

LIEBERT® APM™ 3-PHASE UPS: 30-300kW, 50/60Hz, 380/400/415VAC - SITE PLANNING DATA

The Liebert APM is a true on-line, double conversion, three-phase modular design UPS system . Liebert APM 30-300 kVA is designed for a “pay-as-you-grow” deployment . Grows from 30kW to 300kW in a single standard rack cabinet



General Specifications

INPUT	
Voltage	380/400/415VAC, 50/60Hz, 3-phase 3-wire+N+ ground
Voltage Range w/o derating	+15%, -20%
Frequency Range	40-70Hz
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	380/400/415VAC, 50/60Hz, 3-phase 3-wire+N+ ground
Voltage Adjustment Range	±5%
Voltage Regulation	1% for balanced load 5% 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 ±1% of output voltage within a cycle
Voltage Distortion	For linear loads, 1% THD; Less than 4% THD for 100% nonlinear loads
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 0.5 leading with 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	≤1000, derate power by 1% per 100m between 1000m and 2000m
Acoustical Noise (full load)	
STANDARDS	
General and safety requirements for UPS used in operator access areas	EN62040-1/IEC62040-1
EMC requirements for UPS	EN62040-2/IEC62040-2/AS62040-2 (Category C2)
Method of specifying the performance and test requirements of UPS	EN62040-3/IEC62040-3/AS62040-3 (VFI SS 111)
Note: The product standards in this table incorporate relevant compliance clauses with generic IEC and EN standards for safety (IEC/EN/AS60950), electromagnetic emission and immunity (IEC/EN/AS61000 series) and construction (IEC/EN/AS60146 series and 60529)	



Site Planning Data ; 30-300kW, 50/60HZ, 380/400/415VAC

UPS Rating		Voltage		AC Input			Battery			AC Output		Mechanical Data			
kVA	kW	Input Nom.	Output Nom.	Current (A)		Rec. OCPD	Nom. VDC	Max. Dis-charge	Battery Dis-connect Rating	Current (A)		Dimensions W x D x H (mm)	Weight (kg)	Heat Dissipation	Cooling Airflow
				Nom.	Max.					Nom.	OCPD			(kWH)	CFM (m ³ /hr)
30	30	400	400	46	57	80	360	85	100	43	63	1200*1100*2000	200	1.2	40
60	60	400	400	92	114	150	360	170	200	86	125		234	2.4	80
90	90	400	400	140	170	200	360	253	315	129	150		268	3.6	120
120	120	400	400	184	228	250	360	338	400	172	200		302	4.8	160
150	150	400	400	230	285	315	360	420	500	231	250		336	6	200
300	300	400	400	460	570	630	360	850	1000	430	500		670	12	400

Notes for Table

- Nominal (Nom) current is based on full rated output load at nominal input voltage.
- Maximum (Max) current is short duration for battery recharge conditions.
- UPS input cables must be run in separate conduit from output cables.
- Nominal battery voltage is shown at 2.0 volts/cell
- OCPD = Over current Protection Device. Recommended AC input and AC output over current protection represents 125% of nominal full load current (continuous) plus 100% of recharge current (non-continuous) per NEC 215.
- Minimum-sized grounding conductors to be per NEC 250-122. Parity-sized ground conductors are recommended.
- Wiring requirements: AC Input: 3-phase, 4-wire, plus ground
AC Output: 3-phase, 4-wire, plus ground
- All wiring is to be in accordance with national and local electric codes.
- Recommended minimum access clearance is 3 ft. (0.9m) front and 8 in. (203mm) above the UPS.
- Control wiring and power wiring must be run in separate conduit.
- Dimensions and weights in table do not include external battery cabinet.

Additional Notes

- Input and output wiring and breakers for a Liebert APM with flexpower technology should be sized for the maximum scalable capacity. For example, a 150kVA Liebert APM that is scalable to 300kVA should be installed with wiring and breakers rated for a 300kVA 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.
- 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 Emerson Network Power sales representative or applications engineer.



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