LXE300 Direct Connect LINEAR LIGHT

MULTI-DRIVE™

PRODUCT DATA SHEET

smart vision lights

multi drive™

Warranty	Compliant	Compliant	Rated	Connector
10 YEAR	IEC 62471	CE RoHS	IP 65	5-PIN M12

PRODUCT HIGHLIGHTS

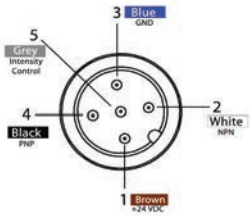
- Brightest linear light yet, delivering up to 100,000 lux in OverDrive™ mode
- Direct connect up to six lights in a line without loss of uniformity for a fraction of the cost of monolithic designs
- Built-in Multi-Drive™ allows the light to work in continuous operation or OverDrive™ mode
- PNP and NPN strobe input
- 5-pin M12 quick connect

PRODUCT SPECIFICATIONS

	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Electrical Input	24 V DC +/- 5%	
Input Current	Max. 850 mA	Max. 4.7 A
Wattage	Max. 20 W	Max. 110 W (During Strobe)
PNP Line	4 mA @ 4 V DC | 10 mA @ 12 V DC | 20 mA @24 V DC	
NPN Line	15 mA @ Common (0 V DC)	
OverDrive™ Strobe Mode	**Not applicable**	Connect pin 5 to GND (see Wiring Configuration for more information)
Strobe Duration	**Not applicable**	Max. 50 mS
Duty Cycle	**Not applicable**	Max. 10%
Strobe Input	**Not applicable**	PNP: +4 V DC or greater to activate NPN: GND (<1 V DC) to activate
Continuous Operation Mode	NPN can be tied to ground **OR** PNP can be tied to 24 V DC (not both)	**Not applicable**
On/Off Input	PNP: +4 V DC or greater to activate NPN: GND (<1 V DC) to activate	**Not applicable**
Connection	5-pin M12 connector	
Ambient Temperature	-18°–40° C (0°–104° F)	
IP Rating	IP65	
Weight	~660 g	
Power Supply	A separate power supply for OverDrive™ mode (high-pulse operation) is recommended. *(see Input Current for value)*	
Compliances	CE, RoHS, IEC 62471	

WIRING CONFIGURATION

CONTINUOUS OPERATION MODE



Pin layout for light (male connector)

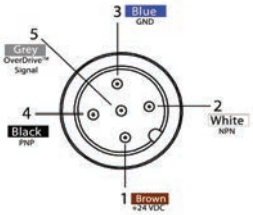
Pins	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1–10 V DC	GREY*

For the light to function properly, apply either a PNP or NPN signal, not both.

Failure to supply light with correct input current will result in non-repeatable lighting
(see Product Specifications for requirements)

** 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).*

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*

Failure to supply light with correct input current will result in non-repeatable lighting
(see Product Specifications for requirements)

** Some cables use green/yellow for pin 5*

RESOURCE CORNER

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

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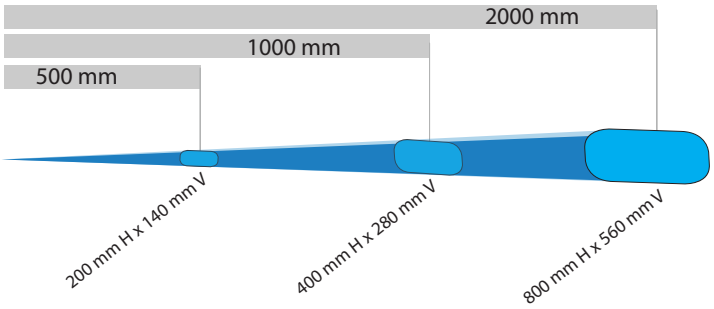
Open: Monday – Friday | 8am–5pm ET

LIGHT PATTERNS

Smart Vision Lights recommends the LXE300 be used at a working distance between 300 mm to 4000 mm.

Illumination measurement taken on White Light – 6500 K

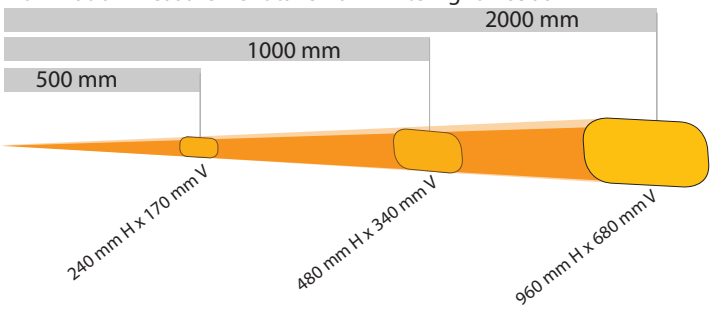


LIGHTING PATTERN FOR THE LXE300 **with Narrow (Standard) Lenses**

Working Distance mm (inches)	Pattern (80% – 100% Measured Intensity) mm (inches)
500 mm (19.7")	200 mm (~7.8") H x 140 mm (~5.5") V
1000 mm (39.4")	400 mm (~15.7") H x 280 mm (~11") V
2000 mm (78.8")	800 mm (~31.5") H x 560 mm (~22") V

Operation	Typical Output Performance	Illumination (Lux)
Continuous Mode	Distance = 500 mm	20,000
OverDrive™ Mode	Distance = 500 mm	100,000
Illumination measurement taken on White Lights – 6500K		

Illumination measurement taken on White Light – 6500 K



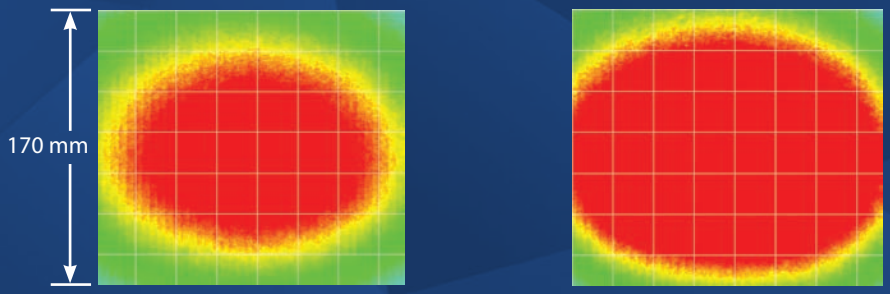
LIGHTING PATTERN FOR THE LXE300 **with Wide (W) Lenses**

Working Distance mm (inches)	Pattern (80% – 100% Measured Intensity) mm (inches)
500 mm (19.7")	240 mm (~9.4") H x 170 mm (~6.7") V
1000 mm (39.4")	480 mm (~18.9") H x 340 mm (~13.4") V
2000 mm (78.8")	960 mm (~37.8") H x 680 mm (~26.7") V

Operation	Typical Output Performance	Illumination (Lux)
Continuous Mode	Distance = 500 mm	8600
OverDrive™ Mode	Distance = 500 mm	43,000
Illumination measurement taken on White Lights – 6500K		

The LXE300 Linear Light produces a uniform light pattern.

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



Narrow Wide

MULTI-DRIVE™

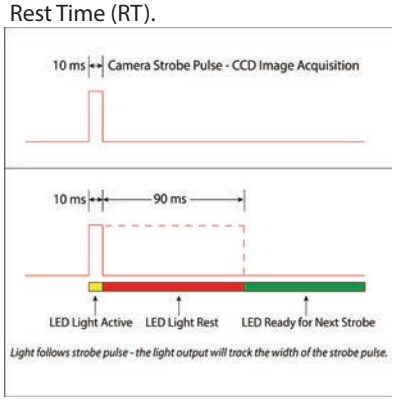
Multi-Drive™ allowing users to operate the light in continuous operation or OverDrive™ strobe (high-pulse operation) mode. An advantage of Multi-Drive™ is faster imaging. It also enchances capture/freeze motion imaging on high-speed lines.

The Multi-Drive™ feature allows the user to run the light in continuous operation or OverDrive™ strobe mode at maximum intensity. OverDrive™ strobe mode is **up to five times** the power of continuous operation.

DUTY CYCLE (OVERDRIVE™ MODE ONLY)

This section applies only if light is in OverDrive™ Mode.

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



Calculating Rest Time

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

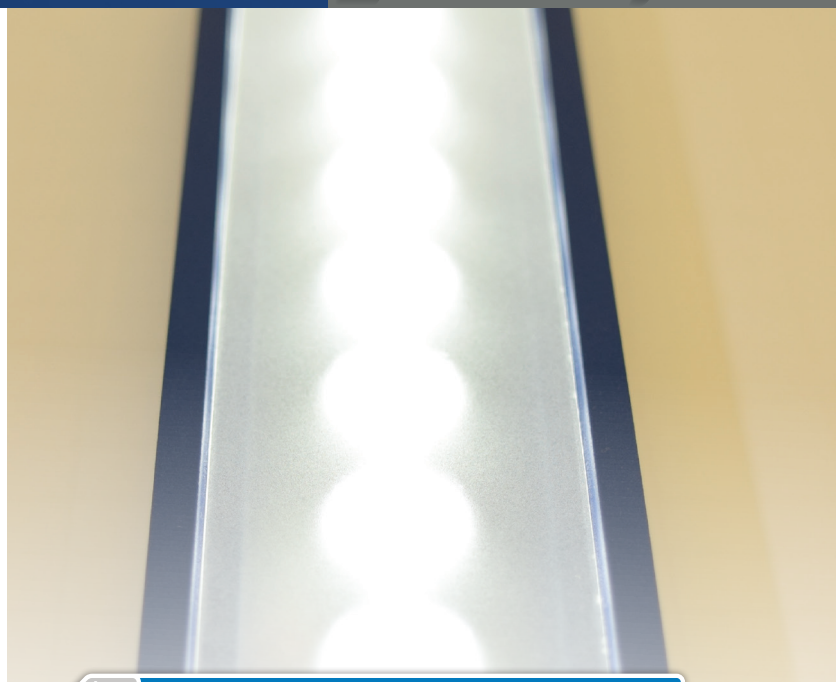
RT = Rest Time
ST = Strobe Time
D = Duty Cycle

Example

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

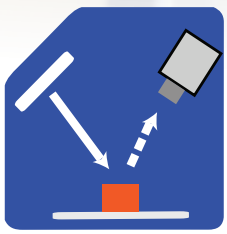
Rest Time is 90 ms for 10 ms Strobe Time

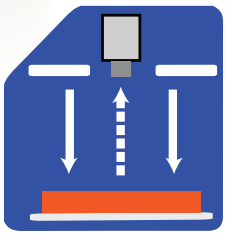
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

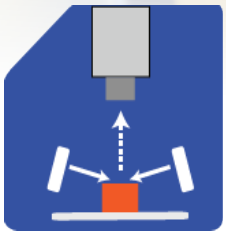


ILLUMINATION

LXE300 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.

PART NUMBER

LXE300 – □□□ – □ – □□□

COLOR:

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

LENS:

Leave blank for standard (narrow)

W = Wide

LINEAR POLARIZER:

Leave blank for none

LPI = Factory Installed

Additional wavelengths and lens options available upon request.
UV wavelengths are not available.

Part Number Examples:

LXE300-625	LXE300, 625 Red Wavelength, Standard (Narrow) Lenses
LXE300-WHI-W	LXE300, White, Wide Lenses
LXE300-470-W-LPI	LXE300, 470 Blue Wavelength, Wide Lenses, Linear Polarizer Installed

STANDARD LENS OPTICS

NARROW
Narrow lenses are standard.
Standard lenses create a narrow beam of illumination. They can be used when long working distances are needed. Narrow are 10° angle cone lenses.

WIDE
Wide lenses create a large area of illumination. Wide lenses can be used when short working distances are needed. Wide are 25° angle cone lenses.

** Additional lens options available upon request.*

When to Use a Linear Polarizers?

Polarizing filters can reduce reflections on specular surfaces.

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

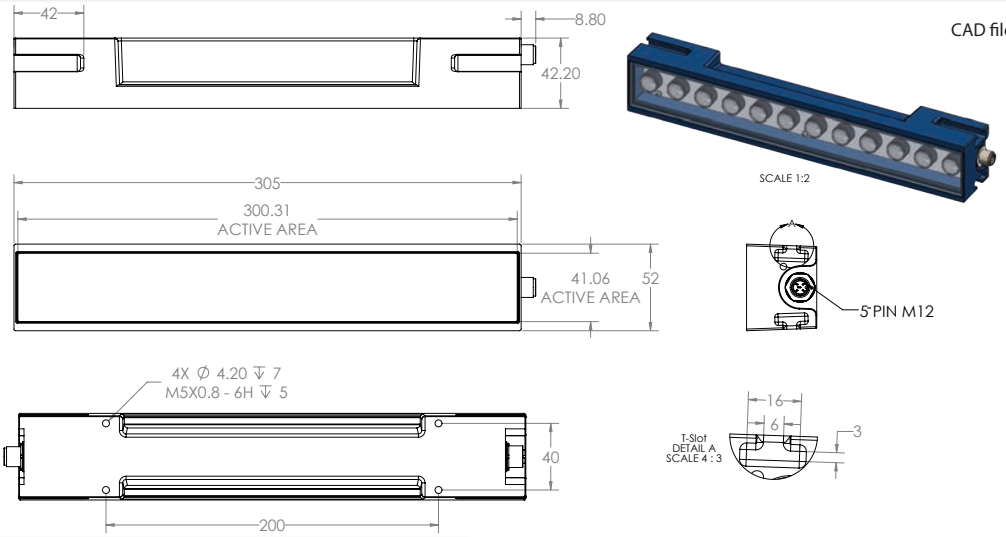
WARNING: Running a light in continuous operation while using a polarizer with certain wavelengths (ex. white, blue) may result in burning of the polarizer.

MOUNTING

Four (4) screw holes are located on the bottom of the light for easy mounting.

Four (4) M5 screws included with light.

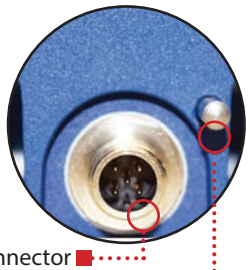
PRODUCT DRAWING



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

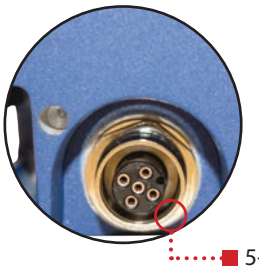
DIRECT CONNECT

The LXE300 allows for connecting lights together with no additional cables. Lights are directly connected together, with no space between the lights. Up to six (6) LXE300 lights can be directly connected together.



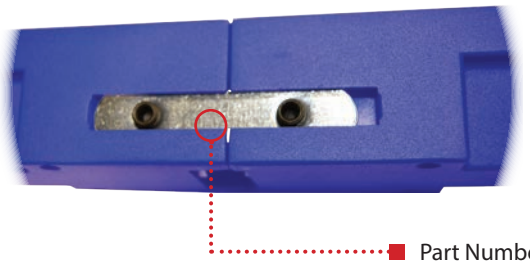
DAISY-CHAIN

Daisy-chain allows for a locking 5PM-12 jumper cable to be used when connecting LXE300 lights together. Lights are able to be spaced apart from each other. Up to six (6) LXE300 lights can be daisy-chained together.



The part number **LXJ-2DTN** is required to directly connect two or more LXE300 together.

LXE300 can be daisy-chained together using a locking jumper cable.



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

Connector (Only for Direct Connect)

Description	Part Number
Set of 2 Connectors	LXJ-2DTN

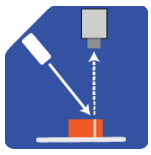
GLOSSARY

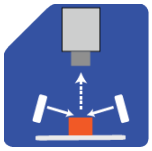
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

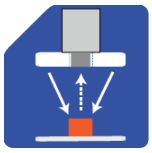
TERMINOLOGY

OverDrive™ Lights include an integrated high-pulse driver for complete LED light control. OverDrive™ light part numbers start with OD.
Continuous Operation Lights stays 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.
Diffusers Used to widen the angle of light emission, reduce reflections and increase uniformity.

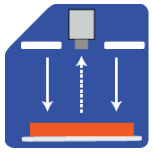
TYPES OF ILLUMINATIONS

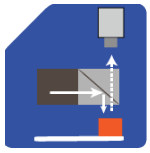

Projector

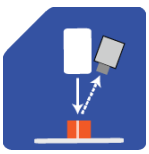

Dark Field

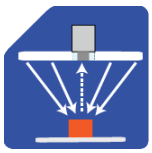

Radial

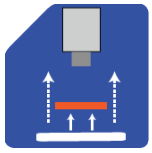

Bright Field


Direct


Axial


Line


Diffuse Panel


Backlight

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

Short Wave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.