



## Growing value

### Save up to 60% energy with the Philips GreenPower LED production module in multilayer cultivation

LEDs are used most effectively if the spectrum and light level are exactly tuned to the crop and growth conditions. In the past years, Philips conducted more than 50 field tests to determine the optimal spectrum and light level for multilayer production. This results in the GreenPower LED production module reducing energy consumption and creating a more uniform light distribution.

The **GreenPower LED production module** for multilayer applications ( $50\text{-}400\ \mu\text{mol/s/m}^2$ ) can replace conventional TL lighting (36 W or 58 W) reducing energy consumption up to 60%. For most applications, the modules with the mix deep red/blue can be used. Next to energy efficiency, LEDs provide less heat and a more uniform light distribution. This makes the module also perfectly fit for conditioned environments.

**PHILIPS**  
sense and simplicity

# Growing value

## Optimized lighting

Three spectrum versions are available. Next to the most commonly used deep red/blue mix we offer a deep red/white version if work light is needed. If no blue is required for growth the deep red version can be used.

## Consistent quality

The GreenPower LED production module ensures a uniform light distribution across the shelves, which means that every plant receives the same level and quality of light.

## Efficient heat management

Thanks to its LED technology and optimized thermal design, the GreenPower LED production module radiates very little heat toward the plants. As a result, the layers can be fit closer to each other if required.

Furthermore, no additional cooling (e.g. air, water) is required for the module to function efficiently.



To compare: TL growth light on the left side; LED growth light on the right side

## Reliable solution

The GreenPower LED production module is robust and waterproof. It's easy to install with integrated driver (230/240 V). Combined with its long service life, this means little or no maintenance. For most common installations a LED alternative is available: the modules have the same length as the 36 W TL (123 cm.) or 58 W TL (153 cm.). An existing installation with 2x 36 W or 2x 58 W TL can be replaced by only one module producing a comparable light level.

Existing TL installation	Replace by LED module	Result at comparable light level	Payback time
1x 36 W	1x 123 cm 16 W	Up to 60% energy saving *	Less than 3 years
1x 58 W	1x 153 cm 20 W		
2x 36 W	1x 123 cm 32 W		
2x 58 W	1x 153 cm 40 W		

\* As well as reducing the amount of current consumed for light, it also affects the heat in the climate room, enabling an additional saving on the climate system, if present.

## Application areas

- Multilayer plant production, potted plants and young plants.
- Conditioned environments, including climate cabinets and production units.

# Proof positive – experience with field tests

Since light is an important production tool for growers and breeders and a key factor in plant research, Philips conducts field tests together with horticultural firms and experts from the research community. These tests are valuable input for product design. They prove the versatility and cost-effective potential of LED solutions to optimize crop yield and quality.

## Sigg Plant

“Last year I tested different configurations of GreenPower LEDs to improve plant quality in my multilayer growth facility of young tomato and cucumber plants. Promising results make me expect even more from the new GreenPower LED production modules.”

Tommy Sigg

## Kieft-Pro-Seeds

“We found improved plant quality, energy saving, and even less labour for germinating seeds by doing a trial with different settings of GreenPower LED research modules. We are now looking forward to the new GreenPower production modules to upscale the found recipe in an economic way.”

Willem Koopman

## Vitro Plus

“Extensive automation in our laboratories is and will always be essential to guarantee the growth of our ferns and maintain our position against international competition. With the new GreenPower LED production module, we can now further optimize the growth process, increase production and save energy.”

Ard Stoutjesdijk

## Specification and ordering information

### Specification

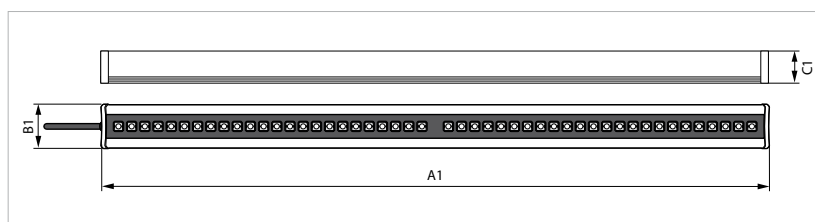
Philips GreenPower LED production module**	Photon flux (typical) $\mu\text{mol/s}$ per module	Power consumption W	Lifetime* hrs	Photon flux maintenance %	Ingress protection IP
<b>Deep red/blue (DR/B)</b>					
GreenPower LED production DR/B 120 LO	25	16	25.000	90%	66
GreenPower LED production DR/B 120	50	32	25.000	90%	66
GreenPower LED production DR/B 150 LO	31	20	25.000	90%	66
GreenPower LED production DR/B 150	62,5	40	25.000	90%	66
<b>Deep red/white (DR/W) (if work light is needed)</b>					
GreenPower LED production DR/W 120 LO	28	16	25.000	90%	66
GreenPower LED production DR/W 120	50	28	25.000	90%	66
GreenPower LED production DR/W 150 LO	34	19	25.000	90%	66
GreenPower LED production DR/W 150	62,5	35	25.000	90%	66
<b>Deep red (DR) (if no blue is needed for growth)</b>					
GreenPower LED production DR 120	50	28	25.000	90%	66
GreenPower LED production DR 150	62,5	35	25.000	90%	66

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

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

### Specification GreenPower LED production module

#### Mechanical dimensions



#### Compliances

IP66

Approval mark ENEC

EN 55015

RoHS-compliant

Quality standard ISO 9001-2000

Environmental standard ISO 14001

Full Product name	Minimum order quantity	Dimensions (in cm)			Ordering code
		A1	B1	C1	
<b>Deep red/blue (DR/B)</b>					
GreenPower LED production module DR/B 120 LO	6	123	4	4	9290 004 87103
GreenPower LED production module DR/B 120	6	123	4	4	9290 004 86903
GreenPower LED production module DR/B 150 LO	6	153	4	4	9290 004 87603
GreenPower LED production module DR/B 150	6	153	4	4	9290 004 87403
<b>Deep red/white (DR/W) (if work light is needed)</b>					
GreenPower LED production module DR/W 120 LO	6	123	4	4	9290 004 87203
GreenPower LED production module DR/W 120	6	123	4	4	9290 004 87003
GreenPower LED production module DR/W 150 LO	6	153	4	4	9290 004 87703
GreenPower LED production module DR/W 150	6	153	4	4	9290 004 87503
<b>Deep red (DR) (if no blue is needed for growth)</b>					
GreenPower LED production module DR 120	6	123	4	4	9290 004 86803
GreenPower LED production module DR 150	6	153	4	4	9290 004 87303
<b>Accessories</b>					
GreenPower LED production module mounting bracket	75				9290 004 87803



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