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Certified Electrician's Instructions

How to Connect Mains and an Emergency Power Off (EPO) Switch to the InfraStruXure PDU

Connection to be performed by a licensed electrician only!

The following procedures require a licensed electrician:

- **Connection of Mains to the PDU.**
- **Installation of an upstream circuit breaker.**
- **Connection to the Main Input switch, Bypass Input switch, and Cross Tie Output breaker.**
- **Wiring under the floor.**
- **Connection of an EPO switch.**

Procedures in this instruction sheet

The procedures in this sheet provide instruction for electricians on how to connect to the Main Input switch, Bypass Input switch, Cross Tie Output breaker, and an Emergency Power Off (EPO) switch. Review the information provided in your InfraStruXure Configure-To-Order (CTO) report and accompanying documentation for instructions specific to your installation, and always follow national and local codes. Before an electrician begins connecting your system, an APC Field Service Engineer must:

- Position and level the Symmetra PX UPS, InfraStruXure PDU, and Battery Enclosure.
- Exchange side panels and attach the Symmetra PX UPS, InfraStruXure PDU, and Battery Enclosure.
- Connect the AC and DC power and control wiring.

You can check for updates to this instruction sheet by clicking on the **User Manuals** link on the **Support** page of the APC Web site **(www.apc.com)**. In the list of InfraStruXure manuals, look for the latest letter revision (A, B, etc.) of the part number on the back cover of this sheet.

Electrical requirements

Upstream circuit breaker *‡	200 A
Conductors to the Main Input switch‡	Transformer: L1, L2, L3 + PE Transformerless: L1, L2, L3, N + PE
Conductors to the Bypass Input switch ‡	L1, L2, L3, N + PE
Conductors to the Cross Tie Output breaker ‡	L1, L2, L3, N + PE

‡ Provided by customer.

* Consult local and national codes for sizing requirements.

Recommended wire sizes and lug types

Maximum input conductor size (top entry)	Rigid: 6–185 mm²; Flexible: 6–150 mm² for S3 frame
Lug type for input conductors (top entry)	Compression lug (9.5-mm (3/8-in) diameter)
Maximum input conductor size (bottom entry)	120 mm² for DIN rail
Lug type for input conductors (bottom entry)	Terminal blocks
Maximum bypass input and cross-tie conductor	Rigid: 6–185 mm²; Flexible: 6–150 mm² for S3 frame
Lug type for bypass input and cross-tie	Compression lug (9.5-mm (3/8-in) diameter)

Torque specs and tools required—overhead wiring

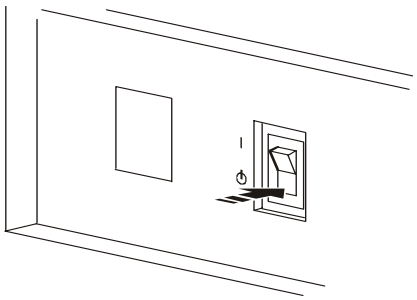
	Terminal	Torque	Tools
Main Input (A)	L1, L2, L3	16 Nm	6-mm Allen key
	N	14 Nm	13-mm socket wrench
	PE	14 Nm	3/16 Allen key
Bypass Input (B)	L1, L2, L3	14 Nm	Compression lugs (included) 11-ton hydraulic crimping tool
	N	14 Nm	13-mm socket wrench
	PE	14 Nm	3/16 Allen key
Cross Tie Output (X)	L1, L2, L3	16 Nm	6-mm Allen key
	N	14 Nm	13-mm socket wrench
	PE	14 Nm	3/16 Allen key

Torque specs and tools required—underfloor wiring

	Terminal	Torque	Tools
Main Input (A)	L1, L2, L3, N	6–7 Nm	6-mm Allen key
	PE	14.1 Nm	3/16 Allen key
Bypass Input (B)	L1, L2, L3, N	6–7 Nm	6-mm Allen key
	PE	14.1 Nm	3/16 Allen key
Cross Tie Output (X)	L1, L2, L3, N	6–7 Nm	6-mm Allen key
	PE	14.1 Nm	3/16 Allen key

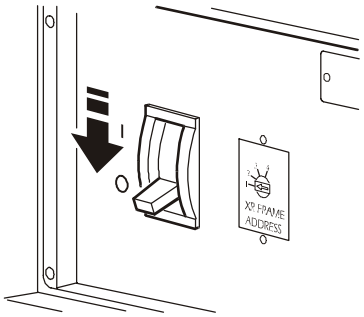
Ensure Total Power Off

1. Set the UPS **System Enable** switch to the OFF position.

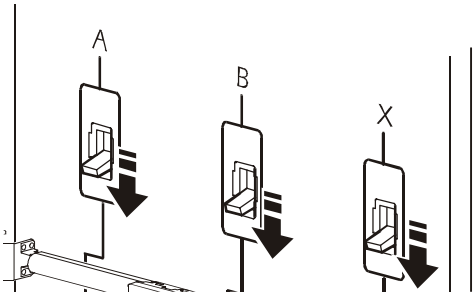


2. Set the Battery Enclosure and any XR Battery Enclosure **DC Disconnect** breaker to the OFF position.

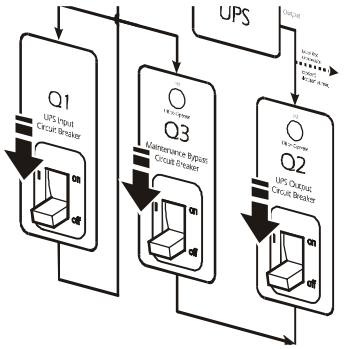
   Pull out all battery units in the XR Battery Enclosures to the red battery disconnect line (if applicable).



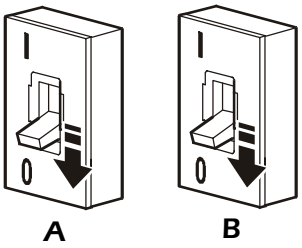
3. Set the **Main Input** switch (**A**), and, if applicable, the Q10 **Bypass Input** switch (**B**), and **Cross Tie Output** breaker (**X**) on the PDU to the OFF position.



4. Open (turn OFF) the **Q1**, **Q2**, and **Q3** breakers on the PDU.



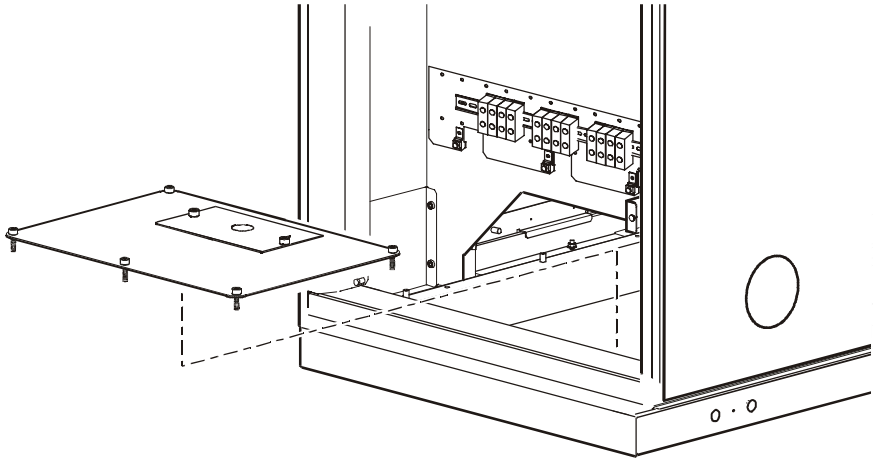
5. Set the upstream **Main Input**, and, if applicable, the **Bypass Input** breaker to the OFF or Locked Out position.
6. If applicable, set the **Main Input**, **Bypass Input** and **Cross Tie Output** breaker to OFF on the PDU that "ties" to the PDU you are connecting power to.



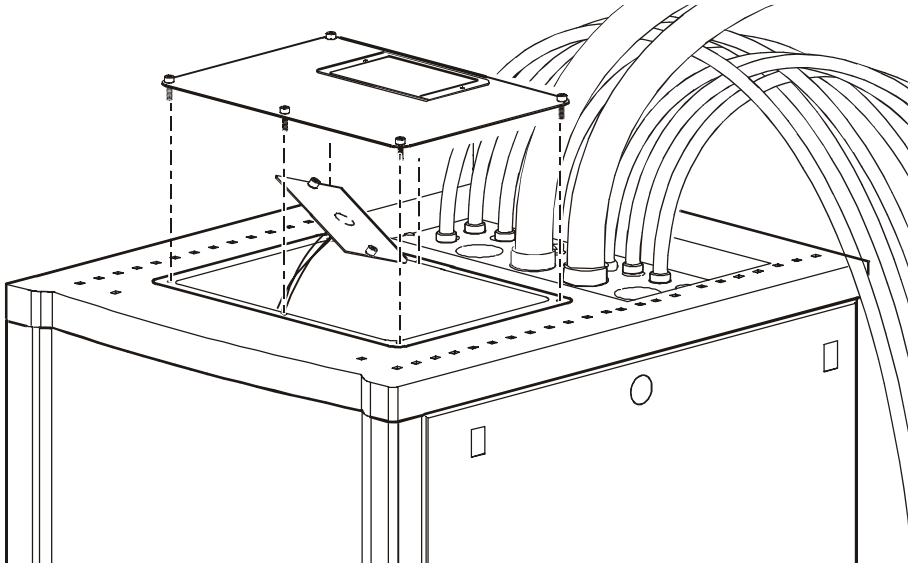
Attach conduit to the PDU for the conductors

1. Remove one of the rectangular gland plates by loosening the captive screws, using a Phillips or standard screwdriver.

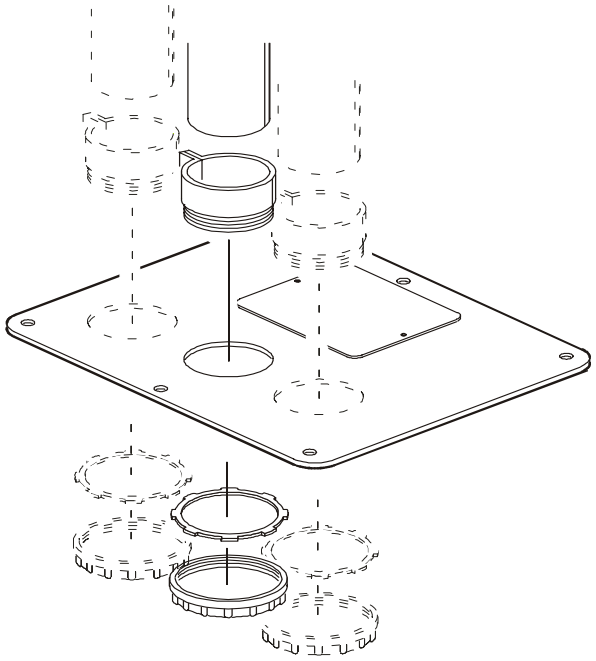
   For wiring under a raised floor: remove the plate in the floor of the PDU.



   For overhead wiring: detach the user connection plate, route it through the opening in the gland plate, carefully set it aside (do not disturb the connected wires), and remove the gland plate in the roof of the PDU.



2. Cut an appropriately sized hole in the gland plate for each switch (or breaker) that you are connecting to.
3. Re-attach the gland plate.
4. Install a lock-nut and bushing to the cable.
5. Thread the cable through the hole in the gland plate.



Install a utility/branch circuit breaker

Warning

When you connect the PDU to Mains, you must install a 200 A circuit breaker to protect the InfraStruXure PDU against over-current. This circuit breaker must have a CE Mark and a certification mark by a certified body such as VDE, SEV, BSI, KEMA, or Semko.

Run conductors

For overhead wiring, route conductors directly to the terminals on the **Main Input** switch, and if applicable, the **Bypass Input** switch and **Cross Tie Output** breaker. For wiring under the floor, route the conductors to the terminals in the bottom of the PDU that correspond to the **Main Input** switch, and if applicable, the **Bypass Input** switch, and **Cross Tie Output** breaker.

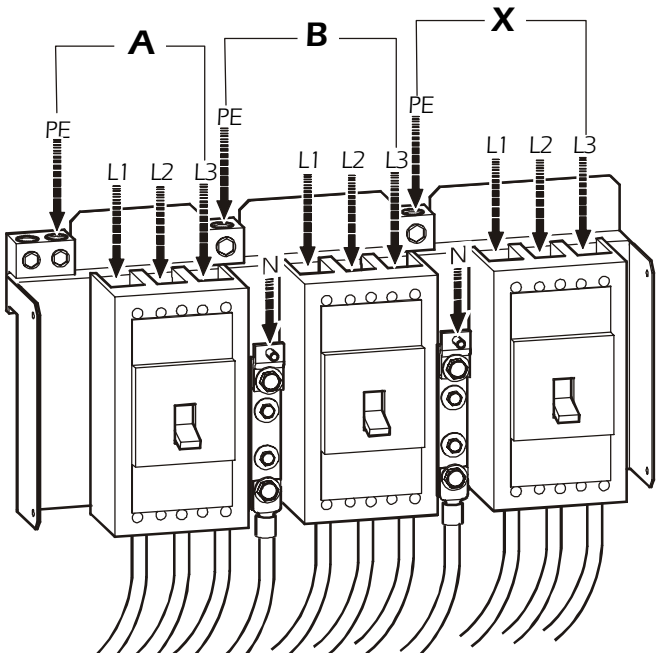
Overhead wiring. The illustrations on this page show PDUs with a **Main Input**, **Bypass Input**, and **Cross Tie Output** circuit breaker. If your PDU does not have all three circuit breakers, make the connections shown for the circuit breakers that are on your PDU. See the table "Torque specs and tools required—overhead wiring" on page 2 for specific information about connecting to each terminal.

Warning

Connect the conductors to the terminals according to the labels on the terminals. Only use copper conductors.

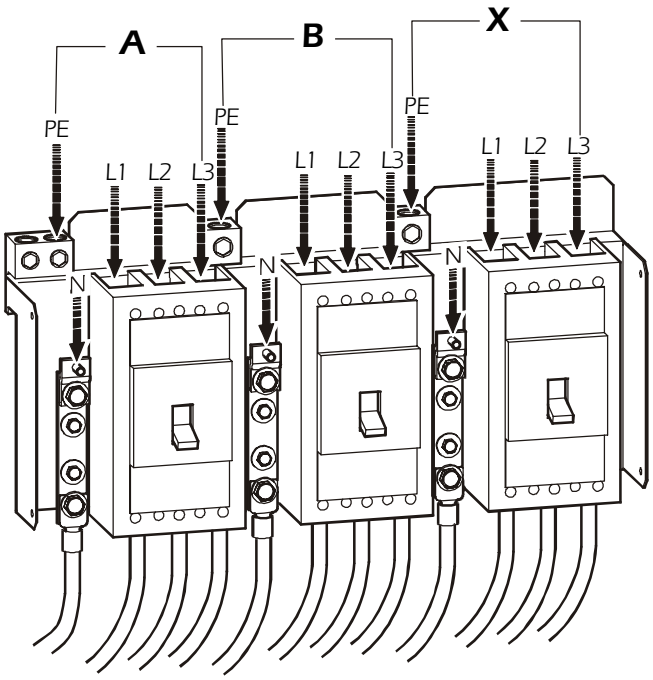
400V input with an isolation transformer

A: L1, L2, L3 + PE
B: L1, L2, L3, N + PE
X: L1, L2, L3, N + PE



400V input without an isolation transformer

A: L1, L2, L3, N + PE
B: L1, L2, L3, N + PE
X: L1, L2, L3, N + PE



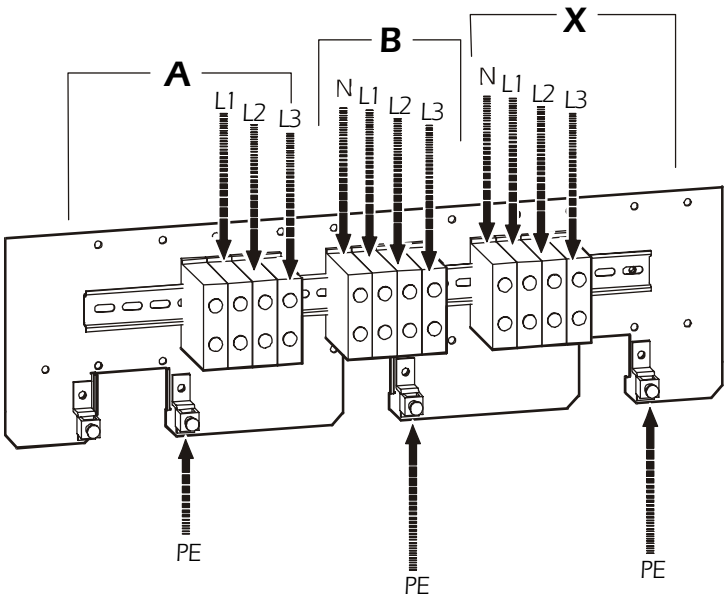
Under-floor wiring. Refer to the illustrations on this page for the conductors that you need to run for your PDU. The illustrations show PDUs with a **Main Input**, **Bypass Input**, and **Cross Tie Output** circuit breaker. If your PDU does not have all three circuit breakers, make the connections shown for the circuit breakers that your PDU has. See the table, "Torque specs and tools required—underfloor wiring" on page 2 for specific information about connecting to each terminal.

Warning

Connect the conductors to the terminals according to the labels on the terminals. Only use copper conductors.

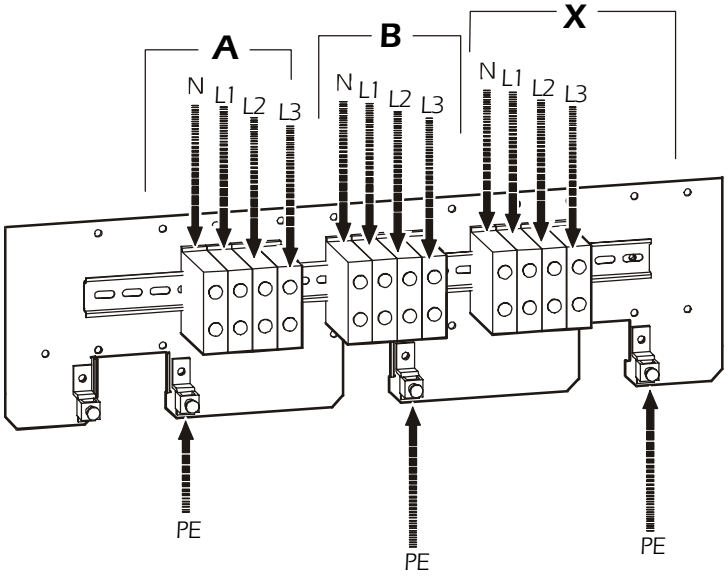
400 V input with an isolation transformer

A: L1, L2, L3 + PE
B: L1, L2, L3, N + PE
X: L1, L2, L3, N + PE



400 V input without an isolation transformer

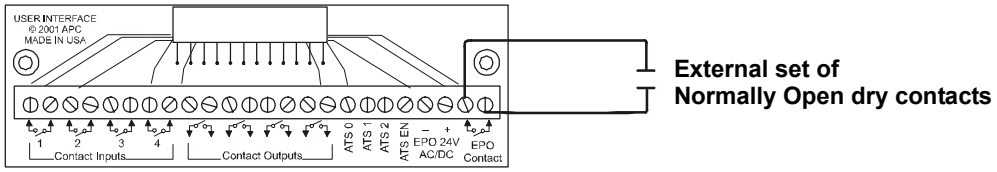
A: L1, L2, L3, N + PE
B: L1, L2, L3, N + PE
X: L1, L2, L3, N + PE



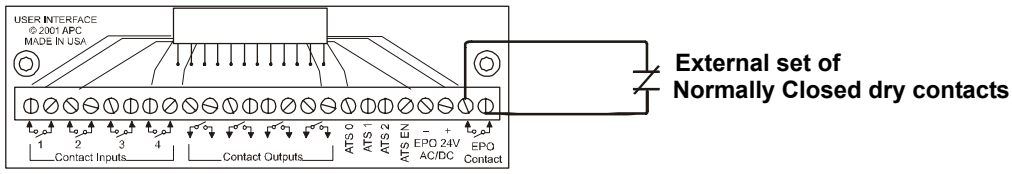
Connect an Emergency Power Off (EPO) switch

1. Connect the switch to the EPO connection point terminals located on the bottom side of the PDU user connection plate. Read the label next to the terminal block to determine which terminals to connect to for the signal type you are using.

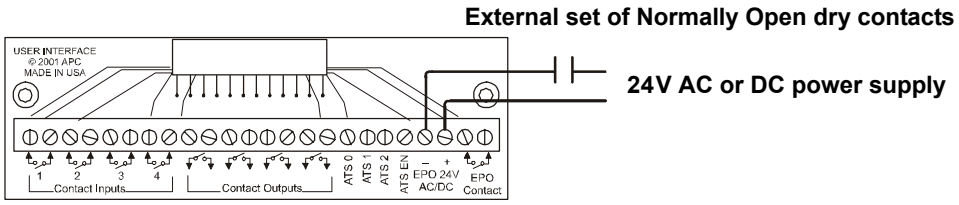
   – Contact Closure—Normally Open



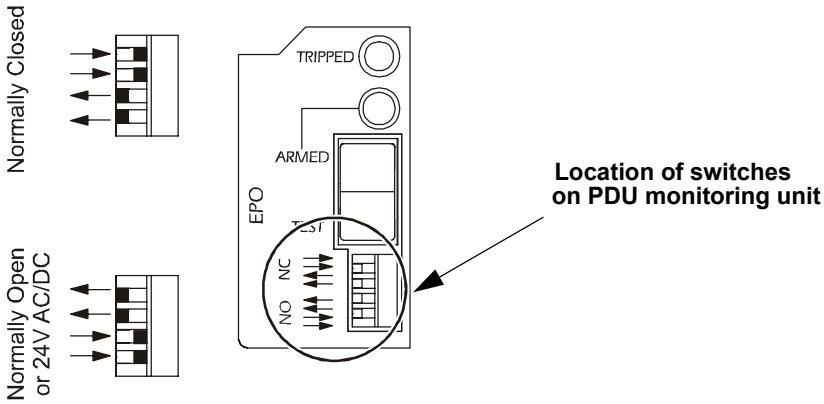
   – Contact Closure—Normally Closed



   – 24VAC/VDC—Normally Open



2. Verify that the EPO DIP switches on the PDU monitoring unit are configured properly for the signal type you are using. The labels above the switches and the following figure show the correct settings for both the Normally Open (NO) and Normally Closed (NC) position.



Note

The default setting on the EPO interface on the PDU monitoring unit is for a **Normally Open (NO)** switch.

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 access documents in the APC Knowledge Base and to submit customer support requests.
  - **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/**

    Global support searching APC Knowledge Base and using e-support.
- Contact an APC Customer Support center by telephone or e-mail.
  - Regional centers:

Direct InfraStruXure Customer Support Line	(1)(877)537-0607 (toll free)
APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702020 (Ireland)
Australia	(61) (2) 9955 9366
China	(86) (10) 8529 9888
India	(080) 5737497

  - Local, country-specific centers: go to **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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