

Power dependency has increased dramatically in the new business environment based on e-commerce applications, mobile networks, corporate Internet sites, e-pay and networked IT structures. Near one-hundred percent system availability is mandatory in view of the financial and business consequences. Not only does the absence of power have catastrophic consequences, but also an unnoticed mains disturbance can affect your expensive equipment or critical processes. Power Quality Products are designed to reduce customer risks to power issues.

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### Delivering Critical Power Reliability

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#### Improved Reliability for the Entire Site

Facilities with critical power infrastructure need to maintain a constant supply of clean and reliable power that will keep business operating at all times.

To help protect your entire electrical infrastructure—from the utility meter and the UPS to the critical load—GE offers a comprehensive array of services that can ensure continuous operation of controls and equipment during a power loss. Without an effective diagnostics and maintenance program, critical power system components (such as battery systems) are prone to failure.

#### Uninterrupted Revenue Stream

To avoid potential loss of revenue streams from unplanned outages, GE designed a preventive maintenance program that can be customized to meet the specific needs of your site. The program also reduces long-term maintenance cost and capital expenditures.

#### Single Point of Contact with Worldwide Sourcing

Operating from a worldwide network of service centers with a large critical parts inventory, our highly trained repair specialists work at a schedule that accommodates your site needs. With extensive experience across multiple brands of equipment, they can free your plant personnel to focus on their core competencies. In order to ensure an effective and rapid response, GE provides a single point of contact to coordinate all of your service needs.

#### Expert Inspection and Maintenance Services

With an average of five years of in-depth experience on equipment across the industry, GE specialists have the required range of skills to protect your operation from power interruptions. Expert interpretation of inspection data allows our engineers to provide you with the preventive or corrective services that are most appropriate for your business, including:

- Inspection Services** Review customer maintenance logs; perform safety checks; visually inspect power equipment, batteries and rectifiers; provide detailed reports with findings and recommendations.
- Uninterruptible Power Supply (UPS) Preventive Maintenance Services** Verify equipment functionality and provide detailed reports with findings and recommendations for GE and multi-vendor systems.
- Rectifier Preventive Maintenance Services** Verify operation of all rectifiers/chargers; read and record DC float voltage; read and record AC input voltage and current; and calibrate panel meters.
- Remedial Services** Test and repair UPS, rectifier and related critical power equipment.
- Remote Monitoring and Diagnostics (RM&D)** Advanced algorithms for data analysis and condition assessment; performance trending; diagnostics/problem assessment; rapid response for emergency troubleshooting and addressing technical questions.
- Engineering Services** Design-build services for ISP facilities; technical and logistical support for multi-vendor equipment and site analysis for power problems (UPS, generator interfacing, harmonics or power fluctuations).



- Site Monitoring** Moderate cost, high performance system incorporates monitoring logging, alarming and a multi-protocol notifying system. GE-monitored alarm management response program.
- Complete Spare Parts Inventory** Worldwide sourcing capability provides UPS, batteries (VRLA and flooded), DC equipment, replacement boards and components for UPS and DC equipment.
- Critical Power Equipment Operator Training** Hands-on classroom or on-site training to increase operator reliability and accuracy.
- Battery Preventive Maintenance Services** Measure and record cell float voltage, the specific gravity on all flooded cells and cell conductance to determine the relative state of health for VRLA battery types. Adjust float and equalize voltage settings to manufacturer specific values. Record electrolyte temperature on flooded cells and record temperatures on the negative post (on VRLA battery types). Inspect terminals, cables, and hardware; cell elements; battery racks, cell covers and post seals.

### Benefits

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- Greater reliability
- Reduced outages and risk of lost revenues
- Lower capital expenditures and maintenance costs
- Single point of contact for all services

### Reliability Services

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- UPS commissioning and upgrades
- Battery installation and maintenance
- Battery replacement
- System stability and reliability consulting
- Remote monitoring and diagnostics (RM&D)
- Infrared thermal imaging
- Asset management services

### Critical Parts Availability

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- Worldwide critical spare parts inventory and servicing
- Continually updated database for most efficient sourcing
- Global emergency service with rapid response times to meet your critical needs
- Depot repair staff available to ensure reliability of your electrical infrastructure
- Operator training on a variety of multi-vendor power equipment (on-site or at a GE location)

### Increased Reliability of Critical Power Systems

GE's expertise can help deliver critical power for continuous operations.

Our comprehensive array of services ensures the reliability of critical power battery and rectifier/charging systems when they are needed most. While battery systems are the most crucial components of a critical power system, they can be prone to failure—unless an effective diagnostics and maintenance program is in place.

### **Uninterrupted Revenue Stream**

To prevent potential loss of revenue streams from unplanned outages, GE has designed a preventive maintenance program tailored to the Transmission and Distribution needs of Independent Power Providers, Investor Owned Utilities (IOUs), Non-Utility Generator (NUGs), and municipal and industrial power providers. In addition to providing reliable power in substations and generating plants, the program also reduces long-term maintenance cost and capital expenditures.

### **Single Point of Contact with Worldwide Sourcing**

Operating from a worldwide network of service centers with a large critical parts inventory, our highly trained specialists work at a schedule that accommodates your site needs. With extensive experience across multiple brands of equipment, they can free your plant personnel to focus on core competencies. In order to ensure an effective and rapid response, GE provides a single point of contact to coordinate all of your service needs.

### **Expert Inspection and Maintenance Services**

GE specialists have the required range of skills to protect your operation from power interruptions. Expert interpretation of inspection data allows our engineers to provide you with the preventive or corrective services that are most appropriate for your business, including:

- Inspection Services** Review customer maintenance logs; perform safety checks; visually inspect power equipment, batteries and rectifiers; provide detailed reports with findings and recommendations.
- Asset Management Services** Develop and maintain asset inventories.
- Battery Preventive Maintenance Services** Measure and record cell float voltage; the specific gravity on all flooded cells and cell conductance to determine the "relative" state of health for VRLA battery types. Adjust float and equalize voltage settings to manufacturer specific values. Record electrolyte temperature on flooded cells and record temperatures on the negative post (on VRLA battery types). Inspect terminals, cables, and hardware; cell elements; battery racks; cell covers and post seals.
- Rectifier Preventive Maintenance Services** Verify operation of all rectifiers/chargers; read and record DC float voltage; read and record AC input voltage and current and calibrate panel meters.



- Remedial Services** Clean and correct all corroded connections; replenish low electrolyte fluid levels (flooded cells only) and apply single unit charge techniques to re-establish string balance.
- Battery Replacement Services** Install, inspect, test clean and repair of battery systems as well as removal/replacement using EPA registered and approved recyclers.

### **Benefits**

- Greater reliability
- Reduced outages and risk of lost revenues
- Single Point of Contact
- Lower capital expenditures and maintenance costs
- Reduced safety risk
- Single point of contact for all services
- EPA compliant battery recycling

### **Applicable Markets**

- Commercial
- Healthcare
- Utility
- Information Technology
- Defense
- Industrial

### **Critical Parts Availability**

- Worldwide critical parts inventory
- Rapid access database for most efficient sourcing
- Depot repair staff available to ensure reliability of Transmission and Distribution networks

**For Emergency Service call: 1-800-637-1738**

# Uninterruptible Power Supplies Energy Connections VCL Series

800 - 3000 VA

## Section 20

GE's new line interactive pluggable range of UPS, the VCL Series UL, is available in tower and/or rack format, 2U high across all ratings.

The UPS is a high performance range available in 800VA, 1100VA, 2000VA and 3000VA.



### Features and Benefits

- 2U design for small footprint in all ratings
- Hot swappable batteries allow replacement without load disruption
- Matching battery cabinets available for longer battery life
- Superior battery management providing battery protection and extension
- Remote monitoring for easy access and control of unmanned or isolated sites
- Reliability
- Voltage and frequency independent
- Failsafe bypass
- Three-year warranty and high MTBF
- High output power factor (0.9)
- Standard USB connection
- Flexibility
- Tower and rack-mount, small footprint
- Unique high peak load handling
- Frequency converter
- Continuity
- Automatic bypass switch
- Easy, fast battery replacement
- Boost/float charging

### VCL Series, 800-3000VA Line-Interactive UPS - Rack/Tower Combo Unit

Product Number	Power - Voltage	Input Plug	Output Receptacles	Battery Backup Time (mins)	Dimensions W x D x H (in)	Weight (lbs)
25926	800VA - 120V	5-15P	(6) 5-15R	8	17.3 x 16.0 x 3.5	30
25927	1100VA - 120V	5-15P	(6) 5-15R	8	17.3 x 16.0 x 3.5	33
25928	2000VA - 120V	5-20P	(6) 5-20R	9	17.3 x 24.4 x 3.5	55
25929	3000VA - 120V	L5-30P	(6) 5-20R	9	17.3 x 24.4 x 3.5	73

### VCL Series Options and Accessories

Product Number	Description
1024746	SNMP interface, plug in card for VCL and GT UPS
24864	ModBus TCP License works with SNMP card
26076	Rail Kit for 4 Post Racks

# Uninterruptible Power Supplies Energy Connections VH Series

VH700 - 1000 - 1500 - 2000 - 3000 UL/120V

VH 2000 - 3000 UL/208V

## Section 20

### Description

GE's VH Series Uninterruptible Power Supply (UPS) connects between the utility and your critical load, helping ensure that when the utility drops or fails, your load continues to receive a clean, constant and reliable power supply. The VH Series UPS is ideal for protection against utility variances and failures for PC, telecom, laboratory, industrial and critical process loads.

The VH Series is a true Voltage and Frequency Independent (VFI) on line, double conversion UPS providing secure power for business-critical applications. With a tower and/or rack mount design, the UPS adapts to adjusting network configurations as facility load requirements change. Delivering 0.9 output power factor, a Mean Time Between Failure (MTBF) of 730,000 hours and a three year warranty standard on UPS and battery, the user can be assured of a high performance, high power and highly reliable level of power protection.

### Applications

The VH Series UPS is ideal for both standard and non-standard network IT environments including:

- PCs and servers
- CCTV and security systems
- Telecom
- Railway signaling
- Small to midsized networks
- Laboratory analysis equipment
- Process control
- Wind turbine pitch controls



### Features and Benefits

- Unique failsafe internal bypass - Continued operation even with overload or over-temperature
- 2U design for all ratings - Small footprint; parts supplied for tower or rack assembly
- Hot swappable batteries - Simple, fast battery replacement without disruption to the load
- Matching battery cabinets - Longer battery life available with the addition of extra battery cabinet(s)
- Superior battery management - Provides protection to the battery and extends the battery life
- Remote monitoring - Easy access and control even for unmanned or isolated sites
- MTBF >730,000 hours - Proven reliability
- Increased power handling - 0.9 output power factor delivers more actual power to the load
- Reliability
  - Voltage and Frequency Independent (VFI) double conversion
  - Failsafe bypass
  - Comprehensive warranty and high MTBF
- Continuity
  - Automatic bypass switch
  - Easy, fast battery replacement
  - Large charge capacity and boost/float charging
- Flexibility
  - Tower and rackmount, small footprint
  - Unique high peak load handling
  - Frequency converter
- Compatibility
  - High output power factor (0.9)
  - Standard USB connection
  - Range of communication options

# Uninterruptible Power Supplies Energy Connections VH Series

VH700 - 1000 - 1500 - 2000 - 3000 UL/120V

## Section 20

### Technical Specifications–UL approved

Topology		VFI, on line double conversion				
Model	VH	700	1000	1500	2000	3000
Nominal output rating	VA/W	700/630	1000/900	1500/1350	1920/1740	3000/2700
Overall efficiency at nominal load	%	>87				
Heat dissipation at inverter nominal load, PF=0.9 and charged battery	W	86	123	184	237	290
Cooling air (77°F - 86°F)	CFM	15	21	32	41	51
Audible noise level at one meter	db(A)	<45 db(A), load and temperature dependent				
Operating temperature range	32°F + 104°F (0°C + +40°C) 59°F + 77°F recommended for batteries					
Storage temperature range	-4°F + 122°F (-20°C + +50°C)					
Relative humidity max.	20-95% (non-condensing)					
Enclosure / Protection degree	Steel-plastic / IP 20					
Safety	UL 1778, 5th Edition					
EMC	FCC Part-15, Class B					
Surge capacity	EN 61000-4-5: 6kV line-line / 6kV line-earth					
Electrostatic discharge immunity	EN 61000-4-2: 4kV contact / 15kV air discharge					
Transport	On pallet / Tower and rack mountable					
Colour	RAL 9005 (black)					
Outlet connectors	NEMA 5-20R (additional LS-20R in 2000VA and LS-30R in 3000VA)					
Inlet connector	IEC	C13	C13	C19	C19	-
Cooling	Forced air					

### Input converter (rectifier + power factor correction)

Nominal AC input voltage	120V					
Input frequency range	45 - 66 Hz					
Power factor	>0.99					
THDi	<6%					
Nominal input current (no charging, U <sub>in</sub> = nominal)	A	6.6	9.1	13.9	16	24
Inrush current	None					
DC Output voltage	2x210V					

### Battery charger

Battery charging characteristic	Constant current until boost voltage, then float voltage					
AC input voltage range	60 to 140V					
DC output voltage	Vdc	40.5			81	
Output current limitation	Adc	1.5				
Recharge time	3 hours for 90% capacity, standard battery					

### Battery data

Battery type		Sealed lead acid, VRLA				
Float voltage at 25°C	Vdc	40.5			81	
Number & rating of 12V batteries (standard version)		3*7Ah	3*9Ah	6*7Ah	6*9Ah	6*9Ah
Standard backup time at nominal resistive load	min	8	8	7.2	8	8
End of discharging voltage (Vdc/cell)	Vdc	1.66				
Standard backup extensions (table 1 for backup time)		NO	YES	YES	YES	YES

# Uninterruptible Power Supplies Energy Connections VH Series

VH700 - 1000 - 1500 - 2000 - 3000 UL/120V

## Section 20

### Output converter (inverter)

Model	VH	700	1000	1500	2000	3000
Input voltage range	Vdc	200-220				
Nominal output power at PF=0.9	VA	700	1000	1500	1920	3000
Nominal output power with resistive load	W	630	900	1350	1740	2700
Nominal AC output voltage	Vac	120				
Output voltage waveform	sine wave					
Output voltage tolerance:						
- static resistive load	< 1%					
- dynamic mean deviation over half cycle (load step 0-100-0%)	< 2%					
- with measured non-linear load 2.5:1	< 2%					
- recovery time to $\pm 1\%$	2ms					
Overload capability (battery operation)	110% during 4 minutes, 150% during 2 seconds					
Short circuit current capability	2.1 x nominal current during approx. 200ms					
Output frequency	50/60 Hz auto selectable (default 60 Hz during cold start)					
Output frequency tolerance	$\pm 0.05\%$ nominal, unless synchronized with mains					
Frequency tracking range	$\pm 10\%$ default ( $\pm 2\%$ selectable)					
Max. phase shift difference input-output	< 1% typical (max. 7° during tracking frequency range)					
Harmonic distortion with linear load	< 1%					
Harmonic distortion with non-linear load	< 6%					
Power factor range	0.7 to 1 (lag & lead)					
Crest factor handling capability of non-linear load	Up to 3:1					
Output power derating altitude	Up to 1000m no derating Above 1000m 12.5% per 1000m, max. 4000m.					
Protection	Automatic transfer to bypass (if available) in case of: - internal circuit failure - over temperature - overload / short circuit Output protected against connection to the mains					
Inverter bridge	PWM and IGBT technology					

### Bypass

Primary element	Static switch
Bypass voltage limits	-15% to +10% of selected output voltage
Frequency tracking range	$\pm 10\%$ default ( $\pm 2\%$ selectable) of selected output frequency
Slew rate	2 Hz/sec.
Overload capability on bypass	120% $\geq 3$ min., 150% $\geq 1$ min.

### Interfacing

Potential free contacts (optional)	Four change-over contacts signalling following alarms: - bypass active - mains failure - battery low - general alarm (programmable)
Input terminals for	- Remote Power Off - Battery extension pack DC connector

Note: all indicated values are typical. Variations may be found from one unit to another.

# Uninterruptible Power Supplies Energy Connections VH Series

VH700 - 1000 - 1500 - 2000 - 3000 UL/120V

## Section 20

### Optional features

#### SNMP interface card

An SNMP interface adapter can be placed in the SNMP slot in the rear panel of the UPS, which allows the data interface to be connected directly to an Ethernet or Web.

#### USB/RS232/Relay Card

The card is provided with an USB connector, a 9-pole sub-D connector and four potential free changeover contacts, representing: mains failure, general alarm, battery low and bypass active.

#### Battery modules – extended runtime

Additional battery modules (up to 3) may be connected in parallel to in order to achieve a longer runtime. Every battery module is equipped with its DC cabling and it makes connection between modules very easy and simple.

**Increasing of total battery capacity will correspond to a longer recharging time.**

Table.1 Dimensions and battery run times

UPS Model	Backup time (min.)	Total capacity (Ah)	No. of extra battery cabinets	Battery cabinet			UPS cabinet		
				Dimensions (HxWxD)	Weight	Shipping weight	Dimensions (HxWxD)	Weight	Shipping weight
VH700	8	7	-	-				35 lbs / 16 kg	49 lbs / 22kg
VH1000	8	9	-	3.4x17.2x18.5 inch 87x438x470 mm	60 lbs 27kg	68 lbs 31kg	3.4x17.2x18.5 inch 87x438x470 mm	37 lbs / 17kg	51 lbs / 23kg
	26	23	1						
	48	37	2						
VH1500	66	51	3	3.4x17.2x21.3 inch 87x438x540 mm	101 lbs 46kg	110 lbs 50kg	3.4x17.2x21.3 inch 87x438x540 mm	64 lbs / 29kg	73 lbs / 33kg
	7	7	-						
	35	21	1						
VH2000	63	35	2	3.4x17.2x21.3 inch 87x438x540 mm	101 lbs 46kg	110 lbs 50kg	3.4x17.2x21.3 inch 87x438x540 mm	71 lbs / 32kg	84 lbs / 38kg
	88	49	3						
	8	9	-						
VH3000	26	23	1	3.4x17.2x23.0 inch 87x438x585 mm	101 lbs 46kg	110 lbs 50kg	3.4x17.2x23.0 inch 87x438x585 mm	77 lbs / 35kg	90 lbs / 41kg
	50	37	2						
	74	51	3						
VH3000	4	9	-	3.4x17.2x23.0 inch 87x438x585 mm	101 lbs 46kg	110 lbs 50kg	3.4x17.2x23.0 inch 87x438x585 mm	77 lbs / 35kg	90 lbs / 41kg
	15	23	1						
	25	37	2						
	50	51	3						

### Protections and cable sections

Recommended external fusing of input wiring		Cable sections input and output recommended by NEC standards Alternatively, local standards to be respected	
UPS Model	Mains / Bypass input	CABLE SECTIONS (90° C insulation)	
		mm <sup>2</sup>	AWG
VH 700	15A Class "B" MCB	2.08	14
VH 1000	15A Class "B" MCB	2.60	13
VH 1500	20A Class "B" MCB	4.17	11
VH 2000	20A Class "B" MC	5.26	10
VH 3000	30A Class "B" MCB	8.37	8



# Uninterruptible Power Supplies Energy Connections VH Series

VH700 - 1000 - 1500 - 2000 - 3000 UL/120V

## Section 20

### VH 700-3000 VA Series Units - Rackmount or Tower with same unit

Product Number	Description	Input Plug	Output Receptacles	Run Time	Dimensions W x D x H (in)	Weight (lbs)
25510	700VA 120V	5-15P	(4) 5-20R	8	17.2 x 18.5 x 3.4	35
25511	1000VA 120V	5-15P	(6) 5-20R	8	17.2 x 18.5 x 3.4	37
25512	1500VA 120V	5-20P	(6) 5-20R	7	17.2 x 21.3 x 3.4	64
25513	2000VA 120V	5-20P	(6) 5-20R (1) L5-20R	8	17.2 x 21.3 x 3.4	71
24746	3000VA 120V	L5-30P	(6) 5-20R (1) L5-30R	4	17.3 x 23.0 x 3.4	77

### External Battery Options

Product Number	Description	UPS Model	Dimensions W x D x H (in)	Weight (lbs)
25268	Extended Runtime	1000VA	17.2 x 18.5 x 3.4	36
25269	Extended Runtime	1500VA, 2000VA & 3000VA	17.2 x 21.3 x 3.4	71

### VH Series Options & Accessories

Product Number	Description
18802	Option card for RS232, USB and relays
1024746	SNMP/web plug in card
26076	Rail kit for 4 post racks
UPS-19IN-SHELF4	Shelf for 4 post racks 25-36" dp, 350 lbs. max.
UPS-19IN-SHELF2S	Shelf for 2 post racks 20" dp, 150 lbs. max.

### Remote Monitoring & Diagnostic System<sup>1</sup>

Product Number	Description
26104	iUPSGuard Annual License 12 months from startup
26104-R	iUPSGuard Annual Renewal License 12 months from renewal date

<sup>1</sup>Customer must also purchase the 1024746 for use with this license

### Battery Runtimes (minutes)<sup>2</sup>

VA	Standard Internal Battery		External Cabinets @ 100%		
	75% Load	100% Load	Qty 1	Qty 2	Qty 3
700	12	8	Not available	Not available	Not available
1000 - 25268	12	8	26	48	66
1500 - 25269	11	7	35	63	88
2000 - 25269	12	8	26	50	74
3000 - 25269	6	4	15	25	50

<sup>2</sup>Estimated Runtimes

# Uninterruptible Power Supplies Energy Connections VH Series

VH 2000 - 3000 UL/208V

## Section 20

### Technical Specifications - UL approved

Topology	VFI, on line double conversion		
Model	VH	2000	3000
Nominal output rating	VA/W	2000/1800	3000/2700
Overall efficiency at nominal load	%	>87	
Heat dissipation at inverter nominal load, PF=0.9 and charged battery	W	237	290
Cooling air (77°F - 86°F)	CFM	41	51
Audible noise level at one meter	db(A)	<45 db(A), load and temperature dependent	
Operating temperature range	32°F - 104°F (0°C - +40°C) 59°F - 77°F recommended for batteries		
Storage temperature range	-4°F - 122°F (-20°C - +50°C)		
Relative humidity max.	20-95% (non-condensing)		
Enclosure / Protection degree	Steel-plastic / IP 20		
Safety	UL 1778, 5th Edition		
EMC	FCC Part-15, Class B (manual: EN 62040-2)		
Surge capacity	EN 61000-4-5: 6kV line-line/ 6kV line-earth		
Electrostatic discharge immunity	EN 61000-4-2: 4kV contact/ 15kV air discharge		
Transport	On pallet		
Colour	RAL 9005 (black)		
Outlet connectors	2xNEMA 6-20R + 1x L6-20R		
Inlet connector	NEMA L6-20P		
Cooling	Forced air		

### Input converter (rectifier+ power factor correction)

Nominal AC input voltage	208V		
Input frequency range	45 - 66 Hz		
Power factor	>0.99		
THDi	<6%		
Nominal input current (no charging, $U_{in}$ = nominal)	A	10.4	15.2
Inrush current	None		
DC Output voltage	2 x 210V		

### Battery charger

Battery charging characteristic	Constant current until boost voltage, then float voltage		
AC input voltage range	60 to 140V		
DC output voltage	Vdc	81	
Output current limitation	Adc	1.5	
Recharge time	3 hours for 90% capacity, standard battery		

### Battery data

Battery type	Sealed lead acid, VRLA		
Float voltage at 25°C	Vdc	81	
Number & rating of 12V batteries (standard version)		6*7Ah	6*9Ah
Standard backup time at nominal resistive load	min	5	4
End of discharging voltage (Vdc/cell)	Vdc	1.66	
Standard backup extensions (table 1 for backup time)	YES		

Note: all indicated values are typical. Variations may be found from one unit to another.

# Uninterruptible Power Supplies Energy Connections VH Series

VH 2000 - 3000 UL/208V

## Section 20

### Output converter (inverter)

Model	VH	2000	3000
Input voltage range	Vdc	200-220	
Nominal output power at PF=0.9	VA	2000	3000
Nominal output power with resistive load	W	1800	2700
Nominal AC output voltage	Vac	208 / 220 / 230 / 240 (selectable)	
Output voltage waveform	sine wave		
Output voltage tolerance			
- static resistive load	< 1%		
- dynamic mean deviation over half cycle (load step 0-100-0%)	< 2%		
- with measured non-linear load 2.5:1	< 2%		
- recovery time to $\pm 1\%$	2ms		
Overload capability (battery operation)	110% during 4 minutes, 150% during 2 seconds		
Short circuit current capability	2.1 x nominal current during approx. 200ms		
Output frequency	50/60 Hz auto selectable (default 60 Hz during cold start)		
Output frequency tolerance	$\pm 0.05\%$ nominal, unless synchronized with mains		
Frequency tracking range	nominal $\pm 10\%$ default ( $\pm 2\%$ selectable)		
Max. phase shift difference input-output	< 1% typical (max. 7° during tracking frequency range)		
Harmonic distortion with linear load	< 1%		
Harmonic distortion with non-linear load	< 6%		
Power factor range	0.7 to 1 (lag & lead)		
Crest factor handling capability of non-linear load	Up to 3:1		
Output power derating altitude	Up to 1000m no derating Above 1000m 12.5% per 1000m, max. 4000m.		
Protection	Automatic transfer to bypass (if available) in case of: - internal circuit failure - over temperature - overload / short circuit Output protected against connection to the mains		
Inverter bridge	PWM and IGBT technology		

### Bypass

Primary element	Static switch
Bypass voltage limits	-15% to +10% of selected output voltage
Frequency tracking range	$\pm 10\%$ default ( $\pm 2\%$ selectable) of selected output frequency
Slew rate	2 Hz/sec.
Overload capability on bypass	125% of TCB $\geq 3$ min., 200% of TCB for 10 seconds

### Interfacing

Potential free contacts (optional)	Four change-over contacts signalling following alarms: - bypass active - mains failure - battery low - general alarm (programmable)
Input terminals for	- Remote Power Off - Battery extension pack DC connector

# Uninterruptible Power Supplies Energy Connections VH Series

VH 2000 - 3000 UL/208V

## Section 20

### Optional features

#### SNMP interface card

An SNMP interface adapter can be placed in the SNMP slot in the rear panel of the UPS, which allows the data interface to be connected directly to an Ethernet or Web.

#### USB/RS232/Relay Card

The card is provided with an USB connector, a 9-pole sub-D connector and four potential free changeover contacts, representing: mains failure, general alarm, battery low and bypass active.

#### Battery modules – extended runtime

Additional battery modules (up to 3) may be connected in parallel to in order to achieve a longer runtime. Every battery module is equipped with its DC cabling and it makes connection between modules very easy and simple.

**Increasing of total battery capacity will correspond to a longer recharging time.**

**Table.1 Dimensions and battery run times**

UPS Model	Backup time (min.)	Total capacity (Ah)	No. of extra battery cabinets	Battery cabinet			UPS cabinet						
				Dimensions (HxWxD)	Weight	Shipping weight	Dimensions (HxWxD)	Weight	Shipping weight				
VH2000	5	7	-	9.0x7.4x23.6 inch 228x188x600 mm	88 lbs 40 kg	110 lbs 50 kg	9.0x7.4x23.4 inch 228x188x595 mm	66 lbs / 30 kg	68 lbs / 31 kg				
	30	21	1										
	60	35	2										
	90	49	3										
VH3000	4	9	-					9.0x7.4x23.6 inch 228x188x600 mm	88 lbs 40 kg	110 lbs 50 kg	9.0x7.4x23.4 inch 228x188x595 mm	68 lbs / 31 kg	73 lbs / 33 kg
	15	23	1										
	25	37	2										
	50	51	3										

### Protections and cable sections

Recommended external fusing of input wiring		Cable sections input and output recommended by NEC standards Alternatively, local standards to be respected	
UPS Model	Mains / Bypass input	CABLE SECTIONS (90° C insulation)	
		mm <sup>2</sup>	AWG
VH2000	20A Class "B" MCB	3.33	12
VH3000		5.26	10

# Uninterruptible Power Supplies Energy Connections VH Series

VH 2000 - 3000 UL/208V

## Section 20

### VH 2000 - 3000 VA / 208 Series Units - Rackmount or Tower with same unit

Product Number	Description	Input Plug	Output Receptacles	Run Time	Dimensions W x D x H (in)	Weight (lbs)
24745	2000VA 208V	L6-20P	(2) 6-20R (1) L6-20R	5	7.4 x 23.4 x 9.0	66
25906	3000VA 208V	L6-20P	(2) 6-20R (1) L6-20R	4	7.4 x 23.4 x 9.0	68

### VH Series Options & Accessories

Product Number	Description
18802	Option card for RS232, USB and relays
1024746	SNMP/web plug in card
26076	Rail kit for 4 post racks
UPS-19IN-SHELF4	Shelf for 4 post racks 25-36" dp, 350 lbs. max.
UPS-19IN-SHELF2S	Shelf for 2 post racks 20" dp, 150 lbs. max.

### Remote Monitoring & Diagnostic System<sup>1</sup>

Product Number	Description
26104	iUPSGuard Annual License 12 months from startup
26104-R	iUPSGuard Annual Renewal License 12 months from renewal date

<sup>1</sup>Customer must also purchase the 1024746 for use with this license

# Uninterruptible Power Supplies Energy Connections GT Series

5kVA & 6kVA Tower / Rackmount

## Section 20

### Description

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With the Energy Connections GT Series, your equipment is protected from any fluctuation in your power source, enabling you to concentrate on your core activities. The GT Series is a true VFI (Voltage & Frequency Independent) on-line double conversion, transformerless, intelligent and high performance UPS.

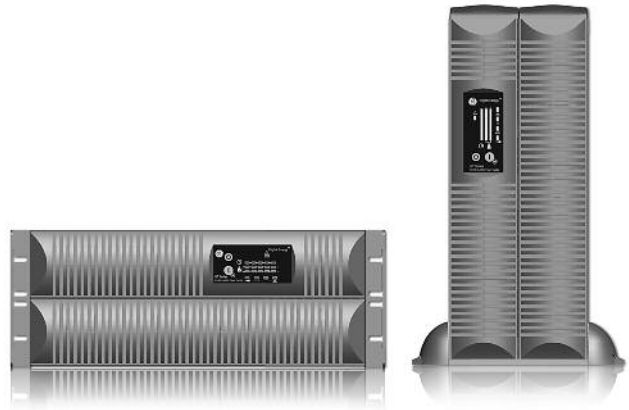
This UPS provides critical power protection to suit a wide range of IT Networks, Telecom and other applications. The GT Series is easy to install and service, and is designed for maximum site flexibility. With an attractively designed modern common tower and/or 19-inch rack mount cabinet, the UPS can adapt as network configurations adapt.

For communication, the GT series is equipped with RS232 and contact interface as standard; a web-enabled SNMP card is available as an option. Operation from remote or unmanned sites is simple to coordinate with standard remote monitoring functionality. No load shutdown, automatic frequency detection, settable minimum start-up runtime and extended runtime availability with optional battery packs are additional features of the GT Series UPS.

### Performance Features

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- Rack / Tower Mounting
- Auto Sensing 50/60Hz
- Extended Runtime options - Additional Runtime with 2U plug & play Battery Packs
- Additional Communications SNMP Card Slot
- Included Monitoring & Operational Software
- Built in RS232 Communication port
- Emergency Power Off Terminal Connections for EPO
- User Replaceable Hot Swappable Batteries
- Standard 2 year warranty
- Wide Input Voltage window
- Internal Auto and Manual Bypass



### Applications

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- Computer and data centers
- Call centers
- Telecommunications equipment
- Security systems
- Financial institutions
- Fixed and mobile voice and data transmission

### Vertical Markets

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- Healthcare
- Education
- Retail
- Entertainment
- Telecom
- Financial
- Broadcasting

# Uninterruptible Power Supplies Energy Connections GT Series

5kVA & 6kVA Tower / Rackmount

## Section 20

### Technical Specifications-UL Listed

Models	GT5000 RT	GT6000 RT
<b>Ratings</b>		
Power ratings depending on input voltage	VA / W	VA / W
100V / 200V :	4000 / 3400	4800 / 3400
110V / 220V :	4500 / 3800	5400 / 3800
115V / 230V :	5000 / 4000	6000 / 4200
120V / 208V :	4800 / 4200	5200 / 4200
120V / 240V :	5000 / 4200	6000 / 4200
127V / 220V :	4800 / 4200	5200 / 4200
Input thermal circuit breaker (A)		30
Internal input fuse 250V, slow (A)		30
<b>Input converter</b>		
AC input voltage	Nominal: 120 / 208 V	
AC input voltage range	100/(173-200), 110/(190-220), 115/(198-230), 120/(208-240), 127/(220) V	
Input current waveform	sine wave	
Input current (A) at nominal input voltage	20	
Input power factor	> 0.97	
Input frequency range	40 - 70 Hz	
Input phase (L1 to L2)	120° / 180° / 240° ±10°	
Inrush current	40	
<b>Output converter</b>		
AC output voltage	100 / 110 / 115 / 120 / 127 V (selectable)	
AC output voltage tolerance	L-N ± 3%; L1-L2 ± 5%	
Output frequency	50 / 60 Hz, auto selection	
Output frequency range	nominal ± 5% with mains synchronizing	
Output waveform	sine wave	
Harmonic distortion	< 3% with linear load, < 5% with non-linear full load	
Power factor at nominal input voltage	0.87	0.8
Crest factor (peak to RMS current)	≤ 3 : 1	
Capacity appliance outlets	with 55A Terminal Block	
<b>Bypass</b>		
AC input voltage range	± 15% of selected output voltage	
Frequency tracking rate	1Hz/s	
Frequency tracking range	± 5% of selected frequency	
Typical transfer time, msec	0	

Models	GT5000 RT	GT6000 RT
<b>Overload capability</b>		
Overload behavior during battery operation	130% for 10 seconds 200% for 2 seconds	
Overload behavior during bypass operation	depends on rating of thermal circuit breaker (TCB) 125% of TCB value for 200 seconds 200% of TCB value for 10 seconds 300% of TCB value for 4 seconds	
<b>Batteries (ratings given for 25°C)</b>		
Nominal voltage (Vdc)	144	
Qty/ Ah (in battery kit and battery ext. pack)	12pcs / 8Ah	
Type	REW45-12 FR	
Recharge current	1 A	
Battery recharge time (batt. discharged at 100% load)	6 hours for 90% capacity	
<b>General</b>		
Weight UPS	30.3 Kg (67 lbs)	
Dimensions UPS (hwxwd)	176x430x592 mm (6.9x16.9x22.55 in)	
Weight battery pack	43 Kg (94.7 lbs)	
Dimensions battery pack	87x430x592 mm (3.47x16.9x22.55 in)	
Enclosure / protection	steel-plastic / IP20	
Mounting	Rackmount or Tower mount with same unit	
<b>Environment</b>		
Safety Approval	UL1778	
Electromagnetic compatibility	EMI: FCC CFR47 Part 15, class A, ESD: IEC61000-4-2, level 4 RS: IEC61000-4-3, level 3, EFT: IEC61000-4-4, level 4, Surge: IEC61000-4-5, level 3 ANSI C62.41 (IEEE587) Category A (level 3) & B (level 1)	
Ambient temperature	0 to +40°C	
Audible noise at 3.3 ft .	< 55 dB(A), load and temperature dependent	
Max. relative humidity	90% (non-condensing)	
Color	Black - RAL 9005	

### Modular PDU Plugs for Single-Phase UPS Tower / Rackmount - 5.0kVA and 6.0kVA

Product Number	TB <sup>2</sup>	Outlets (NEMA)										Input (NEMA)		
		5-20R T		L5-20R		L5-30R		EN60320		L6-20R	L6-30R	L14-30R	TB <sup>2</sup>	L14-30R
		L1-N-G	L2-N-G	L1-N-G	L2-N-G	L1-N-G	L2-N-G	L1-N-G	L2-N-G	L1-L2-G	L1-L2-G	L1-N-L2-G		
1020621 <sup>1</sup>	1	-	-	-	-	-	-	-	-	-	-	-	1	-
1020622	1	-	-	-	-	-	-	-	-	-	-	-	1	-
1020623	-	2	2	-	-	-	-	-	-	1	1	-	-	1
1020624	-	1	1	-	-	-	-	-	-	2	-	-	-	1
1020625	-	2	2	-	-	-	-	-	-	2	-	-	-	1
1020626	-	-	-	-	-	-	2	2	-	-	-	-	-	1
1020627	-	-	-	2	2	1	1	-	-	-	-	-	-	1
1020628	-	-	-	2	2	-	-	-	-	2	-	-	-	1
1020629	-	-	-	-	-	-	-	-	-	4	-	-	-	1

<sup>1</sup>No 3 pole 6 ms maximum transfer time manual bypass.

<sup>2</sup> TB = Terminal Block

### Battery Run Times

Model Number	Load	Internal Batteries	1 Battery Pack	2 Battery Packs	3 Battery Packs
GT5000 RT / GT6000 RT	10%	75 min	156 min	235 min	313 min
	25%	31 min	75 min	115 min	155 min
	50%	14 min	34 min	58 min	82 min
	75%	8 min	22 min	35 min	50 min
	100%	5 min	14 min	25 min	36 min

# Uninterruptible Power Supplies Energy Connections GT Series

5kVA & 6kVA Tower / Rackmount

## Section 20

### GT Series 5-6 kVA Units - Rackmount or Tower with same unit

Product Number	Description	Run Time	Dimensions W x D x H (in)	Weight (lbs)
UPS23913UB	5000VA - 120/127/208/220/240V	5	17 x 23 x 7	137
UPS23914UB	6000VA - 120/127/208/220/240V	5	17 x 23 x 7	137

#### NOTES:

- a PDU is required for each 5 or 6 kVA unit - PDUs are replaceable and interchangeable within unit grouping
- Internal Battery module (s) will be shipped in a separate box

### GT Series 5-6 kVA Communications and Options

Description	Product Number
SNMP interface plug-in card	1024746
Rail kit for 4 post racks	26076
Shelf for 4 post racks 25-36" dp, 350 lbs. max.	UPS-19IN-SHELF4
Shelf for 2 post racks 20" dp, 150 lbs. max.	UPS-19IN-SHELF2S

### Remote Monitoring and Diagnostic System<sup>1</sup>

Description	Product Number
iUPSGuard Annual License; 12 months from startup	26104
iUPSGuard Annual Renewal License; 12 months from renewal date	26104-R

<sup>1</sup>Customer must also purchase the 1024746 for use with this license

### GT Series 5-6 kVA Battery Packs for Extended Runtime

Product Number	Description	UPS Model	Dimensions W x D x H (in)	Weight (lbs)
UPS23916EBM	Extended Runtime	5000VA & 6000VA	17 x 23 x 4	94.7

### GT Series 5-6 kVA Runtime Chart

UPS Rating	Battery Cabinet Qty	Time in minutes @ 50% Load	Time in minutes @ 100% Load
5000VA and 6000VA	Internal	14	5
	1	34	14
	2	58	25
	3	82	36



# Uninterruptible Power Supplies Energy Connections GT Series

8kVA & 10kVA Tower / Rackmount

### Description

---

With the Energy Connections GT Series, your mission-critical equipment is protected from any fluctuation in your power source, enabling you to concentrate on your core activities. The GT Series is a true VFI (Voltage & Frequency Independent) on-line double conversion, transformerless, intelligent and high performance UPS.

This UPS provides critical power protection to suit a wide range of IT Networks, Telecom and other applications. The GT Series is easy to install and service, and is designed for maximum site flexibility. With an attractively designed modern common tower and/or 19-inch rack mount cabinet, the UPS can adapt as network configurations adapt.

Both the power and redundancy of the system can be expanded by adding units (N+2) to create a parallel system. For communication, the GT series is equipped with RS232 and contact interface as standard; a web-enabled SNMP card is available as an option. Operation from remote or unmanned sites is simple to coordinate with standard remote monitoring functionality. No load shutdown, automatic frequency detection, settable minimum start-up runtime and extended runtime availability with optional battery packs are additional features of the GT Series UPS.

### Performance Features

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- Rack / Tower Mounting
- Auto sensing 50/60Hz
- Extended Runtime options - Additional Runtime with 2U plug & play Battery Packs
- Additional Communications SNMP Card Slot
- Included Monitoring & Operational Software
- Built in RS232 Communication Port
- Internal/Automatic and manual bypass
- User Replaceable Hot Swappable Batteries
- User Replaceable Hot Swappable Power Unit
- Standard 2 year warranty
- Parallel N+2 or N+1 redundancy



### Applications

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- Computer and data centers
- Call centers
- Telecommunications equipment
- Security systems
- Financial institutions
- Fixed and mobile voice and data transmission

### Vertical Markets

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- Healthcare
- Education
- Retail
- Entertainment
- Telecom
- Financial
- Broadcasting

# Uninterruptible Power Supplies Energy Connections GT Series

8kVA & 10kVA Tower / Rackmount

## Section 20

### Technical Specifications-UL Listed

Models	GT8000 RT	GT10000 RT
<b>Ratings</b>		
Power ratings depending on input voltage	VA / W	VA / W
100V / 200V :	6400 / 6400	8000 / 6400
110V / 220V :	7200 / 7200	9000 / 7200
115V / 230V :	8000 / 8000	10000 / 8000
120V / 208V :	8000 / 6900	8700 / 8000
120V / 240V :	8000 / 8000	10000 / 8000
127V / 220V :	8000 / 6900	8700 / 8000
Input thermal circuit breaker (A)	60	
Internal input fuse 250V, slow IAl /Qty	30 / 2	
<b>Input converter</b>		
AC input voltage	Nominal: 120 / 208 V	
AC input voltage range	100/(173-200), 110/(190-220), 115/(198-230), 120/(208-240), 127/(220) V	
Input current waveform	sine wave	
Input current (A) at nominal input voltage	40	
Input power factor	> 0.97	
Input frequency range	40 - 70 Hz	
Input phase	(L1 to L2)120° / 180° / 240° ±10°	
Inrush current	40	
<b>Output converter</b>		
AC output voltage	100 / 110 / 115 / 120 / 127 V (selectable)	
AC output voltage tolerance	L-N ± 2% L1-L2 ± 5%	
Output frequency	50 / 60 Hz, auto selection	
Output frequency range	nominal ± 5% with mains synchronizing	
Output waveform	sine wave	
Harmonic distortion	< 3% with linear load, < 5% with non-linear full load	
Power factor at nominal input voltage	0.86	0.92
Crest factor (peak to RMS current)	≤ 3 : 1	
Capacity appliance outlets	with 55A Terminal Block	
<b>Bypass</b>		
AC input voltage range	± 15% of selected output voltage	
Frequency tracking rate	1Hz/s	
Frequency tracking range	± 5% of selected frequency	
Typical transfer time, msec	0	

Models	GT8000 RT	GT10000 RT
<b>Overload capability</b>		
Overload behavior during battery operation	130% for 1 minute 200% for 5 seconds	
Overload behavior during bypass operation	overload protection 110% of TCB value for 300 seconds 130% of TCB value for 30 seconds 200% of TCB value for 5 seconds	
<b>Batteries (ratings given for 25°C)</b>		
Nominal voltage (Vdc)	288	
Qty/ Ah (in battery kit and battery ext. pack)	24 / 8Ah	
Type	REW45-12 FR	
Recharge current	1 A	
Battery recharge time (batt. discharged at 100% load)	3 hours for 90% capacity	
<b>General</b>		
Weight UPS	49.3 Kg (109 lbs)	
Dimensions UPS (hwxwd)	267x430x660 mm (10.5x16.9x26 in)	
Weight battery pack	91 Kg (200.4 lbs)	
Dimensions battery pack	173x430x660 mm (6.8x16.9x26 in)	
Enclosure / protection	steel-plastic / IP20	
Mounting	Rackmount or Tower mount with same unit	
<b>Environment</b>		
Safety Compliance	UL 1778	
Electromagnetic compatibility	EMI: FCC CFR47 Part 15, class A, ESD: IEC61000-4-2, level 4 RS: IEC61000-4-3, level 3, EFT: IEC61000-4-4, level 4, Surge: IEC61000-4-5, level 3 ANSI C62.41 (IEEE587) Category A (level 3) & B (level 1)	
Ambient temperature	0 to +40°C	
Audible noise at 3.3 ft.	< 55 dB(A), load and temperature dependent	
Max. relative humidity	90% (non-condensing)	
Color	Black - RAL 9005	

### Modular PDU Plugs for Single-Phase UPS Tower / Rackmount - 8.0kVA and 10.0kVA

Product Number	Outlets (NEMA)					
	5-20R T		L5-20R		L6-20R	L6-30R
	L1-N-G	L2-N-G	L1-N-G	L2-N-G	L1-L2-G	L1-L2-G
1020660	4	4	-	-	-	2
1020661	2	2	-	-	4	-
1020662	2	2	-	-	-	4
1020663	2	2	-	-	2	2
1020664	2	2	1	1	-	2
1020665	-	-	2	2	4	-

### Battery Run Times

Model Number	Load	Internal Batteries	1 Battery Pack	2 Battery Packs	3 Battery Packs
GT8000 RT / GT10000 RT	10%	107 min	251 min	333 min	494 min
	25%	40 min	100 min	160 min	225 min
	50%	16 min	39 min	66 min	92 min
	75%	10 min	24 min	41 min	58 min
	100%	6 min	17 min	28 min	41 min

# Uninterruptible Power Supplies Energy Connections GT Series

8kVA & 10kVA Tower / Rackmount

## Section 20

### GT Series 8-10 kVA Units - Rackmount or Tower with same unit

Product Number	Description	Run Time	Dimensions W x D x H (in)	Weight (lbs)
UPS23917UB	8000VA - 120/127/208/220/240V	6	17 x 26 x 11	277
UPS23918UB	10000VA - 120/127/208/220/240V	6	17 x 26 x 11	277

**NOTES:**

- 8 & 10 kVA units can be hardwired or have a PDU

### GT Series 8-10 kVA Communications and Options

Description	Product Number
SNMP interface plug-in card	1024746
Shelf for 4 post racks 25-36" dp, 350 lbs. max.	UPS-19IN-SHELF4
Shelf for 2 post racks 20" dp, 150 lbs. max.	UPS-19IN-SHELF2S

### Remote Monitoring and Diagnostic System<sup>1</sup>

Description	Product Number
iUPSGuard Annual License; 12 months from startup	26104
iUPSGuard Annual Renewal License; 12 months from renewal date	26104-R

<sup>1</sup>Customer must also purchase the 1024746 for use with this license

### GT Series 8-10 kVA Battery Packs for Extended Runtime

Product Number	Description	UPS Model	Dimensions W x D x H (in)	Weight (lbs)
UPS23920EBM	Extended Runtime	8000VA & 10000VA	17 x 26 x 7	200.4

### GT Series 8-10 kVA Runtime Chart

UPS Rating	Battery Cabinet Qty	Time in minutes @ 50% Load	Time in minutes @ 100% Load
	Internal	16	6
8000VA and	1	39	17
10000VA	2	66	28
	3	92	41

# Uninterruptible Power Supplies Energy Connections LP11U Series

Single-Phase 5 – 10 kVA

## Section 20

The Energy Connections LP11U Series is a robust, high-performance UPS system that provides power protection for a wide range of mission-critical applications. Every LP11U Series unit operates in a double conversion mode with true continuous on-line VFI (voltage and frequency independent) operation, thus yielding maximum levels of power protection even under the toughest conditions. In addition, the LP11U Series UPS is easy to install and service, even in an office environment. Its robust design makes it suitable for traditional industrial applications as well.

To achieve redundancy or to increase power capacity, GE's unique Redundant Parallel Architecture (RPA) technology enables the LP11U Series to parallel up to four 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 output phase and automatically shares the load supported by each of the UPS.

Through their complete life cycle, every GE UPS system is fully supported by GE's Global Services team, which provides world-class, 24 x 7 preventive and corrective services, training and application expertise.

### Features and Benefits

- High input power factor (1.0) and low input distortion prevents disturbances to other electrical equipment, thus eliminating the need for costly filters or over-sized feeders
- Compact footprint, easily transportable, robustly designed system with low audible noise suitable for both office and industrial environments
- Utilizes high-frequency PWM (Pulse Width Modulation) digital control technique resulting in extremely low output distortion and fast transient response eliminating the need for over-sizing the UPS
- Intelligent Energy Management (ECO-mode) enables automatic energy savings under stable power conditions
- Redundant Parallel Architecture (RPA) increases system reliability by eliminating single points of failure without increasing overall system complexity
- Superior Battery Management (SBM) enhances battery lifetime resulting in reduced cost of operation
- Fully isolated output providing additional critical power protection
- Robustly designed to handle short-circuit, high overload and over-heating conditions, thus reducing maintenance and service costs
- The LP High Crest Factor (5:1) capability makes it ideal for computer loads while eliminating the need to oversize the UPS
- Very wide AC-input voltage capability minimizing the need to switch to batteries which results in increased battery life
- Integrated internal manual maintenance bypass reducing the need for external equipment
- Fully compliant with North American standards for VFI (UL, CUL 1778) operation providing full power protection for demanding critical applications
- Automatic start-up procedure and a user-friendly interface with multi-language capability simplifying UPS operation
- Every GE UPS can be monitored and managed via LAN, serial/modem connection or through the Internet
- UPS management software facilitating operation and maintenance of the UPS
- Three available slots for options such as: SNMP plug-in card, potential-free relay contacts, RPA and RS232/contact interface providing maximum flexibility



# Uninterruptible Power Supplies

## Energy Connections LP11U Series

Single-Phase 5 – 10 kVA

## Section 20

### Technical Specifications-UL approved

Models	LP5-11U	(120)	LP6-11U	(120)	LP8-11U	LP10-11U
Rating (VA/W)	5000 / 4000	5000 / 4000	6000 / 4800	6000 / 4800	8000 / 6400	10,000 / 8000
Backup Time @ 50% / 100% loads	25 / 10 min.	25 / 10 min.	20 / 8 min.	20 / 8 min.	29 / 11 min.	22 / 8 min.
Enclosure (see below)	A	B	A	B	A	A
Net Wgt Incl. Batteries (kg/lbs)	134 / 295	175 / 386	134 / 295	175 / 386	175 / 386	186 / 410
Input Voltage (VAC)						
Nominal (V)	208	120	208	120	208	208
Range @ 100% Load (V)	162-285	81-141	162-285	81-141	162-285	162-285
Range @ 50% Load (V)	146-285	72-141	146-285	72-141	146-285	146-285
Input Power Factor	0.99					
Input Frequency (Hz)	40-70					
Output Voltage (VAC) (sinusoidal)	120+208+220/230/240 User Selectable					
Output Frequency (Hz)	50 / 60					
Output Voltage Regulation	+/-1%					
Output THD at Linear Load	<1%					
Output THD at Non-linear Load	<2%					
Crest Factor Handling Capacity of a Non-linear Load	5:1					
Overload Capability on Inverter	110% 20 min., 130% 3.5 min., 150% 2 min.					
Communications Interface	RS232, Plug and Play, open collector alarm contacts					
Color	Front bezel: Aluminum Grey (RAL9006); Cabinet: Pure White (RAL9010)					
Environment	IP20 (IEC 60529)					
Operating Temperature / Humidity	32° F – 104° F (0° C – 40° C) / 95% Non-condensing					
Audible Noise	40-50 dBA - 3.3 feet (1 meter)					
Safety Classifications & Listings	UL, C-UL: UL1778; CE: EN50091-1-1; EN 60950; IEC 950					
EMI	FCC Part 15 Class A / EN50091-2					
Surge Protection	IEC 1000-4-5 (6kV 1.2/50 µsec – 3kA 8/20 µsec) IEEE 587 B, EN 50091-2					
Standard Connectivity	RS232; programmable alarm contacts; SNMP (optional)					
Warranty	24 months					

Specifications subject to change without notice.

### Dimensions (in/cm)

	Height	Width	Depth
Enclosure A	26.8 (68)	12.3 (31.2)	28.7 (72.9)
Enclosure B	39.2 (99.6)	12.3 (31.2)	28.7 (72.9)

# Uninterruptible Power Supplies

## Energy Connections LP11U Series

Single-Phase 5 – 10 kVA

## Section 20

### LP11U Series - 5kVA to 10kVA Single-Phase UPS

Description	Input Voltage	Output Voltage <sup>1</sup>	Power Output	Standard Battery Run Time (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single-Phase, 5 kVA, 208 or 240 V input, 120/208/240V output, 60 Hz	208/240V	120/208/240	5 kVA/4 KW	10	26.8 x 12.3 x 28.7	295	UPS105LP2230000
Single-Phase, 5 kVA, 120V input, 120/208/240V output, 60 Hz	120V <sup>2</sup>	120/208/240	5 kVA/4 KW	10	39.2 x 12.3 x 28.7	386	UPS105LP1230000
Single-Phase, 6 kVA, 208 or 240 V input, 120/208/240V output, 60 Hz	208/240V	120/208/240	6 kVA/4.8 KW	8	26.8 x 12.3 x 28.7	295	UPS106LP2230000
Single-Phase, 6 kVA, 120V input, 120/208/240V output, 60 Hz	120V <sup>2</sup>	120/208/240	6 kVA/4.8 KW	8	39.2 x 12.3 x 28.7	386	UPS106LP1230000
Single-Phase, 8 kVA, 208 or 240 V input, 120/208/240V output, 60 Hz	208/240V	120/208/240	8 kVA/6.4 KW	12	26.8 x 12.3 x 28.7	386	UPS108LP2230000
Single-Phase, 10 kVA, 208 or 240 V input, 120/208/240V output, 60 Hz	208/240V	120/208/240	10 kVA/ 8KW	8	26.8 x 12.3 x 28.7	410	UPS110LP2230000

<sup>1</sup>Output voltage is 2-wire or 3-wire configuration - 120V (2-wire), 240/120V (center-tapped, 3-wire) or 208V (tapped at 120V, 3-wire).

<sup>2</sup>Includes 120V input auto-transformer enclosure mounted under the standard UPS enclosure, increasing the overall height from 26.8" to 39.2".

### Options and Accessories

Description	Product Number
RPA-Kit for LP11U (required for each UPS in a RPA system) <sup>3</sup>	UPSRPALP11
DC cable, 2.5 mtr + DC connector, required for external batteries	UPS15873

<sup>3</sup>The RPA-kit contains the following items:

- Bus-cable for communication between UPSs (2 meters),
- Bus terminator, RPA plug-in card, Add-on electronic module,
- Thyristor module, Installation guide.

### Connectivity, Software and Monitoring

Description	Product Number
SNMP interface plug-in card	1024747
Relay card	12458
RS485/422 Converter (Not needed if ESI is installed, or if distance less than 15 meters)	11227

### LP11U Series Commissioning and Warranties

Description	Product Number
LP11U Commissioning Service Level 1, 8AM to 5PM Mon/Fri	FSUSLP
LP11U Commissioning Service Level 2, 5PM to 8AM Mon/Fri, any time Saturday	FSUSLPA
LP11U Commissioning Service Level 3, Sunday and Holidays	FSUSLPB
LP11U PM Service. (sold during initial sale) Includes one PM visit at start of coverage (8-5, M-F). Service includes PM for UPS and internal batteries only. Remedial parts/labor and battery replacement not provided.	PMLP <sup>4</sup>
LP11U Extended Warranty Level 1 (sold during initial sale). Includes one PM visit at start of coverage and remedial parts/labor (8-5, M-F). Includes internal batteries only.	WARLPE <sup>4</sup>
LP11U Extended Warranty Level 2. (sold during initial sale). Includes one PM visit at start of coverage and remedial parts/labor (7x24, 12 hr response). Includes internal batteries only.	FSLP <sup>4</sup>

<sup>4</sup>Extended Warranty coverage is limited to two additional years following the standard warranty.

- All equipment installation must be completed prior to commissioning (see Startup Checklist) and must be scheduled two weeks in advance.
- LP11U Series UPS are shipped pre-configured for operation at 208V input and output (except for 120V input versions, which are configured for 120V input and 208V output).
- Re-configuration of the input and output voltages must be performed and verified by someone familiar with electrical circuits and equipment.
- GE strongly suggests that units requiring input/output voltage re-configuration be Commissioned by a GE-authorized Service Technician.

# Uninterruptible Power Supplies Energy Connections LP11U Series

Single-Phase 5 – 10 kVA

## Section 20

### LP11U Series 5 kVA to 10 kVA - External Battery

Description	Dimensions H x W x D (in)	Weight (lbs)	Product Number
External battery cabinet for LP11U, 7AH	31.1 x 12.3 x 23.2	154	12434
External battery cabinet for LP11U, 14AH	31.1 x 12.3 x 23.2	264	12438
External battery cabinet for LP11U, 21AH	31.1 x 12.3 x 23.2	418	UPSLPB21AH
External battery cabinet for LP11U, 28AH	31.1 x 12.3 x 23.2	528	UPSLPB28AH

### LP11U External Battery Packs - Run Time<sup>1</sup>

Product Number	External Battery Configuration	Capacity	5 kVA UPS Rating		6 kVA UPS Rating		8 kVA UPS Rating		10 kVA UPS Rating	
			100% UPS Load	50% UPS Load	100% UPS Load	50% UPS Load	100% UPS Load	50% UPS Load	100% UPS Load	50% UPS Load
None	None	None	10	25	8	20	11	29	8	22
12434	UPS12434	7AH	25	60	21	50	22	50	16	39
12438	UPS12438	14AH	45	90	35	75	33	70	25	57
UPSLPB21AH	12434 + 12438	21AH	60	120	50	100	44	90	34	70
UPSLPB28AH	12438 + 12438	28AH	80	150	65	130	55	110	43	90

<sup>1</sup>Approximate run times, including internal UPS battery

NOTES: All LP11U Battery Cabinets include cable and connector for connection to the LP11U UPS.

The 14AH LP11U Battery Cabinet includes connectors for use in paralleling multiple LP11U Battery Cabinets. The 7AH LP11U Battery Cabinet does not include provisions for paralleling multiple LP11U Battery Cabinets. Only one 7AH LP11U Battery Cabinet can be included in each system.

A maximum of two 14AH LP11U Battery Cabinets may be connected in a system without additional fusing.

Additional cabinets require user supplied 60A fusing.

### LP11U Series PDU For 5-10kVA Single-Phase UPS

#### Basic PDU Frame

P/N	Description (Req'd for all versions)	5kVA	6kVA	8kVA	10kVA
PDU	PDU Frame	x	x	x	x

#### Input Options<sup>2</sup>

P/N	Description (choose 1)	UPS Rating:		5kVA			6kVA			8kVA			10kVA		
		Input V:	120V	208V	240V	120V	208V	240V	120V	208V	240V	120V	208V	240V	
I000	208/240V Input, No Input Cord		x	x		x	x		x	x		x	x		
I001	120V Input, No Input Cord	x			x			x			x				
I002	208/240V Input, 10/3 Input Cord & L6-30P Plug		x	x		x	x		x	x		x	x		
I003	208/240V Input, 8/3 Input Cord & 6-50P Plug		x	x		x	x		x	x		x	x		
I004	120V Input, 8/3 Input Cord & 5-50P Plug	x													

#### Output Options

P/N	Description (choose 3)	UPS Rating:		5kVA			6kVA			8kVA			10kVA		
		Output V:	120V	208V	240V	120V	208V	240V	120V	208V	240V	120V	208V	240V	
0	Blank Cover Plate - Req'd for unused spaces	x	x	x	x	x	x	x	x	x	x	x	x	x	
1	5-20 Duplex, 120V, 20A (L-N-G)	x	x	x	x	x	x	x	x	x	x	x	x	x	
2	L5-15R, 120V, 15A (L-N-G)	x	x	x	x	x	x	x	x	x	x	x	x	x	
3	L5-20R, 120V, 20A (L-N-G)	x	x	x	x	x	x	x	x	x	x	x	x	x	
4	L5-30R, 120V, 30A (L-N-G)	x	x	x	x	x	x	x	x	x	x	x	x	x	
5	L6-15R, 208/240V, 15A (L1-L2-G)		x	x		x	x		x	x		x	x		
6	L6-20R, 208/240V, 20A (L1-L2-G)		x	x		x	x		x	x		x	x		
8	L6-30R, 208/240V, 30A (L1-L2-G)		x	x		x	x		x	x		x	x		
A	5-50R, 120V, 50A (L-N-G)	x			x				x		x				
B	L14-20R, 208/240V, 20A (L1-N-L2-G)		x	x		x	x		x	x		x	x		
C	L14-30R, 208/240V, 30A (L1-N-L2-G)		x	x		x	x		x	x		x	x		

#### Installation Options

P/N	Description (choose 1)
I	Factory Installed
R	Field installed <sup>2</sup>

#### Example Product Number

PDU Frame	Input Option	Output Option 1	Output Option 2	Output Option 3	Inst. Option
PDU	1003	5	2	A	I

<sup>1</sup>Input cords, if included, are eight feet long.

<sup>2</sup>Field installation cost is not included in the PDU price. Field installation must be performed by someone knowledgeable in UPS systems and electrical wiring.

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

## Section 20

The Energy Connections LP33 Series II UPS is a robust, high performance UPS system that provides power protection for a wide range of mission critical applications. LP33 Series unit operates in double conversion mode with true continuous on-line VFI (voltage and frequency independent) operation.

To achieve redundancy or to increase power capacity, GE's unique Redundant Parallel Architecture (RPA) technology enables the LP33 to parallel up to four units. RPA allows customers the flexibility to expand power by paralleling units, or the system's reliability can be increased by adding redundant units to create a totally redundant system, eliminating single point of failure.

When sourcing a UPS from GE, you also get access to valuable services, such as solution design, integration within networking environments, customization, 24x7 preventive and corrective services, and training.



### Features and Benefits

- High Input Power Factor (>0.98) and low input THD distortion (<8%) prevents disturbances to other electrical equipment, thus eliminating the need for costly filters or oversized feeders
- Output Power Factor at 0.90, matching the need of most critical load requirements
- Transformerless design for compact footprint, 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 for oversizing the UPS
- Intelligent Energy Management in RPA Configuration and ECO-mode for single module configuration provides automatic energy savings
- Superior Battery Management (SBM) enhances battery lifetime resulting in reduced cost of operation
- Integrated internal maintenance bypass reducing the need for external (larger footprint) equipment
- Fully compliant with standards (cUL: UL1778; IEC 62040, ISO 9001)
- Internal batteries are standard and matching external battery cabinets are available for extended runtime requirements
- Remote monitoring and management available with connections via LAN, modem, SNMP, RS232, Modbus RTU, programmable alarm contacts, and TCP/IP
- Transformerless design ensures smaller footprint and less weight than transformer technology UPS modules
- Overload capability @ 125% load on inverter = 10mins. and 150%= 1min.
- Overload capability @ 200% load on bypass = 2mins.



# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### Technical Specifications - UL approved, 15-60kVA

Topology	VFI, double conversion						
Nominal output apparent power	kVA	-	15 kVA	20 kVA	30 kVA	50 kVA	60 kVA
Power factor (output)	PF	0.90					
Nominal output active power	kW	-	13.5	18	27	45	54
Overall efficiency at 100% load in VFI mode	%	-	Up to 90%	Up to 91%	Up to 91%	Up to 91%	Up to 90%
Overall efficiency at 100% load in ECO mode	%	-	Up to 98%	Up to 99%	Up to 99%	Up to 98%	Up to 98%
Heat dissipation at 100% load in VFI mode, nominal PF and charged battery	kW	-	1.50	1.87	2.83	4.89	6.00
Cooling air (77°F...86°F / 25°C...30°C)	CFM	-	260	324	490	847	1040
Audible noise level	dB(A)	-	55	61	62	65	65
Battery type	Valve regulated lead-acid (VRLA)						
Operating temperature range	UPS: 32°F to 104°F (0°C to 40°C) Battery: 68°F to 77°F (20°C to 25°C) recommended						
Storage temperature range	-13°F to 131°F (-25°C to +55°C)						
Storage time of the battery without recharge at 68°F (20°C)	Max. 6 months						
Relative humidity	Max. 95% (non-condensing)						
Max. altitude without power derating	3300 ft						
Power derating (according to IEC 62040-3)	5000 ft: 95% / 6500 ft: 91% / 8200 ft: 86% / 9800 ft: 82%						
Protection degree	IP 20 (IEC 60529) and NEMA-PE-1						
Safety Standards	UL 1778, IEC 62040, ISO 9001						
EMC	FCC Class A, IEC 62040-2 Class A						
Electrostatic discharge immunity	4kV contact / 8kV air discharge						
Internal protection	All live parts shrouded						
Enclosure	Metal sheet and castors						
Transport	15 kVA: Packaging suitable for handling by forklift 20 to 60 kVA: Cabinet and packaging suitable for handling by forklift						
Color	Black, RAL 9005PER						
Installation	15 kVA: Minimum distance from the wall 2 inches (5 cm) 20 to 60 kVA: Can be positioned against a wall and floor						
Service access	Front and top						
External cable connections	Front Bottom conduit access (Top Access via optional sidecar)						
Cooling	Forced to top by internal blower						
Paralleling (RPA version)	Up to 4 units in parallel for redundancy or capacity in RPA configuration (optional)						

### Technical Specifications - UL approved, 80-100kVA

Topology	VFI, double conversion		
Nominal output apparent power	kVA	80 kVA	100 kVA
Power factor (output)	PF	0.9 log	
Nominal output active power	kW	72	90
Efficiency at 100% load in Double Conversion mode	%	Up to 90%	Up to 90%
Efficiency at 100% load in ECO mode	%	Up to 98%	Up to 98%
Heat dissipation at 100% load in Double Conversion mode, nominal PF and charged battery	kW	8.4	10.8
Heat dissipation at 100% load in ECO mode, nominal PF and charged battery	kW	1.47	1.63
Cooling air (77°F...86°F / 25°...30°C)	CFM	1400	1800
Audible noise level in Double Conversion mode (1m/3.3ft)	dB(A)	<68	<68
Audible noise level in ECO mode (1m/3.3ft)	dB(A)	<68	<68
Battery type	Valve regulated lead-acid (VRLA)		
Operating temperature range	UPS: 32°F - 104°F (0°C - 40°C) Battery: 68°F - 77°F (20°C - 25°C) recommended		
Storage temperature range	-13°F - 131°F (-25°C - +55°C)		
Storage time of the battery without recharge at 68°F (20°C)	Max. 6 months		
Relative humidity	Max. 95% (non-condensing)		
Max. Altitude without power derating	1006m (3300 ft)		
Power derating (as per IEC 62040-3)	524 m (5000 ft) : 95% / 1981 m (6500 ft) : 91% / 2499 m (8200 ft) : 86% / 2987 m (9800 ft) : 82%		
Protection degree	IP 20 (IEC 60529) and NEMA-PE-1		
Safety Standards	UL 1778, IEC 62040, ISO-9001		
EMC	FCC Class A, IEC 62040-2 Class A		
Electrostatic discharge immunity	4kV contact / 8kV air discharge		
Internal protection	All live parts shrouded		
Enclosure	Metal sheet ( as per IP 20 / NEMA PE-1 )		
Transport	Cabinet and packaging suitable for handling by forklift		
Color	RAL 9003 (white)		
Installation	Can be positioned against a wall and floor		
Service access	Front and top		
External cable connections	Front Bottom conduit access / Optional Top cable access sidecar		
Cooling	Forced to top by internal blower		
Paralleling (RPA version)	Up to 4 units in parallel for redundancy or capacity in RPA configuration (optional)		

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### LP33 Series II UPS Module, 15kVA/13.5kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	15kVA / 13.5KW	0	52 x 22 x 31	430	UBS315LP2242100
Single Input, Internal 11min Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	15kVA / 13.5KW	11	52 x 22 x 31	905	UBS315LP2242101
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	15kVA / 13.5KW	0	52 x 22 x 31	430	UBS315LP2242200
Dual Input, Internal 11min Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	15kVA / 13.5KW	11	52 x 22 x 31	905	UBS315LP2242201
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					52 x 4 x 31	43	UBSLP33-SIDECAR15

### LP33 Series II UPS Module, 20kVA/18kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	20kVA / 18KW	0	75 x 24 x 30	594	UBS302LP2242100
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	20kVA / 18KW	0	75 x 24 x 30	594	UBS302LP2242200
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					75 x 6 x 30	66	LP33-SIDECAR20-60

### LP33 Series II UPS Module, 30kVA/27kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	30kVA / 27KW	0	75 x 24 x 30	594	UBS303LP2242100
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	30kVA / 27KW	0	75 x 24 x 30	594	UBS303LP2242200
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					75 x 6 x 30	66	LP33-SIDECAR20-60

### LP33 Series II UPS Module, 50kVA/45kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	50kVA / 45KW	0	75 x 29 x 30	905	UBS305LP2242100
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	50kVA / 45KW	0	75 x 29 x 30	905	UBS305LP2242200
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					75 x 6 x 30	70	LP33-SIDECAR20-60

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### LP33 Series II UPS Module, 60kVA/54kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	60kVA / 54KW	0	75 x 29 x 30	905	UBS306LP2242100
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	60kVA / 54KW	0	75 x 29 x 30	905	UBS306LP2242200
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					75 x 6 x 30	70	LP33-SIDECAR20-60

### LP33 Series II UPS Module, 80kVA/72kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	80kVA / 72KW	0	75 x 40 x 36	1323	UBS308LP2242100
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	80kVA / 72KW	0	75 x 40 x 36	1323	UBS308LP2242200
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					75 x 6 x 36	77	LP33-SIDECAR80-100

### LP33 Series II UPS Module, 100kVA/90kW, 208/120V, 60Hz - 0.90 Output Power Factor

Description	Input Voltage	Output Voltage	Power Output	Standard Battery Runtime (mins)	Dimensions H x W x D (in)	Weight (lbs)	Product Number
Single Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	100kVA / 90KW	0	75 x 40 x 36	1323	UBS310LP2242100
Dual Input, No Internal Batteries, IGBT Rectifier/Inverter, Ecomode, Bottom Cable Entry	208V	208/120V	100kVA / 90KW	0	75 x 40 x 36	1323	UBS310LP2242200
Top Cable Entry/Exit Sidecar, installed on UPS before shipment. Cabling enters lower side of UPS module.					75 x 6 x 36	77	LP33-SIDECAR80-100

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

## Section 20

### LP33 Series II UPS Module - 15kVA / 13.5kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
11 min	1	-	-	-	-	(Use GE Internal Batteries)
12 min	1	24 / HR1290WFR	70A	20 x 29 x 55	696	BC16-15-1BR-80-CX
13 min	1	24 / NPX-100RFR	70A	30 x 29 x 52	995	BC23-15-1BR-62-CX
25 min	1	24 / NPX-150RFR	70A	30 x 29 x 52	1079	BC23-15-1BR-63-CX
36 min	1 (2)	48 / HR1290WFR	70A	20 x 29 x 55	1032	BC16-15-1BR-80-CX2
36 min	1	24 / 12HX205	70A	30 x 29 x 52	1487	BC23-15-1BR-51-CX
59 min	1	24 / 12HX300	70A	30 x 29 x 52	1895	BC23-15-1BR-52-CX
74 min	1	24 / 12HX330	70A	30 x 29 x 52	2159	BC23-15-1BR-53-CXR
85 min	1	24 / 12HX400	70A	30 x 29 x 52	2375	BC23-15-1BR-54-CXR
142 min	2	48 / 12HX300	40A	60 x 29 x 52	3790	BC23-15-2BR-52-CXR
168 min	2	48 / 12HX330	40A	60 x 29 x 52	4318	BC23-15-2BR-53-CXR
199 min	2	48 / 12HX400	40A	60 x 29 x 52	4750	BC23-15-2BR-54-CXR

### LP33 Series II UPS Module - 20kVA / 18kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions H x W x D (in)	Weight (lbs)	Product Number
8 min	1	24 / HR1290WFR	80A	55 x 20 x 29	696	BC16-20-1BR-80-CX
5 min	1	24 / NPX80FR	80A	75 x 30 x 30	903	BC41-20-1BR-61-NX
8 min	1	24 / NPX-100RFR	80A	75 x 30 x 30	1083	BC41-20-1BR-62-NX
16 min	1	24 / NPX-150RFR	80A	75 x 30 x 30	1167	BC41-20-1BR-63-NX
23 min	1 (2)	48 / HR1290WFR	80A	55 x 20 x 29	1032	BC16-20-1BR-80-CX2
25 min	1	24 / 12HX205	80A	75 x 30 x 30	1575	BC41-20-1BR-51-NX
41 min	1	24 / 12HX300	80A	75 x 30 x 30	1983	BC41-20-1BR-52-NX
49 min	1	24 / 12HX330	80A	75 x 30 x 30	2247	BC41-20-1BR-53-NX
59 min	1	24 / 12HX400	80A	75 x 30 x 30	2463	BC41-20-1BR-54-NX
98 min	2	48 / 12HX300	40A	75 x 60 x 30	3966	BC41-20-2BR-52-NXR
118 min	2	48 / 12HX330	40A	75 x 60 x 30	4494	BC41-20-2BR-53-NXR
142 min	2	48 / 12HX400	30A	75 x 60 x 30	4926	BC41-20-2BR-54-NXR

### LP33 Series II UPS Module - 30kVA / 27kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions H x W x D (in)	Weight (lbs)	Product Number
12 min	1 (2)	48 / HR1290WFR	125A	55 x 20 x 29	1032	BC16-30-1BR-80-CX2
9 min	1	24 / NPX-150RFR	125A	75 x 30 x 30	1167	BC41-30-1BR-63-NX
14 min	1	24 / 12HX205	125A	75 x 30 x 30	1575	BC41-30-1BR-51-NX
24 min	1	24 / 12HX300	125A	75 x 30 x 30	1983	BC41-30-1BR-52-NX
29 min	1	24 / 12HX330	125A	75 x 30 x 30	2247	BC41-30-1BR-53-NX
36 min	1	24 / 12HX400	125A	75 x 30 x 30	2463	BC41-30-1BR-54-NX
48 min	1	24 / 12HX505	125A	75 x 30 x 30	3183	BC41-30-1BR-55-NX
53 min	1	24 / 12HX540	125A	75 x 30 x 30	3183	BC41-30-1BR-56-NX
75 min	2	48 / 12HX300	70A	75 x 60 x 30	4494	BC41-30-2BR-53-NX
86 min	2	48 / 12HX400	70A	75 x 60 x 30	4926	BC41-30-2BR-54-NX
112 min	2	48 / 12HX505	70A	75 x 60 x 30	6366	BC41-30-2BR-55-NX
120 min	2	48 / 12HX540	70A	75 x 60 x 30	6366	BC41-30-2BR-56-NX

### LP33 Series II UPS Module - 50kVA / 45kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions H x W x D (in)	Weight (lbs)	Product Number
5 min	1 (2)	48 / HR1290WFR	200A	55 x 20 x 29	1032	BC16-50-1BR-80-CX2
7 min	1	24 / 12HX205	200A	75 x 30 x 30	1575	BC41-50-1BR-51-NX
11 min	1	24 / 12HX300	200A	75 x 30 x 30	1983	BC41-50-1BR-52-NX
14 min	1	24 / 12HX330	200A	75 x 30 x 30	2247	BC41-50-1BR-53-NX
18 min	1	24 / 12HX400	200A	75 x 30 x 30	2463	BC41-50-1BR-54-NX
26 min	1	24 / 12HX505	200A	75 x 30 x 30	3183	BC41-50-1BR-55-NX
28 min	1	24 / 12HX540	200A	75 x 30 x 30	3183	BC41-50-1BR-56-NX
38 min	2	48 / 12HX330	100A	75 x 60 x 30	4494	BC41-50-2BR-53-NX
45 min	2	48 / 12HX400	100A	75 x 60 x 30	4926	BC41-50-2BR-54-NX
60 min	2	48 / 12HX505	100A	75 x 60 x 30	6366	BC41-50-2BR-55-NX

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### LP33 Series II UPS Module - 60kVA / 54kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions H x W x D (in)	Weight (lbs)	Product Number
8 min	1	24 / 12HX300	250A	75 x 30 x 30	1983	BC41-60-1BR-52-NX
11 min	1	24 / 12HX330	250A	75 x 30 x 30	2247	BC41-60-1BR-53-NX
13 min	1	24 / 12HX400	250A	75 x 30 x 30	2463	BC41-60-1BR-54-NX
20 min	1	24 / 12HX505	250A	75 x 30 x 30	3183	BC41-60-1BR-55-NX
22 min	1	24 / 12HX540	250A	75 x 30 x 30	3183	BC41-60-1BR-56-NX
30 min	2	48 / 12HX330	125A	75 x 60 x 30	4294	BC41-60-2BR-53-NX
36 min	2	48 / 12HX400	125A	75 x 60 x 30	4926	BC41-60-2BR-54-NX
48 min	2	48 / 12HX505	125A	75 x 60 x 30	6366	BC41-60-2BR-55-NX
53 min	2	48 / 12HX540	125A	75 x 60 x 30	6366	BC41-60-2BR-56-NX
60 min	3	72 / 12HX400	90A	75 x 90 x 30	7389	BC41-60-3BR-54-NX

### LP33 Series II UPS Module - 80kVA / 72kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions H x W x D (in)	Weight (lbs)	Product Number
6 min	1	24 / 12HX330	350A	75 x 30 x 30	2247	BC41-80-1BR-53-NX
8 min	1	24 / 12HX400	350A	75 x 30 x 30	2463	BC41-80-1BR-54-NX
13 min	1	24 / 12HX505	350A	75 x 30 x 30	3183	BC41-80-1BR-55-NX
14 min	1	24 / 12HX540	350A	75 x 30 x 30	3183	BC41-80-1BR-56-NX
20 min	2	48 / 12HX330	175A	75 x 60 x 30	4494	BC41-80-2BR-53-NX
24 min	2	48 / 12HX400	175A	75 x 30 x 30	4926	BC41-80-2BR-54-NX
33 min	2	48 / 12HX505	175A	75 x 60 x 30	6366	BC41-80-2BR-55-NX
37 min	2	48 / 12HX540	175A	75 x 60 x 30	6366	BC41-80-2BR-56-NX
41 min	3	72 / 12HX400	125A	75 x 90 x 30	7389	BC41-80-3BR-54-NX
55 min	3	72 / 12HX505	125A	75 x 90 x 30	9549	BC41-80-3BR-55-NX
60 min	3	72 / 12HX540	125A	75 x 90 x 30	9549	BC41-80-3BR-56-NX

### LP33 Series II UPS Module - 100kVA / 90kW (0.9 OPF) Battery Cabinets

Backup Time @ 0.9 OPF	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 288VDC Bus)	DC CB Size	Dimensions H x W x D (in)	Weight (lbs)	Product Number
5 min	1	24 / 12HX400	400A	75 x 30 x 30	2463	BC41-100-1BR-54-NX
8 min	1	24 / 12HX505	400A	75 x 30 x 30	3183	BC41-100-1BR-55-NX
9 min	1	24 / 12HX540	400A	75 x 30 x 30	3183	BC41-100-1BR-56-NX
14 min	2	48 / 12HX330	200A	75 x 30 x 30	4494	BC41-100-2BR-53-NX
17 min	2	48 / 12HX400	200A	75 x 30 x 30	4926	BC41-100-2BR-54-NX
26 min	2	48 / 12HX505	200A	75 x 30 x 30	6366	BC41-100-2BR-55-NX
28 min	2	48 / 12HX540	200A	75 x 30 x 30	6366	BC41-100-2BR-56-NX
30 min	3	72 / 12HX400	150A	75 x 90 x 30	7389	BC41-100-3BR-54-NX
41 min	3	72 / 12HX505	150A	75 x 90 x 30	9549	BC41-100-3BR-55-NX
46 min	3	72 / 12HX540	150A	75 x 90 x 30	9459	BC41-100-3BR-56-NX
59 min	4	98 / 12HX505	100A	75 x 120 x 30	12732	BC41-100-4BR-55-NX

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### LP33 Series II UPS - 3 Breaker Matching, Free Standing Maintenance Bypass Cabinet (MBC)

LP33 UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 208VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
15	60A	60A	18	18	33	52	275	MBC0122060600-L100
20	80A	70A	18	12	33	75	350	MBC0222070800-L100
30	125A	125A	22	12	33	75	350	MBC0322121200-L200
50	200A	175A	65	12	33	75	350	MBC0522172000-L600
60	250A	225A	65	12	33	75	350	MBC0622222500-L600
80	350A	300A	65	12	33	75	350	MBC0822303500-L600
100	400A	350A	65	12	33	75	350	MBC1022354000-L600

#### Notes on LP33 Matching MBC:

- Cabinets are matching height, depth, and black in color same as UPS Module
- Baseline configuration is 3-Breaker Type, 208/120V 3ph 4w + gnd. Breakers are 80% Rated unless noted otherwise.
- Base MBC includes 3-breaker with mechanical Kirk Key configuration.  
For 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC224-35400T-K600  
For 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC224-35000T-L600  
For 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-35000T-K600
- Cabinet conduit access via top, bottom, and sides. Cables included for adjacent installation to UPS Module.
- Warranty is 1 year. Estimate leadtime is 2-3 weeks via sourced supplier.
- Consult factory for Seismic Bracing adder price.
- Consult factory for 208V Panel or 208V Subfeed CBs on output on Maint Bypass CBs, all in same cabinetry.
- Other higher/lower KAIC Ratings available. Consult factory.

### LP33 Series II UPS - 3 Breaker Non-Matching, Wall Mount Maintenance Bypass Panel (MBP)

LP33 UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 208VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
15	60A	60A	18	30	10	36	110	MBP0122060600-L100
20	80A	70A	18	30	10	36	110	MBP0222070800-L100
30	125A	125A	22	30	10	36	110	MBP0322121200-L200
50	200A	175A	65	30	10	36	110	MBP0522172000-L600
60	250A	225A	65	30	10	36	110	MBP0622222500-L600
80	350A	300A	65	30	11	42	125	MBP0822303500-L600
100	400A	350A	65	30	11	42	125	MBP1022354000-L600

#### Notes on LP33 Wallmount MBP:

- Cabinets are black in color.
- Baseline configuration is 3-Breaker Type, 208/120V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Base MBP includes 3-breaker with mechanical Kirk Key configuration. Breakers are 80% Rated unless noted otherwise.  
For 3-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #15 to "K", example: MBP224-354000-K600  
For 2-breaker MBP with mechanical Kirk Key change, the Base MBP, digit #10 & #11 to "00", example: MBP224-350000-L600  
For 2-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #10 & #11 to "00" and digit # 15 to "K", example: MBP224-350000-K600
- Cabinet conduit access via top and bottom via knockouts.
- Warranty is 1 year. Estimate leadtime is 2-3 weeks via sourced supplier.
- Consult factory for integral 30ckt Panelboard within Wallmount MBP. Available for 15-50kva UPS only.

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### LP33 Series II UPS - 3 Breaker Maintenance Bypass Cabinet (MBC) w/Input Isolation Transformer (4x2 or 6x2)

LP33 UPS kVA	Input XFMR	UIB / MIB-MBB 208V CBs (Trip Ratings)	CB kAIC Rating @ 208VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
15	480/208V, 33kVA	60A/60A	18	30	33	52	830	MBC0122060600L1IT
20	480/208V, 33kVA	80A/70A	18	30	33	75	830	MBC0222070800-L1IT
30	480/208V, 56kVA	125A/125A	22	30	33	75	830	MBC0322121200-L2IT
50	480/208V, 80kVA	200A/175A	22	30	33	75	830	MBC0522172000-L2IT
60	480/208V, 80kVA	250A/225A	22	30	33	75	1250	MBC062222500-L2IT
80	480/208V, 100kVA	350A/300A	65	30	33	75	1250	MBC0822303500-L6IT
100	480/208V, 120kVA	400A/350A	65	30	33	75	1405	MBC1022354000-L6IT
15	600/208V, 33kVA	60A/60A	18	30	33	52	830	MBC0122060600L1IT
20	600/208V, 33kVA	70A/70A	18	30	33	75	830	MBC0222070800L1IT
30	600/208V, 56kVA	125A/125A	22	30	33	75	830	MBC0322121200L2IT
50	600/208V, 80kVA	200A/175A	22	30	33	75	830	MBC0522172000L2IT
60	600/208V, 80kVA	250A/225A	22	30	33	75	1250	MBC062222500L2IT
80	600/208V, 100kVA	350A/300A	65	30	33	75	1250	MBC0822303500L6IT
100	600/208V, 120kVA	400A/350A	65	30	33	75	1405	MBC1022354000L6IT

#### Notes on LP33 4x2 and 6x2 Combo MBC:

- Cabinets are matching depth, height, and black color same as UPS Module
- Input Isolation Transformer is K-13, DOE 2016 Compliant.
- Baseline configuration is 3-Breaker Type, 208/120V 3ph 4w + gnd.
- Base 4x2 or 6x2 Combo MBC includes 3-breaker with mechanical Kirk Key configuration. Example Part Number changes:  
 For 4x2 Combo 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC-4X2-224-35400T-K622  
 For 4x2 Combo 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC-4X2-224-35000T-L622  
 For 4x2 Combo 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC-4X2-224-35000T-K622
- Cabinet conduit access top, bottom or sides. Cables included for adjacent installation to UPS Module.
- Warranty is 1 year. Estimated leadtime is 8-10 weeks via sourced supplier.
- Consult factory for Seismic Bracing adder price.
- Consult factory for 208V Panel or 208V Subfeed CBs on output on Maint Bypass CBs, all in same cabinetry.

### LP33 Series II UPS - Input Transformers in Matching Cabinetry

UPS kVA Rating, Xfmr Voltages	Weight (lbs)	Dimensions W x D x H (in)	Xfmr kVA	Product Number
For 15kVA UPS, 480V in, 208/120V out	830	30 x 33 x 52	33	ITC03342IA1315L201
For 20kVA UPS, 480V in, 208/120V out	830	30 x 33 x 75	33	ITC03342IA1315L202
For 30kVA UPS, 480V in, 208/120V out	830	30 x 33 x 75	56	ITC05642IA1315L203
For 50kVA UPS, 480V in, 208/120V out	995	30 x 33 x 75	80	ITC08042IA1315L205
For 60kVA UPS, 480V in, 208/120V out	1250	30 x 33 x 75	80	ITC08042IA1315L206
For 80kVA UPS, 480V in, 208/120V out	1250	30 x 33 x 75	100	ITC10042IC1315L208
For 100kVA UPS, 480V in, 208/120V out	1405	30 x 33 x 75	120	ITC12042IC1315L2A0
For 15kVA UPS, 600V in, 208/120V out	830	30 x 33 x 52	33	ITC03362IA1315L201
For 20kVA UPS, 600V in, 208/120V out	830	30 x 33 x 75	33	ITC03362IA1315L202
For 30kVA UPS, 600V in, 208/120V out	830	30 x 33 x 75	56	ITC05662IA1315L203
For 50kVA UPS, 600V in, 208/120V out	995	30 x 33 x 75	80	ITC08062IA1315L205
For 60kVA UPS, 600V in, 208/120V out	1250	30 x 33 x 75	80	ITC08062IA1315L206
For 80kVA UPS, 600V in, 208/120V out	1250	30 x 33 x 75	100	ITC10062IC1315L208
For 100kVA UPS, 600V in, 208/120V out	1405	30 x 33 x 75	120	ITC12062IC1315L2A0

Transformers are DOE 2016 compliant, K13, Aluminum (except 100kVA & 120kVA are Copper).

### Connectivity, Software and Monitoring

Description	Product Number
Advanced SNMP/Web interface card, UTP/BNC	1024921
ModBus TCP License works with 1024921 as TCP Interface	24864
Customer Interface Card (CIC) – 6 programmable relay contacts	15822
Remote Status Alarm Panel (includes APS)	LP-RSAP-CIC
Includes power supply, CIC Card and RSAP	

### Remote Monitoring & Diagnostic System<sup>1</sup>

Description	Product Number
iUPSGuard Annual License; 12 months from startup Single UPS	26104
iUPSGuard Annual License; 12 months from startup Single UPS with One Year Service Contract (PMLP33XX)	26108
iUPSGuard Annual Renewal License; 12 months from renewal date Single UPS; must be sold before existing license expiration	26104-R

<sup>1</sup>Customer must also purchase the 1024921 for use with this license

# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

## Section 20

Three-Phase 15 - 100 kVA, UL Version 208/120VAC

### UPS Spare Part Kits

UPS Module	Description	Product Number
LP33 15kVA	Level A - Spare Parts Kit - Fuses only	SK15LP33A
	Level B - Spare Parts Kit - Basic parts	SK15LP33B
	Level C - Spare Parts Kit - Comprehensive	SK15LP33C
LP33 20kVA	Level A - Spare Parts Kit - Fuses only	SK20LP33A
	Level B - Spare Parts Kit - Basic parts	SK20LP33B
	Level C - Spare Parts Kit - Comprehensive	SK20LP33C
LP33 30kVA	Level A - Spare Parts Kit - Fuses only	SK30LP33A
	Level B - Spare Parts Kit - Basic parts	SK30LP33B
	Level C - Spare Parts Kit - Comprehensive	SK30LP33C
LP33 50kVA	Level A - Spare Parts Kit - Fuses only	SK50LP33A
	Level B - Spare Parts Kit - Basic parts	SK50LP33B
	Level C - Spare Parts Kit - Comprehensive	SK50LP33C
LP33 60kVA	Level A - Spare Parts Kit - Fuses only	SK60LP33A
	Level B - Spare Parts Kit - Basic parts	SK60LP33B
	Level C - Spare Parts Kit - Comprehensive	SK60LP33C
LP33 80kVA	Level A - Spare Parts Kit - Fuses only	SK80LP33A
	Level B - Spare Parts Kit - Basic parts	SK80LP33B
	Level C - Spare Parts Kit - Comprehensive	SK80LP33C
LP33 100kVA	Level A - Spare Parts Kit - Fuses only	SK100LP33A
	Level B - Spare Parts Kit - Basic parts	SK100LP33B
	Level C - Spare Parts Kit - Comprehensive	SK100LP33C

### LP33 Series Commissioning and Warranties

Description	Product Number
LP33U Commissioning Service Level 1, 8AM to 5PM Mon/Fri	FSUSLP33xxxN
LP33U Commissioning Service Level 2, Mon/Sat, Anytime	FSUSLP33xxxP1
LP33U Commissioning Service Level 3, Sunday and Holidays, Anytime	FSUSLP33xxxP2
LP33U PM Service. (sold during initial sale) Includes one PM visit at start of coverage (8-5, M-F). PM covers UPS and internal batteries only. Remedial parts/labor and battery replacement not provided.	PMLP33xxx
LP33U Extended Warranty Level 1 (sold during initial sale). Includes one PM visit at start of coverage and remedial parts/labor (8-5, M-F). Coverage includes internal batteries only. Maximum 5 years.	WARLP33xxxE
LP33U Extended Warranty Level 2 (sold during initial sale). Includes one PM visit at start of coverage and remedial parts/labor (7x24, 12-hour response). Coverage includes internal batteries only.	FSLP33xxx
LP33U 4-hour Operator Training on site, Mon/Fri, 8AM to 5PM	TRNS100N
LP33U Battery Preventative Maintenance. Additional VRLA battery strings for PM's. 8AM-5PM, Mon/Fri.	BATSG



# Uninterruptible Power Supplies Energy Connections LP33 Series II UPS

10-150 kVA Three-Phase  
225-300 kVA Three-Phase

The Energy Connections 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. Every SG Series system operates in a double conversion mode with true continuous on-line VFI (voltage and frequency independent) operation yielding the maximum levels of power reliability for all mission-critical processes. The Energy Connections SG Series was developed using GE's Design for Six Sigma methodology to ensure that the product fully meets customer requirements and expectations.

To achieve redundancy or to increase power capacity, the Energy Connections SG Series can parallel up to eight units using GE's unique Redundant Parallel Architecture (RPA) technology 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 output phase and automatically shares the load supported by each UPS.

The GE UPS systems are designed with serviceability in mind. Any factory trained service provider can utilize GE's open architecture to perform diagnostics and maintenance without requiring any proprietary software or special interface equipment. The systems are fully supported by GE's Global Services team, which is renowned for its world-class, 24 x 7 preventive and corrective services, training, and application expertise.



10-150 kVA Three-Phase



225-300 kVA Three-Phase

# Uninterruptible Power Supplies Energy Connections SG Series

10-150 kVA Three-Phase  
225-300 kVA Three-Phase

## Section 20

### Available Options

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- Additional battery systems for extended back up times
- Input 5th harmonic filter reduces the input distortion (input THD) to less than 7%; this option is integral to the UPS, no additional cabinet required
- 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 an UPS panel incorporating indicator lights and alarms
- RPA kit: Any single UPS can be easily field-configured for Redundant Parallel Architecture
- SNMP card: This optional plug-in card allows the UPS to be managed using an existing network management system or with GE's exclusive UPS management software
- UPS monitoring and management software (10-750 kVA models)
- FCC filter for applications where FCC Class A, Part 15 compliance is required
- Three-wire input conversion kit

### Features and Benefits

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- Extremely low output voltage distortion for even non-linear and 100% step loads reducing the need for over sizing the UPS
- Redundant Parallel Architecture (RPA) increases system reliability by eliminating single points of failure without increasing overall system complexity
- Utilizes 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
- Fully compliant with international standards on Voltage Frequency Independent (IEC 62040-3) operation providing full power protection for demanding critical applications
- Standard inverter output isolation transformer that isolates utility power from the load, thus providing additional critical power protection
- Superior Battery Management (SBM) enhances battery lifetime resulting in reduced cost of operation
- Intelligent Energy Management (IEM) automatically determines the most efficient mode of operation for the RPA system thus reducing overall operating costs
- Designed for serviceability with front service access reducing maintenance and repair costs
- Integrated internal manual maintenance bypass reducing the need for external equipment
- Automatic start-up procedure and a user-friendly interface simplifying UPS operation
- Designed with GE's Six Sigma methodology ensuring high product quality
- Casters and leveling feet easing installation procedure (10-150 kVA only)
- Every GE UPS can be monitored and managed via LAN, serial/modem connection or through the Internet

# Uninterruptible Power Supplies Energy Connections SG Series

10-150 kVA Three-Phase

## Section 20

### Technical Specifications-UL approved

<b>Topology</b>	True on-line, double conversion (VFI) with integral static switch and internal maintenance bypass
<b>Technology</b>	Advanced IGBT with SVM strategy, microprocessor controlled at optimal switching frequency
<b>Operating Modes</b>	True on-line double conversion, automatic bypass, frequency converter, RPA up to eight units

#### Output Power Rating kVA

(at PF = 0.6 – 0.8 lag)	10 <sup>1</sup>	20 <sup>1</sup>	30	40	50	80	100	120	150
Output Power Rating (kW)	8	16	24	32	40	64	80	96	120
Dimensions WxDxH (inches)	27x32x71	27x32x71	27x32x71	27x32x71	32x32x71	32x32x71	47x32x71	47x32x71	47x32x71
Weight w/o Batteries (lbs)	735	763	970	1147	1257	1489	1929	2006	2160
Noise Level dB(A)	60	60	60	60	60	63	65	65	65
Overall Efficiency at 100% Load (Double Conversion Mode)	≤91%	≤91%	≤91%	≤91%	≤92.5%	≤92.5%	≤93.3%	≤93.3%	≤93.3%
Input Voltage (VAC)	3x480/277 + Neutral (-20% to +15% without battery discharge)								
Input Frequency	60/50 Hz +/-10%								
Output Voltage (sinusoidal) (VAC)	3x480/277 + Neutral								
Output Frequency	60/50 Hz +/-0.01%								
Output THD at Linear Load	<2%								
Output THD at Non-linear Load	<3%								
Overload Capability on Inverter	125% 10 min., 150% 1 min.								
Overload Capability on Automatic Bypass	200% 5 min., 110% continuously								
Output Voltage Regulation									
Static	+/- 1%								
0-100% Step Load	+/- 3% recovering to +/-1% in one cycle								
Ambient Operating Temp.	32°-104°F (0°-40°C)								
Color	Black								
Classifications and Listing	UL1778/IP20/NEMA-PE-1/ISO9001								
RFI and Surge Protection	EN 50091-2 / IEC 62040-2 / IEEE 587 B / FCC Class A compliance <sup>2</sup>								
Standard Connectivity	RS232; alarm contacts; programmable relays, SNMP (optional)								
Warranty	12 months								

<sup>1</sup>Units available with internal batteries.

<sup>2</sup>FCC Feature available as option.

Specifications subject to change without notice.

# Uninterruptible Power Supplies

## Energy Connections SG Series

10-150 kVA Three-Phase

## Section 20

### SG Series 10-150 kVA UPS (Three Phase)

Description	Rating (0.8pf)	Input Voltage	Output Voltage	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	10 kVA/8kW	480/277V	480/277V	27 x 32 x 71	735	UBS001SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	10 kVA/8kW	480/277V	480/277V	27 x 32 x 71	735	UBS001SG443AN50
Single/Dual Input, 14min Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	10 kVA/8kW	480/277V	480/277V	27 x 32 x 71	1121	UBS801SG444AN50
Single/Dual Input, 14min Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	10 kVA/8kW	480/277V	480/277V	27 x 32 x 71	1121	UBS801SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	20kVA/16kW	480/277V	480/277V	27 x 32 x 71	763	UBS002SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	20kVA/16kW	480/277V	480/277V	27 x 32 x 71	763	UBS002SG443AN50
Single/Dual Input, 5min Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	20kVA/16kW	480/277V	480/277V	27 x 32 x 71	1169	UBS802SG444AN50
Single/Dual Input, 5min Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	20kVA/16kW	480/277V	480/277V	27 x 32 x 71	1169	UBS802SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	30kVA/24kW	480/277V	480/277V	27 x 32 x 71	970	UBS003SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	30kVA/24kW	480/277V	480/277V	27 x 32 x 71	970	UBS003SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	40kVA/32kW	480/277V	480/277V	27 x 32 x 71	1147	UBS004SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	40kVA/32kW	480/277V	480/277V	27 x 32 x 71	1147	UBS004SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	50kVA/40kW	480/277V	480/277V	32 x 32 x 71	1257	UBS005SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	50kVA/40kW	480/277V	480/277V	32 x 32 x 71	1257	UBS005SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	80kVA/64kW	480/277V	480/277V	32 x 32 x 71	1489	UBS008SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	80kVA/64kW	480/277V	480/277V	32 x 32 x 71	1489	UBS008SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	100kVA/80kW	480/277V	480/277V	47 x 32 x 71	1929	UBS010SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	100kVA/80kW	480/277V	480/277V	47 x 32 x 71	1929	UBS010SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	120kVA/96kW	480/277V	480/277V	47 x 32 x 71	2006	UBS012SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	120kVA/96kW	480/277V	480/277V	47 x 32 x 71	2006	UBS012SG443AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 4-wire input	150kVA/120kW	480/277V	480/277V	47 x 32 x 71	2160	UBS015SG444AN50
Single/Dual Input, No Internal Batteries, Thyristor Rectifier w/5th THD Filter, IGBT Inverter, 3-wire input	150kVA/120kW	480/277V	480/277V	47 x 32 x 71	2160	UBS015SG443AN50
Input EMI Filter added to 5th THD Filter. Meets FCC Class A and IEC 62040-2 Category C2				N/A	10	"AN" of above Product Number changes to "AY"

# Uninterruptible Power Supplies Energy Connections SG Series

## Section 20

10-150 kVA Three-Phase  
Battery Cabinets

### SG UPS Module - 10kVA/8kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
52 min	27 x 32 x 71	1265	SBA010-1AF-5C-N	1	40 / 12HX100FRGN	30A
60 min	27 x 32 x 71	1517	SBA010-1AF-5E-N	1	40 / 12HX150FRGN	30A

### SG UPS Module - 20kVA/16kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
21 min	27 x 32 x 71	1265	SBA020-1AF-5C-N	1	40 / 12HX100FRGN	50A
36 min	27 x 32 x 71	1517	SBA020-1AF-5E-N	1	40 / 12HX150FRGN	50A
53 min	27 x 32 x 71	2025	SBA020-1AF-51-N	1	40 / 12HX205-FR	50A
60 min	27 x 32 x 71	2761	SBA020-1AF-52-N	1	40 / 12HX300-FR	50A

### SG UPS Module - 30kVA/24kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
12 min	27 x 32 x 71	1265	SBA030-1AF-5C-N	1	40 / 12HX100FRGN	80A
21 min	27 x 32 x 71	1517	SBA030-1AF-5E-N	1	40 / 12HX150FRGN	80A
33 min	27 x 32 x 71	2025	SBA030-1AF-51-N	1	40 / 12HX205-FR	80A
54 min	27 x 32 x 71	3221	SBA030-1AF-52-N	1	40 / 12HX300-FR	80A
60 min	27 x 32 x 71	4525	SBA030-1AF-53-N	1	40 / 12HX330-FR	80A

### SG UPS Module - 40kVA/32kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
8 min	27 x 32 x 71	1265	SBA040-1AF-5C-N	1	40 / 12HX100FRGN	100A
15 min	27 x 32 x 71	1517	SBA040-1AF-5E-N	1	40 / 12HX150FRGN	100A
23 min	27 x 32 x 71	2025	SBA040-1AF-51-N	1	40 / 12HX205-FR	100A
38 min	27 x 32 x 71	2761	SBA040-1AF-52-N	1	40 / 12HX300-FR	100A
45 min	27 x 32 x 71	3221	SBA040-1AF-53-N	1	40 / 12HX330-FR	100A
54 min	44 x 32 x 71	3557	SBB040-1AF-54-N	1	40 / 12HX400-FR	100A
60 min	44 x 32 x 71	4525	SBB040-1AF-55-N	1	40 / 12HX505-FR	100A

### SG UPS Module - 50kVA/40kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
5 min	27 x 32 x 71	1542	SBA050-1AF-5C-N	1	40 / 12HX100FRGN	125A
10 min	27 x 32 x 71	2050	SBA050-1AF-5E-N	1	40 / 12HX150FRGN	125A
17 min	27 x 32 x 71	2786	SBA050-1AF-51-N	1	40 / 12HX205-FR	125A
28 min	27 x 32 x 71	3246	SBA050-1AF-52-N	1	40 / 12HX300-FR	125A
41 min	44 x 32 x 71	3582	SBB050-1AF-54-N	1	40 / 12HX400-FR	125A
60 min	44 x 32 x 71	4550	SBB050-1AF-56-N	1	40 / 12HX540-FR	125A

All run times listed above are based on the manufacturer's published data, and do not include connector and wiring losses.

These run times are approximate and are intended for use as a guide only. Consult factory for guaranteed run times.

All cabinets contain Flame Retardant Batteries.

480 Vdc Nominal - 240 cells - 1.67 Final Volts per Cell, except 1.75 Final Volts per Cell over 60 minutes.

An external, user supplied junction panel is required when multiple battery systems are to be connected to a single UPS.

Each string, in multi-string systems, is individually fused.

# Uninterruptible Power Supplies Energy Connections SG Series

10-150 kVA Three-Phase  
Battery Cabinets

## Section 20

### SG UPS Module - 80kVA/64kW (0.80 .pf)- Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
9 min	27 x 32 x 71	1542	SBA080-1AF-51-N	1	40 / 12HX205-FR	200A
14 min	27 x 32 x 71	2786	SBA080-1AF-52-N	1	40 / 12HX300-FR	200A
18 min	27 x 32 x 71	3246	SBA080-1AF-53-N	1	40 / 12HX330-FR	200A
22 min	44 x 32 x 71	4550	SBB080-1AF-54-N	1	40 / 12HX400-FR	200A
31 min	44 x 32 x 71	4550	SBB080-1AF-55-N	1	40 / 12HX505-FR	200A
45 min	71 x 32 x 71	7139	SBC080-2AF-53-N	2	80 / 12HX330-FR	200A
60 min	88 x 32 x 71	7139	SBB080-2AF-55-N	2	80 / 12HX505-FR	200A

### SG UPS Module - 100kVA/80kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number (on 480VDC Bus)	DC CB Size
6 min	27 x 32 x 71	2075	SBA100-1AF-51-N	1	40 / 12HX205-FR	250A
10 min	27 x 32 x 71	2811	SBA100-1AF-52-N	1	40 / 12HX300-FR	250A
13 min	27 x 32 x 71	2811	SBA100-1AF-53-N	1	40 / 12HX330-FR	250A
16 min	44 x 32 x 71	3271	SBB100-1AF-54-N	1	40 / 12HX400-FR	250A
26 min	44 x 32 x 71	4575	SBB100-1AF-56-N	1	40 / 12HX540-FR	250A
35 min	71 x 32 x 71	7189	SBC100-2AF-53-N	2	80 / 12HX330-FR	250A
41 min	88 x 32 x 71	9125	SBB100-2AF-54-N	2	80 / 12HX400-FR	250A
60 min	88 x 32 x 71	9125	SBB100-2AF-56-N	2	80 / 12HX540-FR	250A

### SG UPS Module - 120kVA/96kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions W x D x H (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Part Number (on 480VDC Bus)	DC CB Size
8 min	27 x 32 x 71	2811	SBA120-1AF-52-N	1	40 / 12HX300-FR	300A
12 min	44 x 32 x 71	3271	SBB120-1AF-54-N	1	40 / 12HX400-FR	300A
20 min	44 x 32 x 71	3607	SBB120-1AF-56-N	1	40 / 12HX540-FR	300A
32 min	88 x 32 x 71	6542	SBB120-2AF-54-N	2	80 / 12HX400-FR	300A
49 min	88 x 32 x 71	7214	SBB120-2AF-56-N	2	80 / 12HX540-FR	300A
60 min	132 x 32 x 71	10821	SBB120-3AF-55-N	3	120 / 12HX505-FR	300A

### SG UPS Module - 150kVA/120kW (0.80 .pf) - Battery Cabinets (matching)

Backup Time @ 0.8 .pf	Dimensions WxDxH (in)	Weight (lbs)	Product Number	Qty of Cabinets (Strings)	Qty of Jars Jar Part Number (on 480VDC Bus)	DC CB Size
7 min	27 x 32 x 71	2811	SBA150-1AF-53-N	1	40 / 12HX330-FR	400A
13 min	44 x 32 x 71	3607	SBB150-1AF-55-N	1	40 / 12HX505-FR	400A
14 min	44 x 32 x 71	4575	SBB150-1AF-56-N	1	40 / 12HX540-FR	400A
24 min	88 x 32 x 71	6542	SBB150-2AF-54-N	2	80 / 12HX400-FR	400A
37 min	88 x 32 x 71	7214	SBB150-2AF-56-N	2	80 / 12HX540-FR	400A
41 min	132 x 32 x 71	9813	SBB150-3AF-54-N	3	120 / 12HX400-FR	400A
60 min	132 x 32 x 71	10821	SBB150-3AF-56-N	3	120 / 12HX540-FR	400A

All run times listed above are based on the manufacturer's published data, and do not include connector and wiring losses.

These run times are approximate and are intended for use as a guide only. Consult factory for guaranteed run times.

All cabinets contain Flame Retardant Batteries.

480 Vdc Nominal - 240 cells - 1.67 Final Volts per Cell, except 1.75 Final Volts per Cell over 60 minutes.

An external, user supplied junction panel is required when multiple battery systems are to be connected to a single UPS.

Each string, in multi-string systems, is individually fused.

# Uninterruptible Power Supplies Energy Connections SG Series

50-150 kVA Three-Phase  
Flywheel Systems

## Notes

- DC Energy Storage Flywheels are typically used in lieu of Battery Plants, for short term backup time and green solution. If project requires DC Flywheel and Battery backup for same UPS Module, consult factory for application support and pricing.
- External DC Cabling from the DC Flywheel to UPS Module is supplied and installed by others. Contractor to provide single, 250Amp 600VDC feeder from the UPS Module to the Battery System, unless noted otherwise.
- In multiple DC Flywheel applications, it is not possible to tie all Flywheel cabling to one UPS Module bus landing area. The use of a DC Paralleling Cabinet is recommended. This DC Paralleling Cabinet will allow one feeder from the UPS Module to the Paralleling Cabinet, and multiple feeders from the DC Paralleling Cabinet to each Flywheel. All feeder cabling is supplied and installed by others. We recommend quoting the DC Paralleling Cabinet as an OPTION ADDER, as competitors may not quote this cabinet, thinking that the installing contractor will provide.
- DC Flywheels are made in Cerritos, CA. DC Paralleling Cabinets are made in Carol Stream, IL. Leadtime ARO for both items is approx 5-7 weeks, and are drop-shipped to the jobsite.

## Backup Time Chart (in seconds)

### Enhanced Flywheel

SG UPS kW	UL SG 50 40	UL SG 80 64	UL SG 100 80	UL SG 120 96	UL SG 150 120
No. of flywheels	↓	↓	↓	↓	↓
1	142	88	71	59	45
2		174	139	115	91
3					

### Standard Flywheel

SG UPS kW	UL SG 50 40	UL SG 80 64	UL SG 100 80	UL SG 120 96	UL SG 150 120
No. of flywheels	↓	↓	↓	↓	↓
1	94	58	46	38	30
2		115	92	76	60
3					

### Chart Notes:

1. Run times are rounded off to the nearest second and are based on UPS with 540Vdc float voltage.
2. DC-AC Efficiencies (battery to output) are based on battery power data at rated power factor from Technical Data Sheets.
3. Runtimes take into account the minimum 2 sec rectifier walk-in time.

# Uninterruptible Power Supplies Energy Connections SG Series

50-150 kVA Three-Phase  
Flywheel Systems

## Section 20

### Enhanced Flywheel for Series SG UPS, 50-150kVA

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Enhanced DC Flywheel, 300kw maximum, with GUI Display & DC Filter Assembly <sup>1</sup>	30 x 30 x 74	1780	FW-UL-ENH-SG

<sup>1</sup>CB for DC Filter must stay in OFF position

### Standard Flywheel for Series SG UPS, 50-150kVA

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Standard DC Flywheel, 300kw maximum, with GUI Display & DC Filter Assembly <sup>1</sup>	30 x 30 x 74	1780	FW-UL-STD-SG

<sup>1</sup>CB for DC Filter must stay in OFF position

### Flywheel Accessories

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
DC Breaker, 250Amp, w/24VDC Shunt Trip			N/A
Touch Screen GUI Display			N/A
ModBus Communications (must include Touch Screen GUI Display)			FLYWH-MODBUS
Remote Emerg Power Off (REPO)			FLYWH-REPO
Customer Interface Board			FLYWH-CIB
CA OSHPD Seismic Certification			FLYWH-OSHPD
<b>Floor Stand (pick height):</b>			
12" High	30 x 30 x 12	300	FLYWH-FS12
18" High	30 x 30 x 18	325	FLYWH-FS18
24" High	30 x 30 x 24	350	FLYWH-FS24
36" High	30 x 30 x 36	375	FLYWH-FS36
42" High	30 x 30 x 42	400	FLYWH-FS42
Aux Power Panel with Main CB			FLYWH-AUXPP
20A 2Pole CB			FLYWH-2PCB
Additional User Manual			FLYWH-MANUAL
Additional Submittal Drawing			FLYWH-SUBDWG
Certified Factory Test Reports			FLYWH-TESTDOC

### DC Paralleling Cabinets, 600VDC for SG UPS

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
DC Paralleling Cabinet, 800A Bus, 1 to 3 Flywheel CBs	24 x 33 x 71	Est 500	DCPARCAB-800-SG
For Each Flywheel 250A CB (3 max)	incl	incl	DCPARCAB-250A
For Optional 800A Main CB	incl	incl	DCPARCAB-800A-SG



# Uninterruptible Power Supplies Energy Connections SG Series

## Section 20

10-150 kVA Three-Phase

External Maintenance Bypass Cabinets

### Series SG UPS - 3 Breaker Matching, Free Standing Maintenance Bypass Cabinet (MBC)

SG UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
10	25A	15A	14	12	33	71	325	MBC014-010200-L100
20	50A	30A	14	12	33	71	325	MBC024-030500-L100
30	70A	50A	14	12	33	71	325	MBC034-050700-L100
40	80A	60A	14	12	33	71	325	MBC044-060800-L100
50	125A	80A	14	12	33	71	325	MBC054-081200-L100
80	175A	125A	35	12	33	71	325	MBC084-121700-L300
100	200A	150A	35	12	33	71	325	MBC104-152000-L300
120	250A	200A	35	24	33	71	375	MBC124-202500-L300
150	300A	250A	35	24	33	71	375	MBC154-253000-L300

#### Notes on SG Matching MBC:

- Cabinets are matching height, depth, and black color same as UPS Module
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Base MBC includes 3-breaker with mechanical Kirk Key configuration. Breakers are 80% Rated unless noted otherwise.  
For 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC224-354000-K600  
For 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC224-350000-L600  
For 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-350000-K600
- Cabinet conduit access via top, bottom, and sides via knockouts.
- Warranty is 1 year. Estimated leadtime is 4-6 weeks via sourced supplier.
- Consult factory for Seismic Bracing adder price.
- Consult factory for 480V Subfeed CBs on output of Maint Bypass CBs, all in same cabinetry.
- Other higher/lower KAIC Ratings available. Consult factory.

### Series SG UPS - 3 Breaker Non-Matching, Wall-Mounted Maintenance Bypass Panel (MBP) - Style A

SG UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
10	25	15	14	31	14	78	382	GS20015-10025-A1S
20	50	30	14	31	14	78	382	GS20030-10050-A1S
30	70	50	14	31	14	78	382	GS20050-10070-A1S
40	80	60	14	31	14	78	382	GS20060-10080-A1S
50	125	80	35	31	14	78	382	GS20080-10125-A1S
80	175	125	35	31	14	78	382	GS20125-10175-A1S
100	200	150	35	31	14	78	382	GS20150-10200-A1S
120	250	200	35	31	14	78	382	GS20200-10250-A1S
150	300	250	35	40	14	87	500	GS20250-10300-A1S

#### Notes on SG Non-Matching MBS cabinets:

- Cabinets are ANSI grey color, UL891 switchboard construction.
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications. Breakers are 80% Rated unless noted otherwise.
- Circuit Breaker interlock system is Kirk Key electric interlock (w/SKRU)
- Cabinet conduit access via top and bottom via knockouts.
- Warranty is 1 year. Estimated leadtime is 4-8 weeks via GE factory.
- Higher KAIC Ratings available. Consult factory.

# Uninterruptible Power Supplies Energy Connections SG Series

## Section 20

10-150 kVA Three-Phase

External Maintenance Bypass Cabinets

### Series SG UPS - 3 Breaker Non-Matching, Wall-Mounted Maintenance Bypass Panel (MBP) -Style B

SG UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
10	25A	15A	14	30	10	36	110	MBP014-010200-L100
20	50A	30A	14	30	10	36	110	MBP024-030500-L100
30	70A	50A	14	30	10	36	110	MBP034-050700-L100
40	80A	60A	14	30	10	36	110	MBP044-060800-L100
50	125A	80A	14	30	10	36	110	MBP054-081200-L100
80	175A	125A	35	30	10	36	110	MBP084-121700-L300
100	200A	150A	35	30	10	36	110	MBP104-152000-L300
120	250A	200A	35	30	11	42	125	MBP124-202500-L300
150	300A	250A	35	30	11	42	125	MBP154-253000-L300

#### Notes on SG Wallmount MBPs:

- Cabinets are black in color.
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications. Breakers are 80% Rated unless noted otherwise.
- Base MBP includes 3-breaker with mechanical Kirk Key configuration.  
For 3-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #15 to "K", example: MBP154-253000-K300  
For 2-breaker MBP with mechanical Kirk Key change, the Base MBP, digit #10 & #11 to "00", example: MBP154-250000-L300  
For 2-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #10 & #11 to "00" and digit # 15 to "K", example: MBP154-250000-K300
- Cabinet conduit access top and bottom via knockouts.
- Warranty is 1 year. Estimated leadtime is 3-5 weeks via sourced supplier.

### Series SG UPS - 3 Breaker Maintenance Bypass Cabinet (MBC) w/Output Isolation Transformer (4x2)

SG UPS kVA	Output XFMR	UIB / MIB-MBB 480V CBs (Trip Ratings)	CB kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
30	480/208V	70A/50A	14	30	33	71	995	MBC034-507000-L103
40		80A/60A	14	30	33	71	995	MBC044-060800-L104
50		125A/80A	14	30	33	71	995	MBC054-081200-L105
80		175A/125A	35	30	33	71	1405	MBC084-121700-L308
100		200A/150A	35	30	33	71	1405	MBC104-152000-L310
120		250A/200A	35	36	33	71	1650	MBC124-202500-L312
150		300A/250A	35	36	33	71	1650	MBC154-253000-L315

#### Notes on SG 4x2 Combo MBC:

- Cabinets are matching depth, height, and black color same as UPS Module
- Output Isolation Transformer is K-13, DOE 2016 Compliant. 30-80kVA is Copper ; 100-150kVA is Aluminum.
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd.
- Base 4x2 Combo MBC includes 3-breaker with mechanical Kirk Key configuration. Example Part Number changes:  
For 4x2 Combo 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC154-253000-K315  
For 4x2 Combo 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC154-250000-L315  
For 4x2 Combo 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC154-250000-K315
- Cabinet conduit access top, bottom or sides. Cables included for adjacent installation to UPS Module.
- Warranty is 1 year. Estimated leadtime is 8-10 weeks via sourced supplier.
- Consult factory for Seismic Bracing adder price.
- Consult factory for 480V Subfeed CBs on output of Maint Bypass CBs, all in same cabinetry.

# Uninterruptible Power Supplies Energy Connections SG Series

10-150 kVA Three-Phase

Options and Accessories

### Connectivity

Description	Product Number
SNMP/Web Plug-In w/Modbus RTU485	1024921
Modbus TCP License - works with 1024921 as TCP interface	24864
RS232 to RS485/422 Converter	11227
SG UPS Customer Interface Card (CIC) w/ 6 programmable relay contacts	1020010
SG UPS Remote Status Alarm Panel - Uses CIC Card that is supplied standard with SG UPS Module	17442

**NOTE:** RSAP uses the CIC card supplied standard with the UPS Module. If External MBS Cabinet is part of UPS configuration in addition to the RSAP, a second CIC Card must be purchased.

### iUPSGuard Remote Monitoring/Diagnostics

Description	Product Number
Annual License, for 12 months from startup	26104
Annual License, for 12 months after startup. Annual Service Contract is purchased.	26108
Annual Renewal License. Must be sold before existing license expires.	26104-R

### Battery System Temperature Sensor (Only 1 per UPS System)

Description	Product Number
Series SG UPS, 5 meter long sensor	1016076
Series SG UPS, 15 meter long sensor	1016081
Series SG UPS, 20 meter long sensor	1016088
Series SG UPS, 30 meter long sensor	1016089
Series SG UPS, 60 meter long sensor	1016197

# Uninterruptible Power Supplies

## Energy Connections SG Series

# Section 20

225-300 kVA, Three-Phase with Output Iso Transformer  
UPS Modules

### Technical Specifications-UL approved

<b>Topology</b>	True on-line, double conversion (VFI) with integral static switch and internal maintenance bypass	
<b>Technology</b>	Advanced IGBT with SVM strategy, microprocessor and DSP controlled at optimal switching frequency	
<b>Operating Modes</b>	True on-line double conversion, automatic bypass, frequency converter, RPA up to eight units	
<b>Output Power Rating kVA</b>		
<b>(at PF=0.6-0.8 lag)</b>	<b>225</b>	<b>300</b>
Output Power Rating (kW)	203	270
Weight w/o Batteries (lbs)	3086	3086
Dimensions WxDxH (inches)	65x32x71	
Noise Level dB(A)	<67 dB	
Input Voltage (VAC)	3x480/277 + Neutral ( -20% to +15% without battery discharge)	
Input Frequency	60/50 Hz +/-10%	
Output Voltage (sinusoidal) (VAC)	3x480/277 + Neutral	
Output Frequency	60/50 Hz +/-0.01%	
Output THD at Linear Load	<2%	
Output THD at Non-linear Load	<3%	
Crest Factor	3:1	
Overload Capability on Inverter	125% 10 min., 150% 30 seconds	
Overload Capability on Automatic Bypass	200% 5 min., 110% continuously	
Output Voltage Regulation		
Static	+/- 1%	
0-100% Step Load	+/- 3%	
Overall Efficiency at 100% Load	93%	
Ambient Operating Temperature	32°-104°F (0°-40°C)	
Color	Black	
Classifications and Listing	UL1778/IP20/NEMA-PE-1/ISO9001	
RFI and Surge Protection	EN 50091-2 / IEC 62040-2 / IEEE 587 B / FCC Class A compliance <sup>1</sup>	
Standard Connectivity	RS232; programmable alarm contacts; SNMP (optional)	
Warranty	12 months	

<sup>1</sup>FCC compliance feature available as an option.  
Specifications subject to change without notice.

### Notes

- UPS Module MUST be fed from 3-ph 4-wire solidly grounded WYE input source.
- UPS Module can be configured for 3-wire or 4-wire operation and cabling. See Installation Manual.
- UPS Module with EMI Filter meets FCC Class A and IEC 62040-2 Category C2. Std UPS meets IEC 62040-2 Category C3.
- TLE & SG UPS Module include one CIC Card. If using both External MBP/MBS Cabinet and Remote Status Panel options, include a 2nd CIC Card in bill of material and pricing.
- Paralleled UPS Systems require Module RPA Card Option & RPA Output Board.

### SG Series 2 UPS Module, 225kVA/202kW, 480/277V, 60Hz - 0.9 Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single Input Module, 6P Rectifier w/5th THD Filter, IGBT Inverter, Bypass Inductor	65 x 32 x 71	3086	UB1022SG444AN54
Single Input Module, 6P Rectifier w/5th THD Filter, IGBT Inverter, Bypass Inductor, Seismic Certified	65 x 32 x 71	3086	UB1022SG444AN54-S
Single Input Module, 6P Rectifier, IGBT Inverter, Bypass Inductor, Broadcast Configuration - No RPA available	65 x 32 x 71	3086	UB1022SG444AN55
Single Input Module, 6P Rectifier w/5th THD & EMI Filter, IGBT Inverter, Bypass Inductor	65 x 32 x 71	3211	UB1022SG444AY54

### SG Series 2 UPS Module, 300kVA/270kW, 480/277V, 60Hz - 0.9 Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single Input Module, 6P Rectifier w/5th THD Filter, IGBT Inverter, Bypass Inductor	65 x 32 x 71	3086	UB1030SG444AN54
Single Input Module, 6P Rectifier w/5th THD Filter, IGBT Inverter, Bypass Inductor, Seismic Certified	65 x 32 x 71	3086	UB1030SG444AN54-S
Single Input Module, 6P Rectifier, IGBT Inverter, Bypass Inductor, Broadcast Configuration - No RPA available	65 x 32 x 71	3086	UB1030SG444AN55
Single Input Module, 6P Rectifier w/5th THD & EMI Filter, IGBT Inverter, Bypass Inductor	65 x 32 x 71	3211	UB1030SG444AY54

# Uninterruptible Power Supplies Energy Connections SG Series

225-300 kVA Three-Phase  
Battery Systems

## Section 20

### SG 225kVA UPS - 202kW output (0.90 .pf)

Backup Time @ 0.9 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Part Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
5 min	1	40 / 12HX540	600A	44.0 x 31.9 x 70.8	4885	SBB225-1AF-56-N
7 min	2	80 / 12HX300	300A	54.0 x 31.9 x 70.8	4600	SBA225-2BR-52-N
12 min	2	80 / 12HX400	300A	88.0 x 31.9 x 70.8	6567	SBB225-2BR-54-N
20 min	2	80 / 12HX540	300A	88.0 x 31.9 x 70.8	7239	SBB225-2BR-56-N
30 min	3	120 / 12HX505	600A	132.0 x 31.9 x 70.8	9850	SBB225-3AF-55-N
33 min	3	120 / 12HX540	600A	132.0 x 31.9 x 70.8	10859	SBB225-3AF-56-N
43 min	4	160 / 12HX505	600A	176.0 x 31.9 x 70.8	13134	SBB225-4AF-55-N
48 min	4	160 / 12HX540	600A	176.0 x 31.9 x 70.8	14148	SBB225-4AF-56-N
62 min	5	200 / 12HX540	600A	220.0 x 31.9 x 70.8	16417	SBB225-5AF-56-N

### SG 300kVA UPS - 270kW output (0.90 .pf)

Backup Time @ 0.9 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Part Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
5 min	2	80 / 12HX330	400A	54 x 31.9 x 70.8	6000	SBA300-2BR-53-N
7 min	2	80 / 12HX400	400A	88 x 31.9 x 70.06	6617	SBB300-2BR-54-N
12 min	2	80 / 12HX540	400A	88 x 31.9 x 70.06	7289	SBB300-2BR-56-N
14 min	3	120 / 12HX400	800A	132 x 31.9 x 70.06	9925	SBB300-3AF-54-N
23 min	3	120 / 12HX540	800A	132 x 31.9 x 70.06	9925	SBB300-3AF-56-N
33 min	4	160 / 12HX540	800A	194 x 31.9 x 70.06	13235	SBB300-4AF-56-N
44 min	5	200 / 12HX540	800A	238 x 31.9 x 70.06	16542	SBB300-5AF-56-N
55 min	6	240 / 12HX540	800A	282 x 31.9 x 70.06	19848	SBB300-6AF-56-N
67 min	7	280 / 12HX540	800A	326 x 31.9 x 70.06	23156	SBB300-7AF-56-N

All run times listed above are based on the manufacturer's published data, and do not include connector and wiring losses.

These run times are approximate and are intended for use as a guide only. Consult factory for guaranteed run times.

All cabinets contain Flame Retardant Batteries.

480 Vdc Nominal - 240 cells - 1.67 Final Volts per Cell, except 1.75 Final Volts per Cell over 60 minutes.

An external, user supplied junction panel is required when multiple battery systems are to be connected to a single UPS.

Each string, in multi-string systems, is individually fused.

# Uninterruptible Power Supplies Energy Connections SG Series

225-300 kVA, Three-Phase  
Flywheel Systems

## Section 20

### Notes

- DC Energy Storage Flywheels are typically used in lieu of Battery Plants, for short term backup time and green solution. If project requires DC Flywheel and Battery backup for same UPS Module, consult factory for application support and pricing.
- External DC Cabling from the DC Flywheel to UPS Module is supplied and installed by others. Contractor to provide single, 250Amp 600VDC feeder from the UPS Module to the Battery System, unless noted otherwise.
- In multiple DC Flywheel applications, it is not possible to tie all Flywheel cabling to one UPS Module bus landing area. The use of a DC Paralleling Cabinet is recommended. This DC Paralleling Cabinet will allow one feeder from the UPS Module to the Paralleling Cabinet, and multiple feeders from the DC Paralleling Cabinet to each Flywheel. All feeder cabling is supplied and installed by others. We recommend quoting the DC Paralleling Cabinet as an OPTION ADDER, as competitors may not quote this cabinet, thinking that the installing contractor will provide.
- DC Flywheels are made in Cerritos, CA. DC Paralleling Cabinets are made in Carol Stream, IL. Leadtime ARO for both items is approx 5-7 weeks, and are drop-shipped to the jobsite.

### Backup Time Chart (in seconds)

#### Enhanced Flywheel

SG UPS kW	UL SG 225 202	UL SG 300 270
No. of Flywheels	↓	↓
1	22	
2	54	39
3	81	62

#### Standard Flywheel

SG UPS kW	UL SG 225 202	UL SG 300 270
No. of Flywheels	↓	↓
1	16	
2	35	26
3	53	40

#### Chart Notes:

1. Run times are rounded off to the nearest second and are based on UPS with 540Vdc float voltage for modules 160kVA and higher.
2. DC-AC Efficiencies (battery to output) are based on battery power data at rated power factor from Technical Data Sheets
3. Runtimes take into account the minimum 2 sec rectifier walk-in time

# Uninterruptible Power Supplies Energy Connections SG Series

225-300 kVA Three-Phase  
Flywheel Systems

## Section 20

### Enhanced Flywheel for Series SG UPS, 225-300kVA

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Enhanced DC Flywheel, 300kw maximum, with GUI Display & DC Filter Assembly <sup>1</sup>	30 x 30 x 74	1780	FW-UL-ENH-SG

<sup>1</sup>CB for DC Filter must stay in OFF position

### Standard Flywheel for Series SG UPS, 225-300kVA

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Standard DC Flywheel, 300kw maximum, with GUI Display & DC Filter Assembly <sup>1</sup>	30 x 30 x 74	1780	FW-UL-STD-SG

<sup>1</sup>CB for DC Filter must stay in OFF position

### Flywheel Accessories

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
DC Breaker, 250Amp, w/24VDC Shunt trip			N/A
Touch Screen GUI Display			N/A
ModBus Communications			FLYWH-MODBUS
Remote Emerg Power Off (REPO)			FLYWH-REPO
Customer Interface Board			FLYWH-CIB
CA OSHPD Seismic Certification			FLYWH-OSHPD
<b>Floor Stand (pick height):</b>			
12" High	30 x 30 x 12	300	FLYWH-FS12
18" High	30 x 30 x 18	325	FLYWH-FS18
24" High	30 x 30 x 24	350	FLYWH-FS24
36" High	30 x 30 x 36	375	FLYWH-FS36
42" High	30 x 30 x 42	400	FLYWH-FS42
Aux Power Panel with Main CB			FLYWH-AUXPP
20A 2Pole CB			FLYWH-2PCB
Additional User Manual			FLYWH-MANUAL
Additional Submittal Drawing			FLYWH-SUBDWG
Certified Factory Test Reports			FLYWH-TESTDOC

### DC Paralleling Cabinets, 600VDC

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
DC Paralleling Cabinet, 800A Bus, 1 to 3 Flywheel CBs	24 x 33 x 71	Est 500	DCPARCAB-800-SG
For Each Flywheel 250A CB (3 max)	incl	incl	DCPARCAB-250A
For Optional 800A Main CB	incl	incl	DCPARCAB-800A-SG

# Uninterruptible Power Supplies Energy Connections SG Series

225-300 kVA Three-Phase

External Maintenance Bypass Cabinets

## Section 20

### Series SG UPS - 3 Breaker Matching, Free Standing Maintenance Bypass Cabinet (MBC)

SG UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
225kVA	450AT (80%)	350AT (80%)	35kAIC	30	32.8	71	400	MBC224-354500-L300
225kVA	450AT (80%)	350AT (80%)	65kAIC	30	32.8	71	400	MBC224-354500-L600
300kVA	600AT (80%)	500AT (80%)	35kAIC	30	32.8	71	400	MBC304-506000-L300
300kVA	600AT (80%)	500AT (80%)	65kAIC	30	32.8	71	400	MBC304-506000-L600

#### Notes on SG Matching MBC:

- Cabinets are matching height, depth, and black color same as UPS Module
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Base MBC includes 3-breaker with mechanical Kirk Key configuration.  
For 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC224-354000-K600  
For 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC224-350000-L600  
For 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-350000-K600
- Cabinet conduit access via top, bottom, and sides via knockouts.
- Warranty is 1 year. Leadtime is 4-6 (typical) weeks via sourced supplier.

### Series SG UPS - 3 Breaker Non-Matching, Wall Mount Maintenance Bypass Panel (MBP) - Style A

SG UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
225kVA	450AT (80%)	350AT (80%)	35kAIC	40	14	91	557	GS20350-10450-A1S
225kVA	450AT (80%)	350AT (80%)	35kAIC	40	14	91	557	GS20350-10450-A2S
300kVA	600AT (80%)	500AT (80%)	35kAIC	40	14	91	557	GS20500-10600-A1S
300kVA	600AT (80%)	500AT (80%)	35kAIC	40	14	91	557	GS20500-10600-A2S

#### Notes on SG Non-Matching MBP Wallmount Panelboard:

- Cabinets are ANSI grey (switchgear) color
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Circuit Breaker interlock system is a Kirk Key mechanical, with detailed operational instructions included. Electric interlock (w/SKRU) is an option.
- Cabinet conduit access via top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 4-8 weeks (typical) via GE factory.

### Series SG UPS - 3 Breaker, Wall Mounted Maintenance Bypass Panel (MBP) - Style B

SG UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
225kVA	450AT (80%)	350AT (80%)	35kAIC	36	14	48	140	MBP224-354500-L300
225kVA	450AT (80%)	350AT (80%)	65kAIC	36	14	48	140	MBP224-354500-L600
300kVA	600AT (80%)	500AT (80%)	35kAIC	36	14	48	140	MBP304-506000-L300
300kVA	600AT (80%)	500AT (80%)	65kAIC	36	14	48	140	MBP304-506000-L600

#### Notes on SG Wallmount MBPs:

- Cabinets are black in color.
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Base MBP includes 3-breaker with mechanical Kirk Key configuration.  
For 3-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #15 to "K", example: MBC224-354000-K600  
For 2-breaker MBP with mechanical Kirk Key change, the Base MBP, digit #10 & #11 to "00", example: MBC224-350000-L600  
For 2-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-350000-K600
- Cabinet conduit access top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 3-5 weeks (typical) via sourced supplier.

### Series SG UPS - 4x2 Combo, 3 Breaker Maintenance Bypass Cabinet (MBC) w/Output Isolation Transformer

SG UPS KVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
225	450AT (80%)	350AT (80%)	35kAIC	36	33	71	1650	MBC224-354500-L322
225	450AT (80%)	350AT (80%)	65kAIC	36	33	71	1650	MBC224-354500-L622

#### Notes on SG 4x2 combo MBC:

- Cabinets are matching depth, height, black color of UPS Module
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. K13 DOE2016 Compliant copper transformer, 480V-208/120V
- Base 4x2 Combo MBC includes 3-breaker with mechanical Kirk Key configuration.  
For 4x2 Combo 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC224-354000-K622  
For 4x2 Combo 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC224-350000-L622  
For 4x2 Combo 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-350000-K622
- Cabinet conduit access top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 6-8 weeks (typical) via sourced supplier.



# Uninterruptible Power Supplies Energy Connections SG Series

225-300 kVA Three-Phase

SG Software and Connectivity Products

## Section 20

### SG Software/Monitoring

Description	Product Number
Advanced SNMP/Web interface card, RTU 485	1024921
Remote Status Panel (includes APS)	17442
Customer Interface Card (CIC) - six programmable relay contacts	1020010

### GE eBoost™ (Multi-Mode) Factory-Installed Software

Description	Product Number
SG Series, 225kVA	UPS225EBSFTWR
SG Series, 300kVA	UPS300EBSFTWR

### Internal Maintenance Bypass for SG UPS Module

Description	Product Number
225kVA, Factory Installed	UPS225INTMBPOPT
300kVA, Factory Installed	UPS300INTMBPOPT

### Dual Input for SG UPS Module

Description	Product Number
225kVA, Factory Installed	UPS225DUALACOPT
300kVA, Factory Installed	UPS300DUALACOPT

### High Fault Rating for SG UPS Module

Description	Product Number
SG 225kVA UPS rated 65k AIC, Factory Installed	UPS22565KAIC
SG 300kVA UPS rated 65k AIC, Factory Installed	UPS30065KAIC

### UPS Input Transformers (NEMA 1 non-matching enclosure, Aluminum, K0)

UPS kVA Rating, Voltage (Input-Output)	Weight (lbs)	Dimensions W x D x H (in)	Xfmr kVA	Product Number
SG 225/300kVA (208V - 480/277V) DOE2016 Compliant	3300	49 x 42 x 64	500	SG3A0500BK
SG 225/300kVA (480V - 480/277V) DOE2016 Compliant	2950	49 x 42 x 64	500	SG3A0500KK

### UPS Output Transformers (NEMA 1 non-matching enclosure, Aluminum, K0)

UPS kVA Rating, Voltage (Input-Output)	Weight (lbs)	Dimensions W x D x H (in)	Xfmr kVA	Product Number
SG 225/300kVA (480V - 208/120V) DOE2016 Compliant	2750	49 x 42 X 64	500	SG3A0500KB

### Battery System Temperature Sensor (Only 1 per UPS System)

Description	Product Number
Series SG UPS, 5 meter long sensor	1016076
Series SG UPS, 15 meter long sensor	1016081
Series SG UPS, 20 meter long sensor	1016088
Series SG UPS, 30 meter long sensor	1016089
Series SG UPS, 60 meter long sensor	1016197

<sup>1</sup>The SG Series UPS comes with one Customer Interface Card (CIC) pre-installed in the card cage.

The card cage has one open slot for optional cards.

This slot can hold either an additional Customer Interface Card OR an SNMP Interface Card, but not both.

<sup>2</sup>The Remote Status Panel uses the Customer Interface Card that is supplied with the system.

A second Customer Interface Card is required if relay contacts are required for other purposes (such as interface to an External Bypass Panel).

<sup>3</sup>Systems using the optional Customer Interface Card will need to use the External SNMP Interface Box, if SNMP connectivity is required.

# Uninterruptible Power Supplies Energy Connections SG Series

## Section 20

All Models

Options, Spare Parts and Accessories

### SG Series Spare Parts Kits

KVA Rating	Description	Product Number
10 kVA	Parts kit, SG Series 10 kVA, fuses	SK10SGA
	Parts kit, SG Series 10 kVA, basic	SK10SGB
	Parts kit, SG Series 10 kVA, comprehensive	SK10SGC
20 kVA	Parts kit, SG Series 20 kVA, fuses	SK20SGA
	Parts kit, SG Series 20 kVA, basic	SK20SGB
	Parts kit, SG Series 20 kVA, comprehensive	SK20SGC
30 kVA	Parts kit, SG Series 30 kVA, fuses	SK30SGA
	Parts kit, SG Series 30 kVA, basic	SK30SGB
	Parts kit, SG Series 30 kVA, comprehensive	SK30SGC
40 kVA	Parts kit, SG Series 40 kVA, fuses	SK40SGA
	Parts kit, SG Series 40 kVA, basic	SK40SGB
	Parts kit, SG Series 40 kVA, comprehensive	SK40SGC
50 kVA	Parts kit, SG Series 50 kVA, fuses	SK50SGA
	Parts kit, SG Series 50 kVA, basic	SK50SGB
	Parts kit, SG Series 50 kVA, comprehensive	SK50SGC
80 kVA	Parts kit, SG Series 80 kVA, fuses	SK80SGA
	Parts kit, SG Series 80 kVA, basic	SK80SGB
	Parts kit, SG Series 80 kVA, comprehensive	SK80SGC
100 kVA	Parts kit, SG Series 100 kVA, fuses	SK100SGA
	Parts kit, SG Series 100 kVA, basic	SK100SGB
	Parts kit, SG Series 100 kVA, comprehensive	SK100SGC
120 kVA	Parts kit, SG Series 120 kVA, fuses	SK120SGA
	Parts kit, SG Series 120 kVA, basic	SK120SGB
	Parts kit, SG Series 120 kVA, comprehensive	SK120SGC
150 kVA	Parts kit, SG Series 150 kVA, fuses	SK150SGA
	Parts kit, SG Series 150 kVA, basic	SK150SGB
	Parts kit, SG Series 150 kVA, comprehensive	SK150SGC
225 kVA	Parts kit, SG Series 225 kVA, fuses	SK225SGA
	Parts kit, SG Series 225 kVA, basic	SK225SGB
	Parts kit, SG Series 225 kVA, comprehensive	SK225SGC
300 kVA	Parts kit, SG Series 300 kVA, fuses	SK300SGA
	Parts kit, SG Series 300 kVA, basic	SK300SGB
	Parts kit, SG Series 300 kVA, comprehensive	SK300SGC

# Uninterruptible Power Supplies Energy Connections SG Series

## Section 20

All Models  
Services and Commissioning

### SG Series UPS Commissioning and Extended Warranties (Single modules only)

Description	Product Number	System kVA Rating														
		10 kVA	20 kVA	30 kVA	40 kVA	50 kVA	80 kVA	100 kVA	120 kVA	150 kVA	225 kVA	300 kVA				
UPS Commissioning Service Level 1, 8AM to 5PM, Mon/Fri	FSUSGxxxN															
UPS Commissioning Service Level 2, 5PM to 8AM Mon/Fri, anytime Saturday	FSUSGxxxP1															
UPS Commissioning Service Level 3, Sunday/Holidays	FSUSGxxxP2															
UPS on-site Operator Training - Provides instruction on proper use	TRNSxxxN															
SG Series Extended Warranty Level 3 - (sold during initial sale). Additional 12 months of UPS warranty. One PM visit covering UPS (at start of coverage), factory required firmware updates and remedial parts/labor for UPS only (7x24, 12 hr response). Does not include battery replacement.	WARSGxxx															
SG Series Service Contract Level 3 - (sold after initial sale). Additional 12 months of UPS service. One PM visit covering UPS (at start of coverage), factory required firmware updates and remedial parts/labor for UPS only (7x24, 12 hr response). Does not include battery replacement.	FSSGxxx															
SG Series Basic Service. Includes one PM visit covering UPS, at customer's convenience, Sundays & Holidays excluded. Does not include remedial parts/labor or battery replacement.	PMSGxxx															
Additional Semi-annual PM - adder for performing a 2nd PM within the 12 month period on the UPS. Does not include remedial parts/labor or battery replacement.	2PMSGxxx															
Additional Battery Strings - adder for performing PM on each string of VRLA batteries to be included in Warranty and Service Contracts. Does not include battery replacement.	BATSG															

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 to 1000 kVA

The TLE Series UPS is one of the best performing three-phase UPS systems providing critical power protection for a wide range of applications. The TLE Series operates in VFI mode (Voltage Frequency Independent) and has been developed to satisfy the growing request of high efficiency through an innovative control algorithm with 3-level inverter technology. This innovative product provides best-in-class efficiency in double conversion mode as well as eBoost™ operating mode. The TLE Series is developed using GE's Design for Six Sigma methodology to help ensure that the product fully meets customer requirements and expectations.

The TLE Series UPS provides industry-leading reliability, efficiency, clean input performance and unity power factor at output. Reliability can be further increased by paralleling more units utilizing GE's unique RPA™ (Redundant Parallel Architecture) technology. Through their complete life cycle, all GE UPS systems are fully supported by service teams which provide world-class, 24x7 preventive and corrective services, training and application expertise.



## Innovative Technology & Best-in-Class Efficiency

The TLE Series UPS brings the latest power conversion technology to the marketplace, using a three-level inverter design and a multimode architecture that makes real time decisions between premium protection mode and premium eYciency mode. The TLE Series UPS was developed using GE's Design for Six Sigma (DFSS) methodology to ensure that the product meets customer requirements for reliability and quality.

### Technology at Its Best

- Highly reliable and efficient tri-level conversion
- Automatic or manual multi-mode operation

### "Best of Both Worlds" Operating Efficiency

- 97% Efficiency in premium protection mode (double conversion)
- 99% Efficiency in premium energy save mode (eBoost)

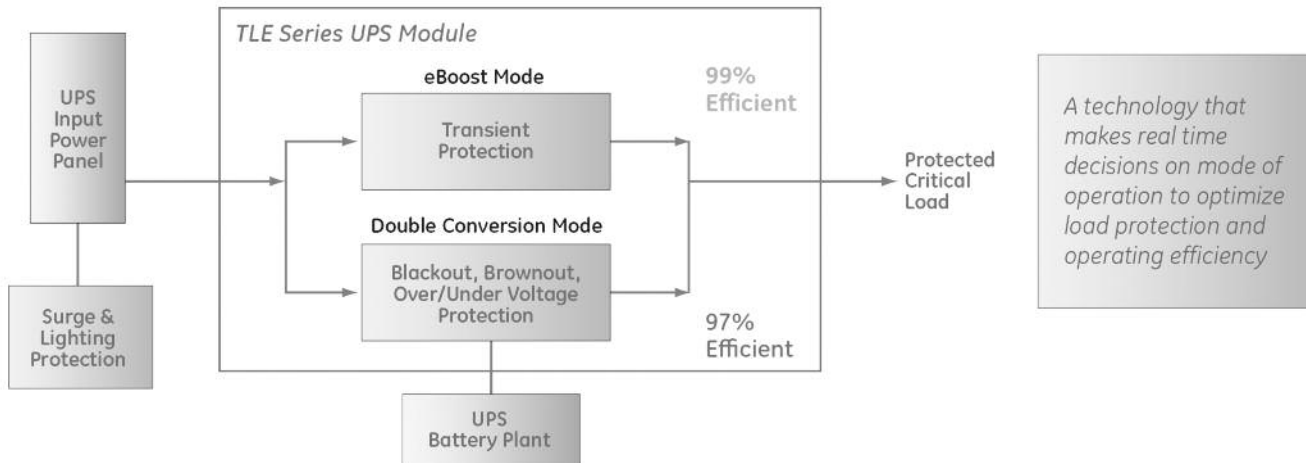
### Electrical Environment Optimization

- Unity (1.0) Output Power Factor
- High (0.99) Input Power Factor
- Less than 5% Input Current Harmonic Distortion

### Physical Environment Optimization

- Small footprint
- Front access only design for maintenance
- Multi-Module "cable saver" design to allow +/- 25% differential of cable lengths between UPS modules and I/O parallel buses

## GE Multi-Mode Technology Concept



# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 to 1000 kVA  
Technical Specifications

## Section 20

### TLE UPS 225/250 Technical Specifications

General Data				
Topology	True double conversion (VFI) Transformerless			
Nominal output power at pf = 1.0	225kVA (225 kW) / 250kVA (250 kW)			
System Efficiency in Double Conversion operating mode @1.0 PF lagging load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load
225kW	95.1%	96.6%	96.6%	96.5%
250kW	95.6%	96.7%	96.5%	96.4%
System Efficiency in eBoost operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load
225kW	97.6%	98.6%	98.8%	98.8%
250kW	97.7%	98.7%	98.9%	98.9%
Heat rejection in Double Conversion operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load
225kW	BTU/hr	9889	13511	20266
	kW	2.9	4.0	5.9
250kW	BTU/hr	9815	14555	23204
	kW	2.9	4.3	6.8
Heat rejection in eBoost operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load
225kW	BTU/hr	4720	5450	6994
	kW	1.4	1.6	2.0
250kW	BTU/hr	5020	5618	7116
	kW	1.5	1.6	2.1
Max Cooling Air (77°F - 86°F / 25°C - 30°C) (225/250kVA)	1400/1600 CFM			
<b>Audible noise level (at 5 ft./1.52Mts)</b>				
Double Conversion Mode	75 dB(A)			
eBoost Mode	65 dB(A)			
<b>Operating temperature range</b>				
UPS	32°F - 104°F (0°C - 40°C)			
Battery	68°F - 77°F (20°C - 25°C) (Note: Higher temperatures shorten battery life)			
<b>Storage temperature range</b>				
UPS	5°F - 122°F (-15°C to +50°C)			
Battery	32°F - 104°F (0°C - 40°C)			
(VRLA)	Storage time is 3 months at 77°F (25°C) (Note: Higher temperatures shorten battery life)			
<b>Relative Humidity</b>				
	0-95%, non-condensing			
	ft (M)	3281 / 1000 (no derating)		
Maximum Altitude	ft (M)	4921ft (1500Mts)	6562ft (2000Mts)	8202ft (2500Mts)
	Derating	-2.50%	-5.00%	-7.50%
				-10.00%

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 to 1000 kVA

Technical Specifications

## Section 20

### TLE Series UPS 400/500 Technical Specifications

#### General Data

Topology	True double conversion (VFI) Transformerless				
Nominal output power at pf = 0.7 lag to 0.9 leading kVA	400kVA / 500kVA				
Nominal output power at pf = 1.0 kW	400 kW / 500 kW				
System Efficiency in Double Conversion operating mode @1.0 PF lagging load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
400kW	95.4%	96.6%	96.6%	96.6%	
500kW	95.5%	96.5%	96.6%	96.4%	
System Efficiency in eBoost operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
400kW	97.0%	98.2%	98.6%	98.6%	
500kW	97.2%	98.3%	98.7%	98.8%	
Heat rejection in Double Conversion operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
400kW	BTU/hr kW	16453 4.8	24019 7.0	36029 10.6	48038 14.1
500kW	BTU/hr kW	20098 5.9	30939 9.1	45036 13.2	63712 18.7
Heat rejection in eBoost operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
400kW	BTU/hr kW	10553 3.1	12509 3.7	14534 4.3	17977 5.3
500kW	BTU/hr kW	12287 3.6	14752 4.3	16853 4.9	20722 6.1
Max Cooling Air (77°F - 86°F / 25°C - 30°C) (400/500kVA)	2710/3294 CFM				

#### Audible noise level (at 5 ft./1.52Mts)

Double Conversion Mode	75 dB(A)
eBoost Mode	66 dB(A)

#### Operating temperature range

UPS	32°F - 104°F (0°C - 40°C)
Battery	68°F - 77°F (20°C - 25°C) (Note: Higher temperatures shorten battery life)

#### Storage temperature range

UPS	5°F - 122°F (-15°C to +50°C)
Battery	32°F - 104°F (0°C - 40°C)
(VRLA)	Storage time is 3 months at 77°F (25°C) (Note: Higher temperatures shorten battery life)

#### Relative Humidity

	0-95%, non-condensing				
	ft (M) 3281 / 1000 (no derating)				
Maximum Altitude	ft (M)	4921ft (1500Mts)	6562ft (2000Mts)	8202ft (2500Mts)	9843ft (3000Mts)
	Derating	-2.5%	-5.0%	-7.5%	-10.0%

#### Enclosure

Type	Indoor (IP20) and NEMA PE 1
Safety	Internal dead front construction
Cooling	Forced Air
Color	Black (RAL 9005)

#### Installation

Rigging	Suitable for handling by forklift
Mounting	Floor mounting holes provided
Installation and maintenance access	Front access required for normal maintenance
Conduit Entry	Top and Bottom standard

#### Standards

Electrostatic discharge immunity	ETL Listed to UL 1778, ANSI C62.41b 4kV contact / 8kV air discharge
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#### Configuration

Standard	Single Module System
Optional	Redundant Parallel Architecture (RPA) - up to 6 modules may be paralleled in any combination for redundancy or capacity

#### Fault current rating

	UPS is designed for installation in an electrical system up to 65kA
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# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 to 1000 kVA  
Technical Specifications

## Section 20

### TLE UPS 750/1000 Technical Specifications

General Data					
Topology	True double conversion (VFI) Transformerless				
Nominal output power at pf = 1.0	750kVA (750 kW) / 1000kVA (1000 kW)				
System Efficiency in Double Conversion operating mode @1.0 PF lagging load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
750kW	95.4%	96.5%	96.5%	96.3%	
1000kW	95.5%	96.4%	96.5%	96.2%	
System Efficiency in eBoost operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
750kW	97.1%	98.2%	98.6%	98.8%	
1000kW	97.3%	98.4%	98.7%	98.9%	
Heat rejection in Double Conversion operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
750kW	BTU/hr	30849	46409	69613	98325
	kW	9.0	13.6	20.4	28.8
1000kW	BTU/hr	40195	63712	92817	134783
	kW	11.8	18.7	27.2	39.5
Heat rejection in eBoost operating mode @1.0 PF load, nominal voltage/frequency, energy storage disconnected	25% load	50% load	75% load	100% load	
750kW	BTU/hr	19108	23454	27252	31082
	kW	5.6	6.9	8.0	9.1
1000kW	BTU/hr	23671	27741	33707	37951
	kW	6.9	8.1	9.9	11.1
Max Cooling Air (77°F - 86°F / 25°C - 30°C) (750/1000kVA)	5078/6776 CFM				
<b>Audible noise level (at 5 ft./1.52Mts)</b>					
Double Conversion Mode	78 dB(A)				
eBoost Mode	68 dB(A)				
<b>Operating temperature range</b>					
UPS	32°F - 104°F (0°C - 40°C)				
Battery	68°F - 77°F (20°C - 25°C) (Note: Higher temperatures shorten battery life)				
<b>Storage temperature range</b>					
UPS	5°F - 122°F (-15°C to +50°C)				
Battery	32°F - 104°F (0°C - 40°C) Storage time is 3 months at 77°F (25°C) (Note: Higher temperatures shorten battery life)				
(VRLA)	0-95%, non-condensing				
<b>Relative Humidity</b>					
Maximum Altitude	ft (M)	3281 / 1000 (no derating)			
	ft (M)	4921ft (1500Mts)	6562ft (2000Mts)	8202ft (2500Mts)	9843ft (3000Mts)
	Derating	-2.5%	-5.0%	-7.5%	-10.0%
<b>Enclosure</b>					
Type	Indoor (IP20) and NEMA PE 1				
Safety	Internal dead front construction				
Cooling	Forced Air				
Color	Black (RAL 9005)				
<b>Installation</b>					
Rigging	Suitable for handling by forklift				
Mounting	Floor mounting holes provided				
Installation and maintenance access	Front access required for normal maintenance				
Conduit Entry	Top and Bottom standard				
<b>Standards</b>					
Electrostatic discharge immunity	ETL Listed to UL1778, ANSI C62.41b 4kV contact / 8kV air discharge				
<b>Configuration</b>					
Standard	Single Module System				
Optional	Redundant Parallel Architecture (RPA) - up to 6 modules may be paralleled in any combination for redundancy or capacity				
<b>Fault current rating</b>					
UPS is designed for installation in an electrical system up to 65kA					

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 - 1000 kVA, Transformerless  
UPS Modules

## Section 20

### TLE Series 2 UPS Module, 225kVA/225kW, 480/277V, 60Hz - UNITY (1.0) Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single/Dual Input Module, IGBT Rectifier, IGBT Inverter, Bypass Inductor, Internal MBP	44 x 34 x 75	1323	UB2022TL444AA00

### TLE Series 2 UPS Module, 250kVA/250kW, 480/277V, 60Hz - UNITY (1.0) Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single/Dual Input Module, IGBT Rectifier, IGBT Inverter, Bypass Inductor, Internal MBP	44 x 34 x 75	1323	UB2025TL444AA00

### TLE Series 2 UPS Module, 400kVA/400kW, 480/277V, 60Hz - UNITY (1.0) Power Factor

Description	Dimensions W x D x H (in.)	Weight (lbs)	Product Number
Single/Dual Input Module, IGBT Rectifier, IGBT Inverter, Bypass Inductor, Internal MBP	64 x 34 x 75	2756	UB2040TL444AA00

### TLE Series 2 UPS Module, 500kVA/500kW, 480/277V, 60Hz - UNITY (1.0) Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single/Dual Input Module, IGBT Rectifier, IGBT Inverter, Bypass Inductor, Internal MBP	64 x 34 x 75	2756	UB2050TL444AA00

### TLE Series 2 UPS Module, 750kVA/750kW, 480/277V, 60Hz - UNITY (1.0) Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single/Dual Input Module, IGBT Rectifier, IGBT Inverter, Bypass Inductor, NO internal MBP	118 x 34 x 75	4850	UB2075TL444AA00

### TLE Series 2 UPS Module, 1000kVA/1000kW, 480/277V, 60Hz - UNITY (1.0) Power Factor

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Single/Dual Input Module, IGBT Rectifier, IGBT Inverter, Bypass Inductor, NO Internal MBP	144 x 34 x 75	5732	UB2100TL444AA00



# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 - 1000 kVA

VRLA Battery Cabinet Systems

## Section 20

### Notes

- SG & TLE UPS utilize 480VDC battery systems - 240 cells, 40 jars per cabinet
- External DC Cabling from the Battery System to UPS Module is supplied and installed by others. Contractor to provide single, full size feeder from the UPS Module to the Battery System, unless noted otherwise in each table.
- Internal DC Cabling from Battery Cabinet-to-Battery Cabinet in multi-cabinet applications, if provided by GE, is installed by others. Insure proper installation location of the Master Tie Cabinet in multi-cabinet lineups, or the internal DC cables will not fit correctly (see battery cabinet drawing and/or owners manual).

### TLE 225kVA UPS - 225kW output (1.0 .pf)

Backup Time @ 1.0 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
10 min	2	80 / 12HX400	400A	89 x 33.7 x 75.08	7720	TLD225-2BR-54-N
17 min	2	80 / 12HX540	400A	89 x 33.7 x 75.08	9800	TLD225-2BR-56-N
27 min	3	120 / 12HX505	400A	127.5 x 33.7 x 75.08	14215	TLD225-3BR-55-N
39 min	4	160 / 12HX505	400A	166 x 33.7 x 75.08	18870	TLD225-4BR-55-N
56 min	5	200 / 12HX540	400A	204.5 x 33.7 x 75.08	24125	TLD225-5BR-56-N

### TLE 250kVA UPS - 250kW output (1.0 pf .pf)

Backup Time @ 1.0 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
5 min	2	80 / 12HX300	600A	89 x 33.7 x 75.08	6120	TLD250-2BR-52-N
8 min	2	80 / 12HX400	400A	89 x 33.7 x 75.08	7720	TLD250-2BR-54-N
14 min	2	80 / 12HX540	400A	89 x 33.7 x 75.08	9800	TLD250-2BR-56-N
16 min	3	120 / 12HX505	400A	127.5 x 33.7 x 75.08	11455	TLD250-3BR-54-N
26 min	3	120 / 12HX505	400A	127.5 x 33.7 x 75.08	14575	TLD250-3BR-56-N
37 min	4	160 / 12HX540	400A	166 x 33.7 x 75.08	19350	TLD250-4BR-56-N

### TLE 400kVA UPS - 400kW output (1.0 .pf)

Backup Time @ 1.0 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
5 min	2	80 / 12HX505	500A	89 x 33.7 x 75.08	9610	TLD400-2BR-55-N
6 min	2	80 / 12HX540	500A	89 x 33.7 x 75.08	9850	TLD400-2BR-56-N
7 min	3	120 / 12HX400	400A	127.5 x 33.7 x 75.08	11455	TLD400-3BR-54-N
13 min	3	120 / 12HX540	400A	127.5 x 33.7 x 75.08	14575	TLD400-3BR-56-N
20 min	4	160 / 12HX540	400A	166 x 33.7 x 75.08	19350	TLD400-4BR-56-N
27 min	5	200 / 12HX540	400A	204.5 x 33.7 x 75.08	24125	TLD400-5BR-56-N
34 min	6	240 / 12HX540	400A	243 x 33.7 x 75.08	28900	TLD400-6BR-56-N

### TLE 500kVA UPS - 500kW output (1.0 .pf)

Backup Time @ 1.0 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
9 min	3	120 / 12HX540	400A	128 x 33.7 x 75.08	14575	TLD500-3BR-56-N
13 min	4	160 / 12HX505	400A	166 x 33.7 x 75.08	18870	TLD500-4BR-55-N
14 min	4	160 / 12HX540	400A	166 x 33.7 x 75.08	19350	TLD500-4BR-56-N
20 min	5	200 / 12HX540	400A	205 x 33.7 x 75.08	24125	TLD500-5BR-56-N
26 min	6	240 / 12HX540	400A	243 x 33.7 x 75.08	28900	TLD500-6BR-56-N
31 min	7	280 / 12HX540	400A	282 x 33.7 x 75.08	33675	TLD500-7BR-56-N

### TLE 750kVA UPS - 750kW output (1.0 .pf)

Backup Time @ 1.0 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
6 min	4	160 / 12HX505	600A	174.0 x 33.7 x 75.08	19120	TLD750-4BR-55-N
7 min	4	160 / 12HX540	600A	174.0 x 33.7 x 75.08	19600	TLD750-4BR-56-N
9 min	5	200 / 12HX505	600A	212.5 x 33.7 x 75.08	23800	TLD750-5BR-55-N
11 min	5	200 / 12HX540	600A	212.5 x 33.7 x 75.08	24400	TLD750-5BR-56-N
14 min	6	240 / 12HX540	600A	251 x 33.7 x 75.08	29200	TLD750-6BR-56-N
16 min	7	280 / 12HX505	600A	289.5 x 33.7 x 75.08	33160	TLD750-7BR-55-N
18 min	7	280 / 12HX540	600A	289.5 x 33.7 x 75.08	34000	TLD750-7BR-56-N
20 min	8	320 / 12HX505	600A	328 x 33.7 x 75.08	37840	TLD750-8BR-55-N
22 min	8	320 / 12HX540	600A	328 x 33.7 x 75.08	38800	TLD750-8BR-56-N

### TLE 1000kVA UPS - 1000kW output (1.0 .pf)

Backup Time @ 1.0 .pf	Qty of Cabinets (Strings)	Qty of Jars Jar Product Number	DC CB Size	Dimensions W x D x H (in)	Weight (lbs)	Product Number
6 min	5	200 / 12HX540	600A	212.5 x 33.7 x 75.08	24400	TLD1000-5BR-56-N
9 min	6	240 / 12HX540	600A	251 x 33.7 x 75.08	29200	TLD1000-6BR-56-N
11 min	7	280 / 12HX540	600A	289.5 x 33.7 x 75.08	34000	TLD1000-7BR-56-N
13 min	8	320 / 12HX505	600A	328 x 33.7 x 75.08	37840	TLD1000-8BR-55-N
14 min	8	320 / 12HX540	600A	328 x 33.7 x 75.08	38800	TLD1000-8BR-56-N

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 - 1000 kVA  
Flywheel Systems

## Section 20

### Notes

- DC Energy Storage Flywheels are typically used in lieu of Battery Plants, for short term backup time and green solution. If project requires DC Flywheel and Battery backup for same UPS Module, consult factory for application support and pricing.
- External DC Cabling from the DC Flywheel to UPS Module is supplied and installed by others. Contractor to provide single, 250Amp 600VDC feeder from the UPS Module to the Battery System, unless noted otherwise.
- In multiple DC Flywheel applications, it is not possible to tie all Flywheel cabling to one UPS Module bus landing area. The use of a DC Paralleling Cabinet is recommended. This DC Paralleling Cabinet will allow one feeder from the UPS Module to the Paralleling Cabinet, and multiple feeders from the DC Paralleling Cabinet to each Flywheel. All feeder cabling is supplied and installed by others. We recommend quoting the DC Paralleling Cabinet as an OPTION ADDER, as competitors may not quote this cabinet, thinking that the installing contractor will provide.
- DC Flywheels are made in Cerritos, CA. DC Paralleling Cabinets are made in Carol Stream, IL. Leadtime ARO for both items is approx 5-7 weeks, and are drop-shipped to the jobsite.

### Backup Time Chart (in seconds)

#### Enhanced Flywheel

TLE UPS	UL TLE 225	UL TLE 250	UL TLE 400	UL TLE 500	UL TLE 750	UL TLE 1000
kW	225	250	400	500	750	1000
No. of Flywheels	↓	↓	↓	↓	↓	↓
1	19	16				
2	48	43	22	15		
3	75	68	40	28	15	
4		87	55	42	24	15
5			69	55	33	22
6					42	28

#### Standard Flywheel

TLE UPS	UL TLE 225	UL TLE 250	UL TLE 400	UL TLE 500	UL TLE 750	UL TLE 1000
kW	225	250	400	500	750	1000
No. of Flywheels	↓	↓	↓	↓	↓	↓
1	15	12				
2	32	28	16	12		
3	48	43	26	21	12	
4		58	35	28	18	12
5			45	35	23	16
6					28	20

#### Chart Notes:

1. Run times are rounded off to the nearest second and are based on UPS with 540Vdc float voltage for modules 160kVA and higher.
2. DC-AC Efficiencies (battery to output) are based on battery power data at rated power factor from Technical Data Sheets
3. Runtimes take into account the minimum 2 sec rectifier walk-in time

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 - 1000 kVA

Flywheel Systems

## Section 20

### Enhanced Flywheel for Series TLE UPS, 225-1000kVA

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Enhanced DC Flywheel, 300kw maximum, with GUI Display & DC Filter Assembly	30 x 30 x 74	1780	FW-UL-ENH-TLE

### Standard Flywheel for Series TLE UPS, 225-1000kVA

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
Standard DC Flywheel, 300kw maximum, with GUI Display & DC Filter Assembly	30 x 30 x 74	1780	FW-UL-STD-TLE

### Flywheel Accessories

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
DC Breaker, 250Amp, w/24VDC Shunt trip			N/A
Touch Screen GUI Display			N/A
ModBus Communications			FLYWH-MODBUS
Remote Emerg Power Off (REPO)			FLYWH-REPO
Customer Interface Board			FLYWH-CIB
CA OSHPD Seismic Certification			FLYWH-OSHPD
<b>Floor Stand (pick height):</b>			
12" High	30 x 30 x 12	300	FLYWH-FS12
18" High	30 x 30 x 18	325	FLYWH-FS18
24" High	30 x 30 x 24	350	FLYWH-FS24
36" High	30 x 30 x 36	375	FLYWH-FS36
42" High	30 x 30 x 42	400	FLYWH-FS42
Aux Power Panel with Main CB			FLYWH-AUXPP
20A 2Pole CB			FLYWH-2PCB
Additional User Manual			FLYWH-MANUAL
Additional Submittal Drawing			FLYWH-SUBDWG
Certified Factory Test Reports			FLYWH-TESTDOC

### DC Paralleling Cabinets, 600VDC

Description	Dimensions W x D x H (in)	Weight (lbs)	Product Number
<b>For TLE UPS</b>			
DC Paralleling Cabinet, 800A Bus, 1 to 3 Flywheel CBs	24 x 33 x 75	Est 500	DCPARCAB-800-TLE
For Each Flywheel 250A CB (3 max)	incl	incl	DCPARCAB-250A
For Optional 800A Main CB	incl	incl	DCPARCAB-800A-TLE
DC Paralleling Cabinet, 1600A Bus, 4 to 6 Flywheel CBs	24 x 33 x 75	Est 600	DCPARCAB-1600-TLE
For Each Flywh 250A CB (6 max)	incl	incl	DCPARCAB-250A
For Optional 1600A Main CB	2nd sect, 24 x 33 x 75	400	DCPARCAB-1600A-TLE

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

## Section 20

225 - 1000 kVA

External Maintenance Bypass Cabinets

### Series TLE UPS - 3 Breaker Matching, Free Standing Maintenance Bypass Cabinet (MBC)

TLE UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
225	400AT (80%)	350AT (80%)	65kAIC	30.0	32.8	75	310	MBC224-35400T-L600
250	450AT (80%)	400AT (80%)	65kAIC	30.0	32.8	75	360	MBC254-40450T-L600
400	600AT (100%)	600AT (80%)	65kAIC	30.0	32.8	75	360	MBC404-60600T-L600
500	700AT (100%)	800AT (80%)	65kAIC	36.0	32.8	75	630	MBC504-80700T-L600
750	1200AT (100%)	1000AT (100%)	65kAIC	36.0	32.8	75	710	MBC754-A0A20T-L600
1000	1600AT (100%)	1600AT (100%)	65kAIC	92.0	32.8	75	1200	MBCA04-A6A60T-L600

#### Notes on TLE Matching MBC:

- Cabinets are matching height, depth, and black in color same as UPS Module
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Base MBC includes 3-breaker with mechanical Kirk Key configuration.  
For 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC224-35400T-K600  
For 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC224-35000T-L600  
For 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-35000T-K600
- Cabinet conduit access via top, bottom, and sides via knockouts.
- Warranty is 1 year. Leadtime is 4-8 weeks (typical) via sourced supplier.

### Series TLE UPS - 3 Breaker Non-Matching, Free Standing Maintenance Bypass Switchboard (MBS-UL891)

TLE UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
500	700AT (100%)	800AT (80%)	50kAIC	45	30	90	760	MBS504-80700T-K500
500	700AT (100%)	800AT (80%)	65kAIC	45	30	90	760	MBS504-80700T-K600
500	700AT (100%)	800AT (80%)	100kAIC	45	30	90	760	MBS504-80700T-KA00
750	1200AT (100%)	1000AT (100%)	50kAIC	45	30	90	760	MBS754-A0A20T-K500
750	1200AT (100%)	1000AT (100%)	65kAIC	45	30	90	760	MBS754-A0A20T-K600
750	1200AT (100%)	1000AT (100%)	100kAIC	45	30	90	760	MBS754-A0A20T-KA00
1000	1600AT (100%)	1600AT (100%)	65kAIC	60	35	90	1376	MBSA04-A6A60T-K600
1000	1600AT (100%)	1600AT (100%)	100kAIC	60	35	90	1376	MBSA04-A6A60T-KA00

#### Notes on TLE Non-Matching MBS cabinets:

- Cabinets are ANSI grey (switchboard) color
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Circuit Breaker interlock system is Kirk Key electric interlock (w/SKRU)
- Cabinet conduit access via top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 4-8 weeks (typical) via GE factory.

### Series TLE UPS - 3 Breaker Non-Matching, Wall Mounted Maintenance Bypass Panel (MBP) - Style A

TLE UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Product Number
225	400AT (80%)	350AT (80%)	35kAIC	40	14	91	557	GT20350-10400-A1S
225	400AT (80%)	350AT (80%)	35kAIC	40	14	91	557	GT20350-10400-A2S
250	450AT (80%)	400AT (80%)	35kAIC	40	14	91	557	GT20400-10450-A1S
250	450AT (80%)	400AT (80%)	35kAIC	40	14	91	557	GT20400-10450-A2S
400	700AT (80%)	600AT (80%)	35kAIC	40	14	91	557	GT20600-10700-A1S
400	700AT (80%)	600AT (80%)	35kAIC	40	14	91	557	GT20600-10700-A2S
500	1000AT (80%)	800AT (80%)	50kAIC	40	14	91	557	GT20800-11000-A1S
500	1000AT (80%)	800AT (80%)	50kAIC	40	14	91	557	GT20800-11000-A2S

#### Notes on TLE Non-Matching, Wall-mounted Maintenance Bypass Panelboard (MBP)

- Panelboards are ANSI grey color
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Circuit Breaker interlock systems are Mechanical Kirk Key (KK) and electric interlock (w/SKRU)
- Cabinet conduit access via top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 4-8 weeks (typical) via Source Suppliers

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

## Section 20

225 - 1000 kVA

External Maintenance Bypass Cabinets

### Series TLE UPS - 3 breaker Non-Matching, Wall Mount Maintenance Bypass Panel (MBP) - Style B

TLE UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs.)	Product Number
225	400AT (80%)	350AT (80%)	65kAIC	30	11	42	125	MBP224-35400T-L600
250	450AT (80%)	400AT (80%)	65kAIC	36	14	48	140	MBP254-40450T-L600
400	600AT (100%)	600AT (80%)	65kAIC	36	14	48	140	MBP404-60600T-L600
500	700AT (100%)	800AT (80%)	65kAIC	36	14	48	165	MBP504-80700T-L600
750	1200AT (100%)	1000AT (100%)	65kAIC	36	14	48	165	MBP754-A0A20T-L600

#### Notes on TLE Wallmount MBP:

- Cabinets are black in color.
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. Neutral not used in 3w UPS applications.
- Base MBP includes 3-breaker with mechanical Kirk Key configuration.  
For 3-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #15 to "K", example: MBC224-354000-K600  
For 2-breaker MBP with mechanical Kirk Key change, the Base MBP, digit #10 & #11 to "00", example: MBC224-350000-L600  
For 2-breaker MBP with electric interlock (with SKRU) change, the Base MBP, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-350000-K600
- Cabinet conduit access via top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 3-5 weeks (typical) via sourced supplier.

### Series TLE UPS - 4x2 Combo, 3 Breaker Maintenance Bypass Cabinet (MBC) w/Output Isolation Transformer

TLE UPS kVA	UIB CB (Trip Rating)	MIB & MBB CB (Trip Rating)	kAIC Rating @ 480VAC	Width (in)	Depth (in)	Height (in)	Weight (lbs.)	Product Number
225	400AT (80%)	350AT (80%)	35kAIC	54	33	75	2200	MBC224-35400T-L322
225	400AT (80%)	350AT (80%)	65kAIC	54	33	75	2200	MBC224-35400T-L622
250	450AT (80%)	400AT (80%)	35kAIC	54	34	75	2500	MBC254-40450T-L325
250	450AT (80%)	400AT (80%)	65kAIC	54	34	75	2500	MBC254-40450T-L625

#### Notes on TLE 4x2 combo MBC:

- Cabinets are matching depth, height, and black color same as UPS Module
- Baseline configuration is 3-Breaker Type, 480/277V 3ph 4w + gnd. K13 DOE2016 Compliant copper transformer, 480V-208/120V
- Base 4x2 Combo MBC includes 3-breaker with mechanical Kirk Key configuration.  
For 4x2 Combo 3-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #15 to "K", example: MBC224-35400T-K622  
For 4x2 Combo 2-breaker MBC with mechanical Kirk Key change, the Base MBC, digit #10 & #11 to "00", example: MBC224-35000T-L622  
For 4x2 Combo 2-breaker MBC with electric interlock (with SKRU) change, the Base MBC, digit #10 & #11 to "00" and digit # 15 to "K", example: MBC224-35000T-K622
- Cabinet conduit access top and bottom via knockouts.
- Warranty is 1 year. Leadtime is 6-8 weeks (typical) via sourced supplier.

# Uninterruptible Power Supplies Energy Connections TLE Series UPS

225 - 1000 kVA

Options and Accessories

## Section 20

### UPS Input Transformers (NEMA 1 non-matching enclosure, Aluminum, K0)

UPS kVA Rating, Voltage (Input-Output)	Weight (lbs)	Dimensions W x D x H (in)	Xfmr kVA	Product Number
TLE 225/250kVA, (208V - 480/277V) DOE2016 Compliant	3300	49 x 42 x 64	500	SG3A0500BK
TLE 225/250kVA, (480V - 480/277V) DOE2016 Compliant	2950	49 x 42 x 64	500	SG3A0500KK
TLE 400/500kVA, (208V - 480/277V) DOE2016 Compliant	4100	54 x 47 x 72	750	SG3A0750BK
TLE 400/500kVA, (480V - 480/277V) DOE2016 Compliant	4100	54 x 47 x 72	750	SG3A0750KK
TLE 750kVA, (480V - 480/277V) DOE2016 Compliant	5400	60 x 50 x 82	1000	SG3A1000KK
TLE 1000kVA, (480V - 480/277V) Exempt from DOE2016 Compliant	TBD	64 x 51 x 75	1500	UMK1500KK

### UPS Output Transformers (NEMA 1 non-matching enclosure, Aluminum, K0)

UPS kVA Rating, Voltage (Input-Output)	Weight (lbs)	Dimensions W x D x H (in)	Xfmr kVA	Product Number
TLE 225/250kVA, (480V - 208/120V) DOE2016 Compliant	2750	49 x 42 X 64	500	SG3A0500KB
TLE 400/500kVA, (480V - 208/120V) DOE2016 Compliant	4100	54 x 47 x 72	750	SG3A0750KB
TLE 750kVA, (480V - 208/120V) DOE2016 Compliant	5400	60 x 50 X 82	5400	SG3A1000KB
TLE 1000kVA, (480V - 208/120V) Exempt from DOE2016 Compliant	TBD	64 x 51 x 75	1500	UMK1500KB

### GE eBoost™ (Multi-Mode) Factory-Installed Software

Description	Product Number
TLE Series, 225kVA	UTL225EBSFTWR
TLE Series, 250kVA	UTL250EBSFTWR
TLE Series, 400kVA	UTL400EBSFTWR
TLE Series, 500kVA	UTL500EBSFTWR
TLE Series, 750kVA	UTL750EBSFTWR
TLE Series, 1000kVA	UTL1000EBSFTWR

### Connectivity

Description	Product Number
Modbus - TCP & RTU (Modbus License)	24864
SNMP/Web Plug-In	1024921
1/2 size Customer Interface Card (CIC) w/6 programmable Dry "Form C" relay contacts and 2 programmable inputs	1020010

### Remote Status Alarm Panel (RSAP)

Description	Product Number
Remote Status Alarm Panel - Surface Mounted LED Mimic Panel	17442

#### Note:

RSAP uses the CIC card supplied standard with the UPS Module. If External MBS Cabinet is part of UPS configuration, a second CIC Card must be purchased.

### iUPSGuard Remote Monitoring/Diagnostics

Description	Product Number
Annual License, for 12 months from startup	26106
Annual License, for 12 months after 1st year warranty expires. Sell before 1st year warranty expires.	26106-R

### Battery System Temperature Sensor (Only 1 per UPS System)

Description	Product Number
Series TLE UPS, 5 meter long sensor	1025486
Series TLE UPS, 15 meter long sensor	1025487
Series TLE UPS, 20 meter long sensor	1025488
Series TLE UPS, 30 meter long sensor	1025489
Series TLE UPS, 60 meter long sensor	1025490