

Recommended Cable Sizes 400 V

⚠ **DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 50 mm².

Failure to follow these instructions will result in death or serious injury.

The maximum number of cable connections per busbar: 2 on input/output/bypass busbars; 2 on DC+/DC- busbars; 4 on N busbar; 5 on PE busbar.

NOTE: Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on table B.52.3 and table B.52.5 of IEC 60364-5-52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper conductors
- Installation method C

PE cable size is based on table 54.2 of IEC 60364-4-54.

If the ambient temperature is greater than 30 °C, larger conductors are to be selected in accordance with the correction factors of the IEC.

NOTE: Recommended cable sizes and maximum allowable cable size may vary for the auxiliary products. Not all auxiliary products support aluminum cables. Refer to the installation manual provided with the auxiliary product.

NOTE: The DC cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for DC cable sizes and DC PE cable sizes and ensure that the DC cable sizes match the battery breaker rating.

NOTE: Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

Copper

UPS rating	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
Input phases (mm ²)	6	6	10	16	25	35
Input PE (mm ²)	6	6	10	16	16	16
Bypass/output phases (mm ²)	6	6	10	16	25	25
Bypass PE/output PE (mm ²)	6	6	10	16	16	16
Neutral (mm ²)	6	10	16	25	35	50
DC+/DC- ⁴ (mm ²)	6	10	16	25	35	50
DC PE (mm ²)	6	10	16	16	16	25

4. Values are based on 40 battery blocks.

Recommended Upstream Protection 400 V



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For parallel systems, instantaneous override (li) values must not be set higher than 800 A. Place the label 885-92557 adjacent to the upstream circuit breaker to inform about the hazard.

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NOTE: For local directives which require 4-pole circuit breakers: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

UPS rating	10 kW		15 kW		20 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker type	NSX100H TM25D (LV429676)	NSX100H TM16D (LV429677)	NSX100H TM32D (LV429675)	NSX100H TM25D (LV429676)	NSX100H TM40D (LV429674)	NSX100H TM32D (LV429675)
In (A)	25	16	32	25	40	32
Ir (A)	20	16	32	23	40	32
Im (A)	300 (fixed)	190 (fixed)	400 (fixed)	300 (fixed)	500 (fixed)	400 (fixed)

UPS rating	30 kW		40 kW		50 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker type	NSX100H TM63D (LV429672)	NSX100H TM50D (LV429673)	NSX100H TM80D (LV429671)	NSX100H TM63D (LV429672)	NSX100H TM100D (LV429670)	NSX100H TM80D (LV429671)
In (A)	63	50	80	63	100	80
Ir (A)	63	50	80	63	100	80
Im (A)	500 (fixed)	500 (fixed)	640 (fixed)	500 (fixed)	800 (fixed)	640 (fixed)