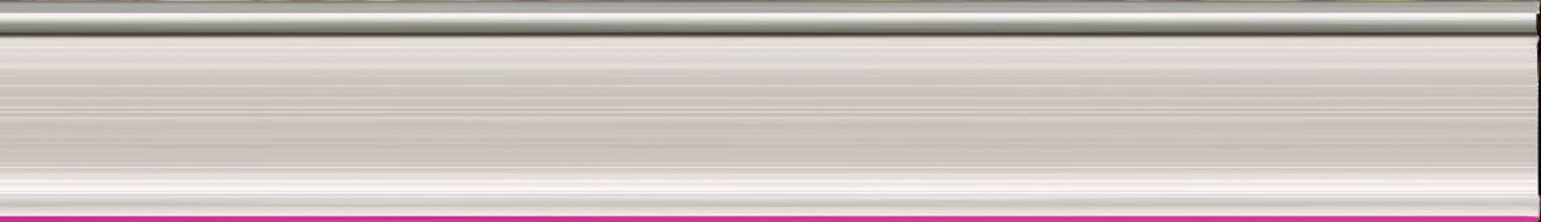


THROUGH LIGHT, COMES LIFE |




LED Horticultural Light



“ The NutriLED lights are an integral component to our operation. We have experienced a 25% increase in germination rates, and the quality of the seedlings translates through to the mature plants. ”

-Ryan Oates
Tyger River Farm, SC

An evolution in the world of horticultural lighting.

The science of horticulture is advancing. A more efficient and effective means to increase yield and quality is now available. The NutriLED lighting system is part of the answer. The NutriLED uses solid state LED lighting providing fine tuned light optimizing growth rate and yield. The NutriLED also provides financial benefits by reducing energy consumption and maintenance costs, making it a winning solution for your growing needs.



Hydroponic Grow-house: Tyger River, South Carolina



ENDLESS POSSIBILITIES

NutriLED emits ideal mixes of red, blue and far red light wavelengths in the proper intensities for different growth stages, making it the best solution for virtually any horticultural controlled environment.

OFFERING

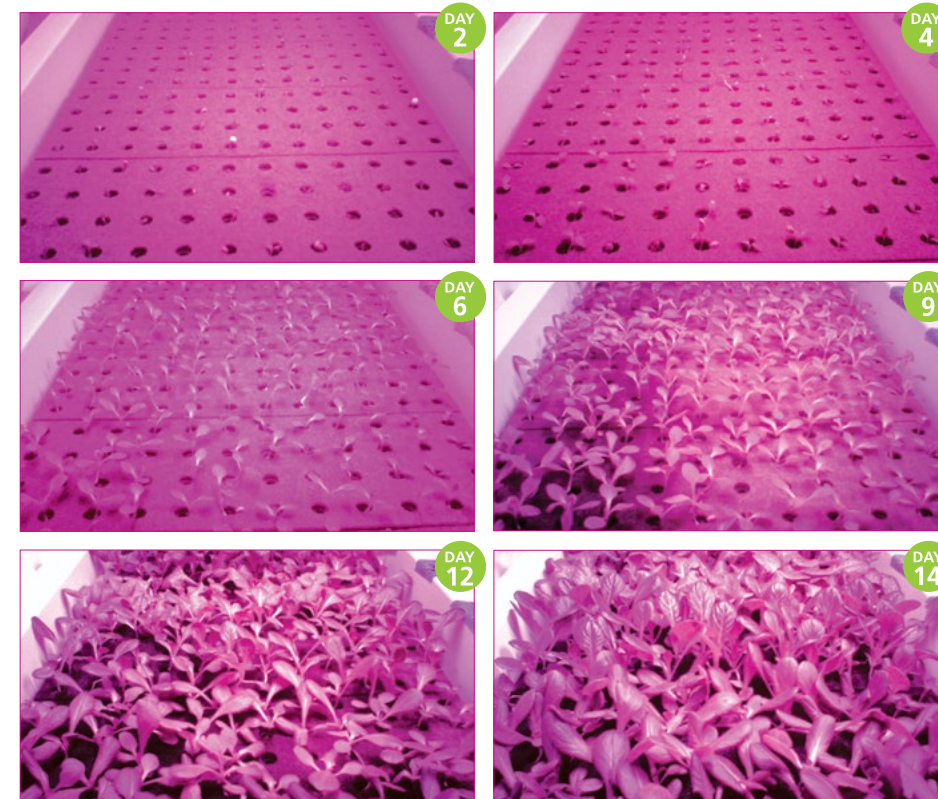
| SIZES | SPECTRUM | CONFIGURATIONS |
|-------|----------------|-----------------------|
| 2' | FLOWERING MIX | ONE-BAR |
| 4' | VEGETATIVE MIX | FOUR-BAR SEVEN-BAR |



Seed Germination | Propagation | Tissue Culture | Medical | Urban Farming

“At Clemson University’s Department of Plant and Environmental Sciences, we consistently engage in experiments designed to advance the greenhouse industry at large. We recently conducted an experiment with poinsettias to identify the precise moment when they begin to flower and we used NutriLED to ensure our plants would grow as if they were in their natural environment. This innovative technology was a key factor in our ability to guarantee the integrity of the experiment. Our plants thrived during the experiment because they received the appropriate amount of light. There’s no shortage of opportunities to use NutriLED to help us in future agriculture experiments.”

Dr. James Faust, Associate Professor, Plant and Environmental Sciences Department, Agricultural Experiment Station at Clemson University



Hydroponic Grow-house: Tyger River, South Carolina

SPECTRAL OUTPUT

All light emitted by the NutriLED triggers healthy plant responses, boosting yield and reducing cost. The NutriLED's unique light color is the result of emitting only those wavelengths of light required for plant growth.

HORTICULTURE LIGHTING VOCABULARY

PAR (Photosynthetically Active Radiation)

The range of wavelengths between 400 to 700 nanometers (visible spectrum for all life forms)

PPF (Photosynthetic Photon Flux)

Micromoles/second (μmol/s)

Metric used to identify output of PAR light from a source or fixture for plant growth

(Similar to lumens for human being)

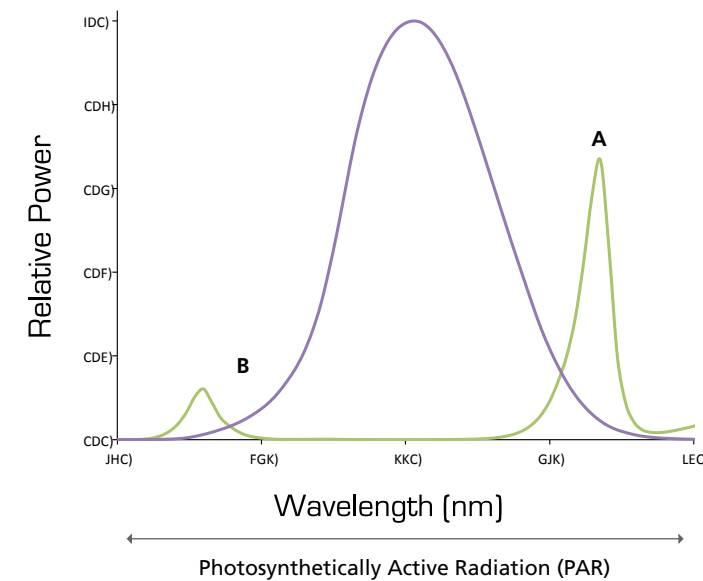
PPFD (Photosynthetic Photon Flux Density)

Micromoles/meter²/second (μmol/m²/s)

Measurement of PAR taken at a given point on a worksurface for plant growth

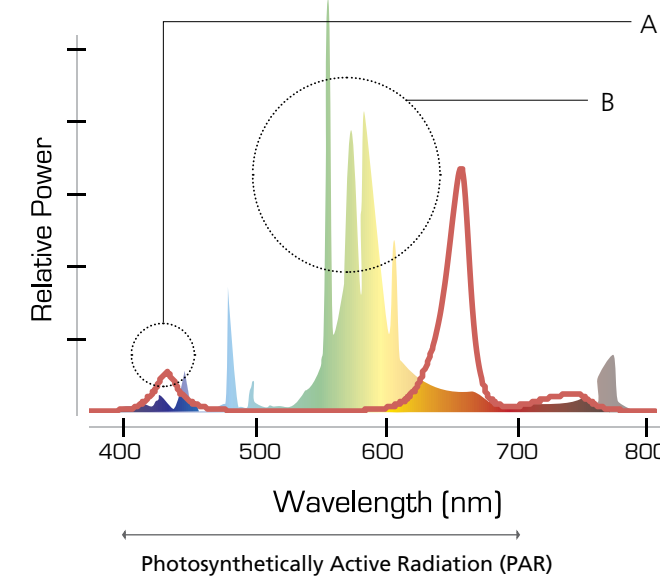
(Similar to footcandles)

SPECTRAL WAVELENGTH DISTRIBUTION



- = Human eye sensitivity function
- = Usable light for plant growth
- A** = Red light, most efficient spectrum for photosynthesis and responsible for seed germination and plant morphology
- B** = blue light, most efficient spectrum for photosynthesis and responsible for vegetative leaf growth and pigment biosynthesis

HIGH PRESSURE SODIUM 600W vs. nutriLED 4-BAR ASSEMBLY FLOWERING MIX



- A.** Approximately 100% of NutriLED light output is usable by plants. No wasted energy.
- B.** Most of the HID light output is not efficiently used by plants. Most energy is wasted.

HID REDIRECTS INFRARED ENERGY THAT CAUSES:



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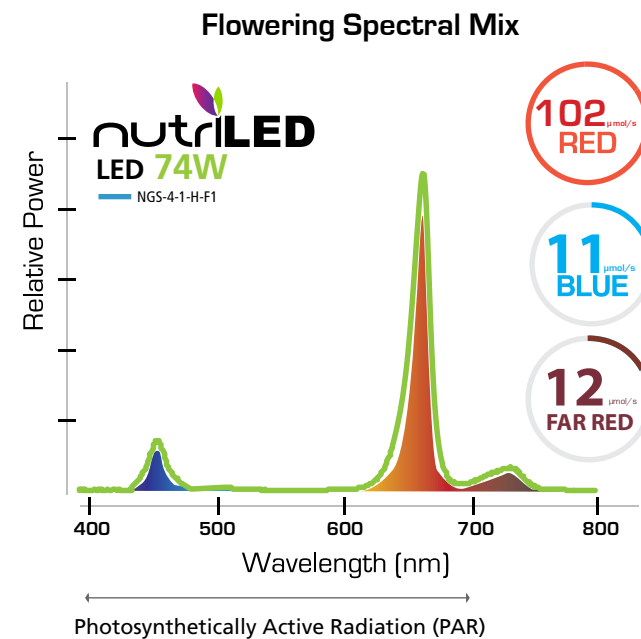
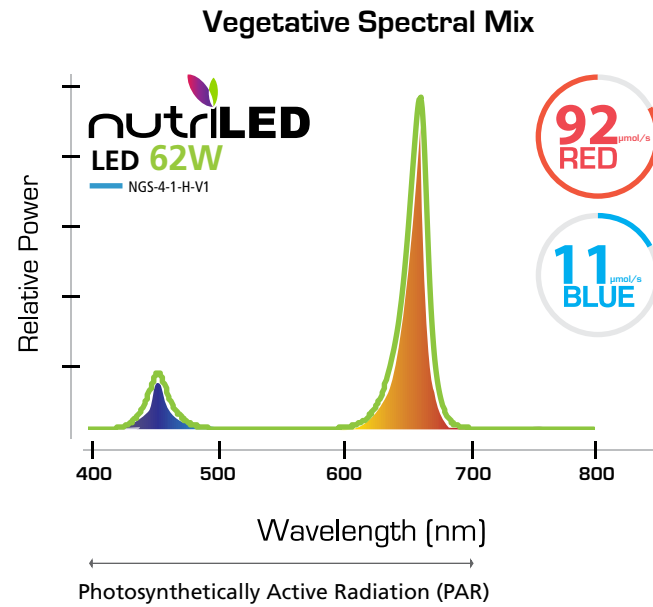


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HOW DO PLANTS USE LIGHT?

Plants convert light into chemical energy by using chlorophyll in leaves to absorb the blue and red wavelength portions of the electromagnetic spectrum. The **NutriLED** Vegetative Spectrum Mix (V1) produces red and blue light for photosynthesis. The **NutriLED** Flowering Spectrum Mix (F1) adds far red light which improves productivity for many flowering plants.



BENEFITS OF NUTRILED VS. TRADITIONAL GROW LIGHTS

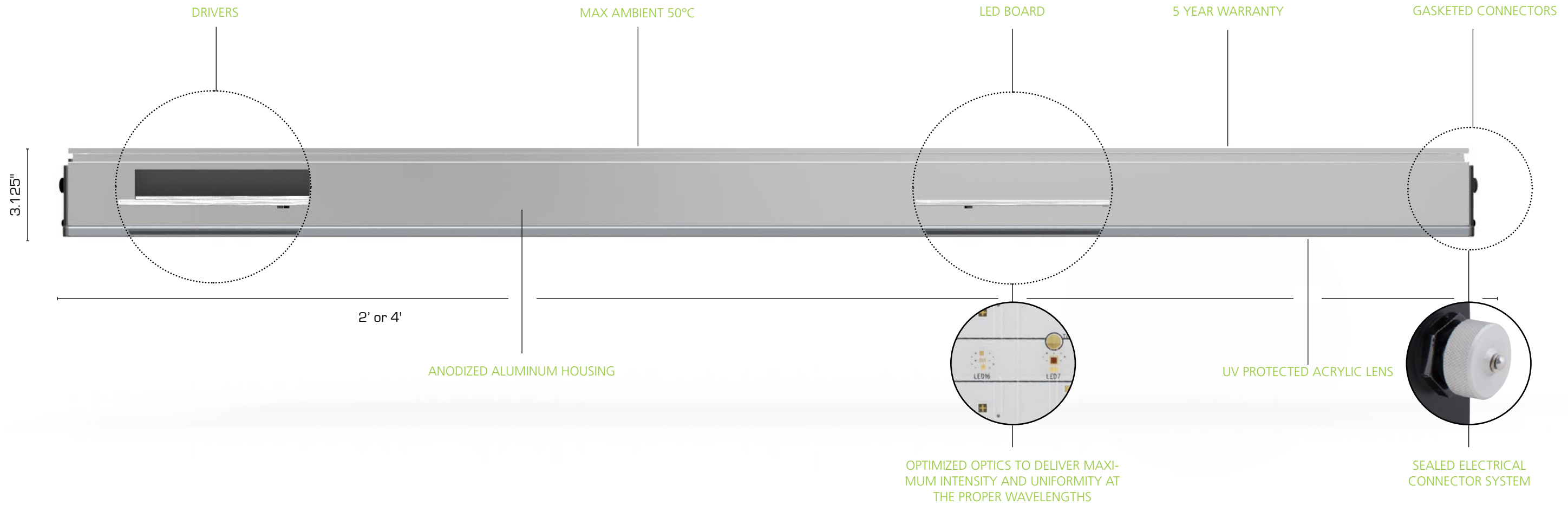
Up to 64% energy savings. No wasted energy producing spectrums of light the plant can't use. Studies have shown increased growth rates and increased yields under LED lights. Lower wattage means less wiring and fewer circuits.

| DESCRIPTION | T5 cool-white fluorescent | NutriLED one-bar fixture: Vegetative Mix (Cat. # NGS-4-1-H-V1) | NutriLED one-bar fixture: Flowering Mix (Cat. # NGS-4-1-H-F1) | BENEFITS |
|----------------------------------|---------------------------|--|---|--------------------|
| Fixture Watts | 51 | 62 | 74 | — |
| Blue Output (μmol/s) | 10 | 11 | 11 | Similar blue |
| Red Output (μmol/s) | 15 | 92 | 102 | More red |
| Far Red Output (μmol/s) | 1.5 | 0 | 12 | More far red |
| Blue+Red Output (μmol/s) | 25 | 103 | — | More useful output |
| Blue+Red+Far Red Output (μmol/s) | 26.5 | — | 125 | More useful output |
| μmol/s per Watt | 0.52 | 1.66 | 1.70 | Higher efficiency |
| Life Span (Hours) | 20,000 | 50,000 | 50,000 | Longer life time |

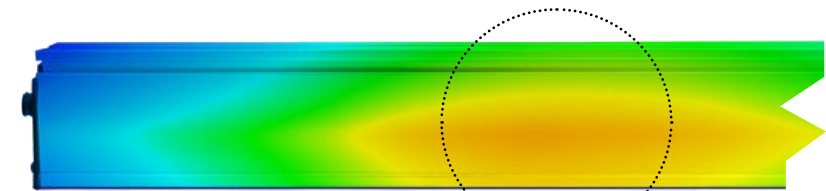
| DESCRIPTION | 600W HPS | NutriLED four-bar Assembly: Vegetative Mix (Cat. # NGS-4-4-H-V1) | NutriLED four-bar Assembly: Flowering Mix (Cat. # NGS-4-4-H-F1) | BENEFITS |
|--|----------|--|---|--------------------------|
| Fixture Watts | 682 | 248 | 295 | 57-64% energy reduction |
| Blue Output (μmol/s) | 53 | 45 | 45 | — |
| Red Output (μmol/s) | 261 | 367 | 408 | More red |
| Far Red Output (μmol/s) | 27 | 0 | 48 | More far red |
| Blue+Red Output (μmol/s) | 314 | 412 | — | More useful output |
| Blue+Red+Far Red Output (μmol/s) | 341 | — | 501 | More useful output |
| μmol/s per Watt | 0.50 | 1.66 | 1.70 | Higher efficiency |
| Life Span (Hours) | 18,000 | 50,000 | 50,000 | Longer life time |
| Max # of fixtures on 277V (20 amp circuit) | 5 | 10 | 10 | 2x more fixtures/circuit |

μmol/s = micromoles/second
 NOTE: (*) indicates initial output

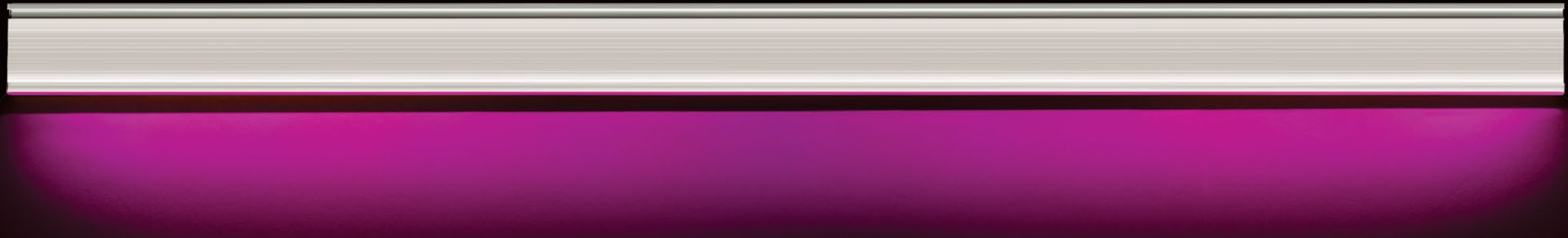




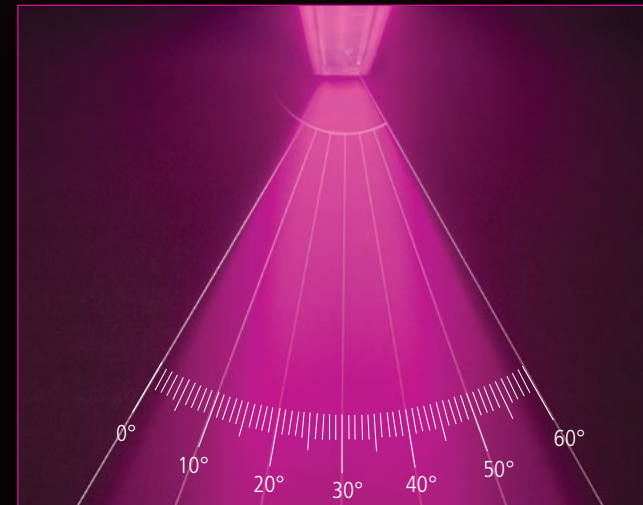
The NutriLED's extruded aluminium fixture body/ heat sink, provide optimal thermal dissipation of fixture heat without the use of fans.



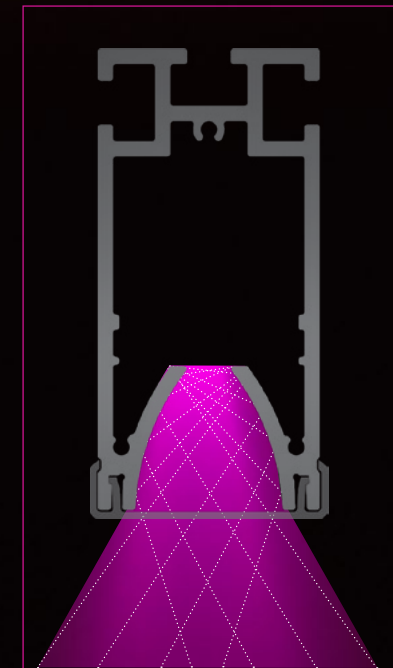
HOTTEST POINT:
61°C AT 25°C AMBIENT



Integral optical design is optimized for uniformity and a typical 4'x4' grow area.



NutriLED's unique optical design provides a well controlled illumination which delivers uniformity and a functional 60° beam spread that yields 1:0.6 spacing.

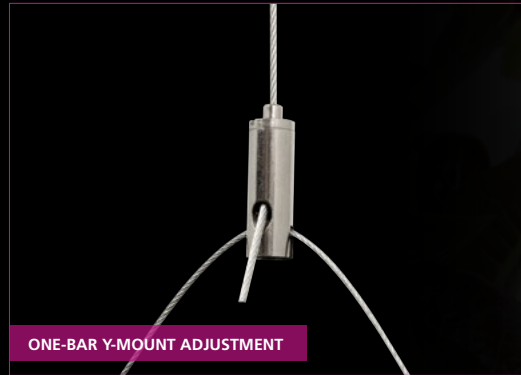


FIELD MOUNTING CONFIGURATIONS

NutriLED is specially designed to allow for multiple mounting configurations. It can be installed linearly or in parallel to increase delivered micromoles using included hardware.

ELECTRICAL CONNECTORS

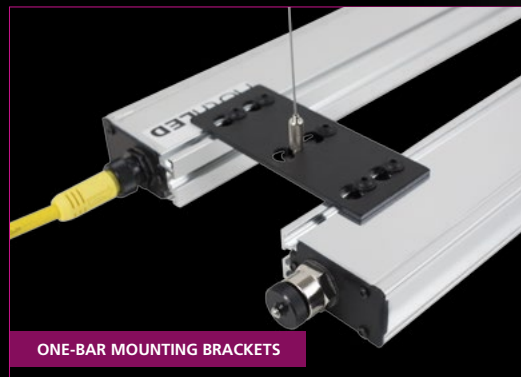
The NutriLED is powered by a selection of cords and interconnects. Power cords are 12 feet long. Interconnect cords are either 3 feet or 12 feet long for maximum installation flexibility.



ONE-BAR Y-MOUNT ADJUSTMENT



ONE-BAR HANGER ADJUSTMENT



ONE-BAR MOUNTING BRACKETS



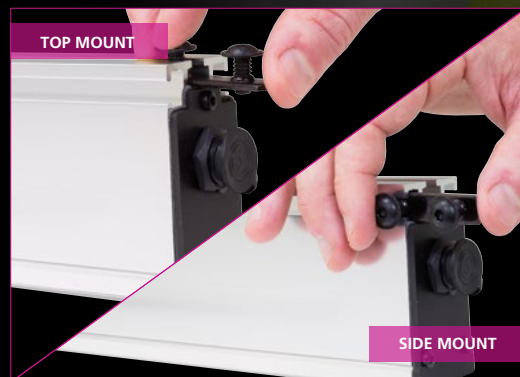
MULTI-BAR Y-MOUNT ADJUSTMENT



MULTI-BAR HANGER ADJUSTMENT



MULTI-BAR MOUNTING BRACKETS



TOP MOUNT

SIDE MOUNT



ONE-BAR & MULTI-BAR INTERCONNECTS



ONE-BAR & MULTI-BAR END CAP



ONE-BAR & MULTI-BAR INTERCONNECTS



ALERA LIGHTING

ARCHITECTURAL AREA LIGHTING

BEACON PRODUCTS

COLUMBIA LIGHTING

COMPASS

DEVINE LIGHTING

DUAL-LITE

HUBBELL CONTROL SOLUTIONS

HUBBELL INDUSTRIAL LIGHTING

HUBBELL OUTDOOR LIGHTING

KIM LIGHTING

KURT VERSEN

LITECONTROL

PRECISION-PARAGON [P2]

PRESCOLITE

PROGRESS LIGHTING

SPAULDING LIGHTING

SPORTSLITER SOLUTIONS

STERNER

WHITEWAY