



Ultracapacitor Solutions

UNDERVOLTAGE SOLUTIONS FOR AC DRIVES

Process availability and uptime are the watchwords of a profitable business. Reliability is the key to constant production. Sags, dips, outages, and transients on the power grid can cause variable frequency drives (VFDs) to trip off-line. This can stop your process and damage your product or equipment. The cost of repair, lost product, and lost productivity can be staggering. Now you can protect your VFDs from power fluctuations from the utility or within the plant with Bonitron's Ride-Thru Solutions.

Conventional methods, such as automatic restart and kinetic buffering, do not allow the VFD to continue operating at full power. Many drives today claim some type of "Ride-Thru", and have been tested to meet SEMI-F47 specifications, however they cannot actually "Ride-Thru" voltage sags over 15% without **losing control** of the process. Most processes cannot tolerate changes in speed or power output without loss or damage. However, **Bonitron's Ride-Thru systems with ultracapacitor storage allow your VFD to maintain full power through sags and outages so your process never sees a disturbance.**

Bonitron's Ride-Thru Modules allow your VFDs to meet or exceed:

- SEMI-F47
- Samsung Power Vaccine
- IEC 61000-4-34



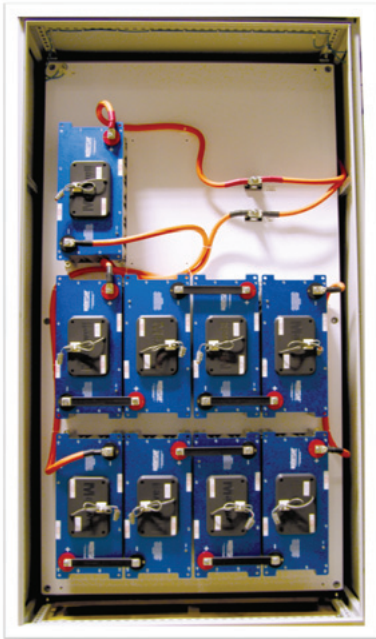
Our ultracapacitors have a demonstrated lifespan of one million recharge cycles, even in extreme environments, reducing maintenance costs and adding value to other power sources.

-Maxwell Technologies

Maxwell
TECHNOLOGIES



- Reliable operation in harsh environments
- Virtually maintenance free
- Tailored solutions
- Competitively priced
- Exceptional efficiency
- Compact design
- Extended operating life
- Environmentally safe



> 50kW

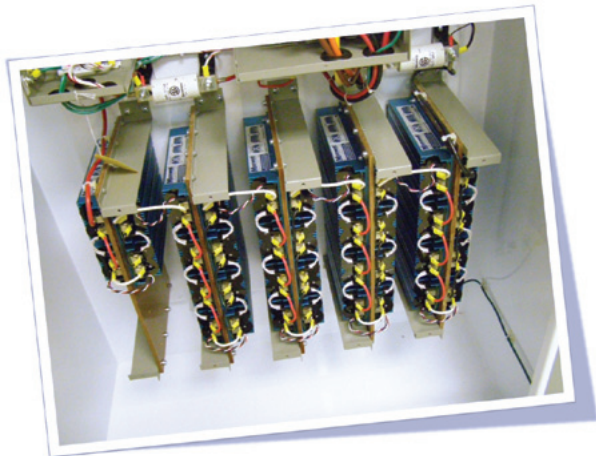
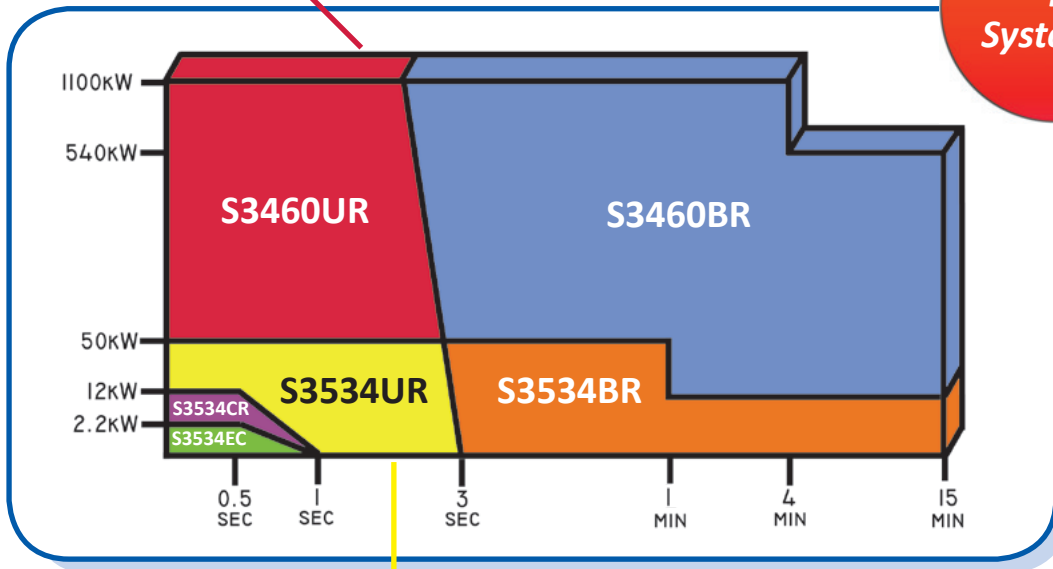
S3460UR Ultra Capacitor Ride-Thru and Boost Regulator

- 50 to 1300kW Drives
- 2 Second 100% Outage
- Ultra capacitor energy storage reservoirs
- M3460R Boost Regulator
- Transformer isolated M3528 Capacitor Charger Module



Bus / Capacitor Regulators

Complete Systems!



S3534UR Ultra Capacitor and Boost Regulator

- 5 to 50kW Drives
- 2 Second 100% Outage
- Ultra capacitor energy storage reservoirs
- M3534R Boost Regulator mines 75% of stored energy for a smaller, less expensive unit
- M3528 Capacitor Charger Module



< 50kW



Chargers



M3528 Ultra Capacitor/ Battery Charger

The **M3528** Charger can charge strings of batteries or ultra capacitors to voltages required for industrial and commercial applications. AC or DC input is available, along with separate float and equalization charge levels. The charger is current limited and designed for use in integrated storage and backup systems, but can also be used in bench or mobile systems.

Dischargers

M3628 Ultra Capacitor Discharge Controller

Large capacitor banks store huge amounts of energy and can be a hazard when systems are shutdown for system maintenance. The **M3628** system discharges capacitor banks to safe working levels quickly, allowing work on the system to begin in seconds, rather than hours.



M3628PD Portable Discharge Controller

The **M3628PD** Portable Discharger depletes energy stored in ultra capacitor banks. The unit can be self-powered from the capacitor bus or from the supplied 115VAC line cord. The M3628PD includes an IGBT switch and resistor element, with 16' leads to the capacitor bus and an 18' power cord. The unit is equipped with fans for cooling the resistor element and is capable of a full discharge cycle every 15 minutes. A voltmeter displays the DC voltage and capacitor bank discharging status, which combined with a fused positive DC link, increases safety for cabinet maintenance.



Capacitor Solutions



M3460UC Ultra Capacitor Bank Add-on for Existing M3460R Modules

The **M3460UC** is an enclosed ultra capacitor energy storage cabinet with charger module. By adding the M3460UC to an existing M3460R Ride-Thru Module, a 100% outage for a full 0.5, 1, 2, or 3 second spec can be achieved. This would cover virtually all short term power quality issues and exceed SEMI-F47 specifications. Ultra caps require **no maintenance** and have a **10+ year life with over 100,000 cycles!**

As capacitors' age approach end-of-life, their ESR rises and capacitance drops significantly below the original specification. These capacitors typically need replacement to avoid process failure. Measuring the capacitance and ESR helps determine when these capacitors reach EOL (end of life), avoiding both system failure and expensive, unnecessary preemptive replacement. The Bonitron M3628PUT and M3628PCT Modules allow the user to charge a capacitor or bank to a specified voltage, and then discharge the bank. The display will then show the calculated capacitance of the bank. The units also perform automated capacitor forming profiles, allowing capacitor banks to be brought out of long-term storage and into service



M3628PUT Portable Ultracapacitor Tester

- Up to 500 Farads
- Measures ESR



Check out our website for individual brochures and complete reference manuals!

— WWW.BONITRON.COM —



BONITRON Power Technology Solutions for the World

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WELCOME TO BONITRON, INC.

"Bonitron designs and manufactures electronic instruments and control systems with the highest possible degree of quality and reliability."

Bonitron is an international supplier of power controls designed to improve the reliability of electronic systems and variable frequency drives worldwide. With an educated and experienced team of engineers, Bonitron has seen thousands of products engineered since 1962 and welcomes custom applications and projects.

Industries Products

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Bonitron is an international supplier of power controls designed to improve the performance and reliability of electronic systems and variable frequency drives. Located in Nashville, Tennessee, and founded in 1962, Bonitron has gained a reputation for designing and manufacturing products with *the highest possible degree of quality and reliability.*

Through ongoing research and development, Bonitron continues to work with OEM's and integrators to design the best solutions for today as well as tomorrow. Discover how Bonitron can help increase both equipment reliability and availability while reducing downtime and waste. Give your company a competitive advantage and improve your bottom line by driving down operation and energy costs.