ИБП General Electric TLE Series 225-1500 кВА - брошюра на продукцию. Юниджет

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

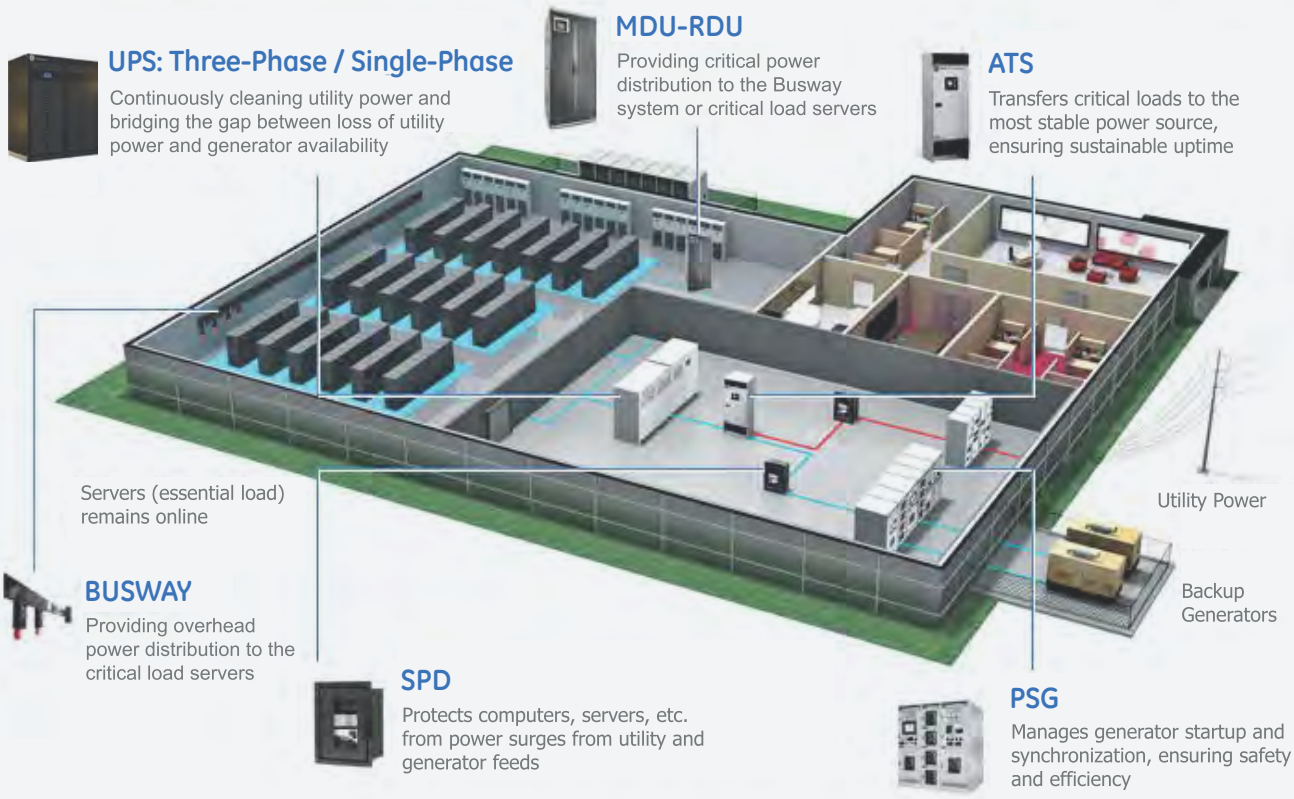
GE
Critical Power

TLE Series UPS 225-1500 kW

for best-in-class multi-mode operating efficiency

Ensuring Uptime for Critical Processes

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



Providing Reliable Power to Your Mission-Critical Business Needs

With a comprehensive energy management portfolio, GE is uniquely positioned to provide industrial, commercial and datacenter infrastructure solutions. GE is a global solutions provider modernizing and optimizing how we generate, move and consume energy. We invent, improve and integrate communications, automation and power delivery technologies to enable cleaner, smarter and more efficient power for electrical infrastructures and consumers around the world.

TLE Series UPS – 225 to 1500 kW

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 multi-mode architecture that makes real time decisions between premium protection mode and premium efficiency 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

- Up to 97% Efficient in Premium Protection Mode (double conversion)
- Up to 99% Efficient in Premium Energy Save Mode (eBoost)

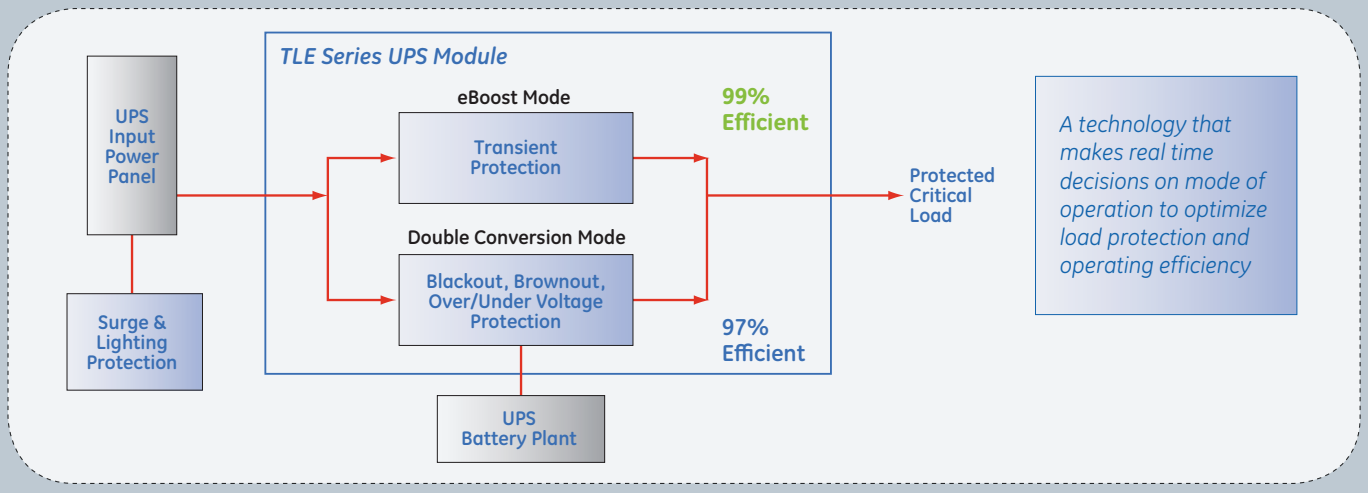
Electrical Environment Optimization

- 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



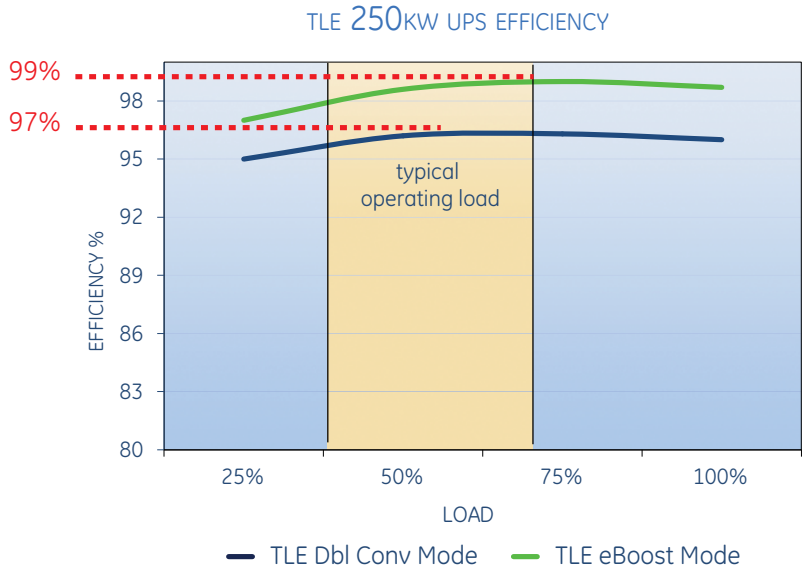
Energy Efficiency is Our Focus

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.

GE's UPS performance is optimized at 50-75% load operation, as this is the most common operating range. The optimization of the TLE Series includes selecting all major power chain components based on maximizing the component efficiency at part load conditions.

High Efficiency TLE Series UPS Provides:

- Substantial reduction in operating cost of UPS
- Reduction in air conditioning sizing related to UPS heat generation
- Potential to finance a UPS Retrofit where monthly energy savings is greater than monthly loan costs

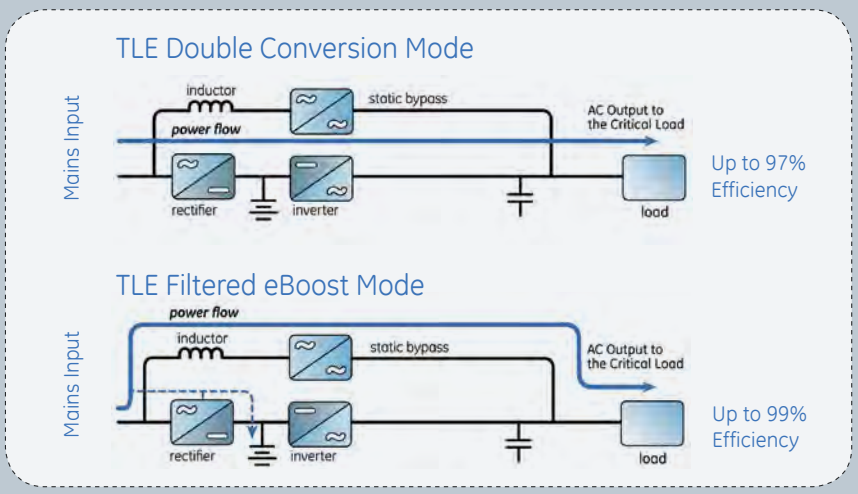


Premium Efficiency "eBoost" Mode

Energy consumption is a critical issue for IT organizations as their datacenter energy demands continue to grow. Their goal is to reduce cost and keep the datacenter running. IT organizations can reduce energy consumption costs without sacrificing system reliability with GE's eBoost technology.

e = high efficiency up to 99%

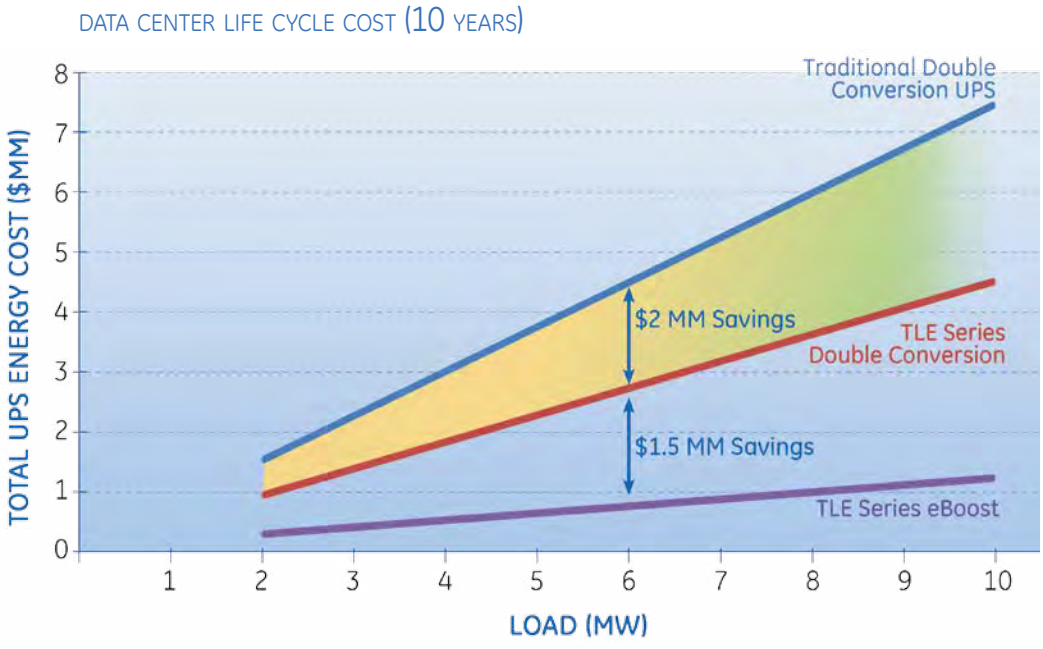
Boost = fast transfer to inverter < 2ms



Data Center Life Cycle Cost Savings

The TLE Series with 97% efficiency in double conversion mode and 99% efficiency in eBoost operating mode provides considerable life cycle cost savings in comparison to a legacy technology UPS operating at 94% efficiency. Savings are dependent upon load, power cost and life cycle duration (years).

For 6 MW load TLE Series provides estimated savings of $2 MM while operating in double conversion mode and $3.5 MM while operating in eBoost mode.



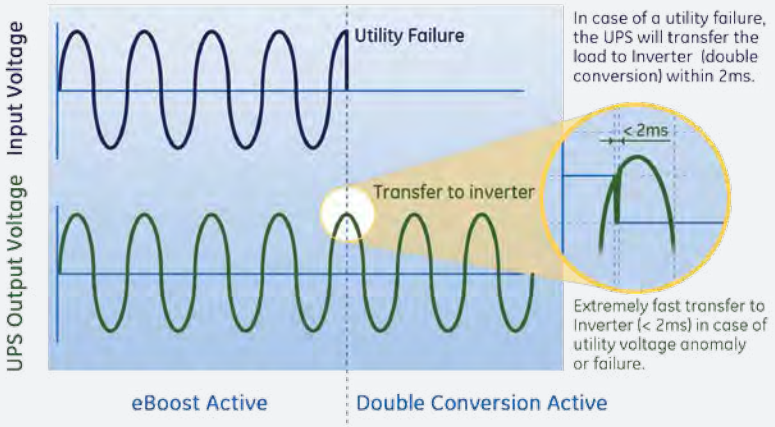
Assumptions:

Power cost = $ 0.10 /kw-hr

Operating hours/year = 8760

Configuration = S+S operating at 50% load

eBoost Performance



eBoost Key Specs

For TLE Series UPS, 225-1500 kW single and multi-module systems:

Fast transfer to inverter:	< 2ms
Input voltage range:	+/- 10
Input frequency range:	+/- 3
Efficiency:	up to 99%

eBoost Guarantee

GE guarantees that eBoost operation and functionality will not affect the critical load. Contact GE for details of this guarantee.

Innovative Product Technology

3 Level Technology for High Efficiency

The TLE Series UPS uses a three level technology with an Advanced Neutral Point Clamped topology implemented with true Reverse Blocking IGBT. This provides reduced switching and filter losses as compared to a standard two level technology. Combined with optimized magnetics, this results in up to 97% efficiency in double conversion mode. In addition, the high level of integration and optimized power layout provides clean commutations with no over-voltages which in turn translate into reduced component stress and increased reliability.

Superior Battery Management (SBM)

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

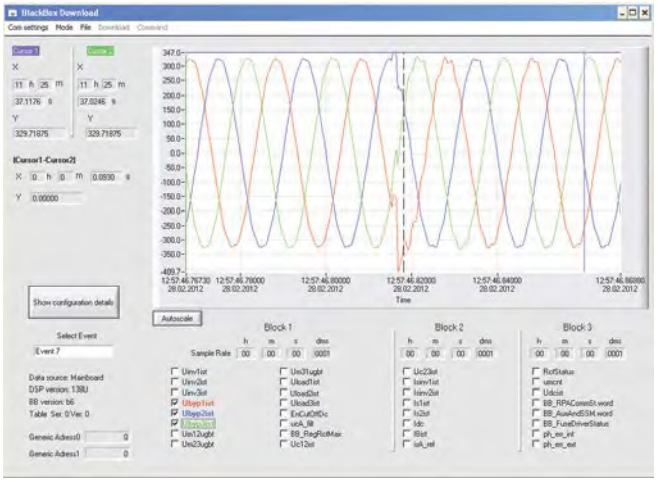
Advantages

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

Improved Diagnostic & Reliability with New DSP Control

Every TLE Series UPS incorporates improved diagnostic capabilities with the new FLEX DSP control board that provides capability of waveform capture, diagnostic and trend analysis. The TLE Series is also equipped with special hardware and monitoring capability for limited life components like fans and capacitors.

- Waveform capturing capability
- Fan failure detection
- Component life time counters (fan and capacitors)
- AC capacitor health monitoring
- IGBT status diagnostic
- Improved reliability and availability



SBM - Alleviating The Need for Bolt-On Battery Monitoring Systems

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

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

Input Performance

Clean Input Performance

The TLE Series IGBT based rectifier and innovative control algorithm ensures an input Total Harmonic Distortion (THDi) of less than 5% and draws a pure sinusoidal waveform from the mains. This also provides UPS input power factor of 0.99.

Advantages

- Saving in the sizing of upfront equipment e.g. emergency generators, cablings and circuit breakers
- No disturbances to nearby equipment; eliminate perturbation and outage on upfront electrical equipment, avoiding also any investigation and analysis cost due to malfunction

Programmable Soft Start

The programmable soft start allows the rectifier to ramp up in a programmable time period (0-15 seconds) thus eliminating in-rush current. This feature reduces the need of oversizing the input power system (gensets, feeder cables, and overcurrent devices).

Generator Compatibility

User-programmable features such as slew rate, phase angle rate-of-change and voltage rate-of-change allow the UPS to quickly sync to a genset during emergency back-up.

Output Performance

Total Harmonic Distortion (THD)

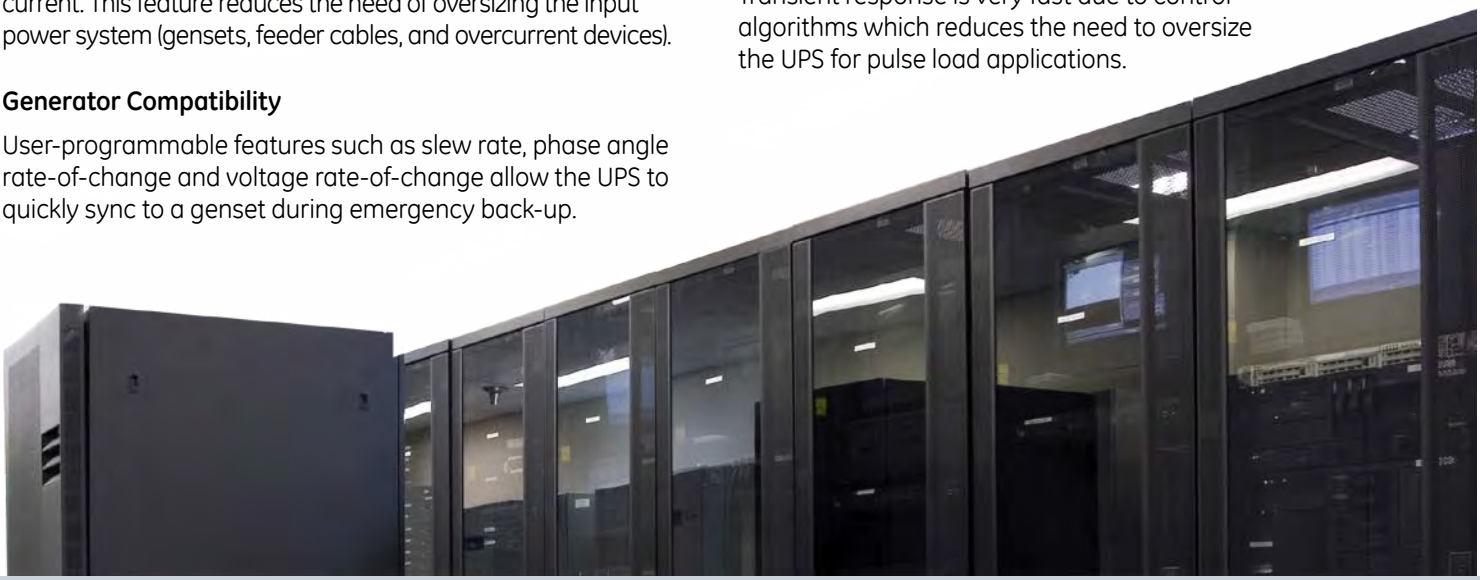
A distorted output voltage waveform affects the proper function of the load's equipment. The TLE Series has very low output voltage THD, even with connected 100% unbalanced or 100% non-linear loads.

More Available Real Power (KW)

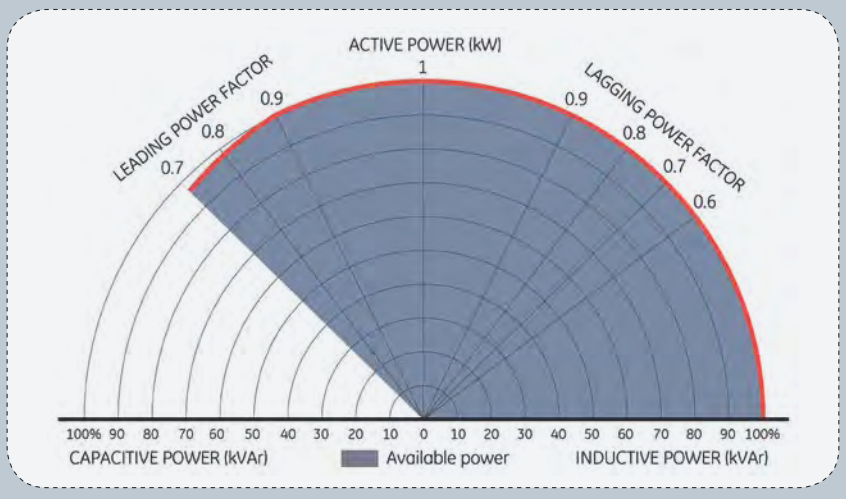
- TLE Series with unity output power factor provides more output KW. Real Power (KW) equals Apparent Power (kVA).
- Suitable for modern power supply application with unit or capacitive power factor (e.g. new servers generation), crest factor up to 3:1.

Transient Response

Transient response is very fast due to control algorithms which reduces the need to oversize the UPS for pulse load applications.



Load Output Power Factor Range



The TLE Series UPS is rated for unity output PF, but can handle a whole range of critical load power factor without UPS derating.

Many IT server computer loads have power factors of 0.95 lagging to 1.0 unity.

Many non-IT critical loads have power factors of 0.75 lagging to 0.95 lagging

GE Series TLE UPS can effectively support and protect both IT and non-IT critical loads.

Redundant Parallel Architecture (RPA)

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

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

RPA System Advantages

No Single Points of Failure

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

Patented Bypass Reactor Design

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

Scalable and Modular

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

Redundant Communication

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

Distributed Control Logic

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

Online Maintenance

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

Sequential Soft Start

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

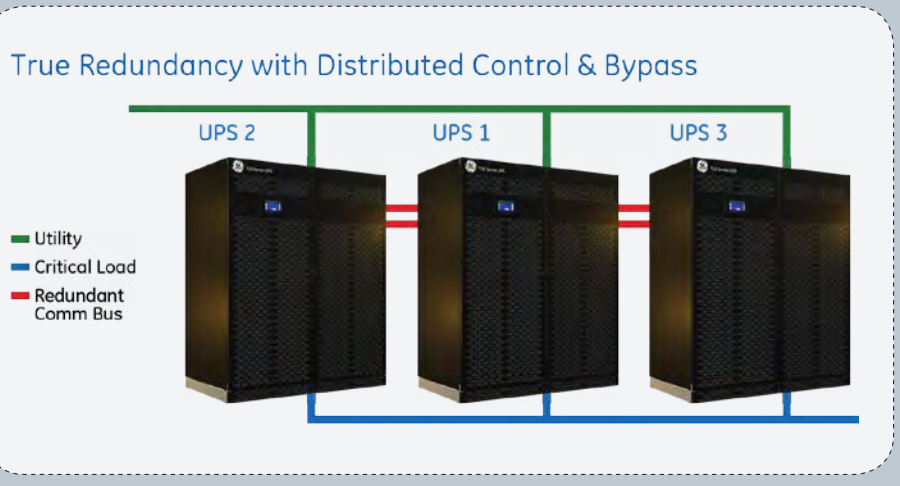
RPA Cable Saver

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

Smaller Footprint

RPA eliminates the centralized control and external static bypass cabinet.

RPA Configuration



Configurable up to 6 units in parallel

- Future expansion
- Safe and reliable power supply
- Redundant Communication Bus
- Easy to install and maintain
- Easy system upgrade/downgrade
- Maintenance operation without load interruption

Advanced User Interface

The TLE Series UPS is equipped with menu-driven touch screen display panel provides easy to read details on UPS status and metering, parameter settings and UPS configuration. This user-friendly display panel provides:

- Critical measurement of input, output and battery included with mimic diagram
- Quick operational status
- Measurement and operational status of RPA system
- Different access level for user and service
- Multi-language communication interface supporting: English, German, Italian, Spanish, French, Finnish, Polish, Portuguese, Czech, Slovakian, Chinese, Swedish, Russian and Dutch

Options & Accessories

Remote Alarm Status Panels

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

Battery Cabinets

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

Maintenance Bypass Cabinets

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

4x2 Combo Cabinets

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

Seismic Certification

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

Surge Protection Devices

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

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

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

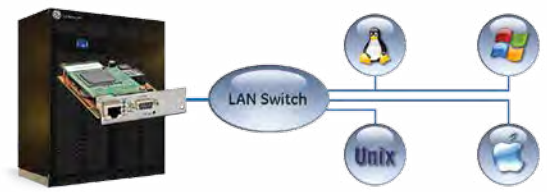
Recommended installation locations are service entrance switchboards, panelboards and UPS systems.

Software & Connectivity Solutions

Protection Software

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

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



Remote Monitoring and Diagnostic Solution (iUPSGuard)

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

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

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

Remote Connectivity to Building Management Systems

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

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

Factory Testing & Customer Witness Testing

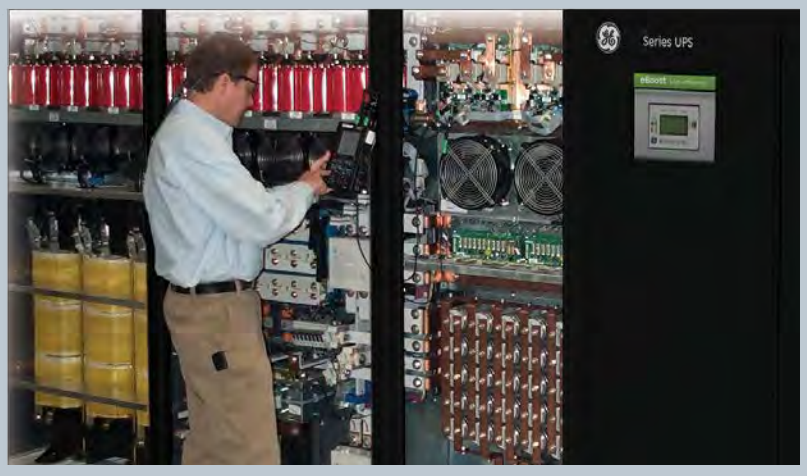
Factory Testing can include, but is not limited to:

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

Field Testing & Service Capabilities

On-Site Services that include:

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



TLE Series UPS - 480/277 VAC Configurations

225 kW
250 kW

44.1" W

400 kW
500 kW

63.8" W

750 kW

118" W

1000 kW

143.5" W

1250 kW

200" W

1500 kW

200" W

Technical Specifications - 480/277 VAC Applications

Power Rating**	Output Power Rating (kVA)	225	250	400	500	750	1000	1250	1500
	Output Power Rating (kW)	225	250	400	500	750	1000	1250	1500
Energy Usage	**eBoost Mode Efficiency at 50% Load**	98.6%	98.7%	98.2%	98.3%	98.2%	98.4%	98%+	98%+
	eBoost Mode Efficiency at 100% Load	98.8%	98.9%	98.6%	98.8%	98.8%	98.9%	98%+	98%+
	eBoost Mode BTU/hr at 100% Load	9,325	9,488	17,977	20,722	31,082	37,951	87,041*	104,448*
	Dbl Conv Mode Efficiency at 50% Load	96.6%	96.7%	96.6%	96.5%	96.5%	96.4%	96%+	96%+
	Dbl Conv Mode Efficiency at 100% Load	96.5%	96.4%	96.5%	96.3%	96.3%	96.2%	96%+	96%+
	Dbl Conv Mode BTU/hr at 100% Load	27,845	31,856	48,038	63,712	98,325	134,783	177,708*	213,250*
Physicals	Dimensions, w x dp x h (in.)	44.1 x 34 x 75		63.8 x 34 x 75		118x34x75	143.5x34x75	200 x 34 x 75 *	
	Weight, module only (lbs)	1,323	1,323	2,756	2,756	4,520	5,200	5,977*	6,577*
Input	Voltage	480VAC, 3ph, 4 wire + ground OR 3 wire + ground							
	Topology	IGBT Rectifier							
	Dual Input Capable	Remove internal jumper cables for separate inputs to Rectifier & Static Bypass							
	Voltage Range (w/o battery discharge)	-15% to +15%							
	Power Factor (lagging)	0.99							
	Current THD	< 5.0%							
	Frequency	60 Hz +/- 10%							
Output	Voltage	480VAC, 3ph, 4 wire + ground OR 3 wire + ground							
	Topology	PWM 3-Level IGBT Inverter							
	Frequency	50/60Hz							
	Crest Factor	3 : 1							
	Static Voltage Regulation	+/- 1%							
	100% Step Load Voltage Regulation	+/- 3%							
	100% Linear Load Voltage Distortion	<3.0% THD maximum							
	100% Non-Linear Load Voltage Distortion	<5.0% THD maximum							
	eBoost Transfer Time	< 2msec transfer to Inverter, within ITI/CBEMA voltage compliance curve							
	Overload Capability / Inverter	125% / 1 min ; 150% / 30 sec							
	Overload Capability / Static Bypass	110% continuous ; 150% for 1 minute							
Battery Plant	Compatible Technologies	VRLA, Wet Cell, NiCad							
	Float Voltage	540 VDC , 240 cell system							
	Recharge Time	10X discharge time (at 30min battery runtime)							
General	Audible Noise	75 db(A) at 5 ft		75 db(A) at 5 ft		78 db(A) at 5 ft		78 db(A) at 5 ft	
	Audible Noise (eBoost Mode)	65 db(A) at 5 ft		66 db(A) at 5 ft		68 db(A) at 5 ft		68 db(A) at 5 ft	
	Ambient Operating Temp	UPS Module: 32 to 104 degrees F (0-40 degrees C)							
	Humidity	0-95% non-condensing							
	Listings / Registrations	ETL as tested to UL1778 / IEC62040 / ISO 9001							
	Enclosure	IP20 and NEMA PE-1							
	RFI / Surge Protection	EN50091-2 / IEC 62040-2							
	Communication / Connectivity	RS232, programmable contacts, programmable relays, iUPSguard, optional SNMP & Modbus							
	Color	RAL 9005 Black							
	Warranty	12mo after startup or 18mo after shipment (whichever first). Extended warranties available.							

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

* = estimated data. Consult factory for updated information.

** product availability: 1250-1500 kW UPS (Q2 2015)

TLE Series UPS - 400/230 VAC Configurations

200 kW

44.1" W

400 kW

63.8" W

600 kW

118" W

800 kW

143.5" W

1000 kW

200" W

1200 kW

200" W

Technical Specifications - 400/230 VAC Applications

Power Rating**	Output Power Rating (kVA)	160	200	320	400	600	800	1000	1200
	Output Power Rating (kW)	160	200	320	400	600	800	1000	1200
Energy Usage	**eBoost Mode Efficiency at 50% Load**	> 98%	> 98%	> 98%	> 98%	> 98%	> 98%	> 98%	> 98%
	eBoost Mode Efficiency at 100% Load	> 98%	> 98%	> 98%	> 98%	> 98%	> 98%	> 98%	> 98%
	eBoost Mode BTU/hr at 100% Load	11,141*	13,926*	22,282*	27,853*	41,779*	55,706*	69,632*	83,558*
	Dbl Conv Mode Efficiency at 50% Load	> 96%	> 96%	> 96%	> 96%	> 96%	> 96%	> 96%	> 96%
	Dbl Conv Mode Efficiency at 100% Load	> 95%	> 95%	> 95%	> 95%	> 95%	> 95%	> 95%	> 95%
	Dbl Conv Mode BTU/hr at 100% Load	28,733*	35,916*	57,465*	71,832*	107,747*	143,663*	179,578*	215,494*
Physicals	Dimensions, w x dp x h (in.)	44.1 x 34 x 75		63.8 x 34 x 75		118x34x75*	143.5x34x75*	200 x 34 x 75 *	
	Weight, module only (lbs)	1,323	1,323	2,756	2,756	4,520	5,200	5,977*	6,577*
Input	Voltage	400/230V 3ph 4w + gnd							
	Topology	IGBT Rectifier							
	Dual Input Capable	Remove internal jumper cables for separate inputs to Rectifier & Static Bypass							
	Voltage Range (w/o battery discharge)	-15% to +15%							
	Power Factor (lagging)	0.99							
	Current THD	< 3.0%							
	Frequency	45-65Hz							
Output	Voltage	400/230V 3ph 4w + grd							
	Topology	PWM 3-Level IGBT Inverter							
	Frequency	50/60Hz							
	Crest Factor	3 : 1							
	Static Voltage Regulation	+/- 1%							
	100% Step Load Voltage Regulation	+/- 3%							
	100% Linear Load Voltage Distortion	<1.5% THD maximum							
	100% Non-Linear Load Voltage Distortion	<5.0% THD maximum							
	eBoost Transfer Time	< 2msec from Bypass to Inverter, within ITI/CBEMA voltage compliance curve							
	Overload Capability / Inverter	125% / 1 min ; 150% / 30 sec							
	Overload Capability / Static Bypass	110% continuous ; 150% for 1 minute							
Battery Plant	Compatible Technologies	VRLA, Wet Cell, NiCad							
	Float Voltage	540 VDC , 240 cell system							
	Recharge Time	10X discharge time (at 30min battery runtime)							
General	Audible Noise	75 db(A) at 5 ft		75 db(A) at 5 ft		78 db(A) at 5 ft		78 db(A) at 5 ft	
	Audible Noise (eBoost Mode)	65 db(A) at 5 ft		66 db(A) at 5 ft		68 db(A) at 5 ft		68 db(A) at 5 ft	
	Ambient Operating Temp	UPS Module: 32 to 104 degrees F (0-40 degrees C)							
	Humidity	0-95% non-condensing							
	Listings / Registrations	ETL as tested to UL1778 / IEC62040 / ISO 9001							
	Enclosure	IP20 and NEMA PE-1							
	RFI / Surge Protection	EN50091-2 / IEC 62040-2							
	Communication / Connectivity	RS232, programmable contacts, programmable relays, iUPSguard, optional SNMP & Modbus							
	Color	RAL 9005 Black							
	Warranty	12mo after startup or 18mo after shipment (whichever first). Extended warranties available.							

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

* = estimated data. Consult factory for updated information.

** product availability: 160-400 kW UPS (2015); 600-1200 kW (2015)

Our UPS Protects Your Critical Load. Our Service Protects Your UPS Investment.

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

On-Site & Emergency Services

- 24/7 Emergency Hotline

Spare Parts

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

Contractual Services

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

Training

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

US-BASED CUSTOMER SERVICE

the green grid member

ISO 9001 CERTIFIED

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