



## Growing value

**Philips GreenPower LED string LF** brings the benefits of LED lighting to multilayer cultivation

Building upon our long history of developing innovative and reliable lighting for the horticultural market, we are delighted to introduce our GreenPower LED string LF. Featuring state-of-the-art LED technology, this Low-Flux string is designed for multilayer applications requiring low GrowthLight levels, e.g. for tissue culture, storage and transport of plants.

Philips GreenPower LED string enables a uniform light distribution across the shelves, ensuring that every crop receives the same level and quality of light, regardless of its position on the surface. The red and blue light of the LED string, while less visible to the human eye, provides the colors most essential for crop growth.

**PHILIPS**  
sense and simplicity



# Growing value

## Tune the light

With the LED string, you can decide for yourself how much red and how much blue light you want – something that is not possible with fluorescent lamps. In this way, you can truly tune the light to meet the specific needs of each crop.

## Increased efficiency

Philips GreenPower LED string combines a homogeneous light level with low energy consumption, making it a cost-effective solution compared with today's fluorescent lamps. It also radiates less heat, enabling you to bring the light closer to the crop and so increase the number of cultivation layers.

## Flexibility and convenience

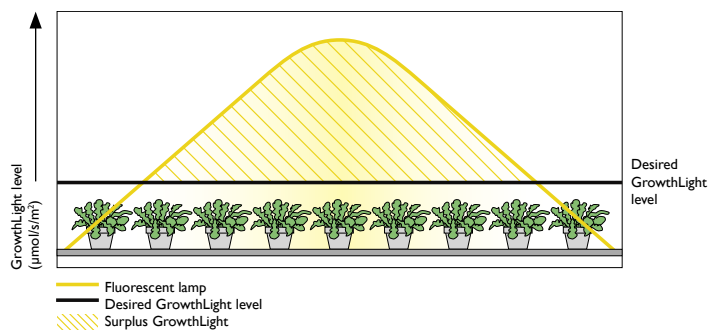
The LED string has a flexible design, offering maximum freedom in installation. It is also robust, waterproof and easy to clean – you can simply wash down your multilayer array. Combined with the long lifetime of LEDs, this will limit failures and therefore maintenance costs.

## Application areas\*

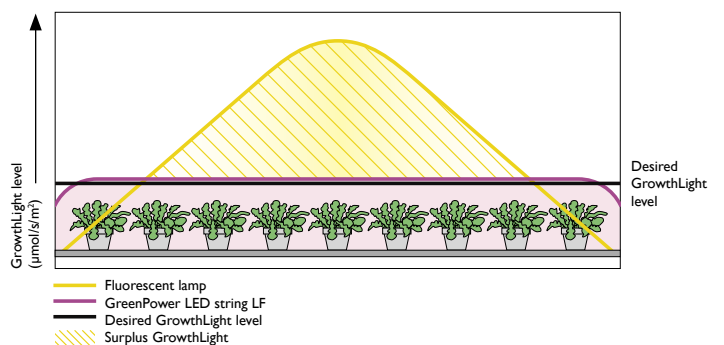
- Tissue culture (in vitro multiplication and propagation of young plants)
- Plant storage and transport
- Plant research

\* The typical GrowthLight is between 5 and 25  $\mu\text{mol/s/m}^2$ . Depending on the configuration, higher or lower lighting levels are possible.

## Current situation GrowthLight distribution – fluorescent lamps



## Comparison GrowthLight distribution – fluorescent lamps versus GreenPower LED string



In today's situation, the light from fluorescent lamps is often not sufficient at the edges, while delivering a surplus in the middle. With the GreenPower LED string you can install a uniform light level close to the level that the plant actually requires.

# Proof positive – experience with field tests

Since light is an important production tool for growers and breeders, Philips has conducted several field tests together with horticultural firms and experts from the research community. These tests prove the cost-effective potential of LED solutions to optimize crop yield and quality.

## Field test - Peerdeman Orchideeën

Philips and Peerdeman Orchideeën, an important supplier of various orchids, carried out extensive tests on tissue culture. By varying the light level and color ratio, an optimum was found for Phalaenopsis and Cymbidium.

### Results

- Appearance of plants – the same or even better
- Improved light uniformity
- Up to 50% reduction in energy consumption

“We were surprised to discover that LEDs really do make a difference. The flexibility to optimize the different factors – spectrum, uniformity and heat distribution – ensures the ideal solution. For us and the plants!

Arjen Peerdeman, Peerdeman Orchideeën

## Field test - Royal van Zanten

At Royal van Zanten, an innovative and leading company of plant material, tests were conducted on tissue culture for Chrysanthemums and Alstroemeria and cold storage of several Limonium varieties.

### Results

- Chrysanthemum - higher propagation factor
- Storage - healthy plants and less evaporation
- Up to 60% energy savings in tissue culture and up to 80% in storage

“In our company we saw lots of opportunities for LEDs. By carrying out tests, we found solutions for both tissue culture and plant storage. As well as saving energy, LEDs help us to improve plant quality during cold storage, mainly thanks to better heat control.”

Sjoukje Heimovaara, Royal van Zanten



Field test at Royal van Zanten

# Specification and ordering information

## Specification

Specification per meter LED string (=ten LEDs)*	Photon flux (typical) $\mu\text{mol/s}$	Power consumption (typical) W	Lifetime** hrs	Photon flux maintenance %	Ingress protection IP
GreenPower LED string LF deep red	3.6	2.4	25,000 50,000	90% 70%	66
GreenPower LED string LF blue	1.5	1.8	25,000 50,000	90% 70%	66

\* Example: 10  $\mu\text{mol/s}$  red light for one square meter requires 2.8 meters of LED string LF deep red, depending on the configuration requirements.

\*\* Lifetime and maintenance values are given at an ambient temperature of 25°C.

\*\*\* The GreenPower LED string is designed for a shelf distance of 50 cm.

## Ordering information

Philips GreenPower LED string is designed to operate with Philips LED power drivers to ensure optimal performance. The number of drivers required to operate the LED string depends on the quantity of LEDs connected. Please contact your local sales office for more information.

## Compliances and approvals

Approval mark ENEC  
RoHS-compliant  
Quality standard ISO 9001-2000  
Environmental standard ISO 14001

Philips GreenPower LED string LF	Minimum order quantity pcs	EOC
GreenPower LED string LF deep red	1x20 m	805574 00
GreenPower LED string LF blue	1x20 m	805567 00

LED Power Driver (IP66)	Minimum order quantity pcs	EOC
20W-24V, 100 - 240V	10	911940 30
60W-24V, 100 - 240V	10	911469 30
100W-24V, 100 - 240V	10	911964 30

Accessories	Minimum order quantity pcs	EOC
LS Mounting Clip	200	763910 30
LS Extension Cable 4W	50 m	763934 00
LS Connector Xtend+	10	763972 30
LS Applicator tool		
LS Connector End cap	10	763996 30
LS Mounting Tape 210 pads <sup>1</sup>	1 reel of 210 pads	764016 00
LS Mounting Tape 1700 pads <sup>1</sup>	1 reel of 1680 pads	764030 00
LS Connector tool	1	765686 00



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