



## Surge Protective Devices

### STV25K Series



## Instruction Manual



# Contents

|                                                              |          |
|--------------------------------------------------------------|----------|
| <b>1.0 Installation &amp; Operation .....</b>                | <b>4</b> |
| 1.1 Environment .....                                        | 4        |
| 1.2 Mechanical Dimensions .....                              | 4        |
| 1.3 DIN Rail Mounting .....                                  | 5        |
| 1.4 Supplemental Enclosures .....                            | 5        |
| 1.5 Maximum Current Capability .....                         | 5        |
| 1.6 Recommended Fuse .....                                   | 5        |
| 1.7 Nominal Voltage .....                                    | 5        |
| 1.8 Summary Alarm Contacts .....                             | 6        |
| 1.9 Conductor Size .....                                     | 6        |
| 1.10 Grounding .....                                         | 6        |
| 1.11 Voltage Protection Ratings .....                        | 6        |
| 1.12 Wiring Connections .....                                | 6        |
| 1.13 Applying Power .....                                    | 6        |
| Table 1: Voltage Ratings & Power Source Configurations ..... | 7        |
| <b>2.0 Specifications .....</b>                              | <b>8</b> |
| Table 2: Technical Specifications .....                      | 8        |
| <b>3.0 Registration &amp; Warranty .....</b>                 | <b>9</b> |
| 3.1 Product Registration .....                               | 9        |
| 3.2 Warranty Information .....                               | 9        |

# 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.

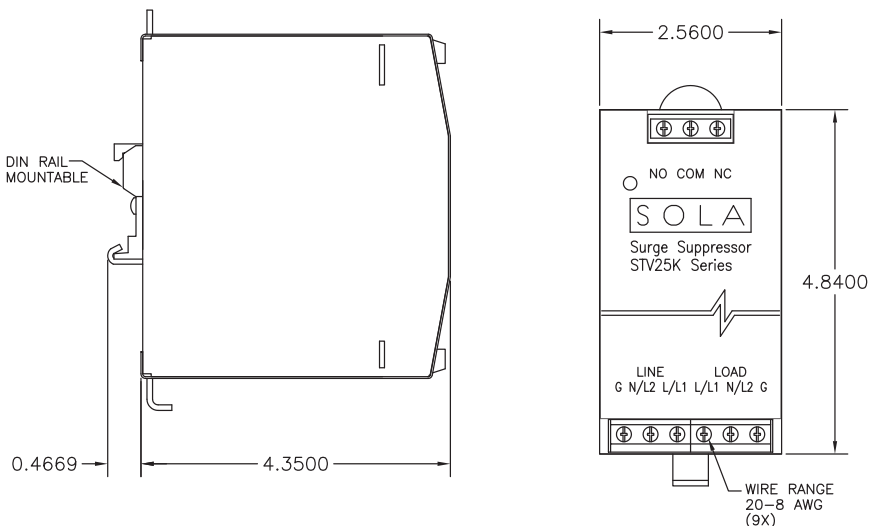
**⚠ DANGER! Only qualified personnel should install or service this system. Electrical safety precautions must be followed when installing or servicing this equipment. To prevent risk of electrical shock, turn off and lock out all power sources to the unit before making electrical connections or servicing.**

## 1.1 Environment

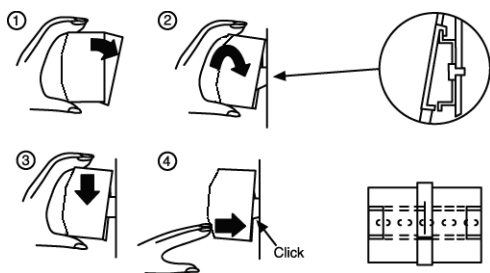
The unit is designed for indoor operation in an ambient temperature range of  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ ), with a relative humidity of 0% to 95% non-condensing.

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

## 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.

## 1.5 Maximum Current Capability

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

**NOTE:** Overloading the unit can cause permanently damage.

## 1.6 Recommended Fuse

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

## 1.7 Nominal Voltage

The maximum continuous operating voltage (MCOV) for model STV 25K-10S is 150 V ac; 275 V ac for model STV 25K-24S.

**NOTE:** Failure to use the unit at its rated voltage can permanently damage the unit or provide inadequate surge protection.

## **1.8 Summary Alarm Contacts**

Summary alarm Form C (1 N.O. and 1 N.C.) relay contacts rated 125 V ac, 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.

## **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, 3<sup>rd</sup> edition, 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.

## **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 (800) 377-4384 or (847) 268-6651 or by e-mail at [solahd.technicalservices@emerson.com](mailto:solahd.technicalservices@emerson.com).

**Table 1: Voltage Ratings & Power Source Configurations**

**Model:**

STV25K-10S

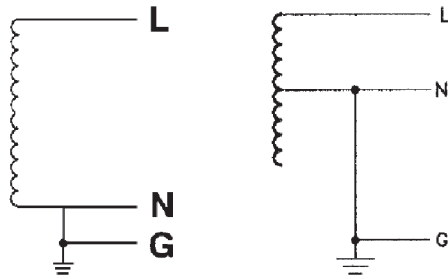
**Nominal Voltage (50/60 Hz):**

120 V ac

**System Configuration:**

Single-phase, 2W + G

**Source Configuration:**



**Model:**

STV25K-24S

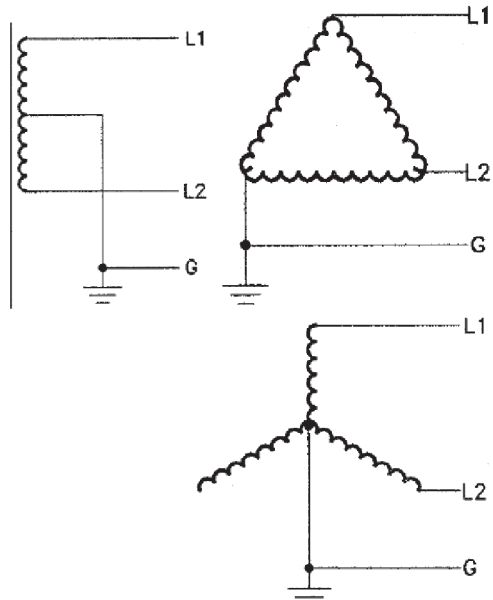
**Nominal Voltage (50/60 Hz):**

240 V ac

**System Configuration:**

Single-phase, 2W + G

**Source Configuration:**



## 2.0 Specifications

**Table 2: Technical Specifications**

| Parameters                                                               | Model                                                                                            |                      |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------|
|                                                                          | STV25K-10S                                                                                       | STV25K-24S           |
| 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                                                                                         | 275 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 <sub>N</sub> )                              | 3 kA                                                                                             |                      |
| Response Time                                                            | <0.5 ns                                                                                          |                      |
| Modes of Protection                                                      | All Modes: L–N, L–L, L–G, N–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.<br>(110.5 mm x 65.0 mm x 122.9 mm)                                |                      |
| Net Weight                                                               | 3.0 lb. (1.36 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, #12 AWG                                                                         |                      |
| Status Indication                                                        | Green LED, Form C relay contacts                                                                 |                      |
| Safety Approvals                                                         | UL 1449 3 <sup>rd</sup> edition                                                                  |                      |
| Warranty                                                                 | 10 year limited warranty                                                                         |                      |
| UL 1449 3 <sup>rd</sup> Edition Type 4 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 Registration & Warranty**

### **3.1 Product Registration**

To register your product for updates and information on service and support, visit our Web site at: <http://www.solahd.com/support/registration.htm>.

### **3.2 Warranty Information**

Please see the “Terms & Conditions of Sale”.

## NOTES





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P/N: 82166 Rev 1  
May 2011

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