

*Liebert® PPC™*

Second Generation Power Distribution Cabinet



# Emerson Network Power Delivers The Packaged Power Solution

**Creating high quality power is a major step towards protecting the operation of a critical facility. But don't stop there. Once you've created a better level of power, you need to make sure that it can be distributed properly to each piece of important equipment.**

## Critical Power Distribution Made Easy

Emerson Network Power designed the Liebert® PPC™ to bring you a distribution system that will close the power delivery loop in your critical facility. The Liebert PPC offers the benefits of a custom-tailored power system, with the convenience and cost savings of a pre-packaged, factory-tested unit. Housed in a single, self-contained cabinet, it combines distribution, computer-grade grounding, isolation, and power monitoring to provide the protection your vital computer or communications equipment demands. Available in 15-225 kVA capacity systems for raised floor applications and top-exit models, the Liebert PPC offers flexible expansion capabilities to fit growing sites. The 150kVA, 200kVA, 225kVA, 300kVA, 430kVA and 800kVA are available with Square D I-Line panelboard distribution which extend the Liebert PPC line giving you more flexibility and more capacity in one cabinet.

## A Proven System

The packaged system approach of the Liebert PPC is convenient and space-saving, reducing installation time and cost compared to a conventional approach using multiple interconnected components. The Liebert PPC is built on a proven system design used in thousands of installations, and unlike one-of-a-kind, built-up distribution constructed at the site, it undergoes thorough factory testing as a complete system to assure reliable, consistent performance.



Liebert PPC - 430kVA.

## The Liebert PPC Offers A Number Of Benefits:

### Reliability

- **Improved Power Quality** — Results in optimum equipment operation, reducing downtime and extending service life.
- **Computer-Grade Grounding** — The Liebert PPC automatically establishes a single point ground to meet major manufacturers' recommendations and the requirements of the National Electric Code.
- **Monitoring** — Built-in metering and alarm annunciation with communication capabilities for both Emerson Network Power and 3rd party monitoring/DCIM systems.

### Flexibility

- **Handles Non-Linear Loads** — Fully compatible with the non-linear loads and other electronic equipment.
- **Expansion Capability** — Add-on panelboards, optional Liebert EXC™ and flexible cabling can be installed with minimal disruption to meet growing needs.
- **Location Flexibility** — The unit can be easily relocated to protect your investment.
- **UL and ULc Listed as a Complete System** — Meets safety requirements for fast, hassle-free inspection and building code approvals.

### Low Total Cost Of Ownership

- **Space Savings** — Compact single cabinet conserves valuable floor space.
- **Easy Installation** — Single input cable connection reduces installation time and cost.
- **DOE TP-1 Listed Isolation Transformer** — Provides increased efficiency.

## An All-In-One Power System... All At An Affordable Price

### A Noticeable Improvement In Power Quality

There are a number of integral features that allow Liebert® PPC™ to offer a higher quality level of electrical power for your critical applications:

- The main input breaker with low voltage shunt trip accessory provides primary transformer overcurrent protection, a power disconnecting means, and a method to interface with shutdown controls.
- Double-Shielded, copper, DOE TP-1 Listed Isolation Transformer that provides higher efficiency than standard transformers.
- Supplemental transformer protection is provided by temperature sensors in each winding to alarm abnormally high winding temperature or shutdown unit before isolation damage.
- One or more, individually enclosed panelboards with panelboard main breaker and individual isolated neutral and ground busbars distribute power to the sensitive load equipment.
- Output conduit landings are provided for each output panelboard to accommodate the large number of dedicated branch circuits recommended for sensitive electronic loads.
- Oversized neutral components safely withstand neutral currents of at least 1.73 times full load currents.
- System shutdown controls, including manual restart, overtemperature shutdown and emergency power off, are included.
- Optional shielded output cables for each load reduce EMI and RFI.



Liebert PPC - 150-225kVA Bottom Entry/Exit  
with two Square D 72 pole Panelboards.

The Liebert PPC approach gives you an easily installed package — a single power connection to the building wiring simplifies hook-up and reduces installation time and cost. Flexible cables can be specified in lengths and sizes to match sensitive electronic loads, making the system easy to relocate or expand. A choice of service access allows greater location flexibility and smaller installed footprint. And since the power source is right there in the room, it eliminates difficulties in establishing a proper ground. The system also eliminates potentially harmful harmonic neutral current from the building wiring system.

## *Designed From The Ground Up For Effective Power Distribution*

**Several key features have allowed Emerson Network Power to build a packaged power distribution system that combines a high level of power quality effectiveness with a cost that is less than conventional built-up systems.**

### **Computer Grade Grounding**

The Liebert PPC™ Second Generation establishes a single point ground for the critical load. Power ground and computer ground points are identical minimizing ground-loop currents and common mode disturbances. Short output cables maintain the integrity of the isolation and conditioning.

### **Secure Distribution And Circuit Identification**

Distribution panels are in the computer room which limits access to authorized personnel only. Each breaker has an adjacent identification tag for rapid circuit ID. Each output cable is labeled at each end with circuit number, length, type of receptacle and circuit identification.

### **Non-Linear Load Compatibility**

The basic Liebert PPC is designed to accommodate moderate levels of harmonic currents. Where severe levels of harmonic currents are anticipated, a K-Factor transformer option for harmonic current cancellation is available.

### **Optional System Enhancements**

A host of options enable you to design the Liebert packaged power system to your exact needs:

- A LiebertEXC™ can be placed adjacent to Liebert PPC, adding up to six additional panel boards.
- Transient voltage surge suppression (TVSS) is available for increased protection from damaging voltage surges. Very short interconnecting wiring provides superior surge clamping performance.
- K20 transformer safely withstands high harmonic currents associated with electronic loads without derating.



Liebert PPC - 15-125kVA Bottom Entry/Exit with Square D 72 pole Panelboard.

# System Monitoring Enhances Visibility and Performance

## Panelboard Monitoring

The integral **Current Plus Monitoring (CPM)** optional display monitors the current and voltage of the panelboard. The display includes a monochrome LCD, power and alarm LEDs, audible alarm, and a silence push button. It provides true RMS measurements and battery backed memory.

Monitored parameters include:

- Voltage - Line-to-Line
- Voltage - Line-to-Neutral
- Neutral Current
- Ground Current
- kVA
- Power Factor
- Voltage Total Harmonic
- Distortion (THD)
- Current Total Harmonic
- Crest Factor

## Branch Circuit Monitoring

Advanced monitoring is available through the optional **Liebert® Distribution Monitoring (LDMF)** display. This option provides a large LCD screen that allows viewing of monitored information for the panelboard as well as each individual branch circuit breaker. Alarm data may be viewed from this display for up-to-date breaker status. It provides true RMS measurements and battery backed memory.

Monitored parameters are the same as those for the CPM monitor, plus for each branch circuit:

- Phase current
- kW
- kW-hours
- Percent load

## Centralized Monitoring

An optional Liebert SiteScan® interface allows centralized monitoring of the Liebert PPC™.

A Liebert IntelliSlot Unity communications card may be installed to allow monitoring through a Building Management System (BMS). The Unity card provides several protocol options (SNMP, Modbus, BACnet) in one card.

- Voltage - Line-to-Line
- Voltage - Line-to-Neutral
- Neutral Current
- Ground Current
- kVA
- Power Factor
- Voltage Total Harmonic
- Distortion (THD)
- Current Total Harmonic
- Crest Factor

## Central Monitoring Interface

Liebert PPC are compatible with our Liebert SiteScan centralized monitoring systems, allowing single point monitoring and alarm of power conditions. These microprocessor-based systems provide historical data on room conditions for future requirement planning and troubleshooting. In addition, for communication of monitored parameters and alarm information to other monitoring systems. A Liebert IntelliSlot Unity card can also be used to enable cost-effective monitoring of a Liebert PPC by your facility or network monitoring systems. The Unity card provides several protocol options (SNMP, Modbus, BACnet) in one card.

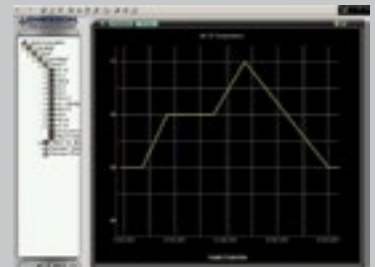
## Event Management And Reporting

Liebert SiteScan Web will show you exactly where the problem is—not some cryptic message that will leave you guessing. Events and alarms associated with a specific system, area or equipment selected in the navigation tree are displayed. This view allows you to monitor alarm or event information geographically, as well as to acknowledge events, sort events by category, actions and verify reporting actions.



## Data Analysis And Trend Reporting

With Liebert SiteScan Web you get powerful tools to analyze data and use it to prevent specific problems from occurring again. The operator can view trends by using the navigation tree and selecting the “trends” button in the graphic window. Users can create custom trend data that consist of one or more multiple data points.



## Raising The Standard Of Power In Non-Raised Floor Applications



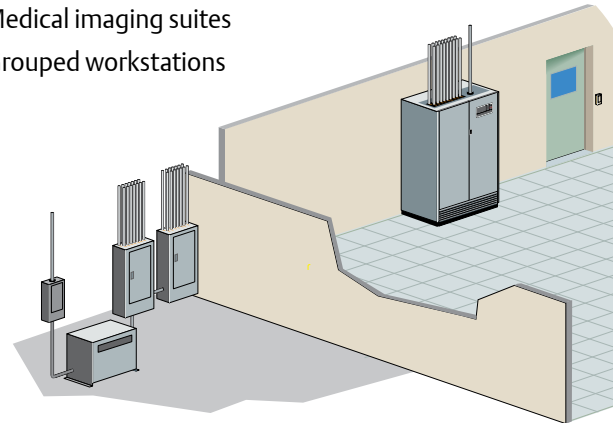
Liebert PPC - 800kVA Bottom and Top Entry/Exit.

The innovative top-exit Liebert® PPC™ takes packaged power systems to new heights...literally. By placing the input and output conduit connections at the top of the unit, the top-exit Liebert PPC brings the benefits of high quality packaged power systems to non-raised floor applications. What's more, the unit retains the normal bottom output cable exit for easy relocation and expansion flexibility.

### Added Flexibility Enables You To Bring Packaged Power To Even More Locations

Ideal for conditioned grade power distribution in applications where there is no raised floor, the top-exit Liebert PPC brings the flexibility and space-saving benefits of a packaged power system to a variety of applications:

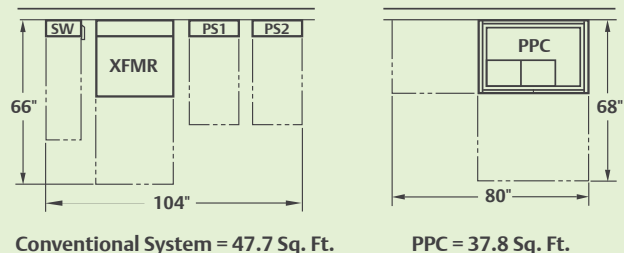
- Office areas
- LANS
- Laboratories
- High-tech manufacturing sites
- Process control rooms
- Medical imaging suites
- Grouped workstations



Liebert PPC - 150-225kVA.

### High Efficiency Power Distribution In Far Less Space

Compared to a conventional power distribution system built at the site and using multiple interconnected components, the top-exit Liebert PPC provides a much smaller footprint, reduced installation time, less cost and easier service access.



# Specifications

## 60 Hz

Output kVA	Input Voltage*	Input Circuit Breaker (Amps)	Panelboard Poles		Dimension (in)			Weight (lbs)	Heat Output BTU/HR
			Std	Opt**	W	D	H		
15	600, 480, 208	20, 25, 60	42, 54 or 72	84, 108 or 144	32	32	77	650	1915
30	600, 480, 208	40, 50, 110	42, 54 or 72	84, 108 or 144	32	32	77	750	2995
50	600, 480, 208	70, 80, 200	42, 54 or 72	84, 108 or 144	32	32	77	898	4360
75	600, 480, 208	100, 125, 300	42, 54 or 72	84, 108 or 144	32	32	77	1115	6140
100	600, 480, 208	125, 175, 400	42, 54 or 72	84, 108 or 144	32	32	77	1275	7680
125	600, 480, 208	175, 200, 450	42, 54 or 72	84, 108 or 144	32	32	77	1450	9460
150	600, 480, 208	200, 250, 600	84, 108 or 144	N/A	44	32	77	1789	10660
200	600, 480	250, 350	84, 108 or 144	N/A	44	32	77	2110	13930
225	600, 480	300, 350	84, 108 or 144	N/A	44	32	77	2353	15350

## 50 Hz

Input Voltage*	Input Circuit Breaker (Amps)	Panelboard Poles		Dimension (mm)			Weight (kg)	Heat Output (kW)
		Std	Opt**	W	D	H		
415, 400, 380	30	42, 54 or 72	84, 108 or 144	810	810	1960	318	0.56
415, 400, 380	60	42, 54 or 72	84, 108 or 144	810	810	1960	363	0.88
415, 400, 380	100	42, 54 or 72	84, 108 or 144	810	810	1960	420	1.28
415, 400, 380	150	42, 54 or 72	84, 108 or 144	810	810	1960	522	1.80
415, 400, 380	200	42, 54 or 72	84, 108 or 144	810	810	1960	635	2.25
415, 400, 380	225, 250, 250	42, 54 or 72	84, 108 or 144	810	810	1960	715	2.77
415, 400, 380	300	84, 108 or 144	N/A	1120	810	1960	862	3.13
415, 400, 380	400	84, 108 or 144	N/A	1120	810	1960	1043	4.08
415, 400, 380	450	84, 108 or 144	N/A	1120	810	1960	1111	4.45

## 60 Hz with I-Line Panel Board

Output kVA	Input Voltage*	Input Circuit Breaker (Amps)	Panel Board	Dimension (in)			Weight (lbs)	Heat Output BTU/HR
				W	D	H		
150	600 480	200 250	Square D I-Line	86	32	77	2280	12290
200	600 480	250 350	Square D I-Line	86	32	77	2710	15425
225	600 480	300 350	Square D I-Line	86	32	77	2593	18185
300	600 480	400 500	Square D I-Line	86	32	77	3358	19415
430	600 480	700 600	Square D I-Line	104	32	77	4128	24010
800	600 480	1000 1200	Square D I-Line	172	32	77	8339	34555

## Top Exit

Output kVA	Input Voltage*	Input Circuit Breaker (Amps)	Panelboard Poles	Dimension (in)			Weight (kg)	Heat Output BTU/HR
				Std	W	D		
15	600, 480, 208	20, 25, 60	42, 54 or 72	32	32	77	650	1915
30	600, 480, 208	40, 50, 110	42, 54 or 72	32	32	77	750	2995
50	600, 480, 208	70, 80, 200	42, 54 or 72	32	32	77	898	4360
75	600, 480, 208	100, 125, 300	42, 54 or 72	32	32	77	1115	6140
100	600, 480, 208	125, 175, 400	42, 54 or 72	32	32	77	1275	7680
125	600, 480, 208	175, 200, 450	42, 54 or 72	32	32	77	1450	9460
150	600, 480, 208	200, 250, 600	42, 54 or 72	44	32	77	1789	10660
200	600, 480	250, 350	42, 54 or 72	44	32	77	2110	13930
225	600, 480	300, 350	42, 54 or 72	44	32	77	2353	15350

### kVA: 15-225, 3-phase Input

3-phase, 3 wire plus ground  
208, 480, or 600 volts; 60 Hz  
208, 380, 400 or 415 volts; 50 Hz  
(Transformerless system require 3-phase, 4W & G)

### Output

3-phase, 4 wire plus ground  
120/208 volts; 60 Hz  
120/208, 220/380, 230/400, or 240/415 volts; 50 Hz

**Transformer:** DOE TP1 Double-Shielded, all copper windings.  
Class H 220 °C insulation.

**Voltage Adjustments:** -10% to +5% of nominal in 2 1/2% increments

### Noise Attenuation:

120 dB common mode

**Efficiency:** 97.9 to 99.2%

**Ground:** Single-point reference on separately derived systems.

**Distribution:** Individually protected panelboards with plug-in or bolt-on breakers and optional flexible output cables.

**Cooling System:** Convection

**Monitored Parameters:** Input and output voltages; Output, neutral and ground currents; Output voltage THD; Output current THD, K-factor and crest factor; kVA; kW; Power factor; Percent load; kW-Hrs; and Frequency.

**Alarm Conditions:** Output over- and under-voltages; output overload; neutral and ground over currents; output voltage THD; transformers over temperature; frequency deviation; phase sequence error; phase loss; 5 customer specified alarm conditions.

The standard output voltage is 208/120 volts, for 60 Hz units.

\*Other voltages available, consult factory.

\*\* Models are 44" (112cm) wide.

\*\*\* A maximum of eleven 250A frame or eight 400A LA frame or six 600A LI frame output breakers can be installed in a Square D I-Line panelboard. 800kVA has two Square D I-Line panelboards.

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

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.com](http://www.EmersonNetworkPower.com)

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SL-20194 (R06/16) Printed in USA

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