



**ИБП General Electric SG Series 225-750 кВА - брошюра на продукцию. Юниджет**

Постоянная ссылка на страницу: <https://www.uni-jet.com/catalog/ibp/on-line-ibp/general-electric-sg/>



# SG Series UPS 225-750 kVA

with ultra-high efficiency **eBoost™** technology







### Touching all Areas of the Energy Industry

With more than 100,000 employees in over 100 countries, GE's diverse portfolio of products and services is helping customers solve problems every day. We touch all areas of the energy industry, including energy electrical management, smart grid modernization, coal, oil, gas, nuclear energy, water, wind, solar and biogas.

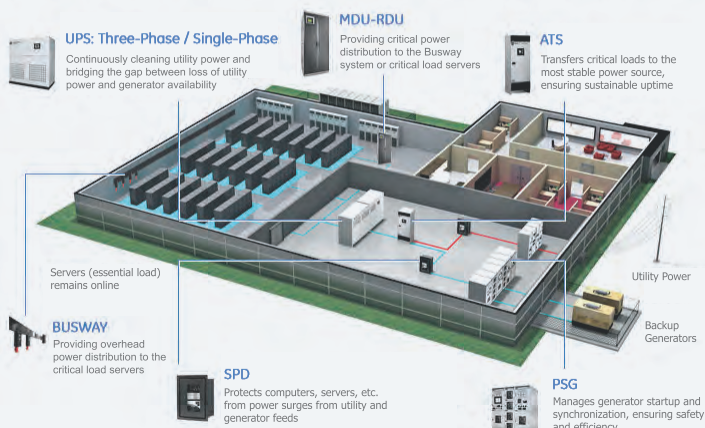
### Providing Reliable Power to your Mission-Critical Business Needs

With a comprehensive energy management portfolio, GE is uniquely qualified to provide industrial, commercial and datacenter infrastructure solutions with their Industrial Solutions and Critical Power businesses.

GE is a global solutions provider modernizing and optimizing how we generate, move and consume energy. We invent, improve and integrate communications, automation and power delivery technologies to enable cleaner, smarter and more efficient power for electrical infrastructures and consumers around the world.

## Ensuring Uptime for Critical Processes

Mission-critical processes need a power system that is cleaner and more reliable than what a typical utility can provide. GE's Critical Power products achieve power availability of up to 99.9999%, the equivalent of just seconds of downtime per year, by providing immediate UPS backup power and power switching solutions, while reducing disturbances on the system.



For mission-critical processes, customers rely on our industry-leading power quality solutions to increase system reliability.

GE Critical Power has technology that delivers superior performance and industry-leading energy efficiency for facility backup power management.

In addition to our UPS Solutions, we provide the Standby Generator Paralleling Switchgear, Automatic Transfer Switches and Surge Suppression Devices that deliver power efficiently and reliably.



# SG Series 225-750 kVA UPS Modules

## State-of-the-art Multi-Mode UPS with eBoost Technology

The SG Series UPS is one of the most efficient and reliable Three Phase UPS Systems, providing best-in-class output performance and critical power protection for your datacenter needs.

The SG Series UPS solutions are designed and optimized to provide high-efficiency at part load conditions. The SG Series UPS assures low input current harmonic distortion and best-in-class output voltage regulation and dynamic response. This helps customers save operational costs while implementing environmentally-friendly solutions.

## Best-in-Class Efficiency with Lower Total Cost of Ownership

- Up to 99% operating efficiency with written efficiency guarantees
- eBoost operation minimizes efficiency losses, providing annual power & cooling savings up to \$300K for 5MW datacenter
- eBoost line conditioning & voltage regulation via Bypass Inductor patented design
- First Three Phase UPS Supplier to receive EPA Energy Star certification (Sept 2012).

## Easier Installation & Configuration Flexibility

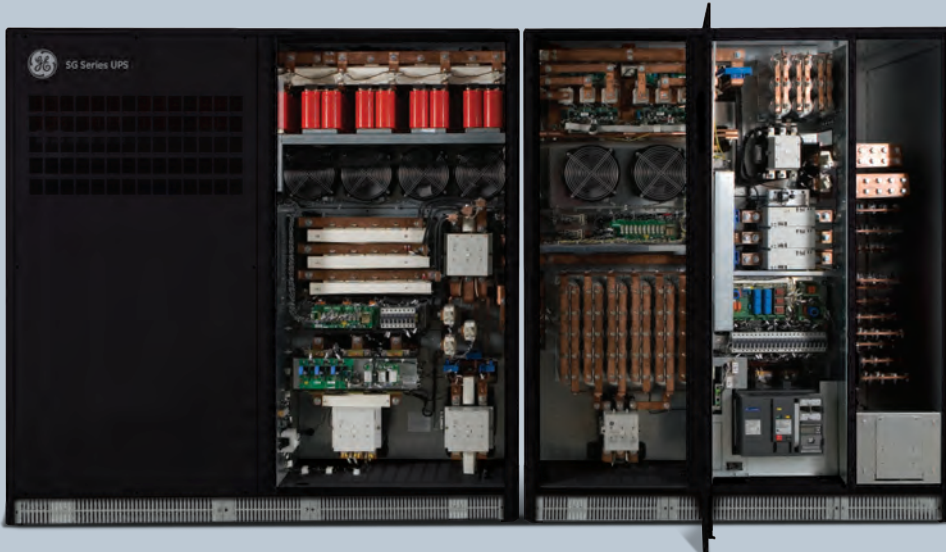
- Top or bottom cable access
- Matching battery and maintenance bypass cabinet for easy configuration
- Front Maintainability Design reduces mean time to repair (MTTR)
- Seismic Certifications

## Scalable Solution

- Redundant Parallel Architecture (RPA) provides reliability, redundancy and scalability
- Parallel up to 6 UPS Modules
- Long history of experience with Redundant Parallel Architecture (RPA) which increases system reliability by eliminating single point of failures



## Key Features



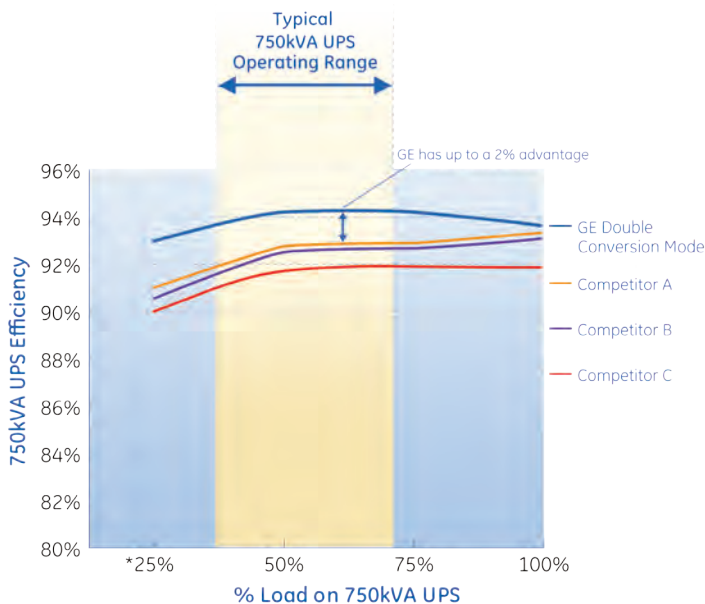
- Multi-Mode UPS with eBoost Technology
- Up to 100KA Withstand Fault Rating
- Smart Input Filtering for Maximum GenSet Compatibility
- ZigZag Output Isolation Transformer
- Top or Bottom Cable Entry
- Continuous Duty Static Bypass Assembly
- Front Access Only to minimize footprint
- Input/Output Cable Length Flexibility
- UL Bolted Short Circuit Tested

## Energy Efficiency is Our Focus

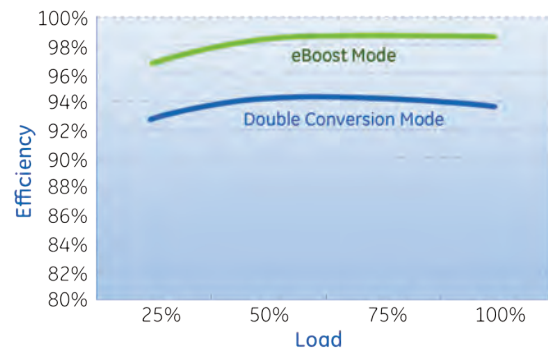
The GE SG Series is one of the most energy efficient double-conversion UPS with output transformer topology in the industry, and provides world-class energy efficiency across the operating load range.

GE's UPS performance is optimized at 50-75% load operation, as this is the most common operating range. The optimization of the SG Series includes selecting all the major power chain components based on maximizing the component efficiency at part load conditions. See the technical specification on the last page for 225-750 kVA efficiencies.

The tables below reflect that our UPS Operating Efficiency is best-in-class throughout the load range. Our UPS Systems use state-of-the-art Multi-Mode technology, maximizing the use of 99% efficient eBoost mode when the utility voltage/frequency is stable and within CBEMA specs for IT power supplies. Our superior technology is recognized by The Green Grid Administration and certified by the U.S. Government's EPA Energy Star program. Energy Star certification validates GE's commitment to protect the environment through the use of energy-efficient products.



SG 750 kVA UPS Efficiency



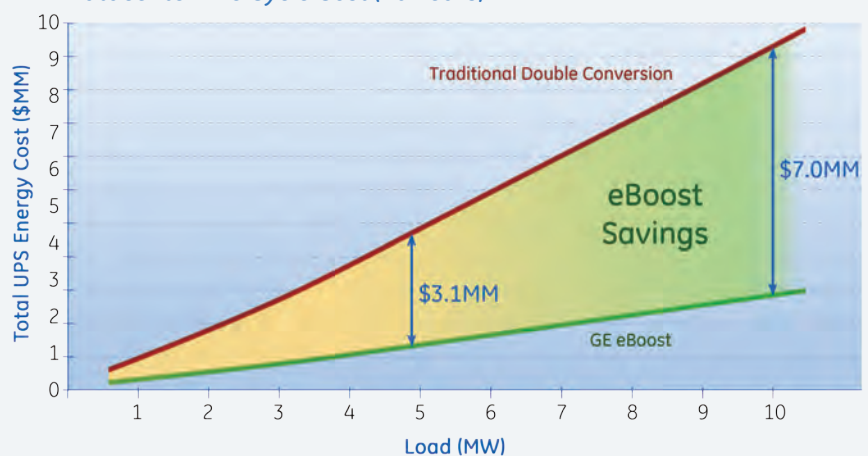
## eBoost Savings

eBoost operation provides considerable energy life cycle cost savings ranging from \$0.5MM to \$7MM\*\*. Savings are dependent upon load, power costs and life cycle duration (years).

\*\* Assumptions:

- Power Cost = \$0.10/kw-hr
- Operating Hrs/Year = 8,760
- Confirmation = S+S operating at 50% of capacity

Datacenter Life Cycle Cost (10 Years)



## Ultra-High Efficiency Mode

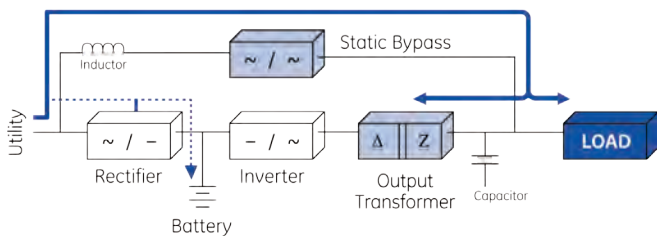
### eBoost™

Energy consumption is a critical issue for IT organizations as their datacenter energy demands continue to grow. Their goal is to reduce cost and keep the datacenter running. IT organizations can reduce energy consumption costs & system reliability with GE's eBoost technology.

#### Technology Features

- Up to 99% UPS efficiency
- Compliant to ITI (CBEMA) curve during transient events
- Patented power electronics and magnetics ensures less than 2ms transfer time to inverter
- Patented power conditioning/filtering design via bypass inductor and output transformer/capacitor while in eBoost mode
- Battery trickle charge in eBoost operating mode
- Up to 4 MW UPS capacity using paralleled modules

#### Power Flow Diagram



A Multi-Mode UPS Technology endorsed by EPA Energy Star and the Green Grid Administration.

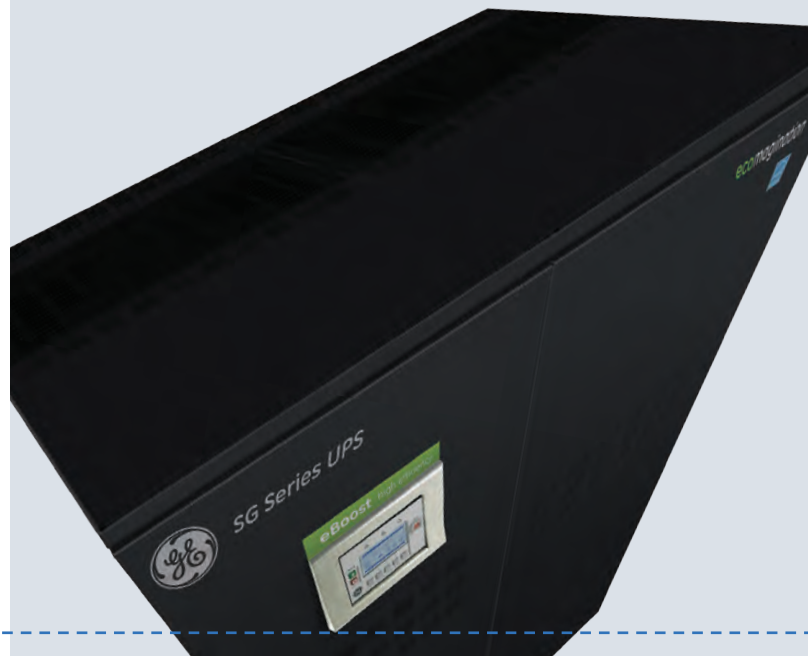
## What is eBoost?

**e** = high efficiency up to 99%

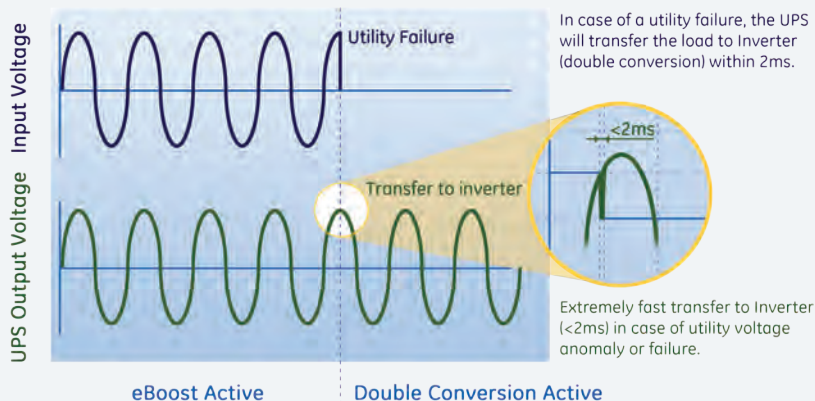
**Boost** = fast transfer to inverter < 2ms

## Customer Benefits

- 80% reduction in UPS losses
- System energy cost savings
- Reduced heat (BTU) generation
- Energy savings from reduced cooling
- Extend UPS component life
- User-programmable scheduling



## eBoost Performance



## Specifications

On SG Series UPS products, 225-750 kVA, single module and Redundant Parallel Architecture (RPA) operation:

Fast transfer to inverter:	<2ms
Input voltage range:	+/- 10
Input frequency range:	+/- 2
Efficiency:	up to 99%



## Innovative Product Technology

### Space Vector Modulation (SVM)

Space Vector Modulation is the next generation of Pulse Width Modulation (PWM) inverter control technology. SVM uses an advanced switching technique for PWM driving Insulated Gate Bipolar Transistors (IGBT).

#### Advantages

- Higher Efficiency:  
Reduces switching losses and improves partial load efficiency
- Improved Output Performance:  
Reduces Total Harmonic Distortion (THD) with non-linear loads and improves transient response to step loads
- Precise Paralleled System Performance:  
More accurate load sharing with multiple units operating in parallel

### Superior Battery Management (SBM)

Every GE UPS incorporates a standard feature called Superior Battery Management (SBM) that can be configured to periodically test the battery system and calculate true battery runtime using measured values for temperature and load.

#### Advantages

- Works With all Battery Types:  
Flooded, VRLA NiCad and Sodium (GE Durathon)
- Online Battery Test:  
The risk of load loss is prevented by periodic rectifier/battery testing to insure proper operation
- Increases Battery Life:  
Monitors all key parameters of the battery plant to maximize reliability and warn of possible problems

### Digital Signal Processor (DSP)

DSP (Digital Signal Processor) performance enables the high sampling rates required to achieve the appropriate bandwidth for the current and voltage controls for an efficient double-conversion UPS.

- High speed sampling rate for precise RPA control
- Faster transient response time
- Redundant high speed communication
- All digital controls for increased reliability and stability
- All system control parameters are adjustable from the front panel

### Zig Zag Output Transformer

The ZigZag transformer enables the UPS to run with heavily unbalanced loads while supplying full kVA output capacity at 100% non-linear load.

The secondary windings of the output transformer form a ZigZag pattern to cancel triplen (third order) load harmonics. This reduces neutral conductor loading and losses in all the conductors and the input transformer. Inverter output transformer inductance filters noise during eBoost operation.

- Provides galvanic isolation of the load
- Protects inverter from non-linear loads
- Protects inverter from high inrush loads
- No magnetizing inrush current during eBoost transfers
- Allows for neutral creation against 277V server loads



## SBM - UPS Battery Management & Test

SBM is a comprehensive and programmable management and monitoring system that protects the UPS battery string life. Batteries are prevented from overcharging and deep discharging.

- Calculates true battery autonomy and remaining battery backup time during utility outage.
- Measures the volts per cell of the battery system and compensates for temperature and load.
- During UPS startup, the SBM is programmed with specific battery information.
- Programmable features allow the user to select the frequency and type of battery tests that are performed. Frequency range can be from once per week to annually. Test type range can be from deep cycle to 3-min discharges.
- All tests logged in the UPS events menu and any failure is reported on the UPS front alarm panel.
- All tests done automatically with the UPS on-line.
- Manual tests can be performed at any time.
- Remote programming and configuration is available through the SG Series UPS protection software.

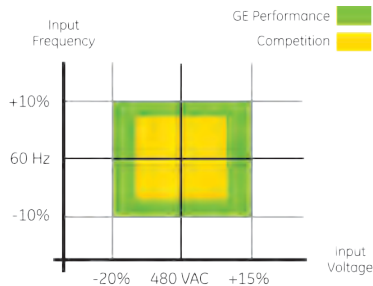


## High Performance

### Input Performance

#### Robust Rectifier for Wide Input Range

The wide AC input voltage and frequency window avoids unnecessary battery discharge even when operating from an unstable AC source (i.e. diesel generator).



#### Programmable Soft Start

Allows the rectifier to ramp up in a programmable time period (0-30 seconds) eliminating in-rush current. This feature reduces the need of oversizing the input power system (gensets, feeder cables and overcurrent devices).

#### Smart Input Filters, <5 % THDi

GE offers an optional internal input filter with the SG Series UPS. The "smart" filter has a programmable feature that allows the filter to be switched off during start-up and low load conditions, preventing leading power factor (PF).

#### Generator Compatibility

User-programmable features such as slew rate, phase angle rate-of-change and voltage rate-of-change allow the UPS to quickly sync to a genset during emergency back-up. GE's optional input filter also has user-programmable features, ensuring quick and continuous synchronization to generator voltage.

### Output Performance

#### Total Harmonic Distortion (THD)

A distorted output voltage waveform affects the proper function of the load's equipment. The SG Series UPS has very low output voltage THD, even with connected 100% unbalanced or 100% non-linear loads.

#### Transient Response

With the use of SVM and the ZigZag transformer, the SG Series UPS can react very quickly to zero-100% step loads (within 1/3 cycle). This reduces the need to oversize the UPS for severe pulse-load applications.

#### Overload Capabilities

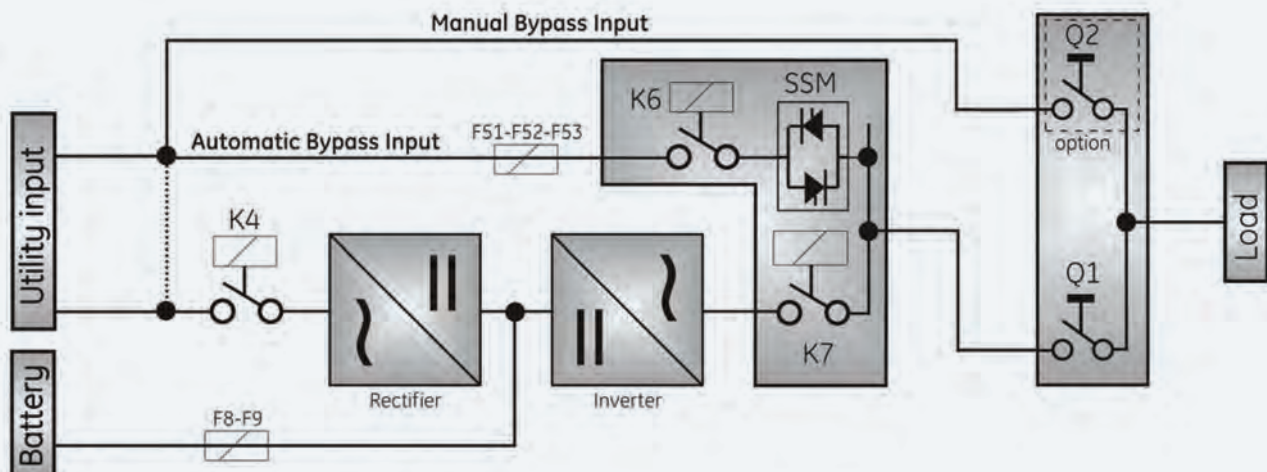
The SG Series UPS has a robust inverter capable of delivering 150% overload for 60 seconds (225-300 kVA) and 30 seconds (400-750 kVA).

#### Phase Load Imbalance

The UPS Output ZigZag transformer, via its inherent characteristics and windings configuration, provides excellent voltage regulation against phase-to-neutral (Ph-N) load imbalances.



## UPS Module Power Paths





# Redundant Parallel Architecture™ (RPA) System Configuration

GE provides RPA, a unique technology that can parallel UPS modules with true redundancy by eliminating any single point of failure. RPA provides a scalable paralleling technique that reduces operating footprint and increases system reliability by eliminating the need for external paralleling equipment and cabinets (centralized bypass and master control).

One of the UPS modules in the system intelligently takes the leadership role, while the other UPS modules have access to all control parameters. If one UPS fails to operate, the load is automatically redistributed among the others. If the lead UPS fails to operate, then another UPS automatically takes on the leadership role. GE's RPA technology is implemented by distributing the control electronics within each UPS module in the system.

## RPA™ System Advantages

### No Single Points of Failure

The RPA system provides complete redundancy of all critical components, allows paralleling of up to 6 units for increased load capacity or redundancy.

### Patented Bypass Reactor Design

Ensures excellent output voltage regulation between paralleled modules and assists bypass line conditioning

### Scalable and Modular

The system can be easily expanded for higher capacity and redundancy without any interruption to the critical load or transfer to bypass.

### Redundant Communication

Redundant high speed bus and control electronics provide higher system reliability.

### Distributed Control Logic

Each module in an RPA system has its own operational controller. Each one continuously communicates with all others in order to manage the entire system like a team.

### Online Maintenance

N+1 configurations allow maintenance on any single module in the system while other modules provide online protection with battery backup.

### Sequential Soft Start

Provides sequential soft start of each module to reduce instantaneous load on input feeders during mains recovery. This helps avoid over-rating of generator and overheating of cable and fuses.

### RPA Cable Saver

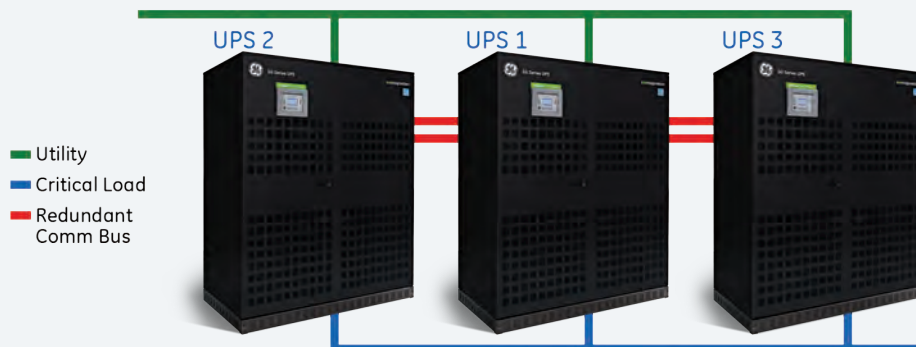
UPS Module input and output cable length variation up to 10% between modules. With eBoost technology, this cable length flexibility is increased up to 25% between modules. This feature will save up to 20% in UPS installation costs.

### Smaller Footprint

RPA eliminates the centralized control and external static bypass cabinet.

## GE's RPA™ System

### Standard RPA™ Configuration: True Redundancy with Distributed Control & Bypass



### Inside Each UPS Module is:

- Bypass Reactor & Conditioning
- RPA Control/Communications
- 100% Rated Static Switch

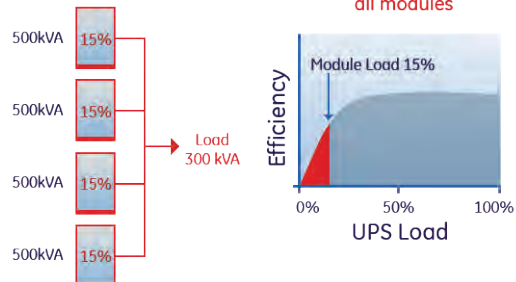
Over 8,000 RPA UPS Systems installed globally!

# Redundant Parallel Architecture™ (RPA) System Options

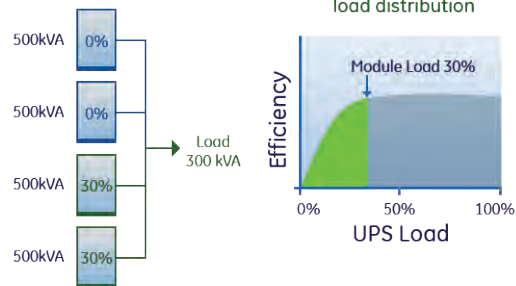
## Intelligent Energy Management Integrated (IEMi)

IEMi is a software package which allows RPA systems to save energy and reduce operating costs (\$) during low load conditions. Individual inverters, which are not required to support the load, can automatically be switched off to save energy costs (\$). The IEMi mode can be programmed for various operating modes and the customer defines the degree of redundancy required.

### Legacy System Partial Load Condition



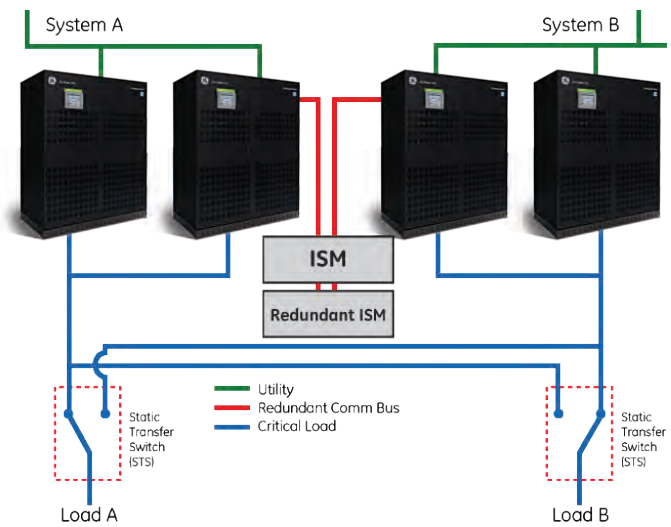
### GE's System Partial Load Condition



## Intelligent Sync Module (ISM)

For System + System (2N) applications, the ISM module is utilized to synchronize the outputs of two modules or two groups of UPS's that are fed from separate and independent sources. This allows the two systems to be synchronized for down-stream switching. The ISM is an intelligent control that is mounted external from the UPS module.

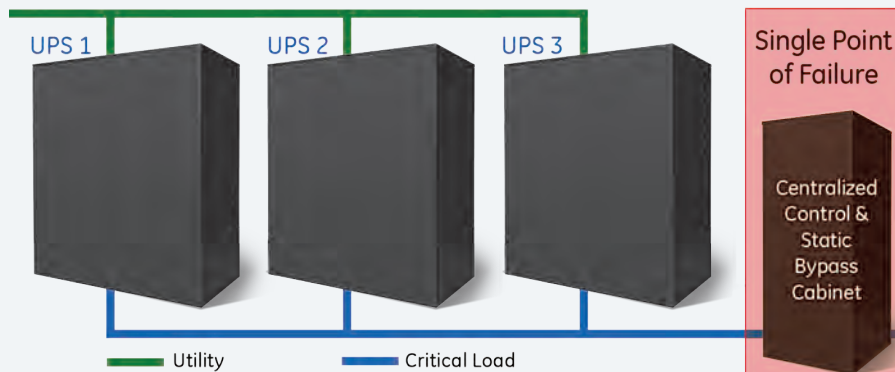
It has the ability to select which system is the master and can also send/receive permissive signals from downstream devices. Additionally, the ISM follows the same tradition as RPA, with redundancy in all critical components. The ISM communicates via redundant communication cables and has options for redundant power supplies and control circuitry.



ISM: Standard S+S Configuration

## Competitor's Centralized Static Bypass System

### Centralized Logic / Bypass / Breaker Configuration: Single Point of Failure



### Non-Redundant:

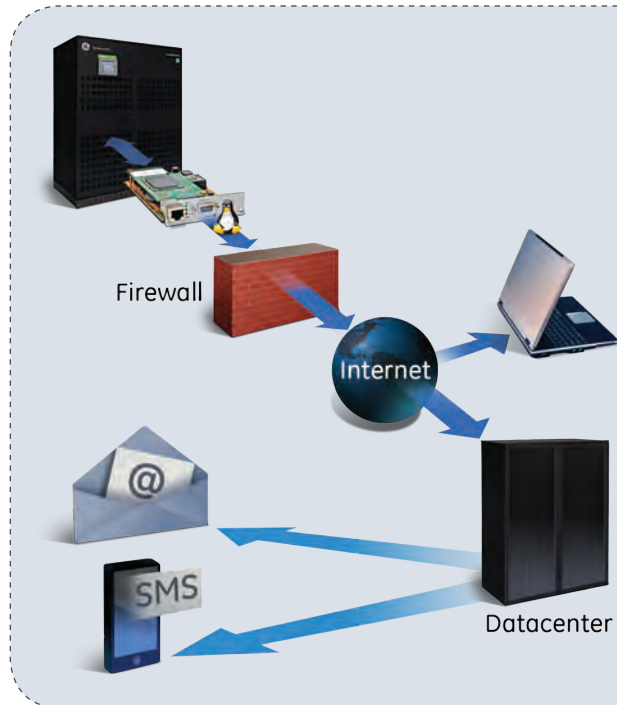
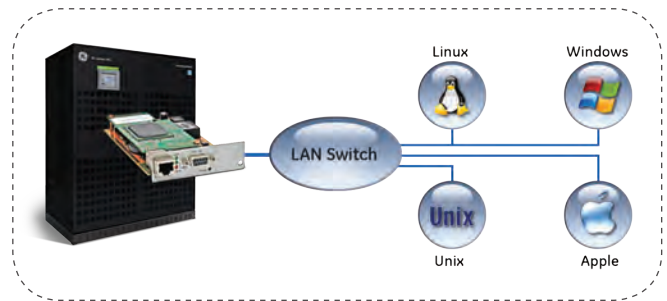
- Central Control
- Centralized Bypass
- Output Breaker
- Static Bypass Switch

## Software & Connectivity Solutions

### Protection Software

GE Data Protection software can communicate with the UPS over RS-232, USB or SNMP to receive status information and measurement values of the UPS. In case of a critical condition (time on battery, remaining battery autonomy time or low battery) for the load, the software starts a controlled shutdown.

An enhanced alarm management system provides the possibility to start applications, send messages and send e-mails for every upcoming or disappearing alarm.



### iUPSGuard:

#### Remote Monitoring & Diagnostic Solution

iUPSGuard, GE's remote monitoring solution, is an anytime, anywhere concept in UPS status monitoring and alarm notification supporting all GE UPS product lines.

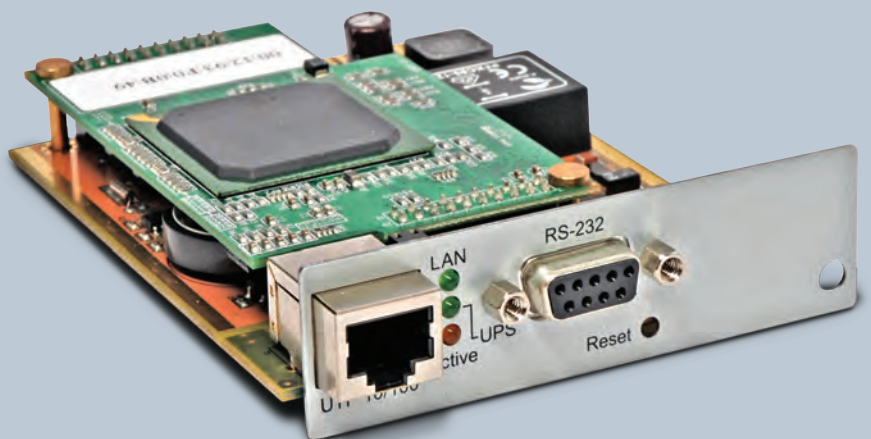
Accessing the latest site information via Web and being alerted by E-mail or SMS, it enables the user to make timely decisions in case of changing critical conditions. With comprehensive data collection and analysis, it improves diagnostics capability and enhances response time.

- 24/7 remote access to your UPS data using standard web browsers
- Automatic alerts in case of an event, direct and immediately to your cell phone or by e-mail
- Regular operational reports with proactive information on critical data
- Preventative information using PMAD (Preventative Maintenance & Advanced Diagnostics) feature
- Possibility to reduce intervention and on-site work

## Remote Connectivity to Building Management Systems

This optional Standard Network Management Protocol (SNMP) Plug-In Card allows the UPS to communicate over a LAN or interface through all major building management systems (BMS).

Integrates a modern web server for UPS monitoring via LAN, drives remote server shutdown in case of critical UPS alarms and works as Modbus TCP Converter "as well as Modbus RTU 485".





## Options & Accessories

### *UPS Rectifier*

The 6-Pulse Rectifier is standard for the SG Series 225-750 kVA UPS Modules. A 12-Pulse Rectifier is available for only the 750 kVA Module.

### *Input Harmonic Filters*

The 5<sup>th</sup> harmonic input filter is used for reducing the 5<sup>th</sup> harmonic generated by the 6-pulse Rectifier. This filter reduces the input harmonic distortion to less than 7% THD, and increases the output power factor to 0.93. The 11<sup>th</sup> harmonic input filter (400 kVA and above UPS) when combined with the 5<sup>th</sup> harmonic input filter, is used for reducing the 5<sup>th</sup> and 11<sup>th</sup> harmonics generated by the rectifier. This filter combination reduces input THD to less than 5% and increases the power factor to 0.96.

### *FCC EMI Filters*

GE provides an internal FCC EMI filter as a cost-effective option for installations that require FCC Class A certification (300 kVA and below).

### *Module Fault Withstand Rating*

Series SG UPS modules have fault withstand ratings up to 100kA maximum.

### *Remote Alarm Status Panels*

GE provides both single and multi-module versions of a Remote Alarm Status Panel for remote summary status of key UPS parameters.

### *4x2 Combo Cabinets*

GE provides integrated cabinets to include 3CB maintenance bypass capability at 480V with downstream stepdown transformer to 208/120V. Feature options include SKRU kirk key interlocks and 208V output subfeed circuit breakers or panelboard.



### *Battery Cabinets*

GE provides line-and-match VRLA Battery Cabinet Systems with integral overcurrent protection with various back up time configuration. Optional battery monitoring or seismic certifications are available for these cabinets.

### *Maintenance Bypass Cabinets*

GE provides line-and-match Maintenance Bypass Cabinets or switchgear-design non-matching cabinets. Feature options include SKRU kirk key interlocks and integrations with RPA Output Panels for paralleled UPS Systems.

### *Seismic Certification*

GE has achieved certification on many UPS Modules for the healthcare vertical market and its OSHPD requirements, and as such can be used to meet seismic regulations anywhere in North America.

## Surge Protection Devices

GE provides a complete line of wallmount Surge Protection Devices, up to 300kA ratings, that provide enhanced surge protection to switchgear, panelboards and UPS systems.

Transient voltage surges from both external and internal sources directly affect the performance and life expectancy of electronic equipment. From electronic lighting ballasts to computer servers, if there is a printed circuit board inside, it is susceptible to transient voltage surge damage. As microprocessors and components that make up this equipment grow smaller and faster with each new generation, their susceptibility to transient voltage surge damage becomes ever greater.

Available in ratings from 65kA - 300kA per mode (130kA -600kA per phase), the TR7000 series is the perfect surge suppression product for protecting critical sensitive electronic equipment throughout your facility.

Recommended installation locations are service entrance switchboards, panelboards and UPS systems.



# Factory Testing & Customer Witness Testing

Factory Testing can include, but is not limited to:

- Functional test of full parallel RPA system including transfers to bypass, utility failure, EPO, etc.
- Full Functional test of parallel RPA system including master fail and communications failure simulations
- Steady state measurements from 0-100% load of voltage, current, output voltage regulation, input/output power factor, output voltage THD, input current THD, frequency
- Overload of full system up to 150%
- 100% utility failure with waveform capture
- 0-100% step loads with waveform capture
- 0-100% bypass transfers with waveform captures
- Output short circuit with waveform capture
- Removal of module from the system with waveform capture
- Inverter or power supply failure simulations
- Full functional test of RPA output switchgear including transfers in and out of main bypass mode
- eBoost functionality tests



## Field Testing & Service Capabilities

On-Site Services that include:

- UPS Module Startup & Test
- Battery Measurement & Monitoring
- Load Bank Testing
- Thermography Testing
- Project Management
- Site Commissioning Assistance
- Repair, Upgrade, Retrofit
- Site Audits & Assessments





## Our UPS Backs Up Your Load, Our Service Backs Up Your UPS

GE's UPS Services offerings range far beyond standard product support: from on-site services for risk-reducing installation and startup, to availability services to help you proactively reduce downtime and meet your service-level commitments. From installation to product retirement, warranty upgrades to remote monitoring, proactive care to 24/7 problem resolution, you can rely on GE's field service organization for all your electrical infrastructure support needs.

### *On-Site & Emergency Services*

- 24/7 Emergency Hotline

### *Spare Parts*

- Spare Part Kits
- Product Replacement / Return
- Equipment Rentals
- Battery & Capacitor Replacements

### *Contractual Services*

- Maintenance Service Contracts
- Remote Monitoring & Diagnostics
- Technical Services

### *Training*

- Training for Operators
- Training for Maintenance Staff
- Product Training
- Web-Based Training

Your electrical infrastructure's availability, stability and adaptability are crucial to your business success. Rely on the support professionals who know your system best!



## Customer Service Support

Toll-Free: +1 800 637 1738

US-Based Customer Service

Answered Live 24/7





# UPS Energy Efficiency Calculator

## Reducing UPS Cost of Ownership

Use the UPS Energy Efficiency Calculator tool to see how GE's new eBoost™ technology can increase UPS efficiency and greatly reduce operating costs.

1 Customer enters application information

2 Calculated comparison showing eBoost savings

### Reducing UPS Cost of Ownership

Use this tool to see how GE's new eBoost™ technology can increase UPS efficiency and greatly reduce operating costs.

→ HAVE US CONTACT YOU

#### UPS Energy Efficiency Calculator

Enter your UPS System specifications

UPS Module Size (kVA): 750

Electrical Power Cost per \$/kW-hr: 0.11

Operating Load Point %: 50

# of Modules: 14

Calculator Assumptions

→ CALCULATE

#### Savings with GE's eBoost enabled SG Series:

5 Years up to **\$2,838,935** 10 Years up to **\$5,677,870** (10500 kVA System)

##### Savings with eBoost vs Low Efficiency Competitor

Years	Savings (\$)
1	\$568K
5	\$3M
10	\$6M
15	\$9M
20	\$11M

##### Savings with eBoost vs High Efficiency Competitor

Years	Savings (\$)
1	\$378K
5	\$2M
10	\$4M
15	\$6M
20	\$8M

	GE SG Series with eBoost	Typical Double Conversion	Legacy Double Conversion
Efficiency of Operation Mode	98.1%	94.2%	92.0%
Total System Energy Cost	Year 1	\$123,174	\$690,961
	Year 5	\$615,870	\$3,454,805
	Year 10	\$1,231,740	\$6,909,610
			\$5,008,150

Disclaimer:  
Actual savings may vary from the estimated savings.  
Estimated savings is not a warranty or representation of savings in any particular case.

[GEIndustrial.com/CriticalPower](http://GEIndustrial.com/CriticalPower)

## Over 15,000 downloadable resources for our customers



**GEIndustrial.com/CriticalPower** provides customers with access to the latest product and solutions news, downloadable resources and interactive digital tools.

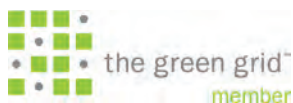
- Access to the entire portfolio of product solutions:
  - Brochures
  - Manuals
  - White Papers
  - Software
  - Drawings
  - Videos
- Multi-language support in Chinese and Spanish
- Industry solution offerings & advanced navigation

# Technical Specifications

Power Rating	Output Power rating (KVA)	225	300	400	500	750 (6P)	750 (12P)
	Output Power Rating (KW) - 0.90 PF	203	270	360	450	675	675
Energy Usage	eBoost Mode Efficiency at 50% Load	97.7%	98.2%	98.4%	98.5%	98.3%	98.0%
	eBoost Mode Efficiency at 100% Load *	98.6%	98.7%	98.9%	98.9%	98.7%	98.6%
	eBoost Mode BTU/hr at 100% Load *	9,813	12,137	13,666	17,082	29,389	32,701
	Dbl Conv Mode Efficiency at 50% Load *	91.7%	92.4%	92.8%	93.6%	94.3%	93.0%
	Dbl Conv Mode Efficiency at 100% Load *	92.9%	92.6%	94.0%	93.9%	93.8%	92.8%
	Dbl Conv Mode BTU/hr at 100% Load*	52,821	73,641	78,426	99,773	153,540	178,689
Physicals	Dimensions, w x dp x h (in.)	65 x 31.5 x 71.2		80.7 x 33.4 x 76.7		146.5 x 35.4 x 76.7	
	Weight, module only (lbs) *	3,086	3,086	5,226	5,226	9,800	11,334
Input	Voltage	480/277V 3ph 3w or 4w + gnd ; Input Source must be 480/277V grounded wye					
	Topology	6-Step Thyristor Bridge Rectifier					12-Step
	Input Filter	5 <sup>th</sup> Harm		5 <sup>th</sup> & 11 <sup>th</sup> Harm			11 <sup>th</sup> Harm
	Dual Input Capable	Remove internal jumper cables for separate inputs to Rectifier & Static Bypass					
	Voltage Range (w/o battery discharge)	-20% to +15%					
	Power Factor (lagging) *	0.93				0.96	0.86
	Current THD	< 7.5%	< 7.0%	< 7.0%	< 5.0%	< 5.0%	< 5.0%
	Frequency	60Hz +/- 10%					
Output	Voltage	480/277V 3ph 3w or 4w + grd					
	Topology	PWM IGBT Inverter w/SVM Technology and ZigZag Isolation Transformer					
	Frequency	60Hz +/- 0.01% free running					
	Crest Factor	3 : 1					
	Static Voltage Regulation	+/- 1%					
	100% Step Load Voltage Regulation	+/- 3%					
	100% Linear Load Voltage Distortion	2% THD maximum					
	100% Non-Linear Load Voltage Distortion	3% THD maximum					
	eBoost Transfer Time	< 2msec from Bypass to Inverter, within ITI / CBEMA voltage compliance curve					
	Overload Capability / Inverter	125% / 10 min ; 150% / 30 sec		125% / 10 min ; 150% / 1 min		125% / 10 min ; 150% / 30 sec	
	Overload Capability / Static Bypass	110% continuous ; 200% for 5 minutes					
	Battery Plant	Compatible Technologies	VRLA, Premium Durathon VRLA, Wet Cell (and DC Flywheel technologies)				
Float Voltage		545 VDC @68 degrees F (20° C)					
Recharge Time		10X discharge time (at 30min battery runtime)					
General	Audible Noise	67 db(A) at 5 ft		65 db(A) at 5 ft		75 db(A) at 5 ft	
	Audible Noise (eBoost Mode)	60 db(A) at 5 ft					
	Ambient Operating Temp	UPS Module: 32 to 104 degrees F (0-40° C)					
	Humidity	0-95% non-condensing					
	Certifications	Seismic Certified, GE EcoMagination Certified					
	Listings / Registrations	UL1778 / IEC62040 / ISO 9001					
	Enclosure	IP20 and NEMA PE-1					
	RFI / Surge Protection	EN50091-2 / IEC 62040-2 / IEEE 587B / FCC Class A Part B Compliance. Special FCC Filters available.					
	Communication / Connectivity	RS232, programmable alarm contacts, programmable relays, optional SNMP, Modbus					
	Color	Black w/grey logo & kickplates					
	Warranty	12 month after startup or 18 month after shipment (whichever first). Extended warranties available.					

For more technical information, please refer to the applicable product Technical Datasheet

\* Efficiency figures shown are for UPS Modules using 5<sup>th</sup> Harm Input Filter (225-750 kVA, 6-Pulse Rectifier), and no Harm Input Filter (750 kVA, 12 Step Rectifier).



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