

# SpecBright™ LED Arealights

EXTREMELY BRIGHT LED ILLUMINATION  
DESIGNED WITH VISION IN MIND

## FEATURES

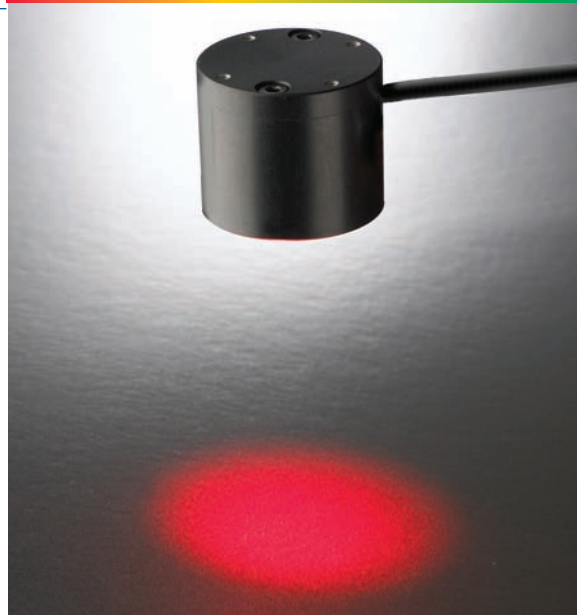
- Extremely bright, compact, and reliable
- Chip-on-board technology
- Superior uniformity
- Seamless integration and mounting
- UV, visible, and near-IR

## APPLICATIONS

- Machine vision
- Fluorescence
- Biomedical
- Freeze frame

## ACCESSORIES

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



StockerYale SpecBright™ LED Arealights 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 T-Packs or other individually packaged LEDs, StockerYale SpecBright™ LED Arealights offer several times the brightness, for modules of comparable size. The illuminators combine up to 100 individually mounted LED chips with an aspherically corrected lens to produce a bright, highly uniform beam. These compact units provide the high-power illumination required in machine vision, biomedical, fluorescence, and strobing applications.

The illuminators are available in a wide range of wavelengths and with various divergence angles. They can be operated in continuous (CW) or pulsed mode. A **backlight configuration** is also available where the standard lens is replaced with a diffuser.

Custom-engineered LED solutions are also available to meet different optical or mechanical requirements.

*Ask us about our SpecBright™ UV LED Arealights.*

**SPECTRAL CHARACTERISTICS<sup>1</sup>**

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

**ILLUMINATION CHARACTERISTICS<sup>2,3,4</sup>****SERIES 1 – Nominal beam cone angle (FWHM): 30 degrees**

Illumination diameter FWHM at working distance of 100 mm (mm)	45	45	45
Typical irradiance at 100 mm (W/m <sup>2</sup> )	25	80	80
Typical illuminance at 100 mm (lux)	3,500	15,000	NA

**SERIES 2 – Nominal beam cone angle (FWHM): 44 degrees**

Illumination diameter FWHM at working distance of 100 mm (mm)	55	55	55
Typical irradiance at 100 mm (W/m <sup>2</sup> )	20	60	60
Typical illuminance at 100 mm (lux)	1,500	10,000	NA

**ELECTRICAL CHARACTERISTICS, LIFETIME & ENVIRONMENT<sup>5</sup>**

<b>Voltage mode (code "V")</b>			
Operating current (mA) at 24 V	200	200	200
<b>Current mode (code "I")</b>			
Maximum operating current (mA)	400	400	400
Mean time before failure (MTBF)	100,000	100,000	100,000

1 For UV wavelengths, please refer to the SpecBright™ UV LED Arealight datasheet. 870 nm also available. Please contact us for details.

2 See Figures 1 and 2 for graphs of FWHM illumination diameter and irradiance, as a function of working distance (wd).

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

ILLUMINATION CHARACTERISTICS

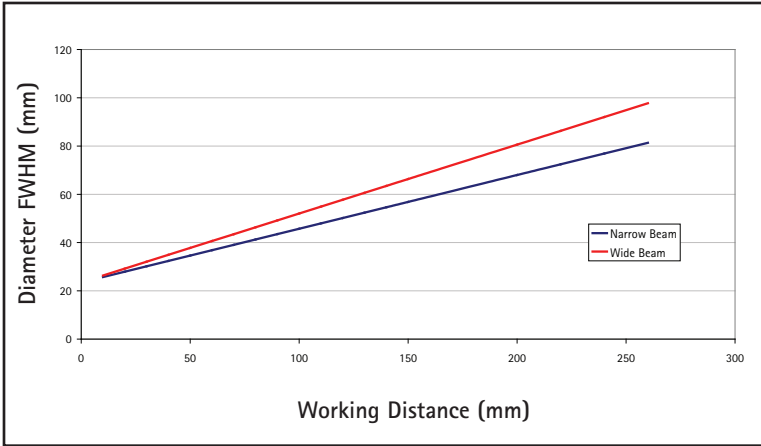


Figure 1 - Diameter of field of illumination vs. working distance for AF1-630 (narrow beam) and AF2-630 (wide beam).

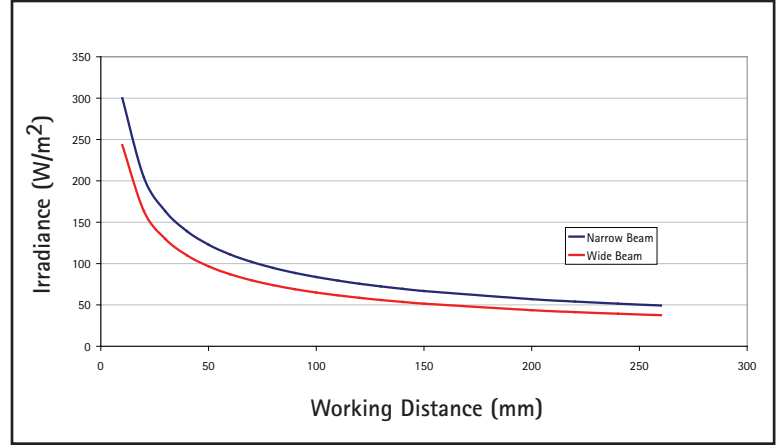


Figure 2 - Irradiance vs. working distance for AF1-630 (narrow beam) and AF2-630 (wide beam).

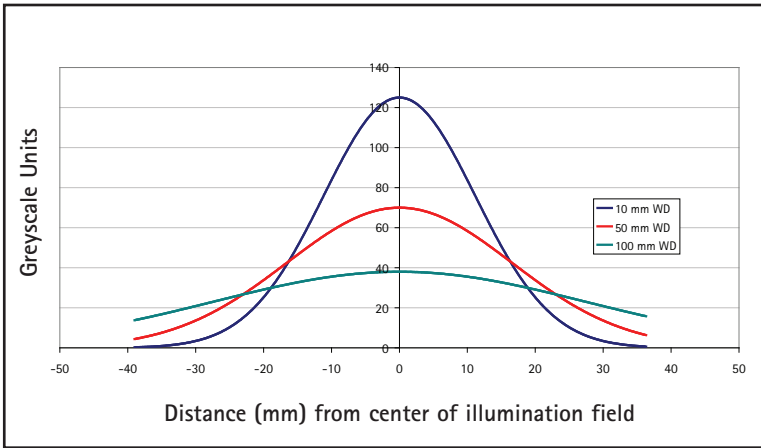


Figure 3 - Intensity profile for AF1-630. Working distances (WD) of 10, 50, and 100 mm.

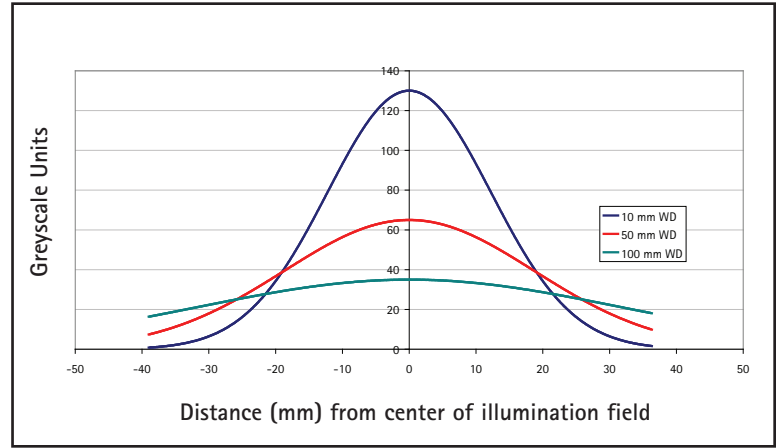


Figure 4 - Intensity profile for AF2-630. Working distances (WD) of 10, 50, and 100 mm.

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

**PRODUCT PART NUMBERS**

Product Code	Frontlight or Backlight	Series	Wavelength	Voltage or Current Source	Without or with Heat Sink	Connector or Flying Leads	Cable Length (in cm)
A	F or B	1 or 2	470 630 740	V or I	X or H	C or F	100 (standard)

Example: AF1-630-VXC100. Refer to website for complete part number matrix. For UV wavelengths, please refer to the SpecBright™ UV LED Arealight datasheet.

**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.

**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.

Please visit our website for specifications and ordering information.

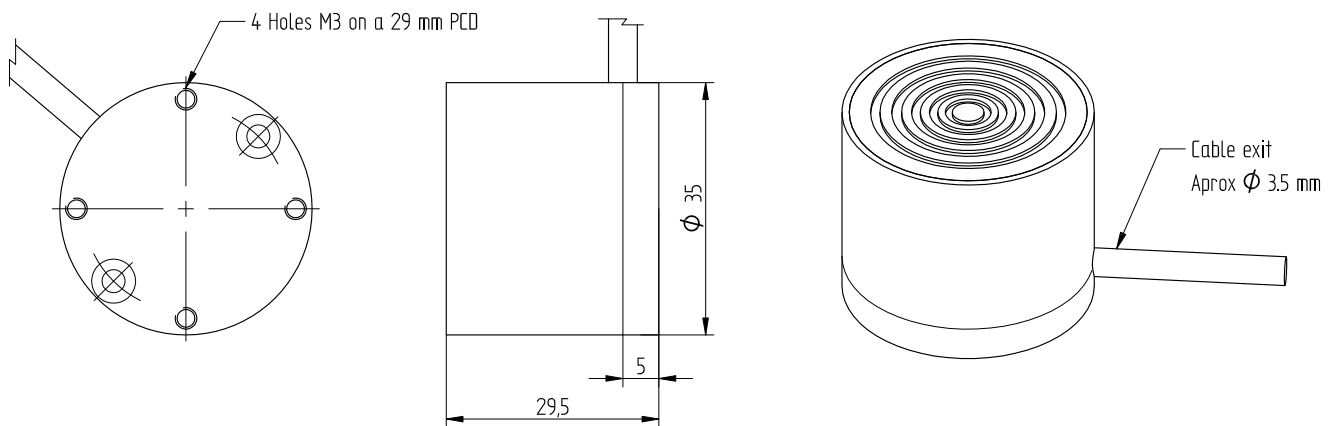
**STROBE DRIVERS**

Due to the thermally optimized design, peak optical powers up to 50 times the CW optical power can be obtained using pulsing. Contact us for more details.

**HEAT SINKS**

For best operation, the housing temperature should not exceed 45°C. StockerYale provides optimized heat sinks for use with our LED arealights. Please visit our website for dimensional diagrams.

**DIMENSIONAL DIAGRAMS**



All dimensions in [mm]

Information and specifications contained herein are deemed to be reliable and accurate. StockerYale reserves the right to change these specifications at any time without notice.



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