

DATAHITE

LED TECHNOLOGY

What is a LED-lamp?

The LED was invented a long time ago by Oleg Losev who discovered that diodes radiated light when current is sent through. He published the details concerning LED's in 1927 in a Russian illustrated magazine and applied for a patent. Strangely enough this remained unnoticed until /up to 1962, the year in which Nick Holonyak developed a working LED.

A LED-lamp is a so-called SSL, Solid State Lighting, a lamp which is built from a group of Light Emitting Diodes. Depending on the used LED the brightness, the colour and the radiation angle of the lamp varies. White light was the first application of course. It was initially generated by illuminating UV-LED with a fluorescent layer. Nowadays there are alternative white light. To soften this light beside Phosphorus other substances are added which make white light warmer and more pleasant. Also coloured LED's are made with for example Gallium-aluminiumarsenide for red and Galliumnitride for green. The last development is the blue LED with which, in combination with red and green, the complete RGB-spectrum has become possible.

The characterization of the light is determined by the luminous flux, which is measured in lumen, the brightness, measured in millicandela, and the radiation angle, measured in degrees. The luminous flux stands for the quantity of energy which the lamp transmits in all directions. A traditional lamp of 40 watt for example radiates 300 lumen. The brightness of the lamp is about the quantity of light that is delivered. This is expressed in millicandella. With LED-lamps you have to consider the radiation angle. The smaller it is, the greater the brightness, whereas the quantity of light remains the same.

For example: a 1000mcd 30° LED radiates as much light as 4000mcd 15° LED. The radiation angle has been halved in both breadth and altitude, which makes the brightness four times as strong. If you want to replace traditional bulbs by LED lamps, you should consult a calculation table in which all these factors are considered. Another point of attention is the colour temperature. At present besides cool white, there is neutral white, warm white and extra warm white.

The advantages of LED- lighting

First of all LED- lamps have an extreme long life span. Good quality specimens have about fifty thousand burning-hours, a hundred times longer than a traditional bulb. Even if a LED-lamp would burn for 24 hours a day, it would last more than 10 years. A LED has a much longer life span than a energy saving bulb. On packaging of LED lamps you'll frequently find statements that the life span is 30,000-50,000 hours. Crucial for this statement is that the warmth it produces can be discharged. If this is not dealt with in the design the life span will decrease considerably. Also the quality of the electronics used is of importance.

Nowadays we use LED's not only as light source but also as an infra-red sender of remote controls, inside illuminated news trailers, flat display devices, stoplights of cars, garden lighting and pocket-lamps. The production of LED-lamps is still very young, but it's application is very promising.

Datalite LED Technology

Datalite LED Technology developed over the years a significant amount of LED controls (both the hardware and software). This for several different LED systems such as time- and temperature clocks, text information systems, indirect ceiling lighting, full colour RGB LED display devices, LED mood lighting and more...