

# External Modular SPDs

## Square D External Panel Surge Protective Devices

Square D™ brand Surgeloc™ external modular panel Surge Protective Devices (SPDs) deliver specification grade performance for service entrance or critical branch panel applications. This multi-phase surge suppression system provides transient suppression, noise filtration, and sine wave tracking in a durable, modular package.



by Schneider Electric

# External Modular SPDs Features



External panel modular Surge Protective Devices (SPDs) provide superior design and service life for a wide variety of commercial, industrial, or institutional applications. Square D brand Surgelogic SPDs offer unsurpassed performance and surge suppression for demanding service entrance applications or as part of a suppression network. The robust modular construction minimizes possible down time and helps to reduce maintenance costs.

## Superior Performance

Surgelogic SPDs utilize a high-energy suppression circuit that provides 10 modes of suppression from 120,000 to 480,000 peak Amps of surge current rating per phase. Modular SPDs contain a suppression circuit that not only provides additional transient surge suppression, but also noise filtration. Optional sine wave tracking module delivers increased filtering and clamping.

For harsh environments, stainless steel NEMA 4X rated external modular products provide surge suppression in areas that can damage other enclosures.

## Easy Installation

External panel SPDs mount adjacent to the equipment through a conduit connection and as close to the circuit breaker as possible in order to reduce lead lengths and improve surge suppression.

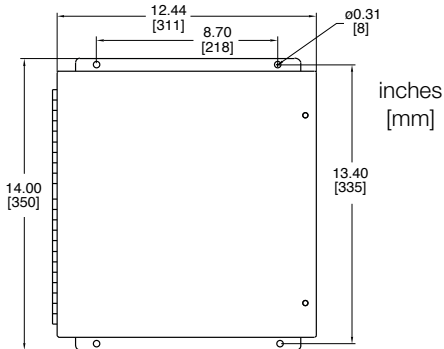
## Warranty

Surgelogic external modular SPDs have a 10-year warranty.

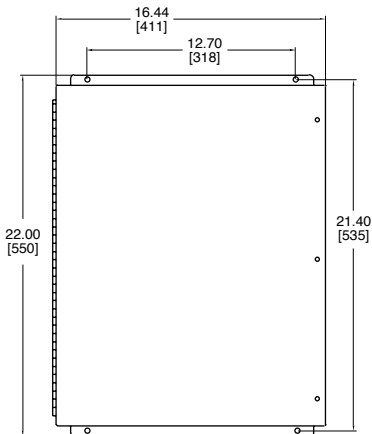
| FEATURES   | ADVANTAGES  | BENEFITS   |
|--|---|--|
| NEMA 3R or 4X Rated                                    | Allows installation in outdoor applications   | Provides suppression to vulnerable equipment powered from weather exposed panels                           |
| 120,000 to 480,000 Amp Capacity (depending on model)   | Longer service life and suppression against high-energy lightning strikes           | High performance surge suppression even in severe electrical conditions                                    |
| Optional EMI/RFI filtering (sine wave tracking) module | Increased clamping and greater noise filtration                                     | Improves surge suppression and reduces high frequency noise  |
| Advanced Diagnostics                                   | Allows for online testing of the suppressor's functionality                         | Provides immediate response if suppressor is damaged   |
| Suppression Status Alarms                              | Allows multiple methods of alarm notification                                       | Provides immediate notification through audible, visual and remote signaling if reduced suppression occurs |
| Coordinated Fuse Technology                            | Coordinated fusing allows disconnection methods for thermal and high-current events | Provides premium surge suppression while managing both thermal and high-current end-of-life events         |

# External Modular SPDs

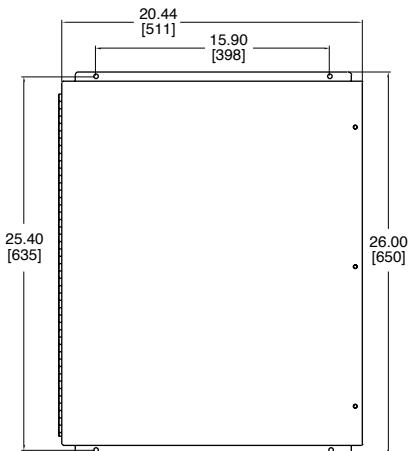
## Features (continued)



NEMA 3R, Carbon Steel Enclosure  
Weight: 22lbs ± 2lbs



NEMA 3R, Carbon Steel Enclosure with or without Integral Switch  
NEMA 4X, Stainless Steel Enclosure with or without Integral Switch  
Weight: 31lbs ± 7lbs



NEMA 3R, Carbon Steel Enclosures for 320 kA and 480 kA units with or without Integral Switch  
Weight: 56lbs ± 2lbs

### External SPDs

#### Performance

|                                |                         |
|--------------------------------|-------------------------|
| Surge Current Rating per Phase | Up to 480kA             |
| Short Circuit Current Rating   | 200kA                   |
| Modes of Protection            | 10                      |
| Fusing                         | Individually fused MOVs |
| Thermal Fusing                 | Yes                     |
| Overcurrent Fusing             | Yes                     |
| EMI/RFI Filtering              | -54 dB at 100 kHz*      |
| Operating Frequency            | 50/60 Hz                |

#### Mechanical Description

|                              |                                   |
|------------------------------|-----------------------------------|
| Enclosure                    | Carbon Steel or Stainless Steel   |
| NEMA Ratings                 | NEMA 3R or 4X                     |
| Connection Method            | #10-#2 AWG Terminals              |
| Mounting Method/Circuit Type | Parallel                          |
| Operating Altitude           | Sea Level-12,000' (3,658 m)       |
| Storage Temperature          | -40° F (-40° C) to 149° F (65° C) |
| Operating Temp.              | -4° F (-20° C) to 149° F (65° C)  |
| LCD Operating Temp.          | 32° F (0° C) to 149° F (65° C)    |
| Operating Humidity           | 0 to 95% non-condensing           |

#### Diagnostics

Push to test diagnostic switches, red and green status LEDs per phase (internal redundant status LEDs are green), module status LEDs per mode, dry contacts, audible alarm with disable switch, surge counter.

#### Options

- EMI/RFI filtering (sine wave tracking) module
- NEMA 4X rating with stainless steel enclosure
- Integral Switch
- Flush mount kit (for panel sizes 12"x12"x6" and 16"x20"x6" only)
- Remote monitor

#### Listings and Performance

cULus Listed per UL1449 3rd Edition Type 2 SPD, UL 1283, CSA C22.2 No. 8-M1986  
Complies with UL 96A 12th Ed. Master Label requirements for Lighting Protection Systems

\* with optional sine wave tracking module

# External Modular SPDs Specifications

| Voltage     | Surge Current per Phase | Modes of Protection | Configuration      | Model Number | MCOV | I <sub>n</sub> | VPR   |       |       |       |
|-------------|-------------------------|---------------------|--------------------|--------------|------|----------------|-------|-------|-------|-------|
|             |                         |                     |                    |              |      |                | L-N   | L-G   | L-L   | N-G   |
| 120/240V    | 120kA                   | 6                   | 1 Ø, 3-wire+G      | TVS1EMA12_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 208Y/120V ■ | 120kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS2EMA12_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 480Y/277V ▲ | 120kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS4EMA12_   | 320V | 20kA           | 1200V | 1200V | 2000V | 1200V |
| 600Y/347V   | 120kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS8EMA12_   | 420V | 20kA           | 1500V | 1500V | 2500V | 1500V |
| 120/240V    | 160kA                   | 6                   | 1 Ø, 3-wire+G      | TVS1EMA16_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 208Y/120V ■ | 160kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS2EMA16_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 480Y/277V ▲ | 160kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS4EMA16_   | 320V | 20kA           | 1200V | 1200V | 2000V | 1200V |
| 600Y/347V   | 160kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS8EMA16_   | 420V | 20kA           | 1500V | 1500V | 2500V | 1500V |
| 120/240V    | 240kA                   | 6                   | 1 Ø, 3-wire+G      | TVS1EMA24_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 208Y/120V ■ | 240kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS2EMA24_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 480Y/277V ▲ | 240kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS4EMA24_   | 320V | 20kA           | 1200V | 1200V | 2000V | 1200V |
| 600Y/347V   | 240kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS8EMA24_   | 420V | 20kA           | 1500V | 1500V | 2500V | 1500V |
| 120/240V    | 320kA                   | 6                   | 1 Ø, 3-wire+G      | TVS1EMA32_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 208Y/120V ■ | 320kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS2EMA32_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 480Y/277V ▲ | 320kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS4EMA32_   | 320V | 20kA           | 1200V | 1200V | 2000V | 1200V |
| 600Y/347V   | 320kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS8EMA32_   | 420V | 20kA           | 1500V | 1500V | 2500V | 1500V |
| 120/240V    | 480kA                   | 6                   | 1 Ø, 3-wire+G      | TVS1EMA48_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 208Y/120V ■ | 480kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS2EMA48_   | 150V | 20kA           | 700V  | 700V  | 1200V | 700V  |
| 480Y/277V ▲ | 480kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS4EMA48_   | 320V | 20kA           | 1200V | 1200V | 2000V | 1200V |
| 600Y/347V   | 480kA                   | 10                  | 3 Ø, Wye, 4-wire+G | TVS8EMA48_   | 420V | 20kA           | 1500V | 1500V | 2500V | 1500V |

■ 208Y/120 series also applies to the following voltage 220Y/127

▲ 480Y/277 series also applies to the following voltages 380Y/220, 400Y/230, and 415Y/240

| Voltage    | Surge Current per Phase | Modes of Protection | Configuration       | Model Number | MCOV | I <sub>n</sub> | VPR  |       |       |       |       |       |      |
|------------|-------------------------|---------------------|---------------------|--------------|------|----------------|------|-------|-------|-------|-------|-------|------|
|            |                         |                     |                     |              |      |                | L-N  | H-N   | L-G   | H-G   | L-L   | H-L   | N-G  |
| 240/120HLD | 120kA                   | 10                  | 3 Ø, HLD*, 4-wire+G | TVS3EMA12_   | 150V | 20kA           | 700V | 1200V | 1200V | 1000V | 1200V | 1500V | 700V |
| 240/120HLD | 160kA                   | 10                  | 3 Ø, HLD*, 4-wire+G | TVS3EMA16_   | 150V | 20kA           | 700V | 1200V | 1200V | 1000V | 1200V | 1500V | 700V |
| 240/120HLD | 240kA                   | 10                  | 3 Ø, HLD*, 4-wire+G | TVS3EMA24_   | 150V | 20kA           | 700V | 1200V | 1200V | 1000V | 1200V | 1500V | 700V |
| 240/120HLD | 320kA                   | 10                  | 3 Ø, HLD*, 4-wire+G | TVS3EMA32_   | 150V | 20kA           | 700V | 1200V | 1200V | 1000V | 1200V | 1500V | 700V |
| 240/120HLD | 480kA                   | 10                  | 3 Ø, HLD*, 4-wire+G | TVS3EMA48_   | 150V | 20kA           | 700V | 1200V | 1200V | 1000V | 1200V | 1500V | 700V |

\*HLD = High-leg delta

Model numbers not recognized as line items in Schneider Electric ordering system until a suffix code is applied

## MODEL NUMBER SUFFIX CODES

A = NEMA 3R, steel enclosure (e.g. TVS4EMA12A)

ASWT = NEMA 3R, steel enclosure with sine wave tracking module (e.g. TVS4EMA12ASWT)

AI = NEMA 3R, steel enclosure with integral switch (e.g. TVS4EMA12AI)

AISWT = NEMA 3R, steel enclosure with integral switch and sine wave tracking module (e.g. TVS4EMA12AISWT)

S = NEMA 4X, stainless steel enclosure (e.g. TSV4EMA12S) only in 120, 160, and 240kA surge currents

SSWT = NEMA 4X, stainless steel enclosure with sine wave tracking module (e.g. TVS4EMA12SSWT)

SI = NEMA 4X, stainless steel enclosure with integral switch (e.g. TVS4EMA12SI) only in 120, 160, and 240kA surge currents

SISWT = NEMA 4X, stainless steel enclosure with integral switch and sine wave tracking module (e.g. TVS4EMA12SISWT) only in 120, 160, and 240kA surge currents

## SPD ACCESSORIES

|                         |          |
|-------------------------|----------|
| Remote Monitor          | TVS12RMU |
| 12"x12" Flush Mount Kit | TVS12FMK |
| 16"x20" Flush Mount Kit | TVS20FMK |

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