MITSUBISHI ELECTRIC

Changes for the Better

Contactors and Motor Starters
Comparison of MS-T and MS-N

SH(NA)020004-C

Contents

<< List of Models>>

(Models in shaded cells are the new MS-T Series)

				Standard								Main circuit 3-pole		
220 to 240VAC, Class 3 Rated operating current (A)				11	13	18	22	30	35 to 400	600	800	32	35	50
AC operated	Magnetic contactor	Non-reversing	S-	T10	T12	T20	T21	T25	N35 to N400	N600	N600	T32	N38	N48
		Reversing	S-2×	T10	T12	T20	T21	T25	N35 to N400	N600	N600	T32	N38	N48
	Motor Starter	Non-reversing	MSO-	T10	T12	T20	T21	T25	N35 to N400	–	–	–	–	–
		Reversing	MSO-2×	T10	T12	T20	T21	T25	N35 to N400	–	–	–	–	–

Number of poles (total for a and b contacts)			5	9	10
Contactor Relay	AC operated	SR-	T5	T9	K100

Maximum settling current		18	26	34	65 to 800
Thermal Overload Relay	With 2- elements TH	T18	T25	N20TA	K60 to K600
	With 3-element TH-	T18KP	T25KP	N20TAKP	K60KP to K600KP

1. Comparison of MS-T and MS-N Specifications

1.1 Motor Starter (open type)

Model name		Item	Support of new MSO-T Series in structure and rating aspects
Current (S-N Series) [Number of auxiliary contacts]	New (S-T Series) [Number of auxiliary contacts]		
MSO-N10 [1]	MSO-T10 [1]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Same (115×45×79⇒115×45×79)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
MSO-N11 [1]	MSO-T12 [2]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Same (115×45×79⇒115×45×79)
		Mounting dimensions	Compatible
		Contact arrangement	Auxiliary contacts expanded (1 pole ⇒ 2 poles)
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
MSO-N12 [2]		Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (115×55×79⇒115×45×79)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
MSO-N18 [0]	MSO-T20 [2]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (122×54×81⇒115×45×79)
		Mounting dimensions	Compatible
		Contact arrangement	Auxiliary contacts expanded (0 pole ⇒ 2 poles)
		Terminal cover	Changed to standard system
		Terminal screw size	Different (Main: M4, coil: M3.5 ⇒ Main: M3.5, coil: M3.5)
MSO-N20 [2]		Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (127×63×81⇒115×45×79)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Different (Main: M4, coil: M3.5 ⇒ Main: M3.5, coil: M3.5)
	MSO-T21 [4]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (127×63×81⇒128×63×82)
		Mounting dimensions	Compatible
		Contact arrangement	Auxiliary contacts expanded (2 poles ⇒ 4 poles)
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil / auxiliary: M3.5)
MSO-N21 [4]	MSO-T21 [4]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (127×63×81⇒128×63×82)
		Mounting dimensions	Compatible
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil / auxiliary: M3.5)
	MSO-T25 [4]	Rating (main circuit)	Equivalent or higher (S-N25 or equivalent (AC-3))
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (127×63×81⇒128×63×82)
		Mounting dimensions	Compatible
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil / auxiliary: M3.5)
MSO-N25 [4]	MSO-T25 [4]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (136.5 (up to 22A designation),157.5 (29A designation) ×75×91⇒128×63×82)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Up to 15A designation – Main (power side/load side): M5/M4, coil / auxiliary: M3.5 ⇒ Main: M4, coil / auxiliary: M3.5 22A designation – Main (power side/load side): M5/M5, coil / auxiliary: M3.5 ⇒ Main: M4, coil / auxiliary: M3.5

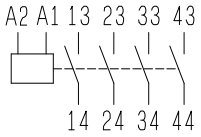
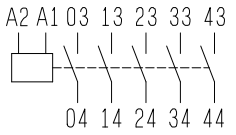
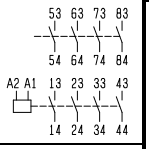
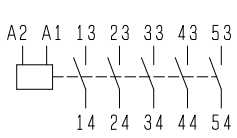
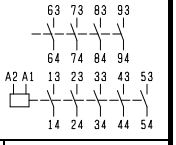
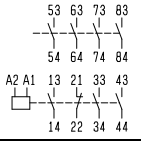
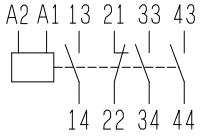
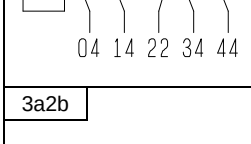
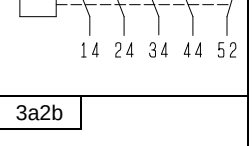
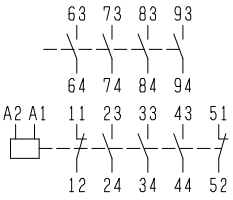
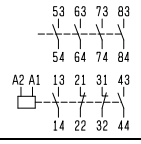
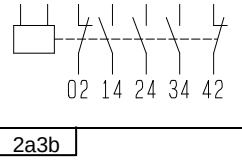
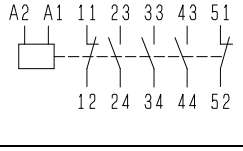
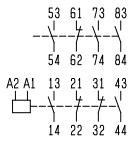
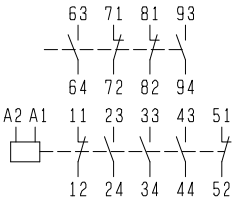
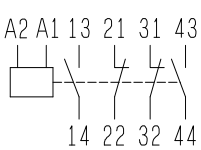
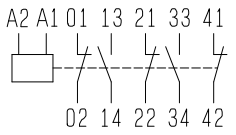
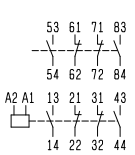
1.2 Magnetic contactor

Model name		Item	Support of new MSO-T Series in structure and rating aspects
Current (S-N Series) [Number of auxiliary contacts]	**New (S-T Series) [Number of auxiliary contacts]**		
S-N10 [1]	**S-T10 [1]**	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (78×43×78⇒75×36×78)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
S-N11 [1]	**S-T12 [2]**	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (78×43×78⇒75×43×78)
		Mounting dimensions	Compatible (35×50)
		Contact arrangement	Auxiliary contacts expanded (1 pole ⇒ 2 poles)
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
S-N12 [2]		Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (78×53×78⇒75×43×78)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
S-N18 [0]	**S-T32 [0]**	Rating (main circuit)	Equivalent or higher
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (79×43×81⇒81×43×81)
		Mounting dimensions	Compatible
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil: M3.5)
	S-T20 [2] (Motor load)	Rating (main circuit)	Equivalent (motor load rating AC-3)
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (79×43×81⇒75×43×78)
		Mounting dimensions	Compatible
		Contact arrangement	Auxiliary contacts expanded (0 pole ⇒ 2 poles)
		Terminal cover	Changed to standard system
		Terminal screw size	Different (Main: M4, coil: M3.5 ⇒ Main: M3.5, coil / auxiliary: M3.5)
S-N20 [2]		Rating (main circuit)	Equivalent (motor load rating AC-3) *Resistive load rating is low
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (81×63×81⇒75×43×78)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Different (Main: M4, coil: M3.5 ⇒ Main: M3.5, coil: M3.5)
	S-T21 [4] (resistive load)	Rating (main circuit)	Equivalent (resistive load rating AC-1)
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Same (81×63×81⇒81×63×81)
		Mounting dimensions	Compatible
		Contact arrangement	Auxiliary contacts expanded (2 poles ⇒ 4 poles)
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil / auxiliary: M3.5)
S-N21 [4]	**S-T21 [4]**	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Same (81×63×81⇒81×63×81)
		Mounting dimensions	Compatible
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil / auxiliary: M3.5)
	S-T25 [4]	Rating (main circuit)	Equivalent or higher (S-N25 or equivalent (AC-3))
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Same (81×63×81⇒81×63×81)
		Mounting dimensions	Compatible
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil / auxiliary: M3.5)
S-N25 [4]		Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (89×75×91⇒81×63×81)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Different (Main: M5, coil: M3.5 ⇒ Main: M4, coil: M3.5)
S-N28 [0]	**S-T32 [0]**	Rating (main circuit)	Equivalent or higher
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (79×43×81⇒81×43×81)
		Mounting dimensions	Compatible
		Contact arrangement	Same
		Terminal cover	Changed to standard system
		Terminal screw size	Same (Main: M4, coil: M3.5)

1.3 Contactor Relay

Model name		Item	Support of new MSO-T Series in structure and rating aspects
Current (S-N Series) [Number of auxiliary contacts]	New (S-T Series) [Number of auxiliary contacts]		
SR-N4 [4]	SR-T5 [5]	Rating	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (78×43×78⇒75×43×78)
		Mounting dimensions	Compatible
		Contact arrangement **(Note 1)**	– ⇒ 5a 4a ⇒ 4a1b 3a1b ⇒ 3a2b 2a2b ⇒ 3a2b
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
SR-N5 [5]		Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Smaller (78×53×78⇒75×43×78)
		Mounting dimensions	Not compatible (Compatibility with adaptor scheduled)
		Contact arrangement **(Note 1)**	5a ⇒ 5a 4a1b ⇒ 4a1b 3a2b ⇒ 3a2b 2a3b ⇒ –
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)
SR-N8 [8]	SR-T9 [9]	Rating (main circuit)	Equivalent
		Rating (Coil)	Rating range expanded
		Outline dimensions (H×W×D) (mm)	Equivalent (78×43×106⇒75×43×108)
		Mounting dimensions	Compatible
		Contact arrangement **(Note 1)**	8a ⇒ 9a 7a1b ⇒ 7a2b 6a2b ⇒ 7a2b 5a3b ⇒ 5a4b 4a4b ⇒ 5a4b
		Terminal cover	Changed to standard system
		Terminal screw size	Same (M3.5)

Note 1: The contact arrangement drawings are shown below.

Current (S-N Series)			New (S-T Series)	
SR-N4	SR-N5	SR-N6	SR-T5	SR-T9
4a 	5a 	8a 	5a 	9a 
		7a1b 		7a2b
3a1b 	4a1b 		4a1b 	
		6a2b 		
	3a2b 		3a2b 	
		5a3b 		5a4b 
2a2b 				
	2a3b 			
		4a4b 		

2. Comparison of MS-T and MS-N Models

2.1 Motor Starter (open type)

Model name		Category AC-3 rated capacity (kW)		Auxiliary contact (standard)		MS-T Series		MS-N Series	
		220 to 240VAC	380 to 440VAC	MS-T	MS-N	Standard (with terminal cover)	With wiring streamlining terminal	Standard (no terminal cover)	With CAN terminal
AC operated	Non-reversing	2.5	4	1a		MSO-T10	MSO-T10BC	MSO-N10	MSO-N10CX
		3.5	5.5	1a1b	1a	MSO-T12	MSO-T12BC	MSO-N11	MSO-N11CX
								MSO-N12	MSO-N12CX
		4.5	7.5	1a1b	–	MSO-T20	MSO-T20BC	MSO-N18	MSO-N18CX
				1a1b				MSO-N20	MSO-N20CX
		5.5	11	2a2b		MSO-T21	MSO-T21BC	MSO-N21	MSO-N21CX
		7.5	15	2a2b		MSO-T25	MSO-T25BC	MSO-N25	MSO-N25CX
	Reversing	2.5	4	1a×2+2b		MSO-2×T10	MSO-2×T10BC	MSO-2×N10	MSO-2×N10CX
		3.5	5.5	1a1b×2+2b	1a×2+2b	MSO-2×T12	MSO-2×T12BC	MSO-2×N11	MSO-2×N11CX
		4.5	7.5	1a1b×2	2a2b×2	MSO-2×T20	MSO-2×T20BC	MSO-2×N18	MSO-2×N18CX
				1a1b×2				MSO-2×N20	MSO-2×N20CX
		5.5	11	2a2b×2		MSO-2×T21	MSO-2×T21BC	MSO-2×N21	MSO-2×N21CX
		7.5	15	2a2b×2		MSO-2×T25	MSO-2×T25BC	MSO-2×N25	MSO-2×N25CX

2.2 Magnetic contactor (open type)

(1) Comparison of motor load ratings (Category AC-3)

Model name		Category AC-3 rated capacity (kW)		Auxiliary contact (standard)		MS-T Series		MS-N Series	
		220 to 240VAC	380 to 440VAC	MS-T	MS-N	Standard (with terminal cover)	With wiring streamlining terminal	Standard (no terminal cover)	With CAN terminal
AC operated	Non-reversing	11	9	1a		S-T10	S-T10BC	S-N10	S-N10CX
		13	12	1a1b	1a	S-T12	S-T12BC	S-N11	S-N11CX
								S-N12	S-N12CX
		18	18	1a1b		S-T20	S-T20BC	S-N20, S-N21	S-N20CX, S-N21CX
		22	22	2a2b		S-T21	S-T21BC		
		30	30	2a2b		S-T25	S-T25BC	S-N25	S-N25CX
	Reversing	11	9	1a×2+2b		S-2×T10	S-2×T10BC	S-2×N10	S-2×N10CX
		13	12	1a1b×2+2b	1a×2+2b	S-2×T12	S-2×T12BC	S-2×N11	S-2×N11CX
		18	18	1a1b×2		S-2×T20	S-2×T120BC	S-2×N20	S-2×N20CX
		22	22	2a2b×2		S-2×T21	S-2×T21BC	S-2×N21	S-2×N21CX
		30	30	2a2b×2		S-2×T25	S-2×T25BC	S-2×N25	S-2×N25CX
Main circuit 3-poles	Non-reversing	18	16	–		S-T32	S-T32BC	S-N18	S-N18CX
		26	17					S-N28	S-N28CX
		32	32					–	–
	Reversing	18	16	–		S-2×T32	S-2×T32BC	S-2×N18	S-2×N18CX
		26	17					S-2×N28	S-2×N28CX
		32	32					–	–

(2) Comparison of resistive load ratings (Category AC-1)

Model name		Category AC-1 rated capacity (A))		Auxiliary contact (standard)		MS-T Series		MS-N Series	
		100 to 240VAC	380 to 440VAC	MS-T	MS-N	Standard (with terminal cover)	With wiring streamlining terminal	Standard (no terminal cover)	With CAN terminal
AC operated	Non-reversing	20	11	1a		S-T10	S-T10BC	S-N10	S-N10CX
		20	13	1a1b	1a	S-T12	S-T12BC	S-N11	S-N11CX
				1a1b		S-T12, S-T20	S-T12BC, S-T20BC	S-N12	S-N12CX
		32	32	1a1b		–	–	S-N20	S-N20CX
				2a2b		S-T21, S-T25	S-T21BC, S-T25BC	S-N21	S-N21CX
	Reversing	20	11	1a×2+2b		S-2×T10	S-2×T10BC	S-2×N10	S-2×N10CX
		20	13	1a1b×2+2b	1a×2	S-2×T12	S-2×T12BC	S-2×N11	S-2×N11CX
				1a1b×2		S-2×T12 S-2×T20	S-2×T12BC S-2×T120BC	–	–
		32	32	1a1b×2		–	–	S-2×N20	S-2×N20CX
				2a2b×2		S-2×T21 S-2×T25	S-2×T21BC S-2×T25BC	S-2×N21	S-2×N21CX
Main circuit 3-pole	Non-reversing	25	20	–		S-T32	S-T32BC	S-N18	S-N18CX
		30	30					S-N28	S-N28CX
		32	32					–	–
	Reversing	25	20	–		S-2×T32	S-2×T32BC	S-2×N18	S-2×N18CX
		30	30					S-2×N28	S-2×N28CX
		32	32					–	–

2.3 Thermal Overload Relay

Type	Heater designation	TH-T Series		TH-N Series	
		Standard (with terminal cover)	With wiring streamlining terminal	Standard (no terminal cover)	With CAN terminal
With 2-elements	0.12 to 11A	TH-T18	TH-T18BC	TH-N12	TH-N12
	1.3 to 15A			TH-N18	TH-N18
	0.24 to 15A	TH-T25	TH-25BC	TH-N20	TH-N20
	22A			TH-N20TA	TH-N20TACX
	29A	– (TH-N Series production is continued)		TH-N20TA	TH-N20TACX
With 3-elements	0.12 to 11A	TH-T18	TH-T18BC	TH-N12	TH-N12
	1.3 to 15A			TH-N18	TH-N18
	0.24 to 15A	TH-T25	TH-25BC	TH-N20	TH-N20
	22A			TH-N20TA	TH-N20TACX
	29A	– (TH-N Series production is continued)		TH-N20TA	TH-N20TACX

2.4 Contactor Relay

Model name	Contact arrangement		SR-T Series		SR-N Series	
	SR-T Series	SR-N Series	Standard (with terminal cover)	With wiring streamlining terminal	Standard (no terminal cover)	With CAN terminal
AC oper-ated	5a, 4a1b, 3a2b	4a, 3a1b, 2a2b	SR-T5	SR-T5BC	SR-N4	SR-N4CX
		5a, 4a1b, 3a2b, 2a3b			SR-N5	SR-N5CX
	8a, 7a2b, 5a4b	8a, 7a1b, 6a2b, 5a3b, 4a4b	SR-T9	SR-T9BC	SR-N8	SR-N8CX

3. Comparison of MS-T and MS-N Coil Ratings

3.1 Types of operation coils and ratings (AC operated)

(1) Comparison of S-N10 to N28 types, SR-N4 to N8 types and S-T10 to N32 types, SR-T5/T9 types

Current (for S-N10 to N28 types, SR-N4 to 8 types)			New (for S-T10 to N32 types, SR-T5/T9 types)		
Designation	Rated voltage [V]		Designation	Rated voltage [V]	
	50Hz	60Hz		50Hz	60Hz
AC24V	24	24	AC24V	24	24
AC48V	48 to 50	48 to 50	AC48V	48 to 50	48 to 50
AC100V	100	100 to 110	AC100V	100 to 127	100 to 127
AC120V	110 to 120	115 to 120			
AC127V	125 to 127	127			
AC200V	200	200 to 220	AC200V	200 to 240	200 to 240
AC220V	208 to 220	220			
AC230V	220 to 240	230 to 240			
AC260V	240 to 260	260 to 280	AC300V	260 to 300	260 to 300
AC380V	346 to 380	380	AC400V	380 to 440	380 to 440
AC400V	380 to 415	400 to 440			
AC440V	415 to 440	460 to 480	AC500V	460 to 550	460 to 550
AC500V	500	500 to 550			

Note 1: The new type has a wider rated voltage range.

(2) Comparison of S-N10SA to N28SA types, SR-N4SA to N8SA types and S-T10SA to T32SA types, SR-T5SA/T9SA types

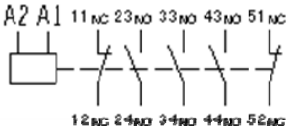
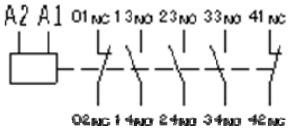
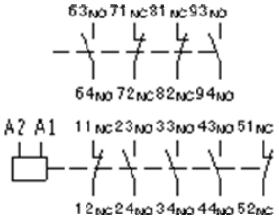
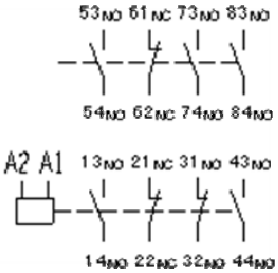
Current (for S-N10 to N28SA types, SR-N4 to N8SA types)			Varister voltage	New (for S-T10 to N32SA types, SR-T5/T9SA types)			Varister voltage
Designation	Rated voltage [V]			Designation	Rated voltage [V]		
	50Hz	60Hz			50Hz	60Hz	
AC24V	24	24	120V	AC24V	24	24	120V
AC48V	48 to 50	48-50		AC48V	48 to 50	48-50	
AC100V	100	100 to 110	470V	AC100V	100 to 127	100 to 127	470V
AC20V	110 to 120	115 to 120					
AC127V	125 to 127	127					
AC200V	200	200 to 220		AC200V	200 to 240	200 to 240	
AC220V	208 to 220	220					
AC230V	220 to 240	230 to 240					
–	–	–	–	AC300V	260 to 300	260 to 300	910V
				AC400V	380 to 440	380 to 440	

Newly added

Note 1: The new type has a wider rated voltage range.
Note 2: The coil designations of 300V / 400V / 500V have been newly added to the new model.
Note 3: S-T□SA and SR-T□SA models have the coil surge absorber ''UT-SA21''.

4. Changes to Product Indication

4.1 Indication of terminal number

Item		MS-T typical model	New MS-T Series	Current MS-N Series	Remarks
Indicated information	Main terminal numbers	S-T10 to T32 TH-T18, T25	Power side: 1/L1 3/L2 5/L3 Load side: 2/T1 4/T2 6/T3	Power side: 1/L1 3/L2 5/L3 Load side: 2/T1 4/T2 6/T3	
	Auxiliary terminal number (magnetic contactor)	S-T10, T12, T20	a contact: 13NO-14NO b contact: 21NC-22NC	a contact: 13NO-14NO b contact: 21NC-22NC	NO (Normally Open): a contact NC (Normally Closed): b contact
		S-T21, T25	a contatct: 13NO-14NO 43NO-44NO b contact: 21NC-22NC 31NC-32NC	a contact: 13NO-14NO 43NO-44NO b contact: 21NC-22NC 31NC-32NC	
	Auxiliary terminal number (Contactor relay)	SR-T5	• 1st place of number: a contact: 3-4 b contact: 1-2 • 10th place of number: Changes **between 1 and 5** Example: SR-T5 3a2b 	• 1st place of number: a contact: 3-4 b contact: 1-2 • 10th place of number: Changes **between 0 and 4** Example: SR-N5 3a2b 	Complies with international standards IEC
		SR-T9	• 1st place of number: a contact: 3-4 b contact: 1-2 • 10th place of number: Changes between 1 and 9 Example: SR-T9 5a4b 	• 1st place of number: a contact: 3-4 b contact: 1-2 • 10th place of number: Changes between 1 and 9 Example: SR-N8 5a3b 	
	Coil terminal number	All models	A1, A2 (Embossed charters)	A1, A2 (Printed together with coil rating indication)	
Indication position	Terminal number	S-T10 to T20 SR-T5/T9 UT-AX4	• Laser-printed onto case	• Printed in blue onto arc cover of main unit (last line of SR-N8) • Terminal number printed in blue on paper label attached on upper line of SR-N8 (auxiliary contact unit)	
		S-T21/T25/ T32	• Laser-printed onto front cover	• Printed in blue on arc cover	

4.2 Indication of rating

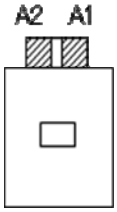
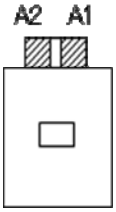
Item		MS-T typical model	MS-T Series	MS-N Series	Remarks
Indication method	Main circuit rating	S-T10 to T32 SR-T5, T9	All information laser-printed onto side	• 1=Ith rating (A) printed on lower left of front fece • Other ratings are printed on side label	
	Coil rating	S-T10 to T32 SR-T5, T9	All information is laser printed (no color-coding)	• Designation 100V/200V are printed with all rating ranges color-coded (Between coil terminals on power side) 100V 50Hz 100-110V 60Hz 200V 50Hz • For all other ratings, the entire rating range is printed in white	

4.3 Indication of model name

Item		MS-T typical model	MS-T Series	MS-N Series	Remarks
Indication method	Model name	S-T10 to T20 SR-T5	Laser-printed onto front left of case	Printed in blue onto center left of arc cover	
		S-T21, T25, T32	Laser-printed onto front left of front cover	Printed in blue onto left center of arc cover	

5. Wiring Related Differences

5.1 Terminals and Layout

Item	MS-T typical model	MS-T Series		MS-N Series		Remarks
Coil terminal layout	S-T10 to T32	Both terminals are arranged on power side 		Both terminals are arranged on power side 		
Indication of contact mark for auxiliary terminal (indicated with stamp, etc., on contactor / terminal)	S-T10 to T25 SR-T5	a contact ▽	b contact △	a contact ⊥/⊤	b contact ≠	
	SR-T9	Lower line (main unit side) a contact ▽ b contact △	Upper line (auxiliary contact block side) a contact ▽ b contact △	Lower line (main unit side) a contact ⊥/⊤ b contact ≠	Upper line (auxiliary contact block side) a contact ▽ b contact △	

5.2 Wire and solderless terminal size

Model	Terminal dimension and size/type of screw				Applicable electric wire size [mm^2]	
Standard type Contactor Relays Magnetic Contactors Thermal Overload Relays	Main circuit			Operating circuit		
	Dimension of terminal portion A x B x C [mm](Note 1)	Screw size	Screw type	cross solt screw with pressure plate	Main circuit	Operating circuit
SR-N4/5/8	–	–	–	M3.5×7	–	1～2.5
SR-T5/9	–	–	–		–	0.75～2.5
S-N10	8×5.2×4.5	M3.5×7	cross slot screw with pressure plate	M3.5×7	1～2.5	1～2.5
S-T10	7.5×3.7×4.5	M3.5×7			0.75～2.5	0.75～2.5
S-N11	8×5.2×4.5	M3.5×7	cross slot screw with pressure plate	M3.5×7	1～2.5	1～2.5
S-N12	8×5.2×4.5	M3.5×7			1～2.5	1～2.5
S-T12	7.5×3.7×4.5	M3.5×7			0.75～2.5	0.75～2.5
S-N18	10.5×5.2×5.5	M4×10.5	cross slot screw with pressure plate	M3.5×7	1～6	1～2.5
S-N20					1～6	1～2.5
S-T20	7.5×3.7×4.5	M3.5×7			0.75～2.5	0.75～2.5
S-N21	10.5×5.2×5.5	M4×10.5	cross slot screw with pressure plate	M3.5×7	1～6	1～2.5
S-T21	10.5×5.2×5.5	M4×10.5			1.25～6	0.75～2.5
S-N25	13×5.5×6.5	M5×14	terminal screw	M3.5×7	2～16 Note1	1～2.5
S-T25	10.5×5.2×5.5	M4×10.5	cross slot screw with pressure plate		1.25～6	0.75～2.5
S-N28	10.5×5.2×5.5	M4×10.5	cross slot screw with pressure plate	M3.5×7	1～6	1～2.5
S-T32	10.5×5.2×5.5	M4×10.5			1.25～6	0.75～2.5
TH-N12(Load side)	8×4×4	M3.5×7	cross slot screw with pressure plate	M3.5×7	1～2.5	1～2.5
TH-N18(Load side)	10.2×5×5	M4×10.5			1～6	1～2.5
TH-T18(Load side)	7.5×4×4	M3.5×7			0.75～2.5	0.75～2.5
TH-N20 (Power side/Load side)	10.2×6.8×5/ 10.2×5.7×5	M4×10.5/ M4×10.5	cross slot screw with pressure plate	M3.5×7	1～6	1～2.5
TH-N20TA(Load side)	13×5.8×6	M5×14	terminal screw		2～16 Note1	1～2.5
TH-T25 (Power side/Load side)	10.2×6.8×5/ 10.2×5.7×5	M4×10.5/ M4×10.5	cross slot screw with pressure plate		1.25～6	0.75～2.5

Note1.Customers needs to use pressure plate when wiring electrical wire directly.

6. Application of Thermal Overload Relay and Optional Units

6.1 Combination of Thermal Overload Relays and Optional Units

Model	Thermal Overload Relay		Additional auxiliary contact block	Mechanical interlocks		External surge absorber unit			Product with coil surge absorber (SA)	Connection conductor kit	Combination with TH-N□ type thermal relay
	TH-T18	TH-T25	UT-AX4	UT-ML11	UN-ML21	UT-SA21	UT-SA23	UT-SA25		UN-TH21	
S-T10	○	–	○	○	–	○	○	○	○	–	–
S-T12	○	–	○	○	–	○	○	○	○	–	–
S-T20	○	–	○	○	–	○	○	○	○	–	–
S-T21	–	○	○	–	○	○	○	○	○	○	–
S-T25	–	○	○	–	○	○	○	○	○	○	–
S-T32	–	–	○	–	○	○	○	○	○	–	–
S-2×T10	○	–	○	■	–	○	○	○	○	–	–
S-2×T12	○	–	○	■	–	○	○	○	○	–	–
S-2×T20	○	–	○	■	–	○	○	○	○	–	–
S-2×T21	–	○	○	–	■	○	○	○	○	○	–
S-2×T25	–	○	○	–	■	○	○	○	○	○	–
S-2×T32	–	–	■	–	■	○	○	○	○	–	–

Note 1: ○: Applicable –: Not applicable ■: Standard combination product
Note 2: Shaded cells indicate MS-T Series Thermal Overload Relay and Optional Units.
Note 3: The optional units are dedicated for the MS-T Series, and is not compatible with the MS-N Series.

7.About coil and contacts replacement

Item	MS-N(S-N10~28)	MS-T(S-T10~S-T32)
Coil replacement	Possible	Impossible
Contacts replacement	Possible	Impossible

8. Comparison of New and Old Motor Starters, Magnetic Contactors, and Contactor Relays

8.1 Motor Starter (open type)

Model name		MSO-T10	MSO-T12	MSO-T20	MSO-T21	MSO-T25
Rated capacity (kW/A) AC-3	220 to 240VAC	2.5/11	3.5/13	4.5/18	5.5/22	7.5/26
	380 to 440VAC	4/9	5.5/12	7.5/18	11/22	15/26
Auxiliary contact arrangement		1a	1a1b		2a2b	2a2b
Outline dimensions (mm)	W (width)	45	45	45	63	63
	H (height)	115	115	115	128	128
	D (depth)	79	79	79	82	82
	E×F (mounting)	28×60	35×60 (35×50 possible)	35×60 (35×50 possible)	54×60	54×60
Mounting compatibility with MS-N Series		△	○	△	○	△

Model name		MSO-N10	MSO-N11	MSO-N12	MSO-N18	MSO-N20	MSO-N21	MSO-N25
Rated capacity (kW/A) AC-3	220 to 240VAC	2.5/11	3.5/13	3.5/13	4.5/18	5.5/22	5.5/22	7.5/30
	380 to 440VAC	4/9	5.5/12	5.5/12	7.5/16	11/22	11/22	15/30
Auxiliary contact arrangement		1a	1a	1a1b	–	1a1b	2a2b	2a2b
Outline dimensions (mm)	W (width)	45		55	54	63	63	75
	H (height)	115		115	122	127	127	157
	D (depth)	79		79	81	81	81	91
	E×F (mounting)	35×50		40×50	30×60	54×60	54×60	65×70

8.2 Magnetic contactor

Model name		S-T10	S-T12	S-T20	S-T21	S-T25	–	S-T32
Rating (kW/A) AC-3 (motor load)	220 to 240VAC	2.5/11	3.5/13	4.5/18	5.5/22	7.5/30	–	7.5/32
	380 to 440VAC	4/9	5.5/12	7.5/18	11/22	15/30	–	15/32
Rating (A) AC-1 (resistive load)	100 to 240VAC	20	20	20	32	32	–	32
	380 to 440VAC	11	13	13	32	32	–	32
Conventional free air thermal current (A)		20	20	20	32	32	–	32
Auxiliary contact arrangement		1a	1a1b		2a2b	2a2b	–	–
Outline dimensions (mm)	W (width)	36	43	43	63	63	–	43
	H (height)	75	75	75	81	81	–	81
	D (depth)	78	78	78	81	81	–	81
	E×F (mounting)	28×60	35×60 (35×50 possible)	35×60 (35×50 possible)	54×60	54×60	–	30×60
Mounting compatibility with MS-N Series		△	○	△	○	△	○	○

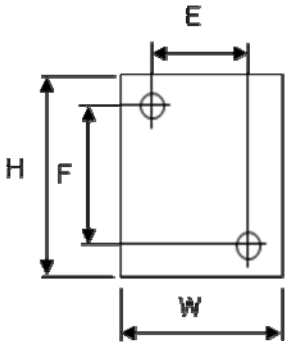
Model name		S-N10	S-N11	S-N12	S-N18	S-N20 (motor load)	S-N20 (resistive load)	S-N21	S-N25 (motor load)	S-N25 (resistive load)	S-N18	S-N28
Rated capacity (kW/A) AC-3	220 to 240VAC	2.5/11	3.5/13	3.5/13	4.5/18	5.5/22		5.5/22	7.5/30		4.5/18	7.5/26
	380 to 440VAC	4/9	5.5/12	5.5/12	7.5/16	11/22		11/22	15/30		7.5/16	7.5/17
Rating (A) AC-1 (resistive load)	100 to 220VAC	20	20	20	25	32		32	50		25	30
	400 to 440VAC	11	13	13	20	32		32	50		20	30
Conventional free air thermal current (A)		20	20	20	25	32		32	50		25	30
Auxiliary contact arrangement		1a	1a	1a1b	–	1a1b		2a2b	2a2b		–	–
Outline dimensions (mm)	W (width)	43		53	43	63		63	75		43	43
	H (height)	78		78	79	81		81	89		79	79
	D (depth)	78		78	81	81		81	91		81	81
	E×F (mounting)	35×50		40×50	30×60	54×60		54×60	65×70		30×60	30×60

8.3 Contactor Relay

Model name		SR-T5	SR-T9
Rated operating current (A) AC-15	240VAC	3	3
	440VAC	1.5	1.5
Conventional free air thermal current (A)		10	10
Number of contacts		5	4
Outline dimensions (mm)	W (width)	43	43
	H (height)	75	75
	D (depth)	78	108
	E×F (mounting)	35×60 (35×50 possible)	35×60 (35×50 possible)
Mounting compatibility with MS-N Series		○	△	○

Model		SR-N4	SR-N5	SR-N8
Rated operating current (A) AC-15	240VAC	3	3	3
	440VAC	1.5	1.5	1.5
Conventional free air thermal current (A)		10	10	10
Number of contacts		4	5	8
Outline dimensions (mm)	W (width)	43	53	43
	H (height)	78	78	78
	D (depth)	78	78	106
	E×F (mounting)	35×50	40×50	35×50

Note 1: Outline, mounting hole



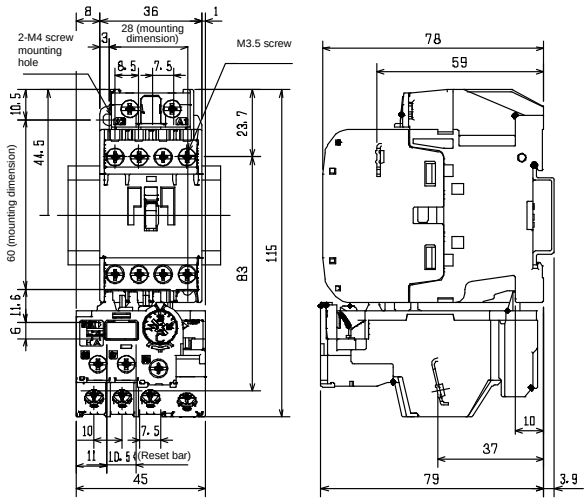
Note 2: Mounting compatibility
○ : Compatible
△ : Compatibility scheduled with adaptor

9. Outline Dimensions

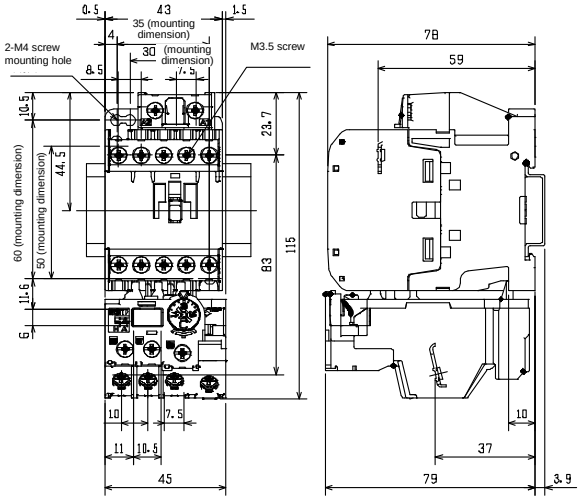
9.1 Motor Starter (non-reversing)

MS-T Series

MSO-T10

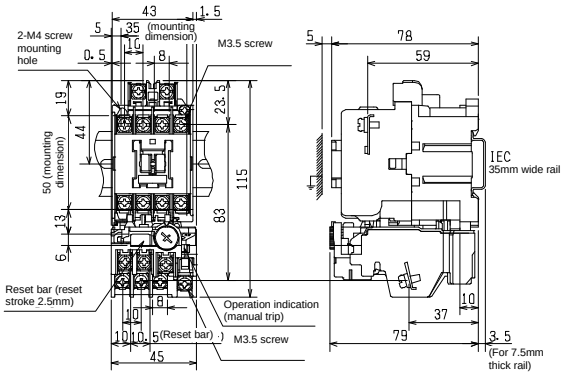


MSO-T12

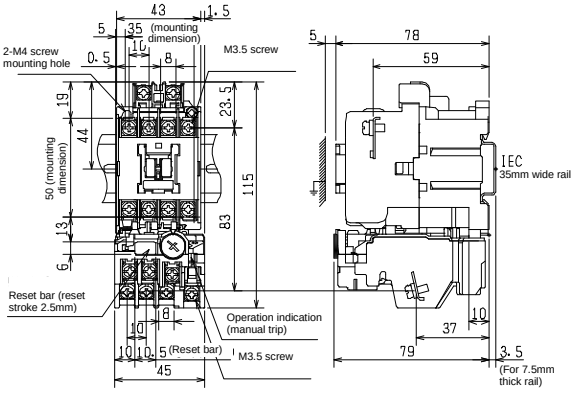


MS-N Series

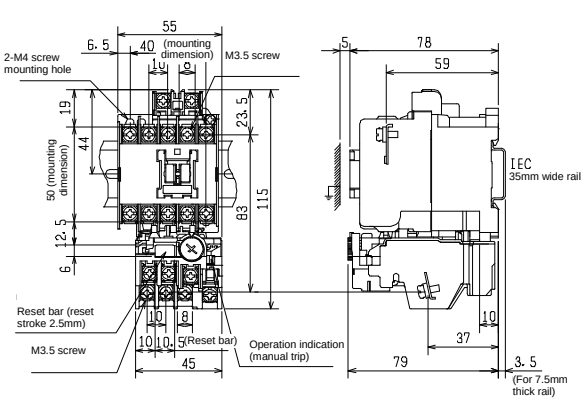
MSO-N10



MSO-N11

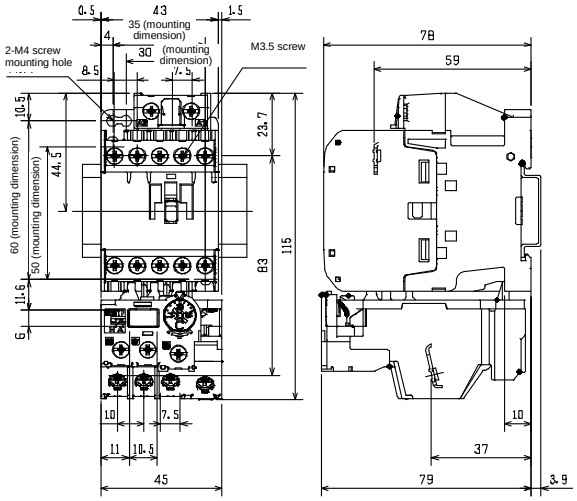


MSO-N12

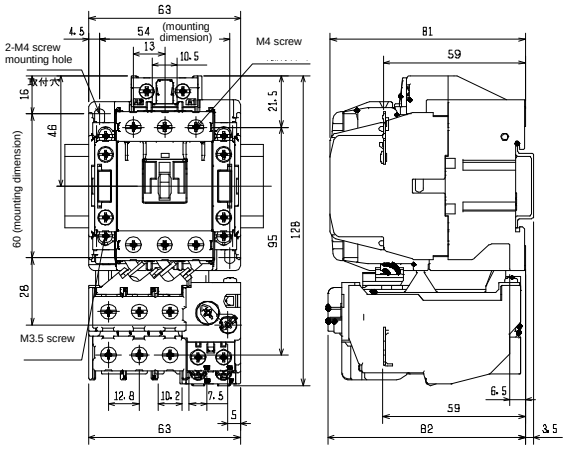


MS-T Series

MSO-T20

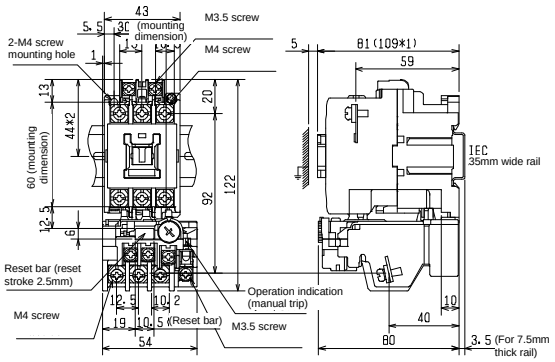


MSO-T21

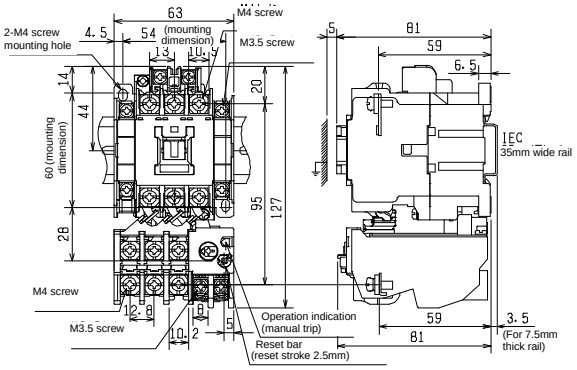


MS-N Series

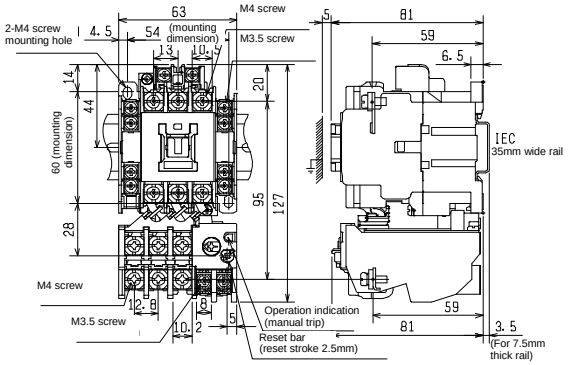
MSO-N18



MSO-N20

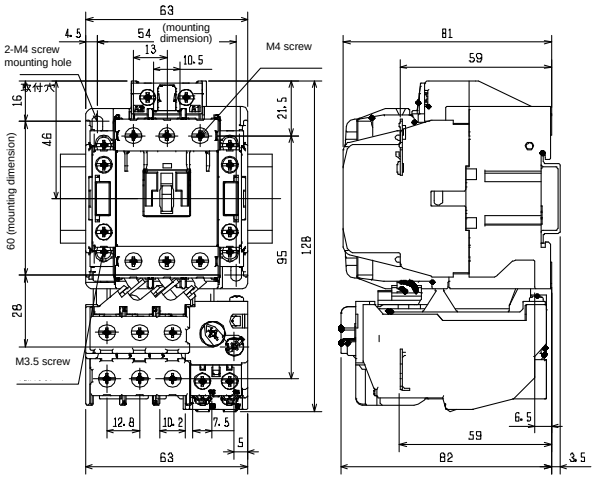


MSO-N21



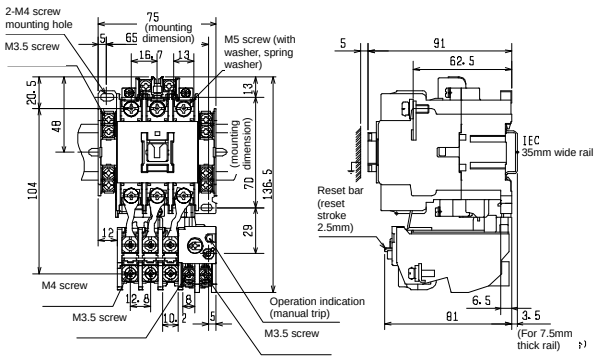
MS-T Series

MSO-T25

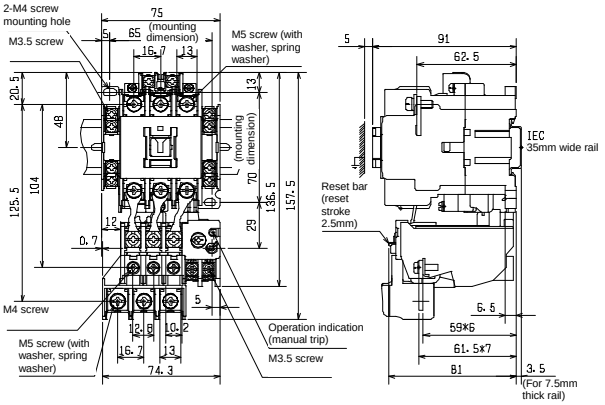


MS-N Series

MSO-N25 (up to 15A designation)



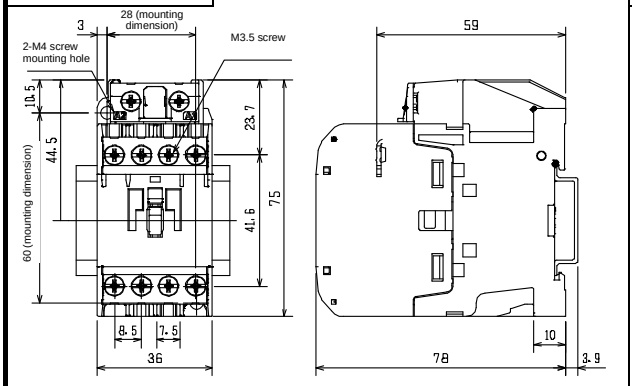
MSO-N25 (22A designation)



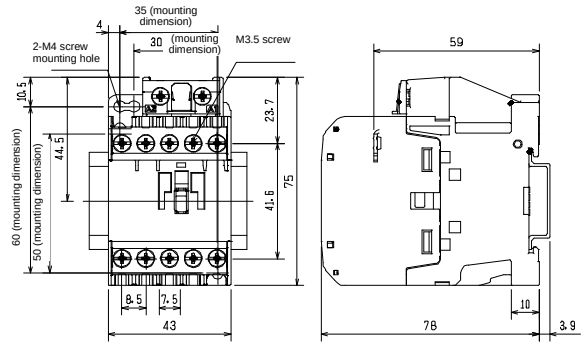
9.2 Magnetic contactor (non-reversing)

MS-T Series

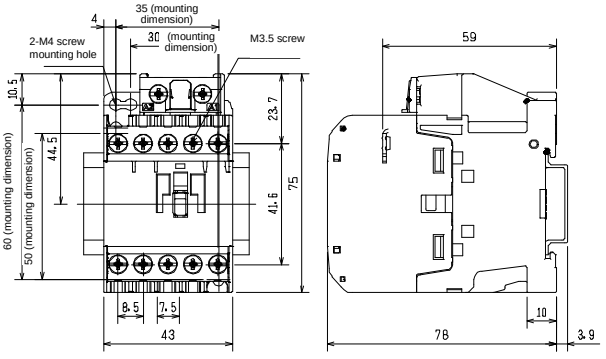
S-T10



S-T12

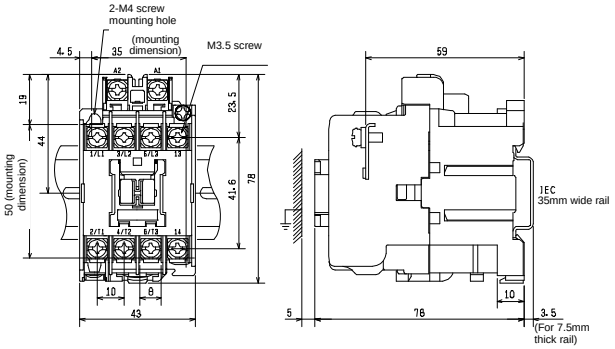


S-T20

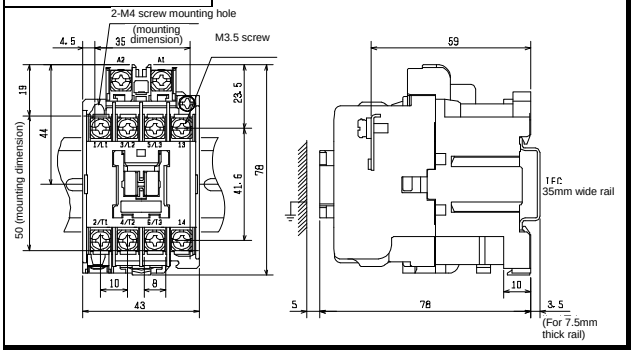


S-N Series

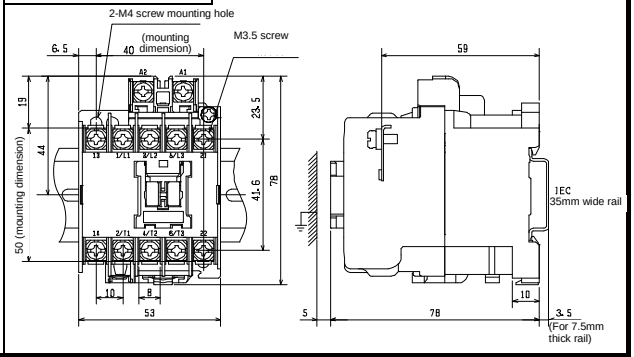
S-N10



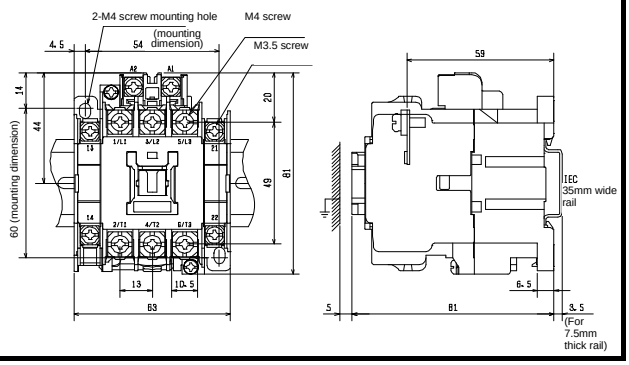
S-N11



S-N12

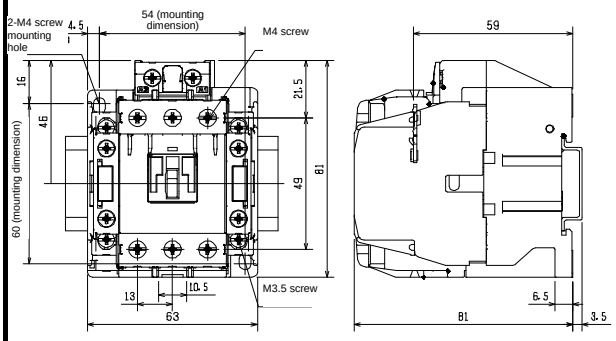


S-N20

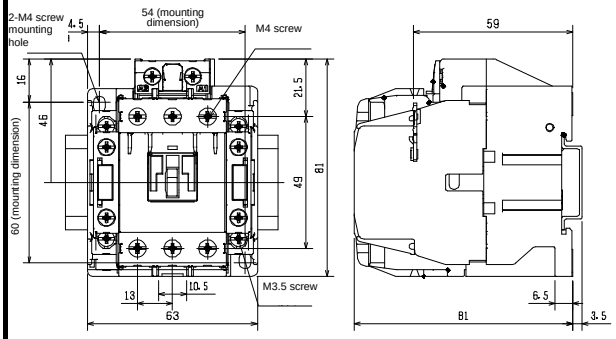


MS-T Series

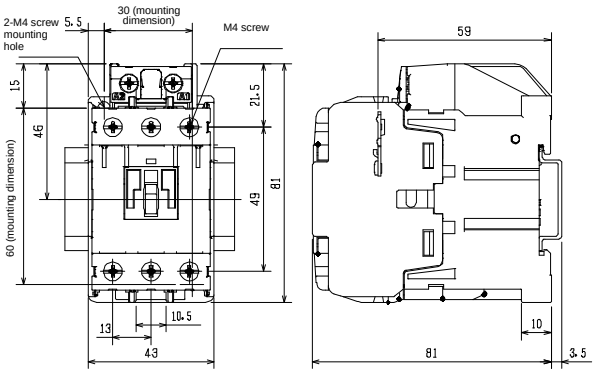
S-T21



S-T25

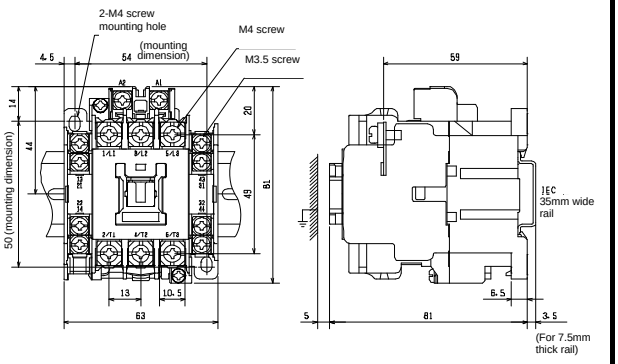


S-T32

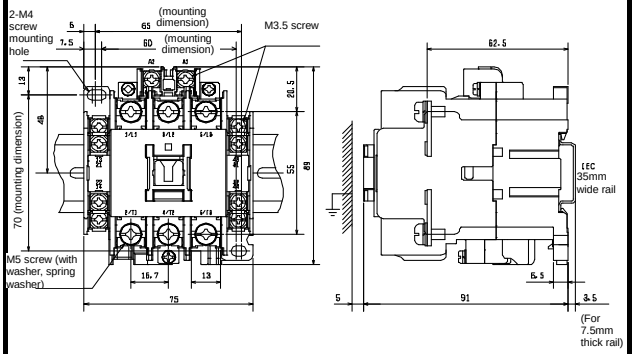


S-N Series

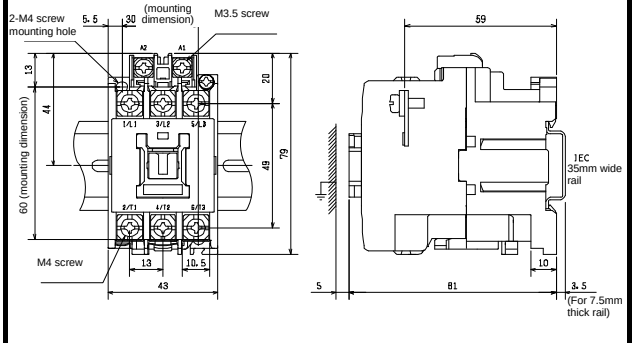
S-N21



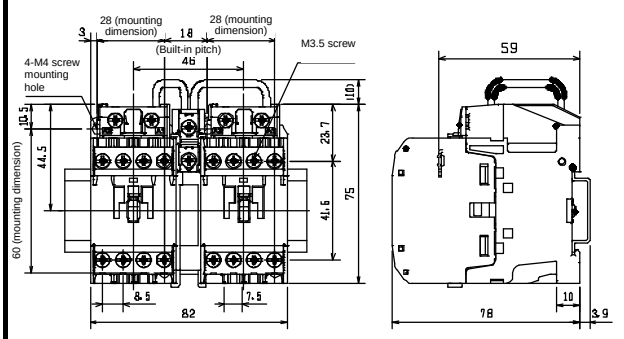
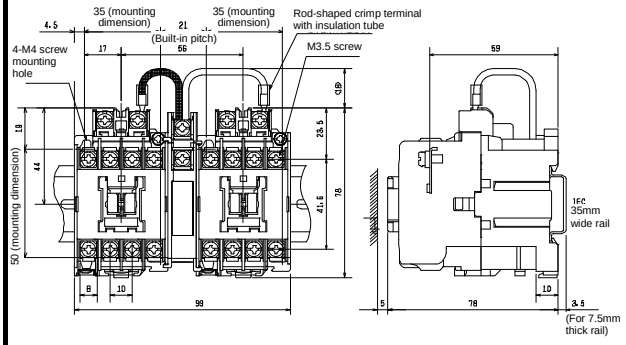
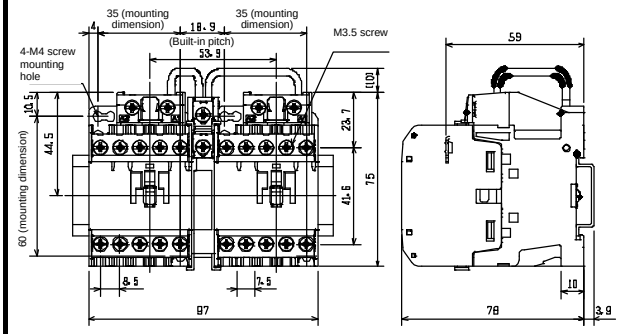
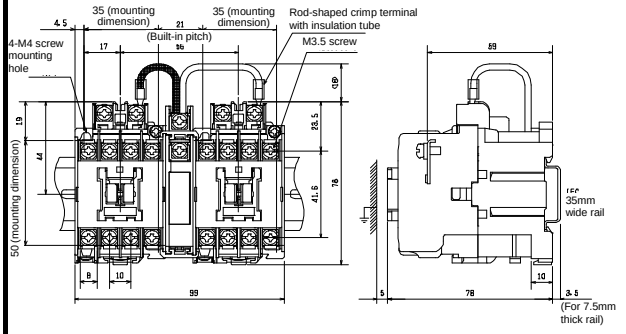
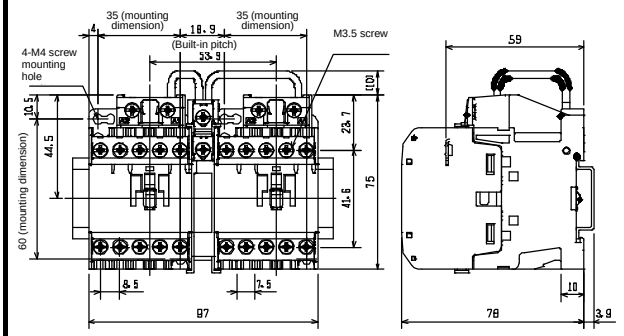
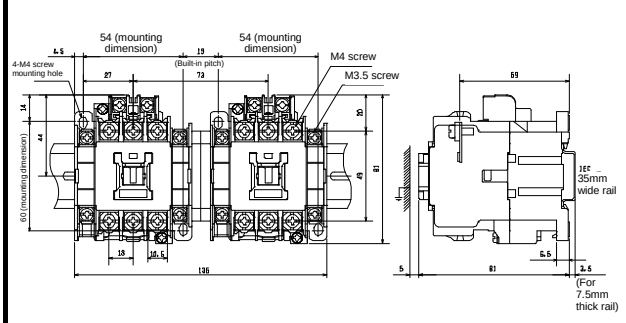
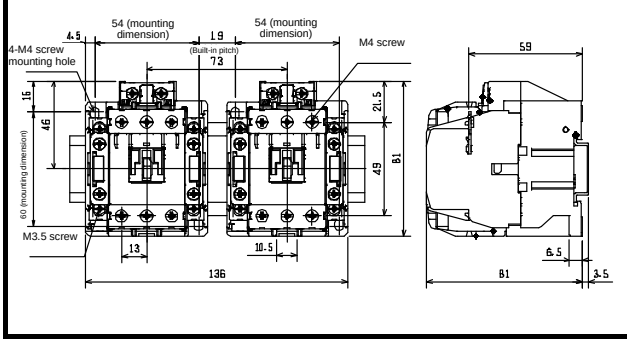
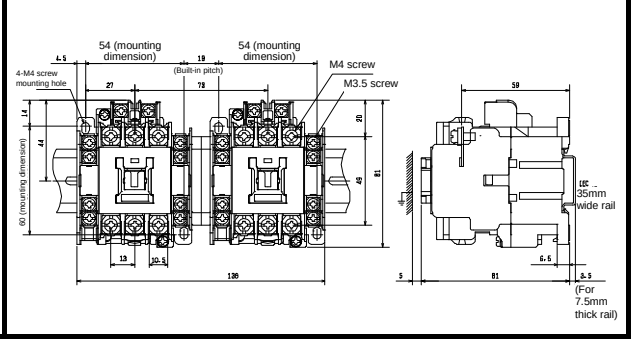
S-N25



S-N18/N28

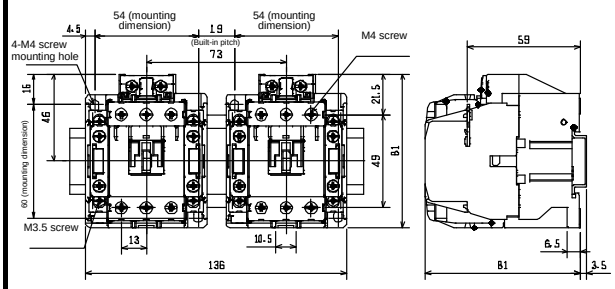


9.3 Magnetic contactor (reversing)

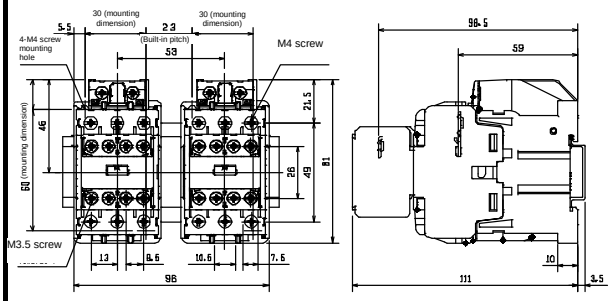
MS-T Series	S-N Series
S-2 × T10	S-2 × N10
	
S-2 × T12	S-2 × N11
	
S-2 × T20	S-2 × N20
	
S-2 × T21	S-2 × N21
	

MS-T Series

S-2 × T25

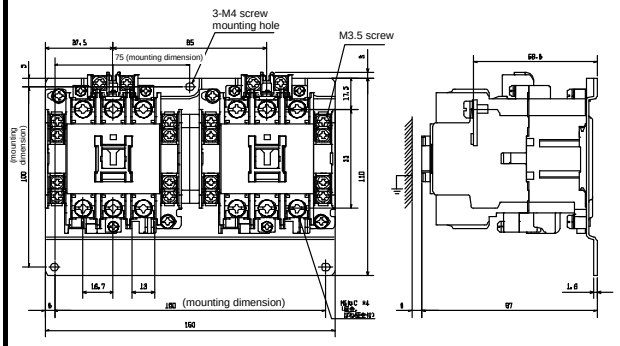


S-2 × T32

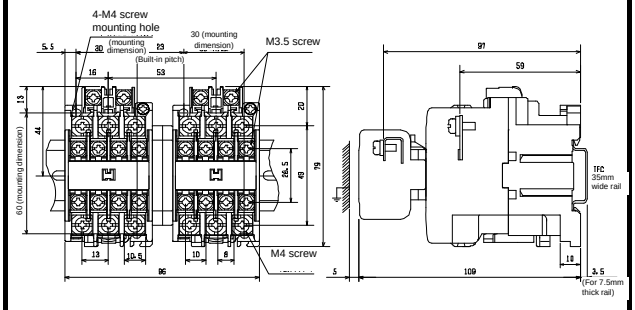


MS-N Series

S-2 × N25



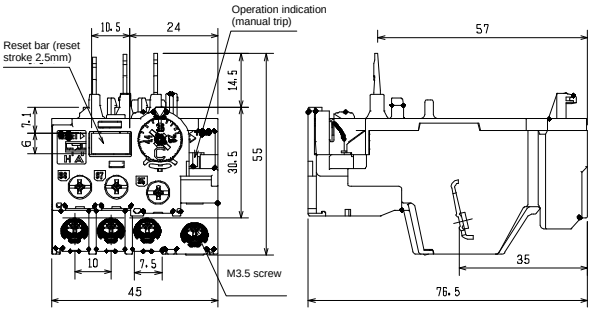
S-2 × N18/N28



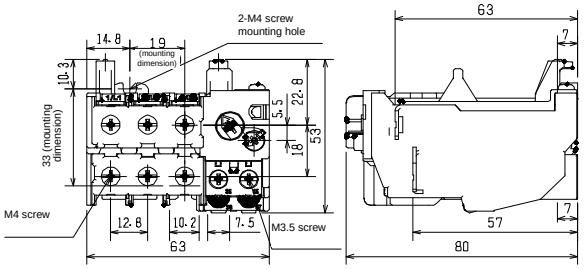
9.4 Thermal Overload Relay

TH-T Series

TH-T18

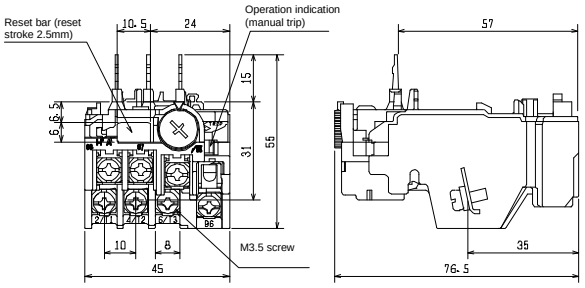


TH-T25

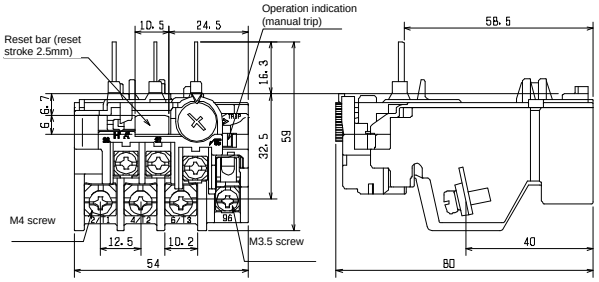


TH-N Series

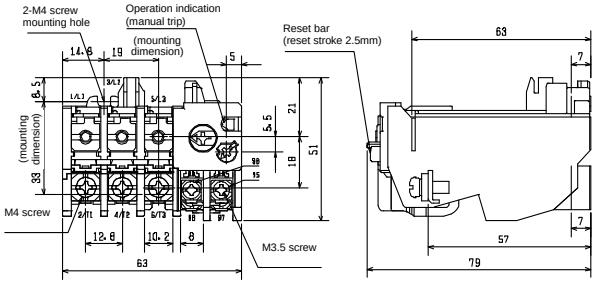
TH-N12



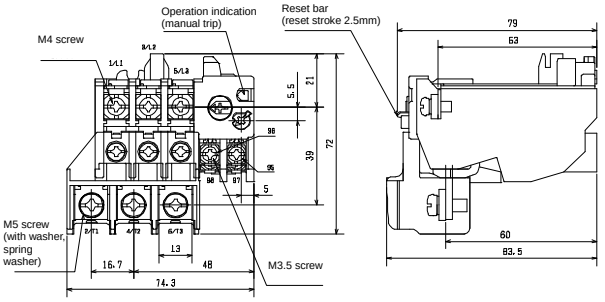
TH-N18



TH-N20



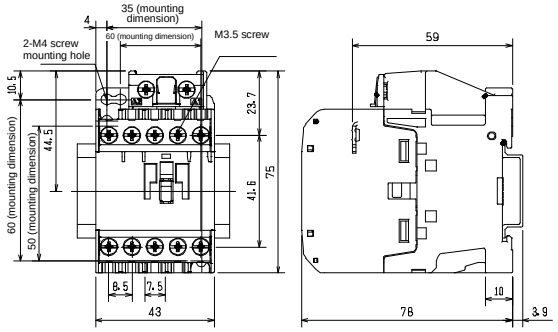
TH-N20TA (22A designation)



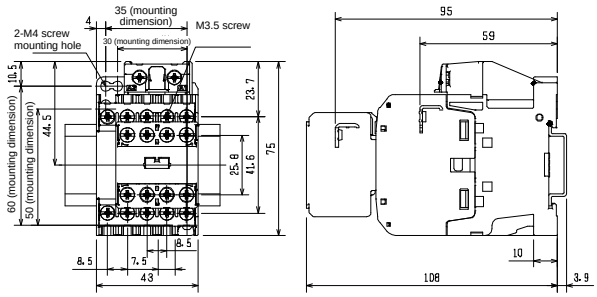
9.5 Contactor Relay

SR-T Series

SR-T5

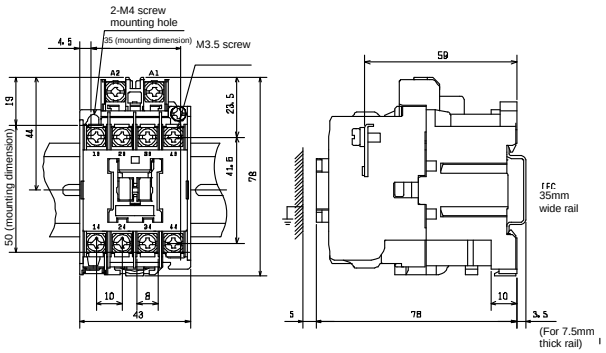


SR-T9

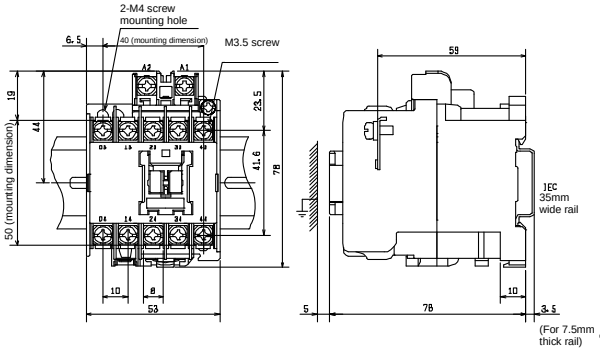


SR-N Series

SR-N4



SR-N5



SR-N8