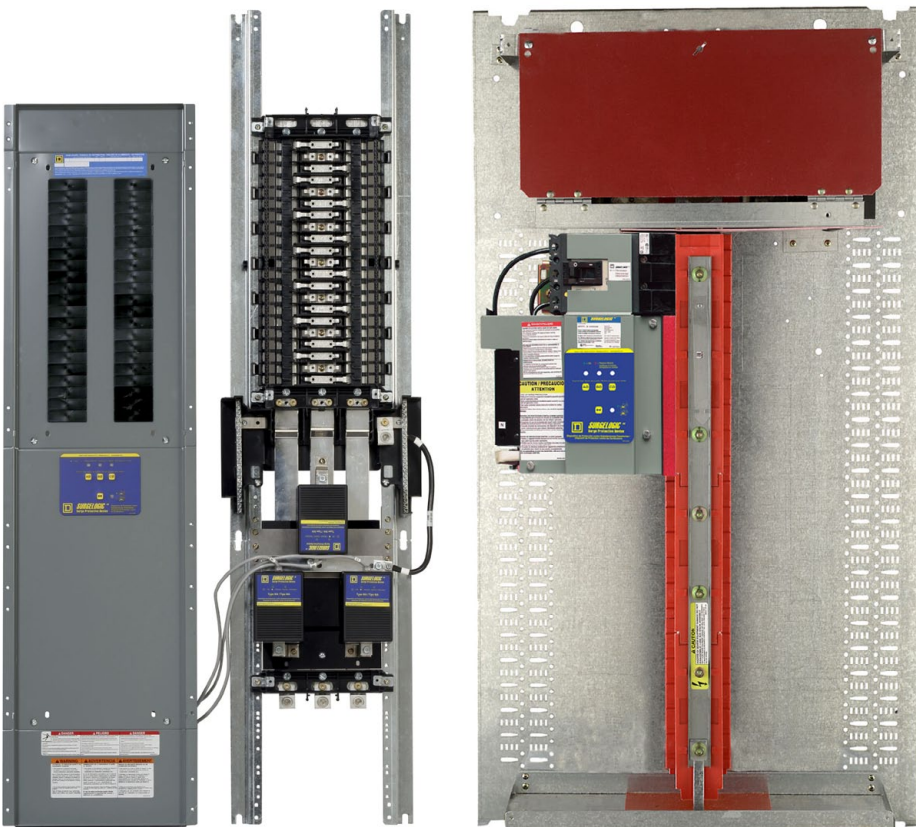


# Internal Modular SPDs

## Square D Internally Mounted Surge Protective Devices

Square D™ brand Surgelogic™ internal modular Surge Protective Devices (SPDs) deliver specification grade performance for service entrance or critical branch panel applications. This multi-phase system provides suppression for all critical modes inside electrical equipment and shorter lead lengths with superior SPD performance.



by Schneider Electric

# Internal Modular SPDs Features



Internal 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 first-rate performance and surge suppression for demanding service entrance applications or as part of a suppression network. The robust modular construction reduces possible down time and 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 feature circuitry that provides not only transient surge suppression, but also noise filtration.

## Installation

Integral solutions come professionally pre-wired into electrical gear and panels from the factory insuring short lead lengths and high performance. All units are tested at the factory before delivery to their final destination, maintaining Square D brand's high standard of quality. There is also no need for additional enclosures or installation labor costs.

## Warranty

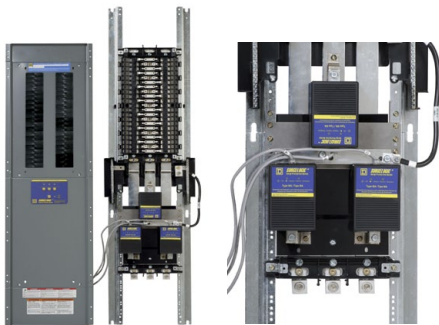
SurgeLogic internal modular SPDs have a 10-year warranty.

FEATURES	ADVANTAGES	BENEFITS
Integral to electrical gear and panels	SPDs are professionally installed inside electrical gear and panels	Delivers high levels of SPD performance and saves on enclosure and installation expenses
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
EMI/RFI Noise Rejection	Increased transient suppression	Improves surge suppression to the equipment
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

## Internal Modular SPDs

### Features (continued)

#### NQ/NF Panelboard



NQ and NF panelboards are primarily used for lighting and power distribution up to 600 Amps. These panelboards, following the 2008 National Electric Code changes, provide electrical capacity up to 84 circuit breakers. Both types of panels are designed with 200% rated copper neutrals for non-linear loads. (NQ max volts 240 Vac, NF max volts 600/347 Vac)

SPD available surge current ratings: 120, 160, 240 kA

#### QED Switchboard



QED Switchboards are made for use as service entrance equipment or as distribution centers in commercial, institutional, and industrial applications. QEDs are extremely versatile providing front accessible load connections with multiple breaker and fusible switch options. QEDs enable easy access to power monitoring equipment such as products from our PowerLogic™ brand. (Max volts 600 Vac, max current 4,000 Amps)

SPD available surge current ratings: 120, 160, 240, 320, 480 kA

#### Internal 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
Ocercurrent Fusing	Yes
Filtering	Yes
Operating Frequency	50/60 Hz

##### Mechanical Description

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

- Remote monitor

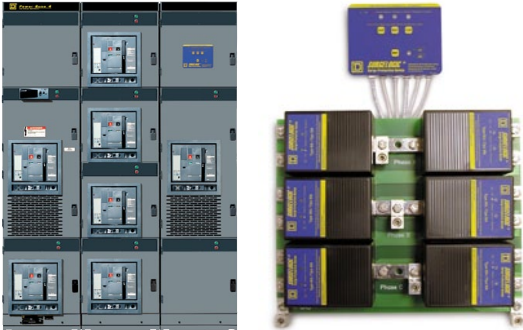
##### Safety and Performance

cULus Listed per UL1449 3rd Edition Type 2 SPD, UL 1283 5th Ed., and CAN/CSA C22.2 No. 8-M1986.

Complies with UL 96A 12th Ed. Master Label requirements for Lighting Protection Systems

## Internal Modular SPDs Features (continued)

### Power-Zone™ Switchgear



The Square D brand Power-Zone 4 low voltage metal-enclosed drawout switchgear is designed to provide superior electrical distribution and power quality management. Power-Zone 4 switchgear is designed to deliver maximum uptime, system selectivity, and ease of maintenance. All of these features are packed into one of the smallest footprints available for low voltage drawout switchgear. (Max volts 600 Vac, max current 5,000 Amps)

**SPD available surge current ratings:**  
120, 160, 240, 320, and 480 kA

### QMB Panelboard



When specifications or electrical codes call for a fusible panelboard, the QMB family offers superior performance and time-saving installation features. The reliability of the QMB panelboard makes it the product of choice for large commercial and industrial applications. (Max volts 600 Vac, max current 400 Amps)

**SPD available surge current ratings:** 120, 160, 240 kA

### Motor Control Center



The feature-rich modular design minimizes space and maximizes ease-of-use and accessibility of motor control devices. The Model 6 MCC has integrated industry-leading components into the smallest and one of the most flexible footprints possible to meet industry's power, control, and automation needs. (Max volts 480 Vac, max current 2,500 Amps)

**SPD available surge current ratings:** 120, 160, 240 kA

### Busway



Square D brand I-Line™ Busway is engineered to replace old cable and conduit systems. This next-generation power distribution system is loaded with exceptional features, including a 200% neutral and a 100% isolated ground path. (Max volts 600 Vac, max current 5,000 Amps)

**SPD available surge current ratings:** 120, 160, 240 kA



# Internal 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	TVS11MA12_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	120kA	10	3 Ø, Wye, 4-wire+G	TVS21MA12_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	120kA	10	3 Ø, Wye, 4-wire+G	TVS41MA12_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	120kA	10	3 Ø, Wye, 4-wire+G	TVS81MA12_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	160kA	6	1 Ø, 3-wire+G	TVS11MA16_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	160kA	10	3 Ø, Wye, 4-wire+G	TVS21MA16_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	160kA	10	3 Ø, Wye, 4-wire+G	TVS41MA16_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	160kA	10	3 Ø, Wye, 4-wire+G	TVS81MA16_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	240kA	6	1 Ø, 3-wire+G	TVS11MA24_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	240kA	10	3 Ø, Wye, 4-wire+G	TVS21MA24_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	240kA	10	3 Ø, Wye, 4-wire+G	TVS41MA24_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	240kA	10	3 Ø, Wye, 4-wire+G	TVS81MA24_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	320kA	6	1 Ø, 3-wire+G	TVS11MA32_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	320kA	10	3 Ø, Wye, 4-wire+G	TVS21MA32_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	320kA	10	3 Ø, Wye, 4-wire+G	TVS41MA32_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	320kA	10	3 Ø, Wye, 4-wire+G	TVS81MA32_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	480kA	6	1 Ø, 3-wire+G	TVS11MA48_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	480kA	10	3 Ø, Wye, 4-wire+G	TVS21MA48_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	480kA	10	3 Ø, Wye, 4-wire+G	TVS41MA48_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	480kA	10	3 Ø, Wye, 4-wire+G	TVS81MA48_	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	TVS31MA12_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	160kA	10	3 Ø, HLD*, 4-wire+G	TVS31MA16_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	240kA	10	3 Ø, HLD*, 4-wire+G	TVS31MA24_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	320kA	10	3 Ø, HLD*, 4-wire+G	TVS31MA32_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	480kA	10	3 Ø, HLD*, 4-wire+G	TVS31MA48_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V

Model numbers not recognized as line items in Schneider Electric ordering system until a suffix code is applied  
\*HLD = High-leg delta

## MODEL NUMBER SUFFIX CODES

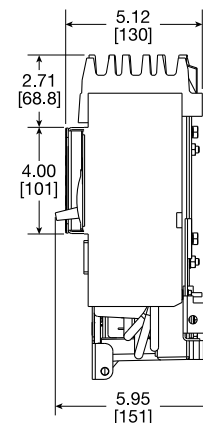
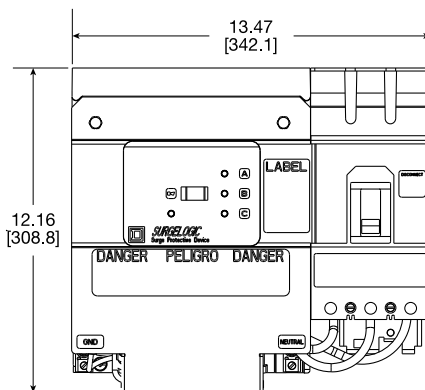
- P NQ/NF panelboard (Not available in 320 and 480 kA)
- B QED switchboard
- Z PZ3/PZ4 switchgear (Not available in TVS1 or TVS3)
- Q QMB switchboard (Not available in 320 and 480 kA)
- M Motor Control Center (Not available in 320 and 480 kA)
- O OEM kit (Not available in 320 and 480 kA)

## SPD OPTIONS

- Remote Monitor TVS12RMU

# Internal Modular SPDs Features (continued)

## I-Line™ Panelboard



The Square D brand I-Line power distribution panel is extremely versatile. It is used to feed NQ, NQOD, and NF lighting and appliance panelboards. I-Line panelboards can also feed large motors and temperature control systems. Interiors accept plug-on or bolt-on branch circuit breakers. (Max volts 600 Vac, max current 1,200 Amps)

SPD available surge current ratings: 120, 160, 240 kA

Voltage	Surge Current per Phase	Modes of Protection	HL Breaker I-Line SPD Model Number	FI Breaker I-Line SPD Model Number	MCOV	I <sub>n</sub>	VPR			
							L-N	L-G	L-L	N-G
120/240V	120kA	6	HL1IMA12C	FI1IMA12C	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	120kA	10	HL2IMA12C	FI2IMA12C	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	120kA	10	HL4IMA12C	FI4IMA12C	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	120kA	10	N/A	FI8IMA12C	420V	20kA	1500V	1500V	2500V	1500V
120/240V	160kA	6	HL1IMA16C	FI1IMA16C	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	160kA	10	HL2IMA16C	FI2IMA16C	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	160kA	10	HL4IMA16C	FI4IMA16C	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	160kA	10	N/A	FI8IMA16C	420V	20kA	1500V	1500V	2500V	1500V
120/240V	240kA	6	HL1IMA24C	FI1IMA24C	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	240kA	10	HL2IMA24C	FI2IMA24C	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	240kA	10	HL4IMA24C	FI4IMA24C	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	240kA	10	N/A	FI8IMA24C	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	HL Breaker I-Line SPD Model Number	FI Breaker I-Line SPD 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	HL3IMA12C	FI3IMA12C	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	160kA	10	HL3IMA16C	FI3IMA16C	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	240kA	10	HL3IMA24C	FI3IMA24C	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V

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