

HortiCoolture. **LED it grow!**



© ePal

We are faced with more and more challenges. Climate change, growing world population, loss of farmland and the need for a better use of resources.

To solve these challenges, Würth Elektronik is actively accelerating the green revolution by supporting the development of the farm of tomorrow to ensure sustainable food production.

#LEDITGROW

**more
than you
expect**

Advantages of Horticulture LED Lighting

more than you expect
Our service for you



The Green Impact of Horticulture LEDs

BIOLOGICAL ADVANTAGES

- Year round cultivation
- Increase of plant quality parameters
- High harvest efficiency

More yield

ELECTRICAL ADVANTAGES

- High lifetime & efficacy of LEDs
- Lower maintenance costs
- Lower operating costs

Less energy costs

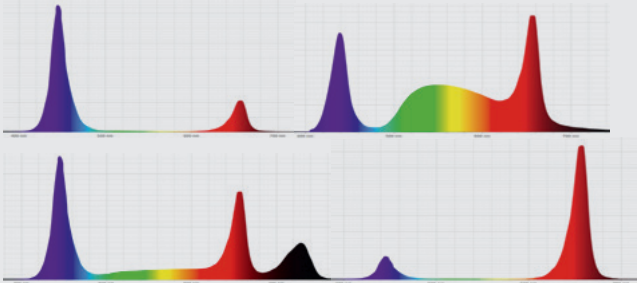
ENVIRONMENTAL ADVANTAGES

- Resource gentle
- Space savings
- Harvest on demand

Fast return on investment
and more profit for the grower

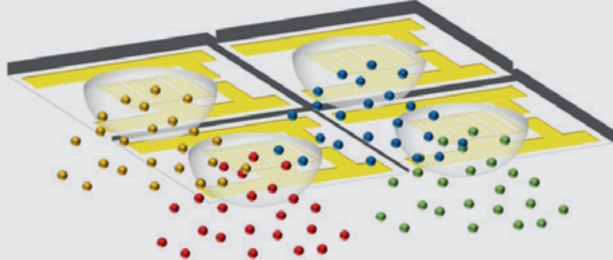
Benefits & Services

PERFECT QUALITY – VERY HIGH EFFICACY

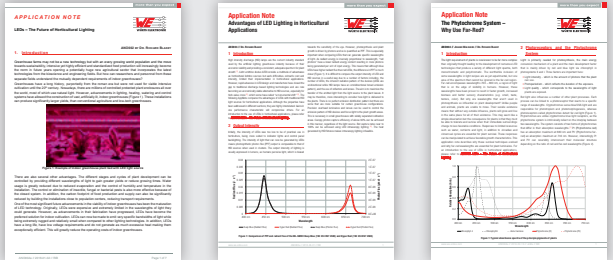


DIFFERENT LIGHTSPECTRA FOR MANY
PLANT QUALITY PARAMETERS

OWN PLANT SCIENTISTS



OUTPUT CALCULATIONS



HORTICULTURE APPLICATION NOTES

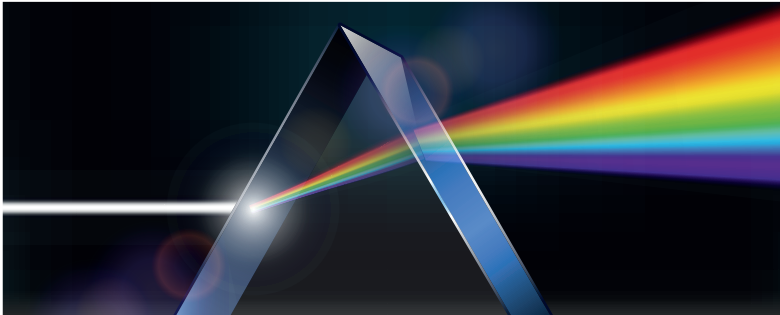
WE DELIVER THE WHOLE NECESSARY
SPECTRUM



SPECTRUM DESIGN TOOL – HORTICULATOR



LIGHT LABORATORY



Advantages of Horticulture LED Lighting



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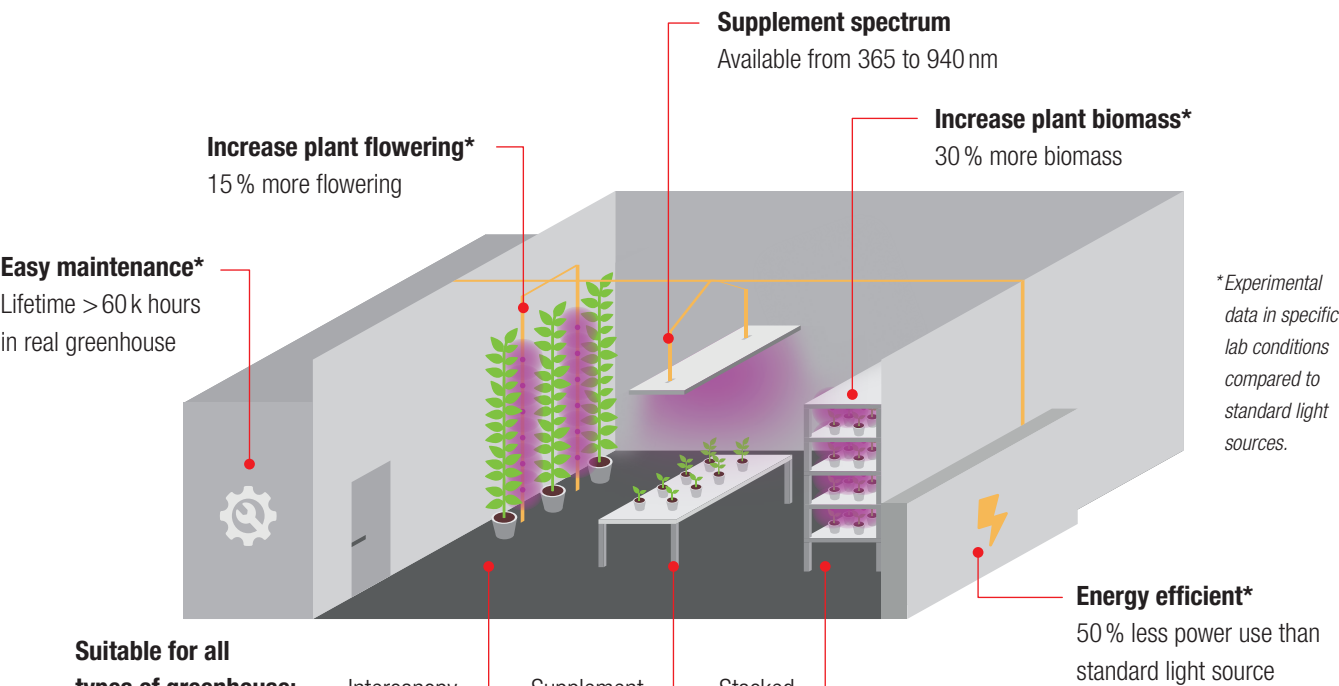
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Applications of Horticulture LEDs

Supplemental Lighting in Greenhouses

The small size of the LED in combination with a low operating temperature delivers a wide range of applications. Würth Elektronik provides and selects with you the right LED for your target quality parameter in your specific application.



Our LEDs have been developed for customized light solutions for each grower.



Controlled Environmental Agriculture / Vertical Farming



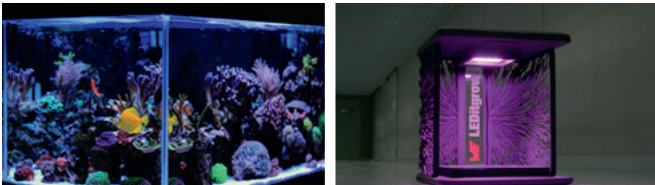
Pharmaceutical Industry



Research



Further Applications



Application Support



Cooperation with Universities

Through cooperations with universities and various associations, Würth Elektronik always stays up to date and knows the market needs.



Know-how through own Tests

In our own Research Center, Würth Elektronik develops light recipes for different plants in different vegetation stages for special quality parameters. Test results: 15 % more flowering, 30 % more biomass, 50 % more secondary plant metabolites.

Lighting Development Kit

The Lighting Development Kit with Horticulture LEDs accelerates the development of systems for targeted plant lighting.

Characteristics:

- Includes power board, horticulture panel, RGBW panel, lens, heat sink, mounting, LED panel connection lead, power supply
- 4 Channels – PWM-dimming method (0 – 100 %)
- App “WEilluminate” to perform dimming
- Conducted and radiated EMI compliant (EN55015)



Order Code
150001



Learn more with our App Notes:
www.we-online.com/leditgrow

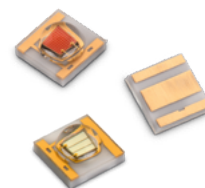
Our products

Horticulture LEDs

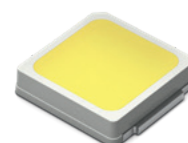
Mid Power – Horticulture LEDs Size 2835			@ 150 mA	
Order Code	Emitting Color	$\lambda_{\text{peak typ.}} \text{ (nm)}$	typ PPF*	typ PPE*
150283DS73103	Deep Blue	450	0.94 $\mu\text{mol/s}$	1.96 $\mu\text{mol/J}$
150283HS73103	Hyper Red	660	0.66 $\mu\text{mol/s}$	2.00 $\mu\text{mol/J}$
150283FS73103	Far Red	730	0.67 $\mu\text{mol/s}^{**}$	2.03 $\mu\text{mol/J}^{**}$
150283BS73103	Blue	463	0.66 $\mu\text{mol/s}$	1.41 $\mu\text{mol/J}$
150283GS73103	Green	517	0.37 $\mu\text{mol/s}$	0.78 $\mu\text{mol/J}$
150283RS73103	Red	629	0.50 $\mu\text{mol/s}$	1.56 $\mu\text{mol/J}$



High Power – Horticulture LEDs Size 3535			@ 350 mA	
Order Code	Emitting Color	$\lambda_{\text{peak typ.}} \text{ (nm)}$	typ PPF*	typ PPE*
150353DS74500	Deep Blue	450	2.32 $\mu\text{mol/s}$	2.07 $\mu\text{mol/J}$
150353HS74500	Hyper Red	660	2.42 $\mu\text{mol/s}$	3.33 $\mu\text{mol/J}$
150353FS74500	Far Red	730	1.94 $\mu\text{mol/s}^{**}$	3.08 $\mu\text{mol/J}^{**}$
150283BS73103	Blue	460	1.98 $\mu\text{mol/s}$	1.77 $\mu\text{mol/J}$
150283GS73103	Green	520	0.96 $\mu\text{mol/s}$	0.80 $\mu\text{mol/J}$
150283RS73103	Red	635	1.41 $\mu\text{mol/s}$	1.84 $\mu\text{mol/J}$

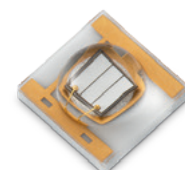


Mid Power – Fullcolor LEDs Size 3030			@ 65 mA	
Order Code	Emitting Color	CCT	typ PPF*	typ PPE*
158303227A	Sunrise	2700	0.50 $\mu\text{mol/s}$	2.77 $\mu\text{mol/J}$
158303230A	Warm White	3000	0.50 $\mu\text{mol/s}$	2.77 $\mu\text{mol/J}$
158303240A	Moonlight	4000	0.51 $\mu\text{mol/s}$	2.80 $\mu\text{mol/J}$
158303250A	Daylight	5000	0.51 $\mu\text{mol/s}$	2.80 $\mu\text{mol/J}$
158303260A	Cool White	6000	0.51 $\mu\text{mol/s}$	2.80 $\mu\text{mol/J}$



To increase secondary plant metabolites use UVA

High Power – Ultraviolet LEDs Size 3535			@ 350 mA	
Order Code	Emitting Color	$\lambda_{\text{peak typ.}} \text{ (nm)}$	typ PPF**	typ PPE**
15335337AA350	Ultraviolet	365	1.68 $\mu\text{mol/J}$	1.39 $\mu\text{mol/J}$
15335338AA350	Ultraviolet	385	1.68 $\mu\text{mol/J}$	1.47 $\mu\text{mol/J}$
15335339AA350	Ultraviolet	395	1.68 $\mu\text{mol/J}$	1.50 $\mu\text{mol/J}$
15335340AA350	Ultraviolet	405	1.68 $\mu\text{mol/J}$	1.51 $\mu\text{mol/J}$



*PPF & PPE calculated in PAR (400 nm – 700 nm)

**PPF & PPE calculated in PBAR (280 nm – 800 nm)

The calculations are based on mathematical methods and approximations using typical characteristics and values. Small variations between real and calculation results are possible. Please always verify the final values with a real prototype