

INGENIO

200-500 kVA

MAXUPS



BORRI[®]

Borri INGENIO MAX offers low Total Cost of Ownership (TCO) with very high efficiency and compact design supplying reliable uninterrupted quality power to all critical applications. Lowest Capex and Opex with Borri's patented 3-L Green Conversion technology; the INGENIO MAX delivers one of the highest efficiency in VFI mode and 100% expected battery life.



Applications

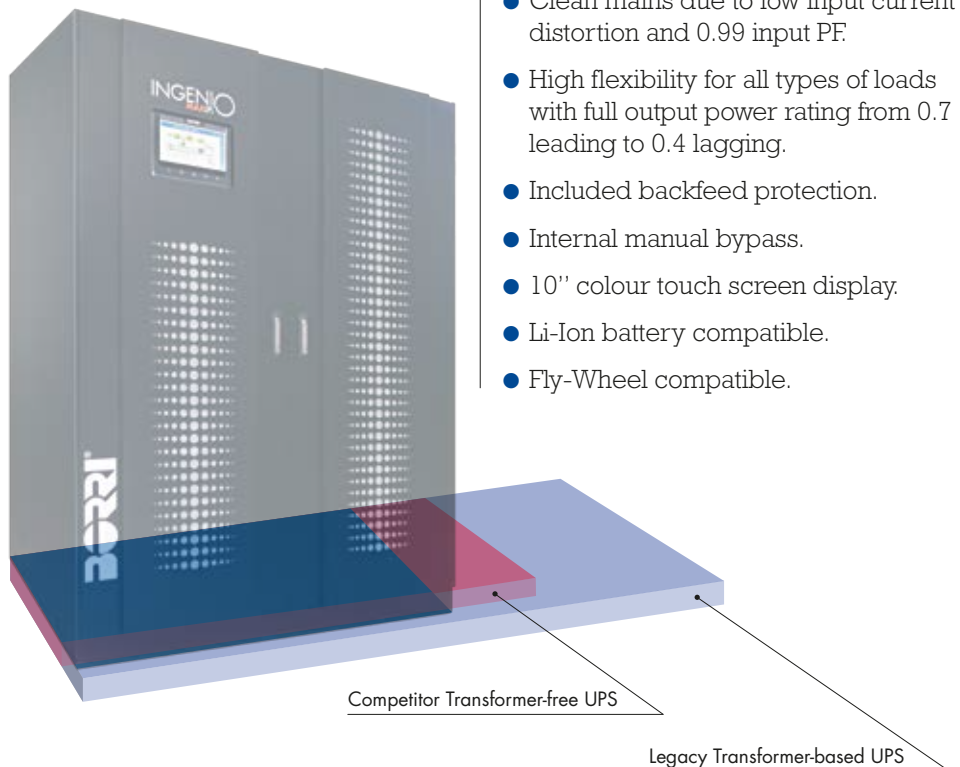
- Data centres
- Networking and telecommunication
- Process automation
- Medical equipment
- Emergency and safety systems
- Continuous cooling

3-L Green Conversion

On-line double conversion VFI with up to 97% efficiency thanks to 3-L Green Conversion technology based on a patented control algorithm, managing the 3-level battery-inverter subsystem to enhance system efficiency and to extend battery life with lower costs.

Compact footprint

Borri INGENIO MAX maximizes the use of your floor space by our high power density design and full front access making it easy to maintain. With no side and rear clearance needed, units can be installed side by side, back to back or against a wall. Common battery option further extends the INGENIO MAX capability of delivering low footprint solutions. INGENIO MAX allows you to optimize your investment creating more room for other revenue-creating equipment. You can save money and reduce your costs that would be otherwise used for building and maintaining the UPS space.



Reduced TCO

Borri INGENIO MAX provides systems from 200 kW up to 4 MW which can be designed to meet your demanding needs thanks to its flexible features and options. The Borri patented 3-L Green Conversion design provides high power density in a minimum space to allow users to maximize the number of racks and servers installed in their data centres.

Highlights

- No impact on upstream infrastructure.
- Perfect compatibility with mission critical loads.
- Highest VFI efficiency.
- CO₂ emission reduction.
- Lowest Total Cost of Ownership.

Features and benefits

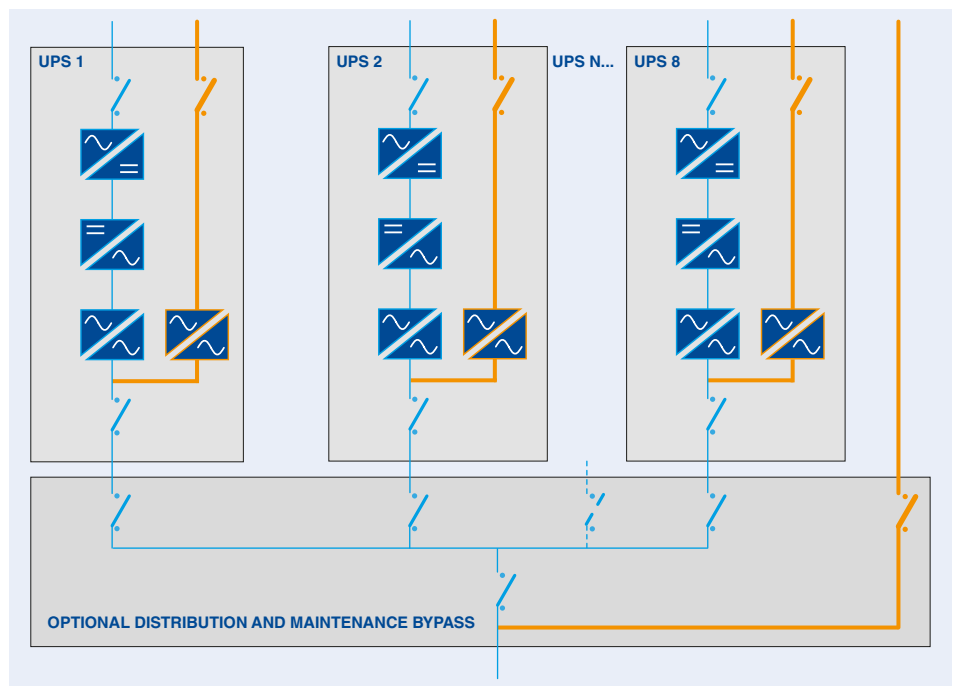
- Continuous savings with high efficiency 3-L Green Conversion technology.
- Full rated output power (pf=1), for optimal infrastructure utilization.
- Clean mains due to low input current distortion and 0.99 input PF.
- High flexibility for all types of loads with full output power rating from 0.7 leading to 0.4 lagging.
- Included backfeed protection.
- Internal manual bypass.
- 10" colour touch screen display.
- Li-Ion battery compatible.
- Fly-Wheel compatible.

Intelligent Parallel Systems for higher availability or higher power

The Borri INGENIO MAX can be connected up to 8 units in parallel for N+1 redundancy or for increasing power up to 4 MW. With properly designed distribution panel the system can be hot swapped for ease of maintenance or for power growth scalability.

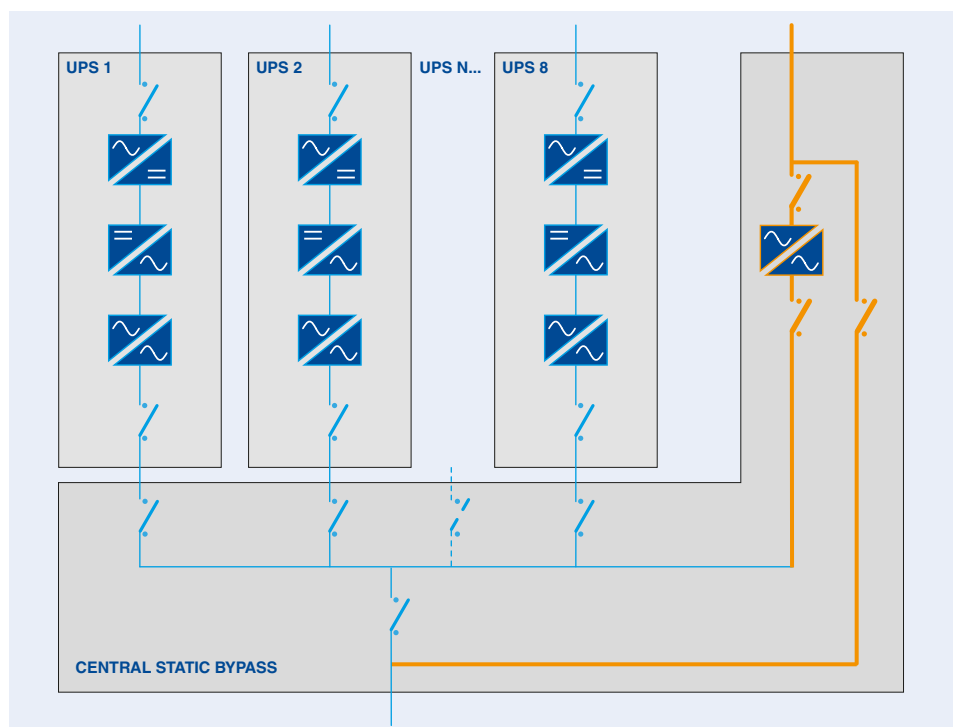
Distributed Parallel

In a distributed parallel system each UPS has a dedicated static bypass for N+1 redundancy to increase the system availability or for increasing power.



Centralized Parallel

Central Static Bypass architecture is often the preferred choice in large power backup systems, where multiple UPS units are paralleled and placed next to the MV/LV transformer busbar. The high fault current available at this level allows the UPS to let a high amount of specific energy flow through its static bypass so during a downstream short circuit the downstream breakers trip in the required time, typically less than 20 ms in order not to disturb the other loads. Borri offers a full range of central static bypass systems with user definable peak current capability and customisable input-output interface delivering ultimate flexibility and reliability for your critical power supply applications.

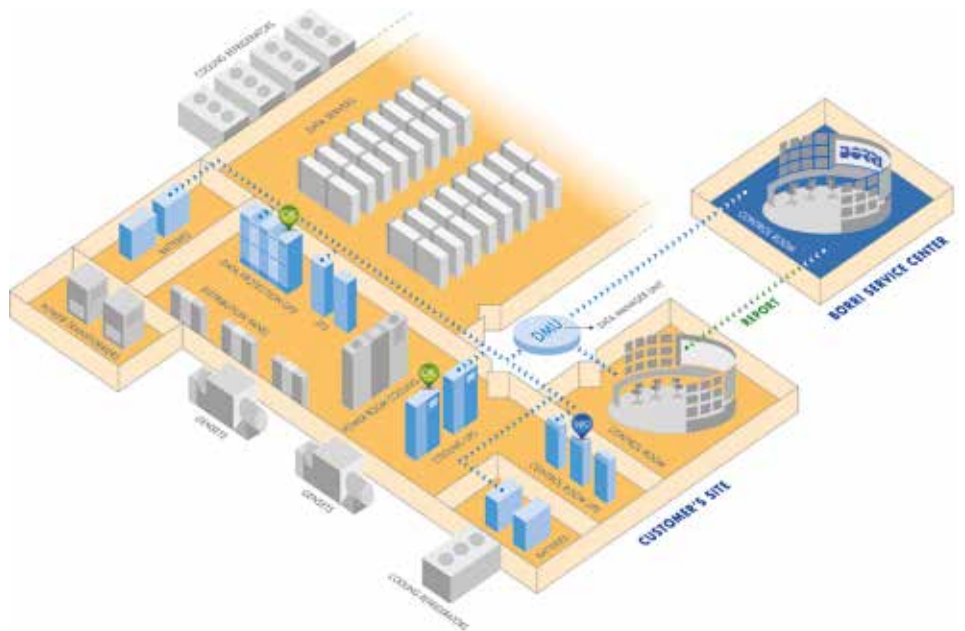


Remote Monitoring and Diagnostics for mission critical applications

Borri 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.



Benefits

Extending Uptime

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.

INGENIO MAX technical data

Rating (kVA)	200	250	300	400	500
Nominal power (kW)	200	250	300	400	500
UPS dimensions WxDxH (mm)	880x970x1978			1430x970x1978	
UPS weight (kg)	720	850	900	1080	1250
Battery configuration	External 360 to 372 cells, VRLA (other options)				

Input

Connection type	Hardwired 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: 125% for 10 min, 150% for 30 s, >150% for 0.1 s; bypass: 150% continuous, 1000% for 1 cycle
Efficiency (AC/AC)*	Up to 99%
Classification as per IEC/EN 62040-3	VFI-SS-111

Connectivity and function extensions

Front panel	10" colour touch screen display, 1024x600 pixels
Remote communication	Included: serial RS232 and USB, backfeed protection monitoring contact, 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 to bypass mode). Optional: SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet), ModBus-RTU (RS485), from ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software
Optional features	Common battery; central bypass; cold start; Input /Output/Bypass isolation transformer; other I/O voltages 480/690 Vac with autotransformers; external maintenance bypass; battery fuse switch box; battery cabinets; battery thermal probe; parallel kit; load-sync for single UPS and load-sync box (3 UPS systems); top cable entry; backfeed tripping coil for bypass disconnecter; other options on request

System

Internal manual bypass	Included as standard
Protection degree	IP 20
Colour	RAL 9005
Installation layout	Wall, back to back and side by side installation allowed
Accessibility	Front access, bottom cable entry

*according to IEC/EN 62040-3

Other features

Environmental

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)	<60

Standards and certifications

Quality assurance, environment, health and safety	ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Environmental aspects	IEC/EN 62040-4
Test and performance	IEC/EN 62040-3
Protection degree	IEC 60529
Marking	CE

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Who we are

Borri Group is a global provider of power electronics systems and solutions for harsh industrial and demanding commercial and ICT secure power requirements merging over eighty years of experience in developing, manufacturing and supplying uninterruptible power systems and solutions.

The Research and Development Team's expertise combines AC and DC power technologies spanning the worlds of both conventional and renewable energy, to provide innovative solutions for tomorrows problems.

The company is comprised of three business units: Industrial Power, Critical Power and Renewable Power, headquartered in Bibbiena, Italy. Borri's latest products, based on Green Conversion operation, guarantee the best PUE for green data centres: proof of the ongoing company commitment to innovation.

Thanks to its highly skilled custom engineers Borri controls in-house the entire process: from feed studies to design, production and after-sales service guaranteeing state-of-the-art solutions. Based in Italy with over 20,000 m² production area and a large high power test field, Borri can depend on its more than 80 years of experience and multidisciplinary research and development to serve our customers best.