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LED Option

For photosensitive cultures in a shaker

- Daylight in the shaker
- Even light distribution
- High light intensity
- Ideal cultivation temperature
- Low heat dissipation
- Energy saving

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LED Option for incubator shakers

Daylight in the shaker

In the Multitron Pro, Multitron Cell and Minitron models, the warm white light provides an ideal daylight-like spectrum in the visible range, with a very high proportion of photosynthetically active light (other spectra available on request). This universal solution ensures excellent growth of all photosensitive organisms. Comparative experiments have shown that neon tubes can be switched to LED light without any problems.

Even light distribution

The evenness of the light distribution onto the tray ensures identical results in all vessels cultivated at the same time, thus making comparisons between parallel cultures possible. Other systems have a very uneven light distribution of up to ±50 %, leading to great variations in growth in the individual shaker flasks.

High light intensity

Compared to conventional fluorescent tubes, the LED lighting produces a two-fold increase in light intensity.

Ideal cultivation temperature

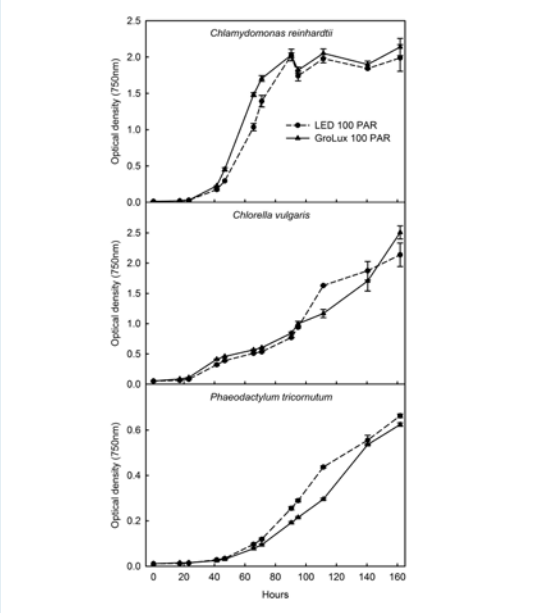
Ideal cultivation temperatures for algae due to low heat input from the LEDs compared to fluorescent tubes. Up to 20 °C below ambient temperature is possible (dependent on model and light intensity).

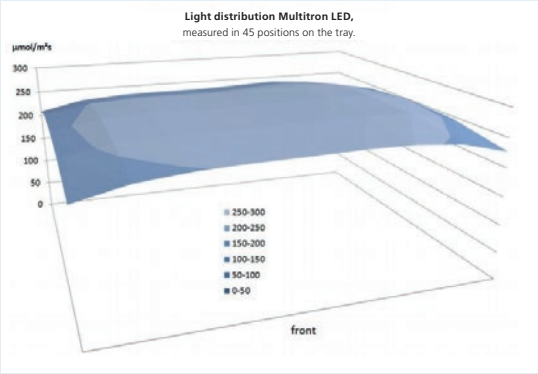
Low heat dissipation

The use of fluorescent tubes requires more than double the electrical power, which usually overwhelms the laboratory's air-conditioning system (especially when using several incubators) and leads to a sharp increase in room temperature.

Energy saving

Save up to 50 % energy compared to fluorescent tubes at the same light intensity and a longer lifespan.





Important technical data

	Minitron LED Option	Multitron Pro LED Option
Max. light intensity	240 µmol m^{-2} s^{-1} (13 kLux)	200 µmol m^{-2} s^{-1} (13 kLux)
Light colour	Warm white	Warm white
Light distribution*	±10 %	±6 %
Temperature range at max. light intensity	ca. 16 °C below RT to 45 °C	ca. 9 °C–14 °C** below RT to 65 °C
Temperature range with light off	ca. 16 °C below RT to 65 °C	ca. 20 °C below RT to 65 °C
Cooling	Obligatory	Obligatory
Additional space requirements	Housing depth +10 cm	–

* Standard deviation determined from 25 (Minitron) or 45 (Multitron Pro) measurement points on the tray
** Dependent on cooling performance and light intensity

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