



**Metasol** *Meta Solution*

# MC/TOR

Contactors and Overload Relays



**LSIS**

# Table of specifications

## MC type Magnetic contactors



Frame size			18AF				22AF				
Type			MC-6a	MC-9a	MC-12a	MC-18a	MC-9b	MC-12b	MC-18b	MC-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	2
		220~240V	HP	1.5	1.5	2	3	1.5	2	3	3
		200~208V	HP	2	2	3	7.5	2	3	7.5	7.5
	Three phase	220~240V	HP	3	3	5	7.5	3	5	7.5	10
		440~480V	HP	5	5	7.5	10	5	7.5	10	15
	550~600V	HP	7.5	7.5	10	15	7.5	10	15	20	
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)		<b>1a or 1b</b>				<b>1a1b</b>					
Auxiliary	Side mount		UA-1				UA-1				
	Front mount		UA-2, UA-4				UA-2, UA-4				

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

## MT type Thermal Overload Relays



Type			MT-12/□	MT-32/□
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			0.1~18A	0.1~40A
Size and weight	Weight	kg	0,1	0,17
	Size(W×H×D)	mm	45×73.2×63,7	45×75×90

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



40AF	
MC-32a	MC-40a
●	●
3pole	
1000V	
1000V	
50/60Hz	
8kV	
1800 operations per hour	
12 mil. operations	
2 mil. operations	
55	60
7.5	11
32	40
15	18.5
32	40
18.5	22
28	32
18.5	22
20	23
22	22
17	17
600	700
260	300
160	190
100	120
70	80
55	65
50	60
50	60
2	3
5	7.5
7.5	15
10	15
20	30
25	30
1P	2
0.55	
69×83×90	
0.77	
69×83×117.1	
<b>2a2b</b>	
UA-1	
UA-2, UA-4	



65AF	
MC-50a	MC-65a
●	●
●	●
3pole	
1000V	
1000V	
50/60Hz	
8kV	
1200 operations per hour	
12 mil. operations	
2 mil. operations	
100	115
15	18.5
55	65
22	30
50	65
30	33
43	60
30	33
28	35
30	30
23	23
1000	1050
550	700
330	380
250	270
150	200
90	120
87	96
70	100
3	5
10	15
20	25
25	30
40	50
50	60
1.05	
79×106×119	
1.3	
79×106×146.4	
<b>2a2b</b>	
UA-1	
UA-2, UA-4	



100AF		
MC-75a	MC-85a	MC-100a
●	●	●
●	●	●
3pole		
1000V		
1000V		
50/60Hz		
8kV		
1200 operations per hour		
12 mil. operations		
2 mil. operations		1 mil. operations
125	135	160
22	25	30
75	85	105
37	45	55
75	85	105
37	45	55
64	75	85
37	45	55
42	45	65
37	37	37
28	28	28
1100	1200	1320
750	800	900
400	450	500
300	350	400
220	270	270
140	170	180
114	150	160
110	135	160
5	7.5	10
15	15	20
25	30	30
30	40	40
50	60	75
60	75	75
	3	
	1.93	
	94×140×135.8	
	2.8	
	94×140×172.3	
	<b>2a2b</b>	
	UA-1	
	UA-2, UA-4	



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



MT-63/ □
●
690V
690V
6kV
10A, 20
4~65A
0.31/0.33
55×81×100



MT-95/ □
●
690V
690V
6kV
10A, 20
7~100A
0.48/0.5
70×97×110

# Table of specifications

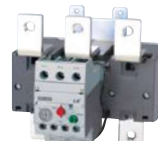
Metasol

## MC type Magnetic contactors



Frame size			150AF		225AF		400AF			
Type			MC-130a	MC-150a	MC-185a	MC-225a	MC-265a	MC-330a	MC-400a	
	screws clamp terminals		●	●	●	●	●	●	●	
	Lug clamp terminals		●	●	●	●				
Number of poles			3pole		3pole		3pole			
Rated operational voltage, Ue			1000V		1000V		1000V			
Rated insulation voltage, Ui			1000V		1000V		1000V			
Rated frequency			50/60Hz		50/60Hz		50/60Hz			
Rated impulse withstand voltage, Uimp			8kV		8kV		8kV			
Maximum operating rate in operating cycles per hour(AC3)			1200 operations per hour		1200 operations per hour		1200 operations per hour			
Durability	Mechanical		5 mil. operations		5 mil. operations		5 mil. operations	2.5 mil. operations		
	Electrical		1 mil. operations		1 mil. operations		1 mil. operations	0.5 mil. operations		
Current and power	AC-1, Thermal current	A	200	250	300	350	400	500	520	
	AC-3 200/240V	kW	37	45	55	75	80	90	125	
		A	130	150	185	225	265	330	400	
	380/440V	kW	60	75	90	132	147	160	200	
		A	130	150	185	225	265	330	400	
	500/550V	kW	60	70	110	132	147	160	225	
		A	90	100	180	200	225	280	350	
	690V	kW	55	55	110	140	160	200	250	
		A	60	60	120	150	185	220	300	
	1000V	kW	75	75	132	132	147	147	147	
A		50	50	90	90	105	105	105		
Rated Short-time withstand current (IEC 60947)	1s	A	1350	1800	2000	2500	3500	4000	4600	
	10s	A	950	1200	1500	1700	2400	3000	4400	
	30s	A	700	800	1000	1200	1500	2500	2974	
	1min	A	550	600	800	1000	1100	1700	1846	
	3min	A	350	450	520	700	800	1000	1313	
	10min	A	200	300	350	500	600	620	760	
UL rating (50/60Hz)	Continuous current	Single phase 110~120V	HP	200	250	300	350	400	500	520
		220~240V	HP	10	15	15	15	-	-	-
		200~208V	HP	20	25	30	40	-	-	-
	Three phase 220~240V	HP	40	40	60	60	75	100	125	
		HP	40	50	60	75	100	100	150	
	440~480V	HP	75	100	125	150	200	200	300	
		HP	75	75	125	150	200	200	300	
NEMA size				4						
Size and weight	AC control	Weight	2.4		5.4		9.2			
	DC control	Size(W×H×D)	119×158×130.3		138×203×185.1		163×243×204.4			
Auxiliary(standard)	DC control	Weight								
	DC control	Size(W×H×D)								
Auxiliary	Side mount		<b>2a2b</b>		<b>2a2b</b>		<b>2a2b</b>			
	Front mount		UA-1 UA-2, UA-4		AU-100, AU-100E (Max.4a4b) -		AU-100, AU-100E (Max.4a4b) -			

## MT type Thermal Overload Relays



Type			MT150/□	MT225/□	MT400/□
Type			●	●	●
	screws clamp terminals		●	●	●
	Lug clamp terminals		●	●	
Rated operational voltage, Ue			690V	690V	690V
Rated insulation voltage, Ui			690V	690V	690V
Rated impulse withstand voltage, Uimp			6kV	6kV	6kV
Trip class			10A, 20	10A, 20	10A, 20
Setting range			34~150A	65~240A	85~400A
Size and weight	Weight	kg	0.67	2.5	2.6
	Size(W×H×D)	mm	95×109×113	147×141×184	151×171×198

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



800AF		
MC-500a	MC-630a	MC-800a
●	●	●
3pole		
1000V		
1000V		
50/60Hz		
8kV		
1200 operations per hour		
2.5 mil. operations		
0.5 mil. operations		
700	900	1050
147	190	220
500	630	800
265	330	440
500	630	800
265	330	500
400	500	720
300	400	500
380	420	630
280	280	280
220	220	220
6000	7000	7500
5050	6400	7000
4400	4500	4900
3400	3500	3800
2000	2200	2500
1400	1550	1550
1100	1300	1300
700	900	1050
-	-	-
-	-	-
150	200	200
200	250	300
400	500	600
400	500	600
6		7

22.4  
285 × 312 × 245.3

2a2b
AU-100, AU-100E (Max.4a4b)
-



MT-800/□
●
690V
690V
6kV
10A, 20
200-800A
11.5
360 × 530 × 212

1260AF
MC-1260a
●
3pole
1000V
1000V
50/60Hz
8kV
300 operations per hour
0.5 mil. operations
0.05 mil. operations
1260
-
-
-
-
-
-
-
-
-
-
-
-
-
8000
7200
5200
4000
2300
3000
1500
1260
-
-

23.5  
285 × 352 × 246

2a2b
AU-100, AU-100E (Max.4a4b)
-

2650AF			
MC-1400a	MC-1700a	MC-2100a	MC-2650a
●	●	●	●
3pole			
1000V			
1000V			
50/60Hz			
8kV			
300 operations per hour			
0.5 mil. operations		0.3 mil. operations	
0.05 mil. operations		0.02 mil. operations	
1400	1700	2100	2650
290	310	-	-
860	1050	-	-
550	700	900	-
860	1050	1450	-
-	-	-	-
-	-	-	-
800	1000	-	-
800	950	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
8000	10000	10000	-
-	-	-	-
4500	5500	5500	-
-	-	-	-
2600	3000	3000	-
-	-	-	-
1400	1700	2100	2650
-	-	-	-
-	-	-	-

33.8  
431 × 380 × 246

47  
431 × 392 × 246

2a2b
AU-100, AU-100E (Max.4a4b)
-

# Table of specifications

Metasol

## MC type Magnetic contactors (4pole)



Frame size			
Type	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		
	Electrical		
Current and Power	AC-1	Thermal current	A
		200/240V	kW
		380/400V	kW
			A
		500/550V	kW
		690V	kW
UL rating (50/60Hz)	Continuous current		A
		Single	110~120V HP
	Phase	220~240V	HP
		200~208V	HP
	Three Phase	220~240V	HP
		440~480V	HP
		550~600V	HP
	Size and weight	AC Control	Weight
Size(W×H×D)			mm
DC Control		Weight	kg
		Size(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	40
9	9	9	15
25	25	25	40
17	17	17	27
25	25	25	40
21	21	21	35
25	25	25	40
27	27	27	44
25	25	25	40
25	25	25	32
0,5	0,5	0,75	1
1,5	1,5	2	3
2	2	3	7,5
3	3	5	7,5
5	5	7,5	10
7,5	7,5	10	15
0,33			
45 × 73,5 × 80,4			
0,4			
45 × 73,5 × 96,6			
-			
UA-1			
UA-2, UA-4			



22AF
MC-22a/4
•
4pole
690V
690V
50/60Hz
6kV
1800 operations
15 mil. Operations
1 mil. Operations
40
15
40
27
40
35
40
44
40
32
2
3
7.5
7.5
10
15
0.4
47.2×80×86.8
0.5
47.2×80×113.2
-
AU-1
UA-2, UA-4

40AF	
MC-32a/4	MC-40a/4
•	
4pole	
690V	
690V	
50/60Hz	
6kV	
1800 operations per hour	
15 mil. Operations	
1 mil. Operations	
50	60
18	22
50	60
35	42
50	60
43	52
50	60
55	66
50	60
45	50
2	3
5	5
7.5	10
10	10
20	25
20	25
0.59	
59×83.5×94.6	
0.7	
59×83.5×121	
-	
AU-1	
UA-2, UA-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			
80	100	110	135
30	37	41	51
80	100	110	135
56	70	76	95
80	100	110	135
70	88	97	120
80	100	110	135
88	110	120	150
80	100	110	135
70	80	90	100
3	5	5	7.5
7.5	10	15	15
10	15	20	25
15	20	25	30
30	40	50	50
30	40	50	50
1.2			
91×123.5×117.8			
1.29			
91×123.5×117.8			
-			
AU-1			
UA-2, UA-4			

# Table of specifications

Metasol

## MC type Magnetic contactors (4pole)



Frame size			
Type	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		
Current and Power	Electrical		
Current and Power	AC-1	Thermal current	A
		200/240V	kW
		380/400V	kW
			A
		500/550V	kW
		690V	kW
UL rating (50/60Hz)	Continuous current		A
	Single Phase	110~120V	HP
		220~240V	HP
	Three Phase	200~208V	HP
		220~240V	HP
Phase	440~480V	HP	
	550~600V	HP	
Size and weight	AC Control	Weight	kg
		Size(W×H×D)	mm
	DC Control	Weight	kg
		Size(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					
200	250	275	300	350	
57	60	76	87	100	
200	250	275	300	350	
106	110	142	165	185	
200	250	275	300	350	
132	137	180	205	230	
200	250	275	300	350	
165	170	225	255	290	
200	250	275	300	350	
200	250	275	300	350	
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	
5.6					
175×203×185					
2NO2NC					
AU-100, AU-100E					
-					



MS-500a, MS-630a, MS-800a

MS-185a, MS-225a  
MS-265a, MS-330a, MS-400a



**225AF**

**Contactor**  
**MC-185a, 225a**  
Rated current:  
185, 225A  
Rated insulation voltage:  
1000V  
**Overload relay MT-225**  
Current range: 65~240A  
Trip class: Class10A, 20

**400AF**

**Contactor**  
**MC-265a, 330a, 400a**  
Rated current:  
265, 330, 400A  
Rated insulation voltage:  
1000V  
**Overload relay MT-400**  
Current range: 85~400A  
Trip class: Class10A, 20

**800AF**

**Contactor**  
**MC-500a, 630a, 800a**  
Rated current:  
500, 630, 800A  
Rated insulation voltage:  
1000V  
**Overload relay MT-800**  
Current range: 200~800A  
Trip class: Class10A, 20

**1260AF**

**Contactor**  
**MC-1260a**  
Rated current:  
1260A  
Rated insulation voltage:  
1000V

**2650AF**

**Contactor**  
**MC-1400a, 1700a, 2100a, 2650a**  
Rated current:  
1400, 1700, 2100, 2650A  
Rated insulation voltage:  
1000V

# Type numbering system

## Contactors

<b>MC-6a</b>	/	<b>R</b>	/	<b>220V</b>	<b>60Hz</b>	<b>SCREW</b>	<b>1NO1NC</b>
<b>Rated current</b>		<b>Version</b>		<b>Coil voltage</b>	<b>Frequency</b>		<b>Auxiliary contact</b>
6a 6A		- Standard		AC 220V	60Hz	None	None
⋮		R Reversing		⋮	50Hz	SCREW	1NO1NC(1a1b)
2650a 2650A		4 4pole		DC 24V		LUG	2NO2NC(2a2b)
9b 9A							1NO(1a)
⋮							1NC(1b)
22b 22A							

(Note) See page 22, 23 for details.

## Starters


<b>MS-6a</b>	/	<b>R</b>	<b>2H</b>	/	<b>220V</b>	<b>60Hz</b>	<b>1NO1NC</b>	/	<b>0.1</b>
<b>Rated current</b>		<b>Contactor version</b>	<b>Relay version</b>		<b>Coil voltage</b>	<b>Frequency</b>	<b>Auxiliary contact</b>		<b>Relay setting current</b>
6a 6A		- Standard	2H Non-differential (2-heater)		AC 220V	60Hz	None	0,1 0,1A	
⋮		R Reversing	3H Non-differential (3-heater)		⋮	50Hz	1NO1NC(1a1b)	⋮	
800a 800A			3K Differential		DC 24V		2NO2NC(2a2b)	⋮	
9b 9A			3D Class 20				1NO(1a)	800 800A	
⋮							1NC(1b)		
22b 22A									

(Note) See page 22, 23 for details.

## Thermal Overload Relay

<b>MT-12</b>	/	<b>2H</b>	<b>0.1</b>
<b>Rated current</b>		<b>Relay version</b>	<b>Relay setting current</b>
12 12AF		2H Non-differential (2-heater)	0,1 0,1A
32 32AF		⋮	⋮
63 63AF		3H Non-differential (3-heater)	⋮
95 95AF		⋮	800 800A
⋮		3K Differential	
800 800AF		3D Class 20	

## Contactor relays

<b>MR</b>	/	<b>4</b>
		<b>Poles</b>
		4 4 Pole
		6 6 Pole
		8 8 Pole

## Optional Accessories

### Auxiliary contact unit

**UA1**

#### Version

UA-1	
AU-100	Side mount
AU-100E	
UA-2	Front mount(2P)
UA-4	Front mount(4P)

Note) UA-2: 2NO, 1NO1NC, 2NC  
 UA-4: 4NO, 3NO1NC, 4NC,  
 2NO2NC, 1NO3NC,

**11**

#### Contact composition

11	1NO+1NC
20	2NO
02	2NC
40	4NO
31	3NO+1NC
22	2NO+2NC
13	1NO+3NC
04	4NC

### Surge absorber

**US11**

#### Composition and voltage

1	Varistor+RC	AC 24~48V
2	Varistor+RC	AC 100~125V
3	Varistor+RC	AC 200~240V
4	Varistor+RC	DC 24~48V
5	Varistor+RC	DC 100~125V
6	Varistor+RC	DC 200~220V
11	Varistor	AC/DC 24~48V
12	Varistor	AC/DC 100~125V
13	Varistor	AC/DC 200~240V
14	Varistor	AC/DC 380~440V
22	RC	AC 100~125V

Note) See page 82 for details.

### Interlock unit

**UR02**

#### Contact composition

02	2NC
00	None

### Wire kit for Interlocking

**UW32**

#### Rated current

18	18AF
22	22AF
32	40AF
63	65AF
95	100AF

### Separate mounting unit (For relay)

**UZ32**

#### Rated current

12	12AF
32	32AF
63	63AF
95	95AF
150	150AF

### Remote reset unit (For relay)

**UM**

#### Cable length

4R	400
5R	500
6R	600