

Electric Products

Contactors / MPCB / MCCB / ACB





Contactors & Overload Relays

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M - series

3 and 4 pole series up to 2650AF Mini-contactors available

AC/DC common use coil from 150AF

Thermal (Bimetallic) and electronic type overload relays are available

CE marked and UL approved

Mini Contactors

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Motor Protection Circuit Breaker (MPCB)

..... **Page 10**



Molded Case Circuit Breakers

..... **Page 12**

S - series, M - Series

2, 3 and 4 pole series up to 1600AF

Rated ambient temperature at 40°C calibrated for 50°C available

CE marked according to IEC standard and UL approved MCCBs are also available.

Air Circuit Breakers

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S - series, M - Series

65, 85 and 150kA breaking capacity

High functional digital trip relays

CE marked and Marine classification

Contactors & Overload relays

M - Series DGCM 3P 18 to 150A

DGCM type Magnetic Contactors



Frame size			18AF				22AF			
Type			DGCM-6a	DGCM-9a	DGCM-12a	DGCM-18a	DGCM-9b	DGCM-12b	DGCM-18b	DGCM-22b
	Screws clamp terminals		•	•	•	•	•	•	•	•
	Lug clamp terminals		-	-	-	-	-	-	-	-
Number of poles			3pole				3pole			
Rated operational voltage, Ue			690V				690V			
Rated insulation voltage, Ui			690V				690V			
Rated frequency			50/60Hz				50/60Hz			
Rated impulse withstand voltage, Uimp			6kV				6kV			
Maximum operating rate in operating cycles per hour(AC3)			1800 operations per hour				1800 operations per hour			
Durability	Mechanical		15 mil. operations				15 mil. operations			
	Electrical		2.5 mil. operations				2.5 mil. operations			
Current and power	AC-1, Thermal current	A	25	25	25	32	25	27	32	45
	AC-3 200/240V	kW	2.2	2.5	3.5	4.5	2.5	3.5	4.5	5.5
		A	9	11	13	18	11	13	18	22
	380/440V	kW	3	4	5.5	7.5	4	5.5	7.5	11
		A	7	9	12	18	9	12	18	22
	500/550V	kW	3	4	7.5	7.5	4	7.5	7.5	15
		A	6	7	12	13	7	12	13	20
	690V	kW	3	4	7.5	7.5	4	7.5	7.5	15
		A	4	5	9	9	6	9	9	18
	1000V	kW	-	-	-	-	-	-	-	-
		A	-	-	-	-	-	-	-	-
Rated Short-time withstand current (IEC 60947)	1s	A	210	250	280	300	250	280	300	400
	10s	A	105	110	120	130	110	120	154	186
	30s	A	70	70	80	85	70	80	100	130
	1min	A	61	61	61	70	61	61	84	90
	3min	A	40	45	47	50	45	50	60	60
	10min	A	30	30	30	40	30	30	40	50
	≥ 15min	A	25	26	28	30	26	28	30	45
UL rating (50/60Hz)	Continuous current	A	25	25	25	32	25	25	40	40
	Single phase	110~120V	HP	0.5	0.5	0.75	1	0.5	0.75	1
		220~240V	HP	1.5	1.5	2	3	1.5	2	3
		200~208V	HP	2	2	3	7.5	2	3	7.5
	Three phase	220~240V	HP	3	3	5	7.5	3	5	7.5
		440~480V	HP	5	5	7.5	10	5	7.5	10
		550~600V	HP	7.5	7.5	10	15	7.5	10	15
	NEMA size		00	00	0	1	00	0	1	
Size and weight	AC control	Weight	0.33				0.34			
		Size(W × H × D)	45 × 73.5 × 80.4				45 × 73.5 × 87.4			
	DC control	Weight	0.4				0.41			
		Size(W × H × D)	45 × 73.5 × 96.6				45 × 73.5 × 103.6			
Auxiliary(standard)			1NO or 1NC				1NO1NC			
Auxiliary			UA-1				UA-1			
			UA-2, UA-4				UA-2, UA-4			

(Note) Minimum conduct current of Auxiliary contactor is DC 17V 5mA.

DGTM type Thermal Overload Relays



Type	DGTM-12/□		DGTM-32/□	
	Screws clamp terminals		Screws clamp terminals	
	Lug clamp terminals		Lug clamp terminals	
Rated operational voltage, Ue	690V		690V	
Rated insulation voltage, Ui	690V		690V	
Rated impulse withstand voltage, Uimp	6kV		6kV	
Trip class	10A, 20		10A, 20	
Setting range	0.1~18A		0.1~40A	
Size and weight		Weight	0.1	
		Size(W × H × D)	45 × 73.2 × 63.7	
		Weight	0.17	
		Size(W × H × D)	45 × 75 × 90	

* The safety cover of magnetic contactor and thermal overload relay is optional.



40AF		65AF		100AF			150AF	
DGCM-32a	DGCM-40a	DGCM-50a	DGCM-65a	DGCM-75a	DGCM-85a	DGCM-100a	DGCM-130a	DGCM-150a
•	•	•	•	•	•	•	•	•
-	-	•	•	•	•	•	•	•
3pole		3pole		3pole			3pole	
1000V		1000V		1000V			1000V	
1000V		1000V		1000V			1000V	
50/60Hz		50/60Hz		50/60Hz			50/60Hz	
8kV		8kV		8kV			8kV	
1800 operations per hour		1800 operations per hour		1800 operations per hour			1200 operations per hour	
12 mil. operations		12 mil. operations		12 mil. operations			5 mil. operations	
2 mil. operations		2 mil. operations		2 mil. operations	1 mil. operations		4 mil. operations	
55	60	100	115	125	135	160	200	250
7.5	11	15	18.5	22	25	30	37	45
32	40	55	65	75	85	105	130	150
15	18.5	22	30	37	45	55	60	75
32	40	50	65	75	85	105	130	150
18.5	22	30	33	37	45	55	60	70
28	32	43	60	64	75	85	90	100
18.5	22	30	33	37	45	55	55	55
20	23	28	35	42	45	65	60	60
22	22	30	30	37	37	37	75	75
17	17	23	23	28	28	28	50	50
600	700	1000	1050	1100	1200	1320	1350	1800
260	300	550	700	750	800	900	950	1200
160	190	330	380	400	450	500	700	800
100	120	250	270	300	350	400	550	600
70	80	150	200	220	270	270	350	450
55	65	90	120	140	170	180	200	300
50	60	87	96	114	150	160	175	280
50	60	70	100	110	135	160	200	250
2	3	3	5	5	7.5	10	10	15
5	7.5	10	15	15	15	20	20	25
7.5	15	20	25	25	30	30	40	40
10	15	25	30	30	40	40	40	50
20	30	40	50	50	60	75	75	100
25	30	50	60	60	75	75	75	75
1P	2				3			4
0.55		1.05		1.93			2.4	
69× 83× 90		79× 106× 119		94× 140× 135.8			119× 158× 130.3	
0.77		1.3		2.8				
69× 83× 117.1		79× 106× 146.4		94× 140× 172.3				
2NO2NC		2NO2NC		2NO2NC			2NO2NC	
UA-1		UA-1		UA-1			UA-1	
UA-2, UA-4		UA-2, UA-4		UA-2, UA-4			UA-2, UA-4	



DGTM-32/□	DGTM/□	DGTM-95/□	DGTM-150/□
•	•	•	•
-	•	•	•
690V	690V	690V	690V
690V	690V	690V	690V
6kV	6kV	6kV	6kV
10A, 20	10A, 20	10A, 20	10A, 20
0.1~40A	4~65A	7~100A	34~150A
0.17	0.31/0.33	0.48/0.5	0.67
45× 75× 90	55× 81× 100	70× 97× 110	95× 109× 113

Contactors & Overload relays

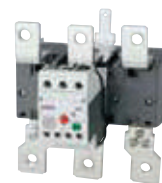
M - Series DGCM 3P 225 to 2100A



DGCM type Magnetic Contactors

Frame size				225AF		400AF			
Type				DGCM-185a	DGCM-225a	DGCM-265a	DGCM-330a	DGCM-400a	
	Screws clamp terminals			●	●	●	●	●	
	Lug clamp terminals			-	-	-	-	-	
Number of poles				3pole		3pole			
Rated operational voltage, Ue				1000V		1000V			
Rated insulation voltage, Ui				1000V		1000V			
Rated frequency				50/60Hz		50/60Hz			
Rated impulse withstand voltage, Uimp				8kV		8kV			
Maximum operating rate in operating cycles per hour(AC3)				1200 operations per hour		1200 operations per hour			
Durability	Mechanical			5 mil. operations		5 mil. operations		2.5 mil. operations	
	Electrical			1 mil. operations		1 mil. operations		0.5 mil. operations	
Current and power	AC-1, Thermal current	A		300	350	400	500	520	
	AC-3	200/240V	kW	55	75	80	90	125	
			A	185	225	265	330	400	
		380/440V	kW	90	132	147	160	200	
			A	185	225	265	330	400	
		500/550V	kW	110	132	147	160	225	
			A	180	200	225	250	350	
		690V	kW	110	140	160	200	250	
			A	120	150	185	220	300	
		1000V	kW	132	132	147	147	147	
			A	90	90	105	105	105	
Rated Short-time withstand current (IEC 60947)	1s	A		2000	2500	3500	4000	4600	
	10s	A		1500	1700	2400	3000	4400	
	30s	A		1000	1200	1500	2500	2974	
	1min	A		800	1000	1100	1700	1846	
	3min	A		520	700	800	1000	1313	
	10min	A		350	500	600	620	760	
	≥ 15min	A		320	400	500	553	699	
UL rating (50/60Hz)	Continuous current		A	300	350	400	500	520	
	Single phase	110~120V	HP	15	15	-	-	-	
		220~240V	HP	30	40	-	-	-	
		200~208V	HP	60	60	75	100	125	
	Three phase	220~240V	HP	60	75	100	100	150	
		440~480V	HP	125	150	200	200	300	
		550~600V	HP	125	150	200	200	300	
	NEMA size					5			
Size and weight		AC control	Weight	kg	5.4		9.2		
			Size(W× H× D)	mm	138× 203× 185.1		163× 243× 204.4		
		DC control	Weight	kg					
			Size(W× H× D)	mm					
Auxiliary(standard)				2NO2NC		2NO2NC			
Auxiliary	Side mount			AU-100, AU-100E (Max.4NO4NC)		AU-100, AU-100E (Max.4NO4NC)			
	Front mount			-		-			

DGTM type Thermal Overload Relays



Type				DGTM-225/□	DGTM-400/□
Screws clamp terminals				•	•
Lug clamp terminals				-	-
Rated operational voltage, Ue				690V	690V
Rated insulation voltage, Ui				690V	690V
Rated impulse withstand voltage, Uimp				6kV	6kV
Trip class				10A, 20	10A, 20
Setting range				65~240A	85~400A
Size and weight		Weight	kg	2.5	2.6
		Size(W× H× D)	mm	147× 141× 184	151× 171× 198

* The safety cover of magnetic contactor and thermal overload relay is optional.



800AF			1260AF	2650AF			
DGCM-500a	DGCM-630a	DGCM-800a	DGCM-1260a	DGCM-1400a	DGCM-1700a	DGCM-2100a	DGCM-2650a
●	●	●	●	●	●	●	●
-	-	-	-	-	-	-	-
3pole			3pole	3pole			
1000V			1000V	1000V			
1000V			1000V	1000V			
50/60Hz			50/60Hz	50/60Hz			
8kV			8kV	8kV			
1200 operations per hour			300 operations per hour	300 operations per hour			
2.5 mil. operations			0.5 mil. operations	0.5 mil. operations			0.3 mil. operations
0.5 mil. operations			0.05 mil. operations	0.05 mil. operations			0.02 mil. operations
700	900	1050	1260	1400	1700	2100	2650
147	190	220	-	290	310	-	-
500	630	800	-	860	1050	-	-
265	330	440	-	550	700	900	-
500	630	800	-	860	1050	1450	-
265	330	500	-	-	-	-	-
400	500	720	-	-	-	-	-
300	400	500	-	800	1000	-	-
380	420	630	-	800	950	-	-
280	280	280	-	-	-	-	-
220	220	220	-	-	-	-	-
6000	7000	7500	8000	-	-	-	-
5050	6400	7000	7200	8000	10000	10000	10000
4400	4500	4900	5200	-	-	-	-
3400	3500	3800	4000	4500	5500	5500	5500
2000	2200	2500	2300	-	-	-	-
1400	1550	1550	3000	2600	3000	3000	3000
1100	1300	1300	1500	-	-	-	-
700	900	1050	1260	1400	1700	2100	2650
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
150	200	200					
200	250	300					
400	500	600					
400	500	600					
6		7					
22.4			23.5	33.8			47
285× 312× 245.3			285× 352× 246	431× 380× 246			431× 392× 246
2NO+2NC			2NO+2NC	2NO+2NC			
AU-100, AU-100E (Max.4NO4NC)			AU-100, AU-100E (Max.4NO4NC)	AU-100, AU-100E (Max.4NO4NC)			
-			-	-			



DGTM-800/□
•
-
690V
690V
6kV
10A, 20
200~800A
11.5
360× 530× 212

Contactors & Overload relays

M - Series DGCM 4P 18 to 85A

DGCM type Magnetic Contactors



Frame size				18AF			
Type				DGCM-6a/4	DGCM-9a/4	DGCM-12a/4	DGCM-18a/4
Screw clamp terminal				●	●	●	●
Number of poles				4pole			
Rated operational voltage (Ue)				690V			
Rated insulation voltage (Ui)				690V			
Rated frequency				50/60Hz			
Rated impulse withstand voltage, Uimp				6kV			
Maximum operating rate in operating cycles per hour(AC1)				1800 operations per hour			
Durability		Mechanical		15 mil. Operations			
		Electrical		0.5 mil. Operations		0.8 mil. Operations	
Current and Power	Thermal current		A	25	25	25	40
	AC-1	200/240V	kW	9	9	9	15
			A	25	25	25	40
		380/400V	kW	17	17	17	27
			A	25	25	25	40
		500/550V	kW	21	21	21	35
			A	25	25	25	40
		690V	kW	27	27	27	44
			A	25	25	25	40
	UL rating (50/60Hz)	Continuous current		A	25	25	25
Size and weight 	AC	Weight	kg	0.33			
	Control	Size(W× H× D)	mm	45× 73.5× 80.4			
	DC	Weight	kg	0.4			
	Control	Size(W× H× D)	mm	45× 73.5× 96.6			
	Auxiliary(standard)			-			
	Auxiliary	Side Mount		UA-1			
		Front Mount		UA-2, UA-4			



22AF	40AF		85AF			
DGCM-22a/4	DGCM-32a/4	DGCM-40a/4	DGCM-50a/4	DGCM-65a/4	DGCM-75a/4	DGCM-85a/4
•	•	•	•	•	•	•
4pole	4pole		4pole			
690V	690V		690V			
690V	690V		1000V			
50/60Hz	50/60Hz		50/60Hz			
6kV	6kV		8kV			
1800 operations per hour	1800 operations per hour		1800 operations per hour			
15 mil. Operations	15 mil. Operations		12 mil. Operations			
1 mil. Operations	1 mil. Operations		1 mil. Operations			
40	50	60	80	100	110	135
15	18	22	30	37	41	51
40	50	60	80	100	110	135
27	35	42	56	70	76	95
40	50	60	80	100	110	135
35	43	52	70	88	97	120
40	50	60	80	100	110	135
44	55	66	88	110	120	150
40	50	60	80	100	110	135
32	45	50	70	80	90	100
2	2	3	3	5	5	7.5
3	5	5	7.5	10	15	15
7.5	7.5	10	10	15	20	25
7.5	10	10	15	20	25	30
10	20	25	30	40	50	50
15	20	25	30	40	50	50
0.4	0.59		1.2			
47.2× 80× 86.8	59× 83.5× 94.5		91× 123.5× 117.8			
0.5	0.7		1.29			
47.2× 80× 113.2	59× 83.5× 121		91× 123.5× 117.8			
-	-		-			
AU-1	AU-1		AU-1			
UA-2, UA-4	UA-2, UA-4		UA-2, UA-4			

Contactors & Overload relays

M - Series DGCM 4P 225 to 800A

DGCM type Magnetic Contactors



Frame size				225AF				
Type				DGCM-100a/4	DGCM-130a/4	DGCM-150a/4	DGCM-185a/4	DGCM-225a/4
Screw clamp terminal				●	●	●	●	●
Number of poles				4pole				
Rated operational voltage (Ue)				690V				
Rated insulation voltage (Ui)				1000V				
Rated frequency				50/60Hz				
Rated impulse withstand voltage, Uimp				8kV				
Maximum operating rate in operating cycles per hour(AC1)				1200 operations per hour				
Durability		Mechanical		5 mil. Operations				
		Electrical		0.8 mil. Operations				
Current and Power	Thermal current		A	200	250	275	300	350
	AC-1	200/240V	kW	57	60	76	87	100
				A	200	250	275	300
	380/400V		kW	106	110	142	165	185
				A	200	250	275	300
	500/550V		kW	132	137	180	205	230
				A	200	250	275	300
	690V		kW	165	170	225	255	290
				A	200	250	275	300
	UL rating	Continuous current		A	200	250	275	300
(50/60Hz)	Single	110~120V	HP	7.5	10	15	15	15
	Phase	220~240V	HP	15	20	25	30	40
	Three	200~208V	HP	30	40	40	60	60
	Phase	220~240V	HP	30	40	50	60	75
		440~480V	HP	60	75	100	125	150
		550~600V	HP	60	75	100	125	150
Size and weight		AC	Weight	kg	5.6 175× 203× 185			
		Control	Size(W× H× D)	mm				
		DC	Weight	kg				
		Control	Size(W× H× D)	mm				
Auxiliary(standard)				2NO2NC				
Auxiliary	Side Mount			AU-100 / AU-100E				
	Front Mount			-				

* - FLA = 722 A, LRA = 5618 A

** - FLA = 566 A, LRA = 4495 A



400AF			800AF		
DGCM-265a/4	DGCM-330a/4	DGCM-400a/4	DGCM-500a/4	DGCM-630a/4	DGCM-800a/4
•	•	•	•	•	•
4pole			4pole		
690V			690V		
1000V			1000V		
50/60Hz			50/60Hz		
8kV			8kV		
1200 operations per hour			1200 operations per hour		
2.5 mil. Operations			2.5 mil. Operations		
0.5 mil. Operations			0.5 mil. Operations		
400	500	520	700	900	1050
115	135	160	245	255	310
400	500	520	700	900	1050
215	250	300	450	470	570
400	500	520	700	900	1050
265	315	375	560	590	710
400	500	520	700	900	1050
335	390	470	710	740	900
400	500	520	700	900	1050
400	500	520	700	900	1050
-	-	-	-	-	-
-	-	-	-	-	-
75	100	125	150	200	200
100	125	150	200	250	300
200	200	300	400	500	600 *
200	200	300	400	500	600 **
9.9			26.3		
206× 243× 205			346× 310 × 244		
2NO2NC			2NO2NC		
AU-100			AU-100		
-			-		

Compact & Space Saving

DYNAGEAR Mini contactors & starters

DYNAGEAR Mini contactors and starters are suitable for the switching and protection of small motors up to 7.5kW, lights and electric heating circuits.

KEMA type tested as the global product that meets international standards such as UL, CCC, Safe Certification and CE.



DYNAGEAR Mini - contactors

Suitable for the switching and protection of motors, capacitor banks, lights, etc. in AC circuit.

Providing the convenience of connection and mounting by terminal options such as Cage clamp, Fast-on, Solder pin as well as Screw Terminal. In addition dedicated thermal style overload relays can be easily attached for motor protection and various accessories are also available - surge unit, timer unit, auxiliary contact unit.

Can be driven from the output of PLC :
low power consumption type contactor is available for this purpose, which requires no relay between contactor and PLC.

Mini Contactors

6 to 16A

Mini contactors

3NO main contacts
1 auxiliary contacts



Screw clamp type



Fast-on type



Cage clamp type



Solder pin type

Frame size		6A		9A		12A		16A	
Screw clamp type	AC coil	DGNC-6M		DGNC-9M		DGNC-12M		DGNC-16M	
	DC coil	DGND-6M		DGND-9M		DGND-12M		DGND-16M	
Fast-on type	AC coil	DGNC-6MF		DGNC-9MF		DGNC-12MF		DGNC-16MF	
	DC coil	DGND-6MF		DGND-9MF		DGND-12MF		DGND-16MF	
Cage clamp type	AC coil	DGNC-6MC		DGNC-9MC		DGNC-12MC		DGNC-16MC	
	DC coil	DGND-6MC		DGND-9MC		DGND-12MC		DGND-16MC	
Solder pin type	AC coil	DGNC-6MP		DGNC-9MP		DGNC-12MP		DGNC-16MP	
	DC coil	DGND-6MP		DGND-9MP		DGND-12MP		DGND-16MP	
Ratings / IEC60947-4		kW	A	kW	A	kW	A	kW	A
AC1		20		20		20		20	
AC3	200/240V	1.5	7	2.2	9	3	12	4	16
	380/440V	2.2	6	4	9	5.5	12	7.5	16
	500/550V	3	5	3.7	6	4	7	5.5	9
	690V	3	4	4	5	4	5	4	5
Ratings / UL508		hp	A	hp	A	hp	A	hp	A
continuous current		I _{th} = 20A (maximum for cage clamp type is 10A)							
single phase	120V	1/2		1/2		1 *		-	
	230V/240V	1		1.5		2 **		-	
three phase	240V	1.5		3		3		-	
	480V	3		5		7.5 ***		-	
	600V	3		5		7.5		-	
Wire Range:		Copper, 75°C, Stranded, 18-12AWG							
NEMA size		00		00		00		0	
Additional auxiliary contacts		Screw clamp type		Fast-on type		Cage clamp type		Solder pin type	
	2-pole, Front mount								
	4-pole, Front mount								
	2-pole, Side mount								

Note) * = 1/2 for cage clamp type, ** = 1.5hp for cage clamp type, *** = 5hp for cage clamp type
16AF : not approved from UL

Overload Relays

Bimetallic style

Type DGT



DGT-12M

Setting ranges (A)

0.1 - 0.16
0.16 - 0.25
0.25 - 0.4
0.4 - 0.63
0.63 - 1
1 - 1.6
1.6 - 2.5
2.5 - 4



Base for separate mount

Differential

DGNK-12M

Non-differential (3-heater)

DGNH-12M/3

Non-differential (2-heater)

DGNH-12M

Motor Protection Circuit Breaker (MPCB)

Quick selection table ... IEC rating



Frame			32AF																			
Type	Current adjustable type		DGPA-32S										DGPA-32H									
	Instantaneous type		-										DGPA-32HI									
Breaking capacity			Standard										High breaking									
Handle Type			Toggle										Rotary									
Number of poles			3										3									
Rated operational voltage (Ue)			Up to 690V										Up to 690V									
Rated frequency			50/60 Hz										50/60 Hz									
Rated insulation voltage (Ui)			690V										690V									
Rated impulse voltage (Uimp)			6kV										6kV									
Utilization category	IEC 60 947-2 (Breaker)		Cat. A										Cat. A									
	IEC 60 947-4 (Motor starter)		AC 3										AC 3									
Mechanical endurance (Operating)			100,000										100,000									
Electrical endurance (Cycles)			100,000										100,000									
Max operating frequency per hour (Ope./h)			25										25									
Temperature compensation (Operation)			-20 ~ +60										-20 ~ +60									
Instantaneous short circuit release			13 × Ie max.										13 × Ie max.									
Overload protection																						
Phase failure function																						
Trip indicating function			x										x									
Test function																						
Dimension(W× H× D)			45× 105× 54.4										45× 105× 60.3									
Weight (g)			320										360									
Rated breaking capacity (kA)	Rated operational current (Ie)	Thermal release Adjustment range (A)	220V 240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		220V 240V 230V		415V 400V		460V 440V		525V 500V		690V 600V	
			Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
	0.16	0.1~0.16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	0.25	0.16~0.25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	0.4	0.25~0.4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	0.63	0.4~0.63	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1	0.63~1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1.6	1~1.6	100	100	100	100	100	100	100	100	3	3	100	100	100	100	100	100	100	100	100	100
	2.5	1.6~2.5	100	100	100	100	100	100	100	50	38	3	3	100	100	100	100	100	100	100	8	8
	4	2.5~4	100	100	100	100	100	50	38	15	11	3	3	100	100	100	100	100	100	100	8	8
	6	4~6	100	100	100	100	15	11	10	8	3	3	100	100	100	100	100	100	100	6	6	
	8	5~8	100	100	100	100	15	11	10	8	3	3	100	100	100	100	50	38	50	38	6	6
	10	6~10	100	100	50	38	15	11	6	5	3	3	100	100	100	100	50	38	50	38	6	6
	13	9~13	100	100	50	38	10	8	6	5	3	3	100	100	100	100	50	38	42	32	6	6
	17	11~17	50	38	20	15	10	8	6	5	3	3	100	100	50	38	20	15	10	8	4	4
	22	14~22	40	30	15	11	8	6	6	5	3	3	100	100	50	38	20	15	10	8	4	4
	26	18~26	40	30	15	11	8	6	6	5	3	3	100	100	50	38	20	15	10	8	4	4
	32	22~32	30	22	15	11	6	4	5	4	3	3	100	100	50	38	20	15	10	8	4	4
	40	28~40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50	34~50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	63	45~63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	75	55~75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	90	70~90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	100	80~100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



63AF														100AF																									
DGPA-63S							DGPA-63H							DGPA-100S							DGPA-100H																		
-							DGPA-63HI							-							DGPA-100HI																		
Standard							High breaking							Standard							High breaking																		
Rotary							Rotary							Rotary							Rotary																		
3							3							3							3																		
Up to 690V							Up to 690V							Up to 690V							Up to 690V																		
50/60 Hz							50/60 Hz							50/60 Hz							50/60 Hz																		
1,000V							1,000V							1,000V							1,000V																		
8kV							8kV							8kV							8kV																		
Cat. A							Cat. A							Cat. A							Cat. A																		
AC 3							AC 3							AC 3							AC 3																		
50,000							50,000							50,000							50,000																		
25,000							25,000							25,000							25,000																		
25							25							25							25																		
-20 ~ +60							-20 ~ +60							-20 ~ +60							-20 ~ +60																		
13 × I _e max.							13 × I _e max.							13 × I _e max.							13 × I _e max.																		
x														x																									
55× 125× 112.3							55× 125× 112.3							70× 165× 138							70× 165× 138																		
1,000							1,000							2,200							2,200																		
220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V										
I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}										
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
100	100	100	100	15	12	10	8	4	3	100	100	100	100	50	38	50	38	6	5	-	-	-	-	-	-	-	-	-	-	-	-								
100	100	50	38	10	8	6	5	4	3	100	100	100	100	50	38	42	32	6	5	-	-	-	-	-	-	-	-	-	-	-	-								
100	100	25	19	10	8	6	5	4	3	100	100	50	50	50	38	12	9	5	5	100	100	50	38	40	30	25	19	10	8	100	100	100	100	50	38	35	27	12	9
50	38	25	19	10	8	6	5	4	3	100	100	50	50	50	38	12	9	5	5	100	100	50	38	40	30	25	19	10	8	100	100	100	50	50	38	35	27	12	9
50	38	25	19	10	8	6	5	4	3	100	100	50	50	35	27	12	9	5	5	100	100	50	38	40	30	25	19	10	8	100	100	100	50	50	38	35	27	12	9
50	38	25	19	10	8	6	5	4	3	100	100	50	50	35	27	10	8	5	5	100	100	50	38	40	30	15	11	10	8	100	100	100	50	50	38	25	19	12	9
50	38	25	19	10	8	6	5	4	3	100	100	50	50	35	27	10	8	5	5	100	100	50	38	40	30	15	11	6	5	100	100	100	50	50	38	20	15	12	9
50	38	25	19	10	8	6	5	4	3	100	100	50	50	35	27	10	8	5	5	100	100	50	38	40	30	12	9	6	5	100	100	100	50	50	38	15	11	10	8
50	38	25	19	10	8	6	5	4	3	100	100	50	50	35	27	10	8	5	5	100	100	50	38	40	30	12	9	6	5	100	100	100	50	50	38	15	11	8	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	50	38	40	30	8	6	5	4	100	100	75	50	50	38	12	9	6	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	50	38	40	30	8	6	5	4	100	100	75	50	50	38	12	9	6	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	50	38	40	30	8	6	5	4	100	100	75	50	50	38	12	9	6	6

Molded Case Circuit Breakers

S- Series MCCB 100AF to 800AF Series

Frame			DGMSD100			DGMSD160		
Frame size [AF]			100			160		
Rated current, In [A]			16, 20, 25, 32, 40, 50, 63, 80, 100			1P: 16, 20, 25, 32, 40, 50, 63, 80,100,125, 160 2, 3P: 100, 125, 160		
No. of poles			2 , 3, 4			1, 2 , 3, 4		
Rated operational voltage, Ue		AC [V]	690			240(1P), 690		
		DC [V]	500			250(1P), 500		
Rated impulse withstand voltage, Uimp [kV]			8			8		
Rated insulation voltage, Ui [V]			750			750		
Rated ultimate short-circuit breaking capacity, Icu			N	H	L	N	H	L
AC 50/60Hz		220/240V [kA]	85	100	200	30(1P) 85	50(1P) 100	200
		380/415V [kA]	50	85	150	50	85	150
		440/460V [kA]	50	70	130	50	70	130
		480/500V [kA]	30	50	65	30	50	65
		660/690V [kA]	5	8	10	5	8	10
DC		250V [kA]	42	65	100	16(1P) 42	25(1P) 65	100
		500V(2poles in series) [kA]	42	65	100	42	65	100
Rated service breaking capacity, Ics [%Icu]			100%	100%	100%	100%	100%	100%
Rated short-circuit making capacity Icm								
AC 50/60Hz		220/240V [kA]	187	220	440	105(1P) 187	105(1P) 220	440
		380/415V [kA]	105	187	330	105	187	330
		440/460V [kA]	105	154	286	105	154	286
		480/500V [kA]	63	105	143	63	105	143
		660/690V [kA]	8	14	17	8	14	17
Category of utilization			A			A		
Isolation behavior			●			●		
Trip unit (release)								
Thermal-Magnetic								
● fixed-thermal, fixed-magnetic		FTU	●			●		
● adjustable-thermal, fixed-magnetic		FMU	●			● ^{xx}		
● adjustable-thermal, adjustable-magnetic		ATU	-			-		
● magnetic only		MTU	-			-		
Electronic								
● LSI		ETS	-			-		
● LSI		ETM	-			-		
	Option	Earth-fault protection, Ig	-			-		
		Zone selective interlocking, ZSI	-			-		
		Ammeter	-			-		
		Communication	-			-		
		Earth-leakage protection module	-			-		
Connection	fixed	front-connection	●			●		
		rear-connection	●			● ^{xx}		
	plug-in	front-connection	●			● ^{xx}		
		rear-connection	●			● ^{xx}		
Mechanical life		[operations]	25000			25000		
Electrical life @ 415 V AC		[operations]	10000			10000		
Basic dimensions, W x H x D (front connection)	1-pole	[mm]	-			35x 140x 86		
	3-pole	[mm]	90x 140x 86			90x 140x 86		
	4-pole	[mm]	120x 140x 86			120x 140x 86		
Weight (front connection)	1-pole	[kg]	-			0.57		
	3-pole	[kg]	1.5			1.5		
	4-pole	[kg]	1.8			1.8		
Reference standard			IEC60947-2			IEC60947-2		

Note) ● applicable or available

➢Applicable to MCCBs equipped with FTU, FMU, ATU * Not applicable to 1pole
 *2 pole MCCB in 3pole frame size



DGMSS100			DGMSS160			DGMSS250			DGMSS400			DGMSS630			DGMSS800		
100			160			250			400			630			800		
40, 50, 63, 80, 100			(100) , 125, 160			125, 160, 200, 250			300, 400			500, 630			800		
2 , 3 , 4			2 , 3 , 4			2 , 3 , 4			2 , 3 , 4			2 , 3 , 4			2 , 3 , 4		
690			690			690			690			690			690		
500			500			500			500			500			500		
8			8			8			8			8			8		
750			750			750			750			750			750		
N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L
100	120	200	100	120	200	100	120	200	100	120	200	100	120	200	100	120	200
50	85	150	50	85	150	50	85	150	65	85	150	65	85	150	65	100	150
50	70	130	50	70	130	50	70	130	65	85	130	65	85	130	65	100	130
42	65	85	42	65	85	42	65	85	42	65	85	42	65	85	42	85	100
10	15	20	10	15	20	10	15	20	10	20	35	10	20	35	10	20	35
50	85	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
50	85	100	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
220	264	440	220	264	440	220	264	440	220	264	440	220	264	440	220	264	440
105	187	330	105	187	330	105	187	330	143	187	330	143	187	330	143	220	330
105	154	286	105	154	286	105	154	286	143	187	286	143	187	286	143	220	286
88	143	187	88	143	187	88	143	187	88	143	187	88	143	187	88	187	220
17	30	40	17	30	40	17	30	40	17	40	74	17	40	74	17	40	74
A			A			A			A			A			A		
			•			•			•			•			•		
			•			•			•			•			•		
			•			•			•			•			•		
-			•			•			•			•			•		
			•			•			•			•			•		
			•			•			•			•			•		
-			•			•			•			•			•		
-			•			•			•			•			•		
-			•			•			•			•			•		
-			•			•			•			•			•		
-			•			•			•			•			•		
-			•			•			•			•			•		
-			•			•			•			•			•		
25000			25000			25000			20000			20000			10000		
10000			10000			10000			6000			6000			3000		
-			-			-			-			-			-		
105× 160× 86			105× 160× 86			105× 160× 86			140× 260× 110			140× 260× 110			210× 320× 135		
140× 160× 86			140× 160× 86			140× 160× 86			186.5× 260× 110			186.5× 260× 110			280× 320× 135		
-			-			-			-			-			-		
2			2			2			5.4			5.4			15.1		
2.6			2.6			2.6			7.2			7.2			19.6		
IEC60947-2			IEC60947-2			IEC60947-2			IEC60947-2			IEC60947-2			IEC60947-2		

	Amb. Temp.	-5°C	0°C	10°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C
Calibrated for 40°C	TD160	122.5%	120.0%	115.0%	110.0%	107.5%	105.0%	102.5%	100.0%	97.5%	95.0%
	TS250	122.5%	120.0%	115.0%	110.0%	107.5%	105.0%	102.5%	100.0%	97.5%	95.0%
	TS630	110.0%	109.0%	107.0%	105.0%	104.0%	103.0%	101.5%	100.0%	98.5%	97.0%
	TS800	110.0%	109.0%	107.0%	105.0%	104.0%	103.0%	101.5%	100.0%	98.5%	97.0%
Calibrated for 50°C	TD160	122.0%	120.0%	116.0%	112.0%	110.0%	108.0%	106.0%	104.0%	102.0%	100.0%
	TS250	122.0%	120.0%	116.0%	112.0%	110.0%	108.0%	106.0%	104.0%	102.0%	100.0%
	TS630	122.2%	121.0%	118.0%	114.0%	112.0%	110.0%	108.0%	106.0%	104.0%	102.0%
	TS800	112.2%	112.0%	110.0%	108.0%	107.0%	106.0%	104.5%	103.0%	101.5%	100.0%

Molded Case Circuit Breakers

S - Series MCCB 1600AF Series

Electrical characteristics



Frame				DGMSS1000			DGMSS1250		DGMSS1600				
Type				TS1000			TS1250		TS1600				
Ampere frame				1000			1250		1600				
Pole				3, 4			3, 4		3, 4				
Rated current, In		(A)	-5~40°C	800, 1000			1250		1600				
			50°C	800, 1000			1250		1560				
			65°C	800, 1000			1240		1420				
Rated insulation voltage, Ui		(V)		1000			1000		1000				
Rated impulse withstand voltage, Uimp		(kV)		8			8		8				
Rated operational voltage, Ue		(V)	AC50/60Hz	690			690		690				
			DC	-			-		-				
Rated short-circuit breaking capacity IEC60947-2 AC50/60H (sym)				N	H	L	N	H	N	H			
Rated ultimate short-circuit breaking capacity, (kA) (Icu)			220/240V	55	75	200	55	75	55	75			
			380/415V	50	70	150	50	70	50	70			
			440/460V	50	65	130	50	65	50	65			
			480/500V	40	50	100	40	50	40	50			
			660/690V	35	45	-	35	45	35	45			
DC		250V 2P	-	-	-	-	-	-	-	-			
		500V 2P	-	-	-	-	-	-	-	-			
		750V 3P	-	-	-	-	-	-	-	-			
Rated service breaking capacity (Ics)		%Icu		100%	75%	100%	100%	75%	100%	75%			
Rated short-circuit making capacity (kA) (Icw)		AC50/60Hz	1s	25		12		25		25			
			3s	-				-		-			
Overriding instantaneous protection			kA peak	50		30		50		50			
Isolation				○			○		○				
Category				B		A		B		B			
(Life cycle)		Mechanical life (operations)			10000		4000		10000		10000		
		Electrical life (operations)		440V	In/2	6000		4000		5000		5000	
				In	5000		3000		4000		2000		
		690V		In/2	4000		3000		3000		2000		
				In	2000		2000		2000		1000		
Pollution degree				3			3		3				
Dimension (mm)			3-pole	210× 327× 152.5									
(H× W× D)			4-pole	280× 327× 152.5									
Weight (kg)			3-pole	13									
			4-pole	16.8									

Overview

Classification	N type	A type	P type	S type
Externals				
Current protection	• L / S / I / G / Thermal	• L / S / I / G / Thermal • ZSI(Protective coordination)	• L / S / I / G / Thermal(Continuous) • ZSI(Protective coordination)	• P type
Other protection	-	• Earth leakage (Option)	• Earth leakage(Option) • Over/Under current • Over/Under frequency • Unbalance(Voltage/Current) • Reverse power	• P type
Measurement function	-	• Current (R / S / T / N)	• 3 Phase Voltage/Current RMS/Vector • Power(P, Q, S), PF(3-Phase) • Energy(Positive/Negative) • Frequency, Demand	• 3 Phase Voltage/Current RMS/Vector • Power(P, Q, S), PF(3-Phase) • Energy(Positive/Negative) • Frequency, Demand • Voltage/Current harmonics (1st-63th) • 3 Phase Waveforms • THD, TDD, K-Factor
Fine adjustment	-	-	• Fine adjustment for long/short time delay/instantaneous/ ground	• P type
Pre Trip Alarm	-	-	• Overload protection relays : DO (Alarm) (Ground fault is not available when using Pre trip alarm)	• P type
Digital Output	-	• 3DO (Fixed) • L, S/I, G Alarm	• 3DO (Programmable) • Trip, Alarm, General	• P type
IDMTL setting	-	-	• Compliance with IEC60255-3 SIT, VIT, EIT, DT	• P type
Communication	-	• Modbus/RS- 485 • Profibus- DP	• Modbus / RS-485 • Profibus-DP	• Modbus / RS-485 • Profibus-DP
Power supply	• Self Power - Power source works over 25% of current of In (one pole)	• Self Power - Power source works over 25% of current of In (one pole) - External power source are required for comm. • AC/DC 100~250V • DC 24~60V	• AC/DC 100~250V • DC 24~60V * Basic protection function (L / S / I / G) is still under normal operation without control power.	• AC/DC 100~250V • DC 24~60V * Basic protection function (L / S / I / G) is still under normal operation without control power.
RTC timer	• Available	• Available	• Available	• Available
LED for trip info.	• Long time delay • Short time delay/Instantaneous • Ground fault	• N type	• N type	• N type
Fault recording	-	• 10 records (Fault/Current/Date and Time)	• 256 records (Fault/Current/Date and Time)	• 256 records • Last fault wave recording (3 Phase)
Event recording	-	-	• 256 records(Content, Status, Date)	• P type
Operating button	• Reset button	• Reset, Menu Up/Down, Left/Right, Enter	• A type	• A type

Molded Case Circuit Breakers

M - Series 30AF to 250AF Series

Frame Size(AF)		50		
Type		N-Type	S-Type	H-Type
Type and Pole	2 pole	DGMMN52c	DGMMS52c	DGMMH52c
	3 pole	DGMMN53c	DGMMS53c	DGMMH53c
	4 pole	DGMMN54c	DGMMS54c	DGMMH54c
Rated current, In	(A)	15, 20, 30, 40, 50		15, 20, 30, 40, 50
Rated operational voltage, Ue	AC(V)	690	690	690
	DC(V)	500	500	500
Rated insulation voltage, Ui	(V)	1000	1000	1000
Rated impulse withstand voltage, Uimp	(kV)	8	8	8
Rated short-circuit breaking capacity(Icu) kA (Sym), KSC8321, IEC 60947-2				
AC	690V	2.5	5	10
	480/500V	7.5	10	35
	415/460V	14	18	50
	380V	18	22	50
	220/250V	30	35	100
DC	500V(3P)	5	10	30
	250V(2P)	5	10	30
Service breaking capacity(%Icu), Ics		100	100	100
Category of use		A	A	A
Endurance	Mechanical	25,000	25,000	25,000
(Number of operations)	Electrical	10,000	10,000	10,000
Type of trip unit				
Thermal-magnetic release		fixed	fixed	fixed
Hydraulic-magnetic release		-	-	-
Magnetic release only without thermal trip				
Earth leakage protection for 3 pole				
Accessories				
Electrical auxiliaries	Auxiliary switch	•	•	•
	Alarm switch	•	•	•
	Shunt trip	•	•	•
	Undervoltage trip	•	•	•
External accessories	Direct rotary handle	•	•	•
	Extended rotary handle	•	•	•
	Terminal shield	•	•	•
	Insulation barrier	•	•	•
	Rear connection	•	•	•
	Pad handle lock	•	•	•
	Plug-in device	•	•	•
Dimensions (mm)	W× H× D (3P)	75× 130× 60		90× 155× 60
Weight(kg)	2 pole			
	3 pole			
	4 pole			

Note) 1. • applicable or available

2. available as a separate breaker

3. The Ics(service breaking capacity) of DGMMN100e, DGMM125/250AF are in ()



100		125		250		
N-Type		S-Type	H-Type	N-Type	S-Type	H-Type
DGMMN102c	ABN102e	DGMMS102c	DGMMH102c	DGMMN202c	DGMMS202c	DGMMH202c
DGMMN103c	ABN103e	DGMMS103c	DGMMH103c	DGMMN203c	DGMMS203c	DGMMH203c
DGMMN104c	ABN104e	DGMMS104c	DGMMH104c	DGMMN204c	DGMMS204c	DGMMH204c
15, 20, 30, 40, 50, 60, 75, 100		15, 20, 30, 40, 50, 60, 75, 100, 125		100, 125, 150, 175, 200, 225, 250		
690		690	690	690	690	690
500		500	500	500	500	500
1000		1000	1000	1000	1000	1000
8		8	8	8	8	8
5	7.5 (5)	8	10	8	8	10
10	14 (10)	25	35	18	26	35
18	31 (18)	37	50	26	37	50
22	31 (22)	42	50	30	42	50
35	50 (35)	85	100	65	85	100
10	15 (10)	20	30	10	20	30
10	15 (10)	20	30	10	20	30
100	()	100	100	100	100	100
A	A	A	A	A	A	A
25,000	25,000	25,000	25,000	25,000	25,000	25,000
10,000	10,000	10,000	10,000	5,000	5,000	5,000
fixed	fixed	fixed	fixed	fixed	fixed	fixed
-	-	-	-	-	-	-
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
75x 130x 60		90x 155x 60		105x 165x 60		
0.5	0.5	0.7	0.7	1.1	1.1	1.1
0.7	0.7	1	1	1.2	1.2	1.2
0.9	0.9	1.2	1.2	1.6	1.6	1.6

	Amb. Temp.	-5°C	0°C	10°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C
Calibrated for 40°C	In=15 to 30	111.9%	111.3%	110.0%	108.0%	106.6%	104.9%	102.7%	100.0%	96.8%	93.3%
	In=40 to 100	110.2%	109.8%	108.7%	107.0%	105.8%	104.3%	102.4%	100.0%	97.2%	94.0%
	In=100 to 225	114.3%	113.2%	110.6%	107.5%	105.8%	104.0%	102.0%	100.0%	97.9%	95.6%
	In=250 to 800	110.0%	109.0%	107.0%	105.0%	104.0%	103.0%	101.5%	100.0%	98.5%	97.0%

Molded Case Circuit Breakers

M - Series 400AF to 1200AF Series

Frame Size(AF)		400			
Type		N-Type	S-Type	H-Type	L-Type
Type and Pole	2 pole	DGMMN402c	DGMMS402c	DGMMH402c	DGMML402c
	3 pole	DGMMN403c	DGMMS403c	DGMMH403c	DGMML403c
	4 pole	DGMMN404c	DGMMS404c	DGMMH404c	DGMML404c
Rated current, I _n	(A)	250, 300, 350, 400			
Rated operational voltage, U _e	AC(V)	690	690	690	690
	DC(V)	500	500	500	500
Rated insulation voltage, U _i	(V)	1000	1000	1000	1000
Rated impulse withstand voltage, U _{imp}	(kV)	8	8	8	8
Rated short-circuit breaking capacity(I _{cu}) kA (Sym), KSC8321, IEC 60947-2					
AC	690V	5	8	10	14
	480/500V	18	35	50	65
	415/460V	37	50	65	85
	380V	42	65	70	100
	220/250V	50	75	85	125
DC	500V(3P)	10	20	40	40
	250V(2P)	10	20	40	40
Service breaking capacity(%I _{cu}), I _{cs}		100	100	100	75
Category of use		A	A	A	A
Endurance	Mechanical	4,000	4,000	4,000	4,000
(Number of operations)	Electrical	1,000	1,000	1,000	1,000
Type of trip unit					
Thermal-magnetic release		fixed	fixed	fixed	fixed
Hydraulic-magnetic release		-	-	-	-
Magnetic release only without thermal trip		-	-	-	-
Earth leakage protection	for 3 pole				
Accessories					
Electrical auxiliaries	Auxiliary switch	•	•	•	•
	Alarm switch	•	•	•	•
	Shunt trip	•	•	•	•
	Undervoltage trip	•	•	•	•
External accessories	Direct rotary handle	•	•	•	•
	Extended rotary handle	•	•	•	•
	Terminal shield	•	•	•	•
	Insulation barrier	•	•	•	•
	Rear connection	•	•	•	•
	Mechanical interlock	•	•	•	•
	Plug-in device	•	•	•	•
Dimensions (mm)	W× H× D (3P)	140× 257× 109			
Weight(kg)	2 pole	5.2	5.2	5.2	5.2
	3 pole	6.2	6.2	6.2	6.2
	4 pole	7.8	7.8	7.8	7.8

Note) 1. • applicable or available
2. available as a separate breaker



800			1000		1200		
N-Type	S-Type	L-Type	S-Type	L-Type	S-Type		L-Type
DGMMN802c	DGMMS802c	DGMML802c	-	-	-	-	-
DGMMN803c	DGMMS803c	DGMML803c	DGMMS1003b	DGMML1003b	DGMMS1203b	DGMMS1203bE	DGMML1203b
DGMMN804c	DGMMS804c	DGMML804c	DGMMS1004b	DGMML1004b	DGMMS1204b	-	DGMML1204b
500, 630, 700, 800			1000		1200		
690	690	690	600	600	600	600	600
500	500	500	-	-	-	-	-
1000	1000	1000	690	690	690	690	690
8	8	8	6	6	6	6	6
8	10	14	-	-	-	-	-
25	45	65	50	75	50	50	75
37	65	85	65	85	65	65	85
45	75	100	65	85	65	65	85
50	85	125	100	125	100	100	125
10	20	40	-	-	-	-	-
10	20	40	-	-	-	-	-
100	100	75	50	50	50	50	50
A	A	A	A	A	A	A	A
2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
500	500	500	500	500	500	500	500
fixed	fixed	fixed	fixed	fixed	fixed	-	fixed
-	-	-	-	-	-	Adjustable	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	•	-
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	-	-	-	-	-
•	•	•	-	-	-	-	-
•	•	•	-	-	-	-	-
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	-	-	-	-	-
•	•	•	-	-	-	-	-
210x 280x 109			220x 400x 105		220x 400x 105		
11	11	11	-	-	-	-	-
11.5	11.5	11.5	19.6	19.6	-	-	-
18.2	18.2	18.2	-	-	25.7	25.7	25.7

Calibrated for 40°C	Amb. Temp.	-5°C	0°C	10°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C
	In=15 to 30	111.9%	111.3%	110.0%	108.0%	106.6%	104.9%	102.7%	100.0%	96.8%	93.3%
	In=40 to 100	110.2%	109.8%	108.7%	107.0%	105.8%	104.3%	102.4%	100.0%	97.2%	94.0%
	In=100 to 225	114.3%	113.2%	110.6%	107.5%	105.8%	104.0%	102.0%	100.0%	97.9%	95.6%
	In=250 to 800	110.0%	109.0%	107.0%	105.0%	104.0%	103.0%	101.5%	100.0%	98.5%	97.0%

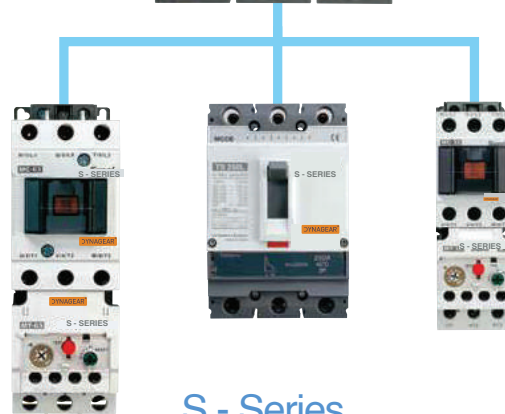
Air Circuit Breakers

S - Series ACB

S - Series
Air Circuit Breakers



S - Series
Molded Circuit Breakers



S - Series
Magnetic Contactors &
Overload Relays

■ S - series circuit breakers are suitable for

- Protection of power distribution
- Protection of motor & its control device
- Controlling and disconnecting circuits

■ Optimum technical support for

(Cascading, Discrimination, Type 2 coordination)

- Selecting economical protection system
- Guarantee safety of the installation
- Reducing the stress on components and damage
- Guarantee service continuity

Circuit Breaker



Common characteristics					
Number of poles		(P)	3P / 4P		
Frequency		(Hz)	50 / 60Hz		
Rated operational voltage		(V, Ue)	690V		
Rated insulation voltage		(V, Ui)	1000V		
Rated impulse withstand voltage		(kV, Uimp)	12kV		
Circuit breaker as per IEC60947-2					
Type			DGASN-C		
Description			DGASN-08C	DGASN-16C	
Ampere Frame		(AF)	800	1600	
Rated current (In Max.) at 40		(A)	400	-	
		(A)	630	-	
		(A)	800	800	
		(A)	-	1000	
		(A)	-	1250	
		(A)	-	1600	
Rated current of neutral pole		(A)	100%		
Rated breaking capacity (Icu)	(kA)	IEC60947-2	AC 690V/ 600V/ 550V	42	
			AC 500V/ 480V/ 460V	42	
			AC 415V/ 380V/ 220V	50	
Rated service breaking capacity (Ics)		(kA,%×Icu)	100%		
Rated making capacity (Icm)		(kA)	88.2		
Rated Short-time capacity (Icw)		(kA)	1sec/ 3sec	42/25	
Operating time (t)	(ms)	Total breaking time		40	
		Closing time		80	
Common mechanical and electrical life cycle					
Life cycle	(time)	Mechanical		12,500	5,000
		Electrical		6,000	3,000
Common dimension and weight					
Weight	(kg)	Draw-out type (3P / 4P)		22/26	
		Fixed type (3P/ 4P)		16/ 19.5	
Dimension	(mm)	Draw-out type	3P	W: 256 D: 269.5 ⁴⁾ H: 364.3	
			4P	W: 326 D: 269.5 ⁴⁾ H: 364.3	
		Fixed type	3P	W: 272.4 D: 198.5 ⁴⁾ H: 322	
			4P	W: 342.4 D: 198.5 ⁴⁾ H: 322	

1) 130kA/ 460V, 100kA/ 500V

2) at 500V

3) 0.5sec

4) Exclude terminal length

Air Circuit Breakers

M - Series ACB Series

Circuit Breaker



Frame				DGAMN-D				
Type				DGAMN-06D	DGAMN-08D	DGAMN-10D	DGAMN-13D	DGAMN-16D
Ampere frame	(AF)			630	800	1000	1250	1600
Rated current (A)	(In max)	at 40		200 400 630	400 630 800	1000	1250	1600
Setting current (A)*	Control trip relay (... × In max)			0.4 ~ 1.0				
Rated current of neutral pole (A)				400 630	400 630 800	1000	1250	1600
Rated insulation voltage (V)	(Ui)			1,000				
Rated operational voltage (V)	(Ue)			690				
Rated impulse withstand voltage (kV) (Uimp)				12				
Frequency (Hz)				50/60				
Number of poles (P)				3/4				
Rated breaking capacity (kA sym)	(Icu)	IEC 60947-2 KS C 4620	220V/230V/380V/415V	65				
AC 50/60Hz			460V/480V/500V	65				
			550V/600V/690V	50				
Rated service breaking capacity (kA)	(Ics)		... %×Icu	100%				
Rated making capacity (kA peak)	(Icm)	IEC 60947-2 KS C 4620	220V/230V/380V/415V	143				
AC 50/60Hz			460V/480V/500V	143				
			550V/600V/690V	105				
Rated short-time withstand current (kA)	(Icw)	1 sec		50				
		2 sec		42				
		3 sec		36				
Operating time (ms)			Maximum total breaking time	40				
			Maximum closing time	80				
Life cycle (time)	Mechanical		20,000					
	Electrical		5,000					
Connections**	Draw-out / Fixed		Horizontal connection	●				
			Vertical connection	○				
			Front connection	○				
			Mixed connection	○				
Weight (kg)	Draw-out type	Main body	Motor charging type	63/74				
(3P/4P)		(With cradle)	Manual charging type	61/72				
		Cradle only		29/32				
	Fixed type		Motor charging type	34/44				
			Manual charging type	32/42				
External dimensions (mm)		Draw-out	3P	430×334×375				
(H×W×D)		type	4P	430×419×375				
		Fixed type	3P	300×300×295				
			4P	300×385×295				
Trip relay				N, A, P type				
Certificate & Approval				KS / KEMA / KERI / GOST				
Marine clasiflcation				-				

Note) 1. Life time means not guarantee, but limitation.

Quality guarantee: On/Off frequency on the basis of IEC60947-2 within the term of guarantee

2. The use of D-D, DGAMS-D and DGAMS-F in IT systems is limited to 500 V network voltage.

3. DGAMS-20D, DGAMS-40E types are equipped with vertical-only terminals.



DGAMS-D						DGAMS-E				DGAMS-F		DGAMS-G		
DGAMS-06D	DGAMS-08D	DGAMS-10D	DGAMS-13D	DGAMS-16D	DGAMS-20D	DGAMS-20E	DGAMS-25E	DGAMS-32E	DGAMS-40E	DGAMS-40F	DGAMS-50F	DGAMS-40G	DGAMS-50G	DGAMS-63G
630	800	1000	1250	1600	2000	2000	2500	3200	4000	4000	5000	4000	5000	6300
200	400	1000	1250	1600	2000	630, 800	2500	3200	4000	4000	5000	4000	5000	6300
400	1000, 1250													
630	1600, 2000													
0.4 ~ 1.0						0.4 ~ 1.0				0.4 ~ 1.0		0.4 ~ 1.0		
630	800	1000	1250	1600	2000	630, 800	2500	3200	4000	4000	5000	4000	5000	6300
					1000, 1250									
					1600, 2000									
1,000						1,000				1,000		1,000		
690						690				690		690		
12						12				12		12		
50/60						50/60				50/60		50/60		
3/4						3/4				3/4		3/4		
70						85				100		120		
70						85				100		120		
65						85				85		100		
100%						100%				100%		100%		
154						187				220		264		
154						187				220		264		
143						187				187		220		
65						85				85		100		
50						75				75		85		
42						65				65		75		
40						40				40		40		
80						80				80		80		
20,000						15,000				10,000		10,000		
5,000						5,000				2,000		2,000		
●					-	●			-	○		○		
○					●	○			●	●		●		
○					-	○			-	-		-		
○					-	○			-	-		-		
63/74					70/85	87/103			104/147	107/139		181/223		186/230
61/72					63/83	85/101			102/145	102/145		179/221		184/228
29/32					33/40	44/50			58/70	65/85		97/117		102/124
34/44					38/47	44/55			63/100	61/81		98/123		103/130
32/42					36/45	42/53			61/98	60/80		96/121		101/128
430×334×375						430×412×375				460×629×375		460×785×375		
430×419×375						430×527×375				460×799×375		460×1015×375		
300×300×295						300×378×295				300×597×295		300×751×295		
300×385×295						300×493×295				300×767×295		300×981×295		
N, A, P type						N, A, P type				N, A, P type		N, A, P type		
KS / KEMA / KERI / GOST						KS / KEMA / KERI / GOST				KS / KEMA / KERI / GOST				
LR, ABS, DNV, KR, BV, GL, RINA, NK						LR, ABS, DNV, KR, BV, GL, RINA, NK				LR, ABS, DNV, KR, BV, GL, RINA, NK				

Derating of the rated current is required according to the ambient temperature around the breaker in a panel if it is higher than the reference value.

Trip relay(OCR)

The trip relay of S - Series ACB provides the additional protection functions for voltage, frequency, unbalance, and others in addition to main protection functions for over current, short-circuit, ground fault. It supports the advanced measurement functions for voltage, current, power, electric energy, harmonics, communication function, and others.

Analog trip function interlocked with mechanism enhanced a durability of devices as well as the breaking capacity of ACB.

Zone selective interlocking function makes the protective coordination more simple and thermal memory can be applied to various loads.



Trip relay types

Classification	N type	A type	P type	S type
Externals				
Current protection	• L / S / I / G / Thermal	• L / S / I / G(or EL) • Thermal • ZSI (Protective coordination)	• L / S / I / G(or EL) • Thermal (linear hot start) • ZSI (Protective coordination)	• L / S / I / G(or EL) • Thermal (linear hot start) • ZSI (Protective coordination)
Other protection	-	-	• Over/Under voltage • Over/Under frequency • Unbalance(Voltage/Current) • Reverse power	• Over/Under voltage • Over/Under frequency • Unbalance(Voltage/Current)
Measurement function	-	• Current (R / S / T / N)	• 3 Phase Voltage/Current RMS/Vector • Power(P, Q, S), PF(3-Phase) • Energy(Positive/Negative) • Frequency, Demand	• 3 Phase Voltage/Current RMS/Vector • Power(P, Q, S), PF(3-Phase) • Energy(Positive/Negative) • Frequency, Demand • Voltage/Current harmonics (1st~63th) • 3 Phase Waveforms • THD, TDD, K-Factor
Fine adjustment	-	-	• Fine adjustment for long/short time delay/instantaneous/ground	• Fine adjustment for long/short time delay/instantaneous/ground
Pre Trip Alarm	-	-	• Overload protection relays : DO (Alarm) (Ground fault is not available when using Pre trip alarm)	• Overload protection relays : DO (Alarm) (Ground fault is not available when using Pre trip alarm)
Digital Output	-	• 3DO (Fixed) • L, S/I, G Alarm	• 3DO (Programmable) • Trip, Alarm, General	• 3DO (Programmable) • Trip, Alarm, General
IDMTL setting	-	-	• Compliance with IEC60255-3 SIT, VIT, EIT, DT	• Compliance with IEC60255-3 SIT, VIT, EIT, DT
Communication	-	• Modbus/RS-485 • Profibus-DP	• Modbus / RS-485 • Profibus-DP	• Modbus / RS-485 • Profibus-DP
Power supply	• Self Power - Power source works over 20% of load current.	• Self Power - Power source works over 20% of load current. - External power source are required for comm. • AC/DC 100~250V • DC 15~60V	• AC/DC 100~250V • DC 15~60V * Basic protection function (L / S / I / G) is still under normal operation without control power.	• AC/DC 100~250V • DC 15~60V * Basic protection function (L / S / I / G) is still under normal operation without control power.
RTC timer	-	• Available	• Available	• Available
LED for trip info.	• Long time delay • Short time delay/Instantaneous • Ground fault	• Long time delay • Short time delay/Instantaneous • Ground fault	• Long time delay • Short time delay/Instantaneous • Ground fault	• Long time delay • Short time delay/Instantaneous • Ground fault
Fault recording	-	• 10 records (Fault/Current/Date and Time)	• 256 records (Fault/Current/Date and Time)	• 256 records • Last fault wave form recording (voltage, current are recorded in 3-phase, and can be read only by communication)
Event recording	-	-	• 256 records(Content, Status, Date)	• 256 records(Content, Status, Date)
Operating button	• Reset button	• Reset, Menu Up/Down, Tap, Enter	• Reset, Menu Up/Down, Tap, Enter	• Reset, Menu Up/Down, Tap, Enter

Each OCR type has Battery in itself.

1. Battery lifespan

1) When turned off: 14~28years

2) When using 1 LED consecutively or turned off: 7~14days

2. The recognizable range of OCR current

1) A-Type: When more 15% than rated current(In)

2) P/S-Type: When more 12% than rated current(In)

* L/S/I/G(or EL)configuration as standard

(Only. Unable to select ground fault and earth leakage, simultaneously)



Lakshmi Electrical Control Systems Limited (LECS) is one of the leading manufacturer of switchgear products from 1982.

LECS manufactures custom-engineered control panel for Textile Machinery, Machine Tools, APFC, Energy Saver – Lighting, Compressor and many other applications conforming to International Standards.

LECS manufactures Engg. Plastic components with total expertise and facilities to deliver complete design solutions and ready to fit products. The company has strong background in R & D, Engineering, Tooling and Automation.



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