

LED TERMINOLOGY

What is LED?

A **lighting-emitting diode (LED)** is a semiconductor device that emits incoherent narrow-spectrum light when electrically biased in the forward direction of p-n junction. The color of the emitted light depends on the composition and condition of the semiconducting material used and can be infrared, visible or near-ultraviolet.

What is a light Power LED?

High Power Led refers to a type of LED with a driving current of 350mA and above. Edison Opto design and manufacture high power LED ranging from 1 Watt to 100 Watt.

What is Bin Ranks?

Edison Opt LEDs are sorted into different bins (groups) based on their wavelength, photometric luminous flux, or random power data. Bin ranks describe the specifications of the given bins.

What is CRI?

Color Rendering index (CRI) is a measure of the ability of a light source to reproduce the colors of various objects being lit by the source. It is a mathematical formula describing how well a light source's illumination compares to the illumination provided by a reference source. The index provides a number up to 100 for ideal light.

What is wavelength?

Light could be split into many colors. The colors produced by light are arranged in a precise array of spectrum. The order of color is constant, and each color has a unique signature identifying its location in the spectrum. The signature of color is the wavelength of light.

What is Solid State Lighting (SSL)?

Solid State Lighting (SSL) refers to a type of lighting that utilizes LEDs as sources of illumination rather than electrical filaments or gas. The term "solid state" refers to the fact that light in an LED is emitted from a solid object - a block of semiconductor - rather than from a vacuum or gas tube, as is the case in traditional light sources.

What is phosphor?

Phosphor is an inorganic chemical compound processed into a powder and deposited inside the dome of an LED package. Phosphors are designed to convert the wavelength of light. Edison LEDs use proprietary phosphors from the global leading company.

What is CCT?

Correlated Color Temperature (CCT) is a characteristic of visible light that has important applications in lighting. The color temperature of a light source is determined by comparing its hue with a theoretical, heated black-body radiator. The Kelvin temperature at which the heated black-body radiator matches the hue of the light source is that source's color temperature.

What is the PF

(Power Factor) is the ratio of power dissipated over input: the ratio of the actual power dissipated in an electrical system to the input power of volts multiplied by amps. Optimal PF is 1

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What are lumens (lm)?

Lumen is the measurement of brightness as perceived to the human eye. Because of incandescent lighting, we are all accustomed to using watts to measure the brightness of light. Today, we use lumen. Lumen is the most important variable when choosing which LED strip light you need to look at. Make sure you compare lumen output between LED strip lights before determining which one is best for your project.

What is AC?

This is Alternating Current. This is the electricity that is used in most homes and commercial spaces. It's often referred to as line voltage and number differs from country to country. US line voltage is typically 90V-220V, whereas it often averages higher in Europe.

What is DC?

This is Direct Current. Most LED strips on the market use low-voltage DC. A transformer or low-voltage battery is often required to step-down the AC voltage to a suitable level for the LED strips, which is normally 12V or 24V DC.

What is CRI and why is it important?

Color Rendering Index (CRI) is the measurement of how colors look under a light source when compared with sunlight. Having information on the CRI of a LED strip light is important because you want to make sure that the colors are being accurately represented by the light source. CRI is measured on a scale from 0-100. A CRI of 80+ is the industry-standard for most applications while a CRI of 90+ tends to be necessary for situations that need color accuracy. Our UltraBright High CRI Series are used for photography lighting, retail lighting, bathroom or salon lighting, and residential lighting..

What is LED pitch and how does it affect the type of lighting I wish to achieve?

LED pitch is the distance between the individual chips on a strip (FPCB). It is absolutely crucial to understand the importance that pitch plays in your project. The shorter the pitch, the more uniform the light tends to be and the less spotting you have.

What is the difference between 3528 LEDs v 5050 LEDs?

LED chips are all not all equal. The four digits represent the size of the chips in millimeters. For example, the 3528 chip is 3.5 mm X 2.8mm. Some chips are brighter than other and some have special uses and restrictions.

What is color temperature?

The color of light can be quantified by referring to its color temperature. White light is measured in Kelvins (K). Most white lights fall in a spectrum between 1800K and 6500K. When getting close to 3000K, the light is noticeably warmer. On the other end of the spectrum, the lights have a blue-ish tint and cooler tone when nearing 6500K.



2400K 2700K 3000K 4200K 6200K

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What is mA or mAmp?

This is 1/1000 or 0.001 of 1 ampere. When using LED strips it is common that the current draw for the LEDs will be less than one amp. In this case milliamps are used to indicate the amp draw. An example of this would be that a draw of ½ amp would be equal to 500mAh.

What is a Watt?

A watt is equivalent to one joule per second, corresponding to the power in an electric circuit in which the potential difference is one volt and the current one ampere. A watt is equal to the voltage multiplied by the amperage. This is how your electric company keeps track of how much energy you consume.

What is Binning?

Simply put, binning is the process of grouping LEDs during production so that they matched with LEDs of the same color sector. For example, all 2700K chips are 'binned' together and are separated from chips that have a higher/lower color temperature..

What is an LED (Light Emitting Diode)?

A Light Emitting Diode (LED) is a solid-state semiconductor device that converts electrical energy directly into light. .

What is solid-state lighting?

Lighting devices that do not contain moving parts or parts that can break, rupture, shatter, leak, or contaminate the environment. LEDs do not use electrical filaments or gasses to produce light.

What is luminous efficacy?

This is calculated by measuring the lumen output and then dividing that number by watts. For example, a strip that has a lumen output of 300lm/ft and a wattage draw of 3w/ft has an efficiency of 100lm/W.

What is a Luminous Intensity Distribution Diagram?

Is a test to determine the angle of an emitted beams of light

What is an Isocandela diagram?

Graphic representation of brightness distribution of a light source.

What does Fidelity Index (TM-30) mean?

How closely the observed light can render colors like the sun, using 99 color samples.

What does Gamut Index (TM-30) mean?

How saturated or desaturated colors are (aka how intense the colors are).

What does Color vector Graphic (TM-30) mean?

Which colors are saturated/desaturated and whether there is a hue shift in any of the 16 color bins.

What does CQS - Color Quality Scale mean

An alternative to the unsaturated CRI measurement colors. There are 15 highly saturated colors that are used to compare chromatic discrimination, human preference, and color rendering.

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What is a goniophotometer?

A photometric device for testing the luminous intensity distribution, efficiency and luminous flux of luminaries.

What is IP stand for?

This is a rating system that defines the ability of a product to be able to work in different environments. IP is an acronym "Ingress Protection". It is a measurement of the protection an item will have against solid objects (dust, sand, dirt, etc.) and liquids.

An IP rating is comprised of 2 numbers. The first number refers to the protection against solid objects (dust, etc) and the second number refers to protection against liquids.

What is the difference between IP65, IP67, & IP68?

The differences between commonly sold IP65, IP67, & IP68 strips are slight, but very important. Using the above chart as a guide, we can see that all strips are protected at the highest level from solids and dust. The variations come with the protection against liquids.

IP65 = Water resistant. "Protected against water jets from any angle" *Do NOT submerge IP65 LED lights, these are not waterproof.

IP67 = Water resistant plus. "Protected against the events of temporary submersion (10 minutes)"*Do NOT submerge IP67 LED lights for extended periods, these are not waterproof.

IP68 = Waterproof "Protected against the events of permanent submersion up to 3 meters"

Why use LED's for lighting?

1. Long life time (50,000 to 100,000 hrs)
2. Highly energy efficient
3. Environmentally friendly - no hazardous materials
4. No infrared or ultraviolet in beam output
5. Cold start capable down to -40 degrees
6. Vivid saturated colors without filters
7. Small form factors for improved design flexibility

WE HOPE YOU FOUND THIS HELPFUL

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