Introduction to
LED Neon Flex™

CHINA, HONGKONG
TAIWAN, JAPAN
AUSTRALIA, EUROPE
U.S.A(US 7,046,413 B2)
PATENTED

* Photo provide by distributor Interlite AB, Sweden

Though glass neon has long been the mainstream of the outdoors linear lighting for decades and while it held a long history it still held a lot of weaknesses. The weakness on glass neon are well known and include complicated installation, fragile, potential shock hazards, high maintenance cost, high power consumption, and are typically ruined in severe weather. Manufacturers keep on seeking new alternatives but none of them have been able to solve these weaknesses. These "Self Proclaimed" alternatives to glass neon still suffer from one or more of the weaknesses of glass neon.

At the beginning of this century Neo-Neon, the global leader in modern linear lighting solutions, invested in the research and development of a revolutionary product called LED Neon Flex™. Utilizing advanced LED technology and materials processing techniques LED Neon Flex™ compares to glass Neon visually however LED Neon Flex™ is not ridged. LED Neo-Flex can be cut with standard tools and bent by hand to form. Installation can be completed in minutes instead of hours and most importantly, it gives off no hot spots. LED-Neon Flex is waterproof and utilizes standard AC or DC voltages which make the product safer than glass neon. LED Neo-Flex is not breakable and is virtually indestructible.

LED Neon Flex™ began a revolution but Neo-Neon did not stop there. In keeping with our tradition of continually researching and developing the latest technology and processes Neo-Neon is proud to announce new revolutionary enhancements to the LED Neon Flex™ Products.

Neo-Neon has incorporated the very latest encapsulated high graded LED's in a new and unique PVC jacket housing which achieves equal brightness and visual intensity to that of glass neon. Now there is truly a glass neon replacement which is the "new and improved" LED Neon Flex™ Professional.

Honorably and justifiably Neo-Neon has been awarded and holds an invention patent in China and holds a portfolio of worldwide patents for the LED Neon Flex™.

This invention patent stands to strengthen the promoting and distributing LED Neon Flex™ by our global partners who continue to share in this products success and profitability.

Leadership and Innovation comes at a cost. Due to the enormity of the success of our invention and our patented product, LED Neon Flex™, there has been a surge of "non-licensed" imitations emerging in the market and infringe on our patents. These unscrupulous copies are of poor quality and are being sold at prices relative to their inferior quality level.

The good news is this did not come as a surprise. Since we have been in this business for 27 years and have unveiled and introduced many innovative products this cycle has happened in the past. Educated by history Neo-Neon, unbeknownst to most, has been preparing to answer this challenge to protect our customers and the market we have earned the legal right to.

Neo-Neon is now offering two levels of patented LED Neon Flex™. These levels are Professional Type and Economical Type.

LED Neon Flex™ (Professional) is offered in all the latest available colors to include Warm White, Ultra-Warm White, and Hot Pink.

LED Neon Flex™
(Professional & Economical)

Professional LED Neon Flex™ uses Superior Grade Ultra Bright LED's that are strictly consistent in wavelength specification by +/- 5nm. The outer jacket of the LED Neon Flex™ (Professional) is constructed of two layers of PVC which has an effect on the optical enhancement of the LED color and light transmission efficiency. As such LED Neon Flex™ (Professional) maintains the highest stability and lowest amount of lumens depreciation over time "longer-life". Additionally LED Neon Flex™ (Professional) is structured with a white PVC base jacket that is designed to reflect "shape" the light that is emitting from the LED and to redirect the light upward and outward to the surface of the product thus enhancing the actual and perceived brightness. All of the factors above also contribute to the lack of Chromatic Aberrations with (Professional) type LED Neon Flex™.

LED Neon Flex™ (Economical) is the latest version in its family developed by Neo-Neon to meet low cost requirements for specific market. Most of factors remain the same, such as cover material, copper wire, craftwork. Compared with Professional, it is much lower in cost, but accordingly it sacrifices in certain degree of brightness, quality assurance, illumination evenness and so on. Please contact us for details.

INDOOR USE   OUTDOOR USE   CE

Features and Benefits

- Consistent and Stringent Wavelength control standards +/-5nm
- New Ultrabright LEDs
- Flexible
- Unique PVC single jacket design
- 100% unbreakable & waterproof
- Low Voltage, low Heat, Safety
- Extra Long Life
- Easy to Install
- Low Maintenance Costs
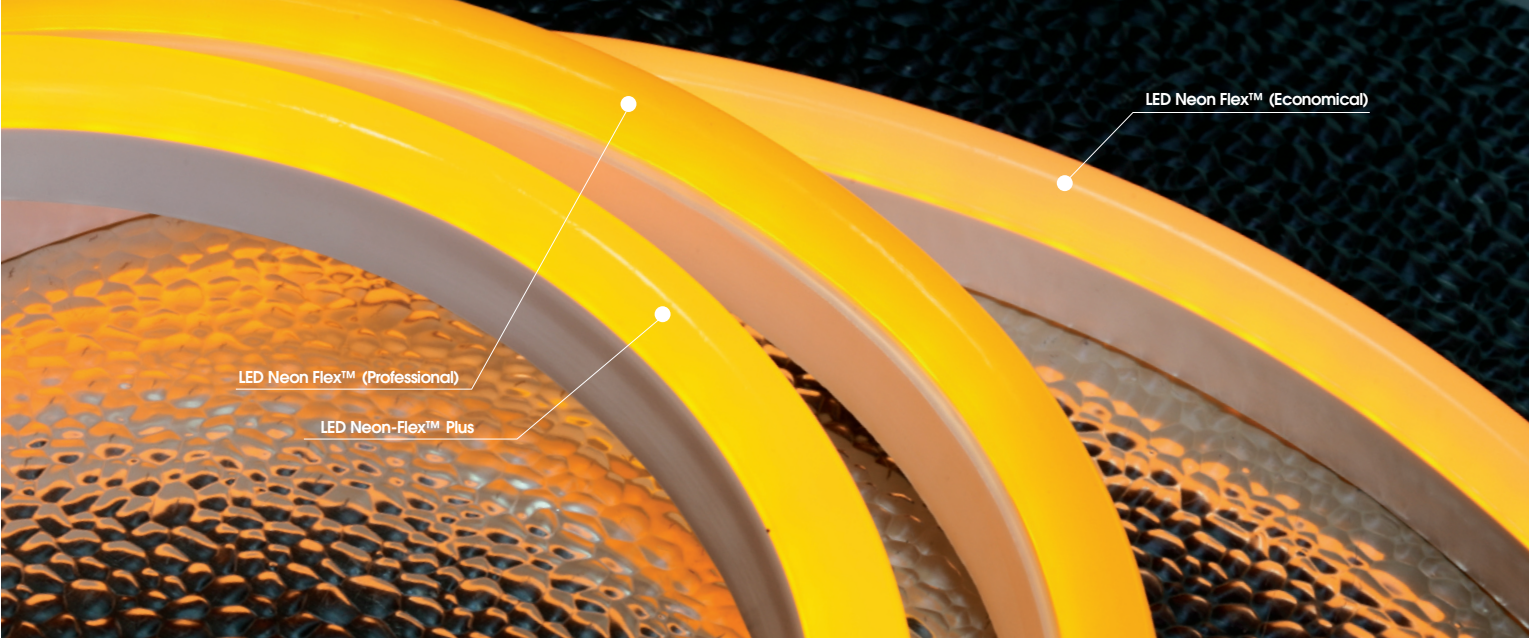- 1/10 the energy consumption of glass neon

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WARNING!
Serious legal action will be taken to protect our Intellectual Property and Patents against any and all infringing parties.
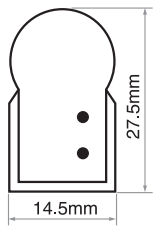
LED Neon-Flex™ Demo Kit

Comparison Table (LED Neon-Flex Plus, Professional LED Neon Flex and Traditional Glass Neon)

Item	Color	Luminous Flux (Lm)	Current (mA)	Power Consumption (mA)	Light Efficiency (Lm/W)	Unit Luminance (Lm/Ft)	Unit Power Consumption (W/Ft)
LED Neon-Flex Plus (240V, 3Ft)	White	189	26	5.2	36.1	63	1.73
Professional LED Neon Flex (240V, 3Ft)		72.8	17	3.4	21.3	24.3	1.13
Ø8 Glass Neon Tube (2Ft)		118.3	119	24.65	4.8	59.15	12.33
LED Neon-Flex Plus (240V, 101 LED)	Red	107.7	28	5.8	19	25.6	1.38
Professional LED Neon Flex (240V, 5Ft)		57.4	27	5.3	10.8	11.48	1.06
Ø8 Glass Neon Tube (2Ft)		133.9	136	24.49	4.7	66.95	12.25
LED Neon-Flex Plus (240V, 5Ft)	Yellow	120.7	33	6.7	18.1	24.14	1.34
Professional LED Neon Flex (240V, 5Ft)		55.6	22	4.2	13.2	11.12	0.84
Ø8 Glass Neon Tube (2Ft)		157.7	125	26.28	6.0	78.85	13.14
LED Neon-Flex Plus (240V, 3Ft)	Blue	27.6	22	4.4	6.3	9.2	1.47
Professional LED Neon Flex (240V, 3Ft)		17.3	19	3.8	4.6	5.77	1.27
Ø8 Glass Neon Tube (2Ft)		55.2	115	24	2.3	27.6	12

Comparison between Professional and Economical

Features	Professional	Economical	Notes
LED Type	Special Ultra Bright LED	Standard Brightness LED	Professional LED Neon Flex™ uses Superior Grade Ultra Bright LED's while the Economical offers quality Standard Brightness LED's
LED Spacing	1.27CM	1.5CM	
LED's /Unit	See Unit Chart	See Unit Chart	
Unit Measurment	See Unit Chart	See Unit Chart	
LED Spec	(+/- 5nm)	+/- 10nm	Neo-Neon uses state of the art equipment to test each LED which enables us to ensure consitency of color (wavelength) and to offer multi-tier grades of products based upon the ability to select chips according to their tolerance to our standards.
Stability	High Stability	Average Stability	Stability of each grade is directly corresponding to the quality of the LED applied within each Grade. The Professional which uses the highest quality LED would therefore have enhanced stability over the Economical. However the quality of the Economical LED still conforms to Neo-Neons minimum stability standards which are considered still higher than the general market standard.
MTBF (Lifetime)	Longer MTBF	Shorter MTBF	Lifetime is termed by the lighting industry as MTBF (Mean Time Between Failure) which is when 50% of tradition lamps fail. For LED we use Lumens Depreciaton as it is relative to SSL (Solid State Lighting) See LED Lifetime information below for a more indepth explaination of Lumens Depreciation
Lumens Depreciation	50,000 to 80,000 hours	40,000 to 60,000 hours	The consitency of the Economical can fluxtuate due to the LED Spec standard of +/- 10nm and the single PVC layer process. The Professional offers the maximum consitency which is relative to its high standard.
Color Consistency	Consistant	Some inconsistancy's can occur	
Chormatic Aberrations	None	Yes	Chromatic Aberrations are inconsistencies in the color consitency that occur when wavelengths are not matched coupled with less diffusive materials such as in single layer PVC processing of the exterior jacket.
Percieved Brightness	High	Lower	Professional LED Neon-Flex has the highest percieved brightness due to all the factors listed in this chart. However, Economical has been engineered to provide a high brightness for the value.
UV Treatment	Yes	Yes	UV treatment effects cost very little and is incorporated into both to enhance both Professional and Economical's ability to be used in high UV areas such as areas exposed to direct sunlight.
Warranty	12 Months	6 Months	See indivdual product data sheets for the specific load requirements.
AC Power Supply	Same	Same	The cut length of Economical has been adjusted so that the quantity of LEDs per unit and the power consumtion matches so that the same power supplies can be used.
Low Voltage		Different	
Available Colors	*Same	Same	* Warm White and Ultra Warm White are available only in Professional
Cost to Manufacture	Higher	Lower	Based on the information provided in this table there is a clear and distinct difference between grades thus different price structures apply.
Pricing	Standard Market Value	Lower Prices	

Specifications

Cross Section — 27.5mm, 14.5mm

Item NO.	LED Color	Length in Roll	LED Spacing	LED Qty.	LED Qty /unit	Unit Length	Watt /unit	Color Temperature	Max.loading Length (with 1.6A converter)
LNH-FX-10-240V	R	9.1m	12.7mm	720	120	1.52m	3.94W/m	NA	97m
	Y,O						3.15W/m		122m
	B,G,HP	10m		792	72	0.91m	3.94W/m	NA	96m
	W							5000K	
	W22							2200K	
LNH-FX-50-240V	R	48.8m		3840	120	1.52m	3.94W/m	NA	97m
	Y,O						3.15W/m		122m
	B,G,HP	49.4m		3888	72	0.91m	3.94W/m	NA	96m
	W							5000K	
	W22							2200K	
LNH-FX-30-120V	R	30Ft	12.7mm	720	60	2.5Ft	1.2W/Ft	NA	160Ft
	Y,O						0.96W/Ft		200Ft
	B,G,HP			720	36	1.5Ft	1.2W/Ft	NA	159Ft
	W							5000K	
	W22							2200K	
LNH-FX-150-120V	R	150Ft		3600	60	2.5Ft	1.2W/Ft	NA	160Ft
	Y,O						0.96W/Ft		200Ft
	B,G,HP			3600	36	1.5Ft	1.2W/Ft	NA	159Ft
	W							5000K	
	W22							2200K	
LNH-FX-30-24V	R	30Ft			8	1/3Ft	1.8W/Ft	NA	21Ft
	Y,O						1.44W/Ft		
	B,G,HP			720	6	1/4Ft	1.44W/Ft	NA	26Ft
	W							5000K	
	W22							2200K	
LNB-FX-10-240V	R	9.1m	0.5"	720	120	1.52m	3.94W/m	NA	97m
	Y,O			720	120	1.52m	3.15W/m		122m
	G,B	10.0m		792	72	0.91m	3.94W/m		96m
LNB-FX-50-240V	R	48.8m		3840	120	1.52m	3.94W/m	NA	97m
	Y,O			3840	120	1.52m	3.15W/m		122m
	G,B	49.4m		3888	72	0.91m	3.94W/m		96m
LNB-FX-30-120V	R	30Ft	0.5"	720	60	2.5Ft	1.2W/Ft	NA	160Ft
	Y,O				60	2.5Ft	0.96W/Ft		200Ft
	G,B				36	1.5Ft	1.2W/Ft		159Ft
LNB-FX-150-120V	R	150Ft		3600	60	2.5Ft	1.2W/Ft	NA	160Ft
	Y,O				60	2.5Ft	0.96W/Ft		200Ft
	G,B				36	1.5Ft	1.2W/Ft		159Ft
LNB-FX-30-24V	R	30Ft		720	8	1/3Ft	1.8W/Ft		21Ft
	Y,O				8	1/3Ft	1.44W/ft		26Ft
	G,B				6	1/4Ft	1.44W/Ft		26Ft

Light Output

Color	Type	Hot Pink	White22	Red	Yellow	Orange	Blue	Green	White
Total output (Lm/Ft)	LNH-FX	8	17.3	8.34	7.28	8.4	4.8	9.03	15.2
	LNB-FX	NA	NA	3.4	3.6	4.2	1.3	6	7

Recommended operating temperature and humidity: -20°C to 60°C, 100% humidity
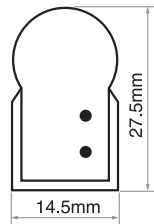
LED Neon Flex™
(Color Jacketed)

LED Neon Flex™ (Color Jacketed) embodies every feature and benefit of the (Grade A) LED Neon Flex with the addition of a colored outer PVC jacket.

In some applications it is more desirable to have the color of the jacket match the color of the light emitted so that in the daytime the LED Neon Flex™ applied design can be seen without the LEDs being powered on.

Typically the LED Neon Flex™ (Color Jacketed) is applied to signage designs or architectural designs that are indoor or outdoor in close proximity to the view of people.

INDOOR USE OUTDOOR USE CE

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Cross Section

27.5mm

14.5mm

Specifications

ITEM NO.	Length in Roll	LED Spacing	Total LED Qty	LED Qty /Unit	Cutting unit		Watt/Unit	Color Temperature	Max.Loading Length (with 1.6A converter)
LN-FX(C)-10-240V	9.1m		720	120	1.52m	(R)	3.94W/m		97m
					1.52m	(Y,O)	3.15W/m		122m
	10.0m		792	72	0.91m	(G,B)	3.94W/m		96m
LN-FX(C)-50-240V	48.8m		3840	120	1.52m	(R)	3.94W/m		97m
					1.52m	(Y,O)	3.15W/m		122m
	49.4m		3888	72	0.91m	(G,B)	3.94W/m		96m
LN-FX(C)-30-120V	30Ft	0.5"	720	60	2.5Ft	(R)	1.2W/Ft	NA	160Ft
					2.5Ft	(Y,O)	0.96W/Ft		200Ft
				36	1.5Ft	(G,B)	1.2W/Ft		159Ft
LN-FX(C)-150-120V	150Ft		3600	60	2.5Ft	(R)	1.2W/Ft		160Ft
					2.5Ft	(Y,O)	0.96W/Ft		200Ft
				36	1.5Ft	(G,B)	1.2W/Ft		159Ft
LN-FX(C)-30-24V	30Ft		720	8	1/3Ft	(R)	1.8W/Ft		21Ft
					1/3Ft	(Y,O)	1.44W/ft		26Ft
				6	1/4Ft	(G,B)	1.44W/Ft		26Ft

Light Output

Color	Red	Yellow	Orange	Green	Blue
Total output (Lm/Ft)	4.4	8.6	6.8	9	4

* Buaue escuela Guaya, Guayaquil, Ecuador

Crystal LED Neon Flex™
(Transparent & Color Jacketed)

Crystal LED Neon Flex™ (Transparent & Color Jacketed) embodies every feature and benefit of the (Professional) LED Neon Flex™ with an optical and color enhancement to the PVC jacket material.

Crystal LED Neon Flex™ (Transparent & Color Jacketed) was designed with a optically transparent and pigmented PVC jacket to increase the brightness of the product to enhance far field viewing and to lend itself well to daytime viewed designs.

Crystal LED Neon Flex™ (Transparent & Color Jacketed) applied to structures that are intended to be viewed from long distances such as bridges and high-rise skyscraper type structures and where the designer desires the product to appear the same color when the product is not illuminated.

Up close the Crystal LED Neon Flex™ (Transparent & Color Jacketed) appears pixilated however at far field viewing distances appears solid just like the LED Neon Flex™ (Professional) type.

LED Neon Flex™ (Professional) type is intended for more near field viewing thus requires the milky PVC jacket for even light distribution.

Often a combination of both LED Neon Flex™ (Transparent & Color Jacketed) and LED Neon Flex™ (Professional) is applied to projects depending on their proximity to the intended viewers.

INDOOR USE   OUTDOOR USE   CE

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* Perry Cherry's Diner, Wisconsin, American

* Puente El Velero, Guayaquil, Ecuador

* The Grand Bhagwati, Ahmeddabud, India

* Palace of pream, Riga, Latvia
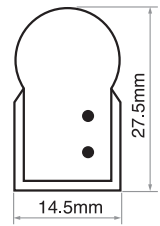
Specifications

Cross Section

14.5mm / 27.5mm

ITEM NO.	Length in Roll	LED Spacing	Total LED Qty	LED Qty /Unit	Cutting unit	Watt/Unit	Color Temperature	Max.Loading Length (with 1.6A converter)
CLN-FX(C)-10-240V CLN-FX-10-240V	9.1m		720	120	1.52m (R)	3.94W/m	NA	97m
					1.52m (Y,O)	3.15W/m		122m
	10.0m		792	72	0.91m (G,B)	3.94W/m		96m
CLN-FX(C)-50-240V CLN-FX-50-240V	48.8m		3840	120	1.52m (R)	3.94W/m		97m
					1.52m (Y,O)	3.15W/m		122m
	49.4m		3888	72	0.91m (G,B)	3.94W/m		96m
CLN-FX(C)-30-120V CLN-FX-30-120V	30Ft	0.5″	720	60	2.5Ft (R)	1.2W/Ft		160Ft
					2.5Ft (Y,O)	0.96W/Ft		200Ft
				36	1.5Ft (G,B)	1.2W/Ft		159Ft
CLN-FX(C)-150-120V CLN-FX-150-120V	150Ft		3600	60	2.5Ft (R)	1.2W/Ft		160Ft
					2.5Ft (Y,O)	0.96W/Ft		200Ft
				36	1.5Ft (G,B)	1.2W/Ft		159Ft
CLN-FX(C)-30-24V CLN-FX-30-24V	30Ft		720	8	1/3Ft (R)	1.8W/Ft		21Ft
					1/3Ft (Y,O)	1.44W/Ft		26Ft
				6	1/4Ft (G,B)	1.44W/Ft		26Ft

Light Output

Color		Red	Yellow	Orange	Green	Blue	White
Total output (Lm/Ft)	Crystal LED Neon Flex™	9.2	9.2	16.2	22	7.67	18.2
	Crystal LED Neon Flex™(color jacketed)	7	12	15.4	14.33	2.33	

Connection and Accessories

1. Easy Splice Connector (Indoor)(Not Waterproof)
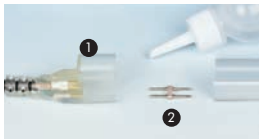
Front connector includes
1. Female power connector LN-FX-CA-1
2. Male connecting pin LN-FX-CA-2
3. Heat shrink tube
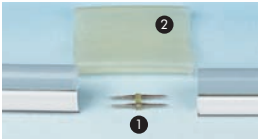
Splicable conncetor includes
1. Male connecting pin LN-FX-CA-3
2. Heat shrink tube

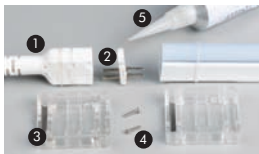**Attachable end cap** LN-FX-CA-4
1. PVC Glue
2. End Cap
3. Fixture
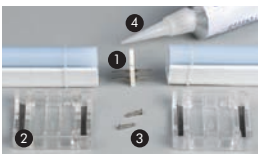
2. Molded Connector (IP44)
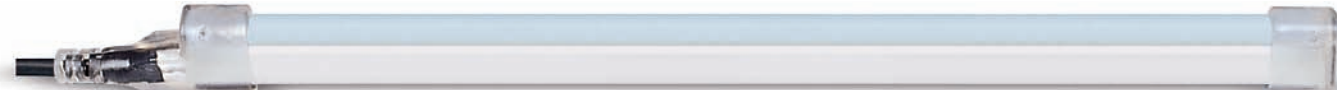
Front connector
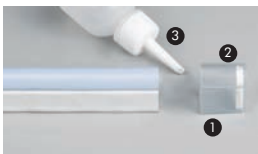Molded power connector LN-FX-M-1

Molded end cap LN-FX-M-2

3. Conch Connector (IP44)

Front connector includes
1. Shell electrical plug
2. KEMA simple front connector
3. Shell
4. Self-attack screws
5. Silicon glue

Splicable conncetor includes
1. KEMA simple middle connector
2. Shell
3. Self-attack screws
4. Silicon glue

Attachable end cap
1. KEMA end plug
2. End plug tray
3. PVC glue

4.Extendible Connector (IP44)
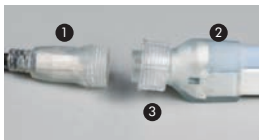
Front connector includes
1. Electrical plug
2. Male connector
   (with waterproof rubber ring)
3. M24 screws
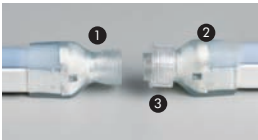
Splicable conncetor includes
1. Female connector
2. Male connector
   (with waterproof rubber ring)
3. M24 screws

Attachable end cap
1. Female connector
2. End plug
   (with waterproof rubber ring)
3. M24 screws
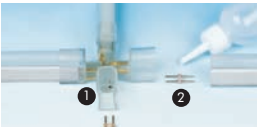
Accessories and Connection Options

High Voltage Power Supply
1. AC Power Cord
2. AC/DC Converter (Part# XXXX)

Low Voltage Power Supply
1. AC Power Cord
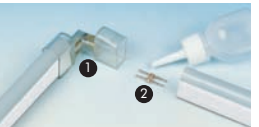2. Transformer (Part# XXXX)
3. AC/DC Converter (Part# XXXX)

Middle Connector with Cable
1. Female power connector
   LN-FX-CA-1
2. Male connector pin LN-FX-CA-2
3. Heat shrink tube

**X Connector
(Not Waterproof)**
1. X connector LN-FX-X
2. Male connector pin LN-FX-CA-2
3. Heat shrink tube

**T Connector
(Not Waterproof)**
1. T connector LN-FX-T
2. Male connector pin LN-FX-CA-2
3. Heat shrink tube

**L Connector
(Not Waterproof)**
1. L connector LN-FX-L
2. Male connector pin LN-FX-CA-2
3. Heat shrink tube

Installation Notes

- A Catalog is not a substitute for a user manual. The installation illustrations to the right are for reference only.
- Always follow the instructions in the provided user manual.
- Cut only on the cut marks provided on the fixture housing.
- When applying linear solutions to a channel make certain to use an appropriate silicone adhesive between the base of the channel profile and the fixture housing to eliminate stretching over time.
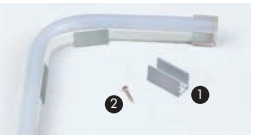
Cutting Mark
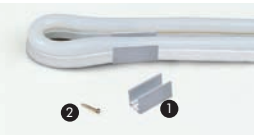LN-FX Must be cut only on the indicated mark

Linear Installation
1.Aluminum Channel LN-FX-CH
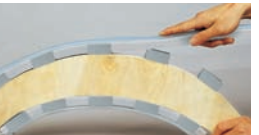2.Apply an adhesive silicone between the channel base on fixture housing to prevent slippage and stretching over time
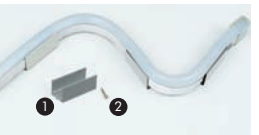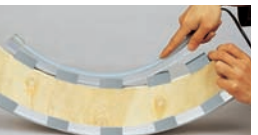
Curve Installation
1. Mini channel LN-FX-5
2. Screw

90˚ Installation
1. Mini channel LN-FX-5
2. Screw

180˚ Installation
1. Mini channel LN-FX-5
2. Screw

Convex Installation
Mini channel LN-FX-5

Concave Installation
Mini channel LN-FX-5

Channel Installation
1. Apply an adhesive silicone between the channel base on fixture housing to prevent slippage and stretching over time.
2. Press LED Neon-Flex™ into the channel with even pressure from the beginning to the end.

Packaging Examples

150' (50m) / 30' (10m) package in plastic reel

RGB LED Neon Flex™
Crystal RGB LED Neon Flex™

RGB LED Neon Flex™ embodies all the benefits of LED Neon-Flex™ (A-Grade) with the additional of RGB color changing technology. RGB LED Neon-Flex™ provides complete RGB color changing through intensity changes of the R, G, B, LEDs.

Crystal RGB LED Neon Flex™ embodies all the benefits of RGB LED Neon-Flex™ with the additional of a optically enhanced clear PVC jacket design. The clear jacket design provides greater luminosity for far field viewing applications as with the Crystal LED Neon-Flex™. When viewed in a near field manner the LED source is easily defined however at long distances from the viewing audience Crystal RGB LED Neon Flex™ appears even and consistent as with RGB LED Neon Flex™.

Crystal RGB LED Neon Flex™ incorporates new Ultrabright LEDs to enhance the products brightness. RGB LED Neon Flex™ is a perfect replacement where traditional glass neon is applied in various colors to achieve a color changing appearing effect and when the viewing distance is far field. Crystal RGB LED Neon Flex™ provides virtually 16.7 million colors of linear color changing.
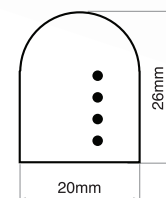
RGB LED Neon Flex™

INDOOR USE   OUTDOOR USE   CE

Crystal RGB LED Neon Flex™

PATENTED

Demo Kit

Cross Section

26mm

20mm

Specifications

ITEM NO.	Length in Roll	LED Spacing	Total LED Qty	LED Qty /Unit	Cutting unit	Watt/Unit	LED Color	Max.Loading Length
LN-FX-RGB-25-240V CLN-FX-RGB-25-240V	24.7m			216pcs	0.91m	13.1W/m		120m (with SRC-181-240V-controller)
LN-FX-RGB-81-120V CLN-FX-RGB-81-120V	81Ft	0.5"	5832pcs	108pcs	1.5Ft	4W/Ft	RGB	200Ft (with SRC-181-120V-controller)
LN-FX-RGB-81-24V CLN-FX-RGB-81-24V				18pcs	1/4Ft	4.8W/Ft		33Ft (with SRC-181-20V-controller)

LED Flexible and Rigid Solutions Series