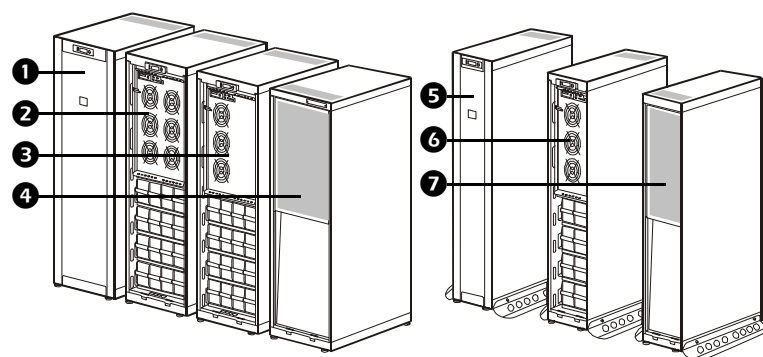




Installation

Smart-UPS[®] VT 10-40 kVA 380/400/415 V with batteries



- ❶ 10-40 kVA
- ❷ 20-40 kVA without front panel
- ❸ 10-15 kVA without front panel
- ❹ 10-40 kVA from the rear
- ❺ 10-20 kVA
- ❻ 10-20 kVA without front panel
- ❼ 10-20 kVA from the rear

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS



Warning: ALL safety instructions in the Safety Sheet (990-2822) must be read, understood, and followed when installing the UPS system. Failure to do so could result in equipment damage, serious injury, or death.



Warning: After the UPS has been electrically wired, do not start it up. Start-up is commissioned to authorized personnel from Schneider Electric Critical Power & Cooling Services only.



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



Note: Ensure that the unit is in its final location prior to installation.



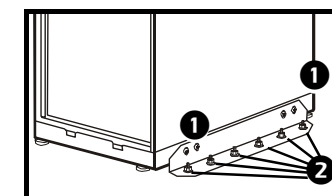
Note: Battery and utility/mains power must not be connected until all other wiring has been completed.

Floor Anchoring (if applicable)

Anchor the UPS enclosure to the floor



Note: Floor-anchoring bolts are not provided with the UPS. Purchase the bolts locally (minimum size: M8). Follow the specifications given by the manufacturer of the floor anchoring system when bolting the UPS system to the floor.

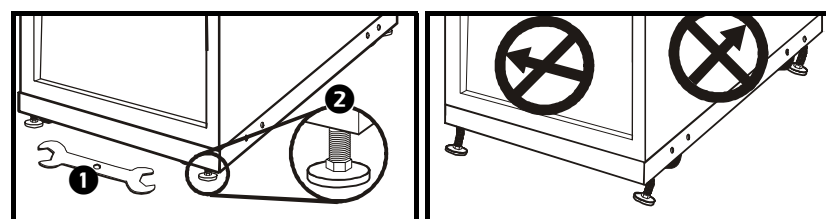


- ❶ Reuse the two transport brackets (one on each side) that were used to secure the UPS to the pallet during transport.
- ❷ Drill two to six holes in the floor for each bracket. Attach with bolts.

Level the Enclosure



Warning: The system must be installed on a level floor. The leveling feet will stabilize the enclosure, but will not account for a badly sloped floor.



- ❸ Use a 13/14 mm wrench to adjust the four leveling feet.
- ❹ Ensure that the system is level.

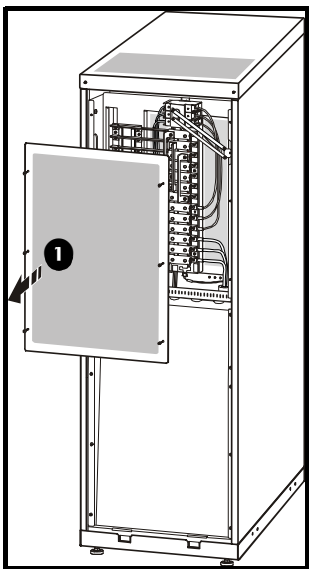


Caution: Do not move the enclosure after the leveling feet have been lowered.

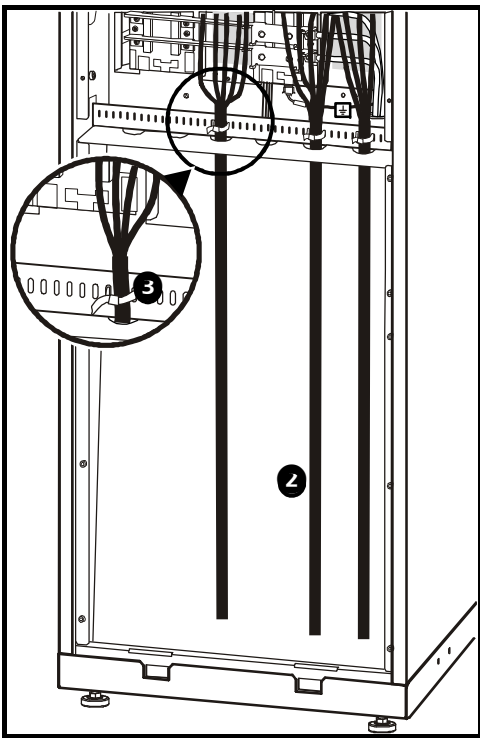


Prepare for Cables

Bottom cable entry




1 From the rear of the UPS, loosen the six M4 screws from the upper cover (the cable landing area) on the back and remove.



2 Route the cables from the slanted back plate, up through the punched bracket, and into the cable landing area.

3 Fasten the cables with cable ties

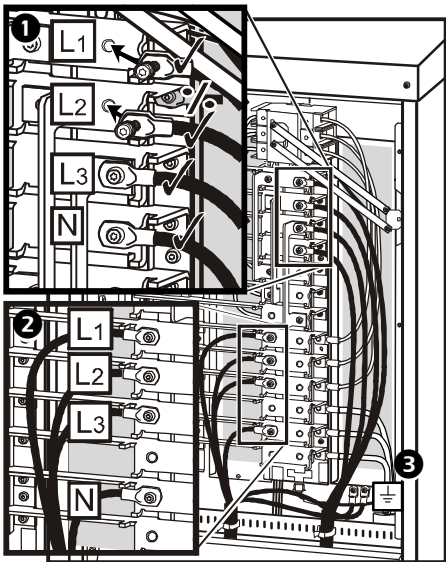
 **Note:** A conduit box (part no. SUVTOPT001) is available as an option.

Connect the AC Input and AC Output Cables



Warning: Use compression type lugs **ONLY**. Do not loosen or add cables to any factory preinstalled cables on busbars. Use the front part of busbar for connection only.

Single mains

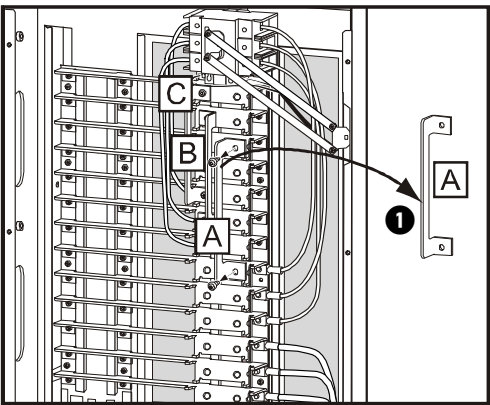


1 Connect the AC input cables and the neutral to the input cable landings.

2 Connect the AC output cables and the neutral to the output cable landings.

3 Connect the ground cables to the studs (earth symbol beneath) using a screw.

Dual mains



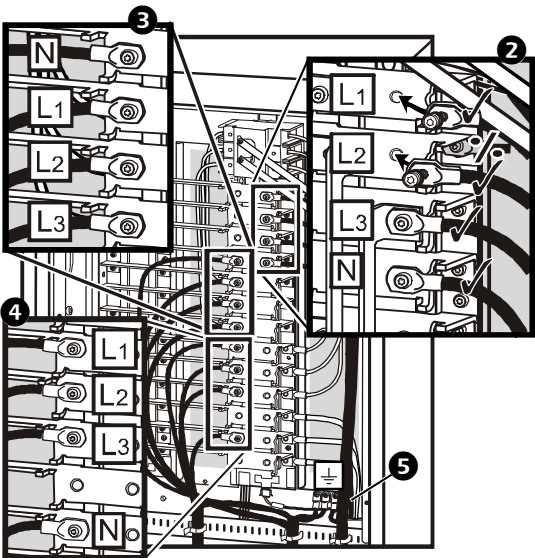
1 Remove the three busbars A, B, and C by removing two M6 screws from each busbar.

2 Connect the AC input cables and the neutral to the input cable landings.

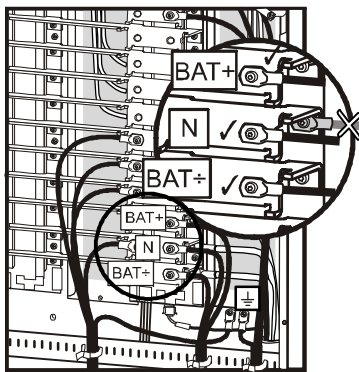
3 Connect the bypass cables and the neutral to the bypass cable landings.

4 Connect the output cables and the neutral to the output cable landings.

5 Connect the ground cables to the studs (earth symbol beneath) using a screw.



Connect the DC Battery Cables (if applicable)



1 Connect battery cables BAT+, BAT-, and N to the battery cable landings.



Note: ONLY APC Smart-UPS VT XR Battery Enclosure (SUVTRBXR6) must be connected to the UPS.

Connect the Communication Cables

J106 and J108 pin connections



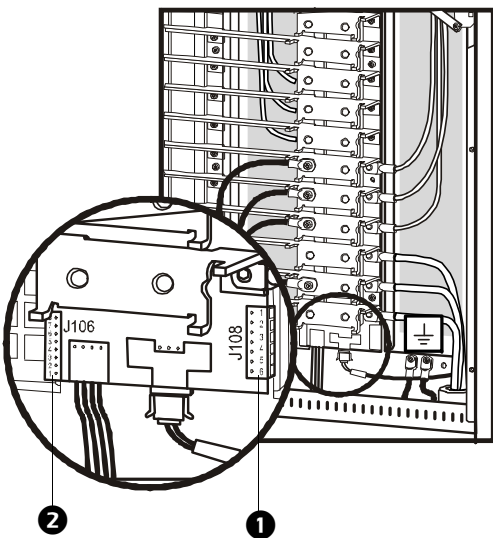
Note: The UPS must be connected to either a dry contact or a 24 VDC EPO (Emergency Power Off) switch.



Note: The external EPO +24 VDC, 1500 mA circuit can be supplied through other vendors.



Note: Always follow the pin connection procedures from the top and work down: J106 (8-1), J108 (1-6).



1 J108 pin connections:

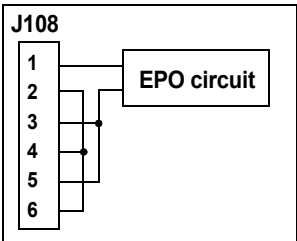
- 1 Normally open EPO
- 2 Normally open EPO return
- 3 Normally closed EPO
- 4 Normally closed EPO return
- 5 +24 V SELV supply
- 6 SELV ground

2 J106 pin connections:

- 8 Ext. charging control return
- 7 External control of charging
- 6 Q3 active return
- 5 Q3 active
- 4 Battery measurement supply*
- 3 Battery unit quantity*
- 2 Max. battery temperature*
- 1 Battery measurement return*

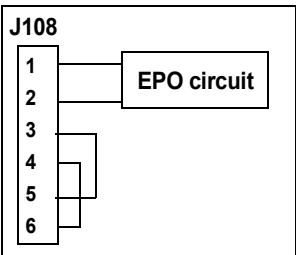
* Should be used with APC XR Enclosures

EPO wiring – pin connections J108. Connect the EPO cable, using one of the following four wiring configurations.



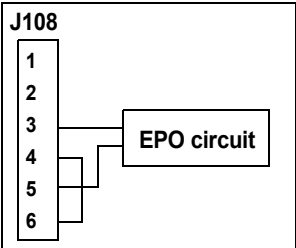
1: Dry Contracts Normally Open

EPO is activated when pin 1 is connected to pins 3 and 5.
Connections: 2-4-6, 3-5 and 1 =>



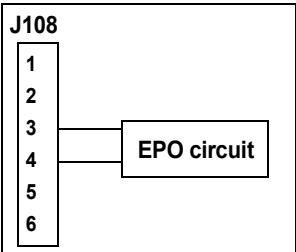
2: +24 V Normally Open

EPO is activated when an isolated SELV 24 VDC voltage is supplied on pin 1 with reference to pin 2.
Connections: 3-5 and 4-6.



3: Dry Contacts Normally Closed

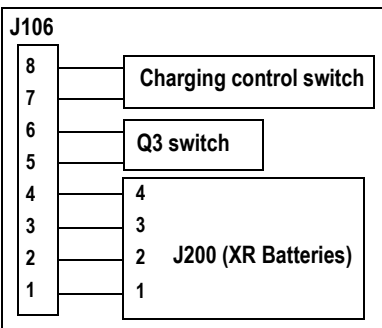
EPO is activated when a connection from pin 3 to pin 5 is opened.
Connections: 4-6.



4: +24 V Normally Closed

EPO is activated when a SELV 24 VDC voltage is removed from pin 3 with reference to pin 4.

Pin connections J106 (UPS).



Pins 1 to 4 are for battery measurement (only applicable to APC XR Battery Enclosures).

Pins 5 and 6 are for external maintenance bypass Q3 (auxiliary switch N/C type). When Q3 is closed, signals are fed back to the UPS controller.

Pins 7 and 8 are for external charge control. When 7 and 8 are closed, the UPS charges batteries with a pre-defined percentage (0-25-50-75-100%) of the maximum charging power. To be used in generator applications, or if special codes require control of charging. When Q3 is closed, signals are fed back to the UPS controller.



Note: When connecting the Q3 auxiliary signal, use gold-plated N/C auxiliary switch.



Note: Reinstall the cable landing cover.

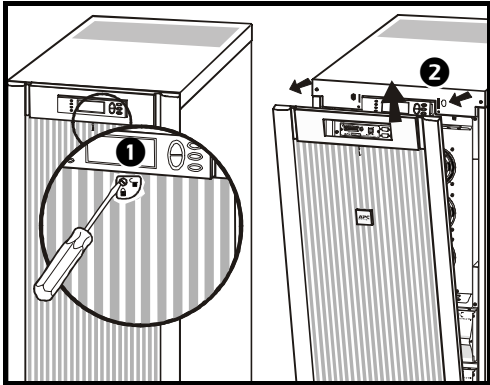
Connect APC communication options



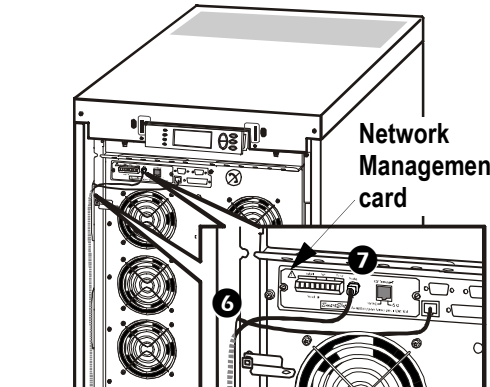
Note: The cable routing of the power chute software and the temperature sensor is identical.



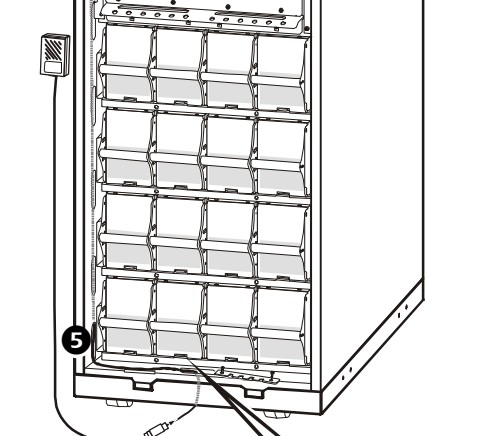
Note: The temperature sensor is provided in a plastic bag attached to the front of the UPS behind the front panel.



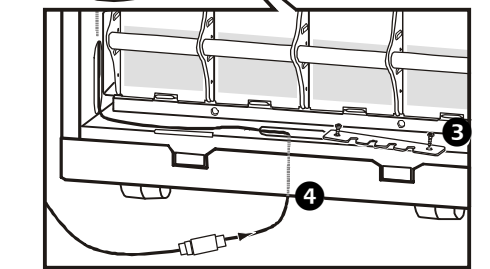
❶ Turn the screw below the user interface display to the right to the unlocked position.



❷ Lift the front panel to free the two tabs at the bottom of the enclosure.



❸ Remove the two screws from the cable-inlet at the front and remove the cable-inlet plate.



❹ Guide the cable through the hole in the bottom plate and up through the cable-inlet.



❺ Guide the cable through the side panel hole and run the cable upwards inside the panel.



❻ Pull the cable out of the side panel through the hole closest to the Network Management Card area.

❼ Plug the cable into the probe socket / PowerChute inlet.

❽ Reattach the cable-inlet plate (❸).

Specifications



Warning: The UPS must be supplied from a 380/220 V, 400/230 V or 415/240 V L1, L2, L3, N, PE, 50 Hz.

AC input

UPS ratings	10 kVA		
	380 V	400 V	415 V
Input frequency (Hz)	40-70	40-70	40-70
Nominal input current (A) ¹	13.0	12.3	11.9
Max. input current (A) ²	14.3	13.5	13.1
Input current limit (A) ³	16.8	16.8	16.8

¹ Input current based on rated load and batteries fully charged.
² Input current based on fully battery recharge, nominal voltage and rated load.
³ Current limitation through electronic current limiting is based on full battery recharge and -15% input voltage.

UPS ratings	15 kVA			20 kVA		
	380 V	400 V	415 V	380 V	400 V	415 V
Input frequency (Hz)	40-70	40-70	40-70	40-70	40-70	40-70
Nominal input current (A) ¹	19.4	18.5	17.8	26.0	24.7	23.8
Max. input current (A) ²	21.4	20.3	19.6	28.6	27.2	26.2
Input current limit (A) ³	25.2	25.2	25.2	33.8	33.8	33.8

¹ Input current based on rated load and batteries fully charged.
² Input current based on fully battery recharge, nominal voltage and rated load.
³ Current limitation through electronic current limiting is based on full battery recharge and -15% input voltage.

UPS ratings	30 kVA			40 kVA		
	380 V	400 V	415 V	380 V	400 V	415 V
Input frequency (Hz)	40-70	40-70	40-70	40-70	40-70	40-70
Nominal input current (A) ¹	38.6	36.7	35.3	51.7	49.1	47.3
Max. input current (A) ²	42.5	40.3	38.9	56.8	54.0	52.1
Input current limit (A) ³	50.1	50.1	50.1	66.9	66.9	66.9

¹ Input current based on rated load and batteries fully charged.
² Input current based on fully battery recharge, nominal voltage and rated load.
³ Current limitation through electronic current limiting is based on full battery recharge and -15% input voltage.

AC output

UPS ratings	10 kVA		
	380 V	400 V	415 V
Nominal output current (A)	15.2	14.4	13.9

UPS ratings	15 kVA			20 kVA		
	380 V	400 V	415 V	380 V	400 V	415 V
Nominal output current (A)	22.8	21.7	20.9	30.4	28.9	27.8

UPS ratings	30 kVA			40 kVA		
	380 V	400 V	415 V	380 V	400 V	415 V
Nominal output current (A)	45.6	43.3	41.7	60.8	57.7	55.6

Battery input

UPS ratings	15 kVA		15 kVA	20 kVA	30 kVA	40 kVA
Nominal voltage (V)	± 192	± 192	± 192	± 192	± 192	± 192
External battery fuse (A)	125	125	125	125	125	125
125	1.6-1.75 V/cell (automatic, depending on load)					


Bypass input

			10 kVA		
UPS ratings	380 V	400 V	415 V		
Input frequency (Hz)		50-60	50-60	50-60	
Nominal input current (A) ¹		13.0	12.3	11.9	
¹ Input current based on rated load and batteries fully charged.					


			15 kVA			20 kVA		
UPS ratings	380 V	400 V	415 V	380 V	400 V	415 V		
Input frequency (Hz)	50-60	50-60	50-60	50-60	50-60	50-60		
Nominal input current (A) ¹	19.4	18.5	17.8	26.0	24.7	23.8		
¹ Input current based on rated load and batteries fully charged.								


			30 kVA			40 kVA		
UPS ratings	380 V	400 V	415 V	380 V	400 V	415 V		
Nominal voltage (V)	50-60	50-60	50-60	50-60	50-60	50-60		
Nominal input current (A) ¹	38.6	36.7	35.3	51.7	49.1	47.3		
¹ Input current based on rated load and batteries fully charged.								


Recommended current protection

 Note: AC input/output over-current protection and AC input/output disconnect must be provided by the customer					
	Q1 ¹	Q5 ²	Q3	Q2	
10 kVA	16	16	16	16	
15 kVA	25	25	25	25	
20 kVA	35	35	35	35	
30 kVA	50	50	50	50	
40 kVA	63	63	63	63	
¹ Required upstream current protection, mains input: gL type fuse. ² Required upstream current protection, bypass input: gL type fuse.					

Recommended cable sizes

 Note: The recommended cable sizes are based on an environment with an ambient temperature of 30°C.					
	Mains input [mm²]	AC output [mm²]	Battery input [mm²] 70°C Wire	Bypass input [mm²]	
10 kVA	2.5	2.5	50	2.5	
15 kVA	6	6	50	6	
20 kVA	10	10	50	10	
30 kVA	16	16	50	16	
40 kVA	25	25	50	25	


 **Note:** Use Molex lug type or equivalent, and crimp to manufacturer’s specifications.

 **Warning:** At 100% switch mode load, the neutral must be rated for 200% phase current.

Minimum breaker settings

	Internal fault ¹	800% overload bypass operation	150% overload normal/ battery operation	125% overload normal/ battery operation	Conti- nuously
10 kVA					
Mains input	2 kA	–	–	–	16.4 A
Bypass input	1.7 kA	121.5 A	–	–	16.7 A
Output	9 kA	121.5 A	22.8 A	19 A	16.7 A
Duration	<10 ms	500 ms	10 s	10 min.	∞
15 kVA					
Mains input	2.1 kA	–	–	–	24.6 A
Bypass input	1.8 kA	182 A	–	–	25.1 A
Output	9 kA	182 A	34.2 A	25.4 A	25.1 A
Duration	<10 ms	500 ms	60 s	10 min.	∞
20 kVA					
Mains input	2.5 kA	–	–	–	32.5 A
Bypass input	2.3 kA	244 A	–	–	33.4 A
Output	9 kA	244 A	68.4 A	57 A	33.4 A
Duration	<10 ms	500 ms	60 s	10 min.	∞
30 kVA					
Mains input	2.5 kA	–	–	–	32.5 A
Bypass input	2.3 kA	244 A	–	–	33.4 A
Output	9 kA	244 A	68.4 A	57 A	33.4 A
Duration	<10 ms	500 ms	60 s	10 min.	∞
40 kVA					
Mains input	3 kA	–	–	–	65.6 A
Bypass input	2.3 kA	487 A	–	–	66.9 A
Output	14 kA	487 A	91.2 A	76 A	66.9 A
Duration	<10 ms	500 ms	60 s	10 min.	∞
¹ For the output value, the short-circuit level is indicated.					

Recommended lug size and torque value

 **Note:** Power terminal lug diameter: 6 mm. Torque value: 7 Nm.

Checklist

<input type="checkbox"/>	Check that the power wiring is torqued to 7 Nm.
<input type="checkbox"/>	Verify phase-rotation to the right (L1, L2, L3) and make sure a neutral connection is present.
<input type="checkbox"/>	Leave a wiring diagram on site for service personnel.
<input type="checkbox"/>	Re-install the cable landing cover.
<input type="checkbox"/>	Re-mount the front panel
<input type="checkbox"/>	If XR Battery Enclosures are installed, make sure that all DC breakers (if applicable) are in the OFF position and that both 125 A fuses are removed from the XR Battery Enclosures.

For any optional equipment, refer to the product-specific manuals.

Contact Information

For local, country-specific centers: go to www.apc.com/support/contact.

Appendix

Wiring diagrams

