

# GE TRANQUELL™ Surge Arresters

## Product Selection & Application Guide

### Polymer/Porcelain Station & Intermediate Class IEEE®/ANSI® C62.11

#### GE Surge Protection

The performance and reliability of today's electric power system can be enhanced with the unique characteristics of GE TRANQUELL arrester products. Since introducing the world's first metal oxide arrester in 1976, offering new concepts in surge arrester design and application, GE has developed and applied metal oxide technology for a variety of traditional and special applications. GE offers one of the most complete lines of surge arrester products in the world today; from distribution class to EHV arresters up to 612kV rating as well as high energy varistors for series capacitor applications.

Product and power systems engineers work closely to optimize product performance on the system. GE is one of the world's leading supplier of metal oxide arresters and specialty varistors.

Station Arresters are designed and manufactured in accordance with the latest revision of ANSI/IEEE C62.11. GE TRANQUELL polymer and porcelain arresters are designed to meet the most demanding service conditions.



### Product Description

TRANQUELL arresters provide exceptional overvoltage protection of major power system equipment. Under normal system conditions, the arrester appears as a high impedance path. When a surge reaches the arrester, the arrester changes to a low impedance path and conducts only the current necessary to limit the overvoltage. As a result, TRANQUELL arresters absorb minimum energy to protect equipment insulation.



# Porcelain Station Class

## Electrical Characteristics — 4 Hole NEMA - for Indoor and Outdoor Upright Mounting

ARRESTER RATINGS					MAXIMUM DISCHARGE VOLTAGE USING 8/20 CURRENT WAVE- <sup>μ</sup> V					
Arrester Catalog Number	Rated Voltage (kV)	Maximum Continuous Operating Voltage (MCOV) (kV) rms	Maximum 0.5 $\mu$ s Discharge Voltage kV <sup>(1)</sup>	Maximum Switching Surge Protective Level kV <sup>(2)</sup>	1.5kA	3kA	5kA	10kA	20kA	40kA
9L11ZGA003S	3	2.55	9.1	6.3	6.9	7.2	7.5	8	9	10.3
9L11ZGA006S	6	5.1	17.9	12.4	13.6	14.2	14.8	15.8	17.7	20.3
9L11ZGA009S	9	7.65	26.6	18.4	20.2	21.1	22	23.5	26.4	30.2
9L11ZGA010S	10	8.4	29.3	20.3	22.2	23.3	24.2	25.9	29.1	33.3
9L11ZGA012S	12	10.2	35.5	24.6	26.9	28.2	29.4	31.4	35.2	40.4
9L11ZGA015S	15	12.7	44.2	30.6	33.5	35.1	36.6	39.1	43.9	50.3
9L11ZGA018S	18	15.3	53.3	36.8	40.4	42.3	44.1	47.1	52.8	60.6
9L11ZGA021S	21	17	59.1	40.9	44.8	46.9	48.9	52.3	58.7	67.2
9L11ZGA024S	24	19.5	67.8	46.9	51.4	53.8	56.1	60	67.3	77.1
9L11ZGA027S	27	22	76.5	52.9	58	60.8	63.3	67.7	75.9	87
9L11ZGA030S	30	24.4	84.9	58.7	64.3	67.4	70.3	75.1	84.2	96.5
9L11ZGA036S	36	29	101	69.7	76.4	80	83.4	89.2	100	115
9L11ZGA039S	39	31.5	110	75.8	83	86.9	90.6	96.9	109	125
9L11ZGA045S	45	36.5	128	88.3	96.8	102	106	113	127	146
9L11ZGA048S	48	39	136	93.8	103	108	113	120	135	155
9L11ZTA054S	54	42	135	100	107	112	117	125	136	151
9L11ZTA060S	60	48	150	111	119	125	130	139	151	168
9L11ZTA072S	72	57	178	132	141	148	154	165	179	199
9L11ZTA090S	90	74	238	176	188	198	206	220	239	265
9L11ZTA096S	96	76	238	176	188	198	206	220	239	265
9L11ZXA108S	108	84	269	199	213	224	233	249	270	300
9L11ZTA108S	108	88	275	203	218	228	238	254	276	306
9L11ZTA120S	120	98	306	235	242	254	265	283	307	341
9L11ZTA132S	132	106	332	254	263	276	287	307	333	370
9L11ZTA144S	144	115	360	276	285	299	312	333	361	402
9L11ZTA168S	168	131	416	319	330	346	360	385	418	464
9L11ZTA172S	172	140	438	336	347	363	379	405	439	488
9L11ZTA180S	180	144	450	345	357	374	390	416	452	502
9L11ZTA192S	192	152	476	365	377	395	412	440	477	531
9L11ZTA228S	228	180	568	436	450	472	492	526	570	634
9L11ZTA258S	258	209	659	526	522	547	570	609	661	735
9L11ZTA264S	264	212	662	528	524	550	573	612	664	738
9L11ZTA276S	276	220	687	548	544	570	594	635	689	766
9L11ZTA288S	288	234	728	581	577	605	630	673	731	812
9L11ZTA294S	294	237	743	593	589	617	643	687	746	829
9L11ZTA300S	300	243	759	606	601	630	657	702	762	846
9L11ZTA312S	312	245	773	617	612	641	668	714	775	862
9L11ZTA336S	336	264	833	665	659	690	719	767	835	929
9L11ZTA360S	360	288	933	734	732	771	798	849	945	1053
9L11ZTA396S	396	318	1139	816	822	861	897	959	1055	--
9L11ZTA420S	420	335	1278	901	900	945	986	1058	1164	--
9L11ZTA444S	444	353	1351	953	952	999	1043	1199	1231	--
9L16GNS588S	588	470								
9L16GNS612S	612	485								
9L16GNS588S	588	470								
9L16GNS612S	612	485								

<sup>(1)</sup> Maximum discharge voltage for an impulse current wave which produces a voltage wave cresting in 0.5  $\mu$ s. Discharge currents are 10kA for 2.55 - 245kV MCOV. This can be used for coordination where front-of-wave sparkover formerly was used.

<sup>(2)</sup> Discharge voltages are based on a 500A surge of 45  $\mu$ s time to crest through 88kV MOV and 1,000A surge of 45  $\mu$ s-time to crest through 180kV MCOV and 2,000A through 245kV MCOV.

Physical Characteristics  
– 4 Hole NEMA - for Indoor and Outdoor Upright Mounting

Standard Arrester Catalog Number	Duty Cycle (kV) rms	MCOV (kV) rms	Porcelain	INSULATION WITHSTAND DISTANCE									
				Height "X"		Creepage Distance		Phase to Phase		Phase to Ground		Weight	
				Drawing	in	mm	in	mm	in	mm	in	mm	lbs
9L11ZGA003S	3	2.55	2	19.13	485.9	6.2	157.5	12	304.8	6	152.4	65	29.5
9L11ZGA006S	6	5.1	2	19.13	485.9	6.2	157.5	12	304.8	7	177.8	65	29.5
9L11ZGA009S	9	7.65	2	19.13	485.9	6.2	157.5	13	330.2	7	177.8	66	30.0
9L11ZGA010S	10	8.4	2	19.13	485.9	6.2	157.5	13	330.2	8	203.2	66	30.0
9L11ZGA012S	12	10.2	2	21.13	536.7	11.1	281.9	14	355.6	8.5	215.9	72	32.7
9L11ZGA015S	15	12.7	2	21.13	536.7	11.1	281.9	14	355.6	8.5	215.9	73	33.2
9L11ZGA018S	18	15.3	2	24.13	612.9	20	508.0	16	406.4	9	228.6	80	36.4
9L11ZGA021S	21	17	2	24.13	612.9	20	508.0	16	406.4	9	228.6	81	36.8
9L11ZGA024S	24	19.5	2	24.13	612.9	20	508.0	17	431.8	11	279.4	82	37.3
9L11ZGA027S	27	22	2	28.13	714.5	31.7	805.2	18	457.2	12	304.8	90	40.9
9L11ZGA030S	30	24.4	2	28.13	714.5	31.7	805.2	18	457.2	12	304.8	91	41.4
9L11ZGA036S	36	29	2	28.13	714.5	31.7	805.2	20	508	14	355.6	93	42.3
9L11ZGA039S	39	31.5	2	31.88	809.8	41	1041.4	21	533.4	14	355.6	105	47.7
9L11ZGA045S	45	36.5	2	31.88	809.8	41	1041.4	21	533.4	15	381	107	48.6
9L11ZGA048S	48	39	2	31.88	809.8	41	1041.4	22	558.8	15	381	109	49.5
9L11ZTA054S	54	42	3	38.13	968.5	60	1524	24	609.6	18	457.2	180	81.8
9L11ZTA060S	60	48	3	38.13	968.5	60	1524	25	635	19	482.6	185	84.1
9L11ZTA066S	66		3	44.13	1120.9	80	2032	26	660.4	20	508	220	100.0
9L11ZTA072S	72	57	3	50.63	1286.0	101	2565.4	33	838.2	27	685.8	250	113.6
9L11ZTA090S	90	70	3	50.63	1286.0	101	2565.4	35	889	29	736.6	260	118.2
9L11ZTA096S	96	76	3	50.63	1286.0	101	2565.4	37	939.8	31	787.4	265	120.5
9L11SXA108S	108	84	3	57.13	1451.1	122	3098.8	38	965.2	32	812.8	280	127.3
9L11ZTA108S	108	88	3	57.13	1451.1	122	3098.8	39	990.6	33	838.2	285	129.6
9L11ZTA120S	120	98	3	57.13	1451.1	122	3098.8	42	1066.8	36	914.4	290	131.8
9L11ZTA132S	132	106	4	76.63	1946.4	140	3556	44	1117.6	38	965.2	395	179.6
9L11ZTA144S	144	115	4	82.63	2098.8	160	4064	51	1295.4	46	1168.4	425	193.2
9L11ZTA168S	168	131	4	89.13	2263.9	181	4597.4	59	1498.6	54	1371.6	465	211.4
9L11ZTA172S	172	140	5	89.13	2263.9	181	4597.4	78	1981.2	59	1498.6	475	215.9
9L11ZTA180S	180	144	5	89.13	2263.9	181	4597.4	83	2108.2	64	1625.6	480	218.2
9L11ZTA192S	192	152	5	96.13	2441.7	202	5130.8	83	2108.2	67	1701.8	515	234.1
9L11ZTA228S	228	180	5	108.63	2759.2	244	6197.6	92	2336.8	73	1854.2	590	268.2
9L11ZTA240S	240	194	5	108.63	2759.2	244	6197.6	103	2616.2	85	2159	595	270.5
9L11ZTA258S	258	209	6	128.13	3254.5	262	6654.8	111	2819.4	92	2336.8	700	318.2
9L11ZTA264S	264	212	6	133.63	3394.2	282	7162.8	116	2946.4	96	2438.4	725	329.6
9L11ZTA276S	276	220	6	133.63	3394.2	282	7162.8	120	3048	100	2540	730	331.8
9L11ZTA288S	288	234	6	140.63	3572.0	303	7696.2	128	3251.2	106	2692.4	775	352.3
9L11ZTA294S	294	237	6	140.63	3572.0	303	7696.2	130	3302.0	110	2794.0	786	357.3
9L11ZTA300S	300	243	6	140.63	3572.0	303	7696.2	130	3302.0	110	2794.0	785	356.8
9L11ZTA312S	312	245	6	147.13	3737.1	324	8229.6	130	3302	110	2794	800	362.6
9L11ZTA336S	336	264	6	150.1	3812.5	340	8636	--	--	--	--	--	--
9L11ZTA360S	360	288	6	160.1	4067.3	366	9296.4	--	--	--	--	--	--
9L11ZTA396S	396	318	7	192.1	4879.3	425	10795	--	--	--	--	--	--
9L11ZTA420S	420	335	7	205.1	5210.3	467	11861.8	--	--	--	--	--	--
9L11ZTA444S	444	353	7	205.1	5209.54	467	11861.8	--	--	--	--	--	--
9L16GNS588S	588	470											
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