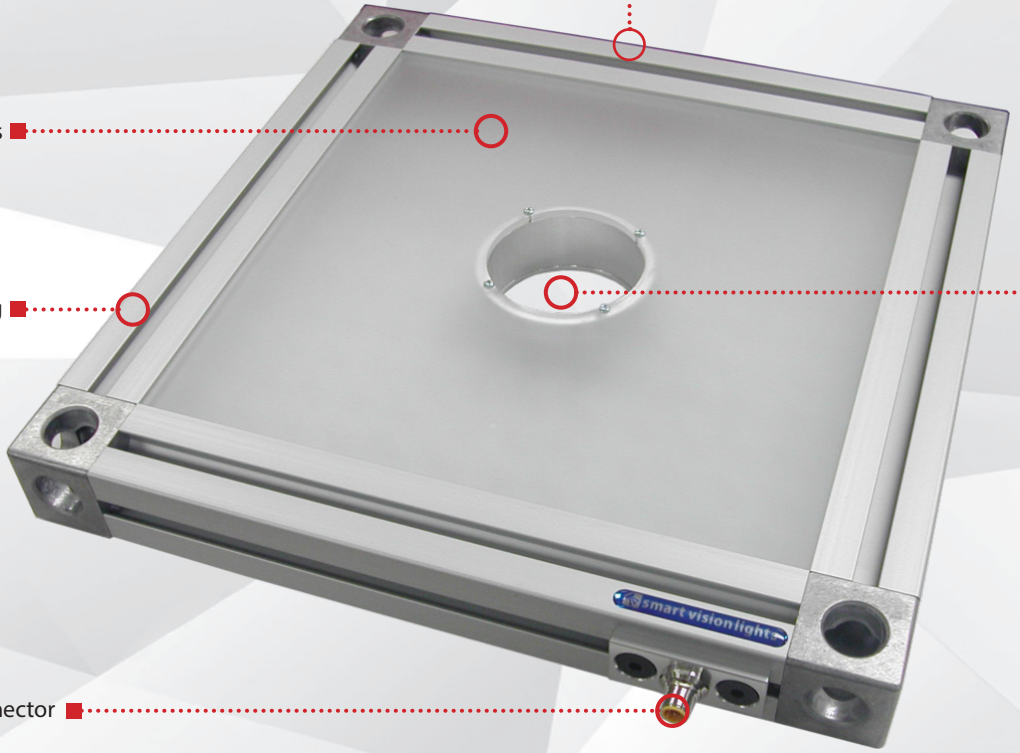
smart vision lights

RL300 *Large Area Long Distance* RING 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
- ✓ 128, 1mm² Die high current LEDs

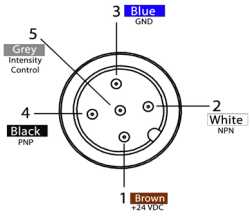
PRODUCT DESCRIPTION

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 connector allows for ease of use while allowing for full control. The RL300 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	2 A
Wattage	48 W
On / Off Input	PNP > +4VDC or greater to activate | NPN > GND (<1VDC) to activate
PNP Line	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @ 24VDC
NPN Line	15 mA @ Ground (0VDC)
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 24VDC (not both).
Potentiometer	270º turn pot – Intensity control of 10% to 100%. Turn clockwise to increases intensity
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
Ambient Temperature	-18º–40º C (0º–104º F)
IP Rating	IP50
Weight	~183g
Compliances	CE, RoHS, IEC-62471

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*

OPTIONAL

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

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

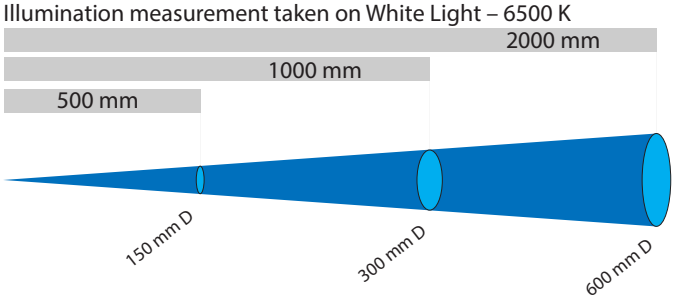
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the RL300 be used at a working distance between 500 mm to 4000 mm.

Illumination measurement taken on White Light – 6500 K

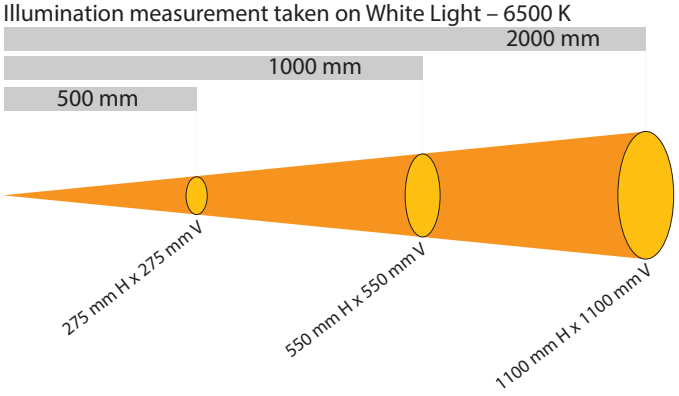


LIGHTING PATTERN FOR THE RL300

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



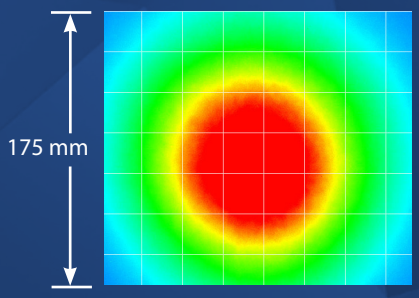
LIGHTING PATTERN FOR THE RL300

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")

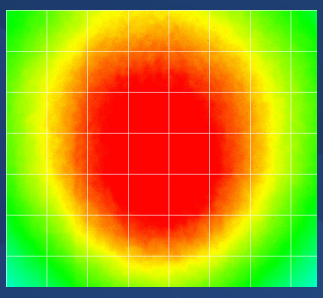
Typical Output Performance	Illumination (Lux)
Distance = 500 mm	9200
Illumination measurement taken on White Lights - 6500K	

The RL300 Ring Light produces a uniform light pattern.

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



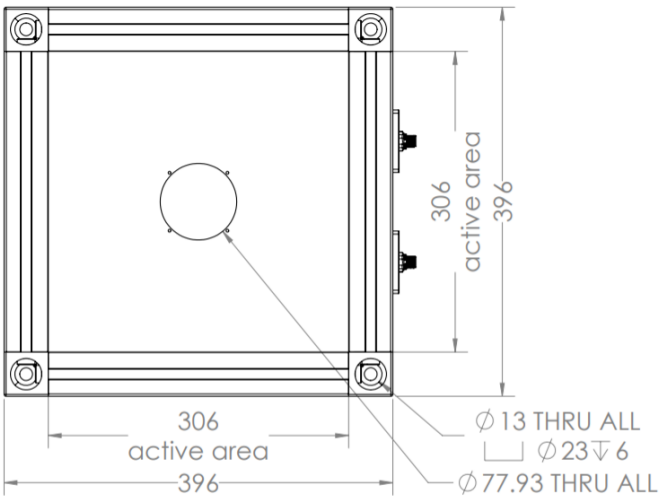
Narrow

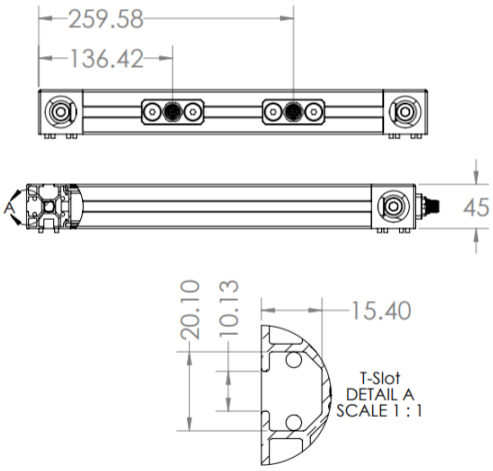


Wide

PRODUCT DRAWING

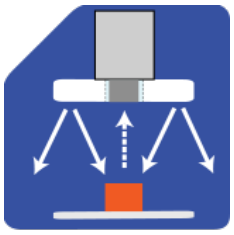
CAD files available on our website.
Dimensions are in mm.





ILLUMINATION

RL300 Series of Ring Lights works best for:



Radial

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

RL300 – □□□ – □

COLOR:

WHI 470 505
530 625 850 940

LENS:

Leave blank for Wide (40°)

N = Narrow

L = Line

Part Number Examples:

RL300-625 RL300, 625 Red Wavelength, Standard (Wide) Lenses

RL300-WHI-N RL300, 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 RL300 ring light.

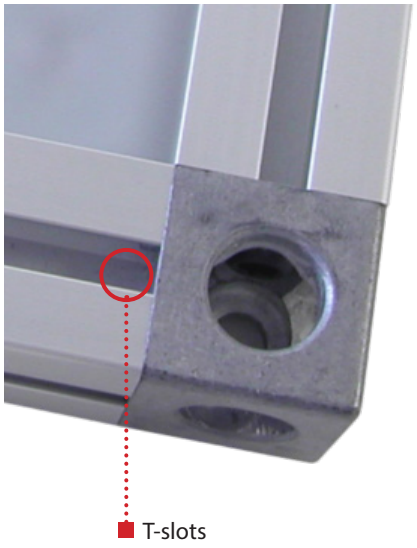
Optional Mounting Hardware:

T-Slots = M5 x 0.8 mm T-Nut

Threaded screw Holes = M4 screws

Camera Mount For RL300

Part #: BKT0005



ACCESSORIES

Power Cables	
	
Lengths	**Part Number**
5 m	5PM12-5
10 m	5PM12-10
15 m	5PM12-15

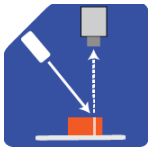
GLOSSARY

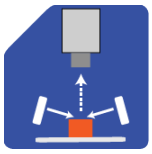
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

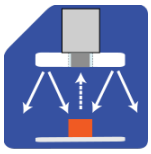
TERMINOLOGY

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.

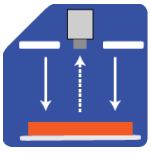
TYPES OF ILLUMINATION

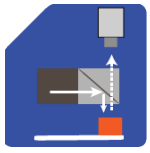

Projector

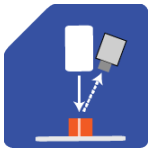

Dark Field

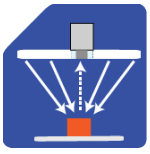

Radial

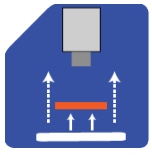

Bright Field


Direct


Axial

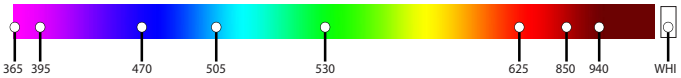

Line


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.*

SWIR 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.*