

# B9000FXS - B9600FXS

Transformer based 3-PHASE UPS  
from 60 to 800 kVA



English







B9000FXS - B9600FXS BROCHURE

# YOUR CRITICAL POWER SOLUTION PARTNER.

The Borri Group has been developing and building uninterruptible power systems since 1932 and is a global provider of power electronics systems and solutions for harsh industrial and demanding critical power requirements.

— Borri's R&D vast expertise in all facets of firmware, power electronics and mechanical design provides innovative solutions for tomorrow's problems in Industrial and Critical Power applications.

— The company prides itself on its first-class service and superior engineering disciplines. To ensure sustained quality, Borri manages all its processes in house from feed studies to design, production and after sales service technology.

— Based in Bibbiena, Italy with over 15,000 m<sup>2</sup> production area, Borri operates across all five continents with subsidiaries in USA, Canada, Germany, UAE, India and Malaysia.

— It has also established a strong distributor network, able to deliver on site support and technical guidance indicative of our own capabilities.



## Critical Power Solutions

Designing and building mission critical UPS's 1- and 3-Phase up to 21 MW.



## Industrial Power Solutions

Designing, engineering and building customised AC and DC power supply systems for harsh industrial applications.



## Service

Borri team of experts support you to the highest standards no matter where you are in the world.



UPS 3-PHASE

# B9000FXS

from 60 kVA ———— to 300 kVA



## Applications



Small  
data centre



Medium  
data centre



Network  
& Server



Industrial  
controls & process  
automation



Medical  
equipment



Building  
automation

### Rugged design and high reliability

Customisable UPS for  
specific process industry  
applications.

### Minimum maintenance costs

Full front accessibility to  
all components and high  
material quality extremely  
reduce servicing.

### Transformer based design

Reliable design with output  
isolation transformer for  
DC/AC galvanic protection.

Transformer-based UPS designed for safety and emergency systems, process control devices and machine tooling, critical infrastructures, medical equipment, small and medium data centres monolithic power protection.

## B9000FXS: reliable, rugged transformer based power solution.

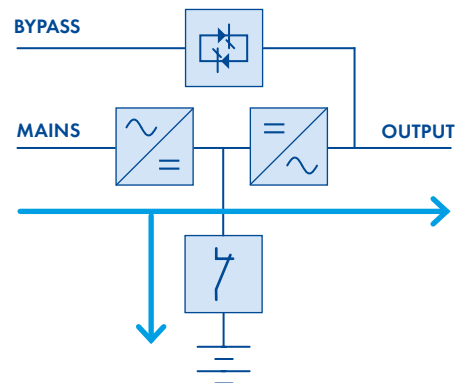


### Features and benefits

- Built-in inverter transformer for DC/AC galvanic protection of industrial type loads.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Front access to all critical components for easy maintenance.
- Hot connection/disconnection of parallel units for easy system resizing.
- Accurate battery management providing ripple current minimization charge current/voltage control as per batteries manufacturers' specifications and automatic/manual battery test for maximum battery expected life preservation.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Smart parallel management in load sharing, load synchronization of single UPS systems and load synchronization of two paralleled systems for optimum protection.
- Dual DSP plus microcontroller logics for top performance and reliability.
- CAN-bus based distributed parallel control ensuring high load sharing accuracy and no single point of failure in parallel systems.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.

### Dynamic Charging Mode (DCM)

The battery charging current can be set above the nominal, up to the DCM limit, in order to manage high capacity battery packs. The extra charging power is fed to the battery, as long as the load does not requires it. This is a firmware enabled feature.



### Main options

- Backfeed protection bypass contactor.
- Bypass isolation transformer.
- Transformers/autotransformers for voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- Battery fuse switch wall-mounted box.
- Associated battery cabinets for long autonomy times.
- Parallel redundant up to 6 units or system redundancy.
- Load-sync option.
- Top cable entry.



## B9000FXS technical data

Rating (kVA)	60	80	100	125	160	200	250	300
Nominal Power (kW)	54	72	90	112.5	144	180	225	270
Dimensions WxDxH (mm)	815x825x1670					1217x853x1900		
UPS weight (kg)	570	600	625	660	715	970	1090	1170
Battery configuration	External, 300 to 312 cells, VRLA (other options)							
<b>Input</b>								
Connection type	Hardwired 3w (rectifier), 4w (bypass)							
Nominal voltage	400 Vac 3-phase (rectifier) ; 380/400/415 Vac 3-phase with neutral (bypass)							
Voltage tolerance	-20%, +15% (rectifier); ±10% (bypass)							
Frequency and range	50/60 Hz, 45 to 65 Hz							
Power factor	0.99							
Current distortion (THDi)	<3%							
<b>Output</b>								
Connection type	Hardwired 4w							
Nominal voltage	380/400/415 Vac 3-phase with neutral							
Frequency	50/60 Hz							
Voltage regulation	Static: ±1% ; Dynamic: IEC/EN 62040-3 Class 1							
Power factor	Up to 0.9, without power derating							
Overload capacity	Inverter: 125% for 10 min, 150% for 1 min, 199% for 10 s; bypass: 150% continuous, 1000% for 1 cycle							
Efficiency (AC/AC)*	Up to 98%							
Classification by IEC/EN 62040-3	VFI-SS-11							
<b>Connectivity and function extensions</b>								
Front panel	Graphic display, mimic LED panel and keyboard, local EPO							
Remote communication	<b>Included:</b> serial RS232 and USB; input terminal block for: remote emergency power off (REPO), battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. contact. <b>Optional:</b> SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet); ModBus-RTU (RS485); ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software							
Optional function extensions	Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, top cable entry; load-sync for single UPS and load-sync box (2 UPS systems); backfeed protection; other options on request							
<b>System</b>								
Protection degree	IP 20 (other options)							
Colour	RAL 7016 (other options)							
Installation layout	Wall, back to back and side by side installation allowed							
Accessibility	Front and top access, bottom cable entry							

\* according to IEC/EN 62040-3

## Other features

<b>Environmental</b>	
Operating temperature range	0°C to +40°C
Storage temperature range	-10°C to +70°C
Altitude (AMSL)	< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
Audible noise at 1 m (dBA)	< 62
<b>Standards and certifications</b>	
Quality assurance, environment, health and safety	ISO 9001:2015, ISO 14001:2015, BS OHSAS 18001:2007
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environment aspects	IEC/EN 62040-4
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

UPS 3-PHASE

# B9600FXS

from **400** kVA ——— to **800** kVA





## Applications



Medium  
data centre



Network  
& Server



Industrial  
controls & process  
automation



Medical  
equipment



Building  
automation

### Rugged design and high reliability

Customisable UPS for  
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Reliable design with output  
isolation transformer for  
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Transformer-based UPS designed for safety and emergency systems, process control devices and machine tooling, critical infrastructures, medical equipment, small and medium data centres monolithic power protection.

## B9600FXS: reliable, high power transformer based power solution.



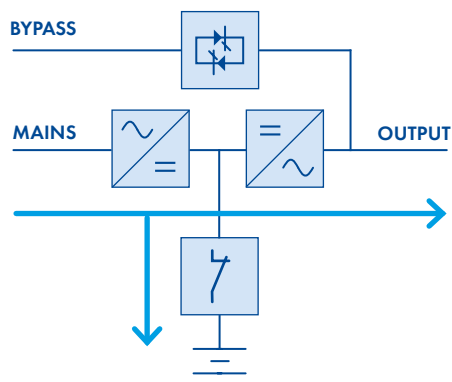
### Features and benefits

- Built-in inverter transformer for DC/AC galvanic protection of industrial type loads.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Front access to all critical components for easy maintenance.
- Included backfeed bypass contactor for complete protection and operators' safety without additional installation costs.
- Hot connection/disconnection of parallel units for easy system resizing.
- Accurate battery management providing ripple current minimization charge current/voltage control as per batteries manufacturers' specifications and automatic/manual battery test for maximum battery expected life preservation.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Smart parallel management in load sharing, load synchronization of single UPS systems and load synchronization of two paralleled systems for optimum protection.
- Dual DSP plus microcontroller logics for top performance and reliability.
- CAN-bus based distributed parallel control ensuring high load sharing accuracy and no single point of failure in parallel systems.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.



### Dynamic Charging Mode (DCM)

The battery charging current can be set above the nominal, up to the DCM limit, in order to manage high capacity battery packs. The extra charging power is fed to the battery, as long as the load does not requires it. This is a firmware enabled feature.



### Main options

- Manual bypass.
- Bypass isolation transformer.
- Transformers/autotransformers for voltage adjustment.
- Battery voltage temperature compensation.
- Battery fuse switch wall-mounted box.
- Associated battery cabinets for long autonomy times.
- Parallel redundant up to 6 units for system redundancy.
- Load-sync option.
- Top cable entry.

## B9600FXS technical data

Rating (kVA)	400	500	600	800
Nominal Power (kW)	360	450	540	720
Dimensions WxDxH (mm)	1990x950x1920	2440x950x2020		3640x950x1920
UPS weight (kg)	1955	2482	2535	3600
Battery configuration	External, 300 to 312 cells, VRLA (other options)			
<b>Input</b>				
Connection type	Hardwired 3w (rectifier), 4w (bypass)			
Nominal voltage	400 Vac 3-phase (rectifier); 380/400/415 Vac 3-phase with neutral (bypass)			
Voltage tolerance	-20%, +15% (rectifier); ±10% (bypass)			
Frequency and range	50/60 Hz, 45 to 65 Hz			
Power factor	0.99			
Current distortion (THDi)	<3%			
<b>Output</b>				
Connection type	Hardwired 4w			
Nominal voltage	380/400/415 Vac 3-phase with neutral			
Frequency	50/60 Hz			
Voltage regulation	Static: ±1% ; Dynamic: IEC/EN 62040-3 Class 1			
Power factor	Up to 0.9, without power derating			
Overload capacity	Inverter: 125% for 10 min, 150% for 1 min, 199% for 10 s; bypass: 150% continuous, 1000% for 1 cycle			
Efficiency (AC/AC)*	Up to 98%			
Classification by IEC/EN 62040-3	VFI-SS-11			
<b>Connectivity and function extensions</b>				
Front panel	Graphic display, mimic LED panel and keyboard, local EPO			
Remote communication	<p><b>Included:</b> serial RS232 and USB; input terminal block for: remote emergency power off (REPO), battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. contact.</p> <p><b>Optional:</b> SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet); ModBus-RTU (RS485); ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software</p>			
Optional function extensions	Isolation transformer; transformers/autotransformers for voltage adjustment; maintenance bypass switch in extended cabinet or wall-mounted box; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit; top cable entry; load-sync for single UPS and load-sync box (2 UPS systems); other options on request			
<b>System</b>				
Protection degree	IP 20 (other options)			
Colour	RAL 7016 (other options)			
Installation layout	Wall, back to back and side by side installation allowed			
Accessibility	Front and top access, bottom cable entry			

\* according to IEC/EN 62040-3

## Other features

<b>Environmental</b>	
Operating temperature range	0°C to +40°C
Storage temperature range	-10°C to +70°C
Altitude (AMSL)	< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
Audible noise at 1 m (dBA)	< 62
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Environment aspects	IEC/EN 62040-4
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

# GUARDIAN NET REMOTE DIAGNOSTICS AND PREVENTIVE MONITORING

Guardian Net improves Business Continuity by remote diagnostics and preventive monitoring of your UPS system and peripherals by preventing unpredictable anomalies to become failures.

Early detection of any deviations of critical parameter and prompt reaction in case of alarms result in extended uptime and enhanced operational efficiency. Real time monitoring and periodic reports on the health of equipment provide complete peace of mind, delivering unparalleled support experience.



**BORRI**  
GUARDIAN NET

## BENEFITS

### Extending Uptime

Together with a Borri Maintenance Contract, Guardian Net allows our Service specialists to take care of your system by monitoring its parameters and quickly reacting to anomalies.

### Increasing Business Continuity

Guardian Net provides you with continuous monitoring of your system, giving you comprehensive operational awareness and providing technical recommendations and reports by Borri Service Centre for improving the quality and reliability of your system.

### Reducing Total Cost of Ownership

Guardian Net is an on-site virtual Service specialist 24/7, monitoring all relevant parameters, maximizing system performance, reducing on-site maintenance and minimizing your total cost of ownership by extending the life of your critical equipment.

## FEATURES

### Web Proactive Maintenance

Our Service specialists monitor your equipment from the Borri Service Centre, analysing data and trends, to proactively recommend actions for ensuring equipment always performs at its best.

### Warning and alarm notification

Guardian Net continuously monitors the system and should any critical parameters exceed the preset tolerance, it generates a warning or alarm notification to you and the Borri Service Centre. Our Service specialists will investigate the data, find the cause and take actions based on the customer's maintenance contract. This ensures that in case Service engineers are dispatched on-site, they arrive prepared for first time resolution, reducing downtime and increasing system availability.

### Status Reports

The unit parameters are collected by our Service Centre and presented in periodic status reports. You will receive a comprehensive analysis of your equipment and its operational performance, as well as demonstration that it is under continuous remote monitoring.

### Total Service Support

Borri supports critical infrastructures with a comprehensive offering of their Service specialists, enhancing system availability and ensuring total peace of mind 24/7.

## Data Manager Unit (DMU) technical data

<b>To monitored device</b>	
Communication port	RS485 ModBus
Protocol	ModBus-RTU/ASCII slave
Max no. of connected devices*	16
<b>To Service Centre</b>	
Communication port	RJ45 Ethernet
Protocol	Open VPN (based on Open SSL), http, SMTP, ModBus-TCP/IP
Services	Web Server, NTP time stamping
Notification	<b>Included:</b> email - <b>Optional:</b> text message via https or via RS232 modem
<b>Options</b>	
	30 h backup battery, system integrator version (no box), GSM/GPRS modem (SIM card not included)
<b>System</b>	
Power supply	100 to 240 Vac
Installation	Wall-mounted box
Dimensions WxDxH (mm)	400x200x400
Weight	15 kg (w/ backup battery), 12 kg (w/o backup battery)
Protection degree	IP 20 (IP 65 on request)
Colour	RAL 7035
<b>Environmental</b>	
Operating temperature range	0°C to 40°C
Storage temperature range	-10°C to 70°C

\*conditions apply

# SERVICE

Customer's expectation defines Borri's priority from the early analysis of the project requirements to a worldwide commissioning and service. Many thousands of systems have been successfully installed and maintained globally, with continuous support from a highly trained team of expert, certified technicians and engineers. From the professional set-up of Borri's training centre or on site, the training and service team stand ready to provide support and contribute to tailored training at Borri or on site. You can be assured of Borri support to the highest standards no matter where in the world you are.



## Planning, installation, commissioning

Borri assist you in every single step of your project. Our R&D team can analyse and develop solutions to a wide range of edge system requirements.



## Analytical tests

Borri undertakes a series of analytical tests in order to guarantee higher efficiency and continuity to your system operation.



## Repair & spare parts

All spare parts supplied by Borri are original, tested and guaranteed to be fully compliant with Borri solutions.



## Remote monitoring

Guardian Net remote monitoring system allows you to detect any deviation from optimum operation and trigger proper and immediate response, so that anomalies don't evolve into issues.



## Maintenance

Preventive maintenance guarantees uninterrupted operations and optimised system efficiency.



## Battery tests

Batteries have a limited time life and their proper maintenance is of high importance to guarantee efficiency to the UPS and avoid potential failures. Borri delivers high quality and performing batteries to assure smooth operations.



## Training

Borri offers distributors and customers a service training structured in 3 levels. Courses can be held in Borri training centres or on-site.



Since 1932,  
securing your  
power with passion  
and commitment.





[www.borri.it](http://www.borri.it)

#### **BORRI HEADQUARTERS AND FACTORY**

##### **Borri S.p.A**

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#### **BORRI SUBSIDIARIES AND SERVICE CENTRES**

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[info@borri.de](mailto:info@borri.de)  
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[info@borripower.com](mailto:info@borripower.com)