Power Protection for
Business-Critical Continuity

Hipulse-U UPS (160-400 kVA)

Liebert.

EMERSON
Network Power

Addressing A Variety Of Needs

The Liebert Hipulse-U offers a reliable, scalable and user-friendly solution to ensure availability of various types of networks. The Liebert Hipulse-U offers protection to your invesment and lower cost of ownership through its digital architecture and range of options which you can customize specifically for your needs.

- **Information Technology**
  - Data Centers
  - Servers (LAN, WAN, MAN, ERP, e-mail, web and others)
  - Networking
- **Telecommunication**
  - Mobile (2G, 2.5G, 3G)
  - Paging
  - Fixed (including WLL)
- **Industrial Automation**
  - Process (including instrumentation)
  - Motion (digital drives and robotics)
- **Transport Automation**
  - Airport automation and flight booking
  - Others including railways and road transport automation and ticket booking
- **Banking, Insurance and Financial Services**
- **Software Development Houses / Software Technology Parks (STP)**
- **Building Automation**
  - Access Control
  - Security System
  - Fire Alarm System
  - Emergency Lighting
  - Other Critical Applications
- **Medical Diagnostics**
  - Magneto Resonant Imaging
  - CT Scanning
  - CathLab
- **Satellite**
  - Uplinking
  - Earth Stations

Loaded With Features

We have studied the emerging needs of our customers and have engineered what we have learned into the new, upgraded Liebert Hipulse-U. Now it offers you more value and power per square meter. You will find that the Liebert Hipulse-U offers unique features that address the needs of your business today and is designed to handle the needs that are expected in future.

Features To Protect Your Network

- Fully Digital, twin DSP controlled.
- Rated at 0.9 output power factor to deliver more real power
- Handle Leading power factor loads without KW de-rating under specified conditions
- On-Line Double Conversion
- IGBT-based PWM Inverter
- Wide input voltage tolerance (+15 / -15%)
- Wide input frequency tolerance (45Hz-65Hz)
- High overload capability of static bypass (14 times for 10 milliseconds and 10 times for 100 milliseconds)
- Capability to handle:
  - High crest factor loads
  - 100% non-linear loads
  - 100% unbalanced loads
- Built-in maintenance bypass (Single and 1+N Models)
- Wrap-around maintenance bypass (optional)
- Front access for spares replacement and preventive maintenance
- Easy Dual bus configuration architecture
- Provision to use any type of battery: Wet cells (Tubular Plant), Valve Regulated Lead Acid (VRLA) /Maintenance Free and Nickel Cadmium
- Adjustable frequency synchronisation window up to 9% in the static bypass
- Provision of automatic battery circuit breaker instead of using conventional isolator in the DC path
- Field protocols ModBus / Jbus
- Network protocols SNMP.
- Overload capability of the UPS:
  - 110% full-load for 60 minutes
  - 125% full-load for 10 minutes
  - 150% full-load for 1 minute
- Easy Scalability (Parallel 1+N configuration up to 6 modules paralleling) without centralised Main Static Switch (MSS)
- Bypass Switch
- Compact footprint

Built In Investment Protection

- Temperature-compensated battery charging (optional)
- Automatic battery testing
- Field settability of end-cell voltage of the battery
- Selectable timer for boost charging duration of the battery (15 steps with each step of 1 hour)
- Protection against deep discharge of battery
- Battery circuit breaker instead of using AC isolator
- Short-circuit proof inverter
- Back-feed protection
- D-level lightning protection
- With 3 auxilliary power supply to ensure redundancy under any condition
- Standard dry contacts
- Choice between 6 or 12-pulse rectifier
- Choice of array of input harmonic filter options.
- Compatible with Liebert AF, the active harmonc filter.

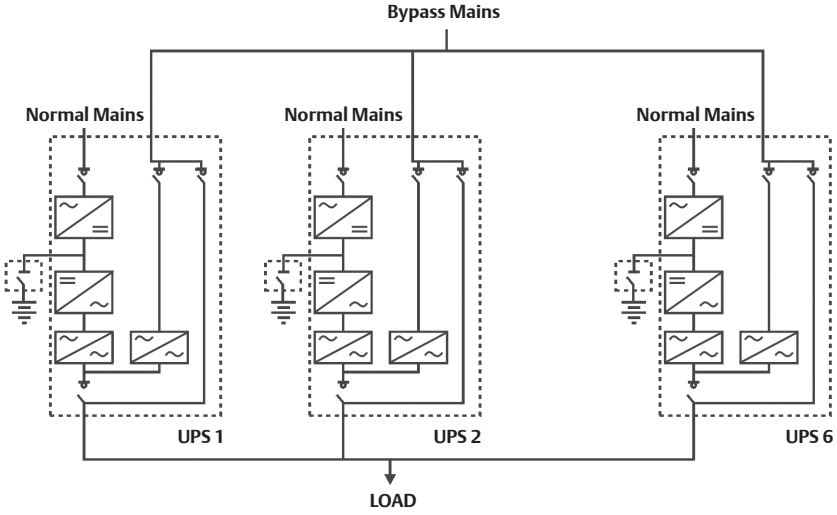
Selected Configurations

Hipulse can be scaled up to as high as 6 modules using any of the following configurations to achieve either scalability or redundancy of desired percentage

- 1+N configuration without any kind of centralised static switch
- Some more configurations are explained further in this brochure
- For other configurations, please contact our nearest sales office / representative

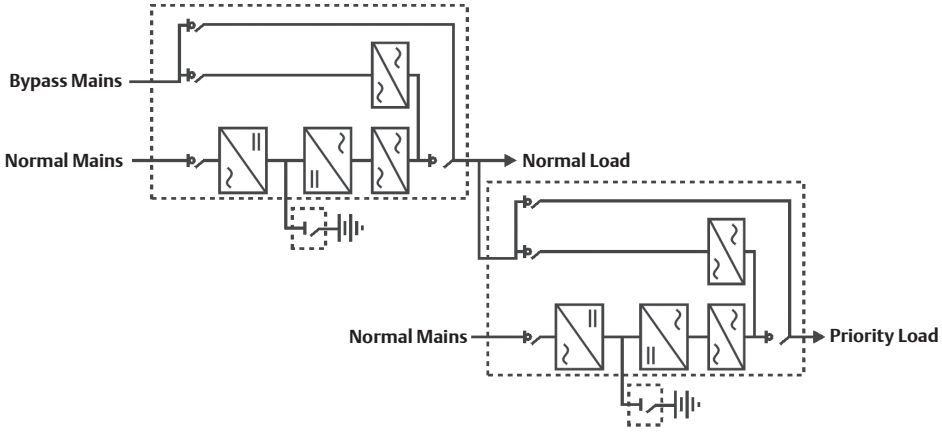
1+N Configuration with Distributed bypass System

- Up to six modules in parallel
- Increase the system reliability
- Increase the availability of quality power following the load demand even if it was not forecasted or planned at the beginning of the project: ease of techno-economic expandability
- Increase the maintainability
- The total load is less than or equal to the rating of the single UPS (depending on the desired redundancy level) and is shared between all modules



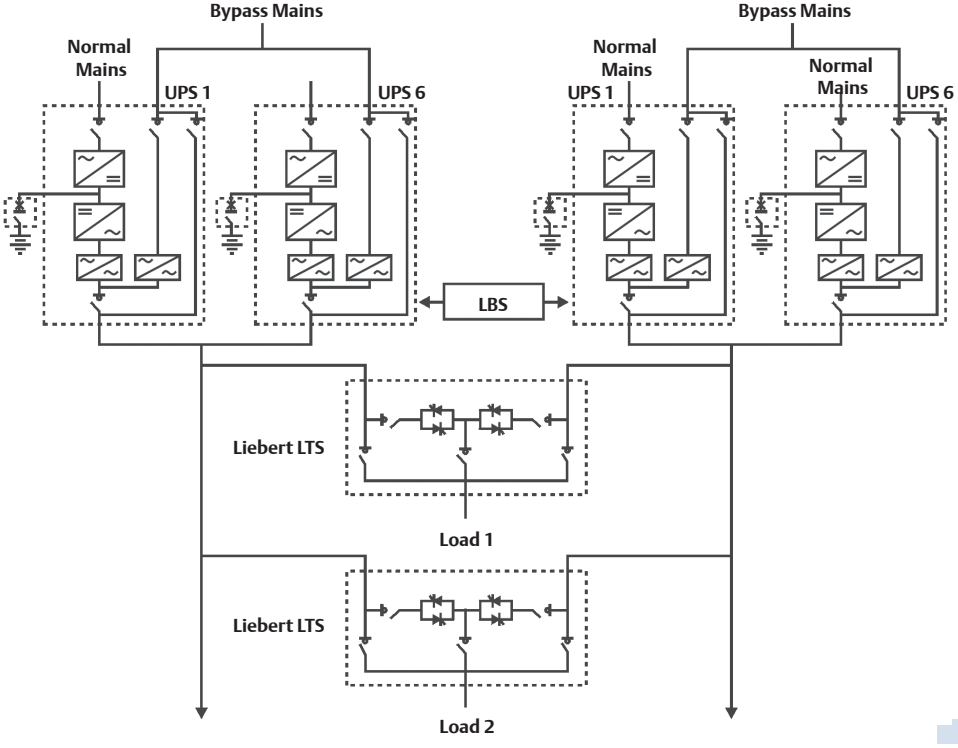
Hot Stand-by Configuration

- Feed one (Priority) or two (Priority and Normal) load banks depending on the application need
- Increase the reliability of the priority load
- Increase the maintainability
- Easy connection
- Can be implemented in the existing installation regardless of the UPS size, the generation of (device or technology or philosophy of control) and the manufacturer



Dual Bus System with Liebert LTS, STS2 or Hiswitch2

- Provide supply to the loads from two independent power sources
- The two may be different in terms of power rating and redundancy
- The two BUS outputs are in synchronism between them
- Automatic transfer of the load between the two sources in case of fault using Liebert LTS
- Increase dramatically the maintainability and reliability



Power Communication Options

When choosing the best system to protect your mission critical applications, an important consideration would be the software and communication options. As part of our commitment to provide the best solution for you, we offer a wide range of sophisticated software and communication options for Hipulse-U.

The most extensive list of optional communication solutions for Hipulse U UPS Systems!

- Control through Building Management Systems via Modbus and Jbus protocols
- Web-enabled Monitoring and Management through SNMP protocols
- Network Management Systems ready (HP OpenView, CA Unicenter, Novell Managewise, etc.)
- Software Solutions
  - Site Monitor Software
  - Facility wide monitoring (SiteScan)
  - Shutdown software for your computer equipment
- Simultaneous monitoring via different protocols
- Emerson Power Quality Monitoring solutions

Selected Power Options

Input Current Harmonic (THDi) Reduction
- 12-pulse rectifier version
- Wide range of additional solution to reduce the THDi to less than 5%. Most of them are without any additional system footprint

Input Isolation Transformer
- Compatible with Liebert AF, the Active Harmonic Filter
- Wide range of solutions specially designed for handling current harmonic on bypass at different stages
- Available for rectifier and / or bypass supply

Protection Degree (IP) For Hipulse Enclosure
- To address stressed environmental conditions, UPS with higher than IP20 degree of protection can be made available for most of the kVA ratings of the Hipulse-U

DC Ground Fault Indication
- This provides indication of occurrence of battery ground fault problems

Top Cable Entry
- This is available for a wide range of our Hipulse-U ratings

Power Walk-in for 1+N System
- The module power walk-in is standard. This option can be for the module restart delay after the mains return. This is very useful for applications with motor generator at the input

LBS
- This ensures the synchronisation of outputs of two independent UPS systems to form Dual Bus Architecture for High availability of Critical Bus

Liebert LTS, Static Transfer Switch
- This allows critical load to be transferred between two independent, synchronised AC power sources without any risk of load disturbances
- This allows automatic transfer of load between the two sources

TVSS
- This is a Transient Voltage Surge Suppressor
- This offers protection from damaging transients and electrical line noises
- This is normally connected at the bypass path of Hipulse or inside the Static Transfer Switch as an optional item

Hipulse UPS System								
Nominal Rating [kVA] (0.9 pf)/kW	160/144		200/180		300/270		400/360	
Rectifier Type	6p	12p	6p	12p	6p	12p	6p	12p
Physical Characteristics								
Depth [mm]	875							
Width [mm]	1250	1640	1250	1640	1640	2280	2280	2280
Height [mm]	1900							
Weight [kgs]	1200	1725	1350	2000	1600	2200	2100	2750
Input								
Voltage	380/400/415V (+/-15%) -3Ph - 4w (rectifier: 290 - 498v)							
Frequency	50 or 60 Hz +/-5%							
ITHD	4 to 9% with optional harmonic filter							
Power Factor	0.90 - 0.95 with optional harmonic filter							
Output								
Voltage	380/400/415V - 3Ph - 4w							
Voltage Stability								
- Steady State	+/-1%							
- 100% Load Step	+/- 5%							
Frequency	50 or 60Hz							
Frequency Stability								
- Synchronised with the bypass supply	+/- 0.5 Hz, +/- 1 Hz, +/- 2 Hz, +/- 3Hz (settable)							
- Auto-Synchronised	+/- 0.1%							
*Overload capacity from inverter at nominal voltage**								
- 3 Ph	110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute							
- 1 Ph	200% for 30 seconds							
Short circuit current from inverter								
- 3 Ph	1.5 In for 5 seconds (in accordance with EN 50091-1-1)							
- 1 Ph	2.9 In for 5 seconds				2.2 In for 5 seconds			
Voltage Distortion with Linear Load	<1%							
Voltage Distortion with 100%								
Non-Linear Load	<3% Ph / Ph, <5% Ph / N (distorted load as per EN50091 - 3)							
Max. Deliverable Power								
with Non-Linear Load (CF = 3:1)	100%							
Max Unbalanced Load	100%							
Voltage Displacement with								
100% Unbalanced Load	120°+/- 1°el							
Output Voltage Dissymmetry								
with 100% Unbalanced Load	2%							
Standards and Approvals								
Safety / EMC / Design	IEC60950-1, IEC62040-1-1, UL1778, IEC62040-2 CLASS A, EN50091-2 CLASS A, IEC62040-3							
European Directives								
73/23/EEC and 89/336/EEC	CE							

*conditions apply

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Emerson Network Power.
The global leader in enabling business-critical continuity.

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