EnergyEfficient Group
THE ENERGY CONSCIOUS COMPANY

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A Division of Energy Efficient Group

2009

Product and Information Guide

LED Neon-Flex™

LED Neon-Flex ™

Introduction

LED Neon-Flex™ the industry standard for Neon & Linear lighting that integrates the latest LED-technology with design, flexibility and reliable performance to solve 21st century lighting challenges in entirely new ways.

Patented LED Neon-Flex™ lighting systems are manufactured for the most demanding environments. This new light source has the potential to reduce energy consumption while delivering substantially greater lighting functionality and an unrivaled durability.

Types

LED Neon-Flex™ line of products offers a wide array of different configurations for different lighting applications.

- **LED Neon-Flex™ Plus** – offers the highest quality commercial led neon and light output.
- **LED Neon-Flex™ Ultra-Thin** – offers the most flexibility for tight applications
- **LED Neon-Flex™ Color Jacket** – colored PVC jacket is used to match surrounding colors during daylight.
- **LED Neon-Flex™ Crystal** – optically transparent PVC jacket to increase the brightness of the product to enhance distant field viewing
- **LED Neon-Flex™ Economical** - developed to meet low cost requirements for non commercial market. Neon version of Rope Light.

Energy Efficient

Did you know that eliminating 70% of lighting energy cost will have an average investment payback of less than two years?

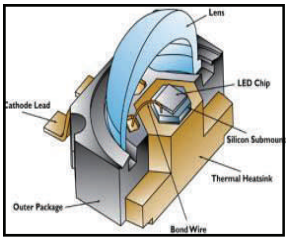
LED Neon-Flex™ VS Traditional Neon

LED Neon-Flex™ can save up to 70% or more in energy cost.

REGION	ANNUAL ENERGY COST	ANNUAL SAVINGS	CUMULATIVE SAVINGS
USA Midwest ($0.08/kWh	Glass Neon $1,839.60 LED Neon Flex $605.40	$1,234.20	$12,342 (Over 10 Years)

100,000 Hour LED Hoax & Lumen Depreciation

LED Neon-Flex™ utilizes LEDs provided by industry leading vendors; these are electrical components with calculated mean time between failures (MTBF). MTBF for LEDs typically exceeds 100,000 hours. MTBF indicates the point at which 50% of the LEDs will lose 50% of their original brightness better known as Lumen Depreciation. Conditions such as excessive voltage, vibration, heat, and other adverse environments may negatively affect the life of LEDs and increase Lumen Depreciation.



LEDs continue to operate even after their light output has decreased to very low levels; this measurement is why many companies list LED products with 100,000 hour lifespan. Don't be fooled, the LED will last that long but you will not see the light it's producing.

LED Neon-Flex™ is protected by the following US Patent: 7,048,413

1-406-656-7700 Office 1-406-652-2854 Fax

B2 UL/CUL E126962

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LN-FX Patent# 7,048,413 B2 UL/CUL E126962

LED Neon-Flex ™

Patent

Due to the success of LED Neon Flex™ many companies try to re-produce LED Neon-Flex™ creating a surge of "**non-licensed**" imitations infringing on the LED Neon Flex™ patent. These copies are of poor quality and are being sold at prices relative to their level of quality. **Economical LED Neon-Flex™ offers better quality with very similar non-licensed product pricing. Please contact your sales representative for details.**

Comparison between Plus & Economical & Non-Licensed

Features	Plus	Economical & Non-Licensed	Comments
LED Type	Special Ultra Bright LED	Standard Brightness LED	LED Neon Flex Plus uses Superior Wavelength Graded Ultra Bright LED's while the Economical offers quality Standard Brightness LED's.
LED Spacing	1.27 Cm	1.5 Cm	Fewer hot spots.
LED Spec	**(+/- 5nM)**	**(+/- 10nM)**	**Every LED is tested for consistency of color (wavelength) creating multi-tier grades of products by selecting chips according to their tolerance and our standards.**
PVC	Two Layer	Single Layer	LED Neon Flex outer jacket is constructed of PVC and based on the two grades Plus and Economical either a double or single layer of PVC is applied. This has an effect on the optical enhancement of the LED color and light efficiency.
Base Jacket	White PVC	None	The White PVC Base Jacket for the Plus reflects "shape" and redirects the light from the LED upward and outward to the surface of the diffuser enhancing the perceived brightness of the LED Neon Flex Plus.
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 our high standards which are considered higher than the general market standard.
MTBF (Lifetime)	Longer MTBF	Shorter MTBF	Lower qualities LEDs have greater chance of failing.
Lumens Depreciation	40,000 to 60,000 hours	30,000 to 50,000 hours	See MTBF above this chart. This rating varies on color.
Color Consistency	Consistent	Some inconsistency's can occur	Consistency of the Economical can fluctuate due to the LED Spec standard of +/- 10nm and the single PVC layer process. Professional offers maximum consistency relative to its higher standards.
Chromatic Aberrations	None	Yes	Chromatic Aberrations are inconsistencies with color that occur when wavelengths are not matched.
Perceived Brightness	**High**	**Lower**	**LED Neon Flex Plus has the highest perceived brightness due to all 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 are incorporated into both to enhance the Professional and Economical usability in high UV areas such as areas.
Available Colors	Same	Same	* Warm White and Ultra Warm White are available only in Professional & Plus
Pricing	Standard Market Value	Lower Pricing	Based on the information provided in this table there is a clear and distinct difference between grades thus different price structures apply.

LED Neon-Flex™

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The Difference

With more than five years of continuous research and development, our products can **now simulate Neon** more than ever thought possible! Unlike neon lights that have to run on a very high voltage of 15.000V, LED Neon Flex™ operates internally on 24V, LED Neon Flex is shatterproof, emits very little heat and is absolutely safe to use indoors and out.

• Superior life and extremely durable with a lifespan of 40,000 - 60,000 hours (Depending on Color & Type). **LED Neon-Flex™** will save you more money in maintenance costs then replacing traditional glass neon.

• **LED Neon-Flex™** consumes only 1.2 – 2 Watts per foot. Traditional neon glass consumes 8.74Watts per foot. In other words, you save about 70% on energy costs.

• Safety, **LED Neon-Flex™ is UL, cUL, CE and ROHS approved and Patent worldwide**. LED Neon-Flex™ emits very low heat while being water resistant making it safe to use under almost any application.

• Extremely bright with even color. Using a rubber diffuser and high intensity Light Emitting Diodes provide light with uniformity and brightness simulating neon.

• Easy to install and transport. LED Neon-Flex™ is minimized and lightweight providing the benefit of easy handling and transport. Similar to ROPE lighting, **LED Neon-Flex™ is easy to install giving the installer tremendous labor savings.**

The Advantages

- 3 Year Warranty
- cUL listed on every product
- Consistent and Stringent Wavelength control standards +/-5nm
- Unique PVC double jacket design
- White PVC Base Layer to increase luminosity
- Low Voltage 12V Ultra-Thin 1” cutting mark 24V all other products.
- Fast field installation
- Less service required
- Fewer primary electrical circuits required
- Less surface damage during installation
- Sub zero temperatures will not affect performance
- Reduced ambient heat, leading to lower air conditioning cost
- Bend into any angle by hand
- No hot spots in appearance
- Flexible – up to 1-1/2" bending radius with no minimum bend radius for Ultra-Thin
- Patented, oval-shaped jacket generates a bright Neon-like glow
- Low Lumen Depreciation

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Warranty

Energy Efficient Group provides a 36-month limited warranty for "LED Neon Flex Plus" and 12-month limited warranty for all other "LED Neon Flex" series of products from the date of purchase to the original purchaser. This limited warranty covers manufacturer defects in the material and workmanship, only on the faulty section of the LED Neon Flex. Replacement is provided only on the defective section of the LED Neon Flex as defined by its cutting marks. Owner will need to provide proof of purchase at time of service.

Energy Efficient Group will not cover damage by abuse, misuse, disregard for proper cleaning, faulty installation, improper maintenance, including forfeiting the use of a surge protector, or any repairs not carried out by Energy Efficient Group or its agents.

Items not covered by this warranty are those considered as parts which are prone to failure due to normal wear and tear.

Energy Efficient Group assumes no liability for consequential damages arising from the use of the product or any indirect damages with respect to loss of property, revenue, or costs for removal, installation or reinstallation.

All shipping charges should be pre-paid. If the requested repairs or service are within the terms of the warranty the item will be returned to you postage paid. Any shipping damage due to carrier mishandling or improper packaging is the responsibility of the sender. If product is not within the terms of the warranty Energy Efficient Group will advise you of the price for repair or replacement and ship it to you upon receipt of payment including shipping charges. Please allow 2 to 4 weeks for return of product. Energy Efficient Group takes great pride in their product and their customer service and try to carry out warranty repairs within 5 business days. They cannot be held responsible for shipping delays.

Please call for all warranty issues, 1-406-656-7700.

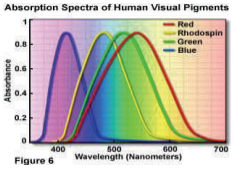

Figure 6

LED Color Matching & Binning

LED technology is changing rapidly. LED's are made in lots and sorted into bins based on wavelength ranges that achieve colors. LED Neon-Flex™ uses a range of 2500°k to 3100°k for warm white and 5000° to 6000°K for white. Individual orders will be bin-sorted to within plus or minus 200°k and it is recommended to purchase 10% replacement stock within that bin lot to ensure matched color for needed replacements.

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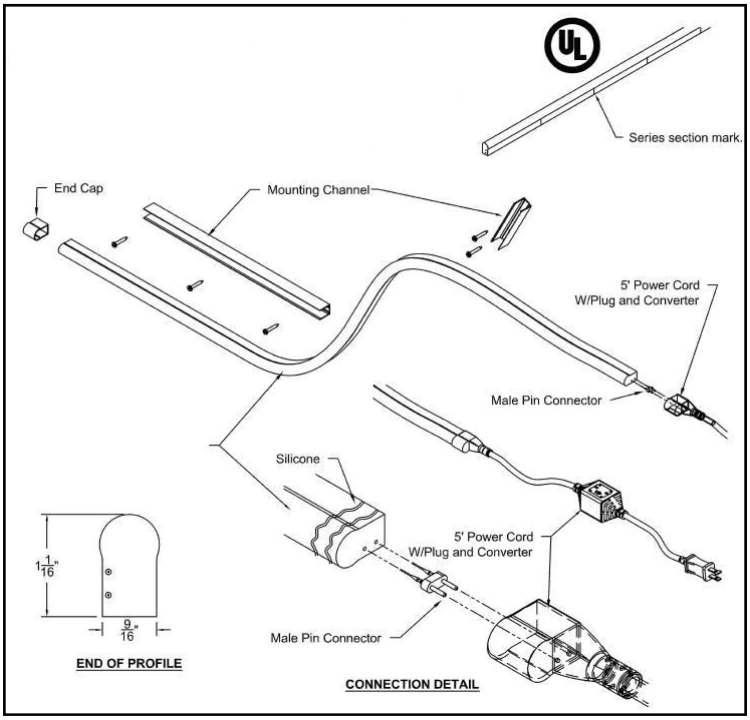
Project Information

Job Name_____ **Approval** _____

Job Specification Number_____ **Date**_____

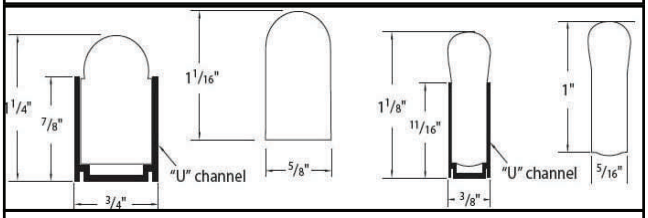
Catalog Configuration Number

_____	_____	_____	_____	_____
Type	**Optic Type**	**Length**	**Voltage**	**Color**
Plus –LNP	Color Jacket - FX(C)	Roll - 150F Per Foot - F	12 Volt – 12V 24 Volt – 24V 120 Volt – 120V 240 Volt – 240V	Red – R Yellow – Y Orange – O Green – G Blue – B White 5000k – W White 2200k – WW



Specifications
Roll Length: 150 Feet
LED Spacing: 0.5”

Available Colors:
Red, Yellow, Orange, Green, Blue
White, Warm White, Hot Pink



Cutting Units:

120 Volt - 2.5Feet Red, Yellow, Orange
120 Volt- 1.5 Feet Green, Blue, White

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Keys To Product Identification

Energy Efficient Group Purchasing Guide Catalog Numbers / Specifications / Description		
EEG Product #	**Spec #**	**Description**
221002	LN-FX (C) -P-150FT-120V- R	Color Jacket PLUS
221004	LN-FX (C) -P-150FT-120V- Y	Color Jacket PLUS
221006	LN-FX (C) -P-150FT-120V- O	Color Jacket PLUS
221005	LN-FX (C) -P-150FT-120V- G	Color Jacket PLUS
221003	LN-FX (C) -P-150FT-120V- B	Color Jacket PLUS
220011	LN-FX-P-150FT-120V- WW	Neon Flex PLUS
220001	LN-FX-P-150FT-120V- W	Neon Flex PLUS
220930	LN-FX-CA-1/2FT	Neon Flex Jumper - 6 inch
220931	LN-FX-CA-1FT	Neon Flex Jumper - 1 Ft.
220932	LN-FX-CA-2FT	Neon Flex Jumper - 2 Ft.
220934	LN-FX-CA-4FT	Neon Flex Jumper - 4 Ft.
220936	LN-FX-CA-6FT	Neon Flex Jumper - 6 Ft.
220903	LN-FX-CA-1	Power Feed -Straight -1.6 Amp
220914	LN-FX-CA-1-L	Power Feed -90 Deg. -1.6 Amp
220915	LN-FX-CA-1-U90	Power Feed - Left 90 -1.6 Amp
220916	LN-FX-CA-1-S9	Power Feed - Right 90-1.6 Amp
220906	LN-FX-CA-X	X Connector
220908	LN-FX-CA-L	L connector
220907	LN-FX-CA-T	T connector
220901	LN-FX-CA-5	Mounting Channel - 2 Meter
220902	LN-FX-CA-5	Mini Channel - 5 cm

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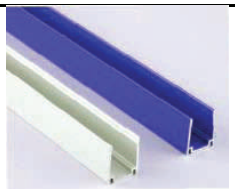
Power Feeds

Image	Item Number	Spec Number	Description
	220903	LN-FX-CA-1	180º Power Feed 5FT – 240V/120V/24V - 1.6 AMP Converter with Plug
	220914	LN-FX-CA-1-L	90º Down Elbow power feed 5FT – 240V/120V/24V - 1.6 AMP converter with plug
	220915 220916	LN-FX-CA-1-S90 LN-FX-CA-1-U90	90º Right Elbow power feed 90º Left Elbow power feed 5FT – 240V/120V/24V - 1.6 AMP converter with plug

Mounting Channels

Image	Item Number	Spec Number	Description
	220901	LN-FX-CH	Brushed aluminum channels available from 1 Meter to 3 Meter. Some lengths are special order.
	220902	LN-FX-CA-5	2” Brushed aluminum mounting clips.

Low Voltage Transformers

Image	Item Number	Spec Number	Description
	Special Order	PLN-30-24V PLN-60-24V PLN-100-24V	UL1310 Class 2 power unit 2 years warranty IP 44
	Special Order	CLG-60-24V GLG-100-24V	UL1310 Class 2 power unit 3 years warranty IP 67 High Reliability

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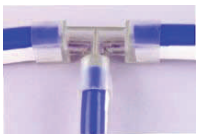
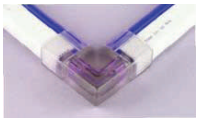
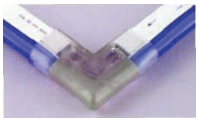
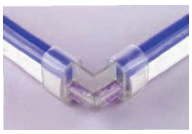
Connectors

Image	Item Number	Spec Number	Description
	220906	LN-FX-CA-X	X Connector
	220907	LN-FX-CA-T	T-Connector
		LN-FX-CA-IN	Inside Elbow
		LN-FX-CA-OUT	Outside Elbow
	220908	LN-FX-CA-L	90 Degree L Connector
	220905	LN-FX-CA– SPLICE	Inline Splice Connector

Miscellaneous Accessories

Image	Item Number	Spec Number	Description
		LN-FX-CA-MC	Male Power Pin Connector
	220905	LN-FX-CA-3SHRINK	Clear Heat Shrink with Heat Activated Glue
	220904	LN-FX-CA-2	LED Neon Flex Termination Cap or End Cap

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