

# Surge Protective Devices



## STFE Series

SOLAHD™



## 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.
- 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.**

## **Introduction**

The STFE Series combines rugged, high-energy transient protection with the original Active Tracking® Filter technology to provide protection against the full spectrum of voltage transients and surges.

Proper installation is required for maximum system performance. To ensure a quality installation, the installer should read the entire manual and follow all instructions before and during the installation.

These instructions do not replace national or local electrical codes. Check applicable electrical codes to ensure compliance. Installation of the STFE Series should only be performed by qualified personnel.

# STFE Series

---

## Preinstallation

### Location Considerations

**Environment:** The unit is designed for indoor operation in ambient temperatures of -40°C (-40°F) to +60°C (+140°F) with a relative humidity of 0% to 95% (noncondensing).

**Supplemental Enclosures:** All units provided with terminal blocks must be installed inside an enclosure and located so as 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.
- 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.**

### Electrical Connections

All electrical connections must be installed by a licensed electrician. All wiring must comply with the National Electrical Code® (NEC®) and applicable local codes.

### Voltage, Current and Power Configurations

**Maximum Current Capability:** The total current draw that a unit may continuously handle is provided in the Voltage, Current and Power Configurations table below.

### **NOTICE**

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

- Overloading the unit can cause permanent damage.

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

**Nominal Voltage:** The nominal operating voltage for each model is provided in the Voltage, Current and Power Configurations table below.

### **⚠ 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.**

## Grounding

Input and output ground terminals must be connected for proper operation. 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.**

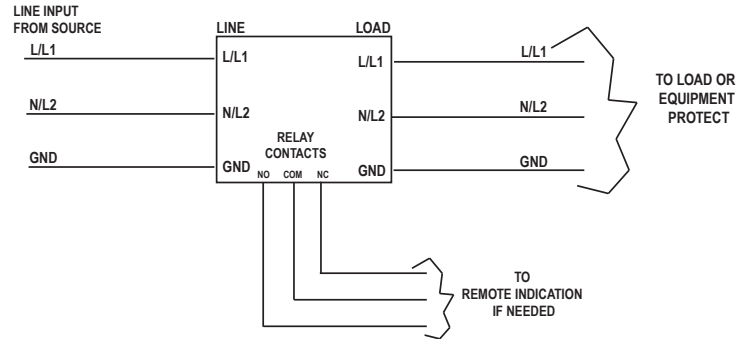
Voltage, Current and Power Configurations					
Catalog Number	Load Current	Wire Size Range (AWG)	Required Torque (lb-in.)	Fuse/Circuit Breaker Ampacity	
				Suggest	Max
<b>Single-Phase Models (120 VAC)</b>					
STFE03010N	3.0 A	14 - 10	4.4 lb-in. (0.50 N•m)	3.0 A	3.75 A
STFE05010N	5.0 A	12 - 10		5.0 A	6.25 A
STFE10010N	10.0 A	14 - 12	4.0 lb-in. (0.45 N•m)	10.0 A	12.5 A
STFE20010N	20.0 A	12 only		20.0 A	25.0 A
<b>Single-Phase Models (240 VAC)</b>					
STFE03024L	3.0 A	14 - 10	4.4 lb-in. (0.50 N•m)	3.0 A	3.75 A
STFE05024L	5.0 A	12 - 10		5.0 A	6.25 A
STFE10024L	10.0 A	14 - 12	4.0 lb-in. (0.45 N•m)	10.0 A	12.5 A
STFE20024L	20.0 A	12 only		20.0 A	25.0 A

## Installation

- For units provided with a ground connection, a green (with or without one or more yellow stripes) insulated grounding conductor identical in size, insulation material, and thickness to the grounded and ungrounded conductors must be installed (ref. NEC Table 250-95) and referenced back to an acceptable building ground.
- Attachment plugs, receptacles, etc. in the vicinity of the STFE Series must be of grounding type, with the grounding conductors connected to an acceptable building ground.
- Terminals, lugs, and connectors used in installation must be suitable for the material of the conductors. Conductors of dissimilar metals shall not be intermixed in a terminal or splicing.

# STFE Series

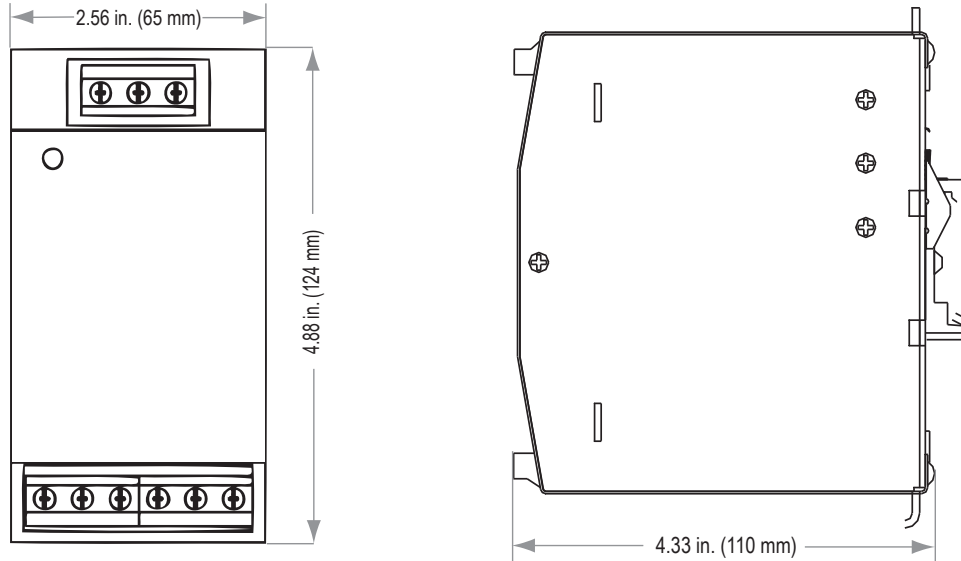
## Connection Diagram



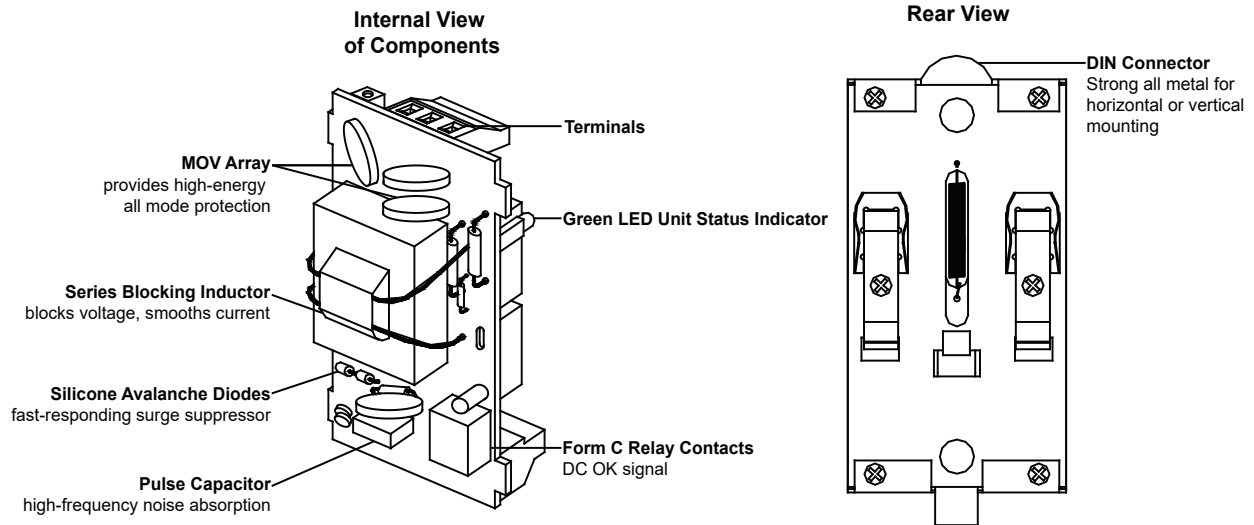
## Technical Specifications

Description	Catalog Number	
	STFEXXX10N	STFEXXX24L
Input Voltage	120 V (0–150 VRMS)	240 V (0–275 VRMS)
Line Frequency	47–63 Hz	
Response Time	< 0.5 ns normal mode; < 5 ns common mode	
Enclosure	Fully enclosed metal housing	
Connection/Mounting Type	DIN rail mount	
Status Indication	Green LED “OK”, Form C contact, 5 A @ 125 VAC or 5 A @ 100 VDC	
Weight	1.0 lb. (0.45 kg)	
Dimensions H x W x D	4.88 x 2.56 x 4.33in. (124 x 65 x 110mm)	
Operating Temperature	-40°C to +50°C at full load; derate linearly to 60% at +70°C	
Operating Humidity	0% to 95% Non-condensing	
<b>Peak Surge Current Capability</b>		
Per Phase	30,000 A	
Line to Neutral	20,000 A	
Line to Ground	10,000 A	
Neutral to Ground	10,000 A	
Load Surge Current Rating	10 ms	5 x Nominal
	1 s	3 x Nominal
	10 s	2 x Nominal
Nominal Discharge Current Rating	3 kA	
Short Circuit Current Rating (SCCR)	5kA	
Maximum Continuous Operating Voltage (MCOV)	150V L-N, L-G, N-G	320 L-L
<b>Frequent Response</b>		
Normal Mode (forward-reverse)	100 kHz to 50 MHz	-90 dB Max
Common Mode (forward-reverse)	5 kHz to 50 MHz	-60 dB Max
Transient Reduction (IEEE C62.41)* * All Voltage configurations are single phase, 2 wire + ground	Typical Category A Ringwave (6 kV, 200 A, 100 kHz) < 60 V peak	
	Typical Category B Ringwave (6 kV, 500 A, 100 kHz) < 100 V peak	
Standards Certifications	cRUUs: UL 1449, CSA 22.2 No. 269, UL 1283, CSA 22.2 No. 8 (recognized component)	
Warranty	5 year limited warranty	

## Dimensional Drawings



## System Design



## 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  
 USA: 1-847-268-6651

## 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.

## STFE Series

A272-158 Rev. 7 08/2021

---

The Emerson logo is a trademark and service mark of Emerson Electric Co.  
Appleton Grp LLC d/b/a Appleton Group. SolaHD is a registered trademark of Appleton Grp LLC.  
Active Tracking (and The Active Tracking Filter) trademarks owned by ASCO Power Technologies, L.P.  
All other marks are the property of their respective owners. © 2021 Emerson Electric Co. All rights reserved.

### **United States (Headquarters)**

Appleton Grp LLC  
9377 W. Higgins Road  
Rosemont, IL 60018  
United States  
T +1 800 621 1506

### **Australia Sales Office**

Bayswater, Victoria  
T +61 3 9721 0387

### **Korea Sales Office**

Seoul  
T +82 2 3483 1555

### **Europe**

ATX SAS  
Espace Industriel Nord  
35, rue André Durouchez,  
CS 98017  
80084 Amiens Cedex 2  
France  
T +33 3 2254 1390

### **China Sales Office**

Shanghai  
T +86 21 3338 7000

### **Canada**

EGS Electrical Group Canada  
Ltd.  
99 Union Street  
Elmira ON, N3B 3L7  
Canada  
T +1 888 765 2226

### **Middle East Sales Office**

Dammam, Saudi Arabia  
T +966 13 510 3702

### **Asia Pacific**

EGS Private Ltd.  
Block 4008, Ang Mo Kio  
Ave 10,  
#04-16 TechPlace 1,  
Singapore 569625  
T +65 6556 1100

### **Chile Sales Office**

Las Condes  
T +56 2928 4819

### **Latin America**

EGS Comercializadora  
Mexico S de RL de CV  
Calle 10 N°145 Piso 3  
Col. San Pedro de los Pinos  
Del. Álvaro Obregon  
Ciudad de México. 01180  
T +52 55 5809 5049

### **India Sales Office**

Chennai  
T +91 44 3919 7300

PN# 9687\_rB

**SOLAHD™**

