

# Cleanroom KL-S Amber Troffers

1x4, 2x2 and 2x4 Amber/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 590nm True Amber LEDs**
- **White / Amber separately controlled circuits**
- **BAA Compliant & Made in the USA by a Family Owned US Corporation**



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## ORDERING GUIDE

Series	Material	Size	Row Qty.	Amber LED	Row Qty.	White LED	CCT/CRI	Voltage	Optics	Options	
<b>KL-S</b>				<b>YLED590</b>							
Series	Material	Size	Light Source				Voltage	Options			
			Row Qty.	Amber LED	Row Qty.	White LED			CCT/CRI		
<b>KL-S</b>	1 White CRS Hsg. & White CRS Door	1x4 1' x 4' Housing 3 LED Rows Max	1	<b>YLED590</b>	1	<b>LEDR</b> <b>LEDH</b> <b>LEDHF</b>	<b>83 CRI:</b>	<b>120V</b>	<b>P12ACR</b> 0.135" P12 Prismatic Impact Resistant Acrylic (Inverted) <b>LEX</b> 0.125" P12 Prismatic Polycarbonate (Inverted) <b>A19</b> 0.156" A19 Prismatic Impact Resistant Acrylic (Inverted) <b>TG</b> 0.156" Prismatic Tempered Glass (Inverted) <b>HIA</b> 0.140" P12 Prismatic High Impact Resistant Acrylic (Inverted)		
			2		2		<b>830</b> 3000K				
	2 White CRS Hsg. & Polished 304 SS Door	2x2 2' x 2' Housing	2		1		<b>840</b> 4000K				
			3		2		<b>850</b> 5000K				
	3 Poshield 304 SS Hsg. & Polished 304 SS Door	2x4 2' x 4' Housing	3		2		<b>90+ CRI:</b> <b>935</b> 3500K <b>940</b> 4000K <b>950</b> 5000K			*347V Available with 10% dimming, not all options are compatible with 347V	<b>2DBW</b> 0.125" Flat Diffused Acrylic with Bi-Directional Batwing DISTRIBUTION <b>LBW</b> 0.125" Flat Diffused Acrylic with Linear Batwing Distribution <b>GH85</b> 0.125" Flat Diffused Acrylic with Glare Suppression Distribution
			4		3						
	4 White AL Hsg. & Polished 304 SS Door	5 LED Rows Max	4		3						
5			4								
5 White AL Hsg. & White AL Door	5	4	5								
6 White CRS Hsg. & White AL Door	6	4	6								
7 White AL Hsg. & White CRS Door	7	4	7								

NOTE: Additionally available in 95+ CRI with Seoul Sun-Like LEDs. Consult factory for more information.

### Options

<b>SW</b>	Wet Location Hub Supplied (not installed)
<b>PxL *</b>	Programmed to User Specified Lumen Value.
<b>PxW *</b>	Programmed to User Specified Wattage Value.
<b>10KV</b>	10KV Parallel Surge Protection (One Supplied Per Circuit)
<b>GTD</b>	Generator Transfer Device
<b>WHIP</b>	Must Specify Length and Wire Qty
<b>OCCMW</b>	Internal microwave OCC Sensor
<b>FC</b>	Fuse & Holder (One Supplied Per Circuit)
<b>EM10</b>	10W Integral LED EM (Specify Input Voltage)
<b>EM20</b>	20W Remote LED EM (Specify Input Voltage)
<b>EDL</b>	-40F Electronic Driver
<b>WHT</b>	White Finished Door & HSG
<b>AMW</b>	Anti-Microbial White Powdercoat
<b>2/EDY</b>	Two Circuits of Amber Light
<b>2/EDW</b>	Two Circuits of White Light

Note\*: Specify Value in Ordering Notes

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 .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 Amber only or Amber & White LED's, each color will be supplied with its own driver for dual switching. Amber LED's provide a narrow 590nm spectrum 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%, 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)

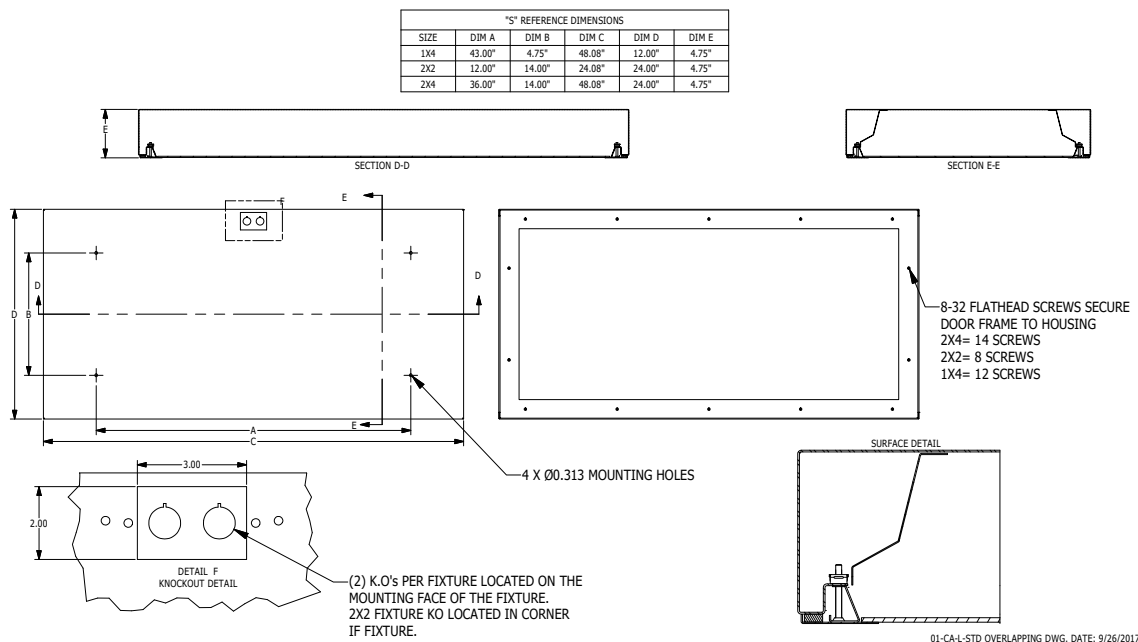
**REFLECTOR:** Die formed metal with high reflectance white polyester powder coat finish. Typical reflectivity 92%.

**INSTALL SURFACE:** 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 is Buy American Act (B.A.A.) compliant.

## PRODUCT DRAWINGS



01-CA-L-STD OVERLAPPING DWG. DATE: 9/26/2017

# Cleanroom KL-S Amber Troffers

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

## ENERGY DATA - WHITE LED

SURFACE & RECESSED OVERLAP 2 CIRCUIT TROFFER (APPROX <sup>1</sup> LUMENS DELIVERED)										
ENCLOSURE SIZE	LIGHT PACKAGE	83 CRI (3000K - 5000K)				90 CRI (3500K, 4000K)				STANDARD DIMMING
		LUMENS	WATTS <sup>2</sup>	EFFICACY <sup>3</sup>	MAX AMB TEMP	LUMENS	WATTS <sup>2</sup>	EFFICACY <sup>3</sup>	MAX AMB TEMP <sup>4</sup>	
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	<b>5,948</b>	<b>55</b>	<b>108</b>	45°C (113°F)	<b>5,736</b>	<b>56</b>	<b>103</b>	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	<b>11,493</b>	<b>109</b>	<b>106</b>	35°C (95°F)	<b>10,980</b>	<b>109</b>	<b>101</b>	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	<b>4,747</b>	<b>42</b>	<b>113</b>	45°C (113°F)	<b>4,563</b>	<b>42</b>	<b>109</b>	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	<b>9,319</b>	<b>80</b>	<b>116</b>	40°C (104°F)	<b>8,892</b>	<b>81</b>	<b>110</b>	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	<b>10,295</b>	<b>83</b>	<b>124</b>	45°C (113°F)	<b>9,851</b>	<b>83</b>	<b>119</b>	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	<b>20,233</b>	<b>165</b>	<b>123</b>	40°C (104°F)	<b>19,224</b>	<b>165</b>	<b>117</b>	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

<sup>1</sup> DELIVERED LUMEN DATA IS EXTRAPOLATED FROM MEASURED DATA @ 25C WITH NO EXTRA OPTIONS. VARIANCES WILL OCCUR WHEN OPTIONS ARE CHOSEN  
<sup>2</sup> WATTAGE IS MEASURED WITH 4000K SELECTION @ 120VAC AND Tambient = 25C. WATTAGES MAY VARY WITH ALTERNATE CONFIGURATIONS  
<sup>3</sup> EFFICACY CALCULATED USING 4000K CCT DATA.  
<sup>4</sup> MAX AMBIENT TEMP RATING, NON-IC INSTALLATION. TEMP RATING MAY VARY WITH SPECIFIED DRIVERS OR ANY NON STANDARD SELECTION  
<sup>5</sup> 90 MINUTE 10W EMERGENCY DRIVER; LUMENS CALCULATED BASED ON FIXTURE EFFICACY.

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## ENERGY DATA - COLORED LED

SURFACE & RECESSED OVERLAP AMBER LED TROFFER							
ENCLOSURE SIZE	LED SELECTION	DIMMING	590nm (Amber)			AMBIENT TEMP RATING	
			LUMENS	WATTS	EFFICACY	MINIMUM	MAXIMUM <sup>3</sup>
1X4	1YLED	0-10V 1%	1,972	43	46	-20°C (-4°F)	40°C (104°F)
1X4	2YLED	0-10V 1%	3,945	86	46	-20°C (-4°F)	40°C (104°F)
2X2	1YLED	0-10V 1%	1,132	22	51	-20°C (-4°F)	40°C (104°F)
2X2	2YLED	0-10V 1%	2,264	43	53	-20°C (-4°F)	40°C (104°F)
2X2	3YLED	0-10V 1%	3,396	65	52	-20°C (-4°F)	40°C (104°F)
2X2	4YLED	0-10V 1%	4,528	86	53	-20°C (-4°F)	40°C (104°F)
2X4	1YLED	0-10V 1%	2,428	44	55	-20°C (-4°F)	40°C (104°F)
2X4	2YLED	0-10V 1%	4,856	87	56	-20°C (-4°F)	40°C (104°F)
2X4	3YLED	0-10V 1%	7,283	130	56	-20°C (-4°F)	40°C (104°F)
2X4	4YLED	0-10V 1%	9,711	173	56	-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 OPTOINS ARE SELECTED

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

## COLOR LED RELATIVE DISTRIBUTION

