



Technical Data Sheet SG Series (10-40kVA)

General Data		True On-line double conversion			
Topology		True On-line double conversion			
Nominal output power at PF = 0.7 lag. to 0.8 lag.	kVA	10	20	30	40
Overall Efficiency in VFI mode	%	Up to 91.0			
Heat dissipation at 100% load in VFI mode, PF=0.8lag & charged battery	kW	0.98	1.65	2.16	2.88
Heat dissipation at 100% load in VFI mode, PF=0.9lag & charged battery	kW	1.10	1.85	2.43	3.24
Cooling Air at PF=0.8 (25°C-30°C)	M3/h	285	481	630	840
Cooling Air at PF=0.9 (25°C-30°C)	M3/h	320	541	709	945
Audible noise level (at 5 ft.)	dB(A)	60	60	60	60
Operating temperature range	UPS : Battery :	32°F - 104°F (0°C - 40°C) 68°F - 77°F (20°C - 25°C) (Note: Higher temperatures shorten battery life)			
Storage temperature range	UPS : Battery : (VRLA)	5°F - 122°F (-15°C to +50°C) 32°F - 104°F (0°C - 40°C) 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	Without derating : With derating :	3281ft (no derating) 4921ft/-5% 6562ft/-9% 8202ft/-14% 9843ft/-18%			
Enclosure	Type : Safety : Cooling : Color :	Indoor (IP20) and NEMA PE 1 Internal dead front construction Forced Air (Redundant Fans) Black (RAL 9005)			
Installation	Rigging : Mounting : Installation and maintenance access : Conduit Access :	Suitable for handling by forklift Floor mounting holes provided Front access required for normal maintenance Top and Bottom standard			
Standards		UL 1778, IEC 62040, ISO9001, FCC Class A Optional			
Electrostatic discharge immunity		4kV contact / 8kV air discharge			
Configuration	Standard : Optional :	Stand-alone RPA™ - up to 8 units may be paralleled in any combination for redundancy or capacity			

Rectifier					
Configuration		Six 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)			
	Power factor :	0.8 lagging (typical)			
	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			
Data	SG Series (kVA)	10	20	30	40
Nominal input (100% load) (0.8 PF load, fully chrg'd bat.)	Current[A] :	17.2	27.3	40.4	53.9
	kVA :	14.3	22.7	33.6	44.8
	kW :	11.2	17.7	26.4	35.1
Max. input (100% load) (0.8 PF load, max. chrg current)	Current[A] :	20.2	36.6	53.1	63.2
	kVA :	16.8	30.4	44.1	52.5
	kW :	12.9	23.4	33.9	40.4
Max. charge current	0.8 PF load :	5	10	10	15

NOTE 1: The Bypass input must be 480V/277V, 3-Phase, 4-Wire, WYE, plus ground. Fed from a grounded-WYE electrical system.



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					
Data	SG Series (kVA)	10	20	30	40	
100% load, 0.8 PF lag.	kWB:	8.6	17.2	25.6	34.1	
Maximum Discharge Current	[A]:	21.7	43.4	64.6	86.1	

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	Greater than 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 0.8 PF for 10 minutes 150% at 0.8 PF for 60 seconds					
Short circuit capability (on inverter)	700% of rated current for first 1.2 ms, followed by 220% for 100 ms, electronically limited					
Data	SG Series (kVA)	10	20	30	40	
Maximum Output Current @ 0.8pf	[A] :	12.0	24.1	36.1	48.2	

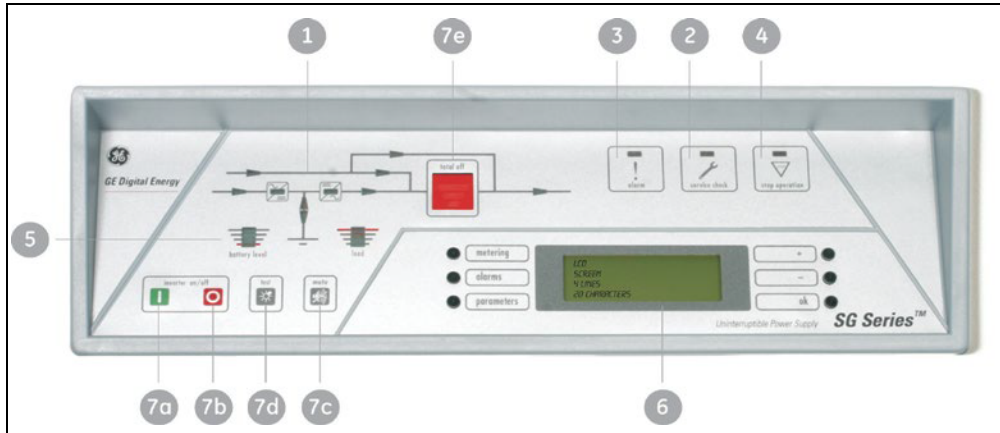
Bypass	
Input configuration	Common with rectifier (default) or dual input
Primary components	Full load rated static switch Back feed protection Internal maintenance bypass
Transfer limits	+/- 10% of nominal output voltage (adjustable)
Overload capability (on bypass)	110% continuous 200% for 5 minutes
Short circuit capability (on bypass)	1000% for 1/2 cycle (non-repetitive)

External Interface	
Alarm contacts (voltage-free)	Standard : 6 user defined contacts (form 'C') Optional : 12 user defined contacts (form 'C') (23 selectable signals include aux. Inputs 1 & 2)
Serial communication	RS-232
Input signals	Emergency Power Off (user supplied N.C. contact) Aux. input 1 * (default = On Generator) Aux. input 2 * (default = not defined) * Status displayed on LCD panel

NOTE 1: The Bypass input must be 480V/277V, 3-Phase, 4-Wire, WYE, plus ground, fed from a grounded-WYE electrical system.



Front Panel Controls, Signals & Alarms



(1) Mimic Diagram:	Represents the operational status of the UPS, with integrated LEDs and power flow indicators
(2) Service Check LED:	Turns on when service is due or the internal manual bypass is active
(3) Common Alarm:	Visual (LED) and audible signal active when any alarm condition is present
(4) Stop Operation:	Visual (LED) and audible signal, activates approx. 3 minutes (adjustable) before complete and automatic load shutdown (due to a fully discharged battery or an over temperature condition with normal power not available)
(5) Load Level / Battery Run Time:	Bar graph status indicator
(6) LCD Display:	Display of UPS metering functions and event history (multi-language)
(7) Push Buttons:	(7a) - Inverter On (7b) - Inverter Off (7c) - Alarm Silence (7d) - Lamp Test (7e) - Load Off with (protective cover)

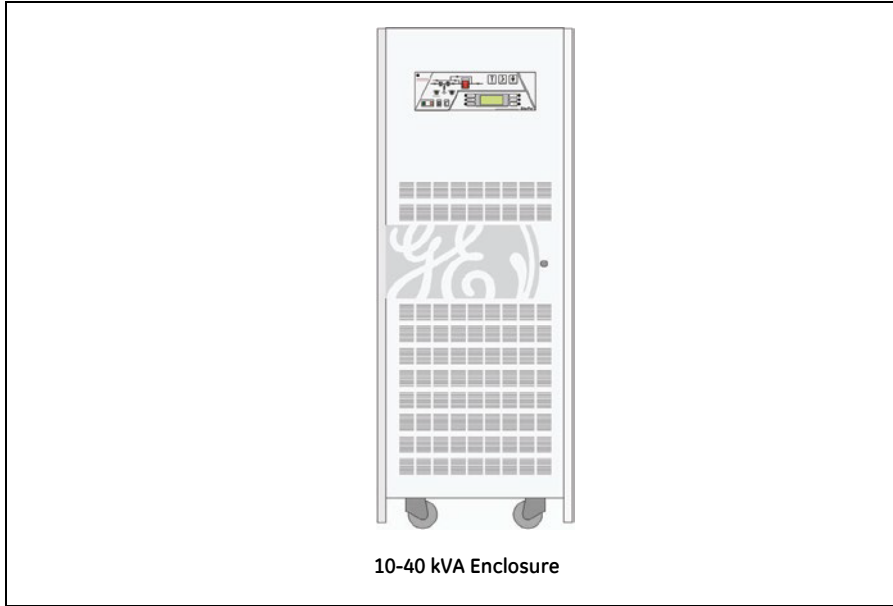
Optional Features

RPA™	- Redundant Parallel Operation and Intelligent Energy Management (IEM)
Input/Output Transformers	- Available in external cabinets for isolation or voltage transformation
5th Harmonic Input Filter	- Integral to UPS cabinet. No additional cabinet required
External Maintenance Bypass	- Available in 2 or 3 breaker, panel mounted configurations
Remote Status Panel	- Active mimic diagram w/ Stop Operation and Summary Alarms
Protection Software	- PC operated remote monitoring, control and diagnostics
SNMP Communication	- Ethernet interface for network connection
FCC Filter	- Brings UPS into compliance with FCC, Class A Specifications
Internal Batteries	- Internal batteries available for 10kVA units with 14 min. of runtime and 20kVA units with 5 min. of runtime



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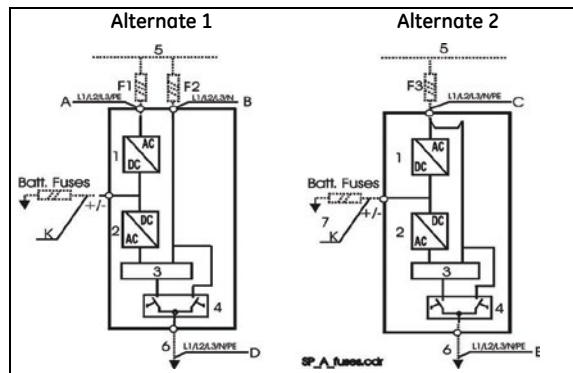
Mechanical Data



UPS Rating (kVA)	Dimensions			Weights lbs		Floor Loading lbs/sq ft	
	Height	Width	Depth	UPS	w/Batts	UPS	w/Batts
10	71"	27"	31.5"	735	1,121	126	192
20	71"	27"	31.5"	763	1,169	131	200
30	71"	27"	31.5"	970	NA	165	NA
40	71"	27"	31.5"	1,147	NA	196	NA

UPS Block Diagram

- 1..... Rectifier
- 2..... Inverter
- 3..... Static Bypass
- 4..... Maintenance Bypass
- 5..... Utility
- 6..... Load Output
- 7..... Battery
- 8..... Battery Contactor
- FB..... Battery Fuses or Circuit Breaker
- F in... AC Input Fuses or Circuit Breaker
- Lb..... Battery Line
- L in... Input Line
- L out... Output Line



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