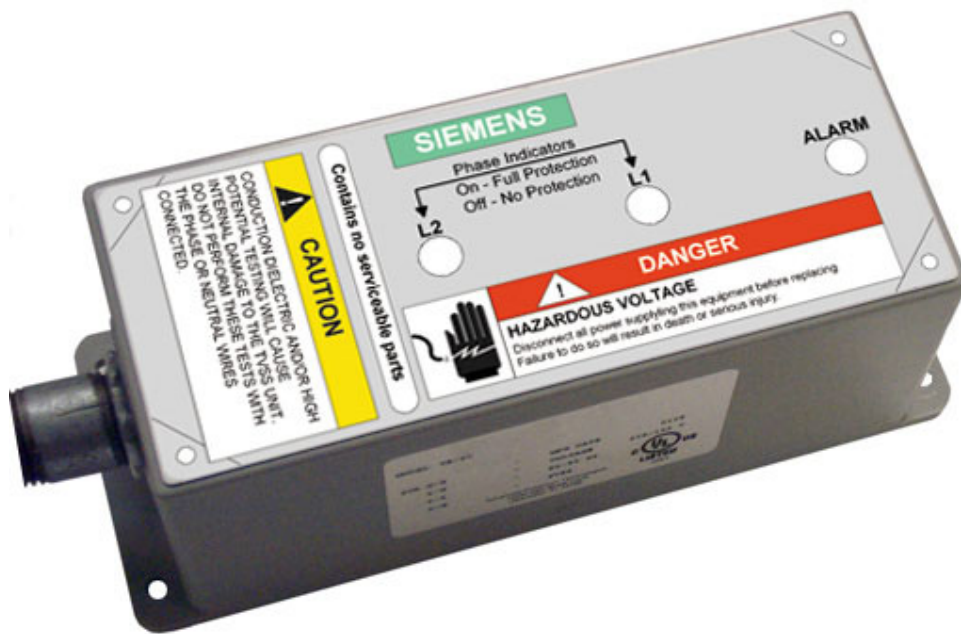


TPSA9040 Residential Transient Voltage Surge Suppressor User's Manual



SIEMENS

Introduction

Thank you for choosing the Siemens TPSA9040 Residential Transient Voltage Surge Suppressor.

Save this manual! It includes instructions for obtaining warranty service and for returning a defective device.

Please read and understand all information in this manual prior to installation. The procedures contained herein are not intended to supersede local or national electrical codes. **Check all applicable electrical codes to ensure compliance.** In all instances, local and national electrical code requirements are to be followed.

This manual provides instructions for installing the TPSA9040 Transient Voltage Surge Suppressor (TVSS). The TPSA9040 TVSS (Figure 1) can be mounted three ways. The preferred way is to mount the TVSS directly to the outside of the electrical panel equipment using the chase nipple on the body of the TVSS. It can also be installed against a panel/wall using installer supplied hardware, or it can be installed using an optional Flush Mount Kit. The latter two methods require use of additional conduit and hardware (not provided).

The TPSA9040 provides a broad range of protection from damaging transient voltage surges and spikes. Proper installation is imperative to maximize the effectiveness and overall performance of this device. **This device must be installed by a licensed electrician.** The electrician should follow the steps outlined in this manual to insure proper installation.

Note: Siemens products are extensively tested to industry standards as set by IEEE C62.41 and C62.45, for Categories A, B, and C. The TPSA9040 is listed to the most recent edition of UL 1449. **This product is suitable for installation on electrical distribution equipment capable of delivering not more than 25,000 rms symmetrical amperes.**

During installation into an electrical system, the TPSA9040 must NOT be energized until the electrical system is installed, inspected and tested. All conductors must be connected and functional, including neutral (if required).

Failure to follow the guidelines in this manual can lead to abnormally high voltage being applied to the TVSS. This may cause the TPSA9040 unit to become inoperative. The warranty does not cover an incorrectly installed device.

Do not high potential test the electrical system with the TVSS connected. Failure to disconnect the TVSS during elevated voltage testing will result in damage to the suppression components and/or other electronic components (see Safety Information).

Parts List and Inspection

Items included in the package consist of the following:

- 1 TPSA9040 Transient Voltage Surge Suppressor
- 1 User's Manual (this document)

If the Flush Mount Kit (Part #KITFMC) was ordered, additional parts are supplied as follows:

- 1 Flush Mount Panel
- 1 Flush Mount Installation Instructions
- 4 Pan-head Screws

Carefully inspect each item in the package for signs of damage. If damage is found, please contact Siemens Technical Support: 1-888-333-3545. For more information about this product or other Siemens products, visit www.sea.siemens.com.

Safety Information

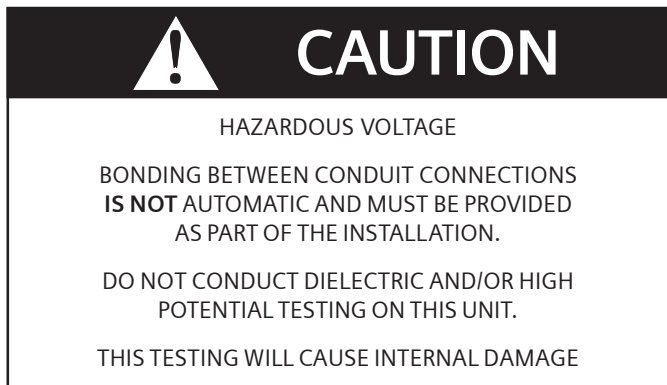
This section provides pertinent safety information that must be considered before installing the TVSS.

- Do not install this device during a lightning storm.
- This device is rated NEMA 4X. Suitable for indoor and outdoor applications. The conduit nipple must be sealed against the panel using watertight fittings (not supplied) to ensure a watertight connection.
- Do not install the surge protector in an excessively hot or moist location.
- Other safety considerations are listed on the following page.



Verify all power circuits are de-energized before making any connections. The voltage rating of the device and system must always be verified before energizing the TVSS. All electrical connections should be performed by a qualified (licensed) electrician. All wiring must comply with the National Electrical Code (NEC) and applicable local codes.

- Maintenance of this Transient Voltage Surge Suppressor should be performed by qualified electrical personnel only.
- During normal operation, hazardous voltages are present inside the unit.
- When servicing this unit, be sure to follow all electrical safety precautions.
- All power sources to this unit should be locked off before servicing. This will prevent the risk of receiving an electrical shock.



Installation

Installing the TPSA9040 TVSS:

To install the TVSS to the electrical panel equipment, proceed as follows:

1. Ensure power to the electrical panel equipment has been disconnected.
2. Remove the screws securing the outer panel equipment cover to the electrical panel equipment (see Figure 1).
3. Select the location where the TVSS will be mounted (should be based on the internal configuration of the electrical panel equipment and the physical surroundings outside the equipment). Note that the TVSS's lead length must be minimized to achieve maximum performance. Once the location has been determined, drill or punch a 7/8" diameter hole in the top, bottom or side surface of the electrical panel equipment. The ideal mounting location will also allow the TVSS to be secured to the wall or panel in addition to using the chase nipple.
4. Screw one of the conduit nuts on to the chase nipple until it bottoms out. Note: bonding of the conduit connections to the electrical panel equipment is not automatic, and must be provided as part of the installation (remove paint from the electrical panel equipment surface prior to installing the TVSS and chase nipple).
5. Push the leads from the TVSS through the 7/8" diameter hole toward the inside of the electrical panel equipment. Push the leading part of the chase nipple through the hole and secure the TVSS using a second conduit nut (sandwiching the metal wall of the electrical panel equipment between the two conduit nuts).
6. If possible, to provide extra rigidity in the installation, attach the TVSS to the wall or electrical panel equipment using installer supplied hardware.
7. Trim the leads from the TVSS as short as possible, but still allowing the following connections to be made (see Figure 2):
 - Black wires (two in number) go to the nearest free 20 amp circuit breaker. The phase of each lead is marked with a white band and letter designator (L1 & L2). Connect the TVSS leads to the appropriate phases. (It is not critical which black wire goes to the positions on the circuit breaker, however connect to L1 and L2 if known.)
 - Connect the white Neutral wire to the neutral bar using a set screw.
 - Connect the green Ground wire to the electrical panel equipment ground.
8. **Note: Conducting dielectric and/or high potential testing will cause internal damage to the TVSS unit. DO NOT perform dielectric or high potential tests with the phase or neutral TVSS wires connected.**
9. Install the panel equipment cover.
10. Apply power to the panel equipment. LEDs will illuminate on the TVSS. If any connected phase LED on the TVSS does not illuminate, remove power, check all

connections and test again. If any connected phase LED still does not illuminate, contact Siemens Technical Support at: 1-888-333-3545.

- The TPSA9040 is equipped with an audible alarm which will sound in the event of an alarm condition. This indicates a problem with the TVSS which requires further evaluation. There is no test or silence switch. De-energizing the TVSS will silence the alarm.

Figure 1
Typical TPSA9040 TVSS Installation

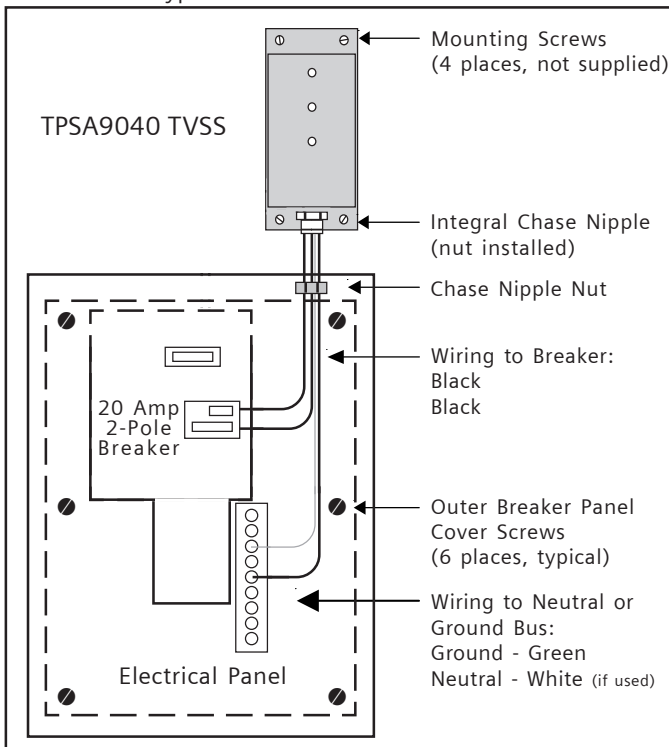
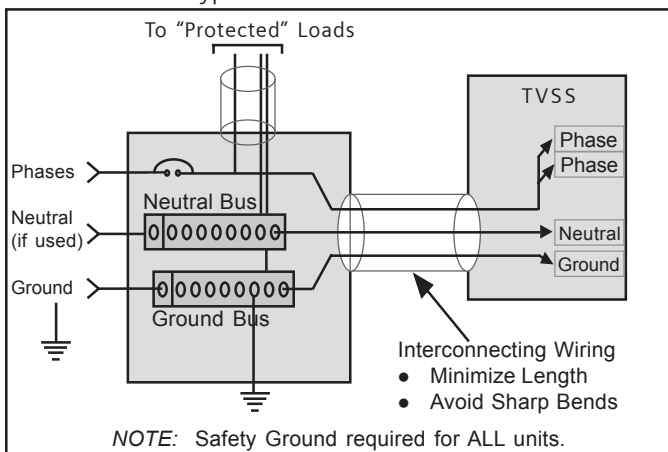
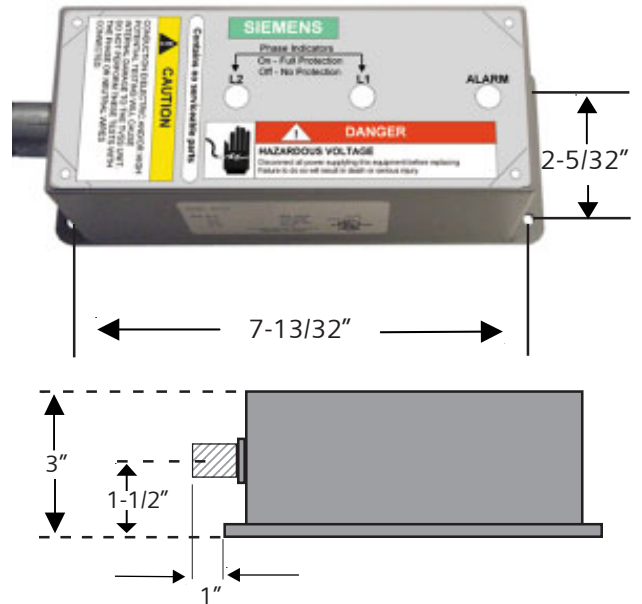


Figure 2
Typical Parallel Connections



Dimensions and Weight

The TPSA9040 weight is 4 lbs.



Operation

The Siemens Residential surge suppressor normally requires no remedial action. However in the event of a power anomaly or a malfunction, the operational status may change and may require action.

The table below outlines the operating conditions of the TPSA9040 and any correction action if required.

Light 1	Light 2	Alarm Red	Audible Alarm	Corrective Action
Out	Out	Out	Off	Reset Breaker If Breaker Trips Replace Unit
G	G			No Action
Out	G	Blinks	Sounds	Replace Unit
G	Out	Blinks	Sounds	Replace Unit
G	G	Blinks	Sounds	Check Neutral to Ground Connection before Replacing Unit

This device features internal circuitry that will disconnect the surge protective component at the end of its useful life. Power will maintain to the load, however the load is now unprotected. Follow the manufacturer's instructions for replacing the device.

Specifications

Model	Voltage Rating and Service Type
TPSA9040	120/240V Single Phase

Item	Specification
Temperature/Operating Temperature/Storage	-40° C (-40° F) to +60° C (+140° F) -55° C (-65° F) to +65° C (+149° F)
Audible Noise	None
Service Clearance	36 inches (94.1 cm) in front of the unit
Installation Type	Chase Nipple
Wire Length vs. Response Time and Let-Through Voltage	1 foot (31.7 cm) of wire = 1 nanosecond. 175 volts per foot (6kV/3kA, 8/20 micro- seconds) are added to the clamp voltage.
Wire Size	Wire Size = #12 AWG See Circuit Breaker for torque rating.
Circuit Breaker and Installation Torque	20 Amp 2-Pole 120/240 Torque to 18 inch lbs.
System Grounding	Per IEEE STD 142-1991. For sensitive electronics/computer systems, the recommended ground impedance is 24 ohms or less.

AC Surge Protection	
Thermal Fusing	Yes
Catastrophic Surge Circuit	Yes
Single Pulse Energy Dissipation	1080 Joules
Spike Capacity	40,000A
Line Voltage	120/240 1 Phase 50/60 Hz
Initial Clamping Level	400V
Rated Voltage	150V
Response Time	<1 nanosecond
Short Circuit Rating	10,000A

Agency Approvals & Warranty	
UL Listings	1283 Filter, 1449 TVSS
UL 1449 Rating	400V
Meets ANSI C62.41.1 Requirements	Yes
Lightning Protection	Free replacement during warranty period.
Product Warranty	5 Years
Appliance Warranty	3 Years

Customer Service

TPS TECHNICAL SUPPORT AND CUSTOMER SERVICE

United States and Canada: 1-888-333-3545

This manual, and information about the entire Siemens product line are available on the Internet at:
www.sea.siemens.com.

A Return Material Authorization number (RMA #) must be given by the Company prior to the return of any product. Returned products must be sent to the factory with the transportation charges prepaid.

Prior to calling Siemens for technical support, please have the following information available:

Model Number of unit: _____

Manufacture Date: _____

Installation Date: _____

Your Order Number: _____

Return Shipment Address:

TPS Technical Support
14550 58th Street North
Clearwater, FL 33760

Attn: RMA# _____

Siemens Energy & Automation, Inc. ("Seller")
TPSA9040 Transient Voltage Surge Suppressor Limited Warranty

(a) **Warranty Period** – The Warranty Period shall be sixty (60) months from the date of initial installation but not more than sixty-six (66) months from the date of purchase by Buyer.

(b) **Standard Limited Warranty** – Siemens warrants to the original Buyer that, on the date of shipment, the Transient Voltage Surge Suppressor (TVSS) is of the kind and quality described herein and is free of non-conformities in workmanship and material when properly used under normal care in a residential installation that complies with all National Electrical Code and/or other applicable requirements.

Buyer's exclusive remedy for a nonconformity in the Circuit TVSS shall be the repair or the replacement (at Siemens' option) of the TVSS. Siemens' obligation to repair or replace shall be in effect only if Buyer has sent written notice of any non-conformity within the Warranty Period. Repaired and replacement parts shall be warranted for the remainder of the original period of notification set forth above. At its expense, Buyer shall remove and ship to Siemens any such nonconforming items and shall reinstall the repaired or replaced parts. Buyer shall grant Siemens or its agents access to the goods at all reasonable times in order for Siemens to determine any nonconformity in the goods. Siemens shall have the right of disposal of items replaced by it.

(c) **Additional Limited Warranty for Connected Major Household Appliances** – Siemens will reimburse the original Buyer for direct repair/replacement costs actually incurred for damages to Major Household Appliances but only to the extent that such damage is caused by the failure of a properly installed TVSS to protect such connected appliances against electrical power surges caused by lightning strikes or other electrical disturbances. This warranty shall apply only if Siemens receives written notice of such damages during the Warranty Period. For purposes of this Additional Limited Warranty, Major Household Appliances shall mean, exclusively, refrigerators, freezers, air conditioners, stoves, ovens, clothes washers, clothes dryers, ceiling fans, and dishwashers. Major Household Appliances shall not include other electronic devices, including but not limited to microwave ovens, audio and stereo components, satellite dish equipment, video equipment, televisions, computers, or fax machines.

Siemens total, aggregate liability under this Additional Limited Warranty shall be the lesser of \$20,000 or the deductible amount of any applicable insurance policy covering such connected Major Household Appliance. This Additional Limited Warranty shall be secondary to any existing manufacturer warranty, any service contract or any applicable homeowners or other insurance policy in effect at the time of loss.

(d) **Warranty Exclusions and Limitations**- The Standard and Additional Limited Warranties above only apply to non-commercial, residential use of the TVSS and exclude damages or loss arising from any of the following: unauthorized product modification or alteration; improper storage, installation, operation, or maintenance; vandalism; Acts of God; war; terrorism; misuse or abuse. The Standard and Additional Limited Warranties above do not cover service charges; installation, removal, or re-installation costs; setup costs; diagnostic charges; period checkups; routine maintenance; loss of use of the product; and/or shipping or transportation charges or fees.

TO THE FULLEST EXTENT ALLOWED BY APPLICABLE LAW, SIEMENS HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NEITHER SELLER, NOR ITS SUPPLIERS SHALL BE LIABLE IN CONTRACT, WARRANTY, FAILURE OF A REMEDY TO ACHIEVE ITS INTENDED OR ESSENTIAL PURPOSES, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, INDEMNITY OR ANY OTHER LEGAL THEORY FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Buyer is limited to the remedies specified herein and shall have no others for a nonconformity in the goods. Buyer agrees that these remedies provide Buyer with a minimum adequate remedy and are exclusive remedies, whether based on contract, warranty, tort (including negligence), strict liability, indemnity, or any other legal theory, and whether arising out of warranties, representations, instructions, installations, or non-conformities from any cause. With respect to products purchased by consumers in the United States for personal use, implied warranties, including but not limited to the warranty of merchantability or fitness for a purpose, are not excluded but are limited to the duration of the Warranty Period.

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Power Distribution & Control Division
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Norcross, GA 30092

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www.sea.siemens.com/surge

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