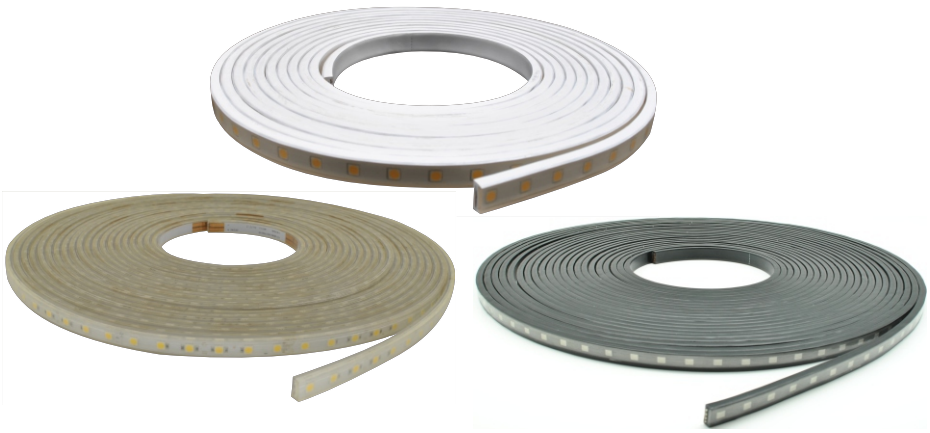
galaxy of light

Specification

For LED Crystal Flex Ribbon

C-FR-F17



CLEAR Lighting

c UL us LISTED CE TÜV SÜD RoHS COMPLIANT

Table of Contents

Introduction

C-FR-F17 is a member of Galaxy of Light series with creative patent optical design and meticulously selected LEDs that provides aesthetically superior, consistent lighting effects with no fluctuations in luminescence as seen with conventional lighting.

C-FR-F17 is UL/cUL, CE, TUV and RoHS compliant. Moreover, it has passed environmental resistance, optical, mechanical and electrical tests in our lab under the support of advanced experimental equipments and technology to ensure it meets the requirements of harshest environments. Also it has passed relevant tests of third party inspection authority.

Fully encapsulated in the flexible PVC chamber by utilizing consummate extrusion technology, assembled with multiple patented connectors to achieve high IP protection, easy for installation and applicable for various circumstances.

C-FR-F17 features ultra high brightness, solid and radiant linear light, energy efficient and unmatched dependability. It is also field cuttable, extremely flexible and developed exquisite appearance with three kinds of cover to match the applications.

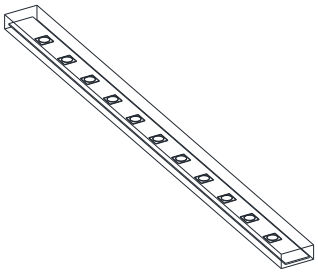
Applications:

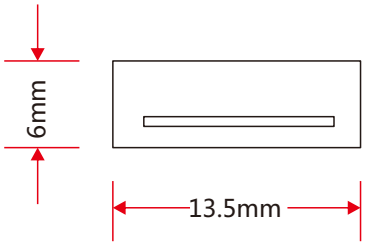
1. Outdoor or Indoor Contour Lighting
2. Architectural Outline/Decorative Lighting
3. Cove/Accent Lighting
4. Background Lighting
5. Signage/Display Lighting

1. Specifications & Parameters

Beam Angle | Bending Diameter | Flame Resistant | UV Resistant | Solvents Resistant | Saltwater Resistant | IP67 Protection | Warranty

1.1 Dimensions of Light



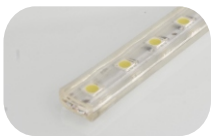


Note: Unless otherwise stated, the tolerance of the light is ±0.2mm.

1.2 Technical Parameters

Technical Parameters		
Article No.	C-FR-F17-D24V-60	C-FR-F17-D24V-60
Color	Red/Amber	Warm White/White/Green/Blue
Working Voltage	DC 24V	DC 24V
Rated Power/mtr	7.2W	12W
LED Qty/mtr	60LEDs	60LEDs
LED Distance	16.67mm	16.67mm
Min. Cutting Unit	10LEDs(1unit)	6LEDs(1unit)
Min. Cutting Length	16.78CM(1unit)	10CM(1unit)
Continuous Length	15m	10m
Weight/m	102g	
Storing Temp.	-20~60℃	
Working Temp.	-20~45℃	
Operating Temp.	0~45℃	
IP Rating	IP67/IP40	

C-FR-F17A



PVC-Transparent

C-FR-F17B

PVC-Ivory white

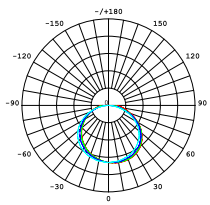
C-FR-F17C

PVC-Black

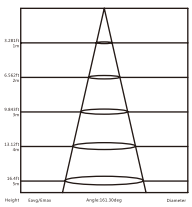
1.3 Optical Parameters

Photometric Data							
Article No.	C-FR-F17						
LED Type	SMD						
Beam angle	150°						
Color	Wavelength	Lumen/m	Power/m	Color	CCT	Lumen/m	Power/m
Red	620-630nm	>220lm	7.2W				
Green	520-530nm	>550lm	12W	2400K	2400±125K	>800lm	12W
Blue	465-475nm	>110lm	12W	2700K	2725±145K	>900lm	12W
Amber	585-595nm	>220lm	7.2W	3000K	3045±175K	>900lm	12W
				3500K	3465±245K	>900lm	12W
				4000K	3985±275K	>900lm	12W
				4500K	4503±243K	>900lm	12W
				5000K	5028±283K	>900lm	12W
				5700K	5665±355K	>900lm	12W
				6500K	6530±510K	>900lm	12W

Candle power distribution



Illuminance Characteristics

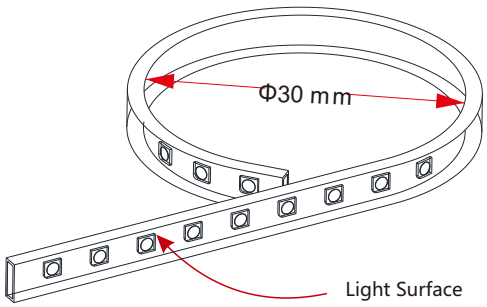


2. Functions & Features

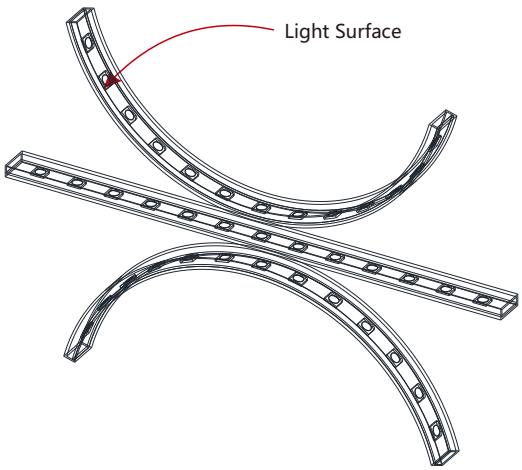
2.1 Product Features

1. High quality and high brightness SMD LED chip.
2. Variety of monochromatic lights for option including Red, Green, Blue, Amber and White light(2400K to 6500K).
3. UV & flame resistant construction(PVC).
4. Patent optical design with custom FPC for optimum thermal management.
5. High color consistency & uniformity.
6. Ultra flexible with 30mm minimum bending diameter.
7. Easy installation and assembly with DIY accessories for joining and terminating.
8. High IP rating(IP67).
9. Continuous length up to 15m (R, A) / 10m (G, B, W) by powering one end.
10. Environmentally friendly & energy efficient.
12. Automated production, high reliability & long warranty.
13. 5 years life span (Do not continuously operate over 8 hours per day).

2.2 Minimum Bend Diameter



The light can only be bent along the light surface.



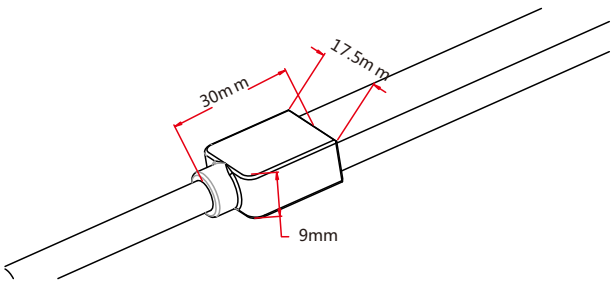
Do not bend smaller than allowed minimum bend diameter.

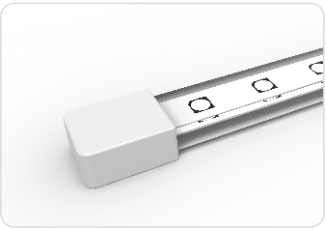
3. Types of Connector

3.1 Injection-moulded Connector

Injection-moulded Front Connector

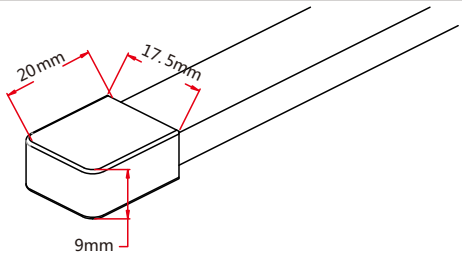
Connects light to power supply with pre-installed front feed cable, IP65.Cable length available in 0.3m, 1m, 3m, 5m, 10m



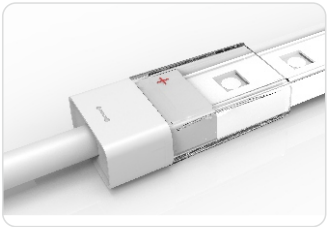


Injection-moulded End Cap

Pre-installed termination protection of the light, IP65.



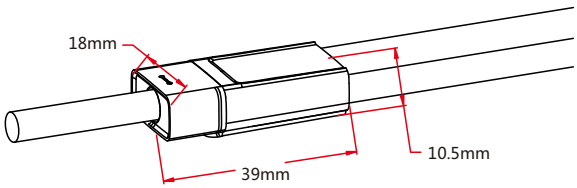
3.2 Sleeve Connector

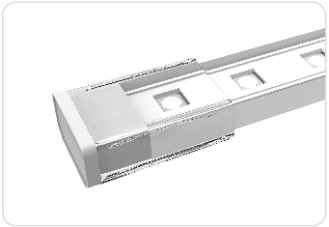


Sleeve Front Connector

Connects light to power supply. IP40 DIY connector. Cable length available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m.

Feed connector*1(Two-pin)
PC cover*1
Anti-skidding clip*1
Heat-shrink tube*1

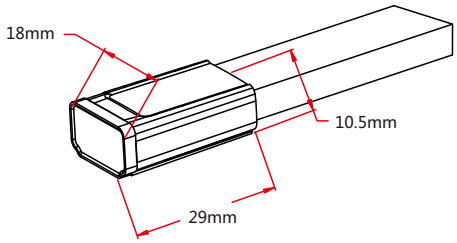


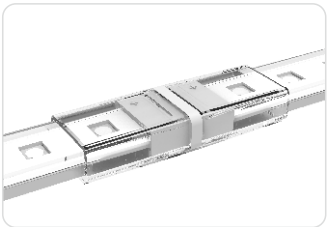


Sleeve End Cap

Termination protection of the light. IP40 DIY connector.

Tail plug*1
Shading sheet*1
Heat-shrink tube*1

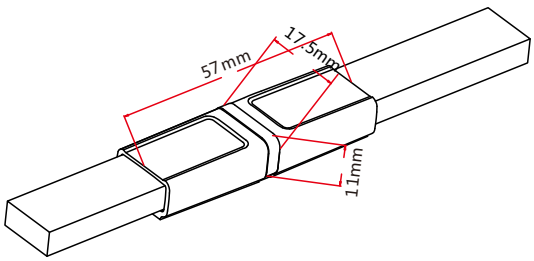


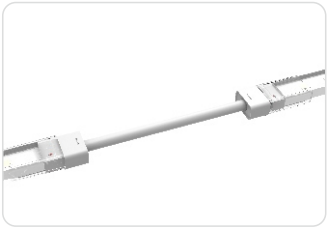


Sleeve Middle Connector

Combine two pieces of lights together. IP40 DIY connector.

Pin connector*1 (Two-pin)
PC cover*2
Anti-skidding clip*2
Heat-shink tube*1

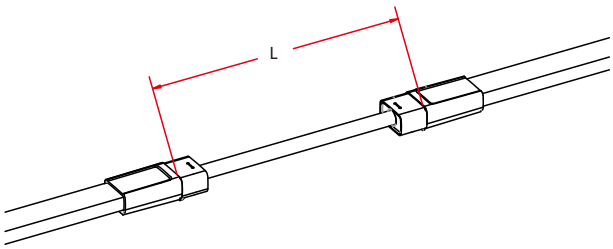




Sleeve Jumper

Connects two pieces of lights together with a flexible cable. IP40 DIY connector. L available in 0.3m, 1m and 3m.

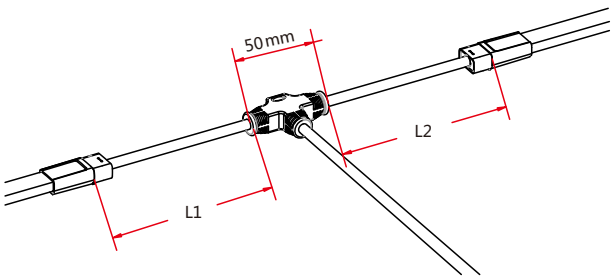
Double-end feed connector*1(Two-pin)
PC cover*2
Anti-skidding clip*2
Heat-shrink tube*2



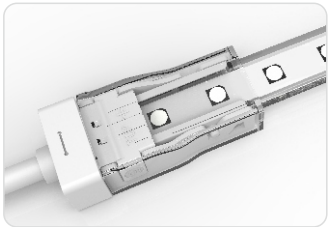
Sleeve Power T-feed

Connects two pieces of lights together with a T joint, energized from middle. IP40 DIY connector. L1 and L2 available in 0.3m.

T joint*1(Two-pin)
PC cover*2
Anti-skidding clip*2
Heat-shrink tube*2



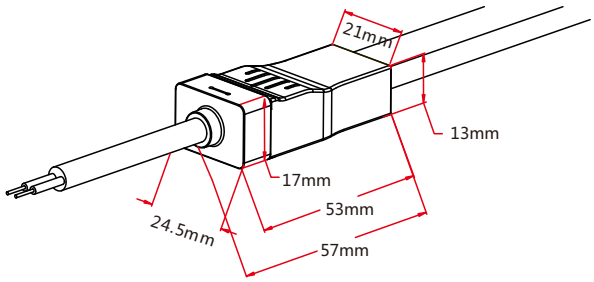
3.3 Snap Connector

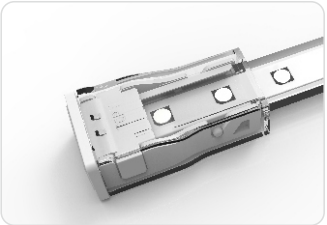


Snap Front Connector

Connects light to power supply. IP67 DIY connector. Cable length available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m.

Feed connector*1(Two-pin)
Silicone gasket*1
U steel plate*1
Anti-skidding clip*1
PC cover*1

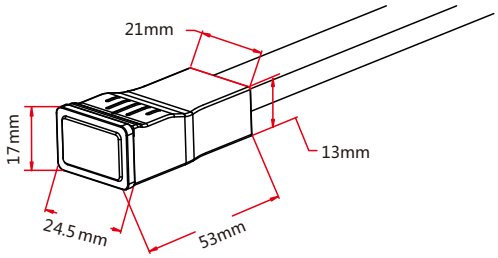




Snap End Cap

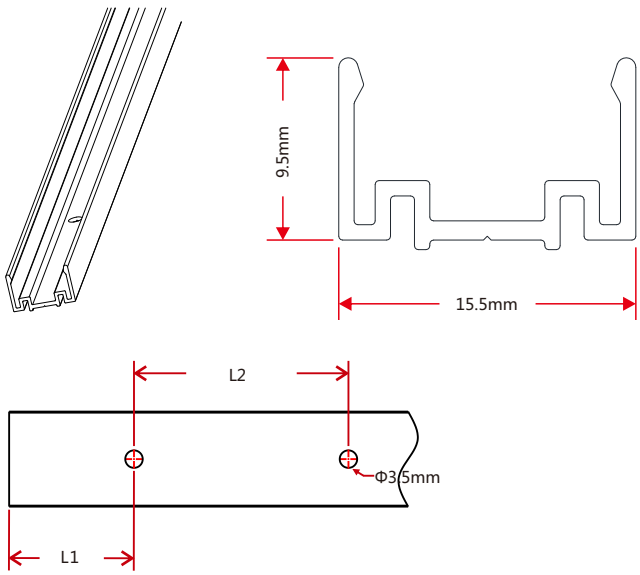
Termination protection of the light. IP67 DIY connector.

Tail plug*1
Silicone gasket*1
U steel plate*1
Anti-skidding clip*1
PC cover*1



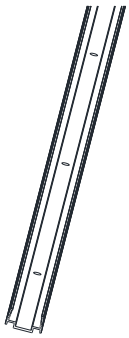
4. Mounting Profile & Clip

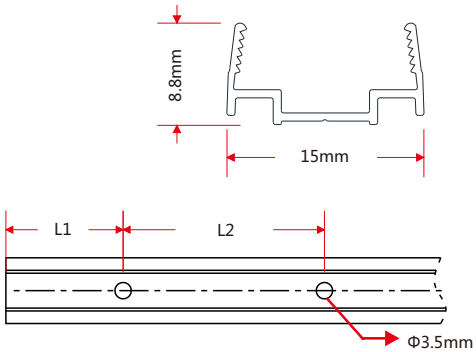
4.1 Standard Aluminum Profile



Model	W*H(mm)	Standard Length (L:mm)	L1 (mm)	L2 (mm)	Screw Hole (Φ:mm)	Hole Number	For Product
FR020	15.5*9.5	300	50	200	Φ3.5	2	F17
		500	50	200	Φ3.5	3	F17
		1000	100	200	Φ3.5	5	F17
		2000	100	200	Φ3.5	10	F17

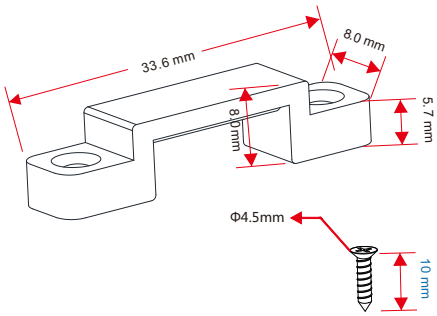
4.2 Plastic Profile





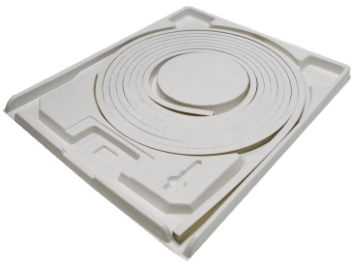
Model	W*H(mm)	Standard Length (L:mm)	L1 (mm)	L2 (mm)	Screw Hole (Φ:mm)	Hole Number	For Product
FR017	15*8.8	300	50	200	Φ3.5	2	F17
		500	50	200	Φ3.5	3	F17
		1000	100	200	Φ3.5	5	F17
		2000	100	200	Φ3.5	10	F17

4.3 Plastic Clip



5.Packaging

Packaging Method



Plastic Plate

White Box

Carton

Packaging Detail

Light Length	White Box Dimension (cm)	Carton Dimension (cm)	Numbers of White Box	Carton Weight (kg)
10m	35*4.2*46	48*37*24	5	7
20m	45*4.2*56	58*47*24	5	12
30m	61.5*4.2*72	74*63.5*10.5	2	8

6. Appendix

6.1 Product Naming Convention

C-FR-XXX X-XXX-XXX-XXX-XXX

- Color
- LED Number/Meter
- Rated Operational Voltage
- Working Mode(CV/CC/AC)
- Indication of Color(A:RGB; B:Monochrome)
- Product Type
- Flexible Ribbon Light
- Abbreviation of Company Name: CLEAR

For Example: C-FR-F17A-CV-D24V-60-2700

6.2 Third-Party Test Report

Testing Item	Testing Organization	Report Number
RoHS	SGS	CANECI202163502 A01
IP68: Screw type	TUV SUD	68.140.12.136.02
IP68: Clasp type	SGS	GZESI40200135301 GZESI40200135401 GZESI40200135501 GZESI40200135701 GZESI40200135801
IPX8: Molding type	SGS	SZESI41200357301 SZESI41200357401 SZESI41200357501
Frame resistante	TUV SUD	68.140.13.068.01
IK08	TUV SUD	68.140.12.171.01
Temperature risen	UL	UL file E360029-Test Record-1 Datasheet
UV: Light	AOV	A002R130308065—1R01
UV: PVC	AOV	A002R130308065—2R01

>>Note: The testing reports and certificates are available from the related official website.

6.3 Certificate

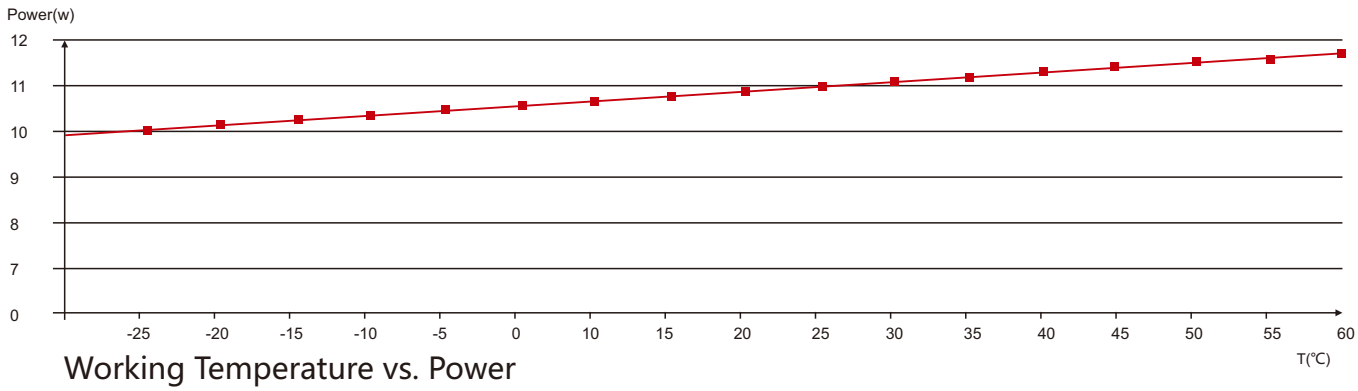
Certificating Type	Testing Organization	Certificate Serial Number	Report Reference
CE-EMC	SGS	SZEMI41000576803V	SZEMI41000576803
CE-EMC	TUV Rheinland	AE 50274407 0001	17037105 001
CE-LVD	TUV Rheinland	AE 50275368 0001	17036967 001
UL & cUL	UL	20130417-E360029	E360029-20130322

6.4 Reliability Test of Light

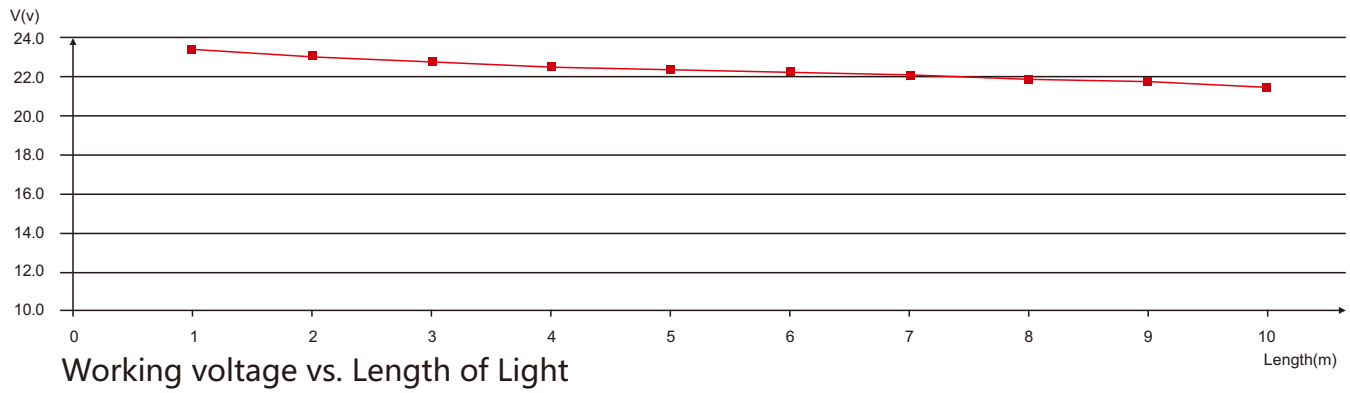
Testing Item	Classification	Reference Criterion	Testing Condition/Method	Result
IP Rating Test	IP65/IP68 1m	IEC60529	/	Pass
Environmental Test	High Temperature Storing	IEC 68—2—2	60℃	Pass
	High Temperature and Humidity Impact	IEC 68—2—3	70℃. 95%Rh	Pass
	Corrosion Resistance Test in Swimming Pool Water	/	/	Refer to test report
	Corrosion Resistance Test in Artificial Sea Water	/	/	Refer to test report
	Corrosion Resistance Test in Volatile Oil	/	/	Refer to test report
	Salt Spray Test	IEC 68—2—11	Spray continuously for 96 hours and the concentration of NaCl solution is 5%	Pass
	UV Test	ISO 4892—2	0.76W / m2, UVA—340nm, 65℃	Refer to test report
Optical Test	Light Spectrum	ANSI C78 · 377	/	Refer to test report
	Candela Distribution	LM 79	/	Refer to test report
Mechanical Test	Bending Test	/	Bending Diameter 3cm	>500 times
	Torsion Test	/	Twisting Angle: -360°~360° Rotating Speed:7200°/min	>200 cycles
	Swing Test	/	Swinging Angle: -90°~90°, 750 times/cycle; lift weight:300g	>2250 times
	Tensile Test	/	Increasing the strength gradually till PCB break	>32kg.f
Electrical Test	Insulation Resistance	IEC60598—1	/	>2MΩ
	Electrical Continuity	IEC60598—1	Weights were added on the connector for 1min	>14kg.f

>>Note: Please contact us for related test report.

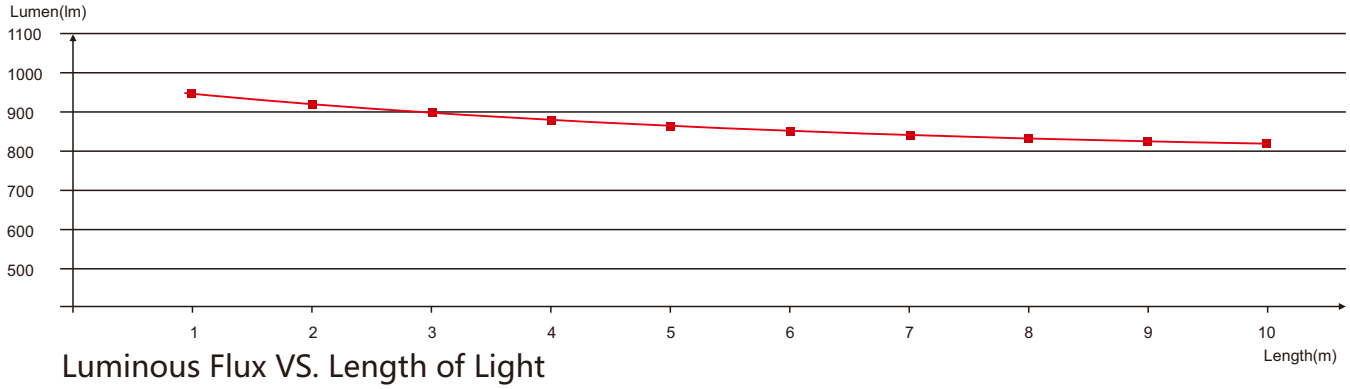
6.5 Figures of Typical Characteristics



Working Temperature vs. Power

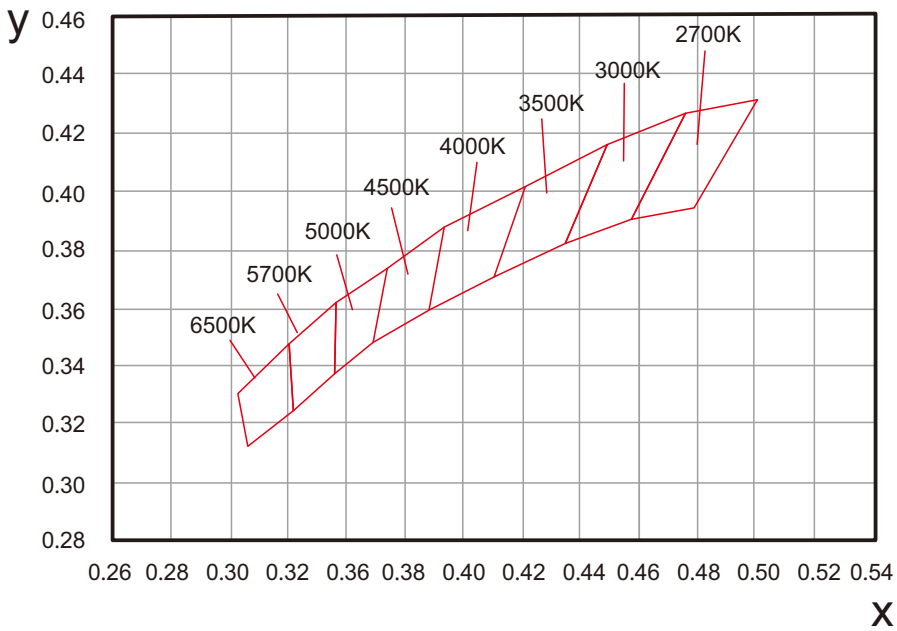


Working voltage vs. Length of Light

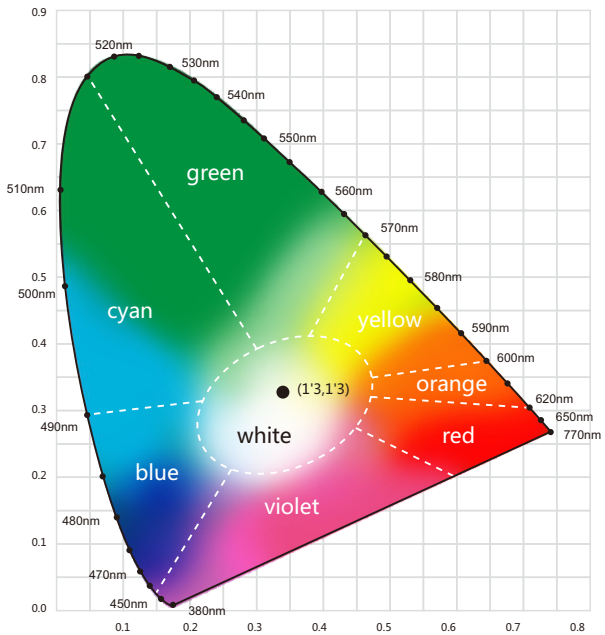


Luminous Flux VS. Length of Light

6.6 (X,Y) Chromaticity Diagram



6.7 Wavelength of Color Light



Light Color

Red
620-630nm

Green
520-530nm

Blue
465-475nm

6.8 Power Using Criterion

Take the percentage of its rated power (power efficiency) as the maximum used power for the product, that is, the using standard of the maximum load power for the standard power supply.

Power Supply Configuration Table

	The maximum number of standard length light for different rated power(pcs)										
Product Standard Length (m)	18W/83%	35W/85%	60W/89%	75W/89%	80W/90.5%	100W/93%	120W/93%	150W/93%	185W/93.5%	240W/93%	3200W/94%
1	1	2	4	5	6	8	9	12	15	19	26
2	*	1	2	3	3	4	5	6	8	10	14
3	*	*	1	2	2	3	3	4	5	7	9
4	*	*	1	1	1	2	2	3	4	5	7
5	*	*	1	1	1	1	2	2	3	4	6
10	*	*	*	*	*	*	1	1	1	2	3
15	*	*	*	*	*	*	*	*	1	1	1
20	*	*	*	*	*	*	*	*	*	*	1

Note：1. "*" indicates that this option won't be considered More than 5m light should consider double end feed
2. For example: 18W/83% stands for that the rated power is 18W and the power efficiency is 83%

6.9 Correlated Color Temperature

ANSI STANDARD

Nominal CCT Categories

Nominal CCT	Target CCT and tolerance(K)	Target Duv and tolerance
2700K	2725 ± 145	0.000 ± 0.006
3000K	3045 ± 175	0.000 ± 0.006
3500K	3465 ± 245	0.000 ± 0.006
4000K	3985 ± 275	0.001 ± 0.006
4500K	4503 ± 243	0.001 ± 0.006
5000K	5028 ± 283	0.002 ± 0.006
5700K	5665 ± 355	0.002 ± 0.006
6500K	6530 ± 510	0.003 ± 0.006
Flexible CCT (2700-6500K)	$T^2+\Delta T^3$	$D_{UV}T^2\pm0.006$

Remark:

1. Six of the nominal CCTs correspond to those in the fluorescent lamp specification [2]:2700K,3000K(Warm White),3500K(White),4100K(Cool White),5000K and 6500K(Daylight),respectively.
2. T is chosen to be at 100K steps (2800,2900 ,…,6400K)，excluding, hose eight nominal CCTs listed in Table 1.
3. ΔT is given by $\Delta T = 0.0000108\times T+0.0262\times T+8$.
4. Duv is given by $Duv=57700\times(1/T)2-44.6\times(1/T)+0.0085$