

# Liebert® Hipulse-U

Fully Digital Dual DSP Controlled Transformer Based UPS



# 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 investment 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

# Feature-Loaded UPS

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 range of 40Hz to 60Hz (for 50Hz system) and 48Hz to 72Hz (for 60Hz system)
- 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
- Adjustable frequency synchronization window up to 6% 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:
  - 105% 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 for 120kVA to 400kVA capacity range
- Choice of array of input harmonic filter options
- Compatible with Liebert® AF2, the active harmonic filter

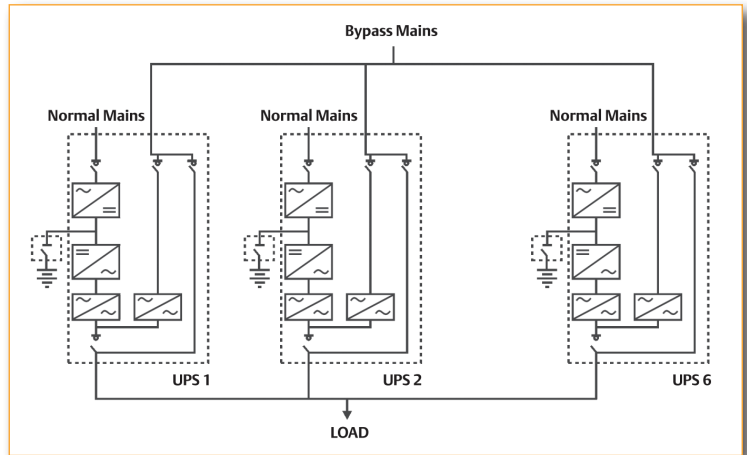
# Selected Configurations

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

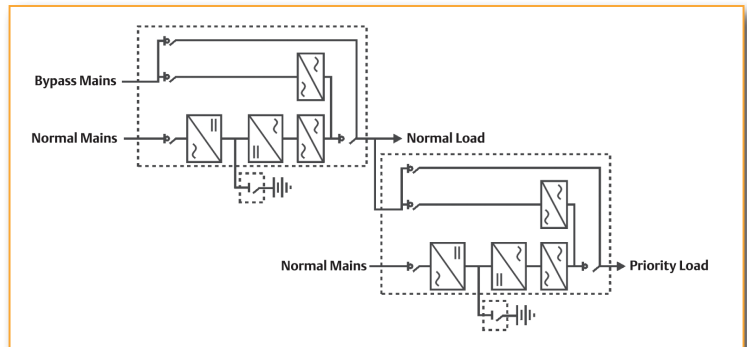
## 1+N Configuration with Distributed bypass System

- 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



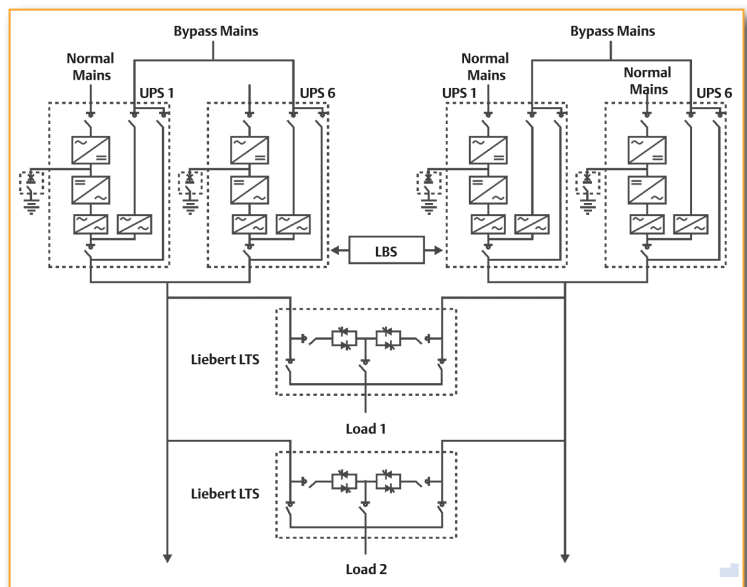
## Hot Stand-by Configuration

- 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





*The Liebert® Hipulse-U delivers reliable power protection for different industries, ensuring availability and lower total cost of ownership through its digital architecture and select configurations that fits the objective of your business.*



## 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

- **Intelligent Paralleling**
  - Intended to increase system efficiency and to reduce the operating hours on the modules
  - This feature will put one or more paralleled modules into standby operation when number of redundant modules is above the user-specified threshold
- **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
  - Optional super filter to reduce THDi to <5% and improve input PF up to 0.95 without additional system footprint.
  - Compatible with Liebert® AF2, the Active Harmonic Filter
  - Wide range of solutions specially designed for handling current harmonic on bypass at different stages
- **Input Isolation Transformer**
  - Available for rectifier and / or bypass supply
- **Rectifier or Bypass supply**
  - This allows UPS to be configured in Single or Dual Main supply to ensure system adaptability and reliability
- **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, STS2 or Hiswitch2**
  - 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 (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

# Technical Specifications

Hipulse UPS System													
Nominal Rating (kVA)	80	100	120		160		200		300		400		500
Rectifier Type	6P	6P	6P	12P	6P	12P	6P	12P	6P	12P	6P	12P	12P
Physical Characteristics													
Depth (mm)	850												
Width (mm)	900			1540	1250	1640	1240	1740	1640	2280	2280		2640
Height (mm)	1900												
Weight (kg)	980			1725*	1200	1725	1060	1680	1600	2200	2100	2510	2950
Noise measured within 1m (dBA)	<70	<70	<70	<70	<70	<70	<70	<70	<70	<70	<72	<72	<83
Input													
Voltage	380 / 400 / 415Vac 4-wire plus ground												
Input voltage range	323 ~ 478Vac												
Frequency	50Hz / 60Hz												
Input frequency range	40 to 60Hz (50Hz system) / 48 to 72Hz (60Hz system)												
Input Current Distortion with linear load (with filter)	<10%	<9%	<7%	<3%	<7.5%	<4%	<7.5%	<4%	<7.5%	<4%	<8%	<3%	<3%
Power Factor (with filter)	0.97	0.96	0.93	0.88	0.93	0.88	0.93	0.88	0.95	0.88	0.94	0.88	0.88
Output													
Voltage	380 / 400 / 415Vac 4-wire plus ground												
Frequency	50Hz / 60Hz												
Voltage Stability	Steady state	+1%											
	Transient state	+5%											
Transient recovery time	20 milliseconds (max)												
Frequency stability	Synchronized with internal clock	+0.1%											
	Synchronized with bypass	+6% (max)											
Overload Capability	105%	60 minutes											
	125%	10 minutes											
	150%	1 minute											
	>150%	< 200 millisecond											
Voltage Distortion with Linear Load	<1%												
Voltage Distortion with 100% Non-Linear load	<5%				<3.5%								
Permissible Load Unbalance	100%												
Non linear load capability	100%												
Load handling capability without kVA derating	0.5 lagging to 0.9 lagging												
Phase Angle displacement accuracy	100% balanced load	+1°											
	100% unbalanced load	+1°											
Standards and Approvals													
General and safety requirements for UPS	IEC 62040-1												
EMC requirements for UPS	IEC 62040-2												
UPS classification according to CEI EN 6240-3	VFI-SS-111												

\*Subject for clarification

**Emerson Network Power Asia**

**Australia**

T: 1800-065345  
F: 61-2-97438737

**Japan**

T: 81-3-54038564  
F: 81-3-54032919

**Korea**

T: 82-2-34831500  
F: 82-2-5927886

**Malaysia**

T: 603-78845000  
F: 603-78845188

**New Zealand**

T: 64-3-3392060  
F: 64-3-3392063

**Pakistan**

T: 92-42-36622526 to 28  
F: 92-42-36622530

**Philippines**

T: 63-2-7207400  
F: 63-2-6203693

**Singapore**

T: 65-64672211  
F: 65-64670130

**Thailand**

T: 66-2-6178260  
F: 66-2-6178277 to 78

**Vietnam**

T: 84-4-37628908  
F: 84-4-37628909

[www.EmersonNetworkPower.Asia](http://www.EmersonNetworkPower.Asia)

While every precaution has been taken to ensure accuracy and completeness herein, Emerson Network Power assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications are subject to change without notice.

Emerson Network Power and Liebert® are trademarks of Emerson Electric Co. or one of its affiliated companies. All other names and logos referred to are trade names, trademarks, or registered trademarks of their respective owners. ©2014 Emerson Electric Co.

AP14ENT-HIPUV4-BR