

# Cleanroom KL-S Vivarium Troffers: KL-S-LED-VIVARIUM-TW

1x4, 2x2 and 2x4 Red/White LED Surface Luminaires

- **Rated IP66**
- **Suitable for ISO 3-9 Cleanspaces**
- **Suitable for 209E Class 1-100,000 Cleanspaces**
- **ETL listed for Wet Locations**
- **One piece overlapping doorframe**
- **Robotically seam welded housing**
- **0-10v 1% Dimming Standard for most configurations.**
- **Narrow Spectrum 630nm, 660nm, and 735nm red non-filtered LEDs**
- **White / Red separately controlled circuits**
- **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.	Red LED Wavelength	Row Qty.	White LED	CCT/CRI	Control	Voltage	Optics	Options
<b>KL-S</b>						<b>LEDTW</b>					
Series	Material	Size	Light Source				Control	Voltage	Optics		
			Row Qty.	Red LED Wavelength	Row Qty.	White LED					
KL-S	1 White CRS Hsg. & White CRS Door	1x4 1' x 4' Housing	1	RLED630	1	LEDTW	80 CRI:	10VA 0-10V Analog Control	120V	P12ACR 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)	
		3 LED Rows Max	2	RLED660	2	827/865 2700K-6500K	277V			LEX 0.125" P12 Prismatic Polycarbonate (Inverted)	
	2 White CRS Hsg. & Polished 304 SS Door	2x2 2' x 2' Housing	2	RLED735	2	90+ CRI:	10VWD 0-10V Warm Dim Control	UNV	A19 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)		
	3 Polished 304 SS Hsg. & Polished 304 SS Door		OR	3	2				TG 0.156" Prismatic Tempered Glass (Inverted)		
	4 White AL Hsg. & Polished 304 SS Door	5 LED Rows Max	4	3	2	927/965 2700K-6500K	HIA 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)				
	5 White AL Hsg. & White AL Door		4	3	3	FROST 0.125" Flat Diffusing Frost Acrylic					
	6 White CRS Hsg. & White AL Door		2DBW 0.125" Flat Diffused Acrylic with Bi-Directional Batwing Distribution								
7 White AL Hsg. & White CRS Door	LBW 0.125" Flat Diffused Acrylic with Linear Batwing Distribution										
<p>GH85 0.125" Flat Diffused Acrylic with Glare Suppression Distribution</p> <p>NOTE: P12ACR option is standard and will be provided when no other option is selected</p>											
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)									
EDL		-40F Electronic Driver									
WHT		White Finished Door & HSG									
AMW		Anti-Microbial White Powdercoat									
2/EDR		Two Circuits of Red Light									
2/EDW		Two Circuits of White Light									
316SS DOOR **		316 Stainless Steel Door Frame									
316SS HSG ***		316 Stainless Steel Housing									
PMB ****		Pendant Mounting Bracket (Material & Finish to Match Housing)									

Ordering Notes, If Applicable

Note\*: Specify Value in Ordering Notes  
 Note\*\*: 316 SS Door Frame to Replace 304SS Door on Material Options 3 or 4  
 Note\*\*\*: 316 SS Housing to Replace 304SS/430 SS Housing on Material Option 3  
 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. Housings are available in .050" 3003 Aluminum, 18Ga 304 Stainless Steel, or 20Ga Cold Rolled Steel.

**DOOR FRAME:** One piece door frame with welded corners overlaps the fixture allowing the NSF approved microcellular gasket to seal to the housing. Door frame is hinged by aircraft cables and is supplied with captive stainless steel flush head screws to allow easy wiping of the surface. Available in .050" 3003 Powder coated Alum., 20Ga 304 Polished SS, or 18Ga Powder coated CRS.

**GASKETS:** NSF Listed closed cell microcellular extruded KleanLock SealPro gasket with vulcanized corners making a one-piece oil and solvent resistant gasket system.

**OPTICS:** Standard P12 prismatic acrylic lens is provided when no other options are selected. All prismatic lensing options come with an inverted lens so the smooth side faces the room for easy cleaning. All optics are sealed to the door with NSF listed RTV silicone sealant. Other optics are available, consult factory for more information or options not listed.

**LEDS:** Fixture available with Red only or Red & White LEDs, each color will be supplied with its own driver for dual switching. Red LED's provide a narrow 630nm, 660nm, or 735nm spectrum light for wavelength sensitive applications. White high efficiency LEDs are commercially available minimum 80 or 90 CRI 2 channel LED modules and 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.. All boards have Zhaga recognized hole patterns and come with a 5 year warranty.

**DRIVERS:** Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1%, and rated -20C (-4F). 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. Drivers with higher input voltage ratings are available, consult factory for driver specifications. (each color LED comes standard with its own driver)

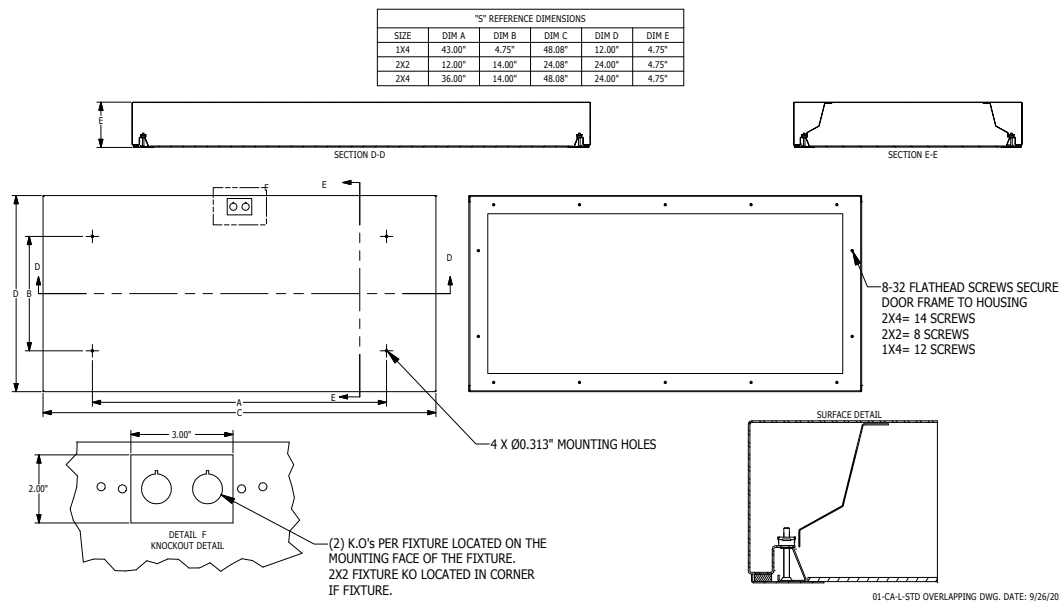
**REFLECTOR:** Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

**INSTALLATION:** Four .312" dia. mounting holes and a removable gasketed wiring access plate with Supply entry via 1/2" trade size flattened knockouts. Suitable for surface installation onto covered ceilings only.

**FINISH:** Stainless steel door frames & housings are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powder coat with 1000hr salt spray test per ASTM B117. AMW option provides a white anti-microbial polyester powder coat to all exposed surfaces.

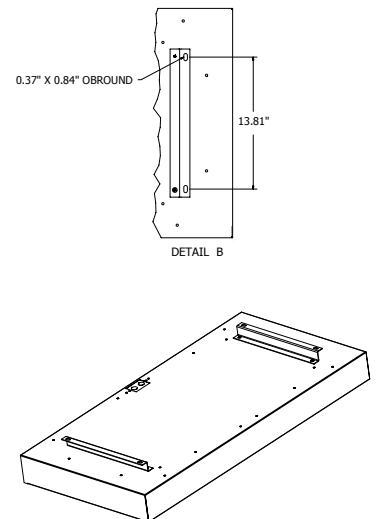
**LISTINGS:** IP66 rated for dust and water ingress. Suitable for 1700 PSI high pressure hosedowns. ETL listed per UL\_1598 for wet locations. Certified ISO-14644-1 for class 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. NSF2 Listed for non-food & 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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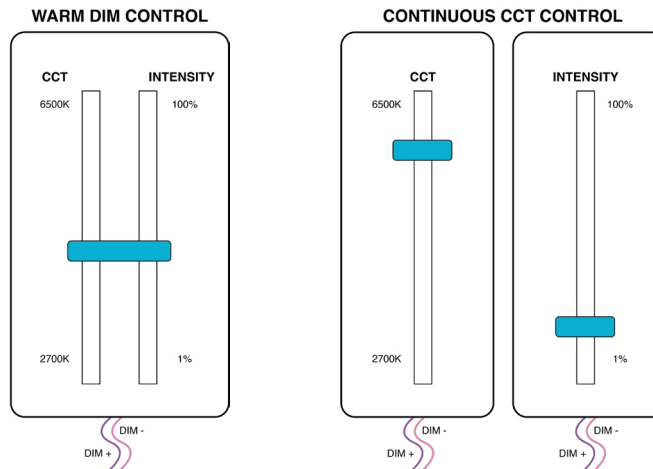
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## ENERGY DATA - WHITE LED

OVERLAP-FGRS-RED LED TROFFER						
ENCLOSURE SIZE	LED SELECTION	80 CRI (3000K - 5000K)			AMBIENT TEMP RATING	
		LUMENS	WATTS	EFFICACY	MAXIMUM <sup>3</sup>	CCT RANGE
1X4	1LEDTW	3,450	34	101	40°C (104°F)	2700k - 6500k
1X4	2LEDTW	7,050	68	104	40°C (104°F)	2700k - 6500k
2x2	1LEDTW	1,900	18	106	40°C (104°F)	2700k - 6500k
2x2	2LEDTW	3,750	35	107	40°C (104°F)	2700k - 6500k
2x2	3LEDTW	5,650	53	107	40°C (104°F)	2700k - 6500k
2X2	4LEDTW	7,550	68	111	40°C (104°F)	2700k - 6500k
2X4	1LEDTW	3,900	34	115	40°C (104°F)	2700k - 6500k
2X4	2LEDTW	7,800	68	115	40°C (104°F)	2700k - 6500k
2X4	3LEDTW	11,700	103	114	40°C (104°F)	2700k - 6500k
2X4	4LEDTW	15,600	135	116	40°C (104°F)	2700k - 6500k

- 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

## CONTROL OPTIONS



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.

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

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## ENERGY DATA - COLOR LED

OVERLAP-FGRS-RED LED TROFFER								
ENCLOSURE SIZE	LED SELECTION	630nm (RED)			660nm (RED)			AMBIENT TEMP RATING
		LUMENS	WATTS	EFFICACY	LUMENS	WATTS	EFFICACY	MAXIMUM <sup>3</sup>
1X4	1RLED	1,122	27	42	1,202	44.5	27	40°C (104°F)
1X4	2RLED	2,068	53	39	2,405	88.9	27	40°C (104°F)
2X2	1RLED	549	14	39	593	22.2	26.7	40°C (104°F)
2X2	2RLED	1,011	27	37	1,185	44.5	26.7	40°C (104°F)
2X2	3RLED	1,560	51	31	1,778	66.7	26.7	40°C (104°F)
2X2	4RLED	2,022	53	38	2,371	88.9	26.7	40°C (104°F)
2X4	1RLED	1,247	27	46	1,281	44.5	28.8	40°C (104°F)
2X4	2RLED	2,298	53	43	2,562	89	28.8	40°C (104°F)
2X4	3RLED	3,545	80	44	3,844	133.5	28.8	40°C (104°F)
2X4	4RLED	4,596	106	43	5,125	178	28.8	40°C (104°F)

\* View previous page for energy data notes.

NOTE: 735nm Far Red light is measured in radiometric power since the wavelengths are so close to the human non-visible light spectrums. Each module of 735nm LEDs generates ≈ 7,000 mW of radiometric power.

## COLOR LED RELATIVE DISTRIBUTION

