

GE Energy Connections
Industrial Solutions



TLE Modular Series

30-180kVA Modular



TLE Modular Series 30-180kVA

Highest Technology with Modular Design

GE's TLE Modular Series UPS is one of the most reliable three-phase UPS modular systems, designed for N+X redundancy, on-line and hot-swappable. The TLE Modular Series provides compact footprint with high power capability, achieving up to 540kVA in order to guarantee maximum flexibility of system design for any kind of application.

The TLE Modular Series UPS provides high efficiency in all operating conditions keeping high level of protection to critical loads connected, minimizing input current distortion and consequently reducing operational costs. This makes TLE Modular Series UPS a perfect choice for environmental-friendly solutions.



Flexible Design for Maximum Suitability

- 30kVA Modular design on-line and hot-swappable
- High power density with footprint of less than 2m² up to 180kVA
- N+X redundancy up to 540kVA by paralleling 3 cabinets
- Top & Bottom cable entry available as standard
- Movable on wheels for easy handling in narrow environments

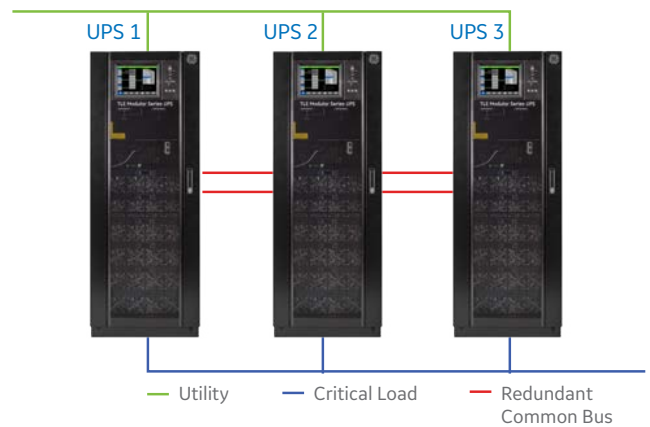
Highest System Availability

- Excellent output performance with minimized voltage distortion and fast dynamic regulation
- Enhanced handling capability of stressing loads
- Wide accepted input voltage range for maximum compatibility with bad mains
- "Cold Start" available: UPS can be powered on from the battery in absence of input mains

Key Features

- 30-180kVA modular design
- High power capability up to 540kVA
- On-line efficiency up to 95.5% and 99% in ECO mode
- Clean input performance with >0.99 PF and <3% THDi
- 228-478V accepted input voltage minimizes battery operations
- Low Output Voltage distortion <1% THDU
- User Friendly 10.4" Touch LCD display
- SNMP card included
- Backfeed protection included
- Maintenance Bypass included

RPA Configuration True Redundancy up to 540kVA





Modular Technology

Easy System Scalability

Thanks to its modular design, the TLE Modular Series UPS can easily scale power hand in hand with load demand, by plugging-in modules while the system is running: no need to switch on bypass.

Optimized Redundant Architecture (N+X)

The TLE modular Series UPS is based on 30kVA power modules, 3U (...mm) high each. Thanks to this, N+X redundancy can be achieved at lower cost than standalone systems, where you need to add full sized UPS, resulting in less space required and minimized installation costs.



Superior Battery Management (SBM)

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

Advantages

- Works with all battery types: Flooded, VRLA, NiCad and Li-Ion
- 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 once annually
 - Test type range can be from deep cycle to 3-min discharges
 - Manual tests can be performed at any time
- Temperature compensated battery charger - prevents overcharging
- Programmable end of discharge voltage - protects against deep discharge
- Deep discharge test (manually) - provides battery performance tracking
- Boost charging - enables fast recharging of batteries

Higher Reliability with Hot Swappability

TLE Modular Series UPS has a design that simplifies Maintenance when a failure occurs. Modules can be hot-swapped safely, without either interrupting protection to the load or putting the system at risk, preventing human errors and reducing Mean Time To Repair (MTTR).

- Waveform capturing capability
- Fan failure detection
- Component life time counters (fan and capacitors)
- IGBT status diagnostic

Improved reliability and availability

- Dedicated supply for bypass logic
- Dedicated supply for connectivity channels
- Main-board integrated RPA control: RPA board contains only interface hardware

User Friendly LCD Display

Intuitive System Data Access

10.4" Touch LCD Display, with self-explanatory graphics for easy access to system metering and Alarm screen.

Multi-language communication interface supporting: English, German, French, Italian and Chinese.



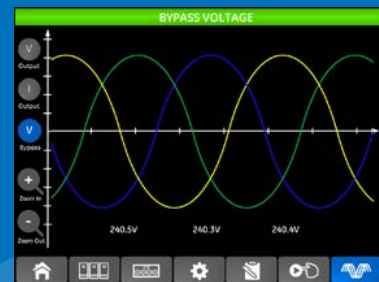
Modules Monitoring

Detailed system information with dedicated screen for individual power modules: real time monitoring module status, including internal temperature and life counters of consumable parts, improves diagnostic capability of TLE Modular Series UPS.



Scope Function

Real time plotting of UPS provided output voltage as well as connected load current, to provide clear information about how the UPS behaves based on load stressing.



Advanced Remote Monitoring Capability

Integrated Relay Card (standard) for easy interface to Building Management Systems (BMS):

- 6 Output dry-contacts (programmable)
- 2 Input dry-contacts for battery breakers interface
- Emergency Power Off (EPO) Contact

Integrated SNMP Card for Web Monitoring

This 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".



Power Quality Service

Performance Through People

Whether you are a large corporation with multiple sites or a small business owner with a single location, GE will enable you to have a constant supply of clean and reliable power to keep your business up and running.

GE has local offices in a number of countries around the globe and also a network of selected business partners, whose salespeople and service engineers combine expertise in our solutions with an in-depth knowledge of local market conditions.

GE's service & authorized service providers business partners, located in more than 100 countries around the world, use all that expertise and knowledge to adapt GE's products and services precisely to their customers' needs.

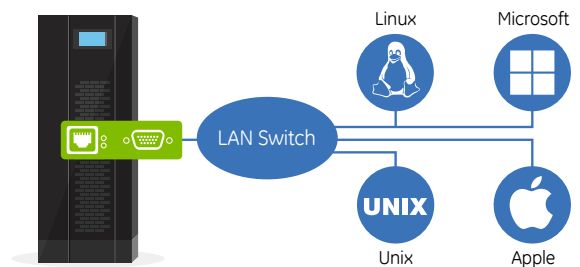
- On site & emergency services
- Service agreements
- Spare parts and repairs
- Support and remote services
- 24/7 Online support

Software & Connectivity Solutions

Protection Software

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

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

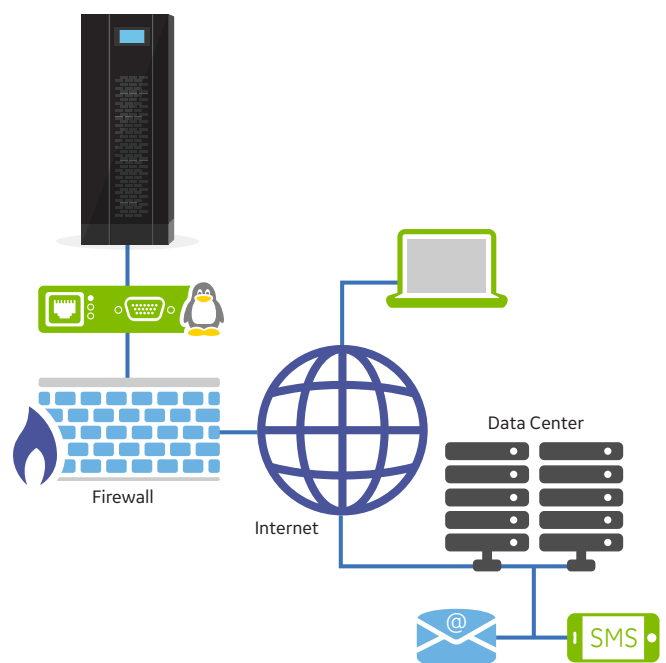


Remote Monitoring and Diagnostic Solution (iUPSGuard)

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 Email or SMS, it enables the user to make timely decisions in case of changing critical conditions. With comprehensive data collection and analysis it improves diagnostics capability and enhances response time.

- 24/7 remote access to your UPS data using standard web browser
- Automatic alerting in case of event direct and immediately to you cell phone or by email
- 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



TLE Modular Series Specifications

| GENERAL DATA | TLE MODULAR SERIES 30 -180 (1 TO 6 MODULES) KVA |
|-------------------------------------|--|
| Topology | VFI, double conversion |
| Nominal output power | 27-162 kW |
| Overall efficiency in VFI mode | >95% |
| Overall efficiency in ECO mode | 99% |
| Audible noise level | 65dB(A) full load (at 1 m) |
| Operating temperature range | UPS: 0°C - 40°C (50°C with de-rated loads) |
| Protection degree | IP20 (IEC 60529) |
| Standards | EN/IEC 62040, CE marking |
| EMC (Electromagnetic Compatibility) | EN/IEC 62040-2 |
| Electrostatic discharge immunity | 4kV contact / 8kV air discharge |
| Colour | RAL 9005 (Black) |
| External cable connections | Mid-rear, (Optional Front-bottom) and Top-bottom standard |
| Paralleling | Up to 3 units units for redundancy or capacity in RPA configuration (option) |

| RECTIFIER | |
|--|---|
| Standard input voltage | Nominal: 3 x 400V + N Programmable: 3 x 380 / 415V + N |
| Rectifier accepted ph-ph voltage range | Rectifier accepted ph-ph voltage range: 228* - 478V (low voltages acceptable with de-rated loads) |
| Input frequency | 50/60 Hz +/-10% (45 ÷ 66 Hz) |
| Power factor | 0.99 |
| Input current THD | <3% at 100% load |

*conditions apply

| BATTERY | |
|-----------------------|--|
| Battery type | Valve regulated lead-acid (VRLA)-standard, Vented lead-acid, wet battery and NiCd and Li-Ion |
| Float voltage at 20°C | 436-545Vdc (dependent on the number of cells) |
| GE Battery Solutions | 10 years design life VRLA batteries (EUROBAT) |
| Battery cold start | Available |

| INVERTER | |
|---|---|
| Nominal output voltage (on site programmable) | 3 x 380V / 400V / 415V + N |
| Output frequency | 50/60 Hz (selectable) |
| Output voltage tolerance: static | +/- 1% |
| Output voltage tolerance: dynamic (at load step 0 – 100 – 0%) | +/-1.5% |
| - Output voltage THD for 100% linear load | <1% |
| - Output voltage THD for 100% non-linear load (EN 62040) | <5% |
| Overload capability (at 25°C ambient temperature) | 110% for 1 hour / 125% for 10 minutes / 150% for 1 minute / >150% for 200ms |

TLE Modular Series Specifications (Cont.)

| BYPASS | TLE MODULAR SERIES 30 -180 (1 TO 6 MODULES) KVA |
|--------------------|--|
| Overload on bypass | 257A long term operation / 292A for 5 mins / 350A for 1 min. / 935A fro 1s / >935A for 200ms |
| Primary components | Static switch (SCR) on bypass Electromechanic contactors (backfeed protection) on bypass and inverter manual switch for maintenance bypass |

| INTERFACING | |
|---|----------|
| USB Port, RS232 serial port, RS 485 port, EPO, Customer Interface board | Standard |
| SNMP Card with iUPS Guard 1 year license | Included |

| PHYSICAL DATA | |
|----------------------|--|
| Weights | Cabinet - 170kg, Power Module 30kVA - 34kg |
| Floor loading | 309 (30kVA) - 566 (180kVA) kg/m ² |
| Dimensions (WxDxH) | 600x1100x1600mm |





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