Liebert® NX™ Three-Phase UPS: 40-200kVA, 60Hz, 480VAC - Site Planning Data

The Liebert NX is a true on-line, double conversion, three-phase UPS system that delivers complete, centralized power protection for mission-critical systems.

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Table 1 General Specifications

INPUT	
Voltage	**480VAC, 60Hz, 3-phase 3-wire plus ground**
Voltage Range w/o derating	+15%, -20%
Frequency Range	57-63Hz
Current Distortion	3% maximum reflected THD at full load
Current Limit	125% of full load input current
Power Factor	>0.99 lagging at full load; >0.98 lagging at half load
Surge Protection	Sustains input surges without damage, per criteria listed in IEC 61000-4-5
OUTPUT	
Voltage	480VAC, 60Hz, 3-phase 3-wire plus ground
Voltage Adjustment Range	±5%
Voltage Regulation	1% for balanced load 2% for 100% unbalanced load
Dynamic Regulation	±5% deviation for 100% load step; ±1% for loss or return of AC input
Transient Response Time	Recover to ±5% of output voltage within 1/2 cycle
Voltage Distortion	For linear loads, 1% THD; Less than 4% THD for 100% nonlinear loads without kVA/kW derating
Phasing Balance	120° ±0.5° for balanced load; 120° ±1° for 100% unbalanced load
Frequency Regulation	±0.05% single module; ±0.25% paralleled modules
Load Power Factor Range	0.5 lagging to 1.0 without derating
Overload	125% of full load for 10 minutes; 150% for 1 minute, with true sinusoidal waveform
ENVIRONMENTAL	
Operating Temperature	UPS: 32° to 104°F (0-40°C); Battery: 68° to 86°F (20-30°C)
Non-Operating Temperature	-13° to 158°F (-25° to 70°C)
Relative Humidity	0-95% non-condensing
Operating Altitude	Up to 6,500 ft. (2,000m) without derating
Acoustical Noise (full load)	
80kVA	<67dB at 80-104°F (27-40°C) ambient; <61dB below 80°F (27°C) ambient
120kVA	<69dB at 80-104°F (27-40°C) ambient; <63dB below 80°F (27°C) ambient
200kVA	<74dB at 80-104°F (27-40°C) ambient; <68dB below 80°F (27°C) ambient
STANDARDS	
Listed to UL 1778 UPS standards, and CSA certified. Meets current requirements for safe high performance UPS operation.	

Table 2 Site Planning Data - Single Input, 40-200kVA, 60Hz, 480VAC

UPS Rating		Voltage		AC Input			Battery			AC Output		Mechanical Data			
				Current (A)						Current (A)		Dimensions W x D x H in. (mm)	Weight lb. (kg)	Heat Dissipation	Cooling Airflow
kVA	kW	Input Nom.	Output Nom.	Nom.	Max.	Rec. OCPD	Nom. VDC	Max. Discharge	Battery Disconnect Rating	Nom.	OCPD			BTU/hr (kWH)	CFM (m^3/hr)
40	36	480	480	48	60	80	480	106	225	48	60	25.5 x 39.0 x 78.7 (648 x 990 x 2000)	1290 (585)	12,200 (3.6)	620 (1050)
60	54	480	480	71	89	110 / 125	480	157	225	72	100			15,400 (4.5)	620 (1050)
80	72	480	480	94	118	150	480	208	225	96	125			20,600 (6.0)	620 (1050)
80	72	480	480	94	118	150	480	205	350	96	125	41.0 x 39.0 x 78.7 (1040 x 990 x 2000)	1422 (645)	19,700 (5.8)	920 (1550)
100	90	480	480	117	147	175	480	258	350	120	150			24,300 (7.1)	920 (1550)
120	108	480	480	140	175	225	480	307	350	144	200			28,700 (8.4)	920 (1550)
160	144	480	480	186	233	300	480	411	500	192	250	64.4 x 39.0 x 78.7 (1636 x 990 x 2000)	2201 (1000)	35,900 (10.5)	1590 (2700)
200	180	480	480	234	293	350	480	511	600	241	300			47,000 (13.8)	1590 (2700)
See Notes for Table (below):				1	2,3,7,11	5	4	1,3,7,11		1,3,7,11	5	12, 13	12	—	—

Notes for Table

1. Nominal (Nom) current is based on full rated output load at nominal input voltage.
2. Maximum (Max) current is short duration for battery recharge conditions.
3. UPS input cables must be run in separate conduit from output cables.
4. Nominal battery voltage is shown at 2.0 volts/cell per NEC 480-2.
5. OCPD = Overcurrent Protection Device. Recommended AC input and AC output overcurrent protection represents 125% of nominal full load current (continuous) plus 100% of recharge current (non-continuous) per NEC 215.
6. Minimum-sized grounding conductors to be per NEC 250-122. Parity-sized ground conductors are recommended.
7. Wiring requirements: AC Input: 3-phase, 3-wire, plus ground
   AC Output: 3-phase, 3-wire, plus ground
8. All wiring is to be in accordance with national and local electric codes.
9. Minimum access clearance is 3 ft. (0.9m) front and 8 in. (203mm) above the UPS.
10. Top or bottom cable entry through removable access plates. Punch plate to suit conduit size, then replace.
11. Control wiring and power wiring must be run in separate conduit.
12. Dimensions and weights in table do not include external battery cabinet.
13. 80-200kVA UPS dimensions include UPS wiring section for installation without Liebert NX BDC. Deduct 15.5" from UPS width when a Liebert NX BDC will be used.

Additional Notes

- Input and output wiring and breakers for a Liebert NX with Softscale technology should be sized for the maximum scalable capacity. For example, a 40kVA Liebert NX that is scalable to 80kVA should be installed with wiring and breakers rated for an 80kVA configuration.
- 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.
- It is recommended that the transfer switch be equipped with auxiliary contacts for UPS “on generator” current limit. 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.
- The UPS must be fed from a solidly grounded wye or delta AC source. Not for use with impedance-grounded systems, corner-grounded or high leg delta systems. For these applications, an isolation transformer must be installed between the AC feed and the UPS.

Table 3 Site Planning Data - Dual Input, 40-200kVA, 60Hz, 480VAC

UPS Rating		Voltage		AC Input			Bypass Input		Battery			AC Output		Mechanical Data			
				Current (A)			Current (A)					Current (A)					
kVA	kW	Input Nom.	Out-put Nom.	Nom.	Max.	Rec. OCPD	Nom.	Rec. OCPD	Nom. VDC	Max. Dis-charge	Battery Dis-connect Rating	Nom.	OCPD	Dimensions W x D x H in. (mm)	Weight lb. (kg)	Heat Dissipation BTU/hr (kWH)	Cooling Airflow CFM (m^3/hr)
40	36	480	480	48	60	80	48	60	480	106	225	48	60	25.5x39.0x78.7 (648x990x2000)	1290 (585)	12,200 (3.6)	620 (1050)
60	54	480	480	71	89	110/125	72	110	480	157	225	72	110			15,400 (4.5)	620 (1050)
80	72	480	480	94	118	150	96	125	480	208	225	96	125			20,600 (6.0)	620 (1050)
80	72	480	480	94	118	150	96	125	480	205	350	96	125	41.0x39.0x78.7 (1040x990x2000)	1422 (645)	19,700 (5.8)	920 (1550)
100	90	480	480	117	147	175	120	150	480	258	350	120	150			24,300 (7.1)	920 (1550)
120	108	480	480	140	175	225	144	200	480	307	350	144	200			28,700 (8.4)	920 (1550)
160	144	480	480	186	233	300	192	250	480	411	500	192	250	64.4x39.0x78.7 (1636x990x2000)	2201 (1000)	35,900 (10.5)	1590 (2700)
200	180	480	480	234	293	350	241	300	480	511	600	241	300			47,000 (13.8)	1590 (2700)
See Notes for Table (below):				1	2,3,7,11	5	—	—	4	1,3,7,11		1,3,7,11	5	12, 13	12	—	—

Notes for Table

1. Nominal (Nom) current is based on full rated output load at nominal input voltage.
2. Maximum (Max) current is short duration for battery recharge conditions.
3. UPS input and bypass cables must be run in separate conduit from output cables.
4. Nominal battery voltage is shown at 2.0 volts/cell per NEC 480-2.
5. OCPD = Overcurrent Protection Device. Recommended AC input and AC output overcurrent protection represents 125% of nominal full load current (continuous) plus 100% of recharge current (non-continuous) per NEC 215.
6. Minimum-sized grounding conductors to be per NEC 250-122. Parity-sized ground conductors are recommended.
7. Wiring requirements: AC Input: 3-phase, 3-wire, plus ground
   AC Output: 3-phase, 3-wire, plus ground
8. All wiring is to be in accordance with national and local electric codes.
9. Minimum access clearance is 3 ft. (0.9m) front and 8 in. (203mm) above the UPS.
10. Top or bottom cable entry through removable access plates. Punch plate to suit conduit size, then replace.
11. Control wiring and power wiring must be run in separate conduit.
12. Dimensions and weights in table do not include external battery cabinet.
13. 80-200kVA UPS dimensions include UPS wiring section for installation without Liebert NX BDC. Deduct 15.5" from UPS width when a Liebert NX BDC will be used.

Additional Notes

- Input and output wiring and breakers for a Liebert NX with Softscale technology should be sized for the maximum scalable capacity. For example, a 40kVA Liebert NX that is scalable to 80kVA should be installed with wiring and breakers rated for an 80kVA configuration.
- 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.
- It is recommended that the transfer switch be equipped with auxiliary contacts for UPS “on generator” current limit. 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 an Vertiv sales representative or applications engineer.
- The UPS must be fed from a solidly grounded wye or delta AC source. Not for use with impedance-grounded systems, corner-grounded or high leg delta systems. For these applications, an isolation transformer must be installed between the AC feed and the UPS.

Table 4 External Battery Cabinet

Battery Mfr.	Battery Type	Dimensions in. (mm)	Weight lb. (kg.)	Qty. Battery Cabinets	Battery Run Time in Minutes by kVA							
					40	60	80	80	100	120	160	200
Enersys	HX-205FR	33.5 x 39.0 x 78.7 (850 x 990 x 2000)	2620 (1188)	1	18	10	6	—	—	—	—	—
				2	45	27	18	—	—	—	—	—
				3	72	46	32	—	—	—	—	—
				4	100	65	46	—	—	—	—	—
	HX-300FR	48.8 x 39.0 x 78.7 (1240 x 990 x 2000)	3502 (1589)	1	30	16	10	11	7	6	—	—
				2	72	45	31	31	21	18	12	9
				3	111	73	51	52	39	33	21	16
				4	156	102	73	74	55	46	33	23
	HX-330FR		3942 (1788)	1	36	21	14	14	9	8	5	—
				2	93	53	37	37	28	23	16	11
				3	149	95	65	65	49	38	27	20
				4	207	135	96	96	72	54	38	30
	HX-400FR		4302 (1952)	1	41	25	17	17	12	10	6	—
				2	101	64	41	45	33	27	19	14
				3	159	103	73	74	55	45	32	23
				4	221	146	103	104	79	66	45	35
	HX-500FR		5502 (2496)	1	63	38	26	26	19	16	10	7
				2	142	90	65	66	50	38	27	20
				3	222	144	103	103	78	66	46	34
				4	318	202	145	146	110	92	66	49

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