

Symmetra[®] LX 200/208 V, 4–16 kVA Electrical Installation Tower and Rack-mount UPS

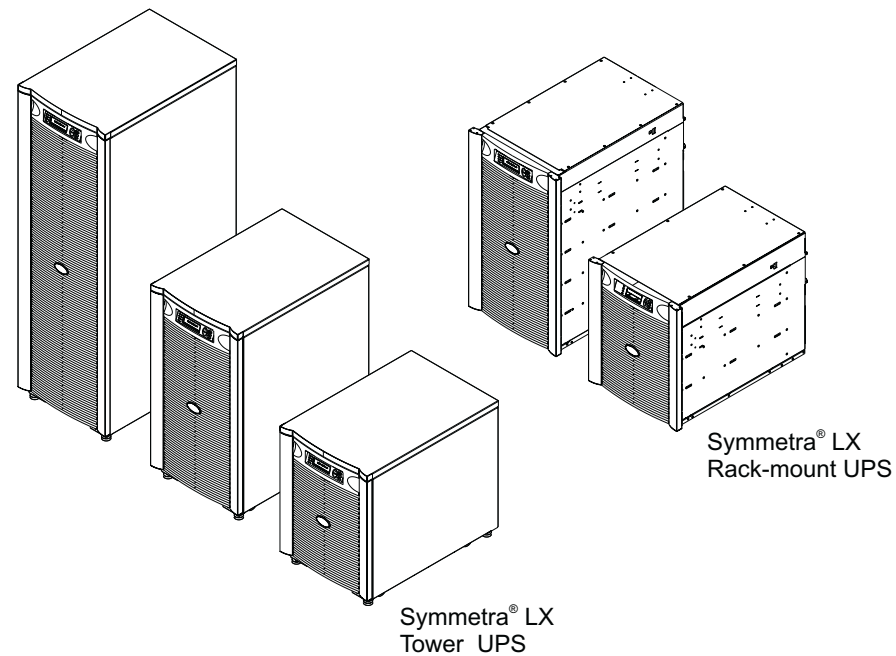
Important Safety and Installation Instructions

This manual provides instructions on how to wire and connect the Symmetra[®] LX tower and rack-mount UPS.

All electrical power and power control wiring must be installed by a qualified electrician and comply with local and national regulations.

Illustrations are representative. Your configuration, including components and optional APC equipment, may be different from the models shown in this guide. The procedures in the guide are applicable for the Symmetra[®] LX tower and rack-mount UPS and for the combination tower with the extended run cabinet. Both the tower and rack-mount UPS have optional extended run cabinets that provide backup power for the UPS.

Entire contents copyright[®] 2003 by American Power Conversion Corporation. All rights reserved. Reproduction in whole or in part without permission is prohibited. APC[®], PowerChute[®], InfraStruXure[®], Smart-UPS[®] and Symmetra[®] are registered trademarks of American Power Conversion Corporation. All other trademarks are the property of their respective owners.



Electrical Installation

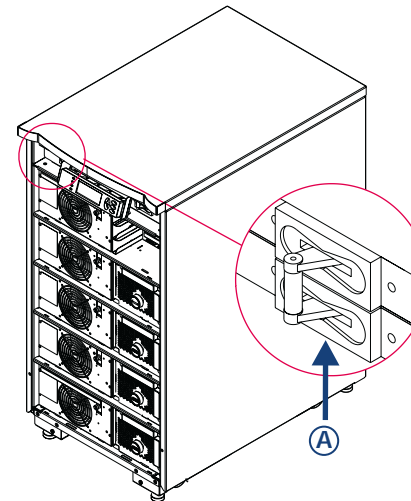


Read, understand and follow ALL safety instructions contained in the *Symmetra[®] LX Safety Instructions and General Information Guide*. Failure to follow safety instructions and warnings could result in equipment damage, serious injury, or death.

1 Perform Pre-installation Checklist

Before beginning the electrical installation, perform the following procedures.

- 1.1 Verify that the circuit breaker to be used to power the UPS is in the OFF position.
- 1.2 Verify that the input circuit breaker (A) on the UPS is in the OFF position.
- 1.3 Before you begin hardwiring the UPS, read and understand the input and output connection requirements contained in the table.

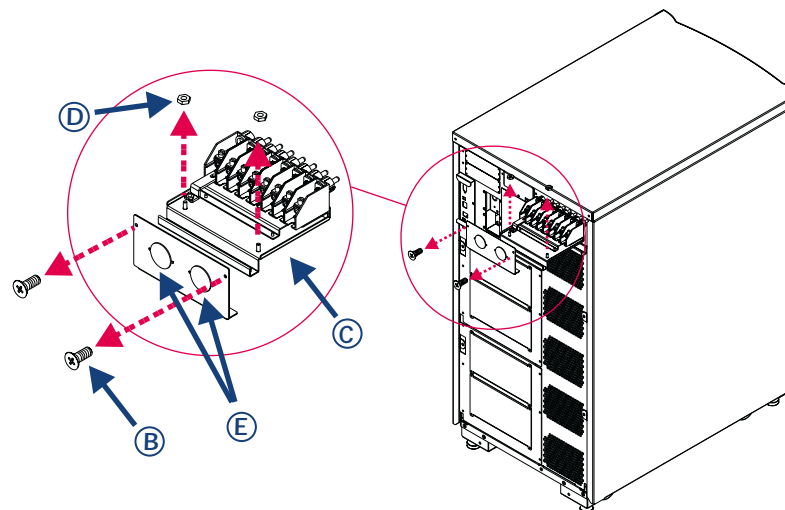


2 Hardwire the UPS



- Check local and national codes. Many locations require that hardwiring be installed by a licensed electrician.
- Strain relief is required for all hardwiring.
- All openings in the rear of the UPS must be covered. Failure to do so may result in personal injury or equipment damage.

- 2.1 Remove screws (B) and slide out the hardwire assembly (C). Remove the bolts (D) securing the strain relief panel.
- 2.2 Punch holes in the input, and output (if required) knockouts (E). Larger holes can be punched if desired.



Input Connections: Tower and Rack-mount UPS				
Maximum Load	Method	Voltage (VAC)	Recommended Circuit Breaker Rating	Connection
8 kVA	Hardwired (Standard on tower and rack-mount)	200 or 208 or 240	50 A	<ul style="list-style-type: none"> ▪ External circuit breaker ▪ #6 AWG (16 mm²) ▪ Torque to 22–25 lb-in (2.5–2.8 N m) ▪ 4-Wire (G-L2-N-L1)
16 kVA	Hardwired (Standard on tower and rack-mount)	200 or 208 or 240	100 A	<ul style="list-style-type: none"> ▪ External circuit breaker ▪ #3 AWG (25 mm²) ▪ Torque to 22–25 lb-in (2.5–2.8 N m) ▪ 4-Wire (G-L2-N-L1)
Output Connections: Tower and Rack-mount UPS				
Maximum Load	Method	Voltage (VAC)	Recommended Circuit Breaker Rating	Connection
8 kVA	Hardwired (Standard on tower and rack-mount)	100/200 or 120/208 or 120/240	50 A	<ul style="list-style-type: none"> ▪ External circuit breaker ▪ #6 AWG (16 mm²) ▪ Torque to 22–25 lb-in (2.5–2.8 N m)
	Output plugs (Standard on rack-mount)	100/200 or 120/208 or 120/240	50 A	<ul style="list-style-type: none"> ▪ 2 (L14-30R) ▪ 4 (L5-20R)
16 kVA	Hardwired (Standard on tower and rack-mount)	100/200 or 120/208 or 120/240	90 A	<ul style="list-style-type: none"> ▪ External circuit breaker ▪ #3 AWG (25 mm²) ▪ Torque to 22–25 lb-in (2.5–2.8 N m) ▪ 4-Wire (G-L2-N-L1)
	Output plugs (Standard on rack-mount)	100/200 or 120/208 or 120/240	90 A	<ul style="list-style-type: none"> ▪ 4 (L14-30R) ▪ 8 (L5-20R)

2 Hardwire the UPS (continued)

2.3 Attach input (F) and output (if required) (G) conduit to the terminal block.

- Feed the wires through the holes on the strain relief panel.
- Connect the wires to the terminal block (H) as indicated for your configuration. Refer to the label (I) on the terminal block for output ground (J), input conduit (K) and optional output conduit (L) connections.
- Attach strain reliefs to wiring connections.

2.4 Inspect cable connections to ensure proper installation.

2.5 Cover holes in the strain relief panel not being used for cabling.

2.6 Reinstall the hardwire assembly and fasten with provided bolts (M) and screws (N). Torque to 22–25 lb-in (2.5–2.8 N·m).

2.7 Connect the input (O) to the circuit breaker supplying power to the UPS. If the output needs to be hardwired, connect the output (P) wires to the circuit breaker supplying power to the load.

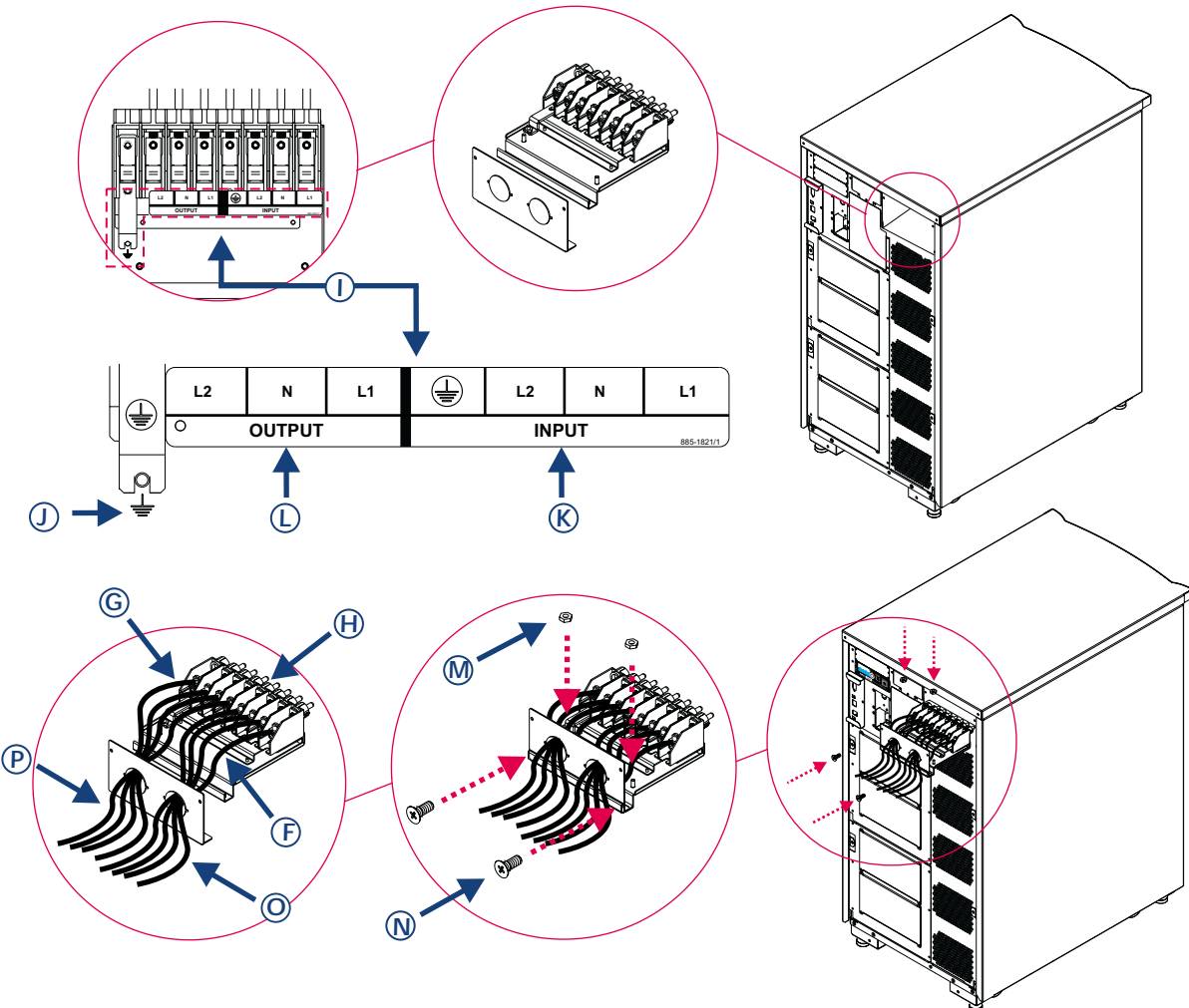
2.8 To test the cable connection, turn ON the circuit breaker providing power to the UPS. If the value does not match your branch voltage (200/208/240), check your wiring for proper connection.

2.9 To test the wiring, turn ON the input circuit breaker (see Step 1), then perform the “Manual Bypass Operation” to ensure that power can be supplied to the load when bypassing the UPS. Measure the voltage at the PDUs or at the circuit breaker to power the load. See the *Symmetra[®] LX Start Up Guide* for “Manual Bypass” instructions.

2.10 Turn OFF the circuit breaker providing power to the UPS.

Turn OFF the input circuit breaker. See Step 1.

Turn OFF the maintenance bypass switch. See the *Symmetra[®] LX Start Up Guide* for the “Manual Bypass” instructions.



3 Connect Remote Emergency Power Off (REPO) Circuit, If Required



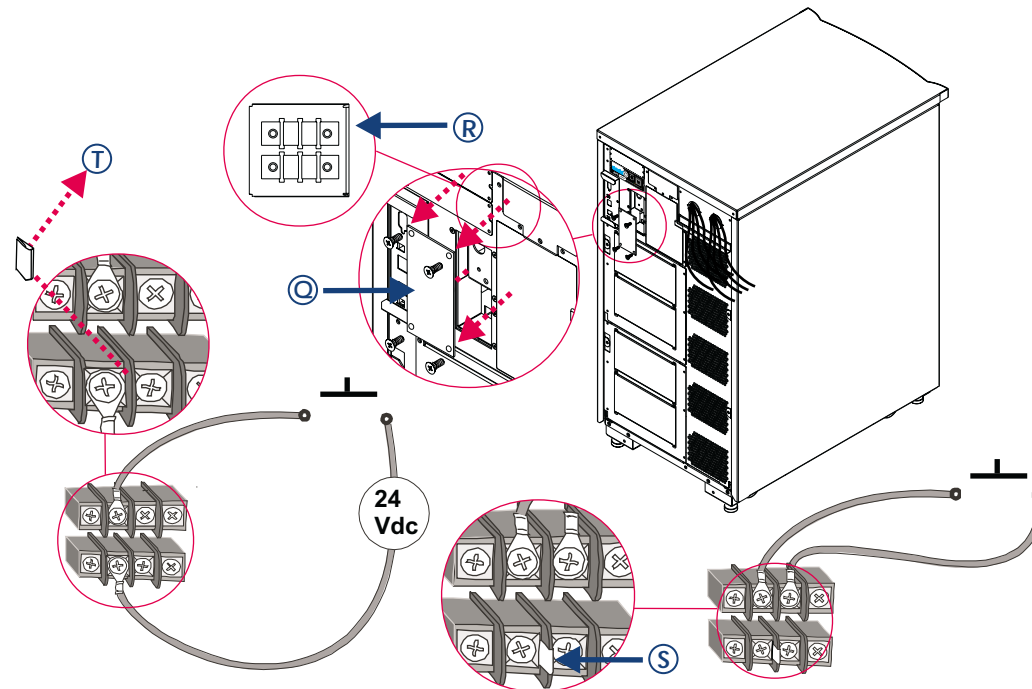
Note

- Please note that many locations require that the Emergency Power Off (EPO) switch be installed by a licensed electrician. Check your local and national codes.
- See the *Symmetra[®] LX Safety and General Information Guide* for detailed safety instructions and EPO requirements.

3.1 Remove the access panel (C) to connect the circuits (R).

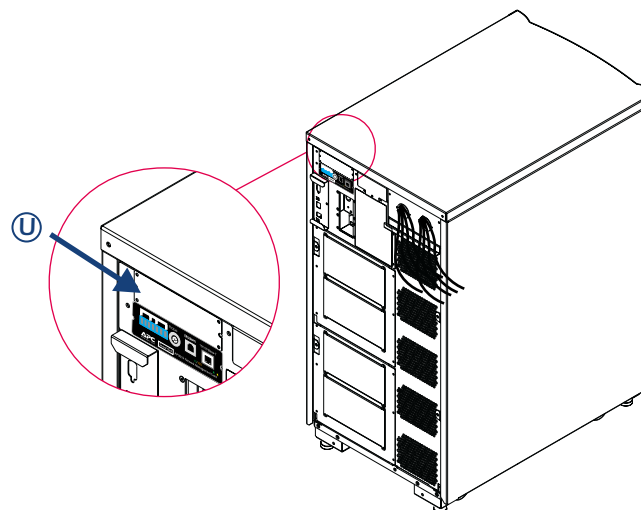
3.2 If your installation will use a single external switch contact, connect the EPO switch with the pre-installed jumper (S), as shown.

3.3 If your installation will use a switch contact and a 24 V power supply external to the UPS, remove the jumper (T) and connect the EPO switch, as shown.



4 Install Accessory Card, If Applicable

If your configuration includes an additional management accessory card, install it in the empty slot (U) on the rear of the UPS. See the accompanying documentation for installation instructions.



5 Install PDU Panel(s) and Connect Loads to the UPS, If Applicable

Your configuration may include optional PDU panels. Follow these instructions to install PDU panels and to connect applicable loads directly to the UPS.



Caution



Note

All openings in the rear of the UPS must be covered. Failure to do so may result in personal injury or equipment damage.

- Loads can be connected directly to the UPS using the output plugs on the PDU panel. Ensure that the total load being plugged into a PDU panel DOES NOT EXCEED the branch circuit breaker rating on the PDU panel.

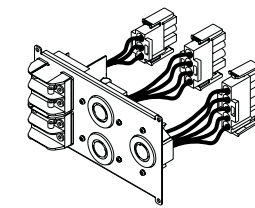
- Do not install a PDU panel when a PDU warning label is present.

5.1 Verify that the circuit breaker providing power to the UPS is in the OFF position.

5.2 Remove the PDU access plate (V) to expose the terminal block with connecting wires and plugs (W).

5.3 Ensure that all PDU panel circuit breakers (X) are in the OFF position.

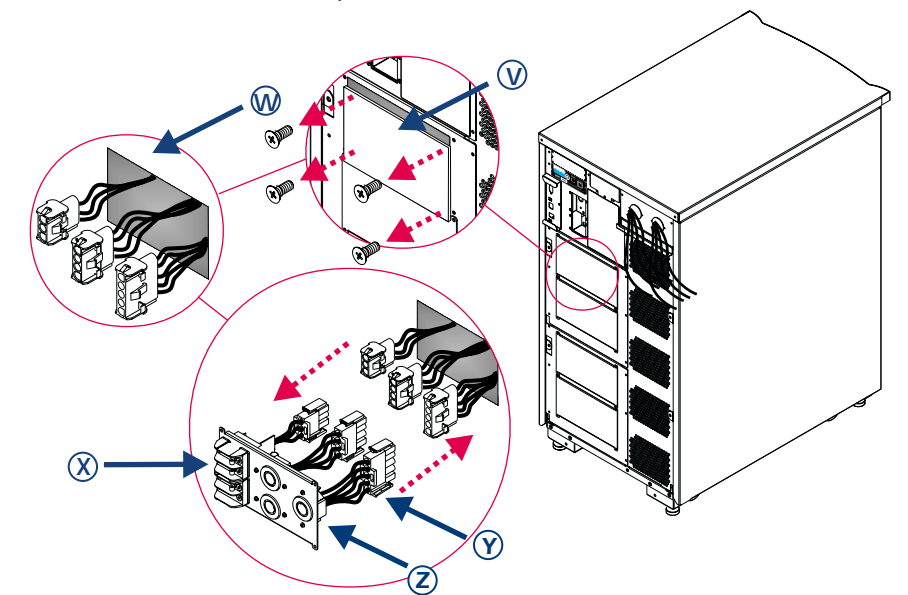
5.4 Plug each UPS terminal block connector (W) into its corresponding PDU panel connector (Y). PDU panel configuration is shown below.



5.5 Install the PDU panel (Z) in the terminal block and tighten with provided screws.

5.6 Plug external PDUs (that have loads plugged into them), or loads to be directly connected to the UPS, into the PDU Panel(s) output plugs.

5.7 Ensure that PDU access plates (V) securely cover all terminal blocks that do not have PDU panels installed.



6 Complete Post-installation Procedures and Start Up the System

Go to the *Symmetra[®] LX Startup Guide* to complete the post-installation procedures and to start up the system.