

# UPSAVER 3VO MODULAR HI-POWER 3-PHASE UPS



# YOUR CRITICAL POWER SOLUTION PARTNER.

Borri 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, UAE, India and Malaysia.

— Our strong trained and certified distributor network in every continent is able to provide on-site service 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.





# OUR DEDICATION TO SUSTAINABLE POWER

At Borri, our commitment to sustainability and energy efficiency drives our constant pursuit of innovation, cutting-edge design, and advanced technology.

Our mission is to make a positive impact on the environment by ensuring the sustainability of our Uninterruptible Power Supplies (UPSs) throughout their entire lifecycle.



Borri is dedicated to putting its environmental commitment into action throughout the organization.

This includes actively promoting a low carbon footprint culture among our team members and customers, as well as developing sustainable products. Our approach involves all internal processes, from daily activities to the design of new products, with the goal of minimizing pollution and waste while maximizing product performance with minimal carbon footprint.



## RESPONSIBLE DESIGN

Responsible design is at the heart of sustainable solutions: from efficiency to durability, from easy maintenance to a responsible component selection. Our Research and Development (R&D) and Engineering teams daily work to incorporate sustainability into every aspect of our products. To demonstrate our commitment, we have chosen to certify our major critical power products through a 3rd-party declaration with the PEP Association. For instance, our Ingenio Max series (ranging from 200 to 600 kW) has undergone an independent verification process, assessing the environmental impact at every stage of the product's lifecycle.

Design for Sustainability criteria play a pivotal role in the PEP score, considering factors such as material selection, minimized bill of quantities, high operational efficiency, repairability and reusability, as well as packaging design and short routes shipping strategies, to name a few. Borri has been ISO 14001 certified since 2011. The international standard "specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance". Additionally, our entire UPS range complies with the IEC/EN 62040-4 Product Standard.

The PEP, or Product Environmental Profile, is a manufacturer's declaration of a product's sustainability, according to a specific protocol outlined by the European Company Eco Passport. This protocol includes a comprehensive life cycle assessment, evaluating, by means of a quantitative analysis, greenhouse gas emissions and other environmental impact indicators, according to a "cradle-to-grave" approach. Customers can easily access this information online.



## EMBRACING ENVIRONMENTALLY FRIENDLY PROCESSES

While product sustainability is crucial, Borri recognizes that environmental responsibility extends to our industrial processes and facilities. In line with our Group's E-less policy, we are dedicated to achieving annual reductions in energy consumption. Our efforts have included a thorough review and replacement of HVAC equipment, as well as the implementation of automatic lighting systems.

Some of our facilities feature a photovoltaic power plant, and we have ambitious plans to expand our solar power capacity and implement special energy storage systems for efficient utilization.

In our critical power testing area, where energy consumption can be significant, we have been using regenerative active loads since 2010. These loads enable us to massively reduce the energy typically consumed during testing of our Critical Power UPSs, which would otherwise be lost if using resistor-based loads.

Borri actively participates in our Group's Corporate Social Responsibility Program, taking concrete steps to address the environmental challenges of our time. We remain committed to intensifying our efforts in support of a more responsible and sustainable future.

MODULAR HI-POWER  
3-PHASE UPS

# UPSAVER 3VO

from **670 kW** ———— to **2.67 MW**





## Applications



Large  
data centre

### High Efficiency

Online double conversion VFI with the highest efficiency thanks to the patented 3-Level Green Conversion technology.

### Modular hot swappable

Hot swappable and hot serviceable (VFI) modules ensuring lowest MTTR for highest overall availability.

### 3D Scalability

Up to 2.67 MW in a single unit, up to 21 MW in a parallel system and synchronized dual feed systems.

Borri 3rd Generation UPSaver 3vo high power modular UPS delivers unsurpassed performance for large and hyperscale data centres providing the highest level of availability for this power range, lowest power consumption and TCO.

## UPSaver 3vo: designed for versatility and flexible power upgrade.



### Main features

- Up to 97.2% online VFI efficiency\* (certified by third party) and high efficiency operating modes.
- UPSaver 3vo operating modes providing best efficiency in all conditions: double conversion (VFI), ECO mode (VFD) and Ultra High Efficiency (VFD).
- Maximised efficiency and low TCO thanks to load matched output power adjustment.
- Hot scalable 333 kW power units with hot swap power packs thanks to optional distribution cabinets.
- Power parallel scalable up to 21 MW.
- High Genset compatibility thanks to minimum input capacitive power, unit input power factor, THDi <3% and programmable soft start features.
- Backfeed protection circuitry for maximum operator safety.
- Very small footprint.
- System design flexibility and total installation adaptability.
- Solutions for peak shaving.
- 10" colour touch screen display.
- Green Conversion Battery Care (GCBC) for extended battery service life.
- VRLA and Li-Ion compatible.

\*Conditions apply

### Hot scalability & serviceability (on demand)

UPSaver 3vo can be configured with distribution sections including switches for rectifier, output and battery per each 333 kW modules. By this option, the unit can be upgraded and maintained while operating online VFI.

### 3-L Green Conversion Technology

Green Battery Management and Green Conversion technology save battery life, by mitigating the major root causes of battery ageing, such as ripple current and floating charge micro currents. UHE mode of operation dramatically increases the duration of wearing components.

### Main options

- TNC/TNS grounding system.
- Dual/Single input.
- Top/Bottom entry line.
- Cable/Busbar connection.
- Centralized/Distributed battery.
- Various layouts.
- Hot Scalability.
- I/O Switches.





## UPSAVER 3vo technical data

Rating (kVA/kW)	670	1000	1340	1670	2000	2340	2670
N of modules	2	3	4	5	6	7	8
UPS dimensions WxDxH (mm) *	3800x970x2150	4450x970x2150	6550x970x2150	7200x970x2150	7650x1200x2150	8800x1200x2150	(***)
UPS weight (kg) *	2140	2710	4205	4775	5770	6630	(***)
Battery configuration	External 360 to 372 cells, VRLA , Li-Ion (other options)						

### Input

Connection type	Hardwire 4w (rectifier), 4w (bypass)
Nominal voltage	400 Vac 3-phase with neutral (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%

### Output

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 1, without power derating
Overload capacity**	Inverter: 105% continuous at 30°C, 125% for 10 min; 150% for 1 min; bypass: 110% continuous; 150% for 1 min; 700% for 100 ms; 1000% for 10 ms
Efficiency (AC/AC)	Up to 99%
Classification by IEC/EN 62040-3	VFI-SS-11

### Connectivity and function extensions

Front panel	10" colour touch screen display, 1024x600 pixels
Remote communication	Included: serial RS232; input terminal block (remote emergency power off, battery circuit breaker aux.cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux.cont., external output circuit breaker aux. cont., remote transfer by bypass mode); SPDT contact relay board; ModBus-RTU (RS485); Optional: ModBus-TCP/IP (Ethernet)
Optional features	Isolation transformer; battery cabinets; DC protection cabinets; battery thermal probe; parallel kit; load-sync ; other options on request

### System

Protection degree	IP 20
Colour	RAL 9005
Installation layout	Wall, back to back and side by side installation allowed
Accessibility	Front and top access, bottom and top cable entry
Parallel configuration	Up to 8 UPS, for a total of 21 MW

\*Full option version including top busbar entry module, main switches, hot swap distribution modules \*\*Conditions apply \*\*\*Contact our sales team for confirmation

## Other features

### Environmental

Operating temperature range	0°C to +40°C with no power derating
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)	< 65

### Standards and certifications

Quality assurance, environment, health and safety	ISO 9001, ISO 14001, ISO 45001
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environment aspects	IEC/EN 62040-4; ISO 14025
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

# SERVICE & MAINTENANCE

— Borri service team is committed to providing unparalleled expertise and support, ensuring the safeguarding of our customers' investments. Promptly addressing any failures or anomalies in the client's systems, we strive to minimize economic and operational impact in the shortest time.

— Our highly trained team of expert, certified technicians and engineers carry out both preventive and corrective maintenance activities on all Borri UPS, STS models and batteries. By doing so, we guarantee uninterrupted system operation, mitigating any downtime and maintaining peak performance levels.

— From installation and commissioning to maintenance and tailored training at Borri facilities or on site our comprehensive support extends to the highest standards.

At Borri Service, we are focused on customer peace of mind and our goal is to set up the best value-added protection package, to minimize economic and time losses due to site shutdowns along the system entire life cycle.

## How we can assist you



### Planning, installation, commissioning

Many thousands of systems have been globally installed, with on-site support and technical guidance provided by our team of skilled and experienced engineers.



### Maintenance

Preventive maintenance guarantees uninterrupted operation, optimized system efficiency and life expectancy.



### Analytical tests

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



### Battery tests

Batteries have a limited time life and their proper maintenance is of high importance to guarantee availability to the UPS and avoid potential failures.



### Repair & spare parts

All spare parts supplied by Borri are original, tested and guaranteed to be fully compatible with the equipment.



### Training

Borri offers distributors and customers training programs that can be held in Borri training center or on-site.

## Maintenance plans for your critical equipment

Features	SERVICE CALL	LIGHT (ONMA)	BUSINESS (ONSI)
1 yearly preventive maintenance visit	•	•	•
Priority service (8 working hours)	•	•	•
Unscheduled maintenance visit (included labour costs and travel expenses)	Flat rate	•	•
Technical updates		•	•
Spare parts (batteries, capacitors, fans not included)			•
Additional preventive maintenance visit	Optional	Optional	Optional
Maintenance outside standard work hours	Optional	Optional	Optional
8 h response time (24/7)		Optional	Optional
4 h response time (24/7)		Optional	Optional





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

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

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

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