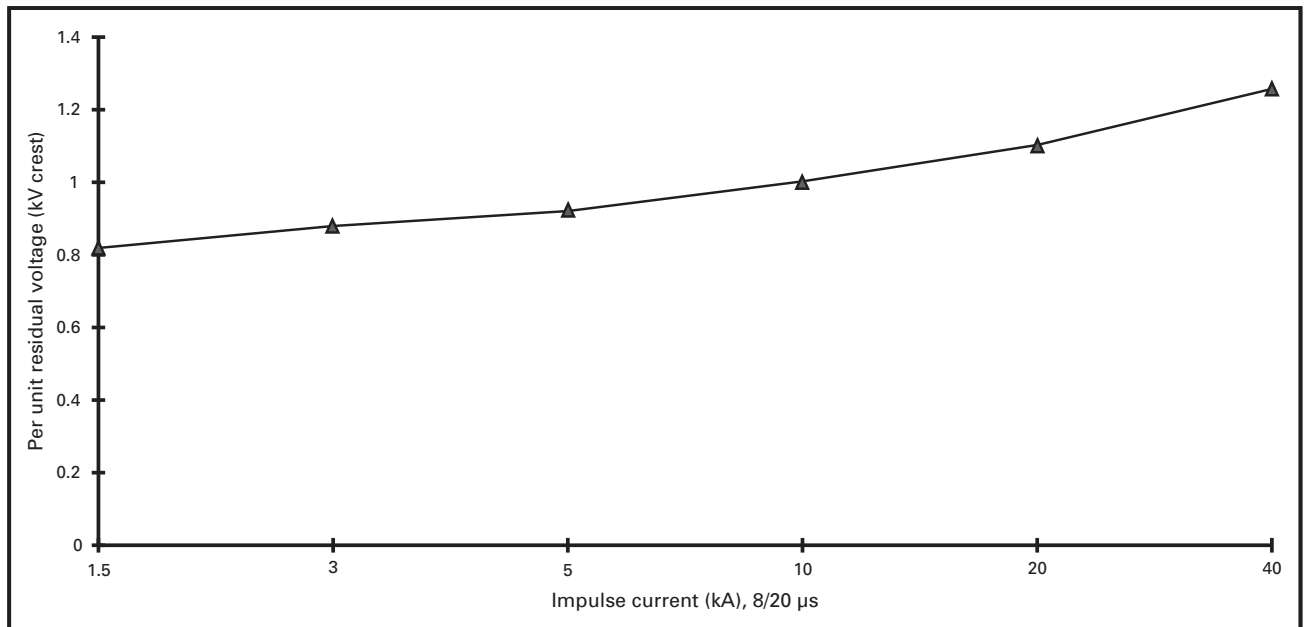


Technical specifications for VariSTAR[®] MUHS MOV arrester modules - 10 kA



Application

These epoxy-fiberglass reinforced modules containing Metal Oxide Varistors (MOV) are for use as active elements in IEC 10 kA, Class 1

and ANSI Heavy Duty Distribution Class gapless surge arresters when applied in an appropriately designed housing. Individual modules are sealed within a plastic bag and display the module catalog number, see Figure 3.

Table 1. Suggested usage & class ratings

U _r [Rating]	I _n	U _c [MCOV]	IEC line discharge class	ANSI LCLD class	IEC high current ANSI HCSD	I _{ref}	U _{ref min}
3-60 kV	10 kA	2.55-48.0 kV	1	250 A 2000 μs	100 kA	5 mA	U _c x 1.333 (for U _r = 54 kV, U _c x 1.064)

Table 2. Maximum residual voltages – protective characteristics – VariSTAR MUHS MOV arrester modules

U _r arrester rating (kV rms)	U _r /COV (kV rms)	IEC steep current residual voltage (kV crest)	ANSI equivalent front-of-wave (kV)	Lightning impulse residual voltage (kV crest) 8/20 μs current wave						Switching impulse residual voltage (kV crest) 30/60 current wave	
				1.5 kA	3 kA	5 kA	10 kA	20 kA	40 kA	125 A	500 A
3	2.55	11.3	11.5	8.6	9.1	9.5	10.4	11.5	13.0	7.4	7.9
6	5.10	22.6	23.0	17.2	18.2	19.1	20.8	23.0	25.9	14.8	15.9
9	7.65	32.6	33.1	24.8	26.3	27.5	30.0	33.2	37.4	21.4	22.9
10	8.40	33.9	34.4	25.8	27.4	28.6	31.2	34.5	38.9	22.2	23.8
12	10.2	42.6	43.3	32.4	34.4	35.9	39.2	43.3	48.8	27.9	29.9
15	12.7	53.2	54.1	40.4	43.0	44.9	49.0	54.2	61.0	34.9	37.4
18	15.3	63.9	64.9	48.5	51.6	53.9	58.8	65.0	73.2	41.9	44.8
21	17.0	67.8	68.9	51.5	54.7	57.2	62.4	69.0	77.7	44.4	47.6
24	19.5	79.1	80.3	60.1	63.9	66.7	72.8	80.5	90.7	51.9	55.5
27	22.0	89.5	90.9	68.0	72.3	75.5	82.4	91.1	103	58.7	62.8
30	24.4	99.7	101	75.8	80.5	84.1	91.8	101	114	65.4	70.0
33	27.0	110.8	113	84.2	89.5	93.5	102	113	127	72.7	77.8
36	29.0	119.5	121	90.8	96.5	101	110	122	137	78.4	83.9
39	31.5	130.3	132	99.1	105	110	120	133	149	85.5	91.5
42	34.0	141.2	143	107	114	119	130	144	162	92.6	99.1
45	36.5	152.1	154	116	123	128	140	155	174	99.7	107.0
48	39.0	162.9	166	124	132	137	150	166	187	107.0	114.0
54	42.0	176.0	179	134	142	148	162	179	202	115.0	124.0
60	48.0	197.7	201	150	160	167	182	201	227	130.0	139.0

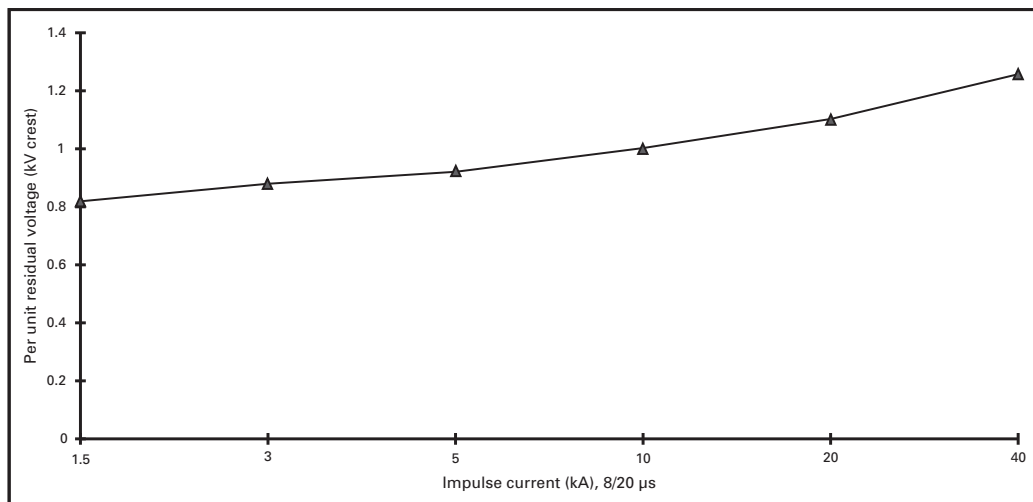


Figure 1. Residual voltage vs 8/20 μs impulse current

Temporary overvoltage capability

Typical data, actual results dependent on arrester design.

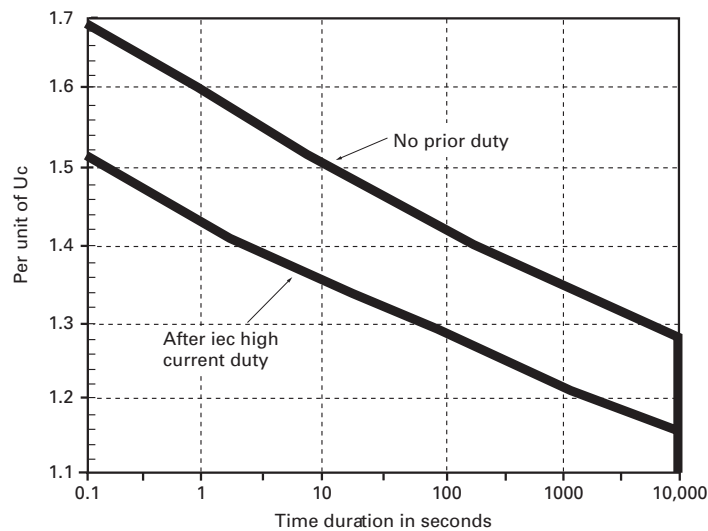


Figure 2. Temporary overvoltage capability, 60°C

Module cat. no.	Rating kV	Number of sheds	Dimension (A)	
			Inches	mm
MUHS0302C	3	2	2.36	60
MUHS0303C	3	3	3.34	85
MUHS0304C	3	4	4.65	118
MUHS0603C	6	3	3.29	84
MUHS0604C	6	4	4.46	113
MUHS0605C	6	5	5.58	142
MUHS0904C	9	4	4.50	114
MUHS0905C	9	5	5.62	143
MUHS0906C	9	6	6.74	171
MUHS0907C	9	7	7.86	200
MUHS1004C	10	4	4.50	114
MUHS1005C	10	5	5.62	143
MUHS1006C	10	6	6.74	171
MUHS1007C	10	7	7.86	200
MUHS1205C	12	5	5.62	143
MUHS1206C	12	6	6.74	171
MUHS1207C	12	7	7.86	200
MUHS1208C	12	8	8.98	228
MUHS1209C	12	9	10.10	256
MUHS1506C	15	6	6.75	171
MUHS1507C	15	7	7.87	200
MUHS1508C	15	8	8.99	228
MUHS1509C	15	9	10.11	257
MUHS1510C	15	10	11.23	285
MUHS1511C	15	11	12.35	314
MUHS1807C	18	7	7.94	202
MUHS1808C	18	8	9.06	230
MUHS2109C	21	9	10.18	259

Module cat. no.	Rating kV	Number of sheds	Dimension (A)	
			Inches	mm
MUHS1810C	18	10	11.30	287
MUHS1811C	18	11	12.42	316
MUHS1812C	18	12	13.54	344
MUHS1813C	18	13	14.66	372
MUHS2108C	21	8	9.06	230
MUHS2109C	21	9	10.18	259
MUHS2110C	21	10	11.30	287
MUHS2111C	21	11	12.42	316
MUHS2112C	21	12	13.54	344
MUHS2113C	21	13	14.66	372
MUHS2409C	24	9	10.00	254
MUHS2410C	24	10	11.12	282
MUHS2411C	24	11	12.24	311
MUHS2412C	24	12	13.36	339
MUHS2413C	24	13	14.48	368
MUHS2414C	24	14	15.60	396
MUHS2415C	24	15	16.72	425
MUHS2710C	27	10	11.08	281
MUHS2711C	27	11	12.20	310
MUHS2712C	27	12	13.32	338
MUHS2713C	27	13	14.44	367
MUHS2714C	27	14	15.56	395
MUHS2715C	27	15	16.68	424
MUHS2716C	27	16	17.80	452
MUHS2717C	27	17	18.92	480
MUHS3011C	30	11	12.27	312
MUHS3012C	30	12	13.39	340
MUHS3013C	30	13	14.51	369
MUHS3014C	30	14	15.63	397
MUHS3015C	30	15	16.69	424
MUHS3016C	30	16	17.81	452
MUHS3017C	30	17	18.93	481
MUHS3018C	30	18	20.05	509
MUHS3019C	30	19	21.17	538
MUHS3312C	33	12	13.40	340
MUHS3313C	33	13	14.52	369
MUHS3314C	33	14	15.46	393
MUHS3315C	33	15	16.58	421
MUHS3316C	33	16	17.70	449
MUHS3317C	33	17	18.82	478
MUHS3318C	33	18	19.94	506
MUHS3319C	33	19	21.06	535
MUHS3320C	33	20	22.18	563
MUHS3613C	36	13	14.52	369
MUHS3614C	36	14	15.46	393
MUHS3615C	36	15	16.58	421

Module cat. no.	Rating kV	Number of sheds	Dimension (A)	
			Inches	mm
MUHS3616C	36	16	17.70	449
MUHS3617C	36	17	18.82	478
MUHS3618C	36	18	19.94	506
MUHS3619C	36	19	21.06	535
MUHS3620C	36	20	22.18	563
MUHS3914C	39	14	15.53	395
MUHS3915C	39	15	16.65	423
MUHS3916C	39	16	17.77	451
MUHS3917C	39	17	18.89	480
MUHS3918C	39	18	20.01	508
MUHS3919C	39	19	21.13	537
MUHS3920C	39	20	22.25	565
MUHS4215C	42	15	16.65	423
MUHS4216C	42	16	17.77	451
MUHS4217C	42	17	18.89	480
MUHS4218C	42	18	20.01	508
MUHS4219C	42	19	21.13	537
MUHS4220C	42	20	22.25	565
MUHS4516C	45	16	17.73	450
MUHS4517C	45	17	18.85	479
MUHS4518C	45	18	19.97	507
MUHS4519C	45	19	21.09	536
MUHS4520C	45	20	22.21	564
MUHS4817C	48	17	18.93	481
MUHS4818C	48	18	20.05	509
MUHS4819C	48	19	21.17	538
MUHS4820C	48	20	22.29	566
MUHS5420C	54	20	22.29	566
MUHS6020C	60	20	22.19	564

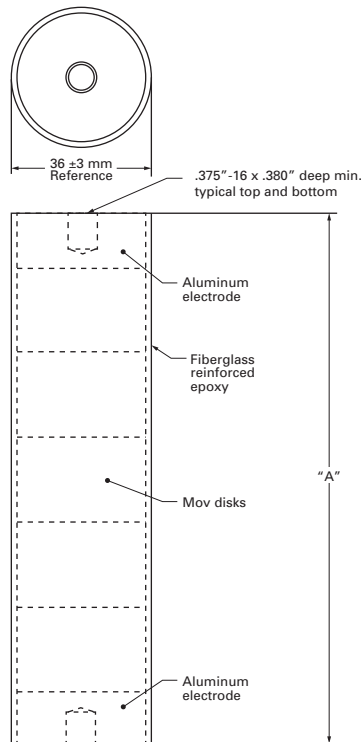


Figure 3. 10 kA VariSTAR module catalog numbers and dimensions

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Eaton
 1000 Eaton Boulevard
 Cleveland, OH 44122
 United States
 Eaton.com

Eaton's Power Systems Division
 2300 Badger Drive
 Waukesha, WI 53188
 United States
 Eaton.com/cooperpowerseries



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