

Section 6

Surge Protective Devices (SPDs) and Easy UPS 3S

Commercial and Industrial Applications



SurgeLogic™ Type EMA



SurgeLogic™ Type IMA

SurgeLogic™ Type XDSE



SurgeLogic™ NQ SurgeLoc

Residential & Light Commercial Applications



SurgeLogic™ Type SDSA



HEPD Series



Square D™ QO/HOM PON SPDs



Whole House SPDs



Easy UPS 3S

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Externally Mounted Surge Protective Devices SurgeLogic™ Type EMA



EMA Series SPDs



Remote Monitor

SurgeLogic™ Type EMA 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 SPD products feature a design based on replaceable 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.

SurgeLogic™ Type EMA Series SPD

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.

External Modular Options ()

(D) [1]	Disconnect Switch
(F)	Enhanced Filtering Module (not applicable for Delta, HRG or HLD)
(DF) [1]	Disconnect Switch and Enhanced Filtering Module (not applicable for Delta, HRG or HLD)

Accessory Description	Cat. No.
Remote Monitor	TVS12RMU

[1] Not available in stainless steel for 320 and 480 kA.

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 [2]	120 160 240 320 480	SSP01EMA12() SSP01EMA16() SSP01EMA24() SSP01EMA32() SSP01EMA48()	SSP01EMA12S() SSP01EMA16S() SSP01EMA24S()
208Y/120 V, 3-phase, 4-wire + ground [3] [4] [2] Wye	120 160 240 320 480	SSP02EMA12() SSP02EMA16() SSP02EMA24() SSP02EMA32() SSP02EMA48()	SSP02EMA12S() SSP02EMA16S() SSP02EMA24S()
240/120 V, 3-phase, 4-wire + ground [2] High-leg Delta	120 160 240 320 480	SSP03EMA12() SSP03EMA16() SSP03EMA24() SSP03EMA32() SSP03EMA48()	SSP03EMA12S() SSP03EMA16S() SSP03EMA24S() — —
240 V, 3-phase, 3-wire + ground Delta	100 120 160 200 240 320 480	SSP06EMA12() SSP06EMA16() SSP06EMA24() SSP06EMA32() SSP06EMA48()	SSP06EMA12S() SSP06EMA16S() SSP06EMA24S()
480Y/277 V, 3-phase, 4-wire + ground [4] [5] [2] Wye	120 160 240 320 480	SSP04EMA12() SSP04EMA16() SSP04EMA24() SSP04EMA32() SSP04EMA48()	SSP04EMA12S() SSP04EMA16S() SSP04EMA24S()
480 V, 3-phase, 3-wire + ground [6] Delta	100 120 160 200 240 320 480	SSP05EMA12() SSP05EMA16() SSP05EMA24() SSP05EMA32() SSP05EMA48()	SSP05EMA12S() SSP05EMA16S() SSP05EMA24S()
600Y/347 V, 3-phase, 4-wire + ground, [2] [4] WYE	120 160 240 320 480	SSP08EMA12() SSP08EMA16() SSP08EMA24() SSP08EMA32() SSP08EMA48()	SSP08EMA12S() SSP08EMA16S() SSP08EMA24S()
600 V, 3-phase, 3-wire + ground [7] Delta	100 120 160 180 240 320	SSP09EMA12() SSP09EMA16() SSP09EMA24() SSP09EMA32()	SSP09EMA12S() SSP09EMA16S() SSP09EMA24S()

SurgeLogic™ Type XDSE Surge Protective Devices



XDSE Series

SurgeLogic™ XDSE surge protective devices feature a compact design that allows surge suppression to be externally installed adjacent to electrical distribution equipment. XDSE systems are designed to provide high-quality surge suppression for a wide variety of commercial, industrial or institutional applications. XDSEs incorporate patented overvoltage technology innovations that provide superior overvoltage withstand capability for systems with unstable power, without compromising transient clamping performance. US and Canadian UL Listed to the UL 1449 standard. Complies with requirements of NEC Article 285 and CSA 22.2 269.1 and 269.2 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems

- LED light indicates operation status
- Short circuit current rating up to 200 kA
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient lug connection inside enclosure
- -50db EMI/RFI filtering
- Audible alarm
- Dry contacts
- Optional flush mount kit: XDSEMKF

Table 6.2: XDSE Surge Protective Devices

Voltage	Surge Current per Phase	Configuration	Model Number	MCOV	I _n	L-N	L-G	N-G	L-G
120/240V	100	1Ø, 3-wire + ground	SSP01XDSE10A()	150V	20 kA	700V	700V	600V	1000V
208Y/120V [8]	100	3Ø, WYE, 4-wire + ground	SSP02XDSE10A()	150V	20 kA	700V	700V	600V	1000V
240/120 HLD	100	3Ø, HLD[9], 4-wire + ground	SSP03XDSE10A()	150/320V	20 kA	700/1200V	700V	600V	1000/2000V
480Y/277V [10]	100	3Ø, Wye, 4-wire + ground	SSP04XDSE10A()	320V	20 kA	1200V	1200V	1200V	2000V
480V Delta [11]	100	3Ø, Delta, 3-wire + ground	SSP05XDSE10A()	552V	20 kA	N/A	1800V	N/A	2000V
240V Delta	100	3Ø, Delta, 3-wire + ground	SSP06XDSE10A()	300/320V	20 kA	N/A	320 V	300 V	N/A
600Y/347V	100	3Ø, WYE, 4-wire + ground	SSP08XDSE10A()	420V	20 kA	1500V	1500V	1500V	2500V

[2] Do not use on ungrounded systems. Systems must be solidly grounded.
 [3] 208Y/120 series also applies to the following voltage 220Y/127.
 [4] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.
 [5] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.
 [6] 480 V Delta series also applies to the following voltage 480Y/277V HRG.
 [7] 600 V Delta series also applies to the following voltage 600Y/347V HRG.
 [8] 208Y/120 series also applies to the following voltage 220Y/127.
 [9] HLD= High-leg delta.
 [10] 480Y/277 series also applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.
 [11] 480V Delta series also applies to the following voltage 480Y/277V HRG.

Table 6.2 XDSE Surge Protective Devices (cont'd.)

Voltage	Surge Current per Phase	Configuration	Model Number	MCOV	I _n	L-N	L-G	N-G	L-G
600V Delta [12]	100	1Ø, 3-wire + ground	SSP09XDSE10A()	690V	20 kA	N/A	2500V	2500V	N/A
120/240 V	150	1Ø, 3-wire + ground	SSP01XDSE15A()	150V	20 kA	700V	700V	600V	1000V
208Y/120V [13]	150	3Ø, WYE, 4-wire + ground	SSP02XDSE15A()	150V	20 kA	700V	700V	600V	1000V
120/240V HLD	150	3Ø, HLD[14], 4-wire + ground	SSP03XDSE15A()	150/320V	20 kA	700/1200V	700/1200V	600V	1000/2000V
480Y/277V [15]	150	3Ø, WYE, 4-wire + ground	SSP04XDSE15A()	320V	20 kA	1200V	1200V	1200V	2000V
480V Delta [16]	150	3Ø, Delta, 3-wire + ground	SSP05XDSE15A()	552V	20 kA	N/A	1800V	N/A	2000V
240V Delta	150	3Ø, Delta, 3-wire + ground	SSP06XDSE15A()	300/320V	20 kA	N/A	320V	300V	N/A
600Y/347V	150	3Ø, WYE, 4-wire + ground	SSP08XDSE15A()	420V	20 kA	1500V	1500V	1500V	2500V
120/240V	200	1Ø, 3-wire + ground	SSP01XDSE20A()	150V	20 kA	700V	700V	600V	1000V
208Y/120V [13]	200	3Ø, WYE, 4-wire + ground	SSP02XDSE20A()	150V	20 kA	700V	700V	600V	1000V
240/120 HLD	200	3Ø, HLD[14], 4-wire + ground	SSP03XDSE20A()	150/320V	20 kA	700/1200V	700V	600V	1000/2000V
480Y/277V [15]	200	3Ø, Wye, 4-wire + ground	SSP04XDSE20A()	320 V	20 kA	1200V	1200 V	1200V	2000 V
480V Delta [16]	200	3Ø, Delta, 3-wire + ground	SSP05XDSE20A()	552V	20 kA	N/A	1800V	N/A	2000V
240V Delta	200	3Ø, Delta, 3-wire + ground	SSP06XDSE20A()	300/320V	20 kA	N/A	320V	300V	N/A
600Y/347V	200	3Ø, WYE, 4-wire + ground	SSP08XDSE20A()	420V	20 kA	1500V	1500V	1500V	2500V

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

SDSA1175, SDSA 3-Phase, and Model 420 Surge Protective Devices

SurgeLogic™ SDSA1175 surge protective devices 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 and commercial 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.

SurgeLogic™ SDSA 3-Phase surge protective devices 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
- Optional mounting bracket QOSAMK (for SDSA1175 / SDSA1175T)



SDSA1175



SDSA 3-Phase

Table 6.3: SDSA1175 and SDSA 3-Phase Surge Protective Devices

System Voltage	Peak Surge Current Rating per Phase (kA)	Cat. No.
SDSA1175		
120/240 V, 1-phase, 3-wire	36	SDSA1175
120 V, 1-phase, 2-wire	36	SDSA1175T
SDSA 3-Phase		
208Y/120 V 3-phase, 4-wire	40	SDSA2040
240 V Delta, 3-phase, 3 wire	40	SDSA2040D
480Y/277 V, 3-phase, 4-wire	40	SDSA4040
480 V Delta, 3-phase, 3-wire	40	SDSA404D
600Y/347 V, 3-phase, 4-wire	40	SDSA3650
600 V Delta, 3-phase, 3-wire	40	SDSA3650D

[12] 600 V Delta series also applies to the following voltages 600Y/347V HRG.

[13] 208Y/120 series also applies to the following voltage 220Y/127.

[14] HLD= High-leg delta.

[15] 480Y/277 series also applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

[16] 480V Delta series also applies to the following voltage 480Y/277V HRG.



MA Replacement Module

SurgeLogic™ MA 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.

Table 6.4: MA Replacement Modules

System Voltage	Peak Surge Current Rating (kA)	Catalog Numbers [17]		
		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 [18] Wye	120	MA11MA12	MA11MA12	MA11MA12
	160	MA11MA16	MA11MA16	MA11MA16
	240	MA11MA24	MA11MA24	MA11MA24
240/120 V, 3-phase, 4-wire + ground [19] 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
	100	MA61MA10	MA61MA10	MA61MA10
480Y/277 V, 3-phase, 4-wire + ground [20] Wye	120	MA41MA12	MA41MA12	MA41MA12
	160	MA41MA16	MA41MA16	MA41MA16
	240	MA41MA24	MA41MA24	MA41MA24
	100	MA51MA10	MA51MA10	MA51MA10
	120	MA51MA12	MA51MA12	MA51MA12
	160	MA51MA16	MA51MA16	MA51MA16
480 V, 3-phase, 3-wire + ground [21] Delta	200	MA51MA20	MA51MA20	MA51MA20
	240	MA51MA24	MA51MA24	MA51MA24
	120	MA81MA12	MA81MA12	MA81MA12
	160	MA81MA16	MA81MA16	MA81MA16
	240	MA81MA24	MA81MA24	MA81MA24
	100	MA91MA10	MA91MA10	MA91MA10
600Y/347 V, 3-phase, 4-wire + ground Wye	120	MA81MA12	MA81MA12	MA81MA12
	160	MA81MA16	MA81MA16	MA81MA16
	240	MA81MA24	MA81MA24	MA81MA24
	100	MA91MA10	MA91MA10	MA91MA10
600 V, 3-phase, 3-wire + ground [22] Delta	120	MA91MA12	MA91MA12	MA91MA12
	160	MA91MA16	MA91MA16	MA91MA16
	180	MA91MA18	MA91MA18	MA91MA18
	180	MA91MA18	MA91MA18	MA91MA18

Internally Mounted Surge Protective Devices

SurgeLogic™ Type IMA

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 provide maximum performance inside Square D™ systems. Built-in performance is the best way to ensure cost effective power quality and continuous operation (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

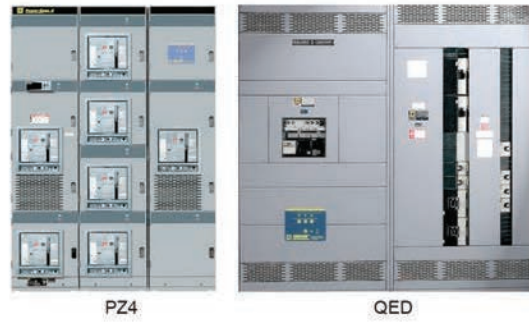
Factory installed integral/internal SurgeLogic™ SPD products make adding surge suppression to new construction projects easy. Refer to the sections listed below to identify the correct product for your application or contact SurgeLogic™ TAG at 1-800-577-7353 for assistance.

[17] For UL 1449 Type 1 Modules, add suffix (1). Example: MA11MA121
 [18] 208Y/120 series also applies to the following voltage 220Y/127.
 [19] High-leg delta (Phase B modules are different than Phase A and Phase C modules).
 [20] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.
 [21] 480 V Delta series also applies to the following voltage 480Y/277V HRG.
 [22] 600 V Delta series also applies to the following voltage 600Y/347V HRG.

Panelboards
Refer to Section 9



Switchboards and Switchgear
Refer to Section 11



Integrated Power and
Control Centers
Refer to Section 10



I-Line™ SurgeLogic™
SPD Unit

Internally Mounted—Field Installable

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 I-Line plug-on units and the SurgeLoc for the NQ panelboards come ready to install. Retrofitting SPD units into I-Line, 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 6.5: Internally Mounted—Retrofit / Ready To Install

Voltage	Surge Current Rating	I-Line Branch Units [1]	
		Cat. No.	Cat. No.
120/240 V, 1-phase, 3-wire + ground	120 kA	HL1IMA12C()	HR1IMA12C()
	240 kA	—	HR1IMA24C()
208Y/120 V, 3-phase, 4-wire + ground [2] [3] Wye	120 kA	HL2IMA12C()	HR2IMA12C
	160 kA	HL2IMA16C()	—
	240 kA	HL2IMA24C()	HR2IMA24C()
240/120 V, 3-phase, 4-wire + ground High-leg Delta	120 kA	HL3IMA12C()	—
	160 kA	—	—
	240 kA	—	—
240 V, 3-phase, 3-wire + ground, Delta	120 kA	HL6IMA12C()	—
	160 kA	HL6IMA16C()	—
	240 kA	HL6IMA24C()	—
480Y/277 V, 3-phase, 4-wire + ground [2] [4] Wye	120 kA	HL4IMA12C()	HR4IMA12C()
	160 kA	HL4IMA16C()	HR4IMA16C()
	240 kA	HL4IMA24C()	HR4IMA24C()
480 V, 3-phase, 3-wire + ground, Delta [5]	120 kA	HL5IMA12C()	—
	160 kA	HL5IMA16C()	—
	240 kA	HL5IMA24C()	HR5IMA24C()
600Y/347 V, 3-phase, 4-wire + ground [2] Wye	120 kA	—	—
	160 kA	—	HR8IMA16C()
	240 kA	—	HR8IMA24C()
600V, 3-phase, 3-wire + ground, [6] Delta	120 kA	—	—
	160 kA	—	—
	180 kA	—	—

[1] Requires 13.5-inch mounting height. HL circuit breakers are 125kAIC SCCR (240 V and below), 100kAIC SCCR (480 V), 50kAIC SCCR (600 V)

[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. HR circuit breakers are 200kAIC SCCR (480 V and below), 100kAIC SCCR (600 V)

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

[6] 600 V Delta series also applies to the following voltage: 600Y/347V HRG.



SurgeLogic™ SurgeLoc

SurgeLogic™ SurgeLoc for NQ Panelboards

SurgeLogic™ SurgeLoc is the industry's first Field Installable Internally Mounted SPD in NQ panelboards - fully installed in approximately 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

Table 6.6: Internally Mounted—Retrofit / Ready to Install

Voltage	Surge Current Rating	NQ Panelboard Units—SurgLoc [7]	
		Cat. No.	
120/240 V, 1-phase, 3-wire + ground	80 kA	SSP01SBA08D	
	100 kA	SSP01SBA10D	
	120 kA	SSP01SBA12D	
	160 kA	SSP01SBA16D	
	200 kA	SSP01SBA20D	
	240 kA	SSP01SBA24D	
208Y/120 V, 3-phase, 4-wire + ground [8] [9] Wye	80 kA	SSP02SBA08D	
	100 kA	SSP02SBA10D	
	120 kA	SSP02SBA12D	
	160 kA	SSP02SBA16D	
	200 kA	SSP02SBA20D	
	240 kA	SSP02SBA24D	
240Y/120 V, 3-phase, 4-wire + ground High-leg Delta	240 kA	SSP03SBA24D	

[7] Requires 12 circuit positions (6 adjacent mounting spaces per side).

[8] Can be used on 4-wire or 3-wire grounded neutral system.

[9] 208/120 series also applies to the following voltage 220Y/127.



OEM Kit

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 6.7: OEM/Assembler Kits

Service Voltage	Peak Surge Current Rating per Phase (kA)	Cat. No. [10]
120/240 V, 1-phase, 3-wire + ground	120	TVS11MA120()
	160	TVS11MA160()
	240	TVS11MA240()
208Y/120 V, 3-phase, 4-wire + ground [11] [12] Wye	120	TVS21MA120()
	160	TVS21MA160()
	240	TVS21MA240()
240/120 V, 3-phase, 4-wire + ground High-leg Delta	120	TVS31MA120()
	160	TVS31MA160()
	240	TVS31MA240()
240 V, 3-phase, 3-wire + ground [11] [13] Delta	120	TVS61MA120()
	160	TVS61MA160()
	240	TVS61MA240()
480Y/277 V, 3-phase, 4-wire + ground [11] [13] Wye	120	TVS41MA120()
	160	TVS41MA160()
	240	TVS41MA240()
480 V, 3-phase, 3-wire + ground [14] Delta	120	TVS51MA120()
	160	TVS51MA160()
	240	TVS51MA240()
600Y/347 V, 3-phase, 4-wire + ground [11] Wye	120	TVS81MA120()
	160	TVS81MA160()
	240	TVS81MA240()
600 V, 3-phase, 3-wire + ground [15] Delta	120	TVS91MA120()
	160	TVS91MA160()
	180	TVS91MA180()

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

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 6.8: Whole House Surge Protective Devices

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

Table 6.9: SDSB80111 Replacement Modules

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



SDSB80111

[10] Note the last character of the catalog number is the letter "O", not a zero.

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

[12] 208Y/120 series also applies to the following voltage 220Y/127.

[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.

[15] 600 V Delta series also applies to the following voltage: 600Y/347V HRG.



Whole Home Surge Protection

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 and 80 kA
- NEMA 4X rate for indoor or outdoor applications
- LED status indicators
- Compatible with all brands of load centers
- Flush Mount Kit sold separately - see table below
- HEPD25: 3 year/\$30,000 connected equipment warranty
- HEPD50: 3 year/\$50,000 connected equipment warranty
- HEPD80: 5 year/\$75,000 connected equipment warranty

Table 6.10: HEPD Whole House Surge Protective Devices

Description	Surge Current Rating	Cat. No.
HEPD25	25 kA	HEPD25
HEPD25MKF Flush Mount Kit		HEPD25MKF
50kA Home Electronic Protective Device	50 kA	HEPD50
80kA Home Electronic Protective Device	80 kA	HEPD80
Flush Mount Kit for HEPD50/HEPD80		HEPD58MKF

Plug on Neutral QO™ and Homeline™ Load Center SPDs

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 6.11: QO™, NQ, and HomeLine™ Load Center Surge Protective Device

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

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
- Requires two pole spaces
- LED indicates operational status
- 22.5 kA per phase

Table 6.12: QO™, NQ, and HomeLine™ Load Center Surge Protective Devices

Description	Cat. No.
QO™ Surgebreaker for QO and NQ	QO2175SB
HomeLine™ Surgebreaker	HOM2175SB



UPS



Battery String



Modular Battery Cabinet

The **Square D Easy UPS 3S** is an easy-to-install, easy-to-use and easy-to-service **10-40 kVA** 3-phase 208 V UPS ideal for non-IT applications. Easy UPS 3S combines power stability with robust electrical specifications and long-lasting performance to ensure your business continuity.

- **US listed to the UL 1778 standard**
- **Complies with the requirements of CSA C22.2 No. 107.3-14 + G11**
- **IP20 rated**
- **Optimize efficiency**
 - Double Conversion Mode (up to 94%)
 - ECO Mode (98% efficiency)
- **1.0 power factor kVA = kW**
- **Parallel up to 4 units for 10-30 kVA. Parallel 3 units for 40 kVA.**
- **Robustness against harsh environment**
 - Conformal coating on PCBA
 - Replaceable dust filter
 - 60s @ 150% overload, 10 min. @ 125% overload.
 - Operating temperature: 32 - 104°F
- **Flexibility for wider application**
 - Modular battery cabinet for longer runtime
 - SNMP / Modbus TCP/IP / dry contact for connectivity
 - 5 years lifespan battery module
- **Connectivity**
 - Startup service included with every UPS
 - EcoStructure™ ready
 - Network management card to remotely monitor and control

Please Note: Batteries are not included with the UPS. Use the selection tables below to determine number of batteries.

Using the selection table, choose what percentage of the total kVA will be backed up. Then, choose the runtime.

Example: A 20 kVA UPS backing up 75% of its kVA for a runtime of 1 hour will require (1) **E3SUPS20KFBS**, (1) **E3SXR7**, and (12) **E3SFBTH2**. Then, choose accessories if needed.

The maximum number of battery strings that can be installed in a modular battery cabinet (E3SXR7) is 12.



Square D Easy UPS 3S is configurable in SE Advantage. Access via MySE homepage. <https://www.myseus.schneider-electric.com/mySchneider/#!/login>

Table 6.13: Selection Table for 10 kVA UPS

Part Number	Measurement	% Load			Battery Strings E3SFBTH2
		50%	75%	100%	
E3SUPS10KFBS + (#) of battery strings needed E3SFBTH2	KW	5	7.5	10	—
	kVA	5	7.5	10	—
	Runtime (Minutes)	10.5	5.8	—	1
		26.5	15.5	10.5	2
		44.5	26.5	18	3
E3SUPS10KFBS + 1 modular battery cabinet E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	5	7.5	10	—
	kVA	5	7.5	10	—
	Runtime (Minutes)	63.5	38.5	26.5	4
		83.5	51	35	5
		100	63.5	44	6
		125	77	53.5	7
		145	90.5	63	8
		170	100	73	9
		190	115	83	10
		215	130	93	11
		240	145	100	12
		265	160	110	13
		285	175	120	14
		300	190	135	15

Table 6.14: Selection Table for 15 kVA UPS

Part Number	Measurement	% Load			Battery Strings E3SFBTH2			
		50%	75%	100%				
E3SUPS15KFBS + (#) of battery strings needed E3SFBTH2	KW	7.5	11.25	15	—			
	kVA	7.5	11.25	15	—			
	Runtime (Minutes)	—	5.8	—	—	1		
		15.5	8.9	5.7	—	2		
E3SUPS15KFBS + 1 modular battery cabinet E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	26.5	15.5	10.5	—	3		
		7.5	11.25	15	—	—		
	Runtime (Minutes)	kVA	7.5	11.25	15	—	—	
		38.5	23	15.5	—	4		
		51	30.5	21	—	5		
		63.5	38.5	26.5	—	6		
		77	46.5	32.5	—	7		
		90.5	55	38	—	8		
		100	63.5	44.5	—	9		
		115	72	50.5	—	10		
		130	81	57	—	11		
		145	90	63.5	—	12		
		160	99.5	70	—	13		
		175	105	76.5	—	14		
		190	115	83	—	15		
		E3SUPS15KFBS + 2 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	7.5	11.25	15	—	—
				kVA	7.5	11.25	15	—
Runtime (Minutes)	205		125	90	—	16		
	225		135	97	—	17		
	240		145	100	—	18		
	255		155	110	—	19		
	270		165	115	—	20		
	285		175	125	—	21		
	300		185	130	—	22		
	300		195	135	—	23		
	300		205	145	—	24		
	300		215	150	—	25		
	300		225	160	—	26		
300	235	165	—	27				

Table 6.15: Selection Table for 20 kVA UPS

Part Number	Measurement	% Load			Battery Strings E3SFBTH2	
		50%	75%	100%		
E3SUPS20KFBS + (#) of battery strings needed E3SFBTH2	KW	10	15	20	—	
	kVA	10	15	20	—	
	Runtime (Minutes)	—	10.5	5.8	—	1
18.5		10.5	6.9	—	2	
E3SUPS20KFBS + 1 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	10	15	20	—	3
		kVA	10	15	20	—
	Runtime (Minutes)	27	15.5	10.5	—	4
		36	21	14	—	5
		45	26.5	18	—	6
		54.5	32.5	22.5	—	7
		64.5	38.5	26.5	—	8
		74.5	44.5	31	—	9
		84.5	51	35.5	—	10
		95	57.5	40	—	11
		105	63.5	44.5	—	12
		115	70.5	49	—	13
		125	77	53.5	—	14
		135	83.5	58.5	—	15
E3SUPS20KFBS + 2 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	10	15	20	—	—
		kVA	10	15	20	—
	Runtime (Minutes)	145	90.5	63.5	—	16
		160	97.5	68.5	—	17
		170	100	73	—	18
		180	110	78	—	19
		195	115	83.5	—	20
		205	125	88.5	—	21
		215	130	93.5	—	22
		230	140	98.5	—	23
		240	145	100	—	24
255	155	105	—	25		
265	160	110	—	26		
280	170	120	—	27		

Table 6.16: Selection Table for 30 kVA UPS

Part Number	Measurement	% Load			Battery Strings E3SFBTH2	
		50%	75%	100%		
E3SUPS30KFBS + (#) of battery strings needed E3SFBTH2	KW	15	22.5	30	—	
	kVA	15	22.5	30	—	
	Runtime (Minutes)	—	5.9	—	—	1
		10.5	5.9	—	—	2
		16	9.1	5.8	—	3
		21.5	12.5	8.2	—	4
E3SUPS30KFBS + 1 of E3SXR7 + (#) of E3SFBTH2 below	KW	27.5	16	10.5	—	5
		kVA	15	22.5	30	—
	Runtime (Minutes)	33.5	19.5	13	—	7
		39.5	23.5	16	—	8
		45.5	27	18.5	—	9
		52	31	21	—	10
		58.5	35	24	—	11
		65	39	27	—	12

Table 6.16 Selection Table for 30 kVA UPS (cont'd.)

Part Number	Measurement	% Load			Battery Strings E3SFBTH2
		50%	75%	100%	
		72	43	30	13
		79	47.5	33	14
		85.5	51.5	36	15
		92.5	56	39	16
		100	60.5	42	17
		105	64.5	45	18
E3SUPS30KFBS + 2 of E3SXR7 + (#) of E3SFBTH2 below	KW	15	22.5	30	—
	kVA	15	22.5	30	—
	Runtime (Minutes)	110	69	48	19
		120	73.5	51.5	20
		125	78	54.5	21
		135	82.5	57.5	22
		140	87.5	61	23
		150	92	64	24
		155	96.5	67.5	25
		165	100	71	26
		170	105	74	27
		180	110	77.5	28
		190	115	81	29
		195	120	84.5	30
E3SUPS30KFBS + 3 of E3SXR7 + (#) of E3SFBTH2 below	KW	15	22.5	30	—
	kVA	15	22.5	30	—
	Runtime (Minutes)	205	125	88	31
		210	130	91.5	32
		220	135	95	33
		230	140	98.5	34
		235	145	100	35
		245	150	105	36
		250	155	105	37
		260	160	110	38
		270	165	115	39
		275	170	115	40
		285	175	120	41
		295	180	125	42

Table 6.17: Selection Table for 40 kVA UPS

Part Number	Measurement	% Load			Battery Strings E3SFBTH2	
		50%	75%	100%		
E3SUPS40KFBS + (#) of battery strings needed E3SFBTH2	KW	20	30	40	—	
	kVA	20	30	40	—	
	Runtime (Minutes)	—	—	—	—	1
		7.2	—	—	—	2
		11	5.9	—	4	3
		15	8.4	5.3	5	4
19		10.5	7.1	6	5	
E3SUPS40KFBS + 1 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	20	30	40	—	
	kVA	20	30	40	—	
	Runtime (Minutes)	23	13.5	8.9	7	
		27.5	16	10.5	8	
		32	19	12.5	9	
		36.5	21.5	14.5	10	
		41	24.5	16.5	11	
		46	27.5	18.5	12	
		51	30.5	20.5	13	
		55.5	33.5	23	14	
		60.5	36.5	25	15	
		65.5	39.5	27	16	
		70.5	42.5	29.5	17	
		76	45.5	31.5	18	
E3SUPS40KFBS + 2 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	20	30	40	—	
	kVA	20	30	40	—	
	Runtime (Minutes)	81	49	34	19	
		86	52	36	20	
		91.5	55.5	38.5	21	
		97	58.5	40.5	22	
		100	62	43	23	
		105	65	45.5	24	
		110	68.5	48	25	
		115	72	50	26	
		120	75.5	52.5	27	
		125	79	55	28	
		135	82	57.5	29	
		140	85.5	60	30	
E3SUPS40KFBS + 3 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	20	30	40	—	
	kVA	20	30	40	—	
	Runtime (Minutes)	145	89	62.5	31	
		150	92.5	65	32	
		155	96	67.5	33	
		160	100	70	34	
		165	100	72.5	35	
		175	105	75	36	
		180	110	77.5	37	
		185	110	80	38	
190	115	82.5	39			
195	120	85	40			
205	125	88	41			
210	125	90.5	42			
E3SUPS40KFBS + 4 of E3SXR7 + (#) of battery strings needed E3SFBTH2	KW	20	30	40	—	
	kVA	20	30	40	—	

6 SURGE PROTECTIVE DEVICES (SPDS) AND EASY UPS 3S

Table 6.17 Selection Table for 40 kVA UPS (cont'd.)

Part Number	Measurement	% Load			Battery Strings E3SFBTH2
		50%	75%	100%	
	Runtime (Minutes)	215	130	93	43
		220	135	95.5	44
		225	140	98.5	45
		235	140	100	46
		240	145	100	47
		245	150	105	48
		250	155	105	49
		260	155	110	50
		265	160	110	51
		270	165	115	52
		275	170	120	53
		285	170	120	54



Maint Bypass Panel



Modular Battery Cabinet



Battery String

Table 6.18: Accessories

Part Number	Description
E3SUPS10KFBS	Easy UPS 3S 10 kVA 208V 3:3 UPS for internal batteries, Start-up 5x8
E3SUPS15KFBS	Easy UPS 3S 15 kVA 208V 3:3 UPS for internal batteries, Start-up 5x8
E3SUPS20KFBS	Easy UPS 3S 20 kVA 208V 3:3 UPS for internal batteries, Start-up 5x8
E3SUPS30KFBS	Easy UPS 3S 30 kVA 208V 3:3 UPS for internal batteries, Start-up 5x8
E3SUPS40KFBS	Easy UPS 3S 40 kVA 208V 3:3 UPS for internal batteries, Start-up 5x8
E3SBPSU10K20F	Easy UPS 3S Maintenance Bypass Panel, single unit, 10–20kVA 208 V
E3SBPSU30K40F	Easy UPS 3S Maintenance Bypass Panel, single unit, 30–40kVA 208 V
E3SBPAR10K40F	Easy UPS 3S Parallel Maintenance Bypass Panel for 3 UPSs, 10–40kVA 208 V
E3SXR7	Easy UPS 3S Modular Battery Cabinet 208 V
E3SFBTH2	Easy UPS 3S High Capacity Battery String 208 V
E3SOPT010	Easy UPS 3S Dry Contact Card
E3SOPT014	Easy UPS 3S Cold Start Kit 15–40 kVA 208 V
E3SOPT015	Easy UPS 3S Kirk Key Kit
E3SOPT001	Easy UPS 3S Series Network Card
E3SOPT002	Easy UPS 3S Parallel Kit



Dry Contact Card



Cold Start Kit



Kirk Key Kit



Series Network Card



Parallel Kit