

APPENDICES |

Appendix I | Full Lighting Schedule

Oakland University Engineering Center Fixture Schedule							
Type	Description	Manufacturer	Model	Load	Lamp	Voltage	Mounting
L1	Handrail detail encapsulated LED strip light, IP67 plug in connectors at both ends, 4000K, 85 CRI, 3-Step MacAdam binning	LED Linear	VarioLED HYDRA LD5 W830/A IP67	4.8 W/m	LED	24	Surface Mount
L2	Recessed 6" round LED downlights, tempered clear glass enclosure, anodized aluminum reflector, Outdoor rating IP65, 4000K, 85CRI	Bega	Bega 6650 LED K4	23 W	LED	277	Recessed
L3	8" square wall mounted assymmetric LED, die-cast aluminum housing, semi-specular anodized aluminum internal reflector, weather tight IP65 rating, 4000K, 85 CRI	Bega	Bega 3238 LED	32 W	LED	277	Wall Mount
L4	30" tall two sided bollard with 21-5/8" illuminated height per side, 1/4" thick aluminum extruded housing with electrostatically applied powder coat finish, 1/4" polycarbonate lens, UL/CUL Wed Location rated, 4000K	A-Light	X2-2-LL-40-2-P-HH-M-B	10 W/ft	LED	277	Bollard
L5	20-7/8" x 3-1/2" linear LED ingrade symmetrical floodlight, extruded stainless steel with 1/4" tempered matte safety glass cover, IP67 rating, 4000K, 80 CRI	Bega	Bega 7915 LED	27 W	LED	277	Ingrade Recessed
L6	4' x 2.64" Recessed linear LED downlight, flush mount, extruded aluminum housing, white powder coat steel reflector, frosted acrylic lens, replaceable LED modules and drivers from below, 4000 K, 80 CRI	Focal Point	FSM2L-FL-375LF-40K-1C-277-LD1	21 W	LED	277	Recessed
L7	Linear surface mounted LED, 11-5/16" length segments, anodized aluminum extrusion with injection molded end caps, clear high strength acrylic lens, 3500K, 85 CRI	USAI	TOLVW1-H12-35S-CL-FM-LPSDC3-100-L1N	6.3 W/ft	LED	277	Surface Mount Detail
L8	8' linear LED pendant, aluminum extrusion with a matte anodized finish, frosted white acrylic lens diffuser, suspended with adjustable aircraft cable with push button glider, 4000K, 90 CRI	Delray Lighting Inc.	ST1P8-2-LOW40-BDIM-W-SLRD	48 W	LED	277	Pendant
L9	Same product as L6 with a modified wall to ceiling housing and flex whip connector	Focal Point	FSM2L-FL-625LF-40K-1C-277-LD1-CXFF-WH-4C4W	8 W	LED	277	Recessed
L10	7' x 2.25" x 3.375" Mullion mounted assymmetric LED fixture, aluminum extruded housing, precision milled endcaps, 4000K	A-Light	ACL4-M72-M1-LS-40-N-D-2-T-R	5 W/ft	LED	277	Mullion Mounted
L11	1' x 1.5" x 2.1" linear LED wall grazing fixture, narrow 10 x 60 degree beam angle, 4000K, 84 CRI	Philips Color Kinetics	523-000065-19	12.5 W/ft	LED	277	Surface Mount
L12	Cove lighting LED fixture with a 4" opening from ceiling grid and total 7.3" depth above ceiling, extruded aluminum housing with polyester powder coat, frosted lens, 3500K	Focal Point	FTRL-AC-LL1-35K-1C-277-LD1	22.9 W	LED	277	Cove Detail
L13	66.7" x 66.7" x 3.1" Ceiling mounted direct LED fixture, polished aluminum housing finish, integrated acrylic cover, fabric covering as a light and acoustic diffuser, 4000K	Sattler	814-69-51-22-Z70	87 W	LED	277	Ceiling Mounted
L14A	4" Square recessed LED downlight, self-flanged semi-specular reflector, highly transmissive lens, 20 degree beam angle, 3500K	Gotham	ICOSQ-35-30-4AR20D-277	42 W	LED	277	Recessed
L14B	4" Square recessed LED downlight, self-flanged semi-specular reflector, highly transmissive lens, 60 degree beam angle, 3500K	Gotham	ICOSQ-35-05-4AR60D-277	8 W	LED	277	Recessed
L15	3.15' x 9.18" x 4.63" Industrial high-bay LED pendant, 6' cable length, heavy duty extruded anodized aluminum construction, protective optical lumen maintenance tray, 4000K, 73 CRI	Big Ass Lights	BAL-HBL1-20-04-01-02-06-03-01	194 W	LED	277	Pendant
L16	11' x 3.5" x 2.5" Bottom mounted assymmetric LED fixture, aluminum extruded housing, 4000K	A-Light	D4-M132-LH-40-2-N-D-O	10 W/ft	LED	277	Surface Mount
L17	11' x 2-3/8" x 3-9/16" Surface mounted Linear LED fixture, extruded aluminum housing with aluminum endcaps, polyester powder coating, extruded impact resistant acrylic lens, 4000K, 80 CRI	Selux	L60-1A35-40-LW-F-11-BK-277	8.4 W/ft	LED	277	Surface Mount

Appendix II | Lighting Cut Sheets

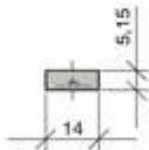
VarioLED™ Flex HYDRA LD5 IP67



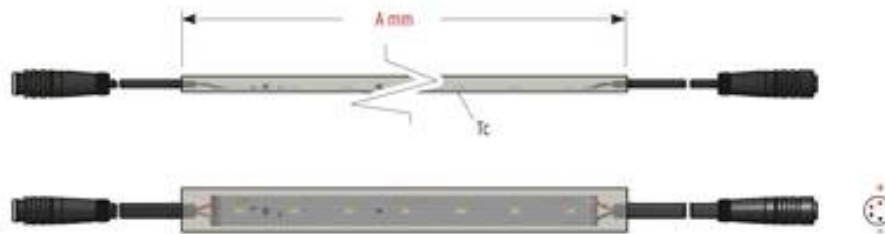
Wasser- und UV-geschützte flexible Linearleuchte in bis zu 7,5 m Länge im Polyurethanverguss mit 110 mm IP67 Steckverbinder an beiden Enden.

Fully flexible water & UV resistant linear LED Luminaire up to 7.5 m in polyurethane encapsulation with 110 mm IP67 plug in connectors on both ends.

Abmessungen & Längen Dimensions & available length



Tc-Punkt: Gesamte Rückseite des vergossenen LED Bands
Tc-point: Entire encapsulated flexboard rear side



$$A = N \times 125 + 19; N = 1 \dots 60; A_{\text{min}} = 1 \times 125 + 19 = 144; A_{\text{max}} = 60 \times 125 + 19 = 7.519$$

Bestellnummer Order Code: VarioLED Flex HYDRA LD5 Wxxx/A IP67

Elektrische & Optische Betriebsdaten Electrical & optical data

VarioLED™ Flex HYDRA LD5 IP67	lumen/meter (lm/m)	Farbtemperatur* Color Temperature* (K)
W824	267	3.000
W827	294	3.400
W830	314	3.800
W835	330	4.300
W840	338	5.900
W850	355	9.400

Es gelten die selben Daten wie für VarioLED™ Flex HYDRA LD5 mit folgenden Ausnahmen: 30% Lichtverlust und Farbverschiebung im Vergleich zum nicht vergossenen LED Strip.

Nähere Erläuterung zu den technischen Daten des PU-Schutzes im LED Linear™ Systemkatalog, Seite 584.

Same data as for VarioLED™ Flex HYDRA LD5 apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

More details regarding the PU-protection in the LED Linear™ system catalogue, page 584.

* Bei IP67 Produkten können Toleranzen bei der Farbtemperatur auftreten. Nähere Erläuterung dazu finden Sie auf S. 584.

* In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 584.

Bitte sprechen Sie uns an für kundenspezifische Anpassungen, wie z. B. Kabellängen und Stecker.

Please ask for custom specific adoptions like cable length and plugs.

Zubehör Accessories

erforderlich required	optional optional
<p>Konverter Power supply unit</p>	<p>Buchse Female connector</p>
	<p>Steuerprotokoll Power control system</p>

Details siehe Seite 456 ff. Details on page 456 ff.

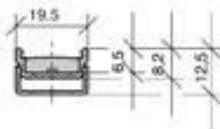
VarioLED™ HYDRA LD5 IP67



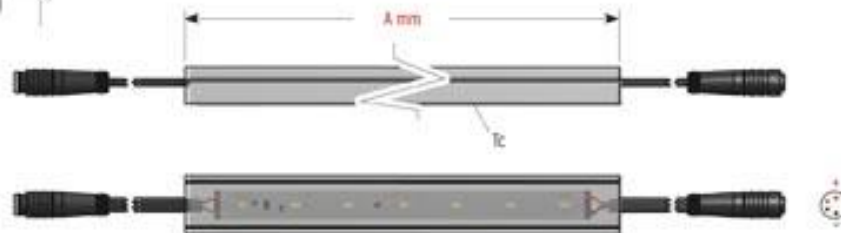
Wasser- und UV-geschützte Linearleuchte im Aluminiumprofil in bis zu 2 m Länge im Polyurethanverguss mit 110 mm IP67 Steckverbinder an beiden Enden.

Up to 2 m length, water & UV resistant LED Luminaire with polyurethane encapsulation in AL profile and 110 mm IP67 plug in connectors on both ends.

Abmessungen & Längen Dimensions & available length



Tc-Punkt: Gesamte Profilrückseite
Tc-point: Entire Al-profile rear side



$A = N \times 125 + 19; N = 1 \dots 15; A_{\text{min}} = 1 \times 125 + 19 = 144; A_{\text{max}} = 15 \times 125 + 19 = 1894$

Übersicht VarioContour IP67 ab Seite 474.
Overview VarioContour IP67 from page 474.

Bestellnummer Order Code: **VarioLED HYDRA LD5 Wxxx/A IP67**

Elektrische & Optische Betriebsdaten Electrical & optical data

VarioLED™ HYDRA LD5 IP67	lumen/meter (lm/m)	Farbtemperatur* Color Temperature* (K)
W824	253	3.000
W827	279	3.400
W830	298	3.800
W835	314	4.300
W840	321	5.900
W850	337	9.400

Es gelten die selben Daten wie für VarioLED™ Flex HYDRA LD5 mit folgenden Ausnahmen: 30% Lichtverlust und Farbverschiebung im Vergleich zum nicht vergossenen LED Strip.

Nähere Erläuterung zu den technischen Daten des PU-Schutzes im LED Linear™ Systemkatalog, Seite 584.

Same data as for VarioLED™ Flex HYDRA LD5 apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

More details regarding the PU-protection in the LED Linear™ system catalogue, page 584.

* Bei IP67 Produkten können Toleranzen bei der Farbtemperatur auftreten. Nähere Erläuterung dazu finden Sie auf S. 584.

* In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 584.

Bitte sprechen Sie uns an für kundenspezifische Anpassungen, wie z. B. Kabellängen und Stecker.

Please ask for custom specific adaption like cable length and plugs.

Zubehör Accessories

erforderlich required

optional optional



Konverter Power supply unit



Buchse Female connector



Steuerprotokoll Power control system

Details siehe Seite 456 ff. Details on page 456 ff.

Recessed ceiling downlights with symmetrical light distribution - narrow beam



Housing: Constructed of die-cast and extruded aluminum. Housing is provided with mounting clamps that provide a vibration proof installation in ceilings up to 1 3/8" total thickness. Rough-in housing constructed of galvanized steel with through wiring box. Fough-in housing included. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: Tempered clear glass, retained by a one piece, die-cast aluminum step baffle frame that is treaded into luminaire housing. Internal reflector made from pure, anodized aluminum. Fully gasketed for weather tight operation using a molded silicone rubber gasket.

Electrical: 19.5W LED luminaire, 23 total system watts, -30°C start temperature. EldoLED 0-10V dimmable driver mounted to the junction box of the ceiling pan for easy maintenance. The LED driver provides smooth and flicker free dimming down to 0.1% and is compatible with both sink and current source controllers. Optional Dali dimmable driver available, consult factory for details. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

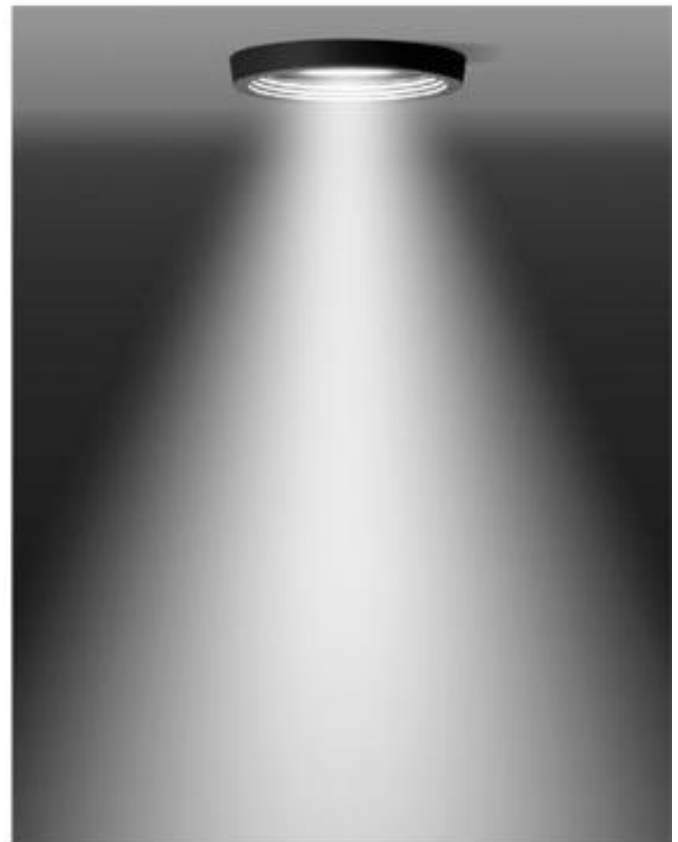
Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 4.0 lbs.

Luminaire Lumens: 1195
Tested in accordance with LM-79-08

Type: **L2**
 BEGA Product:
 Project: **Oakland Engineering Center**
 Voltage: **277 V**
 Color: **4000K**
 Options:
 Modified:



Lamp	β	A	B	C
6650 LED 19.5W LED	41°	7	9 1/4	18

Wall luminaires with directed light



Housing: One piece die-cast aluminum supplied with universal mounting bracket for direct attachment to 3 1/2" or 4" octagonal wiring box. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: One piece die-cast aluminum cover frame secured by captive socket head, stainless steel screws threaded into stainless steel inserts. Semi-specular, anodized aluminum internal reflector. Safety glass with optical texture. Fully gasketed for weather tight operation using a molded silicone rubber O-ring gasket.

Electrical: 26W LED luminaire, 32 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 4.4 lbs.

Luminaire Lumens: 1241

Tested in accordance with LM-79-08.

Type: **L3**
 BEGA Product: **3238 LED**
 Project: **Oakland University Engineering**
 Voltage: **277 V**
 Color: **4000K**
 Options:
 Modified:



Lamp	A	B	C
3238 LED 26W LED	8	8	5 1/4



L4

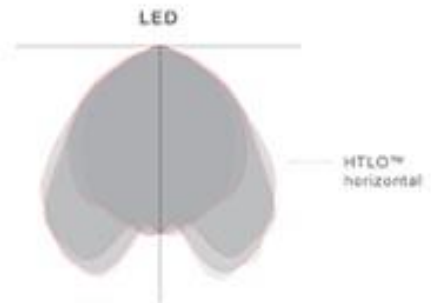
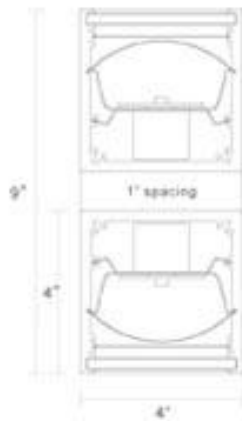
X2 | aire²



direct



ground mount
bollard



LED	2 boards in cross (1 per side)	
per foot	watts/ft	lumens/ft
LL	4	240
LS	10	1200

specifications subject to change
*lumens at 4000k

Available Light Platforms:



Available Mounting:





X2 | aire²

project

type L4

quantity 6

interior exterior

Mounting:

The aire² is a combination of two aire1 luminaires set into a common base, back-to-back set apart 1".

Ground Mount: Free standing milled mounting plate and stainless steel anchor platform. Form and frame by others. No grout required. Chamfered or square base is 7-3/4" x 12-11/16".

Direct Burial: Free standing square base with concealed mounting plate and stainless steel anchor platform for a clean, simple aesthetic. Concrete base must be cast up to 4" lower than grade allowing material to be backfilled over the concrete and mounting base. Form and frame by others. No grout required.

Top accessible lamp/ballast tray is the length of the housing and slides out for servicing. Clearance above bollard must be in excess of the actual bollard height, therefore a 4ft fixture requires an additional 4ft clearance. Integral plug connects to site wiring and unplugs when tray is removed.

Optics:

Each pattern contains an optical platform engineered for maximum light output. Precision-formed reflector design and optimal staggered lamp or LED spacing minimizes socket shadow and maximizes even light output.

Lengths:

All length dimensions are nominal and used for general length identification purposes. Actual lengths may vary by several inches. Luminaires are individual fixtures and are not connectable.

Overall height = luminous height + 8.375" from ground, including base. Direct burial option reduces overall height above-ground up to 4".

LED:

5yr warranty. >60,000hr LED life. Tested to LM-79 and LM-80. See wattage/lumen table for specifications per foot. All specifications are subject to change.

T5/T5HO:

Single, dual or single staggered lamps in cross section. Program start is factory standard.

Construction:

60% recycled aluminum extruded housing, 1/4" thick. Precision-milled 3/8" endcaps. Impact-resistant, 1/4" tempered glass or polycarbonate outer lens. Neoprene gasketed. Free standing milled mounting plate and stainless steel anchor platform.

Finish:

Electrostatically applied powder coat finish.

Listing:

UL/CUL, Wet Location.

Companion Luminaires:

X1 bollard, X3 bollard, X4 wall, X7 recessed

Legend:

1. LED optics
2. T5/T5HO optics
3. Direct burial option reduces above-ground height up to 4" once backfilled.

Series: X2

Dimension: 2

nominal 2 = 30" overall height
nominal 3 = 42" overall height
nominal 4 = 54" overall height

Lamping (each side): LL

LED low output LL
LED standard output LS
T5 (1) S
T5HO (1) H
T5 (2) D
T5HO (2) O

LED Temp (if applicable): 40

3000k 30
3500k 35
4000k 40

Voltage: 2

universal 120V - 277V U
120V 1
277V 2
347V 3

Lens: P

clear glass G
polycarbonate P

Optics: HH

HTLO™ vertical pattern HV
HTLO™ horizontal pattern HH
HTLO™ vertical+horizontal pattern HVH
a-cirus™ + HTLO™ AH
a-cirus™ lens A
HTLO™ lens H

Mounting: M

chamfered base M
square base S
direct burial DR

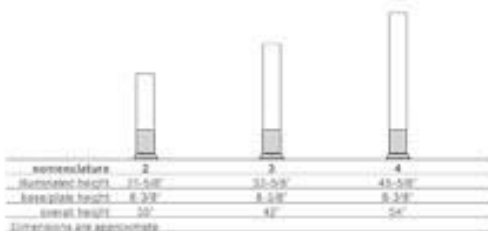
Finish: B

a-lightium™ T
satn black B
dark bronze DB
other - specify RAL# O

Options:

dimming - specify manufacturer, model/series and voltage D
external fusing F
new york city code N

site



Drive-over in-grade linear floodlights with LEDs - Symmetrical



Enclosure: Outer housing: Constructed of high tensile strength, copper free die-cast aluminum alloy.

Inner housing: Constructed of extruded stainless steel. Trim/Faceplate is heavy gauge, machined stainless steel secured to the inner housing by stainless steel threaded welded studs. Maintenance requires removal of inner housing/trim/faceplate assembly from outer housing by means of two flush, socket head stainless steel screws. 1/4" thick tempered matte safety glass machined flush to faceplate. One piece molded U-channel, high temperature silicone gasket. Reflector is aluminum with high gloss coating.

Electrical: 22 W LED luminaire, 27 total system watts, -30° C start temperature. Integral 120 V through 277 V electronic LED driver, 0-10V dimming. Standard LED color temperature is 4000K with a >80 CRI. Available in 3000K (>80 CRI); add suffix K3 to order. Inner housing pre-wired with nine (9) feet of 18/5 water stopper cable, cable clamp, and waterproof cable gland entry into housing. A separate weatherproof single gang wiring box for power supply must be provided (by contractor).

Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Finish: #4 brushed stainless steel. Custom colors are not available.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP67.

Note: A foundation and proper drainage must be supplied by the contractor. These luminaires are designed to bear pressure loads up to 2,200 lbs. from vehicles with pneumatic tires. The luminaires must not be used for traffic lanes where they are subject to horizontal pressure from vehicles braking, accelerating and changing direction.

Luminaire Lumens: 1360

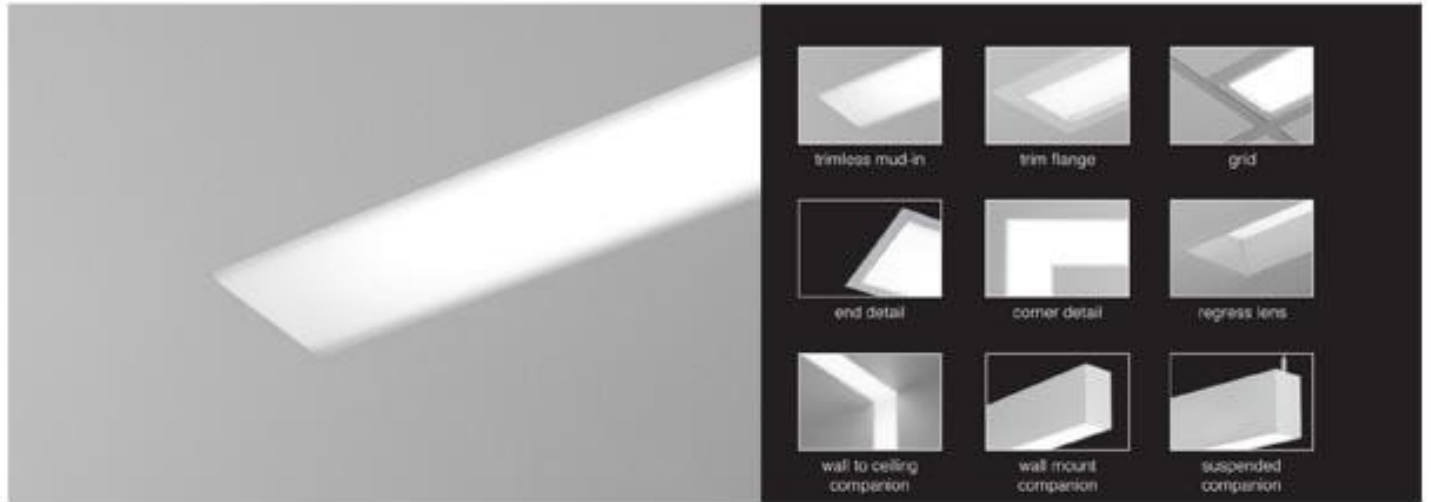
Type: L5
 BEGA Product: Bega 7915 LED
 Project: Oakland Engineering
 Voltage: 277 V
 Color: 4000 K
 Options:
 Modified:



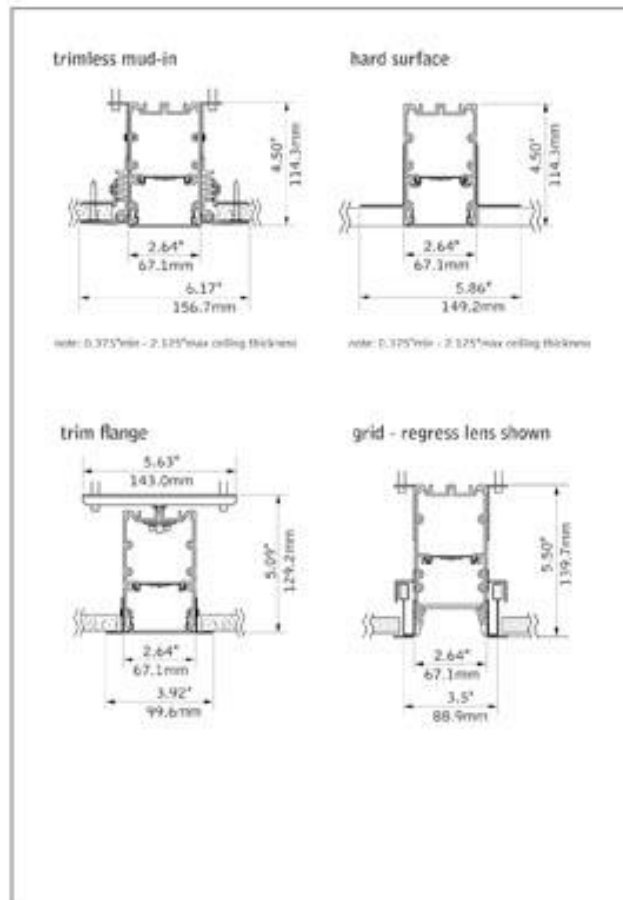
Floodlights - Symmetrical			
Lamp	A	B	
7915 LED	19.8W LED	20 7/8	3 1/2 5

L6

Seem™ 2
LED



DIMENSIONAL DATA



FEATURES

Narrow extruded aluminum 2.5" aperture recessed slot LED.

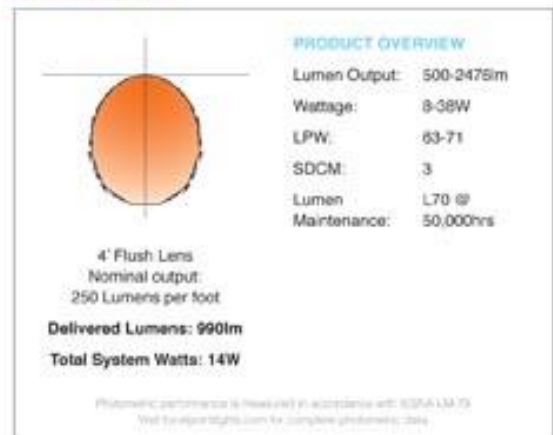
Integrates with ceiling or wall in a variety of mounting styles for a clean, unobtrusive aesthetic.

Individual units and continuous runs in 1' increments.

Continuous frosted acrylic lens provides uninterrupted illumination, without pixels or shadows.

LED position and lens material optimized to provide the perfect blend of high performance and visual comfort.

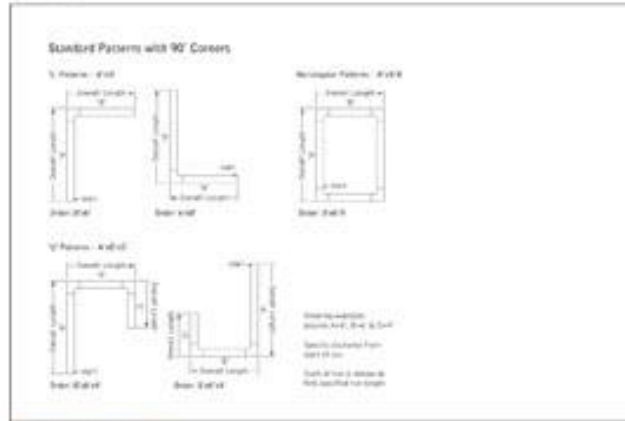
PERFORMANCE



L6

Before: project

DETAILS



SPECIFICATIONS

LED System

Proprietary linear LED module incorporates premium LEDs on a robust platform to achieve excellent thermal management. LEDs are placed to provide a uniform appearance. Available in 3000K, 3500K, 4000K with CRI>80, 3SDCM. LED modules and drivers are replaceable from below.

Construction

One piece extruded aluminum housing, 20 Ga. steel end caps. Housing for new construction applications, 2' unit weight: 5.1 lbs., 3' unit weight: 7.6 lbs., 4' unit weight: 10.1 lbs., 5' unit weight: 12.6 lbs.

Optic

Reflectors fabricated of 22 Ga. steel finished in High Reflectance White powder coat. Extruded acrylic lens .07" thick with satin finish.

Electrical

Luminaires are pre-wired with factory installed branch circuit wiring and over-molded quick connects. Standard 120-277V constant current driver includes 0-10V analog dimming Power factor > .9. Emergency battery: IOTA CP-10. Emergency output - 10 watts for 90 minutes.

Labels

UL and cUL listed. Suitable for Dry or Damp Locations, indoor use only.

Finish

Polyester powder coat applied over a 5-stage pre-treatment.

Lumen Maintenance

L70 at 50,000 hours.

Warranty

LED system rated for operation in ambient environments up to 25°C. 5 year limited warranty.

PERFORMANCE CHART

Shielding	Nominal Output	Tested System Watts	Delivered Lumens
Flush Lens	125LF	8	500
	250LF	14	990
	375LF	21	1463
	625LF	38	2475
Regress Lens	125LF	10	500
	250LF	20	994
	375LF	30	1469
	625LF	56	2449
Regress High Performance Lens	125LF	8	488
	250LF	16	984
	375LF	23	1488
	625LF	41	2475

*Based on 3000K, 4' length. Lumens listed may vary +/- 5%. Actual wattage may vary +/- 5%.

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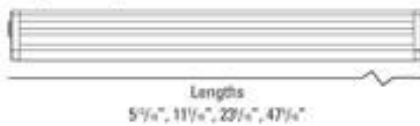
ORDERING

Luminaire Series	FSM2L
Seem 2 LED	FSM2L
Shielding	FL
Flush Satin Lens	FL
Regress Lens	SR
(Housing height 5.0" Ceiling applications only)	
Regress High Performance Lens	SR00P
(Housing height 5.0" Ceiling applications only)	
Nominal Output	375LF
125 Lumens per foot	125LF
(Not available with LED driver, 4 minimum)	
250 Lumens per foot	250LF
375 Lumens per foot	375LF
625 Lumens per foot	625LF
Color Temperature	40K
3000K	30K
3500K	35K
4000K	40K
Circuit	1C
Single Circuit	1C
Voltage	277
120 Volt	120
277 Volt	277
UNV Volt	UNV
(Cannot be specified with EM option)	
Driver	LD1
(See driver reference for driver quantities)	
0-10V - 10% Dimming	LD1
Lutron A-Series- Eco System	L30
(consult factory for 3 wire dimmer)	
0-10V - 1% Dimming	
(Consult factory)	
Ceiling Configuration	
Std. 15/16" Lay-in	G1
Std. 15/16" Tegular	T1
Std. 9/16" Lay-in	G2
Std. 9/16" Tegular	T2
9/16" Slot-tee Tegular	G3
Tall 15/16" Lay-in	G4
Tall 15/16" Tegular	T4
Tall 9/16" Lay-in	G5
Tall 9/16" Tegular	T5
Node 9/16" Tegular	T6
Trim Flange Drywall	TF
Mud-in Trimless	XF1
pre-set for 1/2" Drywall	
Mud-in Trimless	XF2
pre-set for 5/8" Drywall	
Mud-in Trimless, set thickness in field	XF3
(Mounting equipment assortment in field)	
Non-Drywall Hard Surface	XFN
Hard Surface, Wood	XFW
Factory Options	
Chicago Pierium	CP
Emergency Circuit*	EC
Emergency Battery Pack*	EM
(4' length or longer)	
Flex Whip*	FW
Finish	WH
Matte White Housing	WH
Luminaire Length	4'
Specify luminaire/row length	X'
in 1' increments	
(Greater increments available. Consult factory for details.)	
Pattern Options	
(2' minimum length)	
L' pattern	A' x B'
U' pattern	A' x B' x C'
Rectangular pattern	A' x B' R
(Consult factory for other pattern options)	

*For more information visit www.philips.com/lighting or consult factory.

L7

High Output



LUMINAIRE INFORMATION

APPLICATION: Cove lighting, display cases, shelf lighting, inaccessible areas and heat or UV sensitive installations.

COLOR RENDERING INDEX: 85+ Typical CRI

HOUSING: Anodized aluminum extrusion w/ injection molded end caps.

LUMENS: Approximate total lumens per foot shown.

	Clear Lens	Frosted Lens
3000K	323 lm/ft	289 lm/ft
3500K	327 lm/ft	300 lm/ft

Consult factory for additional information.

DIMMING: Dimmable 24VDC driver available. See chart on page 3 for compatible dimmers.

LIGHT ENGINE: High power white LEDs, tightly binned for fixture to fixture color consistency.

COLOR TEMPERATURE: Available in:

- 3000K 3030 ±100K
- 3500K 3455 ±125K

RATED LIFE: Based on IESNA LM80-2008 50,000 HRS@70% lumen maintenance (L70)

POWER CONSUMPTION:

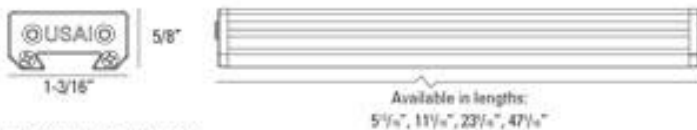
Varies. See Power Supply information on page 3.

LENS: High strength Acrylic available in clear or frosted.

LISTING: Dry/damp location IBEW Union made



DIMENSIONS (shown with fixed mounting option)



Mounting Feet Per Length:

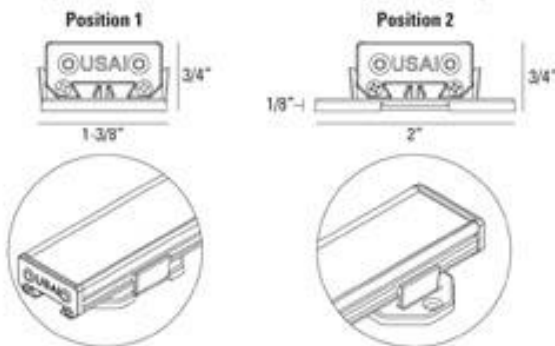
Mounting feet can be positioned at any position along the length of the fixture.

- H06 - 2 Mounting Feet
- H12 - 2 Mounting Feet
- H24 - 2 Mounting Feet
- H48 - 3 Mounting Feet

MOUNTING OPTIONS

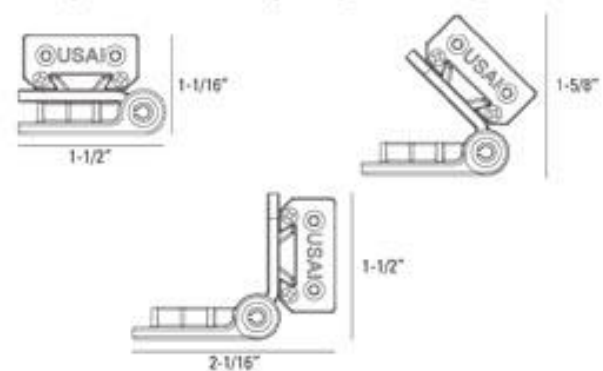
FM - Fixed Mounting

Injection molded fixed MTG feet w/rotating base for multiple mounting options.



RM - Rotating Mounting

Injection molded self-locking rotating mounts 0-90 degree tilt.



HOW TO SPECIFY

Series	Length	Color Temperature	Lens	Mounting	Connector Options	Power Supplies (Page 3)*
TOLVW1	H12	35S	CL	RM		
TOLVW1 Low Voltage Linear LED	H06 - 5 1/4\" H12 - 11 1/4\" H24 - 23 1/4\" H48 - 47 1/4\"	30S - 3000K 35S - 3500K	CL - Clear FL - Frosted	FM - Fixed RM - Rotating	LVSJ - Straight Connector 11/16\" LVSJR - Straight Joiner Rotating Mounts LVFJ6 - Flexible Corner Connector 6\" LVFJ12 - Flexible Corner Connector 12\" LVFJ24 - Flexible Corner Connector 24\" LVJW-480 - Mini spool 480\" 18 AWG Wire LVCA - Conduit Adapter LVDT - Dovetail Connector	LPSDC1-100-J1D* - 100W 120/24V DC Dimming LPSDC1-50-J1D* - 50W 120/24V DC Dimming LPSDC1-300-J1D* - 300W 120/24V DC Dimming LPSDC3-100-E1D - 100W 100-277/24V DC Dimming LPSDC3-100-L1N - 100W 100-277/24V DC LPSDC3-60-L1N - 60W 100-277/24V DC *Also available in 277V (LPSDC2)

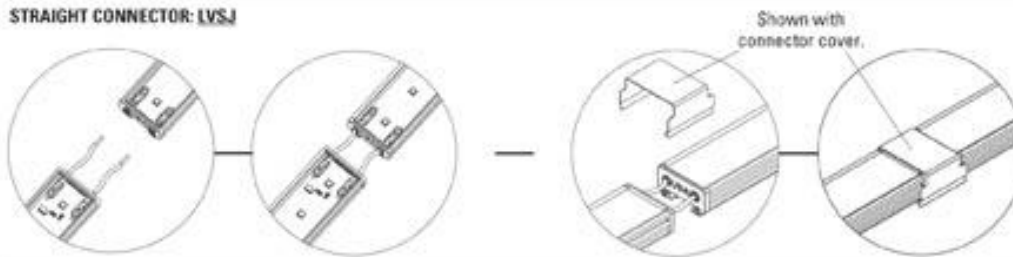


THE ONE LV Linear LED

Connector Options

MULTIPLE CONNECTOR OPTIONS

STRAIGHT CONNECTOR: LVSJ



FLEXIBLE CONNECTOR: LVEJ

Allows connection of fixtures around corners at any angle.

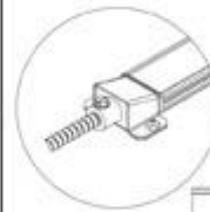


DOVETAIL JOINER: LVDT

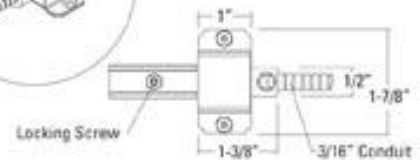


Unique dovetail connector allows the ability to mechanically connect multiple lengths on the floor & lift as one coupled unit to mounting location. Also, works with RM to rotate multiple lengths as one unit.

CONDUIT ADAPTER: LVCA

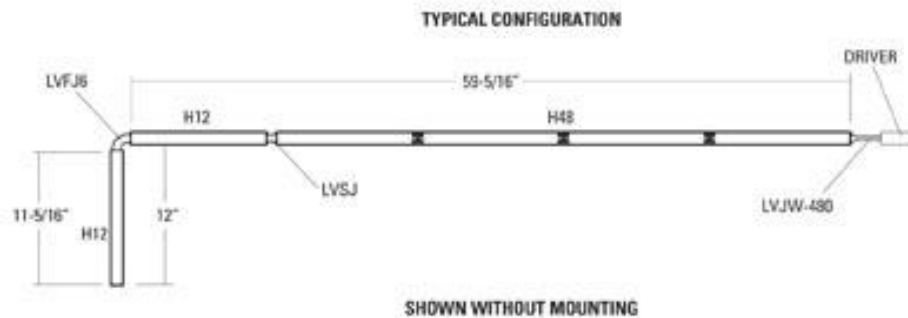
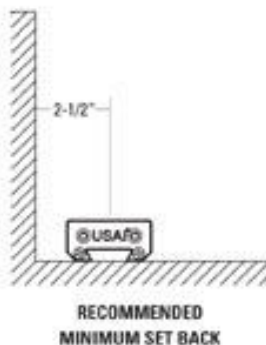
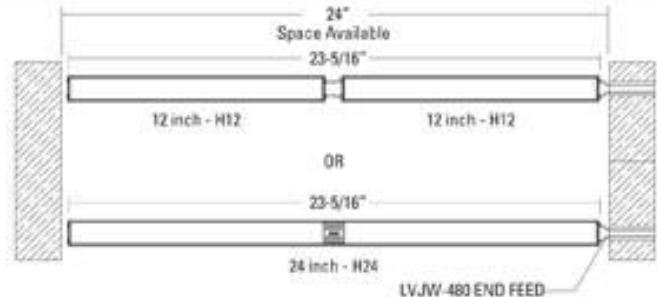


Conduit adapter used couples 3/16" metal conduit to the end of the first fixture in the run. Used only where required by code.



LAYOUT INFORMATION

- Recommended as primary usage for indirect cove and under cabinet installations in accordance with recommended minimum setback.
- Applications that require less than recommended minimum setback, edge lighting or back lighting may experience marginal color shift color shift due to individual LED pixel variation within ANSI sub-bin.
- This potential variation would be most noticeable to the human eye @ 2700K, less pronounced @ 3000K and barely noticeable @ 3500K.





THE ONE[™] LV Linear LED

Driver for use with
TheOne series TOLVW1 only

DRIVER INFORMATION

APPLICATION: For use with TheOne[®] linear LED fixtures.

MATERIAL:

Transformer housing is made of metal construction.

LISTING:

Dry/damp location. All drivers are UL Class 2 listed. All drivers are ETL listed for use with TheOne[®] product family. IBEW Union made.

DIMMING:

Dimmable 24VDC drivers available.

See chart below for compatible supply and dimmers.

OPERATING TEMPERATURE:

Maximum ambient operating temperature is 50°C.

DRIVER SELECTION CHART

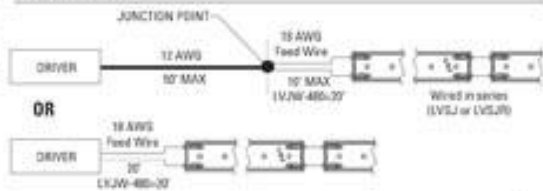
DRIVER	PRIMARY VOLTAGE	WATTS	MAX RUN LENGTH ¹	POWER ² (W/FT)	DIMMER TYPE	DRIVER PER DIMMER SWITCH ⁴		FIGURE	
						500VA	1000VA		
DIMMING	LPSDC3-100-E1D	100-277VAC	100	18'	6.3	0-10V	N/A	N/A	Fig. 3
	LPSDC1-100-J1D	120VAC	100	18'	7.37	MLV	1	1	Fig. 1
	LPSDC1-300-J1D	120VAC	3X 100 ³	3X 18'	7.37		1	1	Fig. 4
	LPSDC1-50-J1D	120VAC	50	9'	7.37		1	1	Fig. 1
	LPSDC2-100-J1D	277VAC	100	18'	7.37		1	1	Fig. 1
	LPSDC2-300-J1D	277VAC	3X 100 ³	3X 18'	7.37		1	1	Fig. 4
	LPSDC2-50-J1D	277VAC	50	9'	7.37		1	1	Fig. 1
	NON-DIM	LPSDC3-100-L1N	100-277VAC	100	18'		6.3	N/A	N/A
LPSDC3-60-L1N		100-277VAC	60	11'	6.3		N/A	N/A	Fig. 2

- All 3 runs must dim as one.
- Assumes no excessive jumper lengths and driver is wired as shown in remote driver wiring diagram.
- Power consumption values are given for a fully loaded power supply.
- For 0-10V dimming, driver limitation is dependent on AC power switch.

NOTES:

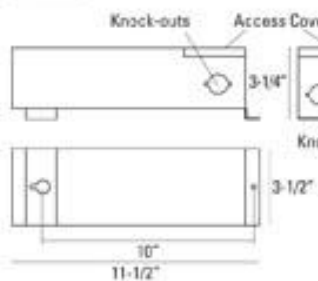
- Must use USAI drivers
- Do not install in wet locations.
- See table for maximum run length of drivers.
- Drivers must be installed in accordance to national and local electrical codes.
- Equipped with secondary overload protection.
- Ordering information on page 1.

REMOTE DRIVER WIRING



DIMENSIONS

FIGURE 1



DIMMER COMPATIBILITY

J1D - DRIVERS	
Model	Measured Light Output
Lutron: RFCL-ENA	2-100%
Lutron: GP (Hamlet) Card	8-100%
Lutron: Grafik Eye QS Main Unit	1-100%
Lutron: HW/LP-RPM-4U-120	1-100%
Lutron: HW/LP-RPM-4A-120	1-100%
Lutron: Ph-PM-WBX W/DVF 100P	8-100%
Lutron: NZV-600	7-100%
E1D - DRIVERS	
Creston: CLS-EXP-DIMELV	1-100%
Creston: DIN-4C-DIMELV4	1-100%
Creston: GLX-DIMELV8	1-100%
Creston: GLXP-DIMELV8	1-100%
Creston: DIN-A00	1-100%
Lutron: GSN-4715-S	2-100%
Lutron: GRX-TVI with OSG-BULK 6E-20	3-99%
Lutron: DVT/NFTV/NFTTV with FP-20	1-100%
TVMR Module	5-100%

FIGURE 3

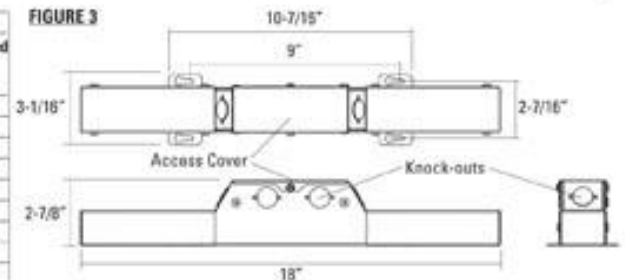


FIGURE 2

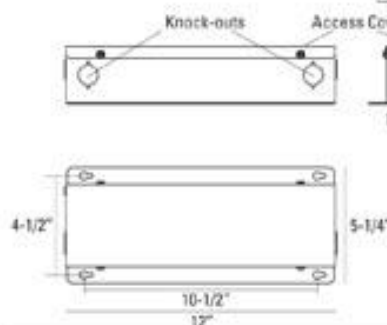
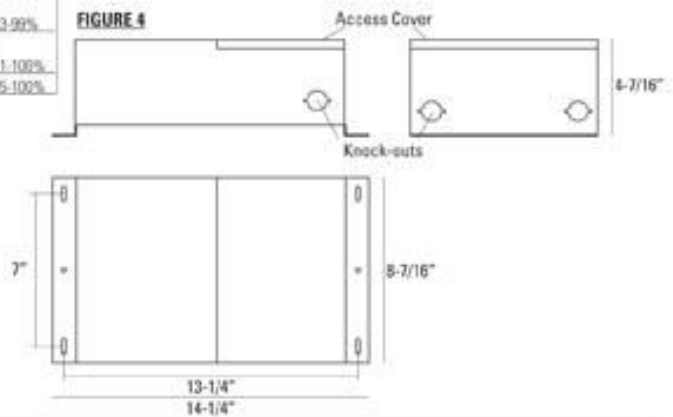


FIGURE 4



L8

STICK MEDIA SEAMLESS LED . LUX



TYPE:	ST1P8	2	LOW40	BDIM-W	Select
	Model #	Voltage	LED *	LED Options *	Other Options
ORDER NUMBER:		1-120V	LOW30	BDIM-W	SLRD
PROJECT:		2-277V	LOW35		STOOP
			LOW40		
			HOW30		
			HOW35		
			HOW40		

**See back page for details.*

Please review mounting info before ordering.

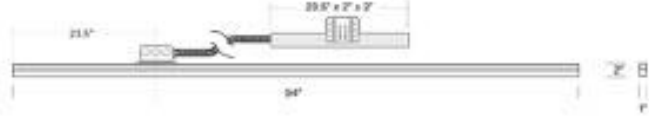
Run Length: 8' (enter in multiples of 4 ft.)

8 ft. PENDANT
ST1P8



8 ft. PENDANT, middle
ST1PM8

8 ft. SURFACE
ST1S8



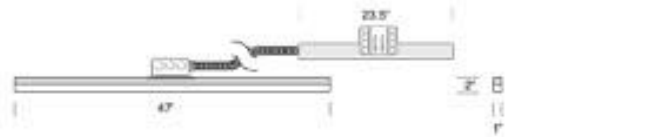
8 ft. SURFACE, middle
ST1SM8

4 ft. PENDANT
ST1P4



4 ft. PENDANT, middle
ST1PM4

4 ft. SURFACE
ST1S4



4 ft. SURFACE, middle
ST1SM4

NOTE: Rail Mount available in T5 Fluorescent Media ONLY.

**DELRAY
LIGHTING
INCORPORATED**

MEDIA-LED.LUX

BURBANK,
CALIFORNIA,
91505
WWW.
DELRAY
LIGHTING.
COM

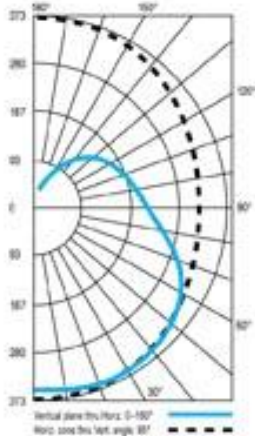
MAY 2014

4' LED

STIP4HOW40



CP DISTRIBUTION



COEFFICIENTS

% CEILING 80 % WALL 70	(20% FLOOR)	
	50	30
0	112	112
1	99	93
2	89	79
3	80	69
4	73	60
5	67	53
6	61	48
7	57	43
8	53	39
9	49	35
10	46	32

NOTES

STIP4HOW40
 White LEDs
 Total fixture lumens: 2,163
 CRI: 90.0
 R9 ≥ 50.0

WATTAGE

Per 4 ft. fixture.

White LED	Watts	Lumens
LO	24	1,168
HO	46.95	2,163

STICK MEDIA LUX CONSTRUCTION

INLINE PENDANT

- *Media* is a stand-alone 2, 3, 4, 6 or 8 ft. dual inline pendant fixture. Each fixture requires its own power feed.
- Aluminum extrusion, with a matte anodized finish.
- Diffuser is extruded, frosted white acrylic.
- Suspended with field-adjustable aircraft cable, with push-button glider.
- 8' gray 18 AWG power cord.
- Standard driver, constant voltage, 100W/24V, 120/277V, 50/60 Hz Class 2, in a remote housing.
- Back plate has a 1/2" opening for direct conduit feed and is not intended for J-box mount.
- cUL listed for dry locations.

LUX

Delray's *Lux* fixtures are second-generation LED luminaires that provide conventional lumen levels at less than or equal to 1.4W/FT².
Lux features Nichia Corp. NFSL757 linear board chips, available in 6W per foot (**LO** - Low Output), or 11.2W per foot (**HO** - High Output). White color temperatures include **W30** (3000K), **W35** (3500K), and **W40** (4000K); matching the traditional CCT of existing incandescent, fluorescent, and metal halide lamps.

- CRI: 90.0
- R9 ≥ 50.0

Lux provides the best lumen/watt ratio per fixture, as well as precise color temperature matching for multiple fixtures. Standard options include dimming, for scene control and energy management.

LM-79 TEST SUMMARY - MEDIA STILP448.W41HO

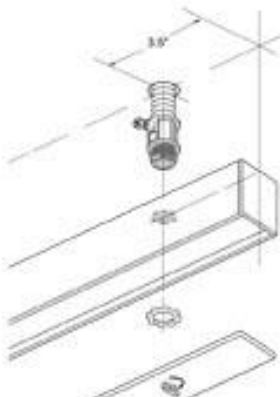
Driver:	100W/24V UNV
Total Lumens:	2163.52
Input Voltage (VAC/60Hz):	120
Input Power [W]:	46.95
Efficacy:	46.08
Color Rendering Index (CRI):	90.0

DIMMING DRIVER

- SDIM-White**
- For white LEDs only.
 - Driver: 100W/24V constant voltage, 120/277.
 - Use with 0-10V, purple/gray wire analog dimmers.

DRIVER/RAIL MOUNT INFO

Media driver and rail housings are shipped with one opening for direct connection to conduit with a third party 1/2" fitting (as shown below). To locate input power elsewhere, an alternate 1/8" opening may be drilled at the job site anywhere along the top of the aluminum rail housing.



RECESSED DRIVER

Driver must be accessible after installation. Order **SLRD**.



Max. Wiring Distance (at full load)

Wire Size (AWG)	Distance (ft.)
18	18
16	29
14	46
12	71
10	120

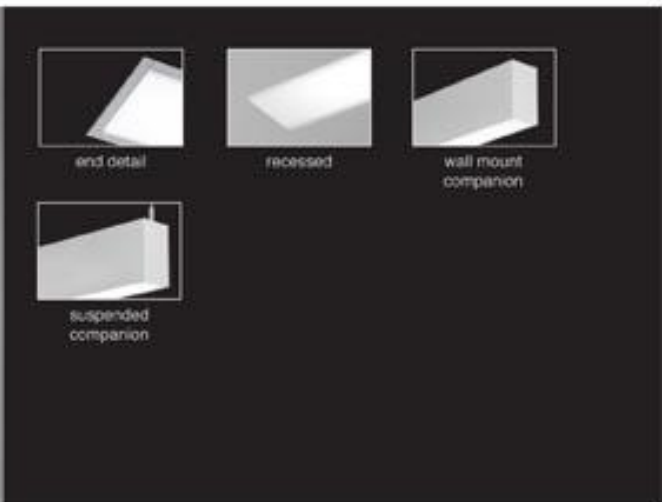
OPTIONAL J-BOX COVER

Cover plate mounts to maximum 4" square J-box. Driver housing mounts to wall on top of cover plate, which may be painted to match ceiling or wall, and includes two mounting spacers to offset cover thickness. Order **S100P**.

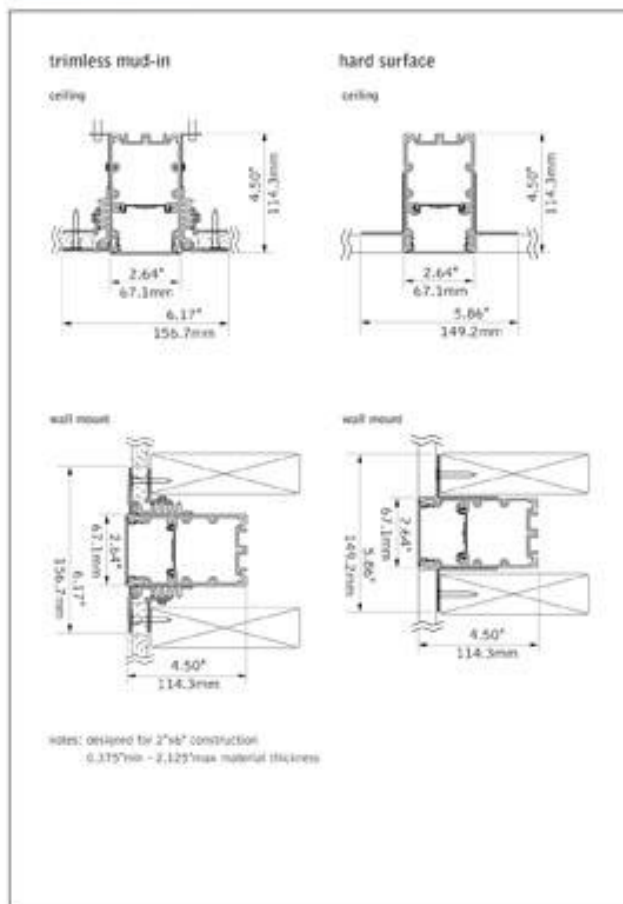


L9

Seem™ 2
LED WALL TO CEILING CORNER



DIMENSIONAL DATA



FEATURES

Narrow extruded aluminum 2.5" aperture recessed slot LED that transitions from wall to ceiling.

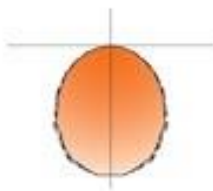
Clean and minimal trimless drywall mounting.

Continuous frosted acrylic lens provides uninterrupted illumination, without pixels or shadows.

LED position and lens material optimized to provide the perfect blend of high performance and visual comfort.

Choice of output levels to meet a wide variety of application needs.

PERFORMANCE



PRODUCT OVERVIEW

Lumen Output:	500-2476lm
Wattage:	8-38W
LPW:	63-71
SDCM:	3
Lumen Maintenance:	L70 @ 50,000hrs

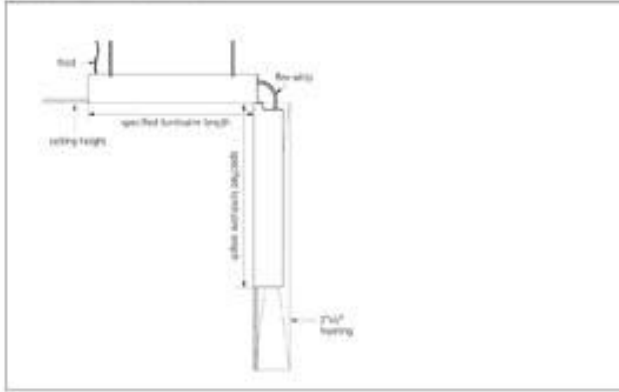
4' Flush Lens
Nominal output:
250 Lumens per foot
Delivered Lumens: 990lm
Total System Watts: 14W

Photometric performance is measured in accordance with IESNA LM-79
www.focallight.com for complete photometric data.

L9

Figure 1: Project

MOUNTING INFORMATION



SPECIFICATIONS

LED System

Proprietary linear LED module incorporates premium LEDs on a robust platform to achieve excellent thermal management. LEDs are placed to promote a uniform appearance. Available in 3000K, 3500K, 4000K with CRI>80, 35DCM. LED modules and drivers are replaceable from below.

Construction

One piece extruded aluminum housing, 20-Ga. steel end caps. Housing for new construction applications. XPW acceptable for use with wood, consult factory for Type IC availability. 2' unit weight: 5.1 lbs., 3' unit weight: 7.6 lbs., 4' unit weight: 10.1 lbs., 5' unit weight: 12.6 lbs.

Optic

Reflectors fabricated of 22-Ga. steel finished in High Reflectance White powder coat. Extruded acrylic lens .07" thick with satin finish.

Electrical

Luminaires are pre-wired with factory installed branch circuit wiring and over-molded quick connects. Standard 120-277V constant current driver includes 0-10V analog dimming. Power factor > .9. Emergency battery: IOTA OP-10. Emergency output - 10 watts for 90 minutes.

Labels

UL and cUL listed. Suitable for Dry or Damp Locations, indoor use only.

Finish

Polyester powder coat applied over a 5-stage pre-treatment.

Lumen Maintenance

L70 at 50,000 hours

Warranty

LED system rated for operation in ambient environments up to 25°C. 5 year limited warranty.

PERFORMANCE CHART

Shielding	Nominal Output	Tested System Watts	Delivered Lumens
	125LF	8	500
	125LF	8	500
Flush Lens	250LF	14	990
	375LF	21	1453
	625LF	38	2476

*Based on 3000K, 4' length. †Lumen output may vary by 5%. Actual output may vary by 10%.

Four Point LLC reserves the right to change specifications for product improvement without notification.

ORDERING

Luminaire Series	FSM2L
Seam 2 LED	FSM2L
Shielding	FL
Flush Satin Lens	FL
Nominal Output	125
125 Lumens per foot	125LF
<small>(Not available with LED driver. If minimum)</small>	
250 Lumens per foot	250LF
375 Lumens per foot	375LF
625 Lumens per foot	625LF
Color Temperature	40k
3000K	30K
3500K	35K
4000K	40K
Circuit	1C
Single Circuit	1C
Voltage	277
120 Volt	120
277 Volt	277
UNV Volt	UNV
<small>(Cannot be specified with EM option)</small>	
Driver	LD1
<small>(See driver reference for driver quantities)</small>	
0-10V - 10% Dimming	LD1
Lutron A-Series- Eco System	LSD
<small>(Consult factory for 3-wire control)</small>	
0-10V - 1% Dimming	
<small>(Consult factory)</small>	
Ceiling Configuration	
Wall to Ceiling corner, pre-set for 1/2" Drywall	CXF1
Wall to Ceiling corner, pre-set for 5/8" Drywall	CXF2
Wall to Ceiling corner, set drywall thickness in field	CXFF
<small>(Mounting equipment assembled in field)</small>	
Wall to Ceiling corner, Hard Surface, Non-Drywall	CXFN
Wall to Ceiling corner, Wood	CXFW
Factory Options	
Chicago Plenum	CP
Emergency Circuit	EC
Emergency Battery Pack* <small>(1' length or longer)</small>	EM
Flex Whip*	FW
Finish	WH
Matte White Housing	WH
Luminaire Length	
Specify luminaire/rod length in 1' increments	X'CX'W
<small>Example: 1000W-12' in ceiling, 8' in wall</small>	

*For more information visit fourpointlight.com/technical or consult factory.

L10

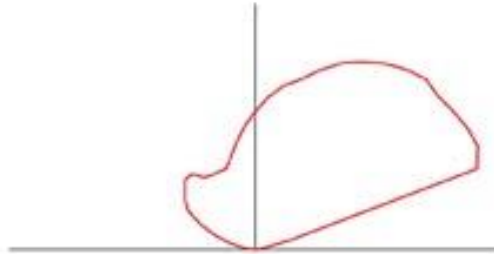
accoLED⁴

project

type

quantity

Optics



Total Lumens Delivered: 2235
 Total Watts: 38
 Lumens Per Watt: 58
 CRI: 80+
 Diode: Nichia 757
 60,000+ hrs
numbers based on a 4' fixture with dust cover

Additional Integrations Selections

Lengths:

non-standard nominal individual lengths: 5', 6', 7', 9', 10', 11'
 nominal rows longer than 24'
 exact lengths to the nearest 100th of an inch

Options:

custom finish
 endcap feed

Design-Assist:

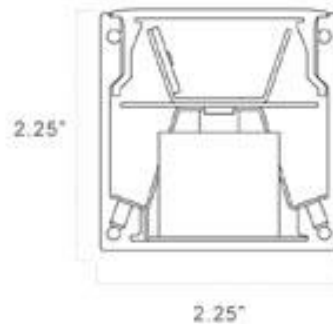
in-house [design-assist](#) team manages your unique project

Mounting:

- wall blocks
- +
- custom mounting
- precise lengths
- window mullion mount
- full span mount
- patterns
 - custom angles
 - precise lengths
 - wall-to-wall specification
 - fully tig-welded corners, sanded smooth to eliminate light leaks
 - fully lit corners with mitered lenses
 - seamless transitions between sections and various mounting types

suspended

Cross Section



Available Light Platforms



Available Mounting



L10

accoLED⁴

integrations

Linear Dimensions:

Standard lengths available are located on the 'elements' spec sheet. All other lengths should be specified as follows.

Nominal Row

R_{___}: Specify in nominal feet

Choose when nominal length is acceptable. Actual length will be shorter or longer due to metric lamp lengths. Lengths over 12' are comprised of multiple sections.

Examples: a nominal 54ft row begins as **ACL1R54**; a 7ft individual as **ACL1R7**

Exact Row

M_{___}: Specify overall length in inches to the nearest hundredth.

Choose when exact lengths are required as determined by space constraints, etc. Submittals required. Lengths over 12' are comprised of multiple sections.

Examples: an exact 54ft row begins as **ACL1M648.00**; a 7ft individual as **ACL1M84.00**

Pattern Dimensions:

Each pattern contains a precision-formed optical platform engineered for maximum light output and even distribution.

Pattern

P_{___x}: Specify overall length of each section in inches to the nearest hundredth.

Choose when multiple angles are necessary. Submittals required: contact our design-assist team and submit architectural drawings with precise lengths and angles required.

Examples: an exact 54ft section angling into a 7ft section begins as **ACL1P648.00x34.00**. Continue with another "x_{___}" for subsequent sections.

Lamping:

5yr warranty. >60,000hr LED life. Tested to LM-79 and LM-80. See wattage/lumen table for specifications per foot. All specifications are subject to change. Built with high-performance Nichia® LED's. Heat sync designed to ensure proper performance. LED boards are replaceable, built in foot-long increments. Board position/quantity to be determined by factory.



Driver:

Constant Current LED Systems:
 Inherent dimming
 Power Factor > 90%
 90°C case rating
 Inherent short-circuit protection
 <20% total harmonic distortion
 Extreme low-temperature performance to -40°C
 Sound rating A
 UL/CSA Listed Class 2 rating
 IP66 rated
 Universal 120-277V

Output:

LS_{___}: LED standard output 500 lm/ft 5 watts/ft
LH_{___}: LED high output 1200 lm/ft 10 watts/ft

Color Temp:

85CRI is standard; 90+ is available upon request. Insert a number for color temp after the LED

2-digit nomenclature

30 = 3000 K
35 = 3500 K
40 = 4000 K

Consult factory for special order color temperatures.

Mounting:

Milled Blocks: Milled aluminum blocks are used to mount fixture to wall or window mullion. Choose 1/2" or 1" deep. ADA compliant. (2) blocks provided per fixture. lengths 6ft or less; (3) blocks per 12ft.



Standard Wall: power typically runs through back of housing and special powerfeed block into wall.

Window Mullion: Power typically runs through special endcap into adjacent wall. Choose Right or Left End Feed in Options (as viewed facing fixture on wall). Notify our design-assist team for window mullion applications - submittals may be required.

Finish:

Electrostatically applied powder coat finish.

Construction:

60% recycled aluminum extruded housing. Precision milled endcaps.

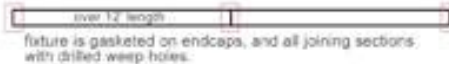
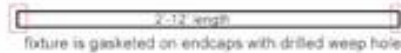
Listing:

UL/CUL, Damp or Wet Location.

Wet Label:

Specify in Options. Lens required.

Wet label standards ACL4



Family Luminaires:

accoLED1 suspended, accoLED2 suspended/wall, accoLED3 suspended/ceiling/wall, accoLED5 recessed

Companion Luminaires:

D4 wall, G4 wall, E4 wall.

L10

accoLED⁴

project type quantity

interior exterior

Series: ACL4

Dimension: M5

for standard lengths available: see 'elements' specification sheet

nominal length (specify length in feet) | R
 exact length (specify length in inches to the nearest 100th) | M
 pattern (specify length in inches to the nearest 100th) | P_x_

Mounting: R

standard wall mount | R
 wall mount blocks 1" | M1
 wall mount blocks 1/2" | M5
 bottom mount | O
 full span | J
 custom | C

Lamping: LS

LED standard output | LS
 LED high output | LH

LED Temp: 40

3000k | 30
 3500k | 35
 4000k | 40

Voltage: 2

universal 120V - 277V | U
 120V | 1
 277V | 2

Distribution: N

symmetric | M
 symmetric wall grazing ¹ | G
 asymmetric | N

Optics: D

open/no lens | O
 clear dust cover | D
 HTLO™ lens | H
 WSP™ lens | S

Finish: T

aluminum™ | T
 satin white | W
 satin black | B
 other - specify RAL# | O
 custom | C

Options: _____

3.325" extrusion height option ¹ | 3
 dimming - specify manufacturer, model/series and voltage | D
 emergency - specify model/series or lumens ¹ | E
 external fusing | F
 multi-circuit ² | M
 new york city code | N
 natatorium application ¹ | K
 wet label ¹ | Q
 right endcap feed | R
 left endcap feed | L

suspended

Legend:

1. Emergency ballast not applicable on lengths 3ft or less.
2. Multi-circuiting: submit multi-circuiting requirements during submittal process.
3. Lens is required for use in wet or natatorium locations.
4. Symmetric Wall Grate uses a single board in cross section.
5. Not available for direct wall mount. Must choose M1, M5, or O mounting option.

L11



Date: _____ Type: _____

Firm Name: _____

Project: _____

eW Fuse Powercore

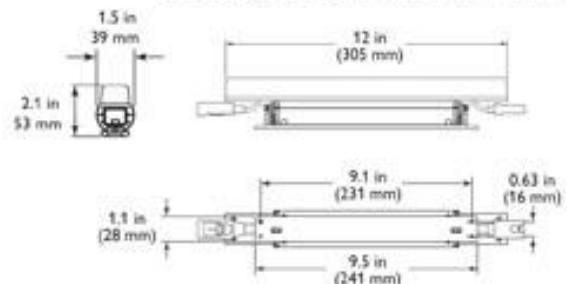
1 ft (305 mm), 12.5 W / ft, 4000 K, 10° x 60° beam angle

Linear interior LED wall grazing fixture with solid white light

With narrow and medium beams of intense white light, eW Fuse Powercore is an excellent choice for a full range of surface grazing and wall-washing applications. Its ultra-compact form factor permits installation in tight spaces too small to accommodate conventional grazing fixtures. Meets or exceeds the performance of comparable linear fluorescent fixtures while lowering installation, energy, and maintenance costs. Offers environmentally-conscious buyers a green, energy-efficient grazing fixture with industry-leading light quality and quantity.

- Lower cost than comparable fluorescent grazing fixtures — With long useful source life and low-maintenance operation, eW Fuse Powercore represents a cost-effective alternative to traditional grazing fixtures.
- High-performance illumination and beam quality — eW Fuse Powercore is available in 1 ft (305 mm) and 4 ft (1.2 m) die-cast aluminum housings with a 10° x 60° or 30° x 60° beam angle. Interlocking connectors accommodate end-to-end placement without visible light scalloping between fixtures.
- Multiple color temperatures — Available in 2700 K, 3000 K, 3500 K, and 4000 K color temperatures for applications calling for warm, neutral, or cool white light
- Integrates patented Powercore technology — Powercore rapidly, efficiently, and accurately controls power directly from line voltage, eliminating the need for an external power supply. Contractor-friendly installation dramatically simplifies installation and lowers total system cost.

- Support for multiple voltages — Accepts power input of 100 – 277 VAC for consistent installation and operation from line voltage in a variety of locations.
- Dimming capability — Patented DIMand technology offers smooth dimming capability with selected commercially available reverse-phase ELV-type dimmers.
- Simple installation — Powercore integrated power management technology simplifies installation and allows long product runs. Easy-to-install 4 ft (1.2 m) mounting tracks allow quick project setup in linear applications.
- Easy mounting and positioning — With end-to-end locking power connectors that can make



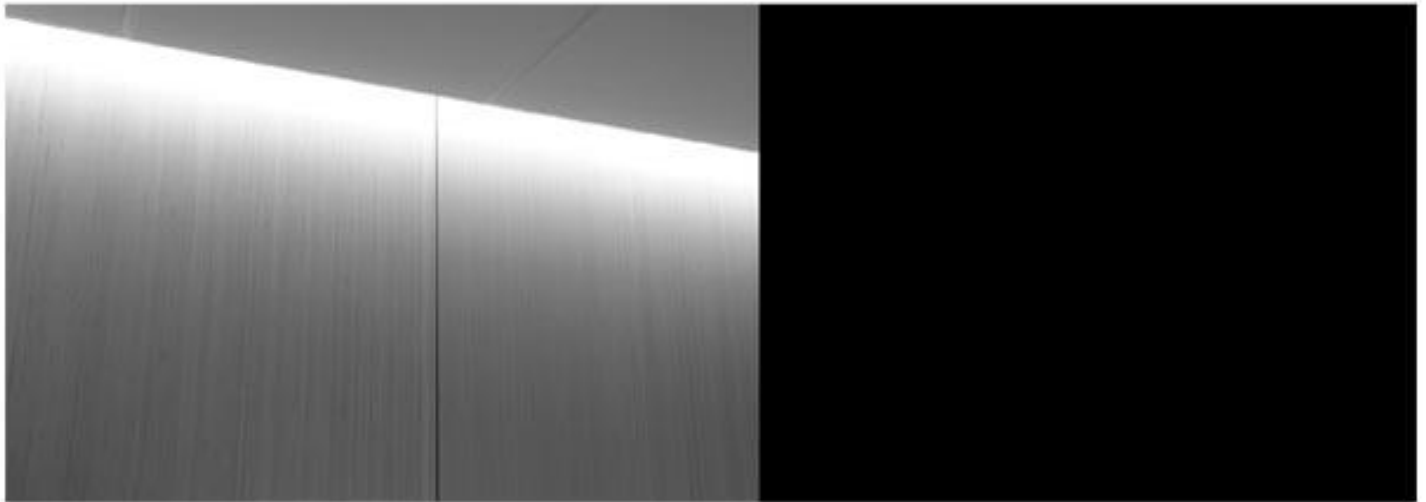
180° turns, eW Fuse Powercore fixtures are easy to position in even the most challenging mounting circumstances. Fixtures rotate in 10° increments through 180° for precise aiming and color mixing. Optional mounting tracks support vertical and overhead positioning. 1 ft (305 mm) and 5 ft (1.5 m) jumper cables can add extra space between fixtures.

For detailed product information, please refer to the eW Fuse Powercore Product Guide at www.philipscolorkinetics.com/ls/essentialwhite/ewfusepc/

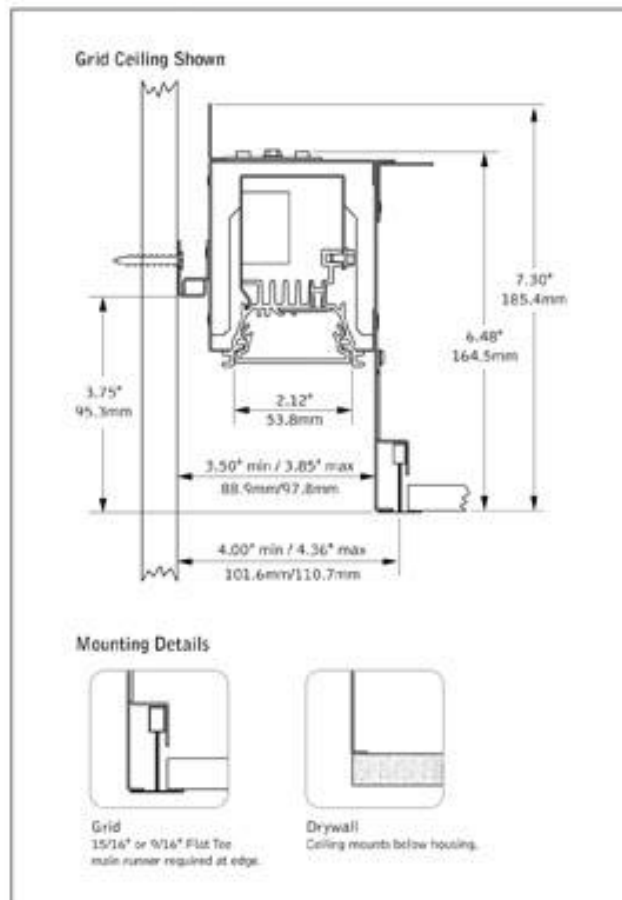
PHILIPS

L12

Trace™
LED



DIMENSIONAL DATA



FEATURES

- Low wattage LED slot provides glowing transition between wall and ceiling.
- Frosted lens with linear micro prism pattern obscures visibility to LED's and provides continuous, shadow-free illumination.
- Housing creates 3" architectural slot.
- Premium LEDs operate efficiently on a solid-core module platform to achieve excellent thermal management and reliable operation.
- L70 at 50,000 hours

PERFORMANCE

PRODUCT OVERVIEW

Lumen Output:	1207lm
Wattage:	23W per 4'
LPW:	53
SDCM:	3
Lumen Maintenance:	L70 @ 50,000hrs

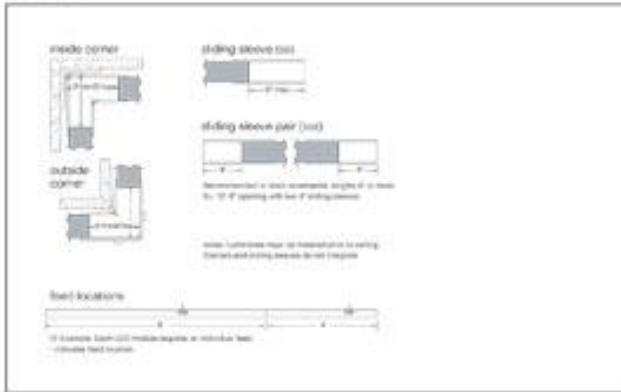
4' Luminaire
Delivered Lumens: 1207lm
Total System Watts: 22.9W

Photometric performance is measured in accordance with IESNA LM-79. Visit [focalpointlights.com](http://www.focalpointlights.com) for complete photometric data.

L12

Return [Project](#)

DETAILS



SPECIFICATIONS

LED System

Proprietary linear LED module incorporates premium LEDs on a solid-core platform to achieve excellent thermal management. Module is available in 3000K, 3500K or 4000K with CRI > 80. 0-10V dimming driver standard. LED module and driver are replaceable from below.

Construction

One piece .07" thick LED module housing of extruded aluminum. 20 Ga. steel outer housing creates floating ceiling effect and adjusts for alignment with walls. 20 Ga. steel internal bulkheads. 20 Ga. steel sliding sleeves and corners. 4' unit weight: 26 lbs.

Optic

Continuous illumination enabled by linear LED modules shielded by ribbed extruded frosted acrylic lens. .06" thick with opal satin finish. Extended outer housing provides cutoff to illuminated lens.

Electrical

Standard 120-277V driver includes 0-10V analog dimming. Power factor > .9.

Labels

UL and cUL listed. Suitable for Dry or Damp Locations. Indoor use only. Suitable for wood ceiling applications.

Finish

Polyester powder coat applied over a 5-stage pre-treatment.

Lumen Maintenance

L70 at 50,000 hours.

Warranty

LED system rated for operation in ambient environments up to 25°C. 5 year limited warranty.

ORDERING

Luminaire Series		FTRL
Trace	FTRL	
Shielding		AC
Frosted Acrylic Diffuser	AC	
LED System		LL1
Standard Output	LL1	
Color Temperature		35
3000K	30K	
3500K	35K	
Circuits		1C
Single Circuit	1C	
Voltage		277
120 Volt	120	
277 Volt	277	
Driver		LD1
0-10V Dimming	LD1	
Mounting		G
Grid	G	
Drywall	XF	
Factory Options		
Chicago Plenum	CP	
Emergency Circuit*	EC	
Flanged Ends	FL	
HLR/GLR Fuse	FU	
Sliding Sleeve	SS	
Sliding Sleeve Pair (2' minimum length)	SSB	
Finish		WH
Matte White Housing	WH	
Luminaire Length		4'
Specify luminaire row length in 1' increments (2' minimum)	XX'	
Corner Options		
90-degree Inside Corner	FTRL-IC90	
90-degree Outside Corner	FTRL-OC90	

L13

SATTLER

North-American Version

SOFT QUADRA LIGHT + ACOUSTIC

Housing: Aluminum profile, integrated acrylic cover. Fabric covering as a light and acoustic diffuser.
Design: SATTLER

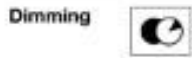


Size: L x W x H mm	Inches	LED Watt	Lumen ¹⁾	Weight kg ²⁾ / lbs ²⁾	Item No.	LED	Dimming	Finishes	Power Supply cable	Mounting Version
1250 x 1250 x 80	49.2 x 49.2 x 3.1	65	8.100	15 / 33,1	802.	X X	X X, X X	X X	X X X	X
1694 x 1694 x 80	66.7 x 66.7 x 3.1	87	10.900	17 / 37,5	814.	X X	X X, X X	X X	X X X	X



Neutral-white	4000 K	(Standard)	X X X	69.	X X, X X	X X	X X X	X
Cold-white	5000 K	(Optional)	X X X	62.	X X, X X	X X	X X X	X
Warm-white	3000 K	(Optional)	X X X	63.	X X, X X	X X	X X X	X
Extra warm-white	2700 K	(Optional)	X X X	61.	X X, X X	X X	X X X	X
RGB color control via dmx		(Optional)	X X X	60.	31. 00.	X X	X X X	X
RGB + Neutral-White (dmx) 4000 K		(Optional)	X X X	60.	32. 69.	X X	X X X	X

Combinations up to two strips of LED possible



Dimmable 0 - 10 V		(Standard)	X X X	X X	51. 00.	X X	X X X	X
DMX		(Optional)	X X X	X X	31. 00.	X X	X X X	X
LUTRON (contact factory)		(Optional)	X X X	X X	71. 00.	X X	X X X	X



(Standard) 11 white	(Optional) 22 aluminum polished	30 anthracite	27 brushed aluminum	32 crocodile black	33 sand silver fine textured			
	35 gold	36 brass	37 bronze fine textured	38 copper	39 architectural bronze			
	40 brass patinated	42 bronze patinated	44 wood veneer, white borders	XX Gubbin finish		X X X	X X	X X, X X



(Standard) Z 70 grey	(Optional) Z 71 white	Z 72 grey	Z 73 black					
	Z 74 orange	Z 75 red	Z 76 green					

26.1.15 SOFT QUADRA LIGHT + ACOUSTIC

www.sattler-lighting.com

1) The stated lumen output of the lights is without considering the acrylic covers or reflectors
2) Weight of lights without remote technical unit or canopy

- Custom sizes • Individual finishes
- Project-specific electrical adjustments

IP 20 Light distributor direct

Conforms to UL-STD 1598
Certified to CSA-STD C22.2 No. 250.0-08

L13

SATTLER

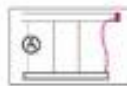
North-American Version

SOFT QUADRA
LIGHT + ACOUSTIC

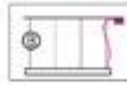
Housing: Aluminum profile, integrated acrylic cover. Fabric covering as a light and acoustic diffuser.
Design: SATTLER



Mounting Version



4-point suspension with external power supply unit in suspended ceiling (Standard)



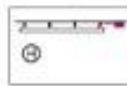
4-point suspension with external power supply unit in separate canopy (Optional)



suspension through canopy (Optional)



Direct ceiling mounting (white) 50mm / 1.9" with external power supply unit in suspended ceiling (Optional)



Direct ceiling mounting (white) 50mm / 1.9" with external power supply unit in separate canopy (Optional)

Item No.	LED	Dimming	Finishes	Power Supply cable	Mounting Version
X X X.	X X.	X X. X X.	X X.	X X X.	A
X X X.	X X.	X X. X X.	X X.	X X X.	B
X X X.	X X.	X X. X X.	X X.	X X X.	E
X X X.	X X.	X X. X X.	X X.	X X X.	G
X X X.	X X.	X X. X X.	X X.	X X X.	H

A, B, G, H = Distance of external power supply unit to light fixture max. 10m / 394".
E = Power supply unit in canopy Max. suspension height approx. 2.5 times diameter of light.

Mounting versions with steel cable length 5000mm / 197" and power supply cable silver, length 5000mm / 197"

X X X.	X X.	X X. X X.	X X.	X X X.	X
--------	------	-----------	------	--------	---

Complete order number

Dimensions of external power supply units

Typ	Size mm / inch	For use with
	L W H	Mounting Version
DE 1F	360 x 150 x 85 mm / 14.7 x 5.9 x 3.3"	A, G

Dimensions of canopies

Typ	Size mm / inch	For use with
	Ø cover plate / body	Mounting Version
DB 290	Ø 290 / 290 mm / 11.4 x 10.2"	B, E, H (1250 mm)
DB 350	Ø 350 / 320 mm / 13.7 x 12.5"	B, E, H (1694 mm)

Canopy finish: white (11)
contact factory for other finishes

USA/Canada: Canopy mounts to 4" octagonal junction box.

Input voltage for all external power supply units and canopies is **120 / 277 VAC 50 / 60 Hz**

26.1.15 SOFT QUADRA LIGHT + ACOUSTIC

www.sattler-lighting.com

1) The stated lumen output of the lights is without considering the acrylic covers or reflectors
2) Weight of lights without remote technical unit or canopy

- Custom sizes • Individual finishes
- Project-specific electrical adjustments



Conforms to UL STD 1398
Certified to CSA-ETC C22.7
No. 2612-08

L14A



Luminaire Type: **ICO SQ 40/30 4AR 250 277**
 Catalog Number (autocatalyzed):



Gotham Architectural Downlighting
 LED Downlights

4" Incito® Square Downlight

Solid-State Lighting
 (US and International Patents Pending)

FEATURES

OPTICAL SYSTEM

- Eleven preset distribution patterns allow designers to achieve various objectives.
- Self-flanged semi-specular or matte-diffuse, metal-clad lower reflector utilized in combination with a highly transmissive lens.
- Patented Bounding Ray™ Optical Principle design (U.S. Patent No. 5,800,050) provides 45° cut-off to source and source image for a smooth transition from top of the reflector to bottom.
- Field interchangeable optics.

MECHANICAL SYSTEM

- Light engine and driver are accessible from above or below ceiling.
- 16-gauge black painted steel mounting frame with C-channel mounting bars included. Post-installation adjustment possible from above or below ceiling.
- Galvanized steel junction box with hinged access covers and spring latch. Three combination 1/2"-3/4" and one 1/2" knockout for straight-through conduit runs. Capacity: 8 (4in, 4cut) No. 12 AWG conductors rated for 90°C.
- Accommodates up to 1 1/8" thick ceilings.
- Patented adjustable aperture allows 1/4" adjustments in all directions and up to 5° of rotation allowing post-installation adjustments to ensure trim to trim alignment.

ELECTRICAL SYSTEM

- IC-rated up to 1250 lumens.
- Solid-state LED light engine available in 2700 K, 3000 K, 3500 K or 4000 K color temperatures. CRI: 83 typical.
- eidoLED SOLOdrive 0-10V driver standard with <1% dimming level.
- eidoLED SOLOdrive DALI driver available with <1% dimming level.
- eidoLED POWERdrive DMX with RDM (remote device management) available with <1% dimming level.
- Rated system life of 50,000 hours at 70% output.
- Emergency battery pack with remote test switch available.

LISTINGS

- Fixtures are CSA certified to meet US and Canadian standards; wet location, covered ceiling.

WARRANTY

- 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/terms_and_conditions.aspx

ORDERING INFORMATION

EXAMPLE: ICO SQ 30/50 4AR 200 120 EZB

ICO SQ	40/30		4AR		25D		277
Series	Color temperature	Nominal lumen values	Aperture/Trim color		Finish	Beam	Voltage
ICO SQ	27/ 2700 K	05 500 lumens	4AR	Clear	(blank)	100° 10° beam angle	120
	30/ 3000 K	07 750 lumens	4PR	Pewter	LD	150° 15° beam angle	277
	35/ 3500 K	10 1000 lumens	4WTR	Wheat		200° 20° beam angle	347
	40/ 4000 K	12 1250 lumens	4WR	White		250° 25° beam angle	
		15 1500 lumens	4BR	Black		300° 30° beam angle	
		20 2000 lumens				350° 35° beam angle	
	25 2500 lumens				400° 40° beam angle		
	30 3000 lumens				450° 45° beam angle		
					550° 55° beam angle		
					600° 60° beam angle		
					650° 65° beam angle		

Driver	Options
EZB eidoLED SOLOdrive 0-10V dimming driver. Minimum dimming level <1%.	SF Single fuse
EDAB eidoLED SOLOdrive DALI dimming driver. Minimum dimming level <1%.	TRW White painted flange
EDXB eidoLED POWERdrive DMX with RDM (remote device management). Minimum dimming level <1%. Includes termination resistor.	TRBL Black painted flange
	ELR Emergency battery pack with remote test switch
	CP Chicago presuit
	NPS8BEZ nLight® dimming pack controls 0-10V eidoLED drivers.
	NPS8BEZ ER nLight® dimming pack controls 0-10V eidoLED drivers. ER controls fixtures on emergency circuit.
	RRL RELOC®-ready luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature.



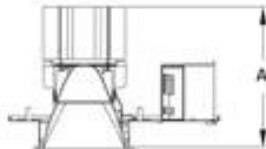
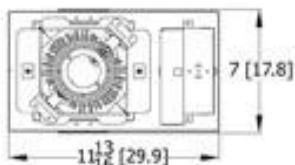
L14A

4" INCITO SQUARE
Open Reflector
 Solid-State Lighting



DIMENSIONAL DATA

All dimensions are inches (centimeters) unless otherwise noted.



Aperture: 4-1/2 [11.4]
 Ceiling Opening: 5-1/8 [13]
 Overlap Trim: 5-1/2 [14]

LUMENS	A
Up to 1000	6 [15.2]
Up to 1500	7 [17.8]
Above 1500	8 [20.3]

ELECTRICAL

WATTAGE CONSUMPTION MATRIX	
LUMENS	WATTAGE
500	8
750	12
1000	17
1250	18
1500	23
2000	27
2500	35
3000	42

LUMEN OUTPUT MULTIPLIER PER COLOR TEMPERATURE	
CCT	FACTOR
2700K	0.938
3000K	0.973
3500K	1
4000K	1.035

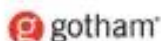
EL/ELR AVAILABILITY / COMPATIBILITY – Initial Lumens				
LED			Initial Lumens	
Product	Lumens	Watts	EL/ELR	ELRHL
IC0 4"	500-3000	7-42	530	N/A

nLight® Control Accessories:
 Order as separate catalog number. Visit www.sensorswitch.com/nLight for complete listing of nLight controls.

WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODM [color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 / nCM PDT 9
On/Off & Raise/Lower	nPODM DX [color]	Large motion 360°, ceiling (PIR / dual tech)	nCM 10 / nCM PDT 10
Graphic Touchscreen	nPOD GFX [color]	Wide view (PIR / dual tech)	nWV 16 / nWV PDT 16
Photocell controls	Model number	Wall Switch w/ Raise/Lower (PIR / dual tech)	nWSX LV DX / nWSX PDT LV DX
On/Off & Dimming	nCM ADCX	Cat-5 cables (plenum rated)	Model number
		10', CAT5 10FT	CAT5 10FT J1
		15', CAT5 15FT	CAT5 15FT J1

NOTES

ORDERING NOTES	
1. Not available with finishes.	5. Not required for BR reflector.
2. Only available 1000lm and below.	6. Must specify 120 or 277V. Not available with 347V.
3. Not available with ELR emergency option.	7. Above ceiling access required for use with ELR option.
4. Not required for WR reflector.	8. For use with generator supply EM power. Will require an emergency hot feed and normal hot feed.



L15

The Big Ass High Bay LED

The Big Ass High Bay LED is a high performance, high efficiency LED luminaire engineered to be the ideal fixture for your environment. Designed with long term performance and energy efficiency in mind, the Big Ass High Bay LED is sold with a 7-year warranty.

The Big Ass High Bay LED features a single piece housing of anodized, extruded aluminum which provides superior heat dissipation and impact resistance. Our patent pending lumen maintenance tray not only protects the fixture from dirt and debris, it also provides optimal light distribution.

Features and benefits

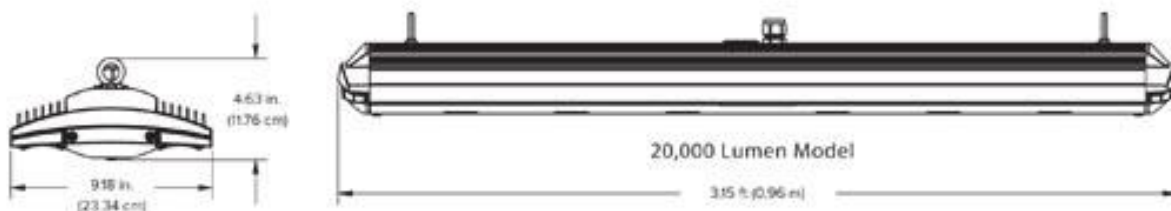
- Complete 7-year product warranty
- Patent pending lumen maintenance tray directs light from 55 to 105 degrees
- Heavy duty anodized, extruded aluminum construction
- DLC listed
- Certified by TÜV SÜD to UL and CSA standards
- Single piece aluminum housing for improved heat dissipation
- Energy efficient; up to 110 lumens/watt
- Most aesthetically pleasing LED product on the market
- Predicted to maintain 70% of initial output for up to 150,000 hours



L15

High Bay LED Series

TECHNICAL SPECIFICATIONS



Ordering Information								
Lighting	Series	Lumen Output	Color Temperature	System Voltage	Lumen Maintenance Tray	Cord Length ¹	Mounting Hardware ²	Controls
BAL	HBL1	20: 20,000 lm	04: 4000 K 05: 5000 K	01: 120-277 V 02: 347-480 V	00: None 01: Narrow 02: Regular 03: Wide	00: No cord 06: 6 ft (1.83 m) 10: 10 ft (3.05 m)	01: Aircraft cable, 10 ft (3.05 m) 02: Aircraft cable, 20 ft (6.10 m) 03: Pendant mount, 1/2 in. (12.7 mm) NPT 04: Pendant mount, 3/4 in. (19.05 mm) NPT	00: None Occupancy! 01: Photo, with dimming 03: External dimming

Note: Lead times may vary depending on options selected

Light Efficiency ³				
High Bay LED Series	Wattage	Efficacy ⁴	Color Temperature	CRI
20,000 Lumen Model	194 W	108 lumens/watt	4000 K, 5000 K	73-

Note: Light output numbers reflect fixture without lumen maintenance tray

Weight	25 lb (11.34 kg)
Power Input	120-277 V; 347-480 V ⁵
Dimming	0-10 V
Sensors	Optional programmable, onboard occupancy/photo sensor with wireless remote
Reliability	L70 predicted to exceed 150,000 hours at 25°C (77°F)
Environment	Suitable for dry and damp interior environments
Construction	Extruded anodized aluminum housing (single piece)
Maintenance	Zero tool access to lumen maintenance tray ⁶ ; hinged door access to power supplies
Temperature Rating	-35 to 55°C (-31 to 131°F)
Warranty	7 year complete fixture warranty; warranty includes power supplies
Certifications	Certified by TÜV SÜD to UL 1598 and CSA C22.2 No.250.0; DLC listed

¹ Please consult manufacturer for custom cord lengths
² Please consult manufacturer for any pendant mounting distances in excess of 25 feet
³ Measured at 25°C ambient
⁴ Measured at 5,000 K color temperature
⁵ Additional transformer required for 347-480 V; consult manufacturer for details
⁶ Acrylic lumen maintenance tray may not be suitable for all industrial environments; please contact manufacturer for details



L16

D4 | accolade⁴

project

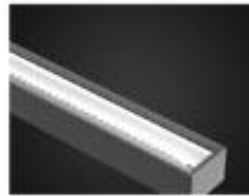
type

quantity

Optics



WISP™



sawtooth

Additional Integrations Selections

Lengths:

non-standard nominal individual lengths: 5', 6', 7', 8', 10', 11'
nominal rows longer than 24'
exact lengths to the nearest 100th of an inch

Options:

custom finish
endcap feed
MRI configuration

Design-Assist:

in-house design-assist team manages your unique project

Mounting:

wall blocks or set-off brackets
+

custom mounting

precise lengths
window mullion mount
full span mount

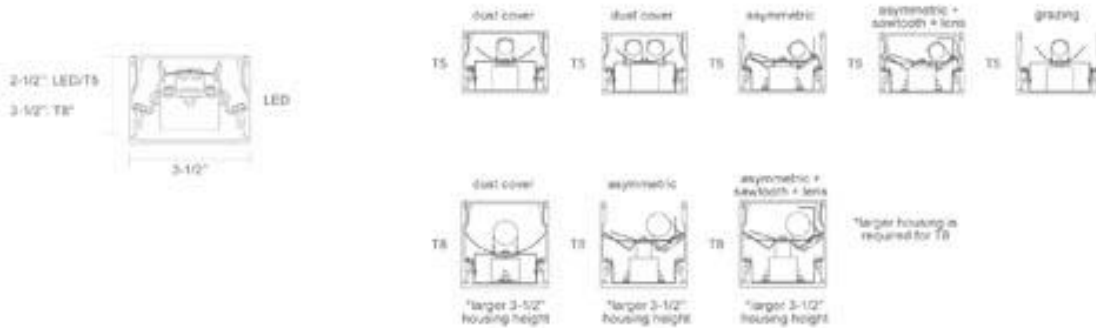
patterns

- custom angles
- precise lengths
- wall-to-wall specification
- fully tig-welded corners, sanded smooth to eliminate light leaks
- fully lit corners with ribbed lenses
- staggered trays eliminate socket shadows
- seamless transitions between sections and various mounting types
- LED recommended for patterns

wall
cove

Cross Sections

Multiple configurations available - sampling shown



Available Light Platforms



Available Mounting



L16

D4 | accolade⁴
 integrations
Linear Dimensions:

Standard lengths available are located on the 'elements' spec sheet. All other lengths should be specified as follows...

Nominal Row

R___: Specify in nominal feet.

Choose when nominal length is acceptable.

Actual length will be shorter or longer due to metric lamp lengths. Lengths over 12' are comprised of multiple sections.

Examples: a nominal 54ft row begins as **D4R54**; a 7ft individual as **D4R7**.

Nominal Wet Location Run

G___: Specify in nominal feet.

Choose when nominal length is acceptable and wet location is necessary. Actual length will be shorter or longer due to metric lamp lengths. Lengths over 12' are comprised of multiple sections with minimal endcaps, joined via wet rated connectors (by others).

Examples: a nominal 54ft row begins as **D4G54**; a 7ft individual as **D4G7**.

Exact Row

M___: Specify overall length in inches to the nearest hundredth.

Choose when exact lengths are required as determined by space constraints, etc.

Submittals required. Lengths over 12' are comprised of multiple sections.

Examples: an exact 54ft row begins as **D4M648.00**; a 7ft individual as **D4M84.00**.

Pattern Dimensions:

Each pattern contains a precision-formed optical platform engineered for maximum light output and even distribution.

Pattern

P___**x**___: Specify overall length of each section in inches to the nearest hundredth.

Choose when multiple angles are necessary. Submittals required; contact our design-assist team and submit architectural drawings with precise lengths and angles required.

Examples: an exact 54ft section angling into a 7ft section begins as **D4P648.00x84.00**. Continue with another "x___" for subsequent sections.

Lamping:

LED: 5yr warranty, >60,000hr LED life. Tested to LM-79 and LM-80. See wattage/lumen table for specifications per foot. All specifications are subject to change.



T5/T5HO: Single or dual lamps in cross section or staggered single lamping. Low-profile electronic, high power factor, program start, sound rating A, inherent thermal protection, UL listed Class P, <10% THD. Dimming: specify manufacturer/model.



T8: Single or dual lamps in cross section or staggered single lamping. Low-profile electronic, choose low, standard or high power factor, instant start, sound rating A, inherent thermal protection, UL listed Class P, <10% THD. Specify if program start or custom ballast factor required. Dimming: specify manufacturer/model.

**Mounting:**

Standard Wall Mount: Fixture mounts directly to wall. Power connects inside fixture using BX or MX style wiring. ADA compliant.



Milled Blocks: Milled aluminum blocks are used to mount fixture to wall or window mullion. Choose 3/8", 1/2", 1" or 2" deep. ADA compliant with 3/8" or 1/2" blocks. (2) blocks provided per fixture, lengths 8ft or less; (3) blocks per 12ft.



Standard Wall: power typically runs through back of housing and special powerfeed block into wall.

Window Mullion: Power typically runs through special endcap into adjacent wall. Choose Right or Left End Feed in Options (as viewed facing fixture on wall). Notify our design-assist team for window mullion applications - submittals may be required.

Horizontal Set-Off Brackets: Fixture mounts via 1" or 1/2" set-off bracket to single gang box (by others). ADA compliant with 1/2" set-off. (2) brackets provided per length up to 12ft.



Bottom Mount: Fixture sits on cove, shelf, beam, mullion or other. Power connects inside fixture using BX or MX style wiring, typically through housing back, unless otherwise specified. Other options may include endfeed, power through bottom of housing or via powercord through top of housing, consult factory.



Full Span: Fixture spans from wall-to-wall or other object. Utilizes endfeed with sit-in brackets at each wall. Center suspension cables required for support if longer than 16'. Individual fixtures, as a single length extrusion longer than 12' up to 16', require special-order housings. Consult factory with architecture details - submittals required.

**Finish:**

Electrostatically applied powder coat finish.

Construction:

60% recycled aluminum extruded housing. Precision milled endcaps. Optional MRI housing configuration is specially built with all non-ferrous materials.

Listing:

UL/CUL, Damp or Wet Location.

Companion Luminaires:

D1 suspended, D2 suspended/wall, D3 suspended/ceiling/wall, D5 recessed, D6 recessed.

Legend:

- Emergency ballast not applicable on lengths 3ft or less.
- Multi-circuiting: submit multi-circuiting requirements during submittal process.
- Standard on/off occupancy sensor; Wattstopper FS-205 with minimal 1" diameter.
- Standard occupancy sensor with photocell; Wattstopper FS-205 wired for daylight harvesting. Requires 0-10V dimming ballast.
- T8 requires larger housing 3-1/2" x 3-1/2".
- Fluorescent only. Not available with staggered or dual lamping.
- Lens is required for use in wet or non-hazardous locations.
- Staggered lamping not recommended with HTLO™.
- Staggered lamping not available on lengths less than 8ft. 8ft length uses 3-3ft lamps. 12ft uses 2-3ft and 2-4ft lamps.
- LED configuration uses (2) boards in cross section, doubling lumen output.
- LED or fluorescent 1 lamp in cross section. Not available with staggered or dual lamping.

L16

D4 | accolade⁴

project type quantity

interior

- Series: **D4**
- Dimension: **R11**
- for standard lengths available: see "elements" specification sheet
- damp location nominal length (specify length in feet) **R** _____
- wet location nominal length (specify length in feet) **G** _____
- exact length (specify length in inches to the nearest 100th) **M** _____
- pattern (specify length in inches to the nearest 100th) **P_x** _____
- Lamping: **LH**
- LED standard output **LS**
- LED high output **LH**
- T5 (1) **S**
- T5HO (1) **H**
- T5 (2) **D**
- T5HO (2) **O**
- T5 staggered ¹ **2**
- T5HO staggered ¹ **4**
- T5 (1) low output ¹ **T5L**
- T5 (1) standard output ¹ **T5S**
- T5 (1) high output ¹ **T5H**
- LED Temp (if applicable): **40**
- 3000k **30**
- 3500k **35**
- 4000k **40**
- Voltage: **Z**
- universal 120V - 277V **U**
- 120V **1**
- 277V **2**
- 347V **3**
- Distribution: **N**
- symmetric ¹ **M**
- symmetric wall grazing (narrow reflector) **G**
- asymmetric w/ sawtooth ¹ **T**
- asymmetric w/o sawtooth ¹ **N**

- Optics: **D**
- open/no lens **O**
- clear dust cover **D**
- a-cirrus™ lens **A**
- HTLO™ lens ¹ **H**
- W-SP™ lens **S**
- custom **C**
- Mounting: **O**
- standard wall mount **R**
- wall mount blocks 1" **M1**
- wall mount blocks 2" **M2**
- wall mount blocks 3/8" **M3**
- wall mount blocks 1/2" **M5**
- horizontal setoff bracket 1" **H1**
- horizontal setoff bracket 1/2" **H5**
- bottom mount **O**
- full span **J**
- custom **C**
- Finish: **T**
- a-lithanium™ **T**
- satn white **W**
- satn black **B**
- textured eggshell white **E**
- other - specify RAL# **O**
- custom **C**
- Options:
- dimming - specify manufacturer, model/series and voltage **D**
- emergency (fluorescent only) - specify model/series or lumens ¹ **E**
- external fusing **F**
- multi-circuit ¹ **M**
- new york city code **N**
- occupancy sensor ¹ **O**
- photoeye/daylight sensor ¹ **P**
- natorium application ¹ **K**
- wet label ¹ **Q**
- right endcap feed **R**
- left endcap feed **L**
- MRI housing configuration **MRi**



LED	symmetric 2 boards in cross		asymmetric T board in cross	
	watts/ft	lumens/ft	watts/ft	lumens/ft
LS	10	1200	5	600
LH	20	2400	10	1200

Lumens at board of 4000k.
Consult IES file online for delivered lumens.
Specifications subject to change.

L17

selux

Date: _____ Customer: _____
 Project: Oakland University Engineering Center
 Type: _____ Qty: _____

M60
LED Direct



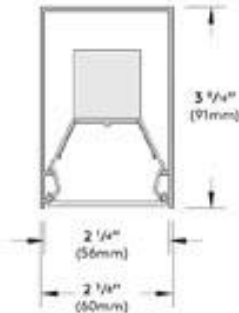
Order Code: L60 - 1A35 - 40 - LW - F - 11 - SV - 277 - - - - -

<u>L60</u>	Series	L60 M60 LED Direct													
<u>1A35</u>	Light Engine	1A35¹ 628lm/8.4W per foot	1A30^{1,2} 552lm/7.2W per foot	1A25^{1,2} 484lm/6.0W per foot	1A20^{1,2} 376lm/4.9W per foot							<small>*Power calculated from a 4' fixture @400°F using 1W shielding and standard drive. For additional information please see page 1. *Module starting at 2' and up.</small>			
<u>40</u>	CCT	27 2700K	30 3000K	35 3500K	40 4000K										
<u>LW</u>	Shielding	LW LED Optimized white lens													
<u>F</u>	Mounting	C Cable	S Swivel Stem	R5 Rigid Stem	W³ Wall Mount	F⁴ Surface Mount (w/ Flex Whip)						<small>*Consult factory for lengths under 2' *Over 2' supplied with 2 or more housings that are joined in the field.</small>			
<u>11</u>	Nominal Fixture Length	01 1 ft.	02 2 ft.	03 3 ft.	04 4 ft.	05 5 ft.	06 6 ft.	07 7 ft.	08 8 ft.	09 9 ft.	10 10 ft.	11 11 ft.	12 12 ft.	XX Runs (over 12') & Configurations, round up to the nearest foot and replace the "xx" with the # (i.e. 13-12' nominal)	
<u>SV</u>	Finish	WH White	BK Black	SV Silver	SP Specify Premium Color	Custom colors are available. Please consult factory.									
<u>277</u>	Voltage	120 120 Volt	277 277 Volt	UNV 100 thru 277 50/60Hz capable											
	Fixture Options	DL⁵ Damp Location Rated	FS⁶ In-line Fuse	SS⁶ Separate Switching	<small>*See page 8 for full details and restrictions.</small>										
	Dimming Options	DM^{6,7} 0-10V (Line)	DML^{6,7} 0-10V (Logarithmic)	DMD^{6,7} DALI (Logarithmic)	DC2^{6,7,8} Lutron 2-Wire	DC3^{6,7} Lutron 3-Wire	DCE^{6,7} Lutron Eco System							<small>*See page 7 for full details. Not available for 1' length. *UL only.</small>	
	Emergency Options	EC⁹ Emergency Circuit Wiring <small>*See page 8 for full details and restrictions.</small>													
	Configuration Options	IL90¹⁰ LR Horizontal 90° Corner	V90¹⁰ LR Inverted 90° Corner	IT90¹⁰ LR T° section	IX90¹⁰ LR X° section										<small>*See page 10 for full details and restrictions.</small>



L17

selux

M60
LED Direct**Construction:**

Housing - Continuous, low copper 6063-T6 extruded aluminum profile with aluminum endcaps, available as Individual fixtures (up to 12') or Runs.

Geartray - Low copper 6063-T6 extruded aluminum profile

Shielding - Extruded, impact resistant acrylic lens:

- LED optimized white lens (LW)

Mounting(s) - 1/16" Aircraft Cable, Ø5/8" Swivel or Rigid Steel Stem, Wall Bracket, Surface mounting (see pages 3 thru 6 for details).

** Cable, Stem and Wall mountings may not be symmetrical for Runs and Configurations due to the use of modular housing lengths. If symmetrical suspensions are required please consult the factory.

Standard Luminaire lengths - All standard luminaires are supplied in nominal lengths to ensure full, even, illumination. Runs and Configurations are available in approximately 1/4" increments starting at the nominal 12" fixture length.

** Individual luminaires are not joinable in the field.

Exact length luminaires - Individual luminaires, runs, and configuration are available in exact lengths to meet your project needs. Please consult factory with your requirements.

** Lens luminance may soften at the very ends of the straight sections for exact length luminaires.

L60 Joiner(s) - Runs and configurations are supplied in multiple housing that are joined together in the field using the supplied L60 Joiner System. This allows ease of installation and ensures a uniform appearance (see page 8 for detail).

Electrical/Performance:

LED Light Engine - Brand-name mid-power LEDs create a high efficiency LED light engine able to provide a lumen maintenance of 96% at 25,000 hours and 93% at 60,000 hours per TM-21 report.

LED Life - Calculated L70 greater than 398,000 hours and Reported L70 greater than 60,000 hours @ 25°C per TM-21

Delivered Lumens - Due to LED manufacturer's tolerances the listed output has a ±5% tolerance. For outputs based on different shielding or CCT please see photometry section at the end.

CCT - Available in 2700K, 3000K, 3500K and 4000K, tolerance within a 3-step MacAdam ellipse.

CRI - Min, 80

All Drivers - High efficiency, constant current, soft start, Electronic Class 2 with a PFC>0.90. For more detailed information on the available drivers please see page 7.

Thermal Performance:

Ambient Operating Temperature - Luminaires suitable for Max. ambient temperature of 35° C. (95° F) for all drivers, standard and optional.

Min. ambient temperature of:
-20°C (-4°F) for the Standard driver and optional DML and DMD drivers.
0°C (32°F) for the optional DC2, DC3 and DCE drivers.

Luminaire Finish:

Powder Coat - All Selux luminaires are finished in high quality polyester powder coating in our Tiger Drylac certified facility and are tested in accordance with test specifications for coatings from ASTM and PCI.

All products undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated, and sealed. Selux powder coated products provide excellent salt and humidity resistance as well as ultra violet resistance for color retention.

Standard interior colors are White (WH), Black (BK), and Silver (SV). Selux premium colors (SP) are available, please specify from your Selux color selection guide.

Warranty:

5 Year Limited LED Luminaire Warranty - Selux offers a 5 Year Limited Warranty to the original purchaser that the M60 series LED luminaire shall be free from defects in material and workmanship for up to five (5) years from date of shipment. This limited warranty covers the LED driver and LED light engine when installed according to Selux instructions and operated within the Ambient Temperature. For additional details and exclusions, see "Selux Terms and Condition of Sale."

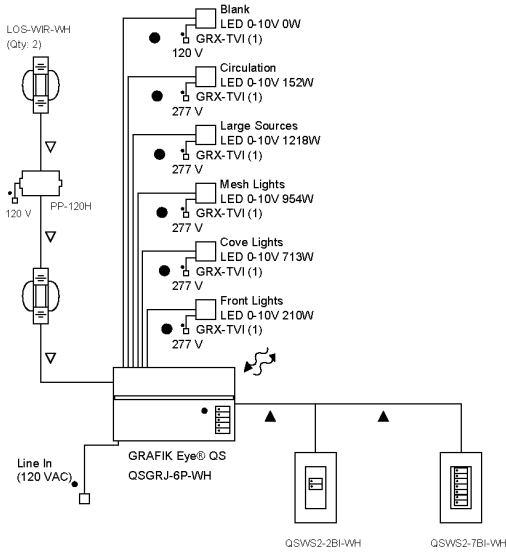
Certifications and Compliance:

NRTL - For Dry and Damp location
(i.e. cULus; cCSAus)

ADA Compliant
ARRA Compliant
RoHS Compliant

Appendix IV | Electrical Controls Sheets

GRAFIK Eye® QS One Line Diagram



Wiring Notes:	● 2 #12 AWG (2.5 mm ²)	▼ 2 #18 AWG (1.0 mm ²)	■ 277 VAC Input Power	▲ Lutron GRX-CBL-346S or GRX-PCBL-346S
	▽ 3 #18 AWG (1.0 mm ²)	□ 120 VAC Input Power	* Only connect 3 wires (Common, mux, mux)	

Lutron

Project Name: Oakland University Engineering Center	Page: 1
Project Number:	

GRAFIK Eye. QS	Bill of Materials
-----------------------	--------------------------

Description	Model Number	Qty.
GRAFIK Eye® QS Wireless Control Unit	QSGRJ-6P-WH	1
Occupancy Sensor, Infrared, 2500 sq ft, active high, 20-24 VDC, white	LOS-WIR-WH	2
Occupancy Sensor Power Pack	PP-120H	1
Power Module	GRX-TVI	6
QS 7-Button Wallstation, insert	QSWS2-7BI-WH	1
QS 2-Button Wallstation, insert	QSWS2-2BI-WH	1
Lutron		

Project Name: Oakland University Engineering Center

Project Number: **Page:** 2

GRAFIK Eye® QS

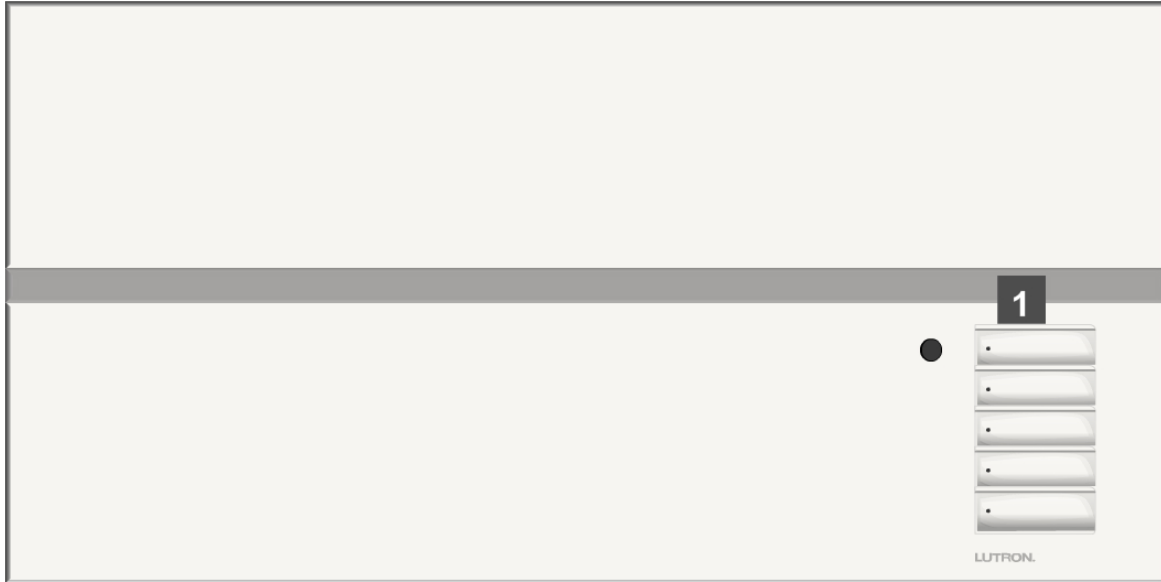
Button Kit Engraving Form

Project Information

Project Name: Oakland University Engineering Center
 Installer Company: _____
 Installer Name: _____
 Phone: _____

Shipping Information

Name: _____
 Company: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: _____ Fax: _____



Type:	Model Number:	Engraving Certificate Number:	Button color:
1 Scene Control			white (WH)

Lutron Electronics Co. Inc.
 Dept 309 engraving
 7200 Suter Road
 Coopersburg, PA 18036
 www.lutron.com
 Phone: 610.282.3800



Project Name: Oakland University Engineering Center

Lutron Project #:

P.O.#:

Lutron Order #:

Page: 3

GRAFIK Eye. QS

Load Schedule

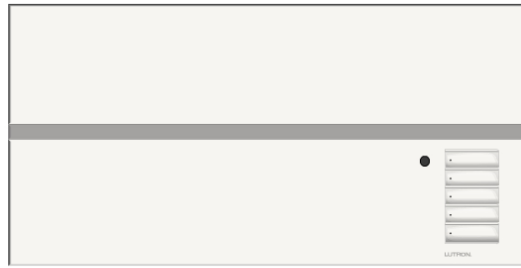
Model Number: QSGRJ-6P-WH**Phase Control Zones**

Zone	Name	Load Type	No. Fixtures	Wattage/Fixture	Total Wattage
1	Front Lights	LED 0-10V	5	42	210
2	Cove Lights	LED 0-10V	31	23	713
3	Mesh Lights	LED 0-10V	159	6	954
4	Large Sources	LED 0-10V	14	87	1218
5	Circulation	LED 0-10V	19	8	152
6	Blank	LED 0-10V	0	0	0

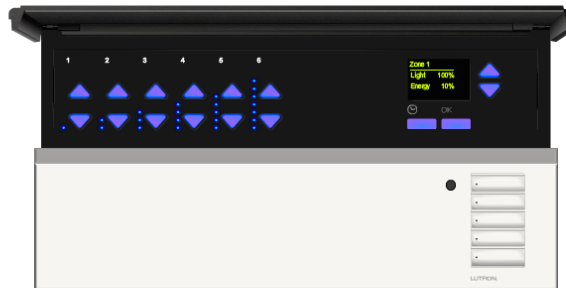
Lutron**Project Name:** Oakland University Engineering Center**Project Number:****Page:** 4

GRAFIK Eye® QS

Preset Dimming Control



GRAFIK Eye® QS with lid closed.



GRAFIK Eye® QS with lid open.

Actual colors may vary slightly.

Light Zones:	Colors:	
6	Faceplate:	white (WH)
Shade Groups:	Stripe:	gray (GR)
0	Buttons:	white (WH)
Model Number:		
Unit:	QSGRJ-6P-WH	Quantity: 1

LUTRON SPECIFICATION SUBMITTAL

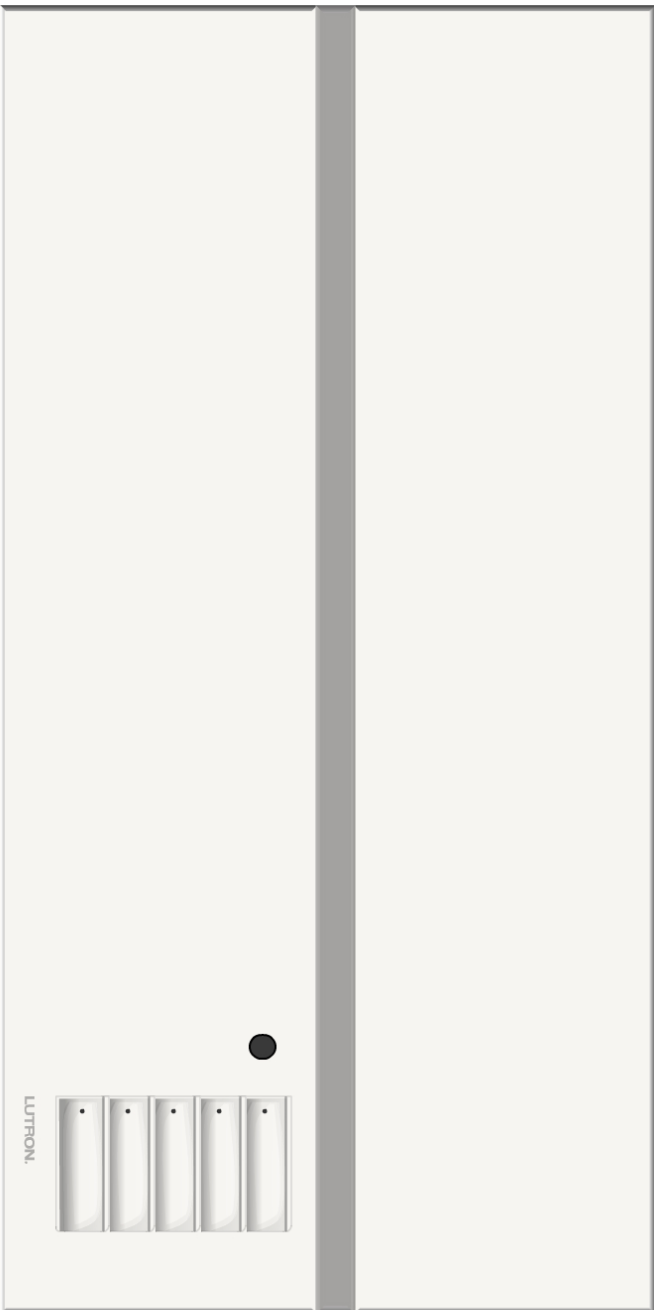
Project Name: Oakland University Engineering Center

Project Number:

Page: 5

GRAFIK Eye® QS

Full-size Image



Actual colors may vary slightly.

Selected Wall Color

 <p>Benjamin Moore Paints</p>	<p>Affinity Colors: Fusion</p> <p>www.tyautapaints.com</p>	
---	---	---

*Actual color may differ slightly; please refer to paint chips for most accurate representation.



<p>Project Name: Oakland University Engineering Center</p>	
<p>Project Number:</p>	<p>Page: 6</p>

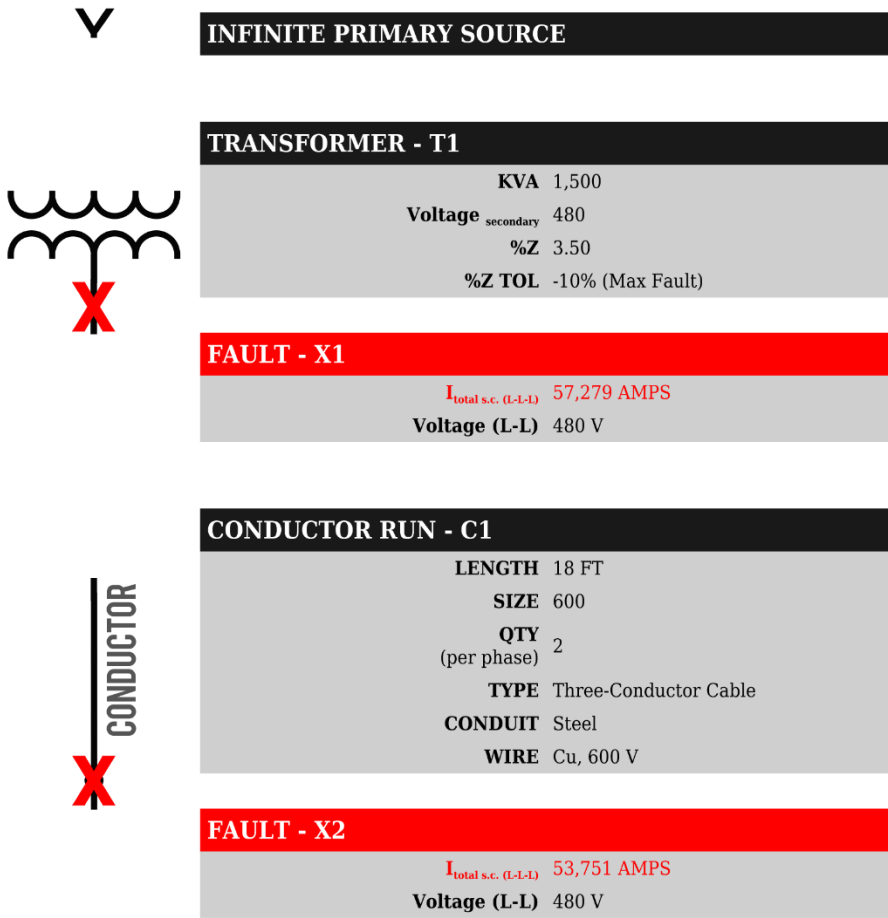
Appendix V | Cooper Bussmann FC² Short Circuit Calculation



FC² | available fault current calculator

Your System Details

Project Name: Oakland University Engineering Center
System Type: Three-Phase
Creator Name: John Conley
Creator Email: jonley8@gmail.com
Creator Company/Organization: Penn State
Creator Title/Position: Student
Creation Date: Mar 28, 2015 @ 10:31pm



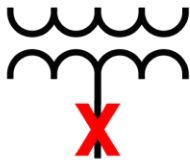


FC² | available fault current calculator



CONDUCTOR RUN - C2	
LENGTH	54 FT
SIZE	4
QTY (per phase)	1
TYPE	Three-Conductor Cable
CONDUIT	Steel
WIRE	Cu, 600 V

FAULT - X3	
I_{total s.c. (L-L-L)}	14,049 AMPS
Voltage (L-L)	480 V



TRANSFORMER - T2	
KVA	45
Voltage secondary	208
%Z	1.00
%Z TOL	No Change

FAULT - X4	
I_{total s.c. (L-L-L)}	9,017 AMPS
Voltage (L-L)	208 V



CONDUCTOR RUN - C3	
LENGTH	3 FT
SIZE	12
QTY (per phase)	1
TYPE	Three-Conductor Cable
CONDUIT	Steel
WIRE	Cu, 600 V

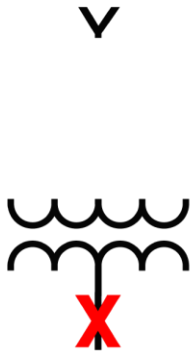
FAULT - X5	
I_{total s.c. (L-L-L)}	6,462 AMPS
Voltage (L-L)	208 V



FC² | available fault current calculator

Your System Details

Project Name: Oakland University Engineering Center
System Type: Three-Phase
Creator Name: John Conley
Creator Email: jonley8@gmail.com
Creator Company/Organization: Penn State
Creator Title/Position: Student
Creation Date: Mar 28, 2015 @ 10:23pm



Y

INFINITE PRIMARY SOURCE

TRANSFORMER - T1

KVA	1,500
Voltage secondary	480
%Z	3.50
%Z TOL	No Change

FAULT - X1

I_{total s.c. (L-L)}	51,551 AMPS
Voltage (L-L)	480 V



CONDUCTOR RUN - C1

LENGTH	18 FT
SIZE	600
QTY (per phase)	2
TYPE	Three-Conductor Cable
CONDUIT	Steel
WIRE	Cu, 600 V

FAULT - X2

I_{total s.c. (L-L)}	48,680 AMPS
Voltage (L-L)	480 V

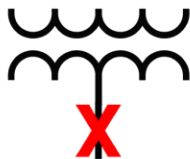


FC² | available fault current calculator



CONDUCTOR RUN - C2	
LENGTH	54 FT
SIZE	4
QTY (per phase)	1
TYPE	Three-Conductor Cable
CONDUIT	Steel
WIRE	Cu, 600 V

FAULT - X3	
I_{total s.c. (L-L)}	14,443 AMPS
Voltage (L-L)	480 V



TRANSFORMER - T2	
KVA	45
Voltage secondary	208
%Z	1.00
%Z TOL	-10% (Max Fault)

FAULT - X4	
I_{total s.c. (L-L)}	9,799 AMPS
Voltage (L-L)	208 V



CONDUCTOR RUN - C3	
LENGTH	3 FT
SIZE	12
QTY (per phase)	1
TYPE	Three-Conductor Cable
CONDUIT	Steel
WIRE	Cu, 600 V

FAULT - X5	
I_{total s.c. (L-L)}	6,853 AMPS
Voltage (L-L)	208 V

Appendix VI | Kalwall Information



LIGHT TRANSMISSION & SOLAR HEAT GAIN COEFFICIENT FOR 2 3/4" (70mm) PANELS

(For 4" (100mm) Light Transmission & Solar Heat Gain Coefficient values, see Page 9.10)

FACE SHEET COMBINATION <small>note 1,5</small>		% LIGHT TRANSMISSION <small>note 2</small>					WALL SYSTEM SOLAR HEAT GAIN COEFFICIENT AT 0° <small>note 3</small>				
EXTERIOR COLOR	INTERIOR COLOR	0.53 "U" <small>note 4</small>	0.29/0.23 "U"	0.22/0.14 "U"	0.18/0.10 "U"	0.05 "U"	0.53 "U"	0.29/0.23 "U"	0.22/0.14 "U"	0.18/0.10 "U"	0.05 "U"
Greenish Blue	White	25	14	5	3	14	0.50	0.23	0.14	0.10	0.19
Aqua	White	29	17	6	4	15	0.45	0.24	0.14	0.10	0.21
Rose	White	30	18	6	4	16	0.46	0.24	0.15	0.10	0.21
Ice Blue	White	35	20	8	6	21	0.54	0.28	0.17	0.12	0.26
Greenish Blue	Crystal	37	20	7	4	NA	0.53	0.26	0.16	0.11	NA
Aqua	Crystal	43	23	7	4	NA	0.55	0.27	0.16	0.11	NA
Rose	Crystal	48	24	8	5	NA	0.57	0.28	0.17	0.12	NA
Ice Blue	Crystal	53	27	10	6	NA	0.68	0.32	0.19	0.13	NA
White	Crystal	30	18	12	8	NA	0.46	0.24	0.14	0.10	NA
White	White	20	15	8	5	14	0.38	0.23	0.15	0.11	0.18
Crystal	White	35	20	12	8	20	0.52	0.28	0.17	0.13	0.25
Crystal	Crystal	50	30	15	10	NA	0.65	0.33	0.18	0.13	NA
Crystal SWC	White	29	16	9	6	16	0.47	0.25	0.15	0.10	0.23
Crystal SWC	Crystal	44	22	11	8	NA	0.58	0.29	0.17	0.12	NA

- Other combinations available.
- Approximate values by ASTM E-972. Light transmission values over 30% not recommended for most applications.
- At 0° incident angle. **Bold** values are NFRC Certified, others are calculated based on tests. Shading Coefficient (SC) is equal to 1.15 times the Solar Heat Gain Coefficient (SHGC). Refer to Page 9.30 for complete NFRC System Values.
- "U" Values determined by NFRC test method (ASTM C-1363, E-1423 and C-1199 or simulation at certified lab). Expressed as BTU/(ft²·h·°F) for aluminum grid / thermally broken grid, nominal 12" x 24". Perimeter aluminum excluded. Test temperature at 15 mph wind (6.7 m/s): 0°F (-18°C) cold side & 70°F (21°C) warm side.
- SW, Type A, and White High Impact face sheets are similar in light transmission and solar heat gain properties.

Check with Technical Services Department for further clarification. Since this table is of a very technical nature, please consult your heating and ventilation engineer for proper interpretation.

Metric U Value Conversions									
English	0.53	0.29	0.23	0.22	0.18	0.14	0.10	0.05	Btu/(ft ² ·h·°F)
SI	3.01	1.65	1.31	1.25	1.02	0.79	0.57	0.28	W/(m ² ·K)

Kalwall®
CORPORATION P.O. Box 237, Manchester, NH
(603) 627-3861

Technical Summary

Kalwall is a composite sandwich; various combinations are possible and test data should be interpreted from this point of view. Contact us for further clarification. Listed below are the light transmissions, solar heat gain coefficients, and U-factors for some Kalwall panel face sheet combinations. Others are available. **Highlighted values indicate thermally broken panels.**

FACE SHEET COMBINATIONS		% LIGHT TRANSMISSION 2 3/4" (70 mm) thick panels					SOLAR HEAT GAIN COEFFICIENT @0° <				
EXTERIOR COLOR	INTERIOR COLOR	0.53 "U"	0.29 /0.23 "U" note 2	0.22 /0.14 "U" note 2	0.18 /0.10 "U" note 2	0.05 "U" note 2	0.53 "U"	0.29 /0.23 "U" note 2	0.22 /0.14 "U" note 2	0.18 /0.10 "U" note 2	0.05 "U" note 2
Greenish Blue	White	25	14	5	3	12	0.50	0.23	0.14	0.10	0.19
Aqua	White	29	17	6	4	13	0.45	0.24	0.14	0.10	0.21
Rose	White	30	18	6	4	14	0.46	0.24	0.15	0.10	0.21
Ice Blue	White	35	20	8	6	18	0.54	0.28	0.17	0.12	0.26
White	White	20	15	8	5	14	0.38	0.23	0.15	0.11	0.18
Crystal	White	35	20	12	8	20	0.52	0.28	0.17	0.13	0.25
Crystal	Crystal	50	30	15	10	NA	0.65	0.33	0.18	0.13	NA

Kalwall 100™

Kalwall 4" (100 mm) thick panels

NEW Kalwall 100™ Panels for even greater energy performance!

FACE SHEET COMBINATIONS		% LIGHT TRANSMISSION			SOLAR HEAT GAIN COEFFICIENT		
EXTERIOR COLOR	INTERIOR COLOR	0.55 "U"	0.15 "U"	0.08 "U"	0.55 "U"	0.15 "U"	0.08 "U"
White	White	20	12	5	0.38	0.06	NA
Crystal	White	35	14	7	0.52	0.08	0.04
Crystal	Crystal	50	17	8	0.65	0.10	0.07

U-value SI conversion: 1.0 W/m²K = 0.176 Btu/hr/ft²/°F

1. Approximate values by ASTM E-972. Light transmission values over 30% not recommended for most applications.
2. Panel U-values include grid by NFRC 100 or 102. Certified system U-values vary depending on framing.
3. Shading Coefficient (SC) is equal to 1.15 times the Solar Heat Gain Coefficient (SHGC).

NFRC CERTIFIED SYSTEMS: Kalwall systems provide the best overall U-values as low as .10 (.56 W/m²K)! With light transmission up to 20%. Includes perimeter system.

BOND STRENGTH: Panels and adhesives are tested according to the stringent requirements of "Criteria for Sandwich Panels" issued by ICC (International Code Council). ES-AC177.

Before specifying alternates, insist on actual field proof of bond integrity over a 20-year period.

Caution is urged in accepting look-alikes as equivalents.

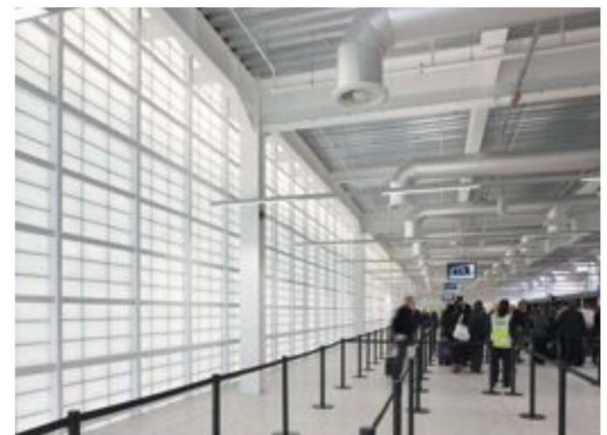
WEIGHT: Most panels and systems weigh under 3 p.s.f. (14.65 kg/m²).

FIRE TESTS: Although some Kalwall panels contain combustible binder resins (ignition temperature greater than 800°F), they will withstand a 1200°F flame for one hour with no flame penetration; pass the Class "A" Burning Brand Test (ASTM E-108), or UL 790 listed Class A Roof system. All interior faces are CC-1 by ASTM D-635. Optional flame-spread/smoke developed ratings by UL 723 tunnel tests, including Class A. Kalwall is listed by: ICC #PFC-1705 and ATI-CCRR-0173; British Standard 476, Parts 3, 6, 7. NFPA 268 – Radiant Panel Test-Exterior Walls.

Whenever reference is made to fire tests, the numerical rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

IMPACT: The shatterproof standard superweathering exterior face will withstand 70 ft.-lbs. (81J) impact. Optional extra-hi-impact faces will withstand 230 ft.-lbs. (311J) impact by UL 972; also small and large missile; resistance even higher.

Kalwall+
U = 0.05 Panel, R-20
with... Lumira
The World's Most Powerful Daylighting System!

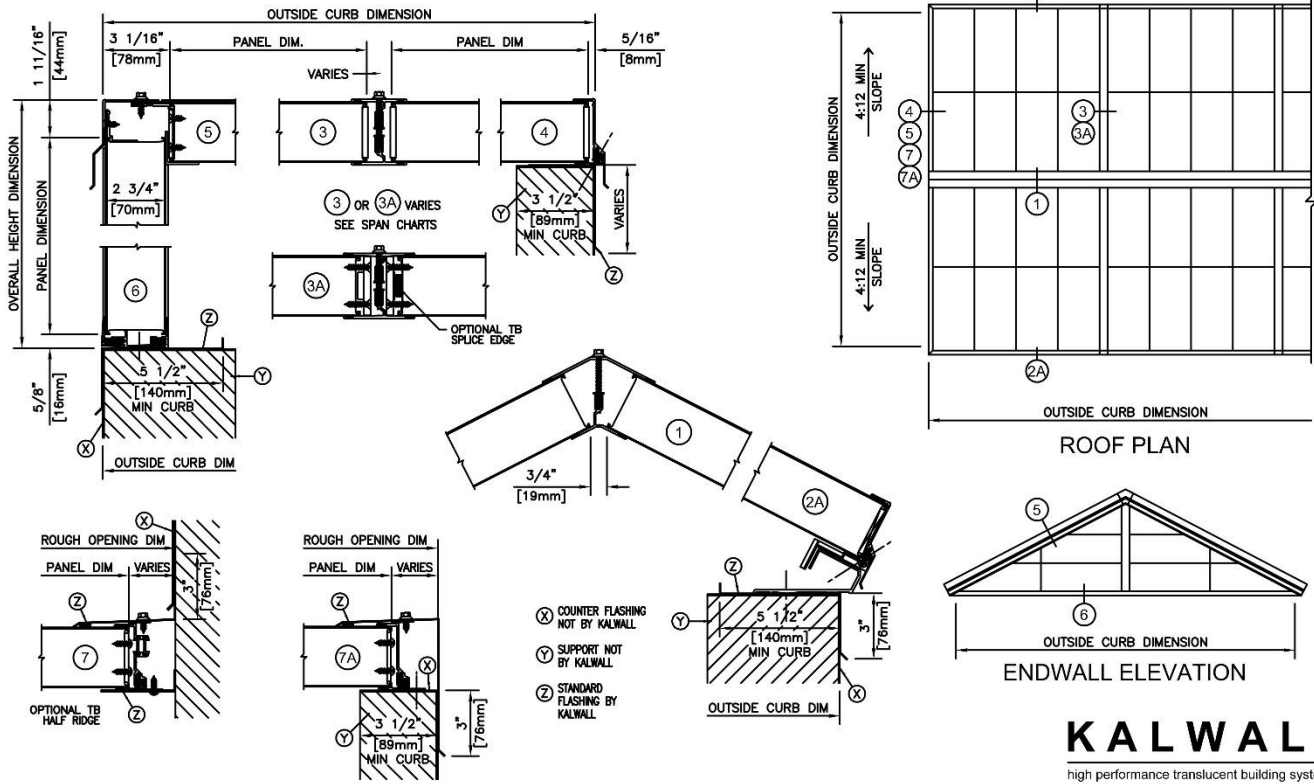


**DoD and GSA
ANTI-TERRORISM COMPLIANT!**
UFC 4-010-01
BLAST-RESISTANT CONSTRUCTION

SPECIAL APPROVALS & LISTINGS:

- FM Explosion Venting Walls standard 4440
- FM Wall and Roof Systems standards 4881 and 4471
- Hurricane-Resistant Systems
- NFRC Certified Products Listing
- UL Listings for Class A Roof System and Faces
- UFC 4-010-01 DoD Anti-Terrorism Specifications
- ETA-07/0244 Wall Systems

SELF SUPPORTING RIDGE ROOFS





1111 Candia Rd
Manchester, NH 03109

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Phone: 603-627-3861

MAILING ADDRESS
Post Office Box 237
Manchester, NH 03105

4/7/2015

BUDGET
Estimate #: B103-0415

Mr. John Conley
Pennsylvania State University
Architectural Engineering
University Park, PA

Project: Oakland University Engineering Center
Location: ~~Pittsburgh, PA~~
Architect: Penn.State Univ. Architectural Engineering

MATERIAL COST ----- \$30,700.00
Packed F.O.B. Shipping Point, Freight Prepaid.

We propose to furnish and deliver Kalwall 2 3/4" translucent panel system for:
(3) self-supported ridge skyroofs 20'-0" x 8'-0" wide OCD flat (27.25°) with hipped ends

- Notes: 1) Roofs are designed for 20 PSF live load, 30 PSF snow load, 25 PSF wind load and 0 PSF drift load with L/60 deflection.
- A) This estimate is not valid if loads are greater than those listed herein.
 - 2) Curbs must be designed to withstand the thrust load from Kalwall's Roof System.
 - 3) Price includes curb cap and flashing.
 - 4) Price is based on using maximum number of standard 4'-0" wide modules.
 - 5) For .14 "U" factor in lieu of .23 "U" factor, ADD ----- \$825.00

All exposed aluminum to be Kalwall corrosion resistant finish color selected from Kalwall standard colors which meet performance requirements of AAMA 2604.

Thermally broken translucent panels to have .070" super-weathering Crystal exterior faces, .045" White S-171 interior faces, standard 12" x 24" shoji grid pattern and .23 "U" factor.

Curbs are not included by Kalwall.

Pricing excludes field labor, final fasteners and caulking between edge perimeter and building.
Pricing is issued in accordance with requirements transmitted through our sales representative Bruce Farber, but subject to Kalwall details and construction.
Warranty: Standard (1) year, unless otherwise indicated herein.

Terms: Net 30 from date of invoice with credit approval.
No retainage allowed.
Service charge of 1 1/2 % will accrue and become payable on all invoices

Billie Jo Quintal
Estimating Manager (GS)
CC: Control, Montgomery, Farber

not paid within thirty days from date of issue.

This Quote must be refigured after 30 days. Delivery can be scheduled only on receipt of firm order and approved drawings. This is subject to change without notice.
All shipments are F.O.B. our plant and State Sales and Use Taxes are not included. If Exemption information is not issued to Kalwall Corporation, or on file, tax will be added to our invoice.
CANCELLATIONS: In the event of Buyers Cancellation of an order, Seller reserves the right to assess cancellation fees.