



3 KEY APPLICATIONS FOR HIGH AMPERAGE POWER PLUGS & JACKS

A SWITCHCRAFT WHITE PAPER



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Devices today have more power and more functionality than ever before. Next month, next year, this statement will still hold true. Such is the steady forward march of technological innovation. In many cases (if not most), even while increasing power and functionality, manufacturers look for ways to make their products and devices smaller, lighter, more compact, and less costly.

This trend toward ever-smaller devices with more power and functionality has spurred many innovations in electronics components, including high amperage power plugs and jacks. Introduced last year (2013), high amperage power plugs and jacks provide more than twice the industry-standard power capability – up to a full 11A.

In this Switchcraft white paper we present three key applications for high amperage power plugs and jacks.

1. **Use high amperage power plugs and jacks to design more powerful, more compact instrumentation and to streamline the regulatory and product approval process.**

Much of the sophisticated scientific and laboratory instrumentation used today sits on a desktop and is powered through a wall adapter unit. Until now, much of this instrumentation had been limited to five amps because that's all this type of setup allowed. These devices could of course be designed for higher amperage; but that required building a power supply *inside* the unit. In turn, this complicated the design and approval process, made the unit larger, and created heating and cooling issues.

With high amperage power jacks, design engineers can now use an external power supply with an output of up to 11 amps. This allows for the removal of most of the cooling apparatus, a reduction in the size of the box, and the use of an external wall adapter that handles the AC to DC and already has UL approvals. As a result, design, testing, documentation and packaging are simplified and regulatory approvals are streamlined – thus shortening the time to market (and cost) of new instrument design.

2. **Use high amperage power plugs and jacks to take advantage of evolving battery technologies for today's mobile world.**

Last year the University of Illinois at Urbana-Champaign announced that its researchers had developed new lithium-ion battery technology that “can charge 1,000 times faster than competing technologies.”¹

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While it may be a while before this technology is commercialized, high amperage power plugs and jacks can enable manufacturers to take fuller advantage of *existing* battery technology allowing for higher current capabilities.

Depending on the application and type of battery technology specified, manufacturers may be able to use these new high amperage components to significantly reduce the time it takes to recharge their devices – and to take larger, heretofore corded devices and tools (for instance a commercial grade drill) mobile. In today's time-pressed, mobile world, when users want to get their electronics devices back in action as soon as possible, and when they want and need to untether their devices, instruments, tools – these are important benefits.

3. **Use high amperage power plugs and jacks for LED lighting and signage.**

As the LED lighting market grows and evolves there will be a need for signs and displays with a larger number of LEDs, resulting in a higher current draw. High amperage power jacks and plugs can fill this need by allowing for a single power source for larger LED displays. In addition, the simpler, more straightforward configuration of the new high amperage power plugs and jacks makes for easier assembly and installation. NOTE: If your LED lighting and/or signage will be operated outdoors you want to make sure your power plugs and jacks are rated of IP65 or higher, for maximum performance IP68.

Summary

Twenty years ago to shoot video you had to hoist the camera onto your shoulder. Today you hold the camera in the palm of your hand or between your thumb and forefinger. And this camera has much more power and functionality than that big bulky device ever had. As previously noted: Technology evolves, more functionality is added and more power is required; and the space in which to fit that power typically shrinks.

In short, design engineers and manufacturers want and need ways to get higher current through the connector interface. Using high amperage power plugs and jacks is an effective way to do just that. These components take the old familiar power plug and power jack configuration and make it “new” again, offering manufacturers the potential to more than double the amount of current their devices can handle. In addition, high amperage power plugs and jacks offer the very real opportunity for improved manufacturing efficiencies and overall cost-savings.

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High Amperage Power Plugs & Jacks From SWITCHCRAFT®: Features

- Up to 11A current rating (carry), 24 V DC
- -40°C to 105° C operating temperature
- Locking/Non-Locking versions available
- Automatic switch over from AC to DC permitted by sleeve shunt spring
- Available in sealed & non-sealed versions
- Sealed versions sealed to IP68, NEMA 250 (6P) (when mated)

Samples available upon request

For more detailed information please review SWITCHCRAFT® new product bulletin 599:
http://www.switchcraft.com/Documents/Switchcraft_High_Amperage_Power_Jacks_&_Plugs_NPB_599.pdf

About SWITCHCRAFT®

SWITCHCRAFT®, Inc. is a leading US-based manufacturer of connectors, jacks, plugs, switches, molded cable assemblies and patchbays. SWITCHCRAFT® products are used in a variety of applications from broadcast and pro audio to medical, transportation and other industrial applications. Products are sold direct to customers and through networks of stocking distributors. Founded in 1946, SWITCHCRAFT® is headquartered in Chicago, IL USA.

SWITCHCRAFT® is a wholly owned subsidiary of HEICO Corporation (HEI), a \$3.5B (market cap) NYSE listed company.

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¹ *Small in size, big on power: New microbatteries a boost for electronics, 4/16/2013*
http://news.illinois.edu/news/13/0416microbatteries_WilliamKing.html