

General LED terms

Voltage

Volt or voltage indicates the electrical voltage that the lamp requires to make it run. The standard power is 230 volts. Different voltages apply for, for example, cars, ships and industrial appliances.

Wattage

The wattage of a LED lamp source indicates how much energy it consumes. Voltage times Amp = Wattage. To know how much light an LED lamp really gives and which LED is the equivalent of which incandescent lamp, it is best to look at the amount of Lumen. Lumen per Watt differs from one LED to another.

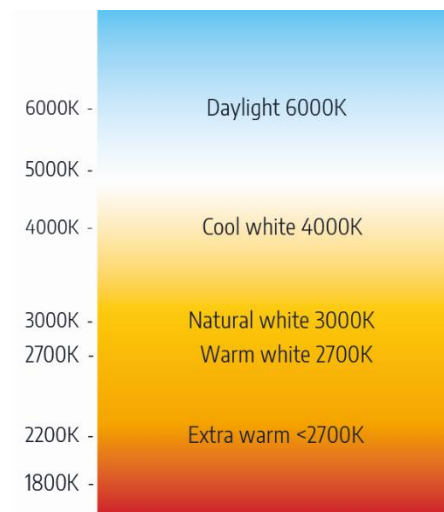
Lumen

The rendering of light is usually defined in Lumen (lm). The more lumen, the higher the amount of visible light. When replacing incandescent lamps by LED the following conversion table can be used to obtain the same light output.

Incandescent	LED	Lumen
15 Watt	3 Watt	100-150 lm
25 Watt	5-7 Watt	200-300 lm
40 Watt	8-10 Watt	400-500 lm
60 watt	11-15 Watt	500-800 lm
75 Watt	14-20 Watt	700-1000 lm
100 Watt	20-25 Watt	1000 lm

Kelvin

The color of light is defined in Kelvin (K). A high Kelvin value represents a cold white light; a low Kelvin value gives a warm, more yellow color.



SDCM/Binning

No LED chip is the same at the microscopic level. During the production of LED chips, differences in color reproduction and light output inevitably arise. After production, they are ideally selected and grouped. This process is called binning. The level at which selection and grouping are ultimately done determines the color consistency of the finally assembled LED lamps. The color deviation is indicated in SDCM (Standard Deviation or Color Matching) from 1 (no deviation) to 6 (large deviation). Filament LEDs cannot reach a score better than 6, while COB and SMD LEDs can easily obtain a 4 or 5. The better the binning, the higher the price of an LED.

CRI

De Color Rendering Index (CRI) indicates the ability of a light source to reveal the true colors of its surrounding objects on a scale from 0 to 100: the higher the CRI rating, the more accurate the color rendering.



Lifespan

The lifespan indicates how long the lamp lasts on average and is defined in operating hours. However, there are several factors that determine which life is actually achieved: see detailed explanation under "frequently asked questions SPL LED" about actual lifespan.

Power factor

In electrical engineering, the power factor of an AC electrical power system is defined as the ratio of the real power absorbed by the load to the apparent power flowing in the circuit, and is a dimensionless number in the closed interval of -1 to 1 . In an ideal situation, the value is 1 . An LED lamp contains electronics and therefore often has a Pf lower than 1 . For example: a 10W LED lamp with a Pf of 0.5 actually consumes $10\text{W} / 0.5 = 20\text{W}$. The closer the Pf is to value 1 , the better.

LED driver

LED lamps require only a very low voltage. To convert the mains voltage to this low voltage, an LED driver is required. The driver provides a constant power supply. The fewer fluctuations, the better it is. Many retrofit lamps have a built-in driver. Some LED lamps come with an external driver supplied separately.