



RM75 *Miniature "Mini"* RING LIGHT MULTI-DRIVE™

PRODUCT DATA SHEET

 smart vision lights

Cable Length: 15.2 cm (6")

Four T-slots for Mounting

Aluminum Housing

Optional Camera Adapter

High Intensity LEDs



5-Pin M12 Connector



Warranty
10
YEAR

Compliant
IEC
62471

Compliant
CE
RoHS

Rated
IP
50

Connector
5-PIN
M12

PRODUCT HIGHLIGHTS

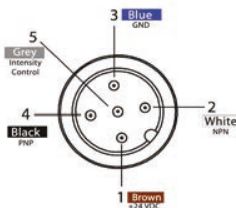
- ✓ Built-in Multi-Drive™ allows the light to work in continuous operation or OverDrive™ mode
- ✓ Built-in driver, no external wiring needed
- ✓ PNP and NPN strobe input
- ✓ Over-current protection
- ✓ 5-pin M12 quick connect

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 (0V DC)	
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: +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.

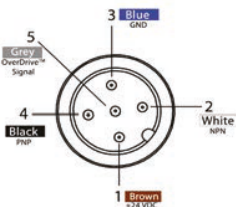
For continuous mode: PNP (pin 4) can be tied to +24 V DC (pin 1) **or** NPN (pin 2) can be tied to Ground (pin 3).

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*

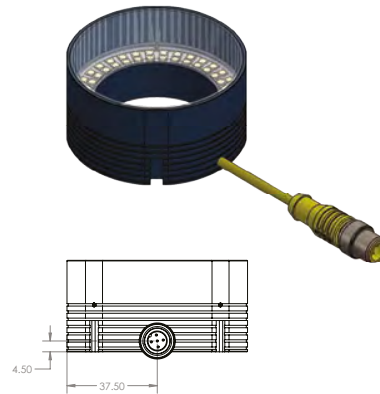
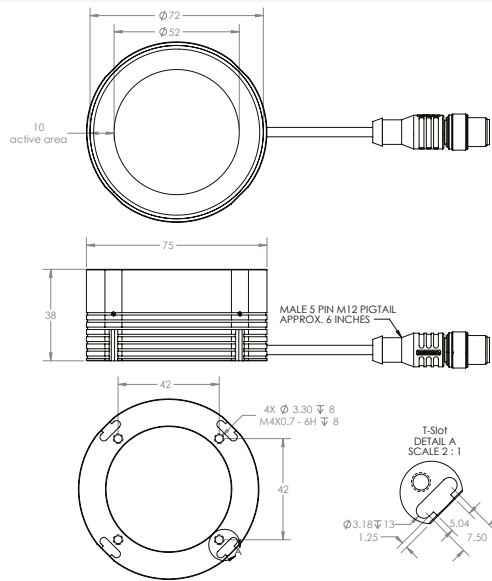
* Some cables use green/yellow for pin 5

Failure to supply light with correct input current will result in non-repeatable lighting

(see Product Specifications for requirements)



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.

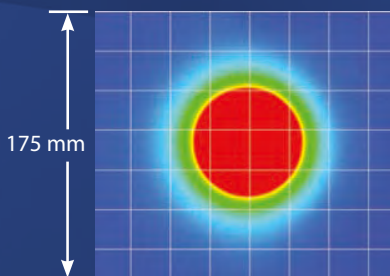
LIGHTING ILLUMINATION FOR THE RM75

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

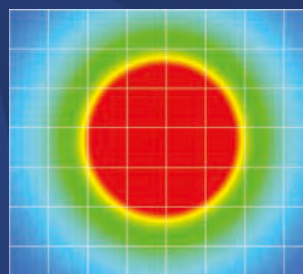
OverDrive™ Mode	
Typical Output Performance	Illumination (Lux)
Distance = 100 mm	149,000
<i>Illumination measurement taken on White Light - 4800K</i>	

The RM75 Mini Ring Light produces a uniform light pattern.

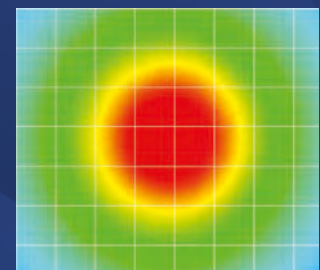
WD = Working Distance



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

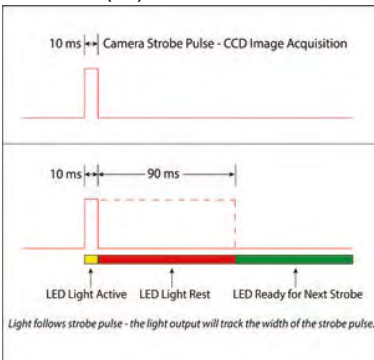


The Multi-Drive™ feature allows the user to run the light in continuous operation or OverDrive™ strobe mode at maximum intensity. OverDrive™ strobe mode is **up to ten times** the power of continuous operation.

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

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

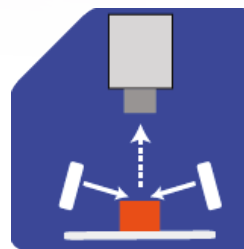
Rest Time is 90 ms for 10 ms Strobe Time

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

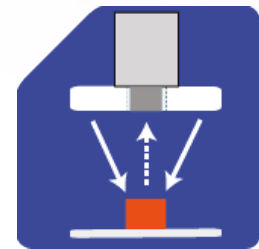


ILLUMINATION

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

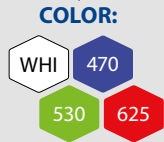
Exempt Group: No photobiological hazard to eyes or skin even for continuous, unrestricted use. Applicable for wavelengths: 625.

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

RM75 –



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.

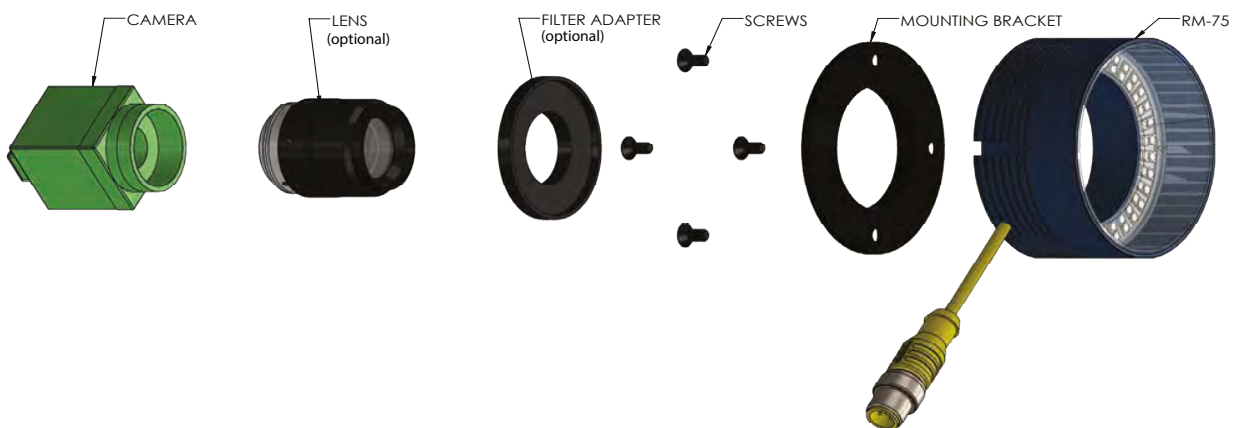
Hardware included with light:

- (2) M4 x 8 mm screws (Hex)
- (2) M5 x 10 mm screws (Hex)
- (2) T-Nuts




Optional Mounting Adapter	
	<p>The optional ADP0001-KIT can be used to mount a camera, filter adapter or a lens directly to the RM75.</p>

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

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

Mounting Bracket



Description	Part Number
Camera Mount	ADP0001-KIT

* Additional sizes available

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.

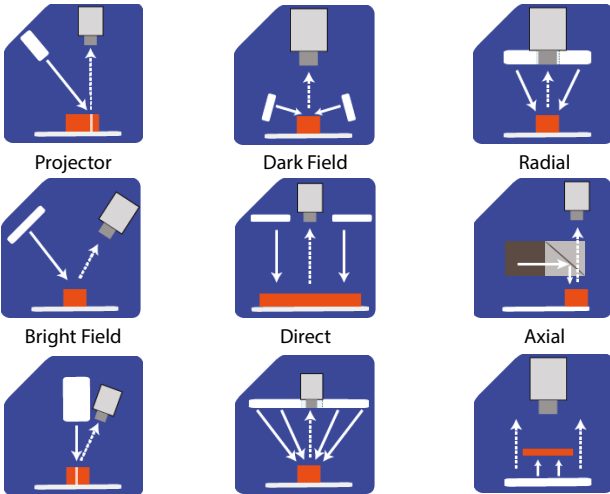
Built-in Driver The built-in driver allows full function without the need of an external controller.

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

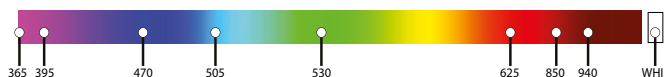
Line

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.