

Neon & Lighting

CATALOG

Summer 2008



Master Distributors of Sign and Awning Materials & Equipment



Master Distributors of SIGN and AWNING Materials & Equipment

Dear Customer,

Welcome to our new Neon & Lighting catalog, including a complete line of top-quality neon and lighting products, all clearly described and competitively priced.

Whether you need basic neon products & accessories or processing and bending equipment, you'll find it here! We are also happy to offer a full selection of LED modules and power supplies that can meet virtually any application — plus lighting and sign controls products such as chasers, rotators etc.

As always, our goal at S&F is to continue to be your one-stop source for all of your sign, awning and digital supply needs — backed by our strong commitment to superior service and value. Please note that many more products may be found in our other catalogs (available at your request) — or at our website — www.sfsupplies.com.

So please take a few moments to discover what's new, what's improved, and what neon products can light up your sales. If you have any questions, please feel free to call. As always, we will do our best to help.

Sincerely,

S&F Supplies Inc.

Brooklyn Branch 718.399.3333

Upstate NY & NJ Toll Free 1.800.246.8233

Farmingdale Branch 631.420.4400

Long Island Toll Free 1.888.399.1113

Website www.sfsupplies.com Email sales@sfsupplies.com Toll Free Fax 1.888.399.3375

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The S&F Supplies Service Advantage

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So do we! That's why we've made sure that you'll get through to a customer service representative within seconds. They are pleasant, knowledgeable, and ready to help. In fact, that's exactly why they are here!



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Our commitment to minimizing backorders is second to none. As such, we maintain one of the most comprehensive inventories in the industry. It's a considerable investment – but we believe that you're worth it!



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Volume Discounts

You get volume discounts on most items in this catalog. You may also mix and match within the same product line to qualify. Please call your Customer Service Representative for details.



Expert Technical Support

Need help selecting the best product to meet your neon sign project? What's the best glass, transformer, etc. for your application? Or, should you use LED modules for this project? Wondering about warranties and specs? Our "neonology" experts will be happy to provide you with clear, concise answers – just ask!

Terms & Conditions

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Specify catalog number, size, color, thickness, or other description on each item, to avoid shipping errors.

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Please specify how merchandise should be shipped (UPS, freight, carrier, our truck, etc.). Where no shipping instructions are provided, S&F will ship in the most expedient manner to avoid delay. We deliver free in New York's 5 Boros, Long Island, Upstate NY & NJ. Minimum order required depending on delivery location. Call S&F for details.

CLAIMS:

Shipments should be inspected immediately upon arrival. If any damages is noticed claim should be made within 5 days after

receipt of goods. No merchandise accepted for credit or exchange unless authorized by us.

RETURNS:

Material shipped as ordered can not be returned without S&F's written consent, and request's must be made within 5 days of delivery. All merchandise must be returned in original packaging. No returns on special orders. No returns on aluminum sheets after customer acceptance.

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8:30 am - 1:00 pm



A view of our Brooklyn store

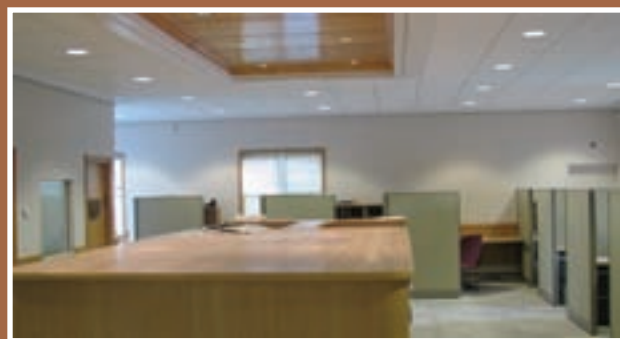
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Date ____ / ____ / ____

PO #

Master Distributors of SIGN and AWNING Materials & Equipment

Company Name _____ Name _____

Address _____ City _____ State _____ Zip _____

Phone () _____ Fax () _____

	QUAN.	ITEM #	DESCRIPTION	PRICE
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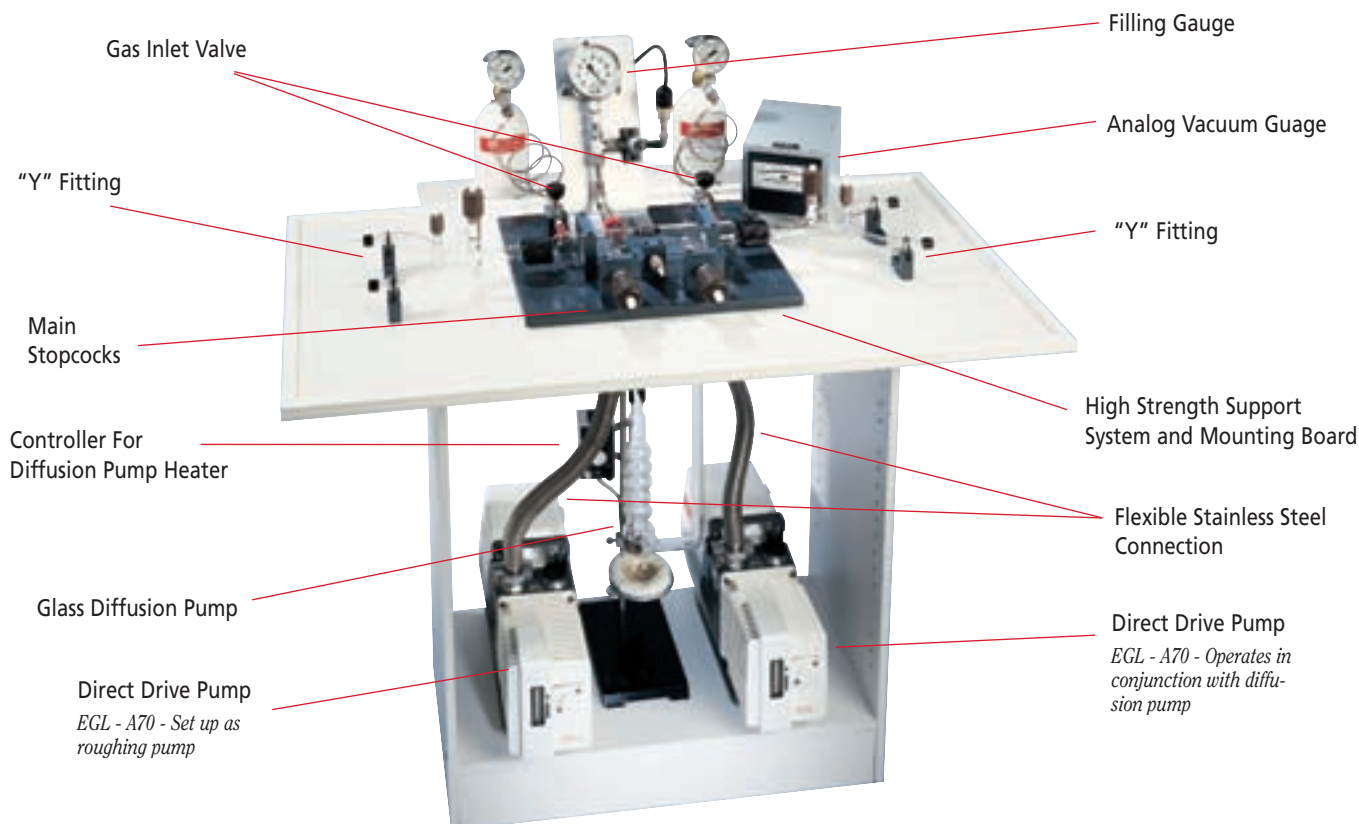
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Manifold Systems



**maxi·vac
mxv-50**

Manifold and Complete Pumping System for Neon Tubing



*Most components sold separately
Stand not available from EGL*

Superior design and construction provide the fastest, most consistent pumping speeds, and the brightest, cleanest neon tubes attainable

The MAXI-VAC™ manifold virtually eliminates the leakage, breakage, contamination, and downtime common to older systems by eliminating the components that cause it. Gone forever are the grease-type stopcocks, numerous connections, and maze of fragile glass tubing which result in wasted repair time and, worse still, finished neon products of inconsistent quality.

Large Bore, Grease-Free Stopcocks

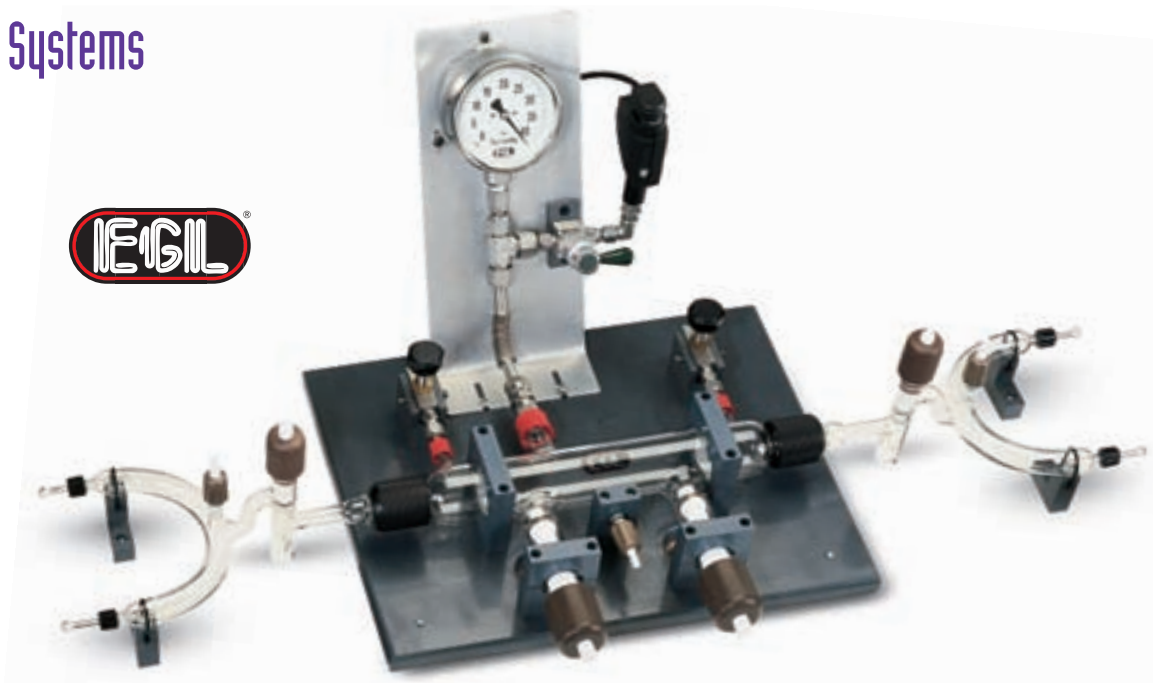
The MAXI-VAC manifold employs the fewest number of stopcocks to minimize the possibility of leakage.

The two 25mm diameter main stopcocks are larger than on any other pumping manifold, providing the highest pumping rates. The stopcocks are machined from durable Teflon®, and feature a new coarse thread design that provides long life, fast actuation, and easy removal and re-threading for cleaning. The stopcocks are also grease-free, eliminating the contamination problem of grease-type stopcocks 100 percent.

Heavy Wall, Large Diameter Manifold Tubing

Short lengths of heavy wall 50mm diameter borosilicate tubing are welded in a compact configuration which has the fewest possible number of connections, then annealed to remove strain. The result is an extremely strong assembly that provides the highest possible flow rates, maximum vacuum integrity, minimal gas waste, and the easiest interior access for cleaning.

Manifold Systems



System I

Includes:

- Borosilicate Glass Manifold complete with sturdy base
- 0-40MM HG/TORR fill gauge
- Highly accurate vacuum gauge complete with gauge adapter/stopcock
- Newly designed oil diffusion pump (for maximum pumping performance) complete with heater and ALL necessary mounting hardware

ITEM NO.	DESCRIPTION	
716000	Complete system for gas flasks	120V, 60Hz
716005	Complete system for gas flasks	220V, 50Hz
716010	Complete system for gas tanks*	120V, 60Hz
716015	Complete system for gas tanks*	220V, 50Hz

System II

Includes:

Same as System I. Also includes Series A70 or equivalent vacuum pump with stainless steel flex hose and adapter.

ITEM NO.	DESCRIPTION	
716025	Complete system for gas flasks	120V, 60Hz
716026	Complete system for gas flasks	220V, 50Hz
716027	Complete system for gas tanks*	120V, 60Hz
716028	Complete system for gas tanks*	220V, 50Hz

* Gas Transfer System included with "System IV" only
120V refers to all electrical components except bombarders and chokes (both are 220V primary)

System III

Includes:

Same as System II. Also includes choice of KVA bombarder & variable output transformer choke & milliamp gauge.

ITEM NO.	DESCRIPTION	
716060	Complete system for gas flasks with 15 KVA bombarder and choke	120V, 60Hz
716061	Complete system for gas flasks with 15 KVA bombarder and choke	220V, 50Hz
716062A	Complete system for gas tanks* with 15 KVA bombarder and choke	120V, 60Hz
716063A	Complete system for gas tanks* with 15 KVA bombarder and choke	220V, 50Hz
716078	Complete system for gas flasks with 22 KVA bombarder and choke	120V, 60Hz
716080A	Complete system for gas tanks* with 22 KVA bombarder and choke	120V, 60Hz

System IV

for gas tanks only

Includes:

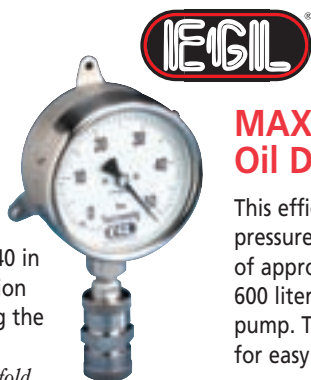
Same as System III, plus second Series A70 or equivalent vacuum pump with stainless steel flexible hose and adapter, two gas tank systems, EGL digital temperature gauge, set of replacement "O" rings, additional 50cc bottle of clear diffusion pump oil, and 100 pairs of 8cc PREMIUM PLUS electrodes.

ITEM NO.	DESCRIPTION	
716164	Complete system for gas tanks* w/2 Series A70 vacuum pump and 22 KVA bombarder and choke	120V, 60Hz

Analog Capsule Fill Pressure Gauge

The EGL Analog Capsule Fill Pressure/Torr Gauge features a four-inch easy-to-read face for precise indication of mm Hg/Torr from 0 to 40 in 1-unit graduations. It has a 1/4" M NPT connection and can be fitted to virtually any manifold using the 19mm glass compression adapter.

Adapter must be used when attaching to a glass manifold.



ITEM NO.	DESCRIPTION
733205	Fill Gauge Complete, includes adapter and support legs
733202	Fill Gauge with Adapter
733200	Fill Gauge Only

EZ Read Gas Pressure Gauge (Manometer)

The EGL EZ Read gauge provides accurate readings of rare gases during neon tube or cold cathode filling. Accuracy of .1mm is possible.

The EGL EZ Read gauge uses a greaseless stopcock assembly designed to prevent the butyl oil from ascending into the manifold system should sudden pressure be applied to the liquid during operation.

Connection is made with a glass compression fitting that will accommodate 12 to 15mm tubing. Each gauge is supplied with a calibrated scale and required gauge oil.



EZ Read Gauge Complete - with stand

ITEM NO. 733600

EZ Read Gauge Glass Only

ITEM NO. 733625

Digital Pirani Vacuum Gauge

The TM-20 is a single station Pirani Gauge. It can display pressure in Torr, Microns, M-Bar, or Pascal units using a large easy-to-read LCD display with digital and bar graph readout. Measurement range is from 760 Torr (ATM) down to 1x10 range (1 micron). Complete gauge includes a TR211 sensor with 1/8" NPT fitting and 10 feet of sensor cable. The gauge can be bench- or panel-mounted and is housed in a 1/4 din case.

ITEM NO. 735370

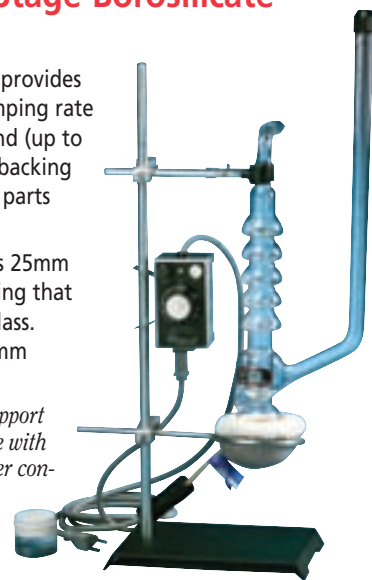


MAXI-VAC® Single-Stage Borosilicate Oil Diffusion Pump

This efficient oil diffusion pump provides pressures of 1×10^{-5} Torr at a pumping rate of approximately 8-10 liters/second (up to 600 liters/minute) depending on backing pump. This pump has no moving parts for easy maintenance.

The Diffusion Pump Intake Port is 25mm diameter with a compression fitting that will accommodate 15 to 18mm glass. The Foreline (Exhaust) port is 18mm diameter.

Complete system includes Vertical support rod with base, pancake heater mantle with support, clamp to secure pump, heater controller, and finest quality diffusion pump oil



ITEM NO.	DESCRIPTION
734300	120V/60 Hz Model
734301	220V/50 Hz model complete
734305	Diffusion pump glass only
734320	Pancake heater mantle, 120V/60Hz
734321	Pancake heater mantle, 220V/50Hz
734315	Heater controller 120V/60Hz
734316	Heater controller 220V/50Hz
713055	Pancake heater support ring
713050	Vertical support rod with base
713060	Diffusion pump clamp
735010	50ml clear diffusion pump oil

Analog Vacuum Gauge

The VT6 Analog Vacuum Gauge is a rugged reliable thermocouple-type instrument. Available in the 0-1000 micron range.

The gauge features a large easy-to-read analog display with 1 micron divisions in the 0-10 micron range. The gauge tubes have a 1/8" male NPT thread. The gauge is supplied with an 8' cable for the gauge tube.

Complete unit includes gauge tube and grounding unit.



ITEM NO.	DESCRIPTION
735340	120/60Hz, Complete unit
735341	220/50Hz, Complete unit
735350	120/60Hz, Gauge only
735351	220/50Hz, Gauge only
735360	Gauge Tube

EGL Gas Transfer System

Maximize quality, consistency, economy with EGL's Gas Transfer System

Simply eliminating system shutdowns for flask replacements will justify investing in this system. In addition, it offers:

- Gas purity: Gas bottled in cylinders maintains its highest purity.
- Tighter control: With the system's pressure gauge, stopcock leakage is virtually non-existent.
- Better economy: Liter-for-liter, costs are reduced by purchasing gas in bulk. EGL tanks are available in 25, 50 and 100 liter sizes.

Additionally, since the tanks are capable of being filled to a much higher pressure than glass flasks, 100% of gas volume will be used rather than approximately 80% when utilizing the glass flasks.

The EGL Gas Transfer System provides uninterrupted flow of pure Neon, Argon or special gas mixtures into tubes for neon signs, cold cathode, etc. A precision-made filling valve eliminates the use of two glass stopcocks. Clean gas flow is guaranteed, as compared to double-stopcock systems which require constant lubrication and can allow air leakage into glass flasks. No entrapped grease vapors are automatically pushed into the neon tubes when the glass stopcocks are used.

No gas losses are incurred when changing glass flasks with small, immeasurable volumes of remaining gases. No labor charges are incurred for each changing of replacement flasks. For example, one fifty (50) liter cylinder will eliminate 50 bottle changes. A system can hold 100% of its gases indefinitely, unlike glass stopcocks which cannot prevent seepage for long periods of time.



EGL Gas Transfer Systems and Components

ITEM NO.	DESCRIPTION
NEGTS	Gas Transfer System (Excluding Tank – One System required per gas tank)
448520	Pressure Gauge
733000	Robbins Valve
733010	Glass fitting for Robbins valve
733020	Metal fitting for Robbins valve
448005	Washer compression set for metal side
448010	Teflon washer compression set for glass side

Lead Glass Stopcocks

Made in USA

EGL Stopcocks are used by virtually all neon shops in the United States and in many shops overseas.

ITEM NO.	DIAMETER
NSC2	2mm
NSC4	4mm
NSC6	6mm
NSC8	8mm
NSC10	10mm

Grease

ITEM NO. NDCSCG



Bombarders & Chokes



Bombarder Transformers

15 KVA Bombarder Transformers are suitable for use with all applications, and are generally the recommended choice for this reason.

22 KVA models are best suited for large scale, full-time production shops processing 15-25 mm tubing and using primarily 60-120 milliamp electrodes.

The EGL model 4600 variable-controlled choke is a DC reactance device using a dial Variac. When used in conjunction with the EGL milliamp gauge (item no. 733300) the model 4600 will provide precise control of bombarding levels combined with ease of operation and reliability.



BOMBARDER TRANSFORMER SPECIFICATIONS

MODEL	PRIMARY VOLT ¹	PRIMARY NOMINAL AMPS	PRIMARY PEAK AMPS	MINIMUM BREAKER SIZE ²	MINIMUM WIRE SIZE ³	SECONDARY VOLTS NOMINAL/PEAK	AVERAGE NOMINAL MA	PEAK MA	BOMBARDER DUTY CYCLES
15 KVA	240	10-80	100	100A	#2	26KV/24KV	800	1500	100%
22 KVA	240	10-80	100	100A	#2	26KV/24KV	800	1750	100%

1 - 208V services will draw approximately 10% more.

2 - Minimum 100 Amp service recommended.

3 - Minimum size included for wire and breaker suitable for most applications. For heavy, continuous production, use next-size-larger wire and breaker minimums.

CHOKES, BOMBARDERS & VARIACS

MODEL	CHOKE ONLY	BOMBORDER ONLY	VARIAC ONLY	CHOKE COMPLETE Includes Choke & Variac	BOMBARDER COMPLETE Incl. Choke Bombarder & Variac
15 KVA 220V/60Hz	718615	716615	718815	718620	716435
15 KVA 220V/50Hz	718515	716515	718806	718630	718550
22 KVA 220V/60Hz	718622	716622	718815	718660	718445
22 KVA 220V/50Hz*	718522	716522	718806	718525	718500

Bombarder Contactor (2-pole, 90 amp) includes main contactor assembly, metal enclosure and auxiliary contactor

Item No. 718830

Contact Foot Switch (10 amp, 500V), a heavy-duty single-pole, double-throw foot switch with guard. A 14 gauge SJ electrical cord with ground required for installation (not included).

Item No. 718835

Digital Temperature Gauge

Designed for the neon bombarding process, this gauge provides accurate Fahrenheit or Celsius readings in a range of 32°F-650°F (0-325°C) and features a large, clear, 3/4" LCD, enabling the operator to concentrate fully on bombarding of units.

A high quality durable probe made for neon tubing (8-20mm diameter) with a foil thermocouple (replaceable) provides accurate temperature readings.

The unit is housed in a durable plastic case and comes equipped with one nine-volt battery for approximately 180 hours of operation

ITEM NO. 734200



Replacement Thermocouple

ITEM NO. 734210

Milliamp Gauge

The EGL Milliamp Gauge provides a reading of 0-1000 MA (1 AMP), and can be wired in series to indicate the precise power level drawn from the bombarding transformer. The gauge is simple to install and operates with any bombarder.

ITEM NO. 733300



Manifold Systems



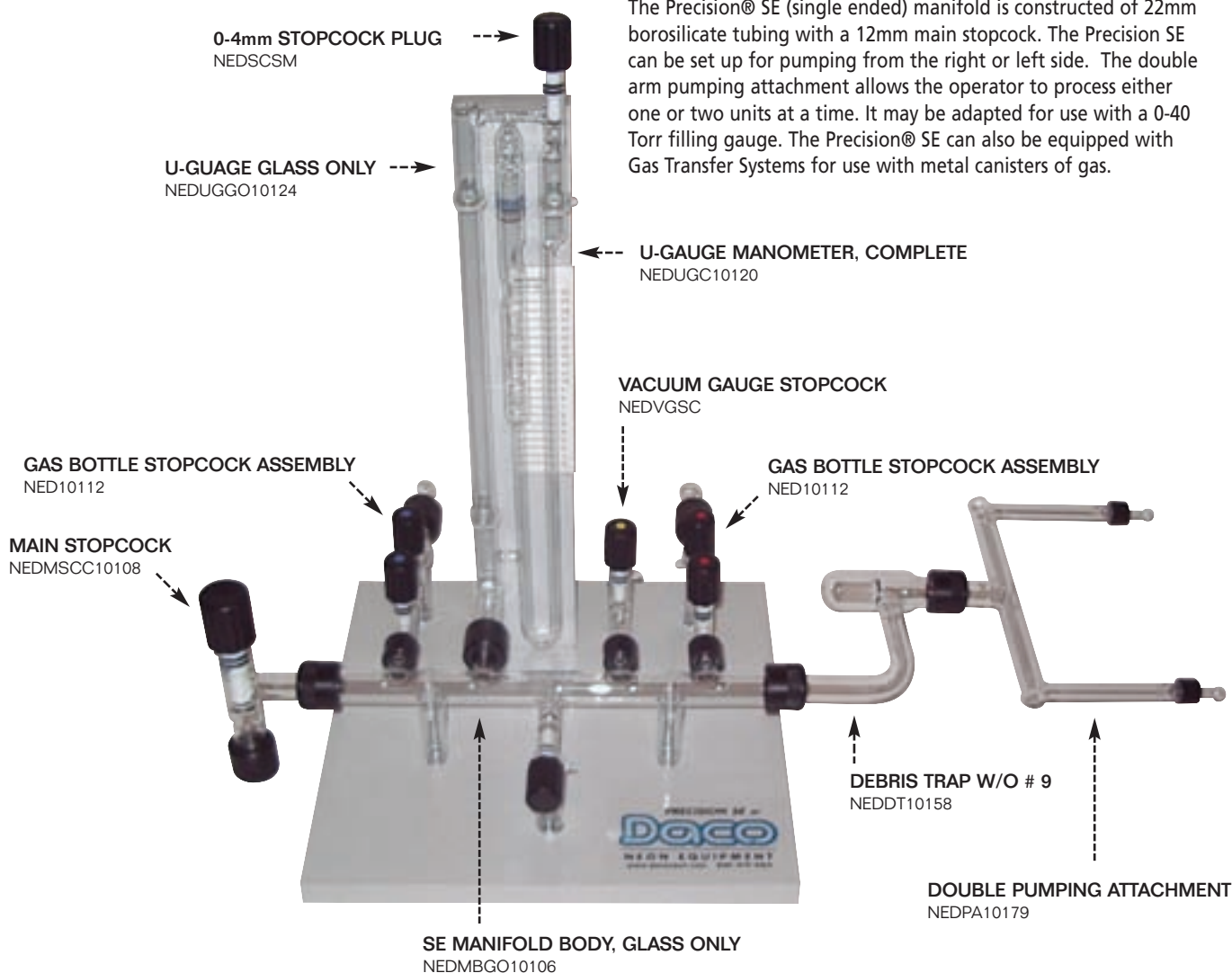
Precision® Manifold Systems by Daco

Precision® Manifold Systems are constructed with heavy wall PYREX® tubing and large bore, grease-free stopcocks. PYREX® offers superior outgassing properties and ease of cleaning compared to other glass and metal manifolds. Modular design provides the flexibility to match the manifold system to your requirements. Suitable for processing neon tubing as well as cold cathode lamps.

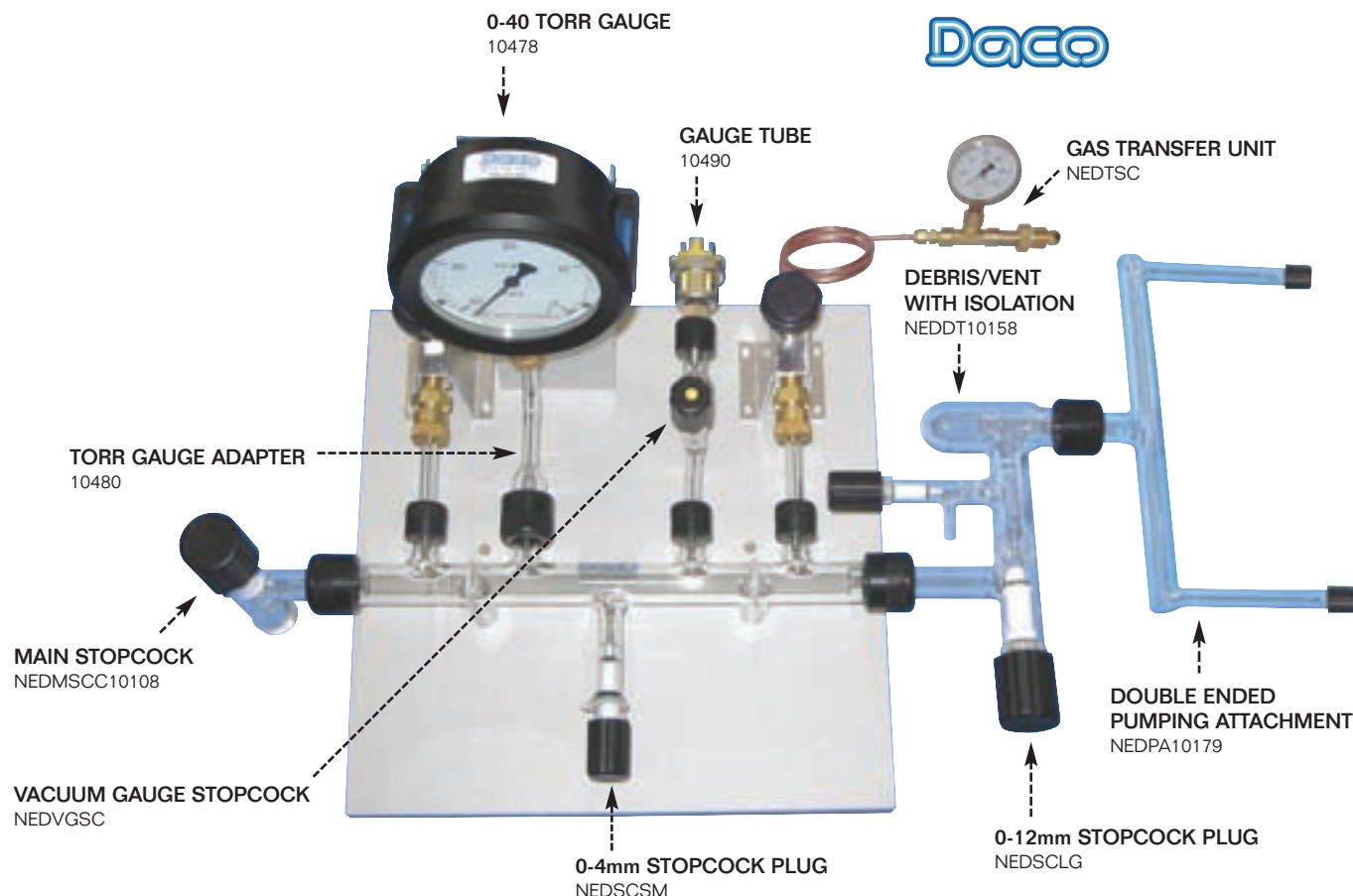
Single ended manifolds allow the operator to process either one or two units at a time. Double ended manifold systems allow the operator to alternate processing two units at a time from one side of the manifold to the other.

Precision® SE

The Precision® SE (single ended) manifold is constructed of 22mm borosilicate tubing with a 12mm main stopcock. The Precision SE can be set up for pumping from the right or left side. The double arm pumping attachment allows the operator to process either one or two units at a time. It may be adapted for use with a 0-40 Torr filling gauge. The Precision® SE can also be equipped with Gas Transfer Systems for use with metal canisters of gas.



ITEM NO.	DESCRIPTION
10100	SE Manifold with U-Gauge Manometer & Gas Bottle Stopcocks
10102	SE Manifold with U-Gauge Manometer without Gas Bottle Stopcocks
10101	SE Manifold with 0-40 Torr Gauge & Gas Bottle Stopcocks
10103	SE Manifold with 0-40 Torr Gauge without Gas Bottle Stopcocks



Standard Options Available:

Debris Trap for SE & DE Manifolds

ITEM NO.	DESCRIPTION
10150	Prevents large particles from entering the manifold
10152	For Precision II manifold
10154	Debris Trap with 9mm connector includes port for a third gas bottle or transfer system
10156	For Precision II manifold
10158	Debris Trap with Isolation/Vent Valve isolates the pumping attachment and unit being processed from the manifold. Allows the operator to alternate processing from one side to the other.
10160	For Precision II manifold
10162	Debris Trap with Isolation/Vent Valve and port for a third gas
10164	For Precision II manifold

Pumping Attachment for SE & DE Manifolds

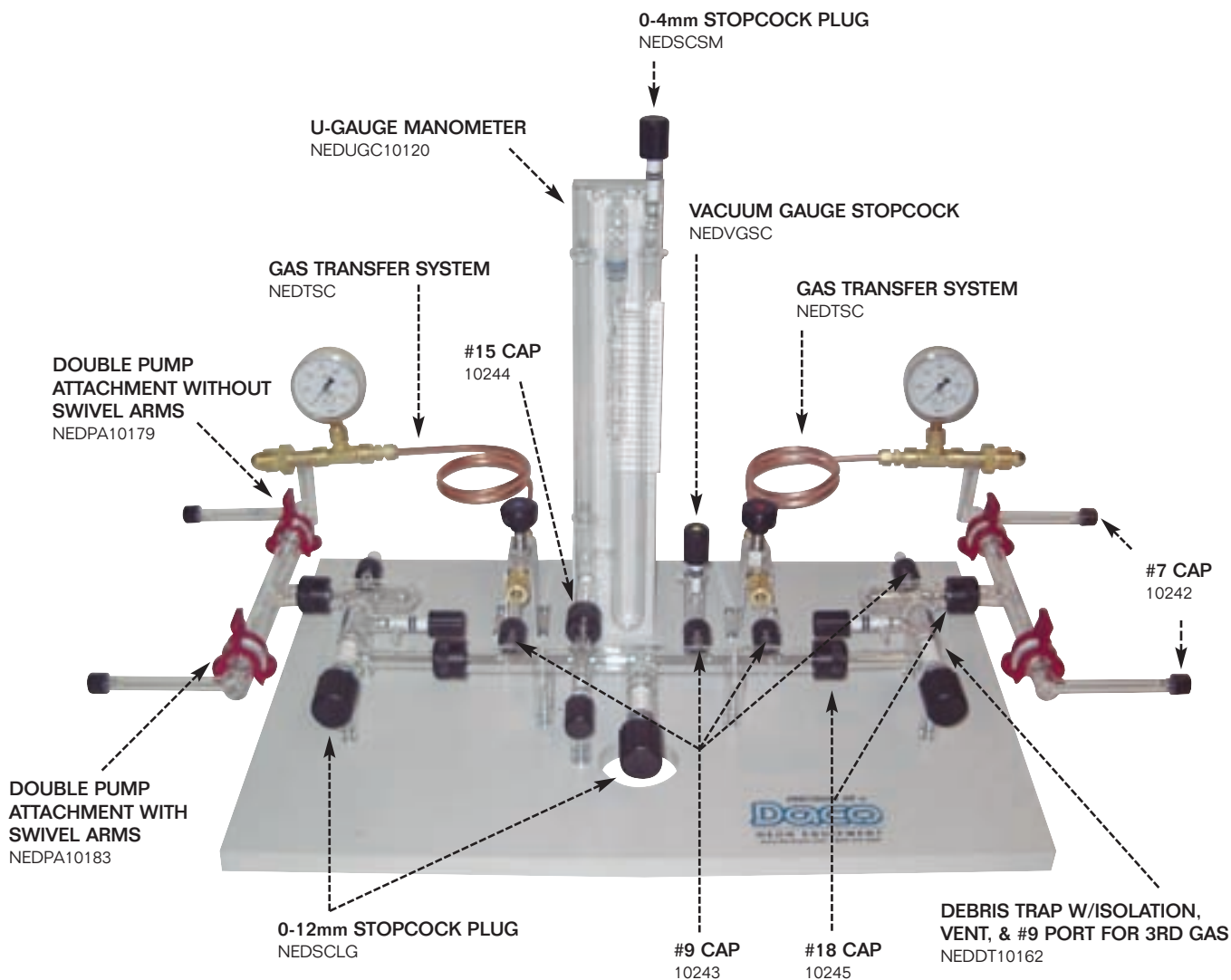
Uses 7mm connector to allow attachment of 5 or 6mm tubulation to the manifold without welding or rubber hoses. Swivel arm moves up and down which makes the alignment with the tubulation easier and faster

ITEM NO.	DESCRIPTION
10166	Single ended with fixed arm
10168	For Precision II manifold
10170	Single ended with swivel arm
10179	Double ended with fixed arms
10181	For Precision II manifold
10183	Double ended with swivel arms
10185	For Precision II manifold
10216	Double ended with fixed arm w/Roughing Pump Stopcock
10215	For Precision II manifold
10217	Double ended with swivel arm w/Roughing Pump Stopcock

Precision® DE

The Precision® DE (double ended) is constructed of 22mm tubing with a 12mm main stopcock. The DE is pictured with gas transfers, but can also be set up with gas flasks. The main stopcock is positioned in the middle of the manifold. The Precision® DE Manifold allows the operator to increase production by alternating from one side to the other.

DACO

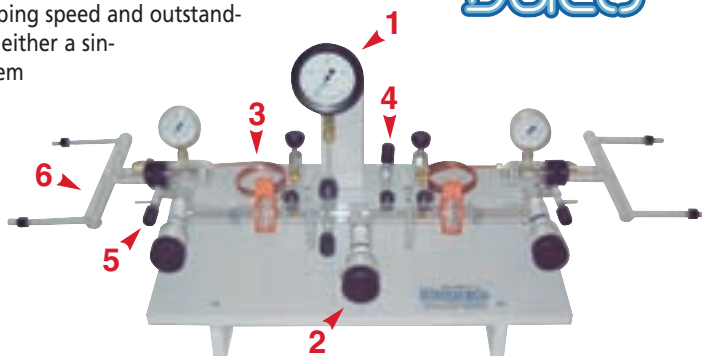


ITEM NO.	DESCRIPTION
10126	DE Manifold with U-Gauge Manometer & Gas Bottle Stopcocks
10128	DE Manifold with U-Gauge Manometer without Gas Bottle Stopcocks
10127	DE Manifold with 0-40 Torr Gauge & Gas Bottle Stopcocks
10129	DE Manifold with 0-40 Torr Gauge without Gas Bottle Stopcocks

Precision® II High Flow

The Precision® II High Flow Manifold is constructed of 28mm borosilicate tubing with a 20mm main stopcock. This high volume manifold provides extremely fast pumping speed and outstanding ultimate vacuum capability. The Precision II can be utilized as either a single sided or as a double sided system. With the double sided system the operator increases productivity by alternating two units at a time from one side of the manifold to the other. The Precision II manifold can be outfitted with a U-Gauge Manometer or 0-40 Torr Gauge and/or for use with metal canisters or gas flasks.

DACO



1. 0-40 Torr Capsule Fill Gauge*
2. Plug Main Stopcock (Included With Manifold)
3. Gas Transfer System
4. Vacuum Gauge Stopcock
5. Isolation Debris/Vent Trap
6. Double Ended Pumping Attachment with Fixed Arms

*U-Gauge Manometer also available

ITEM NO.	DESCRIPTION
10134	Manifold with U-Gauge Manometer & Gas Bottle Stopcocks
10136	Manifold with U-Gauge Manometer without Gas Bottle Stopcocks
10135	Manifold with 0-40 Torr Gauge & Gas Bottle Stopcocks
10137	Manifold with 0-40 Torr Gauge without Gas Bottle Stopcocks

Gas Transfer System

Meters the gas from metal canisters. Can be used with any Precision Manifold or adapted to other manifolds.

ITEM NO. NEDTSC



U-Gauge Manometer, Complete

Includes Glass, Stopcock, Mounting Board & Brackets. The most accurate method for measuring fill pressure.

ITEM NO. NEDUGC10120



0-40 Torr Capsule Fill Gauge

Easy-to-read analog gauge. Provides the operator continuous pressure readings during bombarding and for gas filling. Can be retrofitted to any Precision Manifold or to other manifolds.

ITEM NO. 10478



Gas Bottle Breaker Bars

Used for breaking the seal on glass flasks. Glass enclosed breaker bars eliminate the metal outgassing and contaminating the rare gas bottle.

ITEM NO. 10188

Vacuum Gauge Stopcock

Isolates the vacuum gauge while bombarding. Also protects the gauge tube from influx of contaminants. Accepts standard 1/8 NPT gauge tubes.

ITEM NO. 10116



Gas Bottle Stopcock Assembly, Complete

Meters the gas from glass flasks.

ITEM NO. 10112



Accessories & Replacement Glass for Manifolds:

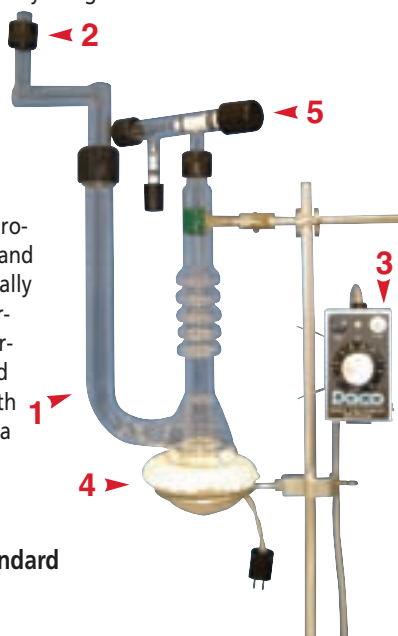
ITEM NO.	DESCRIPTION
10106	SE Manifold Glass Body only
10108	Main Stopcock Complete, Glass, Stopcock Plug, Cap & O'ring
10110	Main Stopcock SE Glass only
10132	DE Manifold Glass Body only Plug for DE Main Stop Cock
10124	U-Guage Glass only
10117	0-4mm Stopcock Plug, complete
10109	0-12mm Stopcock Plug, complete
10141	0-20mm Stopcock Plug, complete
10189	U-Guage Fluid, 15cc
10190	U-Guage Fluid, 30cc
10191	O-Ring Lubricant, 5ml
10257	O'ring Kit, for Manifold w/U-Gauge, Gas Bottle Stopcock
10258	O'ring Kit, for Manifold w/U-Gauge, without Gas Bottle Stopcock



Precision®

Diffusion Pump Systems

The Precision® Diffusion Pump is a high performance, high vacuum secondary pump specifically designed and manufactured for neon and cold cathode production. The Diffusion Pump can be easily adapted to fit any pumping system and will improve the performance of virtually every vacuum pump. It works in unison with the mechanical vacuum pump producing higher pumping speeds and better ultimate vacuums, especially at low pressures when more performance is needed. Most importantly, the faster pumping speed and better vacuum achieved with a Diffusion Pump help produce a cleaner, longer lasting tube.



1. Diffusion Pump Body, Standard
2. Adapter to Manifold
(sold separately)
3. Heater Control
4. Heater
5. Isolation/Vent Valve
(sold separately)

Replacement Glass:

Diffusion Pump Glass Only

Options Available:

Diffusion Pump Standard

has an 18mm port to the vacuum pump and 25mm port to the manifold. Designed for use with the Precision® SE and Precision® DE Manifolds. May be adapted to any other manifold.

Diffusion Pump High Flow

has a 25mm port to the vacuum pump and manifold. Designed for use with the Precision II High Flow Manifold. May be adapted to any other manifold.

Diffusion Pump Isolation/Vent Valve

allows the system to remain under vacuum when not in use while venting the vacuum pump.

Diffusion Pump to Manifold Adapter

allows connection between the diffusion pump and manifold.

ITEM NO.	DESCRIPTION
10453	Diffusion Pump, Standard
10456	Diffusion Pump Isolation/Vent Valve, Standard
10458	Diffusion Pump to Manifold Adapter, Standard
10459	Diffusion Pump to Manifold Adapter w/18mm Connector for other Manifolds
10470	Diffusion Pump, High Flow
10456	Diffusion Pump Isolation/Vent Valve, High Flow
10458	Diffusion Pump to Manifold Adapter, High Flow
10468	Fluid Diffusion Pump #704-50cc
10469	Fluid Diffusion Pump #704-100cc

Precision® Vacuum Gauges

Allows the operator to precisely monitor vacuum levels after bombarding. These gauges include rugged but sensitive gauge tubes for excellent stability, accuracy, and reliability. Good to determine ultimate vacuum, slight leaks, outgassing, and integrity of the system.



ITEM NO.	MODEL	DESCRIPTION
10486	Vacuum Gauge II	RANGE: 0 - 100 Microns Good for cold cathode and all neon applications. Accuracy rating is $\pm 1\%$ AMD (@ 1 is $\pm .2$).
NEDPVG10489	Vacuum Gauge III	RANGE: 0 - 1,000 Microns Good for all neon applications to determine if manifold consistently pulls below 5 microns. Accuracy rating is $\pm 2\%$ AMD (@ 5 is ± 1.5).

Digital Vacuum Gauge

Compact battery powered unit with fast, accurate, and easy-to-read digital display. Includes battery and is mounted in a rugged freestanding case. Good for all neon applications.



RANGE: 0 - 200 Microns

ITEM NO. NEDDVG10497

Caution:

With all vacuum gauges, a stopcock should be installed between the manifold and vacuum gauge tube in order to isolate the vacuum gauge from the manifold during bombarding. This stopcock also protects the gauge tube from any influx of contaminants when venting the manifold to atmosphere.

Vacuum Pumps

All EGL vacuum pumps are 2-stage rotary vane direct-drive pumps which reach an ultimate vacuum of 1×10^{-4} mbar and have ISO-KF-25 flanges on inlets and outlets. All have anti-suckback valves and are equipped with Pneurop flanges, hose nipple, centering ring, O-ring, and clamp.



VACUUM PUMP SPECIFICATIONS			
	SERIES A32	SERIES A70	SERIES A107
ITEM NO.	721300	721400	721200
Free Air Displacement CFM(L/min) 3.2 (90)	3.2 (90)	7.0 (195)	10.7 (305)
Oil Capacity Quarts	0.825	1.0	1.0
Motor Rating (hp/rpm)	1/3-1800	1/2-1800	3/4-1800
Weight (Approx.) lbs(kg)	48 (22)	55 (24.5)	63 (28.6)
Voltage/cycles	110V/50/60Hz and 220V/50/60Hz	110V/50/60Hz and 220V/50/60Hz	110V/50/60Hz and 220V/50/60Hz
Mist Eliminator (optional)	720915	720915	720915



High vacuum pumps designed for many years of dependable, highly effective service. Ideal for neon processing, these two-stage rotary vane pumps provide stable pumping efficiency even in the low micron range. Available in both belt drive and direct drive in 115 or 230 volt models, they are built for long life and ease of maintenance.

ITEM NO.	DESCRIPTION	
VP95	5.6CFM (160L/min)	Welch 1402 Belt Drive with Air Breather
VP96	10.6CFM (300L/min)	Welch 1376 Belt Drive with Air Breather
VP97	17.7CFM (500L/min)	Welch 1397 Belt Drive with Standard Filter
VP99	3.8CFM (108L/min)	Welch 8912 Direct Drive without Filter
VP100	6.1CFM (173L/min)	Welch 8917 Direct Drive without Filter
VP101	7.7CFM (218L/min)	Welch 8920 Direct Drive without Filter
VP103	11.3CFM (320L/min)	Welch 8925 Direct Drive without Filter



Flushing Oil

Swift, safe removal of harmful sediment and contamination from high vacuum pumps is accomplished by using this specially developed oil. One or two flushings clean accumulated residues and protect the pump. Its use considerably improves high vacuum production. The pump can be refilled with operating oil immediately after flushing. This oil is for flushing only, and should not be used for high vacuum operation. 1 Gallon

ITEM NO. NFOG

Metra 19 Vacuum Pump Oil

A distilled hydrocarbon oil with good ultimate vacuum and low back streaming. It is an ideal oil for most direct-drive rotary vane vacuum pumps.

1 Gallon

ITEM NO. NVPOG



Metra 1 Vacuum Pump Oil

A highly refined general purpose hydrocarbon mineral oil recommended for most belt-drive rotary vane vacuum pumps.

1 Gallon

ITEM NO. NVPO1G



High Vacuum Hose for Vacuum Pumping Systems

5/8" ID x 1/2" Wall, latex
ITEM NO. 723000

1/2" ID x 1/2" Wall, latex
ITEM NO. 723500

3/4" ID x 1/2" Wall, pure gum
ITEM NO. NEPG34X12

3/8" ID x 3/8" Wall, pure gum
ITEM NO. 724500

1/2" ID x 3/8" Wall, pure gum
ITEM NO. 725500

Bombarders & Chokes

Bombarders, Chokes & Prewire Units

Daco Bombarders and Chokes are suitable for all applications in a full range of sizes from 5KVA to 15KVA. All bombarders require 208-240 line voltage. Sliding Core Chokes are available to match each size bombarder or the Chokemaster Variac Choke controls all bombarders up through 15KVA. The Prewire Unit (safety switch) prevents accidental activation of the bombarder. The Prewire is ready for easy installation and includes a magnetic contactor with a choice of either thumb switch or foot switch.

Bombarders

ITEM NO.	SIZE	SECONDARY VOLTAGE	LINE LOAD AMPS
NEDB5K15V	5 KVA	15000	20.8
NEDB7.5K15V	7.5 KVA	15000	31.2
NEDB10K15V	10 KVA	15000	41.6
NEDB12.5K15V	12.5 KVA	15000	52.0
NEDB12.5K23.5V	12.5 KVA	23500	52.0
NEDB15K15V	15 KVA	15000	62.5
NEDB15K20V	15 KVA	20000	62.5

Chokes

ITEM NO.	SIZE	SECONDARY VOLTAGE	LINE LOAD AMPS
NEDC5K15V	5 KVA	15000	
NEDC7.5K15V	7.5 KVA	15000	
NEDC10K15V	10 KVA	15000	41.6
NEDC12.5K15V	12.5 KVA	15000	52.0
NEDC15K15V	15 KVA	15000	62.5
NEDC10K20V	10 KVA	20000	41.6
NEDC12.5K20V	12.5 KVA	20000	
NEDC12.5K23.5V	12.5 KVA	23500	52.0
NEDC15K20V	15 KVA	20000	62.5

Prewire Units

ITEM NO.	DESCRIPTION
NEDPWWWS	Prewire unit with Magnetic Contactor & Thumb Switch
NEDPWWFS	Prewire unit with Magnetic Contactor & Foot Switch

Chokemaster Variac Choke

The Chokemaster Variac Choke is a DC reactance choke controlled by a 10 amp variac. It provides precise control of the bombarding current by simply turning the dial on the variac to the desired level. The Chokemaster controls any bombarder up to 15KVA over a continuous range from 20% to 100% of output.

ITEM NO. 10616

10 Amp Dial Control Variac

ITEM NO. 10640

DACO



Bombarding Temperature Gauge

Monitors the glass temperature of the tube during the bombarding cycle to:

- ensure that glass temperature is high enough for sufficient degassing;
- prevent the tubing from being overheated, which may damage the phosphor powders and cause deformation of the glass; and
- monitor glass cool down temperatures in correlation with vacuum levels obtained during pump down.



Shows either Centigrade or Fahrenheit on easy-to-read digital display.

ITEM NO. NEDTG

Bombarding Milliamp Meter

Precisely monitors bombarding current levels from 0 - 1,000 MA. Allows processing exactly to the electrode manufacturer's specifications for best possible results when used with the Bombarding Temperature Gauge.

ITEM NO. NEDBMM



Gasses



All EGL gases are of the highest quality: 99.999% pure

EGL standard and blended gas mixtures are shipped in hard or soft glass flasks in Jumbo (2.65 liter) and Regular (1.25 liter) sizes as shown below. All gases are bottled in a completely new rare gas plant, using state-of-the-art apparatus and techniques.

Also available is a complete gas transfer system for use with 25, 50, or 100 liter EGL disposable gas tanks.

**EGL Neon (Red)**

Excellent for clear red units, or for coated tubing

ITEM NO.	EGL PART NO.	DESCRIPTION	VOLUME (LITERS)
NGR	412000	Soft Glass (lead)	.90
NGRHG1	416000	Hard Glass (Pyrex®)	1
NGRSG	420000	Soft Glass (lead)	2.65
NGRHG2	424000	Hard Glass (Pyrex®)	2
NGR25	436000	Tank	25
NGR50	440000	Tank	50
NGR100	444000	Tank	100

EGL Argon (Blue)

For low-voltage fluorescent tubes and fluorescent lamps. Mercury required. Not recommended for outdoor use.

ITEM NO.	EGL PART NO.	DESCRIPTION	VOLUME (LITERS)
NGA	413000	Soft Glass (lead)	.90
NGAHG1	417000	Hard Glass (Pyrex®)	1
NGASG	421000	Soft Glass (lead)	2.65
NGAHG2	425000	Hard Glass (Pyrex®)	2
NGA25	437000	Tank	25
NGA50	441000	Tank	50
NGA100	445000	Tank	100

EGL Blue (Replaces #1050)

EGL's standard mixture for warmer climates - used in clear or fluorescent-coated tubing with added mercury.

ITEM NO.	EGL PART NO.	DESCRIPTION	VOLUME (LITERS)
NGB	411001	Soft Glass (lead)	.90
NGBHG1	415000	Hard Glass (Pyrex®)	1
NGBSG	419000	Soft Glass (lead)	2.65
NGBHG2	423000	Hard Glass (Pyrex®)	2
NGB25	435000	Tank	25
NGB50	439000	Tank	50
NGB100	443000	Tank	100

EGL K4 Cold Weather Gas (Blue)

The best for all-weather applications, from below-zero regions to the tropics. The high percentage of Ne in K4 provides the heat necessary to completely vaporize mercury under cold weather conditions. Mercury required. Proven 14 to 49% brighter than competitive cold weather gases by independent laboratory.

ITEM NO.	EGL PART NO.	DESCRIPTION	VOLUME (LITERS)
NGK4	414000	Soft Glass (lead)	.90
NGK4HG1	418000	Hard Glass (Pyrex®)	1
NGK4SG	422000	Soft Glass (lead)	2.65
NGK4HG2	426000	Hard Glass (Pyrex®)	2
NGK425	438000	Tank	25
NGK450	442000	Tank	50
NGK4100	446000	Tank	100

EGL Flushing Helium

The finest and safest gas for preliminary bombarding, or for flushing-out repair units.

ITEM NO.	DESCRIPTION	VOLUME (LITERS)
NGFH	429000	Soft Glass (lead) .90
NGFHHG1	430000	Hard Glass (Pyrex®) 1
NGFHSG	426175	Soft Glass (lead) 2.65
NGFH25	438800	Tank 25
NGFH50	442200	Tank 50
NGFH100	445600	Tank 100

**Spectra Gas Neon (Red)**

ITEM NO.	DESCRIPTION	VOLUME (LITERS)
NDGN12	Spectra Gas Neon	12
NDGN20	Spectra Gas Neon	20
NDGN50	Spectra Gas Neon	50
NDGN100	Spectra Gas Neon	100

Spectra Gas Mixed (Blue)

Argon 45%, Balance Neon

ITEM NO.	DESCRIPTION	VOLUME (LITERS)
NDGM20	Spectra Gas Mixed	20
NDGM50	Spectra Gas Mixed	50

Spectra Gas K-4 (Blue)

Argon 25%, Balance Neon

ITEM NO.	DESCRIPTION	VOLUME (LITERS)
NDGK412	Spectra Gas K-4	12
NDGK420	Spectra Gas K-4	20
NDGK450	Spectra Gas K-4	50
NDGK4100	Spectra Gas K-4	100

Gas (BTU) Ratings / Air (CFH) Ratings

Mixer sized refer to the orifice in the Venturi mixers. Mixers are sized to each fire

5 Point Crossfire Natural and Artificial

#3141 Mixer

BMT 7 Crossfire Natural and Artificial

#2230 Mixer

S-21-N Crossfire Natural and Artificial

#1929 Mixer

BTU RATINGS	GAS BTU	CFH GAS (CUBIC FT/HR)	CFH AIR (CUBIC FT/HR)	CFM AIR (CUBIC FT/MIN)
790 JCN 5 point	20,000	19.25	150	2.5
BMT 7	25,000	24	200	3.33
S-21-N	50,000	48	400	6.66
16" RB	116,000	111	1115	18.58
24" RB	178,000	170	1200	20
#1 Torch	6,000	6	50	.83
#2 Torch	4,000	4	50	.83
#3 Torch	4,000	4	50	.83

Note: The above consumption chart is for natural gas.

Artificial (Manufactured) Gas (Propane)

1. The air pressure and volume is the same specification as per the chart above.
2. The CFH (cubic feet per hour) for artificial gas is double that in the chart above.
Example: 1-16" Ribbon Burner = 111 CFH Natural Gas. Artificial Gas is 222 CFH.

CAUTION: All gas supplies and systems should be installed and checked by a licensed gas fitter for safety purposes.

- Natural Gas has 1000 BTU per cubic foot
- BTU stands for British Thermal Unit.
- One BTU is equivalent to the heat required to raise the temperature of 1 pound of water from 59 degrees to 60 degrees Fahrenheit.

Ribbon Burners

Ribbon burners are utilized for creating sweeping curve effects and script-type lettering for neon signs. EGL Ribbon Burners feature a brass burner bar to eliminate warping and side ignition, and an improved economizer valve with O-ring seals to eliminate leakage.

All models are equipped with a control slide to adjust flame length. The cast aluminum body rotates 360° on a collar flange which can be bolted on a workbench, or threaded onto an available pipe stand with 17-pound weighted base plate.



16" Ribbon Burner



24" Ribbon Burner w/Stand

Complete System includes economizer and bench flange

ITEM NO.	DESCRIPTION	BURNER TIP
NERB16NC	16" Ribbon Burner, complete with Stand	Natural Gas
664103	16" Ribbon Burner, complete with Stand	Artificial Gas
NERB16NNS	16" Ribbon Burner, complete without Stand	Natural Gas
NERB16ANS	16" Ribbon Burner, complete without Stand	Artificial Gas
658001	24" Ribbon Burner, complete with Stand	Natural Gas
658501	24" Ribbon Burner, complete with Stand	Artificial Gas
NERB24NC	24" Ribbon Burner, complete without Stand	Natural Gas
NERB24AC	24" Ribbon Burner, complete without Stand	Artificial Gas

ITEM NO.	DESCRIPTION	BURNER TIP
NERB16NH	16" Ribbon Burner Head	Natural Gas
NERB16AH	16" Ribbon Burner Head	Artificial Gas
659000	24" Ribbon Burner Head	Natural Gas
659500	24" Ribbon Burner Head	Artificial Gas
664325	16" Screens	Natural Gas
664320	16" Screens	Artificial Gas
663100	24" Screens	Natural Gas
663000	24" Screens	Artificial Gas

ITEM NO.	DESCRIPTION
NERB16SLIDE	16" Slide
NERB12SLIDES	12" Slides (2)
664300	Bench/Stand Flange
NERBST	Floor Stand
NERBEC	Economizer

Automatic Ribbon Fire

The AUTOMATIC RIBBON FIRE is a stand-alone unit which has its own air supply. Simply connect the gas and plug in to 115 volt circuit. Automatically ignites when the foot switch is depressed, then shuts down when the switch is depressed a second time. Minimizes gas consumption and reduces heat buildup in your shop.

ITEM NO. NEDARB10726



Cannon-Fire Crossfires



Cannon-fire Crossfire shown
with optional Swing-Out Burner

BMT-7 Series

Provides a knife-shape flame, ideal for splicing and sufficient heat for bending glass 15mm or less

Complete System includes burners, side pipes, sliding base, T-splitter, and 1/4" Venturi mixer



Burner Tip BMT-7

ITEM NO.	DESCRIPTION
NCFBMT7CS	Complete System with Stand
NCFBMT7CNS	Complete System without Stand
NCFSOBC	Complete System with Swing-Out Burner
NCFTBMT7	Burner Tip
NCFSPBMT7	Side Pipe
NCFRBMT7	Reducer
NCFTS	T-Splitter
	Stand

S21 Series

Provides a broad, high-heat flame hotter than 5-point crossfires but more diffused, hence better for bending than splicing.

Complete System includes burners, side pipes, sliding base, T-splitter, and 1/4" Venturi mixer



Burner Tip S21

ITEM NO.	DESCRIPTION
653051 S21N	Complete System with Stand
653000 S21N	Complete System without Stand
653551 S21A	Complete System with Stand
653500 S21A	Complete System without Stand
NCCTS21N	Burner Tip Natural Gas
NCCTS21A	Burner Tip Artificial Gas
NCFSPBMT7	Side Pipe
NCFTS	T-Splitter
	Stand

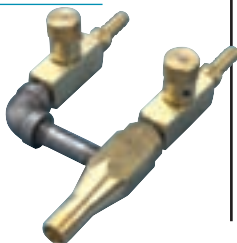
Mixers

Series BMT-7 (#676300) complete

ITEM NO. NCFMBMT7

SERIES S21 (#677000) complete

ITEM NO. NCFMS21



5-Point Crossfires



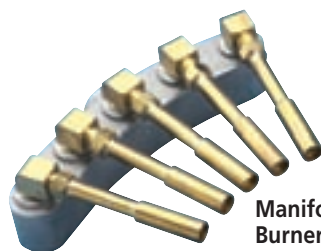
5-Point Crossfire shown
with optional Swing-Out Burner

790 JC Series

Provides an even heat output system to bend or splice all diameters, from 8mm to 35mm.

Complete System includes burners, side pipes, sliding base, T-splitter, and 1/4" Venturi mixer

ITEM NO.	DESCRIPTION
NCFNCWS	Complete System with Stand, Natural Gas Tip
NCF790JCNS	Complete System without Stand, Natural Gas Tip
651551 790 JC A	Complete System with Stand, Artificial Gas Tip
651500 790 JC A	Complete System without Stand, Artificial Gas Tip
NCFT790JCN	Burner Tip, Natural Gas
NCFT790JCA	Burner Tip, Artificial Gas
NCFSP790JC	Side Pipe for 790 JC
NCFTS	T-Splitter
	Stand



Manifold with
Burner Tips



T-Splitter

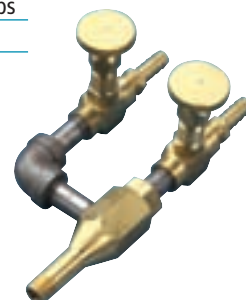
5-Point Crossfire Manifolds

ITEM NO.	DESCRIPTION
674200 N	Manifold with Burner Tips
674100 A	Manifold with Burner Tips
674000	Manifold Casting Only
655530	Brass Elbow

Mixer

Series 790-JC/BMT-71/4 (#675000)

ITEM NO. NCFM790JC



Hand Torches

Torch No. 1

Splicing torch with #81 oblong "fishtail" burners for splicing 10-25 mm glass.

ITEM NO.	SPACE BET. BURNERS	BURNER TIP
NHT1	2"	Natural or Artificial Gas

Brass Fishtail Burner Tips
for Torch No. 1 (1/4" MPT)

ITEM NO.	BURNER TIP
	Natural or Artificial Gas

Torch No. 2

Combination Splicing/Tipping torch with #228 oblong "fishtail" burners for splicing smaller diameter glass (up to 13mm), and for tipping off with reduced flame.

ITEM NO.	SPACE BET. BURNERS	BURNER TIP
NHT2N	1 1/8"	228-Natural Gas
NHT2A	1 1/8"	228-Artificial Gas

Brass Fishtail Burner Tips
for Torch No. 2

ITEM NO.	BURNER TIP
NHTT228N	228-Natural Gas
NHTT228A	228-Artificial Gas

Torch No. 3

Tipping torch with #228 oblong "fishtail" brass burners for tipping off tubes up 6mm diameter. May also be used for splicing tubes up to 10mm.

ITEM NO.	SPACE BET. BURNERS	BURNER TIP
NHT3N	1 1/4"	Natural Gas
NHT3A	1 1/4"	Artificial Gas

Brass Fishtail Burner Tips
for Torch No. 3 (1/4"-27 Thread)

ITEM NO.	BURNER TIP
NHTT228N	228-Natural Gas
NHTT228A	228-Artificial Gas

Brass Round Burner Tips
for Torch No. 3 (1/4"-27 Thread)

ITEM NO.	BURNER TIP
667540	100ST-Natural or Gas

Needle Valve, 1/8"

ITEM NO. 682000

Mixer 44-50 1/8"

ITEM NO. NEVMC

Torch No. 500

Tipping torch with round burners for tipping off tubes up to 6mm diameter. May also be used for splicing tubes up to 10mm. Replaceable stainless steel tips enable the torch body to be reused indefinitely.

ITEM NO.	SPACE BET. BURNERS	BURNER TIP
650970	1 5/8"	100-Natural Gas
	1 5/8"	100-Artificial Gas

Stainless Steel Round Burner Tips
for Torch No. 500 (1/4" MPT)

ITEM NO.	BURNER TIP
667545	100ST-Natural or Gas

Swivels

3/16" Swivels are most commonly used for neon tubing; 1/4" are best suited for cold cathode work (18 mm and larger).

ITEM NO.	ANGLE	SWIVEL
671500	1/4" RAE	One-sided
672000	3/16" RAE	Double
672100	3/16" RAE	One-sided
672500	1/4" x 1 1/2"	Straight
673000	1/4" x 3"	Straight

Natural Latex Tubing for Gas and Air Supply Lines

Hand Torch Hose

1/4" ID x 3/32" Wall
ITEM NO. NELT14332

Crossfire Hose

3/8" ID x 3/32" Wall
ITEM NO. NELT38332
1/2" ID x 3/32" Wall
ITEM NO. NELT12332

Ribbon Burner Hose

1/2" ID x 3/32" Wall
ITEM NO. NELT12332
5/8" ID x 1/8" Wall
ITEM NO. NELT5818

Blow Hose

1/8" ID x 1/16" Wall
ITEM NO. NELT18116
3/16" ID x 1/16" Wall
ITEM NO. NELT316116
3/16" ID x 1/32" Wall
ITEM NO. NELT316132

Blow Hose Adapter Kit

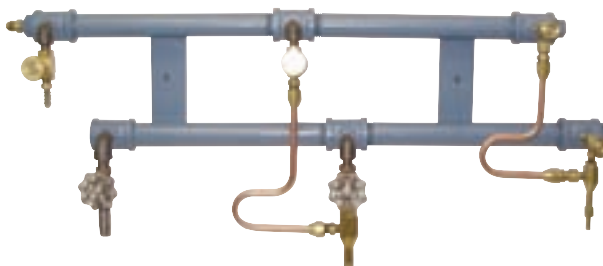
ITEM NO. NEDBHK

Air/Gas Manifold

A completely assembled unit providing air and gas to the ribbon fire, cross fire, and hand torch. Consists of air and gas valves for the ribbon fire, venturi mixers for the cross fire and hand torch, all plumbing, and brackets for wall or bench mount. Use with either natural gas or propane. May be adapted to accept more than three fires.

ITEM NO. 10755

Venturi mixers and valves may be purchased separately.



Regenerative Blowers

- Rugged construction, low maintenance
- Oilless operation
- UL and CSA approved TEFC motors with permanently sealed ball bearings
- Automatic restart thermal protection on single phase motors
- Aluminum blower housing, impeller and cover
- Can be operated with no air flow through unit
- Can be mounted in any plane
- Inlet and outlet have internal muffling



GAST

Blowers

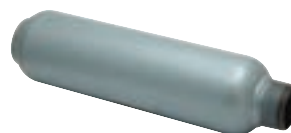
ITEM NO.	MODEL	MAX. PRESSURE	MAX. VACUUM	MAX. AIR FLOW
NAB2103	R2103	39" H ₂ O (60 Hz), 30" H ₂ O (50 Hz)	35" H ₂ O (60 Hz), 25" H ₂ O (50 Hz)	42 CFM (60 Hz), 33 CFM (50 Hz)
NAB3105-1	R3105-1	43" H ₂ O (60 Hz), 31" H ₂ O (50 Hz)	40" H ₂ O (60 Hz), 28" H ₂ O (50 Hz)	53 CFM (60 Hz), 44 CFM (50 Hz)
NAB4110-2	R4110-2	52" H ₂ O (60 Hz), 38" H ₂ O (50 Hz)	48" H ₂ O (60 Hz), 35" H ₂ O (50 Hz)	92 CFM (60 Hz), 75 CFM (50 Hz)
NAB5125-2	R5125-2	65" H ₂ O (60 Hz), 50" H ₂ O (50 Hz)	60" H ₂ O (60 Hz), 47" H ₂ O (50 Hz)	160 CFM (60 Hz), 133 CFM (50 Hz)

Filters



ITEM NO.	DESCRIPTION
NABAJ126B	For Blower #R2103
NABAJ126C	For Blower #R3105-1
NABAJ126D	For Blower #R4110-2
NABAJ151D	For Blower #R4 & R5

Mufflers



ITEM NO.	DESCRIPTION
NABAJ121B	For Blower #R2103
NABAJ121C	For Blower #R3105-1
NABAJ121D	For Blower #R4 & R5

Spark Coil

110 or 230 Volt high-frequency generator used for detecting leaks in a pumping system. BD 10A is a standard product for lab use and is available with an on/off switch. Also available is BD 20A for more specialized uses, with its finer probe tip.



ITEM NO.	DESCRIPTION	VOLTS
NTCBD10		120V
NTCBD10S	with on/off switch	120V
NTCBDRT	Replacement Tip	

Portable Slimline Tube Tester w/Case

Battery powered high frequency generator for testing pumped neon tubes and fluorescent lamps, operates on 4 AA batteries. Tube being tested will illuminate in a pulsating manner if "good". Includes leather case. 6-7/8" long x 1-1/2" wide x 3/4" deep

ITEM NO. NTT



Rechargeable Tube Tester

Allows safe and easy testing of neon tubes and fluorescent lamps. The telescoping antenna allows easy access, even in hard-to-reach installations. Simply depress the On/Off switch and then touch the antenna to the unit. Ni-Cad battery and 115/230 volt recharging adapter included. Carry it with you on every service call.

ITEM NO. NTTR

Replacement Antenna

ITEM NO. NTTRA



UltraViolet Color Checker

A compact, lightweight 4 watt UV lamp for checking the color of phosphor coated tubing, the EGL color checker is housed in a high quality, impact-resistant ABS plastic case that resists fading, peeling and cracking from exposure to heat or chemicals.

6-1/2" long x 1-1/4" wide x 1-3/4" height, Weighs 8 oz., and uses 4 AA 1.5 volt batteries (not included)

ITEM NO. NCOT



Color Checker

Used to determine the color of the open tubing. Operates with batteries. The handle opens to provide a stand with a 360° rotation of the light source.

ITEM NO. NEDCOT11459



Load Milliamp Meter

Allows the factory and the installation personnel to determine the proper secondary voltage transformer required for each application. Great for field testing transformer loads on service calls. Includes a handy and durable carrying case.

ITEM NO. NEDLMM



Digital Map Measure

Used for measuring required lengths of glass tubing by following the exact contours of a to-scale working drawing of the intended design; also helps determine the strength of the voltage transformer to be used.

Scale Master Classic 6020

With 72 built-in scales

ITEM NO. NTM6020

Scale Master II 6130

With 91 built-in scales

ITEM NO. NTM6130



Electrode Holder

keeps fingers cool while splicing.

ITEM NO. NEH



Brass Electrode Holder



ITEM NO.	DIAMETER
NEHB10	10mm
NEHB12	12mm
NEHB15	15mm
NEHB18	18mm

Corks



ITEM NO.	DIAMETER
NC8	8mm
NC10	10mm
NC12	12mm
NC15	15mm

Mercury

Triple-distilled EGL mercury is the purest available anywhere. Packed in 1 lb. glass bottles.

ITEM NO. NME



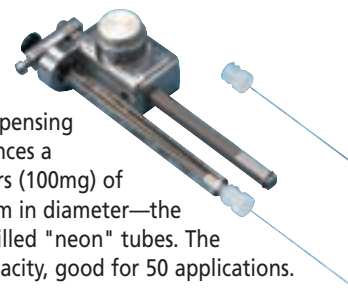
Mercury Spill Kit

ITEM NO. NMESK

Mercury Injector

The EGL Mercury Injector improves operator safety and dispensing accuracy. Pressing a button advances a plunger, dispensing 10 micro-liters (100mg) of mercury, equivalent to a ball 2mm in diameter—the correct amount for most argon-filled "neon" tubes. The reservoir has a 500 microliter capacity, good for 50 applications.

ITEM NO. NMNI



Neon Hand Block

- Used for flattening neon tube bends
- Clean – No harmful fumes
- Leaves no marking on neon tubing
- Withstands temperatures in excess of 1400 degrees F
- Available in 2 sizes



ITEM NO.	DIMENSIONS LxWxH
NHBSM	4 x 2½ x ¾
NHB	7½ x 3 x 1

6" Glass File

- High quality files
- Use for scoring neon tubing and smoothing cut edges
- Warding Bastard #1 cut File
- Double cut sides, Single cut edges

12 per pack

ITEM NO. NGF



4" Glass File

- High quality files
- Use for scoring neon tubing and smoothing cut edges
- Pillar #00 cut File
- Double cut sides, two safe edges

12 per pack

ITEM NO. NGF4

Kitco Electric Tube Cutter

The Kitco Electric Glass Cutter provides smooth and easy cuts every time even for the most difficult cuts. Saves time and virtually eliminates hairline crack backs even when cutting on radius bends, near double backs, and on classic glass.



Four heat settings allow precise temperature control for even heating of the tube. Cutter includes 10, 12, 13, 15, and 20mm wire cutting loops. Extra wire loops are available in 8-25mm sizes. A second cutting handle can be added to switch glass sizes without changing the wire loop. Available in 115 and 230 volt models.

ITEM NO.	DESCRIPTION
10879	Electric Tube Cutter
10880	Cutter handle only
10882.1	Loops

Bombarding Mica

ITEM NO. NMI



China Markers

ITEM NO.	COLOR
LYCMBK	Black
LYCMBL	Dark Blue
LYCMO	Orange
LYCMR	Red
LYCMW	White



Nonsbestos Material

- Translucent high temperature fabric
- Little odor
- Contains NO asbestos
- Marks well with carbon papers or pen inks as well as friction feed plotters
- Will withstand multiple "heats"

38" x 25 yard roll

ITEM NO. NNB

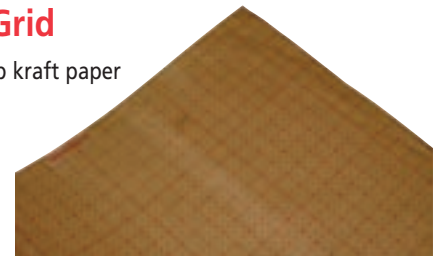


Pattern Paper; Burroughs 1" Grid

- Premium quality 70 lb kraft paper
- 1" grid
- ¼" plot points

48" x 110 yard roll

ITEM NO. NPPA



Acetone

Can be used to wash out manifolds.

ITEM NO. TSASG



Bronze Screen

ITEM NO. NEDBS



**EGL's East Coast Master Distributor
of Neon Glass & Electrodes!**



EGL Tubing

World's Largest Color Selection!

EGL has introduced more new colors in the last 10 years than any other source — stunning, saturated colors that give your neon signage, channel letters and architectural lighting unequaled brilliance, uniformity and longevity.

For top performance and cost effectiveness in both general and specialized applications, EGL produces neon tubing of many types including:

- SIGNMATE™ Single-Coated Tubing
- SIGNMATE II™ Double-Coated Tubing
- ACCUWALL® Coated and Uncoated Colored Glass Tubing
- Rare Earth Phosphor Coated Tubing
- Tri-phosphor Coated Tubing
- Cold Cathode Tubing

Choose from one of the world's largest tubing color selections now in stock for immediate shipment, including colors comparable to other makers, but with superior batch-to-batch consistency. And no other neon producer provides faster turn-around on special colors.

EGL's proprietary phosphor coatings dramatically boost adhesion, uniformity, brightness and long term color stability—virtually eliminating flaking, color washout and darkening at bends and splices.

EGL phosphor coatings combine special adhesives, the world's finest phosphors and a range of proprietary additives—specially processed, uniformly coated, baked and annealed in computer controlled ovens at 1000°F (532°C).

Developed and supported by the industry's most renowned phosphor chemists with more than 80 years of combined experience, these formulations deliver unmatched brightness and stability without flaking, washout, ripples, specks or darkening at the bends (even with shades of blue).

And with EGL's Total Quality Management Program, you can count on consistent color and longevity, tube-to-tube, box-to-box, year-to year.



EGL Neon Tubing

All EGL tubing is individually straightened, fire-polished, washed, and dried, using EGL's special Sani-Dry process to eliminate residue contamination. It is then coated, baked, and annealed, reducing glass stress and strain.

The world's finest phosphors, proprietary adhesives, and special additives combine to provide unmatched brilliance and consistency without flaking, even at the tightest bends.



Signmate™ Single-Coated 4-Foot Neon Tubing

SIGNMATE™ tubing is single-coated with proprietary phosphors to produce the world's most popular whites and colors. All tubing four foot, lead glass.

ITEM NO.	COLOR
NGEBW	8300 Bright White
NGEE65	E65 Daylight (White)
NGEE30	E30 Snowwhite (White)
NGE6500	6500 Snowwhite (White)
NGEOW	Omniwhite
NGEE66	E66 Britewhite (White)
NGE4500	4500 (White)
NGEV4500	V4500 (White)
NGE3500	3500 (White)
NGEV3500	V3500 (White)
NGEE3000	Warm White E3000 (White)
NGEP	H37 Pink
NGEGR	E10 Green
NGEE20	E20 Turquoise
NGEE21	E21 Aqua
NGEE12	E12 Turquoise
NGEE40	E40 Blue



SIZES AVAILABLE:

7, 8, 9, 10, 11, 12, 13,
15 & 18mm

15mm or smaller packed in
25 lb. boxes

18mm packed in 20 lb. boxes.



Signmate II™ Double-Coated 4-Foot Lead Glass

SIGNMATE II™ tubing is first coated with a color stain that is baked-on, then with EGL's proprietary phosphors, the pre-staining step resulting in added color vividness and intensity. Available in five select colors, SIGNMATE II tubing is excellent for borders.

Care should be used if tight bending patterns are required as bend "washout" may occur.

ITEM NO.	COLOR
NGECG	Clear Gold
NGEVP	VP Green
NGECBY	Clear Brite Yellow
NGETY	Tropic Yellow
NETG	Tropic Green

SIZES AVAILABLE:

10, 11, 12, 13, 15 & 18mm

15mm or smaller packed in 25 lb. boxes

18mm packed in 20 lb. boxes.



SIGNMATE AND SIGNMATE II FOOTAGE CHART

Diameter (mm):	8	9	10	11	12	13	15	18
Ft. per Lb. average:	18	16	13	12	11	10	8.5	7.1

HP Series

This High Performance line of neon tubing is a cost effective way to improve your signage and stand out against your competition.

- Higher lumen output
- Increased/superior maintenance
- Non darkening
- Reasonably priced
- Cost effective replacement

ITEM NO.	COLOR
NGEHPNB	HP Neo Blue
NGEHPBL	HP Blue
NGEHPGR	HP Green
NGEHTU	HP Turquoise

SIZES AVAILABLE:

10, 12, 13, & 15mm

All tubing packed in 25lb. boxes.



ACCUWALL Machine-Drawn 5-Foot Colored Glass Tubing

ACCUWALL® tubing is the machine-drawn colored glass that's easy to bend, opening a world of design freedom for neon signmakers. It offers a more consistent wall thickness and outside diameter, and more uniform color than traditional colored glass tubing, allowing you to bend and process the sturdiest and most vivid signage attainable in less time, with far less breakage.



ACCUWALL tubing is available uncoated, or coated with EGL's proprietary rare earth phosphors. All have fire-polished ends.

ITEM NO.	COLOR
NGEAQC	Aquamarine (Coated)
NGEBBU	Bromo Blue (Clear)
NGEBBC	Bromo Blue (Coated Blue Glass)
NGEBP	Bromo Blue (Coated Purple)
NGEBRP	Royal Purple (Coated)
NGEEGC	Emerald Green (Coated)
NGENG	Noviol Gold (Clear)
NGEE50	E-50 Noviol Gold (Coated Bright Yellow)
NGEP73	P-73 Noviol Gold (Coated True Gold)
NGES81	S-81 Noviol Gold (Coated Med Yellow)
NGEE60	E-60 Casino Gold (Coated Rich Gold)
NGENGACG	Apple Green (Coated Noviol Gold Glass)
NGEOC	Orange (Coated)
NGEOCT	Tangerine (Coated Orange Glass)
NGERRU	Ruby Red (Clear)
NGERRC	Ruby Red (Coated)



Where Argon-Mercury is indicated above, Neon is not recommended due to possible inconsistency of color. Specially-formulated phosphors achieve richest colors with Argon Gas Mixture (Blue/K-4)/HG.

SIZES AVAILABLE:

8, 10, 12, & 15mm

All tubing packed in 10 lb. boxes.

ACCUWALL FOOTAGE CHART

Diameter (mm):	8	9	10	12	15
Ft. per Lb. average:	21	19	16	14	10

Neon Tubing Display Briefcase



ITEM NO. NETD

This self-contained, portable sales kit saves time, increases sales, and ensures customer satisfaction with tubing color selections. The lockable slimline briefcase is suited to any business setting, and holds 20 neon tubes, up to four of which can be illuminated simultaneously to demonstrate color combinations.

Standard tubing colors are:

- Bromo Blue Coated Purple
- 8300 White
- 6500 Snowwhite
- Blue
- Horizon Blue
- Bromo Blue Coated
- E-12 Turquoise
- Purple
- Coral Pink
- Violet II
- Flamingo
- Ruby Red Coated
- Clear Brite Yellow
- Clear Gold
- Seacrest
- Green
- Apple Green
- Emerald Green Coated
- Casino Gold
- Royal Purple

All standard tubes are 12mm in diameter and feature EGL electrodes for maximum brilliance, clarity, and longevity.

The unit is equipped with an integral sealed lead acid 12 VDC rechargeable battery with 110/120 VAC charger, measures 16-9/16" x 12-5/8" x 5-1/2", and weighs 12.3 lbs. complete.

Also available custom kits with your choice of colors

CL Designer® Rare-Earth Colored Tubing



Up to 300% brighter than conventional neon, plus greater output stability and stain resistance.

Using colored C.L. Designer tubing behind colored fascias produces signage that is not only brighter but much more vivid and pure than signage illuminated with conventional white tubing.

ITEM NO.	COLOR
NGECP	Coral Pink
NGEFL	Flamingo
NGEVIII	Violet II
NGEPU	Purple
NGEHB	Horizon Blue
NGESC	Seacrest (Blue Green)

SIZES AVAILABLE:

7, 8, 9, 10, 11, 12, 13, 15 & 18mm

15mm or smaller packed in 25 lb. boxes

18mm packed in 20 lb. boxes.



CL Designer® Rare-Earth White Tubing

C.L. Designer Series® white tubing uses a blend of three rare-earth narrow band phosphors (red, blue and green) to improve color rendition, color preference, and achieve higher output.

ITEM NO.	COLOR
NGECLD24	C.L.Designer 24
NGECLD28	C.L.Designer 28
NGECLD30	C.L.Designer 30
NGECLD35	C.L.Designer 35
NGECLD41	C.L.Designer 41
NGECLD45	C.L.Designer 45
NGECLD65	C.L.Designer 65
NGECLD71	C.L.Designer 71
NGECLD83	C.L.Designer 83

SIZES AVAILABLE:

7, 8, 9, 10, 11, 12, 13, 15 & 18mm

15mm or smaller packed in 25 lb. boxes

18mm packed in 20 lb. boxes.



All tubing four foot, lead glass

Clear Glass

SIZES AVAILABLE:

5, 6, 7, 8, 9, 10, 11, 12, 13, 15,
18, 20 & 25mm sizes

Packed in 50 lb. boxes

ITEM NO.	LENGTH	SIZE
NGCL5	4'	5mm
NGCL6	4'	6mm
NGCL7	4'	7mm
NGCL8	4'	8mm
NGCL9	4'	9mm
NGCL10	4'	10mm
NGCL11	4'	11mm
NGCL12	4'	12mm
NGCL13	4'	13mm
NGCL15	4'	15mm

ITEM NO.	LENGTH	SIZE
NGCL18	4'	18mm
NGCL20	4'	20mm
NGCL25	4'	25mm
NGCL188	8'	18mm
NGCL208	8'	20mm
NGCL258	8'	25mm

Heavy Wall Glass

ITEM NO.	LENGTH	SIZE
NGCL15HW		15mm

Cold Cathode tubing available. For more information please contact your sales rep.



EGL Electrodes

*The World's Largest
Manufacturer of Electrodes!*

EGL Electrodes have consistently raised the industry standards for reliability and performance since their introduction in 1930.

To ensure rigid quality control, all phases of manufacturing are performed in-house, including emission coating, inverter welding shells with lead wires, and sealing and centering the mounts in glass envelopes.

Today EGL manufactures over 75 standard and custom electrodes-- the world's broadest line-- to satisfy your most specialized requirement without compromise.

The latest addition to the growing family of EGL electrodes is the "Advantage™" electrode series, combining the features you need for the ultimate in brilliance, clarity, and longevity.



*For brighter, cleaner, longer lasting neon than ever before possible,
specify advanced Advantage™ electrodes*

Advantage™ Series Electrodes

Heavier gauge, solid nickel, corrosion-proof, seven-strand lead wires

Thicker tubulation wall for easier, stronger tip-offs

100% AMERICAN MADE

After forming, shells receive proprietary nickel plating for more uniform, non-porous coverage

Stronger inner lead wires keep shell centered in tube, reducing vibration

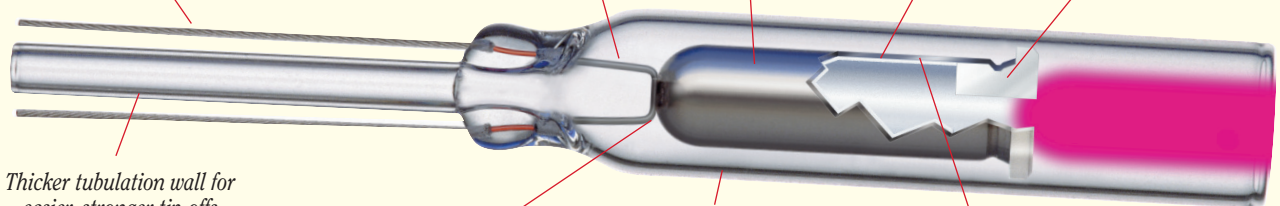
State-of-the-art inverter welding provides superior shell support and conductivity.

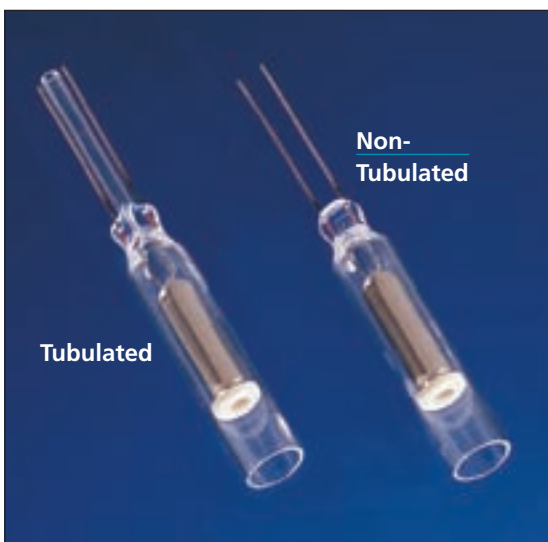
Electrodes are fully annealed to relieve stress, preventing cracking

Thicker shell walls heat up evenly, eliminating hot spots, promoting uniform conversion of emission coating

Patented ceramic collar centers shell in tube, eliminating side ignition, sputtering and blackening

Newly developed emission coating measured precisely for each shell, ensuring that all shells "come up" evenly during bombardment





ITEM NO.	EGL PART NO.	GLASS		SHELL		MA. RATING
		DIA.	LENGTH	DIA.	LENGTH	
N10S	122100	10mm	2"	1/4"	3/4"	20-30
NT10S Tubulated	122200	10mm	2"	1/4"	3/4"	20-30
N12L	119800	12mm	2 1/2"	5/16"	1 1/16"	30
NT12L Tubulated	119900	12mm	2 1/2"	5/16"	1 1/16"	30
N12CM	119554	12mm	2"	5/16"	3/4"	30
NT12CM Tubulated	119654	12mm	2"	5/16"	3/4"	30
N12CL	120909	12mm	2 1/2"	5/16"	1 1/16"	30-45
NT12CL Tubulated	121009	12mm	2 1/2"	5/16"	1 1/16"	30-45
N13CL	120904	13mm	2 1/2"	5/16"	1 1/16"	30-45
NT13CL Tubulated	121004	13mm	2 1/2"	5/16"	1 1/16"	30-45
N15CS	116004	15mm	2"	3/8"	9/16"	30-45
NT15CS Tubulated	116104	15mm	2"	3/8"	9/16"	30-45
N15CM	117204	15mm	2 3/8"	3/8"	1"	30-45
NT15CM Tubulated	117304	15mm	2 3/8"	3/8"	1"	30-45
N15CL258	114805	15mm	2 5/8"	3/8"	1 1/4"	80
NT15CL258 Tubulated	114905	15mm	2 5/8"	3/8"	1 1/4"	80
N15CL	115205	15mm	2 7/8"	3/8"	1 1/4"	80
NT15CL Tubulated	115305	15mm	2 7/8"	3/8"	1 1/4"	80
N19CM	124500	19mm	2 7/8"	1/2"	1 1/4"	120-180
NT19CM Tubulated	124600	19mm	2 7/8"	1/2"	1 1/4"	120-180
N19CL	124900	19mm	3 1/8"	1/2"	1 3/16"	200
NT19CL Tubulated	125000	19mm	3 1/8"	1/2"	1 3/16"	200

Electrode Application Specification Guide

12CM

Our smallest ceramic collar electrode designed for use 8 - 12mm neon tubing. Neon tubing must not exceed 8 feet and consideration to the electrode size must be exercised during processing. This electrode is rated to operate at 30mA maximum current. Correct processing levels must be monitored with a Milliamp Meter and Torr or Positive Pressure Gauge.

13CL

This electrode is designed for use on 12 - 13mm neon tubing. It is rated for operation on 30 - 45mA transformers and has a longer shell for use on Accuwall classic tubing and units that may require higher current levels during processing. We suggest the use of 9CMC electrodes on smaller diameter units of 8 - 10mm tubing.

15CS

This short (2 inch) electrode was designed for short length 15mm diameter neon units up to 6 feet long. It operates on up to 30mA transformers and is best suited to lead or lead-free glass. The Accuwall classic glass requires electrodes capable of longer processing times. Due to the short length of the shell, the electrode must be carefully monitored to insure it is not overheated during processing. It is ideal in applications where standing electrode height is a factor.

15CM

Our most popular electrode for use in housings or where short returns are used. It is rated for operation on 30 - 45mA transformers and can be used on neon units up to 10 feet long provided processing is monitored with all necessary gauges. Since it has a 500mA processing level, this electrode can also be used on smaller diameters of tubing. We only recommend this electrode be used on a 60mA application under ideal conditions.

15CL

This electrode can be used on all 15mm neon tubes and is rated for use on transformer up to 80mA. It can be ordered in 2 different glass sleeve lengths (2.625 and 2.875 inches). It is not recommended for use on tubing diameters smaller than 15mm due to the high processing current required to fully process the shell. This electrode has successfully outperformed all electrode life tests against our competitors. This shell construction requires full system gauges when processing for best results to insure all recommended levels are achieved and vacuum levels during bombardment are monitored to insure shells are evenly processed.

19CM

This cold cathode electrode operates on 120 - 180mA transformers. It is designed for use on 18 - 25mm cold cathode tubing and must not be used on smaller diameters. It requires a bombarder 15KV or larger to properly heat the shells and glass during production. System requirements and performance must be met before attempting cold cathode production.

19CL

This cold cathode electrode operates on up to 200mA transformers and has a longer shell than the 19CM. Again it requires a larger bombarder, 15KV or larger and system requirements must be met before attempting cold cathode production. Contact EGL for specifications.

PK Housing

- PK Housings provide the best way to penetrate walls for electrode connections.
- Zinc plated steel and borosilicate glass construction
- 1-2-3 spring assembly facilitates easy GTO cable connection (included with PK Housings and also available as a service item.)
- Rated for 7500 volt applications, including 15000 V mid-point referenced transformer installations.
- For UL Wet Rating, PK Housings must be used with PK Silicone Caps placed over the end of PK glass insert to protect from rain, snow, dust and bugs.

PK Plug

Prevent failure of GTO cable at the rear of the PK Housing (abrasion, insect and moisture deterrent) and proposal in UL879 would mandate protection at rear of PK Housing. PK Plug is soft and pliable.



Hex female fitting

1/2" Female hex fitting contains internal threads

Panel hole: 1 3/8", 25 per box

ITEM NO. NPKHF



Reg. Male fitting

1/2" Reg. Male fitting contains external threads.

Panel hole: 1 3/8", 25 per box

ITEM NO. NPKHM



Hex female fitting w/plug.

Panel hole: 1 3/8", 25 per box

ITEM NO. NPKHXP

Reg. male fitting w/plug.

Panel hole: 1 3/8", 25 per box

ITEM NO. NPKRGP

Thru-Wall Porcelain Housing

Porcelain, UL Listed
25 per box



Female Threaded Hex End

ITEM NO. NPKHFP

Male Threaded End

ITEM NO. NPKHMP

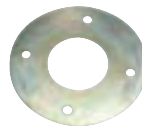
PK Mounting Plates

Front Mounting Plate

- 3" OD for secure, stable mounting of PK housing
- 1.31" Dia ID hole for mounting between PK glass and Housing

25 per pack

ITEM NO. NPKFP



Adjustable Mounting Clamp

- Used to mount PK
- Raises PK to match Two-up, G-cup, or compensate for an odd electrode bend
- Clamps around PK housing with rivet or bolt/nut

25 per box

Strain Relief

Strain Reliefs for PK housing
100 per pack

ITEM NO. NPKSR



Porcelain Housing

- Stronger than glass
- Doesn't break like glass
- More drainage holes
- Uniform wall thickness
- Aluminum mounting ring
- No edge glow like glass
- Our phosphor-bronze spring is superior to a stainless steel spring
- Competitive pricing compared to glass

TC-100 (large) Porcelain

50 per box

Length: 3 3/8"

Inside Diameter: 1 1/8"

Outside Diameter : 1 1/4"

ITEM NO. NH100PC



TC-200 (small) Porcelain Ceramic

50 per box

Length: 3 1/2"

Inside Diameter: 7/8"

Outside Diameter : 1 1/4"

ITEM NO. NH200PC



TC-50 (peanut) Porcelain

50 per box

Length: 2 1/2"

Inside Diameter: 7/8"

Outside Diameter : 1 1/4"

ITEM NO. NH200PPC



TC-300 (large) Porcelain

50 per box

Length: 3 3/8"

Inside Diameter: 1 1/8"

Outside Diameter : 1 1/4"

ITEM NO. NH300PC

has a unique window design that offers greater drainage for water and insect accumulation



1019 (porcelain)

50 per box

Length: 2 1/4"

Inside Diameter: 1 1/8"

Outside Diameter : 1 1/4"

ITEM NO. NH300PPC



Glass Housing

- Affordable and safe method for making neon electrode connections in raceways
- Suitable for indoor, outdoor protected, and outdoor exposed (wet) locations
- Borosilicate heat resistant glass
- Spring contact allows for easy neon tube servicing
- Rated for 7500 volt applications, including 15,000 V mid-point referenced transformer installations
- Comes with a plated steel ferrule to secure the unit to the sign enclosure
- #300 and #300P Recommended for use with new UL 2161 Listed transformers to minimize nuisance tripping

#100 Glass Housing

50 per box
Panel hole: 1¼"
Housing opening: 1¼"
Overall height: 3½"

ITEM NO. NH100



#200 Glass Housing

50 per box
Panel hole: 1¾"
Housing opening: 7/8"
Overall height: 3½"

ITEM NO. NH200



#200P Glass Housing

100 per box
Panel hole: 1¾"
Housing opening: 7/8"
Overall height: 2½"

ITEM NO. NH200P



#300 Glass Housing

100 per box
Panel hole: 1½"
Housing opening: 1½"
Overall height: 3½"

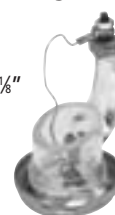
ITEM NO. NH300



#300P Glass Housing

100 per box
Panel hole: 1½"
Housing opening: 1½"
Overall height: 3½"

ITEM NO. NH300P



#20 Glass Bushing

- Borosilicate heat resistant glass
- Comes with a plated steel ferrule to secure the unit to the sign enclosure
- Enables a neon electrode to penetrate safely into a sign enclosure.

25 per box
Hole: 1¾"
Opening: 7/8"
Height: 2½"



Slip-Stick Bushing

Heavy wall glass insulator with one-way clip and rubber.

Length: 4¼"

25 per box

ITEM NO. NSS



Glass Cups

- Safe and reliable
- Borosilicate glass cups won't burn or melt, won't track or arc-thru
- Can be used outdoors, unprotected (wet rating, if mounted with closed end of cup at least 45° above horizontal)
- Rated for 7500 volt applications, including 15000 V mid-point referenced transformer installations.

G Cups

Use for neon double-back electrode connections in pairs or with CPA's for connection with GTO cable. Includes hanger and o-ring

50 per box

ITEM NO. NHGC



GG Cups

Use for connecting two neon electrodes side by side without GTO - simply twist or crimp the electrode wires together. Includes stainless steel hanger

50 per box

ITEM NO. NHGGC



G-2 Neon Electrode Receptacle

Use for connecting two neon electrodes; simply attach electrode buttons and insert into receptacle. Includes zinc coated steel base and one piece compression spring electrode connector. Complies with UL 2161 20.1 Exception No. 3 and also with 1999 NEC 600-23(b) Exception No. 2. Use with SGFP-exempt PBKM transformers in self-contained letters.

Metal base can be inverted and recessed for use with 1¼" tube supports for a slim, neat appearance.

50 per box

ITEM NO. NHG2C



Housing Accessories

PK Silicone Cap

- A flexible silicone rubber cap to protect from rain, snow, dust and bugs.
- Fits A#200, #200P Glass Housings and PK™ Housings
- Improves UL Listing of Westrim PK™ Housings to wet locations which includes outdoor exposed installations

100 per pack

ITEM NO. NPKRC

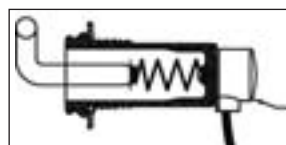


Housing Cap – Plastic Igloo Style

- Provides effective installation for the GTO connection to the housing
- UL listed for dry and damp at 7500 volts max, including 15,000 V mid-point referenced transformer installations
- Fits #100, #200 and #200P Glass Housings or any 8-32 housing stud
- Rigid plastic, igloo-shaped

100 per pack

ITEM NO. NHC



Neon Electrode Housing Boots

- Eliminate potential arcing problems and fire hazards
- prevent contamination of high-voltage connections
- The only multi-purpose housing cap available

WPB-100-EGH

Fits #100 Glass Electrode Housing
Will Accommodate
12mm, 15mm & 18mm neon tubes

ITEM NO. NHB100

WPB-200-EGH

Fits #200 Glass Electrode Housing
Will Accommodate
10mm, 12mm & 15mm neon tubes

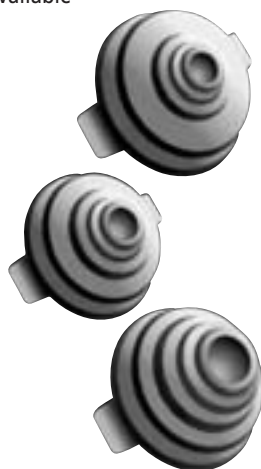
ITEM NO. NHB200

WPB-303-EMH

Universal Cap

Fits all Metal Cased Neon Electrode Housings
Will Accommodate
12mm, 15mm & 18mm neon tubes

ITEM NO. NPKHB



Brass Electrode Caps

- Use on tubulated electrodes to protect the tubulation from damage
- Use with any housing which utilizes a spring-type electrode contact
- Made of brass to provide a positive electrical connection and resist corrosion
- Available in 12 and 15 mm diameters, regular and long lengths



ITEM #	DESCRIPTION	DIMENSIONS DxL
NEC12	12mm regular	.45" x .615"
NEC12(L)	12mm long	.45" x .87"
NEC15	15mm regular	.575" x .615"
NEC15(L)	15mm long	.575" x .87"
NEC19(L)	19mm long	

Brass Electrode Buttons

Electrode buttons are most commonly used to provide positive high voltage connection for electrodes inserted in spring type housings of similar receptacles. Designed for use with 12mm - 15mm electrodes.

- Use on non-tabulated electrodes
- Use with any housing which utilizes a spring-type electrode contact
- Made with wings to secure electrode wires

1000 per pack

ITEM #	DESCRIPTION	DIMENSIONS DxL
NEB15	15mm	.72 x .016"



1-2-3 Spring Assembly

- Stainless steel spring, rivet and brass washer assembly
- Included with all Westrim PK™ Housings
- Facilitates easy GTO cable connections
- Packaged in bags of 25 each-complete with installation instructions

ITEM NO. NPK123



Electrode Saver

Used for servicing broken electrodes.
Size: 15mm

ITEM NO. NES15



Electrode Insulator Boot

- Prevents Contamination of high voltage connections, Arcing problems & Fire hazards.
- Eliminates Drilling 1-1/2" holes, Revamping neon units, Labor on installations, Additional cost of housing, Expensive return service calls
- Boots are UL and CSA listed for dry, damp, or wet locations.



One-Piece Electrode Insulator Boot

Neon electrode insulator boot may be used on straight neon tubing or double-back applications.

ITEM NO.	SIZE	COLOR
NMEIB110BK	10mm	Black
NMEIB113GY	13mm	Gray
NMEIB115BK	15mm	Black

Two-Piece Water-Tite Electrode Insulator Boot

Neon electrode insulator boot used on double-back applications.

ITEM NO.	SIZE	COLOR
NMEIB212BK	12mm	Black
NMEIB213GY	13mm	Gray
NMEIB215BK	15mm	Black
NMEIB215GY	15mm	Gray

Short Stops

Used to insulate connections between electrodes and GTO cables. Easy to slide onto electrodes without breaking glass. 100 per pack.

Also available in master box of 1680 pcs.



ITEM NO.	SIZE	COLOR
NASS10BK	10mm	Black
NASS10GY	10mm	Gray
NASS13BK	13mm	Black
NASS13GY	13mm	Gray
NASS15BK	15mm	Black
NASS15GY	15mm	Gray

End Caps

Used to insulate connections between electrodes and high voltage cables. Easy to slide onto electrodes without breaking glass. 100 per pack.

Also available in master box of 1680 pcs.



ITEM NO.	SIZE	COLOR
NAEC10BK	10mm	Black
NAEC10GY	10mm	Gray
NAEC12/13BK	12/13mm	Black
NAEC12/13WHT	12/13mm	White
NAEC12/13GY	12/13mm	Gray
NAEC15BK	15mm	Black
NAEC15WHT	15mm	White
NAEC15GY	15mm	Gray

Electrode Housing Wide

For dry and damp locations only

Used to insulate the connection between electrode and GTO cable inside raceway-mounted channel letters with any sign face material where 90° angle installations are necessary. Designed to fit inside glass housings and hold in place around glass ends. Internal ring makes the housing weather-tight.

- Made of flame retardant PYROLENE105.
- 50 per bag

ElectroBits



ITEM NO.	SIZE	COLOR
NEBEHW3BLK	13mm	Black
NEBEHW3WHT	13mm	White
NEBEHW3GY	13mm	Gray
NEBEHW5BLK	15mm	Black
NEBEHW5WHT	15mm	White
NEBEHW5GY	15mm	Gray

Electrode Housing Sleeve Wide

For dry and damp locations only

Used to insulate the connection between electrode and GTO cable inside raceway-mounted channel letters with any sign face material where 90° angle installations are necessary. Designed to fit inside glass housings and hold in place around glass ends. Internal ring makes the housing weather-tight. With attached GOTOSLEEVE 3730.

- Made of flame retardant PYROLENE105.
- 50 per bag



ElectroBits

ITEM NO.	SIZE	COLOR
NEBEHSW3BLK	13mm	Black
NEBEHSW3WHT	13mm	White
NEBEHSW3GY	13mm	Gray
NEBEHSW5BLK	15mm	Black
NEBEHSW5WHT	15mm	White
NEBEHSW5GY	15mm	Gray

End Cap / End Cap Wide *For dry and damp locations only*

Used to insulate connections between electrodes and high voltage cables. Room for GTO cable return is provided for bend-back application. The End Cap Wide is specially designed to slide over GTO cables covered with GTOSLEEVEING 3730, for easier mounting on portable signs and channel letters.

100 per bag

ElectroBits

**End Cap**

ITEM NO.	SIZE	COLOR
NEBEC10BK	10mm	Black
NEBEC10WHT	10mm	White
NEBEC10GY	10mm	Gray
NEBEC12BK	12mm	Black
NEBEC12WHT	12mm	White
NEBEC12GY	12mm	Gray
NEBEC13BK	13mm	Black
NEBEC13WHT	13mm	White
NEBEC13GY	13mm	Gray
NEBEC15BK	15mm	Black
NEBEC15WHT	15mm	White
NEBEC15GY	15mm	Gray
NEBEC16BK	16mm	Black
NEBEC16WHT	16mm	White
NEBEC16GY	16mm	Gray
NEBEC19BK	19mm	Black
NEBEC19WHT	19mm	White
NEBEC19GY	19mm	Gray

End Cap Wide

ITEM NO.	SIZE	COLOR
NEBECW10BK	10mm	Black
NEBECW10WHT	10mm	White
NEBECW10GY	10mm	Gray
NEBECW12BK	12mm	Black
NEBECW12WHT	12mm	White
NEBECW12GY	12mm	Gray
NEBECW13BK	13mm	Black
NEBECW13WHT	13mm	White
NEBECW13GY	13mm	Gray
NEBECW15BK	15mm	Black
NEBECW15WHT	15mm	White
NEBECW15GY	15mm	Gray
NEBECW16BK	16mm	Black
NEBECW16WHT	16mm	White
NEBECW16GY	16mm	Gray

Short Stop / Short Stop Wide *For dry and damp locations only*

Used to insulate connections between electrodes and GTO cables. Internal ring makes the Sleeves weather-tight. The Short Sleeve Wide is Specially designed to slide over GTO cables covered with GTOSLEEVEING 3730, for easier mounting on portable signs and channel letters.

100 per bag

ElectroBits

**Short Stop**

ITEM NO.	SIZE	COLOR
NEBSS10BK	10mm	Black
NEBSS10WHT	10mm	White
NEBSS10GY	10mm	Gray
NEBSS12BK	12mm	Black
NEBSS12WHT	12mm	White
NEBSS12GY	12mm	Gray
NEBSS13BK	13mm	Black
NEBSS13WHT	13mm	White
NEBSS13GY	13mm	Gray
NEBSS15BK	15mm	Black
NEBSS15WHT	15mm	White
NEBSS15GY	15mm	Gray
NEBSS16BK	16mm	Black
NEBSS16WHT	16mm	White
NEBSS15GY	16mm	Gray
NEBSS19BK	19mm	Black
NEBSS19WHT	19mm	White
NEBSS19GY	19mm	Gray

Short Stop Wide

ITEM NO.	SIZE	COLOR
NEBSSW13BK	13mm	Black
NEBSSW13WHT	13mm	White
NEBSSW13GY	13mm	Gray
NEBSSW15BK	15mm	Black
NEBSSW15WHT	15mm	White
NEBSSW15GY	15mm	Gray
NEBSSW16BK	16mm	Black
NEBSSW16WHT	16mm	White
NEBSSW16GY	16mm	Gray

End Cap Residential*For dry and damp locations only*

Insulate electrode connections for residential use. Complete with lock system.

100 per bag

ElectroBits



ITEM NO.	SIZE	COLOR
NEBECR10WBLK	10mm	Black
NEBECR10WWHT	10mm	White
NEBECR13WBLK	13mm	Black
NEBECR13WWHT	13mm	White
NEBECR15WBLK	15mm	Black
NEBECR15WWHT	15mm	White
NEBECR16WBLK	16mm	Black
NEBECR16WWHT	16mm	White

Low Voltage End Cap*For dry and damp locations only*

Insulate electrode connections for low voltage signs.

100 per bag

ElectroBits

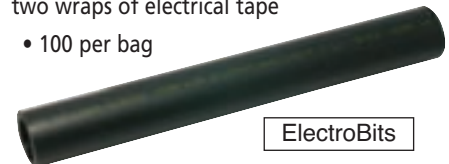


ITEM NO.	SIZE	COLOR
NEBEC10TBLK	10mm	Black
NEBEC10TWHT	10mm	White
NEBEC13TBLK	13mm	Black
NEBEC13TWHT	13mm	White
NEBEC15TBLK	15mm	Black
NEBEC15TWHT	15mm	White

Long Sleeve*For dry and damp locations only*

Used to insulate connections between electrodes placed within 1 to 3 inches away from each other. May be secured in place with two wraps of electrical tape

• 100 per bag



ITEM NO.	SIZE	COLOR
NEBLS13BK	13mm	Black
NEBLS13WHT	13mm	White
NEBLS13GY	13mm	Gray
NEBLS15BK	15mm	Black
NEBLS15WHT	15mm	White
NEBLS15GY	15mm	Gray

GTO Cable

GTO-15 Silicone Integral Sleeved

Silicone integral sleeve GTO is UL814 approved and is rated 15000V at 150C. It uses 14 AWG tinned copper conductor and is insulated with flexible 100% pure silicone and 200C Dielectric silicone. GTO wire is resistant to humidity, UV, Ozone and Corona.



ITEM NO.	COLOR	ROLL LENGTH
NGTOFW	White	250'
NGTOFBK	Black	150'

PVC GTO-15 Integral Sleeved



ITEM NO.	COLOR	ROLL LENGTH
NGTOSL	Black	250'
NGTOGY14	Gray	250'

NOODLE FLEX

ITEM NO.	COLOR	ROLL LENGTH
NGTOBK1500	BLACK	14ga 1000'
NGTOBK14	BLACK	14ga 250'



GTOFullflex

w/GTO Sleeving 3730 or wGTO Covering 3870

The GTOFullflex series reduces installation time with pre-sleeved GTOFlex GTO15 wire.

- Pre-sleeved GTOFlex GTO15 18 AWG, 19 strand copper wire in: GTO Sleeving 3730 for use with ECW and SSW series, or GTO Covering 3870 for maximum reduction of capacitive loading and corona buildup.
- 100 Foot rolls

ITEM #	DESCRIPTION	COLOR
NEBFFGT0BK	GTO15,18G,3730	Black
NEBFFGT0WHT	GTO15,18G,3730	White
11-0023wht	GTO15,18G,3870	White



ElectroBits

GTO Sleeving 373 & 383

For dry and damp locations

100 Foot rolls

#373

Use to protect and cover GTO cable when using wide end caps and wide short sleeves.

#383

Use to protect and cover GTO cable when using non-wide end caps and non-wide short sleeves.



ITEM #	INTERIOR DIA.	EXTERIOR DIA.	COLOR
NWSL373BK	7.7mm	9.2mm	Black
NWSL373GY	7.7mm	9.2mm	Gray
NWSL373WHT	7.7mm	9.2mm	White
NWSL383BK	9.6mm	11mm	Black
NWSL383GY	9.6mm	11mm	Gray
NWSL383WHT	9.6mm	11mm	White

GTO Covering 387

For dry and damp locations

100 Foot rolls

Use to protect and cover GTO cable where extra insulation and/or physical protection is desired.



ITEM #	DIAMENSIONS	COLOR
NWSL387BK	2mm wall thickness	Black
NWSL387GY	2mm wall thickness	Gray
NWSL387WHT	2mm wall thickness	White

GTO Clear Vinyl Covering 100' (3/8"x5/8")

ITEM NO. NGTOCCO



Non-Metallic Greenfield

ID PVC sleeving for GTO and primary wire, designed to be used with the Quik-Connect, and 101-F and 101-G connectors, UL Recognized.

Quantity: 100' roll per box

Available in 3/8" or 1/2"

ITEM NO. NHNMG38

ITEM NO. NHNMG12



Connecting Products

Cable Supports

- Use to provide wire standoff distances in accordance with the NEC
- Made from electrical grade porcelain
- Available with mounting screw for metal or wood (please specify)
- Overall Height 2 1/2"
- Diameter: 1 1/4"



ITEM NO.	DESCRIPTION
NPCSW	with mounting screw for metal
NPCSM	with mounting screw for wood

Ring Terminals

- Use to connect GTO to transformer terminals or to housings
- Wire size: 14-16 awg
- Wire strip length: 1/4" (6.5mm)
- No flammable plastic on crimp end to cause fires



ITEM#	EYELET SIZE	PACKAGING
ESNC	0.265" (#12 - 1/4" stud)	200
ESNI	0.200" (#8 - #10" stud)	250

High Voltage Connector

One piece die cast zinc housing with mounting bracket, ground screw, one-screw duplex clamp and one piece insulator cap made of flame retardant PYROLENE105.

HVC 1001 insulates splice between two GTO cables. When routed through listed sign enclosures, GTO cables should be covered with GtoSleeving or GtoCovering. When routed outside listed sign enclosures, GTO cables should be covered with GtoSleeving and routed through flexible or rigid metallic conduit

10 per pack

ITEM NO. NEBHVC1001



High Voltage Junction Box

Channel letters are fully assembled in the shop with the electrode receptacles installed, tubes mounted, wired complete with flex conduit and GTO. At the installation site, the letters are mounted to the building and wired to one another using the hi-volt connector. This procedure reduces glass breakage.

- Splices two GTO cables.
- Rated for 7500 volt applications, including 15000V mid-point referenced transformer installations
- Electrical grade porcelain and zinc plated steel construction
- 1/2" conduit knock-outs (one on each side and two on the bottom)

25 per box

ITEM NO. NPHVC



High Voltage Connector

Insulates GTO wire splice. For use with 1/2 inch liquid-tight flexible metallic conduit, or non-metallic electrical.

10 per pack

ITEM NO. NPOWERBOX

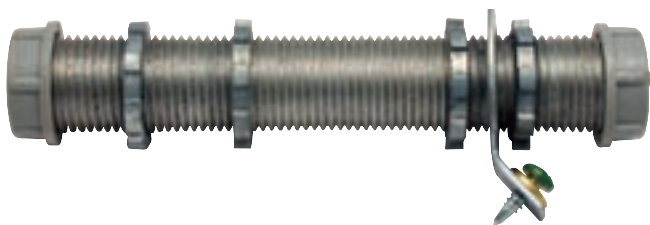


Passthru™ (PT) Wiring Assembly Conduit Kit

For use only with neon transformer or power supply secondary circuit high voltage wiring

The Passthru is used to protect the passage of GTO cables through walls, ceilings, raceways, channel letters and sign enclosures. Use pre-cut pt's for known installation requirements. Use field-cut pt-kits to cut unknown lengths on site. Use Passthru with grounding ring (PTGR) to comply with CSA requirements.

- Threaded half-inch aluminum conduit kit. Each pre-cut passthru comes with four locknuts, two plastic bushings, one sealing bushing. Pt1 comes with two locknuts, two plastic bushing and one sealing bushing.
- For dry and damp locations only



Passthru

ITEM NO.	LENGTH	PACKAGE
NEBPT1	1"	50
NEBPT2	2"	25
NEBPT3	3"	10
NEBPT4	4"	10
NEBPT5	5"	10
NEBPT6	6"	10
NEBPT7	7"	10
NEBPT8	8"	10
NEBPT10	10"	10
NEBPT12	12"	10
NEBPT16	16"	10
NEBPT18	18"	10
NEBPT20	20"	10
NEBPT24	24"	10

Passthru w/Grounding Ring

ITEM NO.	LENGTH	PACKAGE
NEBPTGR1	1"	50
NEBPTGR2	2"	25
NEBPTGR3	3"	10
NEBPTGR4	4"	10
NEBPTGR5	5"	10
NEBPTGR6	6"	10
NEBPTGR7	7"	10
NEBPTGR8	8"	10
NEBPTGR10	10"	10
NEBPTGR12	12"	10
NEBPTGR16	16"	10
NEBPTGR18	18"	10
NEBPTGR20	20"	10
NEBPTGR24	24"	10

For outdoor applications, install SRPT sealing ring, where the conduit enters the sign housing, to prevent water from entering the back of the sign.

PT-kit

Comes with:

- 5 length of 24" passthru conduit
- 60 locknuts
- 30 plastic bushings
- 15 sealing bushings

Pt-kits can make up to 15 PT's. Additional components can be purchased separately to make a greater number of shorter PT's.

ITEM NO. NEBPTKIT

Locknut

Provides a mechanical bond to sign enclosure for a passthru. Also provides a mechanical bond for a ground ring.

100 per pack

ITEM NO. NEBLNUT



Ground Ring

Provides a ground bonding point for a passthru.

50 per pack

ITEM NO. NEBRNGR



Plastic Bushing

Provides insulation and mechanical protection for GTO cables at the entrance and exits of a passthru.

100 per pack

ITEM NO. NEBPB12



Sealing Bushing

Provides a moisture seal at the exterior entrance to a passthru.

100 per pack

ITEM NO. NEBSBPT



Sealing Ring

Provides a moisture seal to prevent water from entering through the back of a sign enclosure where a passthru enters.

50 per pack

ITEM NO. NEBSRPT



Strain Relief

Thermo plastic strain relief.

This non-metallic connector is used to fasten 3870 or 3730 covered GTO wire to a 1/2 inch transformer enclosure knockout.

25 per pack

ITEM NO. NEBSR12

ITEM NO. NEBSR38



Straight Connector Female

Used to twist-on fasten 3/8 or 1/2 inch flexible metallic conduit to a passthru conduit.

Made of die-cast zinc with female 1/2 inch NPT threads to screw onto passthru conduit.

25 per pack

ITEM NO. NEBSCF12

to connect 1/2" flexible metallic conduit

ITEM NO. NEBSCF38

to connect 3/8" flexible metallic conduit



Straight Connector Male

Used to twist-on fasten 3/8" or 1/2" flexible metallic conduit to a transformer 1/2" knockout.

Made of die-cast zinc with male 1/2" npt thread and locknut to fasten to a transformer closure.

25 per pack

ITEM NO. NEBSC12

to connect 1/2" flexible metallic conduit

ITEM NO. NEBSC38

to connect 3/8" flexible metallic conduit



90° Connector Female

Used to twist-on fasten 1/2" flexible metallic conduit to a passthru conduit where installation distance is limited.

Made of die-cast zinc with female 1/2" npt threads to screw onto passthru with a 90° connection.

25 per pack

ITEM NO. NEB90CF12



C.P.A. Conduit Plug Assembly

Thru-wall assembly for neon double-back electrodes in wet, damp or dry locations.

Patented silicone grommet seals against weather. Can be used outdoors unprotected when used with G Cup mounted with closed end at least 45° above horizontal.

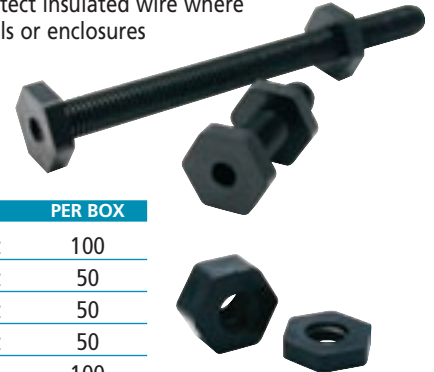
25 per box

ITEM NO. NCPA



Quik-Connect

- For channel letter installations
- Insulates high voltage GTO cable from going to ground
- Protects against corona and ozone that deteriorates insulation
- Provides smooth wall to protect insulated wire where passing through metal panels or enclosures
- UL Listed in the US for interior applications
- Smaller outside diameter to reduce larger drill bit size
- Color: blockout black



ITEM NO.	DESCRIPTION	PER BOX
NDQC2	2" Quik-Connect	100
NDQC4	4" Quik-Connect	50
NDQC6	6" Quik-Connect	50
NDQC8	8" Quik-Connect	50
ND14N	Extra locknuts	100
ND12SP	1/2" Spacer	

Greenfield Connector

Has an ID thread on one end that threads onto the Quik-Connect and a nipple on the opposite end that threads into the 3/8" Non-Metallic Greenfield.

100 per box

ITEM NO. NDGFC



Close Greenfield Connector

Has a nipple on one end that threads into the 3/8" Non-Metallic Greenfield and an OD thread with a locknut on the opposite end that inserts into knockouts in metal panels and enclosures.

100 per box

ITEM NO. NDCLGF



Heyco Bushing

7/8" x 3/8"

ITEM NO. NHB78X38

7/8" x 3/4"

ITEM NO. NHB78X34



Non-Metallic Greenfield

ID PVC sleeving for GTO and primary wire, designed to be used with the Quik-Connect, and 101-F and 101-G connectors, UL Recognized.

Quantity: 100' roll per box

Available in 3/8" or 1/2"

ITEM NO. NHNMG38

ITEM NO. NHNMG12



FMS/McMahan Tube Supports



One Piece Base Supports

Our most economical tube support, the Model 52 features a one piece base. The threaded glass stand is 10mm in diameter and measures 1 1/4 inches from center of saddle to end of stem. UL and cUL listed.

For installations that benefit from increased glass height such as deep channel letters, the Model 500 provides 5-1/4" of clearance from the mounting surface. UL listed.

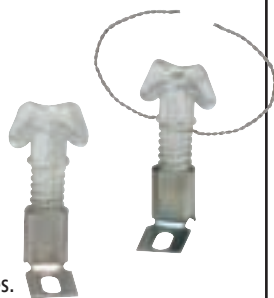
Both models available with brass or aluminum base, with or without tie-wires.



ITEM NO.	DESCRIPTION	BASE	HEIGHT	PACK
NTS52	Tube Support	Aluminum	1 1/4"	500
NTS52TW	Tube Support w/Tie Wires	Aluminum	1 1/4"	500
NTS52B	Tube Support	Brass	1 1/4"	500
NTS52BTW	Tube Support w/Tie Wires	Brass	1 1/4"	500
NTS500A	Tube Support	Aluminum	5 1/4"	100
NTS500ATW	Tube Support w/Tie Wires	Aluminum	5 1/4"	100
NTS500B	Tube Support	Brass	5 1/4"	100
NTS500BTW	Tube Support w/Tie Wires	Brass	5 1/4"	100

Economical One Piece Base Supports

Both models available with brass or aluminum base, with or without tie-wires.



ITEM NO.	DESCRIPTION	BASE	HEIGHT	PACK
NTSEC52A	Tube Support	Aluminum	1 1/4"	500
NTSEC52ATW	Tube Support w/Tie Wires	Aluminum	1 1/4"	500
NTSEC52B	Tube Support	Brass	1 1/4"	500
NTSEC52BTW	Tube Support w/Tie Wires	Brass	1 1/4"	500

Two Piece Spring Temper Brass Base Supports

Our exclusive two piece spring temper brass base features two locking notches which hold the glass more securely than conventional one piece bases. This support available in 8mm and 10mm diameter threaded glass stand which is 1 1/4 inches from center of saddle to end of stem.

A longer version of the 10mm is available that provides 2 1/2" of clearance to help accommodate new code requirements.

The Model 835 tube support is designed for applications where more space is desired or necessary between the fluorescent tube and the sign face. The glass stand is 3 1/2 inches long with cut-off notches every quarter inch starting at 2 inches. The 835 features a two piece zinc plated spring temper brass base. In addition to their standard size, Model 835 tube supports are also stocked at a length of 2 1/2 inches. UL and cUL listed.

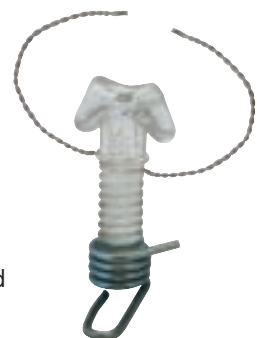


ITEM NO.	DESCRIPTION	GLASS DIA.	BASE	HEIGHT	PACK
NTS10T3	Tube Support	10mm	Brass	1 1/4"	500
NTS10T3TW	Tube Support w/Tie Wires	10mm	Brass	1 1/4"	500
NTS10T3L	Tube Support	10mm	Brass	2 1/2"	500
NTS10T3LTW	Tube Support w/Tie Wires	10mm	Brass	2 1/2"	500
NTS8T	Tube Support	8mm	Brass	2 1/2"	500
NTS8TTW	Tube Support w/Tie Wires	8mm	Brass	2 1/2"	500
NTS835	Tube Support		Brass	3 1/2"	100
NTS835TW	Tube Support w/Tie Wires		Brass	3 1/2"	100

Coil Spring Base Supports

Our Model 30 tube support features a coil spring base made from zinc plated spring temper brass wire. The glass stand twists into the spring coil easily, but will not pull out when tube is attached.

The Model 30 is particularly effective when used on fluorescent tubing which is installed and then subject to vibration in shipping, high winds, or other similar conditions. The Model 30 also features a threaded glass stand 10mm in diameter and 1 1/4 inches from center of saddle to end of stem. UL and cUL listed.



ITEM NO.	DESCRIPTION	BASE	HEIGHT	PACK
NTS30	Tube Support	Brass	1 1/4"	500
NTS30TW	Tube Support w/Tie Wires	Brass	1 1/4"	500

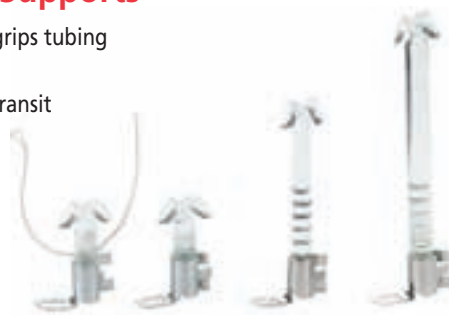
Tube Supports with Base

- Glass stand-off with brass base
- Use for mounting neon tubing to sign back or enclosure
- Simple and easy to use



Silicone Dipped Tube Supports

- Clear silicone coating on cradle grips tubing for easier installation
- Silicone also cushions tubing in transit
- Glass stand-off with brass base
- Use for mounting neon tubing to sign back or enclosure
- Simple and easy to use



Double Back Tube Support

- Designed for those areas where regular tube supports WILL NOT FIT!
- Perfect for mounting tubing on a vertical surface: tubing rests on the saddle before it is wired down!
- Designed for use with regular 1- 3/4 tube supports.



ITEM NO.	DESCRIPTION	BASE	HEIGHT
NTS#12-S	Sili-Grip Tube Support	Brass	1 1/4"
NTS#12TW-S	Sili-Grip Tube Support w/Tie Wires	Brass	1 1/4"
NTS#5-S	Sili-Grip Tube Support	Brass	3 1/2"
NTS#15TW-S	Sili-Grip Tube Support w/Tie Wires	Brass	5"
NTSDBTS-TW-S	Sili-Grip Double Back Tube Support w/Tie Wires	Brass	

Clear Vue Tube Supports

- Virtually invisible in use
- Mounts through center
- Clear Polycarbonate material
 - UV Stabilized
 - V-0 Flame Rating



ITEM NO.	HEIGHT
NTSCV10	3/8"
NTSCV20	3/4"
NTSCV30	1-3/16"
NTSCV40	1-9/16"
NTSCV50	2"
NTSCV60	2-3/8"
NTSCV70	2-3/4"

Pro-V Clear Tube Supports

- 2-Piece UV Resistant Clear Polycarbonate Construction
- Clip rotates full 360 degrees for easy installation
- Length adjustable from 1 5/8" to 2"
- Fits tubing 10 to 16 mm
- 100 sets per box



ITEM NO. NPPCTS

Grab-It Tube Supports



ITEM NO.	FOR TUBE SIZE
NTSGI8	8
NTSGI9	9
NTSGI10	10
NTSGI12	12
NTSGI13	13
NTSGI15	15

Copper Tie Wire

- 22 AWG solid, bare copper
- Use in securing neon tubing to tube supports
- Available in 1 lb, and 5 lb reels
- Approximately 500 feet per pound



ITEM #	DESCRIPTION
NCW1	Tie wire, 1 lb. spool
NCW5	Tie wire, 5 lb. spool
NCWS1	Thinned Tie wire, 1 lb. spool

Copper with Thinned Coating Tie Wire

ITEM #	DESCRIPTION
NCWS1	1 lb. spool



Stazon Blockout Paint

Stazon blockout paint is generally used on fluorescent sign tubing where portions of the tubing are to be "blocked out" and thus not show as being illuminated. Features which have made Stazon the world's leading neon blockout paint for more than 40 years include the following:

- Quick drying
- Dries to a sharp edge
- One coat covers
- Resists blistering and cracking
- Will not freeze
- Apply with brush or dip
- Extended shelf life
- Heat resistant
- No pin holes
- Non conductive
- Waterproof
- Re-dissolvable



Stazon blockout is non flammable (flash point 170 degrees F) and does not contain any ozone depleting materials. It is available in Black, Light Gray and White.

Stazon Blockout Paint now also comes in an environmentally-friendly water-based formula. With the opacity, adherence, coverage, and ease-of-use you'd expect from the makers of the world's favorite solvent-based blockout paint.

Note: due to the relatively translucent nature of white pigments, white stazon cannot provide the high degree of opacity found in the black and gray versions of stazon blockout paint.

Solvent-Based

ITEM NO.	COLOR	SIZE
NBOBKQ	Black	Quart
NBOBKQ	Black	Gallon
NBOLGQ	Lt. Gray	Quart
NBOLGG	Lt. Gray	Gallon
NBOWQ	White	Quart
NBOWG	White	Gallon
NBOTQ	Thinner	Quart
NBOTG	Thinner	Gallon

Water-Based

ITEM NO.	COLOR	SIZE
NBOWBBKQ	Black	Quart
NBOWBBKG	Black	Gallon
NBOWBGYQ	Gray	Quart
NBOWBGYG	Gray	Gallon

Blockout Brush

1/2" Brush

ITEM NO. NBB12

1" Brush

ITEM NO. NBB1



Neon Dimmers

Neon Dimmers are designed to control the brightness of neon tubing. They have special triac components to withstand burnout from the coils of neon transformers which destroy regular incandescent dimmers. Come in 4 models.

5 AMP Hard Wire Dimmer

- 600 VA, 5.2 Amps
- Strapmount
- Push-On/Off
- Field adjustable trim
- UL listed

ITEM NO. NDNE5



5 AMP Plug-In Dimmer

- 600 VA, 5.2 Amps
- Rotary Switch, also dims
- Incandescent signs
- UL listed

ITEM NO. NDNE5P



10 AMP Hard Wire Dimmer

- 1,000 VA, 8.4 Amps
- Single gang faceplate
- Field adjustable trim
- UL listed

ITEM NO. NDNE10



15 AMP Hard Wire Dimmer

- 1,500 VA, 12.5 Amps
- Double gang faceplate
- Field adjustable trim
- UL listed

ITEM NO. NDNE15



Standard Outdoor Style Protector™

Normal Power Factor 30mA/60mA



- Secondary circuit ground fault protection, interrupting transformer output to eliminate the danger of a fire in case of an arc to ground.
- LED diagnostics, reduces troubleshooting time.
- A 29-minute by-pass switch, which enables efficient fault detection, in the same manner that you were accustomed to work with old UL506 transformers.
- Three automatic resets, eliminating nuisance tripping, providing continuous and better performance, thus saving service costs.
- Available in 277 and 347V, which results in potential cost savings, as you can install more transformers per circuit when compared to 120V applications.

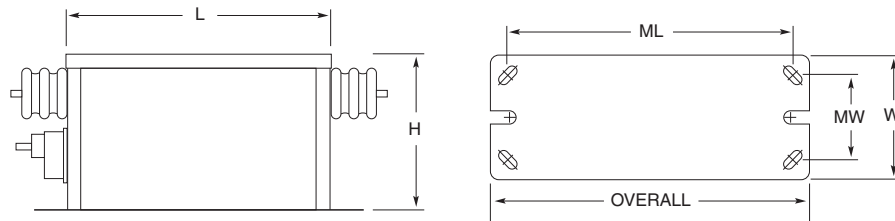


CASE A BPX Style



CASE B CPX Style

Transformers are UL2161 Listed and CSA Approved.



Normal Power Factor 120/277 Volts, 60 Hertz

120 Volts		277 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES						CASE	WT. LBS.
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	KV	MA	VA	OVERALL	L	W	H	ML	MW		
NA 1530BPX 120	3.75	NA 1530BPX 277	1.62	15,000	30	450	11	9	4 3/4	5 1/2	10	2 1/2	A	22
NA 1230BPX 120	3.00	NA 1230BPX 277	1.30	12,000	30	360	11	9	4 3/4	5 1/2	10	2 1/2	A	22
NA 1030BPX 120	2.62	NA 1030BPX 277	1.14	10,500	30	315	11	9	4 3/4	5 1/2	10	2 1/2	A	22
NA 930CPX 120	2.25	NA 930CPX 277	0.97	9,000	30	270	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 7530CPX 120	1.88	NA 7530CPX 277	0.81	7,500	30	225	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 630C 120	1.50	NA 630C 277	0.65	6,000	30	180	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 530C 120	1.33	NA 530C 277	0.58	5,000	30	160	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 430C 120	1.17	NA 430C 277	0.51	4,000	30	140	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 330C 120	0.83	NA 330C 277	0.36	3,000	30	100	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 1560BPX 120	7.50	NA 1560BPX 277	3.25	15,000	60	900	11 1/2	9 1/2	5 1/2	6 1/2	10 1/2	2 1/2	A	36
NA 1260BPX 120	6.00	NA 1260BPX 277	2.60	12,000	60	720	11 1/2	9 1/2	5 1/2	6 1/2	10 1/2	2 1/2	A	35
NA 960BPX 120	4.50	NA 960BPX 277	1.95	9,000	60	540	11	9	4 3/4	5 1/2	10	2 1/2	A	22
NA 7560BPX 120	3.75	NA 7560BPX 277	1.62	7,500	60	450	11	9	4 3/4	5 1/2	10	2 1/2	A	22
NA 660BPX 120	3.00	NA 660BPX 277	1.30	6,000	60	360	11	9	4 3/4	5 1/2	10	2 1/2	A	22
NA 560CPX 120	2.66	NA 560CPX 277	1.15	5,000	60	320	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 460CPX 120	2.40	NA 460CPX 277	1.04	4,000	60	290	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13
NA 360CPX 120	2.00	NA 360CPX 277	0.87	3,000	60	240	9 1/2	8 1/4	3 3/4	3 3/4	8 3/4	2	B	13

Standard Outdoor Style Protector™

High Power Factor



- Secondary circuit ground fault protection, interrupting transformer output to eliminate the danger of a fire in case of an arc to ground.
- LED diagnostics, reduces troubleshooting time.
- A 29-minute by-pass switch, which enables efficient fault detection, in the same manner that you were accustomed to work with old UL506 transformers.
- Three automatic resets, eliminating nuisance tripping, providing continuous and better performance, thus saving service costs.
- Available in 277 and 347V, which results in potential cost savings, as you can install more transformers per circuit when compared to 120V applications.

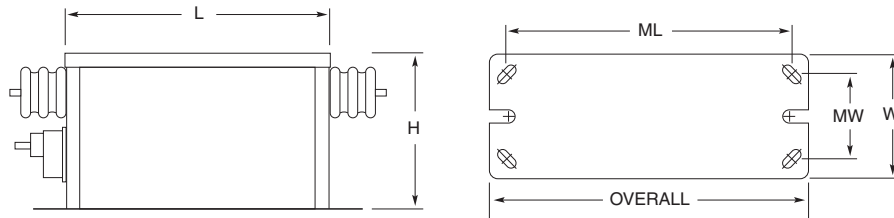


CASE A BPX Style



CASE B CPX Style

Transformers are UL2161
Listed and CSA Approved.



High Power Factor 120 Volts, 60 Hertz

120 Volts				277 Volts											
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES						CASE	WT. LBS.	
				KV	MA		OVERALL	L	W	H	ML	MW			
NA P1530BPX 120	2.08	NA P1530BPX 277	0.90	15,000	30	250	11¼	9	4¾	6¾	10¼	2½	A	23	
NA P1230BPX 120	1.67	NA P1230BPX 277	0.72	12,000	30	200	11¼	9	4¾	6¾	10¼	2½	A	23	
NA P1030BPX 120	1.46	NA P1030BPX 277	0.63	10,500	30	170	11¼	9	4¾	6¾	10¼	2½	A	23	
NA P930CPX 120	1.25	NA P930CPX 277	0.54	9,000	30	150	11¼	10	3¾	3¾	10¾	2	B	15	
NA P7530CPX 120	1.04	NA P7530CPX 277	0.45	7,500	30	125	11¼	10	3¾	3¾	10¾	2	B	15	
NA P630C 120	0.83	NA P630C 277	0.36	6,000	30	100	11¼	10	3¾	3¾	10¾	2	B	15	
NA P530C 120	0.75	NA P530C 277	0.32	5,000	30	90	11¼	10	3¾	3¾	10¾	2	B	15	
NA P430C 120	0.62	NA P430C 277	0.27	4,000	30	75	11¼	10	3¾	3¾	10¾	2	B	15	
NA P330C 120	0.46	NA P330C 277	0.20	3,000	30	55	11¼	10	3¾	3¾	10¾	2	B	15	
NA P1560BPX 120	4.17	NA P1560BPX 277	1.81	15,000	60	500	11¾	9½	5¾	6½	10¾	2½	A	36	
NA P1260BPX 120	3.33	NA P1260BPX 277	1.44	12,000	60	400	11¾	9½	5¾	6½	10¾	2½	A	35	
NA P960BPX 120	2.50	NA P960BPX 277	1.08	9,000	60	300	11¼	9	4¾	6¾	10¼	2½	A	23	
NA P7560BPX 120	2.08	NA P7560BPX 277	0.90	7,500	60	250	11¼	9	4¾	6¾	10¼	2½	A	23	
NA P660BPX 120	1.67	NA P660BPX 277	0.72	6,000	60	200	11¼	9	4¾	6¾	10¼	2½	A	23	
NA P560CPX 120	1.42	NA P560CPX 277	0.62	5,000	60	170	11¼	10	3¾	3¾	10¾	2	B	15	
NA P460CPX 120	1.09	NA P460CPX 277	0.47	4,000	60	130	11¼	10	3¾	3¾	10¾	2	B	15	
NA P360CPX 120	0.85	NA P360CPX 277	0.36	3,000	60	100	11¼	10	3¾	3¾	10¾	2	B	15	

LECIP

Standard Outdoor Style

- Outdoor Type 2 / Non-weatherproof
- Poly-Resin Fill
- 120V and 277V, 60Hz
- Normal and High Power Factors
- Ground Fault Protection
- Mid-point Ground Design
- Service Button, LED Diagnosis, Auto-reset
- Dimmable and Flashable

Transformers are
UL2161 Listed.



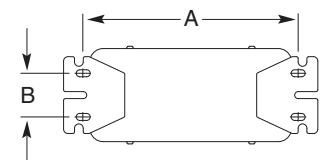
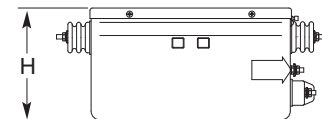
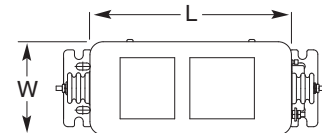
Normal Power Factor 120/277 Volts, 60 Hertz

120 Volts			277 Volts													
ITEM NO.	MFG. PART NO.	LINE AMP	ITEM NO.	MFG. PART NO.	LINE AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					CASE	WT. LBS.	
						KV	MA		L	W	H	A	B			
NL 1530 O	4B15N3-CB	3.8	NL 1530 O 277	7B15N3-CB	1.6	15,000	30	450	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	9 ¹¹ / ₁₆	2	A	22	
NL 1230 O	4B12N3-CB	3.0	NL 1230 O 277	7B12N3-CB	1.3	12,000	30	360	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	9 ¹¹ / ₁₆	2	A	22	
NL 1030 O	4B10N3-CB	2.65	NL 1030 O 277	7B10N3-CB	1.15	10,500	30	315	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	9 ¹¹ / ₁₆	2	A	22	
NL 930 O	4B09N3-CB	2.3	NL 930 O 277	7B09N3-CB	1.0	9,000	30	270	8 ¹ / ₄	3 ³ / ₈	3 ³ / ₈	8 ³ / ₄	2	B	13	
NL 7530 O	4B75N3-CB	1.9	NL 7530 O 277	7B75N3-CB	0.8	7,500	30	225	8 ¹ / ₄	3 ³ / ₈	3 ³ / ₈	8 ³ / ₄	2	B	13	
NL 630 O	4B06N3-CB	1.5	NL 630 O 277	7B06N3-CB	0.6	6,000	30	180	8 ¹ / ₄	3 ³ / ₈	3 ¹ / ₄	8 ³ / ₄	2	B	13	
NL 530 O	4B05N3-CB	1.3	NL 530 O 277	7B05N3-CB	0.5	5,000	30	150	8 ¹ / ₄	3 ³ / ₈	3 ¹ / ₄	8 ³ / ₄	2	B	13	
NL 630 O*	4B06N3-C	1.5	NL 630 O 277*	7B06N3-C	0.6	6,000	30	180	8 ¹ / ₄	3 ³ / ₈	3 ¹ / ₄	8 ³ / ₄	2	B	11	
NL 530 O*	4B05N3-C	1.3	NL 530 O 277*	7B05N3-C	0.5	5,000	30	150	8 ¹ / ₄	3 ³ / ₈	3 ¹ / ₄	8 ³ / ₄	2	B	11	
NL 1560 O	4B15N6-CB	7.50	NL 1560 O 277	7B15N6-CB	3.25	15,000	60	900	10 ³ / ₁₆	5 ⁵ / ₁₆	5 ¹³ / ₁₆	11 ⁷ / ₁₆	3	C	36	
NL 1260 O	4B12N6-CB	6.00	NL 1260 O 277	7B12N6-CB	2.60	12,000	60	720	10 ³ / ₁₆	5 ⁵ / ₁₆	5 ¹³ / ₁₆	11 ⁷ / ₁₆	3	C	36	
NL 960 O	4B09N6-CB	4.50	NL 960 O 277	7B09N6-CB	1.95	9,000	60	540	10 ³ / ₁₆	5 ⁵ / ₁₆	5	11 ⁷ / ₁₆	3	C	32	
NL 7560 O	4B75N6-CB	3.75	NL 7560 O 277	7B75N6-CB	1.60	7,500	60	450	10 ³ / ₁₆	5 ⁵ / ₁₆	5	11 ⁷ / ₁₆	3	C	32	
NL 660 O	4B06N6-CB	3.00	NL 660 O 277	7B06N6-CB	1.30	6,000	60	360	9 ³ / ₁₆	4 ³ / ₁₆	5 ¹ / ₄	10 ¹ / ₁₆	3	C	23	
NL 560 O	4B05N6-CB	2.50	NL 560 O 277	7B05N6-CB	1.10	5,000	60	300	9 ³ / ₁₆	4 ³ / ₁₆	5 ¹ / ₄	10 ¹ / ₁₆	3	C	23	

*Not equipped with Secondary Ground Fault Protection

High Power Factor 120/277 Volts, 60 Hertz

120 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES						WT. LBS.
MFG. ITEM NO.	AMP	KV	MA	VA	L	W	H	A	B	CASE	
4B15H3-CB	2.1	15,000	30	252	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	9 ¹ / ₁₆	2	A	24
4B12H3-CB	1.7	12,000	30	204	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	9 ¹ / ₁₆	2	A	23
4B09H3-CB	1.3	9,000	30	156	8 ¹ / ₄	3 ³ / ₈	3 ³ / ₈	8 ¹ / ₄	2	B	13
4B75H3-CB	1.0	7,500	30	120	8 ¹ / ₄	3 ³ / ₈	3 ³ / ₈	8 ¹ / ₄	2	B	13
4B06H3-CB	0.8	6,000	30	95	8 ¹ / ₄	3 ³ / ₈	3 ³ / ₈	8 ¹ / ₄	2	B	11
4B05H3-CB	0.7	5,000	30	80	8 ¹ / ₄	3 ³ / ₈	3 ³ / ₈	8 ¹ / ₄	2	B	11
4B15H6-CB	3.50	15,000	60	420	10 ³ / ₁₆	5 ⁵ / ₁₆	5 ¹³ / ₁₆	11 ¹ / ₁₆	3	C	36
4B12H6-CB	2.80	12,000	60	335	10 ³ / ₁₆	5 ⁵ / ₁₆	5 ¹³ / ₁₆	11 ¹ / ₁₆	3	C	36
4B09H6-CB	2.00	9,000	60	240	10 ³ / ₁₆	5 ⁵ / ₁₆	5	11 ¹ / ₁₆	3	C	32
4B75H6-CB	1.60	7,500	60	190	10 ³ / ₁₆	5 ⁵ / ₁₆	5	11 ¹ / ₁₆	3	C	32
4B06H6-CB	1.35	6,000	60	160	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	10 ¹ / ₁₆	3	C	23
4B05H6-CB	1.15	5,000	60	140	9 ¹ / ₁₆	4 ³ / ₁₆	5 ⁵ / ₁₆	10 ¹ / ₁₆	3	C	23



Self-Regulating Transformers

- Full 3 year warranty
- Vacuum potted secondaries for long life
- Two part fill with silica granules for cooler operation
- Unique tooled steel for consistent output current
- 100 % testing at six stations during production
- New Guardian (Secondary Ground Fault Protected) Transformers with 30 minute bypass feature

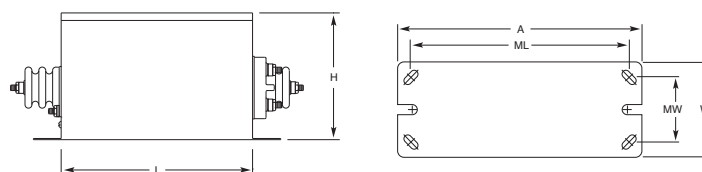


Case B

Case A

Outdoor, 120 Volts, 60 Hertz

Choked to draw 25 mA maximum and designed to operate continuously at full current. Cannot be overloaded!, Reduce inventory!, Simplify field replacement!



120 Volts		<div><div></div><div>L</div><div></div></div>										
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES						CASE	WT. LBS.
		KV	MA		L	H	W	A	ML	MW		
NAC 15025-OG	2.9	9,000-15,000	25	375	10	5 $\frac{3}{4}$	4 $\frac{1}{4}$	12 $\frac{1}{4}$	11 $\frac{1}{8}$	3	A	27
NAC 9025-OG	1.6	3,000-9,000	25	225	7 $\frac{1}{4}$	5 $\frac{3}{32}$	3 $\frac{11}{16}$	9	7 $\frac{15}{16}$	2 $\frac{5}{8}$	B	14.5

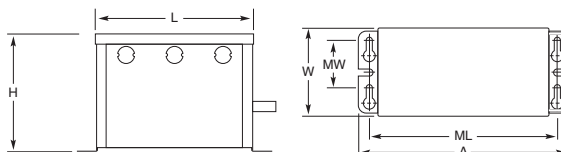
- Full 3 year warranty
- Vacuum potted secondaries for long life
- Two part fill with silica granules for cooler operation
- Unique tooled steel for consistent output current
- 100 % testing at six stations during production
- Mounts in any orientation
- Keyhole mounting for simple installation
- Mounted ON/OFF switch
- Sturdy handle and case
- Mid-point return and case ground screws
- New Guardian (Secondary Ground Fault Protected) Transformers with 30 minute bypass feature



Self-Enclosed Style

120 Volts, 60 Hertz

Choked to draw 25 mA maximum and designed to operate continuously at full current. Cannot be overloaded!, Reduce inventory!, Simplify field replacement!



120 Volts											
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES						WT. LBS.
		KV	MA		L	H	W	A	ML	MW	
NAC 1525-VMG-120	2.9	9,000-15,000	25	375	10	7¼	5¾	12	11	3	29
NAC 925-VMG-120	1.6	3,000-9,000	25	225	8	7¼	4	9 ¹⁵ / ₁₆	8 ¹⁵ / ₁₆	2¼	15

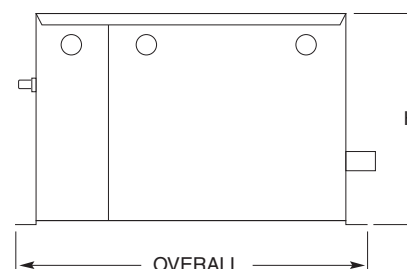
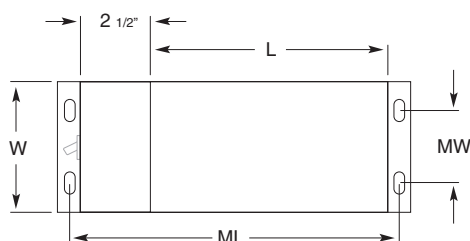
Unitran™ Protector™ Self-Enclosed Style



- Recommended for indoor neon signs and indoor neon lighting.
- Outdoor non-weatherproof unitran enclosed design, providing pre-wiring for easy installation, eliminating the need for a transformer box and primary switch.
- Secondary circuit ground fault protection, interrupting transformer output to eliminate the danger of a fire in case of an arc to ground.
- Three automatic resets, eliminates nuisance tripping, provides continuous and better performance, thus saving service costs.
- A 29-minute by-pass switch, which enables efficient fault detection, in the same manner that you were accustomed to work with the old UL506 transformers.
- High power factor, 277 and 347 Volt models, which allows installation of more units on one circuit, saving material and labour costs.



Transformers are UL2161
Listed and CSA Approved.



Normal Power Factor 120/277 Volts, 60 Hertz

120 Volts				277 Volts										
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY		PRIMARY	DIMENSIONS IN INCHES							WT. LBS.
				KV	MA	VA	OVERALL	L	W	H	ML	MW		
NA 1530FPX 120	3.75	NA 1530FPX 277	1.62	15,000	30	450	12½	10¾	4½	7½	11¾	2½	23	
NA 1230FPX 120	3.00	NA 1230FPX 277	1.30	12,000	30	360	12½	10¾	4½	7½	11¾	2½	23	
NA 1030FPX 120	2.62	NA 1030FPX 277	1.14	10,500	30	315	12½	10¾	4½	7½	11¾	2½	23	
NA 930FPX 120	2.25	NA 930FPX 277	0.97	9,000	30	270	12½	10¾	4½	7½	11¾	2½	15	
NA 7530FPX 120	1.88	NA 7530FPX 277	0.81	7,500	30	225	12½	10¾	4½	7½	11¾	2½	15	
NA 630F 120	1.58	NA 630F 277	0.69	6,000	30	180	12½	10¾	4½	7½	11¾	2½	13	
NA 530F 120	1.33	NA 530F 277	0.58	5,000	30	160	12½	10¾	4½	7½	11¾	2½	13	
NA 430F 120	1.17	NA 430F 277	0.51	4,000	30	140	12½	10¾	4½	7½	11¾	2½	13	
NA 330F 120	0.83	NA 330F 277	0.36	3,000	30	100	12½	10¾	4½	7½	11¾	2½	13	
NA 1560FPX 120	7.50	NA 1560FPX 277	3.25	15,000	60	900	13¾	11½	5¾	8¾	12½	2½	37	
NA 1260FPX 120	6.00	NA 1260FPX 277	2.60	12,000	60	720	13¾	11½	5¾	8¾	12½	2½	37	
NA 960FPX 120	4.50	NA 960FPX 277	1.95	9,000	60	540	12½	10¾	4½	7½	11¾	2½	23	
NA 7560FPX 120	3.75	NA 7560FPX 277	1.62	7,500	60	450	12½	10¾	4½	7½	11¾	2½	23	
NA 660FPX 120	3.00	NA 660FPX 277	1.38	6,000	60	360	12½	10¾	4½	7½	11¾	2½	23	
NA 560FPX 120	2.66	NA 560FPX 277	1.15	5,000	60	320	12½	10¾	4½	7½	11¾	2½	23	
NA 460FPX 120	2.40	NA 460FPX 277	1.04	4,000	60	280	12½	10¾	4½	7½	11¾	2½	23	
NA 360FPX 120	2.00	NA 360FPX 277	0.87	3,000	60	240	12½	10¾	4½	7½	11¾	2½	23	

High Power Factor models

Available in all sizes. Use same item no. as normal power factor, add "P" after "NA" [i.e. NA1530FPX would be NAP1530FPX.

Self-Enclosed Style

LECIP

- Outdoor Type 4 / Non-weatherproof
- Poly-Resin Fill
- 120V and 277V, 60Hz
- Normal and High Power Factors
- Ground Fault Protection
- Mid-point Ground Design
- Service Button, LED Diagnosis, Auto-reset
- Dimmable and Flashable
- Swivel handle



Normal Power Factor 120/277 Volts, 60 Hertz

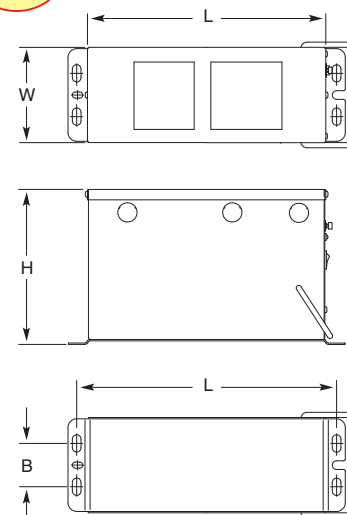
120 Volts		277 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES					WT.
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	KV	MA	VA	L	W	H	A	B	LBS.
4B15N3-EB	3.8	7B15N3-EB	1.6	15,000	30	450	10 ⁷ / ₈	4 ¹¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₄	2	26
4B12N3-EB	3.0	7B12N3-EB	1.3	12,000	30	360	10 ⁷ / ₈	4 ¹¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₄	2	26
4B10N3-EB	2.65	7B10N3-EB	1.15	10,500	30	315	10 ⁷ / ₈	4 ¹¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₄	2	26
4B09N3-EB	2.3	7B09N3-EB	1.0	9,000	30	270	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B75N3-EB	1.9	7B75N3-EB	0.8	7,500	30	225	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B06N3-EB	1.5	7B06N3-EB	0.6	6,000	30	180	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B05N3-EB	1.3	7B05N3-EB	0.5	5,000	30	150	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B06N3-E*	1.5	7B06N3-E*	0.6	6,000	30	180	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	16
4B05N3-E*	1.3	7B05N3-E*	0.5	5,000	30	150	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	16
4B15N6-EB	7.5	7B15N6-EB	3.25	15,000	60	900	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ²⁷ / ₃₂	13	3	39
4B12N6-EB	6.0	7B12N6-EB	2.6	12,000	60	720	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ²⁷ / ₃₂	13	3	39
4B09N6-EB	4.5	7B09N6-EB	1.95	9,000	60	540	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	32
4B75N6-EB	3.75	7B75N6-EB	1.6	7,500	60	450	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	32
4B06N6-EB	3.0	7B06N6-EB	1.3	6,000	60	360	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	29
4B05N6-EB	2.5	7B05N6-EB	1.1	5,000	60	300	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	29

*These transformers are UL 2161 listed without secondary ground fault protection

High Power Factor 120 Volts, 60 Hertz

120 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES					WT.
ITEM NO.	AMP	KV	MA	VA	L	W	H	A	B	LBS.
4B15H3-EB	2.1	15,000	30	252	10 ⁷ / ₈	4 ¹¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₄	2	26
4B12H3-EB	1.7	12,000	30	204	10 ⁷ / ₈	4 ¹¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₄	2	26
4B10H3-EB	1.45	10,500	30	174	10 ⁷ / ₈	4 ¹¹ / ₃₂	7 ¹ / ₁₆	11 ³ / ₄	2	26
4B09H3-EB	1.3	9,000	30	156	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B75H3-EB	1.0	7,500	30	120	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B06H3-EB	0.8	6,000	30	95	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B05H3-EB	0.7	5,000	30	80	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	18
4B06H3-E*	0.8	6,000	30	95	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	16
4B05H3-E*	0.7	5,000	30	80	10 ⁷ / ₈	3 ⁷ / ₈	6 ⁵ / ₁₆	11 ³ / ₄	2	16
4B15H6-EB	3.5	15,000	60	420	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ²⁷ / ₃₂	13	3	39
4B12H6-EB	2.8	12,000	60	335	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ²⁷ / ₃₂	13	3	39
4B09H6-EB	2.0	9,000	60	240	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	32
4B75H6-EB	1.6	7,500	60	190	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	32
4B06H6-EB	1.35	6,000	60	160	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	29
4B05H6-EB	1.15	5,000	60	140	11 ¹³ / ₃₂	5 ⁵ / ₆₄	7 ³ / ₆₄	13	3	29

*These transformers are UL 2161 listed without secondary ground fault protection



Indoor Hanger Type



- **Hanging bracket**, enabling easier installation and dual mounting methods in indoor applications.
- **Secondary circuit ground fault protection**, interrupting transformer output to eliminate the danger of a fire in case of an arc to ground.
- **Supplied with cord and plug, primary switch and secondary GTO leads**, saving wiring costs during installation of your neon signs.
- **Sleeveless GTO # 16 AWG 15 kV**, eliminates the need for additional sleeving, thus minimizes losses while operating the electrical sign.

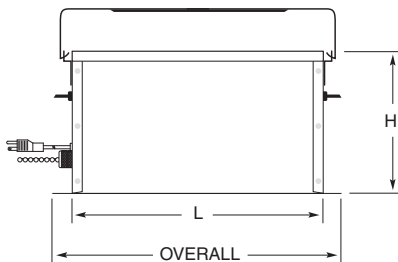
Transformers are UL2161
Listed and CSA Approved.



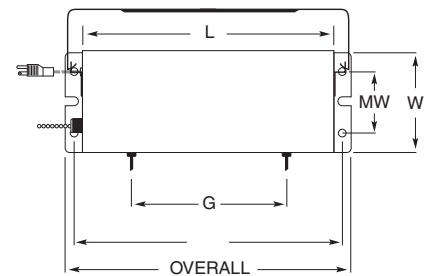
CASE A 12kv & 15kv

CASE B 7.5kv & 9kv

CASE A



CASE B



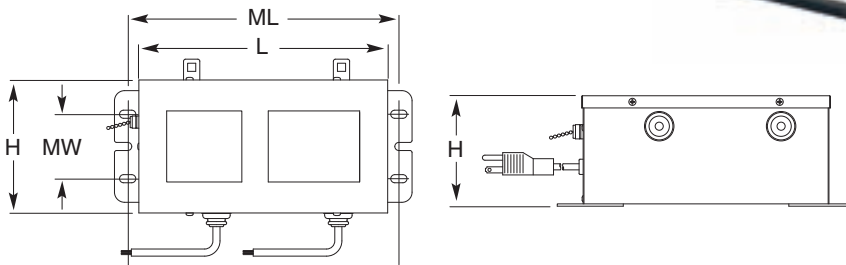
Normal Power Factor 120 Volts, 60 Hertz

120 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES							CASE	WT. LBS.
ITEM NO.	AMP	KV	MA	VA	OVERALL	L	W	H	ML	MW	G		
NA 1530HP 120	3.90	15,000	30	470	11 1/4	9	6 3/8	4 3/8	10 1/4	2 1/2	9	A	22
NA 1230HP 120	3.00	12,000	30	360	11 1/4	9	6 3/8	4 3/8	10 1/4	2 1/2	9	A	22
NA 930HP 120	2.50	9,000	30	295	9 1/2	8 1/4	3 3/8	3 3/8	8 3/8	2	4 1/2	B	13
NA 7530HP 120	2.05	7,500	30	245	9 1/2	8 1/4	3 3/8	3 3/8	8 3/8	2	4 1/2	B	13

Indoor Hanger Type

LECIP

- Indoor Type 7 / Non-weatherproof
- Poly-Resin Fill
- 120V, 60Hz
- Ground Fault Protection
- Auto-reset
- Heavy-duty Hanger Bracket
- Mid-point Ground Design



Normal Power Factor 120 Volts, 60 Hertz

120 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES					WT.
ITEM NO.	AMP	KV	MA	VA	L	W	H	ML	MW	LBS.
NL1530H	3.8	15,000	30	450	9 ⁴¹ / ₆₄	4 ¹⁷ / ₆₄	5 ⁵ / ₃₂	10 ¹ / ₂	2 ¹ / ₂	24
NL1230H	3.0	12,000	30	360	9 ⁴¹ / ₆₄	4 ¹⁷ / ₆₄	5 ⁵ / ₃₂	10 ¹ / ₂	2 ¹ / ₂	24
NL1930H	2.3	9,000	30	270	8 ⁷ / ₁₆	3 ³ / ₈	3 ⁴⁷ / ₆₄	8 ¹⁵ / ₁₆	2	14
NL7530H	1.9	7,500	30	225	8 ⁷ / ₁₆	3 ³ / ₈	3 ⁴⁷ / ₆₄	8 ¹⁵ / ₁₆	2	14

High Power Factor 120 Volts, 60 Hertz

120 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES					WT.
MFG. ITEM NO.	AMP	KV	MA	VA	L	W	H	ML	MW	LBS.
4B15H3-W	2.1	15,000	30	252	9 ⁴¹ / ₆₄	4 ¹⁷ / ₆₄	5 ⁵ / ₃₂	10 ¹ / ₂	2 ¹ / ₂	24
4B12H3-W	1.7	12,000	30	204	9 ⁴¹ / ₆₄	4 ¹⁷ / ₆₄	5 ⁵ / ₃₂	10 ¹ / ₂	2 ¹ / ₂	24
4B09H3-W	1.3	9,000	30	156	8 ⁷ / ₁₆	3 ³ / ₈	3 ⁴⁷ / ₆₄	8 ¹⁵ / ₁₆	2	14
4B75H3-W	1.0	7,500	30	120	8 ⁷ / ₁₆	3 ³ / ₈	3 ⁴⁷ / ₆₄	8 ¹⁵ / ₁₆	2	14



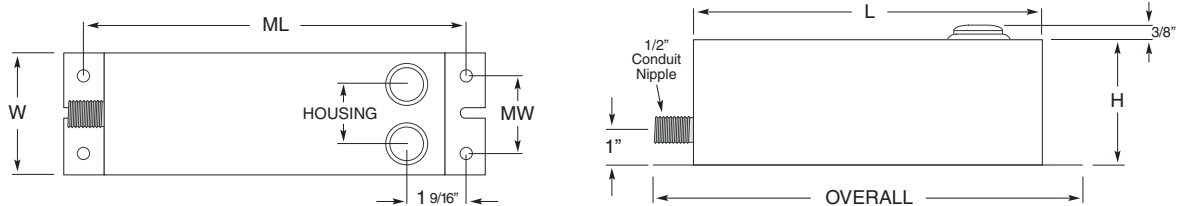
Housing /Mini Housing Style



- **No secondary wiring required**, resulting in safer, more efficient installation of your neon sign.
- **Deep electrode housings**, providing greater overall protection, longevity and better fit for your electrodes.
- **High power factor models are available**, which allows installation of more units on one circuit, saving material and labour costs.
- **Available in 277 and 347V**, which results in potential cost savings, as you can install more transformers per circuit when compared to 120V applications.



Transformers are UL2161 Listed and CSA Approved.



Normal Power Factor 120/277 Volts-60 Hertz

120 Volts				277 Volts													
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY KV	MA	PRIMARY VA	OVERALL	L	W	H	ML	MW	HOUSING	WT. LBS.			
NA 1230EK 120	3.00	NA 1230EK 277	1.30	12,000	30	360	11 1/8	10 3/8	4 1/2	4 3/8	11	2	2 1/2	23			
NA 1030EK 120	2.62	NA 1030EK 277	1.14	10,500	30	315	11 1/8	10 3/8	4 1/2	4 3/8	11	2	2 1/2	23			
NA 930EK 120	2.25	NA 930EK 277	0.97	9,000	30	270	11	9 3/8	3 3/8	3 3/8	10 1/4	2	1 3/4	13			
NA 7530EK 120	1.88	NA 7530EK 277	0.81	7,500	30	225	11	9 3/8	3 3/8	3 3/8	10 1/4	2	1 3/4	13			
NA 630EK 120	1.58	NA 630EK 277	0.69	6,000	30	180	11	9 3/8	3 3/8	3 3/8	10 1/4	2	1 3/4	13			
NA 530EK 120	1.33	NA 530EK 277	0.58	5,000	30	160	8 3/8	7	3 3/8	3 3/8	7 7/8	2	1 3/4	10			
NA 430EK 120	1.17	NA 430EK 277	0.51	4,000	30	140	8 3/8	7	3 3/8	3 3/8	7 7/8	2	1 3/4	10			
NA 330EK 120	0.83	NA 330EK 277	0.36	3,000	30	100	8 3/8	7	3 3/8	3 3/8	7 7/8	2	1 3/4	10			
NA 1260EK 120	6.00	NA 1260EK 277	2.60	12,000	60	720	13 1/8	11 3/4	5 1/2	4 3/4	12 1/2	2 1/2	2 1/2	35			
NA 960EK 120	4.50	NA 960EK 277	1.95	9,000	60	540	15	13 3/8	3 3/8	3 3/8	14 1/4	2	1 3/4	22			
NA 7560EK 120	3.75	NA 7560EK 277	1.62	7,500	60	450	15	13 3/8	3 3/8	3 3/8	14 1/4	2	1 3/4	22			
NA 660EK 120	3.00	NA 660EK 277	1.38	6,000	60	360	11 3/4	10 3/8	3 3/8	3 3/8	11	2	1 3/4	22			
NA 560EK 120	2.66	NA 560EK 277	1.15	5,000	60	320	11 3/4	10 3/8	3 3/8	3 3/8	11	2	1 3/4	13			
NA 460EK 120	2.40	NA 460EK 277	1.04	4,000	60	290	11	9 3/8	3 3/8	3 3/8	10 1/4	2	1 3/4	13			
NA 360EK 120	2.00	NA 360EK 277	0.87	3,000	60	240	11	9 3/8	3 3/8	3 3/8	10 1/4	2	1 3/4	13			

High Power Factor models

Available in all sizes. Use same item no. as normal power factor, add "P" after "NA" [i.e. NA1530FPX would be NAP1530FPX.

Mini-Housing

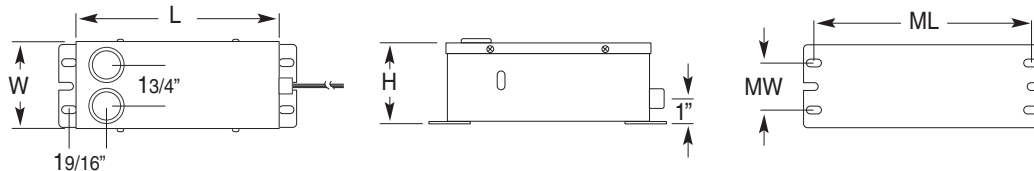
120 Volts													
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES							WT. LBS.	
		KV	MA		OVERALL	L	W	H	ML	MW	HOUSING		
NA MINI 530EK 120	1.33	5,000	30	160	6 15/16	5 13/16	3 3/8	2 7/8	6 5/8	2	1 1/2	6.5	
NA MINI 430EK 120	1.17	4,000	30	140	6 15/16	5 13/16	3 3/8	2 7/8	6 5/8	2	1 1/2	6.5	
NA MINI 330EK 120	0.83	3,000	30	100	6 15/16	5 13/16	3 3/8	2 7/8	6 5/8	2	1 1/2	6.5	

Housing /Mini Housing Style

LECIP

- Outdoor Type5/Non-Weatherproof
- Poly-Resin Fill
- 120V and 277V, 60Hz
- Normal Power Factor
- Mid-point Ground Design

Resin filling dissipates heat, and the mid-point design maintains low voltage to ground. These transformer features help prolong transformer life.



Housing

Normal Power Factor 120/277 Volts, 60 Hertz

120 Volts		277 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES					WT. LBS.
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	KV	MA	VA	L	W	H	A	B	
NL930PK	2.3	NL930PK 277	1.0	9,000	30	270	8 $\frac{5}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	9 $\frac{1}{4}$	2	13
NL7530PK	1.9	NL7530PK 277	0.8	7,500	30	225	8 $\frac{5}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	9 $\frac{1}{4}$	2	13
NL630PK	1.5	NL630PK 277	0.6	6,000	30	180	8 $\frac{5}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	9 $\frac{1}{4}$	2	12
NL530PK	1.3	NL530PK 277	0.5	5,000	30	150	8 $\frac{5}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	9 $\frac{1}{4}$	2	12

Mini-Housing

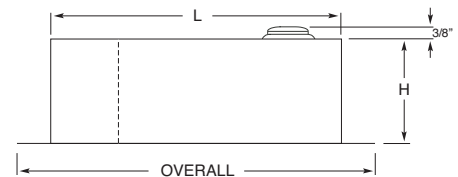
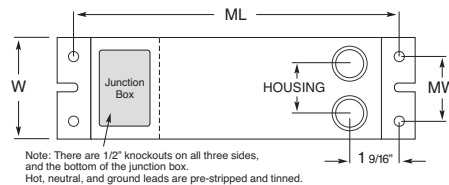
Normal Power Factor 120/277 Volts, 60 Hertz

120 Volts		277 Volts		SECONDARY		PRIMARY	DIMENSIONS IN INCHES					WT. LBS.
MFG. ITEM NO.	LINE AMP	MFG. ITEM NO.	LINE AMP	KV	MA	VA	L	W	H	A	B	
4B05N3-M	1.3	7B05N3-M	0.54	5,000	30	150	5 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	6 $\frac{1}{8}$	2	7
4B04N3-M	1.0	7B04N3-M	0.43	4,000	30	120	5 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	6 $\frac{1}{8}$	2	7
4B03N3-M	0.8	7B03N3-M	0.34	3,000	30	95	5 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	6 $\frac{1}{8}$	2	7

Self Contained Housing Style

- No secondary wiring, resulting in safer, more efficient installation.
- Pre-stripped wires, which allows faster installation.
- Integral junction box neatly encloses primary wiring, saving installation cost of additional junction box.
- Four knockouts are provided, allowing access to wiring from 4 different directions, which results in easier installation and less labour costs.
- High power factor models are available, which allows installation of more units on one circuit, saving material and labour costs.
- Available in 277 and 347V, which results in potential cost savings, as you can install more transformers per circuit when compared to 120V applications.

Transformers are UL2161
Listed and CSA Approved.



Normal Power Factor 120/277 Volts-60 Hertz

120 Volts				277 Volts											
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY		PRIMARY	DIMENSIONS IN INCHES								WT. LBS.
				KV	MA	VA	OVERALL	L	W	H	ML	MW	HOUSING		
NA 930EKF 120	2.25	NA 930EKF 277	0.97	9,000	30	270	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 7530EKF 120	1.88	NA 7530EKF 277	0.81	7,500	30	225	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 630EKF 120	1.58	NA 630EKF 277	0.69	6,000	30	180	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 530EKF 120	1.33	NA 530EKF 277	0.58	5,000	30	160	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 430EKF 120	1.17	NA 430EKF 277	0.51	4,000	30	140	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 330EKF 120	0.83	NA 330EKF 277	0.36	3,000	30	100	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 960EKF 120	4.50	NA 960EKF 277	1.95	9,000	60	540	17 3/8	16	3 3/8	3 3/8	16 3/8	2	1 3/8	22	
NA 7560EKF 120	3.75	NA 7560EKF 277	1.62	7,500	60	450	17 3/8	16	3 3/8	3 3/8	16 3/8	2	1 3/8	22	
NA 660EKF 120	3.00	NA 660EKF 277	1.38	6,000	60	360	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 560EKF 120	2.66	NA 560EKF 277	1.15	5,000	60	320	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 460EKF 120	2.40	NA 460EKF 277	1.04	4,000	60	290	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA 360EKF 120	2.00	NA 360EKF 277	0.87	3,000	60	240	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	

High Power Factor 120/277 Volts-60 Hertz

120 Volts				277 Volts											
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY		PRIMARY	DIMENSIONS IN INCHES								WT. LBS.
				KV	MA	VA	OVERALL	L	W	H	ML	MW	HOUSING		
NA P930EKF 120	1.25	NA P930EKF 277	0.54	9,000	30	150	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	
NA P7530EKF 120	1.04	NA P7530EKF 277	0.45	7,500	30	125	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	
NA P630EKF 120	0.83	NA P630EKF 277	0.36	6,000	30	100	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	
NA P530EKF 120	0.75	NA P530EKF 277	0.32	5,000	30	90	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA P430EKF 120	0.62	NA P430EKF 277	0.27	4,000	30	75	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA P330EKF 120	0.46	NA P330EKF 277	0.20	3,000	30	55	13 3/8	12	3 3/8	3 3/8	12 3/8	2	1 3/8	14	
NA P960EKF 120	2.50	NA P960EKF 277	1.08	9,000	60	300	19 3/8	18	3 3/8	3 3/8	18 3/8	2	1 3/8	23	
NA P7560EKF 120	2.08	NA P7560EKF 277	0.90	7,500	60	250	19 3/8	18	3 3/8	3 3/8	18 3/8	2	1 3/8	23	
NA P660EKF 120	1.67	NA P660EKF 277	0.72	6,000	60	200	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	
NA P560EKF 120	1.42	NA P560EKF 277	0.62	5,000	60	170	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	
NA P460EKF 120	1.09	NA P460EKF 277	0.47	4,000	60	130	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	
NA P360EKF 120	0.84	NA P360EKF 277	0.36	3,000	60	100	15 3/8	14	3 3/8	3 3/8	14 3/8	2	1 3/8	14	

Cold Cathode Transformers



- **Mid-point grounded and balanced design**, providing safer operation of your neon sign.
- **High power factor models are available**, which allows installation of more units on one circuit, saving material and labour costs.
- **Low temperature rise, providing lower operating temperature**, reducing the probability of heat problems and extending longevity of the installation.

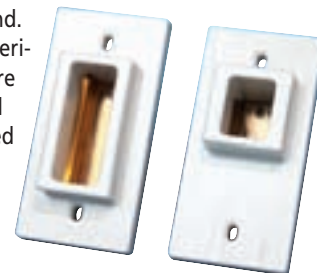


Transformers are UL2161 Listed and CSA Approved.



Cold Cathode Housings

Cold Cathode Housings are rated @ 7500V to ground. Milled out of stock material, not from a mold. wire strip gauge is imprinted on unit. Can be recessed or externally mounted. Stainless steel mounting screw for GTO or Ballast wire. Features solid brass receptacles for electrodes. User friendly (wiring and mounting abilities.)



RK212SJ (Jumper)

RK212ST (Terminal)

Digital Clamp-on Multimeter

The DL235 True RMS Clamp-On takes the mystery out of electrical diagnostics. Identify harmonics with the SOFT/CREST features or simultaneously monitor current and frequency. High scales and broad bandwidth give you the ability to tame today's tough electrical problems.

ITEM NO. NAHVMM



High Voltage Probe

Measures loaded or unloaded Neon transformers. Use in combination with multimeter.

- # MAX. Voltage : DC : 40KV, AC : 28KV, (50/60Hz only) CAT II.
- 1000MΩ Input Impedance.

ITEM NO. NAHVP



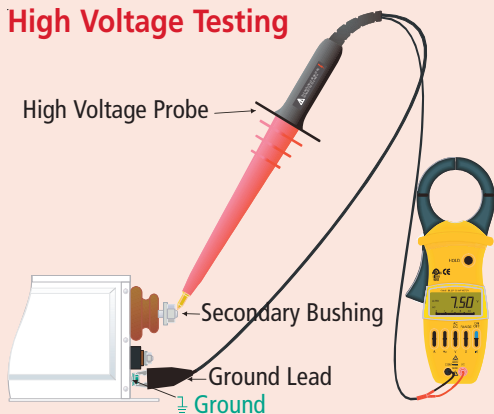
High Voltage Testing

High Voltage Probe

Secondary Bushing

Ground Lead

Ground



Electronic Milliamp Meter

The digital mA meter was designed to measure true RMS current on core and coil and electronic transformers when placed in a series connection of multiple tubes. It is compact, convenient, requires no batteries, has a frequency range of 50 to 50,000hz, and can measure from 3 to 200mA/AC. The meter readings should be taken with the meter placed in series in the neon circuit, ideally at mid-point.

ITEM NO. 645300



Neon Transformer Selektor

Accurately displays your neon transformer load requirement. This unit can be used with any combination neon tube diameters and fills for loads of 2,000-15,000 Volts

ITEM NO. NTS



Receptacle Tester

- Tests for open grounds, open hots, open neutrals and reversed polarity
- Compact unit simply plugs into any standard 3-wire/grounded receptacle
- 110-125V AC

ITEM NO. EPT



Transformer Cans

Top-Off Transformer Can

UL Listed for EXPOSED (WET) locations

- Includes 10-16 washer head self-piercing screws to prevent water leaks
- Listed to applicable U.S. and Canadian standards and requirements for outdoor exposed (wet) locations by Underwriters Laboratories, Inc.
- Strong and rigid; made of G90 galvanized steel sheet .029 inch thick
- Convenient 1/2" conduit knockouts – 6 on each end
- Knockouts for toggle switch – 2 on each end (for info on switches see Neon Accessories group)
- Multiple louvers on each end to maximize ventilation and extend transformer life
- Exceeds requirements of the 1999 NEC, Article 600-8



ITEM NO.	SIZE (LxWxH)	WIEGHT
NTB	18" x 7" x 7"	74 lbs/dozen
TC24TO-UL	22½" x 7" x 8"	7
TC36TO-UL	34½" x 7" x 8"	10

Top /Top & Side-Off Transformer Can

UL Listed for protected (damp) locations

- UL Listed for US and Canada
- Strong and rigid; made of G90 galvanized steel sheet .029 inch thick
- Convenient 1/2" conduit knockouts – 6 on each end
- Knockouts for toggle switch – 2 on each end (for info on switches see Neon Accessories group)
- Multiple louvers on each end to maximize ventilation and extend transformer life
- Exceeds requirements of the 1999 NEC, Article 600-8



Side-Off Transformer Can

ITEM NO.	SIZE (LxWxH)	WIEGHT
TC18SO-UL	18" x 7" x 7"	74 lbs/dozen

Top & Side-Off Transformer Can

ITEM NO.	SIZE (LxWxH)	WIEGHT
TC24TSO-UL	24" x 7" x 8"	8 lb
TC36TSO-UL	34½" x 7" x 8"	11 lb

Cold Cathode Transformer Can

UL Listed for EXPOSED (WET) locations

- Installed 10-16 washer head screws prevent water leaks
- Listed to applicable U.S. and Canadian standards and requirements for outdoor exposed (wet) locations by Underwriters Laboratories, Inc.
- Strong and rigid; made of G90 galvanized steel sheet .029 inch thick
- Convenient 1/2" conduit knockouts – 2 on each end
- Knockouts for toggle switch – 2 on each end (for info on switches see Neon Accessories group)
- Multiple louvers on each end to maximize ventilation and extend transformer life
- Exceeds requirements of the 1999 NEC, Article 600-8



ITEM NO.	SIZE (LxWxH)	WIEGHT
TC14CC-UL	20" x 9" x 12"	10

E-Z UP Mounting Bracket

- Designed to provide the UL required 1/2" spacing below transformer to avoid moisture problems
- .047" thick steel easily supports over 200 lbs each!
- Better heat transfer and greater stability than "double nutting"
- Much more solid and stable than "Z" brackets
- More cost effective than making "Z" brackets in your shop
- Universal slots fit all transformers without drilling
- Galvanized steel to simplify bonding requirements
- Packed in boxes of 50



Federal Bushings – 1/2" Porcelain

- Use to pass GTO cable through raceway barriers
- Made from electrical grade porcelain
- 1/2" conduit threads with locknut
- Pre-assembled
- Thread depth: 11/16" (8 threads)

100 per pack

ITEM NO. NFB



Heyco Bushing

7/8" x 3/8"

ITEM NO. NHB78X38

7/8" x 3/4"

ITEM NO. NHB78X34



Cross Reference for UL-2161 Outdoor Style, Normal Power Factor

	Allanson	Lecip	France	Magnetek	Transco	Actown
30 mA 120V						
15kV, 30mA	1530BPX 120	4B15N3-CB	15030 P5G-2	M15030GF120N-T	T1512G	1530-OG
12kV, 30mA	1230BPX 120	4B12N3-CB	12030 P5G-2	M12030GF120N-T	T1212G	1230-OG
10.5kV, 30mA	1030BPX 120	N/A	10530 P5G-2	N/A	N/A	N/A
9kV, 30mA	930CPX 120	4B09N3-CB	9030 P5G-2	M9030GF120N-T	T912G	9030-OG
7.5kV, 30mA	7530CPX 120	4B75N3-CB	7530 P5G-2	M75030GF120N-T	T7512G	7530-OG
6kV, 30mA	630C 120		6030-PG1	M6030G120N-C	T612	6030-O
5kV, 30mA	530C 120		5030-PG1	M5030G120N-C	T512	5030-O
4kV, 30mA	430C 120		4030-PG1	M4030GF120N-C	T412	4030-O
3kV, 30mA	330C 120		N/A	M3030G120N-C	T312	3030-O
60 mA 120V						
15kV, 60mA	1560BPX 120	4B15N6-CB	15060 P5G-2	M15060GF120N-T	S1512G	1560-OG
12kV, 60mA	1260BPX 120	4B12N6-CB	12060 P5G-2	M12060GF120N-T	S1212G	1260-OG
9kV, 60mA	960BPX 120	4B09N6-CB	9060 P5G-2	M9060GF120N-T	S912G	9060-OG
7.5kV, 60mA	7560BPX 120	4B75N6-CB	7560 P5G-2	M75060GF120N-T	S7512G	7560-OG
6kV, 60mA	660BPX 120		6060 P5G-2	N/A	S612G	6060-OG
5kV, 60mA	560CPX 120		5060 P5G-2	N/A	S512G	5060-OG
4kV, 60mA	460CPX 120		4060 P5G-2	N/A	S412G	4060-OG
3kV, 60mA	360CPX 120		N/A	N/A	N/A	3060-OG
30 mA 277V						
15kV, 30mA	1530BPX 277	7B15N3-CB	15030 P5G-2 277	M15030GF277N-T	T1527G	1530-OG277
12kV, 30mA	1230BPX 277	7B12N3-CB	12030 P5G-2 277	M12030GF277N-T	T1227G	1230-OG277
10.5kV, 30mA	1030BPX 277		10530 P5G-2 277	N/A	N/A	N/A
9kV, 30mA	930CPX 277	7B09N3-CB	9030 P5G-2 277	M9030GF277N-T	T927G	9030-OG277
7.5kV, 30mA	7530CPX 277	7B75N3-CB	7530 P5G-2 277	M75030GF277N-T	T7527G	7530-OG277
6kV, 30mA	630C277		N/A	N/A	T627	6030-OG 277
5kV, 30mA	530C277		N/A	N/A	T527	5030-OG 277
4kV, 30mA	430C277		N/A	N/A	T427	4030-OG 277
3kV, 30mA	330C277		N/A	N/A	T327	3030-OG 277
60mA 277V						
15kV, 60mA	1560BPX 277	7B15N6-CB	15060 P5G-2	N/A	S1527G	1560-OG277
12kV, 60mA	1260BPX 277	7B12N6-CB	12060 P5G-2	N/A	S1227G	1260-OG277
9kV, 60mA	960BPX 277	7B09N6-CB	9060 P5G-2	N/A	S927G	9060-OG277
7.5kV, 60mA	7560BPX 277	7B75N6-CB	7560 P5G-2	N/A	S7527G	7560-OG277
6kV, 60mA	660BPX 277		6060 P5G-2	N/A	S627G	6060-OG277
5kV, 60mA	560CPX 277		5060 P5G-2	N/A	S527G	5060-OG277
4kV, 60mA	460CPX 277		4060 P5G-2	N/A	S427G	4060-OG277
3kV, 60mA	360CPX 277		N/A	N/A	N/A	3060-OG277

Cross Reference for UL-2161 Outdoor Style, High Power Factor

	Allanson		France	Magnetek	Transco	Actown
30 mA 120V						
15kV, 30mA	P1530BPX 120	4B15H3-CB	15030 P5CG-2	M15030GF120H-T	4B15H3H-05	N/A
12kV, 30mA	P1230BPX 120	4B12H3-CB	12030 P5CG-2	M12030GF120H-T	4B12H3-05	N/A
10.5kV, 30mA	P1030BPX 120		10530 P5CG-2	N/A	N/A	N/A
9kV, 30mA	P930CPX 120	4B09H3-CB	9030 P5CG-2	M9030GF120H-T	4B09H3-05	N/A
7.5kV, 30mA	P7530CPX 120	4B75H3-CB	7530 P5CG-2	M7530GF120H-T	4B75H3-05	N/A
60 mA 120V						
15kV, 60mA	P1560BPX 120	4B15H6-CB	15060 P5CG-2	N/A	N/A	N/A
12kV, 60mA	P1260BPX 120	4B12H6-CB	12060 P5CG-2	M1260GF120H-T	N/A	N/A
9kV, 60mA	P960BPX 120	4B09H6-CB	9060 P5CG-2	M9060GF120H-T	N/A	N/A
7.5kV, 60mA	P7560BPX 120	4B75H6-CB	7560 P5CG-2	M7560GF120H-T	N/A	N/A
6kV, 60mA	P660BPX 120		6060 P5CG-2	N/A	N/A	N/A
5kV, 60mA	P560CPX 120		5060 P5CG-2	N/A	N/A	N/A
4kV, 60mA	P460CPX 120		4060 P5CG-2	N/A	N/A	N/A
3kV, 60mA	P360CPX 120		N/A	N/A	N/A	N/A

Cross Reference for UL-2161 Self-Enclosed Style, Normal Power Factor

30 mA 120V	Allanson	Lecip	France	Magnetek	Transco	Actown
15kV, 30mA	1530FPX120	4B15N3-EB	1530PKA2NG-1	M15030GF120N-SE	4B15N3-07	1530-VMG
12kV, 30mA	1230FPX120	4B12N3-EB	1230PKA2NG-1	M12030GF120N-SE	4B12N3-07	1230-VMG
10.5kV, 30mA	1030FPX120	4B10N3-EB	1030PKA2NG-1	N/A	4B10N3-07	N/A
9kV, 30mA	930FPX120	4B09N3-EB	930PKA2NG-1	M9030GF120N-SE	4B9N3-07	9030-VMG
7.5kV, 30mA	7530FPX120	4B75N3-EB	7530PKA2NG-1	M7530GF120N-SE	4B75N3-07	7530-VMG
6kV, 30mA	630F120	4B06N3-EB	N/A	N/A	N/A	6030-VM
5kV, 30mA	530F120	4B05N3-EB	N/A	N/A	N/A	5030-VM
4kV, 30mA	430F120		N/A	N/A	N/A	4030-VM
3kV, 30mA	330F120		N/A	N/A	N/A	3030-VM
60 mA 120V						
15kV, 60mA	1560FPX120	4B15N6-EB	1560PKA2NG-1	M15060GF120N-SE	N/A	1560-VMG
12kV, 60mA	1260FPX120	4B12N6-EB	1260PKA2NG-1	M12060GF120N-SE	N/A	1260-VMG
9kV, 60mA	960FPX120	4B09N6-EB	960PKA2NG-1	M9060GF120N-SE	N/A	9060-VMG
7.5kV, 60mA	7560FPX120	4B75N6-EB	7560PKA2NG-1	M7560GF120N-SE	N/A	7560-VMG
6kV, 60mA	660FPX120	4B06N6-EB	N/A	N/A	N/A	6060-VMG
5kV, 60mA	560FPX120	4B05N6-EB	N/A	N/A	N/A	5060-VMG
4kV, 60mA	460FPX120		N/A	N/A	N/A	4060-VMG
3kV, 60mA	360FPX120		N/A	N/A	N/A	3060-VMG

Neon Troubleshooting Guide

The following guidelines have been prepared to assist you perform a disciplined and conservative troubleshooting procedure.

⚠ WARNING

High Voltage is Hazardous. Handling testing and servicing of electrical signs should be performed by qualified personnel. Always Disconnect Primary Power before handling, testing or servicing a sign. Observe OSHA guidelines for safe electrical practices.

All transformers should be properly grounded and installed in accordance with the appropriate Electrical Code as well as in compliance with local ordinances. Proper bonding of high-voltage components is one of the most critical necessities to the effective, safe, long-lasting performance of neon applications.

Begin Troubleshooting

Do an overall inspection of the job conditions: look for evidence of burning, water, dirt, etc; look for obvious broken tubes, defective tubes, insulators, loose or open connections, corrosion caused by corona and/or moisture, improper clearances between energized components and background materials; confirm that supply power is functional and that the breaker is working.

Noise:

After verifying previous conditions, energize the transformer. Listen carefully for noise, especially in form of a hum or a buzz. Noise is an indication of one of the following:

- improper bonding of transformer and/or of other components to ground.
- faulty breaker.
- insufficient power supply or inappropriate wire size.
- overloaded circuit or high current draw.
- the presence of harmonic distortion.

Power supply:

It is important to confirm that the input voltage is within +/- 5% nominal on standard transformers. Confirm amperage rating of cir-

cuit as well as amperage load of circuit. Does it follow the NEC 80% rule? Confirm wire size, is it according to the wire size chart on pages 69 and 70? Confirm that the transformer and enclosure are grounded.

Note: Maximum voltage between ground and neutral should be 0-5 VAC. Confirm primary wiring polarity.

Secondary wiring:

Check for open circuits, if transformer has been operating over 48 hours on open circuit, replace it. Carefully inspect GTO wire for damage. Check all wiring for shorts and/or grounds. Confirm quality of GTO insulation. (should be rated 15KV and 105°C). Confirm proper bonding of conduit and other metallic components. All secondary conductors must be enclosed in a Listed 1/2" metallic or bonded conduit. Verify that the total length of high voltage cables do not exceed 20 feet / 6 meters.

Transformer loading:

Perform the secondary voltage test for loading and/or flicker test. Ensure the transformer is sized for the conditions of the job.

Other items:

Verify that the transformer is well ventilated.

Cross Reference for UL-2161 Housing Style, Normal Power Factor

30 mA 120V	Allanson	Lecip	France	Magnetek	Transco	Actown
12kV, 30mA	1230EK120		12030 PBKMG-51	M12030G120N-PK	T1212PB	N/A
9kV, 30mA	930EK120	4B09N3-H	9030 PBKMG-51	M930G120N-PK	T912PB	9030-PK
7.5kV, 30mA	7530EK120	4B75N3-H	7530 PBKMG-51	M7530G120N-PK	T7512PB	7530PK
6kV, 30mA	630EK120	4B06N3-H	6030 PBKMG-51	M630G120N-PK	T612PB	6030-PK
5kV, 30mA	530EK120	4B05N3-H	5030 PBKMG-51	M530G120N-PK	T512PB	5030-PK
4kV, 30mA	430EK120		4030 PBKMG-51	M430G120N-PK	T412PB	4030-PK
3kV, 30mA	330EK120		3030 PBKMG-51	M3030G120N-PK	T312PB	3030-PK
60 mA 120V						
12kV, 60mA	1260EK120		N/A	N/A	S1212PB	N/A
9kV, 60mA	960EK120		9060 PBKMG-51	M9060G120N-PK	S912PB	960-PK
7.5kV, 60mA	7560EK120		7560 PBKMG-51	M7560G120N-PK	S7512PB	7560-PK
6kV, 60mA	660EK120		6060 PBKMG-51	M6060G120N-PK	S612PB	6060-PK
5kV, 60mA	560EK120		5060 PBKMG-51	M5060G120N-PK	S512PB	5060-PK
4kV, 60mA	460EK120		4060 PBKMG-51	M4060G120N-PK	S412PB	4060-PK
3kV, 60mA	360EK120		3060 PBKMG-51	M3060G120N-PK	S312PB	3060-PK

Cross Reference for UL-2161 Housing Style, High Power Factor

30 mA 120V	Allanson	Lecip	France	Magnetek	Transco	Actown
12kV, 30mA	P1230EK120		N/A	N/A	T1212PBH	N/A
9kV, 30mA	P930EK120		9030 PBKMCG-51	N/A	T912PBH	N/A
7.5kV, 30mA	P7530EK120		7530 PBKMCG-51	N/A	T7512PBH	N/A
6kV, 30mA	P630EK120		6030 PBKMCG-51	N/A	T612PBH	N/A
5kV, 30mA	P530EK120		5030 PBKMCG-51	N/A	T512PBH	N/A
4kV, 30mA	P430EK120		4030 PBKMCG-51	N/A	T412PBH	N/A
3kV, 30mA	P330EK120		3030 PBKMCG-51	N/A	T312PBH	N/A
60 mA 120V						
12kV, 60mA	P1230EK120		N/A	N/A	S1212PBH	N/A
9kV, 60mA	P960EK120		9060 PBKMCG-51	N/A	S912PBH	N/A
7.5kV, 60mA	P7560EK120		7560 PBKMCG-51	N/A	S7512PBH	N/A
6kV, 60mA	P660EK120		6060 PBKMCG-51	N/A	S612PBH	N/A
5kV, 60mA	P560EK120		5060 PBKMCG-51	N/A	S512PBH	N/A
4kV, 60mA	P460EK120		4060 PBKMCG-51	N/A	S412PBH	N/A
3kV, 60mA	P360EK120		N/A	N/A	S312PBH	N/A

Cross Reference for UL-2161 Self Contained Housing Style

30 mA 120V	Allanson	Lecip	France	Magnetek	Transco	Actown
12kV, 30mA	1230EKF120		N/A	N/A	N/A	N/A
10.5kV, 30mA	1030EKF120		N/A	N/A	N/A	N/A
9kV, 30mA	930EKF120		9030 PBKMAG-51	N/A	N/A	9030-PKFE
7.5kV, 30mA	7530EKF120		7530 PBKMAG-51	N/A	N/A	7530PKFE
6kV, 30mA	630EKF120		6030 PBKMAG-51	N/A	N/A	6030-PKFE
5kV, 30mA	530EKF120		5030 PBKMAG-51	N/A	N/A	5030-PKFE
4kV, 30mA	430EKF120		4030 PBKMAG-51	N/A	N/A	4030-PKFE
3kV, 30mA	330EKF120		3030 PBKMAG-51	N/A	N/A	3030-PKFE
60 mA 120V						
12kV, 60mA	1260EKF120		N/A	N/A	N/A	N/A
9kV, 60mA	960EKF120		9060 PBKMAG-51	N/A	N/A	N/A
7.5kV, 60mA	7560EKF120		7560 PBKMAG-51	N/A	N/A	N/A
6kV, 60mA	660EKF120		6060 PBKMAG-51	N/A	N/A	N/A
5kV, 60mA	560EKF120		5060 PBKMAG-51	N/A	N/A	N/A
4kV, 60mA	460EKF120		N/A	N/A	N/A	N/A
3kV, 60mA	360EKF120		N/A	N/A	N/A	N/A

ANSI Luminous Tube Footage Chart

Normal maximum number of feet of tubing operated
(based on average grade of tubing)

Clear or Fluorescent Red
(Also recommended for Neon Fluorescent Gold)

SECONDARY		TUBE SIZE, MILLIMETERS										
kV	mA	25	22	20	18	15	14	13	12	11	10	9
15,000	60	102	85	78	72	60	54	50	45	39	33	27
	30	102	85	78	72	60	54	50	45	39	33	27
	20					50	47	44	40	34	27	24
12,000	60	79	67	61	55	45	42	39	35	30	25	21
	30	79	67	61	55	45	42	39	35	30	25	21
	20					40	38	33	30	26	21	18
10,500	30	73	62	55	48	39	36	34	31	26	22	18
9,000	120	77	65	55	46	38	34	33	30	25	22	17
	60	67	57	48	40	33	30	29	26	22	19	15
	30	67	57	48	40	33	30	29	26	22	19	15
	20					28	26	24	22	18	15	13
7,500	120	59	47	39	32	28	26	25	23	18	15	13
	60	51	41	34	28	24	23	22	20	16	13	11
	30	51	41	34	28	24	23	22	20	16	13	11
	20					22	21	20	18	14	12	10
6,000	120	46	39	32	26	22	20	19	18	15	12	10
	60	40	34	28	23	19	18	17	16	13	11	9
	30	40	34	28	23	19	18	17	16	13	11	9
	20					17	16	15	14	10	9	7
5,000	120	38	32	26	22	19	18	17	14	11	10	8
	60	33	28	23	19	17	16	15	12	10	9	7
	30	33	28	23	19	17	16	15	12	10	9	7
	20					14	13	13	11	8	7	6
4,000	60	27	23	19	16	13	12	11	10	8	7	6
	30	27	23	19	16	13	12	11	10	8	7	6
	20					11	10	10	9	7	6	5
3,000	60	17	14	12	10	10	9	9	8	7	6	5
	30	17	14	12	10	10	9	9	8	7	6	5
	20					8	8	7	6	5	4	4
2,000	30					7	6	6	6	5	4	4
	20					6	5	5	5	4	3	3
Recommended Gas Pressure mm/Hg		6	7	7.5	8	9	10	10	11	12	13	15

The above chart is only a guide.

Deduct approximately one foot from the above figures for each pair of electrodes.

For trouble-free operation, the tubing on each transformer should operate without flicker at 78% of rated primary voltage (approximately 94-volts at a nominal line voltage of 120).

ANSI Luminous Tube Footage Chart

Normal maximum number of feet of tubing operated
(based on average grade of tubing)

Clear or Fluorescent Mercury Filled Tubes, all Colors
Indoor applications (40°F Temp or above)

SECONDARY		TUBE SIZE, MILLIMETERS										
kV	mA	25	22	20	18	15	14	13	12	11	10	9
15,000	60	120	100	90	80	72	64	60	54	47	40	32
	30	120	100	90	80	72	64	60	54	47	40	32
	20					62	56	52	47	40	34	28
12,000	60	95	79	70	62	55	50	46	42	36	30	25
	30	95	79	70	62	55	50	46	42	36	30	25
	20					47	45	40	34	30	26	20
10,500	30	88	73	63	54	48	43	40	37	32	26	22
9,000	120	92	77	63	52	46	41	38	35	30	26	20
	60	80	67	55	45	40	36	33	31	26	23	18
	30	80	67	55	45	40	36	33	31	26	23	18
	20					34	31	29	26	22	18	16
7,500	120	70	55	45	36	32	31	31	27	22	18	14
	60	61	48	39	31	28	27	27	24	19	16	12
	30	61	48	39	31	28	27	27	24	19	16	12
	20					25	25	23	21	17	13	11
6,000	120	55	46	37	30	26	24	23	20	17	14	13
	60	48	40	32	26	23	21	20	18	15	12	11
	30	48	40	32	26	23	21	20	18	15	12	11
	20					20	19	17	16	12	11	8
5,000	120	46	38	31	25	22	22	18	16	14	12	9
	60	40	33	27	22	19	19	16	14	12	11	8
	30	40	33	27	22	19	19	16	14	12	11	8
	20					17	15	15	13	10	8	7
4,000	60	32	27	22	18	16	14	13	12	10	8	7
	30	32	27	22	18	16	14	13	12	10	8	7
	20					13	12	12	11	8	7	6
3,000	60	22	18	16	14	12	10	10	10	8	7	6
	30	22	18	16	14	12	10	10	10	8	7	6
	20					10	9	8	7	6	5	5
2,000	30					9	8	8	7	6	5	5
	20					7	7	7	6	5	4	4
Recommended Gas Pressure mm/Hg		6	7	7.5	8	9	10	10	11	12	13	15

Clear or Fluorescent Mercury Filled Tubes, all Colors
Outdoor applications (For Temperature Below 40°F)

TUBE SIZE, MILLIMETERS											
25	22	20	18	15	14	13	12	11	10	9	
90	76	69	65	54	47	45	40	35	30	24	
90	76	69	65	54	47	45	40	35	30	24	
				45	41	39	36	30	25	20	
71	60	55	49	40	37	36	31	27	22	19	
71	60	55	49	40	37	36	31	27	22	19	
				36	33	29	26	22	19	15	
64	55	47	42	36	32	30	27	23	20	16	
69	59	50	41	35	31	30	26	23	19	15	
60	51	43	36	30	27	26	23	20	17	13	
60	51	43	36	30	27	26	23	20	17	13	
				25	23	22	20	18	13	11	
52	42	35	29	24	23	23	21	17	14	11	
46	37	30	25	21	20	20	18	15	12	10	
46	37	30	25	21	20	20	18	15	12	10	
				19	18	18	16	13	11	9	
41	36	29	23	19	17	17	16	14	11	9	
36	31	25	20	17	15	15	14	12	10	8	
36	31	25	20	17	15	15	14	12	10	8	
				15	14	14	12	9	8	6	
34	29	23	19	17	16	16	14	10	9	7	
30	25	20	17	15	14	14	12	9	8	6	
30	25	20	17	15	14	14	12	9	8	6	
				13	12	12	10	7	6	5	
24	20	17	15	12	11	11	10	7	6	5	
24	20	17	15	12	11	11	10	7	6	5	
				8	6	6	6	5	4	4	
14	12	11	9	9	8	8	7	6	5	4	
14	12	11	9	9	8	8	7	6	5	4	
				8	6	6	6	5	4	4	
				6	6	5	5	5	4	3	
				5	5	4	4	4	3	2	
6	7	7.5	8	9	10	10	11	12	13	15	

The above chart is only a guide.

Deduct approximately one foot from the above figures for each pair of electrodes.

For trouble-free operation, the tubing on each transformer should operate without flicker at 78% of rated primary voltage (approximately 94-volts at a nominal line voltage of 120).

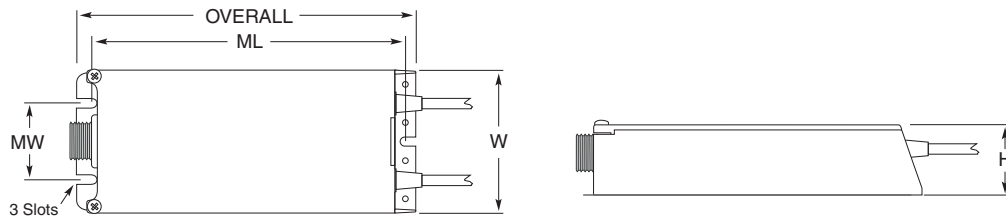
Pow-R-Pak™ Neon Power Supply, 120 Volts, 60 Hertz



- **Intelligent diagnostics of ground fault and open circuit protection**, simplifies service and gives you greater security.
- **Overload detection**, gives you the opportunity to properly match the size of your neon sign before the final installation, therefore saving you time, money and the cost of a replacement transformer.
- **Sleeveless GTO # 16 AWG 15 kV and 36" long**, eliminates the need for additional sleeving and GTO splicing, thus minimizes loses.
- **Lightweight and compact**, constructed for tight application, making it more convenient to install the sign.
- **Side exit GTO option**, allowing easier installation in compact applications.



Transformers are UL2161
Listed and CSA Approved.



Indoor High Light Output, Self Adjusting Voltage, Normal Power Factor

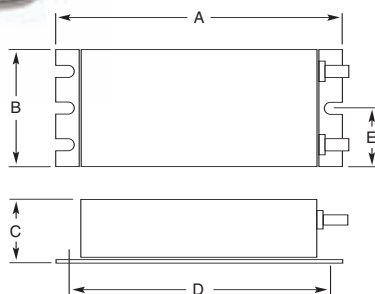
120 Volts											
ITEM NO.	AMP	SECONDARY			PRIMARY VA	DIMENSIONS IN INCHES					WT. LBS.
		KV	MA			OVERALL	W	H	ML	MW	
NA SS1235ICH	2.50	2,000-12,000	35	300	6.477	3	1½	6	1.6	1.9	
NA SS1235ICHs Side Exit GTO	2.50	2,000-12,000	35	300	6.477	3	1½	6	1.6	1.9	
NA SS1235ICD 50% Dimmer	2.50	2,000-12,000	35	300	6.477	3	1½	6	1.6	1.9	
NA SS935ICH	1.50	2,000-9,000	35	100	6.477	3	1½	6	1.6	1.9	
NA SS935ICHs Side Exit GTO	1.50	2,000-9,000	35	100	6.477	3	1½	6	1.6	1.9	
NA SS935ICD 50% Dimmer	1.50	2,000-9,000	35	100	6.477	3	1½	6	1.6	1.9	



Ventex Indoor Neon Power Supplies make it easier for you to create your best neon signage. Smaller, light weight designs allow for simple and quick installation. And Ventex's full 30mA makes your neon signs crisper, brighter and uniform intensity. With several dimming models, you can even tailor the intensity to any environmental situation.

- True 30mA output
- 10 foot power cord
- 9kV and 12kV dimmable models available
- On/Off pull chain or switch
- Available in 120VAC, 220VAC/240VAC
- 32" GTO leads or GTO clamping

UL2161 Listed



120 Volts										
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. OZS.
		KV	MA		L	H	W	ML	MW	
NVT 4030-120	0.35	100-4,000	30	120	5	1.80	1½	4½	.90	19
NVT 5520-120	0.35	100-5,500	20	120	4.9	1½	.90	4½	¾	14

Indoor/Outdoor UL Type 2 units

120 Volts										
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. OZS.
		KV	MA		L	H	W	ML	MW	
NVT 5520-120F 18" flying leads for hard wiring!	0.35	100-5,500	20	120	4.9	1½	.90	4½	¾	7
NVT 5520A-120F 18" external leads for flashing!	0.35	100-5,500	20	120	4.9	1½	.90	4½	¾	7

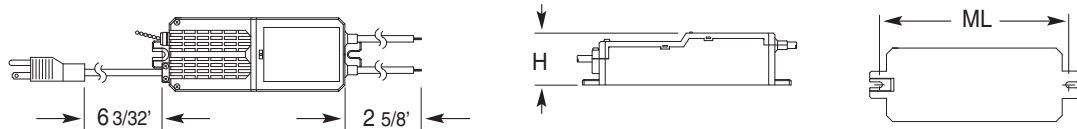
120 Volts				240 Volts											
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. OZS.			
				KV	MA		A	B	C	D	E				
NVT 6030-120	0.6	NVT 6030-240	0.3	100-6,000	30	120	6½	2.05	1.45	6	1.03	24			
NVT 9030-120	0.9	NVT 9030-240	0.5	100-9,000	30	120	6½	3.04	1.51	6	1.52	29			
NVT 9030D-120 3 level dimming 100%, 65% & 45%	0.9	NVT 9030D-240 3 level dimming 100%, 65% & 45%	0.5	100-9,000	30	120	6½	3.04	1.51	6	1.52	29			

120 Volts				240 Volts											
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. OZS.			
				KV	MA		A	B	C	D	E				
NVT 12030-120	1.1	NVT 12030-240	0.6	100-12,000	30	120	6½	3.05	2	6	1.52	32			
NVT 12030D-120 2 level dimming 100% & 65%	1.1			100-12,000	30	120	6½	3.05	2	6	1.52	32			

- Indoor Type7/Non-weatherproof
- 50 / 60Hz
- 120V
- High Power Factor
- Ground Fault Protection
- Over Voltage Protection

LECIP

Dimming function is added to the product lineup.



High Power Factor 120 Volts, 50-60 Hertz

120 Volts		SECONDARY			PRIMARY	DIMENSIONS IN INCHES				WT.
ITEM NO.	AMP	KV	MA	VA	L	W	H	ML		LBS.
4EL093	1.0	for 9,000	43	120	6 ¹³ / ₃₂	2 ¹ / ₁₆	1 ⁷ / ₈	6 ⁷ / ₈		1.65
4EL093-D	1.0	for 9,000	43	120	6 ¹³ / ₃₂	2 ¹ / ₁₆	1 ⁷ / ₈	6 ⁷ / ₈		1.65
4EL063	0.6	for 6,000	43	72	6 ¹³ / ₃₂	2 ¹ / ₁₆	1 ⁷ / ₈	6 ⁷ / ₈		1.87

4EL093-D has a built-in dimmer to choose 3 different brightness levels. Use the switch on the surface of this power supply to adjust the desired brightness. H: 100%, M: 60%, L: 40%

NPS Series

- Measuring up to the requirements of UL/CSA standards for neon transformers;
- High power factor and low harmonic distortion;
- Built-in automatic overload protection circuit;
- With pull-chain switch and UL/CSA standard plug, easy to install, most suitable for small neon signs;
- No mercury migration or 'Jelly-bean' effects.

NeonPro



120 Volts		SECONDARY		DIMENSIONS IN INCHES			WT.
ITEM NO.	LINE AMP	KV	mA	L	W	H	LB.
NPS1230I	0.45	12,000	30	6.92	3.7	1.85	2.4
NPS930I	0.75	9,000	30	5.19	3	1.81	1.34
NPS630I	0.5	6,000	30	6.25	2.24	1.65	1.3

ME Series

- Complies with ground-fault protection in UL 2161;
- Ground-fault and overload protection.

120 Volts		SECONDARY		DIMENSIONS IN INCHES			WT.
ITEM NO.	LINE AMP	KV	mA	L	W	H	LB.
NPME1230I	0.9	12,000	30	6.92	3.7	1.85	2.2
NPME930I	0.75	9,000	30	5.78	2.63	1.69	1.3
NPME630I	0.5	6,000	30	5.78	2.63	1.69	1.3



Pow-R-Pak™ Neon Power Supply, 120 Volts, 60 Hertz

- Intelligent diagnostics of ground fault and open circuit protection, simplifies service and gives you greater security.
- **Overload detection**, gives you the opportunity to properly match the size of your neon sign before the final installation.
- **Sleeveless GTO # 16 AWG 15 kV and 36" long**, eliminates the need for additional sleeving and GTO splicing, thus minimizes losses.
- **Lightweight and compact**
- **Side exit GTO option**



Outdoor High Light Output, Self Adjusting Voltage, Normal Power Factor

120 Volts										
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. LBS.
		KV	MA		OVERALL	W	H	ML	MW	
NA SS1235BOH	2.50	2,000-12,000	40	120	6 $\frac{3}{8}$	4	2	5 $\frac{5}{8}$	2 $\frac{7}{8}$	3.6
NA SS960OH	3.50	2,000-9,000	60	120	6 $\frac{3}{8}$	4	2	5 $\frac{5}{8}$	2 $\frac{7}{8}$	3.6
NA SS935OH	2.00	2,000-9,000	40	220	6.477	3	1 $\frac{1}{2}$	6	1.6	1.6
NA SS935OHS Side Exit GTO	2.00	2,000-9,000	40	220	6.477	3	1 $\frac{1}{2}$	6	1.6	1.6
NA SS660OH	2.50	2,000-6,000	60	200	6.477	3	1 $\frac{1}{2}$	6	1.6	1.6
NA SS635OH	1.50	2,000-6,000	40	200	6.477	3	1 $\frac{1}{2}$	6	1.6	1.6
NA SS635OHS Side Exit GTO	1.50	2,000-6,000	40	200	6.477	3	1 $\frac{1}{2}$	6	1.6	1.6

Transformers are UL2161 Listed and CSA Approved.



Aluma-Pak™ Outdoor Neon Power Supply

- Packed in metal to work on metal
- Extruded case and solid fill provide maximum water resistance
- The most advanced GFI technology available
- Auto reset bypass and LED display

120 Volts										
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. LBS.
		KV	MA		OVERALL	W	H	ML	MW	
NA SS1235OX	2.5	2,000-12,000	35	300	7.840	3.050	1.5	7.250	1.840	2.2
NA SS935OX	2.5	2,000-9,000	35	250	7.840	3.050	1.5	7.250	1.840	2.2
NA SS635OX	2.5	2,000-6,000	35	180	7.840	3.050	1.5	7.250	1.840	2.2

Transformers are UL2161 Listed and CSA Approved.



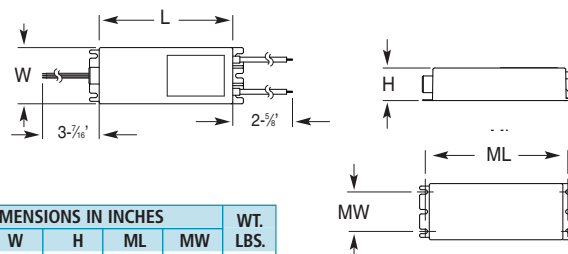
CAVALIER 30mA

- Outdoor Type 3 / Non-weatherproof
- 120V,60Hz, also available 277V,60Hz
- Ground Fault Protection
- Over Voltage Protection
- Integral Sleeve Silicone GTO Secondary Leads
- Anti jelly-beaning and mercury migration circuitry
- Flashable

LECIP

High Power Factor 120 Volts, 50-60 Hertz

120 Volts										
ITEM NO.	AMP	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES					WT. LBS.
		KV	MA		L	W	H	ML	MW	
4EL093-O	1.0	for 9,000	30	120	6 $\frac{7}{16}$	2 $\frac{11}{16}$	1 $\frac{5}{8}$	6 $\frac{7}{8}$	1 $\frac{31}{32}$	1.9
4EL043-O	0.3	for 4,000	30	36	4 $\frac{3}{32}$	1 $\frac{25}{32}$	1 $\frac{10}{32}$	4 $\frac{1}{2}$	1 $\frac{1}{16}$	0.9



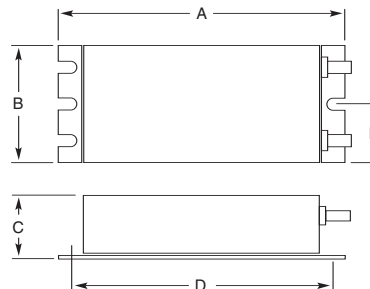
CL Neon Power Supplies for Outdoor Channel Letter Signs



Designed Especially for Channel Letters — Ventex's UL 2161 CL family of neon power supplies are engineered to make channel letter construction and installation easier, faster, and economical. With exclusive Ventex Generation III electronics you eliminate most installation problems – your signs will stay running through transient voltage spikes or brownouts! Plus, Ventex's High Power Factor circuitry will save users up to 66% on energy costs over traditional electromagnetic transformers.

- Output available in 30mA and 60mA
- Available in 120VAC, 220/240VAC and 277VAC
- 1/2" conduit fitting for primary wiring
- No primary polarity restrictions
- Circuitry included for surge suppression
- Operating temperature range -30° to 122°F (-34° to 50°C)
- White enclosures eliminate shadows
- Low profile 1.5" or less fits under the tube

UL2161 Listed



120 Volts		240 Volts		277 Volts		SECONDARY KV MA		PRIMARY VA	DIMENSIONS IN INCHES					WT. OZ.
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP	ITEM NO.	LINE AMP				A	B	C	D	E	
NVT 4030CL-120	0.35			NVT 4030CL-277	0.2	100-4,000	30		5	1.80	1½	4½	0.90	14
NVT 6030CL-120	0.6	NVT 6030CL-240	0.3			100-6,000	30		7½	1.96	1.45	6½	0.94	23
NVT 9030CL-120	0.9	NVT 9030CL-240	0.5	NVT 9030CL-277	0.5	100-9,000	30		6.65	3	1½	6.13	1.55	34
NVT 12030CL-120	1.5					100-12,000	30		8½	3½	1½	8.13	1¾	52
NVT 6060CL-120	1.8					100-6,000	60		6.65	3	1½	6.13	1.55	34
NVT 9060CL-120	1.85			NVT 9060CL-277	0.9	100-9,000	60		8½	3½	1½	8.13	1¾	52

12VDC Power Supplies



The widest variety of 12VDC electronic power supplies to light your neon!

Choose from constant burn or express your creativity with specialty neon power supplies –

- Animation/Flashing - with external controller
- Scripting - a flowing motion of light through the tube
- Designed for energy efficient operation
- So small you can mount them virtually anywhere
- All units feature 18" GTO leads

- UL 2161 Listed, CUL Approved
- Small size and light weight
- New 12 VDC molded plug connector
- No special tube processing required
- Utilizes standard gas pressures
- Safe, 12VDC low voltage

UL2161 Listed



VT 1510-12



VT 4015-12

Featuring a molded 12VDC plug

VT 4015A-12F

For animating and flashing neon

12VDC									
ITEM NO.	mA	SECONDARY		PRIMARY VA	DIMENSIONS IN INCHES				WT. OZ.
		V	mA		L	H	W	M	
VT 1510-12	650	1,500	10		1½	2¼	1	1.15	3
VT 4015-12	1400	4,000	15		3.8	1.3	1.8	3½	8
VT 4015A-12F	1400	4,000	15		3.8	1.3	1.8	3½	8
NPS-12D10S	1000	3,000	15		3	1¼	1¾	2.6	8

AC/DC Wall Adapter

for low voltage neon power supplies

- UL/CUL and internationally approved
- Powers all 12VDC Ventex electronic transformers
- Custom design minimizes AC ripple in DC output
- 10 foot (3m) power cord
- In-line on/off switch
- Durable molded rubber connector plug
- Female output jack center positive: 2.5mm x 5.5mm x 9.0mm
- Wide operating temp: 0° to 104°F (-18° to 40°C)



WA 1500US

for use with VT 1510-12, VT 4015-12, VT 4015A-12F or NPS-12D10S

Input/Output:	120 V (±10%) / 12 VDC
Output Current:	1500 mA
Length:	3.25 in.
Width:	2.5 in.
Height:	2.1 in.
Weight:	28 oz.



SloanLED has established itself as the preeminent brand of LED lighting products in the sign market. Committed to providing the sign trade with the highest quality LEDs, the broadest selection of products and the very best customer support, SloanLED offers LED solutions for nearly every application. From the smallest halo-lit letters, to the biggest face-lit channel letters. From the largest global border tubing programs, to the most unusual one-time accent tubing job. From the most demanding environments, to the most challenging installations. SloanLED has the innovation, experience and selection needed to make your LED signage projects successful.



Product Selection Guide



Channel Letters and Sign Cabinets

Available in a wide array of colors – these easy-to-use sign lighting LEDs are also popular for cove lighting, edge-lit signs and canopy illumination.

PRODUCT	KEY ATTRIBUTES	APPLICATION	RED	ORANGE	AMBER	YELLOW	GREEN	BLUE	WHITE	WARM WHITE
V Series	Wide viewing angle, low profile modules	Small/narrow/shallow channel letters, small to medium halo lit letters	X	X		X	X	X	X	X
ChannelLED 5	Wide viewing angle, Extendable wire (+2") feature Fewer modules/ft.	Most channel letters medium to large, halo letters	X	X		X	X	X	X	X
Great White 2	Most light output LED Flexible module placement	Large/deep letters, sign cabinets, cove lighting, custom vinyl color faces							X	
ChannelLED 4	Optimized viewing angles, Three different sizes	Most channel letters small to large, halo letters	X	X	X		X	X	X	
ThinLED	Flexible strips, extremely narrow, very uniform light pattern	Narrow halo letters, edge-lit signs	X		X	X	X	X	X	



LED Tubing

LED-based tubing provides superior durability over exposed neon. It also offers convenience in the field with dramatic savings from reduced installation time.

PRODUCT	KEY ATTRIBUTES	APPLICATION	RED	ORANGE	AMBER	YELLOW	GREEN	BLUE	WHITE
ColorLINE	Neon-like profile, high brightness, easily cut in the field, low power consumption	Small profile border, perimeter, accent, display and exhibit lighting	X	X		X	X	X	X
FlexiBRITE	Flexible tubing, pre-assembled/sealed, shape on the fly without heating	Free-form shapes, logos, letters, accent, open face channel letters	X	X		X	X	X	
LEDStripe	High impact rigid tubing, ultra-bright LEDs, day-time color when unlit	Large profile border, perimeter, accent, display and exhibit lighting	X	X	X	X	X	X	X

V Series Versatile LED lighting system

V Series is the brightest LED module in its class - versatile enough for many applications and the perfect solution for shallow channel letters and small halo lit letters.

- Brighter LEDs
- Wide viewing angle
- Illumination for face-lit and halo-lit channel letters
- Low profile modules
- Constant Current Technology
- Pre-wired modules for optimal placement

Dimensions LxWxH: 2¼" x 7/16" x 3/8"

LED's per module: 2

Modules per foot: 3

Mounting: Peel-n-stick and mechanical



ITEM NO.	DESCRIPTION	POWER PER MODULE (WATTS)	DOMINANT WAVELENGTH	MAX COVERAGE PER ROW	LIMITED WARRANTY
SL-CLVS-RED	V Series Red	0.6	630 nm	4"	5 Years
SL-CLVS-OR	V Series Orange	0.6	609 nm	5"	5 Years
SL-CLVS-YEL	V Series Yellow	0.6	589 nm	4"	5 Years
SL-CLVS-GR	V Series Green	0.6	528 nm	4"	5 Years
SL-CLVS-BL	V Series Blue	0.6	471 nm	4"	5 Years
SL-CLVS-WHT	V Series White	0.6	Cool	4"	4 Years
SL-CLVS-WW	V Series Warm White	0.6	Warm	4"	4 Years

ChanneLED 5 Next generation channel letter LEDs

Now with brighter LEDs and wider viewing angles, CL5 offers simplicity and flexibility while providing bright, vivid and uniform illumination for face-lit channel letters, sign cabinets, cove lighting and an endless array of low-voltage applications.

- Brighter LEDs
- Wider viewing angles
- Extendable wire (+2") feature
- Constant Current Technology
- Pre-wired modules for optimal placement

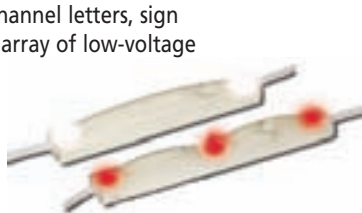
Dimensions LxWxH: Red, Orange, Yellow: 4" x 7/16" x 7/16"

Blue, Green, Whites: 3¾" x 7/16" x 7/16"

LED's per module: Red, Orange, Yellow: 3
Blue, Green, Whites: 2

Modules per foot: 2

Mounting: Peel-n-stick and mechanical



SloanStretch - pull for an additional 2" of wire when you need it.

ITEM NO.	DESCRIPTION	POWER PER MODULE (WATTS)	DOMINANT WAVELENGTH	MAX COVERAGE PER ROW	LIMITED WARRANTY
	CL5 Red	0.6		5"	Years
	CL5 Orange	0.6		5"	Years
	CL5 Yellow	0.6		5"	Years
	CL5 Green	0.9		4"	Years
	CL5 Blue	0.9		4"	Years
	CL5 White	0.9		4"	Years
	CL5 Warm White	0.9		4"	Years

Great White 2 High-Output White LEDs

Dimensions LxWxH: 3¾" x 7/8" x 9/16"

LED's per module: 2

Modules per foot: 1-2*

Mounting: Peel-n-stick and mechanical



ITEM NO.	DESCRIPTION	POWER PER MODULE (WATTS)	DOMINANT WAVELENGTH	MAX COVERAGE PER ROW	LIMITED WARRANTY
SL-CL4-GR-WHT	Great White 2 1.8 Watts		6500K**	6"	4 Years

*Great White can be placed closer or further apart for desired brightness

**White color temperature

ChannelLED4 Channel Letter LEDs

Known for its vivid colors, ChanneLED4 has been an industry favorite in illuminating face-lit and halo-lit channel letters, sign cabinets, cove lighting and an endless array of low-voltage applications. Featuring Constant Current Technology and powered by a choice of SloanLED's 12Volt DC power supplies.

- Prewired modules spaced for optimal placement and packaged in easy-to-use trays containing 25' of product each
- Mechanical and peel-n-stick fastening
- Viewing angles optimized for best performance
- Uses commonly available wire nuts and splice connectors
- Three different white LED modules for any size job
- UL Recognized for new applications and UL Classified for retrofit applications in U.S. and Canada



CL4 Mini



Dimensions LxWxH:	1 1/2 x 7/16 x 1/2
LED's per module:	2
Modules per foot:	4
Mounting:	Peel-n-stick and mechanical

ITEM NO.	DESCRIPTION	POWER PER MODULE (WATTS)	DOMINANT WAVELENGTH	MAX COVERAGE PER ROW	LIMITED WARRANTY
SL-CL4-MINI-WHT	White Mini	0.35	6500K**	4"	4 Years
SL-CL4-	Red Mini	0.6	628 nm	5"	5 Years
SL-CL4-	Green Mini	0.35	525 nm	4"	3 Years
SL-CL4-	Blue Mini	0.35	470 nm	4"	3 Years

CL4 Short



Dimensions LxWxH:	2 x 1/2 x 9/16
LED's per module:	2
Modules per foot:	3
Mounting:	Peel-n-stick and mechanical

ITEM NO.	DESCRIPTION	POWER PER MODULE (WATTS)	DOMINANT WAVELENGTH	MAX COVERAGE PER ROW	LIMITED WARRANTY
SL-CL4-WHT-S	White Short	0.35	6500K**	4"	4 Years
SL-CL4-RED-S	Red Short	0.6	628 nm	5"	5 Years
SL-CL4-OR-S	Orange Short	0.6	605 nm	5"	5 Years
SL-CL4-AMB-S	Amber Short	0.6	596 nm	5"	5 Years
SL-CL4-GREEN-S	Green Short	0.35	525 nm	4"	3 Years
SL-CL4-BLUE-S	Blue Short	0.35	470 nm	4"	3 Years

CL4 Long



Dimensions LxWxH:	4 x 1/2 x 9/16
LED's per module:	3
Modules per foot:	2
Mounting:	Peel-n-stick and mechanical

ITEM NO.	DESCRIPTION	POWER PER MODULE (WATTS)	DOMINANT WAVELENGTH	MAX COVERAGE PER ROW	LIMITED WARRANTY
SL-CL4-RED-L	Red Long	0.6 Watts	628 nm	5"	5 Years
SL-CL4-OR-L	Orange Long	0.6 Watts	605 nm	5"	5 Years
SL-CL4-AMB-L	Amber Long	0.6 Watts	596 nm	5"	5 Years

**White color temperature

SloanLED Cable

ITEM NO. SL-CABLE



SloanLED Wire Nuts

ITEM NO. SL-WN



In-Line Splice Connector

ITEM NO. SL-ILSC



ThinLED

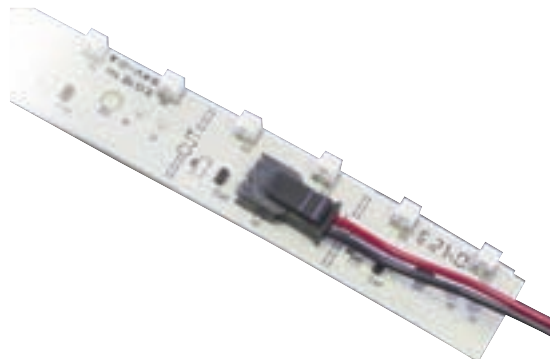
Constant Current



Reverse Letter LEDs

A favorite solution for reverse-lit ("halo") channel letters, edge-lit signs or any application with narrow strokes or channels. Bright, wide viewing-angle LEDs offer intense, even lighting. ThinLED CC is very easy to install and is completely compatible with ChannelLED4 and FlexiBRITE, offering mix-n-match versatility.

- Strip dimensions: 12"L x 3/4"H x 3/8"W (including jumper connector)
- Can be bent to a 1" radius, fits in strokes as narrow as 3/8" and can be cut to size
- Strip maintains its shape once bent for easy and secure mounting
- Each strip includes one 6" jumper



Beautiful Halo Lighting



Mounts onto the Return

ITEM NO.	DESCRIPTION	CUT INCREMENTS	LEDs PER 12" STRIP	POWER PER 12" STRIP	LIMITED WARRANTY
SL-THIN-RED	Red	2.0"	18	2.2 Watts	5 Years
SL-THIN-AMB	Amber	2.0"	18	2.2 Watts	5 Years
SL-THIN-YEL	Yellow	2.0"	18	2.2 Watts	5 Years
SL-THIN-GR	Green	1.33"	18	2.2 Watts	3 Years
SL-THIN-BL	Blue	1.33"	18	2.2 Watts	3 Years
SL-THIN-WHT	White	1.33"	18	2.2 Watts	3 Years

Jumpers

ITEM NO. SL-JUMPERS

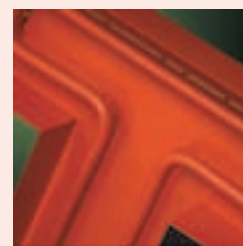
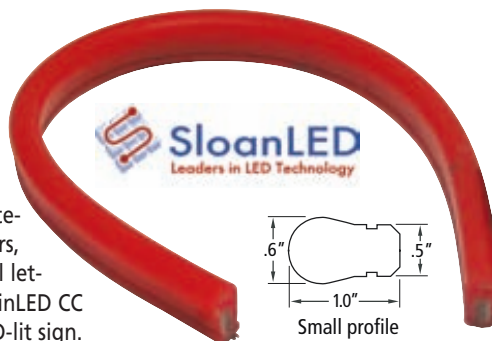
Cable & wire nuts on page 69

FlexiBRITE

Flexible LED Tubing

As the first completely flexible LED tube light, FlexiBRITE can create an endless array of profiles, contours and patterns on the fly. Ideal for exterior and interior lighting applications such as sign perimeters, letters, symbols, accent stripes, borders and open-face channel letters. Complete compatibility with ChannelLED4 and ThinLED CC means FlexiBRITE can add that "neon look" to any LED-lit sign.

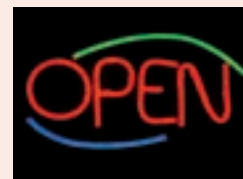
- Bright, wide viewing-angle LEDs offer intense, uniform glow for perimeter/accent lighting
- Ideal for exterior or interior signage, letters, symbols, accent stripes, borders, cove lighting
- Prewired, completely sealed, waterproof tubes can be cut-to-fit, spliced and resealed
- Packaged in easy-to-use 2' or 10' kits containing end caps and mounting clips



Open-Face Letters



Easy Installation with Mounting Clips



Free-Form Designs

ITEM NO.	DESCRIPTION	CUT INCREMENTS	LEDs PER FOOT	POWER PER FOOT	LIMITED WARRANTY
SL-FLB-RED-Size	Red Kit	2.0"	24	2.8 Watts	5 Years
SL-FLB-O-size	Orange Kit	2.0"	24	2.8 Watts	5 Years
SL-FLB-Y-size	Yellow Kit	2.0"	24	2.8 Watts	5 Years
SL-FLB-G-size	Green Kit	1.0"	24	2.8 Watts	3 Years
SL-FLB-B-size	Blue Kit	1.0"	24	2.8 Watts	3 Years
SL-FLB-W-size	White Kit	1.0"	24	2.8 Watts	3 Years

End Caps

ITEM NO. SL-FLB-EC-Color



Mounting Clips

ITEM NO. SL-FLB-MC



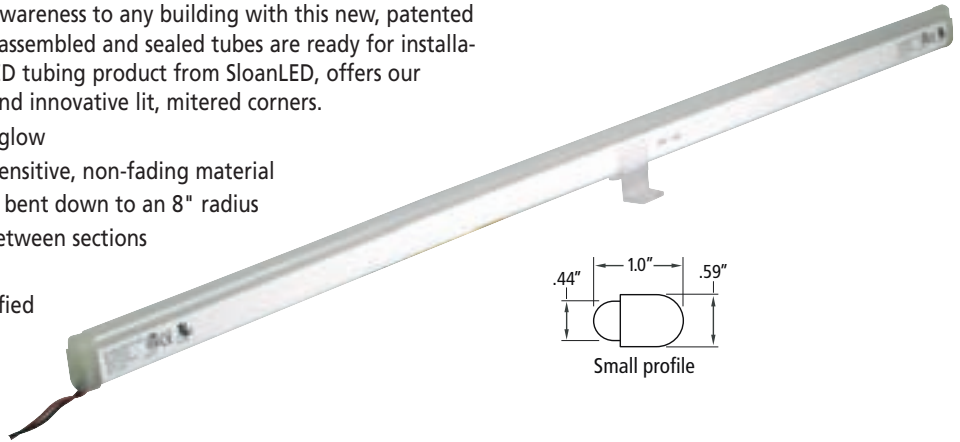
Cable & wire nuts on page 69

ColorLINE LED Border Tubing



Add stunning visual appeal and increased awareness to any building with this new, patented LED-based rigid tubing system. Completely assembled and sealed tubes are ready for installation out of the box. ColorLINE, the latest LED tubing product from SloanLED, offers our brightest light output, a neon-like profile and innovative lit, mitered corners.

- Wide viewing-angle LEDs offer uniform glow
- High impact, UV stable, hydrocarbon insensitive, non-fading material
- Can be cut-to-fit in the field and factory bent down to an 8" radius
- Convenient, weatherproof connectors between sections
- Operating temperature: -40°C to +85°C
- Conforms to UL 48 standards, is CE Certified and ETL Listed system
- Compatible with 12 VDC products and Power Supplies



ITEM NO.	DESCRIPTION	ACTUAL TUBE LENGTH	APPROX. CUT INCREMENTS	POWER PER FOOT	LIMITED WARRANTY
SL-COL-(COLOR)-2	2' Tube	24½"	2.4"	2.28 Watts	Red, Orange, Yellow
SL-COL-(COLOR)-4	4' Tube	48½"	2.4"	2.28 Watts	5 Years
SL-COL-(COLOR)-6	6' Tube	72½"	2.4"	2.28 Watts	Green, Blue, White
SL-COL-(COLOR)-8	8' Tube	96½"	2.4"	2.28 Watts	3 Years

Power Supplies

12 VDC Power Supply

- Simple primary hook-ups, Class 2 outputs
- Simple secondary hookups - no minimum load, no load balancing and no dip switches
- Proven reliability, rugged housings
- Limited warranty of up to 5 years



For ChanneLED4, ThinLED CC, FlexiBRITE & ColorLINE

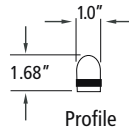
ITEM NO.	DESCRIPTION	NOMINAL INPUT VOLTAGE	INPUT CURRENT	OUTPUT VOLTAGE	POWER OUTPUT	ENCLOSURE SPEC DRY	DAMP	WET	OVERALL DIMENSIONS (LxWxH)
SL-PS-701680	Self Contained 20	120/240 Volts	.3 Amps	12 VDC	20 Watts	X	X		3.75" x 1.6" x 1"
SL-PS-701507-M	Modular 60	120/240 Volts	1.0 Amps	12 VDC	60 Watts	X	X	X	9" x 2.5" x 2"
SL-PS-701507-2	Modular 60-277	277/347 Volts	0.5 Amps	12 VDC	60 Watts	X	X	X	10.5" x 2.5" x 2"
SL-PS-701494	Quad 240	120 Volts	3.6 Amps	12 VDC	240 Watts	X	X	X	9.5" x 6" x 2.4"

All power supplies carry required UL designation in U.S. and Canada

LEDStripe

SloanLED Brings the LED Advantage to Perimeter Architectural Lighting

Add stunning visual appeal and increased awareness to any building with this popular LED-based rigid tubing system from SloanLED. Completely sealed and finished tubes are ready for installation out of the box. LEDStripe is the border tube system of choice for many retail, restaurant, petroleum and lodging chains. Easy to quote, easy to install and easy to maintain.



- Bright, wide viewing-angle LEDs offer intense, uniform glow
- High impact, UV stable, hydrocarbon insensitive, non-fading polymer tubes
- 24 Volt AC transformer powers 3 legs of 30' each (90' total), all colors
- Can be cut-to-fit in the field and factory bent to an 8" radius
- Convenient lock-tight, waterproof connectors between tubes
- Operating temperature: -40°C to +85°C
- Conforms to UL 48 standards



Custom Bending



Variety of Joint Covers and Corners



12 colors to choose from

Warm Colors: Red, Orange, Amber

Cool Colors: Lemon Yellow, Green, Blue, White
Also Pastels



ITEM NO.	DESCRIPTION	CUT INCREMENTS	LEDs PER FOOT	POWER PER FOOT	LIMITED WARRANTY
SL-LEDST-color-1	1' Tube	1.00"	2.8 Watts		
SL-LEDST-color-2	2' Tube	3.00"	2.8 Watts	Warm colos:	Warm colos:
SL-LEDST-color-4	4' Tube	3.00"	2.8 Watts	30 (99)	5 Years
SL-LEDST-color-6	6' Tube	3.00"	2.8 Watts	Cool colos:	Cool colos:
SL-LEDST-color-8	8' Tube	3.00"	2.8 Watts	24 (79)	3 Years
SL-LEDST-color-10	10' Tube	3.00"	2.8 Watts		

SloanLED Cable

ITEM NO. SL-CABLE



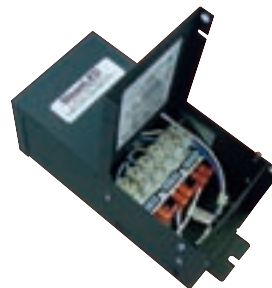
SloanLED Wire Nuts

ITEM NO. SL-WN



Power Supply

- Simple primary hook-ups, Class 2 outputs
- Simple secondary hookups - no minimum load, no load balancing and no dip switches
- Proven reliability, rugged housings
- Limited warranty of up to 5 years



LEDStripe Transformer

ITEM NO.	DESCRIPTION	NOMINAL INPUT VOLTAGE	INPUT CURRENT	OUTPUT VOLTAGE	POWER OUTPUT	ENCLOSURE SPEC		OVERALL DIMENSIONS (LxWxH)
SL-PS-700940	LEDStripe 120V	120 V/60 Hz	3.0 Amps	24 VAC	300 Watts	X	X	8.75" x 4.4" x 4.1"
SL-PS-700940-240	LEDStripe 240V	240 V/50 Hz	1.5 Amps	24 VAC	300 Watts	X	X	8.75" x 4.4" x 4.1"
SL-PS-700964	LEDStripe 277V	277 V/60 Hz	1.5 Amps	24 VAC	300 Watts	X	X	8.75" x 4.4" x 4.1"

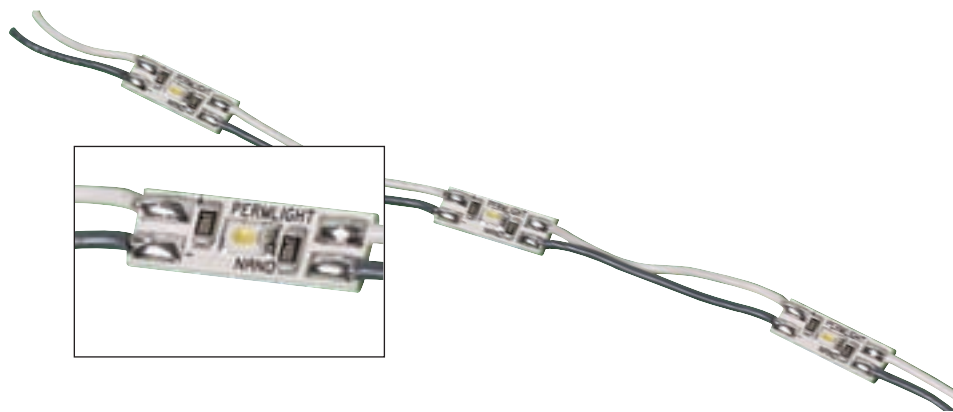
All power supplies carry required UL designation in U.S. and Canada

TwisterNANO 737 Series

TwisterNANO is a complete system which is ideal for illuminated face, reverse/halo or cove lighting. The low-profile, tiny size and flexible design fits into very small channel letters and narrow coves. TwisterNANO is conformal coated to resist moisture and harsh exterior conditions. The wide beam viewing angle allows mounting in shallow channel letters or coves providing even illumination.

- Tiny size, low-profile and flexible lighting system
- Ideal for small illuminated face letters or reverse/halo
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in multiple colors

PERMIGHT



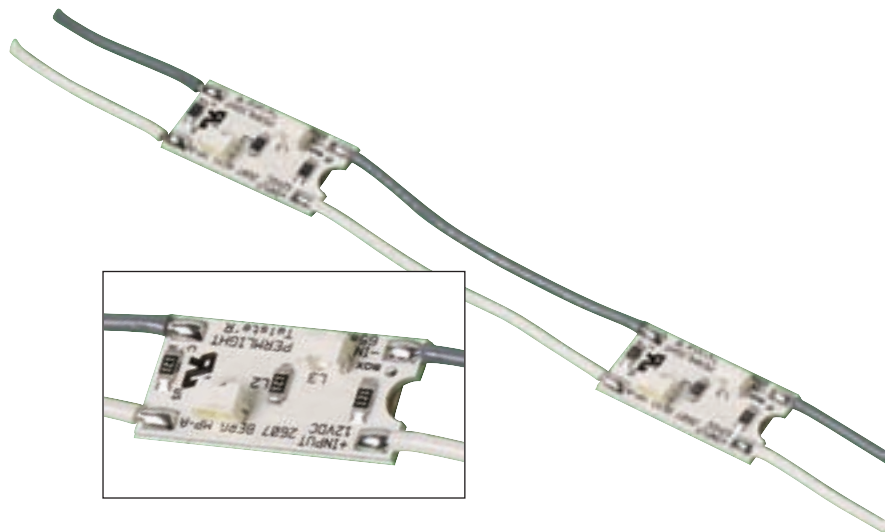
Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.25" x 0.75" x 0.13" (not including wires)
Spacing:	6 modules per foot, 2" on centers
Mounting:	Supplied VHB tape on back of module
Power per module:	0.45 watts
Warranty:	5 years

ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-737-WHT	Neon white - 6500K	40,000
PERM-737-WW	Warm White - 2850K	40,000
PERM-737-BLUE	Blue - 470nm	40,000
PERM-737-GREEN	Green - 525nm	40,000
PERM-737-AMBER	Amber - 590nm	100,000
PERM-737-ORANGE	Orange - 605nm	100,000
PERM-737-RED	Ruby Red - 630nm	100,000

TwisterHALO 787 Series

TwisterHALO is specifically designed for shallow channel letters for reverse/halo lighting. Twister HALO's side-fire LED and close module spacing of 3" on center makes it perfect for mounting inside the back of the channel letter. The side-firing LED bounces the light back-and-forth on the returns and creates a soft, even illumination without "hots spots" or "points of light".

- "Side-fire" LED for very shallow reverse/halo lighting
- Compact, low-profile and flexible lighting system
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in blue and white



Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.5" x 1.0" x 0.13" (not including wires)
Spacing:	4 modules per foot, 3" on centers
Mounting:	Supplied VHB tape on back of module Built-in notch can be used to attach with screw or rivet
Power per module:	0.45 watts
Warranty:	5 years

ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-787-WHT	Neon white - 6500K	40,000
PERM-787-BLUE	Blue - 470nm	40,000
PERM-787-GREEN	Green - 525nm	40,000

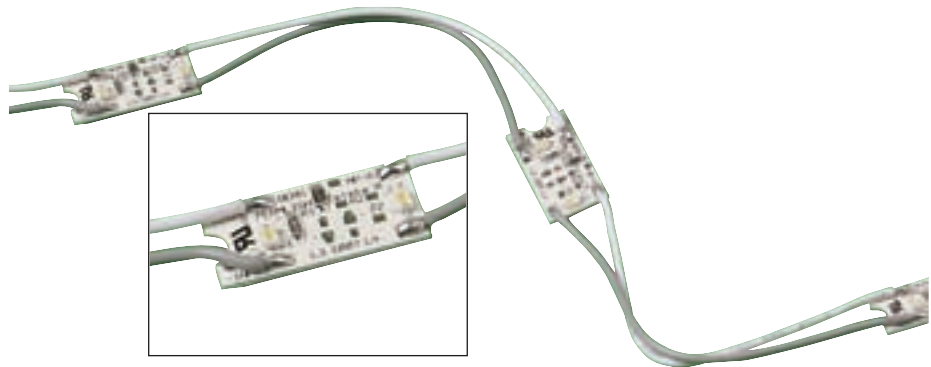
Twister 752 Series

Twister is a complete system which is ideal for illuminated face, reverse/halo or cove lighting. The low-profile, compact size and flexible design fits into small and medium channel letters and narrow coves. Twister's wide beam viewing angle allows mounting on returns of channel letters or in shallow coves providing even illumination.

- Compact, low-profile and flexible lighting system
- Ideal for illuminated face, reverse/halo and cove
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in multiple colors

Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.5" x 1.0" x 0.13" (not including wires)
Spacing:	3 modules per foot, 4" on centers
Mounting:	Supplied VHB tape on back of module Built-in notch can be used to attach with screw or rivet
Power per module:	0.6 watts
Warranty:	5 years

PERMIGHI



ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-752-WHT-C	Cool white - 6500K	40,000
PERM-752-INCAN-B	Warm White - 2850K	40,000
PERM-752-B470-B	Blue - 470nm	40,000
PERM-752-G525-B	Green - 525nm	40,000
PERM-752-A590	Amber - 590nm	100,000
PERM-752-N605	Orange - 605nm	100,000
PERM-752-R630	Ruby Red - 630nm	100,000

PALETTE 780 Series

Palette is a complete system which is ideal for illuminated face, reverse/halo or cove lighting. The extra long module board is ideal for large channel letters and long run coves. Palette's wide beam viewing angle allows mounting in shallow letters or coves providing even illumination.

- Ideal lighting system for long runs or large channel letters
- Highly economical lighting system
- Evenly spaced LEDs
- Simple "peel & stick" installation
- Available in multiple colors

Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	8.48" x 0.5" x 0.13" (not including wires)
Spacing:	1 module per foot, 12" on centers
Mounting:	Supplied VHB tape on back of module Built-in notch can be used to attach with screw or rivet
Power per module:	Blue, Green: 2.4 watts Amber, Orange: 0.9 Ruby Red: 1.2
Warranty:	5 years

ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-780-BLUE-B	Blue - 470nm	40,000
PERM-780-GREEN-B	Green - 525nm	40,000
PERM-780-AMBER	Amber - 590nm	100,000
PERM-780-ORANGE	Orange - 605nm	100,000
PERM-780-RUBYRED-B	Ruby Red - 630nm	100,000

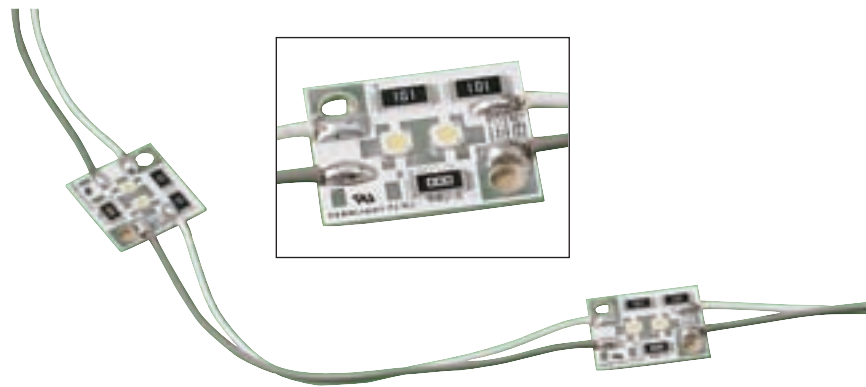
PZ 727 Series

PZ is a complete system which is ideal for illuminated face, reverse/halo or cove lighting. The lowprofile, compact size and flexible design fits into channel letters and coves. PZ's wide beam viewing angle allows mounting on returns of channel letters or in shallow coves providing even illumination.

- Compact, low-profile and flexible lighting system
- Ideal for illuminated face, reverse/halo and cove
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in multiple colors

Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.88" x 1.0" x 0.13" (not including wires)
Spacing:	2 modules per foot, 6" on centers
Mounting:	Supplied VHB tape on back of module Built-in notch can be used to attach with plastic screw/rivet
Power per module:	1.5 watts
Warranty:	5 years

PERMIGHT



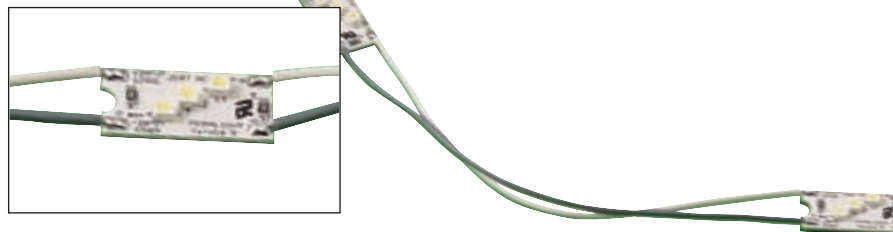
ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-727-WHT	Cool white - 6500K	40,000
PERM-727-INCAN	Warm White - 2850K	40,000
PERM-727-BLUE	Blue - 470nm	40,000
PERM-727-GREEN	Green - 525nm	40,000

TwisterSTAR 753 Series

Twister STAR is a complete system which is ideal for illuminated face, reverse/halo or cove lighting. The lowprofile, compact size and flexible design fits into small and medium channel letters and narrow coves. The wide beam viewing angle allows mounting on returns of channel letters or in shallow coves providing even illumination.

- Compact, low-profile and flexible lighting system
- Ideal for illuminated channel letters
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in multiple colors

Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.50" x 1.0" (not including wires)
Spacing:	2 modules per foot, 6" on centers
Mounting:	Supplied VHB tape on back of module Built-in notch can be used to attach with plastic screw or rivet
Power per module:	0.5 watts
Warranty:	5 years



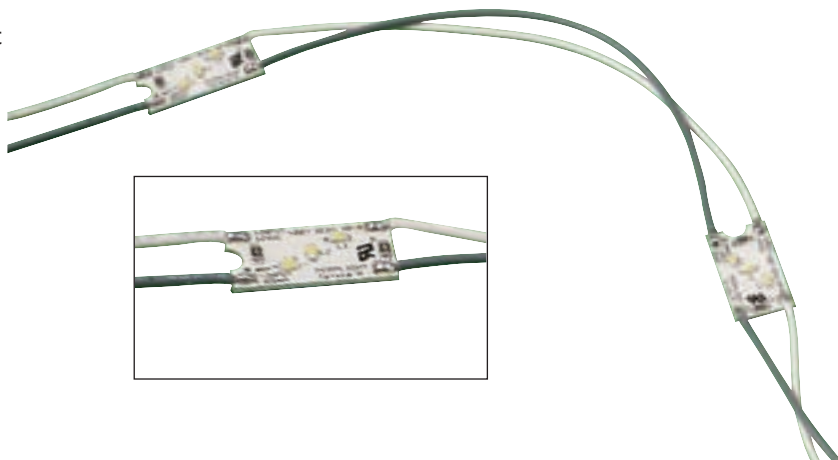
ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-753-WHT	Neon White (6500K)	40,000
PERM-753-RED	Ruby Red (630nm)	100,000

PERMIGHT

Twister NITRO 777 Series

Twister Nitro is like the standard Twister except it is over three times brighter and has a similar light output to 60mA neon.

- Equivalent light output to a 60mA neon
- Compact, low-profile and flexible lighting system
- Ideal for illuminated face, reverse/halo
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in multiple colors



Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.50" x 1.0" (not including wires)
Spacing:	2 modules per foot, 6" on centers
Mounting:	Supplied VHB tape on back of module Built-in notch can be used to attach with plastic screw or rivet
Power per module:	2.5 watts
Warranty:	5 years

ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-777-WHT	Cool White (6500K)	100,000

El Plato 747 Series

El Plato™ is a complete system which is ideal for illuminated face, reverse/halo or cove lighting. The extra long module board is ideal for large channel letters and long run coves. EL Plato operates at a safe 12VDC for compatibility with other Permlight LED systems.

- Equivalent light output to a 60mA neon
- Ideal for illuminated channel letters
- Weather resistant conformal coating
- Simple "peel & stick" installation
- Available in multiple colors



Input:	12 VDC nominal, 12.3VDC maximum
Dimensions:	0.60" x 8.5" (not including wires)
Spacing:	17.5" on centers
Mounting:	Supplied VHB tape on back of module
Power per module:	Ruby Red: 2.5 All other colors: 3.5 watts
Warranty:	5 years

ITEM NO.	COLOR	ESTIMATED LIFE (HOURS)
PERM-747-RED	Ruby Red (630nm)	100,000
PERM-747-AMBER	Amber (590nm)	100,000
PERM-747-BLUE	Blue (470nm)	40,000
PERM-747-GREEN	Green (525nm)	40,000
PERM-747-WHT	Neon White (6500K)	40,000
PERM-747-WW	Warm White (2750K)	40,000

60 Watt Power Supply

The 60-12DC series is an AC to DC power supply with a single primary input (AC) and single secondary output (DC) rated at 60 Watts. The secondary side has a maximum output of no more than 5.0 A and complies with all requirements by Underwriters Laboratories (UL) for a standard Class 2 power unit. With no minimum load requirement, the system is engineered to supply a constant 12 VDC output for optimum LED performance and includes safety features such as overload and short circuit protection to prevent damage to the power supply and LED's.

- 120 - 240 VAC input (AC)
- Output overload and short circuit protection
- Class 2 output power supply
- No minimum load requirement
- Integrated junction box
- Small footprint, easily fits into a channel raceway.
- Rated for Damp Location

ITEM NO.	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VDC)	TOTAL OUTPUT POWER
PERM-60-12DC	120 - 240	12	60 Watts

PERMIGHI



240 Watt Power Supply

The 250-12DC series is an AC to DC power supply with a single primary input (AC) and 4 independent secondary outputs (DC) rated at 60 Watts per channel (240 Watts total). Each channel has a maximum output of no more than 5.0 A and complies with all requirements by Underwriters Laboratories (UL) for a standard Class 2 power unit. With no minimum load requirement, the system is engineered to supply a constant 12 VDC output for optimum LED performance and includes safety features such as overload and short circuit protection to prevent damage to the power supply and LED's.

- Single line voltage input with 4 independent secondary channel outputs (60 Watts per channel)
- Available in 120, 220, and 277 VAC inputs
- Output overload and short circuit protection
- Class 2 output power supply
- No minimum load requirement
- Integrated junction box
- Rated for Damp Location

ITEM NO.	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VDC)	TOTAL OUTPUT POWER
PERM-250-12DC	120	12	240
250-12DC-220	240	12	240
250-12DC-277	277	12	240

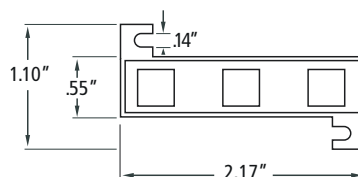


NeonPro

Square Super Flux Module

The NeonPro LED light module is developed for the special requirements of advertising market on the basis of the advantage of LED. It can work in high-power with low working voltage, safe and easy. It is a replacement of the traditional neon light.

LED per Module:	3 pcs.
Input Voltage:	12VDC
Unit Watts:	Red, Yellow: 0.60 Blue, Green, White: 0.36
Viewing Angle:	130°
Module Size (LxWxH):	2.17" x 1.10" x 0.43"
Modules per Chain:	25



ITEM NO.	COLOR	WAVE LENGTH (nm)
LEDMS-R	Red	623
LEDMS-Y	Yellow	590
LEDMS-B	Blue	470
LEDMS-G	Green	525
LEDMS-W	White	—

NeonPro

AC to DC Single Output Switching Power Supply

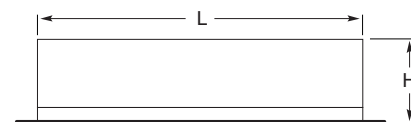
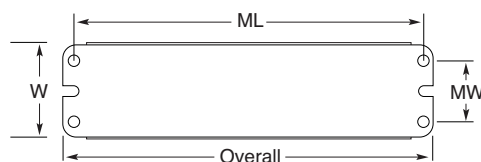


ITEM NO.	DESCRIPTION	INPUT VOLTAGE RANGE	INPUT CURRENT	OUTPUT VOLTAGE	OUTPUT WATTS	OVERALL DIMENSIONS (LxWxH)
NPLEDPS4012	Metal Case, UL/EMC	120/240	1.0A/0.5A max.	15Vdc max.	40	11.4" x 2.4" x 1.5
NPLEDPS6012	Metal Case, UL/EMC	120/240	1.2A/0.6A max.	15Vdc max.	60	13" x 2.4" x 1.5
NPLEDPS9012	Metal Case, UL/EMC	120/240	1.8A/1.0A max.	15Vdc max.	90	15" x 2.4" x 1.5

High - Output Fluorescent Sign Ballasts

- 800 mA output for High Output Fluorescent lamps, provides higher light output, increasing the brilliance of your electrical sign.
- Thermally protected class "P" ballasts, automatically turn off when the ballast is hot, thus extend the longevity of the ballasts.
- High power factor, 277 and 347 Volt models, reducing operation and installation costs.

Transformers are UL2161
Listed and CSA Approved.



High Output, Rapid Start, 120 Volts, 60 Hertz

120 Volts		277 Volts		LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	INPUT WATTS	OPEN CIRCUIT VOLTS	DIMENSIONS IN INCHES						WT. LBS.	WIRING DIAGRAM
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP					OVERALL	L	W	H	ML	MW		
EA148	0.70	EA148277	0.33	2 - 4	1	65	330	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	1
EA224	0.70	EA224277	0.31	2 - 4	2,1	80	330	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	4
EA272	1.60	EA272277	0.69	4 - 12	2,1	190	475	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	4,3
EA296	2.00	EA296277	0.90	12 - 16	2	222	530	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	3
EA348	1.50	EA348277	0.66	6 - 12	3,2,1	162	530	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	9,8,7
EA372	2.00	EA372277	0.97	12 - 18	3,2	250	720	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	8,7
EA396	2.70	EA396277	1.20	18 - 24	3,2	298	720	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	8,7
EA448	1.90	EA448277	0.86	8 - 18	4,3,2	235	575	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	12,11,10
EA472	2.80	EA472277	1.18	16 - 24	4,3,2	312	720	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	12,11,10
EA496	3.30	EA496277	1.43	24 - 32	4,3,2	375	1000	16 1/2	15 1/2	3.188	2 5/8	15 1/2	2	17 1/4	11,10
EA4120	3.80	EA4120277	1.57	20 - 40	4,3,2	455	2 x 800	16 1/2	15 1/2	3.188	2 5/8	15 1/2	2	17 1/4	12,11,10
EA572	3.20	EA572277	1.43	20 - 30	5,4	365	982	16 1/2	15 1/2	3.188	2 5/8	15 1/2	2	17 1/4	14,13
EA648	2.80	EA648277	1.22	8 - 24	6,5,4	320	850	16 1/2	15 1/2	3.188	2 5/8	15 1/2	2	17 1/4	17,16,15
EA672	4.20	EA672277	1.79	24 - 36	6,5,4	470	1000	16 1/2	15 1/2	3.188	2 5/8	15 1/2	2	17 1/4	17,16,15
EA696	4.30	EA696277	1.76	30 - 48	6,5,4	510	2 x 790	16 1/2	15 1/2	3.188	2 5/8	15 1/2	2	17 1/4	17,16,15

Flashing High Output

120 Volts		277 Volts		LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	INPUT WATTS	OPEN CIRCUIT VOLTS	DIMENSIONS IN INCHES						WT. LBS.	WIRING DIAGRAM
ITEM NO.	LINE AMP	ITEM NO.	LINE AMP					OVERALL	L	W	H	ML	MW		
EA296-BFT	2.00	EA296-BFT277	0.90	12 - 16	2	222	530	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	18
EA396-BFT	2.00	EA396-BFT277	0.97	12 - 18	3,2	250	720	11 3/4	11 1/2	3.188	2 5/8	11 1/2	2	11 3/4	18

Note: External flasher required

Wiring diagrams on next page



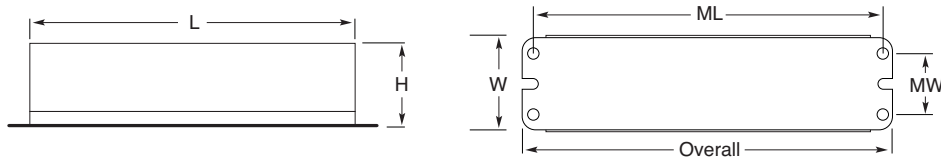
Ballast Footage Chart

|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

High - Output Fluorescent Sign Ballasts



- Provide ultra-reliable, low temperature starting (as low as -20°F)
- Support 1 to 6 lamps
- Ideal for rugged outdoor sign cabinet applications
- UL Class P thermally protected, Type 2 Outdoor, HL



High Output 800mA RS Lamps - 120 Volts - 60 Hz

120 Volts											
ITEM NO.	LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	LINE	INPUT WATTS	OPEN CIRCUIT VOLTS	DIMENSIONS (Inches)					WT. LBS.
						L	OVERALL	ML	H	W	
EM148	2' - 5'4"	1	0.55	65	400	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	1 ³ / ₄	3 ³ / ₁₆	8
EM248	3' - 8'	2,1	0.90	105	400	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	1 ³ / ₄	3 ³ / ₁₆	8
EM272	4' - 12'	2,1	1.35	160	500	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	1 ³ / ₄	3 ³ / ₁₆	8
EM296	12' - 16'	2,1	1.80	210	500	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	2 ⁴³ / ₆₄	3 ³ / ₁₆	11
EM348	4' - 12'	3,2,1	1.35	160	500	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	1 ³ / ₄	3 ³ / ₁₆	8
EM372	12' - 18'	3,2	2.00	240	590	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	2 ⁴³ / ₆₄	3 ³ / ₁₆	12
EM396	10' - 24'	3,2,1	2.70	325	720	13 ³ / ₁₆	14 ⁵ / ₁₆	13 ³ / ₄	2 ⁴³ / ₆₄	3 ³ / ₁₆	14
EM3120	16' - 30'	3,2	3.50	395	885	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	16
EM448	8' - 16'	4,3,2,1	1.90	220	590	10 ³⁷ / ₆₄	11 ⁴⁵ / ₆₄	11 ⁹ / ₆₄	2 ⁴³ / ₆₄	3 ³ / ₁₆	12
EM464	10' - 22'	4,3,2,1	2.40	285	680	13 ³ / ₁₆	14 ⁵ / ₁₆	13 ³ / ₄	2 ⁴³ / ₆₄	3 ³ / ₁₆	14
EM472	10' - 24'	4,3,2,1	2.70	325	720	13 ³ / ₁₆	14 ⁵ / ₁₆	13 ³ / ₄	2 ⁴³ / ₆₄	3 ³ / ₁₆	14
EM484	16' - 28'	4,3,2	3.50	420	950	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	16
EM496	16' - 32'	4,3,2	3.50	420	950	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	16
EM4120	20' - 40'	4,3,2	4.40	520	720	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	18
EM648	10' - 26'	6,5,4	3.00	340	825	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	16
EM672	20' - 36'	6,5,4	4.00	480	720	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	18
EM696	20' - 48'	6,5,4	5.00	600	720	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	18

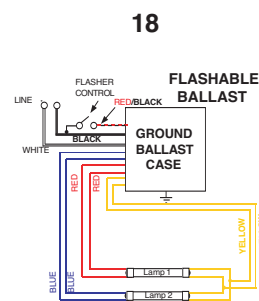
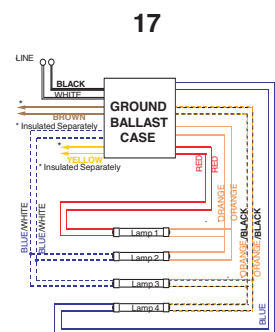
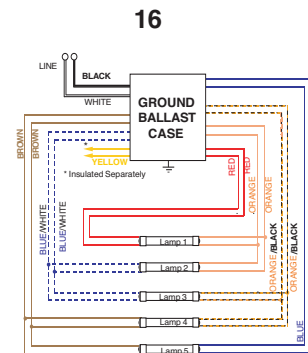
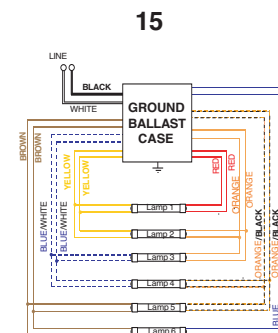
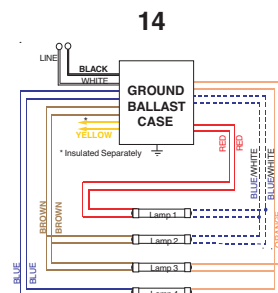
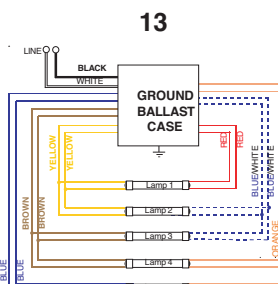
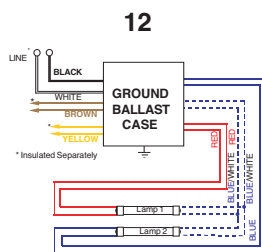
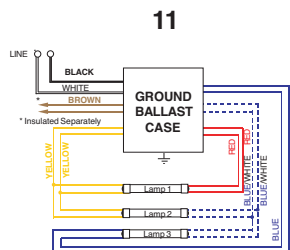
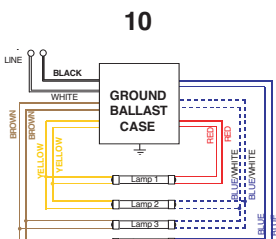
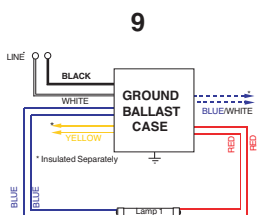
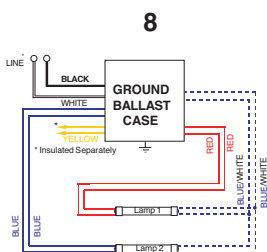
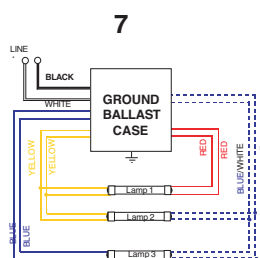
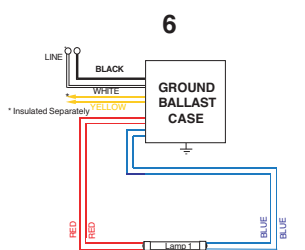
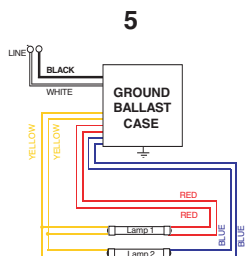
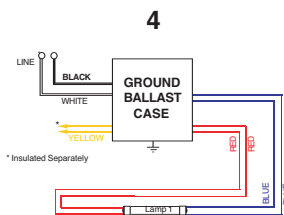
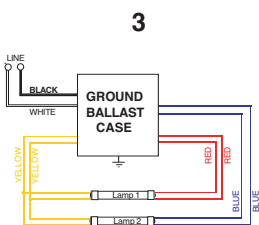
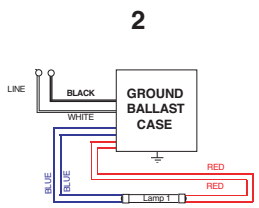
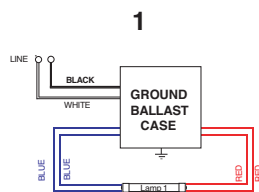
Flashing High Output 800mA RS Lamps - 120 Volts - 60 Hz

120 Volts											
ITEM NO.	LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	LINE	INPUT WATTS	OPEN CIRCUIT VOLTS	DIMENSIONS (Inches)					WT. LBS.
						L	OVERALL	ML	H	W	
EM1272	4' - 12'	2,1	1.60	190	465	10 ³⁷ / ₆₄	11 ³ / ₄	11 ⁹ / ₆₄	2 ⁵ / ₈	3 ³ / ₁₆	10
EM1296	12' - 16'	2	1.95	234	530	10 ³⁷ / ₆₄	11 ³ / ₄	11 ⁹ / ₆₄	2 ⁵ / ₈	3 ³ / ₁₆	10
EM1348	4' - 12'	3,2,1	1.70	200	465	10 ³⁷ / ₆₄	11 ³ / ₄	11 ⁹ / ₆₄	2 ⁵ / ₈	3 ³ / ₁₆	10
EM1372	12' - 18'	3,2	2.20	260	595	10 ³⁷ / ₆₄	11 ³ / ₄	11 ⁹ / ₆₄	2 ⁵ / ₈	3 ³ / ₁₆	12

Note: External flasher required



Wiring diagrams for Allanson Sign Ballast



Electronic High Output Fluorescent Sign Ballasts



- **Wider forgiving voltage range (70 to 135 or 208 to 347 volts)**, enabling normal lamp operation in case of voltage disruptions
- **Light weight, 50% less than ferromagnetic ballasts**, allowing easier installation and handling
- **Some models have self-adjusting voltage 208-347 volts**, permitting neon sign usage throughout North America and Europe
- **Longer (11 feet), heavy-duty 16 AWG lead wires**, bring savings in installation costs
- **Thermally protected class "P" ballasts**, automatically turn off when the ballast is hot, thus extend the longevity of the ballasts
- **High power factor available**, reducing operation and installation costs



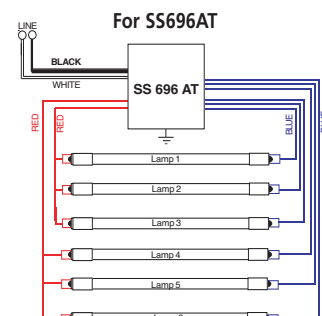
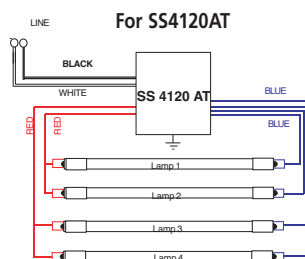
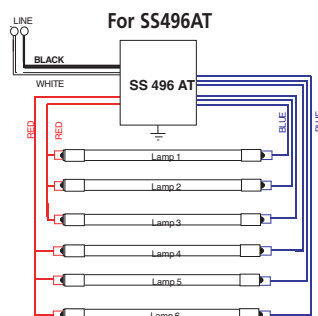
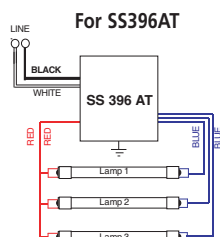
High Output Rapid Start T8/T12 Lamps, 120V, 60 Hz

120 Volts											
ITEM NO.	LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	LINE	INPUT WATTS	OPEN CIRCUIT VOLTS	DIMENSIONS (Inches)					WT. LBS.
						L	W	H	ML	MW	
EASS396AT	4 - 24	1 to 3	1.1	134	750	10½	3	1¾	11¾	2	5
EASS496AT	8 - 32	1 to 6	1.7	198	750	13	3	2½	14¾	2	8
EASS4120AT	10 - 40	1 to 4	2.4	305	750	13	3	2½	14¾	2	8
EASS696AT	10 - 48	2 to 6	2.5	292	700	13	3	2½	14¾	2	8

High Output Outdoor T8/T12 Lamps, 208V-347V, 50/60 Hz

120 Volts											
ITEM NO.	LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	LINE	INPUT WATTS	OPEN CIRCUIT VOLTS	DIMENSIONS (Inches)					WT. LBS.
						L	W	H	ML	MW	
EASS396AT208347	4 - 24	1 to 3	1.2	187	700	10½	3	1¾	11¾	2	5
EASS496AT208347	8 - 32	1 to 6	1.5	226	800	13	3	2½	14¾	2	8
EASS4120AT208347	10 - 40	1 to 4	1.8	282	900	13	3	2½	14¾	2	8
EASS696AT208347	10 - 48	2 to 6	2.2	332	800	13	3	2½	14¾	2	8

Wiring Diagram



Electronic Sign Ballasts



- **Universal input voltage**
 - Installer-friendly
 - Reduces inventory costs
 - Ideal for international projects
- **Simplifies wiring**
 - Fewer connections for quicker installation
 - Less wires allow for easier raceway routing
- **Light output comparable to magnetic sign ballasts**
- **Arc Detection circuit prevents arcing in lamp sockets**
- **Three units cover all applications from 1 to 6 lamps, 6 to 48 feet in length**
 - Operates T12 or T8 HO Lamps
 - Suitable for use with 10¢ lamps
- **Cold temperature starting down to -20° F**
- **Instant start operation**
 - Maximizes energy savings—up to an additional 25% energy savings over standard magnetic sign ballasts
- **UL "Type-2" cans for improved durability and resistance to rust**
- **UL "HL" rated for hazardous locations**
- **Manufactured using Surface Mount Technology for maximum reliability**
- **Lightweight for easy installation**
- **UL listed and CSA certified**



T12 Rapid Start High Output Lamps - 108 to 305 Volts - 50/60 Hz

120 Volts												
ITEM NO.	LAMP-FOOTAGE MIN - MAX	TOTAL LAMPS	INPUT VOLTAGE	INPUT WATTS	LINE	DIMENSIONS (Inches)					WT. LBS.	WIRING DIAGRAM
EMESB216-12	2' - 16'	2,1	120	160	1.3	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	8	1, 2
			277	155	0.6							
EMESB432-14	4' - 32'	4,3,2	120	307	2.6	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	9	3, 4, 5
			277	294	1.1							
EMESB848-46	8' - 48'	6,5,4	120	476	4.0	15 ⁹ / ₁₆	16 ¹¹ / ₁₆	16 ¹ / ₈	2 ⁴³ / ₆₄	3 ³ / ₁₆	10	6, 7, 8
			277	458	1.7							

Wiring Diagram



For 1 lamp use cap blue lead
WIRING DIAGRAM 1



WIRING DIAGRAM 2



For 2 lamp use cap blu & blu/wht leads separately
WIRING DIAGRAM 3



For 3 lamp use cap blu/wht lead
WIRING DIAGRAM 4



WIRING DIAGRAM 5



For 4 lamp use cap blu & blu/wht leads separately
WIRING DIAGRAM 6



For 5 lamp use cap blu/wht lead
WIRING DIAGRAM 7



WIRING DIAGRAM 8

Ballast Trouble Shooting Procedures

Primary Current:

Place clamp around the black primary hot lead. This reading should be at or below the rating of the ballast as indicated on the label. If the total combined footage does not meet the maximum of the ballast's limit, then this reading will be less than stated on the label. If this reading exceeds the rating, then there is either a short in the wiring or the wiring is incorrect. Double-check the actual wiring with the wiring diagram on the label, and look for any wires that may be shorted to ground or one another.

Primary Voltage:

Take the voltage measurement across the black and white wire. The voltage should be $\pm 5\%$ of nominal rating. Any deviation from this will cause premature failure of the ballast. If this voltage is low, attempt to locate the reason; make sure that the wire used to supply the circuit is of sufficient size for the distance from the panel and the rated load. Check the voltage at different points in the primary run to find out where the problem may exist.

Filament Voltage:

Measure the voltage in the socket from pin to pin. The reading here should be between 3.5 VAC to 4.5 VAC.

If the voltage reading is below 3.5:

- a) Check for low primary input voltage.
- b) Check for shorted filament wires within the sign.
- c) Possibly a damaged ballast.

If the voltage reading is above 4.5 volts:

- a) Check for high primary input voltage.
- b) Possibly a damaged ballast.

Filament Current:

Using a clamp-on amp probe, measure the current in each wire with the exception of the black and white ones. The normal reading will be between .5 AMPS to 2 AMPS. A reading larger than this would indicate incorrect wiring, or a short circuit.

If the current reading is below 0.5 amps:

- a) Open lamp filament (defective lamp)
- b) Improper filament wiring connection causing an open circuit.
- c) Check for low primary input voltage.
- d) Possibly a damaged or defective ballast.

If the current reading is above 2 amps:

- a) External short in the filament wiring.
- b) Incorrect lamp or defective lamp filament.
- c) Check for high primary input voltage.
- d) Possibly a damaged or defective ballast.

Lamp Filament Resistance:

With standard test probes, measure resistance between the two pins at the end of the lamp. This test should be performed for both ends of the lamp, and on each lamp in the circuit. The expected resistance should be approximately (.5 to 1.2 ohm).

- a) Resistance greater than this would indicate an open lamp filament and the lamp should be replaced.
- b) Resistance less than this would indicate a shorted filament and the lamp should be replaced.

Open Circuit Voltage:

Take the voltage reading across the blue and red wire. The reading should be between 300 and 1000 volts depending on the ballast model. On Allanson's 696 and 4120, the readings should be taken between the blue/white and red as well as the blue/white and blue, because these are dual circuit ballasts. See the ballast label for specific Open Circuit Voltage rating.

If the OCV reading is below the rating on label:

- a) Check for low primary input voltage.
- b) Possibly a damaged ballast.

If the OCV reading is above the rating on the label:

- a) Check for high primary input voltage.
- b) Possibly a damaged ballast.

Lamp Current:

Place clamp-on amp probe around the lamp while it is lit. Reading should be between 400 and 800 MA. Smaller ballasts should be at the high end of the range and larger ballasts should be at the lower end of the range.

Should the current reading is below 400 MA:

- a) Total lamp footage exceeds ballast rating.
- b) Defective lamp (s).
- c) Check for low primary input voltage.
- d) Possibly a damaged ballast.

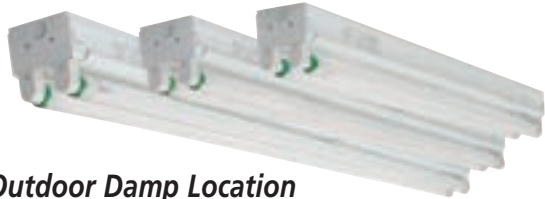
Should the current reading is above 800 MA:

- a) Total lamp footage is below ballast rating.
- b) Defective lamp (s).
- c) Check for high primary input voltage.
- d) Possibly a damaged ballast.

Is there a Ground Plane ?:

Ballasts are designed to be used with starter strips. They assist the ballast at time of lamp startup in colder weather, or when a ballast is running at maximum load. On single face signs where the lamps are in close proximity to the metallic sign back, strips may not be needed. The only time in trouble shooting where this is an issue, is when lamps only flicker at startup, or take a very long time to come to full brightness.

Awning Fixtures



Outdoor Damp Location

All fixtures are steel die formed with contour ribs for maximum strength. A combination end/joiner plate for row mounting. Snap-on wireway reflector covers. Climatized baked white enamel finish. Completely wired with internal type 120 degree outdoor ballasts for damp location.

- 120 volt - 60 hertz.
- Stocked in 1 lamp and 2 lamp.
- Sizes 48", 72" and 96"
- Also available in 277 volts and 50 hertz
- UL listed.
- Available with electronic ballast for T8 & T12 H.O. Lamps also with aluminum body



ITEM #	DESCRIPTION	SIZE
EL248	2 Lamp Fixture	48"
EL272	2 Lamp Fixture	72"
EL296	2 Lamp Fixture	96"

Gasketed Enclosures

For Wet and Damp Locations

These Gasketed Enclosures are totally dust and moisture resistant. The enclosure is constructed of a fiberglass upper body and an acrylic, crepe pattern diffuser securely positioned by a permanent poured in place sealing gasket. The diffuser and upper components are locked together by retaining latches, assuring a secure, tight seal.

The Gasketed Enclosure is a U. L. recognized component, certified by the NSF international and has the CSA component acceptance mark.

Gasketed enclosure will accept 1 or 2 lamp, rapid start, high output or slim line type fluorescent fixtures.



ITEM #	DESCRIPTION
EWPC4	48" Hardware Kit (6/latches, 2/end plugs, 2/nuts)
EWPC4	48" Clear Difuser only
EWPC4	48" Waterproof Enclosure (Housing Only)
EWPC8	96" Hardware Kit (10/latches, 2/end plugs, 4/nuts)
EWPC8	96" Clear Difuser only
EWPC	96" Waterproof Enclosure (Housing only)

Eggcrates

White & Black Eggcrates

1/2" x 1/2" x 3/8"

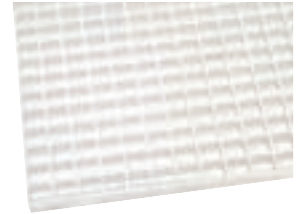
Provides a subtle luminous quality, well ordered architectural appearance, excellent visual comfort and lighting efficiency. The open cell design permits free circulation of air which results in lower operating temperatures, thus increasing ballast life and improving lamp performance. Interlocking step trim design permits panels to be butted together without a noticeable joint

Applications:

- Fluorescent Lighting Fixture Diffusers
- Under Awning Lighting Diffusers

ITEM NO.	SIZE	COLOR
AWEC	2' x 4'	White
AWECB	2' x 4'	Black

Also available in 1' x 1' and 2' x 2' upon request

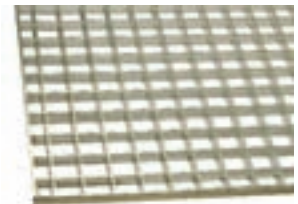


Gold & Silver Eggcrates

3/4" x 3/4" x 3/8"

The ideal solution where a small cell shallow depth parabolic louver and greater lighting efficiency is required. These louvers are easily installed in lighted ceiling, lighting fixture or retrofit installations. Little or no modification of the louver panel is required for installation in most existing or new fluorescent luminaires. The louver's 28° shielding angle gives excellent lamp obscuration.

ITEM NO.	SIZE	COLOR
AWECG	2' x 4'	Gold
AWECS	2' x 4'	Silver



Brass Fixture Mounting Stud

The fixture studs are integrally molded into the body to facilitate lighting fixture installation.

High Impact Acrylic/dr Diffuser

Internal crepe pattern allows a smooth exterior surface for ease of cleaning.

Diffuser

The diffuser flange fits snugly into the gasketed retention slot forming a continuous seal.

Replacement Diffusers

Extra LCW white latches and FEPW white end plugs are available upon request. Polycarbonate latches and tamper proof latches are also available. Diffusers are available (opal, prismatic, polycarbonate, 100% DR). Contact A.L.P. requirements.

Sure-Seal™ Gasketing

A continuous poured gasketing without start or end points. A sure, positive seal that stays securely in place.

Structurally Rigid Fiberglass Body
fiberglass is reinforced polyester and self-extinguishing (ASTM D635-74). This type of construction does not allow the body to flax during handling and installation.

Gasketed Diffuser Retention Slot

The gasketed inverted U-slot provides a positive continuous seal between body and diffuser.

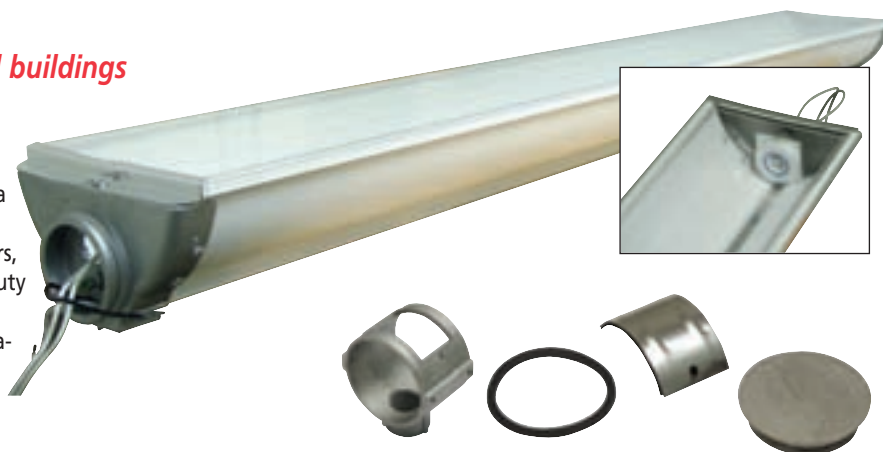
LITE•O•LINE

All weather lighting for signs and buildings

Optically designed, linear light source for outdoor fluorescent flood-lighting. Features a sturdier, more rigid unit made of heavier gauge anodized extruded aluminum reflectors, with a water-tite separable raceway, heavy duty cast aluminum ends, splice boxes and accessories. The diffuse anodized finish of the parabolic reflector assures you of constant initial brightness with negligible loss of reflectivity after long exposure.

Can be mounted in tandem or continuous rows

- Heavy gauge (.062) diffuse anodized extruded aluminum
- Heavy duty open cast aluminum ends
- Heavy duty cast aluminum splice boxes tapped 3/4" NPS with a set screw for 360° rotation. Individual units are supplied with a left and right splice box. Tandem units are supplied with left, right and center splice boxes.
- Neoprene, corprene and rubber "O" rings supplied
- Removable (even after installation) aluminum socket plates
- All sockets are enclosed in water-tite Neoprene Boots
- Stainless steel hardware
- Extruded slide-in grooved water-tite aluminum raceway, 2 lamp units have a parabolic design for maximum beam
- Prewired thru raceway for connections to ballast (remote)
- Optional clear Acrylic slide-in shielding
- Available in 1 or 2 lamps
- UL listed for damp/wet locations



Shielded 1 Lamp Units - 800ma

ITEM NO.	SIZE	LAMPS
ELOL148	4'	1-F48T12HO
ELOL172	6'	1-F72T12HO
ELOL196	8'	1-F96T12HO
ELOL120	10'	1-F120T12HO

Shielded 2 Lamp Units - 800ma

ITEM NO.	SIZE	LAMPS
ELOL248	4'	2-F48T12HO
ELOL272	6'	2-F72T12HO
ELOL296	8'	2-F96T12HO
ELOL2120	10'	2-F120T12HO
ELOL496	18'	4-F96T12HO



Left Splice Box

Item No. ELOLLSB



Center Splice Box

Item No. ELOLCBS



Right Splice Box

Item No. ELOLRBS

Ballast for LITE•O•LINE

Item No. EARC2S110FO



Tubular Fluorescent Lamps

High Output T12 Lamps

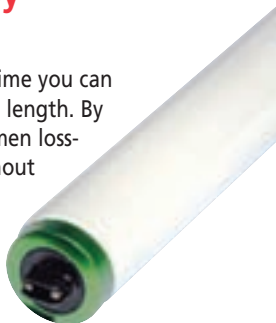
With the highest lumens output and longest life in its respective T12 category, these best-performing lamps are ideal applications where maximum light levels and longer life are crucial.



ITEM NO.	LENGTH	COLOR	CASE QTY
EL18	18"	Cool White	24
EL24	24"	Cool White	24
EL24D	24"	Daylight	24
EL30	30"	Cool White	24
EL30D	30"	Daylight	24
EL36	36"	Cool White	24
EL36D	36"	Daylight	24
EL42	42"	Cool White	24
EL42D	42"	Daylight	24
EL48	48"	Cool White	15
EL48D	48"	Daylight	15
EL60	60"	Cool White	15
EL60D	60"	Daylight	15
EL64	64"	Cool White	15
EL64D	64"	Daylight	15
EL72	72"	Cool White	15
EL72D	72"	Daylight	15
EL84	84"	Cool White	15
EL84D	84"	Daylight	15
EL96	96"	Cool White	15
EL96D	96"	Daylight	15

High Output T12 Big Boy™ Cost-Saving Length

The right time to use a Big Boy is any time you can avoid using two shorter lamps of equal length. By reducing the number of lamp ends (lumen losses) more light per-foot is achieved without unsightly center raceway shadows and with reduced labor and material costs: fewer ballasts, fewer sockets, and much less wiring.



ITEM NO.	LENGTH	COLOR	CASE QTY
EL108	F108"	Cool White	12
EL108D	F108"	Daylight	12
EL117	F117"	Cool White	12
EL117D	F117"	Daylight	12
EL120	F120"	Cool White	12
EL120D	F120"	Daylight	12

Very High Output T12 Lamps

ITEM NO.	LENGTH	COLOR	CASE QTY
EL48VHO	48"	Cool White	30
EL72VHO	72"	Cool White	15
EL96VHO	96"	Cool White	15



High Output T8 Lamps

Ideal for any lighting application requiring great light levels & longer life.

ITEM NO.	LENGTH	COLOR	CASE QTY
ELF48T8SPX41HO	48"	Cool White	24
ELF96T8SPX41HO	48"	Cool White	24



Protect-A-Lamp

Tube Guards

Tube Guards are an efficient and economical solution in problem areas where lamp breakage would be hazardous to personnel, product or equipment. Tube Guards provide exposed lamps protection against dirt, dust, bugs and flying insects. They reduce cleaning cycles and minimize lamp replacement due to breakage. These Guards are for use in areas where contaminations may occur due to lamp breakage.

End Caps

End caps are made of a snug fitting heat resistant polypropylene plastic. The caps will hold the lamps in place even if broken and will prevent the tubes from falling.

Available colors: clear, red, green, blue, pink, gold, yellow and clear-UVA-7 (ultraviolet filtering).

For T12 Lamps, 96"

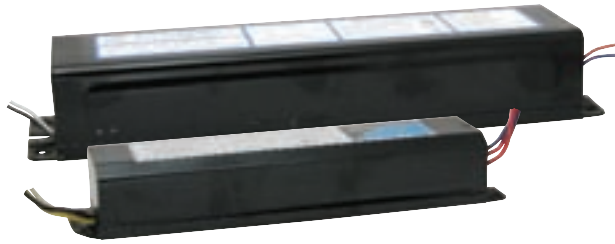
ITEM NO.	COLOR	ITEM NO.	COLOR
EPAL96C	Clear	EPAL96P	Pink
EPAL96R	Red	EPAL96GA	Gold
EPAL96GR	Green	EPAL96Y	Yellow
EPAL96B	Blue	EPAL96CUVA	Clear-UVA

Also available in different sizes and for T8 lamps

Meets safety standards required by **OSHA** National Electric code, U.S. Dept. of Agriculture Food and Drug



Slimline Indoor Ballast

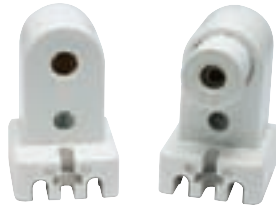


ITEM NO.	DESCRIPTION
EA248IN	For 48" lamps
EA296IN	For 96" lamps

Slimline Lampholder for all Slimline Lamps

Sockets for 8' lamps

ITEM NO. EDI-FL314W



Bi-Pin Lampholder Pressure Lock

Single indoor 4' socket #326 W-2

ITEM NO. ESI4



Slimline Indoor T12 Lamps



ITEM NO.	LENGTH	COLOR	CASE QTY
EL48INCW	48"	Cool White	30
EL48INDL	48"	Daylight	30
EL96INCW	96"	Cool White	15
EL96INDL	96"	Daylight	15

11S14 Sign Bulbs



ITEM NO.	COLOR
E11S14CL	CLEAR
E11S14FR	FROSTED
E11S14W	WHITE
E11S14Y	YELLOW
E11S14B	BLUE
E11S14G	GREEN
E11S14OR	ORANGE
E11S14R	RED

Candelabra Base Bulb

ITEM NO.	COLOR
EC77WW	White
EC77CL	Clear



Sign and Scoreboard Lampholder

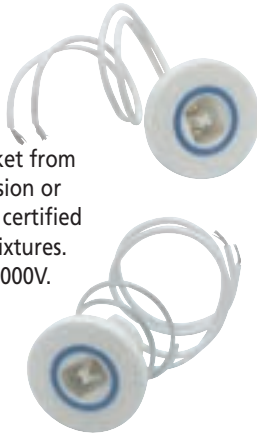
- Insulation displacement terminals for stranded wire.
- Lay in wire channels, 1/4 turn twist top speeds installation.
- One piece terminals and contacts. No rivets or eyelets to loosen due to heat.
- Sockets are molded of heat-resistant phenolic.
- Snap-in mounting.
- Keyed spring washer prevents rotation of socket after installation.



ITEM NO.	BASE	WIRE RANGE	RATING W	RATING V
EEG	Medium	For #18 to #12	200	250
EEGS	Candelabra	For #20 to #18	75	125

PG9 Spring Sockets**for 800 and 1500 mA Lamps**

Completely isolates the face of the socket from ground. No metal clips means no corrosion or electrical grounding. UL listed and CSA certified for outdoor use in enclosed signs and fixtures. Rating: 660 watts, dual rated 600V or 1000V. 20 per box.

ITEM NO. ESPS**Tombstone Sockets****for 800 and 1500 mA Lamps**

UL listed and CSA certified for outdoor use in enclosed signs and fixtures. Rating: 660 watts, dual rated 600V or 1000V. 20 per box.

ITEM NO. E630631**Ceramic Sockets****Front Mount Socket**

Medium base one-piece keyless incandescent unglazed porcelain lampholder. Front mount, single circuit back wired. 660W 600Volt.

ITEM NO. EPS**Snap-in with Mounting Clip**

Medium base one-piece keyless incandescent unglazed porcelain lampholder. Front mounted single circuit back wired.

ITEM NO. EPS452**2-Piece Ring Type with Leads**

Medium base two-piece keyless incandescent unglazed porcelain lampholder. Ring-type single circuit back wired, slot lock prevents rotation, 660W 250V.

ITEM NO. EPS313**Porcelain Mogul Base for High Pressure Sodium Lamps**

Mogul base one-piece keyless, HID, glazed porcelain lampholder, HPS up to 1000W, single circuit back wired, 5KV-pulse rated.

ITEM NO. EHPS-SOCKET-MOG**Conduit Boxes****T11 Electric Conduit Box**

- Outdoor weatherproof
- 4 $\frac{1}{16}$ " x 2 $\frac{1}{16}$ " x 2" with threaded outlets
- Closure plugs, ground screws and mounting lugs included
- 3 $\frac{1}{2}$ " outlet, UL Listed

ITEM NO. ECC**T11 Electric Cover with Switch**

- Outdoor Weatherproof
- Gasket and screws included
- 15A/S.P., UL Listed

ITEM NO. ECWS**T11 Electric Cover**

- Outdoor weatherproof
- 49/16" x 213/16" stamped Aluminum
- Gaskets and screws included
- UL Listed

ITEM NO. ECO

Gooseneck Designer Fixtures

Authentic Abolite offers a full line of strikingly beautiful and dependably efficient RLM and designer fixtures for indoor and outdoor lighting applications.

This comprehensive offering combines creativity with energy and maintenance saving advantages to complement both traditional and progressive design schemes in restaurants, hotels, airport concourse areas, retail locations, offices and other public spaces.

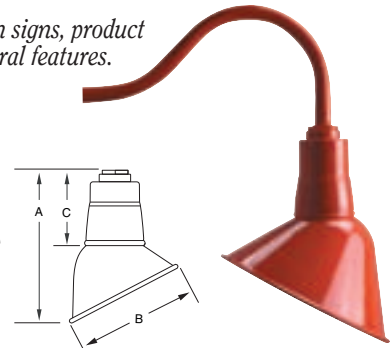
All Abolite fixtures come standard with Incandescent sockets. Also available with Compact Fluorescent or Metal Halide sockets.

Standard color is Gloss White. Also available the following colors: Painted Natural Aluminum, Galvanized, Textured Rust, Gloss Black, Gloss Red and Gloss Green.

Abolite Angled Reflector

Cast the perfect highlight on signs, product displays, and key architectural features.

The Abolite Angled Reflector casts the perfect highlight on signs, product displays and key architectural features. The Angled Reflector is the ideal fixture for retail space, store fronts, restaurants and other public areas.



ITEM NO.	HEIGHT (A)	DIAMETER (B)	NECK (C)	WEIGHT (LBS.)
EL-AD100-I-G WT/BK White/Black	10"	7"	5"	2.0
EL-AD150-I-G WT/BK White/Black	11 1/2"	9"	5 1/4"	2.0
EL-AD200-I-G WT/BK White/Black	13 1/2"	11"	5 1/2"	2.5

Gooseneck and Wall Brackets

3/4" Single Reflector Gooseneck Wall Brackets

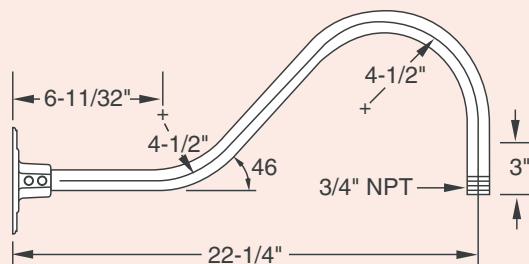
All brackets suitable for use in wet locations. Features rigid conduit and cast wall plate which fits 4" octagonal box (by other). Brackets are finished in gloss white powder, other optional colors are available. Wall plate included.

Standard Brackets

GB A 3 GWT

ITEM NO. EL-GB-A3-GWT / White

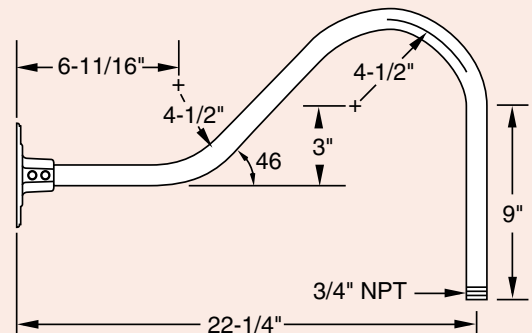
ITEM NO. EL-GB-A3-GBK / Black



GB H 3 GWT

ITEM NO. EL-GB-H3-GWT / White

ITEM NO. EL-GB-H3-GBK / Black



Complete line of Gooseneck Designer Lighting available upon request

HID Lamp Ballasts

HID lamp ballasts are available in a variety of shapes and sizes for the most popular lighting applications. Six basic designs are in widest use today - Core & Coil, Outdoor Weatherproof, Postline, Indoor Inclosed, Fluorescent Can and Encapsulated Core & Coil.

The basic ballast is the open core & coil which is most often used as a component within a lighting fixture. The core & coil also forms the nucleus of the five other ballast configurations. It consists of either one, two or three copper coils on a core (or "stack") of electrical-grade steel laminations. The coils are assembled to core sections which are then surface-welded together.



Core & Coil



Outdoor Weatherproof



Postline



Indoor Inclosed

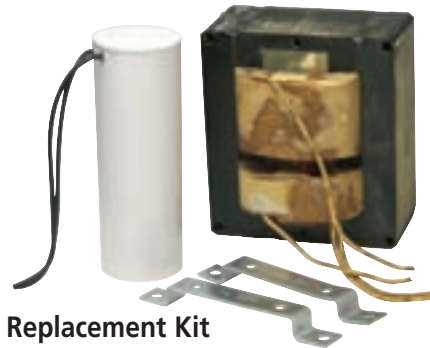


Fluorescent Can



Encapsulated Core & Coil

HID Ballast



Replacement Kit

Replacement Kit High Pressure Sodium

	LAMP ANSI CODE	PRIMARY VOLTS	LINE AMPS	TOTAL WATTS
250 Watts	S50	120	2.60	295
250 Watts	S50	208	1.50	295
250 Watts	S50	240	1.30	295
250 Watts	S50	277	1.15	295
250 Watts	S51	120	4.00	450
250 Watts	S51	208	2.30	450
250 Watts	S51	240	2.00	450
250 Watts	S51	277	1.70	450
250 Watts	S106	120	6.0	665
250 Watts	S106	208	3.5	665
250 Watts	S106	240	3.0	665
250 Watts	S106	277	2.6	665
250 Watts	S52	120	9.5	1090
250 Watts	S52	208	5.4	1090
250 Watts	S52	240	4.7	1090
250 Watts	S52	277	4.1	1090

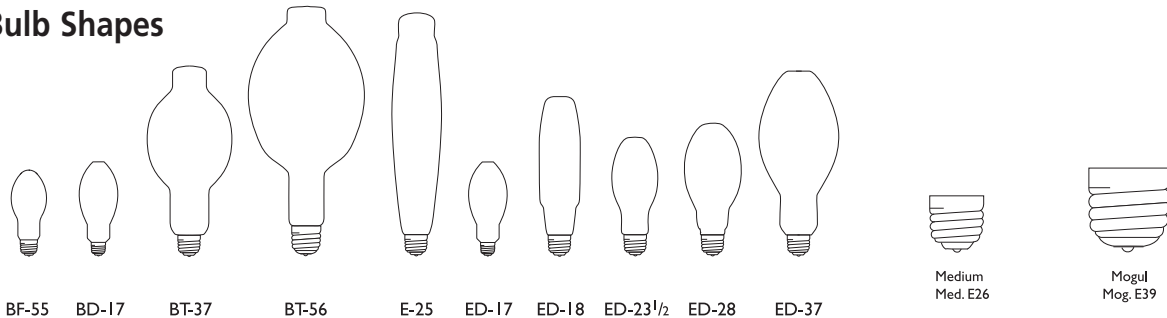
Replacement Kit Metal Halide

	LAMP ANSI CODE	PRIMARY VOLTS	LINE AMPS	TOTAL WATTS
175 Watts	M57 & H39	120	1.73	200
175 Watts	M57 & H39	208	1.00	200
175 Watts	M57 & H39	240	0.86	200
175 Watts	M57 & H39	277	0.75	200
250 Watts	M58 & H37	120	2.50	288
250 Watts	M58 & H37	208	1.45	288
250 Watts	M58 & H37v	240	1.25	288
250 Watts	M58 & H37	277	1.10	288
400 Watts	M59 & H33	120	3.84	450
400 Watts	M59 & H33	208	2.22	450
400 Watts	M59 & H33	240	1.92	450
400 Watts	M59 & H33	277	1.67	450
1000 Watts	M47 & H36	120	9.10	1060
1000 Watts	M47 & H36	208	5.20	1060
1000 Watts	M47 & H36	240	4.50	1060
1000 Watts	M47 & H36	277	3.90	1060
1500 Watts	M48	120	13.60	1585
1500 Watts	M48	208	8.00	1585
1500 Watts	M48	240	6.90	1585
1500 Watts	M48	277	6.00	1585

HID Lamps



Bulb Shapes



High Pressure Sodium Lamps

	WATTS	BULB TYPE	BASE	FINISH	M.O.L.	AVERAGE HOURS	LUMENS	CRI
ELHPSL35/MED	35	BF-55	Med.	Clear	5 ⁷ / ₁₆ "	24,000+	2250	21
ELHPSL50/M	50	BF-55	Med.	Clear	5 ⁷ / ₁₆ "	24,000+	4000	21
ELHPSL50/MED	50	ED-23 ¹ / ₂	Mog.	Clear	7 ³ / ₄ "	24,000+	4000	21
ELHPSL70/MED	70	BD-17	Med.	Clear	5 ⁷ / ₁₆ "	24,000+	6300	21
ELHPSL70	70	ED-23 ¹ / ₂	Mog.	Clear	7 ³ / ₄ "	24,000+	6500	21
ELHPSL100/MED	100	BD-17	Med.	Clear	5 ⁷ / ₁₆ "	24,000+	9500	21
ELHPSL100	100	ED-23 ¹ / ₂	Mog.	Clear	7 ³ / ₄ "	24,000+	9400	21
ELHPSL150/MED	150	BD-17	Med.	Clear	5 ⁷ / ₁₆ "	24,000+	16000	21
ELHPSL150	150	ED-23 ¹ / ₂	Mog.	Clear	7 ³ / ₄ "	24,000+	15800	21
ELHPSL250	250	ED-18	Mog.	Clear	9 ³ / ₄ "	24,000+	27000	21
ELHPSL360	360	ED-18	Mog.	Clear	9 ³ / ₄ "	24,000+	46000	21
ELHPSL400	400	ED-18	Mog.	Clear	9 ³ / ₄ "	24,000+	50000	21
ELHPSL1000	1000	ED-25	Mog.	Clear	15 ¹ / ₁₆ "	24,000	140000	21

Metal Halide Lamps

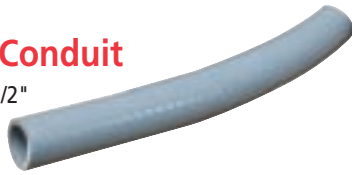
	WATTS	BULB TYPE	BASE	FINISH	M.O.L.	AVERAGE HOURS	LUMENS	CRI	CCT (K)
ELMHL50/MED	50	ED-17	Med.	Clear	5 ⁷ / ₁₆ "	10,000	4100	85	3000
ELMHL70/MED	70	ED-17	Med.	Clear	5 ⁷ / ₁₆ "	16,000	6200	85	3000
ELMHL100/MED	100	ED-17	Med.	Clear	5 ⁷ / ₁₆ "	16,000	9500	85	3000
ELMHL100	100	ED-28	Mog.	Clear	8 ⁵ / ₁₆ "	10,000	8500	92	4100
ELMHL150/MED	150	ED-17	Med.	Clear	5 ⁷ / ₁₆ "	16,000	14000	85	3000
ELMHL175/MED	175	BD-17	Med.	Clear	5 ⁷ / ₁₆ "	10,000	13500	65	4000
ELMHL175	175	ED-28	Mog.	Clear	8 ⁵ / ₁₆ "	10,000	13500	65	4000
ELMHL250	250	ED-28	Mog.	Clear	8 ⁵ / ₁₆ "	10,000	20500	65	4000
ELMHL360	360	ED-37	Mog.	Clear	11 ¹ / ₂ "	20,000	36000	60	4300
ELMHL400	400	ED-28	Mog.	Clear	8 ⁵ / ₁₆ "	20,000	36000	63	4000
ELMHL1000BT37	1000	BT-37	Mog.	Clear	11 ¹ / ₂ "	10,000	110000	65	3700
ELMHL1500BT56	1500	BT-56	Mog.	Clear	15 ³ / ₈ "	3,000	155000	60	3700

Non-Metallic Conduit

Available in 3/8" or 1/2"

ITEM NO. NHNMC38

ITEM NO. NHNMC12



Cable Clamps

100 per pack

ITEM NO.	SIZE	COLOR
NCC38W	3/8"	White
NCC38BK	3/8"	Black
NCC12W	1/2"	White
NCC12BK	1/2"	Black

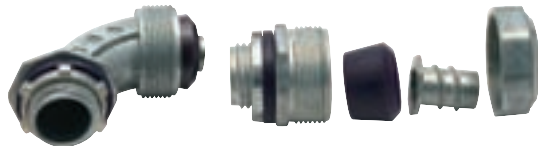


Plastic Ties

ITEM NO.	SIZE	COLOR
LYPT4BK	4"	Black
LYPT4N	4"	Natural
LYPT7BK	7"	Black
LYPT7N	7"	Natural
LYPT11BK	11"	Black
LYPT11N	11"	Natural



Liquid-Tight Metallic Conduit Connector



Made of die-cast zinc with male 1/2 inch NPT thread and locknut to fasten to a transformer enclosure. Used to twist-on fasten 1/2 inch flexible metallic liquid tight conduit to a transformer 1/2 inch knockout.

25 per pack

ITEM NO.	DESCRIPTION
NHSCC38	3/8" Connector Straight
NHSCC12	1/2" Connector Straight
NH90DCC38	3/8" Connector 90° Angle
NH90DCC12	1/2" Connector 90° Angle

Liquid-Tight Non-Metallic Conduit Connector



ITEM NO.	DESCRIPTION
NHSCC38	3/8" Connector Straight
NHSCC12	1/2" Connector Straight
NH90DCC38	3/8" Connector 90° Angle
NH90DCC12	1/2" Connector 90° Angle

Ballast Wire

- 14 AWG, 500'
- Stranding: 19/0.147 (Bare Copper)
- PVC Dual Rated, meets or exceeds UL and CSA Standards
- Meets UL 1015; rated for 105°C at 600V
- Meets UL 1032; rated for 90°C at 1000V
- Nominal O.D.: .134"



ITEM #	COLOR
EWIBL	Blue
EWIBLK	Black
EWIBR	Brown
EWIBW	Blue/White
EWIGR	Green
EWIOBK	Orange/Black

ITEM #	COLOR
EWIOR	Orange
EWIR	Red
EWIRW	Red/White
EWIW	White
EWIYE	Yellow

Wire Nuts

Our wire nuts speed installation by providing a secure fingertip grip for fast starts on the first few turns. Because no pre-twisting of conductors is required, Wire nut connectors can go on fast and easy for lower installation costs.

100/Pack



ITEM #	SIZE	COLOR	WIRE COMBINATION RANGE
EWNBL	X-small	Blue	300V No. 22-14 AWG Min. 1 #18 & 1 #20 – Max. 3 #16
EWNO	Small	Orange	600V No. 22-14 AWG Min. 1 #18 & 1 #22 – Max. 3 #16 & 1 #18
EWNY	Med.	Yellow	600V No. 18-10 AWG Min. 3 #18 – Max. 3 #12
EWNR	Large	Red	600V No. 18-8 AWG Min. 2 #14 – Max. 2 #10 & 2 #12

"Twist-locs" Wire Nuts

100 per pack.

ITEM #	SIZE	COLOR
EWNWM	Med.	Yellow
EWMWLG	Large	Red



Toggle Switch with Boot

- Supplied with locknut and on-off
- 6" lead wires
- UL listed, CSA Certified
- Made in the USA

ITEM NO. ETSWB



Flashers

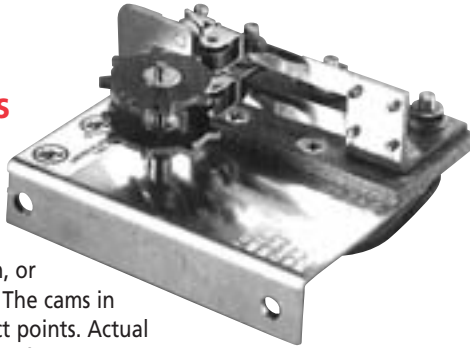
Model 1 Flashers

This basic unit is powered by a synchronous motor that drives one or two cams at a constant speed of 5 seconds per revolution, or 12 revolutions per minute. The cams in turn open and close contact points. Actual flashing speed is a function of the cam cut. For example, a 4 lobe cam would yield on-off action 48 times per minute. Several cam cuts are available from stock, and custom cam cuts are available per the customer's request.

115 volt motor, 50/60 cycle. UL and cUL listed.

Also available in 220 volt.

Size: 3.5" x 4" x 3"



Cam cuts in bold are standard and will be supplied unless a different cam cut is requested.

ITEM NO.	NO. OF CIRCUITS	CAM CUT	FLASHING ACTION PER MINUTE
1-01A	1	Fifty/Fifty	On-Off x 12
		Quarter/Quarter	On-Off x 24
		4 Lobe	On-Off x 48
		8 Lobe	On-Off x 96
1-02	2	Fifty/Fifty	On-Off x 12
		Quarter/Quarter	On-Off x 24
		4 Lobe	On-Off x 48
		8 Lobe	On-Off x 96
1-A2	2	Fifty/Fifty	On-Off x 12
		Quarter/Quarter	On-Off x 24
		4 Lobe	On-Off x 48
		8 Lobe	On-Off x 96
		Steady/Arrow	Alternate/Steady 5 Times

Model 22 Flashers

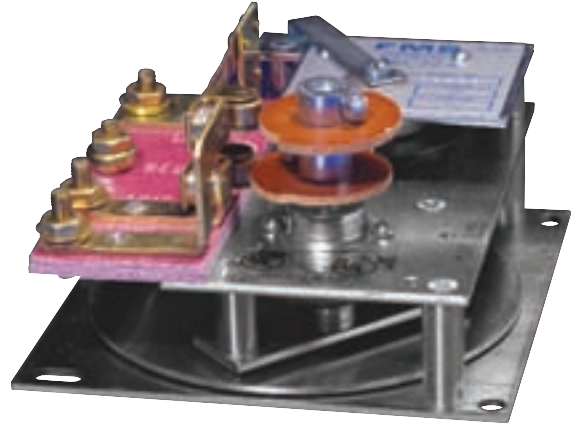
This Model has proven itself over many year to be a very reliable and economical way to add on-off, alternating, or color changing effects to a sign or other device. Features include cams and points out in the open for easy replacement or adjustment. The ball bearing mounted, sealed cam shaft with large fly wheel makes for years of smooth, quiet, maintenance free service.

Contacts on the Model 22 are rated to handle 15 amps, except on the chaser action units whose contacts are rated at 10 amps due to the high flashing speed. Model 22 High Output flashers are constructed with extra insulation and an increased point opening to minimize arcing when used in high initial draw applications such as flashing ballasts.

115 volt motor, 50/60 cycle. UL and cUL listed.

Also available in 220 volt.

Size: 5 x 4.5 x 3



ITEM NO.	NUMBER CIRCUITS	FLASHING ACTION	CAM CUT	FLASHES PER CIRCUIT/MIN	TOTAL WATTS CAPACITY AT 115 VOLTS
NF 22-01	1	Off and On	50/50 Synchronous	20-30	1725
NF 22-01-HO	1	Off and On	50/50 Synchronous	20-30	1725
NF 22-02	2	Off and On	50/50 Synchronous	20-30	3450
NF 22-02-HO	2	Off and On	50/50 Synchronous	20-30	3450
NF 22-A2	2	Alternate	50/50 Alternating	40	3450
NF 22-A2-HO	2	Alternate	50/50 HO Alternating	20-30	3450
NF 22-A2S	2	Alternate	50/50 Alternating	40	3450
ECH 22-C2	2	Chase	8 Lobe Alternating	240	2300
ECH 22-C2S	2	Chase	8 Lobe Alternating	320	2300
ECH 22-C3	3	Chase	8 Lobe Alternating	240	3450
NF 22-S1	1	Specify	Specify	Specify	1725
NF 22-S2	2	Specify	Specify	Specify	3450

Chasers / Flashers

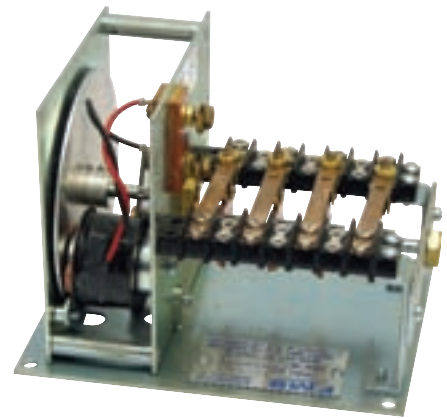
Model 33 Chasers

This Chaser is most commonly used on flashing incandescent bulb signs where "Dark Spots" chase around a border or directional motion is incorporated into a field of bulbs. The Model 33 can be used to chase neon, though it must be incorporated on the primary side of any transformers. Available from stock with three, four, or five circuits, and larger chasers are available by special order.

Model 33 chasers are ruggedly constructed to provide years of smooth, quiet, trouble free service. The Model 33 chaser features molded terminal blocks, permanently lubricated bearings, and all corrosion resistant surfaces. Contacts on the Model 33 chasers are rated to handle 10 amps each and are accessible for easy replacement.

115 volt motor, 50/60 cycle. UL and cUL listed. Also available in 220 volt.

33-C3/C4 Size: 6.5 x 5 x 4.75 33-C5 Size: 8 x 5 x 4.75



ITEM NO.	NO. OF CIRCUITS	CAM CUT	FLASHES PER CIRCUIT PER MINUTE SHADE ON	PER MINUTE SHADE OFF	TOTAL WATTS CAPACITY AT 115 VOLTS
ECH 33-C3	3	8 Lobe	270	210	3450
ECH 33-C4	4	8 Lobe	270	210	4600
ECH 33-C5	5	7 Lobe	215	190	5750

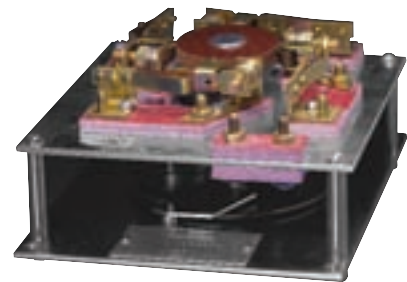
Model 66 High Speed Scintillator or Chaser

The Model 66 is generally used to create a scintillating or "twinkling" action. This unit is constructed of heavy duty materials to stand up under constant use with heavy loads. The Model 66 features a simple wiring design for easy installation, and three shielded ball bearings which require no maintenance. Contacts are formed of a special silver alloy that performs better than pure silver.

The flashing speed of the Model 66 can be easily adjusted by removing motor shades using just a screw driver. The flasher is supplied with a shade on each motor, and as shades are removed the flashing speed decreases. When operating with shades on (430 flashes per circuit per minute) the contacts on all Model 66 units are rated at 12.5 amps each. When operating with shades off (250 flashes per circuit per minute) the contact on the 3 and 4 point units are rated at 20 amps each, while the contacts on the 5 and 6 point units are rated at 17.5 amps each.

115 volt motor, 50/60 cycle. UL and cUL listed. Also available in 220 volt.

66-C3/C4 Size: 7 x 6 x 4 66-C5/C6 Size: 7.25 x 9 x 4



ITEM NO.	CIRCUITS	SHADE ON	SHADE OFF
ECH 66-C3	3	4300	6900
ECH 66-C4	4	5750	9200
ECH 66-C5	5	7125	10050
ECH 66-C6	6	8625	12075

Model 55 High Voltage Flasher Neon Animator

Specifically designed to distribute the secondary voltage of a neon transformer. The unit will handle from 7,500 to 15,000 volts and distribute this high voltage to up to 8 circuits from a single transformer. For this reason the Model 55 is occasionally referred to as a "neon animator".

The Model 55 is housed in a stainless steel cabinet with insulation of electrical quality glazed porcelain. The magnetic speed adjusted can vary the flashing speed from 35 to 300 plashes per minute.

The Model 55 is a rather strong generator of Electro Magnetic Interference (EMI), sometimes referred to as Radio Frequency Interference (RFI). Various precautions can be observed to significantly reduce this interference, but it may not be totally eliminated. This potential problem should be considered when selecting installation locations.

115 volt motor, 50/60 cycle. UL and cUL listed. Also available in 220 volt.



ITEM NO.
NF55A4
NF55A6
NF55A8

Indoor Timeclock

24-hour Time Clock

Perfect choice for controlling HVAC systems, Pool/Spa Heaters and Filters, Fans/Motors/Pumps/ Blowers, Electric Fences, Conveyers or many other types of applications. The 24-hour dial accommodates 2 to 14 replaceable trippers for 1 to 7 on/off operations per day.

- Tamper-Proof Enclosure
- Skip-A-Day Option
- All-Steel Mechanism
- 1-7 On/Off Operations per Day
- Manual Override



ITEM NO.	USE	VOLTS 60 HZ	SWITCH	SWITCH RATING PER POLE					ENCLOSURE		
				AMPS	AMPS T	VA	HP	TYPE(NEMA)	HEIGHT	WIDTH	DEPTH
ETC-101	Indoor	120	SPST	40	40	690	1	1	7 ²⁷ / ₃₂ "	4 ⁹ / ₆₄ "	2 ¹⁵ / ₁₆ "
ETC-103	Indoor	120	DPST	40	40	690	1	1	7 ²⁷ / ₃₂ "	4 ⁹ / ₆₄ "	2 ¹⁵ / ₁₆ "
ETC-104	Indoor	208-277	DPST	40	40	690	1	1	7 ²⁷ / ₃₂ "	5 ⁹ / ₆₄ "	2 ¹⁵ / ₁₆ "

7-Day Time Clock

These general purpose time controls feature a 7-day dial, graduated into the 7 days of the week. Each day subdivided into light (day) and dark (night) portions, each with 30 minute increments. The dial can accommodate up to 28 trippers that provide for 4 on/off operations each day and a total of 28 per week. Any day or days may be omitted. The independent 4-pole design allows for SPST, DPST, or SPDT switching, and a manual override lever can temporarily reverse switch operation without permanently disturbing the preset schedule.

- Tamper-Proof Enclosure
- Independent 4-Pole Design
- All-Steel Mechanism
- 4 On/Off Operations per Day
- 28 On/Off Operations per Week
- Manual Override

Outdoor timeclocks also available. Please contact your sales rep for information.

Photocontrol

TL Series

Photocontrol in slim profile housing with 1/2" pipe nipple

The TL series controls have a thin cylindrical shape to fit neatly between twin floodlights and in other tight applications. These controls are equipped with a field adjustable swivel base that makes it easy to direct the photocell away from stray light and is "O" ring sealed to prevent water from entering through the knuckle. The TL control also features a heavy-duty thermal bi-metal switch that provides a 30-45 second time delay. This virtually eliminates unwanted lamp cycling that could be caused by lightning, car headlights, or other sudden changes in the ambient light level.

- Adjustable Swivel Base
- Thinline Profile - Perfect for Tight Spots
- UL Listed
- Durable Polycarbonate Housing



ITEM NO.	RATED VOLTS	RANGE (VOLTS)	LOAD RATING	LOAD RATING
			TUNGSTEN (WATTS)	BALLAST (VA)
EPC (#TL-115)	120	105 - 130	1800	1100
EPCSPT15	120		2000	1900

Other Available Models:

Please contact your sales rep for details on specific model.

AT Series

Photocontrol in a vandal proof Die-Cast Aluminum Housing with 1/2" pipe nipple

PT/SPT Series

Photocontrol in a non-metallic housing with a 1/2" pipe nipple

BF Series

Locking style photocontrol with surge protection for industrial and commercial applications

AA Series

Button type photocontrol for mounting with in enclosures such as luminaires and outlet boxes



EPCSPT15

Indoor Rotators

All indoor rotators are available with or without collector ring.

IG-1 Models

The IG-1 is the ideal turntable to rotate small loads with ease. Used as a display turntable or inside of a small rotating sign, this unit can rotate up to 20 lbs.

Max. Weight Capacity	20 lbs.
RPM	2 1/2
AMP Load Limit (collector)	10A, 115V
Bearings	Sealed Ball
Motor Draw	0.02A (3 Watts)
Safety Clutch	Standard Feature

ITEM NO.	DESCRIPTION
IG-1	with collector ring
IG-1	less collector ring

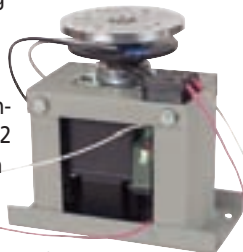


IG-2 Models

Dependable performance, durable construction and safety conscious. The IG-2 is capable of rotating your indoor sign or turntable weighing up to 150 lbs.

Max. Weight Capacity	150 lbs.
RPM	1, 2 (standard), or 6
AMP Load Limit (collector)	15A, 115V
Bearings	Sealed Ball
Motor Draw	0.4A (46 Watts)
Safety Clutch	Standard Feature

ITEM NO.	DESCRIPTION
IG-2	with collector ring
IG-2	less collector ring



Also available other models with a stronger weight capacity. Please contact your sales rep

Outdoor Rotators

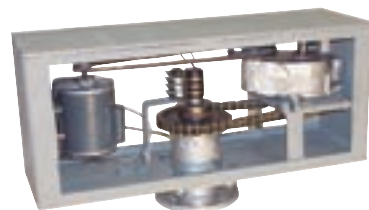
Rotating mechanisms provide motion that attracts attention, leads to interest and results in profit!

Planning with an edge above the competition makes a big difference in selling. One way to market aggressively is to have action attraction on your side. Movement against a stationary background is eye catching and lends renewed visibility over and over from any viewpoint. The 360° motion also shows the whole picture to customers with continuously interesting action.

Turntables have been designed with reliability, stability and ruggedness in mind.

A safety torque relief clutch provides assurance that the turntable will slip under overload conditions, rather than create an aggravatingly dangerous motor burnout.

Special-Action Models available on request – Such as oscillating, indexing, variable speed, fast motion slow motion, revolving display table and other special-action units.



Many standard models available designed to power revolving signs requiring torques up to 800 ft. lbs.

Consult your S&F sales rep for additional information.

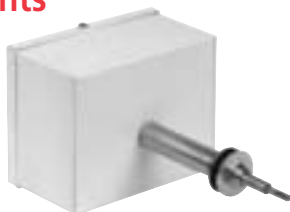
Outdoor Clock Movements

We offer a full variety of products for your outdoor clock and thermometer needs. Choose from a basic model clock movement which can handle dials from 18"-42", to a heavy duty model which can handle dials from 12'-22'! Also available a series of clock movements that have collector rings to carry 120V AC current to neon transformers mounted in the tail section of each hand, used for hands outlined in neon tubing. Do you need a 2-way clock movement or perhaps a 4-way ideal for tower installation? Look no further than S&F. One of our knowledgeable sales rep will be able to advise and assist you with all your needs.

2M Series Clock Movements

For Dial Sizes 18" to 42"

This movement provides sufficient power to drive balanced hands for dial sizes up to 42 inches. It center mounts directly to the clock dial. No cover glass is required to protect hands, which are set easily by turning the minute hand. A No. 970 Remote Reset Control for setting time is optional. It allows one to stop the clock or advance the hands 10 times faster. Also available are shaft extensions for setting the movement back from translucent acrylic dials to eliminate dial shadow or accommodate thick walls.



DIAL SIZE	ITEM NO.	ITEM NO. WITH REMOTE RESET CONTROL
18"	2M-9	2MR-9
24"	2M-11	2MR-11
30"	2M-14	2MR-14
36"	2M-16	2MR-16
42"	2M-18	2MR-18

3MR Series Clock Movements

For Dial Sizes 18" to 48"

This direct drive movement features a synchronous capacitor motor, which develops ample torque for one or two-way clock installations. The standard dimension between opposing two-way dials can be 9" minimum to 16" maximum. The No. 970 Remote Reset Control is provided for setting hands. Shaft extensions can be furnished when requested.



DIAL SIZE	SINGLE FACE ITEM NO.	DOUBLE FACE ITEM NO.
18"	—	3MDR-9
24"	3MR-11	3MDR-11
30"	3MR-14	3MDR-14
36"	3MR-16	3MDR-16
42"	3MR-18	—
48"	3MR-21	—

Open Faced Clocks

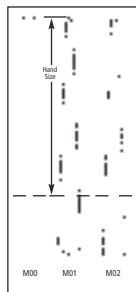
Our durable outdoor clock movements combined with markers will complement today's architectural treatments and are ideal for lobby or outdoor decoration.



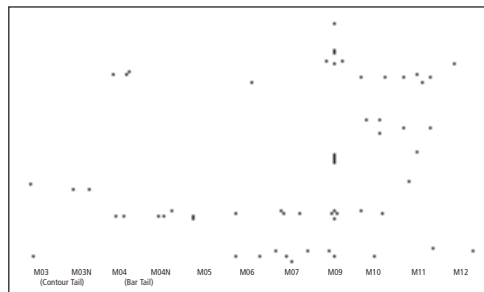
The movements can either be front mounted (-FM) with the mounting plate flush to the wall or rear mounted with extension shafts through the wall. The standard markers are 1/4" thick aluminum and can be installed with adhesive on smooth surfaces, or can be ordered with mounting studs for uneven surfaces. Standard enamel finishes available for the hands and markers are black, aluminum or white. Consult your S&F sales rep for other finishes.



Standard Hands



Special Hands



Clock Setting Controls

Remote Reset Controls

This attachment is available for all clock movements. The clock is wired (with 3 wires) to a conveniently located Reset Control Panel. The Control provides remote setting of clock hands by either stopping the clock or advancing the hands at a 10:1 reset rate.



A Master Reset Control Panel is available for operating from two to four clocks, which includes a master switch for group correction and separate switches for individual clock correction.

