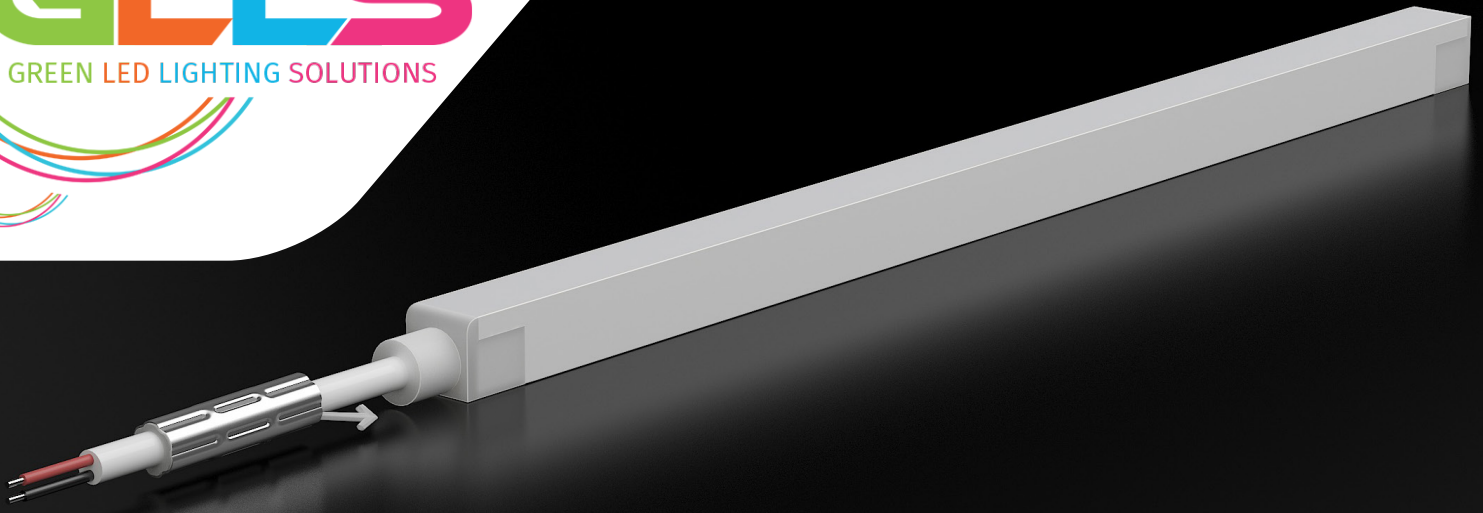




LED Neon  
**FLEX**



Version 1.2

**VMD**

# Wave Mini

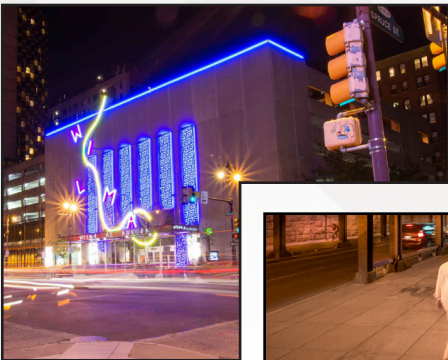
## HIGH OUTPUT

SILICONE 24V



**For More Information**

**Toll Free: 1 (888) 580-6366**



UNITED STATES

Pacific Business Center  
1075 American Pacific Dr.,  
Ste. A Henderson, NV 89074

CANADA

264 Botsford Street,  
Suite 200 Moncton, NB  
E1C 4X7

GLLS reserves the right to make any design changes for continuous improvement which will not affect the overall appearance or performance.

[www.glls.com](http://www.glls.com)  
[www.ledneonflex.com](http://www.ledneonflex.com)

Light Dimension 0.39 x 0.39in (10x10mm)

<b>Output</b>	<b>White</b>
LED Light	Epistar SMD LED Chip
Max Run Length*	
Single Feed	24.61ft (7.5m)
Double Feed	49.21ft (15m)
Light Surface	Square profile 160°
Lumen Maintenance	70,000 Hours L70 @ 25°C : 90,000 Hours L50 @ 25°C 50,000 Hours L70 @ 50°C : 70,000 Hours L50 @ 50°C

<b>Electrical</b>	
Input Voltage	24V DC
Power Consumption	2.74W/ft (9W/m)

<b>Physical</b>	
LED Count	44 LEDs/ft (144 LEDs/m)
LED Spacing	0.27in (6.9mm)
Cutting Unit Length	3.28in (83.3mm) (12 LEDs)
Thermal Management	Free air convection
Fixture Connections	End, side & Bottom lead wires
Minimum Bend Diameter	3.94in (100mm) (Side Bending OR Top Bending)

<b>Temperature Ranges</b>	
Installation	32°F to 122°F (0°C to 50°C)
Operating	-4°F to 113°F (-20°C to 45°C)
Humidity	0-95% non condensing

<b>Dependability</b>	
Warranty	5 Year Limited Warranty

<b>Safety</b>	
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	IP67 With appropriately rated accessories.

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

## Available Colors

Color	CCT Wavelength
2200K	2238 ± 102K
2700K	2725 ± 145K
3000K	3045 ± 175K
3500K	3045 ± 175K
4000K	3985 ± 275K
5700K	5669 ± 355K

## Lumen Count

Color	Per Foot	Per Meter
2200K	>103.63lm	>340lm
2700K	>103.63lm	>340lm
3000K	>103.63lm	>340lm
3500K	>103.63lm	>340lm
4000K	>103.63lm	>340lm
5700K	>103.63lm	>340lm

## Top Bending

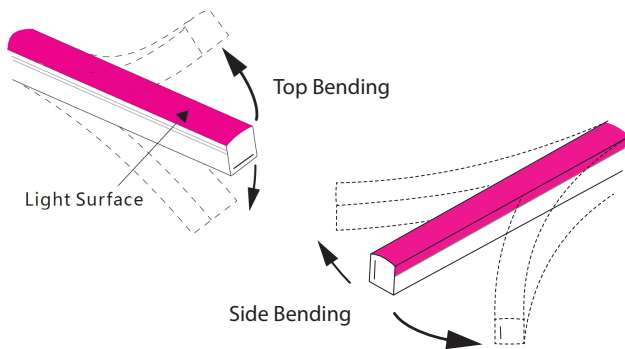
Per Foot	Per Meter
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm

## Side Bending

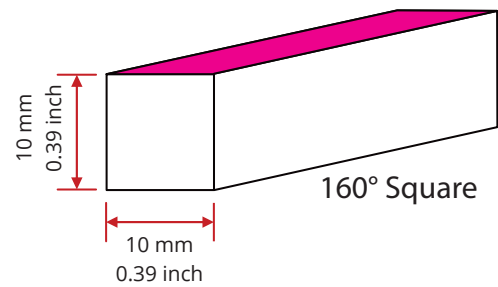
Per Foot	Per Meter
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm
>91lm	>300lm



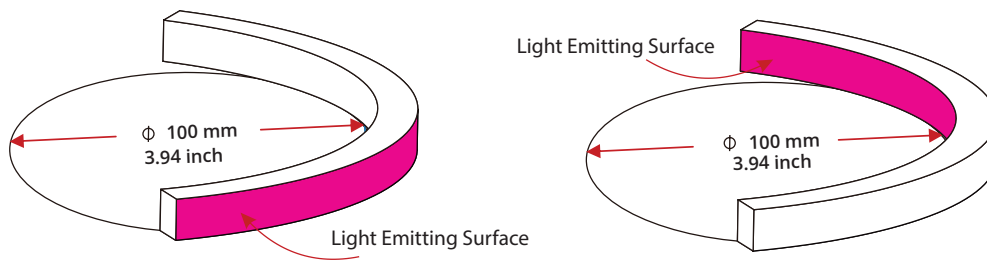
Bending Direction



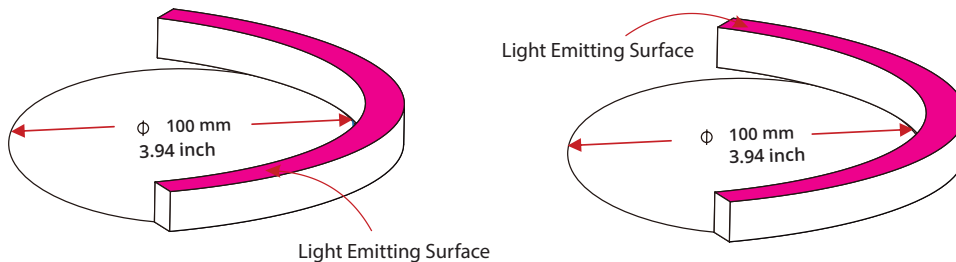
Light Profile



Minimum Bending Diameter



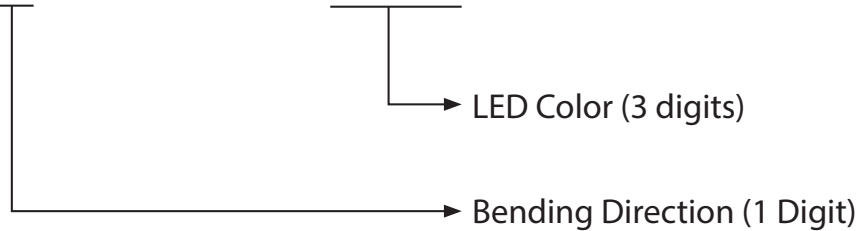
Top Bending



Side Bending

## Fixtures

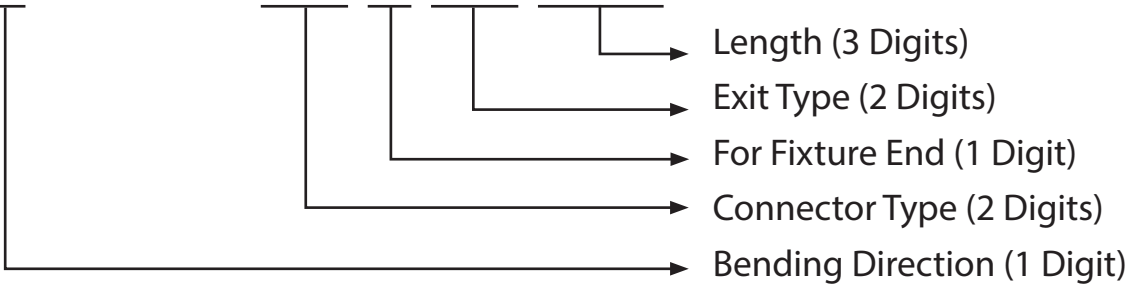
SH-10F-X-01-2W-E-XXX-24DV



Bending Direction (1 digit)	LED Color (3 digits)	
0 - Top Bending (VB)	22K - 2200K	35K - 3500K
1 - Side Bending (HB)	27K - 2700K	40K - 4000K
	30K - 3000K	57K - 5700K

## Lead Connector

FA-10F-X-01-2W-XX-X-XX-XXX-P



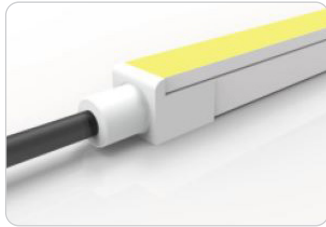
Bending Direction (1 Digit)	Connector Type (2 Digits)	For Fixture End (1 digit)	Exit Type (2 digits)	Length (3 digits)
0 - Top Bending (VB)	SE - Seamless	1 - Input side	EN - End	0M3 - 0.98ft (30cm)
1 - Side Bending (HB)	SV - Swivel	2 - Output side	BO - Bottom	01M - 3.28ft (1m)
		0 - Jumpers/T-Feeds/ Seamless (or Submersible) Bottom/Seamless (or Submersible) End	SL - Side left	03M - 9.84ft (3m)
			SR - Side right	05M - 16ft (5m)
			EJ - End jumper	10M - 32.81ft (10m)
			BJ - Bottom jumper	000 - For End Cap
			TF - Power T feed	
			EC - End Cap	

For full part number naming rules, please refer to the document on [www.glls.com/support/documentation/](http://www.glls.com/support/documentation/)

IP65: Dust and low pressure water jets protection. Factory Assembly only.



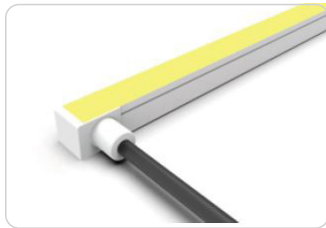
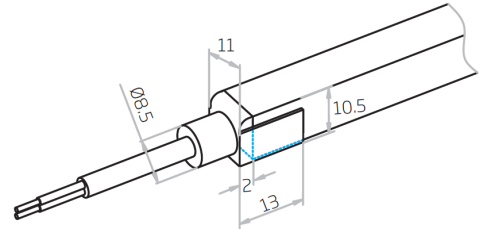
## Seamless



### Seamless End Exit

FA-10F-0-01-2W-SE-0-EN-XXX-P

FA-10F-1-01-2W-SE-0-EN-XXX-P



### Seamless Side Exit

FA-10F-0-01-2W-SE-1-SL-XXX-P

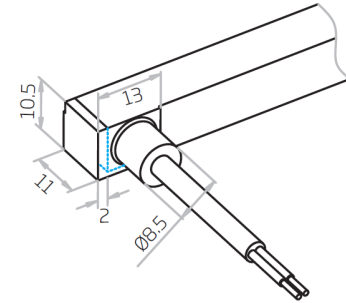
FA-10F-0-01-2W-SE-2-SL-XXX-P

FA-10F-0-01-2W-SE-1-SR-XXX-P

FA-10F-0-01-2W-SE-2-SR-XXX-P

FA-10F-1-01-2W-SE-2-SL-XXX-P

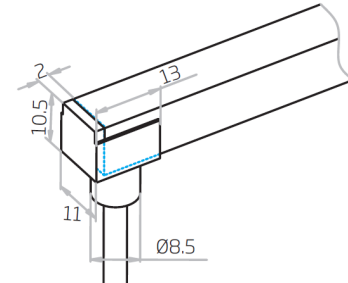
FA-10F-1-01-2W-SE-1-SR-XXX-P



### Seamless Bottom Exit

FA-10F-0-01-2W-SE-0-BO-XXX-P

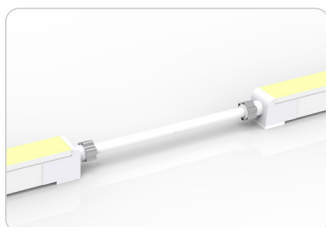
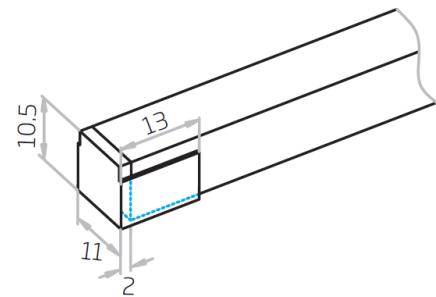
FA-10F-1-01-2W-SE-0-BO-XXX-P



### Seamless End Cap

FA-10F-1-01-0W-SE-1-EC-000-P

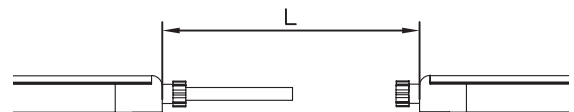
FA-10F-1-01-0W-SE-2-EC-000-P



### Seamless Jumper

FA-10F-0-01-2W-SE-0-EJ-XXX-P

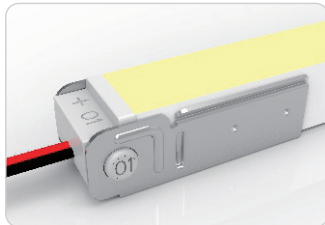
FA-10F-1-01-2W-SE-0-EJ-XXX-P



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

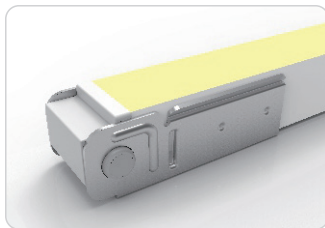
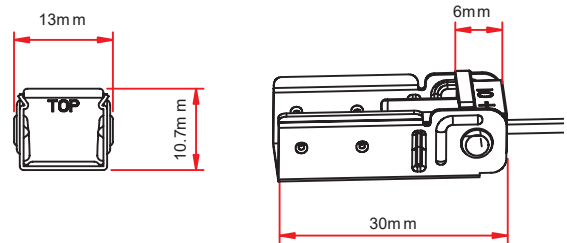


**Swivel**



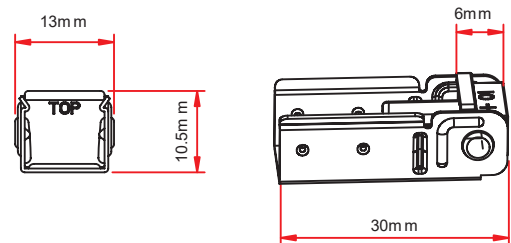
**Swivel End Exit**

- NA-10F-0-01-2W-SV-1-EN-XXX-P
- NA-10F-0-01-2W-SV-2-EN-XXX-P
- NA-10F-1-01-2W-SV-1-EN-XXX-P
- NA-10F-1-01-2W-SV-2-EN-XXX-P



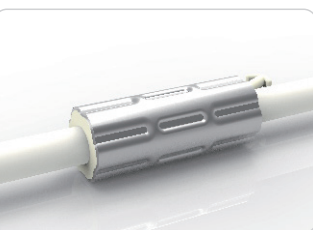
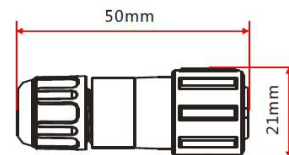
**Swivel End Cap**

- NA-10F-0-01-0W-SV-1-EC-000-P
- NA-10F-0-01-0W-SV-2-EC-000-P
- NA-10F-1-01-0W-SV-1-EC-000-P
- NA-10F-1-01-0W-SV-2-EC-000-P



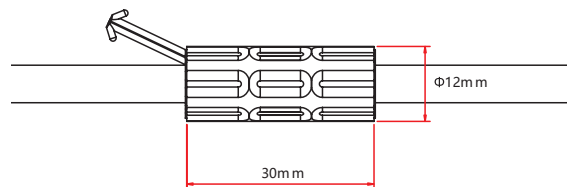
**Male & Female Connectors**

- 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



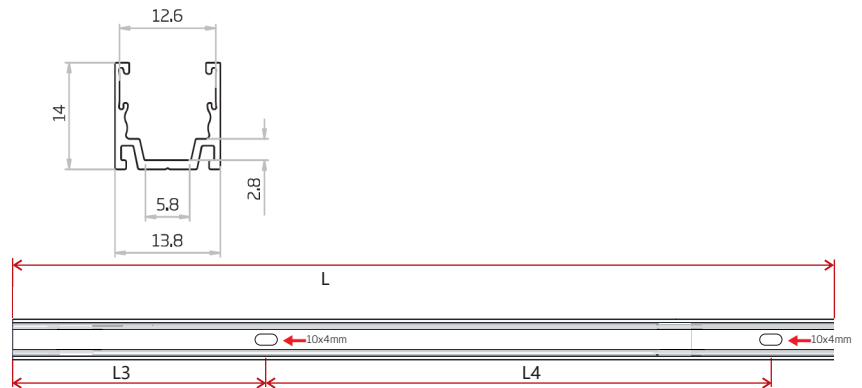
**Anti-Wicking Ferrule**

The Ferrule needs to be above water for any underwater applications.



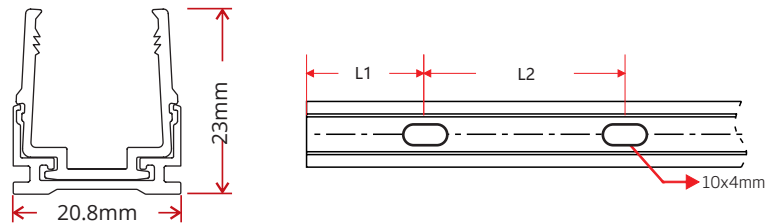
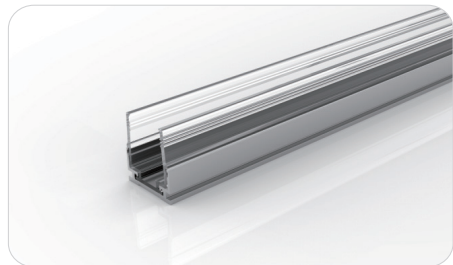


## Standard Aluminum Channel with Silicone Grip



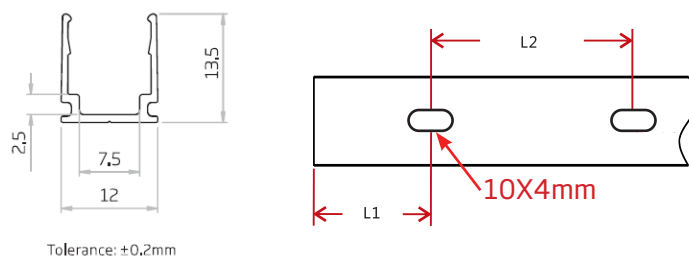
W x H	Standard Length	Part Number	L3	L4	Screw Hole $\Phi$	Hole #
0.82 x 0.88in (20.7 x 22.3mm)	0.79in (20mm)	CL-10-R-AL-02C-SE	0.2in (5mm)	0.98in (25mm)	10x4mm	1
	19.69in (500mm)	CH-10-R-AL-0M5-SE	1.97in (50mm)	7.87in (200mm)	10x4mm	3
	39.37in (1000mm)	CH-10-R-AL-01M-SE	3.94in (100mm)	7.87in (200mm)	10x4mm	5
	78.74in (2000mm)	CH-10-R-AL-02M-SE	3.94in (100mm)	7.87in (200mm)	10x4mm	10

## Plastic & Aluminum Channel



W x H	Standard Length	Part Number	L1	L2	Screw Hole $\Phi$	Hole #
0.82 x 0.91in (20.8 x 23mm)	1.38in (35mm)	CL-10-R-AP-3C5-SD	0.69in (17.5mm)	/	0.39in x 0.16in (10mm x 4mm)	1
	19.69in (500mm)	CH-10-R-AP-0M5-SD	1.97in (50mm)	7.87in (200mm)	0.39in x 0.16in (10mm x 4mm)	3
	39.37in (1000mm)	CH-10-R-AP-01M-SD	3.94in (100mm)	7.87in (200mm)	0.39in x 0.16in (10mm x 4mm)	5
	78.74in (2000mm)	CH-10-R-AP-02M-SD	3.94in (100mm)	7.87in (200mm)	0.39in x 0.16in (10mm x 4mm)	10

## Standard Aluminum Channel with Silicone Grip



W x H	Standard Length	Part Number	L3	L4	Screw Hole $\Phi$	Hole #
0.82 x 0.88in (20.7 x 22.3mm)	0.79in (20mm)	CL-10-R-AL-02C-SD	0.2in (5mm)	0.98in (25mm)	10x4mm	1
	19.69in (500mm)	CH-10-R-AL-0M5-SD	1.97in (50mm)	7.87in (200mm)	10x4mm	3
	39.37in (1000mm)	CH-10-R-AL-01M-SD	3.94in (100mm)	7.87in (200mm)	10x4mm	5
	78.74in (2000mm)	CH-10-R-AL-02M-SD	3.94in (100mm)	7.87in (200mm)	10x4mm	10

### 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

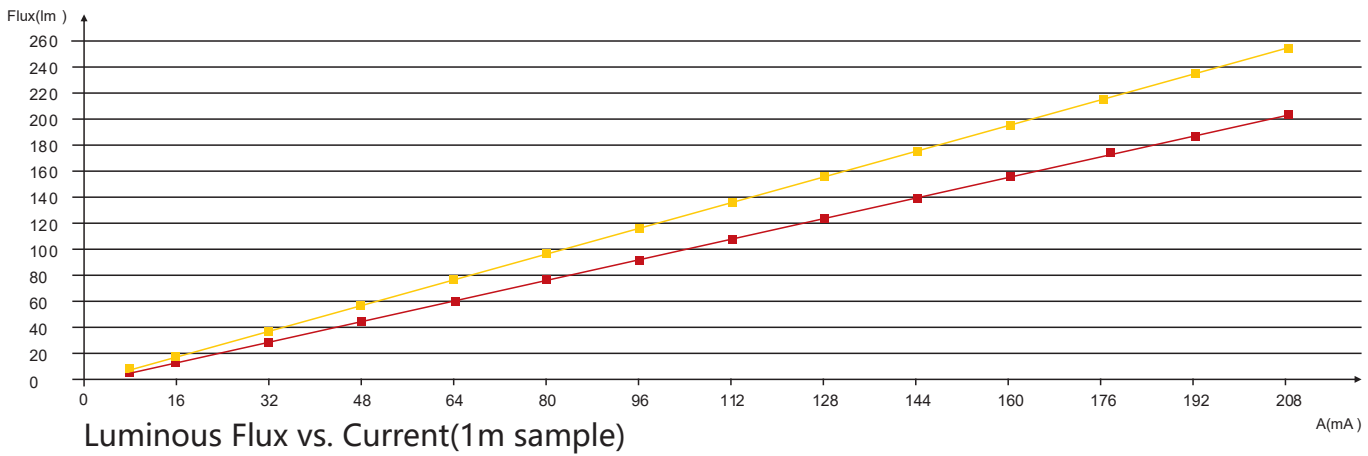
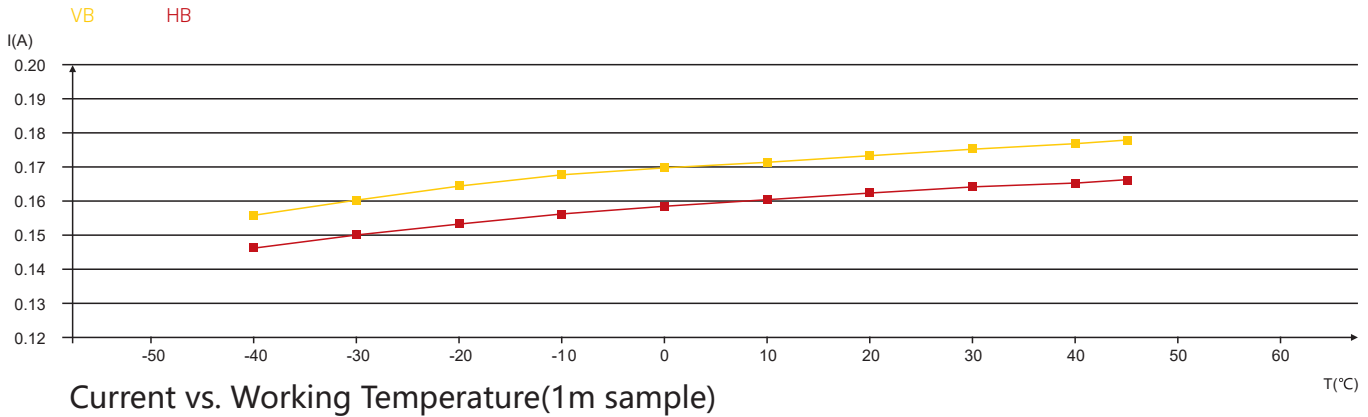
Bending Test	Manufacturer-defined, 500 cycles
Swing Test	UL2388, >750 cycles
Tensile Test	Manufacturer-defined, > the weight of light in max. connection length double feed
Twist Test	Max connection length double feed Manufacturer-defined, >200 cycles
Ball Impact	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21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



Charts



55

ANSI STANDARD

Nominal CCT Categories

Nominal CCT	Target CCT and tolerance(K)	Target D <sub>uv</sub>	D <sub>uv</sub> 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 <sub>uv</sub> (Tx)±0.0060
4000K	3985±275	0.0010	where
4500K	4503±243	0.0015	D <sub>uv</sub> (Tx)=57700 x (1/Tx)2
5000K	5029±283	0.0020	-44.6 x (1/Tx)
5700K	5667±355	0.0025	+0.00854
6500K	6532±510	0.0031	

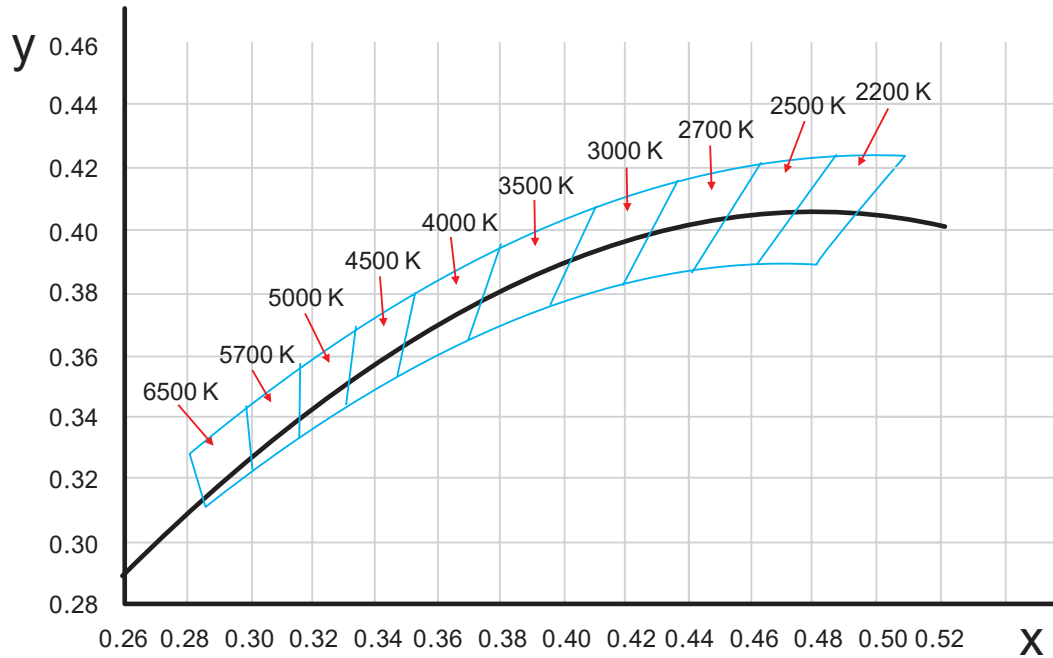
Remark:

- 1) T<sub>r</sub> is chosen to be at 100K steps (2300,2400,.....,6400K),excluding the ten nominal CCTs listed in Table 1.
- 2)  $\Delta T = 1.1900 \times 10^8 \times T^3 - 1.5434 \times 10^4 \times T^2 + 0.7168 \times T - 902.55$
- 3) Same as in the D<sub>uv</sub> Tolerance Range.

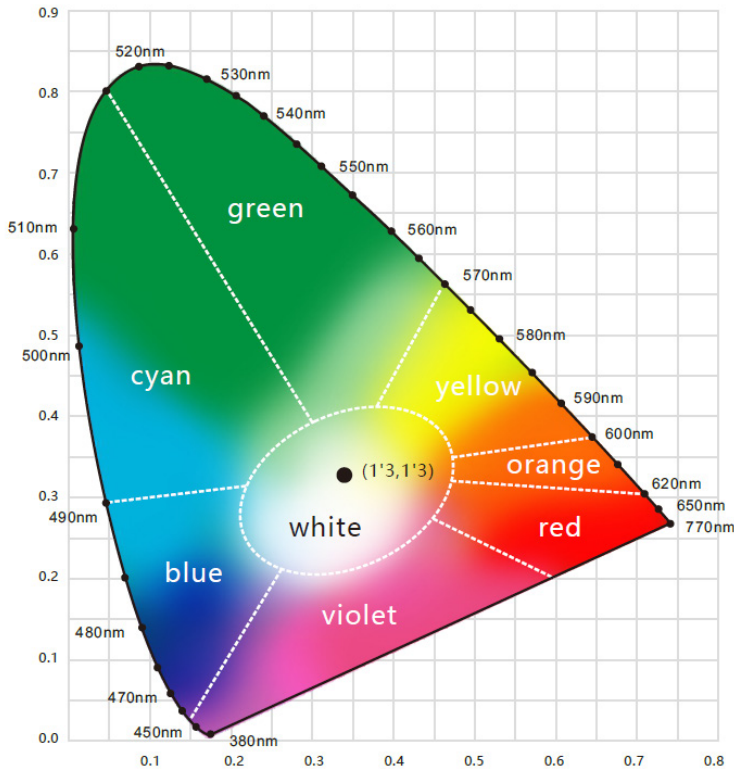
Flexible CCT (2200-6500K)	T <sub>F</sub> <sup>3)</sup> ± ΔT <sup>2)</sup>	D <sub>uv</sub> T <sub>F</sub> <sup>3)</sup>
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Charts

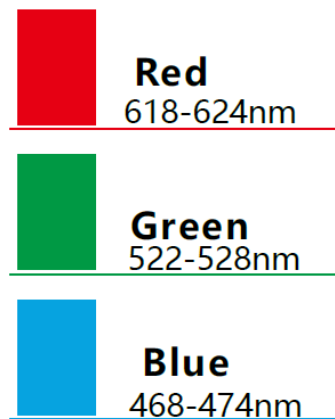
(X,Y) Chromaticity Diagram

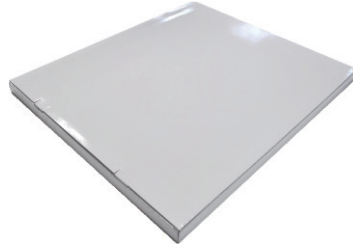
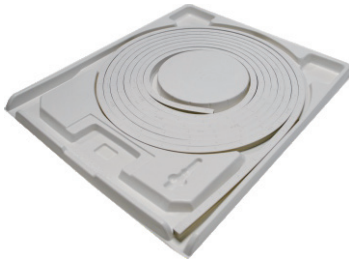


Wavelength of Color Light



Light Color





White Box

Packing Box

Fixture Length	White Box Dimensions	Packing Box Dimensions	# Of White Boxes	Package Weight
196.85in (5m)	15.35x2.05x19.67in (39x5.2x50cm)	20.47x15.34x11.02in (52x41x28cm)	5	30.86lbs (14kg)
393.7in (10m)	20.08x2.05x24.41in (51x5.2x62cm)	25.2x20.87x11.02in (64x53x28cm)	5	57.32lbs (26kg)
393.7in (10m)	20.08x2.05x24.41in (51x5.2x62cm)	25.2x20.87x6.9in (64x53x17.5cm)	3	35.27lbs (16kg)
787.4in (20m)	26.77x2.05x31.1in (68x5.2x79cm)	31.9x27.56x4.92in (81x70x12.5cm)	2	48.5lbs (22kg)