

GE
Digital Energy

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LP 33 Series UPS

40/60/80/100/120 kVA three phase 400 Vac

Active IGBT Rectifier & Active IGBT Rectifier Clean Input Module

Uninterruptible Power Supply (UPS)



imagination at work

For more than a century, GE has led the way with innovative technologies and groundbreaking quality initiatives – literally helping to power the world. Along the way, through the development and delivery of state-of-the-art products and uncompromising service, GE has also built a legacy as a leading supplier of critical power solutions.

To bridge the gap between the traditional utility grid and the needs of today's business, GE offers a complete portfolio of critical power products and services, from desktop Uninterruptible Power Supply (UPS) units to engineered power systems, and from basic UPS and battery maintenance to comprehensive service contracts covering every aspect of your power quality and delivery system.

At GE, our goal is simple – to never let power quality stand in the way of our customers' success. That's why GE is committed to continue developing and delivering

UPS technology for the digital world

The power of GE

GE is a diversified technology and services company dedicated to creating products that make life better from aircraft engines and power generation to financial services, medical imaging, television programming and plastics. GE operates in more than 100 countries and employs more than 315,000 people worldwide.

The company traces its beginnings to Thomas A. Edison, who established Edison Electric Light Company in 1878. In 1892, a merger of Edison General Electric Company and Thomson-Houston Electric Company created General Electric Company. GE is the only company listed in the Dow Jones Industrial Index today that was also included in the original index in 1896.

GE is proud of its impressive track record for introducing leading edge products, accomplishing growth, having strategic customer relationships and a global presence as broad and expansive as its portfolio of products. GE is committed to maintaining a leadership position in all four of its company-wide initiatives (Six Sigma, Globalization, e-Business/Digitization and Services) to achieve maximum results, whilst embracing the values that are at the heart of the business - imagine, solve, build and lead.

UPS Product Technology

GE is a leader in the field of critical power protection. It's UPS Product Technology business designs, manufactures and delivers premium power quality products and related software products that ensure organisations all over the world enjoy a safe and managed power supply.

Protect your critical power application with a GE UPS – ranging from 350VA to 4MVA. Using state of the art technology GE has developed different UPS with high reliability and maximum application flexibility.

With a GE power solution in place, your mission-critical equipment is protected from any fluctuation in your power source, enabling you to concentrate on your core activities. Leave your critical power needs with GE, a reliable power quality supplier for more than 100 years.

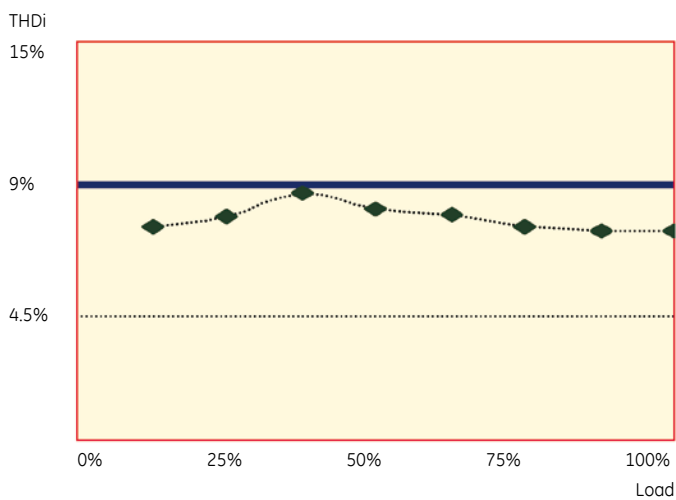


The GE Digital Energy LP 33 Series is a highly reliable transformerless three phase UPS system providing power protection for a wide range of critical applications from medical to datacenters and telecommunication.

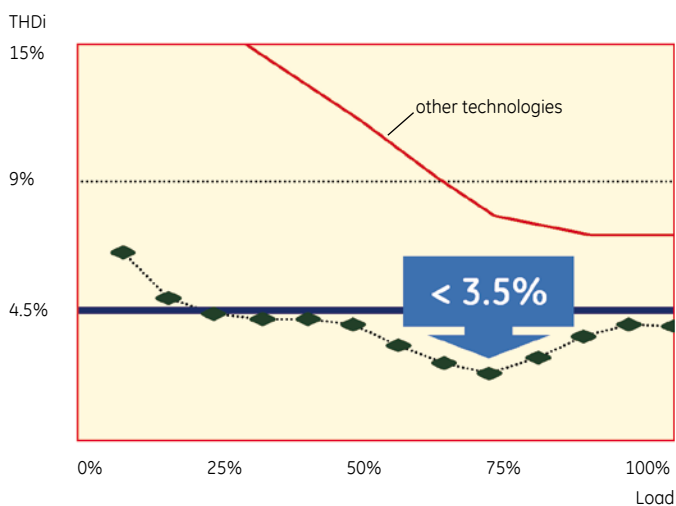
The LP 33 Series 40-120 product range is available as two versions:

- **Active IGBT Rectifier** with a THDi of <9%
- **Active IGBT Rectifier Clean Input Module** with a THDi of <4.5% (<3.5% @ 75% load)

Constant behavior at all loads: Input Total Harmonic Distortion (THDi)



Active IGBT Rectifier: THDi < 9%



Active IGBT Rectifier Clean Input Module:
THDi < 4.5% (<3.5% @ 75% load)

features & benefits

- GE's clean input **Active IGBT technology** provides low input harmonics feedback distortion constant for all load levels from 20% to 100% load. This allows the user to save in the sizing of upfront UPS equipment: generator sets, cabling and circuit breakers. It also reduces the disturbance on nearby equipment without the need of additional filters. This technology provides a high input power factor, so utility companies will not charge users for apparent power usage.
- Input/Output terminals are easily accessible from the front, as are all other serviceable parts. **True front access** provides the possibility to place the unit against a wall or in a 'back to back' configuration, saving floor space for other customer equipment (i.e data center,...) and reducing repair time.
- **EMC class A filters** available in the UPS, ensuring the reduction of interference with other equipment supported in the application (telecom, broadcasting,...). This protects the quality of the customer application equipment, for example with images from a medical scanner in healthcare application. Other UPS without the EMC filters could cause interference leading to a distorted image.
- The **low footprint** of the LP 33 Series is best in class and provides the user with more space for other equipments. Combined with its low weight, it can be easily handled, reducing installation time and costs.
- The **output dynamic stiffness** characteristic of the unit is particularly suitable in healthcare application where no voltage distortion with non linear load and no voltage variation with load steps are required. This enhances the user's medical equipment productivity and the quality of application, increasing uptime and MTBF of customer equipment while limiting the need for maintenance intervention.

reliability

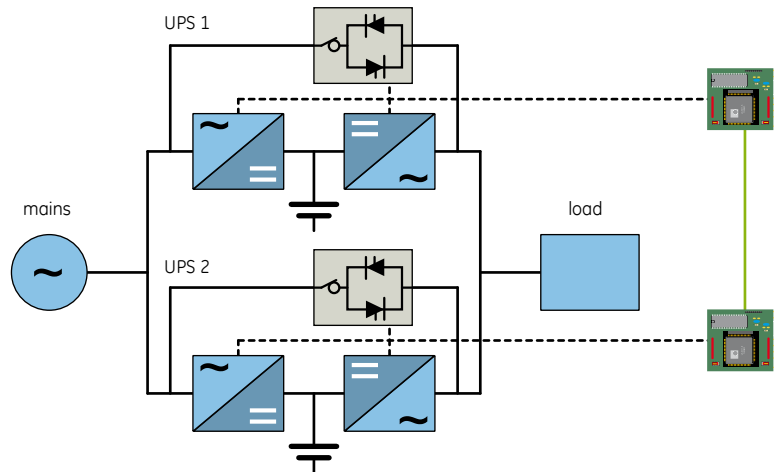
The LP Series UPS offers reliability at its best. The UPS is equipped with a redundant power supply ensuring instantaneous transfer to bypass in the event of a breakdown of the power electronics. To further increase system reliability, 2 or more units can be connected in parallel. In this way a redundant fault-tolerant system is created with maximum power availability and reliability. The decentralized bypass offers maximum flexibility to the end-user for future expansion of the system.



RPA™

Redundant Parallel Architecture™

GE provides a unique technology called Redundant Parallel Architecture (RPA) that can parallel Uninterruptible Power Supply (UPS) modules with true redundancy. With RPA, there is no need for external electronics or switches to control the UPS modules in the parallel system. One of the UPS modules in the system arbitrarily takes a 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 a different UPS automatically takes on the leadership role. The RPA systems are designed to have no single points of failure, ensuring the highest level of power protection for critical loads.



Many other so-called redundant UPS offerings have one critical shortfall, in that they have critical components that are not redundant. RPA technology provides complete redundancy of all critical components and there are no single points of failure. RPA technology allows UPS system expansion not only to increase capacity but also to improve the reliability of the power provided to critical loads. For mission critical applications, RPA technology provides true redundancy for the highest reliability.

- **RPA Configuration** provides complete redundancy of all critical components and allows paralleling of up to four units for increased load capacity. It ensures excellent dynamic behaviour based on output voltage load sharing. This provides the highest reliability and availability for mission-critical applications.
- **Modular design** allows for system upgrades to meet future power needs without any interruption to the critical load or transfer to bypass.
- **Easy to install and maintain.**
- **Scaleable** design allows for **efficient use of capital.**
- **Peer-to-Peer architecture** where any UPS can be the “logic leader” ensuring **no single points of failure.**

Connectivity solutions

GE Data Protection

Power Diagnostics

With GE's Power Diagnostics it is possible to combine the remote monitoring and diagnostic core product IRIS web and dedicated services in a comprehensive solution to minimize risk and maintenance costs. 24x7 UPS monitoring, regular operational status reports, immediate alerting for alarms and critical events via SMS, e-mail, fax are just some of the characteristics of the RM&D solution. In particular the system is scalable and can be easily adapted to various configurations, while remaining safe through a multi-level security system.

Features

Data transmission

- Data download from GE UPS and 3rd party UPS, via IRIS communication, to GE power diagnostic centre
- Data collection of status values, settings and alarm & event logs
- Alarms and other critical events will be submitted automatically on event, all other values on a regular base (standard weekly)

Data analysis

- Analysis of available data downloaded from UPS
- Analysis of critical situations, identifying critical trends
- Validating importance and priorities
- Generating status reports
- Preparing maintenance recommendation based on data analysis
- Information will be submitted to client via SMS, email or fax

Emergency information

- Informing customer about critical situation and faults
- Data are transmitted automatically from UPS to GE power diagnostic centre
- Immediate information sent via SMS, fax, email

E-Dispatching, intervention

- Send emergency information to local service organisation
- Co-ordination with client to inform that people arrive onsite
- Local service teams will be activated and sent to client site

IRIS offers various communication possibilities: normal phone line, GPRS or SNMP communication, flexible for every requirement.

Analogue/ISDN modem

- Efficient solution without GPRS functionality using InterLink 2.0 analog
- Can be connected to the UPS during normal UPS operation without any risk
- Less installation time due to an integrated modem

GPRS

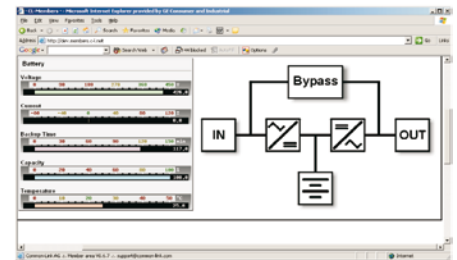
- The best and most efficient solution using InterLink 2.0 GPRS
- Can be connected to the UPS during normal UPS operation without any risk
- Ready to work after connection to UPS and mounting of antenna and power supply
- Best solution where only a small number of UPS are installed on the same site

SNMP gateway server

- Efficient solution for several UPS on the same site or connected with the same Intranet over SNMP
- Using existing customer intranet and requires an internet connection
- SNMP gateway server will be installed locally to communicate with SNMP cards of UPS
- Secure communication over VPN



Graphical status overview



UPS values

technical specifications

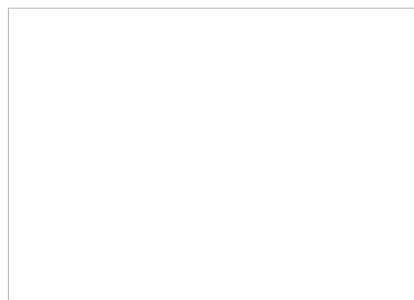
Topology	: VFI (Voltage Frequency Independent) according to EN 62040-3
Technology	: Active IGBT Rectifier technology
Operating Modes	: double conversion, automatic bypass, ECO mode, frequency converter and parallel operation up to 4 units

Output power rating (kVA) (at PF = 0.6-0.8 lagging)	40	60	80	100	120
Output power rating (kW)	32	48	64	80	96
Output power factor	0.8				
Dimensions (w x d x h), mm	600x725x1400	600x725x1800		725x725x1800	
Weight (kg)	220	280	290	400	450
Audible noise	<60 db(A)	<65 db(A)			
Efficiency	93%				
Efficiency on ECO Mode	99%				
Protection degree	IP 20				
Input voltage range	320 - 460 Vac				
Input frequency range	50/60 Hz +/- 10%				
Input power factor	0.98				
Input current THD	Active IGBT Rectifier: < 9% Active IGBT Rectifier Clean Input Module: < 4.5% (< 3.5% @ 75% load)				
Output voltage	3x380/400/415Vac, user selectable				
Output frequency	50/60 Hz +/- 0.1%				
Output voltage THD at linear load	< 1%				
Output voltage THD at non-linear load	< 2%				
Output voltage regulation static	< +/-1%				
Output voltage regulation dynamic (100% step load)	< +/-0.5% (recovery time < 3ms)				
Overload capability on inverter	125% 10 min., 150% 1 min.				
Batteries	40 blocks of 12V, common battery in parallel system optional				
Ambient operating temperature	0 - 40 °C				
Colour	RAL 9003, white				
Safety standards	EN 62040-1 / EN 60950 / IEC 60950				
Safety	backfeed protection standard included				
EMC standards	EN 62040-2				
Interfacing	RS232; 4 alarm contacts, SNMP interface (optional)				

Specifications subject to change without prior notice



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