

# Lamps & LEDs

## Neon Lamps (AC)

Neon lamps are constructed of a glass envelope, containing two electrodes and a mixture of inert gases. When a voltage is applied, above the "breakdown" voltage, the gas between the electrodes ionizes, creating the familiar orange-red "glow". They are rugged, reliable, cost effective and generate little heat. While light output is lower than incandescent lamps, neons are the most widely used light sources for indicators used at line voltages. Normally lighting with a red-orange glow, neons are also available in both green and blue by using special gasses and phosphorescent coatings inside the glass envelope.

All neon lamps require a current limiting resistor in series with the lamp. The value of this resistor is determined by three criteria: the manufacturer's specified operating characteristics, the desired brightness, and the required lamp life. While neon lamps have a typical life of 25,000 hours, this is directly proportional to the operating current. Higher current gives greater brightness, but shorter life. Although suited to both AC and DC operation, life when operated on DC is approximately 60% that of AC operation.

Catalog Number	Color	Volts	Life Hours
50	Amber	125V	25,000
52	Amber	250V	25,000
50	Green	125V	15,000
52	Green	250V	15,000
50	Blue	125V	10,000
52	Blue	250V	10,000

*Please Note: All neon-illuminated indicator lights ordered with a green lens will be provided with a green neon lamp; blue lenses will be provided with a blue neon lamp.*

## Incandescent Lamps (AC/DC)

Incandescent lamps are best known for their bright white light output. When an electrical current is passed through the filament, it glows "white hot" creating light. The trade-off in incandescent lamps is their susceptibility to physical shock and vibration, as the filament becomes very fragile at its elevated operating temperatures. We recommend mounting the indicator away from any vibration source, and / or cushioning the lamp within the indicator assembly with a resilient potting compound.

Catalog Number	Volts	Size	Amps	Life Hours
32	6.3V	T - 1 <sup>3</sup> / <sub>4</sub>	.04	50,000
33	10V	T - 1 <sup>3</sup> / <sub>4</sub>	.04	5,000
35	14V	T - 1 <sup>3</sup> / <sub>4</sub>	.08	50,000
39	28V	T - 1 <sup>3</sup> / <sub>4</sub>	.04	25,000

Incandescent lamps can also generate significant heat, which should be considered in your application. Similar to neon lamps, operating an incandescent lamp at less than rated current will significantly increase its useful life. Using a 14 volt incandescent lamp in a 12 volt circuit will reduce the light output by about 30%, but will increase its life by a factor of four.

## LEDs (DC)

Light Emitting Diodes, or LEDs as they are more commonly known, are cousins to the semiconductor devices like transistors and integrated circuits, and are fabricated with similar processes. The color of the LED is determined by the combination of materials used during the fabrication process. LED's are now available in a wide variety of colors including white, and in intensities approaching that of incandescent lamps. Bi-color LEDs are available in several color combinations.

LEDs are available in three primary styles; water clear lens for highest brightness but smallest viewing angle, color clear lens for increased viewing angle at a somewhat reduced light output, and color diffused lens for the widest viewing angle at greater reduction in light output. Light output for LEDs is measured in millicandellas (mcd) and is specified by minimum and typical values.

LEDs are DC (direct current) devices, although SoLiCo can provide a number of our products configured to use LEDs as AC (alternating current) devices.

The technology of LEDs is evolving very rapidly these days, to the point that any specifics we print in our catalog may be obsolete or superseded almost immediately.

Please contact us to discuss your specific LED indicator requirements. We have the experience and technical knowledge to find your solution.

### Material Specifications

High-Temperature Nylon (bases)  
Polycarbonate (lenses and bases)

### Operating Temperature

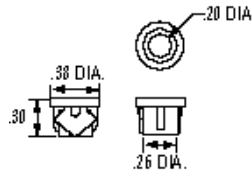
140°C  
135°C

### UL Rating

94V-2  
94V-2

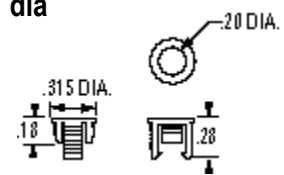
# LED Mounting Clips

T – 1 3/4 Mounting Hole .312" dia



Part Number S-501

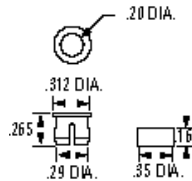
T – 1 3/4 Mounting Hole .250" dia



Part Number S-503

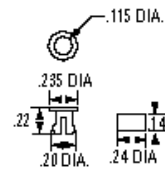
T – 1 3/4 Mounting Hole .250" dia

Clip mounts from panel front, LED from rear for bottom only.



Part Number S-506

T – 1 Mounting Hole .173" dia



Part Number S-301

## Imprinting

### Hot Stamping

Hot stamping uses a heated metal die, engraved with the required legend, under pressure to force ink into a plastic surface, offering excellent durability. Hot stamping is normally done in black or white, and is best suited to text and simple line art. If no ink color is specified, hot stamping will be done in black, and the orientation of the imprint will be horizontal.

Hot stamp charges are "per imprint", which is defined as a marking applied in one operation. The tooling charge for a Hot Stamp Die (not already available) is \$185.00 per die. Minimum quantity is 100 pieces. A set-up charge of \$35.00 will apply to quantities of less than 500 pieces per legend.

### Pad Printing

Pad printing (also known as transfer printing), uses a soft rubber pad to pick up ink from an engraved plate and transfers it to the part to be marked. Pad printing is normally done in black or white, but can be done in any color for which ink is available. If no ink color is specified, white ink will be used. Text and images can be very accurately reproduced with this method. For additional durability in abrasive or high-wear applications, a clear overcoat can be applied over the marking.

Pad print charges are "per hit", which is defined as a marking applied in one operation. The artwork and plate charge for a Pad Print Plate (not already available) is \$185.00. Depending on size and complexity, multiple legends can be accommodated on a single plate, please contact the sales department for details. Minimum quantity is 100 pieces per legend. A set up charge of \$35.00 will apply to quantities of less than 500 pieces.

## Marking Orientation

Horizontal Lens  
Horizontal Legend

HORIZONTAL

Vertical Lens  
Vertical Legend

V  
E  
R  
T  
I  
C  
A  
L

Vertical Lens  
Horizontal Legend

HORIZ  
PRINT

Series 27  
Standard Orientation

