

# Why choose Phantom LED Lighting?

- Increased production capacity
- Superior crop quality
- No maintenance, long lifetime
- Reduced power consumption
- Reduced operational expenses
- Potential for utility rebates

## Proper Thermal Management

Heat is the enemy of Light Emitting Diodes. Cooler operating temperature equals higher light output. Properly designed thermal management is crucial to protect your investment in LED.

All of our LED fixtures undergo extensive thermal modeling and testing. They are strategically designed to allow heat to dissipate and the fixtures to breathe. Keeping diode temperatures low will help keep your yields high.



**PHOTOBIO-TX & PHOTOBIO-T**  
passive cooling system

- Unique heat sink construction built with architectural-grade aluminum
- Closed loop heat pipe technology
- Superior heat dissipation for cooler LEDs



## We're Ready to Help!

Ask a Question  
Get a Custom Lighting  
Layout Solution  
Request a Commercial Quote

Check us out:  
[www.phantombio.com](http://www.phantombio.com)  
[www.hydrofarm.com](http://www.hydrofarm.com)  
follow @PhotoBioLED  
and @HydrofarmTV



SCAN ME

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HYDROFARM®

# LED

Extraordinary performance.  
Extreme efficiency.  
Exacting design.



## Who We Are

**HYDROFARM** is a leading distributor and manufacturer of controlled environment agriculture equipment and supplies. For over 40 years, Hydrofarm has helped growers make growing easier and more productive. It's our mission to empower, inspire and support growers in all facets of horticulture. Our premiere lighting brands, Phantom and Phantom PHOTOBIO, offer the perfect LED fixture for all of your indoor growing needs.

**PHANTOM LED** offers high photon flux for an affordable initial investment. The Phantom PHENO 440 is a reliable, efficient and versatile lighting solution.

**PHANTOM PHOTOBIO** is Phantom's line of high-performance commercial grade LED fixtures that offer several form factors, all delivering high output and efficiency. It's serious commercial-grade, technologically advanced lighting.

**PHANTOM LED**  
**PHANTOM PHOTOBIO**





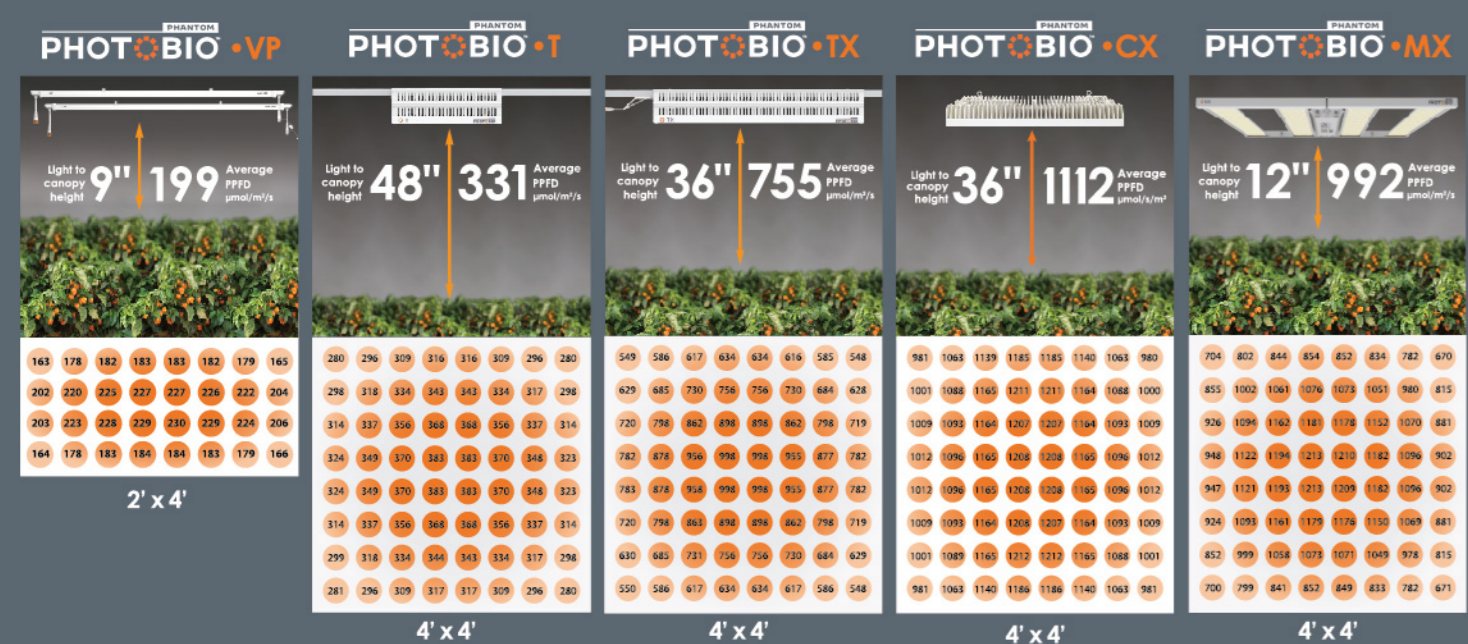


## Extra Validation...

- PHOTOBIO•MX, CX, TX, T, VP, and PHENO 440 have all been validated as high-performance LED fixtures
- Validated by independent 3rd party testing lab and certified by DLC - Design Lights Consortium
- Being DLC Hort Listed means high-level reliability, efficiency, and possible energy rebates
- Search 'Hydrofarm' at: [apl.designlights.org/horticulture](http://apl.designlights.org/horticulture)



## Planning Your Grow PPFD FOOTPRINTS

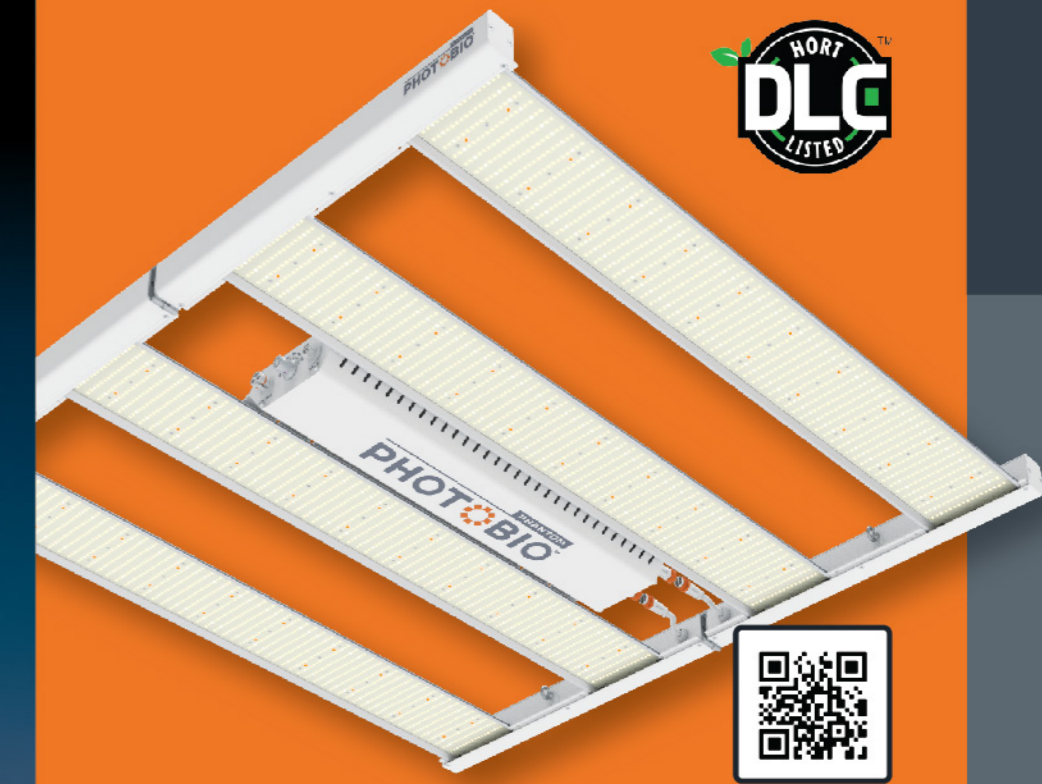


**Note:** Photosynthetic Photon Flux Density (PPFD) data is produced by using professional lighting simulation software and third party laboratory photometric files. All PPFd data are measured in  $\mu\text{mol}/\text{m}^2/\text{s}$ . The result is showing a calculation grid assuming fixture is mounted on the above mentioned grow shelf with 85% wall reflectance. Actual measurement may vary depending on actual use conditions, input voltages, and measuring instruments. Professional lighting plans for commercial applications are available upon request.

## Heavy Duty, Performance LEDs

	PHANTOM LED PHENO 440	PHANTOM PHOTOBIO•VP	PHANTOM PHOTOBIO•T	PHANTOM PHOTOBIO•TX	PHANTOM PHOTOBIO•CX	PHANTOM PHOTOBIO•MX
PHOTON FLUX ( $\mu\text{mol}/\text{s}$ )	1100	73	858	1768	2125	1768
EFFICACY ( $\mu\text{mol}/\text{J}$ )	2.5	2.3	2.6	2.6	2.5	2.6
SPECTRUM						
WATTAGE (w)	440W	32W	330W	680W	850W	680W
IP RATING	IP65	IP65	IP65	IP65	IP66	IP65
FEATURES	<ul style="list-style-type: none"> <li>- High-efficiency</li> <li>- Multi phase spectrum</li> <li>- Compact size: 31.49" x 16.8" x 4.1"</li> <li>- Integrated flux control knob</li> <li>- Adjustable light distribution</li> <li>- Includes power cord &amp; signal cable</li> </ul>	<ul style="list-style-type: none"> <li>- Cost effective and superior to T5's</li> <li>- Proven spectrum strikes root faster while minimizing shock</li> <li>- Modular, link up to 23 VP's on 277V</li> <li>- Includes power cord</li> </ul>	<ul style="list-style-type: none"> <li>- Cost effective and superior to 315W CMH &amp; 600W</li> <li>- Compact linear to minimize sun interference in greenhouse</li> <li>- Diode centric cooling to keep yields consistent</li> <li>- Centrally controllable</li> <li>- Includes power cord &amp; signal cable</li> </ul>	<ul style="list-style-type: none"> <li>- Delivers = output to 1000W DE while reducing power consumption by 35%</li> <li>- More effective spectrum</li> <li>- Compact linear to minimize sun interference in greenhouse</li> <li>- Diode centric cooling to keep yields consistent</li> <li>- Centrally controllable</li> <li>- Includes power cord &amp; signal cable</li> </ul>	<ul style="list-style-type: none"> <li>- More than a 1:1 1000W DE replacement</li> <li>- More effective spectrum</li> <li>- Centrally controllable, signal repeater provides limitless fixture quantity</li> <li>- Integrated light output control</li> <li>- Includes power cord &amp; signal cable</li> </ul>	<ul style="list-style-type: none"> <li>- Delivers = output to 1000W DE while reducing power consumption by 35%</li> <li>- Ultrawide light panels = uniform light delivery</li> <li>- More effective spectrum</li> <li>- Centrally controllable</li> <li>- Commercial build quality</li> <li>- Integrated light output control</li> <li>- Includes power cord &amp; signal cable</li> </ul>
APPLICATIONS						
BENEFITS						

## PHANTOM PHOTOBIO•MX



See how MX performs in our PPI report...

PHOTOBIO•MX was tested alongside seven other commercially available LED lighting solutions by the most experienced independent testing lab in the industry. Our Product Performance Index, or PPI, puts emphasis on what matters most to growers - performance, efficiency, and cost.

- Ultra-wide Light Bars for better uniformity - no skinny or flimsy bars
- Heavy-duty architectural-grade aluminum for high reliability - no low-grade cheap metal and plastics
- Commercial grade external drivers offer versatility with drivers that can be mounted remotely outside the tent
- Best-in-Class Heat Dissipation Low operating temperature while functioning



## Lighting Accessories

**MORE POWERFUL  
MORE RELIABLE  
MORE CAPABLE**

Advanced lighting controllers, cable kits, meters, and more.  
[www.phantombio.com](http://www.phantombio.com)  
[www.hydrofarm.com](http://www.hydrofarm.com)

 <b>AUTOPILOT PX2</b> Advanced Lighting Controller	 <b>PHOTOBIO</b> Advanced Quantum PAR Meter	 <b>HYDROFARM</b> Light Riser Hanging System w/Push Button Release, 1/8"
ITEM CODE APDPX2	ITEM CODE LGBQM2	ITEM CODE HLH1002