

Lamps & Legends

Neon Lamps

Neon lamps are low-current, long-life light sources limited by the high ionization voltage of neon (≥ 80 V) for use in line voltage circuits. Because the ionized gas holds a constant potential between lamp electrodes, a series resistor is required for current limiting. Larger lamps often include an integral resistor sized for a specific voltage.

Neon lamps glow with a low-intensity amber light, or green if the lamp is phosphor-coated. Bright light and vivid colors are not obtainable with neon lamps, but their typical low current drain, better than 25,000 hour service life, and good resistance to shock and vibration make them useful alternatives in many line voltage applications. For best visibility, they should be used with clear lenses and diffusers.

Light Emitting Diodes

Solid-state LEDs operate at relatively low current levels and have virtually unlimited service life. Characteristics do not change significantly with age, and they are not easily damaged by shock or vibration. The light emitted, however, is of relatively low intensity. To offset this, instead of using the single chip concept in certain LED base configurations, we use a four, six, or eight chip configuration with a wide viewing angle and increased light intensity. Although not as intense as an incandescent lamp, multi-chip performance is very good, and should be adequate for many applications.

Another feature of multi-chip based LEDs is the inclusion of a built-in resistor to accommodate higher voltages without an external resistor. EAO stocks the common voltages of 6, 12, 24, and 48 volts, and are offered in red, green, and yellow.

The single chip LED is only used in our T-1 configuration. Due to small size, multi-chip design currently is not practical in T-1 size. However, since the T-1 normally is used in a confined space with a small lens, the high efficiency single-chip LEDs we use produce excellent results.

Current limiting and reverse polarity protection for LEDs can be provided by external LED control circuits.

Selection of a proper lens can increase brightness. For example, the use of a transparent lens cap and transparent diffuser increases light output, and is usually needed for the larger lenses.

NOTE: Blue and white LEDs are now available.




Lamp Tables

The following tables help users select illumination for each EAO switch series. They present data characterizing incandescent lamps, neons, and LEDs.

The tables indicate each switch series covered and include the following information:

- Illumination type and style of bulb
- Outline drawing of bulb
- General data including color and number of LED chips
- Electrical ratings: volts and milliamps
- Luminous intensity in mean spherical candle power (mscp), millicandela (mcd), millilumens (mlm)
- Average expected life in hours
- EAO part number

Series 01, 14 Illumination

Illumination Type	General Data	Electrical Ratings		Luminous Intensity	Average Life (hours)	Former P/N	Part Number
		Volts	Millamps				
Incandescent T-5.5, Slide Base 	Clear	6	200	0.48 mscp	6,000	01-903.0	10-1106.1369
	Clear	12	100	0.32 mscp	5,000	01-903.1	10-1109.1329
	Clear	24	50	0.27 mscp	6,000	01-903.2	10-1112.1279
	Clear	30	40	0.29 mscp	6,000	01-903.3	10-1114.1249
	Clear	36	35	0.25 mscp	5,000	01-903.4	10-1116.1229
	Clear	48	25	0.21 mscp	5,000	01-903.5	10-1119.1199
Neon, T-5.5 with integral resistor 	Amber	115	1.7	100 mlm	$\geq 25,000$	01-960.8	10-7123.2022
	Amber	230	1.8	100 mlm	$\geq 25,000$	01-960.9	10-7125.2032
	Green	115	1.6	100 mlm	$\geq 25,000$	01-961.8	10-7123.2025
	Green	230	1.7	100 mlm	$\geq 25,000$	01-961.9	10-7125.2025
Multi-chip LED, T-5.5 with integral resistor 	6-chip	6 DC	45	45/50/115 mcd**	$\geq 50,000$	01-968.0 <input type="checkbox"/>	10-5106.325 <input type="checkbox"/>
	6-chip	12 DC	30	45/50/115 mcd**	$\geq 50,000$	01-968.1 <input type="checkbox"/>	10-5109.320 <input type="checkbox"/>
	6-chip	24 DC	15	45/50/115 mcd**	$\geq 50,000$	01-968.2 <input type="checkbox"/>	10-5112.314 <input type="checkbox"/>
	6-chip	28 DC	15	36/63/90 mcd**	$\geq 50,000$	—	10-5113.314 <input type="checkbox"/>
	6-chip	48 DC	14	42/46/107 mcd**	$\geq 50,000$	01-968.4 <input type="checkbox"/>	10-5119.313 <input type="checkbox"/>

Select color: 2 = Red, 4 = Yellow, 5 = Green ** mcd rating for Red/Yellow/Green