

**SYLVANIA**



# Lighting solutions for plant growth

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Sylvania's Horticulture Range



**SpeciaLITE**  
horticulture



# About us: Sylvania's Horticulture expertise

The world's first light sources for plant growth were invented in 1959 by Sylvania Lighting. Over the past six decades our passion for excellence in product design and performance have successfully enabled new possibilities for modern horticulture.

Gro-Lux® SHP lamps have achieved among the highest sustained photosynthetic efficacies in the world and that same technical leadership has now been applied to LED technology.

## **Innovation:**

We've been bringing lighting products to market since 1901



## **Specialist expertise:**

Horticulture R&D centre of excellence in Europe



## **Collaboration:**

Working with you closely to provide the correct product for your business



## **Quality:**

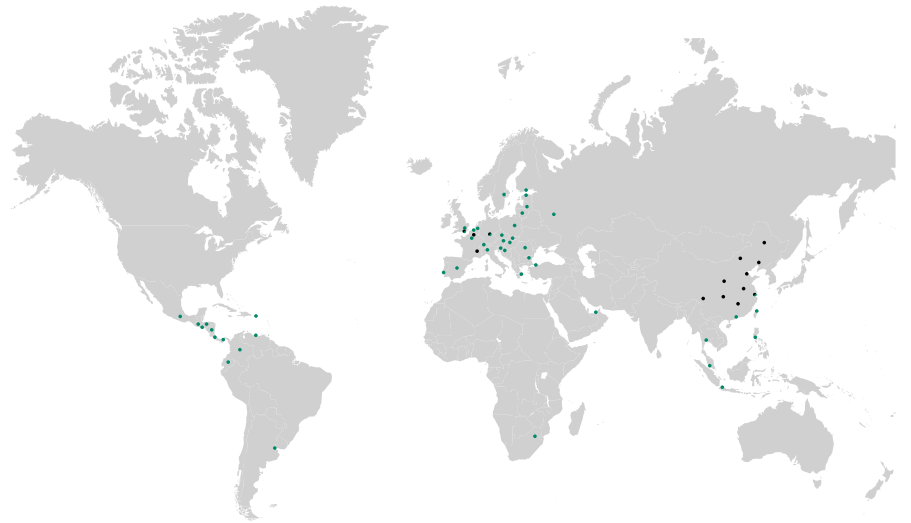
Premium lighting solutions which maximise your crop quality and yield







## Providing the right lighting products to enable your business to grow



We understand the importance of being agile, adapting and growing to match the challenges of global markets. Sylvania works in partnership with you to provide innovative horticulture lighting solutions which enable your business to change gears and grow.

- Your global lighting partner
- Active in 25+ countries
- 12 manufacturing facilities
- Business operations in: Europe, Latin America, Asia, Middle East and Africa



## Specialised R&D team

Tienen (Belgium) is Sylvania's competence centre for special lighting applications with a deep history in R&D specifically for Horticulture. A team of specialists used to finding solutions for all those industrial and technology challenges that allow brilliant ideas to become effective and valuable outcomes for your business.

The well known Gro-Lux® spectrum to enhance plant growth was developed by Sylvania's R&D team in the early nineties. In more recent years the team developed the gas cooled linear LED Helios with customised spectra.

# Stimulating growth since 1959

Sylvania Horticulture solutions

Gro-Lux® SHP-TS



GroXpress SHP-T



1959

1995

2005

2011



Gro-Lux® SHP-TS 400V

A SYLVANIA brochure on Gro-Lux® special lamps in 1964





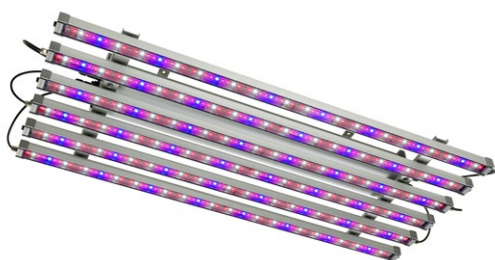
GroXpress  
LED 340W  
FullSpectrum+



Gro-Lux® LED  
E27 Far-Red



Gro-Lux® LED Linear  
Modular System



2018

2019

2020

2021

2023

Gro-Lux® LED E27



Coming soon

Gro-Flex and  
Helios Flex

Helios LED







# The exponential growth of horticultural indoor farming

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## Importance of light

The Worldwide grow lights market is currently valued at approximately 2.7 billion USD and is expected to grow by a further 355% by 2030.

**The demand for horticulture products has never been higher with growing populations, rising food prices and the desire for fresh, organic all year-round crops.**

The rapidly exponential growth of horticultural indoor farming is due to increased modern requirements and demands. It gives growers control of year-round crops that are not affected by pests, weather conditions and changing, and at times, extreme temperatures.

Food crops are just one of the many applications as the demand for out-of-season flowers and medicinal plants rises.

Temperature, light and carbon dioxide levels affect the rate of photosynthesis and therefore have an impact on crop yield. It is important for the grower to find the optimum growing conditions within an indoor farming environment via temperature & humidity control, lighting, addition of CO<sub>2</sub> into the air, regular watering and soil enrichment.

The best way to maximise photosynthesis is to supply as much PAR light as possible and to support the plant in keeping its energy and water balances in equilibrium. One way to do this is through the use of plant growth lighting solutions, such as those produced by Sylvania.





## Sylvania's Plant growth Lamp and Fixture range

A plant growth lamp is a light source that produces the proper balance of energy needed for plant growth. It is designed to provide this energy for plants, and other living organisms.

Sylvania's Gro-Lux® SHP range is one of the most popular and highest performing plant growth lamps on the market due to its high efficiency in converting electrical energy into Photosynthetically Active Radiation (PAR). It is suitable for a plethora of applications related to plant cultivation.

In recent years there has been a move towards LED technology and Sylvania has applied its technical leadership in plant growth lamps to range of LED lamps and fixtures to suit all types of horticultural applications.



Indoor farmers need flexibility from their horticulture lighting systems to meet plant growth needs and maximise yield. Sylvania has an extensive range of products which can be customised to meet your specific needs.

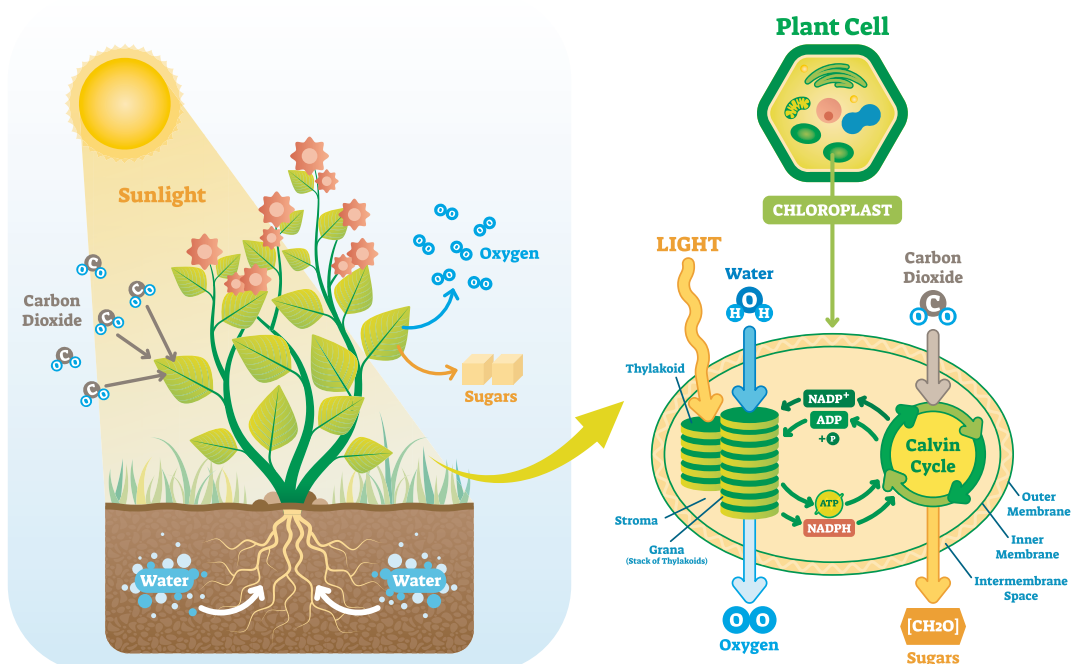


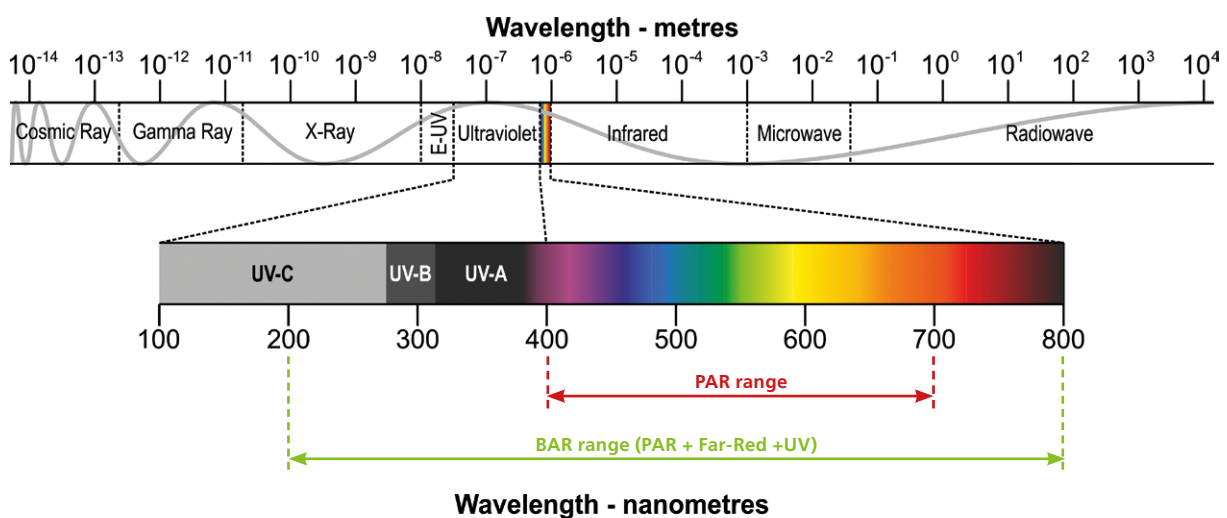
# We turn light into food

Importance of light

Light plays three major roles in the world of plants; it gives the plant information about the surroundings it is growing in, delivers energy to the plant to enable it to grow and develop and it influences the long-term health of the plant.

The process by which plants transform light energy into chemical energy is called photosynthesis. During photosynthesis, light energy is captured and used to convert water, carbon dioxide, and minerals into oxygen and energy-rich sugars.





## Quality and intensity of light

The designated spectral range (wave band) that is usable for photosynthesis is defined in the “photosynthetically active radiation” or PAR range. This is defined from a light wavelength of 400nm up to 700nm.

However, all wavelengths deliver information about the plant’s surroundings, for example: being shaded by another plant, full sunlight etc. This information influences its shape, size of leaves, stem and root development and more. Therefore, it is important for the plant to be exposed to a wider range of wavelength than just PAR.

To take this into account the range of PAR was extended to the “biologically active radiation” (BAR) range, 200nm to 800nm. By exposing the plant to this larger range, we can trigger the plant’s development mechanisms (Photomorphogenesis) on purpose to control its growth to our liking. This can, for example, lead to a greater harvest or influence the time of flowering.



# Growth beyond the boundaries of PAR

## Full Spectrum+

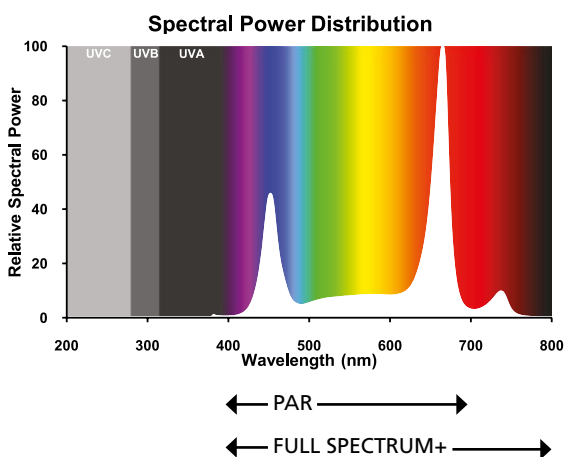
**Sylvania has developed an LED plant-specific spectrum which delivers not only light over the whole PAR spectrum, but also beyond the boundaries of PAR lighting.**

Numerous tests proved that not only the existence of certain wavelength is crucial for plant growth and flowering - but also the ratio between the given wavelength.

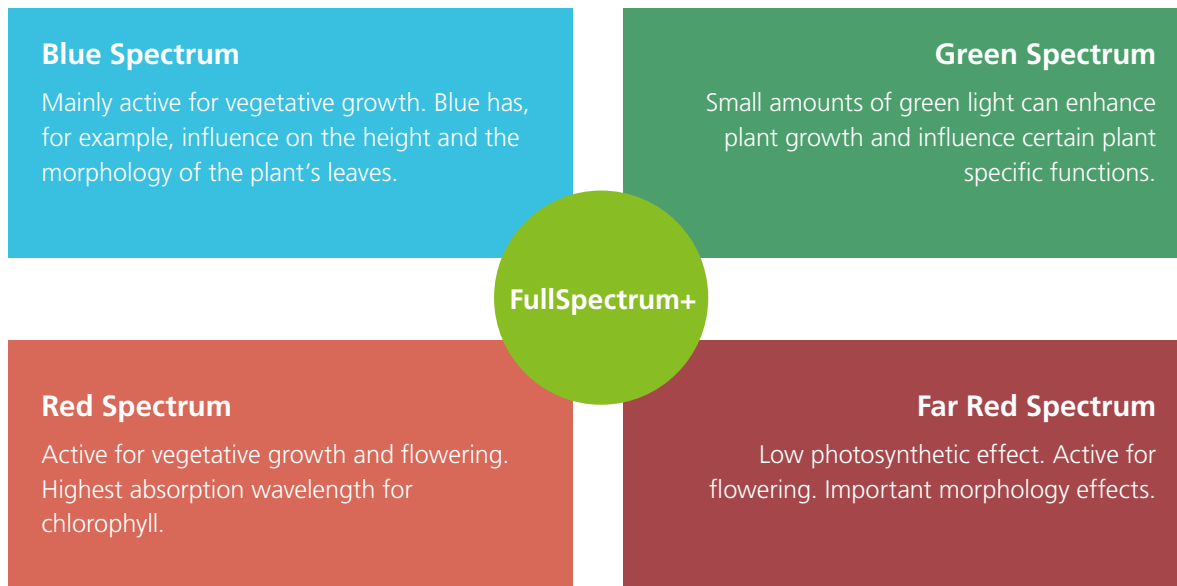
FullSpectrum+ LED has the right proportion of needed wavelengths including correct portions of Far-Red radiation. This brings the grower into the situation to only use one spectrum during the whole growing process.

We specifically designed FullSpectrum+ LED to be the most efficient spectrum on the market - backed by recent scientific standards such as DIN 5031-10:2018.

**FullSpectrum+ LED is one of the most plant efficient spectra available today.**



**FullSpectrum+ LED is a tailor made plant specific spectrum, designed for the highest plant specific efficiency and highest possible yields.**



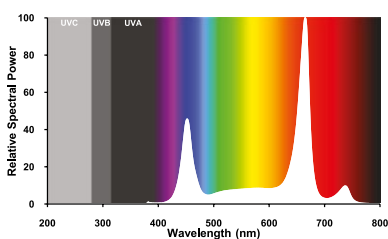
We believe that a plant light should be 100% usable for the plant - this is why we do not waste energy in providing too high amounts of white light. This gives the light a more red appearance to the human eye.

Studies found out that not just the availability of these spectra are important but also the ratios to each other.

The Gro-Lux® FullSpectrum+ combines all the needed spectra together and is the ideal solution for all indoor lighting applications.

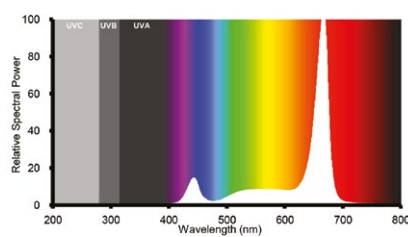
## Choice of Horticulture Spectra

Plants can require different spectral needs at specific phases in their growth. Therefore, Sylvania is able to offer different spectra type in addition to FullSpectrum+. We welcome enquiries for other customer or application-specific spectra.



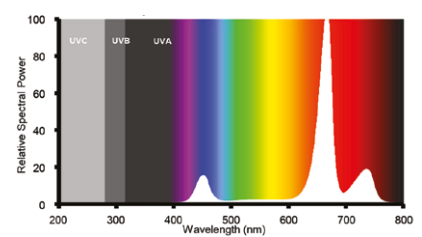
### Far-Red spectrum

Used to simulate sunrise/sunset or to increase far-red radiation of an existing lighting solution in applications when no natural daylight is available



### Vegetative spectrum

Provides perfect lighting for small plants, photoperiodic lighting or supporting the growth phase only in applications where natural sunlight is present.



### Flowering spectrum

Offers great supplemental light for all flowering plants





# ReThink lighting

Introducing our innovative lighting systems that offer unparalleled flexibility and customisation options to meet the unique needs of growers. Our fixtures are specifically adapted to provide the perfect lighting environment for your plants, no matter what stage of growth they are in.

Our design philosophy is centered around finding solutions that fit your specific application, so you can trust that our lighting system will be perfectly tailored to your needs. Plus, Gro-Flex and Helios Flex are fully scalable, so you can easily expand your setup as your operation grows.

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## Helios Flex & Gro-Flex

Flexible



Versatile



Fast & easy  
to install



Correct spectrum  
and light to plant  
distance



Increased yield  
and return on  
investment





## We build your lighting system

Each growing facility is uniquely designed for efficiency that can be further enhanced by a flexible lighting system. Sylvania's Gro-Flex and Helios Flex offers just that with a selection of plug and play drivers, wiring and mounting accessories.



### Toplighting

Whether you are looking to switch from HPS to LED for your topleighting solution, or incorporate a hybrid lighting scheme with additional InfraRed or UV-B lighting, Sylvania has the solution for you.

Solution example: Tailor-made lighting solutions combining different lighting options like **Gro-Lux® LED FullSpectrum+** and **Gro-Lux® HPS lamps** results in uniform growth, stronger plants, higher fruit yield while maintaining necessary heat.



### Interlighting

Due to shadowing, topleighting alone is not enough for high-wire cultivation, such as tomatoes and cucumbers. Interlighting adds additional light that penetrates deeper into plant foliage, increasing plant growth and yield within growing facilities. It is also the ideal solution for mushroom farming where the correct light promotes fruiting body development in some species.

Solution example: Use **Helios Flex** either vertically or horizontally to ensure that light is distributed where it is needed. Since **Helios LED** runs cooler than traditional LED's the lamp can be dali controlled enabling full management of your lighting system.



### Vertical Farming

Commercial vertical farming methods require specialised lights that have been designed to provide plants with the right spectrum, intensity and uniformity of light they need to grow. Sylvania's **Helios Flex range** has been especially developed for this application.

This highly efficient, flexible system, facilitates the growth of more plants per vertical metre whilst maintaining spectrum intensity and uniformity. In short, Helios Flex supports an increase in yield, allows better use of natural resources and reduces operating costs.









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## Helios & Helios Flex

### Modular indoor farming solutions

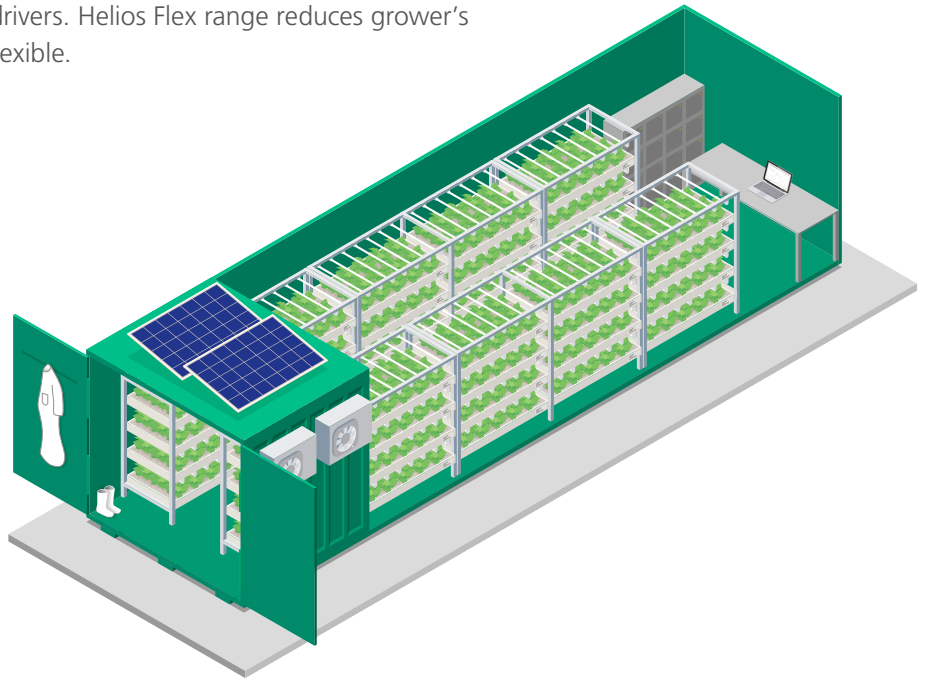
Sylvania's Helios is a revolutionary linear lamp that offers full 360 degree light emission – a world's first for a linear LED product. When combined with the Helios Flex range, a simple solution can be provided to meet even the most complex of horticulture lighting needs.

## We build your lighting system

Each vertical farm is uniquely designed for efficacy that can be further enhanced with a flexible lighting system. Helios Flex range offers just that with a selection of plug and play drivers, wiring and mounting accessories.

Helios linear lighting solution is the perfect choice to ensure the correct spectrum and light to bed distance. It operates cooler than traditional LED and other lighting solutions enabling better climate control whilst giving the right light for propagation and cultivation. This leads to lower energy costs whilst ensuring increased yield.

This unique light source can be easily integrated into a variety of growing racks by using Sylvania's plug and play cables and drivers. Helios Flex range reduces grower's maintenance cost and is extremely flexible.





# Unique new light source - Helios

## What is Helios?

Sylvania has fundamentally changed the construction of a linear lamp, shifting from the commonly used surface-mounted LEDs to 360° gas-cooled LED filaments.

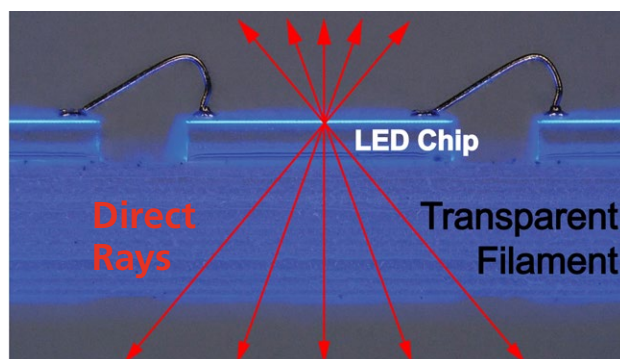


The key reason for such a change is that LED Filaments allow Helios to offer a full 360° light emission – a world first for a linear LED product. With its unique heatsink-free design Helios exceeds traditional surface mounted LED efficacy bringing much more photons for less energy.

## High power filaments

The filaments used in Helios are not the same as filaments used in household lighting lamps. Sylvania has made a series of pioneering technical breakthroughs, so that filaments can now be used as part of high-power professional lighting systems. We are proud to have been awarded several patents for our inventiveness in this area of lighting.

## Filament LED emitter

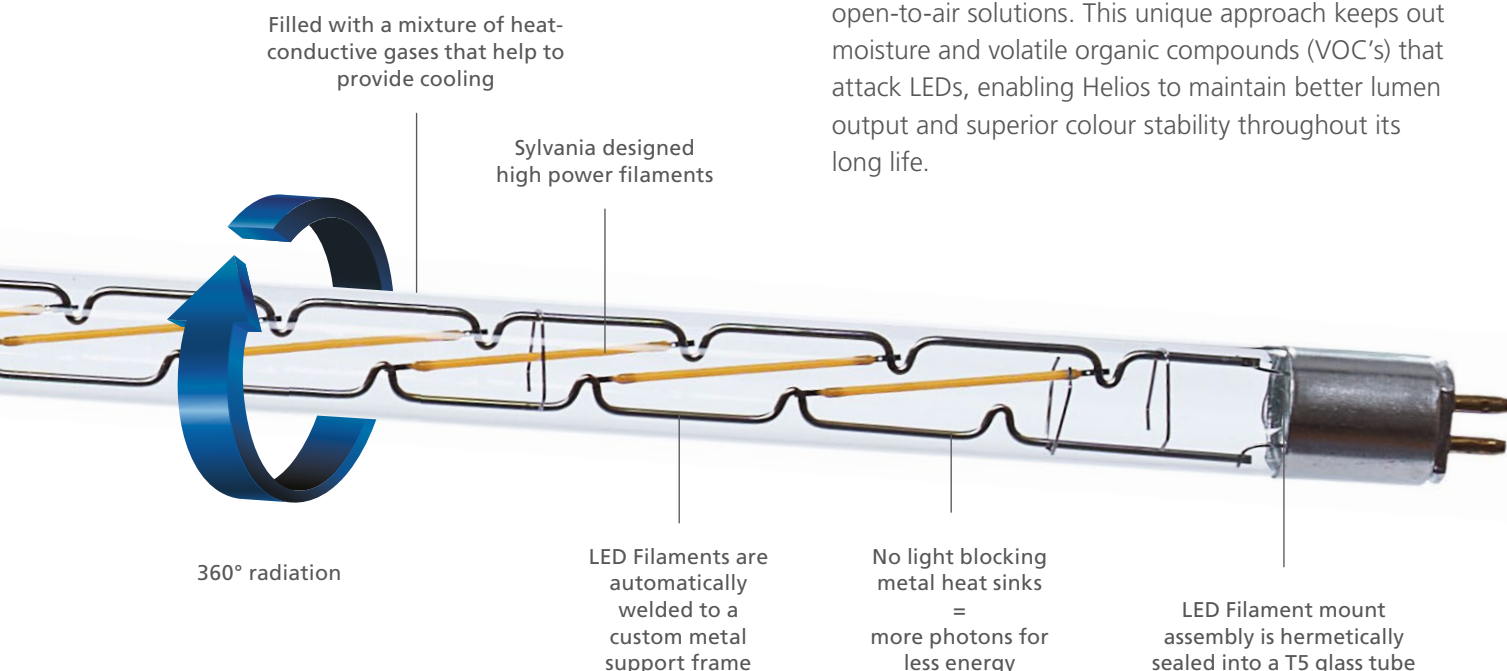


## Why LED filaments?

LED's create light from a tiny semiconductor chip, coated with phosphor to emit white light. The chip is transparent, half the light shines up and out, the rest travels backwards. Traditional LED's have a back mirror coating which does not reflect 100% of the light. However for LED filaments in transparent heatsinks (gases) all the light can escape directly leading to higher efficiency of the lamp, in the case of Helios up to 200 lm/W, and improved surface luminance uniformity.

## Hermetically sealed IP68 envelope

The Helios lamp construction consists of LEDs sealed into a vacuum-tight glass tube, instead of inferior open-to-air solutions. This unique approach keeps out moisture and volatile organic compounds (VOC's) that attack LEDs, enabling Helios to maintain better lumen output and superior colour stability throughout its long life.



# Helios Lamps options

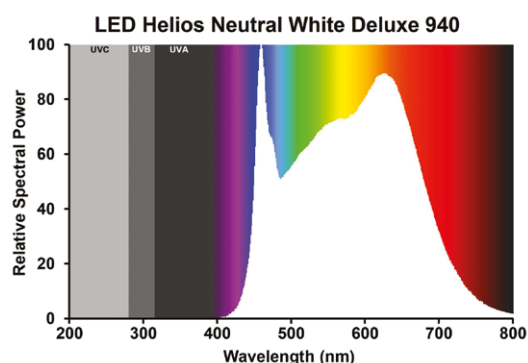
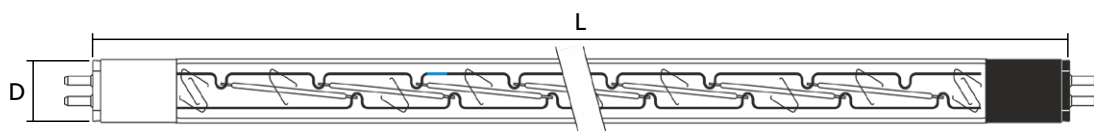
Made  
in  
Germany



- Very high efficacy - lowest heat generation
- Totally sealed waterproof construction >IP68
- 360 degree light distribution = uniform plant growth across large areas
- Operates cooler than traditional LED = lamps can be positioned closer to the foliage of plants
- Helios high performance LED standard range is made in clear glass and has the same end cap and dimensions as T5 Fluorescent lamps
- Satin, other lengths and spectra available upon request

## Product information

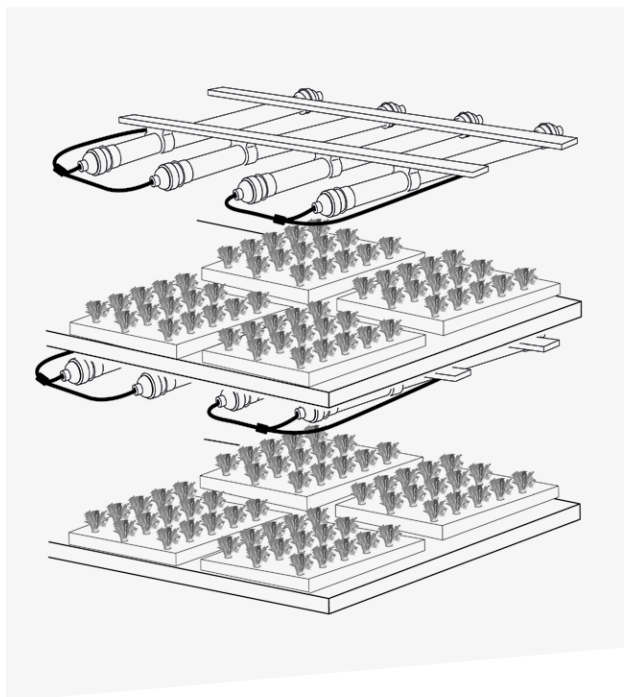
Code	Item description	Cap	Diameter (mm) D	Base-to-Base length (mm) L	Power (W)	Max Current (mA)	Voltage (V)	Luminous Flux (lm)	Luminous efficacy (lm/W)	CCT (K)	CRI (Ra)	Red Rendering (R <sub>r</sub> )	Biological Photon Flux inc. Far-Red (μmol/s)	Biological Photon Efficacy inc. Far-Red (μmol/J)
<b>T5 - 549mm</b>														
0085214	LED Helios T5-549mm 860 360° Clear	G5	16	549	9,9	150	66	1925	194	6000	85	0	27,9	2,8
0085223	LED Helios T5-549mm 940 360° Clear	G5	16	549	9,9	150	66	1575	159	4000	95	95	27,1	2,7
0085224	LED Helios T5-549mm 965 360° Clear	G5	16	549	9,9	150	66	1650	167	6500	95	85	28,1	2,8
<b>T5 - 849mm</b>														
0085314	LED Helios T5-849mm 860 360° Clear	G5	16	849	19,8	300	66	3875	196	6000	85	0	56,2	2,8
0085323	LED Helios T5-849mm 940 360° Clear	G5	16	849	19,8	300	66	3000	152	4000	95	95	51,5	2,6
0085324	LED Helios T5-849mm 965 360° Clear	G5	16	849	19,8	300	66	3000	152	6500	95	85	51,0	2,6
<b>T5 - 1149mm</b>														
0085414	LED Helios T5-1149mm 860 360° Clear	G5	16	1149	26,0	400	65	5200	200	6000	85	0	75,5	2,9
0085423	LED Helios T5-1149mm 940 360° Clear	G5	16	1149	26,0	400	65	4200	162	4000	95	95	72,2	2,8
0085424	LED Helios T5-1149mm 965 360° Clear	G5	16	1149	26,0	400	65	4200	162	6500	95	85	72,2	2,8
<b>T5 - 1449mm</b>														
0085514	LED Helios T5-1449mm 860 360° Clear	G5	16	1449	32,5	500	65	6500	200	6000	85	0	94,3	2,9
0085523	LED Helios T5-1449mm 940 360° Clear	G5	16	1449	32,5	500	65	5200	160	4000	95	95	89,3	2,7
0085524	LED Helios T5-1449mm 965 360° Clear	G5	16	1449	32,5	500	65	5200	160	6500	95	85	88,4	2,7



Please contact Sylvania for other variants to suit your needs



# Helios Flex System



## Helios Flex wiring

To meet a variety of vertical farming designs, Helios Flex range has 3 wiring systems to connect 1, 2 or 3 Helios lamps together.

These come with a 'male' end on one side and a 'female' on the another. This means that Helios Flex can be combined in any configuration needed by the customer.

## Helios Flex components

Sylvania offers a variety of accessories:

- 0-10V drivers
- Mains input cable
- Dim /Mains Y split cable
- Dim/Mains extension cable

## Flexible, Modular, Versatile

Sylvania's Helios Flex range is fast to assemble, easy to use & versatile. It is a simple solution for complex vertical farming which enables the grower to optimise plant growth throughout their stages.

Helios can be positioned close to the growing trays, delivering uniform light to the plants. Shelves can be positioned closer together, saving space whilst increasing yield and return on investment.

## True plug & play architecture

Helios Flex offers a variety of drivers, cables, extensions and module wiring ready to build your custom application. All come with IP65 male/female connectors with a latch for safe and stable operation.

## Applications

Leafy greens

Microgreens

Aromatic herbs

Medicinal plants

Edible flowers

Crop propagation



# Helios Flex System



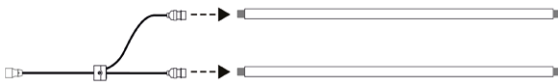
Flexibility is essential to ensure that the correct lighting can be implemented into vertical racks to create the perfect environment for plant growth. Sylvania offers a variety of modular components which are easily integrated into the racks, mounting Sylvania's Helios lamps in the optimum configuration for propagation through to cultivation of crops.

## Accessories

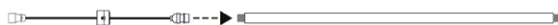
### 0086993 1in-3out wiring



### 0086992 1in-2out wiring



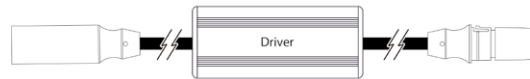
### 0086991 1in-1out



### 0086994 Safety cover



### 0086990 Helios 0-10V drivers



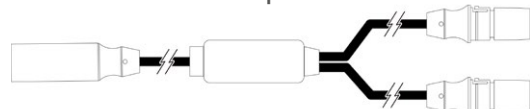
### 0086995 Mains input cable, 1m



### 0086999 Dim Y split



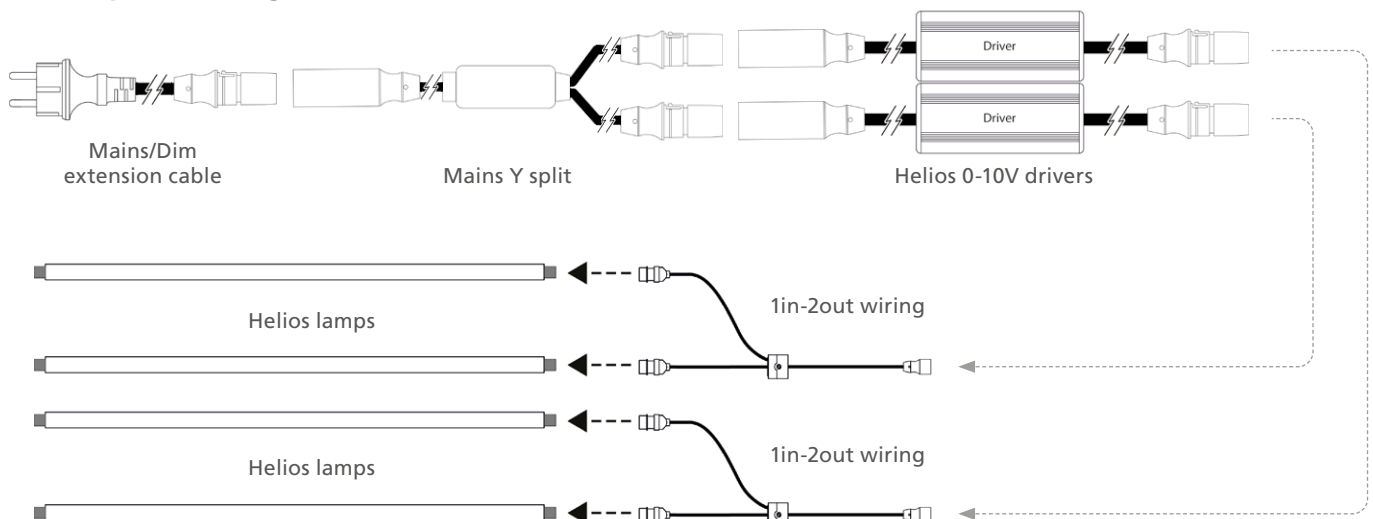
### 0086998 Mains Y split



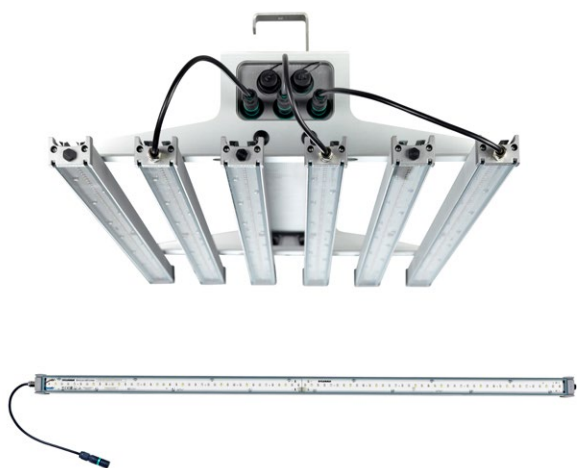
### 0086997 Dim extension cable, 1m



## Example of configuration







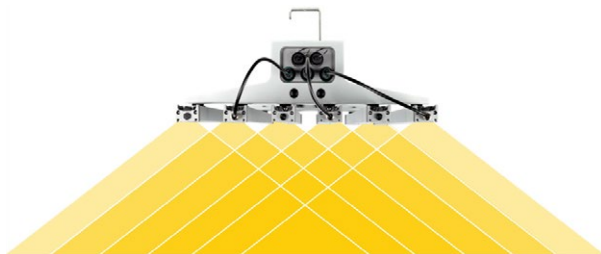
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## Gro-Lux® LED Linear and Gro-Flex Modular System

This flexible, modular system offers a well thought-out solution for all phases of plant growth, for each type of lighting in commercial horticulture.

# A modular system that grows with your requirements

Gro-Lux® LED Linear is the most advanced plant light solution available on the market today and has been built with the professional grower in mind. The modularity of the Gro-Lux® LED linear gives plant growers' flexibility from their horticulture lighting systems to meet plant growth needs and to maximise yields. It is the right solution for any type of installation, from small greenhouse facilities to large scale installations or for indoor farming projects.



120° beam angle and unique overlappings

## Outstanding performance

- Higher light penetration due to overlapping light sources
- 30% energy savings vs SHP alternatives
- Uniform light distribution
- FullSpectrum+ Sylvania's plant specific spectrum

## Versatile

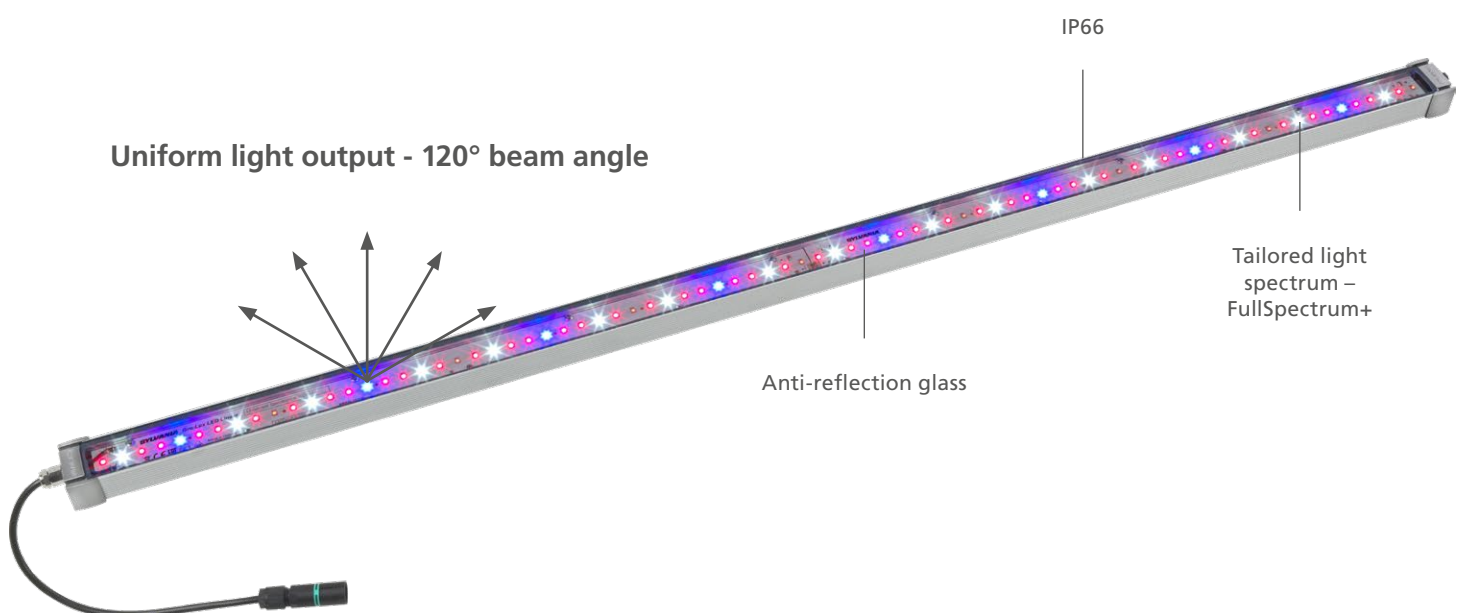
- Flexible usage – LED modules can be used on their own, with Gro-Flex or with Gro-Lux® LED frame
- Increased output by connecting fixtures in a series

## Premium quality components

- Highly durable
- IP66
- Anti-reflection coated glass
- Made in Britain

## Usability

- Easy to install - Push and click system
- Dimmable and through wiring possible
- Passive cooling
- Easy to clean





120° overlapping light sources:  
Massive reduction of shadowing inside the  
plant for highest photosynthetic rate

Passively cooled

Heat and UV  
stable cables

Easy installation

Membrane plugs

## Gro-Lux® LED Linear

The Gro-Lux® LED Linear is manufactured in our UK factory and uses only the highest quality components to ensure advanced product performance, even in the most challenging of conditions.





End caps made from painted aluminium

LED Emitters

Anti-reflective glass: Superior optical efficiency



Through wiring:  
Connection of up to  
6 fixtures in series possible

Waterproof self locking  
plugs, and stainless steel  
cable glands for superior  
sealing quality

Flexibility



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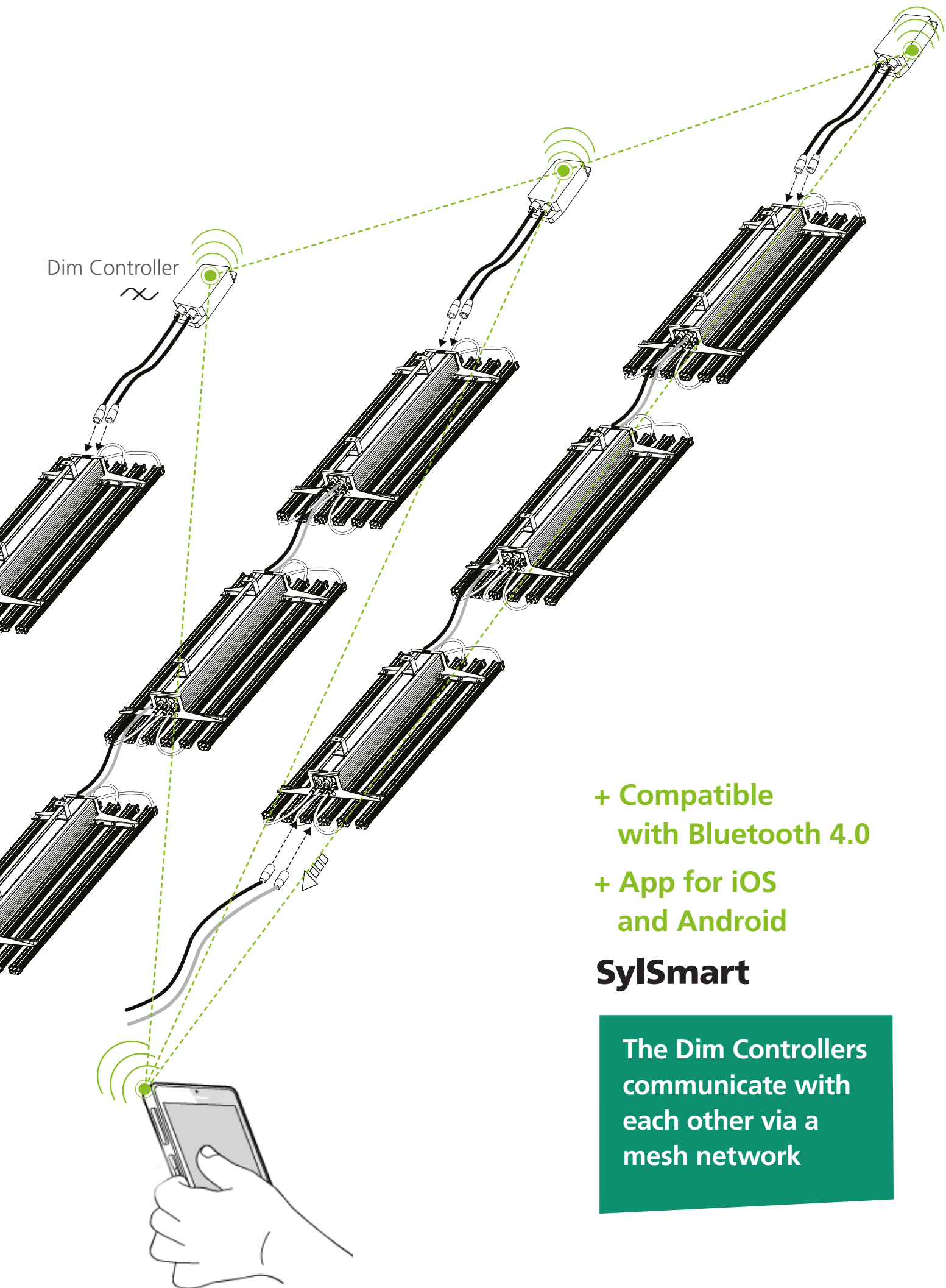
## Flexibility at your fingertips

### Through Wiring

**From small greenhouses to large industrial installations  
Gro-Lux® LED Linear offers the solution. Through wiring  
enables you to connect up to 6 luminaires to one power socket.**

Gro-Lux® LED Linear modular system can be dimmed using a Casambi wireless controller. Each controller can adjust the light output of 6 luminaires at one time. Up to 127 controllers can be used together via a wireless mesh network on a bluetooth device. This means that up to 762 Gro-Lux® LED fixtures can be used in one indoor farming facility.





+ Compatible  
with Bluetooth 4.0

+ App for iOS  
and Android

**SylSmart**

The Dim Controllers  
communicate with  
each other via a  
mesh network



# Gro-Lux® LED Linear Modular System



## Features

- Anti-Reflex coating gives one of the highest transmission rates on the market
- Waterproof: IP66 protection against liquid water ingress
- Humidity-proof: Integration of osmotic membrane vents to eliminate humidity ingress
- Passive-cooling minimises heat build-up
- Easy installation: push-and-click system
- Modular system allowing different modules to be easily clipped in and out
- Through-wiring allows for the connection of up to 6 fixtures in a series
- Highly durable and rubber-insulated cables that won't degrade under solar radiation
- Smart fixture enabling wireless dimming by Casambi system
- 100% UV-Stable cables and plugs
- L<sub>90</sub> Lifetime at 25°C: 60,000hrs
- Made in Britain

## Product information

Code	Item description	Spectrum	Wattage (W)	Voltage (V)	Beam Angle (°)	Photosynthetic Flux - PF (Phytolumen)	Biological Photon Flux Inc. Far-Red (μmol/s)	Biological Photon Efficacy incl. Far-Red (μmol/J)	Packaging Quantity (pcs)
<b>Gro-Lux® LED Linear Complete</b>									
0020912	Gro-Lux® LED linear Full Spectrum+ Complete (6 modules)	FullSpectrum+	398	220-240	120	183,000	1128	2.83*	1
<b>Gro-Lux® LED Linear Modules</b>									
0020914	Gro-Lux® LED linear Full Spectrum+ Module	FullSpectrum+	63	45	120	30,500	188	3.00	1
<b>Gro-Lux® LED Linear Frame and Gearbox</b>									
0020909	Gro-Lux® LED linear frame 4x	-	-	-	-	-	-	-	1
0020910	Gro-Lux® LED linear frame 6x	-	-	-	-	-	-	-	1

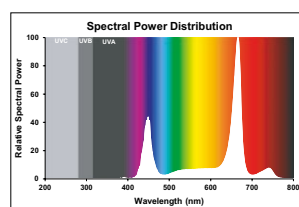
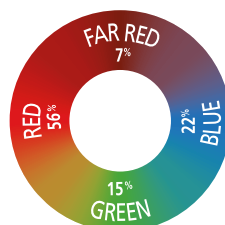
Code	Item description
<b>Gro-Lux® LED Linear Accessories</b>	
0020920	Dim Controller Gro-Lux® LED

\*system efficacy



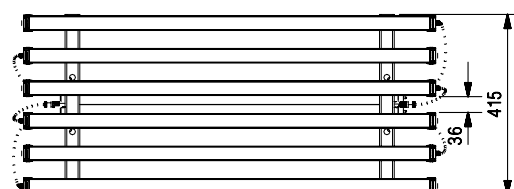
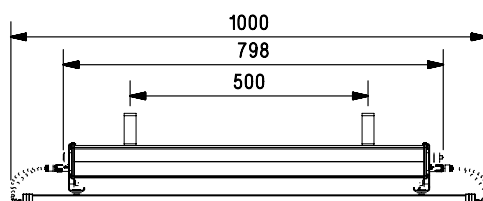
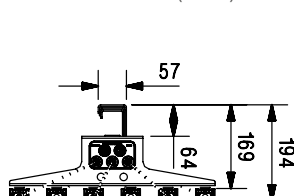
Dim Controller

## Photometric Data

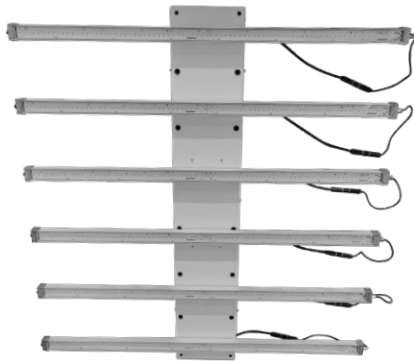


Gro-Lux® LED Full Spectrum+

## Dimensions (mm)



# Gro-Flex Modular System

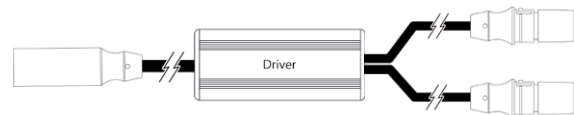


Gro-Lux® LED Linear FullSpectrum+ can also be customised to meet the unique needs of growers. By utilising the Gro-Flex system, the module can be used for both toplighting and vertical farming applications, ensuring that the right lighting configuration to maximise uniform growth and optimal yield.

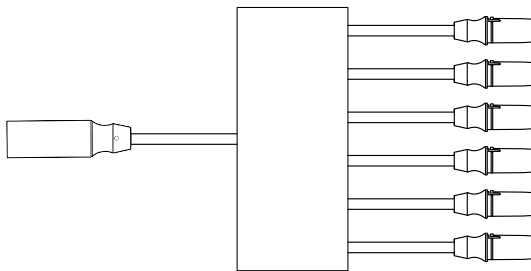
**0087008 Gro-Flex LED Linear FullSpectrum+ Module**



**0087001 Gro-Flex 01-10V driver**



**0087002 Gro-Flex LED Splitter**



**0086995 Mains input cable, 1m**



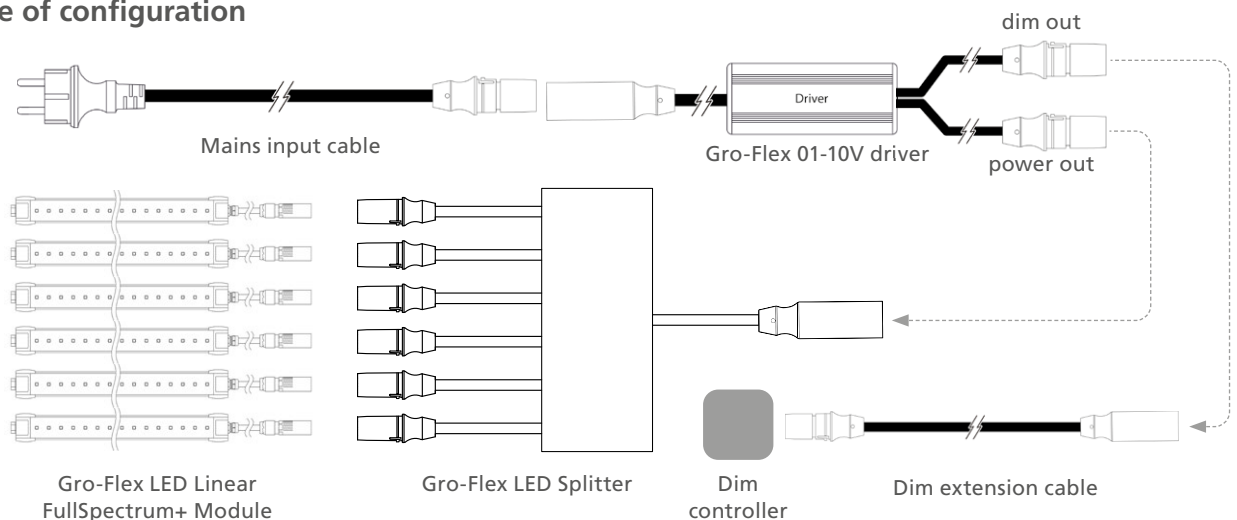
**0086999 Dim Y split**



**0086997 Dim extension cable, 1m**



## Example of configuration







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## Gro-Lux® SHP

Sylvania's most popular plant growth lamps. They can be used as a stand-alone source of indoor lighting or as a supplement to natural daylight in greenhouse lighting and full-spectrum lighting.

Sylvania Gro-Lux® lamps are among the world's most powerful plant growth lamps with the best photosynthetic efficacy. The patented burner enables SHP Gro-Lux® lamps to efficiently convert electrical energy into photosynthetically active radiation. Due to the specially developed Gro-Lux® spectrum, the lamps are particularly suitable for all stages of plant growth.

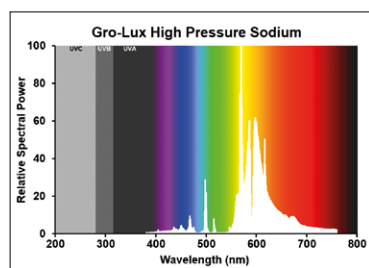
## Features

- Sylvania's arc tube delivers one of the highest photosynthetic efficacies in the world
- Performance maintained at an exceptional level due to structure of the arc tube
- Optimised for the highest Phytolumens (up to 215,000) or PAR output (up to 1180µmol/s)
- Gro-Lux® light spectrum maximises red output essential for plant growth

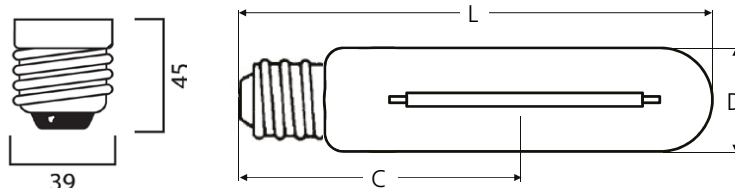
## Product Information

Code	Item description	Base	Watts (W)	Volts (V)	Amps (A)	Mains Voltage (V)	Beam angle (°)	PAR (µmol/s)	Visible lumens (lm)	Phyto-lumens	Efficacy (µmol/J)	Lifetime (hrs)	Packaging Quantity
0020819	SHP-TS Gro-Lux® E40 250W	E40	265	115	2.6	230	360	425	34,000	75,500	1.7	26,000	12
0020807	SHP-TS Gro-Lux® E40 400W	E40	425	120	4.0	230	360	713	58,000	128,000	1.7	26,000	12
0020808	SHP-TS Gro-Lux® E40 600W	E40	615	125	5.5	230	360	1,100	90,000	200,000	1.8	26,000	12
0020809	SHP-TS Gro-Lux® E40 600W 400V	E40	620	200	3.5	400	360	1,180	88,000	215,000	1.9	26,000	12

## Photometric Data



## Dimensions (mm)



Code	Item description	L (mm)	D (mm)	C (mm)
0020819	SHP-TS Gro-Lux® E40 250W	260	ø48	158±5
0020807	SHP-TS Gro-Lux® E40 400W	292	ø48	175±5
0020808	SHP-TS Gro-Lux® E40 600W	292	ø48	175±5
0020809	SHP-TS Gro-Lux® E40 600W 400V	292	ø48	175±5

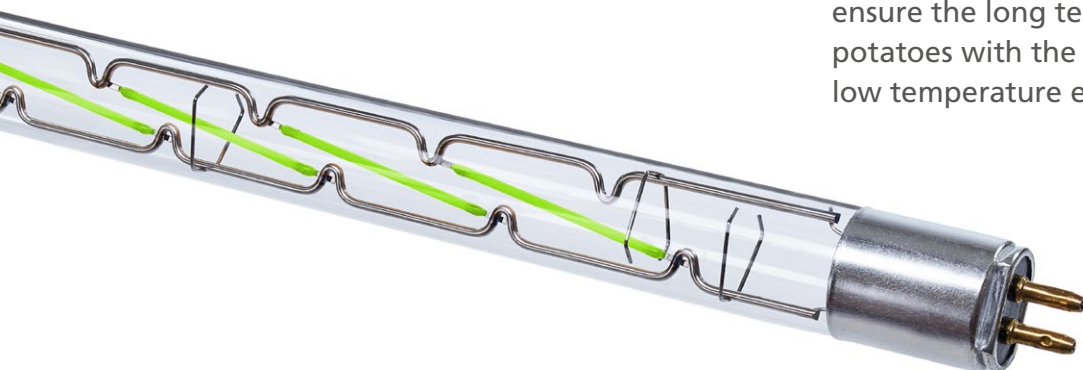




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## Helios Green

The perfect lighting solution to ensure the long term storage of potatoes with the ability to work in low temperature environments.



# Helios Green



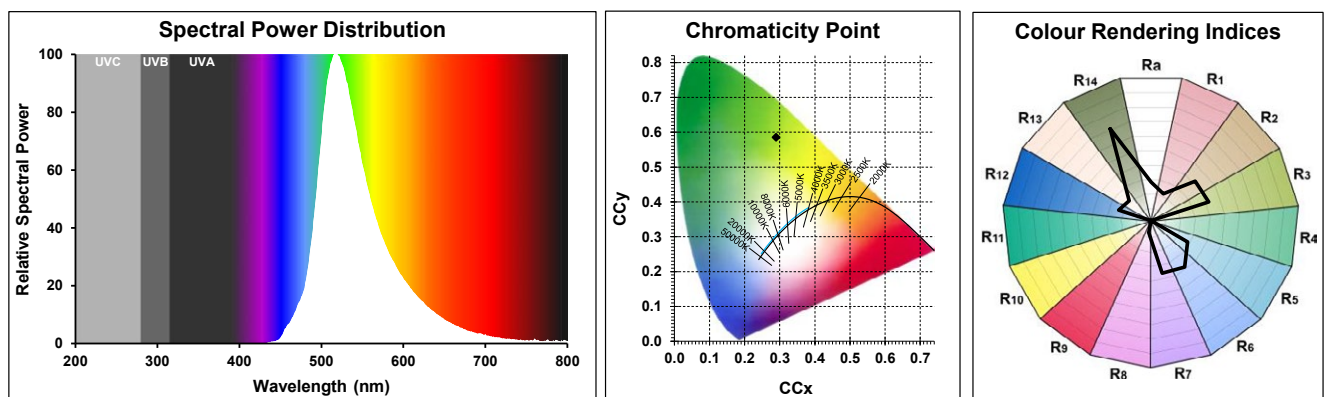
## Helios Green has many USP's for potato storage areas?

- Very low blue and red
- Emits a long wavelength peaking at 520nm therefore avoiding chlorophyll, solanine and chaconine synthesis
- Uses green filaments therefore no coloured sleeve is needed
- Very high efficiency and output vs Fluo & conventional LEDs
- Longer lamp and fixture life
- Uniform surface luminance
- Hermetically closed glass tubes, no escape of silicone vapour from LED's – IP68
- Operates cooler than traditional LED and other lighting solutions, thereby minimising impact on temperature and humidity control
- External driver allows full control and dimming (DALI, 1-10V, remote control, etc.)

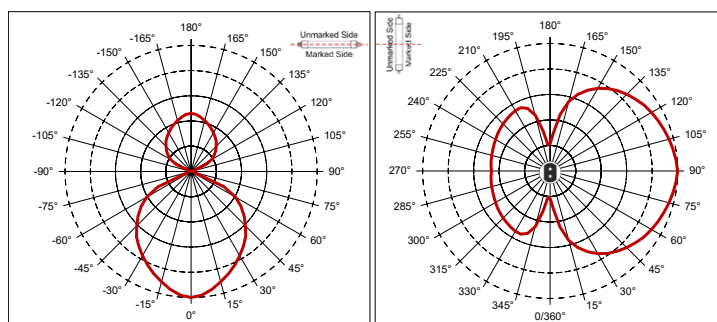
## Product Information

Code	Item description	Finish	Base	Diameter (mm) D	Base-to-Base length (mm) L	Power (W)	Voltage (V) DC	Max Current (mA) DC	Beam angle (°)	Luminous Flux (lm)	Luminous efficacy (lm/W)	Dominant Wavelength (nm)	IP	Lifetime (hrs)
0085233	LED Helios T5 549mm Green 360° Clear	Clear	G5	17	549	9,8	65	150	360	1900	194	545	68	25,000
0085333	LED Helios T5 849mm Green 360° Clear	Clear	G5	17	849	16,3	65	250	360	3175	195	545	68	25,000
0085433	LED Helios T5 1149mm Green 360° Clear	Clear	G5	17	1149	22,8	65	350	360	4450	195	545	68	25,000
0085533	LED Helios T5 1449mm Green 360° Clear	Clear	G5	17	1449	29,3	65	450	360	5725	195	545	68	25,000

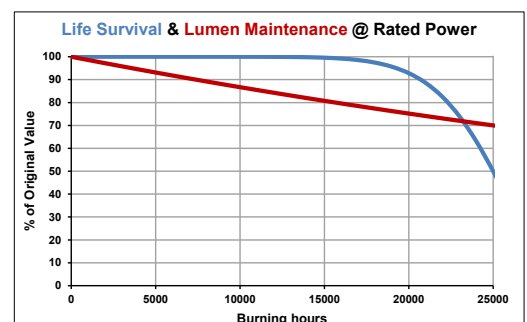
## Spectral Graphics



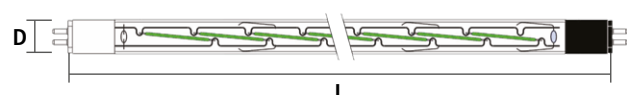
## Photometric Graphics



## Performance Graphic



## Dimensions (mm)







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## Helios Start Waterproof

Helios Start Waterproof has been designed specifically for use with Sylvania's unique Helios lamps. This surface mounted luminaire includes Sylvania's patented Helios Green lamp giving high lumen output whilst blocking red and blue wavelengths.



# Helios Start Waterproof



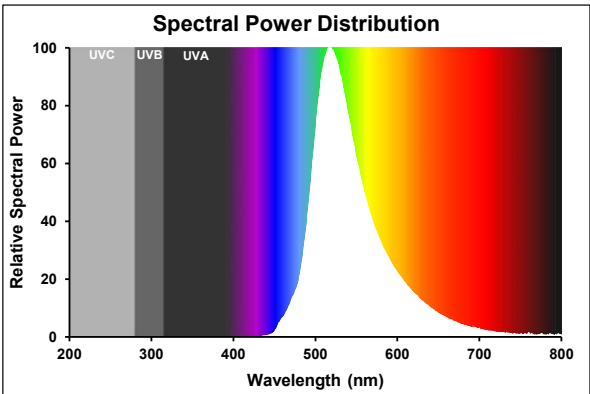
## Features

- Helios Green 1149mm Lamp included which has a very low red and blue content – therefore avoiding chlorophyll, solanine and chaconine production
- Very high efficiency and output vs conventional LED luminaires
- Snap-in, injection-moulded PMMA diffusers, no green coating which could degrade overtime
- Smooth body finish optimised for LED lamps, easy to handle
- Stainless steel fixing brackets for ceiling and wall mounting, suspension compatible
- Chemical resistance against a variety of acids, alkalis, halogens, mineral oils
- Specially designed clear PMMA diffuser (IK02) for improved uniformity - softens and controls the light whilst optimised output
- Stainless steel fixing brackets for ceiling mounting
- IP65
- Removable Helios lamp for improved sustainability and longer life
- Control options: 1-10V & DALI
- White and coloured Helios lamps also available should change of use of storage area be needed

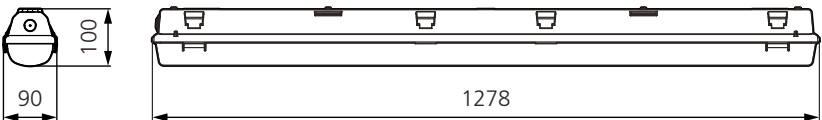
## Product Information

Code	Item description	Finish	Lamp code (sold separately)	Lamp colour	Length (mm)	Width (mm)	Height (mm)	Lampholder type	Power (W)	Driver current setting (mA)	Beam angle (°)	Luminous Flux (lm)	LOR (%)	Dominant wavelength (nm)	IP	Driver type
0087004	Helios Start Waterproof (Single) IP65 H	Frosted PC, Stainless steel	0085433 x 1	Green	1278	90	100	G5	19	250	60	2800	86%	545	65	DALI

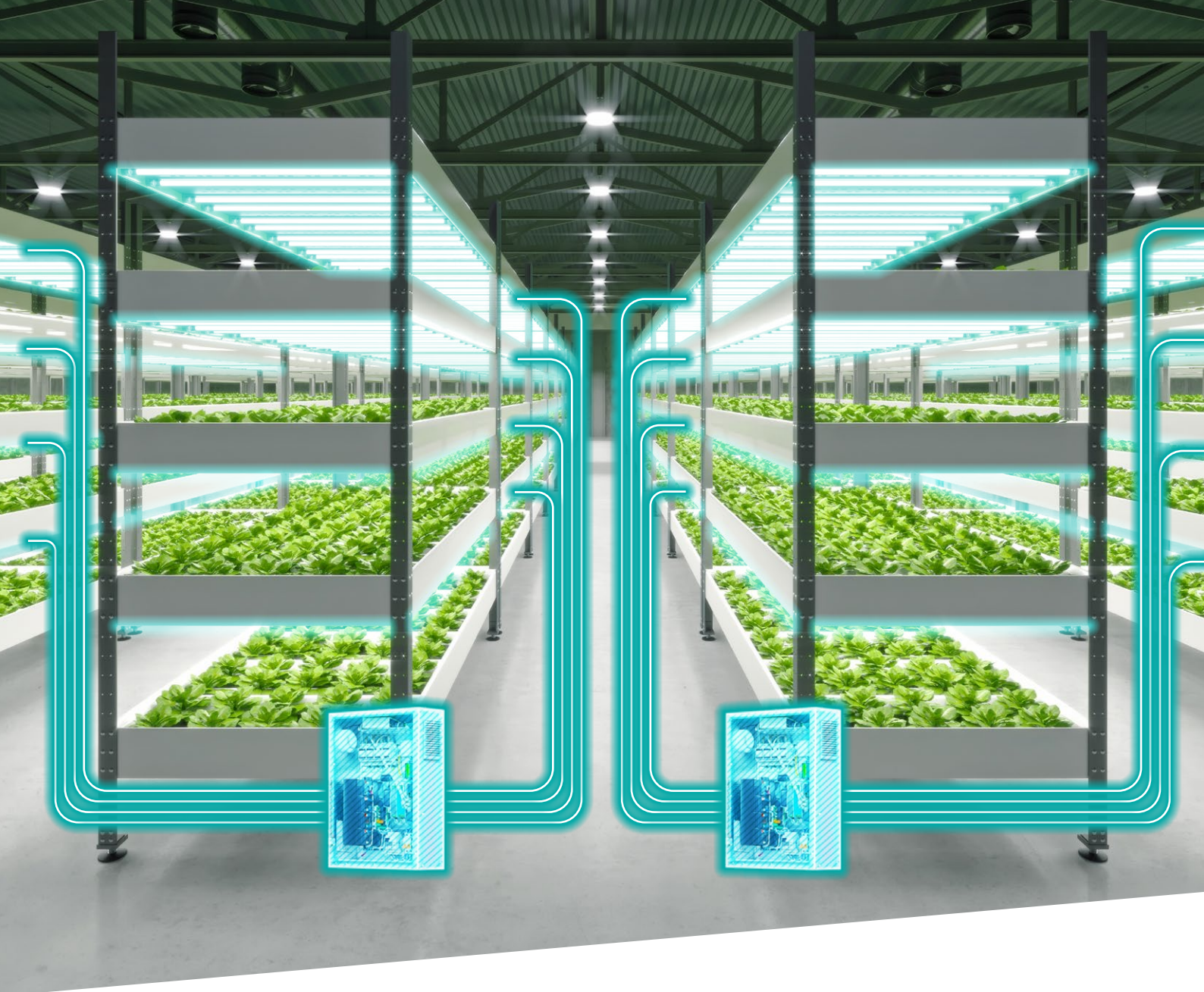
## Spectral Graphics



## Dimensions (mm)

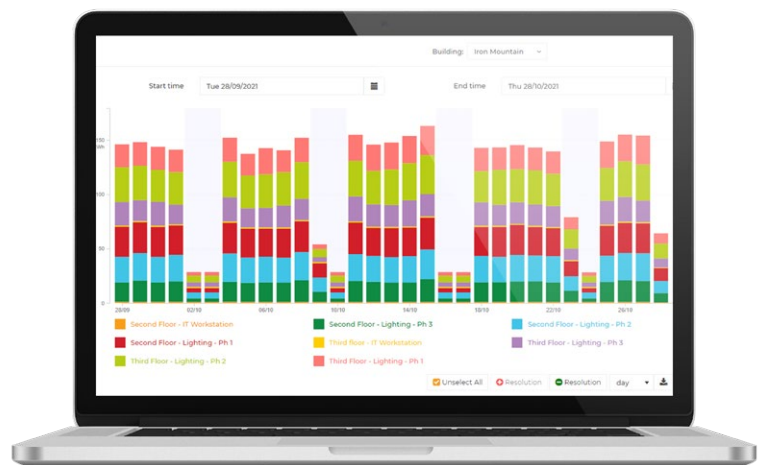


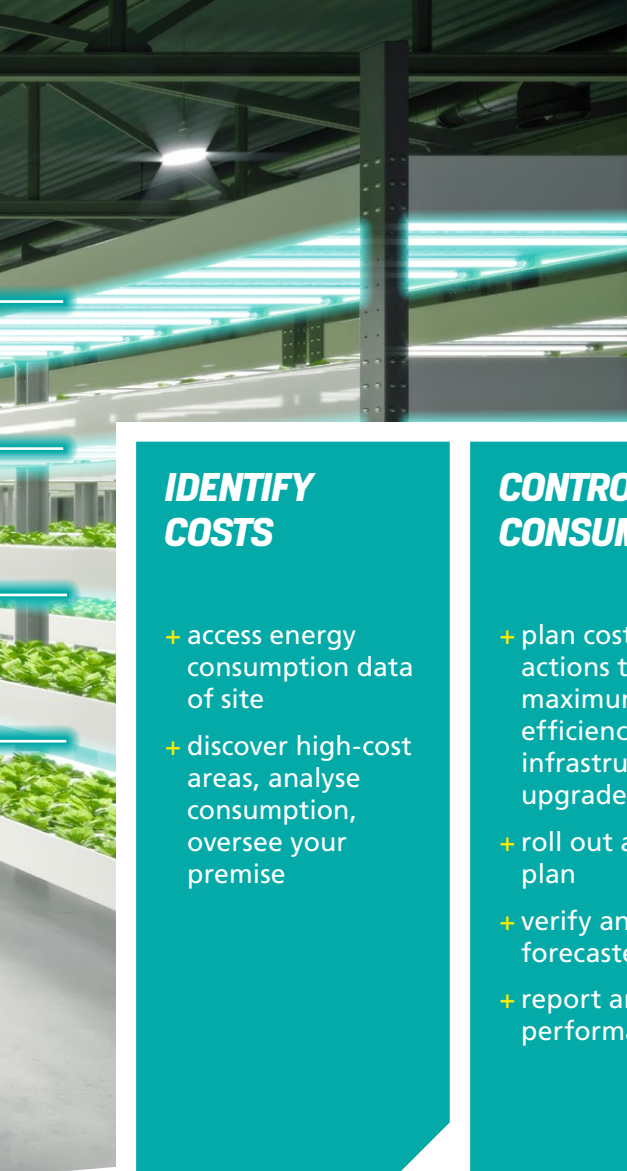




SylSmart Energy is an advanced energy analytics platform that empowers businesses to take action regarding their energy data through insights.

Customers are typically interested in quantifying & verifying energy savings achieved from energy efficiency upgrades such as lighting, understanding the carbon profile of their energy use & meeting their energy reporting & sustainability initiatives obligations. SylSmart Energy is designed to make it easy for users of any type to gain insights ranging from high level summary information to detailed circuit level information.





## **IDENTIFY COSTS**

- + access energy consumption data of site
- + discover high-cost areas, analyse consumption, oversee your premise

## **CONTROL CONSUMPTION**

- + plan cost saving actions to achieve maximum energy efficiency through infrastructure upgrades
- + roll out action plan
- + verify and adjust forecasted savings
- + report annual performance

## **CREATE STRATEGIES**

- + visualise reduction in OPEX and carbon savings supported by real-time analytics
- + share your energy consumption reports and fulfill your obligations
- + set short mid long term goal, milestone
- + activate alerts and notifications

## **BUILD SUSTAINABLE BUSINESS**

- + develop long term strategy to reach net zero with improved cashflow
- + embrace sustainable approach with one single digital platform
- + energy inflow monitoring from Solar PV & detailed analysis of carbon emissions

### **DID YOU KNOW?**

**40-50%**

of costs in vertical farming in vertical farming are associated with energy consumption.

**40%**

increase in commercial energy costs in Q1 2022.

SylSmart Energy not only allows you to gain a holistic overview as to how energy is used on site but individual circuit data giving insight into areas of consumption such as:

- Process heating
- Cooling and refrigeration
- Appliances
- Sockets

### **Minimise downtime**

Create automatic notifications based on configurable thresholds. For example if machinery fails or there is a power outage a notification will be sent to you via text and email. Enabling you to rapidly respond to issues and minimise downtime.



[sylvania-lighting.com/energy](https://sylvania-lighting.com/energy)



# The way to your horticulture solution by **SYLVANIA**

1

## Start Up Meeting

We start with a discussion of your requirements to find the best solution to your challenge and the best way to bring you to your goal.



4

## Economic Aspect

You have to be successful. Not only has the setup fulfill your needs, it has to make sense - economically. This is when Sylvania Logic comes into account. Logic answers your financial and business needs: no upfront capital needed, guaranteed return on investment and performance and saving tracking.





2

## Product Test

We setup a field trial, an usual time for the test is up to 6 months. This gives you enough time to truly test the setup on your application.

3

## Audit

We are at your side to assist with the new setup. Not only from the lighting standpoint, but also with a look on all factors involved in growing.



5

## Final Phase

Finish the setup. If you are satisfied with the implementation, when the economical value is clear and everything is running, then we call it a success.



# Committed to sustainable lighting solutions

**Each time we develop a new product and service we engage sustainable practices to deliver optimal lighting solutions while minimising our environmental impact. We employ comprehensive waste and energy conservation protocols that involve everyone in the business and extend to all areas of our operations.**

**We believe a responsible business is a healthy business and the prosperity of business and society is closely connected. Our mission is to bring technology, creativity, and innovation together through our products, services, and people to enhance energy efficiency, improve sustainability, increase connectivity, and promote wellbeing.**

**By mobilising our collective strength and strategic commitments to focus on creating healthy communities and a healthy environment, we can achieve long-term value and have a positive impact on society.**



### Recognised for our contribution

Sylvania is a business with a culture that places its people at the centre of all it does. We provide a professional, inclusive environment that helps our employees excel at everything they do, with policies in place to ensure we continue to evolve and adapt to the world around us. We want a career with Sylvania to be challenging, rewarding, and fulfilling, where our people can reach their potential both personally and professionally.

We are a progressive and innovative global business dedicated to delivering excellent products and services to our customers and an inclusive work environment for our employees. We value our people, their experience, their ideas, and their contribution and we thrive on empowering each other so we can grow and develop together.

### Intelligent lighting for the future

Sylvania invests in delivering advanced solutions that enhance people's lives and help create better environments. Innovations such as Helios and Helios Flex offer so much more than quality lighting solutions, they represent the foundations on which future innovation can be built and deliver sustainable cost and energy efficiencies.

Our approach to creating an inclusive and sustainable business is recognised through our bronze certification from Ecovadis, one of the world's most recognised business sustainability ratings. This measures non-financial management systems and sits alongside our internal metrics, which we evaluate against industry best practices in a global context and employ continuous improvement principles to ensure we remain ahead in our market.





## Made in Europe

Our heritage as a leading manufacturer of quality lighting solutions dates back more than 120 years and we are proud of our history of European production. With manufacturing and R&D facilities located in France, Germany, and the UK we can design, develop, and produce innovative lighting solutions and deliver them to market with pace and agility whilst significantly reducing our carbon footprint.

Our European facilities are ISO9001, ISO14001, and ISO50001 certified, underlining our alignment with the principles of responsible manufacturing, and our continued commitment to reducing emissions and managing our waste.

Technology plays a critical role in increasing energy efficiency while enhancing luminaire performance and our comprehensive portfolio contains an extensive range of lighting solutions manufactured to the highest quality standards that offer extended lifetimes.

We take responsibility for managing the full life cycle of products and have plans to embrace the principles of the circular economy in our approach to sustainability on future product development projects. Placing greater emphasis on product design helps us proactively reduce emissions and manage waste and encouraging their sustainable consumption keeps them in active use for longer. The interchangeable components of some of our products increases their lifecycle and makes them in-line with our circular economy approach.

## Sylvania's CSR pledge by 2030



To become a net-zero emissions company



All company cars to become electrical



To create and implement a circular economy business model



*"Sylvania is a responsible business. We strive to comply with the highest quality standards when it comes to our employees, customers, partners, and the environment. The commitment to our new CSR strategy is to improve and increase the sustainability of the company and all our stakeholders based on three main pillars - environment, social and governance (ESG). We have a clear vision for our future, we have the people to make the change and I strongly believe that collectively we can become a net-zero business by 2030. We will do this for ourselves and for the generations to come."*

**Eduardo Fuentes, Environmental & Sustainability Director EMEA**





## Symbols and definitions



Horticultural product.



The product contains LED technology.



Not suitable for household room illumination.



Ingress protection rating (IP). The first number indicates the measure of protection against the ingress of solids. The second number indicates the measure of protection against the ingress of liquids.



This product is mains dimmable.



3 Year Warranty.



5 Year Warranty.



Product conforms to all requirements from both the UK and European directives.



### **Chlorophyll**

It is a green pigment which is the most abundant in plants. Chlorophyll captures mostly red and blue light for the photosynthesis process allowing plants to absorb energy from light.

### **Colour Temperature / Correlated Colour Temperature (CCT)**

Correlated Colour Temperature (CCT) is a measure of light source colour appearance defined by the position of the light source's chromaticity coordinates along the Planckian locus or blackbody locus.

### **Colour Rendering Index (CRI)**

The colour rendering of a light source is an indicator of its ability to realistically reproduce the colour of an object. The higher the colour rendering index (on a scale up to a maximum of 100) of the source, the better our ability to perceive differences in colour.

### **Daily light integral (DLI)**

Describes the number of photosynthetically active photons (individual particles of light in the 400-700 nm range) that are delivered to a specific area over a 24-hour period. This variable is particularly useful to describe the light environment of plants.

### **Luminous flux**

Luminous flux is the total light output of a light source. It is measured in lumens (lm).

### **Lumen (lm)**

Unit of luminous flux used to describe a quantity of light emitted by a source.

### **Luminous efficacy (lm/W)**

Indicates how efficiently a light source converts electrical energy to light. It is the ratio of luminous flux to power.

### **Mole (mol)**

It is a unit of measurement which indicates the amount of a substance. It is used in horticulture to quantify the quantity of photons per second generated by a lighting system or which reach a target area.  $1\text{mol} = 6.022 \times 10^{23}$  photons per second.

### **Photosynthesis**

This is the process used by plants to convert light into energy. Chlorophyll plays an important role in this process.

### **Photosynthetic Active Radiation (PAR)**

PAR is the wavelengths from 400 to 700 nanometers (nm) which are used by plants in the photosynthesis process.

### **Photosynthetic Photon Flux (PPF)**

This is a measurement that determines the total amount of photosynthetic active radiation (PAR) produced by a lighting system. PPF is expressed in  $\mu\text{mol/second}$ .

### **Photosynthetic Photon Flux Density (PPFD)**

This is a measurement of the amount of photosynthetic active light that reach a target area. PPFD is expressed in  $\mu\text{mol/second/m}^2$ .

### **Photosynthetic Efficacy ( $\mu\text{mol/W/s}$ or $\mu\text{mol/J}$ )**

It shows the photosynthetic efficacy of a lighting system to convert electrical energy into active light.

### **Spectral Power Distribution (SPD)**

The Spectral Power Distribution gives a visual profile of the colour characteristics of a light source. It describes the radiant power per unit wavelength of a light source.



# SYLVANIA



Although every effort has been made to ensure accuracy in the compilation of the technical detail within this publication, specifications and performance data are constantly changing. Current details should therefore be checked with Feilo Sylvania International Group Kft.

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[horticulture@sylvania-lighting.com](mailto:horticulture@sylvania-lighting.com)  
[sylvania-lighting.com](http://sylvania-lighting.com)

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