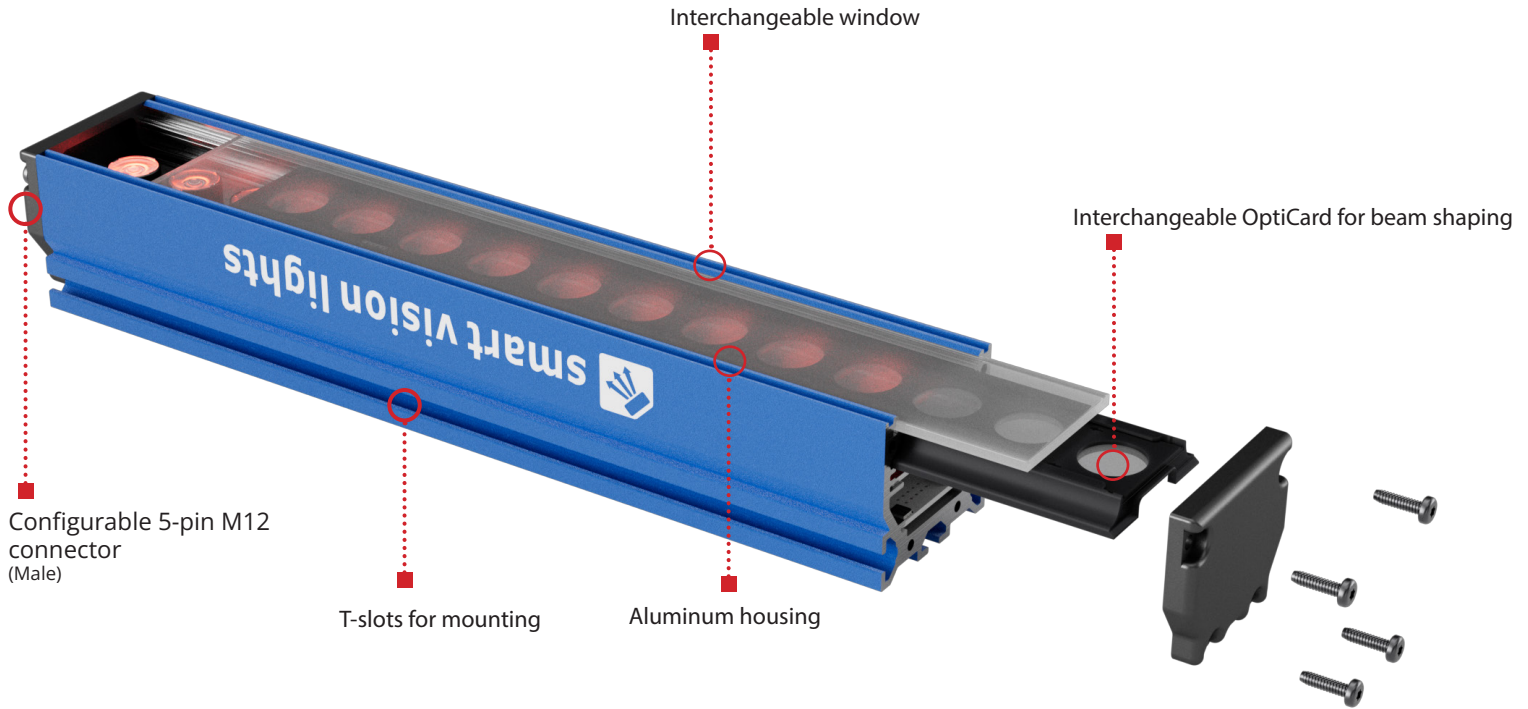


Configurable LSR300

Linear Light MULTI-DRIVE™



The Configurable LSR300 is a high-performance linear light designed for on-site customization. It features proprietary OptiCards and optic windows, enabling users to fine-tune beam angles, diffusion, and polarization to suit specific applications. With Multi-Drive™ technology, it supports both OverDrive™ and continuous operation, providing versatility for dynamic lighting environments.

Configurable LSR300 HIGHLIGHTS

Warranty 2 YEAR	Tested IEC 62471	Compliant CE ROHS	Rated IP 50	Connector 5-PIN M12
-------------------------------	--------------------------------	---------------------------------	---------------------------	-----------------------------------

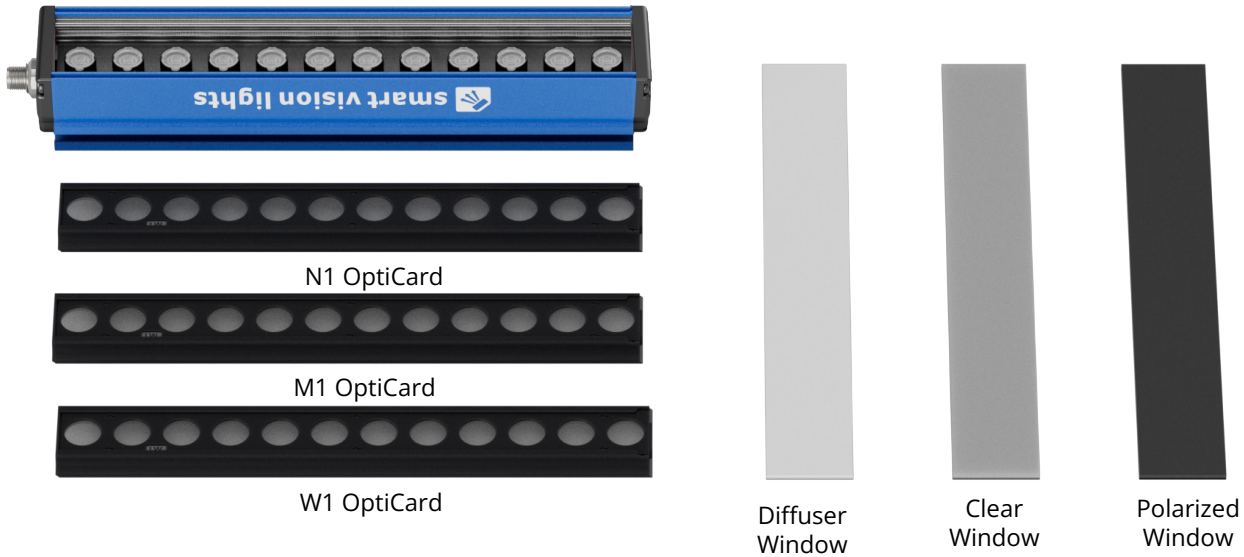
- ✓ Interchangeable OptiCard lens modifiers adjust the beam angle to suit the application.
- ✓ Interchangeable optic windows provide additional enhancements such as diffusion and polarization.
- ✓ Multi-Drive™ provides both OverDrive™ and continuous mode functionality.
- ✓ Fixed lens position provides optimal beam focal point no matter what OptiCard is used.



REV 12/12/25

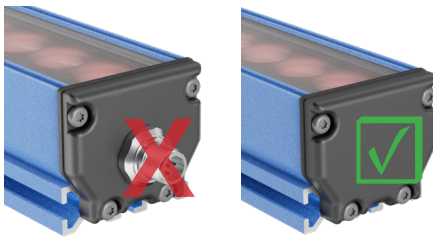
WHAT'S INCLUDED

The Configurable LSR300 comes with three OptiCards and three optic windows to shape the beam.

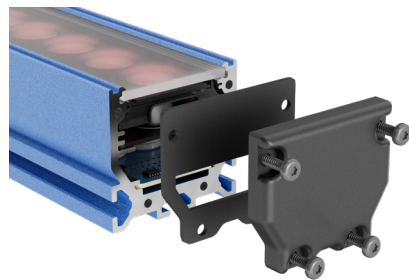


HOW TO CONFIGURE

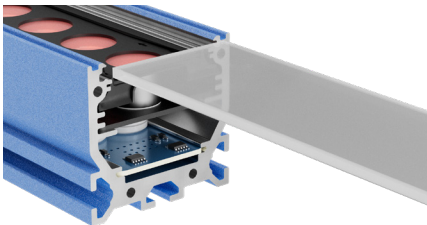
The Configurable LSR300 can be configured by removing the end cap **without** the M12 connector and sliding the window into the top slot and the OptiCard into the one underneath the window, as seen in the diagram below.



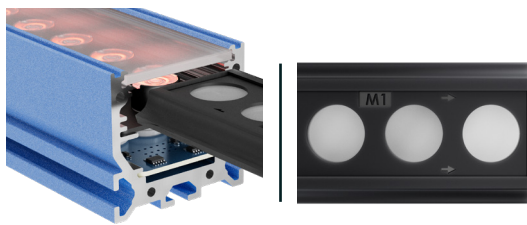
1. Start with the flat end cap.



2. Remove the flat end cap and gasket.



3. Slide the window into the first slot.



4. Slide the OptiCard into the second slot in the direction indicated by the arrows.

The Configurable LSR300, when ordered as a kit, will arrive with black end caps. When ordered preconfigured, the end caps will be silver. Remove black end caps only. Removing silver end caps will void the warranty.

SPECIFICATIONS

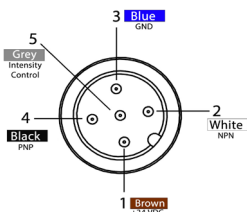
	Continuous Operation	OverDrive Operation
Electrical Input	24 VDC +/- 5%	
Input Current	Max. 990 mA	Peak 5.1 A during strobe
Input Power	Max. 23.8 W	Peak 122 W during strobe
PNP Trigger	2 mA @ 4 VDC 7 mA @ 12 VDC 13.4 mA @ 24VDC	
NPN Trigger	12 mA @ Common (0VDC)	
Trigger Input	PNP > +4 VDC (24 VDC max.) to activate or NPN > GND (<1VDC) to activate (not both)	PNP > +4 VDC (24 VDC max.) to activate or NPN > GND (<1VDC) to activate (not both)
Mode Control	Connect pin 5 to 1-10 VDC (10 - 100% output); 24 VDC (Max)	Connect pin 5 to GND (See wiring configuration for more information)
Strobe Duration	Min. 10 μ s Max. ∞	Min. 10 μ s Max. 50 ms
Strobe Trigger Latency	10 μ s	6 μ s
Strobe Frequency	Max 4 kHz or 1 / Duty Cycle as calculated, whichever is less. ¹	
Duty Cycle	Not applicable	Max. 10% ¹
Analog Intensity	The output is adjustable from 10% - 100% of intensity limit by a 1 - 10 VDC signal. Jumpering pin 5 to pin 1 will provide maximum intensity.	
Connection	5-pin M12 connector	
Operating Temperature	-10° to 40° C (14° to 104° F) RH max 80% non-condensing humidity	
Storage Temperature	-20° to 70° C (-4° to 158° F) RH max 80% non-condensing humidity	
IP Rating	IP50	
Weight	Configurable LSR300: 1.8 lbs (~816 g)	
Compliances	CE, IEC-62471, RoHS	
Warranty	2 years ²	

¹See page 9 for more information

²See SmartVisionLights.com/warranty for details.

WIRING CONFIGURATION

CONTINUOUS OPERATION MODE



Pin layout for light (Male Connector)

Pins	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1-10VDC	GREY

For maximum intensity, tie pin 5 to pin 1 at +24 VDC.

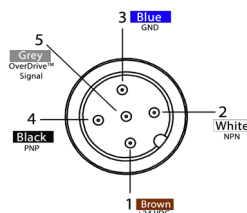
For continuous mode: PNP (pin 4) can be tied to +24 VDC (pin 1) **or** NPN (pin 2) can be tied to Ground (pin 3).

For proper light function, apply either a PNP or NPN signal, not both.

Failure to supply light with correct input current will result in inconsistent lighting behavior.

(see Product Specifications for requirements)

OVERDRIVE™ OPERATION MODE



Pin layout for light (Male Connector)

Pins	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	OverDrive™ Signal	Ground	GREY

To enable OverDrive™ mode, tie pin 5 to pin 3.

For proper light function, apply either a PNP or NPN signal, not both.

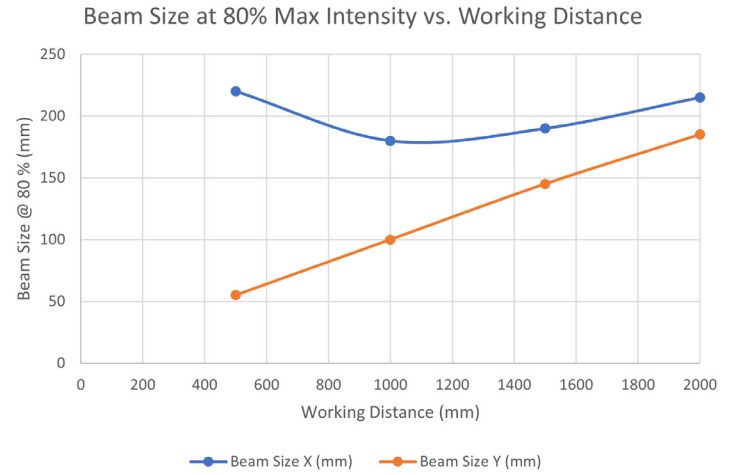
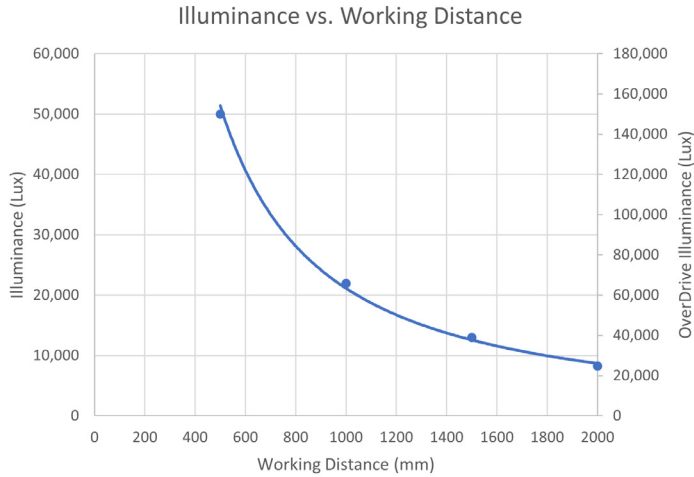
Failure to supply light with correct input current will result in inconsistent lighting behavior.

(see Product Specifications for requirements)

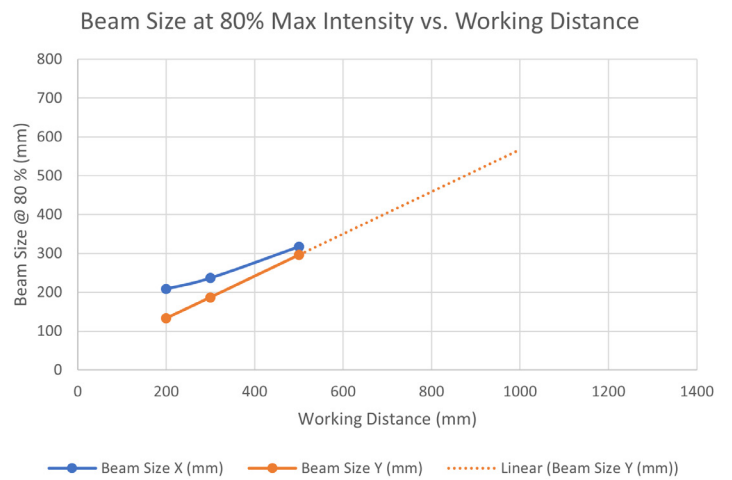
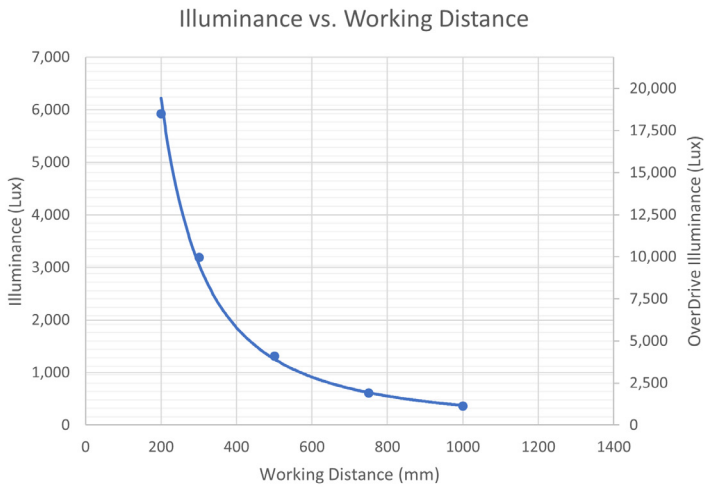
LIGHTING PATTERNS

The Configurable LSR300 is recommended to be used at a working distance between 200 mm to 2000 mm. Illuminance values taken using the LSR300-WHI-CONFIG on white light - 5700K.

No OptiCard - clear window

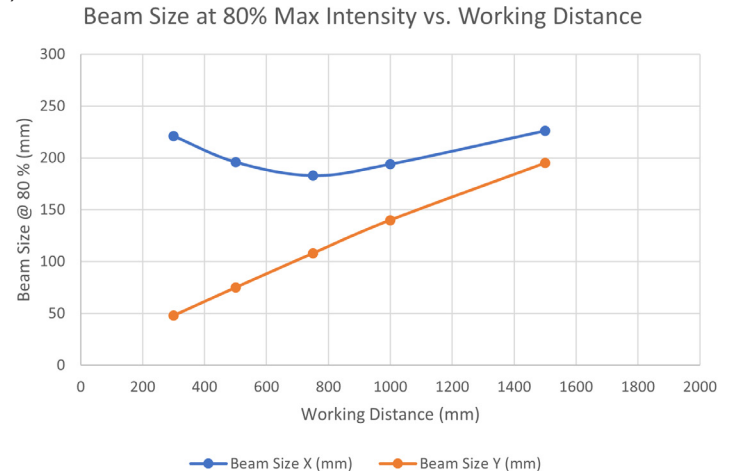
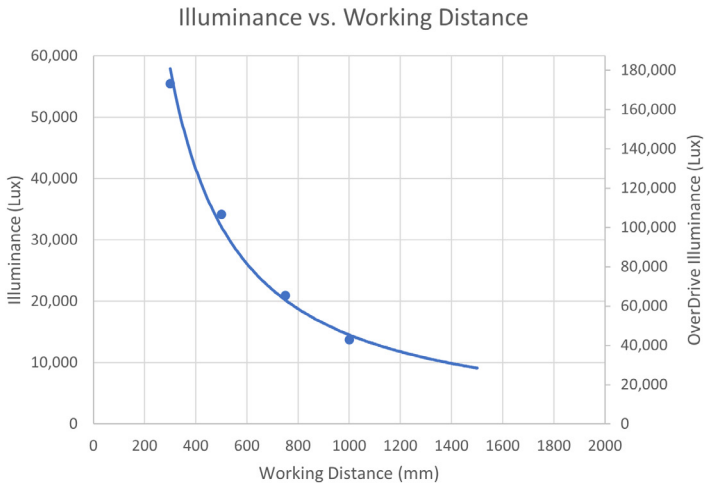


No OptiCard - diffuser window

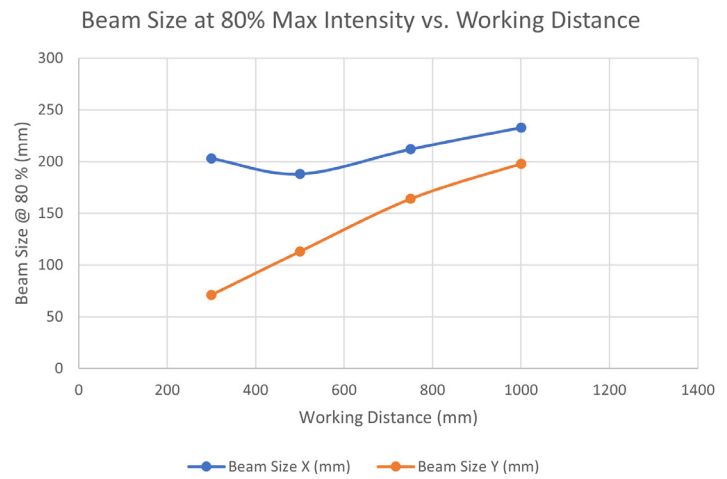
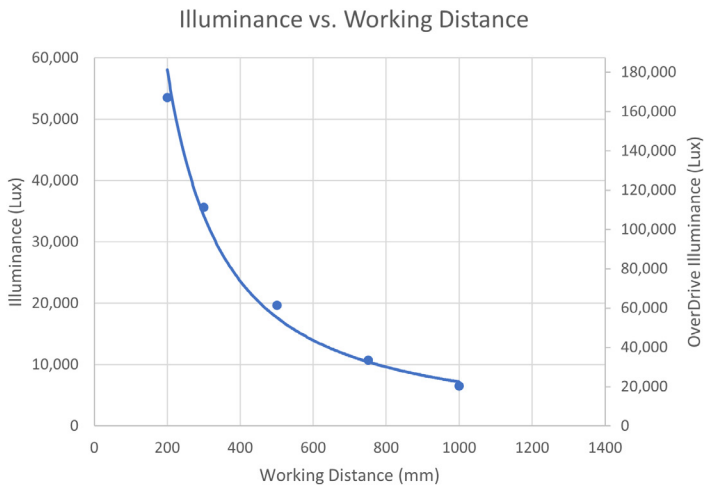


LIGHTING PATTERNS (continued)

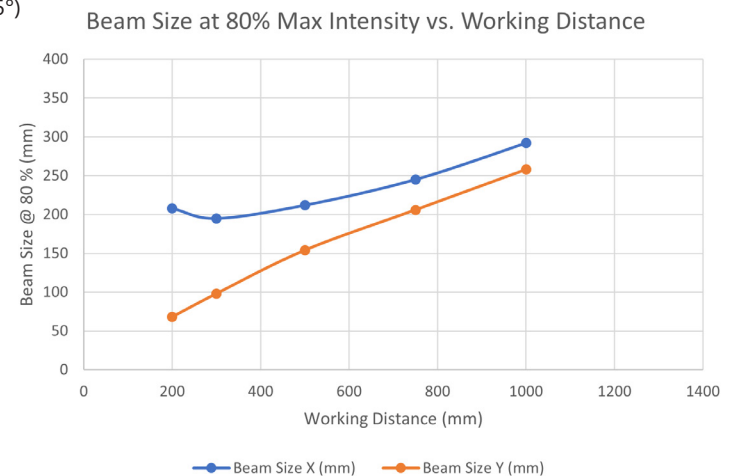
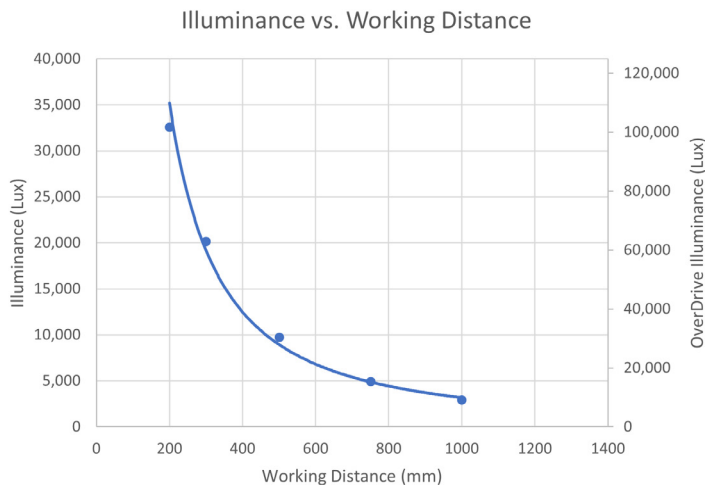
OptiCard N1 lighting patterns
(~15°)



OptiCard M1 lighting patterns
(~30°)

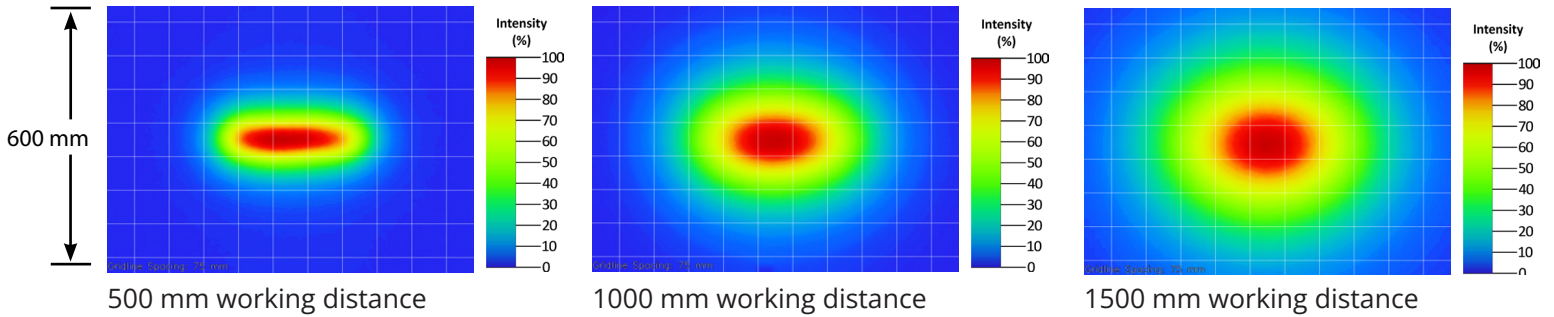


OptiCard W1 lighting patterns
(~45°)

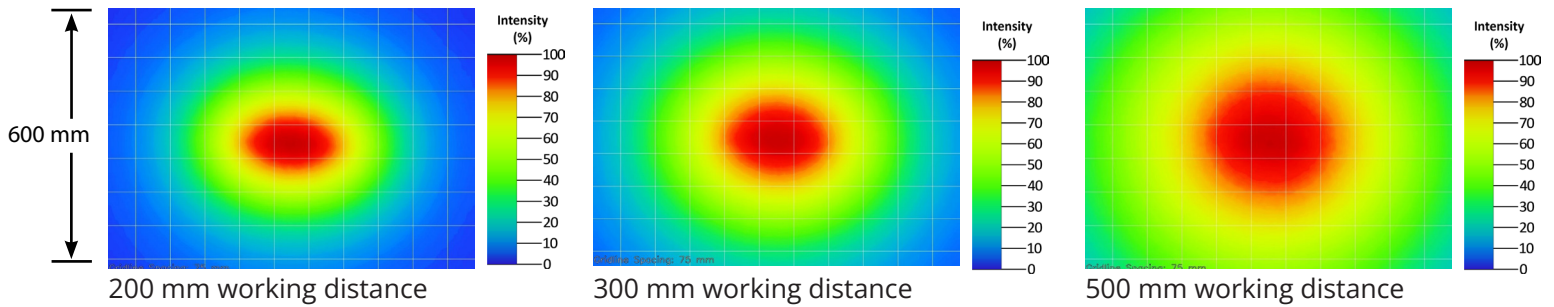
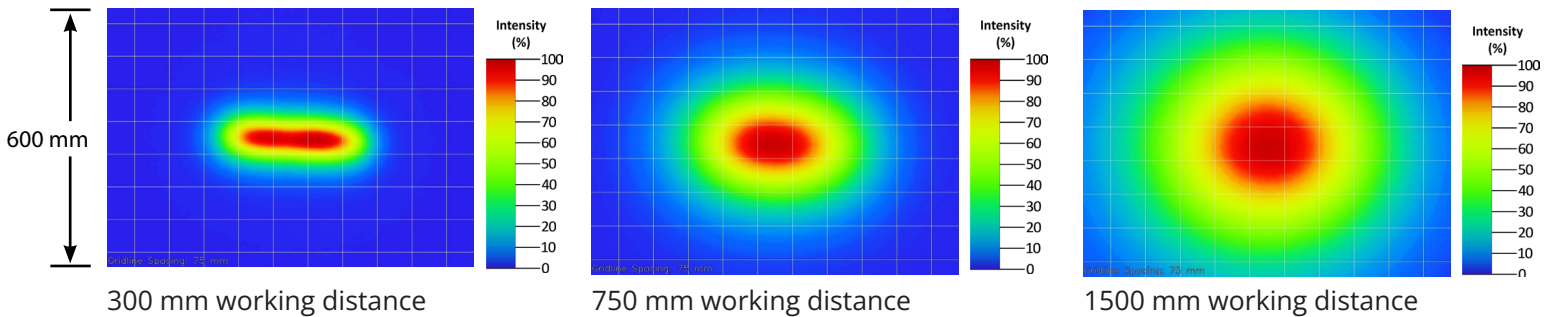
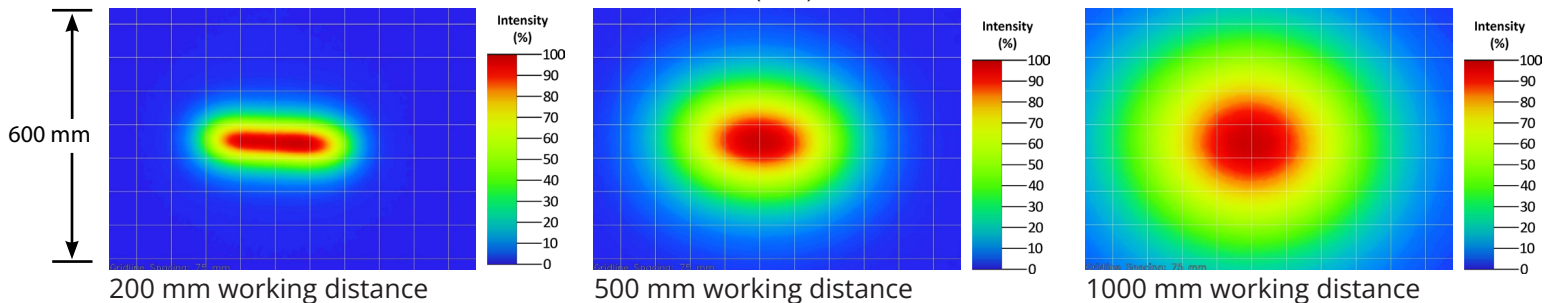


BEAM PATTERNS

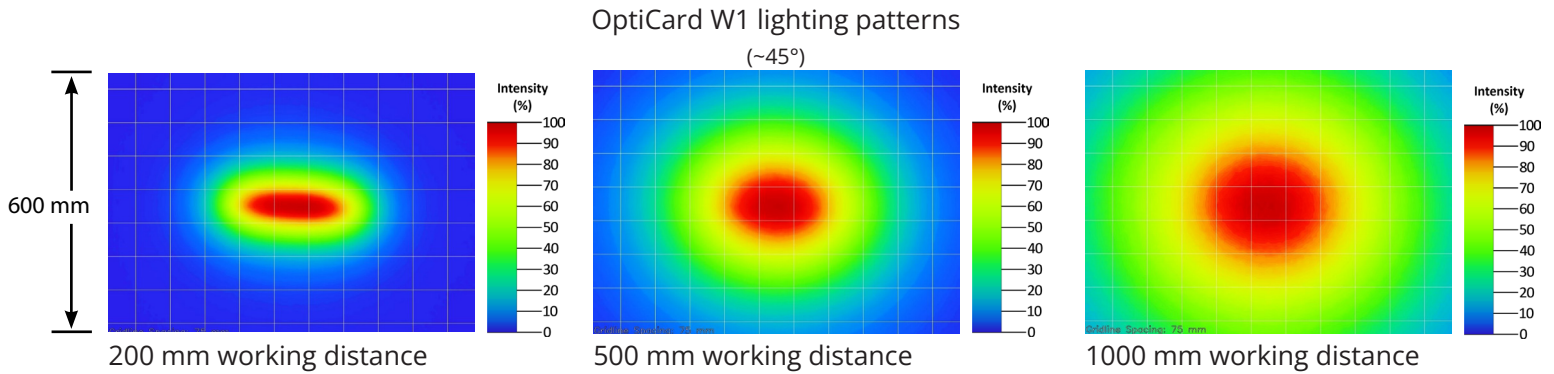
No OptiCard - clear window



No OptiCard - diffuser window

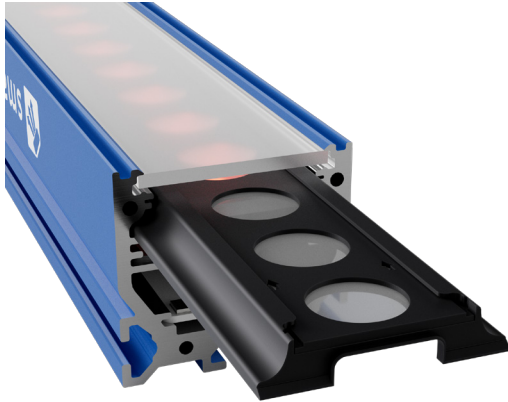

 OptiCard N1 beam patterns
(~15°)

 OptiCard M1 lighting patterns
(~30°)


BEAM PATTERNS (continued)



LENS OPTICS

The Configurable LSR300 allows for easy beam angle adjustments using the included OptiCards. Each card features a specific beam angle and can be seamlessly inserted into a channel within the extrusion.



N1 (~15°)

The N1 OptiCard creates ~15° beam angles, offering a narrow beam of illumination for long working distances.

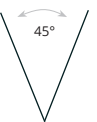
M1 (~30°)

The M1 OptiCard creates ~30° beam angles, offering a moderate beam of illumination for long working distances.



W1 (~45°)

The W1 OptiCard creates ~45° beam angles, offering a wide beam of illumination for short working distances.



OPTIC WINDOWS

The Configurable LSR300 comes with a polarized window, a diffuser window, and clear window to further customize the light.



The polarizer should not be used in continuous mode and should be oriented with the matte side down.



The diffuser is typically used without an OptiCard to ensure the maximum amount of light diffusion.

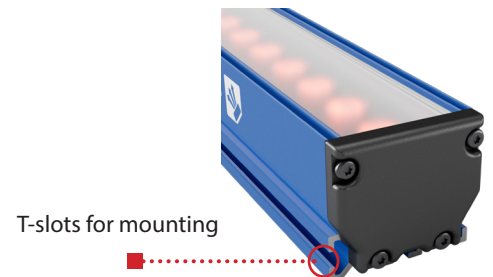


The clear window should go matte side up.

MOUNTING

T-Slots are located along the bottom and sides of the Configurable LSR300 light.

The Configurable LSR300 comes with two T-bolts, two washers, and two nuts.



EYE SAFETY

According to IEC 62471:2006. Full documentation available upon request with purchase of product.

Caution

Risk Group 1: Possibly hazardous optic radiation emitted from this product. Do not stare at operating lamp. May be harmful to eyes. Safe for most applications except prolonged exposure. Applicable for wavelengths 470, 530, 625, and WHI.

IEC62471 labelling is not required for Risk Group 1 visible lighting.

ILLUMINATION

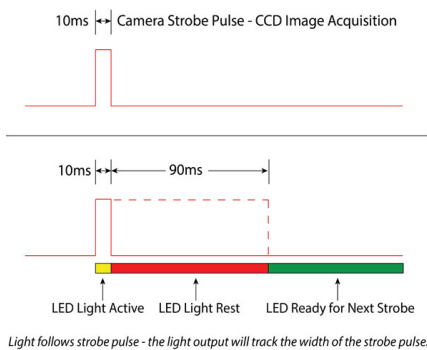
The Configurable LSR300 works best for:



DUTY CYCLE

This section applies only if light is in OverDrive™ strobe mode.

The Duty Cycle (D) is related to the Strobe Time (ST) and Rest Time (RT).



Calculating Rest Time

$$RT = \frac{ST}{D} - ST$$

RT = Rest Time
ST = Strobe Time
D = Duty Cycle

Example

$$90 \text{ ms} = \frac{10 \text{ ms}}{.1} - 10 \text{ ms}$$

Rest Time is 90 ms for 10 ms Strobe Time

Calculating Strobe Rate

$$SR = \frac{D}{ST}$$

SR = Strobe Rate (strokes per second)
ST = Strobe Time (seconds)
D = Duty Cycle

Example

$$1000 = \frac{0.1}{0.0001}$$

Strobe Rate is 1000 strokes per second

Calculating Duty Cycle

$$D = ST \times SR$$

SR = Strobe Rate (strokes per second)
ST = Strobe Time (seconds)
D = Duty Cycle

Example

$$0.1 = 0.0001 \times 1000$$

Duty Cycle is 10% (0.1)

Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

Maximum Strobe Frequency is $1/\text{calculated duty cycle}$ or 4,000 strokes per second, whichever is less.

MULTI-DRIVE™

Multi-Drive™ provides both continuous and OverDrive™ modes from a single integrated driver. Users can select the lighting mode via the input wiring configuration. With OverDrive™, the light can be strobed at up to 10 times the intensity* of continuous mode.

*See lighting section for more information on this light's OverDrive values.



SAFESTROBE™

SafeStrobe™ is a unique technology that applies safe working parameters to ensure high current LEDs are not damaged by driving them beyond their limits, such as maximum strobe time or duty cycle. This is especially beneficial for overdriving our high current LEDs.

PART NUMBER GUIDE

To order the Configurable LSR300 kit, which includes three OptiCards and three optical windows, use the part number guide below. A Configurable LSR300 that was ordered as part of this kit will arrive with black end caps. Removing black end caps, following the assembly guide on page 2, is permissible and will not void the warranty.

LSR300 —  — **CONFIG**



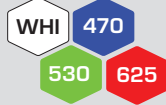
Part Number Examples:

- LSR300-WHI-CONFIG** LSR300, White Wavelength, Configurable Kit with OptiCards and Optic Windows
- LSR300-625-CONFIG** LSR300, 625 nm Red Wavelength, Configurable Kit with OptiCards and Optic Windows

When a configuration that works for your application is found, a pre-configured light for quantity ordering can be ordered using the part number below. This light will arrive with silver end caps and a gasket. Removing these silver end caps will void the warranty.

LSR300 —  — **CONFIG** —  — 

COLOR:



OPTICARD:

N1 = Narrow (~15°)
M1 = Medium (~30°)
W1 = Wide (~45°)

OPTICAL WINDOW:

01 = Clear
02 = Diffused
03 = Polarized

Part Number Examples:

- LSR300-WHI-CONFIG-W1-01** Configurable LSR300, white wavelength, with OptiCard W1 and a clear optical window installed
- LSR300-625-CONFIG-N1-03** Configurable LSR300, red wavelength, with OptiCard N1 and a polarized optical window installed

ACCESSORIES

Power Cables	
	
Lengths	Part Number
5 m	5PM12-5
10 m	5PM12-10
15 m	5PM12-15

Mount	
	
Description	Part Number
3-Axis Pan and Tilt Mount	PB300-M5

Mounting Kit	
	
Description	Part Number
M5x12 mm T-bolt	SC0161
Stainless Steel Nylon Insert Lock Nut	NU0022
Stainless Steel Flat Washer	WA0018

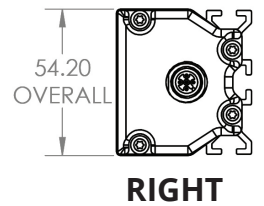
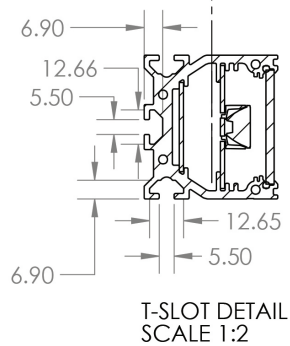
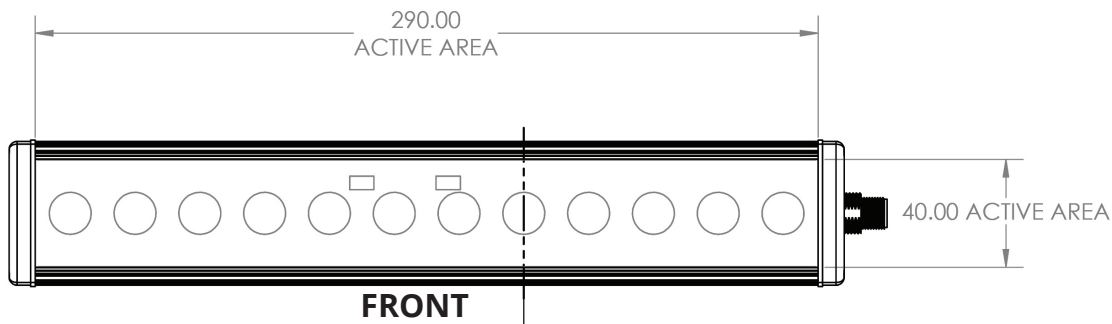
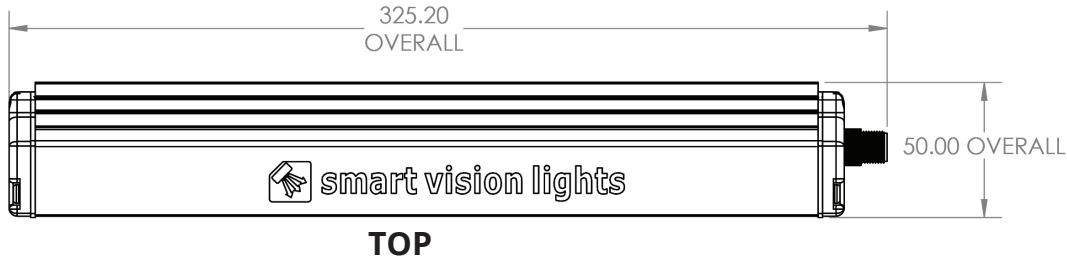
Light comes with two T-bolts, two nuts, and two washers.

Replacement Optical Windows	
	
Description	Part Number
Clear Window	LPT0466
Diffuser	LPT0566
Polarizer	POL125

Replacement OptiCards	
	
Description	Part Number
N1 OptiCard	OPTN1
M1 OptiCard	OPTM1
W1 OptiCard	OPTW1

PRODUCT DRAWINGS

CAD files available on our website. Drawings are in mm.



GLOSSARY

This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

TERMINOLOGY

Continuous Operation The light stays on continuously.

OverDrive™ Integrated driver that produces a high-current strobe to the LEDs to drive them beyond their nominal continuous operation output.

Multi-Drive™ Integrated driver that combines continuous operation and OverDrive™ strobe mode

NanoDrive™ Integrated driver that provides fast switching where the light can go from off to on in less than 500 ns.

Built-in Driver The driver contained within the light that controls the current to the LEDs and provides PNP, NPN, and analog dimming controls.

SmartVisionLink™ Integrated feature that enables lighting control through the Bluetooth module and app.

Camera to Light Connect the light directly to the camera, without the need for additional controllers or equipment.

Polarizers Filters that reduce reflections on specular surfaces.

Diffusers Widens the angle of emission by scattering light in all directions.

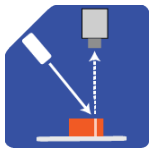
Pattern Area Lighting Modulated lighting pattern placed over a backlight's surface used to enhance defect detection on transparent and glossy surfaces

SafeStrobe Limiter to keep the light in safe working parameters.

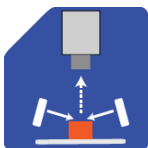
Direct Connect Connect lights in a series without the use of cables.

Daisy-Chain Connect lights in a series with the use of cables.

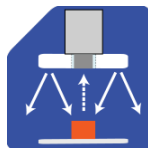
TYPES OF ILLUMINATION



Projector



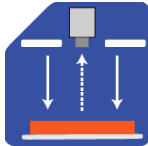
Dark Field



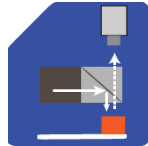
Radial



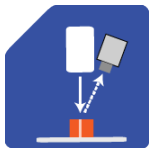
Bright Field



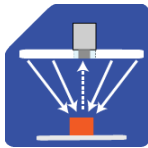
Direct



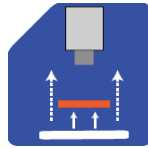
Axial



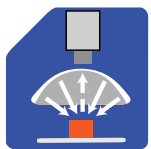
Line



Diffuse Panel



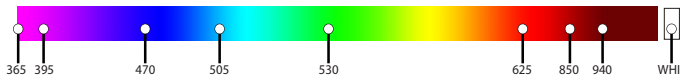
Backlight



Dome
"Light Tent"

COMMON COLOR / WAVELENGTHS LEGEND

Wavelength options range from 365 nm to 1650 nm.*
Additional wavelengths available for many light families.



*See Part Number section for **this light's** available standard wavelengths.



Shortwave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, 1550 nm, and 1650 nm.*

*Check Part Number section to see if **this light** is available in SWIR wavelengths.



ISO 9001:2015 Certified QMS