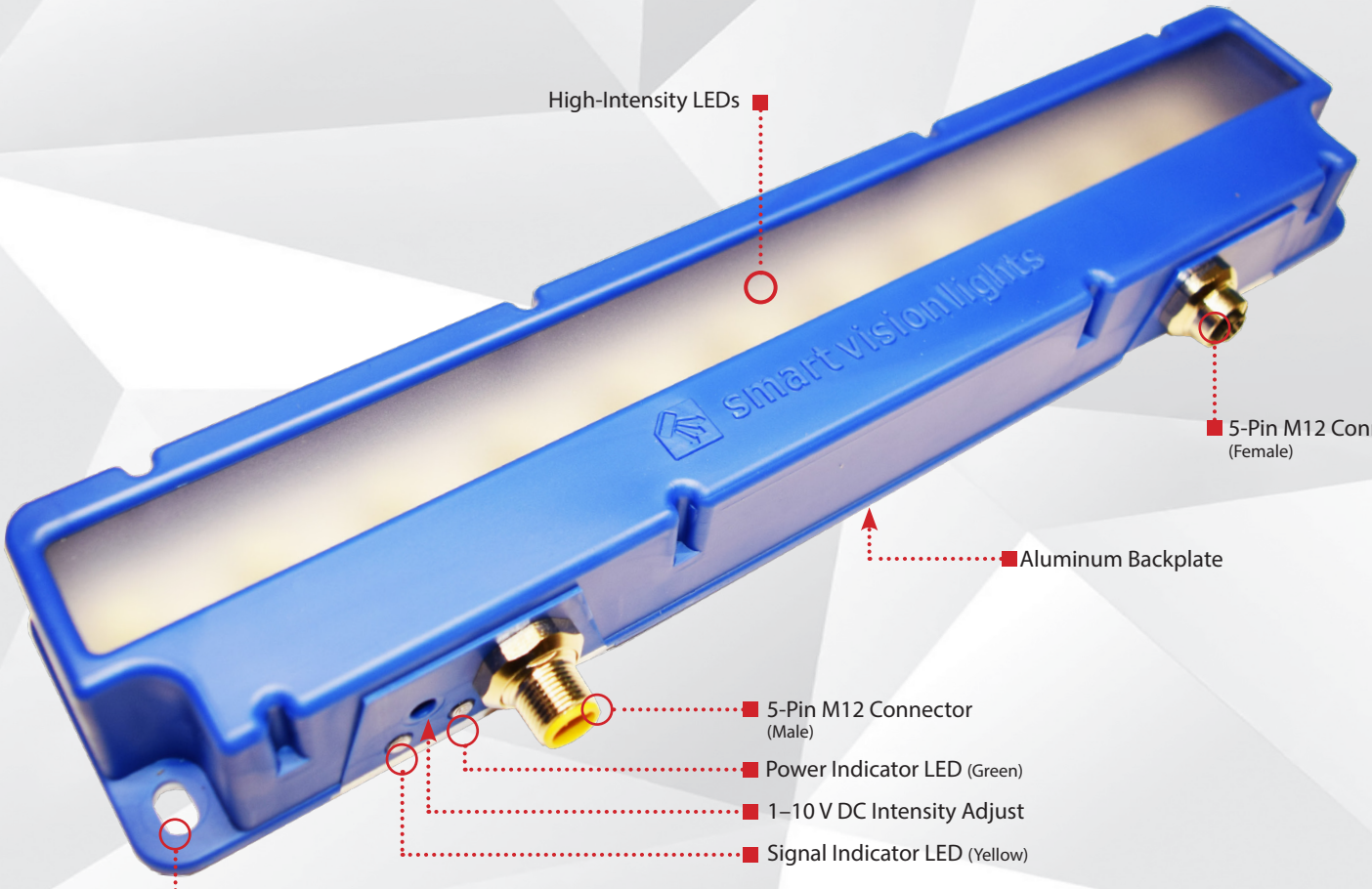
smart vision lights L300 *Connect-a-Light* LINEAR LIGHT

PRODUCT DATA SHEET



Warranty	Compliant	Compliant	Rated	Connector
10 YEAR	IEC 62471	CE RoHS	IP 50	5-PIN M12

PRODUCT HIGHLIGHTS

- ✓ 5-pin M12 quick connect
- ✓ Built-in driver, no external wiring needed
- ✓ PNP and NPN strobe input
- ✓ Daisy-chain up to six L300 linear lights using a standard 5-pin M12 jumper cable

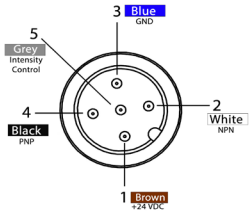
PRODUCT DESCRIPTION

The L300 array utilizes 12 high-intensity LEDs and features an integrated constant current driver built into the light. Connect-a-Light Series of Linear Lights uses 24 V DC and can operate in continuous mode. Use NPN or PNP strobe triggers to control the light's pulse. Control intensity via a 1-10 V remote analog signal or manual potentiometer.

PRODUCT SPECIFICATIONS

Electrical Input	24 V DC +/–5%
Input Current	Max. 700 mA
Wattage	Max. 17 W
On/Off Input	PNP: +4 V DC to activate | NPN:GND (<1 V DC) to activate
PNP Line	4 mA @ 4 V DC | 10 mA @ 12 V DC | 20 mA @ 24 V DC
NPN Line	15 mA @ Ground (0 V DC)
Yellow Indicator LED	LED Strobe Indicator ON = Light Active
Green Indicator LED	ON = Power
Continuous Mode	NPN can be tied to ground **OR** PNP can be tied to 24 V DC (not both)
Potentiometer	270º turn pot — Intensity control of 10%–100%. Turn clockwise to increases intensity.
Analog Intensity	Brightness output is adjustable from 10%–100% via a 1–10 V DC signal (Jumpering pin 5 to pin 1 will provide maximum intensity)
Connection	5-pin M12 connector
Ambient Temperature	-18º–40º C (0º–104º F)
IP Rating	IP50
Weight	~370g
Compliances	CE, RoHS, IEC 62471

WIRING CONFIGURATION



Pin layout for light (Male Connector)

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

** Some cables use green/yellow for pin 5*
For maximum intensity, it is possible to tie pin 5 to pin 1 at +24 V DC.
*For continuous mode: PNP (pin 4) can be tied to +24 V DC (pin 1) **or** NPN (pin 2) can be tied to Ground (pin 3).*

OPTIONAL

For maximum intensity, analog intensity may be connected to +V DC (24 V DC) - Jumper pin 5 to pin 1

RESOURCE CORNER

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

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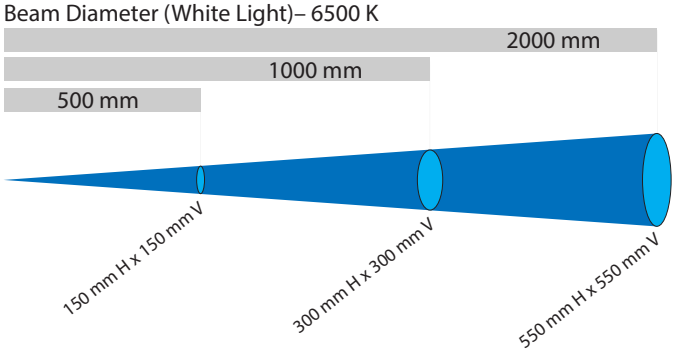
smartvisionlights.com
techsupport@smartvisionlights.com
Open: Monday – Friday | 8am–5pm ET

LIGHT PATTERNS

Smart Vision Lights recommends the L300 be used at a working distance between 300 mm to 4000 mm.

Beam Diameter (White Light)– 6500 K

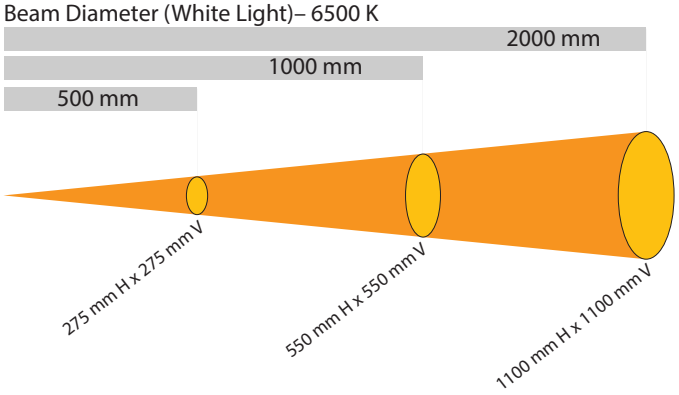


LIGHTING PATTERN FOR THE L300 **with Narrow (Standard) Lenses**

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	11,000
Illumination measurement taken on White Lights - 6500K	

Beam Diameter (White Light)– 6500 K

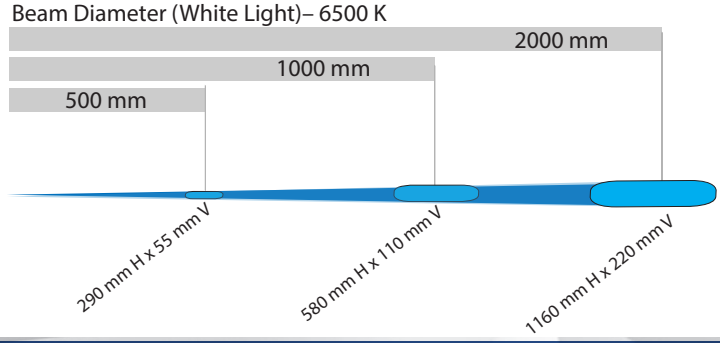


LIGHTING PATTERN FOR THE L300 **with Wide (W) Lenses**

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	8,000
Illumination measurement taken on White Lights - 6500K	

Beam Diameter (White Light)– 6500 K



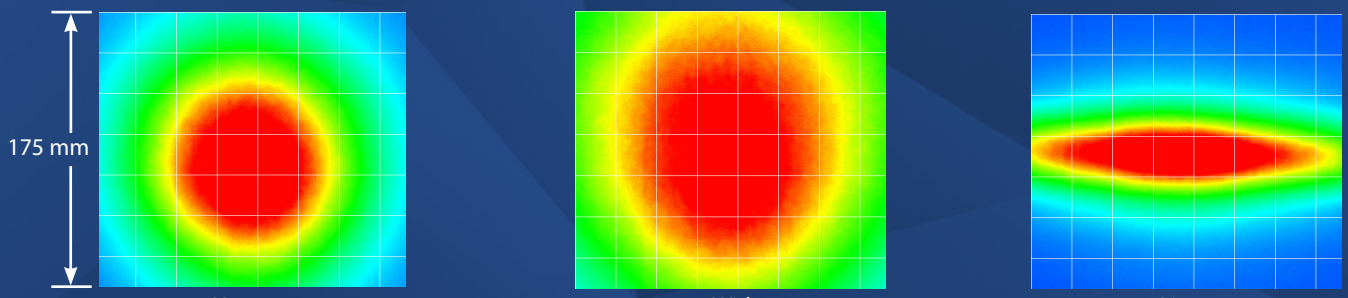
LIGHTING PATTERN FOR THE L300 **with Line (L) Lenses**

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	19,000
Illumination measurement taken on White Lights - 6500K	

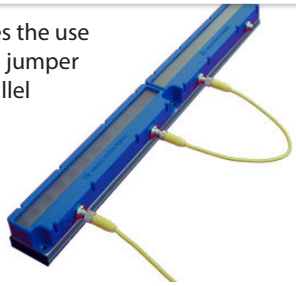
The L300 Linear Light produces a uniform light pattern.

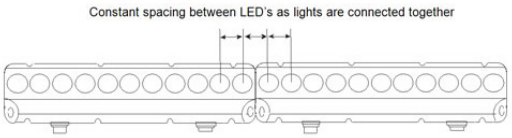
Working Distance = 500 mm Grid set to 25 mm x 25 mm



DAISY-CHAIN LIGHTS

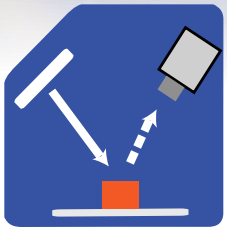
L300 series light requires the use of a standard 5-pin M12 jumper cable to effectively parallel up to six L300 lights.



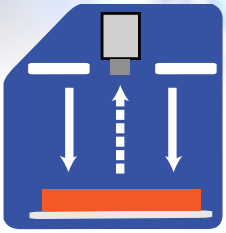


ILLUMINATION

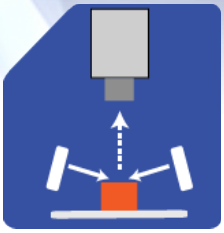
L300 Series of Linear Lights works best for:



Bright Field



Direct Lighting



Dark Field

EYE SAFETY

According to IEC-62471:2006. 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, and 940.

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 wavelengths: 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 wavelengths: 365

PART NUMBER

L300 – □□□ – □ – □□□

COLOR:

WHI | 365 395 | 470 | 505 | 530 | 625 | 850 940

LENS:

Leave blank for standard (narrow)

W = Wide

L = Line

LINEAR POLARIZER:

Leave blank for none

LPI = Factory Installed

Part Number Examples:

L300-625 L300, 625 nm Red Wavelength, Standard (Narrow) Lenses

L300-WHI-L L300, White, Line Lenses

L300-470-W-LPI L300, 470 nm Blue Wavelength, Wide Lenses, with Linear Polarizer installed

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

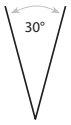
SWIR SHORT WAVE INFRARED

This light is available in our SWIR LEDs
(1050 nm, 1200 nm, 1300 nm, 1450 nm, 1550 nm)

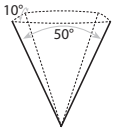
STANDARD LENS OPTICS

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

WIDE
Wide, 30° angle cone lenses projects 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.
** Additional lens options available upon request.*



When to Use a Linear Polarizers?

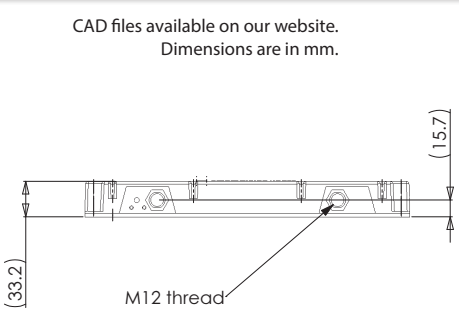
Polarizing filters can reduce reflections on specular (Dielectric or non-metal) surfaces.

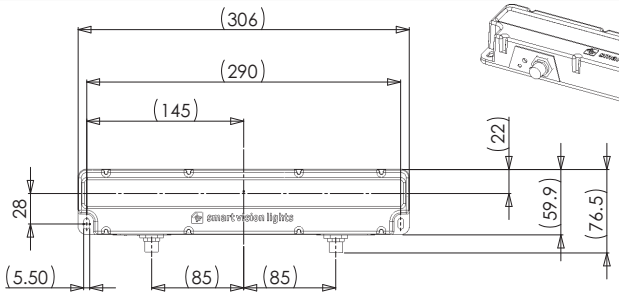
A Linear Polarizer has a typical transmission of 38% while blocking 62% of the light not in the polarization plane.

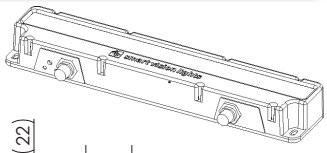
WARNING: Running a light in continuous operation while using a standard polarizer with certain wavelengths (ex. white, blue) may result in burning of the polarizer.

PRODUCT DRAWING

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







ACCESSORIES

Power Cables

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

Jumper Cables (Daisy Chain)

Lengths	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	L300-DKIT

Linear Polarizer

Description	Part Number
Linear Polarizer Kit	L300-LP

Power Adapters *

Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply
24 V DC, 9 Amp / AC input	T2 Power Supply

* **European Versions Available** (Add -EURO to end of T1. Example T1-EURO Power Supply)

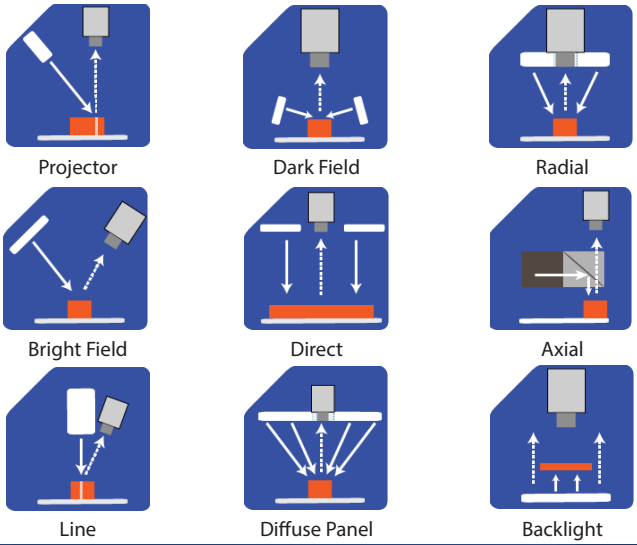
GLOSSARY

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

TERMINOLOGY

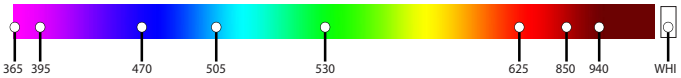
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Lights stay on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows full function without the need of an external controller.
Camera to Light Connecting 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 ILLUMINATION



COMMON COLOR/WAVELENGTHS LEGEND

Wavelengths 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.

SWIR SHORT WAVE **INFRARED**

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.