



LSIS Electric Products

ACB / MCCB / MCB / MC&TOR / Mini-MS / MMS / EMPR



Susol series

- 85, 100 and 130kA short circuit current with instantaneous at 508V
- High functional digital trip relays
- UL approved



Molded Case Circuit Breakers

Susol series

- 2, 3 pole series up to 1200AF
- UL approved

Miniature circuit breakers

- UL 1077 R-Series



Metasol series

- 3 and 4 pole series up to 800AF Mini-contactors available
- AC/DC common use coil from 150AF to 800AF
- Thermal (Bimetallic) and electronic type overload relays are available
- UL approved

Mini contactors



Manual motor starters

Electronic motor protection relays (Electronic type overload relays)

- Various connection & mount
- Reliability by real-time data processing and high precision.
- Wide current setting range & Various protection functions
- Inverse or definite time mode
- Display the causes of the fault by LED
- Ampere meter, Load rate Display type
- Standard, Ground fault and short circuit protection type
- Unit or Extension in one body by cable option
- CE marked and UL approved type



Air circuit breakers

Ratings for UL Listed/ANSI Certified Susol UA Circuit Breakers



TYPE				
AF				
Rated current (In max)	(A)	at 40°C		
Rated current	(A)	at 40°C		
Rated Maximum Voltage (V)				
Frequency (Hz)				
Number of poles (P)				
Type of Trip relay (Electronic trip device)				
Rated short circuit current (kA) (Sym.) UL 1066 ANSI C37.13		With instantaneous	AC	635V
				508V
				254V
		Without instantaneous	AC	635V
				508V
	254V			
Rated short Time current (kA)				
Operating time (t)		(ms)	Maximum total breaking time	
			Maximum closing time	
Life cycle	ACB	(time)	Mechanical	Without maintenance
				With maintenance
			Electrical	Without maintenance
				With maintenance
Weight	lb (kg)	Drawout type	Main Body	3P
			with Cradle	4P
			Only Cradle	3P
				4P
		Fixed type	Motor charging type	3P
				4P
External dimension	Draw-out type	Inch (mm)	H×W×D	3P
				4P
	Fixed type	Inch (mm)	H×W×D	3P
				4P
Enclosure dimension		Inch (mm)	H×W×D	3P
				4P



Susol	
UAS-□□D	
08	16
800	1600
400	800
600	1000
630	1200
800	1250
	1600
254V / 508V / 635V	
50/60	
3P / 4P	
N, A, P, S (4 type)	
	65
	85
	85
	65
	65
	65
	65
	50ms
	80ms
	12,500
	2,800
	154 (70)
	187 (85)
	71 (32)
	84 (38)
	77 (35)
	99 (45)
	16.93 × 13.15 × 16.02
	(430 × 334 × 407)
	16.93 × 16.5 × 16.02
	(430 × 419 × 407)
	11.81 × 11.81 × 11.61
	(300 × 300 × 295)
	11.81 × 15.16 × 11.61
	(300 × 385 × 295)
	19.69 × 15.75 × 13.39
	(500 × 400 × 340)
	19.69 × 19.69 × 13.39
	(500 × 500 × 340)



Susol				
UAH-□□E				
08	16	20	25	32
800	1600	2000	2500	3200
400	800	1000	1200	1600
600	1000	1200	1250	2000
630	1200	1250	1600	2500
800	1250	1600	2000	3000
	1600	2000	2500	3200
254V / 508V / 635V				
50/60				
3P / 4P				
N, A, P, S (4 type)				
85				
100				
100				
85				
85				
85				
85				
50ms				
80ms				
12,500			5,000	
2,800			1,000	
214 (97)			245 (111)	326 (148)
269 (122)			309 (140)	414 (188)
99 (45)			123 (56)	205 (93)
121 (55)			152 (69)	256 (116)
101 (46)			110 (50)	196 (89)
126 (57)			137 (62)	249 (113)
16.93×16.22×16.02 (430×412×407)				
16.93×20.75×16.02 (430×527×407)				
11.81×14.88×11.61 (300×378×295)				
11.81×19.41×11.61 (300×493×295)				
19.69×19.69×13.39 (500×500×340)				
19.69×24.21×13.39 (500×615×340)				

Susol		
UAH-□□G		
32	40	50
3200	4000	5000
1600	2000	2500
2000	2500	3000
2500	3000	3200
3000	3200	3600
3200	3600	4000
	4000	5000
254V / 508V / 635V		
50/60		
3P / 4P		
N, A, P, S (4 type)		
100		
130		
130		
100		
100		
100		
100		
50ms		
90ms		
5,000		
1,000		
489 (222)		
626 (284)		
276 (125)		
355 (161)		
227 (103)		
287 (130)		
18.11×30.91×16.02 (460×785×407)		
18.11×39.96×16.02 (460×1015×407)		
11.81×29.57×11.61 (300×751×295)		
11.81×38.62×11.61 (300×981×295)		
31.5×32.48×13.39 (800×825×340)		
31.5×41.54×13.39 (800×1055×340)		

Trip relay(OCR)

The trip relay of Susol 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.



Air circuit breakers

Trip relay types

Classification	N type	A type	P type	S type
Externals				
Current protection	• L / S / I / G	• 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 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 24~60V	• AC/DC 100~250V • DC 24~60V	• AC/DC 100~250V • DC 24~60V
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

Basic protection function(L / S / I / G) is still under normal operation without control power.

Molded case circuit breakers

2, 3 pole series up to 800AF

Frame size			[AF]
Rated current In			[A]
No. of Poles			
Rated operational voltage, Ue AC			[V]
UL interrupting rating			[kA]
	AC 50/60Hz	120V	
		240 V	
		480 V	
		600 V	
Reference standard			
Trip unit (Thermal-Magnetic)			
	● Fixed-thermal, Fixed-magnetic		FTU
	● Adjustable-thermal, Fixed-magnetic		FMU
	● Adjustable-thermal, Adjustable-magnetic (3Pole)		ATU
	● Molded Case Switch MCS		
Variable accessories			
	AX		
	AL		
	SHT		
	UVT		
	Extended rotary handle		
	Flange handle		
	Locking devices (Removable, Fixed)		
	Mechanical interlock device		
Mechanical life			[operations]
Electrical life @600V AC			[operations]
Weight 3-Pole			[lbs/kg]
Basic dimension, W×H×D 3-Pole			[inch/mm]

TD series



TD125U

125

15, 20, 30, 40, 50, 60, 80, 100, 125

2, 3

600

NU	HU
50	100
50	100
35	65
10	14

UL 489

●
●
-
●
●
●
●
●
●
●
●
4,000
4,000
2.65/1.2
3.54×6.46×3.39/90×164×86

TS series



TS250U		TS400U		TS800U	
250		400		800	
150, 160, 175, 200, 225, 250		300, 350, 400		500, 600, 700, 800	
2, 3		2, 3		2, 3	
600		600		600	
NU	HU	NU	HU	NU	HU
50	100	50	100	50	100
35	65	35	65	35	65
10	18	14	20	18	25
UL 489		UL 489		UL 489	
●		●		●	
●		●		●	
● (3Ø)		● (3Ø)		● (3Ø)	
●		●		●	
●		●		●	
●		●		●	
●		●		●	
●		●		●	
●		●		●	
●		●		●	
●		●		●	
5,000		5,000		3,000	
1,000		1,000		500	
4.19/1.9		12.57/5.7		29.98/13.6	
4.13×7.01×3.39/105×178×86		5.51×11.50×4.33/140×292×110		8.27×16.85×5.31/210×428×135	

Molded case circuit breakers

will be available within 2Q, 2013

Maximum
Rated Current
(Amperes)



Circuit Breaker	
Breaker Type	
Pole	
Breaker Capacity (kA rms) ac50~60Hz NEMA, UL	120/240V
	240V
	480V
	600V
MCCB	600Y347V
	Amperes
	ATU
	FMU
Trip Units F : Fixed A : Adjustable T : Thermal M : Magnetic E : Electronics	FTU
	ETM
MCP	Amperes
	MCP
MCS	Amperes
	MCS
Unit Mounted	
Rear Connection	
Mechanical Lugs	
Power Distribution connectors	
Busbar connectors	
Control Wire Terminal Kit	
Terminal Shields	
Interphase Barriers	
Shunt Trip	
Undervoltage Trip	
Auxiliary Switch	
Alarm Switch	
Flange Cable Handle	
Flange Variable-Depth Mechanism	
Directly-Mounted Rotary Operating Handle	
NEMA-Door-Mounted Operating Mechanisms	
IEC-Door-Mounted Operating Mechanisms	
Mechanical Interlocks	
Handle Padlock Attachment	
Dimensions	
Inches(mm)	2-Pole
	3-Pole

UTE100		UTE100		UTS150		
E	N	E	N	N	H	L
2		3		2, 3		
50	65	50	65	-	-	-
50	65	50	65	65	100	150
25	35	25	35	35	65	100
-	-	-	-	18	35	50
14	18	14	18	-	-	-
15~100A		15~100A		40~150A		
-		-		●		
-		●		●		
●		●		●		
-		-		-		
-		-		1.6~60A		
-		-		70~150A		
-		-		●		
100A		100A		150A		
●		●		●		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
●		●		●		
-		-		-		
W		H		D		
2.01(51)	5.12(130)	3.23(82)		4.13(105)	6.46(165)	3.39(86)
2.99(76)	5.12(130)	3.23(82)		4.13(105)	6.46(165)	3.39(86)



UTS250			UTS400			UTS600			UTS800			UTS1200			
N	H	L	N	H	L	N	H	L	N	H	L	N	H	P	L
2, 3			2, 3			2, 3			3			3			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	100	150	65	100	150	65	100	150	65	100	150	50	100	65	150
35	65	100	35	65	100	35	65	100	35	65	100	35	65	50	100
18	35	50	18	35	50	18	35	50	18	35	50	18	25	50	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150~250A			250/300/350/400A			500/600A			400/600/630/800A			800/1000/1200A			
●			●			●			-			-			
●			●			●			-			-			
●			●			●			-			-			
-			-			-			●			●			
150~250A			320A			500A			800A			1200A			
-			-			-			-			-			
●			●			●			●			●			
250A			400A			600A			800A			1200A			
●			●			●			●			●			
●			●			●			●			●			
-			-			-			-			-			
●			●			●			●			●			
-			-			-			-			-			
●			●			●			●			●			
●			●			●			●			●			
-			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
●			●			●			●			●			
W	H	D	W	H	D	W	H	D	W	H	D	W	H	D	
4.13(105)	7.48(190)	3.39(86)	5.51(140)	11.5(292)	4.33(110)	5.51(140)	13.39(340)	4.33(110)	8.5(216)	13(330)	6(152.5)	8.5(216)	16.26(413)	6(152.5)	
4.13(105)	7.48(190)	3.39(86)	5.51(140)	11.5(292)	4.33(110)	5.51(140)	13.39(340)	4.33(110)	8.5(216)	13(330)	6(152.5)	8.5(216)	16.26(413)	6(152.5)	

Miniature circuit breakers

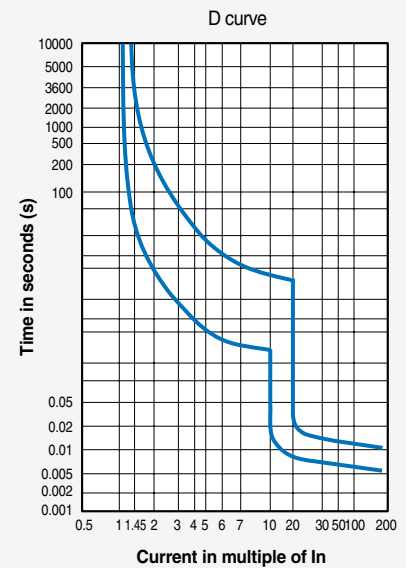
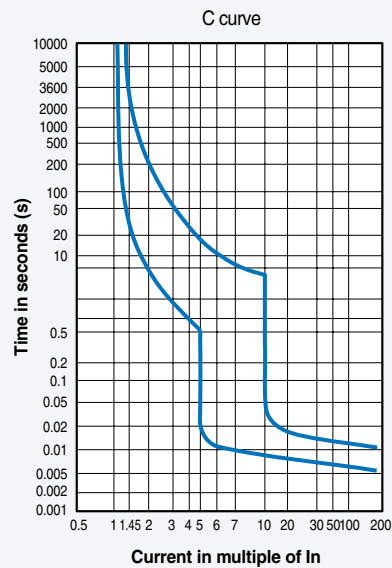
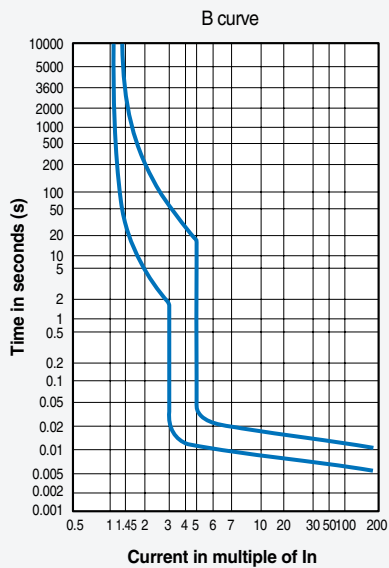
UL 1077 R-Series



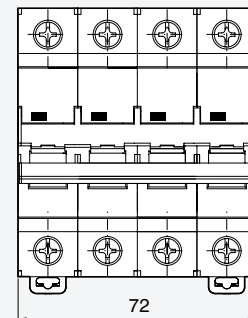
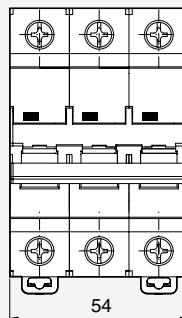
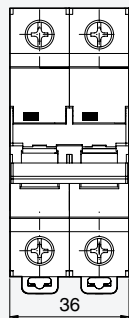
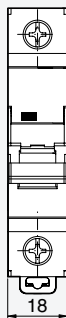
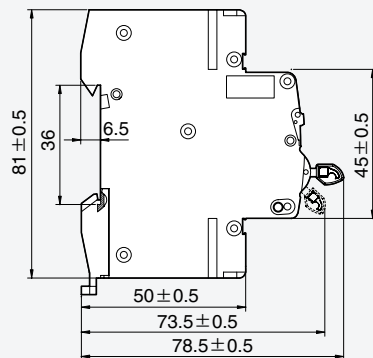
Ratings

Standard	UL 1077
Certificate	CCC, KEMA CB, SABS, UL 1077
Protection	Overload, Short circuit protection
Rated current (In)	1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63A
Pole No.	1P, 1P+N, 2P, 3P, 3P+N, 4P
Rated voltage	1P, 2P 120/240VAC
	1Pole+N 120VAC
	3P, 3P+N, 4P 240VAC
	1P, 1P+N, 2P 277VAC
	3P, 3P+N, 4P 480VAC
Rated frequency	50/60Hz
Calibration temperature	25 ± 3°C (77° ± 5°F)
Rated short-circuit capacity	1P, 2P 120/240VAC 10kA
	1Pole+N 120VAC 10kA
	3P, 3P+N, 4P 240VAC 10kA
	1P+N 277VAC 10kA
	1P, 2P 277VAC 6kA
	3P, 3P+N, 4P 480VAC 6kA
Tripping curve	B, C, D curve
Trip type	Thermal Magnetic
Type of terminal	Pillar type terminal
Terminal size acceptability - Min/Max	2.5mm ² (12AWG) / 25mm ² (4AWG)
Terminal torque	2Nm(17.5 lb . in.)
Installation	Mounting on 35mm Din rail
Width	18mm per pole
Terminal protection degree	IP 20
Electrical Endurance	6000
Maximum frequency (time/h)	360

Operating curve



Dimensions



Contactors & Overload relays

Metasol MC 3P 18 to 100A

MC type Magnetic Contactors



Frame size			
Type	screws clamp terminals		
Number of poles			
Rated operational voltage, Ue			
Rated insulation voltage, Ui			
Rated frequency			
Rated impulse withstand voltage, Uimp			
Maximum operating rate in operating cycles per hour(AC3)			
Durability	Mechanical		
	Electrical		
UL rating (50/60Hz)	Continuous current		A
	Single phase	110~120V	HP
		220~240V	HP
		200~208V	HP
	Three phase	220~240V	HP
		440~480V	HP
		550~600V	HP
NEMA size			
Size and weight	AC control	Weight	kg
		Size	inch
		W×H×D	(mm)
	DC control	Weight	kg
		Size	inch
		W×H×D	(mm)



Auxiliary(standard)			
Auxiliary	Side mount		
	Front mount		



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

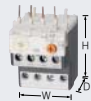
18AF			
MC-6a	MC-9a	MC-12a	MC-18a
●	●	●	●
3pole			
690V			
690V			
50/60Hz			
6kV			
1800 operations per hour			
15 mil. operations			
2.5 mil. operations			
25	25	25	32
0.5	0.5	0.75	1
1.5	1.5	2	3
2	2	3	5
3	3	5	7.5
5	5	7.5	10
7.5	7.5	10	15
00	00	0	0
0.33			
1.77×2.89×3.17			
(45×73.5×80.4)			
0.5			
1.77×2.89×4.36			
(45×73.5×110.7)			
1a or 1b			
UA-1			
UA-2, UA-4			

22AF			
MC-9b	MC-12b	MC-18b	MC-22b*
●	●	●	●
3pole			
690V			
690V			
50/60Hz			
6kV			
1800 operations per hour			
15 mil. operations			
2.5 mil. operations			
25	25	40	40
0.5	0.75	1	2
1.5	2	3	3
2	3	5	7.5
3	5	7.5	10
5	7.5	10	15
7.5	10	15	20
00	00	0	1
0.34			
1.77×2.89×3.44			
(45×73.5×87.4)			
0.51			
1.77×2.89×4.63			
(45×73.5×117.7)			
1a1b			
UA-1			
UA-2, UA-4			

MT type Thermal Overload Relays



Type	Screws clamp terminals		
Rated operational voltage, Ue			
Rated insulation voltage, Ui			
Rated impulse withstand voltage, Uimp			
Trip class			
Setting range			
Size and weight	Weight	kg	
		inch	
Size and weight	Size	inch	
		(mm)	



MT-12/□	
●	
690V	
690V	
6kV	
10A, 20	
0.1~18A	
0.1	
1.77×2.88×2.51	
(45×73.2×63.7)	

MT-32/□	
●	
690V	
690V	
6kV	
10A, 20	
0.1~40A	
0.17	
1.77×2.95×3.54	
(45×75×90)	

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



40AF

MC-32a	MC-40a
●	●
3pole	
690V	
1000V	
50/60Hz	
8kV	
1800 operations per hour	
12 mil. operations	
2 mil. operations	
50	60
2	3
5	7.5
7.5	15
10	15
20	30
25	30
1	1
0.4	
1.77×3.27×3.54	
(45×83×90)	
0.6	
1.77×3.27×4.61	
(45×83×117.1)	
UA-1	
UA-2, UA-4	



MT-32/□

●
690V
690V
6kV
10A, 20
0.1~40A
0.17
1.77×2.95×3.54
(45×75×90)



65AF

MC-50a	MC-65a
●	●
3pole	
690V	
1000V	
50/60Hz	
8kV	
1800 operations per hour	
12 mil. operations	
2 mil. operations	
70	100
3	5
10	15
20	25
25	30
40	50
50	60
2	2
0.9	
2.17×4.17×4.69	
(55×106×119)	
1.2	
2.17×4.17×5.76	
(55×106×146.4)	
UA-1	
UA-2, UA-4	



MT-63/□

●
690V
690V
6kV
10A, 20
4~65A
0.31/0.33
2.17×3.19×3.94
(55×81×100)



100AF

MC-75a	MC-85a	MC-100a
●	●	●
3pole		
690V		
1000V		
50/60Hz		
8kV		
1800 operations per hour		
12 mil. operations		
2 mil. operations		
110	135	160
5	7.5	10
15	15	20
25	30	30
30	40	40
50	60	75
60	75	75
2	3	3
1.6		
2.76×5.51×5.35		
(70×140×135.8)		
2.6		
2.76×5.51×6.78		
(70×140×172.3)		
UA-1		
UA-2, UA-4		



MT-95/□

●
690V
690V
6kV
10A, 20
7~100A
0.48/0.5
2.76×3.82×4.33
(70×97×110)

Contactors & Overload relays

Metasol MC 3P 150 to 800A

MC type Magnetic Contactors



Frame size				
Type	screws clamp terminals			
Number of poles				
Rated operational voltage, Ue				
Rated insulation voltage, Ui				
Rated frequency				
Rated impulse withstand voltage, Uimp				
Maximum operating rate in operating cycles per hour(AC3)				
Durability	Mechanical			
	Electrical			
UL rating (50/60Hz)	Continuous current		A	
	Single phase	110~120V	HP	
		220~240V	HP	
		200~208V	HP	
		Three phase	220~240V	HP
		440~480V	HP	
		550~600V	HP	
	NEMA size			
	AC control	Weight	kg	
		Size	inch	
		W×H×D (mm)		
	DC control	Weight	kg	
	Size	inch		
	W×H×D (mm)			
Auxiliary(standard)				
Auxiliary	Side mount			
	Front mount			



150AF	
MC-130a	MC-150a
●	●
3pole	
690V	
1000V	
50/60Hz	
8kV	
1200 operations per hour	
5 mil. operations	
1 mil. operations	
160	210
10	15
20	25
40	40
40	50
75	100
75	75
3	4
2.4	
3.74×6.22×5.20	
(95×158×132)	
2.3	
3.74×6.22×5.20	
(95×158×132)	
UA-1	
UA-2, UA-4	

225AF	
MC-185a	MC-225a
●	●
3pole	
690V	
1000V	
50/60Hz	
8kV	
1200 operations per hour	
5 mil. operations	
1 mil. operations	
230	275
15	15
30	40
60	60
60	75
125	150
125	150
4	4
5.4	
5.43×7.99×7.16	
(138×203×181)	
2a2b	
AU-100 (Max.4NO4NC)	
-	

MT type Thermal Overload Relays



Type	Screws clamp terminals		
Rated operational voltage, Ue			
Rated insulation voltage, Ui			
Rated impulse withstand voltage, Uimp			
Trip class			
Setting range			
Size and weight	Weight	kg	
		Size	
		inch	
		(mm)	



MT-150/□			
●			
690V			
690V			
6kV			
10A, 20			
34~150A			
0.67			
3.74×4.29×4.45			
(95×109×113)			

MT-225/□			
●			
690V			
690V			
6kV			
10A, 20			
65~240A			
2.5			
5.79×5.55×7.24			
(147×141×184)			

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



400AF

MC-265a	MC-330a	MC-400a
●	●	●
	3pole	
	690V	
	1000V	
	50/60Hz	
	8kV	
	1200 operations per hour	
	5 mil. operations	2.5 mil. operations
	1 mil. operations	0.5 mil. operations
300	350	450
-	-	-
-	-	-
75	100	125
100	125	150
200	250	300
200	250	300
5	5	5

9.2
6.48×9.92×7.80
(163×243×198)

2a2b

AU-100 (Max.4NO4NC)



MT-400/□

●
690V
690V
6kV
10A, 20
85~400A
2.6
5.94×6.73×7.79 (151×171×198)



800AF

MC-500a	MC-630a	MC-800a
●	●	●
	3pole	
	690V	
	1000V	
	50/60Hz	
	8kV	
	1200 operations per hour	
	2.5 mil. operations	
	0.5 mil. operations	
580	660	900
-	-	-
-	-	-
150	200	200
200	250	300
400	500	600
400	500	600
6	6	7

22.4
11.22×12.29×9.53
(285×312×242)

2a2b

AU-100 (Max.4NO4NC)



MT-800/□

●
690V
690V
6kV
10A, 20
200~800A
11.5
14.17×20.87×8.35 (360×530×212)

Contactors & Overload relays

Metasol MC 4P 18 to 85A

MC type Magnetic Contactors



Frame size			
Type			
		Screw clamp terminal	
Number of poles			
Rated operational voltage (Ue)			
Rated insulation voltage (Ui)			
Rated frequency			
Rated impulse withstand voltage, Uimp			
Maximum operating rate in operating cycles per hour(AC1)			
Durability		Mechanical	
Electrical			
UL rating (50/60Hz)		Continuous current	
		A	
		Single	110~120V
		HP	
		Phase	220~240V
		HP	
		200~208V	HP
		Three	220~240V
HP			
Phase	440~480V		
HP			
550~600V	HP		
		NEMA Size	Size and
AC		Weight	kg
weight		Control	Size
		inch	
		W×H×D	(mm)
		DC	Weight
kg			
	Control	Size	inch
	W×H×D	(mm)	
	Auxiliary(standard)		
	Auxiliary		Side Mount
		Front Mount	

18AF			
MC-6a/4	MC-9a/4	MC-12a/4	MC-18a/4
●			
4pole			
690V			
690V			
50/60Hz			
6kV			
1800 operations per hour			
15 mil. Operations			
0.5 mil. Operations		0.8 mil. Operations	
25	25	25	32
0.5	0.5	0.75	1
1.5	1.5	2	3
2	2	3	5
3	3	5	7.5
5	5	7.5	10
7.5	7.5	10	15
00	00	0	0
0.33			
1.77×2.89×3.11			
(45×73.5×79)			
0.5			
1.77×2.89×4.36			
(45×73.5×110.7)			
-			
UA-1			
AU-2, AU-4			



22AF
MC-22a/4
●
4pole
690V
690V
50/60Hz
6kV
1800 operations per hour
15 mil. Operations
1 mil. Operations
32
2
3
7.5
7.5
10
15
1
0.4
1.86×3.15×3.42
(47.2×80×86.8)
0.5
1.86×3.15×4.47
(47.2×80×113.2)
-
AU-1
AU-2, AU-4

40AF
MC-32a/4
MC-40a/4
●
4pole
690V
690V
50/60Hz
6kV
1800 operations per hour
15 mil. Operations
1 mil. Operations
45
50
2
3
5
5
7.5
10
10
20
25
20
25
1
1
0.59
2.32×3.29×3.72
(59×83.5×94.5)
0.7
2.32×3.29×4.76
(59×83.5×121)
-
AU-1
AU-2, AU-4

85AF
MC-50a/4
MC-65a/4
MC-75a/4
MC-85a/4
●
4pole
690V
1000V
50/60Hz
8kV
1800 operations per hour
12 mil. Operations
1 mil. Operations
70
80
90
100
3
5
5
7.5
10
15
20
25
15
20
25
30
40
50
50
30
40
50
50
2
2
2
3
1.2
3.58×4.86×4.64
(91×123.5×117.8)
1.29
3.58×4.86×4.64
(91×123.5×117.8)
-
AU-1
AU-2, AU-4

Contactors & Overload relays

Metasol MC 4P 225 to 800A

MC type Magnetic Contactors



Frame size			
Type			
Screw clamp terminal			
Number of poles			
Rated operational voltage (Ue)			
Rated insulation voltage (Ui)			
Rated frequency			
Rated impulse withstand voltage, Uimp			
Maximum operating rate in operating cycles per hour(AC1)			
Durability		Mechanical	
Electrical			
UL rating (50/60Hz)	Continuous current		A
	Single	110~120V	HP
	Phase	220~240V	HP
		200~208V	HP
	Three	220~240V	HP
	Phase	440~480V	HP
		550~600V	HP
	NEMA Size		Size and
AC	Weight	kg	
weight	Control	Size	inch
		W×H×D	(mm)
	DC	Weight	kg
	Control	Size	inch
		W×H×D	(mm)
Auxiliary(standard)			
Auxiliary	Side Mount		
	Front Mount		

* - FLA = 722 A, LRA = 5618 A

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

225AF				
MC-100a/4	MC-130a/4	MC-150a/4	MC-185a/4	MC-225a/4
●				
4pole				
690V				
1000V				
50/60Hz				
8kV				
1200 operations per hour				
5 mil. Operations				
0.8 mil. Operations				
160	160	210	230	275
7.5	10	15	15	15
15	20	25	30	40
30	40	40	60	60
30	40	50	60	75
60	75	100	125	150
60	75	100	125	150
3	3	4	4	4
5.6				
6.89×7.99×7.28				
(175×203×185)				
2a2b				
AU-100				
-				



400AF		
MC-265a/4	MC-330a/4	MC-400a/4
●		
4pole		
690V		
1000V		
50/60Hz		
8kV		
1200 operations per hour		
2.5 mil. Operations		
0.5 mil. Operations		
300	350	450
-	-	-
-	-	-
75	100	125
100	125	150
200	250	300
200	250	300
5	5	5
9.9		
8.11×9.57×8.07		
(206×243×205)		
2a2b		
AU-100		
-		

800AF		
MC-500a/4	MC-630a/4	MC-800a/4
●		
4pole		
690V		
1000V		
50/60Hz		
8kV		
1200 operations per hour		
2.5 mil. Operations		
0.5 mil. Operations		
580	660	900
-	-	-
-	-	-
150	200	200
200	250	300
400	500	600 *
400	500	600 **
6	6	7
26.3		
13.62×12.20×9.61		
(346×310×244)		
2a2b		
AU-100		
-		

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	GMC-6M	GMC-9M	GMC-12M	GMC-16M
	DC coil	GMD-6M	GMD-9M	GMD-12M	GMD-16M
Fast-on type	AC coil	GMC-6MF	GMC-9MF	GMC-12MF	GMC-16MF
	DC coil	GMD-6MF	GMD-9MF	GMD-12MF	GMD-16MF
Cage clamp type	AC coil	GMC-6MC	GMC-9MC	GMC-12MC	GMC-16MC
	DC coil	GMD-6MC	GMD-9MC	GMD-12MC	GMD-16MC
Solder pin type	AC coil	GMC-6MP	GMC-9MP	GMC-12MP	GMC-16MP
	DC coil	GMD-6MP	GMD-9MP	GMD-12MP	GMD-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 15
	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		AU-2M	AU-2MF	AU-2MC	
		AU-4M	AU-4MF	AU-4MC	
		AU-1M	AU-1MF	AU-1MC	
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 GT		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	4 - 6 5 - 8 6 - 9 7 - 10 9 - 13 12 - 16	
		GT-12M			Base for separate mount
	Differential		GTK-12M		
	Non-differential (3-heater)		GTH-12M/3		
Non-differential (2-heater)			GTH-12M		

Manual motor starters

Technical information

Manual motor controller (UL 508, CSA C22.2 as Manual motor controllers)

Combination Motor Controller

- Group Installation
- Type E starter



MMS 32S

Rated operational current I_e [A]			0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32	40
Max. short-circuit current																			
	240V	[kA]	100	100	100	100	100	100	100	100	100	100	50	50	40	30	30	20	20
	480V	[kA]	50	50	50	50	50	50	50	50	25	25	10	10	10	10	7.5	7.5	7.5
	600V	[kA]	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5	5
Motor load																			
1 Phase	115V	[HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2	3
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	3	5	7½
3 Phase	200V	[HP]	-	-	-	-	-	-	1/2	3/4	1	2	2	3	3	5	7½	7½	10
	230V	[HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10	10
	460V	[HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20	30
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30	30
Max. fuse size [A]			1	1	1	3	6	10	15	20	30	40	50	60	80	100	125	125	
Max. breaker size [A]			15	15	15	15	15	15	15	15	20	30	40	50	60	80	100	125	125

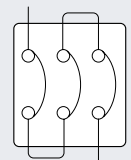
MMS 63S

Rated operational current I_e [A]			10	13	17	22	26	32	40	50	63	65
Max. short-circuit current												
	240V	[kA]	100	100	100	100	100	100	100	100	100	100
	480V	[kA]	50	50	40	40	40	40	40	40	40	40
	600V	[kA]	10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1/2	1/2	1	1½	2	2	3	3	5	5
	230V	[HP]	1½	2	3	3	3	5	7½	10	10	10
3 Phase	200V	[HP]	2	3	3	5	7½	7½	10	15	20	20
	230V	[HP]	3	3	5	7½	7½	10	10	15	20	20
	460V	[HP]	5	7½	10	15	15	20	30	30	40	40
	575V	[HP]	7½	10	15	20	20	30	30	40	60	60
Maximum rated current of fuse or breaker [A]			600	600	600	600	600	600	600	600	600	600

MMS 100S

Rated operational current I_e [A]			17	22	26	32	40	50	63	75	90	100
Max. short-circuit current												
	240V	[kA]	100	100	100	100	100	100	100	100	100	100
	480V	[kA]	50	50	50	50	50	50	40	40	40	40
	600V	[kA]	10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1	1½	2	2	3	3	5	5	7½	10
	230V	[HP]	3	3	3	5	7½	10	10	15	20	20
3 Phase	200V	[HP]	3	5	7½	7½	10	15	20	20	25	30
	230V	[HP]	5	7½	7½	10	10	15	20	25	30	30
	460V	[HP]	10	15	15	20	30	30	40	50	60	75
	575V	[HP]	15	20	20	30	30	40	60	60	75	100
Maximum rated current of fuse or breaker [A]			1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

In case of 1-phase use in series as shown below



Manual motor starters

Technical information

Manual motor controller (UL 508, CSA C22.2 as Manual motor controllers)

Combination Motor Controller

- Group Installation
- Type E starter



MMS 32H

Rated operational current I_e [A]	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32	40
Max. short-circuit current																	
240V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
480V [kA]	65	65	65	65	65	65	65	65	65	65	65	65	30	30	30	30	30
600V [kA]	25	25	25	25	25	25	25	25	25	25	25	25	10	10	10	10	10
Motor load																	
1 Phase 115V [HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2	3
230V [HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	3	5	7½
3 Phase 200V [HP]	-	-	-	-	-	-	1/2	3/4	1	2	2	3	3	5	7½	7½	10
230V [HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10	10
460V [HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20	30
575V [HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30	30
Maximum rated current of fuse or breaker [A]	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

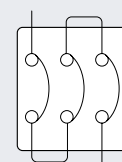
MMS 63H

Rated operational current I_e [A]	10	13	17	22	26	32	40	50	63	65
Max. short-circuit current										
240V [kA]	100	100	100	100	100	100	100	100	100	100
480V [kA]	65	65	50	50	50	50	50	50	50	50
600V [kA]	25	25	10	10	10	10	10	10	10	10
Motor load										
1 Phase 115V [HP]	1/2	1/2	1	1½	2	2	3	3	5	5
230V [HP]	1½	2	3	3	3	5	7½	10	10	10
3 Phase 200V [HP]	2	3	3	5	7½	7½	10	15	20	20
230V [HP]	3	3	5	7½	7½	10	10	15	20	20
460V [HP]	5	7½	10	15	15	20	30	30	40	40
575V [HP]	7½	10	15	20	20	30	30	40	60	60
Maximum rated current of fuse or breaker [A]	600	600	600	600	600	600	600	600	600	600

MMS 100H

Rated operational current I_e [A]	17	22	26	32	40	50	63	75	90	100
Max. short-circuit current										
240V [kA]	100	100	100	100	100	100	100	100	100	100
480V [kA]	65	65	65	65	65	65	50	50	50	50
600V [kA]	25	25	25	20	20	20	10	10	10	10
Motor load										
1 Phase 115V [HP]	1	1½	2	2	3	3	5	5	7½	10
230V [HP]	3	3	3	5	7½	10	10	15	20	20
3 Phase 200V [HP]	3	5	7½	7½	10	15	20	20	25	30
230V [HP]	5	7½	7½	10	10	15	20	25	30	30
460V [HP]	10	15	15	20	30	30	40	50	60	75
575V [HP]	15	20	20	30	30	40	60	60	75	100
Maximum rated current of fuse or breaker [A]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

In case of 1-phase use in series as shown below



Technical information

Manual motor controller (UL508)



MMS 32S

Rated operational current I_e [A]			0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32	40
Max. short-circuit current																			
240V	[kA]		100	100	100	100	100	100	100	100	100	100	50	50	40	30	30	20	20
480V	[kA]		50	50	50	50	50	50	50	50	25	25	10	10	10	10	7.5	7.5	7.5
600V	[kA]		10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5	5
Motor load																			
1 Phase	115V	[HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2	3
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	3	5	7½
3 Phase	200V	[HP]	-	-	-	-	-	-	1/2	3/4	1	2	2	3	3	5	7½	7½	10
	230V	[HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10	10
	460V	[HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20	30
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30	30
Max. fuse size			[A]	1	1	1	1	3	6	10	15	20	30	40	50	60	80	100	125
Max. breaker size			[A]	15	15	15	15	15	15	15	20	30	40	50	60	80	100	125	150

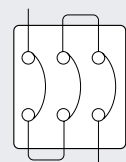
MMS 63S

Rated operational current I_e [A]			10	13	17	22	26	32	40	50	63	65
Max. short-circuit current												
240V	[kA]		100	100	100	100	100	100	100	100	100	100
480V	[kA]		25	25	25	25	25	25	25	25	25	25
600V	[kA]		10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1/2	1/2	1	1½	2	2	3	3	5	5
	230V	[HP]	1½	2	3	3	3	5	7½	10	10	10
3 Phase	200V	[HP]	2	3	3	5	7½	7½	10	15	20	20
	230V	[HP]	3	3	5	7½	7½	10	10	15	20	20
	460V	[HP]	5	7½	10	15	15	20	30	30	40	40
	575V	[HP]	7½	10	15	20	20	30	30	40	60	60
Max. fuse size			[A]	40	50	60	80	100	125	150	200	250
Max. breaker size			[A]	40	50	60	80	100	125	150	200	250

MMS 100S

Rated operational current I_e [A]			17	22	26	32	40	50	63	75	90	100
Max. short-circuit current												
240V	[kA]		100	100	100	100	100	100	100	100	100	100
480V	[kA]		25	25	25	25	25	25	25	25	25	25
600V	[kA]		10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1	1½	2	2	3	3	5	5	7½	10
	230V	[HP]	3	3	3	5	7½	10	10	15	20	20
3 Phase	200V	[HP]	3	5	7½	7½	10	15	20	20	25	30
	230V	[HP]	5	7½	7½	10	10	15	20	25	30	30
	460V	[HP]	10	15	15	20	30	30	40	50	60	75
	575V	[HP]	15	20	20	30	30	40	60	60	75	100
Max. fuse size			[A]	60	80	100	125	150	200	250	300	400
Max. breaker size			[A]	60	80	100	125	150	200	250	300	400

In case of 1-phase use
in series as shown below



Manual motor starters

Technical information

Manual motor controller (UL508)



MMS 32H

Rated operational current I_e [A]			0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32	40
Max. short-circuit current																			
240V	[kA]		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
480V	[kA]		50	50	50	50	50	50	50	50	50	50	50	50	30	30	30	30	30
600V	[kA]		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Motor load																			
1 Phase	115V	[HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2	3
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	3	5	7½
3 Phase	200V	[HP]	-	-	-	-	-	-	1/2	3/4	1	2	2	3	3	5	7½	7½	10
	230V	[HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10	10
	460V	[HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20	30
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30	30
Max. fuse size			[A]	1	1	1	1	3	6	10	15	20	30	40	50	60	80	100	125
Max. breaker size			[A]	15	15	15	15	15	15	15	20	30	40	50	60	80	100	125	150

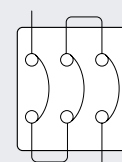
MMS 63H

Rated operational current I_e [A]			10	13	17	22	26	32	40	50	63	65
Max. short-circuit current												
240V	[kA]		100	100	100	100	100	100	100	100	100	100
480V	[kA]		50	50	50	50	50	50	50	50	50	50
600V	[kA]		10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1/2	1/2	1	1½	2	2	3	3	5	5
	230V	[HP]	1½	2	3	3	3	5	7½	10	10	10
3 Phase	200V	[HP]	2	3	3	5	7½	7½	10	15	20	20
	230V	[HP]	3	3	5	7½	7½	10	10	15	20	20
	460V	[HP]	5	7½	10	15	15	20	30	30	40	40
	575V	[HP]	7½	10	15	20	20	30	30	40	60	60
Max. fuse size			[A]	40	50	60	80	100	125	150	200	250
Max. breaker size			[A]	40	50	60	80	100	125	150	200	250

MMS 100H

Rated operational current I_e [A]			17	22	26	32	40	50	63	75	90	100
Max. short-circuit current												
240V	[kA]		100	100	100	100	100	100	100	100	100	100
480V	[kA]		50	50	50	50	50	50	50	50	50	50
600V	[kA]		10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1	1½	2	2	3	3	5	5	7½	10
	230V	[HP]	3	3	3	5	7½	10	10	15	20	20
3 Phase	200V	[HP]	3	5	7½	7½	10	15	20	20	25	30
	230V	[HP]	5	7½	7½	10	10	15	20	25	30	30
	460V	[HP]	10	15	15	20	30	30	40	50	60	75
	575V	[HP]	15	20	20	30	30	40	60	60	75	100
Max. fuse size			[A]	60	80	100	125	150	200	250	300	400
Max. breaker size			[A]	60	80	100	125	150	200	250	300	400

In case of 1-phase use
in series as shown below



Electronic motor protection relays

GMP Series

Ratings										
Model			GMP22-2P (1c)	GMP22-2P(1a1b)	GMP22-3P/3PR	GMP22-2S	GMP22-3S/3SR	GMP22-2T	GMP22-3T/3TR	
Type			Pin type			Screw type		Tunnel type		
No. of CT			2CT	2CT	3CT	2CT	3CT	2CT	3CT	
Protection	Overcurrent		●	●	●	●	●	●	●	
	Phase failure Note1)		●	●	●	●	●	●	●	
	Lock/Stall		●	●	●	●	●	●	●	
	Phase unbalance		-	-	●	-	●	-	●	
	Reverse phase		-	-	●(3PR)	-	●(3PR)	-	●(3PR)	
Current setting range (A)			0.3~1.5, 1~5, 4.4~22							
Operating time characteristics			Inverse time (GMP22-2PD: Definite time)							
Time setting (sec)	Inverse time		0~30 sec							
	Definite	D-time	0.2~60 sec for GMP22-2PD							
		O-time	5sec (Fixed) for GMP22-2PD							
	Reset-time		Manual reset							
Tolerance	Current		±5%							
	Time		±5%(or±0.5sec)							
Control power	Voltage		AC 110V/220V(±10%)		AC 100~260V(±10%)					
	Frequency		50/60Hz							
Aux. contact	Contact Note 3)		1SPDT (1c)		2SPST (1a1b)					
	Ratings		5A/250VAC Resistive load		3A/250VAC Resistive load					
	Operate		(95 ½ 96 Close)		(95 ½ 96 Close) (97 ½ 98 Open)					
Insulation resistance			Min 100MΩ at 500Vdc							
Surge endurance (IEC 61000-4-5)			5kV Apply the standard wave							
Fast transient burst (IEC 61000-4-4)			2kV							
Environment	Operation		-25~70℃							
Temperature	Storage		-30~80℃							
	Relative humidity		30~90%RH(No freezing)							
Trip indicator			Red LED		Red/Green LED		Red LED	Red/Green LED	Red LED	Red/Green LED
Dimension	W×H×D	inch	1.73×2.80×3.07		2.09×3.07×3.44		2.87×2.68×3.44		2.09×1.50×3.44	
		(mm)	(44×71×78)		(53×78×87.5)		(53×68×87.5)		(53×38×87.5)	
Mounting type			Direct mount onto a Metasol MC (MC-9b-22b)			Separate mount (Screw or Din-rail) Note2)				
Certification			UL, cUL, CE							

Note) 1. When it is 2CT model, only two-phase protection is available

2. The bracket for Din-rail mount is optional

3. When power applied Aux. contact operate

Electronic motor protection relays

GMP Series

Ratings													
Model			GMP40-2P	GMP40-3P/3PR	GMP40-2S	GMP40-3S/3SR	GMP40-2T	GMP40-3T/3TR	GMP80-2S	GMP80-3S/3SR	GMP60T	GMP60TE	
Type			Pin type *		Screw type		Tunnel type		Screw type		Tunnel type		
No. of CT			2CT	3CT	2CT	3CT	2CT	3CT	2CT	3CT	2CT		
Protection	Overcurrent		●	●	●	●	●	●	●	●	●		
	Phase failure Note1)		●	●	●	●	●	●	●	●	●		
	Lock/Stall		●	●	●	●	●	●	●	●	●		
	Phase unbalance		-	●	-	●	-	●	-	●	-		
	Reverse phase		-	●(3PR)	-	●(3PR)	-	●(3PR)	-	●(3PR)	-		
Current setting range(A)			4~20, 8~40						16~80		0.5~6, 3~30, 5~60		
Operating time characteristics			Inverse time characteristics, Definite (GMP-PD Type)									Definite	
Time setting (sec)	Inverse time		0~30 sec									-	
	Definite D-time		0.2~60 sec (GMP40-2PD)									0.2~30 sec	
	O-time		5sec (Fixed) (GMP40-2PD)									0.2~30 sec	5 sec (Fixed)
	Reset time		Manual reset (Auto Reset type : GMP□-A)									-	GMP-TA
Tolerance	Current		±5%									±5%	
	Time		±5% (or ±0.5 sec)									±5% (or ±5 sec)	
Control power	Voltage Note3)		AC 100~260V									AC 110V/260V	
	Frequency		50/60Hz									50/60Hz	
Aux. contact	Contact Note4)		2SPST (1a1b)									1SPDT (1c)	
	Ratings		3A/250VAC Resistive load									1A/250VAC Resistive load	
	Operate		(95 1/2 96 Close) (97 98 99 Open)									-	
Insulation resistance			Min 100M Ω at 500Vdc									Min 100M Ω at 500Vdc	
Surge endurance (IEC 61000-4-5)			5kV Apply the standard wave									5kV Apply the standard wave	
Fast transient burst (IEC 61000-4-4)			2kV									2kV	
Environment	Operation		-25~70°C									-25~70°C	
	Storage		-30~80°C									-30~80°C	
Relative humidity			30~90%RH (No freezing)									30~90%RH (No freezing)	
Trip indicator			Red LED	Red/Green LED	Red LED	Red/Green LED	Red LED	Red/Green LED	Red LED	2Red LEDs	Red LED		
Dimension	W×H×D	inch	2.09×3.07×3.44		2.09×2.68×3.44		2.09×2.68×3.44		3.50×3.05×3.83		2.83×2.64×2.72		
		(mm)	(53×78×87.5)		(53×68×87.5)		(53×38×87.5)		(89×77.5×97.4)		(72×67×69)		
Mounting type			Direct mount onto a Metasol MC (MC-32a, 40a)		Separate mount (Screw or Din-rail)							Separate mount (Screw or Din-rail)	
Certification			UL, cUL, CE										

Note) 1. When it is 2CT model, only two-phase protection is available.

2. GMP60T/TE: AC24V, 48V or 380V, 50/60Hz types a option.

3. When power applied the Aux. contact operate.

DMP Series

Ratings					
Model		DMP06-S/SZ/SI	DMP60-Sa/SZa	DMP06-T/TZ/TI	DMP60-Ta/TZa
Wiring		Screw type		Tunnel type	
Panel mount		Unit or Extension ^{Note 1)}		Unit or Extension ^{Note 1)}	
Operation time		Inverse/Definite		Inverse/Definite	
Protection	Over current	According to the setting time		According to the setting time	
	Phase failure	3 sec		3 sec	
	Reverse phase	Within 0.1 sec		Within 0.1 sec	
	Lock/Stall	Within 0.5 sec		Within 0.5 sec	
	Phase unbalance	5 sec		5 sec	
	Under current	3 sec		3 sec	
	Ground fault	Within 0.05~1 sec. (DMP□-Z/Za)		Within 0.05~1 sec. (DMP□-T/Ta)	
	Short circuit	Within 50ms (DMP□-SI)		Within 50ms (DMP□-TI)	
Alarm		Variable (60~110% of the setting current)		Variable (60~110% of the setting current)	
Current setting range (A)		6: 0.5~6A, 60: 5~60A		6: 0.5~6A, 60: 5~60A	
Time setting (sec)	Definite D time	0~60 sec		0~60 sec	
	O time	0~30 sec		0~30 sec	
	Inverse time	0~60 sec		0~60 sec	
	A time (Reset)	Manual reset		Manual reset	
Tolerance	Current	±5%		±5%	
	Time	±5% (or ±0.5 sec)		±5% (or ±0.5 sec)	
Operating power	Voltage	AC 110V or 220V, 50/60Hz		AC 110V or 220V, 50/60Hz	
Aux. contact		S, SI Type: 2a1b, SZ Type: 2a, 1a1b, 2b		T, TI Type: 2a1b, TZ Type: 2a, 1a1b, 2b	
Insulation resistance		Over DC 500V 100MΩ		Over DC 500V 100MΩ	
Surge impulse voltage (IEC 61000-4-5)		5kV		5kV	
Fast transient burst (IEC 61000-4-4)		2kV		2kV	
Environment	Operation	-25~70℃		-25~70℃	
Temperature	Storage	-30~80℃		-30~80℃	
	Relative humidity	30~90% RH (No freezing)		30~90% RH (No freezing)	
Display	7-Segment	Cause of a fault, Current		Cause of a fault, Current	
	Bar-Graph	60~110% of real load current		60~110% of real load current	
Mounting type		35mm Din-rail/Panel		35mm Din-rail/Panel	
Certification		UL, cUL, CE (Except DMP36 type), KR, LR, ABS			

Note) 1. In extension type, the digital EMPR is calibrated with combining the display part and main body so, please cautious not to combine the display part and main body with different part No.

2. Zero current sensing by zero sequence CT and Residual circuit.

3. DMP-a Type option : Operating time, Fault event save, 3phase current Ampere meter Function

Electronic motor protection relays

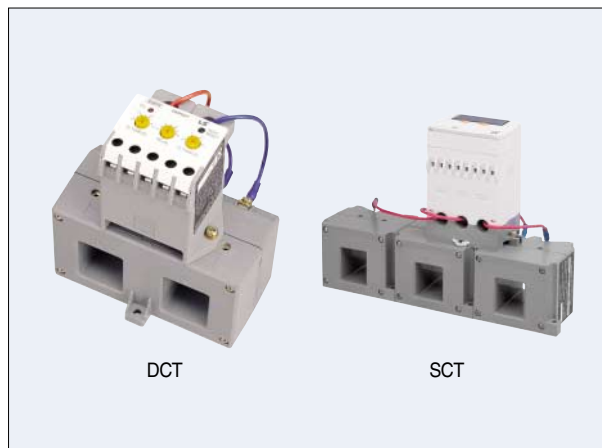
Accessories

CT, ZCT, Cable and Terminal

CT Ratings

Type		2CT	3CT
CT ratio	100 : 5A	DCT-100	
	150 : 5A	DCT-150	SCT-150
	200 : 5A	DCT-200	SCT-200
	300 : 5A	DCT-300	SCT-300
	400 : 5A	DCT-400	SCT-400
Class		1.0	
Burden		5VA	
Insulation voltage		600VAC	
Insulated impulse voltage		2kV	
Insulation resistance		10M Ω (DC 500V Megger)	
Mounting		Panel	

Note) Please use DCT for LS Electronic Motor Protection Relay only.

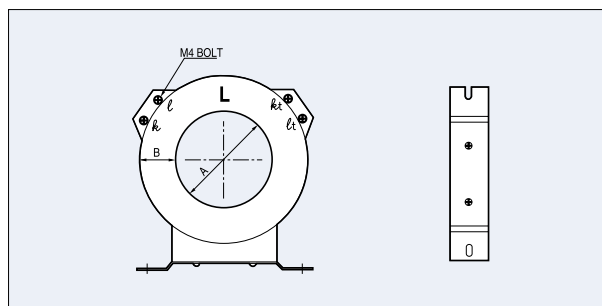


DCT

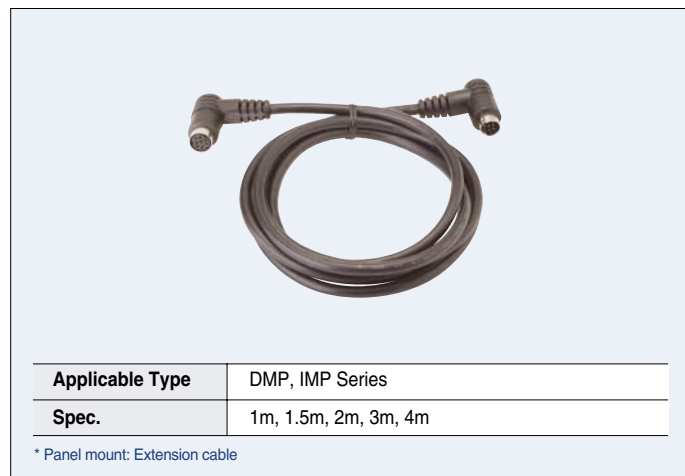
SCT

ZCT (Zero Sequence CT) Ratings

Type	Diameter (A)	Ratio	Diameter (A)
LZT-030	30	0.5	100mA/40~55mV 200mA/100mV
LZT-050	50	0.7	
LZT-065	65	0.9	
LZT-080	80	1.5	



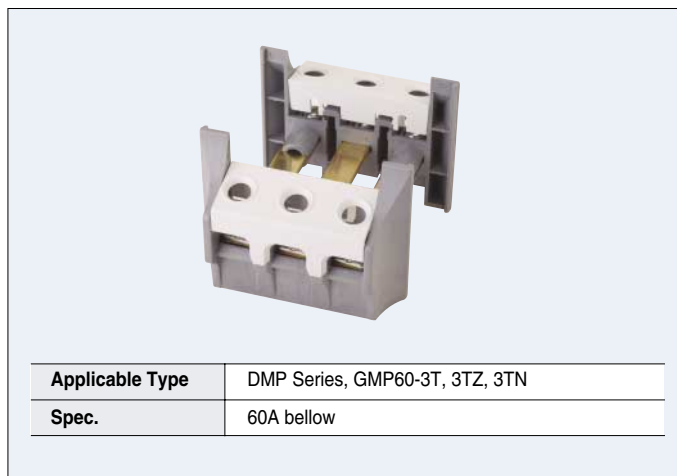
Cable



Applicable Type	DMP, IMP Series
Spec.	1m, 1.5m, 2m, 3m, 4m

* Panel mount: Extension cable

Terminal Block



Applicable Type	DMP Series, GMP60-3T, 3TZ, 3TN
Spec.	60A bellow

Vacuum Circuit Breakers

Susol VCB Series

27kV 25kA 1200/2000A

27kV (VH-27)



Item			VH-27□25□12	VH-27□25□20
Rated voltage	Ur (kV)		27	
Rated short-circuit current	Isc (kA)		25	
Rated normal current	Ir (A)		1200	2000
Rated withstand voltage	Power frequency (1 min)	Ud (kV)	60	
	Impulse (1.2 × 50 μ s)	Up (kV)	150	
Rated frequency	fr (Hz)		60	
Rated short-circuit making current	Ip (kA)		65	
Rated short-time withstand current	Ik/tk (kA/s)		25/2	
Rated breaking time	(cycle)		3	
Rated operating sequence			O-0.3s-CO-3min-CO	
Control voltage	Closing coil	(V)	DC 125V	
	Trip coil	(V)	DC 125V	
Auxiliary contacts	Point of contactor		4a4b, 10a10b	
	Class		Class 1	
Trip coil 저항			(Ω) 37 ± 10%	
Closing coil 저항			(Ω) 37 ± 10%	
Rated short-circuit breaking capacity			(MVA) 1169	
Rated opening time			(sec) ≤ 40	
No-load closing time			(sec) ≤ 60	
VI stroke			(mm) 17~18	
Weight	Breaker	(kg)	400	
	Cradle	(kg)	400	

* Lifetime with maintenance.

** H type is a box type cradle with CB compartment style structure.

Green Innovators of Innovation



Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact a qualified service technician when you need maintenance. Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

LSIS Co., Ltd.

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Specifications in this catalog are subject to change without notice due to continuous product development and improvement.

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