



# Technical Data Sheet

## Digital Energy SG Series

(50-80kVA)



GENERAL DATA			
Topology	True On-line double conversion		
Nominal output power at PF = 0.7 lag. to 0.8 lag.	kVA	50	80
Overall efficiency	100% load, 0.8 PF :	%	91.8
	50% load, 0.8 PF :	%	92.2
Heat rejection at 100% load, 0.8PF and charged battery	BTU/hr	12,201	19,005
	kW	3.57	5.56
Cooling Air (77F - 86F / 25C - 30C)	CFM	544	847
Audible noise level (at 5 ft.)	dB(A)	60	63
Fault Current Rating	KAIC	35	35
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 +/-15% ; (no battery discharge at -20%)	
	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	50	80
Nominal input (100% load) (0.8 PF load, fully chrg'd bat.)	Current[A] :	65.5	104.7
	kVA :	54.5	87.0
	kW :	43.6	69.5
Max. input (100% load) (0.8 PF load, max. chrg current)	Current[A] :	81.0	125.0
	kVA :	67.0	104.0
	kW :	50.2	80.8
Max. charge current	0.8 PF load :	15	25



<b>Battery</b>			
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	<b>Signature 5000 Model</b>	<b>50</b>	<b>80</b>
	<b>100% load, 0.66 PF lag.</b> kWb :	34.9	55.8
	<b>100% load, 0.8 PF lag.</b> kWb :	42.3	67.7
	<b>Maximum Discharge Current [A]:</b>	100	159

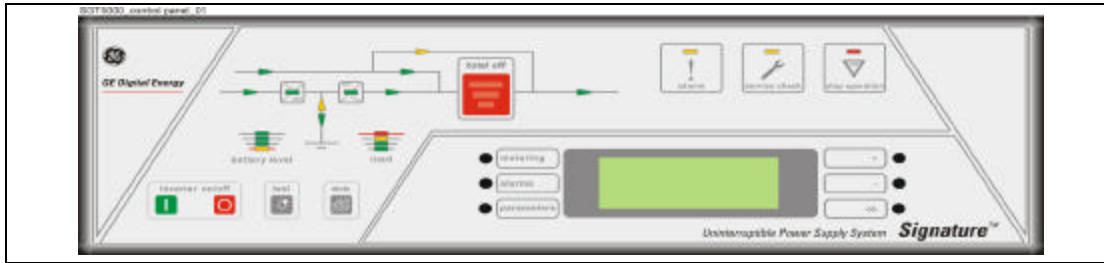
<b>Inverter</b>			
Nominal output voltage	480VAC, 3-phase, 4 wire + ground		
Inverter bridge	IGBT technology and Space Vector Modulation		
Output Isolation transformer	Standard		
Output waveform	True sine wave		
Output voltage tolerance	Static:	+/- 1%	
	Load step 0% - 100% - 0% :	+/- 3%, recovering to 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	<b>Signature 5000 Model</b>	<b>50</b>	<b>80</b>
	<b>Maximum Output Current @ 0.8pf [A]:</b>	60.1	96.2

<b>Bypass</b>	
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)

<b>External Interface</b>	
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



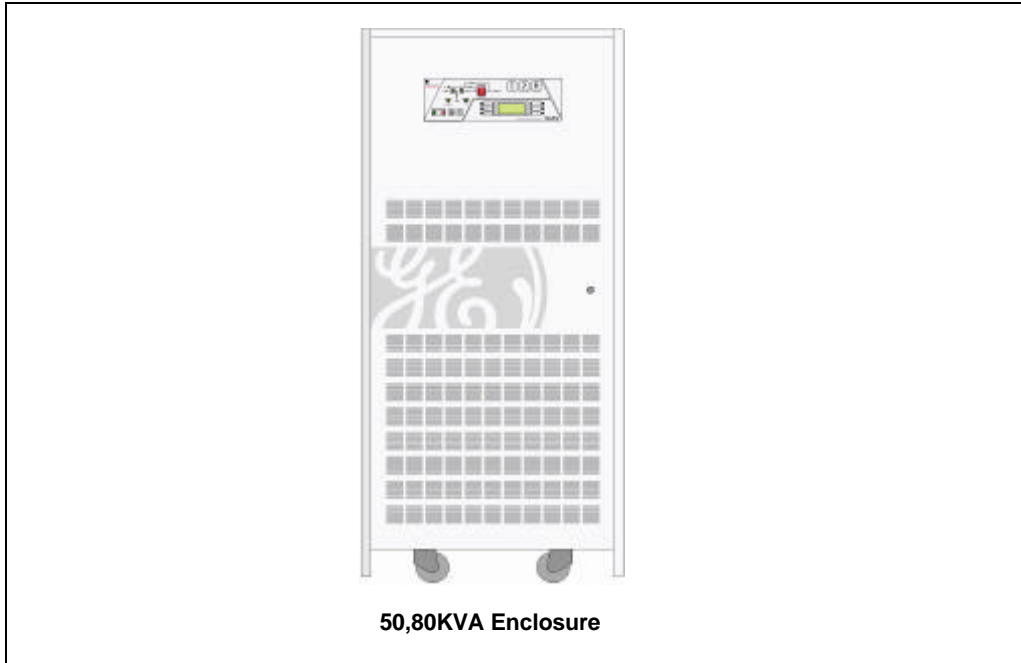
Mimic Diagram:	Represents the operational status of the UPS, with integrated LEDs and power flow indicators
Service Check LED:	Turns on when service is due or the internal manual bypass is active
Common Alarm:	Visual (LED) and audible signal active when any alarm condition is present
Stop Operation:	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:	<ul style="list-style-type: none"> <li>- Inverter On</li> <li>- Inverter Off</li> <li>- Alarm Silence</li> <li>- Lamp Test</li> <li>- Load Off with protective cover</li> </ul>

### Optional Features

RPA	- Redundant Parallel Operation and Intellegent 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**



**50,80KVA Enclosure**

UPS Rating (kVA)	Dimensions			Weight	
	Height	Width	Depth	UPS	Floor Loading
50	71"	31.50"	31.50"	1257 lbs	239 lbs/sq.ft
80	71"	31.50"	31.50"	1489 lbs	283 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

