Uninterruptible Power Solutions

75 Years of Continuous Service

BORRI B9000

60kVA - 300kVA • IGBT RECTIFIER

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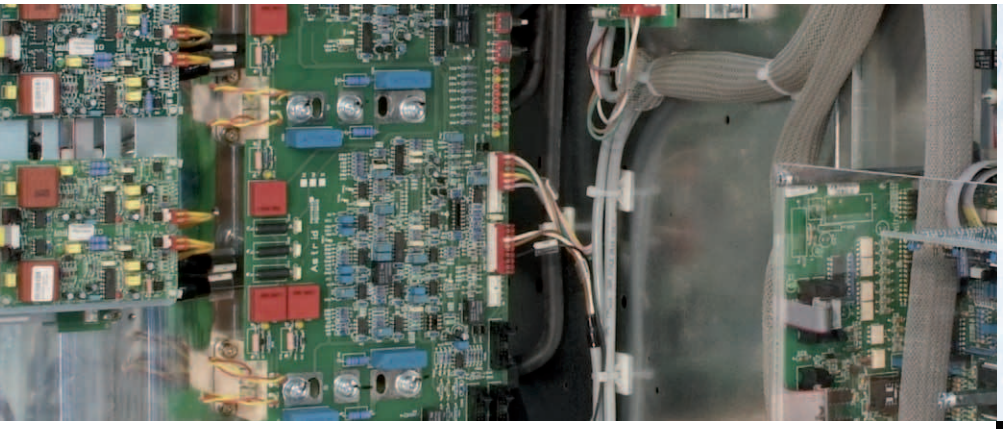
Why a UPS?

The B9000 is designed to protect against electrical threats that frequently affect a computerised infrastructure. Most individuals believe power failures are caused by lightening strikes or an “act of God”. However this is far from the truth.



In actual fact most power failures can be attributed to everyday occurrences.

In reality a computer suite is far more vulnerable to the contractor down the road cutting through an electric cable with his JCB, an act of vandalism or the most common causes of a computer crash - a local circuit breaker tripping

There is a misguided belief that a UPS is there essentially to protect against a power failure. Whilst this partly true, in reality electrical threats come in far more guises than a straightforward power failure.

Detailed on the following page are some of the main problems associated with mains power and how the B9000 can protect your installation.

> “The B9000 can achieve an efficency of 98%.”

> The B9000 incorporates high energy absorbing filters, ensuring clean and regulated electricity.

Brown Outs

A “brown out” occurs when the network voltage drops to a point whereby it can cause a server or PC to stop working. The affect can be the same as a full power failure, but may only last a second or two. Consider how frequently experience the lights briefly flickering or dimming – this is caused by a brown out.

The B9000 is designed to deal with this threat by providing your servers with a fully regulated and clean supply regardless of the input voltage. It will even record when a brown out occurs so that you can investigate the cause at a later time.

Applications

The B9000 provides the ultimate in power protection for almost all industrial applications including railways, petrochemical, mining and process control. Manufactured in the EEC, the B9000 makes witness testing easy and convenient.

All models can be modified to work in the harshest of environments with cabinet options available up to IP65. Additional metering, isolation and telemetry are all available on this robust and proven unit.

Spikes

These are bursts of high voltage and high energy, often generated by air conditioning, welding equipment or magnetic brakes. Laser devices or other similar machines can cause smaller but equally critical fluctuations in power. Spikes have a nasty habit of locking or freezing a computer programme - an irritation we have all experienced.

There is a significant danger that larger spikes can easily damage a power supply, therefore many quality servers have two. The B9000 incorporates high energy absorbing filters that will mitigate this threat thereby ensuring the network has a clean and regulated electrical supply.

The B9000 is available as a three-phase system from 10KVA to 300 KVA exclusively. The B9000's true double conversion technology enables the load to run 100% of the time using a continuously rated inverter.

The output voltage and frequency is regulated, cleaned and constantly monitored. Added to the converter are additional output filters, which ensure the removal of all other electrical noise, even in bypass mode.

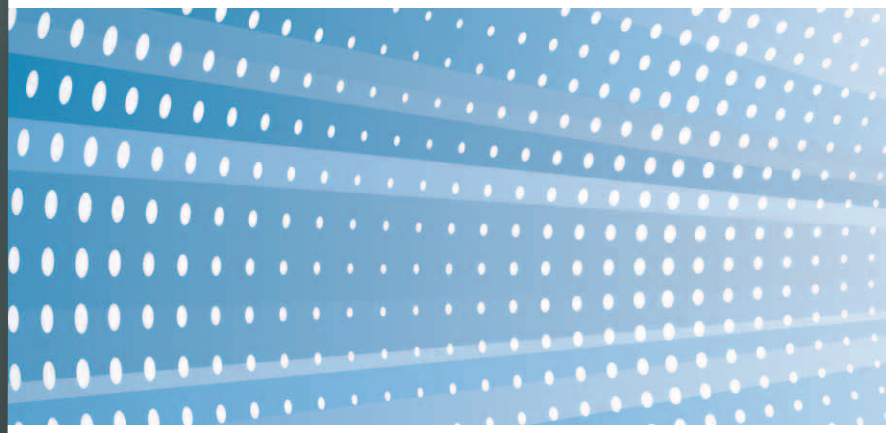
Air flow for the B9000 is drawn from the base of the UPS and is pushed out of the top, this design allows for the UPS to be installed against side or rear walls greatly saving space.

Battery Management

To offset the unavoidable process of battery decay, the B9000 incorporates a battery management system that is calibrated in accordance with most battery manufacturers' specifications including NiCad's. Battery temperature is carefully monitored with data being passed back to the charger. In the event that ambient temperature increases, the B9000 will adjust its charging regime to compensate. Any major battery problem will automatically be raised as an alarm allowing for fast, remedial solution.

Expandable Power with Redundancy

The B9000 can be configured to operate in parallel, offering an N+1 configuration or alternatively as a power expansion option. The parallel control system tightly manages both active and reactive type loads, allowing for intelligent load/current sharing between each individual phase.



Typically when running in parallel, conventional UPS work on a Master/Slave principle, which means that should the master UPS fail the whole system fails. However with the B9000, each system is connected to the other via a robust CAN BUS connection and is supplied with its own parallel monitoring system thereby removing a single point of failure. Expanding a B9000 system, either for parallel or power expansion, is a very simple process and can be performed in the field.

> "Multi level protection against internal failure makes the B9000 ideally suited to critical control applications."

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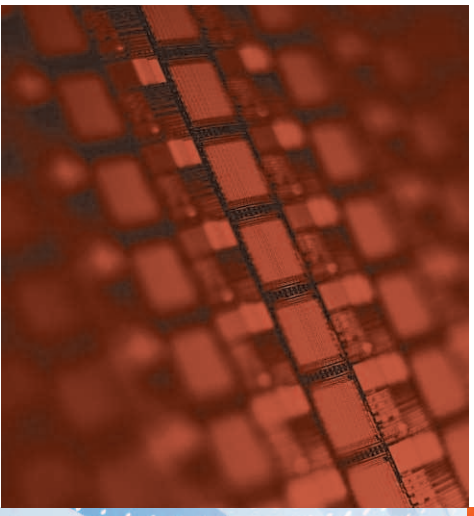
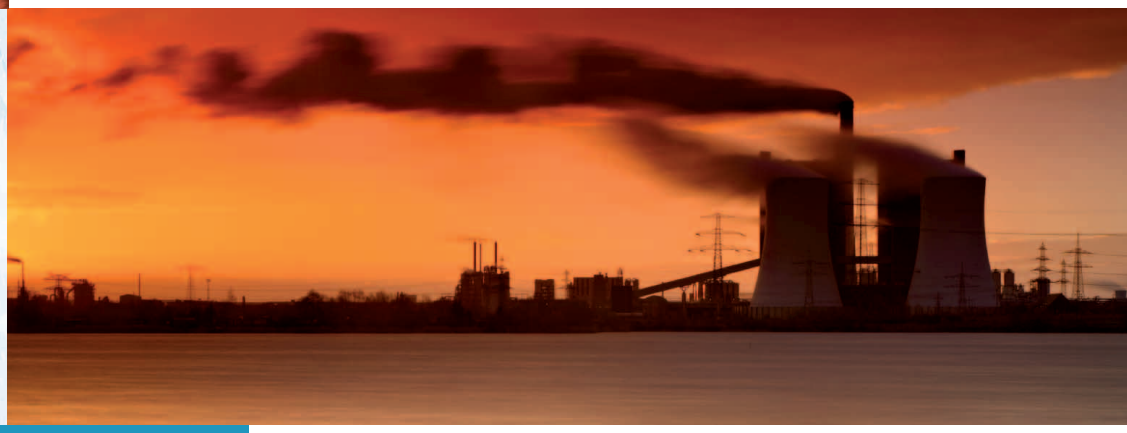


Safety in Advanced Technology

The B9000 Series incorporates Tricore Technology, which includes both Digital Signal Processor (DSP) and microprocessor applications. With many non-industrial UPS auxiliary power supplies, there can be a single point of failure. The B9000 has been meticulously designed to allow for this possible scenario.

Fail-safe engineering is one of those hidden benefits that are not evident until a problem occurs - customers can be assured that every facet of the B9000 has been carefully designed to mitigate any threat. All crucial components, modules and systems are constantly monitored allowing for predictive maintenance. If any anomalies occur, this information can be gathered via a PC or through the Internet.



Easy Installation & Operation

Because of intelligent cooling, the B9000 Series can be positioned against back or side walls. Air is drawn through the front and expelled through the top - an important feature where space is at a premium.

A further benefit of the Borri B9000's cooling system is the extended life expectancy of the internal power components.

Designed for easy maintenance, all components can be easily accessed from the front. This simple, but practical, feature greatly reduces servicing inconvenience, as the UPS can remain in situ.

Efficiency & Eco Friendly

The combination of the B9000's DSP, Isolated Gate Bipolar Transistors (IGBT) and Tricore Technology all adds up to an efficient UPS, which in turn equates to financial savings. Achieving 93% efficiency in On-Line mode, the B9000 is typically 7% to 8% better than a conventional six pulse UPS. In real terms, you could be saving 2.8KW per hour on a 40kVA installation. Imagine that's a 2.5KW electric fire running in your office day in and day out. In addition, as less heat is generated, air conditioning can be down rated to provide additional savings.

Blade Server Compatibility

The B9000 is suitable for almost any type of load accepting a power factor of either 0.9 leading or 0.9 lagging (many other manufactures standard is .8pf). This makes it ideal for applications with blade services or other devices where a leading power factor can offer a serious challenge - a challenge not met by all UPS.

Standard Properties

- Hi Level diagnostics via LCD screen or lap top
- Input power factor correction .99pf
- Low audible noise
- Back feed protection
- Green Mode
- High speed temperature compensated battery charge
- Front access
- Made in EEC
- IGBT Input and Output

Serviceability & MTTR

MTTR (Mean Time to Repair) means a lot more than just four letters to whoever is responsible for the efficient running of an IT network or production plant. All high intensity computer users need, and in fact demand, a low MTTR! This requirement is no problem for the B9000, which offers features that dramatically reduce service or repair times. Problems can be diagnosed via the on board LCD screen, through a software interface or even the Internet. All critical circuit boards are accessed via the front of the UPS, removal and replacement of a board can be done whilst the UPS remains in position.

Mains Friendly

The B9000 is deliberately designed as a transformer-based UPS but with an IGBT input and output all controlled by DSP technology. In our opinion, transformer-based technology offers the best solution for the industrial user or the large IT customer.

The combination of IGBT and DSP enables the B9000 to have an almost negligible effect on the mains supply, providing less than three percent harmonic distortion. The benefit of this feature is that a generator can be down sized by as much as 50%. This may well help the user to fall outside the financial penalty bands, relating to mains pollution, that many EEC countries are currently considering.

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TECHNICAL SPECIFICATIONS • 60kVA - 300kVA

POWER - KVA	60kVA	80kVA	100 kVA	125 kVA	160 kVA	200 kVA	250 kVA	300 kVA
Capacity (kVA/kW)	60/48	80/64	100/80	125/100	160/128	200/160	250/200	300/240
Dimensions WxHxD (mm)	815x1670x825					1200x1900x860		
Weight (kg)	580	600	630	662	720	870	1020	1200
Input/output connection	Hardwired (dual input)							
Battery	External, 300 cells							
INPUT								
Nominal voltage	220/380, 230/400, 240/415 Vac three phase							
Voltage range	-20%, +10% from nominal							
Frequency	50/60 Hz (45-65 Hz)							
Power factor	0,99							
Current distortion (THDi)	<3%							
OUTPUT								
Nominal voltage	220/380, 230/400, 240/415 Vac three phase							
Frequency	50/60 Hz							
Voltage regulation	±1% static; ± 5% dynamic 100% load change, <20 ms recovery time							
PF acceptable without de-rating	Lagging to 0.9 leading							
Overload capacity	101-125% for 10 min (on-line); 126-150% for 1 min (on-line); 1000% for 1 cycle (bypass)							
Efficiency	>93%							
(Eco-mode)	>98%							
OPTIONS								
	Parallel capacity/redundancy; isolation transformer; external bypass; external battery cabinets battery switch box; battery thermal probe; transformers/ autotransformers for voltage adaption; top cable entry							
USER INTERFACE								
Front panel	Graphical LCD display, mimic with LED's and keyboard							
Standard communication ports	RS232 serial port, USB port, Remote Emergency Power Off input, battery switch monitoring port							
Optional	Web/SNMP, ModBus, relay, modem cards; remote panel; monitoring, managing and shutdown software							
ENVIRONMENTAL								
Operating temperature	0°C - +40°C							
Storage temperature	-10°C - +70°C							
Altitude	<1000 m							
Audible noise at 1 meter (dBA)	<60							
STANDARDS & CERTIFICATION								
Marking	CE							
Safety	IEC EN 62040-1							
EMC	IEC EN 62040-2							
Test and Performance	IEC EN 62040-3							
Quality	ISO9001 :2000							

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