

# $\mu$ PS-SP Series



**On-Line Double Conversion UPS  
Stand Alone and Parallel  
Three-Phase, 6kVA to 200kVA**

**Voltage Range:**

**3x200Vac/ 3x208Vac/ 3x220Vac,  
50/60Hz**



**GAMATRONIC**

*Our Power, Your Confidence*

# μPS-SP SERIES

The μPS-SP series is the next generation of the winning model μPS. This unbeatable model has been renewed with extended software and hardware designs, offering even more features and advantages for YOU! From pre-sale, commissioning to after sale-service.

The following are the added new features of the μPS-SP:

- Universal software enables to configure the UPS on-demand for different types and setups.
- Improved on site service procedure - boards can be configured on site inside the UPS
- Single design for Stand-alone and Parallel configuration models
- Extended range of events on UPS log provides detailed information of UPS anomaly history

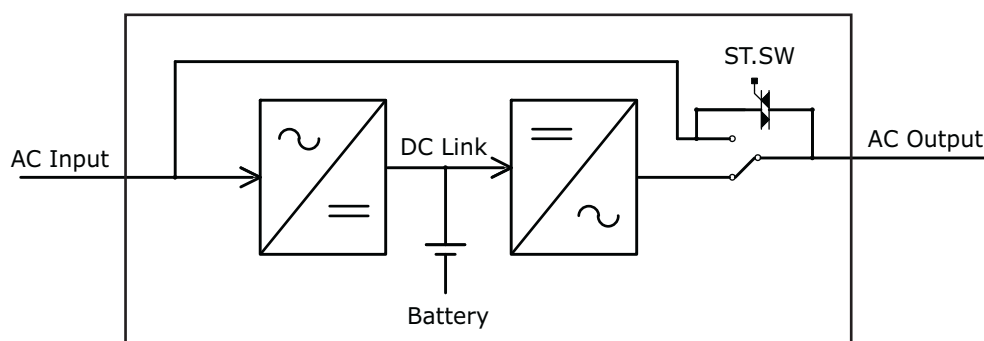
## Main Features

- True Double Conversion on-line topology
- On-line batteries. No transfer time to batteries
- Precise DC voltage regulation of  $\pm 1\%$
- Full microprocessor control
- Variety of options, configurable from panel
- Output isolation transformer
- DC Soft-Start
- Enlarged charger for longer backup time
- Automatic and manual battery tests
- Operates with both symmetrical and non-symmetrical loads, and linear and non-linear loads
- Designed for both Wye and Delta load connections
- Various input/output voltages and frequencies
- Large LCD display
- Logs up to 256 events
- RS232 interface with smart software option
- Real time clock
- Independent output voltage control for any single phase
- Charger Voltage regulation according to EUROBATT requirements

## Options

- External STSW module connection for increased reliability
- Redundant parallel connection, with active current sharing
- Input filter for 7%-10% THDI
- Isolation transformer for static switch
- High input PF 0.92-0.94
- Battery charge current limit
- SNMP management
- WING - wireless management card

## Gamatronic Double Conversion, On-Line Batteries UPS System Topology



## Parallel Redundant UPS System

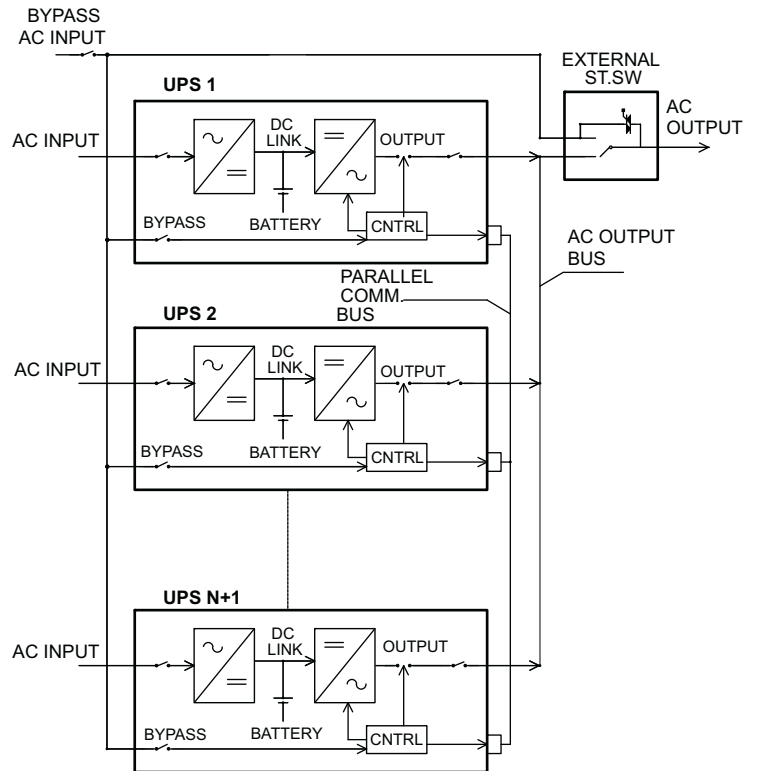
Similar  $\mu$ PS-SP units may be interconnected in Parallel to create an enhanced security redundant system, implementing the following features:

- ▶ Leading/ driven logic
- ▶ Precision synchronization control circuitry
- ▶ Active current sharing circuit to distribute the load equally between the UPS units
- ▶ Unique diagnostic system employed to detect and isolate a faulty UPS unit
- ▶ Digital Phase Locked Loop system (PLL)
- ▶ Each UPS equipped with its own battery set
- ▶ Output connected directly in parallel mode without any additional device
- ▶ A ten-wire signal bus for synchronization and active current sharing between units
- ▶ Centralized and Decentralized STSW configurations are both available (as illustrated below)

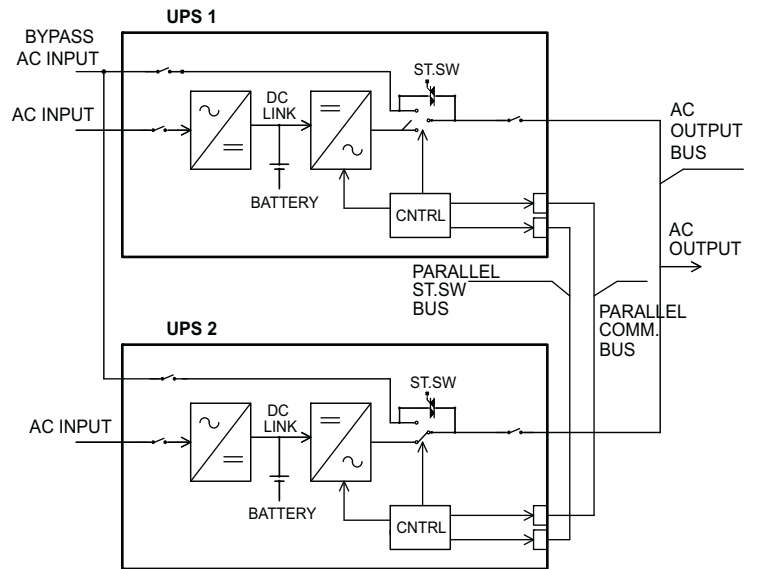
The parallel connection is available for:

- ▶  $\mu$ PS-SP 3/3\*
- ▶  $\mu$ PS-SP 3/1\*
- ▶ MS-SP 1/1\*

\* Note: the UPS units should include the optional output inductor



N+1  
Centralized Parallel System



1+1  
Decentralized Parallel System

## μPS-SP Technical Specifications

<b>INPUT</b>	
Voltage	See following tables
Voltage Range	+20%-15%
Frequency	47÷53Hz (57÷63Hz)
Power Walk-in	12 sec.
Protection	Circuit breaker, RFI filter
Power Factor (PF)	0.8 (0.92-0.94)*
THD	28% (7-10%)*
<b>OUTPUT</b>	
Voltage (V)	See following tables, no DC component
Voltage Regulation	±1%
Frequency Tracking Range	±0.5, ±1, ±2, ±3, ±4Hz (selectable)
Free-running Frequency	50/60Hz ±0.1Hz
Slew Rate	1 Hz/sec.
Overload	125% 10 min., 150% 30 sec., 1000% 1 cycle
Load PF	0.8
Waveform	Sinusoidal
THD	Less than 2% (at linear load)
Crest Factor	3:1
Protection	Overload and short circuit, over temperature (Heat Sink and inverter transformer)
Dynamic Response to 100% Load Change	2%
Static Switch Bypass Transition Time	Less than 0.5 msec.
Rejection Ratio	More than 100 dB
<b>ENVIRONMENT &amp; OTHER</b>	
Ambient temperature:	
Operating	-10 to 40°C
Storage	-20 to 60°C
Relative Humidity	95% max., non-condensation
Altitude	1500m w/o derating
UPS Standard:	
General & Safety	EN50091-1 ; IEC62040-1
EMC	EN50091-2 ; IEC62040-2
Design	ENV50091-3 ; IEC62040-3
MTBF	100,000 hours, 250,000 hours with static switch
<b>LCD DATA</b>	
Input	Voltage (current - optional)
Output & Inverter	Voltage, Current, Frequency
Bypass	Voltage & frequency
Batteries	Voltage (current optional)
Real Time and Accumulated Operational Time	
Log (events memory)	Last 256 events
<b>OPTIONS</b>	
Maintenance Bypass - standard feature for units above 20kVA	
Extended Backup Time	
Custom Input/Output Volt./Freq. combinations	
Galvanic Isolation between AC Inputs and Outputs - Input Isolation Transformer	
Extended Alarm VFC Board	
Battery Charge Current Limit	
Battery Voltage Temp. Compensation	
<b>COMMUNICATION OPTIONS</b>	
Alarm Interface	
shutdown software	
Remote indication panel	
RS232 Interface	
GMaCi - SNMP TCP/IP management card	
WING - GSM/GPRS wireless management card	

\*with optional Filter

All specifications given are typical and subject to change without notice

# μPS-SP 3/1

## Technical Specifications

MODEL	6K	8K	10K	15K	20K
<b>INPUT</b>					
Voltage	3X200 / 3X208 / 3X220Vac				
Frequency	47÷53 Hz, 57÷63 Hz				
<b>OUTPUT</b>					
Voltage	115/ 120/ 127Vac (no DC components)				
Power (kVA)	6	8	10	15	20
(kW)	4.8	6.4	8	12	16
Efficiency AC - AC @ 100% Load (%)	89.5			90	
@ 50% Load (%)	88.5			89.5	
Efficiency DC-AC @100% Load (%)	92.5			93	
Heat Dissipation (W) @ Full Load (1W = 3.4 BTU/h)	593	791	890	1407	1877
<b>BATTERY OPERATION</b>					
Nominal DC Voltage	192Vdc for standard models				
Floating DC Voltage	216Vdc for standard models				
Backup Time	According to customer requirements				
Battery Recharge Time	Approx. 6-8 hrs.				
Expected Battery Life	5 Years (10-12 years optional)				
<b>PHYSICAL</b>					
Size (cm)*					
Height	75		95		
Width	24		40		
Depth	80		83.5		
Weight (kg) w/o Batteries	110	140	160	250	300
Audible Noise (dB) @ 1.5m	54	54	56	56	56

\* Size of cabinet may change according to UPS specification

All specifications given are typical and subject to change without notice





# μPS-SP 3/3

## Technical Specifications

MODEL	10K	15K	20K	30K	40K	60K	80K	100K	125K	160K	200K*	
<b>INPUT</b>												
Voltage	3 x 200 / 208 / 220Vac											
Frequency	47÷53Hz (57÷63Hz)											
<b>OUTPUT</b>												
Voltage	3 X 200 / 208 / 220Vac (no dc components)											
Power (kVA)	10	15	20	30	40	60	80	100	125	160	200	
(kW)	8	12	16	24	32	48	64	80	100	128	160	
Efficiency AC-AC @ full load (%)	89.5	90		90		91		91.5		92		
Efficiency DC-AC @ full load (%)	92.5		93		93.5		95.5					
Dissipation (W) @ Full Load (1W=3.4BTU/h)	936	1333	1778	2667	3556	4750	6329	7912	9300	11123	13913	
<b>BACKUP OPERATION</b>												
Backup Time	As per customer specifications											
Nominal DC Voltage	192Vdc							384Vdc				
Floating DC Voltage	216Vdc							432Vdc				
Batteries (12VDC each)	Sealed Lead-Acid, external											
Battery Recharge Time	Approx. 6-8 hours					Approx. 4-6 hours						
Expected Battery Life	5 years (10-12 years optional)											
<b>DIMENSIONS</b>												
Height (cm)	95		130		190		190					
Width (cm)	40		55.5		70		135					
Depth (cm)	83.5		111		80		80					
Weight (kg) W/O batteries	200	230	270	350	420	600	800	1100	1500	1750	2000	
Audible Noise (dB) @ 1.5m	56	58		60	61	62	64	65		67		

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 \*200kVA 3/3 system includes an additional cabinet

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