

## Installation Instruction

### SP25 Series

#### Whole Home and LED Lighting Surge Protective Devices

These UL1449 certified Type 1 SPDs are compact, high performance surge protection solutions for whole-home, LED lighting and most typical commercial and industrial environments with critical operations. Damaging overvoltage transients can result from:

- Direct and indirect lightning strikes
- Power company load switching
- Motor/Generator switching



### PRODUCT SPECIFICATIONS

8/20 $\mu$ s Surge capacity per phase	25 kA
Certification	UL1449 5th Edition, Type 1 SPD
Connection Type	Parallel Connected
Ports	1
Nominal discharge current (In)	10 kA
SCCR rating	200kArms
Power Status Indication	Normal = LED ON
Working Status Indication	Fail = LED Off
AC power connections	#12 AWG, 760mm (30") length A(L1)=black ;B(L2)=red; C(L3)=blue; N=white; PE=green
Operating environments	Temperature $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$ , Humidity relative 5~95% (25 $^{\circ}\text{C}$ ), Altitude $\leq$ 3km
Storage environments	Temperature $0^{\circ}\text{C} \sim +45^{\circ}\text{C}$ , Humidity relative $\leq$ 75% (25 $^{\circ}\text{C}$ )
Dimensions, W x D x H	90 x 58 x 41mm
Enclosure	Waterproof plastic enclosure

The SPD Types Per UL 1449 5<sup>th</sup> Edition:

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

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

*Type 3 – Point of utilization SPDs, 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 SPDs installed at the utilization equipment being protected. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.*

#### 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.

## AVERTISSEMENT !



Seul du personnel qualifié doit installer ou réparer ce système. Des précautions de sécurité électrique doivent être suivies lors de l'installation ou de l'entretien de cet équipement.

Pour éviter tout risque de choc électrique, éteignez et verrouillez toutes les sources d'alimentation de l'unité avant d'effectuer les connexions électriques ou l'entretien. Pour un fonctionnement correct et sûr, le neutre et la terre DOIVENT être connectés de manière fiable. Le fait de ne pas faire fonctionner cet appareil à partir d'une source d'alimentation solidement mise à la terre de la configuration appropriée réduira ou gênera le fonctionnement, et peut entraîner une panne de l'appareil.

## CONFIGURATION AND OPERATION

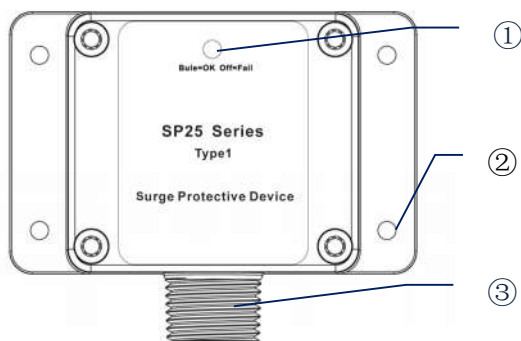


Fig 1: Diagram of SP25 Series

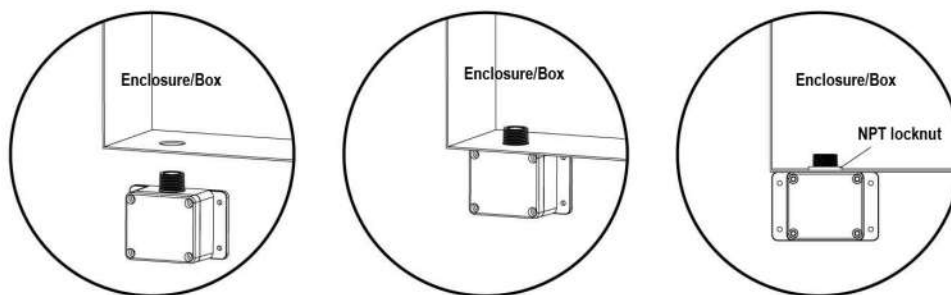
- ① **Power Indication**, while the SPD is connected to the electrical system supply voltage, the line status indicators will be illuminated. When the power Lines lose of protection, the LED will be off.
- ② **Fixed support**, used to mount the SP25 SPD models on the wall by bolt.
- ③ **Threaded NPT**, 1/2" NPT, #12 AWG for power connection (A(L1)=black; B(L2)=red; C(L3)=blue; N=white; PE=green). A NPT locknut can be used to fix the panel too.

## 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 (SPD) unit is minimized.

Two methods of mounting

1. Using the bolt to fix the SP25 SPD on the wall or the siding by the bolt hole on the panels.
2. Using NPT locknut to fix the SP25 SPD as below fig.



**Wire Sizing/Routing** - #12 AWG and 760mm (30") length wiring is provided with unit. The length of wiring to the SP25 SPD must be kept at a minimum for the best performance, excess wires need to be cut and not coiled up. Wire lengths should be short, straight runs between the SP25 SPD 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. Refer to table 1 below.

**WARNING !**



Select the proper **TRANSECTOR** SP25 SPD unit according to your system voltage, configuration, and the anticipated surge environment.

Prior to install the SPD, ensure that your facility electric supply system is properly installed and connected in according with all applicable national and local codes and safety procedure.

**Never Hi-Pot Test Any SPD. (Will prematurely fail SPD)**

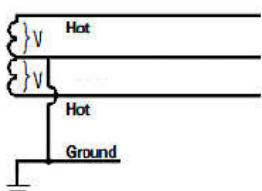
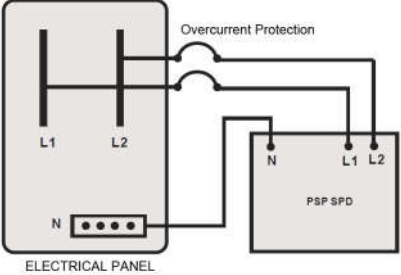
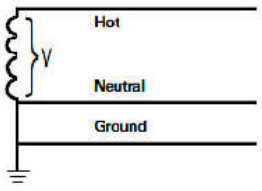
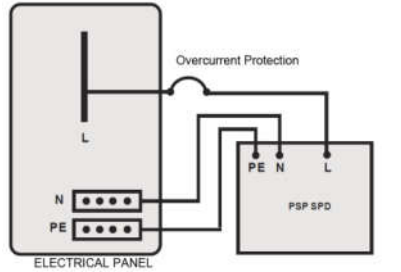
**AVERTISSEMENT !**

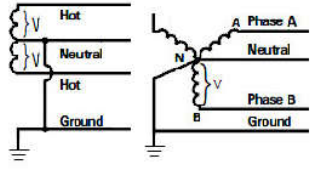
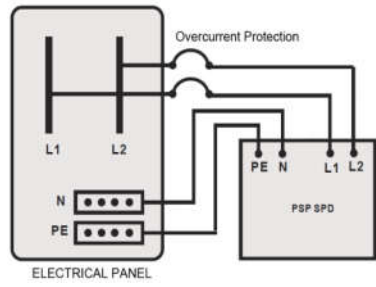
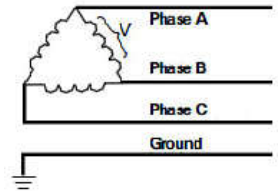
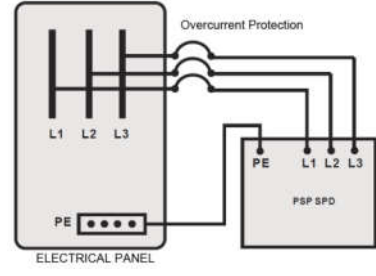
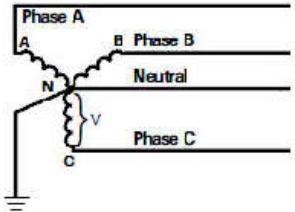
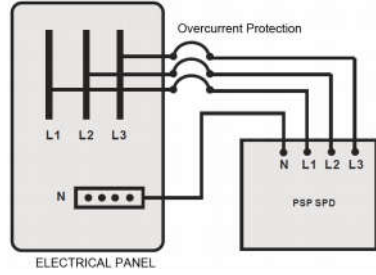


Sélectionnez l'unité SPD **TRANSECTOR** SP25 appropriée en fonction de la tension de votre système, de la configuration et de l'environnement de surtension prévu.

Avant d'installer le SPD, assurez-vous que le système d'alimentation électrique de votre installation est correctement installé et connecté conformément à tous les codes nationaux et locaux applicables et à la procédure de sécurité.

Table 1 - AC power service diagrams & SPD wire connections

Part No.	Nominal Voltage (50/60Hz)	MCOV	Service Diagrams	Wire Connections
SP25-240SP-TT	120V	150V	Split-phase, 3W 	
SP25-277S-TT	277V	320V	Single-phase, 2W+G 	

Part No.	Nominal Voltage (50/60Hz)	MCOV	Service Diagrams	Wire Connections
SP25-240SPG-TT	120V	150V	Split-phase or single/double phase, 3W+G 	
SP25-480D-TT	480V	550V	Three-phase Delta, 3W+G 	
SP25-120Y-TT SP25-277Y-TT	120/208V 277/480V	150V 320V	Three phase WYE, 4W 	

1. Connect Black /Red/Blue Phase Wires to corresponding phase on the service panel.
2. Connect the White wire of the SPD (if provided) to the neutral of the supply and the Green PE wire of the SPD 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 SPD and assure status indications are normal. Under normal conditions, power LEDs is illuminated blue. To be noticed that indication circuit is powered by L1 (L if single phase), if L1 is not connected to power line, the indication circuit will not work.

## **PRODUCT RATINGS AND LIMITATIONS**

**Voltage Protection Rating** – To obtain the voltage protection ratings (VPRs), in accordance with the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449 5th Edition, released 2021, indicated on this product, the wire supplied must be utilized to connect the SPD to your facilities power grid. Connections made with unapproved 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 to 200,000 AIC, as described in the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449, 5th Edition, released 2021.

**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**.

## **TROUBLESHOOTING**

If any of the diagnostic indicators indicates a problem, check all connections and voltages to the unit. If all connections are made and reliable, and proper voltages are supplied to the unit, please contact [www.transtector.com](http://www.transtector.com).

## **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)*

## **INSTALLATION DIMENSION**

Note: units are in mm

