



REDHAWK ENERGY

Switch Boost™ 12V

Application

A railway power switch application requires an AC or DC power source that can provide a high initial current to meet the in-rush/break-away current demand of the switch or hydraulic motor. This momentary inrush is followed by a lower level current for a longer duration as the switch throws. Finally, a small rise in current towards the end of the operation usually occurs as the switch drives home.

Batteries have long been used for railway power switch applications. Batteries provide an “instantaneous” and generally “reliable” source of power for operating a railway switch when called upon. However, the batteries often used in these applications do not always provide the desired (or even expected) service life and reliability.

All-New Switch Boost™ 12V System

Our innovative Switch Boost™ 12V System utilizes a Hybrid Ultracapacitor module to provide enhanced power for 12V railway power switches. Taking advantage of the high current and exceptional cycling capability of hybrid ultracapacitors, our Switch Boost™ Systems can dramatically improve the performance, life and reliability of railway power switches, compared to legacy lead acid **battery-only** systems.

Our Switch Boost™ 12V System can replace traditional 12V batteries and offer a more reliable, cost-effective solution in virtually the same footprint. Modules can be mounted horizontally or vertically to match any new or existing integrated switch-mount requirement.



BETTER VALUE!

Group 31 and 34 Sizes Available

Suitable For:

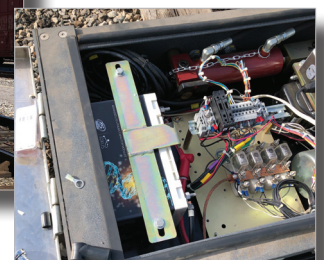
Hydraulic Yard Switch

Yard Switch

Mainline Switch

Hump Yard Switch

Also Compatible with Solar Powered Switches



Switch Boost™ 12V

Ultracapacitor Technology

Hybrid Ultracapacitors

Hybrid Ultracapacitors (HCAP) combined with Lithium Titanate Oxide (LTO) are an emerging technology for energy storage. HCAPs can replace traditional batteries and offer a more reliable, cost-efficient solution for 12V railway power switches. The hybrid technology provides a source of short duration **power** and **energy** for long duration backup. HCAPs are self-balanced internally for long-life, are an environmentally friendly power source which do not contain heavy metals (RoHS Compliant), are non-flammable, and pose no risk of explosion or thermal runaway like lead acid batteries.

Technology Advantages



Short Duration High Power & Energy

Hybrid Ultracapacitors are well suited for short duration high power demands common with railway switches. For recharging and outage conditions, the battery component provides rapid recharging and long duration backup.



Exceptional Charge Efficiency

Hybrid Ultracapacitors are up to 98%+ efficient on charging throughout its life. By comparison, the charge acceptance efficiency of lead-acid batteries is typically in the 70% to 85% range and is based on state of charge, charge rates and plate construction. Charge efficiency also decreases as the battery ages.



Rapid Recharge Time

Hybrid Ultracapacitors can be recharged extremely fast - from seconds to just a few minutes. Comparatively lead acid batteries take between 4 and 7 hours with a “sufficient” charging source to recharge from 10% SOC to 100% SOC. Rapid recharge times allow for continuous operation of even the most frequently thrown switches.



Wide Operating Temperature Range

Hybrid Ultracapacitors are capable of delivering energy down to **-40°C** with minimal impact on performance and efficiency. While batteries may struggle to perform as temperatures dip below 0°C, Ultracapacitors will be negligibly impacted even under the coldest conditions, making them well suited for rail operations in the US & Canada.



Cycle Life

Hybrid Ultracapacitors can provide 100,000+ cycles of operation. Comparatively lead-acid batteries will typically provide 1,000-3,000 cycles of operation. Under normal conditions, this can lead to a substantially lower total cost of ownership as frequent lead-acid battery replacement is eliminated.



The Powerful Advantage Since 1945

laMARCHE

ISO 9001:2015 CERTIFIED

