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 strobos per second
- 5-pin M12 quick connect
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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Input</td>
<td>24VDC +/-5%</td>
</tr>
<tr>
<td>Input Current Max.</td>
<td>4.6 A draw during strobe</td>
</tr>
<tr>
<td>Wattage Max.</td>
<td>110 W during strobe</td>
</tr>
<tr>
<td>Strobe Input PNP</td>
<td>&gt; +4VDC or greater to activate</td>
</tr>
<tr>
<td>PNP Line</td>
<td>4 mA @ 4VDC</td>
</tr>
<tr>
<td>NPN Line</td>
<td>15 mA @ common (0VDC)</td>
</tr>
<tr>
<td>Duty Cycle Max.</td>
<td>Max. 10%</td>
</tr>
<tr>
<td>Strobe/Pulse Time</td>
<td>Max. 5000 SPS (strobes per second)</td>
</tr>
<tr>
<td>Red Indicator LED</td>
<td>ON = Light Rest (LED inactive)</td>
</tr>
<tr>
<td>NPN Line</td>
<td>15 mA @ common (0VDC)</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>270° turn pot — intensity control of 10%–100%. Turn clockwise to increases intensity.</td>
</tr>
<tr>
<td>Analog Intensity</td>
<td>The output is adjustable from 10%–100% of brightness by a 1–10VDC signal. (Jumpering pin 5 to pin 1 will provide maximum intensity.)</td>
</tr>
<tr>
<td>Connection</td>
<td>5-pin M12 connector</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-18º–40ºC (0º–104ºF)</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP50</td>
</tr>
<tr>
<td>Weight</td>
<td>~370 g</td>
</tr>
<tr>
<td>Compliances</td>
<td>CE, RoHS, IEC 62471</td>
</tr>
<tr>
<td>Warranty</td>
<td>UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.</td>
</tr>
</tbody>
</table>

WIRING CONFIGURATION

<table>
<thead>
<tr>
<th>Pins</th>
<th>Function</th>
<th>Signal</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power In</td>
<td>+24VDC</td>
<td>BROWN</td>
</tr>
<tr>
<td>2</td>
<td>NPN Sinking Signal</td>
<td>WHITE</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GND Ground</td>
<td>BLUE</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PNP Sourcing Signal</td>
<td>BLACK</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Intensity Signal</td>
<td>1–10VDC</td>
<td>GREY*</td>
</tr>
</tbody>
</table>

* Some cables use green/yellow for pin 5.
For maximum intensity, connect 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).

RESOURCE CORNER

Additional resources, including CAD files, videos, and application examples, are available on our website.
Smart Vision Lights recommends the ODL300 be used at a working distance between 300 mm and 4000 mm.

**Lighting Pattern for the ODL300 with Narrow (Standard) Lenses**

<table>
<thead>
<tr>
<th>Working Distance (mm)</th>
<th>Pattern (80%–100% measured intensity) mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 mm (19.7&quot;)</td>
<td>150 mm (~5.9&quot;) H x 150 mm (~5.9&quot;) V</td>
</tr>
<tr>
<td>1000 mm (39.4&quot;)</td>
<td>300 mm (~11.8&quot;) H x 300 mm (~11.8&quot;) V</td>
</tr>
<tr>
<td>2000 mm (78.8&quot;)</td>
<td>550 mm (~21.6&quot;) H x 550 mm (~21.6&quot;) V</td>
</tr>
</tbody>
</table>

**Typical Output Performance**

<table>
<thead>
<tr>
<th>Distance = 500 mm</th>
<th>Illuminance (Lux)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55,000</td>
</tr>
</tbody>
</table>

Illuminance measurement taken on White Lights — 5700K

**Lighting Pattern for the ODL300 with Wide (W) Lenses**

<table>
<thead>
<tr>
<th>Working Distance (mm)</th>
<th>Pattern (80%–100% measured intensity) mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 mm (19.7&quot;)</td>
<td>275 mm (~10.8&quot;) H x 275 mm (~10.8&quot;) V</td>
</tr>
<tr>
<td>1000 mm (39.4&quot;)</td>
<td>550 mm (~21.6&quot;) H x 550 mm (~21.6&quot;) V</td>
</tr>
<tr>
<td>2000 mm (78.8&quot;)</td>
<td>1100 mm (~43&quot;) H x 1100 mm (~43&quot;) V</td>
</tr>
</tbody>
</table>

**Typical Output Performance**

<table>
<thead>
<tr>
<th>Distance = 500 mm</th>
<th>Illuminance (Lux)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40,000</td>
</tr>
</tbody>
</table>

Illuminance measurement taken on White Lights — 5700K

**Lighting Pattern for the ODL300 with Line (L) Lenses**

<table>
<thead>
<tr>
<th>Working Distance (mm)</th>
<th>Pattern (80%–100% measured intensity) mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 mm (19.7&quot;)</td>
<td>290 mm (~12.2&quot;) H x 55 mm (~2.1&quot;) V</td>
</tr>
<tr>
<td>1000 mm (39.4&quot;)</td>
<td>580 mm (~24.4&quot;) H x 110 mm (~4.3&quot;) V</td>
</tr>
<tr>
<td>2000 mm (78.8&quot;)</td>
<td>1160 mm (~48.8&quot;) H x 220 mm (~8.6&quot;) V</td>
</tr>
</tbody>
</table>

**Typical Output Performance**

<table>
<thead>
<tr>
<th>Distance = 500 mm</th>
<th>Illuminance (Lux)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95,000</td>
</tr>
</tbody>
</table>

Illuminance measurement taken on White Lights — 5700K

The ODL300 Linear Light produces a uniform light pattern.

Working Distance = 500 mm  Grid set to 25 mm x 25mm
**DUTY CYCLE (OVERDRIVE™ MODE ONLY)**

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

Calculating Rest Time

\[
RT = \frac{ST}{D} - ST
\]

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.

**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.

**ILLUMINATION**

ODL300 Series of Linear Lights works best for:

- **Bright Field**
- **Direct Lighting**
- **Dark Field**

**DUTY CYCLE**

RT = Rest Time

ST = Strobe Time

D = Duty Cycle

Calculating Rest Time

\[
RT = \frac{ST}{D} - ST
\]

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.

**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.

**ILLUMINATION**

ODL300 Series of Linear Lights works best for:

- **Bright Field**
- **Direct Lighting**
- **Dark Field**

**DUTY CYCLE**

RT = Rest Time

ST = Strobe Time

D = Duty Cycle

Calculating Rest Time

\[
RT = \frac{ST}{D} - ST
\]

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.

**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.

**ILLUMINATION**

ODL300 Series of Linear Lights works best for:

- **Bright Field**
- **Direct Lighting**
- **Dark Field**

**DUTY CYCLE**

RT = Rest Time

ST = Strobe Time

D = Duty Cycle

Calculating Rest Time

\[
RT = \frac{ST}{D} - ST
\]

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.

**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:**
- WHI
- 365
- 395
- 470
- 505
- 530
- 625
- 660
- 840

**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.

### 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.

M12 thread

**Dimensions:**
- 157 mm
- 145 mm
- 85 mm
- 5.50 mm
- 306 mm
- 290 mm
- 145 mm
- 32 mm
- 122 mm
- 85 mm
- 59.9 mm
- 76.5 mm

smartvisionlights.com
## ACCESSORIES

### Power Cables

<table>
<thead>
<tr>
<th>Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 m</td>
<td>SPM12-5</td>
</tr>
<tr>
<td>10 m</td>
<td>SPM12-10</td>
</tr>
<tr>
<td>15 m</td>
<td>SPM12-15</td>
</tr>
</tbody>
</table>

### Jumper Cables (Daisy-Chain)

<table>
<thead>
<tr>
<th>Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
<td>SPM12-J300</td>
</tr>
<tr>
<td>1000 mm</td>
<td>SPM12-J1000</td>
</tr>
<tr>
<td>2000 mm</td>
<td>SPM12-J2000</td>
</tr>
</tbody>
</table>

### Mount

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Axis Pan and Tilt Mount</td>
<td>PB300-M5</td>
</tr>
</tbody>
</table>

### Mounting Rails

<table>
<thead>
<tr>
<th>Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
<td>LEXT300</td>
</tr>
<tr>
<td>600 mm</td>
<td>LEXT600</td>
</tr>
<tr>
<td>900 mm</td>
<td>LEXT900</td>
</tr>
<tr>
<td>1200 mm</td>
<td>LEXT1200</td>
</tr>
</tbody>
</table>

### Diffuser

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuser Kit</td>
<td>ODL300-DKIT</td>
</tr>
</tbody>
</table>

### Linear Polarizer

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Polarizer</td>
<td>ODL300-LP</td>
</tr>
</tbody>
</table>

## 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

**Projector**

**Dark Field**

**Radial**

**Bright Field**

**Direct**

**Axial**

**Line**

**Diffuse Panel**

**Backlight**

### COMMON COLOR/WAVELENGTHS LEGEND

Wavelength options range from 365 nm to 1550 nm. Additional wavelengths available for many light families.

![Color/Wavelength Legend](image)

*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.