Ready for NFPA 79

Surge protection for machinery in North America

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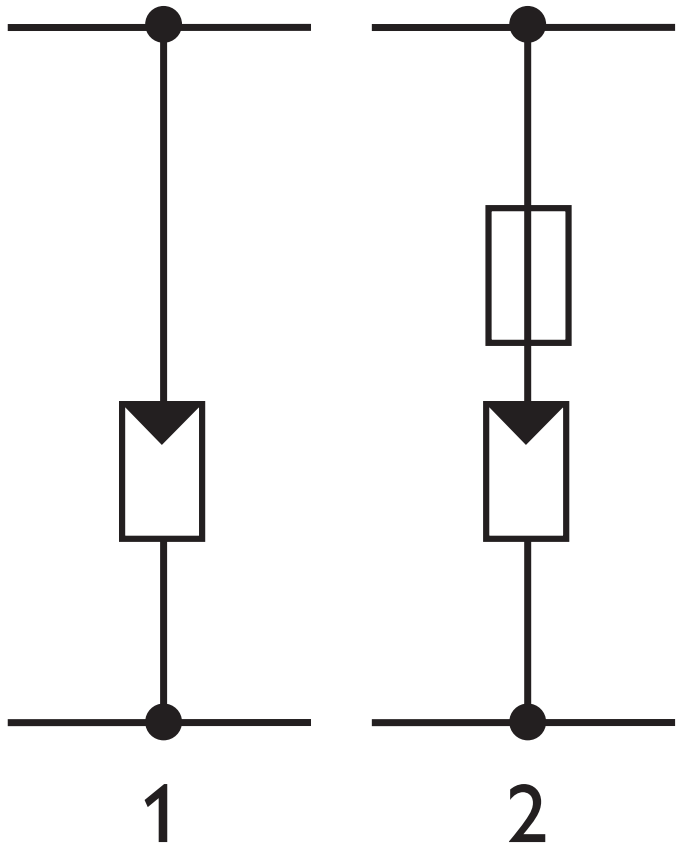
Selecting the SPD backup fuse

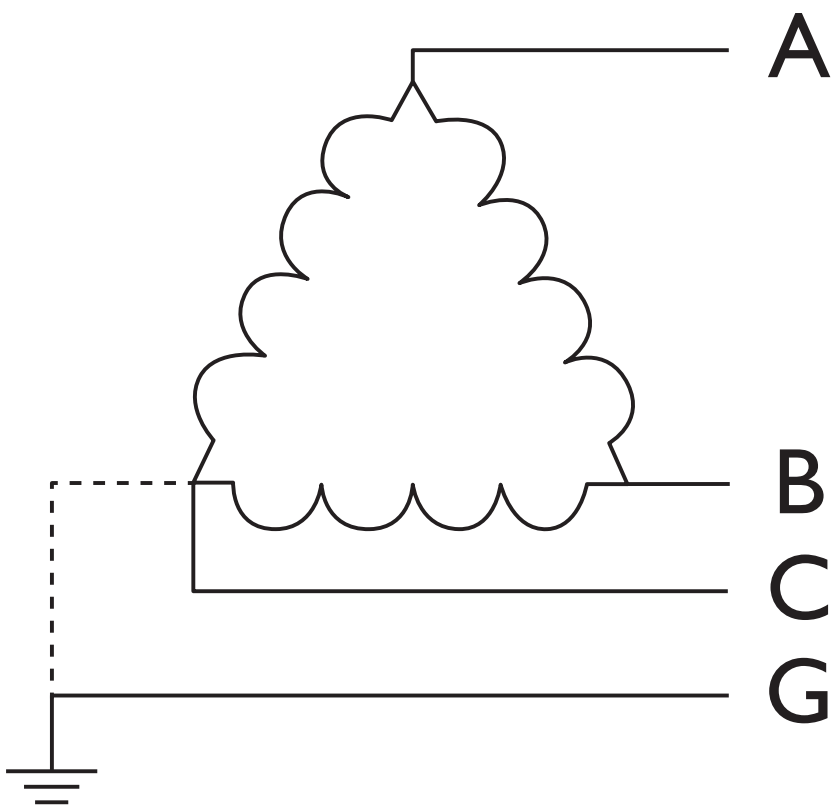
The backup fuse required is determined from the conductor cross-section and the type of insulation and routing. The fuse values can be taken from the NEC 2017 standard, tables 310.15(B)(16) onwards.

SPD fusing



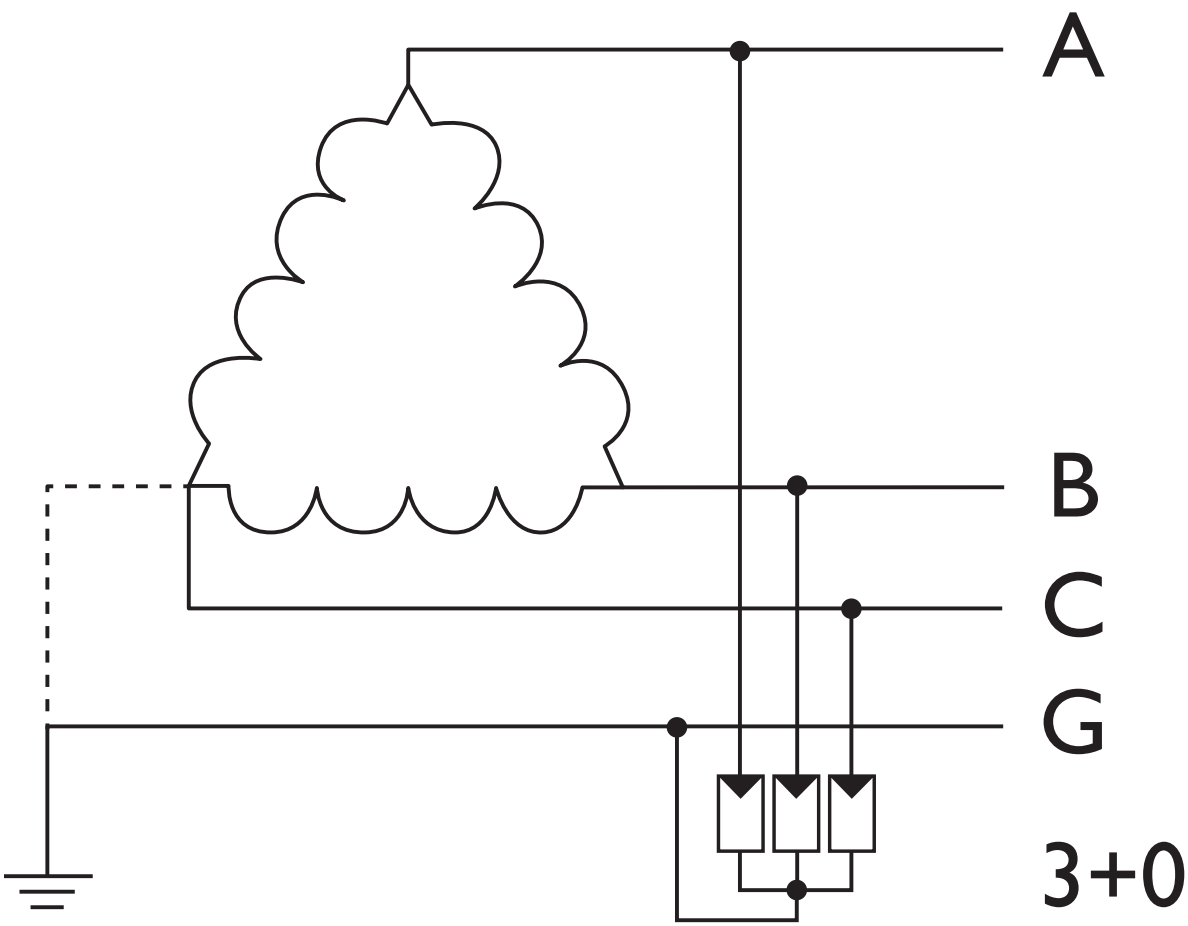
In accordance with UL 1449, SPDs with UL-Listed Type 1 approval do not need backup fuses. (1) However, the NEC prescribes fusing the conductors leading to the SPD if the current carrying capacity is reduced. (2)

Relevant grid types in accordance with NEC – Corner-grounded / ungrounded delta



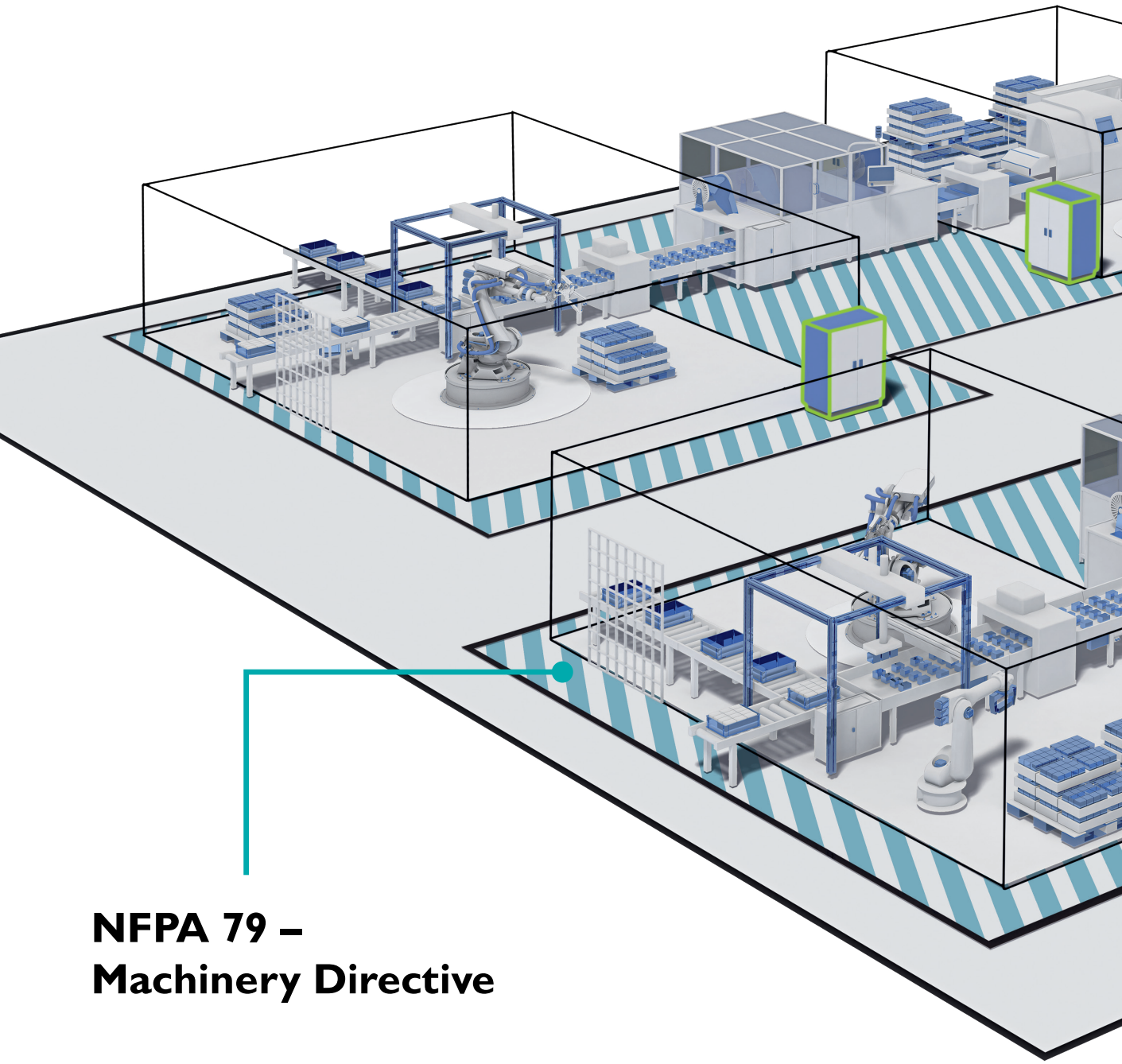
The voltage source in corner-grounded / ungrounded delta systems is in a delta-circuit configuration. There is only one linked voltage, e.g. 480 V. In corner-grounded delta systems, the dashed line connection is present, i.e. phase C is grounded.

SPDs for corner-grounded / ungrounded delta

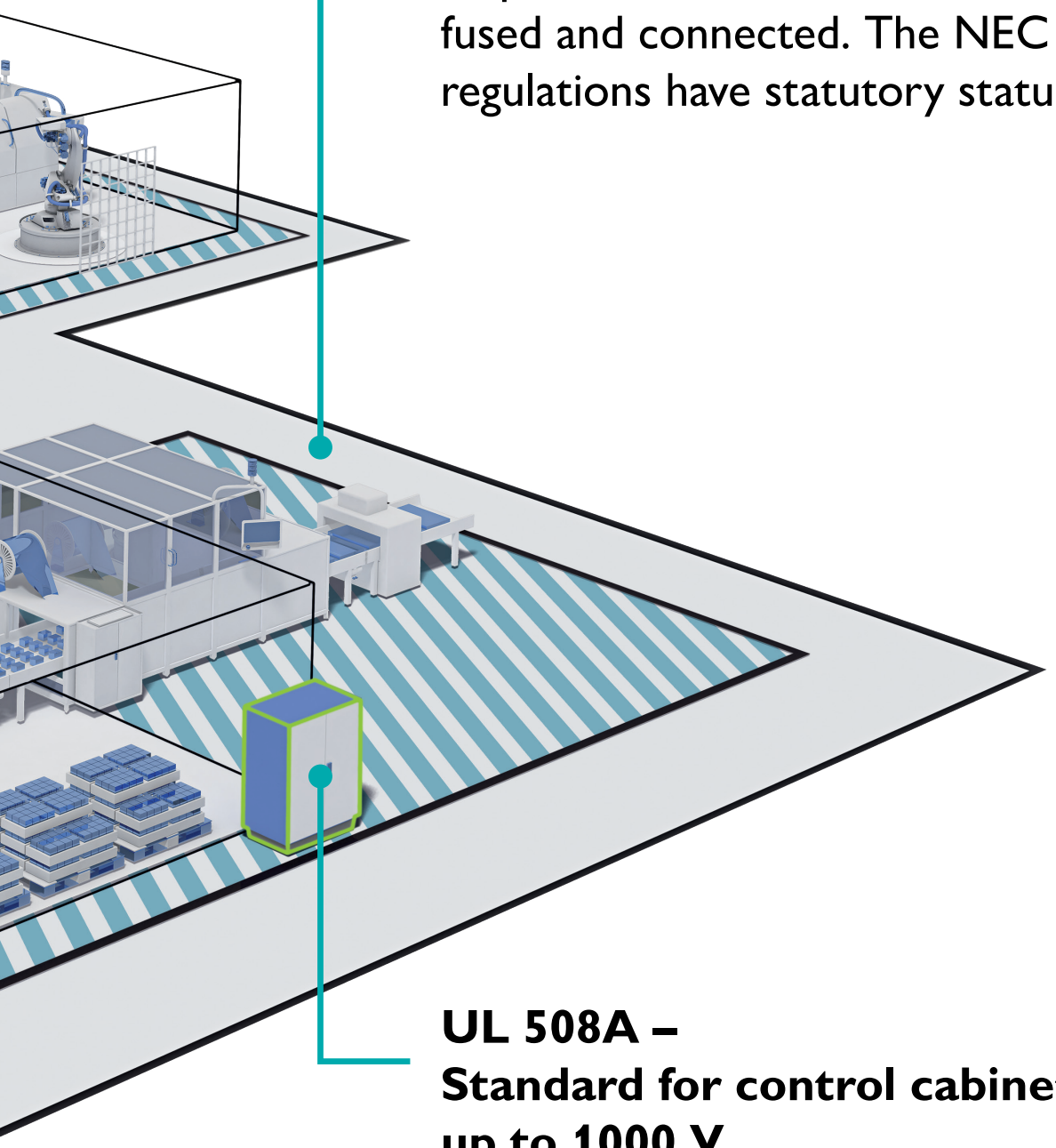


Voltage	Designation	Order No.
480 V	VAL-US-480D/30/3+0-FM	2910386
600 V	VAL-US-600D/30/3+0-FM	2910391

Relevant standards in the USA



NFPA 79 –
Machinery Directive



NEC – Installation Regulations
The NEC regulations list the minimum requirements on safe cabling and devices in installations. Among other determinations, it specifies how SPDs are to be fused and connected. The NEC regulations have statutory status.

UL 508A –
Standard for control cabinets up to 1000 V

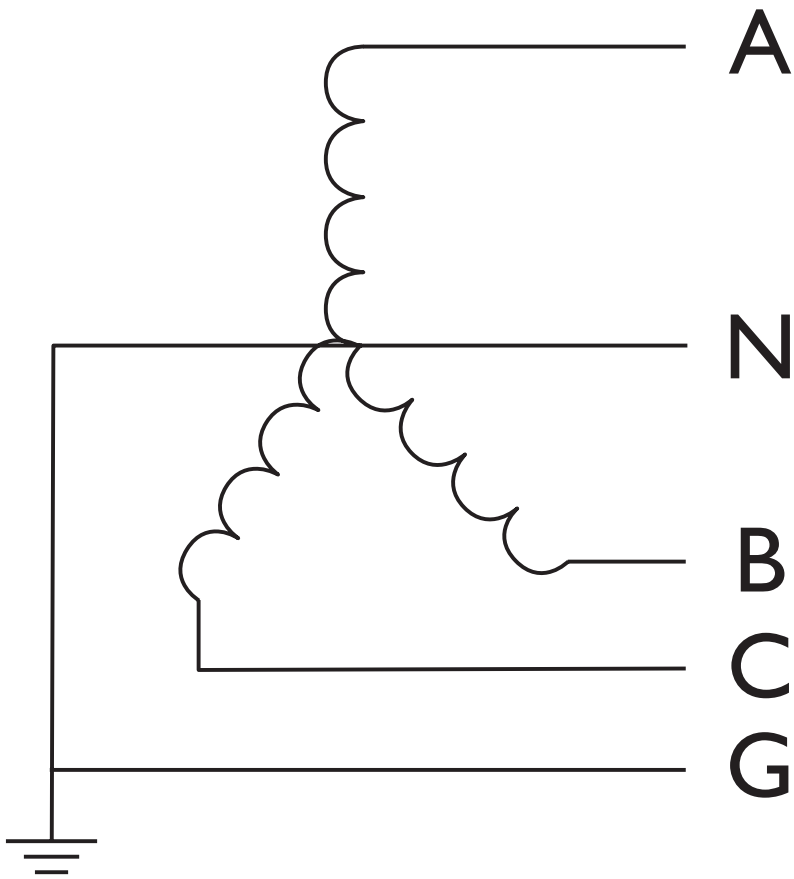
Surge protection in accordance with NFPA 79

The Machinery Directive prescribes surge protection in machinery with safety circuits. These must be **Listed** in accordance with UL 1449. The backup fuses for SPDs must be selected by the machine builder.

VAL-US advantages

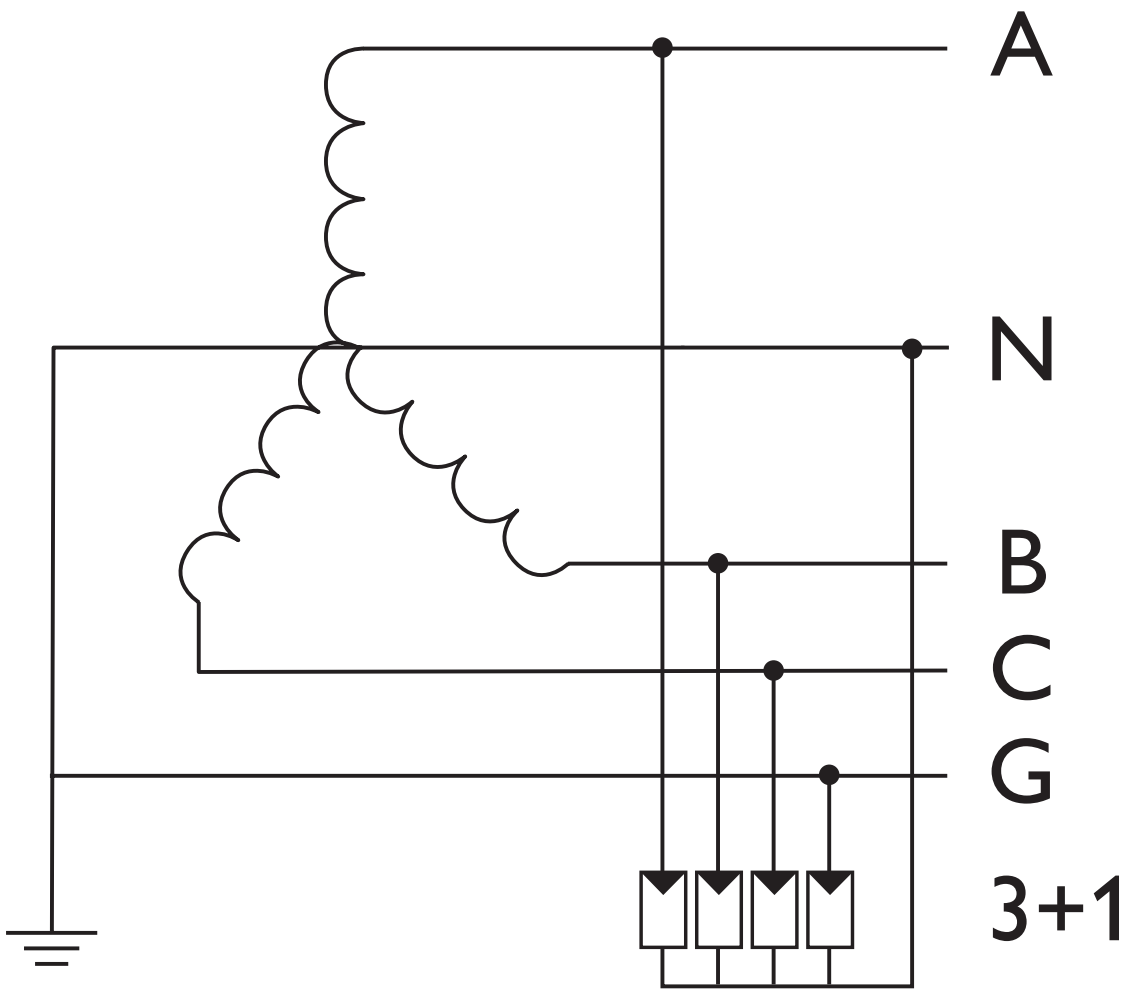
- UL Listed Type 1 – Universal and easy to install
- 200 kA short-circuit current rating – No fuse necessary
- Same connection for all (specifications in the installation notes)

Relevant grid types in accordance with NEC – 3-phase star



3-phase star systems are comparable with TN-C and TN-S systems, depending on the presence of the neutral conductor. They have one phase voltage and one linked voltage, e.g. 277 / 480 V.

SPDs for 3-phase star



Voltage	Phases	Designation	Ord. No.
277 / 480 V	A, B, C, N, G	VAL-US-277/40/3+1-FM	2910374
	A, B, C, G	VAL-US-277/80/3+0-FM	1075896
347 / 600 V	A, B, C, N, G	VAL-US-347/30/3+1V-FM	1079099
	A, B, C, G	VAL-US-347/30/3+0-FM	2910383

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MNR 1089250/2018-09-01/00

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