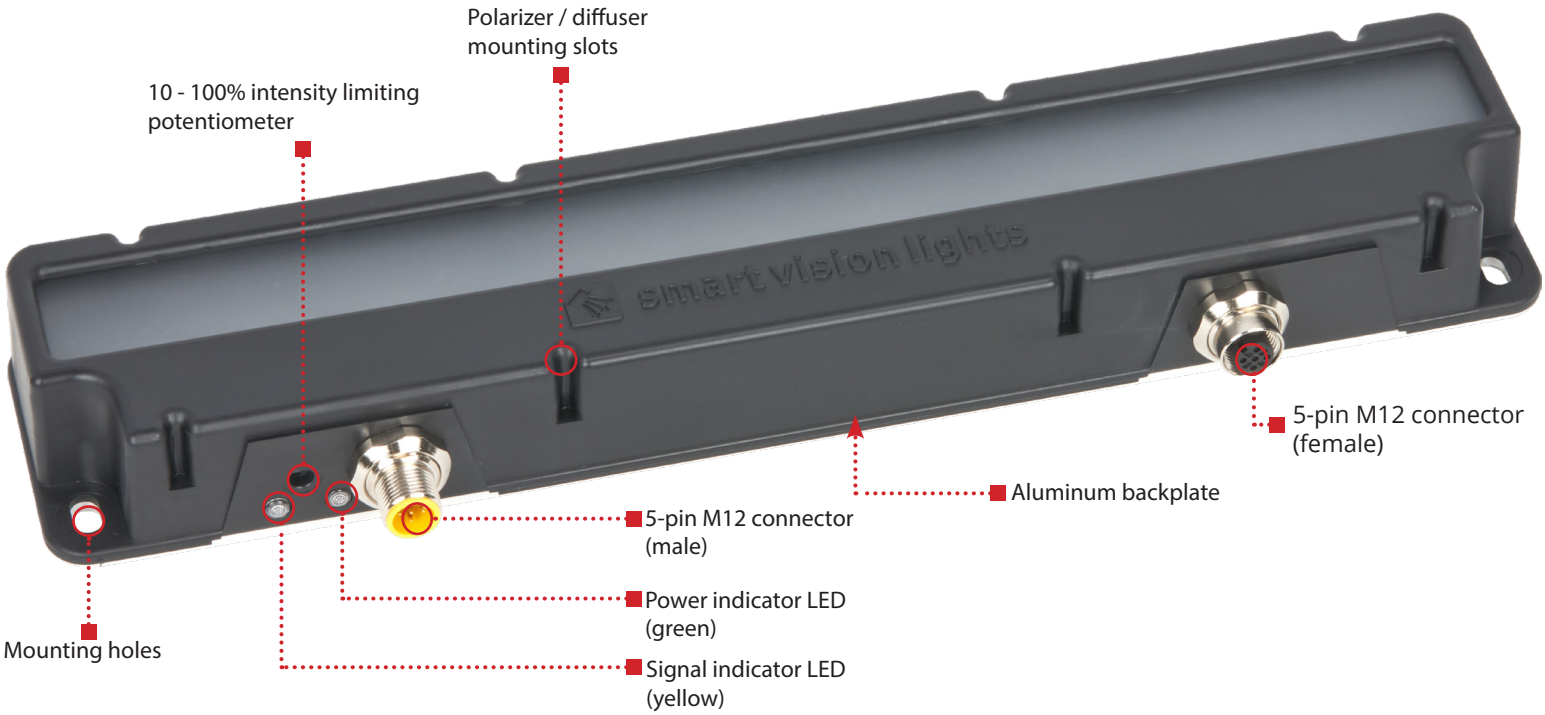
ODL300 Linear Light
CONNECT-A-LIGHT | OVERDRIVE™



The ODL300 is an OverDrive™ linear light featuring an integrated OverDrive current driver with a lux value of up to 90,000 and a strobe rate of up to 4,000 strobes per second. NPN or PNP triggers can be used to control the strobe rate and duration. Light intensity can be controlled via 1 - 10 VDC analog intensity line or set manually by the intensity limiting potentiometer. The ODL300 can be daisy-chained with up to six lights in series using a standard 5-pin M12 jumper cable.

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

ODL300 HIGHLIGHTS

- ✔ Daisy-chain up to six ODL300 linear lights using a standard 5-pin M12 jumper cable
- ✔ High-impact injection molded housing
- ✔ Built-in potentiometer for physical intensity adjustment
- ✔ Up to 4,000 strobes per second
- ✔ OverDrive™ - up to five times brighter than a standard linear connect-a-light

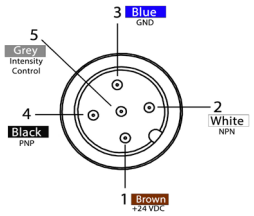
REV 10/18/22

SPECIFICATIONS

Electrical Input	24 VDC +/- 5%
Input Current	Peak 4.6 A during strobe
Input Power	Peak 110 W during strobe
PNP Trigger	2.8 mA @ 4VDC | 8.8 mA @ 12VDC | 17.6 mA @ 24VDC
NPN Trigger	14.4 mA @ Common (0VDC)
Trigger Input	PNP > +4 VDC (24 VDC max.) to activate **or** NPN ≥ GND <1VDC to activate **(not both)**
Strobe Duration	Min. 30 µs | Max. 125 ms
Strobe Trigger Latency	6 µs
Strobe Frequency	Max 4 kHz or 1 / Duty Cycle as calculated, whichever is less.*
Duty Cycle	Max. 10%*
Power Indicator	Turns green when powered up
Status Indicators	Strobe indicator will turn red while resting and turn off when ready
Intensity Limit	270° turn-pot. Turn clockwise to increase intensity limit.
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	~370 g
Compliances	CE, IEC 62471, RoHS
Warranty	10 years**

**See page 6 for more information*
***See SmartVisionLights.com/warranty for details*

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	OverDrive ™ Signal	1-10VDC	GREY*

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

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

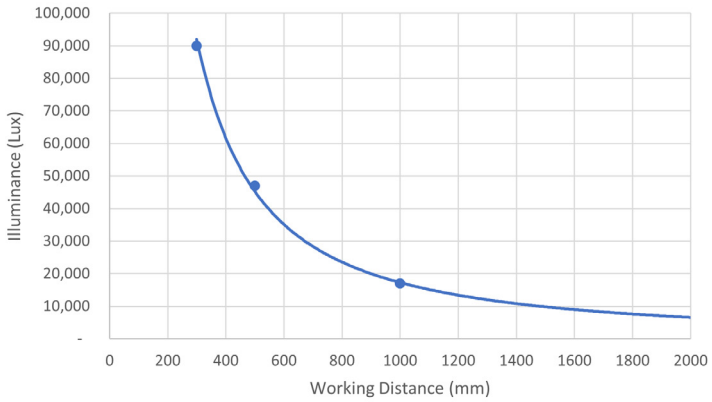
Failure to supply light with correct input current will result in inconsistent lighting behavior.
(see Product Specifications for requirements)

LIGHTING PATTERNS

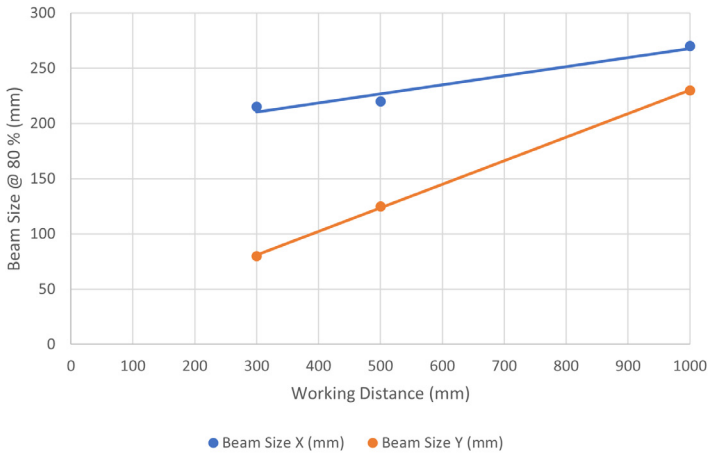
The ODL300 is recommended to be used at a working distance between 300 mm to 2000 mm. **Illuminance values taken on white light - 5700K**

Standard (16°) lighting patterns

Illuminance -vs- Working Distance

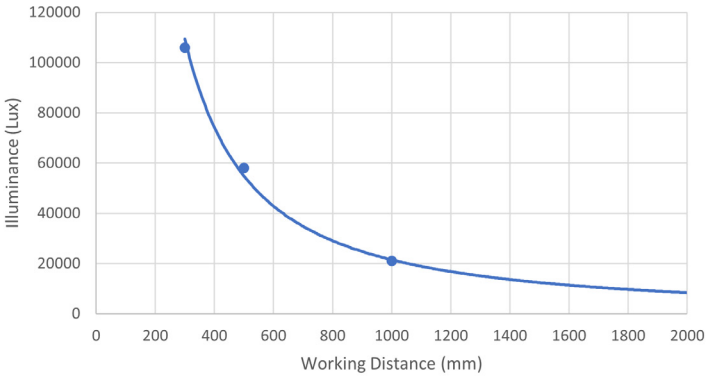


Beam Size at 80% Max Intensity -vs- Working Distance

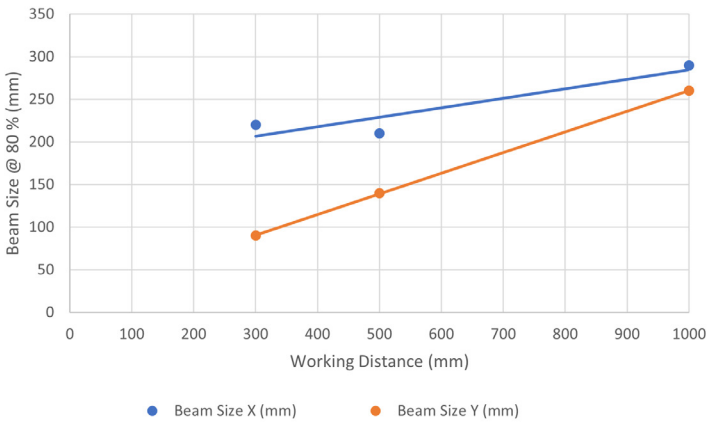


Wide (30°) lighting patterns

Illuminance -vs- Working Distance

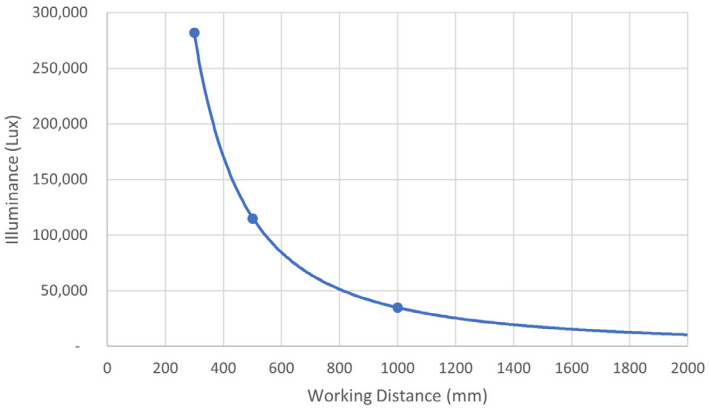


Beam Size at 80% Max Intensity -vs- Working Distance

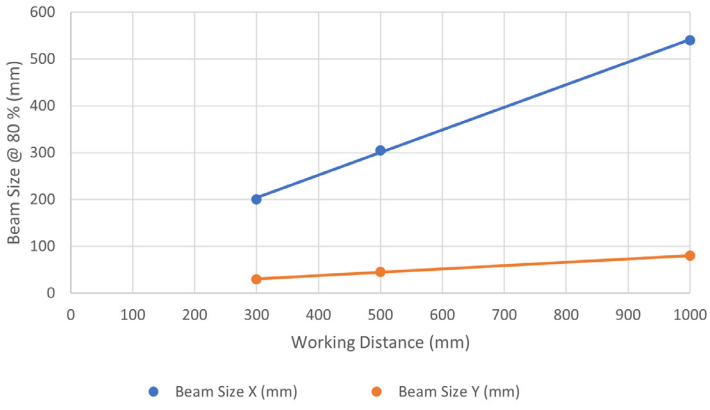


Line (10° x 50°) lighting patterns

Illuminance -vs- Working Distance



Beam Size at 80% Max Intensity -vs- Working Distance

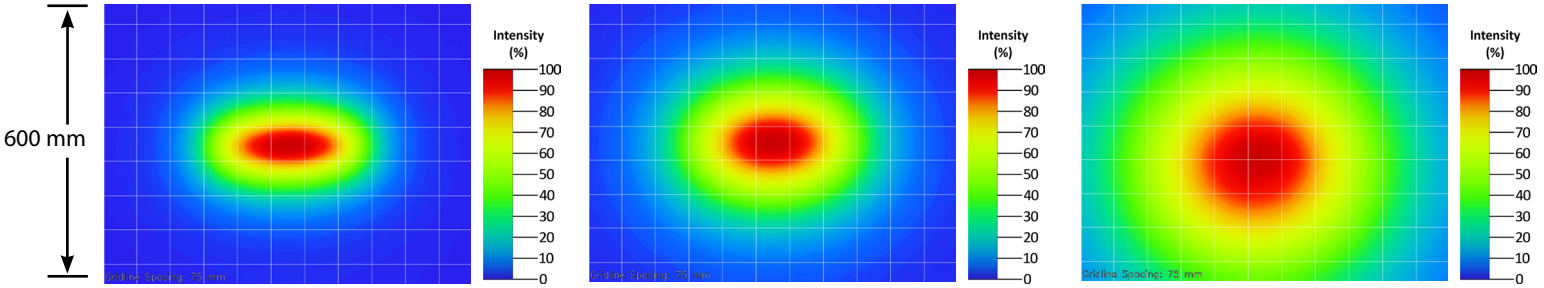


BEAM PATTERNS

The LO300 is recommended to be used at a working distance between 300 mm to 2000 mm. **Illuminance values taken on white light - 5700K**

Standard (16°) beam patterns

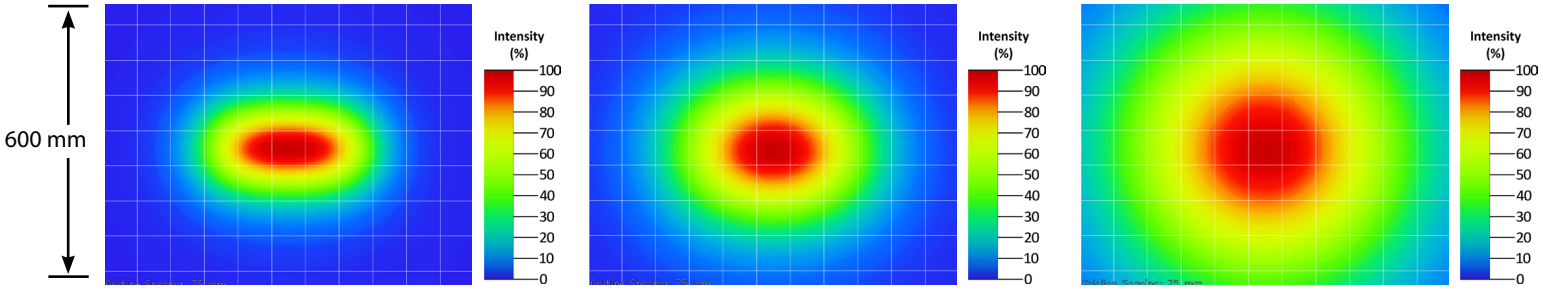
Grid set to 75 mm



300 mm working distance | 500 mm working distance | 1000 mm working distance

Wide (30°) beam patterns

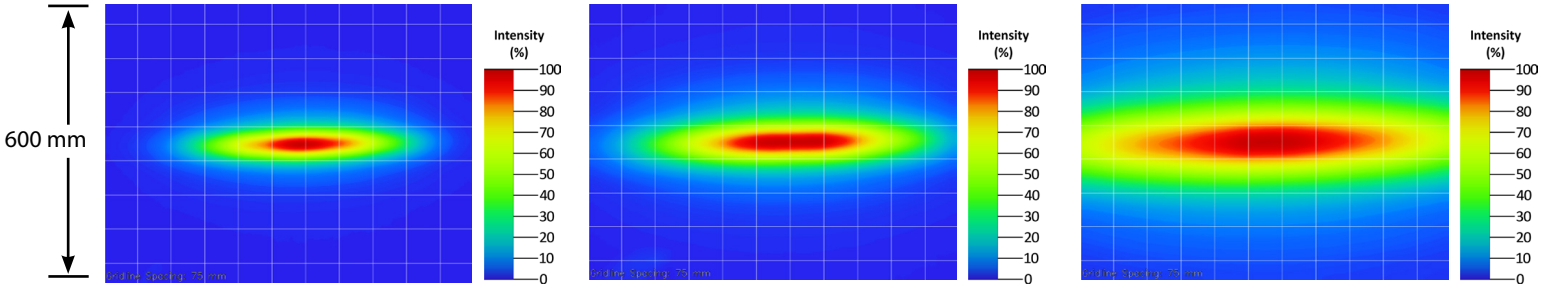
Grid set to 75 mm



300 mm working distance | 500 mm working distance | 1000 mm working distance

Line (10° x 50°) beam patterns

Grid set to 75 mm

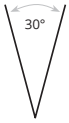


300 mm working distance | 500 mm working distance | 1000 mm working distance

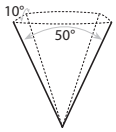
LENS OPTICS

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 and can be used for short working distances.

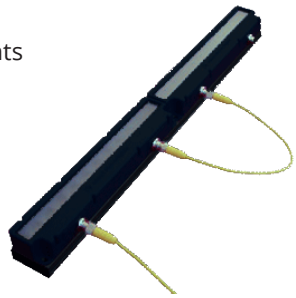


LINE
Line, with a 10° width and a 50° fan angle, projects a thin, narrow beam of illumination.

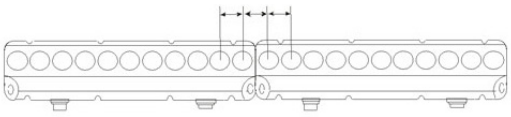


DAISY-CHAIN LIGHTS

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



There is consistent spacing between LEDs as lights are connected together.



EYE SAFETY

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

Notice

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

Caution

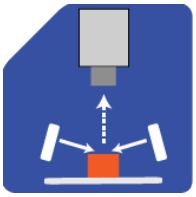
Risk Group 1: Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to eyes. Safe for most applications except prolonged exposure. Applicable for wavelengths 470, 505, 530, and WHI.

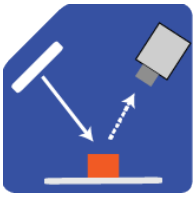
Warning

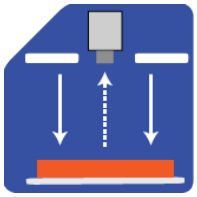
Risk Group 2: UV emitted from this product. Eye or skin irritation may result from exposure. Use appropriate shielding. Applicable for wavelength 365 and 395.

ILLUMINATION

The ODL300 works best for:


Dark Field

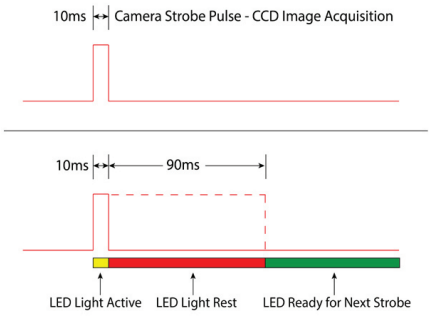

Bright Field


Direct Lighting

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).



Light follows strobe pulse - the light output will track the width of the strobe pulse.

Calculating Rest Time

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

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

Example

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

Rest Time is 90 ms for 10 ms Strobe Time

Calculating Strobe Rate

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

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

Example

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

Strobe Rate is 1000 strobes per second

Calculating Duty Cycle

$$D = ST \times SR$$

SR = Strobe Rate (strobes 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/ calculated duty cycle or 4,000 strobes per second, whichever is less.

OVERDRIVE™

OverDrive is an integrated strobe driver that provides up to 10 times the intensity of a standard driver. Utilizing SafeStrobe™ technology, an OverDrive light can be safely strobed up to 4,000 times a second.

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

ODL300 – □□□□ – □ – □□□

COLOR:

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

LENS:

Leave blank for Standard (Narrow)

W = Wide (30°)

L = Line (10° x 50°)

LINEAR POLARIZER:

Leave blank for none

LPI = Factory Installed

Part Number Examples:

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

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

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	L300-DKIT

Linear Polarizer

Description	Part Number
Linear Polarizer Kit	L300-LP

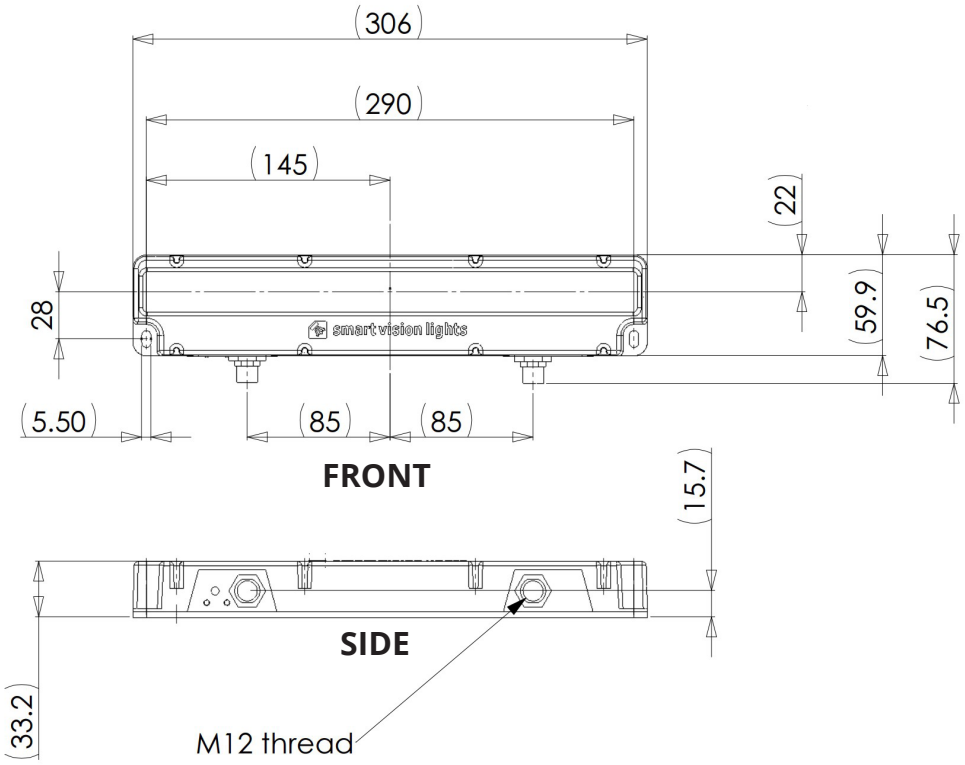
Power Adapters *

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

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

PRODUCT DRAWINGS

*CAD files available on our website
Drawings are in mm



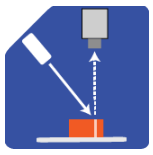
GLOSSARY

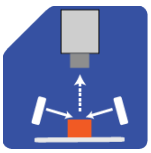
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

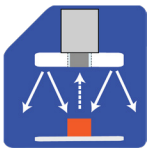
TERMINOLOGY

OverDrive™ Light includes an integrated high-pulse driver for complete LED light control.
Continuous Operation Light 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 Connect 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.

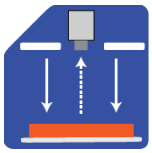
TYPES OF ILLUMINATION

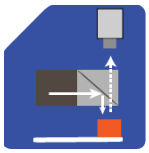

Projector

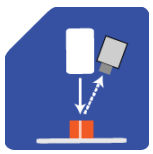

Dark Field

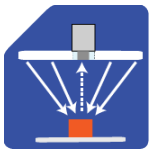

Radial

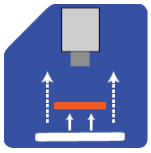

Bright Field


Direct


Axial

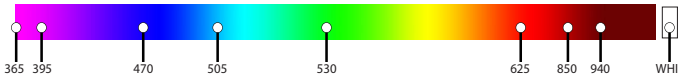

Line


Diffuse Panel


Backlight

COMMON COLOR/WAVELENGTHS LEGEND

Wavelengths 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.*

SWIR SHORT WAVE **INFRARED**

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.*

ASR American Systems Registrar

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17021-1 MANAGEMENT SYSTEMS CERTIFICATION BODY

ISO 9001:2015 Certified QMS

US Office +1 (231) 722-1199
UK Office +44 (0) 1327 530000

smartvisionlights.com
info@smartvisionlights.com
sales@smartvisionlights.com