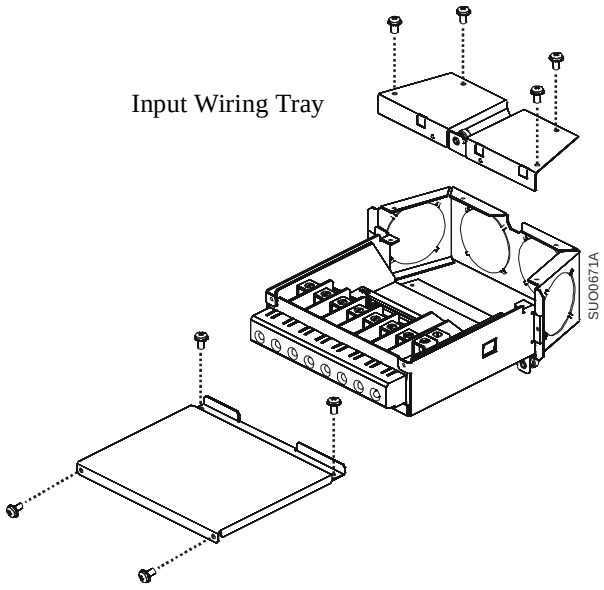
Smart-UPS® Input Hardwire Kit
SURT 15/20 kVA 230 Vac

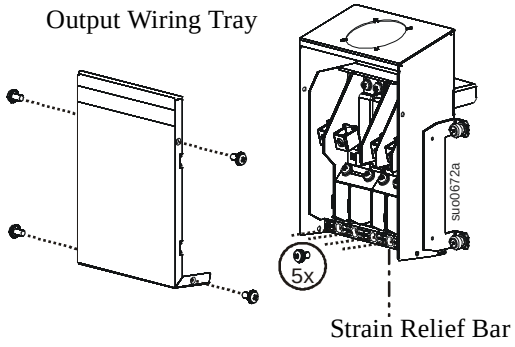
Hardwire the UPS

Refer to the Smart-UPS User Manual for additional installation information.

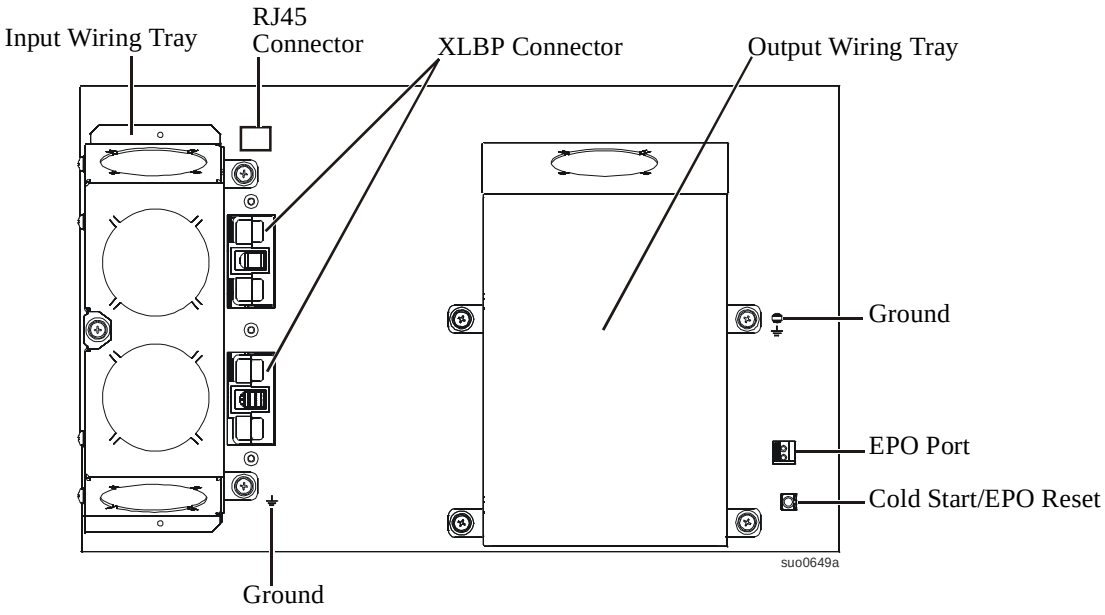
Wiring must be performed by a qualified electrician. Adhere to all local and national electrical codes.

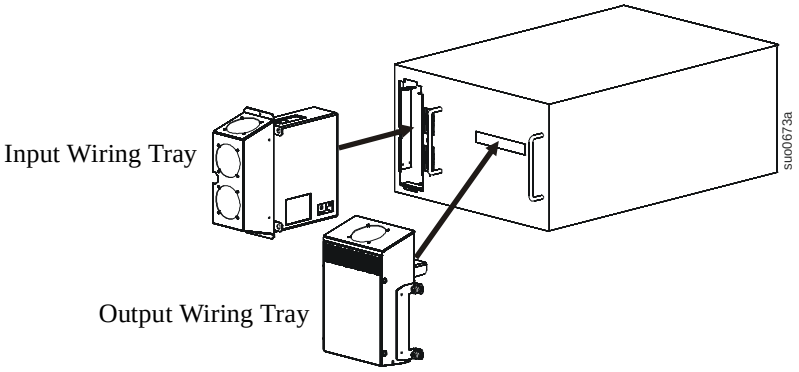
1. For input wiring only, install a utility circuit breaker in accordance with local electrical codes.
2. Switch the utility circuit breaker OFF.
3. Remove the appropriate circular knockouts from the input and output wiring trays.
4. Remove the screws that secure the covers and take the covers off of the trays.
5. Remove the five screws that secure the strain relief bar.
6. Remove the appropriate jumpers for input power source compatibility and output wiring options, refer to “Wiring Specifications” on page 3 in this manual.
7. Insert the cables through the knockout holes to the terminal blocks. Connect the ground terminal first, refer to “Wiring Specifications” on page 3 in the this manual.
8. Use an appropriate strain-relief, not supplied, on the hardwired input and output power cables.
9. Replace the wiring tray covers. Failure to do so may result in personal injury or equipment damage.
10. Install the wiring trays, refer to graphics below.





Install input and output wiring trays in UPS rear panel





Wiring Specifications

Adhere to national and local electrical codes when wiring.

Input Connections	Output Connections
Main Input Single-Phase: Wire to L1, N, and ⏚ Three-Phase: Wire to L1, L2, L3, N, and ⏚	**Hardwire** Single-Phase: Wire to L1, N, and ⏚ Three-Phase: Wire to L1, L2, L3, N, and ⏚
Bypass Input (optional) Single-Phase: Wire to B1, N, and ⏚ Three-Phase: Wire to B1, B2, B3, N, and ⏚	**Single-phase PDU** XL battery pack PDU to UPS: Wire L1, N, ⏚

Single Feed

Wiring	Number of Phases	Voltage	Current Full Load*** (maximum)	External Input Circuit Breaker (typical)	Wire Size (typical)*
SURT15K XLI/XLICH/XLI-CC					
Input Output	1 1	220/230/240 VAC 220/230/240 VAC	83 A 66 A	100 A each phase not required	35 mm^2 25 mm^2
Input Output	3 1	380/400/415 VAC 220/230/240 VAC	28 A each phase 66 A	100 A each phase** not required	35 mm^{2**} 25 mm^2
Input Output	3 3	380/400/415 VAC 380/400/415 VAC	28 A each phase 22 A each phase	35 A or 40 A each phase not required	6 mm^2 6 mm^2
SURT20K XLI/XLICH/XLI-CC					
Input Output	1 1	220/230/240 VAC 220/230/240 VAC	105 A 87 A	125 A each phase not required	50 mm^2 35 mm^2
Input Output	3 1	380/400/415 VAC 220/230/240 VAC	35 A each phase 87 A	125 A each phase** not required	50 mm^{2**} 35 mm^2
Input Output	3 3	380/400/415 VAC 380/400/415 VAC	35 A each phase 29 A each phase	50 A each phase not required	10 mm^2 10 mm^2

*Terminal screw tightening torque: 4.5 Nm (40 lb-in) minimum

**Use cables and input circuit breakers rated for specifications listed in these tables.

NOTE: Units configured for three phase input and single phase output operation, the entire load connected to the UPS will transfer to L1 and Neutral of the three phase input when the UPS is operating in Bypass mode.

***The current is specified at nominal input voltage.

The acceptable input frequency range is 40 Hz to 70 Hz.

The output frequency is user selectable. Refer to the PowerView display menu screens for available options.

Dual Feed

Wiring	Number of Phases	Voltage	Current Full Load*** (maximum)	External Input Circuit Breaker Mains (typical)	External Input Circuit Breaker Bypass (typical)	Wire Size Mains* (typical)	Wire Size Bypass* (typical)
SURT15K XLI/XLICH/XLI-CC							
Input	1	220/230/240 VAC	83 A	100 A each phase	100 A each phase	35 mm^2	35 mm^2
Output	1	220/230/240 VAC	66 A	not required	not required	25 mm^2	25 mm^2
Input	3	380/400/415 VAC	28 A each phase	35 A or 40 A each phase	100 A each phase**	6 mm^2	35 mm^{2**}
Output	1	220/230/240 VAC	66 A	not required	not required	25 mm^2	25 mm^2
Input	3	380/400/415 VAC	28 A each phase	35 A or 40 A each phase	35 A or 40 A each phase not required	6 mm^2	6 mm^2
Output	3	380/400/415 VAC	22 A each phase	not required		6 mm^2	6 mm^2
SURT20K XLI/XLICH/XLI-CC							
Input	1	220/230/240 VAC	105 A	125 A each phase	125 A each phase	50 mm^2	50 mm^2
Output	1	220/230/240 VAC	87 A	not required	not required	35 mm^2	35 mm^2
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	125 A each phase**	10 mm^2	50 mm^{2**}
Output	1	220/230/240 VAC	87 A	not required	not required	35 mm^2	35 mm^2
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	50 A each phase	10 mm^2	10 mm^2
Output	3	380/400/415 VAC	29 A each phase	not required	not required	10 mm^2	10 mm^2

*Terminal screw tightening torque: 4.5 Nm (40 lb-in) minimum

**Use cables and input circuit breakers rated for specifications listed in these tables.

NOTE: Units configured for three phase input and single phase output operation, the entire load connected to the UPS will transfer to L1 and Neutral of the three phase input when the UPS is operating in Bypass mode.

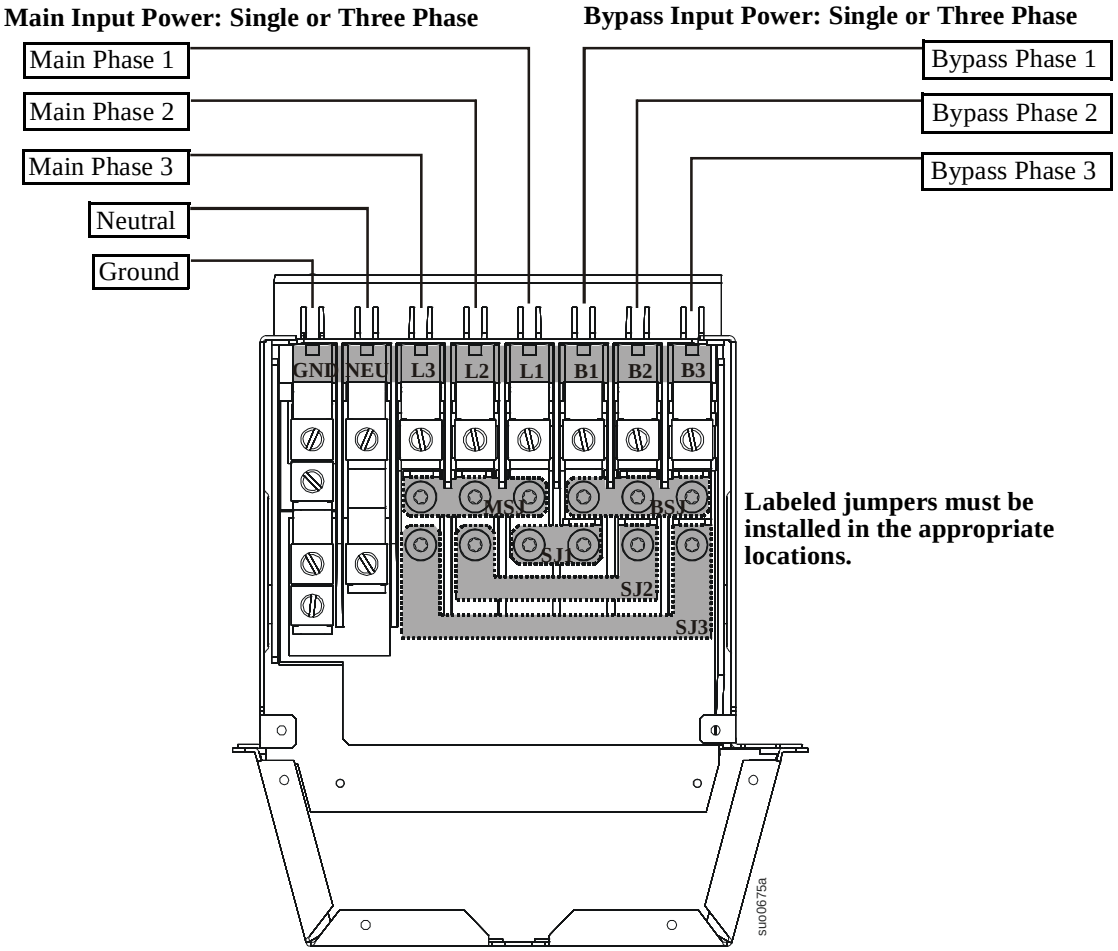
***The current is specified at nominal input voltage.

The acceptable input frequency range is 40 Hz to 70 Hz.

The output frequency is user selectable. Refer to the PowerView display menu screens for available options

Input wiring options

Input wiring overview: Refer to the diagrams on the following pages for input wiring options.

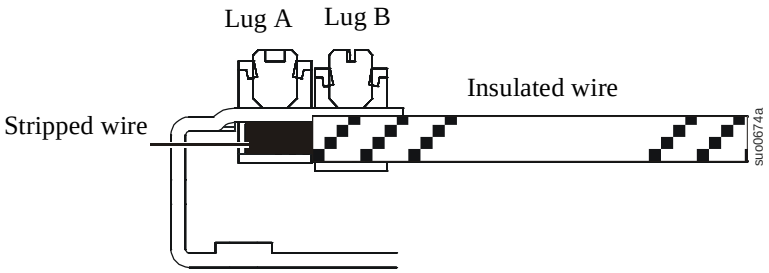


Input/Output Jumper Configurations		Input Jumpers					Output Jumpers
Power I/O Configuration Input:Output	**Separate Bypass Feed**	**SJ1**	**SJ2**	**SJ3**	**MSJ**	**BSJ**	**OSJ**
1:1**	No	✓	✓*	✓*	✓	✓	✓
1:1	Yes				✓	✓	✓
3:1	No	✓				✓	✓
3:1	Yes					✓	✓
3:3	No	✓	✓	✓			
3:3	Yes						

* Optional
** Factory Default

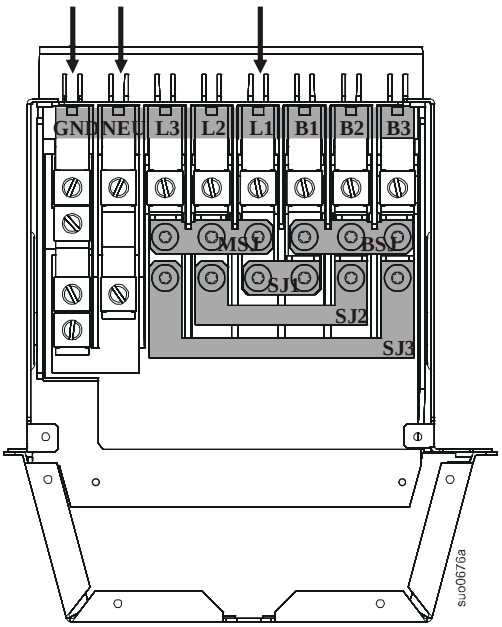
Ensure ground wire conductor and insulator are securely fastened. To connect the ground wire:

1. Strip the cable of insulation, exposing the wire. Secure the exposed wire with lug “A”.
2. Secure the insulated portion of the cable with lug “B”.



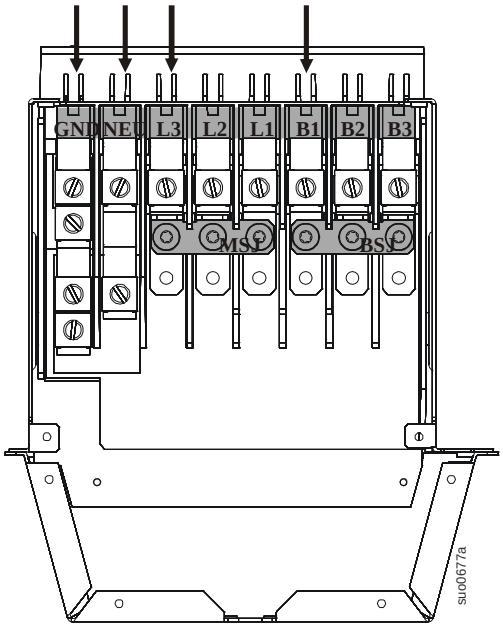
Input wiring option 1 Factory Default

Single phase input, single phase output, single feed



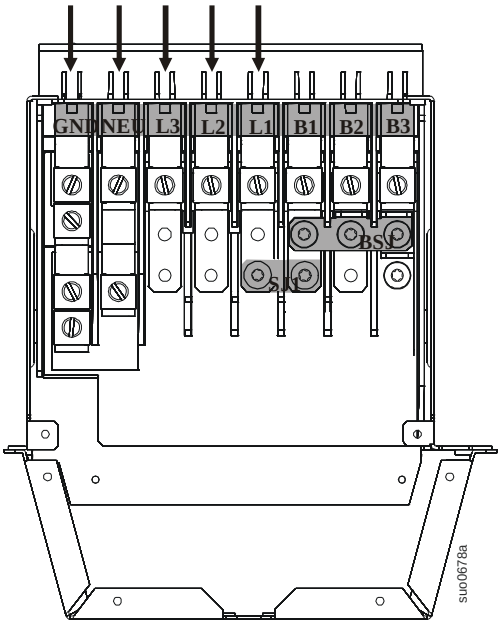
Input wiring option 2

Single phase input, single phase output, dual feed



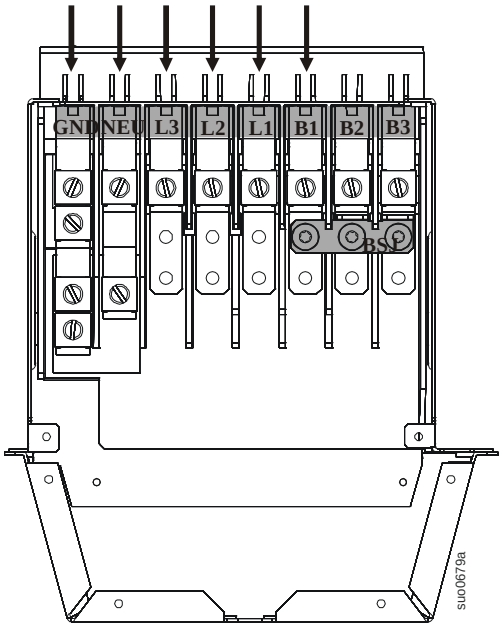
Input wiring option 3

Three phase input, single phase output, single feed



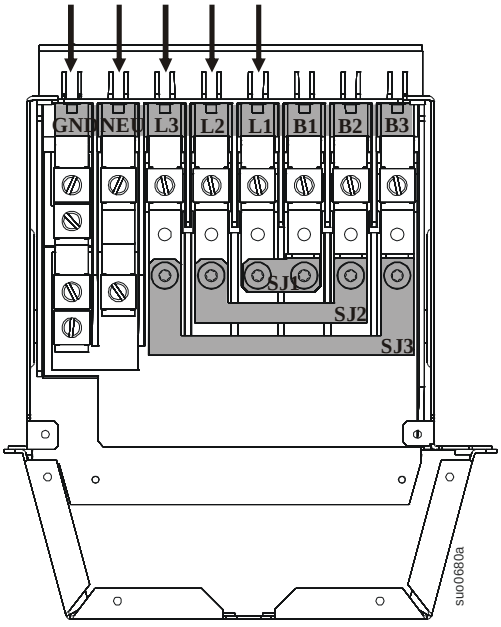
Input wiring option 4

Three phase input, single phase output, dual feed



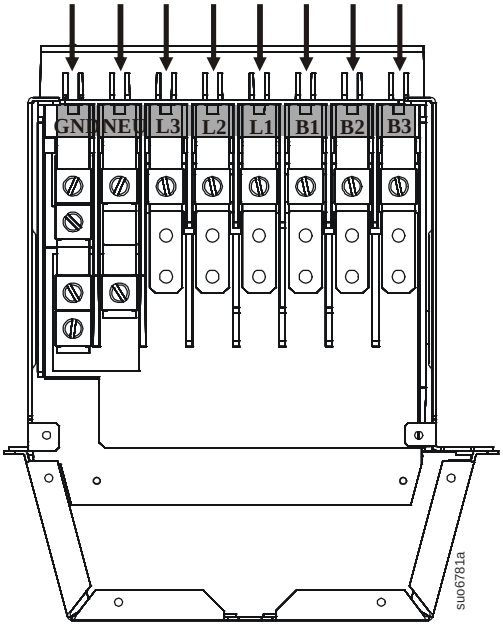
Input wiring option 5

Three phase input, three phase output, single feed



Input wiring option 6

Three phase input, three phase output, dual feed



Customer support and warranty information is available at the APC Web site, **www.apc.com**.

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