

# Cleanroom KL Vivarium Troffers

1x4, 2x2 and 2x4 Red/White LED 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**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **Made in the USA by a Family Owned US Corporation**



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## ORDERING GUIDE

Series	Installation Type	Material	Size	Red LED	Wavelength (nm)	White LED	CCT (White LED)	Voltage	Options
<b>KL</b>	<b>R: Recessed</b> (Suitable for Flange & Grid Installation)	3: White 430 SS Hsg. & Polished 304 SS Door 4: White AL Hsg. & Polished 304 SS Door 5: White AL Hsg. & White AL Door 7: White AL Hsg. & White CRS Door	1x4: 1' x 4' Housing <b>MAX 3 Arrays Total</b> (2 Max Per Color)	1/RLED 2/RLED	630: 630nm 660: 660nm 735: 735nm	1/LEDR 1/LEDH 1/LEDHF	83 CRI: 830 = 3000K CCT 835 = 3500K CCT 840 = 4000K CCT 850 = 5000K CCT	120V 277V UNV 347V*	FC: Fuse & Holder (One Supplied Per Circuit) 2/EDW: Two Circuits of White Light 2/EDR: Two Circuits of Red Light EDL: -40F Electronic Driver EM10: 10W Integral LED EM (Specify Input Voltage) EM20: 20W Remote LED EM (Specify Input Voltage) WHT: White Finished Door & HSG LEX: .125" Prismatic Polycarbonate A19: .156" Prismatic P19 Pattern Clear Acrylic HIA: .140" High Impact P12 Pattern Clear Acrylic TG: .156" Prismatic Tempered Glass 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 .125 FROST: 1/8" Frost Acrylic Lens HF1: 1% Dimming for 2x2 with LEDHF OCCMW: Internal microwave OCC Sensor
	<b>S: Surface</b>	1: White CRS Hsg. & White CRS Door 2: White CRS Hsg. & Polished 304 SS Door 3: Polished 304 SS Hsg. & Polished 304 SS Door 4: White AL Hsg. & Polished 304 SS Door 5: White AL Hsg. & White AL Door 6: White CRS Hsg. & White AL Door 7: White AL Hsg. & White CRS Door	1x4: 1' x 4' Housing <b>MAX 2 Arrays Total</b>	1/RLED 2/RLED	630: 630nm 660: 660nm 735: 735nm	1/LEDR 1/LEDH 1/LEDHF	90+ CRI: 935 = 3500K CCT 940 = 4000K CCT 950 = 5000K CCT		
			2x2: 2' x 2' Housing <b>MAX 4 Arrays Total</b> OR 2x4: 2' x 4' Housing <b>MAX 4 Arrays Total</b>	1/RLED 2/RLED 3/RLED 4/RLED	630: 630nm 660: 660nm 735: 735nm	1/LEDR 1/LEDH 1/LEDHF 2/LEDR 2/LEDH 2/LEDHF 3/LEDR 3/LEDH 3/LEDHF			
			2x2: 2' x 2' Housing <b>MAX 4 Arrays Total</b> OR 2x4: 2' x 4' Housing <b>MAX 4 Arrays Total</b>	1/RLED 2/RLED 3/RLED 4/RLED	630: 630nm 660: 660nm 735: 735nm	1/LEDR 1/LEDH 1/LEDHF 2/LEDR 2/LEDH 2/LEDHF 3/LEDR 3/LEDH 3/LEDHF			

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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. Surface housings are available in .040" 3003 Aluminum, 20Ga 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 mounting surface. 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 .040" 3003 Powder coated Alum. , 20Ga 304 Polished SS, or 18Ga 1008 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.

**LENS:** Impact resistant .135" thick virgin acrylic with P12 prismatic pattern inverted. Sealed to door with NSF listed RTV silicone. See "Options" for other choices.

**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 & available in a wide variety of CRI and CCT. 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% 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. 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%.

**INSTALL RECESSED:** One fixture suitable for Grid and Flanged installation. Accommodates 1" and 1.5" T-Bar Grid (Consult factory for 2" T-Bar Grid compatibility). Four adjustable toggle arms with holes for seismic support wire attachment. Supply entry via 1/2" trade size flattened knockouts.

**INSTALL SURFACE:** Four .312" dia. mounting holes and a removable gasketed wiring access plate with Supply entry via 1/2" trade size flattened knockouts.

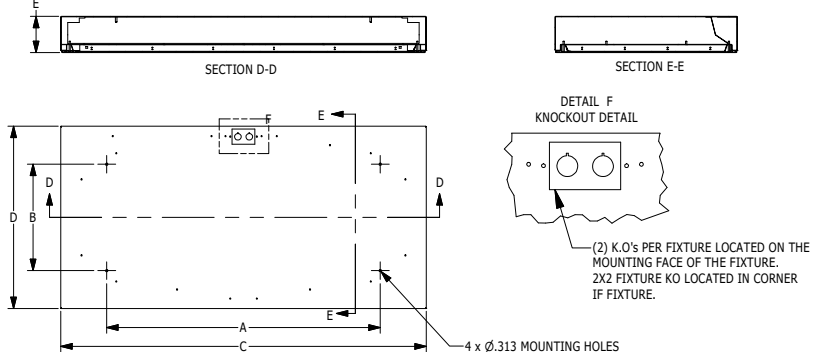
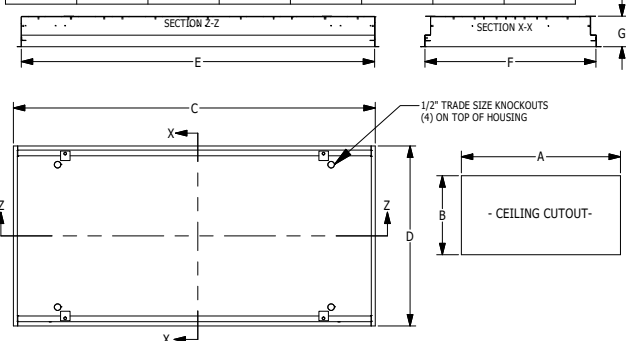
**FINISH:** Gloss white high reflectance 1000 hr. salt spray polyester powder coat finish standard for all recessed housings. Stainless steel doorframes and surface housings are satin polished unless option WHT is chosen.

**LISTINGS:** IP66 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 3 through class 9 cleanspaces. Certified Fed Std 209E for Class 1 through Class 100,000 cleanspaces. Drivers and LEDs are covered by a 5 year warranty, the remaining fixture is covered by a 10 year warranty.

## PRODUCT DRAWINGS

"R" HOUSING REFERENCE DIMENSIONS						
SIZE	A	B	C	D	E	F
1X4	47.00"	11.00"	47.63"	11.69"	46.50"	10.50"
2X2	23.00"	23.00"	23.63"	23.69"	22.50"	22.50"
2X4	47.00"	23.00"	47.63"	23.69"	46.50"	22.50"

"S" REFERENCE DIMENSIONS					
SIZE	DIM A	DIM B	DIM C	DIM D	DIM E
1X4	43.00"	4.75"	48.08"	12.00"	4.75"
2X2	12.00"	14.00"	24.08"	24.00"	4.75"
2X4	36.00"	14.00"	48.08"	24.00"	4.75"



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## ENERGY DATA - WHITE LED

OVERLAP-FGRS-RED LED TROFFER										
ENCLOSURE SIZE	LED SELECTION	DIMMING	83 CRI			90+ CRI			AMBIENT TEMP RATING	
			LUMENS	WATTS	EFFICACY	LUMENS	WATTS	EFFICACY	MINIMUM	MAXIMUM <sup>3</sup>
1x4	1LEDR	0-10V 1%	4,100	37	110	2,880	34	85	-20°C (-4°F)	40°C (104°F)
1x4	1LEDH	0-10V 1%	6,700	51	131	6,200	74	84	-20°C (-4°F)	40°C (104°F)
1x4	1LEDHF	0-10V 1%	7,800	83	94	7,773	91	85	-20°C (-4°F)	40°C (104°F)
2x2	1LEDR	0-10V 1%	2,220	19	117	1,370	17	81	-20°C (-4°F)	40°C (104°F)
2x2	1LEDH	0-10V 1%	3,240	27	120	2,600	37	70	-20°C (-4°F)	40°C (104°F)
2x2	1LEDHF	<b>0-10V 5%</b>	4,750	43	110	4,106	46	89	-20°C (-4°F)	40°C (104°F)
2x2	2LEDR	0-10V 1%	4,450	37.4	119	2,746	32	86	-20°C (-4°F)	40°C (104°F)
2x2	2LEDH	0-10V 1%	6,500	51	127	5,251	73	72	-20°C (-4°F)	40°C (104°F)
2x2	2LEDHF	<b>0-10V 5%</b>	9,500	86	110	8,212	92	89	-20°C (-4°F)	40°C (104°F)
2x2	3LEDR	0-10V 1%	6,670	55.2	121	4,182	48	87	-20°C (-4°F)	40°C (104°F)
2x2	3LEDH	0-10V 1%	9,880	76.9	129	8,343	110	76	-20°C (-4°F)	40°C (104°F)
2x2	3LEDHF	<b>0-10V 5%</b>	14,250	129	110	12,319	138	89	-20°C (-4°F)	40°C (104°F)
2x4	1LEDR	0-10V 1%	4,590	38	121	3,200	32	100	-20°C (-4°F)	40°C (104°F)
2x4	1LEDH	0-10V 1%	7,030	51	137	6,500	75	87	-20°C (-4°F)	40°C (104°F)
2x4	1LEDHF	0-10V 1%	9,000	70	129	8,872	93	95	-20°C (-4°F)	40°C (104°F)
2x4	2LEDR	0-10V 1%	9,180	74	124	6,528	62	105	-20°C (-4°F)	40°C (104°F)
2x4	2LEDH	0-10V 1%	14,340	103	139	12,949	148	87	-20°C (-4°F)	40°C (104°F)
2x4	2LEDHF	0-10V 1%	18,000	140	129	17,744	187	95	-20°C (-4°F)	40°C (104°F)
2x4	3LEDR	0-10V 1%	13,770	111	124	9,797	94	104	-20°C (-4°F)	40°C (104°F)
2x4	3LEDH	0-10V 1%	21,060	153	138	19,549	221	88	-20°C (-4°F)	40°C (104°F)
2x4	3LEDHF	0-10V 1%	27,000	210	129	26,616	280	95	-20°C (-4°F)	40°C (104°F)

<sup>1</sup> DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OTHER SELECTIONS ARE MADE

<sup>2</sup> WATTAGE IS MEASURED WITH LED 840 SELECTION @ 120VAC AND Tambient = 25C. WATTAGES WILL VARY AND INCREASE WHEN ALTERNATE OPTIONS ARE SELECTED

<sup>3</sup> MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING IS WITH NO OTHER OPTIONS SELECTED. WHITE LEDS ONLY SUITABLE FOR 40C AMBIENT

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## ENERGY DATA - COLOR LED

CHANNEL-FGRS-RED LED TROFFER										
ENCLOSURE SIZE	LED SELECTION	DIMMING	630nm (RED)			660nm (RED)			AMBIENT TEMP RATING	
			LUMENS	WATTS	EFFICACY	LUMENS	WATTS	EFFICACY	MINIMUM	MAXIMUM <sup>3</sup>
1X4	1RLED	0-10V 1%	1,122	27	42	1,167	44.5	26.2	-20°C (-4°F)	40°C (104°F)
1X4	2RLED	0-10V 1%	2,068	53	39	2,320	88.9	26.1	-20°C (-4°F)	40°C (104°F)
2X2	1RLED	0-10V 1%	549	14	39	567	22.2	25.5	-20°C (-4°F)	40°C (104°F)
2X2	2RLED	0-10V 1%	1011	27	37	1,127	44.5	25.4	-20°C (-4°F)	40°C (104°F)
2X2	3RLED	0-10V 1%	1560	41	38	1,695	66.7	25.4	-20°C (-4°F)	40°C (104°F)
2X2	4RLED	0-10V 1%	2022	53	38	2,254	88.9	25.4	-20°C (-4°F)	40°C (104°F)
2X4	1RLED	0-10V 1%	1247	27	46	1,281	44.5	28.8	-20°C (-4°F)	40°C (104°F)
2X4	2RLED	0-10V 1%	2298	53	43	2,547	89	28.6	-20°C (-4°F)	40°C (104°F)
2X4	3RLED	0-10V 1%	3545	80	44	3,828	133.5	28.7	-20°C (-4°F)	40°C (104°F)
2X4	4RLED	0-10V 1%	4596	106	43	5,095	178	28.6	-20°C (-4°F)	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

