

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	27	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	40	26	28	40	45	
UL rating (50/60Hz)	Continuous current	A	25	25	25	32	27	27	32	45	
	Single phase	110~120V	HP	0.5	0.5	0.75	1	0.5	0.75	1	2
		220~240V	HP	1.5	1.5	2	3	1.5	2	3	3
		200~208V	HP	2	2	3	7.5	2	3	7.5	7.5
	Three phase	220~240V	HP	3	3	5	7.5	3	5	7.5	10
		440~480V	HP	5	5	7.5	10	5	7.5	10	15
		550~600V	HP	7.5	7.5	10	15	7.5	10	15	20
NEMA size		00	00	0	1	00	0	1			
Size and weight	AC control	Weight	0.33				0.34				
		Size(W×H×D)	45×73.5×80.4				45×73.5×87.4				
	DC control	Weight	0.4				0.41				
		Size(W×H×D)	45×73.5×96.6				45×73.5×103.6				
Auxiliary(standard)			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.

Type numbering system

Contactors

MC-6a	/	R	/	220V	60Hz	SCREW	1NO1NC
Rated current		Version		Coil voltage	Frequency		Auxiliary contact
6a 6A		- Standard		AC 220V	60Hz	None	None
⋮		R Reversing		⋮	50Hz	SCREW	1NO1NC
2100a 2100A		4 4pole		⋮		LUG	2NO2NC
9b 9A				DC 24V			1NO
⋮							1NC
22b 22A							

Note) See page 22, 23 for details.

Starters


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

Note) See page 22, 23 for details.

Thermal Overload Relay

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

Contactor relays

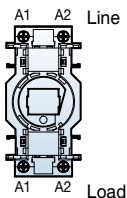
MR	/	4
		Poles
		4 4 Pole
		6 6 Pole
		8 8 Pole

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, 100-240
50Hz [V]	24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V					110-120, 220-240,
60Hz [V]	24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V					300, 380-440, 500V
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, 48, 60, 80, 100, 110, 125, 200, 220, 250V					24, 48, 70-110, 100-220, 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.

Contactors (22AF)

Description

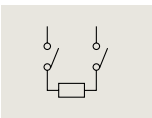
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 1NO1NC Auxiliary contact built-in as standard.
- UA-1 is available on only left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



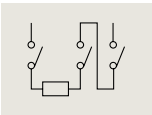
MC-22b

Rating

Contactor type			MC-9b		MC-12b		MC-18b		MC-22b		
			kW	A	kW	A	kW	A	kW	A	
AC duty	AC3	200/240V	2.2	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		-	27	-	27	-	32	-	45	
DC1 duty (L/R=1ms)	2-pole	24V	-	10	-	12	-	18	-	20	
		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 (L/R=15ms)	2-pole	24V	-	8	-	12	-	12	-	20	
		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)		mm ²	1.5~4		1.5~10		2.5~10		2.5~10		
Conductor type			65/75°C 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

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

Accessories

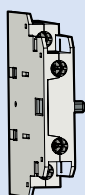
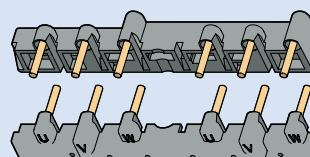


Delayed opening device, AD-9
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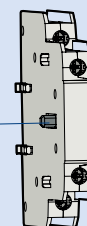
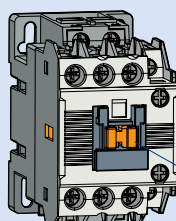
Surge unit, US
connecting to coil terminals
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Wire kit, UW
for use with Interlock unit
▶ 80 page

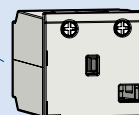


Auxiliary contact unit, UA-1
side mount, 1NO+1NC
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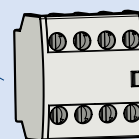
* It is not possible to attach "UA-1" on the right side of product



Interlock unit, UR
side mount
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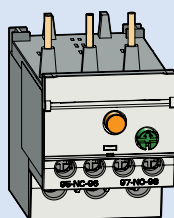
Mechanical latch unit, ML-65
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Auxiliary contact unit, UA-4
front mount, 4P
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Auxiliary contact unit, UA-2
front mount, 2P
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Overload relay, MT
directly mountable to MC type contactor
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Safety cover, A7
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