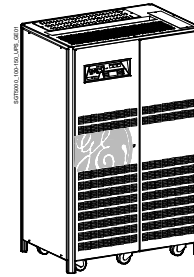




Technical Data Sheet

Digital Energy SG Series (100-150kVA)



GENERAL DATA					
Topology	True On-line double conversion				
Nominal output power at PF = 0.7 lag. to 0.8 lag.	kVA	100	120	150	
Overall efficiency	100% load, 0.8 PF :	%	92.4	92.7	92.8
	50% load, 0.8 PF :	%	92.9	93.1	93.3
Heat rejection at 100% load, 0.8PF and charged battery	BTU/hr	22,472	25,819	31,795	
	kW	6.58	7.56	9.31	
Cooling Air (77F - 86F / 25C - 30C)	CFM	996	1,145	1,410	
Audible noise level (at 5 ft.)	dB(A)	65	65	65	
Fault Current Rating	KAIC	50	50	50	
Operating temperature range	UPS :	32F - 104F (0C - 40C)			
	Battery :	68F - 77F (20C - 25C)			
		Higher temperatures shorten battery life			
Storage temperature range	UPS :	5F - 122F (-15C - +50C)			
	Battery : (VRLA)	32F - 104F (0C - 40C)			
		Storage time is 6 months at 77F (25C). Higher temperatures reduce battery storage time.			
Relative humidity		0-95%, non-condensing			
Maximum altitude	Without derating :	3281ft no derating			
	With derating :	4921ft/-5%	6562ft/-9%	8202ft/-14% 9843ft/-18%	
Enclosure	Type :	Indoor (IP20) and NEMA-PE-1			
	Safety :	Internal dead front construction			
	Cooling :	Forced Air (Redundant Fans)			
	Color :	White (RAL 9010)			
Installation	Rigging :	Suitable for handling by forklift			
	Mounting :	Floor mounting holes provided			
	Installation and maintenance access :	Front access required for normal maintenance			
	Conduit Access :	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 :	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, 4 wire + ground		
		(-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	Signature 5000 Model	100	120
Nominal input (100% load) (0.8 PF load, fully chrg'd bat.)	Current[A] :	130.2	155.8	194.5
	kVA :	108.2	129.5	161.6
	kW :	86.6	103.6	129.3
Maximum input (100% load) (0.8 PF load, max. chrg current)	Current[A] :	150.4	185.3	220.2
	kVA :	125.0	154.0	183.0
	kW :	96.0	119.0	147.0
Max. charge current	0.8 PF load :	30	35	40



Battery					
Battery compatibility	Lead-acid or NiCd, VRLA or flooded				
Number of cells	240 (lead-acid)				
Float voltage at 68F (20C)	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	Signature 5000 Model	100	120	150	
100% load, 0.66 PF lag.	kWB :	69.9	83.9	105.4	
100% load, 0.8 PF lag.	kWB :	84.7	101.7	127.8	
Maximum Discharge Current	[A]:	218	261	325	

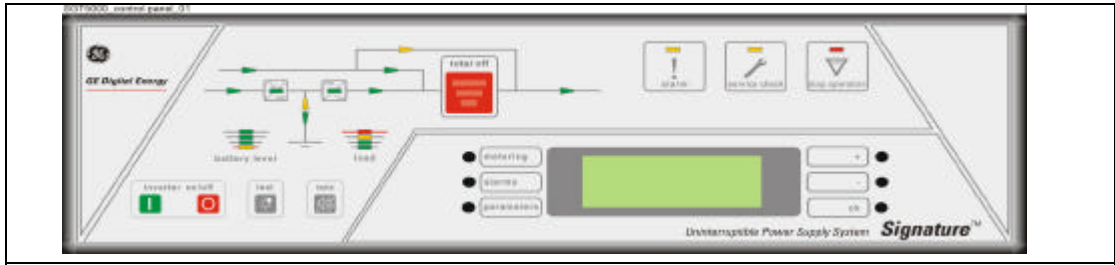
Inverter					
Nominal output voltage	480VAC, 3-phase, 4 wire + ground				
Inverter bridge	IGBT technology and Space Vector Modulation				
Output Isolation transformer	Standard				
Output waveform	True sine wave				
Output voltage tolerance	Static:	+/- 1%			
	Load step 0% - 100% - 0% :	+/- 3%, recovering 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 (IEC62040) :	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	Signature 5000 Model	100	120	150	
Maximum Output Current @ 0.8pf	[A]:	120.3	144.4	180.5	

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



Front Panel Controls, Signals & Alarms



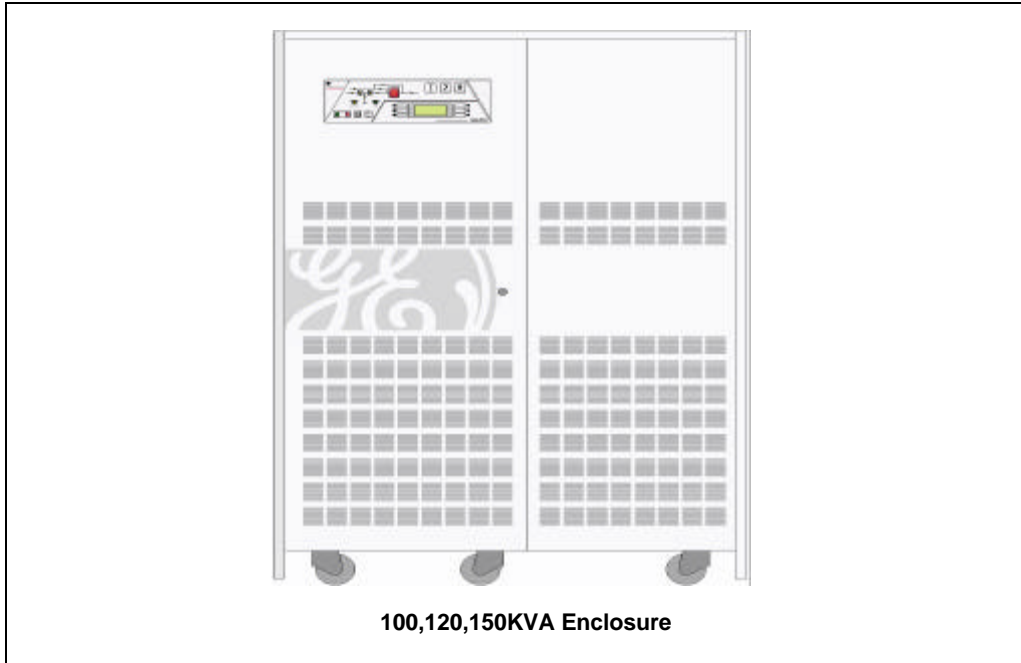
- Mimic Diagram: Represents the operational status of the UPS, with integrated LEDs and power flow indicators
- Service Check LED: Turns on when service is due or the internal manual bypass is active
- Common Alarm: Visual (LED) and audible signal active when any alarm condition is present
- Stop Operation: 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 utility power not available)
- Load Level / Battery Run Time: Bar graph status indicator
- LCD Display: Display of UPS metering functions and event history (multi-language)
- Push Buttons:
 - Inverter On
 - Inverter Off
 - Alarm Silence
 - Lamp Test
 - Load Off with protective cover

Optional Features

- RPA - Redundant Parallel Operation and Intelligent Energy Management
- 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 - Ethernet interface for network connection
- FCC Filter - Brings UPS into compliance with FCC, Class A Specifications



Mechanical Data



100,120,150KVA Enclosure

UPS Rating (kVA)	Dimensions			Weight	
	Height	Width	Depth	UPS	Floor Loading
100	71"	47"	32"	1,929 lbs	185 lbs/sq.ft
120	71"	47"	32"	2,006 lbs	192 lbs/sq.ft
150	71"	47"	32"	2,160 lbs	207 lbs/sq.ft

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

