

Precautions for installing Modular PDUs with Power Distribution Modules in countries which require cutting the neutral

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PROJECT AT A GLANCE

Project Type

Modular Power Distribution

Location

France, Italy, Norway

Applications

Small, medium, and large data centers

Equipment Installed

Modular Power Distribution Units

Symmetra PX 48

Symmetra PX 96/160 with Modular Power Distribution and Maintenance Bypass Panel

CUSTOMER BENEFITS

- Compliance with local and national codes in France, Italy, and Norway

RELATED DOCUMENTS

- Earthing Principles, Symmetra PX 250/500kW (990-5247-001)



Our Modular Power Distribution applications are compliant with European standards, but for cases where customers with Modular Power Distribution Units need to comply with local standards in France, Italy, and Norway, special consideration must be taken when routing the neutral through the system.

The purpose of this application note is to define compliant and non-compliant systems and explain how to ensure code compliance for Modular PDU installations.

Specific constraints for Symmetra PX and Modular PDU in TN-S Systems

The neutral must be cut in some countries, according to local regulation. Where the neutral must be cut, a 4-pole breaker shall be used.

PDMs with RCD already cut the neutral and can be used. The other 3-phase PDMs offered in EMEA do not cut the neutral and cannot be used in this solution.

- Customers must use PDMs with RCD included.
- 1-phase load: Use 1P + N PDM or 1P + N + RCD PDM
- 3-phase load: If an installation cannot accept RCD, a custom PDM can be ordered. It will use a 4-pole DPN breaker that cuts the neutral.

Specific constraints for Symmetra PX and Modular PDU in IT Systems

The neutral must be protected in some countries, according to local regulations. If local regulations require protection of the neutral, these are the acceptable solutions:

- 1-phase load: The existing 1-pole DPN breakers must be replaced with protected 2-pole breakers.
- 3-phase load: If the neutral is not distributed to the PDM, then the standard PDM can be installed in the Modular PDU. There is no need to isolate the neutral.
- If the neutral is distributed to the PDM, a custom PDM needs to be used.
 - The 3 x 1pole breakers need to be replaced by a 3-pole (or 4-pole according to local regulation) 16 A or 32 A DPN breaker (ref 21597/M9P22716 & 21600/M9P22732), which isolates or switches the neutral
 - Power Distribution Modules must not be opened or modified outside of Schneider Electric facilities. Contact Schneider Electric for details or ordering information.
 - This solution has no impact on the form factor of the PDM
 - **IMPORTANT:** The short circuit level will be dependent on the rating of the new breaker and may drop from 10kA to 6kA.

Power Distribution Module breaker data

Breaker data					
Device	Make	Model	Type	RCD Model	Circuit Breaker Note
PDM1316IEC-3P ¹	Schneider Electric	21557 / M9P22616	Mini CB		1P + N
PDM1332IEC-3P ¹	Schneider Electric	21560 / M9P22632	Mini CB		1P + N
PDM3516IEC-xxx ²	Schneider Electric	24403 / M9F11116	Mini CB		1P
PDM3532IEC-xxx ²	Schneider Electric	24406 / M9F11132	Mini CB		1P
PDM3563IEC-xxx ²	Schneider Electric	24356 / M9F11163	Mini CB		3P
PDM2316IEC-3P30R-x	Schneider Electric	21557 / A9N21557	Mini CB	21691 / A9N21691	1P + N + RCD
PDM2332IEC-3P30R-x	Schneider Electric	21560 / A9N21560	Mini CB	21691 / A9N21691	1P + N + RCD
PDM316IEC-30R-xxx	Schneider Electric	21597 / M9P22716	Mini CB	21719 / M9Y31740	3P + N + RCD
PDM332IEC-30R-xxx	Schneider Electric	21600 / M9P22732	Mini CB	21719 / M9Y31740	3P + N + RCD

¹IT Systems: This power distribution module must be customized to meet local regulations.

² France, Italy, Norway: This power distribution module must be customized to meet local regulations.