



Vision

Banner's extensive line of vision sensors helps you find defects earlier in the manufacturing process. Banner offers standard and high-resolution gray scale and color vision sensors. Add inspection capabilities where you need them.

VISION

iVu

page 474

PresencePLUS®

page 483

VISION LIGHTING

page 496

OTHER AVAILABLE MODELS

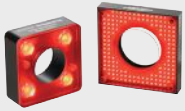


iVu BCR 388



Vision Lighting

Vision lighting is the key to creating all-important contrast between the feature of interest and its background.



Ring Lights page 498
Mounts directly to the sensor for easy setup and illuminates any object directly in front of the sensor



Area Lights page 500
Provides even illumination in a concentrated area



Backlights page 502
Installs behind the target, directly facing the sensor; has a highly diffused surface and uniform brightness



Linear Array Backlights page 503
Diffused backlights that can be used for any vision system or as a highly diffused area light



Linear Array Lights page 504
Provides high-intensity illumination of large areas, at long distances



On-Axis Lights page 505
Provides collimated illumination along the same optical path as the camera



Spot Lights page 506
Provides even illumination in a small concentrated spot



Low-Angle Ring Lights page 508
Illuminates nearly perpendicular to the direction of an inspection



Laser Line Generator page 508
Laser Line Generators have dynamic line balancing for repeatable performance



Tubular Fluorescent Lights page 509
Features flicker-free high-intensity illumination of large areas

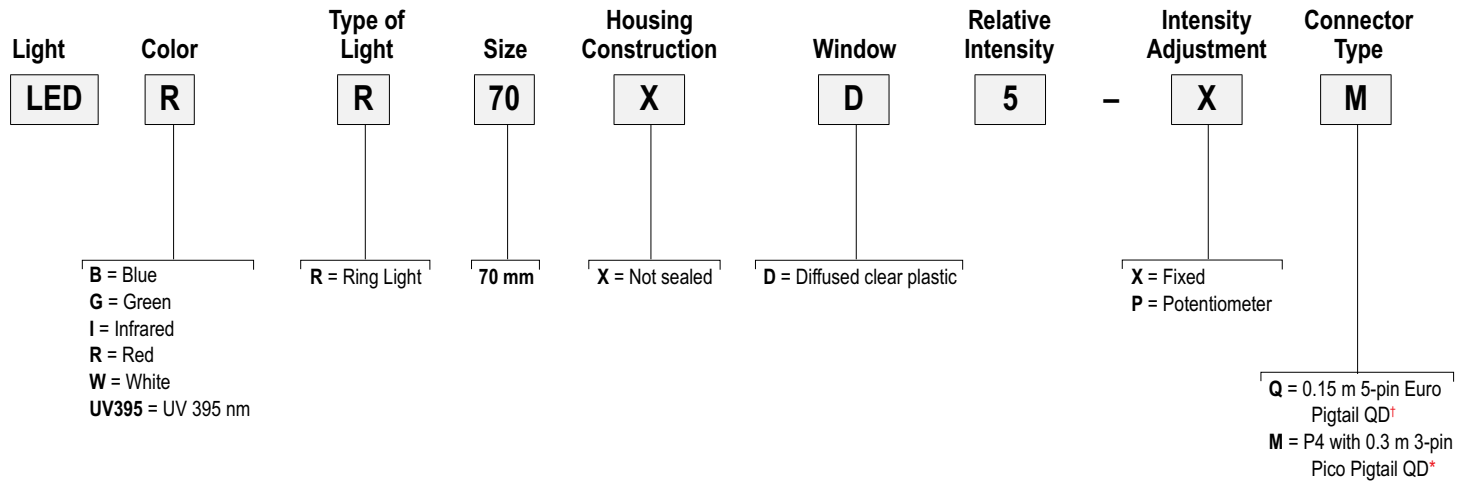


Ring Lights

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 directly 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 and centers the light on the image
- Includes models to withstand washdown environments (IP68 rated)
- Cordsets and brackets see page 510

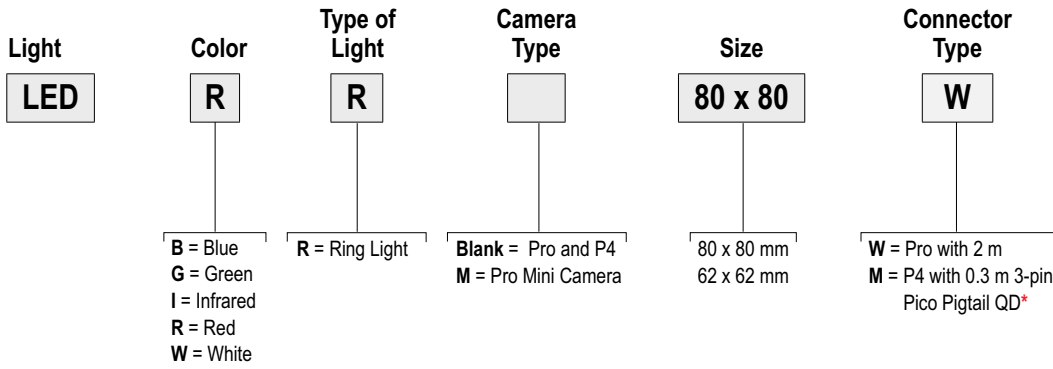
IP50 High-Intensity LED Ring Light Model Key, 24 V DC Example Model Number LEDRR70XD5-XM



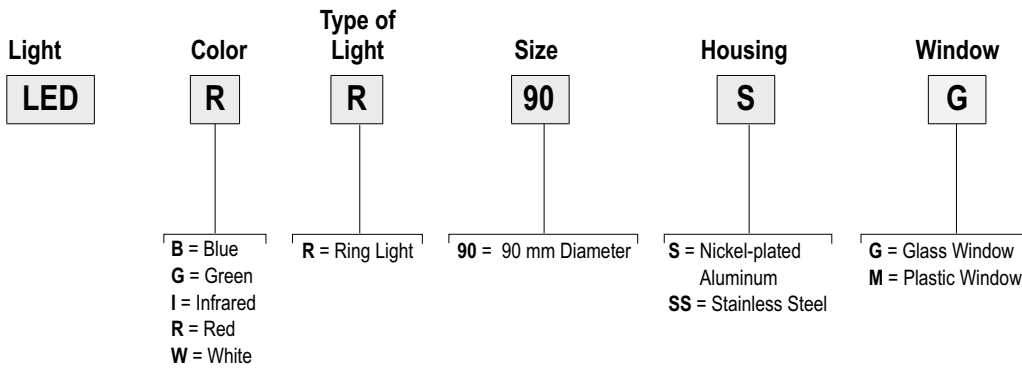
Connection options:

- * Pico QD model required for P4 sensors.
- Pico QD models include a built-in mounting bracket for use with P4 sensors.
- † Models require a mating cordset (see page 510).
- Optional bracket SMBPPRHI required for use with Pro cameras (see page 510).
- Optional bracket SMBPMPRHI required for use with Pro Mini cameras (see page 510).

IP20 LED Ring Lights, 24 V DC Example Model Number **LEDRR80X80W**



IP68 LED Ring Lights (for sealed Pro II and P4 Models), 24 V DC Example Model Number **LEDRR90S-G**



Connection options:
 For 9 m cable, add suffix **W/30** to the 2 m model number (example, **LEDRR80X80W W/30**).
 For replacement windows and diffusers (see page 510).
 * Splitter cordsets available for powering two lights (see page 510).

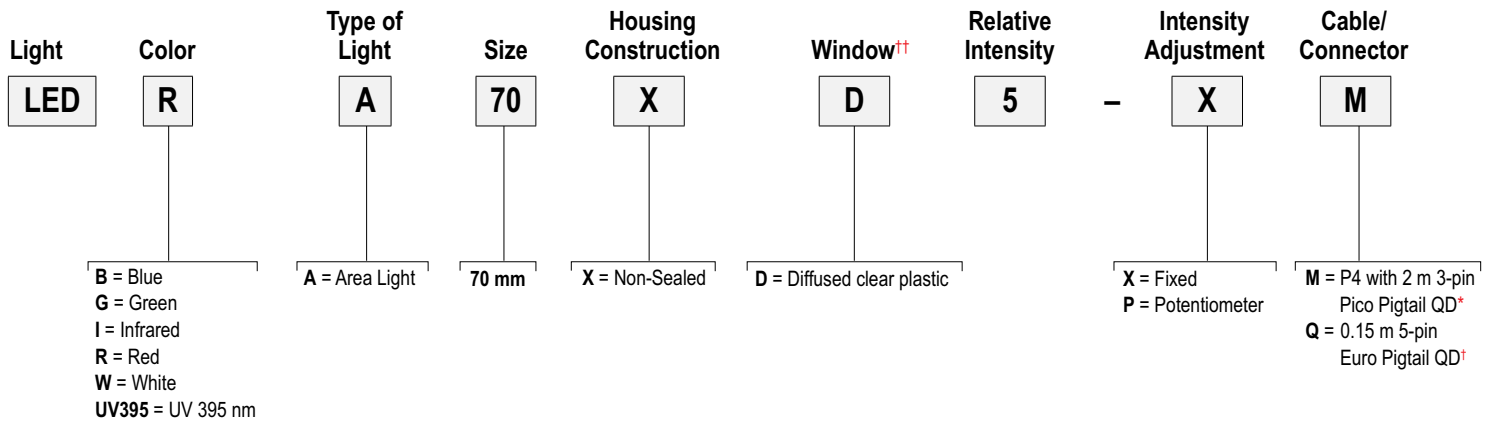


Area Lights

An area light provides even illumination in a concentrated area. When properly 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
- High-intensity lighting for distances greater than 12 inches
- Cordsets and brackets see page 510

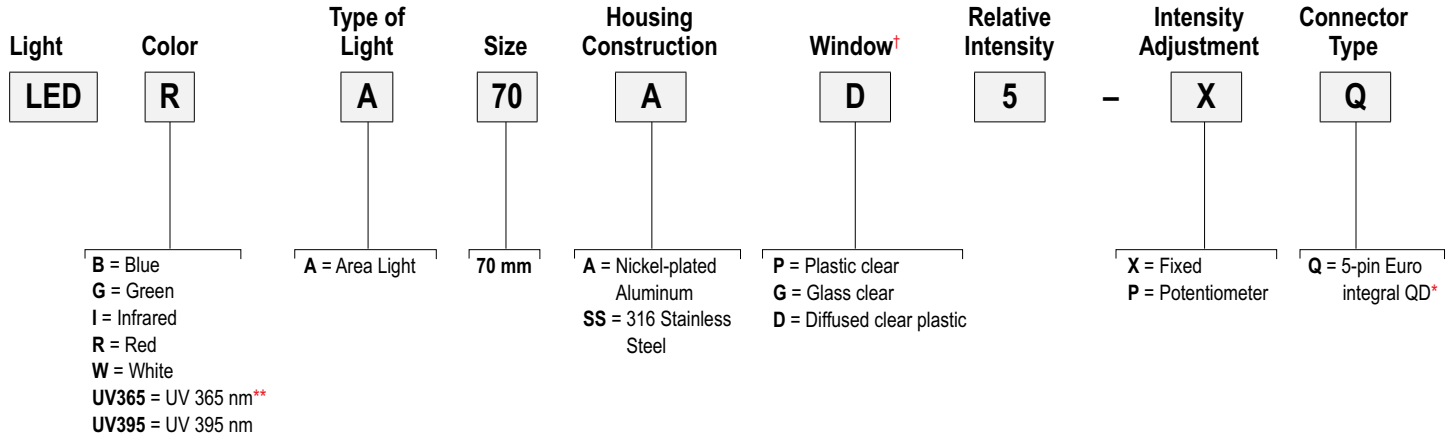
IP50 High-Intensity LED Area Light Model Key, 24 V D Example Model Number LEDRA70XD5-XM



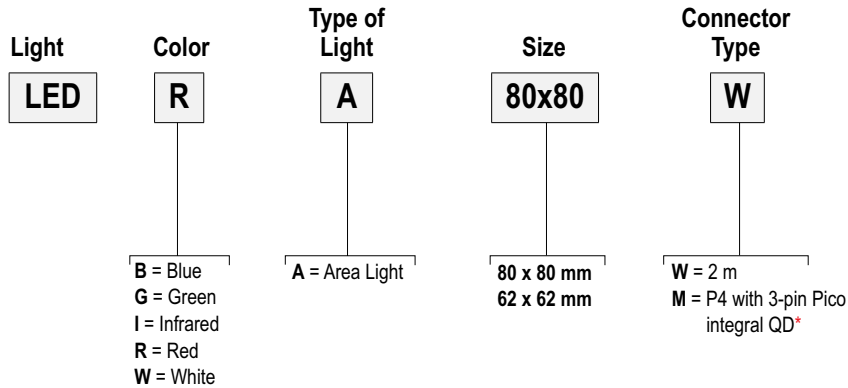
Connection options:

* Pico QD model required for P4 sensors.
 † Models require a mating cordset (see page 510).
 †† For replacement windows and diffusers (see page 511).

IP68 Sealed High-Intensity LED Area Light Model Key, 24 V DC Example Model Number LEDRA70AD5-XQ



IP40 LED Area Light Model Key, 24 V DC Example Model Number LEDRA80X80W



Connection options:

For 9 m cable, add suffix **W30** to the 2 m model number (example, LEDRA80X80W W30).

QD models can be connected directly to P4 sensors; splitter cordset available for powering two lights (see page 510).

* Models require a mating cordset (see page 510)

** UV365 can only be used with glass window

† For replacement windows and diffusers (see page 510)

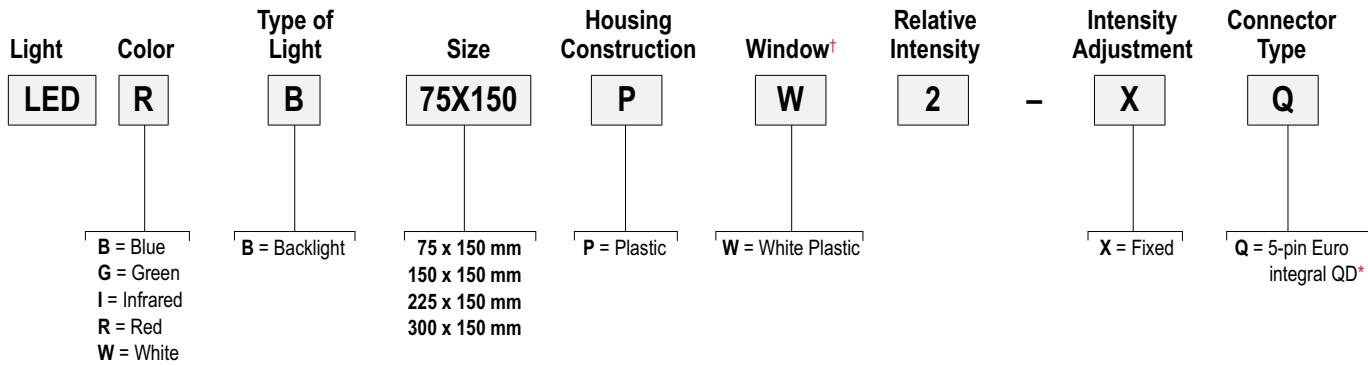
Backlights



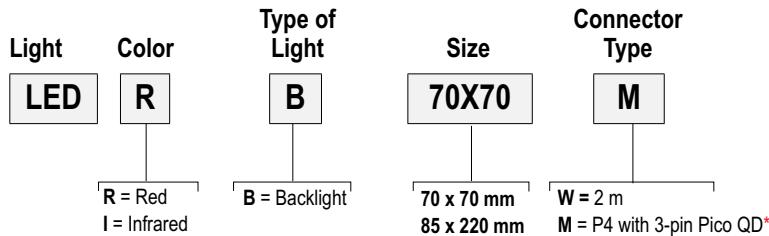
A backlight provides even bright lighting by placing the backlight behind the target and aiming it directly towards the camera. The resulting silhouette can be inspected for proper size and shape.


- Determines the shape and size of target objects
- Offers a highly diffused surface and uniform brightness, with lower intensity than other lights
- Provides the most robust lighting for measuring and gauging
- Highlights through-holes in target objects
- Cordsets and brackets see page 510

IP67 Sealed LED Backlights Model Key, 24 V DC Example Model Number LEDRB75X150PW2-XQ



IP40 LED Backlights, 24 V DC Example Model Number LEDRB70X70M

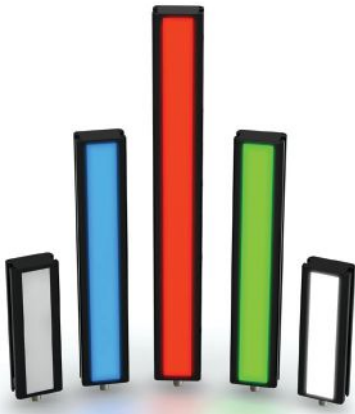


 **Connection options:** A model with a QD requires a mating cordset (see page 510).
 For 9 m cable, add suffix **W/30** to the 2 m model number (example, **LEDRB70X70W W/30**).
 QD models can be connected directly to P4 sensors; splitter cordsets available for powering two lights (see page 510).
 * Models require a mating cordset (see page 510).
 † For replacement windows and diffusers (see page 511).

Linear Array Backlights

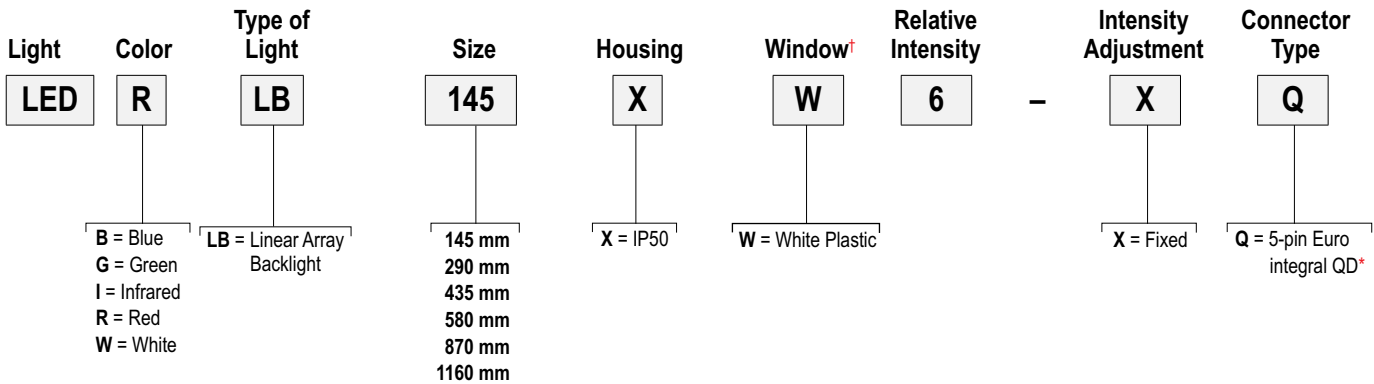
Linear array backlights are diffused backlights that can be used for any vision system or as a highly diffused area light. Linear array backlights are high power and have a solid-state LED array with continuous or strobed operation, which is selectable via sensor software (P4 models) or via hookup.

- Built-in constant current regulation with very even light pattern
- Optically isolated strobe signal with selectable Active High or Active Low strobe option
- Maintenance-free, rugged construction
- Four high-intensity, visible wavelengths, plus IR
- Cordsets and brackets see page 510



IP50 High-Power Linear Array Backlights Model Key, 24 V DC

Example Model Number LEDRLB145XW6-XQ



Connection options: A model with a QD requires a mating cordset (see page 510).

* Models require a mating cordset (see page 510).

† For replacement windows and diffusers (see page 511).

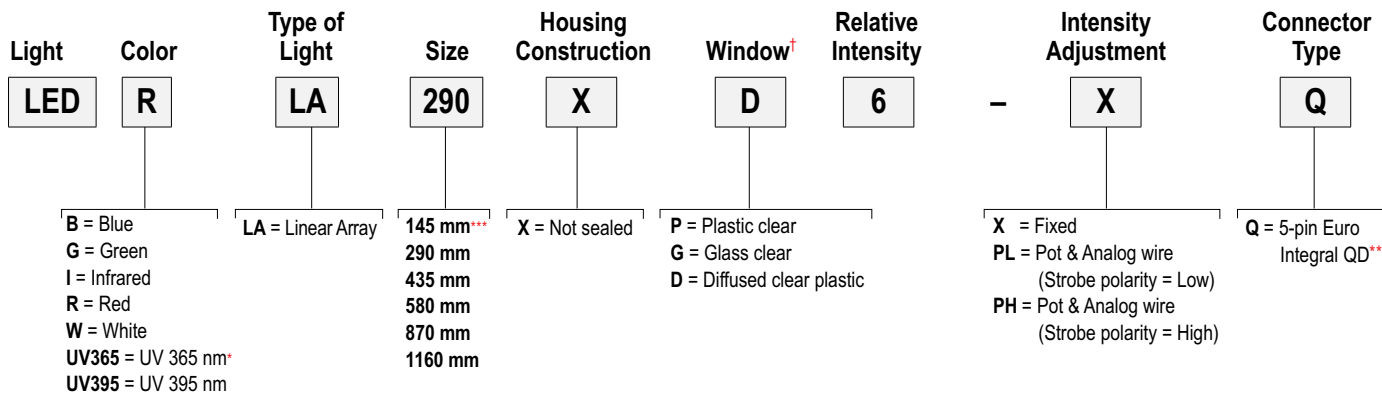


Linear Array Lights

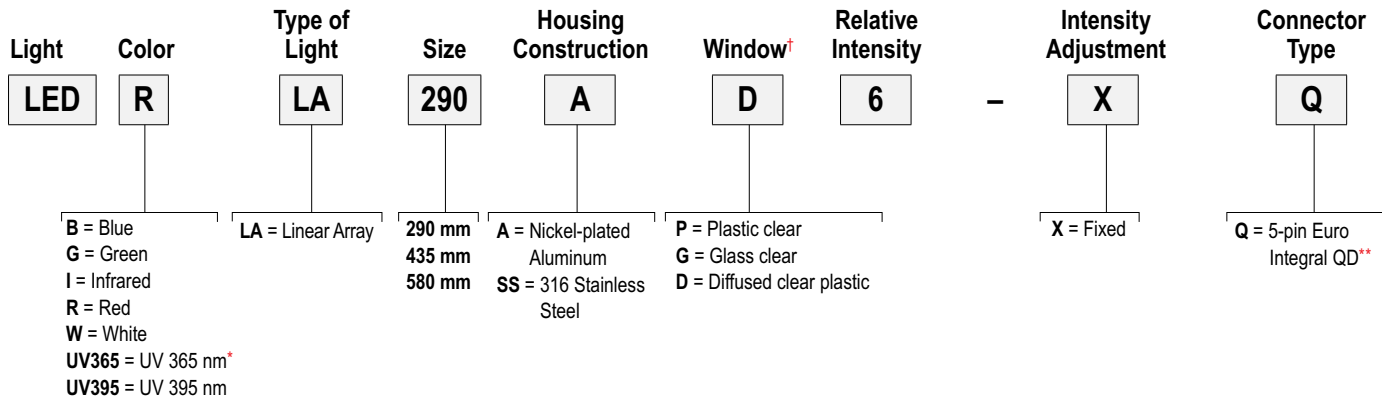
Linear array lights provide high-intensity illumination of large areas, and for long distances. Available in 3 housings including: nickel-plated aluminum (IP68), stainless steel (IP68) and black anodized aluminum (IP50).

- Provides maintenance-free LED illumination of large objects from far away
- Provides superior high-intensity illumination of large areas
- Available in sealed (IP68) nickel-plated and non-sealed (IP50) housings
- Provides optically isolated strobe signal
- Cordsets and brackets see page 510

IP50 High-Intensity LED Linear Array Model Key, 24 V DC Example Model Number LEDRLA290XD6-XQ



IP68 High-Intensity LED Linear Array Model Key, 24 V DC Example Model Number LEDRLA290AD6-XQ



Connection options: A model with a QD requires a mating cordset (see page 510).

* UV365 can only be used with glass window
 ** Models require a mating cordset (see page 510).
 *** Intensity adjustment not available on 145 mm length
 † For replacement windows and diffusers (see page 511).

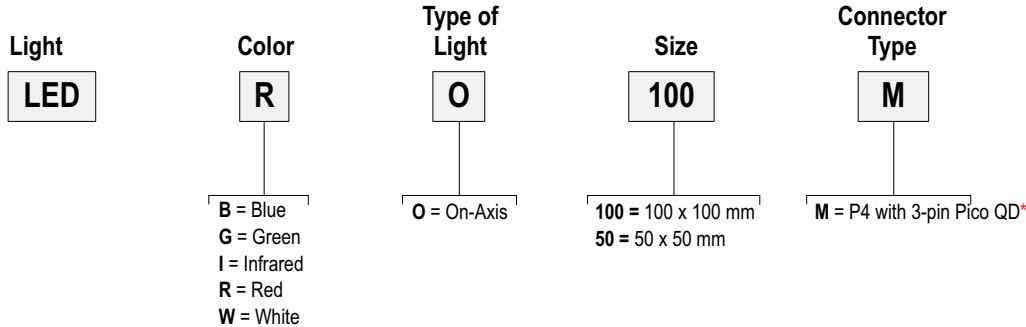
On-Axis Lights

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 the same optical path as camera
- Evenly illuminates flat reflective surfaces
- Provides minimum useful life of 10,000 to 60,000 hours, depending on model
- Cordsets and brackets see page 510



IP40 LED On-Axis Lights, 24 V DC Example Model Number LEDRO100M



Connection options: A model with a QD requires a mating cordset (see page 510).

QD cordsets with flying leads are available for connecting to models other than P4 (see page 510).

* Models require a mating cordset (see page 510).

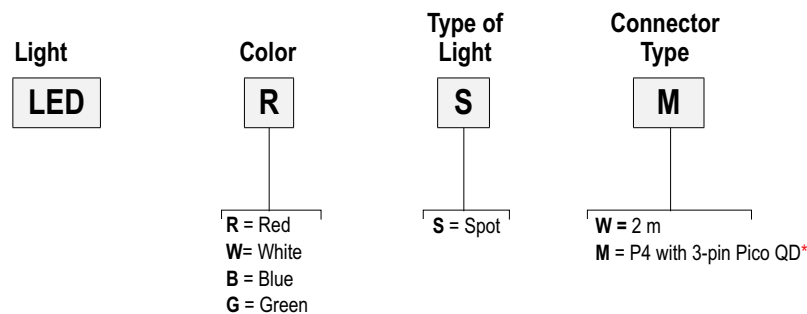
Spot Lights




A spot light provides even light with high-powered LEDs. When properly placed, spotlights can create shadows and glare, allowing the vision sensor to detect the presence or absence of a feature.

- Low-cost, compact washdown spot lights for *PresencePLUS*® sensors
- Continuous or strobed operation is selectable via sensor software
- Provides extremely bright, even light with high-power LEDs
- Adjustable spot size
- Direct connection to *PresencePLUS*® Pro sensor or to an external power supply using 3 discrete wires
- Cordsets and brackets see page 510

IP68 Sealed LED Spot Lights, 10 to 30 V DC Example Model Number LEDRSM



 **Connection options:** A model with a QD requires a mating cordset (see page 510).

For 9 m cable, add suffix **W30** to the 2 m model number (example, **LEDRSW W30**).

QD models can be connected directly to *P4* sensors; splitter cordsets available for powering two lights (see page 510).

* Models require a mating cordset (see page 510).



Spot Lights

A spot light provides even light with high-powered LEDs. When properly placed, spotlights 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 extremely bright, even light with high-power LEDs
- Withstands washdown
- Delivers constant, even light intensity, even if voltage fluctuate
- Cordsets and brackets see page 510

IP69K Sealed High Intensity LED Spot Lights, 12 to 30 V DC

Lens Angle	Color	Lumens	Lux		Connection	Models
			0.5 m	1 m		
± 5° (smaller, more focused spot)	Red	110	8,000	2,000	5-pin Euro integral QD connector (use with a 5-wire mating cordset)	LEDRS50L5-XQ
	White	295	13,780	3,445		LEDWS50L5-XQ
	Blue	85	4,880	1,220		LEDBS50L5-XQ
	Green	210	13,000	3,250		LEDGS50L5-XQ
	IR	760*	4.40**	1.10**		LEDIS50L5-XQ
	UV	480*	2.10**	0.52**		LEDUV395S50L5-XQ
± 11° (larger spot)	Red	105	2,500	625	5-pin Euro integral QD connector (use with a 5-wire mating cordset)	LEDRS50L11-XQ
	White	285	5,460	1,365		LEDWS50L11-XQ
	Blue	80	1,540	385		LEDBS50L11-XQ
	Green	200	3,900	975		LEDGS50L11-XQ
	UV	420*	0.78**	0.19**		LEDUV395S50L11-XQ
± 14° (larger spot)	IR	665*	1.16**	0.29**	5-pin Euro integral QD connector (use with a 5-wire mating cordset)	LEDIS50L14-XQ
± 20° (largest spot)	Red	100	1,040	260	5-pin Euro integral QD connector (use with a 5-wire mating cordset)	LEDRS50L20-XQ
	White	270	2,000	500		LEDWS50L20-XQ
	Blue	75	700	175		LEDBS50L20-XQ
	Green	190	1,700	425		LEDGS50L20-XQ
	UV	390*	0.42**	0.10**		LEDUV395S50L11-XQ

Connection options: A model with a QD requires a mating cordset (see page 510).

For 2 m cable, omit suffix **XQ** from model number (example, **LEDRS50L5**).

* Values listed in milliwatts

** Values listed in mW/cm²

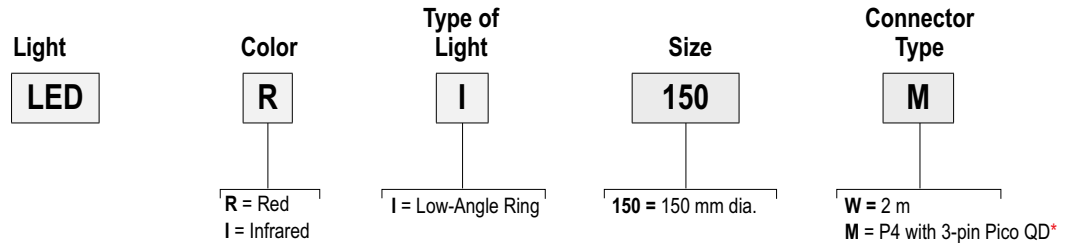


Low-Angle Ring Lights

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 so that it can highlight changes in elevation.

- Highlights surface irregularities
- Highlights slight height differences such as etching, solder balls and embossing
- Illuminates from an angle nearly perpendicular to object
- Provides minimum useful life of 10,000 to 60,000 hours, depending on model
- Cordsets and brackets see page 510

LED Low-Angle Ring Lights, 24 V DC Example Model Number LEDRI150M



Laser Line Generator

Laser Line Generators have dynamic line balancing for repeatable performance.

- Laser line uniformity up to 95% on 100% of the line
- External user focus mechanism
- Robust thermal management, providing better stability and longer lifetime
- Remote laser monitoring and control via RS232 communication
- Brackets see page 510



Laser Line Generator, 5-24 V DC

➔ Visible Red Laser

Description	Models
Laser Line Generator	LLG660P10A60II
Laser Line Power Supply Generator 12 V	PSLLG12V

Connection options: A model with a QD requires a mating cordset (see page 510).
 QD cordsets with flying leads are available for connecting to models other than P4 (see page 510).
 * Models require a mating cordset (see page 510).



High-Frequency Fluorescent Tubular Lights

Tubular fluorescent lights provide easy, affordable, flicker-free illumination of large objects.

- Illuminates large objects with flicker-free white fluorescent light
- Uses waterproof housing for washdown environment – rated IP67; NEMA 4X
- Includes built-in mounting brackets in end caps
- Offers minimum useful life of 10,000 to 20,000 hours, depending on model
- Cordsets and brackets see page 510

IP67 Sealed Fluorescent Tubular Lights




Length	Voltage	Ballast	Models	
			White (4100 K)	Black UV (350-400 nm)
8"	24 V dc	Integral	HFFW8DC	HFFB8DC
8"	110 V ac		HFFW8AC110	HFFB8AC110
8"	230 V ac		HFFW8AC230	HFFB8AC230
12"	24 V dc		HFFW12DC	HFFB12DC
12"	120 to 277 V ac		HFFW12AC	HFFB12AC
14"	24 V dc		HFFW14DC	—
15"	110 V ac		HFFW15AC110	—
15"	230 V ac		HFFW15AC230	—
24"	120 to 277 V ac		HFFW24AC	—
36"	120 to 277 V ac		HFFW36AC	—
48"	120 to 277 V ac		HFFW48AC	—
8"	120 to 277 V ac		Remote	HFFW8ACR
12"	120 to 277 V ac	HFFW12ACR		HFFB12ACR
15"	120 to 277 V ac	HFFW15ACR		—
24"	120 to 277 V ac	HFFW24ACR		—
36"	120 to 277 V ac	HFFW36ACR		—
48"	120 to 277 V ac	HFFW48ACR		—

NOTE: Replacement bulbs available, contact factory for information. All models have louvers and integral mounting flange; optional brackets are available for heavy-duty mounting (two brackets required for each light, see page 510).

Cordsets

Euro QD

See page 909

Length	Threaded 5-Pin	
	Nickel-plated Nut	Stainless Steel Nut
1.83 m	 MQDC20-506	MQDC20SS-506
4.57 m	 MQDC20-515	MQDC20SS-515
9.14 m	 MQDC20-530	MQDC20SS-530






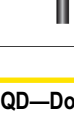
Pico QD

See page 902

Length	Threaded 3-Pin	
	Nickel-plated Nut	Stainless Steel Nut
4.00 m	—	PKG3M-4
5.00 m	PKG3M-5	—
7.00 m	PKG3M-7	PKG3M-7
10.0 m	PKG3M-10	PKG3M-10

Euro QD (for Q models)


See page 908

Length	Threaded 5-Pin	
	Straight	Right-Angle
1.83 m	 MQDC1-506	 MQDC1-506RA
4.57 m	 MQDC1-515	 MQDC1-515RA
9.14 m	 MQDC1-530	 MQDC1-530RA

Pico QD Splitter†

See page 903

Length	Branches	Trunk	Threaded 3-Pin
0.20 m	0.20 m	0.20 m	CSB-M831M831




† Powers 2 lights from one P4 Sensor

Additional cordset information available. See page 902

Pico QD Splitter††

See page 903

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



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

Pico QD—Double-Ended

See page 902

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



Brackets

Area Lights & Backlights

Linear Array

Ring Lights

On-Axis

Tubular Lights

See page 885	See page 886	See page 883	See page 887	See page 884	See page 883	See page 884	See page 886
SMBSSM	SMBACM	SMBP42ASM	SMBLASRA	SMBPMPRHI	SMBP4OAL...	SMBPPOAL..	SMBWFTLS
							

Additional brackets and more information available. See page 852.

Polarizing Filters

Description	Models
Linear Polarizing filter kit for 62 x 62 Ring Lights	LEDRRPFKS
Linear Polarizing filter kit for 80 x 80 Area Lights and 70 x 70 Backlights	LEDAPFK
Linear Polarizing filter kit for 62 x 62 Area Lights	LEDAPFKS
Linear Polarizing filter kit for Sealed Ring Lights	LEDRPFK90
Linear Kit with a variety of filters, diffusers and window replacements	LEDFLTK
Linear Polarizing filter kit for 290 mm Linear Array Lights (IP68)	LEDLAPFK290S
Linear Polarizing filter kit for 580 mm Linear Array Lights (IP68)	LEDLAPFK580S
Linear Polarizing filter kit for 145 mm Linear Array Lights (IP50)	LEDLAPFK145
Linear Polarizing filter kit for 290 mm Linear Array Lights (IP50)	LEDLAPFK290

Polarizing Filters

Description	Models
Linear Polarizing filter kit for 435 mm Linear Array Lights (IP50)	LEDLAPFK435
Linear Polarizing filter kit for 580 mm Linear Array Lights (IP50)	LEDLAPFK580
Linear Polarizing filter kit for 870 mm Linear Array Lights (IP50)	LEDLAPFK870
Linear Polarizing filter kit for 1160 mm Linear Array Lights (IP50)	LEDLAPFK1160
Linear Polarizing filter kit for 70 mm High-Intensity Area Lights	LEDAPFK70
Linear Polarizing filter kit for 70 mm High-Intensity Ring Lights	LEDRPFK70
Linear Polarizing filter kit for 70 mm IP68 High-Intensity Area Lights	LEDAPFK70S
Linear Polarizing filter kit for 50mm High-Intensity Spot Lights	LEDS50PFK

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	LED70CDW
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