

P R O D U C T D A T A S H E E T



Warranty
10
YEAR

Compliant
IEC
62471

Compliant
CE
RoHS

Rated
IP
50

Connector
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, no external wiring needed
- ✓ PNP and NPN strobe input
- ✓ Over-current protection
- ✓ 5-pin M12 quick connect





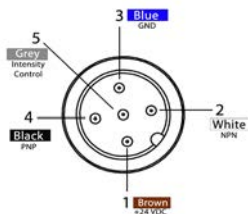
PRODUCT SPECIFICATIONS

| | CONTINUOUS OPERATION | OVERDRIVE™ STROBE MODE |
|---------------------------|--|---|
| Electrical Input | 24 V DC +/- 5% | |
| Input Current | Max. 290 mA | Max. 2.5 A |
| Wattage | Max. 7.0 W | Max. 63 W |
| 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) | |
| OverDrive™ Strobe Mode | Not applicable | Connect pin 5 to GND (see Wiring Configuration for more information) |
| Strobe Duration | Not applicable | Min. 10 μ s Max. 50 ms |
| Duty Cycle | Not applicable | Max. 10% |
| Strobe Input | Not applicable | PNP: +4 V DC or greater to activate NPN: GND (<1 V DC) to activate |
| Continuous Operation Mode | NPN can be tied to ground OR PNP can be tied to 24 V DC (not both) | Not applicable |
| On/Off Input | PNP: +4 V DC or greater to activate NPN: GND (<1 V DC) to activate | Not applicable |
| Connection | 5-pin M12 connector | |
| Ambient Temperature | -18°–50° C (0°–122° F) | |
| IP Rating | IP50 | |
| Weight | 134g | |
| Power Supply | A separate power supply for OverDrive™ mode (high-pulse operation) is recommended. (see Input 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 | 1-10 V DC | GREY* |

* Some cables use green/yellow for pin 5

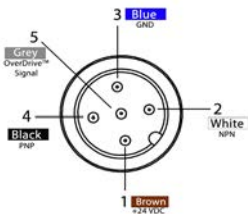
For maximum intensity, it is possible to tie pin 5 to pin 1 at +24 V DC.

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 **non-repeatable lighting**
(see Product Specifications for requirements)

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* |

* Some cables use green/yellow for pin 5

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

RESOURCE CORNER

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

Smart Vision Lights

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smartvisionlights.com

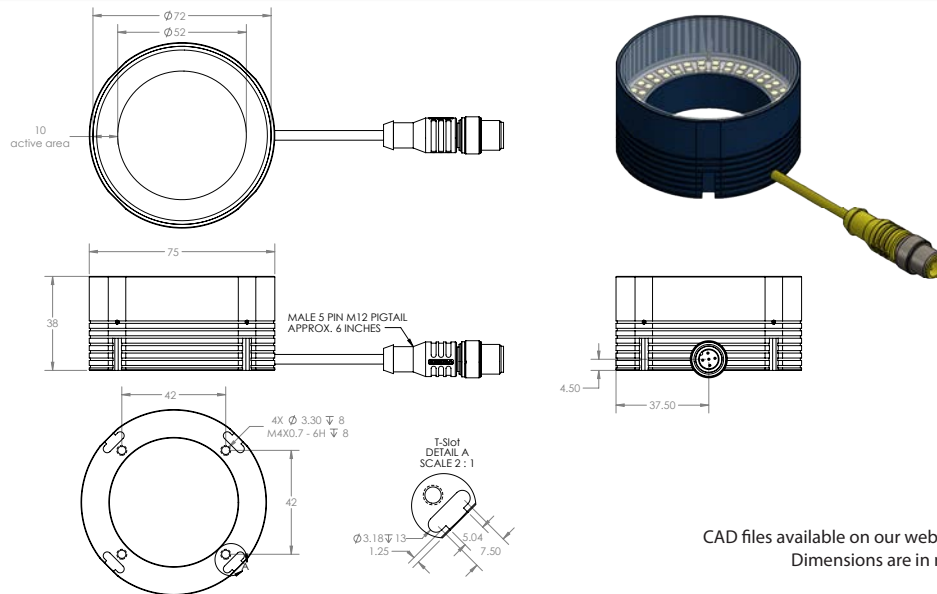
techsupport@smartvisionlights.com

Open: Monday – Friday | 8am–5pm ET





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 to 200 mm.

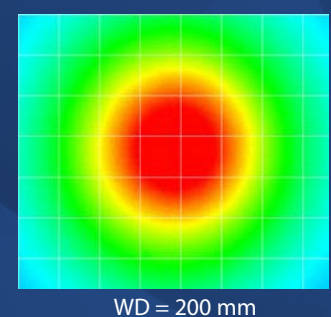
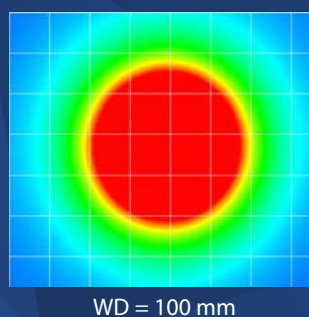
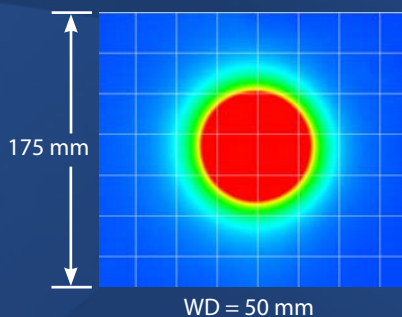
LIGHTING ILLUMINATION FOR THE RM75

| 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



(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 enhances capture/freeze motion imaging on high-speed lines.



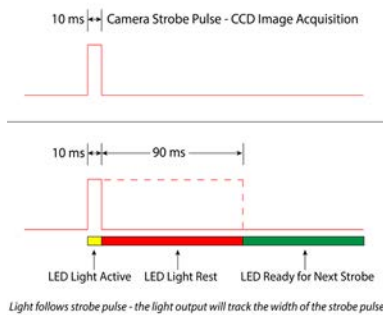
The Multi-Drive™ feature allows the user to run the light in continuous operation or OverDrive™ strobe mode at maximum intensity. OverDrive™ strobe mode is **up to ten times** the power of continuous operation.



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

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

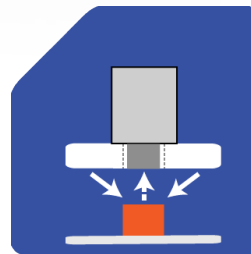
Rest Time is 90 ms for 10 ms Strobe Time

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

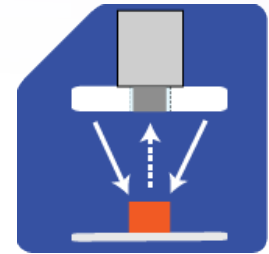


ILLUMINATION

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.



Notice

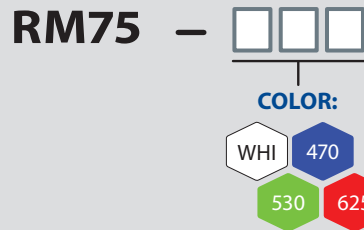
Exempt Group: No photobiological hazard to eyes or skin even for continuous, unrestricted use. Applicable for wavelengths: 625.

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



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



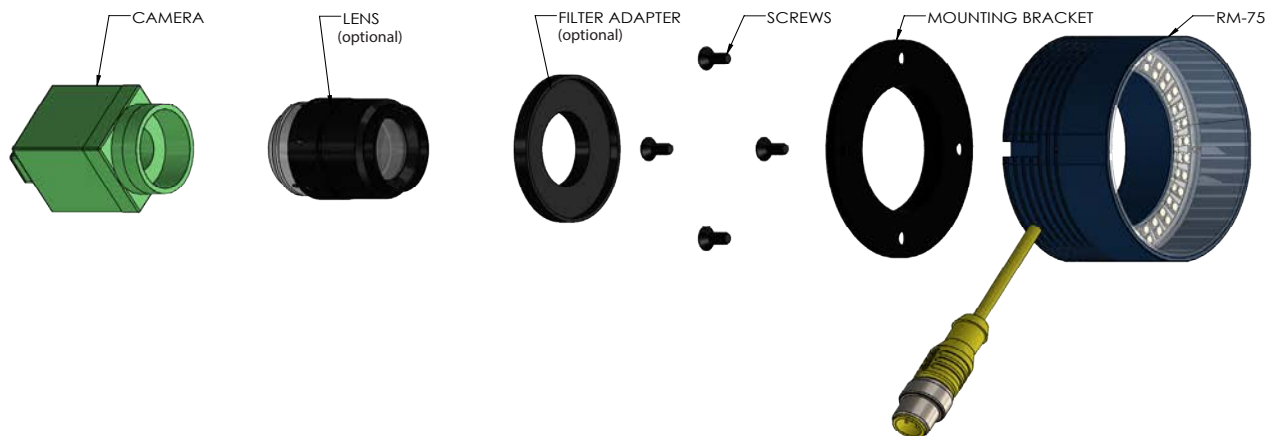
Optional Camera Mounting Adapter



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



CAMERA MOUNTING ADAPTER





ACCESSORIES

Step Up Kits *



| Len 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



| Len 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 |

Power Adapters *



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

* European Versions Available (Add -EURO to end of T1 or T2. 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™ 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.

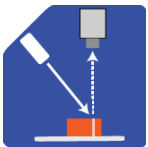
Built-in Driver The built-in driver allows full function without the need of an external controller.

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

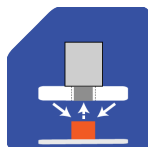
Polarizers Filters that reduce reflections on specular surfaces.

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

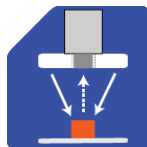
TYPES OF ILLUMINATIONS



Projector



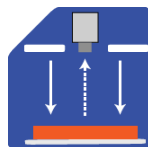
Dark Field



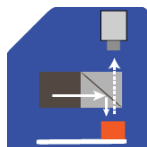
Radial



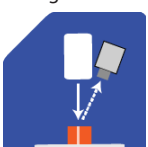
Bright Field



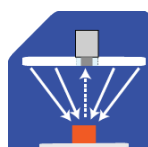
Direct



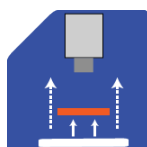
Axial



Line



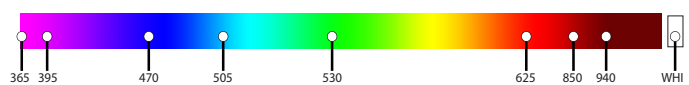
Diffuse Panel



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.



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