

# UPS Installation Planning Guide—400– 500kVA/kW TLE Series

Power Rating	AC Input							Battery System						Inverter or Bypass AC Output Current				Mechanical Information					
	Volts AC		kVA		Current Nom				Volts DC	kWB	Current				Volts AC	Current				Dimensions	Weight		
kVA/kW 1.0 pf	Nom	Nom	Max	Nom	Max	External Overcurrent Protection	Cable lug allowance	Nom	Nom	Nom (by cell)	Max Battery Charge	External Overcurrent Protection	Cable lug allowance	Nom	Nom	External Overcurrent Protection	Cable lug allowance	WxDxH in (mm)	Installed lbs. (kg)	Floor loading lbs./sq. ft.	Heat Rejection kBTU's/Hr.	Air CFM	
400	480	419	463.4	504	557.4	700	See Notes	480	407.3	983	90	1200	See Notes	480/277	481.1	600	See Notes	63.8x 34x 75.1 (1620x 863.6x 1907)	2,314 (1,050)	1.02	53.9	2,710	
500	480	523.7	568.2	630.0	683.4	800	See Notes	480	509.2	1229	90	1600	See Notes	480/277	601.4	800	See Notes	63.8x 34x 75.1 (1620x 863.6x 1907)	2,314 (1,050)	1.02	65.5	3,294	
Notes:	1, 2, 4, 5, 6, 8, 9, 10							3, 4, 5, 6, 8, 9						1, 2, 4, 5, 6, 8, 9, 10									

## Notes:

- Nominal AC input current (continuous) is based on 100% rated output load.
- Maximum AC input current (non-continuous) is with 100% rated output load and 100% battery recharge current. Battery charge current is adjustable from 20-125% of Nominal input current.
- DC cables should be sized for not more than a 2v line drop (voltage drop to/ from UPS module.)
- Input, Output, Bypass, Control Power and DC cables all must be run in separate conduits.
- Rectifier AC Input: 3 phase, 4-wire + ground  
UPS to Battery DC: 2 -wire (Positive and Negative) + ground  
Bypass AC Input: 3 phase, 4-wire + ground  
UPS AC Output: 3 phase, 3 or 4-wire + ground
- All wiring is to be in accordance with National and Local Electrical Codes. NFPA-70
- Minimum access clearances per UPS drawings and Installation Manuals

- Grounding conductors to be sized per NEC 250-95
- Temperature rating of conductors: 167 deg F (75 deg C)
- External Feeder protection (by others) for Rectifier AC Input, Bypass AC Input, and AC Output.

Conductor Cable Ratings: NEC Section 310.15(B)(5)(c)

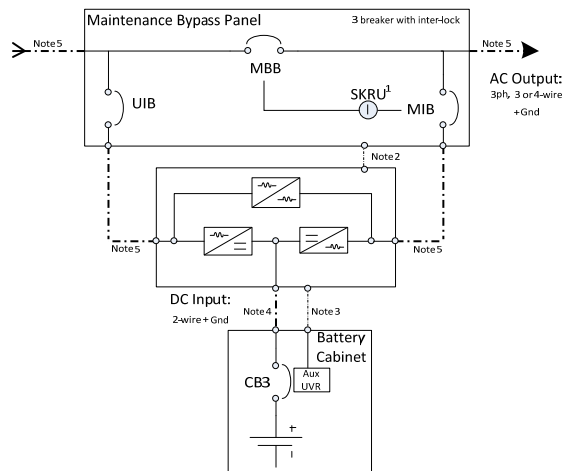


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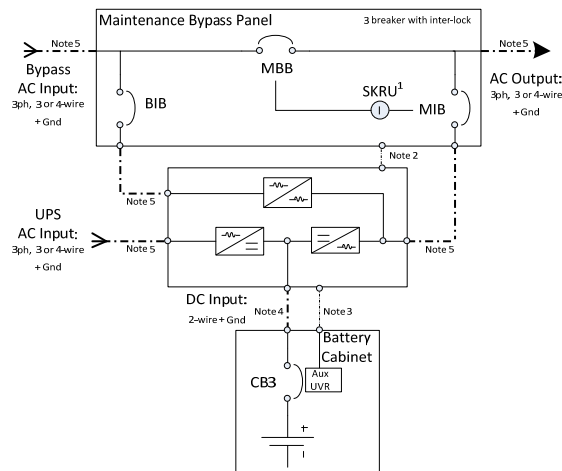
**Cable and Conduit Summary (40°C ambient, aluminum cables):**

Common Input	4 x 600 kcmil per phase & neutral	(4) x 4" diameter conduits*	=> Min. Wire bending space per Table 312.6(B) = 483mm / 19in
Rectifier Input	3 x 400 kcmil per phase	(3) x 3.5" diameter conduits*	=> Min. Wire bending space per Table 312.6(B) = 457mm / 18in
Bypass Input	4 x 500 kcmil per phase & neutral	(4) x 3.5" diameter conduits*	=> Min. Wire bending space per Table 312.6(B) = 406mm / 16in
UPS Output	4 x 500 kcmil per phase & neutral	(4) x 3.5" diameter conduits*	=> Min. Wire bending space per Table 312.6(B) = 406mm / 16in
Battery:	4 x 750 kcmil per polarity	(4) x 3" diameter conduits*	=> Min. Wire bending space per Table 312.6(B) = 610mm / 24in

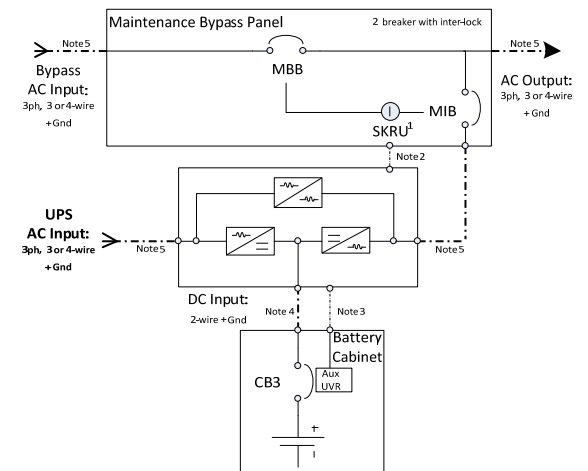
**Design 1  
(Most Common)**



**Design 2  
(Common)**



**Design 3  
(Least Common)**



----- Field Connections; Power and Control (by others)

Input Overcurrent Protection is provided by others

**Notes:**

1. SKRU with Kirk Key Inter-lock is used as a standard.
  2. Control wiring from UPS to MBP must be run in a separate conduit. (4 - #16 AWG stranded)
  3. Control wiring from Battery Cabinet to UPS must be run in a separate conduit. (4 - #16 AWG stranded)
  4. DC power wiring must be run in separate conduit.
  5. UPS Input and UPS Output power cables must be run in separate conduits.
  6. DC cables from Battery cabinet to Battery cabinet are included. Contractor will supply cable and wire from Master Battery cabinet to UPS.
- \*. Cable sizing and conduits are the maximum allowable for largest cable to be used.



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