

Linear Line Voltage LED Engine

Product Specification



INTRODUCTION

The TerraLUX Linear LED Module is a fully-integrated, self-contained, plug-and-play LED solution for lighting fixture manufacturers and retrofit installations. The module is AC-mains compatible, dimmable, and requires no additional drivers or special sockets. A compact form-factor, flexible mounting options, and complete integration of drive electronics and optics, combined with TerraLUX's patented LEDSense® thermal management circuitry means simple, low-cost integration, fast time to market, and reliable, long-term operation and lumen maintenance. The TerraLUX Linear LED module is an ideal solution for a wide variety of applications including wall sconces, ceiling fixtures, and recessed applications.

FEATURES

- 120V or 100-277V AC input
- Dimmable with standard phase-dimmers (120V version) or 1-10V dimming systems (100-277V)
- Available in 3 sizes : 4", 6" and 8"
- Patented LEDSense® Thermal Management simplifies integration and ensures reliability and lumen maintenance
- Available in 2,700K, 3,000K, 3,500K and 4,000K
- >50lm/W at 3000k CCT and 85 CRI (120V)
- L70 = 60,000 hours
- IP-65 Rated
- UL Recognized Component (100-277V : pending)
- UL 1598C Classified (LED Retrofit Kit) (100-277V : pending)
- 5-year warranty



PRODUCT CHARACTERISTICS

Color Temperature	2700k			3000k			3500k			4000k		
CRI Minimum [Typical]	80 [85]			80 [85]			80 [85]			80 [85]		
Form & Size	4" Linear	6" Linear	8" Linear	4" Linear	6" Linear	8" Linear	4" Linear	6" Linear	8" Linear	4" Linear	6" Linear	8" Linear
Light Output [lumens]	390	575	725	430	650	800	430	650	800	459	700	860
Power [Watts]												
120V model*	8	11.5	13	8	11.5	13	8	11.5	13	8	11.5	13
100-277V model @120V	7.4	10.8	11.6	7.4	10.8	11.6	7.4	10.8	11.6	7.4	10.8	11.6
100-277V model @230V	9.2	11.4	13.4	9.2	11.4	13.4	9.2	11.4	13.4	9.2	11.4	13.4
100-277V model @277V	10.3	13.1	13.8	10.3	13.1	13.8	10.3	13.1	13.8	10.3	13.1	13.8
Efficacy [lm/W]												
120V model	49	50	56	54	57	62	54	57	62	57	61	66
100-277V model @120V	53	53	63	58	60	69	58	60	69	62	65	74
100-277V model @230V	43	51	54	47	57	60	47	57	60	50	62	64
100-277V model @277V	38	44	53	42	50	58	42	50	58	45	53	62

Notes:

Typical Performance @ 25°C Heatsink temperature, T_c. See *Relative Light Output vs Temperature and LEDSense®* graphs, page 3, for temperature & Power de-rating.

All specifications subject to tolerance of ± 10%

(*) Power draw may be affected by installation with a dimmer

PHOTOMETRY

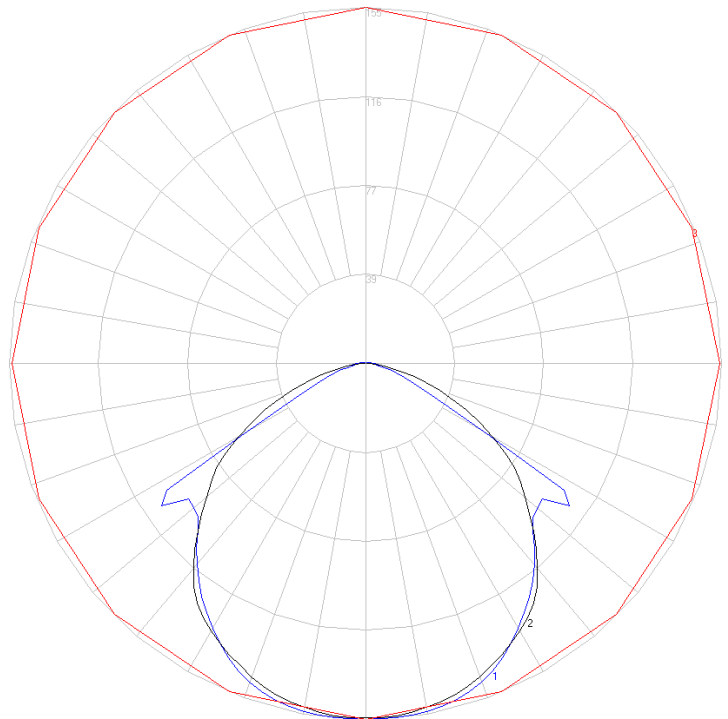
Relative Candela Distribution (3000K—120° lambertian)

Max Candela Value : **154.7**

Vertical Plane 90°-270° (Max) —

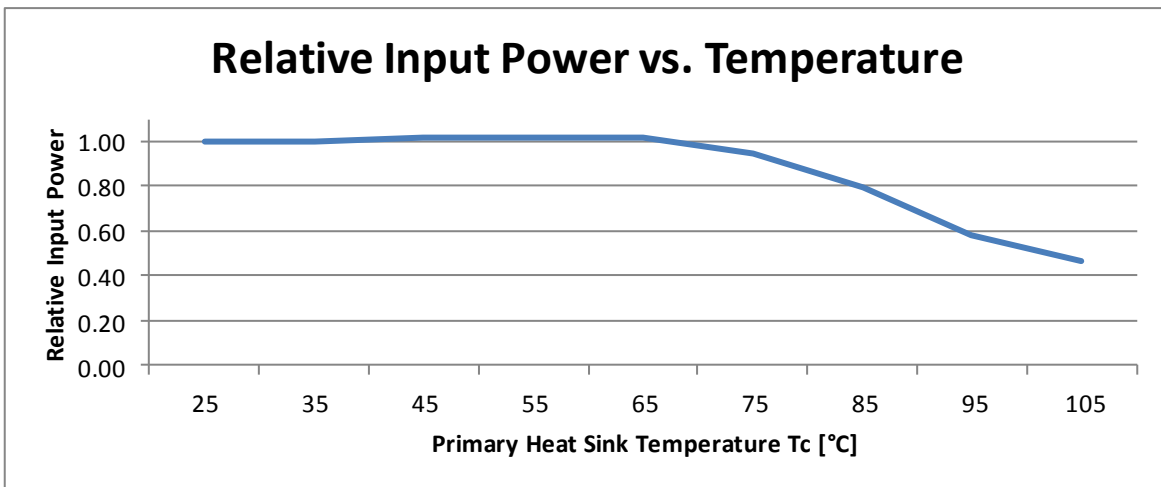
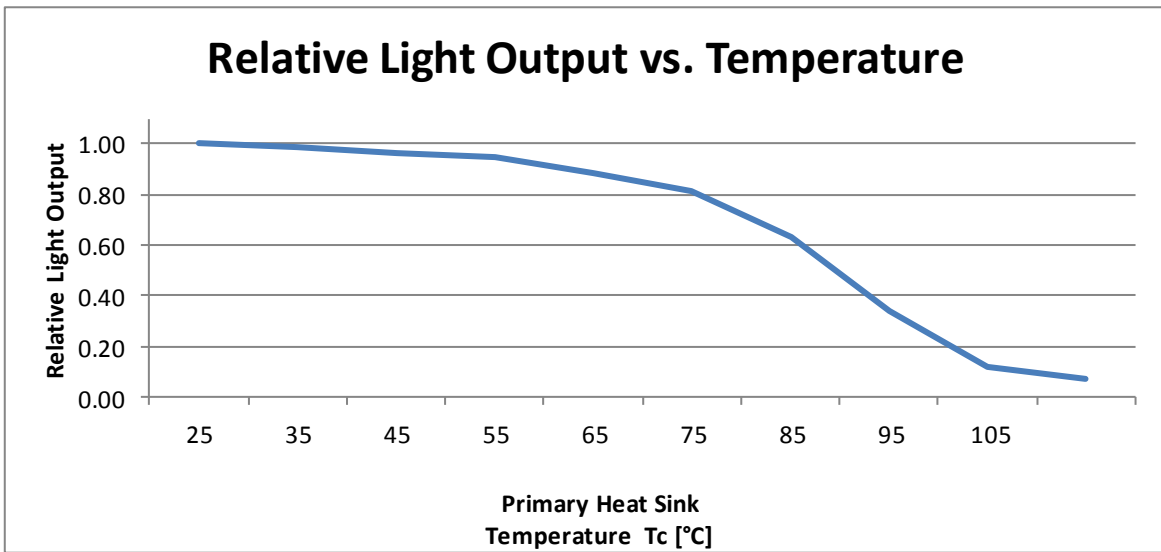
Vertical Plane 0°-180° —

Horiz. Cone 5° (Max) —



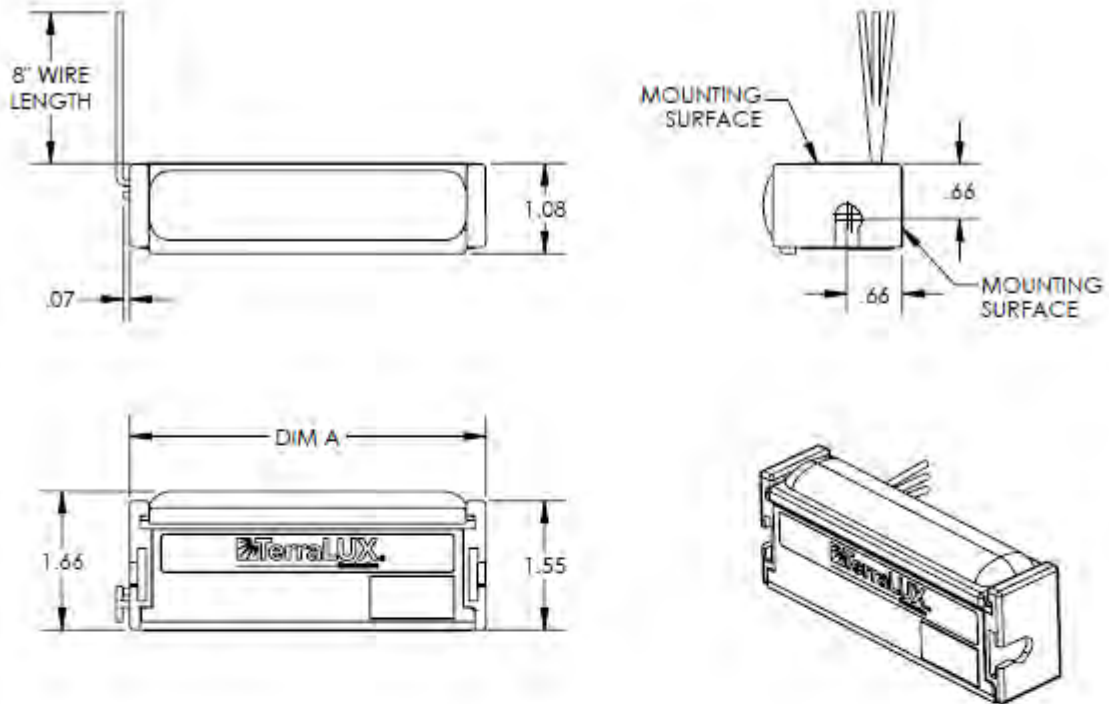
LEDSense™ OPERATION, THERMAL DERATING, & LUMEN MAINTENANCE

TerraLUX Linear LED Modules employ TerraLUX’s patented LEDSense® Thermal Management Technology to automatically provide maximum light output in various fixtures and operating conditions while assuring long-term lumen maintenance. LEDSense® regularly measures the operating temperature and ensures compliance with a pre-programmed temperature and drive-current profile. This profile is based on the LED manufacturer’s LM-80 data report and minimum L70/36,000 hour lumen maintenance curves (extrapolated per IES TM-21-11). LEDSense® is always active, and will compensate for variation in thermal conditions due to heatsinking, ambient air, module positioning, or any other variable that affects the operating temperature. The Thermal De-rating curve below identifies the relative light output that can be expected under various thermal conditions. The LEDSense® Power Curve identifies the reduction in input power over temperature.



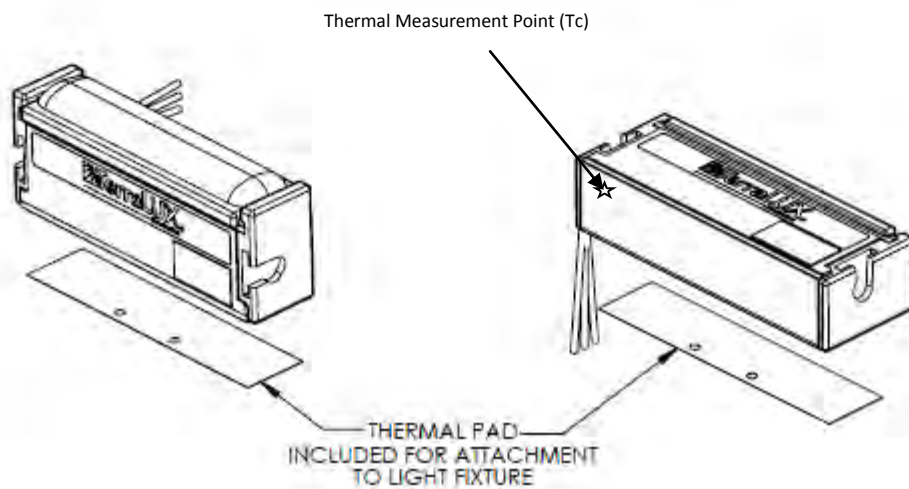
MECHANICAL DIMENSIONS

All dimensions in inches



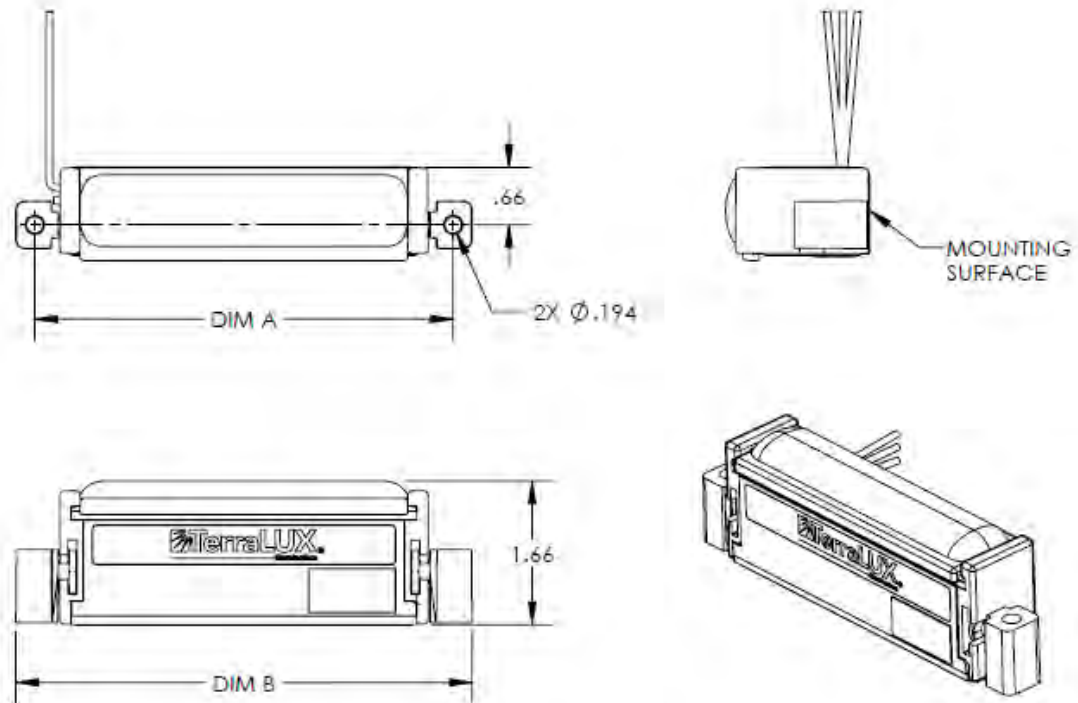
MODULE	DIM A
4"	4.26
6"	6.26
8"	8.26

LINEAR MODULE DIMENSIONS

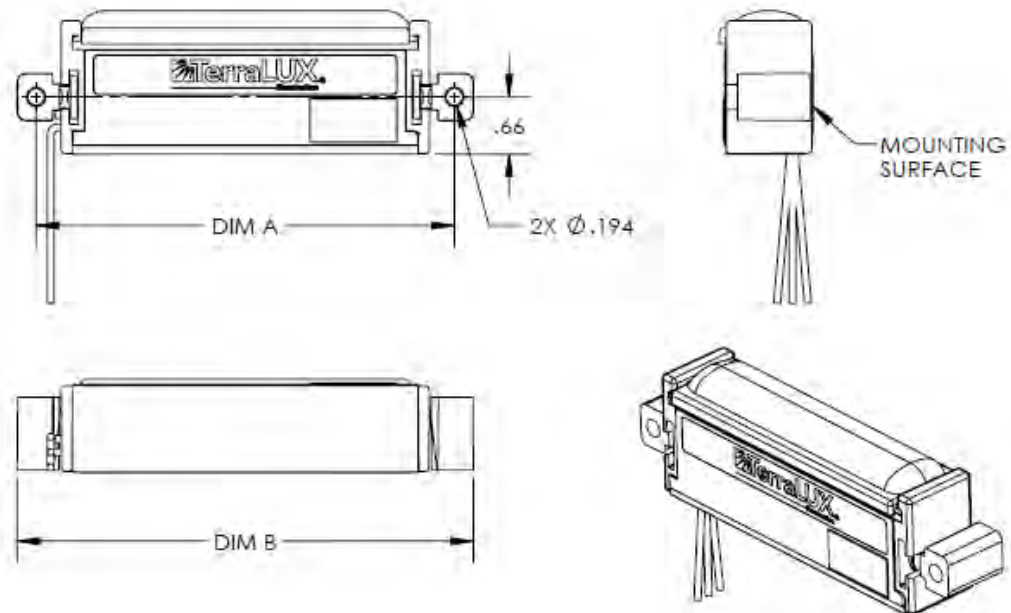


MOUNTING OPTION: IN-LINE

All dimensions in inches

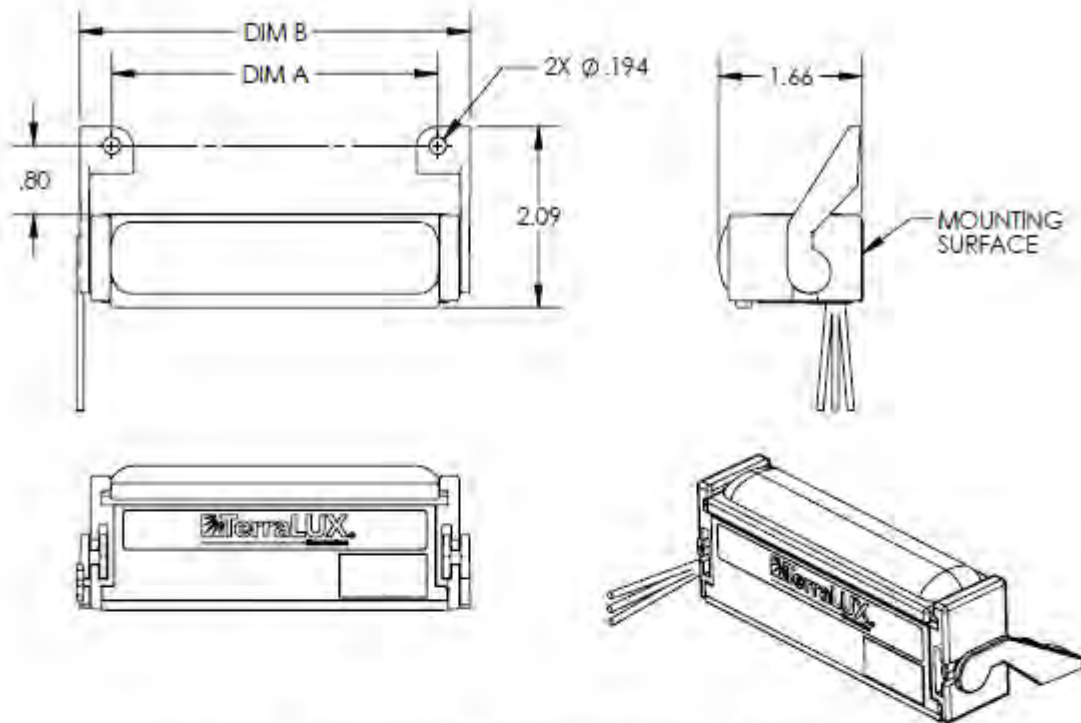


MODULE	DIM A	DIM B
4"	4.84	5.28
6"	6.84	7.28
8"	8.84	9.28

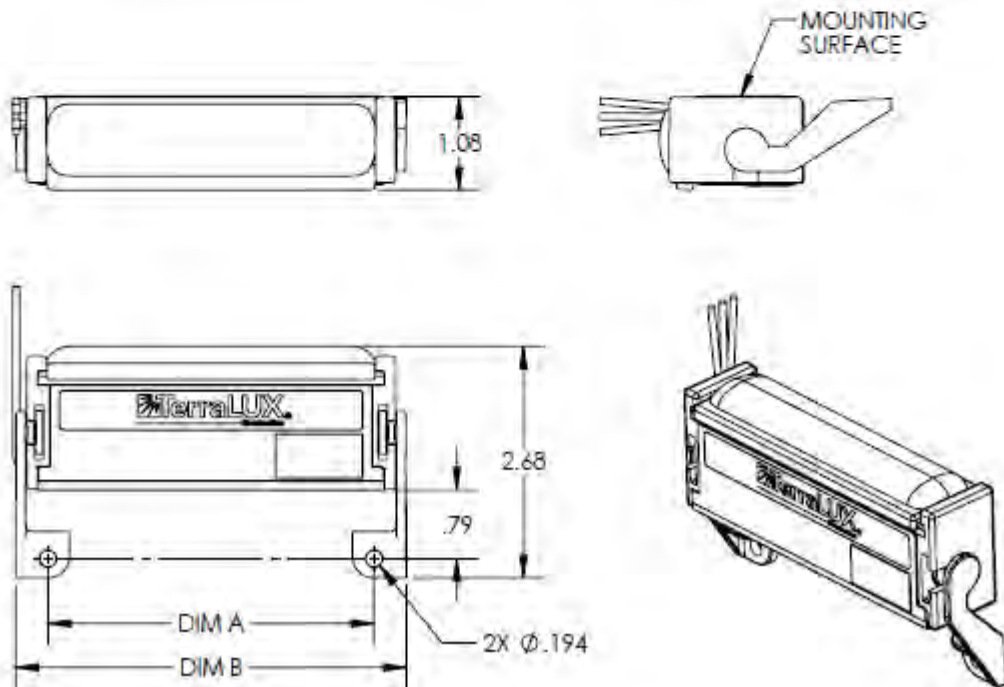


MOUNTING OPTION: OFFSET

All dimensions in inches

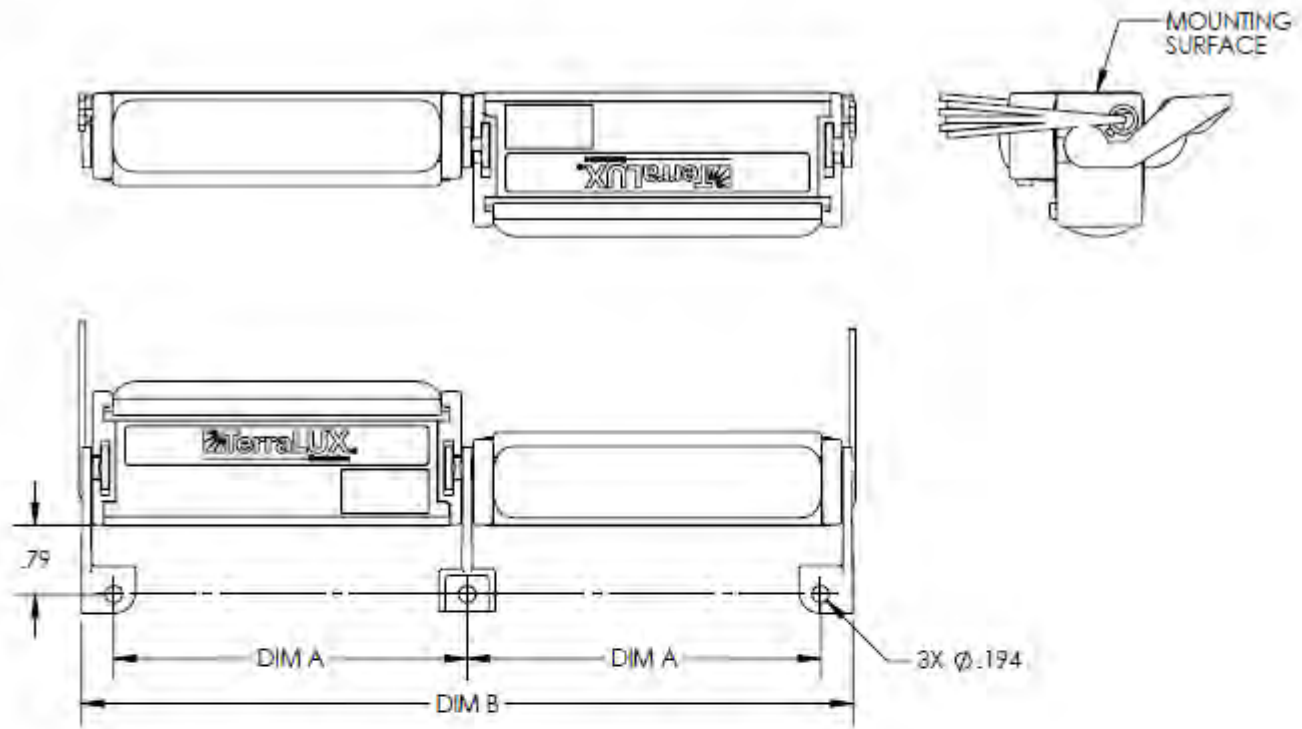


MODULE	DIM A	DIM B
4"	3.78	4.51
6"	5.78	6.51
8"	7.78	8.51

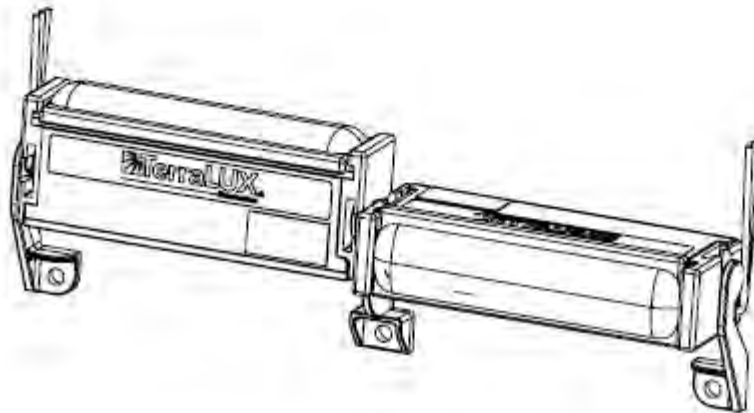


MOUNTING OPTION: MULTI-UNIT OFFSET

All dimensions in inches



Module	Dim A	Dim B
4"	4.08	8.9
6"	6.08	12.9
8"	8.08	16.9



TESTS AND CERTIFICATIONS

Product Safety Evaluation	<p>120V</p> <ul style="list-style-type: none"> • UL Standards 8750 (Recognized Component), 1598C (LED Retrofit Kit) • CSA Standard C22.2 No. 250.0-08 <p>100-277V</p> <ul style="list-style-type: none"> • UL Standards 8750 (Recognized Component), 1598C (LED Retrofit Kit) - Pending • CSA Standard C22.2 No. 250.0-08 - Pending • EN 60825-1:2007: Safety of laser products - Part 1: Equipment classification and requirements - Pending • EN/IEC 62471: Photobiological Safety of Lamps and Lamp Systems - Pending • IEC/EN 60598-1, Edition 7 – Luminaires Part 1, General Requirements and Test - Pending
Radio Frequency Emissions	<ul style="list-style-type: none"> • FCC Part 15, Unintentional Radiators Class A. (120V) • FCC Part 15, Unintentional Radiators Class B. (100-277V)
Reduction of Hazardous Substances (RoHS)	European Council Directive 2002/95/EC
Input Current	Current : ≤ 120 mA
Input Voltage Range/Frequency Range	90VAC—132VAC / 47Hz—63Hz
Power Factor	0.90
Electrical Fast Transients	IEC/EN 61000-4-5 ±1 kV
Surge	IEC/EN 61000-4-5 ±500V Differential mode / ±1 kV Common mode
Voltage Harmonics	IEC/EN 61000-3-2
Voltage Dips and Interrupts	Mains dips of 30% for 500ms, 95% for 10ms, and interruptions of 95% for 5s
Electrostatic Discharge	± 6 kV Contact mode, ± 10 kV Air Gap
Shock and Vibration	Operating – Non Operating
Impact	1 m product drop, 1.3 m steel ball impact
Operating Temperature	-40°C to +55°C, 0 to 95% R.H. / 153 hr.
Storage Temperature	-40°C to +85°C / 60 hr. followed by 20°C to 85°C, 5 to 95% R.H. / 80 hr.
Ingress Protection (Water, Dust)	IP65
Dimmer Compatibility	See “Dimmer Compatibility Matrix”
Dimming Standard Conformance	NEMA SSL 6-2010 Relative light output vs. phase angle (120V)
Lumen Maintenance	L70 =36,000hr per IES TM-21-11 (Based on LED Manufacturer’s measurement per IES LM-80-08 @ 6.000hrs). To be extended as additional data becomes available
Reliability Demonstration	30 samples - 3,500 Hrs. @ 90°C with 980 power cycles (120V)
Mean Time Between Failures (MTBF)	> 100,000 Hrs (120V)

PRODUCT SELECTION & PART NUMBER GUIDE

F **SS** **1** **2** **3** **4** **5**

TLM - L 04 A - A 04 27 12 N

(Example)

F	
Form	
<input type="checkbox"/>	L Linear

SS	
Size	
<input type="checkbox"/>	04 4 inch
<input type="checkbox"/>	06 6 inch
<input type="checkbox"/>	08 8 inch

1		
Voltage		
<input type="checkbox"/>	A	120 VAC Phase Dimming
<input type="checkbox"/>	B	100-277VAC 1-10V Dimming

2		
Light Level		
<input type="checkbox"/>	04	400 lm range (4")
<input type="checkbox"/>	06	600 lm range (6")
<input type="checkbox"/>	08	800 lm range (8")

3		
Color Temp		
<input type="checkbox"/>	27	2700K
<input type="checkbox"/>	30	3000K
<input type="checkbox"/>	35	3500K
<input type="checkbox"/>	40	4000K

4		
Light distribution		
<input type="checkbox"/>	12	120° lambertian Distribution*

5		
Options		
<input type="checkbox"/>	N	None (1)
<input type="checkbox"/>	R	Retrofit kit (2)

(1) Light engine delivered with Thermal Pad (UL registered Component)

(2) Retrofit Kit Content (UL 1598C Classified):

- LED Light Engine + Thermal Pad
- 2 x straight mount brackets
- 2 x Offset Brackets
- 1 x Multi-mount bracket
- 3 x wire nuts
- 2x sets of self-tapping screws (short and long)
- Retrofit Instructions

(*) A more diffuse distribution is available by adding an optional diffuser (180°) distribution. Please refer to the list of optional accessories here below.

Optional Accessories :

Description	Quantity	Part Number
Straight Brackets	100 (50 sets)	TLMA-228000031
Offset Brackets	50 Left + 50 Right	TLMA-228000028
Multi-Mount Brackets	100	TLMA-208000030
Diffuse lens (180°) - 4"	1	TLMA-202000038
Diffuse lens (180°) - 6"	1	TLMA-202000039
Diffuse lens (180°) - 8"	1	TLMA-202000040



PRODUCT SELECTION & PART NUMBER GUIDE

CCT	Input Voltage (Dimming)	Size	Part Number TLM-	Options
2700K	120V (Phase Dim.)	4"	L04A-A042712	N or R
		6"	L06A-A062712	
		8"	L08A-A082712	
	100-277V (1-10V Dim.)	4"	L04A-B042712	
		6"	L06A-B062712	
		8"	L08A-B082712	
3000K	120V (Phase Dim.)	4"	L04A-A043012	
		6"	L06A-A063012	
		8"	L08A-A083012	
	100-277V (1-10V Dim.)	4"	L04A-B043012	
		6"	L06A-B063012	
		8"	L08A-B083012	
3500K	120V (Phase Dim.)	4"	L04A-A043512	
		6"	L06A-A063512	
		8"	L08A-A083512	
	100-277V (1-10V Dim.)	4"	L04A-B043512	
		6"	L06A-B063512	
		8"	L08A-B083512	
4000K	120V (Phase Dim.)	4"	L04A-A044012	
		6"	L06A-A064012	
		8"	L08A-A084012	
	100-277V (1-10V Dim.)	4"	L04A-B044012	
		6"	L06A-B064012	
		8"	L08A-B084012	

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