

Model: RM-VS220xxx

100 kA Protection



“we ARE the standard!”



**Application:** The **RM-VS220xxx** is intended for general load applications ranging from individual equipment disconnect to service entrances. This device is one of the most versatile surge protective devices on the market with superior performance specs.

**ANSI/IEEE C62.41.1 & C62.41.2-2002 environments:** Suitable for Categories: A, B & C (Most Severe Electrical Environments)

**IEC Environments:** Suitable for use in IEC 61643-11 environments

**Circuit Topology:** Parallel configured **Frequency Attenuation Network and Optimal Response Circuitry™** circuit design incorporating component-level, thermal disconnectors.

**Protection Modes:** Industry-best practice of dedicated protection components for all operational modes of the electrical system. **L-L, L-N, N-G and L-G**

**Input Power:** 50-60 Hz

**Temperature Rating:** Up to 80°C

**Standard Enclosure:** NEMA 1 Rated Standard Enclosure  
(Other enclosure options available see pg. 2)

**Nominal Discharge Current ( $I_n$ ) Rating:** 20 kA

**Diagnostics:** Green LED's, one per phase, normally on. A wide range of optional diagnostics is available (see page two for details).

**Circuit Interrupt:** Internal component-level, thermal disconnecter

**Short Circuit Current Rating:** 200 Kaic

**Warranty:** 15 Years

**Product Qualifications:**

*ISO 9001-2008 Certified Manufacturing Facility*

*2004/2006 TVSS Customer Value Enhancement Award from Frost & Sullivan*

## Key Features

- Industry Leading Measured Limiting Voltage (let-through) Performance
- Local & Remote Diagnostics
- Component-Level, Thermal Disconnecter
- Multi-stage Hybrid Frequency Attenuation Circuit

**AC** = Internal Audible Alarm w/ test button, mute switch and red LED

**C** = Form C dry relay contacts

**D1** (CSA) = Integral, non-fused disconnect switch (TVSS unit mounts inside)

**D3** (CSA) = Same as **D1**, except no external handle

**E1** = Hub on side of enclosure

**LP** = Remote LED indicators in individual NEMA 4X housings

**M** = NEMA 12 Steel Enclosure

**P** = Flush Mount Plate

**S** = Surge counter w/ reset button

**W** = NEMA 4 Steel Enclosure

**X** = NEMA 4X Composite Enclosure (Box-in-box)

**X1** = NEMA 4X Composite Enclosure with Clear Lid (Box-in-box)

**X2** = NEMA 1, 2, 3, 3S, 4, 4X and 12 Composite Enclosure

**XS** = NEMA 4X Stainless Steel Enclosure

**External Accessories:** **EACS** = Externally mounted diagnostic module, combines **AC**, **C**, and **S** options

(Also available: **EAC**, **EC**, **ECS**, and **ES**) *Other options may be available upon request.*

**C-** (prefix to model number) for CSA listing marks only



RM-VS220XXX

Voltage Code*	Circuit Type	Peak Surge Current	MCOV	ANSI/IEEE C62.41.1 <sup>TM</sup> -2002, C62.41.2 <sup>TM</sup> -2002, C62.45 <sup>TM</sup> -2002, and C62.62 <sup>TM</sup> -2010 Measured Limiting Voltages (tested with 6 inches of lead length external to the enclosure per Clauses 6.1.1 of C62.62 <sup>TM</sup> -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 <sup>†</sup>
1P1	120 V, Single Ø (2 wire + ground)	100 kA L-N 100 kA L-G 100 kA N-G 300 kA Total	150 V 150 V 150 V	L-N L-G N-G	27 V 46 V 45 V	1,068 V 1,048 V 1,431 V
1P2	220 V, Single Ø 230 V, Single Ø 240 V, Single Ø (2 wire + ground)	100 kA L-N 100 kA L-G 100 kA N-G 300 kA Total	320 V 320 V 320 V	L-N L-G N-G	57 V 76 V 57 V	1,334 V 1,304 V 1,721 V
1S1	120/240 V 1Ø (Split) (3 wire + ground)	100 kA L-N 100 kA L-L 100 kA L-G 100 kA N-G 600 kA Total	150 V 300 V 150 V 150 V	L-N L-L L-G N-G	27 V 38 V 46 V 45 V	1,068 V 1,381 V 1,048 V 1,431 V
3Y1	120/208 V 3Ø Wye (4 wire + ground)	100 kA L-N 100 kA L-L 100 kA L-G 100 kA N-G 1000 kA Total	150 V 300 V 150 V 150 V	L-N L-L L-G N-G	27 V 38 V 46 V 45 V	1,068 V 1,381 V 1,048 V 1,431 V
3Y2	277/480 V 3Ø Wye 220/380 V 3Ø Wye 230/400 V 3Ø Wye 240/415 V 3Ø Wye (4 wire + ground)	100 kA L-N 100 kA L-L 100 kA L-G 100 kA N-G 1000 kA Total	320 V 550 V 320 V 320 V	L-N L-L L-G N-G	57 V 104 V 76 V 57 V	1,334 V 1,981 V 1,304 V 1,721 V
3Y3	347/600 V 3Ø Wye (4 wire + ground)	100 kA L-N 100 kA L-L 100 kA L-G 100 kA N-G 1000 kA Total	420 V 680 V 420 V 420 V	L-N L-L L-G N-G	51 V 126 V 75 V 52 V	1,613 V 2,338 V 1,547 V 1,609 V
3N2	240 V 3Ø Delta (NN) (3 wire + ground)	50 kA L-L 50 kA L-G 300 kA Total	320 V 320 V	L-L L-G	35 V 1,104 V	1,381 V 1,304 V
3N4	480 V 3Ø Delta (NN) (3 wire + ground)	100 kA L-L 100 kA L-G 600 kA Total	550 V 550 V	L-L L-G	104 V	1,981 V 2,144 V
3N6	600 V 3Ø Delta (NN) (3 wire + ground)	100 kA L-L 100 kA L-G 600 kA Total	650 V 650 V	L-L L-G	176 V	2338 V 2465 V
3N7	690 V 3Ø Delta (NN) (3 wire + ground)	100 kA L-L 100 kA L-G 600 kA Total	800 V 800 V	L-L L-G	105 V 1557 V	3053 V 2643 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.

<sup>†</sup>Category C High, 10 kA is equivalent to the MLV recorded during the Nominal Discharge Current (I<sub>n</sub>) Test from C62.62<sup>TM</sup>-2010 and ANSI/UL 1449-2006.

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

**Circuit Connection:** #10 AWG wire (pre-installed)

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)

