



LARGE SCALE HORTICULTURE CATALOGUE

ENGLISH EDITION

Professional Grow Lighting solutions for Indoor and Greenhouse large scale projects.



WELCOME PROFESSIONAL GROWERS

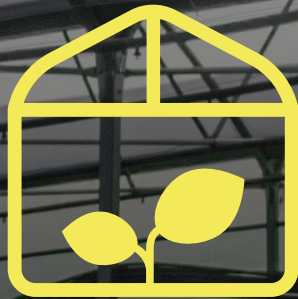
Professional Grow Lighting solutions for indoor growing, greenhouse and large horticultural projects. We supply LED grow lights, HID fixtures, electronic ballasts, grow lamps, reflectors, digital lighting controllers and others, together with a high standard service to the Horticultural, Hydroponics, Aquatic and Industrial markets through Europe and beyond.

Our products are sold to horticultural producers & equipment distributors, government research facilities, major nurseries, top universities and numerous publicly traded companies. Proudly available in more than 30 countries, Lumatek is considered to have one of the most proven product range in the market and the industry best warranty with 5 years covered.

Lumatek has always been a reference in previous years on Horticultural HID (High Intensity Discharge) solutions and nowadays is a market leader on the LED grow light sector.

WE ARE PROUD TO HAVE THE FOLLOWING USP'S:

- One of the highest REAL industry efficacies ($\mu\text{mol}/\text{J}$)
- Lowest cost per μmol
- High PPF output
- World class diodes and drivers
- Full-spectrum for full-cycle indoor solutions
- Specific spectrums for Greenhouse, Nurseries, Vertical Farming and Supplemental Light applications
- Electricity savings around 60-80%
- Yield production increases up to 100%
- 5-year warranty for LED Zeus range and HID ballasts
- 3-year warranty for GH LED, ATS LED and reflectors
- +60.000 hours lifespan
- Heat control technology
- CE certified LVD and EMC compliant
- Unique light spread, coverage and uniformity
- Full circuit protection
- Interchangeable and removable magnet LED Bars
- Detachable driver
- Fully dimmable
- User friendly and easy set-up
- Controllable with any Universal Controller 0-10V



GREENHOUSE LIGHTING

Looking for top-notch supplemental greenhouse lighting solutions that can enhance your plant growth? Look no further than our greenhouse lights! We offer supplemental lighting systems that are specifically tailored to provide ideal growing conditions for a diverse array of greenhouse plants, thereby promoting healthy growth and maximizing yields. Our LED lights are not only energy-efficient but also boast an extended lifespan, making them an affordable choice for all your greenhouse lighting requirements.

FACTORY ORDER

GREENHOUSE RANGE

1050W GH TOP LIGHT LED (RED+BLUE)

Our most powerful LED unit offering an outstanding photon efficacy of 3.5 $\mu\text{mol}/\text{J}$ and a total PPF output of 3675 $\mu\text{mol}/\text{s}$.



GREENHOUSE



VEGETABLES



FRUITS



PRODUCT CODE LUMLED023

LIGHT DISTRIBUTION 120° (Beam Angle)

LIGHT SOURCE Higher Spec Osram

INPUT VOLTAGE 208-400 V AC, 50-60 Hz

INPUT POWER 1061 W (4.6 A @230 V AC),
1054 W (2.7 A @400 V AC)

EFFICACY 3.4 $\mu\text{mol}/\text{J}$ (230 V AC), 3.5 $\mu\text{mol}/\text{J}$ (400 V AC)

PPF 3600 $\mu\text{mol}/\text{s}$ (230 V AC), 3675 $\mu\text{mol}/\text{s}$ (400 V AC)

POWER FACTOR > 0.98 (230 V AC), > 0.98 (400 V AC)

DIMMING 20% - 100%

EXTERNAL CONTROL With Lumatek or any
Universal Controllers 0-10 V

DAISY CHAIN CAPABILITY Yes

WEIGHT 13 Kg

DIMENSIONS 730 x 325 x 112 mm

SPECTRUM Red + Blue

THERMAL MANAGEMENT Passive

LIFETIME L90 > 50000 hrs

WARRANTY 3 Years

IP RATING IP65

CERTIFICATIONS CE, EMC, LVD

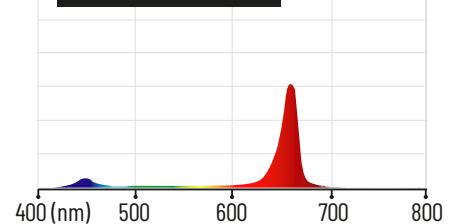


Specifically designed for high PPF target flowering crops for growers who prioritize or demand efficient growth at an industrial scale.

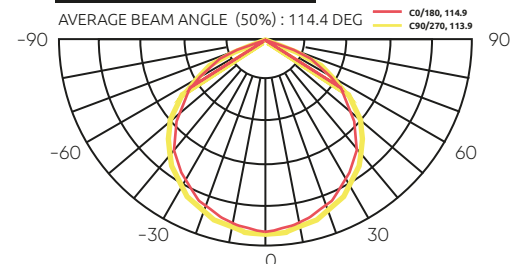
This fixture will provide double the light levels and improved Spectrum when comparing to a traditional 1000W HPS unit. In fact, this product will be equivalent to two 1000W HPS fixtures in regards to light output, plus the extra feature of having an optimized balanced spectrum.

Thanks to the quality of the components and the gaps between the fin's lines, the 1050W will offer an incredible passive cooling heat dissipation through the help of the created convective airflow, ensuring a long lifetime and world class performance at low maintenance.

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT

680W GH TOP LIGHT LED (RED + BLUE)

FACTORY ORDER

The true 1 HPS to 1 LED replacement, reaching photon efficacy levels up to 3.4 $\mu\text{mol}/\text{J}$ and a total PPF output of 2285 $\mu\text{mol}/\text{s}$.



GREENHOUSE



VEGETABLES



FRUITS

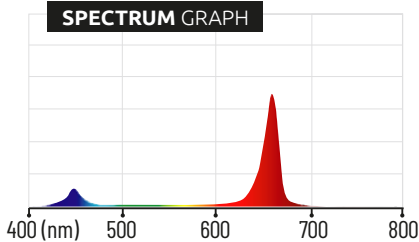


Planning to switch from HPS to LED top light maintaining light levels but drastically reducing operational costs?

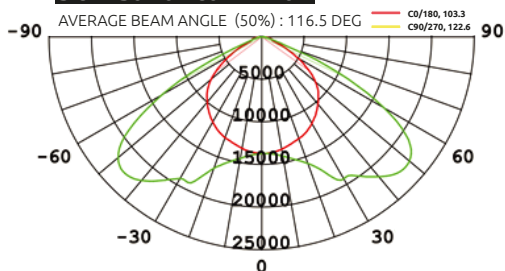
Lumatek has created the perfect solution for that, the compact and efficient 680W GH TOP LIGHT LED Red +Blue. The true 1 HPS to 1 LED replacement, reaching photon efficacy levels up to 3.4 $\mu\text{mol}/\text{J}$ and a total PPF output of 2285 $\mu\text{mol}/\text{s}$.

This very efficient fixture will help to reduce energy consumption up to 40% and lower maintenance operational costs. In addition, the special integrated optics will improve uniformity and light spread across your canopies.

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



PRODUCT CODE LUMLED016

LIGHT DISTRIBUTION 100° - 120° (Beam Angle)

LIGHT SOURCE Osram & Seoul Z Power

INPUT VOLTAGE 277-400 V AC, 50-60 Hz

INPUT POWER 680 W (1.98 A @380 V AC)

EFFICACY 3.4 $\mu\text{mol}/\text{J}$

PPF 2285 $\mu\text{mol}/\text{s}$

POWER FACTOR > 0.98

DIMMING With 0-10 V Dimmer

EXTERNAL CONTROL With Lumatek or any
Universal Controllers 0-10 V

DAISY CHAIN CAPABILITY Yes

WEIGHT 8.8 Kg

DIMENSIONS 654 x 254 x 118 mm

SPECTRUM Red + Blue

THERMAL MANAGEMENT Passive

LIFETIME L90 > 50000 hrs

WARRANTY 3 Years

IP RATING IP65

CERTIFICATIONS CE, EMC, LVD



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



FACTORY ORDER

680W GH TOP LIGHT LED (WHITE + RED)

In line and with an identical casing design as the 680W GH Red + Blue, the White + Red model has an optimized Spectrum for Vegetative grow stages or low PPFD target flowering or vinery crops.



GREENHOUSE



VEGETABLES



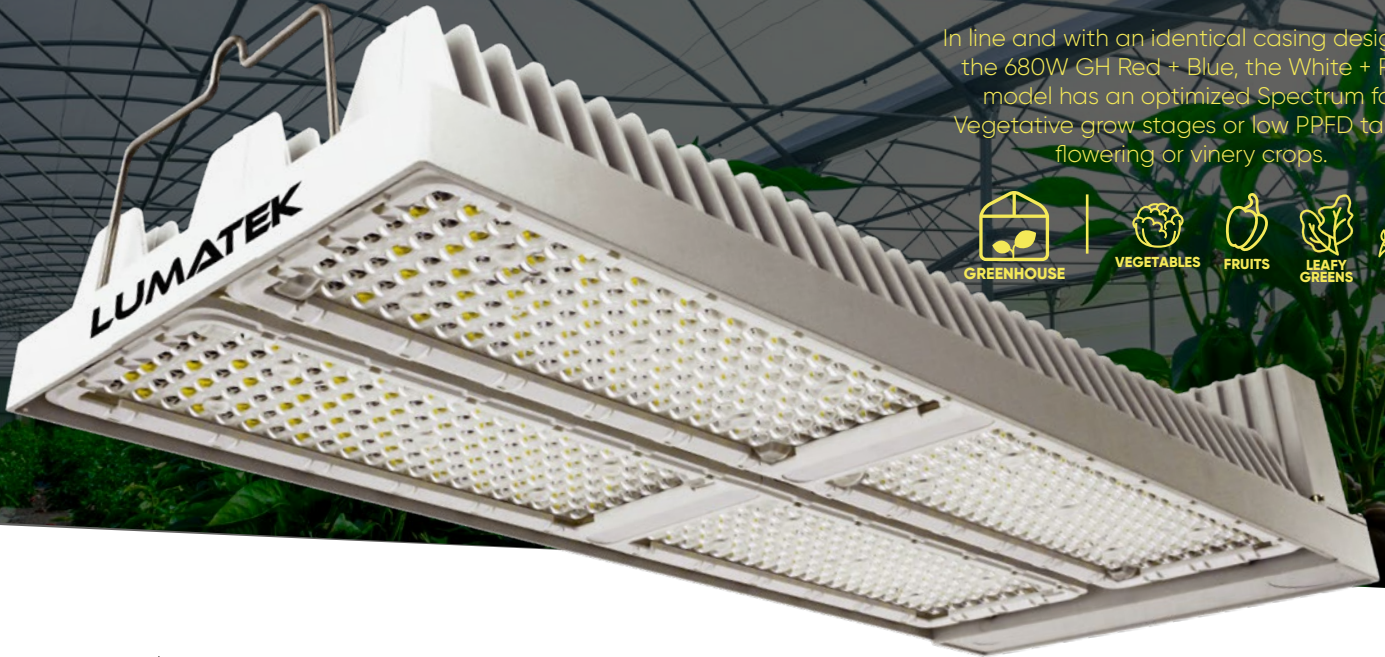
FRUITS



LEAFY GREENS

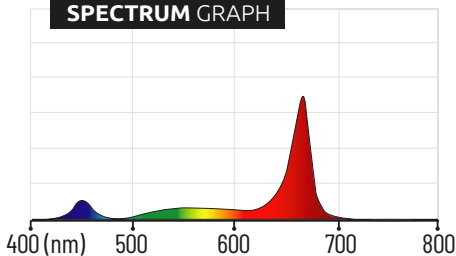


HERBS

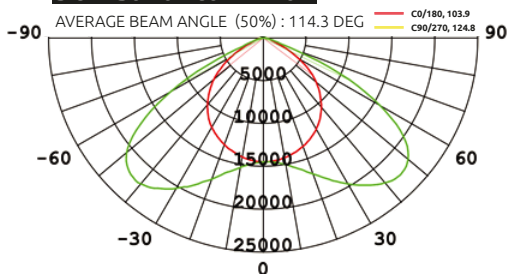


The 2.7 $\mu\text{mol}/\text{J}$ efficacy, 1805 $\mu\text{mol}/\text{s}$ PPF output and the balanced Blue, Red and beneficial Green Spectrum will help to obtain a deeper canopy penetration throughout the year.

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



PRODUCT CODE LUMLED017

LIGHT DISTRIBUTION 100° - 120° (Beam Angle)

LIGHT SOURCE Osram & Seoul Z Power

INPUT VOLTAGE 277-400 V AC, 50-60 Hz

INPUT POWER 680 W (1.98 A @380 V AC)

EFFICACY 2.7 $\mu\text{mol}/\text{J}$

PPF 1805 $\mu\text{mol}/\text{s}$

POWER FACTOR > 0.98

DIMMING With 0-10 V Dimmer

EXTERNAL CONTROL With Lumatek or any Universal Controllers 0-10 V

DAISY CHAIN CAPABILITY Yes

WEIGHT 8.8 Kg

DIMENSIONS 654 x 254 x 118 mm

SPECTRUM White + Red

THERMAL MANAGEMENT Passive

LIFETIME L90 > 50000 hrs

WARRANTY 3 Years

IP RATING IP65

CERTIFICATIONS CE, EMC, LVD



GROW OPTIMAL

BY REQUESTING
A LIGHT PLAN & REPORT

G R E N H O U S E R A N G E

300W GH TOP LIGHT LED (RED + BLUE)

FACTORY ORDER

A special slim and compact LED fixture characterized by its flexibility in Greenhouse applications



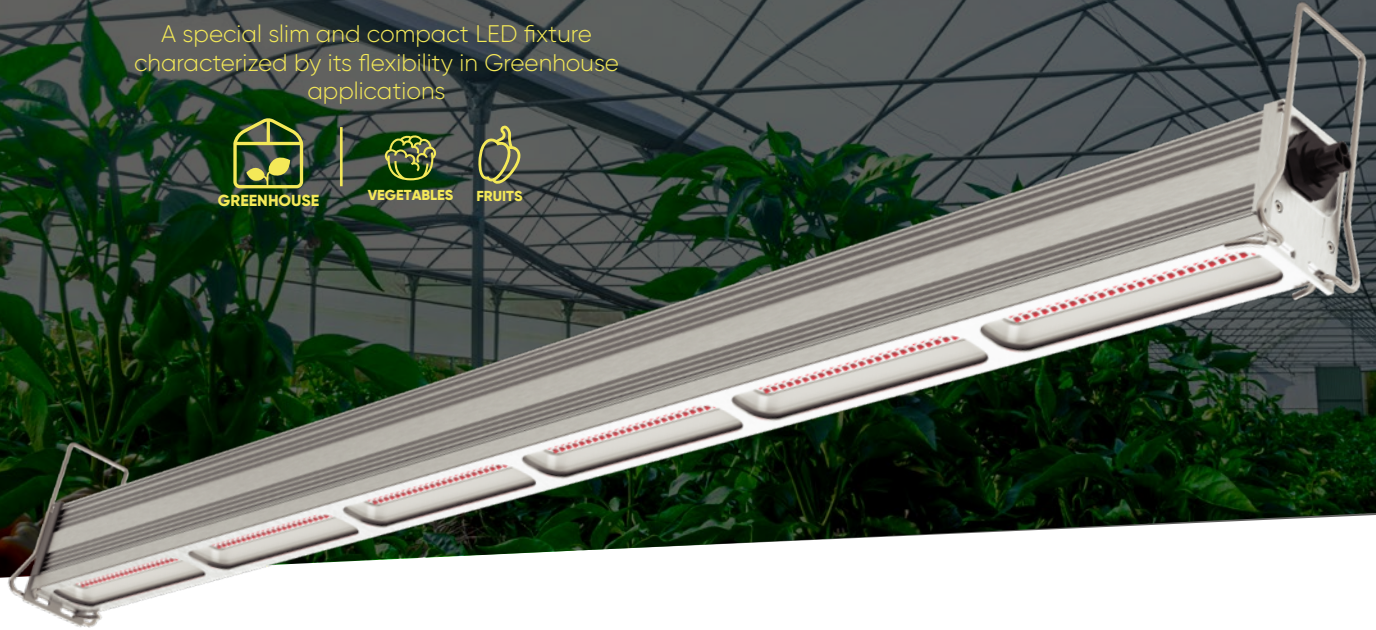
GREENHOUSE



VEGETABLES



FRUITS



PRODUCT CODE LUMLED018

LIGHT DISTRIBUTION 100° - 120° (Beam Angle)

LIGHT SOURCE Osram & Domestic Diodes

INPUT VOLTAGE 200-400 V AC, 50-60 Hz

INPUT POWER 310 W (0.78 A @400 V AC)

EFFICACY 3.2 $\mu\text{mol}/\text{J}$

PPF 985 $\mu\text{mol}/\text{s}$

POWER FACTOR > 0.98

DIMMING No

EXTERNAL CONTROL No

DAISY CHAIN CAPABILITY Yes

WEIGHT 4.2 Kg

DIMENSIONS 1281 x 59 x 89 mm

SPECTRUM Red + Blue

THERMAL MANAGEMENT Passive

LIFETIME L90 > 50000 hrs

WARRANTY 3 Years

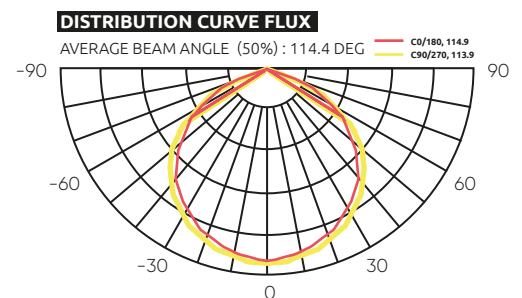
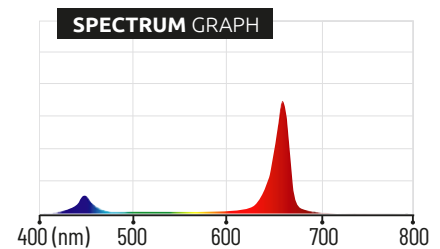
IP RATING IP65

CERTIFICATIONS CE, EMC, LVD



The Lumatek 300W GH Top Light LED Red+Blue with its 3.2 $\mu\text{mol}/\text{J}$ photon efficacy and 985 $\mu\text{mol}/\text{s}$ total PPF output has a linear configuration ideal for hybrid projects mixed with other LED or HID fixtures.

This unit's main features are uniformity improvement, light level target increase or for projects with ceiling limitations. Most commonly used in C-profile Greenhouses and for operations requiring fixture positioning adaptability.



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



FACTORY ORDER

GREENHOUSE RANGE

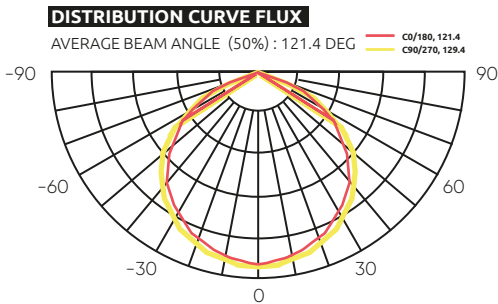
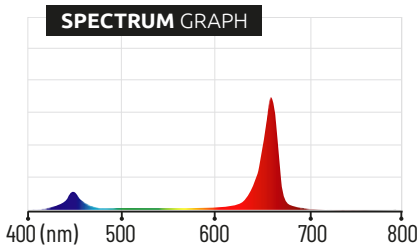
100W GH INTERLIGHT LED (RED + BLUE)

This inter light LED Grow fixture is a very slim, creative and lean solution to install in-between your plants thanks to its bidirectional light output.



LUMATEK 100W GH Interlight LED (Red+Blue)

The special design will allow the under canopy individual leaves to absorb more light intensity and light quality, helping to boost and increase yield and crop quality. This 3.0 $\mu\text{mol}/\text{J}$ efficacy LED unit can be applied as a supplemental light between tall crops, encouraging shaded leaves, flowers and vineries to increase the rate of photosynthesis and stimulate growth efficiency. The 100W GH Interlight has plug and play installation, daisy chain capability and allows easy adjustments for optimal uniformity across each crop row.



PRODUCT CODE LUMLED024

- LIGHT DISTRIBUTION** 100° - 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Domestic Diodes
- INPUT VOLTAGE** 200-400 V AC, 50-60 Hz
- INPUT POWER** 105 W (0.3 A @380 V AC)
- EFFICACY** 3.0 $\mu\text{mol}/\text{J}$
- PPF** 300 $\mu\text{mol}/\text{s}$
- POWER FACTOR** > 0.98
- DIMMING** No
- EXTERNAL CONTROL** No
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 2.8 Kg
- DIMENSIONS** 2300 x \varnothing 61 mm
- SPECTRUM** Red + Blue
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 50000 hrs
- WARRANTY** 3 Years
- IP RATING** IP66
- CERTIFICATIONS** CE, EMC, LVD



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



INDOOR HORTICULTURE LIGHTING

Are you looking for high-quality indoor lighting solutions to enhance the growth of your indoor plants? Look no further than our indoor lights! Our lights are designed to provide optimal lighting conditions for a wide range of indoor plants, ensuring healthy growth and better yields. Our LED lights are energy-efficient and long-lasting, providing a cost-effective solution for your indoor horticulture needs.

ZEUS 1000W XTREME CO2

The higher specification Lumatek Zeus 1000W Xtreme PPF CO2 LED is a linear multi-light bar fixture producing extremely high levels of PPF of 2925 $\mu\text{mol/s}$ and a very high efficacy of up to 2.9 $\mu\text{mol/J}$.



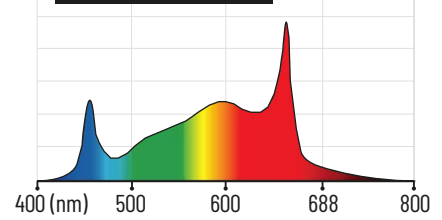
- Interchangeable 100 W Pro 2.9 Magnet light bars with clear glue cover
- Detachable driver for remote use



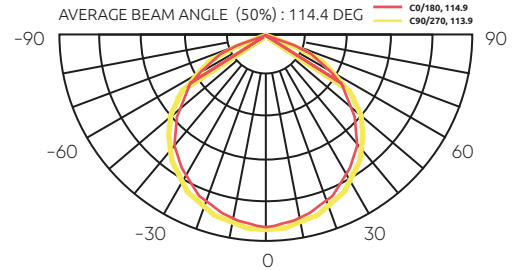
PRODUCT CODE LUMLED003

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Lumileds Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 1021 W (4.6 A @230 V AC)
- EFFICACY** 2.9 $\mu\text{mol/J}$
- PPF** 2925 $\mu\text{mol/s}$
- POWER FACTOR** > 0.95
- DIMMING** OFF-25-50-75-100% with 0-10V Light Dimmer (incl.)
- EXTERNAL CONTROL** With Lumatek or any Universal Controllers 0-10 V
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 18 Kg
- DIMENSIONS** 1181 x 1091 x 106 mm
- SPECTRUM** Full Spectrum F
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 60000 hrs
- WARRANTY** 5 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



HEIGHT TO TEST POINT 52cm
CANOPY AVERAGE PPF 1031.2 $\mu\text{mol/s/m}^2$

623	687	794	843	859	852	811	738	682	664
670	796	901	981	1017	983	997	932	795	718
742	880	1054	1233	1223	1230	1167	1075	907	873
855	969	1147	1341	1383	1391	1317	1233	1044	937
955	1054	1222	1429	1455	1472	1405	1276	1077	985
918	1095	1210	1416	1488	1484	1422	1334	1085	989
868	1029	1183	1371	1441	1457	1389	1244	1014	905
810	987	1068	1236	1302	1311	1263	1143	926	808
687	812	926	1087	1132	1103	1075	934	800	718
588	646	821	908	911	945	908	822	745	677

1.5m

0.15m

- Walls Reflection 0%
- Fixture Power 100%



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT

ZEUS RANGE

ZEUS 1000W PRO

The higher specification Lumatek Zeus 1000W Pro LED is a linear multi-light bar fixture with folding frame producing extremely high levels of PPF of 2925 $\mu\text{mol/s}$ and a Photon Efficacy of up to 2.9 $\mu\text{mol/J}$.



INDOOR FARMING



VERTICAL FARMING



VEGETABLES



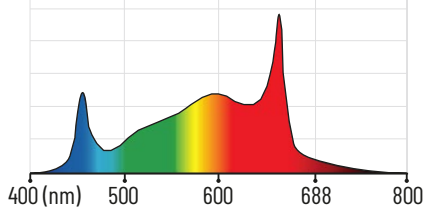
FRUITS



HERBS

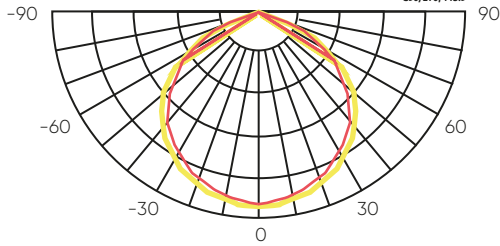


SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX

AVERAGE BEAM ANGLE (50%): 114.4 DEG



HEIGHT TO TEST POINT 40cm

CANOPY AVERAGE PPF 822.2 $\mu\text{mol/s/m}^2$

328.6	362.8	546	581	554.8	557.6	579.3	496.3	428.3	323.5
490.2	543	702.4	793.1	906.2	975.1	838.7	768.2	542.2	399.6
581.4	735.7	896.2	964	1031	1032	999.4	871.1	699.2	518.9
671.3	761.1	1019	1090	1150	1159	1092	962	766	559.3
711.6	842.9	1050	1142	1199	1144	1000	756.4	592.6	609.8
693.9	828.7	1010	1160	1210	1219	1170	1020	800.1	584.5
710.2	837.8	1046	1133	1197	1210	1152	1055	761.3	619.6
715.7	788.3	983.1	1111	1151	1161	1120	966.7	760.5	577.2
600.8	660.8	839.8	986.4	1010	1027	977.8	908.6	720.6	491.7
527.6	620.4	769.5	833.6	818.8	845	830.3	697.5	559.4	423.7

2m

0.2m

1.5m

0.15m

- Walls Reflection 0%
- Fixture Power 100%

PRODUCT CODE LUMLED009

LIGHT DISTRIBUTION 120° (Beam Angle)

LIGHT SOURCE Higher Spec Osram & Lumileds Diodes

INPUT VOLTAGE 220-240 V AC, 50-60 Hz

INPUT POWER 1025 W (4.8 A @230 V AC)

EFFICACY 2.9 $\mu\text{mol/J}$

PPF 2925 $\mu\text{mol/s}$

POWER FACTOR > 0.95

DIMMING OFF-25-50-75-100% with 0-10V Light Dimmer (incl.)

EXTERNAL CONTROL With Lumatek or any Universal Controllers 0-10 V

DAISY CHAIN CAPABILITY Yes

WEIGHT 17.5 Kg

DIMENSIONS 1700 x 1219 x 62 mm

SPECTRUM Full Spectrum F

THERMAL MANAGEMENT Passive

LIFETIME L90 > 60000 hrs

WARRANTY 5 Years

IP RATING IP65

CERTIFICATIONS CE, EMC, LVD



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



ZEUS 600W PRO 2.9

The higher specification Lumatek Zeus Pro 2.9 is a linear multi-light bar fixture producing very high levels of PPF of 1770 $\mu\text{mol/s}$ and a Photon Efficacy of up to 2.9 $\mu\text{mol/J}$.



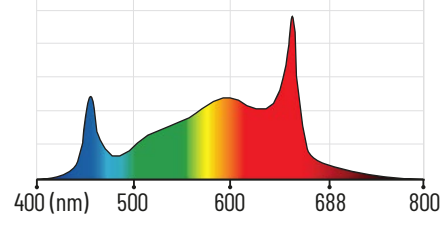
- Interchangeable 100 W Pro 2.9 Magnet light bars with clear glue cover
- Detachable driver for remote use



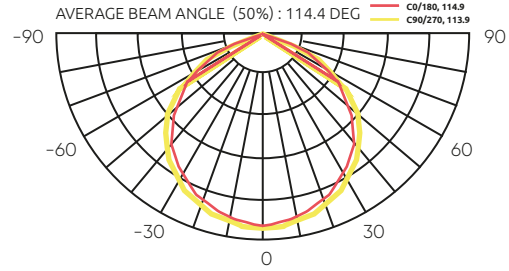
PRODUCT CODE LUMLED010

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Lumileds Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 615 W (2.9 A @230 V AC)
- EFFICACY** 2.9 $\mu\text{mol/J}$
- PPF** 1770 $\mu\text{mol/s}$
- POWER FACTOR** > 0.95
- DIMMING** OFF-25-50-75-100% with 0-10V Light Dimmer (incl.)
- EXTERNAL CONTROL** With Lumatek or any Universal Controllers 0-10 V
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 13.5 Kg
- DIMENSIONS** 1091 x 1182 x 52 mm
- SPECTRUM** Full Spectrum F
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 60000 hrs
- WARRANTY** 5 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



HEIGHT TO TEST POINT 40cm

CANOPY AVERAGE PPF 662.2 $\mu\text{mol/s/m}^2$

339,6	363	460,9	482,2	474,6	479	463	379,5	351,8	369,7
433,9	451,3	532,6	603,4	572,2	616,5	574,7	520,9	445,9	450,4
483,7	562,9	732,4	830,8	850,6	825,4	805,3	753	603	473,7
519,2	691,1	842,9	919,1	938,4	941,3	905,5	820,4	658,3	494,8
561,6	715,8	891,3	956,8	1004	997,7	969,8	862,7	691,5	560,2
518,6	770,3	909,7	979,4	1010	1009	950,5	856,2	678,9	556,5
534,8	750	878	966,9	990,6	981,9	936,3	874,8	723,1	587,1
534,6	621,3	788,9	828	877,8	859,7	829,2	777,7	626,2	592
392	484,9	585,9	623,5	643,6	669,2	667,5	574	534	513,4
322,2	397,4	454,4	511,1	544,3	570,9	496,6	478,5	393	341,3

1.5m

0.15m

- Walls Reflection 0%
- Fixture Power 100%

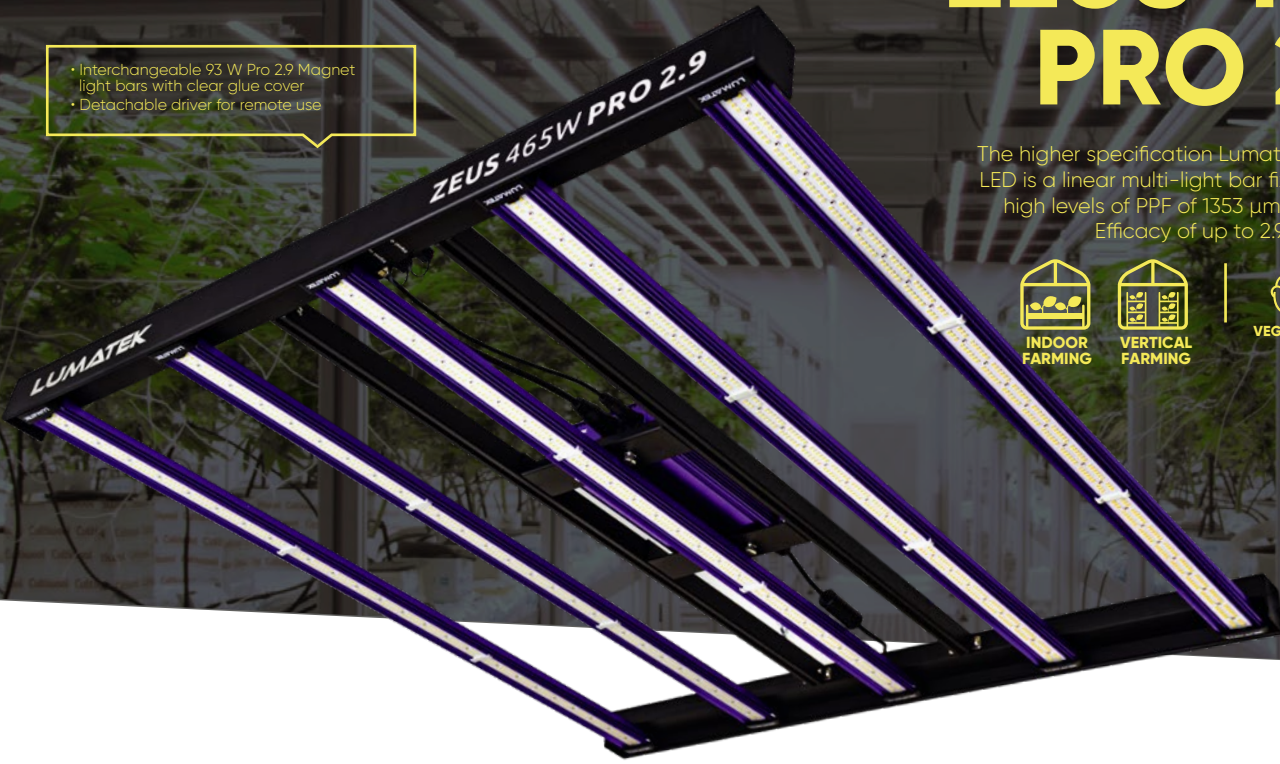


GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT

ZEUS 465W PRO 2.9

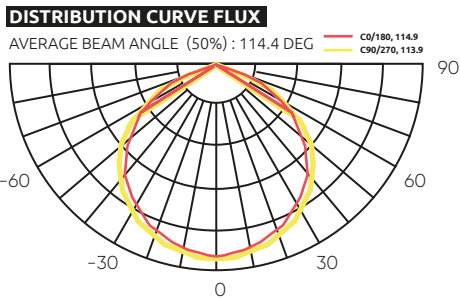
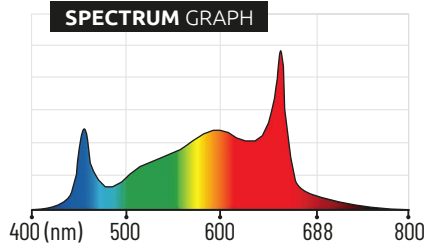
- Interchangeable 93 W Pro 2.9 Magnet light bars with clear glue cover
- Detachable driver for remote use

The higher specification Lumatek Zeus 465W Pro 2.9 LED is a linear multi-light bar fixture producing very high levels of PPF of 1353 $\mu\text{mol/s}$ and a Photon Efficacy of up to 2.9 $\mu\text{mol/J}$.



PRODUCT CODE LUMLED011

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Lumileds Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 475 W (2.2 A @230 V AC)
- EFFICACY** 2.9 $\mu\text{mol/J}$
- PPF** 1353 $\mu\text{mol/s}$
- POWER FACTOR** > 0.95
- DIMMING** OFF-25-50-75-100% with 0-10V Light Dimmer (incl.)
- EXTERNAL CONTROL** With Lumatek or any Universal Controllers 0-10 V
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 10 Kg
- DIMENSIONS** 998 x 900 x 52 mm
- SPECTRUM** Full Spectrum F
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 60000 hrs
- WARRANTY** 5 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD



HEIGHT TO TEST POINT 40cm
CANOPY AVERAGE PPFD 709.7 $\mu\text{mol/s/m}^2$

501,4	642,9	697,2	715,1	703,3	684,7	602,8	516,2
584,9	673,1	767,2	788,8	781,7	733,1	650,8	597,8
614,5	621,5	744,4	875,2	933,9	926,7	852,5	734,6
635,3	761,1	867,5	930,3	927,9	861,3	725,8	641,2
636,7	753,5	885,6	925,1	917,3	845,6	715,6	620,9
629,8	726,7	817	870,9	867	813	694,4	586,9
536	633,2	721,6	764	759,6	711,5	613	544,9
475,4	521,6	643,9	676,1	656,7	597,3	507,3	460,1

1.2m

0.15m

- Walls Reflection 0%
- Fixture Power 100%

1.2m

0.15m



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



LED RANGE

100W FULL-SPECTRUM INDIVIDUAL SUPPLEMENTAL LED LIGHT BAR

A flexible and dynamic LED solution to improve your grow results, producing a PPF of 295 $\mu\text{mol/s}$ and a very high efficacy of up to 2.9 $\mu\text{mol/J}$.



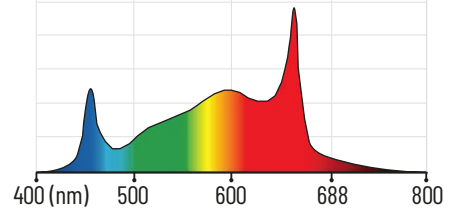
(100W Driver included)

A flexible and dynamic solution to improve your grow results. You can either use it as an add on for your grow space that lacks light intensity, placing it on the top, side or bottom; or just use it as propagator for your clones or seedlings.

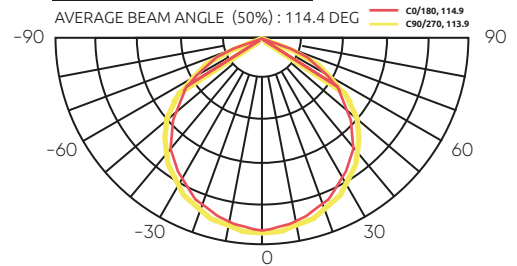
PRODUCT CODE LUMLED012

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Lumileds Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 102 W (0.5 A @230 V AC)
- EFFICACY** 2.9 $\mu\text{mol/J}$
- PPF** 295 $\mu\text{mol/s}$
- POWER FACTOR** > 0.98
- DIMMING** OFF-25-50-75-100% with 0-10V Light Dimmer (Sold Separately)
- EXTERNAL CONTROL** With Lumatek or any Universal Controllers 0-10 V
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 1.1 Kg
- DIMENSIONS** 1148 x 20 x 53 mm
- SPECTRUM** Full Spectrum F
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 60000 hrs
- WARRANTY** 5 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



HEIGHT TO TEST POINT 30cm

CANOPY AVERAGE PPFD 1027.84 $\mu\text{mol/s/m}^2$

(Lumatek Zeus 600W Pro 2.9 + 4 x 100W Ind. Supp. Light LED Bars PPF Map)

851,7	952,6	1006	1037	984,9	964,7	999	1010	969,4	902,2
965,6	1053	1098	1106	1077	1097	1088	1092	1110	1004
1036	1163	1178	1165	1159	1149	1154	1164	1165	1164
1087	1178	1168	1165	1173	1168	1164	1172	1206	1154
1075	1145	1150	1142	1139	1135	1130	1144	1149	1122
1095	1139	1108	1101	1106	1081	1087	1095	1120	1093
1080	975,4	1029	993,5	994,5	995,8	983,1	984	991,8	1005
961,6	1015	981,2	1004	1009	984,1	984,4	994,3	920,7	963,1
835	927,2	955,8	931,4	934,8	914	912	880,8	829	785,7
659	853,8	962,9	986,3	934,3	912,9	882,6	806,6	640,6	534,1

- Walls Reflection 0%
- Fixture Power 100%

1.5m

0.15m



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



LED RANGE

30W UV INDIVIDUAL SUPPLEMENTAL LED LIGHT BAR

This 30W UV LED bar was designed to fit directly into the Zeus frames or can also be used as a single fixture.

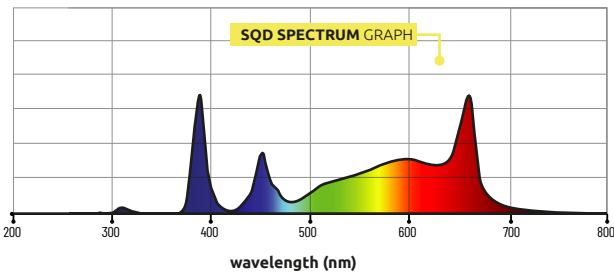


• Power Cable (LUMM0032) and UV Bar Daisy Chain Cable (LUMM0033) Sold Separately.

RECOMMENDED UV-B + UV-A RADIATION APPLICATION

Always mix the supplemental UVB + UVA radiation with the previously mentioned Lumatek Zeus Full Spectrum LED Range, starting from 12 hours photoperiod to less during the Flowering grow stage, at least 4 weeks before harvest.

For a good UV radiation spread, ensure to install the recommended minimum units and follow the distance to canopy referred on the Grow Light Strategies table. If you notice plant damage, we recommend to increase the distance between fixture and canopy or decrease the UV light output delivered to your plants by reducing the photoperiodic time.



PRODUCT CODE LUMLED013

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** UVB + UVA Domestic Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 30 W
- POWER FACTOR** > 0.98
- DIMMING** No
- EXTERNAL CONTROL** No
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 1.2 Kg
- DIMENSIONS** 1000 x 48 x 42 mm
- SPECTRUM** UVB + UVA
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 8500 hrs
- WARRANTY** 1 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD



RECOMMENDED COVERAGE

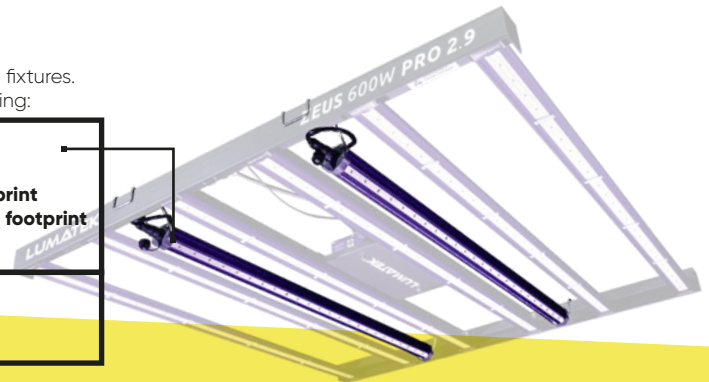
The Lumatek 30W UV Supplemental LED Bar was designed to fit directly into the Zeus fixtures. To make sure you achieve the best light spread over the canopy, we advise the following:

Integrate a minimum of **2 units** of 30W UV Supplemental Light LED Bar, with:

- ZEUS 600W 2.6 | 1.4 x 1.4 m footprint
- ZEUS 465W PRO 2.9 | 1.2 x 1.2 m footprint
- ZEUS 600W PRO 2.9 | 1.4 x 1.4 m footprint
- ZEUS 1000W Xtreme CO2 | 1.5 x 1.5 m footprint w/ CO2 Supplement

Integrate a minimum **3 units** of 30W UV Supplemental Light LED Bar, with:

- ZEUS 1000W PRO | 1.5 x 2.0 m footprint



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT



INDOOR RANGE

i850W TOP LIGHT FULL-SPECTRUM LED 400V

FACTORY ORDER

Meet the i850W TOP LIGHT FULL-SPECTRUM LED 400V. Innovative, Slim, Compact, Powerful and Efficient Top Light LED fixture, designed specifically for Indoor use.



INDOOR FARMING



VEGETABLES



FRUITS



HERBS



LEAFY GREENS



PRODUCT CODE LUMLED022

LIGHT DISTRIBUTION 115° (Beam Angle)

LIGHT SOURCE Higher Spec Osram & Domestic Diodes

INPUT VOLTAGE 208-400 V AC, 50-60 Hz

INPUT POWER 860 W (3.7 A @230 V AC), 850 W (2.2 A @400 V AC)

EFFICACY 2.6 $\mu\text{mol}/\text{J}$ (230 V AC), 2.7 $\mu\text{mol}/\text{J}$ (400 V AC)

PPF 2250 $\mu\text{mol}/\text{s}$ (230 V AC), 2295 $\mu\text{mol}/\text{s}$ (400 V AC)

POWER FACTOR > 0.95 (230 V AC), > 0.98 (400 V AC)

DIMMING 20% - 100%

EXTERNAL CONTROL With Lumatek or any Universal Controllers 0-10 V

DAISY CHAIN CAPABILITY Yes

WEIGHT 13 Kg

DIMENSIONS 730 x 325 x 112 mm

SPECTRUM Full Spectrum

THERMAL MANAGEMENT Passive

LIFETIME L90 > 50000 hrs

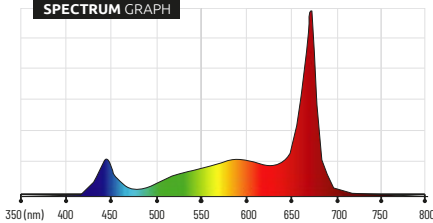
WARRANTY 5 Years

IP RATING IP65

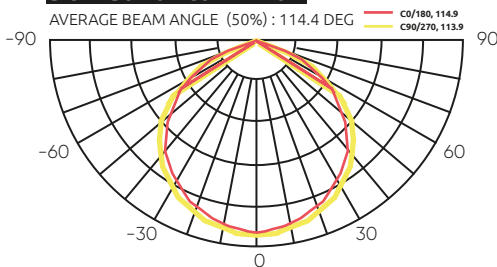
CERTIFICATIONS CE, EMC, LVD

The perfect solution if you are looking for a high intensity and compact LED Top Light fixture, to replace and upgrade HPS systems or to start a new large scale indoor project where canopy uniformity is key.

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



GROW OPTIMAL

BY REQUESTING
A LIGHT PLAN & REPORT



VERTICAL FARMING LIGHTING

If you're engaged in vertical farming, our lighting solutions are essential! Our lights are specifically engineered to offer the ideal spectrum, light quantity and light intensity that your plants require for robust growth and maximum yields. With our energy-efficient LED lights, you can enjoy a long-lasting and cost-effective solution for your vertical farming lighting requirements.

V F R A N G E

VF120W

These versatile high efficacy fixtures will ensure you reach your goals when used in Vertical Farming applications.



650 W driver to run VF fixtures is sold separately. Each one can run up to 5 x VF120W

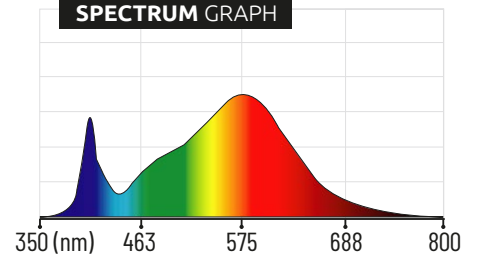
In case you want to extend the distance between the VF fixtures, it's required to add on an **Extension Cable for VF Fixtures (Female-Male) 1 m, Product Code: LUMM0049**



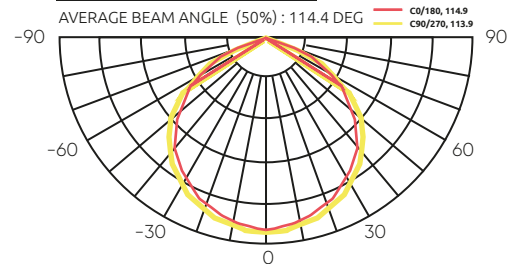
PRODUCT CODE LUMLED015

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Lumileds Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 130 W (0.6 A @230 V AC)
- EFFICACY** 2.4 $\mu\text{mol}/\text{J}$
- PPF** 308 $\mu\text{mol}/\text{s}$
- DIMMING** OFF-25-50-75-100%
with Knob on the main 650 W driver (Sold Separately)
- EXTERNAL CONTROL** With Lumatek or any Universal Controllers 0-10 V
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 2.1 Kg
- DIMENSIONS** 1207 x 521 x 21 mm
- SPECTRUM** Spectrum G
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 60000 hrs
- WARRANTY** 3 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD

SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



HEIGHT TO TEST POINT **20cm**

CANOPY AVERAGE PPFD **324.9 $\mu\text{mol}/\text{s}/\text{m}^2$**

236,8	313,3	318,2	326,1	237,1
293,2	379,2	398,6	397	313
298,2	396,7	416,4	416,9	328,3
276,6	376,9	394,4	393,7	309,6
222,2	274,3	282,9	292,7	229,9

0.6m

1.2m

0.1m

- Walls Reflection 0%
- Fixture Power 100%



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT

VF90W

These versatile high efficacy fixtures will ensure you reach your goals when used in Vertical Farming applications.

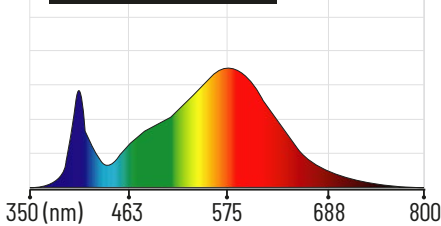


650 W driver to run VF fixtures is sold separately. Each one can run up to 7 x VF90W

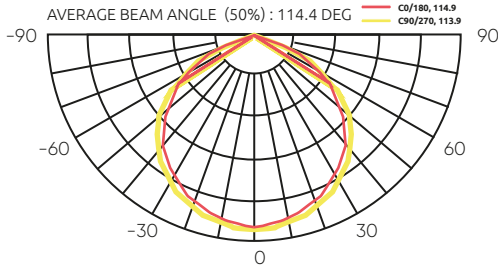
In case you want to extend the distance between the VF fixtures, it's required to add on an **Extension Cable for VF Fixtures (Female-Male) 1 m, Product Code: LUMM0049**



SPECTRUM GRAPH



DISTRIBUTION CURVE FLUX



HEIGHT TO TEST POINT **20cm**
CANOPY AVERAGE PPFD **291.5 μmol/s/m²**

184,7	245,3	255,4	256,5	198,1
185,2	253,3	264,6	260,6	205,6
205,6	278,7	291,5	290,6	226
180,7	250,2	260,2	261,3	201
165,4	212,8	231,2	237,7	185,1

0.6m

1.2m

0.1m

- Walls Reflection 0%
- Fixture Power 100%

PRODUCT CODE LUMLED019

- LIGHT DISTRIBUTION** 120° (Beam Angle)
- LIGHT SOURCE** Higher Spec Osram & Lumileds Diodes
- INPUT VOLTAGE** 220-240 V AC, 50-60 Hz
- INPUT POWER** 103 W (0.4 A @230 V AC)
- EFFICACY** 2.4 μmol/J
- PPF** 244 μmol/s
- DIMMING** OFF-25-50-75-100%
with Knob on the main 650 W driver (Sold Separately)
- EXTERNAL CONTROL** With Lumatek or any Universal Controllers 0-10 V
- DAISY CHAIN CAPABILITY** Yes
- WEIGHT** 1.7 Kg
- DIMENSIONS** 1207 x 521 x 21 mm
- SPECTRUM** Spectrum G
- THERMAL MANAGEMENT** Passive
- LIFETIME** L90 > 60000 hrs
- WARRANTY** 3 Years
- IP RATING** IP65
- CERTIFICATIONS** CE, EMC, LVD



GROW OPTIMAL
BY REQUESTING
A LIGHT PLAN & REPORT





LUMATEK LIGHTING CONTROLLERS

Take your indoor, greenhouse, or vertical farming lighting to the next level with Lumatek Lighting Controllers! Our controllers allow you to customize your lighting schedule and intensity, ensuring optimal photoperiodic conditions for your plants. With advanced features such as sunrise and sunset simulation, dimming control, and temperature sensors, our controllers provide a precise and efficient solution for your lighting needs. Trust Lumatek to provide you with the ultimate lighting control solution.

LUMATEK CONTROL PANEL PLUS 2.0

Dual signal digital lighting controller (HID + LED) that offers precise external control of your Lumatek lighting fixtures, drivers and ballasts.



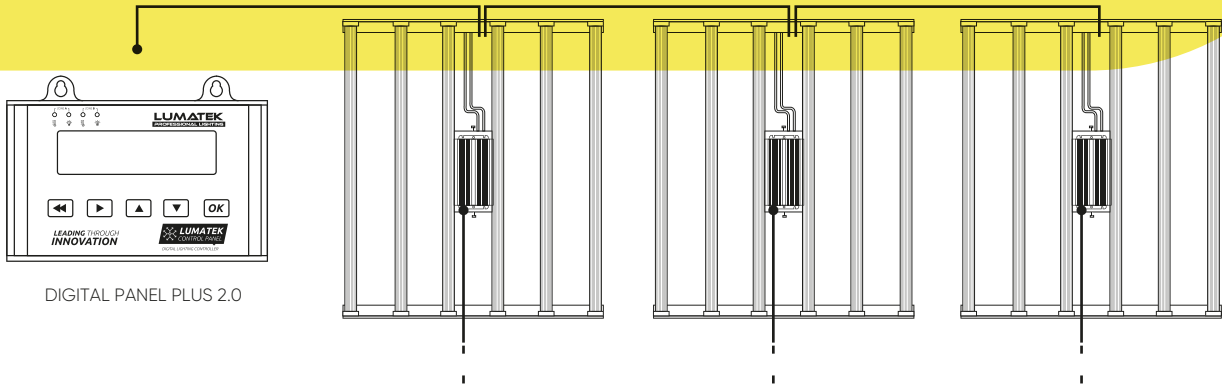
PRODUCT CODE LUMM0019

FEATURES

- DIMMING (1% Increments)
- Digital timing, safety control and automation
- Temperature room maintenance
- Sunrise/Sunset
- Up to 400 ballasts
- Memory backup & more...

ITEMS INCLUDED

- 1 x Lumatek Control Panel Plus 2.0
- 1 x Power adaptor and cable
- 2 x Temperature sensor 5 m cable
- 2 x HID control link cable 5 m
- 2 x LED control link cable



DIGITAL PANEL PLUS 2.0



Lumatek LED Driver Remote Use 5 m Extension Cables (x3) for Zeus 1000W Xtreme

PRODUCT CODE LUMM0031

Designed to connect the Zeus 1000W Xtreme PPFd CO2 driver and the LED fixture, in case the driver is used remotely and away from the fixture.



Lumatek RJ Ethernet

PRODUCT CODE LUMM0028

Designed to connect our LEDs to any Universal Controller with RJ port interface, through a signal converter 0-10 V to RJ control adaptor.

LUMATEK MASTER CONTROLLER 3.0

Take control of your environmental grow stages to the next level. Ensure the right light quantity and intensity adjustments to maximize crop quality and yields.

PREDICTED RELEASE DATE
SUMMER 2023



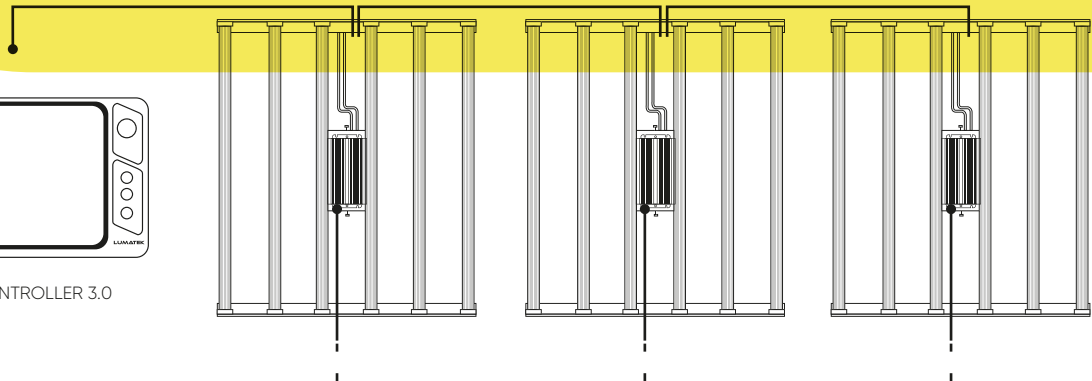
PRODUCT CODE LUMM0057

FEATURES

- Two Channels (Zone A & Zone B).
- 24 Hr Light Scheduler.
- Dimming Control of 1% increments (OFF, 20–100%).
- Simulate sunrise and sunset to lessen plant stress.
- Temperature sensor monitoring and control.
- Light Intensity Scheduler Mode.
- Actively increase or decrease the output light intensity (PPFD) mode.
- Temperature and humidity chart history and notification record data.
- CO2 chart history and notification record data.
- PPFD measurements, PPFD chart history and date record notification.
- SD Card for software update versions, save data and configurations.



MASTER CONTROLLER 3.0



Lumatek LED Driver Remote Use 5 m Extension Cables (x2)

PRODUCT CODE LUMM0016

Designed to connect the driver and the LED fixture, in case the driver is used remotely and away from the fixture.



Lumatek LED Daisy Chain 5 m Control Cable

PRODUCT CODE LUMM0015

Designed to link Lumatek Zeus LED fixtures together in series to be externally controlled with the Lumatek Control Panel Plus 2.0.



LUMATEK LIGHTING PLANS

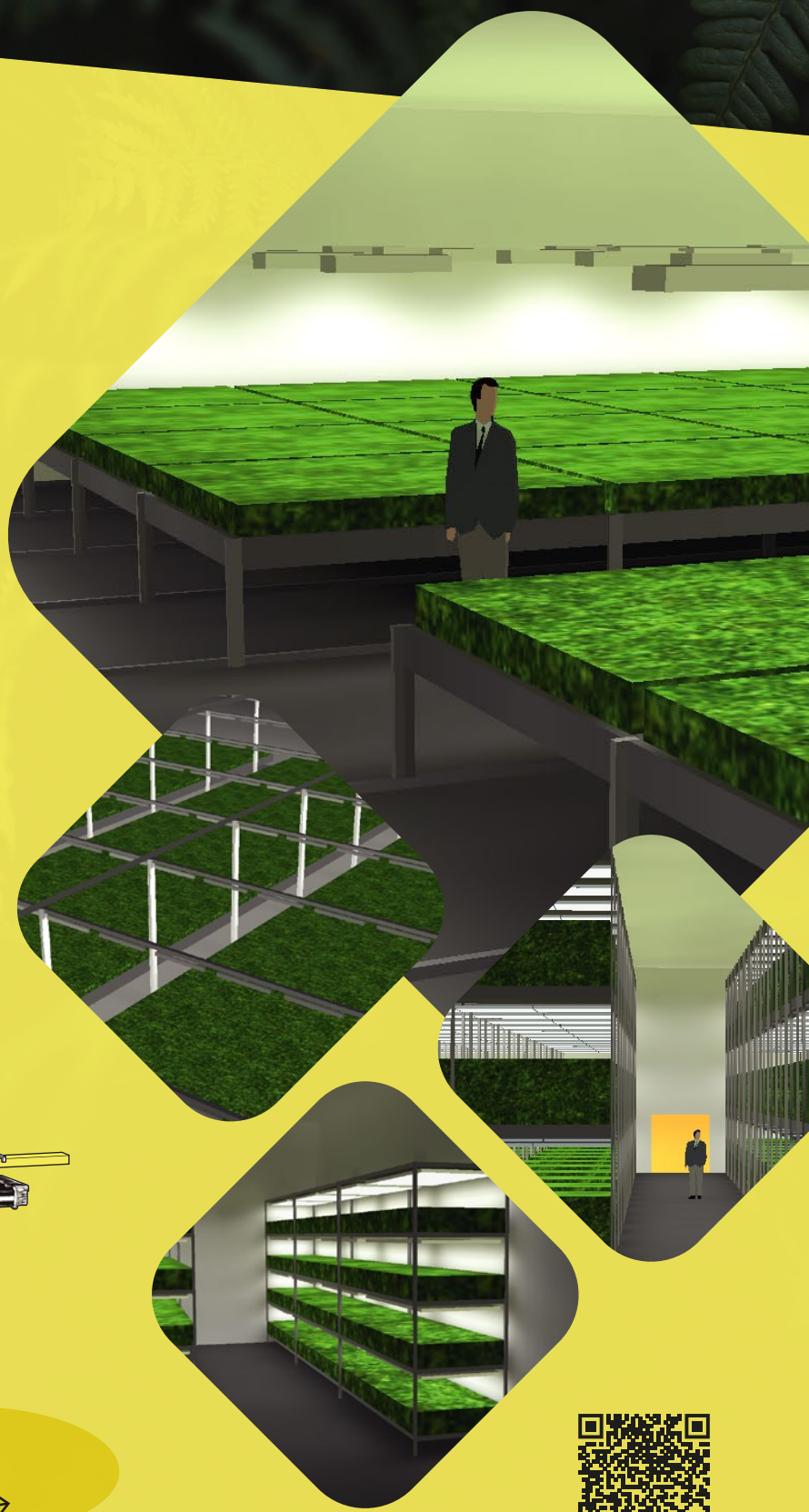
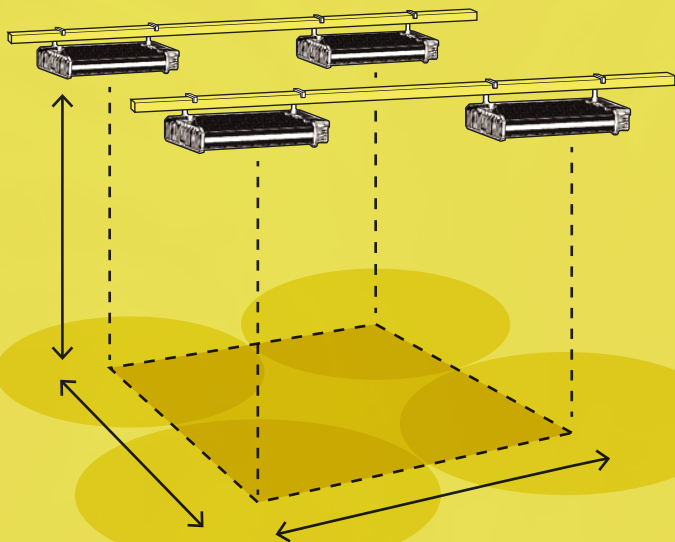
GROW OPTIMAL

Lumatek supports each project with a detailed, tailor-made, light planning report including the recommended Lumatek fixture, the optimal number of fixtures with the correct PPFD levels depending on your plant variety, their exact hanging location for an efficient light uniformity and the exact distance between fixtures and crop to get the most use of every installed Watt.

Know how to meet your PPFD requirements for each grow stage with the optimal number of fixtures, get the maximum light uniformity and make sure your crop will be covered with the best light levels, and lower the light losses by optimizing the fixtures pattern and installation height.

Requesting a Light Plan is vital when so many variables affect how much light plants will receive from fixtures. Those variables include type of crop, grow stage, type of grow system (greenhouse, indoor, multilayer, grow chamber), greenhouse location, available hanging location, grow system dimensions, surrounding reflective materials, plant height, potential light obstacles and many others which means that the optimal light plan must be tailor-made.

**Request your Lumatek Lighting Plan today!
Grow Optimal, Grow with Lumatek!**



SCAN TO KNOW MORE

MANUFACTURER WARRANTY

LED ZEUS

5 YEAR WARRANTY

LED GREENHOUSE

3 YEAR WARRANTY

LED ATS

3 YEAR WARRANTY

LAMPS

1 YEAR WARRANTY

CONTROLLERS

3 YEAR WARRANTY

HID FIXTURES

3 YEAR WARRANTY



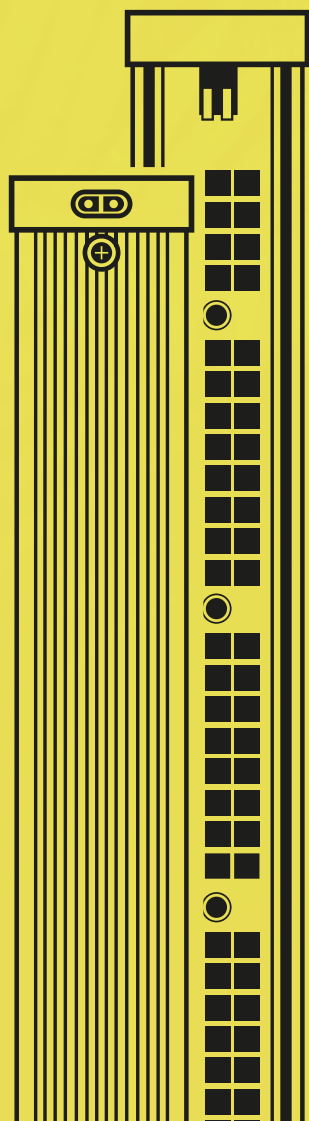
As one of the highest warranties on the market, the warranty on Lumatek products attests to our commitment and trust in the outstanding quality of the manufacturing process, high end components and secure packaging.

All widely recognized by the grower community around the world.



MAGNETIC LED LIGHT BAR DESIGN

Our linear multi-light bar design makes our fixtures incredibly versatile with magnetic interchangeable and modular light bars.



Lumatek is the pioneer of the innovative, modular, magnetic LED light bar design when back in 2020, the Lumatek Zeus 600W Pro took the grow lighting industry and grow community by surprise with its power, practicality and sheer beauty.

This technology and design allows growers to operate as many light bars as needed, to change or even upgrade individual light bars as well as having a secure and compact design that helps ensure more secure packaging and protective shipping.

THE NEW LUMATEK EDUCATION SECTION

2023 brings a great new addition to one of the most complete websites on the horticultural market.

The Lumatek Education section is specially created for the grower community. Here Lumatek regularly shares insightful and useful content.



Here you will find educational posts, rich technical content, horticultural market latest news, that will certainly be useful both for the experienced grower and to the hobby grower alike.

Helping Growers Grow is our mission as well as the betterment of our customers growing skills. This new and regularly updated area is designed to achieve the important goal of sharing important knowledge, both as leading horticulture lighting manufacturers and - most importantly - together with the grower community that we respect and admire!

FIND OUT MORE AT

WWW.LUMATEK-LIGHTING.COM





LUMATEK

GROW LIGHT STRATEGIES

The Lumatek **"LED Grow Light Strategies"** is an extensive, in-depth and **comprehensive document made by our experienced light planners and product development department**, to ensure you are making the most out of your Lumatek set-up performance for every product and growth stage.

This detailed grow strategy blueprint was designed by Lumatek for more experienced growers that aim for continuous process perfection and growth efficiency, as well as for the hobby grower that is just starting out. In both cases, to help growers grow with the best Led Grow Lights in the market. Lumatek of course!



SCAN TO KNOW MORE

Indoor Top and Supplemental Light Growing Stages LED Grow Light Strategies By LUMATEK		1850W Top Light Full -Spectrum LED (400V)		100W Full -Spectrum Individual Supplemental Light LED Bar		LUMATEK 30W UV LED Bar <i>(To apply at the final flowering stage.)</i>	
Efficacy PPF		2.7 $\mu\text{mol}\cdot\text{J}^{-1}$	2295 $\mu\text{mol}\cdot\text{s}^{-1}$	2.9 $\mu\text{mol}\cdot\text{J}^{-1}$	295 $\mu\text{mol}\cdot\text{s}^{-1}$	NA	NA
Footprint		1.2 x 2.4 m ^(*) (4 units)		1.2 x 0.25 m ^(*) (1 units)		Minimum 2 units in grow areas above 1.4 x 1.4 m .	
Seedling	Intensity (PPFD)	NA	NA	100-300 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-800 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	NA	NA
	Distance canopy to the light	NA	NA	0.5 m	0.3 m	NA	NA
Light Duration 24 ON / 0 OFF until cotyledons are open.	Dimming (Power Consumption)	NA	NA	100% (103 W)	100% (103 W)	NA	NA
	Supplemental CO ₂ (ppm)	NA	NA	No	Yes (\pm 800 ppm)	NA	NA
18 ON / 6 OFF seedlings.		NA	NA	No	Yes (\pm 800 ppm)	NA	NA

Clones Stage	Intensity (PPFD)	NA	NA	75-150 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-800 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	NA	NA
	Distance canopy to the light	NA	NA	0.5 m	0.3 m	NA	NA
Light Duration 18 ON / 6 OFF	Dimming (Power Consumption)	NA	NA	50% (51 W)	100% (103 W)	NA	NA
	Supplemental CO ₂ (ppm)	NA	NA	No	Yes (\pm 800 ppm)	NA	NA

Mother's	Intensity (PPFD)	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	NA	NA
	Distance canopy to the light	1 m	0.8 m	NA	NA	NA	NA
Light Duration 18 ON / 6 OFF	Dimming (Power Consumption)	25% -852 W (4 x 213 W)	25% -852 W (4 x 213 W)	NA	NA	NA	NA
	Supplemental CO ₂ (ppm)	No	No	NA	NA	NA	NA

Vegetative Stage	Intensity (PPFD)	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	NA	NA
	Distance canopy to the light	1 m	1 m	NA	NA	NA	NA
Light Duration 18 ON / 6 OFF	Dimming (Power Consumption)	25% -852 W (4 x 213 W)	50% -1700 W (4 x 425W)	NA	NA	NA	NA
	Supplemental CO ₂ (ppm)	No	Yes (\pm 1100 ppm)	NA	NA	NA	NA





Flowering Stage	Intensity (PPFD)	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	Install together with Zeus 600W 2.6 or above models.	
	Distance canopy to the light	1 m	1 m	NA	NA	Same height as the installed Zeus 600W or above models.	
Light Duration 12 ON / 12 OFF	Dimming (Power Consumption)	75% -2552 W (4 x 638 W)	100% -3400 W (4 x 850 W)	NA	NA	NA	NA
	Supplemental CO ₂ (ppm)	No	Yes (\pm 1800 ppm)	NA	NA	NA	NA

(*) For higher coverage areas and higher heights, supplemental CO₂ may not be necessary.



Greenhouse Growing Stages LED Grow Light Strategies By LUMATEK		1050W GH TOP LIGHT LED (Red + Blue)		680W GH TOP LIGHT LED (Red + Blue)		680W GH TOP LIGHT LED (White + Red)		300W GH TOP LIGHT LED (Red + Blue)		100W GH Inter Light LED R+B	
Efficacy PPF		3.4 $\mu\text{mol}\cdot\text{J}^{-1}$	3570 $\mu\text{mol}\cdot\text{s}^{-1}$	3.4 $\mu\text{mol}\cdot\text{J}^{-1}$	2285 $\mu\text{mol}\cdot\text{s}^{-1}$	2.9 $\mu\text{mol}\cdot\text{J}^{-1}$	1945 $\mu\text{mol}\cdot\text{s}^{-1}$	3.2 $\mu\text{mol}\cdot\text{J}^{-1}$	985 $\mu\text{mol}\cdot\text{s}^{-1}$	3.0 $\mu\text{mol}\cdot\text{J}^{-1}$	300 $\mu\text{mol}\cdot\text{s}^{-1}$
Footprint		1.2 x 2.4 m ^(*)		1.2 x 2.4 m ^(*)		1.2 x 2.4 m ^(*)		1.2 x 2.4 m ^(*)		1.2 x 2.4 m	
Mother's	Intensity (PPFD)	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	500-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Number of fixtures	2	2	4	4	6	6	8	8	Between plants and the leaves	Between plants and the leaves
Light Duration 18 ON / 6 OFF	Distance canopy to the light	1 m	0.8 m	1 m	0.8 m	1 m	0.8 m	0.6 m	0.5 m	NA	NA
	Dimming (Power Consumption)	25% -526 W (2 x 263 W)	25% -526 W (2 x 263 W)	25% -680 W (4 x 170 W)	25% -680 W (4 x 170 W)	25% -1020 W (6 x 170 W)	25% -1020 W (6 x 170 W)	50% -1240 W (8 x 155 W)	50% -1240 W (8 x 155 W)	NA	NA
Vegetative Stage	Intensity (PPFD)	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	400-600 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Number of fixtures	2	2	4	4	6	6	8	8	1	1
Light Duration 18 ON / 6 OFF	Distance canopy to the light	1 m	1 m	1 m	1 m	1 m	1 m	0.6 m	0.6 m	Between plants and the leaves	Between plants and the leaves
	Dimming (Power Consumption)	25% -526 W (2 x 263 W)	75% -1576 W (2 x 788 W)	25% -680 W (4 x 170 W)	75% -2040 W (4 x 510 W)	25% -1020 W (6 x 170 W)	75% -3060 W (6 x 510 W)	50% -1240 W (8 x 155 W)	100% -2480 W (8 x 310 W)	NA	NA
Supplemental CO ₂ (ppm)		No	Yes (\pm 1300 ppm)	No	Yes (\pm 1300 ppm)	No	Yes (\pm 1400 ppm)	No	Yes (\pm 1100 ppm)	NA	NA

Flowering Stage	Intensity (PPFD)	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	800-1000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	1000-1400 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Number of fixtures	2	2	4	4	6	6	8	8	1	1
Light Duration 12 ON / 12 OFF	Distance canopy to the light	1 m	1 m	1 m	1 m	1 m	1 m	0.6 m	0.4 m	Between plants and the leaves	Between plants and the leaves
	Dimming (Power Consumption)	50% -1050 W (2 x 525 W)	100% -2100 W (2 x 1050 W)	50% -1360 W (4 x 340 W)	100% -2720 W (4 x 680 W)	50% -2040 W (6 x 340 W)	100% -4080 W (6 x 680 W)	100% -2480 W (8 x 310 W)	100% -2480 W (8 x 310 W)	NA	NA
Supplemental CO ₂ (ppm)		No	Yes (\pm 700 ppm)	No	Yes (\pm 2000 ppm)	No	Yes (\pm 2000 ppm)	No	Yes (\pm 1500 ppm)	NA	NA

(*) For higher coverage areas and higher heights, supplemental CO₂ may not be necessary.

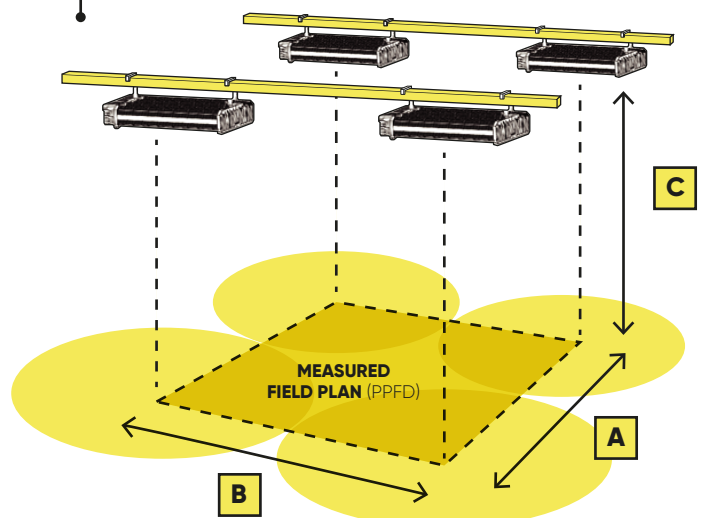
Indoor Growing Stages LED Grow Light Strategies By LUMATEK		Zeus 1000W Xtreme CO2		Zeus 1000W PRO		Zeus 600W PRO 2.9		Zeus 465W PRO 2.9	
									
Efficacy PPF		2.9 $\mu\text{mol} \cdot \text{J}^{-1}$	2925 $\mu\text{mol} \cdot \text{s}^{-1}$	2.9 $\mu\text{mol} \cdot \text{J}^{-1}$	2925 $\mu\text{mol} \cdot \text{s}^{-1}$	2.9 $\mu\text{mol} \cdot \text{J}^{-1}$	1770 $\mu\text{mol} \cdot \text{s}^{-1}$	2.9 $\mu\text{mol} \cdot \text{J}^{-1}$	1353 $\mu\text{mol} \cdot \text{s}^{-1}$
Footprint		1.5 x 1.5 m (*)		1.5 x 2.0 m (*)		1.4 x 1.4 m (*)		1.2 x 1.2 m (*)	
Seedling	Intensity (PPFD)	100-300 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	100-300 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	100-300 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	100-300 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	1.5 m	1.5 m	1.5 m	1.5 m	1 m	1 m	1 m	<0.3 m
Light Quality Full Spectrum	Dimming (Power Consumption)	25% (256 W)	75% (769 W)	25% (256 W)	100% (1025 W)	25% (155 W)	100% (620 W)	25% (119 W)	75% (356 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 800 ppm)	No	Yes (\pm 800 ppm)	No	Yes (\pm 800 ppm)	No	Yes (\pm 800 ppm)
Clones	Intensity (PPFD)	75-150 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	75-150 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	75-150 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	75-150 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	1.5 m	1.5 m	1.5 m	1.5 m	0.8 m	1 m	1 m	<0.3 m
Light Quality Full Spectrum	Dimming (Power Consumption)	25% (256 W)	100% (1025 W)	25% (256 W)	100% (1025 W)	25% (155 W)	100% (620 W)	25% (119 W)	75% (356 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 800 ppm)	No	Yes (\pm 800 ppm)	No	Yes (\pm 800 ppm)	No	Yes (\pm 800 ppm)
Mother's	Intensity (PPFD)	400-500 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-500 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-500 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-500 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	1 m	0.50 m	1 m	0.5 m	0.5 m	1 m	0.5 m	0.5 m
Light Quality Full Spectrum	Dimming (Power Consumption)	50% (512 W)	50% (512 W)	75% (769 W)	75% (769 W)	75% (465 W)	100% (620 W)	75% (356 W)	100% (475 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 1100 ppm)	No	Yes (\pm 1100 ppm)	No	Yes (\pm 1100 ppm)	No	Yes (\pm 1100 ppm)
Vegetative	Intensity (PPFD)	400-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	1 m	0.52 m	1 m	0.5 m	0.5 m	0.3 m	0.5 m	<0.3 m
Light Quality Full Spectrum	Dimming (Power Consumption)	50% (512 W)	75% (769 W)	75% (769 W)	100% (1025 W)	75% (465 W)	100% (620 W)	75% (356 W)	100% (475 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 1100 ppm)	No	Yes (\pm 1100 ppm)	No	Yes (\pm 1100 ppm)	No	Yes (\pm 1100 ppm)
Flowering	Intensity (PPFD)	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	1000-1400 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	1000-1400 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	1000-1400 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	1000-1400 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	1 m	0.3 m	0.6 m	0.3 m	0.4 m	<0.3 m	0.3 m	<0.3 m
Light Quality Full Spectrum	Dimming (Power Consumption)	100% (1025 W)	100% (1025 W)	100% (1025 W)	100% (1025 W)	100% (620 W)	100% (620 W)	100% (475 W)	100% (475 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 1900 ppm)	No	Yes (\pm 1300 ppm)	No	Yes (\pm 1300 ppm)	No	Yes (\pm 1200 ppm)

(*) For higher coverage areas and higher heights, supplemental CO₂ may not be necessary.

Indoor Growing Stages LED Grow Light Strategies By LUMATEK		VF120W		VF90W	
					
Efficacy PPF		2.4 $\mu\text{mol} \cdot \text{J}^{-1}$	308 $\mu\text{mol} \cdot \text{s}^{-1}$	2.4 $\mu\text{mol} \cdot \text{J}^{-1}$	244 $\mu\text{mol} \cdot \text{s}^{-1}$
Footprint		1.2 x 0.6 m (*)		1.2 x 0.6 m (*)	
Seedling Stage	Intensity (PPFD)	100-300 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	100-300 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	0.5 m	<0.1 m	0.5 m	<0.1 m
Light Quality Full Spectrum	Dimming (Power Consumption)	100% (130 W)	100% (130 W)	100% (90 W)	100% (90 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 600 ppm)	No	Yes (\pm 600 ppm)
Clones Stage	Intensity (PPFD)	75-150 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	75-150 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-800 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	0.3 m	<0.1 m	0.3 m	<0.1 m
Light Quality Full Spectrum	Dimming (Power Consumption)	50% (65 W)	100% (130 W)	100% (90 W)	100% (90 W)
	Supplemental CO ₂ (ppm)	No	Yes (\pm 600 ppm)	No	Yes (\pm 600 ppm)
Mother's	Intensity (PPFD)	400-500 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-500 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	500-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	NA	NA	NA	NA
Light Quality Full Spectrum	Dimming (Power Consumption)	NA	NA	NA	NA
	Supplemental CO ₂ (ppm)	NA	NA	NA	NA
Vegetative Stage	Intensity (PPFD)	400-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	400-600 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	NA	NA	NA	NA
Light Quality Full Spectrum	Dimming (Power Consumption)	NA	NA	NA	NA
	Supplemental CO ₂ (ppm)	NA	NA	NA	NA
Flowering Stage	Intensity (PPFD)	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	1000-1400 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	800-1000 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$	1000-1400 $\mu\text{mol} \cdot \text{m}^{-2} \cdot \text{s}^{-1}$
	Distance canopy to the light	NA	NA	NA	NA
Light Quality Full Spectrum	Dimming (Power Consumption)	NA	NA	NA	NA
	Supplemental CO ₂ (ppm)	NA	NA	NA	NA




(*) For higher coverage areas and higher heights, supplemental CO₂ may not be necessary.

To determine the average light intensity with an excellent uniformity for the total fixtures assembly, a representative plan [Measured Field Plan, A x B (PPFD)] is selected underneath under a minimum of four centrally located fixtures, whereby the influence surrounding supplemental lighting is considered.










Greenhouse Growing Tomato Stages LED Grow Light Strategies By LUMATEK		1050W GH TOP LIGHT LED (Red + Blue)		680W GH TOP LIGHT LED (Red + Blue)		680W GH TOP LIGHT LED (White + Red)		300W GH TOP LIGHT LED (Red + Blue)		100W GH Inter Light LED (Red + Blue)	
											
Efficacy PPF		3.4 $\mu\text{mol}\cdot\text{J}^{-1}$	3570 $\mu\text{mol}\cdot\text{s}^{-1}$	3.4 $\mu\text{mol}\cdot\text{J}^{-1}$	2285 $\mu\text{mol}\cdot\text{s}^{-1}$	2.9 $\mu\text{mol}\cdot\text{J}^{-1}$	1945 $\mu\text{mol}\cdot\text{s}^{-1}$	3.2 $\mu\text{mol}\cdot\text{J}^{-1}$	985 $\mu\text{mol}\cdot\text{s}^{-1}$	3.0 $\mu\text{mol}\cdot\text{J}^{-1}$	300 $\mu\text{mol}\cdot\text{s}^{-1}$
Average Inside Greenhouse DLI (Winter)		2 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Netherlands</i>	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Spain</i>	2 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Netherlands</i>	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Spain</i>	2 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Netherlands</i>	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Spain</i>	2 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Netherlands</i>	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ <i>Spain</i>	NA	NA
Seedling	Daily Light Integral (DLI) Tomato requirements (Min. Max.)	13 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	16 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	13 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	16 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	13 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	16 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	13 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	16 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	NA	NA
	Supplemental DLI Needed	11 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	11 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	11 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	11 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	NA	NA
	Supplemental Light Intensity Needed (PPFD)	170 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	170 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	170 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	170 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	NA	NA
	Measured Field (*)	4 (A) x 3 (B) m	NA	4 (A) x 2 (B) m	NA	4 (A) x 1.4 (B) m	NA	1.3 (A) x 2.5 (B) m	NA	NA	NA
	Canopy Distance Uniformity	3 (C) m 94%	NA	2 (C) m 96%	NA	2 (C) m 98%	NA	2 (C) m 98%	NA	NA	NA
	Dimming (Power Consumption)	60% - 630 W	0% - 0 W	60% - 410 W	NA	60% - 410 W	NA	60% - 186 W	NA	NA	NA
Grafting	Daily Light Integral (DLI) requirements (Min. Max.)	5 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	7 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	5 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	7 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	5 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	7 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	5 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	7 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	NA	NA
	Supplemental DLI Needed	3 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	3 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	3 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	3 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	No need	NA	NA
	Supplemental Light Intensity Needed (PPFD)	50 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	50 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	50 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	50 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	No need	NA	NA
	Measured Field (*)	4 (A) x 3 (B) m	NA	4 (A) x 2 (B) m	NA	4 (A) x 1.4 (B) m	NA	1.3 (A) x 2.5 (B) m	NA	NA	NA
	Canopy Distance Uniformity	3 (C) m 94%	NA	2 (C) m 96%	NA	2 (C) m 98%	NA	2 (C) m 98%	NA	NA	NA
	Dimming (Power Consumption)	20% - 210 W	0% - 0 W	20% - 136 W	0% - 0 W	20% - 136 W	0% - 0 W	20% - 62 W	0% - 0 W	NA	NA
Production	Daily Light Integral (DLI) requirements (Min. Max.)	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	50 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	50 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	50 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	50 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	20 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	50 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$
	Supplemental DLI Needed	18 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	30 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	18 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	30 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	18 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	30 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	18 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	30 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	18 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$	30 $\text{mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$
	Supplemental Light Intensity Needed (PPFD)	280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	450 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	450 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	450 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	450 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	450 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Measured Field (*)	4 (A) x 3 (B) m	4 (A) x 1.5 (B) m	4 (A) x 2 (B) m	4 (A) x 1 (B) m	4 (A) x 1.4 (B) m	4 (A) x 0.6 (B) m	1.3 (A) x 2.5 (B) m	1.3 (A) x 1.5 (B) m	NA	NA
	Canopy Distance Uniformity	3 (C) m 94%	3 (C) m 93%	2 (C) m 96%	2 (C) m 97%	2 (C) m 98%	2 (C) m 97%	2 (C) m 98%	1 (C) m 94%	To install in canopies	To install in canopies
	Dimming (Power Consumption)	100% - 1050 W	100% - 1050 W	100% - 680 W	100% - 680 W	100% - 680 W	100% - 680 W	100% - 310 W	100% - 310 W	100% - 100 W	100% - 100 W




Indoor Growing Tomato Stages LED Grow Light Strategies By LUMATEK		i850W Top Light Full-Spectrum LED (400V)		ZEUS 600W PRO 2.9		ZEUS 465W PRO 2.9	
							
Efficacy PPF		3.4 $\mu\text{mol}\cdot\text{J}^{-1}$	3570 $\mu\text{mol}\cdot\text{s}^{-1}$	2.9 $\mu\text{mol}\cdot\text{J}^{-1}$	1770 $\mu\text{mol}\cdot\text{s}^{-1}$	2.9 $\mu\text{mol}\cdot\text{J}^{-1}$	1353 $\mu\text{mol}\cdot\text{s}^{-1}$
Seedling	Light Intensity Needed (PPFD) (Min. Max.)	200 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	250 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	200 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	250 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	200 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	250 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Dimming (Power Consumption)	70% - 595 W	40% - 340 W	70% - 430 W	40% - 246 W	70% - 330 W	70% - 330 W
Grafting	Light Intensity Needed (PPFD) (Min. Max.)	100 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	120 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	100 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	120 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	100 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	120 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Dimming (Power Consumption)	30% - 255 W	20% - 130 W	30% - 195 W	25% - 154 W	30% - 140 W	30% - 140 W
Production	Light Intensity Needed (PPFD) (Min. Max.)	300 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	650 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	300 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	650 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	300 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	650 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
	Dimming (Power Consumption)	100% - 850 W	100% - 850 W	100% - 615 W	100% - 615 W	100% - 475 W	100% - 475 W
Measured Field (*)		4 (A) x 1.8 (B) m	4 (A) x 0.5 (B) m	2 (A) x 2.5 (B) m	2 (A) x 1.4 (B) m	2 (A) x 1.8 (B) m	2 (A) x 1.0 (B) m
Canopy Distance to Fixture Uniformity		2 (C) m 98%	2 (C) m 97%	2 (C) m 95%	1 (C) m 90%	2 (C) m 98%	1 (C) m 90%

(*) referred to the measured field (A x B) image when a minimum of 4 fixtures units are installed at a certain height (C), for indoor growing operations with an excellent light uniformity of >90%.



Greenhouse Growing Micro Greens Stages LED Grow Light Strategies By LUMATEK		1050W GH TOP LIGHT LED (Red + Blue)		680W GH TOP LIGHT LED (Red + Blue)		680W GH TOP LIGHT LED (White + Red)		300W GH TOP LIGHT LED (Red + Blue)		100W GH Inter Light LED (Red + Blue)	
											
Efficacy PPF		3.4 $\mu\text{mol. J}^{-1}$	3570 $\mu\text{mol. s}^{-1}$	3.4 $\mu\text{mol. J}^{-1}$	2285 $\mu\text{mol. s}^{-1}$	2.9 $\mu\text{mol. J}^{-1}$	1945 $\mu\text{mol. s}^{-1}$	3.2 $\mu\text{mol. J}^{-1}$	985 $\mu\text{mol. s}^{-1}$	3.0 $\mu\text{mol. J}^{-1}$	300 $\mu\text{mol. s}^{-1}$
Average Inside Greenhouse DLI (Winter)		2 $\text{mol. m}^{-2} \text{d}^{-1}$ Netherlands	20 $\text{mol. m}^{-2} \text{d}^{-1}$ Spain	2 $\text{mol. m}^{-2} \text{d}^{-1}$ Netherlands	20 $\text{mol. m}^{-2} \text{d}^{-1}$ Spain	2 $\text{mol. m}^{-2} \text{d}^{-1}$ Netherlands	20 $\text{mol. m}^{-2} \text{d}^{-1}$ Spain	2 $\text{mol. m}^{-2} \text{d}^{-1}$ Netherlands	20 $\text{mol. m}^{-2} \text{d}^{-1}$ Spain	NA	NA
Sow to Production Supplemental Light Duration 16 ON / 8 OFF	Daily Light Integral (DLI) requirements (Min. Max.)	10 $\text{mol. m}^{-2} \text{d}^{-1}$	20 $\text{mol. m}^{-2} \text{d}^{-1}$	10 $\text{mol. m}^{-2} \text{d}^{-1}$	20 $\text{mol. m}^{-2} \text{d}^{-1}$	10 $\text{mol. m}^{-2} \text{d}^{-1}$	20 $\text{mol. m}^{-2} \text{d}^{-1}$	10 $\text{mol. m}^{-2} \text{d}^{-1}$	20 $\text{mol. m}^{-2} \text{d}^{-1}$	10 $\text{mol. m}^{-2} \text{d}^{-1}$	20 $\text{mol. m}^{-2} \text{d}^{-1}$
	Supplemental DLI Needed	8 $\text{mol. m}^{-2} \text{d}^{-1}$	0 $\text{mol. m}^{-2} \text{d}^{-1}$	8 $\text{mol. m}^{-2} \text{d}^{-1}$	0 $\text{mol. m}^{-2} \text{d}^{-1}$	8 $\text{mol. m}^{-2} \text{d}^{-1}$	0 $\text{mol. m}^{-2} \text{d}^{-1}$	8 $\text{mol. m}^{-2} \text{d}^{-1}$	0 $\text{mol. m}^{-2} \text{d}^{-1}$	8 $\text{mol. m}^{-2} \text{d}^{-1}$	0 $\text{mol. m}^{-2} \text{d}^{-1}$
	Supplemental Light Intensity Needed (PPFD)	140 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	0 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	140 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	0 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	140 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	0 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	140 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	0 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	140 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	0 $\mu\text{mol. m}^{-2} \text{s}^{-1}$
	Measured Field (*)	4 (A) x 6 (B) m	NA	4 (A) x 4 (B) m	NA	4 (A) x 3 (B) m	NA	4 (A) x 1.5 (B) m	NA	NA	NA
	Canopy Distance Uniformity	4 (C) m 91%	NA	3 (C) m 96%	NA	3 (C) m 98%	NA	3 (C) m 91%	NA	To install in canopies	To install in canopies
Dimming (Power Consumption)		100% - 1050 W	0% - 0 W	100% - 680 W	0% - 0 W	100% - 680 W	0% - 0 W	100% - 310 W	0% - 0 W	100% - 100 W	100% - 100 W

(*) referred to the measured field image when a minimum of 4 fixtures units are installed.

Indoor Growing Micro Greens Stages LED Grow Light Strategies By LUMATEK		i850W Top Light Full-Spectrum LED (400V)		ZEUS 600W PRO 2.9		ZEUS 465W PRO 2.9	
							
Efficacy PPF		3.4 $\mu\text{mol. J}^{-1}$	3570 $\mu\text{mol. s}^{-1}$	2.9 $\mu\text{mol. J}^{-1}$	1770 $\mu\text{mol. s}^{-1}$	2.9 $\mu\text{mol. J}^{-1}$	1353 $\mu\text{mol. s}^{-1}$
Sow to Production	Light Intensity Needed (PPFD) (Min. Max.)	180 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	350 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	180 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	350 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	180 $\mu\text{mol. m}^{-2} \text{s}^{-1}$	350 $\mu\text{mol. m}^{-2} \text{s}^{-1}$
Supplemental Light Duration 16 ON / 8 OFF	Dimming (Power Consumption)	100% - 850 W	100% - 850 W	100% - 615 W	100% - 615 W	100% - 475 W	100% - 475 W
Measured Field (*)		4 (A) x 4 (B) m	4 (A) x 1.5 (B) m	4 (A) x 2.5 (B) m	2 (A) x 2 (B) m	2 (A) x 3 (B) m	2 (A) x 1.2 (B) m
Canopy Distance to Fixture Uniformity		3 (C) m 98%	2 (C) m 97%	2.5 (C) m 95%	2.5 (C) m 98%	2 (C) m 92%	2 (C) m 95%

(*) referred to the measured field (A x B) image when a minimum of 4 fixtures units are installed at a certain height (C), for greenhouse growing operations with an excellent light uniformity of >90%.



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WHY LED?

UNIQUE LIGHT SPREAD, COVERAGE

AND UNIFORMITY: Lumatek LEDs will ensure an optimal coverage in which photons are delivered uniformly throughout the entire canopy, avoiding PPFD discrepancies on all footprints.

BENEFITS INCLUDE ENERGY SAVINGS

Lumatek LED solutions demonstrate the potential to save 40-60% on electricity and studies indicate that LED-lit canopies can generate more yield per kWh.

PLANT AND CROP PERFORMANCE

Initial studies indicate growers using LED lighting may experience yield increases and changes in cannabinoid and terpene profiles, leading to more consistent medicinal product profiles from harvest to harvest.

FLEXIBLE LIGHT INTENSITY

Lumatek LEDs can be dimmed to adjust PPF level to suit crop and growth stage without changing spectral power distribution or losing efficiency

FINEST LIGHT SPECTRUM

Light Quality is a crucial area when developing our complete LED range. We offer an outstanding Full-Spectrum for full-cycle indoor solutions and specific Spectrums for Greenhouse, Nurseries, Vertical Farming and Supplemental Light applications.

REDUCED HVAC

Lumatek LEDs are highly efficient and less wattage equals less heat into the space, allowing for potentially lower HVAC loads and operating expense.

SAFETY

Lumatek LED drivers are intelligent and feature full circuit protection including over/under voltage, short circuit and over temperature protection. Lumatek Zeus LED drivers also feature auto-power increase/decrease to match the amount of light bars connected to fixture.

All Lumatek LED fixtures are CE certified LVD and EMC compliant.

LESS MAINTENANCE

Lumatek LEDs are rated for 60,000 hours use supported by a market leading 5 Year warranty.



LED PRODUCT OVERVIEW

@230 V AC

@400 V AC

INDOOR LED

Efficacy [μmol/J]	Output PPF [μmol/s]	AC Power [W]	AC Current [A]	Efficacy [μmol/J]	Output PPF [μmol/s]	AC Power [W]	AC Current [A]	L x W x H [mm]	Weight [Kg]	Ingress Protection	Lifetime [L90]	Warranty [Years]
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i850W Top Light Full - Spectrum LED

2.6 2250 857 3.7

2.7 2295 850 2.1

730 x 325 x 112 13.0 IP65 >60000 5

ZEUS 1000W Xtreme CO2

2.9 2925 1021 4.6

3.0 3113 1020 2.7

1091 x 1182 x 106 18.0 IP65 >60000 5

ZEUS 1000W PRO

2.9 2945 1025 4.8

3.0 3113 1023 2.9

1700 x 1219 x 48 13.5 IP65 >60000 5

ZEUS 600W PRO 2.9

2.9 1770 615 2.9

3.0 1875 612 1.6

1091 x 1182 x 52 13.5 IP65 >60000 5

ZEUS 465W PRO 2.9

2.9 1353 475 2.2

3.0 1395 465 1.2

998 x 900 x 52 10.0 IP65 >60000 5

ZEUS 600W 2.6

2.6 1570 615 2.7

2.7 1650 612 1.7

1091 x 1182 x 52 13.5 IP65 >60000 5

100W Full-Spectrum Individual Bar

2.9 295 102 0.5

- - - -

1148 x 20 x 53 1.10 IP65 >60000 5

30W UV LED Bar

- - 30 0.1

- - - -

1000 x 48 x 42 1.20 IP65 >8500 1

VF120W

2.4 308 130 0.6

2.5 320 128 0.3

1207 x 521 x 21 2.10 IP65 >60000 3

VF90W

2.4 244 103 0.4

2.5 250 100 0.2

1207 x 521 x 21 1.72 IP65 >60000 3

GREENHOUSE LED

Efficacy [μmol/J]	Output PPF [μmol/s]	AC Power [W]	AC Current [A]	Efficacy [μmol/J]	Output PPF [μmol/s]	AC Power [W]	AC Current [A]	L x W x H [mm]	Weight [Kg]	Ingress Protection	Lifetime [L90]	Warranty [Years]
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1050W GH TOPLIGHT LED (Red+Blue)

- - - -

3.5 3675 1054 2.7

730 x 325 x 112 13.0 IP65 >50000 3

680W GH TOPLIGHT LED (Red+Blue)

- - - -

3.4 2285 670 2.0

654 x 254 x 118 8.80 IP65 >50000 3

680W GH TOPLIGHT LED (White+Red)

- - - -

2.7 1805 670 2.0

654 x 254 x 118 8.80 IP65 >50000 3

300W GH TOPLIGHT LED (Red+Blue)

- - - -

3.2 985 310 0.8

1281 x 59 x 89 4.20 IP65 >50000 3

100W GH INTER LIGHT LED (Red+Blue)

- - - -

3.0 300 105 0.3

2300 x Ø61 2.80 IP66 >50000 3

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ARTIFICIAL LIGHT SOURCE NOMENCLATURE

DLI [$\text{mol}/\text{m}^2/\text{d}$] – Daily Light Integral, relation with light intensity (PPFD) with the lighting duration (photoperiod) over a day. Used to measure PAR per area per day.

Efficacy – It traduces the ability of grow light's to turn electricity into usable photons to trigger plants photosynthesis.

Photosynthesis – Physical and chemical process where plant convert light, water and carbon dioxide into oxygen and energy in the form of sugar.

Photoperiod – duration of the daily light perceived by a plant, commonly used to describe the light schedules to be used on short, long, or neutral day plants.

PAR – Photosynthetically Active Radiation referred to the region where plants perceived light with wavelengths from 400 nm to 700 nm.

PPF [$\mu\text{mol}/\text{s}$] – Photosynthetic Photon Flux describes the total amount of photons within the PAR spectrum produced by a light source.

PPFD [$\text{mol}/\text{m}^2/\text{s}$] – Photosynthetic Photon Flux Density describes the total amount of produced photons from a light source within the PAR region that falls in a square meter per each second.

PPE [$\mu\text{mol}/\text{J}$] – Photosynthetic Photon Efficacy it specifies PAR per Joule or PAR per Watt per second.

Power Consumption [kW/h] – electrical power of a light source consumed to convert electricity into usable photons in one hour. A light source that consumes 1000 W (1 kW – kilo Watt) for an hour.

Spectrum – Describes the ration of the different wavelengths (or colours) produced by a light source.

Ultraviolet [UV] – Range of wavelenghts between 100 nm and 400 nm that is divided into three bands, UVC (100-280 nm), UVB (280-315 nm) and UVA (315-400 nm).



KNOW OUR HID RANGE

Lumatek has been a world leading manufacturer of Electronic Ballasts since 2004

The Lumatek digital ballasts and HID fixtures provide a stable precise voltage to the lamp creating a higher PAR/PPF output and yet is far more energy efficient than most other ballasts on the market. Featuring intelligent start up and soft-dimming facility, our HID units run extremely efficiently, generating much less heat than other conventional ballasts and run silently. It also features full circuit protection, including open/short circuit, over temperature, over/low voltage, end of lamp life/rectification, EMI/EMC suppression and CE certification.

- **PRODUCE LESS HEAT**

Less heat generated by the E-Ballasts/Fixtures makes temperature control easier and allows cooler running of the environment.

- **FAST START-UP**

Lumatek E-Ballasts/Fixtures will reach full brightness in under one minute.

- **LONGER BULB LIFE**

Lumatek E-Ballasts/Fixtures output over time, will preserve the lamp's lifetime.

FULLY INTERCHANGEABLE

Lumatek E-Ballasts can light HPS, MH and CMH bulbs up to 1000 W.

- **STABLE LIGHT OUTPUT**

Excellent for pharmaceutical-agriculture, laboratories and other uses where precise regularized output is essential.

- **FULL CIRCUIT PROTECTION**

Automatically monitor and protect against open/short circuit, over temperature, over/low voltage, end of lamp life/rectification for ultimate safety.

- **SMALL COMPACT DESIGN**

Lumatek 600 W 240 V E-Ballast only weighs 3 Kg.

- **COMPLETELY SILENT**

No noise or vibration of any kind.



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HELPING GROWERS GROW



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