

FLP Lens Series

- High efficiency
- Available in 2 different beams
- Patent Pending

The Fraen Low Profile Series offers two lenses specially designed for the LUXEON™ LED from Lumileds⁽¹⁾ with a Lambertian radiation pattern.

A software optimized aspheric profile combined with a front shaped surface and a Fresnel profile provide two different narrow and medium beam patterns

The high collection efficiency reaches 85% of the total flux emitted from the LED.

Typical applications for the FLP lenses coupled with the LUXEON™ Lambertian LEDs are:

- Reading Lamps
- Signs
- Street Lights
- General Illumination
- Most applications where high efficiency and strong mechanical constraints are required



(1) LUXEON™ is a trademark of Lumileds Lighting, LLC (370 West Trimble Road, San Jose CA 91131). For technical specification on LEDs please refer to the LUXEON™ datasheet or visit www.luxeon.com and www.lumileds.com

(2) Typical beam divergence may change with different color LEDs

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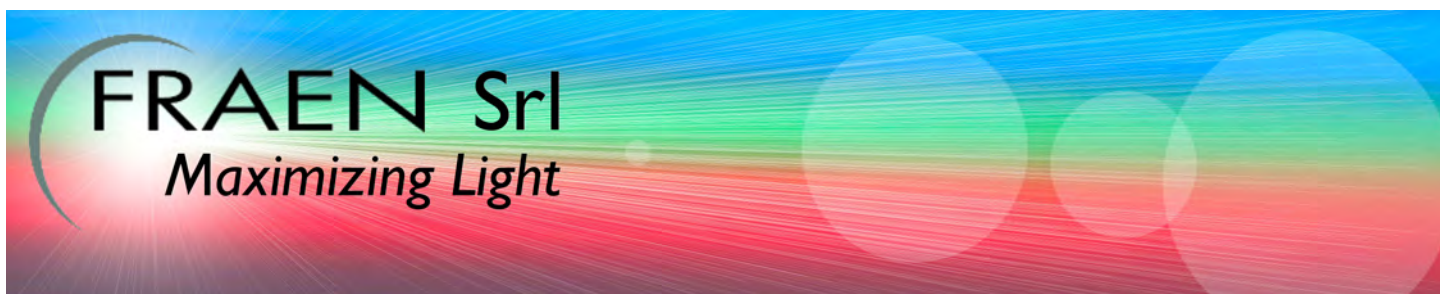
FRAEN Srl
Via Fermi, 7
20090 CUSAGO (MI)-Italy

Phone +39-02-90394049
Fax +39-02-90393736

FRAEN CORPORATION
80 Newcrossing Road
Reading, MA 01867

Phone 781-205-5300
Fax 781-942-2426

email sales@fraen.com
www.fraen.com



FLP Lens Series OPTICAL CHARACTERISTICS

Typical Beam Divergence FWHM⁽³⁾ with Lambertian LED⁽⁴⁾

Part Number	Type	LED Color		
		Amber, Red (Degrees)	Blue, Cyan, Green (Degrees)	White (Degrees)
FLP-HNB3-LL01-0	Narrow Beam	10	12	12
FLP-HMB3-LL01-0	Medium Beam	25	30	30

Typical on axis intensity⁽⁵⁾ (candela per Lumen^(6,7)) with Lambertian LED

Part Number	Type	Blue	Cyan	Green	Amber	Orange	Red	White
								
FLP-HNB3-LL01-0	Narrow Beam	14.2	15.5	15.5	10.9	10.9	10.9	13.4
FLP-HMB3-LL01-0	Medium Beam	5.0	5.0	5.0	5.1	5.1	5.1	4.9

(3) FWHM full width half maximum is the full angle measured where the luminous intensity is half of the peak value.

(4) Typical divergence angle may change with different color LEDs and depends on the tolerance of the LEDs.

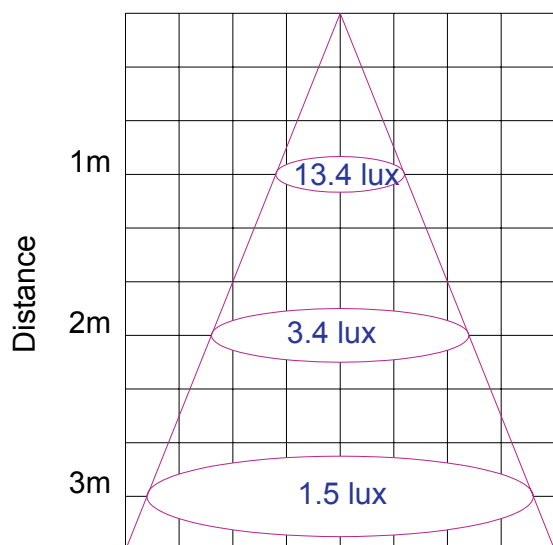
(5) Is the typical on axis luminous intensity measured in candela per lumen (K) with a typical Luxeon LED. Candela per Lumen $K=I/F$ where I is the intensity measured in candela and F is the total flux of the LEDs under test.

(6) Multiply the candela per lumen value K with the flux of the LED to obtain the expected on axis intensity in candela. Please refer to the Luxeon datasheet to verify the flux bin.

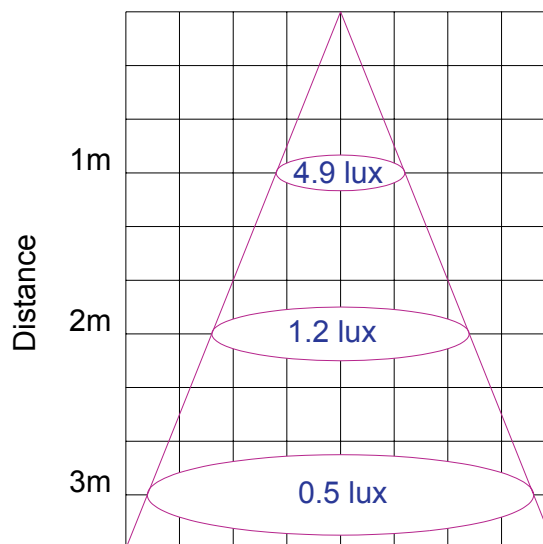
(7) Luminous Intensity depends on the LED flux binning and LED tolerances. Please refer to the Luxeon datasheet for more details on flux binning and mechanical tolerances.

FLP Lens Series

ILLUMINANCE CHART AT VARIOUS DISTANCES (white Lambertian LUXEON™ LED^(8,9))



FLP-HNB3-LL01-0
Low Profile Narrow Beam Lens for Lambertian LED



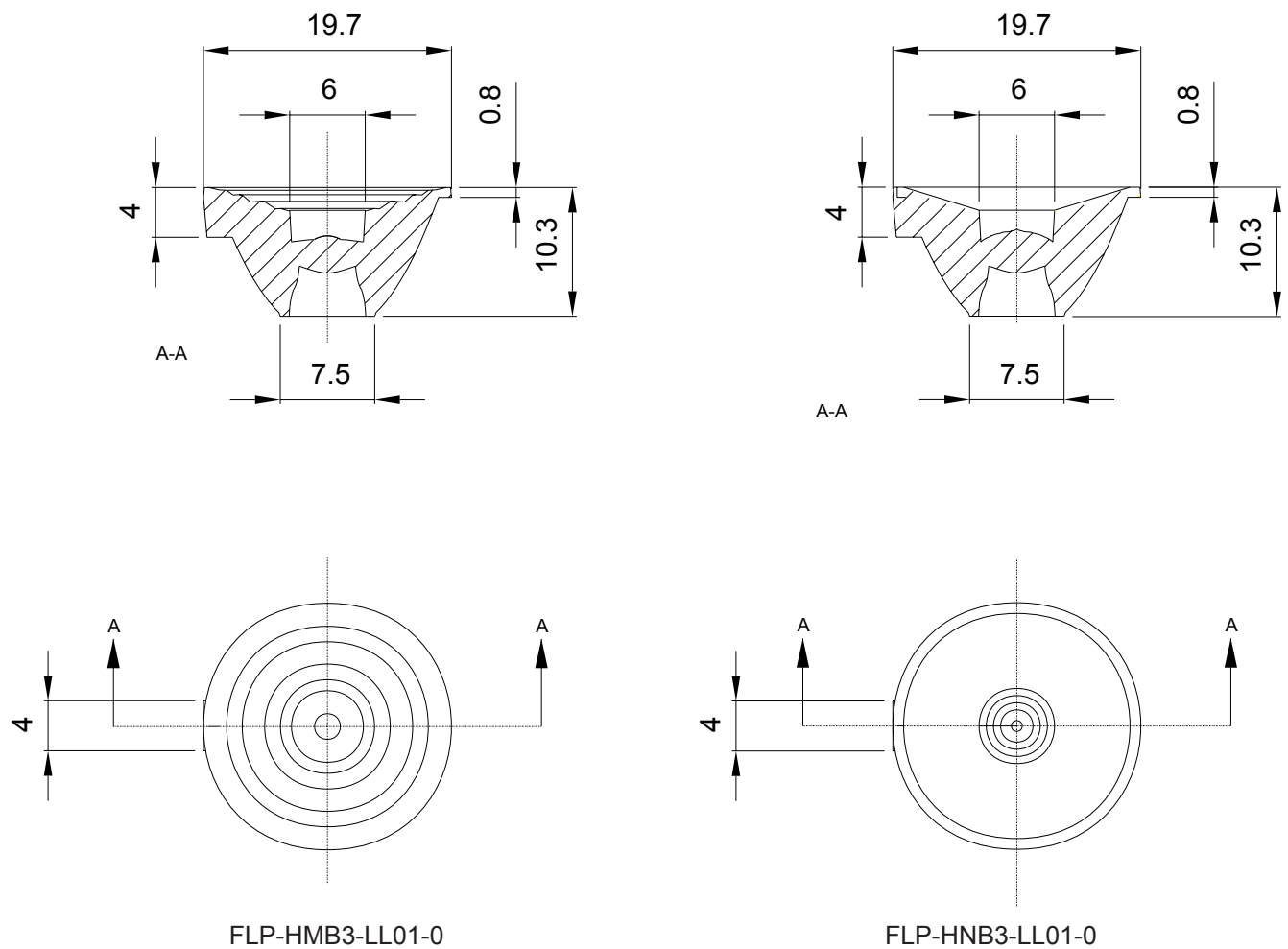
FLP-HMB3-LL01-0
Low Profile Medium Beam Lens for Lambertian LED

(8) Typical illuminance measured in lux per lumen (E) with a typical LUXEON™ LED. Multiply the lux per lumen value E with the flux of the LED to obtain the expected illuminance in lux.

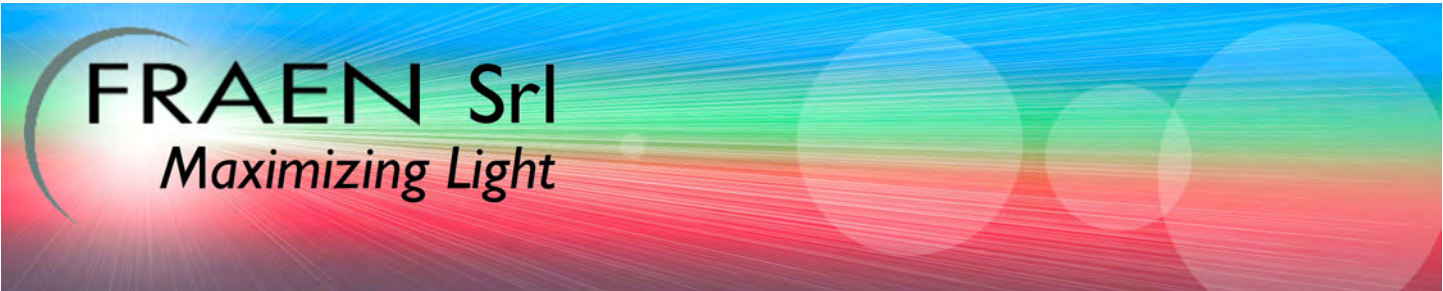
(9) Illuminance depends on the LED flux binning and LED tolerances. Please refer to the LUXEON™ datasheet to verify the flux bin.

FLP Lens Series **DRAWINGS**

FLP Lens Layout

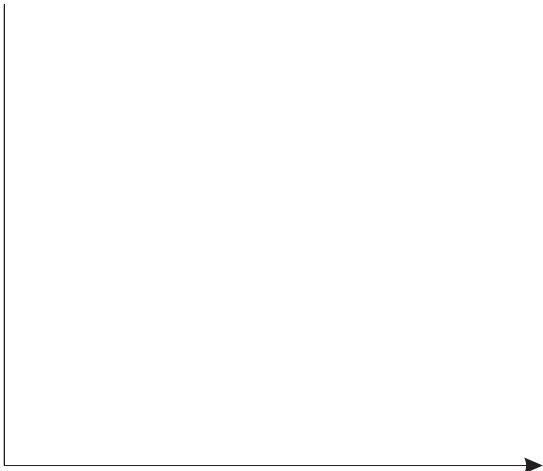


Dimension tolerance is +/- 0.2mm



FLP Lens Series ORDERING NUMBER

FLP - XXXX - LL01 - 0



LENS TYPE
HNB3 - Narrow beam lens HMB3 - Medium beam lens

Lenses are distributed by Future Electronics.
For more information please contact:

North America Phone: 1-888-LUXEON2
Email: askluxeon@futureelectronics.com

Europe Phone: 00-800-44-FUTURE
Email: luxeon.europe@futureelectronics.com

Asia Phone: 1-800-LUMILEDS
Email: lumileds.asia@futureelectronics.com



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