

# Surgical/Medical ML-FGPA Series: ML-FGPA-LED-TW

Tunable White 2x4 Plenum Access LED Recessed 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
- B.A.A. & B.A.B.A Compliant & Made in the USA by a Family Owned US Corporation
- Available as Warm Dim or as Separately controlled intensity and CCT
- Tunable white LEDs allow a full range of CCTS from 2700K - 6500K CCT



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## ORDERING GUIDE

Series	Material	Size	Row Qty.	LED Type	CCT/CRI	Control	Circuits	Green LED	Voltage	Mounting	Optics	Options
ML-FGPA		2x4		LEDTW								
Series	Material	Size	Light Source			Control	Circuits (white)	Green LED	Voltage	Mounting	Optics	
			Row Qty.	LED Type	CCT/CRI							
ML-FGPA	4 White Alum Hsg. & White AM 430 SS Door	2x4 2x4 Housing	2	LEDTW	80 CRI:	10VA	1/CIR	(optional)	120V	IND	SYM P12 Prismatic Lens With Embedded RF Grid	
			3		827/865 2700K-6500K		2/CIR	1/GLED	277V		ASY Diffusing Optics Assembly With Linear Prismatic Asymmetric Distribution	
	5 White Alum Hsg. & White AM Alum Door		4		90+ CRI:	10VWD		2/GLED	UNV	CRM	FROST 0.125" Flat Diffusing Frost Acrylic (No RFI Grid)	
	7 White Alum Hsg. & White AM CRS Door				927/965 2700K-6500K			3/GLED			LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution (No RFI Grid)	
											GH85 0.125" Flat Diffused Acrylic with Glare Suppression Distribution (No RFI Grid)	
											AB20 0.125" Flat Diffused 20 Degree Asymmetric Distribution (No RFI Grid)	
											Note: ASY option is standard and will be provided when no other option is selected	
											CRM suitable for hardid ceilings only	

Ordering Notes, If Applicable

Options	
FC	Fuse & Holder (One Supplied Per Circuit)
EM10	10W Integral LED EM (Specify Input Voltage)
EM20	20W Remote LED EM (Specify Input Voltage)
SSP	Satin Polished Stainless Steel Doorframe
GG	1/8" Thick Grid Gasket (Provided Loose)
PxL *	Programmed to User Specified Lumen Value.
PxW *	Programmed to User Specified Wattage Value.
10KV	10KV Parallel Surge Protection (One Supplied Per Circuit)
GTD	Generator Transfer Device
WHIP	Must Specify Length and Wire Qty

Note\*: Specify Value in Ordering Notes Below

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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. GG option provides a loose 1/8" thick adhesive backed gasket intended to adhere to the top face of a suspended grid ceiling for grid profiles that do not already have gasket on them.

**OPTICS:** Standard ASY 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 and is provided with a silkscreened RF grid to absorb radiated emissions. Symmetric lens with inverted pattern and other optics are also available.

**WHITE LEDs:** Commercially available minimum 80 or 90 CRI 2 channel LED modules use 2700K and 6500K chips to mix color in order to achieve a desired color temperature. Modules have rated lifetime of L70 > 50,000 hrs and efficacy of 165Lm/W . LEDs are controllable via 0-10v dimming, see next page for control options. Consult factory for lumen output configurations not listed on spec sheets.

**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 LED's 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. 461G. Filter designed specifically for today's high frequency electronic drivers used in surgical and other medical applications.

**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.

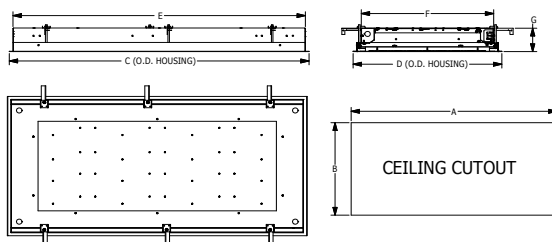
**FINISH:** Alesta-AM antimicrobial polyester powder coating using a silver ion antimicrobial process. See option SSP for satin polished stainless steel doors.

**INSTALLATION:** Suitable for recessed Non-IC installation into covered ceilings. 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.

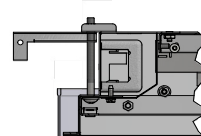
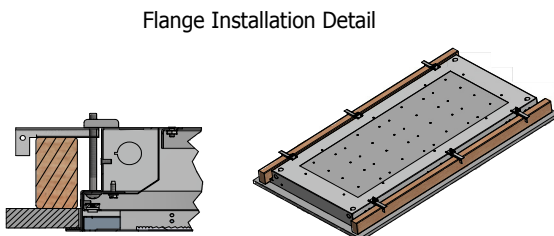
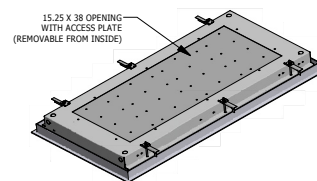
**LISTINGS:** Military Standard 461G compliant for conducted and radiated emissions. IP65 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosesdowns. ETL listed per UL\_1598 for wet locations. Chicago Plenum Rated. Certified ISO-14644-1 for class 5 through class 9 cleanspaces. Certified 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. This product Series is both Build America Buy America (B.A.B.A.) & Buy American Act (B.A.A.) compliant.

## PRODUCT DRAWINGS

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



Grid Installation Detail



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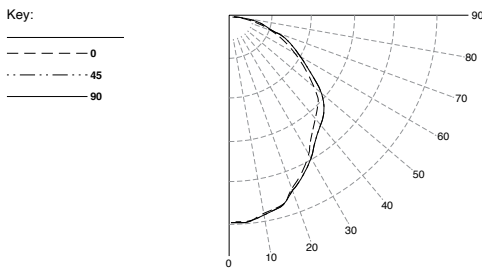
## ENERGY DATA

MEDICAL PLENUM ACCESS TROFFER (APPROX <sup>1</sup> LUMENS DELIVERED)							
ENCLOSURE SIZE	LIGHT PACKAGE	Tunable White 80 CRI (4000K)			AMBIENT TEMP		CCT RANGE
		ASY	SYM	WATTS <sup>2</sup>	MINIMUM	MAXIMUM <sup>4</sup>	
2X4	2LEDTW	6,800	7,600	68	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X4	3LEDTW	10,250	11,450	103	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X4	4LEDTW	13,650	14,900	135	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X4	EM10	VARIES	VARIES	4	0°C (32°F)	40°C (104°F)	NA
2X4	1GLED540	2500	3000	36	-20°C (-4°F)	40°C (104°F)	540nm
2X4	2GLED540	5000	6000	72	-20°C (-4°F)	40°C (104°F)	540nm
2X4	3GLED540	7500	9000	108	-20°C (-4°F)	40°C (104°F)	540nm

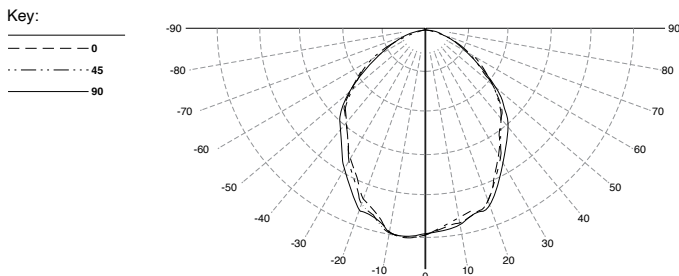
- 1 DELIVERED LUMEN DATA IS CALCULATED BASED ON STATIC WHITE PHOTOMETRY @ 4000K CCT
- 2 WATTAGE IS MEASURED WITH 4000K SELECTION @ 120vAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS
- 3 EFFICACY CALCULATED USING 4000K CCT DATA.
- 4 MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON STANDARD SELECTION
- 5 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.
- 6 EM10 DELIVERED LUMENS = (DELIVERED LUMENS/LUMINAIRE WATTS)\*10
- 7 EM20 DELIVERED LUMENS = (DELIVERED LUMENS/LUMINAIRE WATTS)\*20

## PHOTOMETRICS

### SYMMETRIC

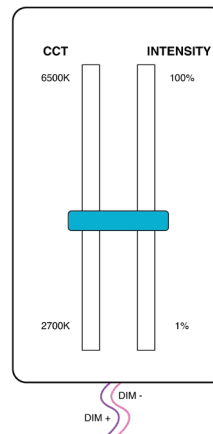


### ASYMMETRIC



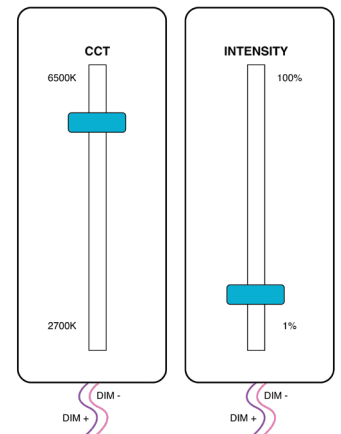
## CONTROL OPTIONS

### WARM DIM CONTROL



Only one set of dimming Leads are required. As Intensity is Increased so is the CCT. As intensity decreases the CCT decreases to warmer color Temperatures.

### CONTINUOUS CCT CONTROL



Two set of dimming leads are required. Intensity and CCT of light are controlled independently from one another.