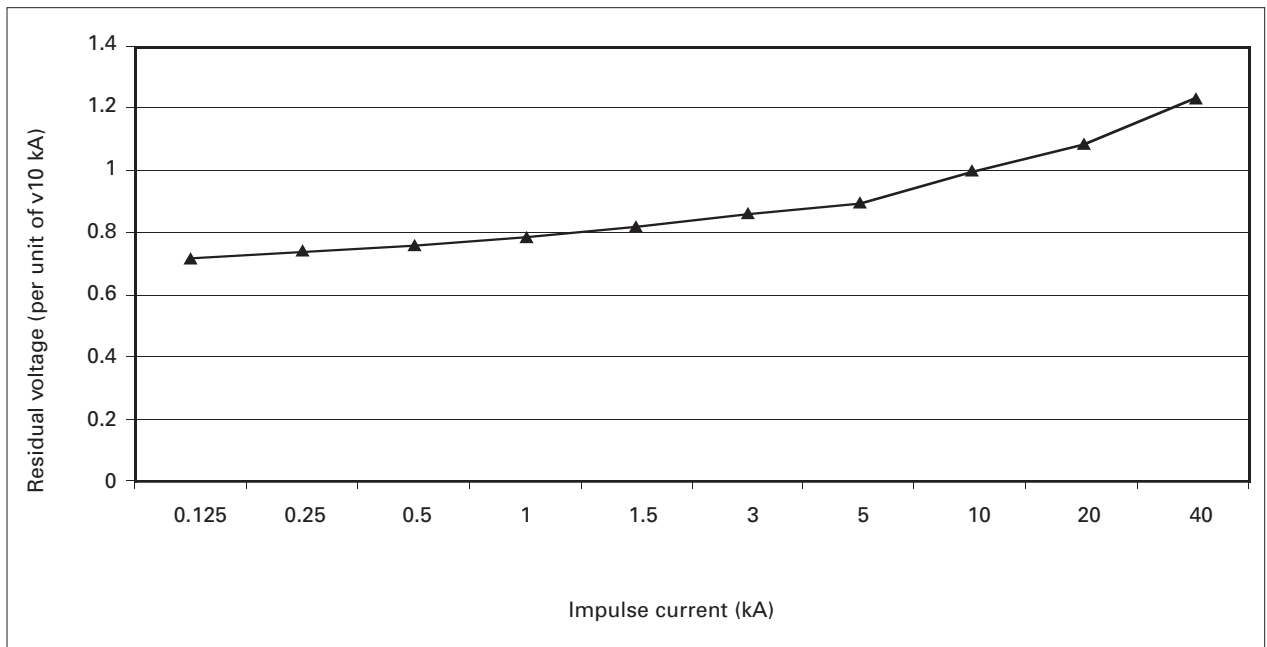


Technical specifications for VariSTAR[®] MUS MOV arrester modules - IEEE[®] station/IEC class 4



Powering Business Worldwide

Application

These epoxy-fiberglass reinforced modules containing Metal Oxide Varistors (MOV) are for use as active elements in IEC Class 4 and IEEE[®] station class gapless surge arresters when applied in appropriately designed housing.

Individual modules are sealed within a plastic bag and display the module number, see Figure 3.

Table 1. Suggested usage & class ratings

U_r (Rating)	I_N	U_c (MCOV)	IEC line discharge class	IEC high current IEEE [®] HCSD	Energy absorption level kJ/kV of U_c (1 impulse)	Energy absorption level kJ/kV of U_c (2 impulse)*	I_{ref}	V_{ref} min (kV)	Cantilever strength (Nm)
3-60 kV	10 kA	2.55-48 kV	4	100 kA	8.9	14.5	6.0 mA	$U_c \times 1.24$	3,950

* Rating based on two impulses with 1 minute between impulses.

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

U_r arrester rating kV rms)	U_c /COV (kV rms)	IEC steep current residual voltage (kV crest)	IEEE [®] front-of-wave protective level (kV crest)	Lightning impulse residual voltage (kV crest) 8/20 μ s current wave						Switching impulse residual voltage (kV crest) 30/60 μ s current wave			
				1.5 kA	3 kA	5 kA	10 kA	20 kA	40 kA	125 A	250 A	500 A	1000 A
3	2.55	8.3	8.5	6.4	6.7	7.0	7.5	8.3	9.7	5.9	6.0	6.3	6.6
6	5.10	16.3	16.5	12.8	13.4	13.9	14.9	16.4	18.7	11.7	12.0	12.5	13.0
9	7.65	24.1	24.6	19.3	20.1	20.8	22.2	24.4	27.7	17.6	18.0	18.7	19.5
10	8.40	26.4	26.9	21.1	22.1	22.9	24.4	26.8	30.3	19.3	19.8	20.5	21.4
12	10.2	32.0	32.6	25.7	26.8	27.8	29.6	32.5	36.6	23.4	24.1	24.9	25.9
15	12.7	39.7	40.6	32.0	33.4	34.6	36.8	40.4	45.5	29.1	29.9	31.0	32.3
18	15.3	47.8	48.8	38.5	40.2	41.6	44.4	48.6	54.6	35.1	36.1	37.4	38.8
21	17.0	53.1	54.2	42.8	44.7	46.2	49.3	54.0	60.6	39.0	40.1	41.5	43.1
24	19.5	60.9	62.2	49.1	51.2	53.0	56.5	61.9	69.5	44.8	46.0	47.6	49.5
27	22.0	68.5	70.0	55.3	57.8	59.8	63.7	69.9	78.3	50.5	51.9	53.7	55.8
30	24.4	76.0	77.7	61.4	64.1	66.4	70.7	77.5	86.7	56.0	57.5	59.6	61.9
33	27.5	85.6	87.4	69.2	72.2	74.8	79.6	87.3	97.7	63.1	64.8	67.1	69.7
36	29.0	90.3	92.2	72.9	76.2	78.9	84.0	92.0	103	66.6	68.4	70.8	73.5
39	31.5	97.9	100	79.2	82.7	85.6	91.2	100	112	72.3	74.2	76.9	79.9
42	34.0	106	108	85.5	89.3	92.4	98.4	108	121	78.0	80.1	83.0	86.2
45	36.5	114	116	91.8	95.8	99.2	106	116	129	83.8	86.0	89.1	92.5
48	39.0	121	124	98.1	102	106	113	124	138	89.5	91.9	95.2	98.9
54	42.0	131	134	106	110	114	122	133	149	96.4	99.0	103	107
60	48.0	149	152	121	126	131	139	152	170	110	113	117	122

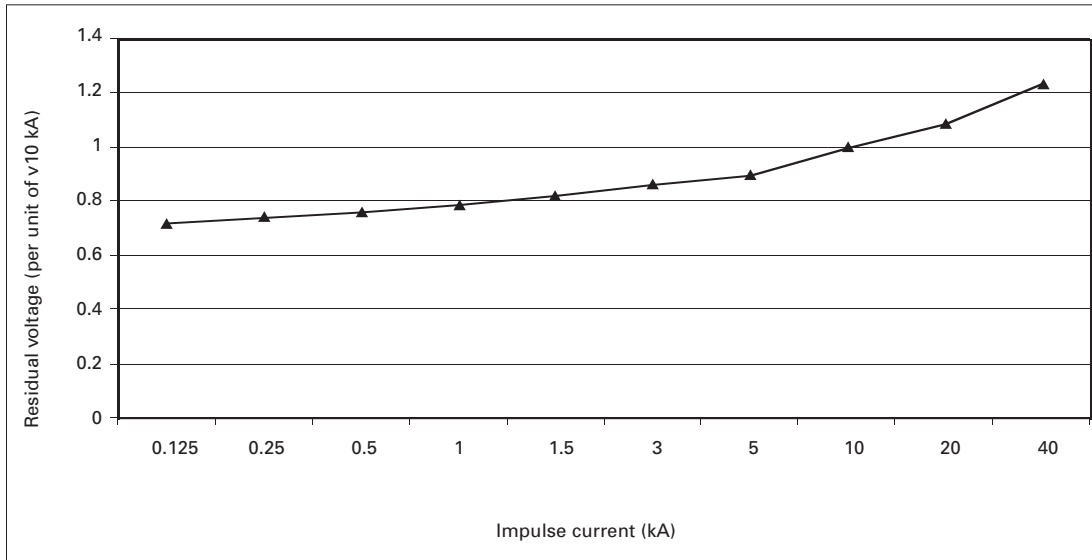


Figure 1. Residual voltage vs impulse current

Temporary overvoltage capability

Typical data, actual results dependent on arrester design.

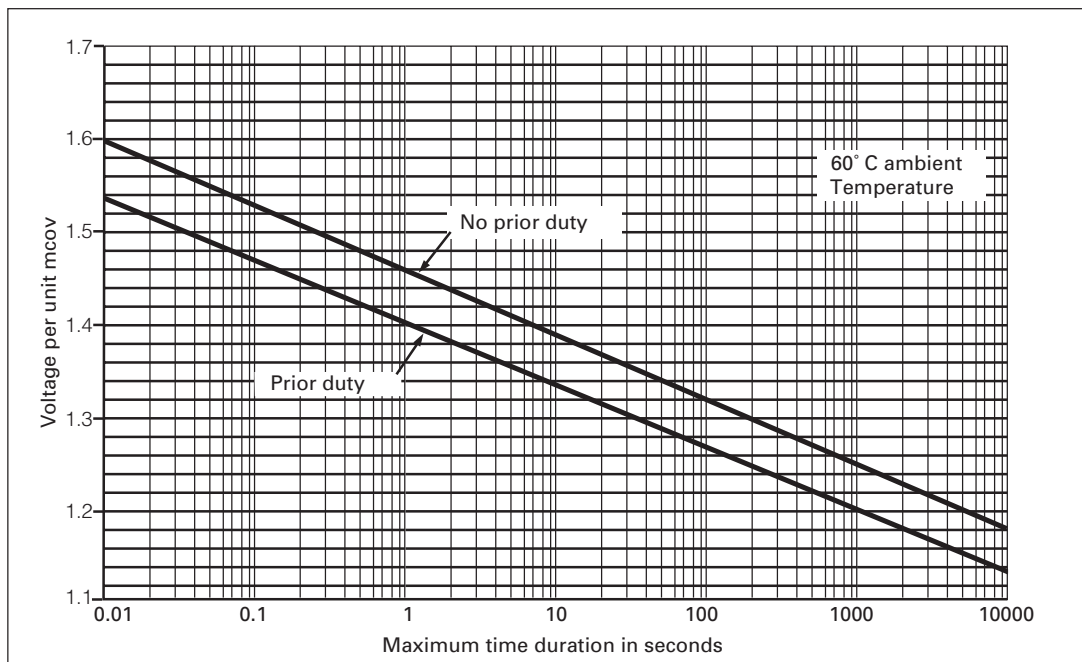


Figure 2. Temporary overvoltage capability, 60°C

Module cat. no.	Arrester rating kV	Housing code	Dimension (A)		Weight (kg)	Module cat. no.	Arrester rating kV	Housing code	Dimension (A)		Weight (kg)
			Inches	mm					Inches	mm	
MUS4A0208	3	8	6.1	156	2.0	MUS4A2930	36	30	23.0	585	12.3
MUS4A0510	6	10	7.7	195	2.8	MUS4A3122	39	22	16.9	429	10.0
MUS4A0512	6	12	9.2	234	3.4	MUS4A3124	39	24	18.4	468	10.6
MUS4A0710	9	10	7.7	195	3.6	MUS4A3126	39	26	20.0	507	11.2
MUS4A0712	9	12	9.2	234	4.2	MUS4A3128	39	28	21.5	546	11.8
MUS4A0714	9	14	10.8	273	4.9	MUS4A3130	39	30	23.0	585	12.4
MUS4A0810	10	10	7.7	195	3.6	MUS4A3424	42	24	18.4	468	10.8
MUS4A0812	10	12	9.2	234	4.2	MUS4A3426	42	26	20.0	507	11.4
MUS4A0814	10	14	10.8	273	4.9	MUS4A3428	42	28	21.5	546	12.0
MUS4A1012	12	12	9.2	234	4.4	MUS4A3430	42	30	23.0	585	12.6
MUS4A1014	12	14	10.8	273	5.0	MUS4A3626	45	26	20.0	507	12.2
MUS4A1016	12	16	12.3	312	5.7	MUS4A3628	45	28	21.5	546	12.8
MUS4A1214	15	14	10.8	273	5.2	MUS4A3630	45	30	23.0	585	13.4
MUS4A1216	15	16	12.3	312	5.8	MUS4A3926	48	26	20.0	507	12.4
MUS4A1218	15	18	13.8	351	6.4	MUS4A3928	48	28	21.5	546	13.0
MUS4A1514	18	14	10.8	273	6.0	MUS4A3930	48	30	23.0	585	13.6
MUS4A1516	18	16	12.3	312	6.6	MUS4A4228	54	28	20.0	507	13.1
MUS4A1518	18	18	13.8	351	7.2	MUS4A4230	54	30	21.5	546	13.8
MUS4A1520	18	20	15.4	390	7.9	MUS4A4830	60	30	23.0	585	14.7
MUS4A1716	21	16	12.3	312	6.6						
MUS4A1718	21	18	13.8	351	7.2						
MUS4A1720	21	20	15.4	390	7.9						
MUS4A1722	21	22	16.9	429	8.5						
MUS4A1918	24	18	13.8	351	7.4						
MUS4A1920	24	20	15.4	390	6.8						
MUS4A1922	24	22	16.9	429	8.0						
MUS4A1924	24	24	18.4	468	8.7						
MUS4A2218	27	18	13.8	351	7.6						
MUS4A2220	27	20	15.4	390	8.2						
MUS4A2222	27	22	16.9	429	8.8						
MUS4A2224	27	24	18.4	468	9.4						
MUS4A2226	27	26	20.0	507	10.1						
MUS4A2228	27	28	21.5	546	10.7						
MUS4A2420	30	20	15.4	390	9.0						
MUS4A2422	30	22	16.9	429	9.6						
MUS4A2424	30	24	18.4	468	10.2						
MUS4A2426	30	26	20.0	507	10.9						
MUS4A2428	30	28	21.5	546	11.5						
MUS4A2722	33	22	16.9	429	9.8						
MUS4A2724	33	24	18.4	468	10.4						
MUS4A2726	33	26	20.0	507	11.0						
MUS4A2728	33	28	21.5	546	11.7						
MUS4A2730	33	30	23.0	585	12.3						
MUS4A2922	36	22	16.9	429	9.8						
MUS4A2924	36	24	18.4	468	10.4						
MUS4A2926	36	26	20.0	507	11.0						
MUS4A2928	36	28	21.5	546	11.7						

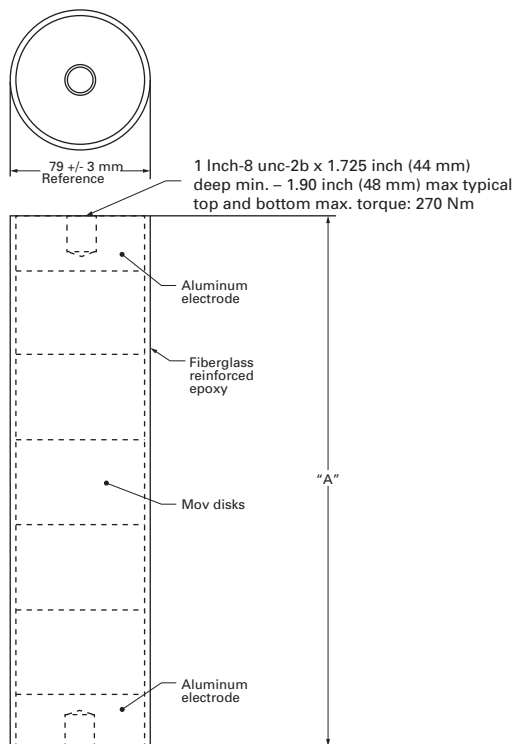


Figure 3. IEEE[®] Station/IEC class 4 VariSTAR MOV module catalog numbers and dimensions

Factory routine tests

- Visual Inspection
- Reference Voltage Test
- Partial Discharge Test
- Watts Loss Test
- Residual Voltage Test

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