



Vertiv™ Liebert®

APM 160 UPS

Converged Power System for
Edge Infrastructure



About Vertiv™

Vertiv brings together hardware, software, analytics and ongoing services to ensure its customers' vital applications run continuously, perform optimally and grow with their business needs. Vertiv solves the most important challenges facing today's data centers, communication networks and commercial and industrial facilities with a portfolio of power, cooling, and IT infrastructure solutions and services that extends from the cloud to the edge of the network. Headquartered in Columbus, Ohio, USA, Vertiv employs around 20,000 people and does business in more than 130 countries. For more information, and for the latest news and content from Vertiv, visit Vertiv.com.

Vertiv.com

OUR PURPOSE

We believe there is a better way to meet the world's accelerating demand for data - one driven by passion and innovation.

OUR PRESENCE

GLOBAL PRESENCE

Manuf. and Assembly Locations **19**
Service Centers **270+**
Service Field Engineers **2,700+**
Technical Support/Response **330+**
Customer Experience Centers/Labs **17**



US AND CANADA

Manuf. and Assembly Locations **7**
Service Centers **120+**
Service Field Engineers **850+**
Technical Support/Response **120+**
Customer Experience Centers/Labs **4**

LATIN AMERICA

Manuf. and Assembly Locations **1**
Service Centers **20+**
Service Field Engineers **300+**
Technical Support/Response **25+**
Customer Experience Centers/Labs **2**

EUROPE, MIDDLE EAST AND AFRICA

Manuf. and Assembly Locations **5**
Service Centers **70+**
Service Field Engineers **600+**
Technical Support/Response **95+**
Customer Experience Centers/Labs **6**

ASIA PACIFIC

Manuf. and Assembly Locations **6**
Service Centers **60+**
Service Field Engineers **950+**
Technical Support/Response **90+**
Customer Experience Centers/Labs **5**



3-in-1 Compact Converged Power System

The Vertiv™ Liebert® APM 160 offers efficient power protection and distribution in single server rack cabinet thereby optimizes space and simplifies the operational management. The Liebert® APM 160 includes a versatile and modular UPS designed to operate with a maximum efficiency of up to 96.3% for the protection of medium sized critical digital infrastructure.

Its modular and scalable configuration can house both power, upstream and downstream distribution modules in the same cabinet or simply include power modules as per the requirement. Guarantees maximum adaptability to every possible requirement in terms of footprint, and distribution. The Liebert APM 160 architecture allows for scalability while delivering an ideal balance of high availability, reliability, and efficiency.

The Liebert APM 160 cabinet accommodates up to three intelligent distribution modules. Each distribution module contains 24-poles. Two distribution modules are used for output distribution & one module is used for upstream distribution. It also features hot-pluggable distribution feeder as an optional item. This feature allows easy expansion and phase adjustment without any need of power shutdown.

For your branch monitoring needs, it incorporates intelligent server power management system which provides real-time monitoring of voltage, current, PF, harmonics, electricity consumption of each outgoing branch and many other related parameters. It also provides provision to set alarms to defined over and under current limits.

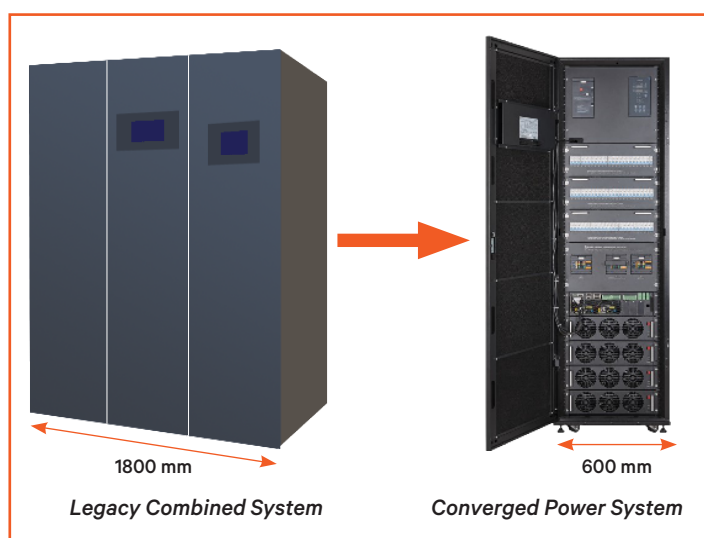
Efficiently Protecting Mission-Critical Loads

The Liebert APM 160 is capable of achieving the remarkable efficiency level of up to 96.3% in true online double conversion mode. With its flat efficiency curve, it delivers maximum efficiency regardless of the load level. In fact, it is capable of achieving more than 96% efficiency as well as maintaining flat efficiency levels at partial loads.

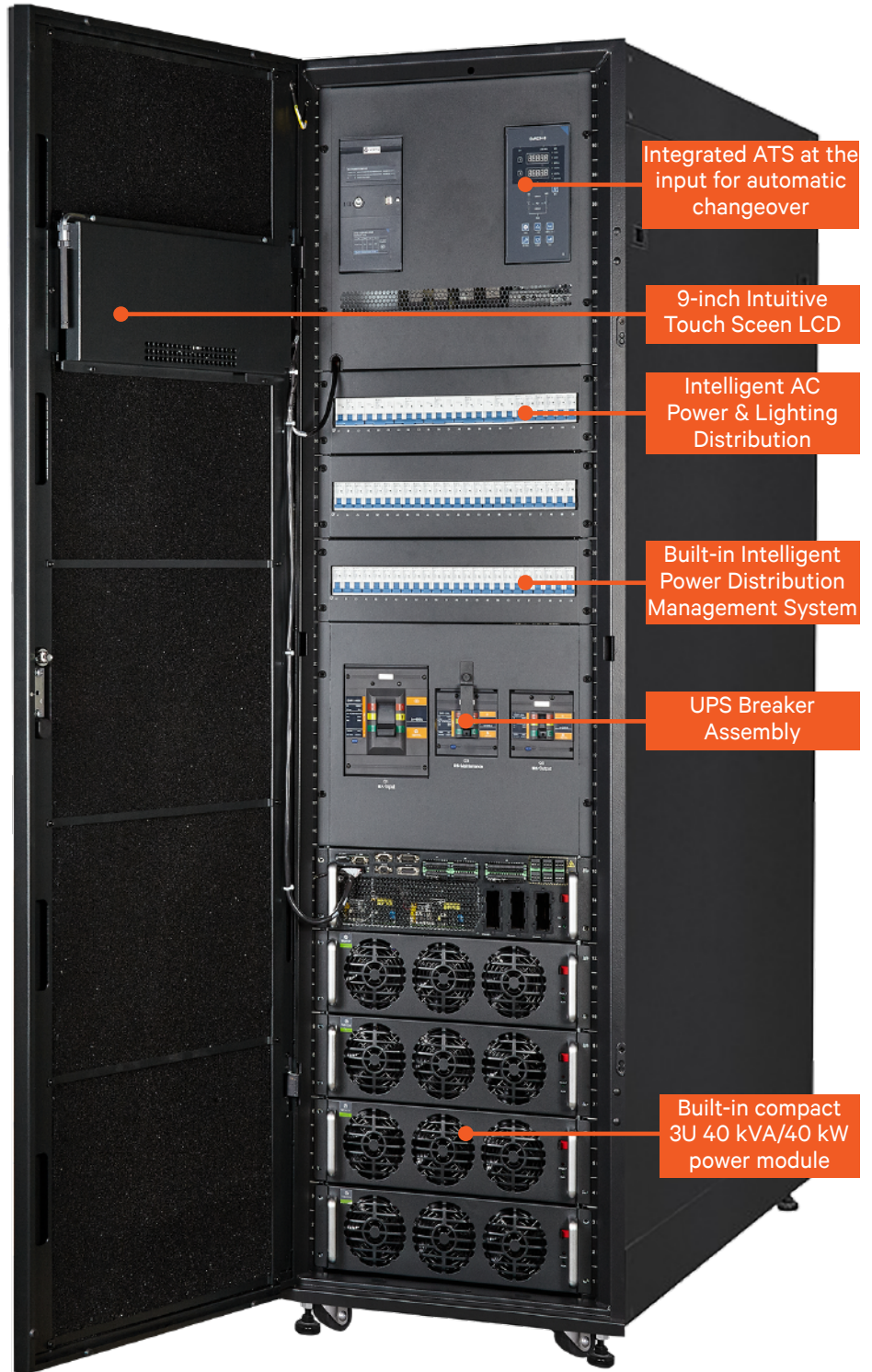
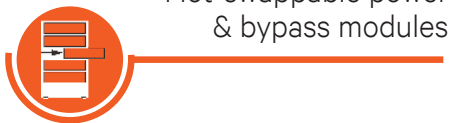
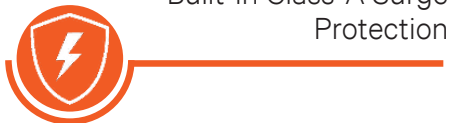
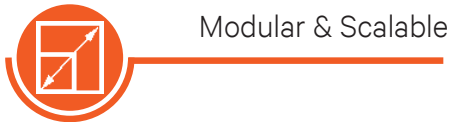
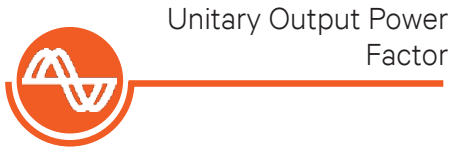
The level of operating efficiency results in significant cost savings, reduces the carbon footprint of installation, and at the same time optimizes Power Usage Effectiveness (PUE).

Liebert APM is further able to increase efficiency to 99% by operating in ECO mode.

Compact Design with 67% Reduction in Floor Space



Liebert® APM 160 features and Benefits



Liebert® APM 160: Flexible Configuration

With Dual-source Supply



With Single-source Supply



With UPS & Breaker Assembly



Modular Architecture

The Liebert APM 160 modular architecture allows the scaling of a single unit capacity up to a maximum of 160 kW in one single unit.

Parallel and Dual Bus Ready

Liebert APM 160 can be connected to up to two units in parallel depending on the configuration. A single unit can be set up to work in parallel by using a communication cable set, allowing the system to be customized for the required configuration. Additionally, Liebert APM 160 also allows easy deployment of Tier 4 architecture through its integrated dual bus control.

Intuitive, Intelligent Operations at Every Level

Liebert APM 160 features a large 9-inch multi-lingual touch screen LCD display that provides users with access to key operating information, including alarm status, configuration, start-up/shutdown, transfer, and advanced metering. The micro-processor based display, functions independently from the system control and provides access to:

- Real-time meter readings of system currents, voltages, active and reactive power
- Status reports and history files
- System power flow one-line diagram
- Compatible with Power Insight & *Trellis™* platforms

Comprehensive energy management attributes panoramic view of the entire power-flow from main incomer to individual sub-feeders.



Shows real time feeder information such as voltage, current, harmonics, and power monitoring (kVA, kW, KVAR, & PF).



Power path status via animated single line mimic display shows the current status of main source breaker and distribution modules.



Enables accurate forensic analysis.

Connectivity options

Communication features through Web (HTTP), Modbus and SNMP protocol.

Software Connectivity

Trellis™ Power Insight⁽¹⁾ is an application that can monitor your Liebert UPS systems and provide real-time trends for critical UPS performance management. In the event of a need to shutdown the UPS, the software ensures a smooth shutdown routine so that no damage occurs to the data or systems.

(1) will be available with second version



Serviceability & Maintainability

The Liebert APM 160 is designed to facilitate effortless installation and simplify service with its easy to remove power modules. The hot-swappable module-based architecture significantly reduces the Mean Time to Repair (MTTR) and facilitates maintenance operations by allowing single modules to be serviced while the remaining modules continue to power the load. All power modules and critical components are easily accessible from the front of the unit.

Vertiv Trellis™ Platform

Vertiv *Trellis* platform is a real-time infrastructure optimization platform that enables the unified management of data center IT and facilities infrastructure. Vertiv *Trellis* platform software can manage capacity, track inventory, plan changes, visualize configurations, analyze and calculate energy usage, and optimize cooling and power equipment. Vertiv *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.

Seamlessly Fit with Vertiv SmartSolution Offerings



SmartRow with In-Row PAC



SmartAisle with multiple In-Row PAC & emergency lighting, fire system



SmartMOD with multiple In-Row PAC & emergency lighting, fire system

Technical Specifications

Model	APM 160			
Power (kW/kVA)	40	80	120	160
Mechanical parameters				
Dimensions (W x D x H), mm	600 x 1100 x 2000			
Weight, kg	Dual source (450); single source (400); UPS without PDU (300)			
Input parameters				
Rated voltage	380 / 400 / 415 VAC, three-phase four-wire			
Frequency	50/60 Hz			
Voltage tolerance	305 ~ 477; 228 ~ 304 (output derated below 80%)			
Frequency range	40 to 70 Hz			
Power factor*	>0.99			
Current harmonics*	<3%			
Battery parameters				
No of 12 V battery blocks*	26-40			
Output characteristics				
Rated voltage	380 / 400 / 415 VAC (three-phase four-wire)			
Frequency	50 / 60 Hz			
Power factor	Unity			
Overload capacity	105%, long term; 110%, 60 mins; 125%, 10 mins; 150%, 1 min; >150%, 200 ms			
THDv	<1% for linear loads & <3% for non-linear loads			
System characteristics*				
Online efficiency	Up to 96.3%			
ECO mode efficiency	Up to 99%			
Power distribution unit	Switch configuration		Monitoring unit	
Input switch	400 A / 4P ATS		Switching State, voltage, current, power factor, current harmonics, power consumption	
Input distribution	63 A / 3P × 6 + 16 A / 1P × 6			
Output distribution	32 A / 1P × 48			
Environmental characteristics				
Operating temperature	0 to 40 °C			
Storage & transportation temperature for the UPS	-20 ~ +70 Deg °C			
Relative humidity	0 ~ 95% RH, non condensing			
Altitude	≤1500, derate power by 1% per 100 m between 1500 m and 3000 m			
Noise	<65 dB			
Ingress protection	IP 20			
Standards	General and safety requirements : EN62040-1/IEC62040-1/AS62040-1 EMC requirements: EN62040-2/IEC62040-2/AS62040-2 (C3) Performance and test requirements: EN62040-3/IEC62040-3/AS62040-3 (VFI SS 111)			

* Conditions apply

