

# SpecBright™

## LED Spot Lights



### Extremely bright focused LED illumination for long and short distances

ProPhotonix SpecBright™ LED Spot lights offer several times the brightness, of conventional through-hole or surface mount LED based illuminators. This is achieved through the use of 4 high-brightness chip-on-board LEDs in an area smaller than a conventional LED would occupy. These are placed in a package designed for superior thermal management. This allows the LEDs to be driven to their potential, safely, for the longest possible lifetime and stability. For optimum performance the light is focused in a narrowly divergent beam by molded TIR lens optics extremely bright spots from very short to very long working distances.

These units are ideal for OEMs, system integrators and end users who require extremely compact and long lasting illumination sources for their high performance applications.

Custom-engineered LED solutions are also available on request.



### Key Features

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

### Applications

- Night vision
- Machine vision
- Microscopy
- Security ID
- Life sciences

### Accessories

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

### Options

- UV, visible, near-IR and white
- CW or pulsed mode

## Spectral Characteristics<sup>1</sup>

Colour	Blue	Red	IR	IR
Peak wavelength	470 ± 10	630 ± 10	740 ± 10	870 ± 10
Spectral width FWHM (nm)	30	30	30	30

## Illumination Characteristics<sup>2,3,4</sup>

Nominal beam cone angle (FWHM) : 12 degrees

Illumination diameter FWHM at working

distance of 50 mm (mm)	10	10	10	10
Typical irradiance at 50 mm (W/m <sup>2</sup> )	650	1,000	200	425
Typical illuminance at 50 mm (Lux)	40,000	180,000	NA	NA

Illumination diameter FWHM at working

distance of 200 mm (mm)	40	40	40	40
Typical irradiance at 200 mm (W/m <sup>2</sup> )	125	200	50	100
Typical illuminance at 200 mm (Lux)	7,500	35,000	NA	NA

## Electrical Characteristics, Lifetime & Environment<sup>5,6</sup>

Current mode (code "I")

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

1 395 nm also available. Please contact us for more details.

2 See Figures 2 and 3 for graphs of FWHM illumination diameter and irradiance, as a function of working distance.

3 Beam divergence is measured with a rotation stage and a photo-detector at a distance where the beam is much larger than the detector aperture. It varies slightly as a function of the wavelength, due to the change in the refractive index of the lens material.

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

5 This product is not 24 V compatible and can only be operated in current mode.

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

## Illumination Characteristics

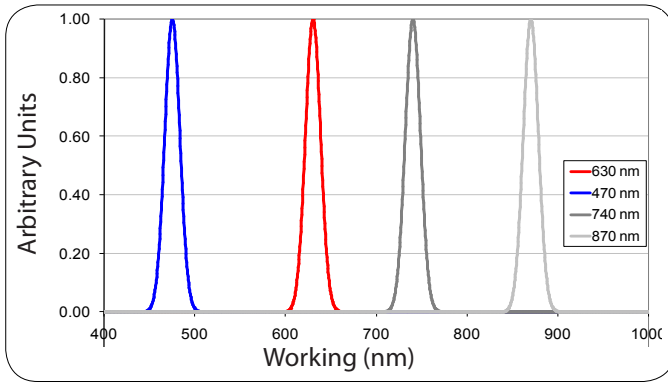


Figure 1 - Spectrum of available wavelengths for our LED spotlight series.



Figure 2 - Diameter of field of illumination vs. working distance for all wavelengths. For other wavelengths use ratio or irradiance of desired colour to red from Illumination Characteristics table on previous page

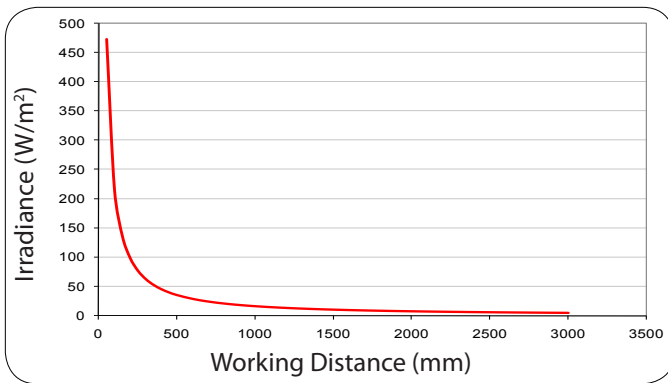


Figure 3 - Irradiance vs. working distance for SF1

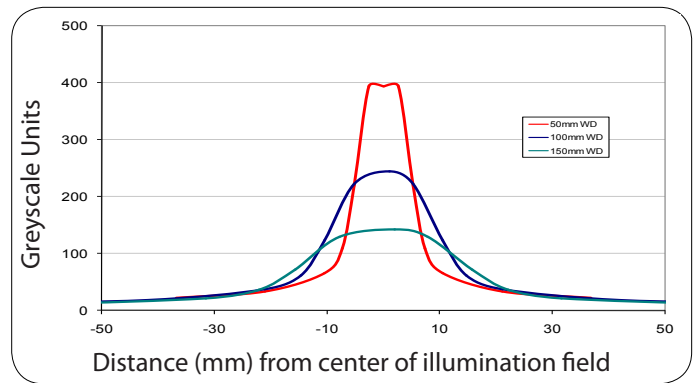


Figure 4 - Intensity profile for SF1. Working distances (WD) of 50, 100, and 150 mm.

Note: All measurements were made in continuous (CW) mode.

## Product Numbers

Product Code	Frontlight	Series	Wavelength	Voltage or Current Source	Without or with Heat Sink	Connector or Flying Leads	Cable Length (in cm)
S	F	1	395	V or I	X or H	F	100 (standard)
			470				
			630				
			740				
			870				

Example: SF1-870-IXF100. Refer to website for complete part number matrix. Please contact us for other wavelengths.

## Custom Solutions

ProPhotonix specializes in providing customized solutions. Please enquire for other wavelengths, powers, optics, or mechanics.

## Connectors / Flying Leads

- Tyco Mini Universal Mate-N-Lok connectors are available for 24VDC voltage configured lights (i.e. P/N AF1-630-VXF100) and can be paired with the connectorized AC power adaptor (P/N PTS400-24C) for lab or bench top use. They provide a secure locking mechanism and reverse polarity protection.
- Flying leads are standard for current source (I) modules.

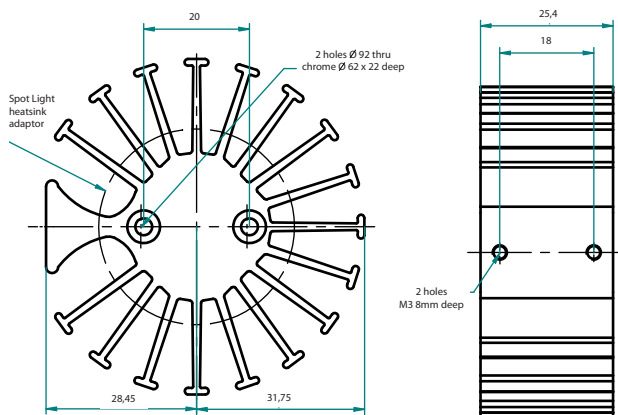
## Power Supplies

We offer both universal AC-mains to 24VDC power (2W/500mA) adaptors and standard industrial 24VDC (240W/10A) switching power supplies (P/N PSU-24V-240W). The power adaptors are offered with connectors (P/N PTS400-24C) for easy connection or as flying leads (P/N PTS400-24F) for use with the CMP or application specific connections. Interchangeable plugs are included for use in any country.

## Heat Sinks

Ensure the housing temperature does not exceed 45°C. Heat sinking is highly recommended when LED lights are used at or near full power in continuous, high duty cycle, or long pulse width applications. ProPhotonix offers optimized heat sinks for use with our lights.

### Heat Sink

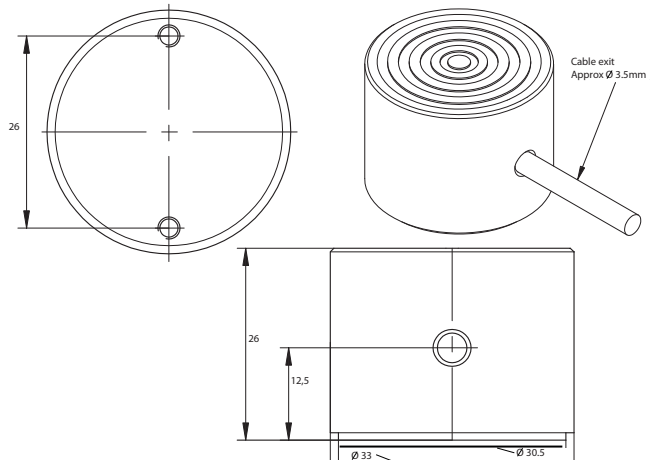


## Controllers & Strobe Drivers

The Current Mode Power (CMP) controller drives SpecBright™ LED Illuminators, both constant current and 24VDC configured options. The CMP is a compact, DIN rail mountable controller requiring only 24VDC input (500-mA min) for easy integration. It features both manual intensity control—via a potentiometer—and remote control via analog inputs for intensity adjustment and a TTL input for fast, repeatable non-overdriven on/off/strobe control.

The SpecBright™ CMS-M2-10A series of LED Controllers and strobe drivers provides precise deterministic LED control for continuous, intermittent, and highly over-driven strobing applications. These are multi independent channel controllers with flexible power input requirements and current outputs in 5-mA increments up to several Amps continuous and up to 20 Amps pulsed. They feature push button manual control or communication via Ethernet or RS-232 for sophisticated integration needs. For high speed applications where motion must be stopped, over-driving LEDs can produce as many as 10-20x the light output for a short pulse time—generally 1msec or less—and small duty cycles—generally 10% or less. Overdriving is performed at your own risk. Please enquire for assistance.

### Dimensional Diagrams



### Corporate

32 Hampshire Road  
Salem, NH 03079  
sales@prophotonix.com  
Tel: +1 603-893-8778  
Fax: +1 603-898-8851

### LED Solutions

3020 Euro Business Park, Little Island  
Cork, Ireland  
ledsales@prophotonix.com  
Tel: +353-21-5001313  
Fax: +353-21-4297749

### Laser Solutions

Sparrow Lane, Hatfield Broad Oak  
Hertfordshire, CM22 7BA, UK  
lasersales@prophotonix.com  
Tel: +44-1279-717170  
Fax: +44-1279-717171

ProPhotonix and the ProPhotonix logo are trademarks of ProPhotonix, Inc. All other brand and product names are trademarks or registered trademarks of their respective holders. Copyright © May 2010 ProPhotonix, Inc. Printed in the USA. All rights reserved.



Visit us on the Web: [www.prophotonix.com](http://www.prophotonix.com)