



Technical Data Sheet - 225-300kVA UL Listed

**SG Series Uninterruptable Power Supply  
225-300kVA UL listed with eBoost™**



**General Data**

Topology		True On-line double conversion			
Nominal output power at pf = 0.9 lag.		300kVA (270kW) / 225kVA (202.5kW)			
System Efficiency in Double Conversion operating mode @0.9 pf lagging load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load
225kVA with 5th filter		85.5%	91.7%	92.8%	92.9%
300kVA with 5th filter		89.0%	92.4%	92.8%	92.6%
System Efficiency in eBoost Operating mode @0.9 pf lagging load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load
225kVA with 5th filter		95.5%	97.6%	98.3%	98.5%
300kVA with 5th filter		96.6%	98.1%	98.5%	98.7%
Heat rejection in Double Conversion operating mode @0.9 pf lagging load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load
225kVA with 5th filter		29295	31270	40207	52807
		8.6	9.2	11.8	15.5
300kVA with 5th filter		28466	37888	53609	73623
		8.3	11.1	15.7	21.6
Heat rejection in eBoost Operating mode @0.9 pf lagging load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load
225kVA with 5th filter		8140	8495	8962	10522
		2.4	2.5	2.6	3.1
300kVA with 5th filter		8106	8922	10522	12134
		2.4	2.6	3.1	3.6
Max Cooling Air (77°F - 86°F / 25°C - 30°C) (225/300kVA)		2661 / 3709 CFM			
Audible noise level (at 5 ft./1.52Mts)					
Double Conversion Mode		67 dB(A)			
eBoost Mode		60 dB(A)			
Operating temperature range					
UPS		32°F - 104°F (0°C - 40°C)			
Battery		68°F - 77°F (20°C - 25°C)			
		(Note: Higher temperatures shorten battery life)			
Storage temperature range					
UPS		5°F - 122°F (-15°C to +50°C)			
Battery		32°F - 104°F (0°C - 40°C)			
(VRLA)		Storage time is 6 months at 77°F (25°C).			
		(Note: Higher temperatures reduce battery storage time)			
Relative humidity		0-95%, non-condensing			
Maximum Altitude		3281 / 1000 (no derating)			
		4921ft (1500Mts)	6562ft (2000Mts)	8202ft (2500Mts)	9843ft (2500Mts)
		-5%	-9%	-14%	-18%
		Derating			




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Enclosure				
Type:	Indoor (IP20) and NEMA PE 1			
Safety:	Internal dead front construction			
Cooling:	Forced Air (Redundant Fans)			
Color:	Black (RAL 9005)			
Installation				
Rigging:	Suitable for handling by forklift			
Mounting:	Floor mounting holes provided			
Installation and maintenance access:	Front access required for normal maintenance			
Conduit Entry:	Top and Bottom standard			
Standards	UL 1778, IEC 62040, ISO9001, FCC Class A Optional			
Electrostatic discharge immunity	4kV contact / 8kV air discharge			
Configuration				
Standard:	Stand-alone			
Optional:	Redundant Parallel Architecture (RPA) - up to 6 units may be paralleled in any combination for redundancy or capacity			
Fault current rating	UPS is designed for installation in an electrical system up to 65kA			
<b>NOTE 1:</b> The Bypass input must be fed from a grounded-WYE electrical system. refer factory for 3-wire operation on bypass input. The load cannot use neutral unless the bypass input feeder includes neutral.				
Rectifier				
Configuration	Six Pulse Thyristor, Three phase bridge			
Input				
Voltage:	480VAC, 3-phase, 3 wire + ground (NOTE 1) (-20% to +15% without battery discharge)			
Frequency:	60Hz, +/-10% (54-66Hz)			
Harmonic Current Distortion:	<7.5% (225kVA) / <7% (300kVA)			
Power Factor (Typical):	0.93 lagging			
Inrush current:	Limited by soft-start circuit			
Power walk-in:	30 seconds (Adjustable)			
Output Voltage Tolerance:	+/- 1%			
DC ripple voltage:	+/- 1%			
DC ripple current:	Max. 5% of battery capacity expressed in amps			
UPS Rating Vs. current limits		225	300	
Nominal input (100% load)	Current[A]:	338.0	450.0	
(0.9 PF load, fully chrg'd bat.)	kVA	240.0	319.0	
	kW	220.0	294.0	
Maximum input (100% load)	Current[A]:	380.0	490.0	
(0.9 PF load, max. chrg current)	kVA	275.0	351.0	
	kW	252.0	323.0	
Max. charge current	A:	60	60	
Battery				
Battery compatibility	Lead-acid or NiCd, VRLA or flooded			
Number of cells	240 (lead-acid)			
Float voltage at 68°F (20°C)	540VDC			
Minimum discharge voltage	396VDC (adjustable)			
Recharge time for 30 minute battery	10 times the discharge time			
Battery ground fault detection	Standard			
Automatic and manual battery test	Standard			
UPS Rating		(kVA)	225	300
@100% load, 0.9 PF lag	kWB:		213.0	284.0
Maximum Discharge Current	A:		538	718



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Inverter			
Nominal output voltage	480VAC, 3-phase, 4 wire + ground (NOTE 1)		
Inverter bridge	IGBT technology and Space Vector Modulation		
Output Isolation transformer	Standard		
Output waveform	True sine wave		
Output voltage tolerance			
	Static:	+/- 1%	
	Load step 0% - 100% - 0%:	+/- 3%, recovering to within +/- 1% in 1 cycle	
	Load step 0% - 50% - 0%:	+/-2%, recovering to within +/- 1% in 1 cycle	
	100% unbalanced load (Ph-N):	+/- 3%	
Output voltage distortion			
	100% linear load:	2% THD maximum	
	100% non-linear load (per IEC 62040):	3% THD maximum	
Crest factor capability	≤ 3:1		
Output neutral rating	200%		
Phase displacement			
	100% balanced load:	120° +/- 1%	
	100% unbalanced load:	120° +/- 2%	
Output frequency			
	Free running:	60Hz, +/- 0.01%	
	Synchronized with utility:	+/- 4% (adjustable from 57.6Hz to 62.4Hz)	
Overload capability (on inverter)	125% at 0.9 PF for 10 minutes.		
	150% at 0.9 PF for 30 seconds		
Short circuit capability (on inverter)	700% of rated current for first 1.2 ms followed by 220% for 100 ms, electronically limited		
UPS Rating	225	300	(kVA)
Maximum Output Current @ 0.9pf	270.0	360.0	A
Static Bypass			
Input configuration	Common with rectifier (default) or dual input (optional)		
Primary components	Full load rated static switch		
	Back feed protection + Semiconductor fuse for clearing fault currents		
	Internal maintenance bypass (optional)		
Transfer limits	+/- 10% of nominal output voltage (adjustable)		
Overload capability (on bypass)	110% continuous		
	200% for 5 minutes		
Short circuit capability (on bypass)	1000% for 1/2 cycle (non-repetitive)		
eBoost™ Operating Mode			
Input wiring configuration	480VAC, 3-phase, 4 wire + ground (NOTE 1)		
Output waveform	Continuously monitored		
Transfer time (static bypass to inverter)	<4ms (typical)		
Transfer limits			
	Steady-state RMS tolerance	+/-20 Vrms (adjustable)	
	Instantaneous voltage distortion (with respect to Normal Sine wave)	Magnitude	+/-75Vp
		Duration	500µs (adjustable)
Steady-state frequency tolerance	+/-3 Hz		
Instantaneous phase shift	0.15 radians (8.5 Deg)		

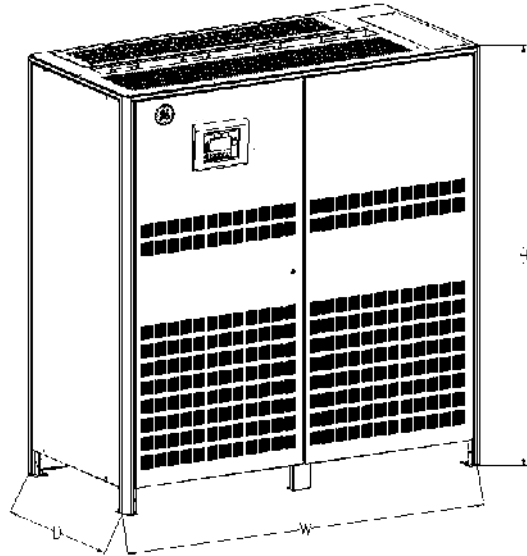


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<b>External Interface</b>	
Alarm contacts (voltage-free)	Standard : 6 user defined contacts (form 'C') (1A / 24V DC) Optional : 12 user defined contacts (form 'C') (1A / 24V DC) (23 selectable signals include aux. Inputs 1 & 2)
Communication	RS-232 / SNMP / MODBUS
Input signals	Emergency Power Off (user supplied N.C. contact) Aux. input 1 * (default = On Generator) Aux. input 2 * (configurable) * Status displayed on LCD panel
<b>Front Panel Controls, Signals &amp; Alarms</b>	
	
Mimic Diagram	Represents operational status of the UPS on Home Page of LCD
Operation LED	Visual (LED) when load is on inverter OR load is on bypass BLINK during service check
Alarm LED	Visual (LED) and audible signal, activates approx. 3 minutes (adjustable) before complete and automatic load shutdown due to the battery is fully discharged and the load cannot be transferred on utility or Over temperature or overload condition (>125%) and the load cannot be transferred on utility.
Warning LED	Visual (LED) and audible signal active when any alarm condition is present BLINK when alarm is active and not acknowledged
Load Level / Battery Run Time	Bar graph status indicator on Home Page of LCD Load level in %, Battery run time in min.
Multilanguage Graphic LCD	Display of UPS metering functions , event history, configuration of parameters and helps perform critical UPS Operations Supports 14 Languages(Chinese, Czech, Dutch, English, Espanola, Francais, German, Italiano, Polish, Portuguese, Russian, Slovensko, Soumi, Swedish)
Push Buttons	-Inverter On -Inverter Off -Total Off with protective cover
<b>Optional Features</b>	
RPA, IEMi	-Redundant Parallel Operation, Intelligent Energy Management Integrated
eBoost™ (Patented) Operating Mode	-High Efficiency Operating Mode for Single and Multi module applications
RPA Cable Saver Inductor	-Simplify Parallel Systems installation & Improve current sharing
FCC Filter	-Brings UPS into compliance with FCC, Class A Specifications
Dual Input	-Integral to UPS cabinet. No additional cabinet required
Input/Output Transformers	-Available in external cabinets for isolation or voltage transformation
External Maintenance Bypass	-Available in external or as a part of output switchgear cabinet



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Mechanical Data



225-300 kVA Enclosure

	Dimensions (inches / mm)		
	Width (W)	Depth (D)	Height (H)
	65.0 / 1650	31.5 / 800	71.2 / 1807.5
Configuration	Weight (lbs./ Kg)	floor load (lbs./sq ft / Kg/sq m)	
With 5th filter	3086 / 1400	218 / 1061	

UPS Block Diagram

	Standard Configuration	With separate Bypass Mains
1.....Rectifier		
2.....Inverter		
3.....Static Bypass		
4.....Load switch		
5.....Utility		
6.....Load Output		
7.....Battery		
8.....RPA Cable Saver Inductor (optional)		
FB.....Battery Fuses or Circuit Breaker		
F1, 2, 3.....AC Input Fuses or Circuit Breaker		





