

## TLE Series UPS 625/750/1000 kW With eBoost Technology

The new TLE Series Uninterruptible Power Supply (UPS) is a three-phase high power product with best-in-class multi-mode efficiency for global critical power needs. The TLE platform establishes GE UPS technology leadership in high power applications with industry leading differentiation in efficiency, output power capacity and footprint.

GE's TLE Series UPS is one of the most energy efficient multi-mode UPS in the industry, and provides world-class energy efficiency across the operating load range. The TLE Series delivers efficiency up to 97% in double conversion mode and 99% in eBoost operating mode. This system efficiency substantially reduces operating and cooling costs thus providing a reduced cost of ownership and improved power usage effectiveness (PUE) compared to conventional UPS.

### Features and Benefits

#### Technology at Its Best

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

#### "Best of Both Worlds" Operating Efficiency

- Up to 97% efficiency in premium protection mode (double conversion)
- Upto 99% efficiency in premium energy save mode (eBoost)

#### Electrical Environment Optimization

- Unity (1) Output Power Factor
- High (0.99) Input Power Factor
- Less than 5% Input Current Harmonic Distortion

#### Technology at Its Best

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

### Key Applications/Verticals

- Data Centers
- Healthcare Facilities
- Financial Institutions
- Colleges/Universities



- Multi-Mode Efficiency
- Superior Input, Output & Physical Characteristics
- Advanced User Interface
- UPS RPA Paralleling Architecture
- Reliability, Diagnostic & Monitoring Enhancements
- GE Capital Retrofit Program



## TLE UPS 625/750/1000 Technical Datasheet

GENERAL DATA						
Topology		True double conversion (VFI) Transformerless				
Nominal output power at PF = 1		625kVA (625 kW) / 750kVA (750 kW) / 1000kVA (1000 kW)				
System Efficiency in Double Conversion operating mode @1 PF load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load	
625kW		94.7%	96.4%	96.3%	96.2%	
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 PF load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load	
625kW		96.9%	98.1%	98.4%	98.6%	
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 PF load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load	
625kW		BTU/hr	29845	39830	61468	94260
		kW	8.7	11.7	18.0	24.7
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 PF load, nominal voltage/frequency, energy storage disconnected		25% load	50% load	75% load	100% load	
625kW		BTU/hr	17060	20657	26013	30288
		kW	5.0	6.1	7.6	8.9
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) (625/750/1000kVA)		4240 / 4944 / 6780 CFM				
Audible noise level (at 5 ft./1.52Mts)						
Double Conversion Mode		78 dB(A)				
eBoost Mode		68 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				
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%
Enclosure						
Type		Indoor (IP20) and NEMA PE 1				
Safety		Internal dead front construction				
Cooling		Forced Air				
Color		Black (RAL 9005)				

GENERAL DATA (continued)				
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	ETL Listed to UL1778, ANSI C62.41b			
Electrostatic discharge immunity	4kV contact / 8kV air discharge			
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			
RECTIFIER				
Configuration	Three phases rectifier bridge with three level IGBT technology			
Input				
Voltage	480VAC, 3-phase, 4 wire + ground OR 3 wire + ground (+/- 15% without battery discharge)			
Frequency	60Hz, +/-10% (54-66Hz)			
Harmonic Current Distortion	<5%			
Power Factor (Typical)	0.99 lagging			
Inrush current	Limited by soft-start circuit			
Power walk-in	30 seconds (Adjustable)			
Output Voltage Tolerance	+/- 1%			
DC ripple voltage	+/- 1%			
DC ripple current	Max. 5% of battery capacity expressed in amps			
<b>UPS RATING vs. CURRENT LIMITS</b>				
		625 kVA/kW	750 kVA/kW	1000 kVA/kW
Nominal input (100% load)	Amps	789.1	945.0	1260.0
(1 PF load, fully chrg'd bat.)	kVA	656.0	785.6	1047.5
	kW	649.4	777.7	1037.0
Maximum input (100% load)	Amps	971.1	1025.0	1367.0
(1 PF load, max. chrg current)	kVA	724.3	852.3	1136.3
	kW	717.0	843.7	1125.0
Max. charge current	Amps	135	135	180

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BATTERY				
Battery compatibility	Lead-acid or NiCd, VRLA or flooded			
Number of cells	240 (lead-acid)			
Float voltage at 68°F (20°C)	540VDC			
Minimum discharge voltage	396VDC (adjustable)			
Recharge time	10 times the discharge time			
Battery ground fault detection	Standard			
Automatic and manual battery test	Standard			
Common battery in parallel system	Up to 3 units			
UPS RATING		625 kVA/kW	750 kVA/kW	1000 kVA/kW
@100% load, 1 PF	kWB	651.7	781	1042
Maximum Discharge Current (1.65V cell)	Amps	1646	1973	2630
INVERTER				
Nominal output voltage	480VAC, 3-phase, 4 wire + ground OR 3 wire + ground			
Inverter bridge	Three phases inverter bridge with three level IGBT technology IGBT			
Output waveform	True sine wave			
Output voltage tolerance				
Static	+/- 1%			
Load step 0% - 100% - 0%	+/- 3%, recovering to within +/- 1% in 1 cycle			
Load step 0% - 50% - 0%	+/-2%, recovering to within +/- 1% in 1 cycle			
100% unbalanced load (Ph-N)	+/- 3%			
Output voltage distortion				
100% linear load	3% THD maximum			
100% non-linear load (per IEC 62040)	5% THD maximum			
Crest factor capability	< 3:1			
Output neutral rating	200%			
Phase displacement				
100% balanced load	120° +/- 1%			
100% unbalanced load	120° +/- 2%			
Output frequency				
Free running	60Hz, +/- 0.1%			
Synchronized with utility	+/- 4% (adjustable from 57.6Hz to 62.4Hz)			
Overload capability (on inverter)	125% at 1 PF for 1 minutes			
	150% at 1 PF for 30 seconds			
Short circuit capability (on inverter)	220% for 100 ms, electronically limited			
UPS RATING		625 kVA/kW	750 kVA/kW	1000 kVA/kW
Maximum Output Current @ 1 PF	Amps	751.8	902.0	1203.0

STATIC BYPASS		
Input configuration	Single input (standard) or dual input (optional)	
Primary components	Fully rated continuous duty static switch	
	Back feed protection + Semiconductor fuse for clearing fault currents	
Transfer limits	+/- 10% of nominal output voltage (adjustable)	
Overload capability (on bypass)	110% continuous	
	150% for 1 minute	
Short circuit capability (on bypass)	1000% for 1/2 cycle (non-repetitive)	
eBoost™ OPERATING MODE		
Input wiring configuration	480VAC, 3-phase, 4 wire + ground OR 3 wire + ground	
Output waveform	Continuously monitored	
Transfer time to Inverter	<2ms (typical)	
Transfer limits		
Steady-state RMS tolerance	+/-20 Vrms (adjustable)	
Instantaneous voltage distortion (with respect to Normal Sine wave)	Magnitude	+/-75Vp
	Duration	500µs (adjustable)
Steady-state frequency tolerance	+/-3 Hz	
Instantaneous phase shift	0.15 radians (8.5 Deg)	
EXTERNAL INTERFACE		
Alarm contacts (voltage-free)		
Standard	6 user defined contacts (form 'C') (1A / 24V DC)	
Optional	12 user defined contacts (form 'C') (1A / 24V DC)	
	(23 selectable signals include aux. Inputs 1 & 2)	
Communication	RS-232 / SNMP / MODBUS	
Input signals	Emergency Power Off (user supplied N.C. contact)	
	Aux. input 1 * (default = On Generator)	
	Aux. input 2 * (configurable)	
	* Status displayed on LCD panel	
Diagnostics	Internal Waveform Capture. Input and output w/pre and post event data (Field Service Only)	

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## FRONT PANEL CONTROLS, SIGNALS & ALARMS

Touch Screen Graphic Display



Mimic Diagram	Represents operational status of the UPS on Home Page of LCD	
Operation LED	Visual indicator when load is on inverter OR load is on bypass BLINK during service check	
Alarm LED	Visual indicator and audible signal, activates approx. 3 minutes (adjustable) before complete and automatic load shutdown due to the battery is fully discharged and the load cannot be transferred on utility or Over temperature or overload condition (>125%) and the load cannot be transferred on utility.	
Warning LED	Visual indicator and audible signal active when any alarm condition is present BLINK when alarm is active and not acknowledged	
Load Level / Battery Run Time	Bar graph status indicator on Home Page of LCD Load level in %, Battery run time in min.	
Multilanguage Graphic LCD	Display of UPS metering functions , event history, configuration of parameters and helps perform critical UPS Operations Supports 14 Languages (Chinese, Czech, Dutch, English, Espanola, Francais, German, Italiano, Polish, Portuguese, Russian, Slovensko, Soumi, Swedish)	
Push Buttons	Inverter On	Inverter Off

## OPTIONAL FEATURES

RPA, IEMi	Redundant Parallel Operation, Intelligent Energy Management Integrated
eBoost™ (Patented) Operating Mode	High Efficiency Operating Mode for Single and Multi module applications
RPA Cable Saver Inductor	Simplify Parallel Systems installation & Improve current sharing
Dual Input	Integral to UPS cabinet. No additional cabinet required
Input/Output Transformers	Available in external cabinets for isolation or voltage transformation
External Maintenance Bypass	Available in external or as a part of output switchgear cabinet
Protection Software	PC operated remote monitoring, control and diagnostics
SNMP Communication	Ethernet interface for network connection

FRONT PANEL CONTROLS, SIGNALS & ALARMS

625/750/1000 kW Enclosure



Dimensions (inches / mm)	Width (W)	Depth (D)	Height (H)
625kW	118.12 inches / 3000 mm	34.06 inches / 865 mm	75.00 inches / 1905 mm
750kW	118.12 inches / 3000 mm	34.06 inches / 865 mm	75.00 inches / 1905 mm
1000kW	143.50 inches / 3645 mm	34.06 inches / 865 mm	75.00 inches / 1905 mm
Configuration	Weight (lbs./ Kg)	floor load (lbs./sq ft / Kg/sq m)	
625kW	4850 lbs. / 2200 Kg	174 lbs./sq ft / 848 Kg/sq m	
750kW	4850 lbs. / 2200 Kg	174 lbs./sq ft / 848 Kg/sq m	
1000kW	5732 lbs. / 2600 Kg	169 lbs./sq ft / 825 Kg/sq m	

UPS BLOCK DIAGRAM

	Standard configuration	With separate Bypass Utility
1 Rectifier		
2 Inverter		
3 Static Bypass		
4 Load switch		
5 Utility		
6 Load Output		
7 External Battery		
8 RPA Cable Saver Inductor		
9 Booster/Charger		
FB Battery Fuses or Circuit Breaker		
F1, 2, 3 AC Input Fuses or Circuit Breaker		
	<p>With separate Bypass Utility: connect a single input Neutral to Bypass Utility (inside the UPS, common neutral for Bypass and Rectifier)</p>	

## Notes

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## GE Critical Power

601 Shiloh Road, Plano, TX 75074  
+1 800 637 1738 (toll-free in North America)  
+1 773 299 6600 (direct number)  
gepqsales@ge.com  
GECriticalPower.com

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