



## Lowering the Cost of Powering your Horticultural Lighting Systems

At Artesyn Embedded Technologies, our focus when creating power supplies for horticultural lighting is to minimize your power consumption, installation expense and the cost of cooling your facilities.

We offer a range of high power options (600 watt to megawatt), scaling from single conduction/IP-rated power supplies up to large distributed external systems ideal for vertical farms and large warehouse grow centers.

Our power supplies for individual luminaires and lower power applications (ranging from 600 W to 1500 W) are designed to provide full power in compact, high density packaging that weighs less than other commercially available products.

With large farms, the use of individual luminaires is not efficient. The added complexity of individual control systems on each luminaire and the additional cabling required adds to your installation costs. What's more, the additional thermal management needed (air conditioning) as a result of the collective conversion/heat losses from the drivers adds to your energy costs.

Using a large centralized current source outside the environmentally controlled growth areas and distributing power directly to all the luminaires can help eliminate the need for individual drivers and the associated costs. By offering single conduction and IP rated solutions up to large distributed external systems, Artesyn can help scale power for various power distribution architectures in practically any installation.

**Cost  
Effective**

**Reliable**

**Highly  
Efficient**

**Scalable**

**Flexible**

**Easily  
Controlled**

# Innovative Modular and Scalable Power Solutions

Artesyn products have helped pave the way for advancements in a wide variety of fixed and portable lighting systems across a diverse range of applications.

These include high bay commercial lighting, street and roadway illumination, lighting systems for marine/fishing applications, in-store product display/showcase lighting, stage and studio lighting, and LED based indoor/outdoor video display and signage.

Our AC-DC and DC-DC power conversion products are used for mains-powered and battery-backed lighting systems and covers a wide variety of lighting technology from LED, halogen and metal halide.

Key attributes of power supplies for lighting applications include high efficiency and reliability, small form factor, good regulation, both constant current and constant voltage, ingress protection, ruggedized design and power disturbance immunity. Artesyn's power solutions encompass these essential traits.

## LCC600 Series



**600 Watts  
Total Power**

- 600 watts from -40 °C to 85 °C baseplate operating temperature
- High efficiency design in a 4" x 9" x 1.57" compact IP65 enclosure under 2 kgs
- Fanless design uses conduction cooling for thermal management – can utilize the same luminaire heatsink for thermal heat transfer
- 90-264 Vac or 180-305 Vac operating input
- Digital control: Constant voltage (default) or constant current mode of operation; programmable constant current limits through I<sup>2</sup>C/PMBus®
- External voltage or resistance dimming capable
- Active share/parallel operation for higher power

## LCM Series



**600 - 1500 Watts  
Total Power**

- Fan-cooled alternative to the LCC600, saving typically 50% of cost
- Digital control – can be set to operate in constant voltage or constant current
- Easily operated in parallel for higher power
- Great for controlled environment applications
- Conformal coating

## iHP Series



**Configurable Intelligent  
High Power System**

- Can be installed outside growing area so power dissipation does not affect environmental controls
- High level of scalability – multiple racks per cabinets can scale up to megawatt levels (in 3 kW increments up to 12 kW in small rack or 24 kW in large rack)
- Highly flexible input (180-528 Vac, single or 3-phase) and outputs (12-1000 Vdc) allows high voltage distribution, saving copper wiring costs
- Intelligent current and voltage source control (local or via Internet) eliminates the need for individual luminaire drivers
- Digitally controlled loop compensation eliminates bothersome flickering throughout entire operating range
- Cloud-based GUI allows simple user customization of lighting profile dashboards

# Power Architecture Examples Using Artesyn Power Supplies

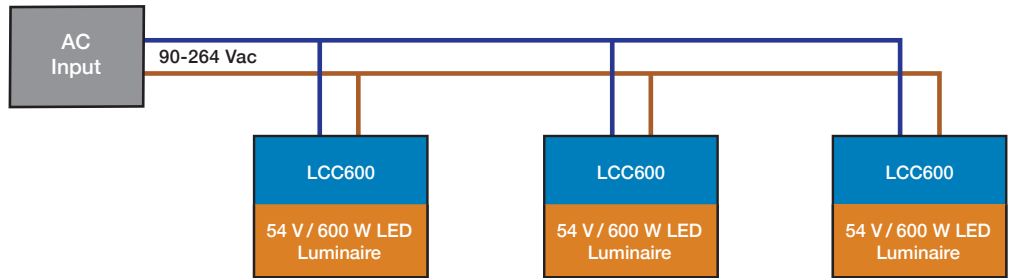
## Conventional Power Distribution with Integrated Luminaire + Driver



Artesyn LCC600



Spectrum King LED SK600



Example shown using Artesyn's LCC600 supply/driver integrated into a Spectrum King LED SK600 (600 W) luminaire.

- Easily adaptable for retrofit (can utilize existing power/wiring infrastructure) and new installations
- Heat generated by both luminaire and driver/power supply needs to be considered in energy/cooling calculations

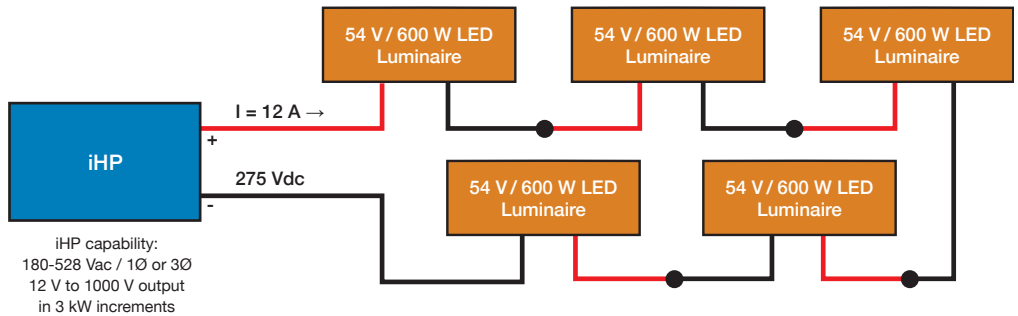
## Centralized Power with Distributed Lighting using 54 V LED String in Serial Configuration



Artesyn iHP 12KW



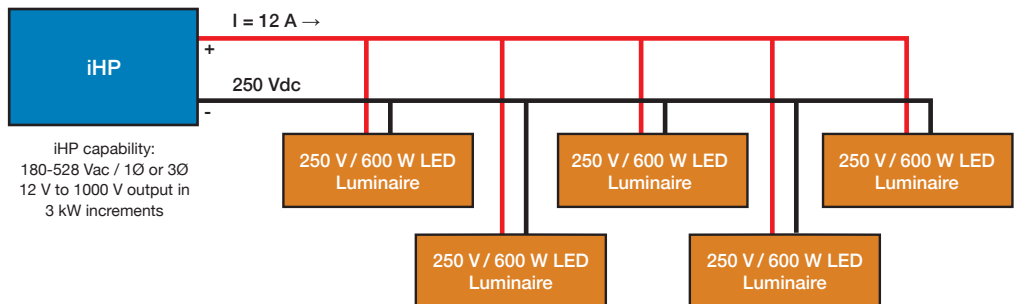
Spectrum King LED SK600



iHP example shown using one (1) 3 kW module set to 275 Vdc, 12 A constant current output.

- Centralized power source and the associated conversion/heat losses can be managed separately outside the environmentally controlled growth space, lowering cooling and energy cost
- Higher voltage distribution can help reduce total installation cost (e.g., reduced wire sizes)
- Faults in serial configuration can shut down all the luminaires connected in the same loop

## Centralized Power with Distributed Lighting using 250 V LED String in Parallel Configuration



iHP example shown using one (1) 3 kW module set to 250 Vdc, 12 A constant current output.

- Centralized power source and the associated conversion/heat losses can be managed separately outside the environmentally controlled growth space, lowering cooling and energy cost
- Higher voltage distribution can help reduce total installation cost (e.g., reduced wire sizes)
- Faults in parallel configuration will not shut down all luminaires connected on the same power rail





## About Artesyn Embedded Technologies

Artesyn Embedded Technologies is a global leader in the design and manufacture of highly reliable power conversion solutions for a wide range of industries including communications, computing, consumer, medical, aerospace and industrial automation.

Artesyn's Embedded Power business is one of the world's largest and most successful power supply companies and embraces the well-known Astec brand. The company's extensive standard ac-dc product portfolio covers a power range of 3 watts to 24 kilowatts and includes open-frame and enclosed models, highly configurable modular power supplies, rack-mounting bulk front end units, DIN rail power supplies, external power adapters and power supplies for LED lighting. Many of these products are available in medically approved versions and a large number of the higher power models feature extensive built-in intelligence.

Widely acknowledged as an industry leader in distributed power applications, Artesyn produces an exceptionally wide range of dc-dc power conversion products. These include isolated dc-dc converters, covering industry-standard sixteenth- to full-brick form factors and power ratings from 3 watts to 800 watts, and three application-optimized families of non-isolated dc-dc converters.

The company also produces non-isolated memory power and voltage regulator modules (VRMs) for processors.

As a pioneer in low power switch mode adapters, Artesyn has designed and manufactured solutions for almost every major mobile phone supplier. With well over one billion chargers shipped from its best-cost facilities, Artesyn has aligned itself to meet the demands for the next billion chargers through new platforms, automated manufacturing methodology and unsurpassed quality and reliability.

For more than 40 years, customers have trusted Artesyn to help them accelerate time-to-market and shift development efforts to the deployment of new, value-add features and services that build market share.

Artesyn has over 20,000 employees worldwide across ten engineering centers of excellence, four world-class manufacturing facilities, and global sales and support offices.

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