Motor Circuit Breakers

■MMP-T series

● Features

● Protects failure of the industrial motor by means of a single device

One Motor Circuit Breaker can detect overload operation and phase-loss operation of a motor and also makes it possible to cut off short-circuit current. This compact body Motor Circuit Breaker achieves a rated short-circuit breaking capacity of 100kA (200/240V).

● Improves safety during product maintenance

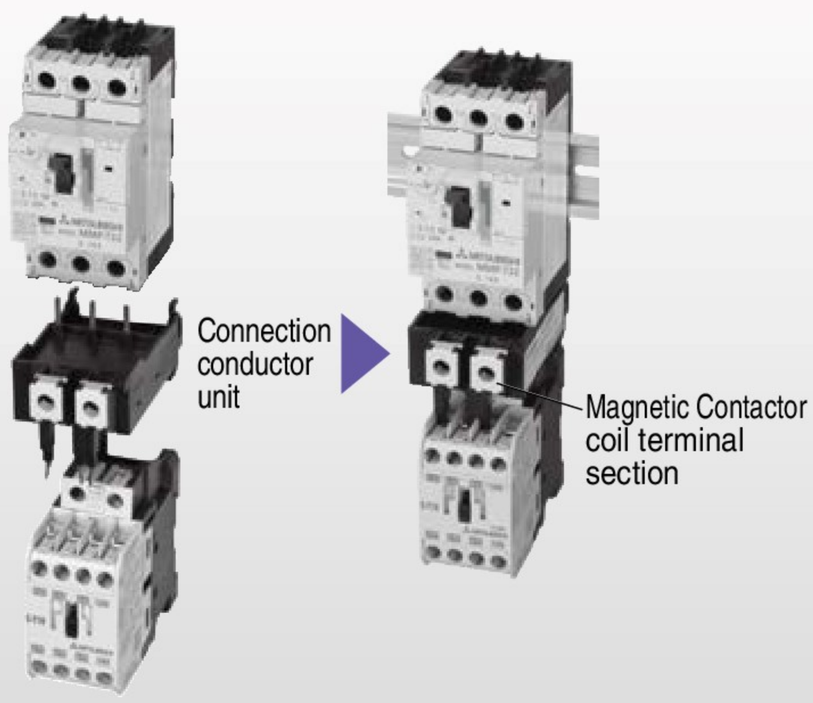
The Motor Circuit Breaker is provided with a DIN and VDE standards-compliant charging part protection cover as standard. This cover helps to improve safety during maintenance work.

MMP-T32

● Reduces the size of the control board and distribution board

The internal structure of the Motor Circuit Breaker has been optimized to reduce depth. When a connection conductor unit (UT-MT□) is used, it will further reduce the size of the control board and distribution board. Furthermore, it can be assembled with an auxiliary contact/alarm contact unit as well as a short-circuit indicator unit (displays in red when short-circuit occurs) in a 45mm-width body.

Example of wiring with connection conductor unit



● Model Code

■MMP-T series

MMP – T32 BC ▲ 32A

Model name	Model
MMP	AC operated type

Frame	Specification
T32	32A

Code	Specification
BC	With fast wiring terminal

Heater designation (A)	Current setting range (A)
0.16	0.1 – 0.16
0.25	0.16 – 0.25
0.4	0.25 – 0.4
0.63	0.4 – 0.63
1	0.63 – 1
1.6	1 – 1.6
2.5	1.6 – 2.5
4	2.5 – 4
6.3	4 – 6.3
8	5.5 – 8
10	7 – 10
13	9 – 13
18	12 – 18
25	18 – 25
32	24 – 32

●Specification List

Frame A		32									
Type name		MMP-T32				MMP-T32BC*1					
Standard		JIS C8201-2-1 Ann.1, JIS 8201-4-1, EN60947-2, EN60947-4-1, IEC60947-2, IEC60947-4-1, GB14048.2									
Number of poles		3									
Handle shape		Tumbler handle									
Rated current In [A]		0.1 to 32									
Rated operational voltage Ue [V.]		200 to 690									
Rated frequency [Hz]		50/60									
Rated insulation voltage Ui [V]		690									
Rated impulse withstand voltage Uimp [kV]		6									
Rated short-circuit breaking capacity [kA] JIS C8201-2-1 Ann.1 IEC60947-2	Rated current Ie [A]*2	200/240V		400/415V		440/460V		500V		600/690V	
	Heater designation / Current setting range	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
	0.16 (0.1 – 0.16)	100		100		100		100		100	
	0.25 (0.16 – 0.25)	100		100		100		100		100	
	0.4 (0.25 – 0.4)	100		100		100		100		100	
	0.63 (0.4 – 0.63)	100		100		100		100		100	
	1 (0.63 – 1)	100		100		100		100		100	
	1.6 (1 – 1.6)	100		100		100		100		100	
	2.5 (1.6 – 2.5)	100		100		100		100		8	6
	4 (2.5 – 4)	100		100		100		100		8	6
	6.3 (4 – 6.3)	100		100		100		100		6	5
	8 (5.5 – 8)	100		100		50	38	42	32	6	5
	10 (7 – 10)	100		100		50	38	42	32	6	5
	13 (9 – 13)	100		100		50	38	42	32	6	5
	18 (12 – 18)	100		50	38	35	27	10	8	4	3
	25 (18 – 25)	100		50	38	35	27	10	8	4	3
	32 (24 – 32)	100		50	38	35	27	10	8	4	3
Selectivity category	JIS C8201-2-1 Ann.1 IEC60947-2	Cat.A									
Utilization category	JIS C8201-4-1 IEC60947-4-1	AC-3									
Trip class (JIS C8201-4-1, IEC60947-4-1)		10									
Instantaneous release current		13 × Maximum Ie									
Durability	Mechanical [times]	100,000									
	Electrical [times]	100,000									
Phase loss sensitive		Yes									
Trip display		Yes									
Test trip function		Yes									
Auxiliary contact unit		UT-MAX (1a or 1b) AC-12: 125V/5A, 250V/3A									
Alarm contact unit		UT-MAL (1a or 1b) DC-12: 125V/0.4A, 250V/0.2A									
Short-circuit indicator unit		UT-TU									
Weight [g]		330									

*1: MMP-T32BC type is based on the specification of wiring streamlining terminal.
*2: UL-compliant rated working current is described on a different page.

●How to Order

At time of your order, please specify your desired products as shown below. (A space should be inserted in the ▲ -marked position.)

Model		Heater nominal
MMP-T32 MMP-T32BC	▲	32A

●How to Order the Options

	Type name		Contact arrangement
Auxiliary contact unit	UT-MAX	▲	1a
	UT-MAX	▲	1b
Alarm contact unit	UT-MAL	▲	1a
	UT-MAL	▲	1b
Short-circuit indicator unit	UT-TU		

●Type 1　Coordination (Non-reversing/Reversing, Full-voltage)

The rated short-circuit breaking capacity given in the table below applies when MMP-T32 and Magnetic Contactor are used in combination.

● MMP-T32 Motor Circuit Breaker combined with S(D)-T Magnetic Contactor

Three-phase AC motor (AC-3) IEC												Motor Circuit Breaker		
200/240V			400/415V			440/460V			500V			Model name	Heater designation	Rated current setting range [A]
P[kW]	Ie[A]	Iq[kA]	P[kW]	Ie[A]	Iq[kA]	P[kW]	Ie[A]	Iq[kA]	P[kW]	Ie[A]	Iq[kA]			
–	–	–	0.2	0.55	50	0.2	0.58	50	0.2	0.5	50	MMP-T32 (BC)	0.63	0.4 to 0.63
0.1	0.65	50	0.4	1	50	0.4	1	50	0.4	0.8	50		1	0.63 to 1
0.2 0.3	1.1 1.5	50	0.4	1	50	0.4	1	50	0.75	1.4	50		1.6	1 to 1.6
0.4	2	50	0.75	1.7	50	0.75	1.7	50	1.5	2.5	50		2.5	1.6 to 2.5
0.75	3.3	50	1.5	3.1	50	1.5	3	50	2.2	3.6	50		4	2.5 to 4
1.5	6	50	2.2	4.5	50	2.2	4.2	50	3.7	5.7	50		6.3	4 to 6.3
1.5	6	50	3.7	7.1	50	3.7	6.5	50	3.7	5.7	42		8	5.5 to 8
2.2	8.6	50	3.7	7.1	50	5.5	9.8	50	5.5	8.4	42		10	7 to 10
–	–	–	5.5	10.5	50	5.5	9.8	50	7.5	11.2	42		13	9 to 13
3.7	13.4	50	7.5	14	50	7.5	12.7	35	11	16.4	10		18	12 to 18
5.5	19.8	50	11	20.5	50	11	18.5	35	–	–	–		25	18 to 25
7.5	26.4	50	15	27	50	15	24.5	35	–	–	–		32	24 to 32

Notes 1: Model names of the units (such as connection conductor unit) used for combining Motor Circuit Breaker and Magnetic Contactor are as follows.

S-T10(BC) to S-T20(BC): UT-MT20, S-T21(BC)/T25(BC): Electric wire connection, S-T32(BC): UT-MT32

SD-T12(BC)/T20(BC): UT-MT20D+UT-BT32D, SD-T21(BC): Electric wire connection, SD-T32(BC): UT-MT32D+UT-BT32D

S-2×T10(BC): UT-MT20+UT-RT10+UT-BT20 (2 units), S-2×T12(BC)/T20(BC): UT-MT20+UT-RT20+UT-BT20 (2 units), S-2×T21(BC)/T25(BC): Electric wire connection, S-2×T32(BC): UT-MT32+UT-RT32+UT-BT32 (2 units)

SD-2×T12(BC)/T20(BC): UT-MT20D+UT-RT20+UT-BT32D (2 units), SD-2×T21(BC): Electric wire connection, SD-2×T32(BC): UT-MT32D+UT-RT32+UT-BT32D (2 units)

2. The above table indicates combinations of Motor Circuit Breaker with Magnetic Contactor selected based on the SF-JR 4-pole standard three-phase motor (manufactured by Mitsubishi Electric).

● MMP-T32 Motor Circuit Breaker combined with SD-Q Magnetic Contactor

Three-phase AC motor (AC-3) IEC												Motor Circuit Breaker		
200/240V			400/415V			440/460V			500V			Model name	Heater designation	Rated current setting range [A]
P[kW]	Ie[A]	Iq[kA]	P[kW]	Ie[A]	Iq[kA]	P[kW]	Ie[A]	Iq[kA]	P[kW]	Ie[A]	Iq[kA]			
–	–	–	0.2	0.55	50	0.2	0.58	50	0.2	0.5	50	MMP-T32 (BC)	0.63	0.4 to 0.63
0.1	0.65	50	0.4	1	50	0.4	1	50	0.4	0.8	50		1	0.63 to 1
0.2 0.3	1.1 1.5	50	0.4	1	50	0.4	1	50	0.75	1.4	50		1.6	1 to 1.6
0.4	2	50	0.75	1.7	50	0.75	1.7	50	1.5	2.5	50		2.5	1.6 to 2.5
0.75	3.3	50	1.5	3.1	50	1.5	3	50	2.2	3.6	50		4	2.5 to 4
1.5	6	50	2.2	4.5	50	2.2	4.2	50	3.7	5.7	50		6.3	4 to 6.3
1.5	6	50	3.7	7.1	50	3.7	6.5	50	3.7	5.7	42		8	5.5 to 8
2.2	8.6	50	3.7	7.1	50	–	–	–	–	–	–		10	7 to 10

Note: The above table indicates combinations of Motor Circuit Breaker with Magnetic Contactor selected based on the SF-JR 4-pole standard three-phase motor (manufactured by Mitsubishi Electric).

Magnetic Contactors (Non-Reversing /Reversing)		
Various units	Model name	Model name
Note 1	200/240V	S-(2X)T10(BC)
		S(D)-(2X)T12(BC)
		S(D)-(2X)T20(BC)
		S(D)-(2X)T21(BC)
		S-(2X)T25(BC)
		S(D)-(2X)T32(BC)
	400/415V	S-(2X)T10(BC)
		S(D)-(2X)T12(BC)
		S(D)-(2X)T20(BC)
		S(D)-(2X)T21(BC)
		S-(2X)T25(BC)
		S(D)-(2X)T32(BC)
	440/460V	S-(2X)T10(BC)
		S(D)-(2X)T12(BC)
		S(D)-(2X)T20(BC)
		S(D)-(2X)T21(BC)
		S-(2X)T25(BC)
		S(D)-(2X)T32(BC)
	500V	S-(2X)T10(BC)
		S(D)-(2X)T12(BC)
		S(D)-(2X)T20(BC)
		S(D)-(2X)T21(BC)
		S-(2X)T25(BC)
		S(D)-(2X)T32(BC)

Magnetic Contactors (Non-Reversing /Reversing)	
Model name	Connection conductor unit
SD-Q(R)11	UT-MQ12
SD-Q(R)12	

● Usage Environment

(1) Ambient temperature (Applied to the outside of the control panel) : -10°C to 40°C
Average daily atmospheric temperature: 35°C (Max.), Average yearly atmospheric temperature: 25°C (Max.)

(2) Maximum temperature of the inside of the control panel : 55°C (Yearly average temperature of the inside of the control panel should be 40°C or less.)
Please note that the operating characteristic may vary with the ambient temperature.

(3) Ambient temperature : 45% to 85%RH However, dew condensation and freezing should be avoided.

(4) Height above sea level : 2000m or less

(5) Vibration : 10 to 55Hz, 19.6m/s^2 or less

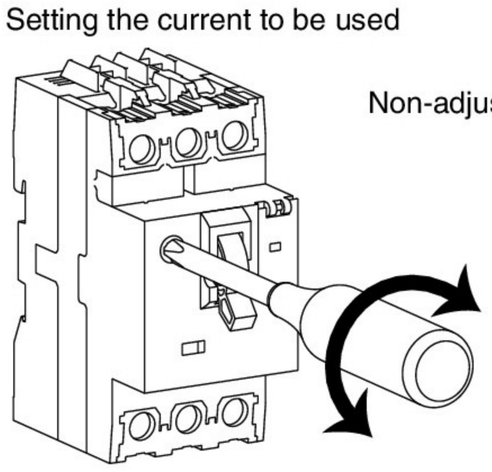
(6) Impact : 49m/s^2 or less

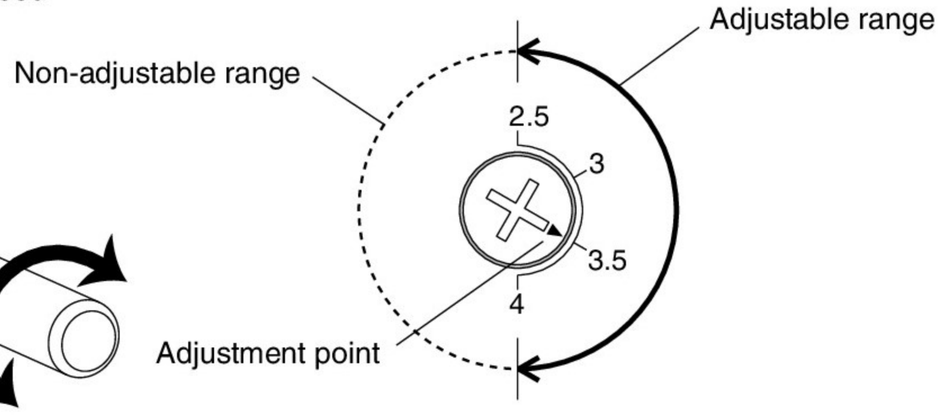
(7) Atmosphere : Inclusion of dust, smoke, corrosive gas, moisture, salt content and the like in the atmosphere should be avoided as much as possible.
Please note that continuing to use the device in a closed condition for a long period may cause contact failure.
Never use the device under an atmosphere that contains flammable gas.

(8) Storage temperature/Relative humidity : -30°C to 65°C 45% to 85%RH However, dew condensation and freezing should be avoided.
The storage temperature is ambient temperature during transportation or storage and should be within the usage temperature when starting to use the device.

(9) Precaution on use : Set the position of adjustment dial by taking ambient temperature and mounting conditions into consideration.

Setting the current to be used



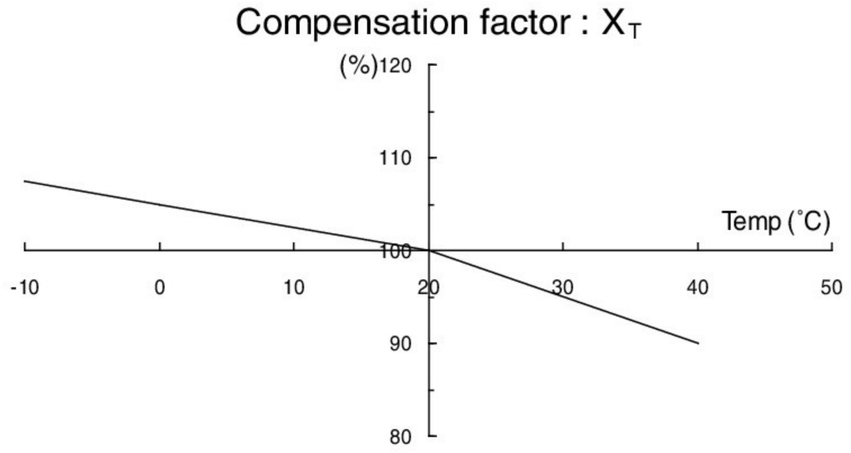


$I_{SET} = I / X_{SET} \times 100$

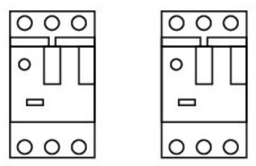
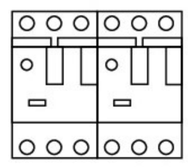
(I : Rated current of motor
X_{SET} : The dial position is set based on the information in Fig. 1 and Fig. 2 on the right.)

Example: When the units are mounted closely for 2.8A rated current of motor (I) and 40°C ambient temperature
$I_{SET} = 2.8 / (90-5) \times 100 \fallingdotseq 3.3A$ →
Set the position of adjustment dial to 3.3A.

<Fig. 1 Ambient temperature compensation characteristics>



<Fig. 2 Mounting condition compensation>

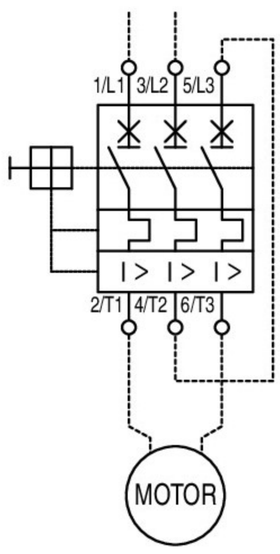
	[When units are not mounted closely] $X_{SET} = X_T$
	[When units are mounted closely] $X_{SET} = X_T - 5$

(10) Connection

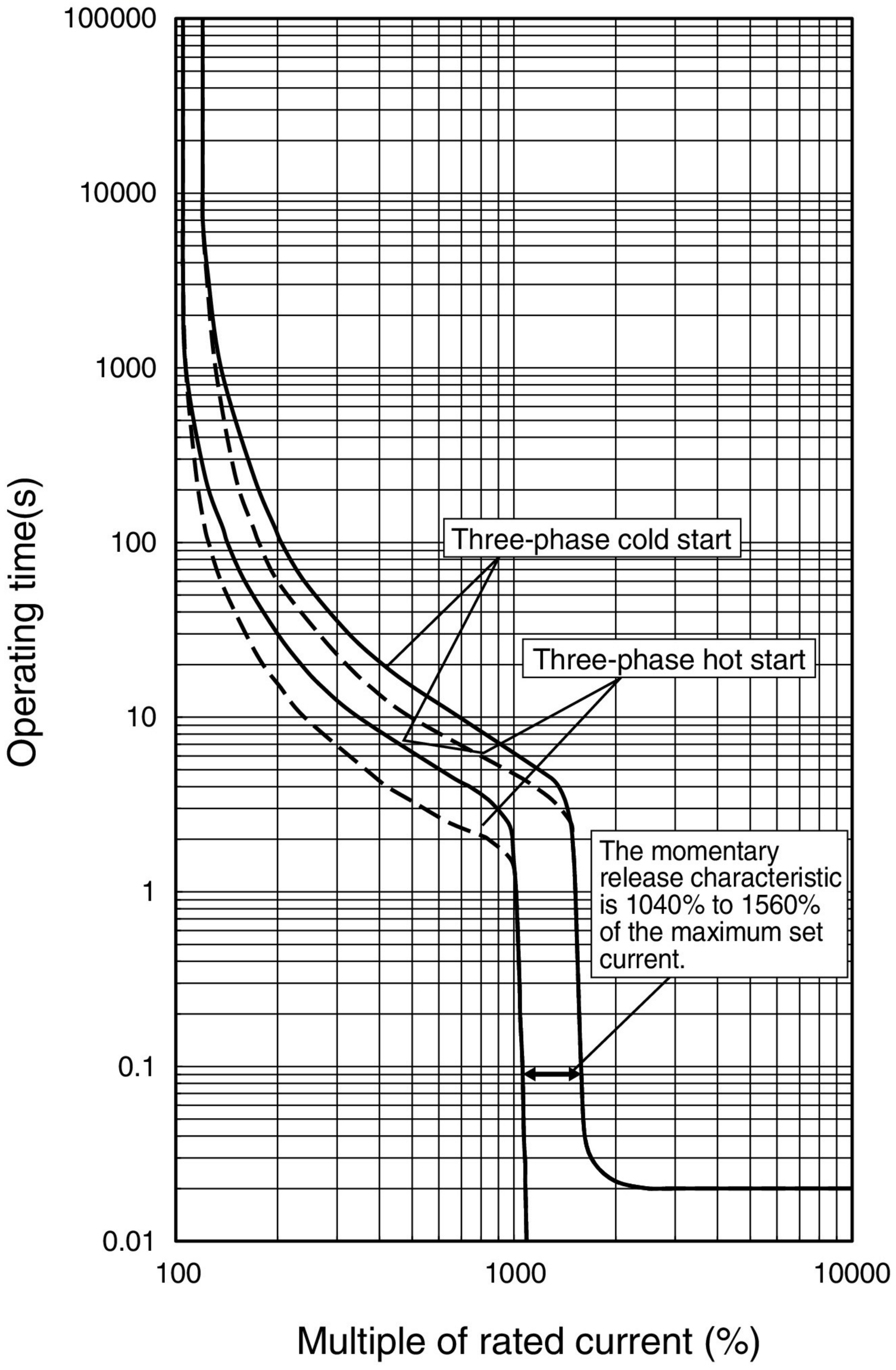
Model name		MMP-T32	UT-MAX(LL), UT-MAL(LL)
Terminal screw size		M4	M3.5
Recommended insulation coating (L) peel-off length when the electric wire strand is connected 		10mm	8.5mm
Applicable wire size	Single wire [mm]	ϕ1.6, ϕ2.6	ϕ1.6
	Stranded wire [mm^2]	1 to 6	0.5 to 2
	UL Electric wire (60/70˚C, Copper only)	#14 to #8	#16 to #14
Crimp lug size		R1.25-4 to R5.5-4 8-4NS (Note 3)	0.5-3.7A to 2-S3A (Note 3)
Terminal screw tightening torque [N·m]		1.7	1.0

Notes 1: In each terminal, two wires or two crimp lugs are allowed to be connected.
2: As for handling, temperature adjustment, and closely-attached installation, please read the Instruction Manual.

(11) Application to single-phase motor : Select the appropriate heater designation by checking the value of full-load currents of the motor. Since the Motor Circuit Breaker is provided with protection functionality of open-phase, connect as shown on the right-side figure when using it for a single-phase motor.



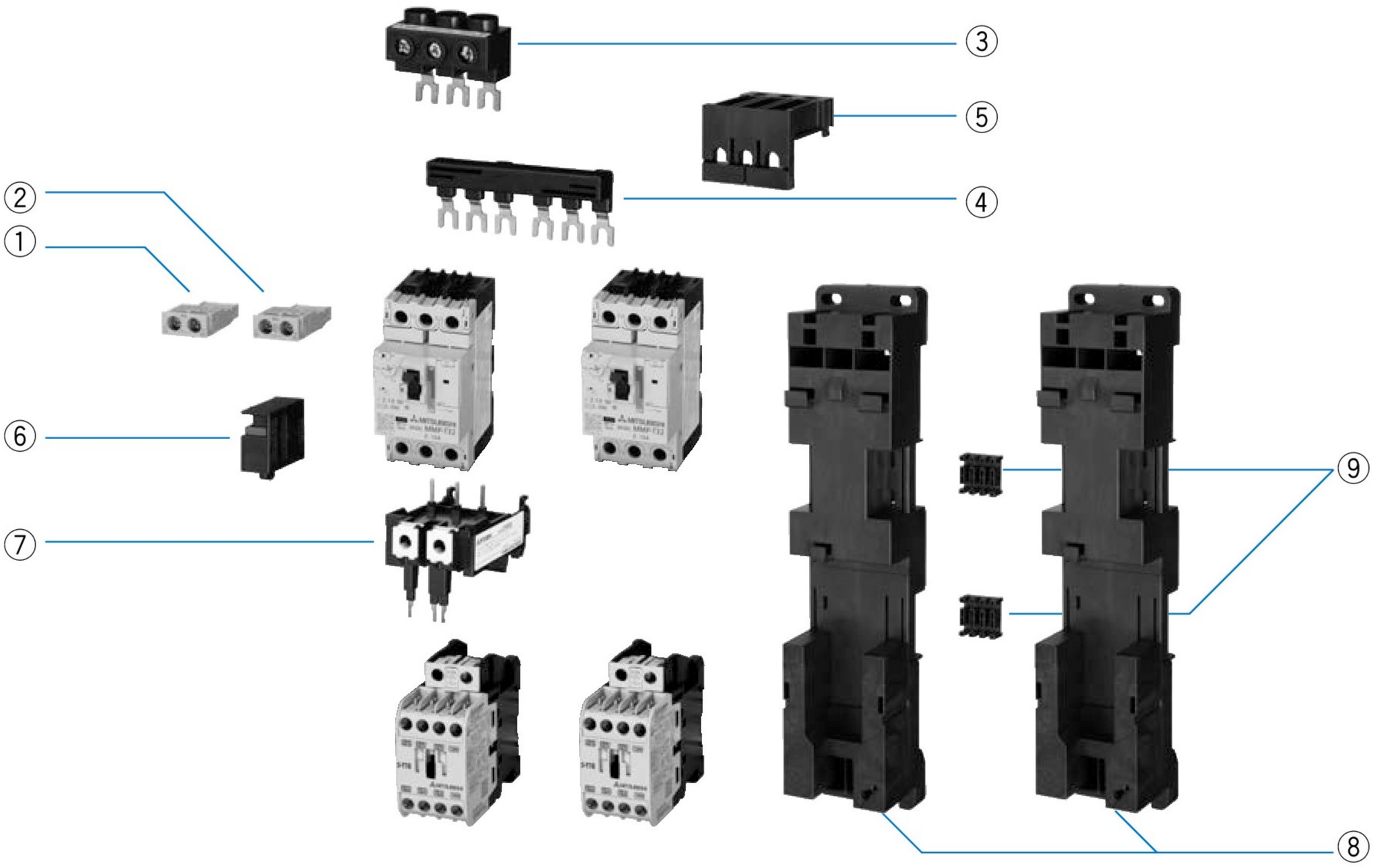
●Operating Characteristic Curve



● List of Options

Number	Product name	Model	Specification	Description	Applied model
①	Auxiliary contact unit (to be internally installed)	UT-MAX	1a	Contact of the unit operates in conjunction with ON/OFF operation of MMP-T32.	MMP-T32
			1b		
		UT-MAXLL (for subtle load)	1a		
			1b		
②	Alarm contact unit (to be internally installed)	UT-MAL	1a	The contact of this unit operates in sync with the tripping function (any one of short-circuit, overload, or open-phase) of the main unit. (The contact does not operate in sync with the ON/OFF state of the main unit.)	
			1b		
		UT-MALLL (for subtle load)	1a		
			1b		
③	3 phase feed-in terminal	UT-EP3		This terminal block unit is used for connecting the strands of electric wires (single-core wires or stranded wires) of the power supply side when the main unit is connected in parallel using a bus bar.	
④	Bus bar	UT-2B4	45mm	This unit supplies power individually to two or three main units without using electric wires (parallel connection).	
			Twin type		
		UT-3B4	45mm		
			Triple type		
		UT-2B5	57mm		
			Twin type		
		UT-3B5	57mm		
			Triple type		
⑤	Line side terminal adapter kit	UT-CV3		Power supply-side terminal cover to respond to UL60947-4-1A, Type E/F.	
⑥	Short-circuit indicator unit	UT-TU		This unit has a feature that the red lamp is lit only when the device is tripped due to short-circuit. This unit is required for application to UL60947-4-1A, Type E/F.	
⑦	Connection conductor unit	UT-MT20		A unit to connect and link the MMP-T32 and Magnetic Contactor electrically and mechanically. This unit is required for application to UL60947-4-1A, Type E/F.	
		UT-MT20D			
		UT-MT32			
		UT-MT32D			
		UT-MQ12			
⑧	Mounting base unit	UT-BT20		A plate to install the combination starter with MMP-T32 and Magnetic Contactor combined. Rail mounting and screw mounting are available.	
		UT-BT32			
		UT-BT32D			
⑨	Jointing block unit	UT-RT10		A set of the blocks for mechanically connecting two mounting base units. This unit is required for combining MMP-T32 with a reversing magnetic contactor.	
		UT-RT20			
		UT-RT32			

● Option combination Diagram



Compatibility with Japanese and Overseas Standards

Series	Model		Type	Compliant/applicable standard					Safety Certification Standard (Note 5)				EC Directives	Third party (Note 5) certification organization	CCC (Note 5) Certification	Shipping Certification Standards (Note 5)				Heat Resistance Certification Standards	
				JIS (Note 4)	JEM	IEC	DIN VDE	BS EN	Electric parts	UL		CSA	CE mark	TÜV	GB	NK	KR	BV	LR	Heat resistance type 1	Heat resistance type 2 (Note 5)
				Japan	Japan	Inter-national	Germany	United Kingdom Europe	Japan	United States		Canada	Europe		China	Japan	Korea	France	United Kingdom	Japan	
MS-T Series	Magnetic Contactors	Non-reversing	S-T10 to T32	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	◎	◎	◎	◎	–	☆
			S-T35 to T100	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	◎	◇	◇	◎	–	☆
		Reversing	S-2×T10 to T100	○	–	○	○	○	✻	–	◎	◎	○	–	◎	–	–	–	–	–	☆
		Direct current operate	SD-T12 to T100	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	◎	–	◇	◎	–	–
		Mechanical latch	SL(D)-T21 to T100	○	–	○	○	○	✻	–	☆	☆	–	–	◎	–	–	–	–	–	☆
	Open Model Magnetic Starters	Non-reversing 2 elements	MSO-T10 to T100	○	–	○	○	○	✻	–	–	–	–	–	–	–	–	–	–	–	–
		Non-reversing 3 elements(2E)	MSO-T10KP to T100KP	○	–	○	○	○	✻	–	–	–	○	–	◎	–	–	–	–	–	–
		Reversing 2 elements	MSO-2×T10 to T100	○	–	○	○	○	✻	–	–	–	–	–	–	–	–	–	–	–	–
		Reversing 3 elements(2E)	MSO-2×T10KP to T100KP	○	–	○	○	○	✻	–	–	–	○	–	◎	–	–	–	–	–	–
		Direct current operate 2 elements	MSOD-T12 to T100	○	–	○	○	○	✻	–	–	–	–	–	–	–	–	–	–	–	–
		Direct current operate 2 elements(2E)	MSOD-T12KP to T100KP	○	–	○	○	○	✻	–	–	–	○	–	◎	–	–	–	–	–	–
	Enclosed Magnetic Starters	Non-reversing 2 elements	MS-T10 to T100	○	–	○	○	○	○	–	–	–	–	–	–	–	–	–	–	–	–
		Non-reversing 3 elements(2E)	MS-T10KP to T100KP	○	–	○	○	○	○	–	–	–	–	–	–	–	–	–	–	–	–
	Thermal Overload Relays	2 elements	TH-T18 to T100	○	–	○	○	○	✻	–	–	–	–	–	–	✻	✻	–	–	–	–
		3 elements(2E)	TH-T18KP/T25KP	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	✻	✻	◎	◎	–	–
			TH-T50KP to T100KP	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	✻	✻	◇	◎	–	–
	Contactor Relays	Alternating current operate	SR-T5/T9	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	✻	✻	◎	◎	☆	☆
		Direct current operate	SRD-T5/T9	○	–	○	○	○	✻	–	◎	◎	○	◎	◎	✻	✻	◇	◎	–	–
		Mechanical latch	SRL(D)-T5	○	–	○	○	○	✻	–	–	–	–	–	◎	–	–	–	–	–	☆
	Option Unit	Additional auxiliary contacts	UT-AX2, 4, 11	○	–	○	○	○	✻	◎	–	–	○	◎	◎	✻	✻	◎	◎	–	–
		Surge Absorption	UT-SA23, 21, 22	○	–	○	○	○	✻	◎	–	–	–	–	✻	✻	✻	–	–	–	–
		Mechanical interlocks	UT-ML11/ML20	○	–	○	○	○	✻	◎	–	–	○	–	✻	✻	✻	–	–	–	–
MS-N Series	Magnetic Contactors	Non-reversing	S-N35 to N400	○	○	○	○	○	✻	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	☆	☆
		Reversing	S-2×N35 to N400	○	○	○	○	○	✻	◎	◎	◎	○	–	◎	–	–	–	–	☆	☆
		Direct current operate	SD-N35 to N400	○	○	○	○	○	✻	◎	◎	◎	○	◎	◎	◎	–	◎	◎	–	–
		Mechanical latch	SL-N35 to N400	○	○	○	○	○	✻	☆	–	–	–	–	◎	☆	–	–	–	–	☆
	Open Model Magnetic Starters	Non-reversing 2 elements	MSO-N35/N50 to N400	○	○	○	○	○	✻	–	–	–	–	–	◎/–	–	–	–	–	–	–
		Non-reversing 3 elements(2E)	MSO-N35 to 400KP	○	○	○	○	○	✻	◎	◎	◎	○	–	◎	–	–	◎	◎	–	–
		Reversing 2 elements	MSO-2×N35/2×N50 to N400	○	○	○	○	○	✻	–	–	–	–	–	◎/–	–	–	–	–	–	–
		Reversing 3 elements(2E)	MSO-2×N35KP to N400KP	○	○	○	○	○	✻	☆	☆	☆	○	–	◎	–	–	–	–	–	–
		Direct current operate 2 elements	MSOD-N35/N50 to N400	○	○	○	○	○	✻	–	–	–	–	–	◎/–	–	–	◎	◎	–	–
		Direct current operate 3 elements(2E)	MSOD-N35 to N400KP	○	○	○	○	○	✻	–	–	–	○	–	◎	–	–	◎	◎	–	–
	Enclosed Magnetic Starters	Non-reversing 2 elements	MS-N35/N50 to N400	○	○	○	○	○	○	–	–	–	–	–	◎/–	–	–	–	–	–	–
		Non-reversing 3 elements(2E)	MS-N35 to N400KP	○	○	○	○	○	○	–	–	–	–	–	◎	–	–	–	–	–	–
	Thermal Overload Relays	Standard 2 elements	TH-N20 to N20TA/N60 to N400	○	○	○	○	○	✻	–	–	–	–	–	◎/–	✻	✻	–	–	–	–
		3 elements(2E)	TH-N20KP to N400KP	○	○	○	○	○	✻	–	◎	◎	○	◎	◎	✻	✻	◎	◎	–	–
	Contactor Relays	Direct current operate	SRD-N	○	○	○	○	○	✻	◎	◎	◎	○	◎	◎	✻	✻	◎	◎	–	–
		Mechanical latch	SRL-N	○	○	○	○	○	✻	–	–	–	–	–	◎	✻	✻	–	–	–	☆
	Option Unit	Additional auxiliary contacts	UN-AX2, 4, 11/80, 150	○	○	○	○	○	✻	◎	–	–	○	◎	◎/◉	✻	✻	◎	◎	–	–
		Surge Absorption	UN-SA	○	○	○	○	○	✻	◎	–	–	–	–	✻	✻	✻	–	–	–	–
		Mechanical interlocks	UN-ML	○	○	○	○	○	✻	◎	–	–	○	–	✻	✻	✻	–	–	–	–
Specific Uses	High Sensitivity Contactors	Non-reversing	SD-Q	○	○	○	○	○	✻	◎	◎	◎	○	◎	◎	–	–	–	–	–	–
		Reversing	SD-QR11/QR12	○	○	○	○	○	✻	◎	◎	◎	○	◎	◎	–	–	–	–	–	–
Product Marking (is marked on the product)			Standard number																		
			Certification mark							Note 2	Note 2		Note 3	Note 2	Note 2						
			Certification number																		

Notes 1: ○: standards compliant product ◉: Certification acquired, add "CN" at the end of the model name when ordering.
◎: certification acquired as a standard product ◇: Model for which acquisition (application) of certification is expected –: Model for which the acquisition (application) of certification was not carried out
☆: certification acquired as an exclusive product ✻: Model outside the application of standards certification

2: If there is any unclear point regarding standards certification labels or product model name indications, please contact your dealer or our company.
3: Self-certified labels of the manufacturer. These labels are not standards certifications.
4: In the case where a JIS compliance statement is required, please request us.
5: If the terminal cover (included in MS-T Series as standard) is removed, the product will not qualify for Safety Certification Standard (UL Certification, CSA Certification), standards certified by CB, CCC Certification, Shipping Certification Standards, and Heat Resistance Certification Standards (Heat resistance type 2).

Order Procedure

Magnetic Starters/Magnetic Contactors

Note

For orders, specify products as shown below. Insert a space where ▲ is present.
If adding multiple two-character codes (such as SA, BC, and KP) after a frame size (T10 or others) of type name, specify them in alphabetical order of the first letters. (Example: MSO-T10BCKPSA)
(If they are not in alphabetical order, the type code is automatically changed.)

1. Standard (AC operated) Magnetic Starters

●MS (-2x) T model (sealed)

Model name		motor capacity		Main circuit voltage		Operation coil designation or operation circuit voltage		Auxiliary contact
MS-T21	▲	3.7kW	▲	200V	▲	200VAC	▲	
MS-T10			▲	200V	▲	200VAC	▲	1B
Refer to page 864, 873		Select from page 869, 870.		Do not add AC to the main circuit voltage. (To distinguish it from the operation circuit voltage)		Select coil designation from page 876 or specify the working operation circuit voltage.		Specify the auxiliary contact arrangements.from page 873.

●MSO (-2x) T model (open model)

Model name		Motor capacity or heater designation (setting current)		Main circuit voltage		Operation coil designation or operation circuit voltage		Auxiliary contact
MSO-T10	▲	9A	▲	200V	▲	200VAC	▲	1B
Refer to page 864, 873		Select from page 869, 870.		Do not add AC to the main circuit voltage. (To distinguish it from the operation circuit voltage)		Select coil designation from page 876 or specify the working operation circuit voltage.		Specify the auxiliary contact arrangements.from page 873.

2. Standard (AC operated) Magnetic Contactors

●S-T model, S-2x T model

Model name		Operation coil designation or operation circuit voltage		Auxiliary contact
S-T20	▲	200VAC	▲	2A
S-T20	▲	100VAC50Hz		
Refer to page 864, 875.		Select coil designation from page 876 or specify the working operation circuit voltage.		Specify the auxiliary contact arrangements. from page 876.

3. Direct current operated type magnetic starter/contactor

●MSOD-T model

Model name		Motor capacity or heater designation (setting current)		Main circuit voltage		Operating Coil designation		Auxiliary contact
MSOD-T21	▲	3.7kW	▲	200V	▲	100VDC	▲	
Refer to page 864, 876.		Select from page 870, 871.		Do not add AC to the main circuit voltage.		Select the coil designation on page 875.		Specify the auxiliary contact arrangements. from page 875.

●SD-T model

Model name		Operating Coil designation		Auxiliary contact
SD-T21	▲	110VDC	▲	
Refer to page 875.		Select the coil designation on page 867.		Specify the auxiliary contact arrangements. from page 875.

4. Magnetic starter/contactor with mechanical latch

●MSOL-T model

Model name	Motor capacity or heater designation (setting current)	Main circuit voltage	Closing coil	Tripping coil
MSOL-T21	▲ 3.7KW	▲ 200V	▲ MC-200VAC	▲ MT-200VAC
When a closing coil uses direct current, its model name is "MSOLD." Please refer to page 879.	Select from page 869, 870.	Do not add AC to the main circuit voltage. (To distinguish it from the operation circuit voltage)	Select the coil designation on page 868.	

●SL-T model, SLD-T model

Model name	closing coil designation	Tripping coil designation
SL-T21	▲ MC-100VAC	▲ MT-100VAC
Please refer to page 879. • When a closing coil uses direct current, its model name becomes SLD.	Select the coil designation on page 868.	

●SL-2×T model, SLD-2×T model

When the left and right side closing and tripping coils have the same coil rating, specify the above SL-T model when placing an order.
If the left and right side coils have different coil rating, however, specify the product as indicated below.

Model name	closing coil designation (left side)	Tripping coil designation (left side)	closing coil designation (right side)	Tripping coil designation (right side)
SL-2XT21	▲ MC1-100VAC	▲ MT1-100VAC	▲ MC2-100VAC	▲ MT2-100VDC
Please refer to page 879. • When a closing coil uses direct current, its model name becomes SLD.	Select the coil designation on page 868.			

5. Delay open type Magnetic Starters/Magnetic Contactors

●MSO-T□DL model, S-T□DL model

Model name	Main circuit voltage	Operating Coil
MSO-T21DL	▲ 15A ▲ 200V	▲ 200VAC
S-T12DL	▲ 200V	▲ 200VAC
Specify from page 873, 875.	Specify the Thermal Overload Relays heater designation and the main circuit rated voltage. Be sure to specify the rated voltage also for Magnetic Contactors, since this specification is a required condition for internal wiring.	AC100V and AC200V are available for the operation coil designation.

Thermal Overload Relays

●TH-T model Thermal Overload Relays

Model name		Heater designation
TH-T25	▲	15A
To place an order for a Thermal Overload Relay, specify the model name code given below.		Specify the heater designation according to page 886. When the full load current is included in the two heater designations, give priority to the heaters on the table below.

●Model name code of Thermal Overload Relays

TH	—	T18	KP	▲	Heater designation

Frame
T18
T25
T50
T65
T100

Code	Specification
None	With 2-elements
KP	With 3-elements (2E)
FS	With 2-element quick trip type
FSKP	With 3-elements (2E) quick trip type
SR	With saturable reactor
KPSR	With 3-elements (2E) With saturable reactor
BC	With fast wiring terminal

Contactor model contactor relay

1. Standard model contactor relay

●SR-T□ model

Model name		Operating Coil designation		Contact structure
SR-T5	▲	200VAC	▲	2A2B
Refer to page 868, 887, 888.		Specify the operating coil and designation (or coil voltage and frequency) according to the ratings on pages 876.		Specify the contact structure according to pages 887 and 888.

Definite purpose magnetic starters and contactors

1. High sensitivity contactors

●SD-Q□ model

Model name		Operating coil designation or operating circuit voltage	Auxiliary contact
SD-Q11	▲	24VDC	
SD-QR12	▲	24VDC	
Refer to page 880.		Select the coil designation on page 880.	Specify the auxiliary contact arrangements. If not specified, this will be a standard contact structure. Please refer to page 880.

●MSOD-Q□ model

Model name		Motor capacity or heater designation (rectified current set value)		Main circuit voltage		Operating coil designation or operating circuit voltage	Auxiliary contact
MSOD-Q11	▲	9A	▲	200V	▲	24VDC	
MSOD-QR12	▲	9A	▲	200V	▲	24VDC	
Refer to page 880.		Select from page 869, 870.		Do not add AC to the main circuit voltage. (To distinguish it from the operation circuit voltage)		Select the coil designation on page 880.	Specify the auxiliary contact arrangements. If not specified, this will be a standard contact structure. Please refer to page 880.

Related devices

1. Solid State Contactors

●US-N model

Model name
US-N20TE
Refer to page 892.

●US-K model (3 phase load use)

Model name
US-K100TE
Refer to page 893.

●US-K model (Single phase and combined 3 phase load use)

Model name
US-K70
Refer to page 892.

●US-KD model (direct current load use)

Model name
US-KD8
US-KD8 is the only direct current load use model.

●US-H model (dedicated heater load use)

Model name
US-H20
Refer to page 893.