Metasol Meta Solution

MC/TOR

Contactors and Overload Relays

LSIS

Metasol Contactors and overload relays

New generation of Contactors from LSIS

Metasol Contactors

■ Designed to show superior technology: The Metasol series

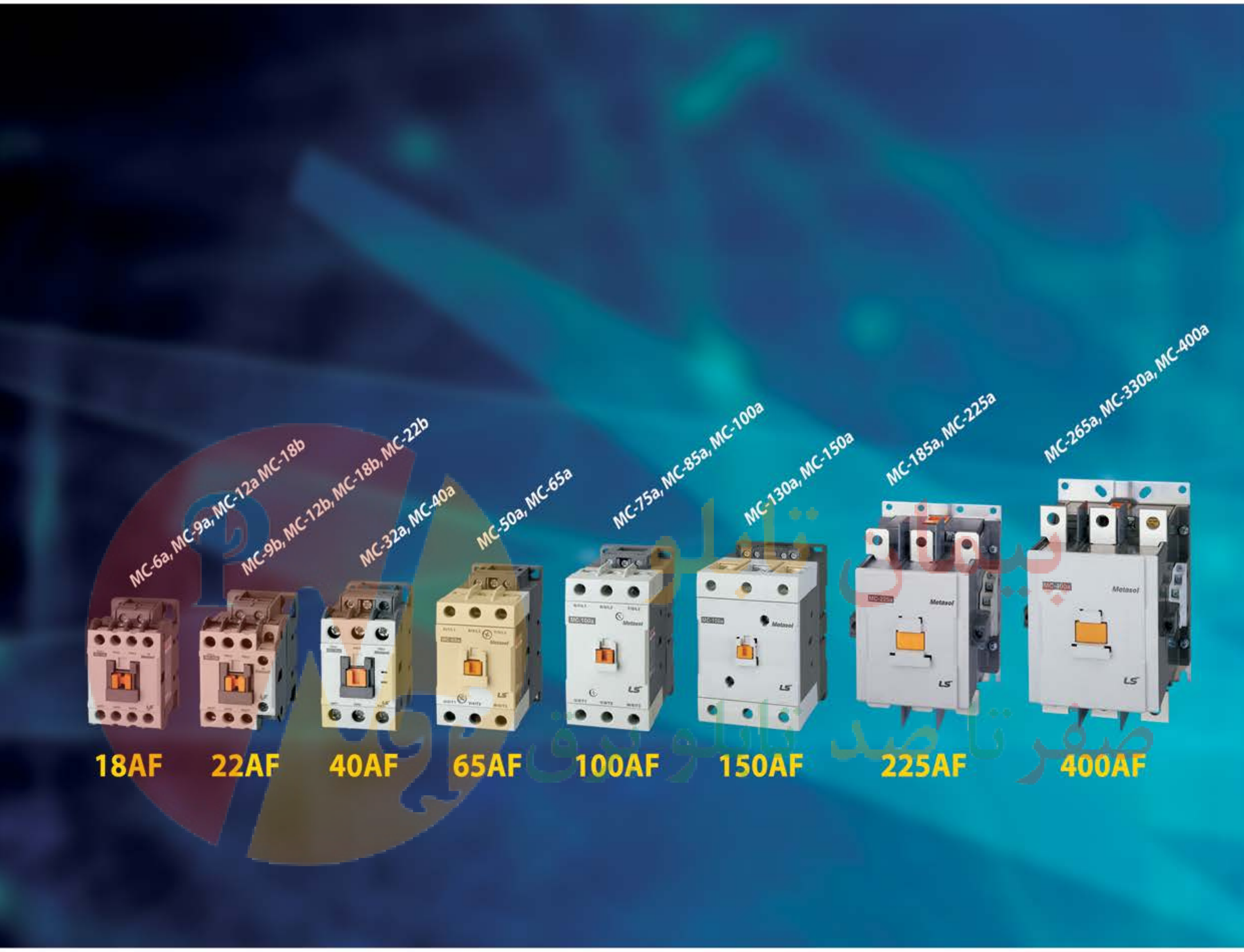
Sealed structure has improved its safety features so that no arc flash is exposed. In order to emphasize its durability as an industrial device, Metasol series adopt simple design form and sophisticated shape applying diamond cut concepts on product surface.

LSIS META SOLUTION CONTACTORS

Contents:

>>>

Metasol Series completion



More Safe,
More Valuable

Contactors & Overload Relays

- *Advanced technology & Expert solution*
- *Offering economical solution with compact size & easy connection*
- *Ensure reliability in the system: Type II Coordination*
- *Perfect system with peripheral devices.*
- *Environment friendly product: complies with International environment standard RoHS.*
- *25Models in 9 Frames*
- *Ready for IE3*

Motor Starters

- *Compact design for space saving*
- *DIN rail and screw mountable (upto 150AF)*
- *Overload relays directly mountable to contactors separately*
- *Finger-proof design*
- *Easy to combine with manual motor starters*
- *Broad range of accessories*
- *World class products conforming to IEC and UL standards*

18AF	22AF	40AF	65AF	100AF	150AF
Contactor	**Contactor**	**Contactor**	**Contactor**	**Contactor**	**Contactor**
MC-6a, 9a, 12a, 18a	**MC-9b, 12b, 18b, 22b**	**MC-32a, 40a**	**MC-50a, 65a**	**MC-75a, 85a, 100a**	**MC-130a, 150a**
Rated current: 6, 9, 12, 18A	Rated current: 9, 12, 18, 22A	Rated current: 32, 40A	Rated current: 50, 65A	Rated current: 75, 85, 100A	Rated current: 130, 150A
Rated insulation voltage: 690V	Rated insulation voltage: 690V	Rated insulation voltage: 1000V	Rated insulation voltage: 1000V	Rated insulation voltage: 1000V	Rated insulation voltage: 1000V
Overload relay MT-12	**Overload relay MT-32**	**Overload relay MT-32**	**Overload relay MT-63**	**Overload relay MT-95**	**Overload relay MT-150**
Current range: 0.1~18A	Current range: 0.1~40A	Current range: 0.1~40A	Current range: 4~65A	Current range: 7~100A	Current range: 34~150A
Trip class: Class10A, 20	Trip class: Class10A, 20	Trip class: Class10A, 20	Trip class: Class10A, 20	Trip class: Class10A, 20	Trip class: Class10A, 20

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

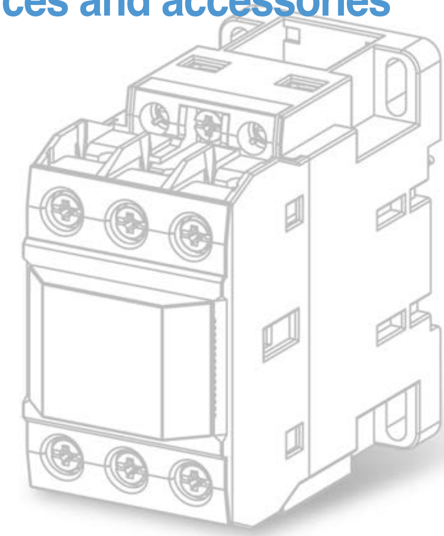
Contactor
MC-1400a, 1700a, 2100a, 2650a
Rated current:
1400, 1700, 2100, 2650A
Rated insulation voltage:
1000V

MC/TOR Accessories

Perfect combination of peripheral devices and various accessories

Offering economical solution with compact size & easy connection

Perfect system with other devices and accessories



■ One-touch connection

- Din Rail connection without any special tools
- Direct combine a surge unit

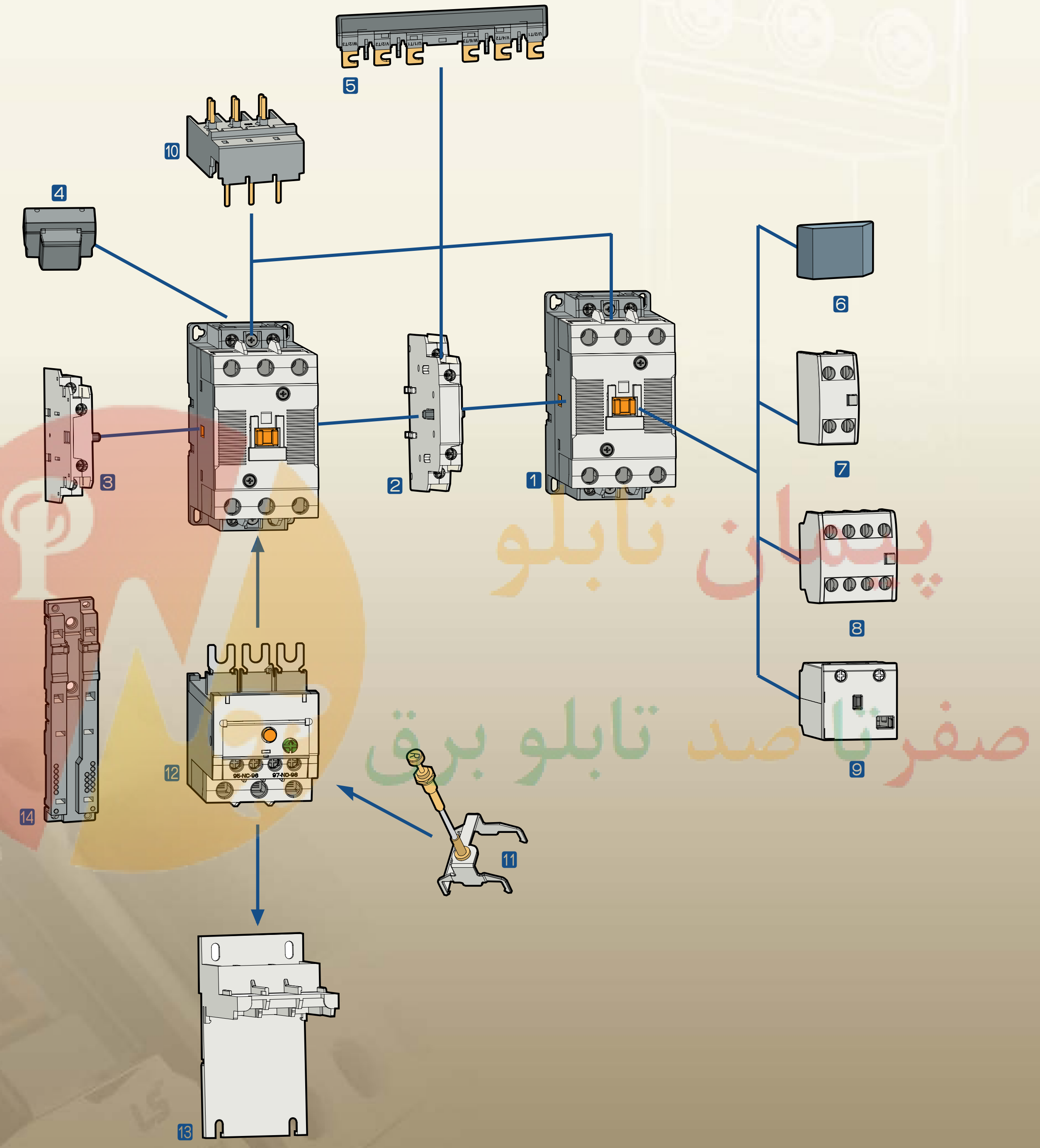
■ Simple wiring

- Mounting unit, Adapter
- Reversing wire set

■ Easy maintenance

- 4-terminal type: Easy wiring of operation coil
- Module type of screw terminal
- Interlock unit with built-in auxiliary contacts(2NO built-in)

Advanced accessories for Metasol contactors



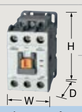
1 Contactor
2 Interlock unit
3 Auxiliary contact unit
- side mount
4 Surge unit
5 Wire kit

6 Safety cover (Option)
7 Auxiliary contact unit
- front mount(2p)
8 Auxiliary contact unit
- front mount(4p)
9 Mechanical latch unit

10 Direct adaptor to MMS
11 Remote reset unit
12 Overload relay
13 Separate mounting unit
14 Mounting unit for use with MMS

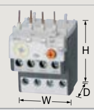
Table of specifications

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
	Three phase	200~208V	HP	2	2	3	7.5	2	3	7.5	7.5
		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	kg	0.33				0.34			
		Size(W×H×D)	mm	45×73.5×80.4				45×73.5×87.4			
	DC control	Weight	kg	0.4				0.41			
		Size(W×H×D)	mm	45×73.5×96.6				45×73.5×103.6			
Auxiliary(standard)				1a or 1b				1a1b			
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		65AF		100AF		
MC-32a	MC-40a	MC-50a	MC-65a	MC-75a	MC-85a	MC-100a
●	●	●	●	●	●	●
		●	●	●	●	●
3pole		3pole		3pole		
1000V		1000V		1000V		
1000V		1000V		1000V		
50/60Hz		50/60Hz		50/60Hz		
8kV		8kV		8kV		
1800 operations per hour		1200 operations per hour		1200 operations per hour		
12 mil. operations		12 mil. operations		12 mil. operations		
2 mil. operations		2 mil. operations		2 mil. operations		1 mil. operations
55	60	100	115	125	135	160
7.5	11	15	18.5	22	25	30
32	40	55	65	75	85	105
15	18.5	22	30	37	45	55
32	40	50	65	75	85	105
18.5	22	30	33	37	45	55
28	32	43	60	64	75	85
18.5	22	30	33	37	45	55
20	23	28	35	42	45	65
22	22	30	30	37	37	37
17	17	23	23	28	28	28
600	700	1000	1050	1100	1200	1320
260	300	550	700	750	800	900
160	190	330	380	400	450	500
100	120	250	270	300	350	400
70	80	150	200	220	270	270
55	65	90	120	140	170	180
50	60	87	96	114	150	160
50	60	70	100	110	135	160
2	3	3	5	5	7.5	10
5	7.5	10	15	15	15	20
7.5	15	20	25	25	30	30
10	15	25	30	30	40	40
20	30	40	50	50	60	75
25	30	50	60	60	75	75
1P	2			3		
0.55		1.05		1.93		
69×83×90		79×106×119		94×140×135.8		
0.77		1.3		2.8		
69×83×117.1		79×106×146.4		94×140×172.3		
2a2b		**2a2b**		**2a2b**		
UA-1		UA-1		UA-1		
UA-2, UA-4		UA-2, UA-4		UA-2, UA-4		



MT-32/□	MT-63/□	MT-95/□
●	●	●
	●	●
690V	690V	690V
690V	690V	690V
6kV	6kV	6kV
10A, 20	10A, 20	10A, 20
0.1~40A	4~65A	7~100A
0.17	0.31/0.33	0.48/0.5
45×75×90	55×81×100	70×97×110

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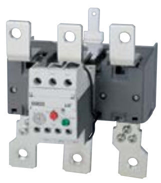
MC type
Magnetic contactors

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
		≥15min	A	175	280	320	400	500	553	699
UL rating (50/60Hz)	Continuous current		A	200	250	300	350	400	500	520
	Single phase	110~120V	HP	10	15	15	15	-	-	-
		220~240V	HP	20	25	30	40	-	-	-
	Three phase	200~208V	HP	40	40	60	60	75	100	125
		220~240V	HP	40	50	60	75	100	100	150
		440~480V	HP	75	100	125	150	200	200	300
		550~600V	HP	75	75	125	150	200	200	300
	NEMA size				4			5		
Size and weight	AC control	Weight	kg							
		Size(W×H×D)	mm	2.4		5.4		9.2		
	DC control	Weight	kg	119×158×130.3		138×203×185.1		163×243×204.4		
		Size(W×H×D)	mm							
Auxiliary(standard)				2a2b		2a2b		2a2b		
Auxiliary	Side mount			UA-1		AU-100, AU-100E (Max.4a4b)		AU-100, AU-100E (Max.4a4b)		
	Front mount			UA-2, UA-4		-		-		

MT type
Thermal Overload Relays



Type			MT150/□	MT225/□	MT400/□
	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)		
-		

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)
-

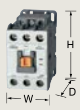
2650AF

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			47
431×380×246			431×392×246
2a2b			
AU-100, AU-100E (Max.4a4b)			
-			

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

Table of specifications

MC type
Magnetic contactors (4pole)

Frame size				18AF			
Type				MC-6a/4	MC-9a/4	MC-12a/4	MC-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		Thermal current	A	25	25	25	40
and	AC-1	200/240V	kW	9	9	9	15
Power			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	Continuous current		A	25	25	25	32
(50/60Hz)	Single	110~120V	HP	0.5	0.5	0.75	1
	Phase	220~240V	HP	1.5	1.5	2	3
		200~208V	HP	2	2	3	7.5
	Three	220~240V	HP	3	3	5	7.5
	Phase	440~480V	HP	5	5	7.5	10
		550~600V	HP	7.5	7.5	10	15
Size 	AC	Weight	kg	0.33			
and	Control	Size(W×H×D)	mm	45×73.5× 80.4			
weight	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			
MC-22a/4	MC-32a/4	MC-40a/4	MC-50a/4	MC-65a/4	MC-75a/4	MC-85a/4
●	●		●			
4pole	4pole		4pole			
690V	690V		690V			
690V	690V		1000V			
50/60Hz	50/60Hz		50/60Hz			
6kV	6kV		8kV			
1800 operations	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	59×83.5×94.6		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			

Table of specifications

MC type
Magnetic contactors (4pole)

Frame size				225AF				
Type				MC-100a/4	MC-130a/4	MC-150a/4	MC-185a/4	MC-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		Thermal current	A	200	250	275	300	350
and	AC-1	200/240V	kW	57	60	76	87	100
Power			A	200	250	275	300	350
		380/400V	kW	106	110	142	165	185
			A	200	250	275	300	350
		500/550V	kW	132	137	180	205	230
			A	200	250	275	300	350
		690V	kW	165	170	225	255	290
			A	200	250	275	300	350
UL rating	Continuous current		A	200	250	275	300	350
(50/60Hz)	Single	110~120V	HP	7.5	10	15	15	15
	Phase	220~240V	HP	15	20	25	30	40
		200~208V	HP	30	40	40	60	60
	Three	220~240V	HP	30	40	50	60	75
	Phase	440~480V	HP	60	75	100	125	150
		550~600V	HP	60	75	100	125	150
Size 	AC	Weight	kg					
and	Control	Size(W×H×D)	mm	5.6				
weight	DC	Weight	kg	175×203×185				
	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		
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		
400	500	520
115	135	160
400	500	520
215	250	300
400	500	520
265	315	375
400	500	520
335	390	470
400	500	520
400	500	520
-	-	-
-	-	-
75	100	125
100	100	150
200	200	300
200	200	300
9.9		
206×243×205		

2NO2NC
AU-100, AU-100E
-

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		
700	900	1050
245	255	310
700	900	1050
450	470	570
700	900	1050
560	590	710
700	900	1050
710	740	900
700	900	1050
700	900	1050
-	-	-
-	-	-
150	200	200
200	250	300
400	500	600 *
400	500	600 **
26.3		
346×310 ×244		

2NO2NC
AU-100, AU-100E
-

Type numbering system

Contactors

MC-6a / **R** / **220V** **60Hz** **SCREW** **1NO1NC**

Rated current

6a	6A
⋮	
2650a	2650A
9b	9A
⋮	
22b	22A

Version

-	Standard
R	Reversing
4	4pole

Coil voltage

AC 220V
⋮
DC 24V

Note) See page 22, 23 for details.

Frequency

60Hz
50Hz

Terminal (no heading printed)

None
SCREW
LUG

Auxiliary contact

None
1NO1NC(1a1b)
2NO2NC(2a2b)
1NO(1a)
1NC(1b)

Starters

MS-6a / **R** **2H** / **220V** **60Hz** **1NO1NC** / **0.1**

Rated current

6a	6A
⋮	
800a	800A
9b	9A
⋮	
22b	22A

Contactor version

-	Standard
R	Reversing

Relay version

2H	Non-differential (2-heater)
3H	Non-differential (3-heater)
3K	Differential
3D	Class 20

Coil voltage

AC 220V
⋮
DC 24V

Note) See page 22, 23 for details.

Frequency

60Hz
50Hz

Auxiliary contact

None
1NO1NC(1a1b)
2NO2NC(2a2b)
1NO(1a)
1NC(1b)

Relay setting current

0.1	0.1A
⋮	
800	800A

Thermal Overload Relay

MT-12 / **2H** **0.1**

Rated current

12	12AF
32	32AF
63	63AF
95	95AF
⋮	
800	800AF

Relay version

2H	Non-differential (2-heater)
3H	Non-differential (3-heater)
3K	Differential
3D	Class 20

Relay setting current

0.1	0.1A
⋮	
800	800A

Contactor relays

MR / **4**

Poles

4	4 Pole
6	6 Pole
8	8 Pole

Optional Accessories

Auxiliary contact unit

UA1 | 11

Version	
UA-1	Side mount
AU-100	
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,

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)

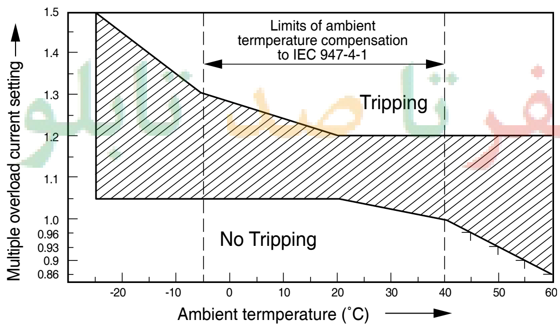
UM

Cable length	
4R	400
5R	500
6R	600

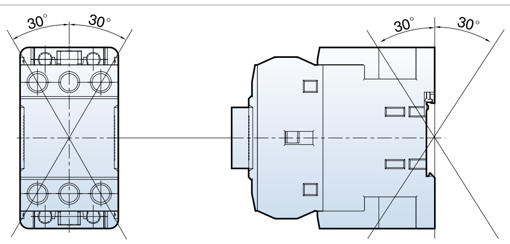
Environment

Environment

Standards	IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, K60947
Certifications	CE, UL, CCC
Rated insulation voltage (Ui)	1000V (6A~22A: 690V, 32A~800A: 1000V)
Rated impulse withstand voltage (Uimp)	8kV (6A~22A: 6kV, 32A~800A: 8kV)
Degree of protection	IP20 (Conforming to IEC60529)
Ambient air temperature	Storage: -30˚C ~ +65˚C
	Operation: -5˚C ~ +55˚C (AC Type)
	-5˚C ~ +40˚C (MT, DC Type)
	-25˚C ~ +60˚C (MT refer to Graph)



Operating altitude	3000m (8900ft)
Operating positions	



Shock resistance	Opened: 8G(MC-2650a : 5G)
(1/2 sine wave =11ms)	Closed: 10G(MC-2650a : 5G)
Vibration resistance (Conforming to IEC68-2-6)	Opened: 2G(MC-2650a : 1G)
(5...300 Hz)	Closed: 4G(MC-2650a : 1G)
Flame resistance	Conforming to UL 94: V0
	Conforming to IEC 695-2-1: 960˚C

Connections

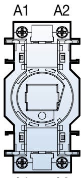
Connections

Frame	Main Terminal Size	Wire type (AWG / mm²)			mm(max)	Torque [lb-in]	Torque [Nm]	Torque [kgf·cm]
MC-6a/9a	M3.5	18~10 / 1~6	18~10 / 1~6	18~10 / 1~6	8.3	10	1.13	12
MC-12a		16~10 / 1.5~10	16~10 / 1.5~10	16~10 / 1.5~10				
MC-18a		16~8 / 1.5~10	16~8 / 1.5~10	16~8 / 1.5~10				
MC-9b	M4	18~10 / 1~6	18~10 / 1~6	18~10 / 1~6	9.6	20	2.25	23
MC-12b		18~10 / 1~6	16~10 / 1~6	16~10 / 1~6				
MC-18b		18~10 / 1~6	16~8 / 1.5~10	16~8 / 1.5~10				
MC-22b		18~10 / 1~6	14~8 / 2.5~10	14~8 / 2.5~10				
MC-32a	M5	18~10 / 1~6	12~8 / 2.5~10	12~8 / 2.5~10	12.8	35	4	41
MC-40a		18~10 / 1~6	8~6 / 10~16	8~6 / 10~16				
MC-50a	M6	-	10~4 / 6~25	10~4 / 6~25	14	35	4	41
MC-65a		-	8~3 / 10~35	8~3 / 10~35				
MC-75a	M8	-	8~2 / 10~35	8~2 / 10~35	17	45	5.1	52
MC-85a		-	8~1/0 / 10~50	8~1/0 / 10~50				
MC-100a		-	8~2/0 / 10~70	8~2/0 / 10~70				
MC-130a	M8	-	3~2/0 / 35~70	3~2/0 / 35~70	24.5	80	9.1	93
MC-150a		-	3~4/0 / 35~95	3~4/0 / 35~95				
MC-6~150a Aux./Coil	M4	20~14 / 0.5~2.5	18~12 / 0.75~2.5	18~12 / 0.75~2.5	7.6	10	1.13	12
MC-185a	M10	-	1~4/0 / 50~95	1~4/0 / 50~95	25	130	14.7	150
MC-225a		-	1/0~300 / 50~150	1/0~300 / 50~150				
MC-265a	M12	-	3/0~500 / 95~240	3/0~500 / 95~240	30	200	22.6	230
MC-330a		-	4/0~500 / 95~240	4/0~500 / 95~240				
MC-400a		-	350~700 / 185~185×2	350~700 / 185~185×2				
MC-500a	M16	-	350~800 / 185~240×2	350~800 / 185~240×2	40	500	56.5	576
MC-630a		-	600~2000	-				
MC-800a		-	1700~Busbar	-				
MC-185~800a Aux/Coil	M4	16~10 / 1.25~5.5	16~10 / 1.25~5.5	16~10 / 1.25~5.5	7.6	15	1.75	18
MC-1260a	M12	-	5mm×100mm×2ea	-	-	200	22.6	230
MC-1400a	M12	-	5mm×100mm×2ea	-	-	200	22.6	230
MC-1700a			5mm×100mm×3ea					
MC-2100a			5mm×100mm×4ea					
MC-2650a			10mm×100mm×3ea					

Control coil characteristics (3pole)

Frame size		18AF	22AF	40AF	65AF	100AF	150AF(A)
Type		MC-6a MC-9a MC-12a MC-18a MR-4, 6, 8	MC-9b MC-12b MC-18b MC-22b	MC-32a MC-40a	MC-50a MC-65a MD-30a	MC-75a MC-85a MC-100a MD-60a MD-100a	MC-130a MC-150a
AC coil							
Control voltage	[Uc]						48, 110~120, 220~240, 300, 380~440, 500V
50Hz	[V]	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V					
60Hz	[V]	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V					
Voltage limit	[Uc]	85 ~110%					
Coil consumption at 20°C							
AC 220V Inrush	[VA]	70	70	90	110	240	110
60Hz Holding	[VA]	9	9	9	13	17	18
Heat dissipation	[W]	2.3	2.3	2.7	2.8	5.4	2.7
Operating time							
Closing	[ms]	15 ... 30	15 ... 30	15 ... 30	15 ... 30	15 ... 30	20 ... 40
Opening	[ms]	4 ... 19	4 ... 19	4 ... 19	4 ... 19	10 ... 30	50 ... 70
DC coil							
Control voltage	[Uc]	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V					24, 48, 70~110, 110, 220V
Voltage limit	[Uc]	85~110%					
Coil consumption at 20°C							
DC 110V Inrush	[W]	6	6	9	9	18	213
Holding	[W]	6	6	9	9	18	7.5
Time constant (L/R)	[ms]	28	28	28	65	75	
Operating time							
Closing	[ms]	40 ... 60	40 ... 60	50 ... 65	50 ... 65	100 ... 120	70 ... 80
Opening	[ms]	4 ... 19	4 ... 19	4 ... 19	4 ... 19	10 ... 25	60 ... 70

Note) Either semi-electronic coil(A) or electronic coil(B) can be chosen for MC-130a and MC-150a



Note) A1(A2) in line side is internally connected to A1(A2) in load side.

Frame size	150AF(B)	225AF	400AF	800AF	1260AF	2650AF
Type	MC-130a MC-150a	MC-185a MC-225a	MC-265a MC-330a MC-400a	MC-500a MC-630a MC-800a	MC-1260a	MC-1400a MC-1700a MC-2100a MC-2650a
AC/DC common coil						
Control voltage [Uc]						
AC/DC	AC 24	24/24	DC 24	-	-	-
AC/DC	24~48/24~48	48/48	-	100/100	-	-
AC/DC	100~240/100~220	100~240/100~220	100~240/100~220	200/200	100~240/100~220	100~240/100~220
AC	-	300	300	300	-	-
AC	-	400	400	400	-	-
AC	-	500	500	500	-	-
Voltage limit [Uc]	85~110% Note 1)					
Coil consumption at 20°C Note 2)						
AC 220V Inrush [VA]	320	380	571	1000	1500	2500
50/60Hz Holding [VA]	10	11.6	14	29	24	50
Heat dissipation [W]	4.5	4.7	5	7.8		8.7
Operating time						
Closing [ms]	70	70	55	75	75	80
Opening [ms]	70	70	55	75	75	70

Note) 1. Voltage limit for DC 24V coil is 75~110%.
2. Operating time for DC 24V coil is 90ms.
3. Either semi-electronic coil(A) or electronic coil(B) can be chosen for MC-130a and MC-150a
4. Please check the details page for each AF range

Control coil characteristics (4pole)

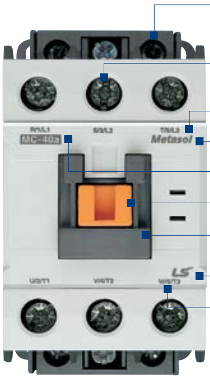


Frame size			18AF	22AF	40AF	85AF
Type			MC-6a/4P MC-9a/4P MC-12a/4P MC-18a/4P	MC-22a/4P	MC-32a/4P MC-40a/4P	MC-50a/4P MC-65a/4P MC-75a/4P MC-85a/4P
AC coil						
Control voltage		[Uc]				
	50Hz	[V]	24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550	24, 32, 42, 48, 65, 80, 100, 110, 220, 230, 240, 380, 400, 415, 500, 550, 240(wide)		24, 48, 100, 110, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550, 240(wide)
	60Hz	[V]	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600	24, 48, 110, 120, 208, 220, 240, 277, 380, 440, 480, 600		24, 48, 110, 120, 208, 220, 230, 240, 277, 380, 440, 480, 600
	50/60Hz	[V]	24, 48, 100, 110, 120, 200, 220, 230, 20, 380, 415, 440, 500, 550	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550		24, 48, 110, 120, 220, 230, 240, 380, 415, 440, 500, 550
Voltage limit			85~110%			
Coil consumption at 20°C						
AC 220V	Inrush	[VA]	70	95	95	220
60Hz	Holding	[VA]	9	9	9	17
Heat dissipation		[W]	2.3	2	2	5
Operating time	Closing	[ms]	15...30	10~17	10~17	16~25
	Opening	[ms]	4...9	6~9	6~9	8~15
DC coil						
Control voltage		[Uc]	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250			
Voltage limit			85~110%			
Coil consumption at 20°C						
DC 100V	Inrush	[W]	6	9	9	460
(18AF: DC110V)	Holding	[W]	6	9	9	6
Time constant (L/R)		[ms]	28	50	50	-
Operating time	Closing	[ms]	40...60	45~55	45~55	20~30
	Opening	[ms]	4...19	8~15	8~15	13~20

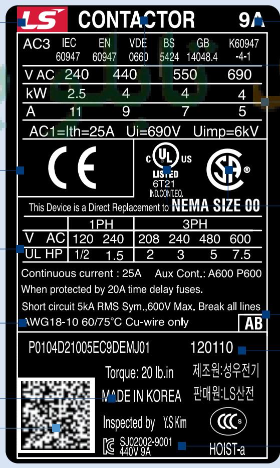
			
Frame size	**225AF**	**400AF**	**800AF**
Type	MC-100a/4P MC-130a/4P MC-150a/4P MC-185a/4P MC-225a/4P	MC-265a/4P MC-330a/4P MC-400a/4P	MC-500a/4P MC-630a/4P MC-800a/4P
AC/DC common coil			
Control voltage [Uc]			
[AC/DC]	24/24	24(DC Only)	-
[AC/DC]	48/48	-	100/100
[AC/DC]	100~240/100~220	100~240/100~220	200/200
[AC]	300	300	300
[AC]	400	400	400
[AC]	500	500	500
Voltage limit		85~110%[Noet1)]	
Coil consumption at 20°C			
AC 220V Inrush [VA]	380	571	1000
50/60Hz Holding [VA]	11.6	14	29
Heat dissipation [W]	4.7	5	7.8
Operating time Closing [ms]	70	55	75
Opening [ms]	70	55	75

Note) 1. Voltage limit for DC 24V coil is 75~110%.
2. Operating time for DC 24V coil is 90ms.

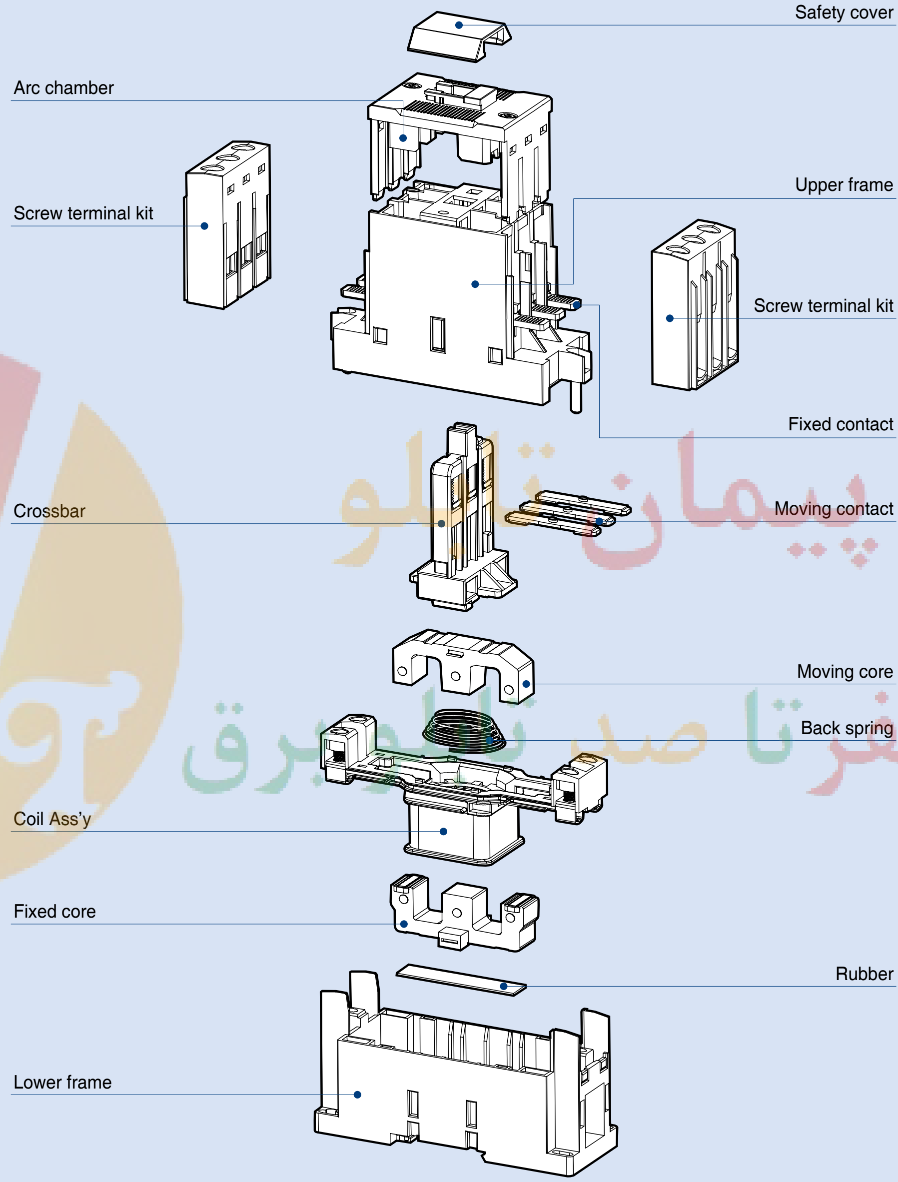
Marking


Coil terminal
Main terminal
Terminal numbering for line side
Brand
Type
Holder
Safety cover
Company logo
Terminal numbering for load side
MC-40a
Metasol


Upper frame
Lower frame
Fixing hole
DIN rail mounter
Name plate
Upper cover
Hole for side mounting accessory
Seat for surge unit connection


Company logo
CE marking
UL size
Wire size
Country of origin
Bar code
Type
Product name
Rating
UL, CSA rating
A, B : Metasol MC
S : Susol MC
Date of manufacture
Certification
(Domestic use only)
LS CONTACTOR 9A
AC3 IEC 60947 EN 60947 VDE 0660 BS 5424 GB 14048.4 K60947-4-1
V AC 240 440 550 690
kW 2.5 4 4 4
A 11 9 7 5
AC1=Ith=25A Ui=690V Uimp=6kV
LISTED 6T21 IND.CONT.EQ.
This Device is a Direct Replacement to NEMA SIZE 00
1PH 3PH
V AC 120 240 208 240 480 600
UL HP 1/2 1.5 2 3 5 7.5
Continuous current : 25A Aux Cont.: A600 P600
When protected by 20A time delay fuses.
Short circuit 5kA RMS Sym.,600V Max. Break all lines
AWG18-10 60/75°C Cu-wire only
AB
P0104D21005EC9DEMJ01 120110
Torque: 20 lb.in 제조원:성우전기
MADE IN KOREA 판매원:LS산전
Inspected by Y.S.Kim
SJ02002-9001 440V 9A
HOIST-a

Internal structure



Contactors (18AF)

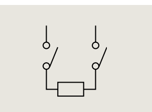
Description

- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 1NO or 1NC Auxiliary contact built-in as standard.
- Degree of protection: IP20

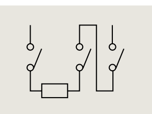
Rating

MC-18a

Contactor type			MC-6a		MC-9a		MC-12a		MC-18a	
			kW	A	kW	A	kW	A	kW	A
AC duty	AC3	200/240V	2.2	9	2.5	11	3.5	13	4.5	18
		380/440V	3	7	4	9	5.5	12	7.5	18
		500/550V	3	6	4	7	7.5	12	7.5	13
		690V	3	4	4	5	7.5	9	7.5	9
	AC4	200/240V	1.5	7	1.5	8	2.2	11	3.7	16
		380/440V	2.2	5	2.2	6	4	9	4	11
	AC1		-	25	-	25	-	25	-	32
DC1 duty	2-pole	24V	-	10	-	10	-	12	-	18
(L/R=1ms)	in series	48V	-	10	-	10	-	12	-	18
		110V	-	6	-	6	-	10	-	13
	3-pole	24V	-	10	-	10	-	12	-	18
	in series	48V	-	10	-	10	-	12	-	18
		110V	-	8	-	8	-	12	-	18
DC2, 4 duty	2-pole	24V	-	8	-	8	-	12	-	12
(L/R=15ms)	in series	48V	-	4	-	4	-	6	-	6
		110V	-	2.5	-	2.5	-	4	-	4
	3-pole	24V	-	8	-	8	-	12	-	12
	in series	48V	-	6	-	6	-	10	-	10
		110V	-	4	-	4	-	8	-	8
Directly mountable Overload relay			MT-12							
Conductor size (solid, stranded)		AWG	18~10		16~10		16~8		14~8	
(the max. number of conducts: 2)		mm²	1~4		1.5~4		1.5~10		2.5~10	
Conductor type			65/75℃ Cu-wire only							



2pole for DC contact



3pole for DC contact

Coil voltage

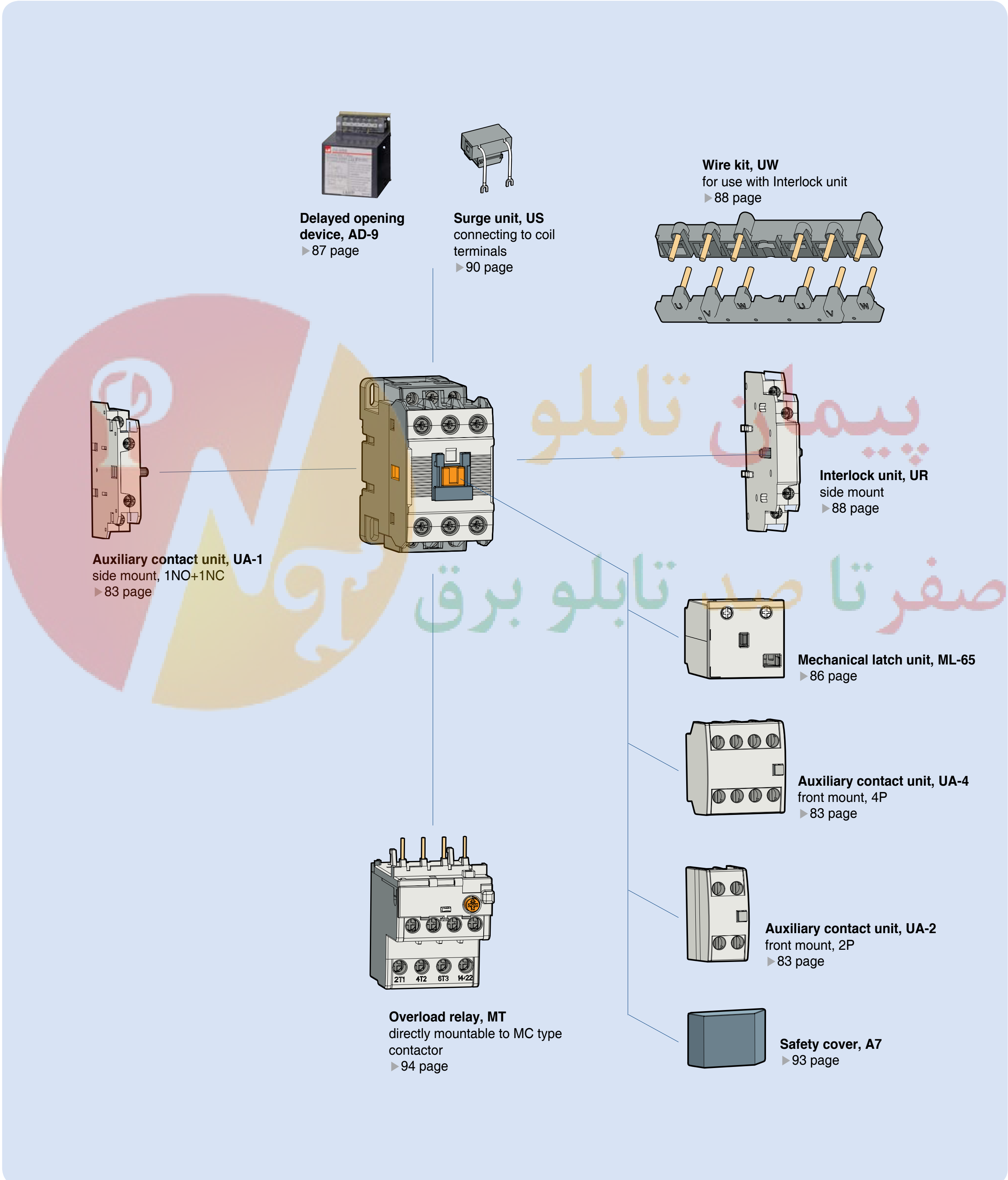
AC	50Hz	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V
DC	DC	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V

* Please be cautious for wiring control power cable, especially " + " (Positive) and " - " (Negative) polarity should be correctly considered.

Certification

- CE(IEC)
- UL508
- CCC

Accessories



Contactors (22AF)

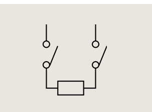
Description

- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 1NO1NC Auxiliary contact built-in as standard.
- UA-1 is available on only left side
- Degree of protection: IP20

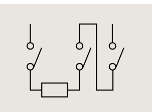
Rating

MC-22b

Contactor type			MC-9b		MC-12b		MC-18b		MC-22b	
			kW	A	kW	A	kW	A	kW	A
AC duty	AC3	200/240V	2.5	11	3.5	13	4.5	18	5.5	22
		380/440V	4	9	5.5	12	7.5	18	11	22
		500/550V	4	7	7.5	12	7.5	13	15	20
		690V	4	6	7.5	9	7.5	9	15	18
	AC4	200/240V	1.5	8	2.2	11	3.7	16	3.7	18
		380/440V	2.2	6	4	9	4	11	5.5	13
	AC1		-	25	-	27	-	32	-	45
DC1 duty	2-pole	24V	-	10	-	12	-	18	-	20
(L/R=1ms)	in series	48V	-	10	-	12	-	18	-	20
		110V	-	6	-	10	-	13	-	15
	3-pole	24V	-	10	-	12	-	18	-	20
	in series	48V	-	10	-	12	-	18	-	20
		110V	-	8	-	12	-	18	-	20
DC 2,4 duty	2-pole	24V	-	8	-	12	-	12	-	20
(L/R=15ms)	in series	48V	-	4	-	6	-	6	-	15
		110V	-	2.5	-	4	-	4	-	8
	3-pole	24V	-	8	-	12	-	12	-	20
	in series	48V	-	6	-	10	-	10	-	20
		110V	-	4	-	8		8	-	15
Directly mountable Overload relay			MT-32							
Conductor size (solid, stranded)		AWG	16~10		16~8		14~8		14~8	
(the max. number of conducts: 2)		mm²	1.5~4		1.5~10		2.5~10		2.5~10	
Conductor type			65/75℃ Cu-wire only							



2pole for DC contact



3pole for DC contact

Coil voltage

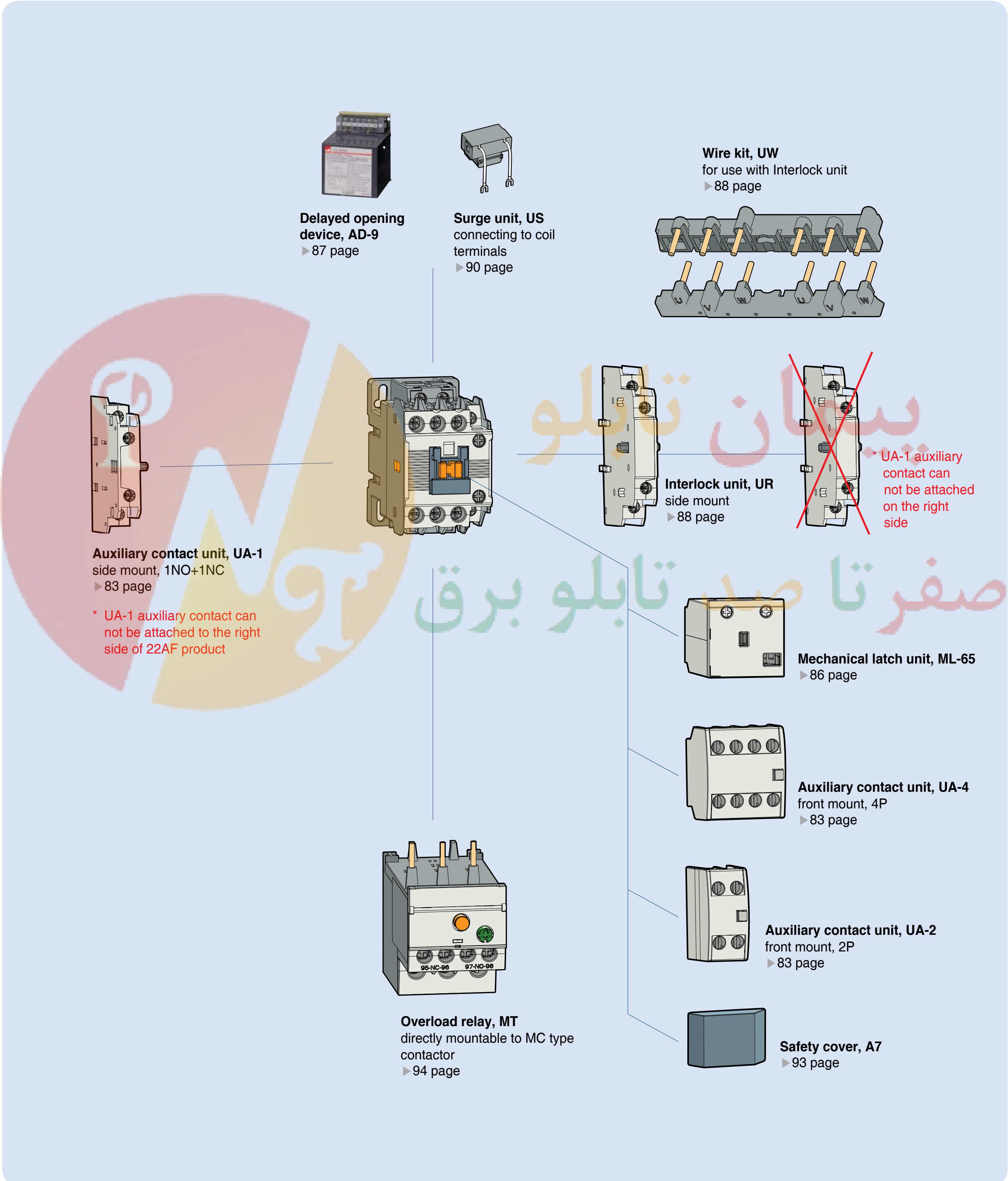
AC	50Hz	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V
DC	DC	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V

* Please be cautious for wiring control power cable, especially " + " (Positive) and " - " (Negative) polarity should be correctly considered.

Certification

- CE(IEC)
- UL508
- CCC

Accessories

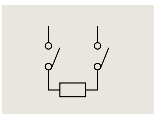


Contactors (40AF)

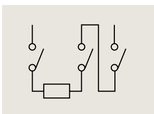
Description

- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20

MC-40a



2pole for DC contact



3pole for DC contact

Rating

Contactor type			MC-32a		MC-40a	
			kW	A	kW	A
AC duty	AC3	200/240V	7.5	32	11	40
		380/440V	15	32	18.5	40
		500/550V	18.5	28	22	32
		690V	18.5	20	22	23
		1000V	22	17	22	17
	AC4	200/240V	4.5	20	5.5	25
		380/440V	7.5	17	11	24
	AC1		-	55	-	60
DC1	2-pole	24V	-	25	-	35
(L/R=1ms)	in series	48V	-	25	-	35
		110V	-	25	-	25
	3-pole	24V	-	25	-	35
	in series	48V	-	25	-	35
		110V	-	25	-	35
DC2,4	2-pole	24V	-	25	-	35
(L/R=15ms)	in series	48V	-	20	-	20
		110V	-	10	-	10
	3-pole	24V	-	25	-	35
	in series	48V	-	25	-	30
		110V	-	20	-	20
Directly mountable Overload relay			MT-32			
Conductor size (solid, stranded)		AWG	12~8		8~6	
(the max. number of conducts: 2)		mm²	2.5~10		10~16	
Conductor type			65/75℃ Cu-wire only			

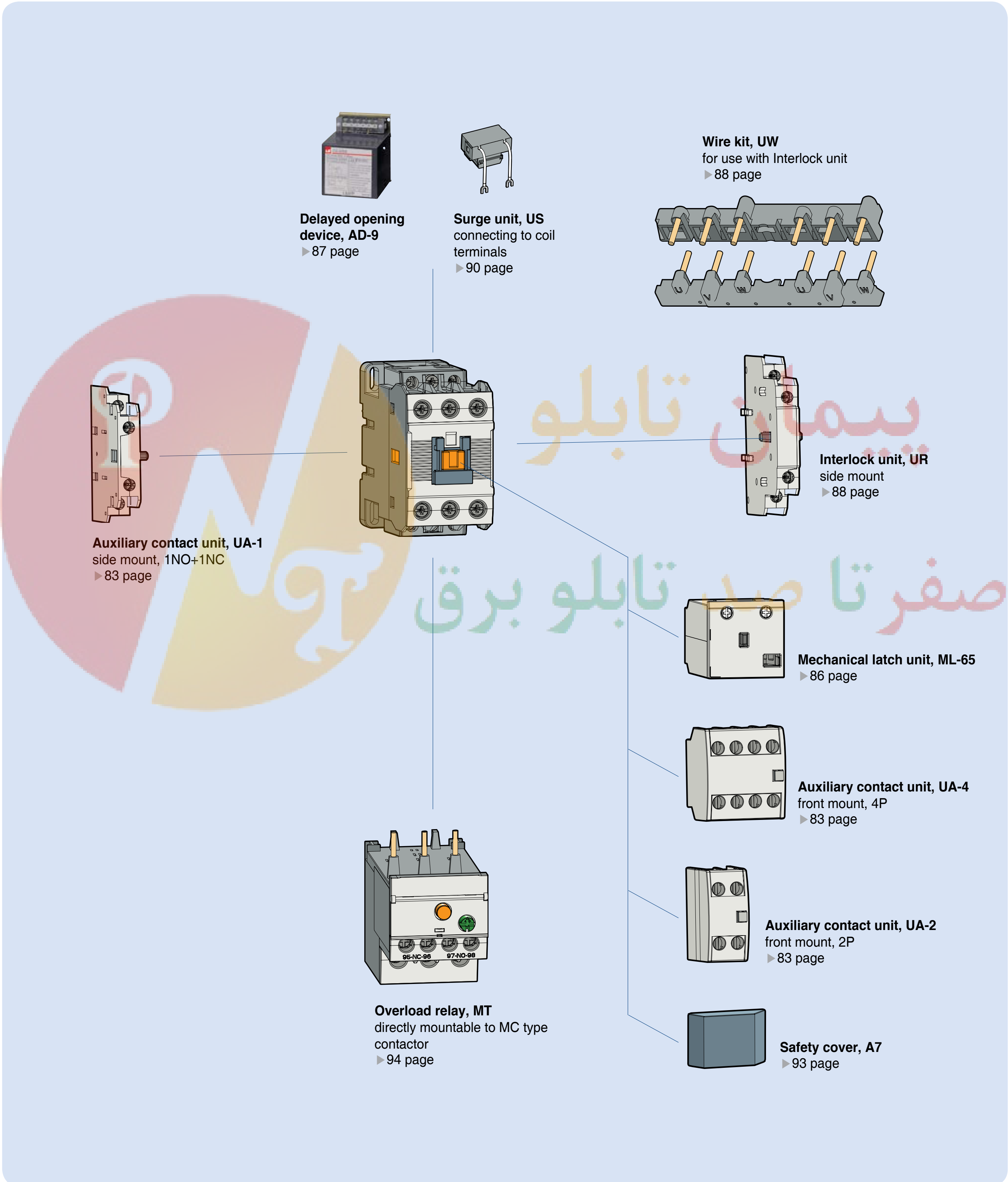
Coil voltage

AC	50Hz	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

- CE(IEC)
- UL508
- CCC

Accessories



Contactors (65AF)

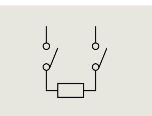
Description

- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- Both screw and Box terminal (lug) type are available
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20

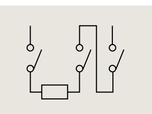
Rating

MC-65a

Contactor type			MC-50a kW	MC-50a A	MC-65a kW	MC-65a A
AC duty	AC3	200/240V	15	55	18.5	65
		380/440V	22	50	30	65
		500/550V	30	43	33	60
		690V	30	28	33	35
		1000V	30	23	30	23
	AC4	200/240V	7.5	35	11	50
		380/440V	15	32	22	47
	AC1		-	100	-	115
DC1 duty (L/R=1ms)	2-pole in series	24V	-	50	-	50
		48V	-	40	-	40
		110V	-	35	-	35
	3-pole in series	24V	-	50	-	65
		48V	-	50	-	65
		110V	-	50	-	65
DC2, 4 duty (L/R=15ms)	2-pole in series	24V	-	45	-	45
		48V	-	25	-	25
		110V	-	15	-	15
	3-pole in series	24V	-	50	-	50
		48V	-	35	-	35
		110V	-	30	-	30
Directly mountable Overload relay			MT-63			
Conductor size (solid, stranded)		AWG	10~4		8~3	
(the max. number of conducts: 2)		mm²	6~25		10~35	
Conductor type			65/75℃ Cu-wire only			



2pole for DC contact



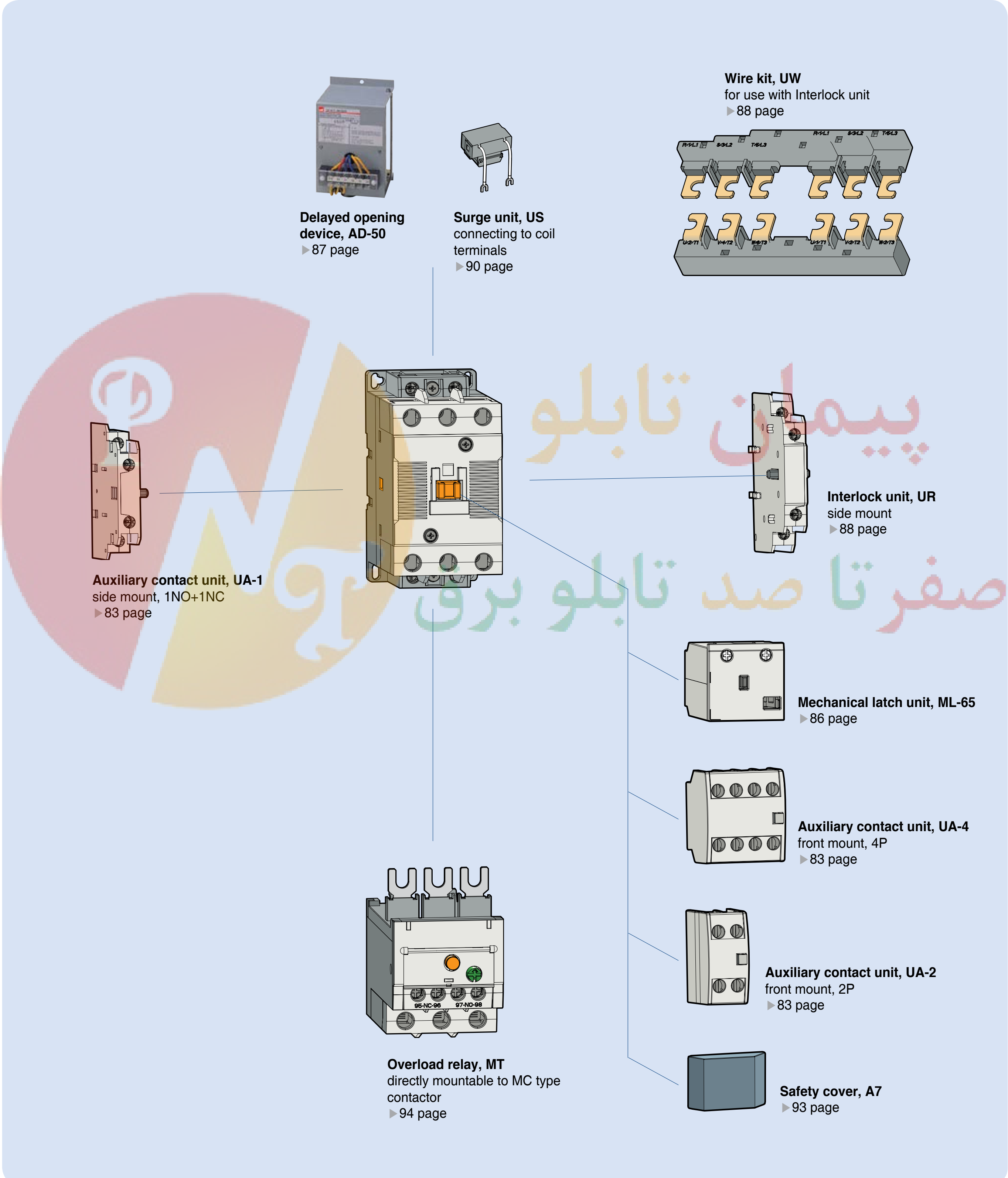
3pole for DC contact

Coil voltage

AC	50Hz	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification
- CE(IEC)
- UL508
- CCC

Accessories



Contactors (100AF)

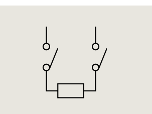
Metasol

Description

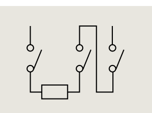
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- Both screw and Box terminal (lug) type are available
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20

Rating

MC-100a



2pole for DC contact



3pole for DC contact

Contactor type			MC-75a		MC-85a		MC-100a	
			kW	A	kW	A	kW	A
AC duty	AC3	200/240V	22	75	25	85	30	105
		380/440V	37	75	45	85	55	105
		500/550V	37	64	45	75	55	85
		690V	37	42	45	45	45	65
		1000V	37	28	37	28	37	28
	AC4	200/240V	13	55	15	65	19	80
		380/440V	25	52	30	62	37	75
	AC1		-	125	-	135	-	160
DC1 duty	2-pole	24V	-	75	-	80	-	100
(L/R=1ms)	in series	48V	-	65	-	65	-	100
		110V	-	50	-	50	-	80
	3-pole	24V	-	75	-	80	-	100
	in series	48V	-	75	-	80	-	100
		110V	-	75	-	80	-	100
DC2, 4 duty	2-pole	24V	-	65	-	65	-	100
(L/R=15ms)	in series	48V	-	40	-	40	-	60
		110V	-	20	-	20	-	40
	3-pole	24V	-	80	-	80	-	100
	in series	48V	-	60	-	60	-	90
		110V	-	50	-	50	-	80
Directly mountable Overload relay			MT-95					
Conductor size (solid, stranded)		AWG	8~2		8~0		8~00	
(the max. number of conducts: 2)		mm²	10~35		10~50		10~70	
Conductor type			65/75℃ Cu-wire only					

Coil voltage

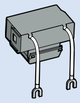
AC	50Hz	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

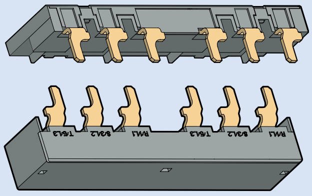
- CE(IEC)
- UL508
- CCC

Accessories

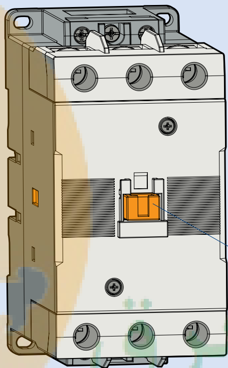
Delayed opening device, AD-50
87 page



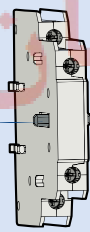
Surge unit, US
connecting to coil terminals
90 page



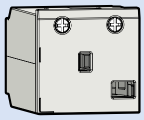
Wire kit, UW
for use with Interlock unit
88 page



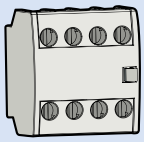
Auxiliary contact unit, UA-1
side mount, 1NO+1NC
83 page



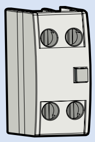
Interlock unit, UR
side mount
88 page



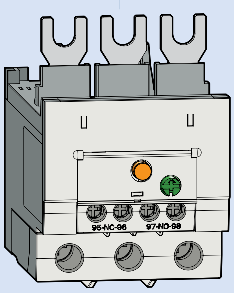
Mechanical latch unit, ML-150
86 page



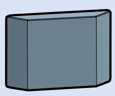
Auxiliary contact unit, UA-4
front mount, 4P
83 page



Auxiliary contact unit, UA-2
front mount, 2P
83 page



Overload relay, MT
directly mountable to MC type contactor
94 page



Safety cover, A7
93 page

Contactors (150AF)

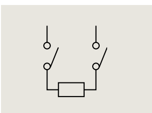
Description

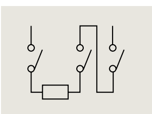
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- Both screw and Box terminal (lug) type are available
- AC or DC control in the same physical size
- Front/side mountable accessories available
- Direct mountable overload relay available
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20

Rating

MC-150a

Contactor type			MC-130a		MC-150a	
			kW	A	kW	A
AC duty	AC3	200/240V	37	130	45	150
		380/440V	60	130	75	150
		500/550V	60	90	70	100
		690V	55	60	55	60
		1000V	75	50	75	50
	AC4	200/240V	22	93	30	120
		380/440V	45	90	55	110
	AC1		-	200	-	250
DC1 duty (L/R=1ms)	2-pole in series	24V	-	120	-	150
		48V	-	100	-	120
		110V	-	80	-	100
	3-pole in series	24V	-	120	-	150
		48V	-	120	-	150
		110V	-	100	-	150
DC2,4 duty (L/R=15ms)	2-pole in series	24V	-	120	-	150
		48V	-	60	-	100
		110V	-	40	-	80
	3-pole in series	24V	-	120	-	150
		48V	-	90	-	130
		110V	-	80	-	120
Directly mountable Overload relay			MT-150			
Conductor size (solid, stranded)		AWG	3~00		3~4/0	
(the max. number of conducts: 2)		mm²	35~70		35~95	
Conductor type			65/75℃ Cu-wire only			


2pole for DC contact

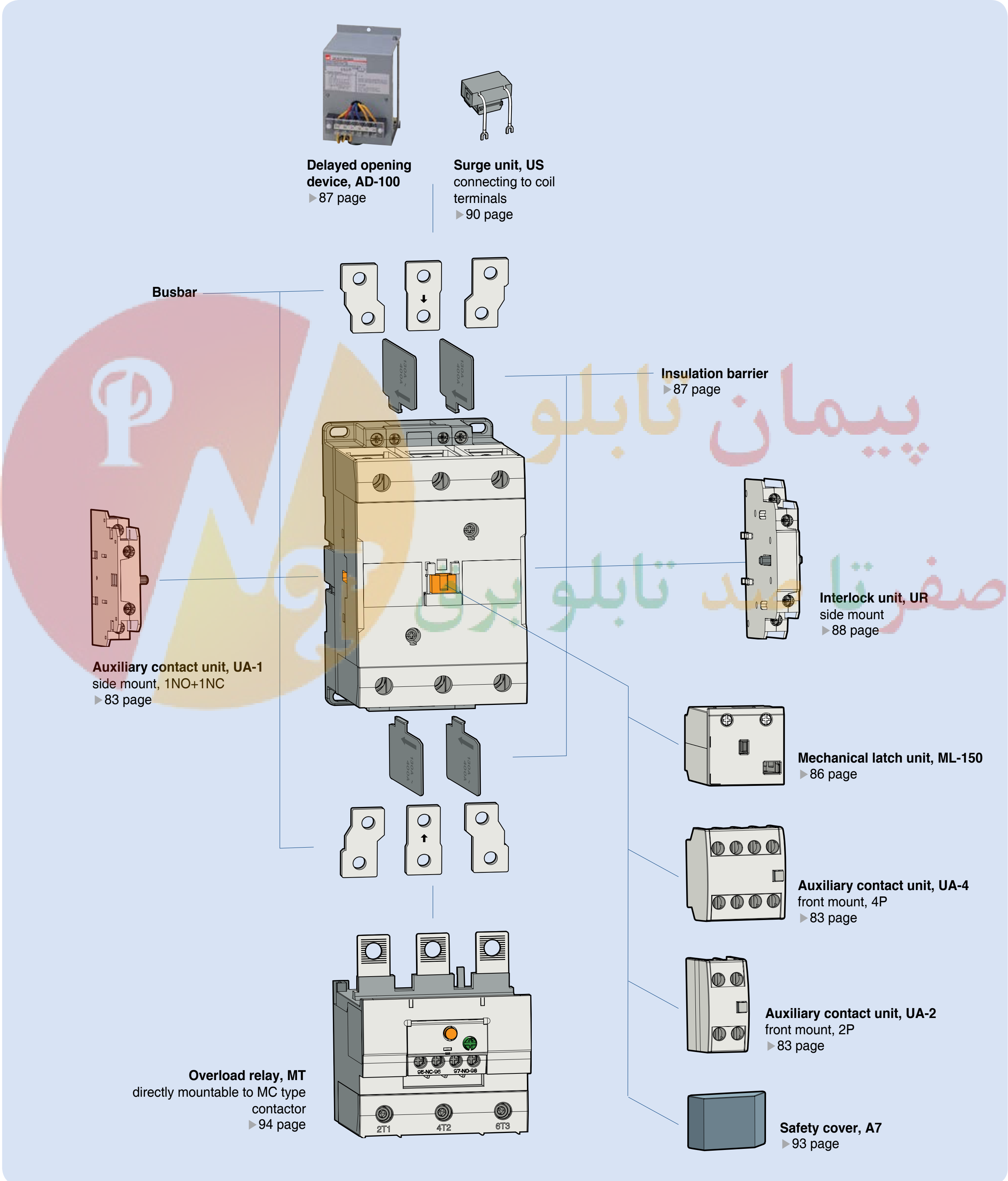

3pole for DC contact

Coil voltage

AC/DC		100~240 / 100~220 / 24~48
AC	50/60Hz	24, 48, 100~240, 110~120, 220~240, 300, 380~440, 500V
DC	DC	24, 48, 70~110, 100~220, 110, 220V

Certification
- CE(IEC)
- UL508
- CCC

Accessories

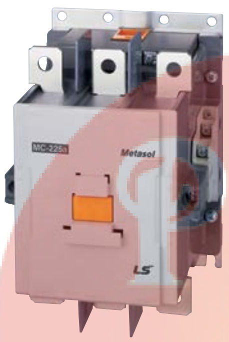


Contactors (225AF)

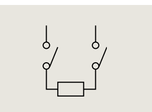
Description

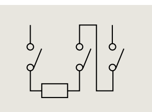
- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Direct mountable overload relays available
- Degree of protection: IP20

Rating



MC-225a


2pole for DC contact


3pole for DC contact

Contactor type			MC-185a		MC-225a	
			kW	A	kW	A
AC duty	AC3	200/240V	55	185	75	225
		380/440V	90	185	132	225
		500/550V	110	180	132	200
		690V	110	120	140	150
		1000V	132	90	132	90
	AC4	200/240V	37	150	45	180
		380/440V	75	150	90	180
	AC1		-	300	-	350
DC1 duty	2-pole	24V	-	180	-	220
(L/R=1ms)	in series	48V	-	180	-	180
		110V	-	150	-	150
	3-pole	24V	-	180	-	220
	in series	48V	-	180	-	220
		110V	-	180	-	220
DC2, 4 duty	2-pole	24V	-	180	-	220
(L/R=15ms)	in series	48V	-	150	-	150
		110V	-	120	-	120
	3-pole	24V	-	180	-	220
	in series	48V	-	180	-	220
		110V	-	150	-	150
Directly mountable Overload relay			MT-225			
Conductor size (solid, stranded)		AWG	1~4/0		0~300	
(the max. number of conducts: 2)		mm²	50~95		50~150	
Conductor type			75℃ Cu stranded wire			

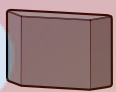
Coil voltage, AC/DC common

Nominal(ordering) voltage	AC 50/60Hz	DC
24V	24 - 25V	24V
48V	48 - 50V	48V
100/200V	100 - 240V	100 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

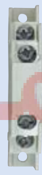
Certification
- CE(IEC)
- UL508
- CCC

Accessories

AD-100
Delayed opening device
▶87 page



Safety cover, A7
▶93 page



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶84 page

AP-220
Terminal cover
▶87 page

AR-180
Interlock unit
side mount
▶89 page

AI-180
Insulation barrier
▶87 page

MT-225
Overload relay
directly mountable to the contactor
Current range 65~240A
▶94 page

Metasol

Contactors (400AF)

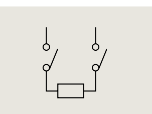
Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Direct mountable overload relays available
- Degree of protection: IP20

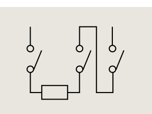
MC-400a

Rating

Contactor type			MC-265a		MC-330a		MC-400a	
			kW	A	kW	A	kW	A
AC duty	AC3	200/240V	80	265	90	330	125	400
		380/440V	147	265	160	330	200	400
		500/550V	147	225	160	280	225	350
		690V	160	185	200	220	250	300
		1000V	147	105	147	105	147	105
	AC4	200/240V	50	200	55	220	75	300
		380/440V	102	200	110	220	150	300
	AC1		-	400	-	500	-	520
DC1 duty (L/R=1ms)	2-pole in series	24V	-	220	-	300	-	400
		48V	-	180	-	240	-	240
		110V	-	150	-	200	-	200
	3-pole in series	24V	-	220	-	300	-	400
		48V	-	220	-	300	-	400
		110V	-	220	-	300	-	400
DC2, 4 duty (L/R=15ms)	2-pole in series	24V	-	220	-	300	-	400
		48V	-	150	-	200	-	200
		110V	-	120	-	150	-	150
	3-pole in series	24V	-	220	-	300	-	400
		48V	-	220	-	280	-	280
		110V	-	150	-	200	-	200
Directly mountable Overload relay			MT-400					
Conductor size (solid, stranded)		AWG	3/0~500		4/0~500		350~700	
(the max. number of conducts: 2)		mm²	95~240		95~240		185~370	
Conductor type			75℃ Cu stranded wire					



2pole for DC contact



3pole for DC contact

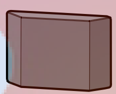
Coil voltage, AC/DC common

Nominal(ordering) voltage	AC 50/60Hz	DC
100/200V	100 - 240V	100 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

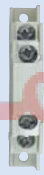
Certification
- CE(IEC)
- UL508
- CCC

Accessories

AD-300
Delayed opening device
▶87 page



Safety cover, A7
▶93 page

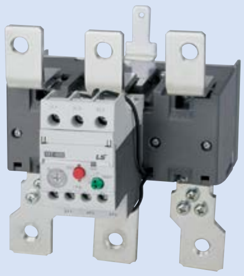


AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶84 page

AP-400
Terminal cover
▶87 page

AR-180
Interlock unit
side mount
▶89 page

AI-180
Insulation barrier
▶87 page



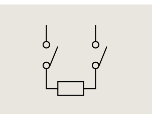
MT-400
Overload relay
directly mountable to the contactor
Current range 85~400A
▶94 page

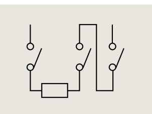
Contactors (800AF)

Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Overload relays available
- Degree of protection: IP20

MC-800a


2pole for DC contact


3pole for DC contact

Rating

Contactor type			MC-500a		MC-630a		MC-800a	
			kW	A	kW	A	kW	A
AC duty	AC3	200/240V	147	500	190	630	220	800
		380/440V	265	500	330	630	440	800
		500/550V	265	400	330	500	500	720
		690V	300	380	400	420	500	630
		1000V	280	220	280	220	280	220
	AC4	200/240V	90	350	110	400	160	630
		380/440V	176	350	200	400	300	630
	AC1		-	700	-	900	-	1050
DC1 duty	2-pole	24V	-	400	-	630	-	800
(L/R=1ms)	in series	48V	-	240	-	630	-	800
		110V	-	200	-	630	-	630
	3-pole	24V	-	400	-	630	-	800
	in series	48V	-	400	-	630	-	800
		110V	-	400	-	630	-	800
DC2, 4 duty	2-pole	24V	-	400	-	630	-	800
(L/R=15ms)	in series	48V	-	200	-	630	-	630
		110V	-	150	-	630	-	630
	3-pole	24V	-	400	-	630	-	800
	in series	48V	-	280	-	630	-	630
		110V	-	200	-	630	-	630
Directly mountable Overload relay			MT-800					
Conductor size (solid, stranded)		AWG	350~800		600~2000		1700~Busbar	
(the max. number of conducts: 2)		mm²	185~480		-		-	
Conductor type			75℃ Cu stranded wire					

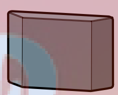
Coil voltage, AC/DC common

Nominal(ordering) voltage	AC 50/60Hz	DC
100V	100 - 127V	100 - 110V
200V	200 - 240V	200 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

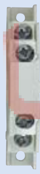
Certification
- CE(IEC)
- UL508
- CCC

Accessories

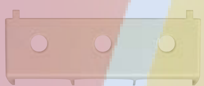
AD-600
Delayed opening device
▶87 page



Safety cover, A7
▶93 page



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶84 page



AP-800
Terminal cover
▶87 page

AR-600
Interlock unit
side mount
▶89 page

AI-600
Insulation barrier
▶87 page

MT-800
Overload relay
directly mountable to the contactor
Current range 200~800A
▶95 page

Contactors (1260AF)

Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Overload relays available
- Degree of protection: IP20

MC-1260a

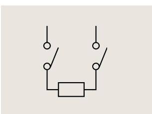
Rating

Contactor type			MC-1260a	
			kW	A
AC duty	AC3	200/240V	-	-
		380/440V	-	-
		500/550V	-	-
		690V	-	-
		1000V	-	-
	AC1		-	1260
Conductor size (solid, stranded)		Bubar	5mm×100mm×2ea	
Conductor type			Busbar	

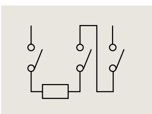
Coil voltage, AC/DC common

Nominal(ordering) voltage	AC 50/60Hz	DC
100V / 200V	100 - 240V	100 - 220V

Certification
- CE(IEC)
- UL, UL/cUL



2pole for DC contact



3pole for DC contact

Accessories

AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶84 page

AI-800
Insulation barrier
▶87 page

Contactors (2650AF)

Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Overload relays available
- Degree of protection: IP20

MC-2650a

Rating

Contactor type			MC-1400a		MC-1700a		MC-2100a		MC-2650a	
			kW	A	kW	A	kW	A	kW	A
AC duty	AC3	200/240V	290	860	310	1050	-	-	-	-
		380/440V	550	860	700	1050	900	1450	-	-
		500/550V	-	-	-	-	-	-	-	-
		690V	800	800	1000	950	-	-	-	-
		1000V	-	-	-	-	-	-	-	-
	AC1		-	1400	-	1600	-	2100	-	2650
Conductor size (solid, stranded)(mm)		Busbar	5×100×2ea		5×100×3ea		5×100×4ea		10×100×3ea	
Conductor type			Busbar							

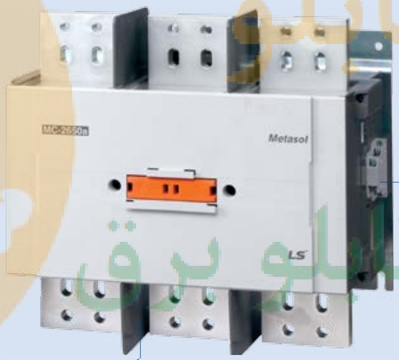
Coil voltage, AC/DC common

Nominal(ordering) voltage	AC 50/60Hz	DC
100V / 200V	100 - 240V	100 - 220V

Certification

- CE(IEC)
- UL60947-4-1
- CCC

Accessories



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶84 page

Insulation barrier
AI-2100(MC-1400a~2100a)
AI-2650(MC-2650a)
▶87 page

Motor starters

Description

- Opened direct motor starter
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control contactor selectable
- Front/side mountable accessories available
- Overload relay is directly mounted to the contactor
- Degree of protection: IP20

Rating

Starter type	Unit	18AF				22AF			
		MS-6a	MS-9a	MS-12a	MS-18a	MS-9b	MS-12b	MS-18b	MS-22b
Number of poles		3				3			
Rated operational voltage (Ue)		690V				690V			
Degree of pollution (IEC60529)		IP20				IP20			
Rated operational current Ie (θ≤40℃)									
AC-1 Ue max 690V	A	25	25	25	32	25	27	32	45
AC-3 200/240V	A	9	11	13	18	11	13	18	22
380/400V	A	7	9	12	18	9	12	18	22
415V	A	7	9	12	18	9	12	18	22
440V	A	7	9	12	18	9	12	18	22
500V	A	6	7	12	13	7	12	13	20
690V	A	4	5	9	9	6	9	9	18
1000V	A	-	-	-	-	-	-	-	-
Rated operational power (θ≤40℃)									
AC-3 200/240V	kW	2.2	2.5	3.5	4.5	2.5	3.5	4.5	5.5
380/400V	kW	3	4	5.5	7.5	4	5.5	7.5	11
415V	kW	3	4	5.5	7.5	4	5.5	7.5	11
440V	kW	3	4	5.5	7.5	4	5.5	7.5	11
500V	kW	3	4	7.5	7.5	4	7.5	7.5	15
690V	kW	3	4	7.5	7.5	4	7.5	7.5	15
1000V	kW	-	-	-	-	-	-	-	-
According to IEC60947-4-1									
Rated making capacity AC-3		70	90	120	180	90	120	180	220
Rated breaking capacity AC-3		56	72	96	144	72	96	144	176
Electrical life for Ie/AC-3 Max in millions of operating cycles		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Maximum operating rate in operating cycles per hour		1800	1800	1800	1800	1800	1800	1800	1800

Devices usable in the starter combination

		18AF				22AF			
Contactors									
with AC or DC control coil		MC-6a	MC-9a	MC-12a	MC-18a	MC-9b	MC-12b	MC-18b	MC-22b
with coil in common use for AC and DC		-	-	-	-	-	-	-	-
Thermal Overload Relays									
Class 10	Differential type	MT-12/3K				MT-32/3K			
	Non-differential type	MT-12/3H				MT-32/3H			
	Non-differential type(2-heater)	MT-12/2H				MT-32/2H			
Class 20	Differential type	MT-12/3D				MT-32/3D			
Setting range A		0.1~18A				0.1~40A			

40AF		65AF		100AF		
MS-32a	MS-40a	MS-50a	MS-65a	MS-75a	MS-85a	MS-100a
3		3		3		
690V		690V		690V		
IP20		IP20		IP20		
55	60	100	115	125	135	160
32	40	55	65	75	85	105
32	40	50	65	75	85	105
32	40	50	65	75	85	105
32	40	50	65	75	85	105
28	32	43	60	64	75	85
20	23	28	35	42	45	65
17	17	23	23	28	28	28
7.5	11	15	18.5	22	25	30
15	18.5	22	30	37	45	55
15	18.5	22	30	37	45	55
15	18.5	22	30	37	45	55
18.5	22	30	33	37	45	55
18.5	22	30	33	37	45	55
22	22	30	30	37	37	37
320	400	500	650	750	850	1050
256	320	400	520	600	650	840
2	2	2	2	2	2	2
1800	1800	1800	1800	1800	1800	1800

MC-32a	MC-40a	MC-50a	MC-65a	MC-75a	MC-85a	MC-100a
-	-	-	-	-	-	-
MT-32/3K		MT-63/3K		MT-95/3K		
MT-32/3H		MT-63/3H		MT-95/3H		
MT-32/2H		MT-63/2H		MT-95/2H		
MT-32/3D		MT-63/3D		MT-95/3D		
0.1~40A		4~65A		7~100A		

Motor starters

Description

- Opened direct motor starter
- 3-pole(NO) main contacts
- Screw mountable
- AC/DC common use control contactor used (from 225AF)
- Additional accessories available
- Overload relay is directly mounted to the contactor
- Degree of protection: IP20

Rating

Starter type	150AF		225AF	
	MS-130a	MS-150a	MS-185a	MS-225a
Number of poles	3		3	
Rated operational voltage (Ue)	690V		690V	
Degree of pollution (IEC60529)	IP20		IP20	
Rated operational current Ie (θ≤40℃)				
AC-1 Ue max 690V A	200	250	300	350
AC-3 200/240V A	130	150	185	225
380/400V A	130	150	185	225
415V A	130	150	185	225
440V A	130	150	185	225
500V A	90	100	180	200
690V A	60	60	120	150
1000V A	50	50	90	90
Rated operational power (θ≤40℃)				
AC-3 200/240V kW	37	45	55	75
380/400V kW	60	75	90	132
415V kW	60	75	90	132
440V kW	60	75	90	132
500V kW	60	70	110	132
690V kW	55	55	110	140
1000V kW	75	90	132	132
According to IEC60947-4-1				
Rated making capacity AC-3	1200	1500	1850	2250
Rated breaking capacity AC-3	960	1200	1480	1800
Electrical life for Ie/AC-3 Max in millions of operating cycles	1	1	1	1
Maximum operating rate in operating cycles per hour	1200	1200	1200	1200

Devices usable in the starter combination

Contactors				
with AC or DC control coil	MC-130a	MC-150a	-	-
with coil in common use for AC and DC	-	-	MC-185a	MC-225a
Thermal Overload Relays				
Class 10 Differential type	MT-150/3K		MT-225/3K	
Class 10 Non-differential type	MT-150/3H		MT-225/3H	
Class 10 Non-differential type(2-heater)	MT-150/2H		MT-225/2H	
Class 20 Differential type	MT-150/3D		MT-225/3D	
Setting range A	34~150A		65~240A	

Metasol

400AF			800AF		
MS-265a	MS-330a	MS-400a	MS-500a	MS-630a	MS-800a
	3			3	
	690V			690V	
	IP20			IP20	
400	500	520	700	900	1050
265	330	400	500	630	800
265	330	400	500	630	800
265	330	400	500	630	800
265	330	400	500	630	800
225	280	350	400	500	720
185	220	300	380	420	630
105	105	105	220	220	220
80	90	125	147	190	220
147	160	200	265	330	440
147	160	200	265	330	440
147	160	200	265	330	440
147	160	225	265	330	500
160	200	250	300	400	500
147	147	147	280	280	280
2650	3300	4000	5000	6300	8000
2120	2640	3200	4000	5040	6400
1	1	0.5	0.5	0.5	0.5
1200	1200	1200	1200	1200	1200

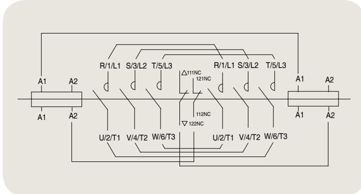
-	-	-	-	-	-
MC-265a	MC-330a	MC-400a	MC-500a	MC-630a	MC-800a
	MT-400/3K			MT-800/3K	
	MT-400/3H			MT-800/3H	
	MT-400/2H			MT-800/2H	
	MT-400/3D			MT-800/3D	
	85~400A			200~800A	

Reversing contactors

Description

- Two AC or DC control contactors are interlocked mechanically and electrically
- 3-pole(NO) main contact in each contactor
- Finger proof design
- DIN rail or screw mountable
- Front/side mountable accessories available
- Overload relay can be directly mounted to the contactor if necessary
- Please use interval time of over 25ms
- Degree of protection: IP20

Circuit diagram



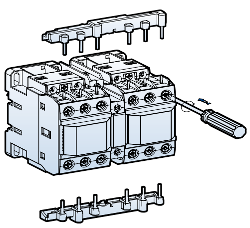
Rating


MC-40a/R


MC-65a/R


MC-100a/R

Type	AC-3 duty							Current (AC3)	Weight (AC control)
	200 ~ 240V	380 ~ 400V	415V	440V	500V	690V	1000V	440V	
	kW	kW	kW	kW	kW	kW	kW	A	
MC-6a/R	2.2	3	3	3	3	3	-	7	0.63kg
MC-9a/R	2.5	4	4	4	4	4	-	9	0.63kg
MC-12a/R	3.5	5.5	5.5	5.5	7.5	7.5	-	12	0.63kg
MC-18a/R	4.5	7.5	7.5	7.5	7.5	7.5	-	18	0.63kg
MC-9b/R	2.5	4	4	4	4	4	-	9	0.75kg
MC-12b/R	3.5	5.5	5.5	5.5	7.5	7.5	-	12	0.75kg
MC-18b/R	4.5	7.5	7.5	7.5	7.5	7.5	-	18	0.75kg
MC-22b/R	5.5	11	11	11	15	15	-	22	0.75kg
MC-32a/R	7.5	15	15	15	18.5	18.5	22	32	0.95kg
MC-40a/R	11	18.5	18.5	18.5	22	22	22	40	0.95kg
MC-50a/R	15	22	22	22	30	30	30	50	1.7kg
MC-65a/R	18.5	30	30	30	33	33	30	65	1.7kg
MC-75a/R	22	37	37	37	37	37	37	75	3.3kg
MC-85a/R	25	45	45	45	45	45	37	85	3.3kg
MC-100a/R	30	55	55	55	55	55	37	105	3.3kg



Coil voltage

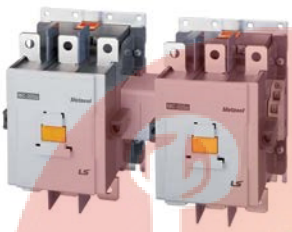
AC	50Hz	24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V
	60Hz	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

- CE(IEC)
- UL508
- CCC

Description

- 3-pole main contact
- Mechanically interlocked
- AC/DC common use coil built (from MC-185a/R)
- Wide coil operation voltage
- Screw mountable
- 4NO4NC Auxiliary contacts built-in
- Top/side mountable accessories available
- Please use interval time of over 50ms
- Degree of protection: IP20



Rating

Type	AC-3 duty							Current (AC3)	Weight
	200 ~ 240V	380 ~ 400V	415V	440V	500V	690V	1000V	440V	(AC control)
	kW	kW	kW	kW	kW	kW	kW	A	
MC-130a/R	37	60	60	60	60	55	75	130	4.3kg
MC-150a/R	45	75	75	75	70	55	75	150	4.3kg
MC-185a/R	55	90	90	90	110	110	132	185	13kg
MC-225a/R	75	132	132	132	132	140	132	225	13kg
MC-265a/R	80	147	147	147	147	160	147	265	21.4kg
MC-330a/R	90	160	160	160	160	200	147	330	21.4kg
MC-400a/R	125	200	200	200	225	250	147	400	21.4kg
MC-500a/R	147	265	265	265	265	300	280	500	60kg
MC-630a/R	190	330	330	330	330	400	280	630	60kg
MC-800a/R	220	440	440	440	440	500	280	800	60kg

Coil voltage

For MC130a/R and MC-150a/R

AC	50/60Hz	24, 48, 100~240, 110~120, 220~240, 300, 380~440, 500V
DC	DC	24, 48, 70~110, 100~220, 110, 220V

For MC-185a/R ~ MC-800a/R

- 24, 48, 100/200, 300, 400, 500V for types MC-185a/R, 225a/R
- 100/200, 300, 400, 500V for types MC-265a/R, 330a/R, 400a/R
- 100, 200, 300, 400, 500V for types MC-500a/R, 600a/R, 800a/R

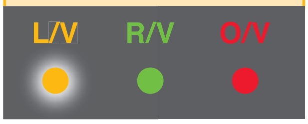
Nominal(ordering) voltage	AC 50/60Hz	DC
24V	24 - 25V	24V
48V	48 - 50V	48V
100V	100 - 127V	100 - 110V
200V	200 - 240V	200 - 220V
100/200V	100 - 240V	100 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

LED voltage monitoring contactor

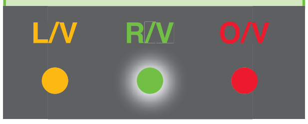
Description

- Real time observe coil voltage without additional equipments for protect coil burn out due to the under and over voltage

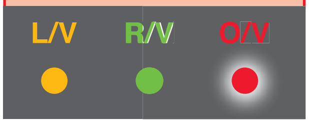
Yellow LED: U/V
(Under Voltage)



Green LED: R/V
(Rating Voltage)



Red LED: O/V
(Over Voltage)



Coil voltage

Type	Coil voltage	LED indicate statue		
		Under Voltage (Yellow)	Rating Voltage (Green)	Over Voltage (Red)
MC-130a, MC 150a	110V	~80V	80~130V	130V~
	220V	~160V	160~260V	260V~
	400V	~330V	330~480V	280V~
MC-185a, MC-225a	110V	~80V	80~130V	130V~
	220V	~160V	160~260V	260V~
	400V	~330V	330~480V	280V~
MC-265a, MC-330a, MC-400a	110V	~80V	80~130V	130V~
	220V	~160V	160~260V	260V~
	400V	~330V	330~480V	280V~
MC-500a, MC-630a, MC-800a	110V	~80V	80~130V	130V~
	220V	~160V	160~260V	260V~

* The accuracy of LED indicate statue is ±5%

Contactor relays

Description

- 4,6,8 pole units
- AC/DC control voltage
- 16A continuous current, Ith
- DIN rail or screw mountable
- Degree of protection: IP20


MR-4


MR-6


MR-8

Selection

Poles	Composition	Types	Remarks
4 Pole	4NO 3NO1NC 2NO2NC 1NO3NC 4NC	MR-4	Additional auxiliary contacts can be mounted on the relays.
6 pole	6NO 5NO1NC 4NO2NC 3NO3NC 2NO4NC	MR-6	UA-2 is mounted on the MR-4.
8 pole	8NO 7NO1NC 6NO2NC 5NO3NC 4NO4NC	MR-8	UA-4 is mounted on the MR-4.

Note) Product indicatad “ Low ” is for Low current application

Ratings

Rated insulation voltage (Ui)				AC 690V				
Continuous current (Ith)				16A				
Operating cycle				1800 operations/hour				
Endurance	Mechanical life time			10 mil. Operations				
	Electrical life time			0.25 mil. Operations				
Type				MR-4	MR-6		MR-8	
AC-15	Rated current (A)		120V	6	6		6	
			240V	3	3		3	
			380V	1.9	1.9		1.9	
			480V	1.5	1.5		1.5	
			500V	1.4	1.4		1.4	
			600V	1.2	1.2		1.2	
				MR-4	MR-4	UA-2	MR-4	UA-4
DC-13	Rated current (A)		125V	1.1	1.1	0.55	1.1	0.55
			250V	0.55	0.55	0.27	0.55	0.27
			400V	0.31	0.31	0.15	0.31	0.15
			500V	0.27	0.27	0.13	0.27	0.13
			600V	0.2	0.2	0.1	0.2	0.1
Minimum rated through current				DC 24V 10mA				

Coil voltage

AC	50Hz	24, 32, 42, 48, 65, 80, 100, 110, 120, 220, 230, 240, 380, 400, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V
DC	DC	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V
Voltage limit		85%~110%

Note) See page 22, 23 for details.
* Please be cautious for wiring control power cable, especially “ + ” (Positive) and “ - ” (Negative) polarity should be correctly considered.

Contactor relays for micro current

Description

- 2,4,8 pole units
- AC/DC control voltage
- 0.5 mil. operations, 2.5 mil. operations
- DIN rail or screw mountable (35mm)
- Degree of protection: IP20

* Do not place strong magnets around the main circuit.

MR-4E

MR-8E

UA-4E

UA-1E

Type

Number of poles	Contact configuration		Types	Remarks
	Micro contact	Normal contact		
2 pole	1a1b	-	UA-1E AU-100E	Auxiliary contact unit (UA-1E)
4 pole	2a 1a1b 2b	2a 1a1b 2b	MR-4E or UA-4E	Auxiliary relay (MR-4E) or Auxiliary contact unit (UA-4E)
8 pole	4a 3a1b 2a2b 1a3b 4b	4a 3a1b 2a2b 1a3b 4b	MR-8E (MR-4E + UA-4E)	Auxiliary relay (MR-4E) and Auxiliary contact unit (UA-4E)

* MR-4E UA-4E 'Negative sides of both sides' is the contact for microcurrent.
* UA-1E is applicable to 150AF or less. (Above 225AF, AU-100E is available.)
* Please note that contact welding may occur when a high voltage is applied to the contact for micro current, not the rated voltage.

Ratings

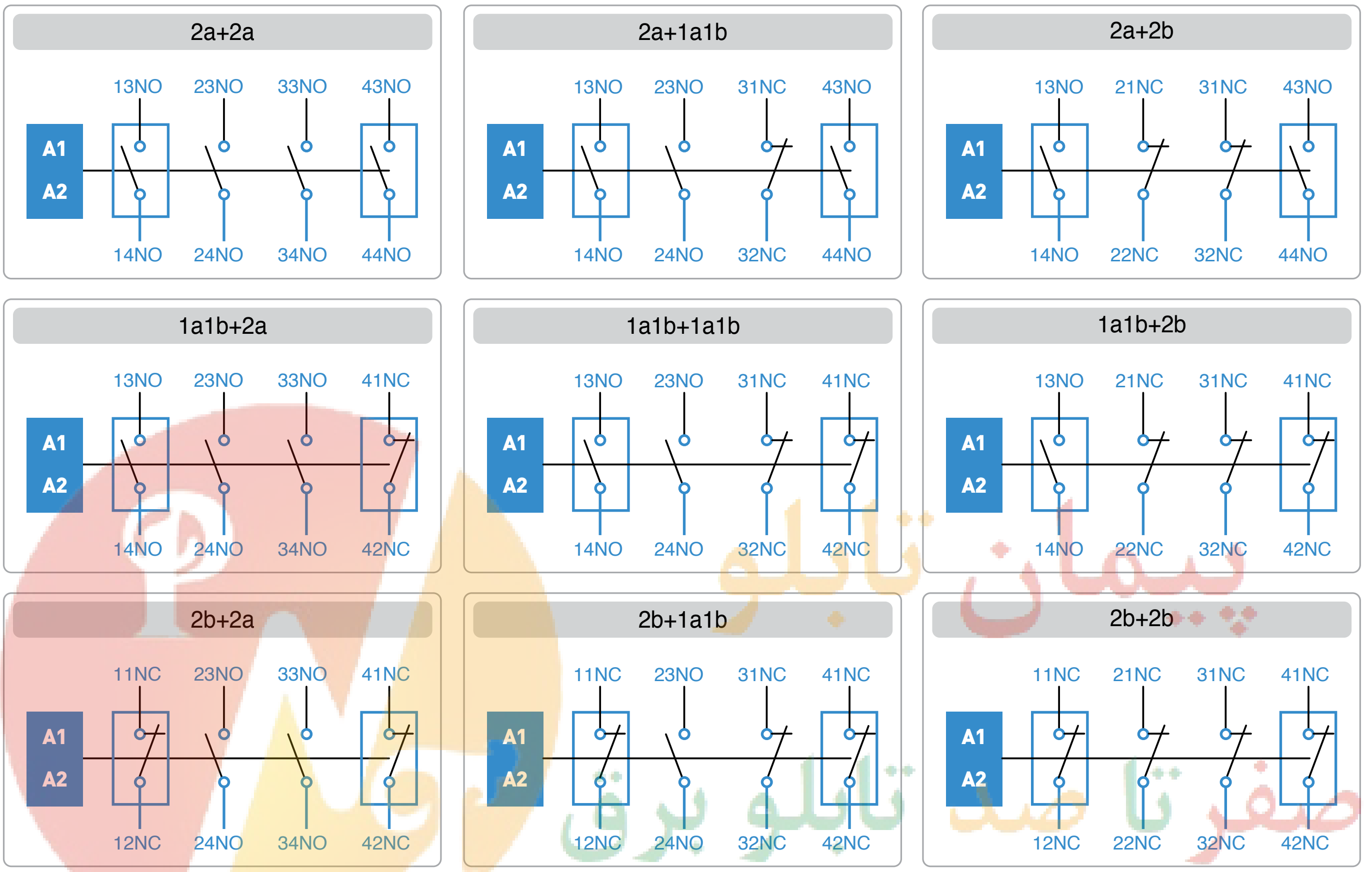
		Micro contact	Normal contact
Rated operational voltage (Ue)		AC 130V, DC 180V MAX.	AC 600V
Continuous current (Ith)		1A	16A
Switching current		0.7A MAX.	6A
Contact Capacity		10VA (10W) Less	720VA
Rated insulation voltage (Ui)		DC 200V	AC 690V
Operating cycle (AC1)		1800 operations/hour	1800 operations/hour
Endurance	Mechanical	2.5 mil. operations	10 mil. operations
	Electrical	0.5 mil. operations	0.25 mil. operations
Minimum rated through current		DC 5V 0.5mA	DC 24V 10mA
Contact reliability		1×10^{-8}	4×10^{-6}

Coil voltage

AC	50Hz	24, 32, 36, 42, 48, 65, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
	60Hz	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V
DC	DC	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V
Temperature Range		85%~110%

Note) 1. Coil For detailed specifications, refer to Operating Coil Rating and Characteristics data (22AF) on Catalog 22 page.
2. For DC type products, be sure to wire the polarity of the + and - polarities when wiring the coil terminals.

Contact configuration



* □ is micro contact.

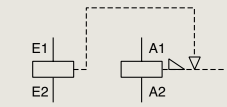
Latching contactors

Description

- 3-pole main contact
- Mechanically latched
- Finger proof design
- DIN rail or screw mountable
- Side mountable accessories available
- Direct mountable overload relays available

Circuit diagram

MC-6a/L~150a/L



Rating

Contactor	AC3 ratings 200/240V kW	380/440V kW	500/550V kW	690V kW	1000V kW	Devices combined Type	Durability (Machanical)	Operational time	Excitation time
MC-6a/L	2.2	3	3	3	-	ML-65	0.5 mil.	Less 30ms (AC) Less 50ms (DC)	More than 50ms (AC) More than 70ms (DC)
MC-9a/L	2.5	4	4	4	-				
MC-12a/L	3.5	5.5	7.5	7.5	-				
MC-18a/L	4.5	7.5	7.5	7.5	-				
MC-9b/L	2.5	4	4	4	-				
MC-12b/L	3.5	5.5	7.5	7.5	-				
MC-18b/L	4.5	7.5	7.5	7.5	-				
MC-22b/L	5.5	11	15	15	-				
MC-32a/L	7.5	15	18.5	18.5	22				
MC-40a/L	11	18.5	22	22	22				
MC-50a/L	15	22	30	30	30				
MC-65a/L	18.5	30	33	33	30				
MC-75a/L	22	37	37	37	37	ML-150	2.5 mil.		
MC-85a/L	25	45	45	45	37				
MC-100a/L	30	55	55	45	37				
MC-130a/L	37	60	60	55	75			Less 100ms	More than 130ms
MC-150a/L	45	75	75	55	75				

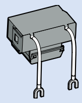
* When the open signal is input for more than 1 second, the coil of the latch is burned.

Coil voltage

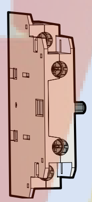
AC	50/60Hz	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440V
DC	DC	24, 48, 110V

Certification
- CE(IEC)
- UL508

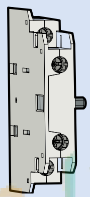
Accessories



Surge unit, US
connecting to coil
terminals
▶84 page



Auxiliary contact unit, UA-1
side mount, 1NO+1NC
▶77 page



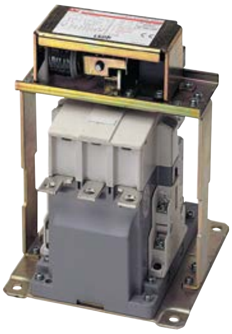
Auxiliary contact unit, UA-1
side mount, 1NO+1NC
▶77 page

* It is not possible to attach " UA-1" on the right side of product for Range MC-9b~22b.

Overload relay
MT-12 ~ MT-150
▶90 page

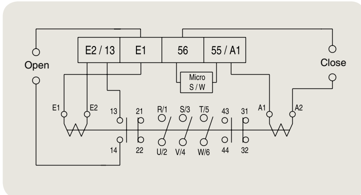
Latching contactors

Description



- 3-pole main contact
- Mechanically interlocked
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 1NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available

Circuit diagram



Rating

Contactor	AC3 ratings					Auxiliary contact (standard)
	200 ~ 240V	380 ~ 440V	500 ~ 550V	690V	1000V	
MC-185a/L	55kW 185A	90kW 185A	110kW 180A	110kW 120A	132kW 90A	
MC-225a/L	75kW 225A	132kW 225A	132kW 200A	140kW 150A	132kW 90A	
MC-265a/L	80kW 265A	147kW 265A	147kW 225A	160kW 185A	147kW 105A	2NO2NC* (1NO2NC)
MC-330a/L	90kW 330A	160kW 330A	160kW 280A	200kW 220A	147kW 105A	
MC-400a/L	125kW 400A	200kW 400A	225kW 350A	250kW 300A	147kW 105A	

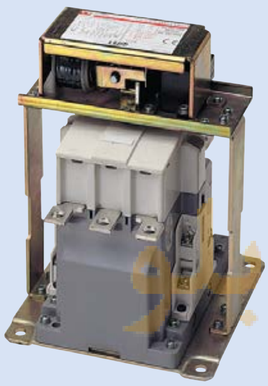
* 1NO contact of 2NO2NC is used in Latch and customer contact is 1NO2NC. If 2NO or higher is used, additional attachment of AU-100 is required.

Coil voltage

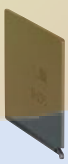
Nominal(ordering) voltage	Operational voltage	Operation frequency
100V	AC100~127V	600 operations/hour
	DC100~125V	300 operations/hour
200V	AC200~240V	600 operations/hour
	DC200~220V	300 operations/hour

Accessories

AP220~400
Terminal cover
▶81 page



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶78 page



AI-180
Insulation barrier
▶81 page

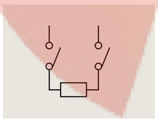
Overload relay
MT-225H ~ MT-400H
MT-225/3H ~ MT-400/3H
MT-225/3K ~ MT-400/3K
▶ 93 page

4-pole Contactors (18AF)

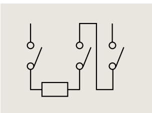
Description

- 4-pole main contact
- Finger proof design
- DIN rail or screw mountable
- Small physical size: 44 mm wide
- Auxiliary contacts are optional
- Front/side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20

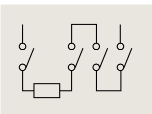
MC-18a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

Rating

Contactor type			MC-6a/4		MC-9a/4		MC-12a/4		MC-18a/4	
			kW	A	kW	A	kW	A	kW	A
AC duty	AC1	200/240V	9	25	9	25	9	25	15	40
		380/440V	17	25	17	25	17	25	27	40
		500/550V	21	25	21	25	21	25	35	40
		690V	27	25	27	25	27	25	44	40
	AC3	200/240V	2.2	9	2.5	11	3.5	13	4.5	18
		380/440V	3	7	4	9	5.5	12	7.5	18
		Ith	-	25	-	25	-	25	-	40
DC1 duty	2-pole	110V	-	6	-	6	-	10	-	13
(L/R=1ms)	in series	220V	-	3	-	3	-	7	-	8
	3-pole	110V	-	8	-	8	-	12	-	18
	in series	220V	-	8	-	8	-	12	-	18
	4-pole	110V	-	10	-	10	-	15	-	20
	in series	220V	-	10	-	10	-	12	-	20
UL rating			hp	A	hp	A	hp	A	hp	A
		220/240V	3	-	3	-	5	-	7.5	-
		440/480V	5	-	5	-	7.5	-	10	-
		550/600V	7.5	-	7.5	-	10	-	15	-
		Ith	-	25	-	25	-	25	-	32
Conductor size (solid, stranded)		AWG	18~10		18~10		16~10		16~8	
(the max. number of conducts: 2)		mm²	1.5~4		1.5~10		1.5~10		1~4	
Conductor type			65/75℃ Cu-wire only							

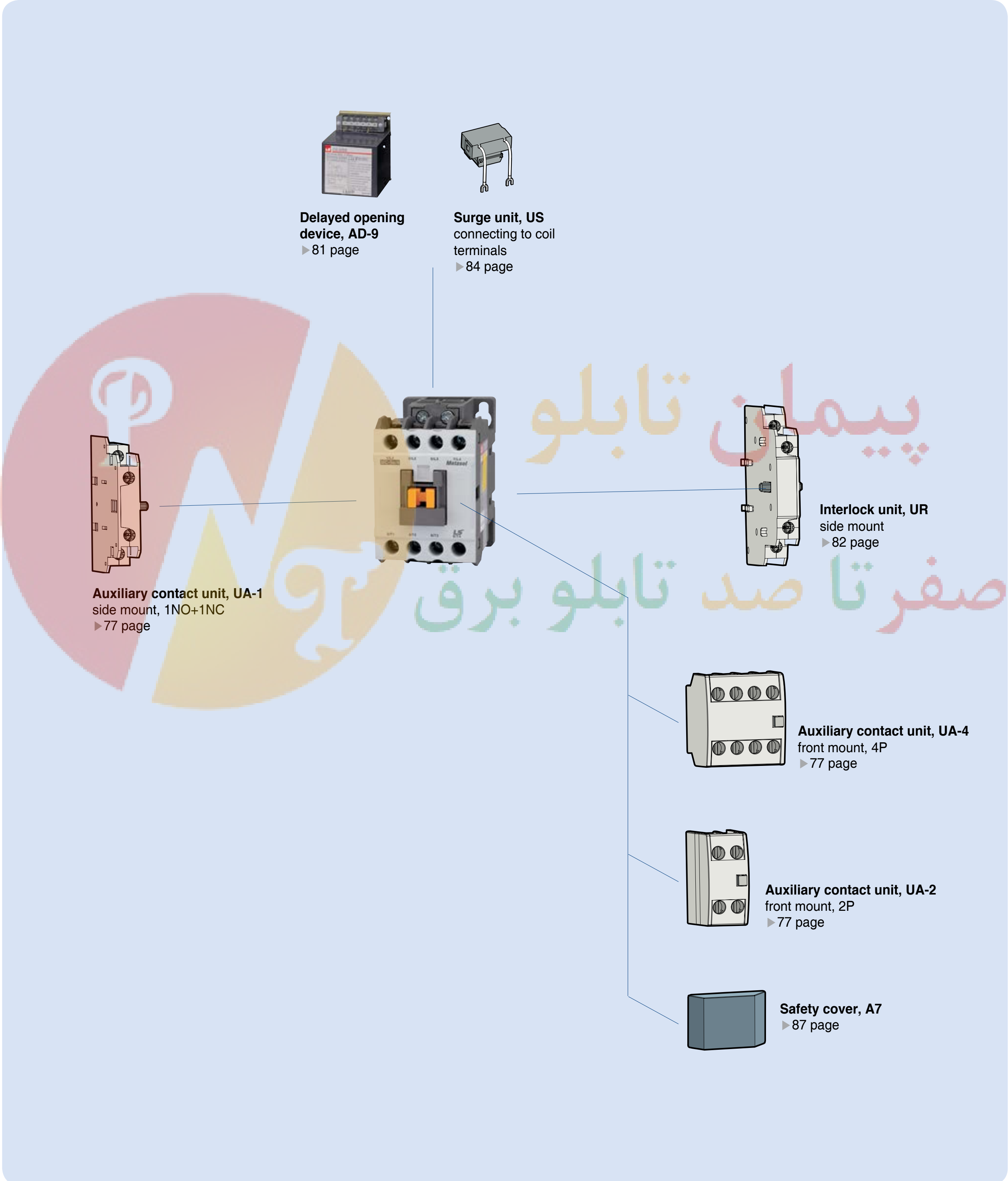
Coil voltage

AC	50Hz	24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V
	60Hz	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V
	50/60Hz	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550V
DC	DC	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

- CE(IEC)
- UL508
- CCC

Accessories



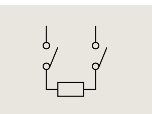
4-pole Contactors (22, 40AF)

Description

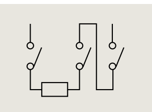
- 4-pole main contact
- Finger proof design
- DIN rail or screw mountable
- Auxiliary contacts are optional
- Front/side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20

MC-22a/4

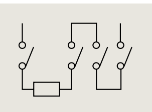
MC-40a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

Rating

Contactor type			MC-22a/4		MC-32a/4		MC-40a/4	
			kW	A	kW	A	kW	A
AC duty	AC1	200/240V	15	40	18	50	22	60
		380/440V	27	40	35	50	42	60
		500/550V	35	40	43	50	52	60
		690V	44	40	55	50	66	60
	AC3	200/240V	5.5	22	7.5	32	11	40
		380/440V	11	22	15	32	18.5	40
		Ith	-	40	-	50	-	60
DC1 duty	2-pole	110V	-	15	-	25	-	25
(L/R=1ms)	in series	220V	-	10	-	12	-	12
	3-pole	110V	-	20	-	25	-	35
	in series	220V	-	20	-	22	-	30
	4-pole	110V	-	30	-	32	-	40
	in series	220V	-	25	-	30	-	35
UL rating			hp	A	hp	A	hp	A
		220/240V	7.5	-	10	-	10	-
		440/480V	10	-	20	-	25	-
		550/600V	15	-	20	-	25	-
		Ith	-	32	-	45	-	50
Conductor size (solid, stranded)		AWG	12~8		10~6		8~6	
(the max. number of conducts: 2)		mm²	2.5~10		4~16		10~16	
Conductor type			65/75℃ Cu-wire only					

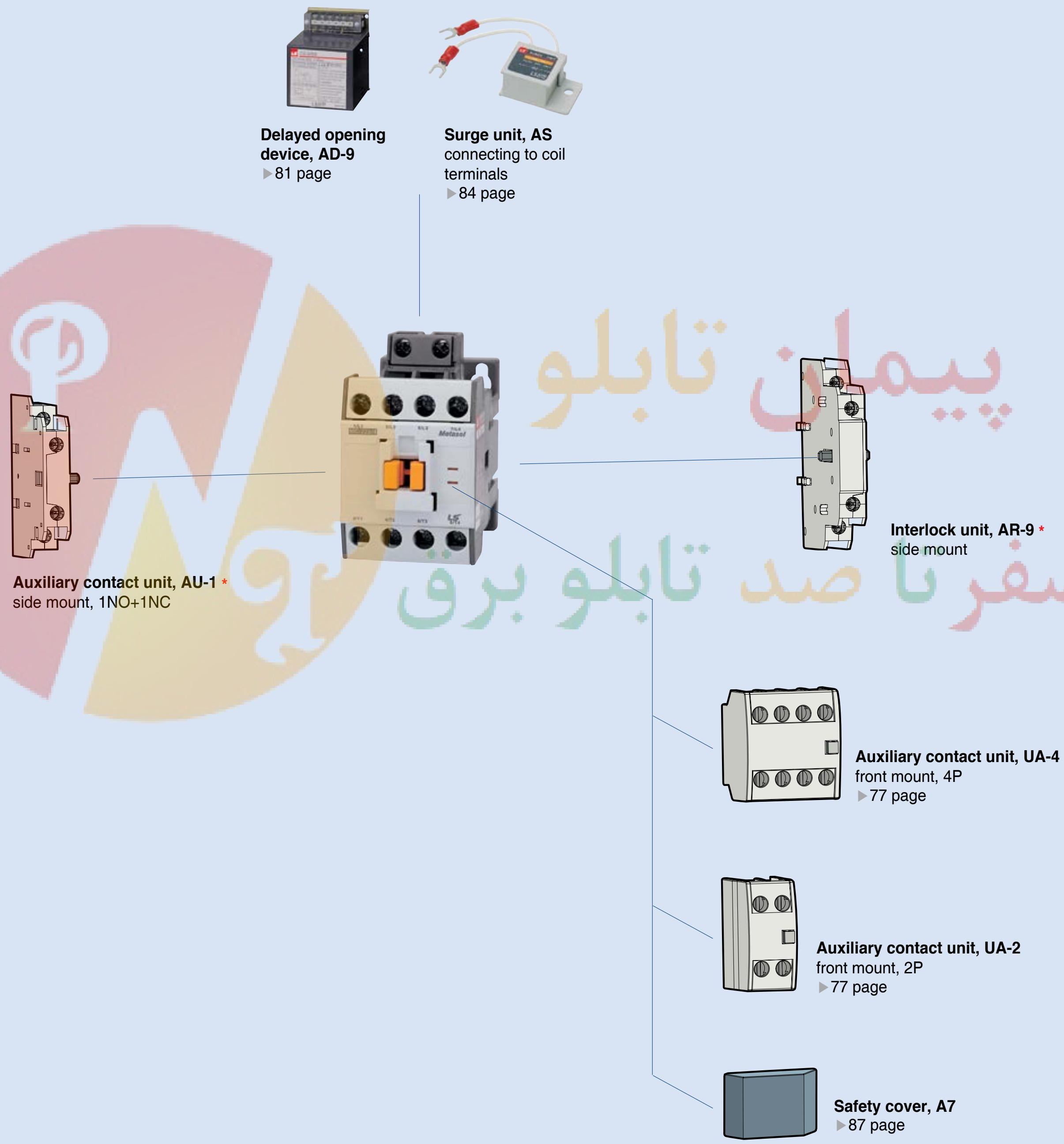
Coil voltage

AC	50Hz	24, 36, 42, 48, 65, 80, 100, 110, 220, 230, 240, 380, 400, 415, 440, 500, 550, 240(wide)V
	60Hz	24, 48, 110, 208, 220, 240, 277, 380, 440, 480, 600V
	50/60Hz	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

- CE(IEC)
- UL508
- CCC

Accessories



* AU-1 and AR-9 are discontinued item. Please contact us in case of purchasing.

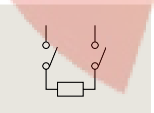
Metasol

4-pole Contactors (85AF)

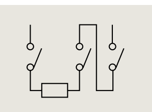
Description

- 4-pole main contact
- Finger proof design
- DIN rail or screw mountable
- Auxiliary contacts are optional
- Front/side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20

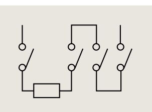
MC-85a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

Rating

Contactor type			MC-50a/4		MC-65a/4		MC-75a/4		MC-85a/4	
			kW	A	kW	A	kW	A	kW	A
AC duty	AC1	200/240V	30	80	37	100	41	110	51	135
		380/440V	56	80	70	100	76	110	95	135
		500/550V	70	80	88	100	97	110	120	135
		690V	88	80	110	100	120	110	150	135
	AC3	200/240V	15	55	18.5	65	22	75	25	85
		380/440V	22	50	30	65	37	75	45	85
		Ith	-	80	-	100	-	110	-	135
DC1 duty	2-pole	110V	-	35	-	35	-	50	-	50
(L/R=1ms)	in series	220V	-	15	-	15	-	20	-	20
	3-pole	110V	-	50	-	65	-	75	-	80
	in series	220V	-	40	-	50	-	55	-	60
	4-pole	110V	-	60	-	70	-	80	-	100
	in series	220V	-	50	-	60	-	70	-	70
UL rating			**hp**	**A**	**hp**	**A**	**hp**	**A**	**hp**	**A**
		220/240V	15	-	20	-	25	-	30	-
		440/480V	30	-	40	-	50	-	50	-
		550/600V	30	-	40	-	50	-	50	-
		Ith	-	70	-	80	-	90	-	100
Conductor size (solid, stranded)		AWG	8~4		6~3		4~2		4~1	
(the max. number of conducts: 2)		mm²	10~25		16~35		25~35		25~50	
Conductor type			65/75℃ Cu-wire only							

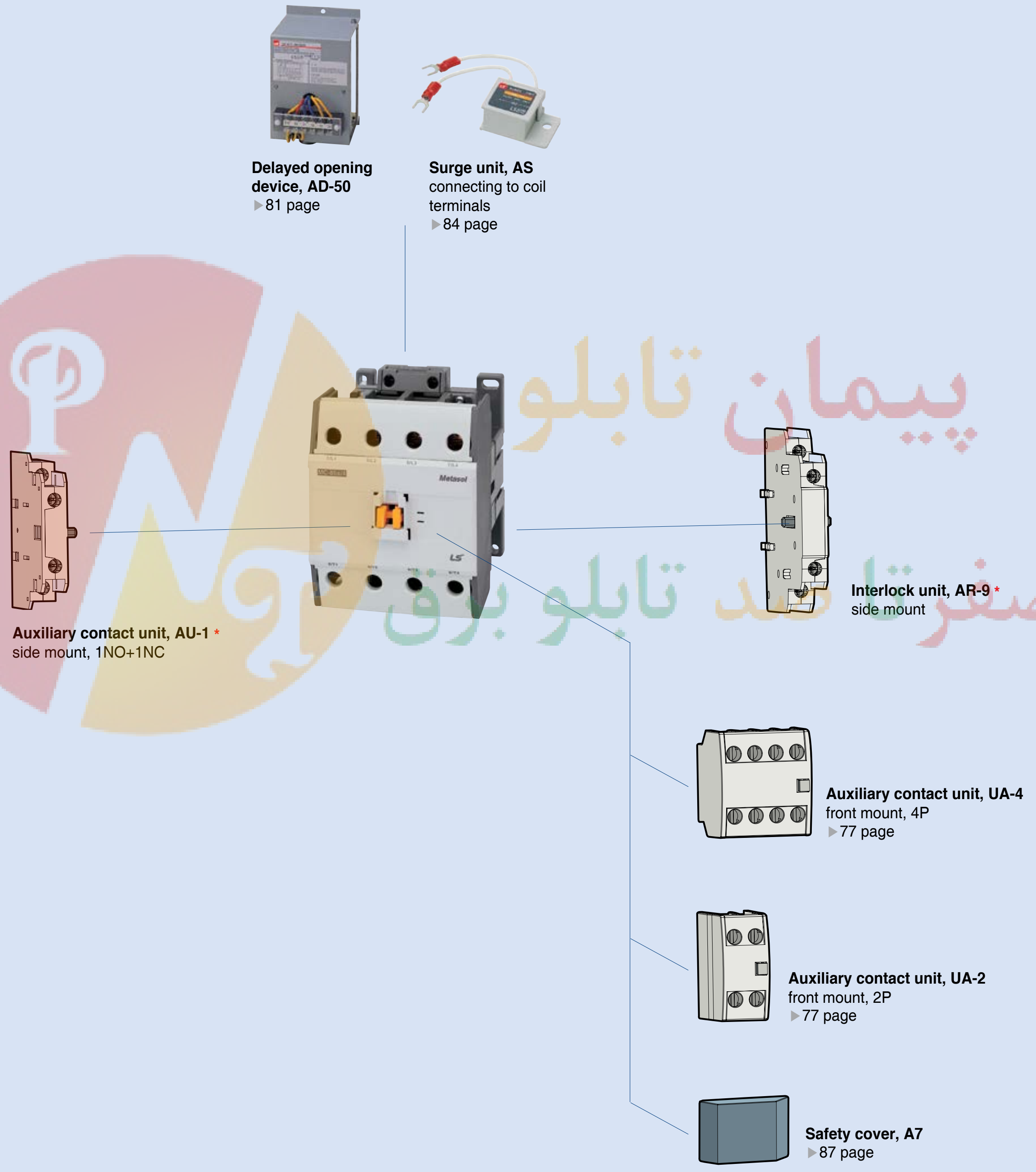
Coil voltage

AC	50Hz	24, 48, 100, 110, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V, 240(wide)
	60Hz	24, 48, 110, 120, 208, 220, 240, 277, 380, 440, 480, 600V
	50/60Hz	24, 48, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

- CE(IEC)
- UL508
- CCC

Accessories

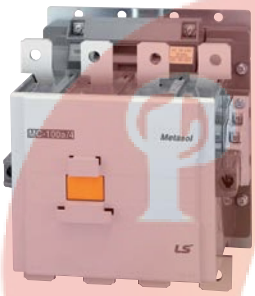


* AU-1 and AR-9 are discontinued item. Please contact us in case of purchasing.

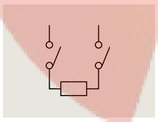
4-pole Contactors (225AF)

Description

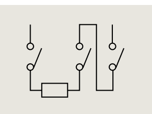
- 4-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20



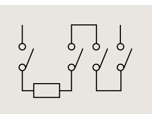
MC-225a/4



2pole for DC contact



3pole for DC contact



4-pole in series

Rating

Contactor type			MC-100a/4		MC-130a/4		MC-150a/4		MC-185a/4		MC-225a/4	
			kW	A	kW	A	kW	A	kW	A	kW	A
AC duty	AC1	200/240V	57	200	60	250	76	275	87	300	100	350
		380/440V	106	200	110	250	142	275	165	300	185	350
		500/550V	132	200	137	250	180	275	205	300	230	350
		690V	165	200	170	250	225	275	255	300	290	350
	AC3	200/240V	30	105	37	125	45	150	55	185	75	225
		380/440V	55	105	60	120	75	150	90	185	132	225
		Ith	-	200	-	250	-	275	-	300	-	350
DC1 duty	2-pole	110V	-	80	-	80	-	100	-	150	-	150
(L/R=1ms)	in series	220V	-	50	-	50	-	100	-	150	-	150
	3-pole	110V	-	100	-	100	-	150	-	180	-	220
	in series	220V	-	80	-	80	-	150	-	180	-	220
	4-pole	110V	-	100	-	100	-	150	-	180	-	220
	in series	220V	-	90	-	100	-	150	-	180	-	220
UL rating			hp	A	hp	A	hp	A	hp	A	hp	A
		220/240V	30	-	40	-	50	-	60	-	75	-
		440/480V	60	-	75	-	100	-	125	-	150	-
		550/600V	60	-	75	-	100	-	125	-	150	-
		Ith	-	200	-	250	-	275	-	300	-	350
Conductor size (solid, stranded)		AWG	6~00		3~00		3~4/0		1~4/0		0~300	
(the max. number of conducts: 2)		mm²	16~70		35~70		35~95		50~95		50~150	
Conductor type			75°C Cu stranded wire									

Coil voltage, AC/DC common

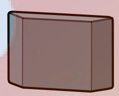
Nominal(ordering) voltage	AC 50/60Hz	DC
24V	24 - 25V	24V
48V	48 - 50V	48V
100/200V	100 - 240V	100 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

Certification

- CE(IEC)
- UL508
- CCC

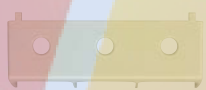
Accessories

AD-100
Delayed opening device
▶ 81 page

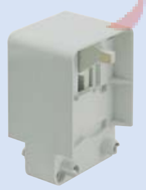


Safety cover, A7
▶ 87 page

AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶ 78 page



AP220/4
Terminal cover
▶ 81 page



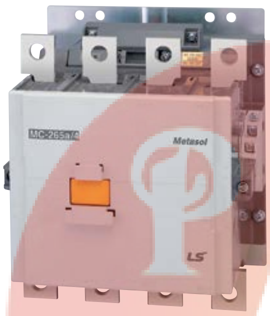
AR-180
Interlock unit
side mount
▶ 83 page

AI-180
Insulation barrier
▶ 81 page

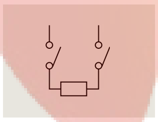
4-pole Contactors (400AF)

Description

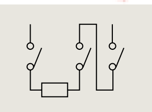
- 4-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories
- Degree of protection: IP20



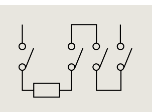
MC-400a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

Rating

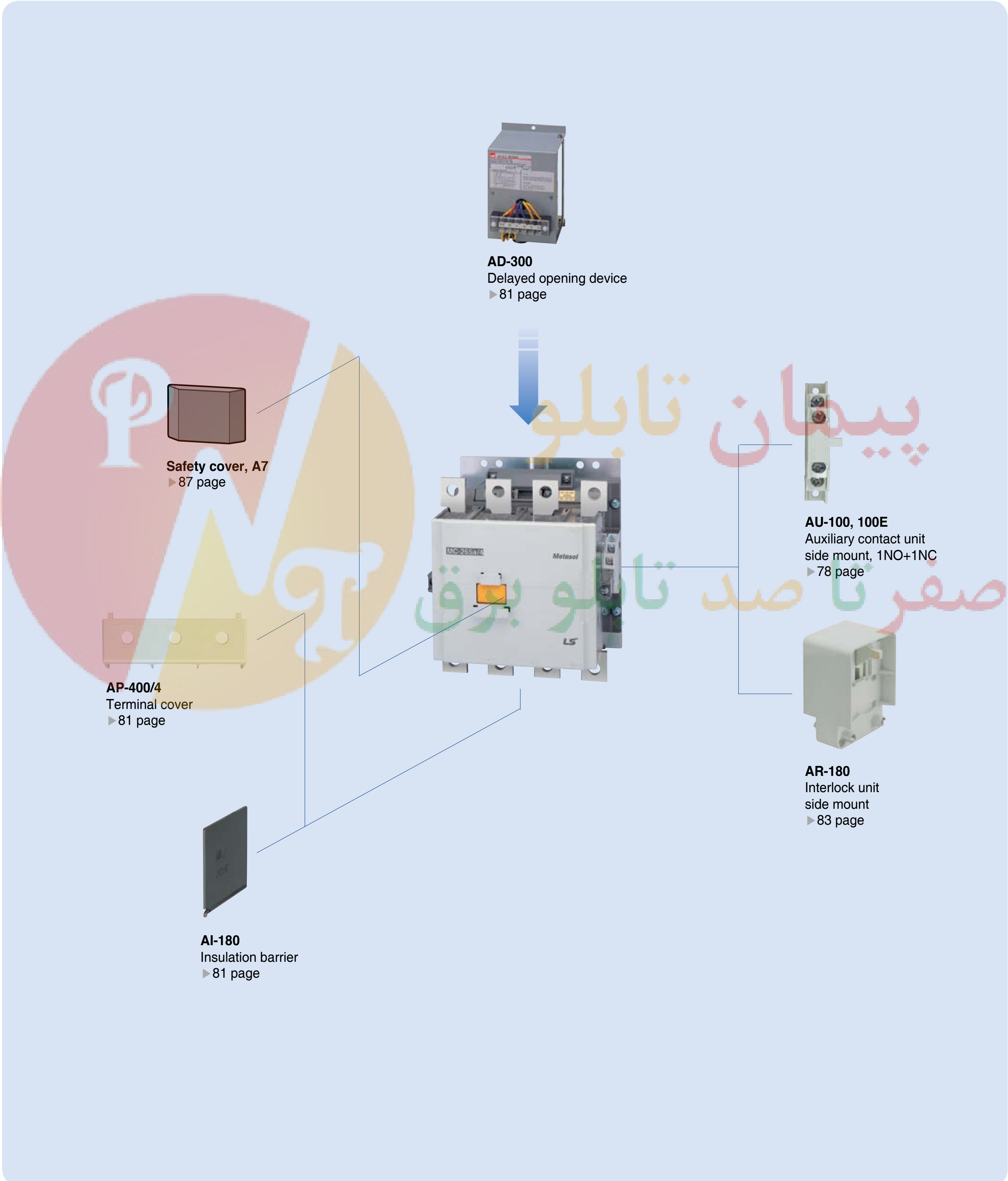
Contactor type			MC-265a/4		MC-330a/4		MC-400a/4	
			kW	A	kW	A	kW	A
AC duty	AC1	200/240V	115	400	135	500	160	520
		380/440V	215	400	250	500	300	520
		500/550V	265	400	315	500	375	520
		690V	335	400	390	500	470	520
	AC3	200/240V	80	265	90	330	125	400
		380/440V	147	265	160	330	200	400
		Ith	-	400	-	500	-	520
DC1 duty	2-pole	110V	-	150	-	200	-	200
(L/R=1ms)	in series	220V	-	150	-	200	-	200
	3-pole	110V	-	220	-	300	-	400
	in series	220V	-	220	-	300	-	300
	4-pole	110V	-	220	-	300	-	400
	in series	220V	-	220	-	300	-	300
UL rating			hp	A	hp	A	hp	A
		220/240V	100	-	100	-	150	-
		440/480V	200	-	200	-	300	-
		550/600V	200	-	200	-	300	-
		Ith	-	400	-	500	-	520
Conductor size (solid, stranded)		AWG	3/0~500		4/0~500		350~700	
(the max. number of conducts: 2)		mm²	95~240		95~240		185~370	
Conductor type			75°C Cu stranded wire					

Coil voltage, AC/DC common

Nominal(ordering) voltage	AC 50/60Hz	DC
100/200V	100 - 240V	100 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

Certification
- CE(IEC)
- UL508
- CCC

Accessories

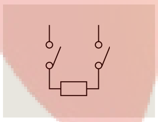


4-pole Contactors (800AF)

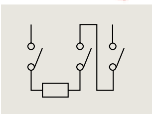
Description

- 4-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories
- Degree of protection: IP20

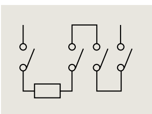
MC-800a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

Rating

Contactor type			MC-500a/4		MC-630a/4		MC-800a/4	
			kW	A	kW	A	kW	A
AC duty	AC1	200/240V	245	700	255	900	310	1050
		380/440V	450	700	470	900	570	1050
		500/550V	560	700	590	900	710	1050
		690V	710	700	740	900	900	1050
	AC3	200/240V	147	500	190	630	220	800
		380/440V	265	500	330	630	440	800
		Ith	-	700	-	900	-	1050
DC1 duty	2-pole	110V	-	200	-	630	-	630
(L/R=1ms)		220V	-	200	-	630	-	630
	3-pole	110V	-	400	-	630	-	800
		220V	-	300	-	630	-	800
	4-pole	110V	-	400	-	630	-	800
		220V	-	300	-	630	-	800
UL rating			hp	A	hp	A	hp	A
		220/240V	200	-	250	-	300	-
		440/480V	400	-	500	-	600	-
		550/600V	400	-	500	-	600	-
		Ith	-	700	-	900	-	1050
Conductor size (solid, stranded)		AWG	350~800		600~2000		1700~Busbar	
(the max. number of conducts: 2)		mm²	185~480		-		-	
Conductor type			75°C Cu stranded wire					

Coil voltage, AC/DC common

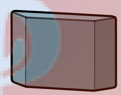
Nominal(ordering) voltage	AC 50/60Hz	DC
100V	100 - 127V	100 - 110V
200V	200 - 240V	200 - 220V
300V	265 - 347V	-
400V	380 - 450V	-
500V	440 - 575V	-

Certification

- CE(IEC)
- UL508
- CCC

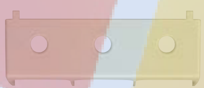
Accessories

AD-600
Delayed opening device
▶81 page

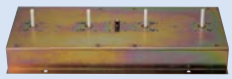


Safety cover, A7
▶87 page

AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC
▶78 page



AP-800/4
Terminal cover
▶81 page



AR-600
Interlock unit
▶83 page

AI-600
Insulation barrier
▶81 page

Enclosed motor starters, Mold enclosure

Description

- Enclosed & full voltage type
  MW-□bM: Plastic enclosure without buttons
  MW-□bMB: Plastic enclosure with ON/OFF buttons
- With differential or non-differential type thermal overload relay
- Contactors: 3 pole with AC coil
- Screw mountable
- Degree of protection: IP40

Ratings

Type	AC3 Ratings (IEC 60947-4-1)				Auxiliary contact (standard)	Devices combined	
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690		Contactor	Overload relay
MW-9bM(B)	2.5kW 11A	4kW 9A	4kW 7A	4kW 6A	1NO1NC	MC-9b	MT-32 (0.1~22A)
MW-12bM(B)	3.5kW 13A	5.5kW 12A	7.5kW 12A	7.5kW 9A		MC-12b	
MW-18bM(B)	4.5kW 18A	7.5kW 18A	7.5kW 13A	7.5kW 9A		MC-18b	
MW-22bM(B)	5.5kW 22A	11kW 22A	15kW 20A	15kW 18A		MC-22b	

Overload relay setting range, Amp.

MT-12		MT-32		MT-63		MT-95	
0.1 - 0.16	5 - 8	0.1 - 0.16	5 - 8	4 - 6	28 - 40	7 - 10	54 - 75
0.16 - 0.25	6 - 9	0.16 - 0.25	6 - 9	5 - 8	34 - 50	9 - 13	63 - 85
0.25 - 0.4	7 - 10	0.25 - 0.4	7 - 10	6 - 9	45 - 65	12 - 18	70 - 95
0.4 - 0.63	9 - 13	0.4 - 0.63	9 - 13	7 - 10		16 - 22	80 - 100
0.63 - 1	12 - 18	0.63 - 1	12 - 18	9 - 13		18 - 25	
1 - 1.6		1 - 1.6	16 - 22	12 - 18		24 - 36	
1.6 - 2.5		1.6 - 2.5	18 - 25	16 - 22		28 - 40	
2.5 - 4		2.5 - 4	22 - 32	18 - 25		34 - 50	
4 - 6		4 - 6	28 - 40	24 - 36		45 - 65	

Internal device

Coil voltage

AC	50Hz	24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V
	60Hz	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V

Certification
- CE(IEC)
- UL508

Type numbering system

MW-6a / **B** / **2H**

Rated current	
6a	6A
⋮	
100a	100A

Enclosure type	
-	Without push button (Steel enclosure)
B	With push button (Steel enclosure)
M	Without push button (Mold enclosure)
MB	With push button (Mold enclosure)

Thermal overload relay version	
2H	Non-differential (2-heater)
3H	Non-differential (3-heater)
3K	Differential
3D	Class 20

Enclosed motor starters, Steel enclosure

Description

- Full voltage type
  MW-□a/MW-□b: Steel enclosure without buttons
  MW-□aB/MW-□bB: Steel enclosure ON/OFF buttons
- Contactors: 3 pole with AC coil
- Overload relayWith differential or non-differential type
- Screw mountable
- Degree of protection: IP40

Ratings

Type	AC3 Ratings (IEC 60947-4-1)					Devices combined	
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V	1000V	Contactor relay	Overload
MW-6a(B)	2.2kW 9A	3kW 7A	3kW 6A	3kW 4A	-	MC-6a	MT-12 (0.1~18A)
MW-9a(B)	2.5kW 11A	4kW 9A	4kW 7A	4kW 5A	-	MC-9a	
MW-12a(B)	3.5kW 13A	5.5kW 12A	7.5kW 12A	7.5kW 9A	-	MC-12a	
MW-18a(B)	4.5kW 18A	7.5kW 18A	7.5kW 13A	7.5kW 9A	-	MC-18a	
MW-9b(B)	2.5kW 11A	4kW 9A	4kW 7A	4kW 6A	-	MC-9b	MT-32 (0.1~22A)
MW-12b(B)	3.5kW 13A	5.5kW 12A	7.5kW 12A	7.5kW 9A	-	MC-12b	
MW-18b(B)	4.5kW 18A	7.5kW 18A	7.5kW 13A	7.5kW 9A	-	MC-18b	
MW-22b(B)	5.5kW 22A	11kW 22A	15kW 20A	15kW 18A	-	MC-22b	
MW-32a(B)	7.5kW 32A	15kW 32A	18.5kW 28A	18.5kW 20A	22kW 17A	MC-32a	MT-32 (0.1~40A)
MW-40a(B)	11kW 40A	18.5kW 40A	22kW 32A	22kW 23A	22kW 17A	MC-40a	
MW-50a(B)	15kW 55A	22kW 50A	30kW 43A	30kW 28A	30kW 23A	MC-50a	MT-63 (4~65A)
MW-65a(B)	18.5kW 65A	30kW 65A	33kW 60A	33kW 35A	33kW 26A	MC-65a	
MW-75a(B)	22kW 75A	37kW 75A	37kW 64A	37kW 42A	37kW 28A	MC-75a	MT-95 (7~100A)
MW-85a(B)	25kW 85A	45kW 85A	45kW 75A	45kW 45A	45kW 33A	MC-85a	
MW-100a(B)	30kW 105A	55kW 105A	55kW 85A	55kW 65A	45kW 33A	MC-100a	

Internal device

Overload relay setting range, Amp.

MT-12		MT-32		MT-63		MT-95	
0.1 - 0.16	5 - 8	0.1 - 0.16	5 - 8	4 - 6	28 - 40	7 - 10	54 - 75
0.16 - 0.25	6 - 9	0.16 - 0.25	6 - 9	5 - 8	34 - 50	9 - 13	63 - 85
0.25 - 0.4	7 - 10	0.25 - 0.4	7 - 10	6 - 9	45 - 65	12 - 18	70 - 95
0.4 - 0.63	9 - 13	0.4 - 0.63	9 - 13	7 - 10		16 - 22	80 - 100
0.63 - 1	12 - 18	0.63 - 1	12 - 18	9 - 13		18 - 25	
1 - 1.6		1 - 1.6	16 - 22	12 - 18		24 - 36	
1.6 - 2.5		1.6 - 2.5	18 - 25	16 - 22		28 - 40	
2.5 - 4		2.5 - 4	22 - 32	18 - 25		34 - 50	
4 - 6		4 - 6	28 - 40	24 - 36		45 - 65	

Coil voltage

AC	50Hz	24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V
	60Hz	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V

Certification

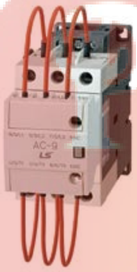
- CE(IEC)
- UL508

Capacitor contactors

Description

Capacitor unit(Pre-loading resistor) is connected to the terminals of the contactor to reduce the high inrush current exceeding 20×In.

- AC control coil on selection - 3-pole(NO) main contact
- Finger proof design - DIN rail or screw mountable - IEC 60947-4-1 AC 6b



Rating

Type	Rating (kVar, A)			
	220~240V	400~440V	500~550V	600~690V
MC-9b with AC-9	5kVar	9.7kVar	14kVar	16kVar
	13A	14A	16A	15A
MC-12b with AC-9	6.7kVar	12.5kVar	18kVar	18kVar
	18A	18A	21A	17A
MC-18b with AC-9	8.5kVar	16.7kVar	24kVar	26kVar
	22A	24A	28A	25A
MC-22b with AC-9	10kVar	18kVar	26kVar	30kVar
	26A	26A	30A	29A
MC-32a with AC-9	15kVar	25kVar	36kVar	40kVar
	39A	36A	42A	38A
MC-40a with AC-9	20kVar	33.3kVar	48kVar	53kVar
	52A	48A	55A	51A
MC-50a with AC-50	20kVar	40kVar	58kVar	65kVar
	52A	58A	67A	63A
MC-65a with AC-50	25kVar	45.7kVar	66kVar	73kVar
	66A	66A	76A	70A
MC-75a with AC-75	29.7kVar	54kVar	78kVar	85kVar
	78A	78A	90A	82A
MC-85a with AC-75	35kVar	60kVar	92kVar	100kVar
	92A	87A	106A	96A
MC-100a with AC-75	37kVar	62kVar	94kVar	105kVar
	97A	89A	109A	101A

Note) 1. When the switch is closed condenser must be discharged before recharged. (Maximum residual voltage at terminals ≤ 50V)
2. To prevent short current, gG type fuse must be 1.5~2 times than rated current.

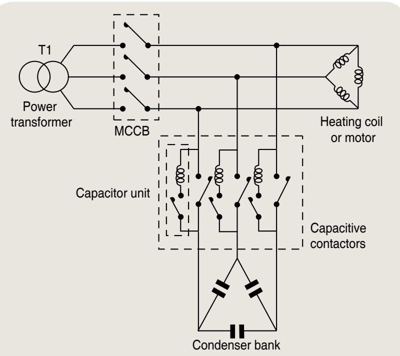
Type	Rating (kVar, A)	
	500~550V	600~690V
MC-9b	4kVar	3.5kVar
	4.6A	3.4A
MC-12b	4kVar	4kVar
	4.6A	3.8A
MC-18b	5kVar	4.5kVar
	5.8A	4.3A
MC-22b	8kVar	8kVar
	9.2A	7.7A
MC-32a	17kVar	14kVar
	20A	13A
MC-40a	25kVar	18kVar
	29A	17A
MC-50a	30kVar	25kVar
	35A	24A
MC-65a	40kVar	35kVar
	46A	34A
MC-75a	50kVar	40kVar
	58A	38A
MC-85a	55kVar	45kVar
	64A	43A
MC-100a	60kVar	48kVar
	69A	46A
MC-130a	70kVar	60kVar
	81A	58A
MC-150a	90kVar	78kVar
	104A	75A
MC-185a	120kVar	100kVar
	139A	96A
MC-225a	130kVar	105kVar
	150A	101A
MC-265a	140kVar	115kVar
	162A	111A
MC-330a	185kVar	140kVar
	214A	135A
MC-400a	195kVar	160kVar
	225A	154A
MC-500a	330kVar	290kVar
	381A	279A
MC-630a	340kVar	300kVar
	393A	289A
MC-800a	370kVar	320kVar
	427A	308A

Coil voltage

AC	50Hz	24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V
	60Hz	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V

These capacitive contactors are suitable for switching single-step or multiple-step condenser bank.
It is standardized by IEC-60947-4941, UL and CSA.
Features of capacitor unit(Pre-loading resistor)

- Damping resister that can limit the inrush current upto 60×In is connected to the mechanism that closed earlier than the main contact of the contactor
- No heat loss by the serial resistor
- Eliminate the switching surge
- Improving the performance of the capacitor system



Example

2-pole AC Contactors, Definite purpose

Description

- Two normally open main contacts
- Screw clamp or fast-on connections
- Small and light design suitable for use in air conditioners, heaters, refrigerators, etc.
- Screw mountable
- No auxiliary contact
- AC control voltage

Ratings

Type	AC3 ratings			Ith	Contact	
	220~240V	380~440V	500~550V		NO	NC
GMC-10P2	10A	8A	6A	20A	2	-
GMC-20P2	20A	17A	14A	30A	2	-
GMC-25P2	25A	21A	17A	35A	2	-
GMC-30P2	30A	23A	21A	40A	2	-
GMC-35P2	35A	26A	23A	45A	2	-
GMC-40P2	40A	32A	26A	50A	2	-

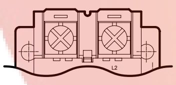
Insulation voltage: 690V at AC, 250V at DC

Control coil characteristics

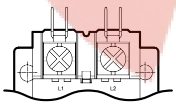
Coil voltage	Coil consumption (VA)		Thermal dissipation (W)	Operational voltage(V)		Coil current (mA)	Operational time (ms)	
	Inrush	Holding		Pick-up	Drop-out		Closing	Opening
24V 50/60Hz	35	6.0	2	18~20	10~15	263	40	30
48V 50/60Hz	35	6.0	2	36~40	19~27	131	40	30
100V 50/60Hz	35	6.0	2	74~81	39~57	63	40	30
110V 50/60Hz	35	6.0	2	78~90	50~64	57	40	30
120V 50/60Hz	35	6.0	2	90~100	52~66	53	40	30
200V 50/60Hz	35	6.0	2	155~165	80~115	32	40	30
220V 50/60Hz	35	6.0	2	160~175	90~120	29	40	30
230V 50/60Hz	35	6.0	2	165~180	110~130	27	40	30
240V 50/60Hz	35	6.0	2	168~185	110~135	26	40	30

Note) 1. The condition of the above data: 60Hz. 20℃ from cold state
2. Coil consumption (VA) is average value.

Main terminal



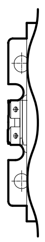
Screw clamp



Fast-on (Quick connect)

Coil terminal

Screw clamp



Fast-on
(Quick connect)

Type numbering system

GMC / **10P** **2** / **TS** **BQ** **100V**

Contactors

Capacity (A)	
10P	10
20P	20
25P	25
30P	30
35P	35
40P	40

Pole	
2	2pole

Main terminal connect	
TS	Screw clamp
TQ	Quick connect

Power supply connect	
BS	Screw clamp
BQ	Quick connect

Operation voltage (AC)	
20V	24V
48V	24~240V
110V	100~120V
220V	208~240V

3-pole AC Contactors, Definite purpose

Description

- Three main contacts
- Screw clamp connections
- Small and light design suitable for use in air conditioners, heaters, refrigerators, etc.
- Screw mountable
- No auxiliary contact
- AC control voltage

Ratings

Type	AC3 ratings			AC4 ratings			Ith	Contact	
	220~ 240V	380~ 440V	500~ 550V	220~ 240V	380~ 440V	500~ 550V		NO	NC
GMC-20D2 GMC-20D3	20A	17A	14A	18A	13A	10A	30A	2	-
								3	-
								2	1
GMC-25D2 GMC-25D3	25A	21A	17A	20A	14A	12A	35A	2	-
								3	-
								2	1

Note) Above contact ratings are for NO contact.
Rating for NC contact: 6A@120V, 3A@240V, 1.5A@480V at AC15 duty
Rating above 24V 1A
Please use NC contact for Insulation voltage: 690V at AC, 250V at DC

Control coil characteristics

Coil voltage	Coil consumption (VA)		Thermal dissipation (W)	Operational voltage(V)		Coil current (mA)	Operational time (ms)	
	Inrush	Holding		Pick-up	Drop-out		Closing	Opening
24V 60Hz	72	9.0	3	17~19	12.5~15.5	215	30	20
48V 60Hz	72	9.0	3	32~36	26~30	125	30	20
110V 60Hz	72	9.0	3	75~85	65~75	60	30	20
220V 60Hz	72	9.0	3	150~170	120~145	41	30	20

Note) 1. The condition of the above data: 60Hz. 20 ℃ from cold state
2. Coil consumption (VA) is average value.

Type numbering system

GMC / **20** **D2** **2NO1NC** **AC 220V**

Contactors

Rated current

20	20
25	25

Pole

D2	2NO, 2NO1NC
D3	3NO

Auxiliary contact

-	2pole: 2NO
	3pole: 3NO
2NO1NC	2NO1NC

Operation voltage (AC)

20V
48V
110V
220V

Single-pole AC Contactors, Definite purpose

Description

- Single-pole NO main contact
- Small and light design suitable for use in electric shock protector for AC arc welder
- DIN rail or screw mountable
- No auxiliary contact (Optional unit can be added up to 2NO2NC)
- AC control voltage

Ratings

Type	Rated current, In 110/220V	Ith	Performance	
			Making current	Breaking current
MC-65aSP	220A	500A	1.5×In	

Control coil characteristics

Coil consumption (VA)		Operational voltage		Operational time
Inrush	Holding	Pick-up	Drop-out	Closing
150VA	17VA	85% under	20% over	30ms under

Note) Coil voltage is available between AC24V and AC550V

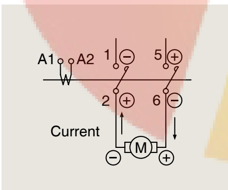
2-pole DC Contactors

Description

- Two normally open main contacts for DC circuit
- Positive and negative poles indicated on the front plate
- Eternal magnet installed for the effective arc extinguishing
- DIN rail or screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- AC/DC control voltage

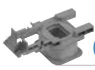
Selection

Contactor Type	DC-3, 5 ratings			DC-1 rating	Continuous current, Ith	Auxiliary contacts
	125V	250V	500V	1000V		
MD-30a	40A	30A	20A	10A	60A	2a(NO)+2b(NC)
MD-60a	80A	60A	40A	25A	100A	2a(NO)+2b(NC)
MD-100a	120A	100A	60A	35A	135A	2a(NO)+2b(NC)



Ratings of auxiliary contacts

UA-1	AC15 duty						DC13 duty				
	120V	240V	380V	480V	500V	600V	125V	250V	400V	500V	600V
Rated currents	6A	3A	1.9A	1.5A	1.4A	1.2A	1.1A	0.55A	0.31A	0.27A	0.2A
Continuous current, Ith	16A										

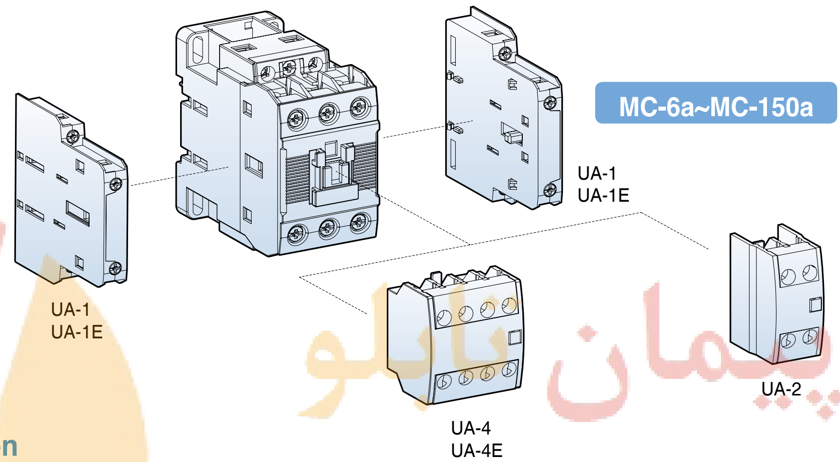


Coil voltage

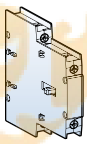
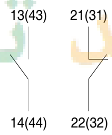
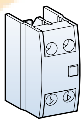
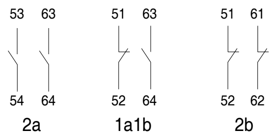
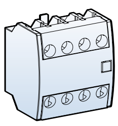
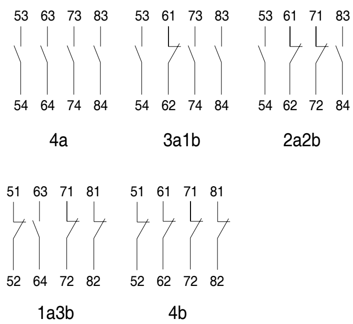
AC	50/60Hz	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Auxiliary contact units

- 2 and 4 pole
- Side and front mountable
- Common use for Metasol contactors from MC-6a to MC-150a
- Auxiliary contact meet the requirements for mirror contacts in IEC 60947-4-1. Annex F (A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with a NO main contact)



Selection

Type	Appearance	Pole	Composition		Contact arrangement	Mount	Weight
			NO	NC			
UA-1 UA-1E		2	1	1		Side	53g
UA-2		2	2 1 -	- 1 2		Front	28g
UA-4 UA-4E		4	4 3 2 1 -	- 1 2 3 4		Front	50g

* UA-1 auxiliary contact can not be attached to the right side of 22AF product

Maximum combination of contact units

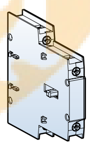
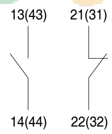
MC-6a~18a, 9b~22b (Max. 3a3b)	MC-32a~150a (Max. 4a4b)
UA-4(on front)+UA-1×1EA (1EA on one side)	UA-4(on front)+UA-1×2EA (1EA on both sides)
UA-2(on front)+UA-1×1EA (1EA on one side)	UA-2(on front)+UA-1×2EA (1EA on both sides)
UA-1×2EA (1EA on both sides)	UA-1×4EA (2EA on both sides) *For AC Coil

Accessory

Auxiliary contact units

- 2 pole
 - Side mountable
- Common use for Metasol contactors from MC-185a to MC-2650a
- Auxiliary contact meet the requirements for mirror contacts in IEC 60947-4-1. Annex F
 (A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with a NO main contact)

Selection

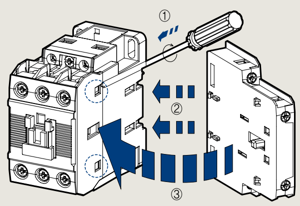
Type	Appearance	Pole	Composition		Contact arrangement	Mount	Weight
			a(NO)	b(NC)			
AU-100 AU-100E		2	1	1		Side	53g

Maximum combination of contact units

MC-185a~2650a (Max. 4a4b)
AU-100×4EA (2EA on both sides)
AU-100E×4EA (2EA on both sides)

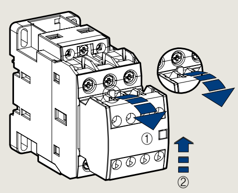
Installation

UA-1



To install side mounting unit remove the indicated part in the circle in the fig. first. And then fit each part as shown. To separate push forward and pull.

UA-2, 4



To install front mounting unit fit it on the upper part of the front of the contactor and push it down. To separate pull the lever of the unit and push the unit upward.

Rating

Type	UA-1	UA-2, 4	AU-100
Rated operation voltage (Ue)	600V	600V	600V
Rated insulation voltage (Ui)	1000V	690V	600V
Rated impulse withstand voltage (Uimp)	8kV	6kV	6kV
Rated frequency	50/60Hz	50/60Hz	50/60Hz
Contact sensibility			
Voltage	DC 24V	DC 24V	DC 24V
Current	DC 10mA	DC 10mA	DC 10mA
Rated thermal current (Ith, AC12 duty)	16A	16A	16A
Rated operation current AC15 duty 120V	6A	6A	6A
240V	3A	3A	3A
380V	1.9A	1.9A	1.9A
480V	1.5A	1.5A	1.5A
500V	1.4A	1.4A	1.4A
600V	1.2A	1.2A	1.2A
600V	0.2A	0.1A	0.2A
Rated Short-time withstand current 1s	100A	-	100A
0.5s	125A	-	120A
0.1s	145A	-	140A
Electrical lifetime (mil. operations) AC15 duty 220V	0.25	0.25	0.25
440V	0.25	0.25	0.25
Maximum operating cycles per hour	1800	1800	1800
Conductor size (Solid, stranded) AWG	18~10	18~10	18~10
(the max. number of conducts : 2) mm²	1~2.5	1~2.5	1~2.5

Pneumatic timer

Air pressure timer

It is attached to the head-on of the magnetic contactor. It uses the principle of air pressure and it is delayed by the set time after the magnetic contactor is inserted and released and then the auxiliary contact of the Pneumatic timer is reversed

UN – 1 N

Time delay range	
1	0.1 ~ 3s
2	0.1 ~ 30s
3	10 ~ 180s

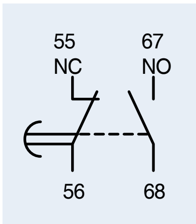
Timer Type	
N	ON delay
F	OFF delay

Note) Applicable MC: MC-6a ~ 100a, MC-9b ~ 22b, AC operation voltage

Combination with MC

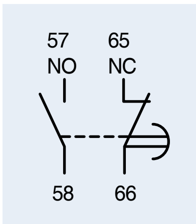
Type	MC-6a~100a / MC-9b~22b					
	UN-1N	UN-2N	UN-3N	UN-1F	UN-2F	UN-3F
Standards	IEC60947-5-1, GB14048.5					
Certification	CCC, CE					
Degree of protection	IP20					
Temperature range Storage	-25℃ ~ +60℃					
Temperature range Operation	-5℃ ~ +40℃					
Altitude	2,000m less					
Poles	1NO + 1NC					
Rated operating voltage	690V					
Rated insulation voltage	690V					
Frequency	50/60Hz					
Rated operation current(Ie)	A600(AC-15), Q600(DC-13)					
Ith(thermal Current)	10A					
Minimum switching current	10mA					
Irms rated making capacity	10 x Ie AC-15 acc. to IEC 60947-5-1					
Non overlap time	1.5ms					
Setting time	0.1~3s	0.1~30s	10~180s	0.1~3s	0.1~30s	10~180s
Operating time tolerance	±50% less					
Mechanical durability	2.5 mil. operations					

On Delay Timer Block(UN-N)



0.1~3s
0.1~30s
10~180s

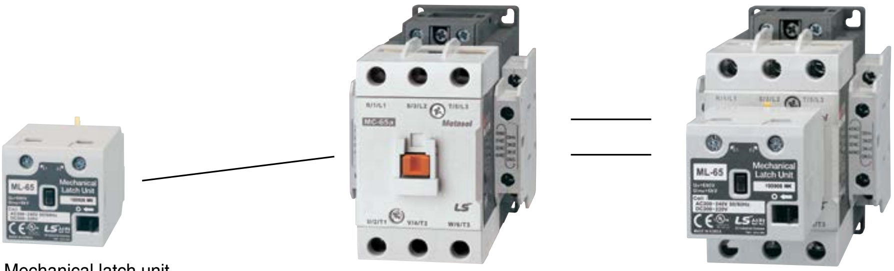
Off Delay Timer Block(UN-F)



0.1~3s
0.1~30s
10~180s

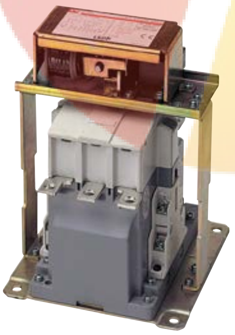
Accessory

Mechanical latch unit ML, AL



Mechanical latch unit   Contactor   Combined

ML-65



Ratings

Applying contactors	Type	Coil voltage of latch unit
MC-6a/L MC-9a/L MC-12a/L MC-18a/L MC-9b/L MC-12b/L MC-18b/L MC-22b/L MC-32a/L MC-40a/L MC-50a/L MC-65a/L	ML-65	See table A
MC-75a/L MC-85a/L MC-100a/L MC-130a/L MC-150a/L	ML-150	See table A
MC-185a/L, 225a/L	AL-225	See table B
MC-265a/L, 330a/L, 400a/L	AL-400	See table B

Table A (ML-65, ML-150):

Ordering voltage	Operation voltage
AC 24V/ DC 24V	AC 24V 50/60Hz, DC 24V
AC 48V/ DC 48V	AC 48V 50/60Hz, DC 48V
AC 100V/DC 100V	AC 100~127V 50/60Hz, DC 100V~125V
AC 200V/DC 200V	AC 200~240V 50/60Hz, DC 200V~220V
AC 400V	AC 380V~440V 50/60Hz

* Coils for 24, 48, 100, 200V are AC / DC common.

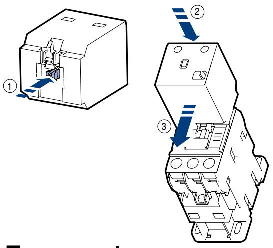
Table B (AL-225, AL-400):

Ordering voltage	Operation voltage
AC 100V	AC 100~127V 50/60Hz, DC 100~110V
AC 200V	AC 200~240V 50/60Hz, DC 200~220V

* For using safely the product providing DC control power, Please consider that the maximum switching frequency should be less than 150 times/hour.

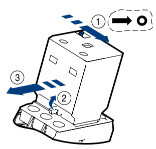
Note) Latch units for upto MC-150 are supplied seperately. From MC-185 the units are assembled at factory.

To install



1. Push the black bar
2. Position the Latch on the top of the contactor
3. Pull in the direction of the arrow until snapping

To separate



1. Pull the black lever in the direction of the arrow.
2. Pull up the yellow lever.
3. Push the latch in the direction of the arrow.

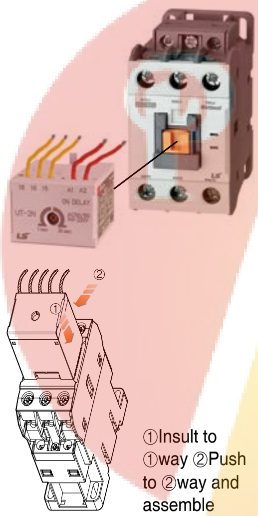
Delayed opening devices, AD

Delayed opening device prevents the inadvertent opening of a contactor in the event of a wide voltage drop or brief supply voltage interruptions of control power for 1 to 4 seconds.

Applying contactors	Type	Rated voltage	MC Rated voltage	Durability		Performance
				Mechanical	Electrical	
MC-6a~40a	AD-9	AC 110V	DC 110V	5 mil operations	1 mil operations	• Making/Breaking capacity at AC3 - Making current : min. 10xIn - Breaking current : min. 8xIn • Max. operating rate : 600 operations/hour • Delaying time : 1~7sec. • Capacitor durability 1) Operation :> 0.1 mil. operations 2) Cumulative charge life at AC 200/220V - 45℃ or less: 80,000 hours - 50℃ or less: 60,000 hours
MC-9b~22b		AC 220V	DC 220V			
MC-50a~100a	AD-50	AC 110V	DC 110V			
		AC 220V	DC 220V			
MC-130a~225a	AD-100	AC 100~240V	AC/DC 100~240V		0.5 mil operations	
MC-265a~400a	AD-300	AC 100~240V	AC/DC 100~240V			
MC-500a~800a	AD-600	AC 100~127V	AC/DC 100~127V			
		AC 200~240V	AC/DC 200~240V			

* AD shall ve used for DC type contactor

Electronic timer unit, UT



Applying contactors		Type	Rated voltage	Performance
MC-6a~150a MC-9b~22b MR-4~8	On delay	UT-1N	AC/DC 24~48V	• Mounting: Head on • Contact: 1c • Time delay: 1 Sec~30 Sec On delay, Off delay • Frequency: AC 50/60Hz • Operation: Min. voltage 85%, Max. voltage 110% • Accuracy of setting time: ±20%
		UT-2N	AC 110~220V	
	Off delay	UT-1F	AC/DC 24~48V	
		UT-2F	AC 110~220V	

Terminal cover units for contactors, AP

Applying contactors	Type		Remarks
	Standard	Transparent	
MC-9b,12b,18b,22b (22AF)	-	AP/T-9	2 pcs included
MC-32a,40a (40AF)	-	AP/T-32	
MC-50,65a (65AF)	-	AP/T-50	
MC-75a,85a,100a (100AF)		AP/T-75	
MC-130a,150a (150AF)	-	AP/T-130	
MC-185a,225a (225AF)	AP-220	AP/T-185	
MC-265a,330a,400a (400AF)	AP-400	AP/T-265	
MC-500a,630a,800 (800AF)	AP-800	AP/T-500	

Insulation barrier units, AI

Applying contactors	Type	Remarks
MC-130a, 150a (150AF)	AI-180	4 pcs required per contactor
MC-185a, 225a (225AF)		
MC-265a, 330a, 400a (400AF)		
MC-500a, 630a, 800a, 1260a (800AF)	AI-800	
MC-1400a, 1700a, 2100a (2650AF)	AI-2100	
MC-2650a (2650AF)	AI-2650	

* The insulation barrier for MC-150a is available on the screw type only.

Accessory

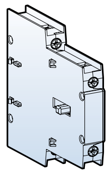
Interlocks

Component parts for assembling by customer

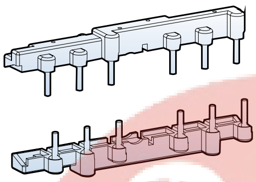
Interlock unit, UR-02 and AR-9 & Wire kit UW

UR-02 is a mechanical interlock unit and provides 2NC contacts for use in electrical interlocking

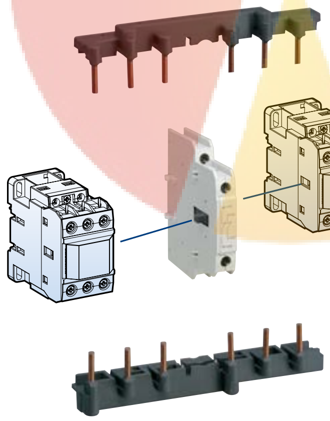
UW is used for making reversing circuit between two contactors.



Interlock unit



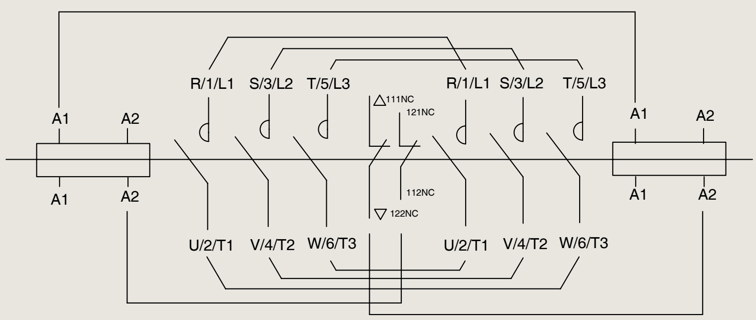
Wire kit



Contactor	Pole	Wire kit		Interlock unit		Aux Contact
		Type	Weight	Type	Weight	
MC-6a~18a	3P	UW-18	0.05kg			2NC
	4P	-	-			
MC-9b~22b		UW-22	0.04kg			-
MC-32a~40a		UW-32	0.05kg	UR-02	0.06kg	-
MC-50a, 65a	3P	UW-63	0.12kg			-
MC-75a~100a		UW-95	0.33kg			-
MC-130a~150a		-	-			-
MC-22a~85a	4P	-	-	AR-9	0.05kg	-

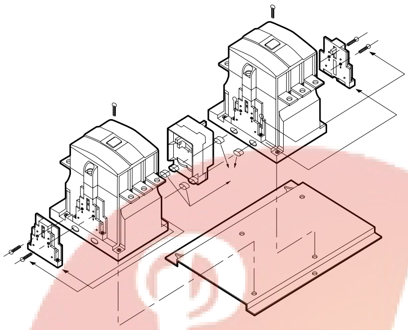
Rating of the contacts in the interlocks

Rated operation voltage			600V
Rated insulation voltage			1000V
Rated frequency			50/60Hz
Rated thermal current			16A
Rated operation current			
	AC15 duty	120V	6A
	(A600)	240V	3A
		380V	1.9A
		480V	1.5A
		500V	1.4A
		600V	1.2A
	DC13 duty	125V	0.55A
	(Q300)	250V	0.27A



<MC-6aR ~ MC-150aR typical circuit diagram for reversing contactor>

AR-180



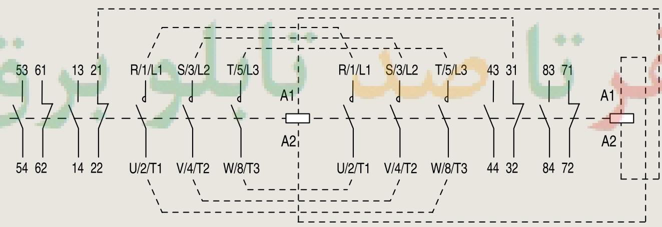
AR-600 & AR-600/V

Interlock unit, AR-180 and AR-600

AR-180 and AR-600 are mechanical interlock units in which electrical contacts for use in electrical interlocking are not included. Please use the auxiliary contacts on the sides of the contactors for that purpose.

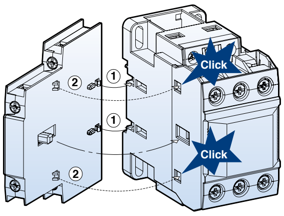
Contactor	Pole	Interlock unit	
		Type	Weight
MC-100a	4P	AR-180	0.09kg
MC-130a			
MC-150a			
MC-185a	3,4P		
MC-225a			
MC-265a			
MC-330a			
MC-400a			
MC-500a	3,4P	AR-600 AR-600/V	15.2kg
MC-630a			
MC-800a			

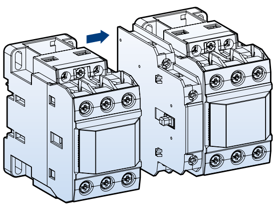
*AR-600 3pole product is different fro, AR-600 4pole product in size.
*The AR-600 / V is a vertical interlock unit.

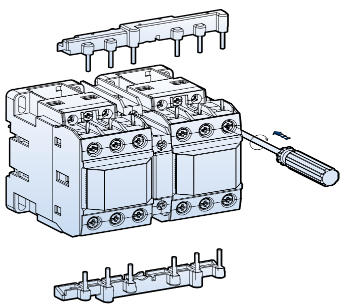


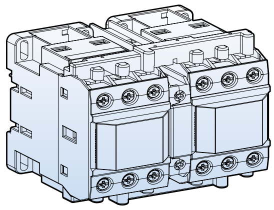
<MC-180aR ~ MC-800aR typical circuit diagram for reversing contactor>

Installation of Interlock and Wire kits









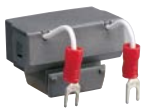
Install the interlock unit on the side of a contactor first. Fit each part as indicated in the fig.

And then install the other contactor on the other side of the interlock unit as shown.

After installing interlock unit wiring kit can be assembled.
Wiring kit contains two molded wires - one for line side and the other for load side.
- In case of assembling Reversing contactor, please check the R, S, T/U, V, Wmark on the contactor and Wire kit.

Accessory

Surge unit



US Type

AS Type

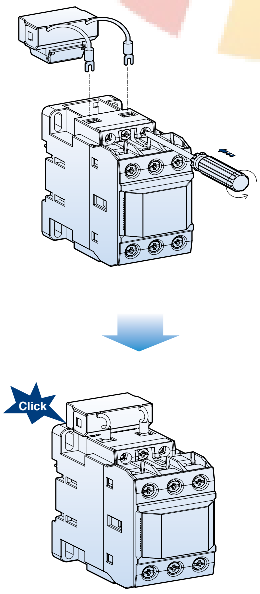
It absorbs the surge arisen out of the coil of the contactor.
It can be installed simply to the contactor.

- Rated operation voltage (Ue): AC 24 ~ 440V / DC 24 ~ 125V
- Rated insulation voltage (Ui): 1000V
- Rated impulse withstand voltage (Uimp): 8kV
- Degree of protection: IP20
- Combination with 3Pole 6a/3~150a/3, 4Pole 32a/4~85a/4

US Type

Surge unit		Rated voltage		Internal elements spec.			Contactor
Type	Composition			V	R	C	
US-1	Varistor+RC		24~48V	120V	100Ω	0.1㎌	
US-2	Varistor+RC	AC	100~125V	270V	100Ω	0.1㎌	
US-3	Varistor+RC		200~240V	470V	100Ω	0.1㎌	
US-4	Varistor+RC		24~48V	120V	100Ω	0.47㎌	
US-5	Varistor+RC	DC	100~125V	270V	100Ω	0.47㎌	3Pole MC
US-6	Varistor+RC		200~220V	470V	100Ω	0.47㎌	6a~150a
US-11	Varistor		24~48V	120V	-	-	9b~22b
US-12	Varistor	AC/DC	100~125V	270V	-	-	
US-13	Varistor	common	200~240V	470V	-	-	
US-14	Varistor		380~440V	1000V	-	-	
US-22	RC	AC	100~125V	-	56Ω	1㎌	

Installation (US Type)

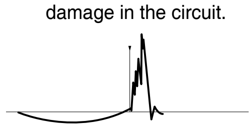
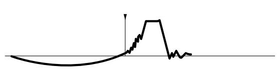
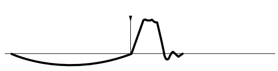


Connect the lead wires to the coil terminals of the contactor first. And then insert the body into the space of the contactor as shown above.

AS Type

Surge unit		Rated voltage		Internal elements spec.			Contactor
Type	Composition			V	R	C	
AS-1	Varistor+RC		24~48V	120V	100Ω	0.1㎌	
AS-2	Varistor+RC	AC	100~125V	270V	100Ω	0.1㎌	
AS-3	Varistor+RC		200~240V	470V	100Ω	0.1㎌	
AS-4	Varistor+RC		24~48V	120V	100Ω	0.47㎌	3Pole MC
AS-5	Varistor+RC	DC	100~125V	270V	100Ω	0.47㎌	185a~800a
AS-6	Varistor+RC		200~220V	470V	100Ω	0.47㎌	4Pole MC
AS-11	Varistor		24~48V	120V	-	-	22a/4~800a/4
AS-12	Varistor	AC/DC common	100~125V	270V	-	-	
AS-13	Varistor		200~240V	470V	-	-	
AS-14	Varistor	AC	380~440V	1000V	-	-	

Specitication of surge unit

Without surge unit	① With Varistor unit	② With CR+Varistor unit
Surge voltage, arise when the coil is off, may provoke mis-operation and damage in the circuit.	Varistor has an effect to cut down the peak voltage	Varistor has an effect to cut down the peak voltage and high frequency wave
		

Capacitor unit

Capacitor unit is connected to the terminals of the contactor to reduce the high inrush current.
IEC 60947-4-1 AC 6b

Type				AC-9 (1b)	AC-50 (1b)	AC-75 (1b)
Rating thermal current (Ith)				16A	16A	16A
Current	AC-15	Rated Operational Current (A)	120V	6	6	6
			240V	3	3	3
			380V	1.9	1.9	1.9
			480V	1.5	1.5	1.5
			500V	1.4	1.4	1.4
			600V	1.2	1.2	1.2
	DC-13	Rated Operational Current (A)	125V	0.55	0.55	0.55
			250V	0.27	0.27	0.27
			400V	0.15	0.15	0.15
			500V	0.13	0.13	0.13
			600V	0.1	0.1	0.1

Note) - When the switch is closed condenser must be discharged before recharged. (Maximum residual voltage at terminals ≤ 50V)
- To prevent short current, gG type fuse must be 1.5~2 times than rated current.

Features of capacitor unit (Pre-loading resistor)

- Damping resister that can limit the inrush current upto 60×In is connected to the mechanism that closed earlier than the main contact of the contactor
- No heat loss by the serial resistor
- Eliminate the switching surge
- Improving the performance of the capacitor system

Operation sequence

Capacitor unit: OFF
Contactor: OFF

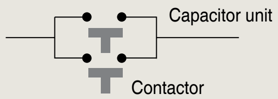


Fig.1

Capacitor unit: ON
Contactor: OFF

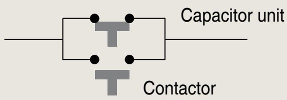


Fig.2

Capacitor unit: OFF
Contactor: ON

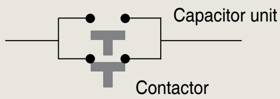


Fig.3

Note) Closing sequence: Fig.1 => Fig.2 => Fig.3
Opening sequence: Fig.3 => Fig.1

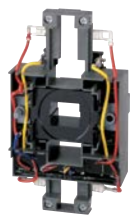
Accessory

Replacement coils

To replace the existing coil to change voltage or repair.

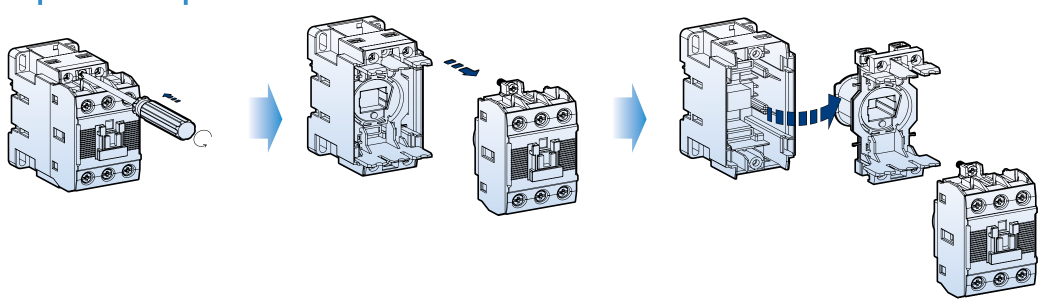






Contactor	Coil voltage							
	AC coil						DC coil	
	AC 60Hz (V)		AC 50Hz (V)		AC 50/60Hz (V)		DC (V)	
MC-6a MC-9a MC-12a MC-18a MR-4, 6, 8	24	230	24	230	24	240	-	
	48	240	36	240	48	380		
	100	277	42	380	100	415		
	110	380	48	400	110	440		
	120	440	80	415	120	500		
	200	480	100	440	200	550		
	208	600	110	500	220			
	220		220	550	230			
MC-9b MC-12b MC-18b MC-22b	24	230	24	230	24	240	-	
	48	240	36	240	48	380		
	100	277	42	380	100	415		
	110	380	48	400	110	440		
	120	440	80	415	120	500		
	200	480	100	440	200	550		
	208	600	110	500	220			
	220		220	550	230			
MC-32a MC-40a	24	230	24	230	24	240	12	110
	48	240	36	240	48	380	20	125
	100	277	42	380	100	415	24	200
	110	380	48	400	110	440	48	220
	120	440	80	415	120	500	60	250
	200	480	100	440	200	550	80	
	208	600	110	500	220		100	
	220		220	550	230			
MC-50a MC-65a	24	230	24	230	24	240	12	110
	48	240	36	240	48	380	20	125
	100	277	42	380	100	415	24	200
	110	380	48	400	110	440	48	220
	120	440	80	415	120	500	60	250
	200	480	100	440	200	550	80	
	208	600	110	500	220		100	
	220		220	550	230			
MC-75a MC-85a MC-100a	24	230	24	230	24	240	12	110
	48	240	36	240	48	380	20	125
	100	277	42	380	100	415	24	200
	110	380	48	400	110	440	48	220
	120	440	80	415	120	500	60	250
	200	480	100	440	200	550	80	
	208	600	110	500	220		100	
	220		220	550	230			
MC-130a MC-150a	-		-		24	220~240	24	110
					48	300	48	220
					24~48	380~440	24~48	
					100~240	500	70~110	
					110~120		100~220	

Replacement process



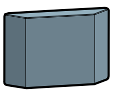
To replace the existing coil to change voltage or repair.

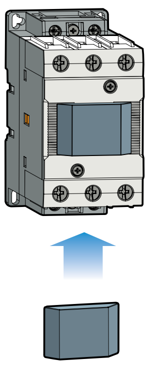
Contactor	Coil voltage	
	AC/DC common coil (V)	AC coil (V)
MC-185a MC-225a	24 48 100~240/100~220	300 400 500
MC-300a MC-400a	100~240/100~220	400 500
MC-500a MC-630a MC-800a	100/100 200/200	300 400 500
MC-1260a	100~240/100~220	-
MC-1400a MC-1700a MC-2100a MC-2650a	100~240/100~220	-

Safety cover (Option)

To prevent arc from coming out from the contactor
To protect from unintended manual operation
To prevent dust from entering into the inside of the contactor

Type	Contactor
AP-9	MC-6a~150a
AP-185	MC-185a~800a





Overload relays

General descriptions

Type MT, bimetal-style, overload relays are designed to protect AC circuits and motors against overloads, phase failure, long starting times and prolonged stalling of the motor.

Four versions are available according to the protection function and trip class as below.
1. Non-differential: 3pole-2bimetal(heater) and trip class 10A
2. Non-differential: 3pole-3bimetal(heater) and trip class 10A
3. Differential: 3pole-3bimetal(heater) and trip class 10A
4. Differential: 3pole-3bimetal(heater) and trip class 20

Configuration of the front

MT-12	MT-32	MT-63	MT-95
			

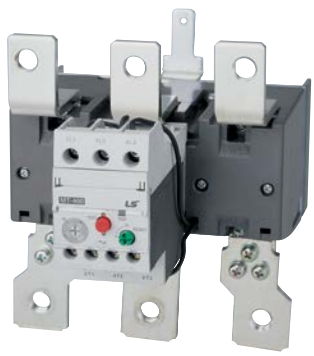
Environment and auxiliary circuit

Environment		MT-12~800
Standards		IEC/EN 60947-1, IEC/EN 60947-4-1
Certifications		CE, CSA, UL, CCC
Rated operation voltage		Max. 690V
Rated insulation voltage		690V
Rated frequency		50/60Hz
Degree of protection (Conforming to IEC 60 529)		IP 20
Ambient air temperature	Storage	-30 ~ +65˚C
	Operation	-25 ~ +60˚C (MT refer to Graph)
Mounting position		Vertical plane
Shock resistance (Conforming to IEC 68-2-7)		15gn - 11ms
Vibration resistance (Conforming to IEC68-2-6)		6G
Insulation strength (Conforming to IEC 255-5)		6kV
Rated impulse withstand voltage (Conforming to IEC 801-5)		6kV
Auxiliary contacts characteristics		
Composition		1NO +1NC
Rated thermal current		5A
Rated operation current		C600, R300
AC15 duty	120V	1.5A
(C600)	240V	0.75A
	380V	0.47A
	480V	0.375A
	500V	0.35A
	600V	0.3A
DC13 duty	120V	0.22A
(R300)	240V	0.1A
Connecting conductor	Size	18AWG /1mm²
Connection to screw clamp terminals	Type	65/75℃ Cu-wire

MT-150

MT-225

MT-400

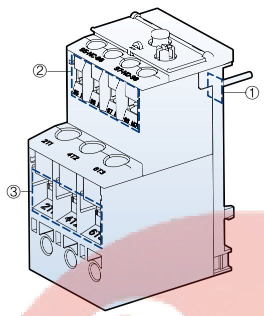


MT-800

Metasol

Overload relay specifications

MT type
Thermal Overload Relays



① Main terminals/upstream
② Auxiliary terminals
③ Main terminals/downstream

Frame size		18AF	
Trip class		10A	20
Type	Non-differential(3P-2 heater)	MT-12/2H□S	-
	Non-differential(3P-3 heater)	MT-12/3H□S	-
	Differential type	MT-12/3K□S	MT-12/3D□S
Terminals	Main-upstream	Screw clamp	
	Main-downstream	Screw clamp	
	Auxiliary	Screw clamp	
Number of poles		3	
Rated operational voltage (Ue)		690V	
Rated insulation voltage (Ui)		Up to 690V	
Rated impulse voltage (Uimp)		6kV	
Degree of protection (IEC 60 529)		IP 20	
Temperature compensation (℃)		-5~+40℃	
Functions	Trip indicating	■	
	Stop	-	
	Test	■	
	Manual/Automatic Reset	■	
Setting range(A)		0.1~18A	1~18A

Nominal current rating	Wire size mm²	Wire size AWG	0.1~18A	1~18A
0.14	1	18	0.1~0.16	
0.21			0.16~0.25	
0.33			0.25~0.4	
0.52			0.4~0.63	
0.82			0.63~1	
1.3			1~1.6	1~1.6
2.1			1.6~2.5	1.6~2.5
3.3			2.5~4	2.5~4
5			4~6	4~6
6.5			5~8	5~8
7.5	1~1.5	18~16	6~9	6~9
8.5			7~10	7~10
11	1.5~2.5	16~14	9~13	9~13
15	2.5	14~12	12~18	12~18
19	2.5~4	12~10		
21.5				
27	4~6	10		
30	4~10	10~8		
34	6~10	10~8		
42	10	8		
54				
65	16~25	6~4		
74				
83	25~35	4~3		
90				

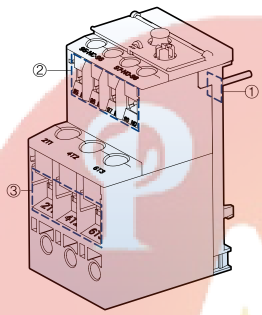
Applied contactors	MC-6a, 9a, 12a, 18a
Separate mounting unit	UZ-12

Note : Screw clamp and Lug types are available for the main terminals of 65AF, 100AF and 150AF relays.
The other AF relays provide Screw clamp types only.

40AF		65AF		100AF	
10A	20	10A	20	10A	20
MT-32/2H□S	-	MT-63/2H□S/L	-	MT-95/2H□S/L	-
MT-32/3H□S	-	MT-63/3H□S/L	-	MT-95/3H□S/L	-
MT-32/3K□S	MT-32/3D□S	MT-63/3K□S/L	MT-63/3D□S/L	MT-95/3K□S/L	MT-95/3D□S/L
Screw clamp		Screw/Lug clamp		Screw/Lug clamp	
Screw clamp		Screw/Lug clamp		Screw/Lug clamp	
Screw clamp		Screw clamp		Screw clamp	
3		3		3	
690V		690V		690V	
Up to 690V		Up to 690V		Up to 690V	
6kV		6kV		6kV	
IP 20		IP 20		IP 20	
-5~+40℃		-5~+40℃		-5~+40℃	
■		■		■	
■		■		■	
■		■		■	
■		■		■	
0.1~40A	1~40A	4~65A		7~100A	
0.1~0.16					
0.16~0.25					
0.25~0.4					
0.4~0.63					
0.63~1					
1~1.6	1~1.6				
1.6~2.5	1.6~2.5				
2.5~4	2.5~4				
4~6	4~6	4~6	4~6		
5~8	5~8	5~8	5~8		
6~9	6~9	6~9	6~9		
7~10	7~10	7~10	7~10	7~10	7~10
9~13	9~13	9~13	9~13	9~13	9~13
12~18	12~18	12~18	12~18	12~18	12~18
16~22	16~22	16~22	16~22	16~22	16~22
18~25	18~25	18~25	18~25	18~25	18~25
22~32	22~32	-	-	-	-
-	-	24~36	24~36	24~36	24~36
28~40	28~40	28~40	28~40	28~40	28~40
		34~50	34~50	34~50	34~50
		45~65	45~65	45~65	45~65
				54~75	54~75
				63~85	63~85
				70~95	70~95
				80~100	80~100
MC-9b, 12b, 18b, 22b, 32a, 40a		MC-50a, 65a		MC-75a, 85a, 100a	
UZ-32		UZ-63S/L		UZ-95S/L	

Overload relay specifications

MT type
Thermal Overload Relays



① Main terminals/upstream
② Auxiliary terminals
③ Main terminals/downstream

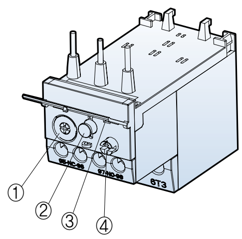
Frame size		150AF	
Trip class		10A	20
Type	Non-differential(3P-2 heater)	MT-150/2H□S/L	-
	Non-differential(3P-3 heater)	MT-150/3H□S/L	-
	Differential type	MT-150/3K□S/L	MT-150/3D□S/L
Terminals	Main-upstream	Screw/Lug clamp	
	Main-downstream	Screw/Lug clamp	
	Auxiliary	Screw clamp	
Number of poles		3	
Rated operational voltage (Ue)		690V	
Rated insulation voltage (Ui)		690V	
Rated impulse voltage (Uimp)		6kV	
Degree of protection (IEC 60 529)		IP 20	
Temperature compensation (℃)		-5~+40℃	
Functions	Trip indicating	■	
	Stop	■	
	Test	■	
	Manual/Automatic Reset	■	
Setting range(A)		34~150A	34~150A

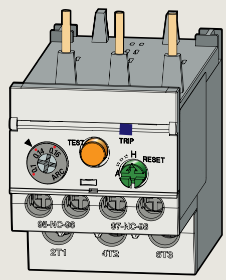
Nominal current rating	Wire size mm²	Wire size AWG	150AF
42	10	8	34~50
55	16	6	45~65
65	25	4	54~75
74	25	4	63~85
80	35	3	-
93	35	2	80~105
107	50	1	-
113	50	1	95~130
130	50	0	110~150
130	70	00	
153	95	000	
200	120	250	
265	185	350	
350	240	500	
515	185×2n	350×2n	
660	240×2n	300×3n	
Applied contactors			MC-130a, 150a
Separate mounting unit			UZ-150S/L

Note : Screw clamp and Lug types are available for the main terminals of 65AF, 100AF and 150AF relays.
The other AF relays provide Screw clamp types only.

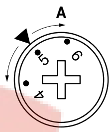
225AF		400AF		800AF	
10A	20	10A	20	10A	20
MT-225/2H□S	-	MT-400/2H□S	-	MT-800/2H□S	-
MT-225/3H□S	-	MT-400/3H□S	-	MT-800/3H□S	-
MT-225/3K□S	MT-225/3D□S	MT-400/3K□S	MT-400/3D□S	MT-800/3K□S	MT-800/3D□S
Screw clamp		Screw clamp		Screw clamp	
Screw clamp		Screw clamp		Screw clamp	
Screw clamp		Screw clamp		Screw clamp	
3		3		3	
690V		690V		690V	
690V		690V		690V	
6kV		6kV		6kV	
IP 20		IP 20		IP 20	
-5~+40℃		-5~+40℃		-5~+40℃	
■		■		■	
■		■		■	
■		■		■	
■		■		■	
65~240A	65~240A	85~400A	85~400A	200~800A	200~800A
65~100					
-					
85~125		85~125			
-		-			
-		-			
100~160		100~160			
120~185		120~185			
160~240		160~240			
		200~330		200~300	
		260~400		260~400	
				400~600	
				520~800	
MC-185a, 225a		MC-265a, 330a, 400a		MC-500a, 630a, 800a	
-		-		-	

Overload relay operation



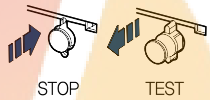


1. Adjustment dial



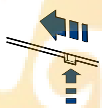
Before adjusting the dial open the protection cover.
Current setting can be done easily by using (+) or (-) driver and have to be set by dotting or graduations standard.
Do not rotate the dial out of the setting range.

2. Stop/Test button



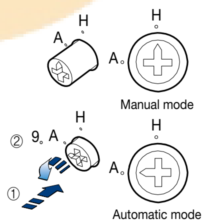
STOP function is executed by pushing the button, which causes the next sequence.
In case of operation test pull this button.

3.Trip indicator



If relay is tripped it comes out.

4. Reset button/Selector



Using a driver the reset mode can be set.
In case of Manual mode(H) push the button to reset the relay.
To change to Automatic mode(A) from Manual mode push the button and rotate as shown in the fig.

5. Auxiliary contact operation

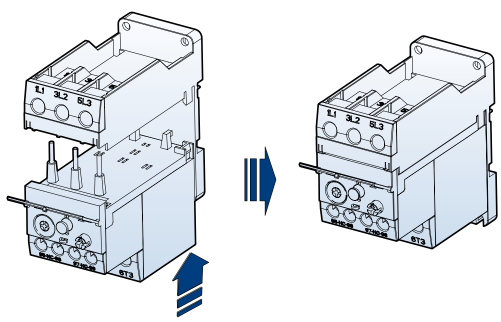
Terminal no.	Normal	STOP	TEST/TRIP	RESET
NC 95-96				
NO 97-98				

Accessories for overload relay

Separate mounting units

These accessories are used to mount the relays separately from contactors.
If a relay is combined with a unit, it can be mounted on DIN rail or panel by fixing screws.

Relay	Unit	
	Type	Weight
MT-12/2H□	UZ-12	35g
MT-12/3H□		
MT-12/3K□		
MT-12/3D□		
MT-32/2H□	UZ-32	68g
MT-32/3H□		
MT-32/3K□		
MT-32/3D□		
MT-63/2H□	UZ-63S/L	134g
MT-63/3H□		
MT-63/3K□		
MT-63/3D□		
MT-95/2H□	UZ-95S/L	230g
MT-95/3H□		
MT-95/3K□		
MT-95/3D□		
MT-150/2H□	UZ-150S/L	284g
MT-150/3H□		
MT-150/3K□		
MT-150/3D□		



Terminal cover units for overload relays

Relay	Remarks
MT-225	2 pcs
MT-400	

Accessories for overload relay

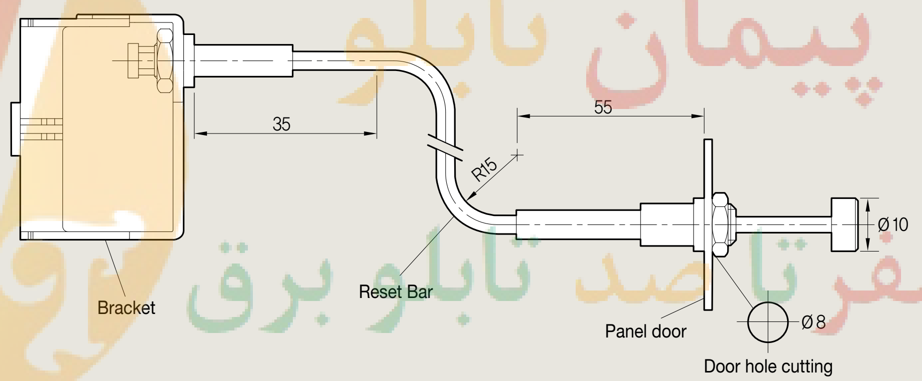
Metasol

Remote reset units

These accessories are used to reset the relays on the panel door.

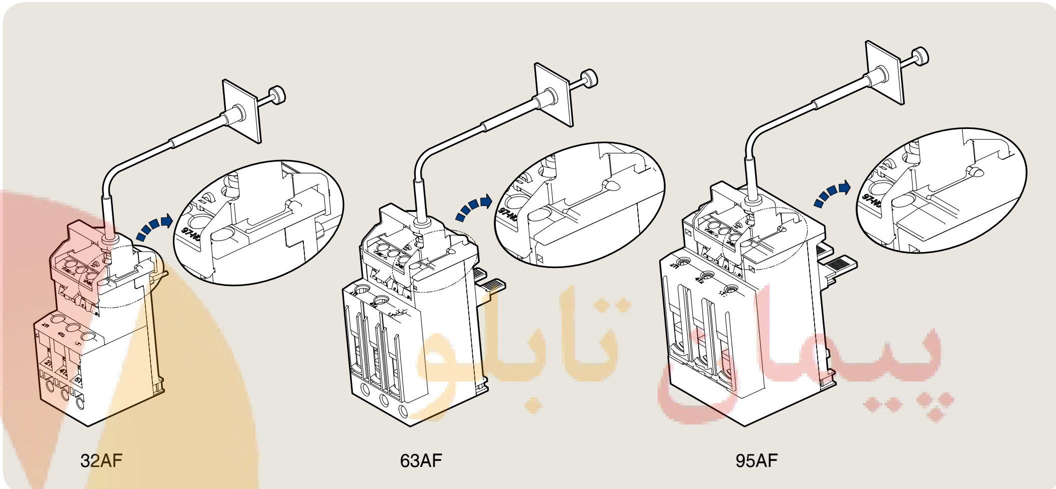
Type	Cable length (L)
UM-4R	400 mm
UM-5R	500 mm
UM-6R	600 mm

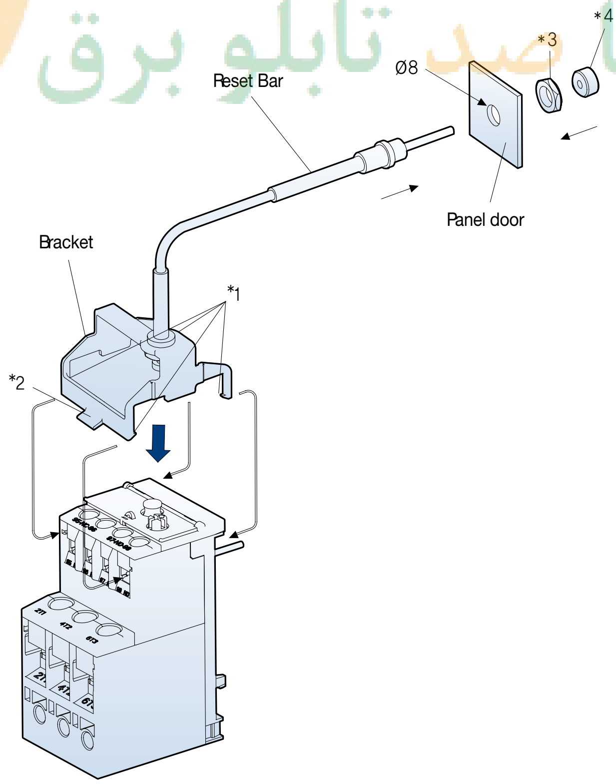
1. Make the reset bar straight at least 55mm from the panel door and 35mm from the bracket.
2. The bending radius of the flexible reset bar should not be less than 15mm.



Installation

1. Fit the bracket with the relay as indicated(*1) below.
2. Separate Nut(*3) and Head cap(*4) from the reset bar first.
   Insert the reset bar into the panel hole and then fix it with the Nut and Head.
3. To separate the bracket from the relay lift the *2 part as shown in the fig.

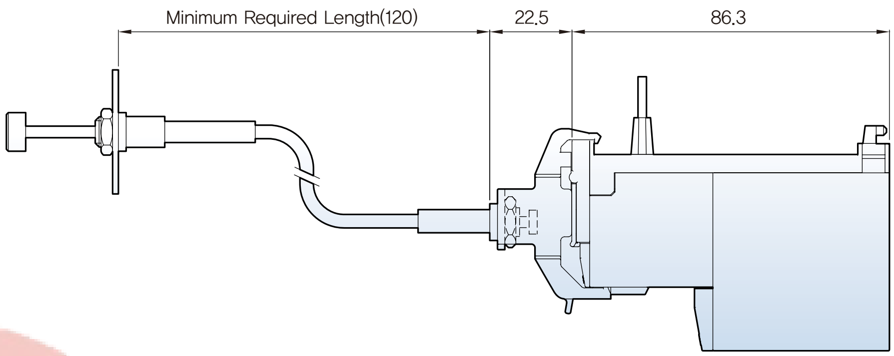




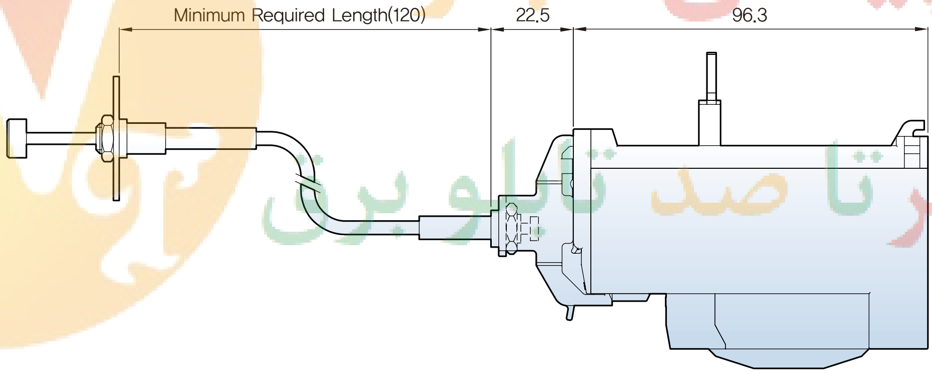
Accessories for overload relay

Remote reset units

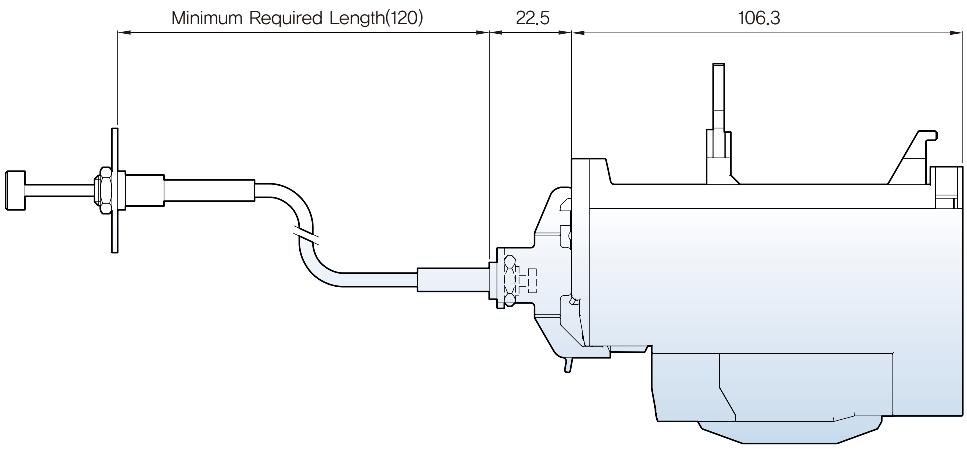
MT-32



MT-63

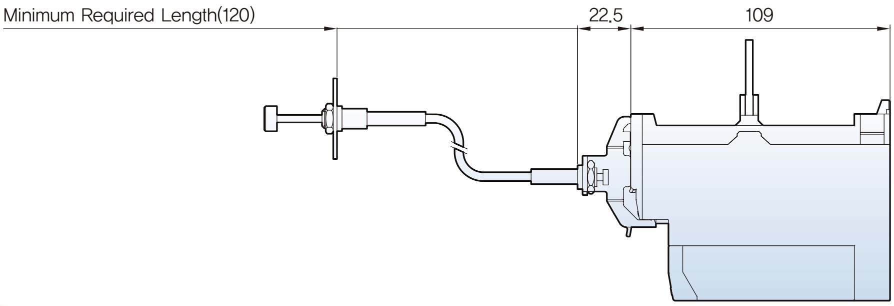


MT-95

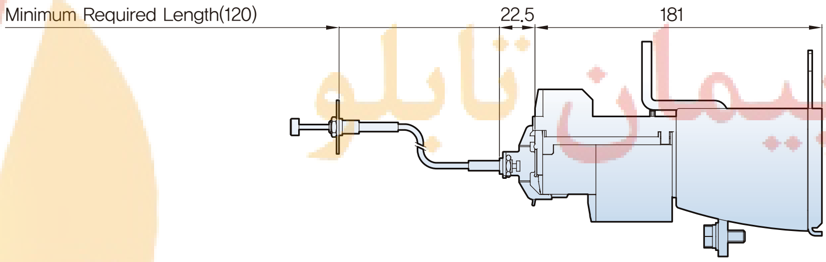


Remote reset units

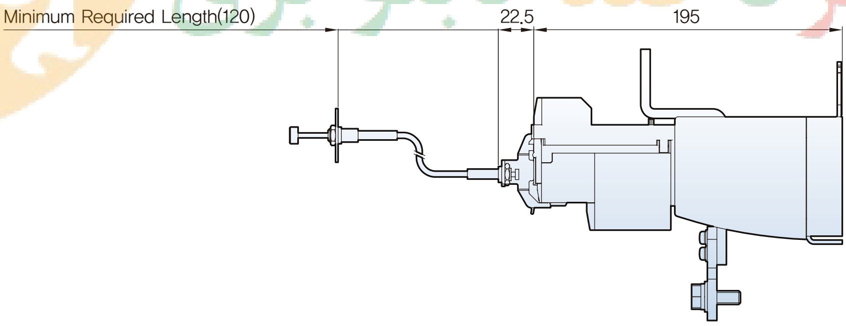
MT-150



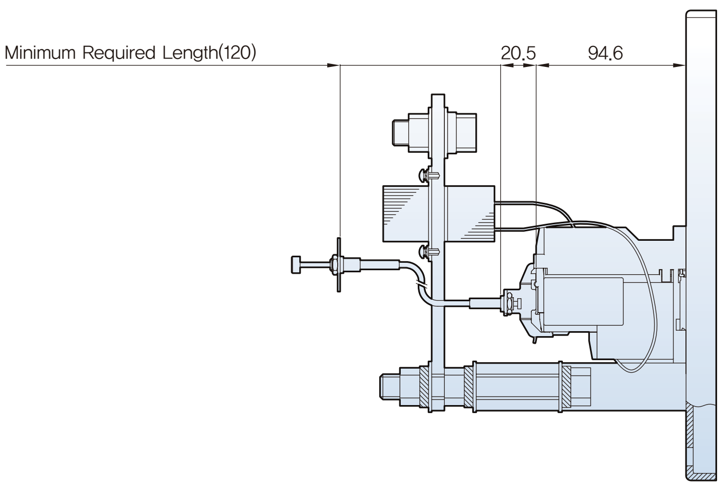
MT-225



MT-400



MT-800



Overload relay ordering types

Trip class 10A

Terminal type: Screw

Degree of protection: IP20

MT-12

MT-12/□

Setting range (A)	Ordering type			Contactor	Separate mounting unit
	Non-differential (3P-2 heater)	Non-differential (3P-3 heater)	Differential		
0.1~0.16	MT-12/2H0.14	MT-12/3H0.14	MT-12/3K0.14	MC-6a MC-9a MC-12a MC-18a	UZ-12
0.16~0.25	MT-12/2H0.21	MT-12/3H0.21	MT-12/3K0.21		
0.25~0.4	MT-12/2H0.33	MT-12/3H0.33	MT-12/3K0.33		
0.4~0.63	MT-12/2H0.52	MT-12/3H0.52	MT-12/3K0.52		
0.63~1	MT-12/2H0.82	MT-12/3H0.82	MT-12/3K0.82		
1~1.6	MT-12/2H1.3	MT-12/3H1.3	MT-12/3K1.3		
1.6~2.5	MT-12/2H2.1	MT-12/3H2.1	MT-12/3K2.1		
2.5~4	MT-12/2H3.3	MT-12/3H3.3	MT-12/3K3.3		
4~6	MT-12/2H5	MT-12/3H5	MT-12/3K5		
5~8	MT-12/2H6.5	MT-12/3H6.5	MT-12/3K6.5		
6~9	MT-12/2H7.5	MT-12/3H7.5	MT-12/3K7.5		
7~10	MT-12/2H8.5	MT-12/3H8.5	MT-12/3K8.5		
9~13	MT-12/2H11	MT-12/3H11	MT-12/3K11		
12~18	MT-12/2H15	MT-12/3H15	MT-12/3K15		

MT-32

MT-32/□

Setting range (A)	Ordering type			Contactor	Separate mounting unit
	Non-differential (3P-2 heater)	Non-differential (3P-3 heater)	Differential		
0.1~0.16	MT-32/2H0.14	MT-32/3H0.14	MT-32/3K0.14	MC-9b MC-12b MC-18b MC-22b MC-32a MC-40a	UZ-32
0.16~0.25	MT-32/2H0.21	MT-32/3H0.21	MT-32/3K0.21		
0.25~0.4	MT-32/2H0.33	MT-32/3H0.33	MT-32/3K0.33		
0.4~0.63	MT-32/2H0.52	MT-32/3H0.52	MT-32/3K0.52		
0.63~1	MT-32/2H0.82	MT-32/3H0.82	MT-32/3K0.82		
1~1.6	MT-32/2H1.3	MT-32/3H1.3	MT-32/3K1.3		
1.6~2.5	MT-32/2H2.1	MT-32/3H2.1	MT-32/3K2.1		
2.5~4	MT-32/2H3.3	MT-32/3H3.3	MT-32/3K3.3		
4~6	MT-32/2H5	MT-32/3H5	MT-32/3K5		
5~8	MT-32/2H6.5	MT-32/3H6.5	MT-32/3K6.5		
6~9	MT-32/2H7.5	MT-32/3H7.5	MT-32/3K7.5		
7~10	MT-32/2H8.5	MT-32/3H8.5	MT-32/3K8.5		
9~13	MT-32/2H11	MT-32/3H11	MT-32/3K11		
12~18	MT-32/2H15	MT-32/3H15	MT-32/3K15		
16~22	MT-32/2H19	MT-32/3H19	MT-32/3K19		
18~25	MT-32/2H21.5	MT-32/3H21.5	MT-32/3K21.5		
22~32	MT-32/2H27	MT-32/3H27	MT-32/3K27		
28~40	MT-32/2H34	MT-32/3H34	MT-32/3K34		UZ-32(34A)

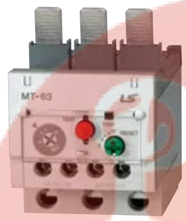
Trip class 10A

Terminal type: Screw(S), Lug(L)

Degree of protection: IP20

MT-63

MT-63/☐S



MT-63/☐L

Setting range (A)	Ordering type			Contactor	Separate mounting unit
	Non-differential (3P-2 heater)	Non-differential (3P-3 heater)	Differential		
4~6	MT-63/2H5S/L	MT-63/3H5S/L	MT-63/3K5S/L		
5~8	MT-63/2H6.5S/L	MT-63/3H6.5S/L	MT-63/3K6.5S/L		
6~9	MT-63/2H7.5S/L	MT-63/3H7.5S/L	MT-63/3K7.5S/L		
7~10	MT-63/2H8.5S/L	MT-63/3H8.5S/L	MT-63/3K8.5S/L		
9~13	MT-63/2H11S/L	MT-63/3H11S/L	MT-63/3K11S/L		
12~18	MT-63/2H15S/L	MT-63/3H15S/L	MT-63/3K15S/L	MC-50a MC-65a	UZ-63S/L
16~22	MT-63/2H19S/L	MT-63/3H19S/L	MT-63/3K19S/L		
18~25	MT-63/2H21.5S/L	MT-63/3H21.5S/L	MT-63/3K21.5S/L		
24~36	MT-63/2H30S/L	MT-63/3H30S/L	MT-63/3K30S/L		
28~40	MT-63/2H34S/L	MT-63/3H34S/L	MT-63/3K34S/L		
34~50	MT-63/2H42S/L	MT-63/3H42S/L	MT-63/3K42S/L		
45~65	MT-63/2H55S/L	MT-63/3H55S/L	MT-63/3K55S/L		

MT-95

MT-95/☐S

MT-95/☐L

Setting range (A)	Ordering type			Contactor	Separate mounting unit
	Non-differential (3P-2 heater)	Non-differential (3P-3 heater)	Differential		
7~10	MT-95/2H8.5S/L	MT-95/3H8.5S/L	MT-95/3K8.5S/L		
9~13	MT-95/2H11S/L	MT-95/3H11S/L	MT-95/3K11S/L		
12~18	MT-95/2H15S/L	MT-95/3H15S/L	MT-95/3K15S/L		
16~22	MT-95/2H19S/L	MT-95/3H19S/L	MT-95/3K19S/L		
18~25	MT-95/2H21.5S/L	MT-95/3H21.5S/L	MT-95/3K21.5S/L		
24~36	MT-95/2H30S/L	MT-95/3H30S/L	MT-95/3K30S/L	MC-75a	
28~40	MT-95/2H34S/L	MT-95/3H34S/L	MT-95/3K34S/L	MC-85a	UZ-95S/L
34~50	MT-95/2H42S/L	MT-95/3H42S/L	MT-95/3K42S/L	MC-100a	
45~65	MT-95/2H55S/L	MT-95/3H55S/L	MT-95/3K55S/L		
54~75	MT-95/2H65S/L	MT-95/3H65S/L	MT-95/3K65S/L		
63~85	MT-95/2H74S/L	MT-95/3H74S/L	MT-95/3K74S/L		
70~95	MT-95/2H83S/L	MT-95/3H83S/L	MT-95/3K83S/L		
80~100	MT-95/2H90S/L	MT-95/3H90S/L	MT-95/3K90S/L		

MT-150

MT-150/☐S

Setting range (A)	Ordering type			Contactor	Separate mounting unit
	Non-differential		Differential		
	(3P-2 heater)	(3P-3 heater)			
34~50	MT-150/2H42S/L	MT-150/3H42S/L	MT-150/3K42S/L		
45~65	MT-150/2H55S/L	MT-150/3H55S/L	MT-150/3K55S/L		
54~75	MT-150/2H65S/L	MT-150/3H65S/L	MT-150/3K65S/L		
63~85	MT-150/2H74S/L	MT-150/3H74S/L	MT-150/3K74S/L	MC-130a MC-150a	UZ-150S/L
80~105	MT-150/2H93S/L	MT-150/3H93S/L	MT-150/3K93S/L		
95~130	MT-150/2H113S/L	MT-150/3H113S/L	MT-150/3K113S/L		
110~150	MT-150/2H130S/L	MT-150/3H130S/L	MT-150/3K130S/L		

Overload relay ordering types

Trip class 10A

Terminal type: Screw

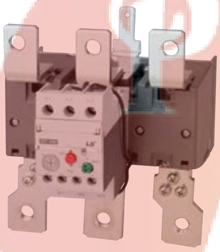
Degree of protection: IP20

MT-225

MT-225/□

Setting range (A)	Ordering type			Contactor	Remarks
	Non-differential		Differential		
	(3P-2 heater)	(3P-3 heater)			
65~100	MT-225/2H80	MT-225/3H80	MT-225/3K80	MC-185a MC-225a	-
85~125	MT-225/2H107	MT-225/3H107	MT-225/3K107		
100~160	MT-225/2H130	MT-225/3H130	MT-225/3K130		
120~185	MT-225/2H153	MT-225/3H153	MT-225/3K153		
160~240	MT-225/2H200	MT-225/3H200	MT-225/3K200		

MT-400



MT-400/□

Setting range (A)	Ordering type			Contactor	Remarks
	Non-differential		Differential		
	(3P-2 heater)	(3P-3 heater)			
85~125	MT-400/2H107	MT-400/3H107	MT-400/3K107	MC-265a MC-330a MC-400a	-
100~160	MT-400/2H130	MT-400/3H130	MT-400/3K130		
120~185	MT-400/2H153	MT-400/3H153	MT-400/3K153		
160~240	MT-400/2H200	MT-400/3H200	MT-400/3K200		
200~330	MT-400/2H265	MT-400/3H265	MT-400/3K265		
260~400	MT-400/2H350	MT-400/3H350	MT-400/3K350		

MT-800

MT-800/□

Setting range (A)	Ordering type			Contactor	Remarks
	Non-differential		Differential		
	(3P-2 heater)	(3P-3 heater)			
200~330	MT-800/2H265	MT-800/3H265	MT-800/3K265	MC-500a MC-630a MC-800a	-
260~400	MT-800/2H350	MT-800/3H350	MT-800/3K350		
400~630	MT-800/2H515	MT-800/3H515	MT-800/3K515		
520~800	MT-800/2H660	MT-800/3H660	MT-800/3K660		

Trip class 20

Terminal type: Screw

Degree of protection: IP20

MT-12

MT-12/3D□

Setting range (A)	Ordering type Differential	Contactor	Separate mounting unit
1~1.6	MT-12/3D1.3	MC-6a MC-9a MC-12a MC-18a	UZ-12
1.6~2.5	MT-12/3D2.1		
2.5~4	MT-12/3D3.3		
4~6	MT-12/3D5		
5~8	MT-12/3D6.5		
6~9	MT-12/3D7.5		
7~10	MT-12/3D8.5		
9~13	MT-12/3D11		
12~18	MT-12/3D15		

MT-32

MT-32/3D□

Setting range (A)	Ordering type Differential	Contactor	Separate mounting unit
1~1.6	MT-32/3D1.3	MC-9b MC-12b MC-18b MC-22b MC-32a MC-40a	UZ-32
1.6~2.5	MT-32/3D2.1		
2.5~4	MT-32/3D3.3		
4~6	MT-32/3D5		
5~8	MT-32/3D6.5		
6~9	MT-32/3D7.5		
7~10	MT-32/3D8.5		
9~13	MT-32/3D11		
12~18	MT-32/3D15		
16~22	MT-32/3D19		
18~25	MT-32/3D21.5		
22~32	MT-32/3D27		
28~40	MT-32/3D34		UZ-32(34A)

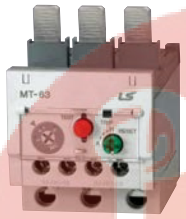
Overload relay ordering types

Trip class 20

Terminal type: Screw(S), Lug(L)
Degree of protection: IP20

MT-63


MT-63/ S


MT-63/ L

Setting range (A)	Ordering type Differential	Contactor	Separate mounting unit
4~6	MT-63/3D5S/L	MC-50a MC-65a	UZ-63S/L
5~8	MT-63/3D6.5S/L		
6~9	MT-63/3D7.5S/L		
7~10	MT-63/3D8.5S/L		
9~13	MT-63/3D11S/L		
12~18	MT-63/3D15S/L		
16~22	MT-63/3D19S/L		
18~25	MT-63/3D21.5S/L		
24~36	MT-63/3D30S/L		
28~40	MT-63/3D34S/L		
34~50	MT-63/3D42S/L		
45~65	MT-63/3D55S/L		

MT-95


MT-95/ S


MT-95/ L

Setting range (A)	Ordering type Differential	Contactor	Separate mounting unit
7~10	MT-95/3D8.5S/L	MC-75a MC-85a MC-100a	UZ-95S/L
9~13	MT-95/3D11S/L		
12~18	MT-95/3DK15S/L		
16~22	MT-95/3D19S/L		
18~25	MT-95/3D21.5S/L		
24~36	MT-95/3D30S/L		
28~40	MT-95/3D34S/L		
34~50	MT-95/3D42S/L		
45~65	MT-95/3D55S/L		
54~75	MT-95/3D65S/L		
63~85	MT-95/3D74S/L		
70~95	MT-95/3D83S/L		
80~100	MT-95/3D90S/L		

MT-150


MT-150/ S

Setting range (A)	Ordering type Differential	Contactor	Separate mounting unit
34~50	MT-150/3D42S/L	MC-130a MC-150a	UZ-150S/L
45~65	MT-150/3D55S/L		
54~75	MT-150/3D65S/L		
63~85	MT-150/3D74S/L		
80~105	MT-150/3D93S/L		
95~130	MT-150/3D113S/L		
110~150	MT-150/3D130S/L		

Trip class 20

Terminal type: Screw

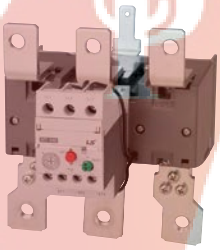
Degree of protection: IP20

MT-225

MT-225/3D

Setting range (A)	Ordering type Differential	Contactor	Remarks
65~100	MT-225/3D80	MC-185a MC-225a	-
85~125	MT-225/3D107		
100~160	MT-225/3D130		
120~185	MT-225/3D153		
160~240	MT-225/3D200		

MT-400



MT-400/3D

Setting range (A)	Ordering type Differential	Contactor	Remarks
85~125	MT-400/3D107	MC-265a MC-330a MC-400a	-
100~160	MT-400/3D130		
120~185	MT-400/3D153		
160~240	MT-400/3D200		
200~330	MT-400/3D265		
260~400	MT-400/3D350		

MT-800

MT-800/3D

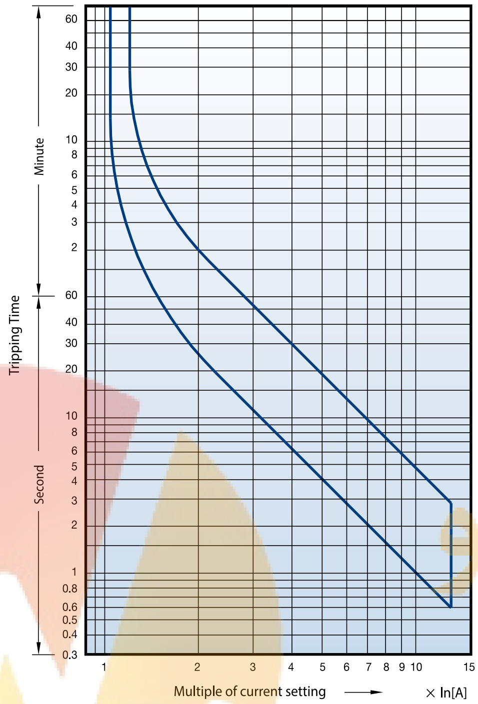
Setting range (A)	Ordering type Differential	Contactor	Remarks
200~330	MT-800/3D265	MC-500a MC-630a MC-800a	-
260~400	MT-800/3D350		
400~630	MT-800/3D515		
520~800	MT-800/3D660		

Overload relay trip curves

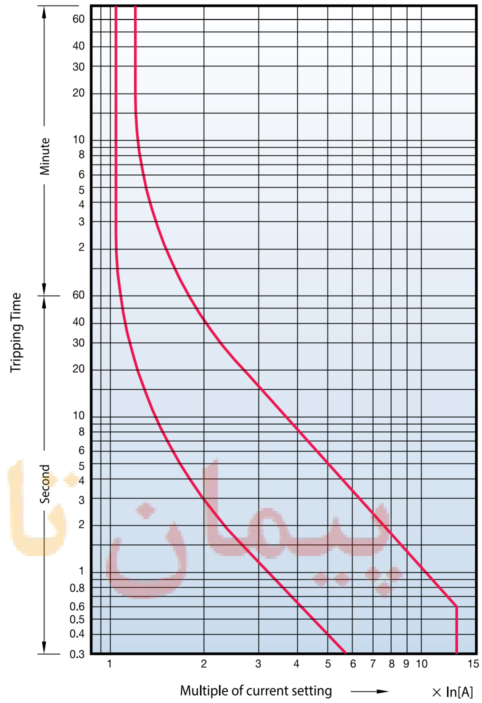
Class 10A, 18AF

MT-12/2H
MT-12/3H
MT-12/3K

Cold starting



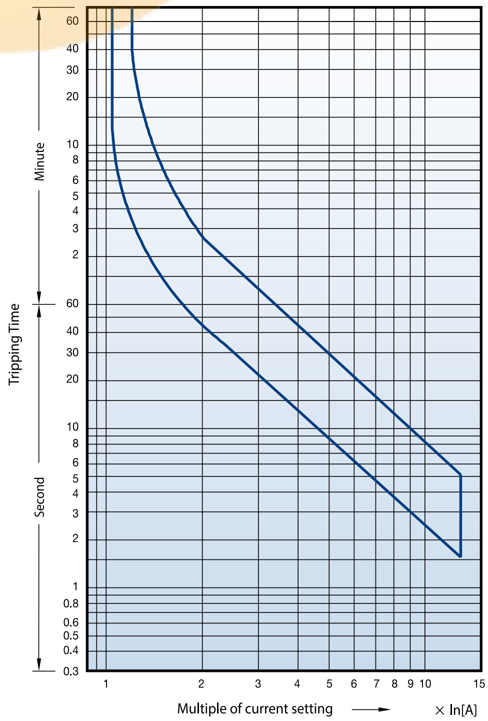
Hot starting



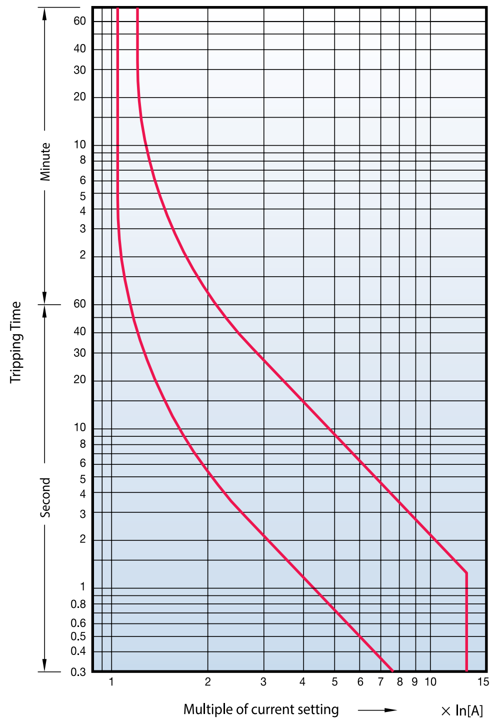
Class 20, 18AF

MT-12/3D

Cold starting



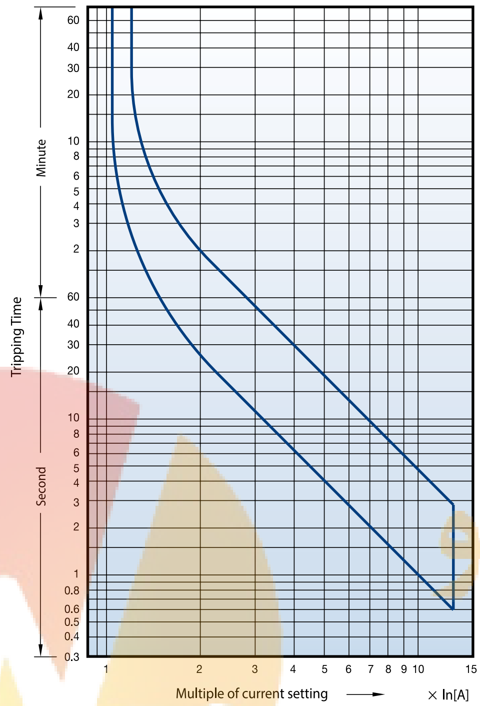
Hot starting



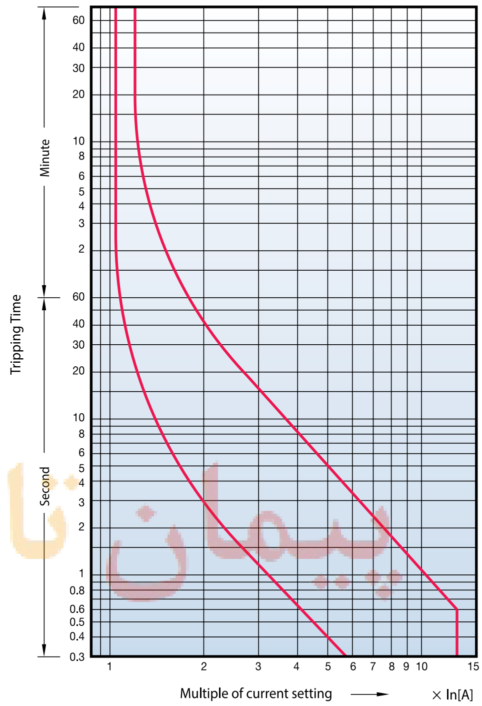
Class 10A, 40AF

MT-32/2H
MT-32/3H
MT-32/3K

Cold starting



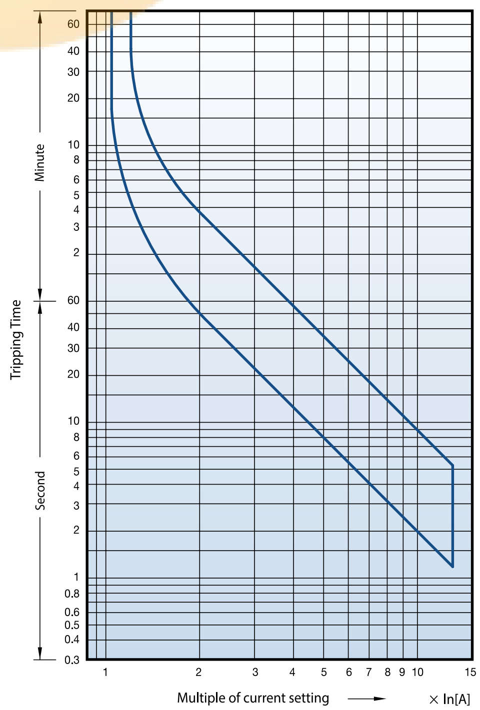
Hot starting



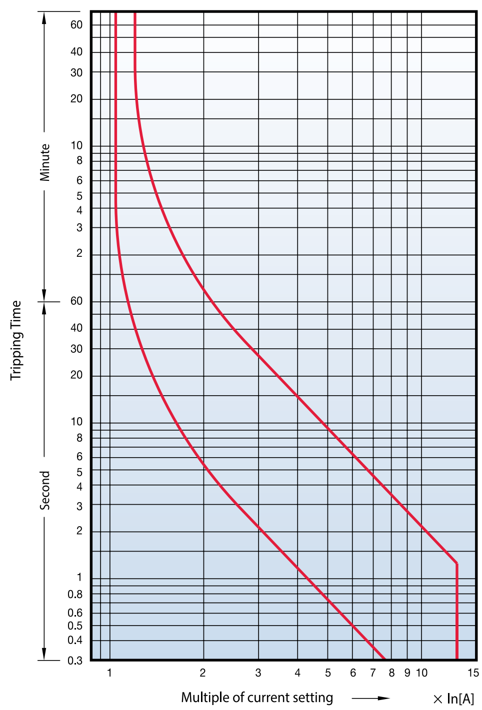
Class 20, 40AF

MT-32/3D

Cold starting



Hot starting

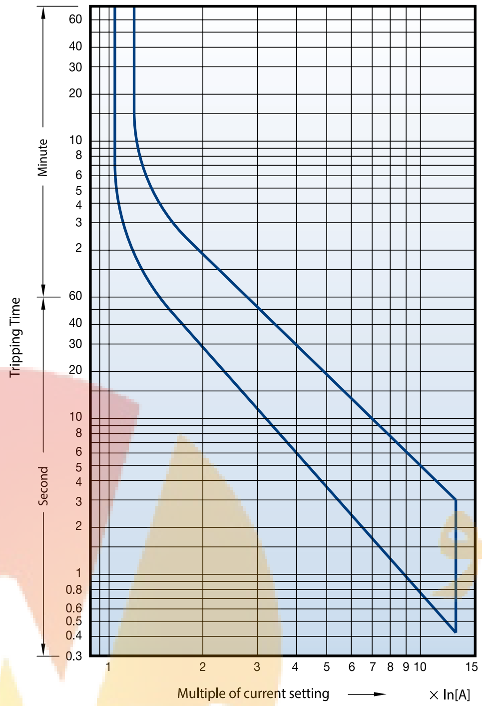


Overload relay trip curves

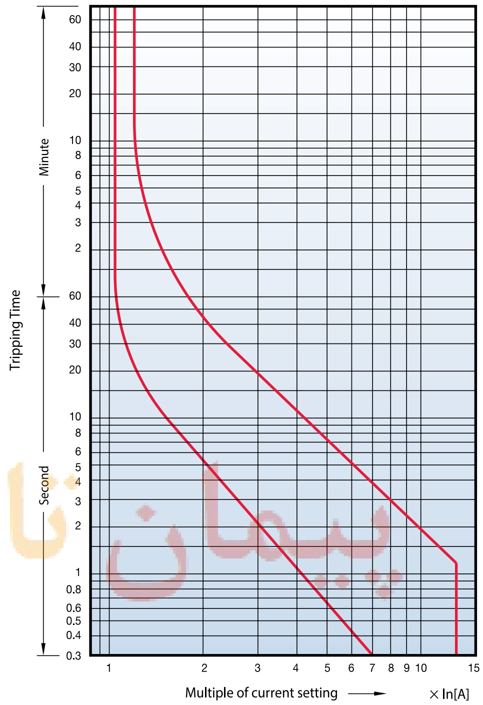
Class 10A, 65AF

MT-63/2H
MT-63/3H
MT-63/3K

Cold starting



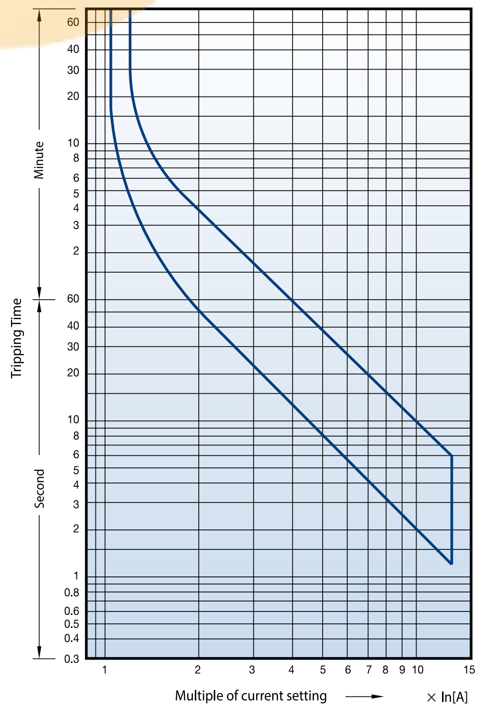
Hot starting



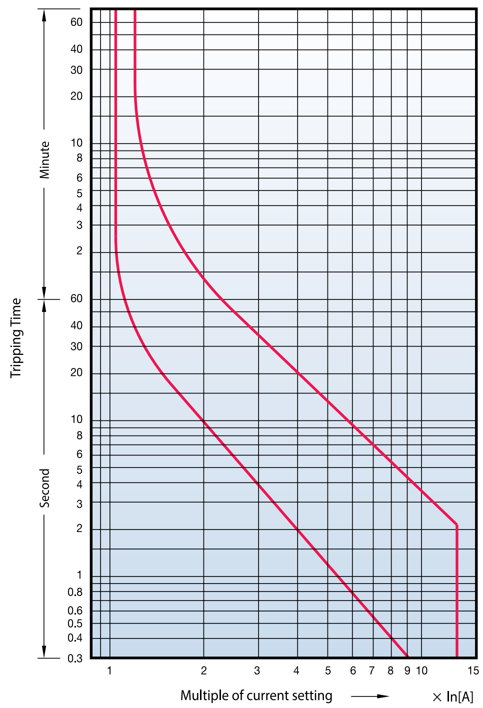
Class 20, 65AF

MT-63/3D

Cold starting



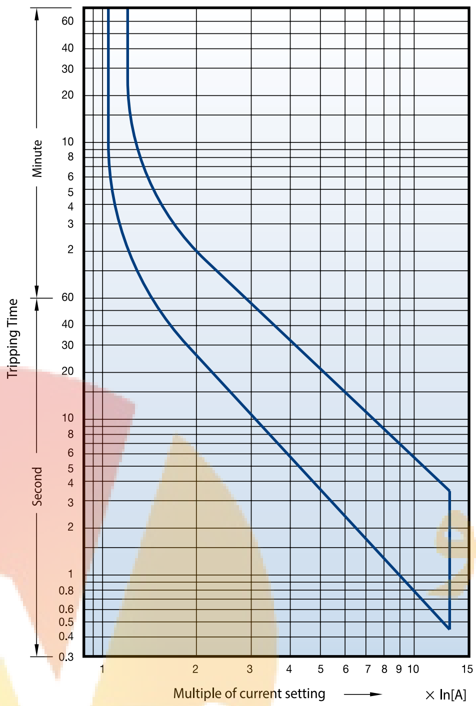
Hot starting



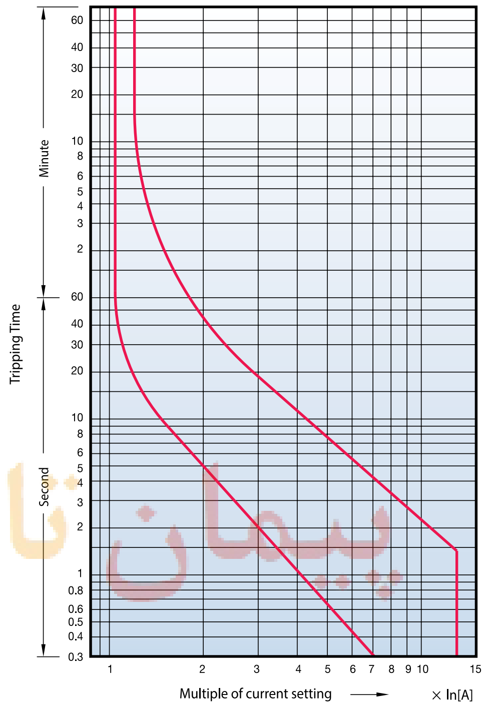
Class 10A, 100AF

MT-95/2H
MT-95/3H
MT-95/3K

Cold starting



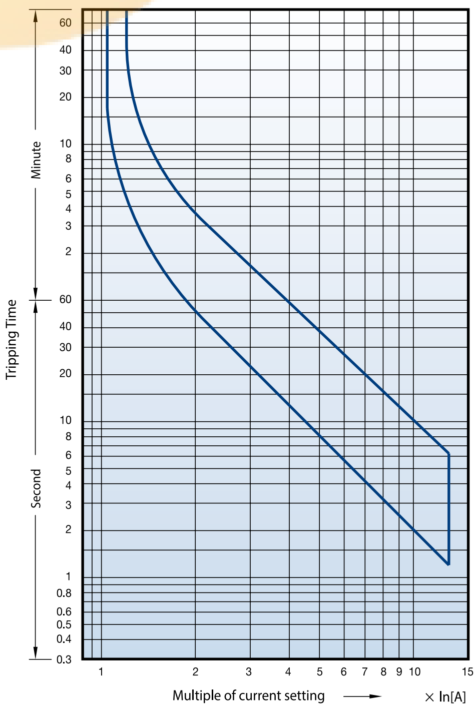
Hot starting



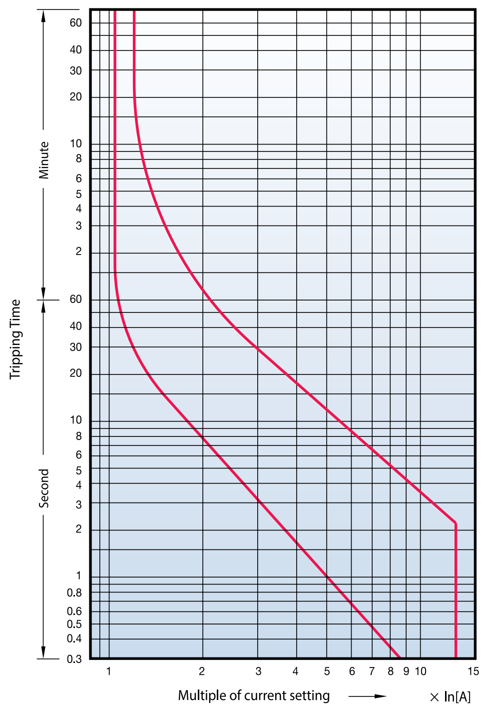
Class 20, 100AF

MT-95/3D

Cold starting



Hot starting

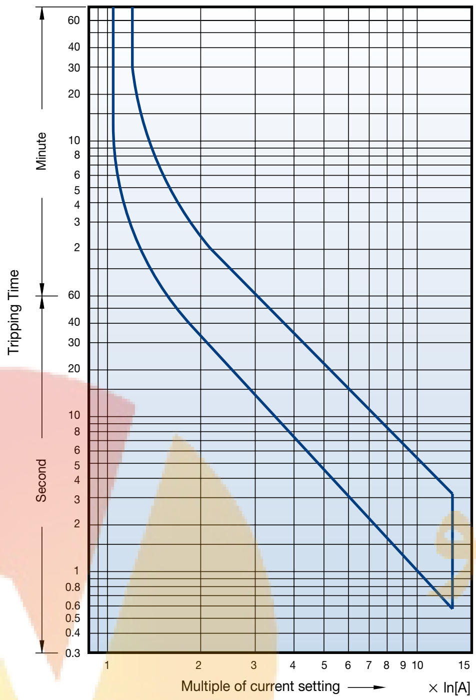


Overload relay trip curves

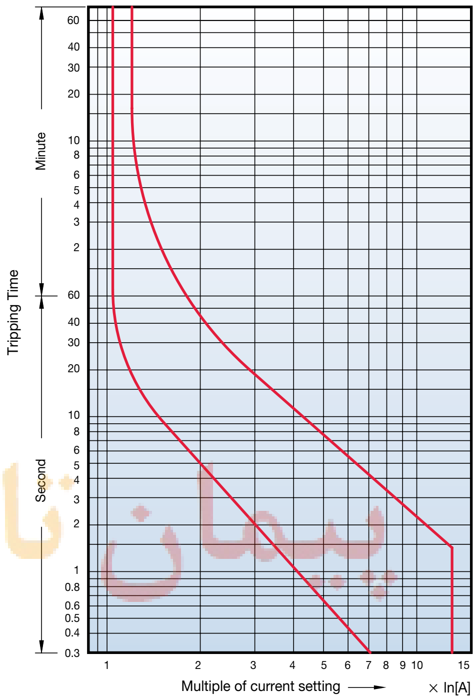
Class 10A, 150AF

MT-150/2H
MT-150/3H
MT-150/3K

Cold starting



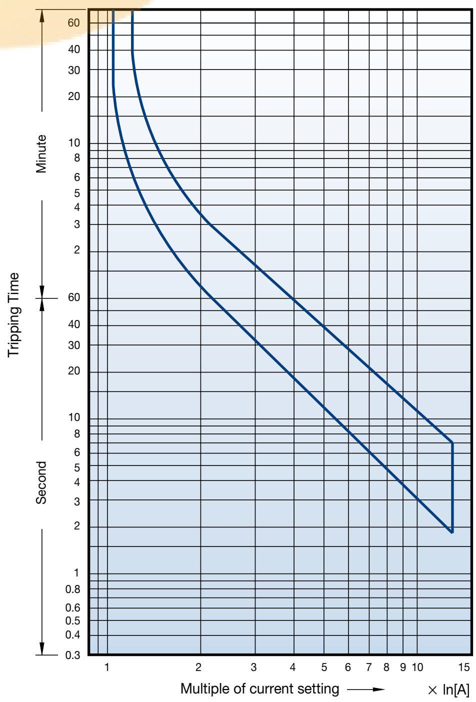
Hot starting



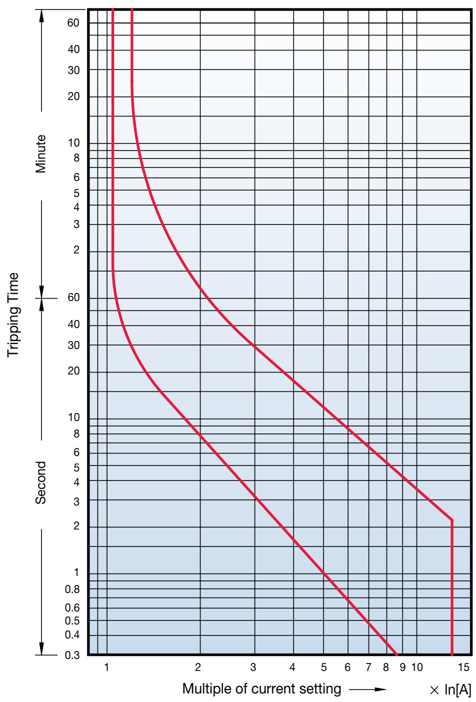
Class 20, 150AF

MT-150/3D

Cold starting



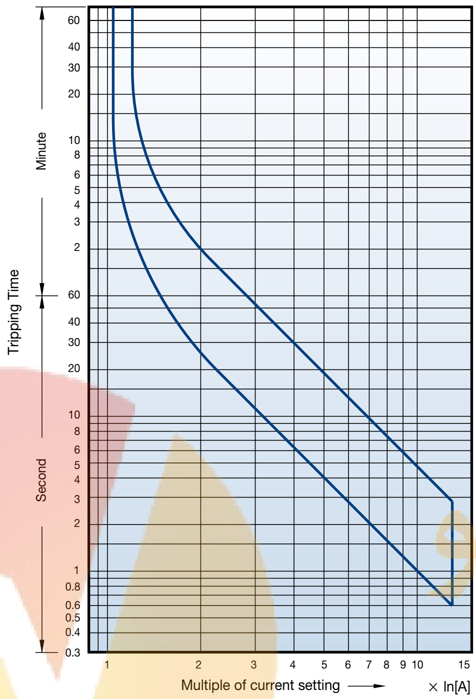
Hot starting



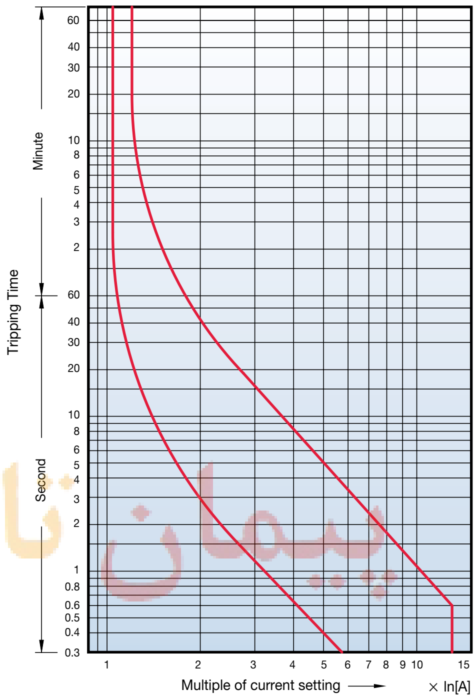
Class 10A, 225AF

MT-225/2H
MT-225/3H
MT-225/3K

Cold starting



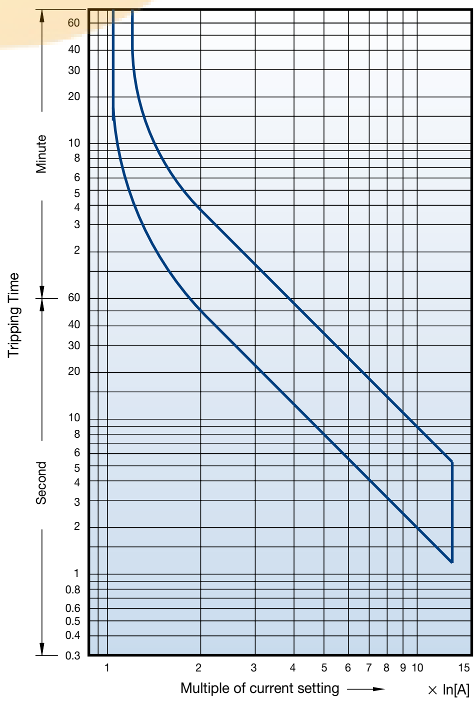
Hot starting



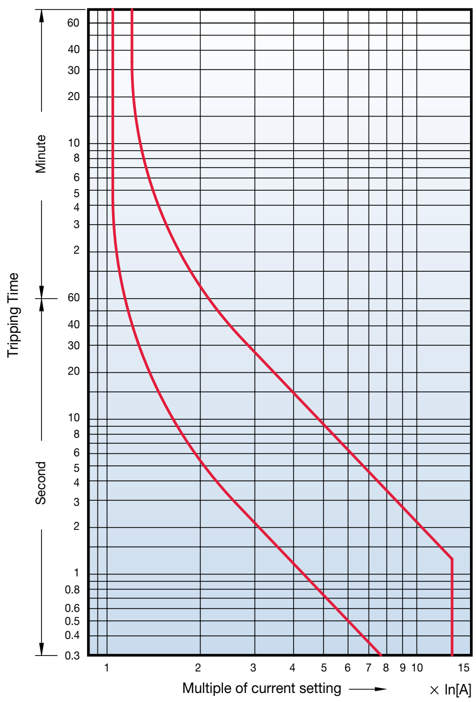
Class 20, 225AF

MT-225/3D

Cold starting



Hot starting

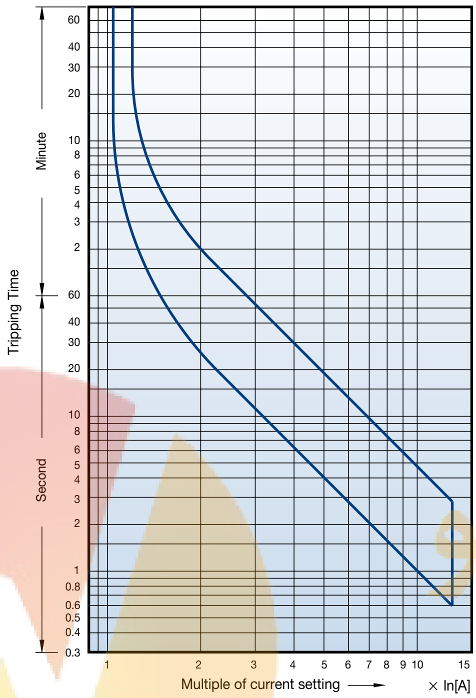


Overload relay trip curves

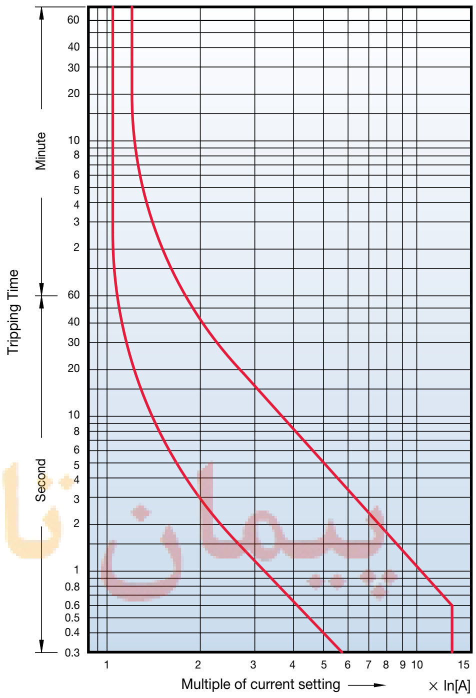
Class 10A, 400AF

MT-400/2H
MT-400/3H
MT-400/3K

Cold starting



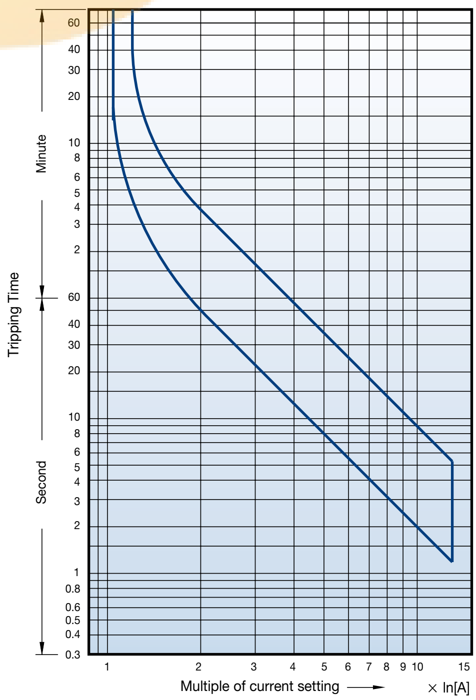
Hot starting



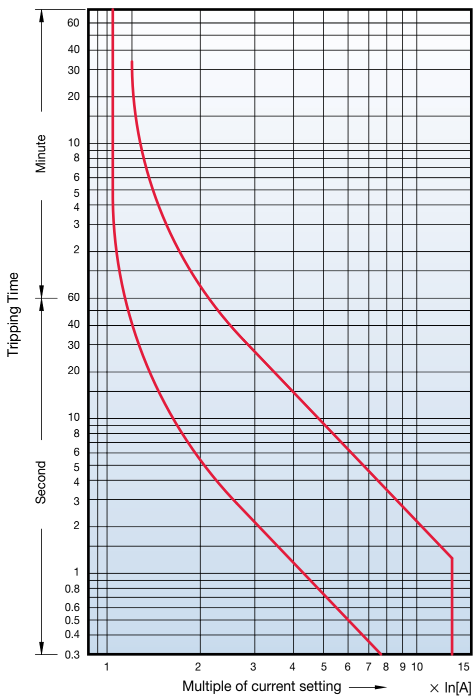
Class 20, 400AF

MT-400/3D

Cold starting



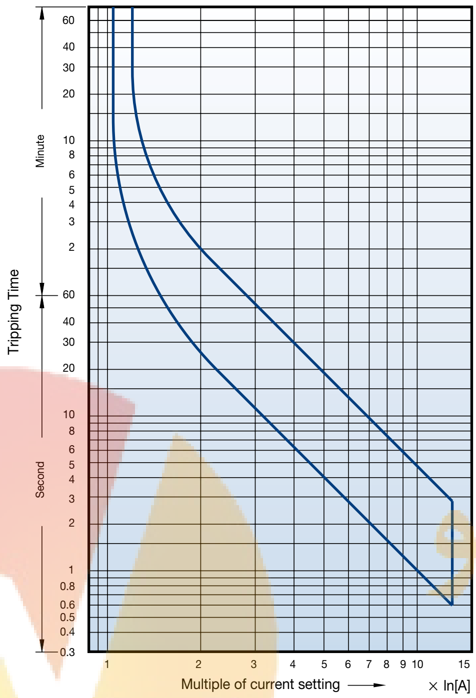
Hot starting



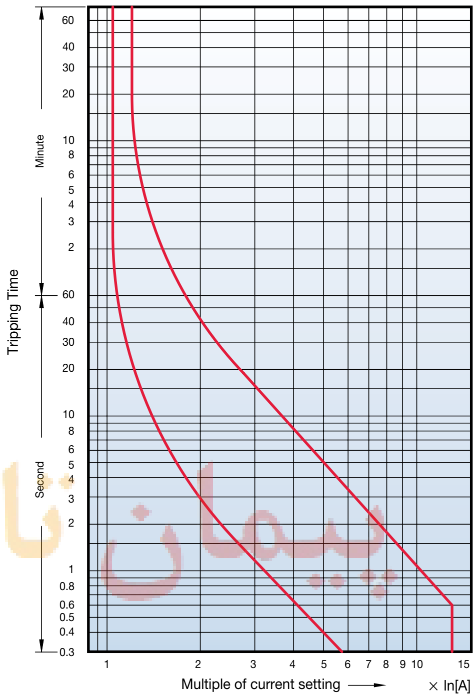
Class 10A, 800AF

MT-800/2H
MT-800/3H
MT-800/3K

Cold starting



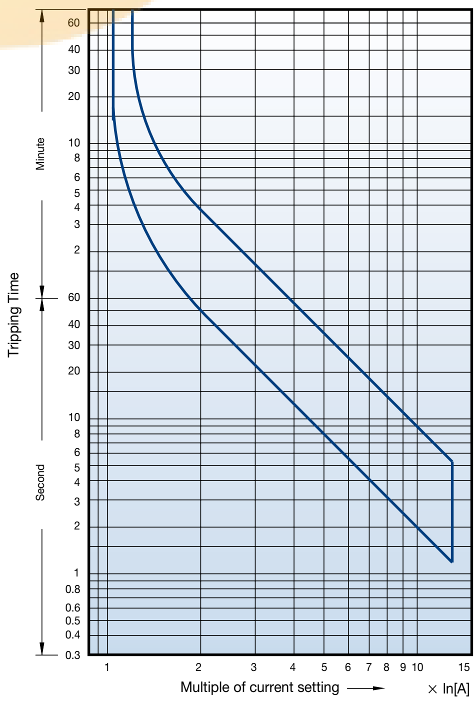
Hot starting



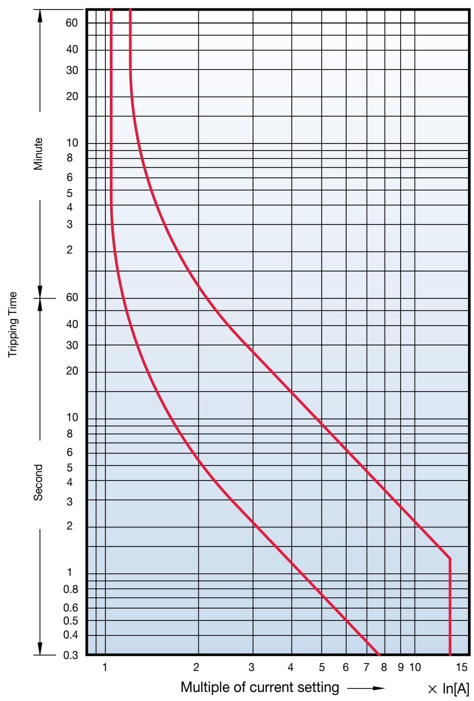
Class 20, 800AF

MT-800/3D

Cold starting



Hot starting



Type 2 Coordination (440V)

440V

Susol MCCB N-type

Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays		Short Circuit Breaking Capacity	
kW	Current [A] 440V	Type	Rating [A]	Type	Type	Setting Range [A]	Ir [kA]	Iq [kA]
1.1	2.37	TS100N	16	MC-12b	MT-32	2.5~4	1	50
1.5	3.06	TS100N	16	MC-18b	MT-32	2.5~4	1	50
2.2	4.42	TS100N	16	MC-22b	MT-32	4~6	1	50
3	5.77	TS100N	16	MC-22b	MT-32	5~8	1	50
4	7.90	TS100N	16	MC-32a	MT-32	6~9	1	50
5.5	10.40	TS100N	16	MC-32a	MT-32	9~13	3	50
7.5	13.70	TS100N	20	MC-32a	MT-32	12~18	3	50
11	20.10	TS100N	32	MC-40a	MT-32	18~25	3	50
15	26.50	TS100N	40	MC-40a	MT-32	22~32	3	50
18.5	32.80	TS100N	40	MC-50a	MT-63	28~40	3	50
22	39.00	TS100N	50	MC-50a	MT-63	34~50	3	50
30	51.50	TS100N	63	MC-65a	MT-63	45~65	3	50
37	64.00	TS100N	80	MC-75a	MT-95	54~75	5	50
45	76.00	TS100N	100	MC-85a	MT-95	63~85	5	50
55	90.00	TS100N	100	MC-100a	MT-95	70~95	5	50
59	97.00	TS160N	100	MC-130a	MT-150	80~105	5	50
75	125	TS160N	160	MC-150a	MT-150	110~150	10	50
90	146	TS160N	160	MC-185a	MT-225	120~185	10	50
110	178	TS250N	200	MC-185a	MT-225	160~240	10	50
132	215	TS250N	250	MC-225a	MT-225	160~240	10	65
160	256	TS400N	300	MC-400a	MT-400	200~330	18	65
200	330	TS400N	400	MC-400a	MT-400	260~400	18	65
220	353	TS400N	400	MC-400a	MT-400	260~400	18	65
250	401	TS630N	500	MC-630a	MT-800	260~400	18	65
300	481	TS630N	500	MC-630a	MT-800	400~630	18	65

440V

Susol MCCB H-type

Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays		Short Circuit Breaking Capacity	
kW	Current [A] 440V	Type	Rating [A]	Type	Type	Setting Range [A]	Ir [kA]	Iq [kA]
1.1	2.37	TS100H	16	MC-12b	MT-32	2.5~4	1	50
1.5	3.06	TS100H	16	MC-18b	MT-32	2.5~4	1	50
2.2	4.42	TS100H	16	MC-22b	MT-32	4~6	1	50
3	5.77	TS100H	16	MC-22b	MT-32	5~8	1	50
4	7.90	TS100H	16	MC-32a	MT-32	6~9	1	50
5.5	10.40	TS100H	16	MC-32a	MT-32	9~13	3	50
7.5	13.70	TS100H	20	MC-32a	MT-32	12~18	3	70
11	20.10	TS100H	32	MC-40a	MT-32	18~25	3	70
15	26.50	TS100H	40	MC-40a	MT-32	22~32	3	70
18.5	32.80	TS100H	40	MC-50a	MT-63	28~40	3	70
22	39.00	TS100H	50	MC-50a	MT-63	34~50	3	70
30	51.50	TS100H	63	MC-65a	MT-63	45~65	3	70
37	64.00	TS100H	80	MC-75a	MT-95	54~75	5	70
45	76.00	TS100H	100	MC-85a	MT-95	63~85	5	70
55	90.00	TS100H	100	MC-100a	MT-95	70~95	5	70
59	97.00	TS160H	100	MC-130a	MT-150	80~105	5	70
75	125	TS160H	160	MC-150a	MT-150	110~150	10	70
90	146	TS160H	160	MC-185a	MT-225	120~185	10	70
110	178	TS250H	200	MC-185a	MT-225	160~240	10	70
132	215	TS250H	250	MC-225a	MT-225	160~240	10	70
160	256	TS400H	300	MC-400a	MT-400	200~330	18	85
200	330	TS400H	400	MC-400a	MT-400	260~400	18	85
220	353	TS400H	400	MC-400a	MT-400	260~400	18	85
250	401	TS630H	500	MC-630a	MT-800	260~400	18	85
300	481	TS630H	500	MC-630a	MT-800	400~630	18	100

Type 2 Coordination (440V)

440V

Susol MCCB L-type

Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays		Short Circuit Breaking Capacity	
kW	Current [A] 440V	Type	Rating [A]	Type	Type	Setting Range [A]	Ir [kA]	Iq [kA]
1.1	2.37	TS100L	16	MC-12b	MT-32	2.5~4	1	50
1.5	3.06	TS100L	16	MC-18b	MT-32	2.5~4	1	50
2.2	4.42	TS100L	16	MC-22b	MT-32	4~6	1	50
3	5.77	TS100L	16	MC-22b	MT-32	5~8	1	50
4	7.90	TS100L	16	MC-32a	MT-32	6~9	1	50
5.5	10.40	TS100L	16	MC-32a	MT-32	9~13	3	50
7.5	13.70	TS100L	20	MC-32a	MT-32	12~18	3	100
11	20.10	TS100L	32	MC-40a	MT-32	18~25	3	100
15	26.50	TS100L	40	MC-40a	MT-32	22~32	3	100
18.5	32.80	TS100L	40	MC-50a	MT-63	28~40	3	130
22	39.00	TS100L	50	MC-50a	MT-63	34~50	3	130
30	51.50	TS100L	63	MC-65a	MT-63	45~65	3	130
37	64.00	TS100L	80	MC-75a	MT-95	54~75	5	130
45	76.00	TS100L	100	MC-85a	MT-95	63~85	5	130
55	90.00	TS100L	100	MC-100a	MT-95	70~95	5	130
59	97.00	TS160L	100	MC-130a	MT-150	80~105	5	130
75	125	TS160L	160	MC-150a	MT-150	110~150	10	130
90	146	TS160L	160	MC-185a	MT-225	120~185	10	130
110	178	TS250L	200	MC-185a	MT-225	160~240	10	130
132	215	TS250L	250	MC-225a	MT-225	160~240	10	130
160	256	TS400L	300	MC-400a	MT-400	200~330	18	130
200	330	TS400L	400	MC-400a	MT-400	260~400	18	130
220	353	TS400L	400	MC-400a	MT-400	260~400	18	130
250	401	TS630L	500	MC-630a	MT-800	260~400	18	130
300	481	TS630L	500	MC-630a	MT-800	400~630	18	130

440V

Metasol MCCB N-type

Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays		Short Circuit Breaking Capacity	
kW	Current [A] 440V	Type	Rating [A]	Type	Type	Setting Range [A]	Ir [kA]	Iq [kA]
1.1	2.37	ABN53c	15	MC-12b	MT-32	2.5~4	1	14
1.5	3.06	ABN53c	15	MC-18b	MT-32	2.5~4	1	14
2.2	4.42	ABN53c	15	MC-22b	MT-32	4~6	1	14
3.0	5.77	ABN53c	15	MC-22b	MT-32	5~8	1	14
4.0	7.90	ABN53c	15	MC-32a	MT-32	6~9	1	14
5.5	10.40	ABN53c	15	MC-32a	MT-32	9~13	3	14
7.5	13.70	ABN53c	20	MC-32a	MT-32	12~18	3	14
11.0	20.10	ABN103c	30	MC-40a	MT-32	18~25	3	18
15.0	26.50	ABN103c	40	MC-40a	MT-32	22~32	3	18
18.5	32.80	ABN103c	40	MC-50a	MT-63	28~40	3	18
22.0	39.00	ABN103c	50	MC-50a	MT-63	34~50	3	18
30.0	51.50	ABN103c	75	MC-65a	MT-63	45~65	3	18
37.0	64.00	ABN103c	75	MC-75a	MT-95	54~75	5	18
45.0	76.00	ABN103c	100	MC-85a	MT-95	63~85	5	18
55.0	90.00	ABN103c	100	MC-100a	MT-95	70~95	5	18
59.0	97.00	ABN103c	100	MC-130a	MT-150	80~105	5	18
75.0	125	ABN203c	150	MC-150a	MT-150	110~150	10	26
90.0	146	ABN203c	200	MC-185a	MT-225	120~185	10	26
110.0	178	ABN203c	200	MC-185a	MT-225	160~240	10	26
132.0	215	ABN203c	250	MC-225a	MT-225	160~240	10	26
160.0	256	ABN403c	300	MC-400a	MT-400	200~330	18	37
200.0	330	ABN403c	400	MC-400a	MT-400	260~400	18	37
220.0	353	ABN403c	400	MC-400a	MT-400	260~400	18	37
250.0	401	ABN803c	500	MC-630a	MT-800	260~400	18	37
300.0	481	ABN803c	500	MC-630a	MT-800	400~630	18	37

Type 2 Coordination (440V)

440V

Metasol MCCB S-type

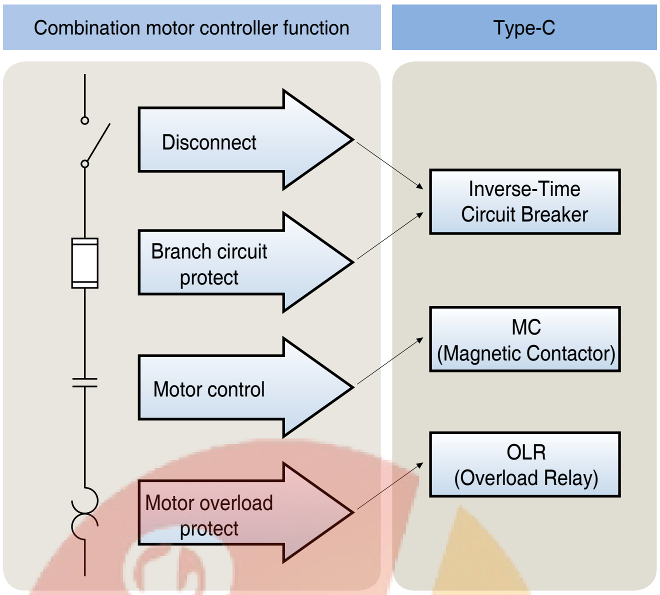
Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays		Short Circuit Breaking Capacity	
kW	Current [A] 440V	Type	Rating [A]	Type	Type	Setting Range [A]	Ir [kA]	Iq [kA]
1.1	2.37	ABS53c	15	MC-12b	MT-32	2.5~4	1	18
1.5	3.06	ABS53c	15	MC-18b	MT-32	2.5~4	1	18
2.2	4.42	ABS53c	15	MC-22b	MT-32	4~6	1	18
3.0	5.77	ABS53c	15	MC-22b	MT-32	5~8	1	18
4.0	7.90	ABS53c	15	MC-32a	MT-32	6~9	1	18
5.5	10.40	ABS53c	15	MC-32a	MT-32	9~13	3	18
7.5	13.70	ABS53c	20	MC-32a	MT-32	12~18	3	18
11.0	20.10	ABS103c	30	MC-40a	MT-32	18~25	3	37
15.0	26.50	ABS103c	40	MC-40a	MT-32	22~32	3	37
18.5	32.80	ABS103c	40	MC-50a	MT-63	28~40	3	37
22.0	39.00	ABS103c	50	MC-50a	MT-63	34~50	3	37
30.0	51.50	ABS103c	75	MC-65a	MT-63	45~65	3	37
37.0	64.00	ABS103c	75	MC-75a	MT-95	54~75	5	37
45.0	76.00	ABS103c	100	MC-85a	MT-95	63~85	5	37
55.0	90.00	ABS103c	100	MC-100a	MT-95	70~95	5	37
59.0	97.00	ABS103c	100	MC-130a	MT-150	80~105	5	37
75.0	125	ABS203c	150	MC-150a	MT-150	110~150	10	37
90.0	146	ABS203c	200	MC-185a	MT-225	120~185	10	37
110.0	178	ABS203c	200	MC-185a	MT-225	160~240	10	37
132.0	215	ABS203c	250	MC-225a	MT-225	160~240	10	37
160.0	256	ABS403c	300	MC-400a	MT-400	200~330	18	50
200.0	330	ABS403c	400	MC-400a	MT-400	260~400	18	50
220.0	353	ABS403c	400	MC-400a	MT-400	260~400	18	50
250.0	401	ABS803c	500	MC-630a	MT-800	260~400	18	65
300.0	481	ABS803c	500	MC-630a	MT-800	400~630	18	65

440V

Metasol MCCB H-type

Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays		Short Circuit Breaking Capacity	
kW	Current [A] 440V	Type	Rating [A]	Type	Type	Setting Range [A]	Ir [kA]	Iq [kA]
1.1	2.37	ABH53c	15	MC-12b	MT-32	2.5~4	1	35
1.5	3.06	ABH53c	15	MC-18b	MT-32	2.5~4	1	35
2.2	4.42	ABH53c	15	MC-22b	MT-32	4~6	1	35
3	5.77	ABH53c	15	MC-22b	MT-32	5~8	1	35
4	7.90	ABH53c	15	MC-32a	MT-32	6~9	1	35
5.5	10.40	ABH53c	15	MC-32a	MT-32	9~13	3	35
7.5	13.70	ABH53c	20	MC-32a	MT-32	12~18	3	35
11	20.10	ABH103c	30	MC-40a	MT-32	18~25	3	50
15	26.50	ABH103c	40	MC-40a	MT-32	22~32	3	50
18.5	32.80	ABH103c	40	MC-50a	MT-63	28~40	3	50
22	39.00	ABH103c	50	MC-50a	MT-63	34~50	3	50
30	51.50	ABH103c	75	MC-65a	MT-63	45~65	3	50
37	64.00	ABH103c	75	MC-75a	MT-95	54~75	5	50
45	76.00	ABH103c	100	MC-85a	MT-95	63~85	5	50
55	90.00	ABH103c	100	MC-100a	MT-95	70~95	5	50
59	97.00	ABH103c	100	MC-130a	MT-150	80~105	5	50
75	125	ABH203c	150	MC-150a	MT-150	110~150	10	50
90	146	ABH203c	200	MC-185a	MT-225	120~185	10	50
110	178	ABH203c	200	MC-185a	MT-225	160~240	10	50
132	215	ABH203c	250	MC-225a	MT-225	160~240	10	50
160	256	ABL403c	300	MC-400a	MT-400	200~330	18	85
200	330	ABL403c	400	MC-400a	MT-400	260~400	18	85
220	353	ABL403c	400	MC-400a	MT-400	260~400	18	85
250	401	ABL803c	500	MC-630a	MT-800	260~400	18	85
300	481	ABL803c	500	MC-630a	MT-800	400~630	18	85

Rated UL 508 Combination motor controller type-C



240V

Susol UL MCCB C-type

CB	MC	OLR	kA@240V	Maximum HP	Maximum NEC FLC [A]
UTE100E	MC-6a	MT-12 0.1~10A	50	3	9.6
UTE100N			65	3	
UTE100E	MC-9a	MT-12 0.1~10A	50	3	
UTE100N			65	3	
UTE100E	MC-12a	MT-12 0.1~18A	50	5	15.2
UTE100N			65	5	
UTE100E	MC-18a	MT-12 0.1~18A	50	7.5	22
UTE100N			65	7.5	
UTS150N			65	7.5	
UTS150L			100	7.5	
UTE100E	MC-9b	MT-32 0.1~10A	50	3	9.6
UTE100N			65	3	
UTE100E	MC-12b	MT-32 0.1~18A	50	5	15.2
UTE100N			65	5	
UTE100E	MC-18b	MT-32 0.1~25A	50	7.5	22
UTE100N			65	7.5	
UTS150N			65	7.5	
UTS150L			100	7.5	
UTE100E	MC-22b	MT-32 0.1~32A	50	10	28
UTE100N			65	10	
UTS150N			65	10	
UTS150L			100	10	
UTE100E	MC-32a	MT-32 0.1~32A	50	10	28
UTE100N			65	10	
UTS150N			65	10	
UTS150L			100	10	
UTE100E	MC-40a	MT-32 0.1~40A	50	15	42
UTE100N			65	15	
UTS150N			65	15	
UTS150L			100	15	

Metasol

240V

Susol UL MCCB C-type

CB	MC	OLR	kA@240V	Maximum HP	Maximum NEC FLC [A]
UTE100E	MC-6a	MT-12 0.1~10A	50	3	9.6
UTE100N			65	3	
UTE100E	MC-9a	MT-12 0.1~10A	50	3	
UTE100N			65	3	
UTE100E	MC-12a	MT-12 0.1~18A	50	5	15.2
UTE100N			65	5	
UTE100E	MC-18a	MT-12 0.1~18A	50	7.5	22
UTE100N			65	7.5	
UTS150N			65	7.5	
UTS150L			100	7.5	
UTE100E	MC-9b	MT-32 0.1~10A	50	3	9.6
UTE100N			65	3	
UTE100E	MC-12b	MT-32 0.1~18A	50	5	15.2
UTE100N			65	5	
UTE100E	MC-18b	MT-32 0.1~25A	50	7.5	22
UTE100N			65	7.5	
UTS150N			65	7.5	
UTS150L			100	7.5	
UTE100E	MC-22b	MT-32 0.1~32A	50	10	28
UTE100N			65	10	
UTS150N			65	10	
UTS150L			100	10	
UTE100E	MC-32a	MT-32 0.1~32A	50	10	28
UTE100N			65	10	
UTS150N			65	10	
UTS150L			100	10	
UTE100E	MC-40a	MT-32 0.1~40A	50	15	42
UTE100N			65	15	
UTS150N			65	15	
UTS150L			100	15	
UTE100E	MC-50a	MT-63 4~65A	50	25	65
UTE100N			65	25	
UTS150N			65	25	
UTS150L			100	25	
UTE100E	MC-65a	MT-63 4~65A	50	30	80
UTE100N			65	30	
UTS150N			65	30	
UTS150L			100	30	
UTS150N	MC-75a	MT-95 7~95A	65	30	80
UTS150L			100	30	
UTS150N	MC-85a	MT-95 7~100A	65	40	104
UTS150L			100	40	
UTS150N	MC-100a	MT-95 7~100A	65	40	104
UTS150L			100	40	
UTS150N	MC-130a	MT-150 34~130A	65	40	104
UTS150L			100	40	
UTS150N	MC-150a	MT-150 34~130A	65	50	130
UTS150L			100	50	
UTS250N			65	50	
UTS250L			100	50	
UTS250N	MC-185a	MT-225 65~185A	65	60	154
UTS250L			100	60	
UTS400N			65	60	
UTS400L			100	60	
UTS400N	MC-225a	MT-225 65~240A	65	75	192
UTS400L			100	75	
UTS250N			65	75	
UTS250L			100	75	
UTS400N	MC-265a	MT-400 85~330A	65	100	248
UTS400L			100	100	
UTS400N	MC-330a	MT-400 85~330A	65	100	248
UTS400L			100	100	
UTS600N	MC-400a	MT-400 85~400A	65	150	360
UTS600L			100	150	
UTS800L	MC-500a	MT-800 200~600A	100	200	480
UTS800L	MC-630a	MT-800 200~800A	100	250	604

Rated UL 508 Combination motor controller type-C

480V

Susol UL MCCB C-type

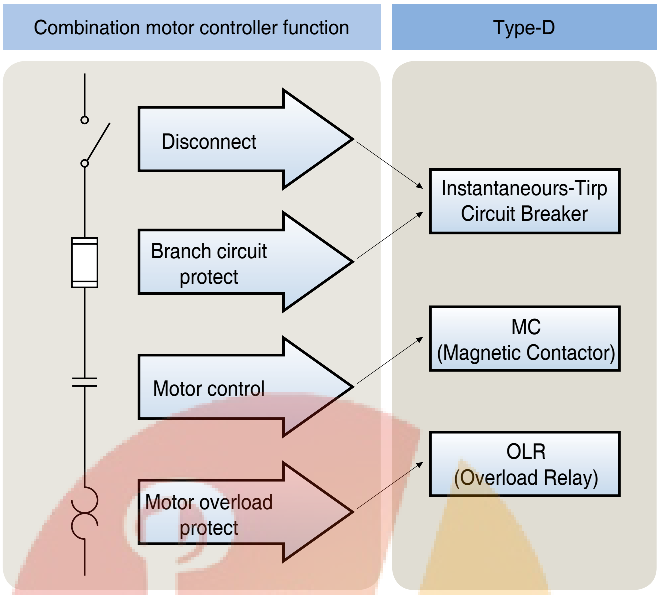
CB	MC	OLR	Voltage (V)	Short Circuit Rating (kA) (4)	Maximum HP	Maximum NEC FLC [A]
UTE100E	MC-6a	MT-12 0.1~10A	480	25	5	7.6
UTE100N			480	35	5	
UTE100E	MC-9a	MT-12 0.1~10A	480	25	5	
UTE100N			480	35	5	
UTE100E	MC-12a	MT-12 0.1~13A	480	25	7.5	11
UTE100N			480	35	7.5	
UTE100E	MC-18a	MT-12 0.1~18A	480	25	10	14
UTE100N			480	35	10	
UTS150N			480	35	10	
UTS150H			480	65	10	
UTS150L			480	100	10	
UTE100E	MC-9b	MT-32 0.1~10A	480	25	5	7.6
UTE100N			480	35	5	
UTE100E	MC-12b	MT-32 0.1~13A	480	25	7.5	11
UTE100N			480	35	7.5	
UTE100E	MC-18b	MT-32 0.1~18A	480	25	10	14
UTE100N			480	35	10	
UTE100E	MC-22b	MT-32 0.1~25A	480	25	15	21
UTE100N			480	35	15	
UTS150N			480	35	15	
UTS150H			480	65	15	
UTS150L			480	100	15	
UTE100E	MC-32a	MT-32 0.1~32A	480	25	20	27
UTE100N			480	35	20	
UTS150N			480	35	20	
UTS150H			480	65	20	
UTS150L			480	100	20	
UTE100E	MC-40a	MT-32 0.1~40A	480	25	30	40
UTE100N			480	35	30	
UTS150N			480	35	30	
UTS150H			480	65	30	
UTS150L			480	100	30	
UTE100E	MC-50a	MT-63 4~65A	480	25	40	52
UTE100N			480	35	40	
UTS150N			480	35	40	
UTS150H			480	65	40	
UTS150L			480	100	40	
UTE100E	MC-65a	MT-63 4~65A	480	25	50	65
UTE100N			480	35	50	
UTS150N			480	35	50	
UTS150H			480	65	50	
UTS150L			480	100	50	
UTS150N	MC-75a	MT-95 7~75A	480	35	50	65
UTS150H			480	65	50	
UTS150L			480	100	50	
UTS150N	MC-85a	MT-95 7~85A	480	35	60	77
UTS150H			480	65	60	
UTS150L			480	100	60	
UTS150N	MC-100a	MT-95 7~100A	480	35	75	96
UTS150H			480	65	75	
UTS150L			480	100	75	
UTS150N	MC-130a	MT-150 34~130A	480	35	75	96
UTS150H			480	65	75	
UTS150L			480	100	75	
UTS150N	MC-150a	MT-150 34~130A	480	35	100	124
UTS150H			480	65	100	
UTS150L			480	100	100	
UTS250N			480	35	100	
UTS250H			480	65	100	
UTS250L			480	100	100	
UTS250N	MC-185a	MT-225 65~185A	480	35	125	156
UTS250H			480	65	125	
UTS250L			480	100	125	
UTS400N			480	35	150	
UTS400H			480	65	150	
UTS400L			480	100	150	
UTS250N	MC-225a	MT-225 65~240A	480	35	125	180
UTS250H			480	65	125	
UTS250L			480	100	125	
UTS400N			480	35	150	
UTS400H			480	65	150	
UTS400L			480	100	150	
UTS400N	MC-265a	MT-400 85~330A	480	35	200	240
UTS400H			480	65	200	
UTS400L			480	100	200	
UTS400N	MC-330a	MT-400 85~330A	480	35	200	302
UTS400H			480	65	200	
UTS400L			480	100	200	
UTS600N	MC-400a	MT-400 85~400A	480	35	300	361
UTS600H			480	65	300	
UTS600L			480	100	300	
UTS800H	MC-500a	MT-800 200~600A	480	65	400	477
UTS800L			480	100	400	
UTS800H	MC-630a	MT-800 200~800A	480	65	500	590
UTS800L	MC-630a		480	100	500	

600V

Susol UL MCCB C-type

CB	MC	OLR	Voltage (V)	Short Circuit Rating (kA) (4)	Maximum HP	Maximum NEC FLC [A]
UTE100E	MC-6a	MT-12 0.1~10A	600Y/347	14	7.5	9
UTE100N			600Y/347	18	7.5	
UTE100E	MC-9a	MT-12 0.1~10A	600Y/347	14	7.5	
UTE100N			600Y/347	18	7.5	
UTE100E	MC-12a	MT-12 0.1~13A	600Y/347	14	10	11
UTE100N			600Y/347	18	10	
UTE100E	MC-18a	MT-12 0.1~18A	600Y/347	14	15	17
UTE100N			600Y/347	18	15	
UTS150N			600	18	15	
UTS150H			600	35	15	
UTS150L			600	50	15	
UTE100E	MC-9b	MT-32 0.1~10A	600Y/347	14	7.5	9
UTE100N			600Y/347	18	7.5	
UTE100E	MC-12b	MT-32 0.1~13A	600Y/347	14	10	11
UTE100N			600Y/347	18	10	
UTE100E	MC-18b	MT-32 0.1~18A	600Y/347	14	15	17
UTE100N			600Y/347	18	15	
UTE100E	MC-22b	MT-32 0.1~25A	600Y/347	14	20	22
UTE100N			600Y/347	18	20	
UTS150N			600	18	20	
UTS150H			600	35	20	
UTS150L			600	50	20	
UTE100E	MC-32a	MT-32 0.1~32A	600Y/347	14	25	27
UTE100N			600Y/347	18	25	
UTS150N			600	18	25	
UTS150H			600	35	25	
UTS150L			600	50	25	
UTE100E	MC-40a	MT-32 0.1~32A	600Y/347	14	30	32
UTE100N			600Y/347	18	30	
UTS150N			600	18	30	
UTS150H			600	35	30	
UTS150L			600	50	30	
UTE100E	MC-50a	MT-63 4~65A	600Y/347	14	50	52
UTE100N			600Y/347	18	50	
UTS150N			600	18	50	
UTS150H			600	35	50	
UTS150L			600	50	50	
UTE100E	MC-65a	MT-63 4~65A	600Y/347	14	60	62
UTE100N			600Y/347	18	60	
UTS150N			600	18	60	
UTS150H			600	35	60	
UTS150L			600	50	60	
UTS150N	MC-75a	MT-95 7~75A	600	18	60	62
UTS150H			600	35	60	
UTS150L			600	50	60	
UTS150N	MC-85a	MT-95 7~85A	600	18	75	77
UTS150H			600	35	75	
UTS150L			600	50	75	
UTS150N	MC-100a	MT-95 7~85A	600	18	75	77
UTS150H			600	35	75	
UTS150L			600	50	75	
UTS150N	MC-130a	MT-150 34~85A	600	18	75	77
UTS150H			600	35	75	
UTS150L			600	50	75	
UTS150N	MC-150a	MT-150 34~85A	600	18	75	77
UTS150H			600	35	75	
UTS150L			600	50	75	
UTS250N	MC-185a	MT-150 65~185A	600	18	125	125
UTS250H			600	35	125	
UTS250L			600	50	125	
UTS400N			600	18	150	
UTS400H			600	35	150	
UTS400L			600	50	150	
UTS250N	MC-225a	MT-225 65~185A	600	18	125	144
UTS250H			600	35	125	
UTS250L			600	50	125	
UTS400N			600	18	150	
UTS400H			600	35	150	
UTS400L			600	50	150	
UTS400N	MC-265a	MT-400 85~240A	600	18	200	192
UTS400H			600	35	200	
UTS400L			600	50	200	
UTS400N	MC-330a	MT-400 85~330A	600	18	200	242
UTS400H			600	35	200	
UTS400L			600	50	200	
UTS600N	MC-400a	MT-400 85~400A	600	18	300	289
UTS600H			600	35	300	
UTS600L			600	50	300	
UTS800H	MC-500a	MT-800 200~400A	600	35	400	382
UTS800L			600	50	400	
UTS800H	MC-630a	MT-800 200~600A	600	35	500	472
UTS800L			600	50	500	

Rated UL 508 Combination motor controller type-C



240V

Susol UL MCCB D-type

CB	MC	OLR	kA@240V	Maximum HP	Maximum NEC FLC [A]
UTS150L MCP	MC-6a	MT-12 0.1~10A	100	3	9.6
UTS150L MCP	MC-9a	MT-12 0.1~10A	100	3	9.6
UTS150L MCP	MC-12a	MT-12 0.1~18A	100	5	15.2
UTS150L MCP	MC-18a	MT-12 0.1~18A	100	7.5	22
UTS150L MCP	MC-9b	MT-32 0.1~10A	100	3	9.6
UTS150L MCP	MC-12b	MT-32 0.1~18A	100	5	15.2
UTS150L MCP	MC-18b	MT-32 0.1~25A	100	7.5	22
UTS150L MCP	MC-22b	MT-32 0.1~32A	100	10	28
UTS150L MCP	MC-32a	MT-32 0.1~32A	100	10	28
UTS150L MCP	MC-40a	MT-32 0.1~40A	100	15	42
UTS150L MCP	MC-50a	MT-63 4~65A	100	25	65
UTS150L MCP	MC-65a	MT-63 4~65A	100	30	80
UTS150L MCP	MC-75a	MT-95 7~95A	100	30	80
UTS150L MCP	MC-85a	MT-95 7~100A	100	40	104
UTS150L MCP	MC-100a	MT-95 7~100A	100	40	104
UTS150L MCP	MC-130a	MT-150 34~130A	100	40	104
UTS250L MCP	MC-150a	MT-150 34~130A	100	50	130
UTS250L MCP	MC-185a	MT-225 65~160A	100	60	154
UTS400L MCP	MC-185a	MT-225 65~185A	100	60	154
UTS250L MCP	MC-225a	MT-225 65~240A	100	75	192
UTS400L MCP	MC-225a	MT-225 65~240A	100	75	192
UTS400L MCP	MC-265a	MT-400 85~330A	100	100	248
UTS400L MCP	MC-330a	MT-400 85~330A	100	100	248
UTS600L MCP	MC-400a	MT-400 85~400A	100	150	360
UTS800L MCP	MC-500a	MT-800 200~600A	100	200	480
UTS800L MCP	MC-630a	MT-800 200~800A	100	250	604

Rated UL 508 Combination motor controller type-D

480V

Susol UL MCCB D-type

CB	MC	OLR	kA@400V	Maximum HP	Maximum NEC FLC [A]
UTS150L MCP	MC-6a	MT-12 0.1~10A	65	5	7.6
UTS150L MCP	MC-9a	MT-12 0.1~10A	65	5	7.6
UTS150L MCP	MC-12a	MT-12 0.1~13A	65	7.5	11
UTS150L MCP	MC-18a	MT-12 0.1~18A	65	10	14
UTS150L MCP	MC-9b	MT-32 0.1~10A	65	5	7.6
UTS150L MCP	MC-12b	MT-32 0.1~13A	65	7.5	11
UTS150L MCP	MC-18b	MT-32 0.1~18A	65	10	14
UTS150L MCP	MC-22b	MT-32 0.1~25A	65	15	21
UTS150L MCP	MC-32a	MT-32 0.1~32A	65	20	27
UTS150L MCP	MC-40a	MT-32 0.1~40A	65	20	40
UTS150H MCP	MC-50a	MT-63 4~65A	65	40	52
UTS150L MCP	MC-50a	MT-63 4~65A	100	40	52
UTS150H MCP	MC-65a	MT-63 4~65A	65	50	65
UTS150L MCP	MC-65a	MT-63 4~65A	100	50	65
UTS150H MCP	MC-75a	MT-95 7~75A	65	50	65
UTS150L MCP	MC-75a	MT-95 7~75A	100	50	65
UTS150H MCP	MC-85a	MT-95 7~85A	65	60	77
UTS150L MCP	MC-85a	MT-95 7~85A	100	60	77
UTS150H MCP	MC-100a	MT-95 7~100A	65	75	96
UTS150L MCP	MC-100a	MT-95 7~100A	100	75	96
UTS150H MCP	MC-130a	MT-150 34~130A	65	75	96
UTS150L MCP	MC-130a	MT-150 34~130A	100	75	96
UTS250H MCP	MC-150a	MT-150 34~130A	65	100	124
UTS250L MCP	MC-150a	MT-150 34~130A	100	100	124
UTS250H MCP	MC-185a	MT-225 65~185A	65	125	156
UTS250L MCP	MC-185a	MT-225 65~185A	85	125	156
UTS400H MCP	MC-185a	MT-225 65~185A	65	125	156
UTS400L MCP	MC-185a	MT-225 65~185A	100	125	156
UTS250H MCP	MC-225a	MT-225 65~240A	65	150	180
UTS250L MCP	MC-225a	MT-225 65~240A	85	150	180
UTS400H MCP	MC-225a	MT-225 65~240A	65	150	180
UTS400L MCP	MC-225a	MT-225 65~240A	100	150	180
UTS400H MCP	MC-265a	MT-400 85~330A	65	200	240
UTS400L MCP	MC-265a	MT-400 85~330A	100	200	240
UTS400H MCP	MC-330a	MT-400 85~330A	65	200	240
UTS400L MCP	MC-330a	MT-400 85~330A	100	200	240
UTS600H MCP	MC-400a	MT-400 85~400A	65	300	361
UTS600L MCP	MC-400a	MT-400 85~400A	100	300	361
UTS800L MCP	MC-500a	MT-800 200~600A	100	400	477
UTS800L MCP	MC-630a	MT-800 200~800A	100	500	590

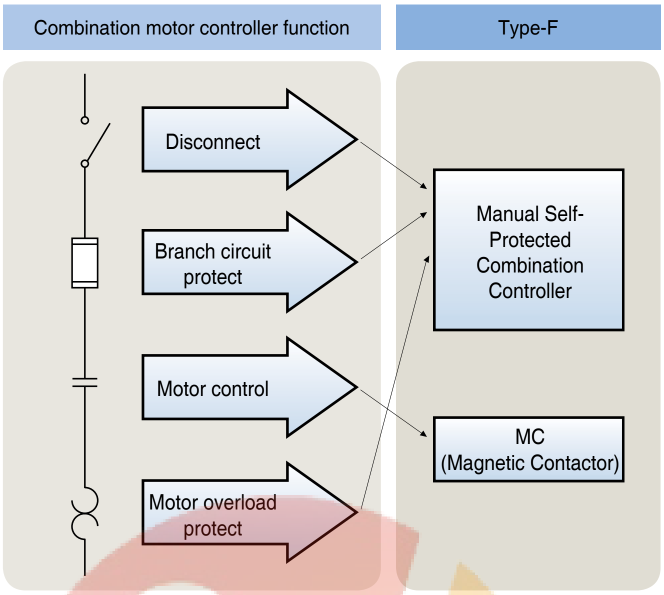
Rated UL 508 Combination motor controller type-D

600V

Susol UL MCCB D-type

CB	MC	OLR	kA@600V	Maximum HP	Maximum NEC FLC [A]
UTS150L MCP	MC-6a	MT-12 0.1~10A	25	7.5	9
UTS150L MCP	MC-9a	MT-12 0.1~10A	25	7.5	9
UTS150L MCP	MC-12a	MT-12 0.1~13A	25	10	11
UTS150L MCP	MC-18a	MT-12 0.1~18A	25	15	17
UTS150L MCP	MC-9b	MT-32 0.1~10A	25	7.5	9
UTS150L MCP	MC-12b	MT-32 0.1~13A	25	10	11
UTS150L MCP	MC-18b	MT-32 0.1~18A	25	15	17
UTS150L MCP	MC-22b	MT-32 0.1~25A	25	20	22
UTS150L MCP	MC-32a	MT-32 0.1~32A	25	25	27
UTS150L MCP	MC-40a	MT-32 0.1~32A	25	25	32
UTS150H MCP	MC-50a	MT-63 4~65A	25	50	52
UTS150L MCP	MC-50a	MT-63 4~65A	50	50	62
UTS150H MCP	MC-65a	MT-63 4~65A	25	60	62
UTS150L MCP	MC-65a	MT-63 4~65A	50	60	62
UTS150H MCP	MC-75a	MT-95 7~75A	25	60	77
UTS150L MCP	MC-75a	MT-95 7~75A	50	60	77
UTS150H MCP	MC-85a	MT-95 7~85A	25	75	77
UTS150L MCP	MC-85a	MT-95 7~85A	50	75	77
UTS150H MCP	MC-100a	MT-95 7~85A	25	75	77
UTS150L MCP	MC-100a	MT-95 7~85A	50	75	77
UTS150H MCP	MC-130a	MT-150 65~185A	25	75	77
UTS150L MCP	MC-130a	MT-150 65~185A	50	75	77
UTS150H MCP	MC-150a	MT-150 65~185A	25	75	77
UTS150L MCP	MC-150a	MT-150 65~185A	50	75	77
UTS250H MCP	MC-185a	MT-225 65~185A	25	125	125
UTS250L MCP	MC-185a	MT-225 65~185A	50	125	125
UTS400H MCP	MC-185a	MT-225 65~185A	25	125	125
UTS400L MCP	MC-185a	MT-225 65~185A	50	125	125
UTS250H MCP	MC-225a	MT-225 65~185A	25	150	144
UTS250L MCP	MC-225a	MT-225 65~185A	50	150	144
UTS400H MCP	MC-225a	MT-225 65~185A	25	150	144
UTS400L MCP	MC-225a	MT-225 65~185A	50	150	144
UTS400H MCP	MC-265a	MT-400 85~240A	25	200	192
UTS400L MCP	MC-265a	MT-400 85~240A	50	200	192
UTS400H MCP	MC-330a	MT-400 85~330A	25	200	242
UTS400L MCP	MC-330a	MT-400 85~330A	50	200	242
UTS600H MCP	MC-400a	MT-400 85~400A	25	300	289
UTS600L MCP	MC-400a	MT-400 85~400A	50	300	289
UTS800L MCP	MC-500a	MT-800 200~400A	50	400	382
UTS800L MCP	MC-630a	MT-800 200~600A	50	500	472

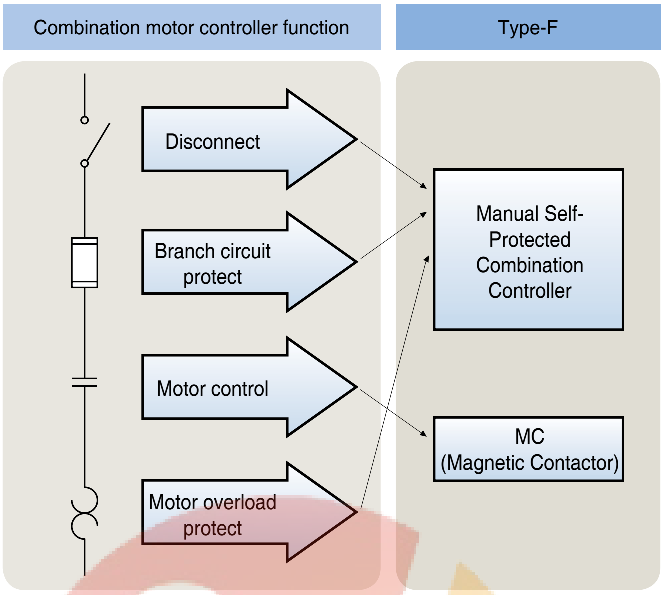
Rated UL 508 combination motor controller Type-F



32AF Rotary operation, High interruption

Manual Self-Protected	Adjustment range (A)	Short circuit rating (kA)			MC (Applied contactor)	
		240V	480Y/277V	600Y/347V	Susol	Metasol
MMS-32H-0.16	0.1~0.16	100	65	25	MC-9	MC-6a/MC-9a/MC-9b
MMS-32H-0.25	0.16~0.25	100	65	25	MC-9	MC-6a/MC-9a/MC-9b
MMS-32H-0.4	0.25~0.4	100	65	25	MC-9	MC-6a/MC-9a/MC-9b
MMS-32H-0.63	0.4~0.63	100	65	25	MC-9	MC-6a/MC-9a/MC-9b
MMS-32H-1	0.63~1	100	65	25	MC-9	MC-6a/MC-9a/MC-9b
MMS-32H-1.6	1~1.6	100	65	25	MC-9	MC-6a/MC-9a/MC-9b
MMS-32H-2.5	1.6~2.5	100	65	25	MC-12	MC-12a/MC-12b
MMS-32H-4	2.5~4	100	65	25	MC-12	MC-12a/MC-12b
MMS-32H-6	4~6	100	65	25	MC-18	MC-18a/MC-18b
MMS-32H-8	5~8	100	65	10	MC-18	MC-18a/MC-18b
MMS-32H-10	6~10	100	65	10	MC-18	MC-18a/MC-18b
MMS-32H-13	9~13	100	65	10	MC-25	MC-22b/MC-25a
MMS-32H-17	11~17	100	30	10	MC-25	MC-22b/MC-25a
MMS-32H-22	14~22	100	30	10	MC-25	MC-22b/MC-25a
MMS-32H-26	18~26	100	30	10	MC-32	MC-32a
MMS-32H-32	22~32	100	30	10	MC-32	MC-32a
MMS-32H-40	28~40	100	30	10	-	MC-35a/MC-40a

Rated UL 508 combination motor controller Type-F

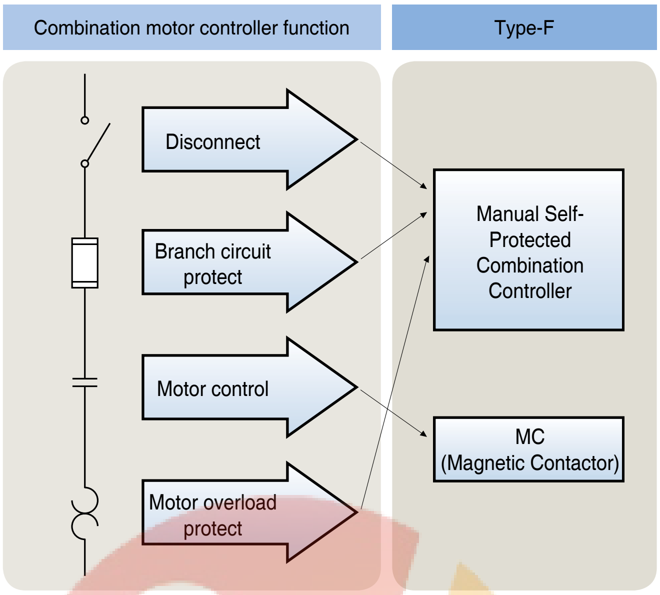


63AF Rotary operation, standard interruption

Manual Self-Protected	Adjustment range (A)	Short circuit rating (kA)			MC (Applied contactor)	
		240V	480Y/277V	600Y/347V	Susol	Metasol
MMS-63S-10	6~10	100	50	10	MC-35	MC-50a
MMS-63S-13	9~13	100	50	10	MC-35	MC-50a
MMS-63S-17	11~17	100	40	10	MC-35	MC-50a
MMS-63S-22	14~22	100	40	10	MC-35	MC-50a
MMS-63S-26	18~26	100	40	10	MC-35	MC-50a
MMS-63S-32	22~32	100	40	10	MC-35	MC-50a
MMS-63S-40	28~40	100	40	10	MC-40	MC-50a
MMS-63S-50	34~50	100	40	10	MC-50	MC-50a
MMS-63S-63	45~63	100	40	10	MC-63	MC-65a
MMS-63S-65	47~65	100	40	10	-	MC-65a

63AF Rotary operation, High interruption

Manual Self-Protected	Adjustment range (A)	Short circuit rating (kA)			MC (Applied contactor)	
		240V	480Y/277V	600Y/347V	Susol	Metasol
MMS-63H-10	6~10	100	65	25	MC-35	MC-50a
MMS-63H-13	9~13	100	65	25	MC-35	MC-50a
MMS-63H-17	11~17	100	50	10	MC-35	MC-50a
MMS-63H-22	14~22	100	50	10	MC-35	MC-50a
MMS-63H-26	18~26	100	50	10	MC-35	MC-50a
MMS-63H-32	22~32	100	50	10	MC-35	MC-50a
MMS-63H-40	28~40	100	50	10	MC-40	MC-50a
MMS-63H-50	34~50	100	50	10	MC-50	MC-50a
MMS-63H-63	45~63	100	50	10	MC-63	MC-65a
MMS-63H-65	47~65	100	40	10	-	MC-65a



100AF Rotary operation, Standard interruption

Manual Self-Protected	Adjustment range (A)	Short circuit rating (kA)			MC (Applied contactor)	
		240V	480Y/277V	600Y/347V	Susol	Metasol
MMS-100S-17	11~17	100	50	10	MC-65	MC-75a
MMS-100S-22	14~22	100	50	10	MC-65	MC-75a
MMS-100S-26	18~26	100	50	10	MC-65	MC-75a
MMS-100S-32	22~32	100	50	10	MC-65	MC-75a
MMS-100S-40	28~40	100	50	10	MC-65	MC-75a
MMS-100S-50	34~50	100	50	10	MC-65	MC-75a
MMS-100S-63	45~63	100	40	10	MC-65	MC-75a
MMS-100S-75	55~75	100	40	10	MC-75	MC-75a
MMS-100S-90	70~90	100	40	10	MC-85	MC-85a
MMS-100S-100	80~100	100	40	10	MC-95	MC-100a

100AF Rotary operation, High interruption

Manual Self-Protected	Adjustment range (A)	Short circuit rating (kA)			MC (Applied contactor)	
		240V	480Y/277V	600Y/347V	Susol	Metasol
MMS-100H-17	11~17	100	65	25	MC-65	MC-75a
MMS-100H-22	14~22	100	65	20	MC-65	MC-75a
MMS-100H-26	18~26	100	65	20	MC-65	MC-75a
MMS-100H-32	22~32	100	65	20	MC-65	MC-75a
MMS-100H-40	28~40	100	65	20	MC-65	MC-75a
MMS-100H-50	34~50	100	65	20	MC-65	MC-75a
MMS-100H-63	45~63	100	50	10	MC-65	MC-75a
MMS-100H-75	55~75	100	50	10	MC-75	MC-75a
MMS-100H-90	70~90	100	50	10	MC-85	MC-85a
MMS-100H-100	80~100	100	50	10	MC-95	MC-100a

Ready for IE3

LS contactor ready for IE3-rated motors

What is the IE3?

Motor is rated from IE1 through IE4 depends on its energy efficiency which means IE3 is more efficient compared to IE1 and IE2-rated motors. IE3-rated motor is not only more efficient than IE2-rated motor but it also has lower rated current and higher starting current & inrush current.

WHY IE3?

As part of the EU Enviromental policy "20/30-20-20" strategy, the EU is committed to achieve the followings by 2020

- Reduce greenhouse gas emissions by up to 30 %
- Increase the share of renewable energy to 20 % and
- Boost energy efficiency by 20% in general.IEC 60034-30 standard specifies IE classes for motors in accordance with the above requirements.
- IEC 60034-30-1 standard
  - IE1 Standard Efficiency
  - IE2 High Efficiency
  - IE3 Premium Efficiency
  - IE4 Super Premium Efficiency

IE3 motors can be associated with standard starter solutions, like contactor, manual motor starter.
During the starting the IE3 motor, Inrush and starting current are increased compared with IE2 motor.
The increased inrush and starting current can affect the selection of the electrical device.
In order to secure the highest efficiency in your electrical system, it is strongly recommended to use the more efficient IE3 class product.
LSIS contactors are already compliant with IE3.

ECO FRIENDLY




Frame size			18AF				22AF				40AF		65AF	
Type			MC-6a	MC-9a	MC-12a	MC-18a	MC-9b	MC-12b	MC-18b	MC-22b	MC-32a	MC-40a	MC-50a	MC-65a
AC-3	200/240V	kW	1.1	1.5	2	2.5	1.5	2	2.5	3	4.5	5.5	7.5	9
		A	5	6	7.5	10	6	7.5	10	12.5	18	23	31.5	37
	380/440V	kW	2	2.2	3.5	5	2.2	3.5	5	6.5	9	11	15	18.5
		A	4	5	7	10	5	7	10	12.5	18	23	28.5	37
	500/550V	kW	2	2.2	4	4.5	2.2	4	4.5	7.5	10	11	15	22
		A	3.5	4	7	7.5	4	7	7.5	11.5	16	18	24.5	34
	690V	kW	2	2.2	4	4	3	4	4	9	10	11	15	18.5
		A	2.3	3	5	5	3.5	5	5	10	11.5	13	16	20
	1000V	kW	-	-	-	-	-	-	-	-	11	11	16	16
		A	-	-	-	-	-	-	-	-	9.7	9.7	13	13

*Thermal Overload Relay" Products are available regardless of de-rating




Frame size			100AF			150AF		225AF		400AF		
Type			MC-75a	MC-85a	MC-100a	MC-130a	MC-150a	MC-185a	MC-225a	MC-265a	MC-330a	MC-400a
AC-3	200/240V	kW	11	15	18.5	22	25	30	37	45	55	75
		A	43	49	60	74	86	106	126	151	189	229
	380/440V	kW	22	25	30	40	45	55	75	85	110	132
		A	43	49	60	74	86	106	129	151	189	229
	500/550V	kW	27	30	35	37	40	70	85	90	100	140
		A	37	43	49	51	57	103	114	129	143	200
	690V	kW	22	25	30	30	30	65	80	100	130	160
		A	24	26	37	34	34	69	86	106	126	171
	1000V	kW	20	20	20	37	37	70	70	80	80	80
		A	16	16	16	30	30	51	51	60	60	60

*Thermal Overload Relay" Products are available regardless of de-rating


Frame size			800AF			2100AF		
Type			MC-500a	MC-630a	MC-800a	MC-1400a	MC-1700a	MC-2100a
AC-3	200/240V	kW	80	110	132	147	180	-
		A	286	360	457	491	600	-
	380/440V	kW	160	200	250	265	355	500
		A	286	360	457	491	600	829
	500/550V	kW	160	200	280	-	-	-
		A	229	286	411	-	-	-
	690V	kW	200	230	300	450	500	-
		A	217	240	360	491	543	-
	1000V	kW	160	160	160	-	-	-
		A	126	126	126	-	-	-

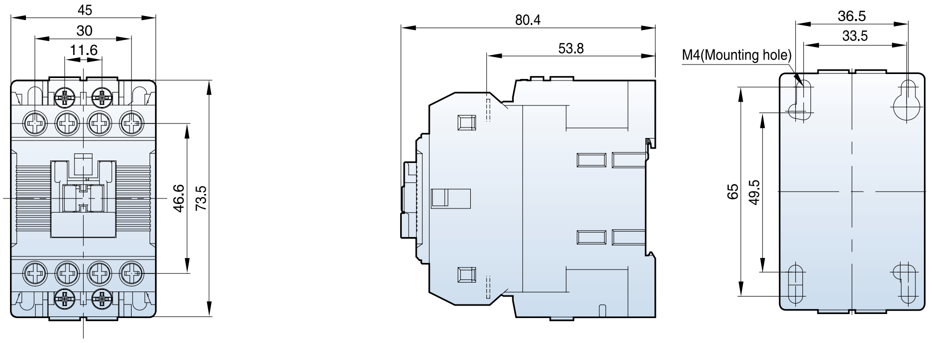
*Thermal Overload Relay" Products are available regardless of de-rating

3-pole contactors dimension (18AF/22AF)

[mm]

MC-6a~18a AC

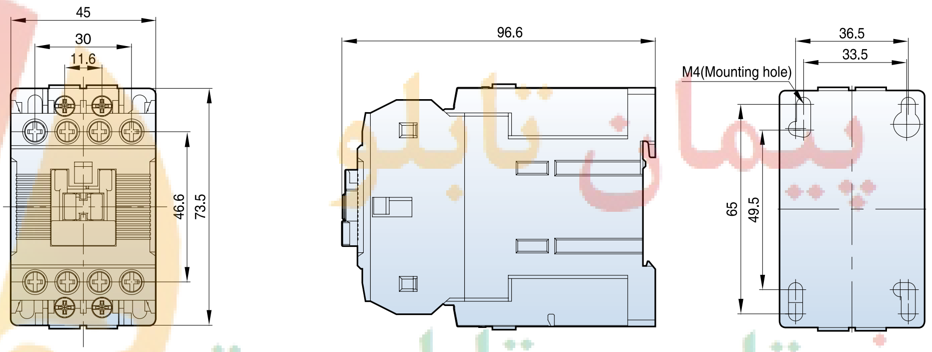
1NO or 1NC



0.3kg

MC-6a~18a DC

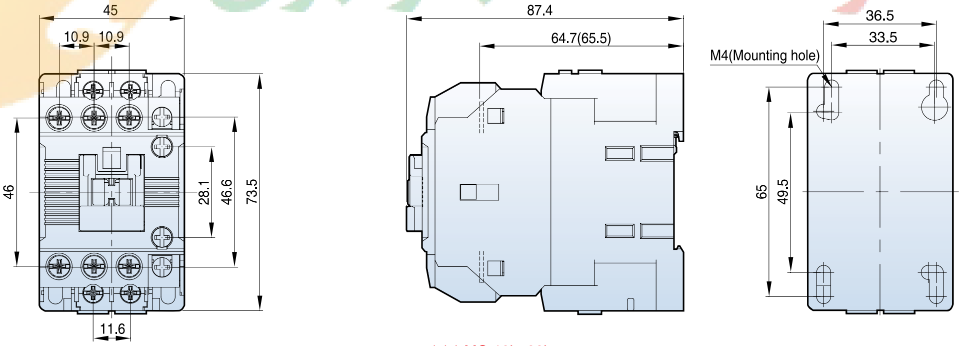
1NO or 1NC



0.5kg

MC-9b~22b AC

1NO1NC

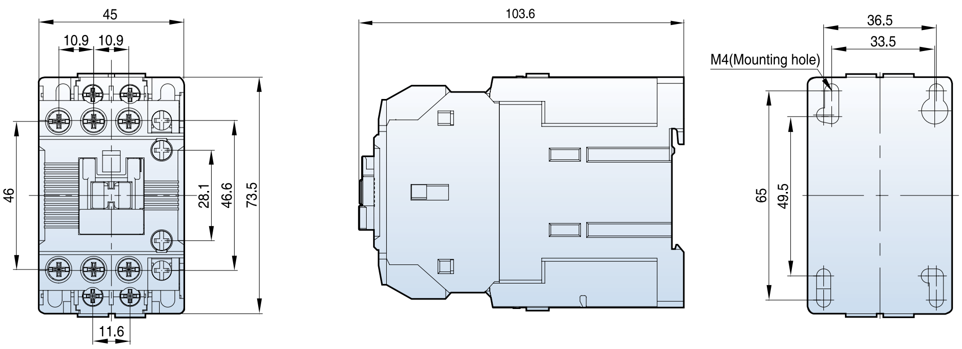


* ( ) MC-18b, 22b

0.3kg

MC-9b~22b DC

1NO1NC

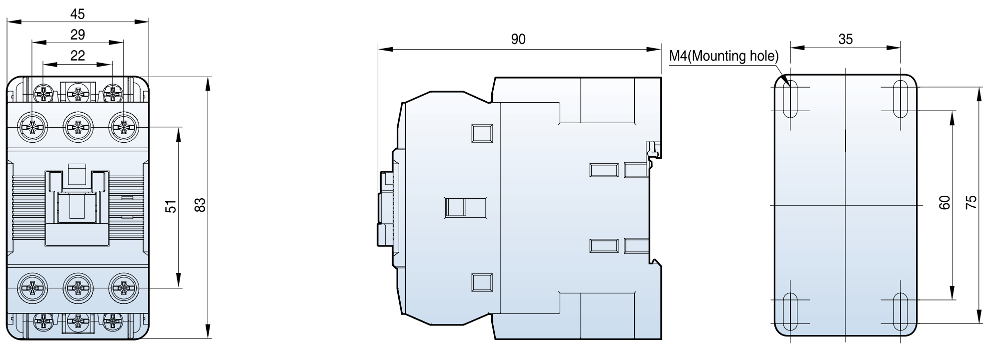


0.5kg

3-pole contactors dimension (40AF)

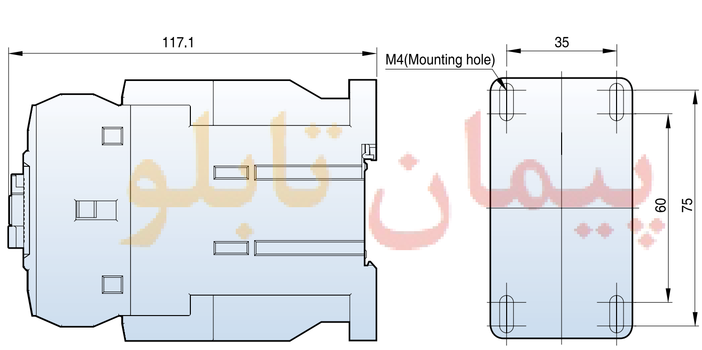
[mm]

MC-32a~40a AC



0.4kg

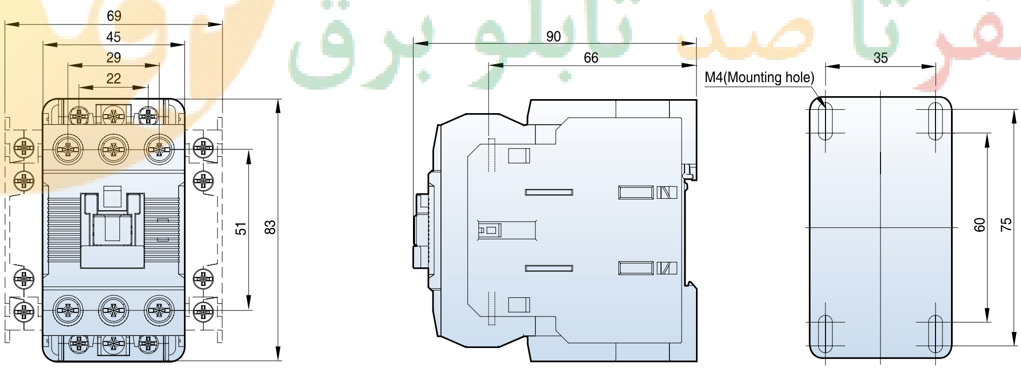
MC-32a~40a DC



0.6kg

MC-32a~40a AC

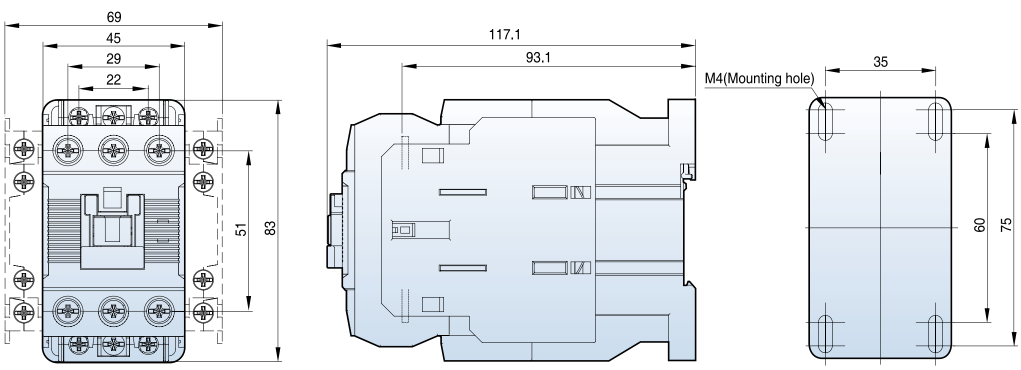
2NO2NC



0.5kg

MC-32a~40a DC

2NO2NC

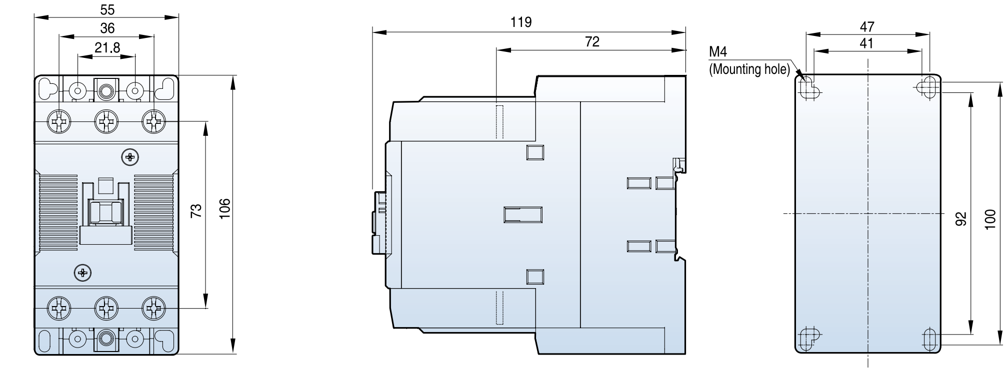


0.8kg

3-pole contactors dimension (65AF)

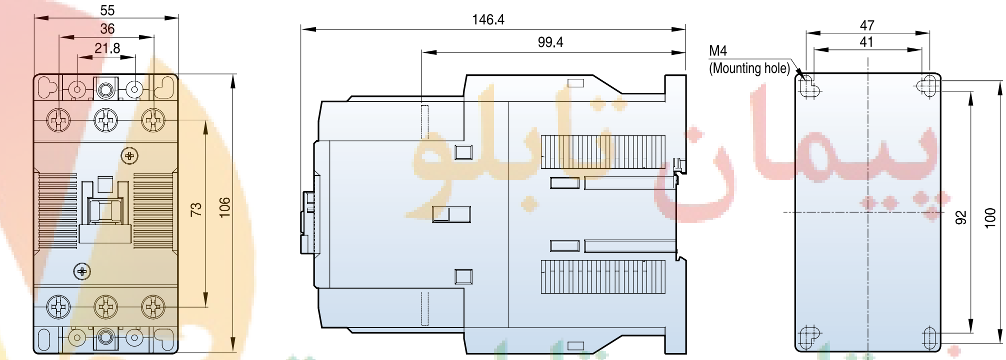
[mm]

MC-50a~65a AC



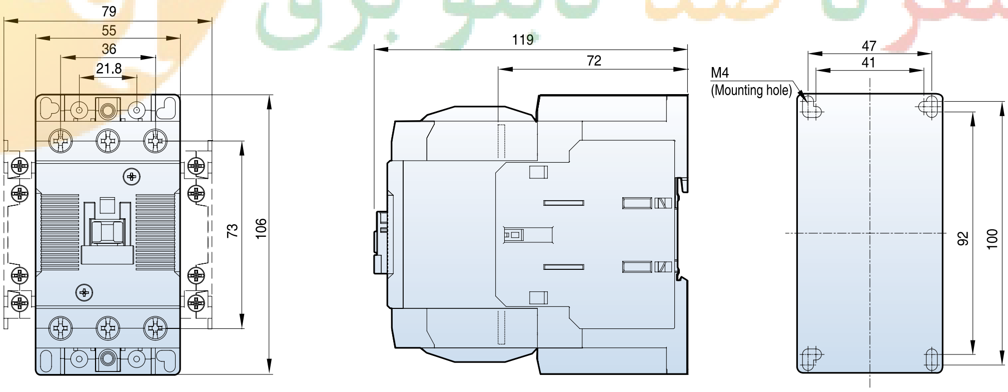
0.9kg

MC-50a~65a DC



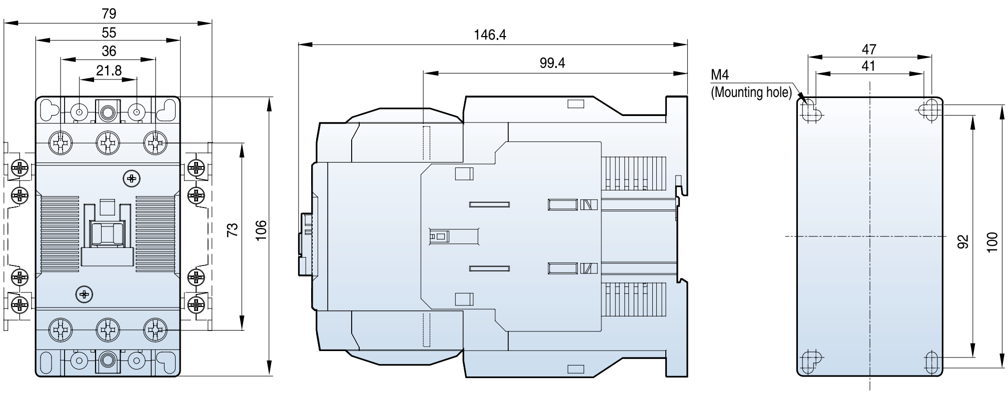
1.2kg

MC-50a~65a AC
2NO2NC



1kg

MC-50a~65a DC
2NO2NC

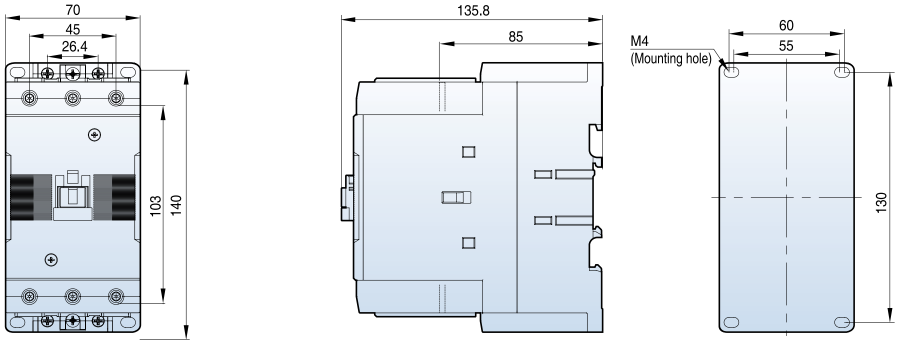


1.3kg

3-pole contactors dimension (100AF)

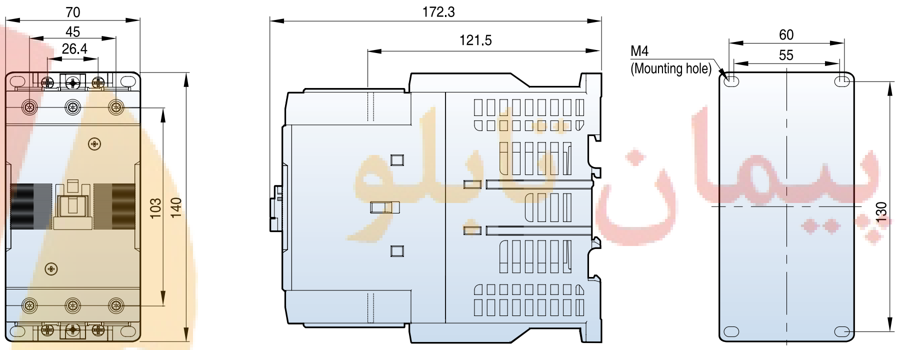
[mm]

MC-75a~100a AC



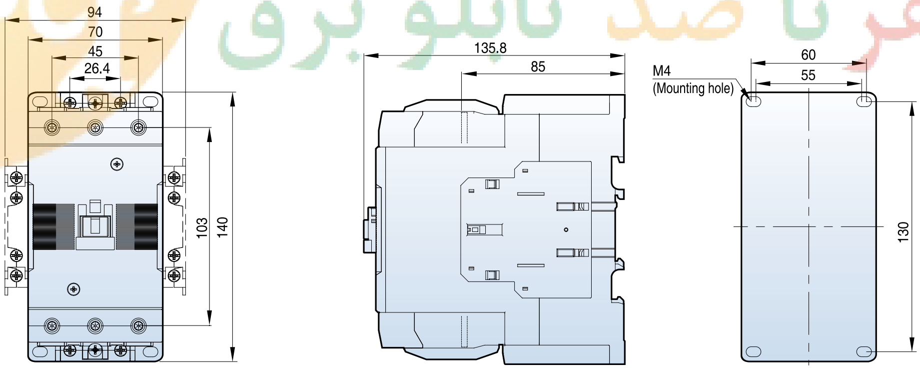
1.8kg

MC-75a~100a DC



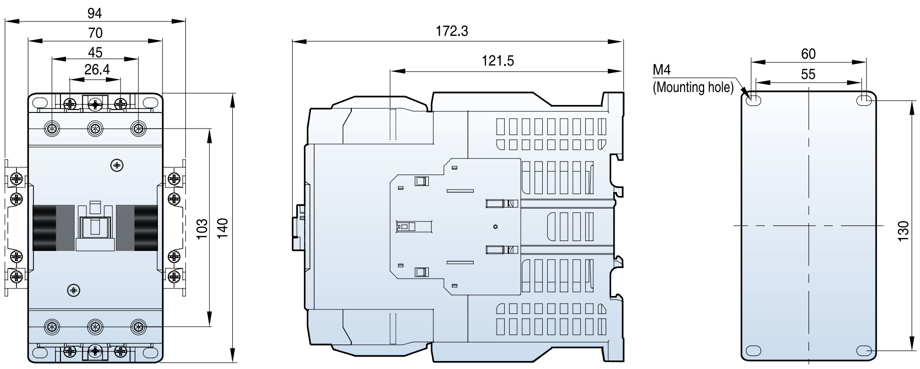
2.7kg

MC-75a~100a AC
2NO2NC



1.9kg

MC-75a~100a DC
2NO2NC

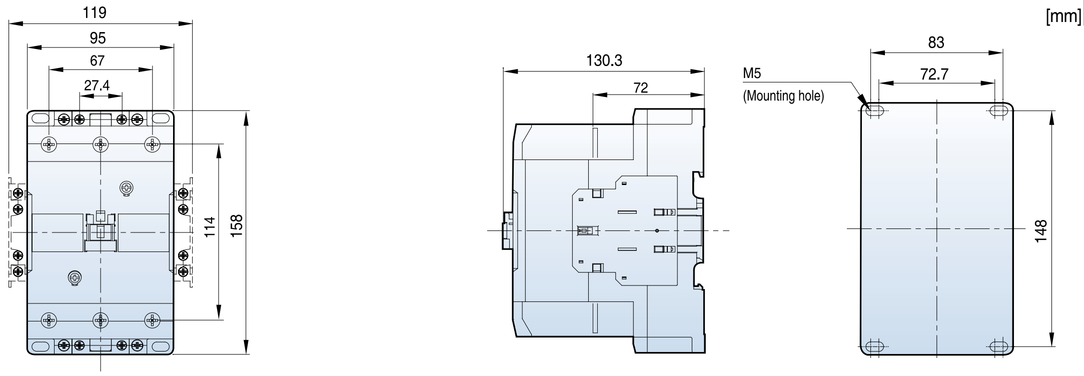


2.8kg

3-pole contactors dimension (150AF~400AF)

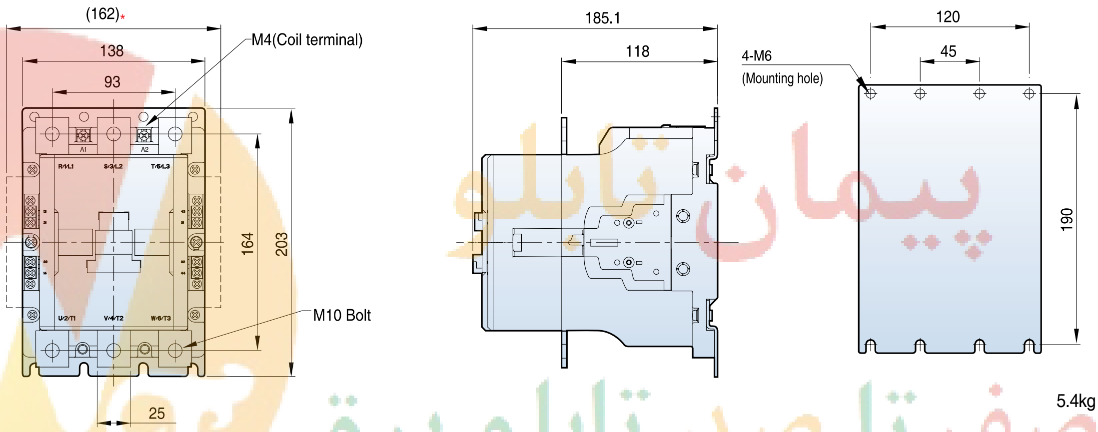
[mm]

MC-130a
MC-150a



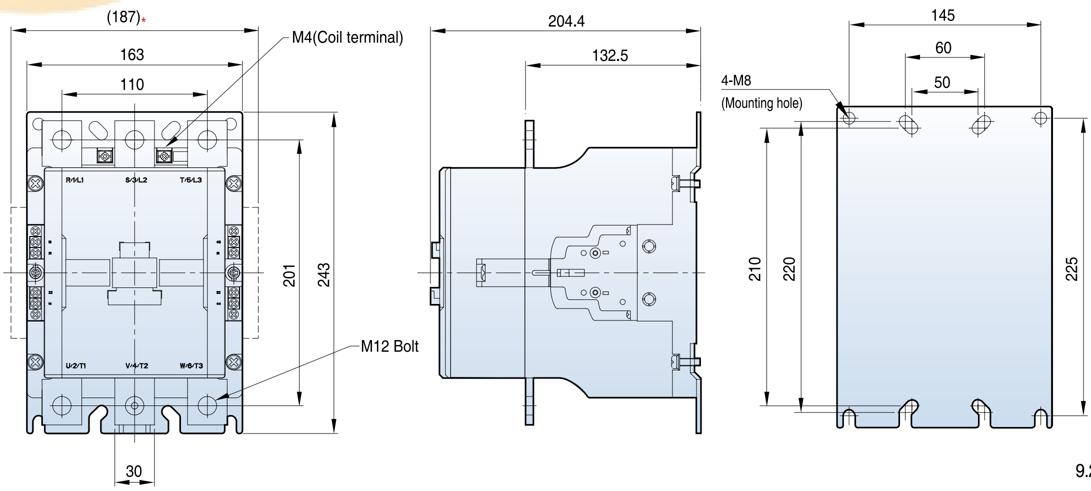
2.4kg

MC-185a
MC-225a



5.4kg

MC-265a
MC-330a
MC-400a



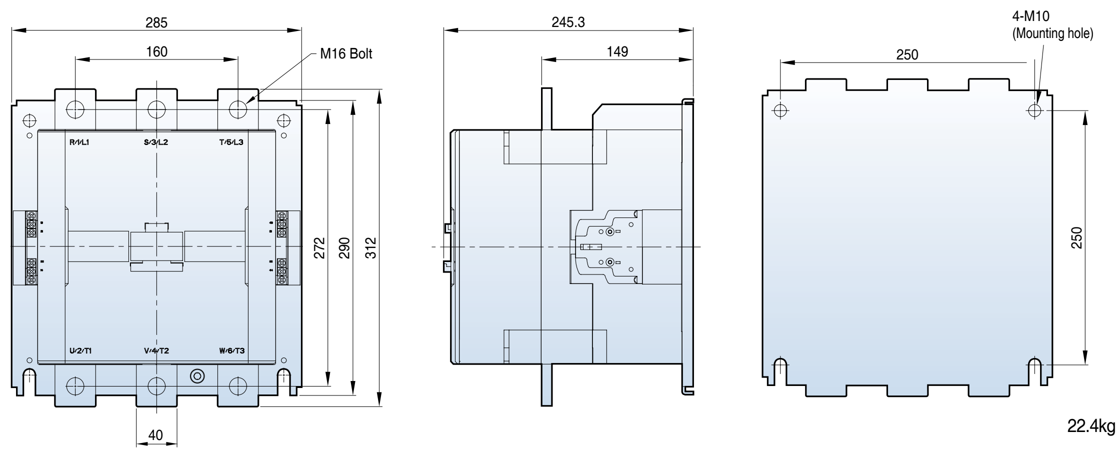
9.2kg

* Optional auxiliary contact unit (side mount type)

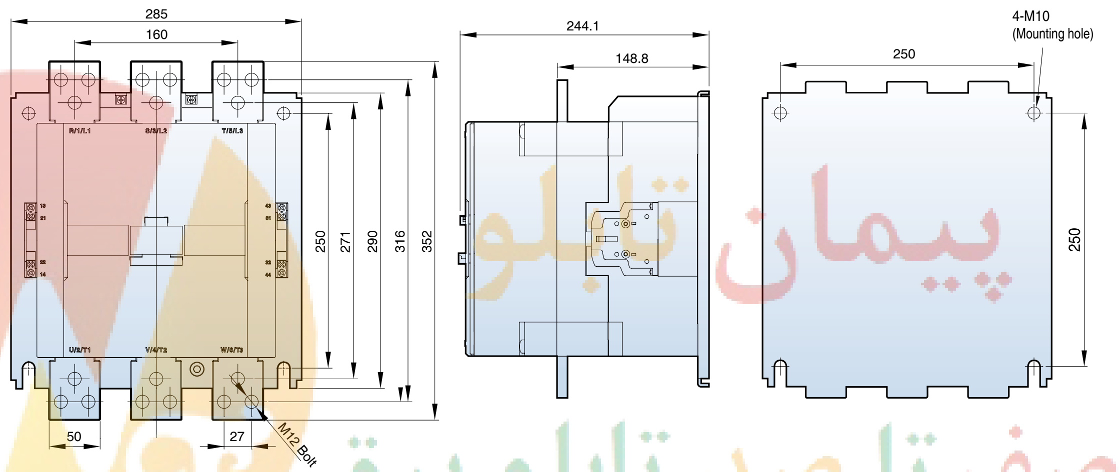
3-pole contactors dimension (800AF~2650AF)

[mm]

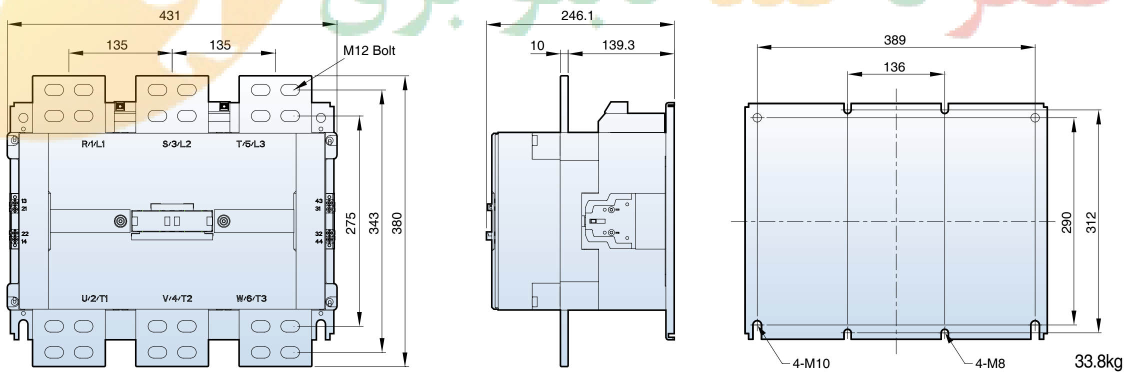
MC-500a
MC-630a
MC-800a



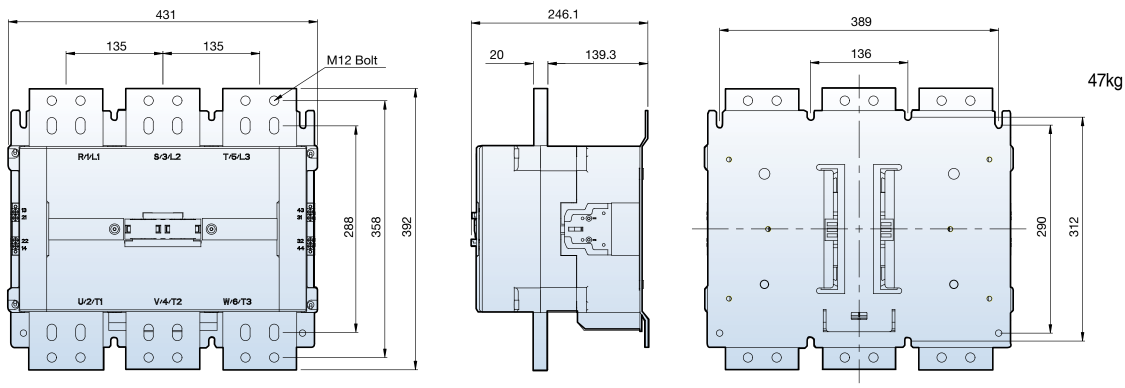
MC-1260a



MC-1400a
MC-1700a
MC-2100a



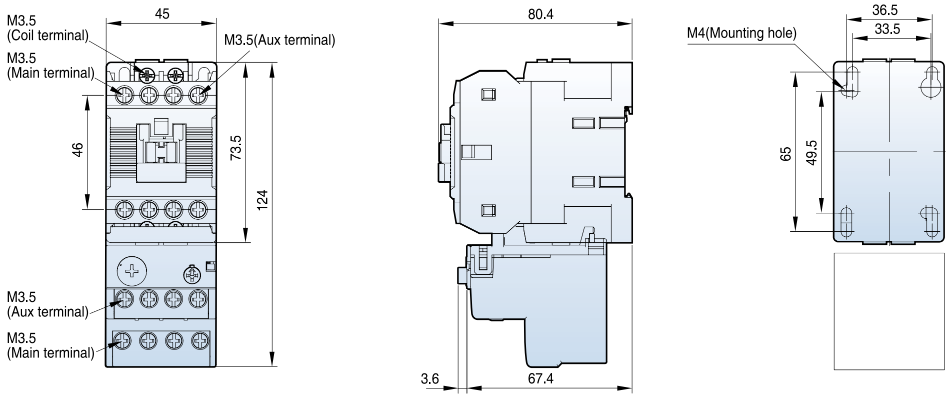
MC-2650a



Motor starters dimension (18AF~40AF)

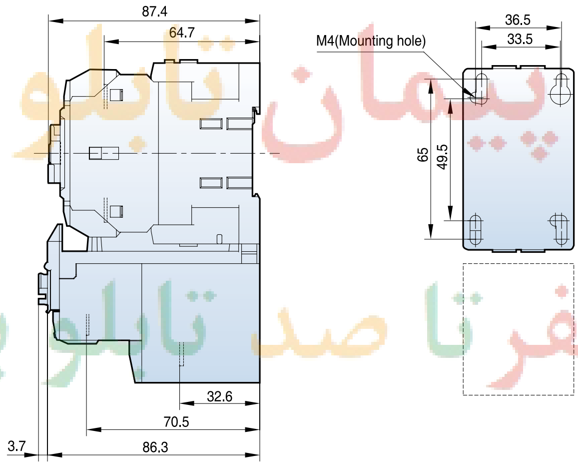
[mm]

MS-6a~18a



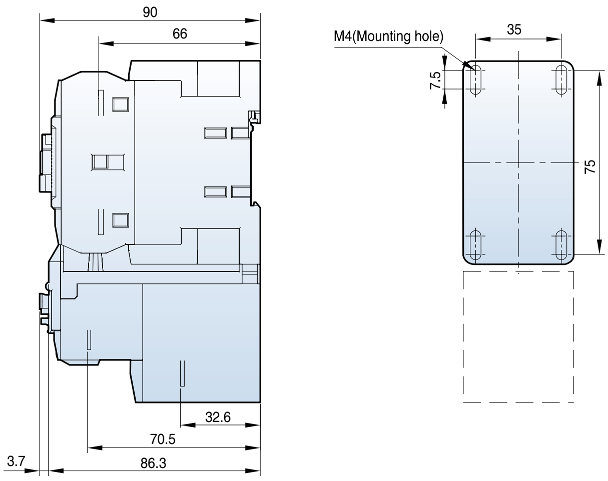
0.5kg

MS-9b~22b



0.5kg

MS-32a~40a

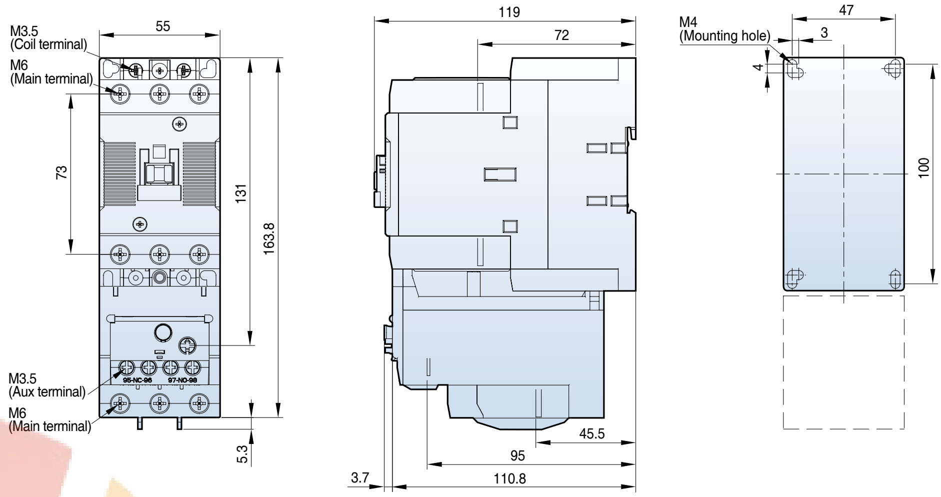


0.6kg

Motor starters dimension (65AF~150AF)

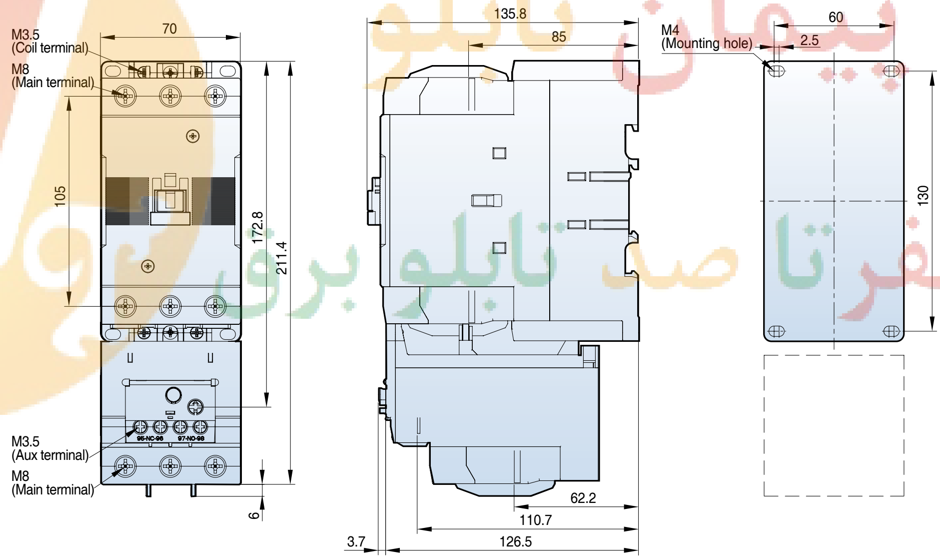
[mm]

MS-50a~65a



1.3kg

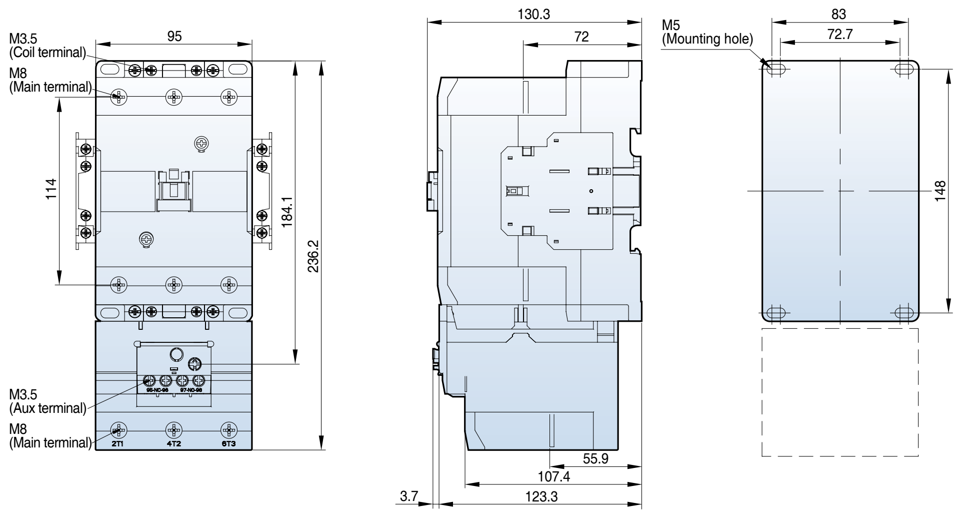
MS-75a~100a



2.3kg

MS-130a

MS-150a

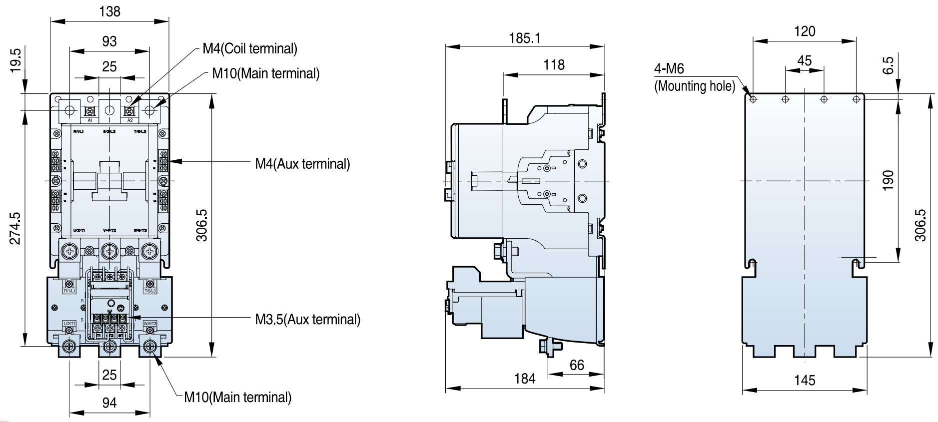


2.9kg

Motor starters dimension (185AF~800AF)

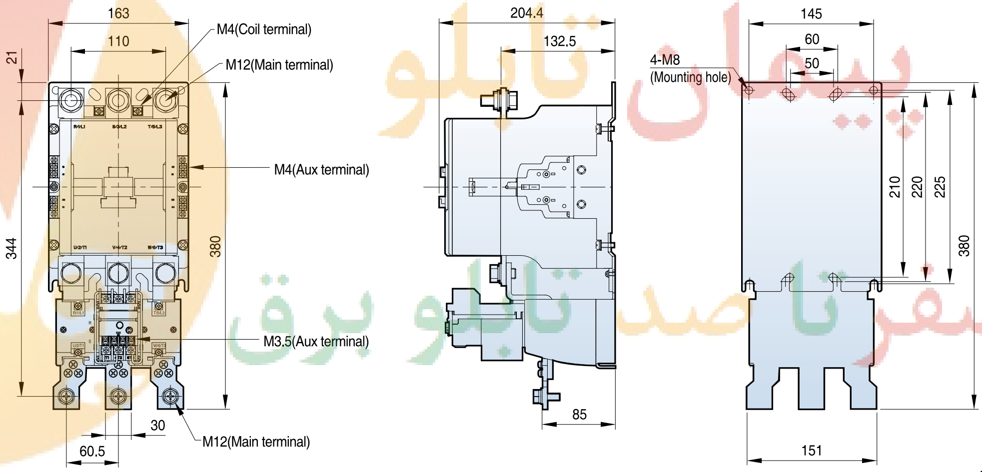
[mm]

MS-185a
MS-225a



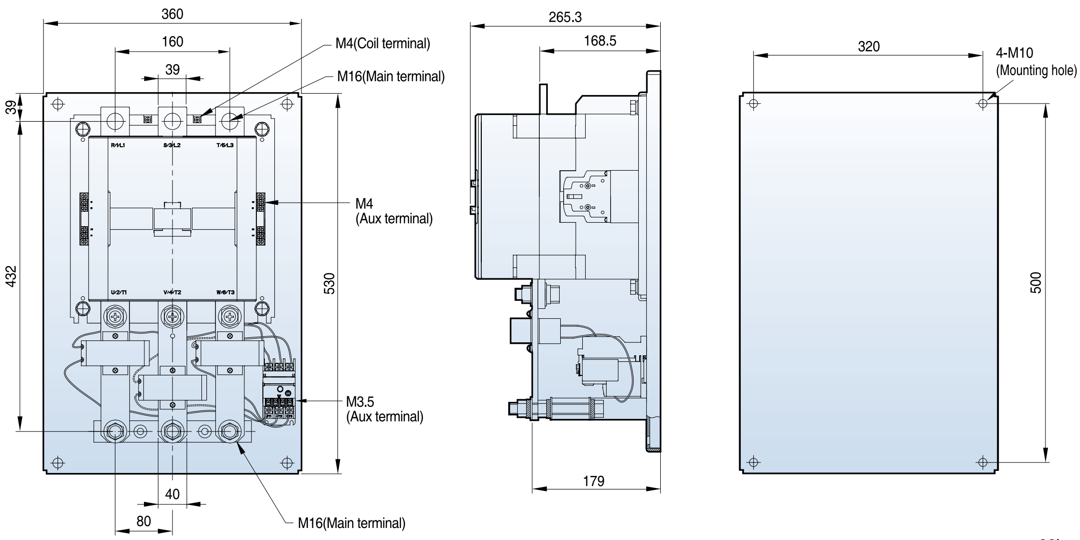
7.9kg

MS-265a
MS-330a
MS-400a



11.8kg

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

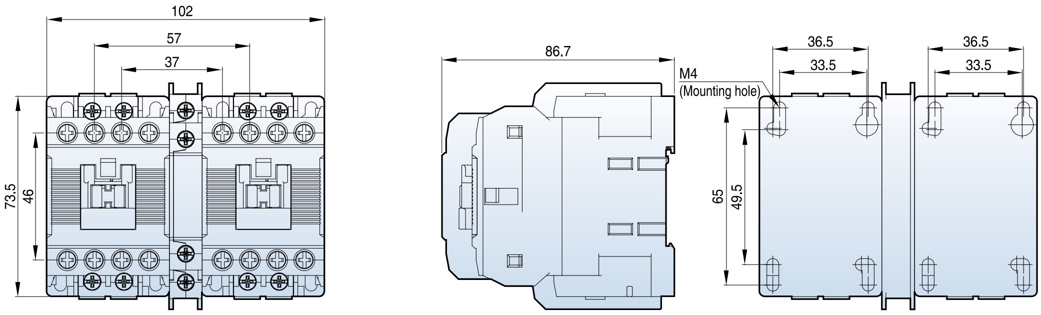


28kg

Reversing contactors and starters dimension (18AF)

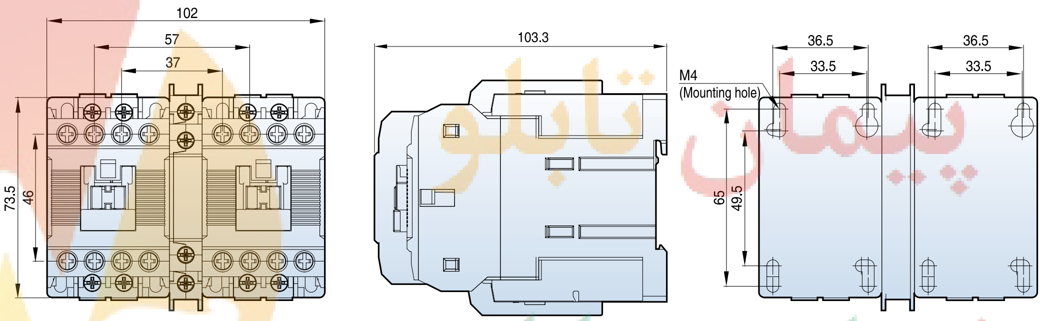
[mm]

MC-6aR~18aR AC



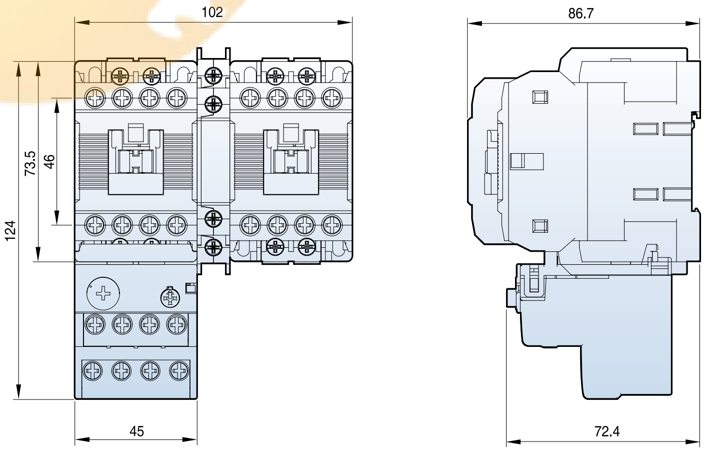
0.7kg

MC-6aR~18aR DC



1kg

MS-6aR~18aR AC

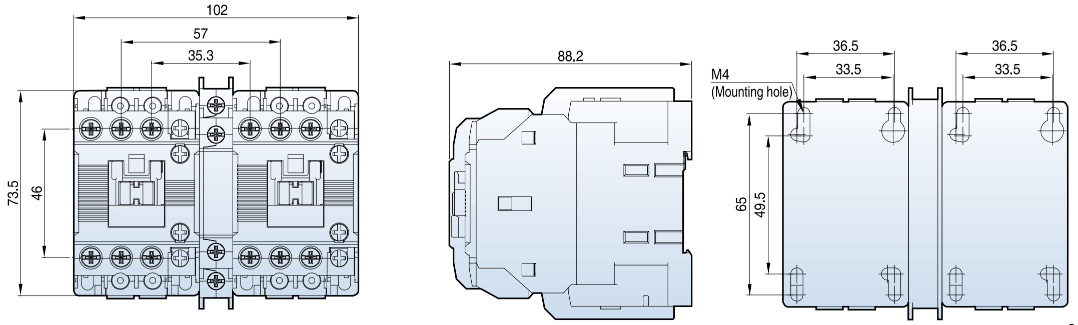


0.9kg

Reversing contactors and starters dimension (22AF)

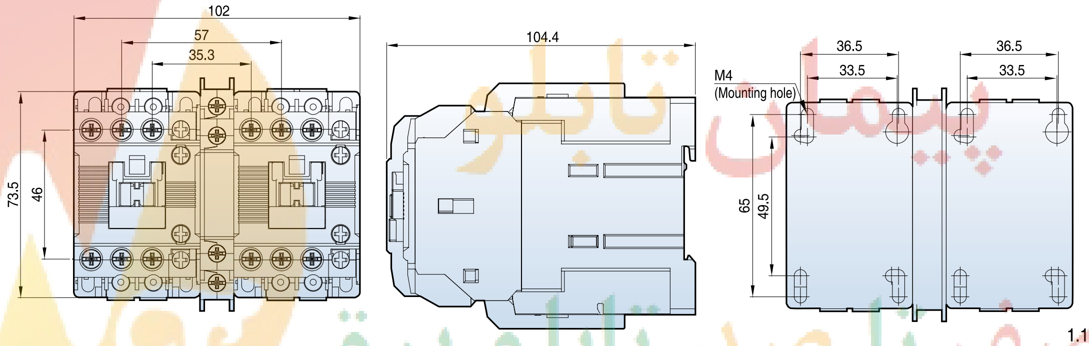
[mm]

MC-9bR~22bR AC



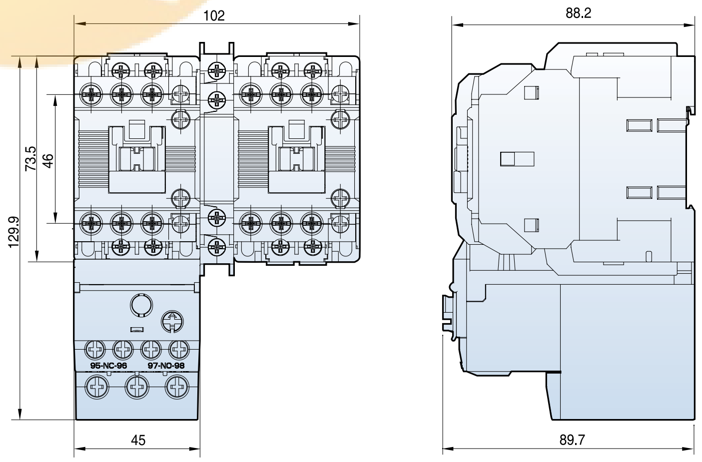
0.7kg

MC-9bR~22bR DC



1.1kg

MS-9bR~22bR AC

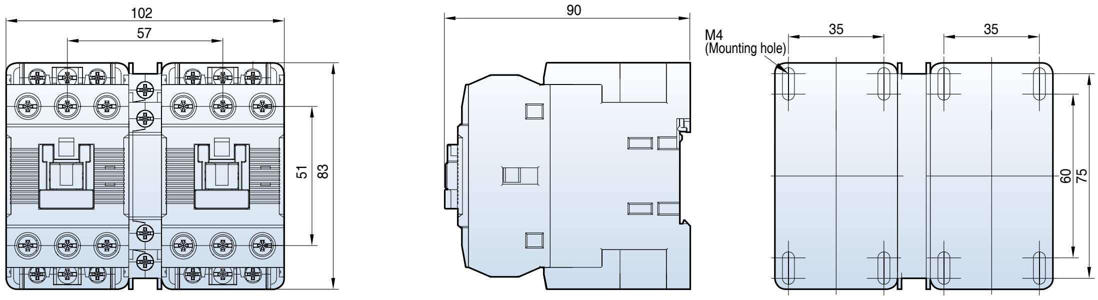


1.3kg

Reversing contactors and starters dimension (40AF)

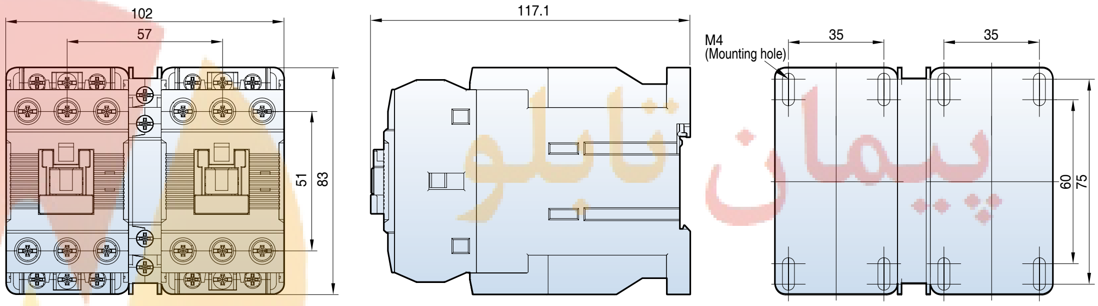
[mm]

MC-32aR~40aR AC



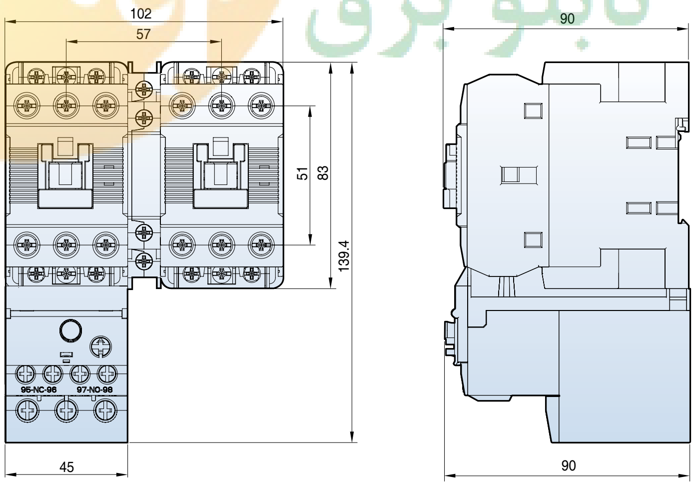
0.9kg

MC-32aR~40aR DC



1.4kg

MS-32aR~40aR AC

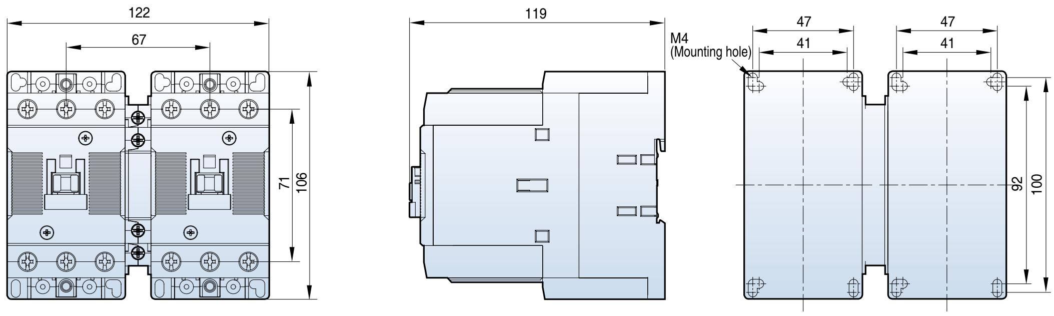


1.1kg

Reversing contactors and starters dimension (65AF)

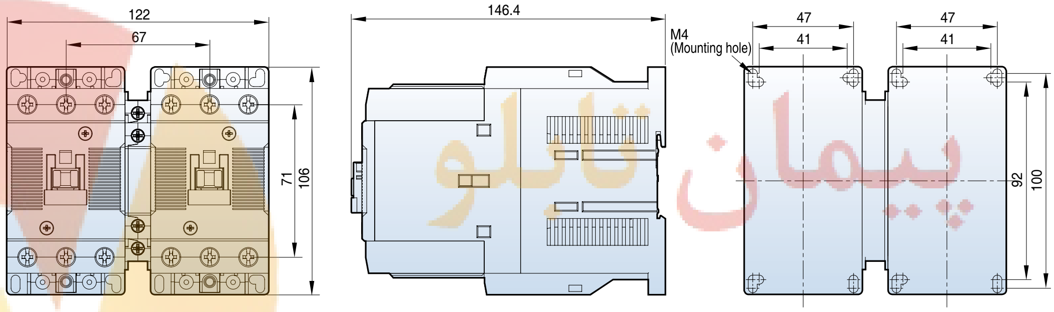
[mm]

MC-50aR~65aR AC



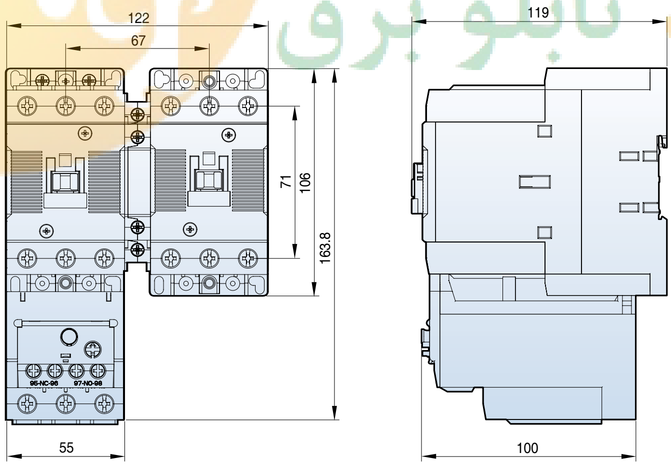
1.8kg

MC-50aR~65aR DC



2.4kg

MS-50aR~65aR AC

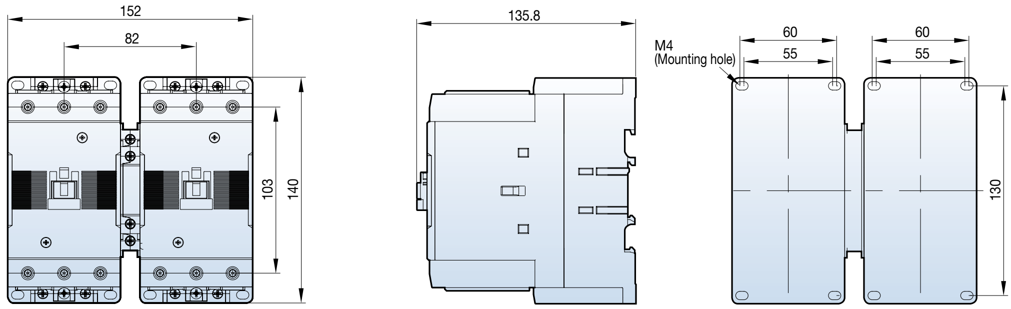


1.9kg

Reversing contactors and starters dimension (100AF)

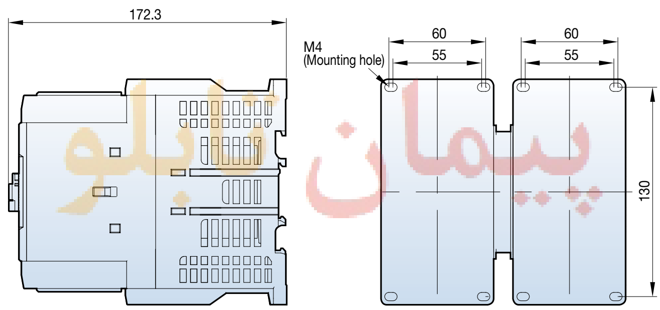
[mm]

MC-75aR~100aR AC



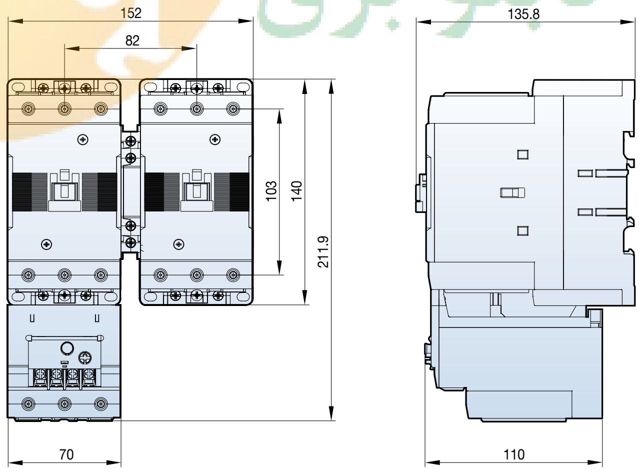
3.3kg

MC-75aR~100aR DC



5.2kg

MS-75aR~100aR AC

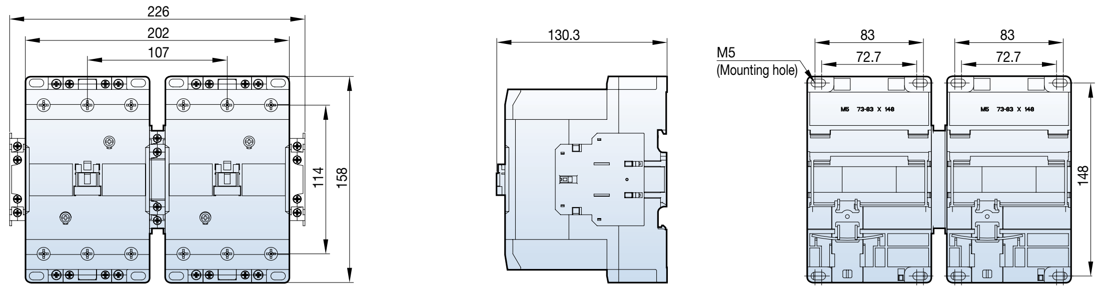


3.8kg

Reversing contactors and starters dimension (150~800AF)

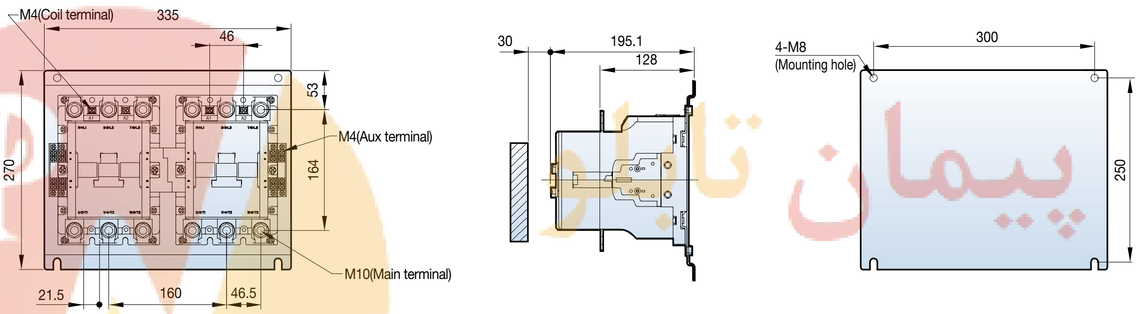
[mm]

MC-130aR
MC-150aR



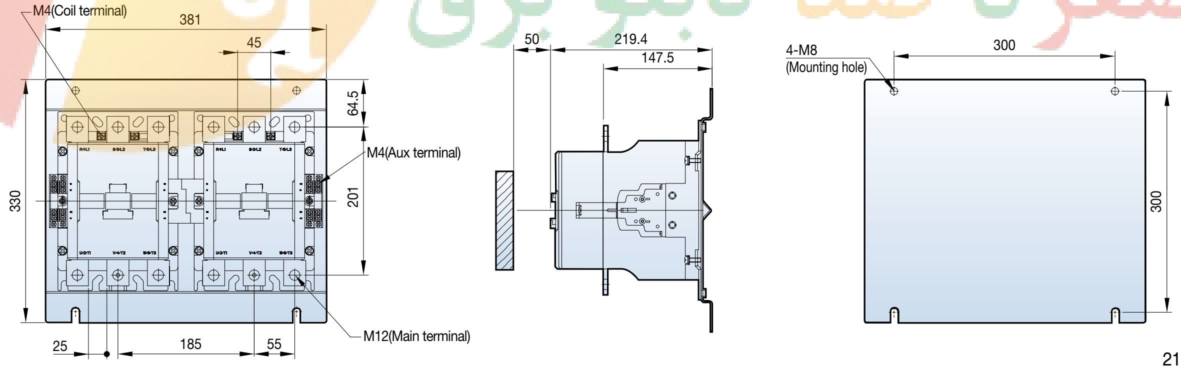
4.3kg

MC-185aR
MC-225aR



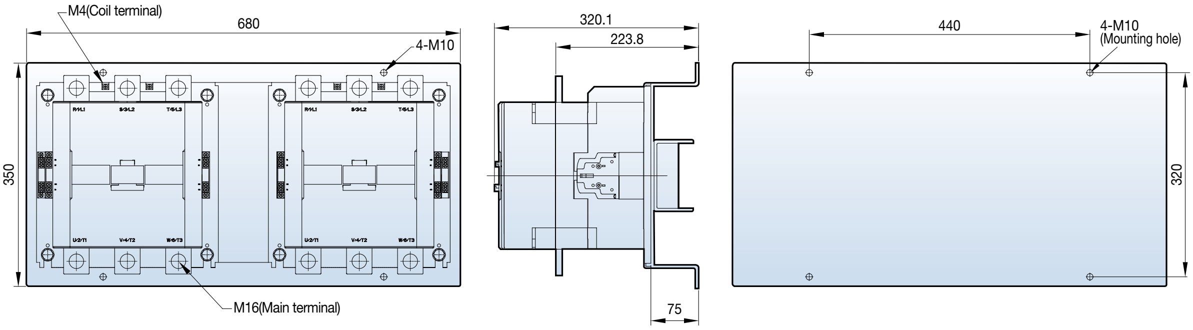
12.9kg

MC-265aR
MC-330aR
MC-400aR



21.4kg

MC-500aR
MC-630aR
MC-800aR

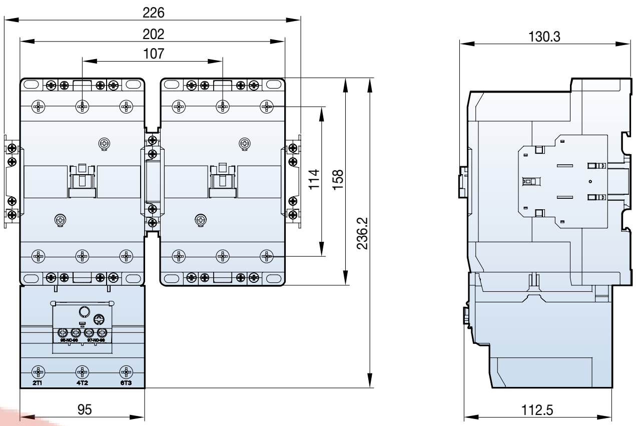


60kg

Reversing contactors and starters dimension (150~400AF)

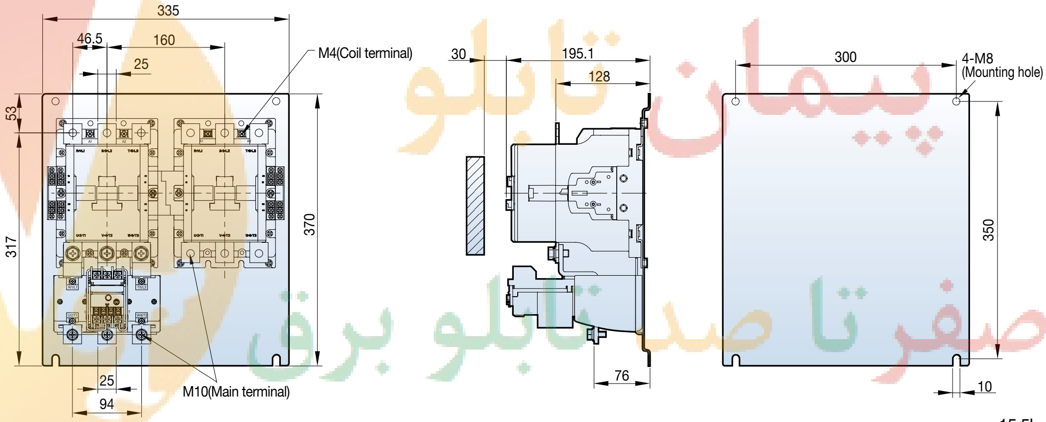
[mm]

MS-130aR AC
MS-150aR AC



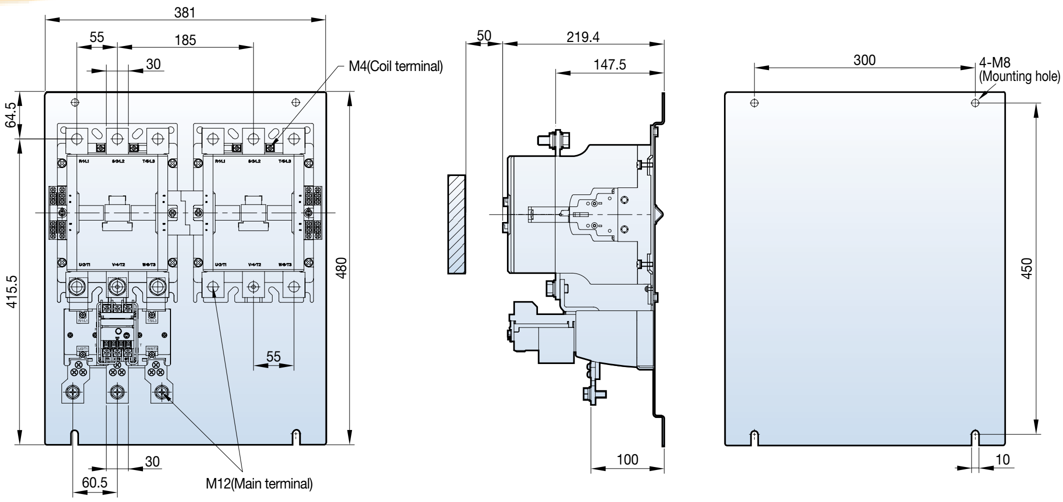
5kg

MS-185aR AC
MS-225aR AC



15.5kg

MS-265aR DC
MS-330aR DC
MS-400aR DC

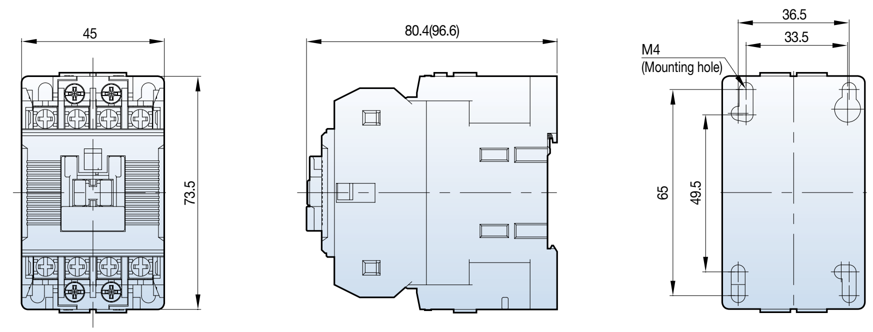


23kg

Contactor relays dimension

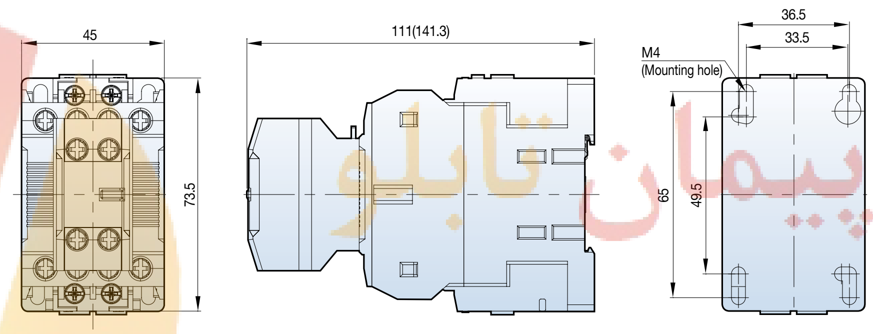
[mm]

MR-4 (D)



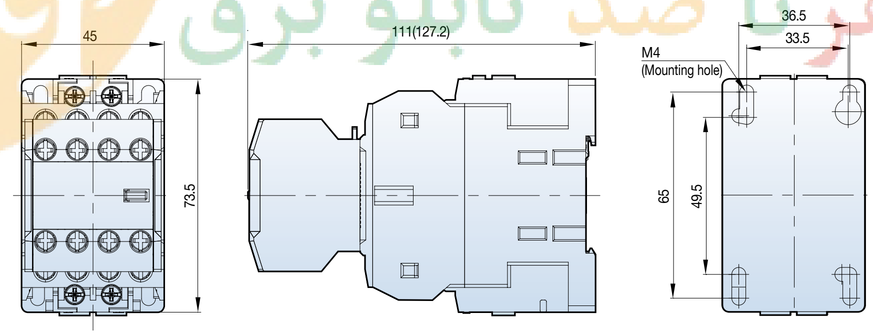
284g

MR-6 (D)



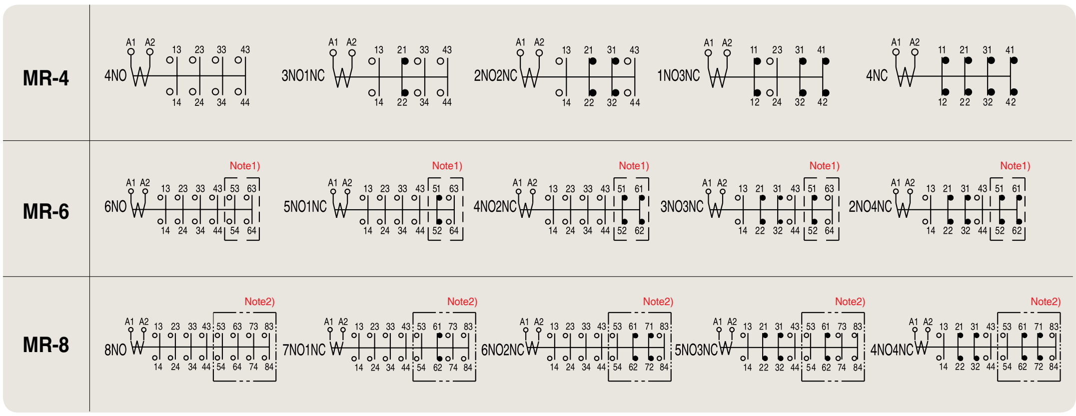
315g

MR-8 (D)



339g

Composition



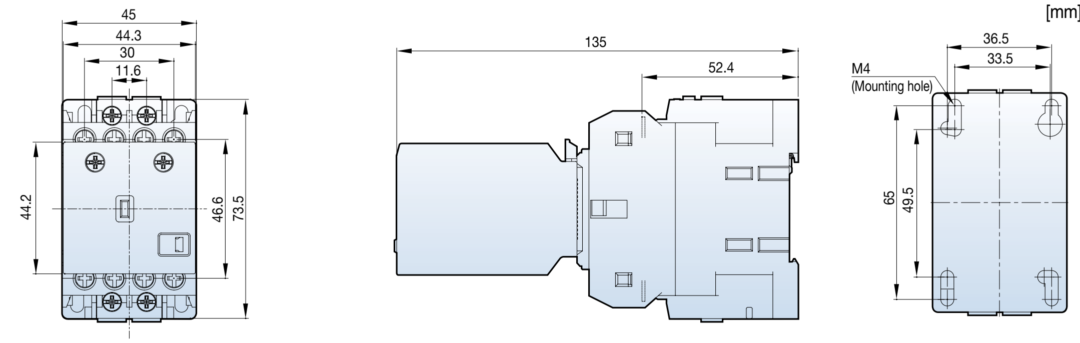
Note) 1. UA-2: Auxiliary contact units 2. UA-4: Auxiliary contact units
• Please refer to the contact diagram represented on catalog when contactor relays MR-4, 4D and auxiliary contact units UA-2,4 are purchased separately.
• Be sure to order the auxiliary contact units separately except for the above contact units. • ( ) : Dimension for DC control contactor relays

Latching contactors dimension (18AF/22AF)

[mm]

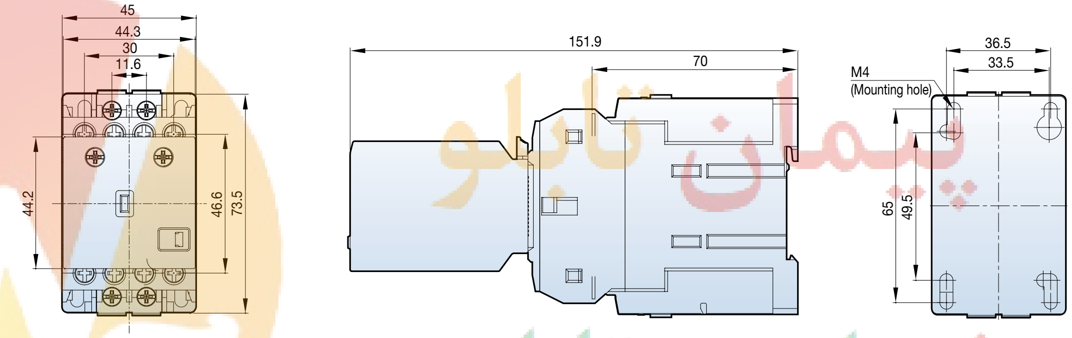
MC-6a~18a AC

1NO or 1NC + ML-65



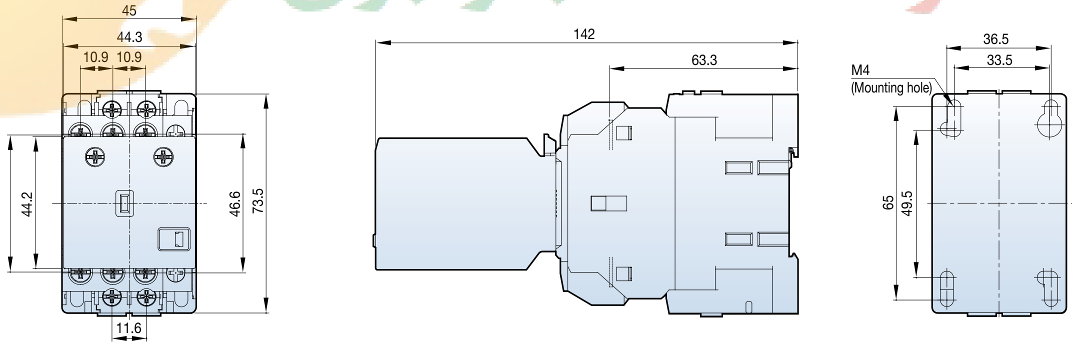
MC-6a~18a DC

1NO or 1NC + ML-65



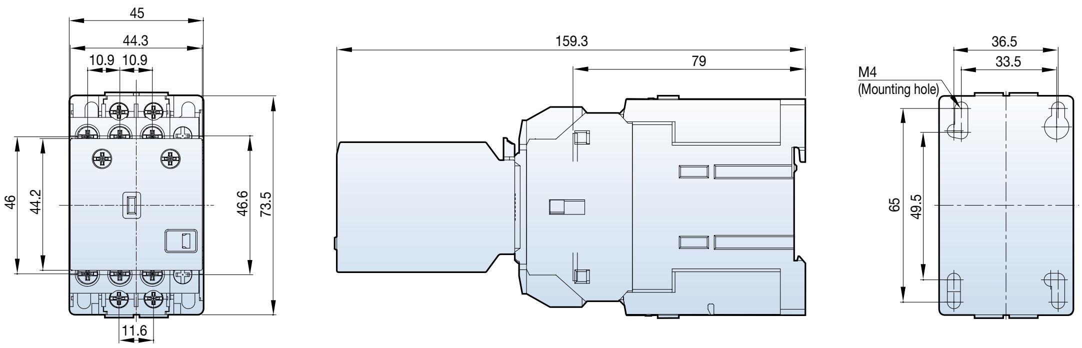
MC-9b~22b AC

1NO1NC + ML-65



MC-9b~22b DC

1NO1NC + ML-65

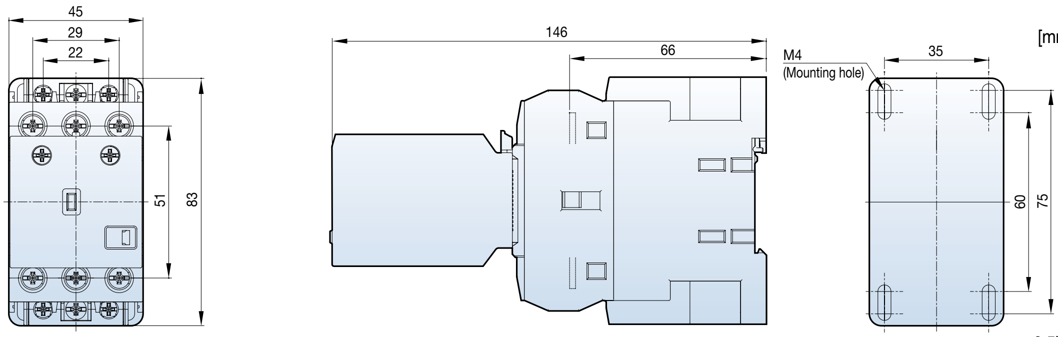


Latching contactors dimension (40AF)

[mm]

MC-32a~40a AC

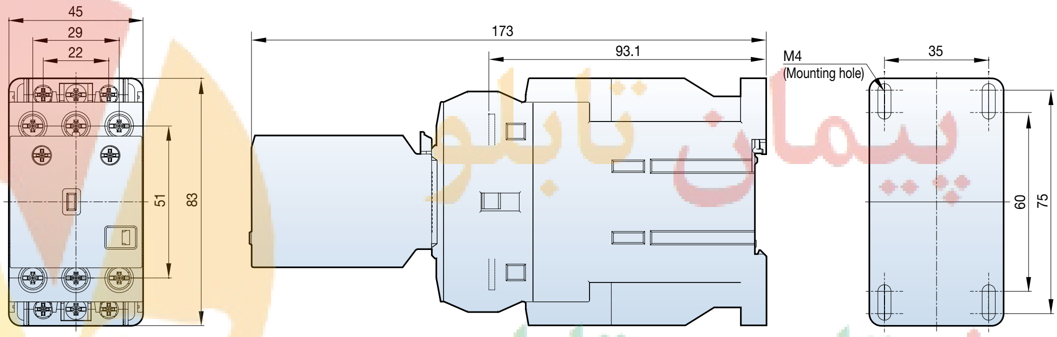
+ML-65



0.5kg

MC-32a~40a DC

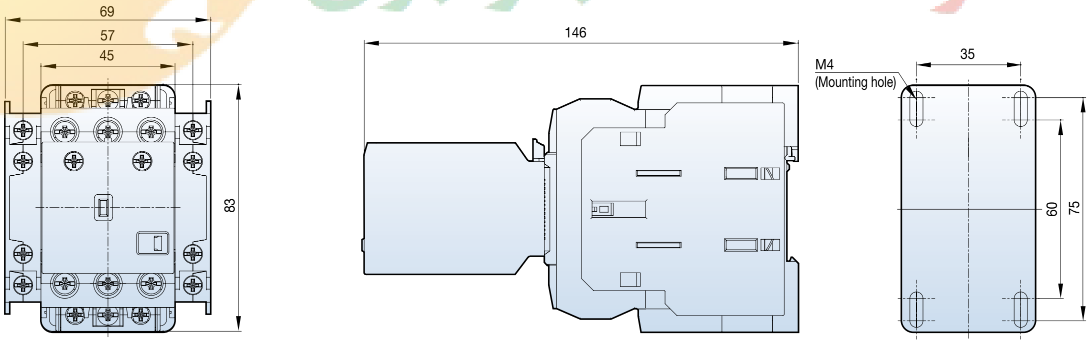
+ ML-65



0.8kg

MC-32a~40a AC

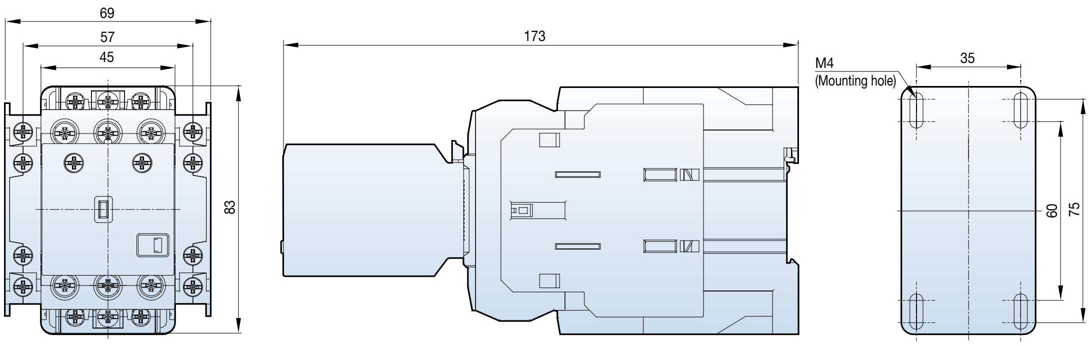
2NO2NC + ML-65



1kg

MC-32a~40a DC

2NO2NC + ML-65

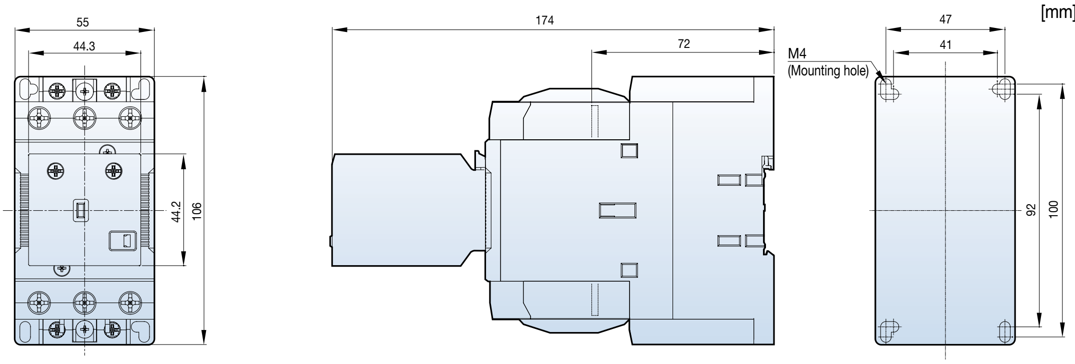


1.3kg

Latching contactors dimension (65AF)

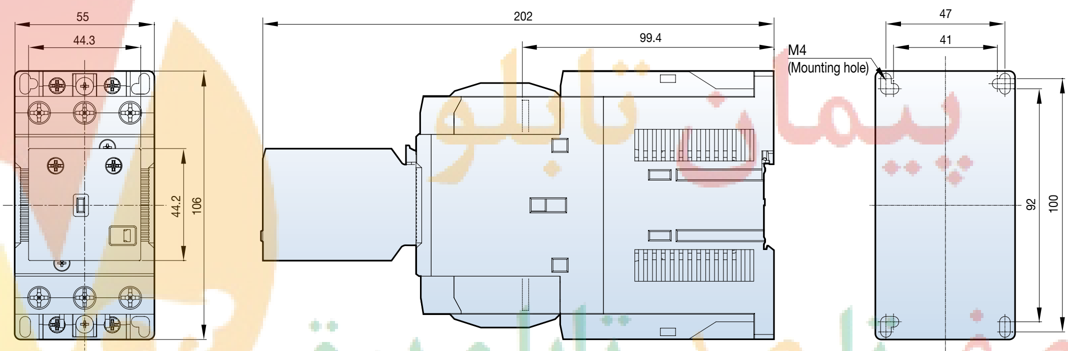
[mm]

MC-50a~65a AC
+ ML-65



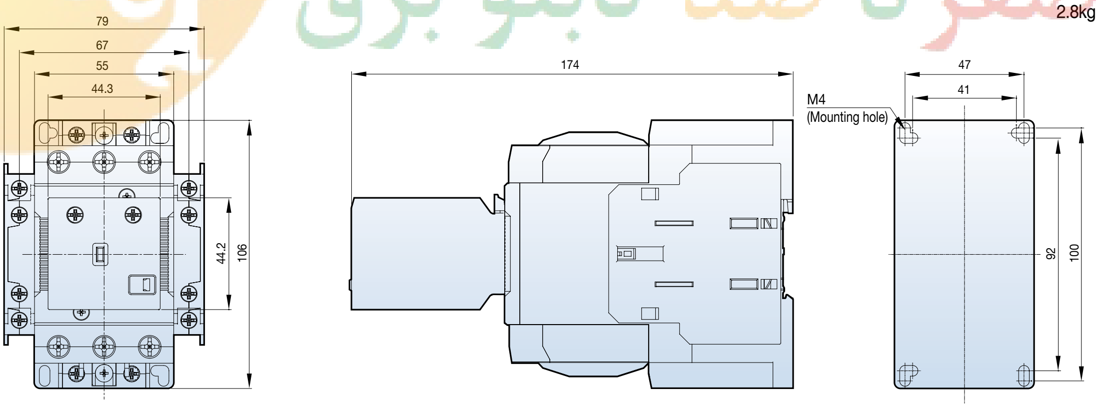
1.9kg

MC-50a~65a DC
+ ML-65



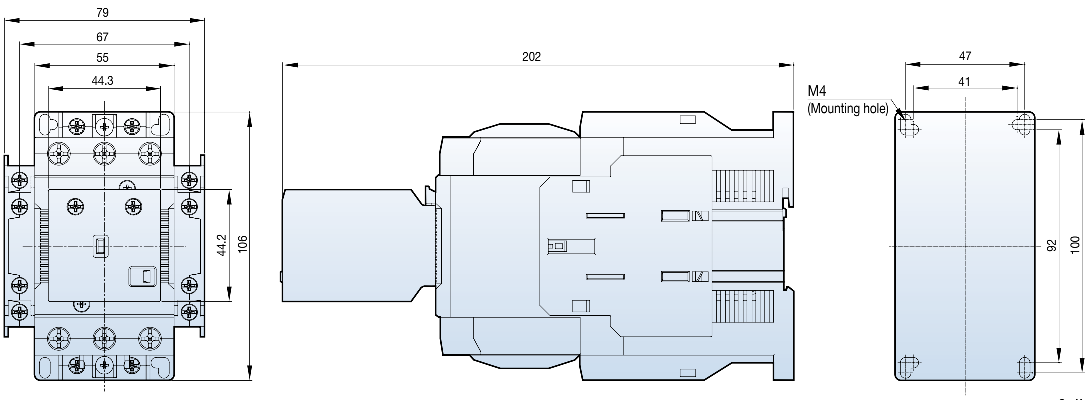
2.8kg

MC-50a~65a AC
2NO2NC + ML-65



2.4kg

MC-50a~65a DC
2NO2NC + ML-65

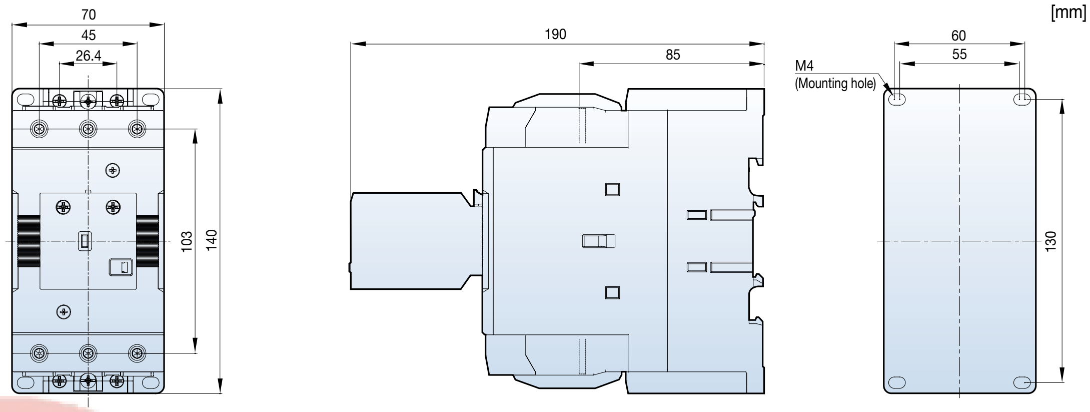


2.4kg

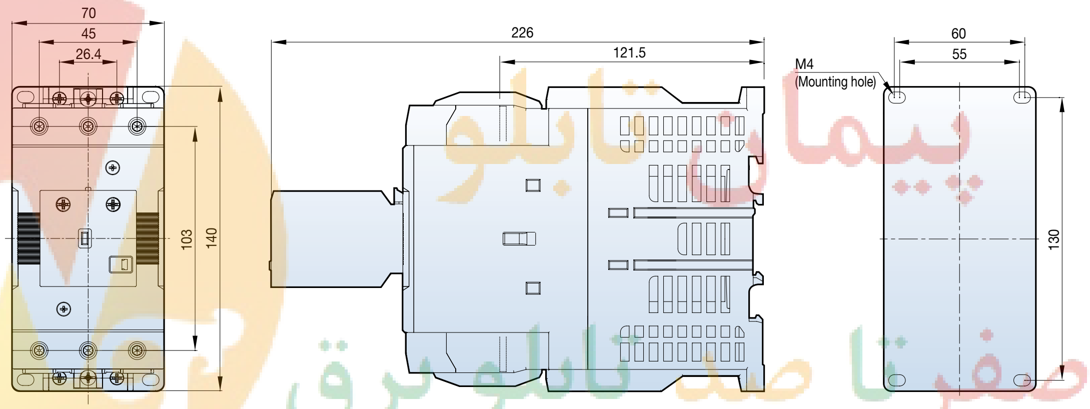
Latching contactors dimension (100AF)

[mm]

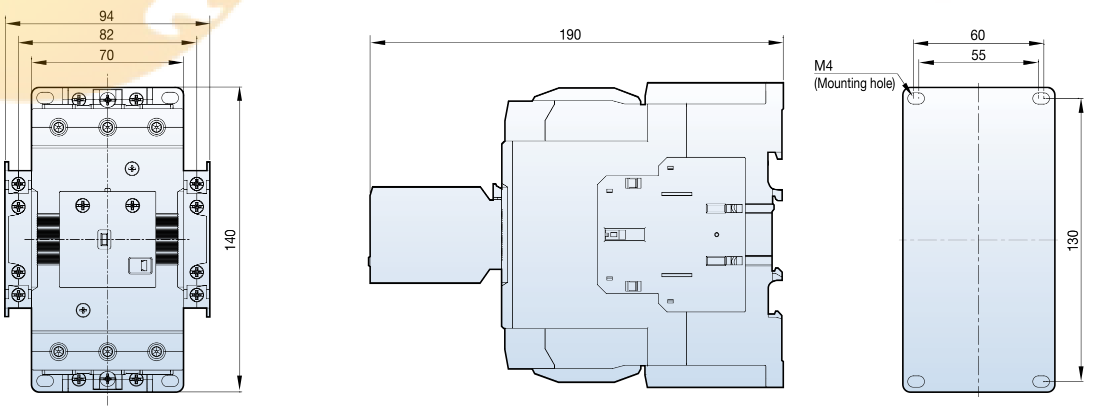
MC-75a~100a AC
+ ML-150



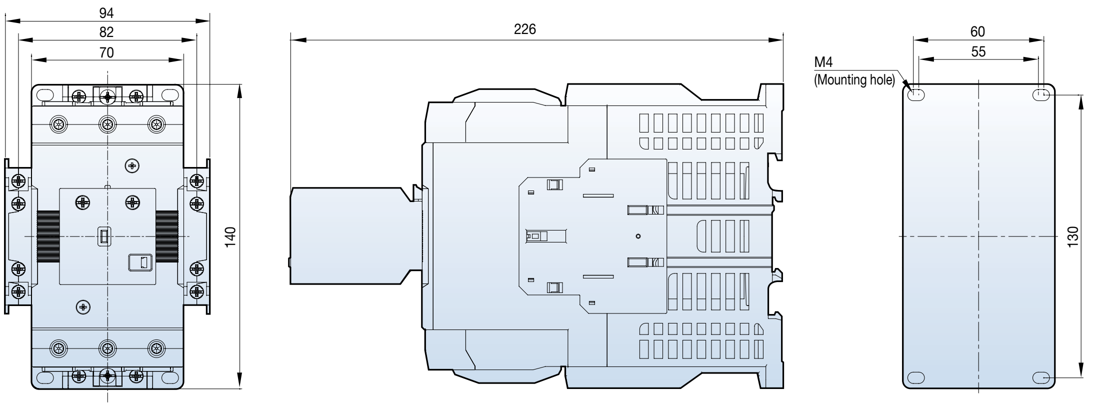
MC-75a~100a DC
+ ML-150



MC-75a~100a AC
2NO2NC + ML-150



MC-75a~100a DC
2NO2NC + ML-150

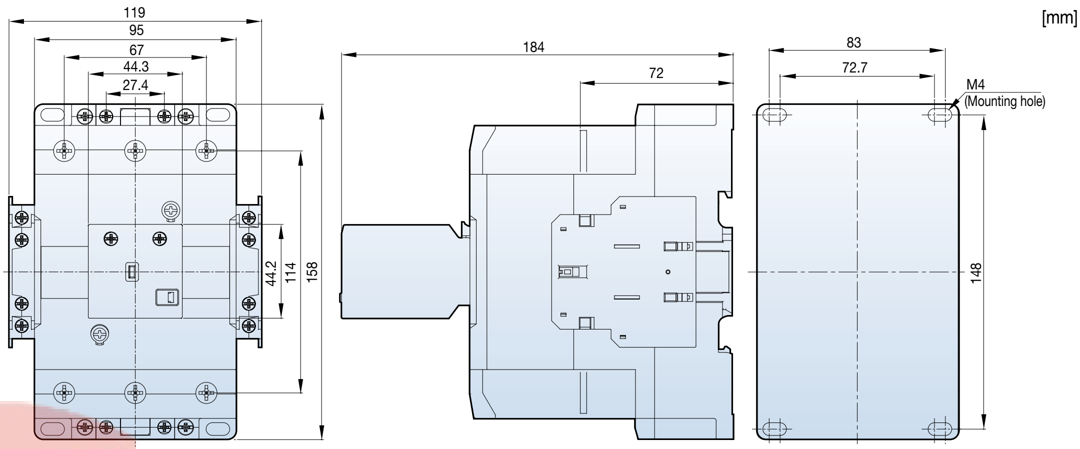


Latching contactors dimension (150AF~400AF)

[mm]

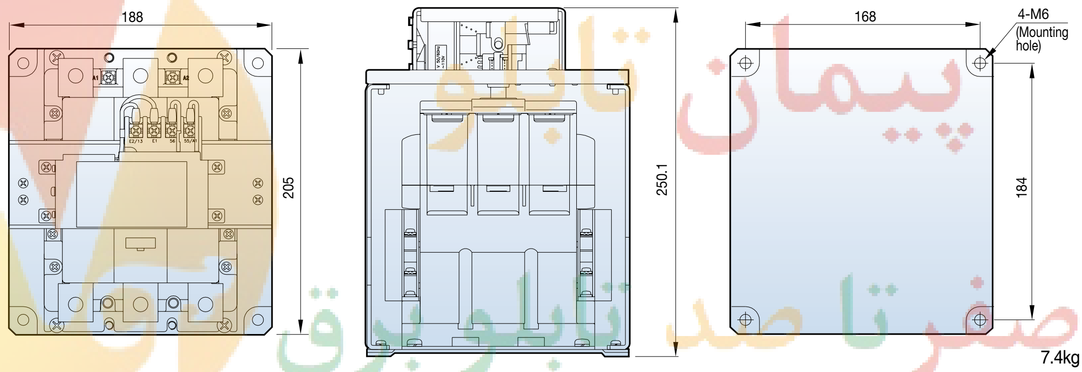
MC-130a~150a

2NO2NC + ML-150



MC-185a

MC-225a

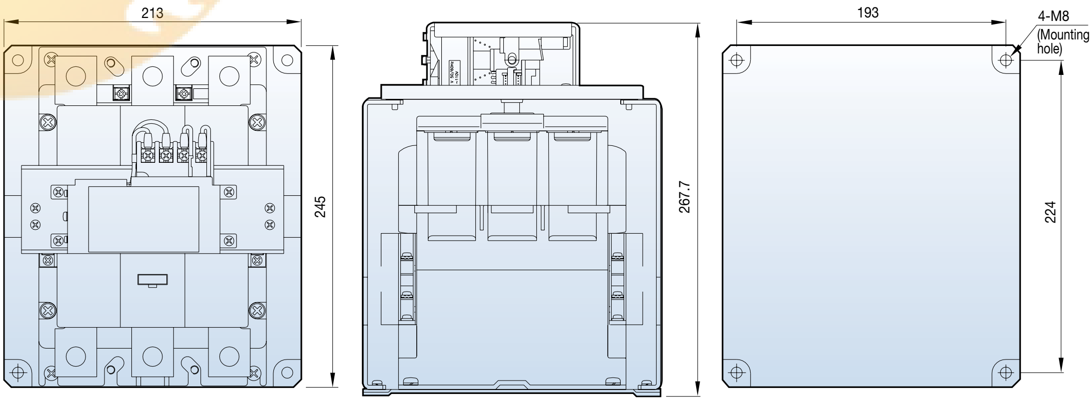


7.4kg

MC-265a

MC-330a

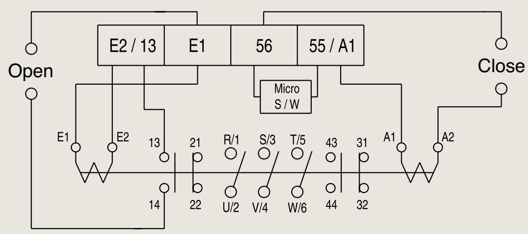
MC-400a



11.6kg

Composition

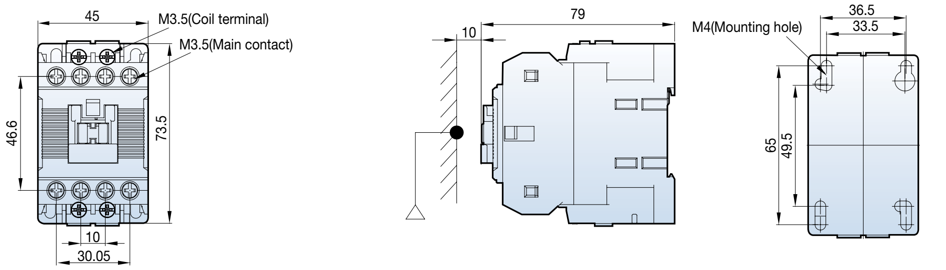
MC-185a/L~400a/L



4-pole contactors dimension (MC-6a/4~22a/4)

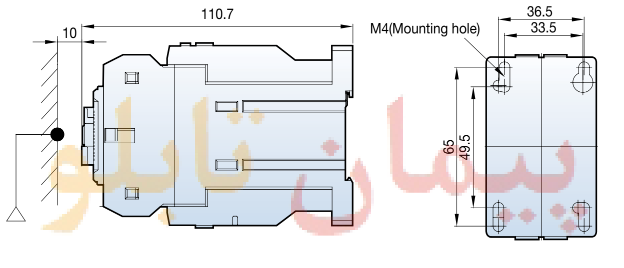
[mm]

MC-6a/4~18a/4 AC



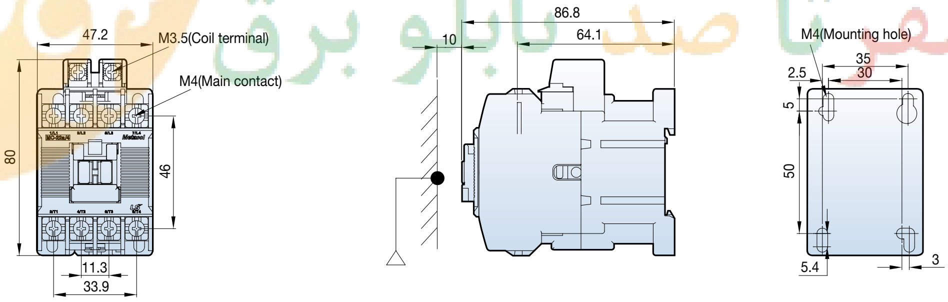
0.3kg

MC-6a/4~18a/4 DC



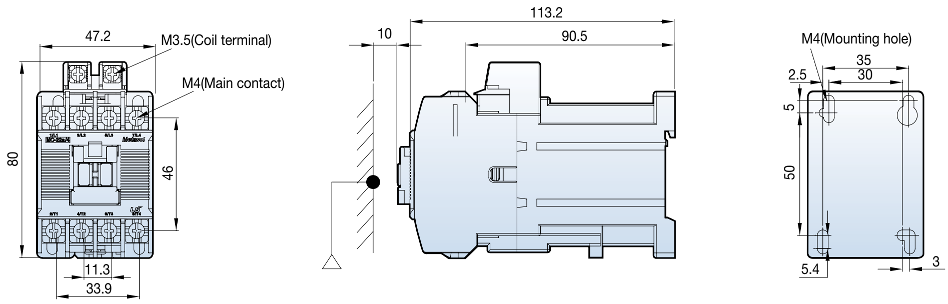
0.45kg

MC-22a/4 AC



0.4kg

MC-22a/4 DC

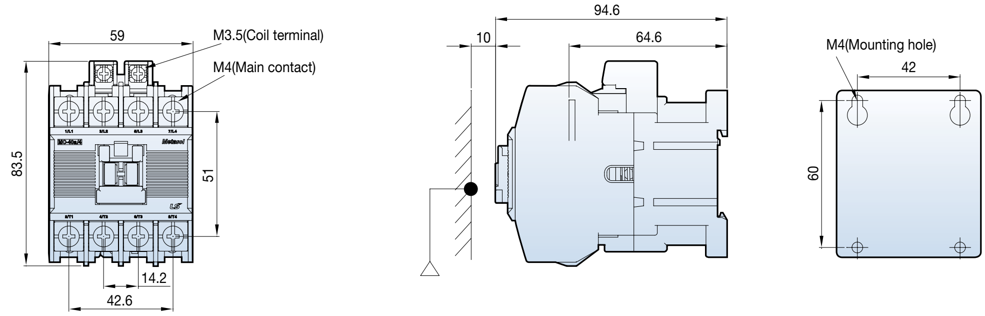


0.5kg

4-pole contactors dimension (MC-32a/4~85a/4)

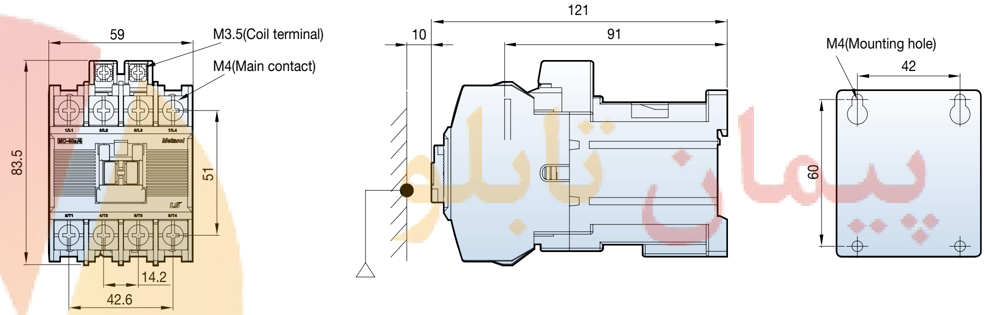
[mm]

MC-32a/4~40a/4 AC



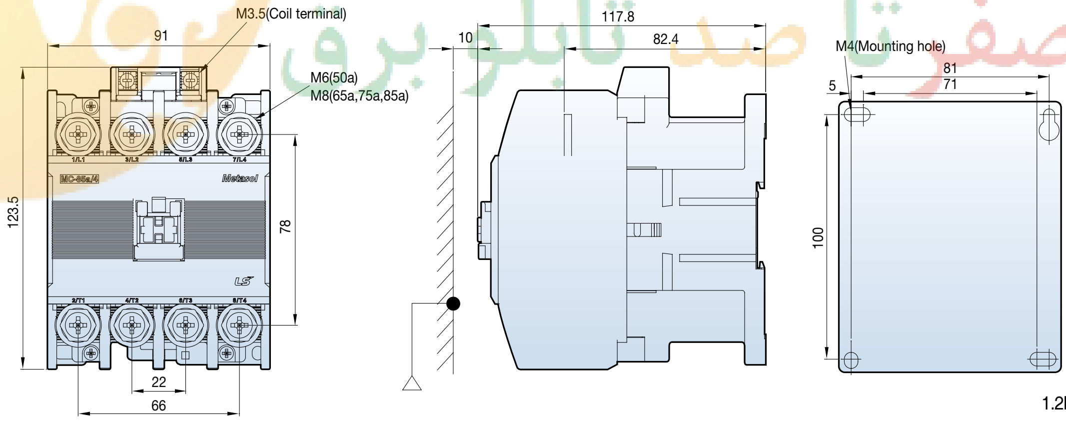
0.59kg

MC-32a/4~40a/4 DC



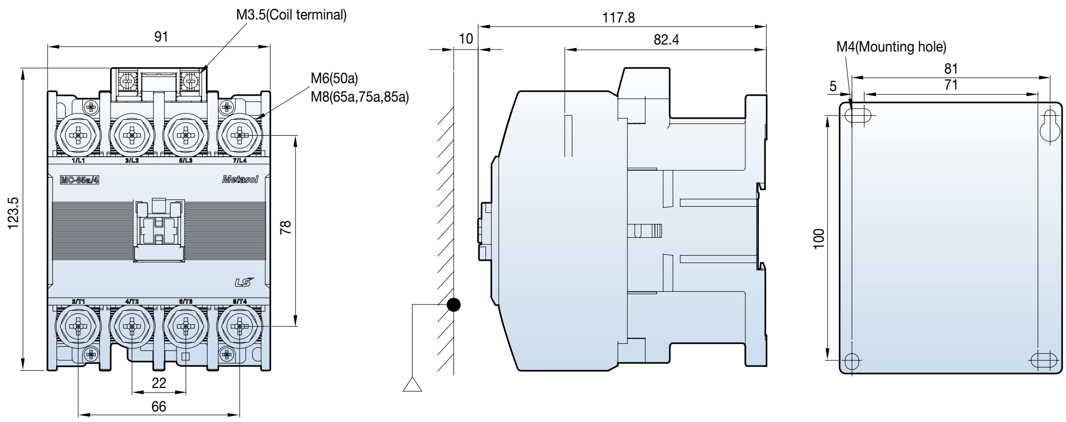
0.7kg

MC-50a/4~85a/4 AC



1.2kg

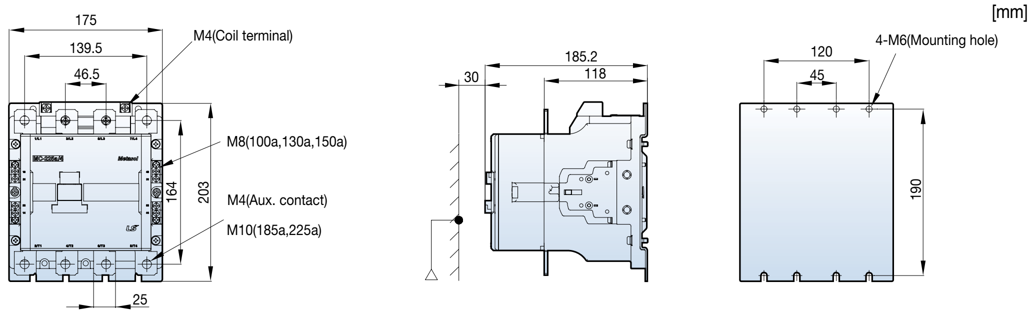
MC-50a/4~85a/4 DC



4-pole contactors dimension (MC-100a/4~800a/4)

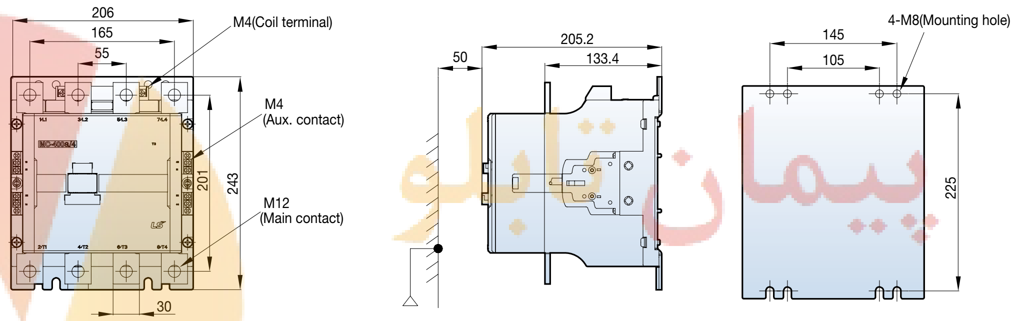
MC-100a/4
MC-130a/4
MC-150a/4
MC-185a/4
MC-225a/4

[mm]



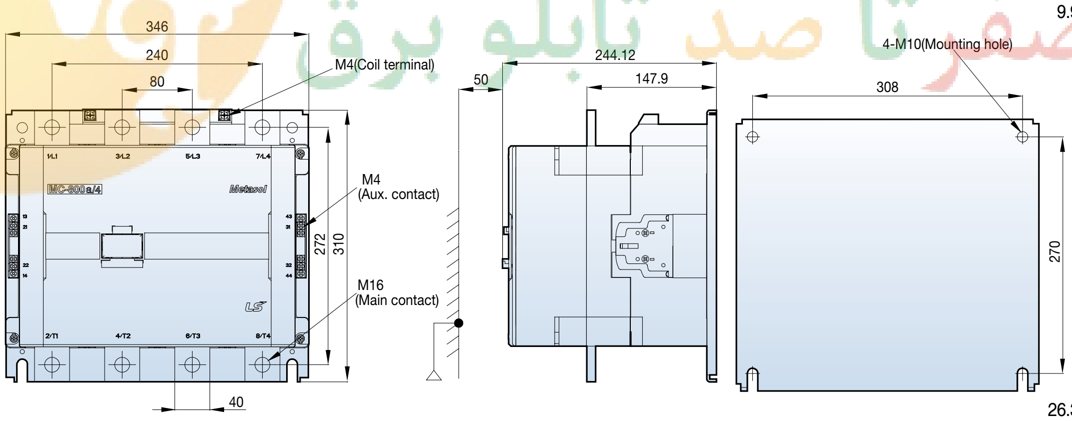
5.6kg

MC-265a/4
MC-330a/4
MC-400a/4



9.9kg

MC-500a/4
MC-630a/4
MC-800a/4

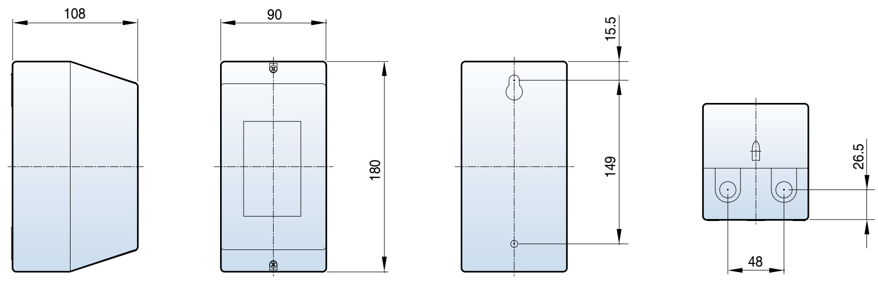


26.3kg

Enclosed motor starters, Mold enclosure dimension

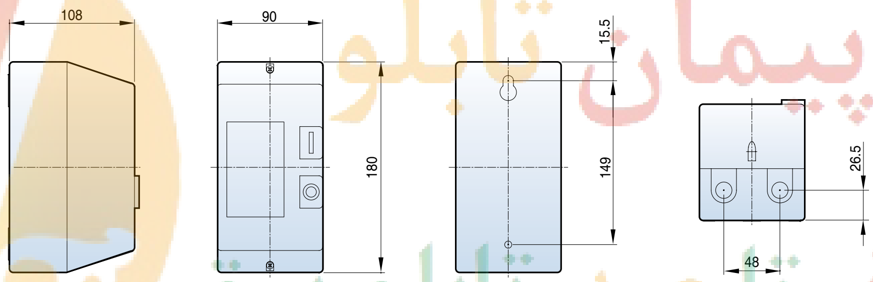
MW-9bM~22bM

[mm]



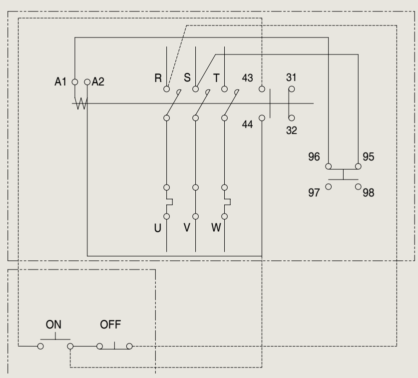
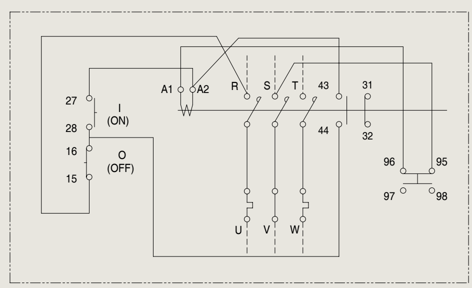
0.8kg

MW-9bMB~22bMB



0.8kg

Circuit diagram

MW-9bM~22bM	MW-9bMB~22bMB
	

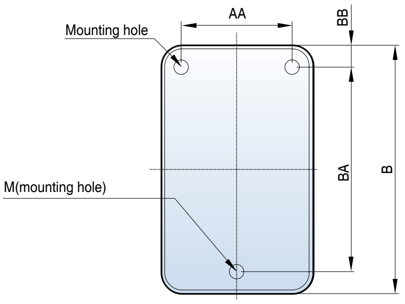
Enclosed motor starters, Steel enclosure dimension

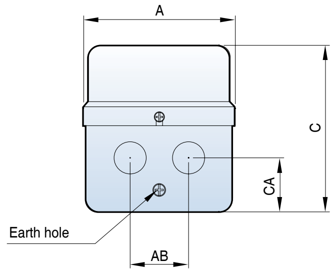
Metasol

MW-6a~100a

MW-9b~22b

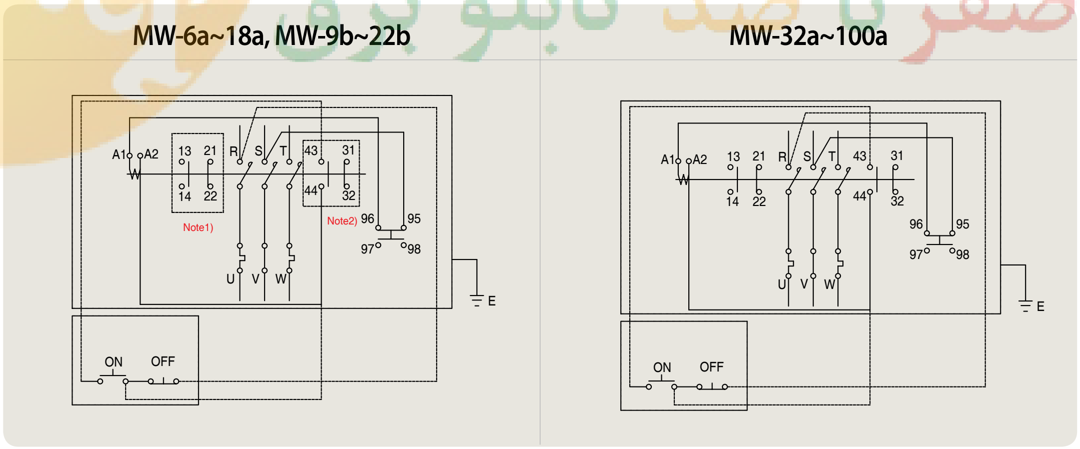
[mm]



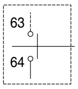


Type	A	AA	AB	B	BA	BB	C	CA	M	N	Weight(kg)
MW-9b~22b, 6a~18a	104	76	40	170	140	15	114	41	M5	Ø22	1.1
MW-32a, 40a	145	95	55	245	165	40	130	50	M5	Ø35	1.6
MW-50a, 65a	160	120	74	290	220	35	141	50	M5	Ø35	2.7
MW-75a, 85a, 100a	160	120	74	290	220	35	161	67	M5	Ø35	3.6

Circuit diagram



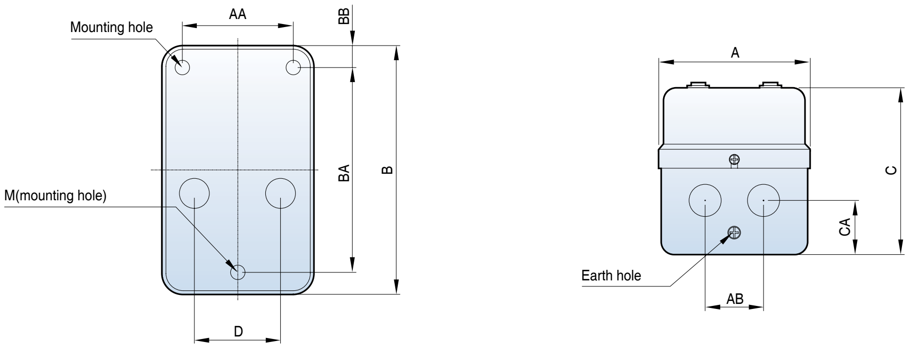
Note) 1. In case of adding the auxiliary contact unit(1NO1NC).
2. See below for MC-6a~18a(1NO)



MW-6aB~100aB

MW-9bB~22bB

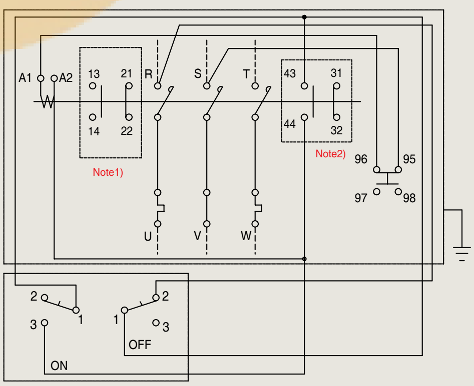
[mm]



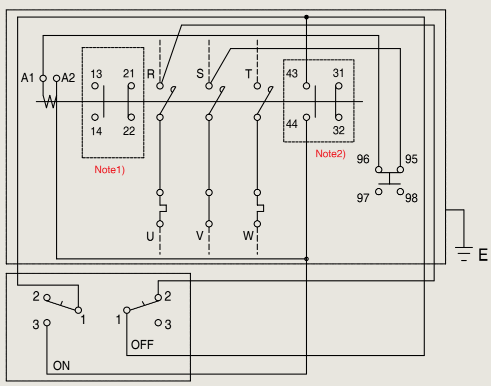
Type	A	AA	AB	B	BA	BB	C	CA	D	M	N	Weight(kg)
MW-9bB~22bB, 6aB~18aB	104	76	40	170	140	15	114	41	59	M5	Ø22	1.1
MW-32aB, 40aB	145	95	55	245	165	40	130	50	97	M5	Ø35	1.6
MW-50aB, 65aB	160	120	74	290	220	35	141	50	114	M5	Ø35	2.7
MW-75aB, 85aB, 100aB	160	120	74	290	220	35	161	67	114	M5	Ø35	3.6

Circuit diagram

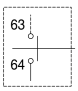
MW-6aB~18aB, MW-9bB~22bB



MW-32aB~100aB



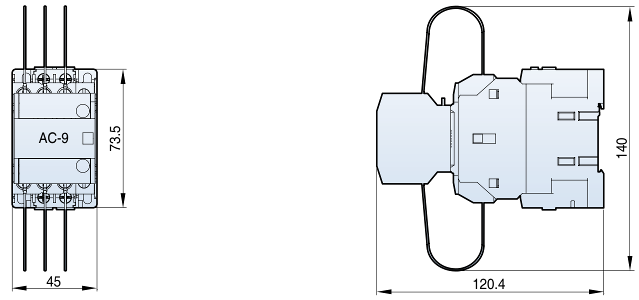
Note) 1. In case of adding the auxiliary contact unit(1NO1NC).
2. See below for MC-6a~18a(1NO)



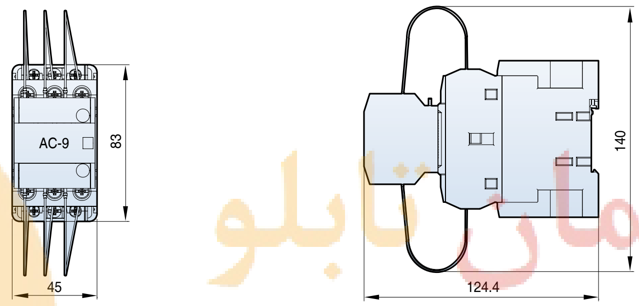
Capacitor contactors (MC-9b~40a with AC-9, MC 50a~100a with AC-50)

[mm]

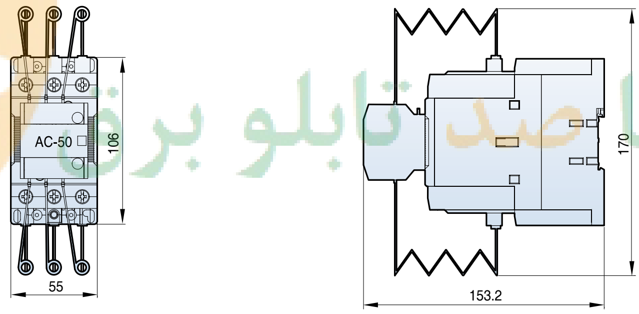
MC-9b~22b with AC-9



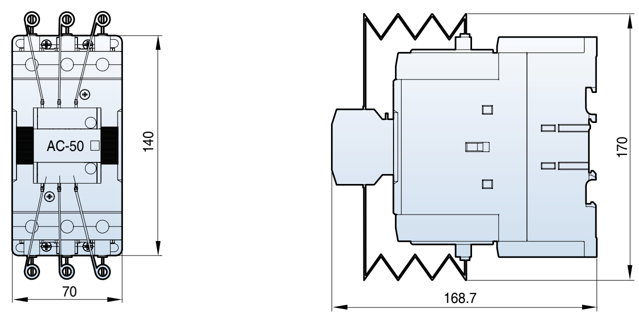
MC-32a,40a with AC-9



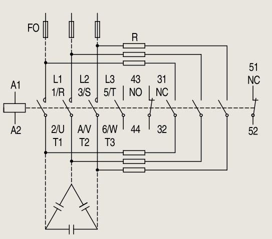
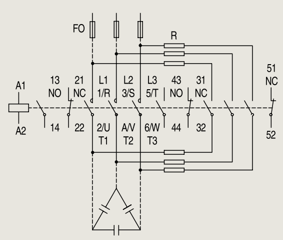
MC-50a,65a with AC-50



MC-75a~100a with AC-50



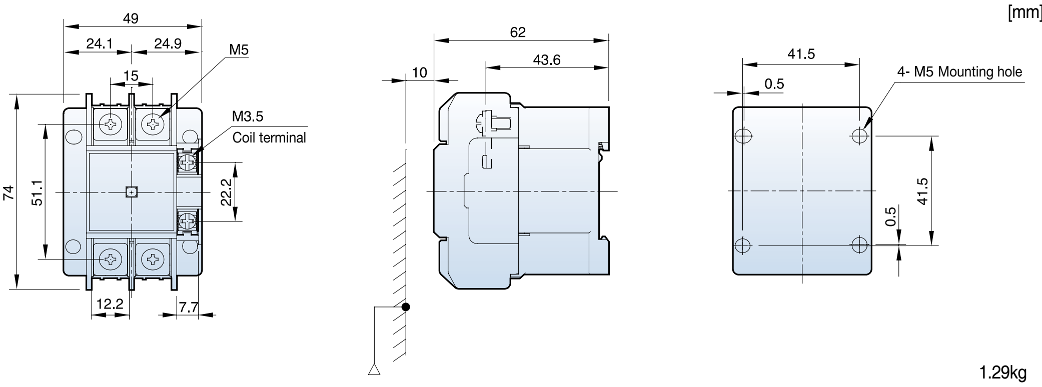
Circuit diagram

MC-9b~22b with AC-9	MC-32a, 40a with AC-9 MC 50a~100a with AC-50
	

2-pole AC Contactors dimension (GMC-10P2~40P2)

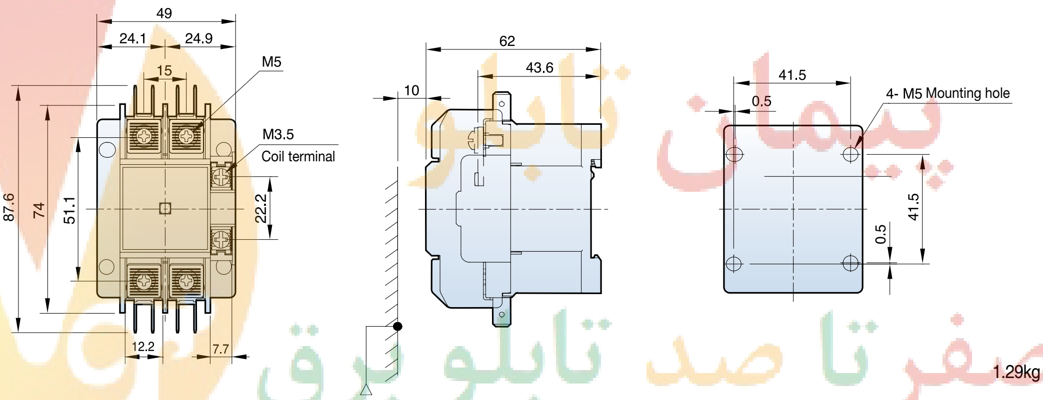
GMC-10P2
GMC-20P2
GMC-25P2
GMC-30P2
GMC-35P2
GMC-40P2
(TSBS Type)

[mm]



1.29kg

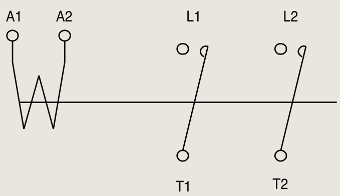
GMC-10P2
GMC-20P2
GMC-25P2
GMC-30P2
GMC-35P2
GMC-40P2
(TQBS Type)



1.29kg

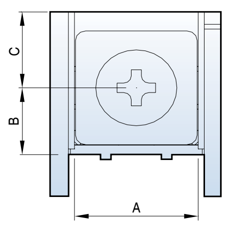
Composition

GMC - 10P2~40P2



Terminal

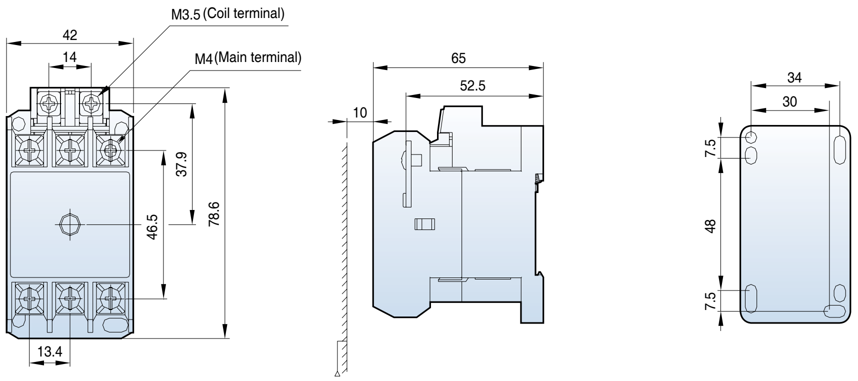
Type	Terminals	Screw	Wire (mm²)	Torque (kgf·cm)	A×B×C (mm)
GMC-10P2~40P2	Main	M5	1-16	26	12.2×7×8
	Coil	M3.5	1-2.5	12	7.7×7.5×4.5



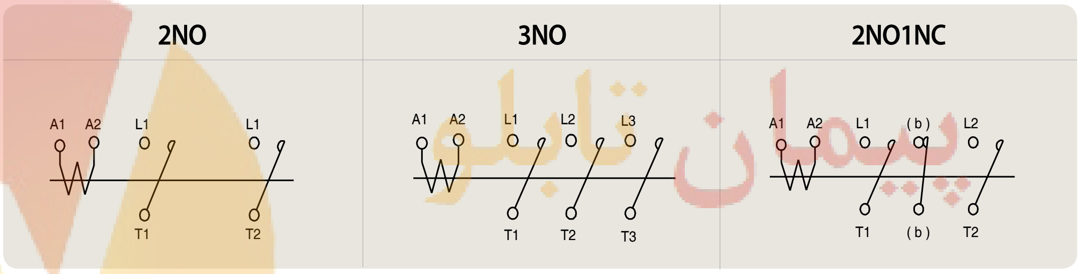
3-pole AC Contactors dimension (GMC-20D, 25D)

GMC-20D
GMC-25D

[mm]

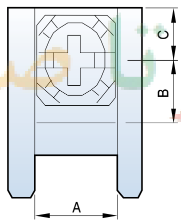


Contact arrangement



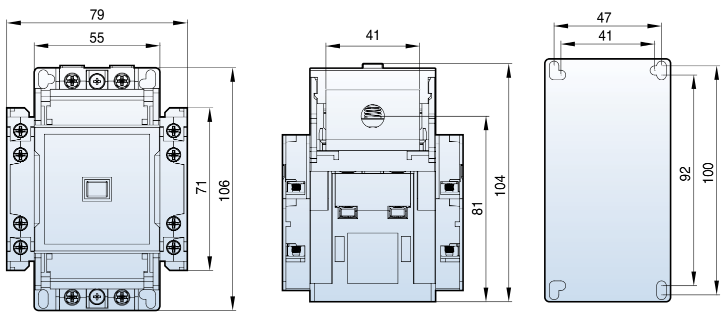
Terminal

Type	Screw	Wire (mm²)	Torque (kgf·cm)	A×B×C (mm)
GMC-20D~25D	M4	1-10	15	9.4×5×85.1
Coil~	M3.5	1.25~2	12	8×5×4.9

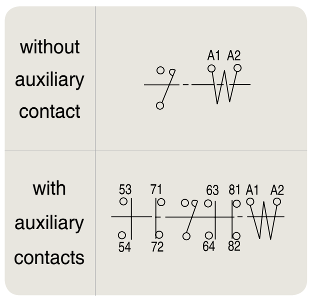


Single-pole AC Contactors (MC-65aSP)

MC-65aSP



Composition



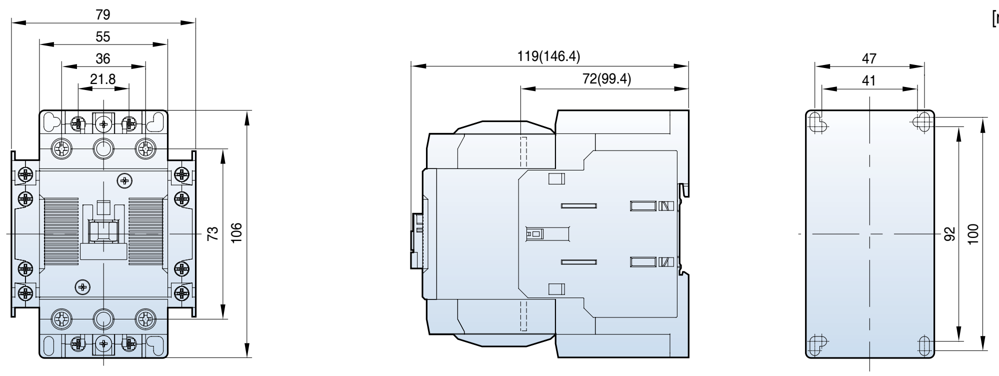
0.65kg

DC Contactors dimension (MD-30a, 60a,100a)

MD-30a AC(DC)

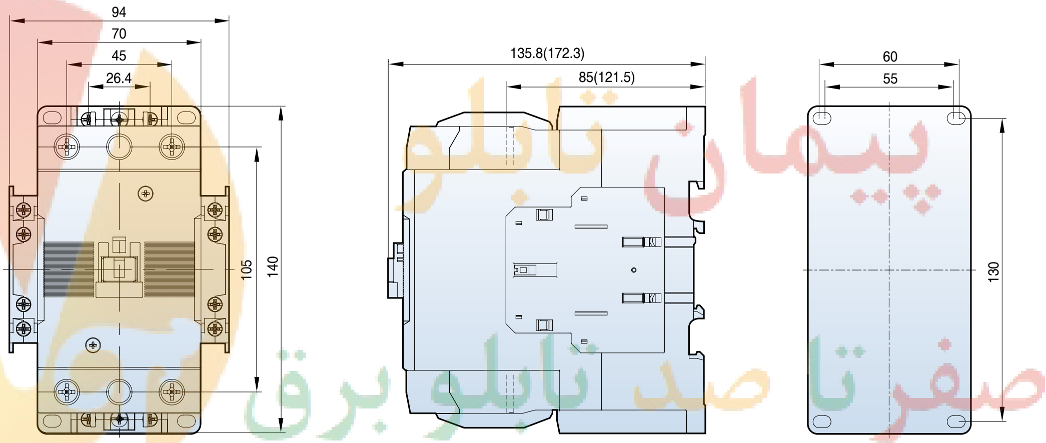
2NO2NC

[mm]



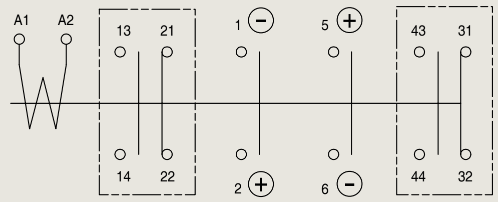
MD-60a,100a AC(DC)

2NO2NC

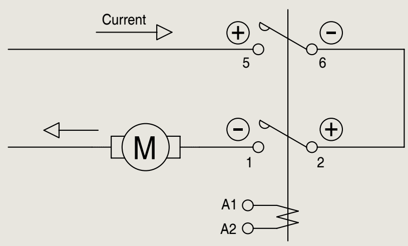


Composition

MD-30a, 60a, 100a



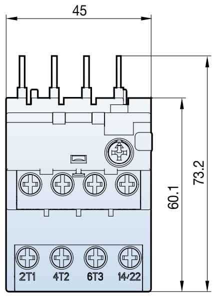
Contact arrangement

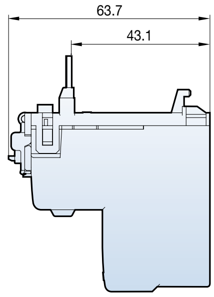


Overload relays dimension

[mm]

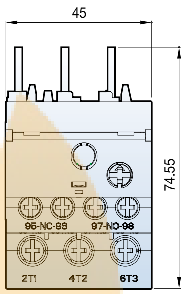
MT-12

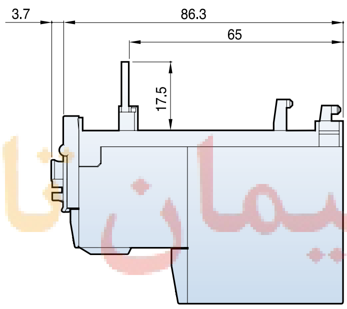




100g

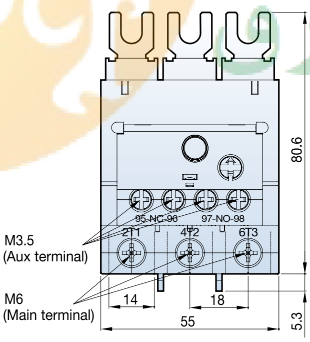
MT-32

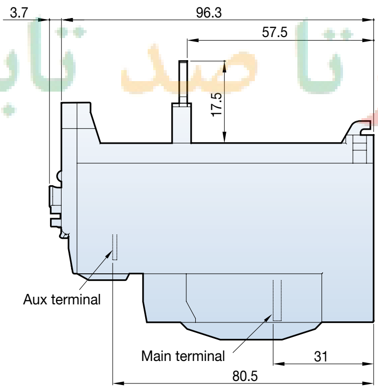




167g

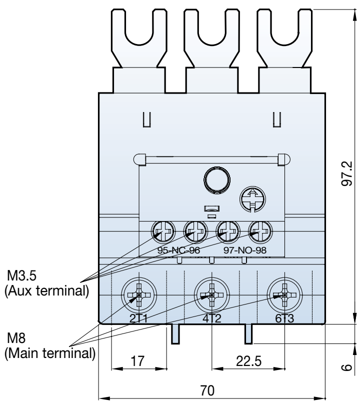
MT-63

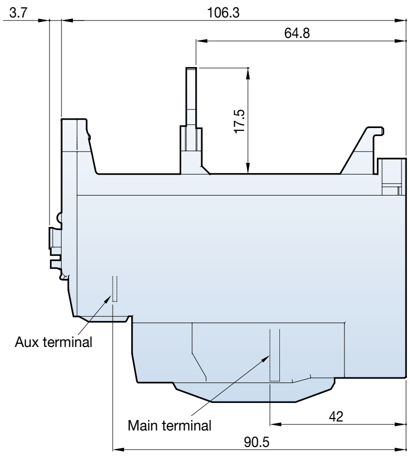




303g

MT-95

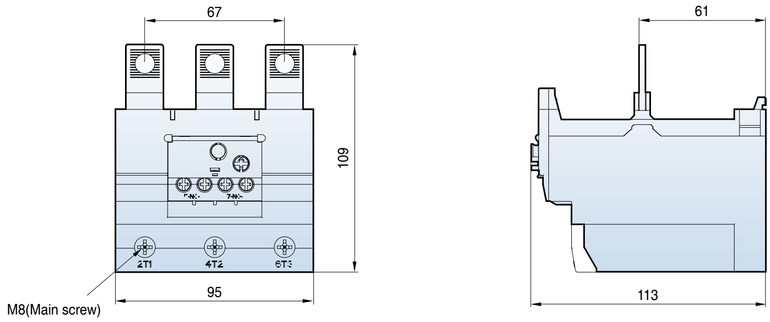




474g

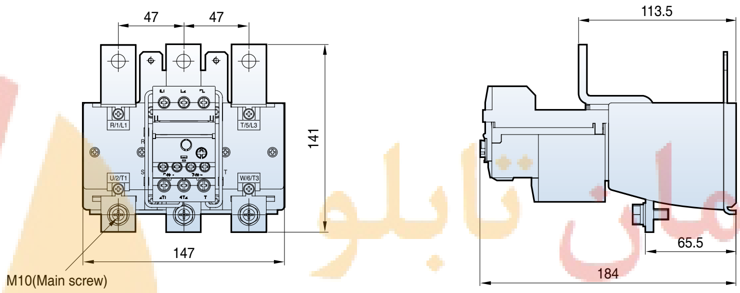
[mm]

MT-150



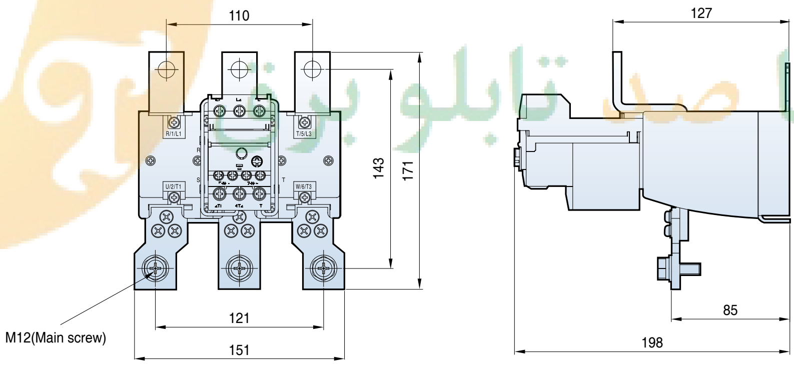
0.7kg

MT-225



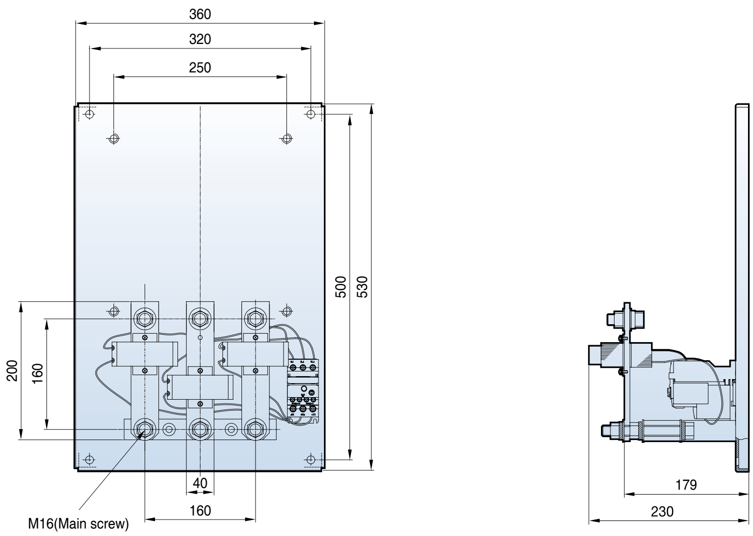
2.5kg

MT-400



2.6kg

MT-800

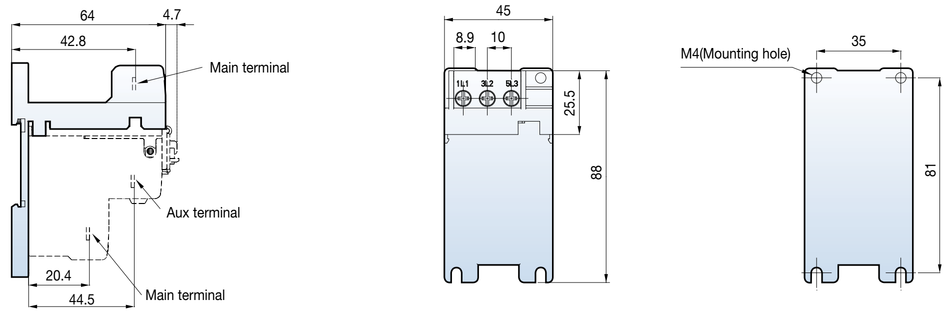


11.5kg

Overload relays dimension (Separate mount)

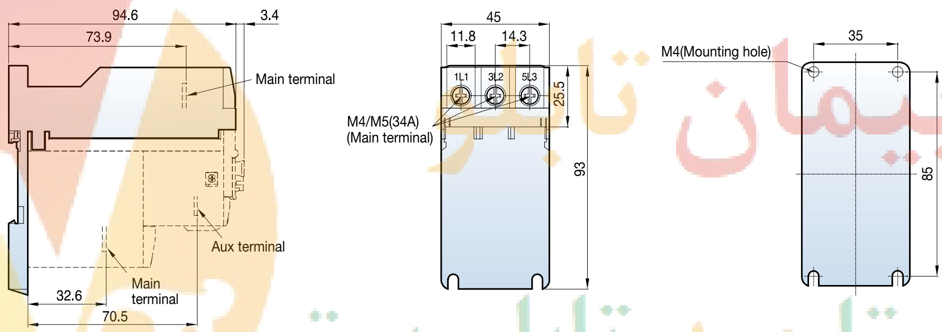
[mm]

UZ-12



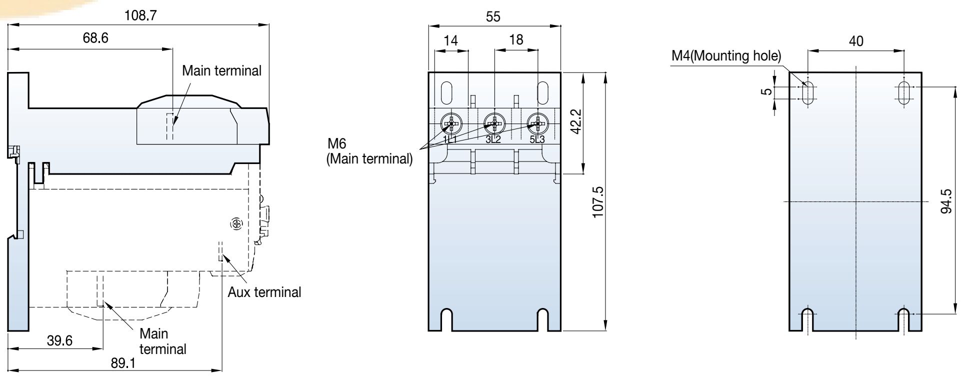
35g

UZ-32



68g

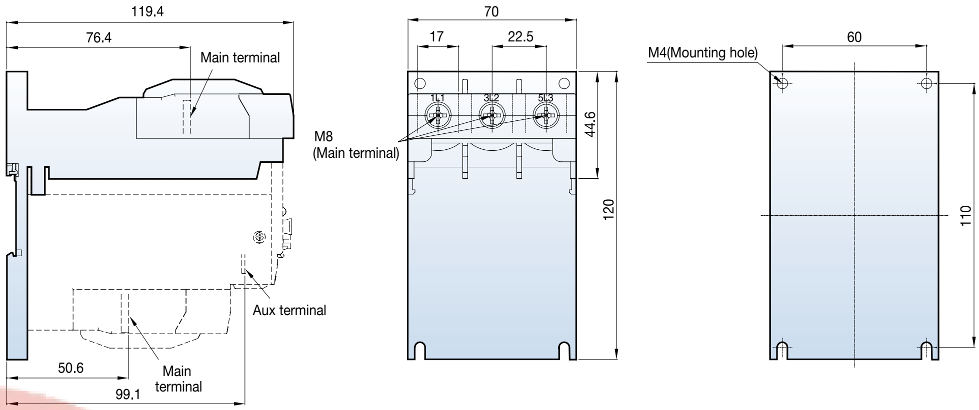
UZ-63



134g

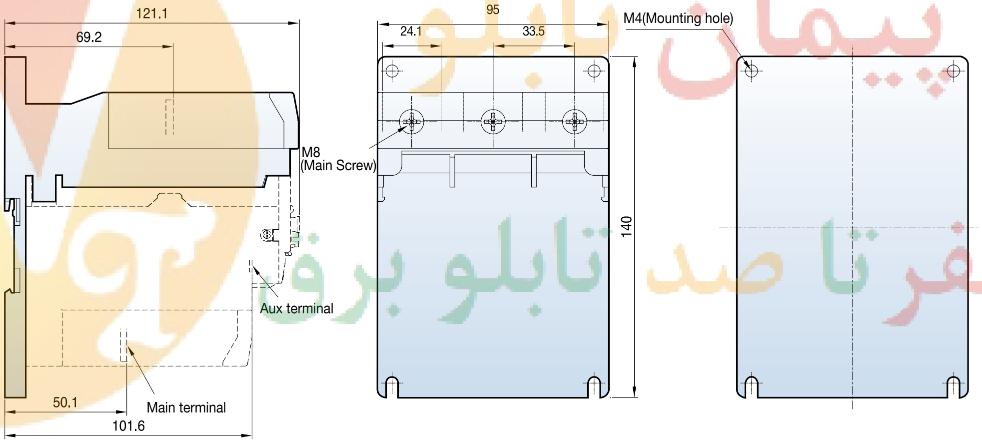
[mm]

UZ-95



230g

UZ-150



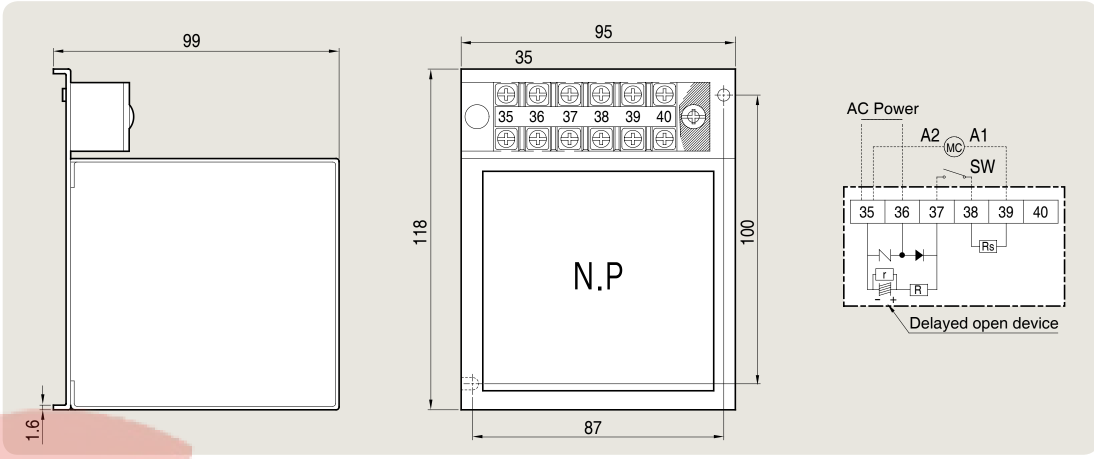
284g

Delayed Opening Device

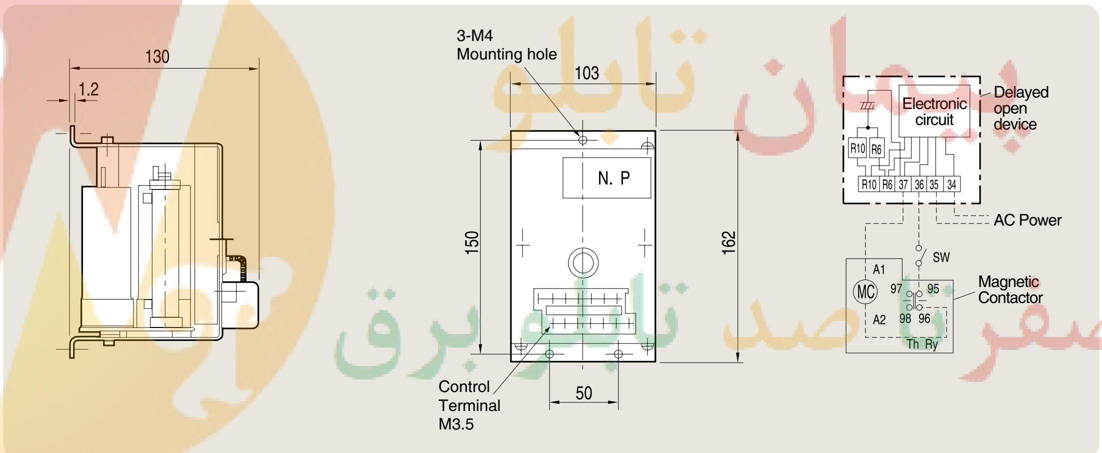
Metasol

Dimension

AD - 9

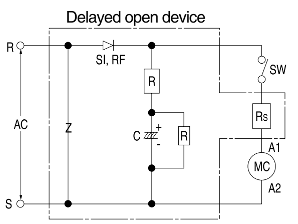
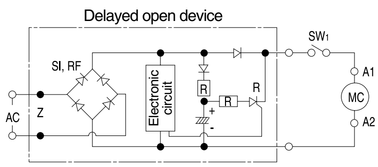


AD - 50
AD - 100
AD - 300
AD - 600



0.5kg

Control Circuit Diagram

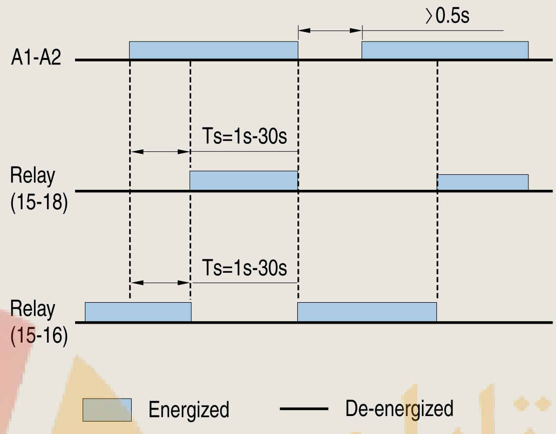
AD – 9	AD – 50~600
 SI, RF : Rectifier C : Condenser Rs : Resistance in series	 SI, RF : Rectifier C : Condenser Rs : Resistance in series

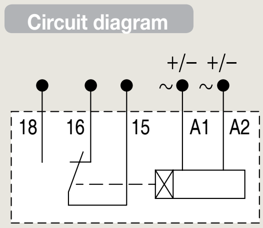
Electronic timer unit

Electronic timer unit

ON delay timer

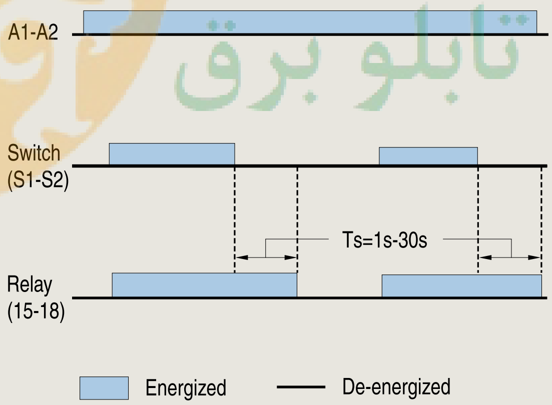
On time(Close MC) delay of magnetic contactors 1~30sec

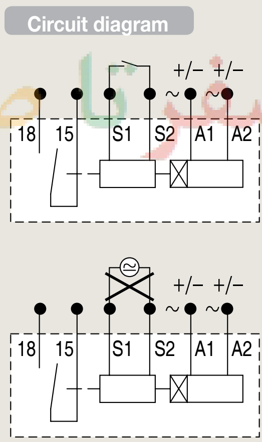




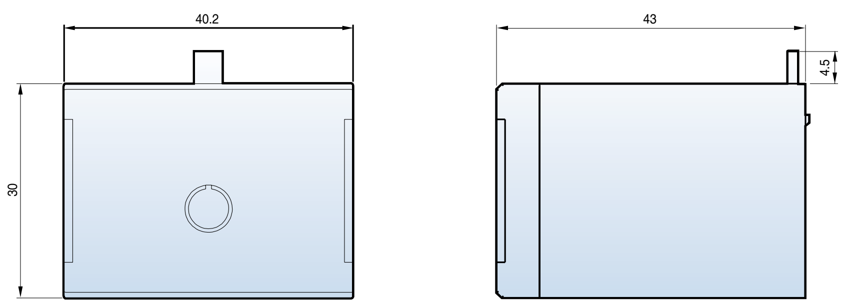
OFF delay timer

Off time(Open MC) delay of magnetic contactors 1~30sec





Dimension

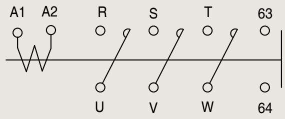


Contact arrangement

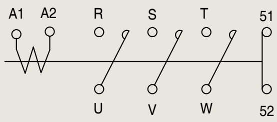
Contactors

MC-6a~18a

1NO

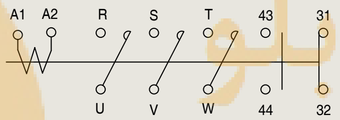


1NC



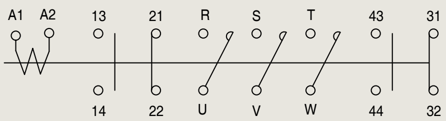
MC-9b~22b

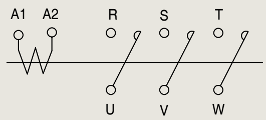
1NO1NC



MC-32a~150a

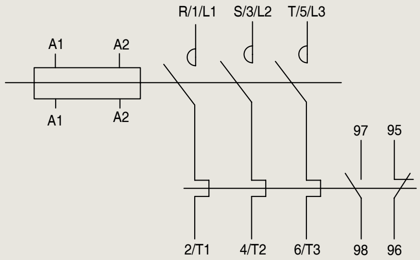
2NO2NC

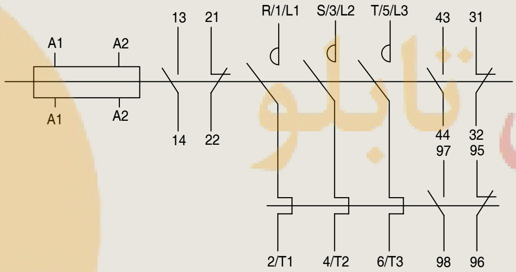




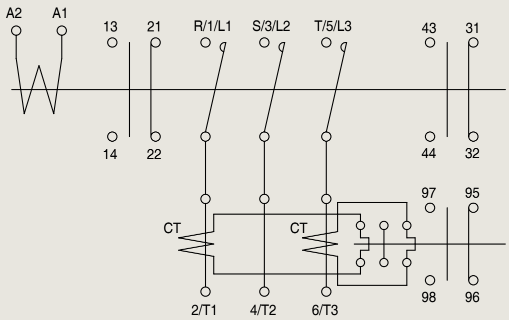
Motor starters

MS-6a~150a



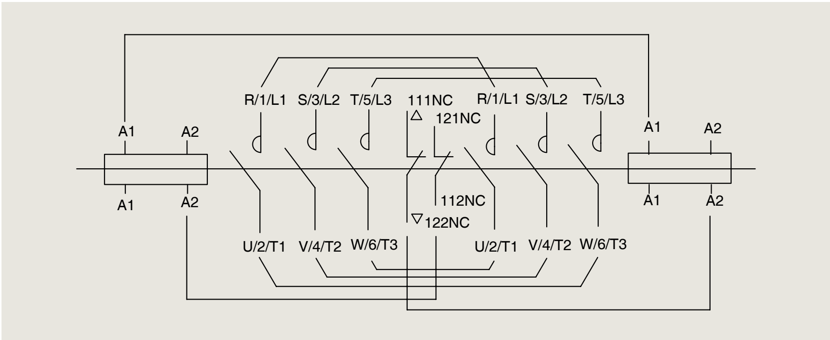


MS-185a~800a

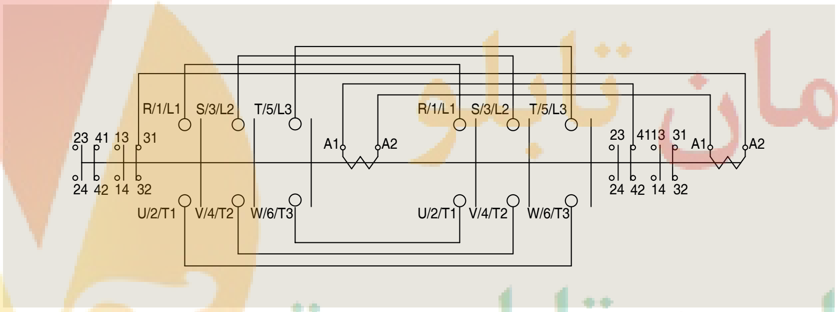


Reversing contactors

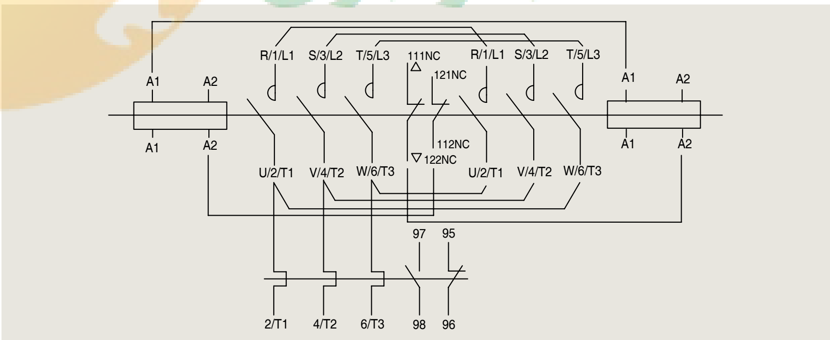
MC-6aR~150aR



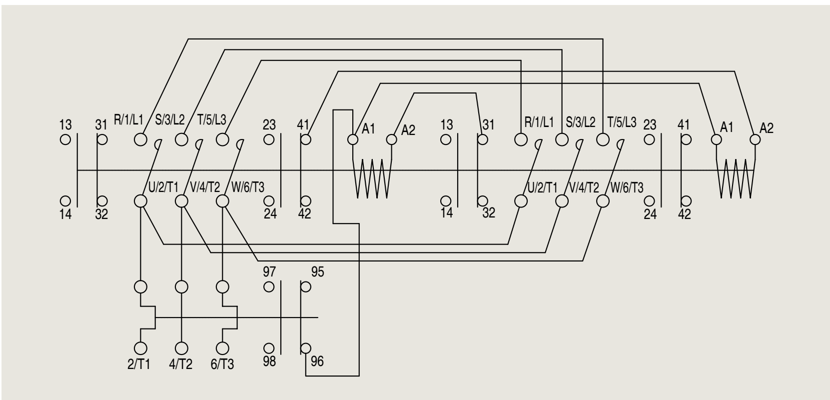
MC-185aR~800aR



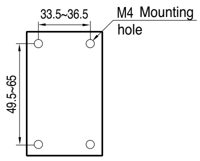
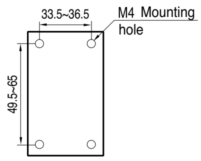
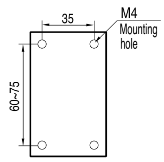
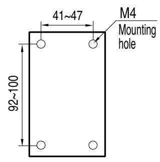
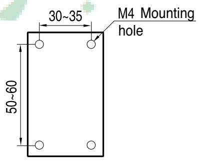
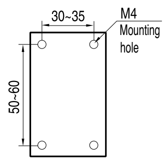
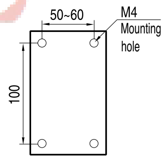
MS-6aR~150aR



MS-185aR~400aR

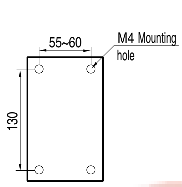
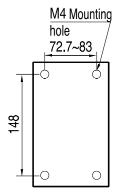
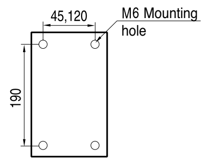
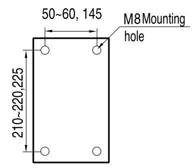
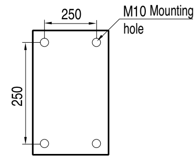


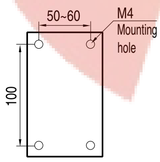
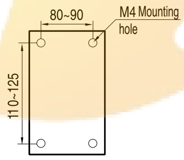
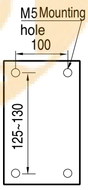
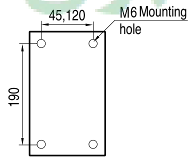
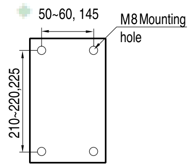
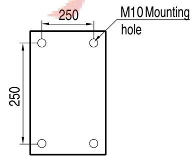
Meta-MEC and Metasol MC comparison table

		Type		MC-6a	MC-9a	MC-12a	MC-18a	MC-9b	MC-12b	MC-18b	MC-22b	MC-32a	MC-40a	MC-50a	MC-65a
Manufactured products	Metasol MC	Current and power AC3	200~240V	2.2kW	2.5kW	3.5kW	4.5kW	2.5kW	3.5kW	4.5kW	5.5kW	7.5kW	11kW	15kW	18.5kW
				9A	11A	13A	18A	11A	13A	18A	22A	32A	40A	55A	65A
			380~440V	3kW	4kW	5.5kW	7.5kW	4kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW
				7A	9A	12A	18A	9A	12A	18A	22A	32A	40A	50A	65A
			500~550V	3kW	4kW	7.5kW	7.5kW	4kW	7.5kW	7.5kW	15kW	18.5kW	22kW	30kW	33kW
				6A	7A	12A	13A	7A	12A	13A	20A	28A	32A	43A	60A
		Auxiliary (Standard)		1NO or 1NC				1NO1NC				-		-	
		Mounting size													
		Weight (kg)		0.33				0.34				0.4		0.9	
		Demension (W×H×D)		45×73.5×80.4				45×73.5×87.4				45×83×90		55×106×119	
		Type		-				GMC-9	GMC-12	GMC-18	GMC-22	GMC-32	GMC-40	GMC-50	GMC-65
Discontinued priducts	Meta-MEC MC	Current and power AC3	200~220V	-				2.5kW	3.5kW	4.5kW	5.5kW	7.5kW	11kW	15kW	18.5kW
								11A	13A	18A	22A	32A	40A	55A	65A
			380~440V	-				4kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW
								9A	12A	18A	22A	32A	40A	50A	65A
			500~550V	-				4kW7.5kW	7.5kW	15kW	18.5kW	22kW	30kW	33kW	
								7A	12A	13A	22A	28A	32A	43A	60A
		Auxiliary (Standard)		-				1NO1NC	1NO1NC	1NO1NC	1NO1NC	2NO2NC	2NO2NC	2NO2NC	2NO2NC
		Mounting size		-											
		Weight (kg)		-				0.33		0.37		0.45		1	
		Demension (W×H×D)		-				44×80×86.8				68×82×94.6		94×122×115.7	
Compatibility with Metasol				-				○				▲		▲	

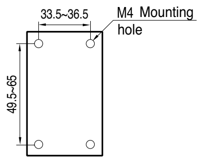
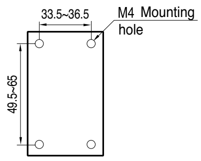
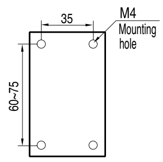
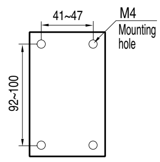
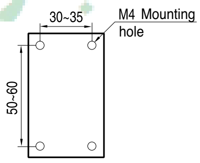
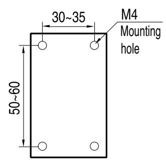
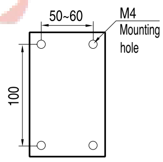
Note) Marks of compatibility
○: can be compatible
▲: compatible when applied the bracket
×: can't be compatible(have to use bracket)

Metasol

MC-75a	MC-85a	MC-100a	MC-130a	MC-150a	MC-185a	MC-225a	MC-265a	MC-330a	MC-400a	MC-500a	MC-630a	MC-800a
22 kW	25kW	30kW	37kW	45kW	55kW	75kW	80kW	90kW	125kW	147kW	190kW	220kW
75A	85A	105A	130A	150A	185A	225A	265A	330A	400A	500A	630A	800A
37 kW	45kW	55kW	60kW	75kW	90kW	132kW	147kW	160kW	200kW	265kW	330kW	440kW
75A	85A	105A	130A	150A	185A	225A	265A	330A	400A	500A	630A	800A
37 kW	45 kW	55kW	60kW	70kW	110kW	132kW	147kW	160kW	225kW	265kW	330kW	500kW
64A	75A	85A	90A	100A	180A	200A	225A	280A	350A	400A	500A	720A
-			-		2NO2NC		2NO2NC			2NO2NC		
												
1.6			2.4		5.4		9.2			22.4		
70×140×135.8			95×158×130.3		138×203×185.1		163×243×204.4			285×312×245.3		

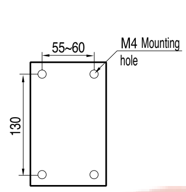
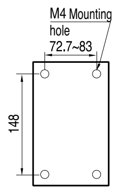
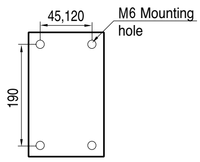
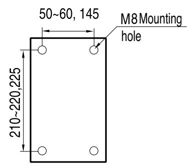
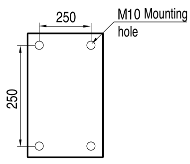
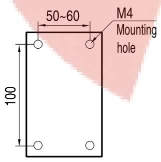
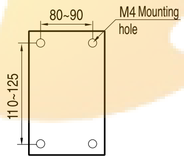
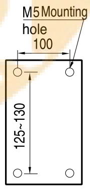
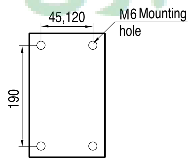
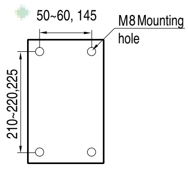
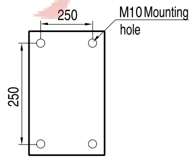
GMC-75	GMC-85	GMC-100	GMC-125	GMC-150	GMC-180	GMC-220	-	GMC-300	GMC-400	-	GMC-600	GMC-800
22kW	25kW	30kW	37kW	45kW	55kW	75kW	-	90kW	125kW	-	190kW	220kW
75A	85A	105A	125A	150A	180A	250A		300A	400A		630A	800A
37kW	45kW	55kW	60kW	75kW	90kW	132kW	-	160kW	200kW	-	330kW	440kW
75A	85A	105A	120A	150A	180A	250A		300A	400A		630A	800A
37kW	45kW	55kW	60kW	90kW	110kW	132kW	-	160kW	225kW	-	330kW	500kW
64A	75A	85A	90A	140A	180A	200A		250A	350A		500A	720A
2NO2NC	2NO2NC	2NO2b	2NO2NC	2NO2NC	2NO2NC	2NO2NC	-	2NO2NC	2NO2NC	-	2NO2NC	2NO2NC
												
1		2.9		3.4	5.4		-	9.2		-	22	
94×122×115.7		100×157.4×146.5		120×166×157	138×203×181		-	163×243×198		-	285×290×242	
▲		×	×		O		-	O		-	O	

Meta-MEC and Metasol MS comparison table

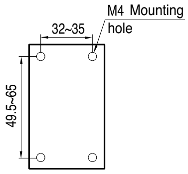
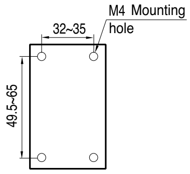
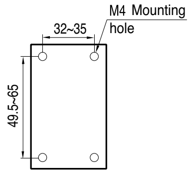
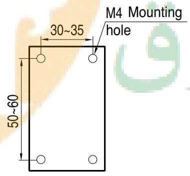
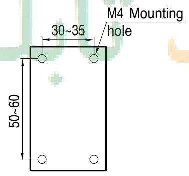
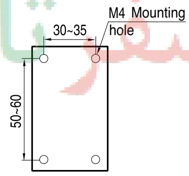
		Type		MS-6a	MS-9a	MS-12a	MS-18a	MS-9b	MS-12b	MS-18b	MS-22b	MS-32a	MS-40a	MS-50a	MS-65a
Manufactured products	Metasol MC	Current and power AC3	200~240V	2.2kW 9A	2.5kW 11A	3.5kW 13A	4.5kW 18A	2.5kW 11A	3.5kW 13A	4.5kW 18A	5.5kW 22A	7.5kW 32A	11kW 40A	15kW 55A	18.5kW 65A
			380~440V	3kW 7A	4kW 9A	5.5kW 12A	7.5kW 18A	4kW 9A	5.5kW 12A	7.5kW 18A	11kW 22A	15kW 32A	18.5kW 40A	22kW 50A	30kW 65A
			500~550V	3kW 6A	4kW 7A	7.5kW 12A	7.5kW 13A	4kW 7A	7.5kW 12A	7.5kW 13A	15kW 20A	18.5kW 28A	22kW 32A	30kW 43A	33kW 60A
		Auxiliary (Standard)		1NO or 1NC				1NO1NC				-		-	
		Mounting size													
		Weight (kg)		0.5				0.5				0.7		1.5	
		Demension (W×H×D)		45×124×80.4				45×129.9×87.4				45×139.4×90		55×163.8×119	
		Type		-				GMS-9	GMS-12	GMS-18	GMS-22	GMS-32	GMS-40	GMS-50	GMS-65
Discontinued priducts	Meta-MEC MC	Current and power AC3	200~220V	-				2.5kW 11A	3.5kW 13A	4.5kW 18A	5.5kW 22A	7.5kW 32A	11kW 40A	15kW 55A	18.5kW 65A
			380~440V	-				4kW 9A	5.5kW 12A	7.5kW 18A	11kW 22A	15kW 32A	18.5kW 40A	22kW 50A	30kW 65A
			500~550V	-				4kW 7A	7.5kW 12A	7.5kW 13A	15kW 22A	18.5kW 28A	22kW 32A	30kW 43A	33kW 60A
		Auxiliary (Standard)		-				1NO1NC	1NO1NC	1NO1NC	1NO1NC	2NO2NC	2NO2NC	2NO2NC	2NO2NC
		Mounting size		-											
		Weight (kg)		-				0.46		0.5		0.45		1.12	
		Demension (W×H×D)		-				44×128.9×86.8				68×136.5×94.6		94×181.5×115.7	
	Compatibility with Metasol			-				O				×		×	

Note) Marks of compatibility
○: can be compatible
×: can't be compatible(have to use bracket)

Metasol

MS-75a	MS-85a	MS-100a	MS-130a	MS-150a	MS-185a	MS-225a	MS-265a	MS-330a	MS-400a	MS-500a	MS-630a	MS-800a
22 kW	25kW	30kW	37kW	45kW	55kW	75kW	80kW	90kW	125kW	147kW	190kW	220kW
75A	85A	105A	130A	150A	185A	225A	265A	330A	400A	500A	630A	800A
37 kW	45kW	55kW	60kW	75kW	90kW	132kW	147kW	160kW	200kW	265kW	330kW	440kW
75A	85A	105A	130A	150A	185A	225A	265A	330A	400A	500A	630A	800A
37 kW	45 kW	55kW	60kW	70kW	110kW	132kW	147kW	160kW	225kW	265kW	330kW	500kW
64A	75A	85A	90A	100A	180A	200A	225A	280A	350A	400A	500A	720A
-			-		2NO2NC		2NO2NC			2NO2NC		
												
2.4			3		7.9		11.8			28		
70×211.4×135.8			95×236.2×130.3		138×306.5×185.1		163×380×204.4			360×530×245.3		
GMC-75	**GMC-85**	**GMC-100**	**GMC-125**	**GMC-150**	**GMC-180**	**GMC-220**	**-**	**GMC-300**	**GMC-400**	**-**	**GMC-600**	**GMC-800**
22kW	25kW	30kW	37kW	45kW	55kW	75kW	-	90kW	125kW	-	190kW	220kW
75A	85A	105A	125A	150A	180A	250A		300A	400A		630A	800A
37kW	45kW	55kW	60kW	75kW	90kW	132kW	-	160kW	200kW	-	330kW	440kW
75A	85A	105A	120A	150A	180A	250A		300A	400A		630A	800A
37kW	45kW	55kW	60kW	90kW	110kW	132kW	-	160kW	225kW	-	330kW	500kW
64A	75A	85A	90A	140A	180A	200A		250A	350A		500A	720A
2NO2NC	2NO2NC	2NO2NC	2NO2NC	2NO2NC	2NO2NC	2NO2NC	-	2NO2NC	2NO2NC	-	2NO2NC	2NO2NC
												
1.12		3.4		4	7.9		-	11.8		-	28	
94×181.5×115.7		114×231.4×146.5		120×206.4×157	138×306.54×181		-	163×380×198		-	360×530×262	
×			×		○		-	○		-	○	

Meta-MEC and Metasol relays comparison table

		Type		MR-4	MR-6	MR-8
Manufactured products	Metasol MR	Auxiliary	(kW)	4NO, 3NO1NC, 2NO2NC 1NO3NC, 4NC	6NO, 5NO1NC, 4NO2NC 3NO3NC, 2NO4NC	8NO, 7NO1NC, 6NO2NC 5NO3NC, 4NO4NC
		Rated current (A)	120 V	6	6	6
		AC15	240 V	3	3	3
		Mounting size				
		Demension (W×H×D)		45×73.5×79(96.6)	45×73.5×109.6(127.2)	45×73.5×109.6(127.2)
		Weight (kg)		0.284	0.315	0.339
		Type		**GMR-4(D)**	**GMR-6(D)**	**GMR-8(D)**
Discontinued priducts	GMR	Auxiliary	(kW)	4NO, 3NO1NC, 2NO2NC 1NO3NC, 4NC	6NO, 5NO1NC, 4NO2NC 3NO3NC, 2NO4NC	8NO, 7NO1NC, 6NO2NC 5NO3NC, 4NO4NC
		Rated current (A)	AC110V	6	6	6
		AC11	AC220V	5	5	5
		Mounting size				
		Demension (W×H×D)		44×80×86.8(113.2)	44×80×118.6(145)	44×80×118.6(145)
		Weight (kg)		0.34(0.56)	0.37(0.59)	0.39(0.61)

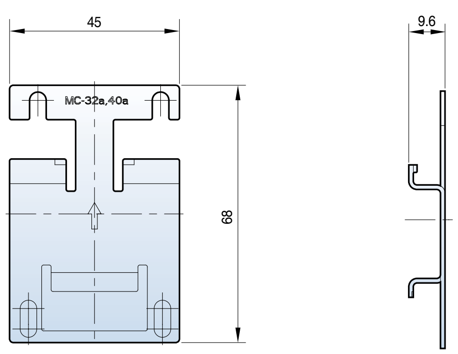
Meta-MEC and Metasol TOR comparison table

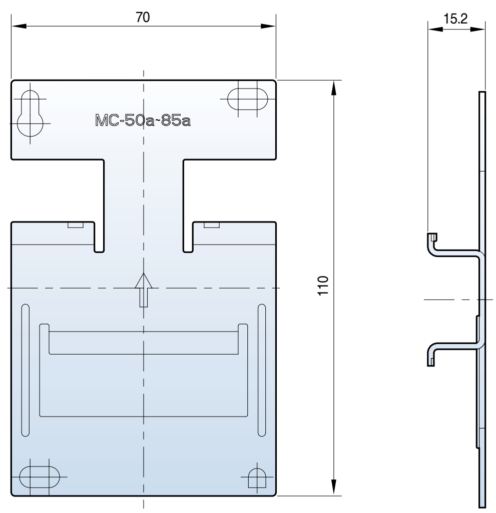
Manufactured products		Discontinued pridducts	
MT		GTH (K)	
MT-12	0.14(0.1~0.16), 0.21(0.16~0.25), 0.33(0.25~0.4), 0.52(0.4~0.63), 0.82(0.63~1), 1.3(1~1.6), 2.1(1.6~2.5), 3.3(2.5~4), 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22)	GTH(K)-22	0.14(0.1~0.16), 0.21(0.16~0.25), 0.33(0.25~0.4), 0.52(0.4~0.63), 0.82(0.63~1), 1.3(1~1.6), 2.1(1.6~2.5), 3.3(2.5~4), 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22)
MT-32	0.14(0.1~0.16), 0.21(0.16~0.25), 0.33(0.25~0.4), 0.52(0.4~0.63), 0.82(0.63~1), 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 34(28~40)	GTH(K)-40	5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40)
MT-63	5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40), 42(34~50), 54(45~65)	GTH(K)-85	8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40), 42(34~50), 55(45~65), 65(54~75), 74(63~85)
MT-95	8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40), 42(34~50), 54(45~65), 65(54~75), 74(63~85), 83(70~95), 90(80~100)	GTH(K)-100	41(34~50), 48(39~57), 56(43~65), 67(54~80), 80(65~100), 107(85~125)
MT-150	42(34~50), 55(45~65), 65(54~75), 74(63~85), 93(80~105), 113(95~130), 130(110~150)	GTH(K)-150	41(34~50), 48(39~57), 56(43~65), 67(54~80), 80(65~100), 107(85~125), 130(100~150)
MT-225	80(65~100), 107(85~125), 130(100~160), 153(120~185), 200(160~240)	GTH(K)-220	80(65~100), 107(85~125), 130(100~160), 150(120~180), 200(160~240)
MT-400	107(85~125), 130(100~160), 153(120~185), 200(160~240), 265(200~330), 350(260~400)	GTH(K)-400	107(85~125), 130(100~160), 150(120~180), 200(160~240), 250(200~300), 350(260~400)
MT-800	265(200~300), 350(260~400), 515(400~630), 660(520~800)	GTH(K)-600	250(200~300), 350(260~400), 500(400~600), 660(520~800)

Compatibility bracket

- Mounting Metasol MC on Din-Rail of braket after install the bracket on panel
- Please use compatibility bracket when replace from Meta-MEC to Metasol MC without to change of panel size

	MP-40	MP-85
Manufactured products	MC-32a~40a	MC-50a~85a
Discontinued pridducts	GMC-32~40	GMC-50~85





Certifications

Type		Approvals					Certificates		
Cerficate		-	IEC	UL	CSA	GB	IEC		KEPIC
Mark and name			CE	U.S.A & cUL	CSA	CCC	KEMA	DEMKO	
Type		Korea	Europe	U.S.A & Canada	Canada	China	Netherlands	Denmark	Korea
Metasol Contactors	MC-6a	●	●	●	●	●	●		●
	MC-9a	●	●	●	●	●	●		●
	MC-12a	●	●	●	●	●	●		●
	MC-18a	●	●	●	●	●	●		●
	MC-9b	●	●	●	●	●	●		●
	MC-12b	●	●	●	●	●	●		●
	MC-18b	●	●	●	●	●	●		●
	MC-22b	●	●	●	●	●	●		●
	MC-32a	●	●	●	●	●	●		●
	MC-40a	●	●	●	●	●	●		●
	MC-50a	●	●	●	●	●	●		●
	MC-65a	●	●	●	●	●	●		●
	MC-75a	●	●	●	●	●	●		●
	MC-85a	●	●	●	●	●	●		●
	MC-100a	●	●	●	●	●	●		●
	MC-130a	●	●	●		●	●		●
	MC-150a	●	●	●		●	●		●
	MC-185a	●	●	●		●	●		●
	MC-225a	●	●	●		●	●		●
	MC-265a	●	●	●		●	●		●
	MC-330a		●	●		●	●		●
	MC-400a		●	●		●	●		●
	MC-500a		●	●		●	●		●
	MC-630a		●	●		●	●		●
	MC-800a		●	●		●	●		●
	MC-1260a		●	●	●			●	
	MC-1400a		●	●	●	●	●		
	MC-1700a		●	●	●	●	●		
	MC-2100a		●	●	●	●	●		
Thermal Overload Relays Nondifferential (2-heater)	MT-12/2H		●	●			●		●
	MT-32/2H		●	●	●	●	●		●
	MT-63/2H		●	●	●	●	●		●
	MT-95/2H		●	●	●	●	●		●
	MT-150/2H		●	●			●		●
	MT-225/2H		●	●			●		●
	MT-400/2H		●	●			●		●
	MT-800/2H		●	●			●		●
Thermal Overload Relays Nondifferential (3-heater)	MT-12/3H		●	●			●		●
	MT-32/3H		●	●	●	●	●		●
	MT-63/3H		●	●	●	●	●		●
	MT-95/3H		●	●	●	●	●		●
	MT-150/3H		●	●			●		●
	MT-225/3H		●	●			●		●
	MT-400/3H		●	●			●		●
	MT-800/3H		●	●			●		●
Thermal Overload Relays Differential	MT-12/3K		●	●			●		●
	MT-32/3K		●	●	●	●	●		●
	MT-63/3K		●	●	●	●	●		●
	MT-95/3K		●	●	●	●	●		●
	MT-150/3K		●	●			●		●
	MT-225/3K		●	●			●		●
	MT-400/3K		●	●			●		●
	MT-800/3K		●	●			●		●
Thermal Overload Relays Class 20	MT-12/3D		●	●			●		
	MT-32/3D		●	●	●	●	●		
	MT-63/3D		●	●	●	●	●		
	MT-95/3D		●	●	●	●	●		
	MT-150/3D		●	●			●		
	MT-225/3D		●	●			●		
	MT-400/3D		●	●			●		
	MT-800/3D		●	●			●		

Note) ●: Completion

Marine certifications

Type	Mark and name	KR Korea	LR U.K	BV France	GL Germany	DNV Norway	ABS U.S.A	NK Japan	RINA Italy
Metasol Contactors	MC-6a	●	●	●	●	●	●	●	●
	MC-9a	●	●	●	●	●	●	●	●
	MC-12a	●	●	●	●	●	●	●	●
	MC-18a	●	●	●	●	●	●	●	●
	MC-9b	●	●	●	●	●	●	●	●
	MC-12b	●	●	●	●	●	●	●	●
	MC-18b	●	●	●	●	●	●	●	●
	MC-22b	●	●	●	●	●	●	●	●
	MC-32a	●	●	●	●	●	●	●	●
	MC-40a	●	●	●	●	●	●	●	●
	MC-50a	●	●	●	●	●	●	●	●
	MC-65a	●	●	●	●	●	●	●	●
	MC-75a	●	●	●	●	●	●	●	●
	MC-85a	●	●	●	●	●	●	●	●
	MC-100a	●	●	●	●	●	●	●	●
	MC-130a	●	●	●	●	●	●	●	●
	MC-150a	●	●	●	●	●	●	●	●
	MC-185a	●	●	●	●	●	●	●	●
	MC-225a	●	●	●	●	●	●	●	●
	MC-265a	●	●	●	●	●	●	●	●
	MC-330a	●	●	●	●	●	●	●	●
	MC-400a	●	●	●	●	●	●	●	●
	MC-500a	●	●	●	●	●	●	●	●
	MC-630a	●	●	●	●	●	●	●	●
	MC-800a	●	●	●	●	●	●	●	●
Thermal Overload Relays Nondifferential (2-heater)	MT-12/2H	●	●	●	●	●	●	●	●
	MT-32/2H	●	●	●	●	●	●	●	●
	MT-63/2H	●	●	●	●	●	●	●	●
	MT-95/2H	●	●	●	●	●	●	●	●
	MT-150/2H	●	●	●	●	●	●	●	●
	MT-225/2H	●	●	●	●	●	●	●	●
	MT-400/2H	●	●	●	●	●	●	●	●
	MT-800/2H	●	●	●	●	●	●	●	●
Thermal Overload Relays Nondifferential (3-heater)	MT-12/3H	●	●	●	●	●	●	●	●
	MT-32/3H	●	●	●	●	●	●	●	●
	MT-63/3H	●	●	●	●	●	●	●	●
	MT-95/3H	●	●	●	●	●	●	●	●
	MT-150/3H	●	●	●	●	●	●	●	●
	MT-225/3H	●	●	●	●	●	●	●	●
	MT-400/3H	●	●	●	●	●	●	●	●
	MT-800/3H	●	●	●	●	●	●	●	●
Thermal Overload Relays Differential	MT-12/3K	●	●	●	●	●	●	●	●
	MT-32/3K	●	●	●	●	●	●	●	●
	MT-63/3K	●	●	●	●	●	●	●	●
	MT-95/3K	●	●	●	●	●	●	●	●
	MT-150/3K	●	●	●	●	●	●	●	●
	MT-225/3K	●	●	●	●	●	●	●	●
	MT-400/3K	●	●	●	●	●	●	●	●
	MT-800/3K	●	●	●	●	●	●	●	●
Thermal Overload Relays Class 20	MT-12/3D	●	●	●	●	●	●	●	●
	MT-32/3D	●	●	●	●	●	●	●	●
	MT-63/3D	●	●	●	●	●	●	●	●
	MT-95/3D	●	●	●	●	●	●	●	●
	MT-150/3D	●	●	●	●	●	●	●	●
	MT-225/3D	●	●	●	●	●	●	●	●
	MT-400/3D	●	●	●	●	●	●	●	●
	MT-800/3D	●	●	●	●	●	●	●	●

Note) ●: Completion

Memo

FUTURING SMART ENERGY

We open up a brighter future through
efficient and convenient energy solutions.

LSMS

This application is selection guide of motor starter, overload relays and MCCBs

<Android> <IOS>

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 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.

- According to The WEEE Directive, please do not discard the device with your household waste.

LSIS

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