

SpecBright™

LED Line Lights



Extremely bright line scan LED illumination

ProPhotonix SpecBright™ LED Line lights are uniquely uniform while maintaining a very high level of brightness not possible with conventional through-hole or surface mount LED based illuminators. This is achieved by placing up to 100 chip-on-board LEDs closely spaced in a 98-mm (3.88-in) line 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 optimal performance, the light is focused in a narrowly divergent beam by Fresnel aspherically corrected optics to create an extremely bright and uniform output for short and medium working distances. In addition, SpecBright Line lights enable users to create a continuous line of any length. The power can be interconnected and the end caps removed to allow seamless light mixing between modules with touching lenses.

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.

Key Features

- Extremely compact, and reliable
- Chip-on-board technology
- Superior uniformity
- Modular for any length
- Easy integration and mounting
- UV, visible, near-IR and white

Applications

- Linescan illumination
- Linear backlight illumination

Accessories

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

Options

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

Spectral Characteristics

Colour	UV (370)	UV (395)	Blue (470)	RED (630)	IR (740)	IR (870)	WHITE
Peak Wavelength / Colour Temperature	365±10	395±10	470 ± 10	630 ± 10	740 ± 10	870 ± 10	545 ± 5
Spectral Width FWHM	11	11	26	17	24	45	NA

Illumination Characteristics^{1,2,3}

LF1	UV (370)	UV (395)	Blue (470)	RED (630)	IR (740)	IR (870)	WHITE
FWHM at 100mm (mm)	8.1	7.5	6.3	6.5	7.7	9.4	14.8
FWHM at 200mm	16.7	14.9	12.5	12.6	12.9	15.4	27.3
Typical Irradiance at 100mm (W/m ²)	149	145	282	274	147	144	25
Typical Illuminance at 100mm (kLux)	NA	NA	17	50	NA	N/A	8
Uniformity at 50mm (Horizontal FWHM (mm))	91	97	86	76.5	99	147	102

LN1	UV (370)	UV (395)	Blue (470)	RED (630)	IR (740)	IR (870)	WHITE
FWHM at 50mm (mm)	75	79	80	69	84	83	76
FWHM at 100mm (mm)	138	146	149	128	155	154	139
Typical Irradiance at 50mm (W/m ²)	48	50	84	100	75	102	14
Typical Illuminance at 50mm (kLux)	NA	NA	5	18	NA	NA	5
Uniformity at 50mm (Horizontal FWHM (mm))	123	102	91	88	108	113	106

Electrical Characteristics, Lifetime & Environment⁴

	UV (370)	UV (395)	Blue (470)	RED (630)	IR (740)	IR (870)	WHITE
Voltage mode (code"V") Operating current at 24V mA	200	200	200	200	200	200	160
Current mode (code"I") Maximum operating current mA	400	400	400	400	400	400	240
Mean Time before failure (MTBF) Hrs	60,000	60,000	60,000	60,000	60,000	60,000	60,000

1 Irradiance and illuminance of blue, white, UV and IR units, for working distances other than that shown above, may be computed with reference to the Intensity vs Working Distance plot provided for the Red Linelight. Values computed in this manner are valid within ± 5%

2 Linewidths (FWHM) of blue, white, UV and IR units, for working distances other than that shown above, may be computed by extrapolating linearly from the provided values.

3 Irradiance and Illuminance are measured at the centre of the illumination field, in continuous wave mode at maximum operating current (current mode)

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

Illumination Characteristics

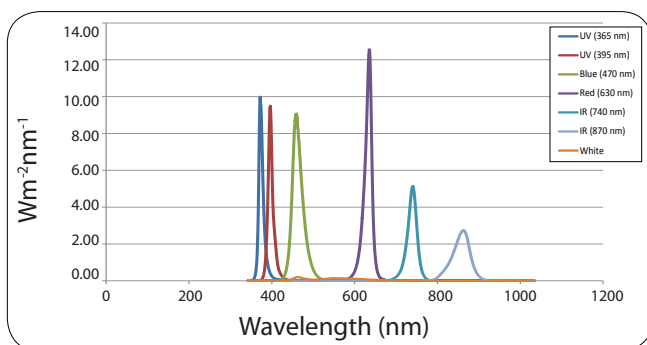


Fig 1- Spectrum of available wavelengths.

Note: Intensity ($\text{Wm}^{-2}\text{nm}^{-1}$) of LF1 unit at a working distance of 100mm

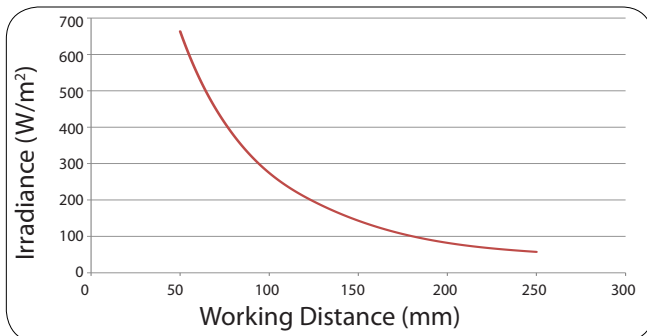


Fig.3 Irradiance vs Working Distance for LF1 (Lensed) measured at maximum operating current (current mode)

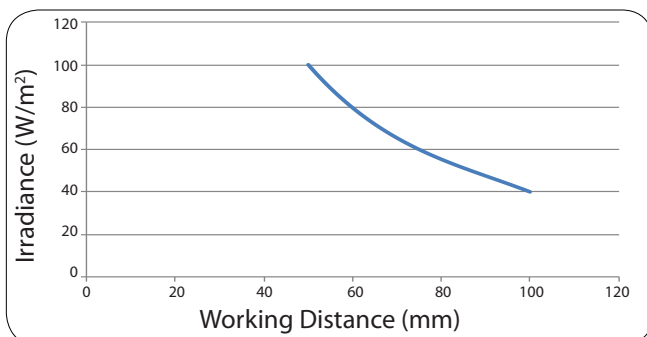


Fig. 5 Irradiance vs Working Distance for LN1 (No Lens) measured at maximum operating current (current mode).

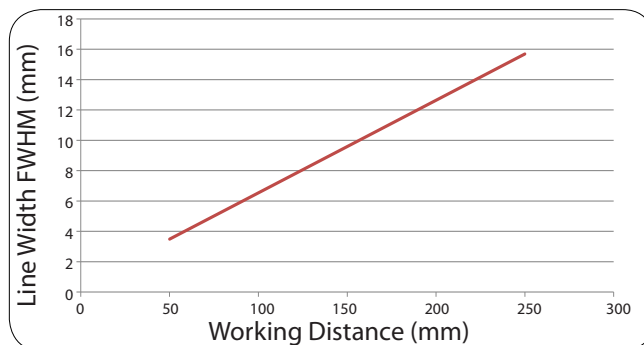


Fig.2 - Line Width vs Working Distance for LF1 (Lensed)

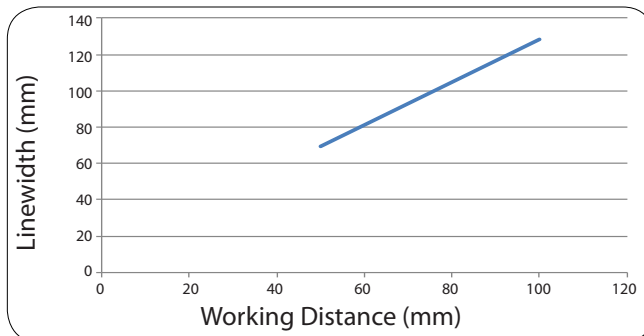


Fig.4 - Line Width Vs Working Distance for LN1 (No Lens)

NOTE: All measurements were taken in continuous(CW) mode

Part Numbers

Product Code	Optical configuration	Series	Wavelength	Voltage or Current Source	Without or with Heat Sink	Connector or Flying Leads	Cable Length (in cm)
L	F or B	1	365	V or I	X or H	C or F	100 (standard)
	N (No Lens)		395				
			470				
			630				
			740				
			870				
			000 (white)				

Example: LF1-630-VXC100.

Please contact us for other wavelengths.

SpecBright LED Line light

Connectors / Flying Leads

- Tyco Mini Universal Mate-N-Lok connectors are available for 24VDC voltage configured lights (i.e. P/N LF1-630-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.

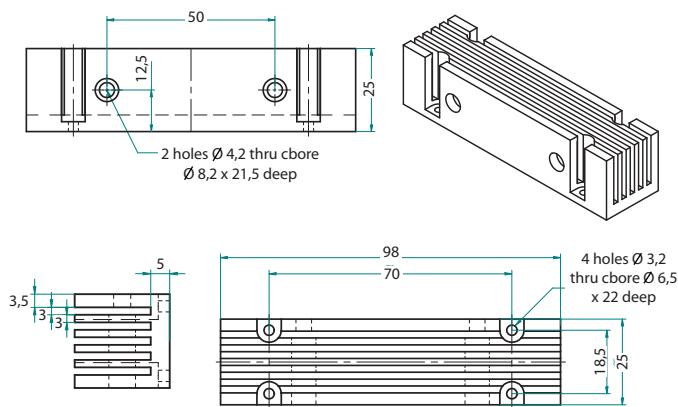
Power Supplies

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 Sinks

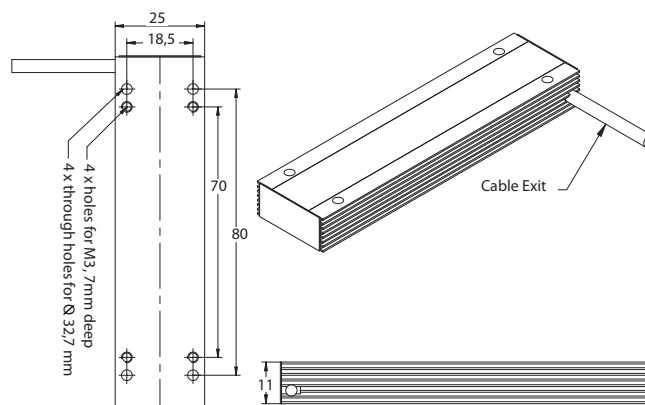


Controllers & Strobe Drivers

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 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



All dimensions in [mm]

240412

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