Installation Instruction

SURGE PROTECTIVE DEVICE
SP50 series
(50 kA per phase)

PRODUCT RATINGS AND LIMITATIONS

Voltage Protection Rating - To obtain the voltage protection ratings (VPRs), in accordance with the Standard for Safety, Surge Protective Devices (SPs), Standard 1449 Fourth Edition, released 2014, indicated on this product, the wire supplied must be utilized to connect the SP to your facilities power grid. Connections made with unapprovd conductors may result in different VPRs.

Circuit Ampacity Limitations - This device has been investigated to withstand, without exposing live circuits or components on power sources, a voltage of two times (2x) the device ratings, and fault currents of up to200,000 AIC, as described in the Standard for Safety, Surge Protective Devices (SPs), Standard 1449, Fourth Edition, released 2014.

NEMA 4X - NEMA 4X boxes provide a watertight protection against splashing water, indoor wash down from a commercial hose as well as ingress protection from dirt, rain, sleet, snow, ice and windblown dust. NEMA 4X provides an additional level of protection against corrosion. NEMA 4X enclosures can be an equivalent replacement for International Protection Ratings: **IP56 & IP66.**

NOTE

This instruction is not comprehensive. It's assumed the user will follow established safety precautions for working in an electrical environment For more information on safety precautions and procedures, please find from related organizations as below

- **Underwriters Laboratories(UL)**
- **American National Standards Association(ANSI)**
- **Institute of Electrical and Electronics Engineers (IEEE).'**
- **National Fire Protection Association (NFPA)**
- **National Electrical Manufacturers Association (NEMA)**

The **SP50** series are defined as high performance surge protection solution for most commercial and industrial environments with critical operations, and UL 1449 Type 1 designed to protect against the harmful effects of transient surges. These surges are the result of:

- Direct and indirect lightning strikes
- Power company load switching
- Upstream load switching at other facilities

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The SP Types Per ANSI/UL 1449 4th:

PRODUCT SPECIFICATIONS

Part No.	SP50
Certification	ANSI/UL1449 4th , Type 1 SP
Connection Type	Parallel Connected
Ports	1
Surge capacity per phase	50 kA
Nominal discharge current (In)	10 kA
Short-circuit current rating (SCCR)	200kArms
Power Status Indication	Normal= GREEN LED ON
Working Status Indication	Fail=LED Off
Power Connecting	#12 AWG, 450mm (18.00") length L (or N)=black; PE=green
Working environments	Temperature -40°C~+75°C, Humidity relanve 5~95% (25°C), Altitude≤3km
Dimensions, W x D x H	88.1 x 47.8 x 88.2
Enclosure	Plastic enclosure, NEMA 4X

Type 1 *- Permanently connected SPs 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 Molded Case SPs intended to be installed without an external overcurrent protective device. Type 1 SPs for use in PV systems can be connected between the PV array and the main service disconnect.*

Type 2 *- Permanently connected SPs intended for installation on the load side of the service equipment overcurrent device; including SPs located at the branch panel and Molded Case SPs.*

Type 3 *- Point of utilization SPs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of utilization, for example cord connected, direct plug-in, receptacle type and SPs* installed at-the utilization equipment being protected. The distance (10 meters) is exclusive of conductors provided with or used to attach SPs.

WARNING!

Only qualified personnel should install or service this system. Electrical safety precautions must be followed when installing or servicing this equipment. To prevent risk of electrical shock, turn off and lock out all power sources to the unit before making electrical connections or servicing.

For proper and safe operation, neutral and ground MUST be reliably connected. Failure to operate this unit from a solidly grounded power source of the proper configuration will reduce or impede operation, and may result in unit failure.

Installation Instruction

INSTALLATION

Mounting - Mount unit as close as possible to the service panel, using mounting hardware. For best performance, unit should be positioned so that the length of the wiring to the surge protective device (SP) unit is minimized.
Two methods of mounting

1. Using the bolt to fix the SP on the wall or the siding by the bolt hole on the panels.
2. Using NPT locknut to fix the SP as below fig.

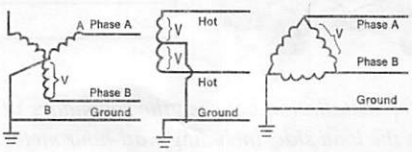
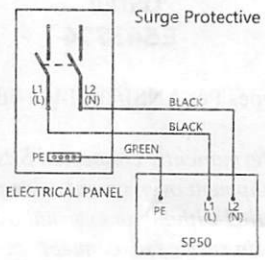
Wire Sizing/Routing - #12 AWG and 450mm (18.00") length wiring is provided with unit. The length of wiring to the SP must be kept at a minimum for the best performance. Wire lengths should be short, straight runs between the SP and power source. To reduce the wiring impedance to surge currents, the phase, neutral (if required), and ground conductors are recommended to be twisted together and routed in the same race way (conduit). Avoid any sharp bends in the conductors. All wiring must comply with the National Electrical Code (NEC) and applicable local codes.

Conduit Connection - Feed all wires into the panel through the knockout selected and secure.

Wiring Connections - Before making connections to the unit, verify that the unit model number and nameplate voltage rating are appropriate for connection to the intended power source. Please check it according to below table 1.

WARNING!
Select the proper SP unit according to your system voltage, configuration and the anticipated surge environment.
Prior to install the SP, ensure that your facility electric supply system is properly installed and connected in according with all applicable national and local codes and safety procedure.

Table 1- Power distribution & wire connection

Part No.	Nominal Voltage Un (50/60Hz)	MCOV Uc	Power distribution	Wire connection
SP50	120/240V	150/320 V	Split phase or single phase, 2W+G (No neural) 	

1.Connect Black Wires to corresponding phase on the service panel.
2.Connect the Black wire of the SP to the neutral of the supply (if provided) and the Green wire of the SP to source ground.

Suggested Circuit Breaker

Over current Protection: 25A Recommended.
In addition to safety, the dedicated breaker performs the following functions:

- Allows power to the protector's to be removed without interrupting power to other loads.
- Should a component fail inside the protector, only the protector's breaker will trip, and power to other loads is not disturbed.

Applying Power - Apply power to the SP and assure status indications are normal. Under normal conditions, power LEDs is illuminated blue.