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Siemens TPS3 family of hardwired Surge Protective Devices

(formally known as Surge/Lightning Arrestors and/or Transient Voltage Surge Suppressors –TVSS)

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Integrally Mounted SPDs



Features

- Per Phase Surge Current Capacity ranging from 100 kA to 1000 kA
- Industry best VPRs
- $I_n = 20$ kA (most models)
- Standard 'Type 2' or optional 'Type 1' construction
- Ground Reference Monitoring (GRM) diagnostics

External or Wall Mounted SPDs



Features

- Per Phase Surge Current Capacity ranging from 50 kA to 1000 kA
- Industry best VPRs
- $I_n = 20$ kA (most models)
- Standard 'Type 2' or optional 'Type 1' construction
- Ground Reference Monitoring (GRM) diagnostics (excluding TPS3 03 & TPS3 09)

Residential SPDs



Features

- Per Phase Surge Current Capacity of 60kA, 100kA or 140kA
- Complete Service Protection for
 - Power
 - Telephone
 - CATV
- Ground Reference Monitoring (GRM) diagnostics

SPD - Surge Protection Devices

Siemens Surge Protection Innovations

Introduction

In today's electronic world, home and business electrical systems just aren't complete unless they incorporate surge protection. Stopping Surges Before They Get Into these systems is best accomplished through the installation of appropriately sized hard-wired surge protective devices (SPDs) beginning at the incoming service followed by installations at other key surge entry points.

When Siemens first developed the Transient Protection System (TPS) family of surge protectors, we knew early on that hard-wired surge protectors needed fully coordinated safety controls. This led to the adoption of a number of SPD

industry safety control firsts including the patented Ceramgard and TranSafe circuitry, coordinated fusing and thermal cutouts, dielectric isolation, mechanical re-enforcing taping, etc... resulting in a design that ensures the highest possible electrical system surge protection and reliability.








Our next generation UL 1449 4th Edition and CSA 22.2 No. 269 TPS3 SPDs carry on this same legacy. Every TPS3 is infused with Siemens engineering safety and performance "know-how" culminating with surge protection having the highest degree of safety while delivering the industry's best performance ratings – some of

lowest Voltage Protection Ratings (VPRs), Type 1 or 2, and 20kA I-nominal ratings (for most models) with surge current ratings from 50 to 1000 kA.

Electrical disturbances will always occur, but they don't have to cause surge protectors to fail in an unsafe manner. Safer surge protection means uncompromised electrical system **protection, safety, and reliability.**

The following pages provide additional technical and ordering information concerning our TPS3 family of Surge Protective Devices (SPDs).

Surge Protector Per Phase Surge Current Capacities

Wall Mounted Standard Mode						10 Mode SPDs		
Per Phase Surge Current	TPS3 03	TPS3 09	TPS3 11	TPS3 12	TPS3 15	Per Phase Surge Current	TPS3L 12	TPS3L 15
								
50kA						150kA		
100kA						300kA		
150kA						450kA		
200kA						600kA		
250kA						900kA		
300kA								
400kA								
500kA								
600kA								
800kA								
1000kA								

Surge Protection Devices (SPD)

Recommending Surge Protection

SOLID Protection

Either at home or in the work place, nearly every electrical load is electronic infused. With electrical infrastructure being the same as it was 50 years ago, today's modern equipment is more susceptible to surges originated from storms or distribution interactions. Places where lightning activity is minimal are now experiencing more electronic failures due to surges generated by the day to day operations of equipment like

washers and dryers, copiers, chillers, etc. In response to this susceptibility, code authorities have mandated emergency power distribution equipment now must be protected by a listed SPD. The reasoning is based upon anecdotal understating that surge protected systems are more reliable. Supported by government studies, the most efficient way to protect electrical systems from surges is through the installation of

hardwired SPDs at key points throughout the distribution system. These locations can easily be remembered by memorizing the locations of the acronym found within the following phrase, "The best surge protected system is a SOLID one," where each letter of the word SOLID stand for the locations on the electrical system where SPDs should be installed.

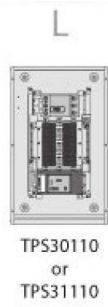
The illustration to the right shows "SOLID" locations for a school's electrical system. Under each 'SOLID' location is a Siemens TPS3 model number with surge current capacities matching those to what are typically specified by consultants across North America.



S
Service Entrance



O
Outside loads like Parking Lot Lighting powered from distribution panels




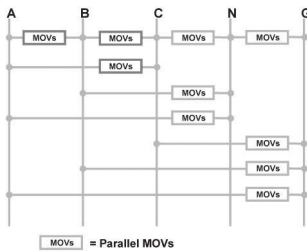
L
Lower voltage distribution panels powering computers and other electronics



I
Individual critical equipment like servers



D
Data, telephone, and coaxial cables

Surge Arrestor Replacement		Discrete, True, or L-L Enhanced 10 Mode Style SPDs	
 <p>TPS3 03 Type 1 SPD with $I_n = 20kA$</p>	<p>When UL 1449 3rd edition went into effect in 2009, low voltage surge and lightning arrestors became obsolete. They were replaced with Type 1 SPDs having an I-nominal (I_n) rating equal to 20kA. Most all Siemens TPS3's are rated as Type 1, $I_n = 20kA$ SPDs. However, the style and form factor of traditional surge arrestors is best replaced using our TPS3 03.</p>		<p>For mission critical or high profile applications, a growing number of end users prefer the assurance discrete or true 10-mode SPDs provide.</p> <p>When surges traverse the electrical system via phase to phase conductors, standard SPDs indirectly protect via the line to neutral or line to ground modes of protection. Siemens integral or wall mounted "Discrete," "True," or L-L Enhanced 10-mode SPDs address L-L surges by incorporating directly connected line to line surge protection elements. This style of SPD provides the "Just in Case" assurance mission critical or high pro-file projects require.</p>

SPD - Surge Protection Devices

TPS3 Integrally or Internally Mounted SPDs

Siemens Integral TPS3 series surge protectors are UL 1449 4th Edition and CSA 22.2 No. 269 factory-installed SPDs mounted within our standard distribution equipment. Internally mounted SPDs maximize protection by keeping electrical connections as short as possible minimizing impedance losses. The results are some of the industry's best "installed" Voltage Protection Ratings. On top of this performance benefit, our integral SPDs share the following features:

- UL 1449 4th Edition, UL 1283
- UL Type 1 or 2 Listed
- CSA 22.2 No. 269.1 and .2
- 20kA I_n (most models)
- 200kA SCCR (most models)
- Ground Reference Monitoring diagnostics

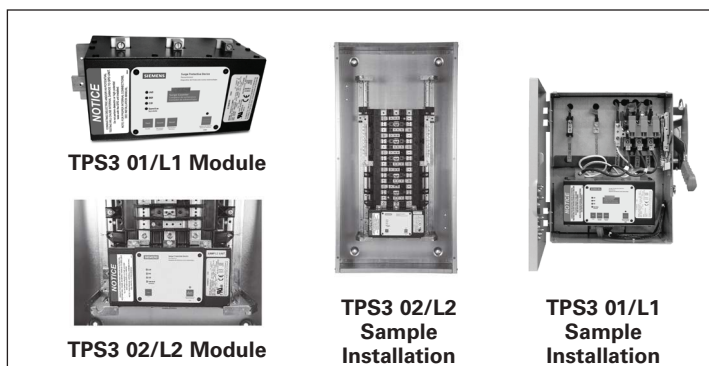
TPS3 01 or 02 and TPS3 L1 or L2 ("True," "Discrete," or "L-L Enhanced" 10-Mode)

Siemens surge protects Revised P1 with our TPS3 02 or L2 or Original P1, P2, or P3 power distribution panelboards with our TPS3 01 or L1 integrally mounted surge protective devices. Also, the TPS3 01 or L1 is used to surge protect motor control centers and busway systems.

Surge Current Capacity:
100kA to 300kA

See the following sections for ordering details:

Panelboards	10
Busway Systems	13
Motor Control Centres	14



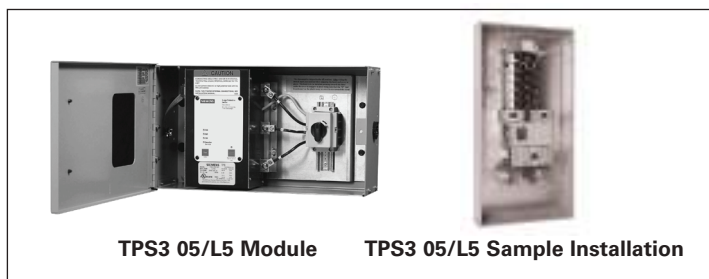
TPS3 05 and TPS3 L5 ("True," "Discrete," or "L-L Enhanced" 10-Mode)

Siemens TPS3 05 and L5 surge protective devices are designed for integration within our S5 and F2 panelboards as well as the distribution section within switchboards.

Surge Current Capacity:
100kA to 300kA

See the following sections for ordering details:

Panelboards	10
Switchboards	11



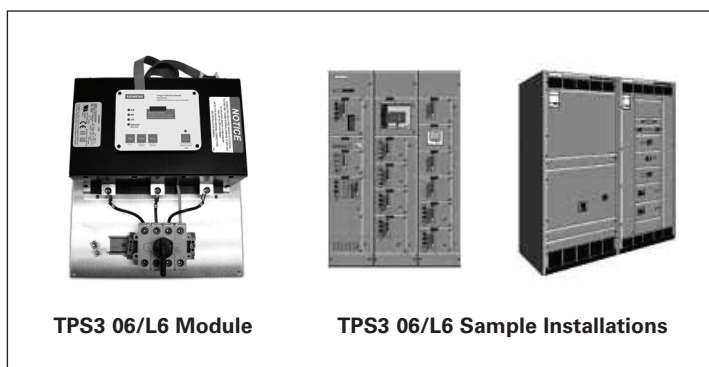
TPS3 06 and TPS3 L6 ("True," "Discrete," or "L-L Enhanced" 10-Mode)

Siemens TPS3 06 and L6 surge protective devices are designed for integration within our FC1 and FC2 Switchboards, Type WL Low Voltage Switchgear, Motor Control Centres and Busway Systems

Surge Current Capacity:
100kA to 500kA

See the following sections for ordering details:

Switchboards	11
Switchgear	12
Busway Systems	13
Motor Control Centres	14



Note: Wall mounted TPS3 12, TPS3 L12, TPS3 15, and TPS3 L15 can be configured for integral applications where Type 1 applications are required and for surge current capacity up to 1000 kA.

SPD - Surge Protection Devices

TPS3 External or Wall Mounted SPDs

TPS3 03 and 03DC

TPS3 03 is a UL 1449 4th Edition and CSA 22.2 No. 269.1, 50kA, Type 1 compact Surge Protective Device (SPD) that can be used as a replacement for secondary surge or lightning arrestors. Our TPS3 03DC is designed to surge protect 300, 600, or 1000VDC photovoltaic and other DC based systems.

TPS3 03 and 03DC Key Features

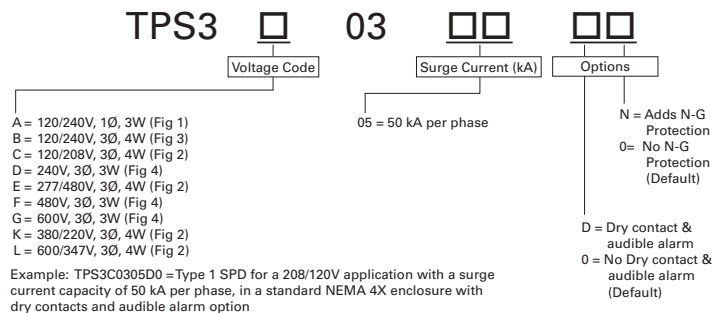
- UL 1449 4th Edition Listed and CSA 22.2 No. 269.1
- Type 1 Rated SPD
- 50kA Per Phase Surge Current
- 20kA I_n (Most models)
- 200kA SCCR (Most models)
- Every MOV is monitored
- Mounting – chase nipple, bracket, or DIN RAIL
- Standard compact NEMA 4X polycarbonate enclosure
- Modes of Protection: L-N or L-G and L-L, and Optional N-G
- Modes of Protection DC: DC+ - DC-, DC+ - GND, DC- - GND
- Standard Monitoring: LED Indicator
- Dimensions: 3.25" x 3.25" x 3.3" (82.6 mm x 82.6 mm x 83.8 mm)
- Weight: 2 lb. (0.9 kg)
- 5 Year Product Warranty

TPS3 03 Available Options:

- Dry contacts & Audible Alarm (option "D")
- Neutral to Ground Protection (option "N")



Ordering Information



When an option is not selected, include a zero (0) in the field

Available Accessories: Ordered Separately
 RMSIE = Remote monitor

Note: Figures shown on page 9-6

TPS3 09

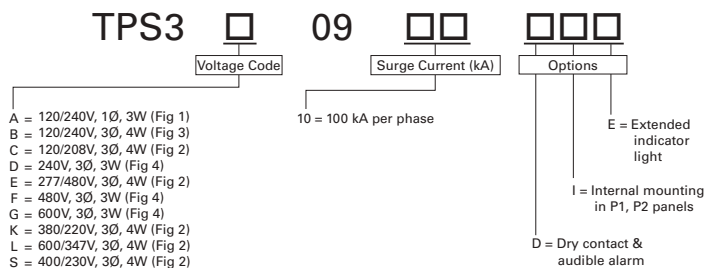
TPS3 09 is a UL 1449 4th Edition and CSA 22.2 No. 269.1, 100kA, Type 1 compact multi-mode Surge Protective Device (SPD) that can be installed on either the line or load side of the electrical service.

TPS3 09 Key Features

- UL 1449 4th Edition Listed and CSA 22.2 No. 269.1
- Type 1 Rated SPD
- 100kA Per Phase Surge Current
- 20kA I_n (Most models)
- 200kA SCCR (Most models)
- Every MOV is monitored, including N-G
- Mounting: chase nipple or wall mounted
- Standard compact NEMA 4X polycarbonate enclosure
- Modes of Protection: L-N, L-G, N-G, and L-L
- Standard Monitoring: LED Indicators
- Dimensions: 8" x 3" x 3" (203 mm x 76 mm x 76 mm)
- Weight: 3 lb. (1.4 kg)
- 10 Year Product Warranty

Available Options:

- Dry contacts & audible alarm (option "D")
- Extended indicator light (option "E")
- Internal mounting in P1, P2 Panels (option "I"), requires TPS9IKITP1 or TPS9IKITP2 mounting bracket accessory.



Example: TPS3C0910D00 = Type 1 SPD for a 208/120V panelboard with a surge current capacity of 100 kA per phase with standard NEMA 4X enclosure, dry contacts and audible alarm option.

Available for field retrofit in P1 panels

When an option is not selected, include a zero (0) in the field

Available Accessories: Ordered Separately

- RMSIE = Remote monitor
- XFMFKIT = Flush mount plate
- TPS9IKITP1 = Mounting bracket for installation in P1 panels
- TPS9IKITP2 = Mounting bracket for installation in P2 panels (factory install only)

Surge Protection Devices (SPD)

TPS3 External or Wall Mounted SPDs

TPS3 15 and TPS3 L15 (“True,” “Discrete,” or “L-L Enhanced” 10-Mode)

TPS3 15 and TPS3 L15 are UL 1449 4th edition listed and CSA 22.2 No. 269.1 or 269.2 replaceable dual module, multimode Type 1 or 2 (Default) surge protective device with a per phase surge current capacity that can be increased to 1000kA (TPS3 L15 up to 900kA). For mission critical or high profile applications, the TPS3 L15 is our “True,” “Discrete,” or “L-L Enhanced” 10-mode style SPD providing the “Just in Case” assurance of directly connected L-L MOVs.

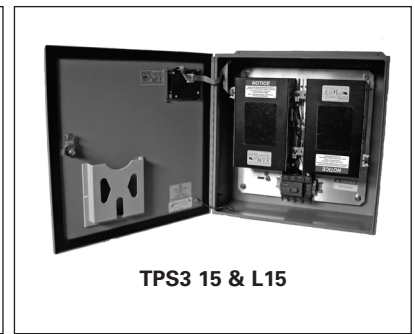
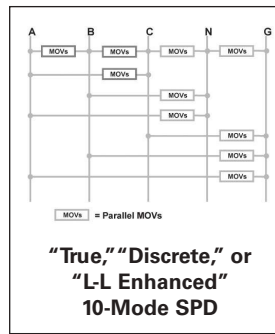
Both TPS3 15 and TPS3 L15 are UL 1283 recognized incorporating EMI/RFI or Sine Wave tracking filtering designed to condition low energy L-N coupled noise.

Standard monitoring includes protection status indication LEDs, audible alarm, dry contacts, and surge counter. Complete protection is intact when the status indicators are illuminated. When protection is lost, the status indicator will extinguish, the red service light will illuminate, and the dry contacts will change state. An optional surge counter is available as well.

A new diagnostic feature we’ve integrated within the TPS3 15 and TPS3 L15 is Ground Reference Monitoring or (GRM) diagnostic indication circuit. Ground Reference Monitoring or (GRM) diagnostics monitors the health of the electrical system’s neutral to ground bond. If voltage is seen across neutral and ground, the phase indicators will remain illuminated, while the red service light begins to flash alerting the end user that the electrical system grounding needs to be checked and serviced. This feature can be remotely monitored via the dry contact outputs. Siemens TPS3s are one of the first in the industry to offer this power quality safety and performance indication.

TPS3 15 and TPS3 L15 Key Features

- UL 1449 4th Edition Listed and UL 1283 Recognized
- CSA 22.2 No. 269.2 (Default) or CSA 22.2 No. 269.1 (Type 1)
- Type 2 Rated SPD (Default), Type 1 construction available
- TPS3 15: 400 – 1000kA Per Phase Surge Current
- TPS3 L15: 600 and 900kA Phase Surge Current
- 20kA I_n (Most models)
- 200kA SCCR (Most models)
- Every MOV is monitored, including N-G
- Mounting – chase nipple or wall mounted
- Standard NEMA 1/12/3R/04 ANSI 61 steel enclosure
- TPS3 15 Modes of Protection – L-N, L-G, N-G, and L-L
- TPS3 L15 Modes of Protection – L-N, L-G, N-G, and L-L (directly connected L-L TP MOVs)
- Internal rotary disconnect switch included
- Standard Monitoring:
 - LED Indicators
 - Dry Contacts
 - Audible alarm with silence switch and test button
 - Surge Counter
 - Ground Reference Monitoring



Ordering Information

TPS3 □ **15** □ □ □ **X** □ □

□ Voltage Code □ Surge Current (kA) □ Enclosure □ Options

A = 120/240V, 1Ø, 3W (Fig 1) 40 = 400 kA per phase
 B = 120/240V, 3Ø, 4W (Fig 3) 50 = 500 kA per phase
 C = 120/208V, 3Ø, 4W (Fig 2) 60 = 600 kA per phase
 D = 240V, 3Ø, 3W (Fig 4) 80 = 800 kA per phase
 E = 277/480V, 3Ø, 4W (Fig 2) 1K = 1000 kA per phase
 F = 480V, 3Ø, 3W (Fig 4)
 G = 600V, 3Ø, 3W (Fig 4)
 K = 380/220V, 3Ø, 4W (Fig 2)
 L = 600/347V, 3Ø, 4W (Fig 2)
 S = 400/230V, 3Ø, 4W (Fig 2)

□ = Standard NEMA 1/12/3R/4 Steel
 V = NEMA 4X non-metallic
 S = NEMA 4X stainless steel
 F = NEMA 1 flush mount
 P = NEMA 1 screwcover pullbox with extended display on 6ft cable for line side mounting in SWBD/SWGR

□ = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
 □ = Type 1 SPD

T = Thru-door disconnect
 X = Surge counter (Standard)

Example: TPS3C1560SX02 = Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 600 kA per phase, in a NEMA 4X stainless steel enclosure with a surge counter and standard disconnect switch

When an option is not selected, include a zero (0) in the field

Available Accessories: Ordered Separately
 RMSIE - Remote monitor

TPS3 □ **L15** □ □ □ **X** □ □

□ Voltage Code □ Surge Current (kA) □ Enclosure □ Options

A = 120/240V, 1Ø, 3W (Fig 1) 60 = 600 kA per phase
 B = 120/240V, 3Ø, 4W (Fig 3) 90 = 900 kA per phase
 C = 120/208V, 3Ø, 4W (Fig 2)
 E = 277/480V, 3Ø, 4W (Fig 2)
 K = 380/220V, 3Ø, 4W (Fig 2)
 S = 400/230V, 3Ø, 4W (Fig 2)

□ = Standard NEMA 1/12/3R/4 Steel
 V = NEMA 4X non-metallic
 S = NEMA 4X stainless steel
 F = NEMA 1 flush mount
 P = NEMA 1 screwcover pullbox with extended display on 6ft cable for line side mounting in SWBD/SWGR

□ = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
 □ = Type 1 SPD

T = Thru-door disconnect
 X = Surge counter (Standard)

Example: TPS3CL1560X02 = 10 Mode, Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 600 kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter

When an option is not selected, include a zero (0) in the field

Available Accessories: Ordered Separately
 RMSIE - Remote monitor

- Wire size: #8 AWG to 1/0
- Dimensions: 20" x 20" x 7" (508 mm x 508 mm x 178 mm)
- Weight: 64 lb. (29 kg)*
- 10 Year Product Warranty

*Other NEMA rating may increase enclosure size and weight

Available Options

- Thru-door disconnect
- Type 2 or 1 Construction

Surge Protection Devices (SPD)

Power Service Entrance Surge Protection

FirstSurge™

Total Home Protection

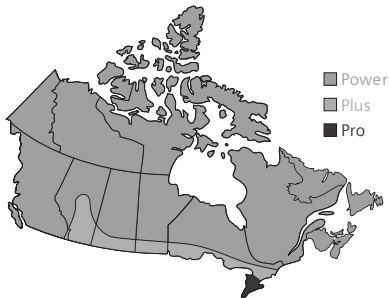
Siemens believes today's residential surge protectors come up short when protecting today's modern home filled with smart appliances and electronics.

This is why we developed our FirstSurge™ commercial class total home surge protectors. These electrical system surge protectors are sized for where you live. They will let you know when there is something wrong or when they are worn out.

Based upon thunderstorm frequency, geographic location, and home size, we developed a surge exposure map correlating with FirstSurge™ current capacities known to provide years of protective service for each shaded area.

Sized For Where You Live

Model	Surge Capacity
FirstSurge™ Power	(FS060) 60,000 A
FirstSurge™ Plus	(FS100) 100,000 A
FirstSurge™ Pro	(FS140) 140,000 A



Know You're Protected:

3 Stage Commercial Grade Notification

When there is a problem, Siemens FirstSurge™ takes the guesswork out of knowing when it is time to be replaced. What will you see and hear when this occurs?

Audible Alarm: Beeps
 Green LED(s): Extinguish
 Red Service Light: Flashes

Ground Reference Monitoring (GRM)

FirstSurge™ is GRM-equipped notifying you a rare safety hazard exists due to a compromised electrical system neutral to ground bond. What will you see and hear when this occurs?

Audible Alarm: Beeps
 Green LED(s): Remains Lit
 Red Service Light: Flashes



*See warranty for details



Features & Benefits

- UL 1449 Listed, Type 2, Surge Protective Device (SPD)
- Rated for 120/240 split phase panels up to 400A
- Surge Current Capacities:
 - 60,000 A
 - 100,000 A
 - 140,000 A
- 3 Stage Commercial Grade Notification
- Ground Reference Monitoring (GRM)
- Installs onto any brand loadcentre
- Type 4 rated outdoor enclosure
- 10 year product and connected equipment warranty*

Technical Specifications	
Surge Spike Capacity	FirstSurge™ Power (FS060) 60,000 A FirstSurge™ Plus (FS100) 100,000 A FirstSurge™ Pro (FS140) 140,000 A
Line Voltage	120/240 Split Phase, 50/60 Hz
UL 1449 3rd Ed VPR	L-N: 600 V L-G: 600 V N-G: 600 V L-L: 900 V
Rated Voltage (MCOV)	150V – L-N, L-G, and N-G; 300V – L-L
Response Time	<1 nanosecond
Enclosure	NEMA 4X Indoor and Outdoor Rated
Selection Information	
FirstSurge™ Power	FS060
FirstSurge™ Plus	FS100
FirstSurge™ Pro	FS140
FirstSurge™ Flush Mount Kit	XMFMKIT

Surge Protection Devices (SPD)

Telephone Service Entrance Surge Protection

Siemens FSPHONE is a 2 pair, hardwired surge protector for telephone, DSL or modem connected electronics in residential and light commercial applications. The FSPHONE protects against electrical power surges that can enter through the main telephone connection and is equipped with a failshort device to permanently ground the telephone line in the event of a power cross.

The FSPHONE is designed for indoor applications or can be mounted inside another weatherproof enclosure for outdoor mounting applications.

The FSPHONE4X consists of the FSPHONE plus a weatherproof enclosure to facilitate indoor or outdoor applications. The enclosure is molded of temperature and humidity resistant thermoplastic to resist cracking and discoloration. The cover can be secured with a tie wrap or similar locking device.

For total home protection please use FirstSurge™ to protect your incoming AC Power lines and FSPHONE to protect your incoming telephone line.

Features & Benefits

- UL listed
- Hardwired Modem/Fax/DSL protection
- Easy to install
- Exceptionally fast response time
- Low insertion loss
- Available with or without enclosure
- 5-Year product warranty*



Technical Specifications	
Catastrophic Surge Circuit	Yes
Spike Capacity	200 Amps
Let Through Voltage	<270 V
Overcurrent Protection	Yes
Response Time	<1 nanosecond
Enclosure	Yes
Agency Approvals & Warranty	
UL/cUL Listings	497C
Meets Telcordia (formerly Bellcore) GR-974-CORE Requirements for Telecommunications Line Protectors	Yes
Product Warranty	FS140
Catalogue Number	
FSPHONE	2 pair protection module
FSPHONE4X	2 pair protection module & 1 Weatherproof Enclosure

UL Model No. - SATH2

Coaxial Service Entrance Surge Protection

Siemens FSCATV shields coaxial connected electronics in residential and light commercial applications against electrical transient damage, including lightning, from entering through the main cable connection.

FSCATV includes a section of coaxial cable with female to female splice for line side application. The Siemens warranty covers product defects for 5 years. To have complete protection for your equipment, home, or business, it is important to protect AC power lines and all data lines the equipment is connected through.

Features & Benefits

- UL Listed
- Rated for CATV, DSS, TV, VCR, and Cable Modem
- Easy to install
- Standard Female to Female F connector
- Low insertion loss
- Automatic recovery
- 5 Year product warranty*



Technical Specifications	
Frequency Range	DC thru 1.5 GHz
Catastrophic Surge Circuit	Yes
Spike Capacity	5000 Amps, 8/20 μSec
Impedance	75 Ohms
Overcurrent Protection	Yes
Return Loss	30dB @ 1 GHz
Insertion Loss	<0.1dB
Agency Approvals & Warranty	
UL/cUL Listings	497C
Meets IEEE C62.41.1 Requirements	Yes
Product Warranty	FS140
Catalogue Number	
FSCATV	F-Type Inline Coax Protector

UL Model No. - Surgeassure™ SAVFFF

*See warranty for details