Surge Arresters
Technical Data
TD235030EN

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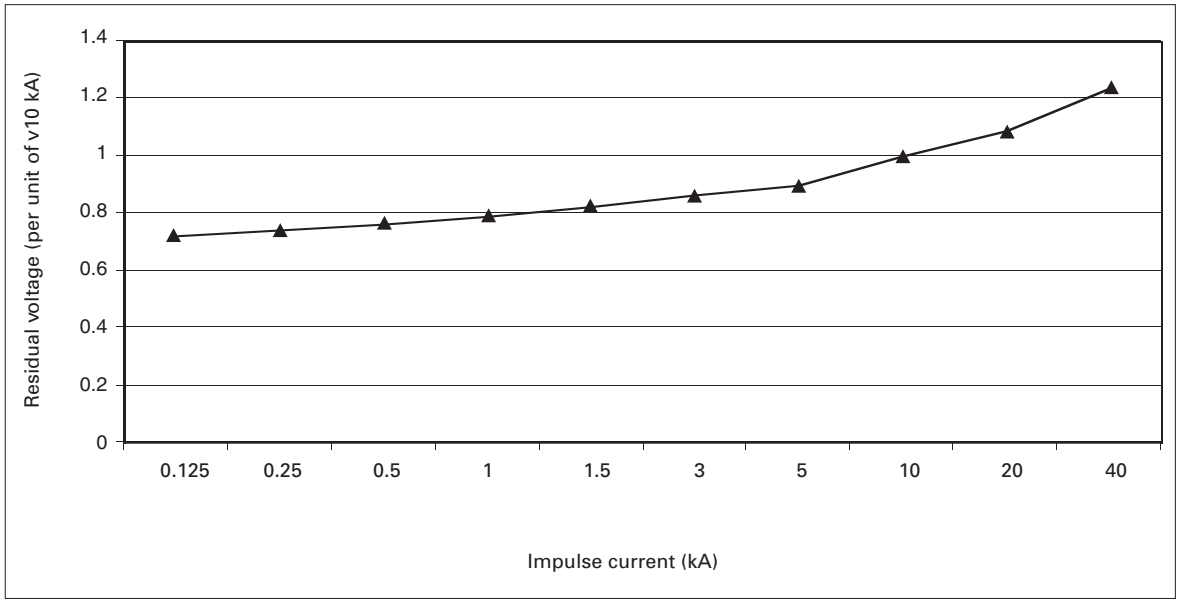
COOPER POWER SERIES

Technical specifications for VariSTAR® MUS MOV arrester modules – IEEE® station/IEC class 3



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Application

These epoxy-fiberglass reinforced modules containing Metal Oxide Varistors (MOV) are for use as active elements in IEC Class 3 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 dicharge 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	3	100 kA	5.6	8.9	6.0 mA	Uc x 1.24	2,260

* 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 surrent residual voltage (kV crest)	IEEE® front-of-wave protective level (kV crest)	Lightning impulse residual voltage (kV crest) 8/20 µs current wave						Switching impulse residual voltage (kV crest) 30/60 µs 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	8.8	8.8	6.7	7.0	7.3	7.9	8.8	10.1	5.9	6.0	6.2	6.4
6	5.10	17.0	17.1	13.3	14.0	14.6	15.6	17.3	19.6	11.7	12.0	12.4	12.9
9	7.65	25.3	25.5	19.9	21.0	21.8	23.4	25.8	29.1	17.6	18.1	18.6	19.3
10	8.40	27.8	28.0	21.9	23.0	23.9	25.7	28.3	31.9	19.4	19.8	20.4	21.2
12	10.2	33.6	33.7	26.6	28.0	29.0	31.1	34.3	38.6	23.5	24.1	24.8	25.7
15	12.7	41.8	41.9	33.1	34.8	36.2	38.7	42.7	47.9	29.3	30.0	30.9	32.0
18	15.3	50.2	50.4	39.9	41.9	43.5	46.6	51.4	57.6	35.3	36.1	37.2	38.5
21	17.0	55.8	56.0	44.3	46.6	48.4	51.8	57.0	63.9	39.2	40.2	41.3	42.8
24	19.5	63.9	64.2	50.8	53.5	55.5	59.4	65.4	73.2	44.9	46.1	47.4	49.1
27	22.0	72.0	72.4	57.3	60.3	62.6	67.0	73.7	82.5	50.7	52.0	53.4	55.4
30	24.4	79.9	80.3	63.6	66.9	69.4	74.3	81.8	91.4	56.2	57.6	59.3	61.4
33	27.5	89.9	90.3	71.7	75.4	78.2	83.7	92.1	103	63.4	65.0	66.8	69.2
36	29.0	94.8	95.3	75.6	79.5	82.5	88.3	97.1	109	66.8	68.5	70.4	73.0
39	31.5	103	104	82.1	86.3	89.6	95.9	106	118	72.6	74.4	76.5	79.3
42	34.0	112	112	88.6	93.2	96.7	104	114	127	78.3	80.3	82.6	85.6
45	36.5	119	120	95.1	100	104	111	122	137	84.1	86.2	88.7	91.9
48	39.0	128	128	102	107	111	119	131	146	89.9	92.1	94.7	98.2
54	42.0	137	138	109	115	119	128	141	157	96.8	99.2	102	106
60	48.0	157	158	125	132	137	146	161	179	111	113	117	121

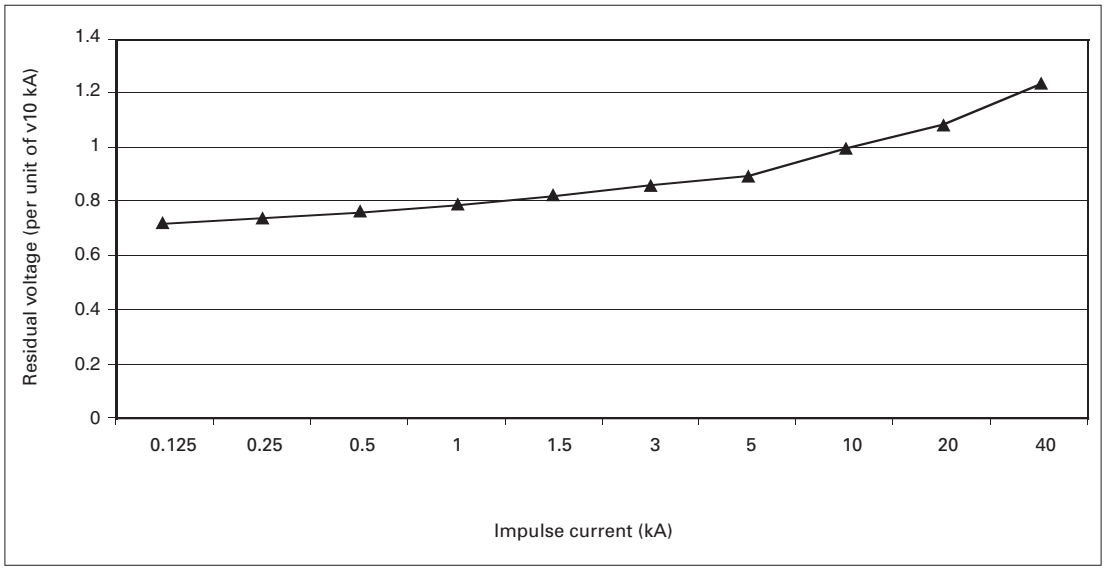

Figure 1. Residual voltage vs impulse current

Temporary overvoltage capability

Typical data, actual results dependent on arrester design.

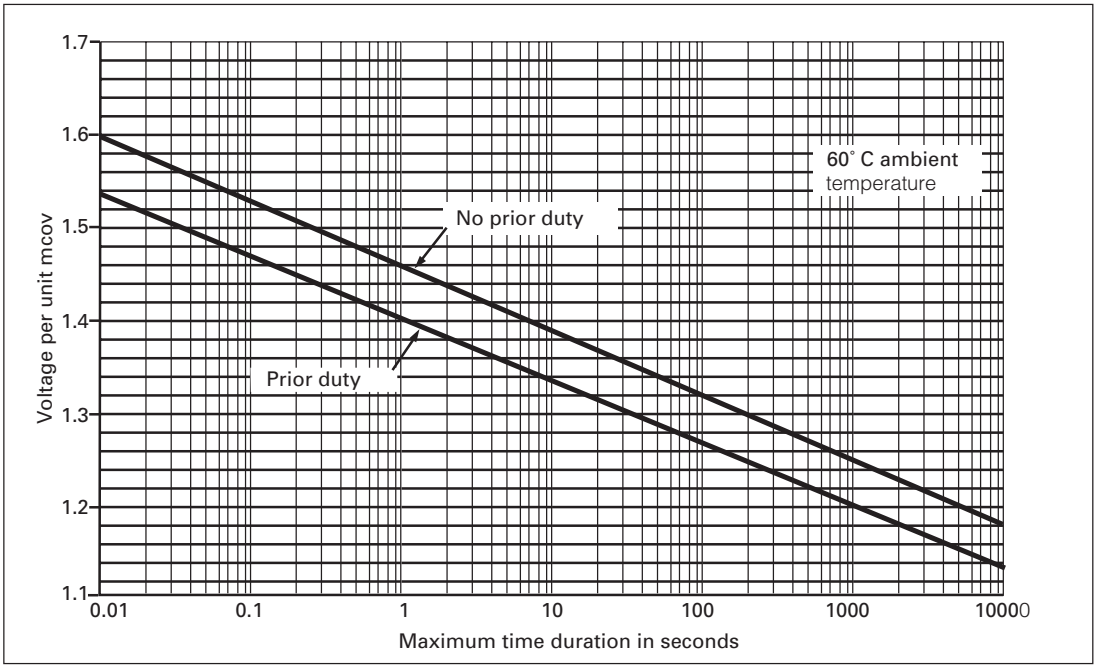

Figure 2. Temporary overvoltage capability, 60°C

Module cat. no.	Arrester rating kV	Housing code	Dimension (A) Inches	Dimension (A) mm	Weight (kg)
MUS3A0208	3	8	6.1	156	1.4
MUS3A0510	6	10	7.7	195	1.9
MUS3A0512	6	12	9.2	234	2.1
MUS3A0710	9	10	7.7	195	2.5
MUS3A0712	9	12	9.2	234	2.7
MUS3A0714	9	14	10.8	273	2.9
MUS3A0810	10	10	7.7	195	2.5
MUS3A0812	10	12	9.2	234	2.7
MUS3A0814	10	14	10.8	273	2.9
MUS3A1012	12	12	9.2	234	3.1
MUS3A1014	12	14	10.8	273	3.3
MUS3A1016	12	16	12.3	312	3.5
MUS3A1214	15	14	10.8	273	3.6
MUS3A1216	15	16	12.3	312	3.8
MUS3A1218	15	18	13.8	351	4.0
MUS3A1514	18	14	10.8	273	4.2
MUS3A1516	18	16	12.3	312	4.4
MUS3A1518	18	18	13.8	351	4.6
MUS3A1520	18	20	15.4	390	5.0
MUS3A1716	21	16	12.3	312	4.4
MUS3A1718	21	18	13.8	351	4.6
MUS3A1720	21	20	15.4	390	5.0
MUS3A1722	21	22	16.9	429	4.8
MUS3A1918	24	18	13.8	351	5.0
MUS3A1920	24	20	15.4	390	5.2
MUS3A1922	24	22	16.9	429	5.4
MUS3A1924	24	24	18.4	468	5.6
MUS3A2218	27	18	13.8	351	5.3
MUS3A2220	27	20	15.4	390	5.5
MUS3A2222	27	22	16.9	429	5.7
MUS3A2224	27	24	18.4	468	5.9
MUS3A2226	27	26	20.0	507	6.2
MUS3A2420	30	20	15.4	390	6.1
MUS3A2422	30	22	16.9	429	6.3
MUS3A2424	30	24	18.4	468	6.5
MUS3A2426	30	26	20.0	507	6.7
MUS3A2428	30	28	21.5	546	6.9
MUS3A2722	33	22	16.9	429	6.7
MUS3A2724	33	24	18.4	468	6.9
MUS3A2726	33	26	20.0	507	7.1
MUS3A2728	33	28	21.5	546	7.3
MUS3A2730	33	30	23.0	585	7.5
MUS3A2922	36	22	16.9	429	6.7
MUS3A2924	36	24	18.4	468	6.9
MUS3A2926	36	26	20.0	507	7.1
MUS3A2928	36	28	21.5	546	7.3
MUS3A2930	36	30	23.0	585	7.5
MUS3A3122	39	22	16.9	429	7.0
MUS3A3124	39	24	18.4	468	7.2
MUS3A3126	39	26	20.0	507	7.4
MUS3A3128	39	28	21.5	546	7.6
MUS3A3130	39	30	23.0	585	7.9
MUS3A3424	42	24	18.4	468	7.8
MUS3A3426	42	26	20.0	507	8.0
MUS3A3428	42	28	21.5	546	8.2
MUS3A3430	42	30	23.0	585	8.4
MUS3A3626	45	26	20.0	507	8.4
MUS3A3628	45	28	21.5	546	8.6
MUS3A3630	45	30	23.0	585	8.8
MUS3A3926	48	26	20.0	507	8.7
MUS3A3928	48	28	21.5	546	8.9
MUS3A3930	48	30	23.0	585	9.1
MUS3A4228	54	28	21.5	546	9.9
MUS3A4230	54	30	23.0	585	10.1
MUS3A4830	60	30	23.0	585	10.4

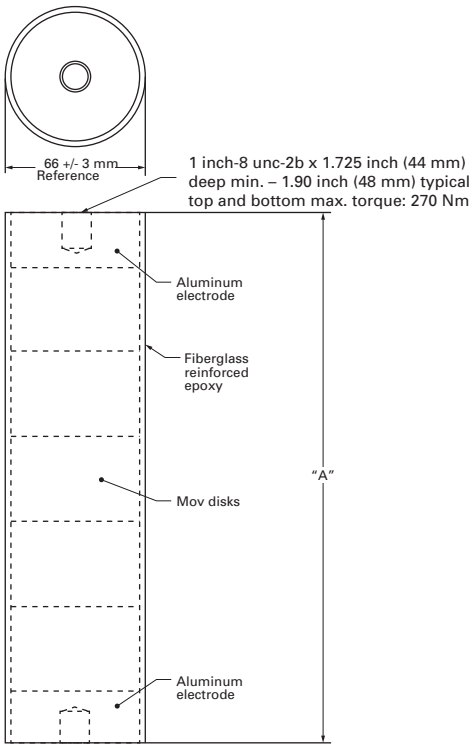

Figure 3. IEEE® station/IEC class 3 VariSTAR MOV module catalog numbers and dimensions

Factory routine tests

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

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Technical specifications for VariSTAR® MUS MOV arrester modules – IEEE® station/IEC class 3

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For Eaton's Cooper Power series surge arrester product information call 1-877-277-4636 or visit: www.eaton.com/cooperpowerseries.