

POWER FOR INDUSTRIAL & COMMERCIAL LIGHTING

PREMIER TECHNOLOGIES | PROVEN CAPABILITIES

A black and white photograph of a large industrial ceiling with a complex metal truss structure. Numerous long, rectangular fluorescent light fixtures are mounted across the ceiling, creating a grid-like pattern of light and shadow.

PRECISION | POWER | PERFORMANCE | TRUST

Your Global Partner for Industrial & Commercial Lighting Power Supplies

Advanced Energy's mission is to minimize your power consumption, installation expense, maintenance, and cooling facility cost, while simplifying control and monitoring for any LED fixtures.

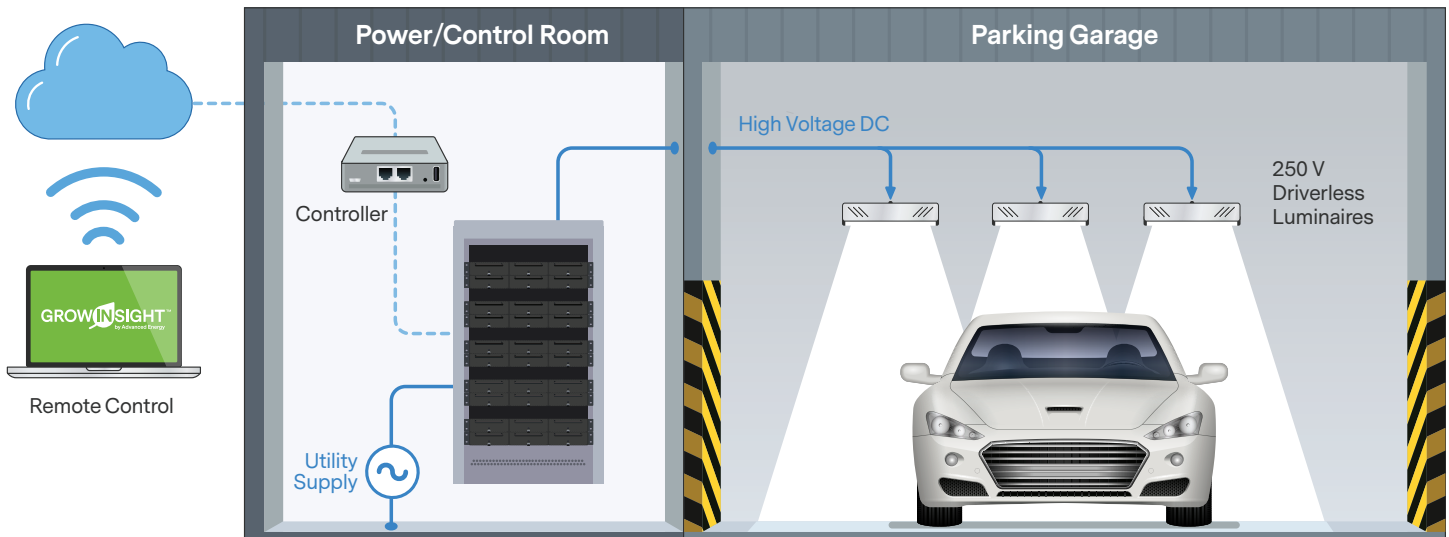
Advanced Energy's power supplies for industrial and commercial lighting increase efficiency, simplify maintenance, and reduce cost. In conventional industrial and commercial lighting implementations, the use of individual drivers on each light fixture is inefficient. Individual control systems for each luminaire adds complexity and the additional cabling required increases your installation costs.

Our centralized, remote driver approach simplifies maintenance by eliminating the need for individual drivers. This greatly

reduces or totally eliminates requirements to access luminaires high in the ceiling.

While individual drivers result in collective conversion/heat losses, our approach helps you reduce energy costs by removing the need for additional air conditioning.

Our wide portfolio of solutions for industrial and commercial lighting puts world-class power, control, and monitoring at your fingertips.



- Lower cost
- Simpler control and monitoring
- Trusted solution

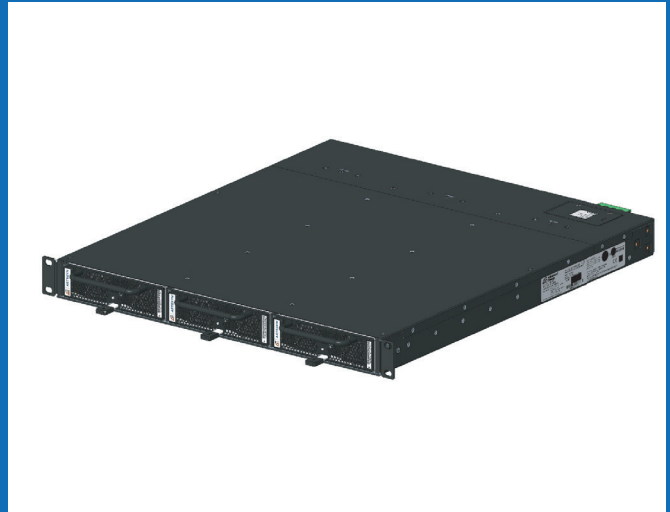
Our centralized, remote driver approach can reduce your capital investment by 24 to 38% and help you save 9 to 12% in annual running costs.

We have real customer case studies and installations that demonstrate these savings and the simplicity of control and monitoring that have been achieved.

INNOVATIVE MODULAR AND SCALABLE POWER SOLUTIONS

LCM4000HV Series

Optimized for LED lighting



- High voltage power modules (100 to 300 VDC) combine with 19" 1U rack mount shelf (LCM12K) to create a centralized current source for medium- to large-scale LED lighting installations
- Each hot-swappable module rated for up to 4000 W, 12 kW per 1U shelf
- Cost and functionality optimized for LED lighting
- Compliant with DesignLights Consortium (DLC) technical requirements (v2.1)
- Up to 95% efficient
- Traditional 0 to 10 V (0 to 24 V) analog dimming – compatible with any PLC controllers and dimmers
- Digital control via Modbus RTU interface
- Drive any 250 VDC nominal LED luminaire
- Digitally controlled loop compensation eliminates flickering throughout the operating range
- Compatible with GrowInsight™ cloud control software



LumaDrive™ Centralized Remote Driver Systems

24 (with NEMA 3R enclosure), 36, 72, and 144 kW Pre-Wired Systems for Greenhouse, Horticultural, and Industrial Lighting Applications

The LumaDrive platform combines up to 36 units of 4 kW power modules in a pre-wired cabinet. This enables fast deployment of scalable, efficient centralized power solutions that provide greater flexibility in designing and optimizing lighting layouts, improve energy efficiency, reduce overall operational costs, and simplify ongoing maintenance. These systems can operate with any manufacturer's luminaire, thanks to their highly programmable output parametrics and loop compensation.

Simplified installation and set up:

- Pre-wired system: no need for individual module assembly
- Reduced fixture weight with remote driver approach

Fast, efficient maintenance with minimal disruption of ongoing operations:

- User-replaceable modules
- Ground-level installation of remote LED drivers
- Standard commissioning, service plans, and extended warranties

High efficiency and reduced utility costs:

- Native 3-phase power compatibility for large-scale operations

Versatile and customizable:

- Precise dimming
- Eliminates the need for dimming controls on each light
- Allows control of up to six zones per enclosure
- Compatible with numerous fixture manufacturers and all 0 to 10 V lighting controllers

Rugged and reliable

- Fewer potential points of failure
- Option with NEMA 3 enclosure for outdoor environments (up to 24 kW)

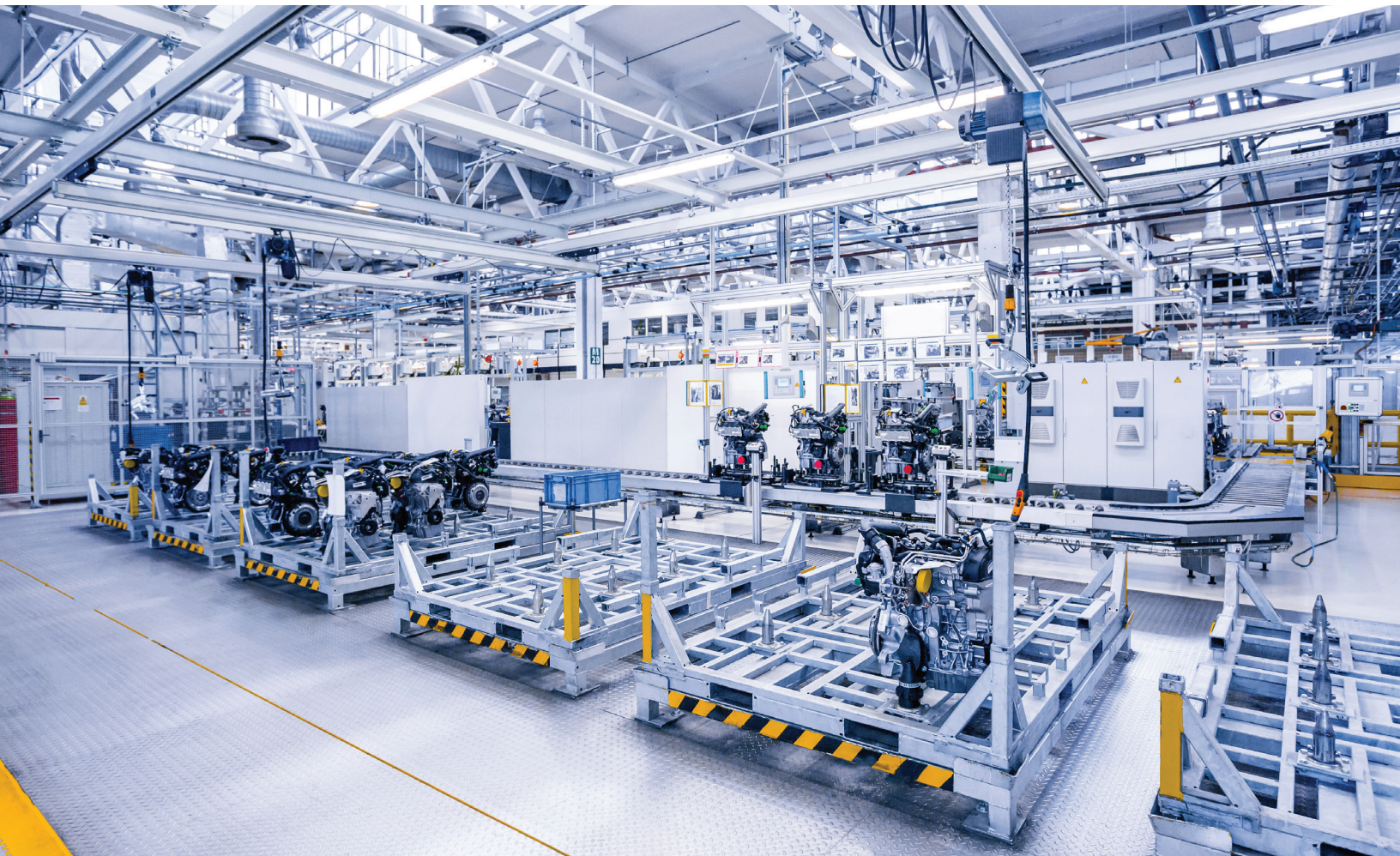


POWERPRO

by Advanced Energy

Advanced Energy's PowerPro cloud-based management tool is a high-level software graphical user interface enabling control and monitoring using a standard web browser and internet connection.

- Fully integrated with Advanced Energy's remote driver distribution
- Digital dimming control
- Customizable lighting schedules for any type of LED lighting system
- Cloud control and monitoring; local controller manages schedule execution



CENTRALIZED DRIVER: LOWER TOTAL COST OF OWNERSHIP WITH ENHANCED CONTROL AND MONITORING

CAPEX Reduction Between 24 and 38%		OPEX Reduction Between 9 and 12%	
<p>Lower cost of lighting control system</p>	<p>Eliminates expensive lighting PLC and IO controllers</p> <p>Power can be located in a separately contained area</p> <p>No extra dimming control wiring needed</p>	<p>Reduced energy cost</p>	<p>High power factor and low THD</p> <p>Lower HVAC energy cost</p>
<p>Smaller HVAC system and structure cost</p>	<p>No additional heat within the grow area</p> <p>Less weight per light reducing lighting structure</p>	<p>Easily controlled</p>	<p>Optimal setting for efficient light</p> <p>Web based controls and monitoring</p>
<p>Lower installation costs, simpler electrical connection</p>	<p>No special junction boxes</p> <p>Fewer circuit breakers</p> <p>Lower ship weight</p>	<p>Lower maintenance cost</p>	<p>Power all in one location vs. spread out</p> <p>Hot swappable power modules for quicker replacement of failures</p>
<p>Scalable</p>	<p>Expand as needed</p>	<p>Very reliable, high MTBF</p>	<p>Power can be located in a separately contained area</p> <p>Longer LED life due to no extra heat from the driver</p>

OPTIMIZE SYSTEM PERFORMANCE, MINIMIZE DOWNTIME, AND MAXIMIZE SYSTEM LIFE WITH AE CERTIFIED SERVICESM

- On-site installation support ensures proper installation and optimum performance.
- Preventative maintenance programs lengthen system life and minimize downtime.
- On-site GrowInsight™ software provides system monitoring and control.







For international contact information,
visit advancedenergy.com

powersales@aei.com
productsupport.ep@aei.com
+1 888.412.7832

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. We design and manufacture highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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