

# Section 6

## Surge Protective Devices (SPDs)

Commercial Applications



EMA Series SPDs



Retrofit

EBA Series SPDs



SurgeLogic™ SurgeLoc

Residential & Light Commercial Applications



SDSA 3-Phase



HEPD80



QO/HOM SPDs



Whole House SPDs

### Externally Mounted SPDs 6-2

|                     |     |
|---------------------|-----|
| Overview            | 6-2 |
| EMA Series SPDs     | 6-2 |
| Replacement Modules | 6-3 |
| EBA Series SPDs     | 6-4 |

### Internally Mounted SPDs 6-4

|   |     |
|---|-----|
| Overview  | 6-4 |
| Internally Mounted—New Construction/Factory Assembled | 6-4 |
| Internally Mounted SPDs—Retrofit/Ready to Install     | 6-4 |
| Internally Mounted—Retrofit/Ready to Install          | 6-5 |
| SurgeLogic™ SurgeLoc for NQ Panelboards               | 6-5 |
| OEM/Assembler Kits                                    | 6-6 |

### Nipple-Mounted SPDs 6-7

|  |     |
|--|-----|
| HWA SPDs                               | 6-7 |
| XR Surge Protective Devices            | 6-7 |
| Mounting Brackets and Flush Mount Kits | 6-8 |
| SDSA1175 and SDSA 3-Phase SPDs         | 6-8 |

### Residential SPDs 6-9

|   |      |
|---|------|
| Whole House SPDs  | 6-9  |
| Plug on Neutral QO™ and Homeline™ Load Center SPDs          | 6-10 |
| QO™, NQ, and Homeline™ Load Center Surge Protective Devices | 6-11 |

### California Proposition 65 6-11



EMA Series SPDs

## Externally Mounted Surge Protective Devices

SurgeLogic™ EMA and EBA series SPDs offer a full range of externally mounted surge suppression solutions. These units are designed to provide surge suppression from service entrance panels to point-of-use equipment.

US and Canadian UL® Listed to the UL 1449 standard. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- EMI/RFI filtering
- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase
- UL 1449 Type 1 to be used in both Type 1 and Type 2 applications
- **Standard.** UL 1449 Type 1 SPDs can be located at any point in the electrical system, on the line or load side of the equipment overcurrent device.
- **Remote Monitor.** This option displays the alarm status of the surge protective device up to 1000 feet from the unit.



## EMA Series SPDs

EMA SPD products feature a design based on individual phase modules for a flexible, cost effective way to achieve superior surge suppression at every level of the electrical distribution system. Modularity results in lower life cycle costs and fast, easy service or replacement.

### EMA SPD Options:

- **Enhanced Filtering Module.** Sine wave tracking circuitry provides enhanced EMI/RFI filtering of -54 dB at 100 kHz and establishes the power surge clamping window relative to the sine wave voltage to increase performance at distribution and branch panel applications.
- **Disconnect Switch.** The integral switch provides a mechanical means to electrically isolate the entire surge suppressor before opening the enclosure door to facilitate servicing of the unit's components.

Table 6.1: EMA SPDs

| Service Voltage   | Peak Surge Current Rating per Phase (kA) | NEMA 1 Cat. No. | NEMA 4X Stainless Steel Cat. No. |
|---|--|-----------------|----------------------------------|
| 120/240 V, 1-phase, 3-wire + ground [1]                   | 120                                      | SSP01EMA12( )   | SSP01EMA12S( )                   |
|   | 160                                      | SSP01EMA16( )   | SSP01EMA16S( )                   |
|   | 240                                      | SSP01EMA24( )   | SSP01EMA24S( )                   |
|   | 320                                      | SSP01EMA32( )   | SSP01EMA32S( )                   |
|   | 480                                      | SSP01EMA48( )   | SSP01EMA48S( )                   |
| 208Y/120 V, 3-phase, 4-wire + ground [2] [3] [1]<br>Wye   | 120                                      | SSP02EMA12( )   | SSP02EMA12S( )                   |
|   | 160                                      | SSP02EMA16( )   | SSP02EMA16S( )                   |
|   | 240                                      | SSP02EMA24( )   | SSP02EMA24S( )                   |
|   | 320                                      | SSP02EMA32( )   | SSP02EMA32S( )                   |
|   | 480                                      | SSP02EMA48( )   | SSP02EMA48S( )                   |
| 240/120 V, 3-phase, 4-wire + ground [1]<br>High-leg Delta | 120                                      | SSP03EMA12( )   | SSP03EMA12S( )                   |
|   | 160                                      | SSP03EMA16( )   | SSP03EMA16S( )                   |
|   | 240                                      | SSP03EMA24( )   | SSP03EMA24S( )                   |
|   | 320                                      | SSP03EMA32( )   | —                                |
|   | 480                                      | SSP03EMA48( )   | —                                |
| 240 V, 3-phase, 3-wire + ground<br>Delta                  | 100                                      | SSP06EMA10( )   | SSP06EMA10S( )                   |
|   | 120                                      | SSP06EMA12( )   | SSP06EMA12S( )                   |
|   | 160                                      | SSP06EMA16( )   | SSP06EMA16S( )                   |
|   | 200                                      | SSP06EMA20( )   | SSP06EMA20S( )                   |
|   | 240                                      | SSP06EMA24( )   | SSP06EMA24S( )                   |
| 480Y/277 V, 3-phase, 4-wire + ground [3] [4] [1]<br>Wye   | 120                                      | SSP04EMA12( )   | SSP04EMA12S( )                   |
|   | 160                                      | SSP04EMA16( )   | SSP04EMA16S( )                   |
|   | 240                                      | SSP04EMA24( )   | SSP04EMA24S( )                   |
|   | 320                                      | SSP04EMA32( )   | SSP04EMA32S( )                   |
|   | 480                                      | SSP04EMA48( )   | SSP04EMA48S( )                   |
| 480 V, 3-phase, 3-wire + ground [5]<br>Delta              | 100                                      | SSP05EMA10( )   | SSP05EMA10S( )                   |
|   | 120                                      | SSP05EMA12( )   | SSP05EMA12S( )                   |
|   | 160                                      | SSP05EMA16( )   | SSP05EMA16S( )                   |
|   | 200                                      | SSP05EMA20( )   | SSP05EMA20S( )                   |
|   | 240                                      | SSP05EMA24( )   | SSP05EMA24S( )                   |
|   | 320                                      | SSP05EMA32( )   | SSP05EMA32S( )                   |
|   | 480                                      | SSP05EMA48( )   | SSP05EMA48S( )                   |

[1] Do not use on ungrounded systems. Systems must be solidly grounded.

[2] 208Y/120 series also applies to the following voltage 220Y/127.

[3] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.

[4] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

[5] 480 V Delta series also applies to the following voltage 480Y/277V HRG.

**Table 6.1 EMA SPDs (cont'd.)**

| Service Voltage                                   | Peak Surge Current Rating per Phase (kA) | NEMA 1 Cat. No. | NEMA 4X Stainless Steel Cat. No. |
|---|--|-----------------|----------------------------------|
| 600Y/347 V, 3-phase, 4-wire + ground, [6] [7] WYE | 120                                      | SSP08EMA12( )   | SSP08EMA12S( )                   |
|   | 160                                      | SSP08EMA16( )   | SSP08EMA16S( )                   |
|   | 240                                      | SSP08EMA24( )   | SSP08EMA24S( )                   |
|   | 320                                      | SSP08EMA32( )   | SSP08EMA32S( )                   |
|   | 480                                      | SSP08EMA48( )   | SSP08EMA48S( )                   |
| 600 V, 3-phase, 3-wire + ground [8] Delta         | 100                                      | SSP09EMA10( )   | SSP09EMA10S( )                   |
|   | 120                                      | SSP09EMA12( )   | SSP09EMA12S( )                   |
|   | 160                                      | SSP09EMA16( )   | SSP09EMA16S( )                   |
|   | 180                                      | SSP09EMA18( )   | SSP09EMA18S( )                   |
|   | 240                                      | SSP09EMA24( )   | SSP09EMA24S( )                   |
| 320   | SSP09EMA32( )                            | SSP09EMA32S( )  |                                  |

**External Modular Options ( )**

|          |  |
|----------|--|
| (D) [9]  | Disconnect Switch  |
| (F)      | Enhanced Filtering Module (not applicable for Delta, HRG or HLD)                       |
| (DF) [9] | Disconnect Switch and Enhanced Filtering Module (not applicable for Delta, HRG or HLD) |

| Accessory Description | Cat. No. |
|-----------------------|----------|
| Remote Monitor        | TVS12RMU |

**Replacement Modules**

All module assemblies are US and Canadian UL® Recognized to UL 1449 standards. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate.



Wye Replacement Module



Delta/HRG Replacement Module

**Table 6.2: EMA Replacement Modules**

| System Voltage  | Peak Surge Current Rating (kA) | Catalog Numbers [10] |          |          |
|---|--------------------------------|----------------------|----------|----------|
|   |                                | Phase A              | Phase B  | Phase C  |
| 120/240 V, 1-phase, 3-wire + ground                     | 120                            | MA11MA12             | —        | MA11MA12 |
|   | 160                            | MA11MA16             | —        | MA11MA16 |
|   | 240                            | MA11MA24             | —        | MA11MA24 |
| 208Y/120 V, 3-phase, 4-wire + ground [11] Wye           | 120                            | MA11MA12             | MA11MA12 | MA11MA12 |
|   | 160                            | MA11MA16             | MA11MA16 | MA11MA16 |
|   | 240                            | MA11MA24             | MA11MA24 | MA11MA24 |
| 240/120 V, 3-phase, 4-wire + ground [12] High-Leg Delta | 120                            | MA11MA12             | MA31MA12 | MA11MA12 |
|   | 160                            | MA11MA16             | MA31MA16 | MA11MA16 |
|   | 240                            | MA11MA24             | MA31MA24 | MA11MA24 |
| 240 V, 3-phase, 3-wire + ground Delta                   | 100                            | MA61MA10             | MA61MA10 | MA61MA10 |
|   | 120                            | MA61MA12             | MA61MA12 | MA61MA12 |
|   | 160                            | MA61MA16             | MA61MA16 | MA61MA16 |
|   | 200                            | MA61MA20             | MA61MA20 | MA61MA20 |
|   | 240                            | MA61MA24             | MA61MA24 | MA61MA24 |
| 480Y/277 V, 3-phase, 4-wire + ground [13] Wye           | 120                            | MA41MA12             | MA41MA12 | MA41MA12 |
|   | 160                            | MA41MA16             | MA41MA16 | MA41MA16 |
|   | 240                            | MA41MA24             | MA41MA24 | MA41MA24 |
| 480 V, 3-phase, 3-wire + ground [14] Delta              | 100                            | MA51MA10             | MA51MA10 | MA51MA10 |
|   | 120                            | MA51MA12             | MA51MA12 | MA51MA12 |
|   | 160                            | MA51MA16             | MA51MA16 | MA51MA16 |
|   | 200                            | MA51MA20             | MA51MA20 | MA51MA20 |
|   | 240                            | MA51MA24             | MA51MA24 | MA51MA24 |
| 600Y/347 V, 3-phase, 4-wire + ground Wye                | 120                            | MA81MA12             | MA81MA12 | MA81MA12 |
|   | 160                            | MA81MA16             | MA81MA16 | MA81MA16 |
|   | 240                            | MA81MA24             | MA81MA24 | MA81MA24 |
| 600 V, 3-phase, 3-wire + ground [8] Delta               | 100                            | MA91MA10             | MA91MA10 | MA91MA10 |
|   | 120                            | MA91MA12             | MA91MA12 | MA91MA12 |
|   | 160                            | MA91MA16             | MA91MA16 | MA91MA16 |
| 180   | MA91MA18                       | MA91MA18             | MA91MA18 |          |

[6] Do not use on ungrounded systems. Systems must be solidly grounded.  
 [7] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.  
 [8] 600 V Delta series also applies to the following voltage 600Y/347V HRG.  
 [9] Not available in stainless steel for 320 and 480 kA.  
 [10] For UL 1449 Type 1 Modules, add suffix (1). Example: MA11MA121  
 [11] 208Y/120 series also applies to the following voltage 220Y/127.  
 [12] High-leg delta (Phase B modules are different than Phase A and Phase C modules).  
 [13] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.  
 [14] 480 V Delta series also applies to the following voltage 480Y/277V HRG.

New!

**EBA Series SPDs**

EBA SPD products consist of a consolidation of phase modules into one solid brick casting and offered at a competitive price for those who want superior surge suppression on a limited budget. EBA series are nipple-mounted SPDs that allow installation flexibility and retain superior performance.

- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- -45 dB EMI/RFI Filtering
- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase
- NEMA 1 rated enclosure



EBA Series SPD



Remote Monitor

**Table 6.3: EBA SPDs**

| Service Voltage   | Peak Surge Current Rating per Phase (kA) | NEMA 1 Cat. No. |
|---|--|-----------------|
| 120/240 V, 1-phase, 3-wire + ground [15]                | 80                                       | SSP01EBA08      |
|   | 100                                      | SSP01EBA10      |
|   | 120                                      | SSP01EBA12      |
|   | 160                                      | SSP01EBA16      |
|   | 200                                      | SSP01EBA20      |
|   | 240                                      | SSP01EBA24      |
| 208Y/120 V, 3-phase, 4-wire + ground [16] [17] [15] Wye | 80                                       | SSP02EBA08      |
|   | 100                                      | SSP02EBA10      |
|   | 120                                      | SSP02EBA12      |
|   | 160                                      | SSP02EBA16      |
|   | 200                                      | SSP02EBA20      |
|   | 240                                      | SSP02EBA24      |

  

| Accessory Description | Cat. No. |
|-----------------------|----------|
| Remote Monitor        | TVS12RMU |

**Internally Mounted Surge Protective Devices**

Internally mounted surge protective devices are installed integrally to systems for service entrance and branch panel surge suppression. Internally mounted SPDs installed next to the supply bus provides maximum performance inside Square D™ systems. Built-in performance is the best way to ensure cost effective power quality (especially important for critical power facilities).

US and Canadian UL® Recognized as a Type 2 (or 1 with optional suffix in catalog number) SPD Component Assembly to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

**Internally Mounted—New Construction / Factory Assembled**

Factory installed integral/internal Surgeloc™ SPD products make adding surge suppression to new construction projects easy. Refer to the sections listed below to identify the correct product for your application or contact Surgeloc™ TAG at 1-800-577-7353 for assistance.

Panelboards  
Refer to Section 9



NF

NQ

Switchboards and Switchgear  
Refer to Section 11



PZ4

QED

Motor Control Centers  
Refer to Section 17



MCC

Integrated Power and Control Centers  
Refer to Section 10



IPAC2

[15] Do not use on ungrounded systems. Systems must be solidly grounded.

[16] 208Y/120 series also applies to the following voltage 220Y/127.

[17] Can be used on 3-wire or 4-wire grounded wye systems with or without neutral.

**Internally Mounted—Retrofit/Ready to Install**

To ensure high-performance surge suppression at critical power locations, a variety of SurgeLogic™ products have been designed specifically for retrofitting into commonly used Square D™ systems. The QMB fusible switch, 6 in. MCC bucket, I-Line & Busway plug-on units and the new SurgeLoc for the NQ panelboards come read to install. Retrofitting SPD units into I-Line, QMB, MCC, Busway and NQ Panelboard applications is simple.

- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- 200 kA SCCR
- Indicator LEDs
- EMI/RFI filtering

**Table 6.4: Internally Mounted—Retrofit / Ready To Install**

| Voltage  | Surge Current Rating | I-Line Branch Units [1] |           | QMB Branch Units [2] | Busway Units | Model 6 MCC Units [3] |
|--|----------------------|-------------------------|-----------|----------------------|--------------|-----------------------|
|  |                      | Cat. No.                | Cat. No.  | Cat. No.             | Cat. No. [4] | Cat. No. [4]          |
| 120/240 V, 1-phase, 3-wire + ground                | 120 kA               | HL1IMA12C()             | HR1IMA12C | QMB1IMA12            | —            | —                     |
|  | 160 kA               | HL1IMA16C()             | HR1IMA16C | QMB1IMA16            | —            | —                     |
|  | 240 kA               | HL1IMA24C()             | HR1IMA24C | QMB1IMA24            | —            | —                     |
| 208Y/120 V, 3-phase, 4-wire + ground [5] Wye [6]   | 120 kA               | HL2IMA12C()             | HR2IMA12C | QMB2IMA12            | —            | MCC2IMA12             |
|  | 160 kA               | HL2IMA16C()             | HR2IMA16C | QMB2IMA16            | PIU2IMA16    | MCC2IMA16             |
|  | 240 kA               | HL2IMA24C()             | HR2IMA24C | QMB2IMA24            | PIU2IMA24    | MCC2IMA24             |
| 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 120 kA               | HL3IMA12C()             | HR3IMA12C | QMB3IMA12            | —            | MCC3IMA12             |
|  | 160 kA               | HL3IMA16C()             | HR3IMA16C | QMB3IMA16            | PIU3IMA16    | MCC3IMA16             |
|  | 240 kA               | HL3IMA24C()             | HR3IMA24C | QMB3IMA24            | PIU3IMA24    | MCC3IMA24             |
| 240 V, 3-phase, 3-wire + ground, Delta             | 120 kA               | HL6IMA12C()             | HR6IMA12C | —                    | —            | —                     |
|  | 160 kA               | HL6IMA16C()             | HR6IMA16C | —                    | —            | —                     |
|  | 240 kA               | HL6IMA24C()             | HR6IMA24C | —                    | —            | —                     |
| 480Y/277 V, 3-phase, 4-wire + ground [5] Wye [7]   | 120 kA               | HL4IMA12C()             | HR4IMA12C | QMB4IMA12            | —            | MCC4IMA12             |
|  | 160 kA               | HL4IMA16C()             | HR4IMA16C | QMB4IMA16            | PIU4IMA16    | MCC4IMA16             |
|  | 240 kA               | HL4IMA24C()             | HR4IMA24C | QMB4IMA24            | PIU4IMA24    | MCC4IMA24             |
| 480 V, 3-phase, 3-wire + ground, Delta [8]         | 120 kA               | HL5IMA12C()             | HR5IMA12C | —                    | —            | —                     |
|  | 160 kA               | HL5IMA16C()             | HR5IMA16C | —                    | —            | —                     |
|  | 240 kA               | HL5IMA24C()             | HR5IMA24C | —                    | —            | —                     |
| 600Y/347 V, 3-phase, 4-wire + ground [5] Wye       | 120 kA               | —                       | HR8IMA12C | QMB8IMA12            | —            | MCC8IMA12             |
|  | 160 kA               | —                       | HR8IMA16C | QMB8IMA16            | PIU8IMA16    | MCC8IMA16             |
|  | 240 kA               | —                       | HR8IMA24C | QMB8IMA24            | PIU8IMA24    | MCC8IMA24             |
| 600V, 3-phase, 3-wire + ground, [9] Delta          | 120 kA               | —                       | HR9IMA12C | —                    | —            | —                     |
|  | 160 kA               | —                       | HR9IMA16C | —                    | —            | —                     |
|  | 180 kA               | —                       | HR9IMA18C | —                    | —            | —                     |

( ) For a Type 1 SPD, add a "1" suffix to the catalog number.



I-Line™ SurgeLogic™ SPD Unit



QMB SurgeLogic™ SPD Unit



Busway SurgeLogic™ SPD Unit



MCC SurgeLogic™ SPD Unit



SurgeLogic™ SurgeLoc

**New! SurgeLogic™ SurgeLoc for NQ Panelboards**

SurgeLogic™ SurgeLoc is the industries first Field Installable Internally Mounted SPD in NQ panelboards - fully installed in aprox. 2 minutes. SurgeLogic (TM) SurgeLoc can be ordered as factory assembled in NQ Panelboards or can be ordered from your local Schneider Electric distributor for retrofit opportunities for NQ panelboards.

US and Canadian UL® Recognized to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- Retrofit into existing NQ Panelboards
- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase

**\*\* FOR SURGELOC PART NUMBERS, PLEASE REFERENCE Table 6.5 Internally Mounted—Retrofit / Ready to Install, page 6-6.**

[1] Requires 13.5-inch mounting height.  
 [2] Requires 9-inch mounting height.  
 [3] Requires 6-inch mounting height.  
 [4] PE7 Discount Schedule.  
 [5] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.  
 [6] 208Y/120 series also applies to the following voltage 220Y/127.  
 [7] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.  
 [8] 480 V Delta series also applies to the following voltage: 480Y/277V HRG.  
 [9] 600 V Delta series also applies to the following voltage: 600Y/347V HRG.

Table 6.5: Internally Mounted—Retrofit / Ready to Install

| Voltage   | Surge Current Rating | NQ Panelboard Units—SurgLoc [10] |
|---|----------------------|----------------------------------|
|   |                      | Cat. No.                         |
| 120/240 V, 1-phase, 3-wire + ground                 | 80 kA                | SSP01BIA08PBQ1                   |
|   | 100 kA               | SSP01BIA10PBQ1                   |
|   | 120 kA               | SSP01BIA12PBQ1                   |
|   | 160 kA               | SSP01BIA16PBQ1                   |
|   | 200 kA               | SSP01BIA20PBQ1                   |
|   | 240 kA               | SSP01BIA24PBQ1                   |
| 208Y/120 V, 3-phase, 4-wire + ground [11] [12] Wye  | 80 kA                | SSP02BIA08PBQ1                   |
|   | 100 kA               | SSP02BIA10PBQ1                   |
|   | 120 kA               | SSP02BIA12PBQ1                   |
|   | 160 kA               | SSP02BIA16PBQ1                   |
|   | 200 kA               | SSP02BIA20PBQ1                   |
|   | 240 kA               | SSP02BIA24PBQ1                   |
| 240Y/120 V, 3-phase, 4-wire + ground High-leg Delta | 80 kA                | SSP03BIA08PBQ1                   |
|   | 100 kA               | SSP03BIA10PBQ1                   |
|   | 120 kA               | SSP03BIA12PBQ1                   |
|   | 160 kA               | SSP03BIA16PBQ1                   |
|   | 200 kA               | SSP03BIA20PBQ1                   |
|   | 240 kA               | SSP03BIA24PBQ1                   |

**OEM/Assembler Kits**

SurgeLogic™ OEM/assembler kits allow manufacturers to add industry-leading surge suppression directly to customized equipment. Manufacturers benefit from shorter wire lengths that optimize the clamping voltage of the SPD. Products come with a backplane-mounted SPD, mounting hardware and diagnostic display with 36-inch cables. Audible alarm, silence switch, remote monitoring contacts, and surge counter are standard. Available as UL 1449 Type 2 (or 1 with optional suffix in catalog number).

US and Canadian UL® Recognized to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

Table 6.6: OEM/Assembler Kits

| Service Voltage                                    | Peak Surge Current Rating per Phase (kA) | Cat. No. [13] |
|--|--|---------------|
| 120/240 V, 1-phase, 3-wire + ground                | 120                                      | TVS1IMA12O( ) |
|  | 160                                      | TVS1IMA16O( ) |
|  | 240                                      | TVS1IMA24O( ) |
| 208Y/120 V, 3-phase, 4-wire + ground [14] [15] Wye | 120                                      | TVS2IMA12O( ) |
|  | 160                                      | TVS2IMA16O( ) |
|  | 240                                      | TVS2IMA24O( ) |
| 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 120                                      | TVS3IMA12O( ) |
|  | 160                                      | TVS3IMA16O( ) |
|  | 240                                      | TVS3IMA24O( ) |
| 240 V, 3-phase, 3-wire + ground [14] [16] Delta    | 120                                      | TVS6IMA12O( ) |
|  | 160                                      | TVS6IMA16O( ) |
|  | 240                                      | TVS6IMA24O( ) |
| 480Y/277 V, 3-phase, 4-wire + ground [14] [16] Wye | 120                                      | TVS4IMA12O( ) |
|  | 160                                      | TVS4IMA16O( ) |
|  | 240                                      | TVS4IMA24O( ) |
| 480 V, 3-phase, 3-wire + ground [17] Delta         | 120                                      | TVS5IMA12O( ) |
|  | 160                                      | TVS5IMA16O( ) |
|  | 240                                      | TVS5IMA24O( ) |
| 600Y/347 V, 3-phase, 4-wire + ground [14] Wye      | 120                                      | TVS8IMA12O( ) |
|  | 160                                      | TVS8IMA16O( ) |
|  | 240                                      | TVS8IMA24O( ) |
| 600 V, 3-phase, 3-wire + ground [18] Delta         | 120                                      | TVS9IMA12O( ) |
|  | 160                                      | TVS9IMA16O( ) |
|  | 180                                      | TVS9IMA18O( ) |

( ) For a Type 1 SPD, add a “1” suffix to the catalog number.



[10] Requires 12 circuit positions (6 adjacent mounting spaces per side).  
 [11] Can be used on 4-wire or 3-wire grounded neutral system.  
 [12] 208/120 series also applies to the following voltage 220Y/127.  
 [13] Note the last character of the catalog number is the letter “O”, not a zero.  
 [14] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.  
 [15] 208Y/120 series also applies to the following voltage 220Y/127.  
 [16] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.  
 [17] 480 V Delta series also applies to the following voltage: 480Y/277V HRG.  
 [18] 600 V Delta series also applies to the following voltage: 600Y/347V HRG.



HWA Series

### HWA Surge Protective Devices

SurgeLogic™ HWA surge protective devices are compact, nipple-mounted parallel-connected surge suppressors that come in a variety of voltage configurations, including Delta. A surge suppression path is provided for each mode, and the product is rated NEMA Type 4X. Internal diagnostics continuously monitor the device status.

US and Canadian UL® Listed as a Type 2 SPD to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- LEDs indicate operational status
- Short circuit current rating 200 kA
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient side-nipple mounting
- Compact design provides easy mounting inside or outside the equipment cabinets
- -54 dB EMI/RFI filtering
- Sine wave tracking
- Audible alarm indicates loss of suppression (does not contain alarm enable/disable switch)
- Dry contacts
- Optional flush-mount kit TVSHWAFMK

**Table 6.7: HWA Surge Protective Devices**

| Service Voltage  | Peak Surge Current Rating per Phase (kA) | NEMA 4X Cat. No. |
|--|--|------------------|
| 120/240 V, 1-phase, 3-wire + ground [1]                | 50                                       | TVS1HWA50X       |
|  | 80                                       | TVS1HWA80X       |
|  | 100                                      | TVS1HWA10X       |
| 208Y/120 V, 3-phase, 4-wire + ground [2] [3] [1]       | 50                                       | TVS2HWA50X       |
|  | 80                                       | TVS2HWA80X       |
|  | 100                                      | TVS2HWA10X       |
| 240/120 V, 3-phase, 4-wire + ground [1] High-leg Delta | 50                                       | TVS3HWA50X       |
|  | 80                                       | TVS3HWA80X       |
|  | 100                                      | TVS3HWA10X       |
| 240 V, 3-phase, 3-wire + ground Delta                  | 50                                       | TVS6HWA50X       |
|  | 80                                       | TVS6HWA80X       |
|  | 100                                      | TVS6HWA10X       |
| 480Y/277 V, 3-phase, 4-wire + ground [2] [4] [1]       | 50                                       | TVS4HWA50X       |
|  | 80                                       | TVS4HWA80X       |
|  | 100                                      | TVS4HWA10X       |
| 480 V, 3-phase, 3-wire + ground Delta                  | 50                                       | TVS5HWA50X       |
|  | 80                                       | TVS5HWA80X       |
|  | 100                                      | TVS5HWA10X       |
| 600Y/347 V, 3-phase, 4-wire + ground [1]               | 50                                       | TVS8HWA50X       |
|  | 80                                       | TVS8HWA80X       |
|  | 100                                      | TVS8HWA10X       |
| 600 V, 3-phase, 3-wire + ground Delta                  | 50                                       | TVS9HWA50X       |
|  | 80                                       | TVS9HWA80X       |
|  | 100                                      | TVS9HWA10X       |

### XR Surge Protective Devices

The XR SPD provides high-quality surge suppression in a compact and versatile package. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems.

US and Canadian UL® Listed as Type 1 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.



XR Series

- LEDs indicate operational status
- Short circuit current rating 25 kA
- Convenient side nipple mounting
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Optional flush mount kit TVSXRFMK

**Table 6.8: XR Nipple-Mounted Surge Protective Devices**

| System Voltage                      | Peak Surge Current Rating per Phase (kA) | Cat. No.    |
|-------------------------------------|--|-------------|
| 120/240 V, 1-phase, 3-wire + ground | 50                                       | TVS120XR50S |
|                                     | 80                                       | TVS120XR80S |

[1] Do not use on ungrounded systems. Systems must be solidly grounded.  
 [2] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.  
 [3] 208Y/120 series also applies to the following voltage 220Y/127.  
 [4] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

## Mounting Brackets and Flush Mount Kits

The nipple products shown in this catalog provide a convenient means of incorporating surge suppression within a new or existing cabinet. The mounting bracket and flush-mount kits are designed for easy mounting of nipple products.



QOSAMK



SDSA1175



SDSA 3-Phase

**Table 6.9: Mounting Bracket for Enclosures**

| Description                                | Cat. No.  |
|--|-----------|
| Mounting bracket for SDSA1175 or SDSA1175T | QOSAMK    |
| Flush-mount kit for HWA SPDs               | TVSHWAFMK |



### SDSA1175 and SDSA 3-Phase Surge Protective Devices

SDSA1175 are designed and listed for indoor or outdoor installation and surge suppression for single-phase three-wire 120/240 Vac or two-wire 120 Vac 60 Hz electrical services. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems. Two SDSA1175 surge protection devices can be installed to provide suppression for 208Y/120 Vac three-phase four-wire services.

SDSA 3-Phase SPDs are designed and listed for indoor or outdoor installation and surge suppression for three-phase electrical services up to 600 Vac. The SDSA 3-Phase series is used extensively in service entrance panels to provide an efficient and economical means of surge suppression and also ideal for point of use applications for that added level of protection.

US and Canadian UL® Listed as Type 1 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- LED indicates operational status
- Short circuit current rating 25 kA (SDSA1175), 200 kA (SDSA 3-Phase)
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient back-nipple mounting

**Table 6.10: SDSA1175 and SDSA 3-Phase Surge Protective Devices**

| System Voltage                         | Peak Surge Current Rating per Phase (kA) | Cat. No.  |           |
|--|--|-----------|-----------|
| <b>SDSA1175</b>                        |  |           |           |
| 120/240 V, 1-phase, 3-wire             | 36                                       | SDSA1175  |           |
| 120 V, 1-phase, 2-wire                 | 36                                       | SDSA1175T |           |
| <b>SDSA 3-Phase</b>                    |  |           |           |
| 208Y/120 V,<br>3-phase, 4-wire [5] [6] | 40                                       | New!      | SDSA2040  |
| 240 V Delta,<br>3-phase, 3-wire [7]    | 40                                       | New!      | SDSA2040D |
| 480Y/277 V,<br>3-phase, 4-wire [8] [5] | 40                                       | New!      | SDSA4040  |
| 480 V Delta,<br>3-phase, 3-wire        | 40                                       | New!      | SDSA4040D |
| 600Y/347 V,<br>3-phase, 4-wire [5]     | 40                                       | SDSA3650  |           |
| 600 V Delta,<br>3-phase, 3-wire        | 40                                       | SDSA3650D |           |

[5] Do not use on ungrounded systems. Systems must be solidly grounded.

[6] Applicable voltages: 220Y/127V, 208Y/120V.

[7] Applicable voltages: 240V Delta, 240/120V High-Leg Delta.

[8] Applicable voltages: 480Y/277V, 415Y/240V, 400Y/230V, 380Y/220V.





SDSB80111

### Surgebreaker Plus Whole House Surge Protective Device

The Surgebreaker Plus Whole House device is designed to deliver surge suppression that addresses the entire home. AC modules are connected to the circuit breaker load center and provide suppression for all equipment connected to the power system. This Whole House system incorporates AC modules as well as modules for other metallic lines coming into the home including telephone/DSL and coaxial video/data.

US and Canadian UL® Listed as Type 2 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate. Telephone and coaxial video modules US and Canadian UL® Recognized to UL 497A 4th Edition and UL 497B 4th Edition.

- 120/240 Vac, 80 kA/phase AC surge suppression
- LED status indicators for AC surge suppression
- Telephone surge suppression module supports one RJ45 cable up to four lines.
- Coaxial surge suppression module supports one line of video/data
- Network suppression module supports one RJ45 modem/fax/DSL

**Table 6.11: Whole House Surge Protective Devices**

| Description        | Included Modules             | Cat. No.  |
|--------------------|------------------------------|-----------|
| Whole House NEMA 1 | AC, Telephone, Coax, Network | SDSB80111 |

**Table 6.12: SDSB80111 Replacement Modules**

| Description                        | Cat. No. |
|------------------------------------|----------|
| Telephone Suppression Module       | PTEL2R   |
| Video Suppression Module           | PVR      |
| Network Suppression Module         | PNETR6   |
| Home Electronics Protective Device | HEPD80   |

\*\* To purchase Telephone, Video or Network Replacement Modules - go online to: <http://www.apc.com/products/family/index.cfm?id=219>

### Surgebreaker Plus Whole House Accessories

Add additional surge suppression or replace existing modules in Whole House products.

**Coaxial, telephone and network modules:** US and Canadian UL® Recognized to UL 497A 4th Edition and UL 497B 4th Edition.



HEPD50



HEPD80



HEPD80MKF



HEPD80MKF

### HEPD Whole House Surge Protective Device

HEPD Whole House devices are designed to deliver superior AC surge protection for the entire AC power system in a home. HEPDs are compact in size and are designed to protect AC wires in the home from surges that could affect home electronics and appliances not connected to surge strips.

cULus Listed to the latest UL 1449 standard, UL Type 1 SPD, CSA C22.2 No. \*-M1986, C233.1-87.

- 120/240 Vac
- Max surge current ratings available: 50, 80 and 108 kA
- NEMA 4X rate for indoor or outdoor applications
- LED status indicators
- Compatible with all brands of load centers
- Flush Mount Kits sold separately - see table below
- HEPD50: 3 year/\$50,000 connected equipment warranty
- HEPD80: 5 year/\$75,000 connected equipment warranty

**Table 6.13: HEPD Whole House Surge Protective Devices**

| Description                            | Surge Current Rating | Cat. No.  |
|--|----------------------|-----------|
| 50kA Home Electronic Protective Device | 50 kA                | HEPD50    |
| 80kA Home Electronic Protective Device | 80 kA                | HEPD80    |
| Flush Mount Kit for HEPD80             |                      | HEPD80MKF |



QO250PSPD



HOM250PSPD

### Plug-on Neutral QO™ and Homeline™ Load Center Surge Protective Devices

The industry's first exclusive Plug on Neutral (PoN) Surge Protective Device (SPD). Square D™ load center PoN SPDs are a simple and quick installation. It's as easy as snap, click, done! PoN SPDs are easier to install than a standard circuit breaker. No wires are needed for installation. The PoN SPD simply plugs on to the bus and neutral bar. The surge suppressors use two-pole spaces in a QO™ or Homeline™ load center.

US and Canadian UL® Listed as Type 2 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- Industry First: No wires or tools required for installation
- Installation Flexibility: Works on Plug-on Neutral design QO or HOM loadcenters using two-pole spaces
- Whole House Protection: 50 kA surge current capacity per phase
- LED indicates operational status
- Peace of mind: 5 year/ \$50,000 connected equipment warranty

**Table 6.14: QO™, NQ, and Homeline™ Load Center Surge Protective Device**

| Description                            | Cat. No.   |
|--|------------|
| Plug on Neutral QO™ Surgebreaker       | QO250PSPD  |
| Plug on Neutral Homeline™ Surgebreaker | HOM250PSPD |

Refer to Catalog [6671CT9701](#)



QO2175SB



HOM2175SB

**QO™, NQ, and Homeline™ Load Center Surge Protective Devices**

Square D™ load center surge protective devices are easy to install plug-in units that install as quickly as a standard circuit breaker. The surge suppressors use two pole spaces in a QO™ or Homeline™ load center, or NQ panelboard.

US and Canadian UL® Listed as Type 2 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- QO2175SB for QO™ load centers, combination devices, and NQ panelboards
- HOM2175SB for Homeline™ load centers and combination devices
- Plug-on design requires two pole spaces
- LED indicates operational status
- 22.5 kA per phase

**Table 6.15: QO™, NQ, and Homeline™ Load Center Surge Protective Devices**

| Description                    | Cat. No.                  |
|--------------------------------|---------------------------|
| QO™ Surgebreaker for QO and NQ | <a href="#">QO2175SB</a>  |
| Homeline™ Surgebreaker         | <a href="#">HOM2175SB</a> |

**California Proposition 65 Message**

**⚠ WARNING:** Some of the products listed in this document can expose you to chemicals which are known to the State of California to cause cancer, birth defects, or other reproductive harm.

For more information, go to <https://www.p65warnings.ca.gov/>.

