

UPS and STS miscellaneous

Environmental	
Operating temperature range	0 °C ÷ +40 °C
Storage temperature range	-10 °C ÷ +70 °C
Altitude	<1000 m
Audible noise at 1m (dBA)	<62
Standards and certifications	
Quality assurance, environment, health and safety	ISO 9001:2008, ISO 14001:2004, GOST, BS OHSAS 18001:2007
UPS	
Safety	IEC EN 62040-1
EMC	IEC EN 62040-2
Test and performance	IEC EN 62040-3 (VFI-SS-111)
Protection degree	IEC 60529
Marking	CE
STS	
Safety	IEC EN 62310-1
EMC	IEC EN 62310-2
Breakers	IEC EN 60947-3
Transfer voltage limits	IEEE Standard 446
Protection degree	IEC 60529
Marking	CE

UPSaver®



Don't miss our innovative and unmatched energy saving solution for ICT: ask for our UPSaver® series brochure

UPSaver® series, 3/3 phase modular UPS, 100 kW to 12.8 MW, the most versatile and cost-effective way to build up and power your ICT business



Who we are

Borri is a company specialized in custom design, manufacturing and servicing of power electronics equipment for ICT, industrial, oil & gas and energy applications. Borri's R&D department is one of the most complete regarding the different disciplines in the field of power conversion. Long experience in semiconductors and magnetic component design is combined with the most advanced digital regulation algorithms and microcontroller programming know-how. Borri has a leading position in the oil and gas market thanks to its proven customizing expertise and continuous pursuit of excellence in a state-of-the-art product. However, wide experience in several branches of power electronics such as UPS systems for data centers and inverters for renewable energy and storage, make Borri a leader in this technology not only for oil and gas applications. The latest patented three-phase solution based on its green conversion operation can guarantee the best PUE for green data centers: proof of the ongoing company commitment to innovation. Based in Italy with 12,000 m² production space and a large full-testing area, the company can call on more than 80 years of experience. Borri has a strong global presence and is represented in all 5 continents where it can provide on-site service and technical support.

OMG60001revE - 05-2014 - Due to our policy of continuous development, data in this document is subject to change without notice and becomes contractual only after written confirmation

STS



STS100/300
25 to 3000 A
1 and 3 phase Static Transfer Switches
Switched or non-switched neutral
Transfer inhibit on fault
Backfeed protection
Nominal voltage:
110 to 277 Vac 1-phase (STS100)
208 to 480 Vac 3-phase (STS300)

UPS



B8031/8033FXS
10 to 100 kVA
3/1 and 3/3 phase
On-line double conversion
Transformer free
Full IGBT technology
Parallelability up to 600 kVA
Input voltage:
400 Vac, 3-phase, 50/60 Hz
Output voltage:
220/230/240 Vac, 1-phase, 50/60 Hz (B8031FXS)
380/400/415 Vac, 3-phase, 50/60 Hz (B8033FXS)

UPS



B9000FXS
60 to 300 kVA
3/3 phase
On-line double conversion
Full IGBT technology
Parallelability up to 1.8 MVA
Input voltage:
400 Vac, 3-phase, 50/60 Hz
Output voltage:
380/400/415 Vac, 3-phase, 50/60 Hz

UPS



B9600FXS
400 to 800 kVA
3/3 phase
On-line double conversion
Full IGBT technology
Parallelability up to 4.8 MVA
Input voltage:
400 Vac, 3-phase, 50/60 Hz
Output voltage:
380/400/415 Vac, 3-phase, 50/60 Hz

B8031FXS

UPS

B8031/B8033FXS series

Features and benefits

- High double conversion efficiency and smart-on-line mode for low running costs and environmental impact.
- Transformer free design for light small size layout.
- Removable power modules architecture and built-in diagnostics for easy maintenance and very low MTTR.
- Hot connection/disconnection of parallel units for easy system resizing.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- 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.
- High power battery charger, giving long autonomy and low charging time.
- 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 compliance with all international product standards for maximum quality guarantee.

Main options

- 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 kit.
- Input terminals for remote EPO, external manual bypass auxiliary contact, diesel mode.

Backfeed protection included



B8031FXS technical data

Rating (kVA)	10	15	20
Nominal power (kW)	9	13.5	18
UPS dimensions WxHxD (mm)	450x1200x670		
UPS weight (kg)	100	110	110
UPS weight with internal battery (kg)	Min.175 Max.285	Min.260 Max.275	Min.260 Max.275
External battery module dimensions WxHxD	500x1200x670		
Battery configuration	Internal or external, 360÷372 cells, VRLA (other options)		
Input			
Connection type	Hardwired 4w (rectifier), 2w (bypass)		
Nominal voltage	380/400/415 Vac 3-phase with neutral (rectifier) 220/230/240 Vac 1-phase (bypass)		
Voltage tolerance	-20%, +15%		
Frequency and range	50/60 Hz (45÷65 Hz)		
Power factor	0.99		
Current distortion (THDi)	<3%		
Output			
Connection type	Hardwired 2w		
Nominal voltage	220/230/240 Vac 1-phase		
Frequency	50/60 Hz		
Voltage regulation	±1% static; dynamic: IEC EN 62040-3 Class 1		
Power factor	up to 0.9, lagging or leading without power derating		
Overload capacity	Inverter: 101÷125% for 10 min, 126÷150% for 30 s, >150% for 10 s; bypass: 150% continuous, 1000% for 1 cycle		
Efficiency (AC/AC)*	up to 98%		
Classification as per IEC EN 62040-3	VFI-SS-111		
Connectivity and function extensions			
Front panel	Graphic display, mimic LED panel and keyboard, local EPO		
Remote communication	Serial RS232 and USB; terminal block for battery breaker auxiliary contact. Optional: input terminal block (remote emergency power off, battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.); 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		
System			
Protection degree	IP 20		
Colour	RAL 7016		
Installation layout	10 cm wall-gap, side by side installation allowed		
Accessibility	Front and top access, bottom cable entry		

*according to IEC EN 62040-3

B8033FXS

Extra options

- Separate bypass input
- Backfeed protection (optional from 30 kVA to 60 kVA, included in all other sizes)



B8033FXS technical data

Rating (kVA)	10	15	20	30	40	50	60	80	100
Nominal power (kW)	9	13.5	18	27	36	45	54	72	90
UPS dimensions WxHxD (mm)	450x1200x670 *							460x1690x920	
UPS weight (kg)	100	110	110	140	140	170	170	328	333
UPS weight with internal battery (kg)	Min.175 Max.285	Min.260 Max.275	Min.260 Max.275	350	350	-	-	-	-
External battery module dimensions WxHxD (mm)	500x1200x670						560x1690x880		
Battery configuration	Internal or external, 360÷372 cells, VRLA (other options)						External, 360÷372 cells, VRLA (other options)		
Input									
Connection type	Hardwired 4w (separate bypass input available on request)								
Nominal voltage	380/400/415 Vac 3-phase with neutral								
Voltage tolerance	-20%, +15%								
Frequency and range	50/60 Hz (45÷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	±1% static; dynamic: IEC EN 62040-3 Class 1								
Power factor	up to 0.9, lagging or leading without power derating								
Overload capability	Inverter: 101÷125% for 10 min, 126÷150% for 30 s, >150% for 10 s; bypass: 150% continuous, 1000% for 1 cycle							Inverter: 101÷125% for 10 min, 126÷150% for 1 min, 151÷199% for 10 s, 200% for 100 ms; bypass: 150% continuous, 1000% for 1 cycle	
Efficiency (AC/AC)**	up to 98%								
Classification as per IEC EN 62040-3	VFI-SS-111								
Connectivity and function extensions									
Front panel	Graphic display, mimic LED panel and keyboard, local EPO								
Remote communication	Serial RS232 and USB; terminal block for battery breaker auxiliary contact. Optional: input terminal block (remote emergency power off, battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.); 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								
System									
Protection degree	IP 20								
Colour	RAL 7016 (10-60 kVA) RAL 9005 (80-100 kVA)								
Installation layout	10 cm wall-gap, side by side installation allowed								
Accessibility	Front and top access, bottom cable entry								

*dimensions of 30 and 40 kVA with internal battery: 450x1730x670 **according to IEC EN 62040-3

B9000/B9600FXS series

Features and benefits

- High double conversion efficiency and smart-on-line mode for low running costs and environmental impact.
- Built-in inverter transformer for DC-AC galvanic protection of industrial type loads.
- Hot connection/disconnection of parallel units for easy system resizing.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- 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 or load synchronization of two UPS 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 compliance with all international product standards for maximum quality guarantee.

Main options

- 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 kit for load sharing.
- Load-sync (two UPS or two paralleled UPS systems).
- Top cable entry.

Extra options

- Backfeed protection



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 WxHxD (mm)	815x1670x825				1200x1900x860			
UPS weight (kg)	570	600	625	660	715	970	1090	1170
Battery configuration	External, 300÷312 cells, VRLA (other options)							
Input								
Connection type	Hardwired 3w (rectifier), 4w (bypass)							
Nominal voltage	380/400/415 Vac 3-phase (rectifier) 380/400/415 Vac 3-phase with neutral (bypass)							
Voltage tolerance	-20%, +15%							
Frequency and range	50/60 Hz (45÷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	±1% static; dynamic: IEC EN 62040-3 Class 1							
Power factor	up to 0.9, lagging or leading without power derating							
Overload capacity	Inverter: 101÷125% for 10 min, 126÷150% for 1 min, 151÷199% for 10 s, 200% for 100 ms; bypass: 150% continuous, 1000% for 1 cycle							
Efficiency (AC/AC)*	up to 98%							
Classification as per IEC EN 62040-3	VFI-SS-111							
Connectivity and function extensions								
Front panel	Graphic display, mimic LED panel and keyboard, local EPO							
Remote communication	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. cont.; optional: 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 for load sharing or load-sync (2 UPS); top cable entry; load-sync box (2 UPS systems); backfeed protection							
System								
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							

*certified by TÜV NORD according to IEC EN 62040-3

Centralised bypass on request

Extra options

- Manual bypass in extended cabinet

Backfeed protection included



B9600FXS technical data

Rating (kVA)	400	500	600	800
Nominal power (kW)	360	450	540	720
Dimensions WxHxD (mm)	1990x1920x990	2440x2020x990	2440x2020x990	3640x1920x990
UPS weight (kg)	1820	2220	2400	3600
Battery configuration	External, 300÷312 cells, VRLA (other options)			
Input				
Connection type	Hardwired 3w (rectifier), 4w (bypass)			
Nominal voltage	380/400/415 Vac 3-phase (rectifier) 380/400/415 Vac 3-phase with neutral (bypass)			
Voltage tolerance	-20%, +15%			
Frequency and range	50/60 Hz (45÷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	±1% static; dynamic: IEC EN 62040-3 Class 1			
Power factor	up to 0.9, lagging or leading without power derating			
Overload capacity	Inverter: 101÷125% for 10 min, 126÷150% for 1 min, 151÷199% for 10 s; bypass: 150% continuous, 1000% for 1 cycle			
Efficiency (AC/AC)*	up to 98%			
Classification as per IEC EN 62040-3	VFI-SS-111			
Connectivity and function extensions				
Front panel	Graphical LCD display, mimic with LED and keyboard			
Remote communication	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. cont.; optional: 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; maintenance bypass in extended cabinet or wall-mounted box; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit for load sharing; load synch box; top cable entry			
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	Front and top access, bottom cable entry			

*certified by TÜV NORD according to IEC EN 62040-3

Centralised bypass on request

STS100/300 series

Features and benefits

- Continuous monitoring of voltage and frequency and automatic instant (<4ms) transfers for secure power switching without cross connection between sources.
- Short circuit transfer inhibit for robust load protection.
- SCR fault detection and backfeed protection for maximum upstream safety.
- Dual manual bypass for complete source independence during maintenance.
- True oversized neutral (2x In) redundant cooling with monitored fans and redundant (3x3) internal power supply in all system control boards for top product reliability in high availability applications.
- Full front access for easy maintenance.
- Bottom and top cable entry for maximum installation versatility.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliance with all international product standards for maximum quality guarantee.

Main options

- Isolation transformer.
- Plug-in breakers.
- Output distribution panels.
- Panel builder version.
- Additional SPDT contact relay board.

Extra options

- 2-pole configuration



STS100 technical data

Rating (A)	25	50	80	100
Dimensions WxHxD (mm)	820x1475x835 (custom layout on request)			
Weight (kg)	150	190	220	265
Input				
Connection type	Hardwired 2w			
Nominal voltage	110/115/120/220/230/240/277 Vac 1-phase			
Voltage tolerance	±10% (up to ±20% on request)			
Frequency and range	50/60 Hz, ±2 Hz (up to ±4 Hz on request)			
Source harmonic voltage content	unlimited (>20%THD transfer time ≤10ms)			
Transfer phase angle	5° ± 30°			
Output				
Connection type	Hardwired 2w			
Nominal voltage	110/115/120/220/230/240/277 Vac 1-phase			
Frequency	50/60 Hz			
Transfer time	≤4 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 30 min, 150% for 10 min, 200% for 30 s, 2000% for 1 cycle, 4000% for ½ cycle			
Efficiency (AC/AC)	>99%			
Connectivity and function extensions				
Front panel	Mimic LED panel and keyboard			
Remote communication	SPDT contact relay board; optional: RS232 or RS485 serial port, additional SPDT contact relay board			
Optional function extensions	2-poles configuration; plug-in circuit breakers; panel builder execution; output distribution panels; isolation transformer			
System				
Protection degree	IP 20 (other options)			
Colour	RAL 7035 (other options)			
Installation layout	Wall, back to back and side by side installation allowed			
Accessibility	Front access, bottom and top cable entry			

Other ratings on request

Extra options

- 4-pole configuration
- Operation without neutral



STS300 technical data

Rating (A)	100	250	400	630	800
Dimensions WxHxD (mm)	820x1475x835			1220x1900x860	
Weight (kg)	265	290	305	615	660
Input					
Connection type	Hardwired 4w				
Nominal voltage	208/380/400/415/440/480 Vac 3-phase with neutral				
Voltage tolerance	±10% (up to ±20% on request)				
Frequency and range	50/60 Hz, ±2 Hz (up to ±4 Hz on request)				
Source harmonic voltage content	unlimited (>20%THD transfer time ≤10ms)				
Transfer phase angle	5° ± 30°				
Output					
Connection type	Hardwired 4w				
Nominal voltage	208/380/400/415/440/480 Vac 3-phase with neutral				
Frequency	50/60 Hz				
Transfer time	≤4 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 30 min, 150% for 10 min, 200% for 30 s, 2000% for 1 cycle, 4000% for ½ cycle				
Efficiency (AC/AC)	>99%				
Connectivity and function extensions					
Front panel	Graphical LCD display, mimic LED panel and keyboard				
Remote communication	SPDT contact relay board; RS232 and RS485 serial ports, ModBus-RTU protocol; optional: additional SPDT contact relay board				
Optional function extensions	4-poles configuration; plug-in circuit breakers; operation without neutral; panel builder execution; output distribution panels; isolation transformer				
System					
Protection degree	IP 20 (other options)				
Colour	RAL 7035 (other options)				
Installation layout	Wall, back to back and side by side installation allowed				
Accessibility	Front access, bottom and top cable entry				

Up to 3000 A on request