

LIGHTING AND TECHNICAL TERMS

Whenever you want to make use of light while growing crops, all kinds of terms come up. To be able to read and understand the datasheets of various suppliers, it is important to know what these technical terms mean.



Below you will find an explanation of the most common terms:

Micromoles ($\mu\text{mol} / \text{s}$) - This is the unit of measure of PAR. Micromol / s thus indicates how many micromoles per second are sent by the light source.

PPF - *Photosynthetic photon flux* measured in micromoles / s ($\mu\text{mol} / \text{s}$). This is a measure of the number of photons that the light source produces per second.

PPFD - *photosynthetic photon flux density* measured in micromoles / m^2 / s ($\mu\text{mol} / \text{m}^2 / \text{s}$). This is the unit of measurement for the number of photons that hit the crop within the PAR spectrum. That is, the exact radiated spectrum, in relation to the distance from the light source to the crop. PPFD thus measures the effective wavelengths of PAR.

P.A.R. - *Photosynthetic Active Radiation*, is the light radiation (read: photons) with a wavelength of 400 to 700 nano-meter within the light spectrum that can be used for photosynthesis



DLI - *Daily Light Integral*, the total amount of PAR light that the crop receives over the length of a day (Moles per day) in a specific area. That is, the amount of photosynthetic light that is received every day on a square meter in relation to the plant quality. The DLI is therefore variable per day / growing season and affects crop development depending on the geographic growing location. It must therefore be realized that this has a significant influence on plant species and the cultivation environment and how production can be optimized.

IP XX - The IP rating is a two-digit designation, where the first digit (0 to 6) indicates the degree of protection provided against contact with current by the ingress of objects or dust. The second digit (from 0 to 8) indicates protection against water ingress. With LED we often encounter IP66, which means dust-free (6X) and water-resistant (X6)

L90 - The *lifespan* of an LED module in a luminaire depends on the luminous flux decrease at a certain ambient temperature. L90: 36,000hrs thus means that after 36,000hrs the light output is 90% of the initial starting point / light output.

TM-21 - Guidelines for using data collected during testing to evaluate the life of a light source. TM21 is expected to become the standard method for determining a useful life of LED lighting at realistic operating temperatures.

Simply put, an exponential curve is drawn between the 1000 hour test points on a graph that plots 90% lumen maintenance against a timeline up to 40,000 hours. This could give a calculated figure of L90 = 36,000 hours.

If there are still things unclear and you need help or explanation, contact us direct. We believe that sharing knowledge is the only way to be the right partner of our customers!

Good luck!

Sincerely,

Geert-Jan

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