Critical Power 2017 Catalogue

UPS for process and service industry

UPS for data centers, networks and servers

UPS for home and office computers and peripherals

BORRI®

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 eighty years of experience in developing, manufacturing and supplying uninterruptable 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 centers: 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 15,000 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.

For more information, visit our website: www.borri.it

Single phase UPS

1ph from 450 VA to 10 kVA

Applications

- Home Office
- Computers and peripherals
- Networks and servers
- Small data centers

Highlights

- User-friendly and Plug and Play
- Compact and noiseless
- Intuitive LCD display
- Rack/Tower convertible design
- Parallel redundant configuration

GIOTTO

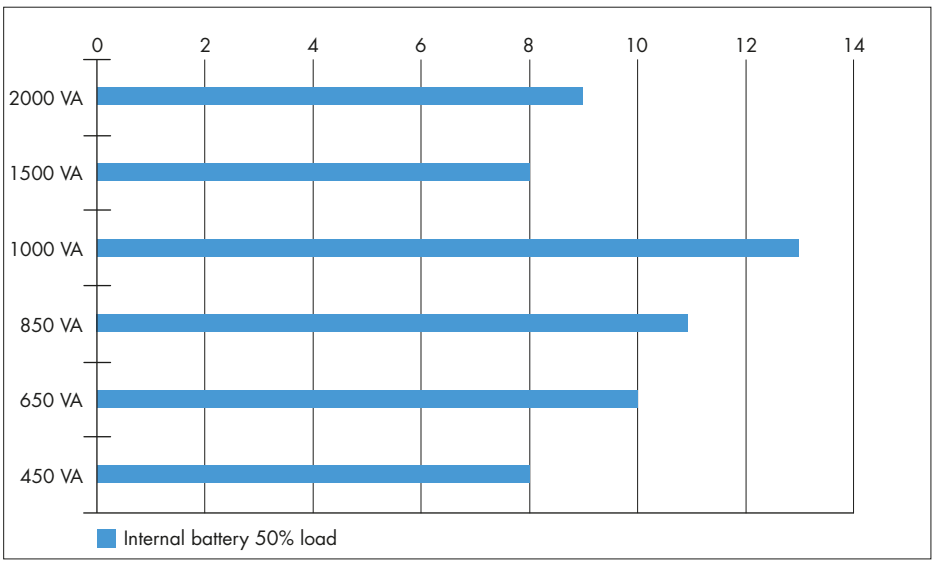
1ph from 450 to 2000 VA

Line-interactive UPS
for Home Office,
computers and peripherals

Features and benefits

- User-friendly UPS ensuring compact protection for a wide range of needs:
  - Best power protection for PC from 450 to 850 VA with one output receptacle (IEC 320-C13) and one Schuko.
  - Advanced power protection from 1000 to 2000 VA with four output receptacles (IEC 320-C13) and one Schuko for high performance PC and peripherals.
- Instantaneous battery back-up power and electrical interference protection.
- Plug and Play installation easy to set up also for first-time users.
- Compact and noise-free running to be placed anywhere at home or office.
- Energy efficient ensuring lowest impact on energy costs.
- Intuitive LCD display provides easy-to-read UPS status and power information.
- Audible alarm alerts upon utility power and UPS status change.
- Easy User-replaceable battery.
- AVR technology stabilizing output voltage to protect your electronics over a wide range of mains quality issues.
- Advanced battery management extending battery life.
- Internet Modem / LAN protection via RJ-11/45 plug.
- USB communication port providing UPS managements.
- Cold start for powering loads when mains are not available.
- Borri Power Guardian user-friendly UPS management software free downloadable at www.borri.it/download (for more info see p.10).

Autonomy time in minutes with internal battery



GIOTTO technical data

Rating (VA)		450	650	850	1000	1500	2000
Nominal power (W)		270	380	500	600	900	1200
UPS dimensions WxDxH (mm)		100x292x140			148x315x198		
UPS weight (kg)		4	5	5.5	9	10.5	11.8
Input							
Connection type		IEC 320-C14					
Nominal voltage		230 Vac 1-phase					
Voltage range		160 to 290 Vac					
Frequency and range		50/60 Hz, 45 to 65 Hz					
Output							
Connection type		1 IEC 320-C13 and 1 Schuko			4 IEC 320-C13 and 1 Schuko		
Nominal voltage		230 Vac 1-phase					
Frequency		50/60 Hz					
Waveform		Simulated sine wave					
Battery							
Autonomy time (min) ◆	50% load	8	10	11	13	8	9
	100% load	3	3	3	3	3	3
Connectivity and function extensions							
Front panel		LCD, ON/OFF button					
Communication		Included: USB. Compatible platforms: Windows, Linux, Mac					
Environmental							
Operating temperature range		0°C to +40°C					
Altitude (AMSL)		< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m					
Audible noise at 1m (dBA)		<40					
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					
Marking		CE					

◆ Measurement conditions: optimized parameters, fully charged battery, 0.6 PF

GALILEO

1ph from 1000 to 3000 VA

On-line UPS
for networks and servers

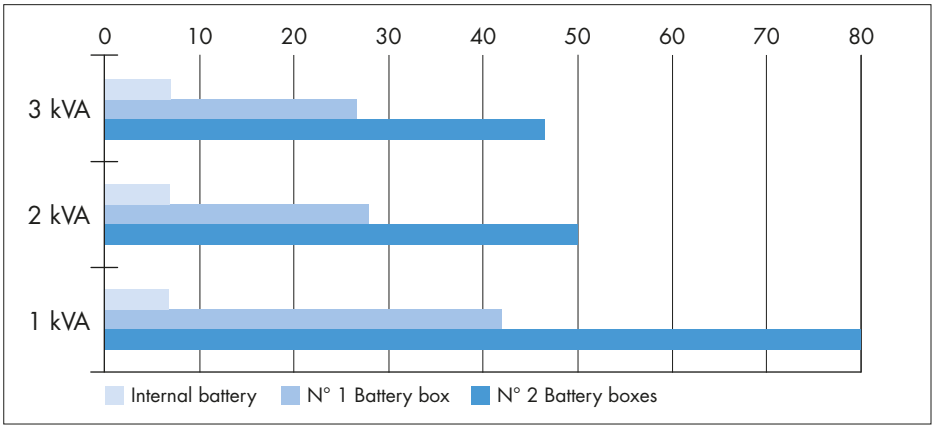
Features and benefits

- On-line double conversion UPS from 1000 to 3000 VA, Tower and 2U Rack/Tower from three to six output receptacles (IEC 320-C13) and one or two Schuko.
- Rack/Tower convertible design to protect your investment when migrating from tower to rack-mount environment. Both UPS and display panel can be rotated.
- Easy installation and set up, user-replaceable and upgradable battery.
- Intuitive LCD display providing easy-to-read UPS status and power information.
- Audible alarm alerts upon utility power and UPS status change.
- Smart cooling system ensuring further energy savings.
- Programmable switched outlet group for setting load priorities.
- Active harmonic power quality control ensuring up to 0.99 input PF and THDi<3% for maximum compatibility with sources.
- Automatic self test and advanced battery management maximizing battery performance and extending battery life.
- Battery extension box allowing additional autonomy time to be quickly added.
- Remote power off for immediate UPS shutdown in case of emergency.
- USB communication port providing UPS management.
- One slot auto-sensing communication cards.
- Cold start for powering loads when mains are not available.
- Borri Power Guardian user-friendly UPS management software with alerts upon main power failures and system shutdown notification via SMS and email, free downloadable at www.borri.it/download (for more info see p.10).

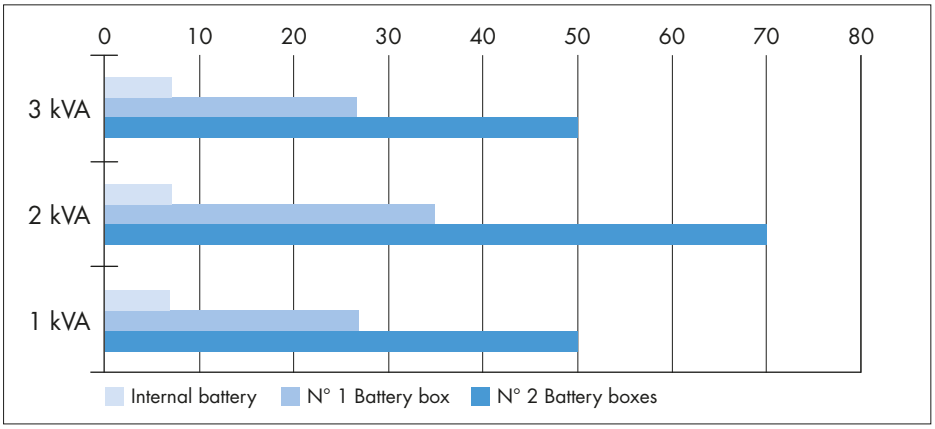
Main options

- SNMP card to send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol to monitor UPS status by any internet browser from workstations and to receive SMS or e-mail alerts from the UPS on any portable device.
- Contact relay card to send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts.
- Additional battery charger for external battery box.
- Rail kit Rack/Tower.
- Rack PDU with external sockets and manual bypass switch.

Autonomy time in minutes for Rack/Tower UPS



Autonomy time in minutes for Tower UPS



GALILEO technical data

UPS Type		T *	T *	T *	RT (2U)**	RT (2U)**	RT (2U)**
Rating (VA)		**1000**	**2000**	**3000**	**1000**	**2000**	**3000**
Nominal power (W)		900	1800	2700	900	1800	2700
UPS dimensions WxDxH (mm)		144x367x236	151x444x322	189x444x322	440x390x88	440x475x88	440x600x88
UPS weight (kg)		11.2	18.8	24.9	12.0	17.0	26.5
Input							
Connection type		IEC 320-C14		IEC 320-C20	IEC 320-C14		IEC 320-C20
Nominal voltage		230 Vac 1-phase					
Voltage range		195 to 260 Vac					
Frequency and range		50/60 Hz, 45 to 65 Hz					
Power factor		0.98			0.99		
Current distortion (THDi)		<3%					
Output							
Connection type		3 IEC 320-C13 1 Schuko	3 IEC 320-C13 2 Schuko	6 IEC 320-C13 2 Schuko	3 IEC 320-C13	6 IEC 320-C13	
Nominal voltage		230 Vac +/-1% 1-phase					
Frequency		50/60 Hz					
Power factor		Any power factor up to 0.9 lagging or leading without power derating					
Overload capability		105% continuous, 120% for 30 seconds, 150% for 10 seconds, >150% transfer to bypass					
Mode of operation		On-line, Eco mode					
Battery							
Autonomy time internal battery (min)◆	50% load	12	13	15	12	13	15
	100% load	6	6	6	6	6	6
Connectivity and function extensions							
Front panel		Display LCD, status LED, function keys					
Communication		Included: USB, EPO, RS232. Optional: dry contact card, SNMP card. Compatible platforms: Windows, Linux, Mac					
Environmental							
Operating temperature range		0°C to +40°C					
Altitude (AMSL)		< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m					
Audible noise at 1m (dBA)		<50					
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					
Marking		CE					

*Tower **Rack/Tower ◆ Measurement conditions: optimized parameters, fully charged battery, 0.7 PF

GALILEO T 1 kVA GALILEO T 2 kVA GALILEO T 3 kVA GALILEO RT 1 kVA GALILEO RT 2/3 kVA

LEONARDO

1ph from 6 to 10 kVA

On-line UPS
for networks and servers,
small data centers

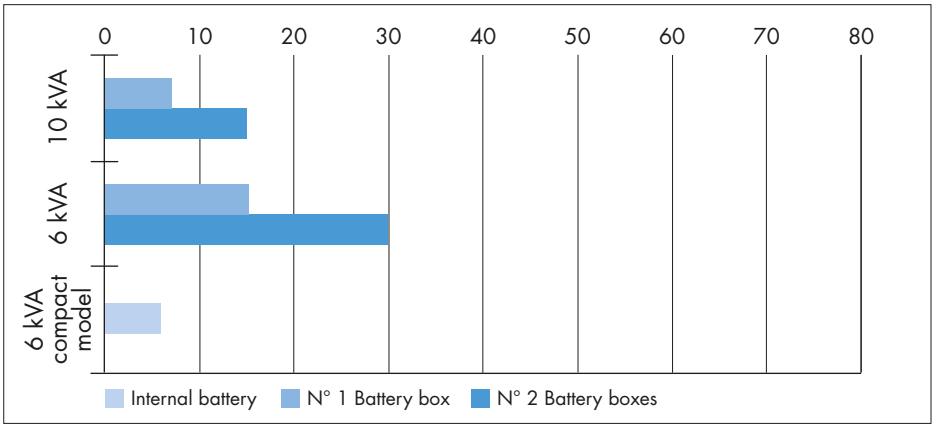
Features and benefits

- On-line double conversion UPS from 6 to 10 kVA, Tower and 2U or 3U Rack/Tower.
- Parallel redundant configuration maximizing the availability.
- Rack/Tower convertible design to protect your investment when migrating from tower to rack-mount environment. Both UPS and display panel can be rotated.
- Easy installation and set up, user-replaceable and upgradable battery.
- Intuitive LCD display providing easy-to-read UPS status and power information.
- Audible alarm alerts upon utility power and UPS status change.
- Smart cooling system ensuring further energy savings.
- Active harmonic power quality control ensuring 0.99 input PF and THDi<3% for maximum compatibility with sources.
- Automatic self test and advanced battery management maximizing battery performance and extending battery life.
- Battery extension box allowing additional autonomy time to be quickly added.
- Remote emergency power off to guarantee your piece of mind in critical applications.
- Internal manual bypass for safe and easy maintenance.
- RS232 communication port providing UPS management.
- Two slots auto-sensing communication cards.
- Cold start for powering loads when mains are not available.
- Borri Power Guardian user-friendly UPS management software with alerts upon main power failures and system shutdown notification via SMS and email, free downloadable at www.borri.it/download (for more info see p.10).

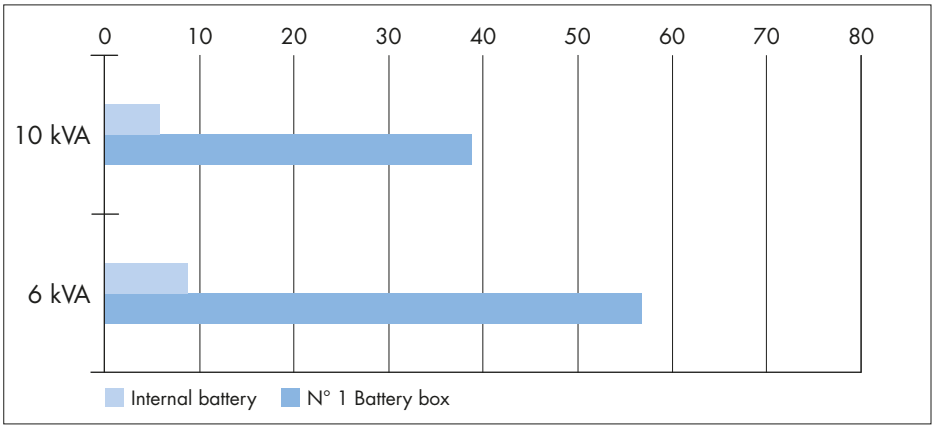
Main options

- SNMP card to send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol to monitor UPS status by any internet browser from workstations and to receive SMS or e-mail alerts from the UPS on any portable device.
- Contact relay card to send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts.
- Additional battery charger for external battery box.
- Parallel kit.
- Rail kit Rack/Tower.
- Rack PDU with external sockets and manual bypass switch.

Autonomy time in minutes for Rack/Tower UPS



Autonomy time in minutes for Tower UPS



LEONARDO technical data

UPS Type		T *	T *	RT (2U)***	RT (4U)**	RT (3U)***
Rating (kVA)		**6**	**10**	**6**	**6**	**10**
Nominal power (kW)		5.4	9	5.4	5.4	9
UPS dimensions WxDxH (mm)		290x645x748	290x645x748	440x680x88	440x680x176	440x680x132
UPS weight (kg)		86	96	24	52	26
Input						
Connection type		Hardwired 2w (rectifier), 2w (bypass)		Hardwired 2w		
Nominal voltage		230 Vac 1-phase				
Voltage range		160 to 280 Vac				
Frequency and range		50/60 Hz, 45 to 65 Hz				
Power factor		0.99				
Current distortion (THDi)		<6%				
Output						
Connection type		Hardwired 2w				
Nominal voltage		230 Vac +/- 1% 1-phase				
Frequency		50/60 Hz				
Power factor		Any power factor up to 0.9 lagging or leading without power derating				
Overload capability		104% continuous, 150% for 160 seconds, >150% transfer to bypass				
Mode of operation		On-line, Eco-mode				
Battery						
Autonomy with internal battery (min)◆	50% load	25	17	external battery	15	external battery
	100% load	9	6	external battery	6	external battery
Connectivity and function extensions						
Front panel		Display LCD, status LED, function keys				
Communication		Included: RS232 card, EPO. Optional: dry contact card, SNMP card, RS485 card. Compatible platforms: Windows, Linux, Mac				
Environmental						
Operating temperature range		0°C to +40°C				
Altitude (AMSL)		< 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m				
Audible noise at 1m (dBA)		<50				
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				
Marking		CE				

*Tower with internal battery **Rack/Tower with internal battery ***Rack/Tower without internal battery ◆ Measurement conditions: optimized parameters, fully charged battery, 0.7 PF

LEONARDO T 6/10 kVA

LEONARDO RT(4U) 6 kVA

LEONARDO RT(2U) 6 kVA

LEONARDO RT(3U) 10 kVA

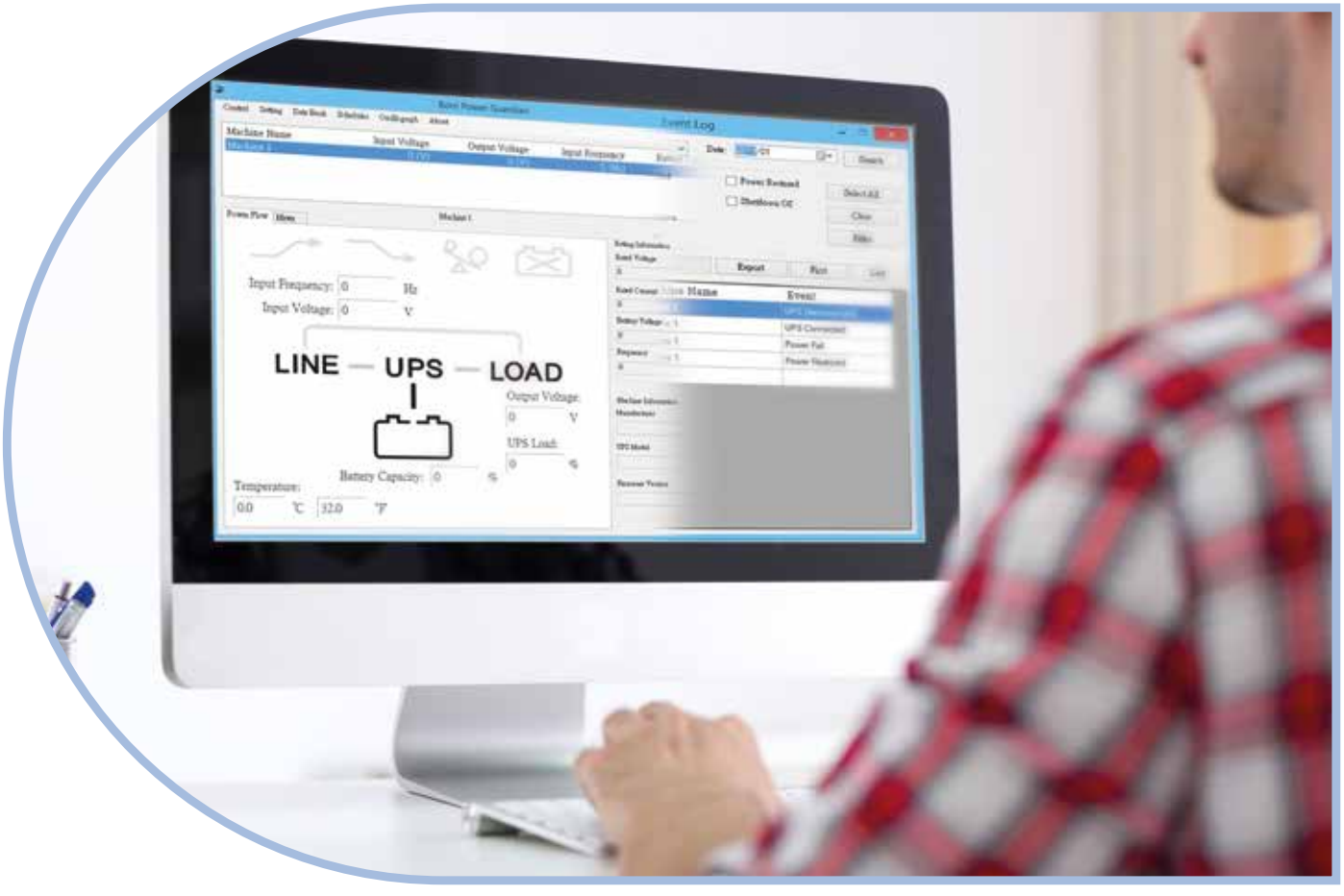
POWER GUARDIAN

Single phase UPS monitoring software

Borri Power Guardian is a free user-friendly UPS software, providing automatic safe system shutdown upon power outages and monitoring the UPS status.

Features and benefits

- Fast, easy installation and configuration via USB or RS232 even for first-time users.
- Automatic orderly application and system shutdown.
- Preventing potential data corruption and hardware damage.
- Alerts on main power failures and system shutdowns notification via SMS and email.
- Automatic self-test of UPS and battery status ensuring early detection of anomalies.
- UPS parameters and power status at a glance. It summarizes graphically and numerically power problems such as blackouts or electrical noise over time and UPS information such as input and output voltage, frequency, temperature, loads and battery capacity.
- Customized settings for tailor-made solutions.
- Available for MAC and Microsoft operating systems (complete list at www.borri.it/download).
- Download Borri Power Guardian free software at www.borri.it/download.



B8031FXS - B8033FXS

Uninterruptible Power Supply

1ph - 3ph from 10 to 20 kVA

Applications

- Networks and servers
- Industrial control and process automation
- Building automation

Highlights

- On-line double conversion
- Transformer free
- Full IGBT technology
- Paralleling up to 120 kVA

B8031FXS
B8033FXS

Uninterruptible Power Supply

1ph - 3ph from 10 to 20 kVA

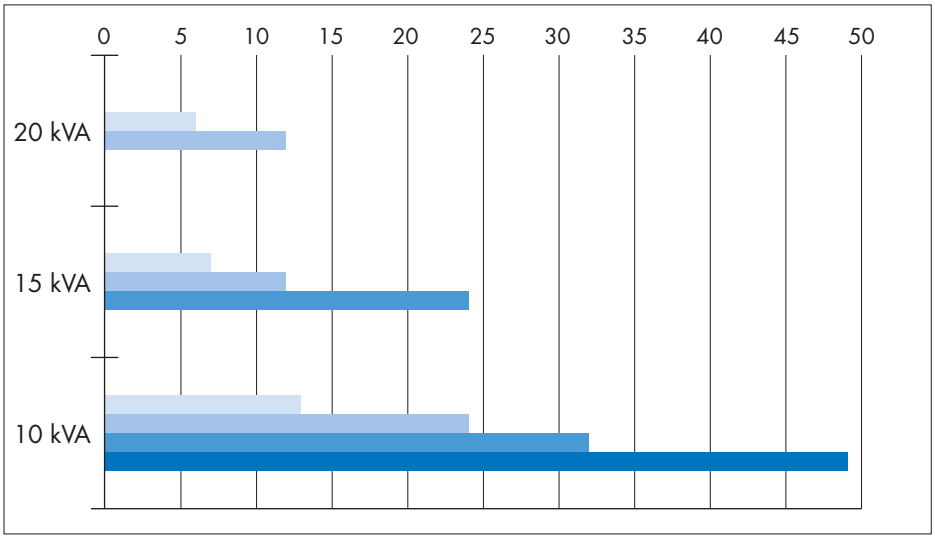
Features and benefits

- High double conversion efficiency and ECO 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 low THDi for maximum upstream sources compatibility.
- Wide range of configurations with internal batteries for low TCO compact solutions.
- High power battery charger, suiting long autonomy applications.
- 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.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Included bypass contactor for complete backfeed protection and operators' safety without additional installation costs.
- Fully compliant 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 for load sharing.
- Load-sync for single UPS units.
- Input terminals for remote EPO, external manual bypass auxiliary contact, diesel mode.
- Separate bypass input for B8033FXS.
- Cold start.

Autonomy time in minutes with different types of internal batteries



B8031FXS - B8033FXS technical data

Rating (kVA)	10	15	20
Nominal power (kW)	**9**	**13.5**	**18**
UPS dimensions WxDxH (mm)	450x670x1200		
UPS weight (kg)	100	110	110
UPS weight with internal battery (kg)	Max.285	Max.275	Max.275
External battery module dimensions WxDxH (mm)	500x670x1200		
Battery configuration	Internal or external, 360 to 372 cells, VRLA (other options)		
Max autonomy with int. battery 70% load (min)	49	24	12

Input	**B8031FXS (10-15-20 kVA)**	**B8033FXS (10-15-20 kVA)**
Connection type	Hardwired 4w (rectifier), 2w (bypass)	Hardwired 4w
Nominal voltage	400 Vac 3-phase with neutral (rectifier) 220/230/240 Vac 1-phase (bypass)	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)	<4%	

Output	**B8031FXS (10-15-20 kVA)**	**B8033FXS (10-15-20 kVA)**
Connection type	Hardwired 2w	Hardwired 4w
Nominal voltage	220/230/240 Vac 1-phase	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, lagging or leading without power derating	
Overload capacity	Inverter: 125% for 10 min, 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	Included: serial RS232 and USB; terminal block for battery breaker auxiliary contact. Optional: input terminal block (remote emergency power off, external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.); 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 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; load-sync for single UPS; other options on request

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

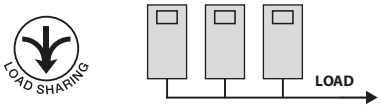
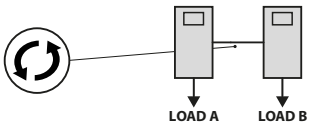
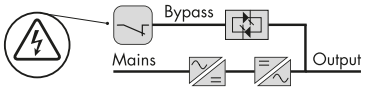
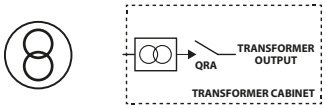
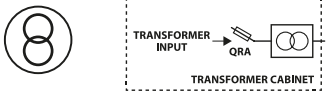
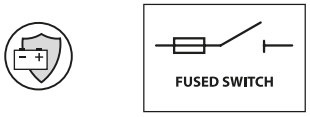
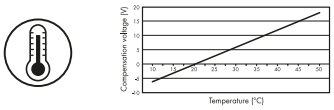
*according to IEC/EN 62040-3

Other features

Environmental	
UPS operating temperature range	0°C to +40°C
UPS 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)	<52

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

B8031FXS - B8033FXS series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Load-sync for single units	To synchronize single units' output for no-break load transfers by downstream static transfer switches
 **Included**	Backfeed protection bypass contactor	To be fully protected against backfeed energy upon static bypass failure
	1-phase output isolation transformer for B8031FXS in extended cabinet	To galvanically isolate UPS from load or to change system's earth arrangement
	3-phase input isolation transformer for B8033FXS in extended cabinet	To galvanically isolate UPS from load or to change system's earth arrangement
	Battery fuse switch in wall-mounted box	To disconnect and protect an external battery pack
	Internal battery temperature probe	When the unit has internal batteries, for charging voltage compensation with temperature
	Internal battery + UPS temperature probe	When the unit has internal batteries, for charging voltage compensation with temperature and UPS temperature monitoring
	External battery temperature probe	When the unit has external batteries, for charging voltage compensation with temperature (10 m cable length)
	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
	Remote monitoring panel	To monitor UPS status by a LED panel from a remote control room (relay card required)
	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
	Web/SNMP Adapter	To send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device
	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button
	Input terminal block for external manual bypass switch auxiliary contact	When there is an external maintenance bypass switch, for state monitoring
	Input terminal block for external battery switch auxiliary contact **Included**	When there is an external battery switch, for state monitoring
	Input terminal block for diesel mode contact	When battery recharge has to be inhibited over genset operation

INGENIO COMPACT

Uninterruptible Power Supply

3ph from 10 to 20 kVA

Applications

- Networks and servers
- Small and medium data centers
- Telecommunication

Highlights

- On-line double conversion
- Transformer free
- Full IGBT technology
- Parallel redundant configuration
- Built-in batteries

INGENIO COMPACT

Uninterruptible Power Supply

3ph from 10 to 20 kVA

Features and benefits

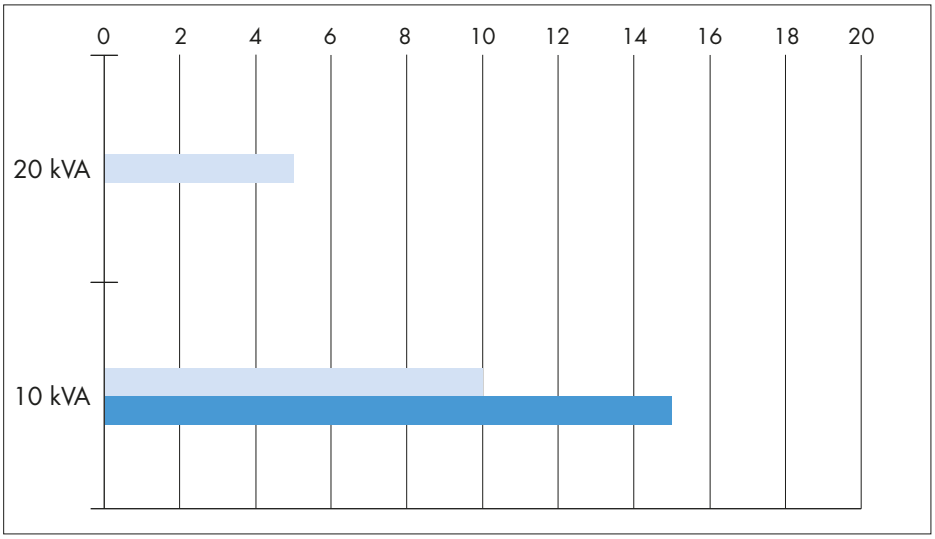
- On-line double conversion mode for total load protection.
- ECO mode for low running costs and environmental impact.
- Full rated output power, ensuring optimal UPS sizing and utilization.
- Transformer free design for light small size layout.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and low THDi for maximum upstream sources compatibility.
- Wide input voltage range to save battery life.
- Wide range of configurations with internal and external batteries for low TCO compact solutions.
- Parallel-redundant up to six units, to increase system redundancy.
- Innovative design allows for fast installation.
- Removable tray design for easy battery maintenance.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant 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.
- External battery cabinets for long autonomy times.
- Parallel kit.
- Common battery.

GREEN CONVERSION

Autonomy time in minutes with different types of internal batteries



INGENIO COMPACT technical data

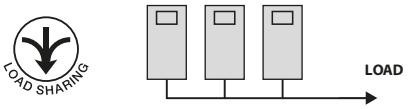
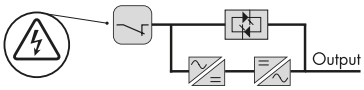
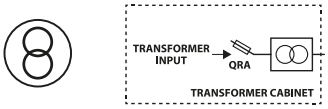
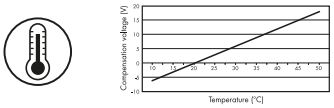
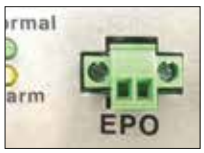
Rating (kVA)	10	20
Nominal power (kW)	**10**	**20**
UPS dimensions WxDxH (mm)	440x800x800	
UPS weight (kg)	75	76
UPS weight with internal battery (kg)	150	165
External battery module dimensions WxDxH (mm)	500x650x1200	
Battery configuration	Internal (standard): 180 cells; external: 156/240 cells	Internal (standard): 216 cells; external: 192/240 cells
Input		
Connection type	Hardwired 4w	
Nominal voltage	400 Vac 3-phase with neutral	
Voltage tolerance	-20%, +15% (rectifier); ±10% (bypass)	
Frequency and range	50/60 Hz, 40 to 70 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	
Power factor	1	
Overload capacity	110% for 60 min, 125% for 10 min, 150% for 1 min	
Efficiency (AC/AC)*	Up to 98%	
Connectivity and function extensions		
Front panel	Touch screen display	
Remote communication	Included: serial RS232; backfeed protection monitoring contact, remote EPO contact. Optional: 2 slots for SNMP adapter, ModBus-RTU, contact relay card	
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; other options on request	
System		
Protection degree	IP 20	
Colour	RAL 9005	
Installation layout	30 cm wall-gap	
Accessibility	Positioning casters; bottom cable entry	

*according to IEC/EN 62040-3

Other features

Environmental	
UPS operating temperature range	0°C to +40°C
UPS 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)	<52
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

INGENIO COMPACT series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Backfeed protection contactor	To be fully protected against backfeed energy upon static bypass failure
	Input isolation transformer in extended cabinet	To galvanically isolate UPS from load or to change system's earth arrangement
	Internal battery temperature probe	When the unit has internal batteries, for charging voltage compensation with temperature
	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
	Web/SNMP Adapter	To send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device
 **Included**	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button

INGENIO PLUS

Uninterruptible Power Supply

3ph from 30 to 160 kVA

GREEN CONVERSION

Applications

- Small and medium data centers
- Networks and servers
- Industrial control and process automation
- Medical equipment
- Building automation

Highlights

- On-line double conversion
- Transformer free
- Full IGBT technology
- Paralleling up to 960 kVA

BORRI

INGENIO PLUS

Uninterruptible Power Supply

3ph from 30 to 160 kVA

Features and benefits

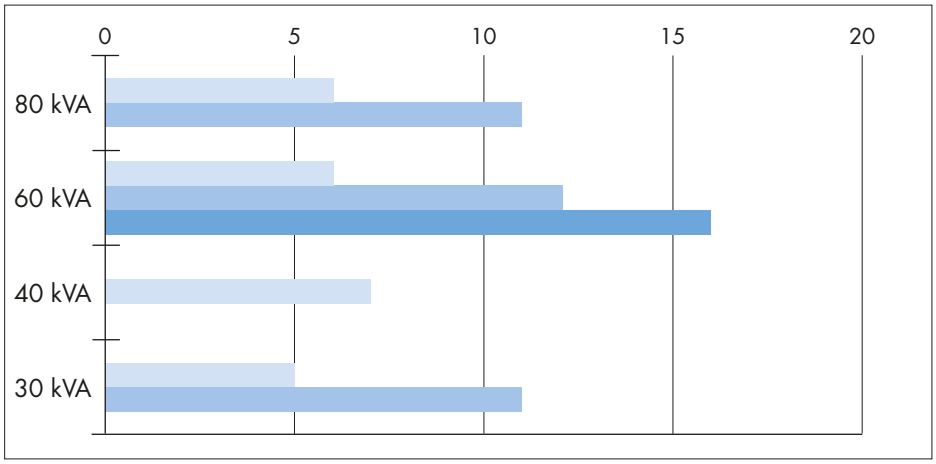
- Green Conversion technology, high efficiency even at light load and the lowest TCO in its category.
- Full rated output power, ensuring optimal UPS sizing and utilization.
- Transformer free design for compact, light and sustainable systems.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Internal battery configurations up to 80 kVA for less floor space and maximum flexibility.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Green Conversion Battery Care (GCBC), for extended battery service life.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.

Main options

- Isolation transformer.
- Transformers/autotransformers for isolation or voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- Battery fuse switch wall-mounted box.
- Battery cabinets for long autonomy times.
- Parallel kit for load sharing.
- Load-sync for single UPS units, load-sync box for two sets of paralleled UPS.
- Common battery.
- Tripping coil for bypass disconnector.
- Separate rectifier and bypass input for INGENIO PLUS 30-40 kVA.
- Ultra High Efficiency Mode (UHE).
- Cold start.
- Touch screen display (only on 60-160 kVA range).

GREEN CONVERSION

Autonomy time in minutes with different types of internal batteries



INGENIO PLUS technical data

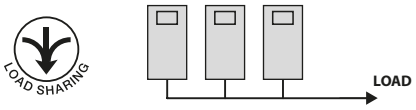
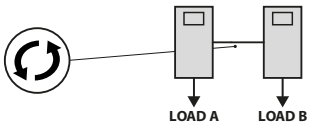
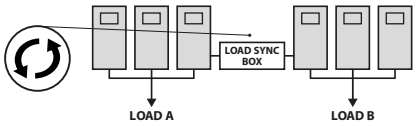
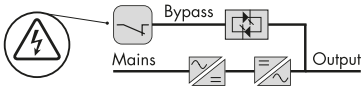
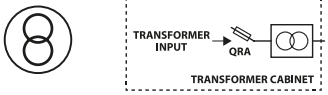
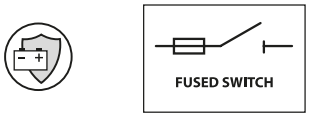
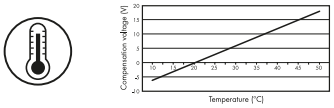
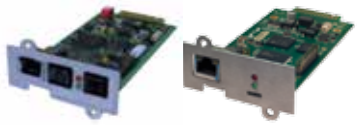
Rating (kVA)	30	40	60	80	100	125	160
Nominal power (kW)	**30**	**40**	**60**	**80**	**100**	**125**	**160**
UPS dimensions WxDxH (mm)	460x650x1230		560x940x1800				
UPS weight (kg)	120	140	250	300	320	360	380
UPS weight with int. battery (kg)	365	385	800	850	-	-	-
Battery configuration	Internal or external, 360 to 372 cells, VRLA (other options)				External 360 to 372 cells, VRLA (other options)		
Max autonomy with int. battery 70% load (min)	11	7	16	11	-	-	-
Input							
Connection type	Hardwired 4w		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	Graphic display, mimic LED panel and keyboard, local EPO						
Remote communication	Included (30 to 160 kVA): backfeed protection monitoring contact. Included (60 to 160 kVA): serial RS232 and USB; input terminal block (remote emergency power off, 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), from ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software						
Optional function extension	Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, load-sync for single UPS and load-sync box (2 UPS systems); other options on request						
System							
Protection degree	IP 20						
Colour	RAL 9005						
Installation layout	10 cm wall-gap, side by side installation allowed		Wall and side by side installation allowed, 80 cm clearance on one side only with internal battery				
Accessibility	Front and top access, bottom cable entry		Front access, side access (only with internal battery), bottom cable entry				

Other features

*conditions apply **according to IEC/EN 62040-3

Environmental	
UPS operating temperature range	0°C to +40°C
UPS 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

INGENIO PLUS series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Load-sync for single units	To synchronize single units' output for no-break load transfers by downstream static transfer switches
	Load-sync box for two sets of paralleled UPS	To synchronize the output of two paralleled UPS systems for no-break load transfers by downstream static transfer switches
	Tripping coil for bypass disconnector	To be fully protected against backfeed energy upon static bypass failure. Detection circuit is included
	Input transformer to be installed internally or in extended cabinet	To galvanically isolate UPS from load or to change system's earth arrangement
	Battery fuse switch in wall-mounted box	To disconnect and protect an external battery pack
	Internal battery temperature probe	When the unit has internal batteries, for charging voltage compensation with temperature
	External battery temperature probe	When the unit has external batteries, for charging voltage compensation with temperature (10 m cable length)
	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
	Remote monitoring panel	To monitor UPS status by a LED panel from a remote control room (relay card required)
	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
	Web/SNMP Adapter	To send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device
	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button
	Input terminal block for external manual bypass switch auxiliary contact	When there is an external maintenance bypass switch, for state monitoring
	Input terminal block for external battery switch auxiliary contact	When there is an external battery switch, for state monitoring
	Input terminal block for diesel mode contact	When battery recharge has to be inhibited over genset operation

INGENIO MAX

Uninterruptible Power Supply

3ph from 200 to 300 kVA

GREEN 3-L CONVERSION

Applications

- Medium data centers
- Networks and servers
- Industrial control and process automation
- Medical equipment
- Building automation

Highlights

- On-line double conversion
- Transformer free
- Full IGBT technology
- Paralleling up to 1.8 MVA

BORRI

INGENIO MAX

Uninterruptible Power Supply

3ph from 200 to 300 kVA

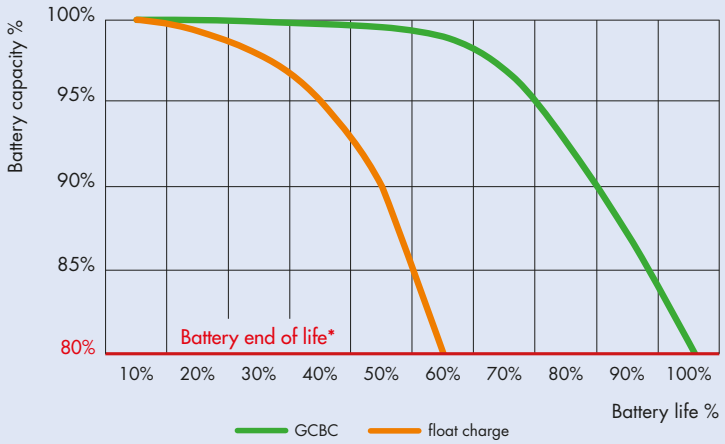
Features and benefits

- Three level Green Conversion, up to 97% system efficiency, very low noise and the lowest TCO in its category.
- Full rated output power, ensuring optimal UPS sizing and utilization.
- Transformer free design for compact, light and sustainable systems.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Green Conversion Battery Care (GCBC), for extended battery service life.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with international product standards for maximum quality guarantee.

Main options

- Transformers/autotransformers for isolation or voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- Battery fuse switch wall-mounted box.
- Battery cabinets for long autonomy times.
- Parallel kit for load sharing.
- Load-sync for single UPS units, load-sync box for two sets of paralleled UPS.
- Load Based Shutdown (LBS) for parallel units.
- Common battery.
- Tripping coil for bypass disconnector.
- Ultra High Efficiency Mode (UHE).
- Other options on request.

Green Conversion Battery Care vs conventional float charge enhanced battery service life



*as per IEC/EN 60896-21

INGENIO MAX technical data

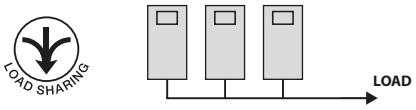
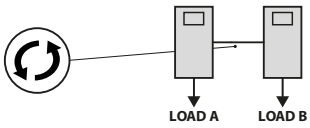
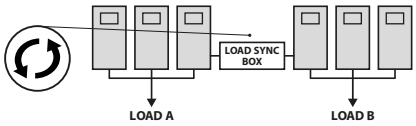
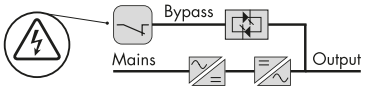
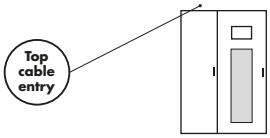
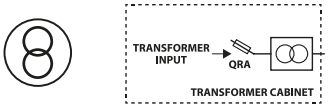
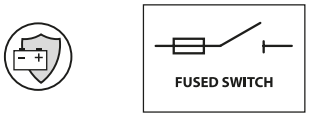
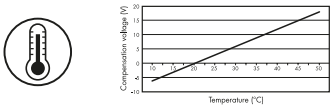
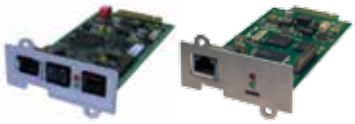
Rating (kVA)	200	250	300
Nominal power (kW)	**200**	**250**	**300**
UPS dimensions WxDxH (mm)	850x950x1975		
UPS weight (kg)	720	850	930
Battery configuration	External 360 to 372 cells, VRLA (other options)		
Input			
Connection type	Hardwired 4w (rectifier), 4w (bypass)		
Nominal voltage	400 Vac 3-phase 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 function extension	Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, load-sync for single UPS and load-sync box (2 UPS systems); top cable entry; tripping coil for bypass disconnector; 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 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

INGENIO MAX series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Load-sync for single units	To synchronize single units' output for no-break load transfers by downstream static transfer switches
	Load-sync box for two sets of paralleled UPS	To synchronize the output of two paralleled UPS systems for no-break load transfers by downstream static transfer switches
	Tripping coil for bypass disconnector	To be fully protected against backfeed energy upon static bypass failure. Detection circuit is included
	Top cable entry in extended cabinet	To allow input and output cable entry from the top of the unit
	Input transformer in extended cabinet	To galvanically isolate UPS from load or to change system's earth arrangement
	Battery fuse switch in wall-mounted box	To disconnect and protect an external battery pack
	External battery temperature probe	For charging voltage compensation with temperature (10 m cable length)
	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
	Web/SNMP Adapter	To send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device
	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button
	Input terminal block for external manual bypass switch auxiliary contact	When there is an external maintenance bypass switch, for state monitoring
	Input terminal block for external battery switch auxiliary contact	When there is an external battery switch, for state monitoring
	Input terminal block for diesel mode contact	When battery recharge has to be inhibited over genset operation
	Input terminal block for external output circuit breaker	When there is an external output breaker, for status monitoring
Included	Input terminal block for remote bypass transfer	When the transfer to bypass mode can be commanded by an external contact

B9000FXS

Uninterruptible Power Supply

3ph from 60 to 300 kVA

Applications

- Small and medium data centers
- Networks and servers
- Industrial control and process automation
- Medical equipment
- Building automation

Highlights

- On-line double conversion
- Full IGBT technology
- Paralleling up to 1.8 MVA

B9000FXS

Uninterruptible Power Supply

3ph from 60 to 300 kVA

Features and benefits

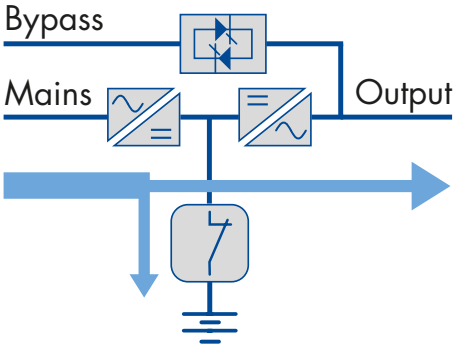
- High double conversion efficiency and ECO mode for low running costs and environmental impact.
- Front access to all critical components for easy maintenance.
- Built-in inverter transformer for DC/AC galvanic protection of industrial type loads.
- Hot connection/disconnection of parallel units for 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, 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.

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 kit for load sharing.
- Load-sync for single UPS units. Load-sync box for two sets of paralleled UPS.
- Top cable entry.

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.



B9000FXS technical data

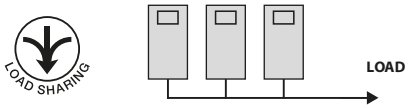
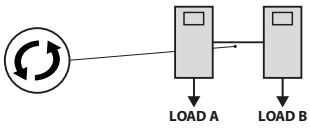
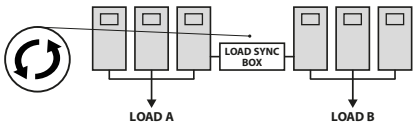
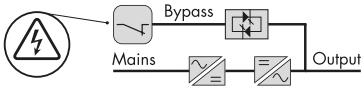
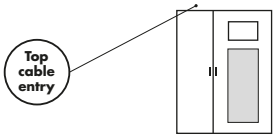
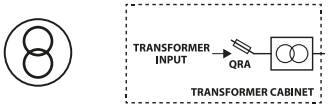
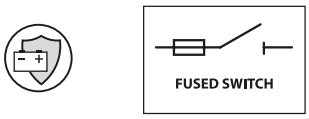
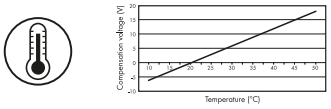
Rating (kVA)	60	80	100	125	160	200	250	300
Nominal power (kW)	**54**	**72**	**90**	**112.5**	**144**	**180**	**225**	**270**
Dimensions WxDxH (mm)	815x825x1670					1200x860x1900		
UPS weight (kg)	570	600	625	660	715	970	1090	1170
Battery configuration	External, 300 to 312 cells, VRLA (other options)							
Input								
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%							
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 0.9, lagging or leading without power derating							
Overload capacity	Inverter: 125% for 10 min, 150% for 1 min, 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	Included: 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. 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, top cable entry; load-sync for single UPS and load-sync box (2 UPS systems); backfeed protection; other options on request							
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							

*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 1m (dBA)	<62
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 (VFI-SS-111)
Protection degree	IEC 60529
Marking	CE

B9000FXS series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Load-sync for single units	To synchronize single units' output for no-break load transfers by downstream static transfer switches
	Load-sync box for two sets of paralleled UPS	To synchronize the output of two paralleled UPS systems for no-break load transfers by downstream static transfer switches
	Backfeed protection bypass contactor	To be fully protected against backfeed energy upon static bypass failure
	Top cable entry in extended cabinet	To allow input and output cable entry from the top of the unit
	Bypass isolation transformer in extended cabinet	To galvanically isolate UPS from load or to change system's earth arrangement
	Battery fuse switch in wall-mounted box	To disconnect and protect an external battery pack
	Battery temperature probe	For charging voltage compensation with temperature (10 m cable length)
	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
	Remote monitoring panel	To monitor UPS status by a LED panel from a remote control room (relay card required)
	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
	Web/SNMP Adapter	To send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device
 **Included**	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button
	Input terminal block for external manual bypass switch auxiliary contact	When there is an external maintenance bypass switch, for state monitoring
	Input terminal block for external battery switch auxiliary contact	When there is an external battery switch, for state monitoring
	Input terminal block for diesel mode contact	When battery recharge has to be inhibited over genset operation

B9600FXS

Uninterruptible Power Supply

3ph from 400 to 800 kVA

Applications

- Medium data centers
- Networks and servers
- Industrial control and process automation
- Medical equipment
- Building automation

Highlights

- On-line double conversion
- Full IGBT technology
- Paralleling up to 4.8 MVA

B9600FXS

Uninterruptible Power Supply

3ph from 400-800 kVA

Features and benefits

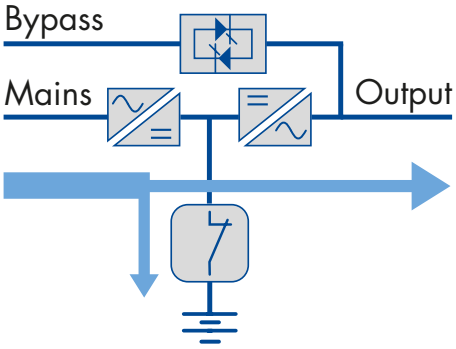
- High double conversion efficiency and ECO mode for low running costs and environmental impact.
- Front access to all critical components for easy maintenance.
- Built-in inverter transformer for DC/AC galvanic protection of industrial type loads.
- Included backfeed bypass contactor for complete protection and operators' safety without additional installation costs.
- 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, 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.

Main options

- Manual bypass in extended cabinet.
- 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 for single UPS units. Load-sync box for two sets of paralleled UPS.
- Top cable entry.

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.



B9600FXS technical data

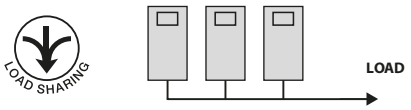
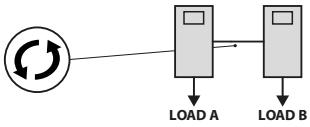
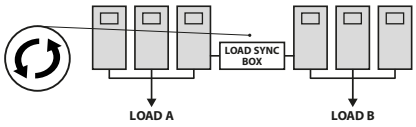
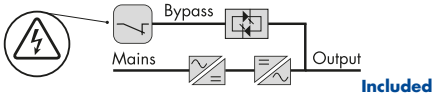
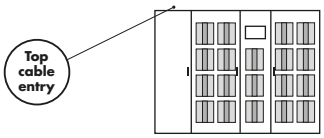
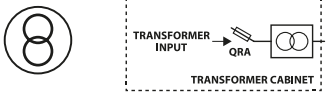
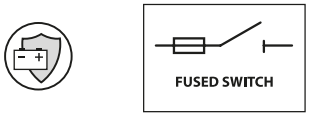
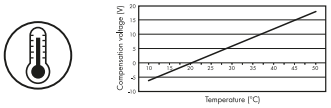
Rating (kVA)	400	500	600	800
Nominal power (kW)	**360**	**450**	**540**	**720**
Dimensions WxDxH (mm)	1990x990x1920	2440x990x2020	2440x990x2020	3640x990x1920
UPS weight (kg)	1820	2220	2400	3600
Battery configuration	External, 300 to 312 cells, VRLA (other options)			
Input				
Connection type	Hardwired 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%			
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 0.9, lagging or leading without power derating			
Overload capacity	Inverter: 125% for 10 min, 150% for 1 min, 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	Included: 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. 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 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			
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			

*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 1m (dBA)	<62
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

B9600FXS series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Load-sync for single units	To synchronize single units' output for no-break load transfers by downstream static transfer switches
	Load-sync box for two sets of paralleled UPS	To synchronize the output of two paralleled UPS systems for no-break load transfers by downstream static transfer switches
 **Included**	Backfeed protection bypass contactor	To be fully protected against backfeed energy upon static bypass failure
	Top cable entry. Maintenance bypass	To allow input and output cable entry from the top of the unit. B9600FXS series feature optional maintenance bypass for cost reduction when this is externally provided
	Bypass isolation transformer	To galvanically isolate UPS from load or to change system's earth arrangement
	Battery fuse switch in wall-mounted box	To disconnect and protect an external battery pack
	Battery temperature probe	For charging voltage compensation with temperature (10 m cable length)
	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
	Remote monitoring panel	To monitor UPS status by a LED panel from a remote control room (relay card required)
	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
	Web/SNMP Adapter	To send UPS status to BMS's by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device
 **Included**	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button
	Input terminal block for external manual bypass switch auxiliary contact	When there is an external maintenance bypass switch, for state monitoring
	Input terminal block for external battery switch auxiliary contact	When there is an external battery switch, for state monitoring
	Input terminal block for diesel mode contact	When battery recharge has to be inhibited over genset operation

UPSAVER

Uninterruptible Power Supply

3ph from 400 kW to 1.6 MW

GREEN CONVERSION

Applications

- Large data centers

Highlights

- Modular three phase
- Paralleling up to 12.8 MVA
- 4 modes of operation
- Low TCO

BORRI

UPSAVER

Uninterruptible Power Supply

3ph from
400 kW to 1.6 MW

Features and benefits

- Patented Green Conversion providing high efficiency and battery care technology for continuous savings on operating and maintenance expenditure.
- Current Parallel Mode (CPM) canceling circulating currents between the power modules, thus enhancing system's efficiency and ensuring reliable expansion up to full power.
- UPSaver mode providing best efficiency in all conditions: DHE double conversion 96% efficiency, VHE* active filtering 97%, ECO mode 98%, UHE* highest efficiency 99.5%.
- Four modularity levels for maximum flexibility and quick maintenance.
- I/O unit specific design providing real hot expandability and maintenability, with no downtime and no bypass operation.
- Load based module shutdown for highest efficiency at light load.
- Included backfeed bypass contactor for complete protection and operators' safety without additional installation costs.
- Minimum TCO (Total Cost of Ownership) and best PUE (Power Usage Effectiveness) for low environmental footprint data centers.

Main options

- Centralized static bypass.
- Modular battery.
- Transformers/autotransformers for isolation or voltage adjustment.
- Battery voltage temperature compensation.
- Associated battery cabinets for long autonomy times.
- Parallel kit for load sharing.
- Load-sync for single UPS units. Load-sync box for two sets of paralleled UPS.

*optional

UPSAVER technical data

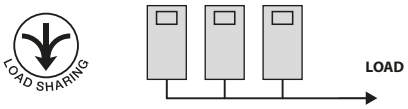
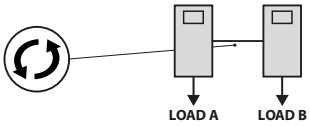
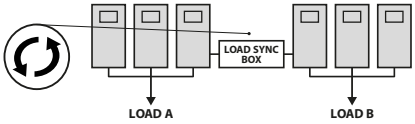
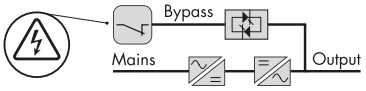
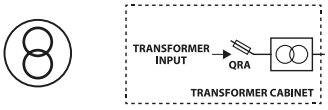
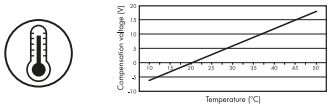
Rating (kVA)	400	600	800	1000	1200	1400	1600
N nominal power (kW)	**400**	**600**	**800**	**1000**	**1200**	**1400**	**1600**
N+1 nominal power (kW)	**200**	**400**	**600**	**800**	**1000**	**1200**	**1400**
UPS dimensions WxDxH (mm)*	2350x970x2100	2950x970x2100	3900x970x2100	4500x970x2100	5100x970x2100	6800x970x2100	7400x970x2100
UPS weight (kg)*	1660	2260	2920	3590	4190	4960	5560
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 (VFI)	Static: ±1%; dynamic: IEC/EN 62040-3 Class 1						
Power factor	Any power factor (leading or lagging) up to 1, without power derating						
Overload capability	Inverter: 125% for 10 min, 150% for 1 min; bypass: 150% continuous, 1000% for 1 cycle						
AC/AC efficiency**	Up to 99.5%						
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; 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); SPDT contact relay board; ModBus-RTU (RS485); Optional: ModBus-TCP/IP (Ethernet); ModBus-RTU to PROFIBUS DP adapter						
Optional function extensions	Isolation transformer; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit; load-sync for single UPS and load-sync box (2 UPS systems); 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 12.8 MW						

* referred to distributed battery, distributed static switch, bottom cable entry. For other configurations contact our sales team ** according to IEC/EN 62040-3

Other features

Environmental	
Operating temperature	0°C to +40°C
Storage temperature	-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 1m (dBA)	<50 (UHE)
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

UPSAVER series options

	Description	When do I use it
	Parallel kit	When the unit is to be paralleled for load sharing
	Load-sync for single units	To synchronize single units' output for no-break load transfers by downstream static transfer switches
	Load-sync box for two sets of paralleled UPS	To synchronize the output of two paralleled UPS systems for no-break load transfers by downstream static transfer switches
 **Included**	Backfeed protection bypass contactor	To be fully protected against backfeed energy upon static bypass failure
	Isolation transformer in extended cabinet	To galvanically isolate UPS from load or to change system's earthing arrangement
	Battery temperature probe	For charging voltage compensation with temperature (10 m cable length)
 **Included**	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
 **Included**	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice
 **Included**	Input terminal block for remote EPO	When the Emergency Power Off (EPO) has to be commanded by a remote control button
	Input terminal block for external manual bypass switch auxiliary contact	When there is an external maintenance bypass switch, for state monitoring
	Input terminal block for external battery switch auxiliary contact	When there is an external battery switch, for state monitoring
	Input terminal block for diesel mode contact	When battery recharge has to be inhibited over genset operation
	Input terminal block for external output circuit breaker	When there is an external output breaker, for status monitoring
	Input terminal block for remote bypass transfer	When the transfer to bypass mode can be commanded by an external contact

ECS

Emergency Central Systems

1ph - 3ph from 10 to 160 kVA

GREEN CONVERSION

Applications

- Emergency and safety systems
- Emergency lighting
- Fire fighting
- Safety equipment

Highlights

- Compliant with EN 50171
- On-line double conversion
- Paralleling up to 960 kVA

BORRI

ECS

Emergency Central Systems

1ph - 3ph from 10 to 160 kVA

Compliance to EN 50171 standard

- 120% permanent power overload capability.
- Batteries with 10 years life expectancy.
- Acid proof battery cabinets and racks.
- Battery polarity reversal protection.
- Deep discharge protection.
- Short circuit protection.
- Battery charger to provide 80% autonomy within 12 hours.
- Battery charger temperature compensation.
- IP20 metal enclosure as per EN 60598-1.

Features and Benefits

- Green Conversion technology, providing high efficiency and UPS components' life extension.
- Compact transformer free design for small footprint.
- Easy access for fast maintenance and low MTTR.

Main options

- AO+EO mode kit.
- Isolation transformer.
- Separate rectifier and bypass input for E8000 ECS 3-phase output models.
- Parallel kit.
- Backfeed protection (standard with 10, 15 and 20 kVA ratings).

Operating modes

Changeover mode - Always On (AO)

Loads are normally fed by the bypass line, during a mains failure the inverter takes over the load without interruption.

Mode without interruption - Always On (AO)

Loads are normally fed by the inverter output.

Changeover mode with additional control switching device for partial switching of the load - Always On + Emergency Only (AO+EO)

Some loads are fed by the inverter or bypass, while other loads are switched on only upon mains failure.

E8000 ECS

INGENIO ECS

E8031 ECS - E8033 ECS technical data

Rating (kVA)	10	15	20	30	40	50
Nominal power (kW)	**9**	**13.5**	**18**	**27**	**36**	**45**
Nominal power as per EN 50171 (kW)	**7.5**	**11.3**	**15**	**22.5**	**30**	**37.5**
UPS dimensions WxDxH (mm)	450x670x1200					
UPS weight (kg)	100	110	110	140	140	170
Battery configuration	External, 360 to 372 cells, VRLA (other options)					
Input						
Connection type	3/1-phase units: hardwired 4w (rectifier), 2w (bypass) 3/3-phase units: hardwired 4w (separate bypass input available on request)			3/3 phase units: hardwired 4w (separate bypass input available on request)		
Nominal voltage	400 Vac 3-phase with neutral (rectifier) 220/230/240 Vac (3/1-phase bypass)			400 Vac 3-phase with neutral (rectifier)		
Voltage tolerance	-20%, +15% (rectifier); ±10% (bypass)					
Frequency and range	50/60 Hz, 45 to 65 Hz					
Power factor	0.99					
Current distortion (THDi)	<4%					
Output						
Connection type	3/1-phase units: hardwired 2w 3/3-phase units: hardwired 4w			3/3 phase units: hardwired 4w		
Nominal voltage	3/1-phase units: 220/230/240 Vac 1-phase 3/3-phase units: 380/400/415 Vac 3-phase with neutral			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, lagging or leading without power derating					
Overload capacity*	120% continuous; 150% for 10 min; 180% for 60 s					
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	Included: 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), from 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; load-sync for single UPS; AO+EO mode kit; separate input for rectifier and bypass line (for 3-phase output models); parallel kit; backfeed protection (standard with 10, 15 and 20 kVA ratings); other options on request					
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					

*as per EN 50171 **as per 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)	<52
Standards and certifications	
CPSS	EN 50171
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

INGENIO ECS technical data

Rating (kVA)	60	80	100	125	160
Nominal power (kW)	**60**	**80**	**100**	**125**	**160**
Nominal power as per EN 50171 (kW)	**50**	**67**	**83**	**104**	**133**
UPS dimensions WxDxH (mm)	560x940x1800				
UPS weight (kg)	250	300	320	360	380
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*	120% continuous; 150% for 10 min; 180% for 60 s				
Efficiency (AC/AC)**	Up to 99%				
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	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.). 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 function extension	Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, load-sync for single UPS and load-sync box (2 UPS systems); AO+EO mode kit; backfeed protection; other options on request				
System					
Protection degree	IP 20				
Colour	RAL 9005				
Installation layout	Wall and side by side installation allowed				
Accessibility	Front access, bottom cable entry				

*as per EN 50171 **as per IEC/EN 62040-3

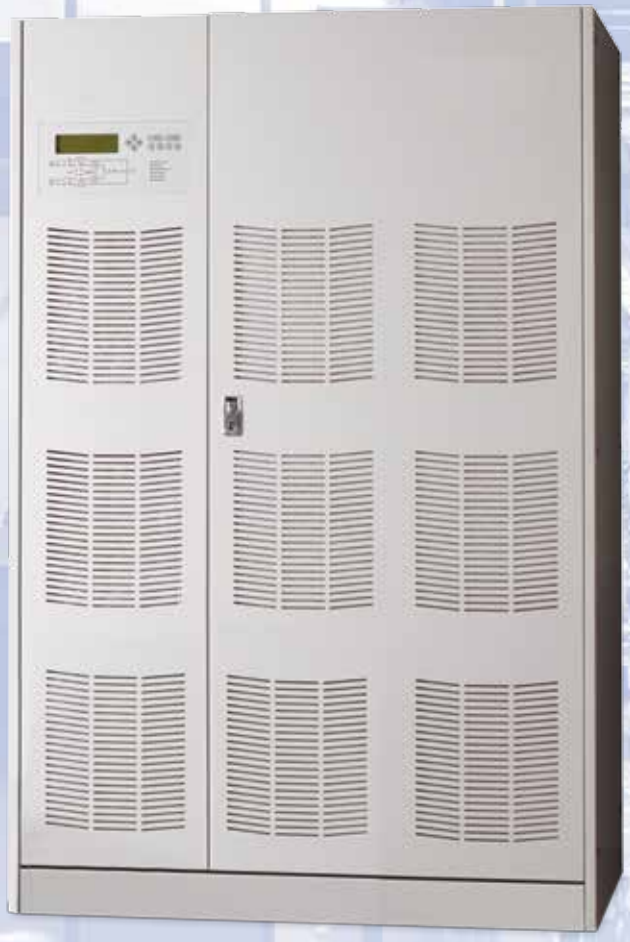
Other features

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	
CPSS	EN 50171
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

STS

Static Transfer Switches

From 16 to 3000 A



Applications

- Networks and servers
- Data centers
- Industrial control and process automation

Highlights

- Short circuit protection
- No break seamless transfers
- High availability

STS 16
STS 32

Static Transfer Switches

1ph from 16 to 32 A

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

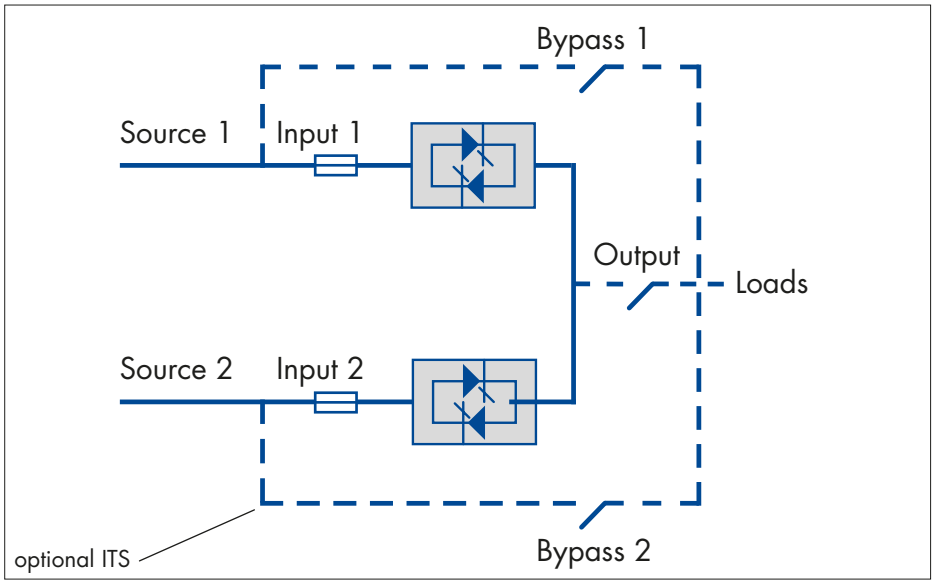
- 100/110/115/120/127 Vac nominal voltage and NEMA sockets.
- ITS maintenance switch.
- RS485 ModBus interface.
- SNMP interface.

STS 16-32 front view

STS 16 rear view

STS 32 rear view

STS block diagram



ITS maintenance switch

ITS maintenance switch main features

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

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 feedack from load	Unlimited	
Overload capacity	125% for 10 min, 150% for 1 min, 700% for 0.6 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 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007
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

STS 300

Static Transfer Switches

3ph from 100 to 3000 A

Features and benefits

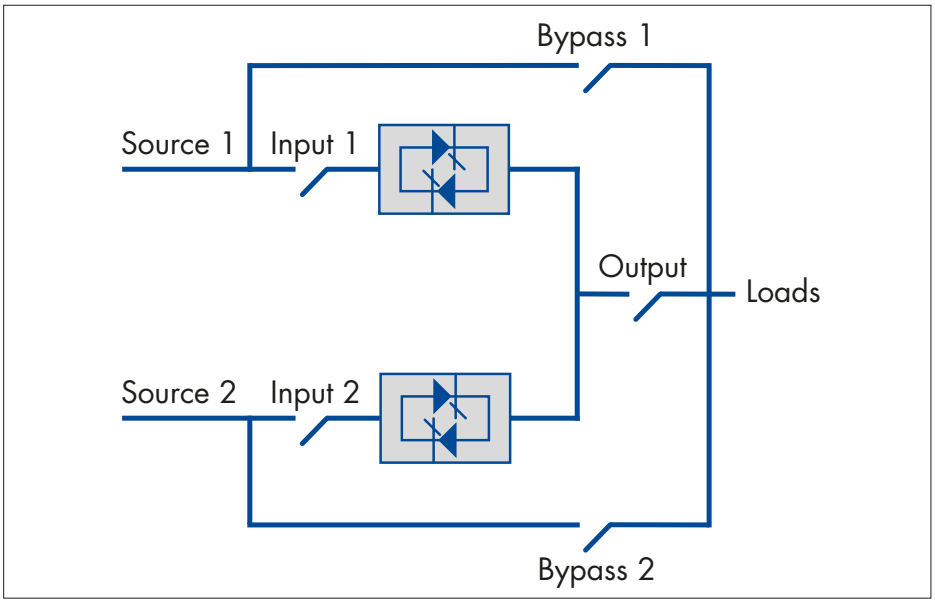
- Continuous monitoring of voltage and frequency and automatic instant (<4 ms) transfers for secure power switching without cross connection between sources.
- Short circuit transfer inhibit for robust load protection.
- SCR fault detection and backfeed protection for maximum upstream safety.
- Dual 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.
- Circuit breakers for reliable and safe tripping on all operating conditions.

Main options

- Isolation transformer.
- Plug-in breakers.
- Output distribution panels.
- Panel builder version.
- Additional SPDT contact relay board.
- 4-pole configuration.
- Operation without neutral.

RAL 7035 optional painting

STS block diagram



	Description	When do I use it
 Included	Dry contact relay card	To send UPS status to PLC's, SCADA's or AS400's by voltage free SPDT contacts
 Included	RS485 ModBus-RTU port	To send UPS status to BMS's by RS485 connection and ModBus-RTU protocol. For telemonitoring and teleservice

STS 300 technical data

Rating (A)*	100	250	400	630	800	1000	1250
Dimensions WxDxH (mm)**	820x835x1475			1220x860x1900			2000x1000x2100
Weight (kg)**	265	290	305	615	660	1000	1450
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 (if THD>20% transfer time ≤10ms)						
Transfer phase angle	5° to 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 fedback 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	Included: dry contact relay card, RS232 and RS485 serial ports, ModBus-RTU protocol. Optional: additional dry contact relay card						
Optional function extensions	4-pole 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 9005 (other options)						
Installation layout	Wall, back to back and side by side installation allowed						
Accessibility	Front access, bottom and top cable entry						

*rating up to 3000 A on request **3-pole version

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 1m (dBA)	<62
Standards and certifications	
Quality assurance, environment, health and safety	ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007
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
Performance	IEC/EN 62310-3
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.

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 Center 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 Center, analyzing 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 Center.
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.

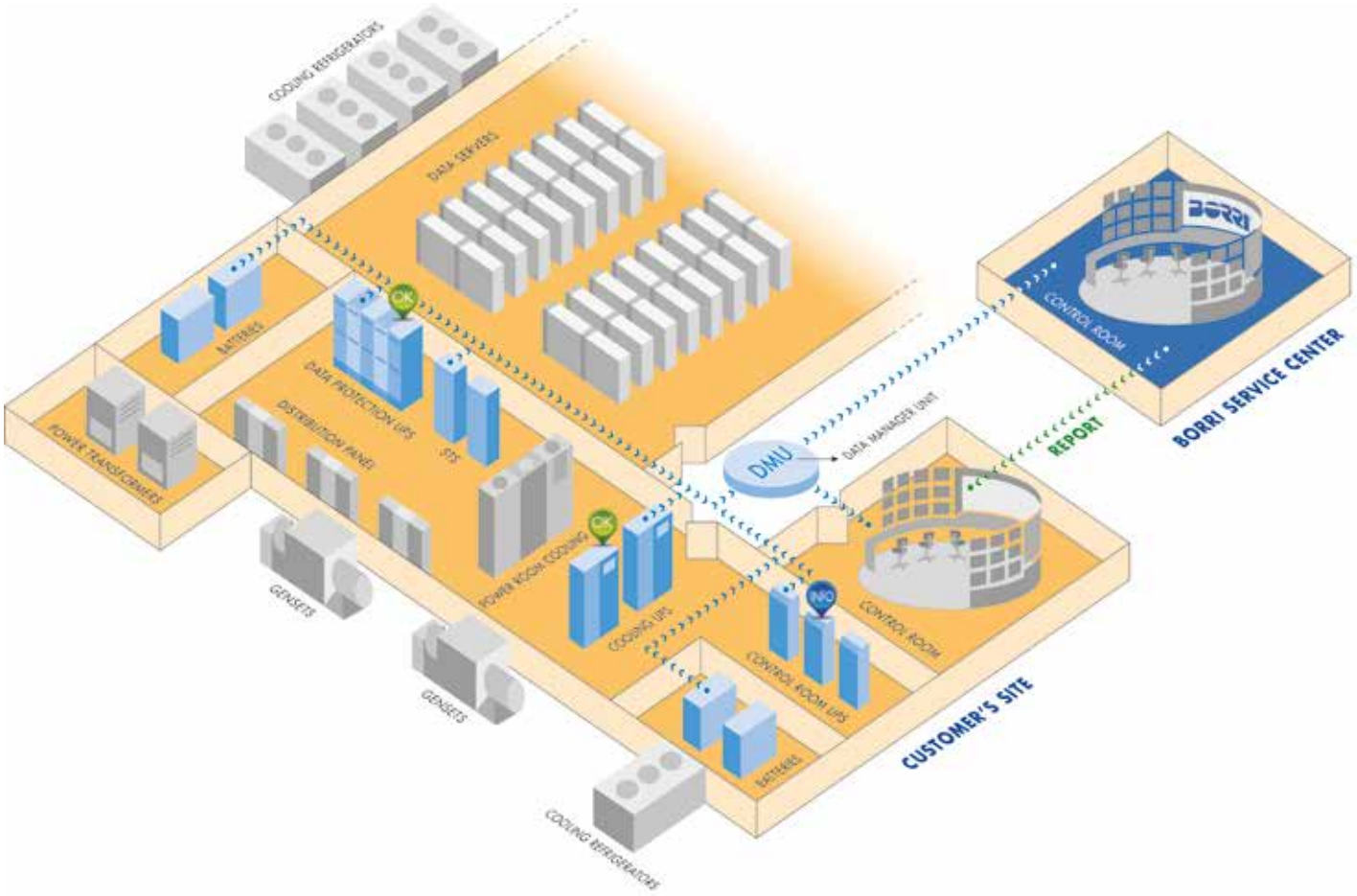
Status Reports

The unit parameters are collected by our Service Center 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.

Guardian Net for critical systems



Data Manager Unit (DMU) technical data

To monitored device	
Communication port	RS485 ModBus
Protocol	ModBus-RTU/ASCII slave
Max no. of connected devices*	16
To Service Center	
Communication port	RJ45 Ethernet
Protocol	Open VPN (based on Open SSL), http, SMTP, ModBus-TCP/IP
Services	Web Server, NTP time stamping
Notification	Included: email Optional: text message via https or via RS232 modem
Options	
	30 h backup battery, system integrator version (no box), GSM/GPRS modem (SIM card not included)
System	
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
Environmental	
Operating temperature range	0°C to 40°C
Storage temperature range	-10°C to 70°C

*conditions apply

Borri Service

Borri 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 center 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 analyze and develop solutions to a wide range of edge system requirements.

Maintenance

Preventive maintenance guarantees uninterrupted operations and optimized system efficiency.

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 efficiency to the UPS and avoid potential failures.
Borri delivers high quality and performing batteries to assure smooth operations.

Repair & spare parts

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

Training

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

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.

For more information, visit our website: **www.borri.it**

Industrial Power

Industrial Power

Industrial projects need reliable and uninterrupted power to secure several mission-critical applications mainly in extreme environments.
High quality engineered custom made systems protect plant and the safety of your team.

Borri's custom-engineered uninterruptable power protection solutions (DC and AC UPS and Inverters systems) continuously supply and protect your industrial systems against a full range of power problems, even in extreme ambient conditions and hazardous locations.

We are fully geared up to provide complete project support, maintenance and services for a smooth and easy project execution and maximum availability of your systems.

Applications

- Oil & Gas
- Power generation and water treatment
- Power transmission & distribution
- Transportation
- Chemical, Mining and Metallurgy
- Process Industry
- Other Heavy Industries.

For more information please contact Borri Industrial Power Sales team and visit: **www.borri.it/industrial-power**

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