Expertise, our source of energy

SURGE PROTECTION SOLUTIONS

SURGE-TRAP® UL/CSA SURGE PROTECTIVE DEVICES

Safest and Most Reliable Surge Protection Products

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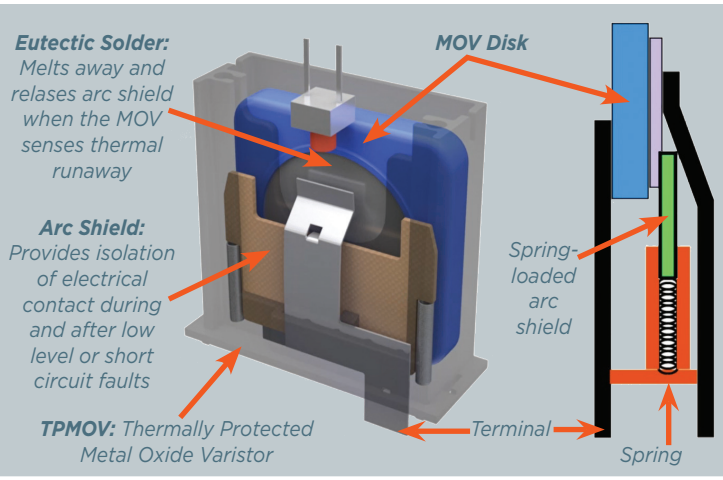
Note: this guide is intended for informational purposes only. Electrical specifiers should use their own judgment to determine the need and correct selection of surge protective devices. While Mersen has been diligent in ensuring that the information in this guide is true and correct, it makes no warranty as to the accuracy and completeness of that Information.

OUR TECHNOLOGY

For over 130 years, Mersen has been a leader in the electrical power industry. Since entering the surge protection market in 1996, we've become a trusted player, revolutionizing the industry with the development of the Thermally Protected MOV (TPMOV®), leading to its widespread adoption.

Mersen developed the TPMOV to improve surge protection by addressing the limitations of traditional MOVs, which can overheat and fail during high-energy surges. The TPMOV safely disconnects during sustained overvoltage events, preventing catastrophic failure. It combines a voltage clamping device with a thermal disconnect mechanism that monitors the metal oxide varistor, ensuring reliable performance in high-stress conditions, enhancing safety.

Today, Mersen offers a full range of surge protective devices (SPDs), featuring TPMOV technology, for various applications, with technical support available for product selection and use.



SPD Quick Application Guide

Consideration for Proper Selection

WHAT TYPES OF EQUIPMENT AND INFRASTRUCTURE REQUIRE SURGE PROTECTION?

Typical SPD applications within industrial, commercial, and residential areas include:

- Power distribution, control cabinets, programmable logic controllers, electronic motor controllers, equipment monitoring, lighting circuits, metering, medical equipment, critical loads, back-up power, UPS, HVAC equipment.
- Communication circuits, telephone lines, cable TV feeds, security systems, alarm signaling circuits.

WHERE DO I NEED TO INSTALL SURGE PROTECTION?

IEEE C62.41.1 defines location categories. These reflect the location in the power system and roughly correspond to UL device types, Category C, B, and A, as shown in the previous page.

Electrical equipment located outside of the building envelope should be considered Category C and Type 1 devices should be utilized at the circuit, because these are more susceptible to external surge events which can bypass the service SPD and enter the building through the external equipment and wiring. Examples of outdoor loads are parking lighting, outdoor HVAC units, gates, water pumps, surveillance cameras.

UL Standard 1449 defines several different types of devices based upon their installation location and use. The three most common are described as follows.

- **Type 1 –** Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external overcurrent protective device.
- **Type 2 –** Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device; including SPDs located at the branch panel and Molded Case SPDs.
- **Type 3 –** Point of use SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of use, for example cord connected, direct plug-in, receptacle type and SPDs installed at the utilization equipment being protected. See marking in 80.3. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.

HOW MUCH PROTECTION DOES YOUR FACILITY REQUIRE?

There is no formula to determine the exact surge current rating that should be used. Mersen provides a recommended kA rating based on multiple considerations rooted in IEEE and other standards:

- **Exposure Level:**

  Higher exposure areas should generally use SPDs with higher surge capacity.

  - **Low:** Applications known for low lightning activity, and surges from minor switching.
  - **High:** Equipment with extensive exposure to lightning or major switching surges, and frequent voltage notching from power converters.
- **Equipment:**
  - Considerations include criticality of the connected equipment, cost of repair, cost of downtime, and equipment sensitivity to surges damage, degradation, or process disruption.
- **Electrical system:**
  - Panel size does not play a major role in the selection of a kA rating.
  - SPD voltage must match the application voltage. In cases where the input voltage to a panel is Y configuration, but all the loads are either L-G or L-L reference, a Delta system is the preferred SPD voltage configuration.
  - The SPD at or near service entrance or transformer does not require N-G protection. N-G protection mode is suggested downstream of N-G bond when the unit is installed > 10′ (3m) from service entrance or transformer.

SPD Quick Application Guide

Panel Mount SPD for Commercial & Industrial Applications

IEEE C62.41 Categories & Surge Environment	Category C	Category B	Category A
	Service Entrance & Outdoor Loads Line-side or load-side of service entrance	**Feeders & Sub distribution Branch Circuit Panels**	**Device** ≥ 30ft (10m) from the electrical service panel to the point of utilization
Expected voltages & currents	High 10kV – 10kA Low 6kV- 3kA	6kV – 3kA	6kV – 0.5kA
UL 1449 SPD TYPES	Type 1	Type 2	Type 3

	Suggested Surge Current Rating (See considerations on previous page)		
High Exposure Level	**450 – 300kA**	**200kA**	
Low Exposure Level	**300 – 200kA**	**100kA**	**50kA**

Series	STZ	STXT	STXP	STXR
				
Surge Current Rating	450, 300, 200, 150, 100kA	200, 100kA	100kA	50kA
SCCR	**200kA** (Permits direct connection to most electrical services)			
Standard Features	LED Status Phase loss Indication Form C Contacts Audible Alarm EMI/RFI Filter Surge Counter	NEMA 4X LED Status Phase Loss monitoring EMI/RFI Filter	NEMA 4X LED Status Phase Loss monitoring	NEMA 4X LED Status
Optional Features	NEMA 4X Disconnect Switch Standalone for internal installation, optional HMI port	Form C Contacts audible alarm	Form C Contacts Audible alarm Flush Mount Bracket	Form C Contacts Audible alarm Wall Mount Bracket
Approvals	UL 1449 5th Edition Type 1 SPD - Suitable for Type 1 and 2 applications - CSA C22.2, Type 1 SPD			
Product Warranty	15 years	10 years	10 years	5 years

Surge-Trap® STZ Series

PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

The Surge-Trap Type 1 STZ Series is Mersen's premium-featured surge option to be installed at service entrance locations and for protection of the most critical loads. Designed with industry leading Mersen TPMOV® Technology, the STZ series is ideal for industrial and commercial environments and does not require additional overcurrent protection. The STZ series has mounting options (internal and external/ in enclosure) suitable for both new construction and retrofit applications.

Technical Data Overview	
Surge Current Rating (Imax)	100, 150, 200, 300, 450kA(1)
Nominal discharge current (In) (8x20 µs)	20kA
Short Circuit Current Rating (SCCR)	200kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	- Externally Mounted Panel - Internally Mounted for Panel integration
Enclosure Options	NEMA 1 / 12 / 3R / 4 / 4X Stainless Steel
EMI/RFI Filter	Up to -50dB from 10kHz to 100MHz
Wiring	Wire Lugs for 6-10 AWG copper
Flammability	UL94-5VA
Operating & Storage Temperature	– 40°F (40°C) to + 185°F (85°C)
Visual Status Indicator LED	Green = 67 to 100% Life Yellow = 34 to 66% Life Red = 0 to 33% Life
Remote Status Indicator	Form C Dry Contacts
(1) 450kA Surge Capacity not available for 380Y, 480D, and 600Y voltage configurations.	

FEATURES/BENEFITS

- The field-replaceable SPD module mounts in any orientation to reduce lead length and optimize performance.
- Standard features include LED phase loss indication, EMI/RFI filter, surge counter, dry contacts and audible alarm with silence button
- Optional disconnect switch
- Up to 10 Modes of Protection
- 15-year warranty

APPLICATIONS

- Service Entrance Locations
- OEM's Automatic Transfer Switch panel integration
- Switchboards
- Datacenters
- Any critical application that requires a high level of protection

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E210793
- CSA C22.2, Type 1 SPD
- UL96A Lightning Protection
- RoHS Compliant

Surge-Trap® STZ Series

PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

PART NUMBER SELECTOR

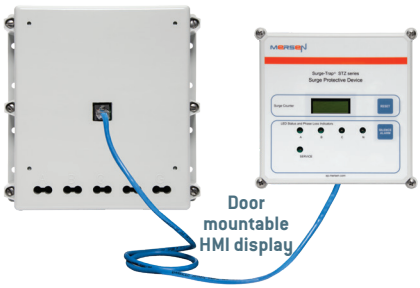
Don't see what you need? Please contact Technical Services.

STZ Series	480Y Voltage and System Configuration	30 Surge Capacity	B Standard Features	1 Enclosure	T Disconnect Switch
STZ	**240S:** 240/120V Split **208Y:** 208/120V WYE **380Y:** 380/220V WYE **480Y:** 480/277V WYE **240D:** 240V DELTA **480D:** 480V DELTA & HRG WYE **600Y:** 600/347V WYE	**10:** 100kA **15:** 150kA **20:** 200kA **30:** 300kA **45:** 450kA[1]	LED Status Indicators Phase Loss Indication Audible Alarm Form C Dry Contacts EMI/RFI Filter Surge Counter	**1:** NEMA 1/12/3R/4 **X:** NEMA 4X Stainless Steel **Q:** Field-replaceable module **R:** Without enclosure for internal mounting	**BLANK:** None **T:** UL 98 switch with door mounted handle on enclosed units [2] **U:** UL 98 switch with shaft and door mountable switch handle for internally mounted units

Example Part Number: **STZ 480Y 20 B 1 T**

(1) 450kA Surge Capacity not available for 380Y, 480D, and 600Y voltage configurations.
(2) The enclosure dimensions for units with the disconnect switch option are larger than those without. Please refer to the dimensions on the next page.
(3) For door mounting HMI display, Options R and RU additional communication cable (5 ft.) is provided.

Option "R" for Internal Mounting



Backplate mounted unit

Backplate mounted unit with Integral switch

Option "1" for External Mounting

With enclosure and without disconnect switch

UL 98 switch with door mounted handle on enclosed units

VOLTAGE SPECIFICATIONS

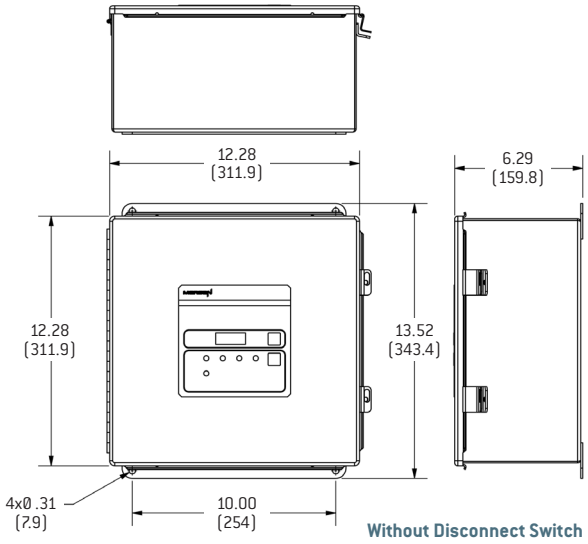
Part Number	System Voltage and Configuration	Maximum Continuous Operating Voltage (MCOV, U_c)				ANSI/UL 1449 5th Edition voltage protection ratings - VPR							
						Without Integral Switch				With Integral Switch [U]			
		L-N	L-G	L-L	N-G	L-N	L-G	L-L	N-G	L-N	L-G	L-L	N-G
STZ240S__B [1 or X]___	240/120V Split Phase	150	150	276	150	800	800	1200	700	800	900	1200	800
STZ208Y__B [1 or X]___	208/120V 3-Phase WYE	150	150	239	150	800	800	1200	700	800	900	1200	800
STZ480Y__B [1 or X]___	480/277V 3-Phase WYE	320	320	552	150	1500	1200	2000	700	1500	1500	2000	800
STZ240D__B [1 or X]___	240V 3-Phase DELTA	-	320	320	-	-	1200	2000	-	-	1200	2000	-
STZ380Y__B [Q or R]___	380/200 3-Phase WYE	552	320	320	150	2000	1200	1200	600	2000	1500	1500	800
STZ380Y__B [1 or X]___	380/200 3-Phase WYE	552	320	320	150	2000	1500	1200	700	2000	1500	1500	800
STZ480D__B [1 or X]___	480V 3-Phase DELTA & HRG WYE	690	420	420	150	2500	1500	1500	600	2500	1500	1500	800
STZ240S__B [Q or R]___	240/120V Split Phase	690	420	420	150	2500	1500	1500	700	2500	1500	1500	800
STZ208Y__B [Q or R]___	208/120V 3-Phase WYE	150	150	276	150	700	700	1000	600	800	900	1200	800
STZ480Y__B [Q or R]___	480/277V 3-Phase WYE	320	320	552	150	1200	1200	2000	600	1500	1500	2000	800
STZ240D__B [Q or R]___	240V 3-Phase DELTA	-	320	320	-	-	1200	2000	-	-	1200	2500	-
STZ480D__B [Q or R]___	480V 3-Phase DELTA & HRG WYE	-	552	552	-	-	1800	4000	-	-	1800	4000	-
STZ600Y__B [Q or R]___	600/347 3-Phase WYE	690	420	420	150	2500	1500	1500	600	2500	1500	1500	800
STZ600Y__B [1 or X]___	600/347 3-Phase WYE	690	420	420	150	2500	1500	1500	700	2500	1500	1500	800

Surge-Trap® STZ Series

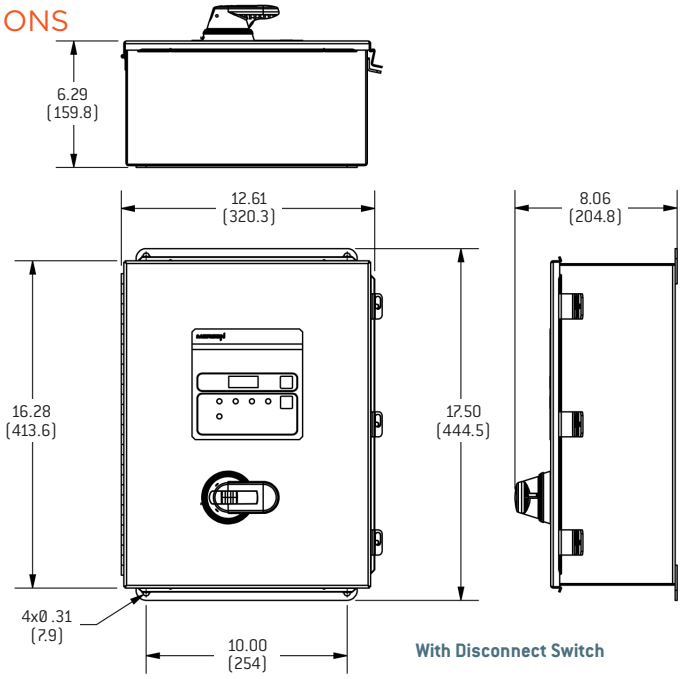
PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

DIMENSIONS AND MOUNTING CONFIGURATIONS

ENCLOSURE OPTIONS 1 or X - External Mounting

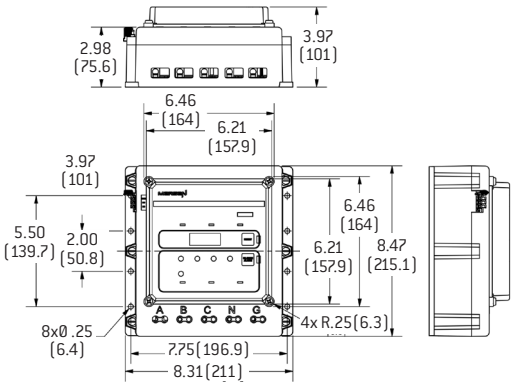


Without Disconnect Switch

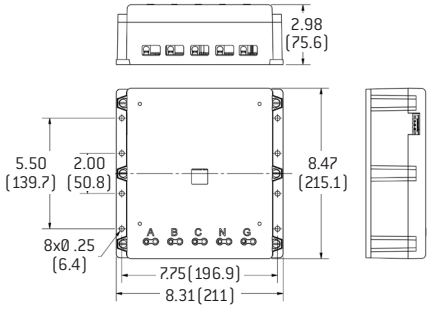


With Disconnect Switch

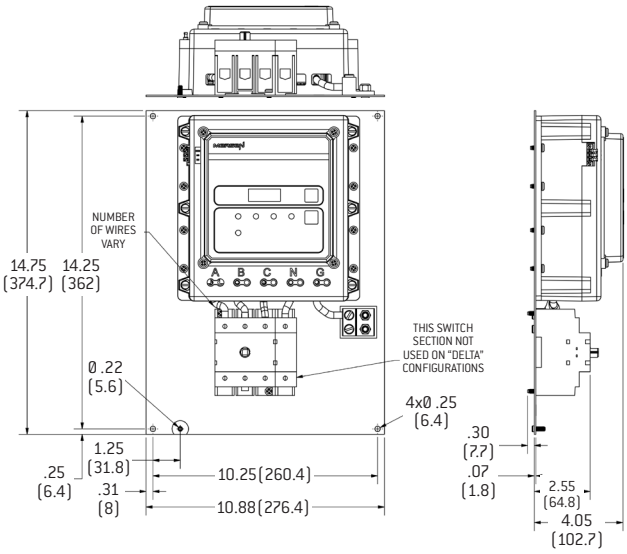
ENCLOSURE OPTIONS R and Q - Internal Mounting and Replacement Modules



Option R - Without Disconnect Switch



Option Q (Does not include HMI)



Option Q - With Disconnect Switch

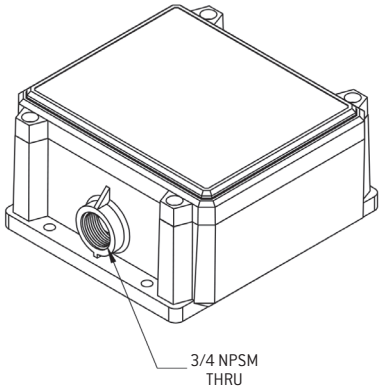
Surge-Trap® STXT Series

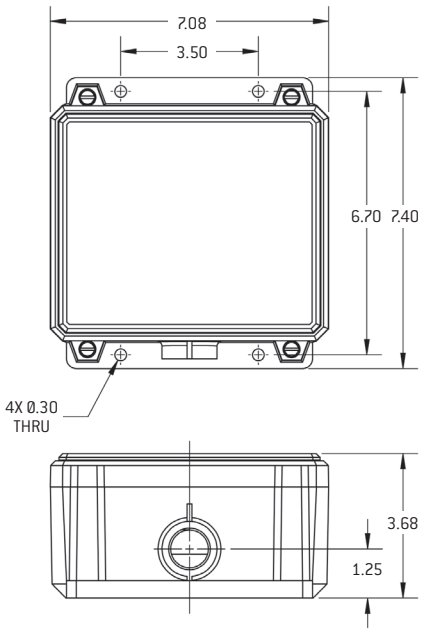
PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

The Surge-Trap Type 1 STXT Series has standard EMI/RFI Filtering, LED indication on each phase, optional remote indication, and surge capacities up to 200kA. The STXT features TPMOV® technology inside, making it the safest product available, and does not require additional overcurrent protection. With line or load side installation flexibility, this unit is a great fit from the service entrance all the way down to each distribution and/or branch panel.

Technical Data Overview	
Surge Current Rating (Imax)	100kA and 200kA - Per Phase
System Voltage	120VAC-600VAC
Nominal discharge current (I_n - 8x20 µs)	20kA
Short Circuit Current Rating (SCCR)	200kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	Female 3/4" – 14 threaded hub Mounting feet with 0.25" diameter holes
Wiring	Wire Lugs for 8 AWG copper
Enclosure	NEMA 4X Non-metallic
Flammability	UL 94-5VA
Operating & Storage Temperature	- 40°F (40°C) to + 185°F (85°C)
Relative Humidity Range	0 to 95% non-condensing
Visual Status Indicator	LED per Phase Green = Functional / OUT = Replace
Optional Status Indicator	Form C Dry Contact and Audible Alarm

DIMENSIONS





FEATURES/BENEFITS:

- Designed with industry leading Mersen TPMOV technology
- Standard features include LED phase loss indication and EMI/RFI filter Up to -50dB from 10kHz to 100MHz
- Optional Form C Dry Contacts and audible alarm with silence button
- Mounting hub and mounting feet for installation flexibility
- Up to 10 Modes of Protection
- 10-year manufacturer's warranty

APPLICATIONS

- Service entrance at low to medium risk exposure level
- Commercial and Industrial Distribution Panels or
- Control Branch Panels
- Any critical application that requires a high to medium level of protection

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E210793
- CSA C22.2, Type 1 SPD
- ANSI/IEEE C62.41.1, C62.41.2, C62.45
- UL96A Lightning Protection
- RoHS Compliant

Surge-Trap® STXT Series

PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

Catalog Number (includes suffixes*)	System Voltage and Configuration	I_n	Maximum Continuous Operating Voltage (MCOV, U_c)				Voltage Protection Rating (VPR) (UL 1449, 6kV, 3kA)			
			L-N	L-G	L-L	N-G	L-N	L-G	L-L	N-G
STXT120P20	120V Single Phase	20kA	150	150	-	150	700	700	-	700
STXT240P20	240V Single Phase	20kA	320	320	-	150	1200	1200	-	700
STXT240S20	240/120V Split Phase	20kA	150	150	300	150	700	700	1000	700
STXT480S20	480/240V Split Phase	20kA	320	320	640	150	1200	1200	2000	700
STXT208Y20	208/120V 3-Phase WYE	20kA	150	150	300	150	700	700	1000	700
STXT380Y20	380/220V 3-Phase WYE	20kA	320	320	640	150	1200	1200	2000	700
STXT480Y20	480/277V 3-Phase WYE	20kA	320	320	640	150	1200	1200	2000	700
STXT600Y20	600/347V 3-Phase WYE	20kA	420	420	840	275	1500	1500	2500	1200
STXT240D20	240V 3-Phase DELTA	20kA	-	320	640	-	-	1200	2000	-
STXT480D20	480V 3-Phase DELTA & HRG WYE	20kA	-	550	1100	-	-	1800	3000	-
STXT600D10	600V 3-Phase DELTA	20kA	-	690	840	-	-	2500	2500	-
STXT480B20	480V B Corner Ground DELTA	20kA	-	550	1100	-	-	1800	4000	-
High - Leg Delta Configuration			**L-N/HL-N**	**L-G/HL-G**	**L-L/HL-L**	**N-G**	**L-N/HL-N**	**L-G/HL-G**	**L-L/HL-L**	**N-G**
STXT240H20	240/120V Hi-Leg DELTA	20kA	150/275	150/275	300/425	150	700/1200	700/1200	1000/2000	700
STXT480H20	480/240V Hi-Leg DELTA	20kA	320/550	320/550	640/870	320	1200/1800	1200/1800	2000/2500	1200

For 100kA Surge Capacity models, in the part number substitute "10" for "20." Example: STXT208Y10.

OPTIONAL FEATURES

***Audible Alarm and Dry Contact:**

Add Suffix "**A**" at the end of the part number for Audible Alarm and Dry Contact. Alarm sounds when any protection is lost. Example: STXT208Y20**A**

- Audible Alarm: Alarm sounds when any protection is lost
- Dry Contact Specification:
  - 125VAC, 1A Resistive
  - 30VDC, 2A General Purpose
- Dry Contact Connections:
  - COM, Common
  - NO, Normally Open
  - NC, Normally Closed

Surge-Trap® STXP Series

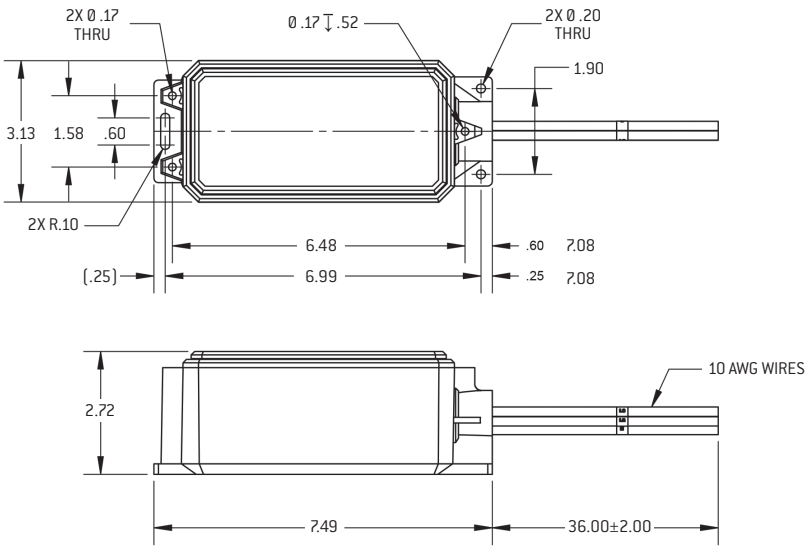
PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

The Surge-Trap Type 1 STXP Series offers a balance of redundant surge protection in a compact form factor with flexible installation options. Catalog numbers in this series can be panel mounted, side mounted, and have a separate optional flush mount cover. Additionally, the STXP series has options for remote indication and comes standard with LED indication on each phase. The STXP series incorporates TPMOV® technology for maximum safety and does not require additional overcurrent protection. Suitable for installation on both the line and load side of a panel, the STXP is ideal for everything from service entrances to machine-specific control panels.

Technical Data Overview	
Surge Current Rating (Imax)	100kA – Per Phase
System Voltage	120VAC - 600VAC
Nominal discharge current (I_n - 8x20 µs)	20kA
Short Circuit Current Rating (SCCR)	200kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	Female Threaded Mounting Hub 3/4" – 14 Includes sealing locking washer. Mounting feet with 0.125" diameter holes.
Wiring	Pre-wired 36" (1m) 10AWG
Enclosure	NEMA 4X Non-metallic
Flammability	UL 94-5VA
Operating & Storage Temperature	- 40°F (40°C) to + 185°F (85°C)
Relative Humidity Range	0 to 95% non-condensing
Visual Status Indicator	LED per Phase Green = Functional / OUT = Replace

DIMENSIONS

3/4" – 14 Fitting and Locknut not supplied



FEATURES/BENEFITS:

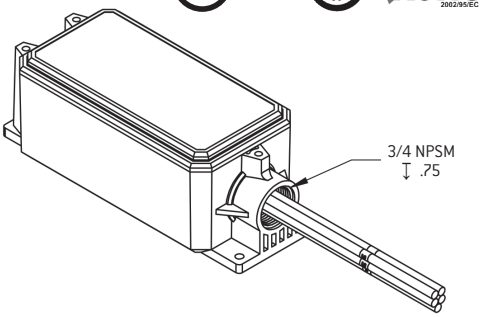
- Designed with industry leading Mersen TPMOV technology
- Fits 3/4" knockouts with 36" cable leads for easy installation
- Up to 10 Modes of Protection
- 10-year manufacturer's warranty

APPLICATIONS

- Service entrance at low to medium risk exposure level
- Commercial and Industrial Distribution Panels
- Control Panels

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E210793
- CSA C22.2, Type 1 SPD
- ANSI/IEEE C62.41.1, C62.41.2, C62.45
- UL96A Lightning Protection
- RoHS Compliant



Surge-Trap® STXP Series

PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

Catalog Number (includes suffixes* and **)	System Voltage and Configuration	I_n	Maximum Continuous Operating Voltage (MCOV)				Voltage Protection Rating (VPR)			
			L-N	L-G	L-L	N-G*	L-N	L-G	L-L	N-G*
STXP120P10	120V Single Phase	20kA	150	150	-	150	700	700	-	600
STXP240P10	240V Single Phase	20kA	320	320	-	150	1200	1200	-	700
STXP240S10	240/120V Split Phase	20kA	150	150	300	150	700	700	1000	600
STXP480S10	480/240V Split Phase	20kA	320	320	640	150	1200	1200	2000	600
STXP208Y10	208/120V 3-Phase WYE	20kA	150	150	300	150	700	700	1000	600
STXP380Y10	380/220V 3-Phase WYE	20kA	320	320	640	150	1200	1200	2000	600
STXP480Y10	480/277V 3-Phase WYE	20kA	320	320	640	150	1200	1200	2000	600
STXP600Y10	600/347V 3-Phase WYE	20kA	420	420	840	275	1200	1500	2000	1000
STXP240D10	240V 3-Phase DELTA	20kA	-	320	640	-	-	1200	2000	-
STXP480D10	480V 3-Phase DELTA & HRG WYE	20kA	-	550	1100	-	-	1800	3000	-
STXP600D05 (50kA)	600V 3-Phase DELTA	20kA	-	690	840	-	-	2000	2500	-
STXP480B10	480V B Corner Ground DELTA	20kA	-	690	840	-	-	2000	2500	-
High - Leg Delta Configuration			**L-N / HL-N**	**L-G / HL-G**	**L-L / HL-L**	**N-G**	**L-N / HL-N**	**L-G / HL-G**	**L-L / HL-L**	**N-G**
STXP240H10	240/120V Hi-Leg DELTA	20kA	150/320	150/320	300/470	150	600/1200	700/1200	1000/1000	500
STXP480H05 (50kA)	480/240V Hi-Leg DELTA	20kA	320/550	320/550	640/870	320	1200/1800	1200/1800	1800/2500	1000

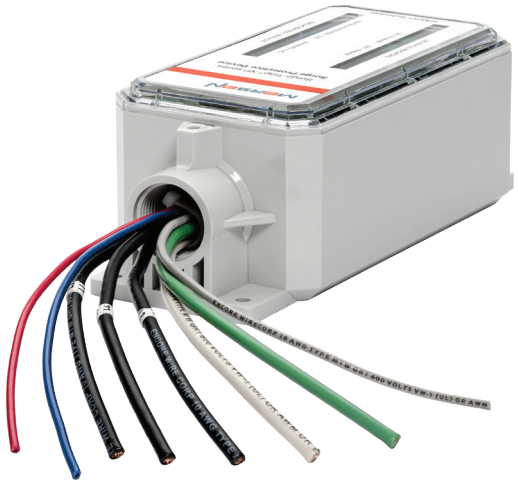
*Suffix "N" at the end of the part number for N-G protection. N-G protection is suggested downstream of N-G bonding when the unit is installed > 10' (3m) from service entrance or transformer. Without "N" option for installation of SPD at or near service entrance or transformer < 10' (3m) (N-G Bonded does not require N-G protection).

OPTIONAL FEATURES

****Form C Dry Contact and Audible Alarm**

Adding the suffix "A" at the end of the part number, will include Form C Dry Contacts and Audible Alarm.

- Audible Alarm: Alarm sounds when any protection is lost
- Dry Contact Specification:
  - 125VAC, 1A Resistive
  - 30VDC, 2A General Purpose
  - Prewired 36" – 18AWG cable



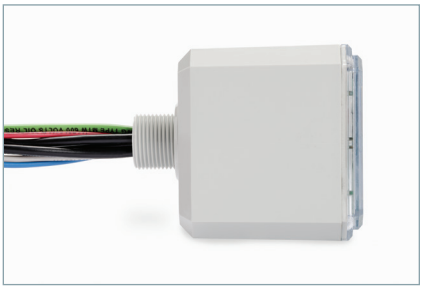
Flush-Mount Plate

Part Number STXPFMK: STXP Flush Mount Kit. Includes (1) mounting plate and (3) mounting screws for connecting plate to the STXP housing. Screws for mounting plate to the wall are not supplied. Plate outer dimensions are 4.5"x8.5".

Surge-Trap® STXR Series

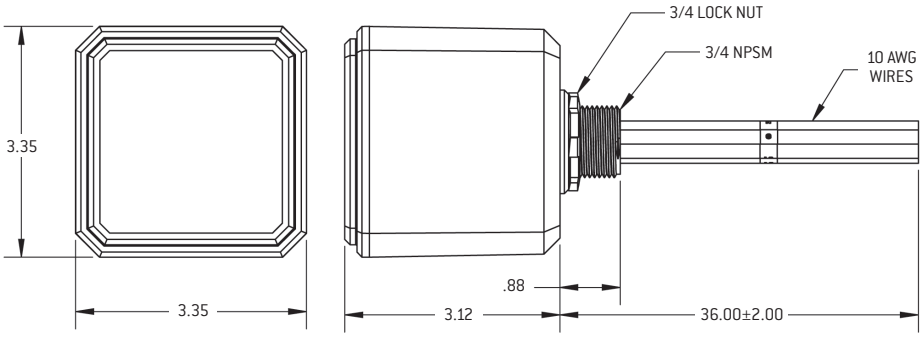
PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

The Surge-Trap STXR Series UL listed Type 1 SPD, a leading choice in the STX series, meets the UL1449 5th Edition standards and is an excellent replacement for outdated surge arrestors. This series incorporates TPMOV® technology, ensuring it is one of the safest options available. The STXR series boasts a compact design and offers flexibility for line or load installation, making it ideal for both branch panel and individual equipment protection.



Technical Data Overview	
Surge Current Rating (Imax)	50kA – Per Phase & Per Mode
System Voltage	120VAC - 600VAC
Nominal discharge current (I_n) (8x20 µs)	20kA
Short Circuit Current Rating (SCCR)	200kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	Fits 3/4" knockouts with 3' leads for easy installation
Wiring	Pre-wired 3' (1m) 10AWG
Enclosure	NEMA 4X Non-metallic
Flammability	UL94-5VA
Operating & Storage Temperature	- 40ºF (40ºC) to + 185ºF (85ºC)
Relative Humidity Range	0 to 95% non-condensing
Visual Status Indicator	LED Green = Functional / OUT = Replace

DIMENSIONS



FEATURES/BENEFITS:

- Designed with industry leading Mersen TPMOV technology
- Optional mounting bracket for surface mount applications
- NEMA 4X enclosure for outdoor or indoor use
- Fits 3/4" knockouts with 3' leads for easy installation
- Up to 10 modes of Protection (L-N, L-L, L-G optional, N-G optional)
- Bright LED status indicator, visible from side profile through clear cover
- 5-year manufacturer's warranty

APPLICATIONS

- Branch panel and/or individual equipment protection
- Commercial and Industrial Distribution Panels
- Control Panels

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E210793
- CSA C22.2, Type 1 SPD
- UL96A Lightning Protection
- RoHS Compliant

Surge-Trap® STXR Series

PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

Catalog Number (includes suffixes*)	System Voltage and Configuration	I_n	Maximum Continuous Operating Voltage (MCOV, U_c)				Voltage Protection Rating (VPR) (UL 1449, 6kV, 3kA)			
			L-N	L-G	L-L	N-G*	L-N	L-G	L-L	N-G**
STXR120P05	120V Single Phase	20kA	150	300**	-	150	700	1200**	-	600
STXR240P05	240V Single Phase	20kA	320	640**	-	320	1200	1800**	-	1000
STXR240S05	240/120V Split Phase	20kA	150	300**	300	150	700	1200**	1200	600
STXR480S05	480/240V Split Phase	20kA	320	640**	640	320	1200	1800**	2000	1000
STXR208Y05	208/120V 3-Phase WYE	20kA	150	300**	300	150	700	1200**	1200	600
STXR380Y05	380/220V 3-Phase WYE	20kA	320	640**	640	320	1200	1800**	2000	1000
STXR480Y05	480/277V 3-Phase WYE	20kA	320	470**	640	150	1200	1800**	2000	700
STXR600Y05	600/347V 3-Phase WYE	20kA	420	690**	840	270	1500	2500**	2500	1000
STXR240D05	240V 3-Phase DELTA	20kA	-	320	640	-	-	1200	2000	-
STXR480D05	480V 3-Phase DELTA & HRG WYE	10kA	-	550	1100	-	-	1800	3000	-
STXR600D05	600V 3-Phase DELTA	20kA	-	690	840	-	-	2000	2500	-
High-Leg Delta Configuration			**L-N/ HL-N**	**L-G/ HL-G**	**L-L/HL-L**	**N-G***	**L-N/ HL-N**	**L-G/ HL-G**	**L-L/HL-L**	**N-G****
STXR240H05	240/120V Hi-Leg DELTA	20kA	150/270	300/420**	300/420	150	700/1.2k	1.2k/1.2k**	2k/2k	600
STXR480H05	480/240V Hi-Leg DELTA	10kA	320/550	320/550**	640/870	320	1.2/1.8k	1.2k/1.8k**	2k/2.5k	1000

** MCOV and VPR only applicable for models with options N-G protection - see below.

*AVAILABLE OPTIONS

N-G protection: Add Suffix "N" at the end of the part number for N-G protection. Example: STXR208Y05N.

- N-G protection is suggested downstream of N-G bond when the unit is installed > 10' (3m) from service entrance or transformer.
- Without "N" option for installation of SPD at or near service entrance or transformer < 10' (3m) (N-G Bonded does not require N-G protection).

Audible Alarm and Dry Contact: Add Suffix "A" at the end of the part number for Audible Alarm and Dry Contact. Example: STXR208Y05

For Both Options: Add the suffix "AN" at the end of the part number.

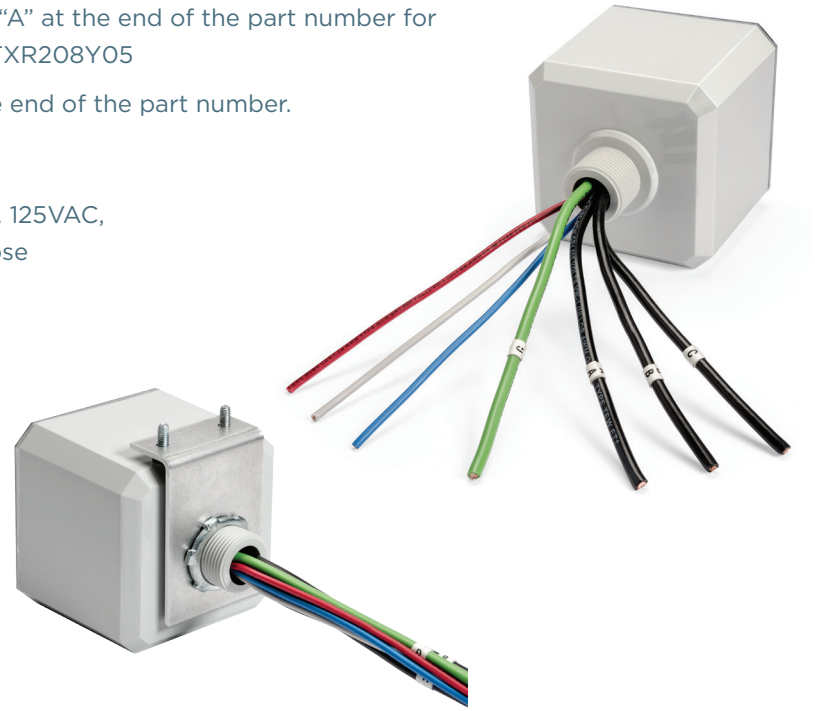
Example: STXR208Y05AN

- Alarm sounds when any protection is lost.
- Form C Dry Contact (Pre-wired 3' 18AWG). 125VAC, 1A Resistive and 30VDC, 2A General Purpose

Red = Normally Closed

Gray = Common

Blue = Normally Open



ACCESSORIES

Catalog Number	Accessory Description
STXRMBK	STXR Mounting Bracket Kit. Includes (1) 90-degree bracket and (2) mounting screws

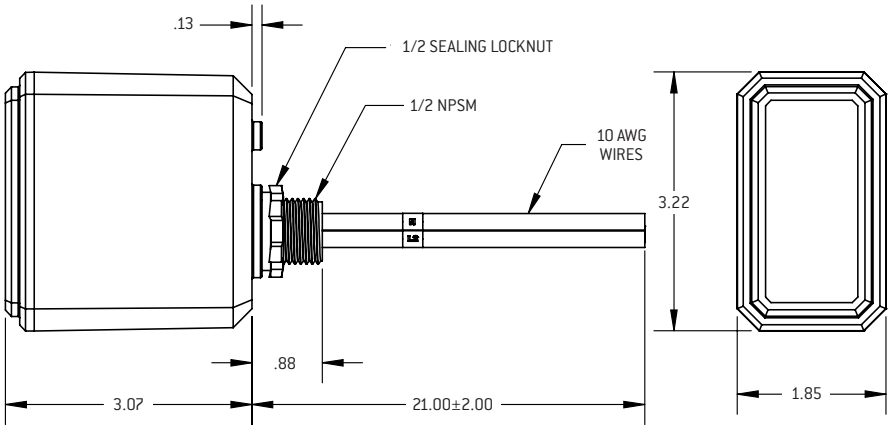
Surge-Trap® STXH Series

PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

Surge-Trap® STXH is listed UL Type 1 and fully compliant with UL1449 5th Edition, suitable for any 120/240VAC split phase application. Equipped with TPMOV® technology, stands out as the safest option in its class. Compact design, combined with superior performance and reliability, makes it particularly suited for HVAC systems and direct attachment to air conditioning disconnect switches.

Technical Data Overview	
Surge Current Rating (Imax)	50kA – Per Phase & Per Mode 75kA – Per Phase & Per Mode
System Voltage	120V Single Phase, 120/240VAC Split Phase
Nominal discharge current (I_n) (8x20 µs)	20kA
Short Circuit Current Rating (SCCR)	200kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	1/2" – 14 threaded hub Includes sealing locking washer
Wiring	Pre-wired 18" 10AWG
Enclosure	NEMA 4X Non-metallic
Flammability	UL94-5VA
Operating & Storage Temperature	– 40°F (40°C) to + 185°F (85°C)
Relative Humidity Range	0 to 95% non-condensing
Visual Status Indicator	LED Green = Functional / OUT = Replace

DIMENSIONS



FEATURES/BENEFITS:

- Mersen TPMOV Technology – does not require additional overcurrent protection
- Compact footprint for seamless integration with AC Disconnect Switches
- NEMA 4X enclosure for outdoor or indoor use
- Fits 1/2" knockouts with 18" leads for easy installation
- Up to 3 Modes of Protection (L-N, L-L, and L-G)
- Bright LED status indicator, visible from side profile through clear cover
- 3-year manufacturer's warranty, plus up to $25k connected equipment warranty (For details see Warranty Statement)

APPLICATIONS

- Residential Panels
- HVAC systems
- Pool and Spa equipment

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E210793
- CSA C22.2, Type 1 SPD
- ANSI/IEEE C62.41.1, C62.41.2, C62.45
- UL96A Lightning Protection
- RoHS Compliant

Surge-Trap® STXH Series

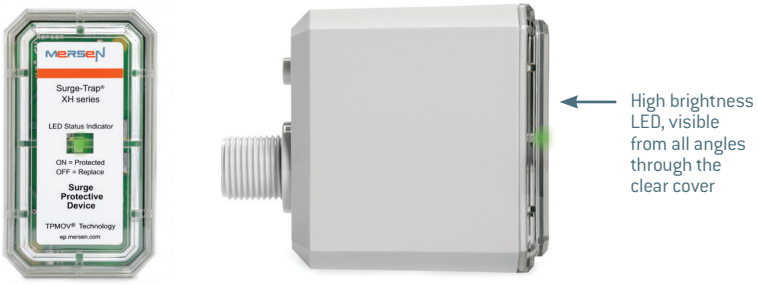
PANEL MOUNT SPD FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

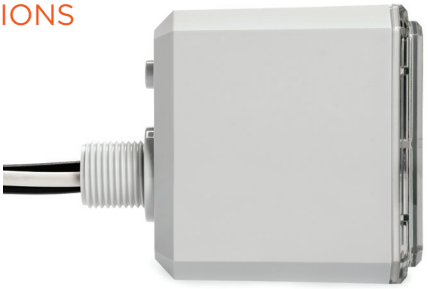
Catalog Number (includes suffixes*)	System Voltage and Configuration	I_n	Surge Current Rating	Maximum Continuous Operating Voltage (MCOV, U_c)				Voltage Protection Rating (VPR) (UL 1449, 6kV, 3kA)			
				L-N	L-G	L-L	N-G	L-N	L-G	L-L	N-G
STXH120P05	120V Single Phase (2W)	20kA	50kA	180	-	-	-	600	-	-	-
STXH120P05N	120V Single Phase (2W+G)	20kA	50kA	150	300	-	150	600	1200	-	600
STXH240S05	240/120V Split Phase (3W)	20kA	50kA	150	-	300	-	600	-	1200	-
STXH120P07	120V Single Phase (2W)	20kA	75kA	180				600			
STXH120P07N	120V Single Phase (2W+G)	20kA	75kA	180	360		180	600	1000		600
STXH240S07	240/120V Split Phase (3W)	20kA	75kA	180		360		600		1000	

*Suffix "N" at the end of the part number for N-G protection. N-G protection is suggested downstream of N-G bonding when the unit is installed > 10' (3m) from service entrance or transformer. Without "N" option for installation of SPD at or near service entrance or transformer < 10' (3m) (N-G Bonded does not require N-G protection).

LED STATUS INDICATOR



MOUNTING CONFIGURATIONS



1/2"-14 Mounting Hub

Ideal for Air Conditioning Disconnect Applications

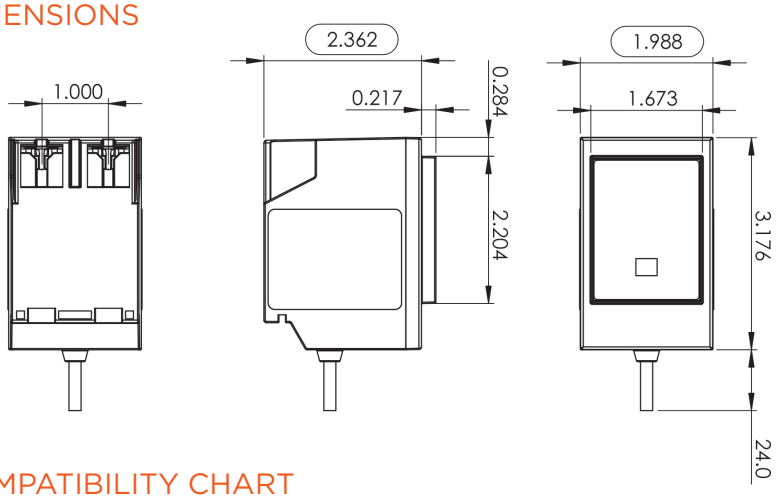
Surge-Trap® STLC Series

LOAD CENTER MOUNT FOR UL 1449 TYPE 1 AND 2 APPLICATIONS

Mersen's Surge-Trap® STLC surge protective device adds a critical layer of surge protection for your entire home. TThe STLC series can be installed in minutes, and is unique in that it has been designed and tested to fit in a variety of load centers from multiple manufacturers. The STLC Series is designed with Mersen's TPMOV® technology to ensure superior safety and reliability. Listed UL 1449 5th Edition Type 1 SPD and satisfies latest NEC requirement for surge protection for residential dwellings.

Technical Data Overview	
Part Number	STLC240S025
UL SPD Type	Type 1
Nominal Discharge Current Rating (I_n)	10kA
Surge Capacity (per phase and per mode)	25kA
Short-Circuit Current Rating (SCCR)	10kA (tested to 100kA)
Response Time	Less than 1 nanosecond (one per phase)
Status Indicator	LED: ON = Good - OFF = Replace
Maximum Continuous Operating Voltage (MCOV, U_c)	L-N: 150; L-L: 300
Voltage Protection Rating (VPR) (UL 1449, 6kV, 3kA)	L-N: 600; L-L: 1000
Ambient Temperature Rating	-20 … 65°C

DIMENSIONS



FEATURES/BENEFITS

- Designed with industry leading Mersen TPMOV technology
- Installs directly into load center bus bar, utilizing any (two) open adjacent breaker slots
- Versatility: fits into most residential load centers with 1" spacings (see compatibility chart below)
- 2 Modes of Protection (L-N, L-L)
- 3-year manufacturer's warranty, plus up to $25k connected equipment warranty

APPLICATIONS

- 120/240VAC residential load centers

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E517916
- RoHS Compliant

COMPATIBILITY CHART

Brand	Load Center	Circuit Breaker Type
Eaton	BR Series (prefix 1BR or B in the catalog number)	BR215….BR250, BR, 2P, 120/240 V AC, 15A…50A
Siemens Industry, Inc.	PL Series (prefix P or PW in the catalog number)	Q215 … Q250 , QP, 2P, 120/240VAC, 15A… 50A
	ES Series (prefix S or SW in the catalog number)	Q215 … Q250 , QP, 2P, 120/240VAC, 15A… 50A
	EQ Series (prefix E in the catalog number)	Q215 … Q250 , QP, 2P, 120/240VAC, 15A… 50A
Murray/Siemens Industry, Inc.	LC Series (prefix LC or LW in the catalog number)	MP215 … MP250, MP, 2P, 120/240VAC, 15A… 50A
ABB/General Electric	Powermark Gold series (prefix TL, TM or TP in the catalog number)	THQL215 … THQL250, 2P, 120/240 V AC, 15 … 50 A
Schneider Electric USA Inc./Square D Co.	Homeline series (prefix HOM in the catalog number)	HOM215 ... HOM250, 2P, 120/ 240 V AC, 15 ... 50 A

Surge-Trap® Pluggable STP Series

DIN-RAIL MOUNT PLUGGABLE FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

Surge-Trap Pluggable STP Series Surge Protective Device (SPD) is a no-fuse, fail-safe surge suppressor featuring Mersen's TPMOV® technology inside – no need for additional overcurrent protection. DIN-rail mountable featuring a fail-safe self-protected design, visual indicator, and a small footprint. A remote indicator provides status to critical control circuitry. High short circuit current rating makes it suitable for most industrial control panels.

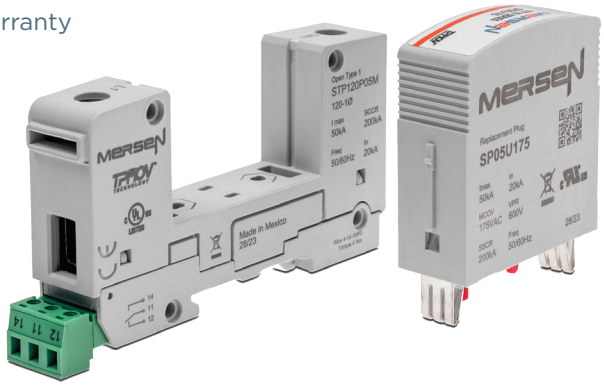
Technical Data Overview	STP-75	STP-50
Surge Current Rating (Imax)	75kA	50kA
Nominal discharge current (I_n) (8x20 µs)	10 – 20kA	10 – 20kA
Short Circuit Current Rating (SCCR)	200kA	200kA
Nominal power frequency	50-60 Hz	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)	Less than 1 nanosecond (one per phase)
Mounting	35mm DIN-Rail	35mm DIN-Rail
Wire Range	4 - 14AWG Solid / Stranded CU	4 - 14AWG (25mm² – 2.5mm²) Solid / Stranded CU
Torque	35.4 lbs-in	35.4 lbs-in (4.0 Nm)
Degree of Protection	IP 20 (finger-safe)	IP 20 (finger-safe)
Flammability	UL94 V0	UL94 V0
Operating & Storage Temperature	– 40°C to + 85°C	– 40°F (40°C) to + 185°F (85°C)
Visual Status Indicator flag	Green = Functional / Red = Replace	Green = Functional / Red = Replace
Remote Status Indicator	Form C Dry Contacts	Form C Dry Contacts

FEATURES/BENEFITS

- Designed with industry leading Mersen TPMOV technology
- Easy installation or retrofit
- Reversible chassis allows cable entry from top or bottom
- Replaceable modules with mechanical coding to avoid replacement errors
- 5-year warranty

APPLICATIONS

- Industrial Control Panels
- Water treatment
- Smart grid & LV Metering
- Traffic / ITS applications.
- Intended for use on a wide range of low voltage applications inside appropriate enclosures



APPROVALS/STANDARDS

STP-75

- ANSI/UL 1449 5th Edition, Open Type 1 SPD Listed, File E210793
- ANSI/IEEE C62.41.1, C62.41.2, C62.45
- CSA C22.2 No. 269 Certified, File 162842
- RoHS Compliant

c UL US LISTED SP RoHS 2002/95/EC

STP-50

- ANSI/UL 1449 5th Edition, Open Type 1 SPD Listed, File E210793
- ANSI/IEEE C62.41.1, C62.41.2, C62.45
- RoHS Compliant

c UL US LISTED RoHS 2002/95/EC

Surge-Trap® Pluggable STP Series

DIN-RAIL MOUNT PLUGGABLE FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

1 Pole - 2 Wires

Catalog Number	Nominal System Voltage (VAC)	I (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)				Replacement plugs
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L-1
STP120P07M	120 - 10, 2W	20	175	-	-	-	600	-	-	-	SP07U175
STP230P07M	240 - 10, 2W	20	275	-	-	-	900	-	-	-	SP07U275
STP277P07M	277 - 10, 2W	20	320	-	-	-	1000	-	-	-	SP07U320
STP347P07M	347 - 10, 2W	10	420	-	-	-	1500	-	-	-	SP07U420
STP120P05M	120V Single Phase	20	175	-	-	-	600	-	-	-	SP05U175
STP230P05M	240V Single Phase	20	275	-	-	-	900	-	-	-	SP05U275
STP277P05M	277V Single Phase	20	320	-	-	-	1000	-	-	-	SP05U320
STP347P05M	347V Single Phase	10	420	-	-	-	1500	-	-	-	SP05U420

The unit comes equipped with a set of Form C Dry contacts. Omit the letter "M" at the end of the part number to remove this feature.

2 Poles - 3 Wires

Catalog Number	Nominal System Voltage (VAC)	I (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)				Replacement plugs
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L1, L2
STP240S07M	120/240 - Split 0, 3W	20	175	-	-	350	600	-	-	1200	SP07U175
STP480S07M	240/480 - Split 0, 3W	20	275	-	-	550	900	-	-	1800	SP07U275
STP120PN05M	120V Single Phase	20	175	-	-	350	600	1200	1200	-	SP05U175
STP240S05M	240/120V Split Phase	20	175	-	-	350	600	-	-	1200	SP05U175
STP480S05M	480/240V Split Phase	20	275	-	-	550	900	-	-	1800	SP05U275

The unit comes equipped with a set of Form C Dry contacts. Omit the letter "M" at the end of the part number to remove this feature.

3 Poles - 4 Wires

Catalog Number	Nominal System Voltage (VAC)	I (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)				Replacement plugs
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L1, L2, L3
STP240D07M	240 - 30 Delta, 4W	20	-	275	-	550	-	900	-	1800	SP07U275
STP480D07M	480 - 30 Delta, 4W	10	-	550	-	1100	-	1500	-	3000	SP07U550
STP208Y07M	120/208 - 30 Wye, 4W	20	175	-	-	350	600	-	-	1200	SP07U175
STP480Y07M	277/480 - 30 Wye, 4W	20	320	-	-	640	1000	-	-	2000	SP07U320
STP600Y07M	347/600 - 30 Wye, 4W	10	420	-	-	840	1500	-	-	2500	SP07U420
STP690Y07M	400/690 - 30 Wye, 4W	10	550	-	-	1100	1500	-	-	3000	SP07U550
STP240SN05M	120/240 - Split Phase	20	175	-	175	350	600	1200	1200	1200	SP05U175
STP208Y05M	208/120V 3-Phase Wye	20	175	-	-	350	600	-	-	1200	SP05U175
STP480Y05M	480/277V 3-Phase Wye	20	320	-	-	640	1000	-	-	2000	SP05U320
STP600Y05M	600/347V 3-Phase Wye	10	420	-	-	840	1500	-	-	2500	SP05U420
STP690Y05M	690/400V 3-Phase Wye	10	550	-	-	1100	1500	-	-	3000	SP05U550
STP240D05M	240V 3-Phase Delta	20	-	275	-	550	-	900	-	1800	SP05U275
STP480D05M	480V 3-Phase Delta	10	-	550	-	1100	-	1500	-	3000	SP05U550

The unit comes equipped with a set of Form C Dry contacts. Omit the letter "M" at the end of the part number to remove this feature.

Surge-Trap® Pluggable STP Series

DIN-RAIL MOUNT PLUGGABLE FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

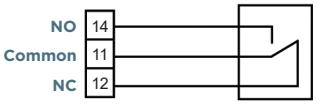
4 Poles - 5 Wires

Catalog Number	Nominal System Voltage (VAC)	I_n (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)				Replacement plugs	
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L1, L2, L3	
STP208YN07M	120/208 - 30 Wye, 5W	20	175	175	175	350	600	1200	600	1200	SP07U175	
STP480YN07M	277/480 - 30 Wye, 5W	20	320	495	175	640	1000	1500	1000	2000	L1,2,3	SP07U320
											N-G	SP07U175
STP600YN07M	347/600 - 30 Wye, 5W	10	420	695	275	840	1500	2000	800	2500	L1,2,3	SP07U420
											N-G	SP07U275
STP690YN07M	400/690 - 30 Wye, 5W	10	550	870	320	1100	1500	2500	1000	3000	L1,2,3	SP07U550
											N-G	SP07U320
STP208YN05M	208/120V 3-Phase Wye	20	175	175	175	350	600	1200	600	1200	SP05U175	
STP480YN05M	480/277V 3-Phase Wye	20	320	495	175	640	1000	1500	1000	2000	L1,2,3	SP05U320
											N-G	SP05U175
STP600YN05M	600/347V 3-Phase Wye	10	420	695	275	840	1500	2000	800	2500	L1,2,3	SP05U420
											N-G	SP05U275
STP690YN05M	690/400V 3-Phase Wye	10	550	870	320	1100	1500	2500	1000	3000	L1,2,3	SP05U550
											N-G	SP05U320
High-Leg Delta Configuration			**L-N/HL-N**	**L-G/HL-G**	**N-G**	**L-L/HL-L**	**L-N/ HL-N**	**L-G/ HL-G**	**N-G**	**L-L/ HL-L**	**Replacement plugs**	
											L1, L2, L3	
STP240HN07M	120/240 - 30 HL Delta, 5W	20	350	175	450	275	1200	600	1500	800	L1,3	SP07U175
											L2	SP07U275
											N-G	SP07U175
STP480HN07M	240/480 - 30 HL Delta, 5W	10	550/ 450	275/ 175	825/ 725	550	1500	800/ 600	2500/ 200	1500	L1,3	SP07U275
											L2	SP07U550
											N-G	SP07U175
STP240HN05M	240/120V Hi-Leg Delta	20	350	175	450	275	1200	600	1500	800	L1,3	SP05U175
											L2	SP05U275
											N-G	SP05U175
STP480HN05M	480/240V Hi-Leg Delta	10	550/450	275/175	825/725	550	1500	800 / 600	2500 / 2000	1500	L1,3	SP05U275
											L2	SP05U550
											N-G	SP05U175

The unit comes equipped with a set of Form C Dry contacts. Omit the letter "M" at the end of the part number to remove this feature.

REMOTE STATUS INDICATOR SPECIFICATIONS

REMOTE STATUS INDICATOR SPECIFICATION	
Signal Wire Range	#16 to #30 AWG
Terminal Torque	2.2 lb-in
Cont. between Comm + NO	Product Offline, Not Protected
Cont. between Comm + NC	Product Online, Protected

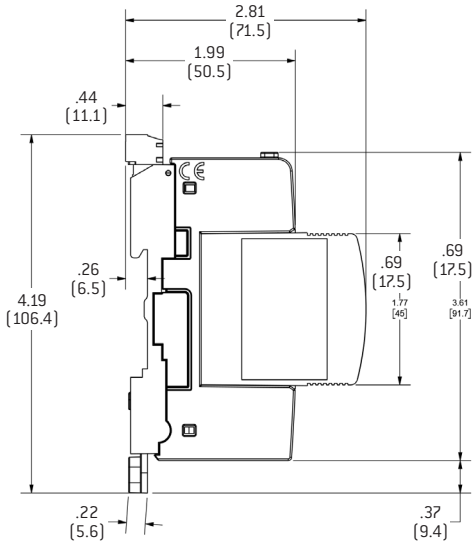


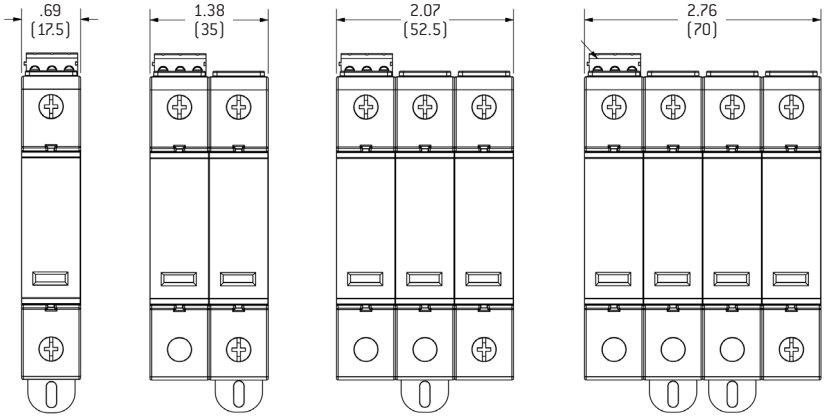
Screwless Pluggable RC Connector

Surge-Trap® Pluggable STP Series

DIN-RAIL MOUNT PLUGGABLE FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

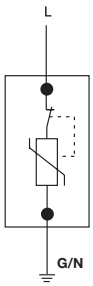
PRODUCT DIMENSIONS



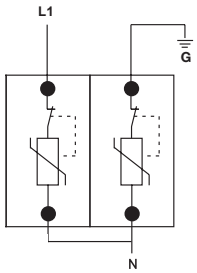


WIRING DIAGRAMS

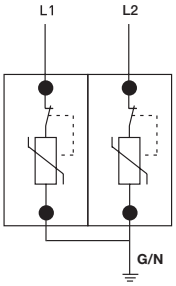
Single Phase
1 Pole - 2 Wire



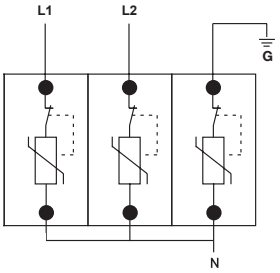
Single Phase
2 Pole - 3 Wire



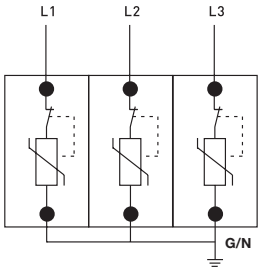
Split Phase
2 Pole - 3 Wire



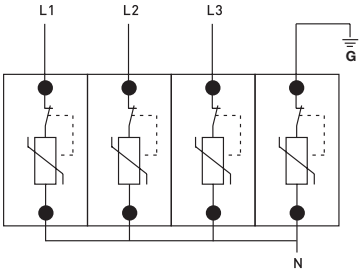
Split Phase
3 Pole - 4 Wire



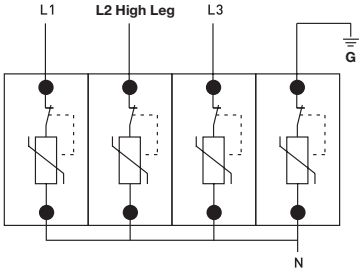
3 Phase Delta / 3 Phase Wye
3 Pole - 4 Wire



3 Phase Wye
4 Pole - 5 Wire



3 Phase Delta High-Leg
4 Pole - 5 Wire



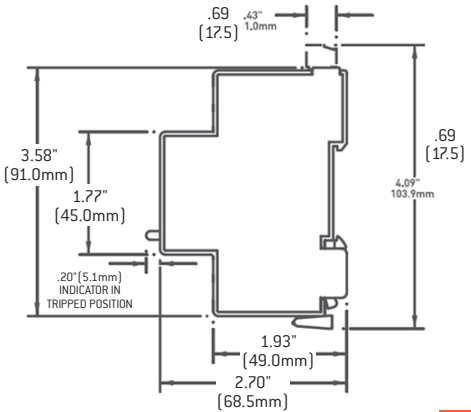
Surge-Trap® Monobloc ST Series

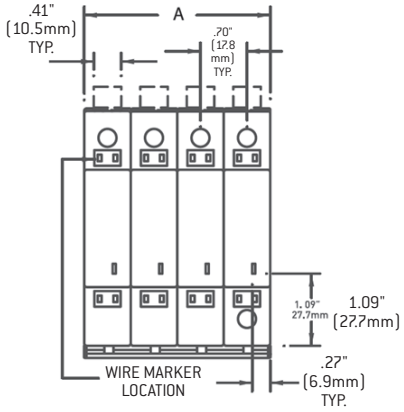
DIN-RAIL MOUNT MONOBLOC FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

Surge-Trap® Monobloc Surge Protective Device (SPD) ST Series is a highly cost effective, no-fuse, fail-safe surge suppressor featuring Mersen's TPMOV® technology inside – no need for additional overcurrent protection. All catalog numbers are UL 1449 5th Edition approved, DIN-rail mountable, with visual indicator and a small footprint. A remote indicator provides status for local or remote indication. A high short circuit current rating makes it suitable for most industrial control panels.

Technical Data Overview	
Surge Current Rating (Imax)	50kA
Nominal Discharge Current Rating (I_n) (8x20 µs):	20kA
Short-Circuit Current Rating (SCCR)	200kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	35mm DIN-Rail
Wire Range	6 - 14AWG (25mm² – 2.5mm²) Solid Stranded CU
Torque	14.75 lbs-in (1.67 Nm)
Degree of Protection	IP 20 (finger-safe)
Flammability	UL94 V0
Operating & Storage Temperature	– 40°F (40°C) to + 185°F (85°C)
Visual Status Indicator	Visual Tab - Tab Out = Replace
Remote Status Indicator	Form C Dry Contacts

PRODUCT DIMENSIONS





Poles	A	
	In	mm
1 Pole	0.70	17.8
2 Pole	1.39	35.5
3 Pole	2.10	53.3
4 Pole	2.80	71.0

FEATURES/BENEFITS:

- Designed with industry leading Mersen TPMOV technology
- Easy installation
- Cost-effective protection
- Remote Indicator (optional)
- 2-year warranty

APPLICATIONS

- Industrial Control Panels
- Water treatment
- AC Drives
- Smart grid & LV Metering
- Security Systems
- Traffic / ITS applications.
- Intended for use on a wide range of low voltage applications inside appropriate enclosures

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 Component Assembly, File E210793
- ANSI/IEEE C62.41.1, C62.41.2, C62.45
- RoHS Compliant

Surge-Trap® Monobloc ST Series

DIN-RAIL MOUNT MONOBLOC FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

1 Pole

Catalog Number	Nominal Voltage (VAC)	I_n (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)			
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L
ST1201PGM	120 - 10, 2W	20	180	180	-	-	500	500	-	-
ST2301PGM	240 - 10, 2W	20	270	270	-	-	800	800	-	-
ST2771PGM	277 - 10, 2W	20	320	320	-	-	900	900	-	-

2 Poles

Catalog Number	Nominal Voltage (VAC)	I_n (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)			
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L
ST240SPGM	120/240 - Split Ø, 3W	20	180	180	-	360	500	500	-	900
ST480SPGM	240/480 - Split Ø, 3W	20	270	270	-	540	800	800	-	1500

3 Poles

Catalog Number	Nominal Voltage (VAC)	I_n (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)			
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L
ST2083PYGM	120/208 - 30 Wye, 4W	20	180	18	-	360	500	500	-	900
ST4803PYGM	277/480 - 30 Wye, 4W	20	320	320	-	640	900	900	-	1800
ST6003PYGM	347/600 - 30 Wye, 4W	20	420	420	-	840	1200	1200	-	2000
ST6903PYGM	400/690 - 30 Wye, 4W	20	510	510	-	1020	1500	1500	-	3000
ST2403PDGM	240 - 30 Delta, 4W	20	270	270	-	540	800	800	-	1500
ST4803PDGM	480 - 30 Delta, 4W	20	550	550	-	1100	1500	1500	-	3000

4 Poles

Catalog Number	Nominal Voltage (VAC)	I_n (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)				Voltage Protection Rating (VPR, VAC)			
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L
ST2083PYM	120/208 - 30 Wye, 5W	20	180	360	180	360	500	900	500	900
ST4803PYM	277/480 - 30 Wye, 5W	20	320	470	150	640	1000	1500	500	1800
ST6006PYM	347/600 - 30 Wye, 5W	20	420	690	270	840	1500	2500	800	2500
ST6903PYM	400/690 - 30 Wye, 5W	20	1020	510	510	1020	3000	1500	1500	3000

PV

Catalog Number	Nominal Voltage (VDC)	I_n (kA)	SCCR (kA)	Maximum Continuous Operating Voltage (MCOV, VAC)	Voltage Protection Rating (VPR, VAC)
ST600PVM	600 (2 Poles)	20	10	720	1500
ST600YPVM	600 (3 Poles)	20	10	750	2400
ST1000PVM	1000 (3 Poles)	20	10	1250	3000

Product is available without Form C Dry contacts. Omit the letter "M" at the end of the part number to remove this feature.

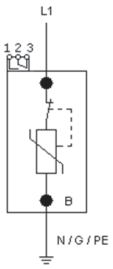
Surge-Trap® Monobloc ST Series

DIN-RAIL MOUNT MONOBLOC FOR ANSI/UL 1449 TYPE 1 AND 2 APPLICATIONS

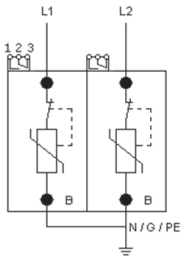
WIRING DIAGRAMS

For more information on wiring, please refer to the installation manual

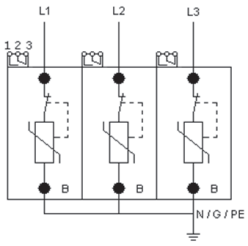
Single Phase
1 Pole - 2 wire



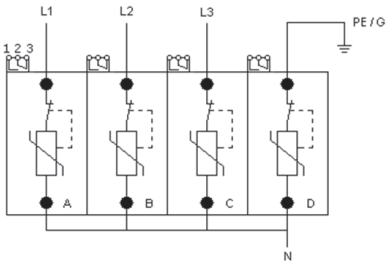
Single Phase
2 Pole - 3 wire



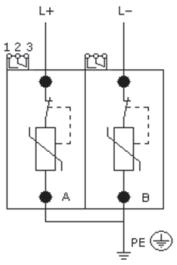
3 Phase Delta / 3 Phase Wye
3 Pole - 4 wire



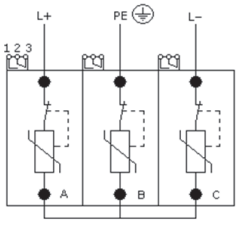
3 Phase Wye
4 Pole - 5 wire



2 Pole - Photovoltaic

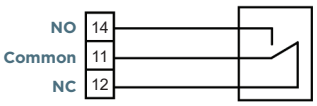


3 Pole - Photovoltaic



REMOTE STATUS INDICATOR SPECIFICATIONS

REMOTE STATUS INDICATOR SPECIFICATION	
Signal Wire Range	#16 to # 30 AWG (1.5 mm^2 – 0.05 mm^2)
Terminal Torque	2.2 lb-in (0.25 Nm)
Max Voltage - Current	125VAC – 3A
Cont. between Comm + NO	Product Offline, Not Protected
Cont. between Comm + NC	Product Online, Protected



Screwless Pluggable RC Connector

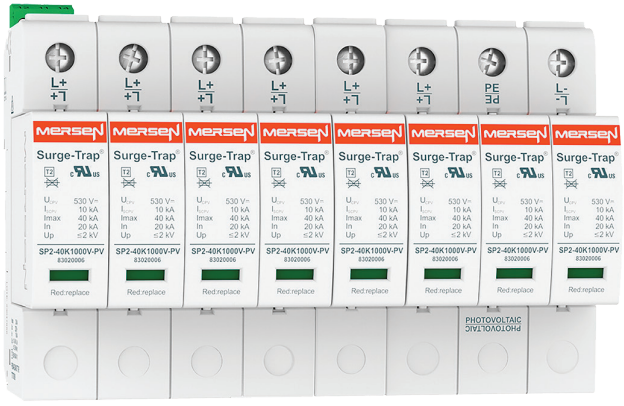
The unit comes equipped with a set of Form C Dry contacts. Omit the letter "M" at the end of the part number to remove this feature.

Surge-Trap® STPT2-40k-PV Series

DIN-RAIL PLUGGABLE SPD FOR PHOTOVOLTAIC APPLICATIONS

STPT2 40 PV is the series of devices that provide advanced overvoltage protection to photovoltaic systems by utilizing Mersen's optimized dynamic thermal disconnection system, which does not require additional overcurrent protection (back-up fuse) due to its high short-circuit withstand rating. These surge protective devices are suitable for all PV applications: large-scale, rooftop, and self-consumption (off-grid) DC installations.

Technical Data Overview	
Surge Current Rating (Imax)	40kA – Per Phase & Per Mode
System Voltage	660 to 1500 VDC
System Type	Y PV, U PV, multiple MPPT
Nominal discharge current (I_n) (8x20 µs)	10kA - 20kA
Short Circuit Current Rating (SCCR)	50 kA, 65 kA, 100 kA
Nominal power frequency	50-60 Hz
Response Time	Less than 1 nanosecond (one per phase)
Mounting	35mm DIN-Rail
Wire Range	4 - 14AWG (35mm² – 6mm²) Solid / Stranded Cu
Degree of Protection	IP 20 (finger-safe)
Flammability	UL94-5VA
Operating & Storage Temperature	- 40°F (40°C) to + 185°F (85°C)
Relative Humidity Range	0 to 95% non-condensing
Visual Status Indicator	Green = Functional / Red = Replace



FEATURES & BENEFITS

- Designed with industry leading Mersen TPMOV® technology
- DIN-rail mountable, plug-in format
- Multiple MPPT specific products
- Visual and remote end of life indicators
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid cartridge replacement errors
- 3-year manufacturer's warranty

APPLICATIONS

- Photovoltaic and Wind Power

APPROVALS/STANDARDS

- ANSI/UL 1449 5th Edition, Type 1 SPD, File E468946
- EN 50539-11
- IEC 61643-31
- RoHS Compliant

Surge-Trap® STPT2-40k-PV Series

DIN-RAIL PLUGGABLE SPD FOR PHOTOVOLTAIC APPLICATIONS

CATALOG NUMBERS AND ELECTRICAL CHARACTERISTICS

Large-scale and Rooftop PV – 3 Poles

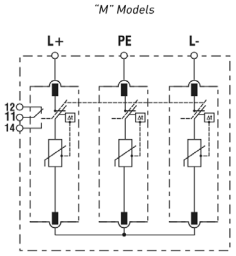
Catalog Number	Item Number	Maximum Continuous Operating Voltage-MCOV (VDC)	Voltage Protection Rating - VPR (VDC)	In (kA)	SCCR (kA)	Replacement plugs
(kA)	SCCR	600	1800	20	100	83020005
(kA)	Replacement plugs	600	1800	20	100	83020005
STPT2-40K1000V-YPV	83020140	1000	3000	20	50	83020006
STPT2-40K1000V-YPVM	83020141	1000	3000	20	50	83020006
STPT2-40K1500V-YPV	83020158	1500	4000	10	65	83020010
STPT2-40K1500V-YPVM	83020159	1500	4000	10	65	83020010

Multipole for Multiple MPPT Inverters

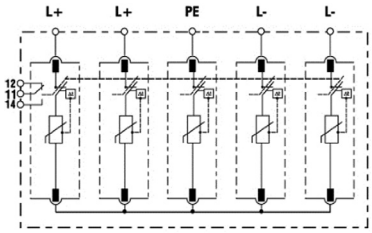
Catalog Number	Item Number	Maximum Continuous Operating Voltage-MCOV (VDC)	Voltage Protection Rating - VPR (VDC)	In (kA)	SCCR (kA)	Replacement plugs
STPT2-40K1000V-5YPVM	83020188	1000	3000	20	50	83020006
STPT2-40K1000V-5Y2PVM	83020223	1000	3000	20	50	83020006
STPT2-40K1000V-8YPVM	83020204	1000	3000	20	50	83020006

ELECTRICAL DIAGRAMS

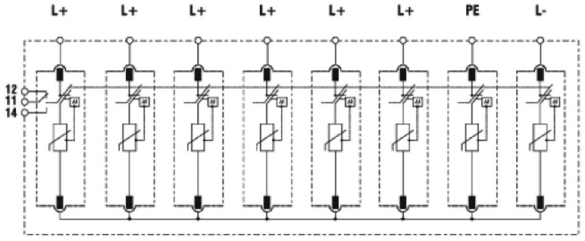
3 Poles



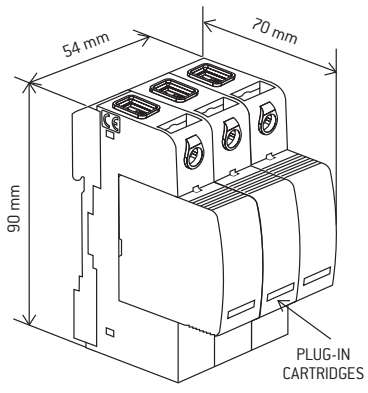
5 Poles



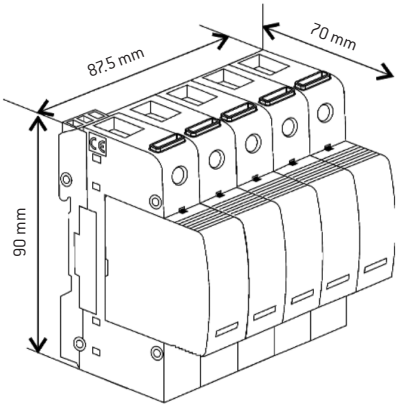
8 Poles



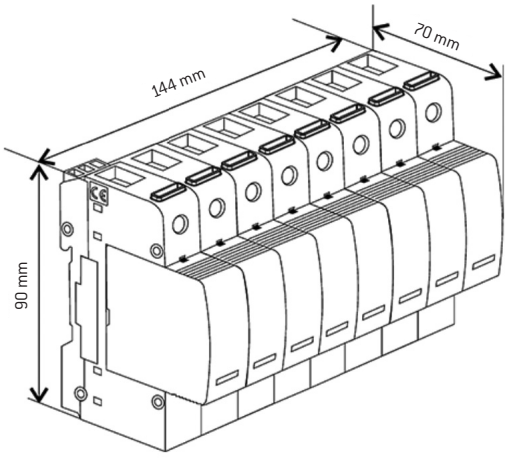
DIMENSIONS



3 Poles



5 Poles



8 Poles

Surge Cross Reference

Panel Mount SPDs

Mersen SPD Series	STZ	STXT	STXP	STXR
Surge Current Rating	100-150-200-300-450kA	100kA, 200kA	100kA	50kA
ABB	OVRHSP-400 OVRHTP-240, -400	OVRHSP-200 OVRHSR-120, -160	OVRHSP-100	OVRHTE-50 OVRHS3U, OVRHT3 OVRHLD
ASCO (Schneider)	460 series	440/445 series	430 series	420/425 series
CURRENT TECHNOLOGY(ABB)	SL3-300 TG3-300	SL3-200 TG3-200 CG3-200	SL3-100 TG3-100 CG3-100	SL3-50 TG3-50 CG3-40
CITEL	MD600/750 (300/450kA)	MP200 series	MS100 series	M50 series
DITEK		D200 series	D100 series	D50 series DTK-120/240
EATON	BSPD-400 SPM (SPD MAX Series) SPD Series Sidemount PTX Series PTE Series	BSPA-200 SPC-200 EQ2 Series	BSPA-100 CHSPT2ULTRA CVX-100 SPC-100 XT Series	Surge POD PRO BSPA050 Series SP1 Series SP2 Series SPC50 Series CVX050 Surge POD PRO CHSPT2SURGE
ERIKO (nVent)	TDX400 SES320	TDX200 SES160	TDX100	SES40P
INTERMATIC		PanelGuard H20S	PanelGuard L10F	PanelGuard L5F AG Series
LEVITON	57000 series	52000 series	42000 series	32000 series 51120
RAYCAP	A - series RSE3 series Rayvoss Series	N - series RSE2 series	M - series RSE1 series	S - series
SQUARE D (Schneider)	EMA/EBA series (SSP PN#, Modular)	XDSE Series	HWA series HEPD80	SDSA1175 HEPD25 XR series SDSA3650 SDSA 3-Phase HEPD50
SSI (ILSCO)	CML series	CDL series	XE50 series	SE50 series RE50 series
SIEMENS	TPS3 12	TPS3 11	FS060, FS100, FS140, TPS3 09	TPS3 03

Surge Cross Reference

DIN-Rail SPDs




Mersen SPD Series	STP-75 Pluggable	STP-50 Pluggable	ST Monobloc*	STPT2-40kA-PV
Surge Current Rating	75kA	50kA	50kA	40kA
ABB	Tranquell DIN	OVR series (40kA)	OVR series (40kA)	OVR PV
ALLEN BRADLEY	4983-DS			
ASCO (Schneider)		310 series (40kA)	310 series (40kA)	
BUSSMANN (EATON)		BSPM (40kA) BSPMA series (50kA) MA3145	BSPM (40kA) BSPMA series (50kA) MA3145	PV PRO PV HEAVY DUTY
CITEL	DS70US DS70US-G DS240S	DS4 series (40kA) DAC50VGUS DS40S DS40C	DS4 series (40kA) DAC50VGUS DS40S DS40C	DS50PV
DEHN	DEHNguard	DEHNguard	DEHNguard	DEHNguard YPV
DITEK	DTK-CMXPLUS	-	-	
ERIKO (nVent)		DT series (50kA)	DT series (50kA)	PVT1/PVT2
LEVITON	3800 (1-ph)			
LITTELFUSE		SPD2 series (50kA)	SPD2 series (50kA)	SPD2 PV SERIES
PHOENIX CONTACT		VAL series (50kA)	VAL series (50kA)	VAL-MS-T1/T2
RAYCAP	Strikesorb-DRM (60kA)	ProTec-T2 series (50kA) SafeTec T (50kA) SafeTube T2 (50kA)	ProTec-T2 series (50kA) SafeTec T (50kA) SafeTube T2 (50kA)	ProTec T1-PV ProTec T1-PV 5Y ProTec T2-PV ProTec T2-PV 5
SQUARE D (Schneider)	Multi9 PRD1			iPRD-DC-PV
SSI (ILSCO)		DRM50 (50kA)	DRM50 (50kA)	

* Mersen ST Series Monobloc offers a cost-effective alternative to pluggable SPDs. The ST Series matches the electrical performance and parameters of the STP Series and its competitors in a compact monobloc design.

DISCLAIMER: Cross references between manufacturer products are determined by comparing some main parameters based on competitors available online technical information. Although Mersen believes all technical information to be true and correct, it makes no warranty as to the accuracy and completeness of that Information, which in specific parameters may differ the suggested crossed part number. For specific part number competitive cross reference, please contact Mersen's Technical Service: technicalservices.ep@mersen.com.

Mersen
Expertise, our source of energy

MERSEN IS A GLOBAL EXPERT IN ELECTRICAL POWER AND ADVANCED MATERIALS

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