

Contactors and overload relays

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

Contactor

MC-6a, 9a, 12a, 18a

Rated current:
6, 9, 12, 18A

Rated insulation voltage:
690V

Overload relay MT-12

Current range: 0.1~18A
Trip class: Class10A, 20

22AF

Contactor

MC-9b, 12b, 18b, 22b

Rated current:
9, 12, 18, 22A

Rated insulation voltage:
690V

Overload relay MT-32

Current range: 0.1~40A
Trip class: Class10A, 20

40AF

Contactor

MC-32a, 40a

Rated current:
32, 40A

Rated insulation voltage:
1000V

Overload relay MT-32

Current range: 0.1~40A
Trip class: Class10A, 20

65AF

Contactor

MC-50a, 65a

Rated current:
50, 65A

Rated insulation voltage:
1000V

Overload relay MT-63

Current range: 4~65A
Trip class: Class10A, 20

100AF

Contactor

MC-75a, 85a, 100a

Rated current:
75, 85, 100A

Rated insulation voltage:
1000V

Overload relay MT-95

Current range: 7~100A
Trip class: Class10A, 20

150AF

Contactor

MC-130a, 150a

Rated current:
130, 150A

Rated insulation voltage:
1000V

Overload relay MT-150

Current range: 34~150A
Trip class: Class10A, 20






















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
3	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

Connections

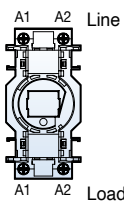
Frame	Wire type	Main terminal size							Torque		
			(AWG / mm ²)						mm(max)	[lb-in]	[Nm]
MC-6a/9a		M3.5	18-10/1-4	18-10 / 1-4	18-10 / 1-4			8.3	10	1.13	12
MC-12a			16-10/1.5-4	16-10 / 1.5-4	16-10 / 1.5-4						
MC-18a			16-10/1.5-6	16-10 / 1.5-6	16-10 / 1.5-6						
MC-9b		M4	18-10/1-4	18-10 / 1-4	18-10 / 1-4			9.6	20	2.25	23
MC-12b			16-10/1.5-6	16-10 / 1.5-6	16-10 / 1.5-6						
MC-18b			16-10/1.5-6	16-10 / 1.5-6	16-10 / 1.5-6						
MC-22b			14-8/2.5-10	14-8 / 2.5-10	14-8 / 2.5-10						
MC-32a		M5	-	12-6 / 2.5-16	12-6 / 2.5-16			12.8	35	4	41
MC-40a			-	12-6 / 2.5-16	12-6 / 2.5-16						
MC-50a		M6	-	10-3 / 4-35	10-3 / 4-35			14	35	4	41
MC-65a			-	10-2 / 4-35	10-2 / 4-35						
MC-75a		M8	-	10-1 / 6-50	10-1 / 6-50			17	45	5.1	52
MC-85a			-	10-1/0 / 6-50	10-1/0 / 6-50						
MC-100a			-	10-2/0 / 6-70	10-2/0 / 6-70						
MC-130a		M8	-	8-3/0 / 10-95	8-3/0 / 10-95			24	80	9.1	93
MC-150a			-	8-250kcmil / 10-120	8-250kcmil / 10-120						
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	-	3-350kcmil / 35-185	3-350kcmil / 35-185			25	130	14.7	150
MC-225a			-	3-400kcmil / 35-185	3-400kcmil / 35-185						
MC-265a		M12	-	2-500kcmil / 35-240	2-500kcmil / 35-240			30	200	22.6	230
MC-330a			-	2-250kcmil x 2 / 35-150 x 2	2-250kcmil x 2 / 35-150 x 2						
MC-400a			-	2-350kcmil x 2 / 35-185 x 2	2-350kcmil x 2 / 35-185 x 2						
MC-500a		M16	-	4/0-300kcmil x 3 / 95-240 x 2	4/0-300kcmil x 3 / 95-240 x 2			40	500	56.5	576
MC-630a/MCi-900			-	95-60 x 5 x 2	95-60 x 5 x 2						
MC-800a/MCi-1050			-	95-80 x 5 x 2	95-80 x 5 x 2						
MC-185-800a/MCi-1050 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/MCi-1260		M12	-	50mm×10mm×2ea	-			-	200	22.6	230
MC-1400a		M12	-	100mm×5mm×2ea 100mm×5mm×3ea 100mm×5mm×4ea 100mm×10mm×3ea	-			-	200	22.6	230
MC-1700a/MCi-1700											
MC-2100a/MCi-2100											
MC-2650a/MCi-2650											

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 ... 7
DC coil								
Control voltage	[Uc]	12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V				24, 48		
Voltage limit	[Uc]	85~110%						
Coil consumption at 20°C								
DC 110V <i>Note 4)</i>	Inrush	[W]	6	6	9	9	18	280 <i>Note 3)</i>
	Holding	[W]	6	6	9	9	18	7.5
Time constant (L/R)		[ms]	28	28	28	65	75	
Operating time								
	Closing	[ms]	40 ... 70 <i>Note 2)</i>	40 ... 70 <i>Note 2)</i>	50 ... 65	50 ... 65	100 ... 120	70 ... 80
	Opening	[ms]	4 ... 19	4 ... 19	4 ... 19	4 ... 19	10 ... 25	60 ... 70

- Note 1.* Either semi-electronic coil(A) or electronic coil(B) can be chosen for MC-130a and MC-150a
- Note 2.* The operation time may increase up to 80ms when re-supply after the ON state continues.
- Note 3.* MC-150AF is based on DC24V
- Note 4.* Coil consumptions for the other coil voltages are similar to the above data



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

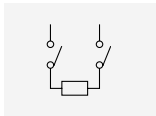
Contactors

Description 40AF

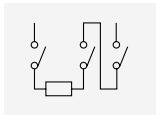
- 3-pole(NO) main contact
- Finger proof design
- DIN rail(35mm) or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: 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 (L/R=1ms)	2-pole in series	24V	-	25	-	35
				48V	-	25	-	35
	110V		-	25	-	25		
DC3, 4 (L/R=15ms)	3-pole in series	24V	-	25	-	35		
		48V	-	25	-	35		
		110V	-	25	-	35		
	2-pole in series	24V	-	25	-	35		
		48V	-	20	-	20		
		110V	-	10	-	10		
Directly mountable overload relay		AWG	MT-32					
			12~8		8~6			
			2.5~10		10~16			
Conductor size (Solid, stranded) (the max. number of conducts: 2)			65/75°C Cu-wire only					
Conductor type								



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		12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Certification

- CE(IEC)
- UL508
- CCC



40AF		65AF		100AF		
MC-32a	MC-40a	MC-50a	MC-65a	MC-75a	MC-85a	MC-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	1200	1200	1200	1200	1200

40AF		65AF		100AF		
MC-32a	MC-40a	MC-50a	MC-65a	MC-75a	MC-85a	MC-100a
-	-	-	-	-	-	-
40AF		65AF		100AF		
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		