

## Liebert® EXS 30-80kVA Frequently Asked Questions



### 1. What are the features of Liebert EXS ?

Liebert EXS 30-80kVA has following key attributes

- A. Compact footprint with multiple internal runtime configurations or transformer
- B. Integrated battery autonomy (10-60kVA)
- C. Unity output power factor @40°C
- D. Double conversion efficiency up to 96.2%
- E. Eco Mode efficiency up to 99%
- F. Eco mode is available in parallel configuration
- G. Integrated input, output, bypass, and maintenance bypass breakers/switches
- H. Supports variable number of battery blocks (26-40)
- I. Accepts distributed or common battery banks
- J. Lithium-ion battery compatible
- k. UPS self- capacity test (Regen. Mode)
- L. Inbuilt LBS & parallel configuration ports
- M. Intuitive user interface display
- N. Integrated top/bottom cable entry
- O. Supports cold-start function
- P. Integrated output isolation transformer option

### 2. What is the Liebert EXS power capacity over ambient temperature up to 40°C?

Liebert EXS delivers Unity output PF irrespective of ambient temperature up to 40°C.

	25°C	30°C	35°C	40°C
30 kVA	30kVA/30kW	30kVA/30kW	30kVA/30kW	30kVA/30kW
40 kVA	40kVA/40kW	40kVA/40kW	40kVA/40kW	40kVA/40kW
60 kVA	60kVA/60kW	60kVA/60kW	60kVA/60kW	60kVA/60kW
80 kVA	80kVA/80kW	80kVA/80kW	80kVA/80kW	80kVA/80kW

### 3. What is the overload capacity of Liebert EXS?

Liebert EXS overload limits are 10mins up to 125%load and 1min up to 150%load. These values are measured with linear load at full active power (unity output PF) and with an operating temperature of 0-40°C.

### 4. What is the nominal input supply voltage range without discharging the batteries for EXS UPS?

#### AC Input Voltage:

380/400/415VAC, three-phase, four-wire-plus-ground

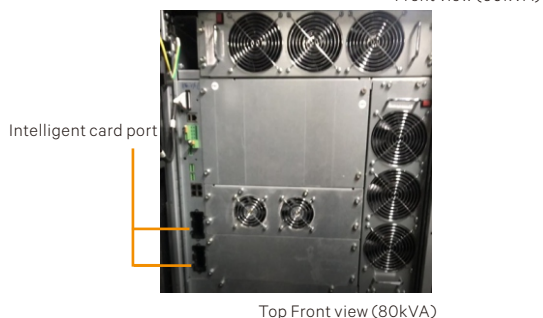
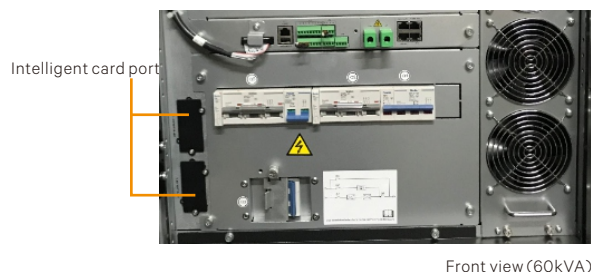
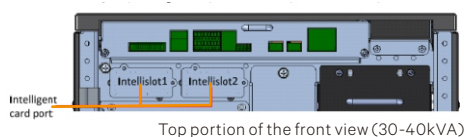
#### AC Input Voltage Tolerance:

305-475V @ 100% load

228-475V @ 50% load

## 5. Can I use IS-UNITY-DP & IS-RELAY Card simultaneously?

Yes, two Intellislot are available by default which functions independently. One Intellislot is used for IS-UNITY-DP/SIC & another is used for IS-RELAY card communication.



## 6. What is the runtimes available for a system of Liebert EXS with internal battery configuration?

Please refer to the table below for examples of runtime (minutes), measured with new and fully charged batteries.

Note: Battery autonomy times and 5 year design life are based on operation at 25°C. The autonomy times are approximate and are based on fully charged batteries and can vary +/-5% because of battery manufacturing variances.

EXS Frame Capacity	Load rate (%)	7AH 3 x 32Blocks	7AH 4 x 32Blocks
30 kVA	100	5min	9min
	80	8min 36sec	12min 30sec
	50	17min	25min
	20	56min	81min

EXS Frame Capacity	Load rate (%)	9AH 3 x 32Blocks	9AH 4 x 32Blocks
40 kVA	100	5	9min
	80	8.6	12min 30sec
	50	17	25min
	20	56	81min

EXS Frame Capacity	Load rate (%)	37.5AH 1 X 40Blocks	20AH 2 X 32Blocks
60 kVA	100	6min 30sec	5min
	80	10min	8min
	50	18min	15min
	20	62min	52min

## 7. How does Liebert EXS satisfy the requirements of the modern, advanced servers?

Liebert EXS is designed to deliver 100% real power output (kVA=kW) from 0.5 lagging to 0.8 leading without any derating. Therefore, it is powerful and well equipped to meet the current as well as the futuristic demands, considering the requirements of the critical IT equipment in today's dynamic environment.

## 8. Can Liebert EXS be connected in parallel?

Yes, Liebert EXS can be connected in parallel up to 4 units, to deliver up to 320kVA capacity or 240kVA with N+1 redundancy.

## 9. Can Liebert EXS support Intelligent Paralleling Feature?

Yes, Liebert EXS support this function. Activating this function optimizes efficiency at partial load, thus achieving greater operational cost savings. Enabling this feature allows the system to automatically adapt capacity to meet immediate load requirements by switching excess units to standby mode, while ensuring continued system availability. Furthermore, this mode allows each Liebert EXS unit to operate in standby mode for the same amount of time, ensuring an equal life span of module components.

## 10. Does Liebert EXS support ECO mode operation?

Yes, Liebert EXS support the ECO mode with efficiency >99%. This feature can be inhibited from the LCD display. ECO mode operation is also available in the parallel configuration.

## 11. What kind of protection provided to internal batteries?

Following protections are provided -

- A. Battery fuses are placed in the DC path. Thus, it protects from short circuit & over current conditions.
- B. In case of over/under voltage & prolonged charging conditions charger will be shut off to protect the batteries.
- C. Temperature compensated battery charging – if ambient temperature is high, charger will adjust DC voltage accordingly to protect it.

## 12. What is USB port function?

The USB port is used for service purpose only.

## 13. Is it possible to parallel Liebert NXC with Liebert EXS?

It is not possible to have a mixed parallel configuration of Liebert NXC and Liebert EXS, the two units are not compatible, so the way to expand an existing system is to parallel units of same UPS family.

## 14. What is the maximum battery charger capacity of the Liebert EXS UPS?

- 30kVA – Battery charging current is 9.3A
- 40kVA - Battery charging current is 12.5A
- 60/80kVA - Battery charging current is 25A

## 15. How many number of batteries can be connected to the Liebert EXS UPS?

30/40/60/80KVA- 32-40 no. of 12V blocks selectable without deration & 26-30 with deration.

## 16. Can Liebert EXS be connected to third party batteries?

Liebert EXS can be connected to third party batteries subject to the condition of using 3-wire connection

## 17. How many historical events can be seen on the display?

A total of 2000 historical events can be stored & monitored through the LCD display.

## 18. Is it possible to configure or replace the SIC card Online?

Yes, it is possible to replace or configure the SIC card online; it supports plug-and-play without any requirement of a UPS shutdown.

## 19. Is it possible to replace LCD display online?

Yes, it is possible to replace LCD display online. This is applicable for only single UPS.

## 20. Does the Liebert EXS UPS have power walk-in function?

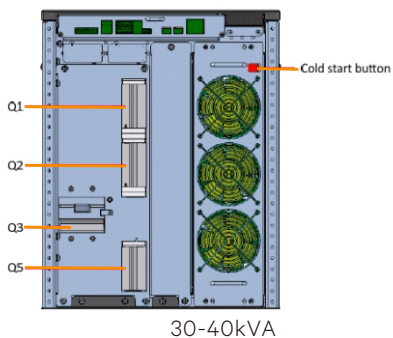
Liebert EXS does not have a power walk-in function. This function is insignificant in the small capacity range.

## 21. Does the Liebert EXS support Regen mode or smart capacity test?

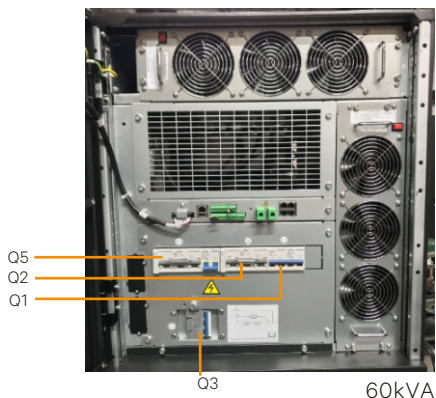
Liebert EXS supports Regen mode. In this mode, UPS can burn up to 80% of its capacity without using any external load and hence no need for costly load banks for UPS testing .

## 22. Does the Liebert EXS have cold start function?

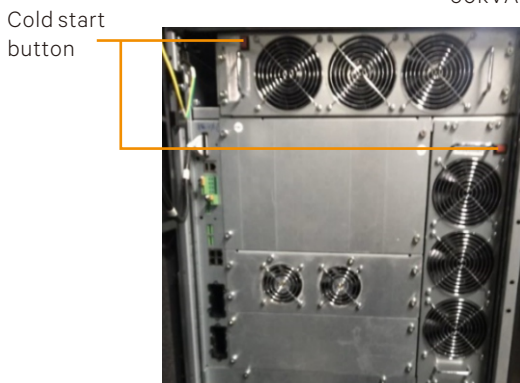
Yes, Liebert EXS supports cold start function. But make sure that the batteries are fully charged and well connected to the UPS system before activating this function. It will be activated by using cold start button located at the front of the power module as shown below.



30-40kVA



60kVA



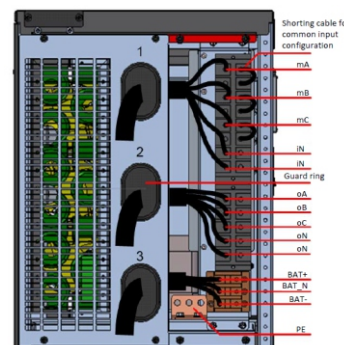
80kVA

## 23. Is it mandatory to use the Battery Circuit Breaker (BCB) for the external batteries?

Yes. Vertiv recommends the use of BCBs to protect the external batteries. The BCB box protects the battery against overdischarge, overcurrent, and also isolates the UPS and battery. Thus, eliminates the risk during the maintenance.

## 24. Is the Liebert EXS UPS suitable for top or bottom cable terminations?

Liebert EXS is suitable for both bottom as well as top cable entry terminations. Cables are terminated at the back and its arrangement as shown below.



30-40kVA



60kVA



80kVA

## 25. Does Liebert EXS protect from surges occurring from the incoming supply?

Yes. Liebert EXS protects and sustains from input surges up to 4kV (Line to ground) and 2kV (line to line) without damage as per criteria listed in IEC/EN62040-2

## 26. What is the fault tolerance feature & its benefits ?

The Liebert EXS provides enhanced fault tolerance at partial load versus a traditional fixed capacity monolithic UPS. It can tolerate internal power module failures and still support a partial load without going to bypass. Thereby, enhances the availability of the critical loads. This feature is only available in 60 & 80kVA variants.

## 27. Can Liebert EXS offer integrated isolation transformer?

Yes, Liebert EXS offers integrated Aluminium isolation transformer at the output. This greatly reduces the system footprint, thus providing space saving advantages.

## 28. Does Liebert EXS (20-80kVA) UPS require any power deration when considering IP 31 option?

Yes. Liebert EXS UPS output capacity is derated by 10% when considering IP 31 ingress protection option.

Note: UPS does not automatically derate, so please pay attention to the equipment load percentage, if the load exceeds 90%, an over temperature alarm may occur in UPS, then the load is transferred to bypass or even gets power loss risk.

## 29. Is it possible to configure the top fan kit along with isolation transformer for Liebert EXS 80kVA?

Yes, Both options can be configured together as the top fan kit is designed to exhaust heat generated by isolation transformer.

## 30. Is it possible to replace the top fan kit of Liebert EXS 80kVA Online?

No, It is not possible to replace top fans Online. These fans are designed for longer life. Hence, the probability of failures of these fans would be less.

## 31. Does the Liebert EXS 80kVA UPS trigger an alarm during top fan failure?

Yes, It delivers an alarm during the top fan failure.

## 32. Is it possible to maintain the transformer when the load is running on the maintenance bypass of the UPS?

No, it is not possible to maintain the isolation transformer during the maintenance bypass mode since it carries the load current.

## 33. How much minimum rear space is required for EXS 80kVA with top fan option?

It is recommend to leave at least 100mm rear space for cable termination.

## 34. What is the efficiency with isolation transformer @ different percentages of loading for all the variants?

The efficiency at varied percentages of loading for all the variants of Liebert EXS UPS is shown in the below table.

% Load	40 kVA	60 kVA	80 kVA
25 %	91.86 %	91.46 %	92.50 %
50 %	94.13 %	93.52 %	94.42 %
75 %	93.84 %	94.17 %	94.12 %
100 %	93.38 %	93.55 %	93.65 %

Note: Above efficiency levels are defined at nominal voltage of 240V