD		PVA375N6RQ	PVA375P6RQ

Connection options: A model with a QD requires a mating cordset (see page 452).

PVA Specification	IS			
Beam Spacing	25.0 mm	25.0 mm		
Sensing Height	100, 225, 300 or 375	5 mm, depending on emitter and	receiver models	
Supply Voltage and Current	12 to 30V dc (10% n	nax. ripple) at less than 62 mA f	or the emitter and 50 mA for the receiver (exclusive of load)	
Supply Protection Circuitry	Protected against re	verse polarity		
Output Configuration	Models PVA	Receivers have one solid-state dc output, programmable for light or dark operate: Models PVAN6R have current sinking (NPN) open-collector transistor Models PVAP6R have current sourcing (PNP) open-collector transistor		
Output Rating	_	current: less than 2 µA n voltage: less than 1V dc at 1	mA and less than 1.5V dc at 100 mA	
Output Response Time	Sensor Size 100 mm 225 mm 300 mm 375 mm	Standard 20 milliseconds 40 milliseconds 52 milliseconds 64 milliseconds	With Crosstalk from Adjacent Units 30 milliseconds max. 60 milliseconds max. 78 milliseconds max. 96 milliseconds max.	
Output Protection Circuitry	Protected against fal	lse pulse at power-up and conti	nuous overload or short circuit of outputs	
Sensing Resolution	35 mm min. diamete	r		

Photoelectrics Sensors Fiber Optic Sensors Special Purpose Sensors Measurement & Inspection Sensor

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Safety Systems
Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

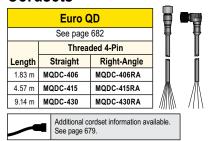
Emergency Stop & Stop Control



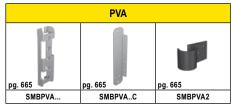
TASK LIGHTS
VISION LIGHTS
INDICATORS
ACTUATORS
K50/K80
PVD
PVA
VTB
OTB/LTB
STB

Status Indicators	Emitter:	One Green LED to indicate power ON/OFF
Otatus indicators	Limitei.	One Red LED to indicate frequency selected
	Receiver:	One Green LED to indicate power ON/OFF
	100011011	One Yellow LED to indicate output state
		eceiver: Both have two highly visible "job lights" which are turned ON/OFF by applying an external signal to the white lights may be programmed for steady or flashing green.
Construction		d aluminum housing; acrylic lenses; PBT polyester end caps; thermoplastic elastomer programming switch cover; el mounting brackets and hardware
Environmental Rating	IEC IP62; NE	EMA 2
Connections		3-conductor PVC-jacketed 2 m cable which is either unterminated or terminated with a 4-pin Euro-style quick-disconnect connector, depending on model. Cable diameter is 3.3 mm.
		4-conductor PVC-jacketed 2 m cable which is either unterminated or terminated with a 4-pin Euro-style quick-disconnect connector, depending on model. Cable diameter is 3.3 mm.
Operating Temperature	0° to +50° C	
Certifications	CE	c AL °us
Hookup Diagrams	Emitters: LIG	05 (p. 770) All others: L104 (p. 769)

Cordsets



Brackets









VTB Verification Optical Touch Buttons

- · Replaces capacitive touch switches and mechanical push buttons
- Features illuminated base (to provide a bright, easy-to-see job light); solid, flashing or multiple color models available
- · Offers choice of models with red, green or blue job light
- Require no physical pressure to operate, eliminating hand, wrist and arm stresses associated with repeated switch operation
- Offers a cost-effective and easy-to-install pick-to-light solution for areas that cannot accommodate a light screen
- · Cuts through heavy airborne contamination to function in almost any environment
- · Withstands exposure to a variety of chemicals, depending on model

Fiber Optic

Special Purpose Sensors

Measurement & Inspection Sensor

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Safety

Safety Laser Scanners

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Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS VISION LIGHTS

ACTUATORS

K50/K80 PVD

OTB/LTB STB

INDICATORS

PVA VTB



VTB, 12-30V dc

Job Light(s) Color	Connection	Upper Housing	Job Light Input	NPN Models	PNP Models
•	2 m			VTBN6	VTBP6
Green	4-Pin Euro QD			VTBN6Q	VTBP6Q
	2 m			VTBN6R	VTBP6R
Red	4-Pin Euro QD	Dalvardena		VTBN6RQ	VTBP6RQ
Blue	2 m	Polysulfone	Polysulfone NPN: 0V dc	VTBN6B	VTBP6B
Diue	4-Pin Euro QD			VTBN6BQ	VTBP6BQ
Green & Red	2 m			VTBN6GR	VTBP6GR
Oreen a neu	5-Pin Euro QD			VTBN6GRQ	VTBP6GRQ
	2 m		PNP:	VTBN6L	VTBP6L
Green	4-Pin Euro QD		+5 to 30V dc	VTBN6LQ	VTBP6LQ
	2 m			VTBN6RL	VTBP6RL
Red	4-Pin Euro QD	Dalimanhamata		VTBN6RLQ	VTBP6RLQ
Blue	2 m	Polycarbonate		VTBN6BL	VTBP6BL
Diue -	4-Pin Euro QD			VTBN6BLQ	VTBP6BLQ
Green & Red	2 m			VTBN6GRL	VTBP6GRL
Green a neu	5-Pin Euro QD			VTBN6GRLQ	VTBP6GRLQ

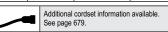
Connection options: A model with a QD requires a mating cordset (see page 454).

For 9 m cable, add W/30 to the 2 m model number (example, VTBN6 W/30).

VTB Specification	is a second seco
Supply Voltage and Current	12 to 30V dc (10% max. ripple) Single-color models: Less than 120 mA max. current @ 12V dc (exclusive of load) Less than 70 mA max. current @ 30V dc (exclusive of load) Two-color models: Less than 67 mA max. current @ 12V dc (exclusive of load) Less than 40 mA max. current @ 24V dc (exclusive of load) Less than 35 mA max. current @ 30V dc (exclusive of load)
Supply Protection Circuitry	Protected against transient voltages (fast-transient and over-voltage) and reverse polarity
Output Configuration	Choose 1 current sinking (NPN) open collector transistor or 1 current sourcing (PNP) open collector transistor, depending on model
Output Rating	Max. load: 150 mA ON-state saturation voltage: less than 1.5V @ 150 mA OFF-state leakage current: less than 10 μA
Output Protection	All models protected against false pulse on power-up (outputs held OFF for 1 second at power-up). Models with solid-state outputs have overload and short-circuit protection.
Response Time	100 milliseconds ON/OFF
Indicators	2 Red LED indicators: Power ON and Output Conducting Base: Lights green, red, blue, or green and red as a job light when input line is enabled. One-color models may be wired for flashing rather than solid color operation.
Construction	Totally encapsulated, non-metallic enclosure. Black polysulfone or red polycarbonate upper housing (see Application Note below); translucent white polycarbonate base. Electronics fully epoxy-encapsulated.
Environmental Rating	IEC IP66; NEMA 1, 3, 4, 4X, 12 and 13
Connections	2 m or 9 m attached cable, or 4-pin (single color) or 5-pin (two color) Euro-style QD fitting. QD cordsets are ordered separately. See pages 454.
Ambient Light Immunity	Up to 120,000 lux (direct sunlight)
EMI/RFI Immunity	Immune to EMI and RFI noise sources, per IEC 947-5-2.
Operating Conditions	Temperature: -20° to +50° C Relative humidity: 90% @ +50° C (non-condensing)
Application Notes	Environmental considerations for models with polysulfone upper housings: The polysulfone upper housing will become brittle with prolonged exposure to outdoor sunlight. Avoid contact with strong alkalis. Clean periodically using mild soap solution and a soft cloth. Environmental considerations for models with polycarbonate upper housings: Avoid prolonged exposure to hot water and moist, high-temperature environments above 66° C. Avoid contact with aromatic hydrocarbons (such as xylene and toluene), halogenated hydrocarbons and strong alkalis. Clean periodically using mild soap solution and a soft cloth.
Certifications	C € c FL us
Hookup Diagrams	NPN Single-Color Models: LI06 (p. 770) Two-Color Models: LI22 (p. 774) PNP Single-Color Models: LI07 (p. 770)

Cordsets

Euro QD					
		See page	682		
	Threaded 4-Pin Threaded 5-Pin				
Length	Straight	Right-Angle	Straight	Right-Angle	
1.83 m	MQDC-406	MQDC-406RA	MQDC1-506	MQDC1-506RA	
4.57 m	MQDC-415	MQDC-415RA	MQDC1-515	MQDC1-515RA	
9.14 m					



Brackets



1	Additional brackets and information available. See page 620.
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Field Covers

VTB Models					
	wodels				
Black	OTC-1-BK				
Green	OTC-1-GN	Mary .			
Red	OTC-1-RD				
Yellow	OTC-1-YW	400			





OTB/L	TB OP	ГО-Т	OU	JCH™
Optical	Touch Bu	ittons		

- Ergonomically designed touch buttons eliminate hand, wrist and arm stress.
- · Zero-force touch buttons provide an alternative to capacitive touch switches and mechanical push buttons.
- · OTB models are momentary-action touch buttons with electromechanical relay or solid-state outputs.
- LTB models are alternate-action touch buttons with electromechanical relay outputs.

Photoelectrics	
Sensors	
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Special Purpose Sensors

Measurement & Inspection Senso

Wireless

Lighting & Indicators

Safety

Safety Laser Scanners

Fiber Optic Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS VISION LIGHTS INDICATORS ACTUATORS K50/K80 PVD PVA VTB OTB/LTB STB



43.2 mm

57.1 mm





OTB and LTB Models with cover

OTB and LTB Models

ø 30 mm

59.9 mm

OTB Momentary Action, 10-30V dc

Upper Housing	Connection	Models NPN	Models PNP
Delveulfene	2 m	OTBVN6	OTBVP6
Polysulfone	4-Pin Mini QD	OTBVN6QD	OTBVP6QD
Delveethenete	2 m	OTBVN6L	OTBVP6L
Polycarbonate	4-Pin Mini QD	OTBVN6LQD	OTBVP6LQD

Connection options: A model with a QD requires a mating cordset (see page 458)

For 9 m cable, add suffix W/30 to the 2 m model number (example, OTBVN6 W/30).

OTB Momentary Action, 20-30V ac or dc

Upper Housing	Connection	Output Type	Models
Dolyaulfana	2 m	SPDT e/m Relay	OTBVR81
Polysulfone	5-Pin Mini QD		OTBVR81QD
Polycarbonate	2 m	SPDT	OTBVR81L
	5-Pin Mini QD	e/m Relay	OTBVR81LQD

OTB Momentary Action, 120V ac

Upper Housing	Connection	Output Type	Models
Polysulfone	2 m	SPDT e/m Relay	OTBA5
Folysullone	5-Pin Mini QD		OTBA5QD
Polycarbonato	2 m	SPDT	OTBA5L
Polycarbonate	5-Pin Mini QD	e/m Relay	OTBA5LQD

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OTB Momentary Action, 220/240V ac

Connection	Upper Housing	Output Type	Models
Polysulfone	2 m	SPDT e/m Relay	OTBB5
	5-Pin Mini QD		OTBB5QD
Polycarbonate	2 m	SPDT	OTBB5L
	5-Pin Mini QD	e/m Relay	OTBB5LQD

Connection options: A model with a QD requires a mating cordset (see page 458)

For 9 m cable, add suffix W/30 to the 2 m model number (example, OTBVR81 W/30).

Supply Voltage and Current	OTBVR81 models: 20 to 30V ac/dc
	OTBA5 models: 105 to 130V ac, 50-60 Hz
	OTBB5 models: 210 to 250V ac, 50-60 Hz
	OTBVN6/VP6 models: 10 to 30V dc
	All models require less than 25 mA (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	OTBVR81, OTBA5, and OTBB5 models: SPDT electromechanical relay
	OTBVN6 models: Complementary NPN (sinking) open-collector transistor; 1 normally open (NO) and 1 normally closed (NC)
	OTBVP6 models: Complementary PNP (sourcing) open-collector transistors; 1 normally open (NO) and 1 normally closed (NO
Output Rating	Electromechanical relay models:
	Max. switching current: 7 amps (resistive load), 1 HP max.
	Min. load: 0.05 watts (dc), 0.05 VA (ac)
	Mechanical life of relay: 50,000,000 operations (min.)
	Electrical life of relay: 100,000 operations (min.) at full resistive load
	Transient suppression is recommended when switching inductive loads
	Solid-state output models:
	150 mA max. load (each output)
	ON-state saturation voltage: less than 1 volt at signal levels; less than 1.5 volts at full load
	OFF-state leakage current: less than 1 μA



Photoelectrics

Special Purpose
Sensors
Measurement &
Inspection Sensors
Vision
Wireless
Lighting &
Indicators
Safety
Light Screens
Safety
Laser Scanners
Fiber Optic
Safety Systems
Safety Controllers &
Modules

Response Time	100 milliseconds ON/OFF	
<u> </u>		
Output Protection	All models protected against false pulse on power-up Models with solid-state outputs have overload and short circuit protection	
Indicators	Two Red indicator LEDs: one lights whenever power is applied; the other lights whenever the switch is activated making the normally-open (NO) output conduct	
Construction	Totally encapsulated, non-metallic enclosure. Black polysulfone or red polycarbonate upper housing (see Application Notes below); fiber-reinforced thermoplastic polyester base. Electronics fully epoxy-encapsulated. Supplied with a field cover of polypropylene (TP).	
Environmental Rating	Meets NEMA standards 1, 3, 4, 4X, 12 and 13; IEC IP66	
Connections	PVC-jacketed 2 m or 9 m cables, or Mini-style quick-disconnect (QD) fitting. QD cordsets are ordered separately. See page 458.	
Ambient Light Immunity	120,000 lux (direct sunlight)	
EMI/RFI Immunity	Immune to both single and mixed EMI and RFI noise sources	
Operating Conditions	Temperature: -20° to +50° C Relative humidity: 90% at 50° C (non-condensing)	
Application Notes	Environmental considerations for models with polysulfone upper housings: The polysulfone upper housing will become embrittled with prolonged exposure to outdoor sunlight. Window glass effectively filters longer wavelength ultraviolet light and provides excellent protection from sunlight.	
	Environmental considerations for models with polycarbonate upper housings:	
	Avoid prolonged exposure to hot water and moist high-temperature environments above 66° C.	
	Avoid contact with aromatic hydrocarbons (such as xylene and toluene), halogenated hydrocarbons and strong alkalis. Clean periodically using mild soap solution and a soft cloth. Avoid strong alkaline materials.	
Certifications		
Hookup Diagrams	DC Models: DC03 (p. 744)	
	AC/DC Models: OTBVR81 Models: UN01 (p. 753)	
	AC Models: OTBA5 Models: AC08 (p. 751) OTBB5 Models: AC08 (p. 751)	

Safety Two-Hand Control Modules Safety Interlock Switches Emergency Stop & Stop Control TASK LIGHTS VISION LIGHTS INDICATORS ACTUATORS K50/K80 PVD

PVA VTB OTB/LTB STB

LTB Alternate Action, 220/240V ac

Upper Housing	Connection	Output Type	Models
Polysulfone	2 m		LTBB5
	5-Pin Mini QD	SPDT	LTBB5QD
Polycarbonate	2 m	e/m Relay	LTBB5L
	5-Pin Mini QD		LTBB5LQD

LTB Alternate Action, 120V ac

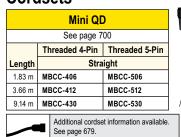
Upper Housing	Connection	Output Type	Models
Polysulfone	2 m	SPDT	LTBA5
	5-Pin Mini QD		LTBA5QD
Polycarbonate	2 m	e/m Relay	LTBA5L
	5-Pin Mini QD		LTBA5LQD

Connection options: A model with a QD requires a mating cordset (see page 458)

For 9 m cable, add suffix W/30 to the 2 m model number (example, LTBA5 W/30).

LTB Specification	ons		
Supply Voltage and Current	LTBA5 models: 105 to 130V ac, 50-60 Hz	TBB5 models: 210 to 250V ac, 50-60 Hz	
Supply Protection Circuitry	Protected against reverse polarity and transient voltages		
Output Configuration	All models have SPDT electromechanical relay - complementary of (NC) contact which "toggle" from open to closed when the button is	. , , , ,	
Output Rating	Max. voltage is 250V ac or 30V dc Max. current: 7 amps (resistive load), 1 HP max. Min. load: .05 watts (dc), 0.5VA (ac) Mechanical life of relay: 50,000,000 operations (min.) Transient suppression is recommended when switching inductive loads.		
Output Protection	All models protected against false pulse on power-up		
Indicators	Two Red indicator LEDs: one lights whenever power is applied; the other lights when the infrared sensing beam is interrupted		
Construction	Totally encapsulated, non-metallic enclosure. Black polysulfone or red polycarbonate upper housing; fiber-reinforced thermoplastic polyester base. Electronics fully epoxy-encapsulated. Supplied with a field cover of polypropylene (TP).		
Environmental Rating	Meets NEMA standards 1, 3, 4, 4X, 12 and 13; IEC IP66		
Connections	PVC-jacketed 2 m or 9 m cables, or Mini-style quick-disconnect (QD) fitting. QD cordsets are ordered separately. See page 458.		
Ambient Light Immunity	120,000 lux (direct sunlight)		
EMI/RFI Immunity	Immune to both single and mixed EMI and RFI noise sources		
Operating Conditions	Temperature: -20° to +50° C Relative humidity: 90% at 50° C (non-condensing)		
Application Notes	Environmental considerations for models with polysulfone upper with prolonged exposure to outdoor sunlight. Window glass effectivel protection from sunlight.		
	Environmental considerations for models with polycarbonate up high-temperature environments above 66° C. Avoid contact with aror hydrocarbons and strong alkalis. Clean periodically using mild soap s	matic hydrocarbons (such as xylene and toluene), halogenated	
Certifications			
Hookup Diagrams	AC08 (p. 751)		

Cordsets



Field Covers

OTB/LTB		
Models		
Black	OTC-1-BK	
Green	OTC-1-GN	And I
Red	OTC-1-RD	
Yellow	OTC-1-YW	400

Brackets









STBSelf-Checking Touch Buttons

- Provides highest level of safety for two-hand control input devices, per independent certification tests
- · Provides redundant microprocessor and optical path
- Responds to a finger blocking light rather than to pressure
- Features ergonomic design to prevent repetitive motion stress
- Includes yellow field cover to prevent unintended switching
- Immune to ambient light, EMI and RFI
- Available with e/m relays rated for 1 amp switch capacity or solid-state outputs rated for 150 mA
- · Withstands exposure to a variety of chemicals, depending on model
- For safety applications, STB buttons must be used with DUO-TOUCH® SG Two-Hand control modules, SC22-3.. Safety Controller or comparable control Type IIIC Two-Hand system



Sensors
Special Purpose
Sensors

Inspection Sense

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Safety

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Laser Scanners

Fiber Optic

Safety Systems

Safety Controllers & Modules

Safety Two-Hand Control Modules

Safety Interlock Switches

Emergency Stop & Stop Control



TASK LIGHTS
VISION LIGHTS
INDICATORS
ACTUATORS
K50/K80
PVD
PVA
VTB
OTB/LTB

STB







STB models

STB Self-Checking, 10-30V dc

Upper Housing	Connection	Output Type	Models
	2 m Complementary 4-Pin Mini QD PNP	STBVP6	
Polyethermide			STBVP6Q
	4-Pin Euro QD	Solid-state	STBVP6Q5

STB Self-Checking, 20-30V ac/dc

Upper Housing	Connection	Output Type	Models
	2 m	Two Independent and Complementary e/m Relays	STBVR81
Polyethermide	5-Pin Mini QD		STBVR81Q
	5-Pin Euro QD		STBVR81Q6

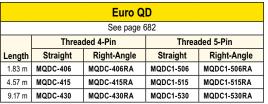
Connection options: A model with a QD requires a mating cordset (see page 460)

For 9 m cable, add suffix W/30 to the 2 m model number (example, STBVP6 W/30).

STB Specifications

See page 562

Cordsets





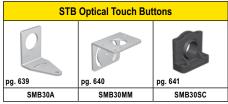
Mini QD		
See page 700		
	Threaded 4-Pin Threaded 5-Pin	
Length	Straight	
1.83 m	MBCC-406	MBCC-506
3.66 m	MBCC-412	MBCC-512
9.14 m	MBCC-430	MBCC-530





Additional cordset information available. See page 679.

Brackets





Field Covers

STB			
Models			
Black	OTC-1-BK		
Green	OTC-1-GN	And I	
Red	OTC-1-RD		
Yellow	OTC-1-YW	4	