COGNEX

Advanced machine vision made easy

Cognex Machine Vision Lighting Catalog



Lighting

Cognex machine vision lighting delivers stable, high-performance illumination for a wide range of industrial inspection applications. The portfolio includes ring, bar, back, brick, and coaxial lights engineered to enhance image quality, improve contrast, and ensure reliable inspection results.

Flexible Lighting Options

Back, bar, brick, coaxial, and ring lights for a wide range of inspection applications

Multiple Colors and Wavelengths

White, red, blue, green, IR, and UV options to optimize contrast and image quality

Broad System Compatibility

Integrates seamlessly with Cognex and industry-standard machine vision systems

Precise Illumination Control

Adjustable intensity settings enable optimal lighting for diverse inspection tasks

Reliable Industrial Performance

Built for stable, repeatable operation in high-throughput manufacturing environments

Compact, Durable Design

Rugged housing and space-efficient designs simplify installation and maximize uptime

Smart

Cognex Ecosystem Lighting (CEL) Series directly integrates with In-Sight vision systems for fast, simplified deployment. Connect In-Sight devices through the light port for plug-and-play setup with automatic discovery in In-Sight Vision Suite. Once connected, the lighting is fully configurable within the software, including the ability to overdrive up to 3X standard intensity.

Bar Lights

Bar lights deliver uniform illumination across elongated inspection areas and can be positioned at various angles to support both bright-field and dark-field imaging techniques.

Target applications: Inspection of long or narrow parts; edge and seam detection; glass substrate inspection; interior surface defect detection



CEL-HPBA Series* | Bar Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-HPBA-150B	Blue	470 nm	–	12.7 W (Continuous) 60 W (Peak)	Continuous, Overdrive	454 g	146 x 40 mm	181 x 54 x 50 mm	24V	M12 - 5 pin	Temperature: -10–40 °C (14–104 °F) RH max 80% non-condensing humidity
CEL-HPBA-150R	Red	625 nm	–								
CEL-HPBA-150IR	IR	850 nm	–								
CEL-HPBA-150W	White	–	5700K								

* Make sure not to exceed rate power level with Cognex devices (24W). Not currently compatible with Multilight Hub.

CEL-HPBA Series* | Bar Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-HPBA-300B	Blue	470 nm	–	23.8 W (Continuous) 122 W (Peak)	Continuous, Overdrive	816 g	290 x 40 mm	325 x 54 x 50 mm	24V	M12 - 5 pin	Temperature: -10–40 °C (14–104 °F) RH max 80% non-condensing humidity
CEL-HPBA-300R	Red	625 nm	–								
CEL-HPBA-300IR	IR	850 nm	–								
CEL-HPBA-300W	White	–	5700K								
CEL-HPBA-600B	Blue	470 nm	–	47.6 W (Continuous) 244 W (Peak)	Continuous, Overdrive	1450 g	578 x 40 mm	610 x 54 x 50 mm			
CEL-HPBA-600R	Red	625 nm	–								
CEL-HPBA-600IR	IR	850 nm	–								
CEL-HPBA-600W	White	–	5700K								
CEL-HPBA-900B	Blue	470 nm	–	71.4 W (Continuous) 366 W (Peak)	Continuous, Overdrive	2950 g	867 x 40 mm	902 x 54 x 50 mm			
CEL-HPBA-900R	Red	625 nm	–								
CEL-HPBA-900IR	IR	850 nm	–								
CEL-HPBA-900W	White	–	5700K								

* Make sure not to exceed rate power level with Cognex devices (24W). Not currently compatible with Multilight Hub.

CEL-BA Series | Bar Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-BA-41X16B	Blue	460-475 nm	–	1.7	Continuous, Overdrive	50 g	41 x 16 mm	53 x 22 x 22.6 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-BA-41X16R	Red	620-630 nm	–	1.3							
CEL-BA-41X16W	White	–	5800-7300K	1.7							
CEL-BA-80X16B	Blue	460-475 nm	–	3.4	Continuous, Overdrive	80 g	80 x 16 mm	92 x 22 x 22.6 mm			
CEL-BA-80X16R	Red	620-630 nm	–	2.7							
CEL-BA-80X16W	White	–	5800-7300K	3.4							
CEL-BA-119X16B	Blue	460-475 nm	–	5.1	Continuous, Overdrive	100 g	119 x 16 mm	131 x 22 x 22.6 mm			
CEL-BA-119X16R	Red	620-630 nm	–	4							
CEL-BA-119X16W	White	–	5800-7300K	5.1							
CEL-BA-122X30W	White	–	5800-7300K	6.6	Continuous, Overdrive	140 g	122 x 30 mm	134 x 36 x 22.6 mm			
CEL-BA-242X30B	Blue	460-475 nm	–	15.5	Overdrive Only	240 g	242 x 30 mm	254 x 36 x 22.6 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-BA-242X30R	Red	620-630 nm	–	9							
CEL-BA-242X30W	White	–	5800-7300K	15.5							

Back Lights

Back lights provide diffuse illumination from behind the target, creating high-contrast silhouettes that clearly define an object's shape, edges, and profile.

Target applications: Feature and void detection; silhouette-based gauging and measurement; part alignment and positioning verification



CEL-BL Series | Back Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-BL-27X27B	Blue	460-475	–	2.8	Continuous, Overdrive	53 g	27 x 27 mm	41 x 41 x 18 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-BL-27X27R	Red	620-630	–	1.1							
CEL-BL-27X27W	White	–	5500-7000K	2.8							
CEL-BL-51X51B	Blue	460-475	–	4.4	Continuous, Overdrive	100 g	51 x 51 mm	65 x 65 x 18 mm			
CEL-BL-51X51R	Red	620-630	–	4.2							
CEL-BL-51X51W	White	–	5500-7000K	4.4							
CEL-BL-83X75B	Blue	460-475	–	5.2	Continuous, Overdrive	180 g	83 x 75 mm	97 x 89 x 18 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-BL-83X75R	Red	620-630	–	5.5							
CEL-BL-83X75W	White	–	5500-7000K	5.2							
CEL-BL-160X120B	Blue	460-475	–	17.4	Overdrive Only	400 g	160 x 120 mm	174 x 134 x 18 mm			
CEL-BL-160X120R	Red	620-630	–	16.6							
CEL-BL-160X120W	White	–	5500-7000K	17.4							
CEL-BL-224X170B	Blue	460-475	–	33.7	Overdrive Only	600 g	224 x 170 mm	238 x 184 x 18 mm			
CEL-BL-224X170R	Red	620-630	–	30.2							
CEL-BL-224X170W	White	–	5500-7000K	33.7							

Coaxial Lights



Coaxial lights project highly uniform illumination along the camera's optical axis, minimizing shadows and enhancing contrast on flat, reflective surfaces.

Target applications: Inspection of reflective materials such as metal, glass, ceramics, and polished plastics; semiconductor and electronics inspection; QFP and SOP package inspection; surface defect detection on flat components

CEL-CX Series | Coaxial Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-CX-20B	Blue	460-475	–	2.1	Continuous, Overdrive	110 g	20 x 20 mm	64 x 31 x 27 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-CX-20R	Red	620-630	–	2.2							
CEL-CX-20W	White	–	5500-7000K	2.1							
CEL-CX-50B	Blue	460-475	–	2.1	Overdrive Only	350 g	50 x 48 mm	103 x 62 x 60 mm			
CEL-CX-50R	Red	620-630	–	10.5							
CEL-CX-50W	White	–	5500-7000K	10.5	Continuous, Overdrive						

Dome Lights



Dome lights provide highly diffuse, omnidirectional illumination that minimizes glare and reflections. They are ideal for inspecting shiny, curved, and irregularly shaped objects that are difficult to illuminate with conventional lighting.

Target applications: Inspection of highly reflective surfaces; curved and irregular part inspection; cosmetic defect detection; OCR and code reading on reflective packaging and containers

CEL-DM3 Series | Dome Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-DM3-80B	Blue	460-475	–	8	Continuous, Overdrive	129 g	45 x 20 mm	95 x 80 x 46 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-DM3-80R	Red	620-630	–								
CEL-DM3-80W	White	–	6500-8000K								
CEL-DM3-150B	Blue	460-475	–	24	Overdrive Only	320 g	116 x 35 mm	166 x 150 x 80.8 mm			
CEL-DM3-150R	Red	620-630	–								
CEL-DM3-150W	White	–	6500-8000K								
CEL-DM3-285B	Blue	460-475	–	48	Overdrive Only	722 g	250 x 55 mm	300 x 285 x 140.5 mm			
CEL-DM3-285R	Red	620-630	–								
CEL-DM3-285W	White	–	6500-8000K								

Ring Lights

Ring lights provide uniform illumination around the camera lens, minimizing shadows and delivering consistent lighting for a wide variety of machine vision applications. They can be configured for bright-field, dark-field, or diffuse illumination.

Target applications: Inspection of cylindrical parts; Hole and thread inspection; Small component inspection



CEL-DQH Series | Square Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-DQH-48B	Blue	460-475	–	6.2	Continuous, Overdrive	70 g	42 x 42 mm	48 x 48 x 21 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-DQH-48R	Red	620-630	–								
CEL-DQH-48W	White	–	5500-7000K								
CEL-DQH-120B	Blue	460-475	–	16.8	Overdrive Only	210 g	114 x 114 mm	120 x 120 x 21 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-DQH-120R	Red	620-630	–								
CEL-DQH-120W	White	–	5500-7000K								

CEL-RH Series | Ring Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-RH-42-65B	Blue	460-475	–	2.3	Continuous, Overdrive	42 g	42 x 18 mm	42 x 18 x 18 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-RH-42-65R	Red	620-630	–	1.8							
CEL-RH-42-65W	White	–	6500-8500K	1.9							
CEL-RH-50-75B	Blue	460-475	–	2.6	Continuous, Overdrive	44 g	50 x 28 mm	50 x 28 x 16 mm			
CEL-RH-50-75R	Red	620-630	–	1.8							
CEL-RH-50-75W	White	–	6500-8500K	2.6							
CEL-RH-50-90B	Blue	460-475	–	2.9	Continuous, Overdrive	52 g	50 x 25 mm	50 x 25 x 19 mm			
CEL-RH-50-90R	Red	620-630	–	1.8							
CEL-RH-50-90W	White	–	6500-8500K	2.6							
CEL-RH-74-60B	Blue	460-475	–	5.4	Continuous, Overdrive	114 g	74 x 35 mm	74 x 35 x 20 mm			
CEL-RH-74-60R	Red	620-630	–	5.2							
CEL-RH-74-60W	White	–	6500-8500K	5.4							
CEL-RH-90-70B	Blue	460-475	–	6.3	Continuous, Overdrive	151 g	90 x 50 mm	90 x 50 x 20 mm			
CEL-RH-90-70R	Red	620-630	–	6.3							
CEL-RH-90-70W	White	–	6500-8500K	6.3							

CEL-RH Series | Ring Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-RH-120-90B	Blue	460-475	–	11.3	Continuous, Overdrive	311 g	120 x 50 mm	120 x 50 x 18 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-RH-120-90R	Red	620-630	–	11							
CEL-RH-120-90W	White	–	6500-8500K	11.3							
CEL-RH-210-60B	Blue	460-475	–	28.8	Overdrive Only	691 g	210 x 145 mm	210 x 145 x 25 mm			
CEL-RH-210-60R	Red	620-630	–	28.8							
CEL-RH-210-60W	White	–	6500-8500K	28.8							

CEL-DRW Series | Ring Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-DRW-150B	Blue	460-475	–	19.2	Overdrive Only	330 g	166 x 116 mm	166 x 116 x 26 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-DRW-150R	Red	620-630	–								
CEL-DRW-150W	White	–	5300-6800K								

CEL-RL Series | Low-Angle Ring Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	Connector	Operating Temperature
CEL-RL-75-00B	Blue	460-475	–	2.4	Continuous, Overdrive	70 g	75 x 39 mm	75 x 39 x 11 mm	24V	M12 - 5 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)
CEL-RL-75-00R	Red	620-630	–	1.3							
CEL-RL-75-00W	White	–	6500-8500K	3.3							
CEL-RL-100-30B	Blue	460-475	–	9.5	Continuous, Overdrive	150 g	100 x 66 mm	100 x 66 x 22 mm			
CEL-RL-100-30R	Red	620-630	–	7.7							
CEL-RL-100-30W	White	–	6500-8500K	9.5							
CEL-RL-120-00B	Blue	460-475	–	4.4	Continuous, Overdrive	120 g	120 x 86 mm	120 x 86 x 11 mm			
CEL-RL-120-00R	Red	620-630	–	2.6							
CEL-RL-120-00W	White	–	6500-8500K	5.7							

Standard

Cognex ICEL Series lights are-designed for the most challenging applications, where variable operating conditions and high-precision requirements demand reliable performance. These high-intensity lights feature modular windowing for fine-tuning light projection area and diffusion levels to optimize image quality. Models drawing less than 24W offer plug-and-play integration with In-Sight devices via the light port.

ICELR Series | Ring Lights

Product ID	Color	Wavelength	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	IP Rating	Connector	Operating Temperature	Storage Temperature
ICELR-100B-00	Blue	465	–	72	Continuous, Overdrive	400 g	104 x 72 mm	151 x 119 x 41 mm	24V	IP65*	M12 - 4 pin	Temperature: 0–40 °C (32–104 °F) Humidity: 20–85% (non-condensation)	Temperature: -20–60 °C (-4–140 °F) Humidity: 20–85% (non-condensation)
ICELR-100IR-00	IR850	850	–										
ICELR-100R-00	Red	625	–										
ICELR-100W-00	White	–	5500K										

ICELF Series | Back Lights

Product ID	Color	Wave-length	Color Temperature	Rated Power	Control Modes	Weight	Light Area (L x W)	Size (L x W x H)	Power Supply	IP Rating	Connector	Operating Temperature	Storage Temperature
ICELF-200X200R-00	Red	625	–	30	Continuous, Overdrive	1900 g	200 x 200 mm	239 x 239 x 43.2 mm	24V	IP5X	M12 - 4 pin	Temperature: 0–50 °C (32–122 °F) Humidity: 20–85% (non-condensation)	Temperature: -20–60 °C (-4–140 °F) Humidity: 20–85% (non-condensation)
ICELF-200X200R-C39	Red	625	–										
ICELF-200X200W-00	White	–	5500K										
ICELF-200X200W-C39	White	–	5500K										
ICELF-300X300R-00	Red	625	–	65	Continuous, Overdrive	3500 g	300 x 300 mm	339 x 339 x 43.2 mm					
ICELF-300X300R-C39	Red	625	–										
ICELF-300X300W-00	White	–	5500K										
ICELF-300X300W-C39	White	–	5500K										
ICELF-400X400W-00	White	–	5500K	110	Continuous, Overdrive	5000 g	400 x 400 mm	439 x 439 x 43.2 mm					
ICELF-400X400W-C39	White	–	5500K										

* IP65 (except with polarizer accessory: IP50)

Light Cables

Cognex light cables connect machine vision lighting systems to power and controllers for stable, consistent illumination. Engineered for industrial use, they ensure reliable light delivery and long-term performance in manufacturing environments.

Light Cables				
Product ID	**Description**	**Available Lengths (m)**	**Connector 1**	**Connector 2**
IVSL-5PM12-Jxxxx	M12, 5 pin Light Extension Cable	0.3, 0.5, 1, 2	Male M12, 5-pin	Female M12, 5-pin
CCB-M12-5P-x	M12, 5 pin Light Extension Cable	1, 5	Male M12, 5-pin	Female M12, 5-pin
IVSL-5PM12-xx	M12 to Flying Lead Light Power Cable	5, 10, 15	Male M12, 5-pin	Flying Leads, 5-pin

COGNEX

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