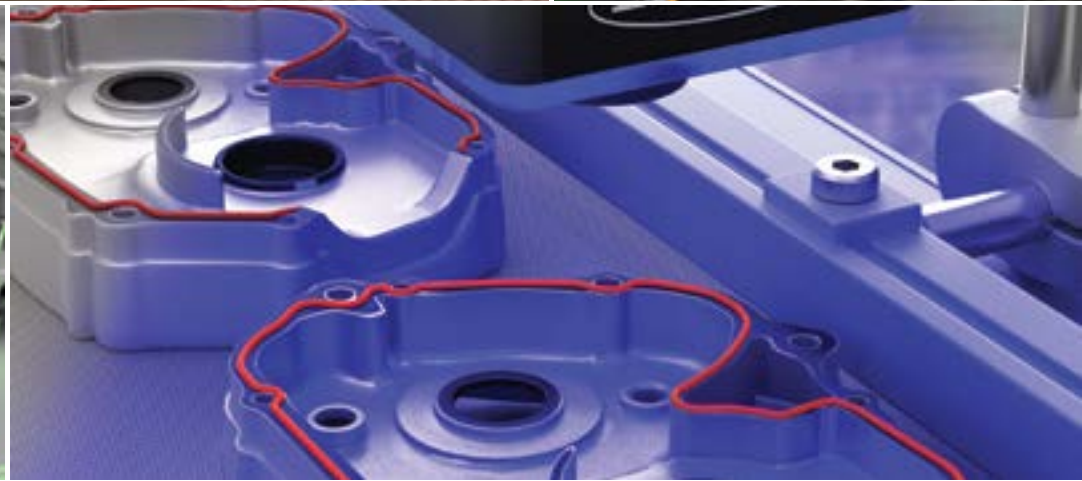


Vision Lighting

BANNER[®]
more sensors, more solutions



Why Banner Vision Lighting

With over ten years of lighting experience Banner is been committed to developing new and innovative solutions, delivering products of the highest quality, fulfilling the needs of each customer, and operating with honesty and integrity. Banner's expanding offering of vision lights help you:



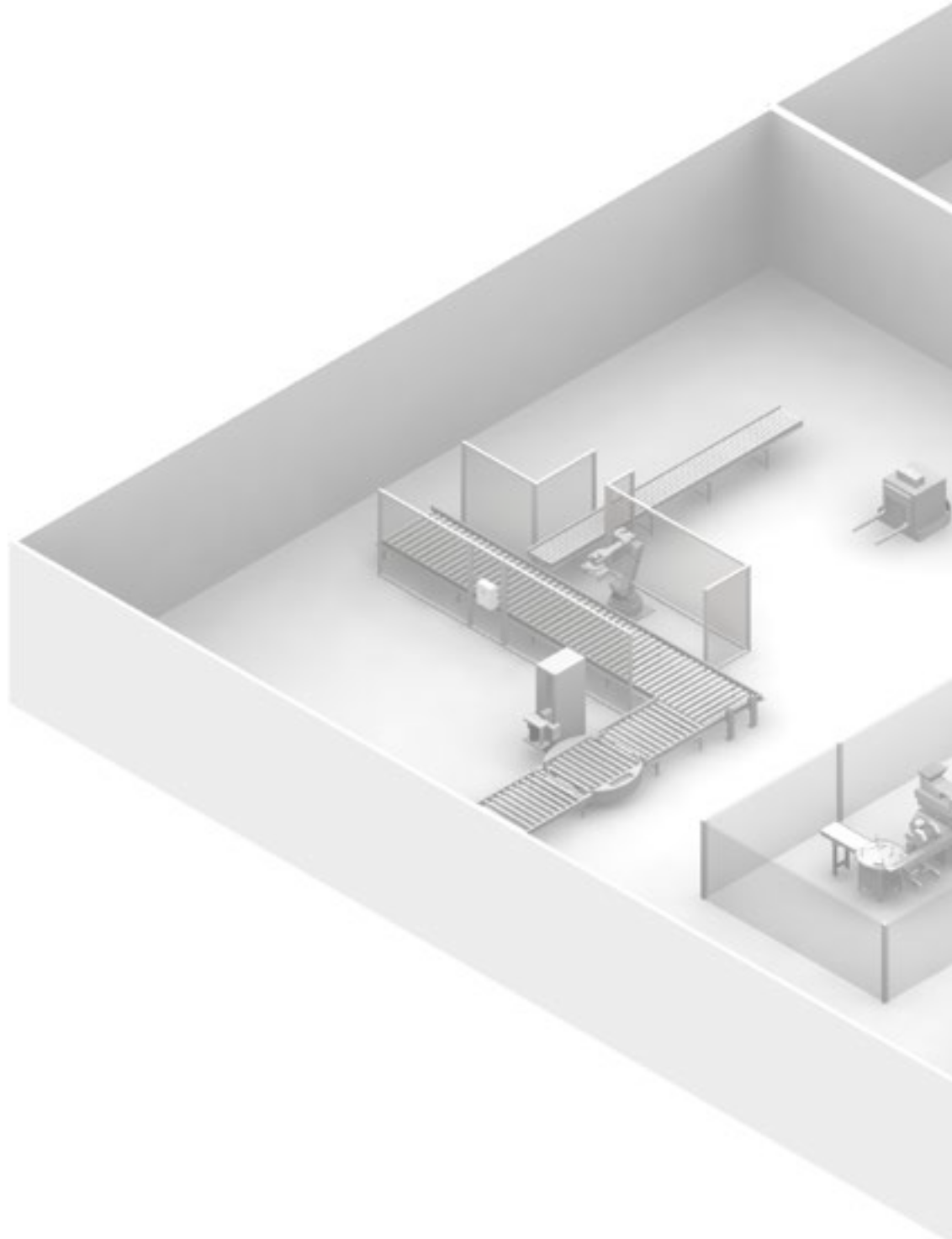
Reduce Labor Costs

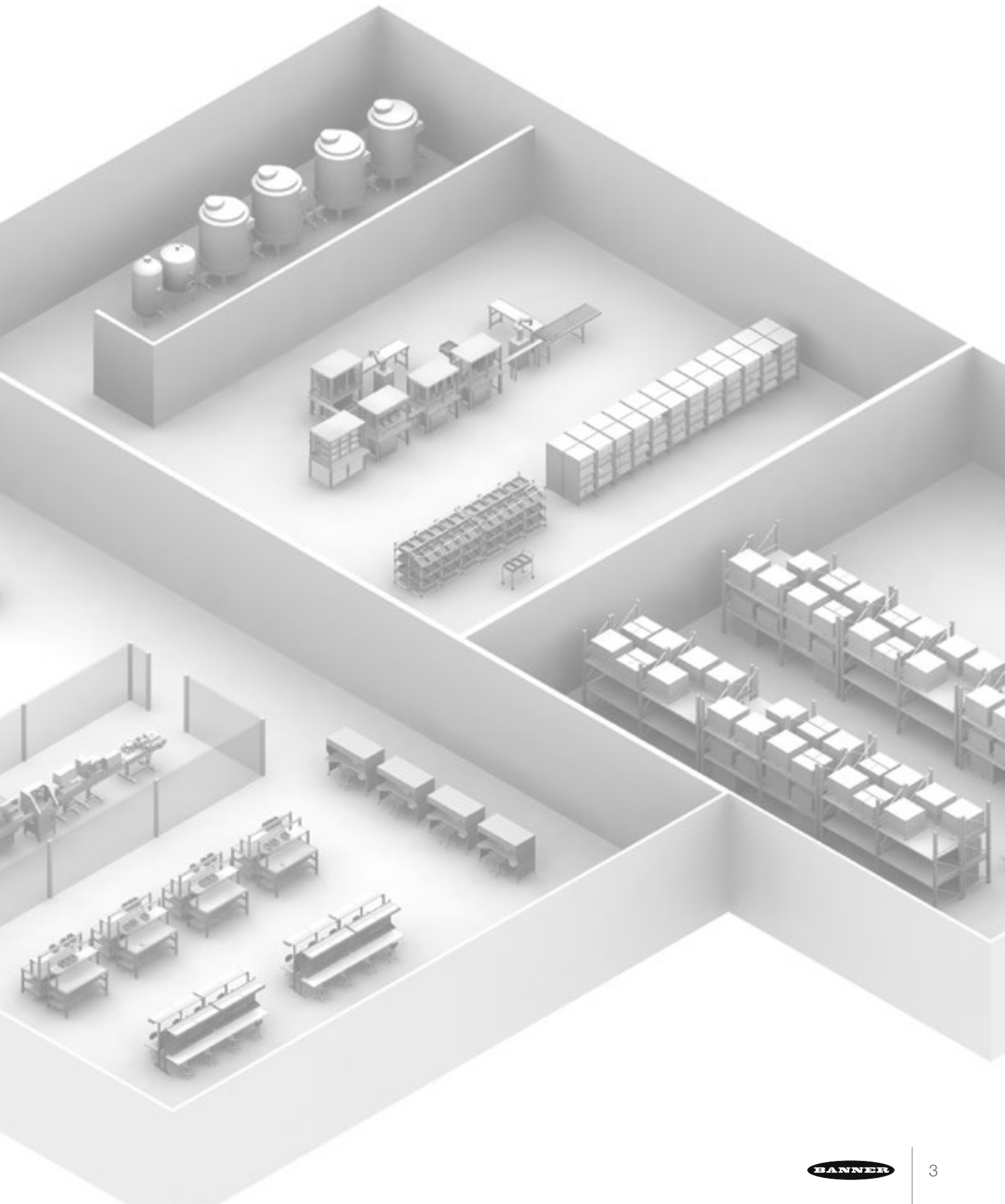


Improve Accuracy and Quality



Increase Production Rate





Key Tasks of Vision Lights

Illumination Intensity



Repeatability



Stability



Machine vision systems are used as quality control to ensure critical inspection and measurement. They evaluate the image of the object—not the object itself—to get the correct lighting arrangement from the start. To optimize image quality, a dedicated light source should be used in any vision application. Dedicated lighting optimizes contrast between the target object or feature and its background.

LED illumination has become the universal standard for machine vision. It is reliable, requires minimal maintenance, is easy to assemble and comes in a variety of colors, or wavelengths, such as red, blue, green, IR and UV.

In addition to identifying the correct type of illumination, ensuring that the light is consistent for every single measurement is critical in ensuring repeatable measurements.

Factors affecting consistency of illumination:

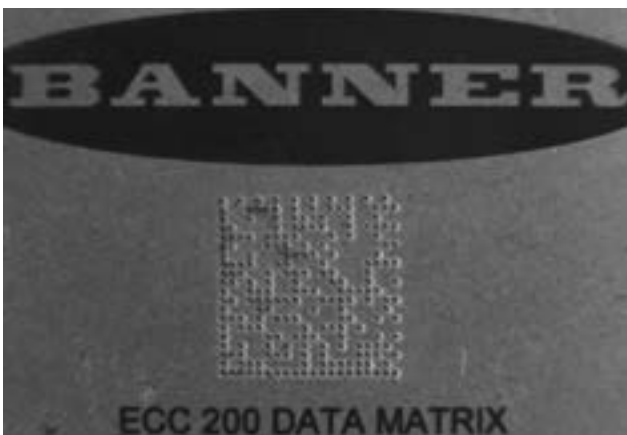
- Age of light
- Variations in lighting and camera exposure
- Temperature of the light
- Variations in drive to the light
- Ambient light
- Timing of pulsed lighting

Optimizing Image Quality

To optimize image quality, a dedicated light source should be used in any vision application. Dedicated lighting:

- Optimizes contrast between the target object or feature and its background,
- Provides uniform lighting conditions that allow image capture to be unaffected by ambient lighting in the factory environment, and
- Simplifies image analysis by creating high contrast between the “good” and the “bad” feature of interest

Without Lighting



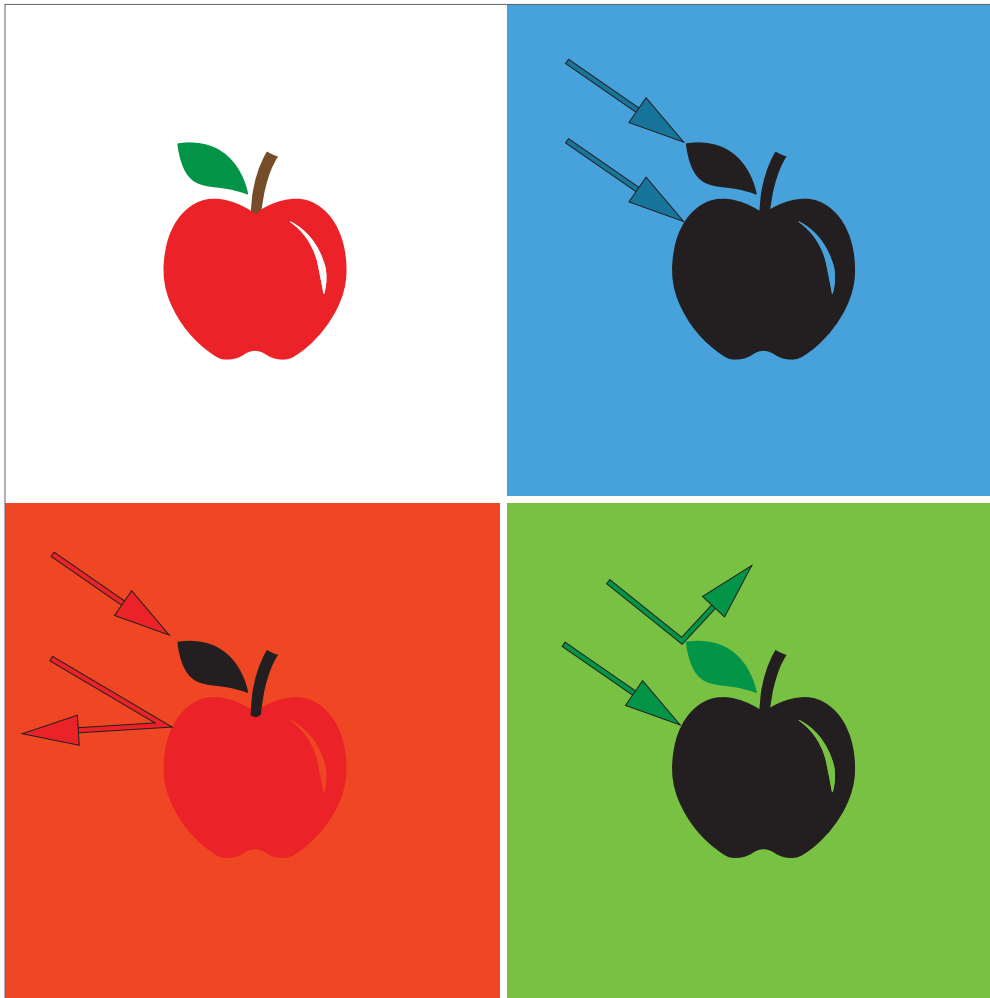
With Vision Lighting



Choosing the Right Color

In addition to choosing the right lighting technique, different wavelengths of light can also be used to create additional contrast, draw out features of interest, or reduce the visibility of insignificant features.

in blue light, the apple and the leaves appear black



in red light, the apple appears red because it reflects the light. The leaves however appear black.

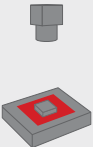

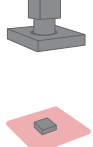

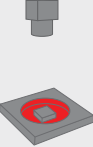

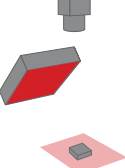

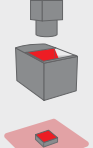





in green light, the apple appears black because no red light is reflecting on it, but the leaves now look green..

Infrared (IR) Light

Infrared (IR) light can be used to hide insignificant features by reducing the contrast of certain objects. For example, some types of ink that appear dark in the visible spectrum reflect large amounts of IR light. In these cases, ink may disappear in a grayscale image—an effect that can be used to hide certain insignificant features.

Ultraviolet (UV) Light

Ultraviolet (UV) light can be used to draw out features of interest when there is very little contrast from the background, such as beads of clear adhesive on a part. Shining UV light on the adhesive may create a glowing effect (fluorescence) that makes the adhesive stand out clearly from the background.

| Lighting Techniques | What the Camera Sees | Description |
|---|---|--|
|  |  | <p>Backlights The part being inspected is placed between the camera and a bright, even light source. The result creates a silhouette of the target which is useful in edge detection, part presence and measurement applications.</p> |
|  |  | <p>Ring Lights A ring light is affixed to the camera and both items can be mounted as one piece for convenience. This setup is good for relatively small parts or close up applications.</p> |
|  |  | <p>Low Angle Ring Lights Also called a dark field illuminator, this specialty light has its LEDs mounted in a ring, pointing toward the part almost perpendicular to the camera's direction of view. Low Angle Ring lights create shadows and bright spots to detect changes in depth.</p> |
|  |  | <p>Directional Lights Directional lights, in whatever style, create shadows to detect changes in depth, illuminate specific surface angles, and avoid glare of reflective surfaces when directed at an angle away from lens.</p> |
|  |  | <p>On-Axis Lights On-axis, or coaxial, lights generates light that travels along the same axis as the camera's direction of view. The camera looks down from the top, through the On-Axis light, to the target part below. This technique can be used to eliminate shadows, inspect shiny objects or inspect for height changes.</p> |
|  |  | <p>Structured Lights A laser line generator is an example of a structured lighting scheme. This technique uses a high quality, uniform laser line to infer the presence of a difficult to see target. As a three-dimensional part passes through the laser line's path, the image of the laser becomes distorted so the camera can detect the part.</p> |
|  |  | <p>Heavy Duty Lights Our portfolio of heavy duty lights includes products suitable for use in washdown environments, hazardous locations, and high temperature applications. We offer a variety of waterproof devices that are resistant to common cleaning chemicals, as well as products that are resistant to cutting oils and fluids."</p> |



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see page 9



see page 11



bannerengineering.com



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see page 21



see page 23



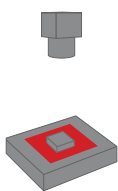
see page 24



see page 25



see page 26



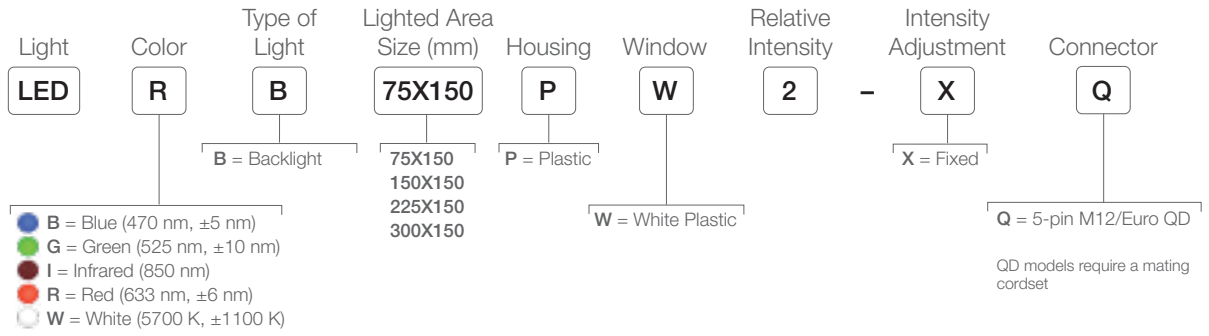
Backlights

- Creates silhouette for maximum contrast
- 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



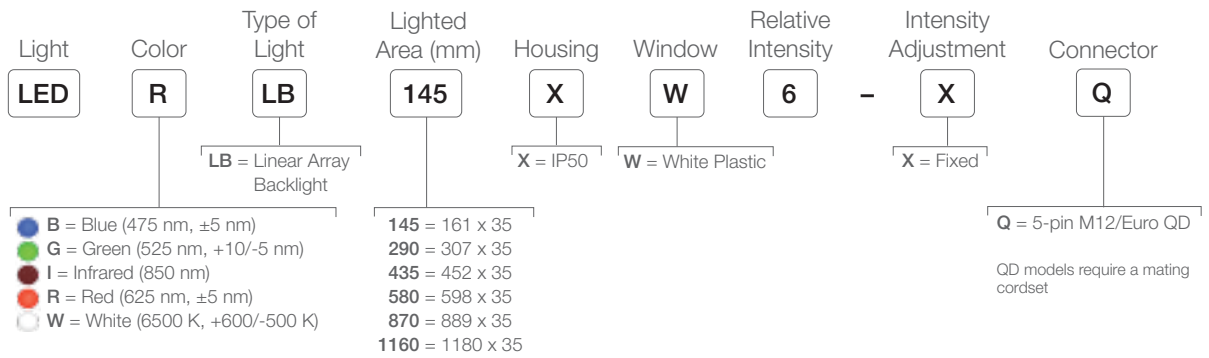
Standard Backlights

Example Model Number: LEDRB75X150PW2-XQ



Bar Backlights

Example Model Number: LEDRLB145XW6-XQ



Supply Voltage

24 V DC

White Lux @ 0 m

Standard: 45,000 Lux
Bar: 52,000 Lux

Construction

Standard: Black Valox™ housing; acrylic window
Bar: Black anodized aluminum; acrylic window

Operating Temperature

0 to +50 °C (+32 to +122 °F)

Environmental Rating

Standard: IEC IP67
Bar: IEC IP50

Useful life

Standard:
B50/L50 Lifetime > 100,000 hours
(Infrared, Red)
B50/L50 Lifetime > 90,000 hours
(Blue, Green, White)

Bar:
When operated within specifications, output will decrease less than 30% after 50,000 hours

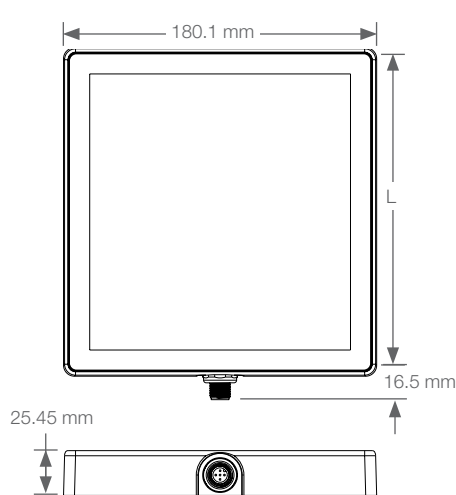
Strobing/Control

Continuous or strobed operation

Certifications

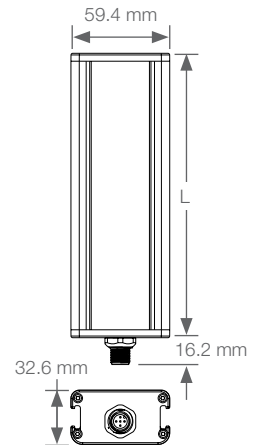


Standard Models

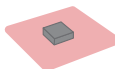
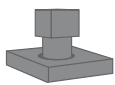
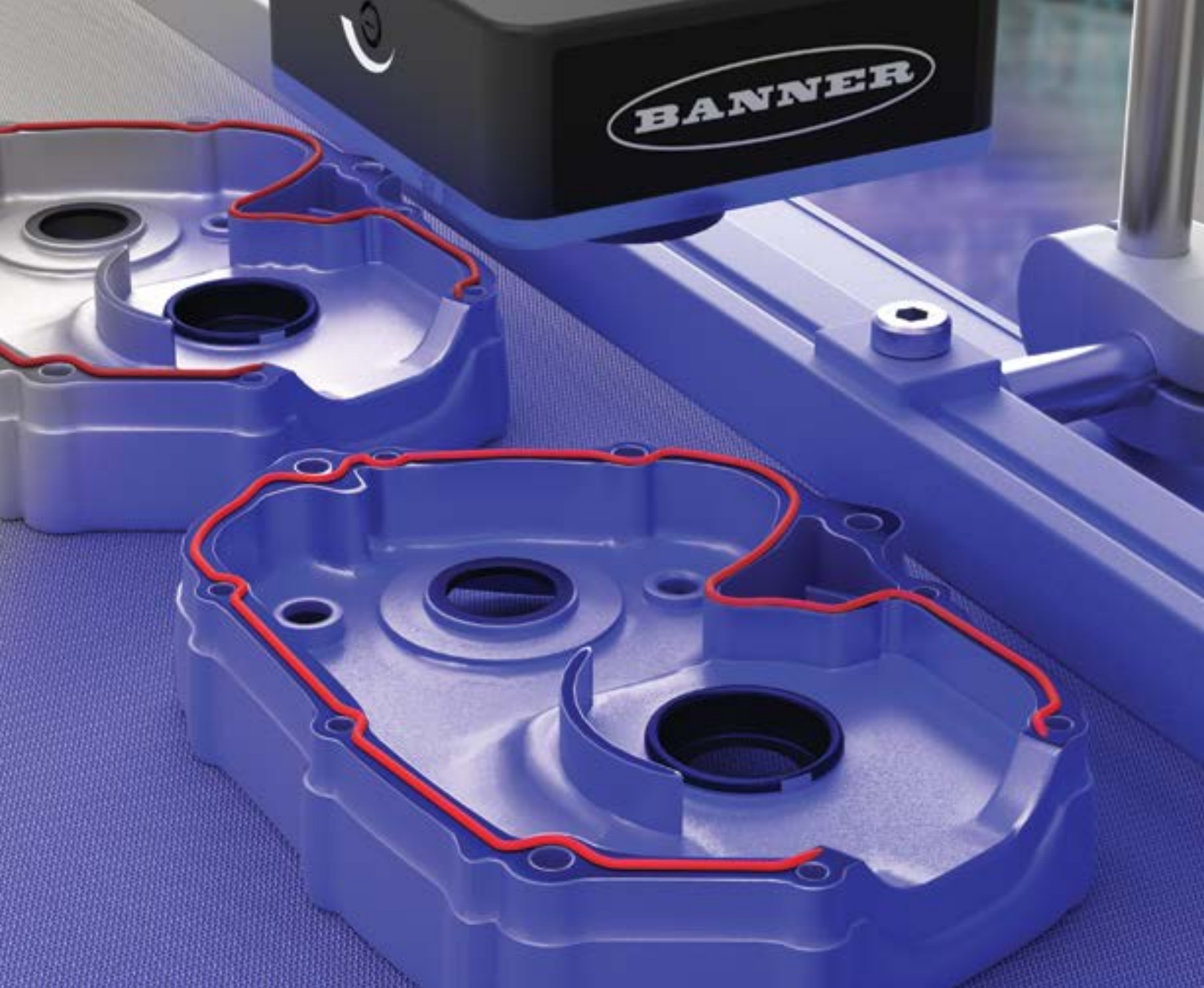


| Array Area | Length "L" |
|--------------|------------|
| 75 x 150 mm | 105.1 mm |
| 150 x 150 mm | 188.9 mm |
| 225 x 150 mm | 272.7 mm |
| 300 x 150 mm | 356.6 mm |

Bar Models



| Array Length | Length "L" |
|--------------|------------|
| 145 mm | 171 mm |
| 290 mm | 316.5 mm |
| 435 mm | 462 mm |
| 580 mm | 607.5 mm |
| 870 mm | 898.5 mm |
| 1160 mm | 1189.5 mm |

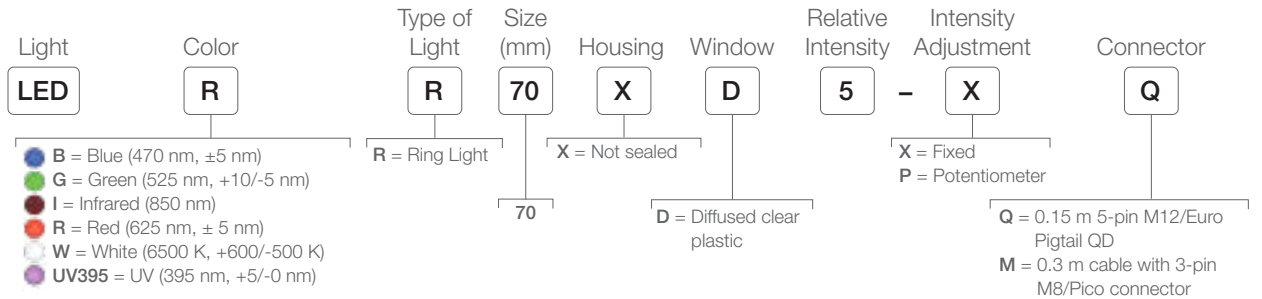


Ring Lights

- Easy integration between camera and light
- Brightly illuminates from a small form factor
- Mounts directly to the camera and centers the light on the image
- Brightly illuminates small objects
- Reduces shadows on images with protrusions

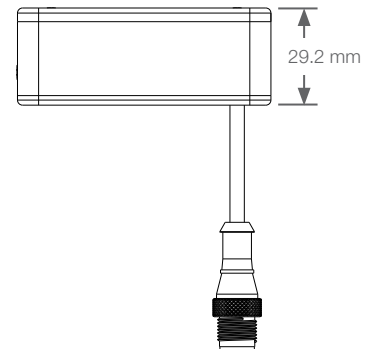
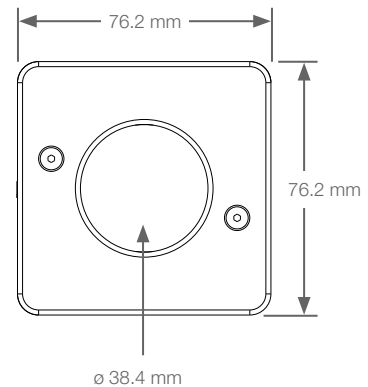
Ring Lights

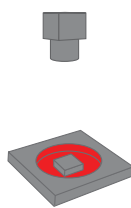
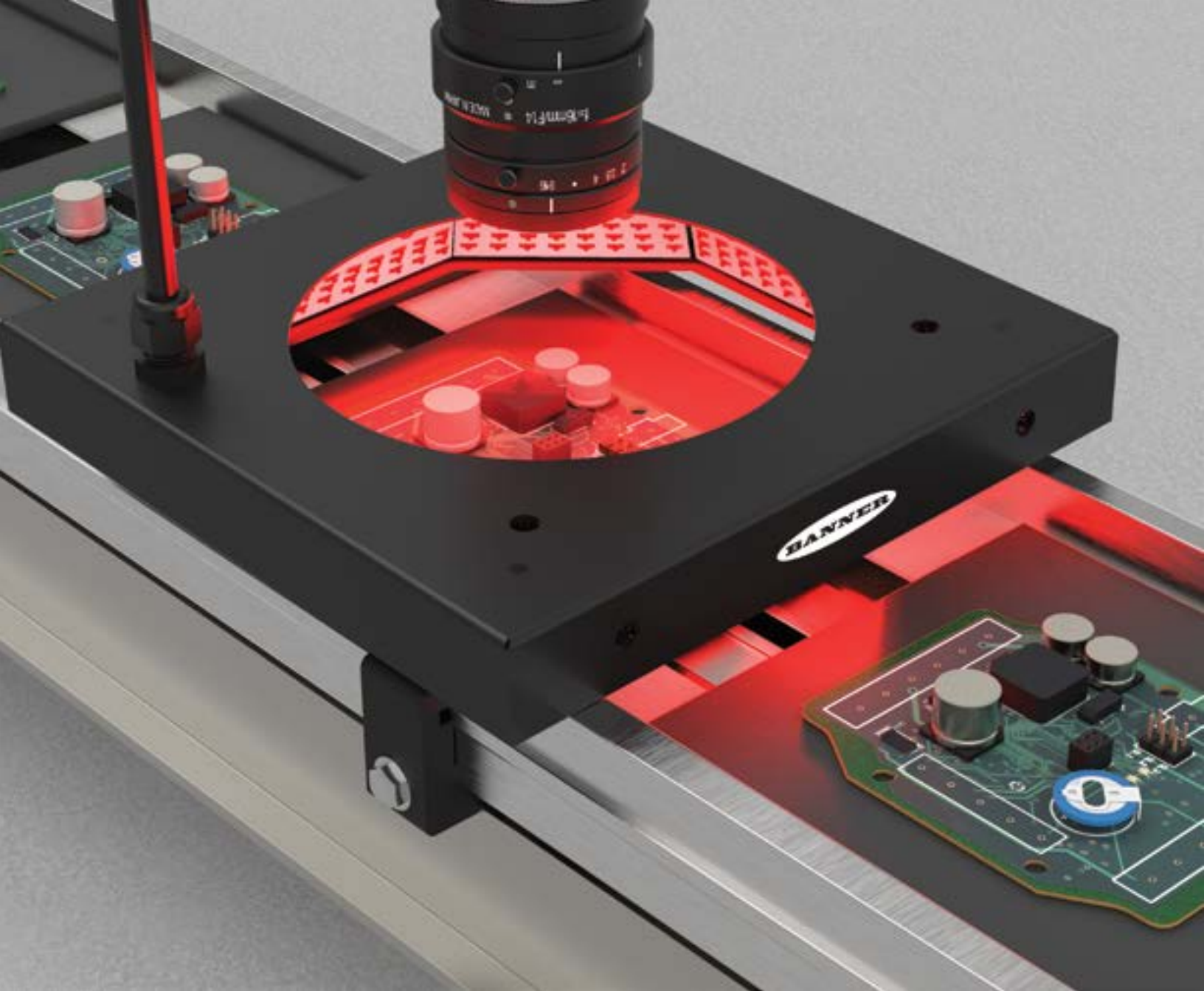
Example Model Number: LEDRR70XD5-XQ



QD models require a mating cordset

| | |
|-----------------------|---|
| Supply Voltage | 24 V DC |
| White Lux @ 0.5 m | 5,150 lux |
| Construction | Housing: Black anodized aluminum Window: Acrylic |
| Operating Temperature | 0 to +50 °C (+32 to +122 °F) |
| Environmental Rating | IP50 |
| Useful life | When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models |
| Strobing/Control | Continuous or strobed operation |
| Certifications |   |



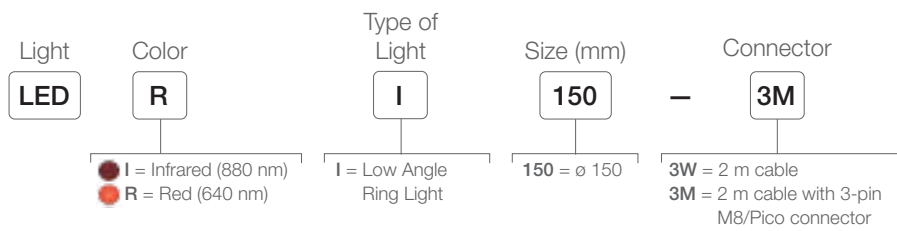


Low-Angle Ring Lights

- Illuminates from an angle nearly perpendicular to object
- Emphasizes surface irregularities such as dust, dents, scratches and other surface defects
- Highlights slight height differences such as etching, solder balls and embossing

Low-Angle Ring Lights

Example Model Number: LEDRI1503M



Supply Voltage

24V DC

Construction

Housing:
aluminum with black anodizing

Operating Temperature

0 to +50 °C (+32 to +122 °F)

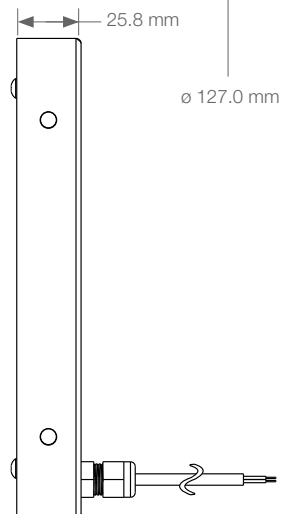
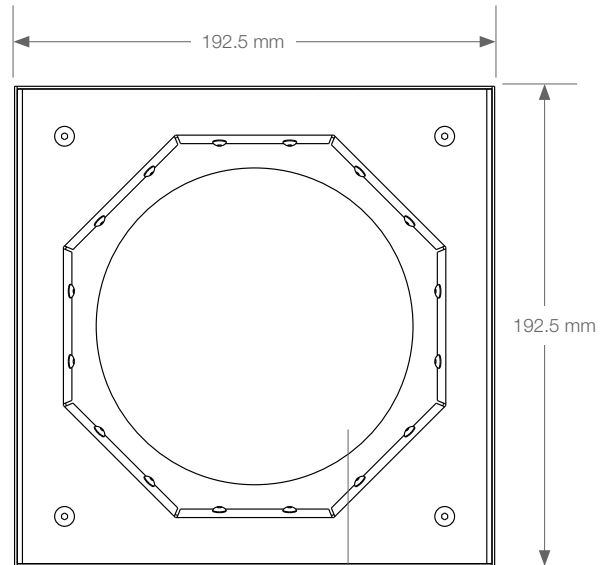
Useful life

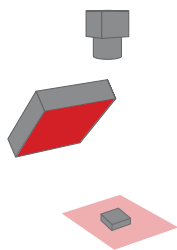
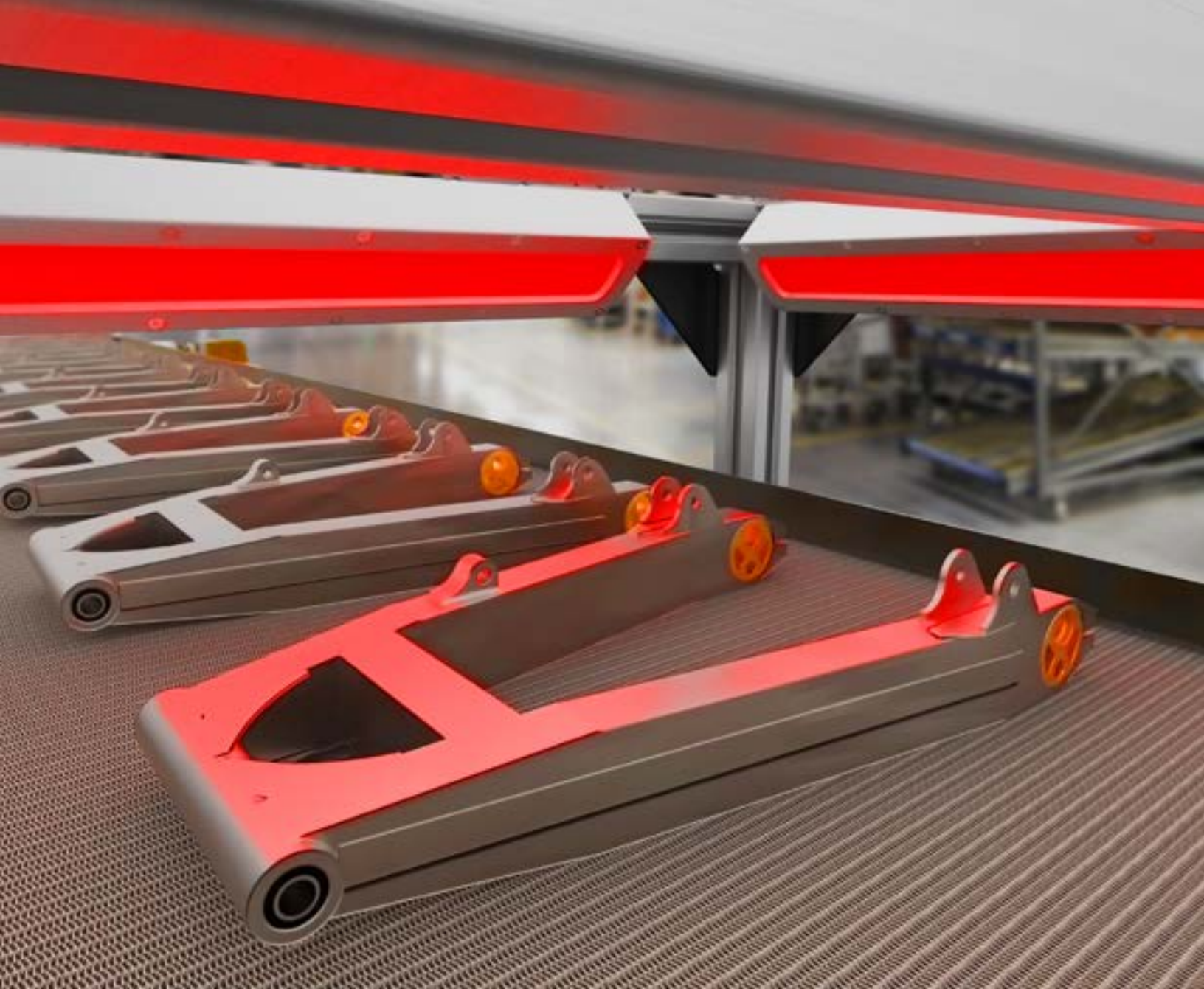
When operated within specifications, output will decrease less than 20% after 20,000 hours and less than 30% after 30,000 hours (based on continuous operation)

Strobing/Control

Continuous or strobed operation

Certifications





Directional Lights

- Provides even illumination in a concentrated area
- Creates shadows or glare to detect changes in depth, depending on mounting
- A wide variety of directional light styles are available including: Bar, Area, and Spot to fit the specific application needs
- High-intensity lighting for distances greater than 300 mm



Bar Light

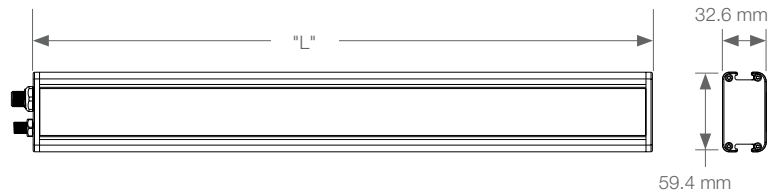
Example Model Number: LEDRLA290XD6-XQ



| | | | | | | | | |
|------------|--|-------------------|---|----------------|--|--|----------------------|--|
| Light | Color | Type of Light | Lighted Length (mm) | Housing | Window | Relative Intensity | Intensity Adjustment | Connector |
| LED | R | LA | 290 | X | D | 6 | - X | Q |
| | | LA = Linear Array | 145** 290 435 580 870 1160 | X = Not sealed | P = Plastic clear G = Glass clear D = Diffused clear plastic | X = Fixed PL = Pot & 0-10 V Analog wire (Strobe polarity = Low) PH = Pot & 0-10 V Analog wire (Strobe polarity = High) | | Q = 5-pin M12/Euro Integral QD QD models require a mating cordset |
| | <ul style="list-style-type: none"> ● B = Blue (475 nm, ±5 nm) ● G = Green (525 nm, +10/-5 nm) ● I = Infrared (850 nm) ● R = Red (625 nm, ±5 nm) ● W = White (6500 K, +600/-500 K) ● UV365 = UV (395 nm, +5/-0 nm)* ● UV395 = UV (395 nm, +5/-0 nm) | | | | | | | |

* UV365 can only be used with glass window
** Intensity adjustment not available on 145 mm length

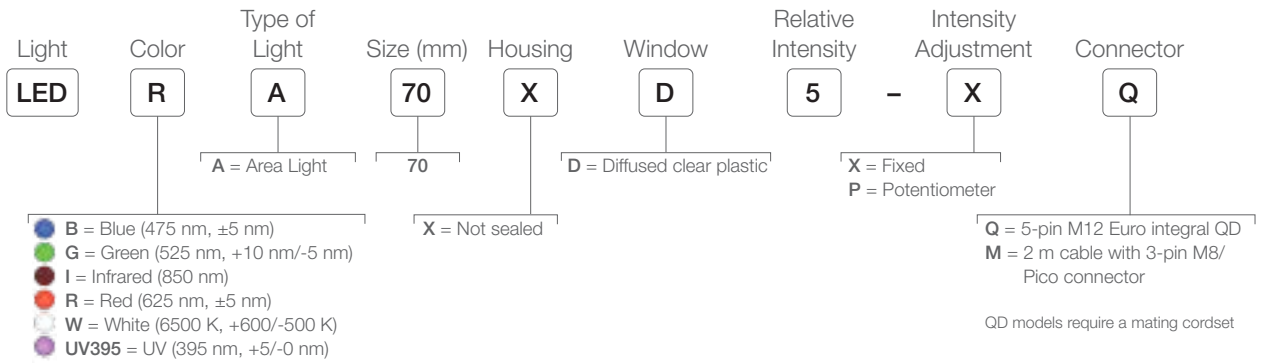
| | |
|---------------------------------|---|
| Supply Voltage | 24 V DC |
| White 1160 mm Lux @ 0.5 m | 23,420 lux |
| Construction | Black anodized aluminum |
| Operating Temperature | 0 to +50 °C (+32 to +122 °F) |
| Environmental Rating | IEC IP50 |
| Useful life | When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models |
| Strobing/Control | Continuous or strobed operation |
| Certifications |   |



| Array Length | "L" |
|--------------|-----------|
| 145 mm | 171 mm |
| 290 mm | 316.5 mm |
| 435 mm | 462 mm |
| 580 mm | 607.5 mm |
| 870 mm | 898.5 mm |
| 1160 mm | 1189.5 mm |

Area Light

Example Model Number: LEDRA70XD5-XQ



Supply Voltage

24 V DC

White Lux
@ 0.5 m

7,030 lux

Construction

Housing: Black anodized aluminum
Window: Acrylic

Operating
Temperature

0 to +50 °C (+32 to +122 °F)

Environmental
Rating

IEC IP50

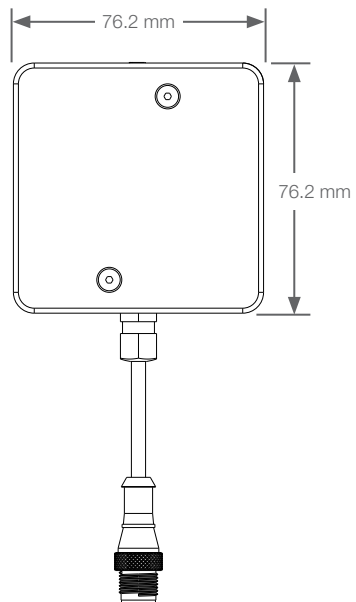
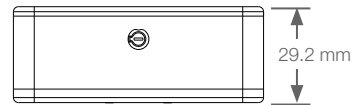
Useful life

When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models

Strobing/Control

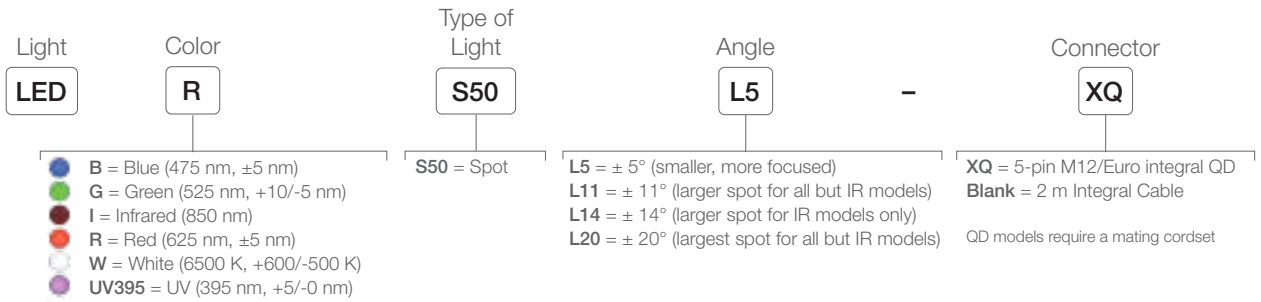
Continuous or strobed operation



Certifications

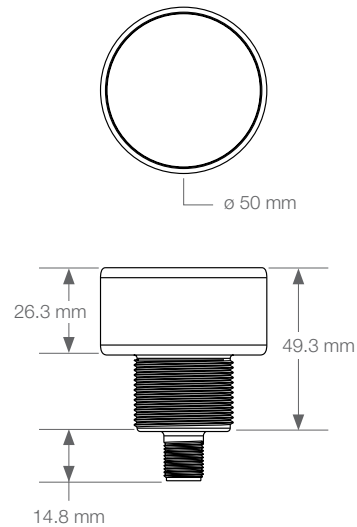


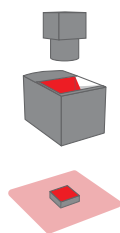
Spot Light

Example Model Number: LEDRS50L5-XQ



| | |
|--------------------------|---|
| Supply Voltage | 12 to 30 V DC |
| White ±5° Lux @ 0.5 m | 3,500 Lux |
| Construction | Black anodized aluminum |
| Operating Temperature | -20 to +50 °C (-4 to +122 °F) |
| Environmental Rating | IEC IP67, IP69K per DIN 40050-9 |
| Useful life | When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models |
| Strobing/Control | Continuous or strobed operation |
| Certifications |   |



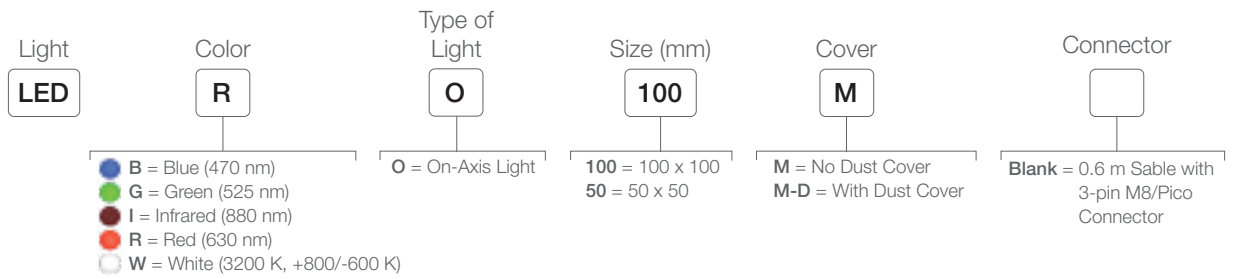


Coaxial Lights

- Provides more uniform illumination than a ring light
- Delivers collimated illumination in the same optical path as camera
- Evenly illuminates flat reflective surfaces
- Features models with anti-reflective glass dust covers

Coaxial Light

Example Model Number: LEDRO100M



50 mm Models

100 mm Models

Supply Voltage

24 V DC

White Lux @ 0.5 m

50 mm: 70 Lux
100 mm: 350 Lux

Construction

Housing: aluminum with black anodizing
Beam Splitter: optical glass with optical coatings on both sides
Diffuser: high-precision cast acrylic
Dust Cover: optical glass with broadband anti-reflective coating (425 nm to 675 nm) (some models)

Operating Temperature

0 to +50 °C (+32 to +122 °F)

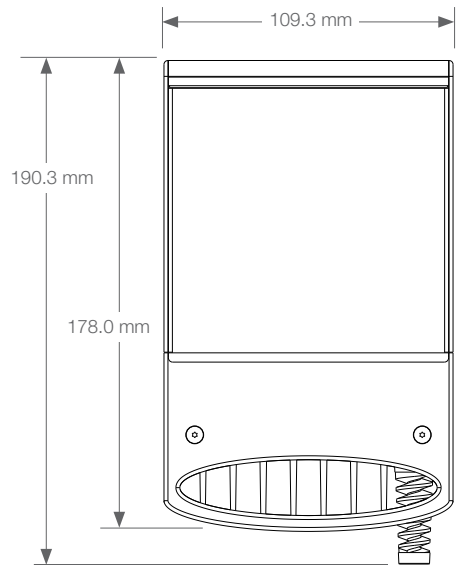
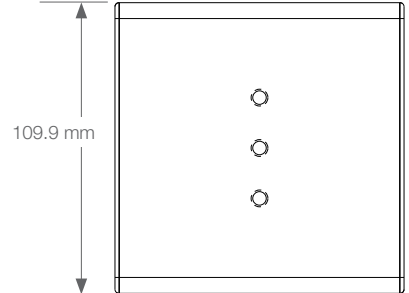
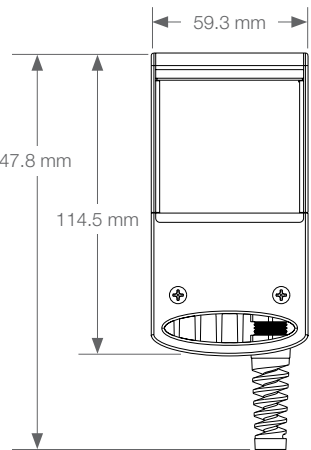
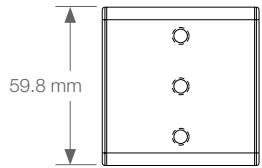
Useful life

When operated within specification, output will decrease less than 20% after 10,000 hours and less than 30% after 20,000 hours

Strobing/Control

Continuous or strobed operation

Certifications



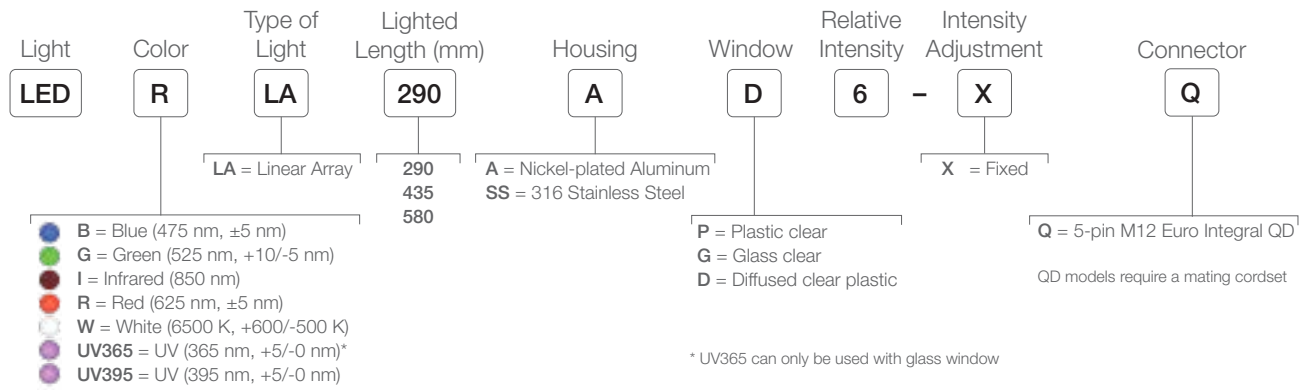




Lights for Industrial Environments

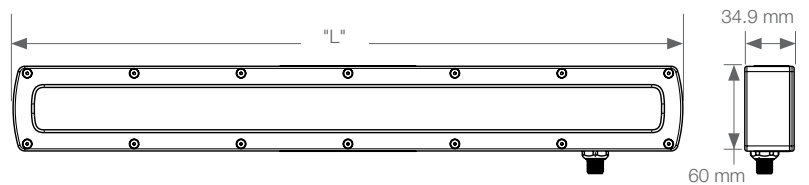
- Washdown LED Lights are sealed, smooth, and durable enough to handle the most intense applications.
- Housing options include nickel plated aluminum, 316 stainless steel or plastic bodies with multiple window options.
- Illuminates small to large areas with an even pattern of light and no shadows

Sealed Bar Light

Example Model Number: LEDRLA290AD6-XQ



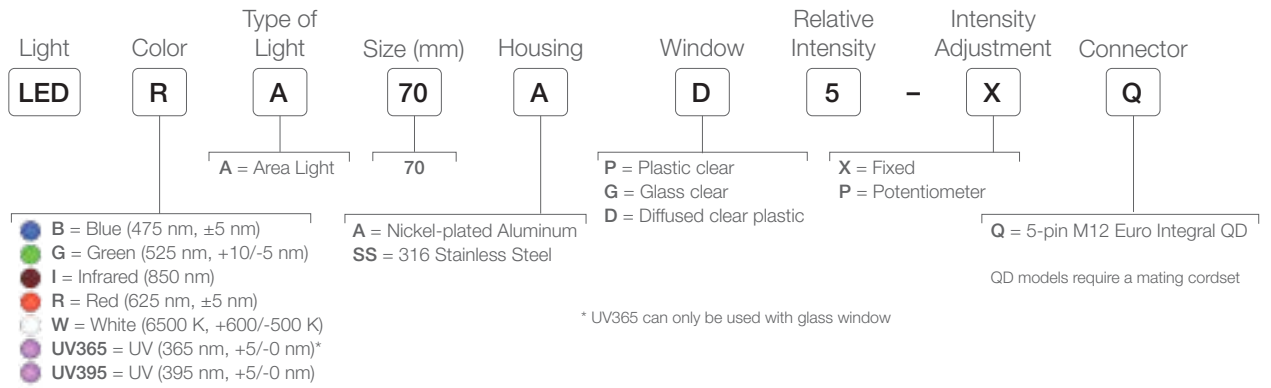
| | |
|--------------------------------|---|
| Supply Voltage | 24 V dc |
| White 580 mm Lux @ 0.5 m | 23,420 Lux |
| Construction | Nickel-plated aluminum or 316 stainless steel |
| Operating Temperature | 0 to +50 °C (+32 to +122 °F) |
| Environmental Rating | IEC IP68 |
| Useful life | When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models |
| Strobing/Control | Continuous or strobed operation |
| Certifications |   |



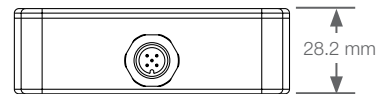
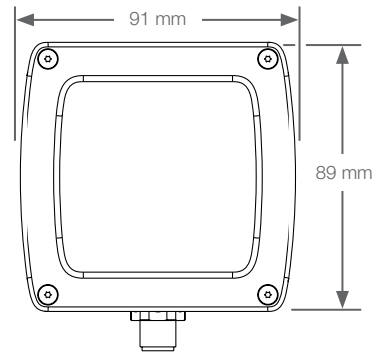
| Array Length | "L" |
|--------------|--------|
| 290 mm | 328 mm |
| 435 mm | 474 mm |
| 580 mm | 621 mm |

Sealed Area Light

Example Model Number: LEDRA70AD5-XQ

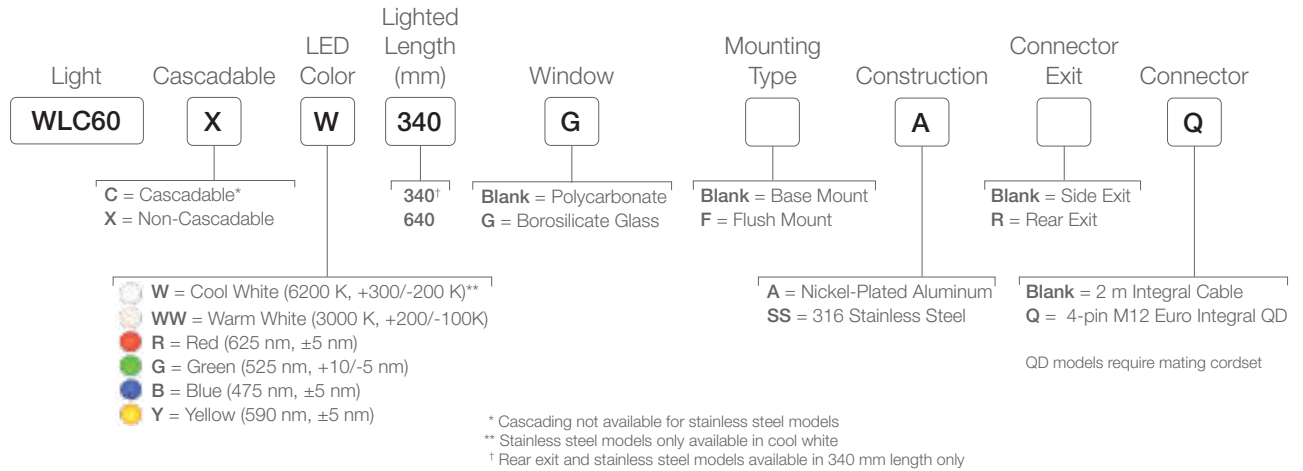


| | |
|-----------------------|---|
| Supply Voltage | 24 V DC |
| White Lux @0.5 m | 18,550 Lux |
| Construction | Nickel-plated aluminum or 316 stainless steel |
| Operating Temperature | 0 to +50 °C (+32 to +122 °F) |
| Environmental Rating | IEC IP68 |
| Useful life | When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models |
| Strobing/Control | Continuous or strobed operation |
| Certifications |   |

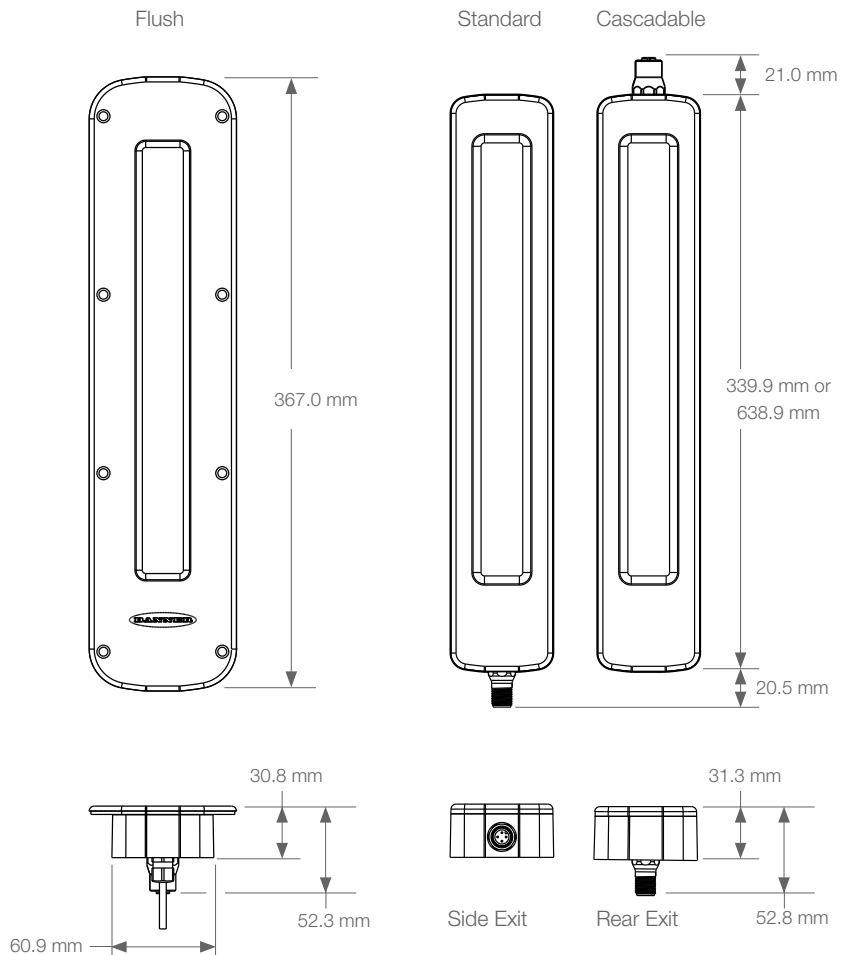


WLC60 Heavy-Duty Light

Example Model Number: WLC60XW340GAQ

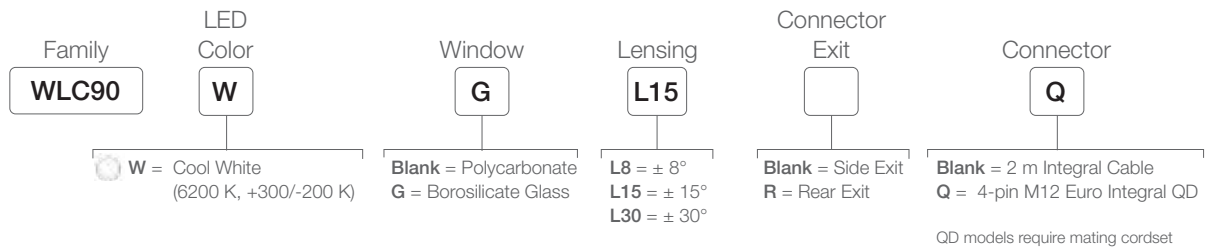



| | |
|--------------------------|--|
| Supply Voltage | 12 to 30 V DC |
| White 640 nm Lux @ 0.5 m | 8,925 Lux |
| Construction | Housing: Nickel-plated aluminum or 316 Stainless steel Window: Polycarbonate or Borosilicate Glass |
| Operating Temperature | -40 °C to +50 °C (-40 °F to +122 °F) at the max. intensity setting -40 °C to +70 °C (-40 °F to +158 °F) at any of the dim settings |
| Environmental Rating | IEC IP67, JIS C IP68G, IP69K per DIN 40050-9 |
| Useful Life | When operating within specifications, output will decrease less than 30% after 60,000 hours |
| Strobing/Control | Strobing is unavailable, however, certain models have PWM functionality that can act as strobing. Please visit our website for more information. |
| Certifications | CE, cULUS LISTED |

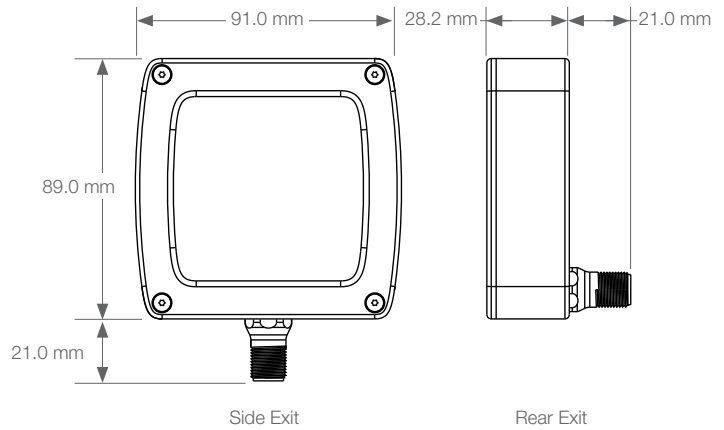


WLC90 Heavy-Duty Light

Example Model Number: WLC90WGL15Q

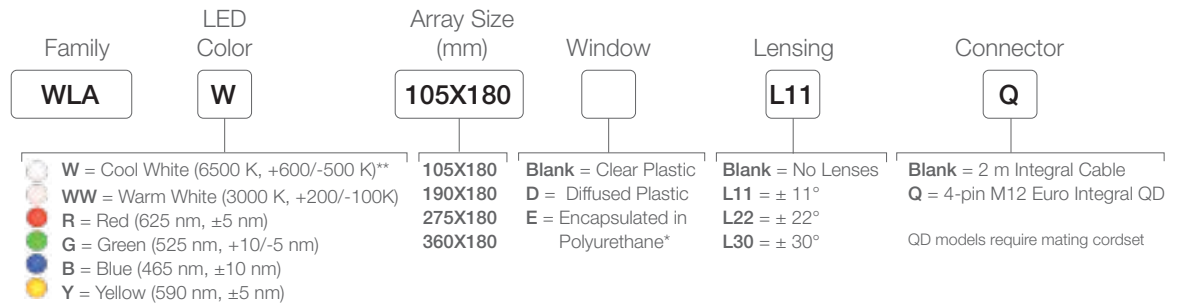


| | |
|-----------------------|---|
| Supply Voltage | 12 to 30 V DC |
| White ±8° Lux @ 0.5 m | 22,348 Lux |
| Construction | Housing: Nickel-plate aluminum Window: Polycarbonate or borosilicate glass |
| Operating Temperature | -40 to +70 °C (-40 to +158 °F) |
| Environmental Rating | IEC IP67/IP68g/IP69K per DIN 40050 |
| Useful life | When operating within specifications, output will decrease less than 30% after 60,000 hours |
| Strobing/Control | Strobing is unavailable, however, certain models have PWM functionality that can act as strobing. Please visit our website for more information. |
| Certifications |   |



WLA Area Lights

Example Model Number: WLAW105X180L11Q



* Encapsulated models only available in cool white with no lenses

Supply Voltage

12 to 30 V DC

White 360 x 180 mm ±11° Lux @ 0.5 m

21,000 Lux

Construction

Housing: PBT
Window: Acrylic or polyurethane
Connector: Nickel-plated brass or PVC-jacketed cable

Operating Temperature

-20 to +50 °C (-4 to +122 °F)

Environmental Rating

Plastic:
Rated IEC IP67 and IP69K, per DIN 40050
Polyurethane:
Rated IEC IP67, IEC IP68, IP69K per DIN 40050

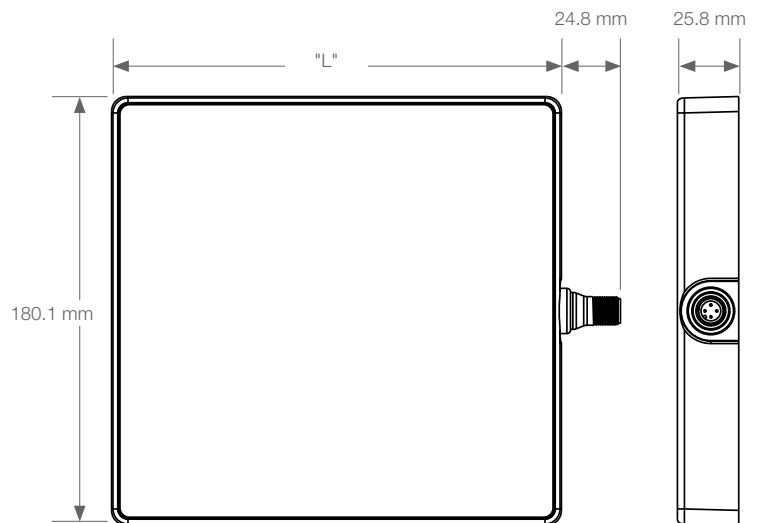
Strobing/Control

Strobing is unavailable, however, certain models have PWM functionality that can act as strobing. Please visit our website for more information.

Certifications



Encapsulated models not UL listed



"L"

105.1 mm

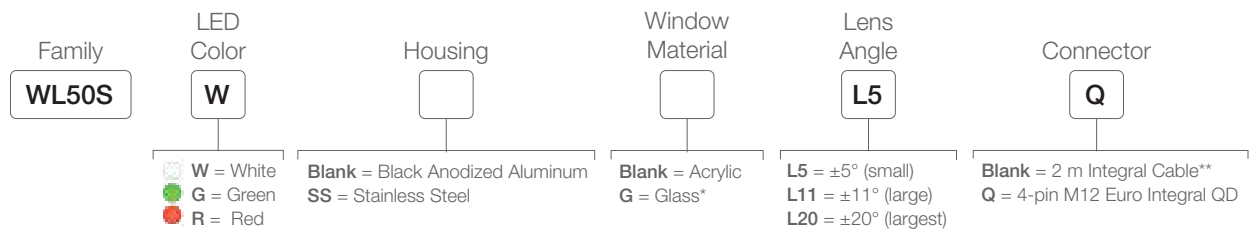
188.9 mm

272.7 mm

356.6 mm

WL50S Spot Light

Example Model Number: WL50SWL5Q



QD models require mating cordset

* Only available on stainless steel models

** Only available on anodized aluminum models

Supply Voltage 12 to 30 V DC

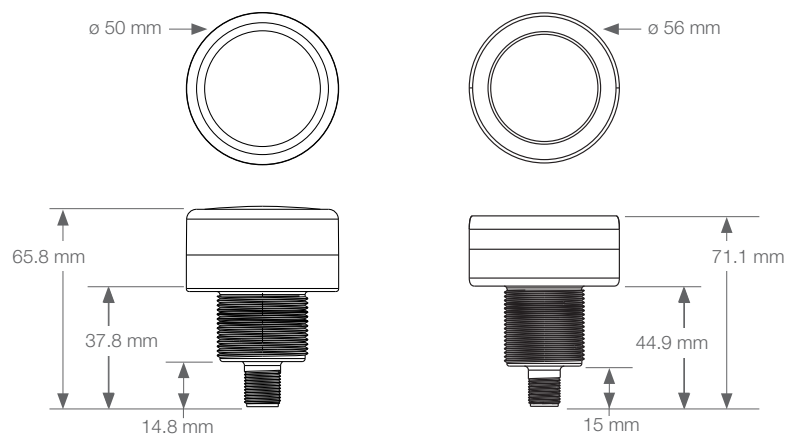
**White ±5°
Lux @ 0.5 m** 3.500 Lux

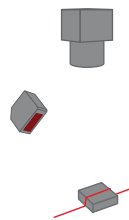
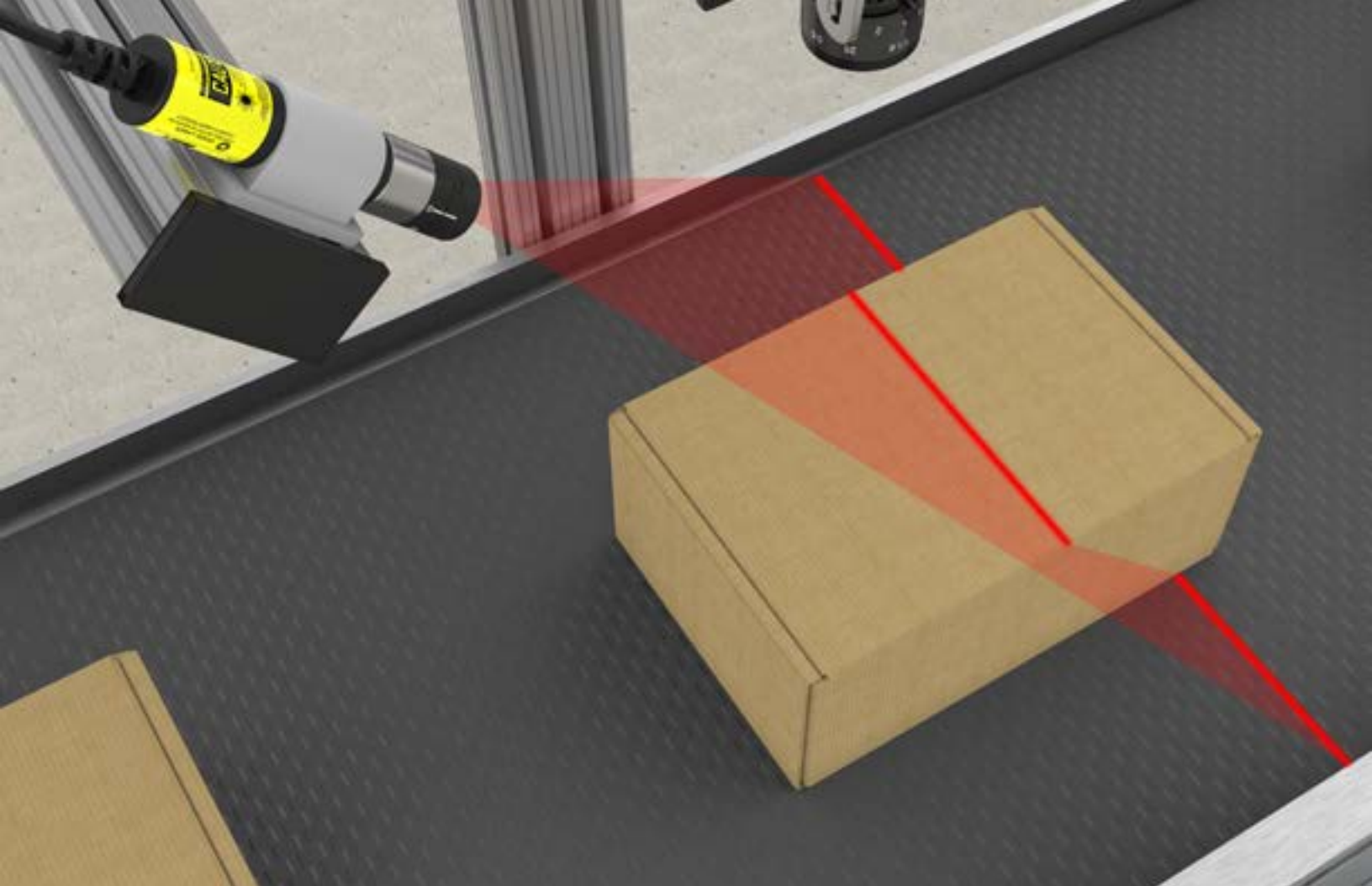
Construction
 Housing: Black anodized aluminum or Stainless Steel with FDA-grade silicone gasket and Viton® o-ring seal
 Window: Polycarbonate or glass window
 Connector: Nickel-plated QD connector or PVC-jacketed cable
 Mounting Nut: Black zinc-plated steel or Stainless Steel

Operating Temperature -20 to +50 °C (-4 to +122 °F)

Environmental Rating IEC IP67/IP68g/IP69K per DIN 40050

Certifications  



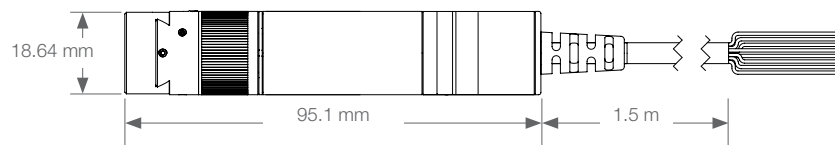


Structured Lights

- Provides more uniform illumination than a ring light
- Delivers collimated illumination in the same optical path as camera
- Evenly illuminates flat reflective surfaces


LLG660P10A60II
Laser Line Generator

660 nm, 10 mW, 60 degree fan angle, Class II CDRH,
0.5 m cable with flying leads



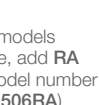







Accessories

Brackets

| | | | | | | | |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | | |
| SMBBSSM Used with Area Lights & Backlights | SMBAMS70A Used with Area Lights | SMBAMS70AS Used with Sealed Area Lights | SMBLASRA | SMBLAXRA* Used with Bar Lights | SMBLAXU* | | |
| | | | | *Use SMBLAXRA and SMBLAXU to create swivel bracket | | | |
|  |  |  |  |  |  |  |  |
| SMB30A | SMB30SC | SMB30FA Used with Spotlights | SMBAMS30P | SMB30MM | SMBAMS30RA | SMBBSRA Used with WLA | SMBWLAMAG |
|  |  |  |  |  |  | | |
| LMBWLC60F | LMBWLC60RA Used with WLC60 | LMBWLC60RAS | LMBWLC60MAG | LMBWLC90PT Used with WLC90 | SMBAMS70AS | | |

Cordsets

| | | | | | |
|--|--|---|--|--|--|
|  | Nickel-Plated Nut | Stainless Steel Nut |  | Nickel-Plated Nut | Stainless Steel Nut |
| M12/Euro-Style Straight connector models listed; for right-angle, add RA to the end of the model number (example, MQDC20-506RA) | MQDC20-506 2 m (6.5') MQDC20-515 5 m (15') MQDC20-530 9 m (30') | MQDC20SS-506 2 m (6.5') MQDC20SS-515 5 m (15') MQDC20SS-530 9 m (30') | 3-Pin Pico-Style Straight connector models listed | — PKG3M-5 5 m (16') PKG3M-7 7 m (23') PKG3M-10 10 m (33') | PKG3M-4 4 m (13') — PKG3M-7 7 m (23') PKG3M-10 10 m (33') |
|  | 4-Pin | 5-Pin |  | PKG3M-.35-PSG3M 0.35 m (1 ft) PKG3M-2-PSG3M 2 m (6.5 ft) | |
| M12/Euro-Style Straight connector models listed; for right-angle, add RA to the end of the model number (example, MQDC1-506RA) | MQDC-406 2 m (6.5') MQDC-415 5 m (15') MQDC-430 9 m (30') | MQDC1-506 2 m (6.5') MQDC1-515 5 m (15') MQDC1-530 9 m (30') | Pico-Style Double-Ended Straight connector models listed | | |
|  | 4-Pin | 5-Pin |  | Pico-Style Splitter Straight connector models listed. One 3-pin Pico QD and one 4-Pin Euro QD. | CSB-UNT213M831F1241^{††} Branches = 0.3 m (1ft) Trunk = Flying leads |
| 4-Pin M12/ Euro-Style Washdown Straight connector models only | MQDC-WDSS-0406 2 m (6.5') MQDC-WDSS-0415 5 m (15') MQDC-WDSS-0430 9 m (30') | MQDC-WDSS-0506 2 m (6.5') MQDC-WDSS-0515 5 m (15') MQDC-WDSS-0530 9 m (30') | | | |
|  | MQDEC-401SS-PUR 0.3 m (1') MQDEC-403SS-PUR 1 m (3') MQDEC-406SS-PUR 2 m (6.5') | |  | Pico-Style Splitter Straight connector models listed | CSB-M831M831[†] Branches = 0.20 m (0.65 ft) Trunk = 0.20 m (0.65 ft) |
| 4-Pin M12/Euro-Style Double-Ended (straight male/straight female connectors) | | | | | |

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

[†] Powers 2 lights from one P4 sensor



PSDINA-24
Special Lights Power
supply 24V DC; Power
supply 24V DC



PSD-24-4
Class 2 Power Supply
Input: 90-264 V ac 1.5A
Output: 24 V DC 3.9A
2 m (6.5') 4-Pin Euro Connector

Polarizing Filters

| Description | Models |
|---|--------------|
| Linear Polarizing filter kit for 80 x 80 Area Lights and 70 x 70 Backlights | LEDAPFK |
| Linear Polarizing filter kit for 90 mm IP68 Ring Lights | LEDRPFK90 |
| Linear Polarizing filter kit for 145 mm Bar Lights (IP50) | LEDLAPFK145 |
| Linear Polarizing filter kit for 290 mm Bar Lights (IP50) | LEDLAPFK290 |
| Linear Polarizing filter kit for 435 mm Bar Lights (IP50) | LEDLAPFK435 |
| Linear Polarizing filter kit for 580 mm Bar Lights (IP50) | LEDLAPFK580 |
| Linear Polarizing filter kit for 870 mm Bar Lights (IP50) | LEDLAPFK870 |
| Linear Polarizing filter kit for 1160 mm Bar 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 Glass | |
| 70 mm Sealed IP68 High-Intensity Area Lights | LEDA70SW-G |
| 145 mm IP50 Bar Lights | LEDLA145XW-G |
| 290 mm IP50 Bar Lights | LEDLA290XW-G |
| 290 mm Sealed IP68 Bar Lights | LEDLA290SW-G |
| 435 mm IP50 Bar Lights | LEDLA435XW-G |
| 435 mm Sealed IP68 Bar Lights | LEDLA435SW-G |
| 580 mm IP50 Bar Lights | LEDLA580XW-G |
| 580 mm Sealed IP68 Bar Lights | LEDLA580SW-G |
| 870 mm IP50 Bar Lights | LEDLA870XW-G |
| 1160 mm IP50 Bar Lights | LEDLA1160XW-G |
| 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 | |
| | Models |
| 70 mm Sealed High-Intensity Area Lights | LEDA70SWDW-P |
| 145 mm IP50 Bar Lights | LEDLA145XWDW-P |
| 290 mm IP50 Bar Lights | LEDLA290XWDW-P |
| 290 mm Sealed IP68 Bar Lights | LEDLA290SWDW-P |
| 435 mm IP50 Bar Lights | LEDLA435XWDW-P |
| 435 mm Sealed IP68 Bar Lights | LEDLA435SWDW-P |
| 580 mm IP50 Bar Lights | LEDLA580XWDW-P |
| 580 mm Sealed IP68 Bar Lights | LEDLA580SWDW-P |
| 870 mm IP50 Bar Lights | LEDLA870XWDW-P |
| 1160 mm IP50 Bar Lights | LEDLA1160XWDW-P |

| Use With | Models |
|--|-----------------|
| Clear Plastic | |
| 70 mm Sealed High-Intensity Area Lights | LEDA70SW-P |
| 145 mm IP50 Bar Lights | LEDLA145XW-P |
| 290 mm IP50 Bar Lights | LEDLA290XW-P |
| 290 mm Sealed IP68 Bar Lights | LEDLA290SW-P |
| 435 mm IP50 Bar Lights | LEDLA435XW-P |
| 435 mm Sealed IP68 Bar Lights | LEDLA435SW-P |
| 580 mm IP50 Bar Lights | LEDLA580XW-P |
| 580 mm Sealed IP68 Bar Lights | LEDLA580SW-P |
| 870 mm Sealed IP50 Bar Lights | LEDLA870XW-P |
| 1160 mm IP50 Bar Lights | LEDLA1160XW-P |
| Clear Plastic Diffuse | |
| 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 Bar Lights | LEDLA145XCDW-P |
| 290 mm IP50 Bar Lights | LEDLA290XCDW-P |
| 290 mm Sealed IP68 Bar Lights | LEDLA290SCDW-P |
| 435 mm IP50 Bar Lights | LEDLA435XCDW-P |
| 435 mm Sealed IP68 Bar Lights | LEDLA435SCDW-P |
| 580 mm IP50 Bar Lights | LEDLA580XCDW-P |
| 580 mm Sealed IP68 Bar Lights | LEDLA580SCDW-P |
| 870 mm IP50 Bar Lights | LEDLA870XCDW-P |
| 1160 mm IP50 Bar Lights | LEDLA1160XCDW-P |

Vision Solutions by Banner



Vision Sensors

Robust yet easy-to-use self-contained vision sensors perform automated inspections that previously required costly and complex vision systems. The iVu and iVu Color Image Sensors are used to monitor parts for type, size, orientation, shape, location, and color or color variations. The device can be set up and monitored using an integrated or remote touchscreen or with a PC.

Smart Cameras

Banner's free and easy-to-use Vision Manager Software provides a number of tools and capabilities that enable VE Series Smart Cameras to solve a wide range of vision applications, such as item detection, part positioning, feature measurement and flaw analysis. Available in resolutions up to 5 MP to solve a variety of applications.



Barcode Readers

Banner Engineering provides advanced barcode reading capabilities for traceability in a wide variety of industries. We offer rugged, reliable solutions that ensure quality, improve efficiency, and enable accurate inventory management.

Imager-based barcode readers reliably read 1D and 2D barcodes in any orientation. Banner Engineering offers code reading solutions that can reliably decode difficult-to-read, low quality, and damaged codes—as well as codes printed on highly reflective surfaces.



Vision Lenses

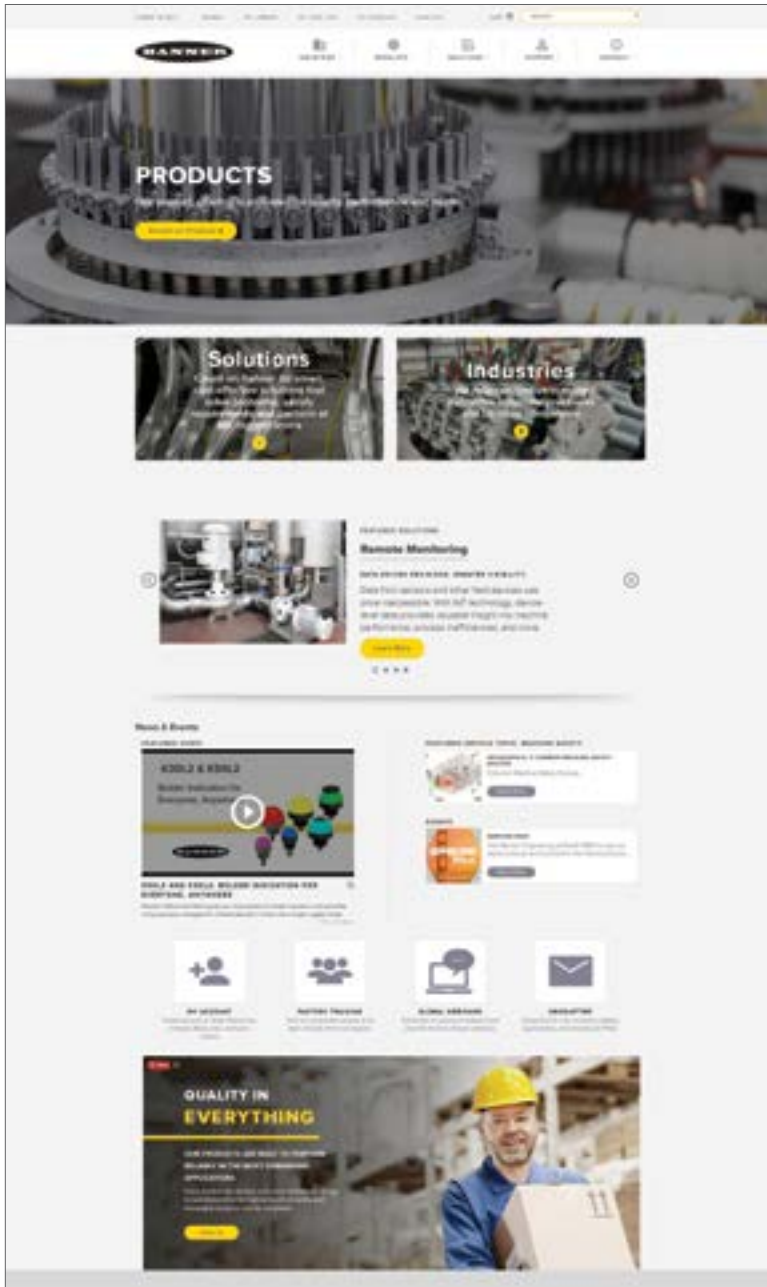
Vision products combine high-performance tools, intelligent features, and an intuitive user interface for automated inspection applications. The vision systems are easy to use and customizable for specific machines and tasks. Adding vision lenses to industrial applications enhances overall performance and provides accurate detection for a wide variety of vision applications.



Vision System Camera Bandpass Filters

Bandpass filters allow you to control what your camera is seeing with greater contrast and a higher transmission for a reduced cost when compared to the conventional interference filter. Ideal for LED or laser diode application use.

Additional sensors, indicator lights, cordsets, brackets, and other accessories available at bannerengineering.com



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