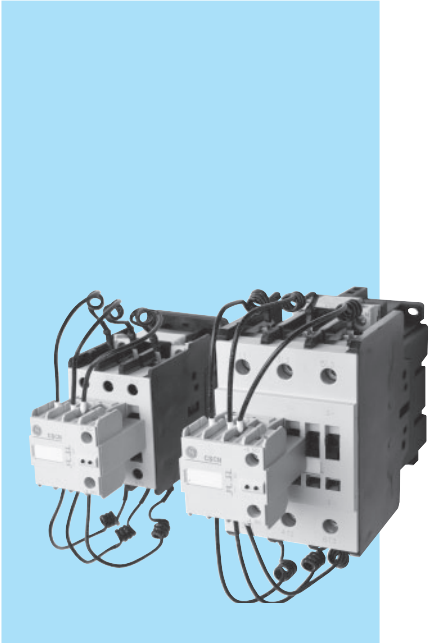


Contactors for capacitors switching

With built-in resistance to switch three phase capacitor banks

"CSCN" contactors incorporate a front block with three early-make auxiliary contacts together with 6 quick discharge resistors (two per phase) through which the capacitors are switched to the network, reducing the current peak. Once the resistors have damped the current peak, the main contacts short-circuit the resistors, carrying the uninterrupted current.
A few miliseconds later the early-make auxiliary contact closes to guarantee that all current flows through the main contacts.

Standards

IEC/EN 60947-1
IEC/EN 60947-4-1
IEC/EN 60947-5-1
EN 50005
UL 508
CSA C22.2/14
CENELEC HD 419
VDE 0660/102
NFC 63-110
ASE 1025
UNE 20109

Approvals/Marking

cULus CE

Standard voltages

To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit, other voltages on request.

Alternating current (V). Dual-frequency

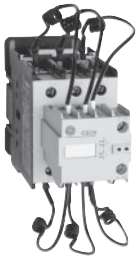
♦	1	2	3	4	5	6	7	8	9
50/60Hz	24	42	110 115	120	220	230	240	440	48

Alternating current (V)

♦	E	K	L	N	T	U	W	Y	Z
50Hz	32	127		220 230		380 400	415	500	660 690
60Hz			208	277	380	480	460	600	

Order codes ● pg. A.145
Technical data ● pg. A.146
Dimensional drawings ● pg. A.148

Contactors for capacitors switching



Ith	Ambient temperature										Fuse	Contacts		Cat. no. (1)	Ref. no. see bottom	Pack
	θ ≤ 55°C					θ ≤ 70°C										
	230V 240V	400V	415V	500V	660V 690V	230V 240V	400V	415V	500V	660V 690V		•3 | •4	•1 | •2			
A	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	gl - gG					
25	7.5	12.5	13	16	15	3.7	7.5	8	9.5	10	25	2	0	CSCN12A320 ♦		1
												1	1	CSCN12A311 ♦		1
												0	2	CSCN12A302 ♦		1
32	10	16.7	17	21	20	5	10	11	12.5	12.5	35	2	0	CSCN16A320 ♦		1
												1	1	CSCN16A311 ♦		1
												0	2	CSCN16A302 ♦		1
45	12.5	20	21	25	25	7.5	12.5	13	16	15	40	1	0	CSCN20A310 ♦		1
												0	1	CSCN20A301 ♦		1
												2	1	CSCN20A321 ♦		1
												1	2	CSCN20A312 ♦		1
45	15	25	26	31	30	10	15	16	18	20	50	1	0	CSCN25A310 ♦		1
												0	1	CSCN25A301 ♦		1
												2	1	CSCN25A321 ♦		1
												1	2	CSCN25A312 ♦		1
60	20	30	31	38	35	16	22	23	27	25	63	1	0	CSCN30A310 ♦		1
												0	1	CSCN30A301 ♦		1
												2	1	CSCN30A321 ♦		1
												1	2	CSCN30A312 ♦		1
90	25	45	47	56	55	20	35	36	44	40	80	1	0	CSCN45A310 ♦		1
												0	1	CSCN45A301 ♦		1
												2	0	CSCN45A320 ♦		1
												1	1	CSCN45A311 ♦		1
												1	2	CSCN45A312 ♦		1
110	35	55	57	69	65	30	45	47	56	50	125	1	0	CSCN55A310 ♦		1
												0	1	CSCN55A301 ♦		1
												2	0	CSCN55A320 ♦		1
												1	1	CSCN55A311 ♦		1
												1	2	CSCN55A312 ♦		1
140	45	70	73	88	85	35	60	62	75	70	160	1	0	CSCN70A310 ♦		1
												0	1	CSCN70A301 ♦		1
												2	0	CSCN70A320 ♦		1
												1	1	CSCN70A311 ♦		1
												1	2	CSCN70A312 ♦		1

Spare coils

For series CSCN12 ... CSCN25	LB1A ♦		5
For series CSCN30	LB3A ♦		5
For series CSCN45 ... CSCN70	LB4A ♦		5

(1) To complete the reference, replace ♦ by the code corresponding to the voltage and frequency of the control circuit. (see pg. A.144)

Technical data

Technical characteristics

Main circuit (poles)

			CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
Rated operational voltage		(V)	690	690	690	690	690	690	690	690
Rated insulation voltage according to IEC947		(V)	1000	1000	1000	1000	1000	1000	1000	1000
Rated thermal current		(A)	25	32	45	45	60	90	110	140
Max. power utilization	230/240V	(kvar)	7,5	10	12,5	15	20	25	35	45
at 55°C	380/400V	(kvar)	12.5	16,7	20	25	30	45	55	70
	660/690V	(kvar)	15	20	25	30	35	55	65	85
Electrical endurance		(ops.)	280.000	280.000	280.000	250.000	200.000	150.000	120.000	90.000
Max. ops./hour		(ops./hour)	350	350	350	240	240	150	150	150

Control circuit

				CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
Standard voltages		50Hz	(V)	24-690	24-690	24-690	24-690	24-690	24-690	24-690	24-690
		60Hz	(V)	24-600	24-600	24-600	24-600	24-600	24-600	24-600	24-600
Consumption											
Single frequency	Mar. circuit open		(VA)	45	45	48	48	88	191	191	198
	Mar. circuit closed		(VA)	6	6	7	7	9	15,5	15,5	17
Dual frequency	Mar. circuit open		(VA)	54	54	58	58	125	245	245	250
50Hz	Mar. circuit closed		(VA)	7	7	8	8	11.5	20	20	23
Dual frequency	Mar. circuit open		(VA)	35	35	39	39	110	215	215	220
60Hz	Mar. circuit closed		(VA)	5	5	6	6	11	15	15	19

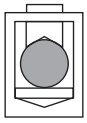
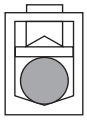
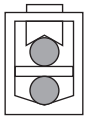
Instantaneous auxiliary contact blocks

Rated insulation voltage Ui	(V)	1000
Rated thermal current Ith	(A)	10

Ambient conditions

Storage temperature	(°C)	-50 ... +80
Operating temperature	(°C)	-25 to +55 (without derating)
Altitude up to 3000m		Nominal values
Mounting positions		Vertical mounting +/- 30°

Terminal capacity and tightening torque

			CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
	Solid, stranded and finely stranded		1 x 0.5 ... 2,5		1 x 0.5 .. 2,5		–	–		–
	without end sleeve	(mm²)	1 x 2.5 ... 6		1 x 2.5 ... 10		–	–		–
	Finely stranded with or		1 x 1 ... 2,5		1 x 1 ... 2,5		–	–		–
	without end sleeve	(mm²)	1 x 2.5 ... 6		1 x 2.5 ... 10		–	–		–
	AWG wires		1 x 20 ... 12		1 x 20 ... 8		–	–		–
	Tightening torque	(Nm)	1.6		2.2		–	–		–
		(Lb x in.)	15		20		–	–		–
	Solid, stranded and finely stranded									
	without end sleeve	(mm²)	–		–		0.75 ... 16	1 ... 35		1.5 ... 50
	Finely stranded with end sleeve	(mm²)	–		–		0.75 ... 16	1 ... 35		1.5 ... 50
	Finely stranded without end sleeve	(mm²)	–		–		1 ... 16	1 ... 35		1.5 ... 50
	AWG wires		–		–		18 ... 6	16 ... 2		16 ... 2
	Tightening torque	(Nm)	–		–		1.8	4		5.6
		(Lb x in.)	–		–		16	35		50
	Solid	(mm²)	–		–		0.75 ... 16	1 ... 16		4 ... 35
	Stranded	(mm²)	–		–		0.75 ... 16	1 ... 25		4 ... 35
	Finely stranded without end sleeve	(mm²)	–		–		0.75 ... 16	1 ... 25		4 ... 35
	Finely stranded with end sleeve	(mm²)	–		–		1 ... 16	1 ... 25		4 ... 35
	AWG wires		–		–		18 ... 6	16 ... 4		10 ... 1
	Tightening torque	(Nm	–		–		1.8	4		5.6
		(Lb x in.)	–		–		16	35		50
	Solid, stranded and finely stranded		–		–		Max. 16	Max. 50 ... 4		Max.
	without end sleeve	(mm²)	–		–			Max. 25 ... 16		50 ... 35
	Finely stranded without end sleeve	(mm²)	–		–		Max. 16	Max. 35 ... 2,5		Max. 35
								Max. 25 ... 16		
	Finely stranded with end sleeve	(mm²)	–		–		Max. 16	Max. 35 ... 16		Max. 35
								Max. 25 ... 25		
	AWG wires		–		–		Max. 6	Max. 2 ... 12		Max. 1
			–		–			Max 4 ... 4		
	Tightening torque	(Nm)	–		–		1.8	4		5.6
		(Lb x in.)	–		–		16	35		50

Standard contactors

Series "CL" and "CK" contactors, to switch three phase capacitor banks

Electrical endurance: >100,000 operations

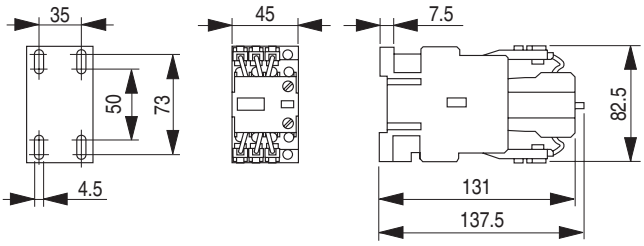
Contactor		θ ≤ 55°C					θ ≤ 70°C					Fuse gl - gG	I max. (peak)
Type (1)	Ith	220V 230V 240V	400V	415V	500V	690V 660V	220V 230V 240V	400V	415V	500V	690V 660V		
	A	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	A	A
CL00A	25	3	5	5.5	6.5	5.7	2.4	4	4.5	5.2	4.5	10	1000
CL01A	25	4.5	9.5	10.5	12.5	11	3.6	6	6.5	10	7	16	1000
CL02A	32	6.5	11	12	14.5	12.5	5.2	8.5	9	11.5	10	25	1000
CL25A	45	7.5	12.5	14	16	15	6.5	10	11	13	12	25	1000
CL03A	45	9	15	16.5	20	17.5	7.2	12	13	16	14	35	2500
CL04A	60	12.5	21	23	27.5	24	10	17	18	22	19.5	40	2500
CL45A	60	16.5	25	27	32	30	13	20	22	25	22	50	2500
CL06A	90	22	40	43	52	50	17	30	33	41	35	80	3500
CL07A	110	25	45	48	58	65	19	35	37	46	40	125	3500
CL08A	110	30	50	54	65	70	22	40	43	52	50	125	3500
CL09A	140	40	65	70	85	95	35	58	62	75	85	160	3500
CL10A	140	50	80	85	105	120	43	70	75	90	105	160	3500
CK75C	250	60	110	118	145	150	48	88	94	116	120	250	5000
CK08C	250	70	125	135	162	170	56	100	107	130	136	250	5000
CK85B	315	80	150	160	195	200	64	120	130	156	160	315	5000
CK09B	315	95	165	177	215	230	85	148	160	192	205	315	5000
CK95B	450	105	190	205	250	288	95	175	188	230	265	450	5500
CK10C	600	135	260	280	340	370	120	235	252	375	330	630	10000
CK11C	700	190	325	350	425	450	152	260	280	340	360	800	10000
CK12B	1000	250	400	430	520	600	200	320	344	416	480	1000	12000
CK13B	1250	315	525	565	685	650	252	420	452	548	520	1250	15000

(1) To complete contactor reference, see A.52 for CL and A.62 for CK

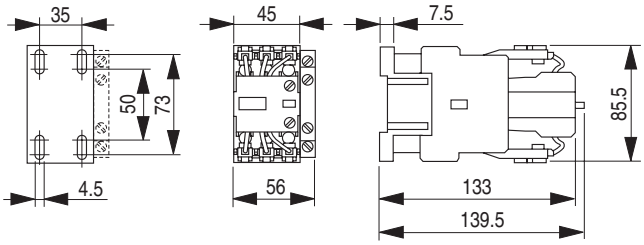
Dimensional drawings

Contactors for capacitors switching

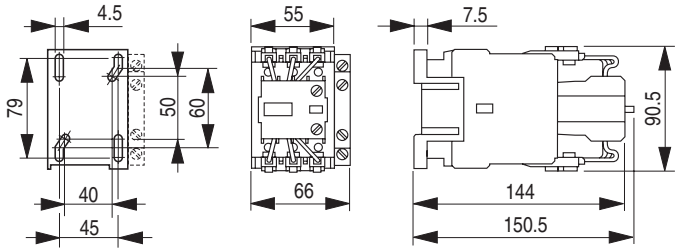
CSCN12..., CSCN16...



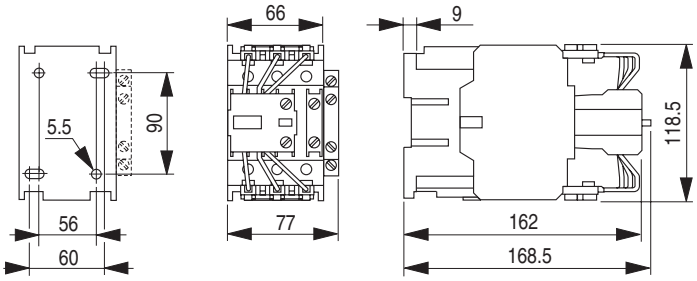
CSCN20..., CSCN25...



CSCN30...



CSCN45..., CSCN55...



CSCN70...