

VIVID WAVE 320 STATIC

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Technical Specifications

Light Dimension 0.63 x 0.67in (16x17mm)

Output	Red/Amber	Green/Blue/White
LED Light	Epistar SMD LED Chip	
Max Run Length*		
Single Feed	49.21ft (15m)	32.81ft (10m)
Light Surface	Square profile 320°	
Lumen Maintenance	70,000 Hours L70 @ 25°C : 90,000 L50 @ 25°C 50,000 Hours L70 @ 50°C : 70,000 Hours L50 @ 50°C	
Electrical		
Input Voltage	24V DC	
Power Consumption	2.19W/ft (7.2W/m)	3.66W/ft (12W/m)
Physical		
LED Count	33 LEDs / ft (108 LEDs/m)	
LED Spacing	0.37in (9.26mm)	
Cutting Unit Length	3.28in (83.3mm) (9 LEDs)	2.19in (55.6mm) (6 LEDs)
Thermal Management	Free air convection	
Fixture Connections	End, side & bottom lead wires	
Minimum Bend Diameter	11.81in (300mm) (Top Bending Only)	
Temperature Ranges		
Installation	32°F to 140°F (0°C to 60°C)	
Operating	-13°F to 140°F (-25°C to 60°C)	
Humidity	0-95% non condensing	
Dependability		
Warranty	5 Year Warranty	
Safety		
Certification	Tested to UL & CSA by Underwriters Laboratory for use in USA and Canada, complies with California Title 24 Requirements, Lighting Facts. Exceeds ANSI C78.377A, CE & RoHS Compliant.	
IP Rating	IP68 with appropriately rated accessories	

*Max Run Length: Unless otherwise stated, snap and seamless run lengths are the same.

Technical Specifications

Available Colors

Color	Wavelength/CCT
Red	620-630nm
Green	520-530nm
Blue	465-475nm
Amber	585-595nm
2200K	2238 ± 102K
2500K	2460 ± 120K
2700K (WW)	2725 ± 145K
3000K	3045 ± 175K
3500K (W)	3465 ± 245K
4000K	3985 ± 275K
4500K (CW)	4503 ± 243K
5000K	5029 ± 283K
5700K (DW)	5669 ± 355K

Lumen Count (Top Bending)

Color	Per Foot	Per Meter	Power
Red	>79.25lm	>260lm	2.19W/ft (7.2W/m)
Green	>243.84lm	>800lm	3.66W/ft (12W/m)
Blue	>28.04lm	>92lm	3.66W/ft (12W/m)
Amber	>79.25lm	>260lm	2.19W/ft (7.2W/m)
2200K	>228.6lm	>750lm	3.66W/ft (12W/m)
2500K	>228.6lm	>750lm	3.66W/ft (12W/m)
2700K (WW)	>228.6lm	>750lm	3.66W/ft (12W/m)
3000K	>243.84lm	>800lm	3.66W/ft (12W/m)
3500K (W)	>243.84lm	>800lm	3.66W/ft (12W/m)
4000K	>243.84lm	>800lm	3.66W/ft (12W/m)
4500K	>243.84lm	>800lm	3.66W/ft (12W/m)
5000K	>243.84lm	>800lm	3.66W/ft (12W/m)
5700K (DW)	>243.84lm	>800lm	3.66W/ft (12W/m)

*Color Jackets:

For standard or custom color jacket options, contact your Account Manager. Min. order quantity of 656ft (200m).

*Custom White Colors:

For the following customs whites 2500K, 4500K, 5000K the minimum order quantity is 200 meters.

CRI90

Available Colors

Color	CCT
2200K	2238 ± 102K
2500K	2460 ± 120K
2700K (WW)	2725 ± 145K
3000K	3045 ± 175K
3500K (W)	3465 ± 245K
4000K	3985 ± 275K
4500K (CW)	4503 ± 243K
5000K	5029 ± 283K

Lumen Count

VB Only

Color	Per Foot	Per Meter	Power
2200K	>97.54lm	>320lm	3.66W/ft (12W/m)
2500K	>97.54lm	>320lm	3.66W/ft (12W/m)
2700K (WW)	>109.73lm	>360lm	3.66W/ft (12W/m)
3000K	>109.73lm	>360lm	3.66W/ft (12W/m)
3500K (W)	>121.92lm	>400lm	3.66W/ft (12W/m)
4000K	>121.92lm	>400lm	3.66W/ft (12W/m)
4500K (CW)	>121.92lm	>400lm	3.66W/ft (12W/m)
5000K	>121.92lm	>400lm	3.66W/ft (12W/m)

For 2200K, 2500K, 4500K, 5000K: Minimum order quantity of 100 meters.

Nichia

Available Colors

Color	CCT Wavelength
2200K	2238 ± 102K
2500K	2460 ± 120K
2700K (WW)	2725 ± 145K
3000K	3045 ± 175K
3500K (W)	3465 ± 245K
4000K	3985 ± 275K
4500K (CW)	4503 ± 243K
5000K	5029 ± 283K

Lumen Count

VB Only

Color	Per Foot	Per Meter	Power
2200K	>109.73lm	>360lm	3.66W/ft (12W/m)
2500K	>109.73lm	>360lm	3.66W/ft (12W/m)
2700K (WW)	>109.73lm	>360lm	3.66W/ft (12W/m)
3000K	>109.73lm	>360lm	3.66W/ft (12W/m)
3500K (W)	>121.92lm	>400lm	3.66W/ft (12W/m)
4000K	>121.92lm	>400lm	3.66W/ft (12W/m)
4500K (CW)	>121.92lm	>400lm	3.66W/ft (12W/m)
5000K	>121.92lm	>400lm	3.66W/ft (12W/m)

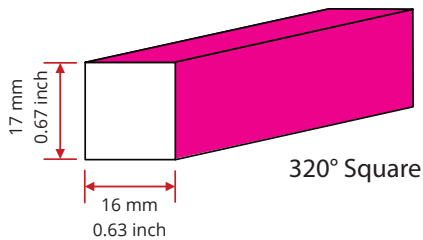
*Color Jackets:

For standard or custom color jacket options, contact your Account Manager. Min. order quantity of 656ft (200m).

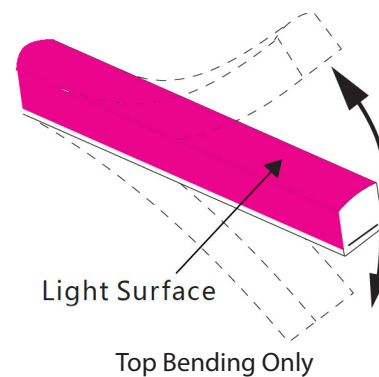
Physical Specifications



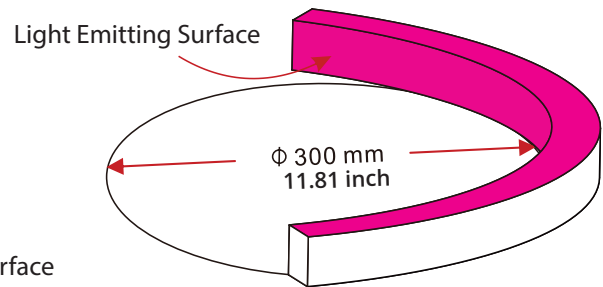
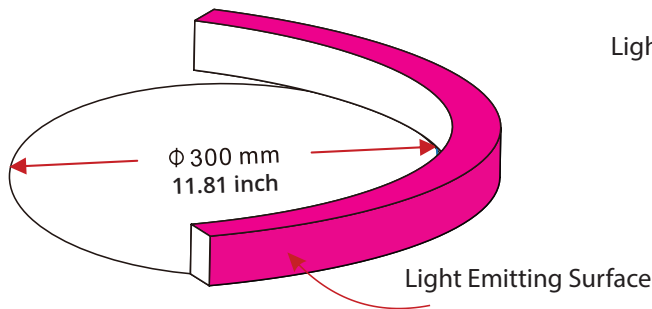
Light Profile



Bending Direction

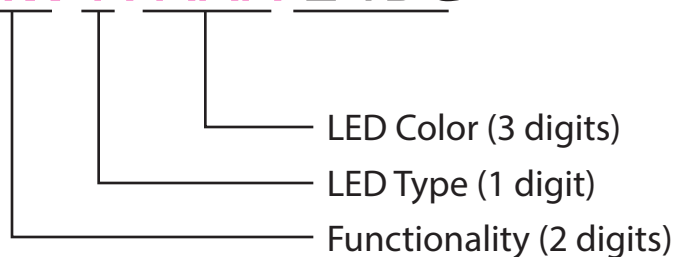


Minimum Bending Diameter



Part Number Naming Convention

NF-16E-0-03-XW-X-XXX-24DC

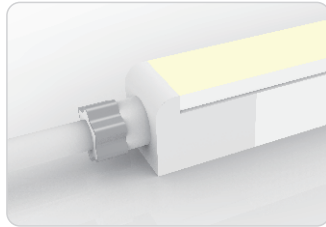


For full part number naming rules, please refer to the document on www.glls.com/support/documentation/

Connectors

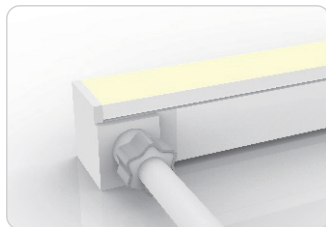
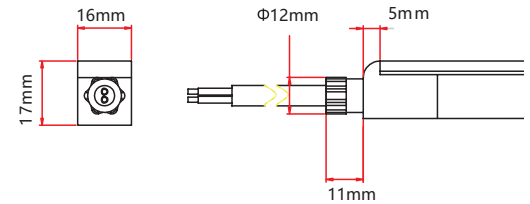
Seamless Connectors

IP67: Rated for wet locations, not submersion.
Factory Assembly only.



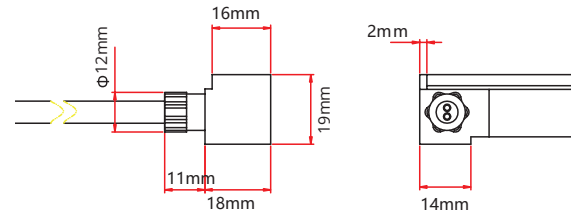
Seamless End Exit

NA-16E-0-00-2W-SE-0-EN-XXX-P



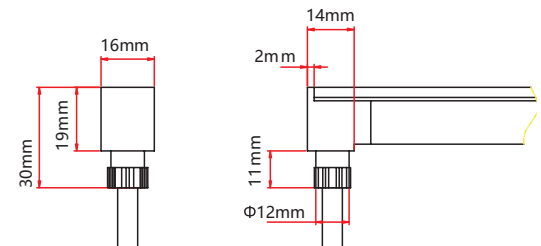
Seamless Side Exit

NA-16E-0-00-2W-SE-1-SL-XXX-P
NA-16E-0-00-2W-SE-1-SR-XXX-P
NA-16E-0-00-2W-SE-2-SL-XXX-P
NA-16E-0-00-2W-SE-2-SR-XXX-P



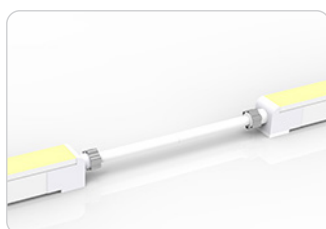
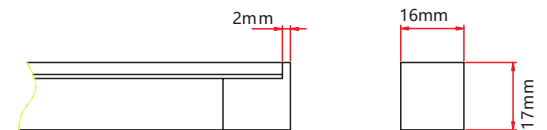
Seamless Bottom Exit

NA-16E-0-00-2W-SE-0-BO-XXX-P



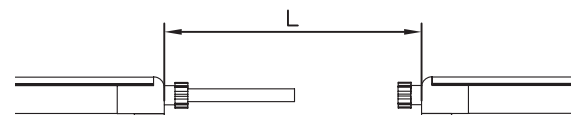
Seamless End Cap

NA-16E-1-00-0W-SE-1-EC-000-P
NA-16E-1-00-0W-SE-2-EC-000-P



Seamless Jumper

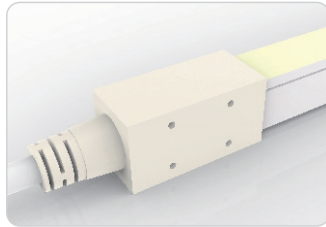
NA-16E-0-00-2W-SE-0-EJ-XXX-P



Connectors

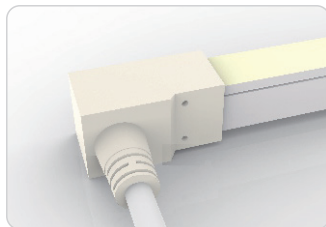
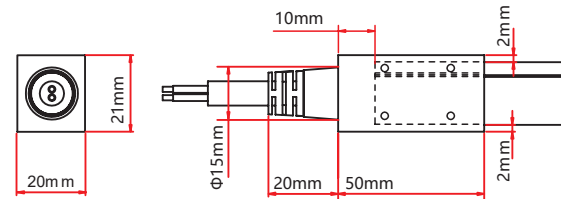
IP68: Submersible. Waiting on 3rd party certification from UL as of 18/04/12. Factory Assembly only.

Submersible Seamless Connectors



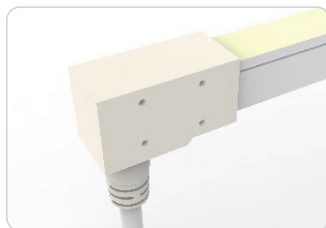
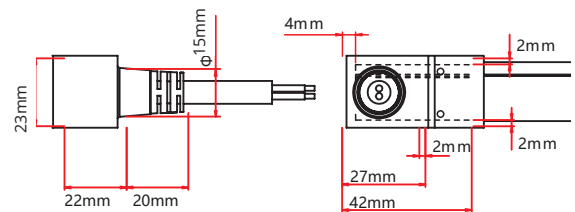
Submersible End Exit

NA-16E-0-00-2W-SU-0-EN-XXX-P



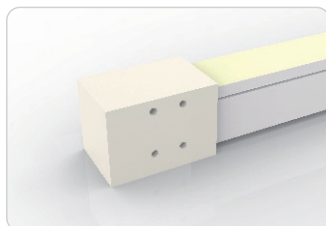
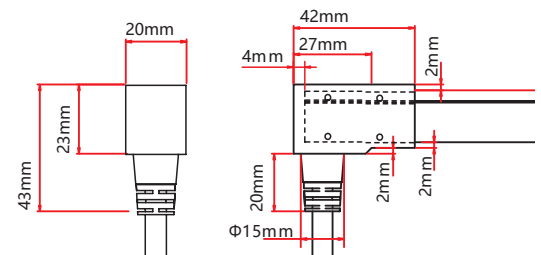
Submersible Side Exit

NA-16E-0-00-2W-SU-1-SL-XXX-P
 NA-16E-0-00-2W-SU-2-SL-XXX-P
 NA-16E-0-00-2W-SU-1-SR-XXX-P
 NA-16E-0-00-2W-SU-2-SR-XXX-P



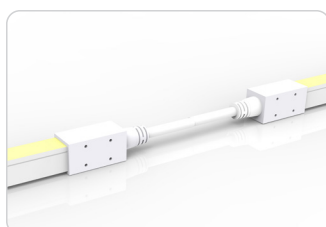
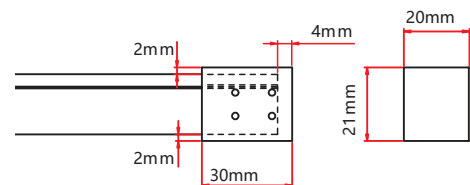
Submersible Bottom Exit

NA-16E-0-00-2W-SU-0-BO-XXX-P



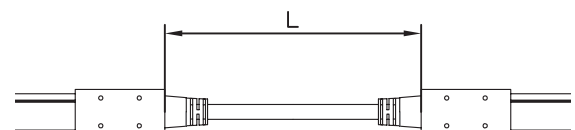
Submersible End Cap

NA-16E-1-00-0W-SU-1-EC-000-P
 NA-16E-1-00-0W-SU-2-EC-000-P



Submersible Jumper

NA-16E-0-00-2W-SU-0-EJ-XXX-P

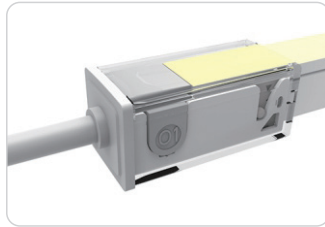


Connectors

IP67: Rated for outdoor use.
Factory Assembly or DIY.

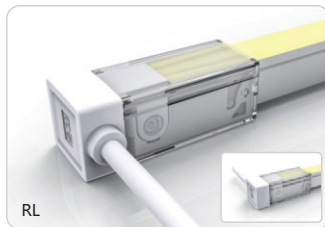
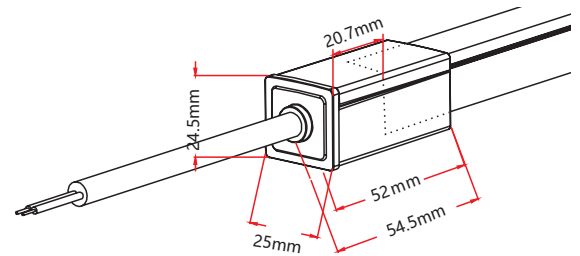
Snap Connectors

*Wave snap connectors are only available for static colors.



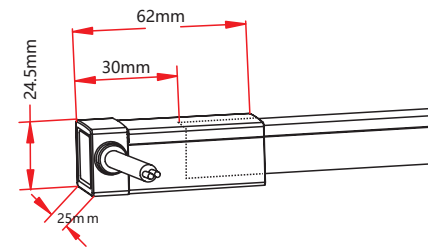
Snap End Exit

NA-16E-0-00-2W-SC-1-EN-XXX-P
NA-16E-0-00-2W-SC-2-EN-XXX-P



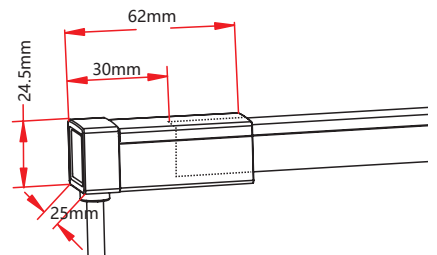
Snap Side Exit

NA-16E-0-00-2W-SC-1-SL-XXX-P
NA-16E-0-00-2W-SC-2-SL-XXX-P
NA-16E-0-00-2W-SC-1-SR-XXX-P
NA-16E-0-00-2W-SC-2-SR-XXX-P



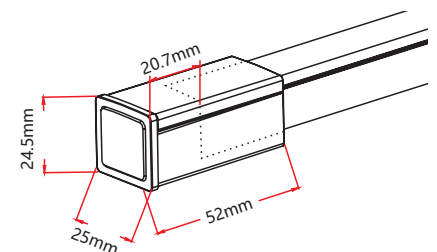
Snap Bottom Exit

NA-16E-0-00-2W-SC-1-BO-XXX-P
NA-16E-0-00-2W-SC-2-BO-XXX-P



Snap End Cap

NA-16E-0-00-0W-SC-0-EC

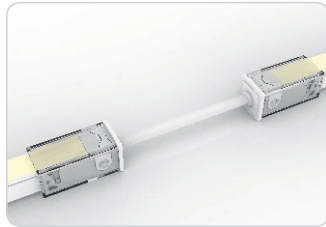


Connectors

IP67: Rated for outdoor use.
Factory Assembly or DIY.

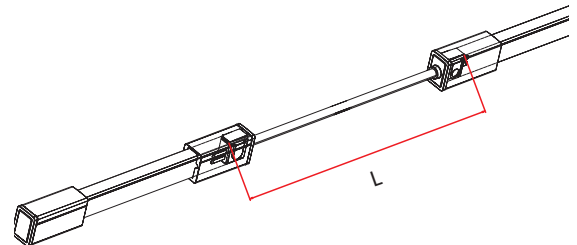
Snap Connectors

*Wave snap connectors are only available for static colors.



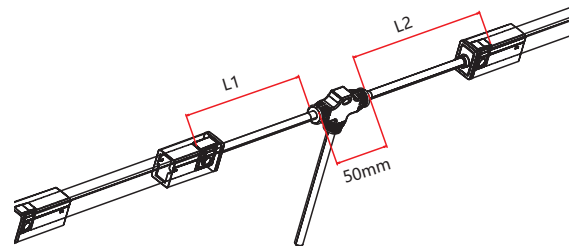
Snap Jumper

NA-16E-0-00-2W-SC-0-EJ-XXX-P



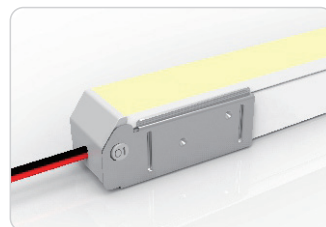
Snap Power T Feed

NA-16E-0-00-2W-SC-0-TF-XXX-P



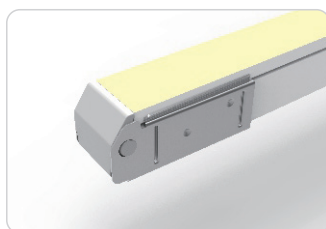
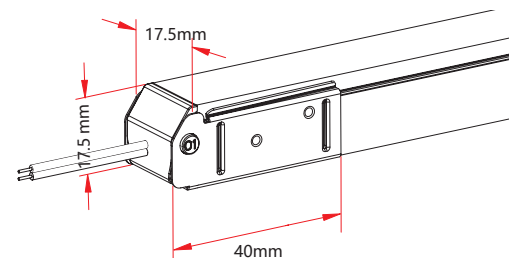
IP20: Rated for indoor use only.
Factory Assembly or DIY.

Swivel Connectors



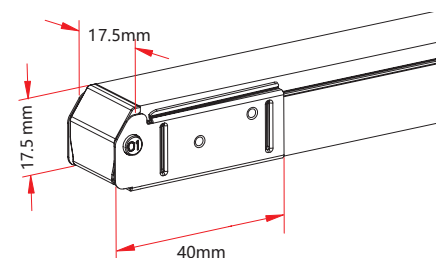
Swivel End Exit

NA-16E-0-00-2W-SV-1-EN-XXX-P
NA-16E-0-00-2W-SV-2-EN-XXX-P



Swivel End Cap

NA-16E-0-00-0W-SV-0-EC



Connectors

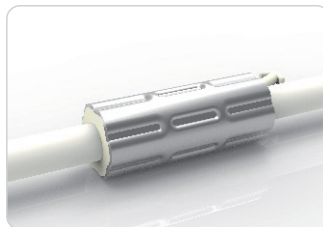
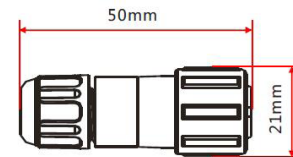
IP20: Rated for indoor use only.
Factory Assembly only.

Barrel Connectors

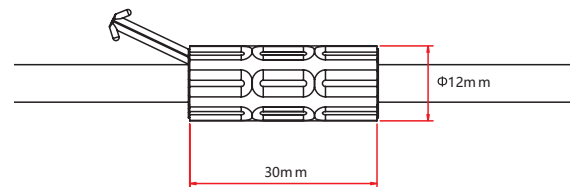


Barrel Connectors

- NA-XX-BC-DC-CXX-F
- NA-XX-BC-DC-CXX-M
- NA-XX-BN-XXA-CXX-F
- NA-XX-BN-XXA-CXX-M
- NA-XX-PL-XXA-CXX-F
- NA-XX-PL-XXA-CXX-M



Anti-Wicking Ferrule



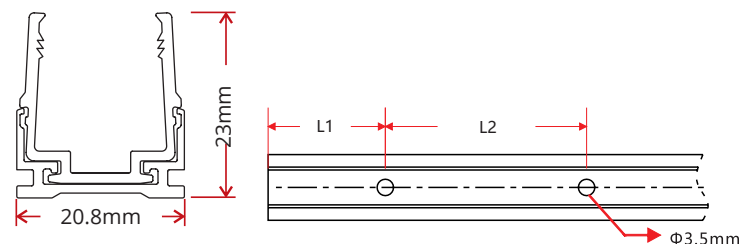
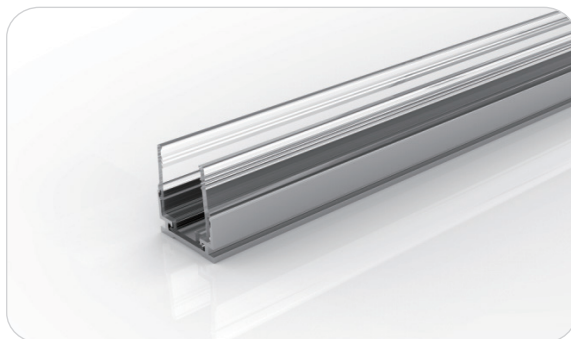
Anvil Cutter

Optional accessory for on-site cutting.

Factory order only

Mounting Hardware

Plastic & Aluminum Channel



W x H	Standard Length	Part Number	L1	L2	Screw Hole Φ	Hole #
0.82 x 0.91in (20.8x 23mm)	1.38in (35mm)	CL-16-R-AP-3C5-SD	0.69in (17.5mm)	/	Φ 0.14in (3.5mm)	1
	19.69in (500mm)	CH-16-R-AP-0M5-SD	1.97in (50mm)	7.87in (200mm)	Φ 0.14in (3.5mm)	3
	39.37in (1000mm)	CH-16-R-AP-01M-SD	3.94in (100mm)	7.87in (200mm)	Φ 0.14in (3.5mm)	5
	78.74in (2000mm)	CH-16-R-AP-02M-SD	3.94in (100mm)	7.87in (200mm)	Φ 0.14in (3.5mm)	10

Packaging



White Box

Packing Box

Fixture Length	White Box Dimensions	Packing Box Dimensions	# Of White Boxes	Package Weight
<14.76ft (<4.5m)	15.35x2.05x19.67in (39x5.2x50cm)	20.47x16.14x11.02in (52x41x28cm)	5	<17.64lbs (<8kg)
16.4 - 26.24ft (5-8m)	20.08x2.05x24.41in (51x5.2x62cm)	25.2x20.87x6.9in (64x53x17.5cm)	3	13.23-19.84lbs (6-9kg)
16.4 - 26.24ft (5-8m)	20.08x2.05x24.41in (51x5.2x62cm)	25.2x20.87x11.02in (64x53x28cm)	5	19.84-30.86lbs (9-14kg)
32.81ft (10m)	23.62x1.46x27.95in (60x3.7x71cm)	28.74x24.41x7.87in (73x62x20cm)	5	37.48lbs (17kg)
65.62ft (20m)	26.77x2.05x31.1in (68x5.2x79cm)	31.9x27.56x4.92in (81x70x12.5cm)	2	24.25lbs (11kg)

Testing

Photometric Data

LED Type	SMD				
Beam Angle	320°				
Color	Wavelength	Lumen/m	Color	CCT	Lumen/m
Red	620-630nm	>260lm	2500K	2460±120K	>750lm
Green	520-530nm	>800lm	2700K	2725±145K	>750lm
Blue	465-475nm	>92lm	3000K	3045±175K	>800lm
Amber	585-595nm	>260lm	3500K	3465±245K	>800lm
			4000K	3985±275K	>800lm
			4500K	4503±243K	>800lm
			5000K	5029±283K	>800lm
			5700K	5669±355K	>800lm
			6500K	6532±510K	>800lm

Testing

Certifications

	Testing Organization	Certificate Serial N°	Report Reference
UL 2108	UL	20160726-E360029	E360029-2013
CE-EMC	SGS	SZEM1702001259LMV	SZEM160600421302

Fixture Testing

Optical Testing

Spectrum Analysis	IES LM 79 (Lumen, CCT, CRI, XY, SDCM, wavelength)
Photometric Distribution	IES LM 73 (Lumen intensity distribution & Lux diagram)
Lumen Maintenance & Lifetime	IES LM 84 & IES TM28

Temperature Testing

Normal Temperature Test	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
Abnormal Operation Test	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21

Durability Testing

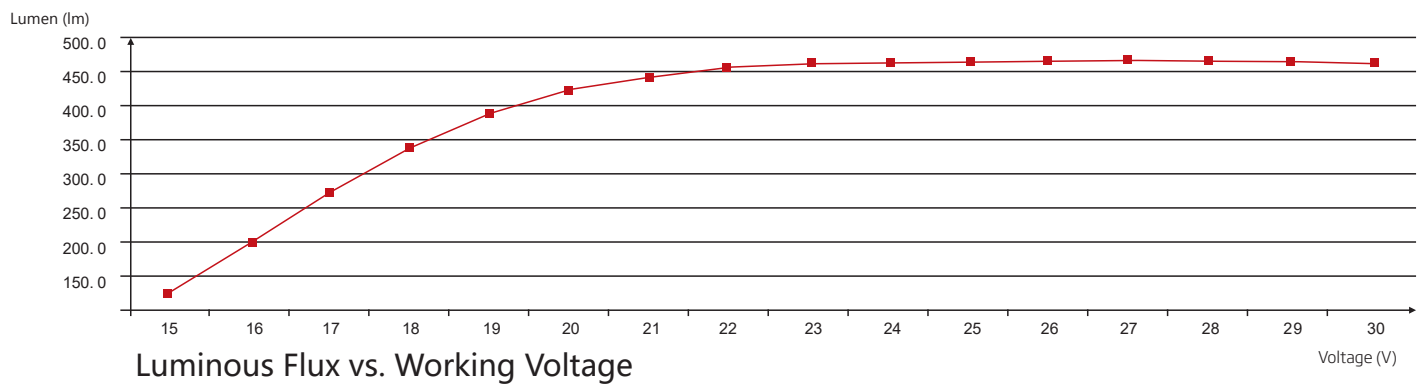
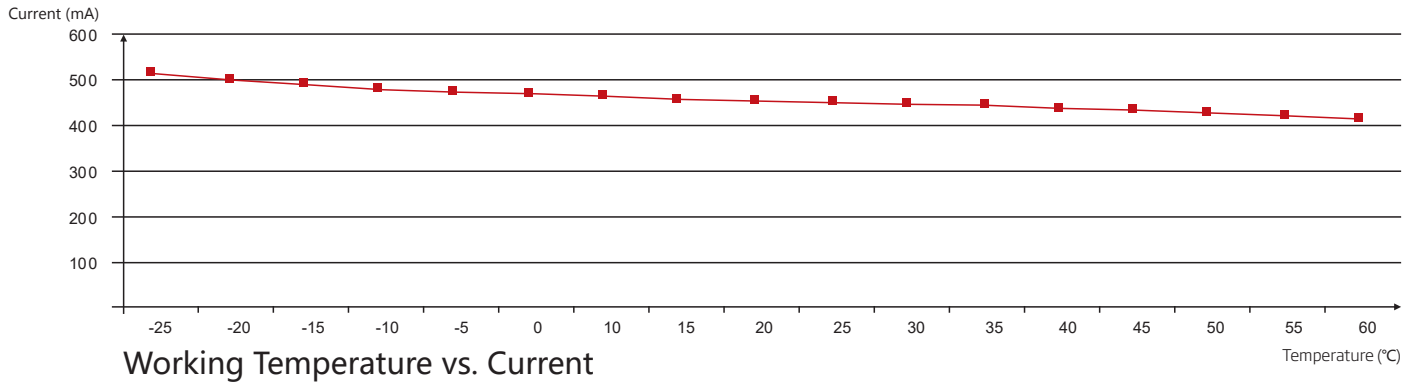
Bending Test	Manufacturer-defined, 500 cycles
Swing Test	UL2388, >750 cycles
Tensile Test	Manufacturer-defined, > the weight of light in max. connection length double feed
Twist Test	Max connection length double feed Manufacturer-defined, >200 cycles
Ball Impact	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
IK07 IK08	IEC62262

Environmental Testing

Chlorinated Water Immersion	BG9667, PH6.8-7.6, free chlorine 0.3-0.6mg/L
Salt Water Immersion	IEC60598-1, Salinity 4%
Salt Spray Test	IEC68-2-11
Outdoor Exposure	Manufacturer-defined
Flame Resistance	UL94
UV Exposure	ASTMG 154, ISO 4892-3, UVA @ 340nm
IPX5, IPX6, IPX7, IPX8	IEC60529
Temperature Shock	Manufacturer-defined, -40°C - 60°C (typical temperature range)
Constant Temperature	Manufacturer-defined

Testing

Charts



ANSI STANDARD

Nominal CCT Categories

Nominal CCT	Target CCT and tolerance(K)	Target D_{uv}	D_{uv} Tolerance Range
2200K	2238 ±102	0.0000	Tx:CCT of the source
2500K	2460±120	0.0000	For Tx<2870K
2700K	2725 ±145	0.0000	0.000±0.0060
3000K	3045±175	0.0001	For Tx≥2870K
3500K	3465±245	0.0005	$D_{uv}(Tx)±0.0060$
4000K	3985±275	0.0010	where
4500K	4503±243	0.0015	$D_{uv}(Tx)=57700 \times (1/Tx)^2$
5000K	5029±283	0.0020	-44.6 × (1/Tx)
5700K	5667±355	0.0025	+0.00854
6500K	6532±510	0.0031	

Flexible CCT (2200-6500K) $T_F^{1) \pm \Delta T^{2)}$

$D_{uv} T_F^{3)}$

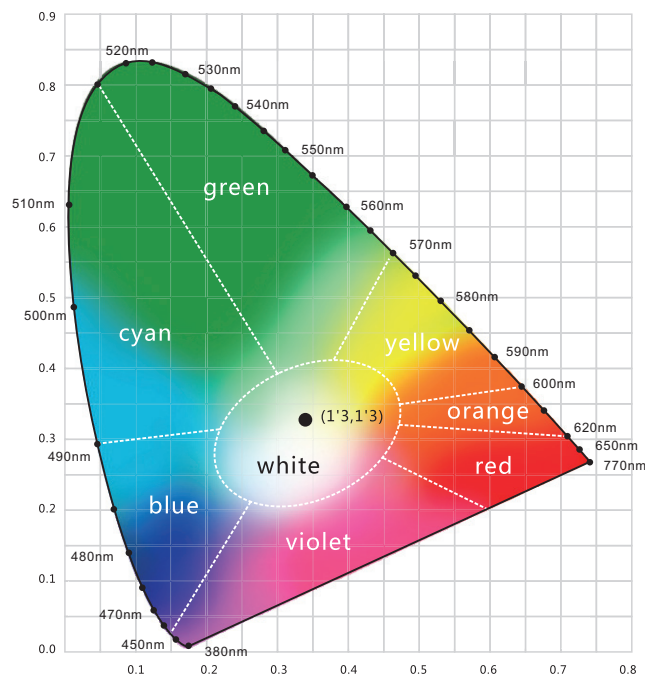
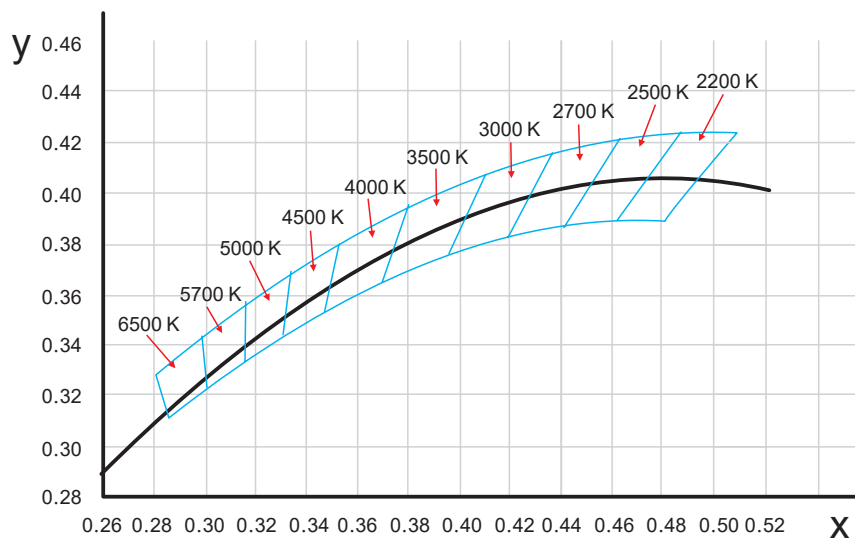
Remark:

- 1) T_F is chosen to be at 100K steps (2300,2400,.....,6400K),excluding the ten nominal CCTs listed in Table 1.
- 2) $\Delta T=1.1900 \times 10^5 \times T^3 - 1.5434 \times 10^4 \times T^2 + 0.7168 \times T - 902.55$
- 3) Same as in the D_{uv} Tolerance Range.




Testing

Charts

(X,Y) Chromaticity Diagram



Light Color

-  **Red**
620-630nm
-  **Green**
520-530nm
-  **Blue**
465-475nm