GROW MORE INVEST LESS

excite

A GUIDE TO EXCITE LED GROW LIGHTS 2018

WWW.EXCITELED.CO.UK

At excite, we're not just inventors: we're growers ourselves. We understand the importance of utilizing grow lights to provide the precision, flexibility, and performance needed to succeed with your crop. From the sophisticated housing design keeping the high-efficiency LEDs cool - to the systems used to control color spectra - our uniquely designed and engineered grow lights give both hobby and professional growers a more than valuable advantage.

FIRST-CLASS PERFORMANCE

High-end solutions that deliver your desired PPFD levels with precision.

SCALABLE ILLUMINATION

Modular design allowing for uniform canopy coverage in various farming applications.

MAXIMUM EFFICIENCY

Industry-leading system efficacies. More light, less heat, increased yield.

ZERO MAINTENANCE

Through the 80'000 - 100'000 hour lifespan no maintenance or bulb change is needed.

PASSIVE COOLING

Noise-less system for most reliable operation. Stunning design, lightweight materials.

SPECTRUM CONTROL

Use the full spectrum blend or light recipes to manipulate your crop's growth pattern.

UPGRADEABILITY

Superior platform design allows upgrades with new technology releases.

PROFITABILITY

Make more money: improved PPF/Watt allows for more yield with less costs.

GROW
BEAUTIFUL PLANTS

excite Horticultural Lights are designed to promote plant growth, improve crop quality and yield, and reduce the length of your growing cycle, all at significantly lower operation costs than any other technology on the market.

excite Grow Lights are equipped with a selection of the highest-efficiency LEDs out there: as a result, your plants will enjoy high light levels at the lowest consumption of power possible today. Crafted from the highest-quality aluminum, the sophisticated and aerodynamic design of our lights also serve as a passive cooling mechanism. Our electrical and thermal designs aim for the highest performance and optimum efficiency simultaneously. Heat and noise are reduced to zero: while the reliability and durability of components are guaranteed. Even after several 10,000 hours of operation, the brightness remains at more than 90%.

ALL OUR FIXTURES OPERATE WITH PASSIVE COOLING.

NOISELESS, WATERPROOF AND DURABLE.

SAFE AND ENVIRONMENTALLY FRIENDLY

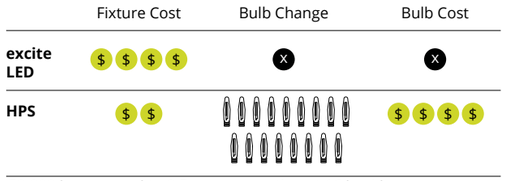
In comparison to traditional lighting systems, well-designed LED lighting systems provide more light at lower energy consumption. The lifespan is rated at least at 80'000 hours (8 years, when operating during 16h a day) until light output decreases by 20%. In addition, LEDs are environmentally friendly: they are the only lighting technology that does not contain toxic metals such as mercury (as found in High Pressure Sodium and Metal Halide grow lamps).

PERFORMANCE ENGINEERED

To provide the most efficient holticultural light system on the market, we rely on top-of-the-line technology components from the best-in-class manufacturers. On top of that we assemble all our products in Zurich, Switzerland and under strict quality control.

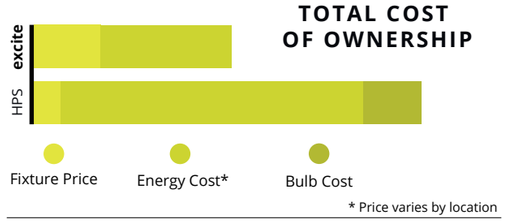
Our Grow Lights provide maximum light output at the lowest expense: all through value-driven engineering and resulting in stronger plants and reduced cooling and maintenance costs. Our lighting systems are designed to operate passively cooled, while running at lower temperatures to ensure a higher lifetime of the system. Superior system efficacies are achieved, outperforming all other conventional lighting technologies.

HOW MUCH WILL THE OPERATION AT 50'000 HOURS COST?



50.000 hours equal to 8.5 years operation at 16 hrs/day

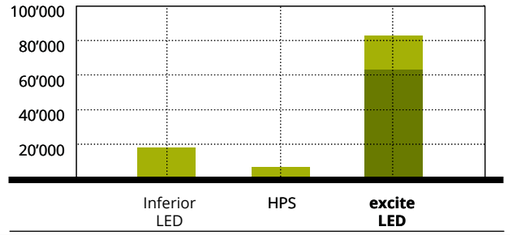
TOTAL COST OF OWNERSHIP

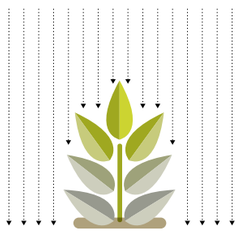


* Price varies by location

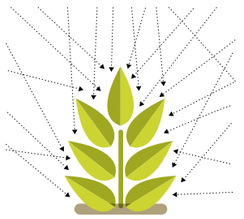
HOW MUCH LIGHT IS GENERATED PER WATT CONSUMED (PPF/WATT)?

HOW LONG DOES THE LIGHT SOURCE MAINTAIN BRIGHTNESS?





DIRECT LIGHT



DIFFUSED LIGHT

UNIFORM COVERAGE

Even, uniform light coverage and canopy penetration is important when cultivating in closed environments. When using only one single LED fixture, hot spots are created over the canopy, and the light source penetrates only a portion of the growing area. This does not provide sufficient light for photosynthesis in all plants, leading to uneven growth pattern and water uptake of the plants. However, by using multiple light sources spread over the canopy, leaves can be illuminated from all sides: thus minimizing shadows, and increasing photosynthesis rate.

excite LED Grow Lights are designed to illuminate your canopy effectively, ensuring that plants receive the right amount of energy at all growth stages and covering the highest leaf surface area possible. Our product range is adaptable to any gardening area: from small home indoor gardens to large growing facilities and greenhouses.

PROVEN SPECTRUM

Plants rely on photosynthesis to produce glucose for their cellular respiration, they achieve this using chlorophyll in photosystems I & II. At excite, we understand that the Emerson Enhancement Effect allows for stronger plant growth by combining different wavelengths in our spectrum blend - just like nature intends with sunlight. The output spectrum of our lights follow the McCree (1972) curve of photosynthetically active radiation, exciting photopigments and carotenoids, and ultimately creating the most efficient plant lighting spectrum.

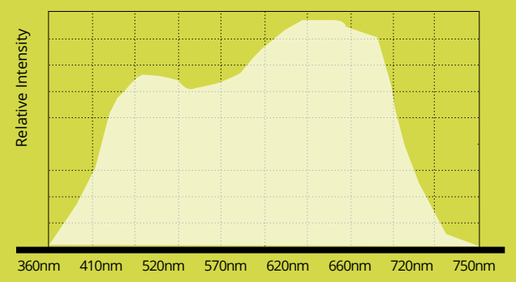
SCIENCE OF THE SPECTRUM

Blue light is experienced in high intensities at midday, a time of day that is usually the peak of light exposure and heat. In many plants, high intensities of blue light cause chlorophylls to migrate to the bottom of the cell for shielding, thus causing reduced leaf internodal length; this in turn promotes compact, bushy growth. Further, blue light stimulates the production of flavonoids and carotenoids, adding more to the taste and texture of your crops.

Red light is another main contributor to photosynthesis. Similarly to blue, it produces unique results in plant physiology: red induces some of the fastest and tallest growth in plants. If you wish to size up plants quickly, using a red-dominant spectrum gives you great results and tall plants with longer internodes. Far-red is also used by phytochromes in plant photosynthesis to control circadian rhythm and shade avoidance mechanisms.

Green light penetrates deeper into the plant - further than red and blue - and provides additional photosynthesis beyond red/blue top leaf saturation. As seen in the below McCree curve, all wavelengths from 350nm-750nm promote photosynthesis. Photopigments and carotenoids use green light to push photosynthesis the farthest it can go, making a balanced full spectrum available for the very best light a plant can get.

MCCREE ACTION SPECTRUM



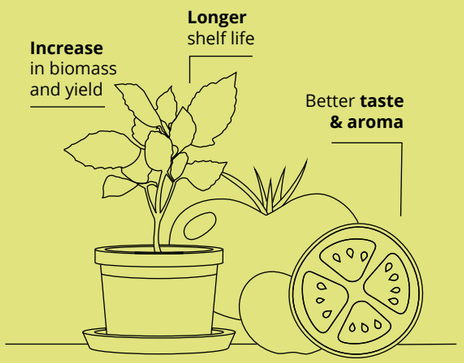
TAKE CONTROL

Many plants use circadian rythm influencers from light such as the photoperiod (length of light in a day), phytochrome status (balance of red to far-red light), cryptochrome (blue light response) and heliochrome (green to far-red ratio). These systems help define seasons (as well as temperature) for plants to know how to grow in the specific way you intend: flowering, fruiting, vegetative growth or reproduction.

In essence, the more control you have over the color spectrum, the more control you have of your operation! Induce fruiting and flowering all year round, or grow short or tall plants -- all this is possible with our iSpectrum and iSpectrum Pro.

Join the horticultural revolution!

ACCELERATES GROWTH UP TO 40%



Increased revenue, energy savings and efficient use of resources (water, nutritions).

excite fSPECTRUM

The f(ixed)Spectrum high-intensity lighting is packed with high-efficency components and a state-of-the-art design. The fSpectrum is tailored towards the hobby and professional growers who are seeking for an affordable yet high-end lighting system.

FEATURES

Best-in class efficiency components

Plug and Play assembly

Large-scale lighting control (on request)

Modular design & scalability

Silent operation

IP55-rated waterproof design

FACTS

fSpectrum consuming 84W is an effective replacement for up to 200W of HPS or 250W of Fluorescent.

4 fSpectrum fixtures (336W) arranged on one meter square (3x3 ft) outperform a 600W HPS by harvest quality and yield.

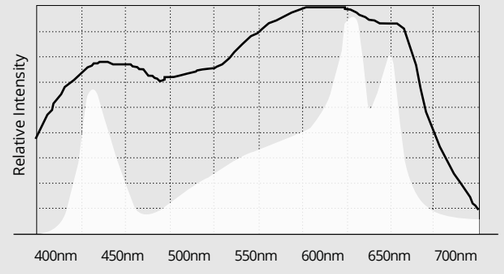
SPECIFICATIONS

Dimensions	280 × 250 × 60 mm (11.0” × 9.8” × 2.4”)
Weight	2.2 KG (4.9 LBS)
Operating Temperature	0 - 38 °C (32 - 100 °F)
Cooling	Passive, free-air convection
Warranty	3 Years
Certifications	CE, RoHS, IP55

PPF Output	226 µmol/s
Power Consumption	84 Watt
System efficiency	2.7 µmol/J
Wavelength Range	400-740 nm
Voltage Range	100-240V AC @ 50-60 Hz
Operating Current	110V: 1.2A, 240V: 0.6A

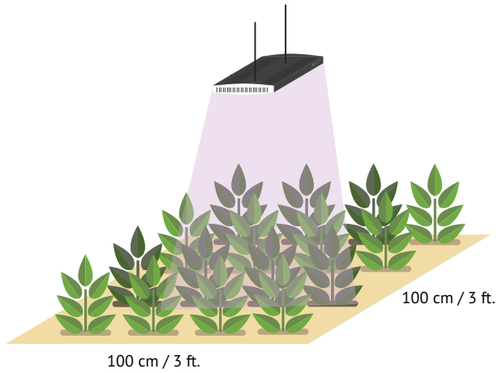
SPECTRUM OUTPUT

FIXED OUTPUT SPECTRUM



The spectrum ranges from 400-740nm and and accomodates all plant light needs in various growth stages, from seed to harvest. The pure white light’s unmatched intensity provides a balanced mix of all spectral colors for vigorous growth.

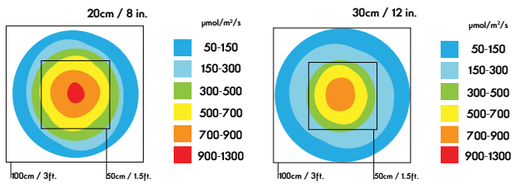
PERFORMANCE METRICS

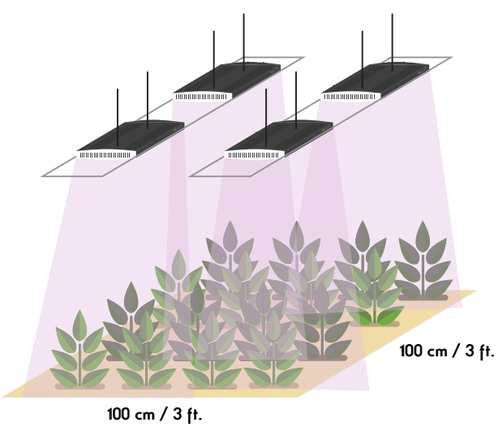


PERFORMANCE:

PPF: 226 µmol/s (2.7 PPF/W)

PPFD MAP:

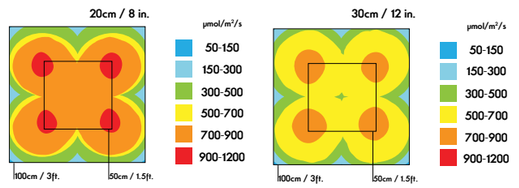




PERFORMANCE:

PPF: 904 µmol/s (2.7 PPF/W)

PPFD MAP:



excite iSPECTRUM

The iSpectrum features an individualisable dual-channel spectrum, GROW & BLOOM. The easy adjustment of the output spectrum is designed to allow hobby and professional growers to manipulate their plants morphology at all stages and for all species.

FEATURES

Best-in class efficiency components
Individualisable dual spectrum
GROW & BLOOM dimmable from 0-84W
Automatic soft-start
Plug and Play assembly
Modular design & scalability
Silent operation
IP55-rated waterproof design

AUTO SOFT-START

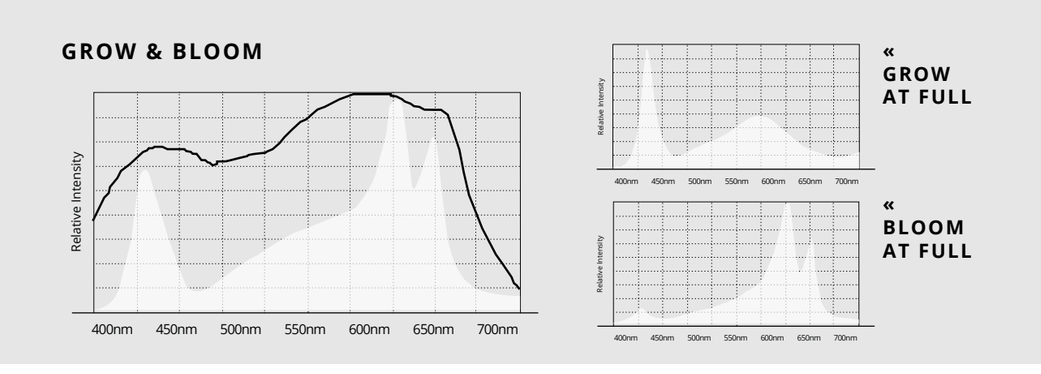
When the lamps turn on and the photoperiod is started, the iSpectrum fixture smoothly increases the light intensity like sunrise, reducing light stress in your plants due to excess light, and in turn increasing photosynthesis rate in the morning hours.

SPECIFICATIONS

Dimensions	280 × 250 × 60 mm (11.0" × 9.8" × 2.4")
Weight	2.2 KG (4.9 LBS)
Operating Temperature	0 - 38 °C (32 - 100 °F)
Cooling	Passive, free-air convection
Warranty	3 Years
Certifications	CE, RoHS, IP55

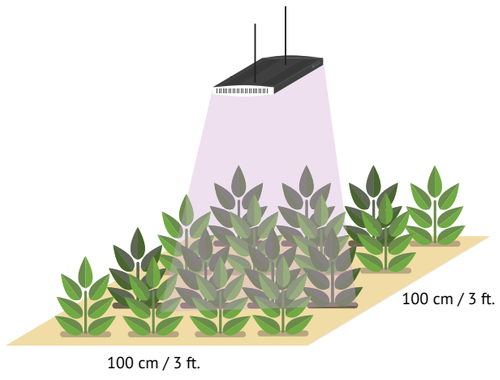
PPF Output	219 µmol/s
Power Consumption	0-84 Watt
System efficiency	2.6 µmol/J
Wavelength Range	400-740 nm
Voltage Range	100-240V AC @ 50-60 Hz
Operating Current	110V: 1.2A, 240V: 0.6A

SPECTRUM OUTPUT



Make use of GROW & BLOOM channels to take control of growth characteristics in your plants. Use GROW for seedlings and small plants, and accelerate growth by providing the BLOOM spectrum as your plants mature. Finally, use only GROW in the last week prior to harvest in order to improve the taste of your crop.

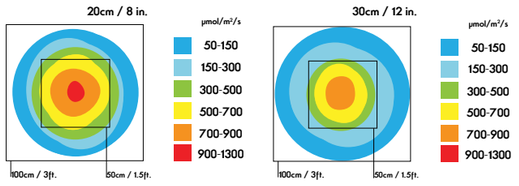
PERFORMANCE METRICS

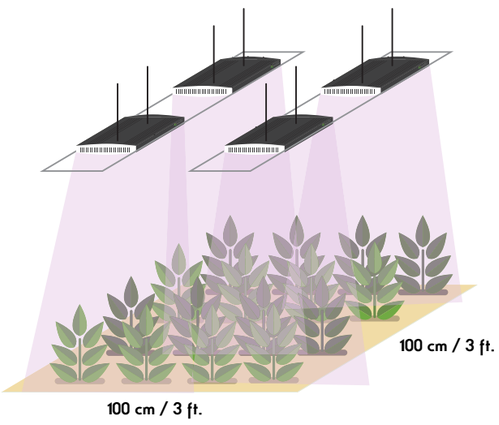


PERFORMANCE:

PPF: 219 µmol/s (2.6 PPF/W)

PPFD MAP:

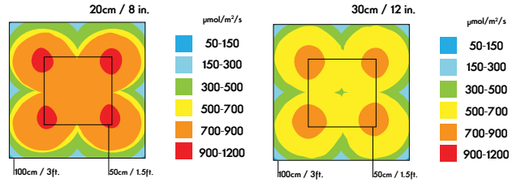




PERFORMANCE:

PPF: 876 µmol/s (2.6 PPF/W)

PPFD MAP:



excite

excite fSPECTRUM+

With high quality packed into oustanding product design, the fSpectrum+ outperforms all commercial grade lighting systems available on the market: reaching a system efficiency of 2.9 µmol/J. The high intensity is aimed for growing high light plants with elevated CO^2 conditions from start to finish.

FEATURES

Market-leading system efficacy

Best-in class efficiency components

Large-scale Lighting Control (on request)

Plug and Play assembly

Modular design & scalability

Silent operation

IP55-rated waterproof design

FACTS

4 fSpectrum+ 125W modules on one meter square serve as a superior replacement to a double-ended 1'000W HPS, providing full penetration of the canopy without excessive heat.

10% more yield while reducing electricity by more than 50%.

The fSpectrum+ outperforms any other lighting source on the market by means of performance and efficiency.

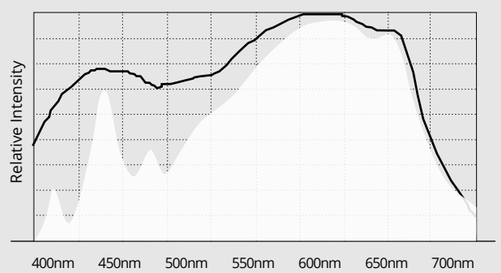
SPECIFICATIONS

Dimensions	280 × 250 × 60 mm (11.0" × 9.8" × 2.4")
Weight	2.2 KG (4.9 LBS)
Operating Temperature	0 - 35 °C (32 - 94 °F)
Cooling	Passive, free-air convection
Warranty	3 Years
Certifications	CE, RoHS, IP55

PPF Output	363 µmol/s
Power Consumption	125 Watt
System efficiency	2.9 µmol/J
Wavelength Range	400-740 nm
Voltage Range	100-240V AC @ 50-60 Hz
Operating Current	110V: 1.6A, 240V: 0.8A

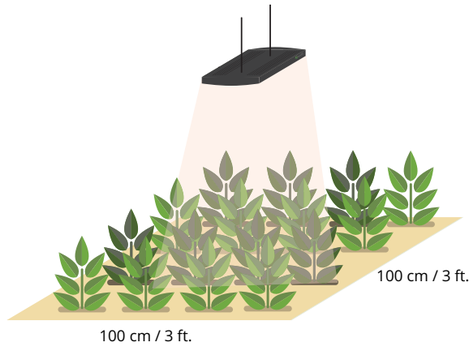
SPECTRUM OUTPUT

FIXED OUTPUT SPECTRUM



The wide output spectrum provides all plant light needs in various growth stages, from seed to harvest. The pure white light's unmatched intensity provides a balanced mix of all spectral colors for vigorous growth, increased terpene production and overall more resilient crops.

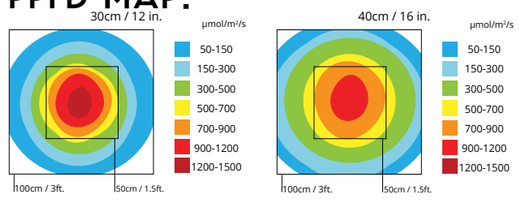
PERFORMANCE METRICS

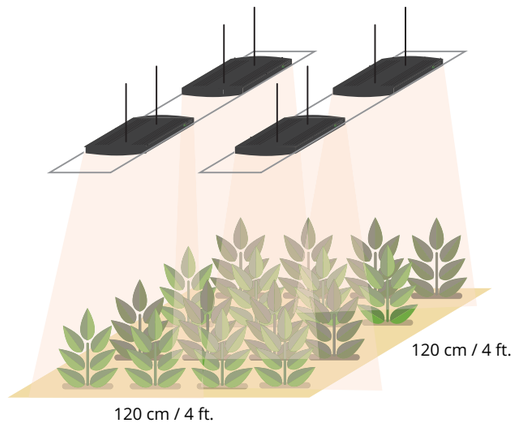


PERFORMANCE:

PPF: 363 µmol/s (2.9 PPF/W)

PPFD MAP:

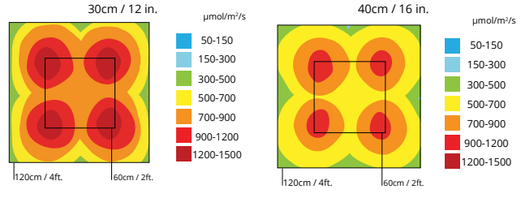




PERFORMANCE:

PPF: 1.452 µmol/s (2.9 PPF/W)

PPFD MAP:



excite iSPECTRUM+

Besides its outstanding performance, the iSpectrum+ features an intelligent soft-start and dual-channel spectrum control. The easy adjustment of the output spectrum is designed to allow growers to control all plant species at all stages. The high intensity is aimed for high light plants under elevated CO^2 conditions.

FEATURES

Best-in class efficiency components
Individualisable dual spectrum
GROW & BLOOM dimmable from 0-125W
Automatic soft-start
Plug and Play assembly
Modular design & scalability
Silent operation
IP55-rated waterproof design

GROW & BLOOM

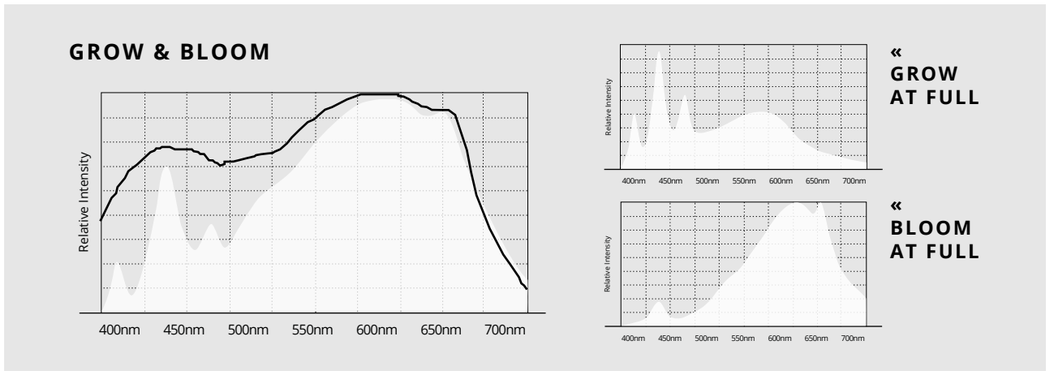
When a single channel is used independently, the light intensity can be set to maximum 125W. As soon as the second channel is turned on, the iSpectrum/ iSpectrum+ automatically adjusts the intensity ratio of the two channels, allowing the grower to individualise any ratio between GROW & BLOOM spectrum to up to 125W.

SPECIFICATIONS

Dimensions	280 × 250 × 60 mm (11.0" × 9.8" × 2.4")
Weight	2.2 KG (4.9 LBS)
Operating Temperature	0 - 35 °C (32 - 94 °F)
Cooling	Passive, free-air convection
Warranty	3 Years
Certifications	CE, RoHS, IP55

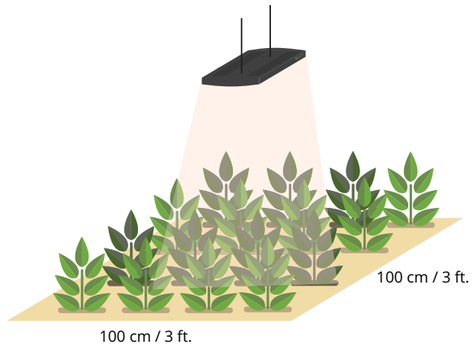
PPF Output	350 µmol/s
Power Consumption	125 Watt
System efficiency	2.8 µmol/J
Wavelength Range	400-740 nm
Voltage Range	100-240V AC @ 50-60 Hz
Operating Current	110V: 1.6A, 240V: 0.8A

SPECTRUM OUTPUT



Make use of GROW & BLOOM channels to take control of growth characteristics in your plants. Use GROW for seedlings and small plants, and accelerate growth by providing the BLOOM spectrum as your plants mature. Finally, use only GROW in the last week prior to harvest in order to improve the taste of your crop.

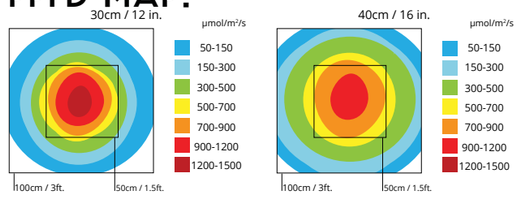
PERFORMANCE METRICS

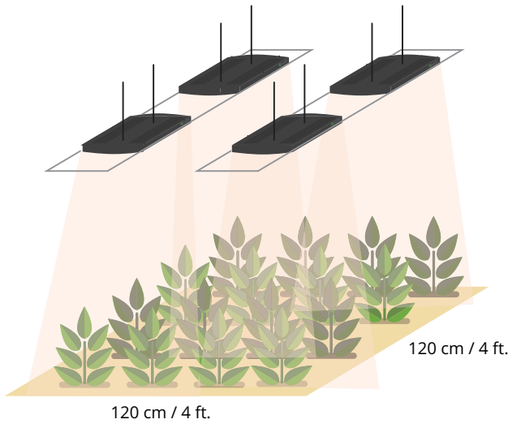


PERFORMANCE:

PPF: 350 µmol/s (2.8 PPF/W)

PPFD MAP:

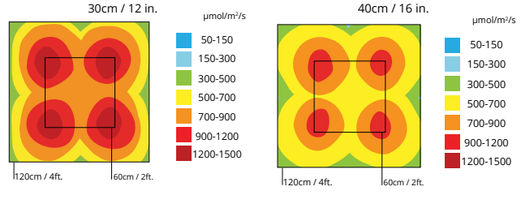


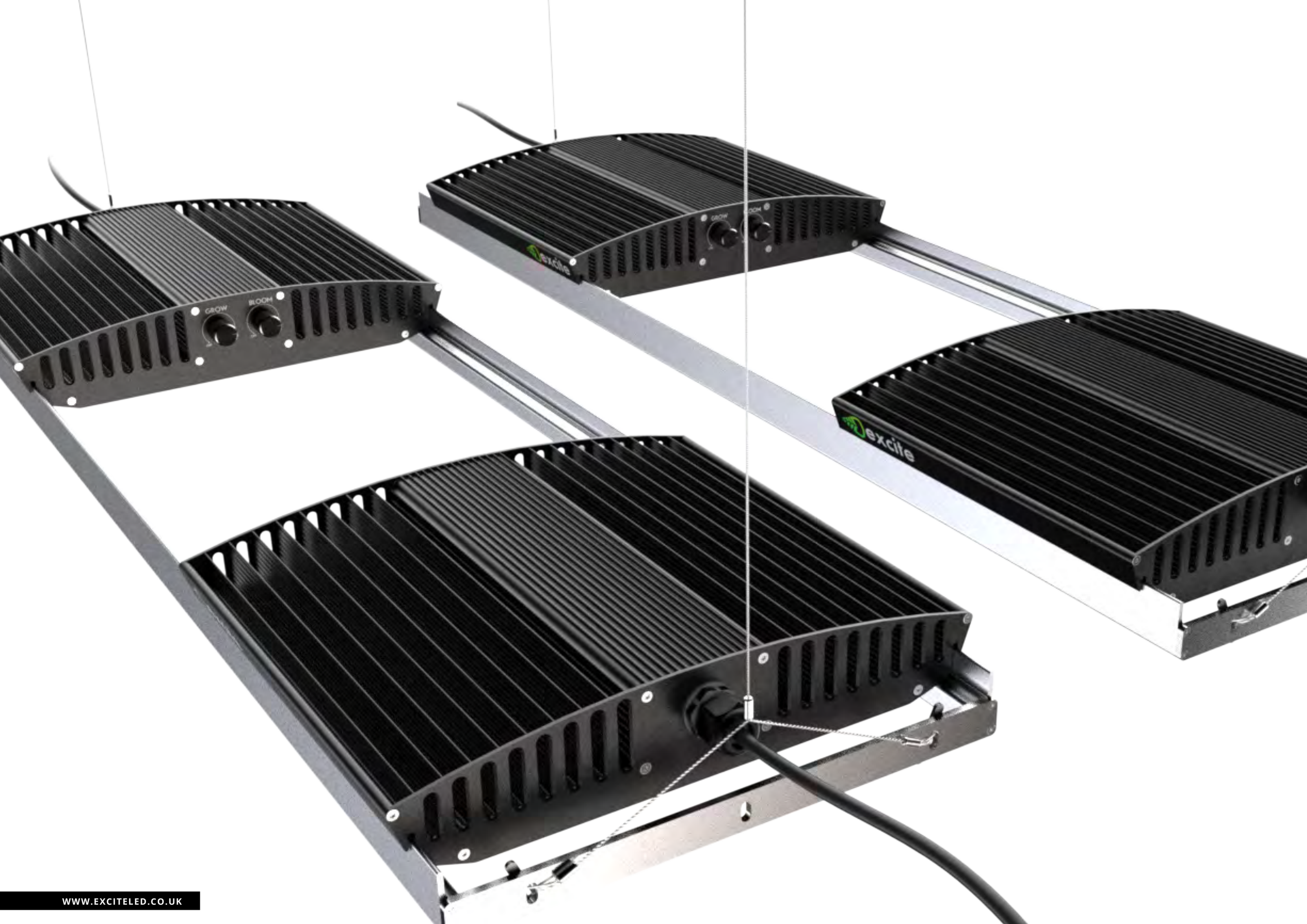


PERFORMANCE:

PPF: 1.400 µmol/s (2.8 PPF/W)

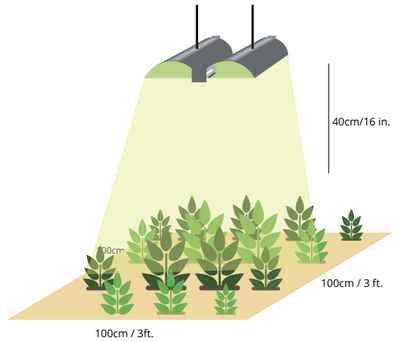
PPFD MAP:



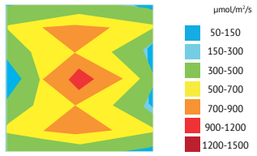

GROW
BLOOM
excite

CONVENTIONAL LIGHTING COMPARISON

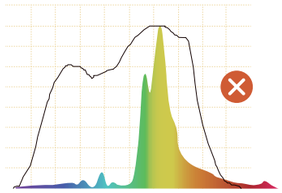
600W HIGH-PRESSURE SODIUM LAMP (HPS)



PPFD MAP

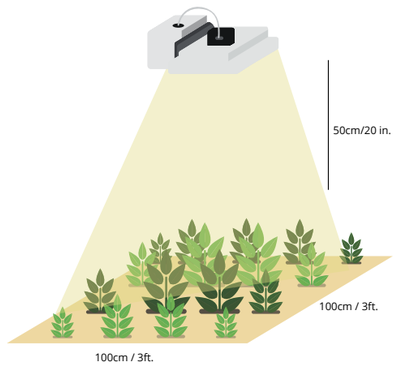


SPECTRUM



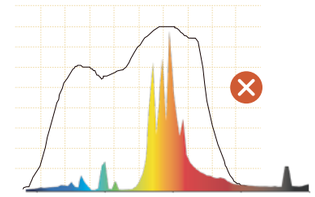
PPF: 840µmol/s (1.4 PPF/W)

1000W DOUBLE-ENDED HPS LAMP (DE HPS)



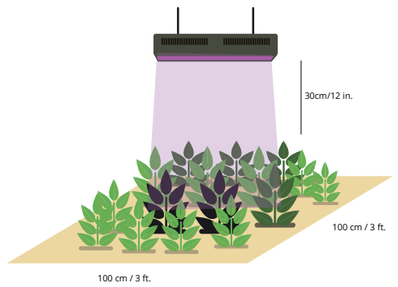
PPFD MAP

SPECTRUM

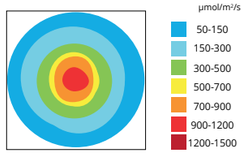


PPF: 1’700 µmol/s (1.7 PPF/W)

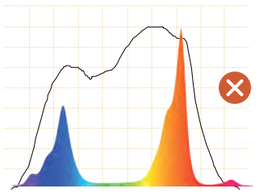
500W ORDINARY LED GROW LIGHT



PPFD MAP



SPECTRUM



PPF: 600 µmol/s (1.2 PPF/W)

HORTICULTURAL LIGHTING TERMS

PAR

Photosynthetically active radiation (PAR) is a biological term describing the part of the electromagnetic radiation spectrum (light) that is useful for plants to photosynthesize. PAR defines the spectral wavelength range between 400-700 nanometers (nm), whereas the actual measurements of the light are represented in PPF and PPFD.

PPF/WATT

The PPF/Watt ratio provides a clear picture of the overall electrical efficiency of a plant lighting system. How much of plant-beneficial light is converted by the system per Watt? Superior LED technology can reach potentially to more than 3 PPF (µmol/s)/Watt, while in comparison a 1’000W High Pressure Sodium (HPS) can reach only up to 1.7 PPF/Watt.

PPF

Photosynthetic Photon Flux (PPF) measures the total light output (photons) emitted by a plant lighting system. PPF provides the amount of photosynthetically active radiation (PAR) emitted per second and is therefore measured in µmol/s (micromoles per second). PPF, however, does not provide information on the amount that arrives to the plant.

PPFD/WATT

The PPFD/Watt ratio is the the most important term in evaluating the effectiveness of a lighting system on the canopy (besides the PPF/Watt efficiency). This is the most important ratio to know as the delivered PPF (PPFD) is very important in horticulture and is measured over at least several points over the over plant canopy (excite PPFD measurements are taken at 180 spots over the canopy).

PPFD

Photosynthetic Photon Flux Density (PPFD) expresses the amount of light that reach the plants per second. PPFD is measured in micromoles per square meter per second (µmol/m^2/s). Because PPFD is a measurement of a specific location on the plant canopy, it is crucial to know the average PPFD on a given surface.

LUMENS & LUX

Lumens and Lux (lumens/m^2) are standard units for the luminous flux of a light source and are used by general lighting designers. The luminous flux is the part of the power which is perceived as light by the human eye, and is based upon our eye sensitivity at 555 nm. Therefore Lumens and Lux do not provide a comprehensive picture for horticultural applications.

ABOUT excite

Combining Science With Technology

excite is a Zurich-based electronics manufacturing company. The professionals comprising our expert team combine their years of experience in the LED lighting and horticultural industries with vision, creativity, and passion - bringing you LED horticultural lights that both represent and push the modern frontier.

Our commitment: empowering the horticultural industry by exceeding current standards of quality, pricing, plant growth results, and all previous possibilities.

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SWISS MADE