FRAEN Srl
Maximizing Light

FT3 Lens Series - Tri Lens Module

- High efficiency
- Available in 3 different types of beams
- Useful to replace 50mm dichroic halogen lamp
- Patent Pending

The FT3 series -TRILENS MODULE- offers a complete range of lenses specially designed for the LUXEON™ LEDs from Lumileds(1). All of the current versions of LUXEON™ LEDs, Batwing and Lambertian, are fully supported(2).

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

Lenses are available assembled with a holder that fits the standard 50mm dichroic halogen lamp. The holder ensures the proper relative placement between the lens and the LUXEON™ LEDs. Heat staking the legs of the holder to the support provides excellent mechanical strength.

Typical application of these lenses coupled with the LUXEON™ LEDs are:

- Indoor & Outdoor Lighting
- Reading Lamps
- Luminaries
- Furniture Lighting
- Signs
- Most applications where uniformity and high intensity over a wide angle is required

(1) LUXEON™ is a trademark of Lumileds company (370 West Trimble Raod, 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) Except Side Emitting LEDs.

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FT3 Lens Series - Tri Lens Module OPTICAL CHARACTERISTICS

Lens Type		Typical Beam Divergence FWHM[3] with Batwing LEDs[4]		
Part Number	Type	AlInGaP LEDs Red, Amber, Orange (Degree)	InGaN LEDs Blue, Cyan, Green (Degree)	White LEDs (Degree)
FT3-HNB1-LB01-H	Narrow Beam	6	8	10
FT3-HMB1-LB01-H	Medium Beam	25	28	30
FT3-HWB1-LB01-H	Wide Beam	40	42	45

Lens Type		Typical Beam Divergence FWHM[3] with Lambertian LEDs [4]		
Part Number	Type	AlInGaP LEDs Red, Amber, Orange (Degree)	InGaN LEDs Blue, Cyan, Green (Degree)	White LEDs (Degree)
FT3-HNB1-LL01-H	Narrow Beam	8	10	12
FT3-HMB1-LL01-H	Medium Beam	25	28	30
FT3-HWB1-LL01-H	Wide Beam	40	42	45

(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 tolerance of the LEDs.

FT3 Lens Series - Tri Lens Module OPTICAL CHARACTERISTICS

Lens Type	Typical on axis intensity [5](candela per Lumen[6,7]) with Luxeon Batwing LEDs						
		Blue	Cyan	Green	Amber	Red	White
Part Number	Type						
FT3-HNB1-LB01-H	Narrow Beam	23.5	24.5	24.5	27.1	27.1	11.2
FT3-HMB1-LB01-H	Medium Beam	4.6	4.7	4.7	3.5	3.5	3.4
FT3-HWB1-LB01-H	Wide Beam	1.3	1.4	1.4	1.1	1.1	1.3

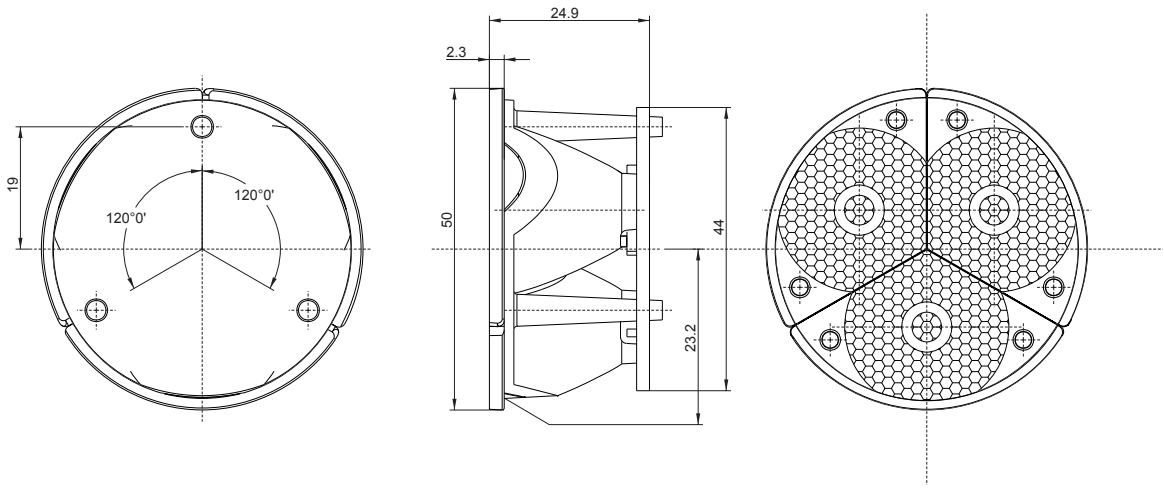
Lens Type	Typical on axis intensity [5] (candela per Lumen[6,7]) with Luxeon Lambertian LEDs							
		Blue	Cyan	Green	Amber	Orange	Red	White
FT3-HNB1-LL01-H	Narrow Beam	14.1	15.1	15.1	13.7	13.7	13.7	14.2
FT3-HMB1-LL01-H	Medium Beam	4.4	4.5	4.5	3.6	3.6	3.6	4.6
FT3-HWB1-LL01-H	Wide Beam	1.2	1.4	1.4	1.0	1.0	1.0	1.5

(5) Is the typical on axis luminous intensity of each LED measured in candela per lumen (K) with a typical Luxeon LEDs. Candela per Lumens K=I/F where I is the intensity measured in candela andF is the total flux of the LEDs under test.
(6) Multiply the candela per lumen value K with the flux of each LEDs used to obtain the expected on axis intensity in candela. Please refer to the Luxeon datasheet to check the flux bin.
(7) Luminous Intensity depends on the LEDs flux binning and LEDs tolerances. Please refer to the Luxeon datasheet for more detail on flux binning and mechanical tolerances.

FT3 Lens Series - Tri Lens Module DRAWINGS

LENS ASSEMBLY LAYOUT

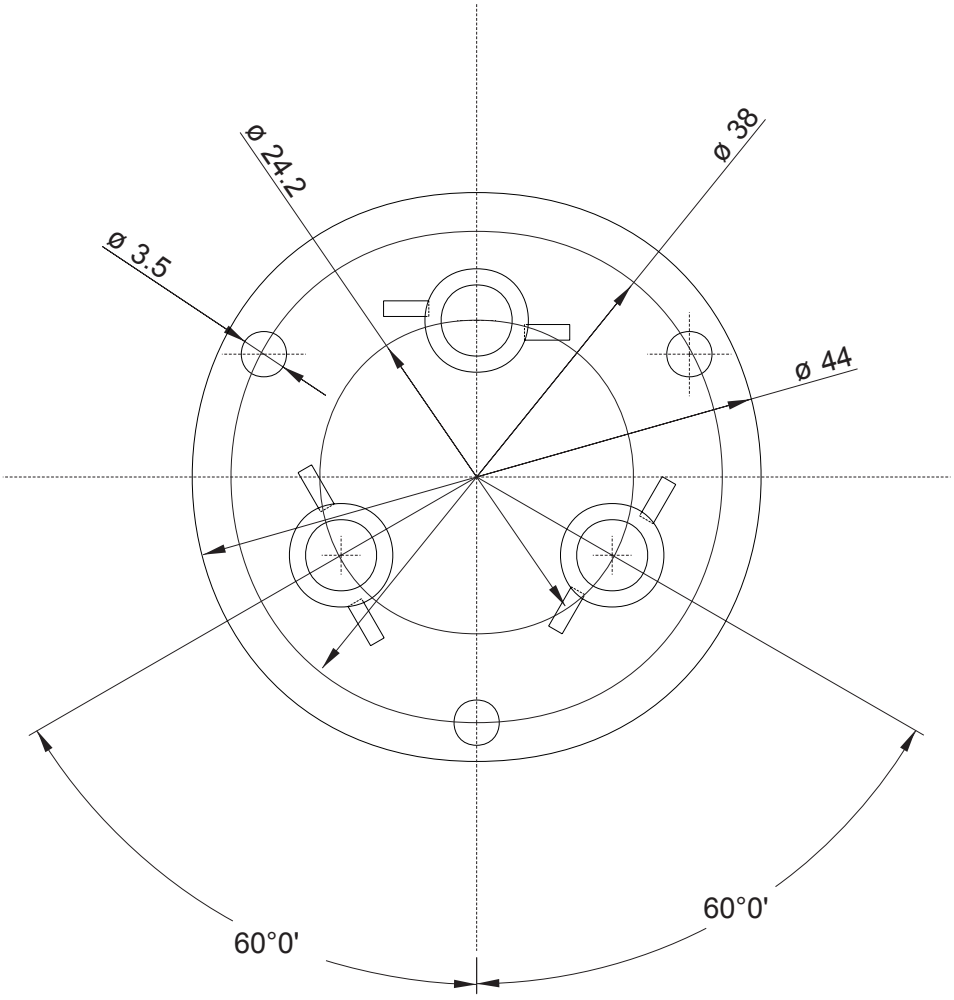
DRAWINGS



Dimension tolerance is +/- 0.2mm

FT3 Lens Series - Tri Lens Module DRAWINGS

LED BOARD LAYOUT



Dimension tolerance is +/- 0.2mm

FT3 Lens Series - Tri Lens Module ORDERING NUMBER

FT3 - XXXX - YYYY - H

LEDs VERSION
LB01 - Luxeon Batwing 1W LL01 - Luxeon Lambertian 1W

LENS TYPE
HNB1 - Narrow beam lens HMB1 - Medium beam lens HWB1 - Wide beam lens

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