

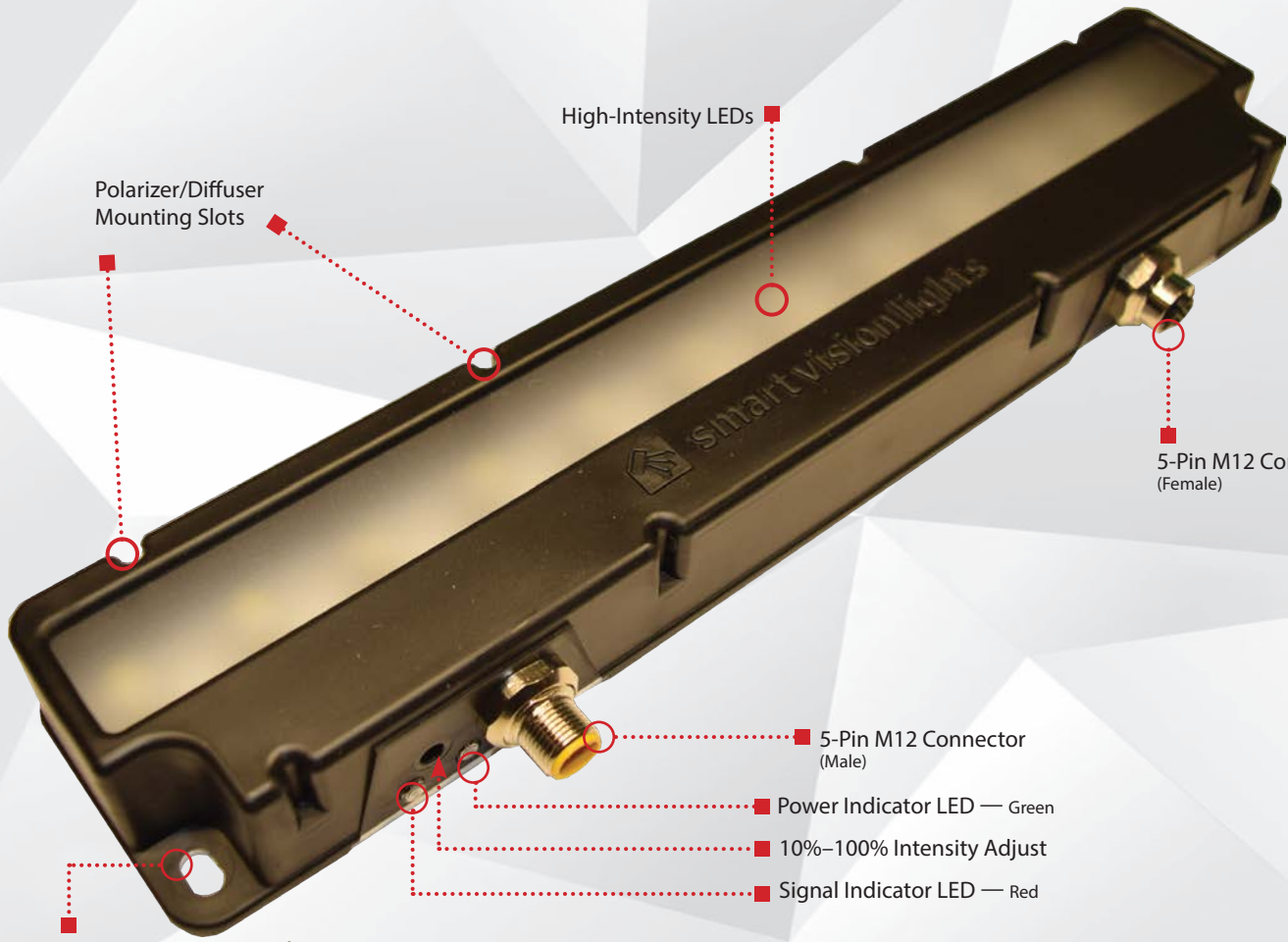


smart vision lights

ODL300

Connect-a-Light
LINEAR LIGHT
OVERDRIVE™

PRODUCT DATA SHEET



High-Intensity LEDs

Polarizer/Diffuser Mounting Slots

5-Pin M12 Connector (Female)

5-Pin M12 Connector (Male)

Power Indicator LED — Green

10%–100% Intensity Adjust

Signal Indicator LED — Red

Two Mounting Holes



Warranty
10
YEAR

Compliant
IEC
62471

Compliant
CE
RoHS

Rated
IP
50

Connector
5-PIN
M12

PRODUCT HIGHLIGHTS

- ✓ OverDrive™ — up to five times brighter than a standard linear Connect-a-Light
- ✓ Daisy-chain up to six ODL300 linear lights using a 5-pin M12 jumper cable
- ✓ Built-in Smart Driver™
- ✓ PNP and NPN trigger input signal
- ✓ Up to 5000 strobes per second
- ✓ 5-pin M12 quick connect

Rev. 2019/07/12

smartvisionlights.com





PRODUCT DESCRIPTION

The ODL300 array utilizes 12 high intensity LEDs and features an integrated OverDrive™ driver with a maximum strobe rate of 5000 strobes per second. NPN or PNP trigger signals can be used to control the pulse of the light. Intensity of the light can be controlled via 1–10VDC analog signal line.

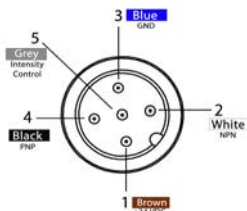


PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/-5%
Input Current	Max. 4.6 A draw during strobe Max. average 460 mA
Wattage	Max. 110 W during strobe Max. average 11 W
Strobe Input	PNP > +4VDC or greater to activate NPN > GND (<1VDC) to activate
PNP Line	4 mA @ 4VDC 10 mA @ 12VDC 20 mA @ 24VDC
NPN Line	15 mA @ common (0VDC)
Duty Cycle	Max. 10%
Strobe/Pulse Time	Max. 5000 SPS (strokes per second) Max. Single Pulse = 125 ms
Red Indicator LED	ON = Light Rest (LED inactive) OFF = LED/Light Ready
Green Indicator LED	ON = Power
Potentiometer	270° turn pot — intensity control of 10%–100%. Turn clockwise to increases intensity.
Analog Intensity	The output is adjustable from 10%–100% of brightness by a 1–10VDC signal. (Jumpering pin 5 to pin 1 will provide maximum intensity.)
Connection	5-pin M12 connector
Ambient Temperature	-18°–40°C (0°–104°F)
IP Rating	IP50
Weight	~370 g
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty .



WIRING CONFIGURATION



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 Signal	1–10VDC	GREY*

* Some cables use green/yellow for pin 5

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

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

OPTIONAL

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



RESOURCE CORNER

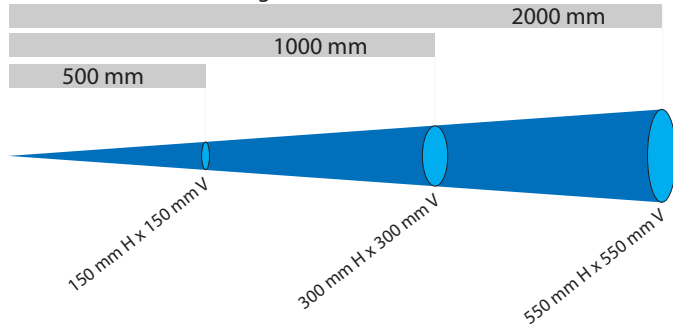
Additional resources, including CAD files, videos, and application examples, are available on our website.



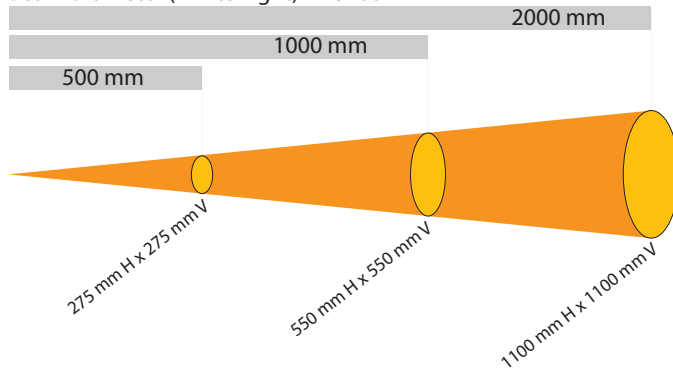
LIGHT PATTERNS

Smart Vision Lights recommends the ODL300 be used at a working distance between 300 mm and 4000 mm.

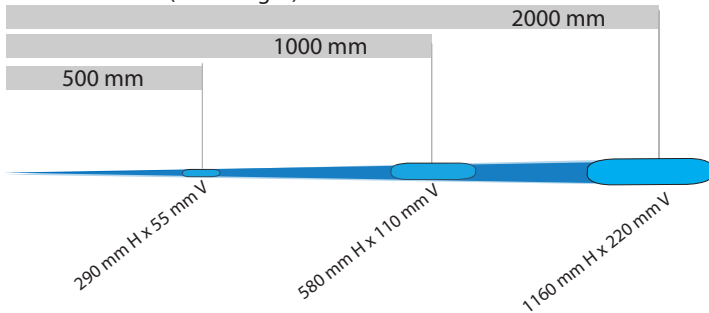
Beam Diameter (White Light) — 5700K



Beam Diameter (White Light) — 5700K



Beam Diameter (White Light) — 5700K



LIGHTING PATTERN FOR THE ODL300 with Narrow (Standard) Lenses

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	150 mm (~5.9") H x 150 mm (~5.9") V
1000 mm (39.4")	300 mm (~11.8") H x 300 mm (~11.8") V
2000 mm (78.8")	550 mm (~21.6") H x 550 mm (~21.6") V

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	55,000
<i>Illuminance measurement taken on White Lights — 5700K</i>	

LIGHTING PATTERN FOR THE ODL300 with Wide (W) Lenses

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	275 mm (~10.8") H x 275 mm (~10.8") V
1000 mm (39.4")	550 mm (~21.6") H x 550 mm (~21.6") V
2000 mm (78.8")	1100 mm (~43") H x 1100 mm (~43") V

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	40,000
<i>Illuminance measurement taken on White Lights—5700K</i>	

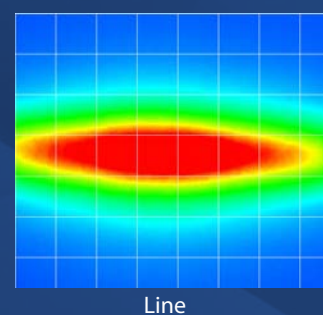
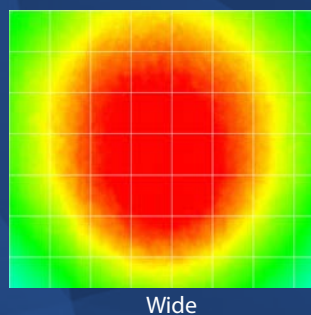
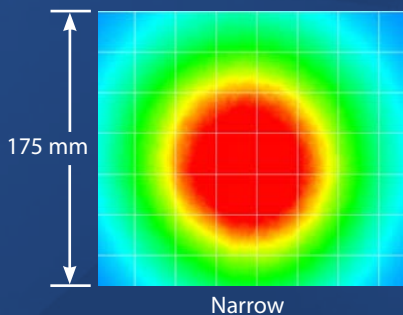
LIGHTING PATTERN FOR THE ODL300 with Line (L) Lenses

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	290 mm (~12.2") H x 55 mm (~2.1") V
1000 mm (39.4")	580 mm (~24.4") H x 110 mm (~4.3") V
2000 mm (78.8")	1160 mm (~48.8") H x 220 mm (~8.6") V

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	95,000
<i>Illuminance measurement taken on White Lights — 5700K</i>	

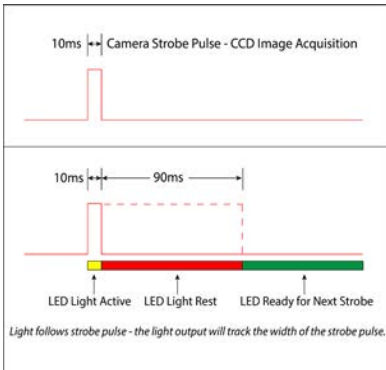
The ODL300 Linear Light produces a uniform light pattern.

Working Distance = 500 mm Grid set to 25 mm x 25 mm



DUTY CYCLE (OVERDRIVE™ MODE ONLY)

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

$$RT = \frac{10 \text{ ms}}{0.1} - 10 \text{ ms} = 90 \text{ ms}$$

Rest Time is 90 ms for 10 ms Strobe Time

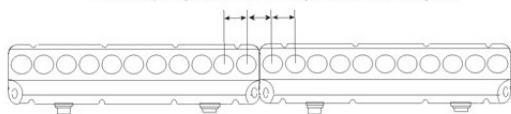
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

DAISY-CHAIN LIGHTS

ODL300 Series of lights requires the use of a standard 5-pin M12 jumper cable to effectively parallel up to six (6) ODL300 lights.

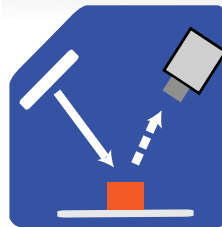


Constant spacing between LED's as lights are connected together

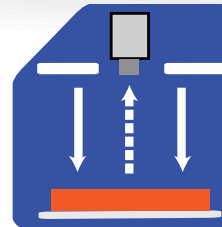


ILLUMINATION

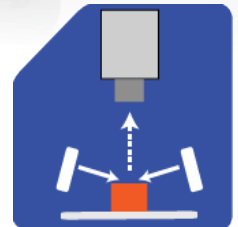
ODL300 Series of Linear Lights works best for:



Bright Field



Direct Lighting



Dark Field

EYE SAFETY

According to IEC 6247:2006. Full documentation available upon request.



Notice

Exempt Group: No photobiological hazard to eyes or skin even for continuous, unrestricted use. Applicable for wavelengths 625, 850, 940, 1050, 1200, 1300, 1450, and 1550.

Caution

Risk Group 1: Possibly hazardous optical 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, 505, 530, and WHI.

Notice

Risk Group 1: UV emitted from this product. Minimize exposure to eyes and skin. Use appropriate shielding. Safe for most applications except prolonged exposures. Applicable for wavelength 395.

Caution

Risk Group 2: UV emitted from this product. Eye or skin irritation may result from exposure. Use appropriate shielding. Does not pose optical hazard if aversion responses limit exposure. Applicable for wavelength 365.



PART NUMBER

ODL300 — — —

COLOR: **LENS:** Leave blank for Standard (Narrow)
W = Wide
L = Line

LINEAR POLARIZER: Leave blank for none
LPI = Factory Installed

Part Number Examples:

- ODL300-625** ODL300, 625 nm Wavelength, Standard Lens (Narrow)
- ODL300-WHI-L** ODL300, White, Line Lens
- ODL300-470-W-LPI** ODL300, 470 nm Blue Wavelength, Wide Lens, with Linear Polarizer Installed

Line lens optic not available for UV wavelengths.
Additional wavelengths and lens options available upon request.



This light is available in our SWIR LEDs.



LENS OPTICS

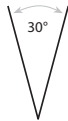
NARROW (STANDARD)

Narrow, 16° angle-cone lenses are standard. Standard lenses create a narrow beam of illumination and are used for long working distances.



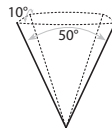
WIDE

Wide, 30° angle-cone lenses create a large area of illumination. They create a floodlight effect, can be used for short working distances.



LINE

Line, with a 10° width and a 50° fan-angle projects a thin, narrow beam of illumination.



When to Use a Linear Polarizer?

Polarizing filters can reduce reflections on specular (Dielectric or nonmetal) surfaces.

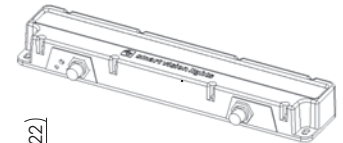
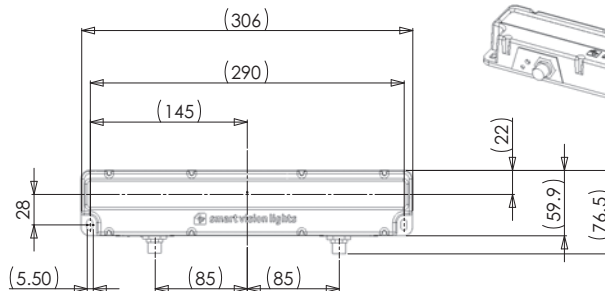
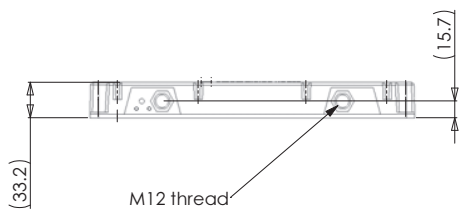
A Linear Polarizer has a typical transmission of 38 percent while blocking 62 percent of the light not in the polarization plane.

WARNING: Running a light in continuous operation while using a polarizer with certain wavelengths (e.g. white, blue) may burn the polarizer.



PRODUCT DRAWING

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





ACCESSORIES

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

Jumper Cables (Daisy-Chain)	
Length	Part Number
300 mm	5PM12-J300
1000 mm	5PM12-J1000
2000 mm	5PM12-J2000

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

Mounting Rails	
Length	Part Number
300 mm	LEXT300
600 mm	LEXT600
900 mm	LEXT900
1200 mm	LEXT1200
Custom sizes available	

Diffuser	
Description	Part Number
Diffuser Kit	ODL300-DKIT

Linear Polarizer	
Description	Part Number
Linear Polarizer Kit	ODL300-LP



GLOSSARY

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

TERMINOLOGY

OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.

Continuous Operation Lights stay on continuously.

Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.

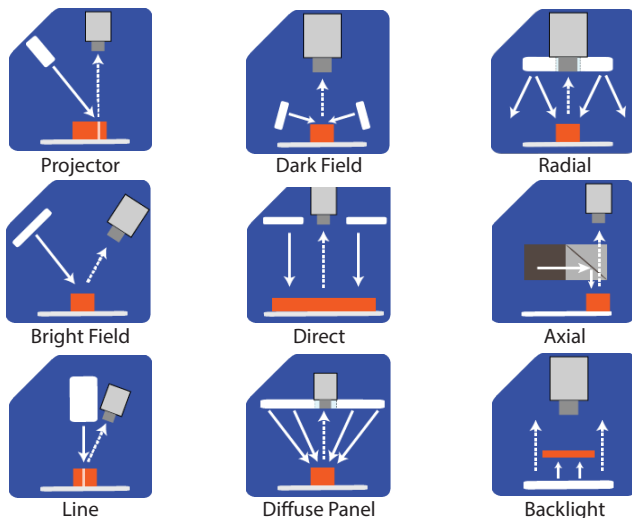
Built-In Driver The built-in driver allows full function without the need for an external controller.

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.

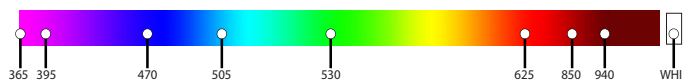
Diffuser Used to widen the angle of light emission, reduce reflections, and increase uniformity.

TYPES OF ILLUMINATIONS



COMMON COLOR/WAVELENGTHS LEGEND

Wavelength options range from 365 nm to 1550 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, and 1550 nm.*

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