

Secure protection of power supplies in the American market VARITECTOR PU II with UL 1449 Edition 4 approval

Let's connect.



Future-proof surge protection for American energy networks

In compliance with the latest UL standard

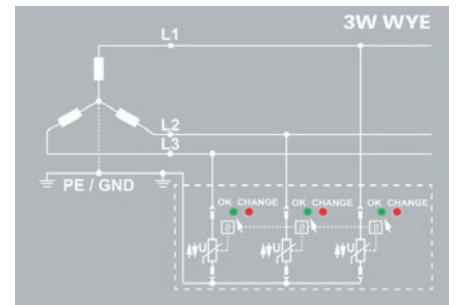
Energy supply systems need safe and efficient protection against surge damage. This applies to the energy generation and distribution, to industrial production and also in the process industry.

The new VARITECTOR PU II UL surge protection devices enable the VARITECTOR PU product concept, which has been established for many years across a range of applications, to be transferred to systems for the American market.

High levels of application flexibility, reliable safety technology and approval to the latest certification standards in line with UL 1449 Edition 4 make it perfectly equipped for the future.



The approval standards for American energy networks specify particular requirements in terms of surge protection, for example with respect to dielectric strength. The different network topologies also require the usage of surge protection components which are specially tailored to the specific application. VARITECTOR PU II UL addresses Class II protection of the main network topologies for energy grids. The new VPU II UL products are tested and certified according the new UL 1449 Edition 4. This guarantees planning security for the next years. Furthermore these products are tested according the IEC/EN standard.



Reliable operation

Reliable locking of the arrester for secure operation under demanding mechanical conditions. This eases installation and ensures uniquely high vibration resistance – ideal for use in rough environments. The optimized mounting rail clip in addition enables easy and quick assembly and removal, without the need for tools.

Quick status reports

The remote signaling contact, with a PUSH IN connector is quick to connect and reliably signals the status of the protection. Important to establish a preventive maintenance and avoid downtime when possible. Especially in highly distributed systems that are exposed to a demanding environment protection availability is a must for a reliable operation.

Clear application orientation

VPU II UL is designed for American voltage levels and network topologies. There are at least 7 different power systems in common usage across American countries. This requires dedicated designed overvoltage protection tailored to voltage levels and grid types.



Definitions and applications

According to UL 1449 Edition 4

Type 1 Component Assemblies (1CA):

Consist of a Type 4 Component Assembly with internal or external short circuit protection or a means of complying with the Short Circuit Current and Intermediate Current Tests in Sections 39.2 and 39.3 of UL 1449. They are intended for use in permanently-connected applications intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and are intended to be installed without an external overcurrent protective device.

Type 2 Component Assemblies (2CA):

Consist of a Type 4 Component Assembly with internal or external short circuit protection or a means of complying with the Short Circuit Current and Intermediate Current Tests in sections 39.2 and 39.3 of UL 1449. They are intended for use in permanently-connected applications intended for installation on the load side of the service equipment overcurrent device, including devices located at the branch panel.

Type 3 Component Assemblies (3CA):

Consist of a Type 4 Component Assembly with internal or external short circuit protection or a means of complying with the Intermediate Current Tests in Section 39.3 of UL 1449. They are intended for use in point-of-utilization applications (e.g. cord-connected, direct plug-in, receptacle type and SPDs installed at the utilization equipment being protected). Unless a value for Nominal Discharge Current (I_n) is indicated in the Electrical Ratings Table, these SPDs have been investigated to be installed at a minimum conductor length of 10 m (30 ft) from the electrical service panel to the point of utilization.

Type 4 Component Assemblies (4CA):

Component assemblies consisting of one or more Type 5 components together with a disconnect (internal or external) or a means of complying with the Limited Current Tests in Section 39.4 of UL 1449.

Type 5:

Discrete component surge suppressors, such as MOVs that may be mounted on a PWB connected by its leads or provided with an enclosure with mounting means and wiring terminations. SPD accessories: components intended for use in conjunction with SPD devices, such as an alarm, a counter, a base, etc.

VARITECTOR PU II UL products are Type 1,2 CA according US-Requirement (USR) and Type 2 CA according Canadian Requirement (CNR).

Ground / Earth

Ground or earth in a mains (AC power) electrical wiring system is a conductor that provides a low-impedance path back to the source to prevent hazardous voltages from appearing on equipment. (The terms "ground" and "earth" are used synonymously here. "Ground" is more common in North American English, and "earth" is more common in British English.) Under normal conditions, a grounding conductor does not carry current.

Neutral

Neutral is a circuit conductor that may carry current in normal operation, and is connected to ground (earth) at the main electrical panel. In a polyphase or three-wire (single-phase) AC system, the neutral conductor is intended to have similar voltages to each of the other circuit conductors. In the electrical trade, the conductor of a two-wire circuit connected to the supply neutral point and earth ground is also referred to as the "neutral". The United States' National Electrical Code and Canadian Electrical Code only define neutral as the first of those. In North American use, the second definition is used in less formal language, but not in official specifications.

SCCR

The maximum short circuit current a component, assembly or piece of equipment can safely withstand when protected by a specific overcurrent protective device, or for a specified time interval.

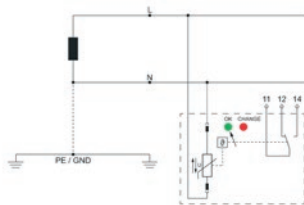
Installation

A control panel's maximum SCCR of an industrial control panel must always be equal to or greater than the Fault Current available from the electrical feeders from which it draws power.

Grid systems for the American market

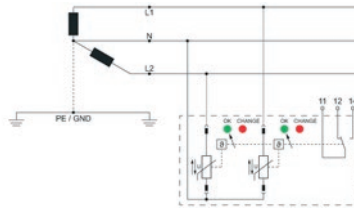
Our products for overvoltage protection at a glance

Single-phase (1 pole)
Single-phase two-wires system



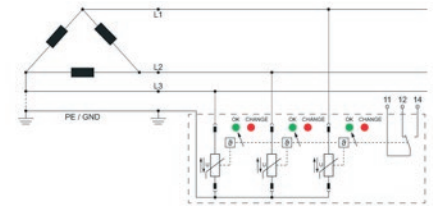
- Mostly without GND
- Neutral is available
- SPD is installed between phase and neutral
- Often used in older private installations

Single-phase (2 poles)
Split-phase or single-phase three-wire system



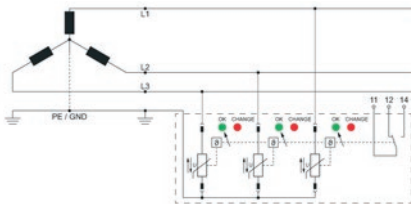
- Mostly without GND
- Neutral is available
- SPDs are installed between phase and neutral

Delta system (3 poles)
Delta circuit with grounded corner



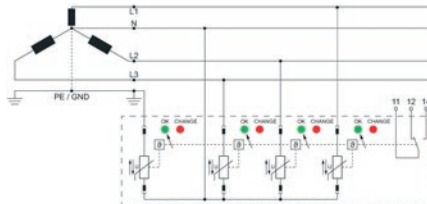
- Neutral is not available
- SPDs are installed between phase and GND
- Used occasionally in industrial facilities with only three-phase loads

Three-phase WYE (3 poles)
Star point can be grounded



- Neutral is not available
- SPDs are installed between phase and GND
- Used occasionally in industrial facilities with only three-phase loads

Three-phase WYE (4 poles)
Star point is used as neutral



- Neutral is available
- Three SPDs are installed between phase and neutral and one SPD is installed between neutral and GND
- One of the most common grids in America

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As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

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