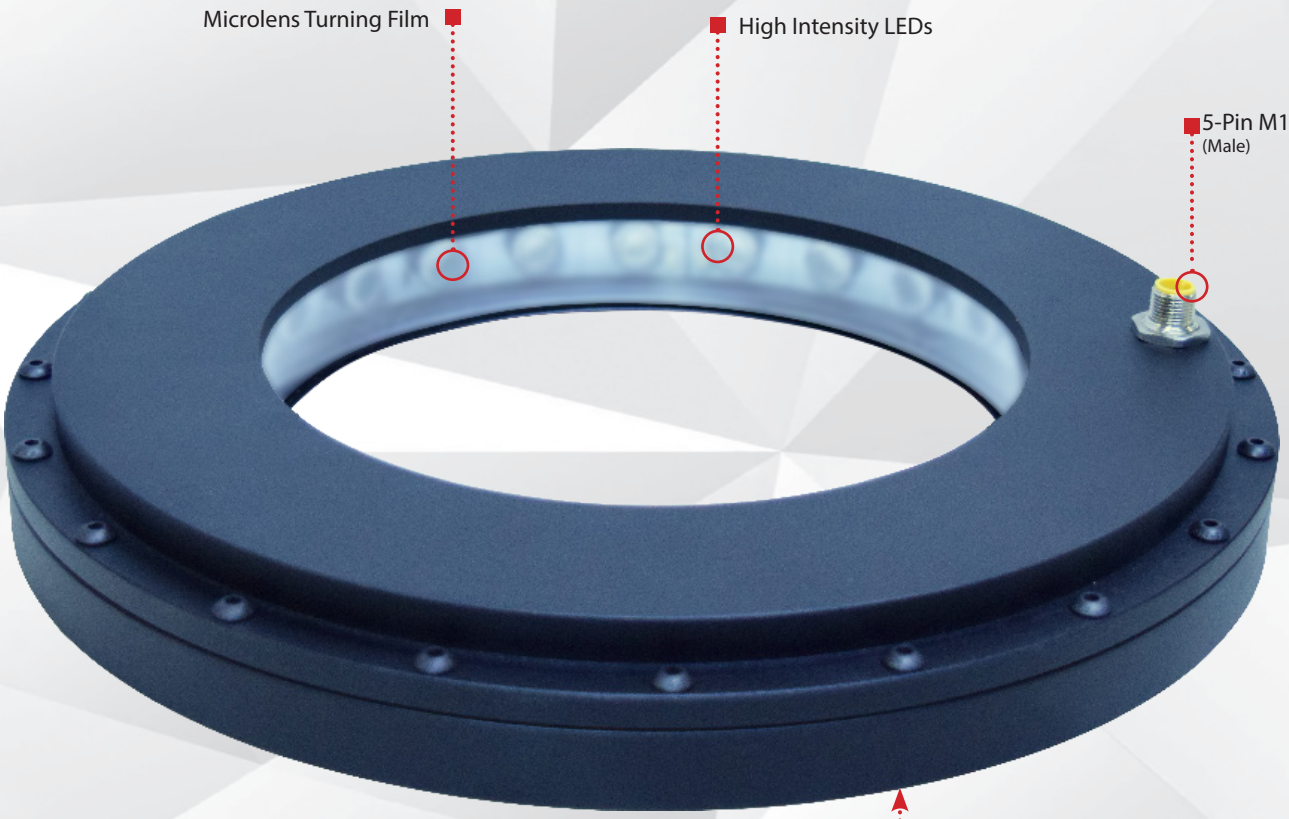
smart vision lights DFLW-200 *Dark Field* RING LIGHT

MULTI-DRIVE™ | WASHDOWN

PRODUCT DATA SHEET



multi drive™

Warranty	Compliant	Compliant	Rated	Connector
10 YEAR	IEC 62471	CE RoHS	IP 68	5-PIN M12

PRODUCT HIGHLIGHTS

- ✓ Built-in Multi-Drive™ allows the light to work in continuous operation or OverDrive™ strobe mode
- ✓ Microlens turning film directs a beam of light at a 25° angle towards an object, resulting in a high concentration and uniform field of illumination
- ✓ SafeStrobe™ technology ensures protected operation of LEDs
- ✓ Built–in driver
- ✓ PNP and NPN trigger signal input

PRODUCT DESCRIPTION

The DFLW-200 Dark Field Washdown Ring Light is IP68 rated and comes in an anodized black aluminum housing. The built-in Multi-Drive™ driver allows the light to work in continuous operation or OverDrive™ strobe mode, depending on the wiring configuration. The industry-standard 5-pin M12 connector makes for simple wiring. The 1–10V DC analog signal line gives the user total control over intensity in continuous operation mode. Grounding the analog signal line put the light into OverDrive™ strobe mode.

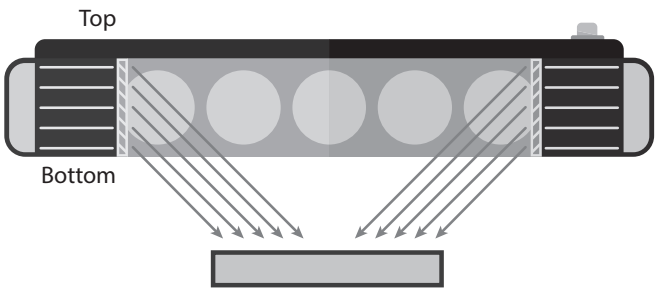
PRODUCT SPECIFICATIONS

	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Electrical Input	24V DC +/- 5%	
Input Current	Max. 1.48 A	Max. 12.35 A
Wattage	Max. 35.5 W	Max. 296.4 W
PNP Line	4 mA @ 4V DC | 10 mA @ 12V DC | 20 mA @24V DC	
NPN Line	15 mA @ Ground (0 V DC)	
OverDrive™ Strobe Mode	**Not applicable**	Connect pin 5 to GND (see Wiring Configuration for more information)
Strobe Duration	**Not applicable**	Min. 10 µs | Max. 50 ms (see SafeStrobe™ Technology for more information)
Duty Cycle	**Not applicable**	Max. 10%
Strobe Input	**Not applicable**	PNP: +4V DC or greater to activate NPN: GND (<1V DC) to activate
Continuous Operation Mode	NPN can be tied to ground **OR** PNP can be tied to 24V DC (not both)	**Not applicable**
On/Off Input	PNP: +4V DC or greater to activate NPN: GND (<1V DC) to activate	**Not applicable**
Connection	5-pin M12 connector	
Ambient Temperature	0º–45ºC (32º–114ºF)	
IP Rating	IP68	
Weight	120 g	
Compliances	CE, RoHS, IEC 62471	

MICROLENS TURNING FILM

When combined with high-power LEDs, the microlens turning film directs a beam of light at a 25° angle toward the object, resulting in a high concentration and uniform field of illumination. This technique allows for a large-diameter dark field ring light to have an extended working distance while maintaining light intensity and uniformity.

The microlens requires the bottom of the light to be pointed towards the object being inspected. The bottom is the side without the connector.



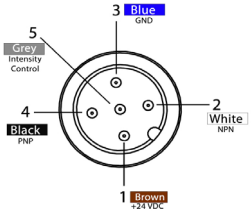
RESOURCE CORNER

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

Smart Vision Lights
2359 Holton Road
Muskegon, MI 49445
P: +1 231.722.1199 | F: +1 231.722.9922
smartvisionlights.com
techsupport@smartvisionlights.com
Hours: Monday — Friday | 8 am–5 pm ET

WIRING CONFIGURATION

CONTINUOUS OPERATION MODE



Pin layout for light (male connector)

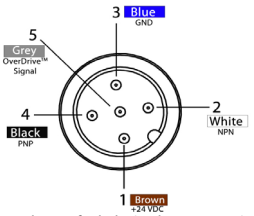
Pins	Function	Signal	Wire Color
1	Power In	+24 V DC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1-10 V DC**	GREY*

** 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).*

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 nonrepeatable lighting.
(See Product Specifications for requirement.)

OVERDRIVE™ STROBE MODE



Pin layout for light (male connector)

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

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

Failure to supply light with correct input current will result in nonrepeatable lighting.
(See Product Specifications for requirement.)

LIGHT PATTERNS

Smart Vision Lights recommends the DFLW-200 be used at a working distance between 20 mm and 75 mm.

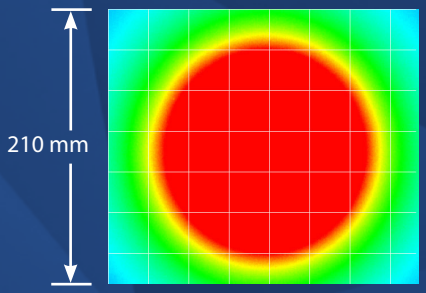
LIGHTING ILLUMINATION FOR THE DFLW-200

Continuous Operation Mode	
Typical Output Performance	Illuminance (Lux)
Distance = 25 mm	60,000
Illuminance measurement taken on White Light, 4800 K	

OverDrive™ Mode	
Typical Output Performance	Illuminance (Lux)
Distance = 25 mm	330,000
Illuminance measurement taken on White Light, 4800 K	

The DFLW-200 Ring Light produces a uniform light pattern.

WD = Working Distance Grid set to 30 mm x 30 mm



WD = 25 mm

MULTI-DRIVE™

Multi-Drive™ offers the best of both worlds. Continuous operation and OverDrive™ mode (HIGH output strobe/pulse) are available in a single light. Other advantages of Multi-Drive™ include faster imaging and capture/freeze motion on high-speed lines.

The Multi-Drive™ feature allows the user to run the light continuously or in OverDrive™ at the maximum allowed intensity by simply setting the product configuration. OverDrive™ strobe mode has **up to eight times** the power of continuous operation.

SAFESTROBE™ TECHNOLOGY

SafeStrobe™ technology is a unique technology that applies safe working parameters to ensure high-current LED's 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 LED's.

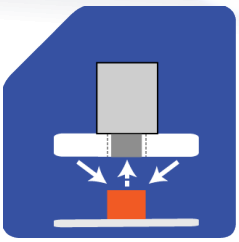
MOUNTING

Mounting options include four M6 threaded holes located on the DFLW-200.

Hardware included with light:
(2) M6 screws (hex)

ILLUMINATION

The DFLW-200 Dark Field Ring Lights works best for:



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 wavelength 625.

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, 530, and WHI.

PART NUMBER

DFLW-200 – □□□ – □□

COLOR:

WHI 470 530 625 850

HOUSING

Leave blank for Anodized Black Aluminum

SS = Stainless Steel

Part Number Examples:

DFLW-200-625 (DFLW-200, 625 nm Red Wavelength)

DFLW-200-625-SS (DFLW-200, 625 nm Red Wavelength, Stainless Steel housing)

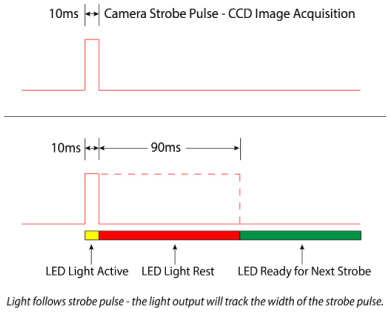
Additional wavelength and lens options available upon request

DUTY CYCLE (OVERDRIVE™ MODE ONLY)

This section applies only if light is in OverDrive™ strobe mode.

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

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

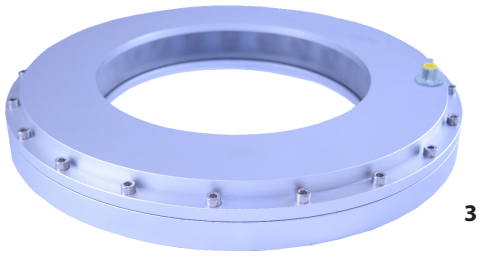
$$0.1 = 0.0001 \times 1000$$

Duty Cycle is 10% (0.1)

Note: Strobe time is limited by the strobe rate.

STAINLESS-STEEL VERSION

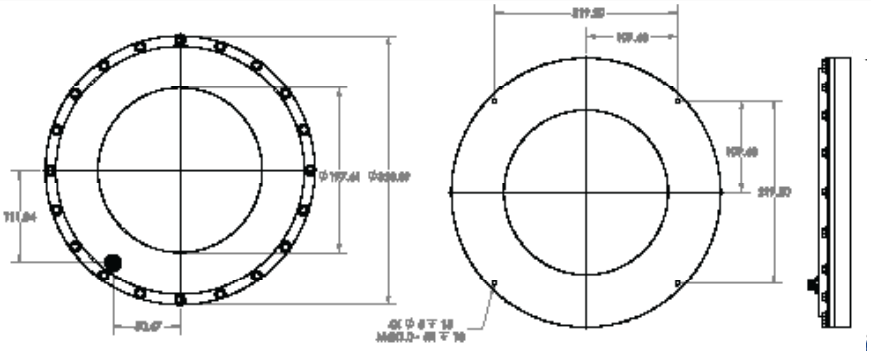
The DFLW-200 is available in a stainless-steel housing. Stainless-steel housing is recommended for any food grade application.
Lead time for the stainless-steel version of the DFLW-200 is longer than that of the anodized black aluminum housing version.



316 Stainless-Steel Housing

Add - SS to end of part number for Stainless-Steel

PRODUCT DRAWING



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

ACCESSORIES

Power Cables

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

Power Cables (Washdown)

Lengths	Part Number
15 m	W5PM12-15

Washdown cables have a 316 stainless-steel connector(s).

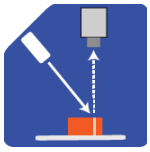
GLOSSARY

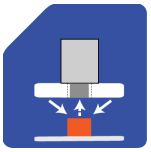
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

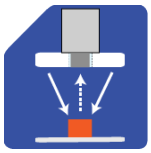
TERMINOLOGY

OverDrive™ Light includes an integrated high-current strobe driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-current strobe operation) modes into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need of an external driver.
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.

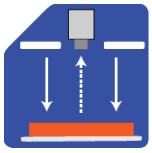
TYPES OF ILLUMINATIONS

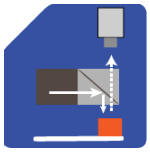

Projector

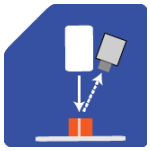

Dark Field

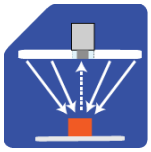

Radial

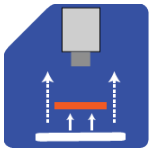

Bright Field


Direct


Axial

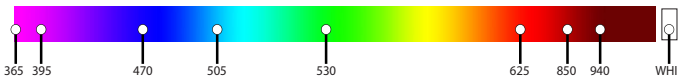

Line


Diffuse Panel


Backlight

COMMON COLOR/WAVELENGTHS LEGEND

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



See Part Number section for **this light's available standard wavelengths.*

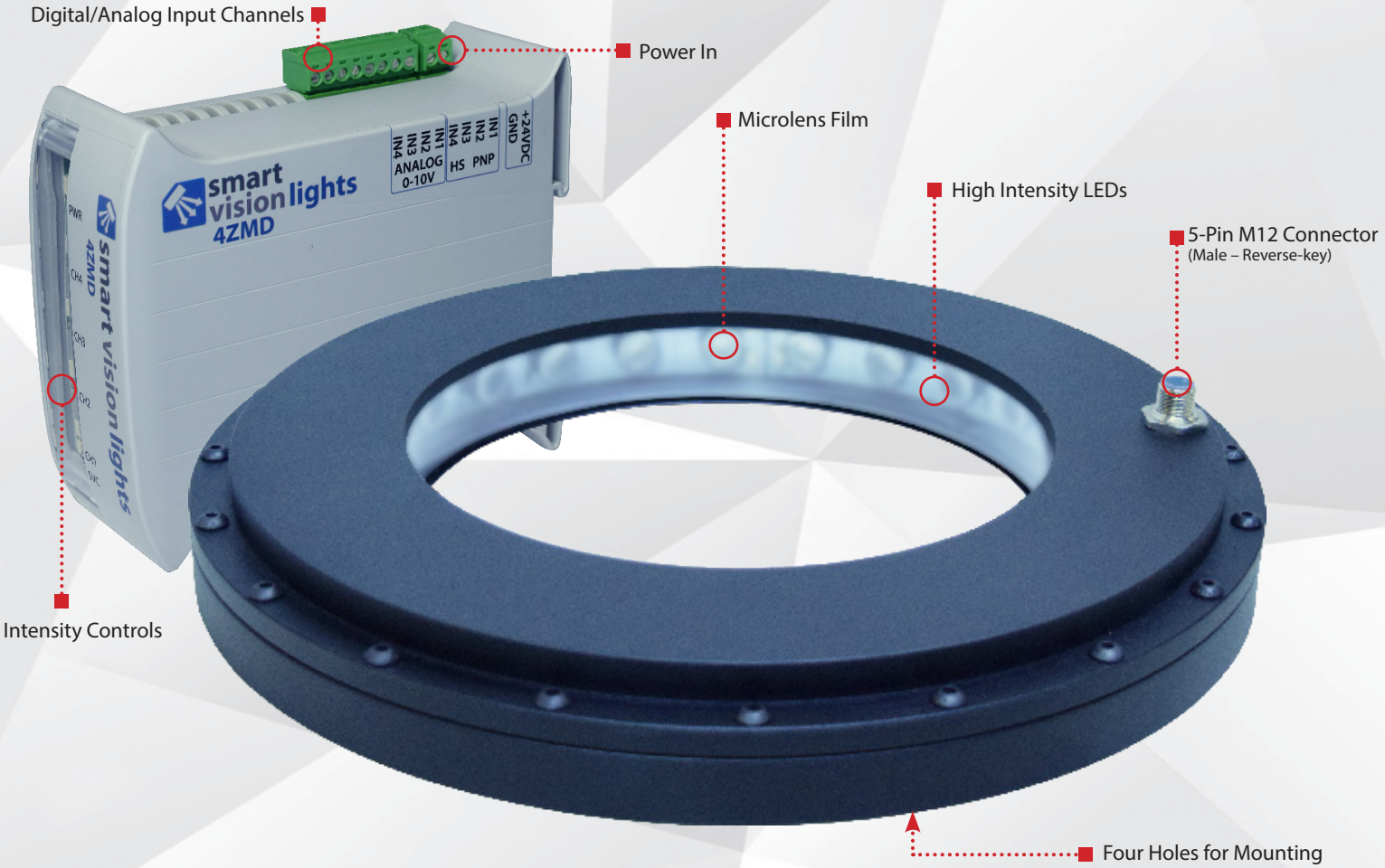
SWIR SHORT WAVE INFRARED

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

smart vision lights DFLW-200-4Z *Dark Field* RING LIGHT KIT

ZONE LIGHT | WASHDOWN

PRODUCT DATA SHEET



multi drive™

Warranty	Compliant	Compliant	Rated	Connector
10 YEAR	IEC 62471	CE RoHS	IP 68	5-PIN M12

PRODUCT HIGHLIGHTS

- ✓ Four individual zones built into a single light
- ✓ Kit includes the 4ZMD-750, which allows for continuous operation or OverDrive™ strobe mode for each channel
- ✓ Built-in individual intensity control channels for either continuous operation or OverDrive™ strobe mode
- ✓ Microlens film directs a beam of light at a 25° angle towards an object, resulting in a high concentration and uniform field of illumination

PRODUCT DESCRIPTION

DFLW-200-4Z

The DFLW-200-4Z Dark Field Washdown Ring Light is IP68 rated and comes in an anodized black aluminum housing. The DFLW-200-4Z has four zones, making it a quadrant light in which each individual zone can be controlled independently of each other.

4ZMD-750

The 4ZMD is an external driver that permits control of up to four separate light zones either independently or simultaneously, in any combination. The 4ZMD has independent intensity controls and built-in Multi-Drive™, allowing a range to be set from 10%–100% for continuous operation or OverDrive™ strobe mode. **The maximum continuous current for the 4ZMD-750 is 750 mA when connected to the DFLW-200-4Z.**

When connected to a LED Light Manager (LLM), each individual channel can be set to continuous on, off, or any intensity level in between, and even OverDrive™ strobe mode. **For more information about the LLM, visit smartvisionlights.com/products/llm.**

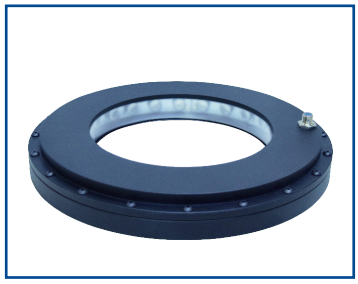
WHAT'S INCLUDED

When you order a DFLW-200-4Z ring light, such as the DFLW-200-4Z-WHI, the following item is included:

DFLW-200-4Z requires an external constant current driver with maximum 750 mA per channel.

DFLW-200-4Z
RING LIGHT

When you order a DFLW-200-4Z ring light kit, such as the DFLW-200-4Z-WHI-KIT, the following items are included:



DFLW-200-4Z
RING LIGHT

+

4ZMD-750
DRIVER

+

5PM12-J2000-KR
CABLE

RESOURCE CORNER

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

PRODUCT SPECIFICATIONS

DFLW-200-4Z

PER CHANNEL	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Maximum LED Input Current	1.8A	12.0 A
Input Connector	5-pin M12 connector (male — reverse-key)	
Strobe	**Not applicable**	Max. 50 ms
Duty Cycle	**Not applicable**	Max. 10%
Ambient Temperature	0º–45ºC (32º–114ºF)	
IP Rating	IP68	
Weight	~120 g	
Warranty	10 year. For complete warranty information, visit smartvisionlights.com/warranty	
Compliances	CE, RoHS, IEC 62471	

NOTE:
The DFLW-200-4Z requires an external constant current driver, such as the recommended 4ZMD-750.

4ZMD-750

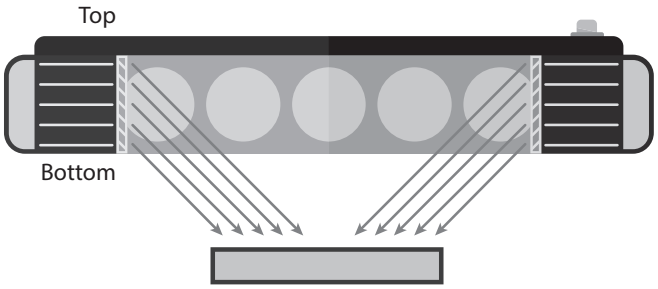
OUTPUT PER CHANNEL	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Electrical Input	24VDC +/- 5%	
Operating Current (No Load)	70 mA	
Electrical Input Connector	2-position screw terminal block — 14 AWG max wire size	
Number of Input Channels	4	
Input Connector	8-position screw terminal block — 14 AWG max wire (4 for PNP and 4 for analog)	
Input Channel Current	PNP input: 4 mA @ 4VDC | 10 mA @12VDC | 20 mA@ 24VDC	
Strobe Duration	N/A	Min. 10 µs | Max. 50 ms (see SafeStrobe™ Technology for more information)
Duty Cycle	N/A	Max. 10% (see Duty Cycle for more information)
Analog Intensity	The output is adjustable from 10%–100% of intensity by applying 1–10VDC signal	OverDrive™ Strobe Mode: Apply 0VDC
Output Channels	4 channels for light zones	
Output Connector	5-pin M12 connector (female – reverse-key)	
Indicator Lights	Power on = Green light Individual channel = Yellow light Service = Red light	
Mounting	DIN rail	
Ambient Temperature	-18°-40° C (0°-104° F)	
Ambient Humidity	0-95% non-condensing	
Weight	~230g	
Warranty	3 years. For complete warranty information, visit smartvisionlights.com/warranty	
Compliances	CE, RoHS	

TOTAL INPUT PER UNIT (MAX)	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Input Current	2.1 A	19 A
Input Power	50.4 W	460 W

MICROLENS FILM

When combined with high-power LEDs, the microlens turning film directs a beam of light at a 25° angle toward the object, resulting in a high concentration and uniform field of illumination. This technique allows for a large-diameter dark field ring light to have an extended working distance while maintaining light intensity and uniformity.

The microlens requires the bottom of the light to be pointed towards the object being inspected. The bottom is the side without the connector.



LED COLOR ACCURACY

To ensure accurate color matching between lights, Smart Vision Lights features a color consistent, 3-step MacAdam ellipse LED package with a nominal 5700 K color temperature.

LIGHT PATTERNS

LIGHTING ILLUMINATION FOR THE DFLW-200-4Z

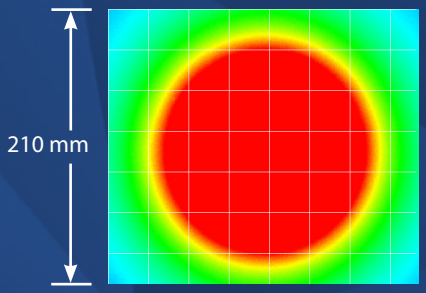
Continuous Operation Mode		
Typical Output Performance	Illuminance (Lux)	
	1 Zone	All Zones
Distance = 100 mm	25,500	102,000

OverDrive™ Mode		
Typical Output Performance	Illuminance (Lux)	
	1 Zone	All Zones
Distance = 100 mm	123,000	495,000

Smart Vision Lights recommends using the DFLW-200-4Z at a working distance between 50 mm and 200 mm.

The DFLW-200 Ring Light produces a uniform light pattern.

WD = Working Distance Grid set to 30 mm x 30 mm



MULTI-DRIVE™

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The Multi-Drive™ feature allows the user to run the light continuously or in OverDrive™ at the maximum allowed intensity by simply setting the product configuration. OverDrive™ strobe mode has **up to five times** the power of continuous operation.

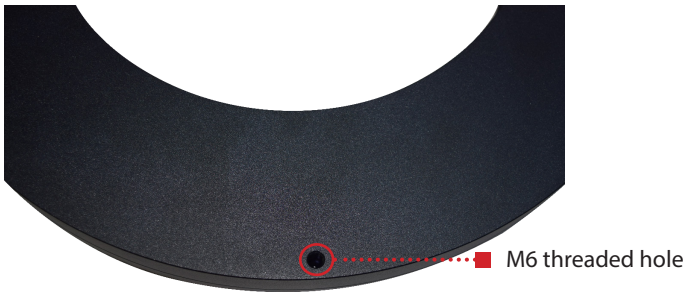
SAFESTROBE™ TECHNOLOGY

SafeStrobe™ technology is a unique technology that applies safe working parameters to ensure high-current LED's 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 LED's.

MOUNTING

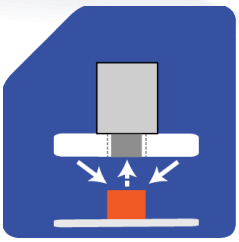
Mounting options include four M6 threaded holes located on the DFLW-200-4Z.

Hardware included with light:
(2) M6 screws (hex)



ILLUMINATION

The DFLW-200-4Z Dark Field Ring Lights works best for:



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 wavelength 625.

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, 530, and WHI.

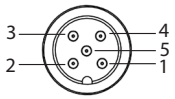
OUTPUT CONFIGURATION

Using the Reverse-Key 5-pin M12 Connector

When connecting a Smart Vision Lights four-zone lights to the 4ZMD, a reverse-key 5-pin M12 cable is required. All Smart Vision Lights four zone lights come equipped with a 5-pin reverse-key connector.

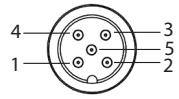
The reverse-key 5-pin M12 connector simplifies connecting lights to the 4ZMD, with very little wiring needed.

4ZMD



Reverse-Key 5-pin M12 Connector (female)

DFLW-200-4Z



Reverse-Key 5-pin M12 Connector (male)

NOTE:

Smart Vision Lights uses reverse-key cables that have a blue-grey tip on the connectors.

5-Pin M12 Connectors (Female) Pin Layout

Pin	Channel	Color
1	Common	Brown
2	1	White
3	2	Blue
4	3	Black
5	4	Green/Yellow

INPUT CONFIGURATION

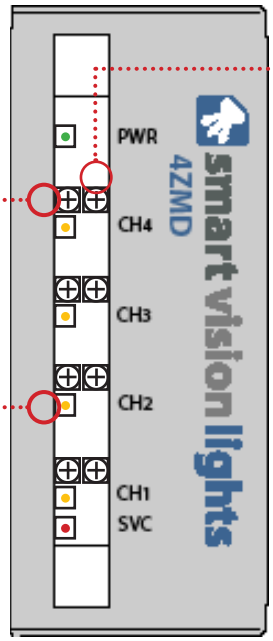
Using Input Terminal Block

Input terminal block is also used when connecting to the LED Light Manager (LLM). Smart Vision Lights recommends using the cable provided (part number: IC-400) to connect the 4ZMD driver to the LLM.

LLM Output Channels	4ZMD Input Channels
DO1	PNP IN1
DO2	PNP IN2
DO3	PNP IN3
DO4	PNP IN4
DO5/AO1	Analog 1
DO6/AO2	Analog 2
DO7/AO3	Analog 3
DO8/AO4	Analog 4

ADJUSTING INTENSITY

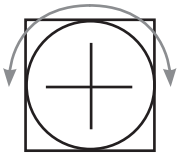
The 4ZMD allows for the control of up to four individual channel intensity levels. Depending on how each channel is wired, its intensity can be adjusted for either continuous operation or OverDrive™ strobe mode. Each channel intensity can be adjusted either in continuous operation or OverDrive™ strobe mode, but not both modes simultaneously. Each channel has a yellow indicator light that will illuminate when the channel is active.



Intensity Control Pot for Continuous Operation

Intensity Control Pot for OverDrive™

Channel Indicator LED (yellow)



270° turn pot
Clockwise = Increase intensity
Counterclockwise = Decrease intensity

NOTE:

When in continuous operation, channel intensity can be individually adjusted using 1–10VDC on the analog input.

NOTE:

When managing the 4ZMD with the LED Light Manager (LLM), turn the intensity pots on the front of the 4ZMD fully clockwise to ensure intensity is completely controlled by the LLM.

UNDERSTANDING ZONES

The DFLW-200-4Z has four individual built-in zones that can act independently. Each zone can be set to continuous on, off, any intensity level in between, and even OverDrive™ strobe mode. Intensity levels can be set by programming a LLM to control the zones or using the intensity controls on the front of the 4ZMD (see Managing Zones and Adjusting Intensity).

The DFLW-200-4Z allows any combination of the four zones to be turned on at the same time, including adjacent and opposing zones.

One Zone | Two Zones | Three Zones | Four Zones | Opposing Zones

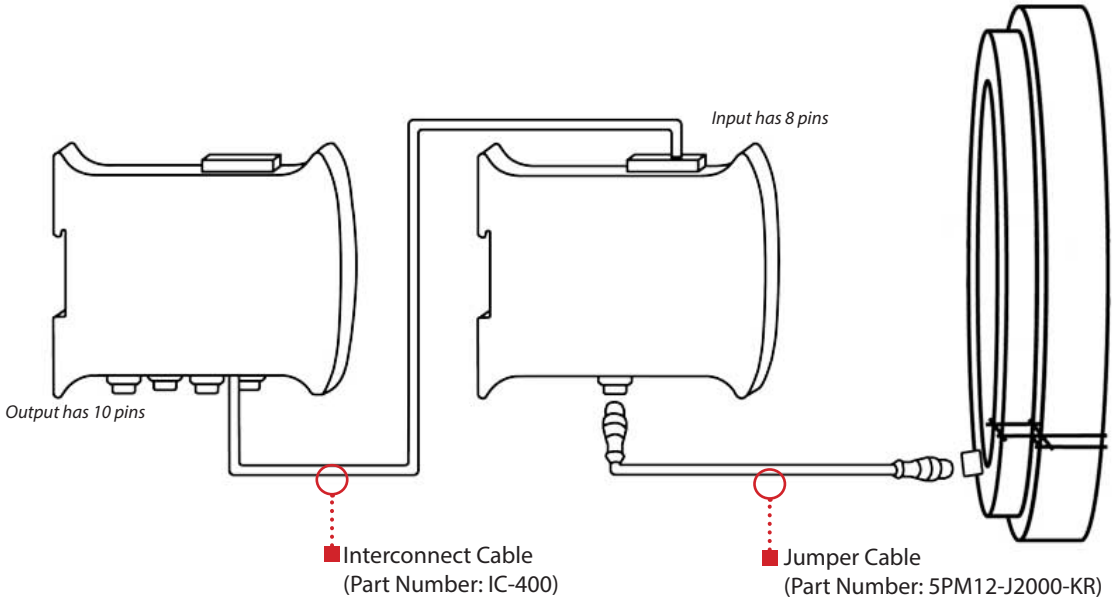
MANAGING ZONES

Connect the LLM to the 4ZMD driver. The LLM allows for easy control of each individual zone. The event programmed within the LLM can contain multiple sequences. Users can set each zone independently to continuous on, off, or any intensity level in between, and even OverDrive™ strobe mode.

For more information about the LLM, visit: smartvisionlights.com/products/llm.

WIRING CONFIGURATION

Input Channels for 4ZMD
Power In — Power source
HS PNP — High-speed PNP strobing/trigger
Analog 0–10 V — Input for setting intensity for continuous mode (1–10VDC) or OverDrive™ strobe mode (0VDC)



PART NUMBER

DFLW-200-4Z – □□□ – □□ – □□□

COLOR:

WHI, 470, 530, 625, 850

HOUSING

Leave blank for Anodized Black Aluminum

SS = Stainless Steel

KIT

Leave blank for only light.

KIT = Kit Includes light, cable and external driver

Additional wavelength available upon request

Part Number Examples:

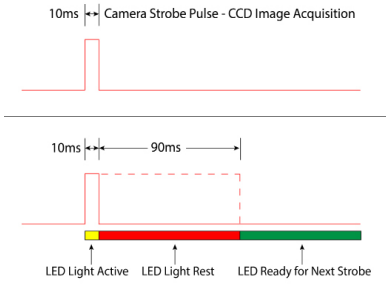
DFLW-200-4Z-625	DFLW-200-4Z, 625 nm red wavelength, standard housing light only
DFLW-200-4Z-WHI-KIT	DFLW-200-4Z, WHI, KIT white, standard housing, light, cable and external driver
DFLW-200-4Z-WHI-SS-KIT	DFLW-200-4Z, WHI, KIT white, stainless steel housing, light, cable and external driver

DUTY CYCLE (OVERDRIVE™ MODE ONLY)

This section applies only if light is in OverDrive™ strobe mode.

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

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

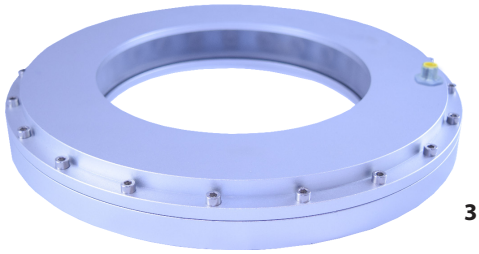
$$0.1 = 0.0001 \times 1000$$

Duty Cycle is 10% (0.1)

Note: Strobe time is limited by the strobe rate.

STAINLESS-STEEL VERSION

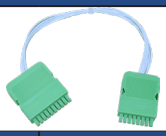
The DFLW-200-4Z is available in a stainless-steel housing. Stainless-steel housing is recommended for any food grade application.
Lead time for the stainless-steel version of the DFLW-200 is longer than that of the anodized black aluminum housing version.



316 Stainless-Steel Housing

Add - SS to end of part number for Stainless-Steel

ACCESSORIES

Interconnect Cable	
	
Lengths	Part Number
400 mm	IC-400

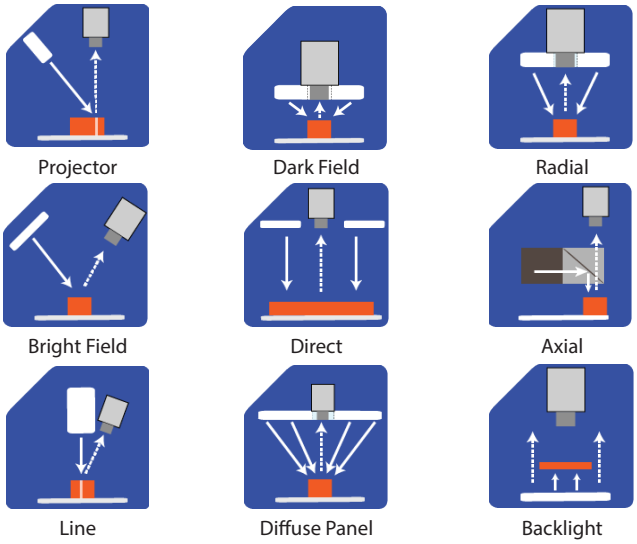
GLOSSARY

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

TERMINOLOGY

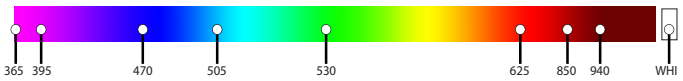
OverDrive™ Light includes an integrated high-current strobe driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-current strobe operation) modes into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need of an external driver.
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 ILLUMINATIONS



COMMON COLOR/WAVELENGTHS LEGEND

Wavelength 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.*

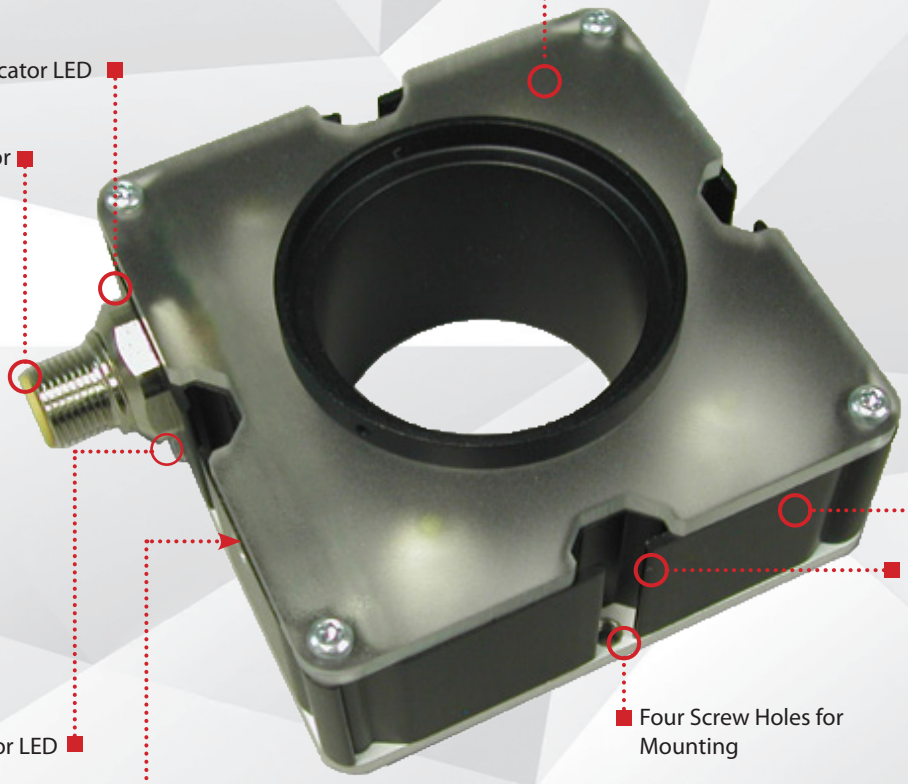
SWIR SHORT WAVE INFRARED

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

smart vision lights

ODR80 *EZ Mount* 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 EZ Mount Ring Light
- ✓ SafeStrobe™ technology ensures protected operation of LEDs
- ✓ T-slot for mounting
- ✓ Conversion adapters for different cameras
- ✓ 5-pin M12 quick connect

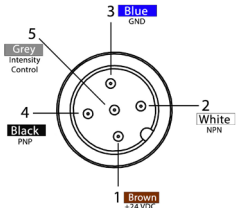
PRODUCT DESCRIPTION

The ODR80 is an all-around durable light. Its simple plug-and-play 5-pin M12 connector is easy to use. The 1–10VDC intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 2A draw during strobe — max avg. 200 mA
Wattage	Max. 48 W during strobe — max. avg. 4.8 W
Strobe Input	PNP > +4VDC to activate | NPN > GND (<1VDC) to activate
PNP Line	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @ 24VDC
NPN Line	15 mA @ Common (0VDC)
Duty Cycle	Max. 10%
Strobe/Pulse Time	Max. 5000 SPS (strobes per second) | Max. single pulse = 125 ms (see SafeStrobe™ Technology for more information)
Red Indicator LED	ON = Light Rest (LED inactive) | OFF = LED/Light Ready
Green Indicator LED	ON = Power
Potentiometer	270º turn pot — intensity control of 10%–100%. Turn clockwise to increases intensity.
Analog Intensity	The output is adjustable from 10%–100% of brightness by a 1–10VDC signal.
Connection	5-pin M12 connector
Ambient Temperature	-18º–40ºC (0º–104ºF)
IP Rating	IP50
Weight	~183 g
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

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

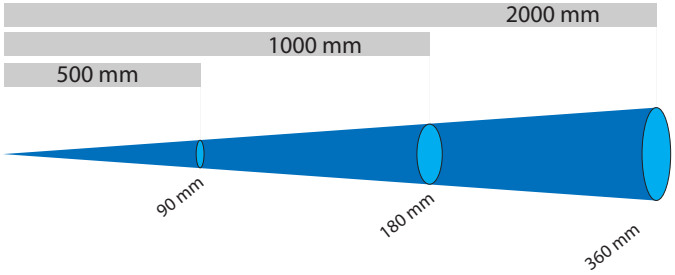
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the ODR80 be used at a working distance between 500 mm and 4000 mm.

Beam Diameter (White Light) — 5700K

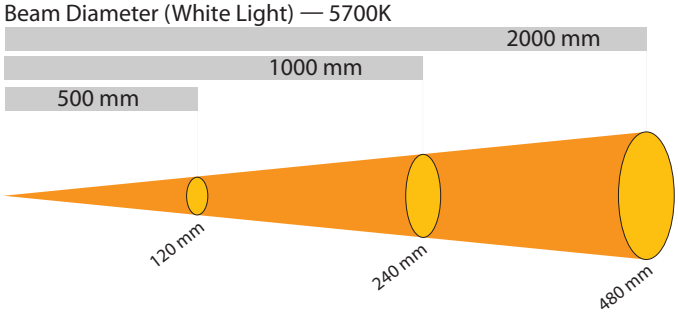


LIGHTING PATTERN FOR THE ODR80-XXX-N

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	90 mm (~3.5")
1000 mm (39.4")	180 mm (~7.1")
2000 mm (78.8")	360 mm (~14.2")

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	32,500
Illuminance measurement taken on White Lights — 5700K	

Beam Diameter (White Light) — 5700K



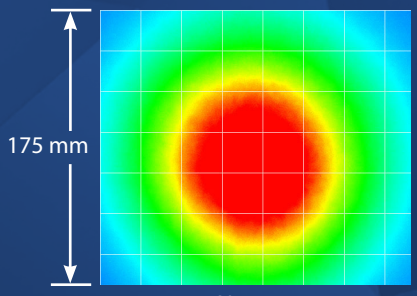
LIGHTING PATTERN FOR THE ODR80-XXX

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	120 mm (~4.8")
1000 mm (39.4")	240 mm (~9.5")
2000 mm (78.8")	480 mm (~18.9")

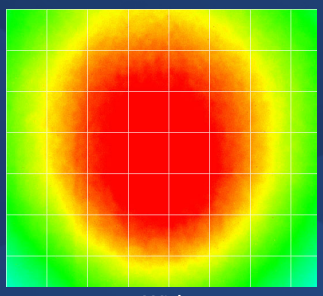
Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	24,500
Illuminance measurement taken on White Lights — 5700K	

The ODR80 Ring Light produces a uniform light pattern.

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



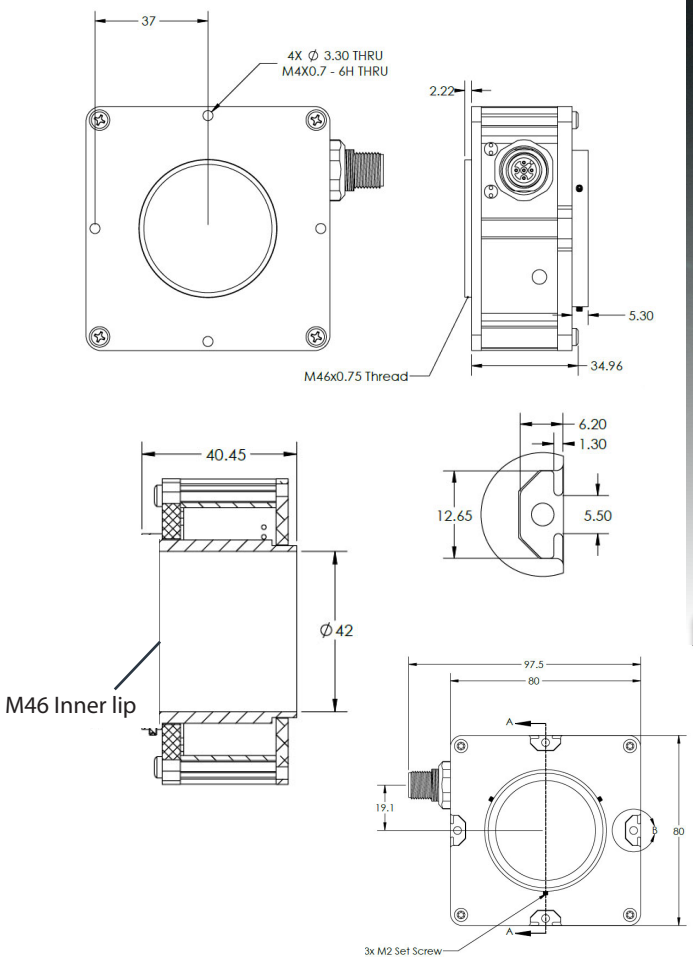
Narrow



Wide

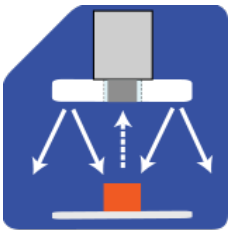
PRODUCT DRAWING

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



ILLUMINATION

ODR80 Series of Ring Lights works best for:



Radial

EYE SAFETY

SMART VISION LIGHTS IEC 62471 COMPLIANT

According to IEC 62471:2006. Full documentation 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 eye. Safe for most applications except prolonged exposures. 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

ODR80 – □□□ – □

COLOR:

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

LENSES:

Leave blank for Standard (Wide)

N - Narrow

Part Number Examples:

ODR80-625 ODR80, 625 Red Wavelength, Standard (Wide) Lens

ODR80-WHI-N ODR80, White, Narrow Lens

SWIR SHORTWAVE INFRARED

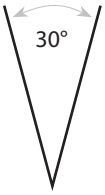
This light is available in our SWIR LEDs.

1050 nm | 1200 nm | 1300 nm | 1450 nm | 1550 nm

Additional wavelength and lens options available upon request.

LENS OPTICS

WIDE (STANDARD)
Wide, 30° angle-cone lenses project a large area of illumination. They create a floodlight effect, can be used for short working distances.



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

When to Use a Linear Polarizer?

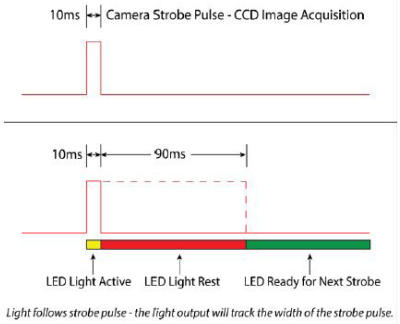
Polarizing filters can reduce reflections on specular (Dielectric or nonmteal) surfaces.

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 standard polarizer with certain wavelengths (e.g. white, blue) may burn the polarizer.

DUTY CYCLE

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

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

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)

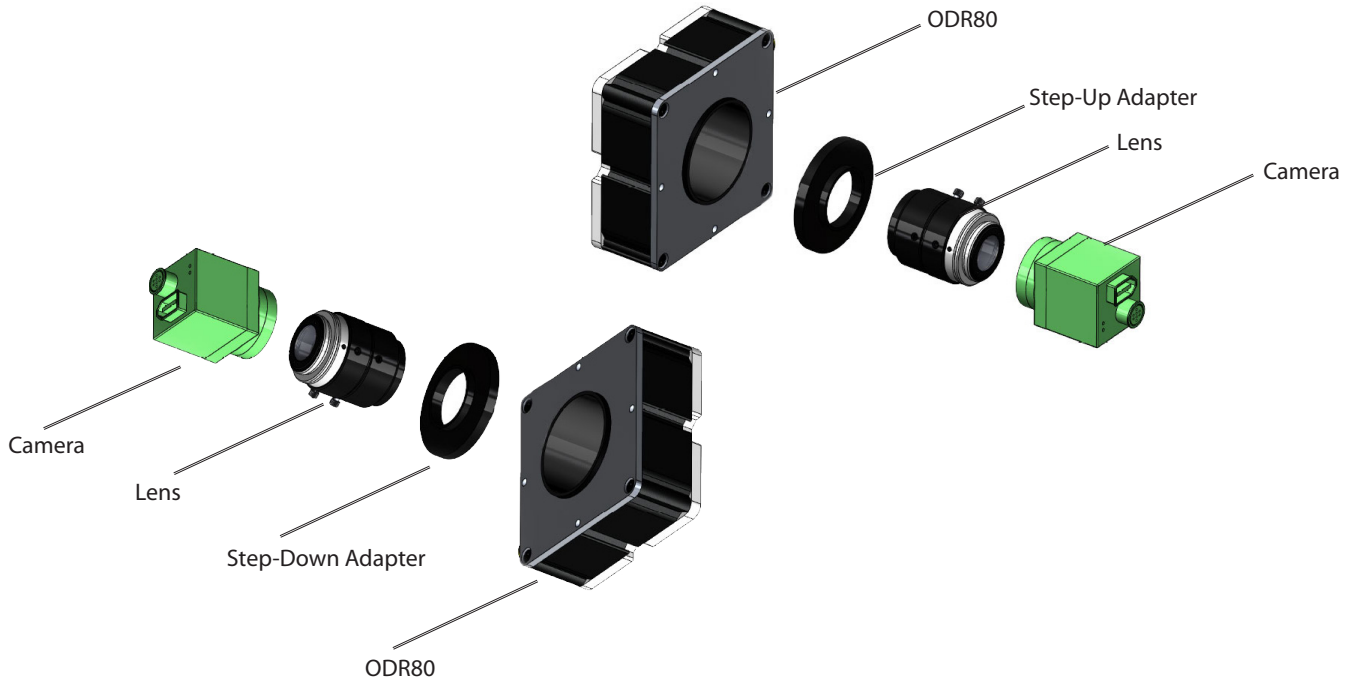
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.



STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

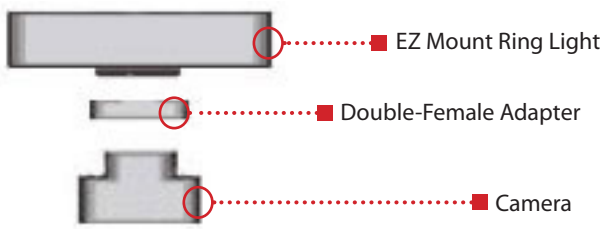
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double-Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF – □□□□ – 46

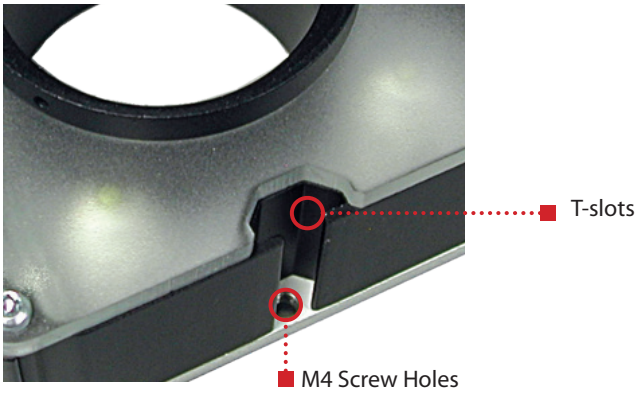
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

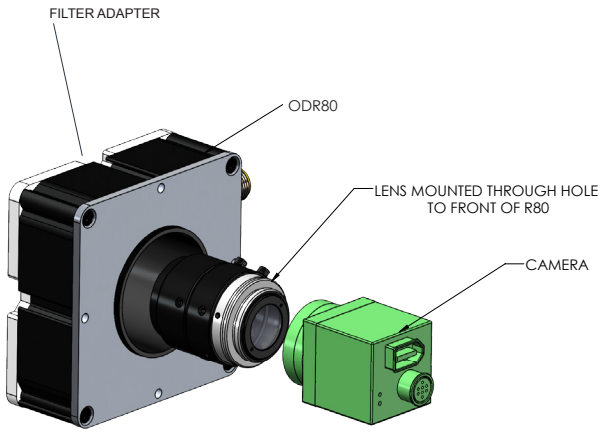
MOUNTING

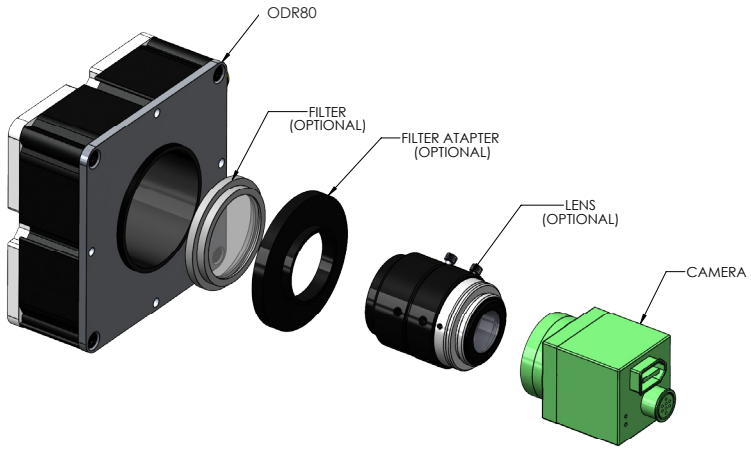
Mounting options on the ODR80 EZ Mount Ring Light include four T-slots and four M4 threaded holes.

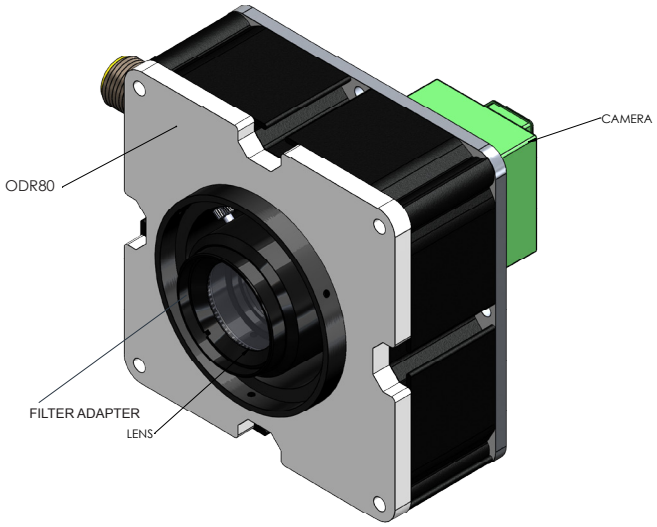
Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



CAMERA MOUNTING EXAMPLES







ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.55 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

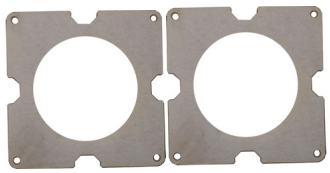
Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Power Cables

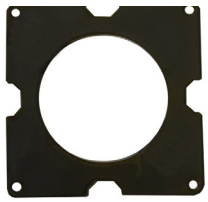
Length	Part Number
5 m	5PM12-5
10 m	5PM12-10
15 m	5PM12-15

Diffuser



Description	Part Number
Diffuser Kit	R80-DKIT

Linear Polarizer



Description	Part Number
Linear Polarizer Kit	R80-LP

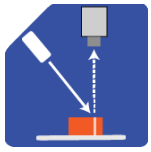
GLOSSARY

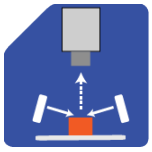
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

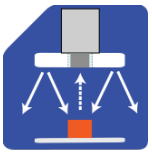
TERMINOLOGY

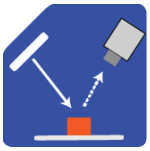
OverDrive™ Light includes an integrated high-pulse driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need 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.
Diffusers Used to widen the angle of light emission, reduce reflections, and increase uniformity.

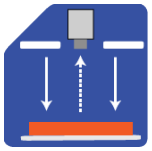
TYPES OF ILLUMINATION


Projector


Dark Field


Radial


Bright Field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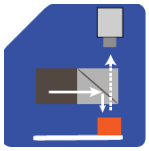
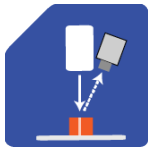
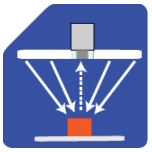
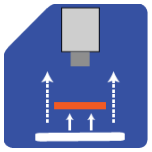

Axial

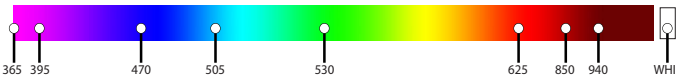

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelength 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.*

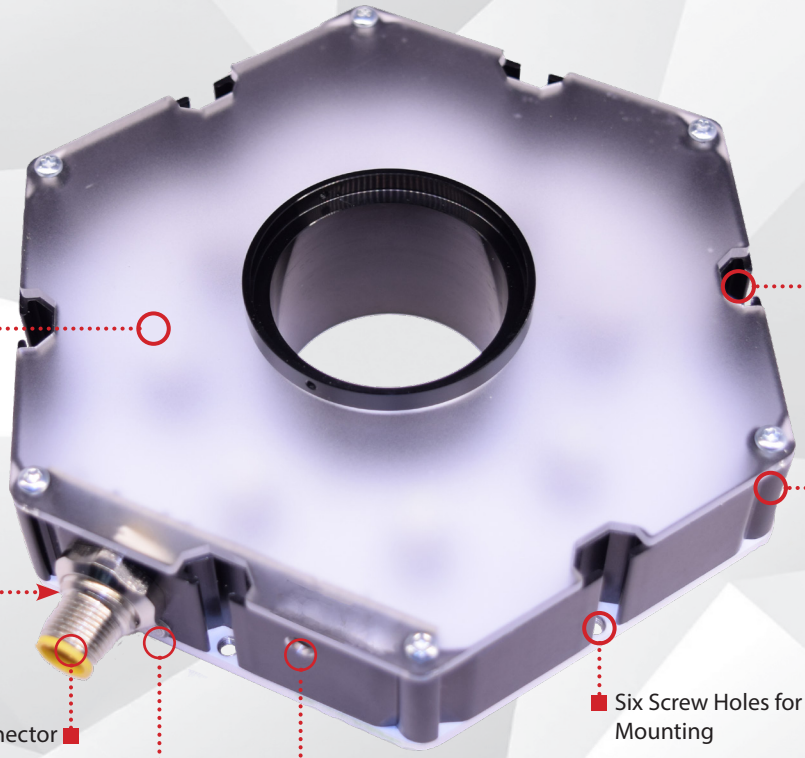
SWIR SHORT WAVE **INFRARED**

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.*

smart vision lights ODR130 *EZ Mount* 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 EZ Mount Ring Light
- ✓ SafeStrobe™ technology ensures protected operation of LEDs
- ✓ T-slot for mounting
- ✓ Conversion adapters for different cameras available
- ✓ 5-pin M12 quick connect

Rev. 2020/06/10

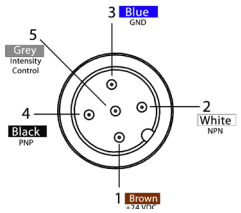
PRODUCT INTRODUCTION

The ODR130 is an all-around durable light that also features an OverDrive™ driver with NPN or PNP signal options. Its simple plug-and-play 5-pin M12 connector is easy to use. The 10%–100% intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 3.5A draw during strobe — max. avg. 350 mA
Wattage	Max. 84 W during strobe — max. avg. 8.4 W
Strobe Input	PNP > +4VDC to activate | NPN > GND (<1 VDC) to activate
PNP Line	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @ 24VDC
NPN Line	15 mA @ Common (0VDC)
Duty Cycle	Max. 10%
Strobe/Pulse Time	Max. 5000 SPS (strobes per second) | max. single pulse = 125 ms
Red Indicator LED	ON = Light Rest (LED inactive) | OFF = LED/Light Ready
Green Indicator LED	ON = Power
Potentiometer	270º turn pot — intensity control of 10%–100%. Turn clockwise to increases intensity.
Analog Intensity	The output is adjustable from 10%–100% of brightness by a 1 – 10VDC signal.
Connection	5-pin M12 connector
Ambient Temperature	-18º–40ºC (0º–104ºF)
IP Rating	IP50
Weight	~325 g
Power Supply	A separate power supply for OverDrive™ (high-pulse operation) is recommended. (*See Input Current for value.*)
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

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

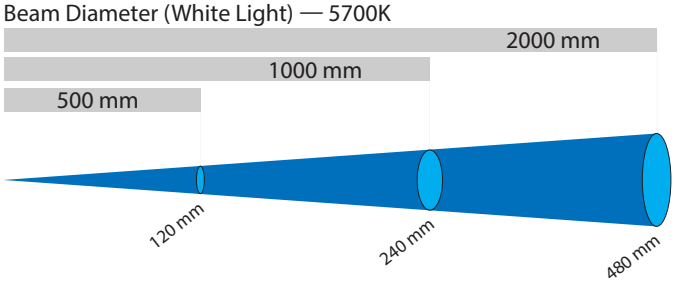
RESOURCE CORNER

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

OPTICAL PERFORMANCE

Smart Vision Lights recommends the ODR130 be used at a working distance between 300 mm and 4000 mm.

Beam Diameter (White Light) — 5700K

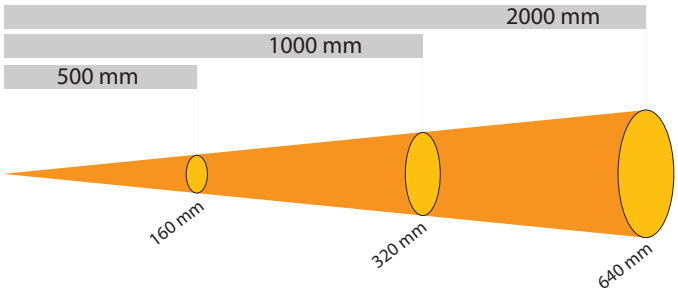


LIGHTING PATTERN FOR THE ODR130-**XXX-N**

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	120 mm (~4.8")
1000 mm (39.4")	240 mm (~9.5")
2000 mm (78.8")	480 mm (~18.9")

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	58,000
Illuminance measurement taken on White Lights — 5700 K	

Beam Diameter (White Light) — 5700K



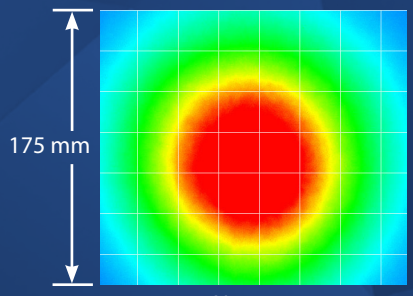
LIGHTING PATTERN FOR THE ODR130-**XXX**

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	160 mm (~6.3")
1000 mm (39.4")	320 mm (~12.6")
2000 mm (78.8")	640 mm (~25.2")

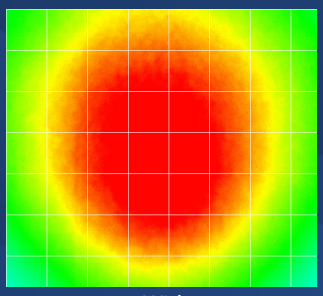
Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	40,000
Illuminance measurement taken on White Lights — 5700K	

The ODR130 Ring Light produces a uniform light pattern.

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



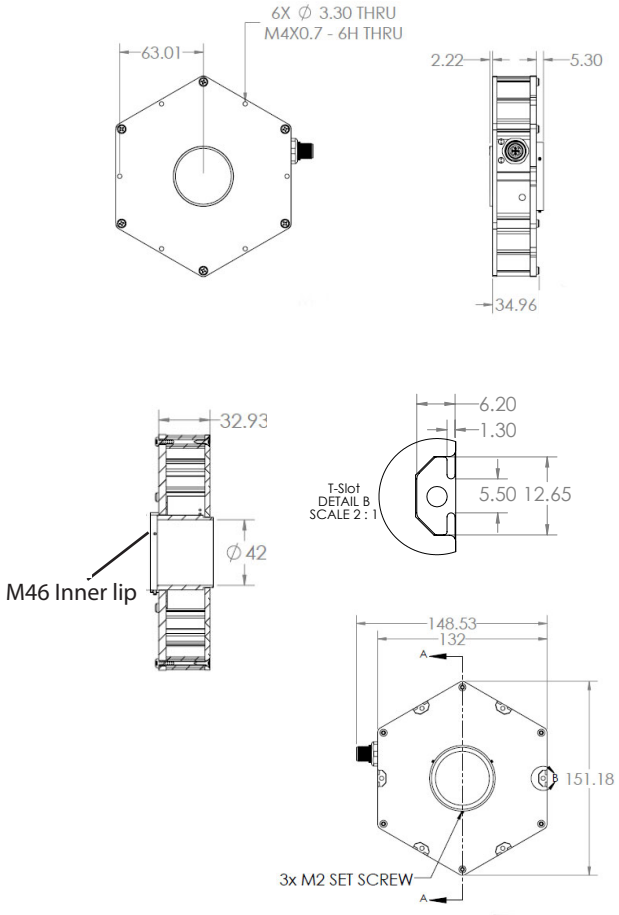
Narrow



Wide

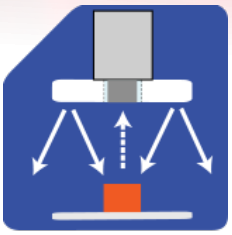
PRODUCT DRAWING

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



ILLUMINATION

ODR130 Series of Ring Lights works best for:



Radial

EYE SAFETY

SMART VISION LIGHTS IEC 62471 COMPLIANT

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, 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 for 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

ODR130 – □□□ – □

COLOR:

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

LENS:

Leave blank for Standard (Wide)

N = Narrow

Part Number Examples:

ODR130-625	ODR130, 625 Red Wavelength, Standard (Wide) Lens
ODR130-WHI-N	ODR130, White, Narrow Lens

SWIR SHORTWAVE INFRARED

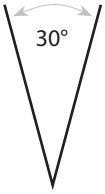
This light is available in our SWIR LEDs.

1050 nm | 1200 nm | 1300 nm | 1450 nm | 1550 nm

Additional wavelength and lens options available upon request.

LENS OPTICS

WIDE (STANDARD)
Wide, 30° angle-cone lenses project a large area of illumination. They create a floodlight effect, can be used for short working distances.



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

When to Use a Linear Polarizer?

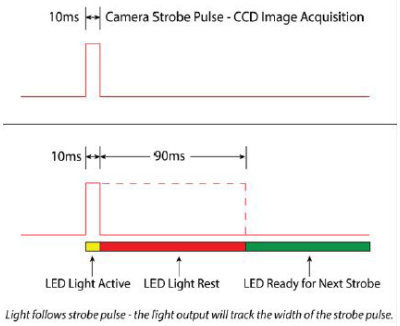
Polarizing filters can reduce reflections on specular (Dielectric or nonmetal)surfaces.

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 standard polarizer with certain wavelengths (e.g. white, blue) may burn the polarizer.

DUTY CYCLE

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

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

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)

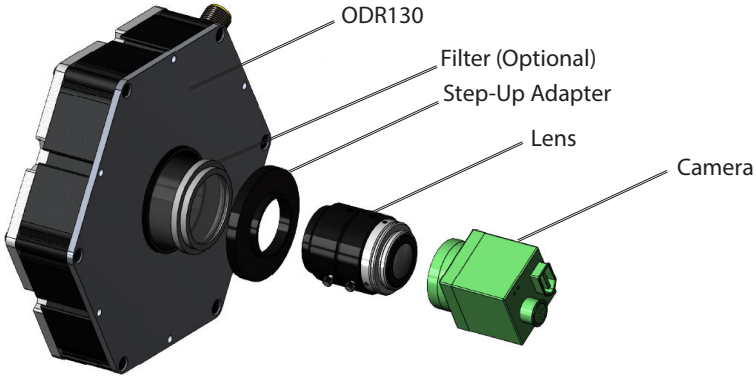
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

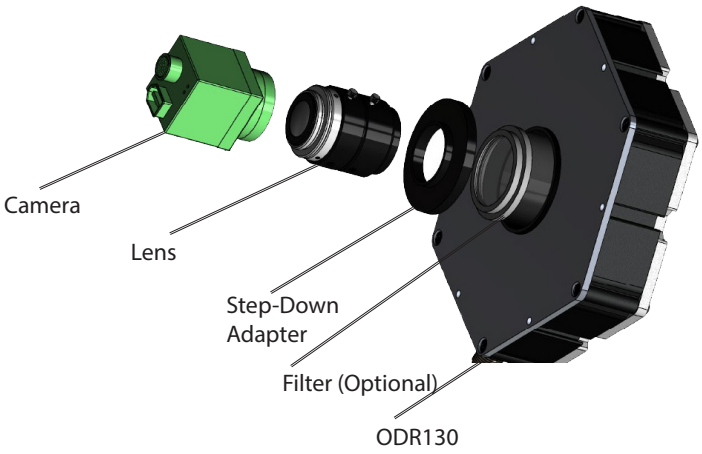
STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.





STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

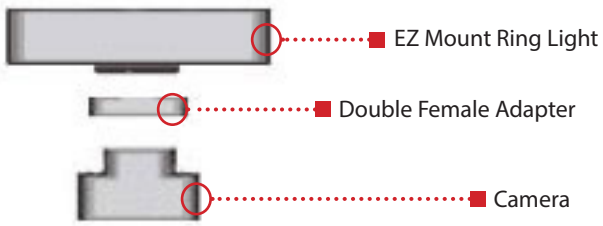
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF – □□□□ – 46

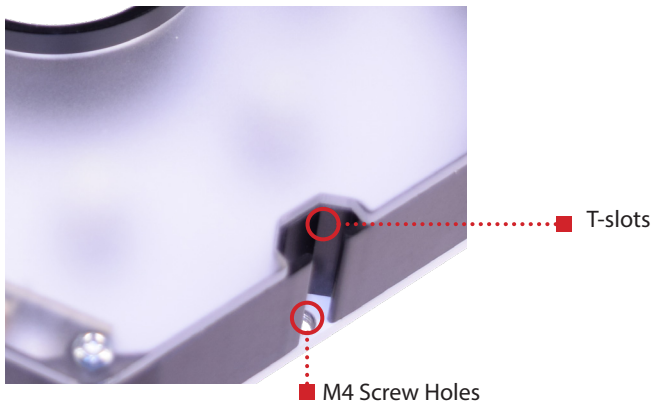
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

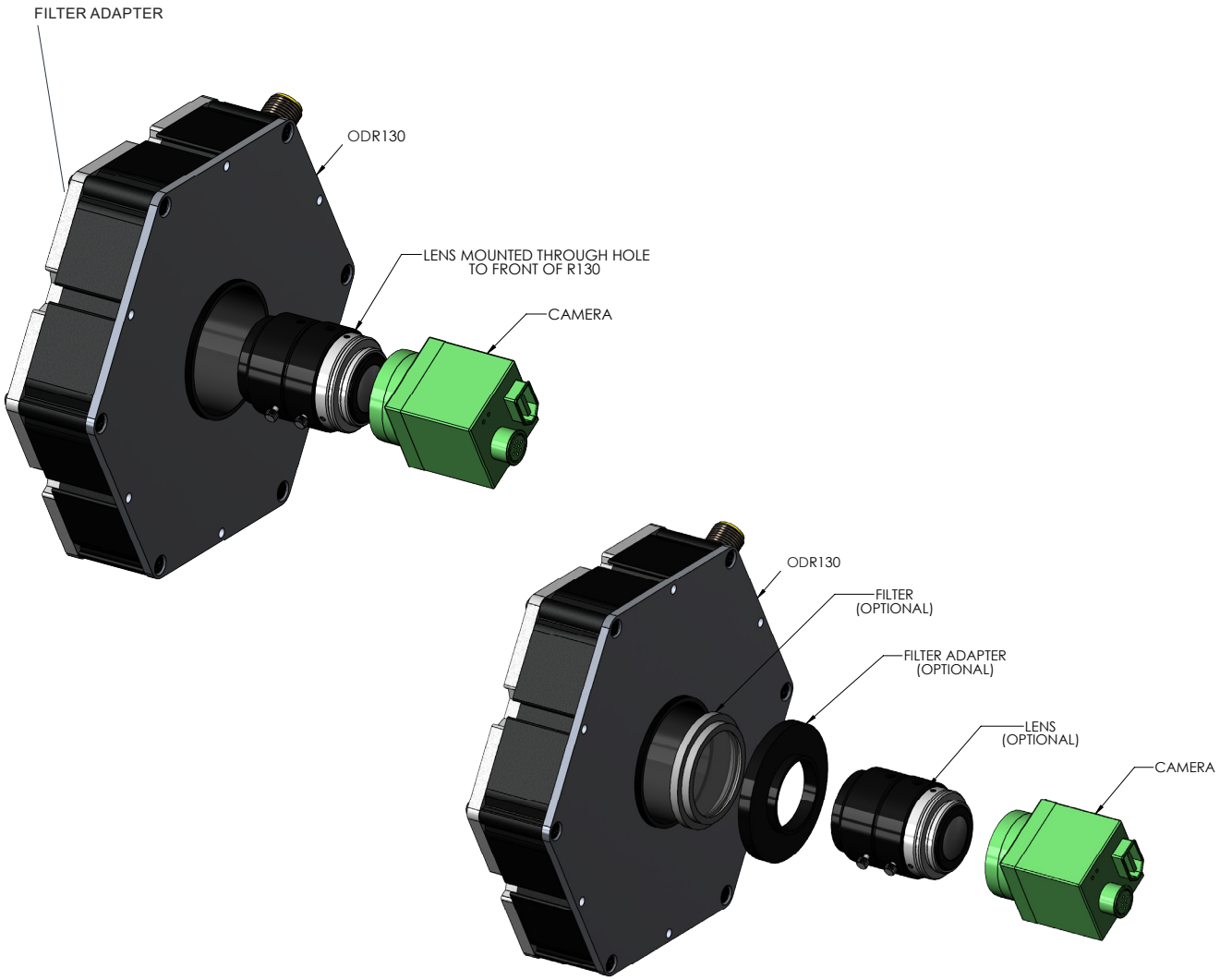
MOUNTING

Mounting options on the ODR130 EZ Mount Ring Light include six T-slots and six M4 threaded holes.

Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



CAMERA MOUNTING EXAMPLES



ACCESSORIES

Step Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.55 mm	SU40.5-46
43 mm	SU46-46

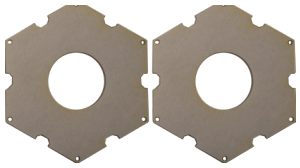
Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Power Cables

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

Diffuser



Description	Part Number
Diffuser Kit	R130-DKIT

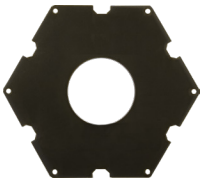
Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Linear Polarizer



Description	Part Number
Linear Polarizer Kit	R130-LP

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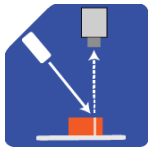
Built-In Driver The built-in driver allows full function without the need for an external controller.

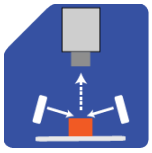
Camera to Light Connect the light directly to the camera, without the need for additional controllers or equipment.

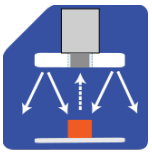
Polarizers Filters that reduce reflections on specular surfaces.

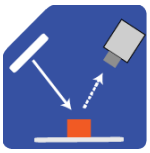
Diffusers Used to widen the angle of light emission, reduce reflections, and increase uniformity.

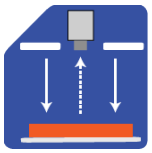
TYPES OF ILLUMINATION


Projector

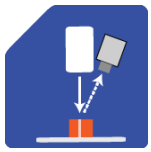

Dark Field

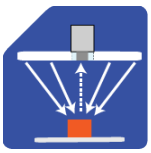

Radial

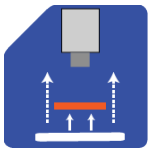

Bright Field


Direct


Axial

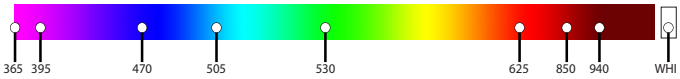

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

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



See Part Number section for **this light available standard wavelengths.*

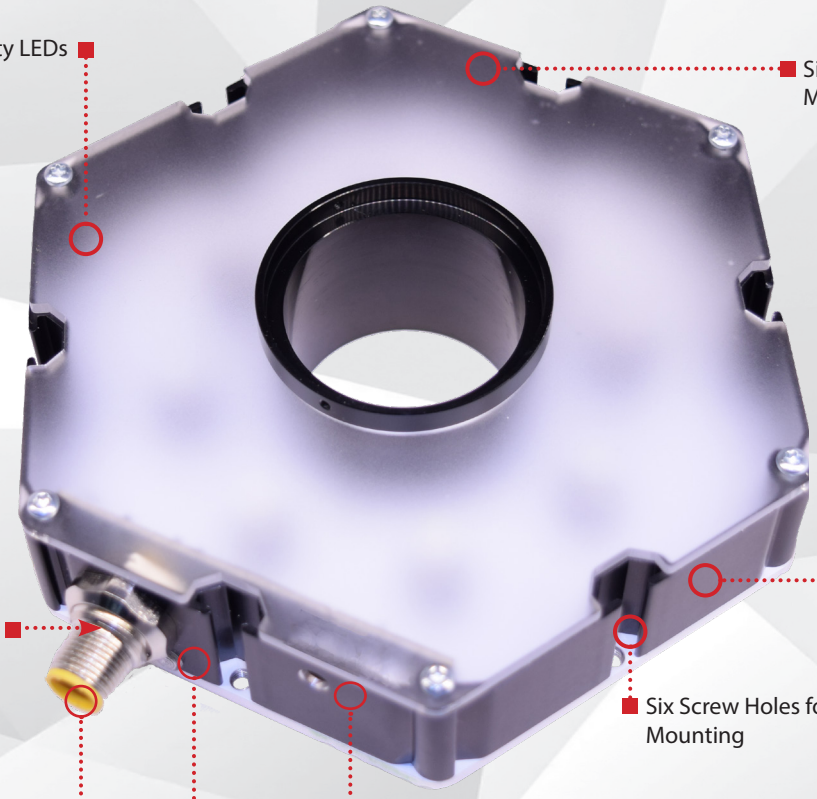
SWIR SHORT WAVE **INFRARED**

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 is available in SWIR wavelengths.*

smart vision lights ODR130-16 *EZ Mount* 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 EZ Mount Ring Light
- ✓ SafeStrobe™ technology ensures protected operation of LEDs
- ✓ T-slot for mounting
- ✓ Conversion adapters for different cameras
- ✓ 5-pin M12 quick connect
- ✓ Twice the number of LEDs as the ODR130

Rev. 2020/06/10

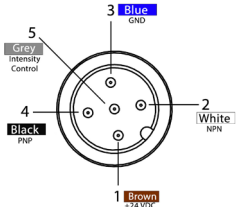
PRODUCT INTRODUCTION

The ODR130 is an all-around durable light that also features an OverDrive™ driver with NPN or PNP signal options. Its simple plug-and-play 5-pin M12 connector is easy to use. The 10%–100% intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 6.5A draw during strobe — max. average 650 mA
Wattage	Max. 156 W during strobe | max. avg. 15.6 W
Strobe Input	PNP > +4VDC to activate | NPN > GND (<1VDC) to activate
PNP Line	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @ 24VDC
NPN Line	15 mA @ Common (0VDC)
Duty Cycle	Max. 10%
Strobe/Pulse Time	Max. 5000 SPS (strobes per second) | max. single pulse = 125 ms protected
Red Indicator LED	ON = Light Rest (LED inactive) | OFF = LED/Light Ready
Green Indicator LED	ON = Power
Potentiometer	270º turn pot — intensity control of 10%–100%. Turn clockwise to increases intensity.
Analog Intensity	The output is adjustable from 10%–100% of brightness by a 1–10VDC signal.
Connection	5-pin M12 connector
Ambient Temperature	-18º–40ºC (0º–104ºF)
IP Rating	IP50
Weight	~325 g
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

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

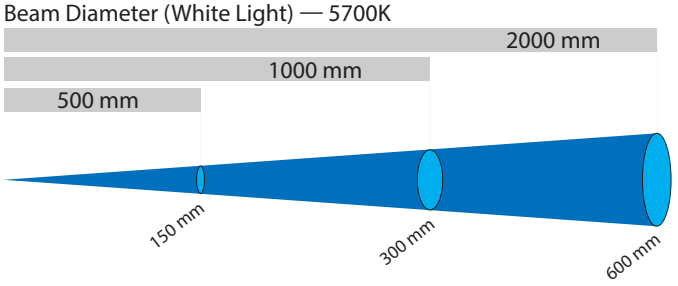
RESOURCE CORNER

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

OPTICAL PERFORMANCE

Smart Vision Lights recommends the ODR130-16 be used at a working distance between 300 mm and 4000 mm.

Beam Diameter (White Light) — 5700K

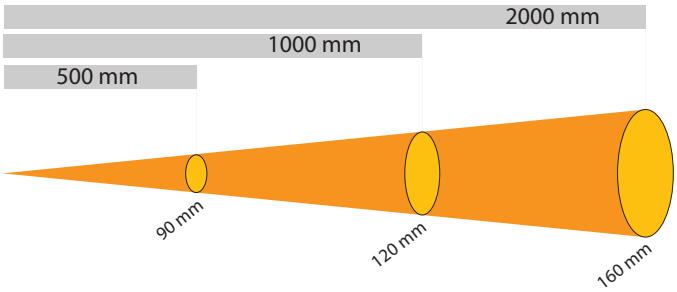


LIGHTING PATTERN FOR THE ODR130-**16-XXX-N**

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	90 mm (~3.5")
1000 mm (39.4")	120 mm (~4.7")
2000 mm (78.8")	160 mm (~6.3")

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	140,000
Illuminance measurement taken on White Lights — 5700K	

Beam Diameter (White Light) — 5700K



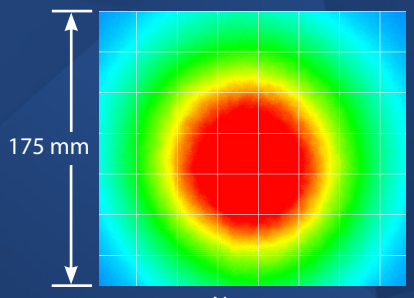
LIGHTING PATTERN FOR THE ODR130-**16-XXX**

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

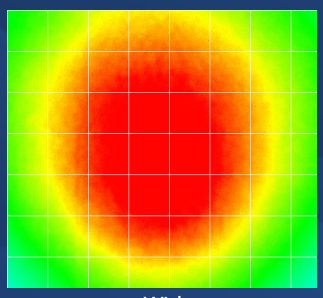
Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	110,000
Illuminance measurement taken on White Lights — 5700K	

The ODR130-16 Ring Light produces a uniform light pattern.

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



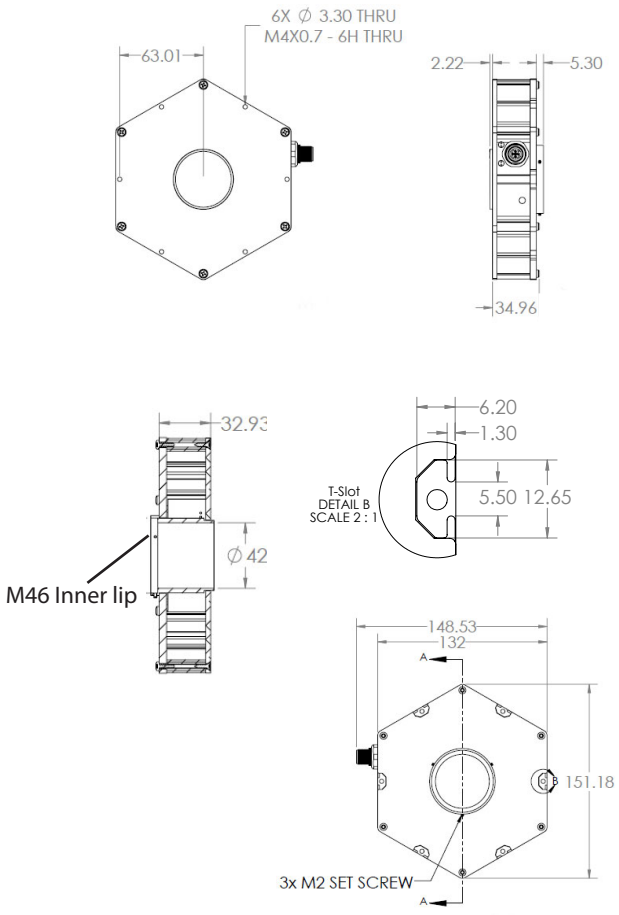
Narrow

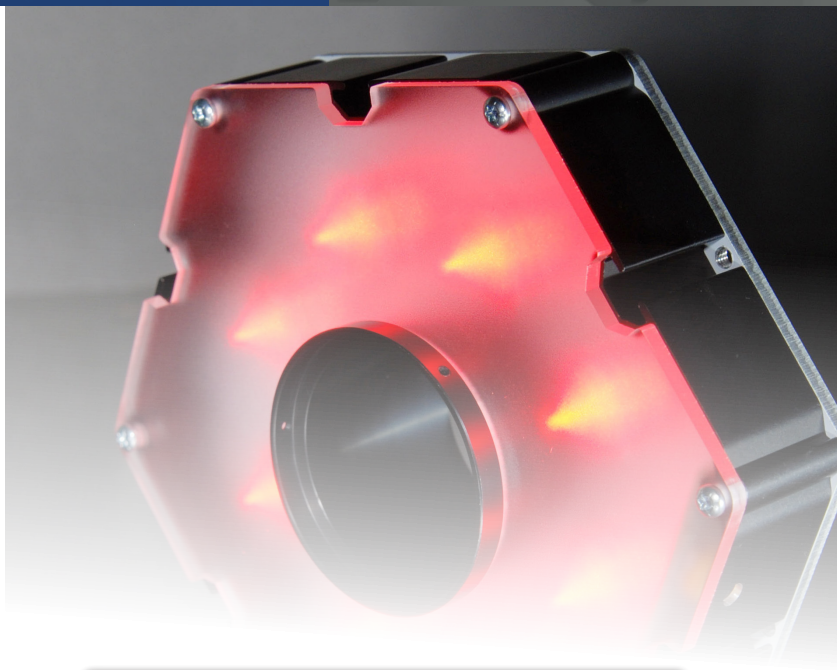


Wide

PRODUCT DRAWING

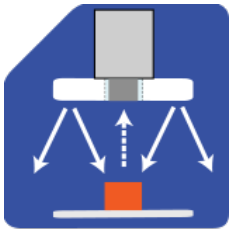
CAD files available on our website.
Dimensions are in mm.





ILLUMINATION

ODR130-16 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

ODR130-16 – □□□ – □

COLOR:

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

LENS:

Leave blank for Standard (wide)

N = Narrow

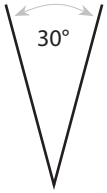
Part Number Examples:

ODR130-16-625	ODR130-16, 625 Wavelength, Standard Lens (Wide)
ODR130-16-WHI-N	ODR130-16, White, Narrow Lens

Additional wavelengths and lens options available upon request.

LENS OPTICS

WIDE (STANDARD)
Wide, 30° angle-cone lenses project a large area of illumination. They create a floodlight effect, can be used for short working distances.



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

When to Use a Linear Polarizer?

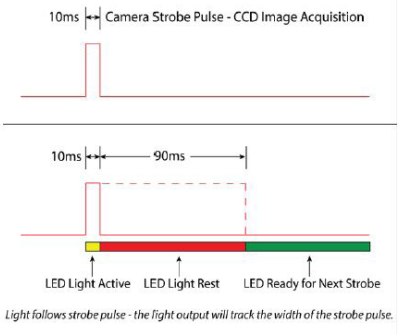
Polarizing filters can reduce reflections on specular (Dielectric or nonmteal)surfaces.

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 standard polarizer with certain wavelengths (e.g. white, blue) may burn of the polarizer.

DUTY CYCLE

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

$$0.1 = 0.0001 \times 1000$$

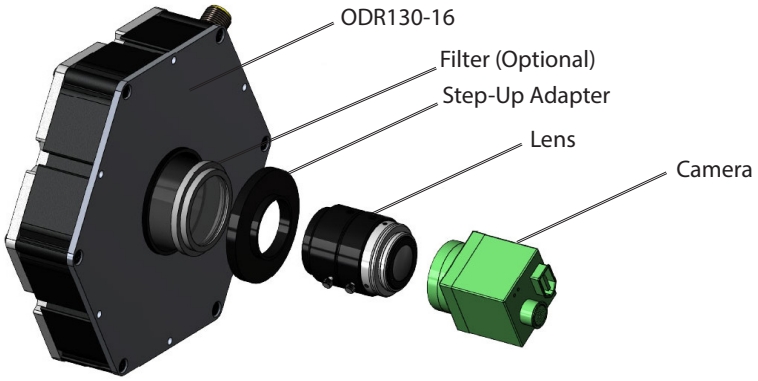
Duty Cycle is 10% (0.1)

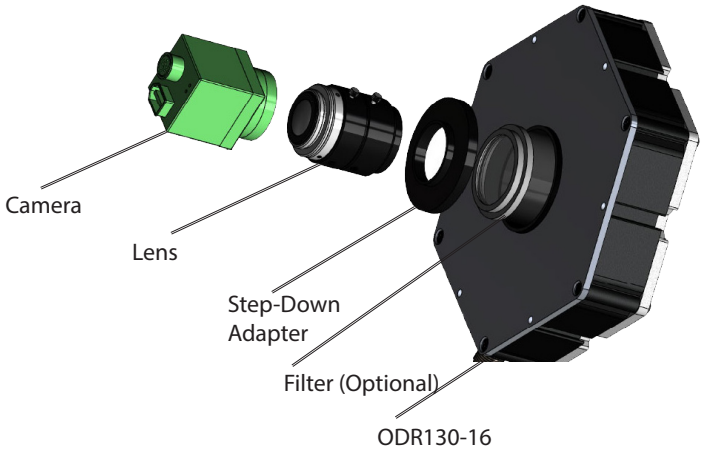
STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.





STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

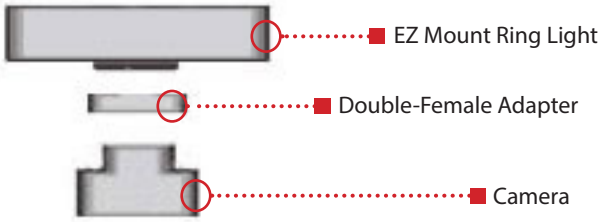
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double-Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF–□□□□–46

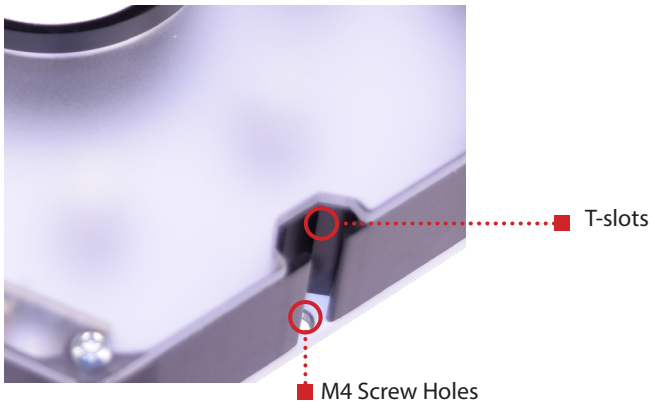
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

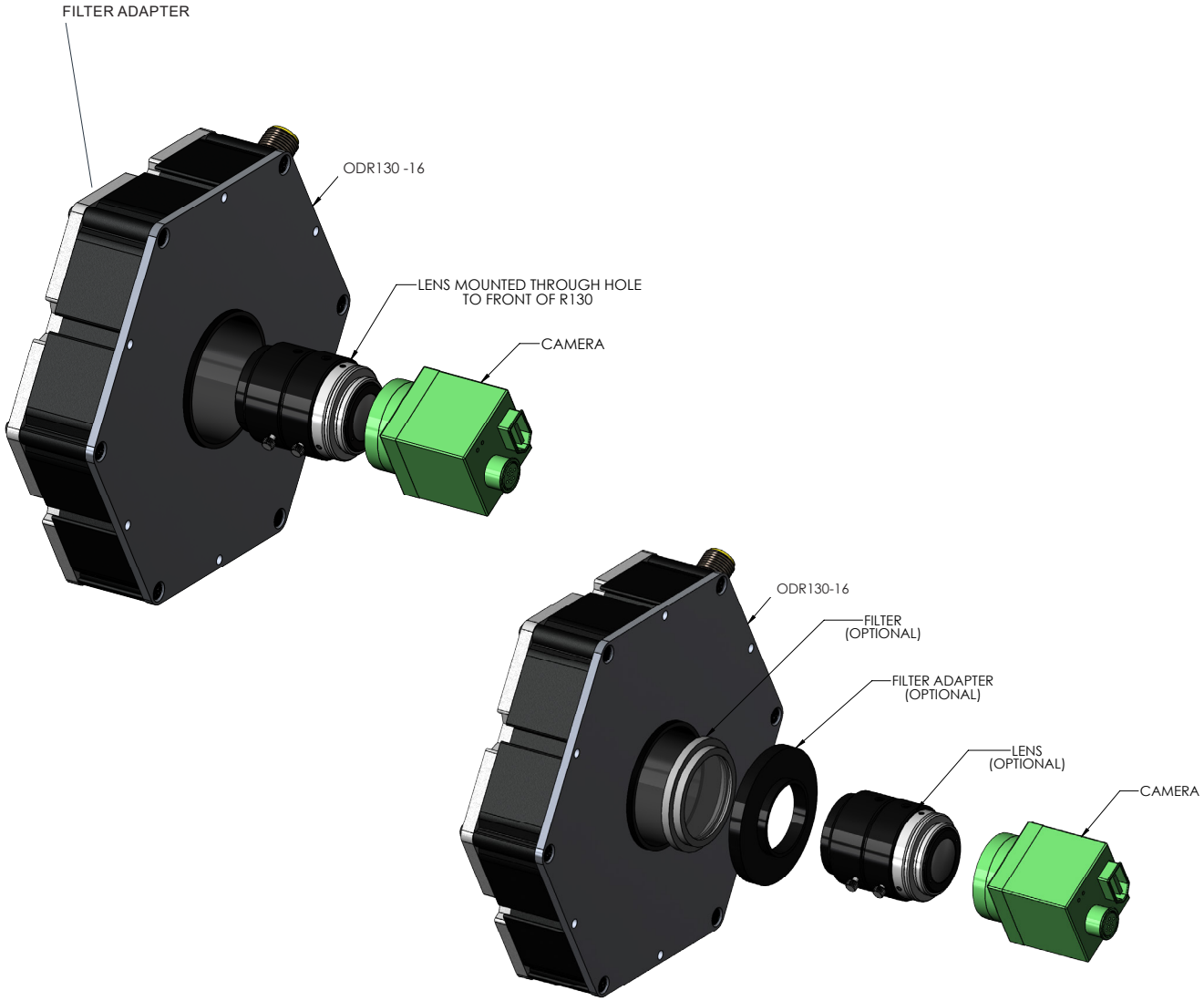
MOUNTING

Mounting options on the ODR130-16 EZ Mount Ring Light include six T-slots and six M4 threaded holes.

Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



CAMERA MOUNTING EXAMPLES



ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

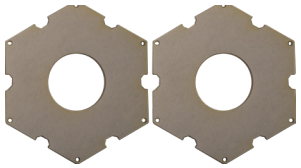
Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Power Cables

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

Diffuser



Description	Part Number
Diffuser Kit	R130-16-DKIT

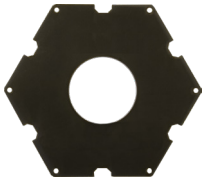
Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Linear Polarizer



Description	Part Number
Linear Polarizer Kit	R130-16-LP

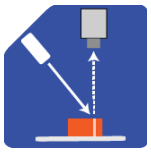
GLOSSARY

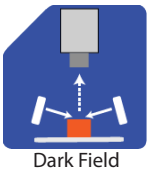
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

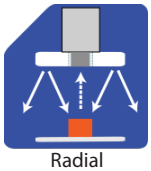
TERMINOLOGY

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 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.
Diffusers Used to widen the angle of light emission, reduce reflections, and increase uniformity.

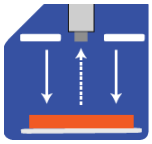
TYPES OF ILLUMINATIONS

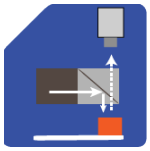

Projector

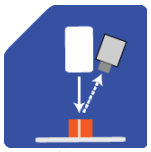

Dark Field

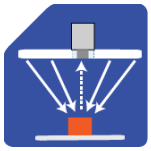

Radial

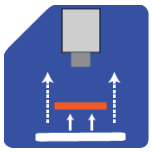

Bright Field


Direct


Axial

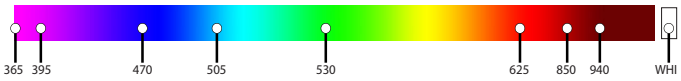

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelength 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**

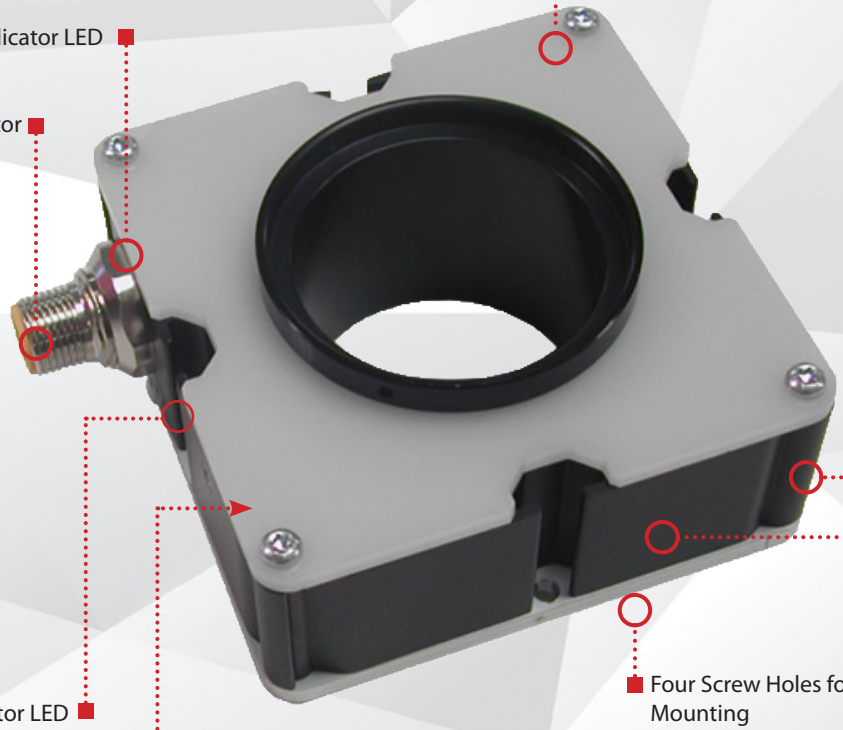
Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*
Check Part Number section to see if **this light is available in SWIR wavelengths.*

smart vision lights

ODRD80 *EZ Mount*

OVERDRIVE™ | BACKLIGHT **RING LIGHT**

PRODUCT DATA SHEET



OverDRIVE™

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

PRODUCT HIGHLIGHTS

- ✓ OverDriveTM — Up to five times brighter than a standard EZ Mount Ring Light
- ✓ SafeStrobe Technology
- ✓ T-Slot For Mounting
- ✓ Conversion Adapters for Different Cameras

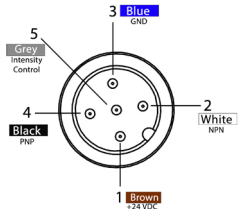
PRODUCT DESCRIPTION

The ODRD80's simple plug and play 5 Pin M12 connector provides ease of use while allowing for full control. The 10%–100% intensity control assists in gaining full control of the light output. The provided diffuse lens breaks up light into a more diffuse and even pattern - great for inspecting metallic or semi-metallic materials. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kits adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 2A draw during strobe – Max Avg. 200mA
Wattage	Max. 48W during strobe – Max. Avg. 4.8W
Strobe 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 @ Common (0VDC)
Duty Cycle	Max. 10%
Strobe/Pulse Time	Max. 5000 SPS (Strobes Per Second) | Max. Single Pulse = 125 ms
Red Indicator LED	ON = Light Rest (LED inactive) | OFF = LED/Light Ready
Green Indicator LED	ON = Power
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
Connection	5-pin M12 connector
Ambient Temperature	-18º–40º C (0º–104º F)
IP Rating	IP50
Weight	~183g
Power Supply	A separate power supply for OverDrive™ (high-pulse operation) is recommended. (*See Input Current for value*)
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

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

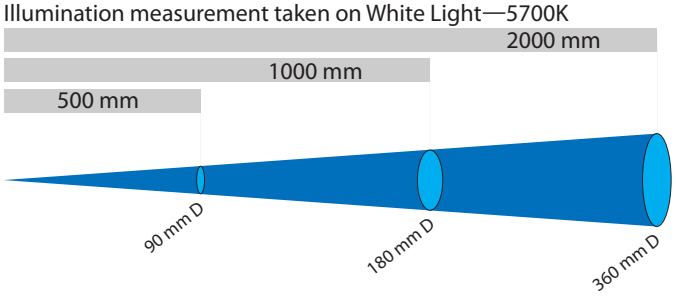
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the ODRD80 be used at a working distance between 50 mm to 2000 mm.

Illumination measurement taken on White Light—5700K

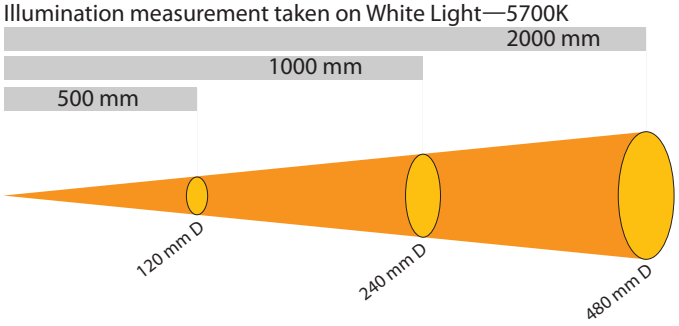


LIGHTING PATTERN FOR THE ODRD80-XXX-N

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	90 mm (~5.9")
1000 mm (39.4")	180 mm (~11.8")
2000 mm (78.8")	360 mm (~23.6")

Typical Output Performance	Illumination (Lux)
Distance = 500 mm	6500
Illuminance measurement taken on White Lights—5700K	

Illumination measurement taken on White Light—5700K



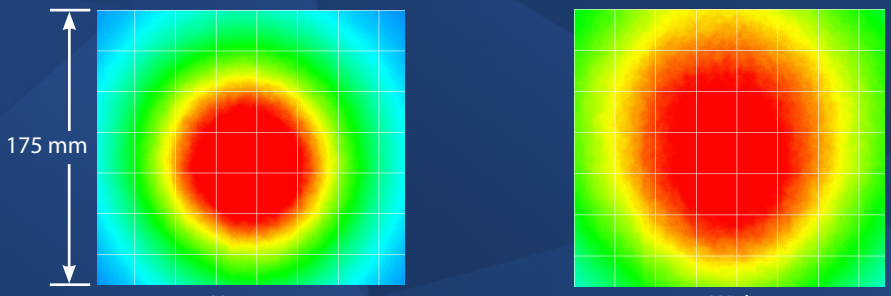
LIGHTING PATTERN FOR THE ODR80-XXX

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	120 mm (~3.1")
1000 mm (39.4")	240 mm (~3.54")
2000 mm (78.8")	480 mm (~5.3")

Typical Output Performance	Illumination (Lux)
Distance = 500 mm	4900
Illuminance measurement taken on White Lights—5700K	

The ODRD80 Ring Light produces a uniform light pattern.

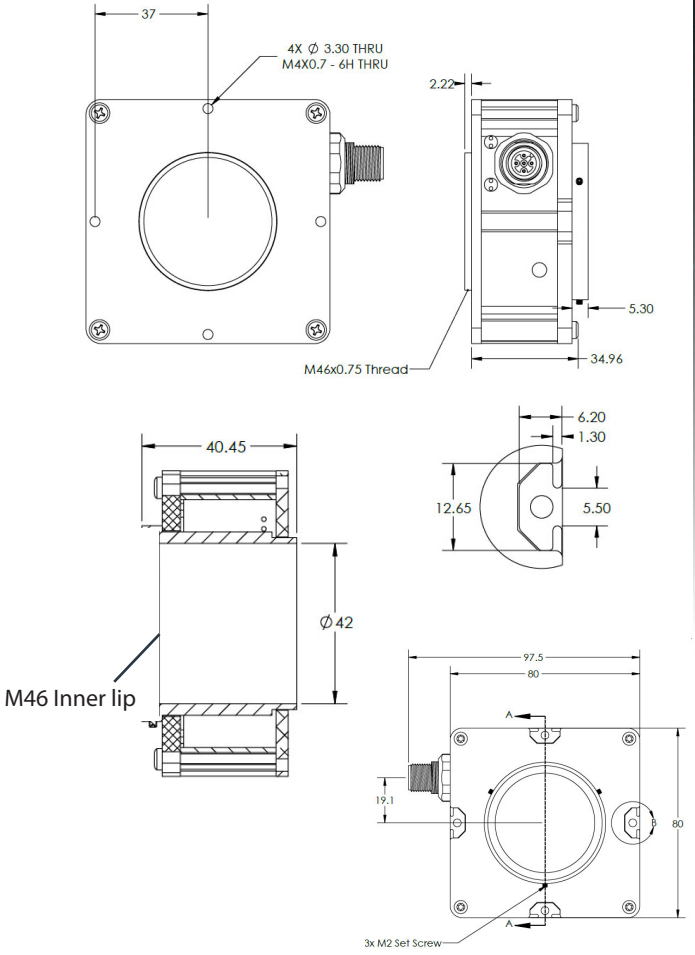
Working Distance = 500 mm Grid set to 25 mm x 25 mm



Narrow Wide

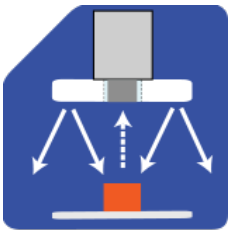
PRODUCT DRAWING

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



ILLUMINATION

ODRD80 Series of Ring Lights works best for:



Radial

EYE SAFETY

SMART VISION LIGHTS IEC 62471 COMPLIANT

According to IEC 62471: 2006. Full documentation upon request.

Notice

Exempt Group: 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 eye. Safe for most applications except prolonged exposures. 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

ODRD80 – □□□ – □

COLOR:

LENS:

Leave blank for Wide (40°)

N = Narrow

Part Number Examples:

R80-625 R80, 625 Red Wavelength, Standard (Wide) Lenses

R80-WHI R80, White, Standard (Wide) Lenses

Additional wavelengths and lens options available upon request.

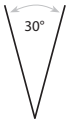
LENS OPTICS

NARROW

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

WIDE (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.*

When to Use a Linear Polarizers?

Polarizing filters can reduce reflections on specular surfaces.

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

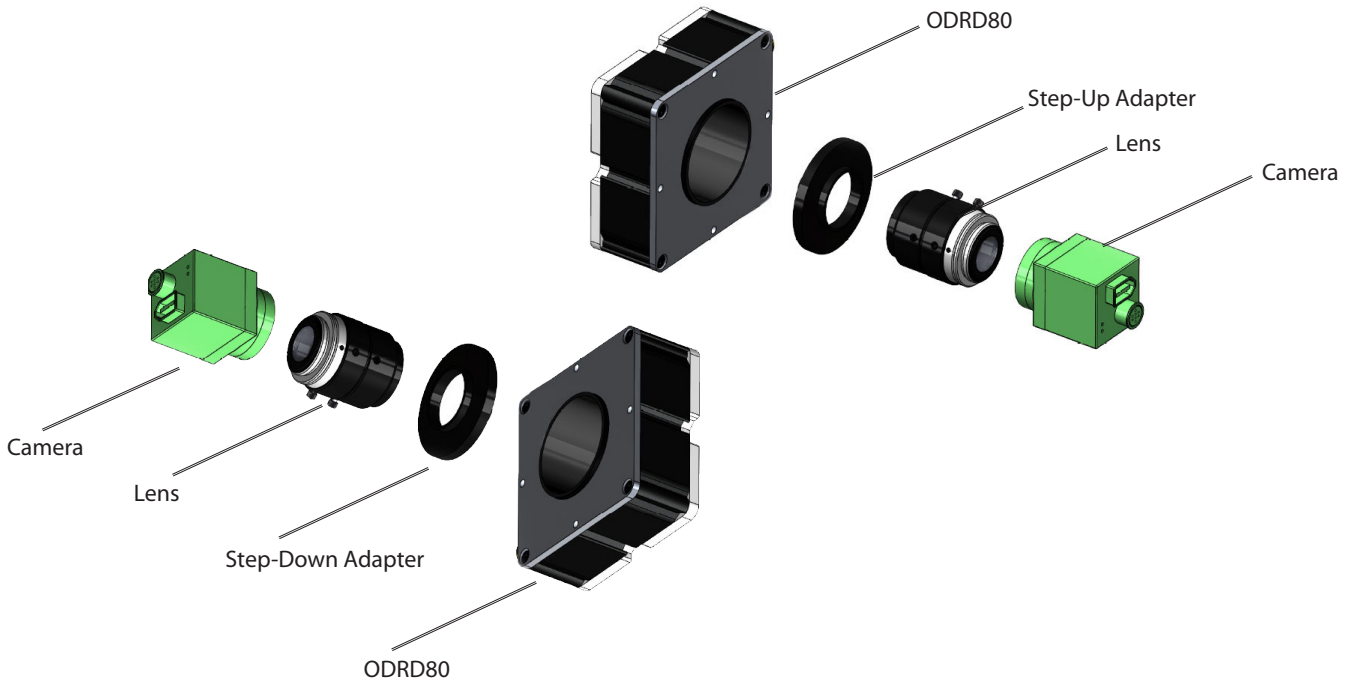
WARNING: Running a light in continuous operation while using a standard polarizer with certain wavelengths (ex. white, blue) may burning the polarizer.

STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.



STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

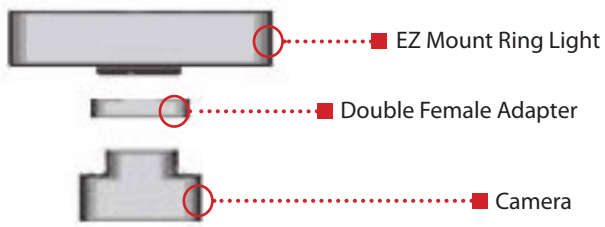
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF – □□□□ – 46

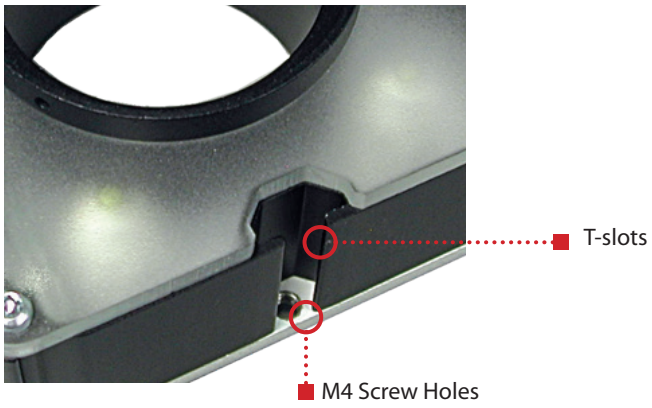
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

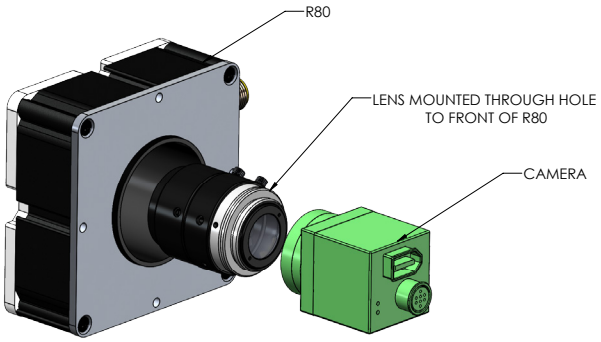
MOUNTING

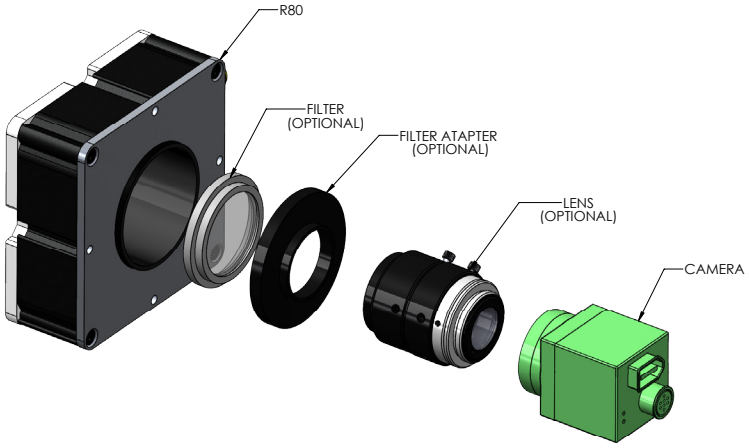
Mounting options include four T-slots and four M4 threaded holes on the ODRD80 EZ Mount ring light.

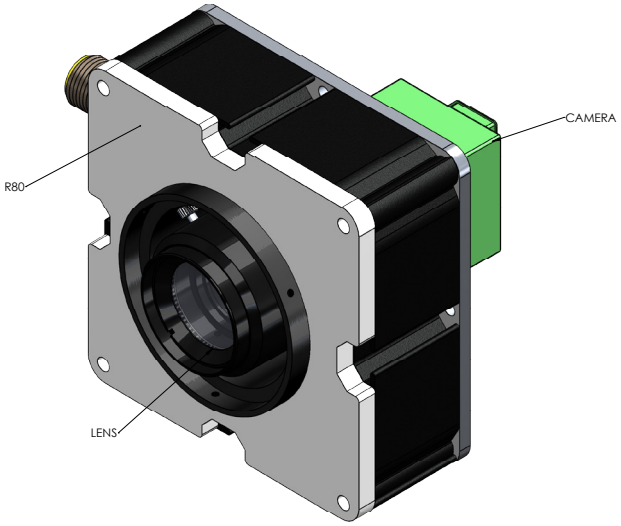
Optional Mounting Hardware:
T-Slots = M5 x 0.8 mm T-Nut
Threaded screw Holes = M4 screws



CAMERA MOUNTING EXAMPLES







ACCESSORIES

Step-Up Kits *

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Power Cables

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

Power Adapters *

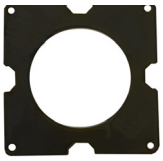
Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

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

Variable Control Pot

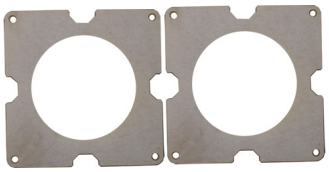
Description	Part Number
Controls the intensity of the light	IVP-C1

Linear Polarizer



Description	Part Number
Linear Polarizer Kit	R80-LP

Diffuser



Description	Part Number
Diffuser Kit	R80-DKIT

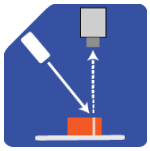
GLOSSARY

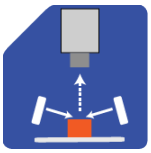
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

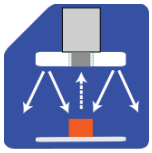
TERMINOLOGY

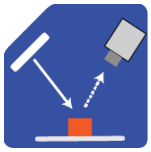
OverDrive™ Light includes an integrated high-pulse driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows 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.

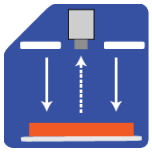
TYPES OF ILLUMINATION

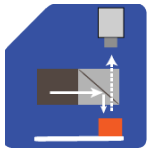

Projector

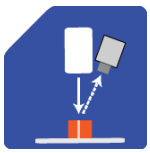

Dark Field

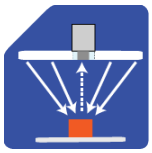

Radial

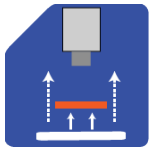

Bright Field


Direct


Axial

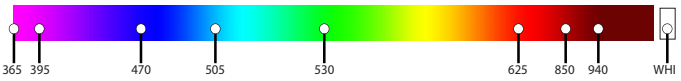

Line


Diffuse Panel


Backlight

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**

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.*

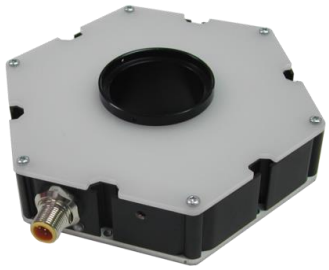
PRODUCT DATA SHEET

RD130 Series | **RING LIGHT** | Diffuse Light

product introduction

The all metal construction of the Ring Light Series of lights provides a small particle resistant and all around durable light. Its plug and play 5 Pin M12 connector allows for ease of use while allowing for full control. The RD130 has an optimal working distance between 150mm and 450mm and will operate with either an NPN or a PNP signal and runs on an industry standard 24VDC. The 0-10VDC intensity control assists in gaining full control of the light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kits adapters.

product features



- Backlight Diffuser
- T-Slot For Mounting
- Conversion Adapters For Different Cameras
- PNP and NPN Strobe Input
- Dimmable Via Built In Potentiometer
- 4-5 Times Brighter Than Standard High Current LEDs

product specifications

Electrical Input	24VDC +/- 5%
Current	Max. 4A draw during strobe – Max Average 400mA
Wattage	Max. 96W during strobe - Max. Avg. 9.6W
Strobe Input	PNP ► +4VDC or greater to activate. | NPN ► GND (<1VDC) to activate
PNP Line	3.7mA @ 3VDC | 6.2mA @ 5VDC | 12.6mA @ 10VDC | 30.4mA @ 24VDC
NPN Line	22mA @ Common (0VDC)
Duty Cycle	Max. 10%
Strobe/Pulse Time	Max. 5000 SPS (Strobes Per Second) | Max. Single Pulse = 125ms
Red Indicator LED	ON = Light Rest (LED inactive) OFF = LED/Light Ready
Green Indicator LED	ON = Power
Potentiometer	Intensity control of 10% - 100% Clockwise increases intensity
Analog Intensity	The output is adjustable from 0% -100% of brightness by a 0-10VDC signal
Connection	5 pin M12 connector
Ambient Temp.	-20º - 50º C (-4º - 122º F)
IP Rating	IP50
Weight	~325g
Certification	CE and RoHS certified
IEC 62471 Rating	See page 5

product number key

ODRD130 – XXX —» Part Number Key

Product Family:
Ring Light
ODRD130

Color:
470 – Blue
505 – Cyan
530- Green
625 – Red
850/940 – IR
WHI - White

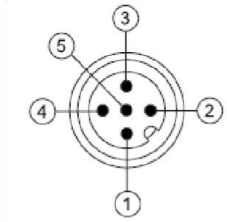
CE and RoHS Compliant

warnings

Attention
Please note that the power requirements are up to 4A at 24VDC. Failure to supply light with up to 4A can result in non-repeatable lighting.

wiring configuration

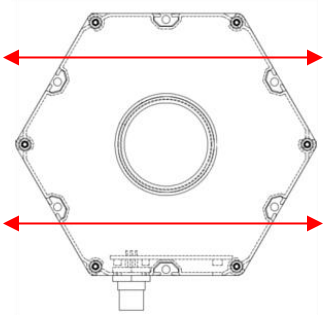
If Analog 0-10VDC is not used to control light intensity;
+VDC (24VDC) must be connected to Analog Input - Jumper pin 5 to pin 1

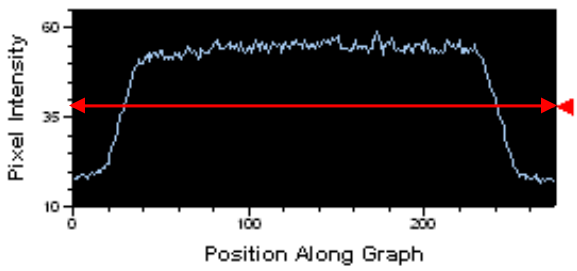


Pin	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	0-10VDC	GREY [1]

[1] Some cables use green with yellow stripe for 0-10V adjustment

optical performance





The ODRD130 offers a very diffuse light pattern at a defined working distance between 150mm – 450mm. The Pixel Graph representation shows a steep drop off in intensity outside of the active area with a very diffuse light pattern inside.

Average Intensity Rating	60,000 lux*

*Lux measurement taken at surface of ODRD130.

mounting & accessories

Standard industrial T-slots on each side accept T-nuts

Front mounting of Lens to Ring Light

Rear mounting of Lens to Ring Light

identification

adapter kit

Standard Adapter Kit – Part # SU46-25.5-27

Adapter Kit includes 2 step up rings (25.5 and 27), 6 set screws and hex tool. 6 set screws – 3 for mounting step up ring to light and 3 additional for lens. Some locking thumbscrews may prevent the lens from fitting through the center of the R80, extra low-profile replacement set screws are included, allowing the protruding thumbscrews to be removed.

Step Up Adapter Kits

Step Up Adapter Kits includes step up rings, 6 set screws and hex tool. Lenses can be mounted to front or back of ring light. Filters can also be installed.

M46 step-up	Lens thread size	Part #
46-	25.5	SU46-25.5/27
46-	27	SU46-25.5/27
46-	30.5	SU46-30.5
46-	34	SU46-34
46-	37	SU46-37
46-	37.5	SU46-37.5
46-	39	SU46-39
46-	40.5	SU46-40.5
46-	43	SU46-43

Step Down Adapter Rings

Step Down rings mount large lenses to light. Step Down rings mount lenses to back of ring light. Filters can also be installed.

M46 step-down	Lens thread size	Part #
46-	49	SD46-49
46-	52	SD46-52
46-	55	SD46-55
46-	58	SD46-58
46-	62	SD46-62
46-	67	SD46-67
46-	72	SD46-72

risk group

According to IEC 62471:2006. Full documentation 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

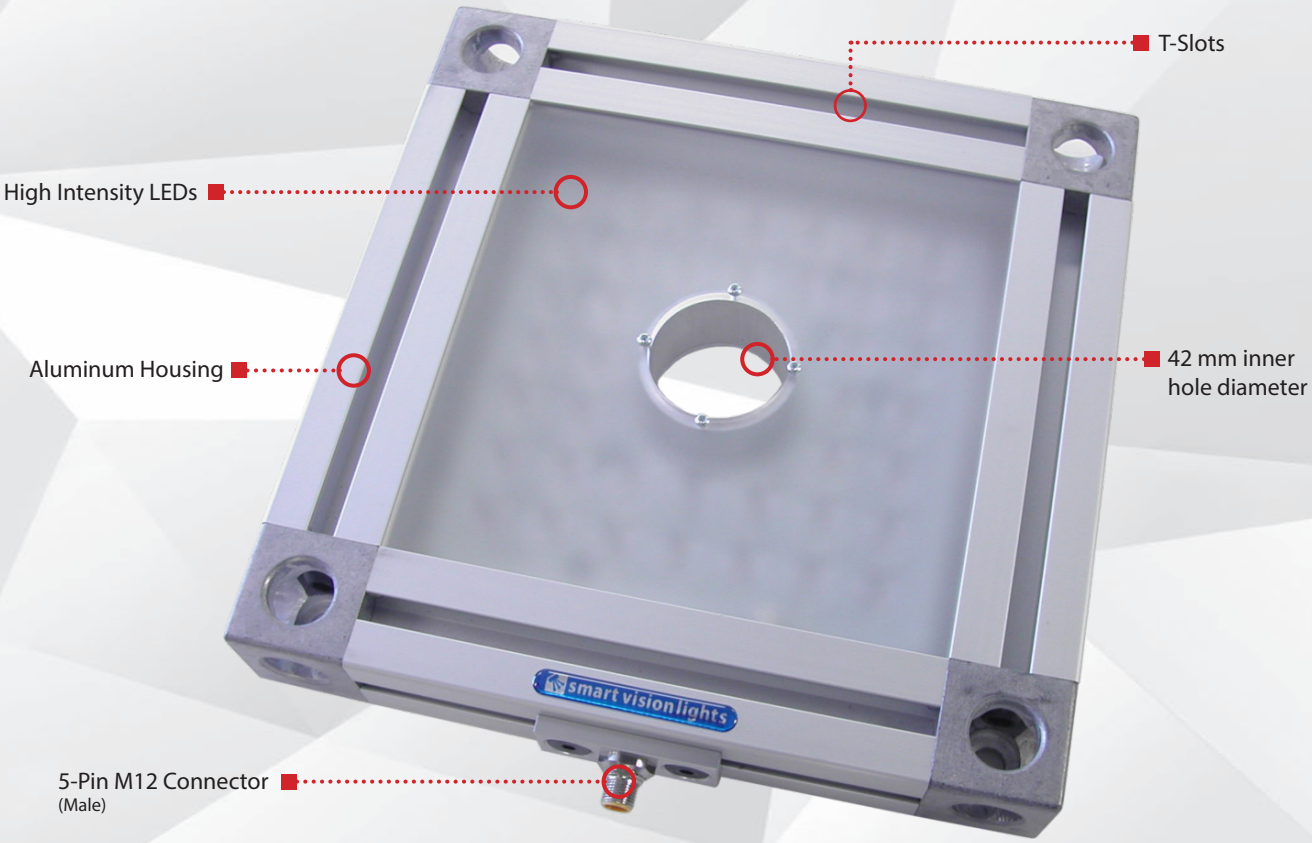
Risk Group 1: Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to eye. Safe for most applications except prolonged exposures.
Applicable for wavelengths: 470, 505, 530, and WHI.

smart vision lights

ODRL200 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
- ✓ Conversion adapters for different cameras

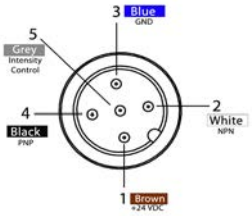
PRODUCT DESCRIPTION

The all metal construction of the 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 ODRL200 operates with either an NPN or a PNP signal and runs on an industry standard 24 VDC. The 1-10 V DC intensity control assists in gaining full control of the light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kits adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24 V DC +/- 5%
Input Current	Max. 300 mA
Wattage	Max. 7.5 W
On / Off Input	PNP > +4 V DC or greater to activate | NPN > GND (<1 V DC) to activate
PNP Line	4 mA @ 4 V DC | 10 mA @ 12 V DC | 20 mA @ 24 V DC
NPN Line	15 mA @ Ground (0 V DC)
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 24 V DC (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 1–10 V DC 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	~1570g
Compliances	CE, RoHS, IEC-62471

WIRING CONFIGURATION



Pin layout for light (Male Connector)

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

OPTIONAL

For maximum intensity, analog intensity may be connected to +V DC (24 V DC) - 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 +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).*

RESOURCE CORNER

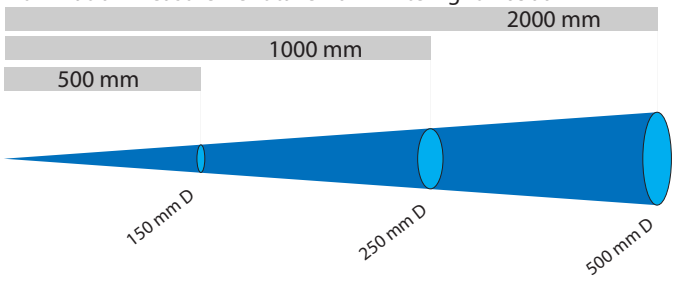
Additional resources are available on our website, including CAD files, videos, and application examples.

Smart Vision Lights
2359 Holton Road
Muskegon, MI 49445
P: +1 231.722.1199 | F: +1 231.722.9922
smartvisionlights.com
techsupport@smartvisionlights.com
Open: Monday – Friday | 8am–5pm ET

LIGHT PATTERNS

Smart Vision Lights recommends the ODRL200 be used at a working distance between 500 mm to 4000 mm.

Illumination measurement taken on White Light – 6500 K

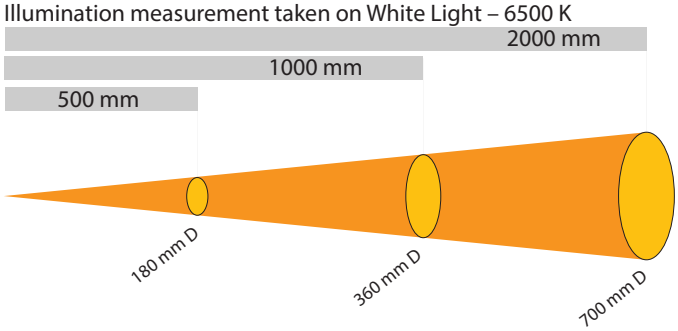


LIGHTING PATTERN FOR THE ODRL200

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	150 mm (5.9") D
1000 mm (39.4")	250 mm (9.8") D
2000 mm (78.8")	500 mm (19.6") 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



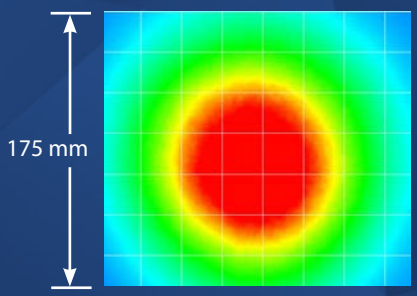
LIGHTING PATTERN FOR THE ODRL200 - 30° WIDE

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	180 mm (~7.1")
1000 mm (39.4")	360 mm (~14.1")
2000 mm (78.8")	700 mm (~27.5")

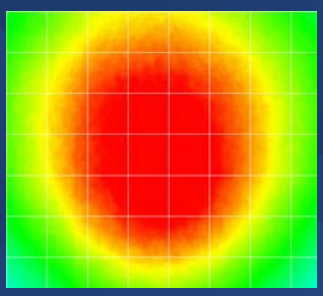
Typical Output Performance	Illumination (Lux)
Distance = 500 mm	9200
Illumination measurement taken on White Lights - 6500K	

The ODRL200 Ring Light produces a uniform light pattern.

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



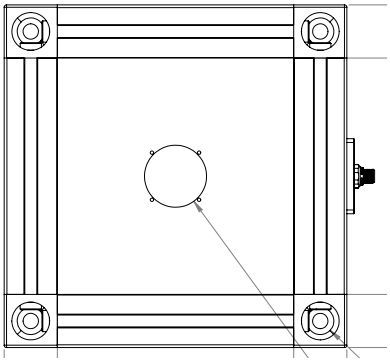
Narrow

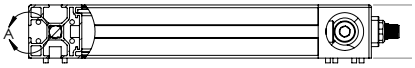


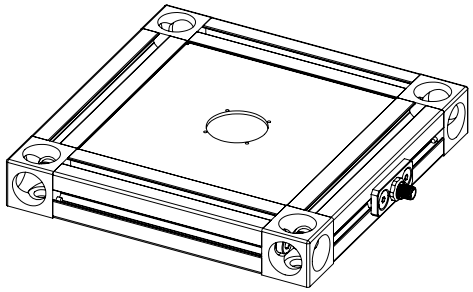
Wide

PRODUCT DRAWING

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

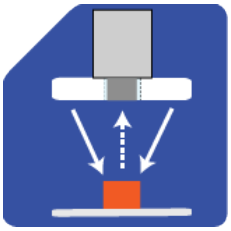






ILLUMINATION

ODRL200 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

ODRL200– □□□ **–** □*

COLOR:

LENS:
Leave blank for Wide (30°)
N = Narrow

Part Number Examples:

ODRL200-625	ODRL200, 625 Red Wavelength, Standard (Wide) Lenses
ODRL200-WHI-N	ODRL200, 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.

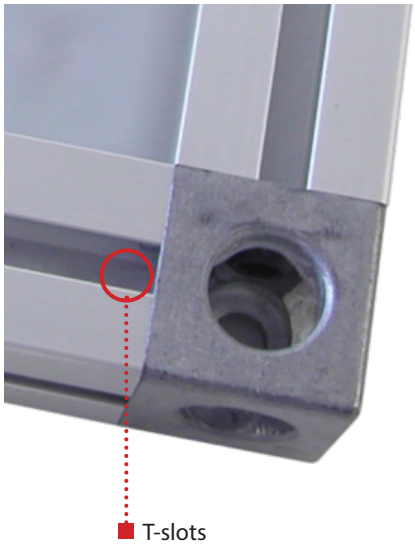
** Additional lens options available upon request.*

MOUNTING

Mounting options include four T-slots and four M4 threaded holes on the ODRL200 ring light.

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

Camera Mount For ODRL200
Part #: BKT0005



ACCESSORIES

Step-Up Kits *

Lens Thread Size	Part Number
25 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Power Cables

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

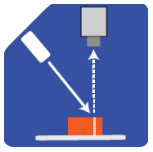
GLOSSARY

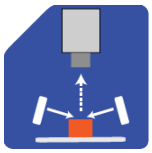
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

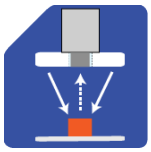
TERMINOLOGY

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.

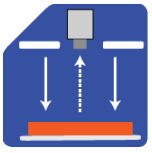
TYPES OF ILLUMINATION

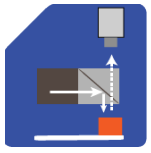

Projector

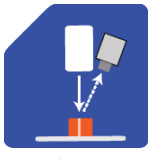

Dark Field


Radial

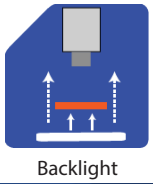

Bright Field


Direct


Axial

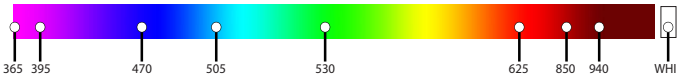

Line


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 SHORT WAVE **INFRARED**

Shortwave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

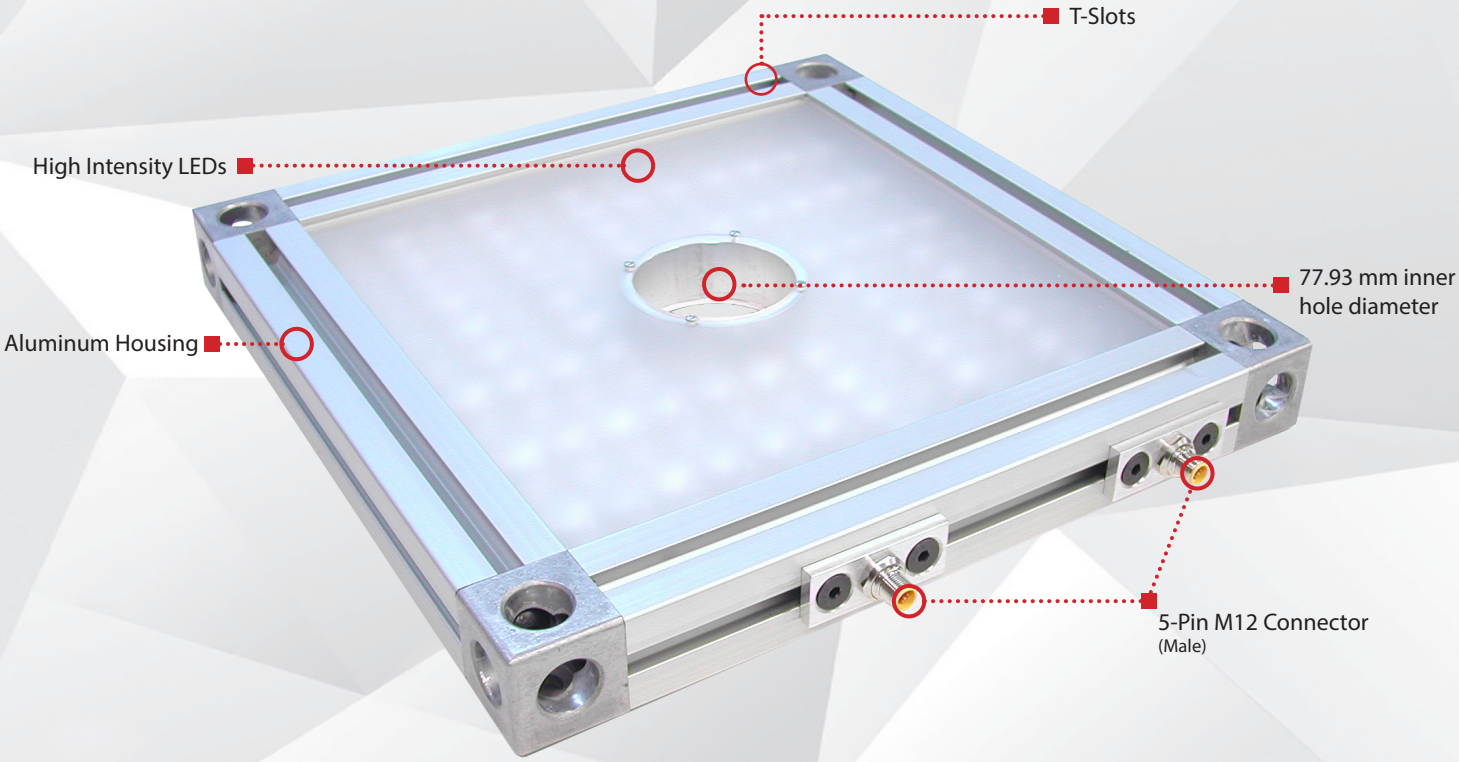
Check Part Number section to see if **this light's is available in SWIR wavelengths.*

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

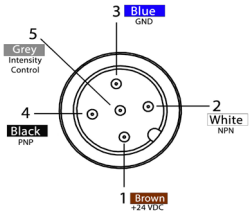
PRODUCT DESCRIPTION

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	14 A per connector | 28 A total | Total Average = 2.8 A
Wattage	336 W per connector | 672 W total | Total Average = 67.2 W
On / Off Input	PNP > +4VDC or greater to activate | NPN > GND (<VDC) 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	270° 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	-18°–40° C (0°–104° 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).*

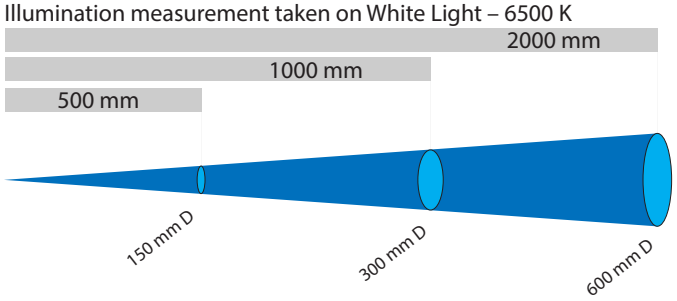
RESOURCE CORNER

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

LIGHT PATTERNS

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

Illumination measurement taken on White Light – 6500 K

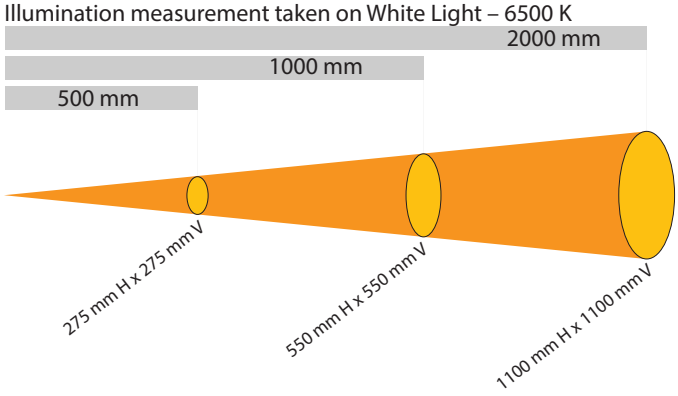


LIGHTING PATTERN FOR THE ODRL300

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



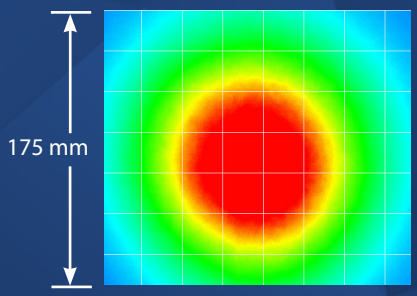
LIGHTING PATTERN FOR THE ODRL300

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")

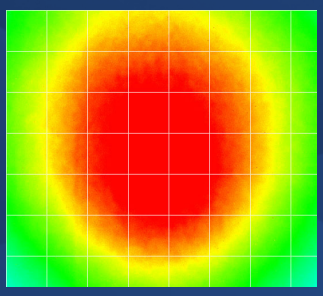
Typical Output Performance	Illumination (Lux)
Distance = 500 mm	9200
Illumination measurement taken on White Lights - 6500K	

The ODRL300 Ring Light produces a uniform light pattern.

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



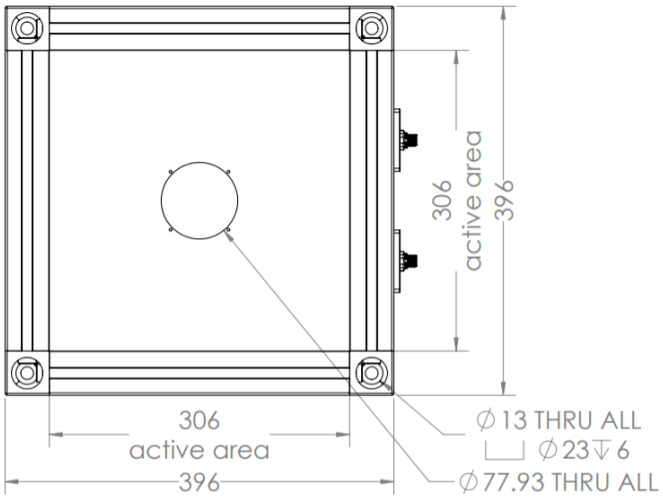
Narrow

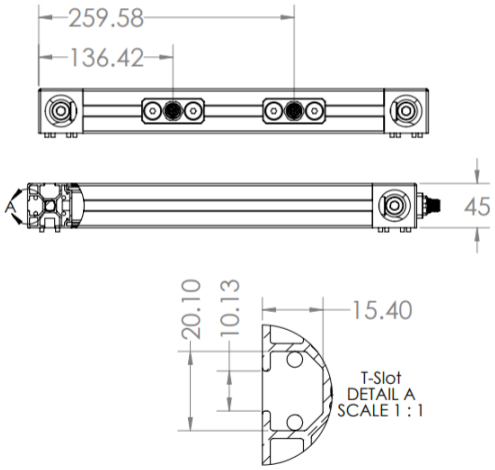


Wide

PRODUCT DRAWING

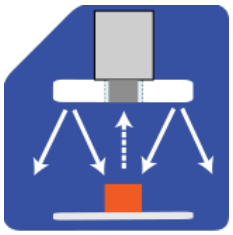
CAD files available on our website.
Dimensions are in mm.





ILLUMINATION

ODRL300 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

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.

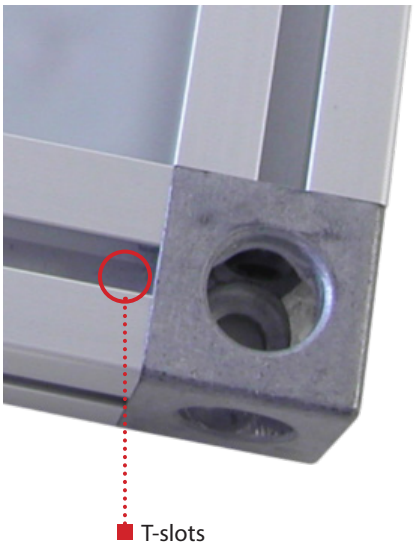
** Additional lens options available upon request.*

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

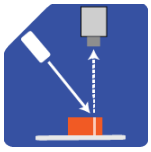
GLOSSARY

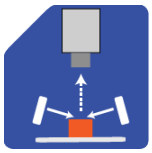
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

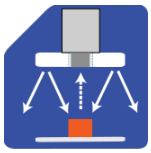
TERMINOLOGY

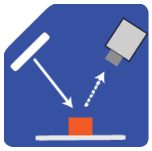
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Lights stay on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows 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.

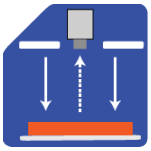
TYPES OF ILLUMINATION

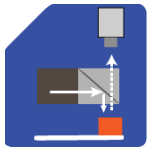

Projector

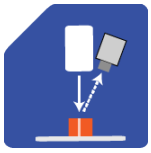

Dark Field

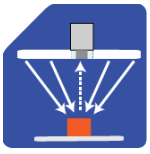

Radial

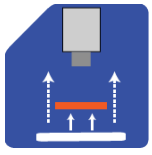

Bright Field


Direct


Axial

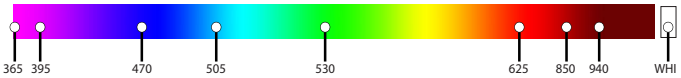

Line


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**

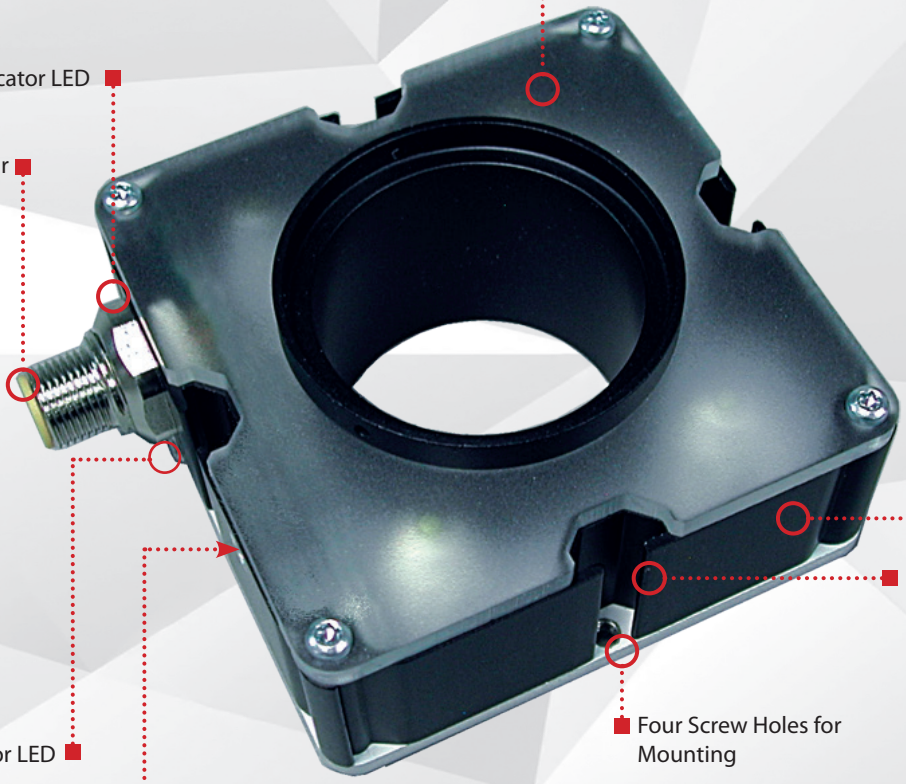
Shortwave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

Check Part Number section to see if **this light's is available in SWIR wavelengths.*

smart vision lights

R80 *EZ Mount* 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
- ✓ PNP and NPN trigger input signal
- ✓ Conversion adapters for different cameras available

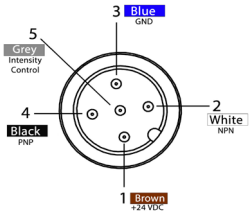
PRODUCT DESCRIPTION

The R80 is an all-around durable light. Its simple plug-and-play 5-pin M12 connector is easy to use. The R80 operates with either an NPN or a PNP signal and runs on an industry-standard 24VDC. The 10%-100% intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 350 mA
Wattage	Max. 8.4 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	270° turn pot – intensity control of 10%–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	-18°–40°C (0°–104°F)
IP Rating	IP50
Weight	~183 g
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	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 continuous mode: Tie PNP (pin 4) to +24VDC (pin 1) **or** tie NPN (pin 2) to ground (pin 3).*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

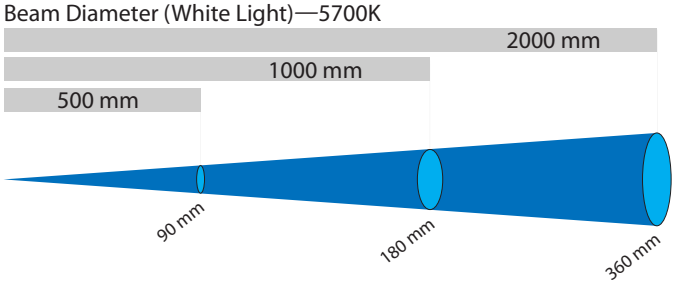
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the R80 be used at a working distance between 500 mm and 4000 mm.

Beam Diameter (White Light)—5700K

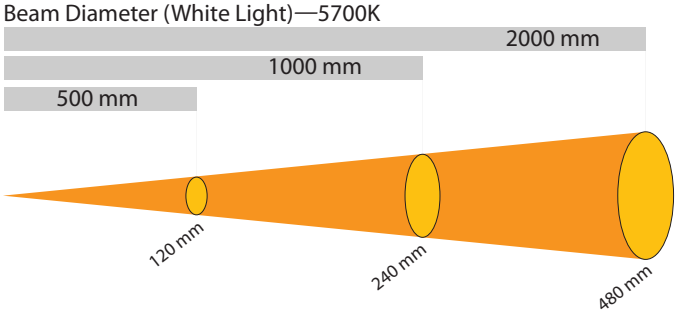


LIGHTING PATTERN FOR THE R80-XXX-N

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	90 mm (~3.5")
1000 mm (39.4")	180 mm (~7.1")
2000 mm (78.8")	360 mm (~14.2")

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	6500
Illuminance measurement taken on White Lights—5700K	

Beam Diameter (White Light)—5700K



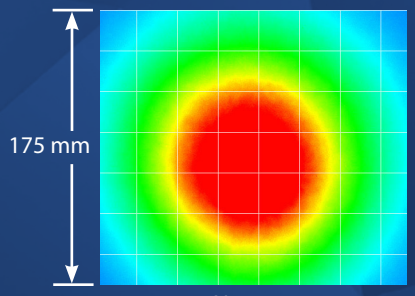
LIGHTING PATTERN FOR THE R80-XXX

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	120 mm (~4.8")
1000 mm (39.4")	240 mm (~9.5")
2000 mm (78.8")	480 mm (~18.9")

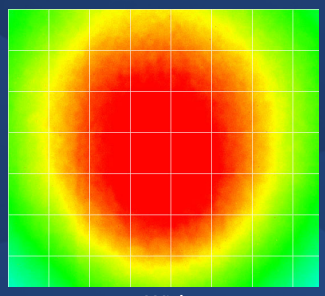
Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	4900
Illuminance measurement taken on White Lights—5700K	

The R80 Ring Light produces a uniform light pattern.

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



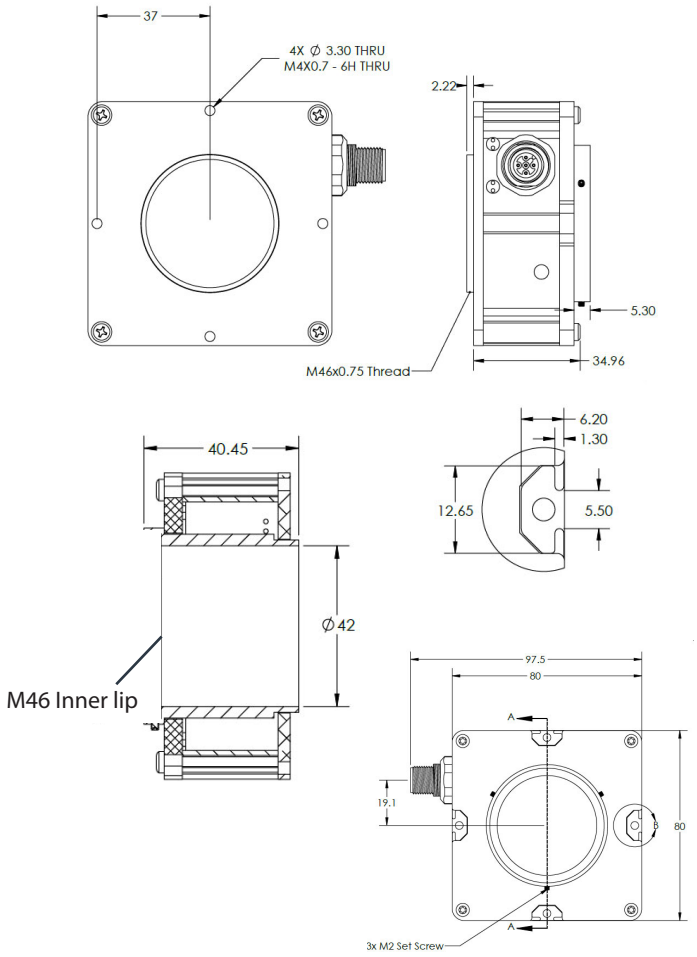
Narrow



Wide

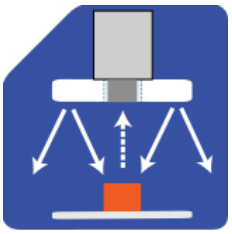
PRODUCT DRAWING

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



ILLUMINATION

R80 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 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

R80 – □□□ – □

COLOR:

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

LENS:

Leave blank for (Standard Wide)

N = Narrow

Part Number Examples:

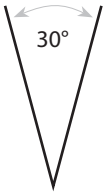
R80-625 R80, 625 Red Wavelength, Standard (Wide) Lens

R80-WHI R80, White, Standard (Wide) Lens

Additional wavelengths and lens options available upon request.

LENS OPTICS

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



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

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.

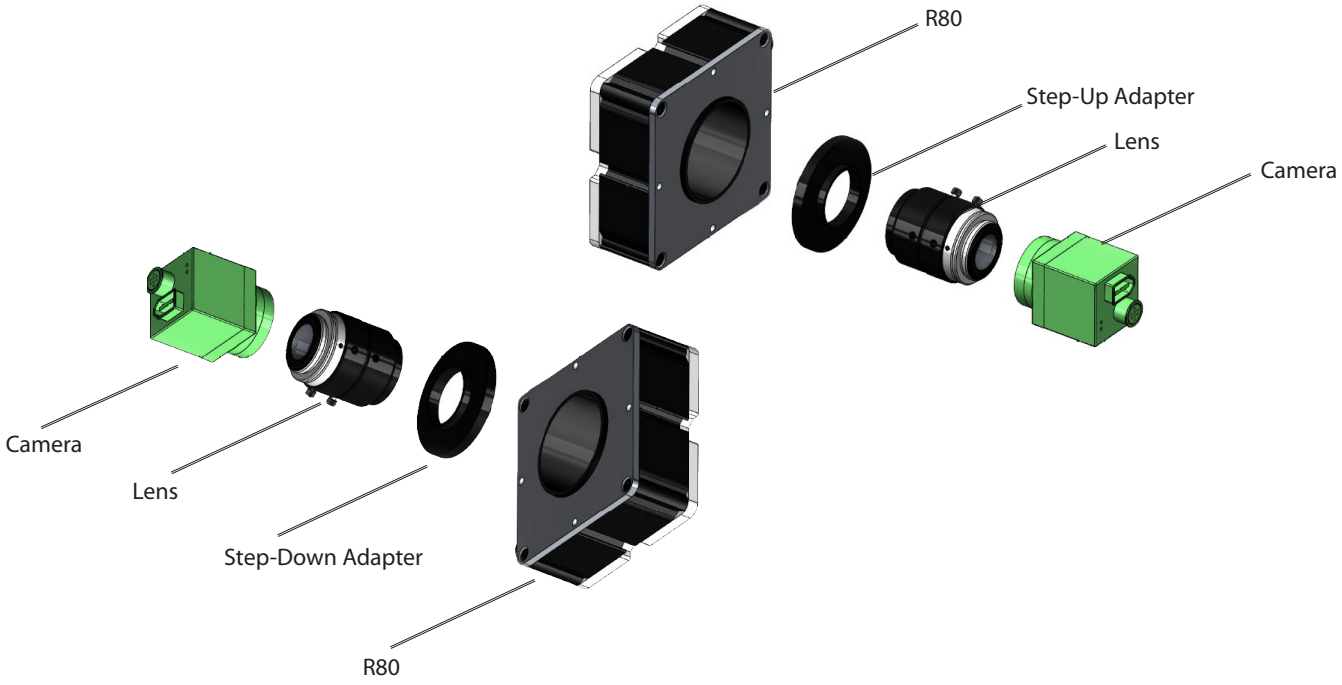
WARNING: Running a light in continuous operation while using a standard polarizer with certain wavelengths (e.g. white, blue) may burn the polarizer.

STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.



STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

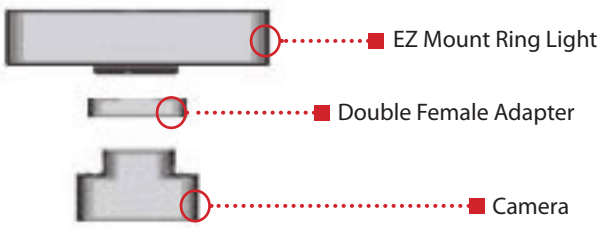
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF–□□□□–46

CAMERA THREAD SIZE
34.9
55
60

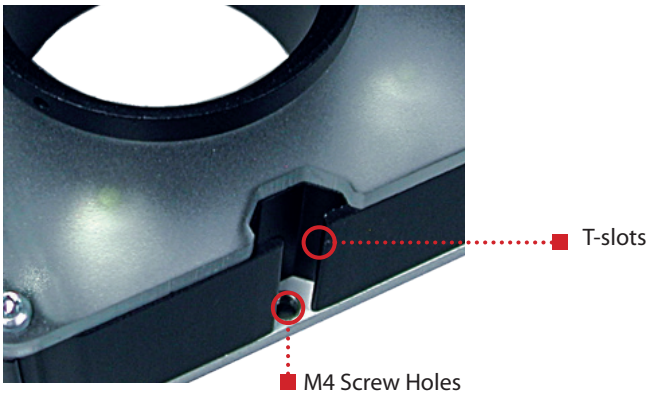
RING LIGHT THREAD SIZE

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

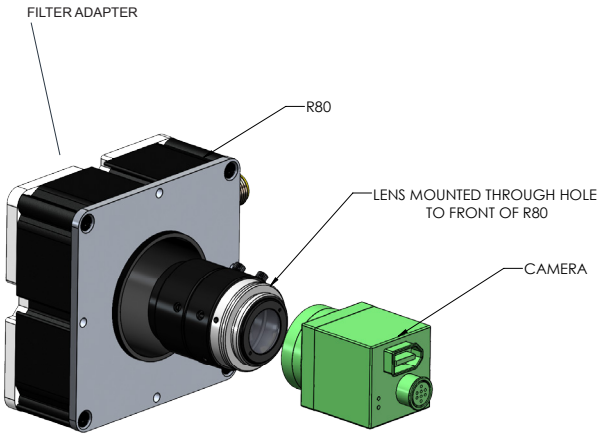
MOUNTING

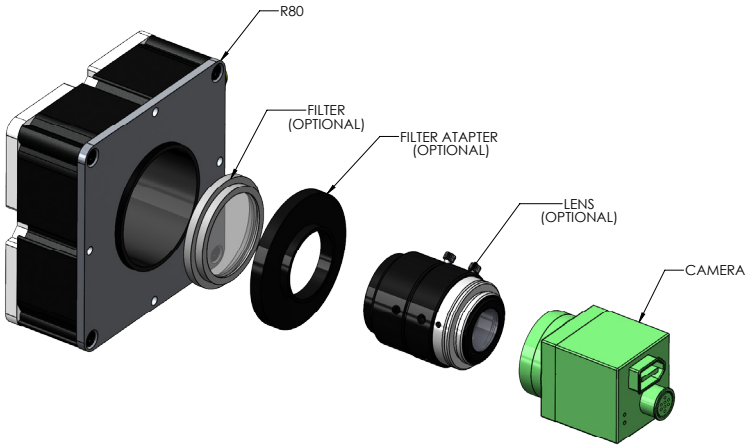
Mounting options on the R80 EZ Mount Ring Light include four T-slots and four M4 threaded holes. Light includes one M5 screw and one T-nut.

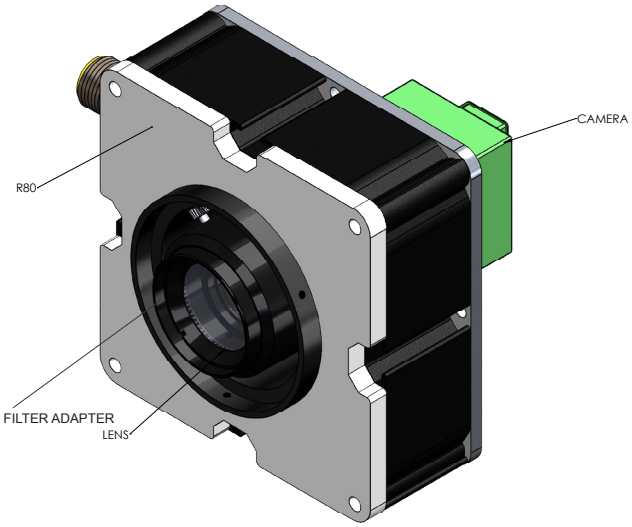
Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



CAMERA MOUNTING EXAMPLES







ACCESSORIES

Step-Up Kits *

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Power Cables

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

Power Adapters *

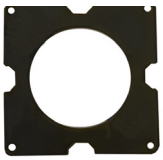
Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

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

Variable Control Pot

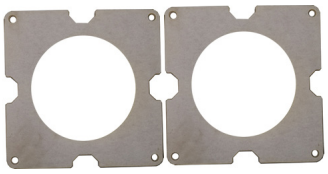
Description	Part Number
Controls the intensity of the light	IVP-C1

Linear Polarizer



Description	Part Number
Linear Polarizer Kit	R80-LP

Diffuser



Description	Part Number
Diffuser Kit	R80-DKIT

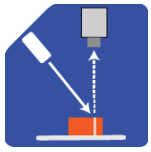
GLOSSARY

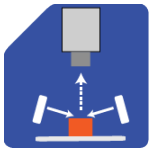
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

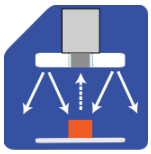
TERMINOLOGY

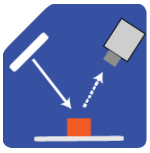
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need 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.

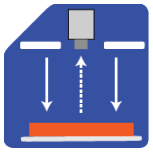
TYPES OF ILLUMINATION

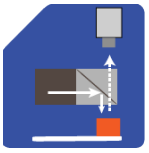

Projector

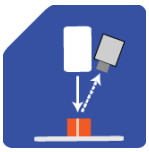

Dark Field

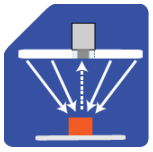

Radial

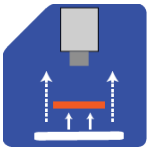

Bright Field


Direct


Axial

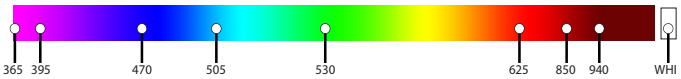

Line


Diffuse Panel


Backlight

COMMON COLOR/WAVELENGTHS LEGEND

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



See Part Number section for **this light available standard wavelengths.*

SHORT WAVE **INFRARED**

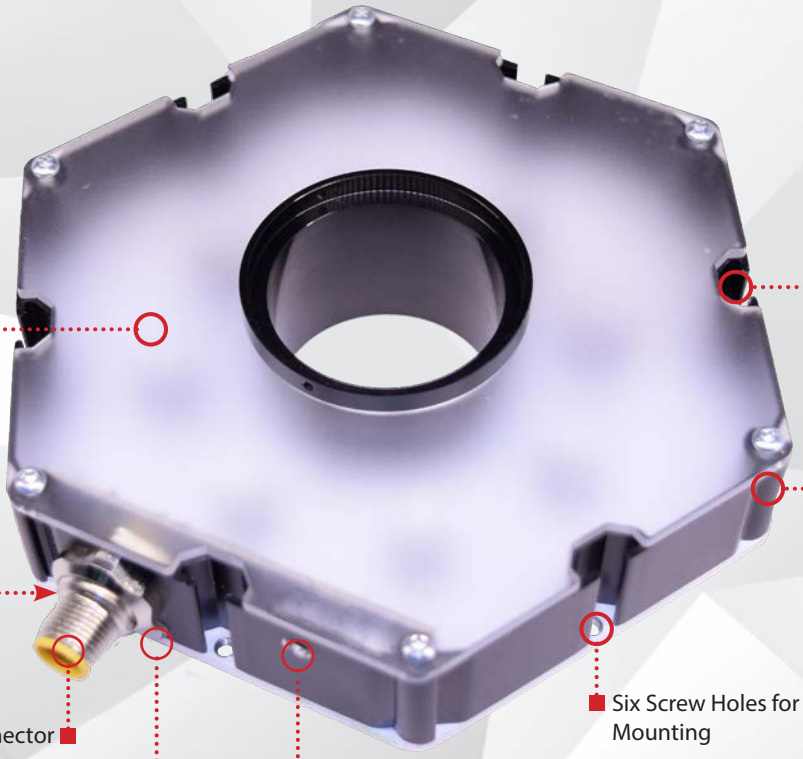
Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

Check Part Number section to see if **this light is available in SWIR wavelengths.*

smart vision lights

R130 *EZ Mount* 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 smart driver
- ✓ PNP and NPN trigger input signal
- ✓ Conversion adapters for different cameras available
- ✓ Intensity adjustable from 10%–100% using built-in potentiometer

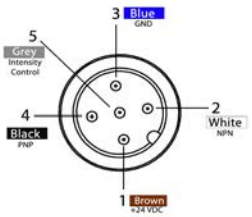
PRODUCT INFORMATION

Heat is dissipated through the aluminum housing, allowing the R130 to be run at a higher current and a greater intensity. Its simple plug-and-play 5-pin M12 connector is easy to use. The 10%-100& intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 460 mA
Wattage	Max. 11.1 W
Strobe 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	270° turn pot — intensity control of 10%–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	-18°–40°C (0°–104°F)
IP Rating	IP50
Weight	~325 g
Compliances	CE, RoHS, IEC 62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	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, tie 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).*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

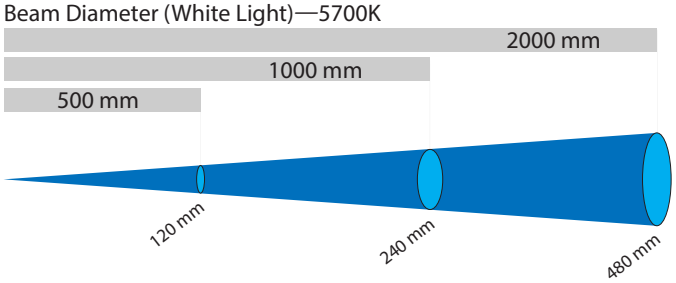
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the R130 be used at a working distance between 300 mm and 4000 mm.

Beam Diameter (White Light)—5700K

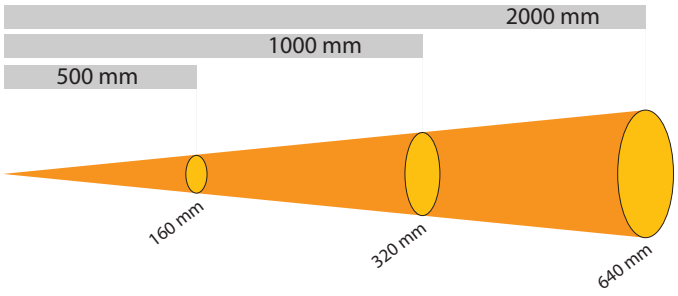


LIGHTING PATTERN FOR THE R130-**XXX-N**

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	120 mm (~4.8")
1000 mm (39.4")	240 mm (~9.5")
2000 mm (78.8")	480 mm (~18.9")

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	11,600
Illuminance measurement taken on White Lights—5700K	

Beam Diameter (White Light)—5700K



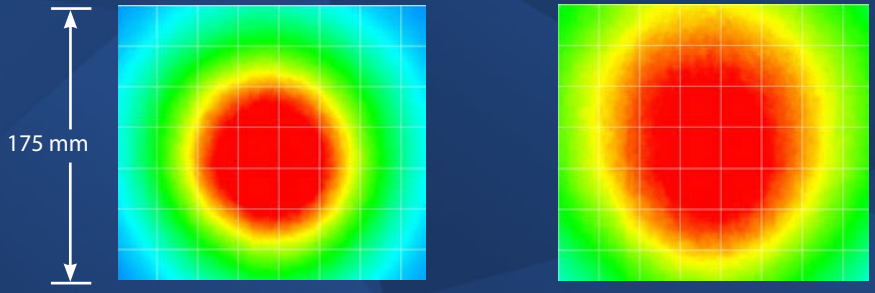
LIGHTING PATTERN FOR THE R130-**XXX**

Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	160 mm (~6.3")
1000 mm (39.4")	320 mm (~12.6")
2000 mm (78.8")	640 mm (~25.2")

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	8,000
Illuminance measurement taken on White Lights—5700K	

The R130 Ring Light produces a uniform light pattern.

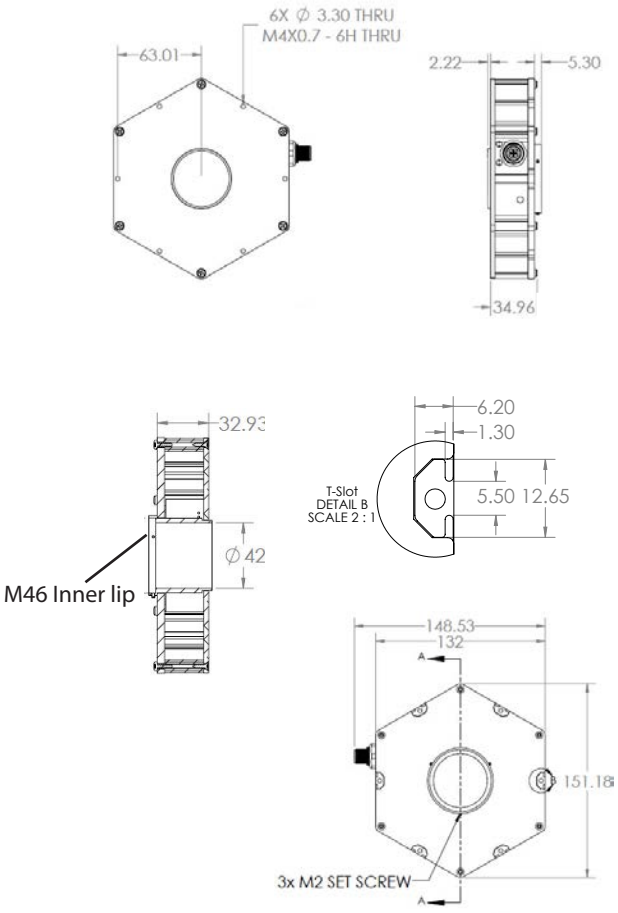
Working Distance = 500 mm Grid set to 25 mm x 25 mm



Narrow Wide

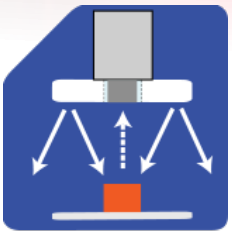
PRODUCT DRAWING

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



ILLUMINATION

R130 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

R130 – □□□ – □

COLOR:

LENS:

Leave blank for Standard (Wide)

N = Narrow

Part Number Examples:

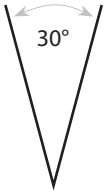
R130-625 R130, 625 Red Wavelength, Standard (Wide) Lens

R130-WHI-N R130, White, N (Narrow) Lens

Additional wavelengths and lens options available upon request.

LENS OPTICS

WIDE (STANDARD)
Wide, 30° angle-cone lenses project a large area of illumination. They create a floodlight effect, can be used for short working distances.



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

** Additional lens options available upon request.*

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.

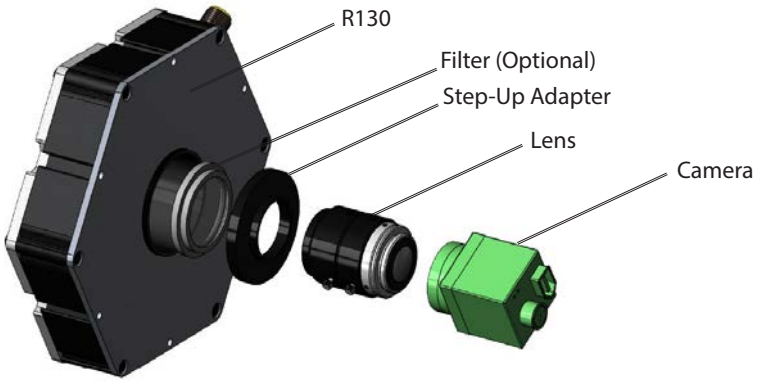
WARNING: Running a light in continuous operation while using a standard polarizer with certain wavelengths (e.g. white, blue) may burn of the polarizer.

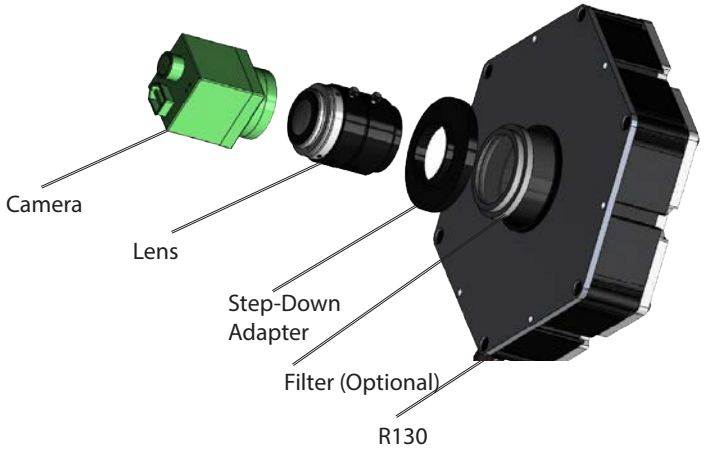
STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.





STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

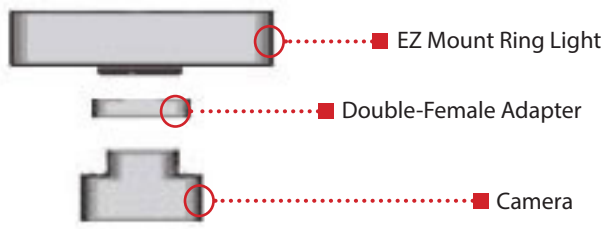
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double-Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF – □□□□ – 46

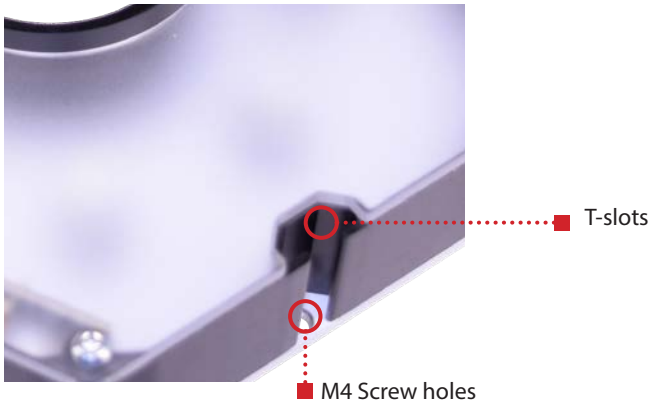
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

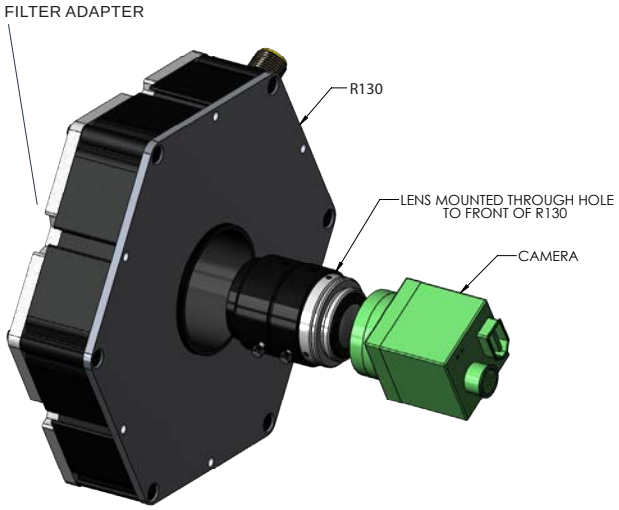
MOUNTING

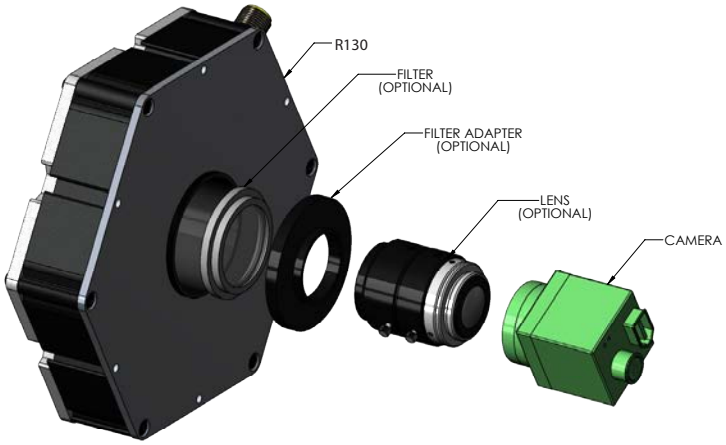
Mounting options on the R130 EZ Mount Ring Light include six T-slots and six M4 threaded holes.

Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



CAMERA MOUNTING EXAMPLES





ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.55 mm	SU40.5-46
43 mm	SU46-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.5 mm	DF34.5-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Power Cables

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

Power Adapters*

Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

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

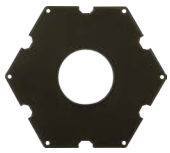
Variable Control Pot

Description	Part Number
Controls the intensity of the light	IVP-C1

Diffuser

Description	Part Number
Diffuser Kit	R130-DKIT

Linear Polarizer



Description	Part Number
Linear Polarizer Kit	R130-LP

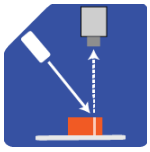
GLOSSARY

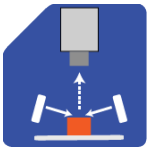
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

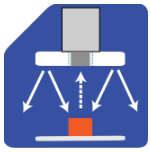
TERMINOLOGY

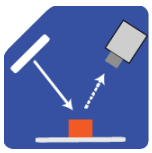
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need 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.

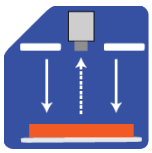
TYPES OF ILLUMINATION

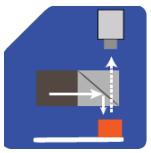

Projector

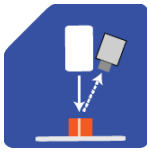

Dark Field

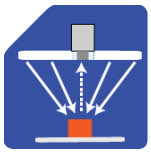

Radial

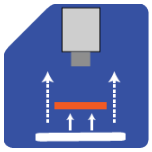

Bright Field


Direct


Axial

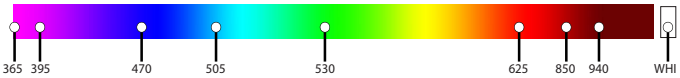

Line


Diffuse Panel


Backlight

COMMON COLOR/WAVELENGTHS LEGEND

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



See Part Number section for **this light available standard wavelengths.*

SHORT WAVE **INFRARED**

Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

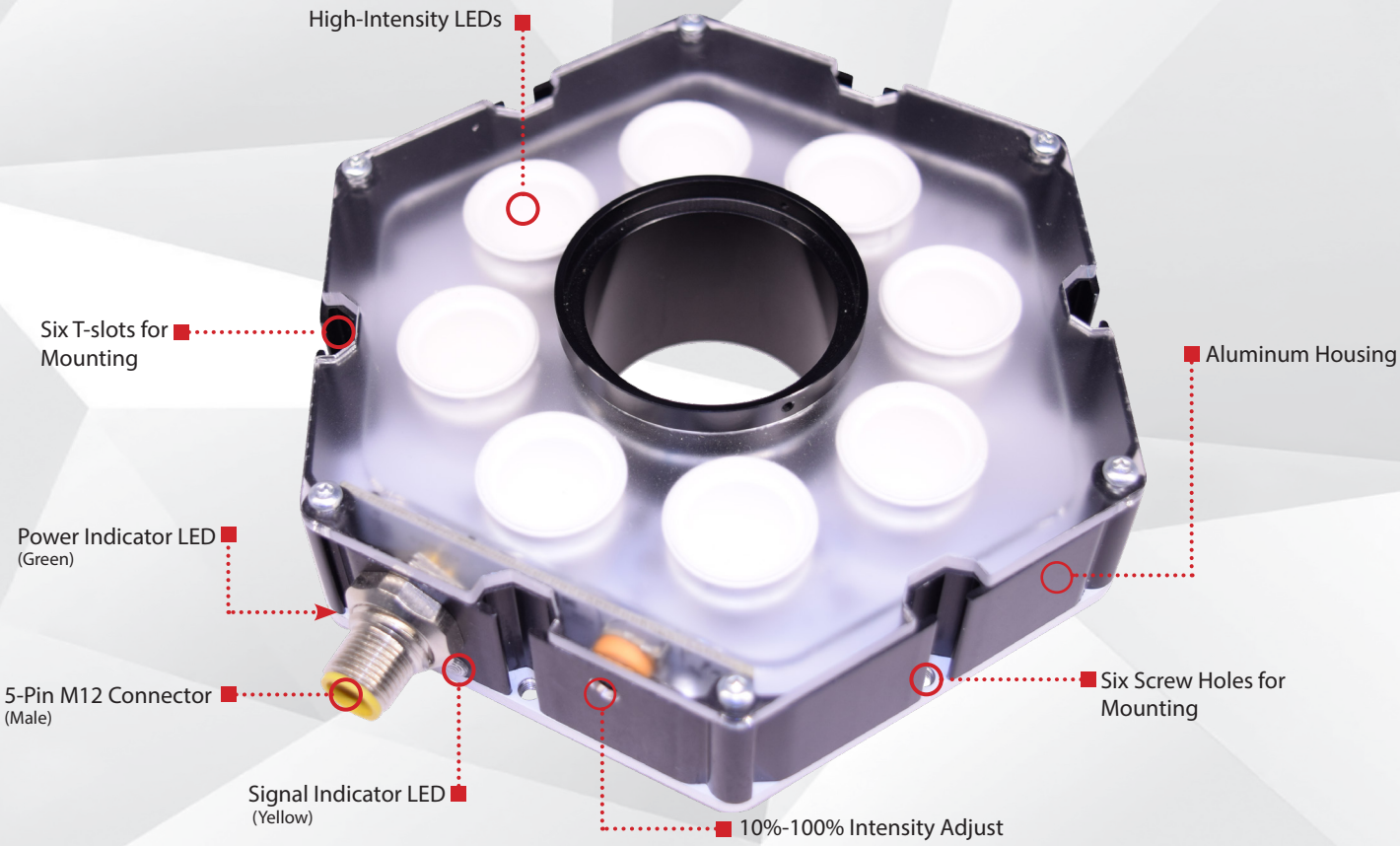
Check Part Number section to see if **this light is available in SWIR wavelengths.*

smart vision lights

RC130 EZ Mount RING LIGHT

WIDE UNIFORM PATTERN

PRODUCT DATA SHEET



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

PRODUCT HIGHLIGHTS

- ✓ Special lenses project a large uniform/homogenous light pattern
- ✓ 5-pin M12 quick connect
- ✓ Built-in driver
- ✓ PNP and NPN trigger input signal
- ✓ Conversion adapters for different cameras available

Rev. 2020/06/10

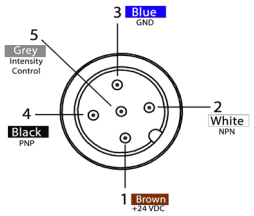
PRODUCT INTRODUCTION

The RC130 was designed to produce a large uniform/homegenous light pattern. To achieve this, the RC130 contains special lenses for creating this near collimated light pattern. Its simple plug and play 5-pin M12 connector is easy to use. while allowing for full control. The RC130 operates with either an NPN or a PNP signal and runs on an industry standard 24VDC. The 10%-100% intensity control assists in gaining full control of the lights output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kits adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 460mA
Wattage	Max. 11.1W
Strobe 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%–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	~325g
Compliances	CE, RoHS, IEC-62471
Warranty	UV LEDs have a 2 year warranty, all other LEDs have a 10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

** Some cables use green/yellow for pin 5*
For maximum intensity, tie 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 are available on our website, including CAD files, videos, and application examples.

PART NUMBER

RC130 – □□□

COLOR:

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

Part Number Example:

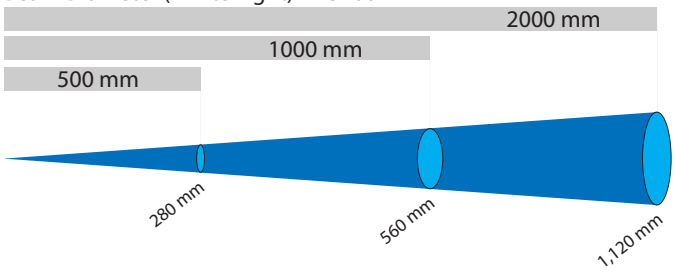
RC130-625 RC130, 625 Red Wavelength, Standard (Wide) Lenses

Additional wavelengths options available upon request.

LIGHT PATTERNS

Smart Vision Lights recommends the RC130 be used at a working distance between 300 mm to 4000 mm.

Beam Diameter (White Light) — 5700K



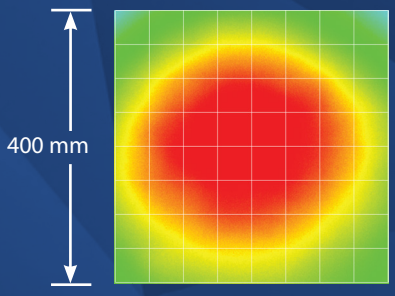
LIGHTING PATTERN FOR THE RC130-**XXX**

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	280 mm (~11.05")
1000 mm (39.4")	560 mm (~22.10")
2000 mm (78.8")	1,120 mm (~44.20")

Typical Output Performance	Illuminace (Lux)
Distance = 500 mm	2500
Illuminance measurement taken on White Lights — 5700K	

The RC130 Ring Light produces a uniform light pattern.

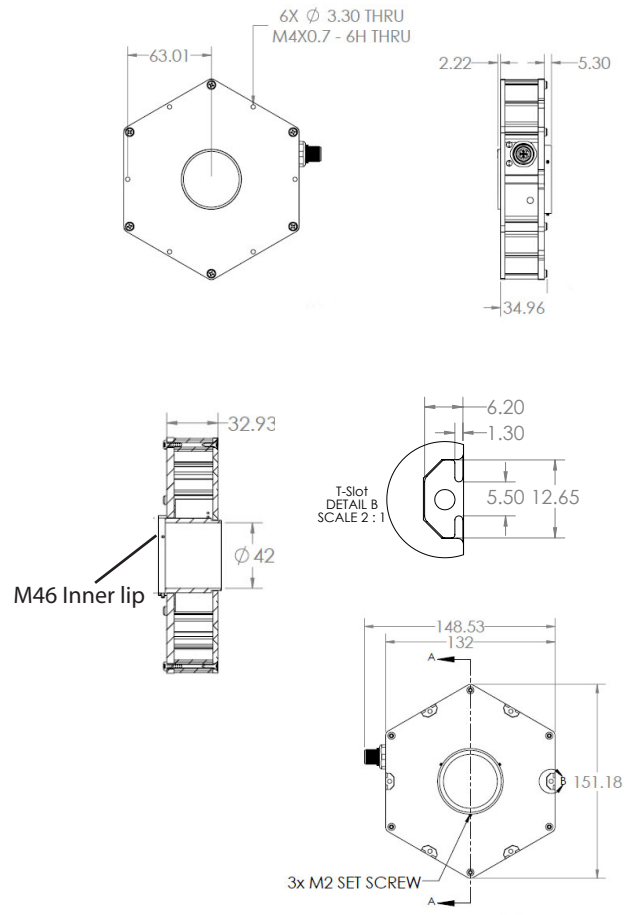
Working Distance = 500 mm Grid set to 50 mm x 50 mm



Wide

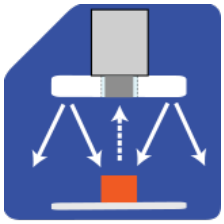
PRODUCT DRAWING

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



ILLUMINATION

RC130 Series of Ring Lights works best for:



Radial

EYE SAFETY

According to IEC 62471:2006. Full documentation available upon request.

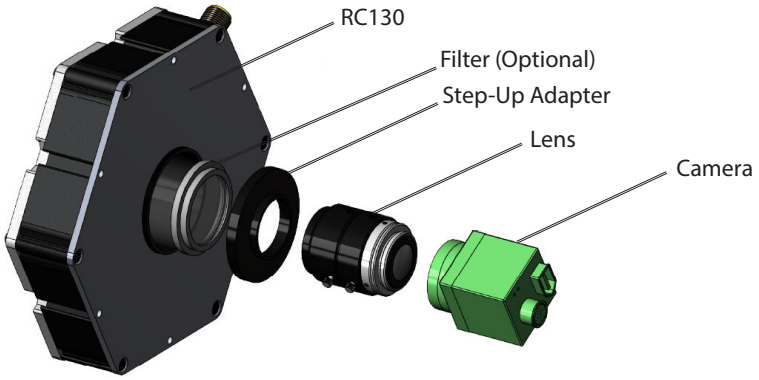
Notice **Exempt Group:** No photobiological hazard to eyes or skin even for continuous, unrestricted use. Applicable for wavelengths 625, 850, and 940.
Caution **Risk Group 1:** Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to eyes. Safe 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

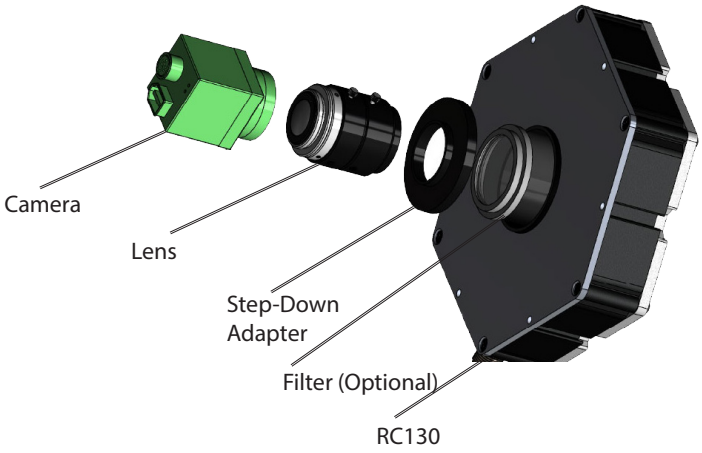
STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.





STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

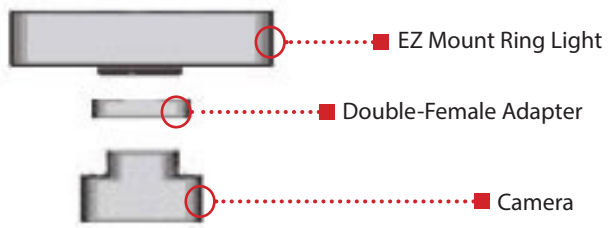
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double-Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF–□□□□–46

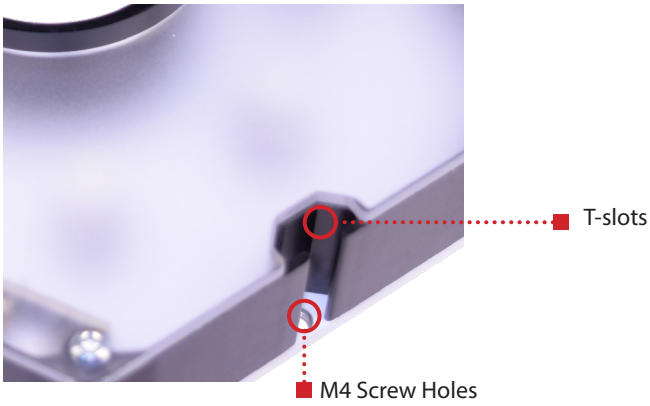
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

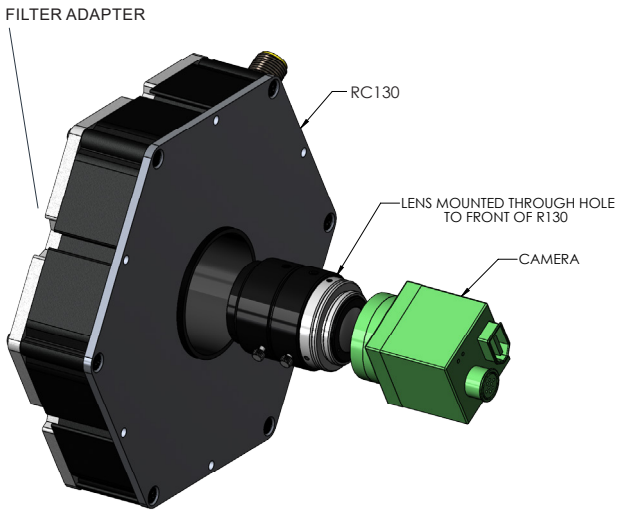
MOUNTING

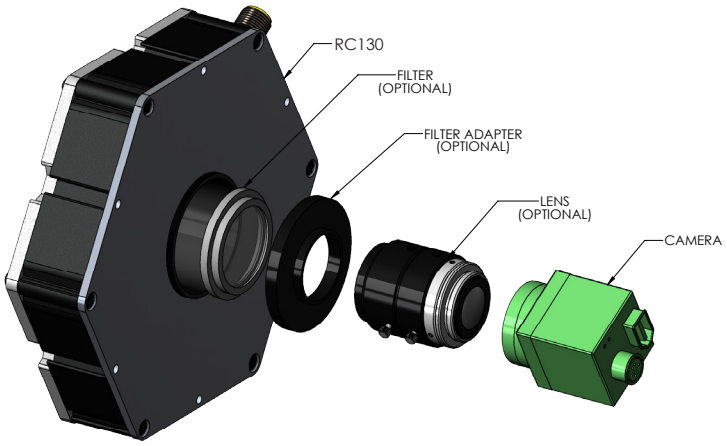
Mounting options include six T-slots and six M4 threaded holes on the RC130 EZ Mount ring light.

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



CAMERA MOUNTING EXAMPLES





ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Power Cables

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

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Variable Control Pot

Description	Part Number
Controls the intensity of the light	IVP-C1

Power Adapters *

Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

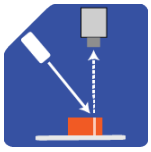
GLOSSARY

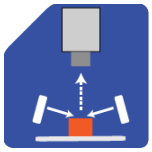
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

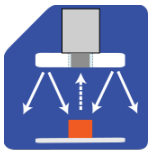
TERMINOLOGY

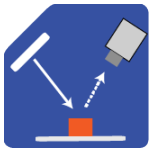
OverDrive™ Light includes an integrated high-pulse driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows 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.

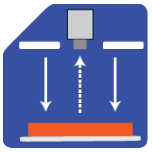
TYPES OF ILLUMINATION

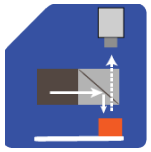

Projector

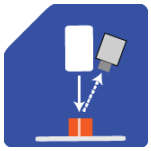

Dark Field

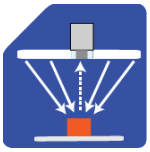

Radial

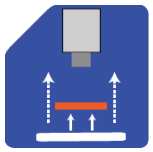

Bright Field


Direct


Axial

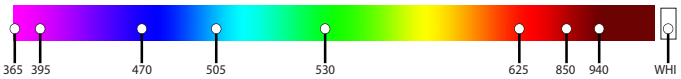

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelength 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**

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.*

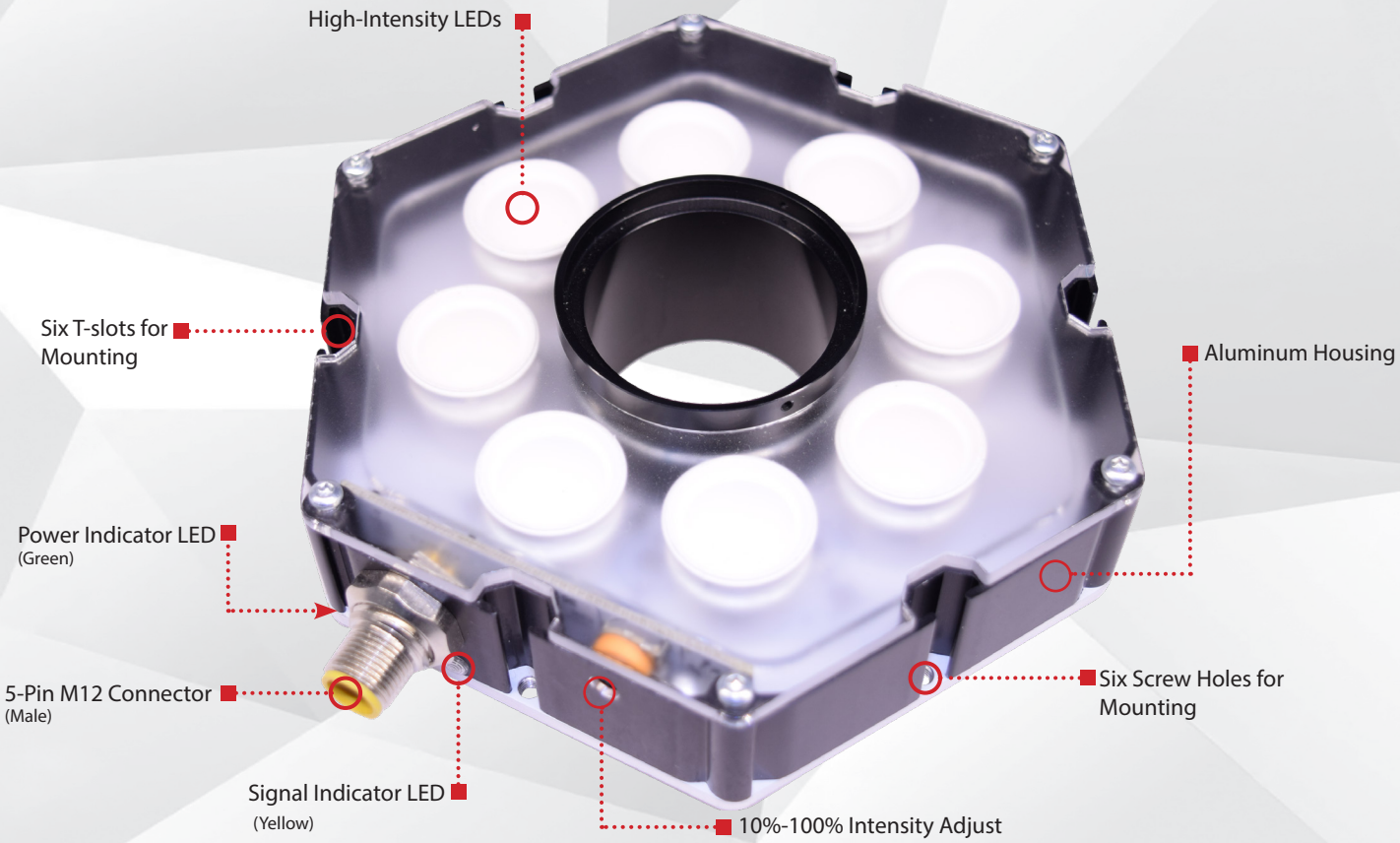
smart vision lights

RCC130 *EZ Mount*

RING LIGHT

NARROW UNIFORM PATTERN

PRODUCT DATA SHEET



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

PRODUCT HIGHLIGHTS

- ✓ Special lenses project a narrow uniform/homogeneous light pattern
- ✓ 5-pin M12 connector
- ✓ Built-in driver, no external wiring needed
- ✓ PNP and NPN strobe input
- ✓ Conversion adapters for different cameras available

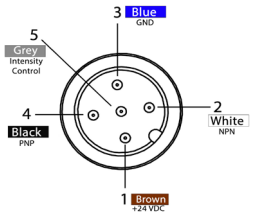
PRODUCT DESCRIPTION

The RCC130 contains special lenses to produce a narrow uniform/homogeneous light pattern. Its simple plug-and-play 5-pin M12 connector is easy to use. The RCC130 operates with either an NPN or a PNP signal and runs on an industry-standard 24VDC. The 10%–100% intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 540 mA
Wattage	Max. 13 W
Strobe 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%–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–40ºC (0º–104ºF)
IP Rating	IP50
Weight	~325 g
Compliances	CE, RoHS, IEC 62471
Warranty	10 year warranty. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

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

PART NUMBER

RCC130 – □□□

COLOR:

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

Part Number Example:

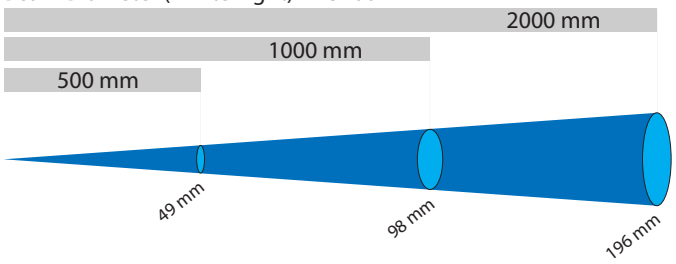
RCC130-625 RCC130, 625 Red Wavelength, Standard (Narrow) Lens

Additional wavelengths options available upon request.

LIGHT PATTERNS

Smart Vision Lights recommends the RCC130 be used at a working distance between 500 mm and 5000 mm.

Beam Diameter (White Light) — 5700K

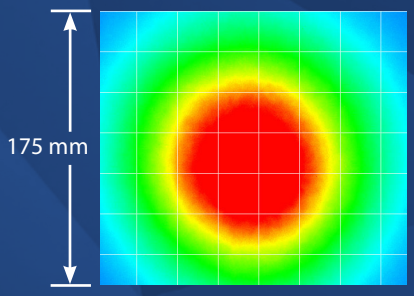


Working Distance mm (inches)	Pattern (80%–100% measured intensity) mm (inches)
500 mm (19.7")	49 mm (~1.93")
1000 mm (39.4")	98 mm (~3.86")
2000 mm (78.8")	196 mm (~7.72")

Typical Output Performance	Illuminance (Lux)
Distance = 1000 mm	13,000
Illuminance measurement taken on White Lights — 5700K	

The RCC130 Ring Light produces a uniform light pattern.

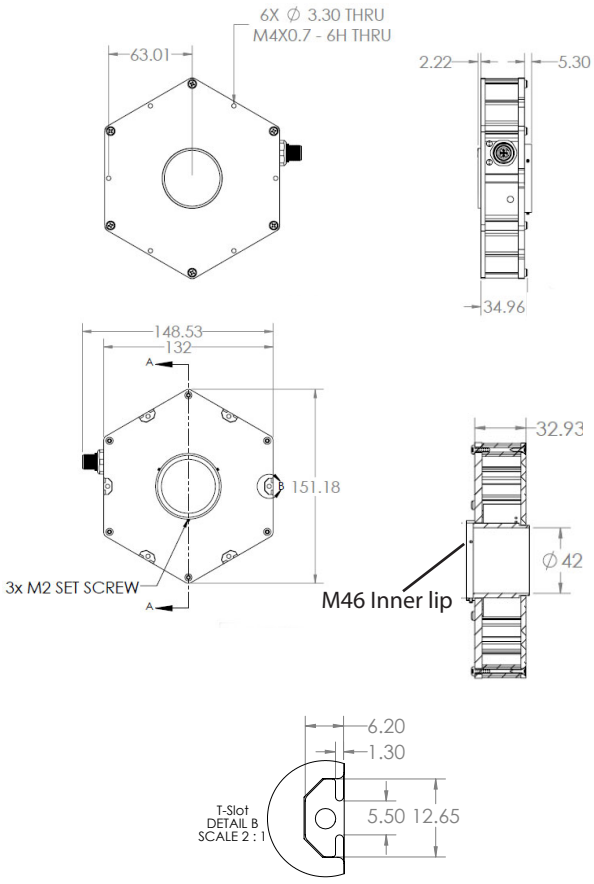
Working Distance = 500 mm Grid set to 25 mm x 25 mm



Narrow

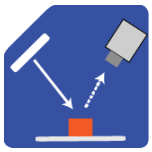
PRODUCT DRAWING

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

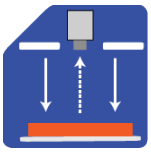


ILLUMINATION

RCC130 Series of Ring Lights works best for:



Bright Field



Direct

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 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.

STEP-UP/STEP-DOWN ADAPTER KITS

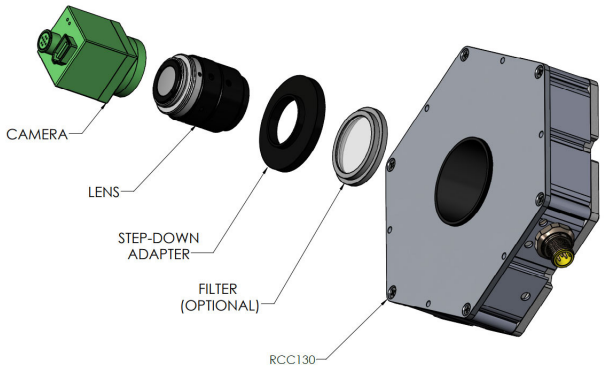
Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

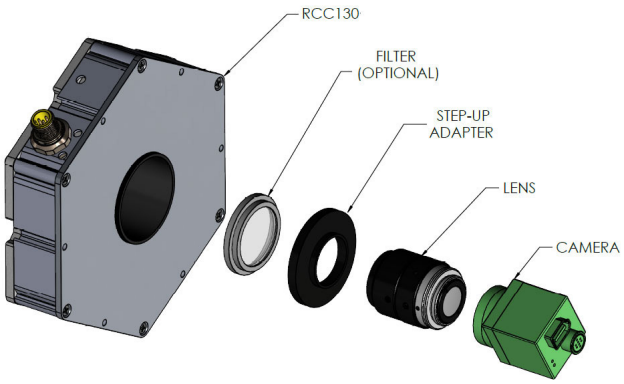
Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.

NOTICE

The camera mounting threads and step up/down rings are intended only for camera mounting and do not support the weight of the light or protect against shock + vibration. Always use the light mounting points to additionally mount and support the light itself.





STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

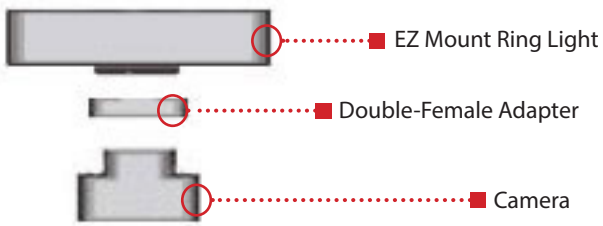
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double-Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF–□□□□–46

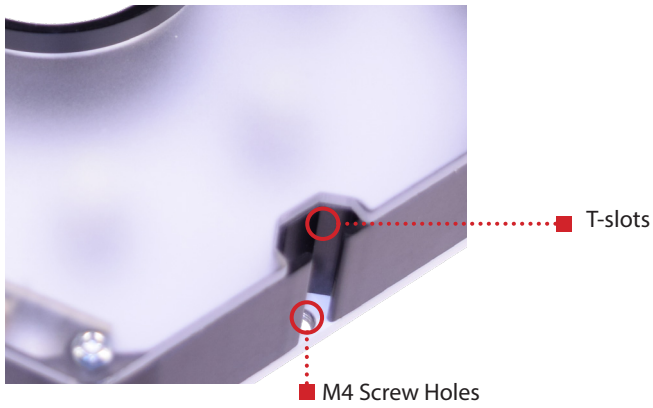
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

MOUNTING

Mounting options on the RCC130 EZ Mount ring light include six T-slots and six M4 threaded holes.

Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Power Cables

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

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Variable Control Pot

Description	Part Number
Controls the intensity of the light	IVP-C1

Power Adapters

Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

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.

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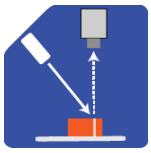
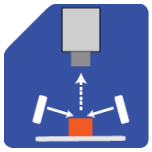
Camera to Light Connect the light directly to the camera, without the need for additional controllers or equipment.

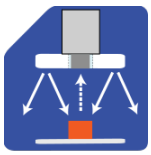
Polarizers Filters that reduce reflections on specular surfaces.

Diffusers Used to widen the angle of light emission, reduce reflections, and increase uniformity.

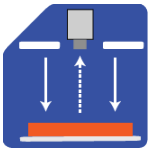
TYPES OF ILLUMINATION

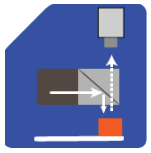

Projector

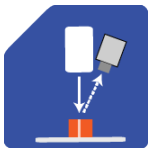

Dark Field

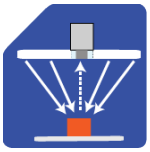

Radial

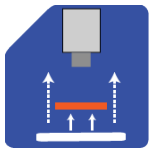

Bright Field


Direct


Axial

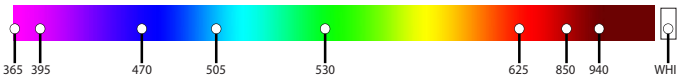

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

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



See Part Number section for **this light available standard wavelengths.*

SWIR SHORT WAVE **INFRARED**

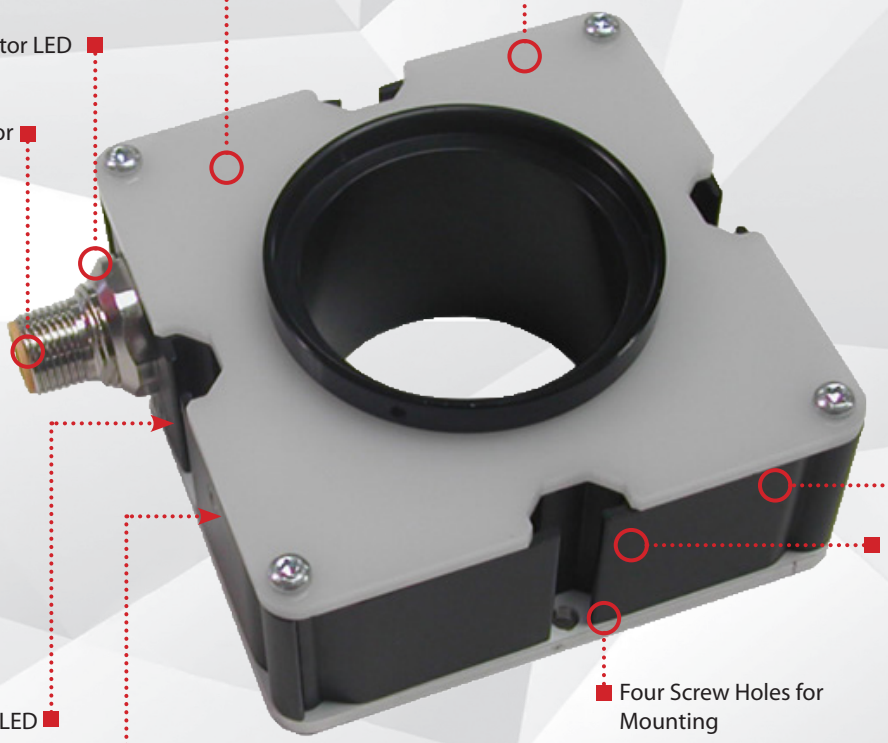
Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

Check Part Number section to see if **this light is available in SWIR wavelengths.*

smart vision lights

RD80 *EZ Mount* RING LIGHT
DIFFUSE

PRODUCT DATA SHEET



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

PRODUCT HIGHLIGHTS

- ✓ T-slot for mounting
- ✓ Conversion adapters for different cameras available
- ✓ PNP and NPN trigger input signal
- ✓ Diffuse lens is factory installed

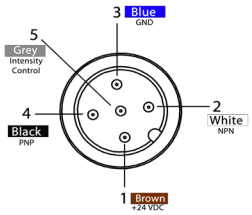
PRODUCT DESCRIPTION

The RD80 is an all-around durable light. Its simple plug-and-play 5-pin M12 connector is easy to use. The RD80 has an optimal working distance between 100mm and 400mm and will operate with either a NPN or a PNP signal and runs on an industry standard 24VDC. The 10%–100% intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Input Current	Max. 350 mA
Wattage	Max. 8.4W
Strobe 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%–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–40ºC (0º–104ºF)
IP Rating	IP50
Weight	~183 g
Compliances	CE, RoHS, IEC 62471
Warranty	10 years. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

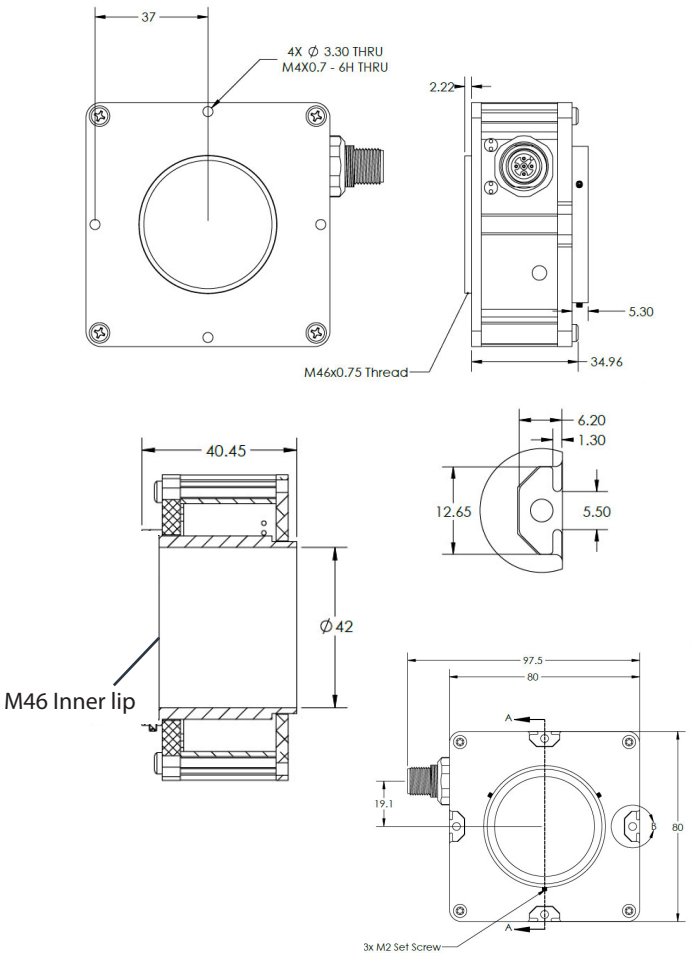
** Some cables use green/yellow for pin 5*
For maximum intensity, tie pin 5 to pin 1 at +24VDC.
*For continuous mode: Tie PNP (pin 4) can be tied to +24VDC (pin 1) **or** tie NPN (pin 2) can be tied to Ground (pin 3).*

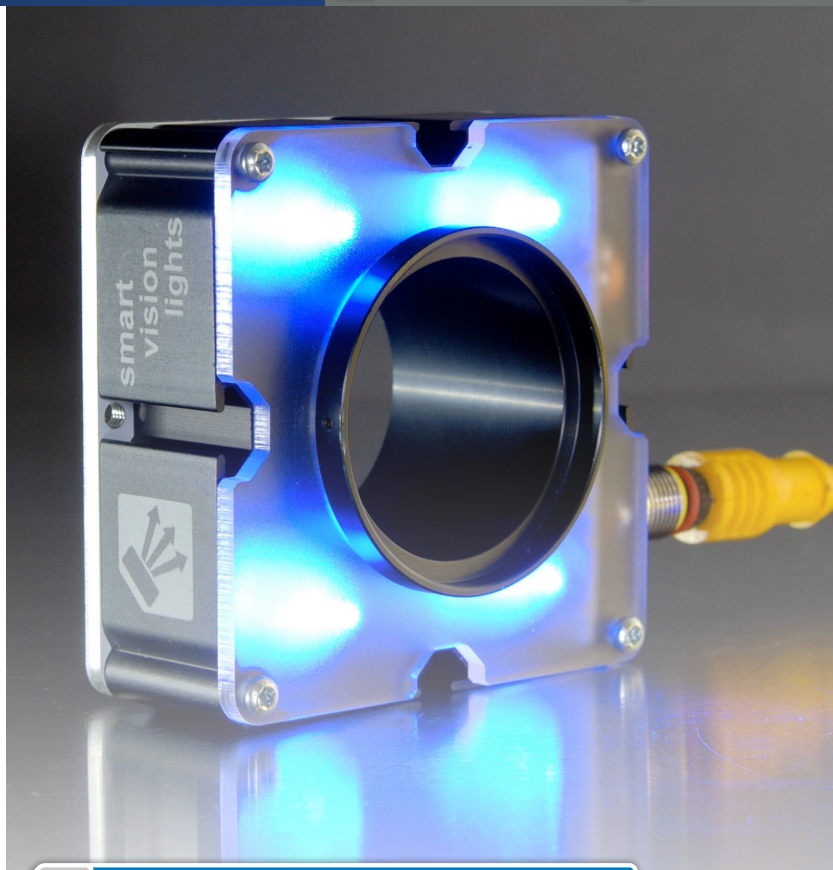
RESOURCE CORNER

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

PRODUCT DRAWING

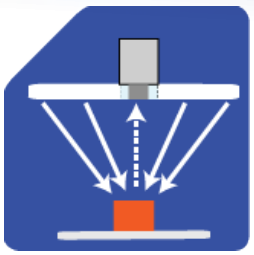
CAD files available on our website.
Dimensions are in mm.





ILLUMINATION

RD80 Series of Ring Lights works best for:



Diffuse

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

RD80 – □□□

COLOR:

WHI 470 505
530 625 850 940

Part Number Example:

RD80-625 RD80, 625 Red Wavelength, Standard (Wide) Lens

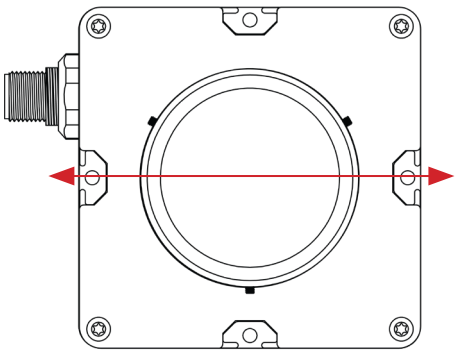
Additional wavelengths options available upon request.

OPTICAL PERFORMANCE

The RD80 offers a very diffuse light pattern. Smart Vision Lights recommends using the RD80 at a working distance between 100 mm and 400 mm.

OPICTAL PERFORMANCE FOR THE RD80

Rating	Illumination (Lux)
Average Intensity Rating	20,000
Illuminance measurement taken at surface of RD80	

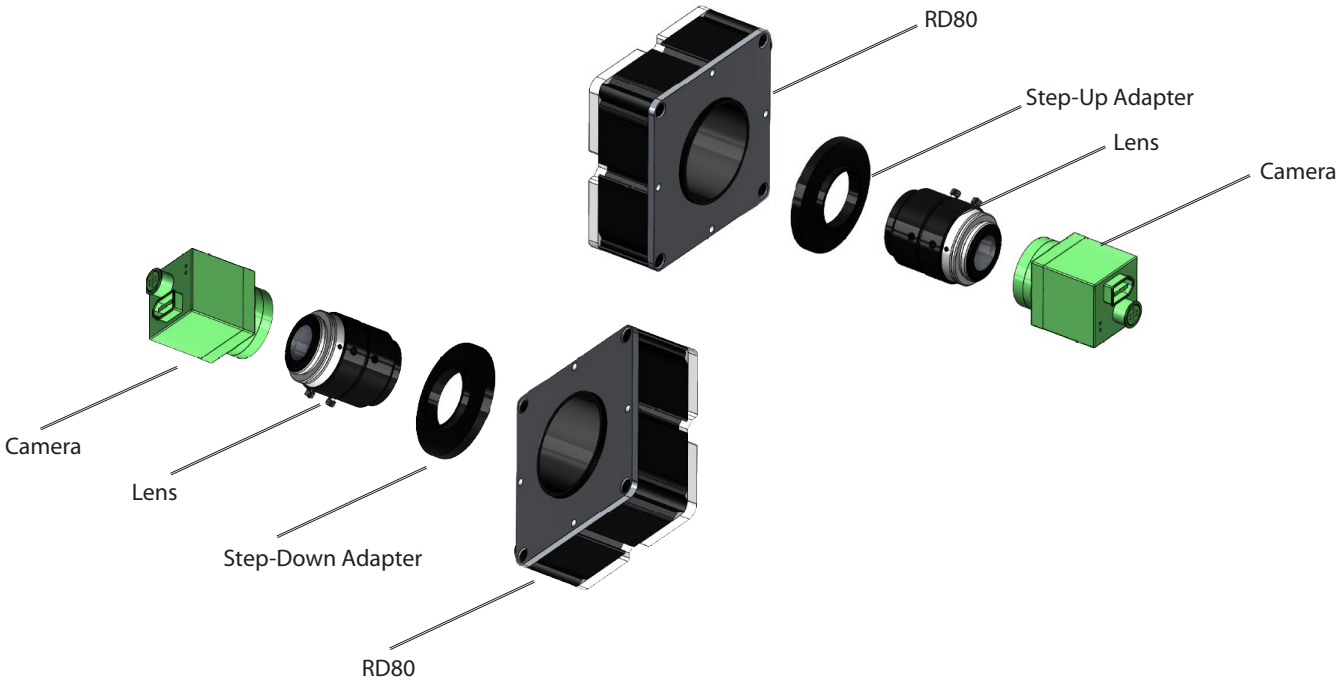


STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.



STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

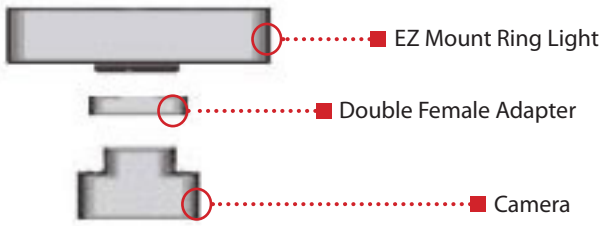
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF–□□□□–46

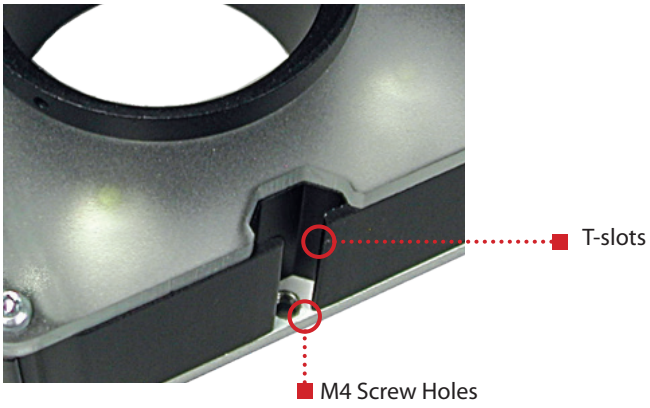
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

MOUNTING

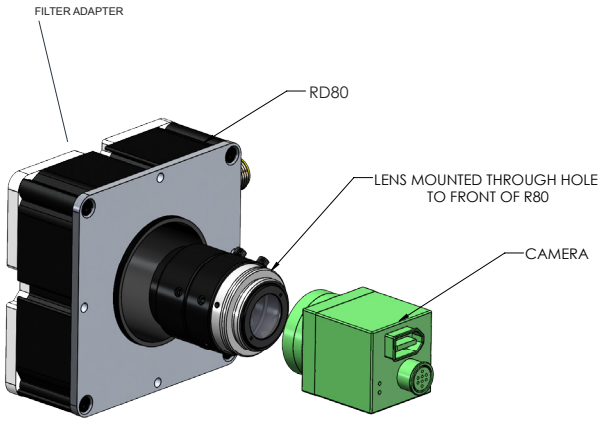
Mounting options include four T-slots and four M4 threaded holes on the RD80 EZ Mount ring light.

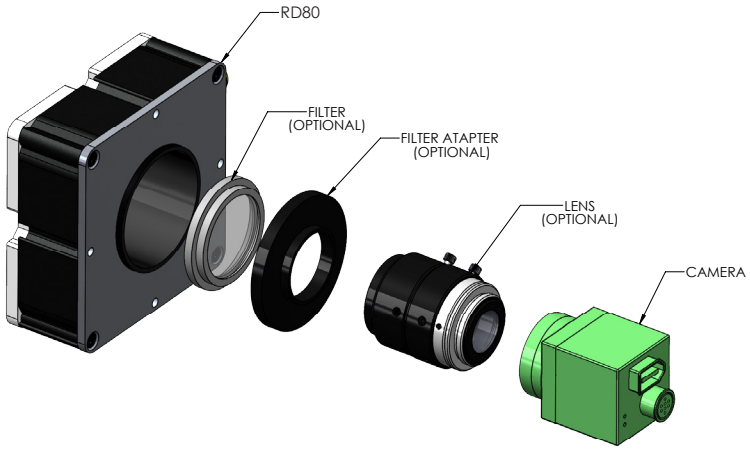
Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws

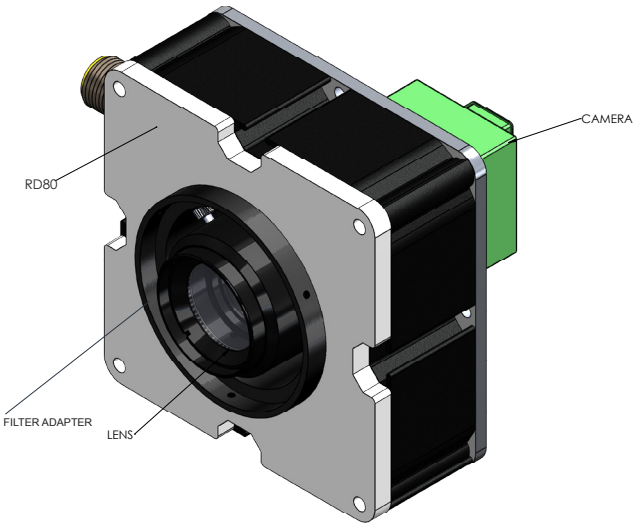


CAMERA MOUNTING EXAMPLES

The 42 mm threaded opening on the back of the RD80 allows for easy mounting of a camera, filter, or step-up/step-down kit.







ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Power Cables

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

Variable Control Pot

Description	Part Number
Controls the intensity of the light	IVP-C1

Power Adapters *

Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

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

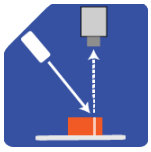
GLOSSARY

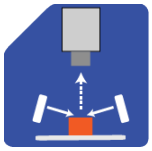
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

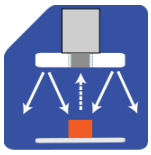
TERMINOLOGY

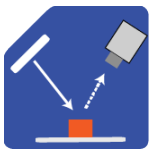
OverDrive™ Light includes an integrated high-pulse driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need 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.
Diffusers Used to widen the angle of light emission, reduce reflections, and increase uniformity.

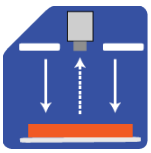
TYPES OF ILLUMINATION

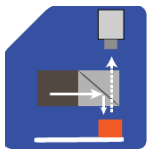

Projector

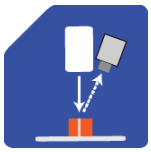

Dark Field

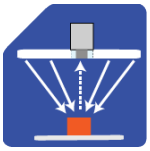

Radial

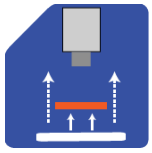

Bright Field


Direct


Axial

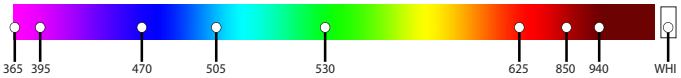

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelength 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**

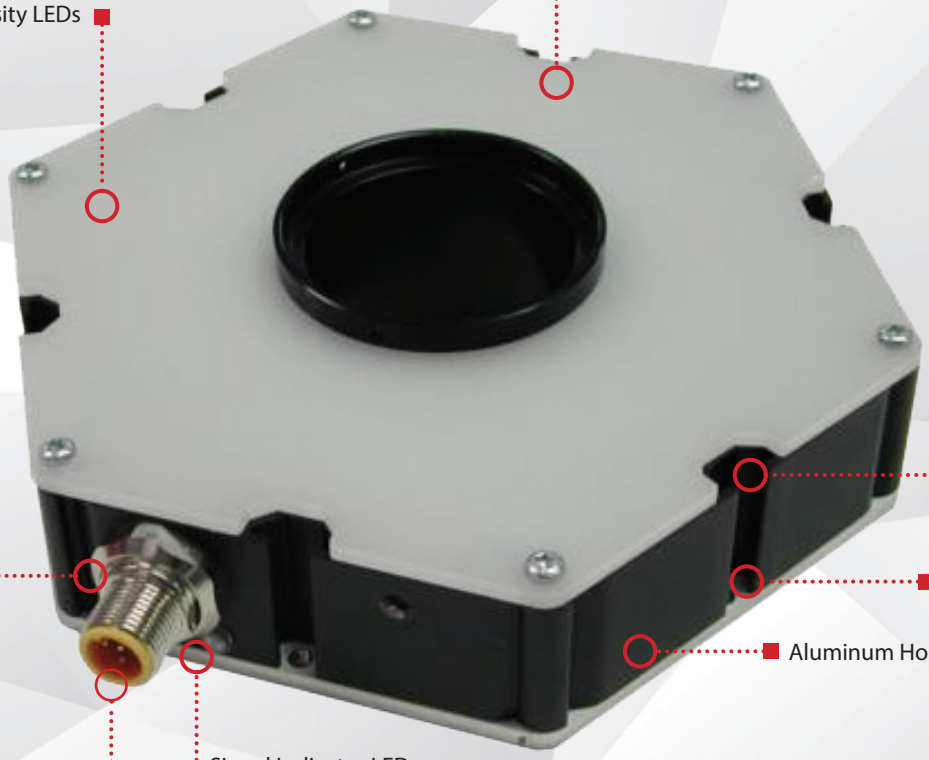
Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

Check Part Number section to see if **this light is available in SWIR wavelengths.*

smart vision lights

RD130 EZ MOUNT RING LIGHT DIFFUSE

PRODUCT DATA SHEET



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

PRODUCT HIGHLIGHTS

- ✓ T-slot for mounting
- ✓ Conversion adapters for different cameras available
- ✓ PNP and NPN trigger input signal
- ✓ Diffuse lens is factory installed

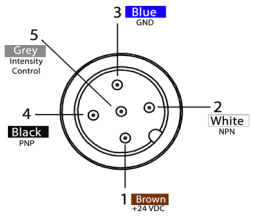
PRODUCT INTRODUCTION

The R130 is an all-around durable light. Its simple plug-and-play 5-pin M12 connector is easy to use. The RD130 has an optimal working distance between 100 mm and 400 mm and will operate with either an NPN or a PNP signal and runs on an industry standard 24VDC. The 10%–100% intensity control gives users full control over light output. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kit adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Current	Max. 460 mA
Wattage	Max. 11.1 W
Strobe 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%–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–40ºC (0º–104ºF)
IP Rating	IP50
Weight	~183 g
Compliances	CE, RoHS, IEC 62471
Warranty	10 years. For complete warranty information, visit smartvisionlights.com/warranty.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pin	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*

NOTICE

If Analog 1–10VDC is not used to control light intensity, analog input must be connected to +VDC (24VDC) — jumper pin 5 to pin 1.

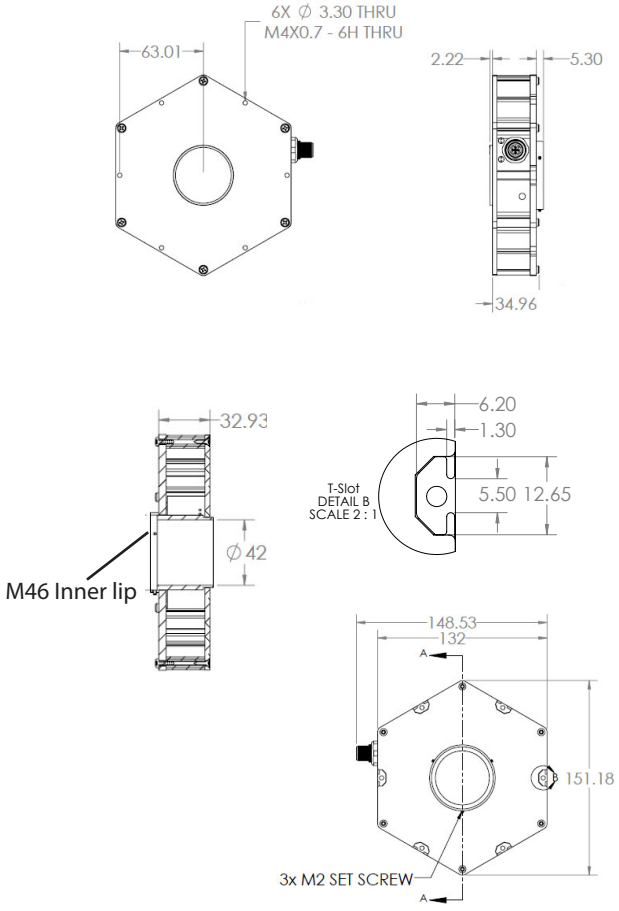
** Some cables use green/yellow for pin 5*
For maximum intensity, tie pin 5 to pin 1 at +24VDC.
*For continuous mode: Tie PNP (pin 4) can be tied to +24VDC (pin 1) **or** tie NPN (pin 2) can be tied to Ground (pin 3).*

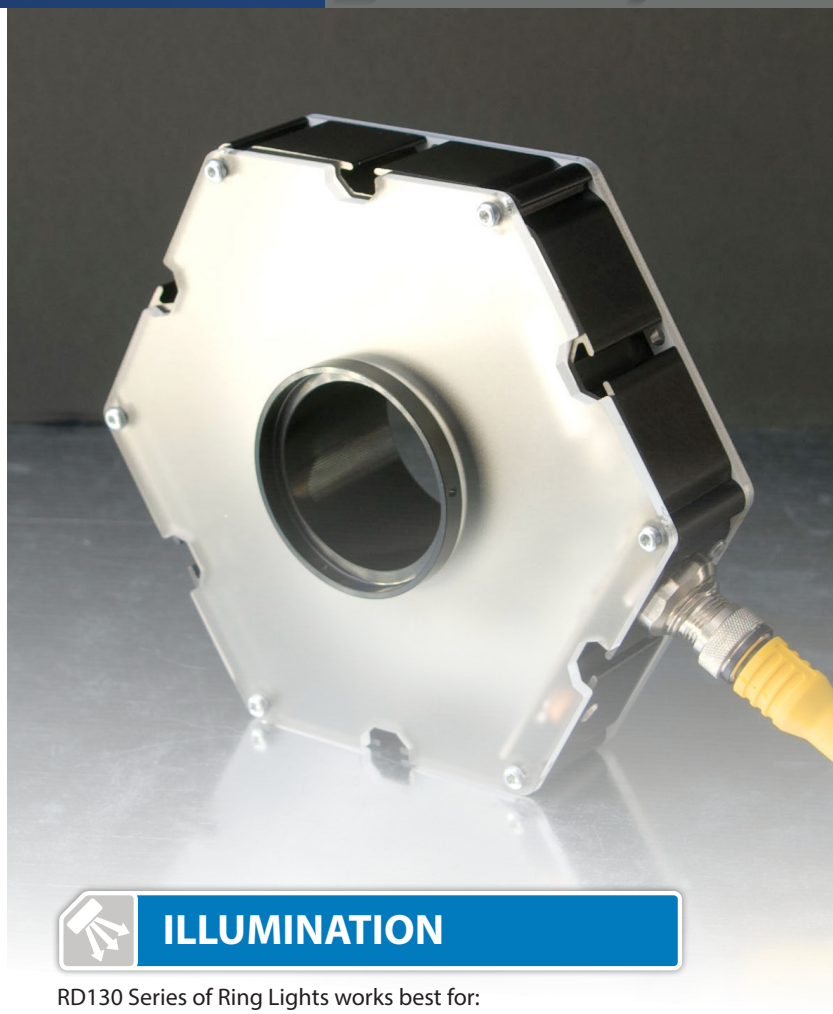
RESOURCE CORNER

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

PRODUCT DRAWING

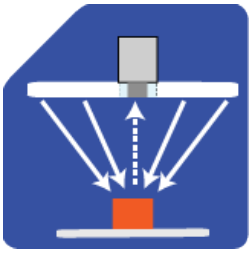
CAD files available on our website.
Dimensions are in mm.





ILLUMINATION

RD130 Series of Ring Lights works best for:



Diffuse

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

RD130– □□□

COLOR:

WHI 470 505 530 625 850 940

Part Number Examples:

RD130-625RD130, 625 Red Wavelength
RD130-WHI RD130, White

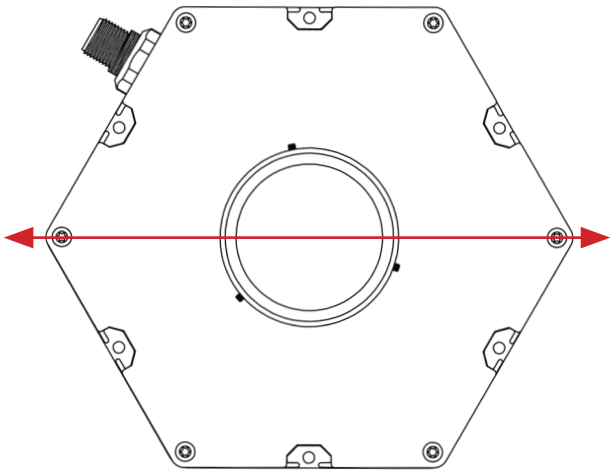
Additional wavelengths options available upon request.

OPTICAL PERFORMANCE

The RD130 offers a very diffuse light pattern. Smart Vision Lights recommends using the RD130 at a working distance between 100 mm and 400 mm.

OPICTAL PERFORMANCE FOR THE RD130

Rating	Illumination (Lux)
Average Intensity Rating	35,000
Illuminance measurement taken at surface of RD130	

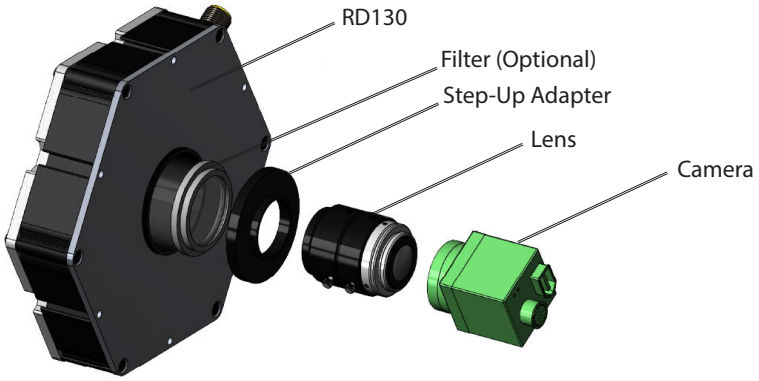


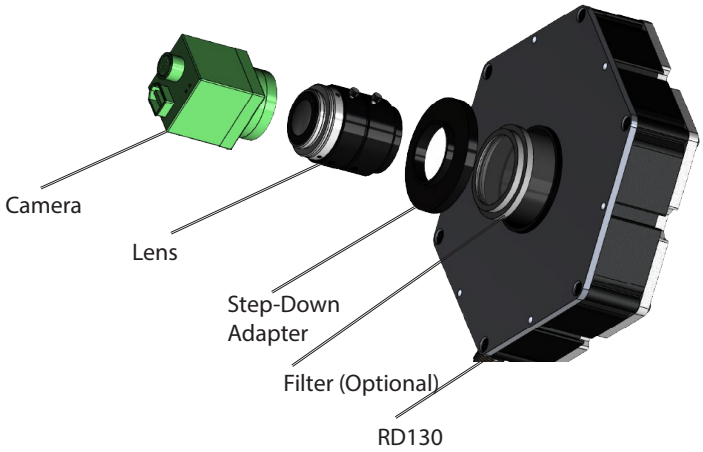
STEP-UP/STEP-DOWN ADAPTER KITS

Step-Up/Step-Down Adapter Kits allow the M46 thread on ring lights to be mounted directly to the threads found on the front-end of most popular lenses.

Step-Up Adapters allow for mounting a lens that is smaller in diameter to an EZ Mount Ring Light, while Step-Down Adapters allow for mounting a larger lens to an EZ Mount Ring Light.

These kits include: a set of screws and a hex wrench.





STEP-UP/STEP-DOWN ADAPTER KITS PART NUMBERS

STEP-DOWN ADAPTER

SD– □□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
49	
52	
55	
58	
62	
67	
72	

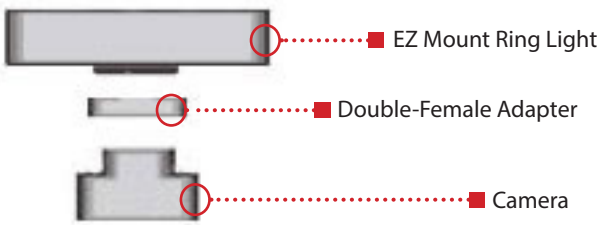
STEP-UP ADAPTER

SU– □□□□ – 46

LENS THREAD SIZE	RING LIGHT THREAD SIZE
25.5	
27	
30.5	
34	
35.5	
37	
39	
40.5	
43	

CAMERA MOUNTING ADAPTERS

When mounting a camera directly on to an EZ Mount Ring Light, a Double-Female (DF) threaded camera adapter is used.



DOUBLE-FEMALE ADAPTER

DF–□□□–46

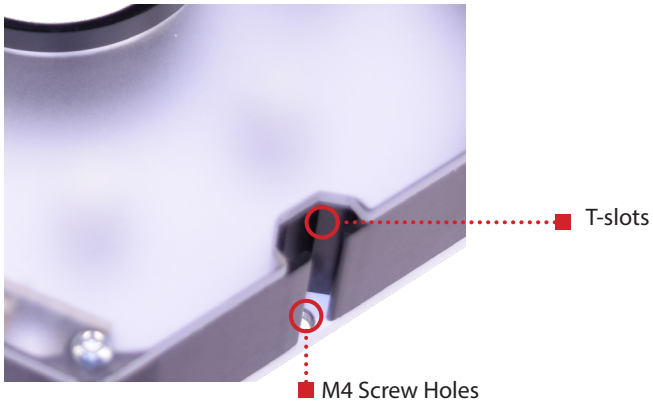
CAMERA THREAD SIZE	RING LIGHT THREAD SIZE
34.9	
55	
60	

*When mounting an EZ Mount Ring Light, a double-female adapter is used.

MOUNTING

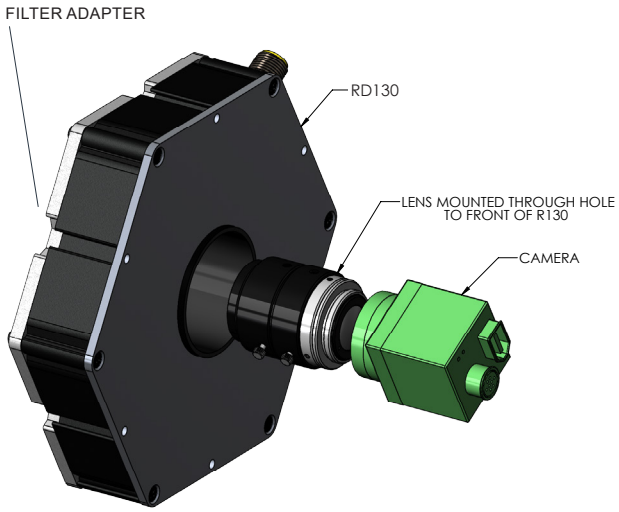
Mounting options on the R130 EZ Mount Ring Light include six T-slots and six M4 threaded holes.

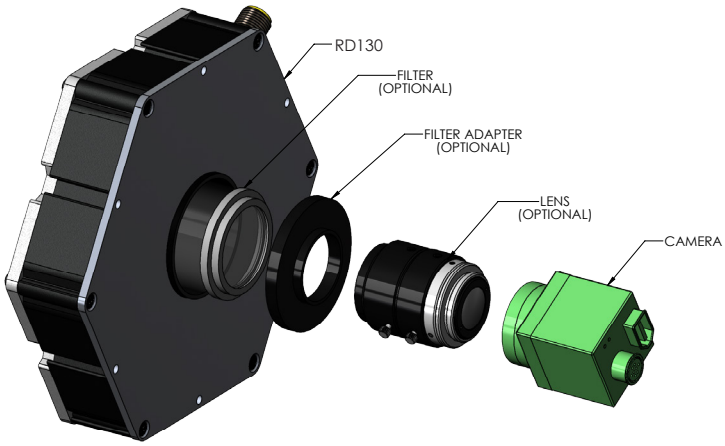
Optional Mounting Hardware:
T-slots = M5 x 0.8 mm T-nut
Threaded screw holes = M4 screws



CAMERA MOUNTING EXAMPLES

The 42 mm threaded opening on the back of the RD130 allows for easy mounting of a camera, filter, or step-up/step-down kit.





ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25.5 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Camera Adapters

Camera Thread Size	Part Number
55 mm	DF55-46
60 mm	DF60-46
34.9 mm	DF34.9-46

Power Cables

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

Camera Mounting Adapter

Description	Part Number
Adapter	BKT0030-KIT

Variable Control Pot

Description	Part Number
Controls the intensity of the light	IVP-C1

Power Adapters *

Description	Part Number
AC, 24 Volt, 1.7 Amp	T1 Power Supply

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

GLOSSARY

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

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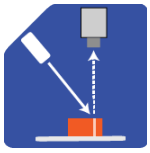
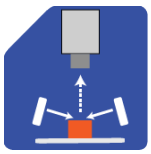
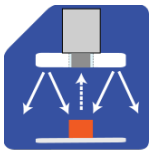
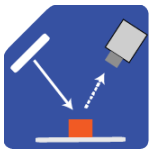
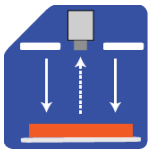
TYPES OF ILLUMINATION


Projector


Dark Field


Radial


Bright Field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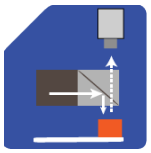
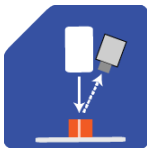
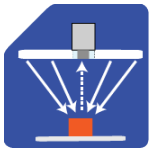
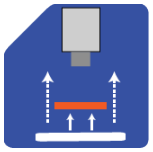

Axial

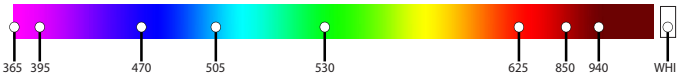

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelength 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**

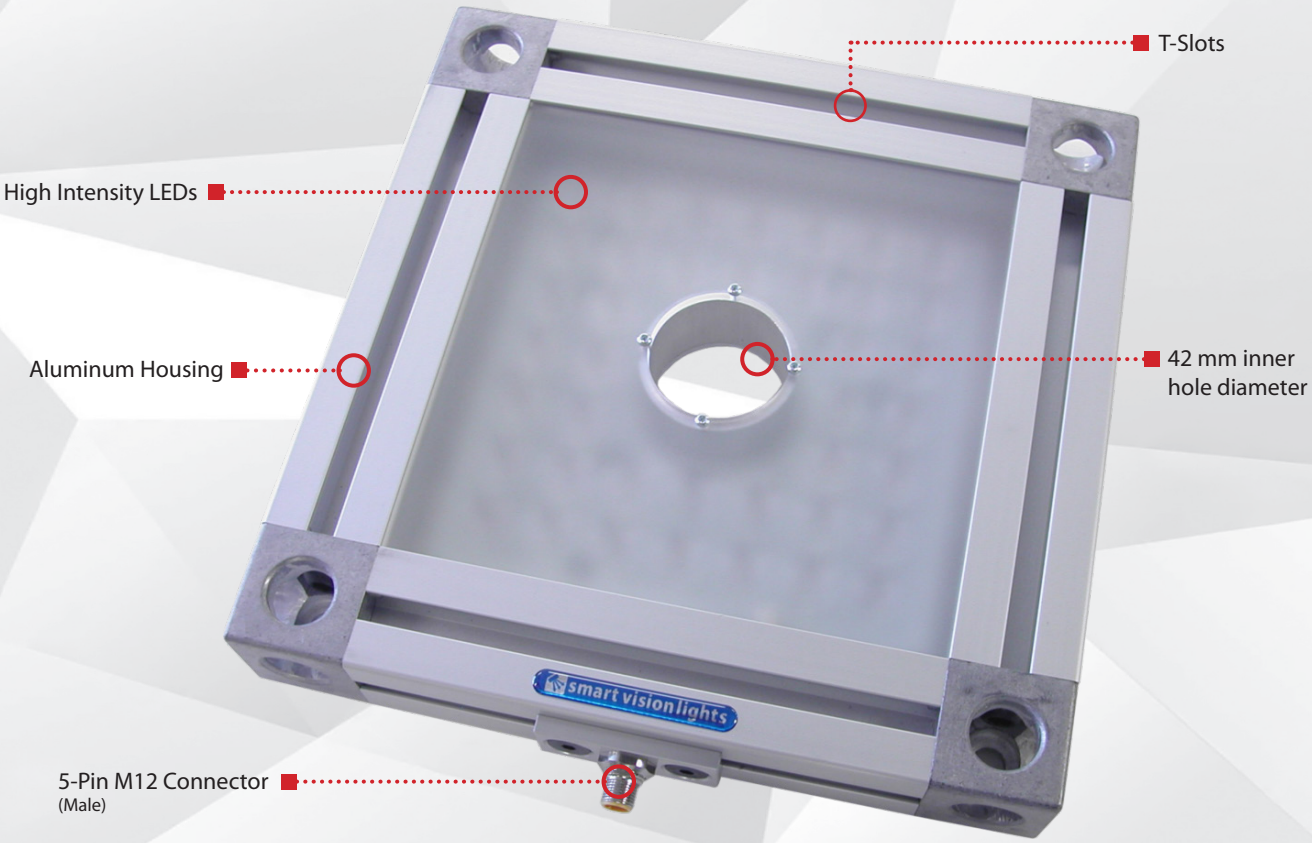
Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

Check Part Number section to see if **this light is available in SWIR wavelengths.*

smart vision lights

RL200 *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
- ✓ Conversion adapters for different cameras
- ✓ 40, 1mm² Die high current LEDs

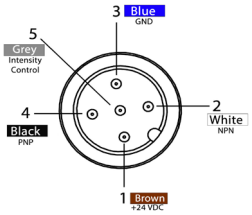
PRODUCT DESCRIPTION

The all metal construction of the 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 RL200 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. A standard 42 mm inner hole diameter allows for use with nearly all camera systems with available step-up and step-down conversion kits adapters.

PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/- 5%
Input Current	Max. 300 mA
Wattage	Max. 7.5 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	~1570g
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).*

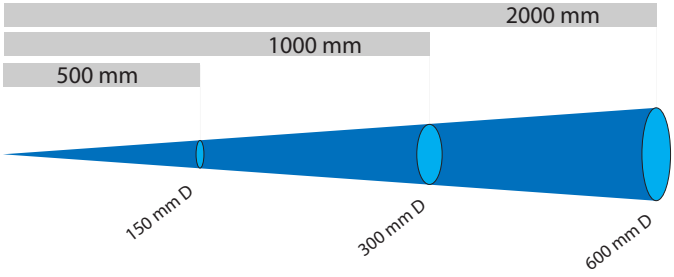
RESOURCE CORNER

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

LIGHT PATTERNS

Smart Vision Lights recommends the RL200 be used at a working distance between 500 mm to 4000 mm.

Illumination measurement taken on White Light – 6500 K

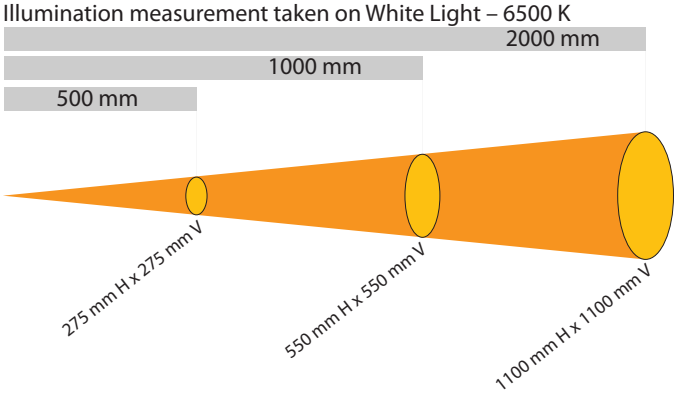


LIGHTING PATTERN FOR THE RL200

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



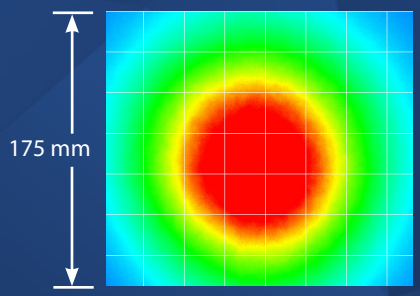
LIGHTING PATTERN FOR THE RL200

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")

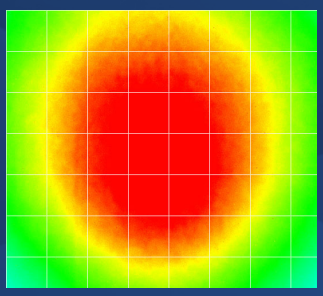
Typical Output Performance	Illumination (Lux)
Distance = 500 mm	9200
Illumination measurement taken on White Lights - 6500K	

The RL200 Ring Light produces a uniform light pattern.

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



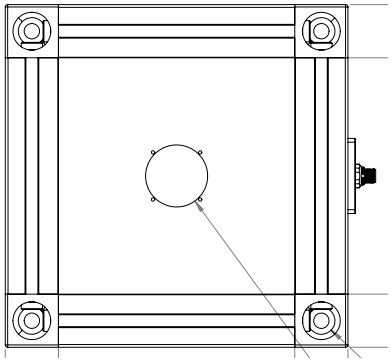
Narrow

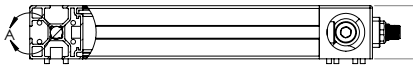


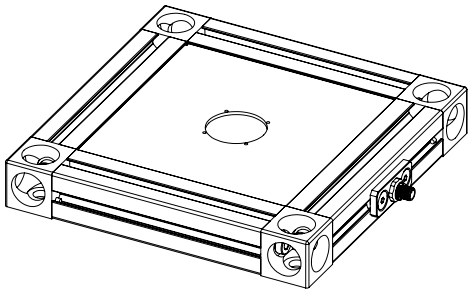
Wide

PRODUCT DRAWING

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

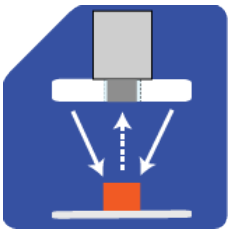






ILLUMINATION

RL200 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

RL200 – □□□ – □*

COLOR:

WHI 470 505 530 625 850 940

LENS:

Leave blank for Wide (40°)

N = Narrow

Part Number Examples:

RL200-625 RL200, 625 Red Wavelength, Standard (Wide) Lenses

RL200-WHI-N RL200, 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 RL200 ring light.

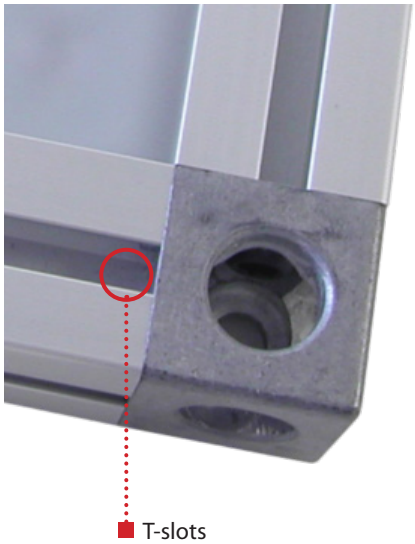
Optional Mounting Hardware:

T-Slots = M5 x 0.8 mm T-Nut

Threaded screw Holes = M4 screws

Camera Mount For RL200

Part #: BKT0005



ACCESSORIES

Step-Up Kits *

Lens Thread Size	Part Number
25 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Power Cables

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

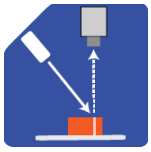
GLOSSARY

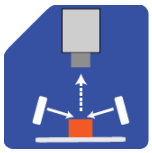
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

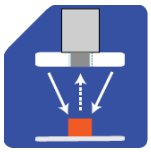
TERMINOLOGY

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.

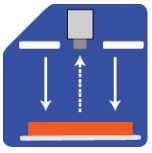
TYPES OF ILLUMINATION

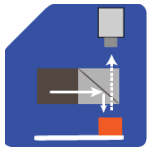

Projector

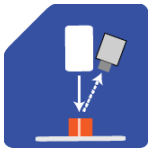

Dark Field

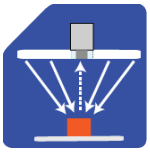

Radial

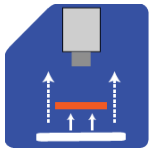

Bright Field


Direct


Axial

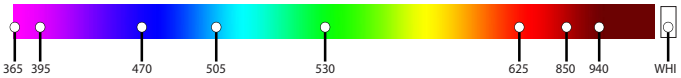

Line


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 SHORT WAVE **INFRARED**

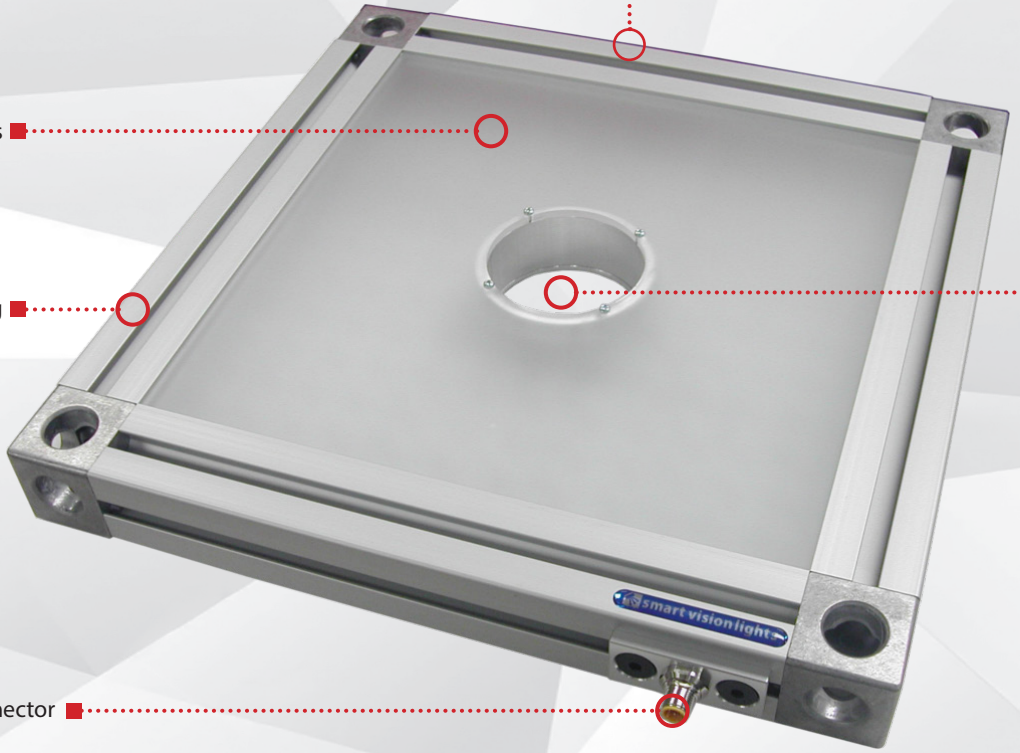
Shortwave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.*

Check Part Number section to see if **this light's is available in SWIR wavelengths.*

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

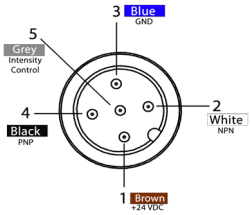
PRODUCT DESCRIPTION

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).*

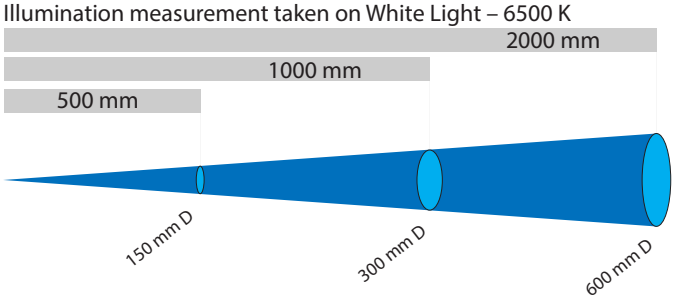
RESOURCE CORNER

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

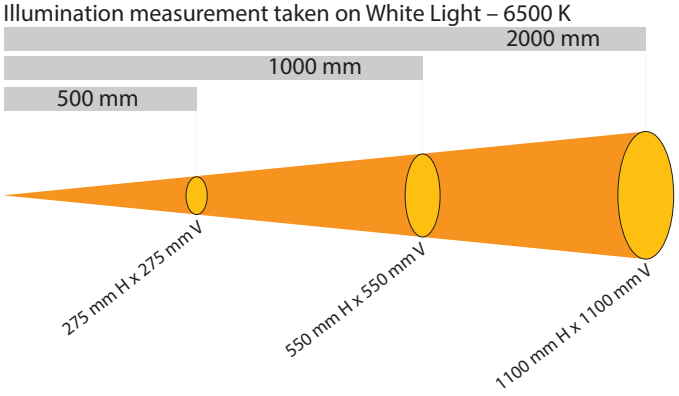


LIGHTING PATTERN FOR THE RL300

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



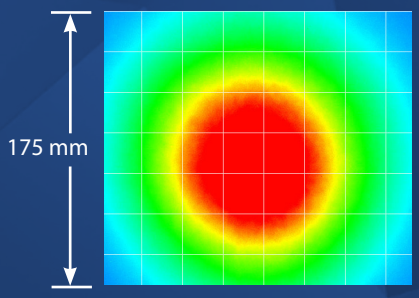
LIGHTING PATTERN FOR THE RL300

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")

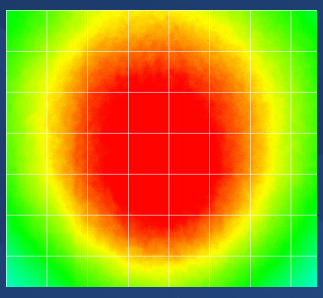
Typical Output Performance	Illumination (Lux)
Distance = 500 mm	9200
Illumination measurement taken on White Lights - 6500K	

The RL300 Ring Light produces a uniform light pattern.

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



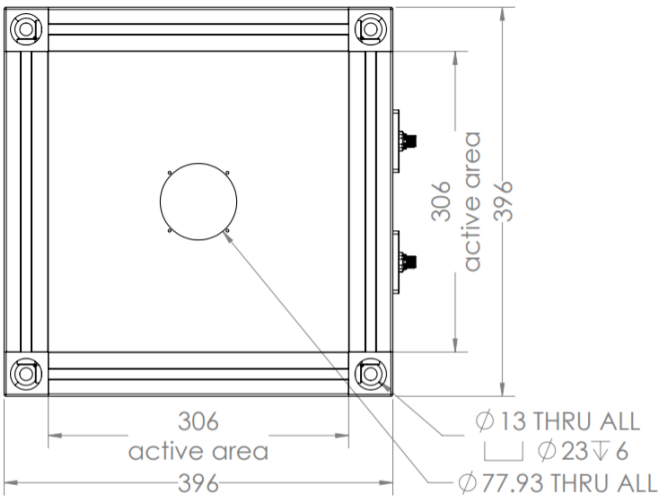
Narrow

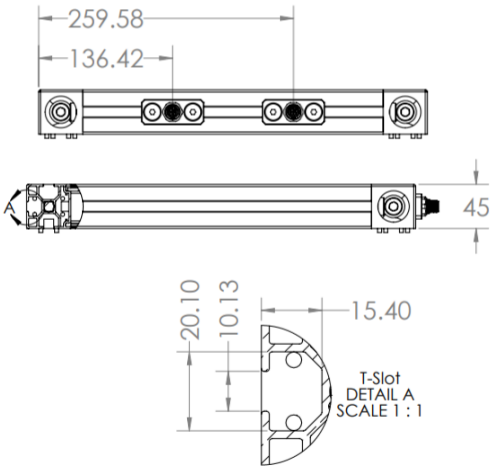


Wide

PRODUCT DRAWING

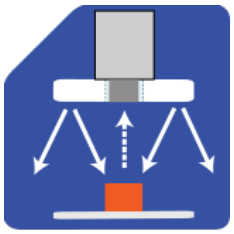
CAD files available on our website.
Dimensions are in mm.





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.

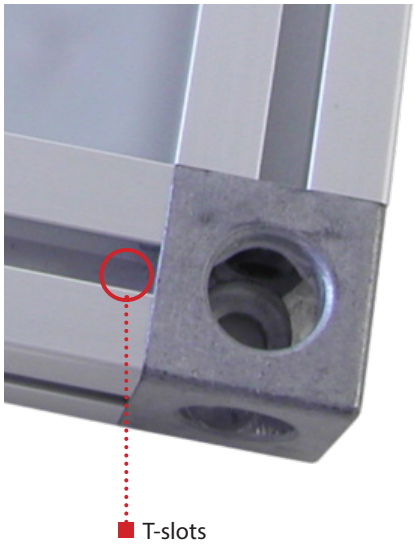
Optional Mounting Hardware:

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

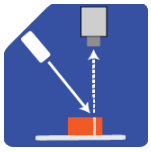
GLOSSARY

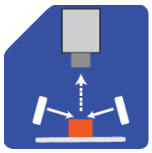
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

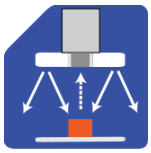
TERMINOLOGY

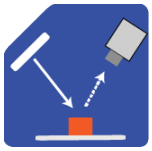
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Lights stay on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows 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.

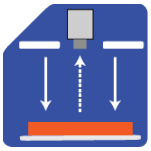
TYPES OF ILLUMINATION

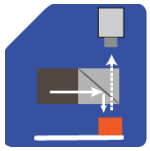

Projector

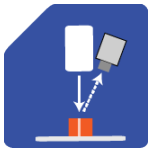

Dark Field

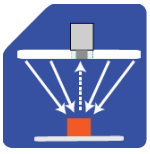

Radial

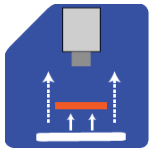

Bright Field


Direct


Axial

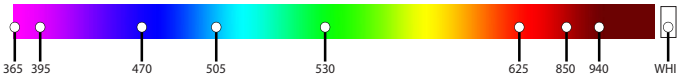

Line


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.*

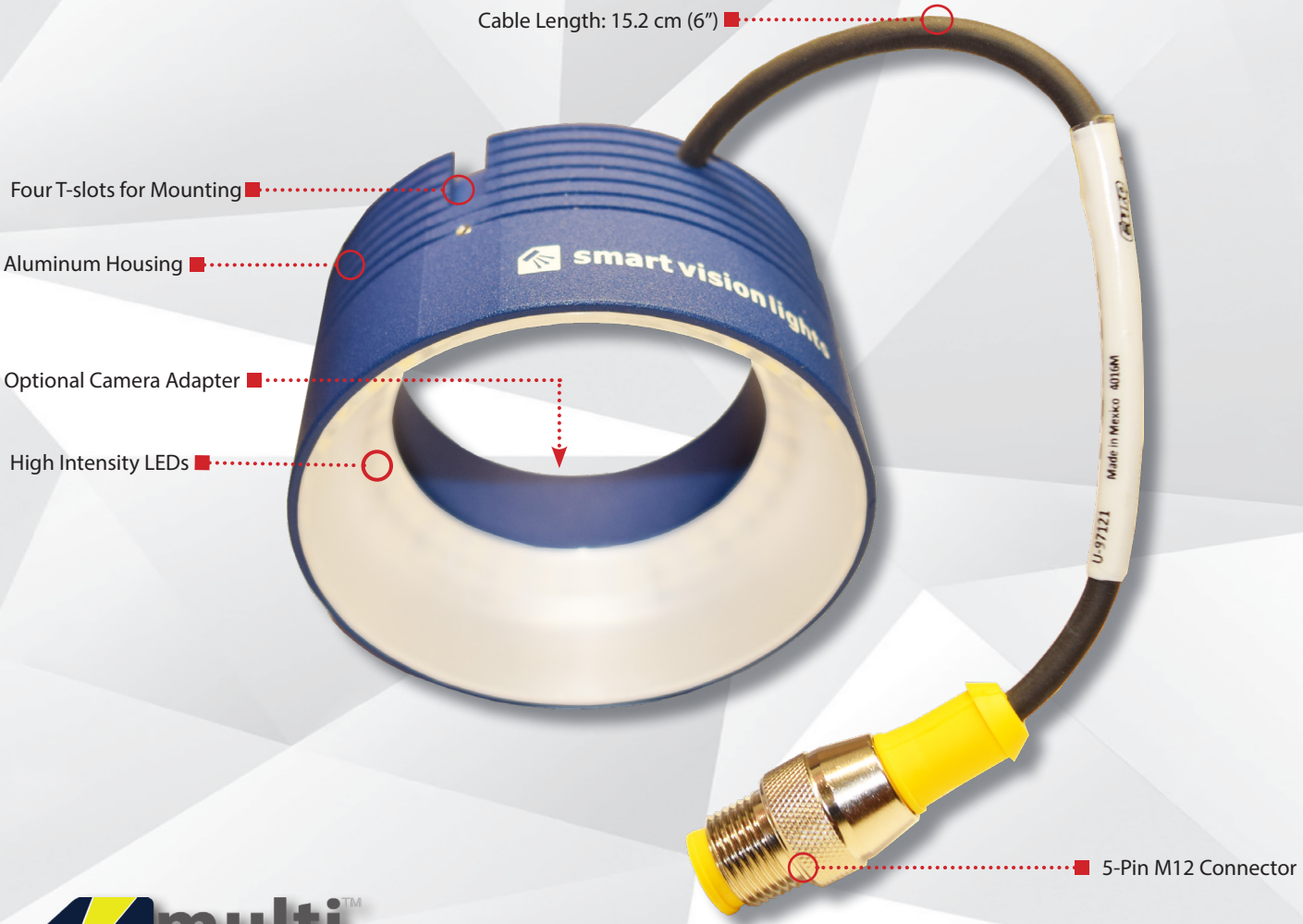
Check Part Number section to see if **this light's is available in SWIR wavelengths.*

smart vision lights

RM75 *Miniature "Mini"* RING LIGHT

LOW-ANGLE | MULTI-DRIVE™

PRODUCT DATA SHEET



multi drive™

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

PRODUCT HIGHLIGHTS

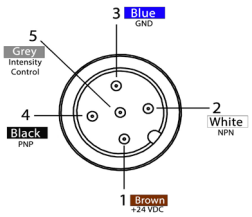
- ✓ Built-in Multi-Drive™ allows the light to work in continuous operation or OverDrive™ mode
- ✓ Low-angle ring light for dark field applications
- ✓ Built-in driver
- ✓ PNP and NPN trigger signal input
- ✓ SafeStrobe™ technology ensures protected operation of LEDs
- ✓ 5-pin M12 quick connect

PRODUCT SPECIFICATIONS

	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Electrical Input	24VDC +/- 5%	
Input Current	Max. 290 mA	Max. 2.5 A
Wattage	Max. 7.0 W	Max. 63 W
PNP Line	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @24VDC	
NPN Line	15 mA @ Ground (0 V DC)	
OverDrive™ Strobe Mode	**Not applicable**	Connect pin 5 to GND (see Wiring Configuration for more information)
Strobe Duration	**Not applicable**	Min. 10 µs | Max. 50 ms (see SafeStrobe™ Technology for more information)
Duty Cycle	**Not applicable**	Max. 10%
Strobe Input	**Not applicable**	PNP: +4VDC or greater to activate NPN: GND (<1VDC) to activate
Continuous Operation Mode	NPN can be tied to ground **OR** PNP can be tied to 24VDC (not both)	**Not applicable**
On/Off Input	PNP: +4VDC or greater to activate NPN: GND (<1VDC) to activate	**Not applicable**
Connection	5-pin M12 connector	
Ambient Temperature	0º–40ºC (32º–104ºF)	
IP Rating	IP50	
Weight	134g	
Compliances	CE, RoHS, IEC 62471	

WIRING CONFIGURATION

CONTINUOUS OPERATION MODE



Pin layout for light (male connector)

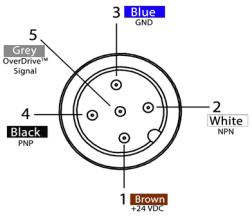
Pins	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1-10VDC	GREY*

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*

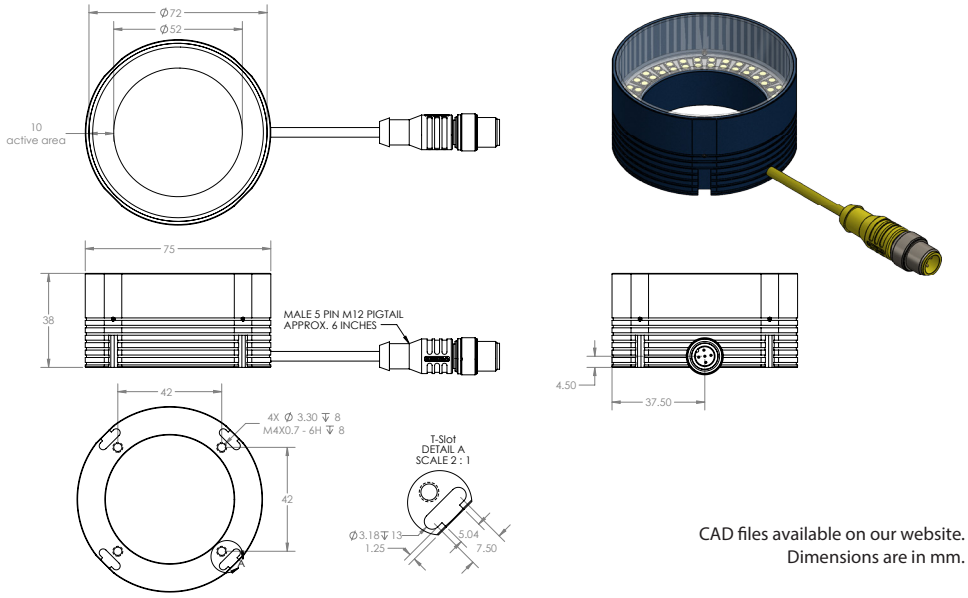
Failure to supply light with correct input current will result in non-repeatable lighting
(see Product Specifications for requirements)

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

RESOURCE CORNER

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

PRODUCT DRAWING



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

LIGHT PATTERNS

Smart Vision Lights recommends the RM75 be used at a working distance between 50 mm and 200 mm.

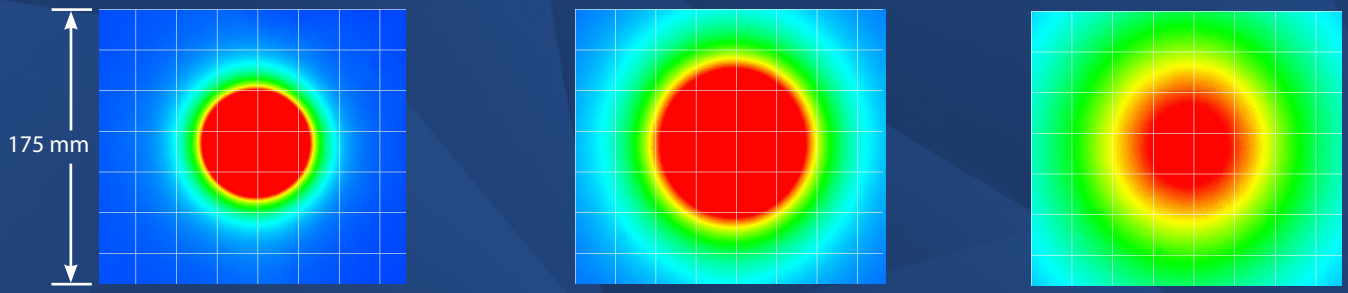
LIGHTING ILLUMINATION FOR THE RM75

Continuous Operation Mode	
Typical Output Performance	Illumination (Lux)
Distance = 100 mm	18,000
Illumination measurement taken on White Light - 4800K	

OverDrive™ Mode	
Typical Output Performance	Illumination (Lux)
Distance = 100 mm	149,000
Illumination measurement taken on White Light - 4800K	

The RM75 Mini Ring Light produces a uniform light pattern.

WD = Working Distance



WD = 50 mm

WD = 100 mm

WD = 200 mm

(Grid set to 25 mm x 25 mm)

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 ten times** the power of continuous operation.

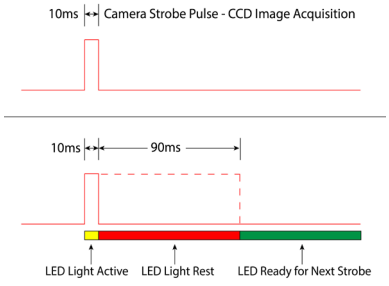
SAFESTROBE™ TECHNOLOGY

SafeStrobe™ technology is a unique technology that applies safe working parameters to ensure high-current LED's 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 LED's.

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).



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

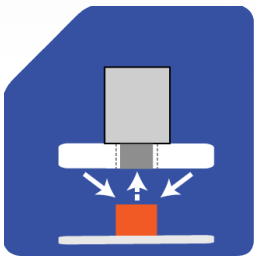
$$RT = \frac{10\ ms}{.1} - 10\ ms = 90\ ms$$

Rest Time is 90 ms for 10 ms Strobe Time

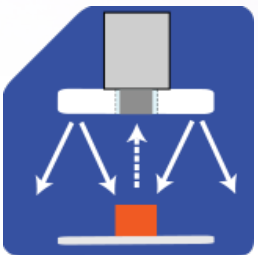
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

ILLUMINATION

RM75 Series of Miniature "Mini" Ring Lights works best for:



Dark Field



Radial

EYE SAFETY

According to IEC 62471: 2006. Full documentation available upon request.

SMART VISION LIGHTS IEC 62471 COMPLIANT

Notice

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

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, 530, and WHI.

PART NUMBER

RM75 – □□□

COLOR:

WHI | 470 | 530 | 625

Part Number Examples:
RM75-625 (RM75, 625 Red Wavelength)

Additional wavelengths available upon request

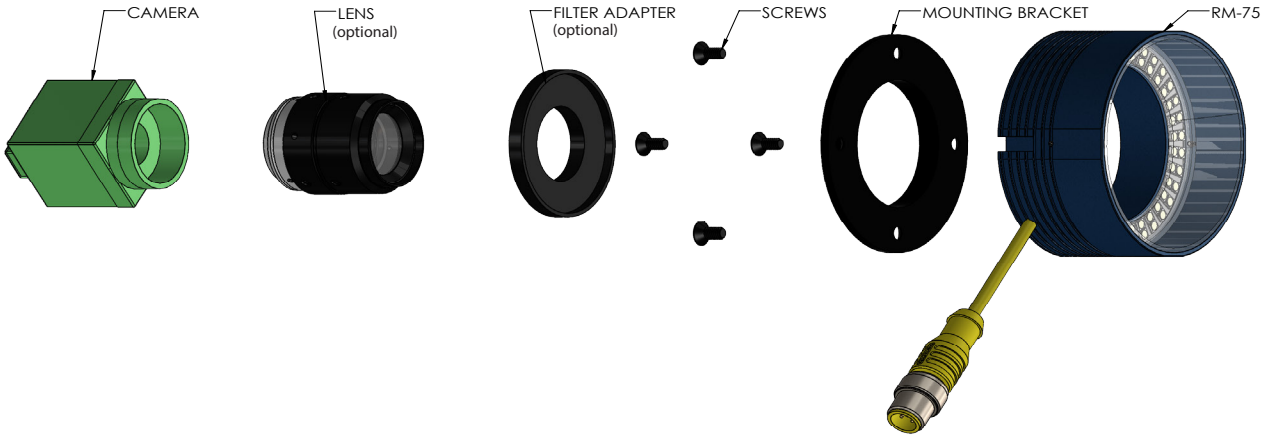
MOUNTING

Mounting options include four (4) Tslots and four (4) M4 threaded holes on the RM75 mini ring light.

Hardware included with light:
(2) M4 x 8 mm screws (Hex)
(2) M5 x 10 mm screws (Hex)
(2) T-Nuts

Optional Camera Mounting Adapter	
	The **optional ADP0001-KIT** can be used to mount a camera or lens directly to the RM75.

CAMERA MOUNTING ADAPTER



ACCESSORIES

Step-Up Kits *

Lens Thread Size	Part Number
25 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Power Cables

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

Camera Mounting Adapter

Description	Part Number
Adapter	ADP0001-KIT

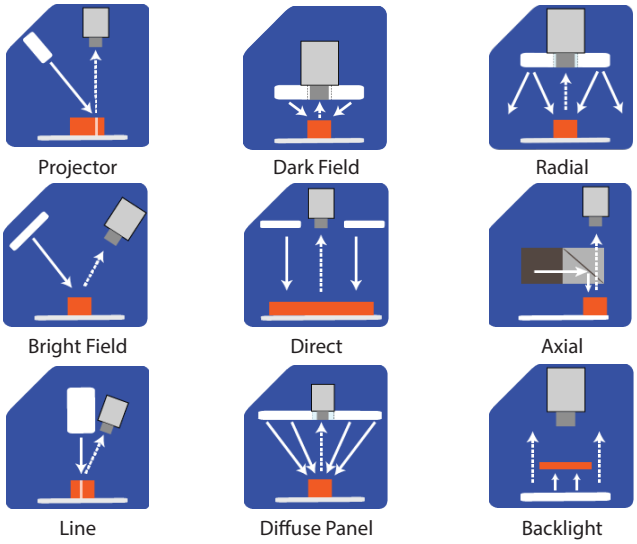
GLOSSARY

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

TERMINOLOGY

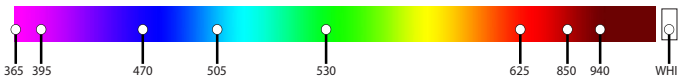
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Lights stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows 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



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**

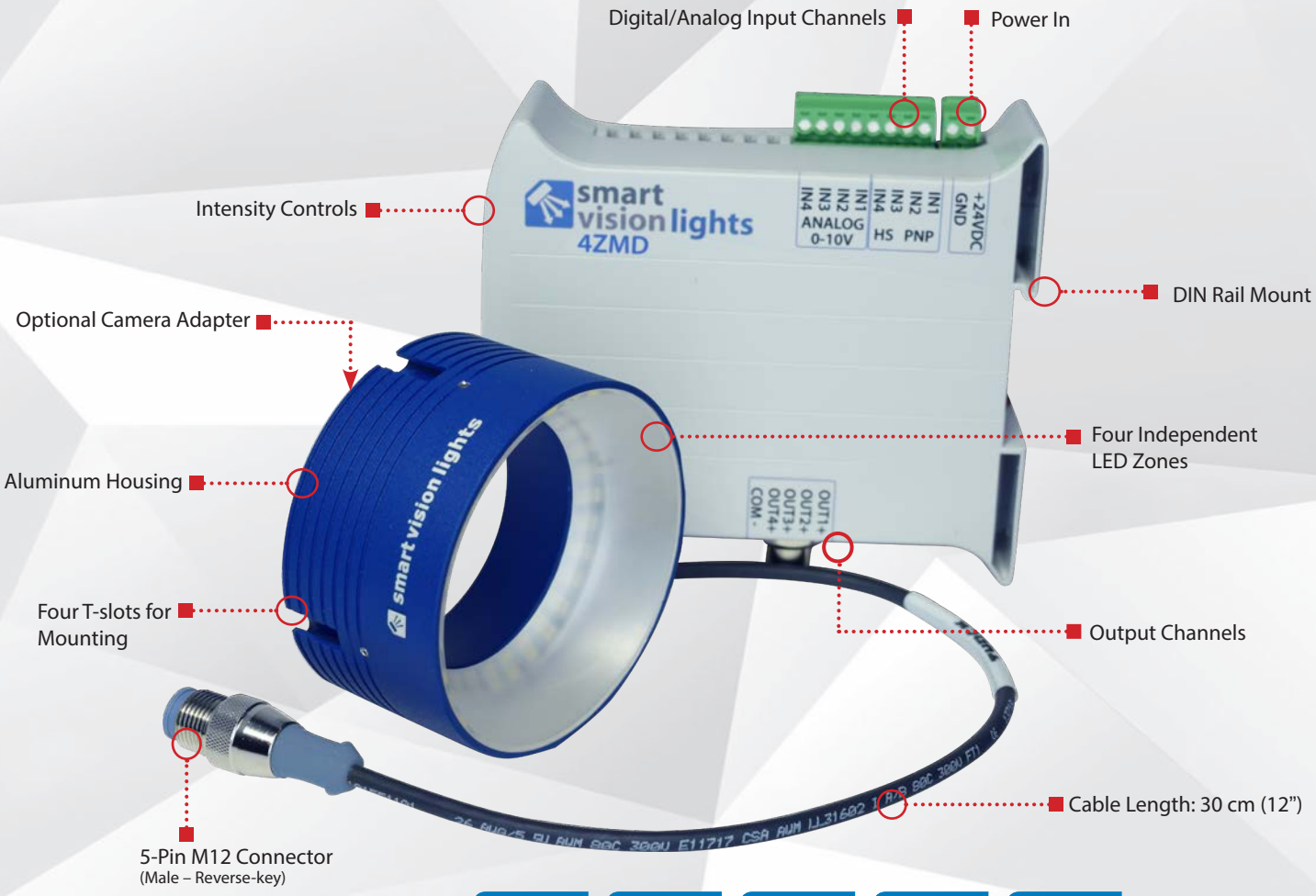
Shortwave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.

smart vision lights

RM75-4Z *Miniature "Mini"* RING LIGHT

FOUR-ZONE LIGHT AND EXTERNAL DRIVER

PRODUCT DATA SHEET



RM75-4Z includes the light and 4ZMD-100.

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

* see page 2 for details.

PRODUCT HIGHLIGHTS

- ✓ Independently control four individual zones built into a single light
- ✓ Sold with the 4ZMD, which allows for continuous operation or OverDrive™ strobe mode for each channel
- ✓ Built-in individual intensity control channels for either continuous operation or OverDrive™ strobe mode
- ✓ PNP high-speed strobe input
- ✓ Built-in over current-protection
- ✓ 5-pin M12 quick connect (reverse-key)

PRODUCT DESCRIPTION

RM75-4Z

The compact and powerful RM75-4Z Mini Ring Light is a low-angle ring light that works best for dark field ring applications. The light can also be used for radial illumination. The RM75-4Z has four zones, making it a quadrant light that can have each individual zone controlled independently of one another.

4ZMD-100

The 4ZMD is an external driver that permits control of up to four separate light zones either independently or simultaneously, in any combination. The 4ZMD has independent intensity controls and built-in Multi-Drive™, allowing a range to be set from 10%–100% for continuous operation or OverDrive™ strobe mode. **The maximum continuous current for the 4ZMD-100 is 100 mA when connected to the RM75-4Z.**

When connected to a LED Light Manager (LLM), each individual channel can be set to continuous on, off, or any intensity level in between, and even OverDrive™ strobe mode. **For more information about the LLM, visit smartvisionlights.com/products/llm.**

PRODUCT SPECIFICATIONS

RM75-4Z

PER ZONE	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Maximum Input Current	100 mA	800 mA Maximum: strobe duration = 50 ms , Duty cycle = 10%
Input Connector	5–pin M12 connector (male – reverse-key)	
Ambient Temperature	-18°C-40°C (0°F-104° F)	
Weight	~135 g	
IP Rating	IP50	
Warranty	10 years	
Compliances	CE, RoHS, IEC 62471	

4ZMD

OUTPUT PER CHANNEL	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Electrical Input	24 V DC +/- 5%	
Input Current	Max. 440 mA	Max. 3.3 A
Wattage	Max. 10.6 W	Max. 79.2 W
Operating Current (No Load)	70 mA	
Electrical Input Connector	2-position screw terminal block — 14 AWG max wire size	
Number of Input Channels	4	
Input Connector	8-position screw terminal block — 14 AWG max wire (4 for PNP and 4 for analog)	
Input Channel Current	PNP input: 4 mA @ 4 V DC | 10 mA @12 V DC | 20 mA@ 24 V DC	
Strobe Duration	N/A	Min. 10 µs | Max. 50 ms (see SafeStrobe™ Technology for more information)
Duty Cycle	N/A	Max. 10% (see Duty Cycle for more information)
Analog Intensity	The output is adjustable from 10%–100% of intensity by applying 1–10 V DC signal	OverDrive™ Strobe Mode: Apply 0 V DC
Output Channels	4 channels for light zones	
Output Connector	5-pin M12 connector (female – reverse-key)	
Indicator Lights	Power on = Green light Individual channel = Yellow light Service = Red light	
Mounting	DIN rail	
Ambient Temperature	-18°-40° C (0°-104° F)	
Ambient Humidity	0-95% non-condensing	
Weight	~230g	
Warranty	3 years	
Compliances	CE, RoHS	

RESOURCE CORNER

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

Smart Vision Lights
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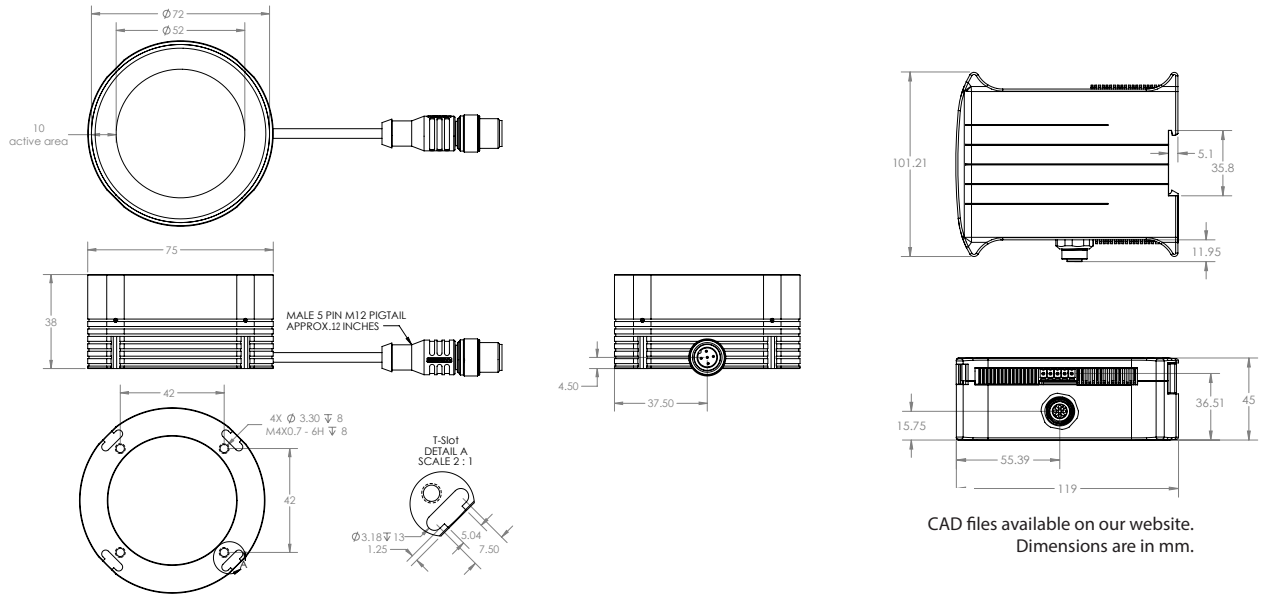
Muskegon, MI 49445
P: +1 231.722.1199 | F: +1 231.722.9922
smartvisionlights.com
techsupport@smartvisionlights.com
Hours: Monday—Friday | 8am–5pm ET

PRODUCT DRAWING



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

LIGHT PATTERNS

LIGHTING ILLUMINATION FOR THE RM75-4Z

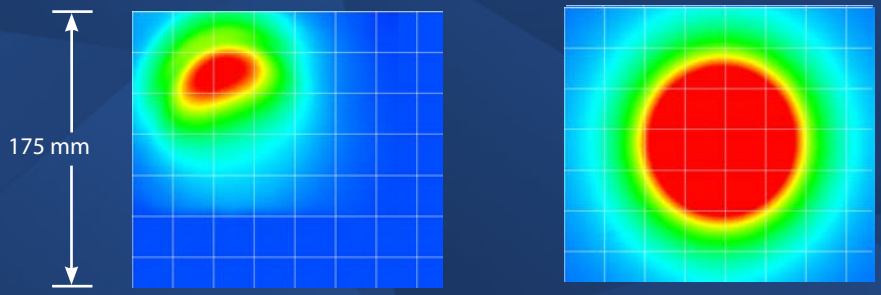
Continuous Operation Mode		
Typical Output Performance	Illuminance (Lux)	
	1 Zone	All Zones
Distance = 100 mm	5500	20,000
Illumination measurement taken on White Light, 4800K		

OverDrive™ Mode		
Typical Output Performance	Illuminance (Lux)	
	1 Zone	All Zones
Distance = 100 mm	44,000	160,000
Illumination measurement taken on White Light, 4800K		

Smart Vision Lights recommends using the RM75-4Z be used at a working distance between 50 mm and 200 mm.

The RM75-4Z Mini Ring Light produces a uniform light pattern.

Working Distance = 100 mm



One Zone

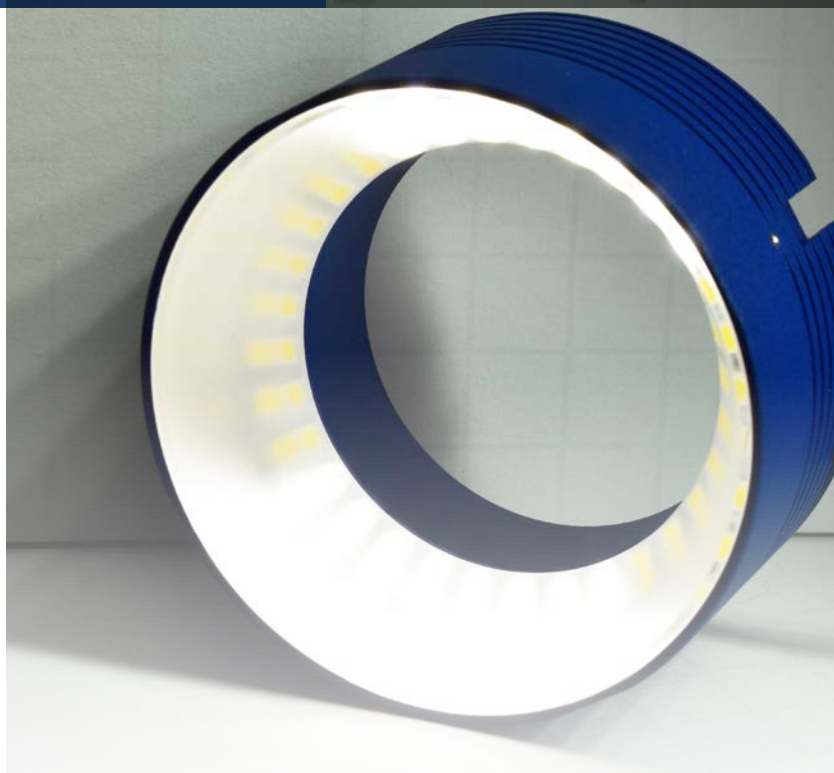
Four Zones

(Grid set to 25 mm x 25 mm)

MULTI-DRIVE™

Multi-Drive™ offers the best of both worlds, with continuous operation or OverDrive™ mode (high output strobe/ pulse) available in a single driver. Other advantages of Multi-Drive™ include faster imaging and capture/freeze motion on high-speed lines.

With Multi-Drive™ the user can run the driver continuously or in OverDrive™ at any allowed intensity by simply setting the product configuration. OverDrive™ operation has **up to eight times** the power versus continuous operation.



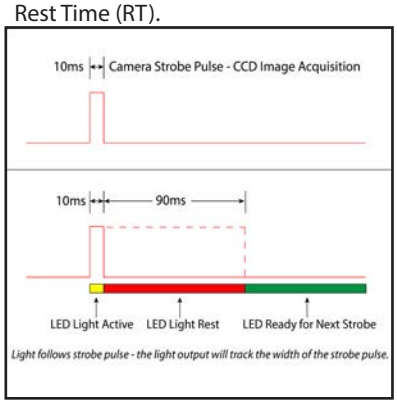
SAFESTROBE™ TECHNOLOGY

SafeStrobe™ is a unique technology that applies safe working parameters to ensure high-current LED's are not damaged by driving them beyond their limits, such as maximum strobe time or duty cycle. SafeStrobe™ is built into the 4ZMD.

DUTY CYCLE (OVERDRIVE™ MODE ONLY)

This section applies only when 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

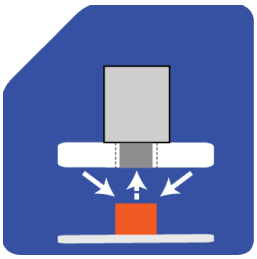
$$RT = \frac{10\ ms}{0.1} - 10\ ms = 90\ ms$$

Rest Time is 90 ms for 10 ms Strobe Time

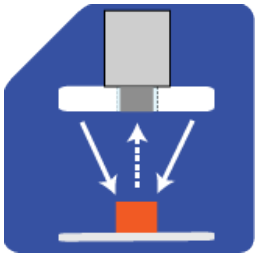
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

ILLUMINATION

RM75-4Z Series of Mini Ring Lights works best for:



Dark Field



Radial

EYE SAFETY

According to IEC 62471:2006. Full documentation 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.

OUTPUT CONFIGURATION

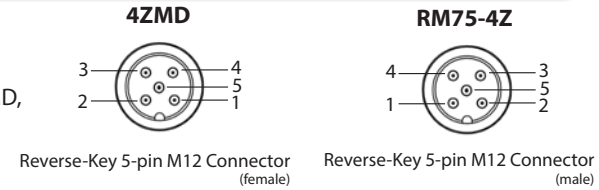
Using the Reverse-Key 5-pin M12 Connector

When connecting a Smart Vision Lights four-zone (quadrant) lights to the 4ZMD, a reverse-key 5-pin M12 cable is required. All Smart Vision Lights four-zone (quadrant) lights come equipped with a 5-pin reverse-key connector.

The reverse-key 5-pin M12 connector simplifies connecting lights to the 4ZMD , with very little wiring needed.

NOTE:

Smart Vision Lights uses reverse-key cables that have a blue-grey tip on the connectors.



5-pin M12 Connectors Pin Layout

Pin	Channel	Color
1	Common	Brown
2	1	White
3	2	Blue
4	3	Black
5	4	Green/Yellow

INPUT CONFIGURATION

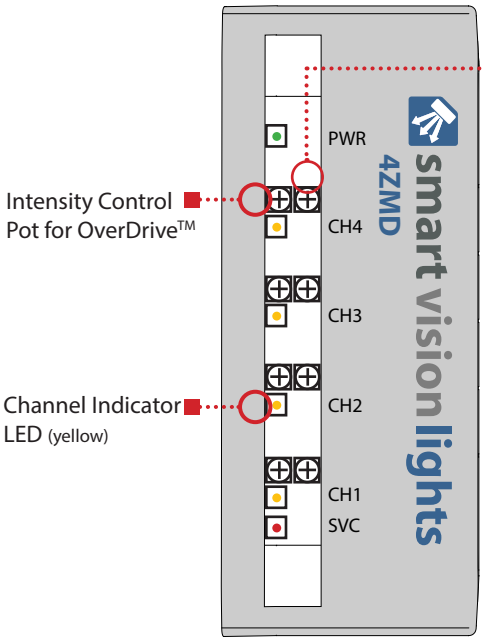
Using Input Terminal Block

Input terminal block is also used when connecting to the LED Light Manager (LLM). Smart Vision Lights recommends using the cable provided (part number: IC-400) to connect the 4ZMD driver to the LLM.

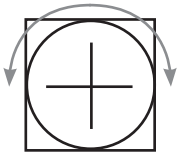
LLM Output Channels	4ZMD Input Channels
DO1	PNP IN1
DO2	PNP IN2
DO3	PNP IN3
DO4	PNP IN4
DO5/AO1	Analog 1
DO6/AO2	Analog 2
DO7/AO3	Analog 3
DO8/AO4	Analog 4

ADJUSTING INTENSITY

The 4ZMD allows for the control of up to four individual channel intensity levels. Depending on how each channel is wired, its intensity can be adjusted for either continuous operation or OverDrive™ strobe mode. Each channel intensity can be adjusted either in continuous operation or OverDrive™ strobe mode, but not both modes simultaneously. Each channel has a yellow indicator light that will illuminate when the channel is active.



Intensity Control Pot for Continuous Operation



270° turn pot
Clockwise = Increase intensity
Counterclockwise = Decrease intensity

NOTE:

When in continuous operation, channel intensity can be individually adjusted using 1–10 V DC on the analog input.

NOTE:

When managing the 4ZMD with the LED Light Manager (LLM), turn the intensity pots on the front of the 4ZMD fully clockwise to ensure intensity is completely controlled by the LLM.

UNDERSTANDING ZONES

The RM75-4Z has four individual built-in zones, making it a quadrant light. Each zone acts independently. Using the 4ZMD, zones can be set to continuous on, off, any intensity level in between, and even OverDrive™ strobe mode. Intensity levels can be set by programming the LLM to control the zone or by using the intensity controls on the front of the 4ZMD (see Managing Zones and Adjusting Intensity).

The RM75-4Z allows any combination of the four zones to be turned on at the same time, including adjacent and opposing zones.

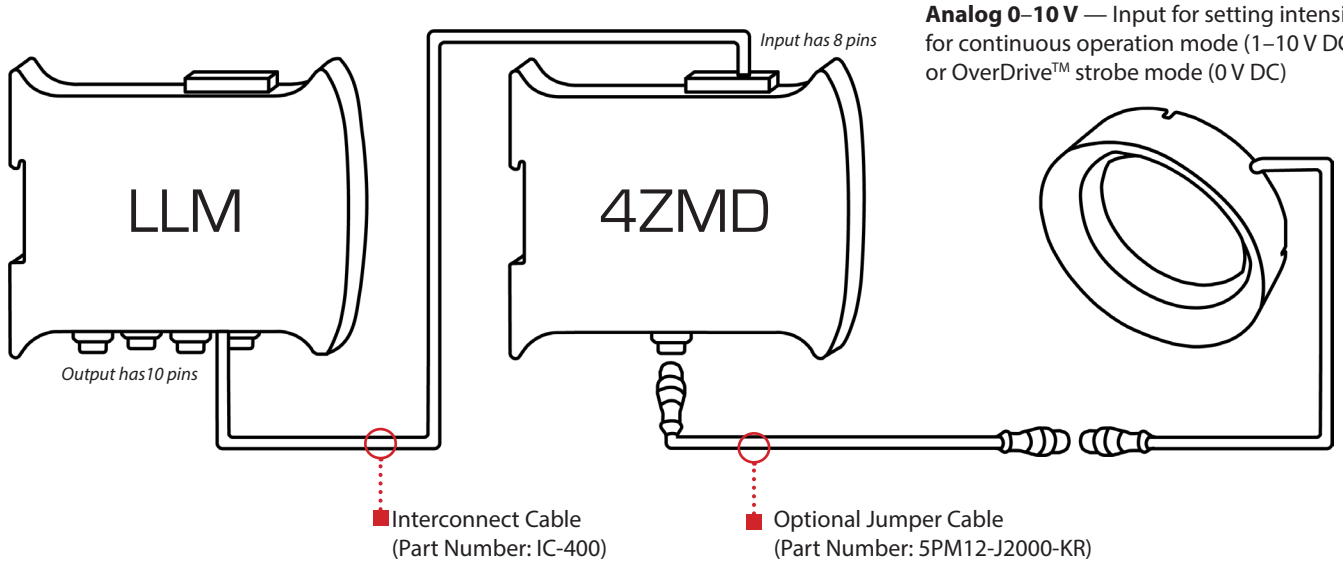
MANAGING ZONES

Connect the LLM to the 4ZMD driver. The LLM allows for easy control of each individual zone. The event programmed within the LLM can contain multiple sequences. Users can set each zone independently to continuous on, off, any intensity level in between, and even OverDrive™ strobe mode.

For more information about the LLM, visit smartvisionlights.com/products/llm.

WIRING CONFIGURATION

Input Channels for 4ZMD
Power In — Power source
HS PNP — High-speed PNP strobing/trigger
Analog 0–10 V — Input for setting intensity for continuous operation mode (1–10 V DC) or OverDrive™ strobe mode (0 V DC)



PART NUMBER

RM75-4Z – □□□

COLOR:

WHI 470 530 625

Additional wavelengths available upon request

Part Number Examples:
RM75-4Z-625 (RM75-4Z, 625 nm red wavelength, and 4ZMD-100)

MOUNTING THE RM75-4Z

Mounting options include four T-slots and four M4 threaded holes on the RM75-4Z.

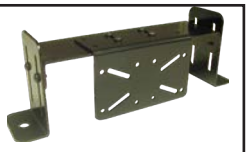
Hardware included with light:
(2) M4 x 8 mm screws (hex)
(2) M5 x 10 mm screws (hex)
(2) T-nuts

Optional Camera Mounting Adapter	
	The **optional ADP0001-KIT** can be used to mount a camera or lens directly to the RM75-4Z.

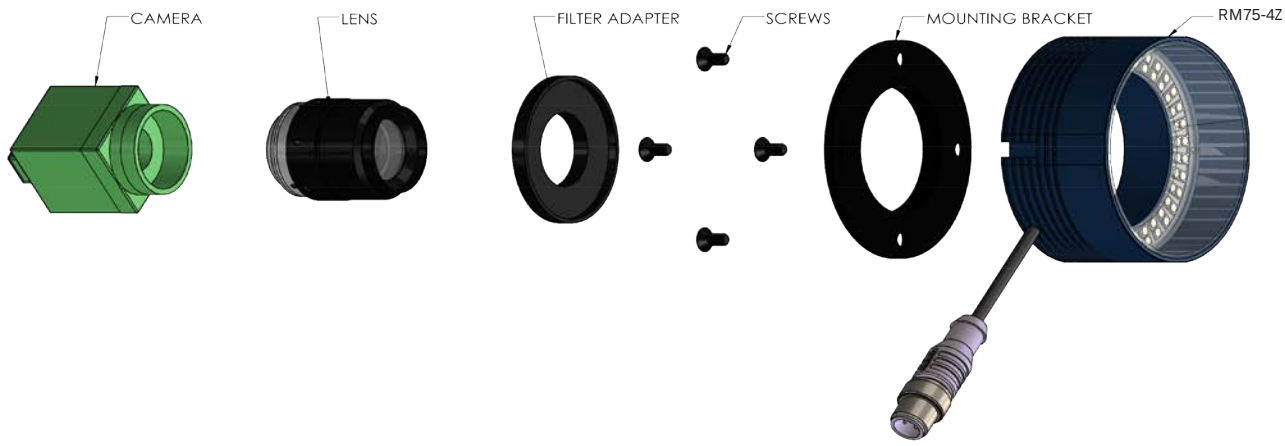
Optional Camera Mounts
Easily mount your camera with RM75-4Z to any fixture using one of these brackets.


BKT0004


PB30-M10


BKT0006

CAMERA MOUNTING ADAPTER FOR RM75-4Z



ACCESSORIES

Step-Up Kits

Lens Thread Size	Part Number
25 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46
40.5 mm	SU40.5-46
43 mm	SU46-46

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Jumper Cable

Lengths	Part Number
2000 mm	5PM12-J2000-KR

Interconnect Cable

Lengths	Part Number
400 mm	IC-400

Mounting Bracket

Description	Part Number
Camera Mount	ADP0001-KIT

Camera Adapter

Description	Part Number
Camera Adapter	DF55-46

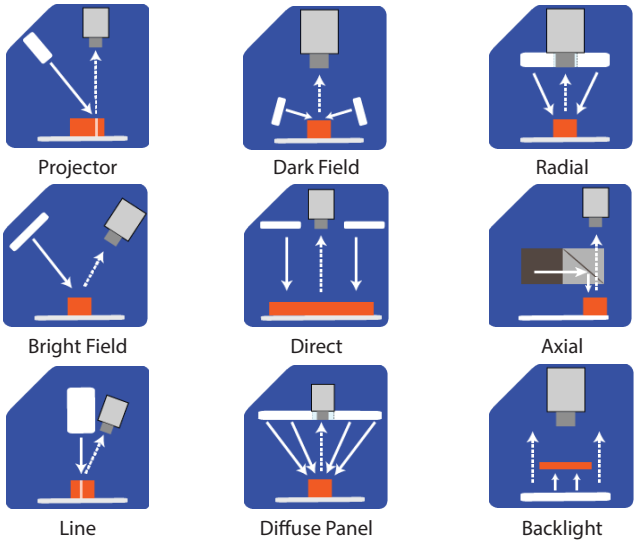
GLOSSARY

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

TERMINOLOGY

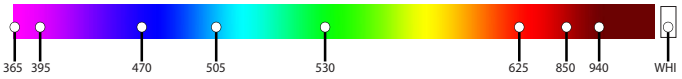
OverDrive™ Lights include an integrated high-pulse driver for complete LED light control. OverDrive™ light part numbers start with OD.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need of an external controller.
Camera to Light 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 ILLUMINATION



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

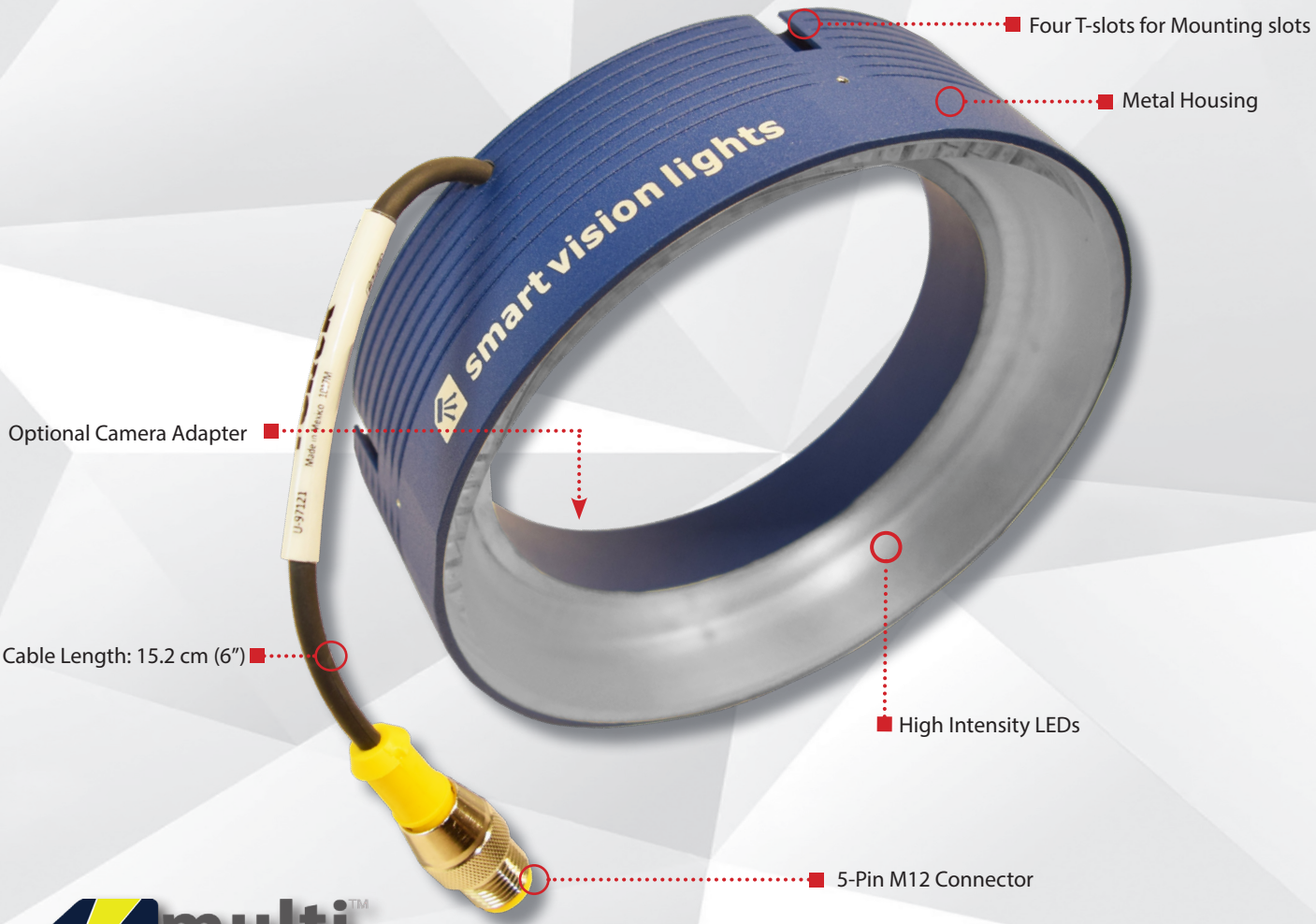
Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.

smart vision lights

RM140 *Miniature "Mini"* RING LIGHT

MULTI-DRIVE™

PRODUCT DATA SHEET



multi drive™

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

PRODUCT HIGHLIGHTS

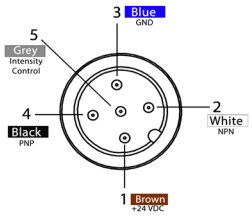
- ✓ Built-in Multi-Drive™ allows the light to work in continuous operation or OverDrive™ mode
- ✓ Built-in driver, no external wiring needed
- ✓ PNP and NPN strobe input
- ✓ Over-current protection
- ✓ 5-pin M12 quick connect

PRODUCT SPECIFICATIONS

	CONTINUOUS OPERATION	OVERDRIVE™ STROBE MODE
Electrical Input	24VDC +/- 5%	
Input Current	Max. 510 mA	Max. 4.5 A
Wattage	Max. 12.5 W	Max. 105 W
PNP Line	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @24VDC	
NPN Line	15 mA @ Ground (0VDC)	
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 > +4VDC or greater to activate NPN > GND (< 1VDC) to activate
Continuous Operation Mode	NPN can be tied to ground **OR** PNP can be tied to 24VDC (not both)	**Not applicable**
On/Off Input	PNP > +4VDC or greater to activate NPN > GND (<1VDC) to activate	**Not applicable**
Connection	5-pin M12 connector	
Ambient Temperature	-18º–50º C (0º–122º F)	
IP Rating	IP65	
Weight	365 g	
Power Supply	A separate power supply for OverDrive™ (high-pulse operation) is recommended. (*See Current for value*)	
Compliances	CE, RoHS, IEC 62471	

WIRING CONFIGURATION

CONTINUOUS OPERATION MODE



Pin layout for light (male connector)

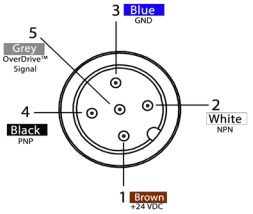
Pins	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1-10VDC	GREY*

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 +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).*

OVERDRIVE™ OPERATION MODE



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*

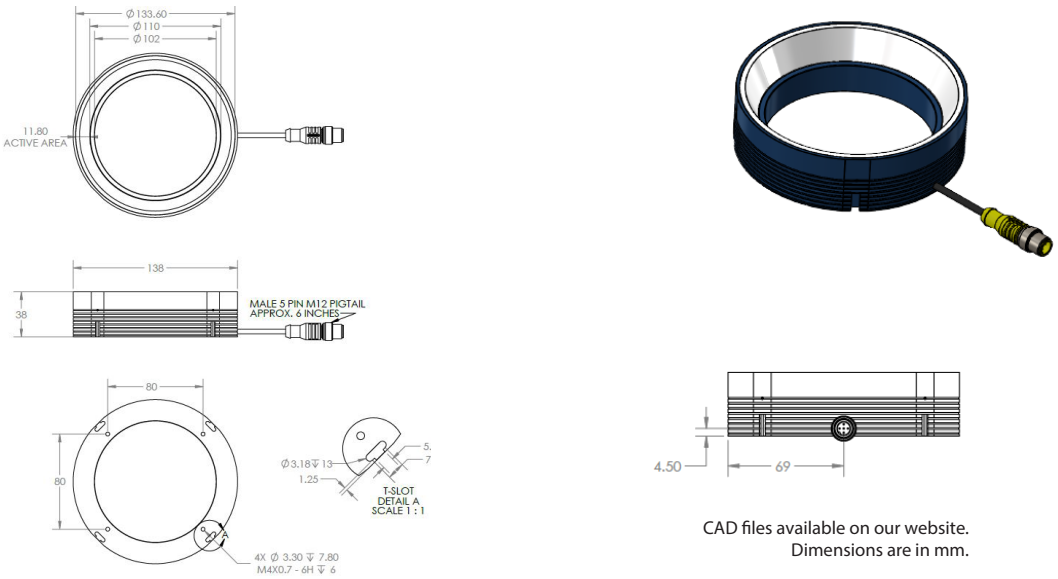
Failure to supply light with correct input current will result in non-repeatable lighting
(see Product Specifications for requirements)

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

RESOURCE CORNER

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

PRODUCT DRAWING



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

LIGHT PATTERNS

Smart Vision Lights recommends the RM140 be used at a working distance between 50 mm to 200 mm.

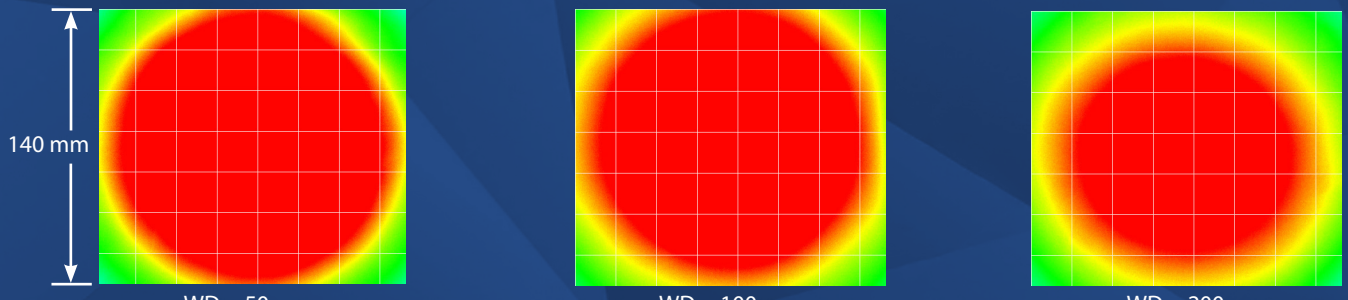
LIGHTING ILLUMINATION FOR THE RM140

Continuous Operation Mode	
Typical Output Performance	Illumination (Lux)
Distance = 100 mm	19,200
Illumination measurement taken on White Light - 4800K	

OverDrive™ Mode	
Typical Output Performance	Illumination (Lux)
Distance = 100 mm	159,360
Illumination measurement taken on White Light - 4800K	

The RM140 Mini Ring Light produces a uniform light pattern.

WD = Working Distance



WD = 50 mm | WD = 100 mm | WD = 200 mm

(Grid set to 20 mm x 20 mm)

MULTI-DRIVE™

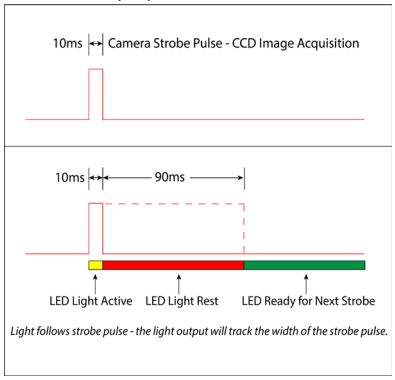
Multi-Drive™ offers the best of both worlds. Continuous operation or OverDrive™ mode (HIGH output strobe/ pulse) are available in a single light. Other advantages of Multi-Drive™ include faster imaging and capture/freeze motion on high-speed lines.

The Multi-Drive™ feature allows the user to run the light continuously or in OverDrive™ at the maximum allowed intensity by simply setting the product configuration. OverDrive™ operation is **up to five times** the power versus 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

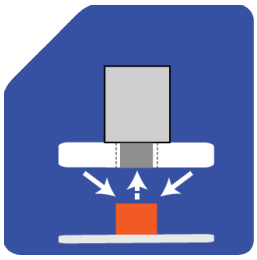
$$RT = \frac{10\ ms}{.1} - 10\ ms = 90\ ms$$

Rest Time is 90 ms for 10 ms Strobe Time

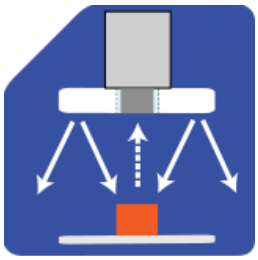
Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

ILLUMINATION

RM140 Series of Mini Ring Lights works best for:



Dark Field



Radial

EYE SAFETY

According to IEC-62471:2006. Full documentation 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

RM140 – □□□

COLOR:

WHI 470 530 625

Additional wavelengths available upon request

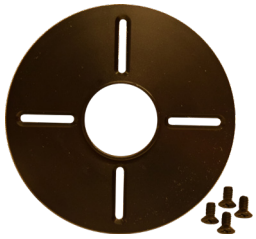
Part Number Examples:

RM140-625 (RM140, 625 Red Wavelength)

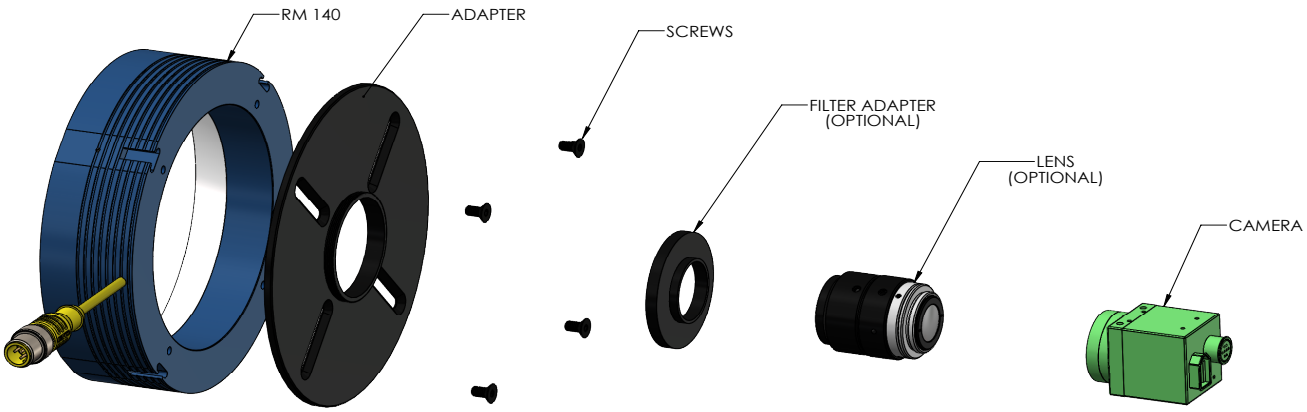
MOUNTING

Mounting options include four T-slots and four M4 threaded holes on the RM140.

Hardware included with light:
(2) M4 x 8 mm screws (Hex)
(2) M5 x 10 mm screws (Hex)
(2) T-Nuts

Optional Mounting Equipment	
	The **optional ADP0002-KIT** can be used to mount a camera or lens directly to the RM140.

CAMERA MOUNTING ADAPTER



ACCESSORIES

Step-Up Kits *

Lens Thread Size	Part Number
25 mm	SU25.5-46
27 mm	SU27-46
30.5 mm	SU30.5-46
34 mm	SU34-46
35.5 mm	SU35.5-46
37 mm	SU37-46
39 mm	SU39-46

* Additional sizes available

Step-Down Kits

Lens Thread Size	Part Number
49 mm	SD49-46
52 mm	SD52-46
55 mm	SD55-46
58 mm	SD58-46
62 mm	SD62-46
67 mm	SD67-46
72 mm	SD72-46

Power Cables

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

Mounting Bracket

Description	Part Number
Camera Mount	ADP0002-KIT

GLOSSARY

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

TERMINOLOGY

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Continuous Operation Light stays on continuously.
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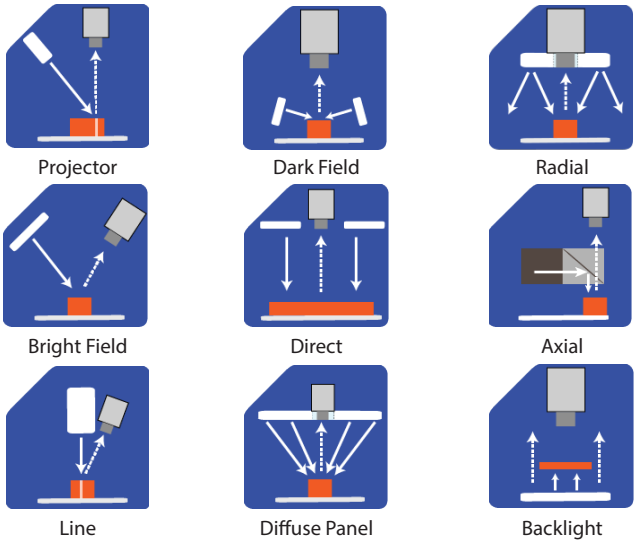
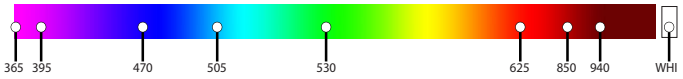
Camera to Light Connecting the light directly to the camera, without the need for additional controllers or equipment.
Polarizers Filters that reduce reflections on specular surfaces.
Diffusers Used to widen the angle of light emission, reduce reflections and increase uniformity.

TYPES OF ILLUMINATIONS



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

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