

STS

STATIC TRANSFER SWITCHES

1- and 3- PHASE



NEW



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 m² 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.

STATIC TRANSFER SWITCHES
1- and 3-PHASE

STS

from 16 A ———— to 2000 A





Applications



Network
& Server



Data centre



Industrial
controls & process
automation

Short circuit protection

Ensuring maximum source protection in dual feed applications.

No break seamless transfers

Automatically transferring loads to alternative power sources when the primary power source fails or is not available.

High availability

Thanks to source separation, dual maintenance bypass and redundant critical paths.

1-Phase and 3-Phase static transfer switches for seamless load transfer in dual path power systems. The STS rugged design and high reliability provides supply redundancy and prevents fault propagation.

1-PHASE STATIC TRANSFER SWITCHES

STS 16-32

from **16 A** — to **32 A**

STS 16-32 front view



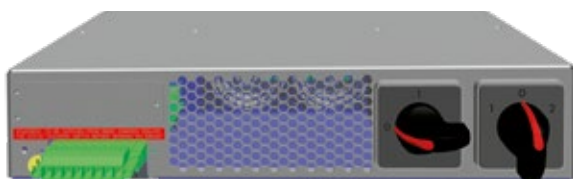
STS 16 rear view



STS 32 rear view

ITS maintenance switch main features

- 16 A and 32 A version.
- 6 x 40 A input terminal board.
- Zero switching time.



1-phase static transfer switch series designed to offer solutions for the protection of single-phase loads.

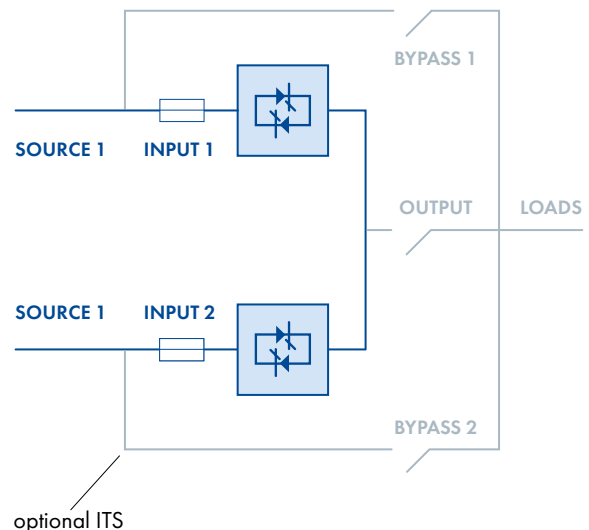
Features and benefits

- Dual redundant power supplies to control boards, for increased availability.
- Redundant cooling and fan failure monitoring, for reliable operation.
- Real-time SCR fault sensing, preventing fault propagation.
- High overload capability, for robust electrical design.
- ITS maintenance switch, for hot swap maintainability.
- Compact 19" rack system design, for easy integration.
- LCD/LED display, providing user friendly interface.
- Comprehensive set of communication options for total remote monitoring of equipment operation.

Main options

- ITS maintenance switch.
- RS485 ModBus interface.
- SNMP interface.

STS block diagram



STS 16 - STS 32 technical data

Model	STS 16	STS 32
Rating (A)	16	32
Dimensions WxDxH (mm)	440x275x88	
Weight (kg)	8	9
Input		
Connection type	Hardwired 5w	
Nominal voltage	200/208/220/230/240 Vac 1-phase	
Voltage tolerance	± 5% (up to ±20%)	
Absolute maximum voltage range	150 Vac to 300 Vac	
Frequency and range	50/60 Hz, ± 5% (up to ±20%)	
Source harmonic voltage content	Unlimited	
Transfer phase angle	5° to 20°	
Output		
Connection type	8 IEC-C 13, hardwired 3w	Hardwired 3w
Nominal voltage	200/208/220/230/240 Vac 1-phase	
Frequency	50/60 Hz	
Transfer time	2 to 6 ms	
Transfer mode	Break before make, transfer inhibit on fault	
Load power factor	1 to 0.3	
Maximum crest factor	3:1	
THD current feedback from load	Unlimited	
Overload capacity	125% for 1 min, 150% for 30 s, 200% for 5 s	
Efficiency (AC/AC)	99%	
Connectivity and function extensions		
Front panel	Graphical LCD display	
Remote communication	Included: RS-232 ModBus, USB, voltage free relay contacts; Optional: one slot for SNMP adapter or RS-485 ModBus adapter	
System		
Protection degree	IP 20	
Colour	RAL 9005	
Installation layout	Rack mounted	
Accessibility	Front and rear	

Other features

Environmental		
Operating temperature range	-5°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, ISO 14001, ISO 45001	
Safety	IEC 60950-1	
EMC	EN 55022, EN 55024	
Transfer voltage limit	IEEE Standard 446	
Protection degree	IEC 60529	
Performance	IEC/EN 62310-3	
Marking	CE	

3-PHASE STATIC TRANSFER SWITCHES

STS 300

from **100 A** — to **2000 A**

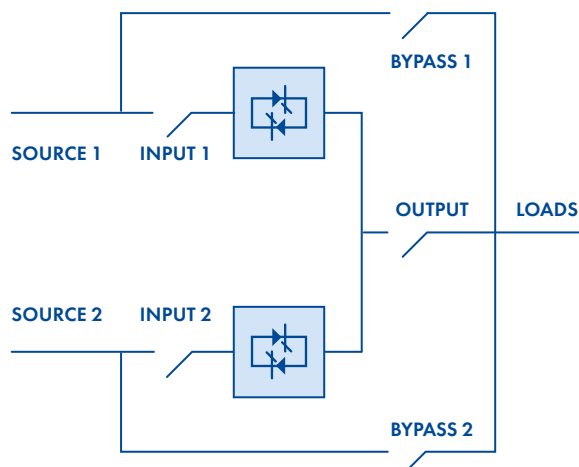
3-phase centralised static transfer switch series designed to offer solutions for the protection of loads even in critical environment.

NEW

Features and benefits

- Fuseless execution in 3- or 4-pole configuration for maximum flexibility.
- Continuous monitoring of voltage and frequency and automatic instant (<4 ms) transfers for secure power switching without cross connection between sources.
- ITIC/CBEMA compliant asynchronous transfers.
- Overlapping neutral management, for safe switching in 4-pole applications.
- Downstream inrush current management and short circuit transfer inhibit for robust load protection.
- Open/shorted SCR fault detection and input moulded case switches with backfeed protection
- for maximum upstream safety.
- Dual manual bypass for complete source independence during maintenance.
- Dual redundant power supply, dual redundant control board and monitored fans for top product reliability in high availability applications.
- Full front access for easy maintenance.
- Configurable on demand for top, bottom cable entry or busbar entry for maximum installation versatility.
- Comprehensive set of communication options.
- Fully compliant with IEC product standards.

STS block diagram



Dry contact relay card (Included)

To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts

Main options

- Triple redundant power supplies.
- Thyristor protection fuses.
- Isolation transformer.
- Output distribution panels.
- Additional SPDT contact relay board.
- SNMP, ModBus over TCP/IP card.
- Dual ModBus card.

RS485 ModBus-RTU port (Included)

To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For remote monitoring and remote service

STS 300 technical data

Rating (A)*	100**	250**	400	630	800	1000***	1250	1600	1800	2000
Dimensions WxDxH (mm)	820x835x1475		811x980x2100	1211x980x2100		2011x980x2100		2311x980x2100	2511x980x2100	
Weight (kg)	265	290	305	615	660	700	820	1150	1280	1400

Input

Connection type	Hardwired 3w or 4w
Nominal voltage	380/400/415 Vac 3-phase ****
Voltage tolerance	From ±1% to ±20%, adjustable (default ±10%)
Frequency and range	50/60 Hz, from ±1% to ±10%, adjustable (default ±5%)
Source harmonic voltage content	Unlimited
Transfer phase angle	5° to 30°

Output

Connection type	3w or 4w
Nominal voltage	380/400/415 Vac 3-phase ****
Frequency	50/60 Hz
Transfer time	≤4 ms
Transfer mode	Break before make
Load power factor	1 to 0.3
Maximum crest factor	3:1
THD current feedback from load	Unlimited
Overload capacity	125% for 10 min, 150% for 1 min, 1000% for 10 cycles, 2000% for 1 cycle
Efficiency (AC/AC)	>99%

Connectivity and function extensions

Front panel	Graphical LCD display, mimic LED panel and keyboard
Remote communication	Included: dry contact relay card, RS232 and RS485 serial ports, ModBus-RTU protocol. Optional: additional dry contact relay card; SNMP, ModBus over TCP/IP card; dual ModBus card
Optional function extensions	Thyristor protection fuses; isolation transformer; output distribution panels; other options on request.

System

Protection degree	IP 20 (other options)
Colour	RAL 9005 (other options)
Installation layout	Wall, back to back and side by side installation allowed
Accessibility	Top or bottom cable; Top cable or busbar Top busbar

*rating up to 3000 A on request ** some features may not be available

*** Available with top or bottom cable entry, dimensions 1211x980x2100 mm (WxDxH) **** other on request

Other features

Environmental

Operating temperature range	0°C to +40°C
Storage temperature range	-10°C to +60°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 62310-1
EMC	IEC/EN 62310-2
Breakers	IEC/EN60947-3
Transfer voltage limits	IEEE Standard 446
Protection degree	IEC 60529
Performance	IEC/EN 62310-3
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.

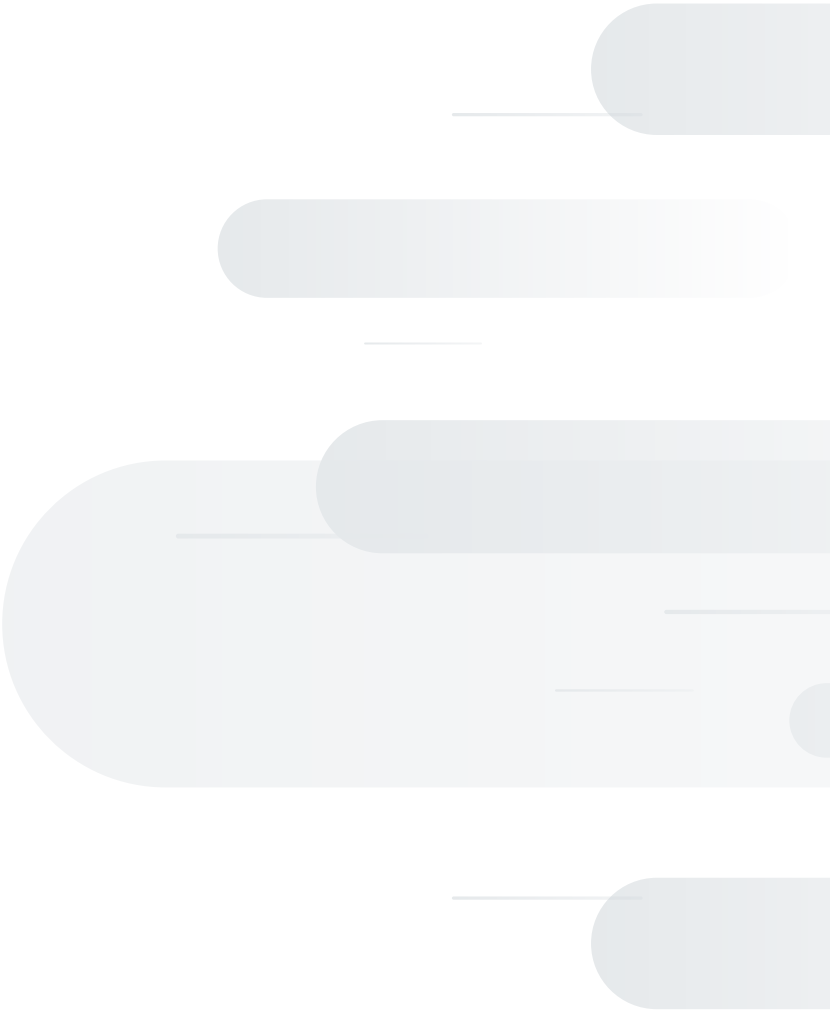


Training

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





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