



CRMx28 Series

280 kA Per Phase
Peak Surge Current
ANSI/UL1449 UL

A = Type 2 SPD 10 kA
B = Type 2 SPD 20 kA

Designed for mission critical applications, the CRM series is a great choice for most small electrical panel applications. The CRM series of Surge Protective Devices provides the features, performance and value required by discriminating specifying engineers. This device is intended for protection of general-purpose load applications ranging from individual equipment disconnects and sub panels to distribution panels and service entrance locations. It is extremely effective in limiting lightning surges as well as internally generated transients.

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

- Description:** Parallel connected, AC power Surge Protective Device.
- Application:** Designed for use at ANSI/IEEE location categories C, B and A. Designed to protect all types of loads fed from individual disconnects, sub-panels, distribution panels and service entrance locations.
- Warranty:** **10 Years**
- Unit Listings:** Listed to ANSI/UL 1449 by UL (E315947), CSA (MC#241804); UL1283
- Circuit Design:** Parallel connected, hybrid circuit design incorporating 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. Includes additional filtering circuitry to reduce and/or eliminate the effects of both internal and external ringing transients.
- Directly Connected Protection Modes:** L-N, (Normal Mode), and N-G (Common Mode). (Based on Wye configuration, L-G on Delta configuration.)
- Input Frequency:** 50-60 Hz (60 Hz typical)
- EMI/RFI Filtering:** Up to 52 db normal mode, 49 db common mode
- Circuit Diagnostics:** Super Bright 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 the 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 (CRMA28); 20 kA** (CRMB28) (**Complies with the requirements of UL 96A Master Label for Installation Requirements for Lightning Protection Systems)
- Nominal Discharge Current (I_n) Rating:**



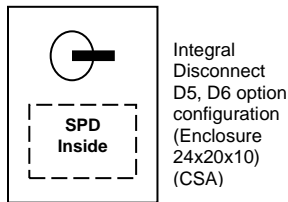
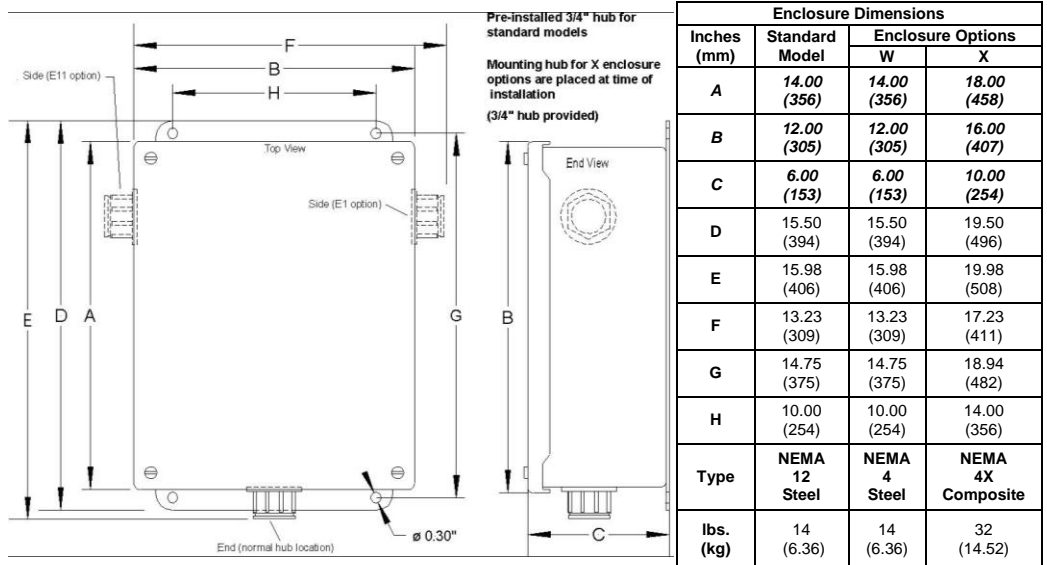
Key Features:

- Industry Leading Measured Limiting Voltage Performance
- Independent Verification of Performance and Safety
- Component Level Thermal Fusing
- Patented Internal Over-current Fusing
- Circuit Encapsulation
- 10 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	-	1500	-	700	-	-
1S1	600	-	1500	-	700	1200	-
3Y1	600	-	1500	-	700	1200	-
3D1	600	1200	1500	2000	700	1200	1800
3Y2	1200	-	2500	-	1200	2500	-
3N2	-	-	1200	-	-	2500	-
3N4	-	-	1800	-	-	4000	-



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
D5 (CSA)	Integral Disconnect Switch **
D6 (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
P	Flush Mount Plate
R2	Remote LED's in separate enclosure
S	Internal Surge Counter
W	NEMA 4 Metal Enclosure
X	NEMA 4X (Box-in-box) with terminals
XS	NEMA 4X Stainless Steel Corrosion Resistant Enclosure
Additional options may be available upon request.	
** Housed in a NEMA 4X Composite Enclosure	



Model Number Example: CRMB283Y2D3

Base Model:	SPD Rating:	PSC	Voltage Code:	Options:
CRM	A = Type 2 SPD 10 kA B = Type 2 SPD 20 kA C = Type 1 SPD 10 kA D = Type 1 SPD 20 kA	28 (280 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	Mode	ANSI/IEEE C62.41 & C62.45 6" External Lead Length Let-Through Voltage Test Results	
					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)	280,000	150	L-N	52 V	729 V
				N-G	67 V	991 V
1S1	120/240 V, Split Ø (3 wire + ground)	280,000	150	L-N	52 V	729 V
				N-G	67 V	991 V
3Y1	120/208 V, 3ØY (4 wire + ground)	280,000	150	L-N	52 V	729 V
				N-G	67 V	991 V
3D1	120/240 V, 3ØΔ (4 wire + ground)	280,000	150	L-N	52 V	729 V
				HL-N	40 V	1,374 V
				N-G	67 V	991 V
3Y2	277/480 V, 3ØY (4 wire + ground)	280,000	320	L-N	40 V	1,374 V
				N-G	53 V	1,661 V
3N2	240 V, 3ØΔ (3 wire + ground)	280,000	320	L-G	1,038 V	1,414 V
3N4	480 V, 3ØΔ (3 wire + ground)	280,000	550	L-G	1,559 V	2,071 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 MLV is the average of the phases within that mode of protection. In order to duplicate the results, the specified mode of protection must be tested in all phases (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 Giga-samples/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 C62.62TM-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.