

# Liebert<sup>®</sup> APS from 5 to 20 kVA

*Modular Power Protection for Immediate and Future Load Demands*





**Emerson Network Power**, a division of Emerson, is a global company that combines technology with design to supply innovative solutions for the benefit of its customers. Emerson Network Power protects and optimizes critical infrastructure for data centers, communications networks, healthcare and industrial facilities. Emerson Network Power's broad technology base and global expertise support a full spectrum of enterprise-wide solutions for today's vital business needs.



Regardless of your size, you can't afford for your critical business systems to go down and you can't waste time recovering your IT infrastructure after a disruption.

**Leave that to us**, the experts in grid to chip solutions, from the biggest to the smallest data centers, we are ready to serve your needs.

More standardization, so you don't need further budget allocations to install it. More simplification so you don't need to be a specialist to get the best for your business. More support, so while you are enjoying doing business, we are protecting you.





Server unit front panel (top) features a large LCD display showing system metrics. Below the display are several status LEDs and a power button. The panel includes labels for 'POWER SUPPLY', 'FANS', 'PCI RIBER CAGE', 'OVER TEMP', and 'UID'.

Server unit front panel (middle) features a large LCD display showing system metrics. Below the display are several status LEDs and a power button. The panel includes labels for 'POWER SUPPLY', 'FANS', 'PCI RIBER CAGE', 'OVER TEMP', and 'UID'.

Server unit front panel (bottom) features a large LCD display showing system metrics. Below the display are several status LEDs and a power button. The panel includes labels for 'POWER SUPPLY', 'FANS', 'PCI RIBER CAGE', 'OVER TEMP', and 'UID'.

Server unit front panel (right) features a large LCD display showing system metrics. Below the display are several status LEDs and a power button. The panel includes labels for 'POWER SUPPLY', 'FANS', 'PCI RIBER CAGE', 'OVER TEMP', and 'UID'.

Server unit front panel (right) features a large LCD display showing system metrics. Below the display are several status LEDs and a power button. The panel includes labels for 'POWER SUPPLY', 'FANS', 'PCI RIBER CAGE', 'OVER TEMP', and 'UID'.



## Liebert® APS From 5 to 20 kVA

### Features and Performances

- 5 kVA / 4.5 kW single phase output power modules
- Site configurable as single or three phase input
- Stand alone or rack mountable
- Hot-Swappable power and battery modules
- Intelligent battery modules
- Double conversion efficiency: 92%
- Integrated autonomy up to 1h @ 4.5 kW
- 1.8 A charging current per module
- Optional 10 A charger module
- Terminal block or output socket
- Fully rated @ 40°C

The Liebert® APS is a modular, single phase output UPS, with both single and three phase input options, designed for the protection of IT equipment such as workstations, servers and networks, as well as telecommunications-related applications.

The modular, scalable architecture of the Liebert APS is specifically designed to meet immediate load requirements as well as efficiently adapt to future increase needs, allowing expansion in increments of 5 kVA up to a total of 20 kVA with the simple installation of additional power modules.

Featured FlexPower technology™ ensures that such power expansions can be carried out without the need for transferring the load to bypass (hot swap) thus extending the load protection and system availability during service and upgrade operations.

Maximized system availability can be further achieved in all Liebert APS configurations with

redundant power modules reaching the maximum configuration of 20 kVA with an additional 10 kVA of redundancy.

The Liebert APS 5 kVA/4.5 kW power modules deliver an enhanced level of active power when compared to UPS of equal size in both standard and extended autonomy configurations, thus providing customers with more power to support larger loads. Increased active power also contributes to minimizing initial investment costs and optimizing TCO.

Optimization of TCO is further extended to batteries which can be housed inside the UPS cabinet together with power modules. The compact battery modules allow significant extension of back up time without increasing the overall cabinet footprint.

With a double conversion efficiency of 92% coupled with an output power factor of 0.9, Liebert APS rises to the top of its class delivering both optimized CAPEX and OPEX.

# Flexible System Architecture

Installation in both stand alone and rack mount configurations gives the Liebert APS the flexibility to adapt to the demands of a wide range of installation environments.

Flexibility is further granted through the multiple output distribution and communications options available. In addition to the traditional terminal block input/output management, the Liebert APS also offers the option of selecting between multiple Power Output Distribution boxes (PODs) to meet specific application connection requirements.

Furthermore, the Liebert APS is equipped with three Liebert Intellislot® ports to allow integration and simultaneous communication with an array of infrastructure management solutions, leading to superior power optimization and visibility.



Fully populated Liebert APS complete with both power and battery modules.



## Intelligent Battery System for Maximizing Availability

The Liebert® APS battery modules are housed inside the UPS cabinet, providing 5 minutes of integrated autonomy at full load when the battery string number equals that of the power modules. With additional battery strings, the integrated autonomy may be extended to up to more than one hour at 4.5 kW.

For further extension of autonomy requirements, matching external battery cabinets may be connected, together with an additional charger module, ensuring sufficient current is provided for the recharge.

The intelligent battery system adopted by the Liebert APS is designed to preserve battery life and in turn maximize overall system availability. Each battery module contains a dedicated board the role of which is to continuously monitor battery health automatically taking anomalous batteries off-line to ensure the continued

performance and availability of the remaining strings.

Both internal and external batteries are protected via integral battery monitoring and temperature compensated charging, which prolong battery life, in turn minimizing replacement costs.

In addition, the large input voltage window capabilities further contribute to prolonging battery life and minimizing the need of transfer to battery.



*Liebert APS with matching modular battery cabinet for extended autonomy applications.*



## Ease of Installation and Serviceability

The Liebert APS is designed to optimize installation and simplify service with its easy to remove power and battery modules. The hot-swappable module-based architecture considerably minimizes the time needed for repairs and optimizes serviceability. Individual power and battery modules can be added or replaced, while

remaining modules continue to power the connected load, avoiding the need to shutdown or revert to bypass, thus resulting in maximized system availability.

### Software Connectivity

**Liebert's Nform™** network communications system enables customers to leverage the distributed monitoring capabilities of network connected equipment for providing centralized management of distributed systems.

**Liebert SiteScan** is a centralized site monitoring system which ensures maximum visibility and availability of critical operations. Liebert SiteScan Web allows users to monitor and control virtually any piece of critical support equipment. Its features include real-time monitoring and control, data analysis, trend reporting, and event management.

### Trellis™ Platform

Emerson Network Power's Trellis™ platform is a real-time infrastructure optimization platform that enables the unified management of data centre IT and facilities infrastructure.

The Trellis™ platform software can manage capacity, track inventory, plan changes, visualize configurations, analyze and calculate energy usage, and optimize cooling and power equipment as well as enable for virtualization.

The Trellis™ platform monitors the data center, providing a thorough understanding of system dependencies to help IT and facilities organizations keep the data center running at peak performance. This unified and complete solution, delivers the power to see the real situation in your data center, make the right decision and take action with confidence.



*The Liebert APS UPS can be installed on raised floors, traditional flooring, or in rack enclosures.*



## *Servicing Critical Infrastructure*

Proactive equipment maintenance reduces downtime and extends equipment life which in turn maximizes return on investment and increases system availability. Emerson Network Power supports entire critical infrastructures with an extensive service offering, guaranteeing network availability and total peace of mind 24/7.

Our approach to servicing critical infrastructure covers all aspects of availability and performance, from single units to entire mission critical systems, providing customers with tailored services to meet their individual business needs and further guaranteeing critical continuity.

Emerson Network Power's service program is designed to ensure that your critical power protection system is maintained in an optimum state of readiness at all times. The LIFE™ remote monitoring and diagnostic service provides early warning of UPS conditions and out of tolerances. This allows effective proactive maintenance, fast incident response and remote trouble shooting, giving customers complete security and peace of mind.

### **Maximize Availability**

#### **Pre-Emptive Maintenance**

Regular preventive maintenance increases uptime. Emerson Network Power's LIFE provides early warning of operating anomalies allowing real-time diagnosis and swift identification and resolution.



### **Minimize Downtime**

#### **Immediate Identification of Problems**

Should an emergency condition arise, an engineer in the 24/7 manned LIFE service center carries out an immediate fault analysis and instigates appropriate corrective action.



### **Reduce Operating Costs**

#### **Superior Asset Management**

Through comprehensive data collection and analysis, LIFE's detailed reporting system provides valuable information on power and equipment trends, over any selected period of time.

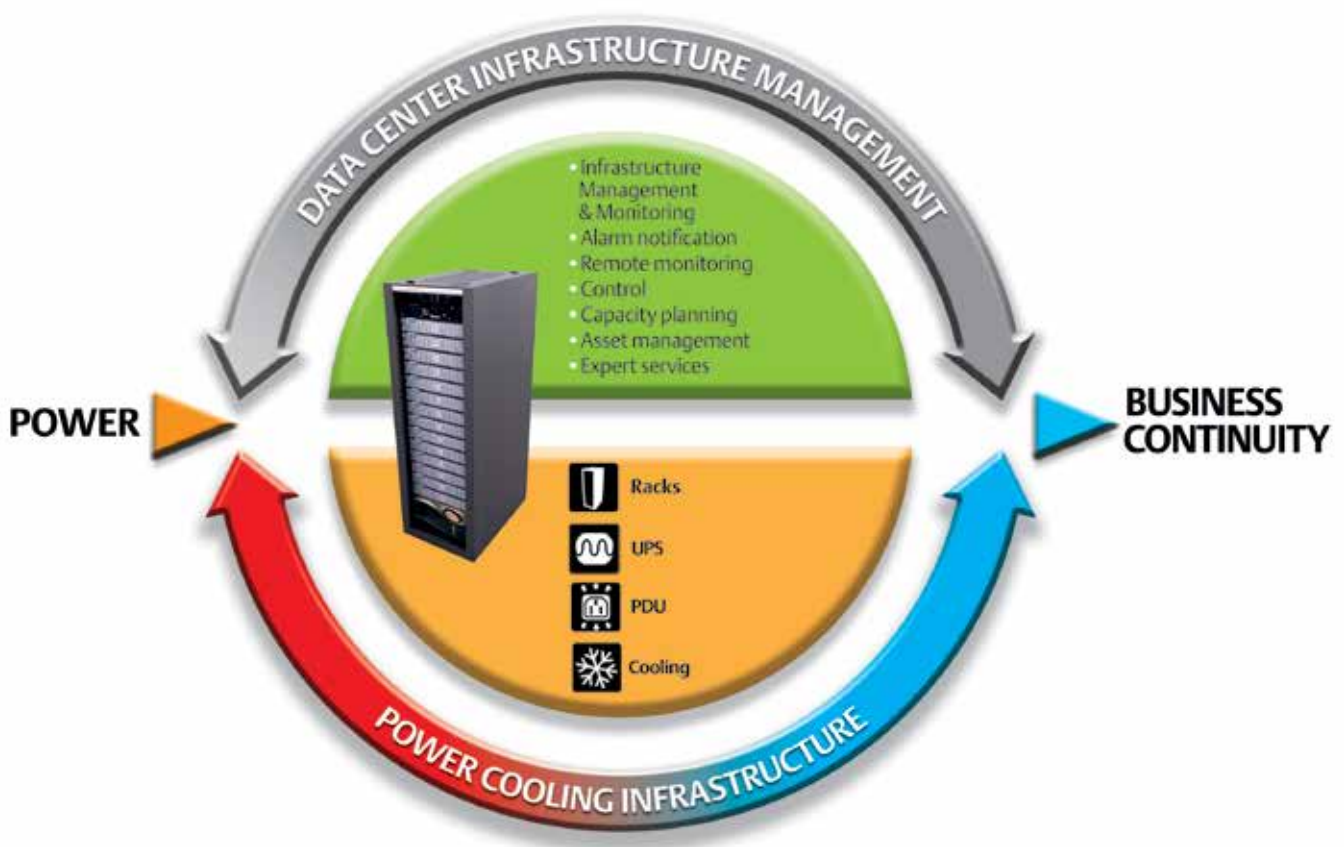




# Liebert® APS

## Specifications

Technical Characteristics	
<b>Ratings</b>	
Frame Rating (kVA/kW)	20/18
Power Module rating (kVA/kW)	5/4.5
Maximum number of power module per frame	6
<b>Input data</b>	
Nominal Input Voltage (V)	220/230/240; Single-Phase - 380/400/415; Three-Phase
Input voltage range without battery discharge at 70% load (V)	140-280 Single-Phase; - 242-485 Three-phase
Nominal Input Frequency (Hz)	50/60
Input Frequency Range (Hz)	40 to 70 auto-sensing
Input Power Factor (kW/kVA)	Single-Phase Input, > 0.99 - Three-phase Input, > 0.95
Input Current Distortion, THDi (%)	< 5
<b>Battery Module</b>	
Battery Cells Per String	72
Backup Time, Minutes, Full Load (for non-redundant system which has equal number of battery strings and power modules) (min)	5
Maximum Charge Current (Full, Load) (A)	Power module internal charger: 1.8 - Extra Charger module: 10
Voltage temperature compensation	Yes
<b>Output data</b>	
Nominal Output Voltage (V)	220/230/240 Single-Phase
Voltage Regulation (%)	±3
Voltage Stability (100% Step Load) (%)	±7
Voltage Recovery Time (ms)	≤ 60
Output Voltage Distortion, THDv (%)	≤ 3, linear load ≤ 5, non-linear load
Output Frequency (Hz)	50/60
Nominal load power factor (kW/kVA)	0.9
Output Overload Capability (s)	130% for 60s; 150% for 10s - 200% for 1s; > 201% for 0.25s
<b>Dimensions and Weight</b>	
Unit Weight (empty frame) (kg)	145
Power Module Weight (kg)	8.2
Battery Module Weight (kg)	16.4
Dimensions, W x D x H (mm)	440 x 850 x 970
<b>General &amp; Environmental</b>	
Operating Temperature, continuous, without derating (°C)	0 - 40
Double conversion Efficiency (AC-AC) (%)	92
Eco Mode Efficiency (AC-AC) (%)	>98
Environmental	WEEE and ROHS2 (6 by 6), REACH Compliant
Acoustic Noise Level @ 1 meter (dBA)	< 55dB (< 50% load), < 65dB (51-100% load)
UPS Classification According to IEC EN 62040-3	VFI-SS-111
Protection Degree IEC60529	IP 20
Color	RAL 7021

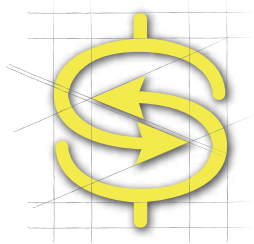


Today's successful businesses depend on adaptable technologies to help them respond quickly to market demands. Your data center must be built on a support infrastructure designed to match the power and cooling needs of rapidly changing IT initiatives such as virtualization and consolidation. Each IT change, move or addition will affect the entire support infrastructure so you need products and support that ensure your IT systems will operate reliably in these environments.

# Four Keys to Low TCO with the Liebert® APST™ UPS

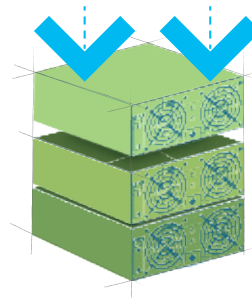
## 1 CLASS-LEADING ENERGY EFFICIENCY

Up to 92% in double conversion mode.



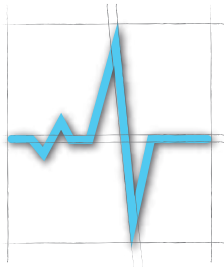
## 2 SCALABLE DESIGN

Allows addition of power capacity or extended back-up runtime, without additional floorspace - buy what you need now, and add capacity later.



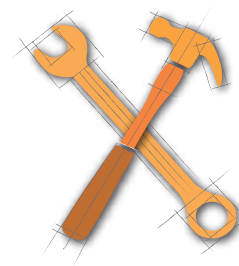
## 3 HIGH AVAILABILITY

With redundant operation, and LIFE™ remote diagnostic, real-time communication technology.



## 4 MODULAR DESIGN

Enables easy maintenance and service, minimizing time to repair.



The Liebert APS 5-20 kVA UPS from Emerson Network Power offers design and operational efficiencies that are unmatched in its class to deliver a low total cost of ownership.



## Ensuring The High Availability Of Mission-Critical Data And Applications.

### About Emerson Network Power

Emerson Network Power, a business of Emerson (NYSE:EMR), delivers software, hardware and services that maximize availability, capacity and efficiency for data centers, healthcare and industrial facilities. A trusted industry leader in smart infrastructure technologies, Emerson Network Power provides innovative data center infrastructure management solutions that bridge the gap between IT and facility management and deliver efficiency and uncompromised availability regardless of capacity demands. Our solutions are supported globally by local Emerson Network Power service technicians. Learn more about Emerson Network Power products and services at

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

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