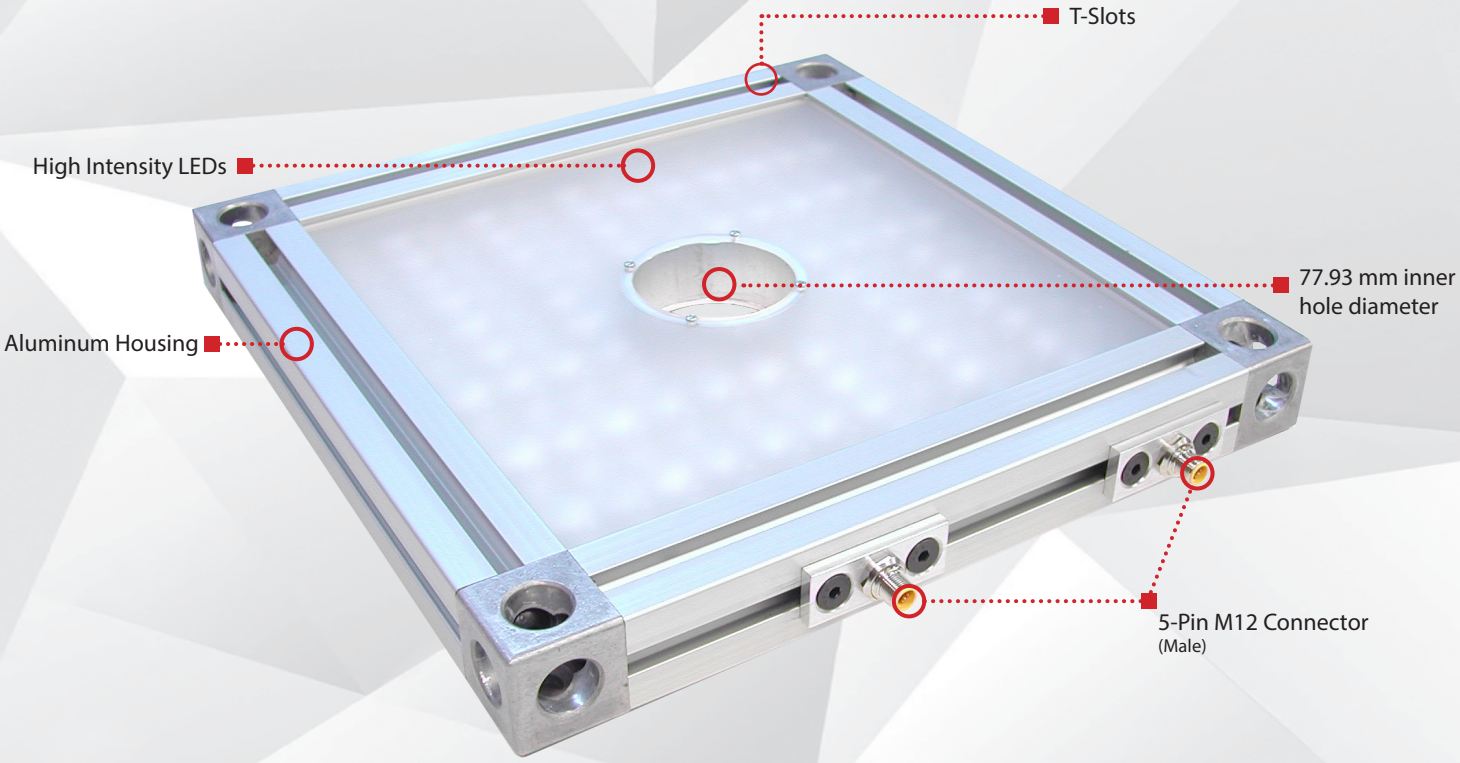
smart vision lights

ODRL300 *Large Area Long Distance* RING LIGHT

OVERDRIVE™

PRODUCT DATA SHEET



OverDRIVE

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

PRODUCT HIGHLIGHTS

- ✓ OverDrive™ — Up to five times brighter than a standard Large Area Ring Light
- ✓ 5-pin M12 quick connect
- ✓ Built-in driver, no external wiring needed
- ✓ PNP and NPN strobe input

PRODUCT DESCRIPTION

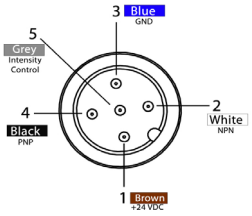
The all metal construction of the large ring light series of lights provides a small particle resistant and all around durable light. Its simple plug and play 5-pin M12 connectors allow for ease of use while allowing for full control. The ODRL300 operates with either an NPN or a PNP signal and runs on an industry standard 24VDC. The 1-10VDC intensity control assists in gaining full control of the light output.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/- 5%
Input Current	Max. 14 A per connector | 28 A total
Input Power	Max. 336 W per connector | 672 W total
Trigger Input	PNP > +4VDC or greater to activate | NPN > GND (<VDC) to activate
PNP Trigger	2.8 mA @ 4VDC | 8.8 mA @ 12VDC | 17.6 mA @ 24VDC
NPN Trigger	14.4 mA @ Ground (0VDC)
Strobe Duration	Max 4 kHz or 1 / Duty Cycle as calculated, whichever is less.*
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
Operating Temperature	-10° - 40° C (14° - 104° F) | RH max 80% non-condensing humidity
Storage Temperature	20° - 70° C (-4° - 158° F) | RH max 80% non-condensing humidity
IP Rating	IP50
Weight	~183g
Compliances	CE, RoHS, IEC 62471
Warranty	10 years**

See page 4 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	Intensity Control	1 - 10VDC	GREY*

** Some cables use green/yellow for pin 5*
For maximum intensity, it is possible to 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)

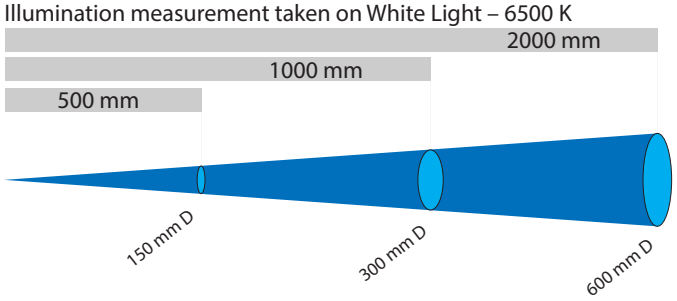
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the ODRL300 be used at a working distance between 500 mm to 4000 mm.

Illumination measurement taken on White Light – 6500 K

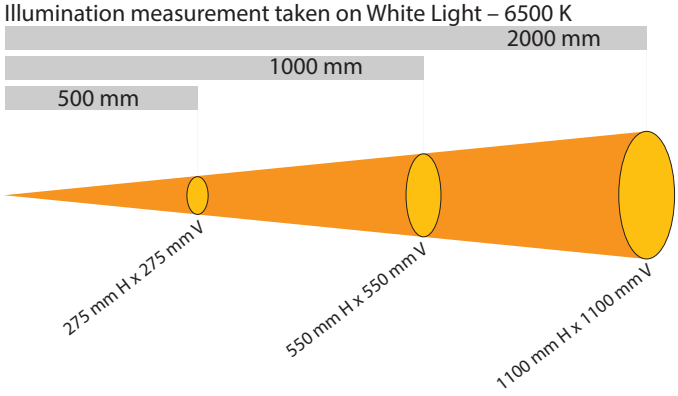


LIGHTING PATTERN FOR THE ODRL300

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	150 mm (5.9") D
1000 mm (39.4")	300 mm (11.8") D
2000 mm (78.8")	600 mm (23.6") D

Typical Output Performance	Illumination (Lux)
Distance = 500 mm	5500
Illumination measurement taken on White Lights - 6500K	

Illumination measurement taken on White Light – 6500 K



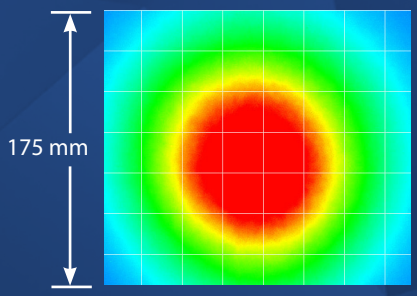
LIGHTING PATTERN FOR THE ODRL300

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	80mm (~3.1")
1000 mm (39.4")	90mm (~3.54")
2000 mm (78.8")	135mm (~5.3")

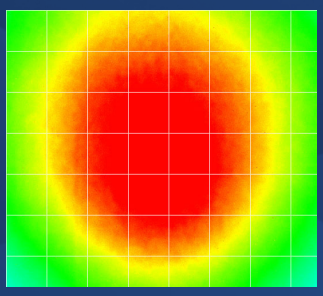
Typical Output Performance	Illumination (Lux)
Distance = 500 mm	9200
Illumination measurement taken on White Lights - 6500K	

The ODRL300 Ring Light produces a uniform light pattern.

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



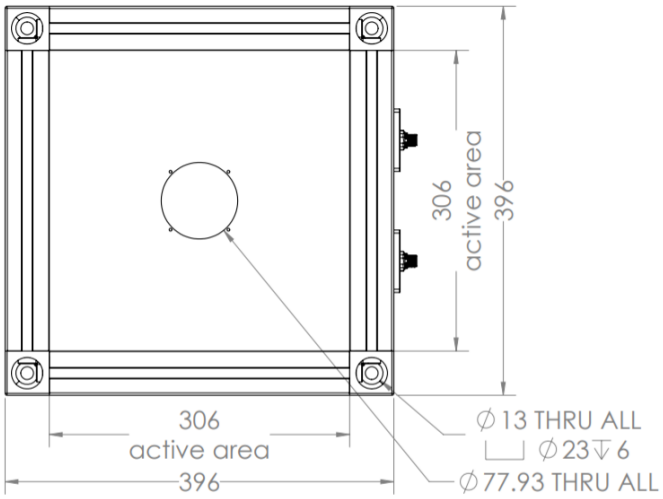
Narrow

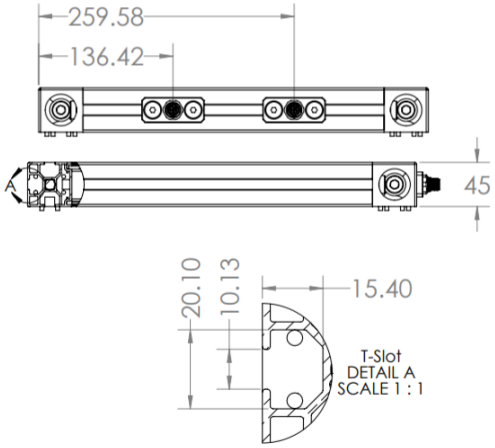


Wide

PRODUCT DRAWING

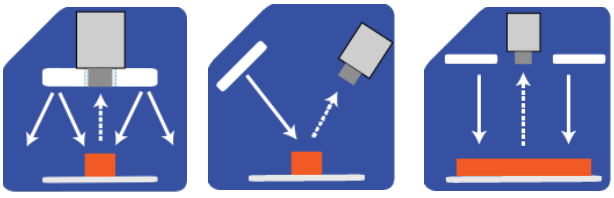
CAD files available on our website.





ILLUMINATION

ODRL300 Series of Ring Lights works best for:

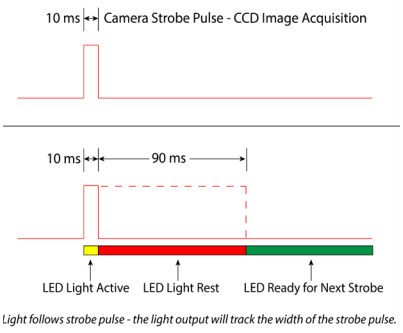


Radial | Bright Field | Direct

DUTY CYCLE

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

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



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

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

Rest Time is 90 ms for 10 ms Strobe Time

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

ODRL300– □□□ **–** □

COLOR:

LENS:
Leave blank for Wide (30°)

N = Narrow

Part Number Examples:

ODRL300-625	ODRL300, 625 Red Wavelength, Standard (Wide) Lenses
ODRL300-WHI-N	ODRL300, White, Narrow Lenses

Additional wavelengths and lens options available upon request.

STANDARD LENS OPTICS

NARROW
Narrow, 14° angle cone lenses are standard. They projects a narrow beam of illumination and are used for long working distances.

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

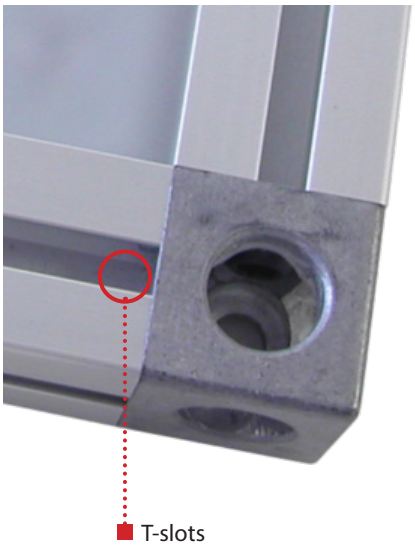
** Additional lens options available upon request.*

MOUNTING

Mounting options include four T-slots and four M4 threaded holes on the ODRL300 ring light.

Optional Mounting Hardware:
T-Slots = M5 x 0.8 mm T-Nut
Threaded screw Holes = M4 screws

Camera Mount For ODRL300
Part #: BKT0005



ACCESSORIES

Power Cables

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

Jumper Cables

Length	Part Number
300 mm	5PM12-J300
1000 mm	5PM12-J1000
2000 mm	5PM12-J2000

Camera Mounting Adapter

Description	Part Number
Camera Mount	BKT0005

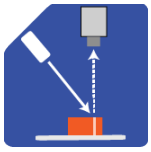
GLOSSARY

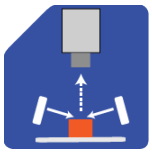
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

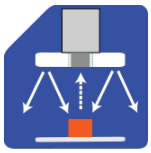
TERMINOLOGY

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.

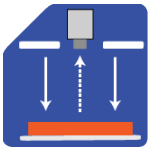
TYPES OF ILLUMINATION

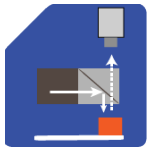

Projector

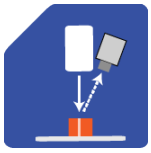

Dark Field

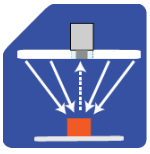

Radial

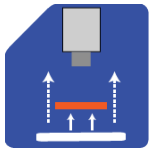

Bright Field


Direct


Axial

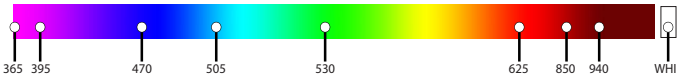

Line


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.*

SHORTWAVE **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's is available in SWIR wavelengths.*