

Cleanroom KL Troffers

1x4, 2x2 and 2x4 High Efficiency 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 comes standard (except 2x2 with HF LED Selection)**
- **Up to 35,000 Lm Delivered @127 Lm/W**
- **DLC Standard and Premium Listings Available**
- **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	Source	CCT	Voltage	Options
KL	R: Recessed (Suitable for Flange & Grid)	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	1/LEDR 2/LEDR 2/LEDH 2/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/ED: Two Drivers (Two Circuits) 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 Locatoin 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
			2x2: 2' x 2' Housing OR 2x4: 2' x 4' Housing	2/LEDR 2/LEDH 3/LEDR 3/LEDH 4/LEDR 4/LEDH 4/LEDHF	90+ CRI: 935 = 3500K CCT 940 = 4000K CCT 950 = 5000K CCT		
KL	S: Surface	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	1/LEDR 2/LEDR 2/LEDH 2/LEDHF	90+ CRI: 935 = 3500K CCT 940 = 4000K CCT 950 = 5000K CCT	120V 277V UNV 347V*	FC: Fuse & Holder (One Supplied Per Circuit) 2/ED: Two Drivers (Two Circuits) 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 Locatoin 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
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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 .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 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 .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.

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: Commercially available in a wide variety of Color Temperature (CCT), FLUX, and CRI. Highly efficient and consistent color maintained to 3 SDMC for color critical applications. B50/L70 and compliant with Zhaga recognized hole patterns. Consult factory for LED options or configurations not listed below.

DRIVERS: Standard Universal Voltage Class 2 drivers are 0-10v Dimmable to 1% for most LED configurations, 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.

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

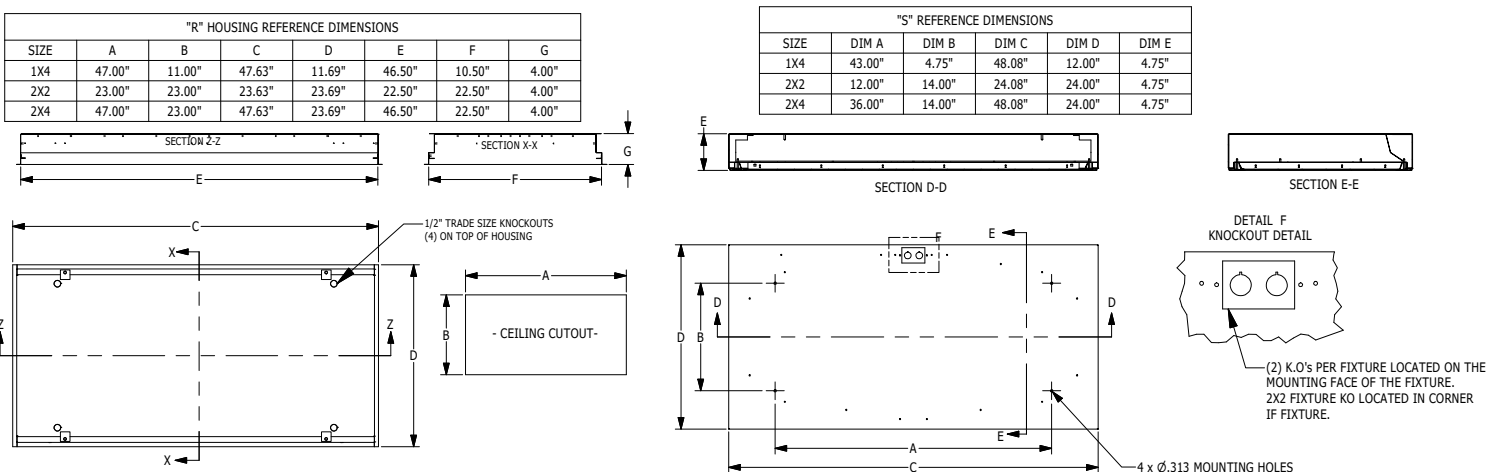
INSTALL RECESSED: One fixture suitable for Grid and Flanged installation. Accommodates 1" and 1.5" T-Bar Grid (Consult factory for 2" T-Bar Grid compatibility). Four adjustable toggle arms with holes for seismic support wire attachment. Supply entry via 1/2" trade size flattened knockouts.

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. NSF2 Listed for Food 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

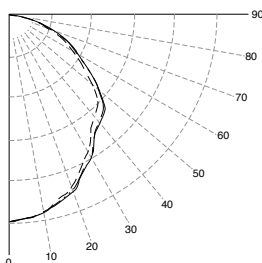
OVERLAP-FGRS-LED TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP	LUMENS	WATTS ²	EFFICACY ³	MAX AMB TEMP ⁴	
1X4	1LEDR	4,100	37	110	40°C (104°F)	2,880	34	85	40°C (104°F)	0-10V 1%
1X4	2LEDR	8,324	73	114	40°C (104°F)	5,777	62	93	40°C (104°F)	0-10V 1%
1X4	2LEDH	12,642	103	123	40°C (104°F)	12,449	146	85	35°C (95°F)	0-10V 1%
1X4	2LEDHF	15,800	139	114	35°C (95°F)	15,546	182.5	85.2	35°C (95°F)	0-10V 1%
1X4	EM10	1060-1140	4	NA	40°C (104°F)	850-930	4	NA	40°C (104°F)	NA
2X2	2LEDR	4,450	37	119	40°C (104°F)	2,746	32	86	40°C (104°F)	0-10V 1%
2X2	3LEDR	6,670	55	121	40°C (104°F)	4,182	48	87	40°C (104°F)	0-10V 1%
2X2	2LEDH	6,500	51	127	40°C (104°F)	5,251	73	72	35°C (95°F)	0-10V 1%
2X2	4LEDR	8,897	73	122	40°C (104°F)	5,221	62	84	40°C (104°F)	0-10V 1%
2X2	3LEDH	9,880	77	129	40°C (104°F)	8,343	110	76	35°C (95°F)	0-10V 1%
2X2	4LEDH	12,846	102	126	40°C (104°F)	10,519	146	72	35°C (95°F)	0-10V 1%
2X2	4LEDHF	19,652	171	115	35°C (95°F)	NA	NA	NA	NA	0-10V 5%
2X2	4LEDHF (1%)	15,724	138	114	35°C (95°F)	16,425	183.8	89.4	35°C (95°F)	0-10V 1%
2X2	EM10	950-1150	4	NA	40°C (104°F)	720-870	4	NA	40°C	NA
2X4	2LEDR	9,180	74	124	40°C (104°F)	6,528	62	105	40°C (104°F)	0-10V 1%
2X4	3LEDR	13,770	111	124	40°C (104°F)	9,797	94	104	40°C (104°F)	0-10V 1%
2X4	2LEDH	14,340	103	139	40°C (104°F)	12,949	148	88	35°C (95°F)	0-10V 1%
2X4	4LEDR	18,370	147	125	40°C (104°F)	12,762	124	103	40°C (104°F)	0-10V 1%
2X4	3LEDH	21,060	153	138	40°C (104°F)	19,549	221	88	35°C (95°F)	0-10V 1%
2X4	4LEDH	27,597	208	133	40°C (104°F)	25,898	295	88	35°C (95°F)	0-10V 1%
2X4	4LEDHF	35,352	279	127	35°C (95°F)	35,488	373.3	95.1	35°C (95°F)	0-10V 1%
2X4	EM10	1180-1270	4	NA	40°C (104°F)	880-1050	4	NA	40°C	NA

- ¹ DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN
- 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.

PHOTOMETRICS

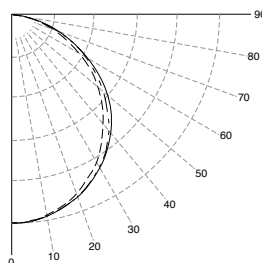
KL-R-X-2X4-4/LEDHF-835-UNV

Report No: 19675
 Total Lumens: 35,352
 Wattage: 278.7
 Efficacy: 126.8 (Lumens Per Watt)
 Fixture Size: 2'x4'
 Key:
 - - - - - 0
 ······ 45
 _____ 90



KL-R-X-2X2-4/LEDHF-840-UNV

Report No: 19692
 Total Lumens: 19,652
 Wattage: 171.32
 Efficacy: 114.7 (Lumens Per Watt)
 Fixture Size: 2'x2'
 Key:
 - - - - - 0
 ······ 45
 _____ 90



KL-R-5-1X4-2/LEDH-840-UNV

Report No: 20898
 Total Lumens: 12,642
 Wattage: 102.43
 Efficacy: 123.4 (Lumens Per Watt)
 Fixture Size: 1'x4'
 Key:
 - - - - - 0
 ······ 45
 _____ 90

