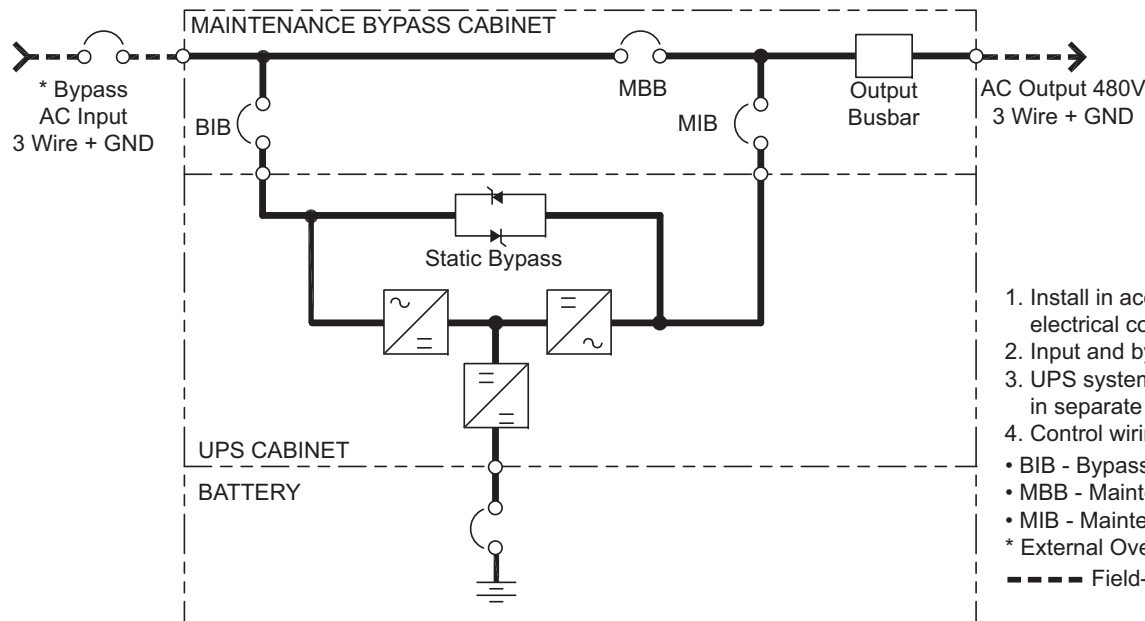


# SITE PLANNING DATA-LIEBERT® EXM™ 3-PHASE UPS: 50-250kVA/kW, 60Hz, 480VAC, SINGLE & DUAL INPUT



1. Install in accordance with national and local electrical codes.
  2. Input and bypass must share the same single source.
  3. UPS system input and output cables must be run in separate conduits.
  4. Control wiring must be run in separate conduits.
- BIB - Bypass Isolation Breaker
  - MBB - Maintenance Bypass Breaker
  - MIB - Maintenance Isolation Breaker
  - \* External Overcurrent Protection By Others
- Field-Supplied Wiring

## Notes for Tables

- Nominal (Nom) current is based on full rated output load at nominal input voltage.
- Maximum (Max) current (125% of nominal) is short duration for battery recharge conditions.
- UPS input and bypass cables must be run in separate conduit from output cables.
- Nominal battery voltage is shown at 2.0 volts/cell per NEC 480-2.
- Nominal rectifier AC input current (considered continuous) is based on full rated output load. Maximum current includes nominal input current and maximum battery recharge current (considered non-continuous). Continuous and non-continuous currents are defined in NEC 215.
- Nominal AC output current (considered continuous) is based on full rated output load. Output breakers are either supplied by the customer or by using the optional Liebert Bypass Distribution Cabinet.
- Minimum-sized grounding conductors to be per NEC 250-122. Parity-sized ground conductors are recommended. References are per NEC 2008.
- Wiring requirements: AC Input: 3-phase, 3 wire, plus ground  
AC Output: 3-phase, 3-wire, plus ground
- All wiring is to be in accordance with national and local electric codes.
- Minimum access clearance is 36" (914mm) front; ventilation clearance is 24" (610mm) above and 0-5" (127mm) in the rear, depending on the anchoring method.
- Top or bottom cable entry for the 250kVA model and bottom cable entry only for the 50-200kVA model through removable access plates. Punch plate to suit conduit size, then replace.
- Weights shown do not include optional cabinets or features.
- **When a Liebert Maintenance Bypass Cabinet is not used, the customer must supply the input circuit breaker with a 480VAC shunt trip on the bypass and rectifier feeds. The shunt trip drive capability is 8A.**
- If site configuration includes a backup emergency generator, it is recommended that the engine generator set be properly sized and equipped for a UPS application. Generator options would typically include an isochronous governor (generator frequency regulation) and a UPS-compatible regulator (generator voltage regulation). Consult generator manufacturer for required generator options and sizing.
- If site configuration includes an automatic transfer switch, refer to Liebert Power Line titled "Criteria for Application of Automatic Transfer Switches (ATS) With Uninterruptible Power Supply (UPS) Systems," publication 91K-PLT-48-02. It is also recommended that the transfer switch be equipped with auxiliary contacts to provide a UPS "on generator" signal. Consult transfer switch manufacturer for required transfer switch options and sizing.
- If site configuration requires an external isolated maintenance bypass circuit, it should be noted that utility AC input might not be in phase with the UPS AC output. Consult a Vertiv sales representative or applications engineer.

**Table 1 Site planning data - 50-250kVA, 60Hz, 480VAC, single input**

UPS Rating		Voltage		AC Input			Battery		AC Output		Mechanical Data				
				Current, A		Rec. OP D	Nominal VDC	Maximum Discharge	Current, A		Dimensions W x D x H, in. (mm)	Unit Weight 200kVA Frame lb. (kg)	Unit Weight 250kVA Frame lb. (kg)	Heat Dissipation BTU/hr (kWH)	Cooling Air CFM (m <sup>3</sup> /hr)
kVA	kW	Input	Output	Nom.	Max.				Nom.	OP D					
50	50	480	480	63	69	90	432	145	60	80	23-5/8 x 39-1/2 x 78-3/4 (600 x 1000 x 2000)	748 (339)	868 (394)	7854 (2.30)	382 (649)
100	100	480	480	126	138	175	432	290	120	150		842 (382)	962 (436)	13,851 (4.06)	763 (1296)
150	150	480	480	189	208	300	432	435	180	225		936 (425)	1056 (479)	18,019 (5.28)	917 (1558)
200	200	480	480	252	277	350	432	581	241	300		1030 (467)	1150 (522)	25,491 (7.47)	1318 (2273)
250	250	480	480	315	346	450	432	726	301	400	33 x 39-1/2 x 78-3/4 (840 x 1000 x 2000)	—	1244 (564)	34,627 (10.15)	1667 (2832)

**Table 2 Site planning data - 50-250kVA, 60Hz, 480VAC, dual input**

UPS Rating		Voltage		AC Input			Bypass		Battery		AC Output		Mechanical Data				
				Current, A		Rec. OP D	Current, A		Nominal VDC	Maximum Discharge	Current, A		Dimensions W x D x H, in. (mm)	Unit Weight 200kVA Frame lb. (kg)	Unit Weight 250kVA Frame lb. (kg)	Heat Dissipation BTU/hr (kWH)	Cooling Air CFM (m <sup>3</sup> /hr)
kVA	kW	Input	Output	Nom.	Max.		Nom.	OP D			Nom.	OP D					
50	50	480	480	63	69	90	60	80	432	145	60	80	23-5/8 x 39-1/2 x 78-3/4 (600 x 1000 x 2000)	748 (339)	868 (394)	7854 (2.30)	382 (649)
100	100	480	480	126	138	175	120	150	432	290	120	150		842 (382)	962 (436)	13,851 (4.06)	763 (1296)
150	150	480	480	189	208	300	180	225	432	435	180	225		936 (425)	1056 (479)	18,019 (5.28)	917 (1558)
200	200	480	480	252	277	350	241	300	432	581	241	300		1030 (467)	1150 (522)	25,491 (7.47)	1318 (2273)
250	250	480	480	315	346	450	301	400	432	726	301	400	33 x 39-1/2 x 78-3/4 (840 x 1000 x 2000)	—	1244 (564)	34,627 (10.15)	1667 (2832)

**Table 3 General specifications**

<b>INPUT</b>		<b>OUTPUT</b>	
Voltage	480VAC, 50/60Hz, 3-phase, 3-wire plus ground	Voltage	480VAC, 50/60Hz, 3-phase, 3-wire plus ground
Voltage Range Without Derating	+10%, -15%	Voltage Adjustment Range	±5%
Frequency Range	40-70Hz	Voltage Regulation	±1% for balanced load ±2% regulation for unbalanced load
THDi (Current Distortion)	5% maximum reflected THD at full non-linear load 3% maximum reflected THD at full linear load	Dynamic Regulation	±5% deviation for 100% load step ±1% for loss or return of AC input
Power Factor	0.99 full load, 0.98 half load	Transient Recovery Time	60mSec (RMS method)
<b>ENVIRONMENTAL</b>			
Operating Temperature	UPS: 32° to 104°F (0-40°C) Battery: 68° to 86°F (20-30°C)	THDv	For linear loads, 2% THD; Less than 5% THD for 100% nonlinear loads without kVA/kW derating
Non-Operating Temperature	-4° to 158°F (-20° to 70°C)	Phasing Balance	120° ±0.5° for balanced load 120° ±1.5° for 100% unbalanced load
Relative Humidity	0-95% non-condensing	Frequency Regulation	±0.1% to ±0.25%
Operating Altitude	Up to 3300 ft. (1,000m) without derating	Load Power Factor Range	0.5 lagging to 0.9 leading without derating
Acoustical Noise	Less than 69 dBA Acoustical Noise, at 55 in. (1.4m)		
<b>STANDARDS</b>	Listed to UL 1778 UPS standards, and CSA certified. Meets current requirements for safe, high-performance UPS operation.	Overload	100% load, continuous 110% load, 60 minutes; 125% load, 10 minutes; 150% load, 60 seconds, with true sinusoidal waveform

**Table 4 Variations to weights and dimensions for optional equipment**

Rated Power, kVA	50-200	250
<b>Dimensions, WxDxH, in. (mm)</b>		
UPS	23-5/8 x 39-1/2 x 78-3/4 (600 x 1000 x 2000)	33 x 39-1/2 x 78-3/4 (840 x 1000 x 2000)
UPS w/ 200mm MBC, 50-100kVA	31-1/2 x 39-1/2 x 78-3/4 (800 x 1000 x 2000)	—
UPS w/ 300mm MBC, 150-250kVA	35-1/2 x 39-1/2 x 78-3/4 (900 x 1000 x 2000)	44-7/8 x 39-1/2 x 78-3/4 (1140 x 1000 x 2000)
<b>Weight, lb (kg)</b>		
200 mm MBC w/SKRU and 4 Breakers (50-100kVA)	240 (109)	—
300 mm MBC w/SKRU and 4 Breakers (150-250kVA)	—	332 (151)
MBC skid weight	134 (61)	134 (61)

Refer to **Tables 1 and 2** for UPS weights.