

Industrial, Commercial and Residential

# Surge Protective Devices (SPDs)

**SELECTION GUIDE** 







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# **Surge Protective Devices (SPDs)**

# What is UL 1449?

Underwriters Laboratories' safety and performance standard for surge protection equipment is composed of three main features.

### 1. Secondary Surge Arresters:

These are typically mounted outdoors and prior to service entrance equipment. This ensures that line side devices will be manufactured with safety related protection similar to load side devices.

## 2. Nominal Discharge Current Rating (I<sub>N</sub>):

This allows users to compare a surge protective device's durability.

### 3 Voltage Protection Rating (VPR):

This test is performed at 3000 Amps as opposed to 500 Amps in order to must show improved performance to obtain recommended VPR levels of surge protection.

# **Understanding the Terminology**

The requirements for SPDs are identified by Type 1, 2, 3, 4 or 5 depending upon where the SPD will be incorporated within the power distribution system.

### Type 1 SPDs:

Typically mounted on the line side of the main service entrance. Protects against external surges caused by lightning or utility capacitor bank switching. Type 1 devices can automatically be used in Type 2 applications, so that is why we often refer to them as Type 1/Type 2.

#### Type 2 SPDs:

Generally serves a branch circuit and protects against residual lightning energy, motor driven surges and other internally generated surges.

#### Type 3 SPDs:

Often used at the protected equipment. Provides point-of-use protection, easily replaceable and it provides the last line of defense against a lightning strike.

#### Type 4 SPDs:

Component assemblies consisting of one or more Type 5 components together with a disconnect (integral or external) or a means of complying with the limited current tests in UL 1449.

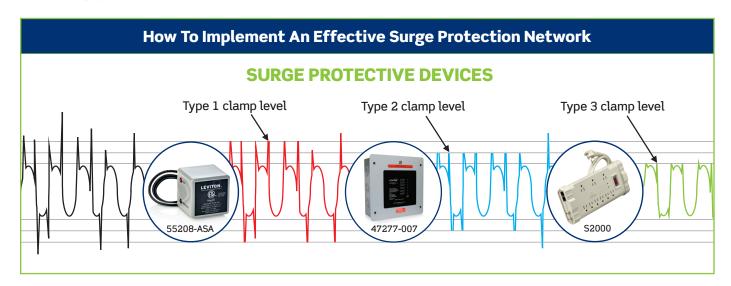
### Type 5 SPDs:

Discrete component surge suppressors connected by its leads or provided with an enclosure with mounting means and wiring terminations.



# Surge Protection Network Implementation

In order to achieve optimum protection for your equipment, it is essential to utilize a distributed surge suppression strategy. Installing surge protective devices (SPDs) will knock down high-energy transients at the building entrance and/or sub-panel so that the surge is manageable for the smaller SPDs that protect point-of-use equipment. Leviton offers a comprehensive selection of devices to implement the most effective surge protection network.



The Good, Better, Best Approach to "Whole House" Surge Protection



# Good

Surge Protective Plug-Ins or Strips to plug your tablet, refrigerator, or even your HDTV into.



# Better

Surge Protective Plug-Ins or Strips **AND** a Surge Protective Panel that protects your main electrical panel.



# Best

Surge Protective Plug-Ins or Strips **AND** a Surge Protective Panel that protects your main electrical panel **AND** a Panel Mounted Device like the 51110 which you would install by your main service entrance (between the utility pole and where your electricity enters your service panel).





# Type 1/Type 2 Surge Protective Devices



## 55000 Series

#### **DEVICE SPECIFICATIONS APPEAR ON PAGE 13**

- NEMA Type 3R enclosure for indoor or outdoor use
- Indicator lights showing protection status
- Provided with #10 AWG stranded, 18 in. long pigtail leads
- Limited Lifetime Product Warranty
- Connected equipment coverage up to \$10,000\*

## 51120-3R

#### **DEVICE SPECIFICATIONS APPEAR ON PAGE 13**

- Standard J-Box enclosure with pre-punched standard knock-outs can be easily surface mounted in typical frame construction
- · Indicator lights showing protection status
- Provided with #12 AWG stranded, 28 in. long cord
- May also be used in Type 2 applications
- Connected equipment coverage up to \$25,000\*





## 51110 Panel Mount

#### **DEVICE SPECIFICATIONS APPEAR ON PAGE 13**

- Indicator lights showing protection status
- UL1449 Edition rated
- Compatible with home automation systems
- 150 maximum continuous operating voltage (MOV) rating allows for tolerance to line voltage swells
- 10-Year limited warranty
- Connected equipment coverage up to \$25,000\*

# Type 2 Surge Protective Devices



# 52000 and 57000 Series MODULAR

#### **DEVICE SPECIFICATIONS APPEAR ON PAGES 15 & 16**

- Service/branch panel protection for commercial, industrial and residential applications
- Parallel-operated design ensures continuous power even if surge protection is disabled
- Protection for up to 100,000 amps (52000 Series) or 150,000 amps (57000 Series) of surge current per mode
- Loss of phase detection status
- AC Sine Wave tracking provides enhanced EMI/RFI filtering
- NEMA Type 12 enclosure resists dirt, dust and light splashing water
- Models available with Surge Counter or Integral Disconnect Switch
- Limited lifetime product warranty with free replacement modules\*

\*Certain restrictions apply

# 37000 and 47000 Series

#### DEVICE SPECIFICATIONS APPEAR ON PAGE 17

- Can be used in commercial and industrial applications
- Protection for up to 100,000 amps (37000 Series) or 200,000 amps (47000 Series) of surge current per mode
- Loss of phase detection status
- Models available in NEMA Type 1 enclosures for indoor applications and Type 4X enclosures (47000 series only) for outdoor applications
- Seven-Mode Protection (each phase to neutral, each phase to ground and neutral to ground)
- Real-time diagnostics monitor power and suppression status for each phase and provide both LED indicators and audible alarm
- Equipped with dry contacts for remote monitoring
- Limited lifetime product warranty





# Type 2 Surge Protective Devices

32000 and 42000 Series Panel Mount NON-MODULAR

#### **DEVICE SPECIFICATIONS APPEAR ON PAGE 18**

- Provide protection for up to 80kA of surge current per mode
- 32000 Series features reduced noise filtering for optimum compatibility with home controls
- 42000 Series incorporates enhanced noise filtering and sine wave tracking for superior protection
- Loss of phase detection status
- Three-phase models can be wired for either WYE or Delta AC systems
- Equipped with indicator lights and audible alarm for monitoring power and surge suppression status
- NEMA Type 3R enclosure for indoor/outdoor applications
- Optional flush mount collar available (42001-FMC)
- Limited lifetime product warranty





# 51120 Series Panel Mount

#### **DEVICE SPECIFICATIONS APPEAR ON PAGE 18**

- Can be used in commercial and residential applications
- Single high-energy solid-state semiconductor surge suppression circuitry per phase
- Real-time diagnostic visual indicator shows power and suppression status for each protected phase
- Standard J-Box enclosure with pre-punched standard knock-outs can be easily surface mounted in typical frame construction
- Feature a low VPR to ensure protection of sensitive electronic devices including LCD TVs and computers
- Compatible with Leviton Decora Home Controls
- Limited Lifetime Product Warranty
- Connected equipment coverage up to \$25,000 for the 51120-1

# Type 3 Surge Protective Devices

# Surge Protective Receptacles DEVICE SPECIFICATIONS APPEAR ON PAGE 19

The value of these receptacles and ease of installation allow for placement anywhere you have a standard electrical outlet. With a small investment, you have the assurance that your equipment is well protected, from a heart monitor in the emergency room, to a computer in the office, or the big screen TV in a living room.



- 15A, 125V and 20A, 125V ratings
- Tamper-Resistant versions
- Indicator light
- Single, Duplex and 4-in-1 versions
- EMI/RFI Noise Filtering
- Audible alarm
- Wide variety of color options
- Back and side-wired design with durable metal mounting strap
- Point-of-use protection for up to 18,000 amps of surge current total

# S1000 and S2000 Series **Surge Protective Strips**

**DEVICE SPECIFICATIONS APPEAR ON PAGE 19** 

These devices provide superior protection in commercial and residential environments by protecting computers, peripherals and other electronic devices from surges, voltage transients and noise spikes.

- Indicator lights
- Internal circuit breaker
- Audible alarm
- Multi-line protection (L-N, L-G, N-G)
- Velcro straps provided for cord management
- Mounting template provided for easy installation
- Optional Coax and Telco surge protection
- All units feature right angle NEMA 5-15P Plug
- Limited Lifetime Product Warranty
- Connected Equipment Protection Policy





# Type 3 Surge Protective Devices

### 5100 and 5300 Series

**DEVICE SPECIFICATIONS APPEAR ON PAGE 20** 

These strips offer protection for any Commercial, Industrial, or Hospital application. They are available in two performance levels to address surge protection needs in a variety of commercial and industrial environments. Our Hospital version strips feature tamper-resistant hospital grade receptacles.

- Industrial strips feature metal housings while Commercial Grade strips feature thermoplastic housing
- Hospital Grade strips feature tamper-resistant hospital grade receptacles
- Multi-Line protection (L-N, L-G, N-G)
- 6 surge protected outlets
- LEDs indicate power and protection status
- Onboard resettable circuit breaker
- Limited Lifetime Product Warranty
- Connected Equipment Protection Policy



# Medical Grade Power Strips

DEVICE SPECIFICATIONS APPEAR ON PAGE 21

These medical-grade power strips are designed explicitly for use in health care facilities, including patient care spaces as defined by NEC Article 517. These devices also satisfy electrical safety requirements specified in NFPA 99: Health Care Facilities Code.



- Available in 2, 4 and 6 outlet configurations
- Choice of 7' or 15' AC power cord
- Hospital Grade outlets
- Compatible with Isolated Power Systems
- UL 1449 compliant
- Heavy duty steel construction
- Built-in overload protection shuts off the strip in case of excess power draw, and can be returned to service with the simple push of a button
- UL 60601-1, UL 1363A, and UL 60950-1 compliant
- Easily accommodates surface mounting and IV pole mounting with the use of the mounting bracket
- NAFTA Compliant
- Flying leads available on cords up to 15' long
- Locking safety covers are splash-resistant and protect from incidental contact with unused outlets
- Indicator lights
- Optional audible alarm for protection status available\*
- Limited Lifetime Warranty

<sup>\*</sup>Special order - Contact Leviton sales representative for details.

# Type 4 Surge Protective Devices

### 3800 Series

#### **DEVICE SPECIFICATIONS APPEAR ON PAGE 22**

These devices provide wired-in surge protection for devices in industrial and commercial equipment cabinets.

- Suitable for 125V AC applications
- UL recognized components
- Available in standard equipment or DIN rail mount with terminal block for connections, or standard equipment mount with 6" long wire leads for termination and remote LED.
- MOV-based suppression circuitry provides optimum clamping
- Type 4 Surge Protected Devices (SPD) evaluated for use in Type 2 SPD applications
- Tested to ANSI/IEEE C62.41 and C62.45 standards for category A & B applications
- Terminal-Block accepts 14 AWG or 12 AWG conductors
- 10-Year Limited Product Warranty









# **DIN Rail Mount Receptacles**

**DEVICE SPECIFICATIONS APPEAR ON PAGE 22** 

The DIN Rail Series provide mounting in equipment cabinets where plug-in surge protection is needed.

- 120V single and duplex outlet configurations
- Provide MOV-based normal mode and common mode L-N, L-G, N-G surge protection
- Hospital Grade Receptacle ensures a secure plug-to-receptacle connection
- LED indicator light goes off when surge protection is lost
- Audible alarm with disable/quiet switch also indicates loss of surge protection
- Outlet continues to provide power to connected load in the event of a loss of protection



# Low-Voltage (DC) Surge Protection Modules

## 3800 Series

**DEVICE SPECIFICATIONS APPEAR ON PAGE 23** 

These devices are designed for mounting in standard equipment cabinets where surge suppression is desired for the enclosed equipment.



- UL recognized components
- Compact black box styling
- MOV-based suppression circuitry provides optimum clamping
- Standard equipment mount and DIN-rail mount configurations
- MOV-based suppression circuitry provides optimum clamping
- Wired-in equipment cabinet surge protection for 12V, 24V and 48V DC applications
- Terminal Block connections for 22AWG to 14AWG conductors
- 10-Year Limited Product Warranty

## 3400/3800 Series Modules

**DEVICE SPECIFICATIONS APPEAR ON PAGE 23** 

These modules are designed to provide data linesurge protection for factory automation and industrial control devices.

- Available in various DC voltage configurations, connection types and mounting styles
- Designed for mounting in standard equipment cabinets
- Wired-in surge protection for PLCs and other data networking devices
- Withstands surges at PLC devices in harsh industrial and high EMI environments
- Low clamping voltage
- 10-Year Limited Product Warranty







# Specifications

# TYPE 1/TYPE~2-55000 Series, 51120-3R and 51110-SRG

Catalog Number	55240-ASA	55208-ASA	55480-ASA	51120-3R	51110-SRG			
<b>Electrical Specifications</b>								
Voltage	120/240V Single Phase	120/208V 3Ø WYE, 240V 3Ø Delta	277/480V 3Ø WYE, 480V 3Ø Delta	120/240V Single Phase	120/240V AC, Single-Phase			
Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz			
Surge Technology	TPMOV	TPMOV	TPMOV	TPMOV	MOV			
Amperage	_	_	_	_	-			
Recommended Circuit Breaker Rating	-	-	_	_	20A, 120/240V			
Performance Data	Performance Data							
Nominal Discharge Rating (I <sub>N</sub> )	20kA	20kA	20kA	20kA	3kA			
Maximum Continuous Operating Voltage (MCOV)	150V	150V	320V	150V(L-N)/300V(L-L)	150V(L-N)/300V (L-L)			
Maximum Surge Current, Per Mode (Per Phase)	50kA (100kA)	50kA (100kA)	50kA (100kA)	50kA (100kA)	48kA (96kA)			
Short Circuit Current Rating	_	_	_	_	10kA			
Voltage Protection Rating (VPR) (Clamping)	600V(L-N)/800V(L-L)	600V(L-N)/800V(L-L)	700V(L-N)/800V(L-L)	500V(L-N)/800V(L-L)	600V(L-N)/1000V (L-L)			
Diagnostics	Prot	Protection Status LEDs	Protection status LEDs					
EMI/RFI Noise Filtering		_		_	-6dB to -28dB (@100KHz to 100MHz)			
Mechanical Specifications								
Connection Type		Parallel Connection: Hardwired via 10AWG wire		Parallel Connection: Hardwired via 12AWG wire	Hardwired Paralell Con- nection			
Environmental Specification	ons							
Flammability		Rated V-2 per UL 94		Rated V-2 per UL 94	Rated V-2 per UL 94**			
Operating Temperature		-10°C to 60°C		-10°C to 60°C	-10°C to 60°C			
Storage Temperature		-20°C to 85°C		-20°C to 85°C	-20°C to 85°C			
Enclosure Type		NEMA 3R		NEMA 3R	NEMA 4X			
Relative Humidity		-		_	5% to 95% non-condensing			
Material Specifications								
Enclosure	P	olycarbonate with UV Inhibitor	rs	Powder Coated Steel Outer Enclosure; Polycarbonate Module Enclosure	_			
Contacts		_						
Standards & Certifications								
Agency Certification			cULus 1449 Listed Type 1/2					
National Electric Code (NEC)		_						
ANSI/IEEE Category C		C-62.41, & C-62.45						
Warranty								
Product Warranty	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	10-year Limited			
Connected Equipment Coverage  * As part of the True Whole House	Up to \$10,000*	Up to \$10,000*	Up to \$10,000*	Up to \$25,000*	Up to \$25,000*			

leviton.com/surge 13

<sup>\*</sup> As part of the True Whole House Surge Protection Warranty
\*\* 200 Amp only when using Murray Cat. No. RH173CRF meter socket; otherwise 175 Amp
\*\* Flammability rating applies to module only

# **TECHNICAL REFERENCE MATERIALS**

 ${\it TYPE~2-Surge~Protective~Devices:~Quick~Reference}$ 

Catalog Number	Max Surge Current, Per Mode (Per Phase)	Nominal Discharge Current (I <sub>N</sub> )	Replaceable Modules	NEMA Enclosure	Surge Counter	Noise Filtering
120V and 120/240V, Sin						
52120-M1	100kA (200kA)	20kA	Yes	Type 12	No	Yes
52120-M2	100kA (200kA)	20kA	Yes	Type 12	No	Yes
52120-CM2	100kA (200kA)	20kA	Yes	Type 12	Yes	Yes
52120-M2H	100kA (200kA)	20kA	Yes	Type 12	No	Yes
32120-1	80kA (160kA)	3kA	No	Type 3R	No	Yes
42120-1	80kA (160kA)	3kA	No	Type 3R	No	Yes
51120-1	50kA (100kA)	3kA	No	Type 1	No	Yes
51110-SRG	48kA (96kA)	3kA	No	Type 4X	No	No
120/208V, Three-Phase	WYE			,,		
47120-7	200kA (400kA)	10kA	No	Type 1	No	Yes
47120-4X7	200kA (400kA)	10kA	No	Type 4X	No	Yes
57120-M3	150kA (300kA)	20kA	Yes	Type 12	No	Yes
57120-CM3	150kA (300kA)	20kA	Yes	Type 12	Yes	Yes
52120-M3	100kA (200kA)	20kA	Yes	Type 12	No	Yes
52120-CM3	100kA (200kA)	20kA	Yes	Type 12	Yes	Yes
52120-7M3, 52120-7MS	100kA (200kA)	20kA	Yes	Type 12	No	Yes
52120-7C3, 52120-7CS	100kA (200kA)	20kA	Yes	Type 12	Yes	Yes
51120-3	50kA (100kA)	3kA	No	Type 1	No	Yes
37120-7	100kA (200kA)	5kA	No	Type 1	No	Yes
120/208V, Three-Phase	WYE or 208V. Three-Pha	ase Delta or 220V. Three	e-Phase Delta	21		
32120-DY3	80kA (160kA)	3kA	No	Type 3R	No	Yes
42120-DY3	80kA (160kA)	3kA	No	Type 3R	No	Yes
120/240/120V, Three-Ph				yp		
52412-DS3	100kA (200kA)	20kA	Yes	Type 12	No	Yes
32412-DS3	80kA (160kA)	3kA	No	Type 3R	No	Yes
42412-DS3	80kA (160kA)	3kA	No	Type 3R	No	Yes
220/380V, Three-Phase				71		
32277-DY3	80kA (160kA)	3kA	No No	Type 3R	No	Yes
42277-DY3	80kA (160kA)	3kA	No	Type 3R	No	Yes
240V, Three-Phase Delta		Sitr	140	турс эк	140	103
57240-DM3	150kA (300kA)	20kA	Yes	Type 12	No	Yes
52240-DM3	100kA (200kA)	20kA	Yes	Type 12	No	Yes
277/480V, Three-Phase		ZUKA	163	Type 12	INO	163
47277-7	200kA (400kA)	10kA	No	Type 1	No	Yes
47277-4X7	200kA (400kA)	10kA	No	Type 4X	No	Yes
57277-M3	150kA (300kA)	20kA	Yes	Type 12	No	Yes
57277-M3	150kA (300kA)	20kA	Yes		Yes	Yes
52277-M3	100kA (200kA)	20kA	Yes	Type 12 Type 12	No No	Yes
52277-M3 52277-CM3	100kA (200kA)	20kA	Yes	Type 12	Yes	Yes
52277-CM3 52277-7M3, 52277-7MS	100kA (200kA)	20kA	Yes	Type 12	No No	Yes
52277-7M3, 52277-7M3 52277-7C3, 52277-7CS	100kA (200kA)	20kA	Yes	Type 12	Yes	Yes
37277-7	100kA (200kA)	5kA	No Yes	Type 12	No No	Yes
480V, Three-Phase Delta		JIM	INU	Type 1	140	162
•	150kA (300kA)	201-4	Vaa	Tuno 10	No	Vac
57480-DM3		20kA	Yes	Type 12	No No	Yes
52480-DM3	100kA (200kA)	20kA	Yes	Type 12	No	Yes



## **TYPE 2 — 57000 Series**

Catalog Number		57120-M3, 57120-CM3	57240-DM3	57277-M3, 57277-CM3	57480-DM3				
Electrical Specifications									
Voltage		120/208VAC 3-phase WYE	240VAC 3-phase Delta	277/480VAC 3-phase WYE	480VAC 3-phase Delta				
Frequency		50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz				
Surge Technology		40mm MOV	40mm MOV	40mm MOV	40mm MOV				
Recommended Circ Breaker Rating	cuit	30A, 120V	30A, 240V	30A, 277V	30A, 480V				
Performance Da	ta								
Nominal Discharge Rating (I <sub>N</sub> )	!	20 kA	20 kA	20 kA	20 kA				
Maximum	L-N	150V	_	320V	_				
Continuous	L-G	300V	_	640V	_				
Operating	N-G	150V	_	320V	_				
Voltage (MCOV)	L-L	300V	320V	640V	640V				
Maximum Surge Current, Per Mode (Per Phase)		150kA (150kA)	150kA (150kA)	150kA (150kA)	150kA (150kA)				
	L-N	1000V	_	1500V	_				
Voltage Protection	L-G	1500V	_	2500V					
Rating (VPR)	N-G	800V	_	1200V	_				
	L-L	1500V	1500V	2500V	2000V				
Protection Mode		4 Mode	3 Mode	4 Mode	3 Mode				
Short Circuit Curre Rating (SCCR)	nt	100kA	100kA	100kA	100kA				
EMI/RFI Noise Reje	ction	-20 to -40dB ( @ 1.5K-1.2MHz)							
Diagnostics		Real Time Protection Status LEDs & Audible Alarm							
Mechanical Spe	cificat	ions							
Connection Type		Parallel-hardwired, feed-through dual wire terminal block: Accepts up to #3 AWG wire							
Remote Monitoring			Dry Contacts-N.O./N.C. Form C Rat	ed at 7Amps @ 240VAC or 30VDC					
Environmental 9	Specifi	cations							
Enclosure Type			NEMA 12						
Operating Tempera			-20°C to 40°C						
Storage Temperatu	ıre		-20°C to 85°C						
Flammability			Rated V-2 per UL 94						
Relative Humidity			5% to 95% no	n-condensing					
Material Specifi	cation	<b>S</b>							
Enclosure	uc.	dans.	Powder Co	ated Steel					
Standards & Cer		cions	-1 H - 1 C - 1	and Time O					
ANSI/IEEE Categor A, B & C			cULus List C-62.41 8						
Warranty Drawlersh Warrante			0.500.00	life-time					
Product Warranty  Replacement Modu  Warranty	ıle		Limited Limite						

¹Surge Voltage Rating (SVR) \*Certain restrictions apply

## **TECHNICAL REFERENCE MATERIALS**

## **TYPE 2 — 52000 Series**

Catalog Number		52120-M1	52120-M2 52120-CM2	52120-M2H	52120-M3 52120-CM3	52120-7M3 52120-7C3 52120-7MS 52120-7CS	52240-DM3	52277-M3 52277-CM3	52277-7M3 52277-7C3 52277-7MS 52277-7CS	52480-DM3	52412-DS3	
Electrical Specifica	tions											
Voltage		120VAC	120/ 240VAC	120/ 240VAC	120/ 208VAC 3-phase WYE	120/ 208VAC 3-phase WYE	240VAC 3-phase Delta	277/ 480VAC 3-phase WYE	277/ 480VAC 3-phase WYE	480VAC 3-phase Delta	120/240/ 120VAC 3-phase Hi-Leg Delta	
Frequency		50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	
Surge Technology		40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	
Recommended Circuit Breaker Rating		30A, 120V	30A, 120/240V	30A, 120/240V	30A, 120/208V	30A, 120/208V	30A, 240V	30A, 277/480V	30A, 277/480V	30A, 480V	30A, 120/240V	
Performance Data												
Nominal Discharge Rati	ing (I <sub>N</sub> )	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA	
Maximum	L-N	150V	150V	150V	150V	150V	-	320V	320V	_	L-N:150V H-N:320V	
Continuous Operating Voltage	L-G	300V	300V	300V	300V	150V	-	640V	320V	_	L-G:300V H-G:470V	
(MCOV)	N-G	150V	150V	150V	150V	150V	_	320V	320V	-	150V	
	L-L	-	300V	300V	300V	300V	320V	640V	640V	550V	L-L:300V H-L:470V	
Maximum Surge Current, Per Mode (Per Phase)		100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	100kA (200kA)	
	L-N	1000V	1000V	1000V	1000V	1000V	_	1500V	1500V	_	L-N:1000V H-N:1500V	
Voltage Protection	L-G	1500V	1500V	900V	1500V	1200V	_	2500V	1500V	_	L-G:1500V H-G:2000V	
Rating (VPR)	N-G	700V	700V	700V	700V	700V	_	1200V	1200V	_	700V	
	L-L	-	1500V	1500V	1500V	1500V	1500V	2500V	2500V	2000V	L-L:1500V H-L:2500V	
Protection Mode		2 Mode	3 Mode	3 Mode	4 Mode	7 Mode	3 Mode	4 Mode	7 Mode	3 Mode	4 Mode	
Short Circuit Current Ra (SCCR)	ating	100kA	100kA	100kA	100kA	100kA	100kA	100kA	100kA	100kA	100kA	
EMI/RFI Noise Filtering		-20dB to -40dB (50KHz-10MHz)										
Diagnostics		Real Time Protection status LEDs & Audible Alarm										
Remote Monitoring			Dry Contacts-N.O./N.C. Form C Rated at 7Amps @ 240VAC or 30VDC									
Mechanical Specific	ation	5										
Connection Type		•		Parallel-har	dwired, feed-th	rough dual wire	terminal block:	Accepts up to #	3 AWG wire			
Environmental Spec	incat	ions				NEM	IA 10					
Enclosure Type  Operating Temperature			NEMA 12 -20°C to 40°C									
Storage Temperature	•						to 85°C					
Flammability							per UL 94					
Relative Humidity							n-condensing					
Material Specificati	ions											
Enclosure						Powder Co	ated Steel					
Standards & Certific	cation	S										
Agency Rating					cULus List	ted Type 2						
ANSI/IEEE Category A,	B&C					C-62.41 8	& C-62.45					
Warranty												
Product Warranty						Limited	Lifetime					
Replacement Module Warranty						Limited I	Lifetime*					

 $\hbox{``Certain restrictions apply}$ 



## **TYPE 2** — 37000 and 47000 Series

Catalog Number		37120-7	37277-7	47120-7	47120-4X7	47277-7	47277-4X7			
Electrical Specificat	tions									
Voltage		120/208 VAC 3-phase WYE	277/480 VAC 3-phase WYE	120/208 VAC 3-phase WYE	120/208 VAC 3-phase WYE	277/480 VAC 3-phase WYE	277/480 VAC 3-phase WYE			
Frequency		50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz			
Surge Technology		40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV			
Recommended Circuit Breaker Rating		30A, 120/208V	30A, 277/480V	30A, 120/208V	30A, 120/208V	30A, 277/480V	30A, 277/480V			
Performance Data										
Nominal Discharge Rati $(I_N)$	ng	5kA	5kA	10kA	10kA	10kA	10kA			
	L-L	280V	640V	280V	280V	640V	640V			
Maximum Continuous Operating Voltage	L-N	140V	320V	140V	140V	320V	320V			
(MCOV)	L-G	140V	320V	140V	140V	320V	320V			
	N-G	130V	300V	130V	130V	300V	300V			
Maximum Surge Curren Per Mode (Per Phase)	t,	100kA (200kA)	100kA (200kA)	200kA (400kA)	200kA (400kA)	200kA (400kA)	200kA (400kA)			
	L-L	1200V	2000V	1000V	1000V	1800V	1800V			
Voltage Protection	L-N	800V	1200V	700V	700V	1200V	1200V			
Rating (VPR)	L-G	900V	1500V	900V	900V	1500V	1500V			
	N-G	700V	1200V	700V	700V	1200V	1200V			
Short Circuit Current Ra (SCCR)Protection Mode		10kA	10kA	10kA	10kA	10kA	10kA			
Protection Mode		7 Mode								
Noise Filtering		-40dB @ 10K - 10MHz								
Diagnostics		Real Time Protection status LEDs & Audible Alarm								
Mechanical Specific	ation	s								
Connection Type		Hardwire Using Terminal Block: Accepts up to #6 AWG wire								
Environmental Spec	ificat	ions								
Enclosure Rating		NEMA Type 1	NEMA Type 1	NEMA Type 1	NEMA Type 4x	NEMA Type 1	NEMA Type 4x			
Operating Temperature		-10°C to 60°C	-10°C to 60°C	-10°C to 60°C	-10°C to 60°C	-10°C to 60°C	-10°C to 60°C			
Storage Temperature		-20°C to 85°C	-20°C to 85°C	-20°C to 85°C	-20°C to 85°C	-20°C to 85°C	-20°C to 85°C			
Flammability				Rated V-2	per UL 94					
Relative Humidity				5% to 95% no	n-condensing					
Material Specificati	ons									
Enclosure		Powder Coated Steel	Powder Coated Steel	Powder Coated Steel	Fiberglass	Powder Coated Steel	Fiberglass			
Standards & Certific	cation	S								
Agency Certification				cULus 1449 l	, , , , , , , , , , , , , , , , , , ,					
ANSI/IEEE Category A,	B&C			C-62.41 8	& C-62.45					
Warranty										
Product Warranty				Limited	Lifetime					

## **TECHNICAL REFERENCE MATERIALS**

# TYPE 2 - 32000/42000, 51120-1 and 51120-3

Catalog Number		51120-1	51120-3	32120-1 42120-1	32120-DY3 42120-DY3	32277-DY3 42277-DY3	32412-DS3 42412-DS3		
Electrical Specifica	ations								
Voltage		120/240V AC, Single-Phase	120/208V AC, 3-Phase WYE	120V/240V Single Phase	120V/208V 3Ø WYE, 208V 3Ø Delta, 220V 3Ø Delta	277V/480V 3Ø WYE, 220V/380V 3Ø WYE, 240V 3Ø Delta, 480V 3Ø Delta	120V/240V/120V 3Ø Hi-leg Delta		
Frequency		50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz		
Surge Technology		40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV	40mm MOV		
Recommended Circuit Breaker Rating		20A, 120/240V	20A, 120/208V	20A, 120/240V	30A, 120/208V	30A, 277/480V	30A, 120/240V		
Performance Data									
Nominal Discharge Rating $(I_N)$		3kA	3kA	3kA	3kA	3kA	3kA		
	L-N	150V	150V	150V	150V	320V	150V		
Maximum Continuous	L-G	_	_	300V	300V	640V	300V		
Operating Voltage (MCOV)	N-G	_	_	150V	150V	320V	150V		
voitage (MCOV)	L-L	300V	300V	254V	254V	552V	254V		
Maximum Surge Currer Per Mode (Per Phase)	nt,	50kA (100kA)	50kA (100kA)	80kA (160kA)	80kA (160kA)	80kA (160kA)	80kA (160kA)		
	L-N	800V	800V	800V	700V	1200V	800V		
Voltage	L-G	_	_	1200V	1200V	2000V	1200V		
Protection Rating (VPR)	N-G	_	_	700V	700V	1200V	700V		
-	L-L	1200V	1200V	1000V	1000V	1800V	1000V		
Short Circuit Current Rating		10kA	10kA	100kA	100kA	100kA	100kA		
		-6dB to -28dB	-6dB to -28dB	32000 Series: -20 to -40dB (@ 1.5K-1.2MHz)					
EMI/RFI Noise Filtering	5	(@100KHz to 100MHz)	(@100KHz to 100MHz)		42000 Series: -30 to	-40dB (@ 10K-10MHz)			
Diagnostics		Protection	tatus LEDs Real Time Protection Status LEDs & Audible Alarm						
Mechanical Specific	cation	ıs							
Connection Type				Parallel - Hardwire	ed via 12AWG wire				
Remote Monitoring		-	_	- Dry Contact Leads -N.O./N.C. Form C Rated at 7Amps @ 240VAC or 30VDC					
Environmental Spe	cificat	tions							
Enclosure type		NEM	MA 1		NEM	A 3R			
Flammability				Rated V-2	per UL 94* *				
Operating Temperature	е			-10°C to 60°C					
Storage Temperature				-20°C t	to 85°C				
Relative Humidity				5% to 95% no	on-condensing				
Material Specificat	ions								
Enclosure				Powder Co	oated Steel				
Standards & Certification  Agency Certification	catl0I	15		allus 1440	Listed Type 2				
ANSI/IEEE Category					Listed Type 2 & C-62.45				
A, B & C		<u></u>							
Warranty Product Warranty				Limitad	Lifetime				
Connected Equipment				Lunttea	LUCCUIIC				
Coverage		Up to \$25,000*			_				

<sup>\*</sup> As part of the True Whole House Surge Protection Warranty
\*\*Flammability rating applies to module only
2Surge Voltage Rating (SVR)

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# ${\tt TYPE\,3-Surge\,Protective\,Receptacles}$

Electrical Sp	pecifications			
Dielectric Volt	age	Withstands 2000V per UL498		
Current Limiti	ng	Full Rated Current		
Temperature F	Rise	Max 30C after 250 cycles OL at 200% rated current		
Performance	e Data			
Maximum Con Operating Vol		150V rms		
Maximum Surg Per Mode	ge Current,	L-N: 18kA, L-G: 9kA, N-G: 9kA		
Noise Filtering	3	-30dB at 500kHz-30MHz		
Voltage Protection	All Single & Duplex Receptacles	L-N: 600V, L-G: 700V, N-G: 600V		
Rating (VPR)	4-in-1 Receptacles	L-N: 500V, L-G: 600V, N-G: 500V		
Diagnostics		Indicator Light, Audible Alarm (on select versions)		
Joules Rating		720		
Mechanical	Specification	s		
Terminal ID		Brass-Hot, Green-Ground, Silver-Neutral		
Terminal Acco	m.	#14-#10 AWG		
Product ID		Ratings are permanently marked on device		
Terminal Screv	w Torque Rating	14-16 in lbs.		
Environmen	tal Specificat	ions		
Flammability		Rated V-2 per UL 94		
Operating Ten	nperature	-40C to 60C		
Material Spe	ecifications			
Face Material		Nylon		
Body Material		Polycarbonate		
Line Contacts		Brass Triple-Wipe		
Terminal Screv	WS	Brass-Plated Steel		
Grounding Scr	ew	Brass-Plated Steel		
Yoke		Zinc-Plated Steel		
Clamp Nuts		Zinc-Plated Steel		
Ground Clips		Brass-Plated Steel		
	tant Versions)	Delrin <sup>®</sup> Acetal		
	Certification			
NEMA		WD-6		
ANSI Agency Certifi	ications	C-73  UL 498, UL 1449 Listed and CSA C22.2 Certified Type 3		
	Cattorio	**		
NOM		057		
Warranty Droduct Warra	ntu	10 Voc-1 imited		
Product Warra	ıııy	10 Year Limited		

# TYPE 3 — S1000 and S2000 Series Surge Strips

Catalog Number		S1000-PS, S1000-S15, S1000-PTC	S2000-PS, S2000-S15, S2000-PTC		
Electrical Specifica	tions				
Voltage		120V	120V		
Frequency		50/60 Hz	50/60 Hz		
Surge Technology		MOV	MOV		
Amperage		15A	15A		
Performance Data					
Maximum Continuous Operating Voltage (MC	OV)	150V	150V		
Maximum Surge Currer Per Mode (L-N)	nt,	25kA	62.5kA		
Voltage	L-N	600V	500V		
Protection	L-G	700V	700V		
Rating (VPR)	N-G	700V	700V		
Noise Filtering		-8dB to -25dB (@100K- 100MHz)	-10dB to -20dB (@5M- 100MHz)		
Joules		1010J	2020J		
Material Specificat	ions				
Enclosure		ABS F	Plastic		
Standards & Certifi	catio	ns			
Agency Certifications		cULus 1449 Listed Type	3, NOM 057 and UL1363		
ANSI/IEEE Category A, B &C		C-62.41 & C-62.45			
Warranty					
Product Warranty		Limited Lifetime			
Connected Equipment Warranty		Limited Lifetime			

# **TECHNICAL REFERENCE MATERIALS**

# $\ensuremath{\mathsf{TYPE}}\,3-5100$ and 5300 Series Surge Protective Strips

Catalog Number		5100-IPS	5100-IS2	5300-IPS	5300-H15	5300-HTS	5300-HT2	5100-PS 5100-S15	5300-PS 5300-S15		
Series	Series Industrial/Hospital								Commercial		
Electrical Specific	al Specifications										
Voltage		125VAC	125VAC	125VAC	125VAC	125VAC	125VAC	125VAC	125VAC		
Frequency		50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz		
Surge Technology		MOV	MOV	MOV	MOV	MOV	MOV	MOV	MOV		
Current		15A	20A	15A	15A	15A	20A	15A	15A		
Performance Data											
Maximum Continuous Operating Voltage (MCOV)		150V	150V	130V	150V	150V	150V	150V	130V		
Maximum Surge Current, Per Mode (L-N)		84kA	45kA	84kA	51kA	51kA	51kA	36kA	96kA		
Noise Filtering		-5 to -25dB (@500K- 100MHz)	-6 to -40dB (@50K-100MHz)	-5 to -25dB (@500K- 100MHz)	-6 to -40dB (@50K-100MHz)						
Voltage	L-N	600V	600V	500V	500V	500V	500V	500V	500V		
Protection	L-G	600V	700V	600V	700V	700V	600V	600V	600V		
Rating (VPR)	N-G	600V	700V	600V	700V	700V	600V	700V	500V		
Joules		1330J	9003	1330J	952J	952J	952]	720J	1520J		
Material Specifica	tions										
Enclosure				Powder Co	ated Steel			А	BS		
Standards & Certif	ficatio	ns									
Agency Certification					cULus 1449 Listed	Type 3 and UL1363					
ANSI/IEEE Category A,B & C		C62.41.1, C62.41.2 & C62.45									
Warranty											
Product Warranty					Lifetime	Limited					



# TYPE 3 — Medical Grade Power Strips

Medical Grade Power Stri	ps							
Catalog Number	5302M-1N7 5304M-1N7 5306M-1N7 5302M-1N5 5304M-1N5 5306M-1N5	5302M-2N7 5304M-2N7 5306M-2N7 5302M-2N5 5304M-2N5 5306M-2N5						
Electrical Specifications								
Current	15A (12A max continuous load)	20A (16A max continuous load)						
Voltage	125V	125V						
Frequency	60Hz	60Hz						
Performance Data								
Maximum Leakage Current	<10	0μΑ						
Material Specifications								
Line Cord	#14/3 SJT	#12/3 SJT						
Enclosure	Powder Coated Steel (18ga)*							
Outlet Covers	Polypro	pylene						
Mechanical Specification	s							
HG Plug Configuration	NEMA 5-15P	NEMA 5-20P						
HG Outlet Configuration	NEMA 5-15R	NEMA 5-20R						
<b>Environmental Specificat</b>	ions							
Operating Temperature	0°C to	+40°C						
Storage Temperature	-10°C to	o +50°C						
Standards and Certificati	ons							
UL/ CSA/ NOM	ETL listed to: UL 60601-1/ C22.2 No. 60601-1 UL 60950-1/ C22.2 No. 60950-1 UL 1363A/ C22.2 No. 21							
NFPA	NFPA 99 2012 ed							
Warranty								
Product Warranty	ct Warranty Limited Lifetime							

<sup>\*</sup> Chromium-free paint - is also RoHS compliant

# Mounting Bracket for Medical Grade Power Strips

Material Specifications						
Bracket/Retainer	Powder Coated Aluminum					
Mounting Hardware	Stainless Steel					

Surge Protective Me	dical	Grade Power Strips			
Catalog Number		5302M-157 5304M-157 5306M-157 5302M-155 5304M-155 5306M-155	5302M-257 5304M-257 5306M-257 5302M-255 5304M-255 5306M-255		
<b>Electrical Specificat</b>	ions				
Current		15A (12A max continuous load)	20A (16A max continuous load)		
Voltage		125V	125V		
Frequency		60Hz	60Hz		
Surge Technology		MOV	MOV		
Performance Data					
Maximum Continuous Operating Voltage (MCC	)V)	15	0V		
Voltage	L-N	600V	600V		
Protection	L-G	600V	600V		
Rating (VPR)	N-G	500V	500V		
Maximum Surge Current Per Mode (L-N)	t,	27kA			
Noise Filtering		-6dB to -29dB (100kHz to 100MHz)			
Maximum Leakage Curr	ent	<100μA			
Total Joules		644]			
Material Specificati	ons				
Line Cord		#14/3 SJT	#12/3 SJT		
Enclosure		Powder Coated Steel (18ga)*			
Outlet Covers		Polypropylene			
Mechanical Specific	ation	S			
HG Plug Configuration		NEMA 5-15P	NEMA 5-20P		
HG Outlet Configuration		NEMA 5-15R	NEMA 5-20R		
<b>Environmental Spec</b>	ificat	ions			
Operating Temperature		0°C to			
Storage Temperature		-10°C to	) +50°C		
Standards and Certi	ficati	ons			
UL/ CSA/ NOM		ETL listed to: UL 60601-1/ C22.2 No. 60601-1 UL 60950-1/ C22.2 No. 60950-1 UL 1363A/ C22.2 No. 21 UL 1449 3rd Ed/ C22.2 No.8			
NFPA		NFPA 99 2012 ed			
ANSI/IEEE		Categ	gory A		
Warranty					
Product Warranty		Limited	Lifetime		
* Charactions for a saint is	1 .				

<sup>\*</sup> Chromium-free paint - is also RoHS compliant

## **TYPE 4 — 3800 Series**

Catalog Number		3800-DIN, 3800-WM, 3800-OEM		
Electrical Specificat	ions			
Voltage		125V AC		
Frequency		50/60 Hz		
Surge Technology		MOV		
Amperage		N/A		
Performance Data				
Nominal Discharge Current (I <sub>N</sub> )		3kA		
Maximum Continuous Operating Voltage (MCC	)V)	150V		
Maximum Surge Current Per Phase	t,	L-N: 24kA, L-G: 12kA (36kA)		
Protection Mode		3 Mode		
Noise Filtering		-10dB to -15dB (@100K-100MHz)		
	L- L	-		
Voltage Protection	L-N	700V		
Rating (VPR)	L-G	800V		
	N-G	700V		
Joules	I	800J		
Diagnostics		Indicator lights and sound alarm for loss of protection		
Material Specificati	ons			
Enclosure		Polycarbonate		
Connection Type		-DIN and -WM models: terminal block - accommodates 12 or 14 awg wire -OEM model: 6" pigtails		
Remote Monitoring		-		
<b>Environmental Spec</b>	ificat	ions		
Flammability		Rated V-0 per UL 94		
Operating Temperature		14°F to 140°F/ -10°C to 60°C		
Storage Temperature		-4°F to 185°F/ -20°C to 85°C		
Relative Humidity		Condensing: 5% to 95%		
Standards & Certific	ation	s		
Agency Certification		UL & CSA Recognized Components		
ANSI/IEEE Category A 8	В	C-62.41 & C-62.45		
NOM		ETL Certified to NOM-001		
Warranty				
Product Warranty		10-Year Limited		

# TYPE 4 — DIN Rail Mount Receptacles

Catalog Number	3880-DIN
Electrical Specifications	3000-DIN
Volts	120V AC
Dielectric Voltage	Withstands 2000V per UL498
Amps	15A
Current Limiting	Full Rated Current
Temperature Rise	Max 30C after 250 cycles OL at 200% rated current
Performance Data	,
Nominal Discharge	
Current (I <sub>N</sub> )	3kA
Maximum Continuous Operating Voltage (MCOV)	150V
Maximum Surge Current, Per Mode (Per Phase)	9kA (18kA)
Short Circuit Current Rating (SCCR)	NA
Noise Filtering	-20db to -40dB
Voltage Protection Rating (VPR)	L-N: 500V, L-G: 600V, N-G: 600V
Protection Modes	3
Diagnostics	Indicator Light, Audible Alarm
Joules Rating	560
Mechanical Specification	s
Terminal Accom.	#12-#18 AWG
<b>Environmental Specificat</b>	ions
Flammability	94V-2
Operating Temperature	-10C to 60C
Storage Temperature	-20C to 85C
Material Specifications	
Face Material	Polycarbonate
Body Material	Polycarbonate
Line Contacts	Nickel-plated brasss
Standards & Certification	s
Agency Certifications	UL 498, UL 1449 Recognized Component
NEMA	WD-6
ANSI	C-73
NOM	57
Warranty	
Product Warranty	10-Year Limited



# 3800 Low Voltage Power Series Low Voltage (DC) Surge Protection Modules

Catalog Number	3812-DIN	3824-DIN, 3824-WM	3848-DIN, 3848-WM, 3838-OEM			
Performance Data						
Maximum DC Operating Voltage	13.2VDC	13.2VDC 26.4VDC				
Breakdown Voltage 100V/ µsec	14.7 - 19.8 V	33.1 - 38.2 V	51.8 - 71.8 V			
Maximum Surge Current 10 x 1000µsec	10A	10A	10A			
Maximum Capacitance	4.8µf	4.8µf	4.8µf			
UL497B Clamping	21V	37V	71V			
Material Specifications						
Case Material		Polycarbonate				
DIN Rail Material		Polycarbonate				
<b>Environmental Specifications</b>						
Operating Temperature		-10°C to 60°C				
Storage Temperature		-20°C to 85°C				
Relative Humidity		20% - 90% non-condensing				
Altitude		15,000 ft				
Standards & Certifications	5					
UL		497B				
CSA		C22.2				
Warranty						
Product Warranty		10-Year Limited				

# 3400/3800 Series Low Voltage (DC) Data Line Surge Protection Modules

Catalog Number	3420-9	3420-35	3803-485	3803-DHP			
Performance Data							
Maximum DC Operating Voltage	(-)4.5 to 4.5	30VDC (V+ to G)	(-)4.5 to 4.5	(-)4.5 to 4.5			
Clamping Voltage	12Vpk	48Vpk	12Vpk	12Vpk			
Maximum Surge Current	1kA	1kA	1kA	1kA			
Maximum Capacitance	53pF (L-G) 53pF (L-L)	53pF (L-G) 53pF (L-L)	53pF (L-G) 53pF (L-L)	14.48pF (L-G) 7.48pF (L-L)			
Material Specifications							
Case Material	ABS	ABS	ABS	ABS			
Ground Tab Material	Plated Steel	Plated Steel	Plated Steel	Plated Steel			
<b>Environmental Specificat</b>	ions						
Operating Temperature	-40°C to 60°C	-40°C to 60°C	-40°C to 60°C	-40°C to 60°C			
Storage Temperature	-40°C to 90°C	-40°C to 90°C	-40°C to 90°C	-40°C to 90°C			
Relative Humidity		0 to 95% Nor	n-Condensing				
Altitude		-1,000ft t	o 15,000ft				
Standards & Certification	s						
UL	497B Listed						
CE	Marked						
Warranty							
Product Warranty		10-Year	Limited				

# **Ordering Information**

# TYPE 1 - 55000 Series, 51120-3R, 51110-SRG and 50240-MSA

Catalog Number	Description	Voltage (V AC) Configuration	Max Surge Current, Per mode (Per Phase)
55240-ASA	Module	120/240 Single Phase	50kA (100kA)
55208-ASA	Module	120/208 3Ø WYE, 240V 3Ø Delta	50kA (100kA)
55480-ASA	Module	277/480 3Ø WYE, 480V 3Ø Delta	50kA (100kA)
51120-3R	Panel Mount	120/240 Single Phase	50kA (100kA)
51110-SRG	4-Mode Surge Protection Panel	120/240 Single-phase, 2-wire + gnd	48kA (96kA)

## **TYPE 2 — 57000 Series and 52000 Series**

Catalog Number	Description	Voltage (V AC) Configuration	Max Surge Current, Per Mode (Per Phase)	Replacement Modules
52120-M1	2-Mode Surge Protection Panel	120 Single-phase, 2-wire + gnd	100kA (200kA)	(1) 2120, (1) 8120-GN
52120-M2	3-Mode Surge Protection Panel	120/240 Single-phase, 3-wire + gnd	100kA (200kA)	(2) 2120, (1) 8120-GN
52120-CM2	3-Mode Surge Protection Panel, with Surge Event Counter	120/240 Single-phase, 3-wire + gnd	100kA (200kA)	(2) 2120, (1) 8120-GN
52120-M2H	3-Mode Surge Protection Panel, DHC & X10 compatible	120/240 Single-phase, 3-wire + gnd	100kA (200kA)	(2) 2120-M2H, (1) 8120-GN
52120-M3	4-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 2120, (1) 8120-GN
52120-CM3	4-Mode Surge Protection Panel, with Surge Event Counter	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 2120, (1) 8120-GN
52120-7M3	7-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 120-7M3, (1) 8120-GN
52120-7MS	7-Mode Surge Protection Panel with Integral Disconnect Switch	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 120-7M3, (1) 8120-GN
52120-7C3	7-Mode Surge Protection Panel, with Surge Event Counter	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 120-7M3, (1) 8120-GN
52120-7CS	7-Mode Surge Protection Panel, with Surge Event Counter and Integral Disconnect Switch	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 120-7M3, (1) 8120-GN
52240-DM3	3-Mode Surge Protection Panel	240 3Ø Delta, 3-wire + gnd	100kA (200kA)	(3) 2240
52277-M3	4-Mode Surge Protection Panel	277/480 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 2277, (1) 8320-GN
52277-CM3	4-Mode Surge Protection Panel, with Surge Event Counter	277/480 3Ø WYE, 4-wire + gnd	100kA (100kA)	(3) 2277, (1) 8320-GN
52277-7M3	7-Mode Surge Protection Panel	277/480 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 277-7M3, (1) 8320-GN
52277-7MS	7-Mode Surge Protection Panel with Integral Disconnect Switch	277/480 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 277-7M3, (1) 8320-GN
52277-7C3	7-Mode Surge Protection Panel, with Surge Event Counter	277/480 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 277-7M3, (1) 8320-GN
52277-7CS	7-Mode Surge Protection Panel, with Surge Event Counter and Integral Disconnect Switch	277/480 3Ø WYE, 4-wire + gnd	100kA (200kA)	(3) 277-7M3, (1) 8320-GN
52480-DM3	3-Mode Surge Protection Panel	480 3Ø Delta, 3-wire + gnd	100kA (200kA)	(3) 2480
52412-DS3	4-Mode Surge Protection Panel	120/240/120 Split Phase Delta, 4-wire + gnd	100kA (200kA)	(2) 2120, (1) 2412, (1) 8120-GN
57120-M3	4-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd	150kA (300kA)	(3) 7120, (1) 8120-GN
57120-CM3	4-Mode Surge Protection Panel, with Surge Event Counter	120/208 3Ø WYE, 4-wire + gnd	150kA (300kA)	(3) 7120, (1) 8120-GN
57240-DM3	3-Mode Surge Protection Panel	240 3Ø Delta, 3-wire + gnd	150kA (300kA)	(3) 7240
57277-M3	4-Mode Surge Protection Panel	277/480 3Ø WYE, 4-wire + gnd	150kA (300kA)	(3) 7277, (1) 8320-GN
57277-CM3	4-Mode Surge Protection Panel, with Surge Event Counter	277/480 3Ø WYE, 4-wire + gnd	150kA (300kA)	(3) 7277, (1) 8320-GN
57480-DM3	3-Mode Surge Protection Panel	480 3Ø Delta, 3-wire + gnd	150kA (300kA)	(3) 7480



# TYPE 2 - 37000, 47000, 32000 42000 and 51120 Series

Catalog Number	Description	Voltage (V AC) Configuration	Max Surge Current, Per Mode (Per Phase)
32120-DY3	7-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd; 208 3Ø Delta, 3-wire + gnd; 220 3Ø Delta, 3-wire + gnd	80kA (80kA)
32120-1	4-Mode Surge Protection Panel	120/240 Single-phase, 2-wire + gnd	80kA (80kA)
37120-7	7-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd	100kA (200kA)
32277-DY3	7-Mode Surge Protection Panel	220/380 3Ø WYE, 4-wire + gnd; 277/480 3Ø WYE, 4-wire + gnd; 240 3Ø Delta, 3-wire + gnd; 480 3Ø Delta, 3-wire + gnd	80kA (80kA)
32412-DS3	7-Mode Surge Protection Panel	120/240/120 3Ø Hi-leg Split Phase Delta, 4-wire + gnd	80kA (80kA)
37277-7	7-Mode Surge Protection Panel	277/480 3Ø WYE, 4-wire + gnd	100kA (200kA)
42001-FMC	Flush Mount Collar for all 32000 and 42000 Series Panels	-	-
42120-DY3	7-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd; 208 3Ø Delta, 3-wire + gnd; 220 3Ø Delta, 3-wire + gnd	80kA (80kA)
42120-1	4-Mode Surge Protection Panel	120/240 Single-phase, 2-wire + gnd	80kA (80kA)
42277-DY3	7-Mode Surge Protection Panel	220/380 3Ø WYE, 4-wire + gnd; 277/480 3Ø WYE, 4-wire + gnd; 240 3Ø Delta, 3-wire + gnd; 480 3Ø Delta, 3-wire + gnd	80kA (80kA)
42412-DS3	7-Mode Surge Protection Panel	120/240/120 3Ø Hi-leg Split Phase Delta, 4-wire + gnd	80kA (80kA)
47120-7	7-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd	200kA (400kA)
47120-4X7	7-Mode Surge Protection Panel in Type 4X enclosure	120/208 3Ø WYE, 4-wire + gnd	200kA (400kA)
47277-7	7-Mode Surge Protection Panel	277/480 3Ø WYE, 4-wire + gnd	200kA (400kA)
47277-4X7	7-Mode Surge Protection Panel in Type 4X enclosure	277/480 3Ø WYE, 4-wire + gnd	200kA (400kA)
51120-1	2-Mode Surge Protection Panel	120/240 Single-phase, 2-wire + gnd	50kA (50kA)
51120-3	3-Mode Surge Protection Panel	120/208 3Ø WYE, 4-wire + gnd	50kA (50kA)

# TYPE 3 — Surge Protective Receptacles

					Commercia	l / Industrial	Grade				
				Dec	cora® TR Surge	e Protective R	eceptacles				
	Outlet					Color					
Amp.	Configuration	Brown	Ivory	White	Gray	Red	Blue	Black	Orange	Lt. Almond	Features
15A	Duplex	T5280	T5280-I	T5280-W	T5280-GY	_	T5280-B	T5280-E	_	T5280-T	
15A	Duplex	_	T7280-I	T7280-W	_	_	T7280-B	T7280-E	_	T7280-T	
15A	Duplex	_	T8280-I	T8280-W	_	T8280-R	T8280-B	_	_	T8280-T	
20A	Duplex	T5380	T5380-I	T5380-W	T5380-GY	_	T5380-B	T5380-E	_	_	
20A	Duplex	_	T7380-I	T7380-W	_	_	T7380-B	T7380-E	_	_	
20A	Duplex	_	T8380-I	T8380-W	T8380-GY	T8380-R	T8380-B	_	_	_	
	'			D	ecora® Surge I	Protective Red	ceptacles				
15A	Duplex	5280	5280-I	5280-W	5280-GY	_	5280-B	_	_	5280-T	
20A	Duplex	5380	5380-I	5380-W	5380-GY	_	5380-B	_	_	_	
15A	Duplex	5280-IG	5280-IGI	5280-IGW	_	_	5280-IGB	_	5280-IG0	_	<b>V</b>
20A	Duplex	5380-IG	5380-IGI	5380-IGW	5380-IGG	_	5380-IGB	_	5380-IGO	_	▼ ■
15A	Duplex	_	7280-I	7280-W	_	_	7280-B	_	_	7280-T	
20A	Duplex		7380-I	7380-W	_	_	7380-B	_	_	_	
				4	4-in-1 Surge P	rotective Rec	eptacles				
15A	Four-In-One	_	5480-I	5480-W	5480-GY	5480-R	5480-BU	_	_	_	
20A	Four-In-One	-	5490-I	5490-W	5490-GY	_	5490-BU	_	_	_	
15A	Four-In-One		_	_	_	_	_	_	5480-IG	_	▼ ■
20A	Four-In-One	_	5490-IGI	_	_	_	5490-IGB	_	5490-IG	_	▼ ■
					Hos	pital Grade					
				D	ecora® Surge I	Protective Red	ceptacles				
Amp.	Outlet				ı	Color		I	1	1	Features
	Configuration	Brown	Ivory	White	Gray	Red	Blue	Black	Orange	Lt. Almond	
15A	Duplex	8280	8280-I	8280-W	_	8280-R	8280-B	_	_	8280-T	
20A	Duplex	8380	8380-I	8380-W	8380-GY	8380-R	8380-B	_	_	_	
20A	Single	_	8381-I	_	_	_	_	_	_	_	
15A	Duplex	_	8280-IGI	8280-IGW	_	_	8280-IGB	_	8280-IGO	_	<b>V</b> IIIII
20A	Duplex		8380-IGI	8380-IGW	8380-IGG	_	8380-IGB	_	8380-IGO	_	<b>V</b> IIIII
20A	Single	_	8381-IGI	_	-		-	_	_	_	<b>V</b>
1	Faur II O		0.400.7		4-in-1 Surge P		Ī				
15A	Four In One		8480-I	8480-W	_	8480-R	_	_	_	_	
20A	Four In One	_	8490-I	8490-W	_	8490-R		_	_	_	
15A	Four-In-One		8480-IGI	8480-IGW	_	_	8480-IGB 8490-IGB	_	_	_	<b>V</b>

Indicator Light

Hospital Grade



# TYPE 3 — S1000 and S2000 Series Surge Strips

Catalog Number	Maximum Input Current	Joules	Data Protection	Enclosure	Number of Outlets	Cord Length
S1000-PS	15 Amp	1010J	_	ABS Plastic	6	6 Feet
S1000-S15	15 Amp	1010J	_	ABS Plastic	6	15 Feet
S1000-PTC	15 Amp	1010J	RJ-11, Coax	ABS Plastic	6	6 Feet
S2000-PS	15 Amp	2020J	_	ABS Plastic	9	6 Feet
S2000-S15	15 Amp	2020J	_	ABS Plastic	9	15 Feet
S2000-PTC	15 Amp	2020J	RJ-45, Coax	ABS Plastic	9	6 Feet

## TYPE 3 - 51000 and 53000 Series Surge Protective Strips

Catalog Number	Application	Maximum Input Current	Joules	Alarm	Enclosure	On/Off Switch	Cord Length
5100-PS	Commercial	15 Amp	720	-	ABS Plastic	Yes	6 Feet
5100-S15	Commercial	15 Amp	720	_	ABS Plastic	Yes	15 Feet
5300-PS	Commercial	15 Amp	1520	_	ABS Plastic	Yes	6 Feet
5300-S15	Commercial	15 Amp	1520	_	ABS Plastic	Yes	15 Feet
5100-IPS	Industrial	15 Amp	1330	Audible at Protection Loss	Steel	Yes	6 Feet
5100-IS2	Industrial	20 Amp	900	Audible at Protection Loss	Steel	Yes	6 Feet
5300-IPS	Industrial	15 Amp	1330	Audible at Protection Loss	Steel	Yes	6 Feet
5300-H15	Hospital	15 Amp	952	_	Steel	No	15 Feet
5300-HTS	Hospital	15 Amp	952	_	Steel	No	6 Feet
5300-HT2	Hospital	20 Amp	952	_	Steel	No	6 Feet

# TYPE 3 — Medical Grade Power Strips

Stock Configurations	Current Rating	AC Power Cord Length	Number of Outlets	Catalog Number
			2	5302M-1S7
		7 Feet	4	5304M-1S7
	15A		6	5306M-1S7
	(12A max continuous load)		2	5302M-1S5
		15 Feet	4	5304M-1S5
Surge Protective Medical Grade Power			6	5306M-1S5
Strips			2	5302M-2S7
		7 Feet	4	5304M-2S7
	20A		6	5306M-2S7
	(16A max continuous load)		2	5302M-2S5
		15 Feet	4	5304M-2S5
			6	5306M-2S5
			2	5302M-1N7
	15A (12A max continuous load)	7 Feet	4	5304M-1N7
			6	5306M-1N7
			2	5302M-1N5
		15 Feet	6	5306M-1N5
Medical Grade Power			4	5304M-1N5
Strips			2	5302M-2N7
		7 Feet	4	5304M-2N7
	20A		6	5306M-2N7
	(16A max continuous load)		2	5302M-2N5
		15 Feet	4	5304M-2N5
			6	5306M-2N5
Replacement Outlet Covers		_	2	5300M-CVR

 $All\ items\ available\ with\ flying\ leads\ or\ straight\ blade\ plugs; surge-protective\ strips\ available\ with\ audible\ alarm\ as\ a\ special\ order\ -\ contact\ your\ Leviton\ sales\ representative\ for\ details.$ 

leviton.com/surge



# TYPE 4 - 3800 Series Surge Protective Strips and DIN Rail Receptacles

Catalog Number	Description
3800-DIN	Terminal Block Connection, DIN rail mounted
3800-WM	Terminal Block Connection
3800-OEM	Pigtail Connection w/ 6" leads
3880-DIN	Hospital Grade Surge Protective Duplex Receptacle, Single-phase, DIN rail mount

## 3800 Series Low Voltage (DC) Power Surge Protective Modules

Catalog Number	Voltage Rating	Connection
3812-DIN	12V DC	Terminal Block, DIN rail Mount
3824-DIN	24V DC	Terminal Block, DIN rail Mount
3824-WM	24V DC	Terminal Block, Standard Equipment Mount
3848-DIN	48V DC	Terminal Block, DIN rail Mount
3848-WM	48V DC	Terminal Block, Standard Equipment Mount
3848-OEM	48V DC	Pigtail Connection, Standard Equipment Mount

# 3400/3800 Series Low Voltage (DC) Data Line Surge Protective Modules

Catalog Number	Description	Voltage Rating	Application
3420-9	SPD with 3-Pin Header Connector, Surface Mount	9.6V DC	Devices operating on Allen-Bradley 4-20ma Signal Loop networks and other related protocols, 9V
3420-35	SPD with 3-Pin Header Connector, Surface Mount	38.5V DC	Devices operating on Allen-Bradley 4-20ma Signal Loop networks and other related protocols, 35V
3803-485	SPD with 6-Pin Header Connector, Surface Mount	9.6V DC	Devices operating on Allen-Bradley DH-485 networks and other related protocols
3803-DHP	SPD with 3-Pin Header Connector, Surface Mount	9.6V DC	Devices operating on Allen-Bradley "Blue Hose" networks and other related protocols



# **Product Warranties**

Leviton Surge Protective Device product warranties are summarized in Table 1. For a select group of products, Leviton also provides connected equipment coverage via a "True Whole House Surge Protection" Limited Warranty. The details are summarized in Table 2.

# True Whole House Surge Protection

Leviton's True Whole House Surge Protection Limited Warranty covers both the Surge Protection Device and properly connected equipment.

# **Product Coverage**

For the selected products, Leviton provides a Limited Lifetime Product Warranty. This warranty covers all defects in workmanship or materials. If the Surge Protective Device (SPD) is damaged by a power surge and Leviton determines that such damage was caused by the performance failure of the Leviton SPD, Leviton will, at its option, repair or replace the device.

# Connected Equipment Coverage

In addition to the Product Warranty, Leviton provides connected equipment coverage for properly connected residential equipment. If properly connected equipment is damaged by a surge event as the result of SPD failure, you may be eligible for up to \$25,000 maximum to repair or replace the damaged equipment.

For warranty details, please visit www.leviton.com, or contact Leviton Customer Support at 1.800.323.8920.

The warranty information on Leviton.com supersedes printed warranty information.

#### Table 1

Product Family	Product Series	Product Warranty	
Meter Socket Surge Arrester	50240 Series	Lifetime Limited Product Warranty	
Secondary Surge Arrester	55000 Series	Lifetime Limited Product Warranty	
	57000 Series	Lifetime Limited Product Warranty	
	52000 Series	Lifetime Limited Product Warranty	
	47000 Series	Lifetime Limited Product Warranty	
Surge Panels	37000 Series	Lifetime Limited Product Warranty	
	42000 Series	Lifetime Limited Product Warranty	
	32000 Series	Lifetime Limited Product Warranty	
	51120 Series	Lifetime Limited Product Warranty	
Surge Receptacles	5280, 7280, 8280, 8281, 5380, 7380, 8380 & 8381 Series	10-Year Limited Product Warranty	
	Four-In-One (5480, 5490, 8480 & 8490 Series)	10-Year Limited Product Warranty	
Wall Plug-Ins	3500 Series	10-Year Limited Product Warranty	
	S1000 Series	Lifetime Limited Product Warranty	
Surge Strips	S2000 Series	Lifetime Limited Product Warranty	
ouige outips	5100 Series	Lifetime Limited Product Warranty	
	5300 Series	Lifetime Limited Product Warranty	
Surge Modules	3800 Series	10-Year Limited Product Warranty	
Juige Modules	3400 Series	5-Year Limited Product Warranty	

## Table 2

Product Family	Product Series	Connected Equipment Policy Duration	Connected Equipment Coverage Maximum
Meter Socket Surge Arrester	50240-MSA	Lifetime Limited	\$10,000
Secondary Surge Arrester	55240-ASA	Lifetime Limited	\$10,000
Surge Panels	51110-SRG, 51120-1, 51120-3R	Lifetime Limited	\$25,000
	S1000 Series	Lifetime Limited	\$10,000
Surge Strips	S2000 Series	Lifetime Limited	\$25,000
ourge outps	5100 Series	Lifetime Limited	\$5,000
	5300 Series	Lifetime Limited	\$25,000
Wall Plug-Ins	3500 Series	Lifetime Limited	\$5,000



# Surge Protecter Limited Warranty

Up to \$25,000 for Connected Equipment Limited Lifetime Product Replacement

CONNECTED EQUIPMENT PROTECTION		
Up to \$25,000 51120-1, 51110-SRG, 51120-3R, S2000 Series, 5300		
Up to \$10,000	50240-MSA, 55240-ASA, S1000 Series	
Up to \$5,000 5100 Series, 3500 Series		

This warranty is for the benefit of the original consumer purchaser only.

#### PRODUCT COVERAGE

Limited Lifetime Warranty on materials and workmanship on 5100 series, 5300 series, S1000 series, S2000 series, 3500 series, 50240-MSA, 55240- ASA, 51120-1/-3R and 51110-SRG surge protective devices (SPDs). Subject to the provision below, this warranty covers all defects in workmanship or materials. If the SPD is damaged by a power surge and Leviton determines that such damage was caused by the performance failure of the Leviton SPD, Leviton will, at its option, repair, replace or refund the value of the unit.

#### CONNECTED EQUIPMENT COVERAGE

The Leviton "True Whole-House Surge Protection" program provides the following connected equipment coverage for residential equipment:

- 1. Meter Base (50240-MSA) and Surge Module (55240-ASA): Maximum coverage per household up to \$10,000 to repair, replace or refund the FAIR MARKET VALUE of the properly connected equipment as of the date it is damaged from a power surge. Residential equipment includes: washer, dryer, stove, refrigerator, freezer, dishwasher, microwave oven, LCD, OLED or plasma TV, surround sound system, DVD, DVR, computers, video game systems and Indoor HVAC equipment and other common household equipment at Leviton's sole discretion. Equipment with multiple parts, for instance TVs, must have surge protection at each conductor (power, cable, etc.). Coverage is applicable only when the Service Entrance SPD (1) was active and fully functional immediately prior to the claim event. and (2) is installed within 100 feet of conductor of structure being protected. The Cat. No. 55240-ASA will provide maximum of \$1,000 coverage for well-pumps.
- 2. Panel-Mount Service Entrance SPD (51120-1/-3R and 51110-SRG): Up to \$25,000 to repair, replace or refund the FAIR MARKET VALUE of properly connected residential equipment as of the date it is damaged.
- 3. Plug Strips: (a.) S2000 and 5300 Series: Up to 25,000, (b.) S1000 Series: Up to \$10,000, and (c.) 5100 Series: Up to \$5,000 to repair, replace or refund the FAIR MARKET VALUE of the properly connected residential equipment as of the date it is damaged as the result of SPD failure.
- Plug-In Adapters: Up to \$5,000 to repair, replace or refund the FAIR MARKET VALUE of the properly connected residential equipment as of the date it is damaged as the result of SPD failure.

The above remedy is your exclusive remedy under this warranty, whether based on contract, tort, including negligence or otherwise. Claims must be made within 30 days of damage or loss. Leviton reserves the right to audit the damage site and/or cost of repairs and may require a proof of loss notarized by claimant.

FOR THIS CONNECTED EQUIPMENT WARRANTY TO APPLY, THE LEVITON SPD MUST ALSO BE DAMAGED BY THE POWER SURGE.

#### WHAT IS A "POWER SURGE"?

"Power Surge" means an electrical transient or spike on the AC power or communication lines, including those caused by indirect lighting, against which surge protective devices of this type are generally designed to protect as recognized by industry standards.

#### WARRANTY CLAIM PROCEDURES

If any of the SPD products fail or sustain damage covered by the "True Whole-House Surge Protection" warranty, call Leviton at 1-800-323-8920 or LEVITON WILL ADVISE YOU THE ADDRESS TO WHICH THE PRODUCT AND RECEIPTS SHOULD BE SENT.

YOU MUST KEEP ALL DAMAGED EQUIPMENT AVAILABLE FOR LEVITON TO EXAMINE. IF LEVITON DOES NOT WISH TO EXAMINE THE DAMAGED EQUIPMENT, YOU WILL BE NOTIFIED.

#### **EXCLUSIONS**

This warranty will not apply to any defects or damage to the Leviton SPD or any properly connected equipment arising because: (1) The Leviton SPD was improperly installed, tampered with, modified or altered in any way, or (2) the Leviton SPD or the connected equipment was not used under normal operating conditions or in accordance with any labels or instructions. This warranty does not cover any damage to properly connected equipment resulting from a cause other than a "power surge." This warranty specifically excludes damage associated with a temporary over- voltage; equipment installed outdoors, vandalism, theft, normal wear and tear, obsolescence, abuse, catastrophic events, or direct lightning strikes.

This warranty does not cover, garage door operators or outdoor equipment including outdoor HVAC units, window-mounted air conditioners, sprinkler systems, security alarm systems, cable dish systems, or equipment that is not UL or CSA listed.

THERE ARE NO OTHER OR IMPLIED WARRANTIES OF ANY KIND, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, BUT IF ANY IMPLIED WARRANTY IS REQUIRED BY THE APPLICABLE JURISDICTION, THE DURATION OF ANY SUCH IMPLIED WARRANTY, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IS LIMITED TO THE MINIMUM PERIOD REQUIRED BY SUCH JURISDICTION. LEVITON IS NOT LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, DAMAGE TO, OR LOSS OF USE OF, ANY EQUIPMENT, LOST SALES OR PROFITS OR DELAY OR FAILURE TO PERFORM THIS WARRANTY OBLIGATION. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES UNDER THIS WARRANTY, WHETHER BASED ON CONTRACT, TORT OR OTHERWISE. VALID IN U.S.A. AND CANADA.



# Glossary

#### Calculating "surge current per phase"

The per-phase rating is the total surge current capacity connected to a given phase conductor. For example in a WYE system, L1-N and L1-G modes are added together because surge current can flow on either parallel path. If the device has only one mode (e.g., L1-G), then the per-phase rating is equal to the per-mode rating because there is no protection on the L1-N mode. The industry standard is to publish surge current "per phase" by summing modes L-N + L-G in a WYE system and L-L + L-G in Delta systems.

#### Clamping Voltage (Also known as Let-Through Voltage)

The voltage at which a surge suppressor performs its suppression tasks such as diverting (shunt) the surge from line to ground or absorbing the excessive energy.

#### **Common Mode**

When relating to SPDs, common mode refers to surge protection components provided between L-G and N-G modes.

#### Maximum Continuous Operating Voltage (MCOV)

The maximum voltage that can be continuously applied to each mode of the SPD without degradation.

#### **Maximum Surge Current Rating**

The maximum 8x20us Surge Current Amps an SPD can withstand 1 time without performance degradation of more than 10%.

#### Modes of Protection - Per Mode and Per Phase

A "mode" is a potential path for a surge to be diverted to (e.g. L-N, L-G, N-G). The number of modes depends on the configuration of the electrical system (single phase, 3-phase WYE, 3-phase Delta, etc.). The per-phase rating is the total surge current capacity connected to a given phase conductor.

## Nominal Discharge Current (IN)

The peak value of an  $8/20 \,\mu s$  current waveform, selected by the manufacturer, for which an SPD (Type 1 or Type 2 only) remains functional after 15 surges - Type 1 devices require testing at 10 or 20 kA and Type 2 devices can be tested using a 3, 5, 10 or 20 kA.

#### **Normal Mode**

When relating to SPDs, normal mode refers to surge protection components provided between L-L and L-N modes.

#### Per Mode

A "mode" is a potential path for a surge to be diverted to (such as L-N, L-G, N-G).

#### Per Phase

The maximum amount of surge current a SPD can shunt to ground during a surge event on one phase.

#### Short Circuit Current Rating (SCCR)

The suitability of an SPD for use on an AC power circuit that is capable of delivering not more than a declared current at a declared voltage during a short circuit condition.

#### Suppression Voltage Rating (SVR)

Term used to define the clamping voltage when subjected to the UL 1449 2nd Edition Measured Limited Voltage Test - this test has proven insufficient to adequately evaluate SPD performance, and has been replaced by the Voltage Protection Rating (VPR).

#### Surge

A short-duration overvoltage spike or disturbance on the ac power line, having duration of a few milliseconds or less.

### **Surge Current Capacity**

The surge current capacity of an SPD is the maximum surge current the SPD device is capable of surviving on a single impulse basis without suffering degradation of performance of more than 10 percent. It is required to be listed by mode (in kA), since the number and type of components in any SPD may vary by mode. It can also be stated by phase.

### Temporary Overvoltage (TOV)

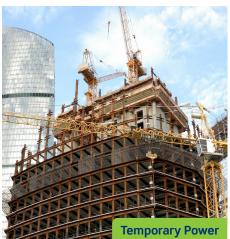
An overvoltage on the AC power line that is at a given location of relatively long duration (seconds, even minutes) .

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