

Capacitors, Arresters and Harmonic Filters

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Web Site: www.gedigitalenergy.com

For more information on these products, visit our Web Site or order publications listed below.

Order From:

GE

Attn: Distribution Services

1601 GE Road

Bloomington, IL 61704

Phone: 309-664-1513 (Dial Comm 8*325-4513)

Fax: 309-662-9660 (Dial Comm 8*325-4511)

Reference Publications

Capacitors

GEP-974G, DEA-226	Motor and Pump Capacitors, 240 and 480 Volts
GEP-974G, DEA-226	Fixed-Low Voltage Power Factor Correction Capacitors, 240, 480 and 600 Volts
GEP-974G, DEA-226	Automatically Switched, LV Power Factor Correction Capacitors, 240, 480 and 600 Volts
GEP-974G, DEA-226	Automatically Switched Harmonic Filters, 240, 480 and 600 Volts
DEA-298	GEMATIC™ Quick Response
GEP-974G, DEA-222, DEA-226	Medium Voltage 2400-4800 Volts, Type HWT
DEA-216	High Voltage Single-Phase Capacitors, 2400-21,600 Volts
DEA-213, DEA-214	High Voltage Pole Top and Open Stack Rack Equipment
DEA-224	Protective Capacitors for AC Rotating Machines

Arresters

GED-7060A	Tranquell™ Secondary Surge Arresters and Protective Capacitor
FETA-100A	Product Selection and Application Guide

Harmonic Filters

GEH-7256	Matrix D Harmonic Filter
DET-376	GEMACTIVE Harmonic Filter
FETR-100	AC Line/Load Reactors



Capacitors, Arresters and Harmonic Filters

Line/Load Reactors

Up to 600V

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Motor Protection

Reactors help to protect motors from the high peak voltages and fast rise times (dv/dt) which can be experienced in IGBT inverter applications when the distance between the inverter and motor is long.

Harmonic Reduction

Because all standard GE Line/Load reactors are compensated for harmonics (current and frequency), they are extremely effective at reducing the amount of harmonics which are produced by a drive/inverter. Use 5% impedance, harmonic compensated reactors for best reaction of harmonic distortion.

Voltage Spike Protection

A 3% impedance reactor is very effective at protecting against damage to or nuisance tripping of AC voltage source inverters, due to voltage spikes.

Voltage spikes on the AC power lines cause elevation of the DC Bus voltage which may cause the inverter to "trip-off" and indicate an over-voltage protection condition. Use reactors to absorb these line spikes and offer protection to the rectifiers and DC Bus capacitors while minimizing nuisance tripping of the inverter.

Cabinet Product Number	NEMA 1 Enclosure Style	Type	W	H	D	Wgt (lbs.)
37GCAB8	CAB-8	Wall Mount	8	8	6	7
37GCAB13V	CAB-13V	Floor	13.22	13	13.09	31
37GCAB17V	CAB-17V	Floor	17	24	18.38	45
37GCAB26C	CAB-26C	Floor	17.54	31	20.90	180

Outline Dimensions

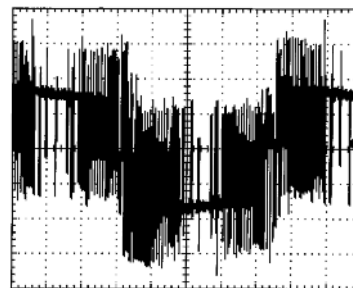
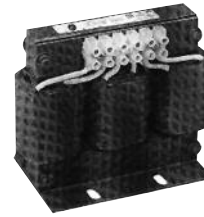
Exact terminal configuration may be different than shown. For exact terminal configuration contact factory for outline drawing.

Agency Approvals

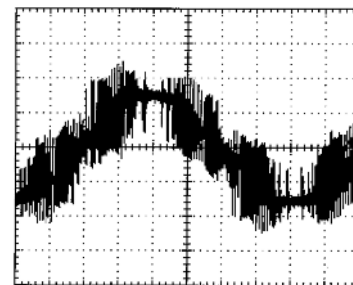
- GE line reactors are UL recognized.
- All UL approvals are for USA and Canada.
- UL-506 File #E191687 (1 amp-1200 amps)
- UL-508 File #E191686 (1 amp-1200 amps)
- All higher currents offer UL recognized insulation systems and construction.
- CE Marked

NEMA 1 Cabinets

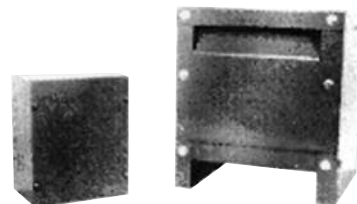
All GE Line/Load Reactors are available as either open type or in a NEMA Type 1 general purpose enclosure. To order a reactor mounted in a cabinet simply change the second to last digit of the product number from "0" to "1". Example 37G 00802 becomes 37G 00812.



Typical Harmonic Distortion
of PWM Inverter Without Reactor



With 5% Impedance Reactor



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Line/Load Reactors

Up to 600V

Section 24

Selection Table* 600 Volts, 50/60 Hertz (open Type)

Ratings	HP/kw	1/7.5	1.5/1.1	2/1.5	3/2.2	5/3.7	7.5/5.5	10/7.5	15/11	20/15	25/18.5	30/22	40/30
208 Volts	3% Impedance	37G 00401	37G 00801	37G 00801	37G 01201	37G 01801	37G 02501	37G 03501	37G 04501	37G 05501	37G 08001	37G 10001	37G 13001
	5% Impedance	37G 00402	37G 00802	37G 00802	37G 01202	37G 01802	37G 02502	37G 03502	37G 04502	37G 05502	37G 08002	37G 10002	37G 13002
240 Volts	3% Impedance	37G 00401	37G 00801	37G 00801	37G 01201	37G 01801	37G 02501	37G 03501	37G 04501	37G 05501	37G 08001	37G 08001	37G 10001
	5% Impedance	37G 00402	37G 00802	37G 00802	37G 01202	37G 01802	37G 02502	37G 03502	37G 04502	37G 05502	37G 08002	37G 08802	37G 10002
380 Volts	2% Impedance	37G 00204	37G 00402	37G 00401	37G 00802	37G 00801	37G 01201	37G 01801	37G 02501	37G 03501	37G 04501	37G 04501	37G 08001
	4% Impedance	37G 00201	37G 00404	37G 00402	37G 00803	37G 00802	37G 01202	37G 01802	37G 02502	37G 03502	37G 04502	37G 04502	37G 08002
400 Volts	2% Impedance	37G 00201	37G 00402	37G 00402	37G 00802	37G 00801	37G 01201	37G 01801	37G 02501	37G 03501	37G 04501	37G 04501	37G 05501
	4% Impedance	37G 00202	37G 00404	37G 00403	37G 00803	37G 00802	37G 01202	37G 01802	37G 02502	37G 03502	37G 04502	37G 04502	37G 05502
415 Volts	2% Impedance	37G 00201	37G 00402	37G 00402	37G 00802	37G 00801	37G 01201	37G 01801	37G 02501	37G 03501	37G 04501	37G 04501	37G 05501
	4% Impedance	37G 00202	37G 00404	37G 00403	37G 00803	37G 00802	37G 01202	37G 01802	37G 02502	37G 03502	37G 04502	37G 04502	37G 05502
480 Volts	3% Impedance	37G 00201	37G 00201	37G 00402	37G 00402	37G 00802	37G 01202	37G 01802	37G 02502	37G 03502	37G 03502	37G 04502	37G 05502
	5% Impedance	37G 00202	37G 00202	37G 00403	37G 00403	37G 00803	37G 01203	37G 01803	37G 02503	37G 03503	37G 03503	37G 04503	37G 05503
600 Volts	3% Impedance	37G 00202	37G 00202	37G 00403	37G 00403	37G 00803	37G 00802	37G 01202	37G 01802	37G 02502	37G 02502	37G 03502	37G 04502
	5% Impedance	37G 00203	37G 00203	37G 00404	37G 00404	37G 00804	37G 00803	37G 01203	37G 01803	37G 02503	37G 02503	37G 03503	37G 04503

*For maximum continuous current ratings refer to Specifications on next page.

Ratings	HP/kw	50/37.5	60/45	75/55	100/75	125/93	150/112	200/150	250/187	300/225	350/262	400/300	500/375	600/450	750/550
208 Volts	3% Impedance	37G 16001	37G 20001B14	37G 25001B14	37G 32001B14	37G 40001B14	37G 50001	37G 60001	37G 75001						
	5% Impedance	37G 16002	37G 20002B14	37G 25002B14	37G 32002B14	37G 40002B14	37G 50002	37G 60002	37G 75002						
240 Volts	3% Impedance	37G 13001	37G 16001	37G 20001B14	37G 25001B14	37G 32001B14	37G 40001B14	37G 50001	37G 60001	37G 75001					
	5% Impedance	37G 13002	37G 16002	37G 20002B14	37G 25002B14	37G 32002B14	37G 40002B14	37G 50002	37G 60002	37G 75002					
380 Volts	2% Impedance	37G 08001	37G 10001	37G 10001	37G 16001	37G 20001B14	37G 25001B14	37G 32002B14	37G 40001B14	37G 40001B14	37G 50001	37G 60001	37G 75002		
	4% Impedance	37G 08002	37G 10002	37G 10002	37G 16002	37G 20002B14	37G 25002B14	37G 32003B14	37G 40002B14	37G 40002B14	37G 50002	37G 60002	37G 75003		
400 Volts	2% Impedance	37G 08001	37G 08001	37G 10001	37G 13001	37G 20002B14	37G 25002B14	37G 32002B14	37G 32001B14	37G 40001B14	37G 50001	37G 50002	37G 75002		
	4% Impedance	37G 08002	37G 08002	37G 10002	37G 13002	37G 20003B14	37G 25003B14	37G 32003B14	37G 32002B14	37G 40002B14	37G 50002	37G 60003	37G 75003		
415 Volts	2% Impedance	37G 08001	37G 08001	37G 10001	37G 13001	37G 20002B14	37G 20002B14	37G 25001B14	37G 32001B14	37G 40001B14	37G 50001	37G 50001	37G 75002	37G 75002	
	4% Impedance	37G 08002	37G 08002	37G 10002	37G 13002	37G 20003B14	37G 20003B14	37G 25002B14	37G 32002B14	37G 40002B14	37G 50002	37G 50002	37G 75003	37G 75003	
480 Volts	3% Impedance	37G 08002	37G 08002	37G 10002	37G 13002	37G 16002	37G 20002B14	37G 25002B14	37G 32002B14	37G 40002B14	37G 50002	37G 50002	37G 60002	37G 75002	
	5% Impedance	37G 08003	37G 08003	37G 10003	37G 13003	37G 16003	37G 20003B14	37G 25003B14	37G 32003B14	37G 40003B14	37G 50003	37G 50003	37G 60003	37G 75003	
600 Volts	3% Impedance	37G 05502	37G 08002	37G 08002	37G 10002	37G 13002	37G 16002	37G 20002B14	37G 25002B14	37G 32002B14	37G 40002B14	37G 40002B14	37G 50002	37G 60002	37G 75002
	5% Impedance	37G 05503	37G 08003	37G 08003	37G 10003	37G 13003	37G 16003	37G 20003B14	37G 25003B14	37G 32003B14	37G 40003B14	37G 40003B14	37G 50003	37G 60003	37G 75003

Consult Factory

For Input or Output of Adjustable Speed Drive/Inverter Systems

*For higher or lower current ratings, consult factory.

*For other voltages or frequencies, consult factory. Single phase reactors are also available, consult factory for proper selection.

This table is suitable for selection of both input and output reactors because their harmonic compensation and IGBT protection allow them to be used in either application. Specific current and inductance ratings are indicated on next page. Consult factory for any special applications (higher current, motor rating different than controller rating, etc.)

Select GE Line/Load reactors based upon motor horsepower, (or kilowatts) and voltage. Verify that the motor full load ampere rating is within the fundamental current rating of the reactor, and the drive/inverter rating is within the maximum continuous rating of the reactor (See next page).

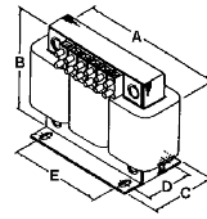


Capacitors, Arresters and Harmonic Filters

Line/Load Reactors

3-Phase Reactors: Line/Load Specifications Table

Section 24



600 Volts, 50/60 hz (Open Type)

Open Type Product Number	Fundamental Amps	Max. Amps	Inductance	Watts Loss	A mm/in.	B mm/in.	C mm/in.	D mm/in.	E mm/in.	Open Type Wgt. Kg/Lbs.	NEMA 1 Enclosure Style
37G00201	2	3	12.0mh	7.5	112/4.4	102/4.0	74/2.8	50/2.0	36/1.44	1.8/4	CAB-8
37G00202	2	3	20.0mh	11.3	112/4.4	102/4.0	74/2.9	50/2.0	36/1.44	1.8/4	CAB-8
37G00203	2	3	32.0mh	16	112/4.4	102/4.0	74/2.9	50/2.0	36/1.44	1.8/4	CAB-8
37G00204	2	3	6.0mh	10.7	112/4.4	102/4.0	69/2.7	44/1.73	36/1.44	1.4/3	CAB-8
37G00401	4	6	3.0mh	14.5	112/4.4	102/4.0	74/2.9	50/2.0	36/1.44	1.8/4	CAB-8
37G00402	4	6	6.5mh	20	112/4.4	102/4.0	74/2.9	50/2.0	36/1.44	2.3/4	CAB-8
37G00403	4	6	9.0mh	20	112/4.4	102/4.0	79/3.1	54/2.1	36/1.44	1.8/5	CAB-8
37G00404	4	6	12.0mh	21	112/4.4	102/4.0	91/3.6	66/2.6	36/1.44	2.7/6	CAB-8
37G00801	8	12	1.5mh	19.5	152/6.0	122/4.8	79/3.1	54/2.1	50/2.0	3.1/7	CAB-8
37G00802	8	12	3.0mh	29	152/6.0	122/4.8	79/3.1	54/2.1	50/2.0	3.2/8	CAB-8
37G00803	8	12	5.0mh	25.3	152/6.0	122/4.8	86/3.4	63/2.5	50/2.0	5.0/11	CAB-8
37G00804	8	12	7.5mh	28	152/6.0	122/4.8	86/3.4	63/2.5	50/2.0	5.9/13	CAB-8
37G01201	12	18	1.25mh	26	152/6.0	122/4.8	79/3.1	54/2.1	50/2.0	4.0/9	CAB-8
37G01202	12	18	2.5mh	31	152/6.0	122/4.8	79/3.1	54/2.1	50/2.0	4.5/10	CAB-8
37G01203	12	18	4.2mh	41	152/6.0	122/4.8	94/3.7	70/2.75	50/2.0	8.1/18	CAB-8
37G01801	18	27	0.8mh	36	152/6.0	122/4.8	79/3.1	54/2.1	50/2.0	4.0/9	CAB-8
37G01802	18	27	1.5mh	43	152/6.0	122/4.8	86/3.4	53/2.5	50/2.0	5.4/12	CAB-8
37G01803	18	27	2.5mh	43	183/7.2	145/5.7	97/3.8	66/2.6	76/3.0	7.3/16	CAB-13V
37G02501	25	37.5	0.5mh	48	183/7.2	142/5.6	86/3.4	60/2.3	76/3.0	5.0/11	CAB-13V
37G02502	25	37.5	1.2mh	52	183/7.2	142/5.6	86/3.4	60/2.3	76/3.0	6.3/14	CAB-13V
37G02503	25	37.5	0.8mh	61	183/7.2	145/5.7	97/3.8	66/2.6	76/3.0	8.1/18	CAB-13V
37G03501	35	52.5	0.4mh	49	183/7.2	142/5.6	97/3.8	66/2.6	76/3.0	6.3/14	CAB-13V
37G03502	35	52.5	0.8mh	54	183/7.2	145/5.7	97/3.8	66/2.6	76/3.0	7.3/16	CAB-13V
37G03503	35	52.5	1.2mh	54	229/9.0	178/7.0	122/4.8	80/3.2	76/3.0	14/30	CAB-13V
37G04501	45	67.5	0.3mh	54	229/9.0	178/7.0	122/4.8	80/3.2	76/3.0	10/23	CAB-13V
37G04502	45	67.5	0.7mh	62	229/9.0	178/7.0	122/4.8	80/3.2	76/3.0	13/28	CAB-13V
37G04503	45	67.5	1.2mh	65	229/9.0	178/7.0	136/5.3	93/3.6	76/3.0	18/39	CAB-13V
37G05501	55	82.5	0.26mh	64	229/9.0	178/7.0	122/4.8	80/3.2	76/3.0	11/24	CAB-13V
37G05502	55	82.5	0.50mh	67	229/9.0	178/7.0	122/4.8	80/3.2	76/3.0	12/27	CAB-13V
37G05503	55	82.5	0.85mh	71	229/9.0	178/7.0	142/5.6	99/3.9	76/3.0	18/41	CAB-13V
37G08001	80	120	0.20mh	82	274/10.8	208/8.2	142/5.6	88/3.5	92/3.6	19/43	CAB-13V
37G08002	80	120	0.40mh	86	274/10.8	211/8.3	142/5.6	88/3.5	92/3.6	23/51	CAB-13V
37G08003	80	120	0.70mh	96	274/10.8	213/8.4	160/6.3	117/4.6	82/3.6	25/55	CAB-13V

*To order a reactor mounted in NEMA 1 enclosure simply change the second to last digit of the product number from "0" to "1".



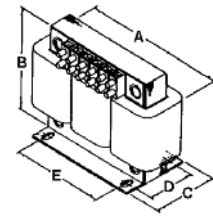
For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Line/Load Reactors

3-Phase Reactors: Line/Load Specifications Table

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600 Volts, 50/60 hz (Open Type)

Open Type Product Number	Fundamental Amps	Max. Amps	Inductance	Watts Loss	A mm/in.	B mm/in.	C mm/in.	D mm/in.	E mm/in.	Open Type Wgt. Kg/Lbs.	NEMA Enclosure Style
37G10001	100	150	0.15mh	94	274/10.8	211/8.3	142/5.6	88/3.5	92/3.6	21/47	CAB-13V
37G10002	100	150	0.30mh	84	274/10.8	208/8.2	147/5.8	93/3.6	92/3.6	23/51	CAB-13V
37G10003	100	150	0.45mh	108	274/10.8	213/8.4	160/6.3	106/4.2	92/3.6	33/74	CAB-13V
37G13001	130	195	0.10mh	108	229/9.0	179/7.04	124/4.9	80/3.16	76/3	13/29	CAB-13V
37G13002	130	195	0.20mh	180	274/10.8	213/8.4	171/6.75	93/3.66	92/3.63	26/57	CAB-13V
37G13003	130	195	0.30mh	128	274/10.8	213/8.4	184/7.25	106/4.16	92/3.63	29/64	CAB-13V
37G16001	160	240	0.075mh	116	274/10.8	213/8.4	146/5.75	80/3.16	92/3.63	18/40	CAB-13V
37G16002	160	240	0.150mh	149	274/10.8	213/8.4	152/6	88/3.47	92/3.63	22/50	CAB-13V
37G16003	160	240	0.230mh	138	274/10.8	213/8.4	181/7.13	106/4.16	92/3.63	31/67	CAB-13V
37G20001B14	200	300	0.055mh	124	274/10.8	213/8.4	152/6	106/4.16	92/3.63	22/48	CAB-13V
37G20002B14	200	300	0.110mh	168	274/10.8	213/8.4	216/8.5	112/4.41	92/3.63	31/67	CAB-13V
37G20003B14	200	300	0.185mh	146	274/10.8	267/10.5	237/9.35	150/5.91	92/3.63	46/100	CAB-13V
37G25001B14	250	375	0.045mh	154	274/10.8	208/8.17	184/7.25	106/4.16	92/3.63	31/68	CAB-13V
37G25002B14	250	375	0.090mh	231	366/14.4	356/14	210/8.25	131/5.16	117/4.6	49/106	CAB-17V
37G25003B14	250	375	0.150mh	219	366/14.4	356/14	288/11.35	148/5.82	117/4.6	64/140	CAB-17V
37G32001B14	320	480	0.040mh	224	366/14.4	356/14	168/6.6	129/5.07	117/4.6	50/110	CAB-17V
37G32002B14	320	480	0.075mh	264	375/14.75	356/14	257/10.13	149/5.88	117/4.6	57/125	CAB-17V
37G32003B14	320	480	0.125mh	351	366/14.4	356/14	330/13	181/7.13	117/4.6	86/190	CAB-17V
37G40001B14	400	600	0.030mh	231	366/14.4	356/14	254/10	131/5.16	117/4.6	46/100	CAB-17V
37G40002B14	400	600	0.060mh	333	394/15.5	356/14	292/11.5	172/6.76	117/4.6	71/155	CAB-17V
37G40003B14	400	600	0.105mh	293	394/15.5	356/14	368/14.5	184/7.26	117/4.6	91/200	CAB-17V
37G50001B14	500	750	0.025mh	266	394/15.5	356/14	267/10.5	140/5.5	117/4.6	55/120	CAB-17V
37G50002	500	750	0.050mh	340	394/15.5	356/14	330/13	172/6.76	117/4.6	82/180	CAB-1726C
37G50003	500	700	0.085mh	422	394/15.5	356/14	375/14.75	248/9.76	117/4.6	132/290	CAB-1726C
37G60001	600	900	0.020mh	307	394/15.5	356/14	279/11	168/6.66	117/4.6	73/160	CAB-1726C
37G60002	600	900	0.040mh	414	394/15.5	356/14	356/14	172/6.76	117/4.6	96/210	CAB-1726C
37G60003	600	840	0.065mh	406	394/15.5	356/14	394/15.5	235/9.26	117/4.6	132/290	CAB-1726C
37G75001	750	1125	0.015mh	427	559/22	508/20	254/10	168/6.63	183/7.2	91/200	CAB-30B26C
37G75002	750	1125	0.029mh	630	559/22	508/20	317/12.5	197/7.76	183/7.2	141/310	CAB-30B26C
37G75003	750	1125	0.048mh	552	559/22	508/20	376/14.8	242/9.51	183/7.2	183/400	CAB-30B26C

*To order a reactor mounted in NEMA 1 enclosure simply change the second to last digit of the product number from "0" to "1".



Matrix Harmonic filters provide broadband reduction of harmonics. Matrix Harmonic Filters not only offer better performance over other broad band filtering and 18-pulse harmonic reduction techniques, they are also suitable for a wider range of applications. Matrix Harmonic Filters can be installed in either variable or constant torque drive applications and can be applied on either diode or SCR rectifiers. For any application other than variable torque applications, it is suggested that you contact the factory for filter selection.

Typical Applications

Use Matrix Harmonic filters to minimize harmonic current distortion in these and other 6-pulse rectifier applications:

- Fans and Pumps
- Water Treatment Facilities
- HVAC Systems
- AC or DC Motor Drives
- Rectifier type welders
- Induction Heating Equipment
- UPS Equipment
- Elevators

Matrix Filter enables most AC drive systems to comply with the voltage and current distortion limits outlined in IEEE 519. A complete harmonic analysis and product selection tool is available on the internet. Go to geelectrical.com and select Products, select Capacitors, choose Matrix Harmonic Filter and then select Energy Savings Calculator and Harmonic Estimator.

Matrix Harmonic Filters are multi-stage low pass filters specially configured to avoid the attraction of harmonics from other sources on a shared power system. Matrix filters will not cause power system resonance. However, the configuration of the filter requires that only drives or equivalent loads be loaded on the output of a Matrix harmonic filter. One filter can be used with multiple drives. However, if there is a drive bypass circuit, there must be one filter per drive and the filter and drive combination must be bypassed.

Matrix Harmonic Filters are available in a NEMA 1, NEMA 3R or as a modular design preassembled onto panels for subsequent assembly into customer supplied cabinet.

Product Specifications

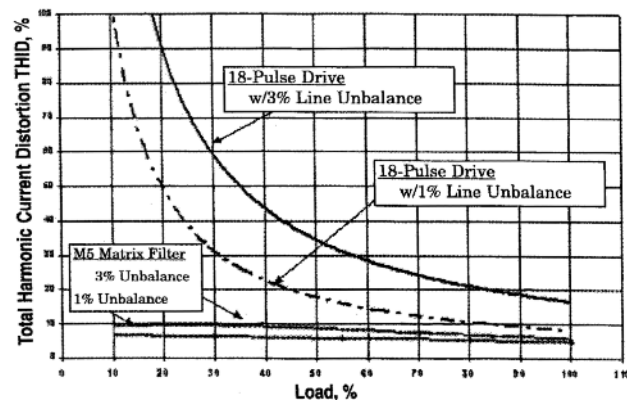
- Input Voltage 480 Volts +/- 10%
- Ambient Temperature:
 - Storage – 40°C to 90°C
 - Operating – 40°C to 40°C
- Altitude: 1000 meters maximum
- UL approved – File E191686 for U.S. and Canada

Minimum System Requirements to Achieve Performance Levels

- Source Impedance: 1.5% minimum to 5% maximum
- System voltage: 480 volts (line to line) +/- 10%
- Frequency: 60 Hz +/- .75 Hz
- Balanced Line Voltage: within 1%
- Background Voltage Distortion: 0% THVD

The Matrix D Filters typically achieve 5% THID at full load and guarantee worst case current distortion at any load between 0% and 100%, will be 8% THID or less at the filter input terminals. The Matrix D Series is typically used in place of applications requiring harmonic mitigation associated with 12- or 18-pulse rectifiers. The chart below compares the performance of Matrix D Filters to 18-pulse rectifiers in real world applications, which include line voltage unbalance of 1% to 3% and loading conditions from 0% to 100%.

Matrix D Filter performs better than 18-pulse in normal operating conditions.



Matrix D vs. 18-pulse



Selection Table

Matrix D, 480 VAC, 60 HZ, Three Phase, Variable Torque

Applications

Select Matrix filters based on the horsepower (or kilowatt) rating for the adjustable speed drive or the combined current rating of all motors to be connected to the load side of the filter. For constant torque, DC drive or other applications consult factory for proper filter selection.

Source Impedance

If the source impedance is less than 1.5% impedance, it is required that an input reactor of at least 1.5% impedance be added in order to have guaranteed performance level. For best value and performance it is recommended that a 3% line reactor be used whenever the source impedance is less than 1.5%.

General Purpose Enclosure Style

480 Volts, 60 Hz

Amps	HP	NEMA 1 & NEMA 2 Drip Proof	Enclosure	Wt. (Lbs.)	NEMA 3R Weather Resistant	Enclosure	Wt. (Lbs.)	Figure
6	3	37GMDG0006D	CAB-12C2	76	37GMDW0006D	CAB-12C3	86	Figure 1
8	5	37GMDG0008D	CAB-12C2	79	37GMDW0008D	CAB-12C3	89	Figure 1
11	7.5	37GMDG0011D	CAB-12C2	83	37GMDW0011D	CAB-12C3	93	Figure 1
14	10	37GMDG0014D	CAB-12C2	89	37GMDW0014D	CAB-12C3	99	Figure 1
21	15	37GMDG0021D	CAB-12C2	100	37GMDW0021D	CAB-12C3	110	Figure 1
27	20	37GMDG0027D	CAB-12C2	115	37GMDW0027D	CAB-12C3	125	Figure 1
34	25	37GMDG0034D	CAB-12C2	126	37GMDW0034D	CAB-12C3	136	Figure 1
44	30	37GMDG0044D	CAB-12C2	138	37GMDW0044D	CAB-12C3	148	Figure 1
52	40	37GMDG0052D	CAB-17C2	190	37GMDW0052D	CAB-17C3	199	Figure 2
66	50	37GMDG0066D	CAB-17C2	219	37GMDW0066D	CAB-17C3	228	Figure 2
83	60	37GMDG0083D	CAB-17C2	241	37GMDW0083D	CAB-17C3	250	Figure 2
103	75	37GMDG0103D	CAB-17C2	244	37GMDW0103D	CAB-17C3	253	Figure 2
128	100	37GMDG0128D	CAB-26C2	385	37GMDW0128D	CAB-26C3	406	Figure 3
165	125	37GMDG0165D	CAB-26C2	441	37GMDW0165D	CAB-26C3	462	Figure 3
208	150	37GMDG0208D	CAB-26C2	461	37GMDW0208D	CAB-26C3	482	Figure 3
240	200	37GMDG0240D	CAB-26C2	467	37GMDW0240D	CAB-26C3	488	Figure 3
320	250	37GMDG0320D	CAB-26D2	663	37GMDW0320D	CAB-26D3	794	Figure 4
403	300	37GMDG0403D	CAB-26D2	706	37GMDW0403D	CAB-26D3	838	Figure 4
482	400	37GMDG0482D	CAB-26D2	800	37GMDW0482D	CAB-26D3	931	Figure 4
636	500	37GMDG0636D	CAB-30D2	1205	37GMDW0636D	CAB-30D3	1247	Figure 5
786	600	37GMDG0786D	CAB-30D2	1416	37GMDW0786D	CAB-30D3	1458	Figure 5

480 Volts, 60 Hz

Amps	HP	Open Panel	Weight (Lbs.)	HMR Size (in.)	Capacitor Assemblies Size (in.)
6	3	37GMDP0006D	22	11.3"H x 6"W x 6.2"D	4.8"H x 4.8"W x 7.3"D
8	5	37GMDP0008D	24	11.3"H x 6"W x 6.3"D	4.8"H x 4.8"W x 7.3"D
11	7.5	37GMDP0011D	29	12.4"H x 7.2"W x 5.7"D	4.8"H x 4.8"W x 8.2"D
14	10	37GMDP0014D	35	12.4"H x 7.3"W x 6.3"D	4.8"H x 4.8"W x 8.2"D
21	15	37GMDP0021D	46	15.8"H x 9"W x 6.5"D	5.6"H x 5.6"W x 7.3"D
27	20	37GMDP0027D	61	15.8"H x 9"W x 7"D	5.6"H x 5.6"W x 8.2"D
34	25	37GMDP0034D	72	15.8"H x 9"W x 7.5"D	5.6"H x 5.6"W x 8.7"D
44	30	37GMDP0044D	84	15.8"H x 9"W x 8"D	5.6"H x 5.6"W x 7.3"D
52	40	37GMDP0052D	125	16.5"H x 12.3"W x 9.6"D	5.6"H x 5.6"W x 7.3"D
66	50	37GMDP0066D	154	16.5"H x 12.3"W x 10.7"D	8"H x 7.3"W x 12"D
83	60	37GMDP0083D	176	16.5"H x 12.3"W x 11.3"D	8"H x 7.3"W x 12"D
103	75	37GMDP0103D	180	16.5"H x 12.3"W x 11"D	8"H x 7.3"W x 12"D
128	100	37GMDP0128D	217	23"H x 15.3"W x 11.3"D	12"H x 7.3"W x 12"D
165	125	37GMDP0165D	273	23"H x 15.3"W x 11.5"D	12"H x 7.3"W x 12"D
208	150	37GMDP0208D	292	23"H x 15.3"W x 12"D	15"H x 7.3"W x 12"D
240	200	37GMDP0240D	298	23"H x 15.3"W x 12.4"D	15"H x 7.3"W x 12"D
320	250	37GMDP0320D	464	35.5"H x 18"W x 20.2"D	15"H x 7.3"W x 12"D
403	300	37GMDP0403D	508	35.5"H x 18"W x 22.5"D	12"H x 7.3"W x 12"D
482	400	37GMDP0482D	602	35.5"H x 18"W x 23"D	15"H x 7.3"W x 12"D
636	500	37GMDP0636D	873	35.5"H x 24"W x 23.5"D	12"H x 8.1"W x 12"D
786	600	37GMDP0786D	1082	35.5"H x 24"W x 24"D	15"H x 7.3"W x 12"D
					15"H x 7.3"W x 12"D
					15"H x 7.3"W x 12"D
					5.6"H x 5.6"W x 7.3"D



Capacitors, Arresters and Harmonic Filters

Matrix Series D Harmonic Filters

Outlines and Dimensions

Section 24

CAB-12C, 6-44 Amps

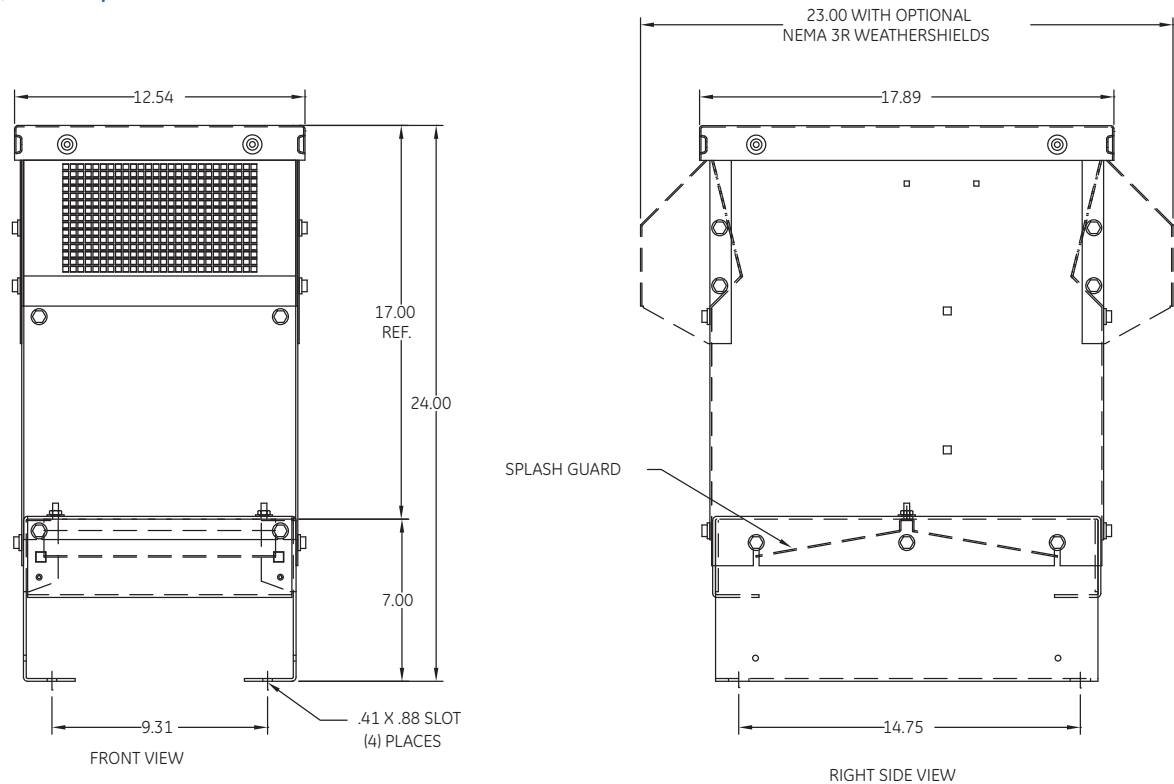


Figure 1 6-44 Amps

CAB-17C, 52-103 Amps

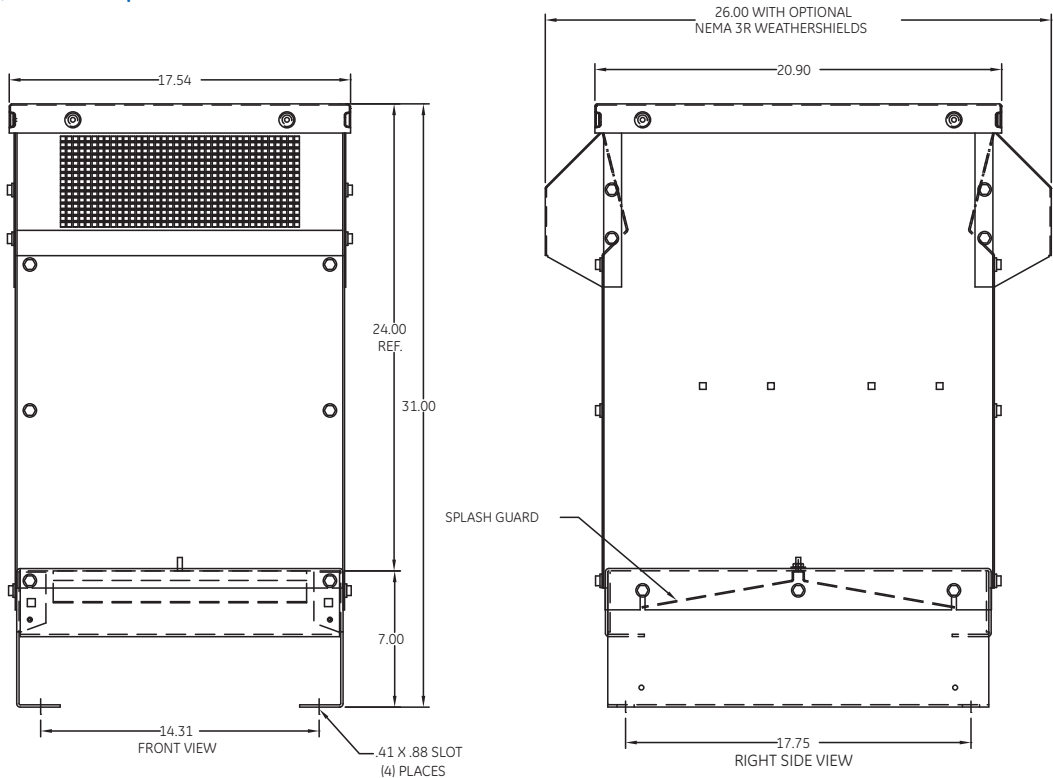


Figure 2 52-103 Amps



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Matrix Series D Harmonic Filters

Outlines and Dimensions

Section 24

CAB-26C, 128-240 Amps

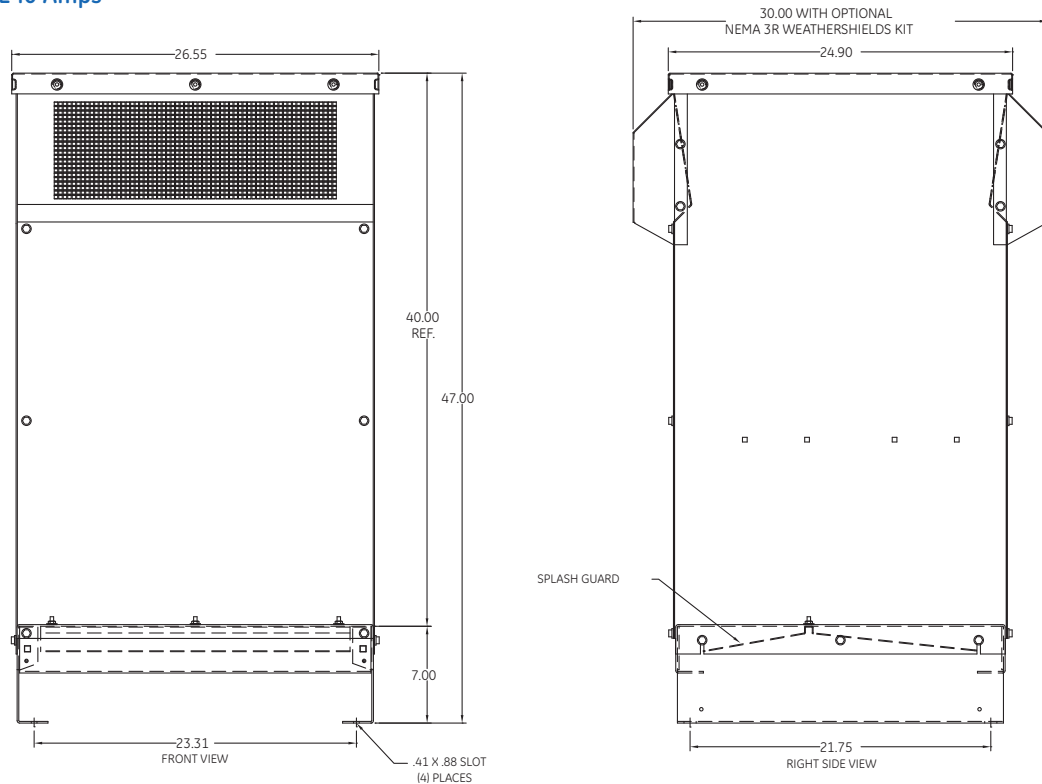


Figure 3 128-240 Amps

CAB-26D, 320-482 Amps

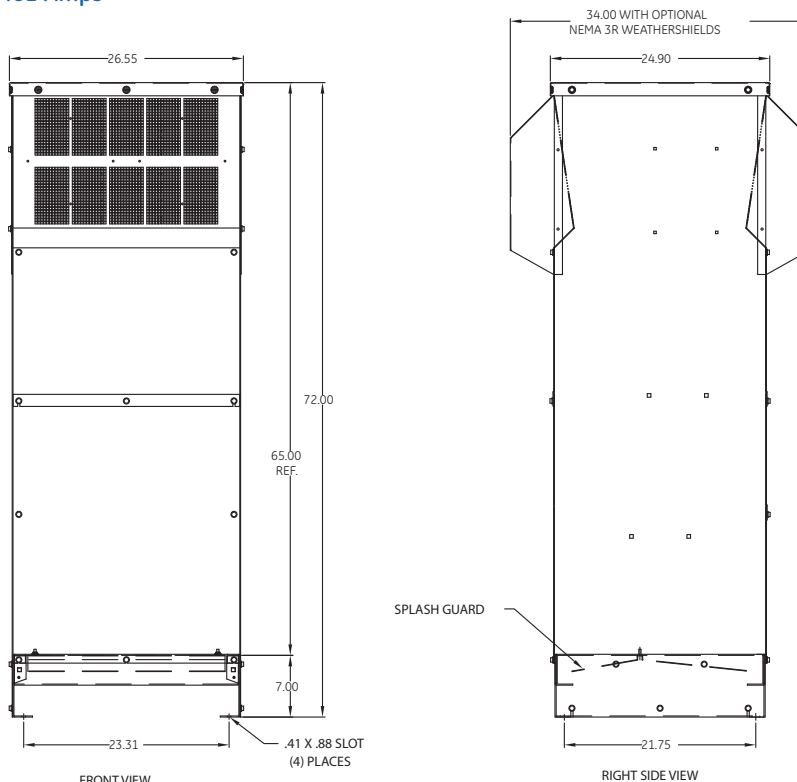


Figure 4 320-482 Amps



CAB-30D, 636-786 Amps

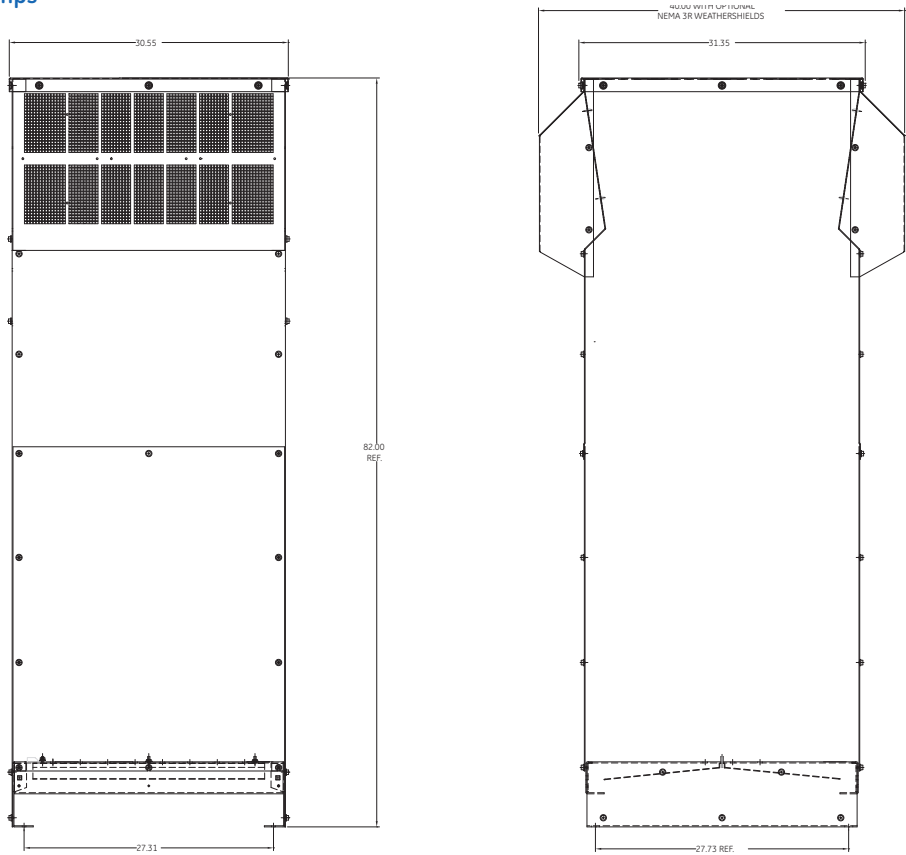


Figure 5 636-786 Amps



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Protective Capacitors for AC Rotating Machines

Surge Protection for AC Generators, Synchronous Condensers and Large Motors

Section 24

Protective capacitors offer surge protection for AC generators, synchronous condensers and large motors.

Dielektrol™ is the GE non-PCB power capacitor dielectric system, developed to provide an environmentally acceptable product with superior performance and reliability.

Protective capacitors contain a film dielectric and hermetically sealed bushings, which permit mounting of capacitors in an upright position or on the side. GE Surge Capacitors protect the winding insulation by reducing the steepness of wave fronts applied to or reflected within the machine windings.

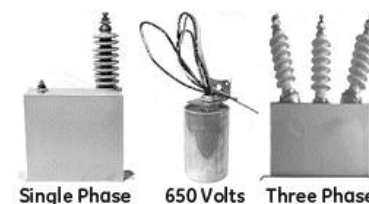
Features and Benefits

- Surge protection for AC Generators, synchronous condensers and large motors
- Time proven GE HAZY film foil dielectric system
- Dielektrol™ Non-PCB insulating fluid
- Provides Turn-to-Turn insulation protection by reducing steepness of wave fronts applied to or reflected within the machine
- Used in combination with Tranquell™ station arresters for optimum protection
- Protective capacitors contain a film dielectric and hermetically sealed bushings, which permit mounting of capacitors in an upright position or on the side.
- Altitude: 0 to 15,000 feet with proper derating

Dielektrol™ Non-PCB Dielectric Protective Capacitors with Internal Discharge Resistors—Indoor or Outdoor Mounting

Voltage Rating rms Volts L-L	Maximum Voltage rms Volts L-L	Product Number 50/60 HZ	Poles per Unit	Microfarads per Pole	Approx. Net Weight	
					Lb	Kg
0-650	715	9L18BBB301	3	1.0	4	1.8
2400	2640	18L0015WH	3	0.5	36	16.5
4160	4576	18L0015WH	3	0.5	36	16.5
6900	7590	18L0019WH	1	0.5	29	13
7200	7960	18L0065WH	3	0.5	35	16
13800	15180	18L0009WH	1	0.25	33	15
13800	15180	18L0012WH	3	0.25	66	30
24000	26400	18L0010WH	1	0.125	57	26
24940	—	18L0070WH	1	0.25	75	34
750*	—	18L0004WH	1	4	112	5.5
3900*	—	18L0005WH	1	4	446	20.9
13800	15180	18L0051WH	1	0.5	49	22.3
13800	15180	18L0060WH	1	0.25	32	14.5
6900	7590	18L0061WH	1	0.5	30	13.6
4160	4576	18L0062WH	3	0.5	36	16.4

*18L0004WH and 18L0005WH are rated for DC Applications



Protective Capacitors

For other mounting arrangements contact the factory. 2400 and 4160 volt designs are identical and use the same product number. All units are provided with CSA labels.

Units are not intended for upside down mounting except for product numbers **18L0060WH, 18L0061WH, and 18L0062WH**. Contact factory for up-to-date Capacitor Outline Drawings.



Capacitors, Arresters and Harmonic Filters

Protective Capacitors for AC Rotating Machines

Surge Protection for AC Generators, Synchronous Condensers and Large Motors

Section 24

Protective Capacitors for AC Rotating Machines Guide for Superseded Models

Superseded Model Number	Present Model Number	Capacitor Voltage Rating	# Poles	Superseded Model Number	Present Model Number	Capacitor Voltage Rating	# Poles	Superseded Model Number	Present Model Number	Capacitor Voltage Rating	# Poles
18F107	18L0015WH	4160	3	18L15WH	18L0015WH	2400	3	9L18BCG301	18L0015WH	4160	3
18F107G3	18L0019WH	4160	1	18L19RH	18L0019WH	6900	1	9L18BCG302	18L0065WH	7200	3
18F26	18L0019WH	2400	1	18L19UH	18L0019WH	6900	1	9L18BCJ101	18L0019WH	6900	1
18F26G2	18L0019WH	2400	1	18L19WH	18L0019WH	6900	1	9L18BCL101	18L0009WH	13800	1
18F27	Discontinued	2400	2	18L65UH	18L0065WH	7200	3	9L18BCM101	18L0010WH	24000	1
18F270G2	18L0010WH	24000	1	18L65WH	18L0065WH	7200	3	9L18CCE301	18L0015WH	2400	3
18F27G2	Discontinued	2400	2	18L6RH2	18L0015WH	2400	3	9L18CCG301	18L0015WH	4160	3
18F28	18L0015WH	2400	3	18L9RH	18L0009WH	13800	1	9L18CCG302	18L0065WH	7200	3
18F29	18L0019WH	4800	1	18L9UH	18L0009WH	13800	1	9L18CCJ101	18L0019WH	6900	1
18F29G2	18L0019WH	4800	1	18L9WH	18L0009WH	13800	1	9L18CCJ301	18L0015WH	6900	3
18F30	18L0019WH	6900	1	9CL1B20	18L0015WH	2400	3	9L18CCL101	18L0009WH	13800	1
18F30G2	18L0019WH	6900	1	9CL1B22	18L0019WH	4800	1	9L18CCM101	18L0010WH	24000	1
18F35	Discontinued	11500	1	9CL1B23	18L0019WH	6900	1	9L18DCE301	18L0015WH	2400	3
18F35G2	Discontinued	11500	1	9CL1B24	Discontinued	11500	1	9L18DCG301	18L0015WH	4160	3
18F451	18L0009WH	13800	1	9CL1B25	18L0009WH	13800	1	9L18DCG302	18L0065WH	7200	3
18F451G5	18L0009WH	13800	1	9L18ACE101	18L0019WH	2400	1	9L18DCJ101	18L0019WH	6900	1
18F467	18L0010WH	24000	1	9L18ACE201	Discontinued	2400	2	9L18DCL101	18L0009WH	13800	1
18F58	18L0015WH	4160	3	9L18ACE301	18L0015WH	2400	3	9L18DCM101	18L0010WH	24000	1
18F585	18L0015WH	2400	3	9L18ACG101	18L0019WH	4160	1	9L18DCM102	18L0010WH	24000	1
18F586	18L0015WH	4160	3	9L18ACG301	18L0015WH	4160	3	9L18ECE301	18L0015WH	2400	3
18F59	18L0009WH	13800	1	9L18ACH101	18L0019WH	4800	1	9L18ECG301	18L0015WH	4160	3
18L10RH	18L0010WH	24000	1	9L18ACH301	Discontinued	4800	3	9L18ECG302	18L0065WH	7200	3
18L10WH	18L0010WH	24000	1	9L18ACJ101	18L0019WH	6900	1	9L18ECJ101	18L0019WH	6900	1
18L15RH2	18L0015WH	4160	3	9L18ACK101	Discontinued	11500	1	9L18FCG301	18L0015WH	4160	3
18L15RJ2	18L0065WH	7200	3	9L18ACL101	18L0009WH	13800	1	9L18FCG302	18L0065WH	7200	3
18L15UJ	18L0015WH	4160	3	9L18ACM101	18L0010WH	24000	1	9LA6A29	Discontinued	300	
18L15WH	18L0015WH	4160	3	9L18BCE301	18L0015WH	2400	3	9LA6B1	18L0010WH	24000	1



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Fixed Motor and Pump Capacitors (Type GEM™ OFW)

Section 24

Outdoor Weatherproof

1-15 kVAR 240 Volts

1-30 kVAR 480 Volts

Three-phase Delta, 60 Hertz

Description

These Type GEM™ capacitors are designed primarily for the motor requirements of oil field and other pumping installations. Their application, however, may be extended to other motor applications installed indoor or outdoor. Type GEM™ OFW capacitors feature multiple cells which are assembled in parallel in a NEMA 3 enclosure. Each capacitor cell features the patented GE Pressure Sensitive Interrupter (PSI) that protects against cell rupture. The metallized polypropylene film dielectric system provides an instantaneous self-healing action and greatly reduced energy losses.

Discharge resistors are included to reduce voltage to 50 volts or less within one minute of de-energization. A 4 ft., 4-conductor flexible cable is provided for easy installation.

Type GEM™ capacitors offer high reliability and long life. They are suitable for operation over a temperature range of -40°C to +46°C. GEM™ also features Dielektrol™ impregnant which is a biodegradable Class IIIB combustible fluid.



Type OFW Motor Capacitor

1-30 kVAR

kVAR	Product Number	Cable Size	Dimensions (See Fig. 1)					
			A		B		Approx. Weight	
			Inch	mm	Inch	mm	Lbs.	Kg
240 Volts								
1	65L550TL1	12	5.90	150	3.18	81	7.5	3.4
1.5	65L551TL1	12	5.90	150	3.18	81	7.5	3.4
2	65L552TL1	12	5.90	150	3.18	81	7.5	3.4
2.5	65L553TL1	12	5.90	150	3.18	81	7.8	3.5
3	65L554TL1	12	5.90	150	3.18	81	7.8	3.5
4	65L555TL1	12	5.90	150	3.18	81	8.5	3.9
5	65L556TL1	12	5.90	150	3.18	81	8.5	3.9
6	65L557TL1	8	5.94	151	5.54	141	10.2	4.6
7.5	65L558TL1	8	5.94	151	5.54	141	11.7	5.3
10	65L559TL1	8	5.94	151	5.54	141	11.7	5.3
12.5	65L560TL1	8	5.94	151	8.15	207	14.9	6.8
15	65L561TL1	8	5.94	151	8.15	207	14.9	6.8
480 Volts								
1	65L550TA1	12	5.90	150	3.18	81	7.5	3.4
1.5	65L551TA1	12	5.90	150	3.18	81	7.5	3.4
2	65L552TA1	12	5.90	150	3.18	81	7.5	3.4
2.5	65L553TA1	12	5.90	150	3.18	81	7.5	3.4
3	65L554TA1	12	5.90	150	3.18	81	7.5	3.4
4	65L555TA1	12	5.90	150	3.18	81	7.5	3.4
5	65L556TA1	12	5.90	150	3.18	81	7.5	3.4
6	65L557TA1	12	5.90	150	3.18	81	7.8	3.5
7.5	65L558TA1	12	5.90	150	3.18	81	8.5	3.9
10	65L559TA1	12	5.90	150	3.18	81	8.5	3.9
12.5	65L560TA1	12	5.90	150	3.18	81	8.5	3.9
15	65L561TA1	8	5.94	151	5.54	141	11.7	5.3
17.5	65L562TA1	8	5.94	151	5.54	141	11.7	5.3
20	65L563TA1	8	5.94	151	5.54	141	11.7	5.3
22.5	65L564TA1	8	5.94	151	5.54	141	11.7	5.3
25	65L565TA1	8	5.94	151	5.54	141	11.7	5.3
27.5	65L566TA1	8	5.94	151	8.15	207	14.9	6.8
30	65L567TA1	8	5.94	151	8.15	207	14.9	6.8

Note: To determine kVAR at 208V, multiply kVAR at 240V by .75.



Dimensions

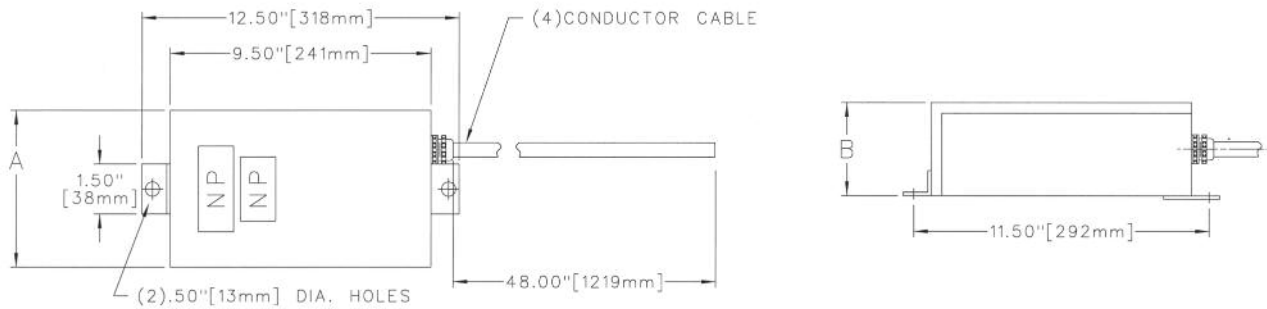


Figure 1



Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3-Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

Description

Type GEM™ Capacitors feature multiple cells which are assembled in parallel in an enclosure suitable for both indoor and outdoor applications (NEMA 12 and NEMA 3). Each capacitor cell features the patented GE Pressure Sensitive Interrupter (PSI) that protects against cell rupture. The metallized polypropylene film dielectric system provides an instantaneous self-healing action and greatly reduced energy losses. GEM™ capacitors include discharge resistors to reduce voltage to 50 volts or less within one minute of de-energization. GEM™ also features Dielektrol™ impregnant which is a biodegradable Class IIIB combustible fluid.

GEM™ capacitors offer high reliability and long life. They are suitable for operation over a temperature range of -40°C to +46°.

The GEM™ assemblies are UL Listed and CSA labeled.



Typical Type GEM™, cover removed

NOTE: Replacement EDT/EWT Equipments including 55L series capacitors are available on request. Please contact the factory. (For New Equipments use the 65L Series.)

Line Fuses/Blown Fuse Lights

To be specified by customer. Order by appropriate basic product number plus suffix for a complete product number.

NOTE: NEC Article 460-8B requires capacitors to have overcurrent protection in all ungrounded conductors—except if connected on the load side of a motor overload protective device.

Mounting

GEM™ 65L800 series can be mounted upright on any level surface, such as a floor, top of a motor control center, or directly to any wall with brackets provided.

GEM™ 65L900 series equipments can also be mounted upright on any level surface. An adapter kit is required for wall mounting. Order the wall mounting kit by product number 186C323600005.

Line Connection and Cable Entrance

Line connection and cable entrance on Figure 1 equipments must be made through the right end panel. For all other equipment figures the entrance may be made through either end panel (after first punching out the appropriate size hole).

Replacement Fuses

Unit Rating		Fuse Amps	Fuse Class	Product Number
Volts	3-ph ¹ kVAR			
240	1-5	30	MIDGET	147A781600030
240	6-15	100	T	147A781600028
240	17.5-40	200	T	147A781600029
480	1-12.5	30	MIDGET	147A781600030
480	15-32.5	100	T	147A781600028
480	35-100	200	T	147A781600029
600	1-15	30	MIDGET	147A781600032
600	17.5-40	100	T	147A781600028
600	42.5-60	200	T	147A781600029

Note: Obsolete fuses 147A781600024 and 147A781600025 used in 65L3____, 65L6____, and 37F6____ assemblies have been replaced by fuse kit 308A318700001.

¹Refer to factory for single-phase fuses.



Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3-Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

1.0-50 kVAR, 240 Volts

kVAR	Basic Product No.	240 Volt, 3-phase Delta			240 Volt, 1-phase			Fig. No. (See page 24-22)	Approx. Weight	
		No Fuses ¹	3 Fuses ¹	3 Fuses, 3 Lights ¹	No Fuses	Fuses	Fuses & Lights			
		Suffix	Suffix	Suffix	Suffix	Suffix	Suffix		Lbs	gK
1.0	65L800	TL1	TN1	TQ1	TX1	TY1	TZ1	1	9	4.1
1.5	65L801	TL1	TN1	TQ1	TX1	TY1	TZ1	1	9	4.1
2.0	65L802	TL1	TN1	TQ1	TX1	TY1	TZ1	1	9	4.1
2.5	65L803	TL1	TN1	TQ1	TX1	TY1	TZ1	1	9	4.1
3.0	65L804	TL1	TN1	TQ1	TX1	TY1	TZ1	1	9	4.1
4.0	65L805	TL1	TN1	TQ1	TX1	TY1	TZ1	1	10	4.5
5.0	65L806	TL1	TN1	TQ1	TX1	TY1	TZ1	1	10	4.5
6.0	65L807	TL1	TN1	TQ1	TX1	TY1	TZ1	1	11	5.0
7.5	65L808	TL1	TN1	TQ1	TX1	TY1	TZ1	1	15	6.8
10.0	65L809	TL1	TN1	TQ1	TX1	TY1	TZ1	1	15	6.8
12.5	65L810	TL2	TN2	TQ2	TX1	TY1	TZ1	1	19	8.6
15.0	65L811	TL2	TN2	TQ2	TX1	TY1	TZ1	2	19	8.6
17.5	65L812	TL2	TN2	TQ2	TX1	TY1	TZ1	2	22	10.0
20.0	65L813	TL2	TN2	TQ2	TX1	TY1	TZ1	2	22	10.0
22.5	65L814	TL2	TN2	TQ2	TX1	TY1	TZ1	2	32	14.5
25.0	65L815	TL2	TN2	TQ2	TX1	TY1	TZ1	2	32	14.5
27.5	65L816	TL2	TN2	TQ2	TX1	TY1	TZ1	3	32	14.5
30.0	65L817	TL2	TN2	TQ2	TX1	TY1	TZ1	3	32	14.5
32.5	65L818	TL2	TN2	TQ2	TX1	TY1	TZ1	3	36	16.4
35.0	65L819	TL2	TN2	TQ2	TX1	TY1	TZ1	3	38	17.3
37.5	65L820	TL2	TN2	TQ2	TX1	TY1	TZ1	3	38	17.3
40.0	65L821	TL2	TN2	TQ2	TX1	TY1	TZ1	3	38	17.3
42.5	65L822	TL2	TN2	TQ2				3	38	17.3
45.0	65L823	TL2	TN2	TQ2				3	38	17.3
47.5	65L824	TL2	TN2	TQ2				3	38	17.3
50.0	65L825	TL2	TN2	TQ2				3	38	17.3

¹See Note on page 24-15 referring to NEC Article 460-8B.

EXAMPLE: 240V, 3-phase, 25 kVAR, with 3 fuses and 3 blown fuse lights:

Product Number: 65L815TQ2.

Note: To determine kVAR at 208V, multiply kVAR at 240V by .75.

Consult factory for additional Single-phase designs.

See page 24-22 for outline diagrams and dimensions.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3-Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

42.5-550 kVAR, 240 Volts

kVAR	Basic Product No.	240 Volt, 3-phase Delta			240 Volt, 1-phase			Fig. No. (See page 24-23)	Approx. Weight	
		No Fuses ¹ Suffix	3 Fuses ¹ Suffix	3 Fuses, 3 Lights ¹ Suffix	No Fuses Suffix	Fuses Suffix	Fuses & Lights Suffix		Lbs	Kg
55.0	65L904	TL3	TN3	TQ3	TX2	TY2	TZ2	4	87	39.5
60.0	65L905	TL3	TN3	TQ3	TX2	TY2	TZ2	4	87	39.5
65.0	65L906	TL3	TN3	TQ3	TX2	TY2	TZ2	4	87	39.5
70.0	65L907	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
75.0	65L908	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
80.0	65L909	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
85.0	65L910	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
90.0	65L911	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
95.0	65L912	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
100.0	65L913	TL3	TN3	TQ3	TX2	TY2	TZ2	4	89	40.5
110.0	65L914	TL3	TN3	TQ3	TX2	TY2	TZ2	5	136	61.8
120.0	65L915	TL3	TN3	TQ3	TX2	TY2	TZ2	5	136	61.8
125.0	65L916	TL3	TN3	TQ3	TX2	TY2	TZ2	5	136	61.8
130.0	65L917	TL3	TN3	TQ3	TX2	TY2	TZ2	5	142	64.5
140.0	65L918	TL3	TN3	TQ3	TX2	TY2	TZ2	5	148	67.3
150.0	65L919	TL3	TN3	TQ3	TX2	TY2	TZ2	5	148	67.3
160.0	65L920	TL3	TN3	TQ3	TX2	TY2	TZ2	6	181	82.3
170.0	65L921	TL3	TN3	TQ3	TX2	TY2	TZ2	6	181	82.3
175.0	65L922	TL3	TN3	TQ3	TX2	TY2	TZ2	6	186	84.5
180.0	65L923	TL3	TN3	TQ3	TX2	TY2	TZ2	6	186	84.5
190.0	65L924	TL3	TN3	TQ3	TX2	TY2	TZ2	6	191	86.8
200.0	65L925	TL3	TN3	TQ3	TX2	TY2	TZ2	6	196	89.1
210.0	65L926	TL3	TN3	TQ3				7	230	104.5
220.0	65L927	TL3	TN3	TQ3				7	230	104.5
230.0	65L928	TL3	TN3	TQ3				7	235	106.8
240.0	65L929	TL3	TN3	TQ3				7	240	109.1
250.0	65L930	TL3	TN3	TQ3				7	245	111.4

¹See Note on page 24-15 referring to NEC Article 460-8B.
Consult factory for additional Single-phase designs.



Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3 - Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

1.0-100 kVAR, 480 Volts

kVAR	Basic Product No.	480 Volt, 3-phase Delta			480 Volt, 1-phase			Fig. No. (See page 24-22)	Approx. Weight	
		No Fuses ¹	3 Fuses ¹	3 Fuses, 3 Lights ¹	No Fuses	Fuses	Fuses & Lights			
		Suffix	Suffix	Suffix	Suffix	Suffix	Suffix		Lbs	Kg
1.0	65L800	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
1.5	65L801	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
2.0	65L802	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
2.5	65L803	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
3.0	65L804	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
4.0	65L805	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
5.0	65L806	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
6.0	65L807	TA1	TC1	TE1	TR1	TS1	TT1	1	9	4.1
7.5	65L808	TA1	TC1	TE1	TR1	TS1	TT1	1	10	4.5
10.0	65L809	TA1	TC1	TE1	TR1	TS1	TT1	1	10	4.5
12.5	65L810	TA1	TC1	TE1	TR1	TS1	TT1	1	10	4.5
15.0	65L811	TA1	TC1	TE1	TR1	TS1	TT1	1	13	5.9
17.5	65L812	TA1	TC1	TE1	TR1	TS1	TT1	1	13	5.9
20.0	65L813	TA1	TC1	TE1	TR1	TS1	TT1	1	13	5.9
22.5	65L814	TA1	TC1	TE1	TR1	TS1	TT1	1	13	5.9
25.0	65L815	TA1	TC1	TE1	TR1	TS1	TT1	1	13	5.9
27.5	65L816	TA1	TC1	TE1	TR1	TS1	TT1	2	19	8.6
30.0	65L817	TA1	TC1	TE1	TR1	TS1	TT1	2	19	8.6
32.5	65L818	TA1	TC1	TE1	TR1	TS1	TT1	2	19	8.6
35.0	65L819	TA1	TC1	TE1	TR1	TS1	TT1	2	19	8.6
37.5	65L820	TA1	TC1	TE1	TR1	TS1	TT1	2	19	8.6
40.0	65L821	TA1	TC1	TE1	TR1	TS1	TT1	2	22	10.0
42.5	65L822	TA1	TC1	TE1	TR1	TS1	TT1	2	22	10.0
45.0	65L823	TA1	TC1	TE1	TR1	TS1	TT1	2	22	10.0
47.5	65L824	TA1	TC1	TE1	TR1	TS1	TT1	2	22	10.0
50.0	65L825	TA1	TC1	TE1	TR1	TS1	TT1	2	22	10.0
55.0	65L826	TA1	TC1	TE1	TR1	TS1	TT1	3	32	14.5
60.0	65L827	TA1	TC1	TE1	TR1	TS1	TT1	3	32	14.5
65.0	65L828	TA1	TC1	TE1	TR1	TS1	TT1	3	32	14.5
70.0	65L829	TA1	TC1	TE1	TR1	TS1	TT1	3	33	15.0
75.0	65L830	TA1	TC1	TE1	TR1	TS1	TT1	3	33	15.0
80.0	65L831	TA1	TC1	TE1	TR1	TS1	TT1	3	38	17.2
85.0	65L832	TA1	TC1	TE1	TR1	TS1	TT1	3	38	17.2
90.0	65L833	TA1	TC1	TE1	TR1	TS1	TT1	3	38	17.2
95.0	65L834	TA1	TC1	TE1	TR1	TS1	TT1	3	38	17.2
100.0	65L835	TA1	TC1	TE1	TR1	TS1	TT1	3	38	17.2

¹See Note on page 24-15 referring to NEC Article 460-8B.



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Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3 - Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

110-500 kVAR, 480 Volts

kVAR	Basic Product No.	480 Volt, 3-phase Delta			480 Volt, 1-phase			Fig. No. (See page 24-23)	Approx. Weight	
		No Fuses ¹	3 Fuses ¹	3 Fuses, 3 Lights ¹	No Fuses	Fuses	Fuses & Lights			
		Suffix	Suffix	Suffix	Suffix	Suffix	Suffix		Lbs	Kg
110.0	65L914	TA2	TC2	TE2	TR2	TS2	TT2	4	87	39.5
120.0	65L915	TA2	TC2	TE2	TR2	TS2	TT2	4	87	39.5
125.0	65L916	TA2	TC2	TE2	TR2	TS2	TT2	4	87	39.5
130.0	65L917	TA2	TC2	TE2	TR2	TS2	TT2	4	87	39.5
140.0	65L918	TA2	TC2	TE2	TR2	TS2	TT2	4	89	40.8
150.0	65L919	TA2	TC2	TE2	TR2	TS2	TT2	4	89	40.8
160.0	65L920	TA2	TC2	TE2	TR2	TS2	TT2	4	99	44.9
170.0	65L921	TA2	TC2	TE2	TR2	TS2	TT2	4	99	44.9
175.0	65L922	TA2	TC2	TE2	TR2	TS2	TT2	4	99	44.9
180.0	65L923	TA2	TC2	TE2	TR2	TS2	TT2	4	99	44.9
190.0	65L924	TA2	TC2	TE2	TR2	TS2	TT2	4	99	44.9
200.0	65L925	TA2	TC2	TE2	TR2	TS2	TT2	4	99	44.9
210.0	65L926	TA2	TC2	TE2	TR2	TS2	TT2	5	136	61.7
220.0	65L927	TA2	TC2	TE2	TR2	TS2	TT2	5	136	61.7
230.0	65L928	TA2	TC2	TE2	TR2	TS2	TT2	5	136	61.7
240.0	65L929	TA2	TC2	TE2	TR2	TS2	TT2	5	138	62.6
250.0	65L930	TA2	TC2	TE2	TR2	TS2	TT2	5	138	62.6
260.0	65L931	TA2	TC2	TE2	TR2	TS2	TT2	5	142	64.4
270.0	65L932	TA2	TC2	TE2	TR2	TS2	TT2	5	143	64.9
280.0	65L933	TA2	TC2	TE2	TR2	TS2	TT2	5	148	67.1
290.0	65L934	TA2	TC2	TE2	TR2	TS2	TT2	5	148	67.1
300.0	65L935	TA2	TC2	TE2	TR2	TS2	TT2	5	148	67.1
325.0	65L936	TA2	TC2	TE2	TR2	TS2	TT2	6	181	82.1
350.0	65L937	TA2	TC2	TE2	TR2	TS2	TT2	6	186	84.4
375.0	65L938	TA2	TC2	TE2	TR2	TS2	TT2	6	191	86.6
400.0	65L939	TA2	TC2	TE2	TR2	TS2	TT2	6	196	88.9
425.0	65L940	TA2	TC2	TE2	TR2	TS2	TT2	7	230	104.3
450.0	65L941	TA2	TC2	TE2	TR2	TS2	TT2	7	235	106.6
475.0	65L942	TA2	TC2	TE2	TR2	TS2	TT2	7	240	108.9
500.0	65L943	TA2	TC2	TE2	TR2	TS2	TT2	7	245	111.1

¹See Note on page 24-15 referring to NEC Article 460-8B.

EXAMPLE: 480V, 3-phase, 50 kVAR, with 3 fuses no lights:
Product Number: 65L825TC1.



Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3-Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

1.0-100 kVAR, 600 Volts

kVAR	Basic Product No.	600 Volt, 3-phase Wye			Fig. No. (See page 24-22)	Approx. Weight	
		No Fuses ¹	3 Fuses ¹	3 Fuses, 3 Lights ¹		Lbs	Kg
		Suffix	Suffix	Suffix			
1.0	65L800	TF1	TH1	TK1	1	9	4.1
1.5	65L801	TF1	TH1	TK1	1	9	4.1
2.0	65L802	TF1	TH1	TK1	1	9	4.1
2.5	65L803	TF1	TH1	TK1	1	9	4.1
3.0	65L804	TF1	TH1	TK1	1	9	4.1
4.0	65L805	TF1	TH1	TK1	1	9	4.1
5.0	65L806	TF1	TH1	TK1	1	10	4.5
6.0	65L807	TF1	TH1	TK1	1	10	4.5
7.5	65L808	TF1	TH1	TK1	1	10	4.5
10.0	65L809	TF2	TH2	TK2	1	12	5.4
12.5	65L810	TF2	TH2	TK2	1	12	5.4
15.0	65L811	TF2	TH2	TK2	1	13	5.9
17.5	65L812	TF2	TH2	TK2	1	13	5.9
20.0	65L813	TF2	TH2	TK2	1	13	5.9
22.5	65L814	TF2	TH2	TK2	1	13	5.9
25.0	65L815	TF2	TH2	TK2	1	13	5.9
27.5	65L816	TF2	TH2	TK2	2	19	8.6
30.0	65L817	TF2	TH2	TK2	2	19	8.6
32.5	65L818	TF2	TH2	TK2	2	19	8.6
35.0	65L819	TF2	TH2	TK2	2	19	8.6
37.5	65L820	TF2	TH2	TK2	2	19	8.6
40.0	65L821	TF2	TH2	TK2	2	22	10.0
42.5	65L822	TF2	TH2	TK2	2	22	10.0
45.0	65L823	TF2	TH2	TK2	2	22	10.0
47.5	65L824	TF2	TH2	TK2	2	22	10.0
50.0	65L825	TF2	TH2	TK2	2	22	10.0
55.0	65L826	TF2	TH2	TK2	3	32	14.5
60.0	65L827	TF2	TH2	TK2	3	32	14.5
65.0	65L828	TF2	TH2	TK2	3	32	14.5
70.0	65L829	TF2	TH2	TK2	3	33	15.0
75.0	65L830	TF2	TH2	TK2	3	33	15.0
80.0	65L831	TF2	TH2	TK2	3	38	17.3
85.0	65L832	TF2	TH2	TK2	3	38	17.3
90.0	65L833	TF2	TH2	TK2	3	38	17.3
95.0	65L834	TF2	TH2	TK2	3	38	17.3
100.0	65L835	TF2	TH2	TK2	3	38	17.3

¹ See Note on page 24-15 referring to NEC Article 460-8B.



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Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3-Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

65-500 kVAR, 600 Volts

kVAR	Basic Product No.	600 Volt, 3-phase Wye			Fig. No. (See page 24-23)	Approx. Weight	
		No Fuses ¹	3 Fuses ¹	3 Fuses, 3 Lights ¹		Lbs	Kg
		Suffix	Suffix	Suffix			
110.0	65L914	TF3	TH3	TK3	4	87	39.5
120.0	65L915	TF3	TH3	TK3	4	87	39.5
125.0	65L916	TF3	TH3	TK3	4	87	39.5
130.0	65L917	TF3	TH3	TK3	4	87	39.5
140.0	65L918	TF3	TH3	TK3	4	89	40.5
150.0	65L919	TF3	TH3	TK3	4	99	45.0
160.0	65L920	TF3	TH3	TK3	4	99	45.0
170.0	65L921	TF3	TH3	TK3	4	99	45.0
175.0	65L922	TF3	TH3	TK3	4	99	45.0
180.0	65L923	TF3	TH3	TK3	4	99	45.0
190.0	65L924	TF3	TH3	TK3	4	99	45.0
200.0	65L925	TF3	TH3	TK3	4	99	45.0
210.0	65L926	TF3	TH3	TK3	5	136	61.8
220.0	65L927	TF3	TH3	TK3	5	136	61.8
230.0	65L928	TF3	TH3	TK3	5	136	61.8
240.0	65L929	TF3	TH3	TK3	5	138	62.7
250.0	65L930	TF3	TH3	TK3	5	138	62.7
260.0	65L931	TF3	TH3	TK3	5	142	64.5
270.0	65L932	TF3	TH3	TK3	5	143	65.0
280.0	65L933	TF3	TH3	TK3	5	148	67.3
290.0	65L934	TF3	TH3	TK3	5	148	67.3
300.0	65L935	TF3	TH3	TK3	6	148	67.3
325.0	65L936	TF3	TH3	TK3	6	181	82.3
350.0	65L937	TF3	TH3	TK3	6	186	84.5
370.0	65L938	TF3	TH3	TK3	6	191	86.8
400.0	65L939	TF3	TH3	TK3	6	196	89.1
425.0	65L940	TF3	TH3	TK3	7	230	104.5
450.0	65L941	TF3	TH3	TK3	7	235	106.8
475.0	65L942	TF3	TH3	TK3	7	240	109.1
500.0	65L943	TF3	TH3	TK3	7	245	111.4

¹See Note on page 24-15 referring to NEC Article 460-8B.



Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3-Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

Dimensions

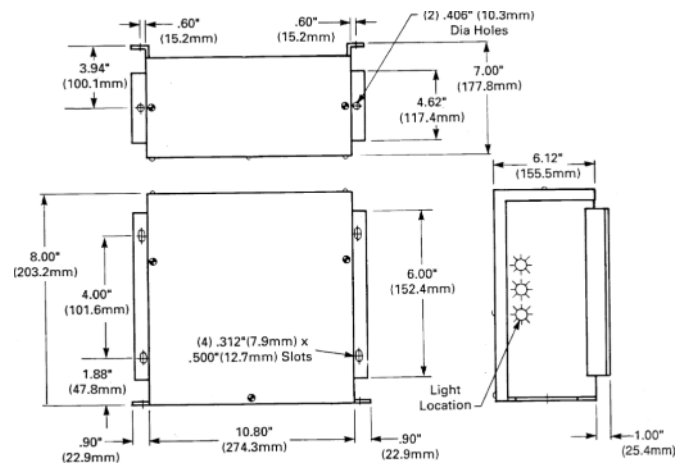


Fig. 1. 65L8

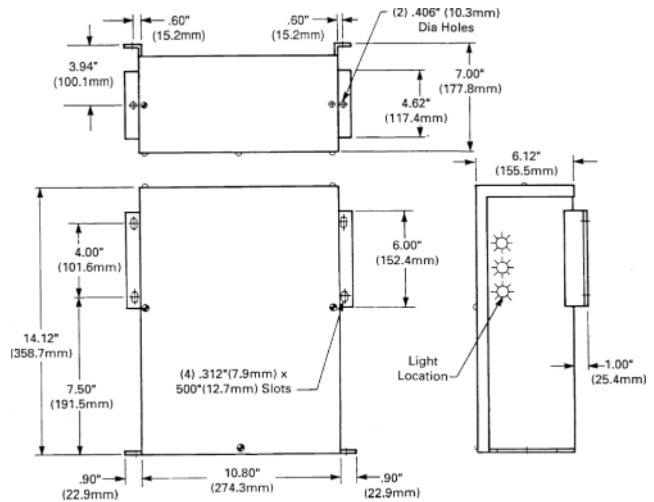


Fig. 2. 65L8

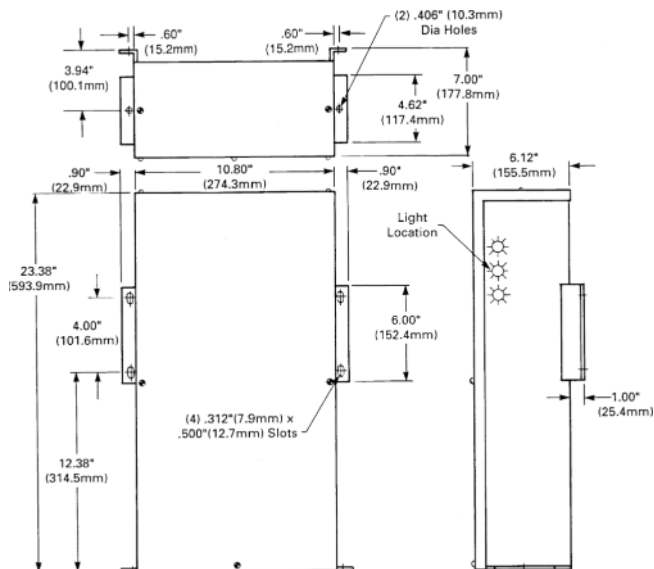


Fig. 3. 65L8



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof NEMA 12 and Outdoor Weatherproof NEMA 3

Single Phase or 3 - Phase

1.0-500 kVAR, 60 Hertz

240, 480, 600 Volts

Dimensions

Front View

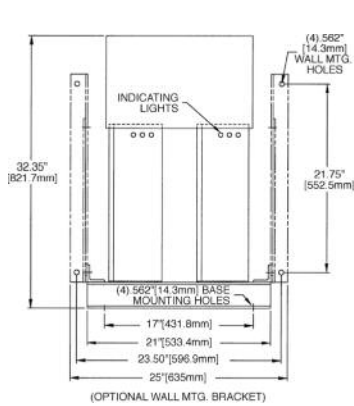


Fig. 4. 65L9__

Side View

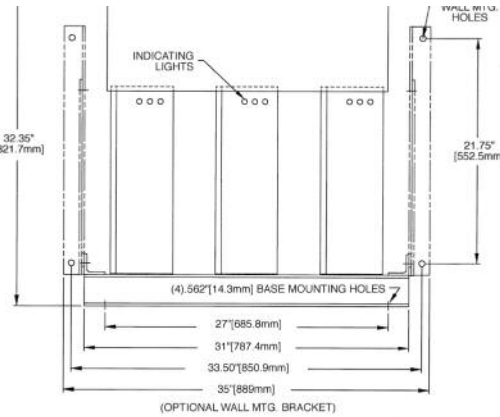


Fig. 5. 65L9__

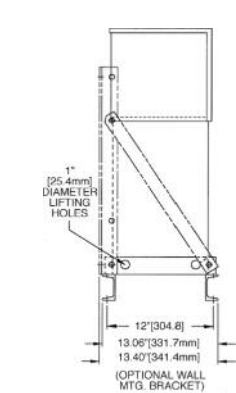


Fig. 8. All 65L9__ units

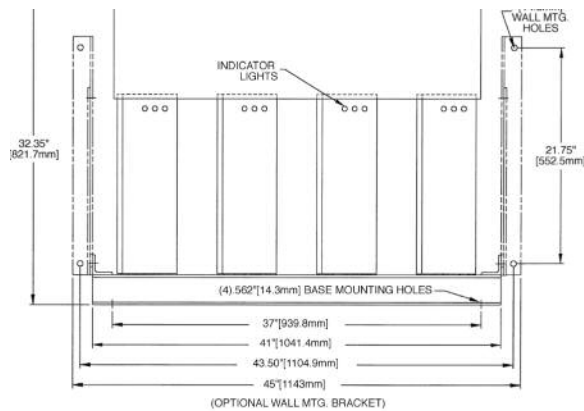


Fig. 6. 65L9__

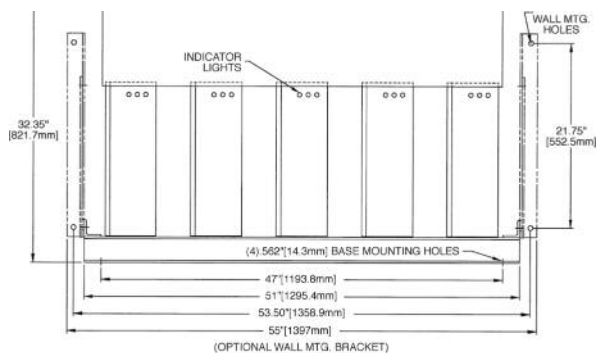


Fig. 7. 65L9__



Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction with Harmonic Filter Equipment

Metal-Enclosed (GEMTRAP)

Section 24

Application

The proliferation of electronic equipment used to improve efficiencies and provide more reliable performance causes harmonics on power systems. Equipment such as variable speed AC and DC drives, uninterruptible power supplies, switching power supplies and other solid state controls or devices inject non-linear components into what was a linear system. The application of power factor correction capacitor systems can create unwanted increases in harmonic voltage and current unless the capacitors are properly applied with reactors, in series with the capacitor, to suppress harmful harmonics.

GE's line of fixed, harmonically suppressed capacitors permits the installation of power factor correction capacitors on systems with nonlinear components. The GEMTRAP system can be tuned to any desired frequency but is normally tuned to the 4.7th harmonic.

Design

The installation of this system is application specific. Contact the GE Sales office or the factory to ensure that the proper combination of capacitors and reactors is used. Misapplication may result without proper guidance.

Engineering Specifications Fixed Power Factor Capacitor Equipment

Applicable Standards

—NEMA, IEEE/ANSI, NEC

Ratings

- 240V, 25 to 50 kVAR; 3 ph
- 480 V, 25 to 200 kVAR; 3 ph
- 600 V; 25 to 200 kVAR; 3 ph

Capacitor Cell

—Industrial Rated Capacitor cells

Equipment Construction

- Enclosure and wiring hood:
 - Indoor/outdoor gasketed heavy gauge steel. Finished with a zinc rich primer and an ANSI #70 enamel overcoat. Louvered panels around reactors for protection and cooling.
- Mounting:
 - Floor mounting.
- Capacitor Fuses:
 - UL recognized, designed specifically for capacitor applications. Rated 600 VAC, 200kAIC. Fast acting and current limiting; allows clearing action of capacitors while protecting from catastrophic failures. Three phase fusing standard.
- Aluminum Connecting Bus for Parallel Cells
- Input Connections:
 - Listed Cu/Al Mechanical wire connectors, sized for kVAR requirements, mounted on top of bus for easy access.
- Harmonic Reactor

Options

- Blown fuse lights
- Consult factory for larger kVAR requirements
- Consult factory for custom applications and designs



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Fixed Low Voltage Power Factor Correction with Harmonic Filter Equipment

Metal-Enclosed (GEMTRAP)

Three-phase, 60Hz

240, 480, 600 Volts

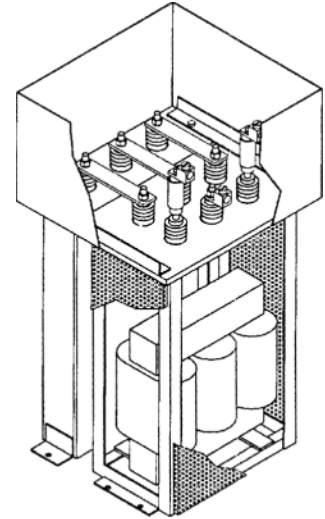
NEMA 1 Enclosure

Normally tuned for the 4.7th Harmonic

Can be tuned to any desired frequency.

Note: Do not apply Harmonic Filters without a detailed analysis of the power system.

Volts	kVAR	Basic Product No.	Caps with Reactors Incl (3) Fuses	With Lights	Apprx. Wt. Lbs. (kg)
			Fig.	Suffix	
240	25	38FH1025D333F	1	L	195 (88)
240	35	38FH2035D333F	2	L	341 (155)
240	40	38FH2040D333F	2	L	346 (157)
240	45	38FH2045D333F	2	L	351 (160)
240	50	38FH2050D333F	2	L	356 (162)
480	25	38FH1025F333F	1	L	159 (72)
480	30	38FH1030F333F	1	L	191 (87)
480	40	38FH1040F333F	1	L	197 (90)
480	50	38FH1050F333F	1	L	202 (92)
480	75	38FH1075F333F	1	L	235 (107)
480	80	38FH1080F333F	1	L	263 (120)
480	100	38FH1100F333F	1	L	279 (127)
480	120	38FH2120F333F	2	L	424 (195)
480	125	38FH2125F333F	2	L	447 (203)
480	140	38FH2140F333F	2	L	500 (227)
480	150	38FH2150F333F	2	L	514 (234)
480	175	38FH2175F333F	2	L	524 (238)
480	200	38FH2200F333F	2	L	568 (258)
600	25	38FH1025H333F	1	L	159 (72)
600	30	38FH1030H333F	1	L	191 (87)
600	40	38FH1040H333F	1	L	196 (89)
600	50	38FH1050H333F	1	L	196 (89)
600	75	38FH1075H333F	1	L	245 (111)
600	80	38FH1080H333F	1	L	248 (113)
600	100	38FH1100H333F	1	L	271 (123)
600	120	38FH2120H333F	2	L	484 (220)
600	125	38FH2125H333F	2	L	487 (221)
600	140	38FH2140H333F	2	L	495 (225)
600	150	38FH2150H333F	2	L	500 (227)
600	175	38FH2175H333F	2	L	526 (239)
600	200	38FH2200H333F	2	L	552 (251)

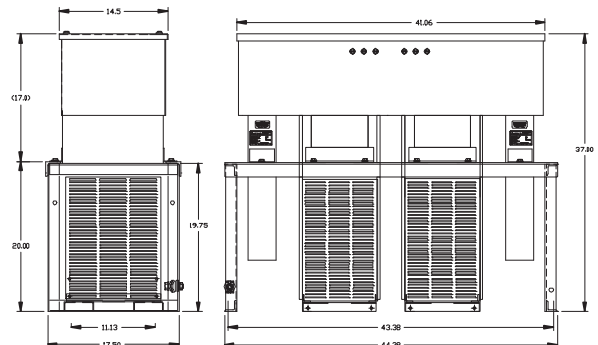
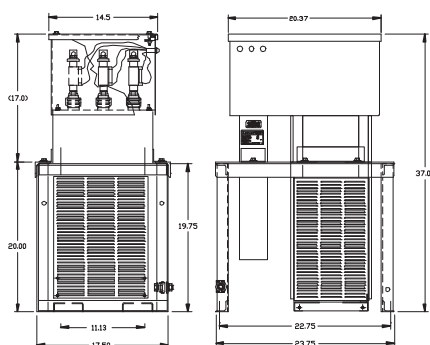


System Analysis Requirements

Primary	Volts
Transformer: L - L	kVA
Secondary	Volts
Transformer:	kVA
Transformer impedance	%
Fundamental Freq.	Hz
Total System Load	KW
Power Factor:	
Existing:	%
Desired	%

Include One-Line diagram, if available
Harmonic Analysis: Voltage/Current Spectrum

Outline Dimensions (inches)



Capacitors, Arresters and Harmonic Filters

Automatic Fast-Switching LV Power Factor Correction Capacitors

GEMATIC™ Quick Response

Section 24

Fast Response, Transient-Free Reactive Power Compensation Systems

- Ultra Fast Response (UFR): A real-time, transient-free system used to compensate extremely rapid loads within one cycle (typically 5-16 mSec).
- Fast Response (FR): A fast, transient-free system, used to compensate any load within 3-4 seconds.

Advantages

- Ultra Fast Response (UFR) and Fast Response (FR):
 - Transient-free capacitor group switching, using electronic switching elements
 - Prevent damage to sensitive electronic equipment
 - Saves energy
 - Harmonic filtration
 - Accurate power factor control, even in the presence of harmonics
 - Dramatically increases the life expectancy of switching elements and capacitors
 - Considerably lower temperature rise of capacitors and inductors due to unique scan feature
 - Built-in three phase network analyzer, measuring all network parameters including harmonics
 - Unique self-testing and comprehensive reporting feature
 - Power IQ
- Ultra Fast Response (UFR) (in addition to the above):
 - Cycle-by-cycle reactive power compensation (total acquisition time of 5-16 mSec)
 - Prevents voltage drop and flickering
 - Used for Real Time applications, such as spot welding and motor start-up
 - Enhances capacity of local generator systems, such as diesel and windmill generators
 - Combination of one to three single-phase systems available for unbalanced loads

Types Available

- Basic Systems: Include iron core reactors to limit the inrush current with either:
 - Detuned Systems: Include iron core reactors that detune the network to prevent resonance and absorb up to 50% of the 5th harmonic, or
 - Tuned Systems: Individually designed to absorb the 5th and 7th harmonics



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Automatic Fast-Switching LV Power Factor Correction Capacitors

GEMATIC™ Quick Response

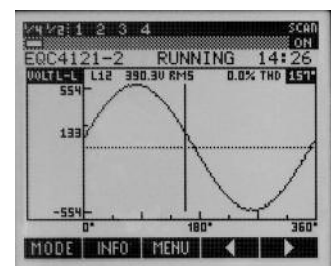
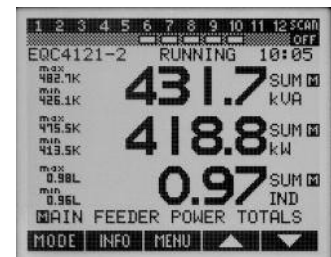
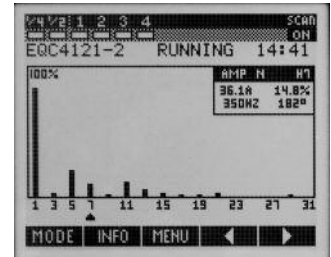
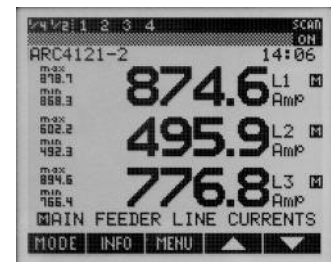
Section 24

Controller Specifications

Power Supply	115/230V, 50/60 Hz
LCD Display Size	94 x 76 mm
LCD Display Resolution	Graphic 160 x 128 pixels
LCD Display Type	FSTN, LED backlight
Frequency	45 to 65 Hz
Power Consumption	10 VA
Operating Temperature	-20° to +55°C
9 Analog Channels	3 current channels for mains load 2 current channels for Equalizer cabinet 4 voltage channels
Communications	RS485/422 communications port
Protocol	ELCOM, Modbus/RTU
Alarm	Voltage free N.O./N.C. relay, max 2A @ 250 Vac
Protection Class	IP 40
Dimensions	144 x 144 x 138 mm
Weight	1.4kg
Storage Temperature	-25° to 70°C
Electromagnetic Compatibility	EN50081-2, EN50082-2, EN55011, EN61000-4-2/3/4/5, ENV50204, EN50141
Safety Standards	EN61010-1, EN50439-1, UL508

Controller Features

Parameter	Phases	Loads	Measurement Level			
			1	2	3	4
Frequency	Common	Mains	•	•	•	•
Phase Current	L1, L2, L3	Mains, Load, Cap.	•	•	•	•
Neutral Current	Neutral	Mains	•	•	•	•
Phase to Phase Current	L1-2, L2-3, L3-1	Mains, Load	•	•	•	•
Phase Voltage	L1, L2, L3	Mains	•	•	•	•
Neutral Voltage	Neutral	Mains	•	•	•	•
Phase to Phase Voltage	L1-2, L2-3, L3-1	Mains	•	•	•	•
Active Power (kW)	L1, L2, L3, Total	Mains	•	•	•	•
Reactive Power (kVAR)	L1, L2, L3, Total	Mains, Load, Cap.	•	•	•	•
Apparent Power (kVA)	L1, L2, L3, Total	Mains, Load, Cap.	•	•	•	•
Power Factor	L1, L2, L3, Total	Mains, Load, Cap.	•	•	•	•
Time of use (TOU) — in, out, net, total:						
Active Energy (kWh)	Total	Mains	•	•	•	•
Reactive Energy (kVARh)	Total	Mains	•	•	•	•
THD at Phase Current	L1, L2, L3	Mains, Load, Cap.	•	•	•	•
THD at Neutral Current	Neutral	Mains	•	•	•	•
THD at Phase to Phase Current	L1-2, L2-3, L3-1	Mains, Load	•	•	•	•
THD at Phase Voltage	L1, L2, L3	Mains	•	•	•	•
THD at Neutral Voltage	Neutral	Mains	•	•	•	•
THD at Phase to Phase Voltage	L1-2, L2-3, L3-1	Mains	•	•	•	•
Harmonics of Phase Current	L1, L2, L3	Mains, Load, Cap.	•	•	•	•
Harmonics of Neutral Current	Neutral	Mains	•	•	•	•
Harmonics of Ph. to Ph. Current	L1-2, L2-3, L3-1	Mains, Load	•	•	•	•
Harmonics of Phase Voltage	L1, L2, L3	Mains	•	•	•	•
Harmonics of Neutral Voltage	Neutral	Mains	•	•	•	•
Harmonics of Ph. to Ph. Voltage	L1-2, L2-3, L3-1	Mains	•	•	•	•
Waveforms of Phase Current	L1, L2, L3	Mains, Load, Cap.	•	•	•	•
Waveforms of Neutral Current	Neutral	Mains	•	•	•	•
Waveforms of Ph. to Ph. Current	L1-2, L2-3, L3-1	Mains	•	•	•	•
Waveforms of Phase Voltage	L1, L2, L3	Mains	•	•	•	•
Waveforms of Neutral Voltage	Neutral	Mains	•	•	•	•
Waveforms of Ph. to Ph. Voltage	L1-2, L2-3, L3-1	Mains	•	•	•	•
System Log			•	•	•	•
Event Log						•
Data Log (future)						•



Typical Screens



Capacitors, Arresters and Harmonic Filters

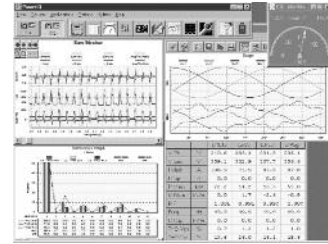
Automatic Fast-Switching LV Power Factor Correction Capacitors

GEMATIC™ Quick Response

Section 24

Power IQ Measurement and Analysis Software

This software displays the system status as well as the measurement results on numerous screens running under Windows. All network parameters, including harmonics up to the 63rd, can be recorded at preselected intervals. The duration of the recording is only limited to the size of the computer's hard disk. The software can be set to record data based on selected triggers of various network parameters, such as voltage sags and/or current spikes. The system records before and after the trigger event. The software has intranet and internet support.



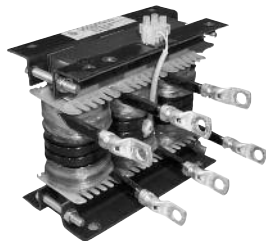
Iron Core Tuned or Detuned Reactor



Capacitors



Capacitor/Reactor Module



Iron Core Limiting Capacitors



Switching Module



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Automatic Fast-Switching LV Power Factor Correction Capacitors

GEMATIC™ Quick Response

Section 24

Features

- Design
 - Steel sheet cabinet
- Enclosure Finish
 - Epoxy powder coated, in gray (RAL 7032)
 - Internal parts rust proof aluzinc
- Rated Voltage
 - 400V/50 Hz and 480V/60 Hz
 - Other voltage values are available upon request
- Output rating
 - Refer to table
 - Other output ratings are available upon request
- Capacitors
 - Low loss, self-healing, IEC 831-1/2
- Ambient Temperature
 - +40°C max short time
 - +35°C average in 24 hours
 - +20°C annual average
 - -10°C low limit
- Protection class: IP 20. Standards:
 - Electromagnetic—EN50081-2, EN50082-2, EN55011
 - Compatibility—EN61000-4-2/3/4/5, ENV50204, ENV501 41
 - Safety Standards—EN61010-1, EN50439-1, UL508

Standard Balanced Systems for 480V/60 Hz Networks

- Systems with inrush limiting reactors
- Detuned systems with tuning frequency of 245 Hz (4.08th Harmonic at 480Vac/60 Hz) up to 100kVAR per group at 400V/50 Hz
- Tuned systems with tuning frequency of 282 Hz (4.7th Harmonic at 480Vac/60 Hz)

Non-Standard Systems (550V-1000V 50/60 Hz or 100V-240V 50/60 Hz)

- With circuit breaker or load breaker
- With or without busbar connection
- Single cabinet
- Dual door single cabinet
- Mechanical structure and dimensions of larger systems are available upon request

Option Packages

F	Reactors
G	Lights and Reactors
W	Lights, Breaker and Reactors

For pricing, contact One-Stop or Factory.

GEMATIC™ Quick Response Ultra Fast Response (UFR) (5-16 mSec) requires special application for selection and sizing. Contact factory for application assistance.

GEMATIC™ Quick Response – Fast Response (3-4 sec.)

Contact Factory for ratings and product numbers.



Capacitors, Arresters and Harmonic Filters

Automatic LV Power Factor Correction Capacitors

Section 24

Type GEMATIC™ Compact and GEMATIC™ Select
Three-phase, 60 Hertz
240, 480, 600 Volts

Description

GEMATIC™ multi-step power factor control equipment automatically maintains desired power factor level, adjusting to system load requirements in selected kVAR steps. The solid-state control responds to a current signal from the optional current transformer and to a voltage signal from a potential transformer included in the equipment.

GEMATIC™ equipments feature capacitors with a metallized dielectric system providing a self-healing action and reduced energy losses. The biodegradable impregnant is a class IIIB combustible fluid. Discharge resistors reduce the voltage to 50 volts or less within one minute of de-energization. The capacitor cells are 3 phase and are designed for 110% of rated voltage, 135% of rated current, and, 135% of rated kVAR.

The power factor controller requires a CT signal for operation. The CT primary should be sized for the **total phase current** to be compensated (capacitor current and load current). Typically, the total phase current should be 50% to 80% of the CT primary rating. The CT secondary is rated 5A. The CT is connected to one phase of the equipment and the factory installed PT is connected across the other two phases.

GEMATIC™ equipment includes:

- Solid-state multi-step power factor controller with digital display and indication of loss of kVAR or blown fuse
- Three phase self-healing metallized capacitors
- Stage contactors
- Potential transformer
- Plated copper bus
- Three fuses for each stage
- Modular construction easily uprated
- UL and C-UL Listed

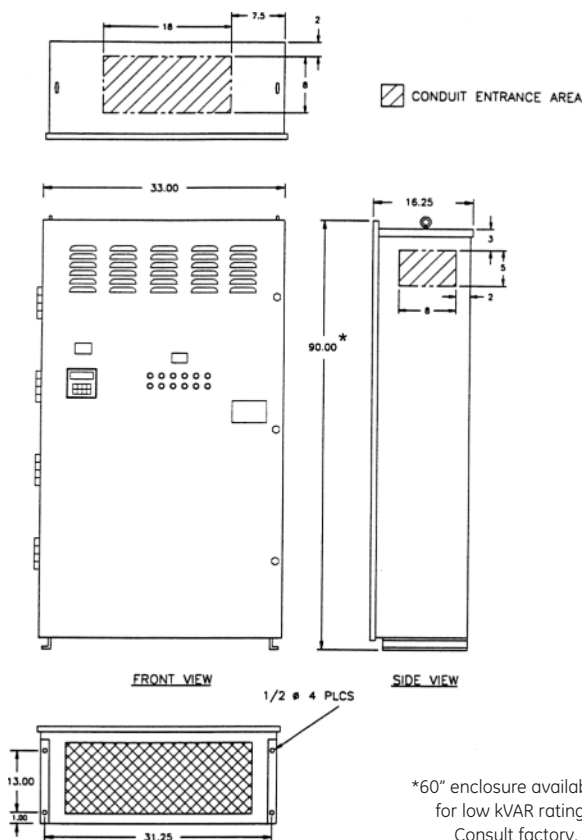
Additional Features

GEMATIC™ Compact

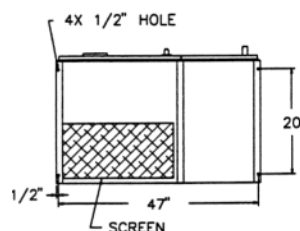
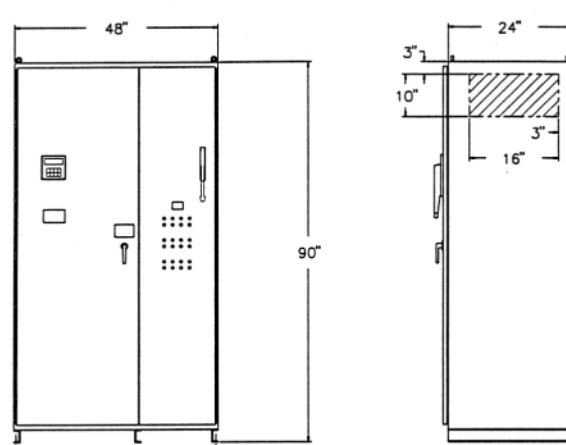
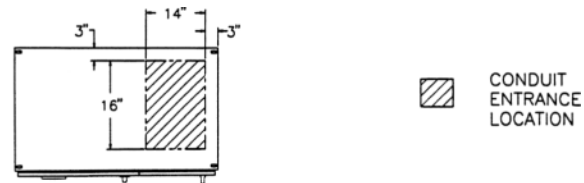
- NEMA 1 enclosure standard (NEMA 3R available)
- 65 kAIC bracing
- Optional breaker (600 amp 35kAIC maximum)
- Optional blown fuse indicating lights

GEMATIC™ Select

- NEMA 1 enclosure standard (NEMA 4R and NEMA 12 available)
- 100 kAIC bracing
- Optional breaker
- Optional blown fuse indicating lights



GEMATIC™ Compact



GEMATIC™ Select



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Automatic LV Power Factor Correction Capacitors

Section 24

Type GEMATIC™ Compact and GEMATIC™ Select
Three Phase, 60 Hertz
240, 480, 600 Volts

GEMATIC™ Compact 240 volts

kVAR	Basic Product No. ¹	kVAR/Step	*Breaker Rating
40	37FJ2040D20	20	400
60	37FJ3060D20	20	400
80	37FJ4080D20	20	400
100	37FJ5100D20	20	400
120	37FJ6120D20	20	600

¹Suffix "L" (Indicating Lights); Suffix "B" (Circuit Breaker)

GEMATIC™ Compact 480/600 volts

kVAR	Basic Product No. ¹	kVAR/Step	*480 V Breaker Rating	*600 V Breaker Rating
50	37FJ2050F25	25	400	400
75	37FJ2075F25	25	400	400
100	37FJ3100F25	25	400	400
125	37FJ3125F25	25	400	400
150	37FJ3150F50	50	400	400
175	37FJ4175F25	25	400	400
200	37FJ4200F50	50	400	400
225	37FJ5225F25	25	600	400
250	37FJ5250F50	50	600	400
275	37FJ6275F25	25	600	600
300	37FJ6300F50	50	600	600

¹Suffix "L" (Indicating Lights); Suffix "B" (Circuit Breaker)

NOTE: For 600 volts, replace second "F" in the basic product number with "H". Example: 37FJ3100F25 becomes 37FJ3100H25. Contact Factory for NEMA 3R.

GEMATIC™ Select 240 volts

Example of GEMATIC™ Select Product Number. 300kVAR, 480V, with Lights, Breaker and copper bus, 37FC6300F505R0.

kVAR	Basic Product No.	kVAR/Step	Breaker Rating
100	37FC4100D255	25	400
125	37FC5125D255	25	600
150	37FC6150D255	25	600
175	37FC7175D255	25	800
200	37FC8200D255	25	800
225	37FC9225D255	25	1000
250	37FC10250D255	25	1000
300	37FC12300D255	25	1200



Capacitors, Arresters and Harmonic Filters

Automatic LV Power Factor Correction Capacitors

Section 24

Type GEMATIC™ Compact and GEMATIC™ Select
Three Phase, 60 Hertz
240, 480, 600 Volts

GEMATIC™ Select 480/600 volts

kVAR	Basic Product No. ¹	kVAR/ Step	480V Breaker Rating	600V Breaker Rating
100	37FC3100F255	25	400	400
125	37FC3125F255	25	400	400
150	37FC3150F505	50	400	400
175	37FC4175F255	25	400	400
200	37FC4200F505	50	400	400
225	37FC5225F255	25	600	400
250	37FC5250F505	50	600	400
275	37FC6275F255	25	600	600
300	37FC6300F505	50	600	600
325	37FC7325F255	25	600	600
350	37FC7350F505	50	800	600
375	37FC8375F255	25	800	600
400	37FC8400F505	50	800	600
425	37FC9425F255	25	800	800
450	37FC9450F505	50	1000	800
475	37FCA475F255	25	1000	800
500	37FCA500F505	50	1000	800
525	37FCB525F255	25	1000	800
550	37FCB550F505	50	1200	800
575	37FCC575F255	25	1200	1000
600	37FCC600F505	50	1200	1000

¹Suffix "L" (Indicating Lights); Suffix "B" (Circuit Breaker)

NOTE: For 600 volts, replace second "F" in the basic product number with "H". Example: 37FJ3100F25 becomes 37FJ3100H25. Contact Factory for NEMA 3R.

For NEMA 12 enclosure, replace "C" in the basic product number with "O", (e.g., 37FC8400F505 becomes 37FO8400F505). For bottom entry last digit of Product Number changes from "5" to "6" (e.g., 37FC8400F505 becomes 37FC8400F506).

CT, 600V, split core, 4" x 7" window

Ratio	Product Number
Multitap w/ Ratio 800/1200/1500/2000/ 2200/2500/3000 : 5	XT0-69752-0105G
4000 : 5	XT0-69752-0011G

Option Packages

Suffix	Option
L	Indicating Lights
B	Breaker
R	Lights & Breaker

Note: Add only one suffix letter to the end of product numbers

For breakers add the following code for standard breaker option

Current Rating	kAIC Rating	Code for Standard Breaker Option
400	35	00003
600	35	00006
800	50	00009
1000	50	0000C
1200	50	0000F
1600	65	0000L
2000	65	0000N
2500	100	0000Q
3000	100	0000T



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Automatic LV Power Factor Correction Capacitors and Harmonic Filter Equipment

Section 24

Type GEMATIC™ Custom

The GEMATIC™ Custom offers power factor correction with the flexibility of including harmonic filter reactors initially or adding them later if they are required.

Many of today's power systems require modern solutions to power factor correction. The rapid increase in variable speed drive use and other solid state devices has resulted in severe harmonic loads on power systems. GE has 10 years experience in preventing the occurrence of non-sinusoidal resonance. Successful integration in tuned L-C networks solves the problem of parallel resonance.

GEMATIC™ Custom automatic power factor correction systems with 3-phase harmonic suppression reactors are application specific. Accordingly, each installation requires specific information to aid GE application engineers in designing each system to meet your requirements. This information should include, but not be limited to, kVAR requirements, transformer size and impedance, kVAsc of the transformer, and a harmonic profile of your system. Load characteristic at the time of the survey and worst case should also be included.

The GEMATIC™ Custom systems may be configured for the addition of harmonic suppression reactors in the future to meet the imminent needs of your system. This reduces initial investment and provides a ready made retrofit package. This system provides total flexibility in achieving maximum automatic power factor correction. Please contact the local GE sales office or the GE factory for any assistance with your particular power factor correction and harmonic suppression needs.

Applicable Standards

—NEMA, IEEE/ANSI, NEC

GEMATIC™ Custom Optional Features

—Outdoor NEMA 3R enclosure
—Main breaker
—Iron core reactors
—Blown fuse indicating lights

GEMATIC™ Custom includes

—Solid-state multi-step power factor controller with digital display and indication of loss of kVAR or blown fuse
—Three phase self-healing metallized capacitors
—Stage contactors
—Three fuses for each stage
—Potential transformer
—Plated copper bus, 100 kAIC bracing
—NEMA 1 enclosure
—UL and cUL listed

Ratings

—240 V; up to 300 kVAR
—480 V and 600 V; up to 1500 kVAR
—For larger kVAR ratings, contact factory

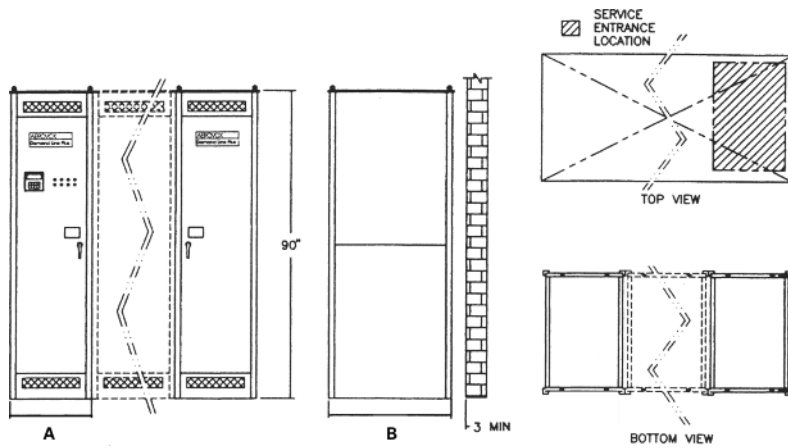


Capacitors, Arresters and Harmonic Filters

Automatic LV Power Factor Correction Capacitors and Harmonic Filter Equipment

Outline Dimensions (inches)

Section 24



GEMATIC™ Custom

Three-phase, 60 Hz NEMA 1 or 3R Enclosure supplied with or without reactors tuned to the 4.7th Harmonic.

Option	Suffix
Lights	L
Breaker	B
Reactors	F
Lights and Breaker	R
Lights and Reactors	G
Lights, Breaker, and Reactors	W
Breaker and Reactors	K

Section Dimensions	A	B
NEMA 1	25"	35"
NEMA 3R	24	36

Optional Features: R—Outdoor NEMA 3R Enclosure (Change prefix 38FP to 38FR)

Selection Table 240 Volts

Total kVAR	Product Number	kVAR/ Step	Suffix L Blown Fuse Lts.	Suffix F Harmonic Reactors	Suffix B Circuit Breaker	Circuit Breaker 240 Volt Rating—Amps	Prefix R NEMA 3R	Enclosure Width (# of Sections)
100	38FP3100D255	25				400		1
150	38FP6150D255	25				600		2
200	38FP5200D255	25				800		2
225	38FP5225D255	25				1000		2
250	38FP5250D505	50				1000		2
300	38FP6300D505	50				1200		2

Selection Table 480/600 Volts

To order 600 Volt, change second "F" in product number to "H". (e.g. 38FP4400FA05 becomes 38FP4400HA05)

Total kVAR	Product Number	kVAR/ Step	Suffix L Blown Fuse Lts.	Suffix F Harmonic Reactors	Circuit Breaker 480 Volts Rating	Suffix B Circuit Breaker	Circuit Breaker 600 Volts Rating	Suffix B Circuit Breaker	Prefix R NEMA 3R	Enclosure Width (# of Sections)
300	38FP3300FA05	100			600		600			1 ²
350	38FP4350F505	50			800		600			2
400	38FP4400FA05	100			800		600			2
450	38FP5450F505	50			1000		800			2
500	38FP5500FA05	100			1000		800			2
550	38FP6550F505	50			1200		800			2
600	38FP6600FA05	100			1200		1000			2
650	38FP7650F505	50			1600		1200			2 ²
700	38FP7700FA05	100			1600		1200			2 ²
750	38FP8750F505	50			1600		1200			3
800	38FP8800FA05	100			1600		1600			3
850	38FP9850F505	50			1600		1600			3
900	38FP9900FA05	100			2000		1600			3
950	38FPA950F505	50			2000		1600			3
1000	38FPAA00FA05	100			2000		2000			3
1100	38FPBB00FA05	100			2500		2000			3 ²
1200	38FPCC00FA05	100			2500		2000			4
1300	38FPDD00FA05	100			2500		2500			4
1400	38FP EE00FA05	100			3000		2500			4
1500	38FPFF00FA05	100			3000		2500			4 ²

¹Price includes cabinet adder for breaker.
For ratings not listed consult factory.
Add breaker code suffix shown on page 24-32 GEMATIC compact and select.
For reverse entry last digit of Product Number changes from "5" to "7."

²Enclosure width increases by one section with breaker.
For bottom entry "5" changes to "6" and "7" changes to "8."
Bottom entry may change equipment width. Consult factory or e-catalog for dimension and pricing of bottom entry.

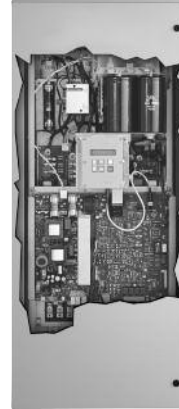


For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

GE GEMACTIVE Active Harmonic Filter

- Dynamic current injection for harmonic cancellation and power factor correction
- Reduces harmonics for IEEE 519 (1992) standard compliance
- Decreases harmonic related overheating of cables, switchgear and transformers
- Reduces downtime caused by nuisance thermal tripping of protective devices
- Increases electrical network reliability and reduces operating costs
- Compensates each phase independently
- UL and CSA approved
- Parallel connection allows for easy retrofit and installation of multiple units for large networks
- Filters to the 50th harmonic
- Filters entire network or specific loads depending on installation point
- Response to load fluctuations begins in 40 microseconds with 8 milliseconds for full response to step load changes
- IGBT based power electronic technology
- 50, 100 and 300A models for 208 to 480V, 50/60 Hz three-phase networks

GE GEMACTIVE reduces problematic harmonic levels and provides instantaneous power factor correction. Cost savings result from reduced downtime and maintenance. In addition, over-sizing of distribution equipment to provide for harmonics and poor power factor can be avoided. GE GEMACTIVE dynamically corrects power quality by providing: Active Harmonic Filtration, Resonance Prevention, Power Factor Correction and Dynamic VAR Compensation.



Dynamic VAR Compensation by GEMACTIVE

Large inductive inrush currents typically cause voltage sags that result in reduced productivity, poor process quality and possible downtime due to undervoltage tripping of devices. GEMACTIVE is able to inject peak current at two and a half times its rms current rating for one cycle. For many applications this level of compensation eliminates visible flicker and improves voltage regulation resulting in better productivity and quality.

GEMACTIVE Sizing

A harmonic study is not required to select the size of the GEMACTIVE installation. This is because when GEMACTIVE is installed it becomes a lower impedance path for harmonics than the existing power supply. For sizing, please contact GE. To expedite the product selection process, please have a single line diagram and/or details of the application including sizes of transformers, non-linear and linear loads, and any existing filters and capacitors.

Active Filter Three-phase 60/50Hz

Table with 3 columns: Current Rating, Enclosure Type, and 240/480V Product Number. It lists configurations for 50, 100, and 300 current ratings in NEMA 1 and Chassis enclosures.

Current Transformers

Table with 2 columns: Ratio and Product Number. It shows a Multi-tap ratio corresponding to product number 37GCT5000SC.

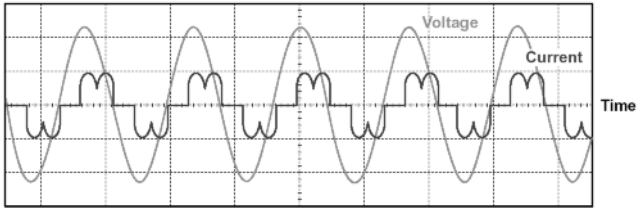
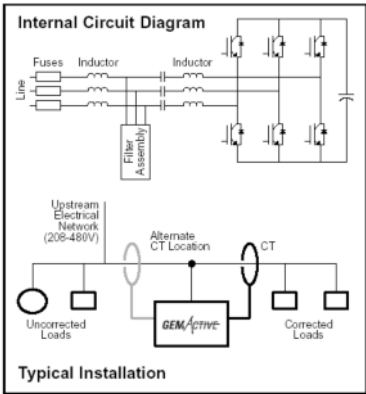


Fig. 1: Non-linear current waveform with poor power factor

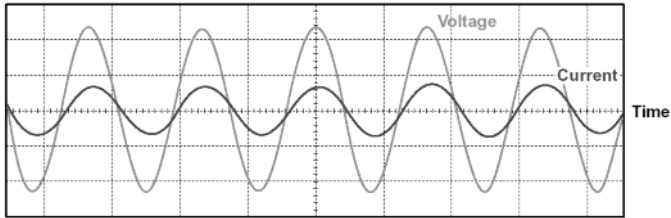


Fig. 2: Corrected Current waveform with improved power factor and reduced harmonic content after Active Harmonic Filter Installation

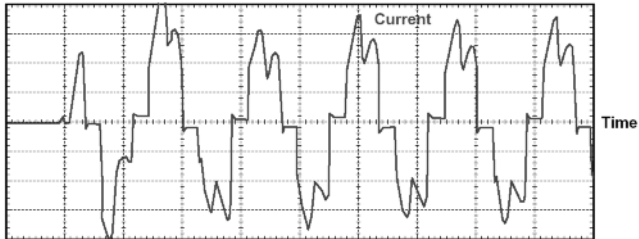


Fig. 3: Inrush Current without Active Harmonic Filter

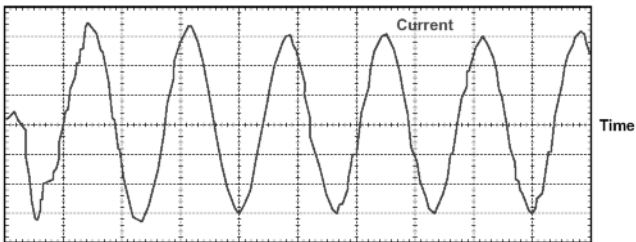


Fig. 4: Inrush Current with Active Harmonic Filter

Capacitors, Arresters and Harmonic Filters

Fixed MV Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof and Outdoor Weatherproof

25-900 kVAR, 60 Hz

2400, 4160, 4800 Volts

1.0-200 kVAR, 240 Volt

Application

Type HWT equipments are suitable for use on indoor or outdoor primary circuits where small amounts of kVAR are required. They may be installed at load centers or directly at the terminals of 2300 and 4000 volt motors. Permissible ambient temperatures are -40° to $+45^{\circ}\text{C}$. Discharge resistors in each capacitor reduce the voltage to 50 volts or less within 5 minutes of de-energization.

Type HWT equipments contain less than three gallons of flammable liquid in a single container and therefore do not require installation in a vault to meet the NEC.

Line Terminals

Solderless connectors are provided on each phase:

Assembly	Connector Size
One unit	#10 - #4
Two unit	#14 - 1/0
Three unit	#6 - 250 kcmil

Fuses

Protection is provided by 50,000 ampere interrupting capacity current limiting fuses. A pop-up button on the fuse gives visual indication of a blown fuse. GE recommends the use of three fuses for the most complete protection against terminal-to-terminal and terminal-to-ground failures on grounded systems. Two fuses are sufficient to provide protection against terminal-to-terminal failures on ungrounded systems.

Blown Fuse Lights

Blown fuse lights provide a positive **external** indication of an operated fuse. A glowing light makes inspection of capacitors easy, effective, and safe. A 120 VAC source must be supplied externally. When ordered with this option, the HWT assembly is supplied with one light per capacitor.

For higher voltage designs, contact factory or consult e-catalog.



Capacitors, Arresters and Harmonic Filters

Fixed MV Power Factor Correction Capacitors

Section 24

Complete Assemblies Including Terminal Box, Fuses and Mounting Frame

kVAR	2400 Volt Assemblies Product Number	4160 Volt Assemblies Product Number	4800 Volt Assemblies Product Number	Fig. No.	Approx. Wt.		Dimensions					
							C		E		F	
					Lb	(kg)	in.	(mm)	in.	(mm)	in.	(mm)
Individual Units—With Terminal Box and 3 Fuses Per Unit												
25	37F0520431	37F0523431	37F0526431	1	64	(29)	27.68	(703)	6.96	(177)	—	—
50	37F0520432	37F0523432	37F0526432	1	64	(29)	27.68	(703)	6.96	(177)	—	—
75	37F0520433	37F0523433	37F0526433	1	64	(29)	27.68	(703)	6.96	(177)	—	—
100	37F0520434	37F0523434	37F0526434	1	69	(31)	29.44	(748)	8.71	(221)	—	—
125	37F0520435	37F0523435	37F0526435	1	76	(35)	30.18	(767)	9.46	(240)	0.75	(19)
150	37F0520436	37F0523436	37F0526443	1	81	(37)	32.68	(830)	11.96	(304)	0.50	(13)
175	37F0520438	37F0523438	37F0526445	1	86	(39)	33.35	(847)	12.63	(321)	0.17	(4)
200	37F0520437	37F0523437	37F0526444	1	92	(42)	33.35	(847)	12.63	(321)	0.17	(4)
225	37F0520439	37F0523439	37F0526446	1	103	(47)	36.06	(916)	18.33	(466)	0.88	(22)
250	37F0520440	37F0523440	37F0526447	1	103	(47)	36.06	(916)	18.33	(466)	0.88	(22)
275	37F0520441	37F0523441	37F0526448	1	114	(52)	39.06	(992)	18.33	(466)	—	—
300	—	37F0523442	37F0526449	1	114	(52)	39.06	(992)	18.33	(466)	—	—
Two Units Interconnected—With Terminal Box, 3 Fuses Per Unit and Mounting Frame												
300	37F0521435	—	—	2	149	(68)	33.43	(849)	12.70	(323)	—	—
325	37F0521436	37F0524436	37F0527440	2	154	(70)	33.43	(849)	12.70	(323)	—	—
350	37F0521437	37F0524437	37F0527437	2	159	(72)	33.43	(849)	12.70	(323)	—	—
375	37F0521439	37F0524439	37F0527441	2	165	(75)	33.43	(849)	12.70	(323)	—	—
400	37F0521438	37F0524438	37F0527438	2	171	(78)	33.43	(849)	12.70	(323)	—	—
425	37F0521440	37F0524440	37F0527442	2	181	(82)	39.18	(995)	18.45	(469)	—	—
450	37F0521441	37F0524441	37F0527443	2	192	(87)	39.18	(995)	18.45	(469)	—	—
475	37F0521442	37F0524442	37F0527444	2	192	(87)	39.18	(995)	18.45	(469)	—	—
500	37F0521443	37F0524443	37F0527445	2	192	(87)	39.18	(995)	18.45	(469)	—	—
525	37F0521444	37F0524444	37F0527446	2	203	(92)	39.18	(995)	18.45	(469)	—	—
550	37F0521445	37F0524445	37F0527447	2	214	(97)	39.18	(995)	18.45	(469)	—	—
575	—	37F0524446	37F0527448	2	214	(97)	39.18	(995)	18.45	(469)	—	—
600	—	37F0524447	37F0527449	2	214	(97)	39.18	(995)	18.45	(469)	—	—
Three Units Interconnected—With Terminal Box, 3 Fuses Per Unit and Mounting Frame												
575	37F0522442	—	—	3	248	(113)	33.43	(849)	12.70	(323)	—	—
600	37F0522441	—	—	3	254	(115)	33.43	(849)	12.70	(323)	—	—
625	37F0522443	37F0525443	37F0528442	3	265	(120)	39.18	(995)	18.45	(469)	—	—
650	37F0522444	37F0525444	37F0528443	3	276	(125)	39.18	(995)	18.45	(469)	—	—
675	37F0522445	37F0525445	37F0528444	3	287	(130)	39.18	(995)	18.45	(469)	—	—
700	37F0522446	37F0525446	37F0528445	3	298	(130)	39.18	(995)	18.45	(469)	—	—
725	37F0522447	37F0525447	37F0528446	3	298	(130)	39.18	(995)	18.45	(469)	—	—
750	37F0522448	37F0525448	37F0528447	3	298	(130)	39.18	(995)	18.45	(469)	—	—
775	37F0522449	37F0525449	37F0528448	3	309	(135)	39.18	(995)	18.45	(469)	—	—
800	37F0522450	37F0525450	37F0528449	3	320	(140)	39.18	(995)	18.45	(469)	—	—
825	—	37F0525451	37F0528450	3	331	(145)	39.18	(995)	18.45	(469)	—	—
850	—	37F0525452	37F0528451	3	331	(145)	39.18	(995)	18.45	(469)	—	—
875	—	37F0525453	37F0528452	3	331	(145)	39.18	(995)	18.45	(469)	—	—
900	—	37F0525454	37F0528453	3	331	(145)	39.18	(995)	18.45	(469)	—	—

To order Blown Fuse Light option add "100" to the last 3 digits of the standard product numbers above.

Example: 37F0524436 becomes 37F0524536.

For units tested and labeled per CSA Standard, add 037 suffix.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Fixed MV Power Factor Correction Capacitors

Section 24

Enclosed Indoor Dustproof and Outdoor Weatherproof

25-900 kVAR, 60 Hz

2400, 4160, 4800 Volt

Dimensions

HWT Assemblies Including Terminal Box, 3 Fuses Per Unit and Mounting Frame

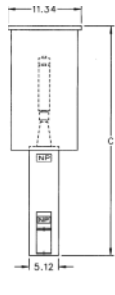


Fig. 1

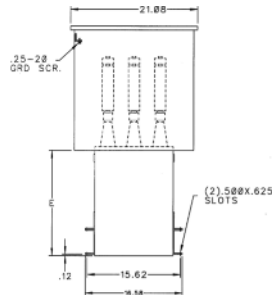


Fig. 2

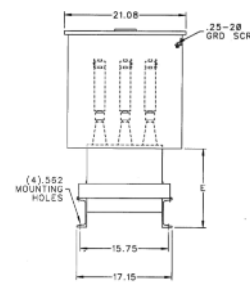
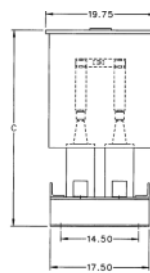
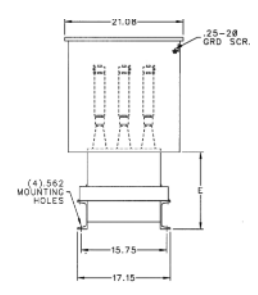
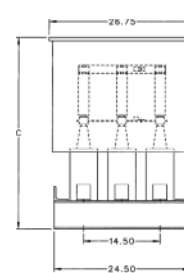


Fig. 3



Replacement Capacitor Units and Fuses¹

kVAR	2400 volts			4160 volts			4800 volts		
	Capacitor Product No.	Fuse Dwg. No. 115A1614 Product No.	Amps	Capacitor Product No.	Fuse Dwg. No. 115A1614 Product No.	Amps	Capacitor Product No.	Fuse Dwg. No. 115A1614 Product No.	Amps
25	52L301WS60	00653	35	52L302WS60	00656	18	52L303WS61	00656	18
50	51L301WS60	00653	35	51L302WS60	00656	18	51L303WS60	00656	18
75	51L304WS60	00653	35	51L305WS60	00656	18	51L306WS60	00656	18
100	54L303WS60	00654	75	54L304WS60	00658	50	54L305WS60	00666	25
125	54L306WS60	00654	75	54L307WS60	00658	50	54L310WS60	00666	25
150	54L308WS60	00654	75	54L309WS60	00658	50	54L403WS60	00658	50
175	54L317WS60	00654	75	54L313WS60	00658	50	54L311WS60	00658	50
200	58L302WS60	00655	100	58L303WS60	00658	50	58L424WS60	00658	50
225	16L0153WS3	00655	100	16L0156WS3	00658	50	16L0160WS3	00658	50
250	16L0154WS3	00655	100	16L0157WS3	00671	75	16L0161WS3	00658	50
275	16L0155WS3	00655	100	16L0158WS3	00671	75	16L0162WS3	00671	75
300				16L0159WS3	00671	75	16L0163WS3	00671	75

¹Top and Bottom fuse adapters needed, one each per fuse: Order Product No. 308A390100001.

This is a kit that contains one top and one bottom adapter.

For units tested and labeled per CSA Standard, add 037 suffix.



Capacitors, Arresters and Harmonic Filters

High Voltage Capacitor Units, Single and Three-Phase

Section 24

Standard Duty

(Film/Foil Designs w/Dielektrol™)

50-600 kVAR, 60 Hertz

2400-24,940 Volts

Film/Foil Dielektrol™ is the GE non-PCB low loss power capacitor dielectric system, developed to provide lower operating costs and greatly enhanced fuse coordination for the prevention of case ruptures. The Dielektrol™ insulating liquid is a Class IIIB combustible fluid.

- These capacitors are designed to meet ANSI Std 18
- Units for special applications (i.e. system harmonics) or other non-standard capacitors, contact Product Department or visit www.gedigitalenergy.com
- CSA labeling available upon request



50-600 kVAR, 2400-24940 Volt
Single-Phase Capacitor

Single Phase Standard Ratings and Product Numbers¹

Voltage	BIL	50 kVAR		100 kVAR		150 kVAR		200 kVAR	
		1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing
2400	95	51L221WC62	51L201WC62	54L221WC62	54L201WC62	54L521WC62	54L501WC62	58L121WC62	58L101WC62
2770	95	51L222WC59	51L202WC59	54L222WC60	54L202WC60	54L522WC60	54L502WC60	58L122WC60	58L102WC60
4160	95	51L223WC28	51L203WC28	54L223WC60	54L203WC60	54L523WC60	54L503WC60	58L123WC60	58L103WC60
4800	95	51L224WC60	51L204WC60	54L224WC62	54L204WC62	54L524WC62	54L504WC62	58L124WC62	58L104WC62
6640	95	51L225WC60	51L205WC60	54L225WC60	54L205WC60	54L525WC60	54L505WC60	58L125WC60	58L105WC60
7200	95	51L226WC60	51L206WC60	54L226WC60	54L206WC60	54L526WC60	54L506WC60	58L126WC60	58L106WC60
7620	95	51L227WC60	51L207WC60	54L227WC60	54L207WC60	54L527WC60	54L507WC60	58L127WC60	58L107WC60
7960	95	51L228WC60	51L208WC60	54L228WC60	54L208WC60	54L528WC60	54L508WC60	58L128WC60	58L108WC60
8320	95	51L235WC60	51L215WC60	54L235WC60	54L215WC60	54L535WC60	54L515WC60	58L129WC60	58L109WC60
9960	95	51L234WC60	51L214WC60	54L234WC60	54L214WC60	54L534WC60	54L514WC60	58L130WC60	58L110WC60
12470	95	51L229WC60	51L209WC60	54L229WC60	54L209WC60	54L529WC60	54L509WC60	58L131WC60	58L111WC60
13280	95	51L230WC60	51L210WC60	54L230WC60	54L210WC60	54L530WC60	54L510WC60	58L132WC60	58L112WC60
13800	95	51L231WC60	51L211WC60	54L231WC60	54L211WC60	54L531WC60	54L511WC60	58L133WC60	58L113WC60
14400	95	51L232WC60	51L212WC60	54L232WC60	54L212WC60	54L532WC60	54L512WC60	58L134WC60	58L114WC60
19920	150	51L255WC62	-	54L255WC62	-	54L555WC60	-	58L155WC60	-
21600	150	51L256WC62	-	54L256WC62	-	54L556WC60	-	58L156WC60	-

Voltage	BIL	300 kVAR		400 kVAR		500 kVAR		600 kVAR	
		1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing
2400	95	NA	NA	NA	NA	NA	NA	NA	NA
2770	95	NA	NA	NA	NA	NA	NA	NA	NA
4160	95	59L123WC60	59L103WC60	98L123WC60	98L103WC60	NA	NA	NA	NA
4800	95	59L124WC62	59L104WC62	98L124WC63	98L104WC63	NA	NA	NA	NA
6640	95	59L125WC60	59L105WC60	98L125WC60	98L105WC60	98L525WC60	98L505WC60	98L585WC60	98L565WC60
7200	95	59L126WC62	59L106WC62	98L126WC63	98L106WC63	98L526WC62	98L506WC62	98L586WC60	98L566WC60
7620	95	59L127WC60	59L107WC60	98L127WC60	98L107WC60	98L527WC60	98L507WC60	98L587WC60	98L567WC60
7960	95	59L128WC60	59L108WC60	98L128WC60	98L108WC60	98L528WC60	98L508WC60	98L588WC60	98L568WC60
8320	95	59L129WC60	59L109WC60	98L129WC60	98L109WC60	98L529WC60	98L509WC60	98L589WC60	98L569WC60
9960	95	59L130WC60	59L110WC60	98L130WC60	98L110WC60	98L530WC60	98L510WC60	98L590WC60	98L570WC60
12470	95	59L131WC60	59L111WC60	98L131WC60	98L111WC60	98L531WC60	98L511WC60	98L591WC60	98L571WC60
13280	95	59L132WC60	59L112WC60	98L132WC60	98L112WC60	98L532WC60	98L512WC60	98L592WC62	98L572WC62
13800	95	59L133WC60	59L113WC60	98L133WC60	98L113WC60	98L533WC60	98L513WC60	98L593WC62	98L573WC62
14400	95	59L134WC62	59L114WC62	98L134WC62	98L114WC62	98L534WC62	98L514WC62	98L594WC62	98L574WC62
19920	150	59L155WC60	-	98L155WC62	-	98L555WC61	-	98L595WC61	-
21600	150	59L156WC60	-	98L156WC62	-	98L556WC61	-	98L596WC60	-

¹Larger kVAR units, extra creep options and other voltages are available. Consult factory for product numbers and pricing.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

High Voltage Capacitor Units, Single- and Three-Phase

Section 24

Heavy Duty
(Film/Foil Designs w/Dielektrol™)
50-600 kVAR, 60 Hertz
2400-24,940 Volts

GE Heavy Duty all-film capacitors are designed, manufactured, and tested to meet the requirements of all applicable ANSI/IEEE, NEMA, and IEC standards. In addition they are designed to exceed the requirements of these standards in terms of continuous rms and peak overvoltage withstand capabilities. They are good for 125% continuous rms overvoltage capability and 135% peak overvoltage capability. These capacitors are suitable for industrial power systems that have higher voltages or harmonic loads. CSA Labeling available upon request and 50 HZ designs also available upon request.

GE Heavy Duty 125% Continuous Overvoltage Capability Product Numbers

Voltage	BIL	50 kVAR		100 kVAR		150kVAR		200kVAR	
		1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing
2400	95	51L221WC10	51L201WC10	54L221WC10	54L201WC10	54L521WC10	54L501WC10	58L121WC10	58L101WC10
2770	95	51L222WC10	51L202WC10	54L222WC10	54L202WC10	54L522WC10	54L502WC10	58L122WC10	58L102WC10
4160	95	51L223WC10	51L203WC10	54L223WC10	54L203WC10	54L523WC10	54L503WC10	58L123WC10	58L103WC10
4800	95	51L224WC10	51L204WC10	54L224WC10	54L204WC10	54L524WC10	54L504WC10	58L124WC10	58L104WC10
6640	95	51L225WC10	51L205WC10	54L225WC10	54L205WC10	54L525WC10	54L505WC10	58L125WC10	58L105WC10
7200	95	51L226WC10	51L206WC10	54L226WC10	54L206WC10	54L526WC10	54L506WC10	58L126WC10	58L106WC10
7620	95	51L227WC10	51L207WC10	54L227WC10	54L207WC10	54L527WC10	54L507WC10	58L127WC10	58L107WC10
7960	95	51L228WC10	51L208WC10	54L228WC10	54L208WC10	54L528WC10	54L508WC10	58L128WC10	58L108WC10
8320	95	51L235WC10	51L215WC10	54L235WC10	54L215WC10	54L535WC10	54L515WC10	58L129WC10	58L109WC10
9960	95	51L234WC10	51L214WC10	54L234WC10	54L214WC10	54L534WC10	54L514WC10	58L130WC10	58L110WC10
12470	95	51L229WC10	51L209WC10	54L229WC10	54L209WC10	54L529WC10	54L509WC10	58L131WC10	58L111WC10
13280	95	51L230WC10	51L210WC10	54L230WC10	54L210WC10	54L530WC10	54L510WC10	58L132WC10	58L112WC10
13800	95	51L231WC10	51L211WC10	54L231WC10	54L211WC10	54L531WC10	54L511WC10	58L133WC10	58L113WC10
14400	95	51L232WC10	51L212WC10	54L232WC10	54L212WC10	54L532WC10	54L512WC10	58L134WC10	58L114WC10
19920	150	51L255WC10	-	54L255WC10	-	54L555WC10	-	58L155WC10	-
21600	150	51L256WC10	-	54L256WC10	-	54L556WC10	-	58L156WC10	-

Voltage	BIL	300 kVAR		400 kVAR		500 kVAR	
		1 Bushing	2 Bushing	1 Bushing	2 Bushing	1 Bushing	2 Bushing
2400	95	NA	NA	NA	NA	NA	NA
2770	95	NA	NA	NA	NA	NA	NA
4160	95	59L123WC10	59L103WC10	98L123WC10	98L103WC10	NA	NA
4800	95	59L124WC10	59L104WC10	98L124WC10	98L104WC10	NA	NA
6640	95	59L125WC10	59L105WC10	98L125WC10	98L105WC10	98L525WC10	98L505WC10
7200	95	59L126WC10	59L106WC10	98L126WC10	98L106WC10	98L526WC10	98L506WC10
7620	95	59L127WC10	59L107WC10	98L127WC10	98L107WC10	98L527WC10	98L507WC10
7960	95	59L128WC10	59L108WC10	98L128WC10	98L108WC10	98L528WC10	98L508WC10
8320	95	59L129WC10	59L109WC10	98L129WC10	98L109WC10	98L529WC10	98L509WC10
9960	95	59L130WC10	59L110WC10	98L130WC10	98L110WC10	98L530WC10	98L510WC10
12470	95	59L131WC10	59L111WC10	98L131WC10	98L111WC10	98L531WC10	98L511WC10
13280	95	59L132WC10	59L112WC10	98L132WC10	98L112WC10	98L532WC10	98L512WC10
13800	95	59L133WC10	59L113WC10	98L133WC10	98L113WC10	98L533WC10	98L513WC10
14400	95	59L134WC10	59L114WC10	98L134WC10	98L114WC10	98L534WC10	98L514WC10
19920	150	59L155WC10	-	98L155WC10	-	98L555WC10	-
21600	150	59L156WC10	-	98L156WC10	-	98L556WC10	-



Capacitors, Arresters and Harmonic Filters

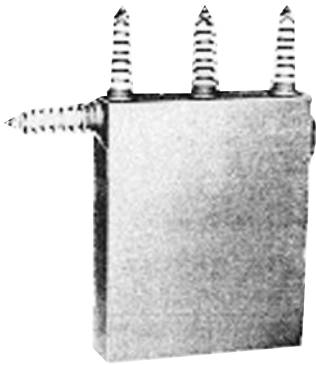
High Voltage Capacitor Units, Single- and Three-Phase

Three Phase Cantilever Mount Units

These three-phase capacitor units use the same technology as our single-phase units and when mounted directly to a pole offer a convenient single piece alternative to a multi-unit pole mount rack.

Standard Ratings and Product Numbers

Voltage	BIL (kV)	300 kVAR		400 kVAR	
		3 - Bushing Grounded Wye	4 - Bushing Ungrounded Wye	3 - Bushing Grounded Wye	4 - Bushing Ungrounded Wye
4160/2400	95	59L603WC29	59L623WC29	98L603WC29	98L623WC29
12470/7200	95	59L611WC59	59L631WC59	98L611WC59	98L631WC59
13200/7620	95	59L612WC59	59L632WC59	98L612WC59	98L632WC59
13800/7960	95	59L613WC59	59L633WC59	98L613WC59	98L633WC59
14400/8320	95	59L614WC59	59L634WC59	98L614WC59	98L634WC59



Ungrounded Wye
Three-Phase Capacitor

Contact factory for up to date Capacitor Outline Drawings.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

High Voltage Capacitor Units, Single- and Three-Phase

Three-Phase Units and Accessories

Section 24

Pole Mounted Racks Factory Assembled—Welded

Total Unit Capacity	95kV-BIL	125kV-BIL
	Product Number	Product Number
3	33F10AA002	33F24AA004
6	33F10BA002	33F26BA004
9	33F10CA002	33F26CA004
12	33F10DA002	33F26DA004

Field Assembly—Bolted¹

Total Capacity # of Units	BIL	Product Number
3	95	39F0083004
3	125	39F0083015
6	95	39F0086010
6	125	39F0086011

¹ Field assembly racks are for fixed applications only and will not support the addition of switches.

Bird Caps/Wildlife Protectors

Description	Product Number
Capacitor Bird Caps with Sleeve	614A507000101

Fuse Holders

Product Number	kV	Rating	
		Current	Interrupting
31F2807001	15	50	3600 amp. Sym
31F2808001	23	25	3600/1800 amp. Sym
115A161500041	8	100	7400 amp. Sym
115A161500049	25	50	1800 amp. Sym

Flipper Springs

Drawing Number	Application
248A695400001	Upright
248A695400002	Edgemount

HV Fuses and Fuse Links

Drawing Number	EEI-NEMA
115A162000078	8T
115A162000079	10T
115A162000080	12T
115A162000063	15T
115A162000081	20T
115A162000035	25T
115A162000053	30T
115A162000036	40T
115A162000043	50K
115A162000024	65K
115A162000059	80K
115A162000025	100K



Capacitors, Arresters and Harmonic Filters

High Voltage Pole-Mounted, Open Stack-Rack and Metal Enclosed Equipment

Pole-type Equipment
150-3600 kVAR, 60 Hertz
Open Stack-rack Banks
1200 kVAR and above, 60 Hertz

Metal Enclosed
2.4 through 38kV
150 kVAR and above

Section 24

Pole Mounted Equipment Description

These equipments are pre-wired, factory assembled, and shipped ready for pole installation with single-phase units. Racks are of welded structural aluminum and are suitable for mounting switches and junction box and cable assembly. Lightning arresters and/or potential transformers can also be mounted.

Required Data for Pole-Type Quotation:

The following questions must be answered before contacting the factory for a quotation.

1. Total kVAR? _____
2. Line-to-line (system) voltage? _____
3. Line-to-neutral voltage? _____
4. Bank connection — Delta, Grounded Wye, or Floating Wye? _____
5. Fixed or switched? _____
(check one)
 - a. Fixed expandable (switches later) _____
 - b. Fixed nonexpandable (no switches later) _____
 - c. Switch type (vacuum or oil) _____
6. Number of capacitor bushings (1 or 2)? _____ BIL (Basic Insulation Level) _____
7. Options (specify):
 - a. Current transformer
 - b. Potential transformer
 - c. Lightning arresters
 - d. Switching controls (example: voltage, current, kVAR, time controls)
 - e. Other. Please specify _____

Open Stack-Rack Equipment Description

This application is most popular for large blocks of three-phase Kilovar. Capacitor units and individual fuses are installed in welded aluminum racks, either upright or edge-mount. Racks are shipped ready for field installation with base and inter-rack insulators, substructure, interconnecting bus wire and other accessories for a three-phase equipment.

Harmonic filter banks are available. Submit complete specifications including harmonic currents and voltages.

Required Data for Stack-Rack Quotation:

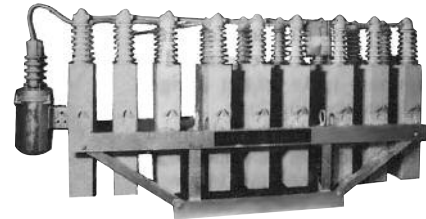
The following questions must be answered before contacting the factory for a quotation.

1. Total kVAR? _____
2. Line-to-line (system) voltage? _____
3. Bank connection — Floating Wye, Grounded Wye, Delta, or Double Wye¹? _____
4. Fixed or switched²? _____
 - a. If switched, how many steps? _____
 - b. If switched, how many kVAR per step? _____
5. Is substructure required (8 ft. standard)? _____
6. Space limitations (if any). Please specify _____
7. Options (specify):
 - a. Current transformer
 - b. Potential transformer
 - c. Ground switch (phase, neutral, both)
 - d. Other. Please specify _____
8. When optional apparatus is requested, state the available short circuit current for proper sizing of the options.

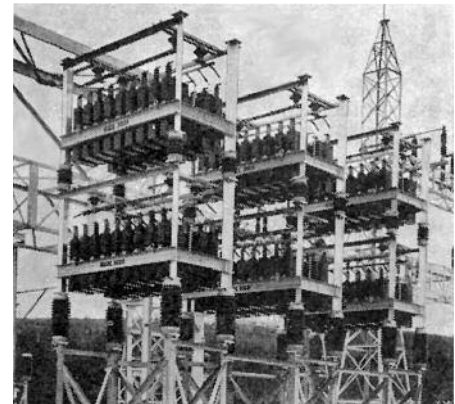
¹Three-phase, 60 Hertz is assumed. Specify if different.

²If switched:

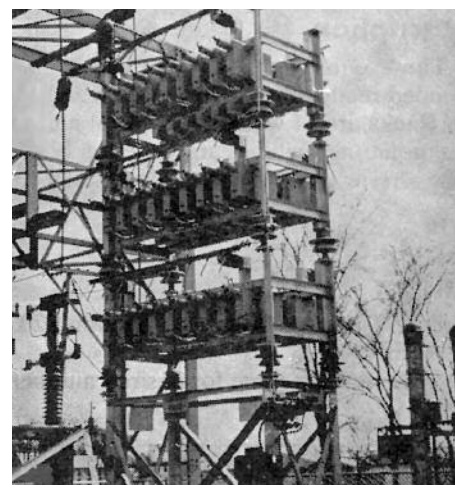
- a. Supply specification on switch requested.
- b. Advise if any parallel banks and ratings.



Typical in-line pole-type equipment, single-phase units



Upright stack-rack equipment



Edgemount stack-rack equipment



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters High Voltage Pole-Mounted, Open Stack-Rack and Metal Enclosed Equipment

Metal Enclosed Capacitor Banks

2.4 thru 38KV

Section 24

These power factor correction equipments are metal enclosed for indoor and outdoor installations. These banks can be located on a distribution feeder as a small padmount or at the workstation site. Banks are shipped ready for installation. Banks can be provided with the following options: oil or vacuum switching, automatic control and protection, stainless steel housing, custom colors, key mechanical or electrical interlocks, capacitor removal device, NEMA 1, 3R, 4, 4X or 12 enclosures.



Metal Enclosed Cabinet

Required Data for Metal Enclosed Quotation:

The following questions must be answered before contacting the factory for a quotation.

1. Total kVAR? _____
2. Line-to-line (system) voltage? _____
3. Bank connection - Floating Wye, Grounded Wye, Delta, or Double Wye ? _____
When in doubt Floating Wye is typically the best choice to avoid fault protection issues
4. Fixed or switched? _____
 - a. If switched do you want automatic control? _____
 - b. If switched, how many steps? _____
 - c. If switched, how many kVAR per step? _____
5. Space or access limitations (if any). Please specify _____
6. Type of Enclosure (Indoor or Outdoor; is Stainless Steel required)
7. Options (specify):
Incoming Air Disconnect _____
Main Incoming fuses (capacitors will be individually fused as standard practice) _____
Ground switch (phase, neutral, both) _____
Power factor Controller (see 4a above) _____
Key Interlocks _____
Blown fuse Detection System _____
Control Power Transformer _____
Arresters - Distribution, Intermediate or Station class _____
Incoming Breaker _____
Power Quality Meter _____
Overload protection (Yes or No) _____
Overvoltage protection (Yes or No) _____
Relay requirements (class, type, brand, other please specify) _____
Other. Please specify _____
8. When optional apparatus is requested, state the available short circuit current for proper sizing of the options. _____
9. Harmonic Filter Bank (Yes or No) _____
If yes, tuning point (5th, 7th, 11th, ...) _____



Capacitors, Arresters and Harmonic Filters

OEM High Energy Surge Protectors

9L10K Series
120-600 Volt Ratings

Section 24

This HESP design is intended for mounting in OEM equipment or in an existing enclosure to offer protection against internally and externally generated surges. UL-1449, Second Edition Recognized Component designed and tested according to ANSI/IEEE C62.41 and C62.45.

Features

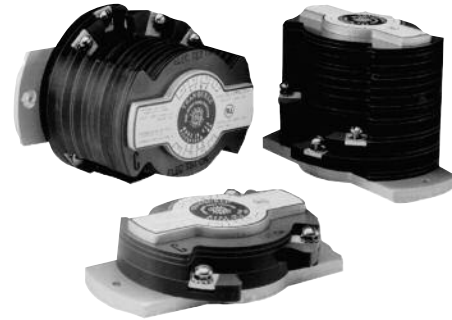
Energy Capability Options: This high energy capability option permits survivability in demanding environments and a lower clamping level for better protection.

High Surge Current Capability: The 76mm HESP protective elements are designed and tested at 100kA per mode.

Parallel or Series Connection: Unfused protectors are suitable for series connection in circuits rated up to 100 amps continuous, and T-connection (parallel) with no limitation on continuous load current.

The ability to connect the units in the series configuration offers optimum protection. This connection keeps lead length inductive voltage to a minimum and provides the lowest protective levels for each rating.

Dependable Protection: The unique zinc oxide "valve" element inside each arrester gives you improved overvoltage protection. These tough elements are designed so that they can handle surge after surge without trouble, breakdown, or repairs. Your Tranquell™ arrester's protective ability will remain unchanged throughout its service life.



Common Mode Protection Option: In addition to normal mode protection (L-L and L-N), HESP offers common mode protection (L-G and N-G) for 3-phase wye and single-phase 1 or 2 pole devices. This optional protection is recommended for devices remotely located from the system neutral to ground bond.

9L10K Series is direct replacement for superseded 9L10M Series.

Selection and Ratings

Nominal Voltage and Configuration (Volts, rms)	Max. Continuous Operating Voltage (Volts, rms)	1 second Temporary Overvoltage (Volts, rms)	Diagram Figure page 24-47	Energy Rating (Joules per Phase)	UL-1449, Second Edition Suppressed Voltage Rating (SVR) with 6 leads				Product Number ¹
					L-N	N-G ²	L-G ^{2,3}	L-L	
120, 1 Phase 2 Wire	Line-Neutral 138	L-N 183	1	960 2688	400 400	330 330	- -	- -	9L10KAA112 9L10KAA132NO
208 WYE/120 3 Phase, 4 Wire	Line-Neutral 138 Line-Line 239	L-N 183 L-L317	3, 4	960 2688	400 400	330 330	700 700	700 700	9L10KAB314 ⁴ 9L10KAB334NO
120/240 1 Phase, 3 Wire	Line-Neutral 138 Line-Line 276	L-N 183 L-L367	2	960 2688	400 400	400 400	700 700	700 700	9L10KAC113 9L10KAC133NO
240/480 1 Phase, 3 Wire	Line-Neutral 276 Line-Line 552	L-N 367 L-L 734	2	1920 5376	700 700	700 700	1200 1200	1200 1200	9L10KAD113 9L10KAD133NO
240, 1 Phase 2 Wire	Line-Neutral 276	L-N 367	1	1920 5376	700 700	700 700	- -	- -	9L10KAE112 9L10KAE132NO
240 Delta 3 Phase, 3 Wire	Line-Line 276	L-L 367	5, 6	1920 5376	- -	- -	700 700	1200 1200	9L10KAF313 ⁴ 9L10KAF333NO
240 WYE/138 3 Phase, 4 Wire	Line-Neutral 158 Line-Line 276	L-N 211 L-L 366	3, 4	1108 3102	400 400	400 400	800 800	800 800	9L10KAG314 ⁴ 9L10KAG334NO
480, 1 Phase 2 Wire	Line-Neutral 552	L-N 734	1	3840 10752	1500 1500	1500 1500	- -	- -	9L10KAJ112 9L10KAJ132NO
480 Delta 3 Phase, 3 Wire	Line-Line 552	L-L 734	5, 6	3840 10752	- -	- -	800 800	1500 1500	9L10KAK313 ⁴ 9L10KAK333NO
480 WYE/277 3 Phase, 4 Wire	Line-Neutral 318 Line-Line 552	L-N 424 L-L 734	3, 4	2216 6205	800 800	800 800	1500 1500	1500 1500	9L10KAL314 ⁴ 9L10KAL334NO

¹For optional Common Mode Protection change the product numbers as follows: for single-phase devices substitute 2 in the 8th position of the product number. For 3-phase WYE devices substitute 4 in the 8th position of the product number.

²N-G and L-G values for WYE product numbers are only applicable to those units with the optional common mode protection.

³For service entry applications where the neutral and ground are bonded, the L-G rating is equivalent to the L-N rating.

⁴Units indicated are not UL approved.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

OEM High Energy Surge Protectors

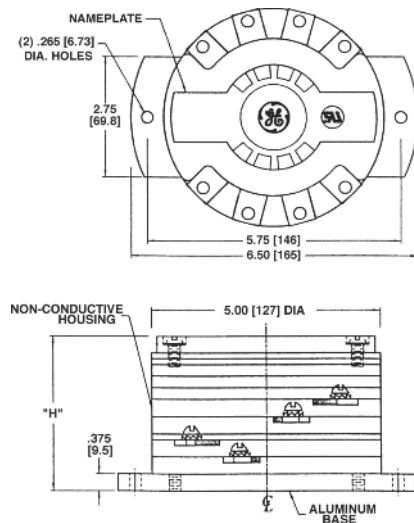
9L10K Series

120 – 600 Volt Ratings

Section 24

Connection Diagrams

4-terminal device shown
Dimensions (in/mm)



Product Number	"H" Dimension	
	inches	mm
9L10KAA112	1.75	44.5
9L10KAA132NO	2.00	50.8
9L10KAB314	2.75	69.9
9L10KAB334NO	3.38	85.9
9L10KAC113	2.50	63.5
9L10KAC133NO	3.00	76.2
9L10KAD113	2.50	63.5
9L10KAD133NO	3.00	76.2
9L10KAE112	1.75	44.5
9L10KAE132NO	2.25	57.2
9L10KAF313	2.25	57.2
9L10KAF333NO	3.75	95.3
9L10KAG314	2.75	69.9
9L10KAG334NO	3.38	85.9
9L10KAJ112	1.75	44.5
9L10KAJ132NO	2.25	57.2
9L10KAK313	2.25	57.2
9L10KAK333NO	3.75	95.3
9L10KAL314	2.88	73.2
9L10KAL334NO	4.38	111.3
9L10KAM313	2.62	66.5
9L10KAM333NO	4.50	114.3
9L10KAN314	2.88	73.2
9L10KAN334NO	4.38	111.3

Series Connection
Max. Continuous Current:
100A/Phase

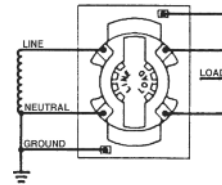


Fig. 1 Single Phase 2 or 3 Wire

"T" Connection
Max. Continuous Current:
Unlimited

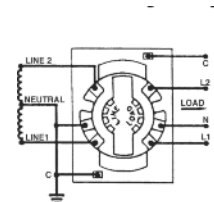
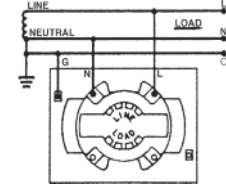


Fig. 2 Single Phase 3 or 4 Wire

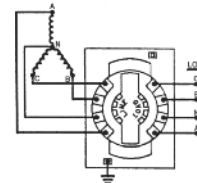
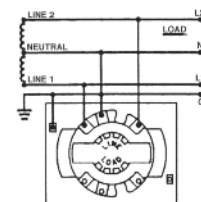


Fig. 3 Three Phase Wye Ungrounded

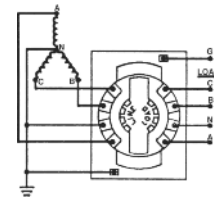
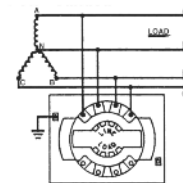


Fig. 4 Three Phase Wye/4 or 5 Wire/GND Neutral

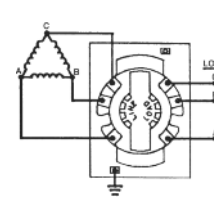
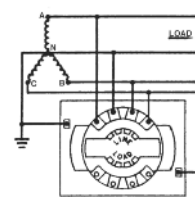


Fig. 5 Three Phase Delta/Ungrounded

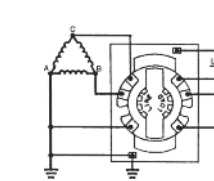
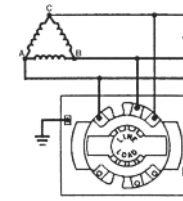
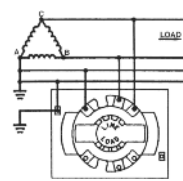


Fig. 6 Three Delta/One Phase Grounded



Capacitors, Arresters and Harmonic Filters

Tranquell™ Motor Surge Protector

Section 24

Motor and Generator Surge Protection Equipment

Three-Phase, 60 Hz

2400 through 24,000 Volt Ratings

NEMA 12/3R Enclosure

Description

Tranquell™ Motor Surge Protector provides surge protection for AC rotating machines including motors and generators. They are typically applied directly at the motor terminals and consist of GE Tranquell™ Station Class arresters connected in parallel with GE Dielektr™ Protective Capacitor(s). The arresters protect the major insulation to ground by limiting the amplitude of applied impulse waves or reflections within the machine windings, while the protective capacitor(s) reduce the steepness of wave fronts. Studies indicate that this dual protection approach results in significant reduction of lightning stresses imposed on rotating machines and contribute to increased security against failures and downtime costs. Enclosure is suitable for indoor and outdoor applications.

How to Select

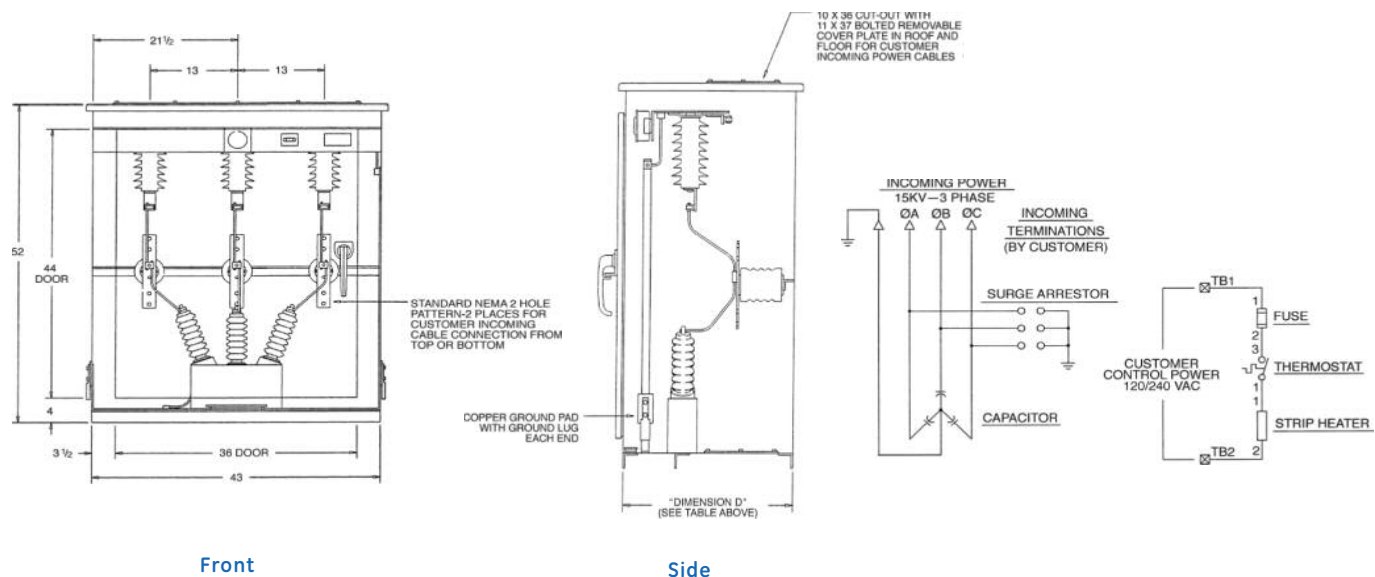
1. Determine the nominal system voltage and connection at the equipment being protected (Line-to-Line voltage, delta or wye, grounded or ungrounded).
2. Select product number (column 2 or 3) based on the line to line voltage (column 1).

Selection Table

Voltage Rating rms Volts (L-L)	Product No. Delta & Ungrounded Neutral Systems	Product No. Grounded Neutral Systems	Arrester Rating kV rms	Arrester MCOV kV rms	Capacitor Microfarads per Pole μ F	Dimension "D" (side view)	Weight lbs
2400	38F2401	—	3	2.55	0.5	23"	300
4160	38F2402	—	6.0	5.1	0.5	23"	300
—	—	38F2403	3	2.55	0.5	23"	300
4800	38F2404	—	6	5.1	0.5	23"	300
6900	38F2405	—	9.0	7.65	0.5	23"	300
7200	38F2406	—	9	7.65	0.5	23"	300
13200	38F2407	—	18	15.3	0.25	23"	300
—	—	38F2408	10	8.4	0.25	23"	300
13800	38F2409	—	18	15.3	0.25	23"	300
—	—	38F2410	12	10.2	0.25	23"	300
24000	38F2411	—	27	22.0	0.125	36"	350
—	—	38F2412	21	17.0	0.125	36"	350

Contact factory for other ratings.

Dimensions: (inches)



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Tranquell™ Secondary Surge Arresters and Protective Capacitors

120-650 Vac
Series 9L15F

Section 24

Assures Service Continuity

The GE Tranquell™ secondary arrester is specifically designed to protect utility, agricultural, and industrial installations and equipment in the 120-650 volt range from overvoltages caused by lightning discharges. It is available for both single- and three-phase application.

Applications that provide ideal installations for this arrester are:

- Exposed secondary circuits
- Watt hour meters
- Station auxiliary equipment and circuits
- Motors and control circuits
- Distribution transformer secondaries

Dependable Protection

The unique metal oxide element inside each Tranquell™ arrester gives you improved overvoltage protection. These tough elements are designed so that they can handle surge after surge without trouble, breakdown, or repairs. Your arrester's protective ability will remain unchanged throughout its service life.

Secondary Arresters – Indoor or Outdoor Mounting

Circuit Voltage Rating rms	Max. Permissible Line-to-Ground Voltage rms	No. of Poles	Net Weight (lbs/Kg)	Product Number ¹
120	175	2	1.0/0.4	9L15HCB001
650	650	1	1.0/0.4	9L15GCA001
650	650	2	1.0/0.4	9L15GCB001
650	650	3	1.0/0.4	9L15GCC001

Non-PCB Secondary Protective Capacitors– Indoor or Outdoor Mounting

Circuit Voltage Rating rms	Max. Permissible Line-to-Ground Voltage rms	No. of Poles	Net Weight (lbs/Kg)	Product Number ¹
0-650	650	3	4.00/1.8	9L18BBB301

¹Quantity break pricing applies; consult factory or your GE sales representative.

Secondary Surge Arrester Protective Characteristics

Discharge Voltage kV Crest (8 x 20 Microsecond Current Wave)				Discharge Capabilities 8 x 20 microsecond	Energy Handling Capability
1.5 kA	5.0 kA	10.0 kA	20.0 kA		
2.2	2.6	2.9	3.5	20,000 amp	900 joules per pole

Fusing

To minimize the possibility of violent rupture in the unlikely event of electrical failure of the arrester, current limiting fuses are recommended for all applications above 120 volts. A fuse must be installed in series with each pole of the arrester (i.e. each black wire). See Fuse Selection table below. The GEH-4982C instruction book shipped with each arrester also includes fusing guidelines.

Fuse Selection – For 9L15E Series (above 120V)

Arrester Location	Maximum Lightning Impulse ^{2,3}	Fuse Rating ⁴
A Long Branch Circuit more than 20m from Service Entrance with wires #14-10	200A	30 A; 600 V U.L. Class T 200,000 A Interrupt
B Major Feeders and Short Branch Circuits less than 20m from Service Entrance	3 kA 8x20 μs	30 A; 600 V U.L. Class T 200,000 A Interrupt
C Outside and Service Entrance	10 kA 4x10 μs	30 A; 600 V U.L. Class T 200,000 A Interrupt

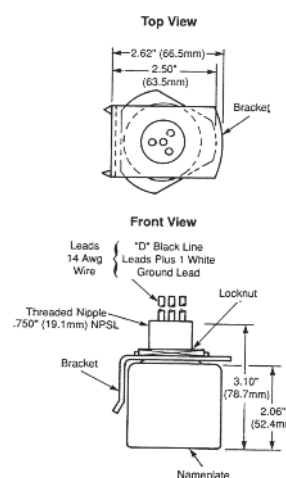


Figure 1
Tranquell™ Arrester

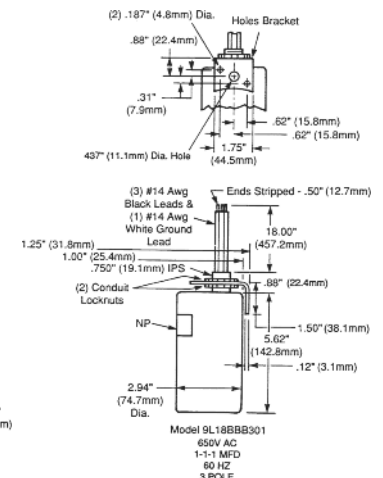


Figure 2
Protective Capacitor⁵

²Maximum impulse expected as described in ANSI/IEEE C62.41 for systems with medium exposure to surges. Arresters have been design tested to impulses as high as 20 kA, 8x20μs.

³Design tests for secondary arresters as required by ANSI/IEEE standards are limited to a maximum of 10 kA, 4x10μs impulses.

⁴UL Class CC (Midget) 30 A fuses are also satisfactory for locations A and B.

⁵Secondary capacitor is a 3-pole device that can be applied with 1- and 2-pole arresters by connecting the corresponding black leads and tying off the unused leads.

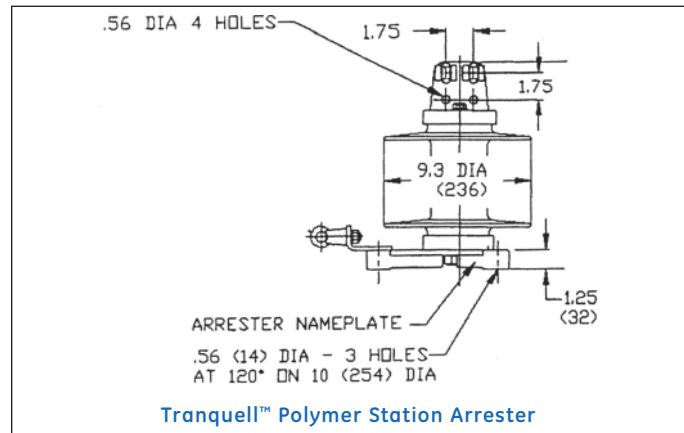


Tranquell™ Station Arresters

Polymer and Porcelain High-Voltage
Indoor and Outdoor Service

Product Description

Tranquell™ XE porcelain and XEP polymer station arresters provide both excellent protective characteristics and temporary overvoltage capability. Gapless construction results in a design which is simple, reliable and economical while offering excellent fault current capability to meet the most demanding service conditions. The GE arrester is based on the field-proven metal oxide disks known for maintaining stable characteristics. Station arresters are designed and manufactured in accordance with the latest revision of ANSI/IEEE C62.11.



Porcelain and Polymer Arresters (Station Class) for both Indoor and Outdoor Mounting (2.7-612 kVrms)

Normally Used on System Voltage Class (L-L)									
Arrester Rating kVrms	MCOV Capability (L-N) kVrms		High Impedance Grounded,		Porcelain Product Number		Silicone ⁴		Eyebolt Terminal
	Porcelain	Polymer	Ungrounded (Delta) or Temporarily Ungrounded Circuits	Solidly Grounded Neutral kVrms	Metal Top; Indoor / Outdoor	Porcelain Top for Indoor or Cubicle	Metal Top for Indoor or Outdoor	4-hole NEMA	
3	2.55	2.55	2.4	4.16	9L11ZGA003S	9L11ZGB003S		9L11XPA003AS	9L11XPB003AS
6	5.1	5.1	4.8	8.32	9L11ZGA006S	9L11ZGB006S		9L11XPA006AS	9L11XPB006AS
9	7.65	7.65	6.9	12.47	9L11ZGA009S	9L11ZGB009S		9L11XPA009AS	9L11XPB009AS
10	8.4	8.4	8.32	13.8	9L11ZGA010S	9L11ZGB010S		9L11XPA010AS	9L11XPB010AS
12	10.2	10.2	12 ²	--	9L11ZGA012S	9L11ZGB012S		9L11XPA012AS	9L11XPB012AS
15	12.7	12.7	13.8 ²	20.78	9L11ZGA015S	9L11ZGB015S		9L11XPA015AS	9L11XPB015AS
18	15.3	15.3	13.8	24.94	9L11ZGA018S	9L11ZGB018S		9L11XPA018AS	9L11XPB018AS
21	17	17	--	--	9L11ZGA021S	9L11ZGB021S		9L11XPA021AS	9L11XPB021AS
24	19.5	19.5	23 ²	--	9L11ZGA024S	9L11ZGB024S		9L11XPA024AS	9L11XPB024AS
27	22	22	23	34.5	9L11ZGA027S			9L11XPA027AS	9L11XPB027AS
30	24.4	24.4	24.94	--	9L11ZGA030S			9L11XPA030AS	9L11XPB030AS
36	29	29	34.5 ²	46	9L11ZGA036S			9L11XPA036AS	9L11XPB036AS
39	31.5	31.5	--	--	9L11ZGA039S			9L11XPA039AS	9L11XPB039AS
45	36.5	36.5	34.5	--	9L11ZGA045S			9L11XPA045AS	9L11XPB045AS
48	39	39	46 ²	--	9L11ZGA048S			9L11XPA048AS	9L11XPB048AS
54	42	42	--	69	9L11ZTA054AS		9L11HMA054S	9L11XPA054AS	9L11XPB054AS
60	48	48	46	--	9L11ZTA060AS		9L11HMA060S	9L11XPA060AS	9L11XPB060AS
66	53	53	--	--	9L11ZTA066AS			9L11XPA072AS	9L11XPB072AS
72	57	57	69 ²	--	9L11ZTA072AS		9L11HMA072S	9L11XPA090AS	9L11XPB090AS
90	74	70	69	115	9L11ZTA090AS		9L11HMA090S	9L11XPA096AS	9L11XPB096AS
96	76	76	--	--	9L11ZTA096AS		9L11HMA096S	9L11XPA108AS	9L11XPB108AS
108	84	84	--	138	9L11ZXA108AS		9L11HMA108S	9L11SPA108AS	9L11SPB108AS
108	88	88	--	--	9L11ZTA108AS		9L11HMA108S	9L11XPA120AS	9L11XPB120AS
120	98	98	115 ²	161	9L11ZTA120AS		9L11HMA120S	9L11XPA132AS	9L11XPB132AS
132	106	106	--	--	9L11ZTA132AS		9L11HMA132S	9L11XPA144AS	9L11XPB144AS
144	115	115	138 ²	--	9L11ZTA144AS		9L11HMA144S	9L11XPA168AS	9L11XPB168AS
168	131	131	138	--	9L11ZTA168AS		9L11HMA168S	9L11XPA172AS	9L11XPB172AS
172	140	140	161 ²	230	9L11ZTA172AS		9L11HMA172S	9L11XPA180AS	9L11XPB180AS
180	144	144	--	--	9L11ZTA180AS		9L11HMA180S	9L11XPA192AS	9L11XPB192AS
192	152	152	161	--	9L11ZTA192AS		9L11HMA192S	9L11XPA228AS	9L11XPB228AS
228	180	180	--	--	9L11ZTA228AS		9L11HMA228S		
240	194	194	--	--	9L11ZTA240AS		9L11HMA240S		
258	209		For Nominal 345kV Systems		9L11ZTA258AS		9L11HMA258S		
264	212		For Nominal 345kV Systems		9L11ZTA264AS		9L11HMA264S		
276	220		For Nominal 345kV Systems		9L11ZTA276AS		9L11HMA276S		
288	234		For Nominal 345kV Systems		9L11ZTA288AS		9L11HMA288S		
294	237		For Nominal 345kV Systems		9L11ZTA294AS				
300	243		For Nominal 345kV Systems		9L11ZTA300AS				
312	245		For Nominal 400kV Systems		9L11ZTA312AS		9L11HMA312S		
336	264		For Nominal 400kV Systems		9L11ZTA336AS				
360	288		For Nominal 400kV Systems		9L11ZTA360AS				
396	318		For Nominal 500kV Systems		9L11ZTA396AS		9L11HMA396S		
420	335		For Nominal 500kV Systems		9L11ZTA420AS		9L11HMA420S		
396	318		For Nominal 500kV Systems		9L11ZTA396AS				
420	335		For Nominal 500kV Systems		9L11ZTA420AS				
444	353		For Nominal 500kV Systems		9L11ZTA444AS		9L11HMA444S		
588	470		For Nominal 765kV Systems		9L16GNS588S				
612	485		For Nominal 765kV Systems		9L16GNS612S				

¹Tranquell™ Arresters are designed to be operated at voltages equal to or less than their continuous capability as stated in column 2.

²Based on our recommended MCOV ratings for normal system voltages, for systems with ground faults lasting no more than 30 minutes.

³For underhung (or upside down) mounting, with eyebolt terminal on the bottom, change letter B of the product number to E.

⁴Special Ratings available on request.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Tranquell™ Station Arresters

Porcelain High-Voltage
Indoor and Outdoor Service

Section 24

Porcelain, Metal Top Station Arrester Dimensions, Leakage Distances, Mounting Clearances and Weights

Standard Arrester Catalog Number	Duty Cycle (kV) rms	MCOV (kV) rms	Height "X"		Creepage Distance		Insulation Withstand Distance				Weight	
			in.	mm	in.	mm	Phase to Phase-		Phase to Ground-		lbs.	kg
							in.	mm	in.	mm		
9L11ZGA003S	3	2.55	19.13	485.9	6.2	157.5	12	304.8	6	152.4	65	29.5
9L11ZGA006S	6	5.1	19.13	485.9	6.2	157.5	12	304.8	7	177.8	65	29.5
9L11ZGA009S	9	7.65	19.13	485.9	6.2	157.5	13	330.2	7	177.8	66	30
9L11ZGA010S	10	8.4	19.13	485.9	6.2	157.5	13	330.2	8	203.2	66	30
9L11ZGA012S	12	10.2	21.13	536.7	11.1	281.9	14	355.6	8.5	215.9	72	32.7
9L11ZGA015S	15	12.7	21.13	536.7	11.1	281.9	14	355.6	8.5	215.9	73	33.2
9L11ZGA018S	18	15.3	24.13	612.9	20	508	16	406.4	9	228.6	80	36.4
9L11ZGA021S	21	17	24.13	612.9	20	508	16	406.4	9	228.6	81	36.8
9L11ZGA024S	24	19.5	24.13	612.9	20	508	17	431.8	11	279.4	82	37.3
9L11ZGA027S	27	22	28.13	714.5	31.7	805.2	18	457.2	12	304.8	90	40.9
9L11ZGA030S	30	24.4	28.13	714.5	31.7	805.2	18	457.2	12	304.8	91	41.4
9L11ZGA036S	36	29	28.13	714.5	31.7	805.2	20	508	14	355.6	93	42.3
9L11ZGA039S	39	31.5	31.88	809.8	41	1041.4	21	533.4	14	355.6	105	47.7
9L11ZGA045S	45	36.5	31.88	809.8	41	1041.4	21	533.4	15	381	107	48.6
9L11ZGA048S	48	39	31.88	809.8	41	1041.4	22	558.8	15	381	109	49.5
9L11ZTA054AS	54	42	38.13	969	75	1905	16.4	418	14.8	376	175	80
9L11ZTA060AS	60	48	38.13	969	75	1905	18.1	459	16.3	413	178	81
9L11ZTA066AS	66	53	38.13	969	75	1905	19.4	491	17.4	442	180	82
9L11ZTA072AS	72	57	38.13	969	75	1905	20.5	520	18.4	467	183	83
9L11ZTA090AS	90	70	44.13	1121	100	2540	23.8	604	21.3	541	217	99
9L11ZTA096AS	96	76	44.13	1121	100	2540	25.4	646	22.8	578	220	100
9L11SKA108AS	108	84	50.63	1286	126.3	3208	27.6	700	24.6	626	256	116
9L11ZTA108AS	108	88	50.63	1286	126.3	3208	28.6	726	25.6	649	257	117
9L11ZTA120AS	120	98	50.63	1286	126.3	3208	31.2	793	27.9	709	263	120
9L11ZTA132AS	132	106	57.13	1451	152.5	3874	33.4	848	29.8	757	294	134
9L11ZTA144AS	144	115	57.13	1451	152.5	3874	35.8	908	31.9	810	299	136
9L11ZTA168AS	168	131	76.63	1946	175	4445	40	1015	35.6	905	391	178
9L11ZTA172AS	172	140	76.63	1946	175	4445	60.8	1545	56.2	1428	414	188
9L11ZTA180AS	180	144	82.63	2099	200	5080	62	1574	57.2	1453	442	201
9L11ZTA192AS	192	152	82.63	2099	200	5080	64	1626	59	1499	446	203
9L11ZTA228AS	228	180	95.63	2429	252.5	6414	71.4	1812	65.5	1664	523	238
9L11ZTA240AS	240	190	95.63	2429	252.5	6414	74	1880	67.9	1724	529	240
9L11ZTA258AS	258	209	102.13	2594	278.8	7082	93.1	2363	86.3	2193	574	261
9L11ZTA264AS	264	212	102.13	2594	278.8	7082	93.9	2385	87.1	2212	575	261
9L11ZTA276AS	276	220	108.63	2759	305	7747	96	2437	88.9	2258	606	275
9L11ZTA288AS	288	230	108.63	2759	305	7747	98.6	2505	91.3	2318	611	278
9L11ZTA294AS	294	235	127.63	3242	326.3	8288	99.9	2537	92.4	2347	698	317
9L11ZTA300AS	300	243	127.63	3242	326.3	8288	102.1	2593	94.4	2398	702	319
9L11ZTA312AS	312	245	127.63	3242	326.3	8288	102.5	2604	94.7	2405	703	320
9L11ZTA336AS	336	274	134.13	3407	352.5	8954	110.2	2799	101.5	2578	749	340
9L11ZTA360AS	360	288	140.63	3572	378.8	9621	113.9	2893	104.8	2662	788	358
9L11ZTA396AS	396	318	153.63	3902	431.3	10955	142.9	3629	132.8	3374	890	405
9L11ZTA420AS	420	335	160.13	4067	457.6	11623	147.4	3744	136.8	3475	927	421
9L11ZTA444AS	444	353	179.13	4550	478.8	12162	152.1	3863	141	3581	1024	465
9L16GNS588S	588	470	276.8	7031	595	15113	232.5	5906	215.4	5471	3674	1670
9L16GNS612S	612	485	286.1	7267	627	15919	237.1	6021	219.5	5575	3774	1716

Porcelain Top Station Arrester

Product Number	MCOV (kV)	"X" Overall Height		Leakage Dist		Mounting Clearance ¹				Weight	
		in	mm	in	mm	Phase to Phase		Phase To Ground		lb	kg
						in	mm	in	mm		
9L11ZGB003S	2.55	19.13	485.9	6.2	157.5	12	304.8	6	152.4	65	29.5
9L11ZGB006S	5.1	19.13	485.9	6.2	157.5	12	304.8	7	177.8	65	29.5
9L11ZGB009S	7.65	19.13	485.9	6.2	157.5	13	330.2	7	177.8	66	30
9L11ZGB010S	8.4	19.13	485.9	6.2	157.5	13	330.2	8	203.2	66	30
9L11ZGB012S	10.2	21.13	536.7	11.1	281.9	14	355.6	8.5	215.9	72	32.7
9L11ZGB015S	12.7	21.13	536.7	11.1	281.9	14	355.6	8.5	215.9	73	33.2
9L11ZGB018S	15.3	24.13	612.9	20	508	16	406.4	9	228.6	80	36.4
9L11ZGB021S	17	24.13	612.9	20	508	16	406.4	9	228.6	81	36.8
9L11ZGB024S	19.5	24.13	612.9	20	508	17	431.8	11	279.4	82	37.3
9L11ZGB027S	22	28.13	714.5	31.7	805.2	17	431.8	11	279.4	90	40.9
9L11ZGB030S	24.4	28.13	714.5	31.7	805.2	18	457.2	12	304.8	91	41.4
9L11ZGB030S	24.4	28.13	714.5	31.7	805.2	18	457.2	12	304.8	91	41.4
9L11ZGB036S	29	28.13	714.5	31.7	805.2	20	508	14	355.6	93	42.3
9L11ZGB039S	31.5	31.88	809.8	41	1041.4	21	533.4	14	355.6	105	47.7
9L11ZGB045S	36.5	31.88	809.8	41	1041.4	21	533.4	15	381	107	48.6
9L11ZGB048S	39	31.88	809.8	41	1041.4	22	558.8	15	381	109	49.5

¹These are recommended minimum clearances only and as such are not intended to take precedence over existing construction codes or specifications.



Capacitors, Arresters and Harmonic Filters

Tranquell™ Station Arresters

Porcelain High-Voltage
Indoor and Outdoor Service

Section 24

Porcelain, Metal Top Station Arrester – Insulation Characteristics

Product Number	Duty Cycle (kV)	MCOV (kV)	Leakage Dist		Strike		Minimum 1.2 x 50µs Withstand (kV crest)	Minimum Power Frequency Withstand (kVrms)	
			in	mm	in	mm		Wet (10 sec)	Dry (1 min)
9L11ZGA003S	3	2.55	6.2	157.48	6	152.4	60	20	21
9L11ZGA006S	6	5.1	6.2	157.48	7	177.8	75	24	27
9L11ZGA009S	9	7.65	6.2	157.48	7	177.8	95	30	32
9L11ZGA010S	10	8.4	6.2	157.48	8	203.2	95	30	32
9L11ZGA012S	12	10.2	11.1	281.94	8.5	215.9	110	45	50
9L11ZGA015S	15	12.7	11.1	281.94	8.5	215.9	110	45	50
9L11ZGA018S	18	15.3	20	508	9	228.6	110	45	50
9L11ZGA021S	21	17	20	508	9	228.6	150	60	70
9L11ZGA024S	24	19.5	20	508	11	279.4	150	60	70
9L11ZGA027S	27	22	31.7	805.18	12	304.8	150	60	70
9L11ZGA030S	30	24.4	31.7	805.18	12	304.8	200	80	95
9L11ZGA036S	36	29	31.7	805.18	14	355.6	200	80	95
9L11ZGA039S	39	31.5	41	1041.4	14	355.6	250	100	120
9L11ZGA045S	45	36.5	41	1041.4	15	381	250	100	120
9L11ZGA048S	48	39	41	1041.4	15	381	250	100	120
9L11ZTA054AS	54	42	75	1905	18	457.2	194	81	NA ¹
9L11ZTA060AS	60	48	75	1905	19	482.6	221	91	NA ¹
9L11ZTA066AS	66	53	75	1905	29.5	749.3	262	108	NA ¹
9L11ZTA072AS	72	57	75	1905	20	508	262	108	NA ¹
9L11ZTA090AS	90	74	100	2540	29	736.6	337	139	NA ¹
9L11ZTA096AS	96	76	100	2540	31	787.4	348	144	NA ¹
9L11SXA108AS	108	84	126.3	3208	32	812.8	404	166	NA ¹
9L11ZTA108AS	108	88	126.3	3208	33	838.2	404	166	NA ¹
9L11ZTA120AS	120	98	126.3	3208	36	914.4	448	190	NA ¹
9L11ZTA132AS	132	106	152.5	3874	38	965.2	486	205	NA ¹
9L11ZTA144AS	144	115	152.5	3874	46	1168.4	524	223	NA ¹
9L11ZTA168AS	168	131	175	4445	54	1371.6	598	253	NA ¹
9L11ZTA172AS	172	140	175	4445	59	1498.6	637	271	NA ¹
9L11ZTA180AS	180	144	200	5080	64	1625.6	658	278	NA ¹
9L11ZTA192AS	192	152	200	5080	67	1701.8	693	296	NA ¹
9L11ZTA228AS	228	180	252.5	6414	73	1854.2	821	348	NA ¹
9L11ZTA240AS	240	194	252.5	6414	71	1803.4	885	375	NA ¹
9L11ZTA258AS	258	209	278.8	7082	92	2336.8	952	424	NA ¹
9L11ZTA264SS	264	212	278.8	7082	96	2438.4	966	429	NA ¹
9L11ZTA276AS	276	220	305	7747	100	2540	1001	447	NA ¹
9L11ZTA288AS	288	234	305	7747	91.5	2324.1	1069	474	NA ¹
9L11ZTA294AS	294	237	326.3	8288	91.5	2324.1	1082	480	NA ¹
9L11ZTA300AS	300	243	326.3	8288	91.5	2324.1	1100	492	NA ¹
9L11ZTA312AS	312	245	326.3	8288	110	2794	1119	496	NA ¹

¹Minimum Dry Power Withstand not required by ANSI.

Porcelain Top Station Arrester – Insulation Characteristics

Product Number	Duty Cycle (kV)	MCOV (kV)	Leakage Dist		Strike		Minimum 1.2 x 50µs Withstand (kV crest)	Minimum Power Frequency Withstand (kVrms)	
			in	mm	in	mm		Wet (10 sec)	Dry (1 min)
9L11ZGB003S	3	2.55	11.1	281.94	5.5	139.7	60	20	21
9L11ZGB006S	6	5.10	11.1	281.94	5.5	139.7	75	24	27
9L11ZGB009S	9	7.65	11.1	281.94	5.5	139.7	95	30	35
9L11ZGB010S	10	8.40	11.1	281.94	5.5	139.7	95	30	35
9L11ZGB012S	12	10.20	11.1	281.94	6.5	165.1	110	45	50
9L11ZGB015S	15	12.70	20	508	7.5	190.5	110	45	50
9L11ZGB018S	18	15.30	20	508	9	228.6	110	45	50
9L11ZGB021S	21	17.00	20	508	9	228.6	150	60	70
9L11ZGB024S	24	19.50	20	508	9	228.6	150	60	70
9L11ZGB027S	27	22.00	28.5	723.9	16.5	419.1	150	60	70



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Capacitors, Arresters and Harmonic Filters

Tranquell™ Station Arresters

Porcelain High-Voltage
Indoor and Outdoor Service

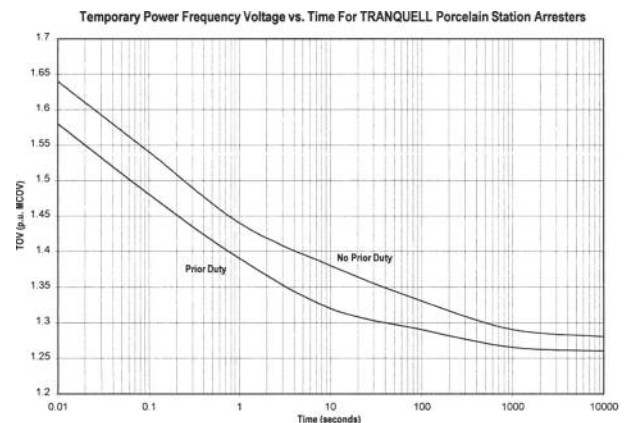
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Porcelain Station Arrester – Protective Characteristics

Type	Arrester Ratings		Continuous Operating Voltage (MCOV) kV rms	Maximum 0.5us Discharge Voltage kv ¹	Maximum Switching Surge Protective Level kv ²	Maximum Discharge Voltage using 8/20 Current Wave-kV					
	Arrester Product Number	Rated Voltage (kV)				1.5kA	3kA	5kA	10kA	20kA	40kA
4 Hole NEMA	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
	9L11ZTA054AS	54	42	133	101	108	113	117	122	131	144
	9L11ZTA060AS	60	48	152	116	124	129	134	140	150	165
	9L11ZTA072AS	72	57	180	137	147	153	159	166	178	195
	9L11ZTA090AS	90	70	221	167	180	187	194	203	217	239
	Contact Factory	90	74	234	177	191	198	205	215	230	253
	9L11ZTA096AS	96	76	240	182	196	204	211	221	236	260
	9L11ZXA108AS	108	84	265	201	216	225	233	244	261	287
	9L11ZTA108AS	108	88	277	210	226	235	243	255	273	300
	9L11ZTA120AS	120	98	308	241	252	262	271	284	304	334
	9L11ZTA132AS	132	106	334	261	273	284	294	308	329	362
	9L11ZTA144AS	144	115	363	283	296	308	318	334	357	393
	9L11ZTA168AS	168	131	412	322	337	350	362	380	406	447
	9L11ZTA172AS	172	140	441	344	360	374	387	406	434	477
	9L11ZTA180AS	180	144	454	355	370	385	398	418	447	491
	9L11ZTA192AS	192	152	479	374	391	406	420	441	471	518
	9L11ZTA228AS	228	180	566	443	462	481	497	522	557	613
	9L11ZTA258AS	258	209	657	532	537	558	577	606	647	712
	9L11ZTA264AS	264	212	667	540	545	566	586	615	657	723
	9L11ZTA276AS	276	220	692	560	565	587	608	638	681	750
	9L11ZTA288AS	288	230	724	585	591	614	635	667	712	784
	9L11ZTA294AS	294	235	739	598	603	627	649	681	727	800
	9L11ZTA300AS	300	243	765	619	624	649	672	705	753	828
	9L11ZTA312AS	312	245	770	623	629	654	676	710	758	834
	9L11ZTA336AS	336	274	861	697	703	731	756	794	848	933
	9L11ZTA360AS	360	288	906	733	739	769	795	835	891	981
	9L11ZTA396AS	396	318	1053	809	816	849	878	922	984	1083
	9L11ZTA420AS	420	335	1109	852	860	894	925	971	1037	1140
	9L11ZTA444AS	444	353	1169	898	906	942	974	1023	1092	1202
	9L16GNS588S	588	470	1469	1143	1159	1193	1225	1283	1348	1442
	9L16GNS612S	612	485	1516	1180	1196	1231	1264	1324	1391	1488

¹Maximum discharge voltage for an impulse current wave which produces a voltage wave cresting in 0.5 μ s. Discharge currents are 10 kA for 2.55 - 245kV MCOV. This can be used for coordination where front-of-wave sparkover was formerly used.

²Discharge voltages are based on a 500A surge of 45 μ s time to crest through 88kV MOV and 1,000A surge of 45 μ s-time to crest through 180kV MCOV and 2,000A through 245kV MCOV.

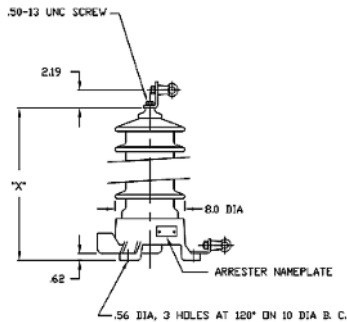


Capacitors, Arresters and Harmonic Filters

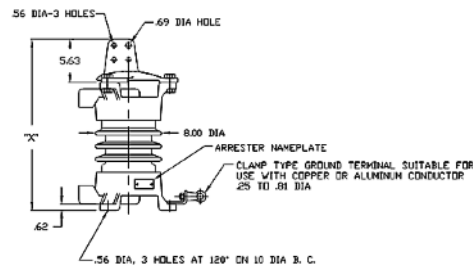
Tranquell™ Station Arresters

Porcelain High-Voltage
Indoor and Outdoor Service

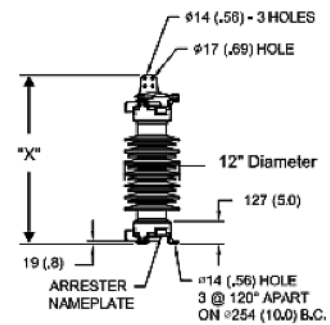
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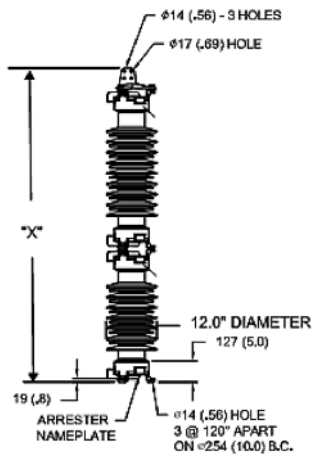
9L11ZGBO##S Series
Rated Voltage 3-27kV



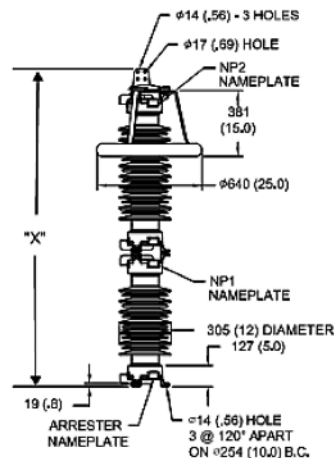
9L11ZGAO##S Series
Rated Voltage 3-48kV



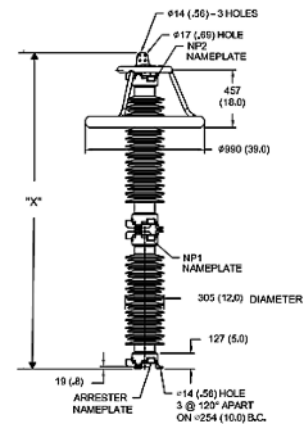
9L11Z TA###AS Series
Rated Voltage 54-144kV



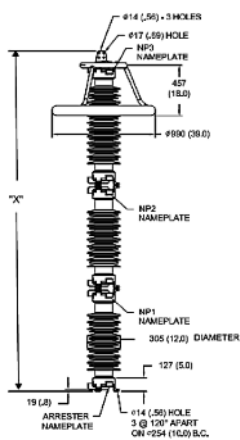
9L11Z TA###AS Series
Rated Voltage 168kV



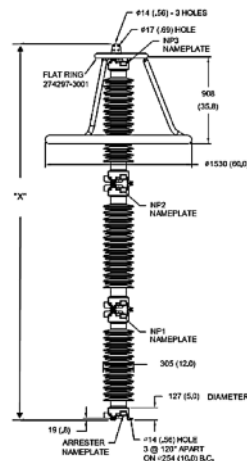
9L11Z TA###AS Series
Rated Voltage 172-240kV



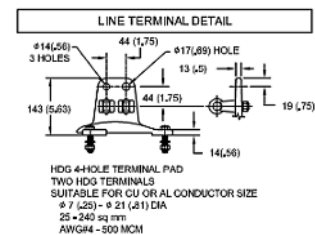
9L11Z TA###AS Series
Rated Voltage 258-312kV



9L11Z TA###AS Series
Rated Voltage 336 - 360kV



9L11Z TA###AS Series
Rated Voltage 396 - 420kV



4 Hole NEMA Terminal



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Capacitors, Arresters and Harmonic Filters

Tranquell™ Station Arresters

Polymer High-Voltage
Indoor and Outdoor Service

Section 24

Polymer Station Arrester – Weights and Dimensions

Standard Arrester Product Number 4 Hole NEMA	Standard Arrester Product Number Single Eyebolt	Duty Cycle (kV) rms	MCOV (kV) rms	Height "X" ³		Creepage Distance		Insulation Withstand Distance				Weight		Cantilever Strength			
				in	mm	in	mm	Phase to Phase	Phase to Ground			lbs	kg	Note 1	Note 2		
9L11XPA003AS	9L11XPB003AS	3	2.55	9.9	251	19.6	498	9	229	4.5	114	13	5.9	761	3383	1521	15039
9L11XPA006AS	9L11XPB006AS	6	5.1	9.9	251	19.6	498	9	229	4.5	114	13	5.9	761	3383	1521	15039
9L11XPA009AS	9L11XPB009AS	9	7.65	11.7	297	30.1	765	9	229	4.5	114	15	6.8	669	2974	1337	13221
9L11XPA010AS	9L11XPB010AS	10	8.4	11.7	297	30.1	765	9	229	4.5	114	15	6.8	669	2974	1337	13221
9L11XPA012AS	9L11XPB012AS	12	10.2	11.7	297	30.1	765	9	229	4.6	117	15	6.8	669	2974	1337	13221
9L11XPA015AS	9L11XPB015AS	15	12.7	13.5	343	35.4	899	9.7	246	5.4	137	17	7.7	595	2645	1190	11759
9L11XPA018AS	9L11XPB018AS	18	15.3	13.5	343	35.4	899	10.6	269	6.1	155	17	7.7	595	2645	1190	11759
9L11XPA021AS	9L11XPB021AS	21	17	17.2	437	40.5	1029	11.2	284	6.7	170	22	10	489	2174	977	9664
9L11XPA024AS	9L11XPB024AS	24	19.5	17.2	437	40.5	1029	12.1	307	7.4	188	22	10	489	2174	977	9664
9L11XPA027AS	9L11XPB027AS	27	22	17.2	437	40.5	1029	12.9	328	8.2	208	22	10	489	2174	977	9664
9L11XPA030AS	9L11XPB030AS	30	24.4	17.2	437	40.5	1029	13.8	351	8.9	226	22	10	489	2174	977	9664
9L11XPA036AS	9L11XPB036AS	36	29	20.9	531	50.9	1293	15.4	391	10.3	262	27	12.2	414	1840	829	8182
9L11XPA039AS	9L11XPB039AS	39	31.5	20.9	531	50.9	1293	16.2	411	11.1	282	27	12.2	414	1840	829	8182
9L11XPA045AS	9L11XPB045AS	45	36.5	24.5	622	61.5	1562	17.9	455	12.6	320	31	14	360	1600	720	7114
9L11XPA048AS	9L11XPB048AS	48	39	24.5	622	61.5	1562	18.8	478	13.3	338	31	14	360	1600	720	7114
9L11XPA054AS	9L11XPB054AS	54	42	24.5	622	61.5	1562	20.5	521	14.9	378	31	14	360	1600	720	7114
9L11XPA060AS	9L11XPB060AS	60	48	28.2	716	71.9	1826	22.1	561	16.2	411	36	16.3	313	1391	636	6186
9L11XPA072AS	9L11XPB072AS	72	57	31.9	810	82.4	2093	25.4	645	19.2	488	41	18.6	284	1263	569	5613
9L11XPA090AS	9L11XPB090AS	90	70	46.3	1176	123	3124	30.5	775	23.7	602	59	26.7	202	898	403	3992
9L11XPA096AS	9L11XPB096AS	96	76	46.3	1176	123	3124	32.2	818	25.2	640	59	26.7	202	898	403	3992
9L11XPA108AS	9L11XPB108AS	108	84	46.3	1176	123	3124	35.6	904	28.2	716	59	26.7	202	898	403	3992
9L11SPA108AS	9L11SPA108AS	108	88	46.3	1176	123	3124	35.6	904	28.2	716	59	26.7	202	898	403	3992
9L11XPA120AS	9L11XPB120AS	120	98	53.7	1364	143.9	3655	48.6	1234	36	914	73	33.1	176	782	351	3478
9L11XPA132AS	9L11XPB132AS	132	106	53.7	1364	143.9	3655	51.6	1311	38.7	983	73	33.1	176	782	351	3478
9L11XPA144AS	9L11XPB144AS	144	115	61	1549	164.8	4186	55	1397	41.7	1059	82	37.2	156	693	311	3083
9L11XPA168AS	9L11XPB168AS	168	131	72.5	1842	184.5	4686	61.7	1567	47.7	1212	97	44	66	293	264	1304
9L11XPA172AS	9L11XPB172AS	172	140	83.5	2121	215.8	5481	74.4	1890	60.5	1537	120	54.4	58	258	230	1146
9L11XPA180AS	9L11XPB180AS	180	144	83.5	2121	215.8	5481	76.3	1938	62.4	1585	120	54.4	58	258	230	1146
9L11XPA192AS	9L11XPB192AS	192	152	83.5	2121	215.8	5481	79.7	2024	65.8	1671	120	54.4	58	258	230	1146
9L11XPA228AS	9L11XPB228AS	228	180	94.5	2400	247.2	6279	89.7	2278	75.7	1923	133	60.3	51	227	205	1008

*Center line to center line is equivalent to phase-to-phase center line to ground is equivalent to phase-to-ground.

These are recommended minimum clearances only and as such are not intended to take precedence over existing construction codes or specifications.

¹Cantilever Strength - Maximum Working Strength

²Cantilever strength - Rated Ultimate Cantilever Strength

³Add 3.30" to "X" dimension for 4 Hole NEMA terminal and 2.88" to "X" dimension for Eyebolt designs for overall height

Polymer Station Arrester – Protective Characteristics 9L11XPAxxxAS and 9L11XPBxxxAS

Arrester Ratings									
Rated Voltage kV rms	Maximum Continuous Operating Voltage (MCOV) kV rms	Maximum 0.5us Discharge Voltage kV ¹	Maximum Switching Surge Protective Level kV ²	Maximum Discharge Voltage Using 8/20 Current Wave-kV					
				1.5kA	3kA	5kA	10kA	20kA	40kA
3	2.55	10.5	6.01	6.41	6.74	7.06	7.58	8.19	9.34
6	5.1	18.6	12.02	12.82	13.47	14.12	15.15	16.38	18.69
9	7.65	27	18.03	19.23	20.21	21.19	22.73	24.57	28.03
10	8.4	29.4	19.79	21.12	22.19	23.26	24.96	26.98	30.78
12	10.2	35.1	24.04	25.64	26.95	28.25	30.31	32.76	37.37
15	12.7	43.4	29.93	31.93	33.55	35.17	37.74	40.79	46.53
18	15.3	51.6	36.05	38.46	40.42	42.37	45.46	49.15	56.06
21	17	57.8	40.06	42.74	44.91	47.08	50.52	54.61	62.29
24	19.5	65.7	45.95	49.02	51.51	54	57.94	62.64	71.45
27	22	73.6	51.84	55.31	58.12	60.93	65.37	70.67	80.61
30	24.4	81.2	57.5	61.34	64.46	67.57	72.5	78.38	89.4
36	29	97	68.63	73.22	76.94	80.66	86.55	93.56	106.71
39	31.5	105	74.35	79.32	83.35	87.39	93.76	101.36	115.61
45	36.5	121	86.01	91.76	96.42	101.08	108.46	117.25	133.73
48	39	129	91.9	98.04	103.03	108.01	115.89	125.28	142.89
54	42	145	103.68	110.61	116.23	121.86	130.75	141.34	161.21
60	48	160	114.39	122.03	128.24	134.44	144.25	155.93	177.86
72	57	192	137.38	146.56	154.01	161.46	173.24	187.27	213.6
90	74	245	174.37	186.03	195.48	204.94	219.89	237.7	271.13
96	76	257	183.8	196.08	206.05	216.02	231.78	250.55	285.78
108	84	289	207.36	221.22	232.47	243.71	261.49	282.67	322.42
108	88	289	207.36	221.22	232.47	243.71	261.49	282.67	322.42
120	98	322	240.54	246.36	258.88	271.41	291.21	314.8	359.06
132	106	350	262.14	268.48	282.13	295.78	317.36	343.06	391.3
144	115	382	286.19	293.12	308.02	322.92	346.48	374.54	427.21
168	131	447	334.3	342.39	359.8	377.2	404.72	437.5	499.02
172	140	462	343.87	352.2	370.1	388	416.31	450.03	513.31
180	144	480	357.45	366.1	384.71	403.32	432.74	467.8	533.57
192	152	510	381.42	390.66	410.52	430.37	461.77	499.18	569.37
228	180	605	452.85	463.81	487.39	510.96	548.24	592.65	675.98



Silicone Station Arresters Protective Characteristics

Product Number	Rated Voltage kVrms	MCOV kVrms	Maximum 0.5µs Discharge Voltage ¹ kV	Maximum Switching Surge Protective Level At Classifying Current Levels kV ²	Maximum Discharge Voltage Using an 8/20 Current Wave-kV					
					1.5kA	3kA	5kA	10kA	20kA	40kA
9L11HMA054S	54	42	133	94	103	108	113	121	131	146
9L11HMA060S	60	48	152	107	118	124	129	138	150	166
9L11HMA072S	72	57	181	127	140	147	153	164	178	198
9L11HMA090S	90	70	222	156	172	181	188	201	218	243
9L11HMA090S	90	74	235	165	182	191	199	213	231	256
9L11HMA096S	96	76	241	170	187	196	205	218	237	263
9L11HMA108S	108	84	266	187	207	217	226	241	262	291
9L11HMA108S	108	88	279	196	217	227	237	253	274	305
9L11HMA120S	120	98	311	228	241	253	264	282	305	340
9L11HMA132S	132	106	336	247	261	274	285	305	330	367
9L11HMA144S	144	115	365	268	283	297	310	330	358	399
9L11HMA168S	168	131	416	305	323	338	353	376	408	454
9L11HMA172S	172	140	444	326	345	362	377	402	436	485
9L11HMA180S	180	144	457	335	355	372	388	414	449	499
9L11HMA192S	192	152	482	354	374	393	409	437	473	527
9L11HMA228S	228	180	571	419	443	465	485	517	561	624
9L11HMA258S	258	209	663	519	515	540	563	601	651	724
9L11HMA264S	264	212	673	526	522	548	571	609	660	735
9L11HMA276S	276	220	698	546	542	568	592	632	685	762
9L11HMA312S	312	245	777	608	603	633	660	704	763	849
9L11HMA396S	396	318	1009	790	783	821	856	914	991	1102
9L11HMA420S	420	335	1063	832	825	865	902	963	1043	1161
9L11HMA444S	444	353	1120	876	869	912	950	1014	1100	1223

Silicone Station Arresters Dimensions and Mounting

Product Number	Duty Cycle kV rms	Maximum Continuous Operating Voltage kV rms	Height (in.)	Minimum Leakage Distance	Minimum Mounting Spacing on Center ³		Net Weight (Lbs.)
					Phase to Phase In-line (in.)	Phase to Ground (in.)	
9L11HMA054S	54	42	38.1	83	17	21	104
9L11HMA060S	60	48	38.1	83	19	23	107
9L11HMA072S	72	57	38.1	83	23	28	112
9L11HMA090S	90	70	44.4	113	28	34	125
9L11HMA090S	90	74	44.4	113	30	36	130
9L11HMA096S	96	76	44.4	113	30	37	128
9L11HMA108S	108	84	52.1	142	34	41	141
9L11HMA108S	108	88	52.1	142	35	42	144
9L11HMA120S	120	98	52.1	142	39	47	149
9L11HMA132S	132	106	58.8	171	42	51	167
9L11HMA144S	144	115	58.8	171	46	55	172
9L11HMA168S	168	131	76.9	196	52	63	231
9L11HMA172S	172	140	76.9	196	63	82	257
9L11HMA180S	180	144	76.9	196	65	84	257
9L11HMA192S	192	152	83.2	225	68	88	262
9L11HMA228S	228	180	90.9	254	79	101	291
9L11HMA258S	258	209	105.3	313	108	150	349
9L11HMA264S	264	212	105.3	313	109	151	351
9L11HMA276S	276	220	105.3	313	102	134	330
9L11HMA312S	312	245	129.7	367	112	146	406
9L11HMA396S	396	318	151.8	455	161	222	539
9L11HMA420S	420	335	158.5	484	168	230	564
9L11HMA444S	444	353	165.2	514	165	218	532

¹ Maximum discharge voltage for an impulse current wave which produces a voltage wave cresting in 0.5 µs. Discharge Currents are 10kA for 42-353 kV MCOV. This can be used for coordination where front-of-wave sparkover formerly was used.

² Discharge voltages are based on a 500A surge of 45 µs time to crest through 88kV MCOV and a 1000A surge of 45 µs to crest through 180 kV MCOV and 2000A through 245 kV MCOV.

³ Minimum clearances are based on arrester protective levels and should be increased when necessary to meet local requirements for spacing of energized equipment.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Tranquell™ Station Arresters

Polymer High-Voltage
Indoor and Outdoor Service

Section 24

Polymer Arresters (Station Class)

for both Indoor and Outdoor Mounting (2.7-72 kVrms)

9L11XPMxxxS, 9L11XPNxxxS, and 9L11XPTxxxS

Pressure Relief Capability: 40 kA rms

Energy Handling Capability: 6.0kJ/kV mCOV

Cantilever Strength: 4,000 inch-pounds, rated ultimate cantilever moment

Arrester Rating kVrms	Product Number (Gray Polymer)			
	Maximum Continuous Voltage Capability (L-N) kVrms	4-hole NEMA Pad for Indoor or Outdoor Upright Mounting	Eyebolt Terminal for Indoor or Outdoor Upright Mounting	Indoor or cubicle Terminal Mounting
2	2.2	9L11XPN002S	9L11XPT002S	9L11XPM002S
3	2.55	9L11XPN003S	9L11XPT003S	9L11XPM003S
4	3.7	9L11XPN004S	9L11XPT004S	9L11XPM004S
5	4.2	9L11XPN005S	9L11XPT005S	9L11XPM005S
6	5.1	9L11XPN006S	9L11XPT006S	9L11XPM006S
7	6.1	9L11XPN007S	9L11XPT007S	9L11XPM007S
8	6.9	9L11XPN008S	9L11XPT008S	9L11XPM008S
9	7.65	9L11XPN009S	9L11XPT009S	9L11XPM009S
10	8.4	9L11XPN010S	9L11XPT010S	9L11XPM010S
12	10.2	9L11XPN012S	9L11XPT012S	9L11XPM012S
15	12.7	9L11XPN015S	9L11XPT015S	9L11XPM015S
18	15.3	9L11XPN018S	9L11XPT018S	9L11XPM018S
21	17	9L11XPN021S	9L11XPT021S	9L11XPM021S
24	19.5	9L11XPN024S	9L11XPT024S	9L11XPM024S
27	22	9L11XPN027S	9L11XPT027S	9L11XPM027S
30	24.4	9L11XPN030S	9L11XPT030S	9L11XPM030S
36	29	9L11XPN036S	9L11XPT036S	9L11XPM036S
39	31.5	9L11XPN039S	9L11XPT039S	
45	36.5	9L11XPN045S	9L11XPT045S	
48	39	9L11XPN048S	9L11XPT048S	
54	42	9L11XPN054S	9L11XPT054S	
60	48	9L11XPN060S	9L11XPT060S	
72	57	9L11XPN072S	9L11XPT072S	

For weight, dimensional and other technical information, please visit the Arresters section of www.gedigitalenergy.com

Polymer Arresters (Station Class)—Protective Characteristics 9L11XPMxxxS, 9L11XPNxxxS and 9L11XPTxxxS

for both Indoor and Outdoor Mounting (2.7-72 kVrms)

9L11XPMxxxS, 9L11XPNxxxS, and 9L11XPTxxxS

Pressure Relief Capability: 40 kA rms

Energy Handling Capability: 6.0kJ/kV mCOV

Cantilever Strength: 4,000 inch-pounds, rated ultimate cantilever moment

Product Number 9L11XPNxxxS ¹	Rating voltage		0.5 µsec 10 kA		Switching Surge Max IR-kV crest	Maximum Discharge Voltage - kV crest					
	kV rms	mCOV	kV rms	Max IR-kV crest		1.5 kA	3 kA	5 kA	10 kA	20 kA	40 kA
9L11XPT003S	3	2.55		8.5	6.3	6.7	7.1	7.4	8	8.9	10
9L11XPT006S	6	5.1		16.9	12.5	13.4	14.2	14.8	16	17.7	20
9L11XPT009S	9	7.65		25.3	18.7	20.1	21.2	22.2	23.9	26.5	29.8
9L11XPT010S	10	8.4		27.6	20.5	21.9	23.1	24.2	26.1	28.9	32.5
9L11XPT012S	12	10.2		33.5	24.9	26.6	28.1	29.4	31.7	35.1	39.5
9L11XPT015S	15	12.7		42.2	31.3	33.5	35.4	37	39.9	44.2	49.8
9L11XPT018S	18	15.3		50.5	37.5	40.1	42.4	44.3	47.8	52.9	59.6
9L11XPT021S	21	17		55.3	41	43.9	46.3	48.5	52.3	57.9	65.2
9L11XPT024S	24	19.5		67	49.7	53.2	56.2	58.8	63.4	70.2	79.1
9L11XPT027S	27	22		75.9	56.3	60.2	63.6	66.6	71.8	79.5	89.5
9L11XPT030S	30	24.4		82.9	61.5	65.8	69.5	72.7	78.4	86.8	98
9L11XPT036S	36	29		101	74.6	79.8	84.3	88.2	95.1	105	119
9L11XPT039S	39	31.5		105.8	78.5	84	88.7	92.8	100.1	110.8	124.8
9L11XPT045S	45	36.5		122.3	90.7	97.1	102.5	107.3	115.7	128.1	144.3
9L11XPT048S	48	39		134	99.4	106.4	112.3	117.5	126.8	140.4	158.1
9L11XPT054S	54	42		144	106.8	114.3	120.7	126.3	136.2	150.8	169.8
9L11XPT060S	60	48		161.6	119.9	128.3	135.5	141.7	152.9	169.3	191
9L11XPT072S	72	57		195	144.7	154.9	163.6	171.1	184.6	204	230

For weight, dimensional and other technical information, please visit the Arresters section of www.gedigitalenergy.com

¹9L11XPNxxxS & 9L11XPMxxxS, the electrical characteristics in this table are applicable to these catalog numbers.

Outline drawings can be downloaded from the GE Arrester, E-Catalog on the web.



Capacitors, Arresters and Harmonic Filters

Tranquell™ Intermediate Arresters

Polymer High Voltage
Indoor and Outdoor Service

Section 24

Product Description

Tranquell™ XEP polymer intermediate arresters provide both excellent protective characteristics and temporary overvoltage capability. Gapless construction results in a design which is simple, reliable, and economical while offering excellent fault current capability to meet the most demanding service conditions. The GE Tranquell™ arrester is based on the field-proven metal oxide disks known for maintaining stable characteristics. Tranquell™ intermediate arresters are designed and manufactured in accordance with the latest revision of ANSI/IEEE C62.11 and IEC 99-4.



9L12PPA Polymer

Polymer Arresters (Intermediate-Class)

for both Indoor and Outdoor Mounting (3-144 kVrms)

Arrester Rating kVrms	Maximum Continuous Operating Voltage Capability ¹ (L-N) kVrms	Normally Used on System Voltage Class (L-L)		Product Number (Gray Polymer)	
		High Impedance Grounded, Ungrounded (Delta), or temporarily ungrounded circuits	Solidly Grounded Neutral Systems kVrms	4-hole NEMA Pad for Indoor or Outdoor Upright Mounting	Eyebolt Terminal for Indoor or Outdoor Upright Mounting ²
3	2.55	2.4	4.16	9L12PPA003S	9L12PPB003S
6	5.1	4.8	–	9L12PPA006S	9L12PPB006S
9	7.65	7.2	12.47	9L12PPA009S	9L12PPB009S
10	8.4	7.62	13.2	9L12PPA010S	9L12PPB010S
12	10.2	7.97	13.8	9L12PPA012S	9L12PPB012S
15	12.7	13.8 ³	20.78	9L12PPA015S	9L12PPB015S
18	15.3	13.8	24.94	9L12PPA018S	9L12PPB018S
21	17	–	24.94	9L12PPA021S	9L12PPB021S
24	19.5	23 ³	–	9L12PPA024S	9L12PPB024S
27	22	23	34.5	9L12PPA027S	9L12PPB027S
30	24.4	–	34.5	9L12PPA030S	9L12PPB030S
36	29	34.5 ³	–	9L12PPA036S	9L12PPB036S
39	31.5	34.5	–	9L12PPA039S	9L12PPB039S
45	36.5	41.6	–	9L12PPA045S	9L12PPB045S
48	39	41.2	–	9L12PPA048S	9L12PPB048S
54	42	–	69	9L12PPA054S	9L12PPB054S
60	48	–	69	9L12PPA060S	9L12PPB060S
72	57	69	–	9L12PPA072S	9L12PPB072S
90	70	–	115	9L12PPA090S	9L12PPB090S
96	76	–	115	9L12PPA096S	9L12PPB096S
108	88	115	138	9L12PPA108S	9L12PPB108S
120	98	115	138/161	9L12PPA120S	9L12PPB120S
132	106	138	161	9L12PPA132S	9L12PPB132S
144	115	138/161	161	9L12PPA144S	9L12PPB144S

¹Tranquell™ Arresters are designed to be operated at voltages equal to or less than their continuous capability as stated in column 2.

²For underhung or upside down mounting with eyebolt terminal on the bottom change the letter B of the catalog number to E.

³Application of specified rating is permissible for ungrounded or resistance grounded systems where a single phase ground may be tolerated for a substantial period of time not to exceed the Tranquell™ arresters overvoltage capability.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Tranquell™ Intermediate Arresters

Polymer High Voltage
Indoor and Outdoor Service

Section 24

Polymer Intermediate Arrester Protective Characteristics 9L12PPAxxxS and 9L12PPBxxxS

Rated Voltage (kVrms)	MCOV (kVrms)	0.5µsec, 10kA Max. IR (kVcrest)	500A Switching Surge Max IR (kVcrest)	8/20µs Maximum Discharge Voltage - kVcrest						Creep		Strike		Insulation Withstand		
				1.5kA	3kA	5kA	10kA	20kA	40kA	in	mm	in	mm	Min 1.2x50µs (kV crest)	Wet 10 sec (kVrms)	Dry 1 min (kVrms)
3	2.55	8.6	6.4	6.8	7.2	7.5	8.1	9	10.1	15.4	391.16	3.3	83.82	100	40	60
6	5.1	17.1	12.7	13.6	14.4	15	16.2	17.9	20.2	15.4	391.16	3.2	81.28	100	40	60
9	7.65	25.8	19.1	20.5	21.6	22.6	24.4	27	30.4	15.4	391.16	3.3	83.82	100	40	60
10	8.4	28.4	21.1	22.6	23.8	24.9	26.9	29.8	33.5	15.4	391.16	3.5	88.9	100	40	60
12	10.2	34.1	25.3	27.1	28.6	29.9	32.3	35.8	40.3	15.4	391.16	3.5	88.9	165	70	100
15	12.7	42.9	31.8	34.1	36	37.6	40.6	44.9	50.6	30.8	782.32	4.8	121.92	165	70	100
18	15.3	51.6	38.3	40.9	43.2	45.2	48.8	54	60.9	30.8	782.32	5.2	132.08	165	70	100
21	17	56.9	42.2	45.1	47.7	49.9	53.8	59.6	67.1	30.8	782.32	6.2	157.48	165	70	100
24	19.5	68.3	50.6	54.2	57.2	59.9	64.6	71.5	80.6	30.8	782.32	6.2	157.48	230	105	140
27	22	77.4	57.4	61.4	64.9	67.9	73.2	81	91.3	46.2	1173.48	8.2	208.28	230	105	140
30	24.4	85.3	63.3	67.7	71.5	74.8	80.7	89.3	101	46.2	1173.48	8.4	213.36	230	105	140
36	29	102	76	81.3	85.9	89.8	96.9	107	121	46.2	1173.48	8.4	213.36	310	140	180
39	31.5	108.4	80.4	86.1	90.9	95.1	102.6	113.6	127.9	61.6	1564.64	11.4	289.56	310	140	180
45	36.5	125.1	92.8	99.3	104.9	109.8	118.4	131.1	147.6	61.6	1564.64	11.4	289.56	390	180	230
48	39	136.6	101.3	108.4	114.5	119.8	129.2	143	161.1	61.6	1564.64	11.4	289.56	390	180	230
54	42	147.9	109.7	117.4	125	129.7	139.9	154.9	174.5	77.0	1955.8	14.4	365.76	450	220	260
60	48	165	122.4	131	138.3	144.7	156.1	172.8	195	77.0	1955.8	14.4	365.76	450	220	260
72	57	199	147.7	158.1	166.9	174.6	188.4	209	235	92.4	2346.96	18.4	467.36	520	250	300
90	70	250	185.7	198.7	209.8	219.5	236.8	262	295	108	2743.2	43.3	1099.82	580	320	400
96	76	261.7	194.1	207.7	219.4	229.5	247.6	274.1	308.8	108	2743.2	43.3	1099.82	580	320	400
108	88	296	219.5	234.9	248.1	259.6	280	310	349.2	108	2743.2	43.3	1099.82	580	320	400
120	98	327.7	243	260.1	274.7	287.4	310	343.2	386.6	162	4114.8	56.1	1424.94	831	335	543
132	106	375.2	278.3	297.8	314.5	329.1	355	393	443	162	4114.8	56.1	1424.94	831	335	543
144	115	392	290.9	311.3	328.7	343.9	371	411	463	162	4114.8	56.1	1424.94	831	335	543

Polymer Intermediate Arrester Weights and Dimensions

Product Number		Rated Voltage (kVrms)	MCOV (kVrms)	"X" Height		Mounting Clearance ¹			Weight	
4-hole NEMA Pad Line Terminal	Single Eyebolt Line Terminal			inches	mm	Phase to Phase (in)	Phase to Phase (mm)	Phase to Ground (in)	Phase to Ground (mm)	lb kg
9L12PPA003S	9L12PPB003S	3	2.55	6.8	172.7	4.4	111.8	3.3	83.8	6.2 2.8
9L12PPA006S	9L12PPB006S	6	5.1	6.8	172.7	4.6	116.8	3.2	81.3	6.2 2.8
9L12PPA009S	9L12PPB009S	9	7.65	6.8	172.7	4.7	119.4	3.3	83.8	6.2 2.8
9L12PPA010S	9L12PPB010S	10	8.4	6.8	172.7	4.9	124.5	3.5	88.9	6.2 2.8
9L12PPA012S	9L12PPB012S	12	10.2	6.8	172.7	4.9	124.5	3.5	88.9	6.2 2.8
9L12PPA015S	9L12PPB015S	15	12.7	12.2	309.9	6.2	157.5	4.8	121.9	10.0 4.5
9L12PPA018S	9L12PPB018S	18	15.3	12.2	309.9	6.6	167.6	5.2	132.1	10.0 4.5
9L12PPA021S	9L12PPB021S	21	17	12.2	309.9	7.6	193.0	6.2	157.5	10.0 4.5
9L12PPA024S	9L12PPB024S	24	19.5	12.2	309.9	7.6	193.0	6.2	157.5	10.0 4.5
9L12PPA027S	9L12PPB027S	27	22	17.6	447.0	9.6	243.8	8.2	208.3	13.5 6.1
9L12PPA030S	9L12PPB030S	30	24.4	17.6	447.0	9.8	248.9	8.4	213.4	13.5 6.1
9L12PPA036S	9L12PPB036S	36	29	17.6	447.0	9.8	248.9	8.4	213.4	13.5 6.1
9L12PPA039S	9L12PPB039S	39	31.5	23.0	584.2	12.8	325.1	11.4	289.6	17.0 7.7
9L12PPA045S	9L12PPB045S	45	36.5	23.0	584.2	12.8	325.1	11.4	289.6	17.0 7.7
9L12PPA048S	9L12PPB048S	48	39	23.0	584.2	12.8	325.1	11.4	289.6	17.0 7.7
9L12PPA054S	9L12PPB054S	54	42	28.4	721.4	15.8	401.3	14.4	365.8	19.6 8.9
9L12PPA060S	9L12PPB060S	60	48	28.4	721.4	15.8	401.3	14.4	365.8	19.6 8.9
9L12PPA072S	9L12PPB072S	72	57	33.8	858.5	19.8	502.9	18.4	467.4	23.1 10.5
9L12PPA090S	9L12PPB090S	90	70	44.0	1117.6	40	1016.0	33	838.2	52 23.6
9L12PPA096S	9L12PPB096S	96	76	44.0	1117.6	42	1066.8	35	889.0	53 24.0
9L12PPA108S	9L12PPB108S	108	88	44.0	1117.6	46	1168.4	39	990.6	54 24.5
9L12PPA120S	9L12PPB120S	120	98	66.5	1689.1	51	1295.4	44	1117.6	67.5 30.6
9L12PPA132S	9L12PPB132S	132	106	66.5	1689.1	55	1397.0	47	1193.8	67.5 30.6
9L12PPA144S	9L12PPB144S	144	115	66.5	1689.1	58	1473.2	50	1270.0	67.5 30.6

¹These clearances are recommended minimum clearances only and as such are not intended to take precedence over existing construction codes or specifications. Placement of the units should be such that they do not physically touch each other.



Capacitors, Arresters and Harmonic Filters

Tranquell™ Intermediate Arresters

Polymer High Voltage
Indoor and Outdoor Service

Section 24

Polymer Arresters (Intermediate Class)

for both Indoor and Outdoor Mounting (2.7-72 kVrms)

9L12PPMxxxS and 9L12PPTxxxS

Pressure Relief Capability: 16.1 kA rms Energy Handling Capability: 3.6kJ/kV mCOV

Cantilever Strength: 3,000 inch-pounds, rated ultimate cantilever moment

Arrester Rating kVrms	Maximum Continuous Voltage Capability (L-N) kVrms	Product Number (Gray Polymer)	
		Eyebolt Terminal for Indoor or Outdoor Upright Mounting	Indoor or cubicle Terminal Mounting
2	2.2	9L12PPT002S	9L12PPM002S
3	2.55	9L12PPT003S	9L12PPM003S
4	3.7	9L12PPT004S	9L12PPM004S
5	4.2	9L12PPT005S	9L12PPM005S
6	5.1	9L12PPT006S	9L12PPM006S
7	6.1	9L12PPT007S	9L12PPM007S
8	6.9	9L12PPT008S	9L12PPM008S
9	7.65	9L12PPT009S	9L12PPM009S
10	8.4	9L12PPT010S	9L12PPM010S
12	10.2	9L12PPT012S	9L12PPM012S
15	12.7	9L12PPT015S	9L12PPM015S
18	15.3	9L12PPT018S	9L12PPM018S
21	17	9L12PPT021S	9L12PPM021S
24	19.5	9L12PPT024S	9L12PPM024S
27	22	9L12PPT027S	9L12PPM027S
30	24.4	9L12PPT030S	9L12PPM030S
36	29	9L12PPT036S	9L12PPM036S
39	31.5	9L12PPT039S	-
45	36.5	9L12PPT045S	-
48	39	9L12PPT048S	-
54	42	9L12PPT054S	-
60	48	9L12PPT060S	-
72	57	9L12PPT072S	-

Polymer Arresters (Intermediate Class)—Protective Characteristics 9L12PPTxxxS and 9L12PPMxxx2

Product Number	Rating voltage kV rms	mCOV kV rms	0.5 µsec 10 kA Max IR-kV crest	Switching Surge Max IR-kV crest	Maximum Discharge Voltage - kV crest					
					1.5 kA	3 kA	5 kA	10 kA	20 kA	40 kA
9L12PPTxxxS ¹										
9L12PPT002S	2.7	2.2	9.9	6.6	7.2	7.8	8.2	9.1	10.4	12.3
9L12PPT003S	3	2.55	9.9	6.6	7.2	7.8	8.2	9.1	10.4	12.3
9L12PPT004S	4.5	3.7	20	13.3	14.6	15.7	16.6	18.4	21	24.8
9L12PPT005S	5.1	4.2	20	13.3	14.6	15.7	16.6	18.4	21	24.8
9L12PPT006S	6	5.1	20	13.3	14.6	15.7	16.6	18.4	21	24.8
9L12PPT007S	7.5	6.1	26.8	17.8	19.5	21	22.2	24.5	28.1	33.2
9L12PPT008S	8.5	6.9	26.8	17.8	19.5	21	22.2	24.5	28.1	33.2
9L12PPT009S	9	7.65	26.8	17.8	19.5	21	22.2	24.5	28.1	33.2
9L12PPT010S	10	8.4	29.5	19.6	21.5	23.1	24.4	27	31	36.6
9L12PPT012S	12	10.2	35.5	23.6	25.9	27.9	29.4	32.5	37.3	44
9L12PPT015S	15	12.7	44.2	29.4	32.2	34.7	36.7	40.5	46.5	54.8
9L12PPT018S	18	15.3	53.4	35.5	38.9	41.9	44.3	48.9	56.1	66.2
9L12PPT021S	21	17	60.7	40.3	44.3	47.6	50.3	55.6	63.8	75.3
9L12PPT024S	24	19.5	70.9	47.1	51.7	55.6	58.7	64.9	74.4	87.9
9L12PPT027S	27	22	78.6	52.2	57.3	61.7	65.2	72	82.6	97.5
9L12PPT030S	30	24.4	88.5	58.7	64.5	69.4	73.3	81	92.9	110
9L12PPT036S	36	29	105	69.7	76.5	82.4	87	96.1	110	130
9L12PPT039S	39	31.5	115	76.5	84	90	95	105	120.5	142.5
9L12PPT045S	45	36.5	133.5	88.5	97.5	105	110.5	122	140	165.5
9L12PPT048S	48	39	142	94.5	103.5	111.5	118	130	149.5	176
9L12PPT054S	54	42	160.5	107	117	126	133	147	169	199
9L12PPT060S	60	48	175	116	127.5	137.5	145	160	183.5	217
9L12PPT072S	72	57	214	142.5	156	168	177.5	196	225	265.5

For weight, dimensional and other technical information, please visit the Arresters section of www.gedigitalenergy.com

¹9L12PPMxxxS, the electrical characteristics in this table are applicable to these product numbers. Contact factory for outline drawings.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Tranquell™ Intermediate Arresters

Polymer High Voltage
Indoor and Outdoor Service

Section 24

Dimensions and Mounting

Product Number	Ratings Voltage kV rms	MCOV	"X" Dimension (In.)	Leakage Distance (In.)	Minimum Mounting Spacing on Center (In.)		Net Weight (Lbs.)
					Ph-Ph	Ph-Grd	
9L12PPT002S	2.7	2.2	4.5	8	4.4	3.3	5.1
9L12PPT003S	2.7	2.55	4.5	8	4.4	3.3	5.1
9L12PPT004S	4.5	3.7	6.9	15.4	4.6	3.2	5.8
9L12PPT005S	5.1	4.2	6.9	15.4	4.6	3.2	5.8
9L12PPT006S	6	5.1	6.9	15.4	4.6	3.2	5.8
9L12PPT007S	7.5	6.1	6.9	15.4	4.7	3.3	5.8
9L12PPT008S	8.5	6.9	6.9	15.4	4.7	3.3	5.8
9L12PPT009S	9	7.65	6.9	15.4	4.7	3.3	5.8
9L12PPT010S	10	8.4	6.9	15.4	4.9	3.5	5.8
9L12PPT012S	12	10.2	6.9	15.4	4.9	3.5	5.8
9L12PPT015S	15	12.7	9.9	26	6.2	4.8	8.8
9L12PPT018S	18	15.3	9.9	26	6.6	5.2	8.8
9L12PPT021S	21	17.0	9.9	26	7.6	6.2	8.8
9L12PPT024S	24	19.5	12.2	30.8	7.6	6.2	9.1
9L12PPT027S	27	22.0	18.6	52	9.6	8.2	14.8
9L12PPT030S	30	24.4	18.6	52	9.8	8.4	14.8
9L12PPT036S	36	29.0	18.6	52	9.8	8.4	14.8
9L12PPT039S	39	31.5	18.6	52	12.8	11.4	14.8
9L12PPT045S	45	36.5	27.1	78	12.8	11.4	20.8
9L12PPT048S	48	39.0	27.1	78	12.8	11.4	20.8
9L12PPT054S	54	42.0	27.1	78.0	15.8	14.4	20.8
9L12PPT060S	60	48.0	27.1	78.0	15.8	14.4	20.8
9L12PPT072S	72	57.0	36	104	19.8	18.4	26.8

*9L12PPMxxxxs, the electrical characteristics in this table are applicable to these catalog numbers.
Outline drawings are available from the factory.



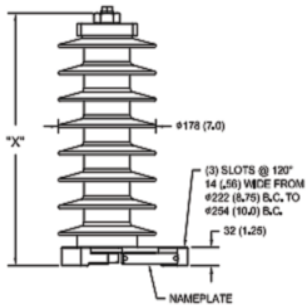


Fig. 1- Polymer Station Arrester -
 9L11XPA/XPBxxxAS
 3kV through 72kV

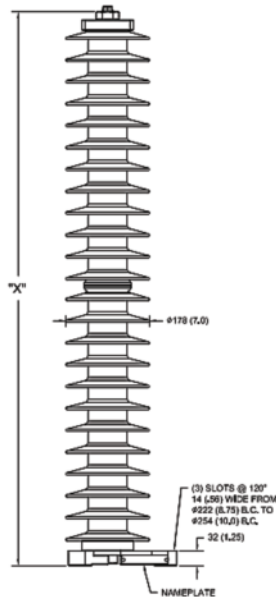


Fig. 2- Polymer Station Arrester -
 9L11XPA/XPBxxxAS
 90kV through 108kV

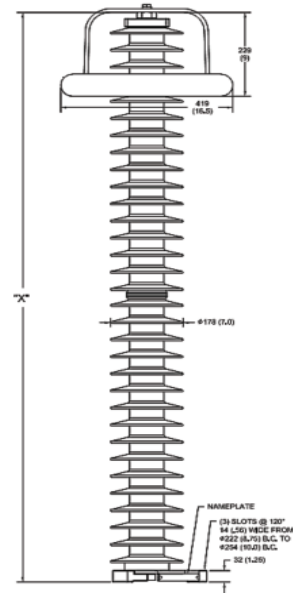


Fig. 3- Polymer Station Arrester -
 9L11XPA/XPBxxxAS
 120kV through 144kV

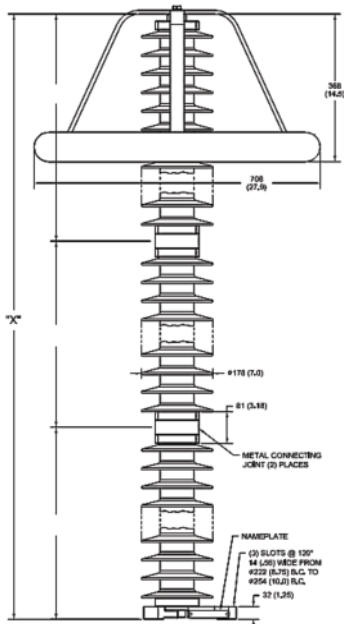
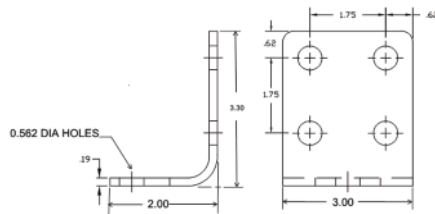
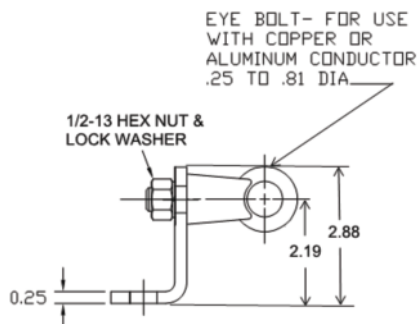


Fig. 4- Polymer Station Arrester -
 9L11XPA/XPBxxxAS
 168kV through 228kV



4 Hole NEMA Line
 Terminal



Eyebolt Line
 Terminal

Capacitors, Arresters and Harmonic Filters

Station and Intermediate Class Arresters

Section 24

Accessories

Terminals and Mounting Brackets

The energy capability for GE Surge Arresters is defined based upon Switching Surges, 2 milliseconds, transmission line discharges, with multiple discharges over a one-minute period and with current amplitudes that are no greater than listed below. Based upon this definition GE arresters have an energy capability as follows:

Distribution, Intermediate and Station Arrester – Application

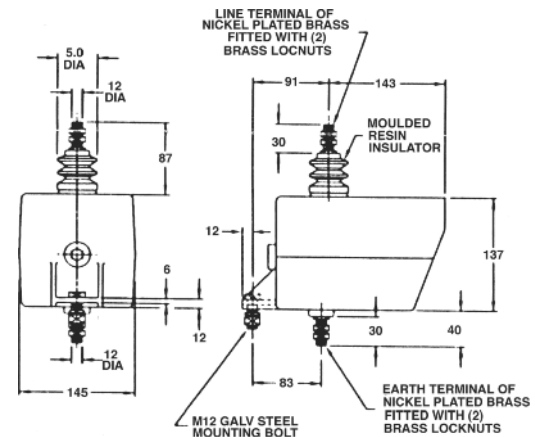
Arrester Rated Voltage (kV rms)	Housing Type	Arrester Type	Max. Current for Energy Rating (Amps)	Energy (kJ/kV of MCOV)
3-36 kV	Polymer	Heavy Duty Distribution	450	1.8
3-36 kV	Polymer	Riser Pole	650	2.2
3.0 - 144 kV	Polymer	Intermediate	650	6
3.0 - 144 kV	Polymer	Station	1000	9
3.0 - 48 kV	Porcelain	Station	1000	9
54 - 360 kV	Porcelain	Station	1500	13
396 - 612 kV	Porcelain	Station	2400	17

To provide assurance that all disks used in GE arresters have this capability, we perform a Low Current Long Duration Strength Test on 100% of our disks applying the above energies. We apply two groups of three shots per group. Each shot is a square wave, which is 2 milliseconds wide. We allow 15 to 20 seconds between shots, three are applied within 60 seconds, and we allow the disk to cool between the two groups of three shots. This is followed by three shots of a half sine wave, which is 14 milliseconds wide with 15 to 20 seconds between shots. These tests weed out any weak disks and provide assurance that the disks used in the final product are indeed capable of withstanding the energy claimed.

GE arresters exceed the requirements of Seismic Zone 2 and have Cantilever Strengths and fault current capabilities as follows:

Discharge Counters, Insulating Bases and Brackets

Description	Weight		Product Number
	lbs	kgs	
Discharge Counter	6.6	3.0	9L26FBE005E
Discharge Counter with leakage current ammeter	7.7	3.5	9L26FBE012E
Description -3 included, 1 for each foot of the arrester			
Insulating Base for Polymer Intermediate arresters and Porcelain Station arresters 3-48kV rated voltage	5	2.27	9L11LW804S
Insulating Base for Polymer Station arrester	5	2.27	9L11LW805S
Insulating Base for Porcelain Station arrester (54-360 kV rated voltage)	47	21.4	9L11LW807AS
Insulating Base for Porcelain EHV arresters (>360kV)	47	21.4	9L16AAW110S



Details of Discharge Counter,
Models 9L26FBE005E and 9L26FBE012E (Dimensions in mm)

Distribution, Intermediate and Station Arrester – Application

Arrester Rated Voltage (kV rms)	Housing Type	Arrester Type	Rated Ultimate Cantilever Strength		Maximum Working Cantilever Strength		Fault Current Capability (kA sym)
			in-lbs	N-m	in-lbs	N-m	
3 - 36 kV	Polymer	Normal Duty Distribution	1,500	169	600	68	10
3 - 36 kV	Polymer	Heavy Duty Distribution	3,000	339	1,200	136	20
3 - 36 kV	Polymer	Riser Pole	4,000	452	1,600	181	20
3.0 - 72 kV	Polymer	Intermediate	4,000	452	2,000	226	20
3.0 - 144 kV	Polymer	Intermediate	10,000	1,130	5,000	565	20
3.0 - 144 kV	Polymer	Station	20,000	2,260	10,000	1,130	80
3.0 - 48 kV	Porcelain	Station - Metal Top	70,000	7,909	28,000	3,163	65
54 - 360 kV	Porcelain	Station	150,000	16,947	60,000	6,779	93
396 - 612 kV	Porcelain	Station	200,000	22,596	80,000	9,038	65



Capacitors, Arresters and Harmonic Filters

Distribution and Riser Pole Arresters

Section 24

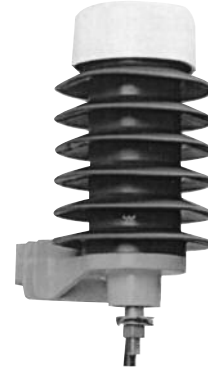
9L20 Polymer Distribution
9L27 Polymer Riser Pole
0-12,000 ft. Altitude

Product Description

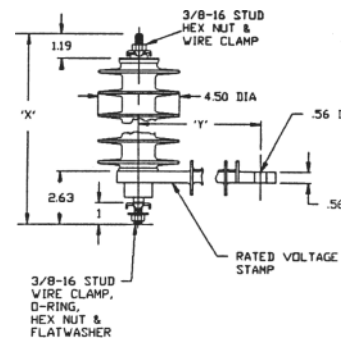
The GE Tranquell™ distribution and riser pole polymer line of surge arrester products provide excellent protective characteristics, temporary overvoltage capability, and switching surge energy withstand to power systems of voltages less than 46 kV rms. GE polymer arresters are ideally suited for application in both indoor and outdoor situations. They are designed and manufactured in accordance with the latest revision of ANSI/IEEE C62.11 and IEC 99-4.

Application Guide – Nominal System Suggested Arrester Rating

Line-to-Line Voltage	4 Wire Multi-Grounded Neutral System	3 Wire Delta or WYE ¹	
		Low Impedance Ground	High Impedance or Ungrounded
4160	3	6	6
4800	6	6	6
6640	6	6	9
7200	6	9	9
7620	6	9	9
8320	6	9	10
9960	9	9	12
11000	9	10	12
11500	9	10	15
12000	9	12	15
12470	9	12	15
13200	10	12	15
13800	10	12	18
14400	12	15	18
17250	15	15	21
19750	15	18	21
20780	15	18	24
22860	18	21	27
24940	18	24	30
26400	21	24	30
27700	21	27	30
34500	27	30	36
36200	27	36	–



Tranquell™ distribution arrester, rated 10 kV, with disconnecter)



3-36 kV rms Polymer Heavy Duty Distribution Arresters 9L20

Note: kV rating fills positions 9 and 10 (**) of product number

Product Number	Insulating Bracket	Disconnect	Bird Cap	X-Arm Bracket	Xformer Bracket	18" Line Lead	Ground Strap	3kV	6kV	9kV	10kV	12kV	15kV	18kV	21kV	24kV	27kV	30kV	36kV
9L20AXX0**AHS	X	X		X															
9L20AXX4**AHS	X	X	X	X															
9L20AXA4**AHS	X	X	X	X		X													
9L20AXA0**AHS	X	X		X		X													
9L20AXX0**XHS	X	X																	
9L20AXX4**XHS	X	X	X																
9L20AXA4**XHS	X	X	X			X													
9L20AXA0**XHS	X	X				X													
9L20AXX0**BHS	X	X			X														
9L20AXX4**BHS	X	X	X		X														
9L20AHA4**BHS	X	X	X	X	X	X	X												
9L20AHX4**BHS	X	X	X		X		X												
9L20AHX0**BHS	X	X			X		X												
9L20AFA4**BHS	X	X	X		X	X	X												
9L20AFX4**BHS	X	X	X		X		X												
9L20AFX0**BHS	X	X			X		X												
9L20BXX0**XHS	X																		
9L20FXX0**XHS																			

**Denotes voltage in kV. Example: 3kV = 03; 18kV = 18.



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."

Capacitors, Arresters and Harmonic Filters

Distribution and Riser Pole Arresters

Section 24

9L20 Polymer Distribution

9L27 Polymer Riser Pole

0-12,000 ft. Altitude

3-36kV rms 9L27 Polymer Riser Pole Arresters

Product Number	Insulating Bracket	Disconnect	Bird Cap	X-Arm Bracket	3 kV	6 kV	9 kV	10 kV	12 kV	15 kV	18 kV	21 kV	24 kV	27 kV	30 kV	36 kV
9L27HXX4**XHS	X	X	X													
9L27HXX4**AHS	X	X	X	X												

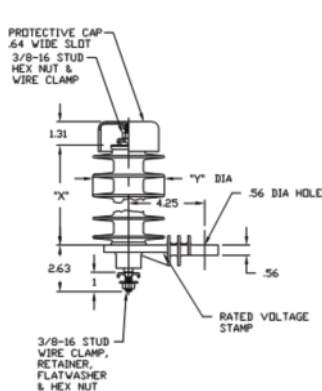
**Denotes voltage in kV. Example: 3kV = 03; 18kV = 18.

Heavy Duty Distribution Arresters 9L20 – Protective Characteristics

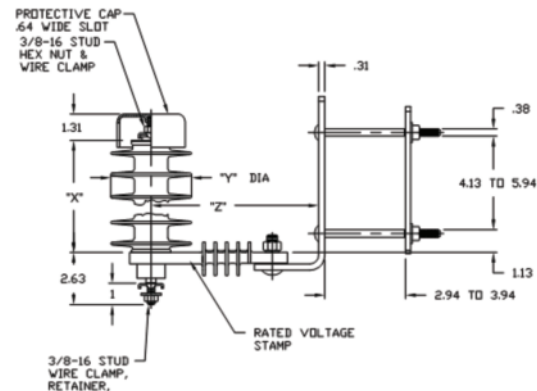
Rating Voltage kV rms	MCOV kV rms	0.5 usec 10kA Max. IrR kV Crest	Switching Surge Max IR-kVCrest	8/20 Maximum Discharge Voltage (kV) Crest					
				1.5kA	3kA	5kA	10kA	20kA	40kA
3	2.55	10.6	7.6	8	8.5	9	9.9	11.1	13.2
6	5.1	21.3	15.3	15.9	17	18	19.8	22.3	26.5
9	7.65	31.2	22.4	23.3	24.9	26.4	29	32.6	38.8
10	8.4	34	24.4	25.4	27.1	28.8	31.6	35.6	42.3
12	10.2	40.4	29	30.3	32.3	34.2	37.6	42.3	50.3
15	12.7	51.4	36.9	38.5	41.1	43.5	47.8	53.5	64
18	15.3	60.6	43.5	45.4	48.4	51.3	56.4	63.5	75.5
21	17	68.3	49	51.1	54.5	57.8	63.5	71.4	85.5
24	19.5	81.9	58.8	61.3	65.6	69.3	76.2	85.7	102
27	22	91.9	65.9	68.8	73.4	77.8	85.5	96.2	114.4
30	24.4	101.1	72.5	75.7	80.7	85.5	94	105.8	125.8
36	29	121.4	87	97.9	97	102.7	112.9	127	151.1

Heavy Duty Distribution Arresters 9L20 – Insulation and Physical Characteristics

Rating Voltage kV rms	MCOV kV rms	Creep		Strike		Min 1.2 x 50µs Withstand (kV Crest)	Min Power Frequency (kV rms)		Mounting Clearance "x" Overall Height		Center Line to Center Line		Center Line to Ground		Weights (unit only)	
		in	mm	in	mm		Dry (1 sec)	Wet (10 sec)	in	mm	in	mm	in	mm	lbs	kgs
3	2.55	8	203	4.9	124	50	35	25	6.8	173	4.8	122	3	76	2.6	1
6	5.1	15.4	391	4.9	124	75	45	35	7.62	194	5.0	127	3.4	86	2.6	1
9	7.65	15.4	391	4.9	124	75	45	35	8.72	221	5.6	142	4	102	2.6	1
10	8.4	15.4	391	4.9	124	75	45	35	8.72	221	5.8	147	4.2	107	2.6	1
12	10.2	15.4	391	6.5	165	125	65	45	9.3	236	7.5	191	5.5	140	5.6	3
15	12.7	26	660	6.5	165	125	65	45	11.62	295	8.5	216	6.5	165	5.6	3
18	15.3	26	660	6.5	165	125	65	45	11.62	295	9.5	241	7.5	191	5.6	3
21	17	26	660	6.5	165	125	65	45	12.42	315	10.0	254	8	203	5.6	3
24	19.5	30.8	782	10	254	160	90	65	15.32	389	12.0	305	10	254	8.9	4
27	22	52	1321	10	254	160	90	65	16.42	417	13.0	330	11	279	8.9	4
30	24.4	52	1321	10	254	160	90	65	19.92	506	13.6	345	12	305	8.9	4
36	29	52	1321	14	356	160	90	65	19.32	491	16.2	411	14.5	368	12.2	6



Insulating Bracket w/ Bird Cap & Disconnect



Insulating Bracket / Cross-arm Bracket w/ Bird Cap & Disconnect



Capacitors, Arresters and Harmonic Filters

Distribution and Riser Pole Arresters

Section 24

9L20 Polymer Distribution
9L27 Polymer Riser Pole
0-12,000 ft. Altitude

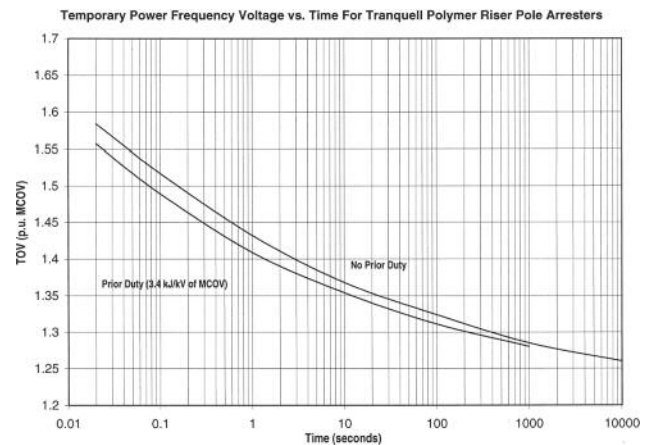
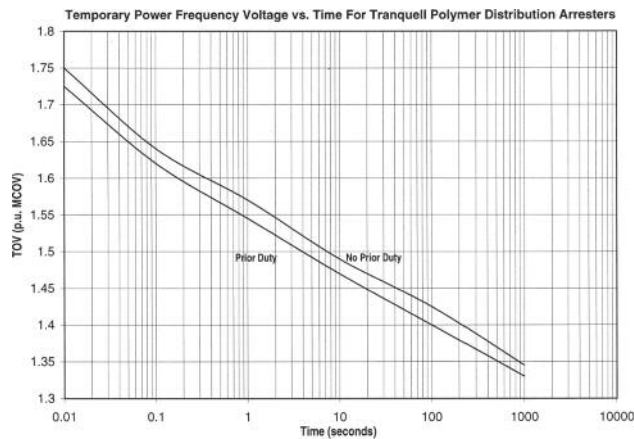
Riser Pole Arresters 9L27 – Protective Characteristics

Rating Voltage kV rms	MCOV kV rms	0.5 μ sec 10kA Max. IrR kV Crest	Switching Surge Max IR-kV/Crest	8/20 Maximum Discharge Voltage (kV) Crest					
				1.5kA	3kA	5kA	10kA	20kA	40kA
3	2.55	8.7	5.8	6.5	7	7.4	8.1	9	10.6
6	5.1	17.4	11.7	13	14	14.7	16.2	18.1	21.1
9	7.65	25.7	17.5	19.3	21	21.9	24	27	31.6
10	8.4	28.5	19.2	21.2	23	24	26.5	29.8	34.8
12	10.2	34.8	23.3	25.9	28	29.4	32.3	36.2	42.2
15	12.7	43.1	29.1	32.3	35	36.6	40.2	45.1	52.7
18	15.3	51.4	34.9	38.6	41.9	43.8	48	54	63.2
21	17	57.6	38.7	42.8	46.4	48.6	53.6	60.2	70.5
24	19.5	68.8	46.6	51.6	55.9	58.5	64.2	72.1	84.3
27	22	77.1	52.4	57.9	62.9	65.7	72	81	94.8
30	24.4	85.5	57.6	63.5	69	72	79.5	89.4	104.4
36	29	102.8	69.8	77.2	83.8	87.6	96	108	126.6

Riser Pole Arresters 9L27 – Insulation and Physical Characteristics

Rating Voltage kV rms	MCOV kV rms	Creep		Strike		Min 1.2 x 50 μ s Withstand (kV Crest)	Min Power Frequency (kV rms)		Mounting Clearance "x" Overall Height		Center Line to Center Line		Center Line to Ground		Weights (unit only)	
		in	mm	in	mm		Dry (1 sec)	Wet (10 sec)	in	mm	in	mm	in	mm	lbs	kgs
3	2.55	8	203	4.9	124	50	35	25	6.8	173	4.8	122	3	76	2.6	1
6	5.1	15.4	391	4.9	124	75	45	35	7.62	194	5.0	127	3.4	86	2.6	1
9	7.65	15.4	391	4.9	124	75	45	35	8.72	221	5.6	142	4	102	2.6	1
10	8.4	15.4	391	4.9	124	75	45	35	8.72	221	5.8	147	4.2	107	2.6	1
12	10.2	15.4	391	6.5	165	125	65	45	9.3	236	7.5	191	5.5	140	5.6	3
15	12.7	26	660	6.5	165	125	65	45	11.62	295	8.5	216	6.5	165	5.6	3
18	15.3	26	660	6.5	165	125	65	45	11.62	295	9.5	241	7.5	191	5.6	3
21	17	26	660	6.5	165	125	65	45	12.42	315	10.0	254	8	203	5.6	3
24	19.5	30.8	782	10	254	160	90	65	15.32	389	12.0	305	10	254	8.9	4
27	22	52	1321	10	254	160	90	65	16.42	417	13.0	330	11	279	8.9	4
30	24.4	52	1321	10	254	160	90	65	19.92	506	13.6	345	12	305	8.9	4
36	29	52	1321	14	356	160	90	65	19.32	491	16.2	411	14.5	368	12.2	6

Temporary Overvoltage Curves



For more product information, go to www.gedigitalenergy.com, click on "Products and Services" and then "Products."