



# Power Technology Solutions for the World

## ACCESSORIES FOR AC DRIVES

Over the past 45 years Bonitron has developed over 3,500 different modules and instruments for monitoring and controlling industrial electronics. Therefore, we have a large array of enhancements and solutions for existing or retrofit systems.

Through ongoing research and development, Bonitron continues to work with OEMs and integrators in order to design the best solutions for today, as well as tomorrow.

For custom or application-specific solutions our design team will be glad to work with you in order to provide the absolute best solutions for your industrial electronic needs.

This brochure highlights some of our Accessories. For more products please be sure to check our website or contact us for more specific sales literature or manuals to better assist you.



Our products are offered in 3 main categories:

**Overvoltage:** Line Regeneration, Braking, Resistive Load Banks, & Diode Sharing

**Undervoltage:** Long and Short Term Ride-Thru for power sags and outages, Energy Storage Solutions, & Diode Sharing

**Accessories:** Energy Storage, Power Supply, System Options, Braking, Filtering, and Logic Interface

[WWW.BONITRON.COM](http://WWW.BONITRON.COM)

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

Check out our website for individual brochures and manuals on Bonitron products!

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## ENERGY STORAGE ACCESSORIES

### **M3528 Ultra Capacitor/ Battery Charger**

#### ***- Charge voltages up to 650VDC @ 20A -***

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.



### **M3522 Ultra Capacitor Regulator**

#### ***- Maximize your ultra capacitor storage -***

The **M3522** is a bi-directional current source designed to move energy between ultracapacitor storage banks and DC bus systems for drive system backup, Ride-Thru, electric vehicle systems, cyclical loads, and other high energy storage applications. The integrated charger can be adjusted and controlled to capture regenerated energy or maintain a float charge. 4:1 voltage boost allows full use of your ultracapacitor bank storage, and reduces capacitor count, making a smaller, more cost effective system.



### **M3628 Ultra Capacitor Discharge Controller**

#### ***- Adds safety to your system -***

Large capacitor banks store huge amounts of energy, and can be a hazard when systems are shut down 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.



### **M3628PCC Portable Capacitor Charger**

#### ***- Maintain and test capacitor banks -***

The **M3628PCC** is designed for maintenance of stored capacitors or as a benchtop power supply. Drive manufacturers require the bus capacitors in drives stored for more than a year to be reformed before installation to avoid damage at start-up. The M3628PCC is perfect for preparing drives for deployment. It can also be used for any low power, high voltage DC testing. The integrated discharge controller brings the capacitors to a safe voltage level for transport, maintenance, or storage.



### **M3528B Battery Module**

#### ***- 108V or 120V: 100% Outage -***

The **M3528B** is a 108 or 120 volt battery bank module designed to provide emergency power during 100% power outages. The M3528B is used with the M3528 Charger and M3534RT Boost Regulator as part of a complete Ride-Thru system for fixed bus variable frequency drives and is recommended for systems under 50 horsepower.



### **M3521 Battery Monitor**

#### ***- Monitors for Failure -***

The **M3521** Battery Monitor can provide around the clock service to indicate battery status. With indicators and PLC outputs for both undervoltage and overvoltage, the M3521 can easily be retrofitted in existing cell banks.



## M3528D Open Cell Bypass

### *- More uptime -*

The **M3528D** Open Cell Bypass is designed to bypass an open battery used in series high voltage battery strings. When used with Bonitron voltage boosters, the diode allows current to bypass the open battery, while the booster makes up the drop in voltage. The M3521 Battery Monitor may be used to indicate which battery is bad so that only the bad battery needs to be replaced. Confidence in the string is maintained knowing the bypass module will allow the system to supply power when the next battery opens.



## M3345CBM Common Bus Module

### *- Prevents circulating currents in parallel bridges -*

Common bus systems that have more than one power supply or input bridge can have circulating currents that cause overheating and drive faults. The **M3345CBM** allows more than one AC bridge to share on a common bus through back to back diodes, giving the advantages of power sharing between drives, while isolating the input bridges. This allows standard drives to be used in common bus systems without a single input supply.



## **POWER SUPPLY**

## M3489 Common Bus Power Supply

### *- 10 to 250kW Drives -*

Bonitron offers the **M3489** for applications that require precharging under a loaded condition. M3489 modules are rated from 10 to 250kW and are built as an open chassis construction for installation in the drive cabinets of system integrators. These modules include SCR “phase on” rectifiers, precharge control, fusing capacitors, and reactors.



## M3612RC Common Bus Snubber

### *- Limits voltage spikes on Common Bus Systems -*

The **M3612RC** Common Bus Snubber is a high frequency filter that limits spikes and ringing in DC bus systems caused by inverter switching, supply noise, bus reactance, and other sources. Limiting these spikes protects attached drives and power supplies, preventing premature failure.



## M3712 Single Phase AC Power Supply

### *- 30 to 125hp Drives -*

The **M3712** is a low cost solution for powering 3-phase AC variable frequency drives (VFDs) from a single phase source. When used in conjunction with a VFD, Bonitron M3712 Single Phase Power Supplies have the same great advantages of a 3-phase control without oversizing either the VFD or motor. The M3712 protects your drive from the high ripple currents caused by single phase operation, allows your drive to run cooler, and extends the life of your drive!



## **SYSTEM OPTIONS**

## M3460V Transient Voltage Suppressor

### *- Protect your drives -*

The **M3460V** is an array of high capacity MOV's for use in integrated drive systems. The M3460V adds a level of protection to three phase systems from line to line transients caused by contact switching, grid transfers, power factor capacitor switching and line faults, extending the life of your system components and reducing your maintenance costs.



## **BRAKING**



### **M3500DB Dynamic Safety Brake Modules**

**- for Servo Motion Control Systems -**

The standard **M3500DB** provides resistive E-stop braking control for servo motion systems and conforms to category II safety requirements per EN-954. The M3500DB4 incorporates redundant, positive guided contactors to satisfy category IV safety requirements per EN-954. The M3500DB is the secondary brake and will stop the motor in case of motion controller or power failure, as well as isolate the motor from its power source once it is stopped to ensure personal safety.



### **M3527R Variable Load Bank Controller**

**- Up to 6 Steps -**

The Bonitron **M3527R** Variable Load Bank Controller is designed to “switch in” resistive loads in discrete steps with load ramping between setpoints. The M3527R can control up to six static resistors that engage fused contactors connected to the resistive loads. 0 - 10V input for remote switching.

## **FILTERING**

### **M3464 PWM to Sine Wave Filter**

**- Increase Motor Life -**

Variable speed AC drives use high frequency switching to control motor speeds. This switching can cause ringing and reflected waves in the cables between the drive and motor, exposing the motor to voltage spikes that can cause motor overheating, or damage the motor’s winding insulation and cause premature failure. The **M3464** Sine Wave Filter conditions the AC drives output to a pure sine wave, allowing the motor to run within its design specs, and give the most service life.



### **M3484 Industrial Line Filter**

**-Protection in harsh electrical environments -**

Drives and other valuable equipment can be damaged by line notching from DC drives, capacitor switching transients, slip ring or shoe supply contacts, as well as high order harmonics, making the equipment fail prematurely. The **M3484** Line Filter has a tuned filter to protect your installations more effectively than reactors or chokes and a parallel snubbing filter to protect from spikes and notches.



## **LOGIC INTERFACE**



### **M3402R Logic Interface**

**- 115VAC to 24VDC -**

Bonitron’s **M3402R** Logic Interface is a drive option module which permits existing 115 VAC control wiring (Start, Stop, Run, Jog, etc.) to be interfaced to the Reliance GV3000 AC Drive. Additional cards are available as 115 VAC interfaces for other drives and manufacturers.