KURTZON
SPECIFICATION GRADE LIGHTING
ILLUMINATING YOUR WORLD

PROJECT
DATE TYPE
NOTES

REV: 12/06/2019

Circadian Surgical/Medical **ML-FGPA Series**

2x4 Plenum Access BIOS® LED Surgical Troffer With Asymmetric Distribution

- **For use in Operating and Exam Rooms**
- **IP65 Rated**
- **Access to Plenum using Sealed Access Panel in Housing**
- **Available in Row Mounted Configurations**
- **Optional Green/White Switching circuit**
- **Asymmetric Distribution Lens Standard for Directing Light Over the Operating Table**
- **Anti-Microbial White Finish Standard**
- **Made in the USA by a Family Owned US Corporation**
- **This Kurtzon product is illuminated by BIOS® to provide healthy, low energy lighting that promotes improved sleep, better health and well-being**

5/10 YEAR WARRANTY · Intertek · IP65 · 1700 PSI · RFI FILTERED · MADE IN THE USA · ILLUMINATED BY bios

ORDERING GUIDE

Series	Installation Type	Material	Size	Row Qty.	LED Type	CCT/Dim Type	Green LED	Voltage	Mounting	Options
ML										

Series	Installation Type	Material	Size	Light Source			Green LED	Voltage	Mounting	Options
				Row Qty.	LED Type	CCT/Dim Type				
ML	**FGPA:** Recessed Luminaire for Grid and Flange with Plenum Access	**4:** White Alum Hsg. & White AM 430 SS Door **5:** White Alum Hsg. & White AM Alum Door **7:** White Alum Hsg. & White AM CRS Door	**2x4:** Nominal 2' x4' Housing	**1** **2** **3** **4**	**LED-XBL1** **LED-XBL2** **LED-XBL3**	**835BIOS-DY** **840BIOS-DY** **835BIOS-ST** **840BIOS-ST**	(OPTIONAL) **1/GLED** **2/GLED**	**120V** **277V** **UNV**	**IND** Individual **CRM** Continuous Row Mount *CRM suitable for hardlid ceilings only.*	**FC:** Fuse & Holder (One Supplied Per Circuit) **EM10:** 10W Integral LED EM (Specify Input Voltage) **EM20:** 20W Remote LED EM (Specify Input Voltage) **SYM:** Symmetric pattern Acrylic Lens (Inverted) **SSP:** Satin Polished Stainless Steel Doorframe **PxL:** Programmed to User Specified Lumen Value. **PxW:** Programmed to User Specified Wattage Value. **10KV:** 10KV Parallel Surge Protection **GTD:** Generator Transfer Device **WHIP:** Must specify Length, Type, Wire Qty
				NOTE: *Only a total of **4** combined rows of leds can be specified. Each color with be provided with its own filtered circuit and does not need to be specified.*						

Notes:
BIOS-DY - Dynamic dimming module **BIOS-ST** - Static dimming module

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SPECIFICATIONS

HOUSING: Welded .050" thick aluminum construction. Hole free housing with flattened knockouts and a large plenum access plate hinged to housing by (2) aircraft cables allowing simple access to the area above the ceiling.

DOOR FRAME: One piece inset door frame with seam welds regressing into housing to allowing the extruded gasket to seal to the housing. Door frame is hinged by aircraft cables and secures to housing with captive stainless steel pan head screws. Available in .040" 3003 Powder coated Alum. , 20Ga 304 Polished SS, or 18Ga 1008 Powder coated CRS.

REFLECTOR: Die formed high reflectance white powder coated (min. 92% reflectivity). When removed, provides easy access to the large wireway and convenient thru-wiring.

GASKETS: Extruded closed cell gasket with vulcanized corners form a one-piece gasket system. Gasket is on both the plenum access panel and the door frame to completely seal the enclosure

LENS: Standard Lens is a 3 piece assembly consisting of a clear flat acrylic lens on the room side followed by a linear asymmetric lens and finished with a frost overlay on top. The clear flat room side lens is used to allow an easy to clean surface. The frosted diffusing top layer provides a more evenly illuminated surface. Center lens is an Asymmetric distribution pattern optimized for high visibility within the surgical field. Symmetric lens with inverted pattern available in options.

BIOS LEDS: Provided with BIOS® LED modules that are available in 3 different luminous flux intensities. When Dynamic dimming is specified, a bio dimmer is included with each driver inside the fixture. BIOS® LEDs have been expertly crafted to perform as advertised. Engineered to only include the highest quality components, the LEDs are backed by a limited 5 year warranty. See last page for more information on how BIOS® works.

GREEN LEDs: Optional Green LEDs are designed for reduced eye strain and glare control when using monitors outside the surgical field. When specified, the green LEDs are provided with their own filtered power supply for separate switching.

DRIVERS: Universal voltage (120-277volt). LED drivers are commercially available high efficiency, HPF and dimmable to 1% with 0-10v control. Standard drivers are programmable to match wattage or lumen requirements. Provided with a five (5) year warranty. Each fixture is standard with one RFI filter per circuit specified (see "Circuits" below). Tested to surpass conducted emissions of Mil. Std. 461F. Filter designed specifically for today's high frequency electronic drivers used in surgical and other medical applications. Drivers are programmable to match wattage or lumen requirements.

FINISH: Alesta-AM antimicrobial polyester powder coating using a silver ion antimicrobial process. See option SSP for satin polished stainless steel doors.

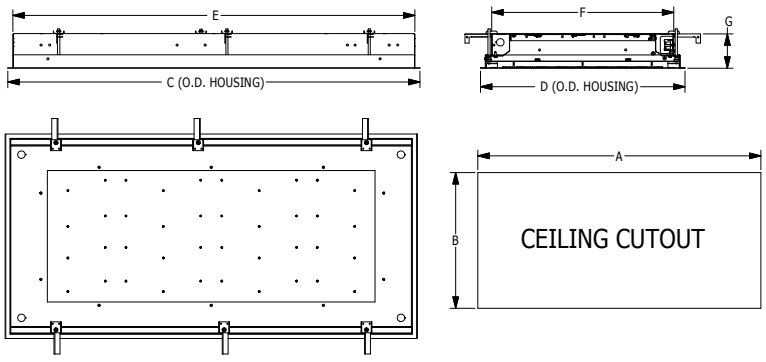
INSTALLATION: Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the room side of the luminaire and the actual toggles can be used as means of establishing a seismic support for lay in ceiling installations.

CRM: Continuous Row Mounting (CRM) option provides a means of securing luminaires to each other end to end in straight rows only. While all recessed luminaries are suitable for thru wiring , the CRM option is only available for Hard lid installation. CRM fixtures come with flanges on 2 of the 4 sides so that the luminaires can mount to each other without the appearance of a larger gap between the two fixtures. Endcaps are factory installed based upon customer provided row configuration information and the Ceiling cutouts can be determined as shown on the CRM installation instructions that can be found on our website.

LISTINGS: ETL Listed per UL-1598 Wet Locations. Suitable for non-IC installation. IP-65 dust and water jet resistance. IBEW Union Label. Military Standard 461F compliant for conducted and radiated emissions. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year

PRODUCT DRAWINGS

PLENUM ACCESS REFERENCE DIMENSIONS							
SIZE	DIM A	DIM B	DIM C	DIM D	DIM E	DIM F	DIM G
2X4	46.90"	22.90"	47.8"	23.70"	46.6"	21.10"	4.00"



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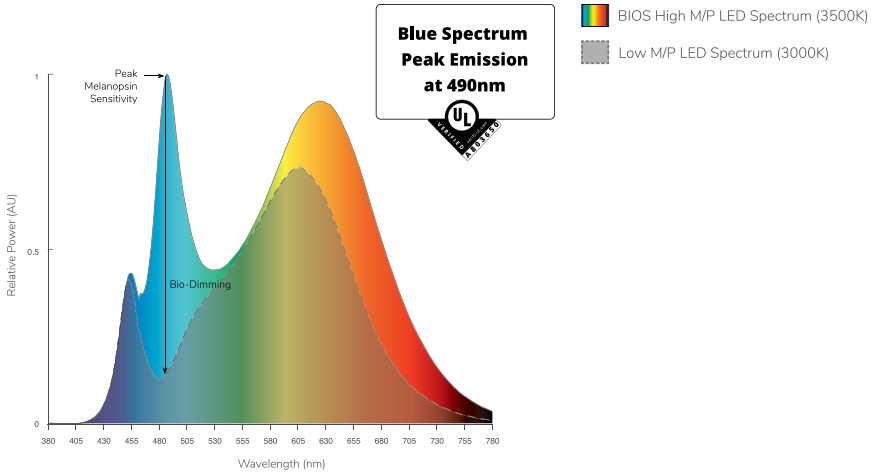
ENERGY DATA

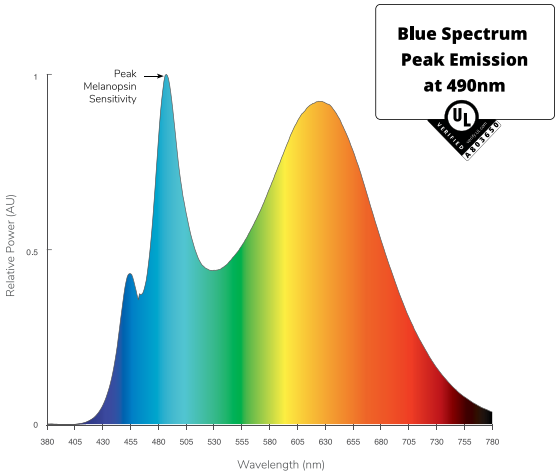
Energy Data Pending

PHOTOMETRICS - DYNAMIC



Dynamic Board Spectral Power Distribution (3500K)

PHOTOMETRICS - STATIC



Static Board Spectral Power Distribution (3500K)

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HOW BIOS® WORKS

Production of melatonin, the hormone that helps us to sleep, is regulated by the ipRGC, a non-visual photoreceptor in the human eye. The wavelength of blue sky light at 490nm, present in sunlight, prevents melatonin production during the day. These signals are crucial in allowing humans to distinguish between day and night, promoting better sleep, health and well-being.

Blue Spectrum Peak Emission at 490nm

DYNAMIC LIGHT ENGINE

The SkyBlue® Dynamic Light Engine automatically calibrates the light level, reducing melanopic lux while keeping photopic lux at a constant. Dynamic light engines are paired with the current sensing smart BIOS® Bio-Dimming module allowing it operate using any single channel CC LED driver, using any dimming interface. Available in 3500K (dim to 3000K), and 4000K (dim to 3500K).

STATIC LIGHT ENGINE

The SkyBlue® Static Spectrum Light Engine delivers the industry's best melanopic-to-photopic (m/p) ratio, with R9 greater than 90 at each color temperature. Easily integrated into existing LED fixtures and compatible with all LED drivers, the SkyBlue® Static Spectrum Light Engine is the ideal replacement for static color light fixtures. Static light engines have the full output of BIOS® SkyBlue® all the time and the peak cannot be adjusted.

DIMMER SETTINGS WITH BIOS® DYNAMIC DIMMING TECHNOLOGY

	DIMMER SETTING	BIOS® SKYBLUE®	LIGHT OUTPUT
	100% (full on)	100%	100%
	99%-51%	100%-0%	100%-90%
	50%	No BIOS®	~90%
	49%-0%	No BIOS®	Linear Dimming

BIOS® SkyBlue® operates at 100% when the light output is at 100%, for maximum circadian impact. As the light is dimmed, BIOS® SkyBlue® dims until 50% is reached when the BIOS® SkyBlue® is no longer present.

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