



SpecPR[®]

Surge Protection

CSMx16 Series

160 kA Per Phase
Peak Surge Current
ANSI/UL1449 UL Fourth Edition
A = Type 2 SPD, I_n = 10 kA
B = Type 2 SPD, I_n = 20 kA

Designed specifically for new construction, "bid spec" market place, the CSM series of surge protective devices provides the features, performance and value required by discriminating specifying engineers. This device is intended for protection of critical and sensitive load applications ranging from individual equipment disconnects, sub panels and distribution panels to service entrances. It is extremely effective in limiting lightning surges as well as internally generated transients.

The CSM series provides an effective blend of leading edge suppression design technology, straight forward, no frills engineering and customer driven, value added options. Specify the CSM with confidence.

- Description:** Parallel connected, AC power Surge Protective Device.
- Application:** Designed for use at ANSI/IEEE C62.41.1 & C62.41.2 location categories C, B and A. Designed to protect critical and sensitive loads fed from individual disconnects, sub panels, distribution panels and service entrance locations.
- Warranty:** **15 Years**
- Unit Listings:** *Listed to ANSI/UL 1449 by UL (E315947), CSA (MC#241804); UL 1283*
- Circuit Design:** Parallel connected, multi-stage hybrid Frequency Responsive Circuitry circuit design incorporating discrete all mode protection and both component level thermal fusing and internal over-current fusing. All protection circuits are encapsulated in our high-dielectric compound to promote long component life and protection from the weather and vibration.
- Directly Connected Protection Modes:** All Mode - L-L, Discrete L-N (Normal Mode), and Discrete L-G, N-G (Common Mode).
- Input Frequency:** 50-60 Hz (60 Hz typical)
- Insertion Loss Data: (L-N for 3Y1)**
- | Frequency: | 10 kHz | 100 kHz | 1 MHz | Max Attenuation & Freq. |
|--------------|--------|---------|-------|-------------------------|
| Attenuation: | 14 dB | 38 dB | 21 dB | 52 dB @ 148 kHz |
- Circuit Diagnostics:** LED, 1 per phase, normally on. See pg. 2 for additional diagnostics options
- Connection/mounting:** #10 Wire (pre-installed), hub (pre-installed on base models, installed at time of installation on optional enclosures) and integral, multi-point mounting feet.
- Circuit Interrupt:** Internal component-level, thermal fusing and patented circuit board mounted, over-current fusing. No external over-current protection required. (Note: National and local codes may require the use of a circuit interrupt device(s) if conduit is added to make the wired connection to the panel or gear.) SCCR = 200 kA
 10 kA (CSMA16); 20 kA** (CSMB16) (**Complies with the requirements of UL 96A Master Label for Installation Requirements for Lightning Protection Systems)
- Nominal Discharge Current (I_n) Rating:**



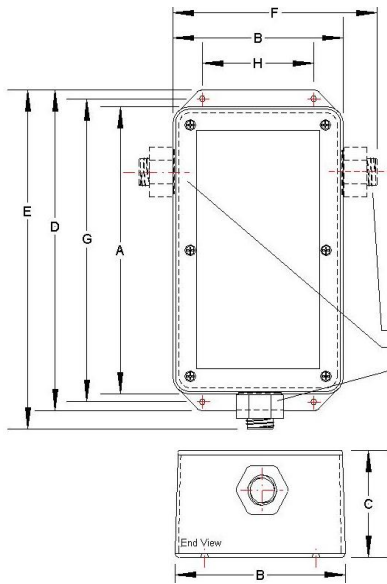
Key Features:

- Industry Leading Measured Limiting Voltage Performance
- EMI/RFI Parallel Configured Listed to UL 1283
- Independent Verification of Performance and Safety
- Component-Level, Thermal Fusing and Over-Current Fusing
- No moving parts or springs - No mechanical or electro-mechanical thermal/over-current protection
- Circuit Encapsulation
- 15 Year Warranty

Voltage Code	ANSI/UL 1449 (Fourth Edition) Voltage Protection Rating (VPR)						
	L-N	HL-N	L-G	HL-G	N-G	L-L	HL-L
1P1	600	-	600	-	700	-	-
1S1	600	-	600	-	700	1200	-
3Y1	600	-	600	-	700	1200	-
3D1	600	1200	600	1200	700	1200	1800
3Y2	1200	-	1200	-	1200	2500	-
3N4	-	-	1800	-	-	1800	-



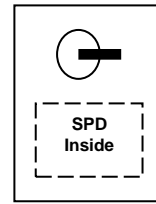
Options	Description
AC10	Basic Internal Audible Alarm
AC11	Advanced Internal Audible Alarm w/ on, off, and test
AC10S6	Basic Alarm/ Surge Counter
AC11S6	Advanced Alarm w/ surge counter on, off, and test
C	Form C Dry Relay Contacts
D1 (CSA)	Integral Disconnect Switch **
D3 (CSA)	Integral Disconnect Switch (no external handle) **
E1	Hub on right side of enclosure
E11	Hub on left side of enclosure
-LP	Remote LEDs in liquid tight holders
M	NEMA 12 Metal Enclosure
P	Flush Mount Plate
S6	Internal Surge Counter
W	NEMA 4 Metal Enclosure
X	NEMA 4X (Box-in-box) with terminals
X1	NEMA 4X with Clear Lid (Box-in-box) and terminals
X2	NEMA 4X Composite Enclosure (use with A and S options)
X3	NEMA 4X Composite Enclosure (LED and DRC only)
XS	NEMA 4X Stainless Steel Corrosion Resistant Enclosure
Additional options may be available upon request.	
** Housed in a NEMA 4X Composite Enclosure	



Green LED status indicators, beneath overlay, one per phase, normally on.

Pre-installed 3/4" hub locations for standard, M and W models:
 Side (E1 option)
 Side (E11 option)
 End (normal location)

Mounting hub for X enclosure option is placed at time of installation (3/4" hub provided)



Integral Disconnect D1, D3 option configuration (Enclosure 12x10x6) (CSA)

Enclosure Dimensions				
Inches (mm)	Standard Model	Enclosure Options		
		M	W	X
A	8.25 (210)	10.00 (254)	10.00 (254)	12.00 (305)
B	5.00 (127)	8.00 (204)	8.00 (204)	10.50 (267)
C	3.00 (77)	4.00 (102)	4.00 (102)	6.00 (153)
D	9.37 (238)	11.50 (293)	11.50 (293)	12.50 (318)
E	9.48 (242)	12.00 (305)	12.00 (305)	13.23 (337)
F	6.23 (159)	9.00 (229)	9.00 (229)	11.73 (299)
G	8.87 (226)	10.75 (274)	10.75 (274)	12.00 (305)
H	3.37 (86)	6.00 (153)	6.00 (153)	8.00 (204)
Type	NEMA 1 ABS	NEMA 12 Steel	NEMA 4 Steel	NEMA 4X Composite
lbs (kg)	5 (2.27)	14 (6.36)	14 (6.36)	11 (4.99)

Model Number Example: CSMA163Y2D3

Base Model:	SPD Type and Nominal Discharge Current (I _n) Rating:	PSC	Voltage Code:	Options:
CSM	A = Type 2 SPD, I _n = 10 kA B = Type 2 SPD, I _n = 20 kA	16 (160 kA)	See Voltage Codes 3Y2	See Option codes D3

MEASURED LIMITING VOLTAGE PERFORMANCE AND ELECTRICAL SPECIFICATIONS

Voltage Code*	Circuit Type	Peak Surge Current (Amps) Per Mode & Per Phase	MCOV	ANSI/IEEE C62.41.1™-2002, C62.41.2™-2002, C62.45™-2002, and C62.62™-2010 Measured Limiting Voltages (tested with 6 inches of lead length external to the enclosure per Clauses 6.1.1 of C62.62™-2010 and 37.4.4 of ANSI/UL 1449-2006)		
				Test Mode	Cat A, 30 Ω 100 kHz Ring Wave 2 kV / 67 A @ 270° Phase Angle	Category C (High) 10 kA 8/20 Current Driven Test†
1P1	120 V, Single Ø (2 wire + ground)	80,000 Per Mode (L-N, L-G, N-G) 160,000 Per Phase	150	L-N	45 V	1,068 V
				L-G	80 V	1,048 V
				N-G	69 V	1,431 V
1S1	120/240 V, Split Ø (3 wire + ground)	80,000 Per Mode (L-L, L-N, L-G, N-G) 160,000 Per Phase	150	L-L	51 V	1,381 V
				L-N	45 V	1,068 V
				L-G	80 V	1,048 V
3Y1	120/208 V, 3ØY (4 wire + ground)	80,000 Per Mode (L-L, L-N, L-G, N-G) 160,000 Per Phase	150	L-L	51 V	1,381 V
				L-N	45 V	1,068 V
				L-G	80 V	1,048 V
3D1	120/240 V, 3ØΔ (4 wire + ground)	80,000 Per Mode (L-L, L-N, HL-N, L-G, HL-G, N-G) 160,000 Per Phase	150	L-L	51 V	1,381 V
				L-N	45 V	1,068 V
				HL-N	50 V	1,334 V
3Y2	277/480 V, 3ØY (4 wire + ground)	80,000 Per Mode (L-L, L-N, L-G, N-G) 160,000 Per Phase	320	L-L	64 V	1,981 V
				L-N	59 V	1,334 V
				L-G	79 V	1,304 V
3N2	240 V, 3ØΔ (3 wire + ground)	80,000 Per Mode (L-L, L-G) 160,000 Per Phase	320	L-L	35 V	1,381 V
				L-G	1,104 V	1,304 V
3N4	480 V, 3ØΔ (3 wire + ground)	80,000 Per Mode (L-L, L-G) 160,000 Per Phase	550	L-L	104 V	1,981 V
				L-G	1,559 V	2,144 V

Measured Limiting Voltage (MLV) Test Parameters: Positive polarity, Category A: Line power applied, Category C: No line power applied, Voltages are peak (±10%). Measured Limiting Voltages are measured from the insertion point on the sine wave to the peak of the surge for powered tests. Each phase is the average of the modes within that mode of protection. In order to duplicate the results, the specified mode of protection must be tested in all modes (except N-G) and averaged together. (Individual mode or shot results may vary by more than 10%. Scope Settings: Time Base = 10 microseconds per division, Sampling Rate = 2.5 Gigasamples/sec, Bandwidth = 400 MHz (200 MHz for Cat C), Probes: Tektronix P5100/P6015A. These settings help to assure MLV results are accurate). **All tests performed with 6" lead length (external to the enclosure), simulating actual installed performance.** The MLVs reported above are certified by Third-Party, Independent Testing. Individual test reports are available upon request.

†The MLV reported for the Category C High, 10 kA 8/20 Current Driven Test is determined by measuring the MLV of one of the fifteen 10 kA impulses impressed through the SPD during the Nominal Discharge Current (In) Test from C62.62M-2010 and ANSI/UL 1449-4th Edition. This is not the MLV recorded during the pre- and/or post-test 6 kV / 3 kA Combination Wave Test used to determine the VPR of the SPD. The VPRs are reported on page 1 of this specification.

*Other voltage configurations may be available. Contact your sales representative for additional assistance.