

GE Digital Energy  
Power Quality



Three-phase uninterruptible power  
supplies for mission-critical applications

[www.minutemanups.com/3phase](http://www.minutemanups.com/3phase)

Represented by:



# General Electric / Minuteman Power Technologies Alliance

Minuteman has forged an alliance to market General Electric's three-phase UPS products through current distributors that sell the Minuteman brand of power technologies. GE, one of the world's most recognizable brands, offers a field-proven, highly reliable product line, along with a 24/7 global service and support network.

## GE Digital Energy™ LP-33U Series



### Introduction

The GE Digital Energy LP-33U Series is a robust, high-performance 3-phase UPS system that provides power protection for a wide range of mission critical applications, including large data networks & telecom equipment. Every LP-33U Series unit operates in a double conversion mode with true on-line VFI (voltage and frequency independent) operation, yielding maximum levels of power protection even under the toughest conditions. In addition, the LP-33U UPS is a transformerless, high-efficiency design with low THD (total harmonic distortion), which takes up less space and is easy to install and service. The robust design makes it suitable for industrial applications as well.

To achieve redundancy or to increase power capacity, GE's unique Redundant Parallel Architecture™ (RPA™) technology enables the LP-33U Series to parallel up to four (4) units in a flexible and cost-effective manner. In the RPA™ system, every UPS is controlled in a true peer-to-peer configuration, with redundancy in all critical elements and functions. This advanced technology provides the highest possible system reliability for mission critical applications, eliminating any single points of failure associated with other types of UPS systems. The RPA™ system precisely synchronizes the outputs and automatically shares the load supported by each of the UPS.

Every GE UPS system is fully supported by GE's Global Services team, providing world-class, 24x7 preventive and corrective services, training and application expertise.

## 10-100kVA Digital Energy LP-33U Series Uninterruptible Power Supply (UPS)

### Features and Benefits

- > Transformerless design for smaller footprint, less weight and better efficiency
- > High input power factor (>.98) and low input distortion (<10%) provided by a hybrid IGBT rectifier, prevents disturbances to other electrical equipment, eliminating the need for costly filters or oversized feeders
- > Compact footprint, front service access, easily transportable, robustly designed system with low audible noise, suitable for both office and industrial environments
- > Utilizes high-frequency PWM(Pulse Width Modulation)
- > IGBT digital control technique, resulting in extremely low output distortion and fast transient response, eliminating the need to oversize the UPS
- > Redundant Parallel Architecture (RPA) increases system reliability by eliminating single points of failure
- > Intelligent Energy Management™ in RPA Configuration and ECO-mode for single module configuration provides automatic energy savings
- > Very wide AC-input voltage and frequency capability minimizes the need to switch to batteries, resulting in increased battery life
- > Superior Battery Management (SBM) enhances battery life and reduces cost of operation
- > Integrated internal manual maintenance bypass reduces the need for external equipment



## Options

- > Internal batteries are standard to maximize operational footprint
- > Remote monitoring and diagnostics via LAN or internet
- > UPS management software facilitates operation and maintenance of the UPS
- > SNMP plug-in card, relay card with external contacts
- > RPA Card: Any single UPS can be easily field-configured for Redundant Parallel Architecture™ (up to 4 units)
- > RS-232/contact interface, providing maximum flexibility
- > Dual AC input option
- > Additional external matching battery cabinets are available for extended runtime requirements

## Technical Specifications

MODEL	LP33-10-UL	LP33-20-UL	LP33-30-UL	LP33-40-UL	LP33-50-UL	LP33-60-UL	LP33-80-UL	LP33-100-UL		
Power Rating	Output Capacity		10kVA / 8kW	20kVA / 16kW	30kVA / 24kW	40kVA / 32kW	50kVA / 45kW	60kVA / 54kW	80kVA / 72kW	100kVA / 90kW
Power Factor	Output Power Factor		0.8			0.9				
Energy Efficiency	Double Conversion		Up to 90%							
	Eco Mode		Up to 98%							
Physical	Weight w/o batteries (lbs)		397	430	772	816	1015	1323		
	Dims (WxDxH) (inches) (UPS only)		22.7" x 30.7" x 51.6"		23.6" x 29.6" x 71.7"		28.4" x 28.5" x 71.7"		39.4" x 35.4" x 75.0"	
Input	Input Voltage		3 x 208V + N							
	Voltage Range		-25% / +20%		-20% / +15%		-15% / +10%			
	Frequency		60 Hz +/- 10%							
	Input THD		< 8%			< 10%				
	Input Power Factor		> 0.98 lagging							
Output	Output Voltage		120Y / 208 V							
	Frequency		60 Hz (+/- 1%)							
	Crest Factor		> 3:1							
	Voltage Regulation									
	- Static		+/- 1%							
	- 100% Step Load		+/- 1%					+/- 2%		
	Voltage Distortion									
	- 100% Linear Load		< 2% THD		< 1.5% THD		< 2% THD			
	- 100% Non-Linear Load		< 3% THD (EN 50091)							
	Overload Capability									
- Inverter		125% for 10 minutes; 150% for 1 minute								
- Bypass		200% for 2 minutes; 2000% for ½ cycle								
Battery	Battery Type		Valve Regulated Lead Acid (VRLA)							
	Float Voltage		328 VDC @ 68° F (20° C)							
	Min Discharge Voltage		236 VDC (programmable)							
General	Audible Noise db(A)		50	55	61	62	65	65	68	
	Operating Temperature		UPS: 32° to 104° F (0° - 40° C); Battery: 68° to 77° F (20° - 25° C) recommended							
	Humidity		0-95%; non-condensing							
	Safety Classifications & Listings		UL/cUL : UL 1778 / IEC62040 / ISO 9001							
	EMI Classification		FCC Part 15, Class A, IEC 62040-2 Class A							
	Surge Protection		IEEE 587-B / ANSI C62.41-B / IEC 1000-4							
	Communication / Connectivity		RS-232; programmable alarm contacts; open collector outputs; SNMP (optional)							
	Color		White (RAL 9003)							
	Warranty		Twelve (12) months after commissioning or eighteen (18) months after shipment, whichever occurs first *							

Specifications subject to change without notice.

\* Extended Warranties available



# GE Digital Energy SG Series



## Introduction

The GE Digital Energy SG Series is one of the best performing and most reliable three-phase UPS systems, providing critical power protection for a wide range of applications, including large enterprise class data networks & data centers, as well as healthcare equipment. Every SG Series system operates in double conversion mode with true on-line VFI (voltage and frequency independent) operation, yielding the maximum levels of power reliability for all mission critical processes. The Digital Energy SG Series was developed using GE's Design for Six Sigma methodology to ensure that the product fully meets customer requirements and expectations.

GE's unique Redundant Parallel Architecture™ (RPA™) allows up to eight (8) units to be paralleled for redundancy or capacity. This flexible and cost-effective design controls the UPS system in a true peer-to-peer configuration, with redundancy in all critical elements and functions. This advanced technology provides the highest possible system reliability for mission critical applications, eliminating single points of failure associated with other types of UPS systems. The RPA™ system employs voltage based sharing and precision phase control, resulting in the most accurate load sharing in the industry.

Every GE UPS system is fully supported by GE's Global Services team, providing world-class, 24x7 preventive and corrective services, training and application expertise.

## Features and Benefits

- > Extremely low output voltage distortion and faster transient response for non-linear and 100% step loads
- > Redundant Parallel Architecture™ (RPA™) increases system reliability by eliminating single points of failure

- > SVM (Space Vector Modulation), an advanced PWM (Pulse Width Modulation) digital control technique, to modulate the inverter, resulting in fast transient response with high efficiency
- > Energy efficient output across the load range, with best in class part load efficiency
- > Superior Battery Management (SBM) enhances battery life and reduces cost of operation
- > Intelligent Energy Management™ (IEM™) automatically determines the most efficient mode of operation for the RPA™ system, reducing overall operating costs
- > Zig-zag output transformer for inverter isolation providing improved output performance
- > Designed for serviceability with front-service access and open architecture to reduce maintenance and repair costs
- > Integrated internal manual maintenance bypass reducing the need for external equipment
- > Automatic start-up procedure and a user-friendly interface simplifies UPS operation
- > Remote monitoring and diagnostics via LAN or internet
- > Casters and leveling feet ease installation

# 10-750kVA

## Digital Energy SG Series Uninterruptible Power Supply (UPS)



## Options

- > Input 5th harmonic filter reduces the input distortion (input THD) to 7%. This option is internal to the UPS and no additional cabinet is required.
- > FCC Filter: GE provides an internal FCC filter as a cost-effective option for installations that require FCC Class A certification
- > Additional input/output isolation and voltage adaptation transformers available for all kVA sizes and voltages
- > External (full wrap around) Maintenance Bypass; available in two or three breaker, panel mounted configurations; Kirk Key protection also available
- > Remote Status Panel: Allows the UPS to be remotely monitored with a UPS panel, incorporating indicator lights and alarms
- > RPA™ Kit: Any single UPS can be easily field-configured for Redundant Parallel Architecture™
- > UPS monitoring and management software
- > SNMP card: This optional plug-in card allows the UPS to be managed using an existing Network Management System or with Digital Energy exclusive UPS management software
- > Additional battery systems for extended backup times
- > 10-20kVA has (optional) internal batteries
- > Three wire input conversion kit (100-150kVA)

## Technical Specifications

Power Rating	Output Power Rating (kVA)	10 *	20 *	30	40	50	80	100	120	150	225	300	400	500	750 ♦	
	Output Power Rating (kW)	8	16	24	32	40	64	80	96	120	180	240	320	450	675	
Power Factor	Output Power Factor	.8												.9		
Energy	Energy Efficiency															
	@ 50% Load	89.5%	88.7%	90.5%	90.5%	92.2%	92.5%	92.9%	93.1%	93.3%	92.7%	93.1%	94.2%	94.4%	94.2%	
	@ 100% Load	90.0%	89.0%	91.0%	91.0%	91.8%	92.0%	92.4%	92.7%	92.8%	92.4%	92.7%	94.0%	93.8%	93.5%	
	Heat Rejection															
	BTU/hr @ 100% Load	3,036	6,751	8,104	10,808	12,201	19,005	22,472	25,819	31,795	50,512	64,164	69,712	108,500	161,435	
Physical	Weight w/o batteries (lbs)	735	763	970	1147	1257	1489	1929	2006	2160	2756	3087	4918	5100	9557	
	Dimensions (W x D x H) inches	27 x 32 x 71			32 x 32 x 71			47 x 32 x 71			65 x 32 x 71		81 x 34 x 77		147x35x77	
Input	Input Voltage	480 V, 3-phase, 4-wire w/ground (grounded WYE) ♦♦														
	Voltage Range (w/o battery discharge)	-20% to +15%													-15% to +10%	
	Frequency	60 Hz +/- 10%														
	Input THD	< 10% (w/filter)					< 7% (w/filter)							as low as < 5% (see Technical Data Sheet)		
	Input Power Factor	.8 PF (.93 with input filter)														
Output	Output Voltage (sinusoidal) (VAC)	480 V, 3-phase, 4-wire w/ground														
	Frequency	60 Hz +/- 10 %														
	Crest Factor	3:1														
	<b>Voltage Regulation</b>															
	Static	+/- 1%														
	100% Step Load	+/- 3%														
	<b>Voltage Distortion</b>															
	100% Linear Load	2% THD maximum														
	100% Non-Linear Load	3% THD maximum														
	<b>Overload Capability</b>															
	Inverter	125% for 10 minutes; 150% for 1 minute												125% for 10 minutes; 150% for 30 seconds		
Bypass	110% continuous; 200% for 5 minutes															
Battery	Compatibility	VRLA or Wet cell														
	Float Voltage	540 VDC @ 68° F (20° C)												545 VDC		
	Recharge Time	10x discharge time (for battery runtime = 30 minutes)														
General	Audible Noise db(A)	60				63	65			67	65		75			
	UPS Ambient Operating Temp.	UPS: 32° to 104° F (0° - 40° C)														
	Humidity	0-95%; non-condensing														
	Safety Classifications & Listings	UL 1778 / IEC 62040 / ISO 9001														
	Short Circuit Current Rating														65kA @ 100kVA RMS Symmetrical Amperes, 480V maximum	
	Enclosure	IP20 and NEMA-PE-1														
	RFI and Surge Protection	EN 50091-2 / IEC 62040-2 / IEEE 587 B / FCC Class A, Part B Compliance **														
	Communication / Connectivity	RS-232; programmable alarm contacts; programmable relays; SNMP (optional)														
	Color	White (RAL 9003)												White (RAL 9010)		
	Limited Warranty	Twelve (12) months after commissioning or Eighteen (18) months after shipment, whichever occurs first ***														

Specifications subject to change without notice.

- \* Units available with internal batteries
- \*\* FCC Feature available as option (10-300kVA)
- \*\*\* Extended Warranties available
- ♦ The SG Series 750kVA UPS is a product of ecomagination
- ♦♦ Three wire kit available 100kVA and above
- ♦♦♦ For more information, please consult the applicable Technical Data Sheet



## Standard Network Management Protocol (SNMP) Plug-In Card



This optional hardware allows the UPS to communicate over a LAN or interface through all major building management systems (BMS).

### Options & Accessories

The 6-Pulse rectifier is standard for the SG Series 10-750kVA. The 12-Pulse rectifier is an option only for the 750kVA. Input filter options for the SG Series include:

#### 5th Harmonic Input Filter for 6-Pulse Rectifier (10-750kVA)

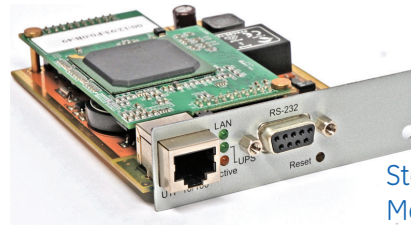
The 5th harmonic input filter is used for reducing the 5th harmonic generated by the 6-pulse rectifier (standard on SG 10-750kVA). This filter reduces the input harmonic distortion to less than 7% THD, and increases the output power factor to 0.93. This option does not require an additional cabinet and is internal to the UPS (5th filter is standard on 750kVA and optional for 10-500kVA).

#### 11th Harmonic Input Filter for 6-Pulse Rectifier (option for 400-750kVA only)

The 11th harmonic input filter, when combined with the 5th harmonic input filter, is used for reducing the 5th and 11th harmonics generated by the rectifier. This filter combination reduces input THD to less than 5% and increases the power factor to 0.96.

#### 12-Pulse Rectifier (option for 750kVA only)

For the 750kVA, the 12-pulse rectifier can be used in place of the 6-Pulse rectifier and reduces the input harmonic distortion to less than 9% THD without an input filter. The optional 11th input filter reduces distortion to less than 4% THD.



Standard Network Management Protocol (SNMP) Plug-In Card

#### FCC EMI Filter

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

#### Three Wire Kit (100kVA and above)

GE provides an internal three-wire kit as a cost-effective option for sites that cannot connect a neutral conductor to the UPS.

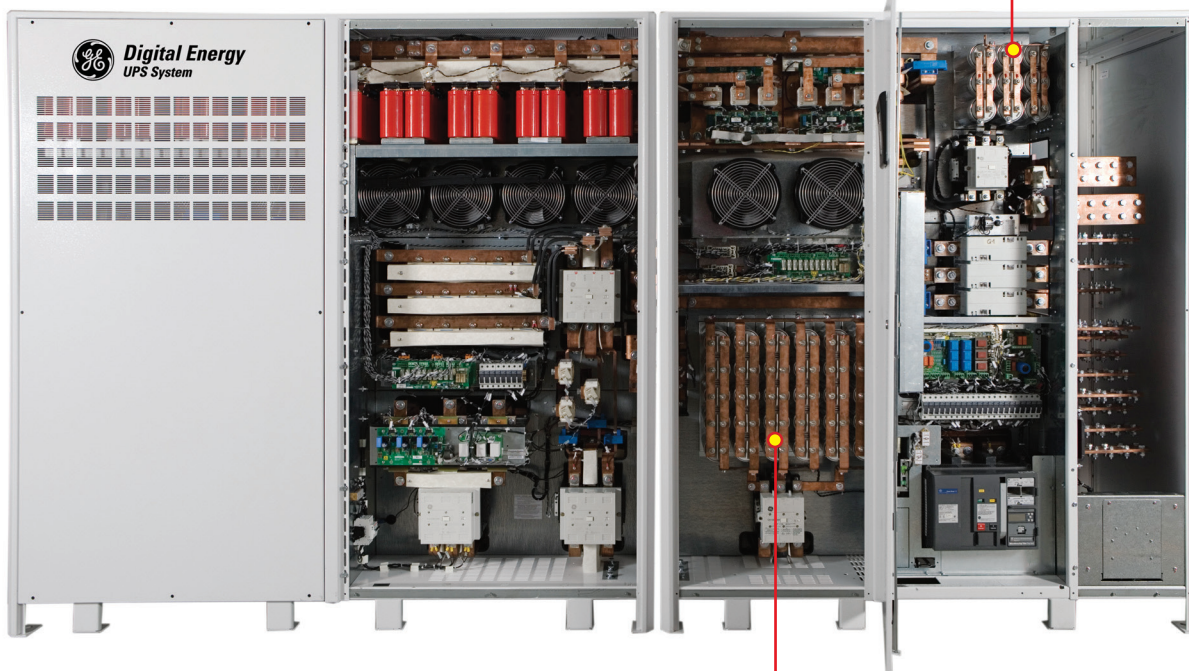
#### Battery Cabinets

GE provides line and match battery systems with integral overcurrent protection.



#### Accessories

GE provides a full line of accessories including PDUs, three-wire kit, flywheels, adaptation transformers, remote status panel, maintenance bypass panels, TVSS and spare part kits.



750kVA UPS Shown

5th input filter (5th filter is Standard on 750kVA and optional for 10-500kVA)

11th input filter (option for 400-750kVA only)

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

GE is committed to the highest standards of quality and customer satisfaction. It is not enough to simply sell the best products. This is why GE also strives to help its customers realize the full value of the products they purchase by providing value-added applications and maintenance services. With field engineers and technicians worldwide, GE can provide the consulting, installation and on-going maintenance support programs you need to ensure power delivery isn't a barrier to your success.



U.S.-Based  
Customer  
Service



As an international leader in the power quality industry, GE serves as a single point of contact and is uniquely positioned to support all of your power needs.

To find your local GE service person globally, visit <http://www.geindustrial.com/wtb/Dispatcher>



## Customer Service Support

**Call Center 7 x 24 x 365**  
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Service engineers dispatched immediately

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### Extended Warranty Services

Add years to GE's standard limited warranty offering

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Online monitoring and event analysis,

24 hours a day

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Full service preventative diagnostics

### Maintenance Contracts

Peace of mind...GE experts maintain critical infrastructure

GE Digital Energy  
Power Quality



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