

Cleanroom KL-R Blue Troffers

1x2, 1x4, 2x2 and 2x4 Blue/White LED Recessed 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 475nm or 450nm Blue LEDs**
- **White / Blue separately controlled circuits**
- **Recessed Housing suitable for Tbar Grid AND Hardlid Installations**
- **B.A.A. & B.A.B.A Compliant & Made in the USA by a Family Owned US Corporation**



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ORDERING GUIDE

Series	Material	Size	Row Qty.	Blue LED Wavelength	Row Qty.	White LED	CCT/CRI	Voltage	Optics	Options
KL-R										

Series	Material	Size	Light Source					Voltage	Optics				
			Row Qty.	Blue LED Wavelength	Row Qty.	White LED	CCT/CRI						
KL-R	3	White 430 SS Hsg. & Polished 304 SS Door	1x2 1' x 2' Housing	1	BLED450	1	LEDR	83 CRI:	120V	P12ACR	0.135" P12 Prismatic Impact Resistant Acrylic (Inverted)		
		1x4 1' x 4' Housing	2	BLED475	2	LEDH	830 3000K	277V	LEX	0.125" P12 Prismatic Polycarbonate (Inverted)			
	4	White AL Hsg. & Polished 304 SS Door	3 LED Rows Max				LEDHF	835 3500K	UNV	A19	0.156" A19 Prismatic Impact Resistant Acrylic (Inverted)		
			2x2 2' x 2' Housing	1		1		840 4000K	347V*	TG	0.156" Prismatic Tempered Glass (Inverted)		
	5	White AL Hsg. & White AL Door	OR	2		2		850 5000K		HIA	0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)		
			2x4 2' x 4' Housing	3		3				FROST	0.125" Flat Diffusing Frost Acrylic		
	7	White AL Hsg. & White CRS Door	5 LED Rows Max	4							2DBW	0.125" Flat Diffused Acrylic with Bi-Directional Batwing Distribution	
												LBW	0.125" Flat Diffused Acrylic with Linear Batwing Distribution
												GH85	0.125" Flat Diffused Acrylic with Glare Suppression Distribution
												NOTE: P12ACR option is standard and will be provided when no other option is selected	
NOTE: Additionally available in 95 + CRI with Seoul Sun-Like LEDs. Consult factory for more information.													

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)
EDL	-40F Electronic Driver
WHT	White Finished Door & HSG
AMW	Anti-Microbial White Powdercoat
2/EDG	Two Circuits of Green Light
2/EDW	Two Circuits of White Light
GG	1/8" Thick Grid Gasket (Provided Loose)
Note*: Specify Value in Ordering Notes Below	

Ordering Notes, If Applicable

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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 .040" 3003 Aluminum or 20Ga 430 Stainless 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. 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 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 Blue only or Blue & White LED's, each color will be supplied with its own driver for dual switching. Blue LED's provide a narrow 450nm or 475nm spectrum. 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%, 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)

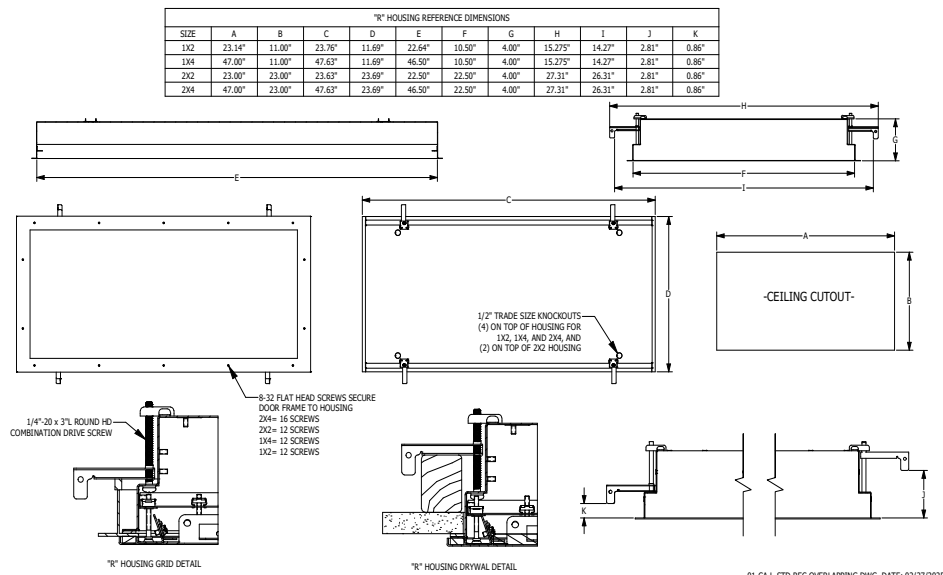
REFLECTOR: Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

INSTALLATION RECESSED: 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. Confirm ceiling compatibility with dimension drawings below.

FINISH: Stainless steel door frames are satin polished unless WHT or AMW options are selected. All other materials are provided with gloss high reflectance white polyester powdercoat 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. 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 non-food zones & 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



Cleanroom KL-R Blue Troffers

1x2, 1x4, 2x2 and 2x4 Blue/White LED Recessed Luminaires

ENERGY DATA- WHITE LED

SURFACE & RECESSED OVERLAP 2 CIRCUIT TROFFER (APPROX ¹ LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	85 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	
1X2	1LEDR	1,428	15	95	45°C (113°F)	1,377	15	92	45°C (113°F)	0-10V 1%
1X2	1LEDH	2,755	29	95	40°C (104°F)	2,635	29	91	40°C (104°F)	0-10V 1%
1X2	2LEDR	2,855	29	98	45°C (113°F)	2,753	29	95	45°C (113°F)	0-10V 1%
1X2	1LEDHF	4,330	39	111	35°C (95°F)	3,731	46	81	35°C (95°F)	0-10V 1%
1X2	2LEDH	5,517	55	100	35°C (95°F)	5,270	55	96	35°C (95°F)	0-10V 1%
1X2	EM10	950-1110	4	NA	40°C (104°F)	810-960	4	NA	40°C (104°F)	NA
1X4	1LEDR	2,974	29	103	45°C (113°F)	2,868	29	99	45°C (113°F)	0-10V 1%
1X4	1LEDH	5,740	57	101	40°C (104°F)	5,490	57	96	40°C (104°F)	0-10V 1%
1X4	2LEDR	5,948	55	108	45°C (113°F)	5,736	56	103	45°C (113°F)	0-10V 1%
1X4	1LEDHF	9,020	77	117	35°C (95°F)	7,773	92	84	35°C (95°F)	0-10V 1%
1X4	2LEDH	11,493	109	106	35°C (95°F)	10,980	109	101	35°C (95°F)	0-10V 1%
1X4	EM10	1010-1170	4	NA	40°C (104°F)	850-1030	4	NA	40°C (104°F)	NA
2X2	1LEDR	1,808	15	121	45°C (113°F)	1,521	15	101	45°C (113°F)	0-10V 1%
2X2	1LEDH	3,106	29	107	40°C (104°F)	2,964	29	102	40°C (104°F)	0-10V 1%
2X2	2LEDR	3,165	29	109	45°C (113°F)	3,042	29	105	45°C (113°F)	0-10V 1%
2X2	1LEDHF	4,630	39	119	40°C (104°F)	4,106	46	89	40°C (104°F)	0-10V 1%
2X2	3LEDR	4,747	42	113	45°C (113°F)	4,563	42	109	45°C (113°F)	0-10V 1%
2X2	2LEDH	6,213	55	113	40°C (104°F)	5,928	55	108	40°C (104°F)	0-10V 1%
2X2	2LEDHF	9,260	77	120	40°C (104°F)	8,212	92	89	35°C (95°F)	0-10V 1%
2X2	3LEDH	9,319	80	116	40°C (104°F)	8,892	81	110	35°C (95°F)	0-10V 1%
2X2	3LEDHF	13,890	115	121	35°C (95°F)	12,319	138	89	35°C (95°F)	0-10V 1%
2X2	EM10	1070-1210	4	NA	40°C (104°F)	890-1110	4	NA	40°C (104°F)	NA
2X4	1LEDR	3,431	29	118	45°C (113°F)	3,280	29	113	45°C (113°F)	0-10V 1%
2X4	1LEDH	6,744	57	118	40°C (104°F)	6,408	57	112	40°C (104°F)	0-10V 1%
2X4	2LEDR	6,864	55	125	45°C (113°F)	6,567	56	117	45°C (113°F)	0-10V 1%
2X4	1LEDHF	9,840	77	128	40°C (104°F)	8,872	93	95	40°C (104°F)	0-10V 1%
2X4	3LEDR	10,295	83	124	45°C (113°F)	9,851	83	119	45°C (113°F)	0-10V 1%
2X4	2LEDH	13,488	109	124	40°C (104°F)	12,816	109	118	40°C (104°F)	0-10V 1%
2X4	2LEDHF	19,680	153	129	40°C (104°F)	17,744	187	95	40°C (104°F)	0-10V 1%
2X4	3LEDH	20,233	165	123	40°C (104°F)	19,224	165	117	40°C (104°F)	0-10V 1%
2X4	3LEDHF	29,520	229	129	35°C (95°F)	26,616	280	95	35°C (95°F)	0-10V 1%
2X4	EM10	1180-1290	4	NA	40°C (104°F)	950-1190	4	NA	40°C (104°F)	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.

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1x2, 1x4, 2x2 and 2x4 Blue/White LED Recessed Luminaires

ENERGY DATA- COLORED LED

SURFACE & RECESSED OVERLAP BLUE LED TROFFER							
ENCLOSURE SIZE	LED SELECTION	DIMMING	475nm (BLUE)			AMBIENT TEMP RATING	
			LUMENS	WATTS	EFFICACY	MINIMUM	MAXIMUM ³
1X2	1BLED	0-10V 1%	947	22	43	-20°C (-4°F)	40°C (104°F)
1X2	2BLED	0-10V 1%	1,894	43	44	-20°C (-4°F)	40°C (104°F)
1X4	1BLED	0-10V 1%	1,972	43	46	-20°C (-4°F)	40°C (104°F)
1X4	2BLED	0-10V 1%	3,945	86	46	-20°C (-4°F)	40°C (104°F)
2X2	1BLED	0-10V 1%	1,132	22	51	-20°C (-4°F)	40°C (104°F)
2X2	2BLED	0-10V 1%	2,264	43	53	-20°C (-4°F)	40°C (104°F)
2X2	3BLED	0-10V 1%	3,396	65	52	-20°C (-4°F)	40°C (104°F)
2X2	4BLED	0-10V 1%	4,528	86	53	-20°C (-4°F)	40°C (104°F)
2X4	1BLED	0-10V 1%	2,428	44	55	-20°C (-4°F)	40°C (104°F)
2X4	2BLED	0-10V 1%	4,856	87	56	-20°C (-4°F)	40°C (104°F)
2X4	3BLED	0-10V 1%	7,283	130	56	-20°C (-4°F)	40°C (104°F)
2X4	4BLED	0-10V 1%	9,711	173	56	-20°C (-4°F)	40°C (104°F)

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

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

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