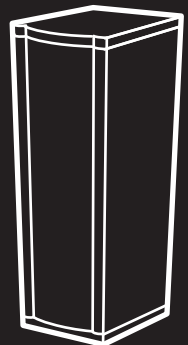




# Symmetra PX Battery Enclosure

10-80 kW

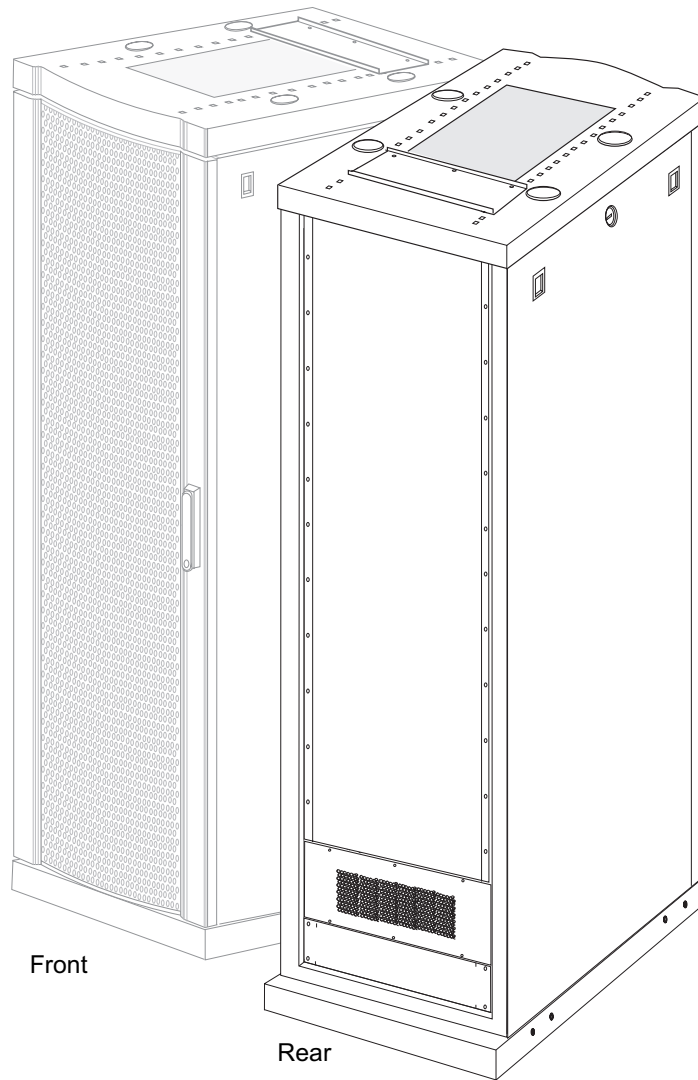
Installation Manual





# Symmetra® PX 10-80kW Battery Enclosure

## Installation Manual



Front

Rear

Battery Enclosure





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# IMPORTANT SAFETY INSTRUCTIONS

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## SAVE THESE INSTRUCTIONS

This guide contains important instructions that should be followed when handling the UPS, Battery Enclosures, and Batteries.

## Symbols used in this guide



**WARNING!**  
Risk of Electric Shock.



**CAUTION!**  
Read this information.



Note

Indicates important information.



Heavy

Indicates a heavy load that should not be lifted without assistance.







Indicates that more information is available on this subject in a different section of this manual.



See also

Indicates that more information is available on the same subject in a different manual.

			
<18 kg. < 40 lb.	18 - 32 kg. 40 - 70 lb.	32 - 54 kg. 70 - 120 lb..	>54 kg. 120 lb.>

**ON, OFF & STAND-BY switch symbols**



Indicates the ON position for a switch or breaker.



Indicates the OFF position for a switch or breaker.



Indicates the STAND-BY position for a switch or breaker.

**Operating conditions**

Install the Battery Enclosure in an indoor, controlled environment				
Temperature Range: 32°-104°F 0°-40°C	Keep ventilated front-to-rear airflow	Relative humidity: < 95 % non-condensing	No conductive dust or corrosive fumes	Elevation: 0-10,000 ft. 0-3,000 m



## Battery Safety



### WARNING!

- Risk of Electrical Shock and Energy Hazard, 96 V, 7.2 Ah battery.
- All electrical power and power control wiring must be installed by APC-trained personnel or a qualified electrician, and must comply with local and national regulations.
- The UPS and Battery Enclosure contain an internal energy source. Hazardous voltage may be present even when disconnected from the power source. Follow Total Power Off Procedure to completely de-energize the system.
- Battery Units do not contain serviceable parts. Do not open.
- To replace a Battery Unit, use only the same APC Battery Unit, model SYBTU1.
- Remove all conductive jewelry such as chains, watches, and rings before handling the Battery Units.
- Use tools with insulated handles.
- Wear rubber gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Do not dispose of batteries in a fire, as they may explode. Do not mutilate batteries, as released electrolyte is harmful to the skin and eyes, and may be toxic.
- For configurations including customer-supplied external batteries, refer to manufacturer's battery installation and maintenance instructions.



### CAUTION!

Only qualified, APC-trained personnel should replace batteries. When replacing batteries, replace with same number and type as installed.



Heavy

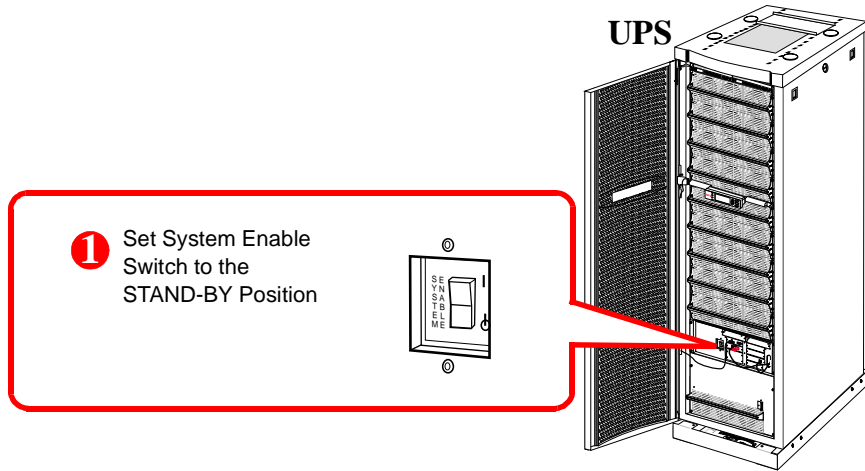
Each Battery Unit weighs 50 lbs./23 kg. Two people to replace Battery Unit.

### Total power OFF procedure



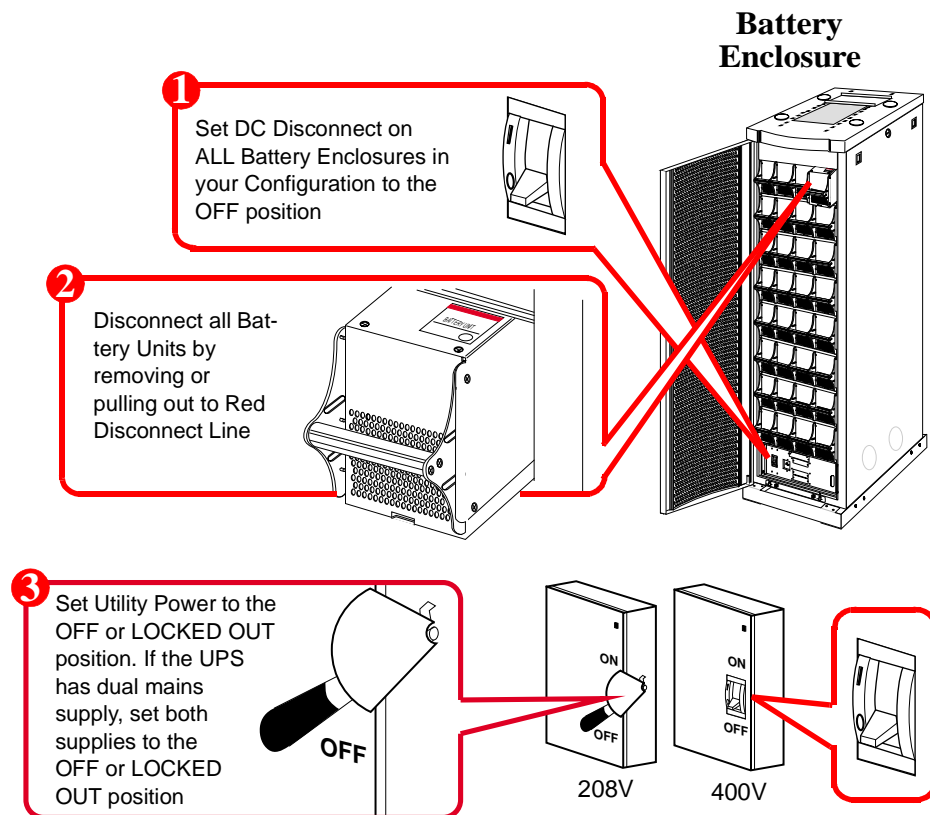
#### WARNING!

Before electrical installation/module handling begins, verify that all systems are in the Total Power Off mode by following this procedure.



#### CAUTION!

To ensure solid stability, do not pull Battery Units out beyond the red disconnect line unless completely removing them from the enclosure.



## Electrical Requirements and Specifications

### WARNING!



All electrical power and power control wiring must be installed by a qualified electrician, and must comply with local and national regulations for maximum UPS power rating.

<b>Smmetra PX Battery Enclosure 10 - 80 kW</b>	
Battery Voltage (nominal)	+/- 192 V
Battery Current (at full load)	223 A at +/- 192 V
Max. Current (at end of discharge)	266 A at +/- 160 V



Note

If external batteries are customer-supplied, refer to product-specific data.



Note

Power and ground wires provided are for internal side-panel wiring only. They are NOT for use in external conduits / external wiring.

### Recommended Wiring for 208 V installations

1. DC power Input/Output; 2/0 AWG (supplied) for adjacent enclosures; 4/0 AWG (not supplied) for separated enclosures.
2. Use Molux lug type (detailed below) or equivalent and crimp to manufacturer's specifications.

<b>Cable Size (AWG)</b>	<b>Terminal Bolt</b>	<b>Cable Lug Type</b>
2/0	M10	19221-0244
4/0	M10	19221-0250

### Recommended Wiring for 400 V installations

1. DC power Input/Output: 120 mm<sup>2</sup> PVC power cables isolated to withstand a maximum ambient temperature of 40° C.
2. External PE cable: 70 mm<sup>2</sup>.

# Installation Procedures

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Note

For side-panel wiring option, see Side-panel wiring section.



Note

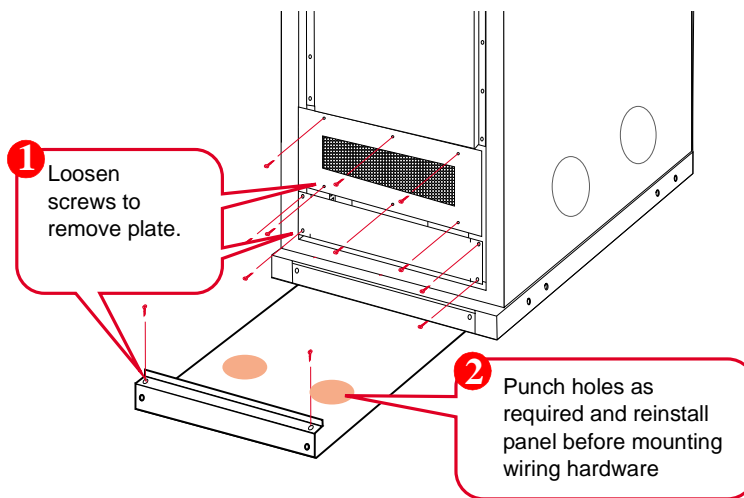
Make sure the unit is in its location of use before wiring begins.



Note

For communication with the UPS and other Battery Enclosures, use standard CAT 5 data cable. Maximum length: 165 ft. (50 m) for entire loop.

## Bottom wiring



Side-panel wiring (steps 1-6)

<b>1 - 6</b>	Rearrange side panels so all inner panels have adjacent wiring holes, and outer panels are solid.
--------------	---



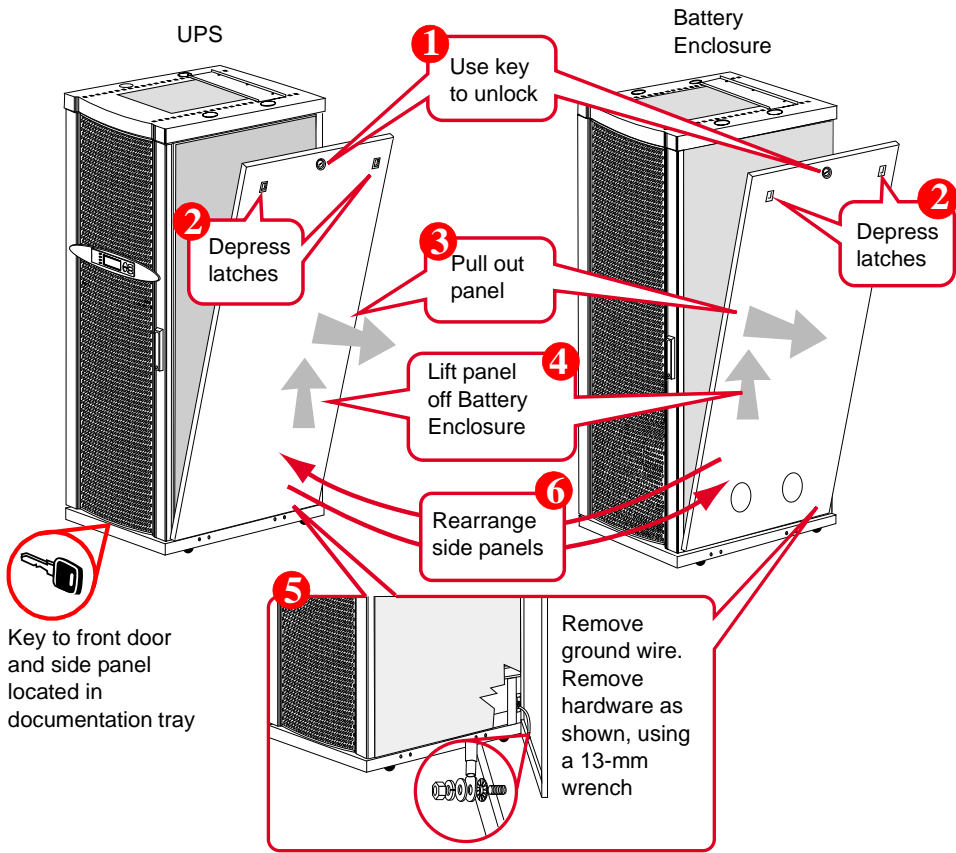
Remove rear hole covers before mounting inner panels.



Reconnect all panel ground wires. Arrange hardware as shown in step 5. Torque value: 80 lb-in (9 Nm).

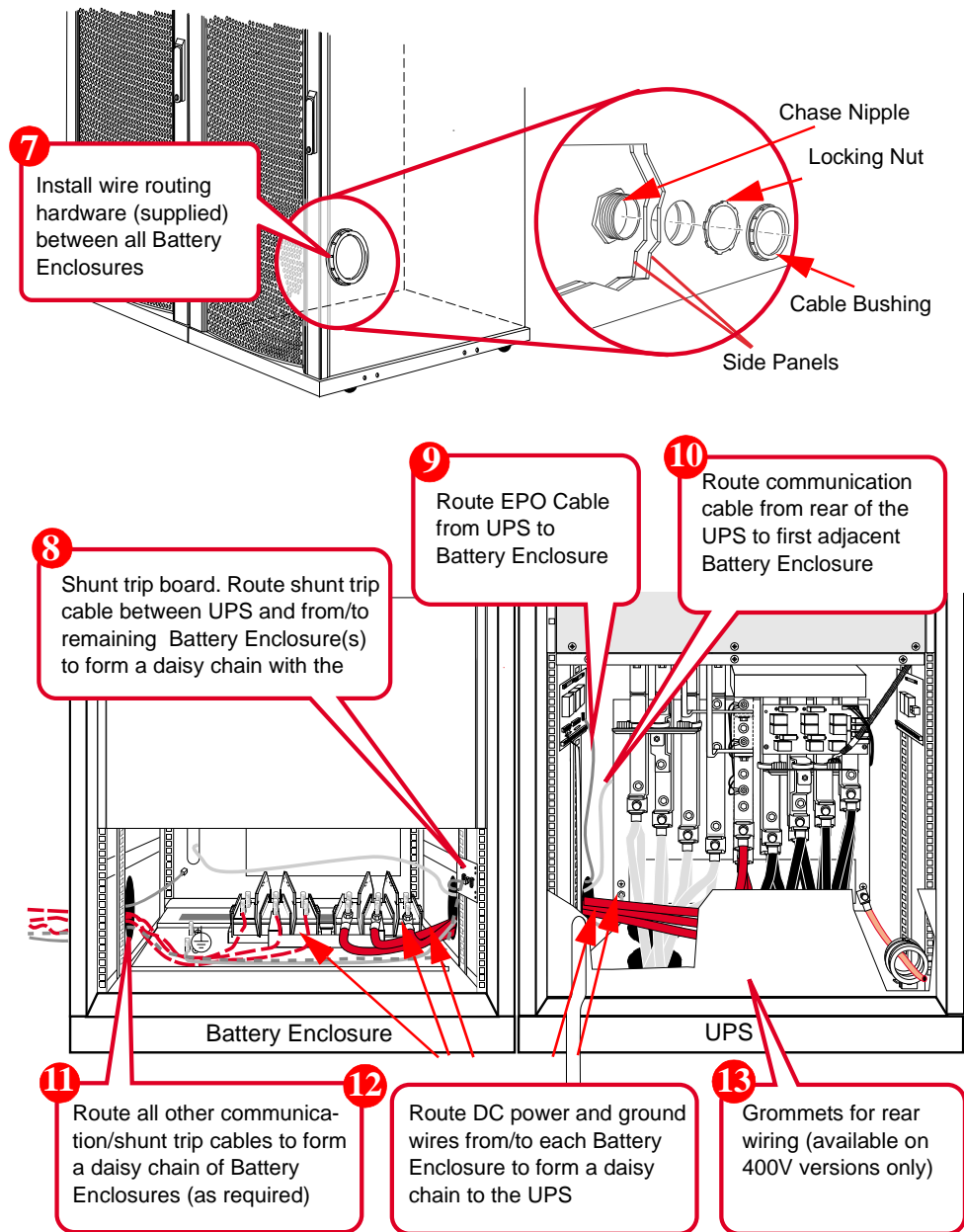


Lock all panels.

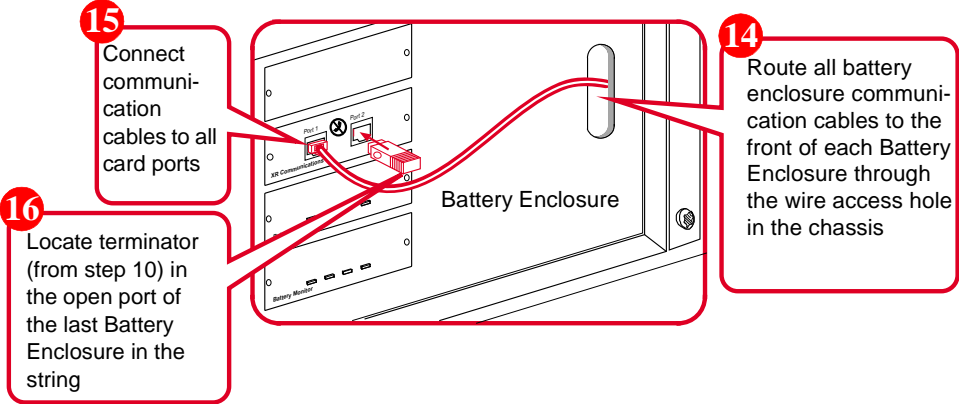


If required, adjust Battery Enclosures for hole alignment using stabilizing feet.

### Side-panel wiring (steps 7-13)



Side-panel wiring (steps 14-16)



## DC Power input/output wiring

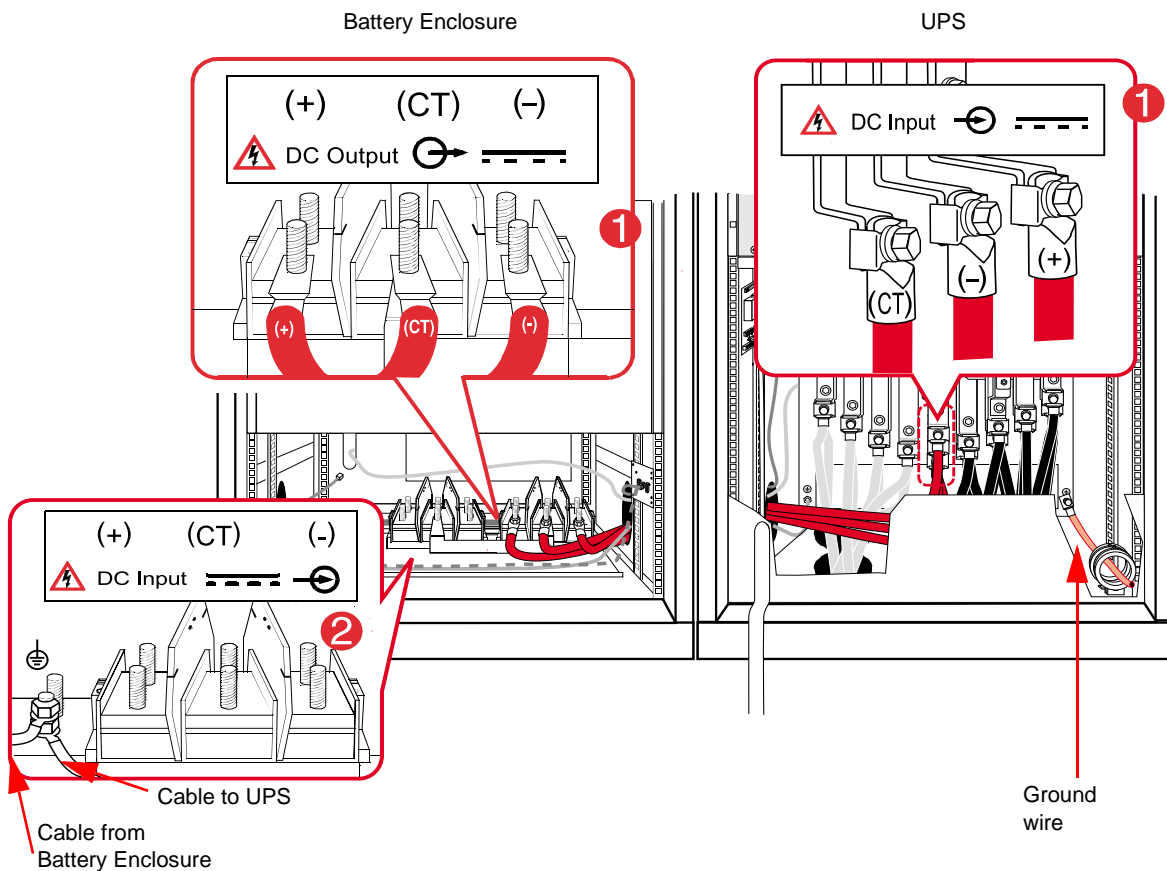
Power terminal lug diameter: 10 mm.

Torque value: 87 in-lb (10 Nm).



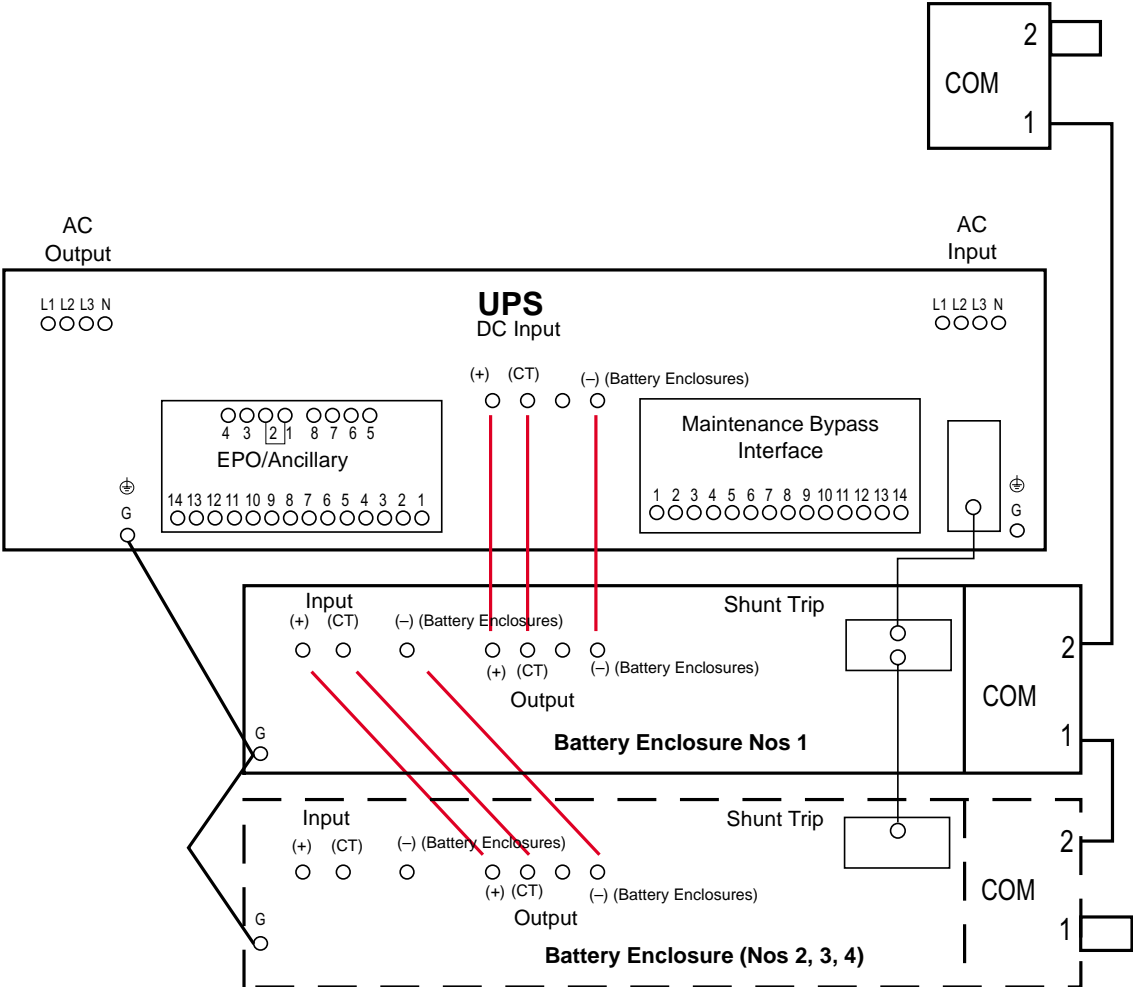
Power and ground wires provided are for internal side-panel wiring only. They are NOT for use in external conduit.

- 1 Connect Battery Enclosure DC output to UPS DC input. Connect Battery Enclosures to UPS ground stud.
- 2 If applicable: Connect 2nd Battery Enclosure DC output to 1st Battery Enclosure DC input. Connect ground wire as shown. Continue this string up to 4 Battery Enclosures.





Interconnect schematic



### Routing of communication cables (steps 1-9)



**WARNING!**

Ensure Total Power Off (see Total Power Off procedure section).



Note

If side-panel access is obstructed, access from the rear

The instructions below are applicable for wiring through rear and bottom of the Battery Enclosure.

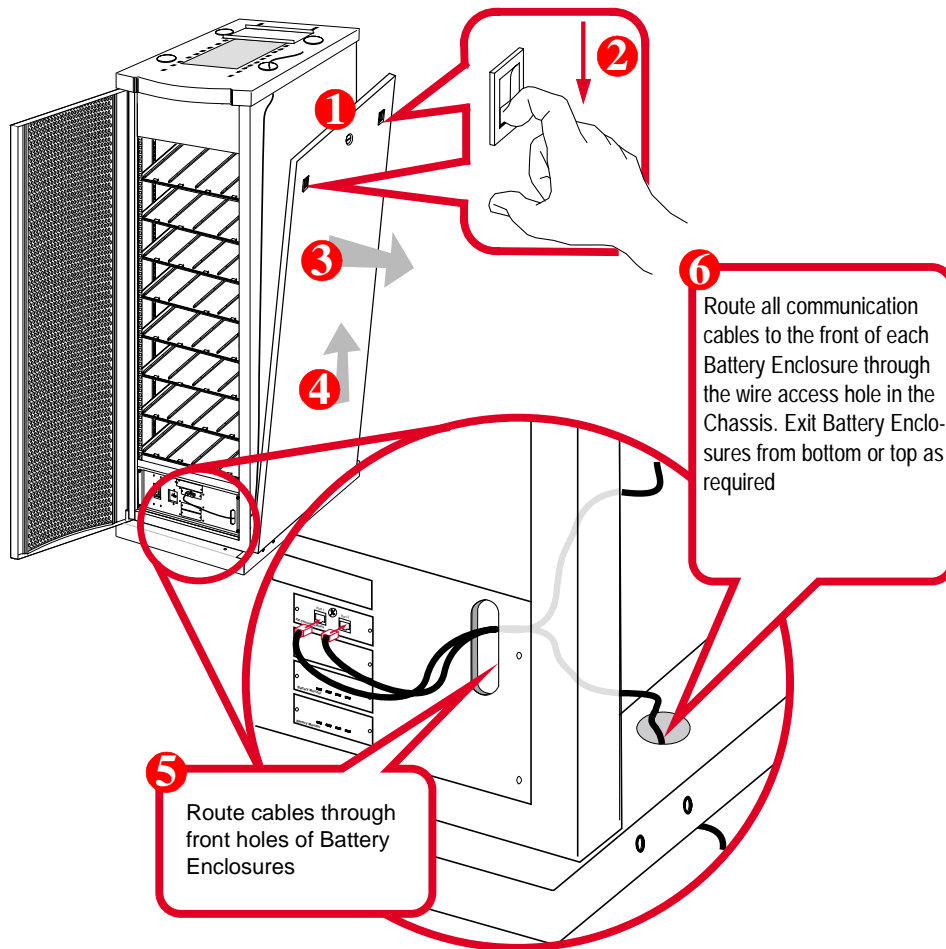


Note

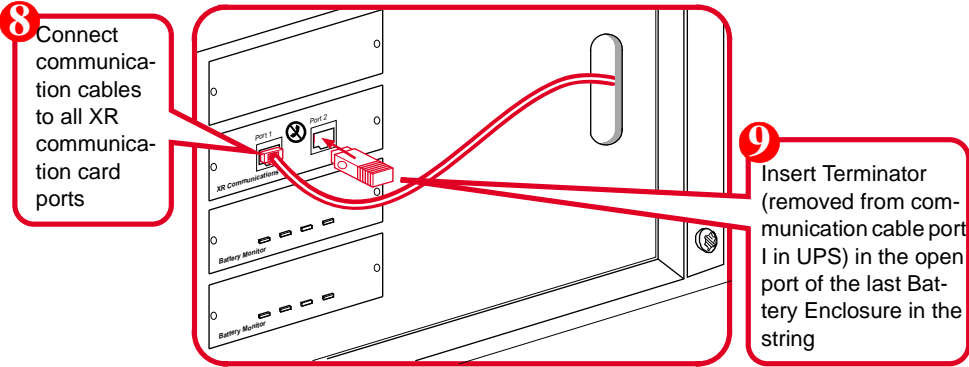
If cable length is inadequate, a longer CAT 5 cable, or couplers, can be used (not supplied). Max. length: 165 ft/50 m for entire loop.



Open right side panel to gain access to the communication cables.



**7** Reinstall and lock all side-panels.



# Power Wiring Verification on Site

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This section should be completed by the electrician when the wiring has been completed.

Installed at (Company): \_\_\_\_\_

Customer Contact Name: \_\_\_\_\_

Telephone: \_\_\_\_\_

Wire size and type (if external): \_\_\_\_\_



Do not install battery units in the Battery Enclosure. Batteries will be installed by APC during the Start-Up procedure.

Use following procedure to verify that the Battery Enclosures have been wired properly.

- Ensure all power wiring is torqued to 87 in-lb (10 Nm).
- Check polarity between connections.
- Reinstall all wiring access panels.

If a problem occurs, call APC Customer Support (rear cover):

Successful wiring completed by (name of electrician):

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Company: \_\_\_\_\_

# Life Support Policy/Warranty

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## Life support policy

American Power Conversion Corporation (APC), its affiliates and subsidiaries world-wide, do not recommend the use of any of their products in life support applications where failure or malfunction of the APC product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. APC does not permit the use of any of its products in direct patient care. APC will not knowingly sell its products for use in such applications unless the life support system or direct patient care device is part of a whole facility/building into which the UPS is integrated and unless APC receives in writing assurances satisfactory to APC that:

- (a) the UPS system will be configured in a manner that will provide N+1 power redundancy to the critical load,
- (b) the end-user assumes all risks and signs the APC System Configurations and Use Form, and
- (c) the customer and operators of the APC UPS system agree to indemnify and hold APC and its affiliates and subsidiaries harmless for any and all claims arising out of the system's use in such applications.

## Examples of life-support devices

The term *life-support device* includes but is not limited to neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), autotransfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators (for adults and infants), anesthesia ventilators, infusion pumps, and any other devices designated as “critical” by the U.S. FDA.

Hospital-grade wiring devices and leakage current protection may be ordered as options on many APC UPS systems. APC does not claim that units with these modifications are certified or listed as hospital-grade by APC or any other organization. Therefore these units do not meet the requirements for use in direct patient care.

## **Factory Warranty**

APC warrants that the unit, when properly installed and commissioned by APC or APC authorized service personnel, shall be free from defects in materials and workmanship for a period of (1) year from the date of installation or maximum 18 months after manufacturing. In the event that the unit fails to meet the foregoing warranty, APC shall for a period of one (1) year repair or replace any defective parts, without charge for on-site labor and travel if trained & authorized APC personnel has conducted start-up of the unit.

An APC Start-Up Service must be performed/completed by APC or by service personnel authorized by APC. If not, the on-site factory warranty will be voided and replacement of defective parts only will be covered. APC shall have no liability and no obligation to repair the installed unit if non-authorized APC personnel performed the start-up and such start-up caused the unit to be defective.

APC shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was caused by purchaser's or any third person's misuse, negligence, improper installation or testing, unauthorized attempts to repair or modify, or any other cause beyond the range of the intended use, or by accident, fire, lightning or other hazard.

There are no warranties, expressed or implied, by operation of law or otherwise, of products sold, serviced or furnished under this agreement or in connection herewithin. APC disclaims all implied warranties of merchantability, satisfaction and fitness for a particular purpose. APC's express warranties will not be enlarged, diminished, or affected by and no obligation or liability will arise out of, APC rendering of technical or other advice or service in connection with the products. The foregoing warranties and remedies are exclusive and in lieu of all other warranties and remedies. The warranties set forth above, constitute APC's sole liability and purchaser's exclusive remedy for any breach of such warranties. APC's warranties apply only to purchaser and are not extended to any third parties.

In no event shall APC, its officers, directors, affiliates or employees be liable for any form of indirect, special, consequential or punitive damages, arising out of the use, service or installation, of the products, whether such damages arise in contract or tort, irrespective of fault, negligence or strict liability or whether APC has been advised in advance of the possibility of such damages.



## APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to find answers to frequently asked questions (FAQs), to access documents in  the APC Knowledge Base, and to submit customer support requests.
  - [www.apc.com](http://www.apc.com) (Corporate Headquarters)
  - Connect to localized APC Web sites for specific countries, each of which provides customer support information.
  - [www.apc.com/support/](http://www.apc.com/support/)
  - Global support with FAQs, knowledge base, and e-support.
- Contact an APC Customer Support center by telephone or e-mail.
  - Regional centers:

Australia <input type="checkbox"/>	1800 652 725 <input type="checkbox"/>	Malaysia <input type="checkbox"/>	1800 80 1030
Austria <input type="checkbox"/>	0800 999670 <input type="checkbox"/>	Netherlands <input type="checkbox"/>	0800 0232509
Belgium <input type="checkbox"/>	0800 40677 <input type="checkbox"/>	New Zealand <input type="checkbox"/>	0800 333 373
China <input type="checkbox"/>	+86 800 810 0160 <input type="checkbox"/>	Norway <input type="checkbox"/>	800 10436
Czech Republic <input type="checkbox"/>	800 102063 <input type="checkbox"/>	Poland <input type="checkbox"/>	0801 345917
Denmark <input type="checkbox"/>	80 884953 <input type="checkbox"/>	Portugal <input type="checkbox"/>	800 853182
Finland <input type="checkbox"/>	0800 115308 <input type="checkbox"/>	Russia <input type="checkbox"/>	8800 2002722
France <input type="checkbox"/>	0805 110053 <input type="checkbox"/>	Singapore <input type="checkbox"/>	+65 638 96 823
Germany <input type="checkbox"/>	0800 1010067 <input type="checkbox"/>	Slovak Republic <input type="checkbox"/>	0800 172063
Greece <input type="checkbox"/>	00800 125924 <input type="checkbox"/>	South Africa <input type="checkbox"/>	0861 272877
Hong Kong <input type="checkbox"/>	+852 2834 5001 <input type="checkbox"/>	Spain <input type="checkbox"/>	800 099340
Hungary <input type="checkbox"/>	0640 200262 <input type="checkbox"/>	Sweden <input type="checkbox"/>	0200 895283
India <input type="checkbox"/>	080 573 7497 <input type="checkbox"/>	Switzerland <input type="checkbox"/>	0800 111469
Ireland <input type="checkbox"/>	1890 272877 <input type="checkbox"/>	Turkey <input type="checkbox"/>	0800 2612135
Israel <input type="checkbox"/>	1800 9452206 <input type="checkbox"/>	UK <input type="checkbox"/>	0800 2799254
Italy <input type="checkbox"/>	800 905821 <input type="checkbox"/>	USA <input type="checkbox"/>	(1)(800) 800-4272 (toll-free)
Latin America <input type="checkbox"/>	(1)(401) 789-5735 (USA) <input type="checkbox"/>	Ukraine <input type="checkbox"/>	8800 5027220
Luxemburg <input type="checkbox"/>	800 22091 <input type="checkbox"/>	Fax <input type="checkbox"/>	+353 91 755275 <input type="checkbox"/>

- Local, country-specific centers: go to [www.apc.com/support/contact](http://www.apc.com/support/contact) for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

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