



Technical Data Sheet

Digital Energy SG Series

(10-40kVA)



GENERAL DATA						
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	100% load, 0.8 PF :	%	90.0	89.0	91.0	91.0
	50% load, 0.8 PF :	%	89.5	88.7	90.5	90.5
Heat rejection at 100% load, 0.8PF and charged battery	BTU/hr	3,036	6,751	8,104	10,808	
	kW	0.89	1.98	2.37	3.17	
Cooling Air (77F - 86F / 25C - 30C)	CFM	135	301	361	482	
Audible noise level (at 5 ft.)	dB(A)	60	60	60	60	
Fault Current Rating	KAIC	35	35	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 (-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	10	20	30
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



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	10	20	30	40	
100% load, 0.66 PF lag.	kWB :	7.1	14.2	21.0	28.2	
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	

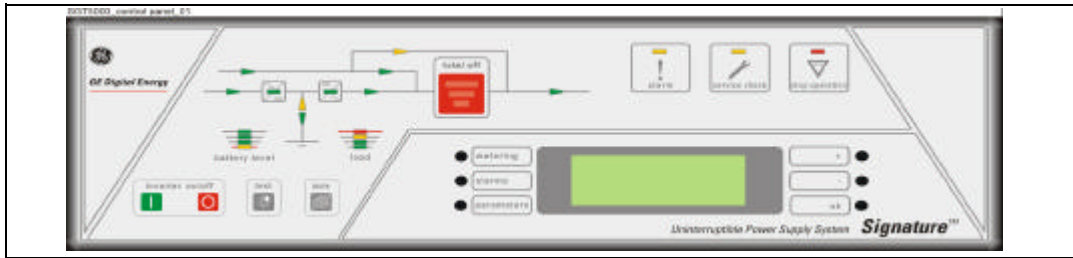
Inverter						
Nominal output voltage	480VAC, 3-phase, 4 wire + ground					
Inverter bridge	IGBT technology and Space Vector Modulation					
Output Isolation transformer	Standard					
Output waveform	True sine wave					
Output voltage tolerance	Static:	+/- 1%				
	Load step 0% - 100% - 0% :	+/- 3%, recovering 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	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



Front Panel Controls, Signals & Alarms



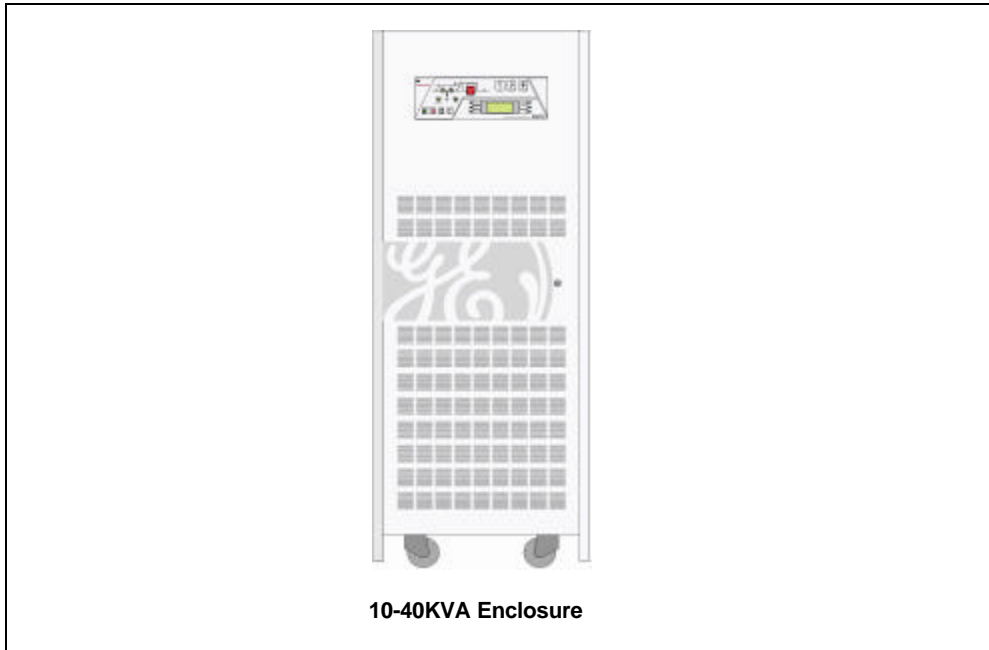
Mimic Diagram:	Represents the operational status of the UPS, with integrated LEDs and power flow indicators
Service Check LED:	Turns on when service is due or the internal manual bypass is active
Common Alarm:	Visual (LED) and audible signal active when any alarm condition is present
Stop Operation:	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"> - 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 matching 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
Internal Batteries	- Internal batteries available for 10KVA units with 14min of runtime and 20KVA units with 5min of runtime.



Mechanical Data



10-40KVA Enclosure

UPS Rating (kVA)	Dimensions			Weights lbs		Floor Loading lbs/sqft	
	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

