

The LED fixture

FL300 fixture from Fionia Lighting

The FL300 LED top-light is a 600 watt fixture emitting light in the photosynthetic active region of the visible light spectrum. Our solutions suit most modern production greenhouses in the world and are designed to withstand the harsh environment of a glass house and working year after year. The minimalistic design means easy installation using standard connection technology, and with a minimal shadow footprint, the FL300 is able to produce good quality plants all year long. This makes it a natural replacement to the conventional HPS systems used today.

The Spectrums can be designed for individual crops in combination with LCC 4 climate control systems. An alternative to the LCC 4 climate control system is a small Control Unit which controls up to 49 fixtures.

FL300 is CE marked according to standards in horticultural lighting and ROHS compliant.



- Energy saving verified through independent research
- Easy replacement of your old HPS lights
- Proven by more than 3,000,000 burning hours
- Ability of dynamic control of the intensity and spectral composition
- Danish developed over 8 years



**Fionia
Lighting**

Fionia Lighting:

Fionia Lighting has researched and tested the application of LEDs for horticultural practice with success since 2005 and is one of the pioneers in this field. Research fields ranging from basic photosynthesis to advanced light guide control enable Fionia Lighting to combine many advanced elements into a new state of the art air-cooled LED top-light fixture. The Fionia Lighting products are currently used with some of the world's largest greenhouse growers, and are also used in research facilities, universities and plant schools. The combination of active cooling and lens system for the horticultural industry is patented by Fionia Lighting.

Documented results:

The greenhouse of PKM is one of the largest flower growers in Europe with a total area of 260,000 m², and is well known for innovation in developing new plants and being a pioneer in new technology. During four successive growth seasons PKM has tested the Fionia Lighting LED systems and during the growth seasons 2011-2014 more than 300,000 Campanula flowers were grown under LED lights from Fionia Lighting, and the results demonstrate conclusively the advantages:

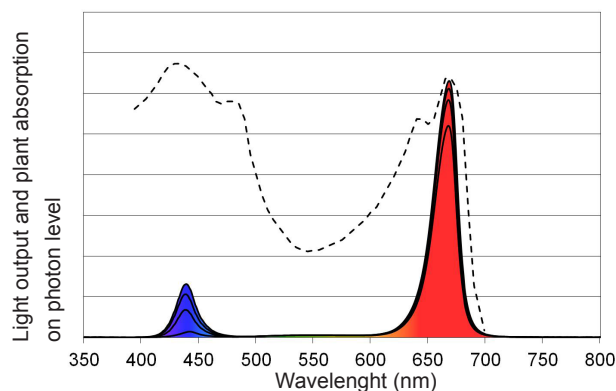
- 53% electricity savings compared to conventional HPS system
- 43% electricity savings compared to new 1.000 watt HPS system
- Result: Same plant quality and same sales price as crops produced under 1.000 watt HPS

The conclusion was that despite the low electricity consumption the plants are growing very well in the "new light" and are the same or even on some parameters better than the HPS quality.

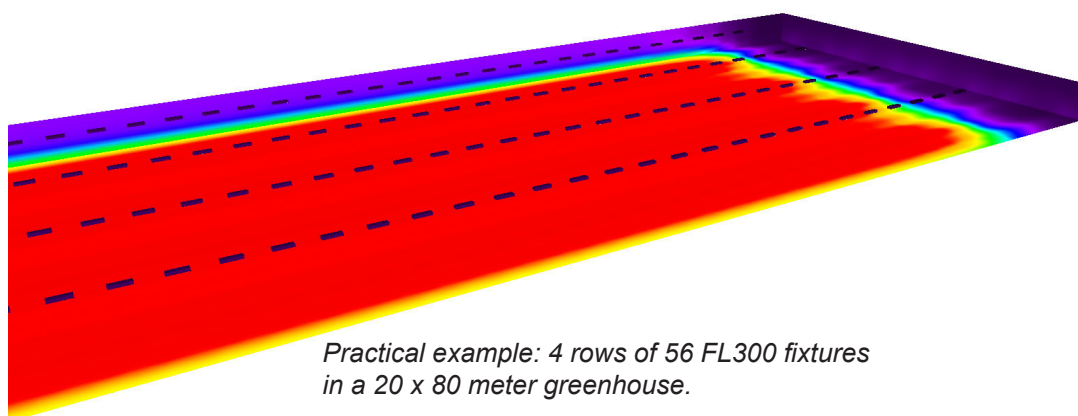
| Parameter: | |
|--|--|
| Power input | 230 V AC / 50-60 Hz |
| Power usage | 100-600 watt (adjustable via controller) |
| Light output | 2.2 - 2.4 $\mu\text{mol/s}$ per Watt |
| Net weight | 12.4 kg |
| Dimension | 550 x 230 x 160 mm |
| Operating temperature | 0-40 °C |
| Degree of protection | IP 54 |
| Light intensity decay | At least 50,000 hours at L85B10 |
| Coverage | 6-12 m ² (depending on light intensity) |
| Light modulation range: | From 2-14% blue light of total light |
| Green / white content: | From 1-5% of total light |
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When evaluating possible LED solutions it is important to check on two parameters: Temperature of the LED when the fixture is running and the distribution profile on your plants. The FL300 is equipped with a patented active cooling system that enables a low LED temperature and therefore a long lifetime that a passive cooled LED fixture does not have.

The FL300 is designed with a patent pending optical lens system that enables a traditional installation plan similar to HPS with homogenous distribution profile on plant level.



Spectral distribution of FL300 together with a general action spectrum of plants. Spectral distribution for FL300 shown for 2,6,10,14% blue



Practical example: 4 rows of 56 FL300 fixtures in a 20 x 80 meter greenhouse.

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