

# Surge Protective Devices



## STV25K Series



## Safety Information

### Important Information

**Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.**



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

### **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

### **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

### **CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

### **NOTICE**

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word.

### Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Appleton Grp LLC d/b/a Appleton Group for any consequences arising out of the use of this material.


A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

## **DANGER**

### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, NOM-029-STPS or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.
- This equipment must be effectively grounded per all applicable codes. Use an equipment-grounding conductor to connect this equipment to the power system ground.
- Do not supply more than 24VDC / 24VAC and no more than a current of 2A to contacts.
- Confirm that the Surge Protective Device voltage rating on the module or nameplate label is not less than the operating voltage.
- This equipment must be installed inside an enclosure and located so, as to prevent accidental contact with terminals during maintenance or servicing.
- Do not install in areas with excessive dust, corrosive vapors, flammable materials, or explosive atmospheres.

**Failure to follow these instructions will result in death or serious injury.**

 **WARNING:** This product can expose you to chemicals including DINP, which is known to the State of California to cause cancer, and DIDP which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## **NOTICE**

### **LOSS OF SURGE SUPPRESSION**

- Make certain that Surge Protective Device is disconnected from the circuit it is protecting before conducting high potential insulation testing.

**Failure to follow these instructions can result in equipment damage..**

## **1.0 Installation & Operation**

The SolaHD STV25K Series Surge Protective Device is a high-quality transient diversion system designed to protect sensitive equipment from damaging transient voltage surges resulting from load switching, lightning strikes, and other sources.

The installer should perform the following steps to ensure a quality installation. Please read all instructions before starting the installation of this product. These instructions do not replace national or local electrical codes. Check applicable codes to ensure compliance.

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## **⚠ DANGER**

### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- 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.

**Failure to follow these instructions will result in death or serious injury.**

## **1.1 Environment**

The unit is designed for indoor operation in an ambient temperature range of -40°C to +60°C (-40°F to +140°F), with a relative humidity of 0% to 95% non-condensing.

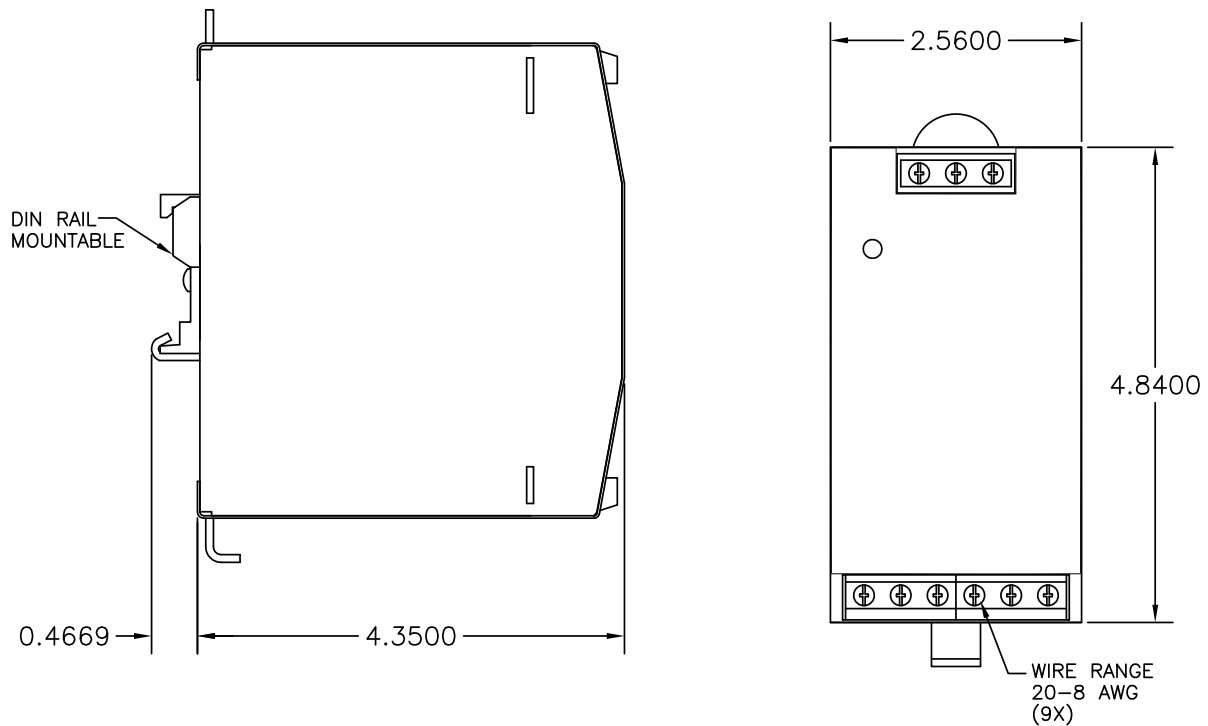
## **NOTICE**

### **LOSS OF SURGE SUPPRESSION**

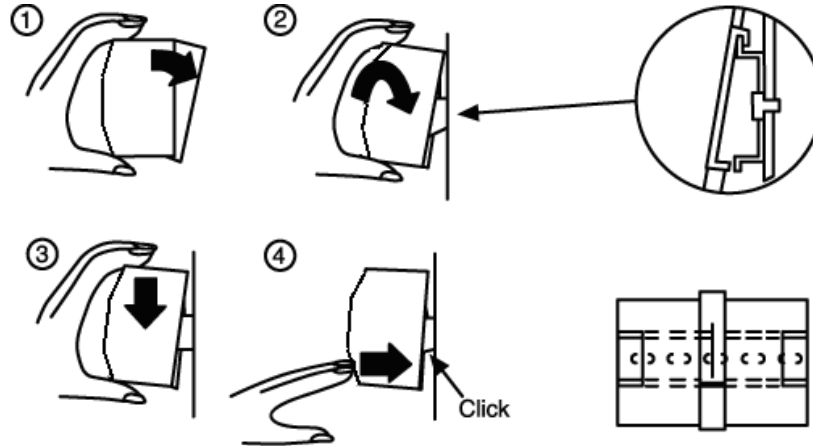
- Do not install in areas with excessive dust, corrosive vapors, flammable materials, or explosive atmospheres.

**Failure to follow these instructions can result in equipment damage.**

## **1.2 Mechanical Dimensions**



## 1.3 DIN Rail Mounting



1. Tilt unit as illustrated.
2. Put unit onto the DIN rail.
3. Push unit downward until it stops.
4. Push at the lower front edge to lock.
5. Gently shake the unit to ensure that it is secure.

**NOTE:** Press the button located at the top (rear) of the enclosure to unlock and remove from the DIN rail.

## 1.4 Supplemental Enclosures

The STV25K must be installed inside an enclosure and located to prevent accidental contact with terminals during maintenance and service.

### **⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- This equipment must be installed inside an enclosure and located so, as to prevent accidental contact with terminals during maintenance or servicing.

**Failure to follow these instructions will result in death or serious injury.**

## 1.5 Maximum Current Capability

The total current draw in which the STV25K may continuously handle is 20 A.

### **NOTICE**

#### **LOSS OF SURGE SUPPRESSION**

- Overloading the unit can cause permanent damage.

**Failure to follow these instructions can result in equipment damage.**

## 1.6 Recommended Fuse

Bussman type SC-25 Class G, rated 250 V ac minimum; 25 A maximum or equivalent.

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## 1.7 Nominal Voltage

The maximum continuous operating voltage (MCOV) for model STV25K10S is 150 V ac; 300 V ac for model STV25K24S.

### **⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Confirm the surge protective device voltage rating on the module or nameplate label is not less than the operating voltage.

**Failure to follow these instructions will result in death or serious injury.**

## 1.8 Summary Alarm Contacts

Summary alarm Form C (1 N.O. and 1 N.C.) relay contacts rated 125 VAC, 5 A maximum are provided for remote indication of protection status. Connections can be made to these terminals using #18 AWG conductors.

## 1.9 Conductor Size

The conductor size to the input and output of the STV25K ranges from #14 AWG to #10 AWG.

## 1.10 Grounding

Input and output ground terminals must be connected for proper operation. This grounding is not only required for safety, but also for equipment performance. Incorrect grounding can reduce or impede the operation of the unit.

### **⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- This equipment must be effectively grounded per all applicable codes. Use an equipment-grounding conductor to connect this equipment to the power system ground.

**Failure to follow these instructions will result in death or serious injury.**

## 1.11 Voltage Protection Ratings (VPRs)

To maintain the voltage protection ratings marked on these products, as obtained by Underwriters Laboratories, Inc. in accordance with ANSI/UL 1449, the Standard for Safety, Surge Protective Devices (SPDs), #12 AWG wire must be utilized to connect the STV25K to your protected load. Connections made with conductors other than #12 AWG may result in different VPRs.

## 1.12 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. See Table 1 for voltage rating applications with typical power source configurations.

### **⚠ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Confirm that the Surge Protective Device voltage rating on the module or nameplate label is not less than the operating voltage.

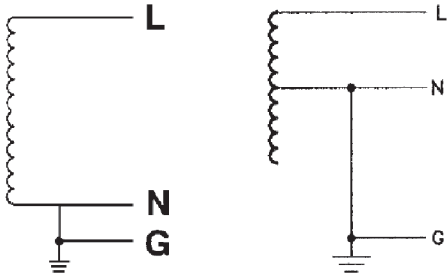
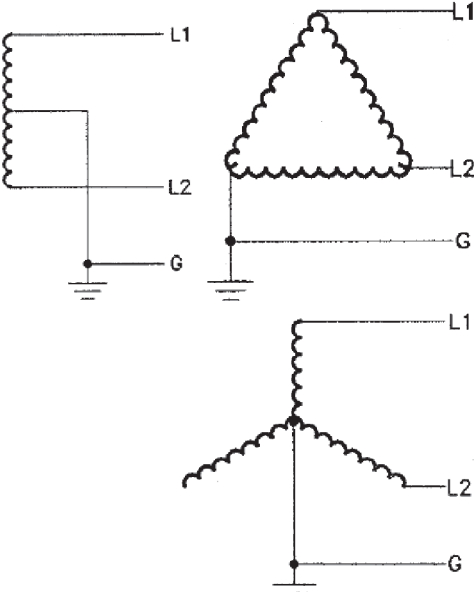
**Failure to follow these instructions will result in death or serious injury.**

## 1.13 Applying Power

Apply power to the unit and ensure status indications are normal. Under normal conditions, the green LED is illuminated.

If the green LED is not illuminated, check all connections and ensure reliable and proper voltages are supplied to the unit.

For further assistance, please contact SolahD Technical Support at 1-800-377-4384. You can also e-mail us at [solahd.technicalservices@emerson.com](mailto:solahd.technicalservices@emerson.com).

| Table 1: Voltage Ratings & Power Source Configurations   |  |
|--|--|
| <p><b>Model: STV25K10S</b><br/> <b>Nominal Voltage (50/60 Hz): 120 V ac</b><br/> <b>System Configuration: Single-phase, 2W + G</b></p> | <p style="text-align: center;"><b>Source Configuration:</b></p>    |
| <p><b>Model: STV25K24S</b><br/> <b>Nominal Voltage (50/60 Hz): 240 V ac</b><br/> <b>System Configuration: Single-phase, 2W + G</b></p> | <p style="text-align: center;"><b>Source Configuration:</b></p>  |



# STV25K Series

## 2.0 Specifications

| Table 2: Technical Specifications           |  |                      |
|---|--|----------------------|
| Parameters                                  | Model  |                      |
|   | STV25K10S  | STV25K24S            |
| Nominal Input Voltage                       | 120 V ac   | 240 V ac             |
| System Configuration                        | Single-phase, 2W + G   | Single-phase, 2W + G |
| Maximum Continuous Operating Voltage (MCOV) | 150 V ac   | 300 V ac             |
| Operating Frequency Range                   | 47–63 Hz   |                      |
| Input Current Rating                        | 20 A   |                      |
| Short Circuit Current Rating (SCCR)         | 5 kAIC when protected by a listed Class G fuse rated at 25 A, 480 V ac minimum                   |                      |
| Surge Current Rating                        | 25 kA per phase  |                      |
| Nominal Discharge Current ( $I_N$ )         | 3 kA   |                      |
| Response Time                               | <0.5 ns  |                      |
| All Modes of Protection                     | L-N, L-G, N-G, L-L, L-G  |                      |
| EMI/RFI Noise Rejection                     | Normal mode: 50 dB minimum<br>Common mode: 40 dB minimum   |                      |
| Operating Temperature                       | -40°C to +60°C (-40°F to +140°F)   |                      |
| Operating Humidity                          | 0 to 95% non-condensing  |                      |
| Dimensions, D x W x H                       | 4.35 in. x 2.56 in. x 4.84 in. (110.5 mm x 65.0 mm x 122.9 mm)                                   |                      |
| Weight                                      | 0.83 lb. (0.38 kg)   |                      |
| Enclosure                                   | Metal, IP20  |                      |
| Mounting Type                               | DIN rail mounting<br><b>NOTE:</b> Optional chassis mounting bracket is available, P/N SDN-PMBRK2 |                      |
| Connections                                 | Screw terminals, #10-14 AWG (#12 AWG recommended)  |                      |
| Torque Specification                        | 4.4 lbs-in   |                      |
| Status Indication                           | Green LED, Form C relay contacts   |                      |
| Standard Certification                      | UL 1449 Type 2CA Device<br>ABS Type Approval   |                      |
| Warranty                                    | 10 year limited warranty   |                      |
| UL 1449 Voltage Protection Ratings (VPRs)   |  |                      |
| Line to Neutral                             | 500 V  | N/A                  |
| Line to Line                                | N/A  | 900 V                |
| Line to Ground                              | 500 V  | 900 V                |
| Neutral to Ground                           | 500 V  | N/A                  |

## **3.0 Technical Support**

Website: [www.solahd.com](http://www.solahd.com)

Technical Support E-Mail: [solahd.technicalservices@emerson.com](mailto:solahd.technicalservices@emerson.com)

Toll-Free: 1-800-377-4384

## **4.0 Warranty**

Please refer to the “Terms & Conditions of Sale” document.

While every precaution has been taken to ensure accuracy and completeness in this manual, Appleton Grp LLC d/b/a Appleton Group assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.



## STV25K Series

A272-281 Rev. 3 12/2022

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