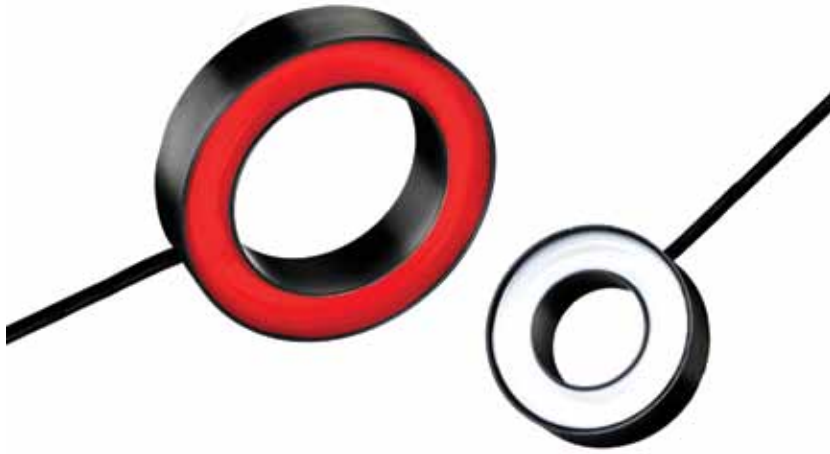


SpecBright™

LED Ringlights



Extremely bright LED illumination

ProPhotonix SpecBright LED Ringlights are the brightest LED illuminators in their class. Based on our patented chip-on-board technology, these modules are manufactured with a high LED packing density and excellent thermal management.

Compared to illuminators fabricated with individually packaged LEDs, ProPhotonix SpecBright LED Ringlights offer several times the brightness, for modules of comparable size. The illuminators combine up to 100 individually mounted LED chips with a single high quality aspherically corrected fresnel lens, to deliver a high level of illumination over a selected field of view with excellent uniformity.

These high performance ringlights are ideal for OEMs, system integrators and end users who require bright, uniform, long lasting illumination sources. SpecBright Ring Lights can be operated in continuous (CW) or pulsed mode. Custom solutions are also available to meet specific requirements.

Key Features

- Extremely bright, compact, and reliable
- Chip-on-board technology
- Superior uniformity
- Seamless integration and mounting
- UV, visible, near-IR and white

Applications

- Machine vision
- Fluorescence spectroscopy
- Microscopy

Accessories

- Power supplies
- Current mode drivers
- Heat sinks
- Strobe drivers

Spectral Characteristics¹

| Colour | Blue | Red | IR | White |
|--------------------------------------|-------------|------------|------------|--------|
| Peak wavelength / colour temperature | 470 ± 10 nm | 630 ± 10nm | 740 ± 10nm | 6700 k |
| Typical spectral width FWHM (nm) | 30 | 30 | 30 | NA |

Illumination Characteristics^{2,3}

Series 1 - Inner diameter of housing : 27.5 mm

| | | | | |
|--|--------|--------|--------|--------|
| Working distance range (mm) ⁴ | 25-200 | 25-200 | 25-200 | 30-350 |
| Illumination diameter FWHM at 30mm (mm) | 45 | 45 | 45 | 65 |
| Typical maximum Irradiance (W/m ²) at 30mm | 50 | 110 | 110 | NA |
| Typical maximum Illuminance (Lux) at 30mm | 9,000 | 20,000 | NA | 10,000 |

Series 2 - Inner diameter of housing: 47.5mm

| | | | | |
|--|--------|--------|--------|--------|
| Working distance range (mm) ⁴ | 30-300 | 30-300 | 30-300 | 40-450 |
| Illumination diameter FWHM at 40mm (mm) | 100 | 100 | 100 | NA |
| Typical maximum Irradiance (W/m ²) at 40mm | 40 | 80 | 80 | NA |
| Typical maximum Illuminance (Lux) at 40mm | 7,000 | 15,000 | NA | 10,000 |

Electrical Characteristics, Lifetime & Environment⁵

Voltage mode (code "V")

| | | | | |
|-------------------------------|-----|-----|-----|-----|
| Operating current (mA) at 24V | 200 | 200 | 200 | 160 |
|-------------------------------|-----|-----|-----|-----|

Current mode (code "I")

| | | | | |
|---------------------------------|---------|---------|---------|---------|
| Maximum operating current (mA) | 400 | 400 | 400 | 240 |
| Mean time before failure (MTBF) | 100,000 | 100,000 | 100,000 | 100,000 |

1 375, 395 and 870 nm also available. Please contact us for details.

2 Irradiance and illuminance measured at the center of the illumination field using a 4 mm diameter detector.

3 See Figure 2 for graph of FWHM illumination diameter, as a function of working distance.

4 Maximum working distance is where the power density has dropped to 10% of the optimal working distance measurement. Minimum working distance is the nearest point where the circular illumination pattern is complete.

5 Case temperature should not exceed 45°C. Please consult ProPhotonix for details on lifetime measurements.

Illumination Characteristics

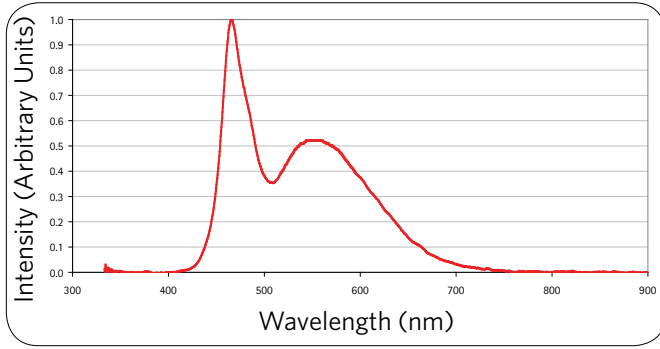


Figure 1 - Typical spectral distribution of a white LED ringlight (RF1-000).

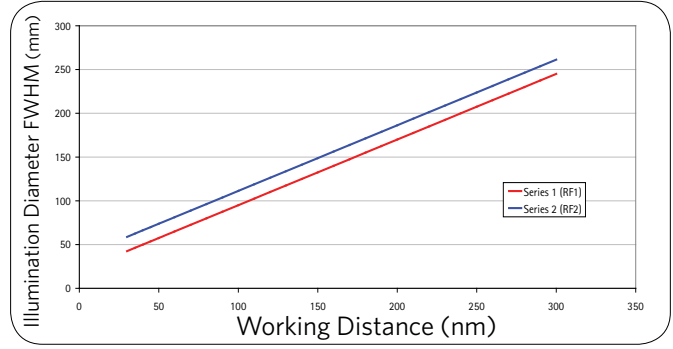


Figure 2 - Illumination diameter FWHM vs. working distance for RF1-630 and RF2-630.

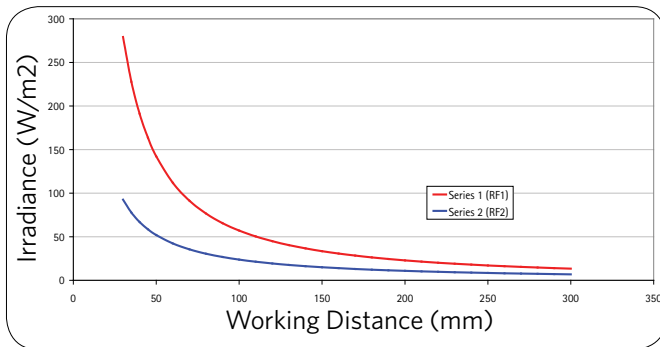


Figure 3 - Irradiance vs. working distance for RF1-630 and RF2-630.

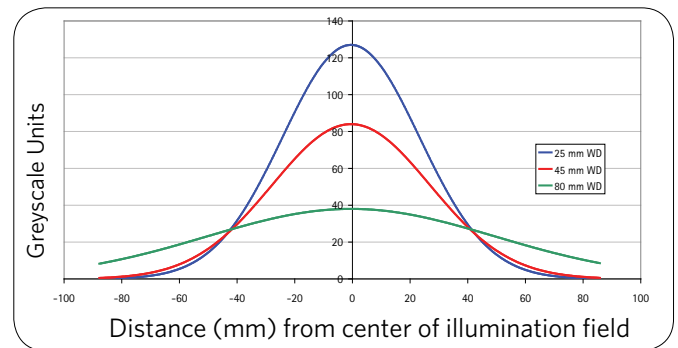


Figure 4 - Intensity profile for RF1-630. Working distances (WD) of 25, 45, and 80 mm.

Product Numbers

| Product Code | Frontlight | Series | Wavelength | Voltage or Current Source | Without or with Heat Sink | Connector or Flying Leads | Cable Length (in cm) |
|--------------|------------|--------|-------------|---------------------------|---------------------------|---------------------------|----------------------|
| R | F | 1 or 2 | 375 | V or I | X or H | C or F | 100 (standard) |
| | | | 395 | | | | |
| | | | 470 | | | | |
| | | | 630 | | | | |
| | | | 740 | | | | |
| | | | 870 | | | | |
| | | | 000 (white) | | | | |

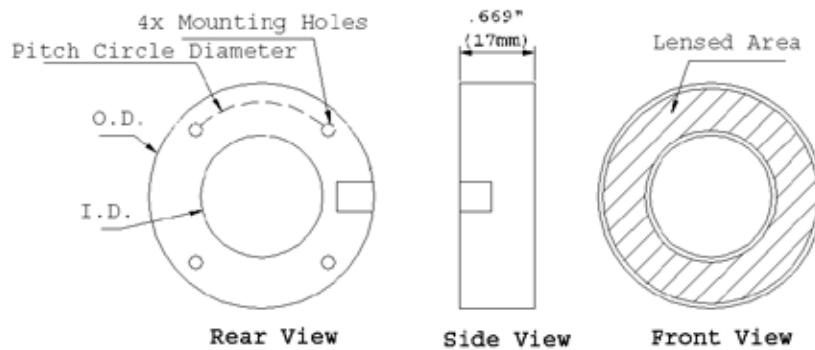
Connectors / Flying Leads

- Mini Universal Mate-N-Lok connectors are standard for voltage source (V) modules. They provide a secure locking mechanism and reverse polarity protection. Voltage source (V) modules can also be manufactured with flying leads.
- Flying leads are standard for current source (I) modules.

Heat Sinks

For best operation, the housing temperature should not exceed 45°C. ProPhotonix provides optimized heat sinks for use with our LED ringlights.

Dimensional Diagrams



Power Supplies

- 24 V wall plug-top power supply for voltage source (V) modules.
- Current mode driver and power supply for current source (I) modules.

Custom Solutions

ProPhotonix specializes in the provision of custom solutions and can provide other wavelengths, diode powers and optics if required.

| | Outer Diameter (O.D.) | Colour | (White) | Inner Diameter (I.D.) | Pitch Circle Diameter (P.C.D) | Threading Mounting Hole |
|-----|-----------------------|--------------------|--------------------|-----------------------|-------------------------------|-------------------------|
| RF1 | 2.00" (50.8 mm) | 2.13" (54.2 mm) | 1.08" (27.5 mm) | 1.70" (42.4 mm) | M3 | |
| RF2 | 2.79" (70.8 mm) | 2.92" (74.2 mm) | 1.87" (47.5 mm) | 2.40" (60.8 mm) | M3 | |

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