

artist of light

Specification

For LED Neon Flex Ribbon

C-FR-F22B



CLEAR
LIGHTING

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Introduction

C-FR-ProF22B is a member of the Artist of Light series of monochromatic light with Nichia LEDs to achieve your desired artistic effect, which employs constant current design-eliminating linear fade.

Built-in protection circuit design which means single LED failure has no effect on other LEDs working in the same unit and the whole light can keep constant lighting.

C-FR-ProF22B is UL/cUL, CE, TUV and RoHS compliant for European Union and North American markets. Moreover, C-FR-ProF22B has passed environmental resistance, optical, mechanical and electrical tests in our lab under the support of advanced experimental equipment and technology to ensure it meets the requirements of harsh environments.

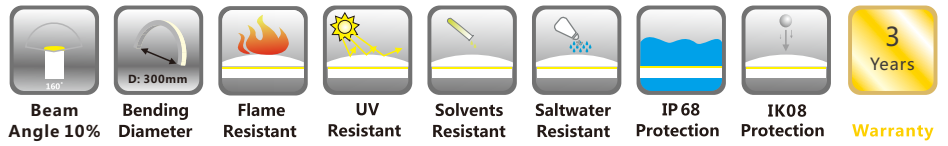
C-FR-ProF22B employs consummate extrusion technology with not only injection-moulded connectors, but also patent DIY connectors to achieve IP68 protection. Easy for installation and applicable for various circumstances.

C-FR-ProF22B features particularly high luminous flux with homogeneous illumination and small bend diameter in wave bending shape.

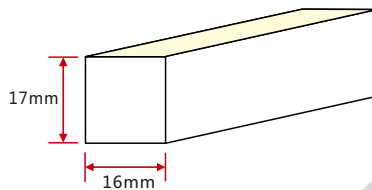
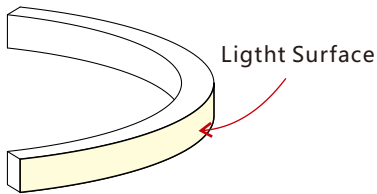
Applications:

1. Outdoor or Indoor Contour/Border Lighting
2. Architectural Outline/Decorative Lighting
3. Cove/Accent Lighting
4. Facade/Terrace Floor Lighting
5. Display Lighting

1. Specifications & Parameters



1.1 Dimensions of Light



Note: Unless otherwise stated, the tolerance of the light is $\pm 0.3\text{mm}$.

1.2 Technical Parameters

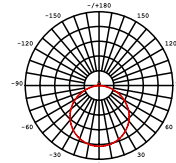
Technical Parameters	
Article No.	C-FR-ProF22B-24CC
Color	Warm White/White
Working Voltage	DC24V
Rated Power/m	12W
LED Qty/m	108LEDs
LED Distance	9.26mm
Min. Cutting Unit	6LEDs (1unit)
Min. Cutting Length	56mm(1unit)
Continuous Length	10m
Weight/m	325g
Storage Temperature	-20~60°C
Environmental Working Temperature	-20~45°C
Environmental Installation Temperature	0~45°C
IP Rating	IP68



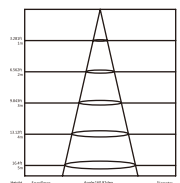
1.3 Optical Parameters

Photometric Data		
Article No.	C-FR-ProF22B	
LED Type	Nichia SMD	
Beam angle	160°	
Color	CCT	Lumen/m
2500	2460±120K	> 360lm
2700	2725±145K	> 360lm
3000	3045±175K	> 360lm
3500	3465±245K	> 400lm
4000	3985±275K	> 400lm
4500	4503±243K	> 400lm
5000	5029±283K	> 400lm

Candle power distribution



Illuminance Characteristics

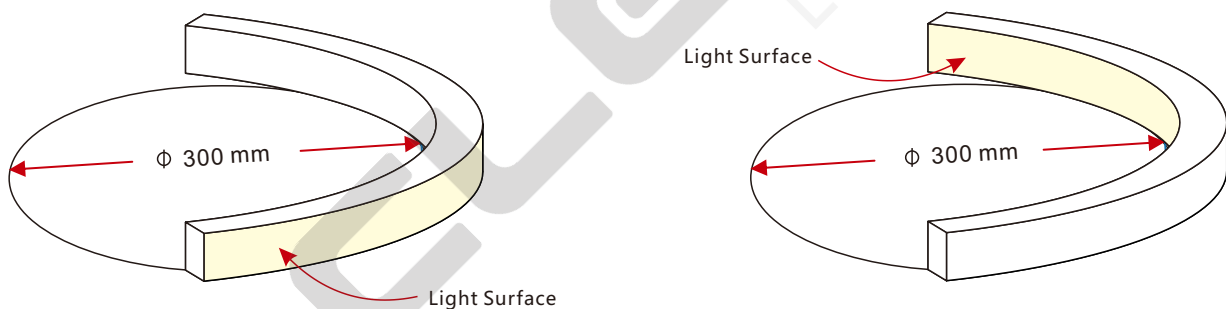


2. Functions & Features

2.1 Product Features

1. High quality Nichia SMD LED chip.
2. Protection Circuit: Each LED Protected.
3. UV & flame resistant construction(PVC).
4. Extremely flat profile for slimline projects.
5. Perfect uniform & even light source with invisible light dots.
6. High illumination.
7. Easily to be installed.
8. High IP rating (IP68)
9. The product IP rate is ultimately in line with properly applied IP rated connectors.
10. Continuous length up to 15m (R, A)/10m (G, B, W) by powering one end.
11. 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

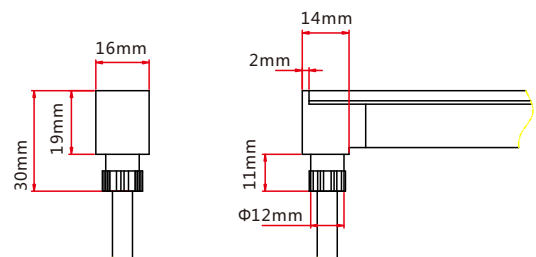
3.1 Injection-moulded Connector

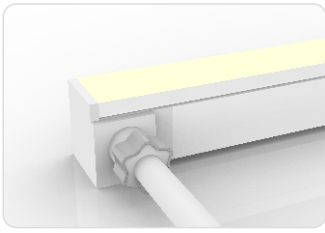
Note: Unless otherwise stated, the tolerance of the connector is $\pm 0.5\text{mm}$.



Injection-moulded Front Connector (bottom)

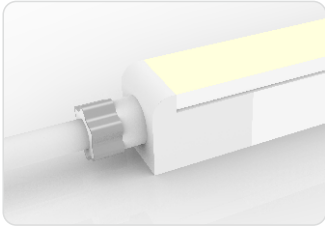
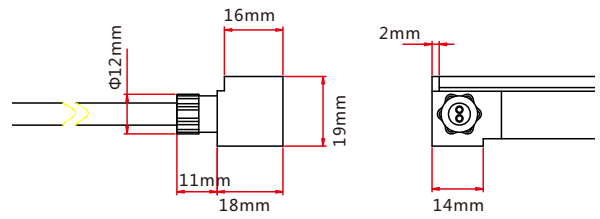
Connects light to power supply with pre-installed bottom feed cable IP67. Available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m lengths.





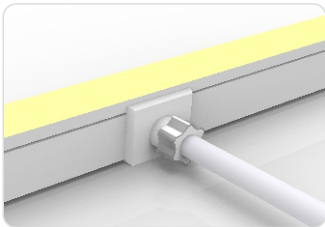
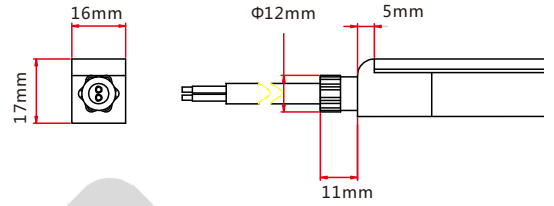
Injection-moulded Front Connector (side)

Connects light to power supply with pre-installed side feed cable, IP67. Available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m lengths.



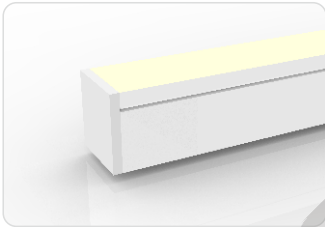
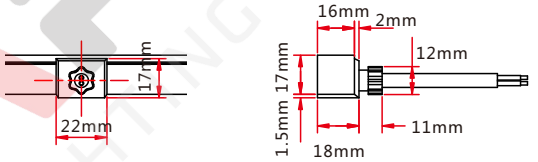
Injection-moulded Front Connector (end)

Connects light to power supply with pre-installed end feed cable, IP67. Available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m lengths.



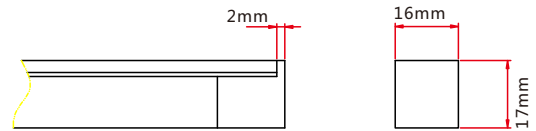
Injection-moulded Middle Feed Connector

Connects light to power supply with pre-installed end feed cable, IP67. Available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m lengths.



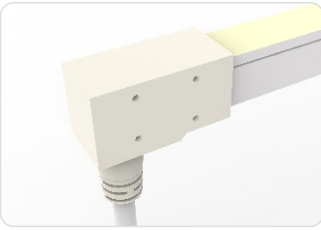
Injection-moulded End Cap

Pre-installed termination protection of the light, IP67.



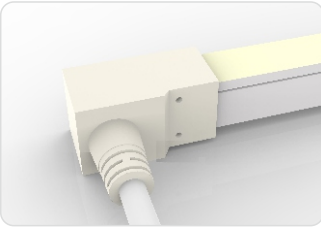
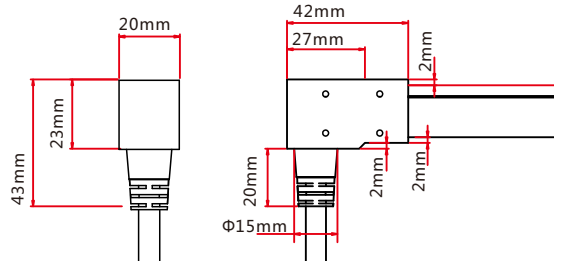
3.2 Dual Injection-moulded Connector

Note: Unless otherwise stated, the tolerance of the connector is ±0.5mm.



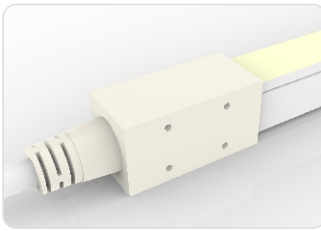
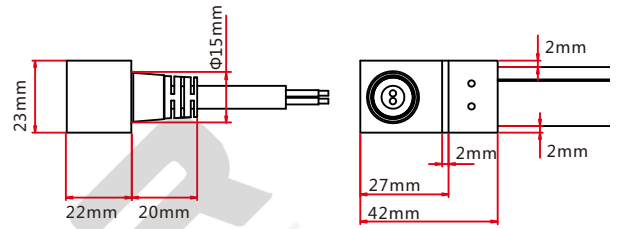
Dual Injection-moulded Front Connector (bottom)

Connects light to power supply with pre-installed bottom feed cable, IP68. Cable length available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m.



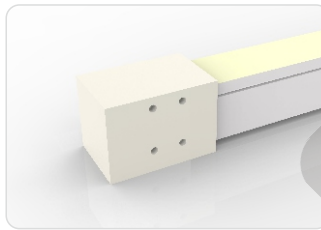
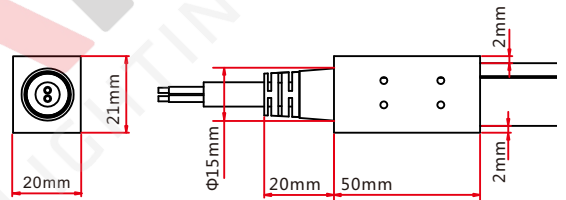
Dual Injection-moulded Front Connector (side)

Connects light to power supply with pre-installed side feed cable, IP68. Cable length available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m.



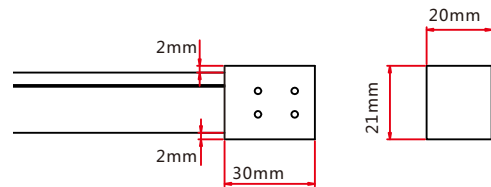
Dual Injection-moulded Front Connector (top end)

Connects light to power supply with pre-installed end feed cable, IP68. Cable length available in 0.3m, 1m, 3m, 5m, 10m, 15m, 20m.



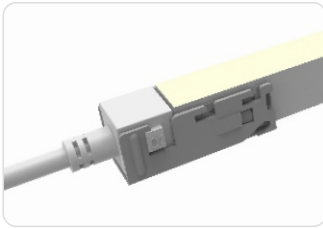
Dual Injection-moulded End Cap

Pre-installed termination protection of the light, IP68.



3.3 Clasp Connector

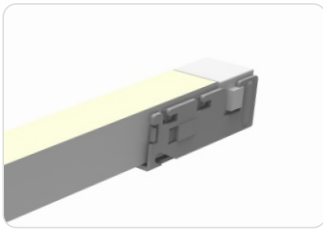
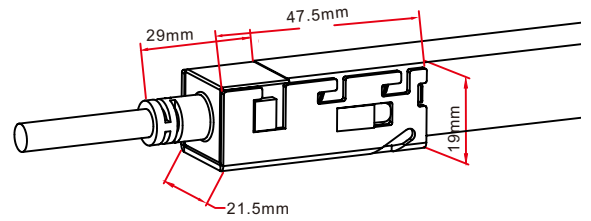
Note: Unless otherwise stated, the tolerance of the connector is $\pm 0.5\text{mm}$.



Clasp Front Connector

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

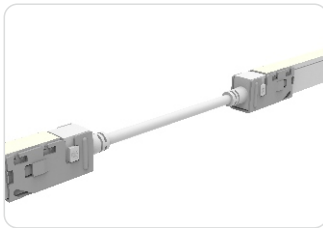
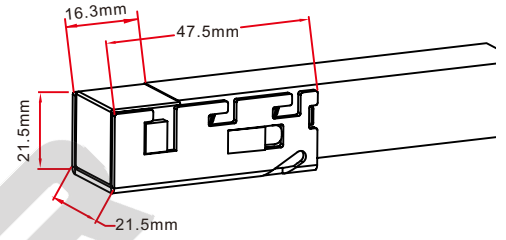
- Feed connector with silicone gasket *1 (Two-pin)
- Anti-skidding clip *1
- U steel plate *1



Clasp End Cap

Termination protection of the light, IP67 DIY connector.

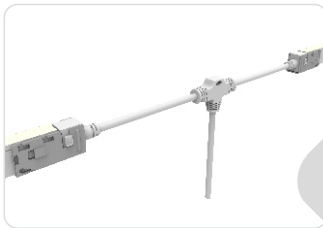
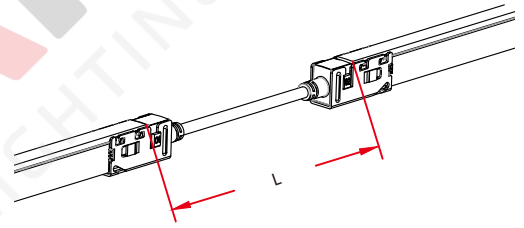
- Tail plug *1
- Silicone gasket *1
- Anti-skidding clip *1
- U steel plate *1



Clasp Jumper

Connects two pieces of lights together with a flexible cable. IP67 DIY connector. L available in 0.3m, 1m and 3m.

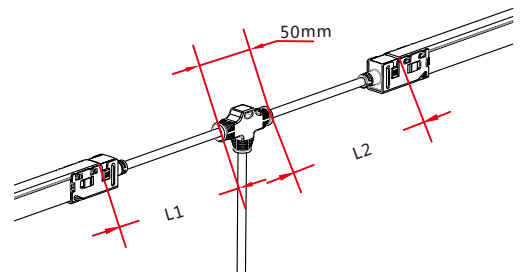
- Double-end feed connector*1 (Two-pin)
- Silicone gasket*2
- U steel plate*2
- Anti-skidding clip*2



Clasp Power T-feed

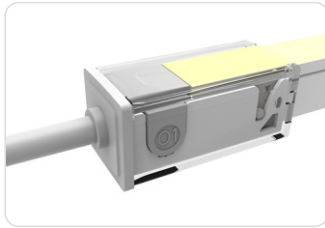
Connects two pieces of lights together with a T joint, energized from middle. IP67 DIY connector. L1 and L2 available in 0.3m.

- T joint*1 (Two-pin)
- Silicone gasket*2
- U steel plate*2
- Anti-skidding clip*2



3.4 Swivel Connector

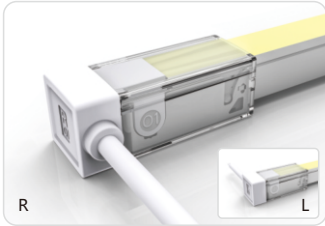
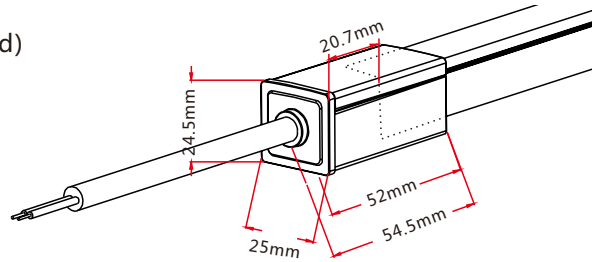
Note: Unless otherwise stated, the tolerance of the connector is $\pm 0.5\text{mm}$.



Snap Front Connector(top end)

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

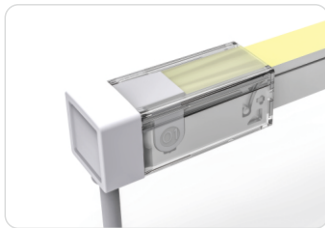
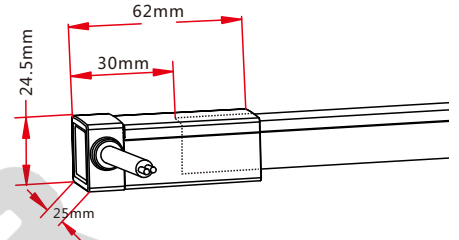
- Feed connector with silicone gasket *1 (Two-pin)
- Anti-skidding clip *1
- U steel plate *1
- PC Cover *1



Snap Front Connector(side right/left)

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

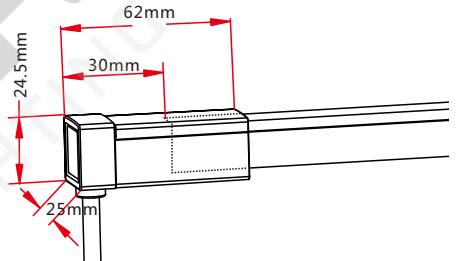
- Feed connector with silicone gasket *1 (Two-pin)
- Anti-skidding clip *1
- U steel plate *1
- PC Cover *1



Snap Front Connector(bottom)

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

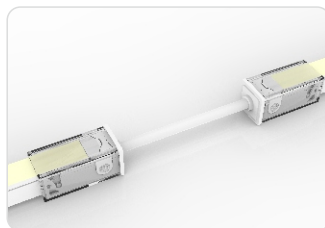
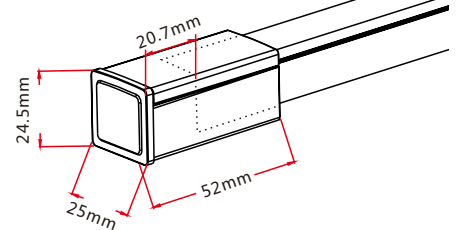
- Feed connector with silicone gasket *1 (Two-pin)
- Anti-skidding clip *1
- U steel plate *1
- PC Cover *1



Snap End Cap

Termination protection of the light, IP67 DIY connector.

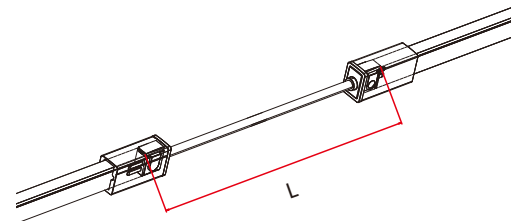
- Tail plug with silicone gasket *1
- Anti-skidding clip *1
- U steel plate *1
- PC Cover *1



Snap Jumper

Connects two pieces of lights together with a flexible cable. IP67 DIY connector. L available in 0.3m, 1m and 3m.

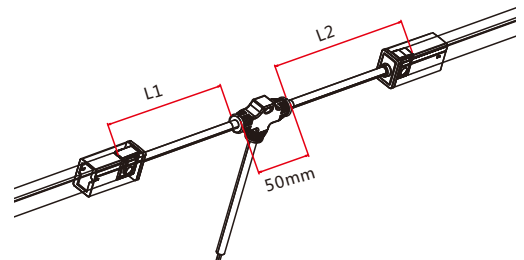
- Double-end feed connector*1 (Two-pin)
- Silicone gasket*2
- U steel plate*2
- Anti-skidding clip*2
- PC cover*2



Snap Power T-feed

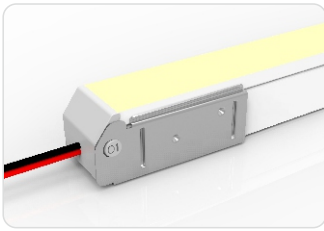
Connects two pieces of lights together with a T joint, energized from middle. IP67 DIY connector. L1 and L2 available in 0.3m.

- T joint*1 (Two-pin)
- Silicone gasket*2
- U steel plate*2
- Anti-skidding clip*2
- PC cover*2



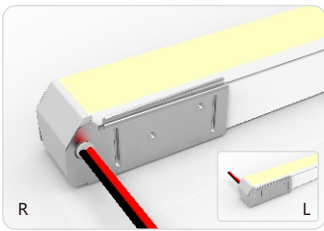
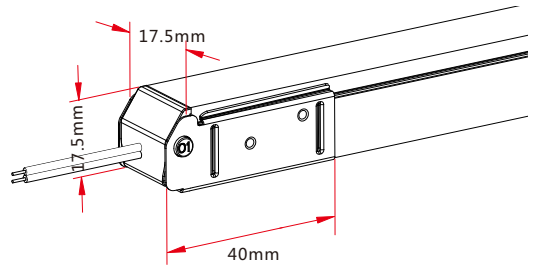
3.5 Swivel Connector

Note: Unless otherwise stated, the tolerance of the connector is $\pm 0.5\text{mm}$.



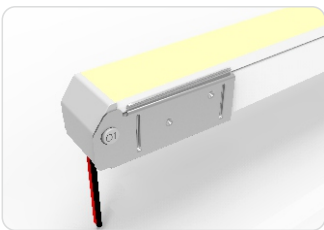
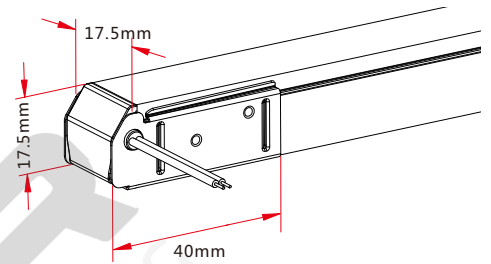
Swivel Front Connector (top end)

Connects light to power supply. IP20 DIY connector. Cable length available in 0.3m, 1m.



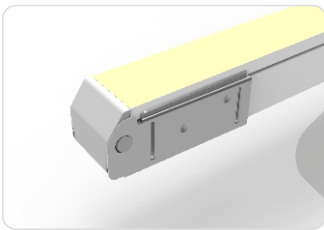
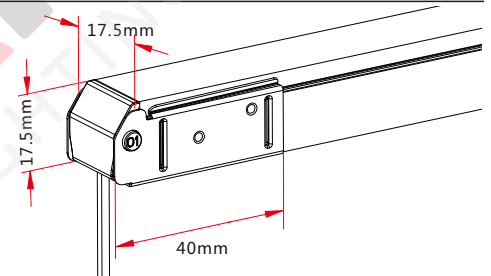
Swivel Front Connector (side right/left)

Connects light to power supply. IP20 DIY connector. Cable length available in 0.3m, 1m.



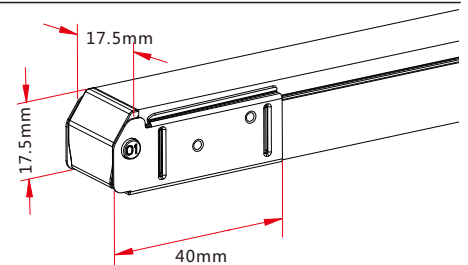
Swivel Front Connector (bottom)

Connects light to power supply. IP20 DIY connector. Cable length available in 0.3m, 1m.



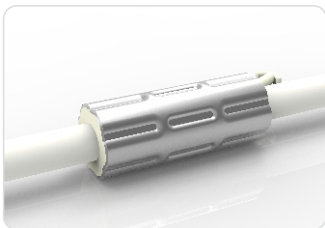
Swivel End Cap

Termination protection of the light, IP20 DIY connector.



3.6 Anti-wicking Ferrule

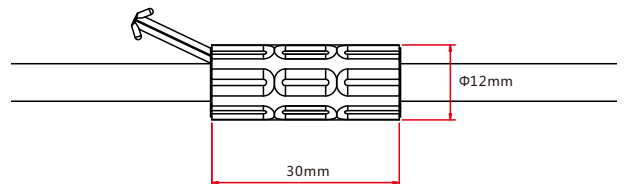
Note: Unless otherwise stated, the tolerance is $\pm 0.5\text{mm}$.



Anti-wicking Ferrule

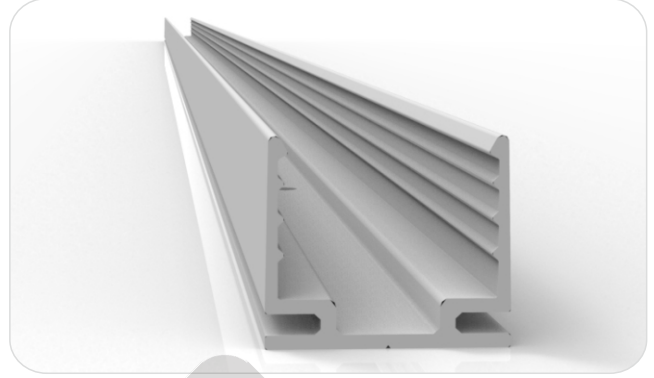
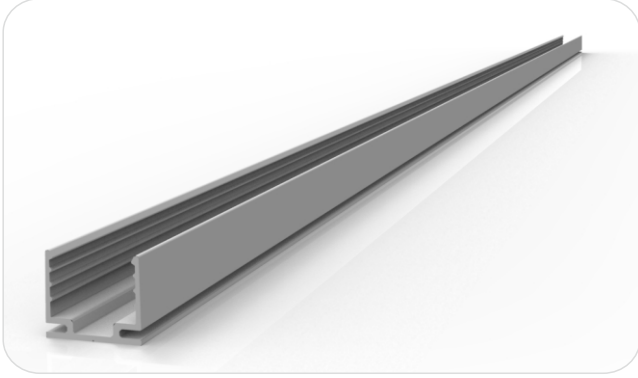
The anti-wicking ferrule is located at 115mm ($\pm 5\text{mm}$ tolerance) from the connector on the cable.

For protection against water ingress from inside of cable wire and hence damage the light.

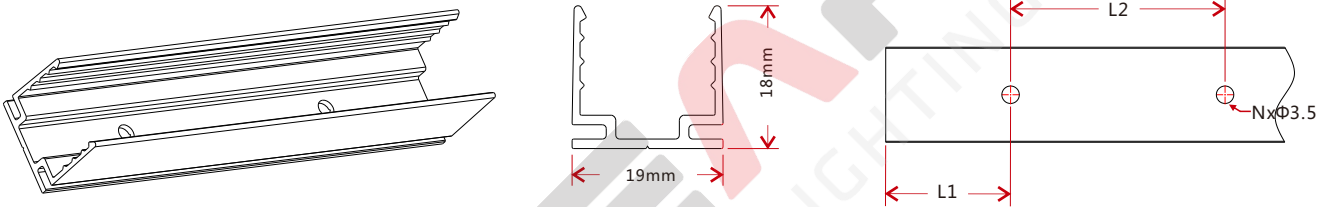


4. Mounting Profile

4.1 Standard Aluminum Profile

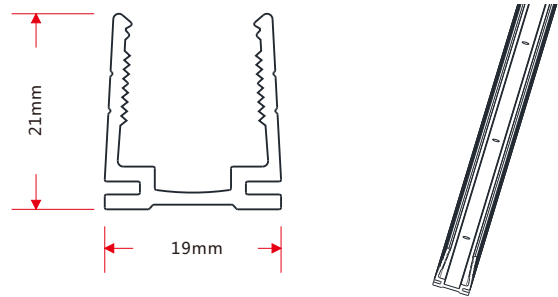


Dimensions Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

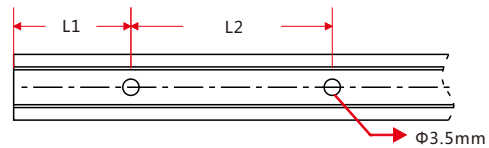


Model	W*H(mm)	Standard Length (mm)	L1 (mm)	L2 (mm)	Screw Hole (mm)	Hole Number	For Product
F22-A/PL	19*18	35	17.5	/	$\Phi 3.5$	1	F22
		500	50	200	$\Phi 3.5$	3	F22
		1000	100	200	$\Phi 3.5$	5	F22
		2000	100	200	$\Phi 3.5$	10	F22

4.2 Plastic Profile

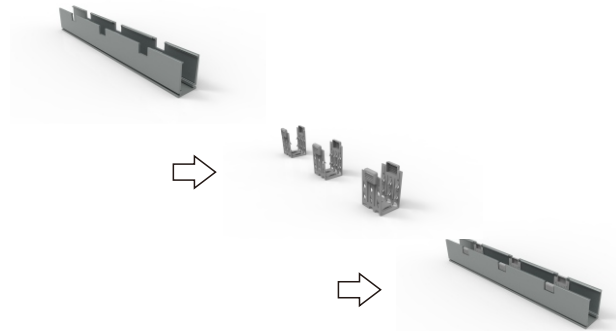
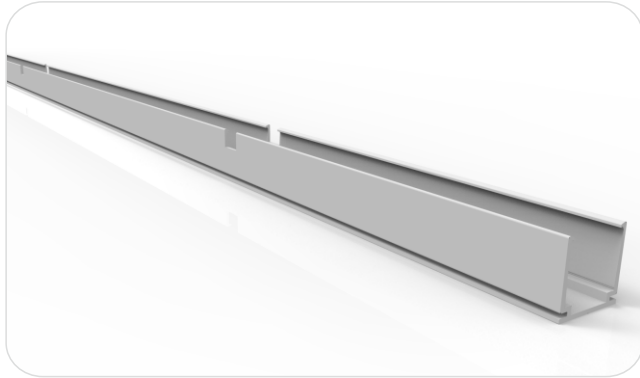


Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

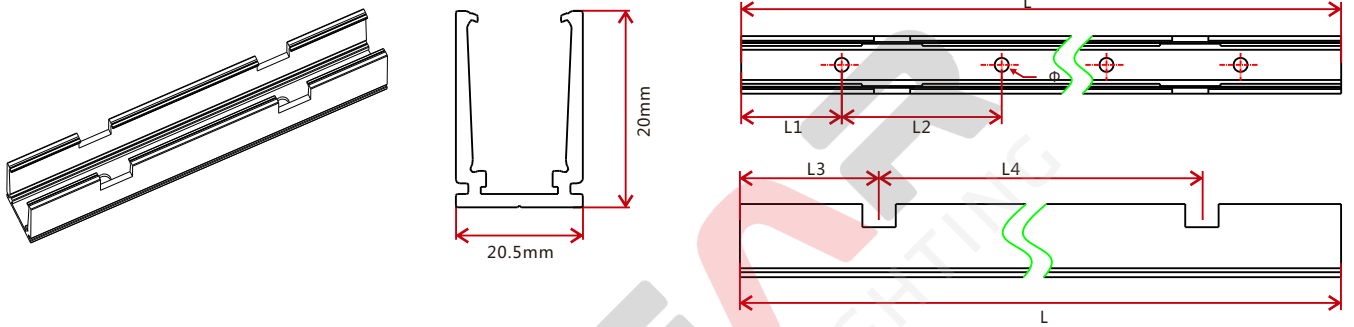


Model	W*H(mm)	Standard Length (mm)	L1 (mm)	L2 (mm)	Screw Hole (mm)	Hole Number	For Product
F22-PC/PL	19*21	500	50	200	$\Phi 3.5$	3	F22
		1000	100	200	$\Phi 3.5$	5	F22
		2000	100	200	$\Phi 3.5$	10	F22

4.3 Self-locking Aluminum Profile (Using with the Clip)

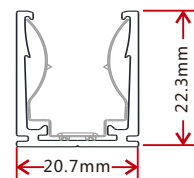
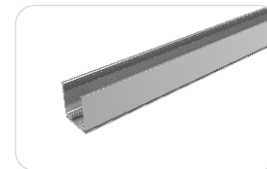


Dimensions Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

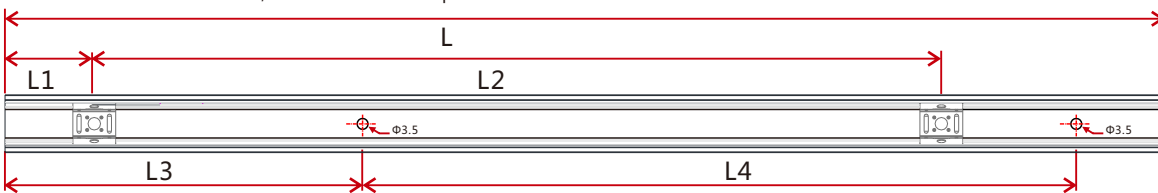


Model	W*H(mm)	Standard Length(mm)	L1(mm)	L2(mm)	L3(mm)	L4(mm)	Hole Screw(mm)	Hole Number	Clip Number
F22-SLA/PL 20.5*20		35	17.5	25	5	/	$\Phi 3.5$	2	1
		500	50	200	75	350	$\Phi 3.5$	3	2
		1000	100	200	150	350	$\Phi 3.5$	5	3
		2000	100	200	125	350	$\Phi 3.5$	10	6

4.4 Self-locking Aluminum Profile Ver 2.0 (Using with the Clip)

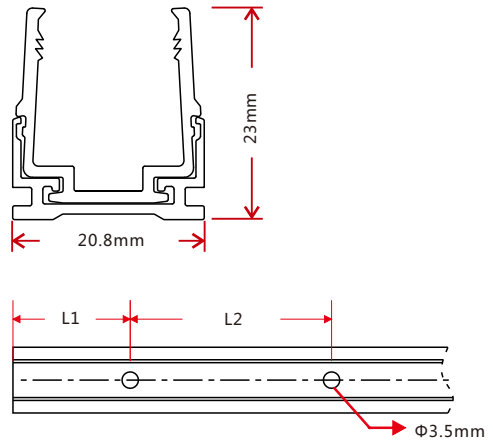
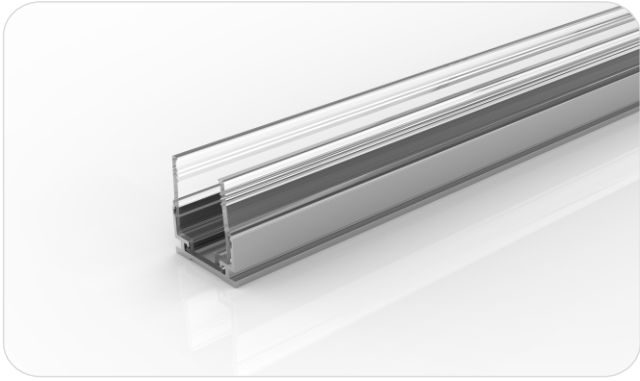


Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.



Model	W*H(mm)	Standard Length(mm)	L1(mm)	L2(mm)	L3(mm)	L4(mm)	Hole Screw(mm)	Hole Number	Clip Number
F22-SLA/PL2 20.7*22.3		35	17.5	/	5	25	$\Phi 3.5$	2	1
		500	25	150	50	200	$\Phi 3.5$	3	4
		1000	25	190	100	200	$\Phi 3.5$	5	6
		2000	25	195	100	200	$\Phi 3.5$	10	11

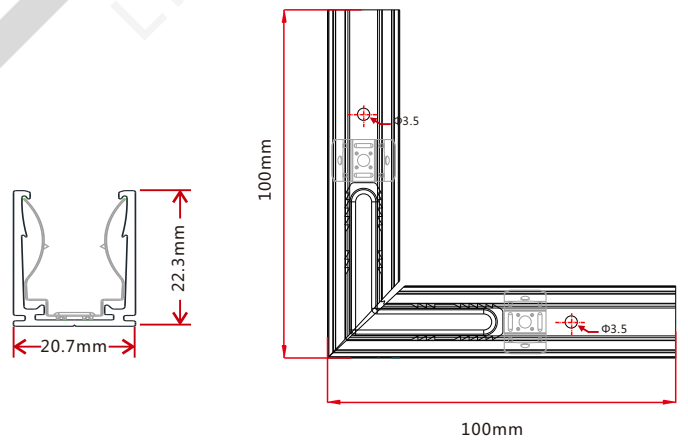
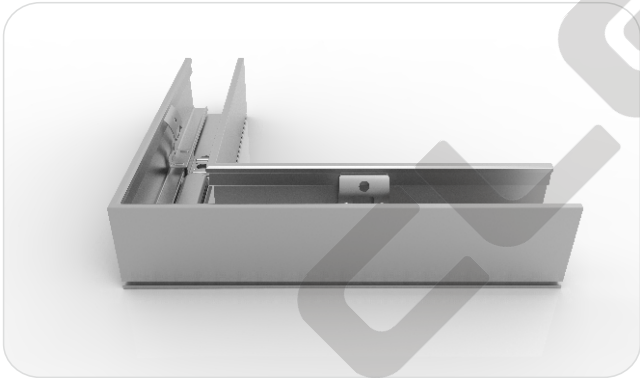
4.5 Plastic & Aluminum Combination Profile



Note: Unless otherwise stated, the tolerance of the profile is ±0.5mm.

Model	W*H(mm)	Standard Length (mm)	L1 (mm)	L2 (mm)	Screw Hole (mm)	Hole Number	For Product
F22-PA/PL	20.8*23	35	17.5	/	Φ3.5	1	F22
		500	50	200	Φ3.5	3	F22
		1000	100	200	Φ3.5	5	F22
		2000	100	200	Φ3.5	10	F22

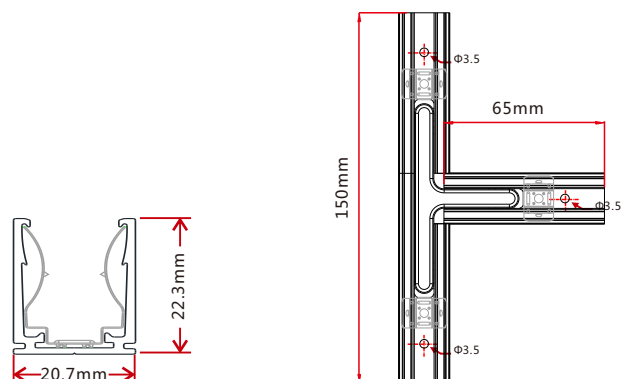
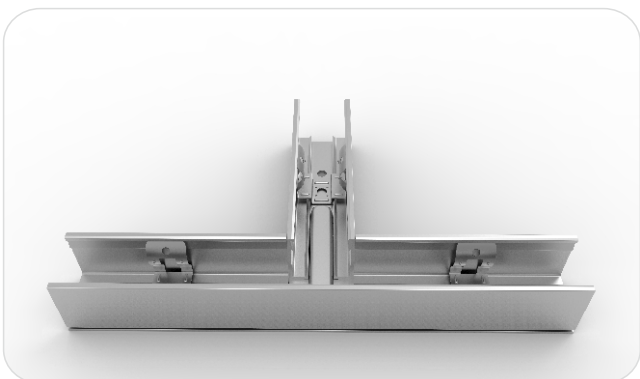
4.6 L Shape Self-locking Aluminum Profile Ver. 2 (Using with the Clip)



Model: SLA/PL2-L

Note: Unless otherwise stated, the tolerance of the profile is ±0.5mm.

4.7 T Shape Self-locking Aluminum Profile Ver. 2 (Using with the Clip)



Model: SLA/PL2-T

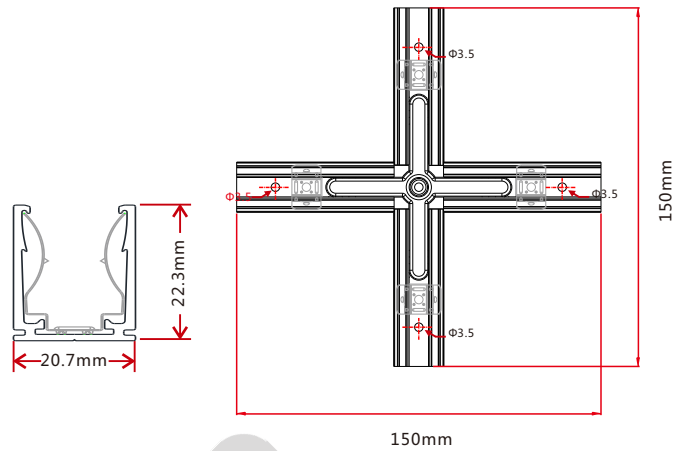
Note: Unless otherwise stated, the tolerance of the profile is ±0.5mm.

4.8 X Shape Self-locking Aluminum Profile Ver. 2 (Using with the Clip)

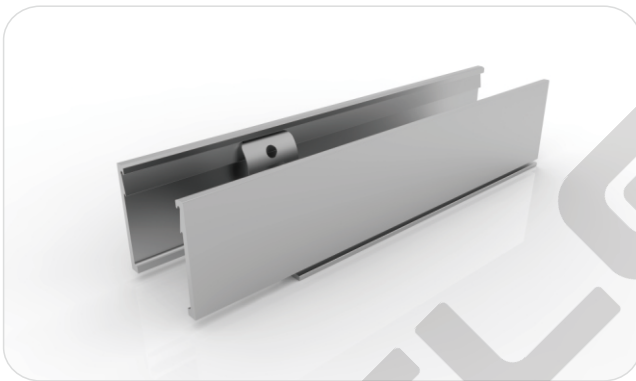


Model: SLA/PL2-X

Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

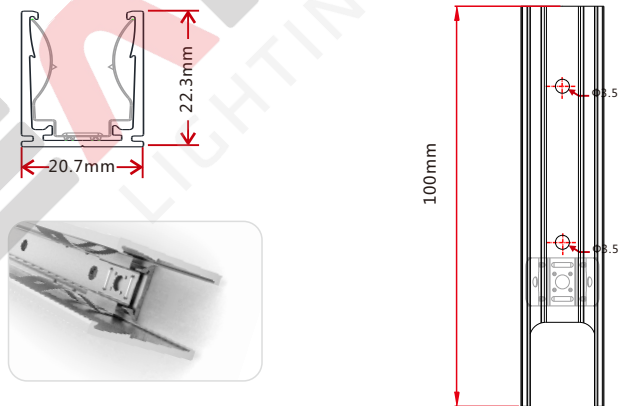


4.9 Self-locking Aluminum Profile Ver. 2, Bottom Feed (Using with the Clip)

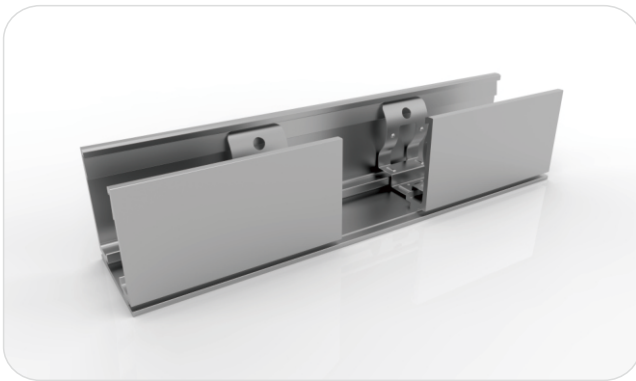


Model: SLA/PL2-B

Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

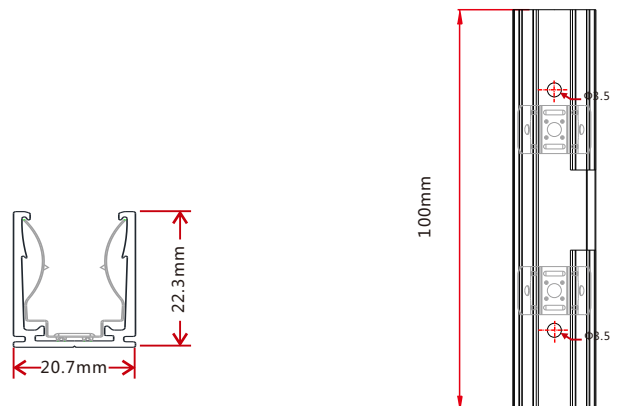


4.10 Self-locking Aluminum Profile Ver. 2, Middle Feed (Using with the Clip)

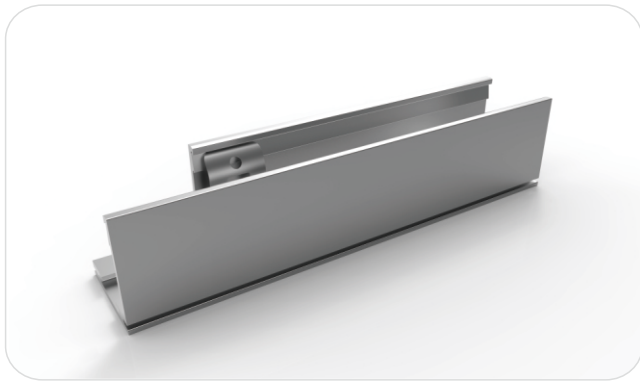


Model: SLA/PL2-M

Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

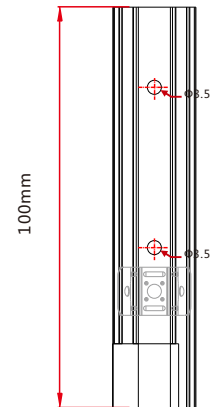
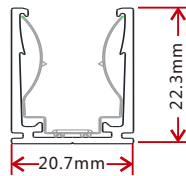


4.11 Self-locking Aluminum Profile Ver. 2, Side Feed From Left (Using with the Clip)



Model: SLA/PL2-SL

Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

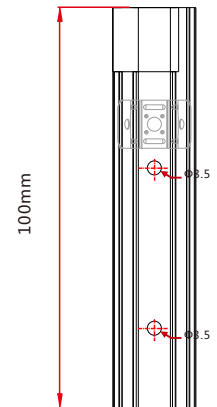
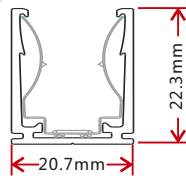


4.12 Self-locking Aluminum Profile Ver. 2, Side Feed From Right (Using with the Clip)

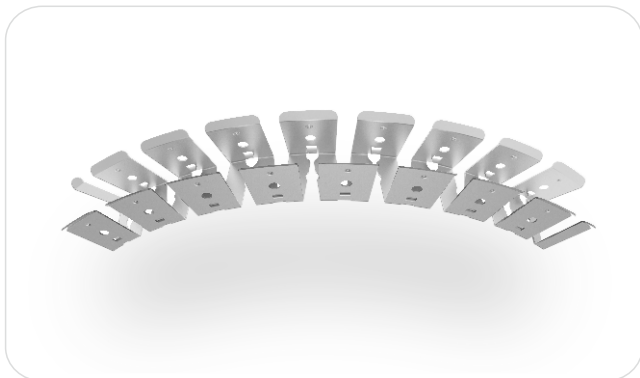


Model: SLA/PL2-SR

Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

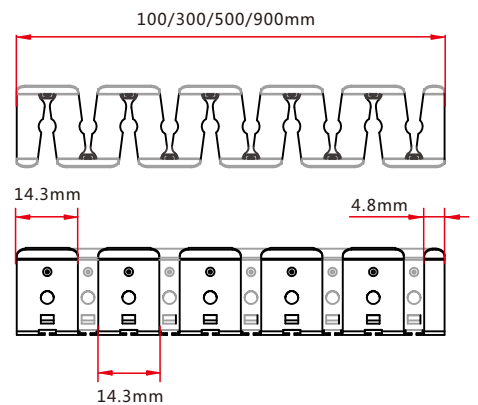
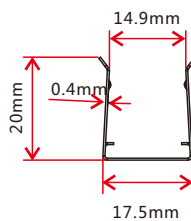
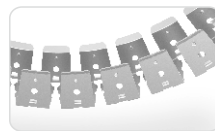


4.13 Curve Stainless Steel Profile



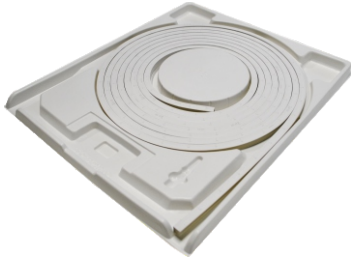
Model: F22-CS/PL

Note: Unless otherwise stated, the tolerance of the profile is $\pm 0.5\text{mm}$.

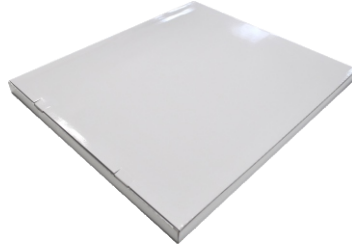


5.Packaging

Packaging Method



Plastic Plate



White Box



Carton



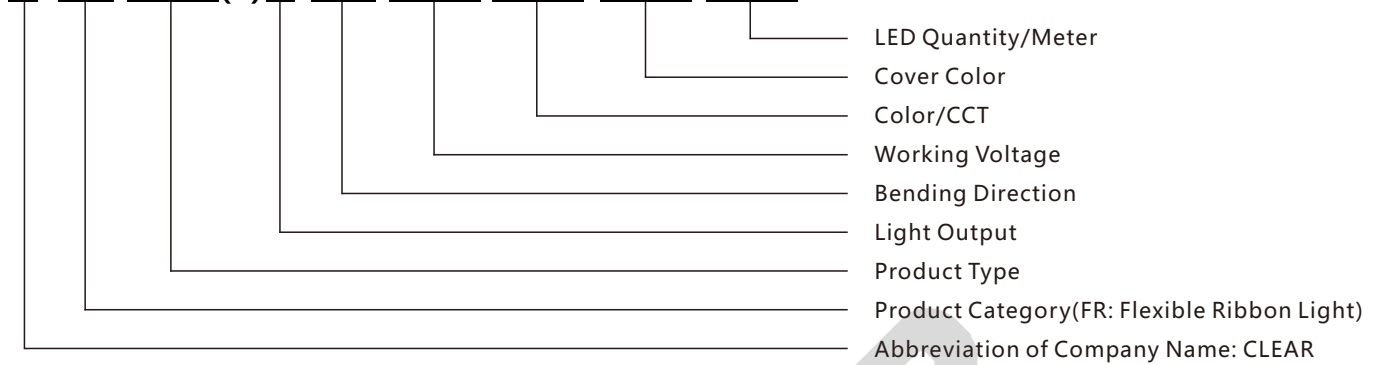
Packaging Detail

Light Length	White Box Dimension (cm)	Carton Dimension (cm)	Numbers of White Box	Carton Weight (kg)
<4.5m	39*5.2*50	52*41*28	5	<8
5-8m	51*5.2*62	64*53*17.5	3	6-9
5-8m	51*5.2*62	64*53*28	5	9-14
10m	60*3.7*71	73*62*20	5	17
15m	68*5.2*79	81*70*12.5	2	11

6. Appendix

6.1 Product Naming Convention

C-FR-XXX(-)X-XX-XXX-XXX-XXX-XXX



For Example: C-FR-ProF22B-VB-24CC-30K-WM-108

6.2 Certificate

Certificating Type	Testing Organization	Certificate Serial Number	Report Reference
UL 2108	UL	20160726-E360029	E360029-20130322
CE-EMC	SGS	SZEM1702001259LMV	SZEM160600421302

6.3 Third-Party Test Report

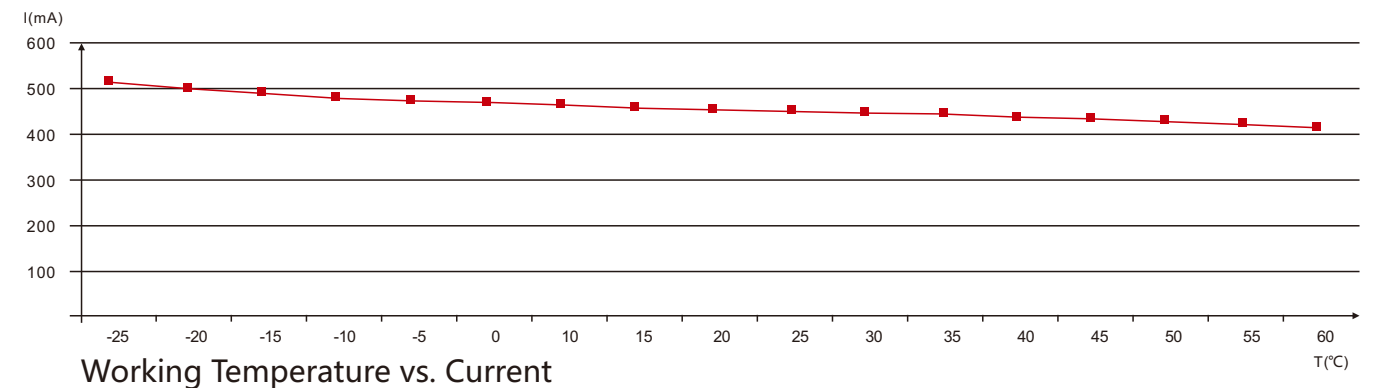
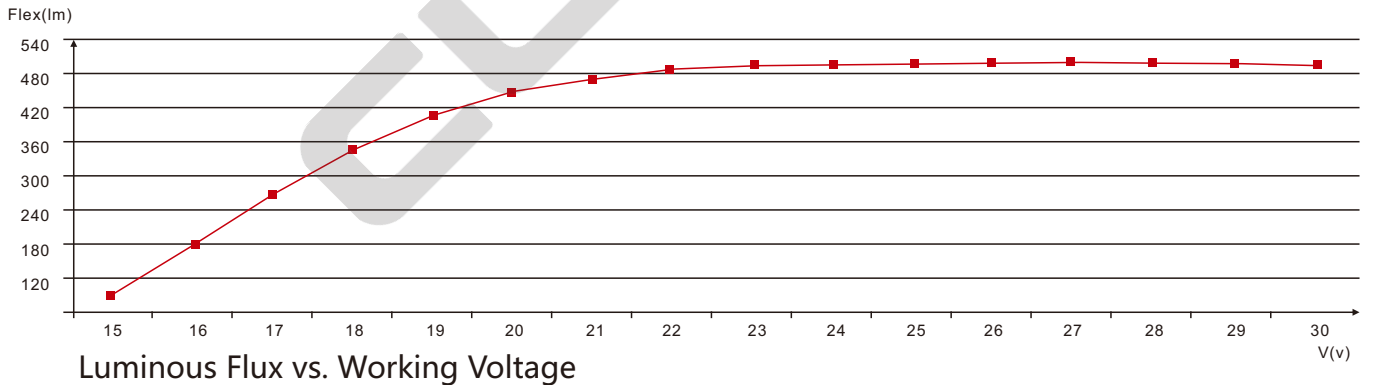
Testing Item	Testing Organization	Report Number
RoHS	SGS	CANEC1202163502 A01
IP68: Screw type	TUV SUD	68.140.12.136.02
IP68: Clasp type	SGS	GZES140200135301 GZES140200135401 GZES140200135501 GZES140200135701 GZES140200135801
IPX8: Molding type	SGS	SZES141200357301 SZES141200357401 SZES141200357501
IPX8: Snap type	SGS	GZES160600792031
Flame retardant	TUV SUD	68.140.13.068.01
UV@340nm: Light	AOV	A002R130308065—1R01
UV@340nm: PVC	AOV	A002R130308065—2R01

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

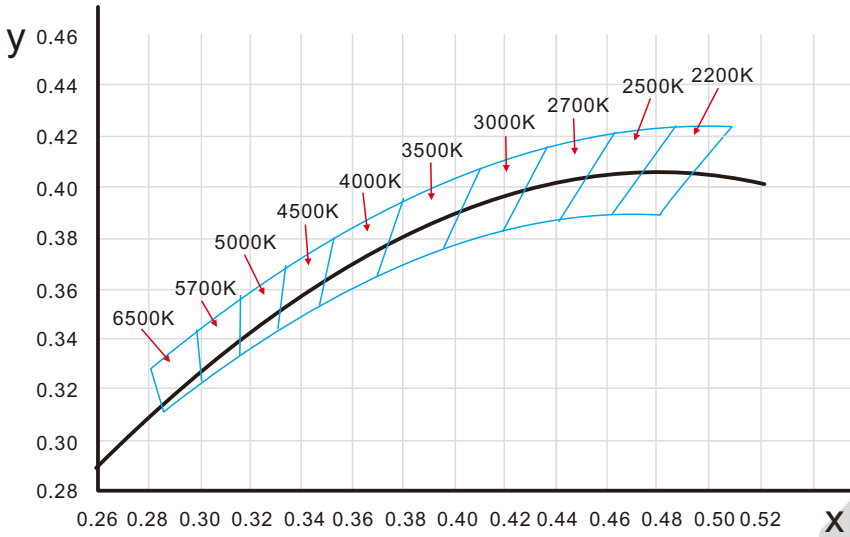
6.4 Reliability Test of Light

TESTING ITEM	PERFORMANCE	STANDARD/REFERENCE VALUE/DESCRIPTION
PHOTOMETRIC TESTING	Spectrum Analysis	IES LM 79 (lumen, CCT, CRI, XY, SDCM, wave length)
	Photometric Distribution	IES LM 79(lumen intensity distribution & Lux diagram)
	Lumen maintenance & Life time	IES LM84 & IES TM28
TEMPERATURE RISE TESTING	Normal Temperature Test	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
	Abnormal Operation Test	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
MECHANICS & PHYSICS TESTING	Bending Test	Manufacturer-defined, 500 cycles
	Swing Test	UL2388, >750 cycles
	Tensile Test	Manufacturer-defined, > the weight of light in
	Twist Test	maximum connection length with both ends feed
		Manufacturer-defined, >200 cycles
	Ball impact	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
WEATHERING TESTING	IK07 IK08	IEC62262
	Swimming Pool Water Immersion Test	GB9667, PH6.8-7.6, free chlorine 0.3-0.6mg/L
	Sea Water Immersion Test	IEC60598-1, Salinity 4%
	Salt Spray Test	IEC68-2-11
ENVIROMENT TESTING	Outdoor Exposure	Manufacturer-defined
	Flame Resistant Test	UL94
	UV Exposure Test	ASTMG 154 , ISO 4892-3 , UVA@340nm
ENDURANCE & THERMAL TEST LAB	IPX5 IPX6 IPX7 IPX8	IEC60529
	Temperature Shock Test	Manufacturer-defined , -40°C-60°C (typical temperature range)
	Constant Temperature Test	Manufacturer-defined , 70°C (typical temperature)

6.5 Figures of Typical Characteristics



6.6 (X,Y) Chromaticity Diagram



6.8 Correlated Color Temperature

ANSI STANDARD

Nominal CCT Categories

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

Remark:

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

Flexible CCT (2200-6500K)	$T_F^{(1)} \pm \Delta T^{(2)}$	$D_{uv} T_F^{(3)}$
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6.9 Loading Chart

Type.	Rated Power /mtr	Power Supply										
		35w	60w	75w	80w	100w	120w	150w	185w	240w	320w	
F22	6.5w/7.2w/8w	3m	6m	7.5m	8m	10m	12m	15m	18m	24m	30m	
	10.6w/11w/12w	2m	3.5m	4.5m	5m	6m	7m	10m	12m	14m	20m	
Energizing way												

Note : 1. These are the light maximum recommended running length subject to selected power supply.
 2. For example: It is recommended to use one 80W power supply loading maximum 8m light (7.2w/m) or maximum 5m light (12w/m) by energizing the light one end.