

Circadian Medical Operating Room Troffers

1x4, 2x2 and 2x4 Surface & Recessed BIOS® LED Luminaires with RF Filtering



- **For use in Operating and Exam Rooms**
- **IP65 Rating**
- **RF filtered circuits standard**
- **Green/white switching available**
- **Asymmetric distribution standard**
- **Antimicrobial 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**



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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	OR: Recessed (Suitable for Flange & Grid)	3: White 430 SS Hsg. & White AM 430 SS Door	1x4: 1' x 4' Housing	1	LED-XBL1	835BIOS-DY	(optional)	120V	IND Individual	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
		4: White Alum Hsg. & White AM 430 SS Door	NOTE: Only a total of 3 combined rows of leds can be specified.	2	LED-XBL2	840BIOS-DY	1/GLED	277V		
				LED-XBL3	835BIOS-ST	2/GLED	UNV			
				840BIOS-ST	Green LED's are provided with a dedicated RF Filtered circuit.					
	OS: Surface	5: White Alum Hsg. & White AM Alum Door	2x2: 2' x 2' Housing OR 2x4: 2' x 4' Housing NOTE: Only a total of 5 combined rows of leds can be specified.	1	LED-XBL1	835BIOS-DY	CRM Continuous Row Mount CRM suitable for hardlid ceilings only.			
		7: White Alum Hsg. & White AM CRS Door		2	LED-XBL2	840BIOS-DY				
				3	LED-XBL3	835BIOS-ST				
				4	840BIOS-ST					
									PxL: Programmed to User Specified Lumen Value. PxW: Programmed to User Specified Wattage Value. GTD: Generator Transfer Device WHIP: Must Specify Length and Wire Qty 10KV: 10KV Parallel Surge Protection	

Notes:

BIOS-DY - Dynamic dimming module BIOS-ST - Static dimming module

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SPECIFICATIONS

HOUSING: One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Recessed housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel. Optional row mounting available must specify in options

DOOR FRAME: One-Piece Inset door frame regresses into the housing to allow the 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 Aluminum, 20Ga 430 Stainless Steel, or 20Ga 1008 CRS.

GASKETS: Closed microcellular Nitrile gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system.

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.

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.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1% for most LED configurations. They come with at least 2.5Kv surge protection, have less than 10% THD at max load, Ballast Factor Greater than .95 and are programmable to match specific lumen or wattage requirements. Multiple internal circuits are available for scene settings, each specified circuit is provided with an RFI filter that is tested to meet MIL-STD-461. Fixtures available with 10w 90min Emergency battery backups and surge protection. Consult factory for additional options not listed.

ELECTRICAL: Multiple internal circuits are available for scene settings, each specified circuit is provided with an RFI filter that is tested to meet MIL-STD-461. Fixtures available with 10w 90min Emergency battery backups and surge protection. Consult factory for additional options not listed.

REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

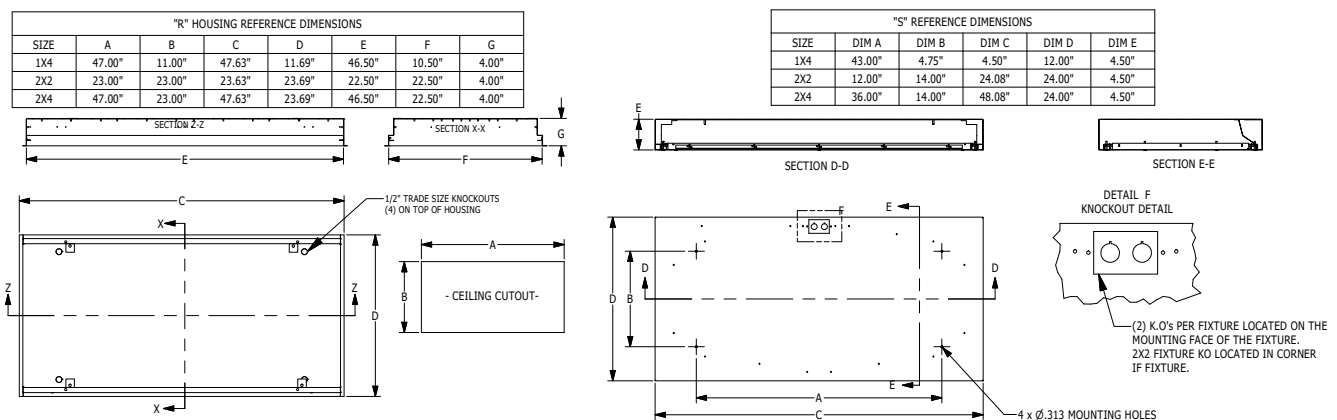
INSTALLATION: Fixtures are supplied with .875" flattened knockouts for supply entry. Recessed housings have (4) swing out toggle arms that are used to draw the fixture in to the ceiling for hard lid installation without the need for a yoke hanger. The toggle arm adjuster bolts are accessible from the 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 luminaires 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.

DOOR FINISH: White Dupont Alesta using Agion silver ion antimicrobial powder coat finish standard. See options for polished stainless steel.

LISTINGS: Military Standard 461F compliant for conducted and radiated emissions. IP65 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 5 through class 9 cleanspaces. Certified Fed Std 209E for Class 100 through Class 100,000 cleanspaces. NSF2 listed for non-food & splash zones. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty.

PRODUCT DRAWINGS



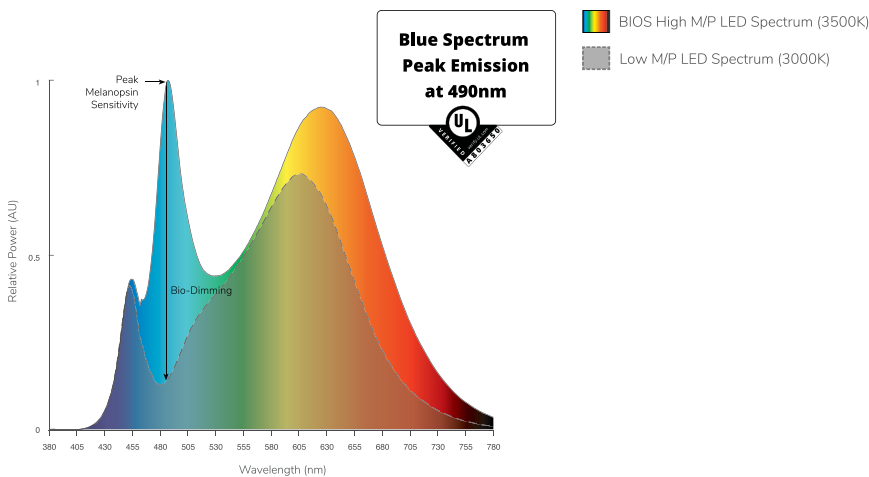
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ENERGY DATA

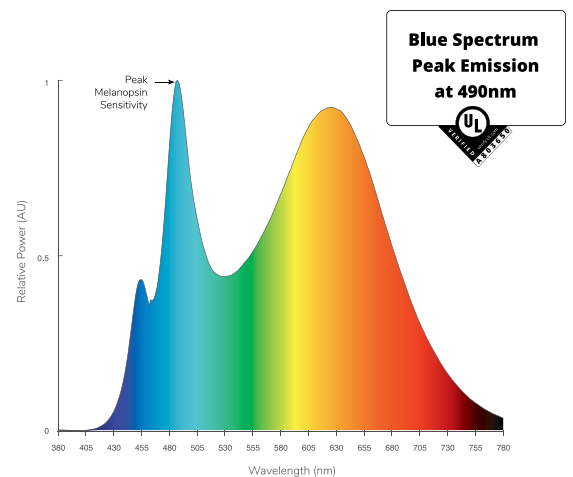
Energy Data Pending

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.