

Uninterruptible Power Supply Systems



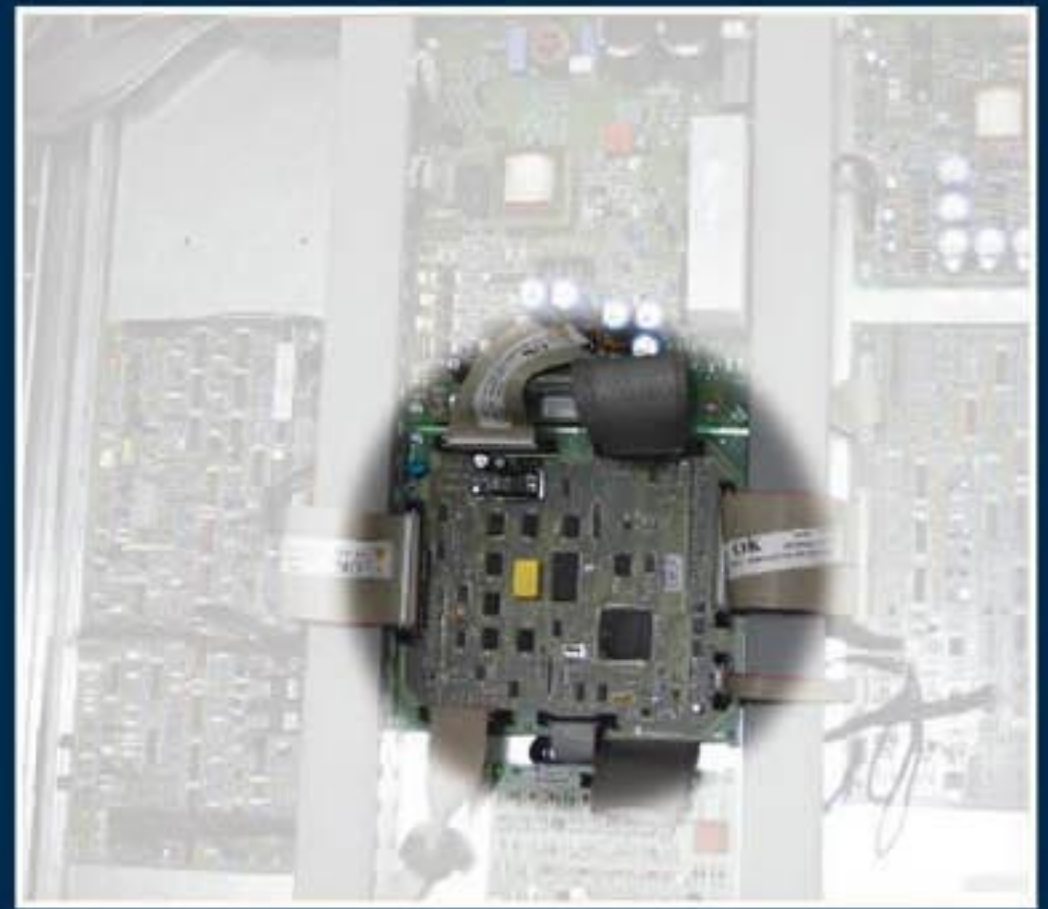
MicroMate[®]

Local Area Networks (LAN)
Servers
Data Centers
Internet Centers (ISP / ASP / POP)
Industrial PLCs
Emergency Devices (Lights / Alarms)
Electro-Medical Devices
Telecommunications Devices
Industrial Applications

SP Series on-line UPS
with an Inverter Isolation Transformer
10 ~ 200KVA (3-phase in / 3-phase-out)

The **SP Series** power capacity range from 10kVA-200 kVA three-phase models and uses double conversion on-line technology (VFI) with an isolation transformer on the inverter output.

The load is powered continuously by the inverter with a filtered, stabilised and regulated sinewave supply. The input and output EMI filters considerably increase the immunity of the load to mains disturbances and surges.



Digital Control

SP Series provides maximum protection for vital 'mission critical' networks, security applications (electromedical) and industrial applications thanks to its outstanding mechanical and electrical design.

SP Series is equipped with BATTERY PROTECTION. This helps to prolong battery life and performance. It has:

- *Two voltage level charging*
- *Temperature compensation charging*
- *Protection against deep discharge*
- *Self battery test*
- *Compatibility with open vented lead acid and NiCad battery.*



Main Features

- Reliable, filtered, stabilised and regulated sinewave output (double on-line conversion technology VFI according to EN50091-3 specifications) with filters for atmospheric disturbance suppression
- High reliability: IGBT technology, full microprocessor control with no-break static and manual bypasses
- High level diagnostics: event log with 128 messages, states, measurements and alarms - available from the built-in LCD in several languages
- The UPS may be configured with the RS232 serial port (flash upgradable)
- Reduced noise levels: high frequency inverter bridge used (>16 kHz: above audible range)
- Low loss high efficiency up to 94% in On-line mode utilizing IGBT technology and up to 98% in the other operating modes: "Economy Mode", Smart Active Mode, and Standby/Off Mode.
 - Economy Mode: uses Line Interactive (VI) technology to power less critical loads from the mains supply for certain periods. The function can be set from the front panel keypad or remotely using software

Ease of Installation and Simplified Maintenance

SP Series UPS occupies only 800 x 800 (mm) foot print. It can be positioned against the wall, thanks to the upward ventilation.

Access for maintenance is entirely from the front of the unit. Power and electronic components are easily accessible from the front for maintenance and repair work. This particular feature means that the MTTR (Mean Time to Repair) is typically less than 30 minutes.

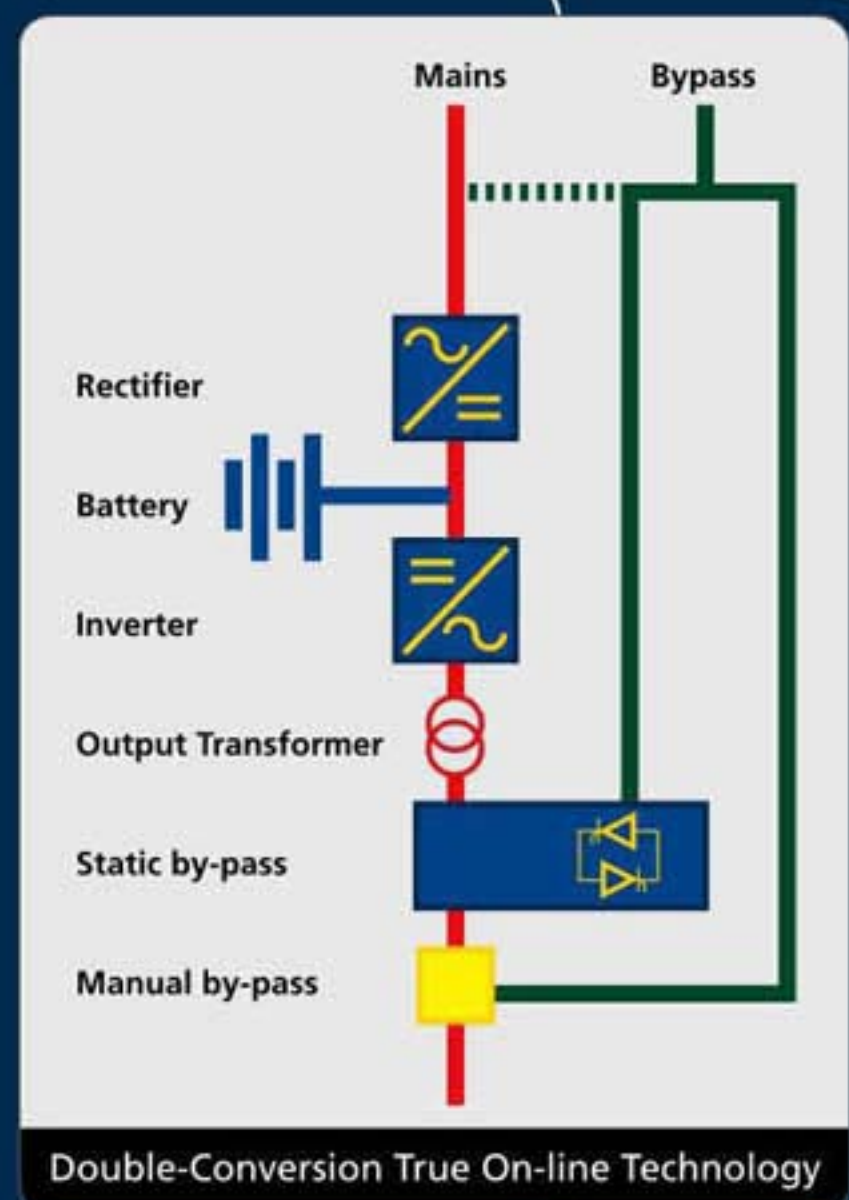
A large amount of maintenance information is available from the front mimic panel and LCD. In addition, system operating parameters are software configurable via a local PC to allow new functions to be added or adjustments made to operating specifications.



10-200 kVA
Front Accessible for Simplified Maintenance



- Low harmonic pollution in the **SP Series CLEAN** version the electronic digital control: (Optional)
 - very low distortion (THDi < 3%)
- Maximum reliability and power availability - connect up to 8 units in parallel or N+1 redundancy, UPS Group Synchroniser (UGS) and Parallel System Joiner (PSJ)
- High level battery reliability:
 - Automatic battery test
 - Recharge compensated for temperature
 - Battery care. Battery life span can be increased approximately by 20% more
- Emergency operation: the UPS can be set to operate only when the mains fails (for emergency lighting)
- Back feed protection: to avoid energy feeding back into the mains supply
- By pass may be deactivated to allow operation as a frequency converter (at 50 or 60 Hz), or as stabiliser
- Easy to maintain (front access).



Flexible Configurations

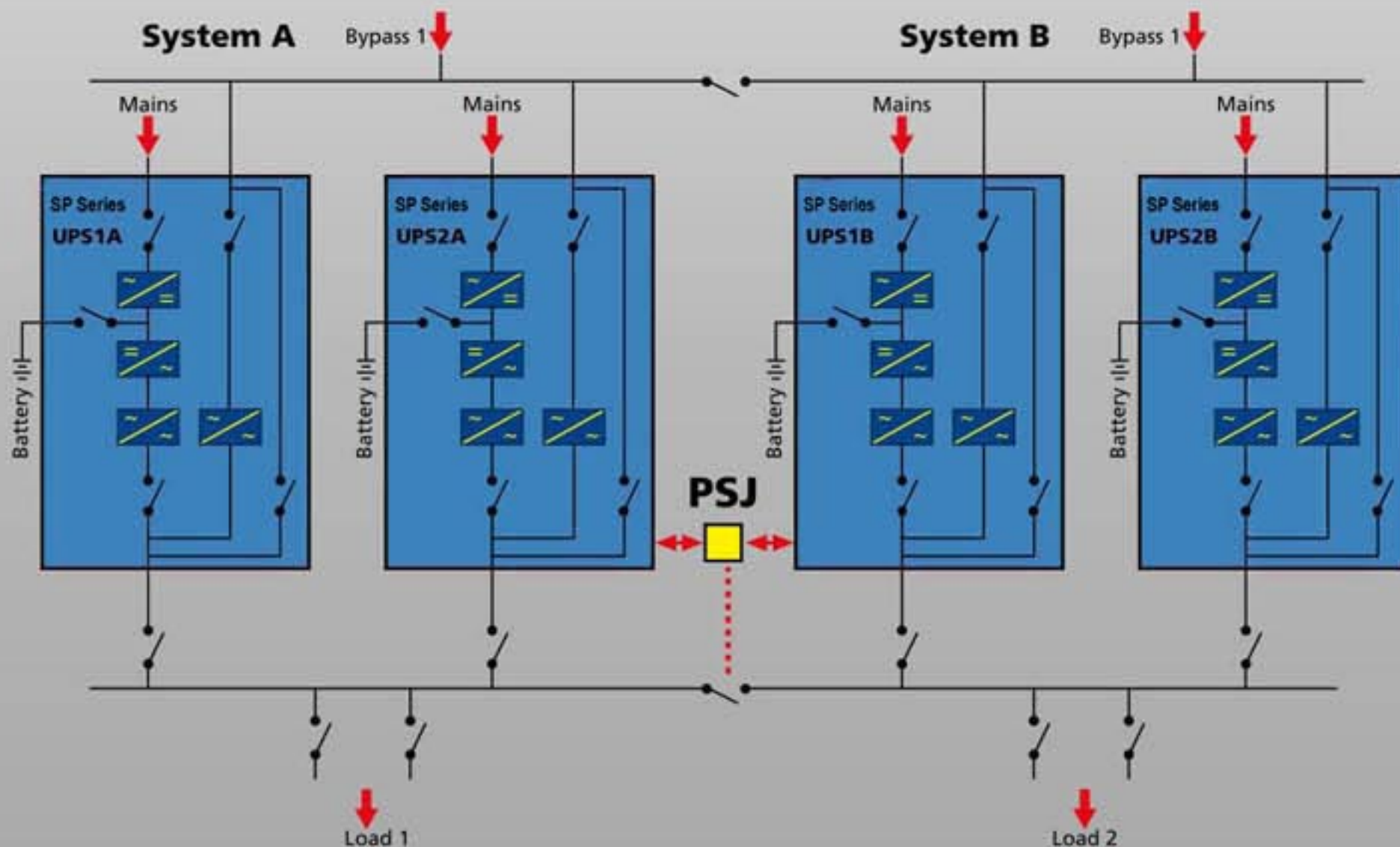
Optional Product for Better Flexibility

SP Series is suitable for application of all types, from IT to the most demanding industrial applications.

Thanks to the broad offer of accessories and options, complex configurations and architectures can be produced, guaranteeing a maximum availability of power supply for the most critical loads.



SP Series with battery compartment

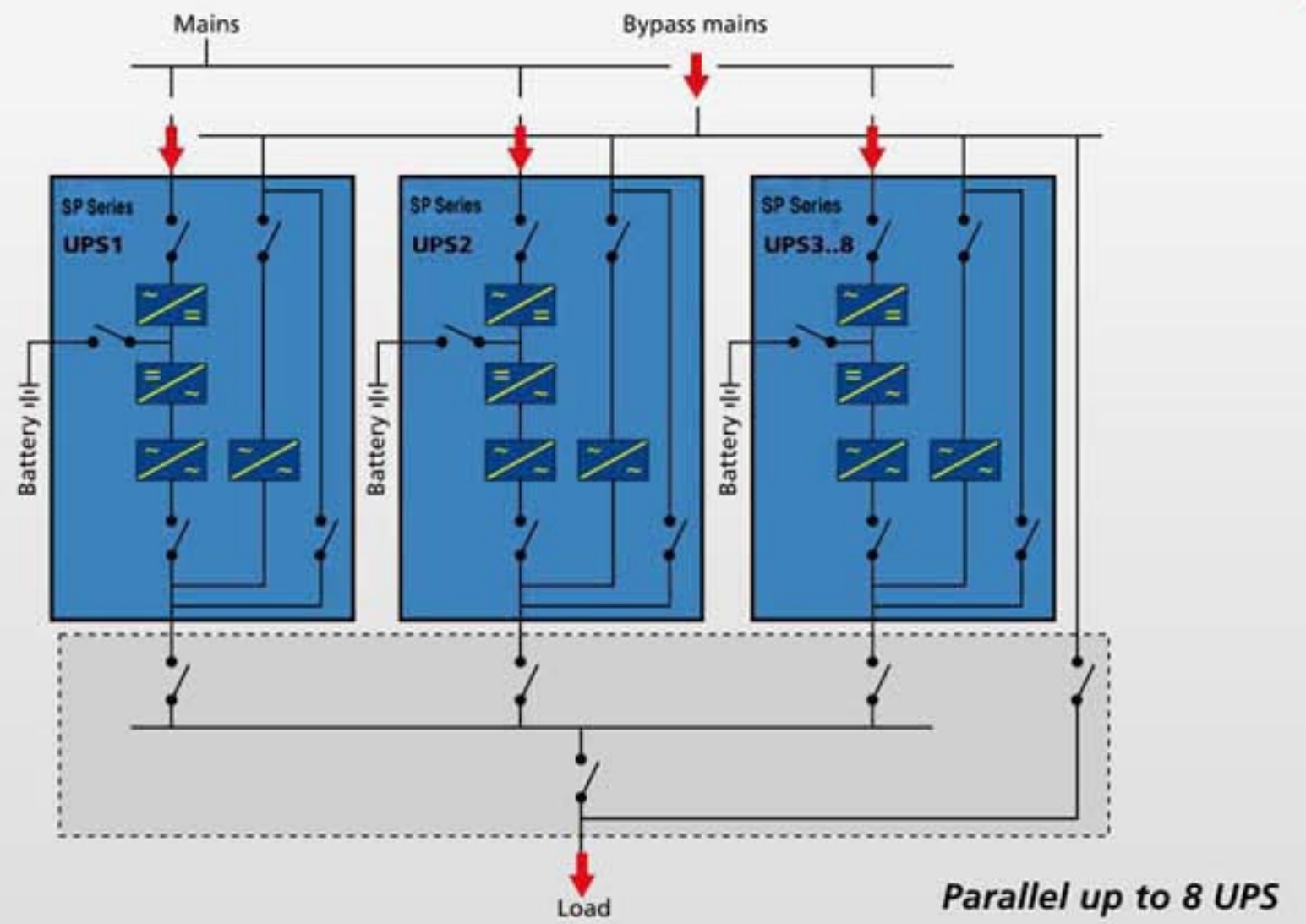


Distribution Redundancy: PSJ

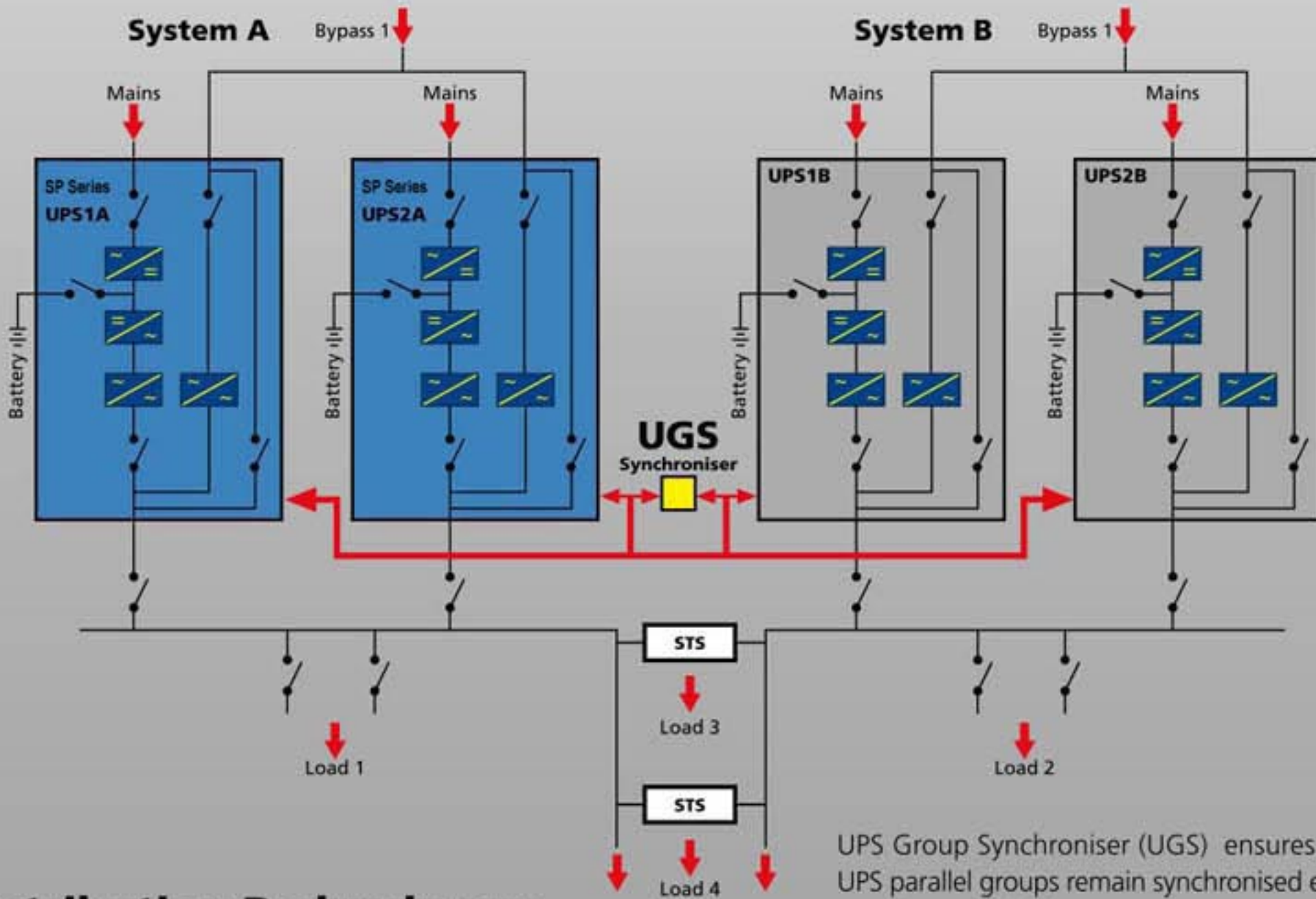
The Parallel Systems Joiner (PSJ) enables the connection of two UPS groups operating in parallel configuration through a power coupling switch.

The Slave Group is permanently synchronised to the Master Group. Should one of the UPS in one of the parallel groups fail, the PSJ will automatically connect the remaining UPS to the other group.

UPS Redundancy: Parallel



mission critical and large scale industrial applications



Distribution Redundancy: UGS

UPS Group Synchroniser (UGS) ensures 2 or more UPS parallel groups remain synchronised even during a mains supply failure.

The UGS also enables **SP Series** to be synchronised with an independent power source and even with different rating.

Technical Specifications

Model	SP10K-33-18
Power	10KVA
Capacity	8KW / 9KW
INPUT	
Norminal Voltage	380-400-415 Vac Three-phase
Voltage Tolerance	± 20%
Frequency	45 - 65Hz
Power Factor	> 0.9 with hormonic filter
Current Hormonic Distortion	< 5% with hormanic filter
Soft Start	0~100% in10"
BYPASS INPUT	
Norminal Voltage	380-400-415 Vac Three-phase
Permitted Voltage Range	± 15% (selectable from ±10% to ±25% from front panel)
Frequency	50/60Hz
Permitted Frequency Range	±2% (selectable from ±1% to ±5% from front panel)
Standard Features	BackFeed Protection; Split Bypass Line
BATTERY	
Type	Maintenance-free lead-acid VRLA AGM / GEL; NICd
Number of Batteries	64 blocks of 12V/9AH
Max. Recharge Current (A)	0.2 x C10
AC Ripple Voltage	< 1%
OUTPUT	
Power	10KVA
Capacity	8KW / 9KW
Power Factor	0.8 / 0.9
Number of Phase	3 + N
Norminal Voltage	380-400-415 Vac Three-phase
Regulation of the O/P Voltage	348 - 424 Vac phase / neutral (from control panel)
Crest Factor (I _{peak} / I _{rms})	3:1
Static Stability	±1%
Dynamic Stability	±5%
Voltage Distortion	< 1% with linear load / < 3% with no-linear load
Frequency	50 / 60Hz configurable
Overload	110% 125% 150% of the rated current for 5h/10'/1'
Frequency stability	±0.05% on mains failure; ±2% (selectable from ±1% to ±5%) with mains supply
ENVIRONMENTAL	
Remote Signaling	Volt Free Contacts
Remote Controls	EPO and Bypass
Communication	RS232 + Remote Contracts
Operaqtion Temperature	0°C / + 40°C
Relative Humidity	< 95% non condensing
Colour	Light Grey (RAL 7035)
Noise	54~62dBA at 1m
Proctection Degree	IP20
Efficiency Smart Mode	up to 98%
Compliance	Compliance to European Directives: LV 2006/95/CE Low Voltage directive; EMC 2004/108/EC Electromagnetic Compatibility directive; IEC / EN 62040-1 (Safety); EMC IEC / EN 62040-2 C2; Classification according to IEC 62040-3 (Voltage Frequency Independent)
Weight	380KG (including batteries)
Dimensions	W755 x D740 x H1400 mm ³

Technical Specifications

Model	SP10KS-33	SP15KS-33	SP20KS-33	SP30KS-33	SP40KS-33	SP60KS-33	SP80KS-33	SP100KS-33	SP120KS33	SP160KS-33	SP200KS-33	
Power (KVA)	10	15	20	30	40	60	80	100	120	160	200	
Capacity (KW)	8 / 9	12 / 13.5	16 / 18	24 / 27	32 / 36	48 / 54	64 / 72	80 / 90	96 / 108	128 / 144	160 / 180	
INPUT												
Norminal Voltage	380-400-415 Vac Three-phase											
Voltage Tolerance	± 20%											
Frequency	45 - 65Hz											
Power Factor	> 0.9 with harmonic filter											
Current Harmonic Distortion	< 5% with harmonic filter											
Soft Start	0~100% in10"											
BYPASS INPUT												
Norminal Voltage	380-400-415 Vac Three-phase											
Permitted Voltage Range	± 15% (selectable from ±10% to ±25% from front panel)											
Frequency	50/60Hz											
Permitted Frequency Range	±2% (selectable from ±1% to ±5% from front panel)											
Standard Features	BackFeed Protection; Split Bypass Line											
BATTERY												
Type	Maintenance-free lead-acid VRLA AGM / GEL; NiCd											
Max. Recharge Current (A)	0.2 x C10											
AC Ripple Voltage	< 1%											
OUTPUT												
Power (KVA)	10	15	20	30	40	60	80	100	120	160	200	
Capacity (KW)	8 / 9	12 / 13.5	16 / 18	24 / 27	32 / 36	48 / 54	64 / 72	80 / 90	96 / 108	128 / 144	160 / 180	
Power Factor	0.8 / 0.9											
Number of Phase	3 + N											
Norminal Voltage	380-400-415 Vac Three-phase											
Regulation of the O/P Voltage	348 - 424 Vac phase / neutral (from control panel)											
Crest Factor (I _{peak} / I _{rms})	3:1											
Static Stability	±1%											
Dynamic Stability	±5%											
Voltage Distortion	< 1% with linear load / < 3% with no-linear load											
Frequency	50 / 60Hz configurable											
Overload	110% 125% 150% of the rated current for 5h/10'/1'											
Frequency stability	±0.05% on mains failure; ±2% (selectable from ±1% to ±5%) with mains supply present											
ENVIRONMENTAL												
Remote Signaling	Volt Free Contacts											
Remote Controls	EPO and Bypass											
Communication	RS232 + Remote Contracts											
Operaqtion Temperature	0°C / + 40°C											
Relative Humidity	< 95% non condensing											
Colour	Light Grey (RAL 7035)											
Noise	54~62dBA at 1m						54~65dBA at 1m					
Protection Degree	IP20											
Efficiency Smart Mode	up to 98%											
Compliance	Compliance to European Directives: LV 2006/95/CE Low Voltage directive; EMC 2004/108/EC Electromagnetic Compatibility directive; IEC / EN 62040-1 (Safety); EMC IEC / EN 62040-2 C2; Classification according to IEC 62040-3 (Voltage Frequency Independent)											
Weight (KG)	200	220	230	290	340	440	520	770	855	1300	1350	
Dimensions (W x D x H)	555 x 720 x 1200					800 x 740 x 1400		1070 x 740 x 1400		1420 x 740 x 1805		

* Models with internal batteries, i.e. SP10K-33 and SP15K-33 are also available.

NOTE: UPS specifications and data may be subject to change for improvement without prior notice.