

# Medical Exam Room Troffers: ML-ES-LED-TW

Tunable White 1x4, 2x2 and 2x4 High Lumen LED Surface Luminaires with RF Filtering



- For use in Medical Patient and Exam Rooms
- IP55 Rating
- RF filtered circuits standard
- Symmetric distribution standard
- Antimicrobial 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	
<b>ML-ES</b>				<b>LEDTW</b>					<b>UNV</b>	<b>IND</b>			
ML-ES	White 430 SS Hsg. & White AM 430 SS Door	1x4 1' x 4' Housing	1	LEDTW	80 CRI:	10VA 0-10V Analog Control	1/CIR	(optional)	UNV	IND	SYM	P12 Prismatic Lens	
			2		827/865 2700K-6500K		2/CIR	1/GLED			ASV	Diffusing Optics with Asymmetric Distribution	
ML-ES	White Alum Hsg. & White AM 430 SS Door	2x2 2' x 2' Housing	2	LEDTW	90+ CRI:	10VWD 0-10V Warm Dim Control	2/GLED					FROST	0.125" Flat Diffusing Frost Acrylic
			OR		927/965 2700K-6500K		3/GLED					LBW	0.125" Flat Diffused Acrylic with Linear Batwing Distribution
ML-ES	White Alum Hsg. & White AM Alum Door	2x4 2' x 4' Housing	3	LEDTW			Specify Qty of RF Filtered Circuits for White Light					GH85	0.125" Flat Diffused Acrylic with Glare Suppression Distribution
			4										AB20

Note\*: SYM option is standard and will be provided when no other option is selected

Ordering Notes, If Applicable

Options	
SW	Wet Location Hub Supplied (not installed)
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
OCCMW	Internal Microwave OCC Sensor
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
PMB**	Pendant Mounting Bracket (Material & Finish to Match Housing)

Note\*: Specify Value in Ordering Notes Below  
Note\*\*: Provided Loose for Field Install

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## SPECIFICATIONS

**HOUSING:** One piece, hole free, robotically seam welded housing has flattened knockouts for a superior seal. Surface housings are available in .040" 3003 Aluminum or 20Ga 430 Stainless Steel.

**DOOR FRAME:** Inset door frame made from welded channels regresses into the housing to allow the neoprene 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 or 20Ga 430 Stainless steel

**GASKETS:** Closed cell 100% pure neoprene gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system. Four .312" dia. mounting holes and a removable gasketed wiring access plate with Supply entry via 1/2" trade size flattened knockouts..

**OPTICS:** Standard SYM lens provided is a 12 Prismatic Acrylic Lens. ASY Lens option is a 2 piece assembly consisting of a clear flat acrylic lens on the room side followed by a microprismatic asymmetric pattern lens. Asymmetric distribution pattern optimized for high visibility within the surgical field. The clear flat room side lens for both SYM & ASY options is used to allow an easy to clean surface. RF filtering is also available in options.

**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.

**ELECTRICAL:** 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. Fixtures available with 10w 90min Emergency battery backup and surge protection. Consult factory for additional options not listed.

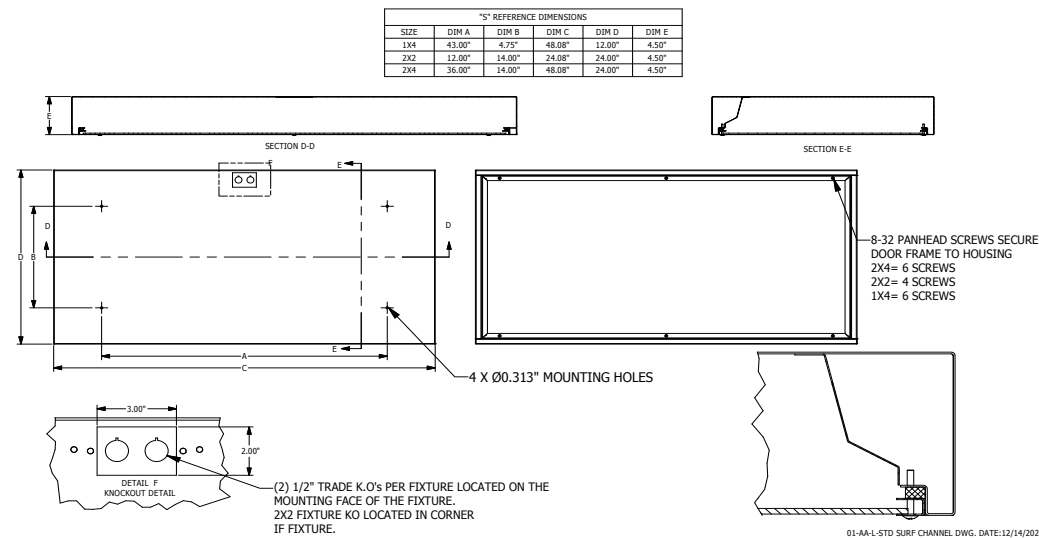
**REFLECTOR:** Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

**INSTALLATION:** Fixtures are supplied with .875" flattened knockouts for supply entry. Suitable for surface installation onto covered ceilings only.

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

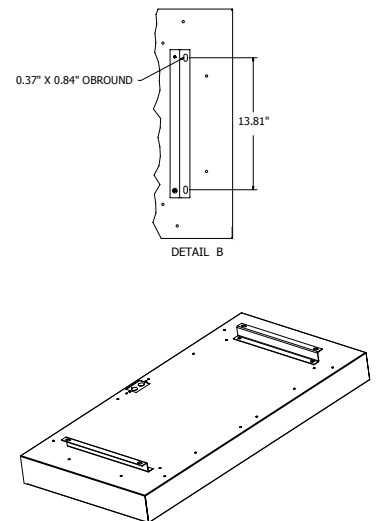
**LISTINGS:** IP55 rated for dust and water ingress. ETL listed per UL\_1598 for wet locations. Certified ISO-14644-1 for class 5 through class 9 cleanspaces. Certified Fed Std 209E for Class 100 through Class 100,000 cleanspaces. NSF2 listed for non-food & splash zones. Drivers and LEDs are covered 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



## MOUNTING

### PMB - Pendant Option



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## ENERGY DATA

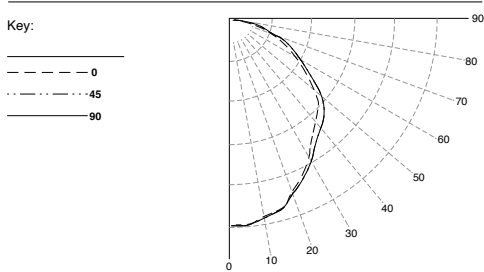
MEDICAL SYMMETRIC LED TROFFER (APPROX <sup>1</sup> LUMENS DELIVERED)							
ENCLOSURE SIZE	LIGHT PACKAGE	Tunable White 80 CRI (4000K)			AMBIENT TEMP		CCT RANGE
		LUMENS	WATTS <sup>2</sup>	EFFICACY <sup>3</sup>	MINIMUM	MAXIMUM <sup>4</sup>	
1X4	1LEDTW	3,400	34	100	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
1X4	2LEDTW	6,900	68	101	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
1X4	EM10	1000*	4	NA	0°C (32°F)	40°C (104°F)	NA
2X2	2LEDTW	3,500	35	100	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X2	3LEDTW	5,300	53	100	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X2	4LEDTW	6,650	68	98	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X2	EM10	1000*	4	NA	0°C (32°F)	40°C (104°F)	NA
2X4	2LEDTW	7,750	68	114	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X4	3LEDTW	11,700	103	114	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X4	4LEDTW	15,200	135	113	-20°C (-4°F)	40°C (104°F)	2700k - 6500k
2X4	EM10	1100*	4	NA	0°C (32°F)	40°C (104°F)	NA

- 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

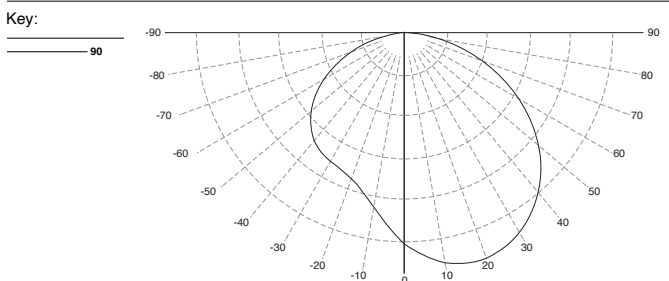
MEDICAL SYMMETRIC CHANNEL-FGRS-LED TROFFER (APPROX <sup>1</sup> LUMENS DELIVERED)					
ENCLOSURE SIZE	LIGHT PACKAGE	STANDARD DIMMING	540nm GREELED LED		
			LUMENS	WATTS <sup>2</sup>	EFFICACY <sup>3</sup>
1X4	1GLED	0-10V 1%	2,500	36	69
1X4	2GLED	0-10V 1%	5,000	72	69
2X2	1GLED	0-10V 1%	1,200	18	67
2X2	2GLED	0-10V 1%	2,400	36	67
2X4	1GLED	0-10V 1%	2,500	36	69
2X4	2GLED	0-10V 1%	5,000	72	69

## PHOTOMETRICS

### SYMMETRIC DISTRIBUTION

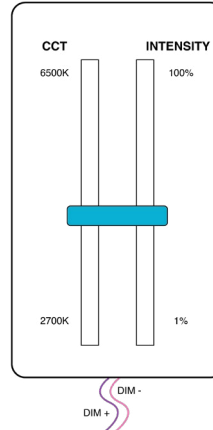


### ASYMMETRIC



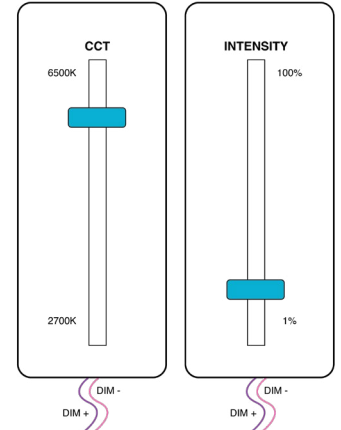
## CONTROL OPTIONS

### 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.