

Overload relays

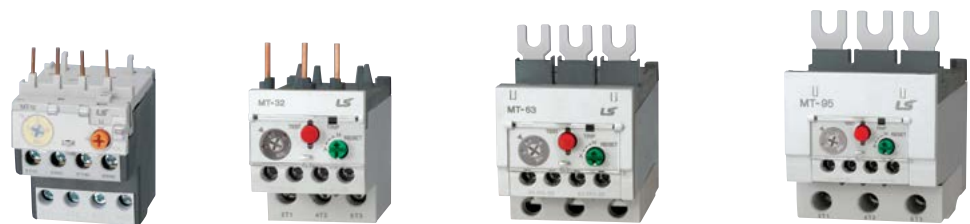
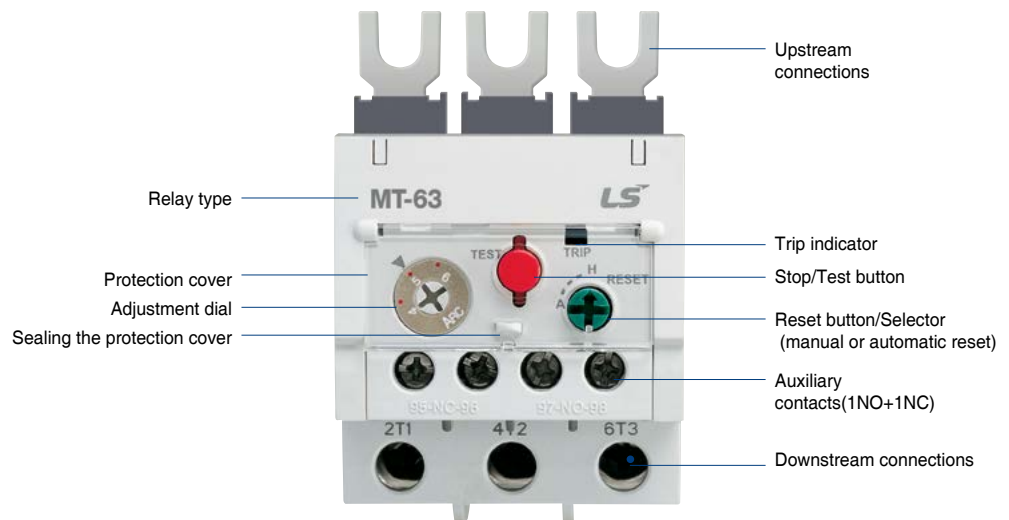
General descriptions

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



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 (C600)	120V		1.5A
	240V		0.75A
	380V		0.47A
	480V		0.375A
	500V		0.35A
	600V		0.3A
DC13 duty (R300)	120V		0.22A
	240V		0.1A
Connecting conductor	Size		18AWG /1mm ²
	Connection to screw clamp terminals	Type	65/75°C Cu-wire

MT-150



MT-225



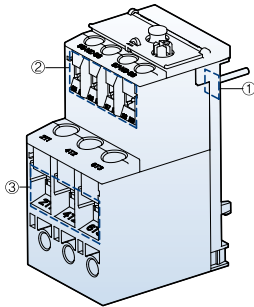
MT-400



MT-800



Overload relay specifications



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

MT type Thermal Overload Relays

Frame size		
Trip class		
Type	Non-differential(3P-2 heater)	
	Non-differential(3P-3 heater)	
	Differential type	
Terminals	Main-upstream	
	Main-downstream	
	Auxiliary	
Number of poles		
Rated operational voltage (Ue)		
Rated insulation voltage (Ui)		
Rated impulse voltage (Uimp)		
Degree of protection (IEC 60 529)		
Temperature compensation (°C)		
Functions	Trip indicating	
	Stop	
	Test	
	Manual/Automatic Reset	
Setting range(A)		
Nominal current rating	Wire size	
	mm ²	AWG
0.14	1	18
0.21		
0.33		
0.52		
0.82		
1.3		
2.1		
3.3		
5		
6.5		
7.5	1~1.5	18~16
8.5		
11	1.5~2.5	16~14
15	2.5	14~12
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		
Separate mounting unit		

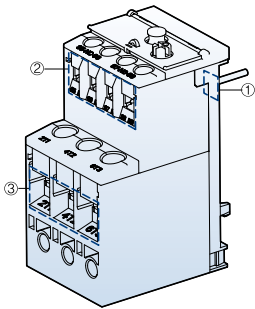


18AF	
10A	20
MT-12/2H□S	-
MT-12/3H□S	-
MT-12/3K□S	MT-12/3D□S
Screw clamp	
Screw clamp	
Screw clamp	
3	
690V	
Up to 690V	
6kV	
IP 20	
-5~+40°C	
■	
-	
■	
■	
0.1~18A	1~18A
0.1~0.16	
0.16~0.25	
0.25~0.4	
0.4~0.63	
0.63~1	
1~1.6	1~1.6
1.6~2.5	1.6~2.5
2.5~4	2.5~4
4~6	4~6
5~8	5~8
6~9	6~9
7~10	7~10
9~13	9~13
12~18	12~18
MC-6a, 9a, 12a, 18a	
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.

Overload relay specifications

MT type Thermal Overload Relays



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



Frame size		
Trip class		
Type	Non-differential(3P-2 heater)	
	Non-differential(3P-3 heater)	
	Differential type	
Terminals	Main-upstream	
	Main-downstream	
	Auxiliary	
Number of poles		
Rated operational voltage (Ue)		
Rated insulation voltage (Ui)		
Rated impulse voltage (Uimp)		
Degree of protection (IEC 60 529)		
Temperature compensation (°C)		
Functions	Trip indicating	
	Stop	
	Test	
	Manual/Automatic Reset	
Setting range(A)		
Nominal current rating	Wire size	
	mm ²	AWG
42	10	8
55	16	6
65	25	4
74	25	4
80	35	3
93	35	2
107	50	1
113	50	1
130	50	0
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		
Separate mounting unit		

150AF	
10A	20
MT-150/2H□S/L	-
MT-150/3H□S/L	-
MT-150/3K□S/L	MT-150/3D□S/L
Screw/Lug clamp	
Screw/Lug clamp	
Screw clamp	
3	
690V	
690V	
6kV	
IP 20	
-5~+40°C	
■	
■	
■	
■	
34~150A	34~150A
34~50	
45~65	
54~75	
63~85	
-	
80~105	
-	
95~130	
110~150	
MC-130a, 150a	
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

10A	20
MT-225/2H□S	-
MT-225/3H□S	-
MT-225/3K□S	MT-225/3D□S
Screw clamp	
Screw clamp	
Screw clamp	
3	
690V	
690V	
6kV	
IP 20	
-5~+40°C	
■	
■	
■	
■	
65~240A	65~240A



400AF

10A	20
MT-400/2H□S	-
MT-400/3H□S	-
MT-400/3K□S	MT-400/3D□S
Screw clamp	
Screw clamp	
Screw clamp	
3	
690V	
690V	
6kV	
IP 20	
-5~+40°C	
■	
■	
■	
■	
85~400A	85~400A



800AF

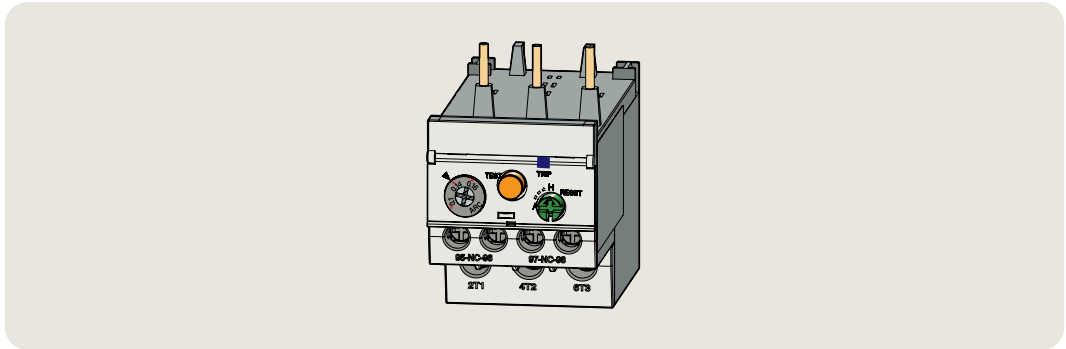
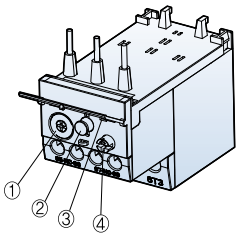
10A	20
MT-800/2H□S	-
MT-800/3H□S	-
MT-800/3K□S	MT-800/3D□S
Screw clamp	
Screw clamp	
Screw clamp	
3	
690V	
690V	
6kV	
IP 20	
-5~+40°C	
■	
■	
■	
■	
200~800A	200~800A

65~100
-
85~125
-
-
100~160
120~185
160~240
MC-185a, 225a
-

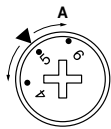
85~125
-
-
100~160
120~185
160~240
200~330
260~400
MC-265a, 330a, 400a
-

200~300
260~400
400~600
520~800
MC-500a, 630a, 800a
-

Overload relay operation

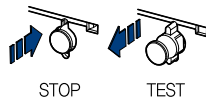


1. Adjustment dial



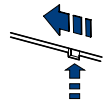
Before adjusting the dial open the protection cover.
Current setting can be done easily by using (+) or (-) driver and have to be set by dotting or graduations standard.
Do not rotate the dial out of the setting range.

2. Stop/Test button



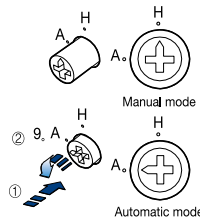
STOP function is executed by pushing the button, which causes the next sequence.
In case of operation test pull this button.

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				

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		

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	MC-50a MC-65a	UZ-63S/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		
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	MC-75a MC-85a MC-100a	UZ-95S/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		
28-40	MT-95/2H34S/L	MT-95/3H34S/L	MT-95/3K34S/L		
34-50	MT-95/2H42S/L	MT-95/3H42S/L	MT-95/3K42S/L		
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	MC-130a MC-150a	UZ-150S/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		
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-12/3D□

MT-12

Setting range (A)	Ordering type	Contactor	Separate mounting unit
	Differential		
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	Contactor	Separate mounting unit	
	Differential			
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	Contactor	Separate mounting unit
	Differential		
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	Contactor	Separate mounting unit
	Differential		
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	Contactor	Separate mounting unit
	Differential		
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	Contactor	Remarks
	Differential		
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	Contactor	Remarks
	Differential		
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	Contactor	Remarks
	Differential		
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		