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FUJI low-voltage contactors and starters are available in a broad choice of types, from high-performance to economy, for all consumer and industrial needs. For standard applications, we offer the high-performance SC series. We offer the economical F series for light industrial use, the SB series dedicated to DC circuits, and the SS series with long service-life noise-free solid-state contactors.

### SC and SW series Standard type magnetic contactors and starters

The SC series is a range of long service-life and high-performance contactors. SC-03 to SC-N3 small-frame contactors provide snap-on fitting of numerous optional units, such as auxiliary contact blocks, coil surge suppressors, and operation counters. Field modifications are quick and easy to make.

Type SC-N6 and above contactors come with an IC-controlled SUPER MAGNET coil, which operates from both AC and DC sources, to eliminate burnt coils and contact chattering caused by voltage fluctuation.

### SB series DC magnetic contactors

We developed the SB series DC contactors from our SC series AC contactors. Applications include opening and closing DC circuits and controlling DC motors. They permit switching of DC loads up to 550V DC, 360A. There are two main contact arrangements available: the 2NO type and the 2NO + 1NC type, which has one NC contact for dynamic brake circuits. Type SB-5N and above contactors come with an IC-controlled SUPER MAGNET coil for improved operational stability.



### FC and FW series Definite purpose contactors and starters

The FC series contactors are compact and economical contactors designed for use in consumer appliances with relatively low switching frequencies. Typical applications include air conditioners, industrial washing machines, heaters, compressors, driers, and fans. Contactor pickup voltage is 75% of the rated voltage. FC-0 is available with tab and printed board terminals, as well as with self-lifting screw terminals.

### SS series Solid-state contactors

The SS series contactors employ a semiconductor that can withstand both high voltage and large overcurrent when making and breaking load circuits. The completely contactless design gives high performance, including long service life and noise-free operation. Applications include frequent making and breaking for motors, heaters, and similar circuits. A built-in surge absorbing varistor and CR circuit to protect the SSC from surges when switching inductive loads, and surges from external circuits.

**DUO series**  
**BM3 series manual motor starters, SC-M and SC-E series magnetic contactors**  
Refer to the Individual Catalog No.02.

# Magnetic Contactors and Starters

## SC and SW series

### Versions



**Standard type contactors and starters**

Standard type is usually used to start and stop motors, and to open and close resistance loads like heaters or electric furnaces.  
See page 01/25.



**Contactors and starters with SUPER MAGNET**

IC operated SUPER MAGNET prevents coil burning and contact welding due to voltage fluctuations  
See page 01/25.



**Enclosed type starters**

Standard type starter are housed in a protective enclosure.  
See page 01/33.



**Reversing contactors and starters**

This type is most suitable for reversing operation of 3-phase motors or plugging or braking.  
See page 01/34.



**DC-operated contactors and starters**

Main circuit is AC, and operation is carried out by DC operating coil. This type is useful for applications in which control power source is independent.  
See page 01/41.



**OFF-delay release contactors and starters**

This is a combination of DC-operated magnetic contactor and off-delay release unit. This prevents circuit opening due to instantaneous voltage drops.  
See page 01/46.



**With extra pickup operating coil**

These contactors are suitable for use in places with poor power supply conditions. These contactors operate normally even if the coil input voltage falls to 75% of the coil rated voltage.  
See page 01/47.



**Mechanical latch contactors**

Latch mechanism prevents the circuit from opening due to power failure, instantaneous power failure, or voltage drop of power source. This is suitable for change-over circuit and stand-by power supply equipment.  
See page 01/48.



**Heavy starting duty starters**

This is suitable for overload protection or stall prevention of motors with longer starting times such as those for blowers and fans having a large inertia.  
See page 01/53.



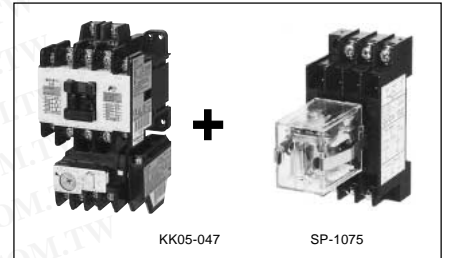
**Starters with quick-operating overload relay**

With the attached quick operating type O/L relay, this is suitable for protecting submersible pumps or compressor motors with a small heat capacity.  
 See page 01/55.



**Starters with phase-loss protective device**

The attached 2E thermal O/L relay protects against motor overload and as well as phase-loss.  
 See page 01/56.



**Starters with phase-loss and phase-sequence protective device**

By combining 2E thermal O/L relay and phase-sequence relay, motor overload, phase-loss and phase-sequence protection is obtained.  
 See page 01/58.



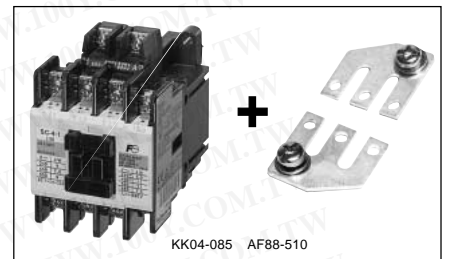
**Starters with on-off and RESET pushbuttons**

Pushbuttons for close and open are built in the enclosure. Suitable for simple operations.  
 See page 01/60.



**Dust-tight/light-corrosion resistant type starters**

The enclosure is dust-tight and corrosion-proof, and so is suitable for locations with dusty or corrosive atmospheres.  
 See page 01/62.



**Contactors for single-phase resistance load**

This is a standard type magnetic contactor with a 3-phase parallel plate terminal. This is most suitable for on-off operation of electric heaters, water heaters and electric lights.  
 See page 01/63.



**With single-button auxiliary contacts**

An auxiliary contact of a standard contactor is bifurcated. All SC-03H to SC-N12H contactor, however, feature single-button auxiliary contacts with a higher current rating than the contacts used by the standard contactor.  
 See page 01/64.



**With quick connection terminals**

No removing terminal screw is required. When contactor and starters with the quick connection terminals are shipped, these screws are inserted in the terminals section but make no contact. It reduces the number of wiring steps. Terminals with finger protection enable a high level of safety.  
 See page 01/65.



**UL, CSA, TÜV and CCC approved motor starters and contactors**

Many models of SC series conform to UL, CSA, TÜV and CCC requirements.  
 See page 01/120.

# Magnetic Contactors and Starters

## SC and SW series

### Quick selection guide/Open type

#### ■ Types and ratings/Non-reversing, Open

Frame size		03	0	05	4-0	Further information
Max. motor capacity (kW)	200–240V	2.5	3.5	3.5	4.5	
	380–440V	4	5.5	5.5	7.5	
AC-3, IEC 60947-4-1	500–550V	4	5.5	5.5	7.5	
	600–660V	4	5.5	5.5	7.5	
Operational current (A)	200–240V	11	13	13	18	
	380–440V	9	12	12	16	
	500–550V	7	9	9	13	
	600–660V	5	7	7	9	
Operational current (A)	AC-1	20	20	20	25	
Conventional free air thermal current (A)		20	20	20	25	
Auxiliary contact arrangement		1NO	1NO	1NO+1NC	1NO	
		1NC	1NC	2NO, 2NC	1NC	
Standard	Contact Starter	SC-03 SW-03/3H	SC-0 SW-0/3H	SC-05 SW-05/3H	SC-4-0 SW-4-0/3H	Page 01/25
DC operated	Contact Starter	SC-03/G SW-03/G3H	SC-0/G SW-0/G3H	SC-05/G SW-05/G3H	SC-4-0/G SW-4-0/G3H	Page 01/41
OFF-delay release *1	Contact Starter	SC-03/G+SZ-DE□ SW-03/G3H+ SZ-DE□	SC-0/G+SZ-DE□ SW-0/G3H+ SZ-DE□	SC-05/G+SZ-DE□ SW-05/G3H+ SZ-DE□	SC-4-0/G+SZ-DE□ SW-4-0/G3H+ SZ-DE□	Page 01/46
With extra pick-up operating coil	Contact Starter	SC-03/U SW-03/U3H	SC-0/U SW-0/U3H	SC-05/U SW-05/U3H	SC-4-0/U SW-4-0/U3H	Page 01/47
Mechanical latch AC operated	Contact Starter	SC-03/V –	SC-0/V –	SC-05/V –	SC-4-0/V –	Page 01/48
Mechanical latch DC operated	Contact Starter	SC-03/VG –	SC-0/VG –	SC-05/VG –	SC-4-0/VG –	Page 01/46
Heavy starting duty	Contact Starter	– SW-03/3L	– SW-0/3L	– SW-05/3L	– SW-4-0/3L	Page 01/53
With quick operating overload relay	Contact Starter	– SW-03/3Q	– SW-0/3Q	– SW-05/3Q	– SW-4-0/3Q	Page 01/55
With phase-loss protective device	Contact Starter	– SW-03/2E	– SW-0/2E	– SW-05/2E	– SW-4-0/2E	Page 01/56
With phase-loss and phase sequence protective device *2	Contact Starter	– SW-03/2E+QE-□0N	– SW-0/2E+QE-□0N	– SW-05/2E+QE-□0N	– SW-4-0/2E+QE-□0N	Page 01/58
For single-phase resistance load	Contact Starter	SC-03+SZ-SP1 –	SC-0+SZ-SP1 –	SC-05+SZ-SP1 –	SC-4-0+SZ-SP2 –	Page 01/63
With quick connection terminals	Contact starter	SC-03Y SW-03Y	SC-0Y SW-0Y	SC-05Y SW-05Y	– –	Page 01/65
Thermal overload relay On-contactor mounting						Page 01/88
Standard		TR-0N/3	TR-0N/3	TR-0N/3	TR-5-1N/3	
Long time operation		TR-0NL/3	TR-0NL/3	TR-0NL/3	TR-5-1NL/3	
Quick operation		TR-0NQ	TR-0NQ	TR-0NQ	TR-5-1NQ	
Phase-loss protection		TK-0N	TK-0N	TK-0N	TK-5-1N	

Note: \*1 Replace the □ mark in the type number by the operating voltage code.  
100V AC: 100, 110V AC: 110, 200V AC: 200, 220V AC: 220

\*2 Replace the □ mark in the type number by the operating voltage code.  
200-220V AC: 2, 380-415V AC: 4

■ **Types and ratings/Non-reversing, Open**

Frame size		4-1	5-1	N1	N2	Further information
Max. motor capacity (kW)	200–240V 380–440V	5.5 11	5.5 11	7.5 15	11 18.5	
AC-3, IEC 60947-4-1	500–550V 600–660V	11 7.5	11 7.5	15 11	18.5 15	
Operational current (A)	200–240V 380–440V 500–550V 600–660V	22 22 17 9	22 22 17 9	32 32 24 15	40 40 29 19	
Operational current (A)	AC-1	32	32	50	60	
Conventional free air thermal current (A)		32	32	50	60	
Auxiliary contact arrangement		1NO 1NC	1NO+1NC, 2NO 2NO+2NC, 2NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contactor Starter	SC-4-1 SW-4-1/3H	SC-5-1 SW-5-1/3H	SC-N1 SW-N1/3H	SC-N2 SW-N2/3H	
DC operated	Contactor Starter	SC-4-1/G SW-4-1/G3H	SC-5-1/G SW-5-1/G3H	SC-N1/G SW-N1/G3H	SC-N2/G SW-N2/G3H	Page 01/41
OFF-delay release *1	Contactor Starter	SC-4-1/G+SZ-DE□ SW-4-1/G3H+ SZ-DE□	SC-5-1/G+SZ-DE□ SW-5-1/G3H+ SZ-DE□	SC-N1/G+ SZ-N1/GDE SW-N1/G3H+ SZ-N1/GDE	SC-N2/G+ SZ-N1/GDE SW-N2/G3H+ SZ-N1/GDE	Page 01/46
With extra pick-up operating coil	Contactor Starter	SC-4-1/U SW-4-1/U3H	SC-5-1/U SW-5-1/U3H	SC-N1/U SW-N1/U3H	SC-N2/U SW-N2/U3H	Page 01/47
Mechanical latch AC operated	Contactor Starter	SC-4-1/V –	SC-5-1/V –	SC-N1/VS –	SC-N2/VS –	Page 01/48
Mechanical latch DC operated	Contactor Starter	SC-4-1/VG –	SC-5-1/VG –	SC-N1/VS –	SC-N2/VS –	Page 01/48
Heavy starting duty	Contactor Starter	– SW-4-1/3L	– SW-5-1/3L	– SW-N1/3L	– SW-N2/3L	Page 01/53
With quick operating overload relay	Contactor Starter	– SW-4-1/3Q	– SW-5-1/3Q	– SW-N1/3Q	– SW-N2/3Q	Page 01/55
With phase-loss protective device	Contactor Starter	– SW-4-1/2E	– SW-5-1/2E	– SW-N1/2E	– SW-N2/2E	Page 01/56
With phase-loss and phase sequence protective device *2	Contactor Starter	– SW-4-1/2E+QE-□0N	– SW-5-1/2E+QE-□0N	– SW-N1/2E+QE-□0N	– SW-N2/2E+QE-□0N	Page 01/58
For single-phase resistance load	Contactor Starter	SC-4-1+SZ-SP2 –	SC-5-1+SZ-SP2 –	SC-N1+SZ-SP3 –	SC-N2+SZ-SP3 –	Page 01/63
With quick connection terminals	Contactor starter	– –	SC-5-1Y SW-5-1Y	– –	– –	Page 01/65
Thermal overload relay On-contactor mounting						Page 01/88
Standard Long time operation Quick operation		TR-5-1N/3 TR-5-1NL/3 TR-5-1NQ	TR-5-1N/3 TR-5-1NL/3 TR-5-1NQ	TR-N2/3 TR-N2L/3 TR-N2Q	TR-N2/3 TR-N2L/3 TR-N2Q	
Phase-loss protection		TK-5-1N	TK-5-1N	TK-N2	TK-N2	

Note: \*1 Replace the □ mark in the type number by the operating voltage code.  
100V AC: 100, 110V AC: 110, 200V AC: 200, 220V AC: 220

\*2 Replace the □ mark in the type number by the operating voltage code.  
200-220V AC: 2, 380-415V AC: 4

# Magnetic Contactors and Starters

## SC and SW series

### Quick selection guide/Open type

#### ■ Types and ratings/Non-reversing, Open

Frame size		N2S	N3	N4	N5A	Further information
Max. motor capacity (kW)	200–240V	15	18.5	22	30	
	380–440V	22	30	40	55	
	500–550V	25	37	37	55	
	600–660V	22	30	37	55	
Operational current (A)	200–240V	50	65	80	105	
	380–440V	50	65	80	105	
	500–550V	38	60	60	85	
	600–660V	26	38	44	64	
Operational current (A)	AC-1	80	100	135	150	
Conventional free air thermal current (A)		80	100	135	150	
Auxiliary contact arrangement		2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contactors Starter	SC-N2S SW-N2S/3H	SC-N3 SW-N3/3H	SC-N4 SW-N4/3H	SC-N5A SW-N5A/3H	Page 01/25
DC operated	Contactors Starter	SC-N2S/G SW-N2S/G3H	SC-N3/G SW-N3/G3H	SC-N4/G SW-N4/G3H	SC-N5/G SW-N5/G3H	Page 01/41
OFF-delay release	Contactors Starter	SC-N2S/G+ SZ-N2S/GDE SW-N2S/G3H+ SZ-N2S/GDE	SC-N3/G+ SZ-N2S/GDE SW-N3/G3H+ SZ-N2S/GDE	SC-N4/SE+ SZ-N5/DE SW-N4/SE3H+ SZ-N5/SEDE	SC-N5+ SZ-N5/DE SW-N5/3H+ SZ-N5/DE	Page 01/46
With extra pick-up operating coil *1	Contactors Starter	SC-N2S/U SW-N2S/U3H	SC-N3/U SW-N3/U3H	SC-N4/U SW-N4/U3H	– –	Page 01/47
Mechanical latch AC operated	Contactors Starter	SC-N2S/VS –	SC-N3/VS –	SC-N4/VS –	SC-N5/VS –	Page 01/48
Mechanical latch DC operated	Contactors Starter	SC-N2S/VS –	SC-N3/VS –	SC-N4/VS –	SC-N5/VS –	Page 01/48
Heavy starting duty	Contactors Starter	– SW-N2S/3L	– SW-N3/3L	– SW-N4/3L	– SW-N5A/3L	Page 01/53
With quick operating overload relay	Contactors Starter	– SW-N2S/3Q	– SW-N3/3Q	– SW-N4/3Q	– SW-N5A/3Q	Page 01/55
With phase-loss protective device	Contactors Starter	– SW-N2S/2E	– SW-N3/2E	– SW-N4/2E	– SW-N5A/2E	Page 01/56
With phase-loss and phase sequence protective device *2	Contactors Starter	– SW-N2S/2E+QE-□0N	– SW-N3/2E+QE-□0N	– SW-N4/2E+QE-□0N	– SW-N5A/2E+QE-□0N	Page 01/58
For single-phase resistance load	Contactors Starter	SC-N2S+SZ-SP4 –	SC-N3+SZ-SP4 –	SC-N4+SZ-SP5 –	SC-N5A+SZ-SP5 –	Page 01/63
Thermal overload relay On-contactor mounting						Page 01/88
Standard		TR-N3/3	TR-N3/3	TR-N5/3	TR-N5/3	
Long time operation		TR-N3L/3	TR-N3L/3	TR-N5L/3	TR-N5L/3	
Quick operation		TR-N3Q	TR-N3Q	TR-N5Q	TR-N5Q	
Phase-loss protection		TK-N3	TK-N3	TK-N5	TK-N5	

Note: \*1 The standard types for frame sizes N6 and above (with SUPER MAGNET) hold without chattering even if the line voltage drops to 65% of its rated value.

\*2 Replace the □ mark in the type number by the operating voltage code.

200-220V AC: 2, 380-415V AC: 4

■ Types and ratings/Non-reversing, Open

Frame size		N6	N7	N8	N10	Further information
Max. motor capacity (kW)	200–240V	37	45	55	65	
	380–440V	60	75	90	110	
	500–550V	60	75	130	132	
AC-3, CEC 60947-4-1	500–550V	60	75	130	132	
	600–660V	60	90	132	132	
Operational current (A)	200–240V	125	150	180	220	
	380–440V	125	150	180	220	
	500–550V	90	120	180	200	
	600–660V	72	103	150	150	
Operational current (A)	AC-1	150	200	260	260	
Conventional free air thermal current (A)		150	200	260	260	
Auxiliary contact arrangement		2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contactors Starter	SC-N6 SW-N6/3H	SC-N7 SW-N7/3H	SC-N8 SW-N8/3H	SC-N10 SW-N10/3H	Page 01/25
DC operated	Contactors Starter	SC-N6 SW-N6/3H	SC-N7 SW-N7/3H	SC-N8 SW-N8/3H	SC-N10 SW-N10/3H	Page 01/41
OFF-delay release	Contactors Starter	SC-N6+SZ-N6/DE SW-N6/3H+ SZ-N6/DE	SC-N7+SZ-N6/DE SW-N7/3H+ SZ-N6/DE	SC-N8+SZ-N8/DE SW-N8/3H+ SZ-N8/DE	SC-N10+SZ-N8/DE SW-N10/3H+ SZ-N8/DE	Page 01/46
With extra pick-up operating coil *1	Contactors Starter	– –	– –	– –	– –	– –
Mechanical latch/ AC operated	Contactors Starter	SC-N6/VS –	SC-N7/VS –	SC-N8/VS –	SC-N10/VS –	Page 01/48
Mechanical latch/ DC operated	Contactors Starter	SC-N6/VS –	SC-N7/VS –	SC-N8/VS –	SC-N10/VS –	Page 01/48
Heavy starting duty	Contactors Starter	– SW-N6/3L	– SW-N7/3L	– SW-N8/3L	– SW-N10/3L	Page 01/53
With quick operating overload relay	Contactors Starter	– –	– –	– –	– –	Page 01/55
With phase-loss protective device	Contactors Starter	– SW-N6/2E	– SW-N7/2E	– SW-N8/2E	– SW-N10/2E	Page 01/56
With phase-loss and phase sequence protective device *2	Contactors Starter	– SW-N6/2E+QE-□0N	– SW-N7/2E+QE-□0N	– SW-N8/2E+QE-□0N	– SW-N10/2E+QE-□0N	Page 01/58
For single-phase resistance load	Contactors Starter	SC-N6+SZ-SP7 –	SC-N7+SZ-SP7 –	SC-N8+SZ-SP8 –	SC-N10+SZ-SP8 –	Page 01/63
Thermal overload relay On-contactor mounting						Page 01/88
Standard		TR-N6/3	TR-N7/3	TR-N8/3	TR-N10/3	
Long time operation		TR-N6L/3	TR-N7L/3	TR-N10L/3	TR-N10L/3	
Quick operation		–	–	–	–	
Phase-loss protection		TK-N6	TK-N7	TK-N8	TK-N10	

Note: \*1 The standard types for frame sizes N6 and above (with SUPER MAGNET) hold without chattering even if the line voltage drops to 65% of its rated value.

\*2 Replace the □ mark in the type number by the operating voltage code.

200-220V AC: 2, 380-415V AC: 4

# Magnetic Contactors and Starters

## SC and SW series

### Quick selection guide/Open type

#### ■ Types and ratings/Non-reversing, Open

Frame size		N11	N12	N14	N16	Further information
Max. motor capacity (kW)	200–240V	90	120	180	220	
	380–440V	160	220	315	440	
AC-3, IEC 60947-4-1	500–550V	160	250	400	500	
	600–660V	200	300	480	500	
Operational current (A)	200–240V	300	400	600	800	
	380–440V	300	400	600	800	
	500–550V	230	360	600	720	
	600–660V	230	360	600	630	
Operational current (A)	AC-1	350	450	660	800	
Conventional free air thermal current (A)		350	450	660	800	
Auxiliary contact arrangement		2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contact Starter	SC-N11 SW-N11/3H	SC-N12 SW-N12/3H	SC-N14 SW-N14/3H	SC-N16 –	Page 01/25
DC operated	Contact Starter	SC-N11 SW-N11/3H	SC-N12 SW-N12/3H	SC-N14 SW-N14/3H	SC-N16 –	Page 01/41
OFF-delay release	Contact Starter	SC-N11+SZ-N11/DE SW-N11/3H+ SZ-N11/DE	SC-N12+SZ-N11/DE SW-N12/3H+ SZ-N11/DE	SC-N14+SZ-N14/DE SW-N14/3H+ SZ-N14/DE	– – –	Page 01/46
With extra pick-up operating coil <sup>*1</sup>	Contact Starter	– –	– –	– –	– –	– –
Mechanical latch AC operated	Contact Starter	SC-N11/VS –	SC-N12/VS –	SC-N14/VS –	– –	Page 01/48
Mechanical latch DC operated	Contact Starter	SC-N11/VS –	SC-N12/VS –	SC-N14/VS –	– –	Page 01/48
Heavy starting duty	Contact Starter	– SW-N11/3L	– SW-N12/3L	– SW-N14/3L	– –	Page 01/53
With quick operating overload relay	Contact Starter	– –	– –	– –	– –	– –
With phase-loss protective device	Contact Starter	– SW-N11/2E	– SW-N12/2E	– SW-N14/2E	– –	Page 01/56
With phase-loss and phase sequence protective device <sup>*2</sup>	Contact Starter	– SW-N11/2E+QE-□0N	– SW-N12/2E+QE-□0N	– SW-N14/2E+QE-□0N	– –	Page 01/58
For single-phase resistance load	Contact Starter	SC-N11+SZ-SP9 –	SC-N12+SZ-SP9 –	SC-N14+SZ-SP10 –	SC-N16+SZ-SP10 –	Page 01/63
Thermal overload relay On-contactor mounting						Page 01/88
Standard		TR-N12/3	TR-N12/3	TR-N14/3	–	
Long time operation		TR-N12L/3	TR-N12L/3	TR-N14L/3	–	
Quick operation		–	–	–	–	
Phase-loss protection		TK-N12	TK-N12	TK-N14	–	

Note: <sup>\*1</sup> The standard types for frame sizes N6 and above (with SUPER MAGNET) hold without chattering even if the line voltage drops to 65% of its rated value.

<sup>\*2</sup> Replace the □ mark in the type number by the operating voltage code.

200-220V AC: 2, 380-415V AC: 4

Magnetic Contactors and Starters  
**SC and SW series**  
**Quick selection guide/Enclosed type**

■ **Types and ratings/Non-reversing, Enclosed**

Frame size		<b>03</b>	<b>0</b>	<b>05</b>	<b>4-0</b>	Further information
Max. motor capacity (kW)	200–240V	2.5	3.5	3.5	4.5	
	380–440V	4	5.5	5.5	7.5	
AC-3, IEC 60947-4-1	500–550V	4	5.5	5.5	7.5	
	600–660V	4	5.5	5.5	7.5	
Operational current (A)	200–240V	11	13	13	18	
	380–440V	9	12	12	16	
	500–550V	7	9	9	13	
	600–660V	5	7	7	9	
Operational current (A)	AC-1	20	20	20	25	
Conventional free air thermal current (A)		20	20	20	25	
Auxiliary contact arrangement		1NO 1NC	1NO 1NC	1NO+1NC 2NO, 2NC	1NO 1NC	
Standard	Contactors Starter	SC-03C SW-03C/3H	SC-0C SW-0C/3H	SC-05C SW-05C/3H	SC-4-0C SW-4-0C/3H	Page 01/25
With extra pick-up operating coil	Contactors Starter	– SW-03C/U3H	– SW-0C/U3H	– SW-05C/U3H	– SW-4-0C/U3H	Page 01/47
With phase-loss protective device	Contactors Starter	– SW-03C/2E	– SW-0C/2E	– SW-05C/2E	– SW-4-0C/2E	Page 01/56
With ON-OFF/reset pushbuttons	Contactors Starter	– SW-03P/3H	– SW-0P/3H	– SW-05P/3H	– SW-4-0P/3H	Page 01/60
Dust tight/light corrosion resistant	Contactors Starter	– SW-03LG/3H	– SW-0LG/3H	– SW-05LG/3H	– SW-4-0LG/3H	Page 01/62
Thermal overload relay		See page 01/12. Same as the open types				Page 01/88

Frame size		<b>4-1</b>	<b>5-1</b>	<b>N1</b>	<b>N2</b>	Further information
Max. motor capacity (kW)	200–240V	5.5	5.5	7.5	11	
	380–440V	11	11	15	18.5	
AC-3, IEC 60947-4-1	500–550V	11	11	15	18.5	
	600–660V	7.5	7.5	11	15	
Operational current (A)	200–240V	22	22	32	40	
	380–440V	22	22	32	40	
	500–550V	17	17	24	29	
	600–660V	9	9	15	19	
Operational current (A)	AC-1	32	32	50	60	
Conventional free air thermal current (A)		32	32	50	60	
Auxiliary contact arrangement		1NO 1NC	1NO+1NC 2NO, 2NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contactors Starter	SC-4-1C SW-4-1C/3H	SC-5-1C SW-5-1C/3H	SC-N1C SW-N1C/3H	SC-N2C SW-N2C/3H	Page 01/25
With extra pick-up operating coil	Contactors Starter	– SW-4-1C/U3H	– SW-5-1C/U3H	– SW-N1C/U3H	– SW-N2C/U3H	Page 01/47
With phase-loss protective device	Contactors Starter	– SW-4-1C/2E	– SW-5-1C/2E	– SW-N1C/2E	– SW-N2C/2E	Page 01/56
With ON-OFF pushbuttons	Contactors Starter	– –	– –	– SW-N1P/3H	– SW-N2P/3H	Page 01/60
With ON-OFF/reset pushbuttons	Contactors Starter	– SW-4-1P/3H	– SW-5-1P/3H	– SW-N1PB/3H	– SW-N2PB/3H	Page 01/60
Dust tight/light corrosion resistant	Contactors Starter	– SW-4-1LG/3H	– SW-5-1LG/3H	– SW-N1LG/3H	– SW-N2LG/3H	Page 01/62
Thermal overload relay		See page 01/12. Same as the open types				Page 01/88

# Magnetic Contactors and Starters

## SC and SW series

### Quick selection guide/Enclosed type

#### ■ Types and ratings/Non-reversing, Enclosed

Frame size		N2S	N3	N4	N5A	Further information
Max. motor capacity (kW)	200–240V	15	18.5	22	30	
	380–440V	22	30	40	55	
	AC-3, IEC 60947-4-1	500–550V	25	37	37	
	600–660V	22	30	37	55	
Operational current (A)	200–240V	50	65	80	105	
	380–440V	50	65	80	105	
	500–550V	38	60	60	85	
	600–660V	26	38	44	64	
Operational current (A)	AC-1	80	100	135	150	
Conventional free air thermal current (A)		80	100	135	150	
Auxiliary contact arrangement		2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contact Starter	SC-N2SC SW-N2SC/3H	SC-N3C SW-N3C/3H	SC-N4C SW-N4C/3H	SC-N5AC SW-N5AC/3H	Page 01/25
With extra pick-up operating coil *	Contact Starter	– SW-N2SC/U3H	– SW-N3C/U3H	– SW-N4C/SE3H	– –	Page 01/47
With phase-loss protective device	Contact Starter	– SW-N2SC/2E	– SW-N3C/2E	– SW-N4C/2E	– SW-N5AC/2E	Page 01/56
With ON-OFF pushbuttons	Contact Starter	– SW-N2SP/3H	– SW-N3P/3H	– –	– –	Page 01/60
With ON-OFF and reset pushbuttons	Contact Starter	– SW-N2SPB/3H	– SW-N3PB/3H	– SW-N4PB/3H	– SW-N5PB/3H	Page 01/60
Dust tight/light corrosion resistant	Contact Starter	– SW-N2SLG/3H	– SW-N3LG/3H	– SW-N4LG/3H	– SW-N5ALG/3H	Page 01/62
Thermal overload relay		See page 01/13. Same as the open types				Page 01/88

Frame size		N6	N7	N8	N10	Further information
Max. motor capacity (kW)	200–240V	37	45	55	65	
	380–440V	60	75	90	110	
	AC-3, IEC 60947-4-1	500–550V	60	75	130	
	600–660V	60	90	132	132	
Operational current (A)	200–240V	125	150	180	220	
	380–440V	125	150	180	220	
	500–550V	90	120	180	200	
	600–660V	72	103	150	150	
Operational current (A)	AC-1	150	200	260	260	
Conventional free air thermal current (A)		150	200	260	260	
Auxiliary contact arrangement		2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	
Standard	Contact Starter	SC-N6C SW-N6C/3H	SC-N7C SW-N7C/3H	SC-N8C SW-N8C/3H	SC-N10C SW-N10C/3H	Page 01/25
With extra pick-up operating coil *	Contact Starter	– –	– –	– –	– –	– –
With phase-loss protective device	Contact Starter	– SW-N6C/2E	– SW-N7C/2E	– SW-N8C/2E	– SW-N10C/2E	Page 01/56
With ON-OFF pushbuttons	Contact Starter	– –	– –	– –	– –	– –
With ON-OFF and reset pushbuttons	Contact Starter	– SW-N6PB/3H	– –	– SW-N8PB/3H	– SW-N10PB/3H	Page 01/60
Dust tight/light corrosion resistant	Contact Starter	– SW-N6LG/3H	– SW-N7LG/3H	– SW-N8LG/3H	– SW-N10LG/3H	Page 01/62
Thermal overload relay		See page 01/13. Same as the open types				Page 01/88

Note: \* The standard types for frame sizes N6 and above (with SUPER MAGNET) hold without chattering even if the line voltage drops to 65% of its rated value.

■ **Types and ratings/Non-reversing, Enclosed**

Frame size		<b>N11</b>	<b>N12</b>	<b>N14</b>	<b>N16</b>	Further information
Max. motor capacity (kW)	200–240V	90	120	180	–	
	380–440V	160	220	315	–	
AC-3, IEC 60947-4-1	500–550V	160	250	400	–	
	600–660V	200	300	480	–	
Operational current (A)	200–240V	300	400	600	–	
	380–440V	300	400	600	–	
	500–550V	230	360	600	–	
	600–660V	230	360	600	–	
Operational current (A)	AC-1	350	450	660	–	
Conventional free air thermal current (A)		350	450	660	–	
Auxiliary contact arrangement		2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	2NO+2NC 4NO+4NC	–	
Standard	Contactors	SC-N11C	SC-N12C	SC-N14C	–	Page 01/25
	Starters	SW-N11C/3H	SW-N12C/3H	SW-N14C/3H	–	
With extra pick-up operating coil *	Contactors	–	–	–	–	–
	Starters	–	–	–	–	–
With phase-loss protective device	Contactors	–	–	–	–	Page 01/56
	Starters	SW-N11C/2E	SW-N12C/2E	SW-N14C/2E	–	
With ON-OFF pushbuttons	Contactors	–	–	–	–	–
	Starters	–	–	–	–	–
With ON-OFF and reset pushbuttons	Contactors	–	–	–	–	–
	Starters	–	–	–	–	–
Dust tight/light corrosion resistant	Contactors	–	–	–	–	–
	Starters	–	–	–	–	–
Thermal overload relay		See page 01/14. Same as the open types				Page 01/88

Note: \* The standard types for frame sizes N6 and above (with SUPER MAGNET) hold without chattering even if the line voltage drops to 65% of its rated value.

# Magnetic Contactors and Starters

## SC and SW series

### Quick selection guide/Reversing, Open type

#### ■ Types and ratings/Reversing, Open

Frame size		03	0	05	4-0	Further information
Max. motor capacity (kW)	200–240V	2.5	3.5	3.5	4.5	
	380–440V	4	5.5	5.5	7.5	
AC-3, IEC 60947-4-1	500–550V	4	5.5	5.5	7.5	
	600–660V	4	5.5	5.5	7.5	
Operational current (A)	200–240V	11	13	13	18	
	380–440V	9	12	12	16	
	500–550V	7	9	9	13	
	600–660V	5	7	7	9	
Conventional free air thermal current (A)		20	20	20	25	
Auxiliary contact arrangement		1NC×2 1NO×2	1NC×2 1NO×2	(1NO+1NC)×2 2NC×2	1NC×2 1NO×2	
Standard	Contactor Starter	SC-03RM SW-03RM/3H	SC-0RM SW-0RM/3H	SC-05RM SW-05RM/3H	SC-4-0RM SW-4-0RM/3H	Page 01/34
DC operated	Contactor Starter	SC-03RM/G SW-03RM/G3H	SC-0RM/G SW-0RM/G3H	SC-05RM/G SW-05RM/G3H	SC-4-0RM/G SW-4-0RM/G3H	Contact FUJI
Mechanical latch AC operated	Contactor Starter	SC-03RM/V –	SC-0RM/V –	SC-05RM/V –	SC-4-0RM/V –	Page 01/48
Mechanical latch DC operated	Contactor Starter	SC-03RM/VG –	SC-0RM/VG –	SC-05RM/VG –	SC-4-0RM/VG –	Page 01/48
With phase-loss protective device	Contactor Starter	– SW-03RM/2E	– SW-0RM/2E	– SW-05RM/2E	– SW-4-0RM/2E	Page 01/56
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-0N/3 TK-0N	TR-0N/3 TK-0N	TR-0N/3 TK-0N	TR-5-1N/3 TK-5-1N	

Frame size		4-1	5-1	N1	N2	Further information
Max. motor capacity (kW)	200–240V	5.5	5.5	7.5	11	
	380–440V	11	11	15	18.5	
AC-3, IEC 60947-4-1	500–550V	11	11	15	18.5	
	600–660V	7.5	7.5	11	15	
Operational current (A)	200–240V	22	22	32	40	
	380–440V	22	22	32	40	
	500–550V	17	17	24	29	
	600–660V	9	9	15	19	
Conventional free air thermal current (A)		32	32	50	60	
Auxiliary contact arrangement		1NC×2 1NO×2	(1NO+1NC)×2,2NC×2 (2NO+2NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	
Standard	Contactor Starter	SC-4-1RM SW-4-1RM/3H	SC-5-1RM SW-5-1RM/3H	SC-N1RM SW-N1RM/3H	SC-N2RM SW-N2RM/3H	Page 01/34
DC operated	Contactor Starter	SC-4-1RM/G SW-4-1RM/G3H	SC-5-1RM/G SW-5-1RM/G3H	SC-N1RM/G SW-N1RM/G3H	SC-N2RM/G SW-N2RM/G3H	Contact FUJI
Mechanical latch AC operated	Contactor Starter	SC-4-1RM/V –	SC-5-1RM/V –	SC-N1RM/VS –	SC-N2RM/VS –	Page 01/48
Mechanical latch DC operated	Contactor Starter	SC-4-1RM/VG –	SC-5-1RM/VG –	SC-N1RM/VS –	SC-N2RM/VS –	Page 01/48
With phase-loss protective device	Contactor Starter	– SW-4-1RM/2E	– SW-5-1RM/2E	– SW-N1RM/2E	– SW-N2RM/2E	Page 01/56
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-5-1N/3 TK-5-1N	TR-5-1N/3 TK-5-1N	TR-N2/3 TK-N2	TR-N2/3 TK-N2	

Note: Auxiliary contact arrangements indicate the ones for types except mechanical latch types.

Magnetic Contactors and Starters  
**SC and SW series**  
Quick selection guide/Reversing, Open type

01

■ Types and ratings/Reversing, Open

Frame size		N2S	N3	N4	N5A	Further information
Max. motor capacity (kW)	200–240V	15	18.5	22	30	
	380–440V	22	30	40	55	
AC-3, IEC 60947-4-1	500–550V	25	37	37	55	
	600–660V	22	30	37	55	
Operational current (A)	200–240V	50	65	80	105	
	380–440V	50	65	80	105	
	500–550V	38	60	60	85	
	600–660V	26	38	44	64	
Conventional free air thermal current (A)		80	100	135	150	
Auxiliary contact arrangement		(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	
Standard	Contactor Starter	SC-N2SRM SW-N2SRM/3H	SC-N3RM SW-N3RM/3H	SC-N4RM SW-N4RM/3H	SC-N5ARM SW-N5ARM/3H	Page 01/34
DC operated	Contactor Starter	SC-N2SRM/G SW-N2SRM/G3H	SC-N3RM/G SW-N3RM/G3H	SC-N4RM/G SW-N4RM/G3H	SC-N5RM/G SW-N5RM/G3H	Contact FUJI
Mechanical latch AC operated	Contactor Starter	SC-N2SRM/VS –	SC-N3RM/VS –	SC-N4RM/VS –	SC-N5RM/VS –	Page 01/48
Mechanical latch DC operated	Contactor Starter	SC-N2SRM/VS –	SC-N3RM/VS –	SC-N4RM/VS –	SC-N5RM/VS –	Page 01/48
With phase-loss protective device	Contactor Starter	– SW-N2SRM/2E	– SW-N3RM/2E	– SW-N4RM/2E	– SW-N5ARM/2E	Page 01/56
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-N3/3 TK-N3	TR-N3/3 TK-N3	TR-N5/3 TK-N5	TR-N5/3 TK-N5	

Frame size		N6	N7	N8	N10	Further information
Max. motor capacity (kW)	200–240V	37	45	55	65	
	380–440V	60	75	90	110	
AC-3, IEC 60947-4-1	500–550V	60	75	130	132	
	600–660V	60	90	132	132	
Operational current (A)	200–240V	125	150	180	220	
	380–440V	125	150	180	220	
	500–550V	90	120	180	200	
	600–660V	72	103	150	150	
Conventional free air thermal current (A)		150	200	260	260	
Auxiliary contact arrangement		(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	
Standard	Contactor Starter	SC-N6RM SW-N6RM/3H	SC-N7RM SW-N7RM/3H	SC-N8RM SW-N8RM/3H	SC-N10RM SW-N10RM/3H	Page 01/34
DC operated	Contactor Starter	SC-N6RM SW-N6RM/3H	SC-N7RM SW-N7RM/3H	SC-N8RM SW-N8RM/3H	SC-N10RM SW-N10RM/3H	Contact FUJI
Mechanical latch AC operated	Contactor Starter	SC-N6RM/VS –	SC-N7RM/VS –	SC-N8RM/VS –	SC-N10RM/VS –	Page 01/48
Mechanical latch DC operated	Contactor Starter	SC-N6RM/VS –	SC-N7RM/VS –	SC-N8RM/VS –	SC-N10RM/VS –	Page 01/48
With phase-loss protective device	Contactor Starter	– SW-N6RM/2E	– SW-N7RM/2E	– SW-N8RM/2E	– SW-N10RM/2E	Page 01/56
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-N6/3 TK-N6	TR-N7/3 TK-N7	TR-N8/3 TK-N8	TR-N10/3 TK-N10	

Note: Auxiliary contact arrangements indicate the ones for types except mechanical latch types.

# Magnetic Contactors and Starters

## SC and SW series

### Quick selection guide/Reversing, Open type

#### ■ Types and ratings/Reversing, Open

Frame size		N11	N12	N14	N16	Further information
Max. motor capacity (kW)	200–240V	90	120	180	–	
	380–440V	160	220	315	–	
AC-3, IEC 60947-4-1	500–550V	160	250	400	–	
	600–660V	200	300	480	–	
Operational current (A)	200–240V	300	400	600	–	
	380–440V	300	400	600	–	
	500–550V	230	360	600	–	
	600–660V	230	360	600	–	
Conventional free air thermal current (A)		350	450	660	–	
Auxiliary contact arrangement		(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	– –	
Standard	Contact Starter	SC-N11RM SW-N11RM/3H	SC-N12RM SW-N12RM/3H	SC-N14RM SW-N14RM/3H	– –	Page 01/34
DC operated	Contact Starter	SC-N11RM SW-N11RM/3H	SC-N12RM SW-N12RM/3H	SC-N14RM SW-N14RM/3H	– –	Contact FUJI
Mechanical latch AC operated	Contact Starter	SC-N11RM/VS –	SC-N12RM/VS –	SC-N14RM/VS –	– –	Page 01/48
Mechanical latch DC operated	Contact Starter	SC-N11RM/VS –	SC-N12RM/VS –	SC-N14RM/VS –	– –	Page 01/48
With phase-loss protective device	Contact Starter	– SW-N11RM/2E	– SW-N12RM/2E	– SW-N14RM/2E	– –	Page 01/56
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-N11/3 TK-N11	TR-N12/3 TK-N12	TR-N14/3 TK-N14	– –	

Note: Auxiliary contact arrangements indicate the ones for types except mechanical latch types.

Magnetic Contactors and Starters  
**SC and SW series**  
Quick selection guide/Reversing, Enclosed type

01

■ Types and ratings/Reversing, Enclosed

Frame size		03	0	05	4-0	Further information
Max. motor capacity (kW)	200–240V	2.5	3.5	3.5	4.5	
	380–440V	4	5.5	5.5	7.5	
AC-3, IEC 60947-4-1	500–550V	4	5.5	5.5	7.5	
	600–660V	4	5.5	5.5	7.5	
Operational current (A)	200–240V	11	13	13	18	
	380–440V	9	12	12	16	
	500–550V	7	9	9	13	
	600–660V	5	7	7	9	
Conventional free air thermal current (A)		20	20	20	25	
Auxiliary contact arrangement		1NC×2 1NO×2	1NC×2 1NO×2	(1NO+1NC)×2 2NC×2	1NC×2 1NO×2	
Standard	Contactor Starter	SC-03RMC SW-03RMC/3H	SC-0RMC SW-0RMC/3H	SC-05RMC SW-05RMC/3H	SC-4-0RMC SW-4-0RMC/3H	Page 01/34
With phase-loss protective device	Contactor Starter	– SW-03RMC/2E	– SW-0RMC/2E	– SW-05RMC/2E	– SW-4-0RMC/2E	Page 01/56
With ON-OFF pushbuttons	Contactor Starter	– –	– –	– –	– –	– –
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-0N/3 TK-0N	TR-0N/3 TK-0N	TR-0N/3 TK-0N	TR-5-1N/3 TK-5-1N	

Frame size		4-1	5-1	N1	N2	Further information
Max. motor capacity (kW)	200–240V	5.5	5.5	7.5	11	
	380–440V	11	11	15	18.5	
AC-3, IEC 60947-4-1	500–550V	11	11	15	18.5	
	600–660V	7.5	7.5	11	15	
Operational current (A)	200–240V	22	22	32	40	
	380–440V	22	22	32	40	
	500–550V	17	17	24	29	
	600–660V	9	9	15	19	
Conventional free air thermal current (A)		32	32	50	60	
Auxiliary contact arrangement		1NC×2 1NO×2	(1NO+1NC)×2 2NC×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	
Standard	Contactor Starter	SC-4-1RMC SW-4-1RMC/3H	SC-5-1RMC SW-5-1RMC/3H	SC-N1RMC SW-N1RMC/3H	SC-N2RMC SW-N2RMC/3H	Page 01/34
With phase-loss protective device	Contactor Starter	– SW-4-1RMC/2E	– SW-5-1RMC/2E	– SW-N1RMC/2E	– SW-N2RMC/2E	Page 01/56
With ON-OFF pushbuttons	Contactor Starter	– –	– –	– –	– –	– –
Thermal overload relay On-contactor mounting						Page 01/88
Standard Phase-loss protection		TR-5-1N/3 TK-5-1N	TR-5-1N/3 TK-5-1N	TR-N2/3 TK-N2	TR-N2/3 TK-N2	

# Magnetic Contactors and Starters

## SC and SW series

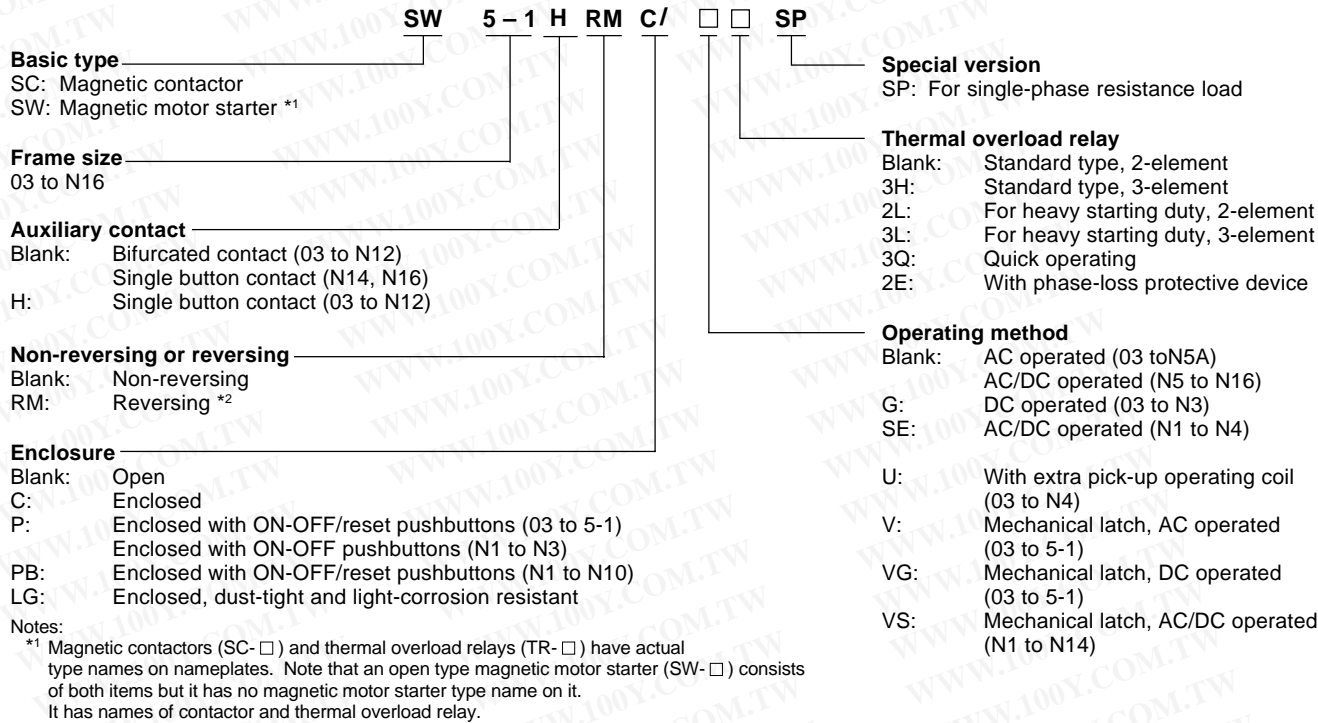
### Quick selection guide/Reversing, Enclosed type

#### ■ Types and ratings/Reversing, Enclosed

Frame size		N2S	N3	N4	N5A	Further information	
Max. motor capacity (kW)	200–240V	15	18.5	22	30		
	380–440V	22	30	40	55		
AC-3, IEC 60947-4-1	500–550V	25	37	37	55		
	600–660V	22	30	37	55		
Operational current (A)	200–240V	50	65	80	105		
	380–440V	50	65	80	105		
	500–550V	38	60	60	85		
	600–660V	26	38	44	64		
Conventional free air thermal current (A)		80	100	135	150		
Auxiliary contact arrangement		(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2		
Standard	Contactors	SC-N2SRMC	SC-N3RMC	SC-N4RMC	SC-N5ARMC		Page
	Starters	SW-N2SRMC/3H	SW-N3RMC/3H	SW-N4RMC/3H	SW-N5ARMC/3H		01/34
With phase-loss protective device	Contactors	–	–	–	–	Page	
	Starters	SW-N2SRMC/2E	SW-N3RMC/2E	SW-N4RMC/2E	SW-N5ARMC/2E	01/56	
With ON-OFF pushbuttons	Contactors	–	–	–	–	–	
	Starters	–	–	–	–	–	
Thermal overload relay On-contactor mounting						Page	
Standard		TR-N3/3	TR-N3/3	TR-N5/3	TR-N5/3	01/88	
Phase-loss protection		TK-N3	TK-N3	TK-N5	TK-N5		

Frame size		N6	N7	N8	N10	Further information	
Max. motor capacity (kW)	200–240V	37	45	55	65		
	380–440V	60	75	90	110		
AC-3, IEC 60947-4-1	500–550V	60	75	130	132		
	600–660V	60	90	132	132		
Operational current (A)	200–240V	125	150	180	220		
	380–440V	125	150	180	220		
	500–550V	90	120	180	200		
	600–660V	72	103	150	150		
Conventional free air thermal current (A)		150	200	260	260		
Auxiliary contact arrangement		(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2	(2NO+2NC)×2 (3NO+3NC)×2		
Standard	Contactors	SC-N6RMC	SC-N7RMC	SC-N8RMC	SC-N10RMC		Page
	Starters	SW-N6RMC/3H	SW-N7RMC/3H	SW-N8RMC/3H	SW-N10RMC/3H		01/34
With phase-loss protective device	Contactors	–	–	–	–	Page	
	Starters	SW-N6RMC/2E	SW-N7RMC/2E	SW-N8RMC/2E	SW-N10RMC/2E	01/56	
With ON-OFF pushbuttons	Contactors	–	–	–	–	–	
	Starters	–	–	–	–	–	
Thermal overload relay On-contactor mounting						Page	
Standard		TR-N6/3	TR-N7/3	TR-N8/3	TR-N10/3	01/88	
Phase-loss protection		TK-N6	TK-N7	TK-N8	TK-N10		

■ **Types number nomenclature**



• **Example**

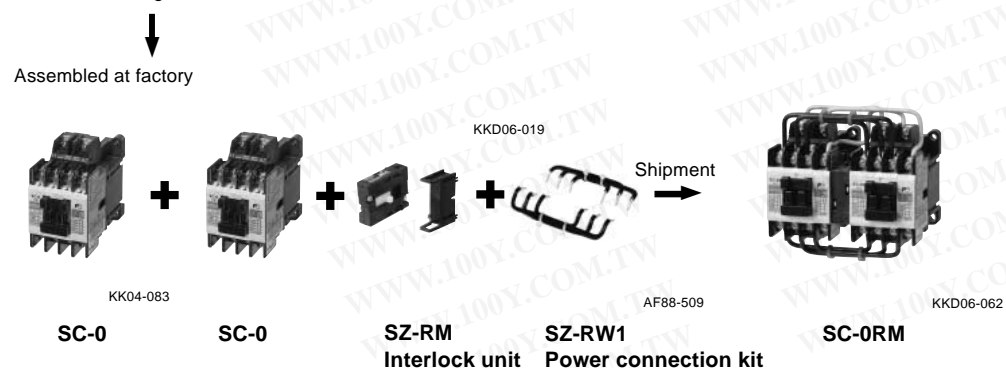
When a motor starter SW-0 is ordered;



\*2 Open type reversing magnetic contactors (SC-□RM) and motor starters (SW-□RM) have no type name on their nameplates describing them as reversing types.

• **Example**

When a reversing contactor SC-0RM is ordered;



■ **Ordering information**

Specify the following:

1. Ordering code (see next page)
2. Overload relay setting range code
3. Operating coil voltage code
4. Auxiliary contact arrangement code

# Magnetic Contactors and Starters

## SC and SW series

### Ordering code system

#### ■ Ordering code system

SC series magnetic contactors

SC 25 B A A-M 22  
①② ③④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩⑪

SW series magnetic motor starter

SC 25 B A A N-M 22 TB D  
①② ③④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩⑪ ⑫ ⑬

#### ① Product category

Description	Code
Contactors and starters	S

#### ② Series category

Description	Code
SC and SW series	C

#### ③④ Frame size

Frame size	Code	
	③	④
03	1	1
0	1	3
05	1	4
4-0	1	8
4-1	1	9
5-1	2	0
N1	2	5
N2	3	5
N2S	5	0
N3	6	5
N4	8	0
N5	9	3
N6	1	C
N7	1	F
N8	1	J
N10	2	C
N11	3	A
N12	4	A
N14	6	A
N16*	8	A

\*Contactor only

#### ⑤ Index

Index	Code
03 to 5-1	Blank
N1 to N16	B
N5A	C

#### ⑥ Coil voltage

##### ● Frame size 03 to N5A AC coil

Operating coil voltage	Code	
	50Hz	60Hz
24V	24-26V	E
48V	48-52V	F
100V	100-110V	1
100-110V	110-120V	H
110-120V	120-130V	K
200V	200-220V	2
200-220V	220-240V	M
220-240V	240-260V	P
346-380V	380-420V	S
380-400V	400-440V	4
415-440V	440-480V	T
480-500V	500-550V	5

#### ⑥ Version

Description	Code	
	Contactors	Starters
<u>Non-reversing, open</u> Standard	A	A
<u>Non-reversing, enclosed</u> Standard Dust-tight/light-corrosion resistant With on – off pushbutton	C – –	C L P J
<u>Reversing, open</u> Standard	R	R
<u>Reversing, enclosed</u> Standard Dust-tight/light-corrosion resistant	M –	M G

#### ⑦ Coil and contact specifications

Description	Code
Standard	AC operating coil DC operating coil Both AC and DC operating coil With extra pick-up operating coil
With super magnet	Both AC and DC operating coil
Mechanical latch (Contactor only)	AC operating coil DC operating coil Both AC and DC operating coil
With single-button auxiliary contact	AC operating coil DC operating coil With extra pick-up operating coil

#### ⑧ Type of thermal overload relay

Description	Code
Standard	TR-□ 2-element TR-□/3 3-element
Long time operating	TR-□L 2-element TR-□L3 3-element
Quick operating	TR-□Q 3-element
Open-phase protection	TK-□ 3-element

##### ● Frame size 03 to N5 DC coil

Operating coil voltage	Code
12V DC	B
24V DC	E
48V DC	F
60V DC	G
100V DC	1
110V DC	H
120V DC	K
200V DC	2
210V DC	Y
220V DC	M

##### ● Frame size N1/SE to N4/SE, N5 to N16 AC and DC coil (common)

Operating coil voltage	Code	
	AC 50/60Hz	DC
24-25V	24V	E
48-50V	48V	F
100-127V	100-120V	1
200-250V	200-240V	2
265-347V	–	3
380-450V	–	4
460-575V	–	5

⑩⑪ **Auxiliary contact**

● **SC-03 to 5-1**

Contact arrangement	Code	
	⑩	⑪
1NO	1	0
1NC	0	1
1NO+1NC	1	1
2NO	2	0
2NC	0	2
2NO+2NC	2	2

● **SC-N1 to N16**

Contact arrangement	Code	
	⑩	⑪
2NO+2NC	2	2
3NO+3NC	3	3
4NO+4NC	4	4

⑬ **No. of heater element and reset method**

Description	Code
Manual reset	Blank
2-element	
3-element	
Auto reset	A
2-element	
3-element	

■ **Correct mounting**

- (1) The standard mounting shown in Figure 1 is the proper mounting method. Following slanting mounting with front, behind, left and right direction is possible. (Figure 2) Allowable slant angle of SC (SW) - 03 to N16 : 30°
- (2) Side mounting can be necessary due to wiring or installation restriction. Side mounting is possible if you consider the followings, except for the types of SC-N14, 16 and mechanically latched type.
  - The performance of magnetic contactors is almost the same. Only mechanical durability and switching frequency may decrease.
  - The ultimate operational current of thermal overload relay may slightly changes.
- (3) Other mountings
  - Standard magnetic contactors and starters cannot be mounted on the ceiling. If they were mounted on the ceiling, they could not satisfy the operating performance value specified by Standards due to effect of moving section mass.
  - Standard magnetic contactors and starters cannot be mounted horizontally. External vibration or shock may result in malfunction due to effect of moving section mass. Dedicated horizontal mounting models are available on request. Add suffix "Z109" to the type number when

⑫ **Thermal overload relay ampere setting range**

Ampere setting range (A)	Code	Ampere setting range (A)	Code	Ampere setting range (A)	Code
0.1 - 0.15	TA	4 - 6	TS	65 - 95	TM
0.13 - 0.2	TB	5 - 8	TT	85 - 105	TI
0.15 - 0.24	TC	6 - 9	TU	85 - 125	TN
0.2 - 0.3	TD	7 - 11	TV	110 - 160	TP
0.24 - 0.36	TE	9 - 13	TW	125 - 185	TR
0.3 - 0.45	TF	12 - 18	TX	160 - 240	TS
0.36 - 0.54	TG	16 - 22	TQ	200 - 300	TT
0.48 - 0.72	TH	18 - 26	TB	240 - 360	TU
0.64 - 0.96	TJ	24 - 36	TE	300 - 450	TV
0.8 - 1.2	TK	28 - 40	TF	400 - 600	TW
0.95 - 1.45	TL	32 - 42	TI		
1.4 - 2.2	TM	34 - 50	TG		
1.7 - 2.6	TN	45 - 65	TJ		
2.2 - 3.4	TP	48 - 68	TO		
2.8 - 4.2	TR	53 - 80	TL		

**Ordering example**

● **Magnetic motor starter**

- ① Magnetic starter ..... S
- ② SW series ..... C
- ③④ Frame size: 5-1 ..... 20
- ⑤ Index ..... Blank
- ⑥ Non-reversing, open: Standard ..... A
- ⑦ Operating coil: AC operating ..... A
- ⑧ Thermal overload relay: Standard ..... N
- ⑨ Operating coil voltage: 220V-240V AC, 50Hz ..... P
- ⑩⑪ Auxiliary contact: 1NO+1NC ..... 11
- ⑫ Thermal overload relay heater range : 9-13 ..... TW
- ⑬ No. of heater element: 3 ..... D

Ordering code: SC20AAN-P11TWD

● **Magnetic contactor**

- ① Magnetic contactor ..... S
- ② SC series ..... C
- ③④ Frame size: N6 ..... 1C
- ⑤ Index ..... B
- ⑥ Non-reversing, open: Standard ..... A
- ⑦ Operating coil: DC operating ..... A
- ⑨ Operating coil voltage: 110V DC ..... 1
- ⑩⑪ Auxiliary contact: 2NO+2NC ..... 22

Ordering code: SC1CBAA-122

ordering. However, the models of "Z109" specification cannot be applied to standard mounting (vertical mounting).

- (i) Dedicated horizontal mounting models have 80% of mechanical durability, electrical durability and switching frequency, compared with standard mounting models.
- (ii) For magnetic starters, the ultimate operational current of thermal overload relay slightly changes.
- (iii) The following models are available; type SC-03 to SC-5-1, type SW-03 to 5-1, type SH-4, 5, type SC-N1 to N10, type SW-N1 to N10, type SC-N1/G to N3/G, type SC-N1/SE to N4/SE, type SB-□N.
- (iv) Dedicated horizontal mounting models of type SC-03/G to SC-5-1/G, type SC-N11 to SC-N16, type SB-□NB are not available.

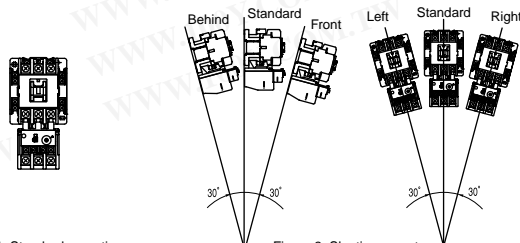


Figure 1 Standard mounting

Figure 2 Slanting mount

# Magnetic Contactors and Starters

## SC and SW series

### Specifications

#### ■ Ratings

Conforming to IEC 60947-4-1, EN 60947-4-1, VDE 0660

Contactor Type	Starter Type	Max. motor capacity (kW)				Rated operational current (A)				Thermal current (A) *1
		200V	380V	500V	600V	200V	380V	500V	600V	
		240V	440V	550V	660V	240V	440V	550V	660V	
<b>SC-03</b>	<b>SW-03/3H</b>	2.5	4	4	4	11	9	7	5	20
<b>SC-0</b>	<b>SW-0/3H</b>	3.5	5.5	5.5	5.5	13	12	9	7	20
<b>SC-05</b>	<b>SW-05/3H</b>	3.5	5.5	5.5	5.5	13	12	9	7	20
<b>SC-4-0</b>	<b>SW-4-0/3H</b>	4.5	7.5	7.5	7.5	18	16	13	9	25
<b>SC-4-1</b>	<b>SW-4-1/3H</b>	5.5	11	11	7.5	22	22	17	9	32
<b>SC-5-1</b>	<b>SW-5-1/3H</b>	5.5	11	11	7.5	22	22	17	9	32
<b>SC-N1</b>	<b>SW-N1/3H</b>	7.5	15	15	11	32	32	24	15	50
<b>SC-N2</b>	<b>SW-N2/3H</b>	11	18.5	18.5	15	40	40	29	19	60
<b>SC-N2S</b>	<b>SW-N2S/3H</b>	15	22	25	22	50	50	38	26	80
<b>SC-N3</b>	<b>SW-N3/3H</b>	18.5	30	37	30	65	65	60	38	100
<b>SC-N4</b>	<b>SW-N4/3H</b>	22	40	37	37	80	80	60	44	135
<b>SC-N5A</b>	<b>SW-N5A/3H</b>	30	55	55	55	105	105	85	64	150
<b>SC-N6</b>	<b>SW-N6/3H</b>	37	60	60	60	125	125	90	72	150
<b>SC-N7</b>	<b>SW-N7/3H</b>	45	75	75	90	150	150	120	103	200
<b>SC-N8</b>	<b>SW-N8/3H</b>	55	90	130	132	180	180	180	150	260
<b>SC-N10</b>	<b>SW-N10/3H</b>	65	110	132	132	220	220	200	150	260
<b>SC-N11</b>	<b>SW-N11/3H</b>	90	160	160	200	300	300	230	230	350
<b>SC-N12</b>	<b>SW-N12/3H</b>	120	220	250	300	400	400	360	360	450
<b>SC-N14</b>	<b>SW-N14/3H</b>	180	315	400	480	600	600	600	600	660
<b>SC-N16</b>	—	220	440	500	500	800	800	720	630	800

Note: \*1 The values are applied to contactors.

#### ■ Making and breaking capacities

Utilization category	Typical applications	IEC 60947-4-1, EN 60947-4-1, VDE 0660, JIS C 8201-4-1						
		Making and breaking			Making			
		Ic/Ie	Ur/Ue	cosφ or L/R	I/Ie	U/Ue	cosφ or L/R	
AC-1	Non-inductive or slightly inductive loads, resistance furnaces	1.5	1.05	0.8	1.5	1.05	0.8	
AC-2	Slip-ring motors: Starting, switching off	4.0	1.05	0.65	4.0	1.05	0.65	
AC-3	Squirrel-cage motors: Starting, switching off during running	Ie 100A	8.0	1.05	0.45	10	1.05	0.45
		Ie > 100A	8.0	1.05	0.35	10	1.05	0.35
AC-4	Squirrel-cage motors: Starting, plugging, inching	Ie 100A	10	1.05	0.45	12	1.05	0.45
		Ie > 100A	10	1.05	0.35	12	1.05	0.35
AC-5a	Switching of electric discharge lamp controls	3.0	1.05	0.45	3.0	1.05	0.45	
AC-5b	Switching of incandescent lamps	1.5	1.05	*	1.5	1.05	*	

Note: \*Test to be carried out with an incandescent lamp load.

Ie: Rated operational current

Ue: Rated operational voltage

I: Current made

U: Voltage before make

Ur: Recovery voltage

Ic: Current broken

#### ■ Auxiliary contact ratings

Conforming to IEC 60947-5-1, EN 60947-5-1, VDE 0660

Type	Continuous current (A)	Make and break capacity at AC (A)	Rated operational current (A)						Minimum voltage and current
			AC Voltage (V)	AC-15 (Ind.load)	AC-12 (Res.load)	DC Voltage (V)	DC-13 (Ind.load)	DC-12 (Res.load)	
<b>SC-03 to SC-N12</b>	10	60	100–120	6	10	24	3	5	5V 3mA
		30	200–240	3	8	48	1.5	3	
		15	380–440	1.5	5	110	0.55	2.5	
		12	500–600	1.2	5	220	0.27	1	
<b>SC-N14 to SC-16N</b>	10	60	100–120	6	10	24	5	10	24V 10mA
		60	200–240	6	10	48	1.5	5	
		40	380–440	4	10	110	0.55	2.5	
		25	500–600	2.5	10	220	0.27	1	

■ **Inching and plugging operations**  
 (Conforming to IEC 60947-4-1)

In applications where inching and plugging operations are included the contact wear will be increased. Therefore, it is necessary to select ones having larger frame sizes than in standard applications so as to minimize the needs of maintenance and replacement.

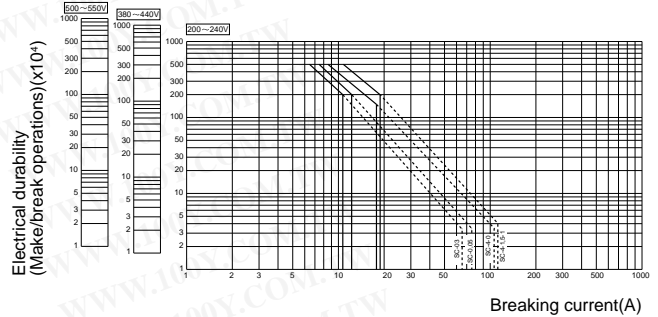
Voltage	Motor ratings		50% inching operation	
	Capacity (kW)	Full load current (A)	Electrical durability 100,000 operations	Electrical durability 500,000 operations
200V   240V	0.2	1.8	SC-03	SC-03
	0.4	3.2	SC-03	SC-03
	0.75	4.8	SC-03	SC-0, 05
	1.5	8.0	SC-03	SC-4-1, 5-1
	2.2	11.1	SC-4-0	SC-N1
	3.7	17.4	SC-4-1, 5-1	SC-N2
	5.5	26	SC-N1	SC-N3
	7.5	34	SC-N2	SC-N5A
	11	48	SC-N2S	SC-N7
	15	65	SC-N4	SC-N8
380V   440V	18.5	79	SC-N5A	SC-N10
	22	93	SC-N6	SC-N11
	30	124	SC-N7	SC-N14
	37	152	SC-N8	SC-N14
	45	180	SC-N10	—
	55	220	SC-N11	—
	75	300	SC-N14	—
	0.75	2.4	SC-03	SC-03
	1.5	4.0	SC-03	SC-03
	2.2	5.6	SC-03	SC-4-0
3.7	8.7	SC-03	SC-4-1, 5-1	
5.5	13	SC-4-0	SC-N1	
7.5	17	SC-4-1, 5-1	SC-N2S	
11	24	SC-N1	SC-N3	
15	32.5	SC-N2	SC-N5A	
18.5	39.5	SC-N2S	SC-N6	
22	46.5	SC-N3	SC-N7	
30	62	SC-N4	SC-N8	
37	76	SC-N5A	SC-N10	
45	90	SC-N6	SC-N11	
55	110	SC-N8	SC-N12	
75	150	SC-N10	SC-N14	
90	180	SC-N11	—	
110	220	SC-N12	—	
132	264	SC-N14	—	
150	300	SC-N14	—	
160	320	SC-N14	—	

- Notes: 1.  $\text{Inching \%} = \frac{\text{No. of inching operations}}{\text{Total No. of switching operations}} \times 100\%$
2. Light inching: 50%  
 Printing machine and similar equipment  
 Heavy inching: 75 – 100%  
 Machine tool, hoist and similar equipment (In cases when there are frequent on/off operations involving starting rush current).

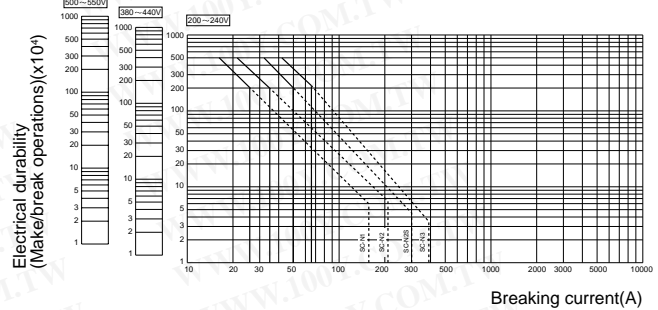
■ **Standard conditions for operation in service**

- Temperature range:  
 Operating: -5°C to +40°C  
 (-5°C to +55°C inside panel box)  
 Storage: -40°C to +65°C
- Humidity: 45 to 85% RH
- Vibration: 10 to 55Hz, 15m/s<sup>2</sup>
- Shock: 50m/s<sup>2</sup>
- Altitude: 2000m (6600ft) or lower
- IP40

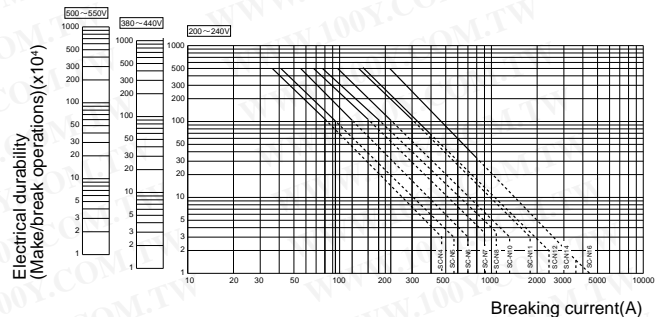
■ **Breaking current and electrical durability**  
 SC-03 to 5-1



■ **SC-N1 to N3**

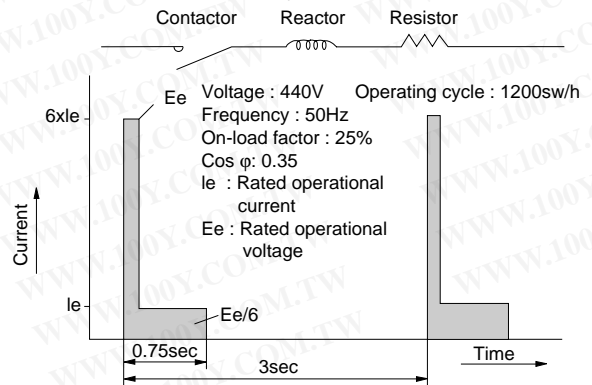


■ **SC-N4 to N16**



■ **Testing method—Category AC-3**

The method of determining the life expectancy and performance is prescribed by IEC as below.



A current equal to six times that of the rated operational current of the starter is applied to the terminals the switch is closed and the current immediately reduced to the rated operational current and then interrupted.

# Magnetic Contactors and Starters

## SC and SW series

### Specifications

#### ■ Performance data

Frame size	Making capacity I/le	Breaking capacity I/le	Operating cycles per hour	Voltage	Durability (operations) Electrical *    Mechanical
<b>03, 0, 05</b>	12	10	1,800	200/240V AC 380/440V AC	2 million    10 million
<b>4-0</b>	12	10	1,800	200/240V AC 380/440V AC	1.5 million    10 million
<b>4-1, 5-1</b>	12	10	1,800	200/240V AC 380/440V AC	2 million    10 million
<b>N1 to N3</b>	12	10	1,200	200/240V AC 380/440V AC	2 million    10 million (N1, N2) 5 million (N2S, N3)
<b>N4 to N11</b>	12	10	1,200	200/240V AC 380/440V AC	1 million    5 million
<b>N12, N14</b>	12	10	1,200	200/240V AC 380/440V AC	500,000    5 million
<b>N16</b>	12	10	1,200	200/240V AC 380/440V AC	250,000    2.5 million

le: Rated operational current.    I: Making or breaking current    \* For details, refer to page 01/21

#### ■ Coil voltage

##### ● Frame size 03 to N5A

Frame size	Coil operating voltage and frequency (AC)	Order voltage	Coil voltage code	Identification by coil color	Wiring
<b>03</b>	24V 50Hz/24–26V 60Hz	AC24V	<b>E</b>	White	
<b>0</b>	48V 50Hz/48–52V 60Hz	AC48V	<b>F</b>	White	
<b>05</b>	100V 50Hz/100–110V 60Hz	AC100V	<b>1</b>	Green (Standard voltage)	
<b>4-0</b>	100–110V 50Hz/110–120V 60Hz	AC110V	<b>H</b>	White	
<b>4-1</b>	110–120V 50Hz/120–130V 60Hz	AC120V	<b>K</b>	White	
<b>5-1</b>	200V 50Hz/200–220V 60Hz	AC200V	<b>2</b>	Yellow (Standard voltage)	
<b>N1</b>	200–220V 50Hz/220–240V 60Hz	AC220V	<b>M</b>	White	
<b>N2</b>	220–240V 50Hz/240–260V 60Hz	AC240V	<b>P</b>	White	
<b>N2S</b>	346–380V 50Hz/380–420V 60Hz	AC380V	<b>S</b>	White	
<b>N3</b>	380–400V 50Hz/400–440V 60Hz	AC400V	<b>4</b>	Purple (Standard voltage)	
<b>N4</b>	415–440V 50Hz/440–480V 60Hz	AC440V	<b>T</b>	White	
<b>N5A</b>	480–500V 50Hz/500–550V 60Hz	AC500V	<b>5</b>	White	

Notes: • Other voltages are available in 24 to 600V ranges on request.  
 • For frame size N1/SE to N4/SE, 24V to 250V AC (24V to 240V DC) is available.  
 • Use the coil voltage code, not specifying your actual voltage when ordering. Contactors with coil voltage range which corresponds to the voltage code you specified will be shipped from factory.  
 The above coil operating voltage and frequency (not voltage code) are shown on the products.

##### ● Frame size N5 to N16

Frame size	Coil operating voltage and frequency		Order voltage	Coil voltage code	Identification by coil color	Wiring
	AC	DC				
<b>N5</b>	24–25V 50/60Hz	24V	AC24V *3	<b>E</b>	White	
<b>N6</b>	48–50V 50/60Hz	48V	AC48V *3	<b>F</b>	White	
<b>N7</b>	100–127V 50/60Hz	100–120V *1	AC100V	<b>1</b>	Green (Standard voltage)	
<b>N8</b>						
<b>N10</b>	200–250V 50/60Hz	200–240V *2	AC200V	<b>2</b>	Yellow (Standard voltage)	
<b>N11</b>	265–347V 50/60Hz	–	AC300V	<b>3</b>	White	
<b>N12</b>	380–450V 50/60Hz	–	AC400V	<b>4</b>	Purple (Standard voltage)	
<b>N14</b>	460–575V 50/60Hz	–	AC500V	<b>5</b>	White	
<b>N16</b>						

Notes: • The coils are AC/DC common use (rated voltage 200V or less)  
 • Standard rated voltages are 100V, 200V and 400V.  
 Other voltages are available in 24V to 575V AC (24V to 240V DC) in frame size N5 to N12, also available in 100V to 575V AC (100V to 240V DC) in frame size N14 to N16.  
 • Use the coil voltage code, not specifying your actual voltage when ordering. Contactors with coil voltage range which corresponds to the voltage code you specified will be shipped from factory.  
 The above coil operating voltage and frequency (not voltage code) are shown on the products.  
 \*1 The coil voltage from a DC power supply with single phase full-wave rectification will be 100 to 110 V.  
 \*2 The coil voltage from a DC power supply with single phase full-wave rectification will be 200 to 220 V.  
 \*3 The coil voltage 24V and 48V are not available in frame size N14 to N16.

■ Coil characteristics  
● Frame size 03 to N5A

Frame size	Power consumption		Watt loss (W)		Pick-up voltage (V)		Drop-out voltage (V)		Operating time (ms)	
	Inrush (VA)	Sealed (VA)	200V 50Hz	220V 60Hz	200V 50Hz	220V 60Hz	200V 50Hz	220V 60Hz	Coil ON→ Contact ON	Coil OFF→ Contact OFF
<b>03</b>	95	9	2.7	2.8	105-125	116-136	70-98	80-110	9-20	5-16
<b>0</b>	95	9	2.7	2.8	105-125	116-136	70-98	80-110	9-20	5-16
<b>05</b>	95	9	2.7	2.8	105-125	116-136	70-98	80-110	9-20	5-16
<b>4-0</b>	95	9	2.7	2.8	118-136	130-146	75-106	88-120	9-20	5-16
<b>4-1</b>	95	9	2.7	2.8	118-136	130-146	75-106	88-120	9-20	5-16
<b>5-1</b>	95	9	2.7	2.8	118-136	130-146	75-106	88-120	9-20	5-16
<b>N1</b>	135	12.7	3.6	3.8	110-130	120-140	75-105	85-115	10-17	6-17
<b>N2</b>	135	12.7	3.6	3.8	110-130	120-140	75-105	85-115	10-17	6-17
<b>N2S</b>	190	13.4	4.5	5	115-135	130-150	85-110	100-125	10-18	8-18
<b>N3</b>	190	13.4	4.5	5	115-135	130-150	85-110	100-125	10-18	8-18
<b>N4</b>	210	14.4	4.8	5.3	120-140	135-155	70-95	95-120	16-23	7-17
<b>N5A</b>	260	18.1	6.2	6.7	115-145	135-150	80-90	90-110	13-21	6-12

Note: Coil ratings 200V 50Hz, 200 to 220V 60Hz. Operating time is based on 200V 50Hz.

● Frame size N5 to N16, N1/SE to N4/SE (contactor only)

AC operating

Frame size	Power consumption		Watt loss (W)		Pick-up voltage (V)	Drop-out voltage (V)	Operating time (ms)	
	Inrush (VA)	Sealed (VA)	200V 50Hz	220V 60Hz	200V 50/60Hz	200V 50/60Hz	Coil ON→ Contact ON	Coil OFF→ Contact OFF
<b>N5</b>	95	4.6	3.2	3.6	140-150	60-100	39-45	27-33
<b>N6</b>	230	5.8	3.4	3.7	140-150	60-100	31-37	30-36
<b>N7</b>	230	5.8	3.4	3.7	140-150	60-100	31-37	30-36
<b>N8</b>	255	6.2	4.7	5.2	140-150	60-100	38-44	31-37
<b>N10</b>	255	6.2	4.7	5.2	140-150	60-100	38-44	31-37
<b>N11</b>	320	6.5	5.6	6	140-150	60-100	43-49	41-47
<b>N12</b>	320	6.5	5.6	6	140-150	60-100	43-49	41-47
<b>N14</b>	460	11	7.8	8.6	140-160	60-100	69-75	56-62
<b>N16</b>	460	11	7.8	8.6	140-160	60-100	69-75	56-62
<b>N1/SE</b>	130	4.2	2.8	3.2	140-150	60-100	21-27	18-24
<b>N2/SE</b>	130	4.2	2.8	3.2	140-150	60-100	21-27	18-24
<b>N2S/SE</b>	160	4.3	2.9	3.3	140-150	60-100	24-30	24-32
<b>N3/SE</b>	160	4.3	2.9	3.3	140-150	60-100	24-30	24-32
<b>N4/SE</b>	95	4.6	3.2	3.6	140-150	60-100	39-45	26-33

Note: Coil ratings 200 to 250V 50/60Hz, 200 to 220V DC. Operating time is based on 200V 50/60Hz.

DC operating

Frame size	Power consumption		Time constant (ms) Sealed	Pick-up voltage (V)	Drop-out voltage (V)	Operating time (ms)	
	Inrush (W)	Sealed (W)		200V DC	200V DC	Coil ON→ Contact ON	Coil OFF→ Contact OFF
<b>N5</b>	110	3	1	140-160	40-100	35-41	26-32
<b>N6</b>	275	4	1	140-160	40-100	28-34	27-33
<b>N7</b>	275	4	1	140-160	40-100	28-34	27-33
<b>N8</b>	300	4.5	1	140-160	40-100	33-39	31-37
<b>N10</b>	300	4.5	1	140-160	40-100	33-39	31-37
<b>N11</b>	410	4.6	1	140-160	40-100	38-44	41-47
<b>N12</b>	410	4.6	1	140-160	40-100	38-44	41-47
<b>N14</b>	500	8.8	1	140-160	40-100	64-70	52-57
<b>N16</b>	500	8.8	1	140-160	40-100	64-70	52-57

Note: Coil ratings 200 to 250V 50/60Hz, 200 to 220V DC. Operating time is based on 200V DC.

# Magnetic Contactors and Starters

## SC and SW series

### Specifications

#### DC applications of magnetic contactors

##### ■ Description

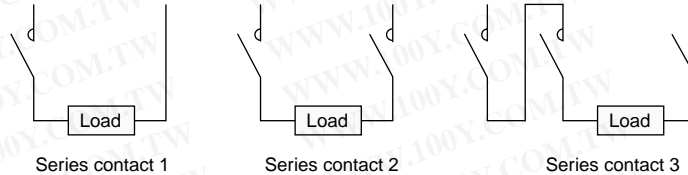
FUJI magnetic contactors in the SC series are normally used in AC circuit applications. However, they may also be used in DC circuits, and in this case their contacts must be connected in series as shown in the diagram.

When used in this manner they will be found to be more economical than using contactors exclusively designed for DC applications. Coils are available for both AC and DC.

If the following ratings are observed the equipment will have an electrical durability of approx. 500,000 operations.

##### ■ Wiring connection

Contacts must be connected in series when the contactors are used in DC applications.



##### ■ Ratings

Type	No. of contacts connected in series	Rated operational current (A)							
		Class DC-1(JEM1038) (Resistive, L/R ≤ 1ms.)				Class DC2, 4,(JEM1038) (DC motor, L/R ≤ 15ms.)			
		24V	48V	110V	220V	24V	48V	110V	220V
SC-03	1	13	13	10	1.2	6	3	2	0.35
	2	13	13	10	6	12	6	4	1.2
	3	15	15	15	15	15	10	8	4
SC-0	1	13	13	10	1.2	6	3	2	0.35
	2	13	13	10	6	12	6	4	1.2
	3	15	15	15	15	15	10	8	4
SC-05	1	13	13	10	1.2	6	3	2	0.35
	2	13	13	10	6	12	6	4	1.2
	3	15	15	15	15	15	10	8	4
SC-4-0	1	16	13	10	1.5	8	6	2	0.35
	2	16	16	12	8	16	12	6	1.5
	3	18	18	18	15	18	18	12	6
SC-4-1	1	20	15	12	2	10	8	3	0.35
	2	20	20	15	10	20	15	8	2
	3	22	22	20	15	22	22	15	8
SC-5-1	1	20	15	12	2	10	8	3	0.35
	2	20	20	15	10	20	15	8	2
	3	22	22	20	15	22	22	15	8
SC-N1	1	25	25	15	2	15	8	3	0.35
	2	25	25	25	20	25	15	8	2
	3	35	35	30	25	35	25	20	8
SC-N2	1	30	30	20	2	20	15	4	0.35
	2	30	30	30	20	30	20	15	3
	3	45	45	40	35	35	30	30	8
SC-N2S	2	60	60	40	20	60	30	20	3.5
	3	60	60	60	40	60	60	60	13
SC-N3	2	80	80	50	20	80	40	20	4
	3	80	80	80	60	80	80	80	20
SC-N4	2	80	80	50	20	80	40	20	4
	3	80	80	80	60	80	80	80	20
SC-N5A	2	120	120	80	40	120	80	40	15
	3	120	120	120	120	120	120	120	80
SC-N6	2	120	120	80	40	120	80	40	15
	3	120	120	120	120	120	120	120	80
SC-N7	2	160	160	100	80	160	120	80	40
	3	160	160	160	160	160	160	160	160
SC-N8	2	200	200	160	160	200	160	120	60
	3	200	200	200	200	200	200	200	200
SC-N10	2	200	200	160	160	200	160	120	60
	3	200	200	200	200	200	200	200	200
SC-N11	2	300	300	200	200	300	200	160	80
	3	300	300	300	300	300	300	300	300
SC-N12	2	400	400	330	300	400	300	200	100
	3	400	400	400	400	400	400	400	400
SC-N14	2	600	500	420	300	-	-	-	-
	3	600	600	600	420	-	-	-	-

**Standard type non-reversing contactors and starters**

Up to 315kW 440 Volts 3-phase  
(440kW for contactor only)

■ **Description**

The starter consists of a magnetic contactor and a thermal overload relay and is designed for the full voltage starting of 3-phase induction motor.

■ **Standards**

- Meet the requirements of BS, NEMA, IEC, VDE and JIS.  
The SC series contactors have already been approved by NK, LR, BV for marine use, UL, CSA and TÜV. These contactors can be used universally because of their high efficiency and reliability and are completely safe. Their maximum rated voltage is 660V AC.

■ **Features**

**SC-03 to SC-5-1**

- Small frame contactors have such options as additional auxiliary blocks, operation counter unit with snap-on fittings, and coil surge suppressors. Modification can be made quickly and easily on site.
- Bifurcated type auxiliary contacts have a high degree of contact reliability. They can be used in low level circuit of 5V, 3mA.
- Type and rating are indicated on the front of contactor.

**Contactors with single button auxiliary contacts (SC-03H to N12H)**

See page 01/64

■ **Types and ratings**

Max. motor capacity (kW)	Rated operation current (A)		Rated thermal current (A)	Auxiliary contact		Contactor		Starter (3-element)			
	200V	380V		200V	380V	Open Type	Ordering code	Open Type	Ordering code	Enclosed Type	Ordering code
200V 240V	380V 440V	200V 240V	380V 440V	NO	NC	Open Type	Ordering code	Open Type	Ordering code	Enclosed Type	Ordering code
2.5	4	11	9	20	1	SC-03	SC11AA-■10	SW-03/3H	SC11AAN-■10□□	SW-03C/3H	SC11CAN-■10□□
3.5	5.5	13	12	20	1	SC-0	SC13AA-■10	SW-0/3H	SC13AAN-■10□□	SW-0C/3H	SC13CAN-■10□□
3.5	5.5	13	12	20	1	SC-05	SC14AA-■11	SW-05/3H	SC14AAN-■11□□	SW-05C/3H	SC14CAN-■11□□
4.5	7.5	18	16	25	1	SC-4-0	SC18AA-■10	SW-4-0/3H	SC18AAN-■10□□	SW-4-0C/3H	SC18CAN-■10□□
5.5	11	22	22	32	1	SC-4-1	SC19AA-■10	SW-4-1/3H	SC19AAN-■10□□	SW-4-1C/3H	SC19CAN-■10□□
5.5	11	22	22	32	1	SC-5-1	SC20AA-■11	SW-5-1/3H	SC20AAN-■11□□	SW-5-1C/3H	SC20CAN-■11□□
7.5	15	32	32	50	2	SC-N1	SC25BAA-■22	SW-N1/3H	SC25BAAN-■22□□	SW-N1C/3H	SC25BCAN-■22□□
11	18.5	40	40	60	2	SC-N2	SC35BAA-■22	SW-N2/3H	SC35BAAN-■22□□	SW-N2C/3H	SC35BCAN-■22□□
15	22	50	50	80	2	SC-N2S	SC50BAA-■22	SW-N2S/3H	SC50BAAN-■22□□	SW-N2SC/3H	SC50BCAN-■22□□
18.5	30	65	65	100	2	SC-N3	SC65BAA-■22	SW-N3/3H	SC65BAAN-■22□□	SW-N3C/3H	SC65BCAN-■22□□
22	40	80	80	135	2	SC-N4	SC80BAA-■22	SW-N4/3H	SC80BAAN-■22□□	SW-N4C/3H	SC80BCAN-■22□□
30	55	105	105	150	2	SC-N5A	SC93CAA-■22	SW-N5A/3H	SC93CAAN-■22□□	SW-N5AC/3H	SC93CCAN-■22□□
37	60	125	125	150	2	SC-N6	SC1CBAA-■22	SW-N6/3H	SC1CBAAN-■22□□	SW-N6C/3H	SC1CBCAN-■22□□
45	75	150	150	200	2	SC-N7	SC1FBAA-■22	SW-N7/3H	SC1FBAAN-■22□□	SW-N7C/3H	SC1FBCAN-■22□□
55	90	180	180	260	2	SC-N8	SC1JBAA-■22	SW-N8/3H	SC1JBAAN-■22□□	SW-N8C/3H	SC1JBCAN-■22□□
65	110	220	220	260	2	SC-N10	SC2CBAA-■22	SW-N10/3H	SC2CBAAN-■22□□	SW-N10C/3H	SC2CBCAN-■22□□
90	160	300	300	350	2	SC-N11	SC3ABAA-■22	SW-N11/3H	SC3ABAAN-■22□□	SW-N11C/3H	SC3ABCAN-■22□□
120	220	400	400	450	2	SC-N12	SC4ABAA-■22	SW-N12/3H	SC4ABAAN-■22□□	SW-N12C/3H	SC4ABCAN-■22□□
180	315	600	600	660	2	SC-N14	SC6ABAA-■22	SW-N14/3H	SC6ABAAN-■22□□	SW-N14C/3H	SC6ABCAN-■22□□
220	440	800	800	800	2	SC-N16	SC8ABAA-■22				

Notes : 1. ■ : Coil voltage code, □ : Thermal overload relay ampere setting range code, see page 01/19.

2. \*1 Auxiliary contact 1NC is available. \*2 Auxiliary contact 2NC or 2NC is available.

\*3 Auxiliary contact 2NO, 2NC, or 2NO+2NC is available. For enclosed type, 2NO+2NC is not available.

3. Auxiliary contact 4NO+4NC is available on request for frame size N1 and above.

4. Contactor with enclosure is also available.



**SC-N1 to SC-N16**

- Adoption of improved contact material and arc-extinguishing grid permits further improvement in breaking efficiency.
- Type and rating are indicated on the front of contactor.
- Auxiliary contact arrangements are available up to 4NO+4NC.
- Can be mounted on 35mm rails to meet the requirements of IEC Standards. (SC-N1 to N3)
- Bifurcated type auxiliary contacts have a high degree of contact reliability. They can be used in low level circuit of 5V, 3mA.(SC-N1 to N12)

**SUPER MAGNET(SC-N6 to SC-N16)**

- The electronically-controlled SUPER MAGNET has an IC built into the coil circuit. Its operation is based on the "AC input, DC operated" concept.
- Operate on both AC and DC power supply. The operating voltage range has been greatly expanded.

- Coil burning and contact chattering due to voltage fluctuation have been eliminated.
- A built-in surge suppression device prevents surges from occurring on ON-OFF operations.

- Thermal overload relays
- Superior protection  
The starter is fitted with a TR type thermal overload relay which features ambient temperature compensation, auto-manual resetting, and trip indicator.
- Alarm contacts are available in 1NO+1NC arrangements.
- Optional operation indicating lamp can be fitted on request.

- Thermal overload relays : See page 01/88.
- Auxiliary contact ratings : See page 01/20.
- Performance data : See page 01/22.
- Coil ratings : See page 01/22.

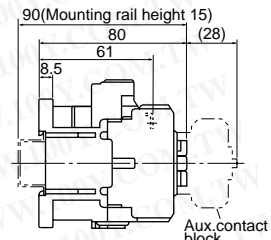
# Magnetic Contactors and Starters

## SC and SW series

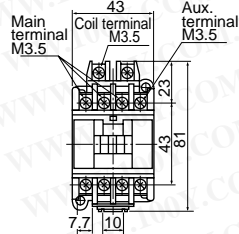
### Standard type

#### ■ Dimensions, mm Contactors/Open type

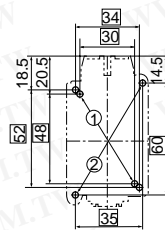
##### SC-03, SC-0



Mass: 0.32kg



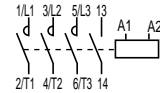
#### Panel drilling



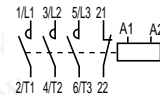
#### ■ Wiring diagrams

##### Auxiliary contact

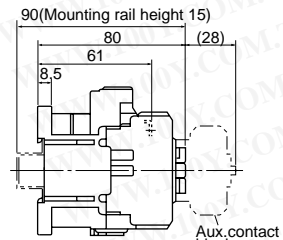
1NO



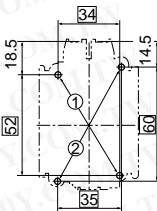
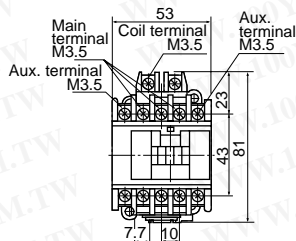
1NC



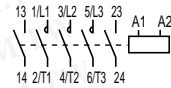
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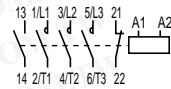
Mass: 0.34kg



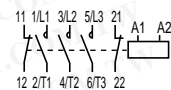
2NO



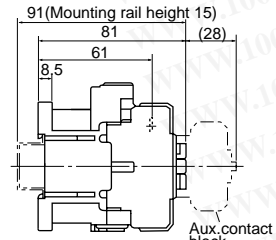
1NO+1NC



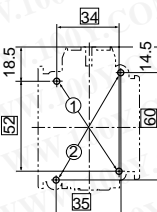
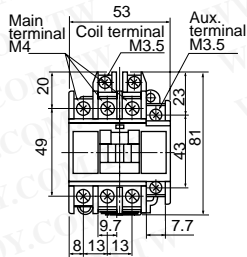
2NC



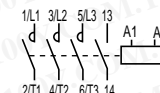
##### SC-4-0, SC-4-1



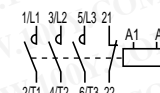
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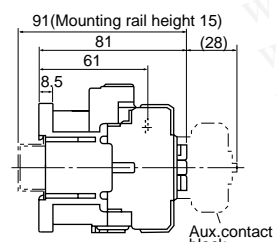
1NO



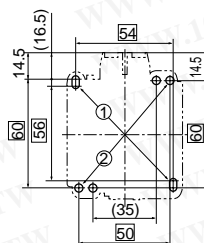
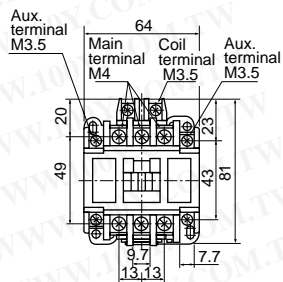
1NC



##### SC-5-1



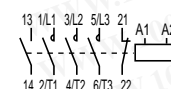
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2NO



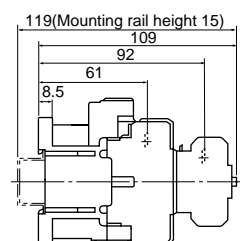
1NO+1NC



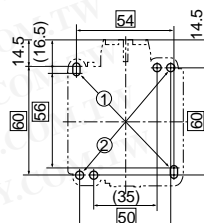
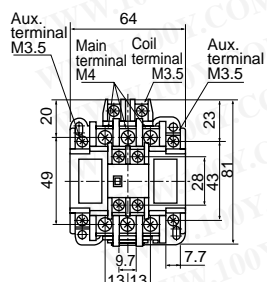
2NC



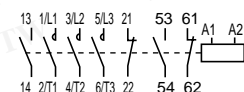
##### SC-5-1



Mass: 0.4kg



2NO+2NC

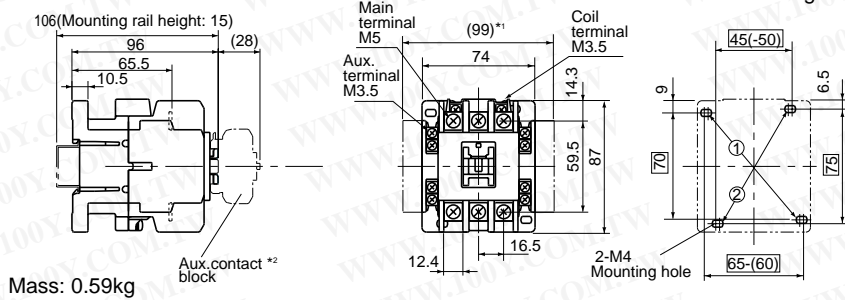


Note: Use the two mounting holes on a diagonal line to mount a contactor.  
Mounting holes indicated by ① are compatible with those of SRC type.  
Mounting holes indicated by ② are compatible with IEC standard

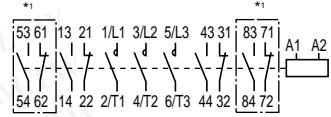
■ Dimensions, mm  
 Contactors/Open type

■ Wiring diagrams  
 SC-N1 to SC-N16

**SC-N1, SC-N2**

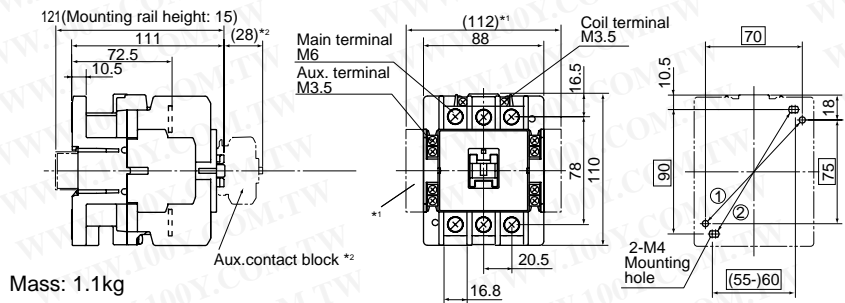


Mass: 0.59kg



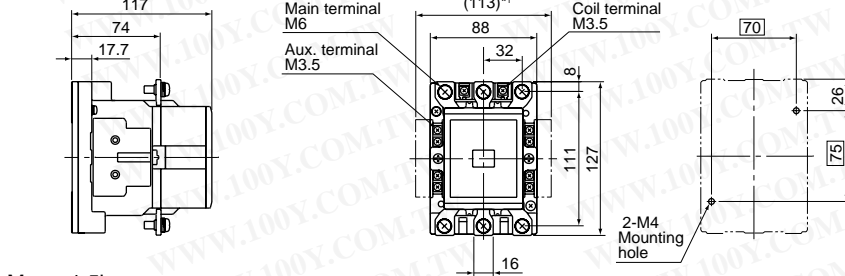
\*1 In case of auxiliary contact 4NO+4NC

**SC-N2S, SC-N3**



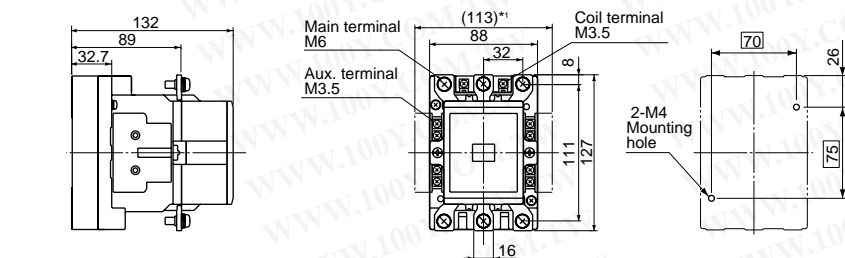
Mass: 1.1kg

**SC-N4**



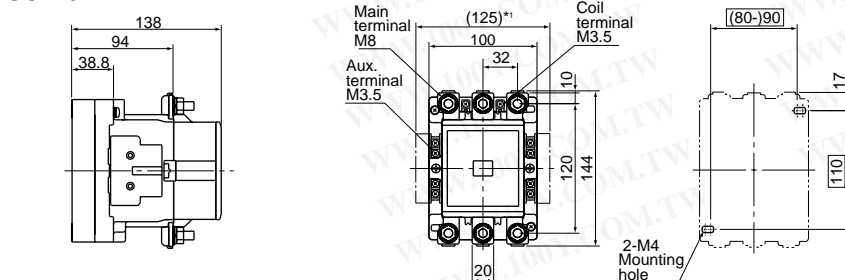
Mass: 1.5kg

**SC-N5A**



Mass: 1.5kg

**SC-N6**



Mass: 2.4kg

Note: • Use the two mounting holes on a diagonal line to mount a contactor.  
 Mounting holes indicated by ① are compatible with those of SRC type.  
 Mounting holes indicated by ② are compatible with IEC standard

\*1 For two side mounting aux. contact blocks mounted

\*2 For front mounting aux. contact blocks mounted

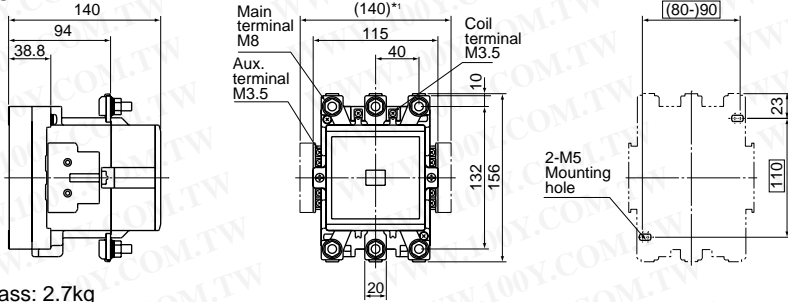
# Magnetic Contactors and Starters

## SC and SW series

### Standard type

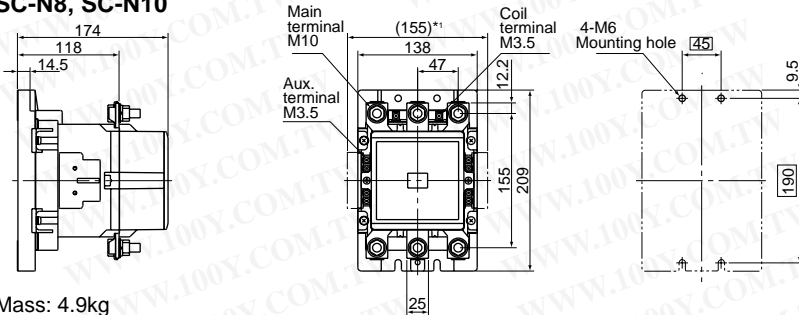
#### ■ Dimensions, mm Contactors/Open type

##### SC-N7



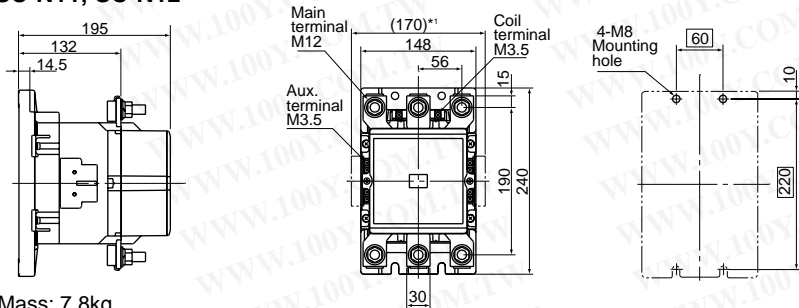
Mass: 2.7kg

##### SC-N8, SC-N10



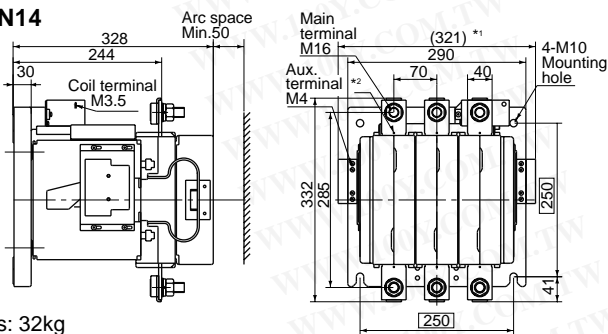
Mass: 4.9kg

##### SC-N11, SC-N12



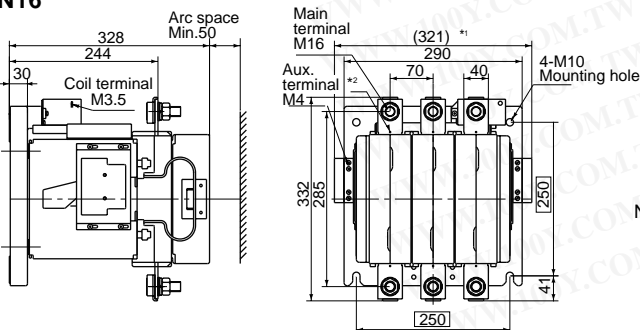
Mass: 7.8kg

##### SC-N14



Mass: 32kg

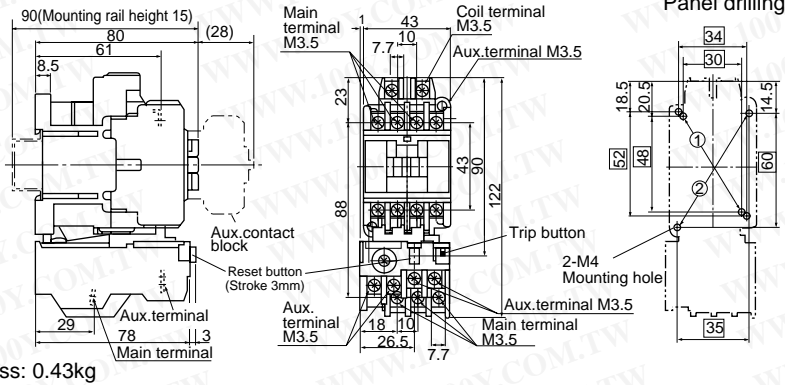
##### SC-N16



Mass: 34kg

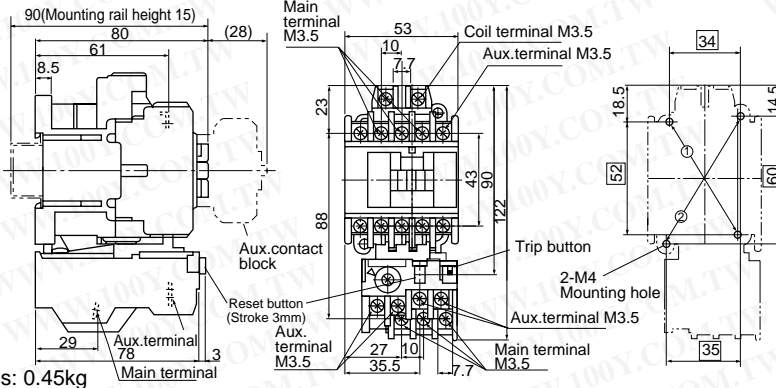
Note: \*1 For two side mounting aux.contact blocks mounted  
\*2 M4 tap for control circuit

■ Dimensions, mm  
**Starters/Open type**  
**SW-03/3H, SW-0/3H**



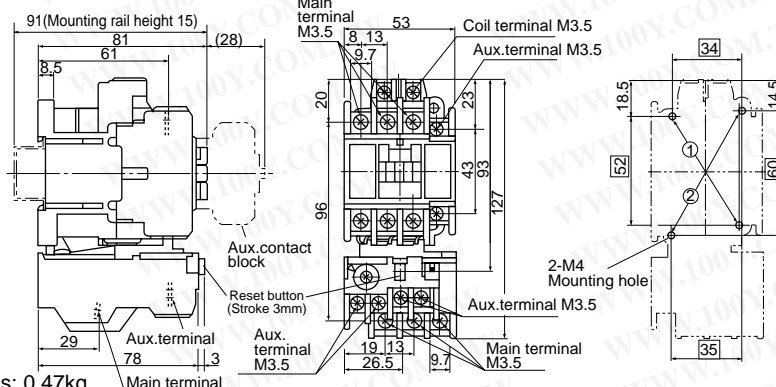
Mass: 0.43kg

**SW-05/3H**



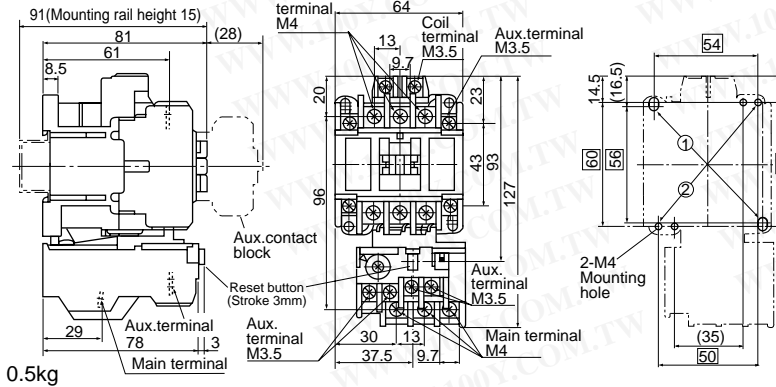
Mass: 0.45kg

**SW-4-0/3H, SW-4-1/3H**



Mass: 0.47kg

**SW-5-1/3H**

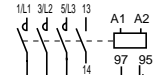


Mass: 0.5kg

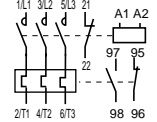
■ Wiring diagrams

Auxiliary contact

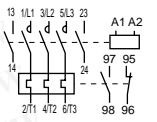
1NO



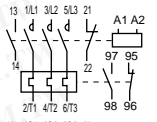
1NC



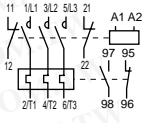
2NO



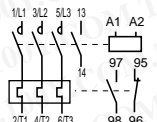
1NO+1NC



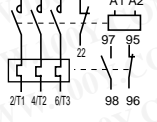
2NC



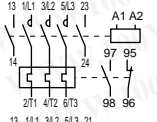
1NO



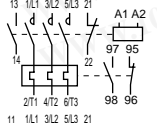
1NC



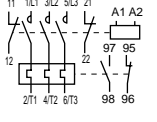
2NO



1NO+1NC



2NC



Note: Use the two mounting holes on a diagonal line to mount a contactor.  
 Mounting holes indicated by ① are compatible with those of SRC type.  
 Mounting holes indicated by ② are compatible with IEC standard

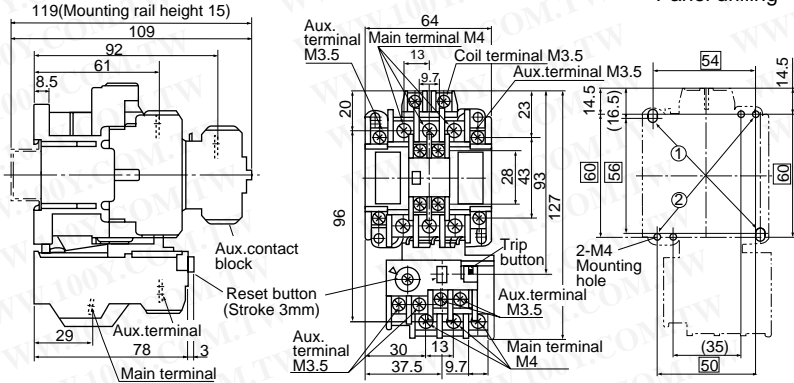
# Magnetic Contactors and Starters

## SC and SW series

### Standard type

#### ■ Dimensions, mm Starters/Open type

##### SW-5-1/3H

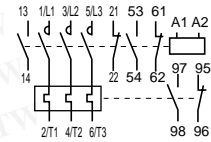


Mass: 0.52kg

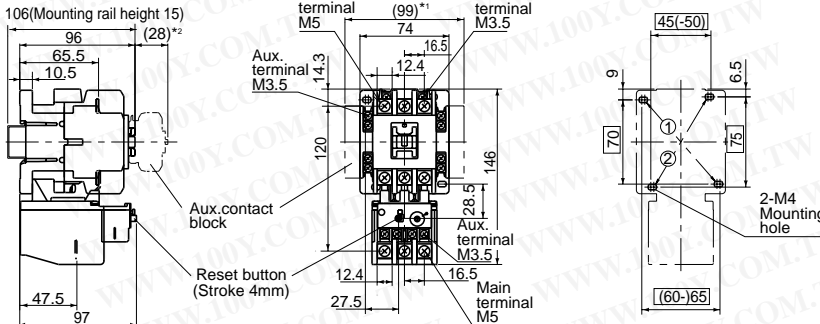
#### ■ Wiring diagrams SW-5-1/3H

Auxiliary contact

2NC+2NO

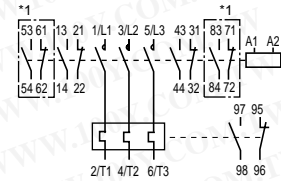


##### SW-N1/3H, SW-N2/3H



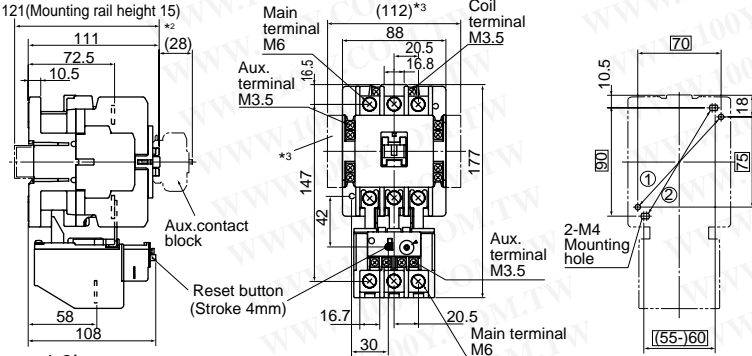
Mass: 0.77kg

#### ■ Wiring diagrams SW-N1/3H to SW-N8/3H



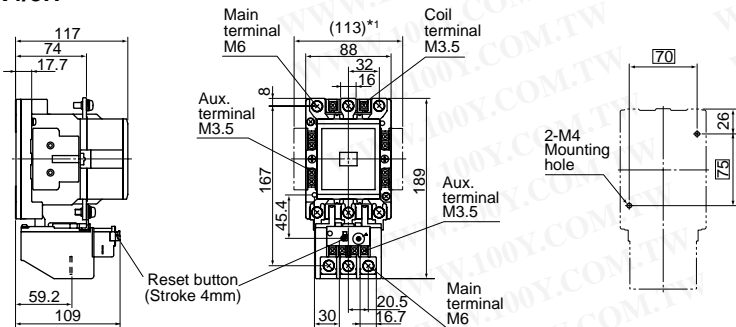
\*1 In case of auxiliary contact 4NO+4NC

##### SW-N2S/3H, SW-N3/3H



Mass: 1.3kg

##### SW-N4/3H



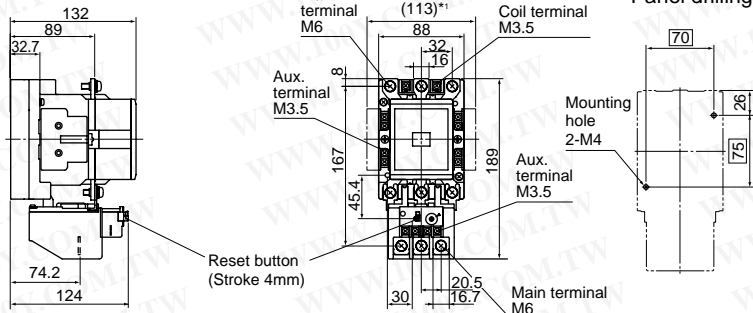
Mass: 1.7kg

Note: • Use the two mounting holes on a diagonal line to mount a contactor.  
Mounting holes indicated by ① are compatible with those of SRC type.  
Mounting holes indicated by ② are compatible with IEC standard

\*1 For two side mounting aux. contact blocks mounted

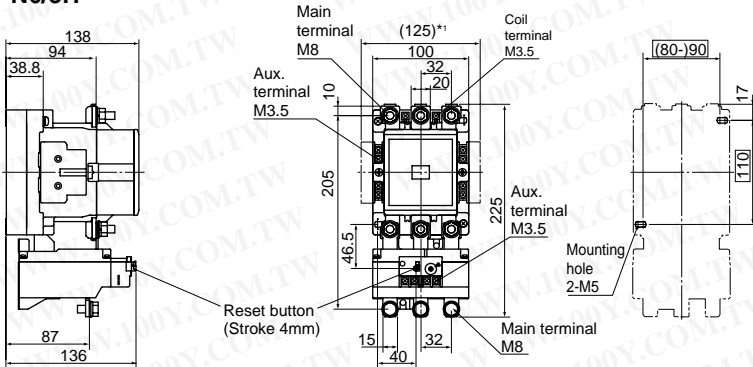
\*2 For front mounting aux. contact blocks mounted

■ Dimensions, mm  
 Starters/Open type  
**SW-N5A/3H**



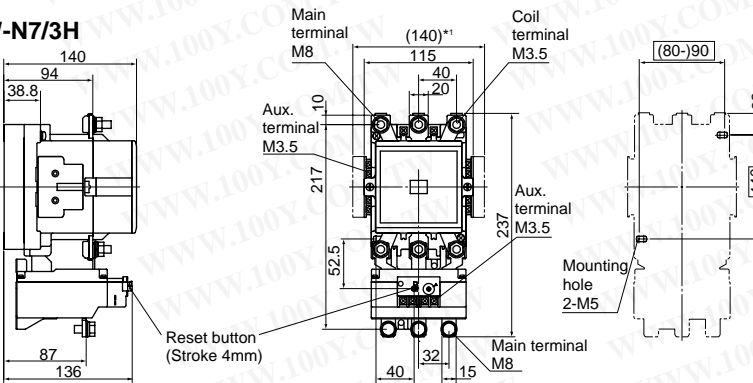
Mass: 1.7kg

**SW-N6/3H**



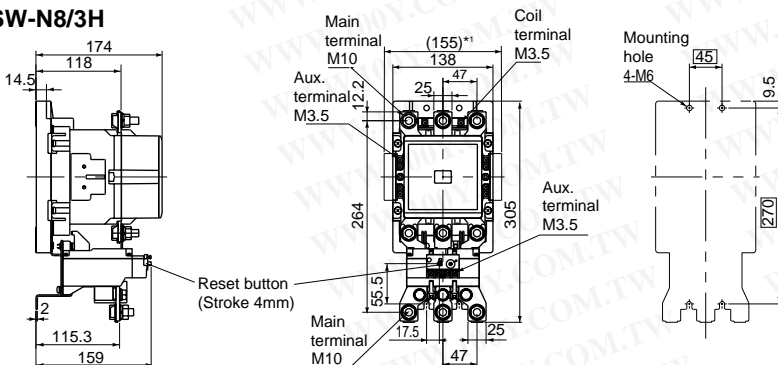
Mass: 3kg

**SW-N7/3H**



Mass: 3.3kg

**SW-N8/3H**



Mass: 6.1kg

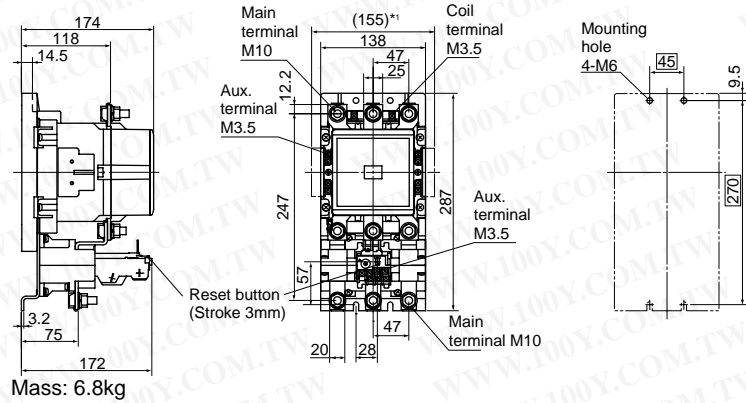
Note: \*1 For two side mounting aux. contact blocks mounted

# Magnetic Contactors and Starters

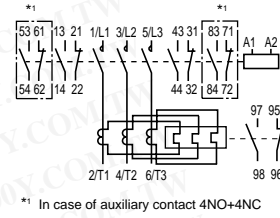
## SC and SW series

### Standard type

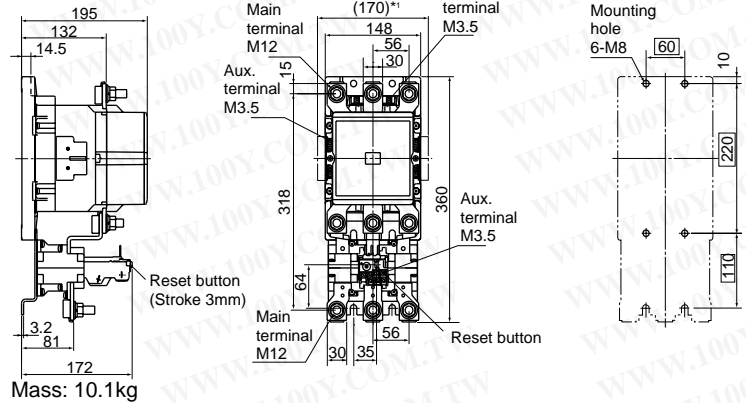
#### ■ Dimensions, mm Starters/Open type SW-N10/3H



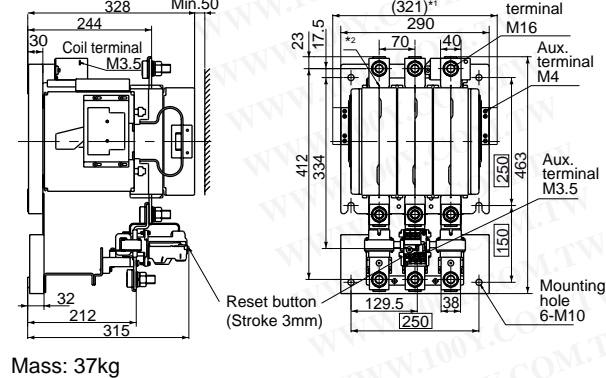
#### ■ Wiring diagrams SW-N10/3H to SW-N14/3H



#### SW-N11/3H, SW-N12/3H



#### SW-N14/3H

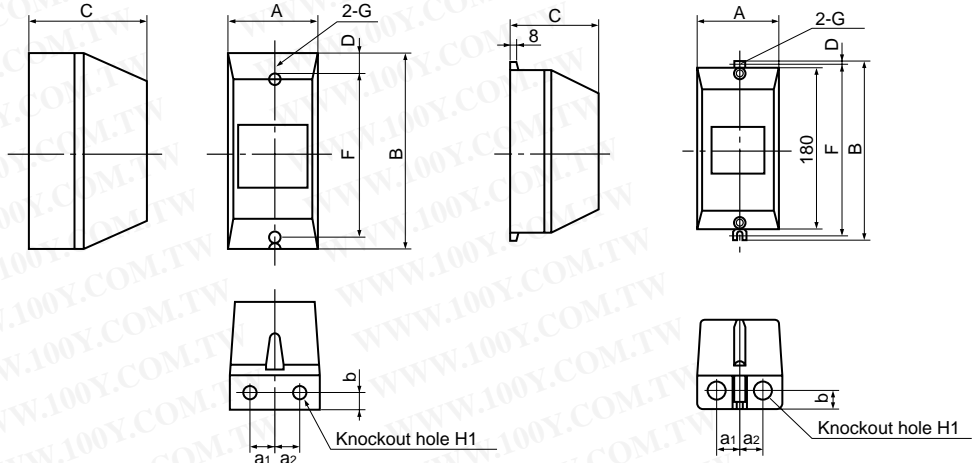


Note: \*1 For two side mounting aux. contact blocks mounted  
\*2 For front mounting aux. contact blocks mounted

**Starters/Enclosed type**

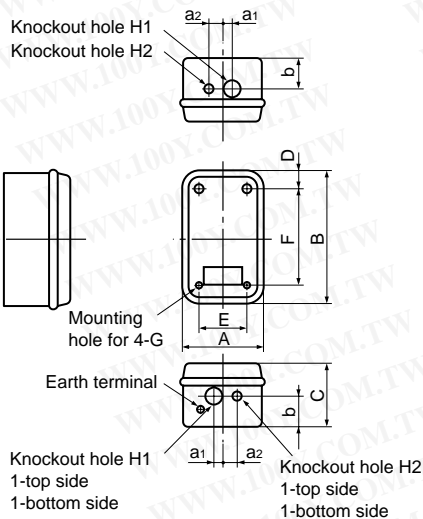


AF88-1347

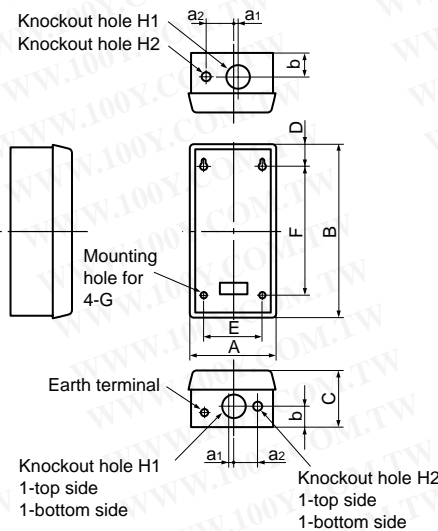


**Fig. 1 Plastic enclosure**

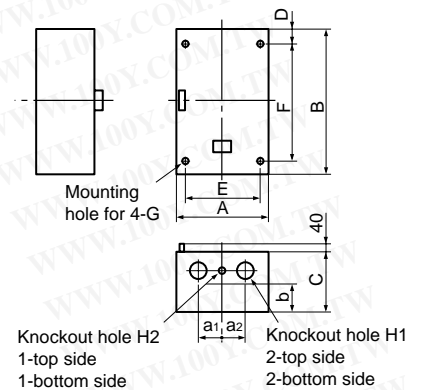
**Fig. 2 Plastic enclosure**



**Fig. 3 Steel enclosure**



**Fig. 4 Steel enclosure**



**Fig. 5 Steel enclosure**

Type	A	B	C	D	E	F	G	Lead hole H1	Lead hole H2	a1	a2	b	Mass (kg)	Fig. No.
SW-03C/3H	76	165	94	14.5	-	135	M4	φ17	φ17	19	19	18.5	0.7	1
SW-0C/3H	76	165	94	14.5	-	135	M4	φ17	φ17	19	19	18.5	0.7	
SW-05C/3H	76	165	94	14.5	-	135	M4	φ17	φ17	19	19	18.5	0.72	
SW-4-0C/3H	90	200	94	5	-	190	M4	φ21	φ21	24	24	22.5	0.80	2
SW-4-1C/3H	90	200	94	5	-	190	M4	φ21	φ21	24	24	22.5	0.80	
SW-5-1C/3H	90	200	94	5	-	190	M4	φ21	φ21	24	24	22.5	0.83	
SW-N1C/3H	145	246	132	18	80	210	M6	φ28	φ28	Top: 20	60	2.0	3	
SW-N2C/3H	145	246	132	18	80	210	M6	φ28	φ28	Bottom: 27	60	2.0		
SW-N2SC/3H	175	320	145	35	110	250	M6	φ35	φ28	15	35	70		3
SW-N3C/3H	175	320	145	35	110	250	M6	φ35	φ28	15	35	70		3
SW-N4C/3H	200	400	160	37	125	325	M8	φ43	φ28	20	40	80		4.4
SW-N5AC/3H	200	400	160	37	125	325	M8	φ43	φ28	20	40	80	4.4	
SW-N6C/3H	225	450	180	50	150	350	M8	φ52	φ28	10	70	80	8.4	4
SW-N7C/3H	280	560	210	55	175	450	M10	φ65	φ28	10	80	95	12.3	
SW-N8C/3H	335	670	225	85	200	500	M10	φ78	φ28	0	100	95	18.1	
SW-N10C/3H	335	670	225	85	200	500	M10	φ78	φ28	0	100	95	18.8	
SW-N11C/3H	400	800	250	100	250	600	M10	φ105	φ28	0	150	100	24.6	
SW-N12C/3H	400	800	250	100	250	600	M10	φ105	φ28	0	150	100	24.6	
SW-N14C/3H	600	950	400	75	500	800	M12	φ105	φ28	150	150	280	97.0	5

Note: Dimensions of enclosed type contactor SC-03C to SC-N14C are same as those of starters. Contact FUJI for mass.

# Magnetic Contactors and Starters

## SC and SW series

### Reversing standard type

#### Reversing standard type contactors and starters

##### ■ Description

The reversing starter consists of two magnetic contactors and a thermal overload relay. They are suitable for across-the-line starting and reversing of 3-phase squirrel-cage rotor and slip-ring motors.

This starter is provided with a built-in "perfect interlock safety mechanism" which prevents the engagement of forward-reverse contactors simultaneously, as well as electrical interlock.

Where there is a danger of forward-reverse being engaged at the same time, i.e., in the case of power source switching, hoist or machine tool controls, etc. then this type is recommended. The action is simple and positive, and free from trouble in operation.

##### ■ Operating mechanism

When one contactor begins to move the other contactor is locked in position. An arm is used to actuate each contactor so that there is no possibility of double engagement.



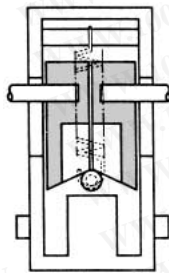
##### ■ Ratings of auxiliary contact and coil:

See pages 01/20 and 01/22.

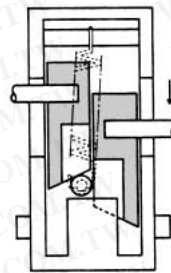
##### ■ Performance data:

Same as standard open type. See page 01/22.

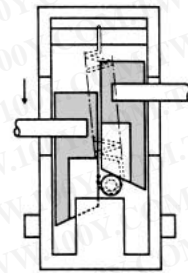
##### Mechanism principle (Explanation only)



Both contactors open position



Forward contactor closed position



Reverse contactor closed position

##### ■ Ordering information

Specify the following:

1. Ordering code
2. Overload relay setting range code
3. Operating coil voltage code
4. Auxiliary contact arrangement as shown in the table below.

Example: (2NO + 2NC) × 2

##### ■ Types and ratings

Max. motor capacity (kw)	Rated operation current (A)		Auxiliary contact	Contactor		Starter (3-element)		Enclosed	
	200V	380V		Open Type	Ordering code	Open Type	Ordering code	Type	Ordering code
2.5	4	11	9	1NC×2*1	<b>SC-03RM</b> SC11RA-■01	<b>SW-03RM/3H</b> SC11RAN-■01T□□	<b>SW-03RMC/3H</b> SC11MAN-■01T□□		
3.5	5.5	13	12	1NC×2*1	<b>SC-05RM</b> SC13RA-■01	<b>SW-05RM/3H</b> SC13RAN-■01T□□	<b>SW-05RMC/3H</b> SC13MAN-■01T□□		
3.5	5.5	13	12	(1NO+1NC)×2*2	<b>SC-05RM</b> SC14RA-■11	<b>SW-05RM/3H</b> SC14RAN-■11T□□	<b>SW-05RMC/3H</b> SC14MAN-■11T□□		
4.5	7.5	18	16	1NC×2*1	<b>SC-4-0RM</b> SC18RA-■01	<b>SW-4-0RM/3H</b> SC18RAN-■01T□□	<b>SW-4-0RMC/3H</b> SC18MAN-■01T□□		
5.5	11	22	22	1NC×2*1	<b>SC-4-1RM</b> SC19RA-■01	<b>SW-4-1RM/3H</b> SC19RAN-■01T□□	<b>SW-4-1RMC/3H</b> SC19MAN-■01T□□		
5.5	11	22	22	(1NO+1NC)×2*3	<b>SC-5-1RM</b> SC20RA-■11	<b>SW-5-1RM/3H</b> SC20RAN-■11T□□	<b>SW-5-1RMC/3H</b> SC20MAN-■11T□□		
7.5	15	32	32	(2NO+2NC)×2*3	<b>SC-N1RM</b> SC25BRA-■22	<b>SW-N1RM/3H</b> SC25BRAN-■22T□□	<b>SW-N1RMC/3H</b> SC25BMAN-■22T□□		
11	18.5	40	40	(2NO+2NC)×2*3	<b>SC-N2RM</b> SC35BRA-■22	<b>SW-N2RM/3H</b> SC35BRAN-■22T□□	<b>SW-N2RMC/3H</b> SC35BMAN-■22T□□		
15	22	50	50	(2NO+2NC)×2*3	<b>SC-N2SRM</b> SC50BRA-■22	<b>SW-N2SRM/3H</b> SC50BRAN-■22T□□	<b>SW-N2SRMC/3H</b> SC50BMAN-■22T□□		
18.5	30	65	65	(2NO+2NC)×2*3	<b>SC-N3RM</b> SC65BRA-■22	<b>SW-N3RM/3H</b> SC65BRAN-■22T□□	<b>SW-N3RMC/3H</b> SC65BMAN-■22T□□		
22	40	80	80	(2NO+2NC)×2*3	<b>SC-N4RM</b> SC80BRA-■22	<b>SW-N4RM/3H</b> SC80BRAN-■22T□□	<b>SW-N4RMC/3H</b> SC80BMAN-■22T□□		
30	55	105	105	(2NO+2NC)×2*3	<b>SC-N5ARM</b> SC93CRA-■22	<b>SW-N5ARM/3H</b> SC93CRAN-■22T□□	<b>SW-N5ARMC/3H</b> SC93CMAN-■22T□□		
37	60	125	125	(2NO+2NC)×2*3	<b>SC-N6RM</b> SC1CBRA-■22	<b>SW-N6RM/3H</b> SC1CBRAN-■22T□□	<b>SW-N6RMC/3H</b> SC1CBMAN-■22T□□		
45	75	150	150	(2NO+2NC)×2*3	<b>SC-N7RM</b> SC1FBRA-■22	<b>SW-N7RM/3H</b> SC1FBRAN-■22T□□	<b>SW-N7RMC/3H</b> SC1FBMAN-■22T□□		
55	90	180	180	(2NO+2NC)×2*3	<b>SC-N8RM</b> SC1JBRA-■22	<b>SW-N8RM/3H</b> SC1JBRAN-■22T□□	<b>SW-N8RMC/3H</b> SC1JBMAN-■22T□□		
65	110	220	220	(2NO+2NC)×2*3	<b>SC-N10RM</b> SC2CBRA-■22	<b>SW-N10RM/3H</b> SC2CBRAN-■22T□□	<b>SW-N10RMC/3H</b> SC2CBMAN-■22T□□		
90	160	300	300	(2NO+2NC)×2*3	<b>SC-N11RM</b> SC3ABRA-■22	<b>SW-N11RM/3H</b> SC3ABRAN-■22T□□	<b>SW-N11RMC/3H</b> SC3ABMAN-■22T□□		
120	220	400	400	(2NO+2NC)×2*3	<b>SC-N12RM</b> SC4ABRA-■22	<b>SW-N12RM/3H</b> SC4ABRAN-■22T□□	<b>SW-N12RMC/3H</b> SC4ABMAN-■22T□□		
180	315	600	600	(2NO+2NC)×2*3	<b>SC-N14RM</b> SC6ABRA-■22	<b>SW-N14RM/3H</b> SC6ABRAN-■22T□□	<b>SW-N14RMC/3H</b> SC6ABMAN-■22T□□		

Notes: 1. ■ : Coil voltage code. □ : Thermal overload relay ampere setting range code. See page 01/19.  
2. \*1: Auxiliary contact 1NO×2 is available on request. However, these contactors are not electrically interlocked. Be sure to arrange electrical interlock circuit externally to avoid short-circuit accidents.

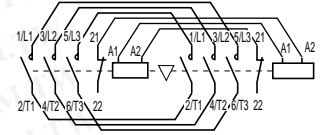
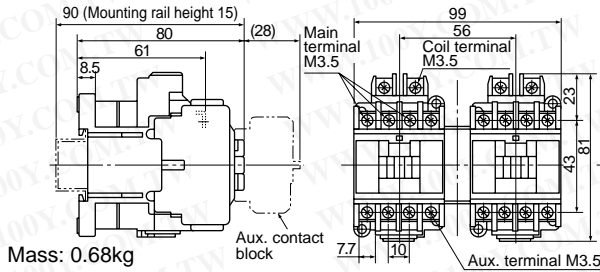
\*2: Auxiliary contact 2NC×2 is available on request.  
\*3: Auxiliary contact (3NO+3NC)×2 is available on request for frame size N1 and above. Auxiliary contact (4NO+4NC)×2 is available on request for frame size N1 to N3.  
3. Contactor with enclosure is available on request.

■ Dimensions, mm  
 Reversing contactors/Open type

■ Wiring diagrams

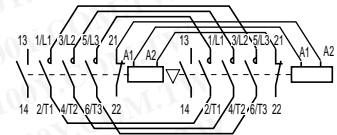
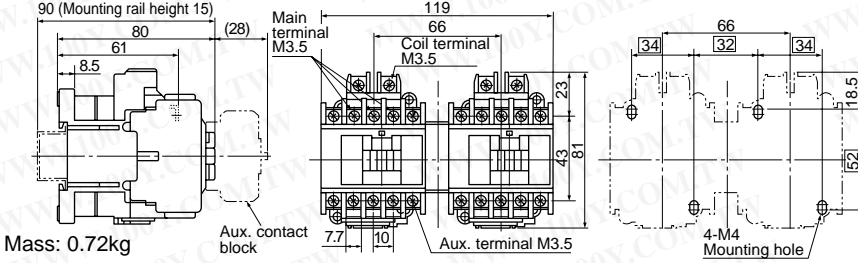
**SC-03RM, SC-0RM**

Panel drilling



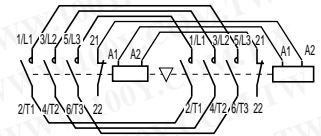
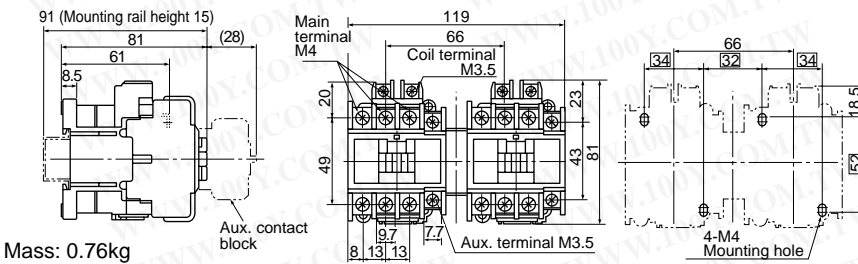
Mass: 0.68kg

**SC-05RM**



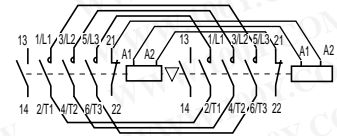
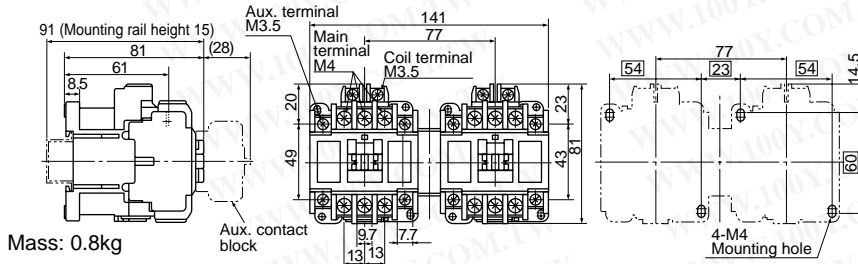
Mass: 0.72kg

**SC-4-0RM, SC-4-1RM**



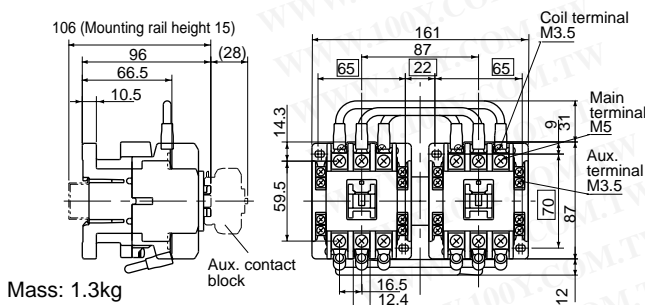
Mass: 0.76kg

**SC-5-1RM**



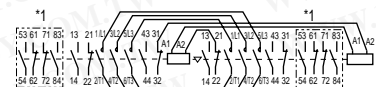
Mass: 0.8kg

**SC-N1RM, SC-N2RM**



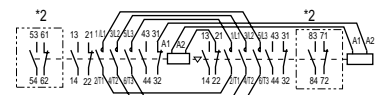
■ Wiring diagrams

**SC-N1RM to SC-N3RM**



\*1 In case of auxiliary contact 4NO+4NC

**SC-N4RM to SC-N14RM**



\*2 In case of auxiliary contact 3NO+3NC

Mass: 1.3kg

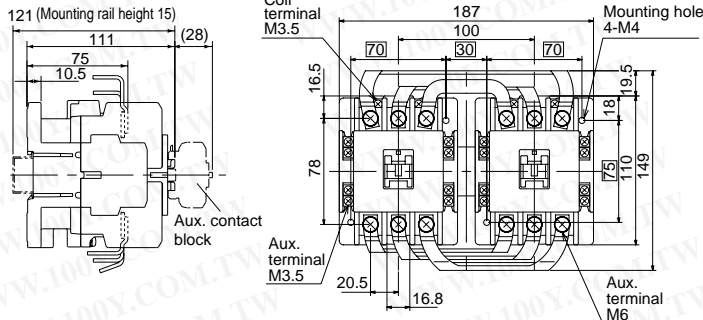
# Magnetic Contactors and Starters

## SC and SW series

### Reversing standard type

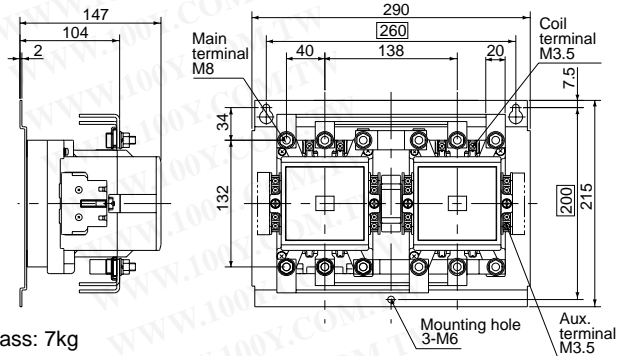
#### ■ Dimensions, mm Reversing contactors/Open type

##### SC-N2SRM, SC-N3RM



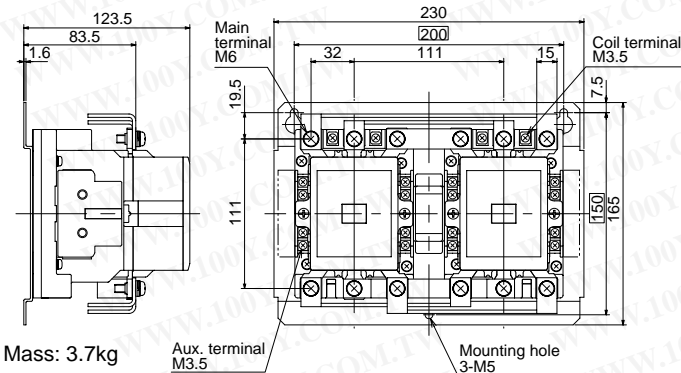
Mass: 2.3kg

##### SC-N7RM



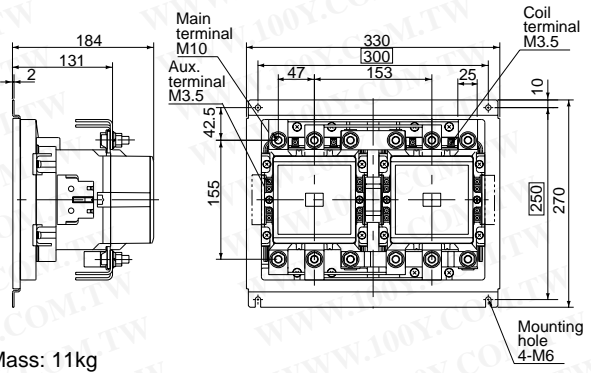
Mass: 7kg

##### SC-N4RM



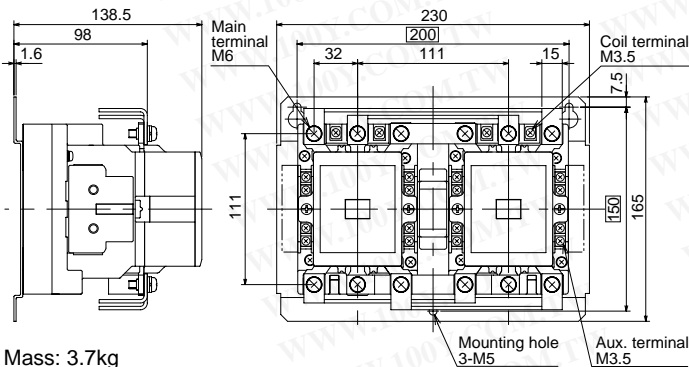
Mass: 3.7kg

##### SC-N8RM, SC-N10RM



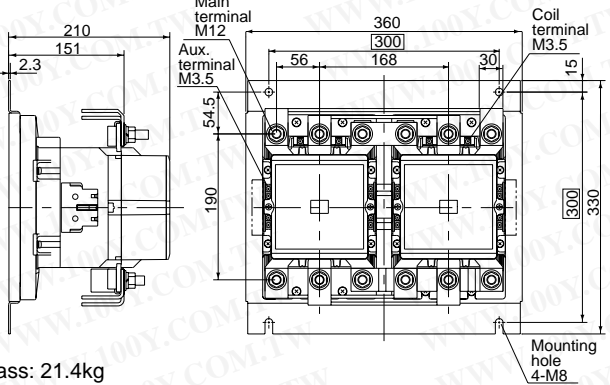
Mass: 11kg

##### SC-N5ARM



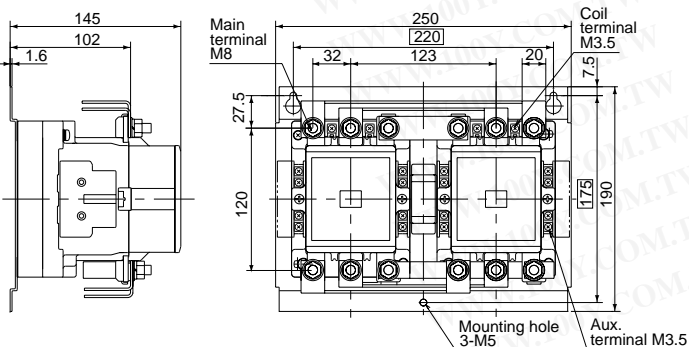
Mass: 3.7kg

##### SC-N11RM, SC-N12RM



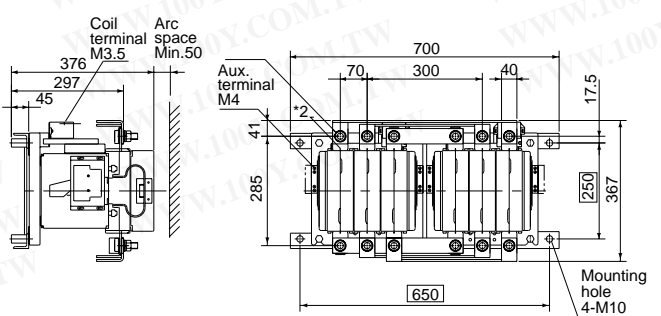
Mass: 21.4kg

##### SC-N6RM



Mass: 5.9kg

##### SC-N14RM



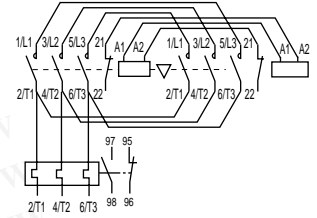
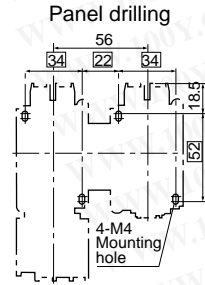
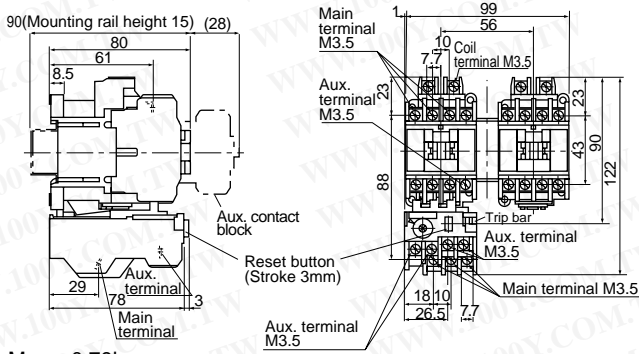
Mass: 80kg

\*2 M4 tap for control circuit

■ Dimensions, mm  
 Reversing motor starters/Open type

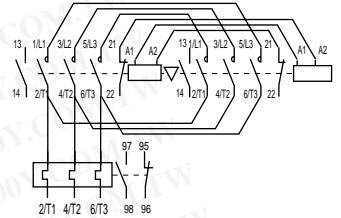
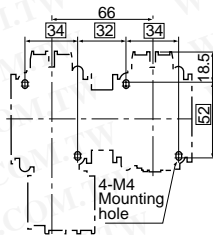
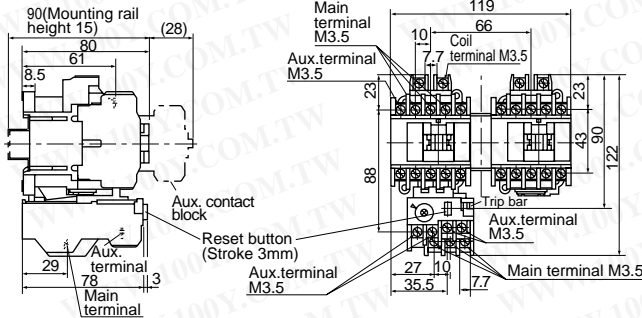
■ Wiring diagrams

**SW-03RM/3H, SW-0RM/3H**



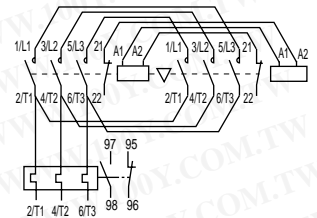
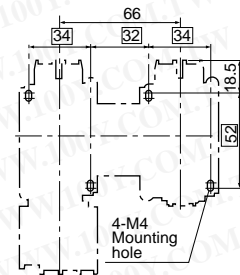
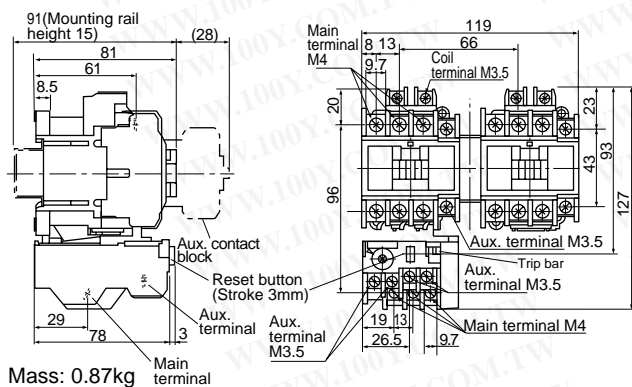
Mass: 0.79kg

**SW-05RM/3H**



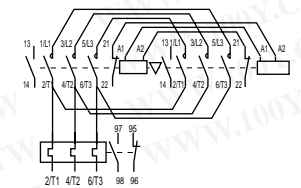
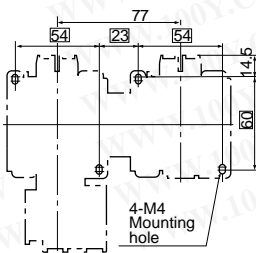
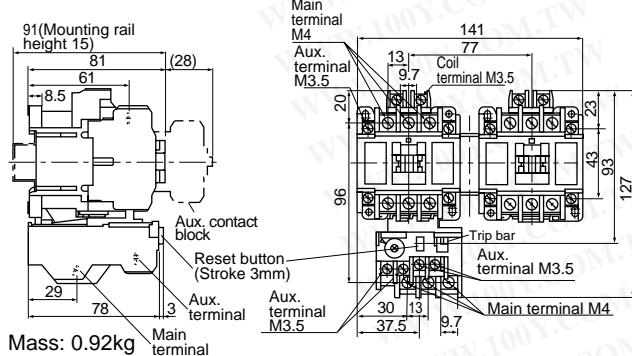
Mass: 0.83kg

**SW-4-0RM/3H, SW-4-1RM/3H**



Mass: 0.87kg

**SW-5-1RM/3H**



Mass: 0.92kg

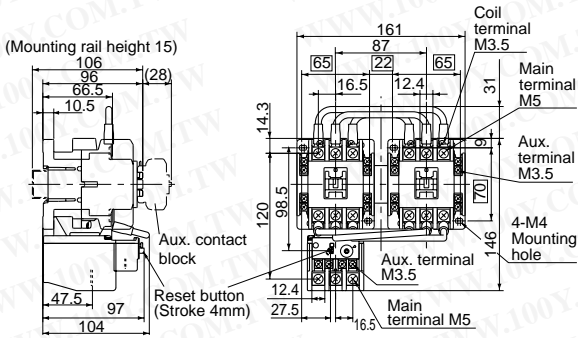
# Magnetic Contactors and Starters

## SC and SW series

### Reversing standard type

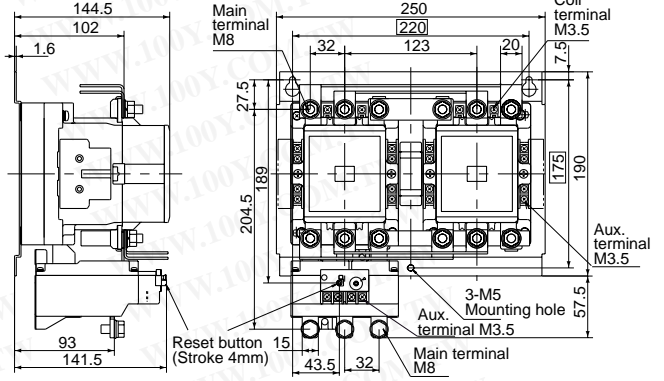
■ Dimensions, mm  
Reversing motor starters/Open type

**SW-N1RM/3H, SW-N2RM/3H**



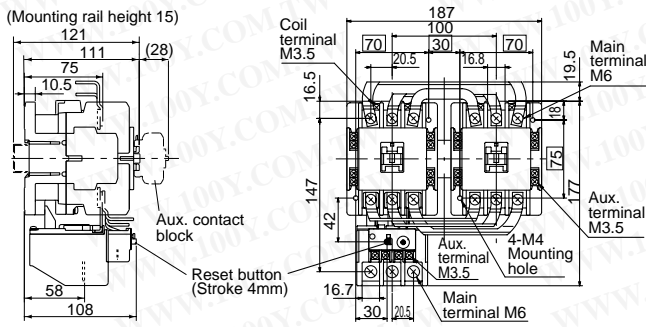
Mass: 1.5kg

**SW-N6RM/3H**



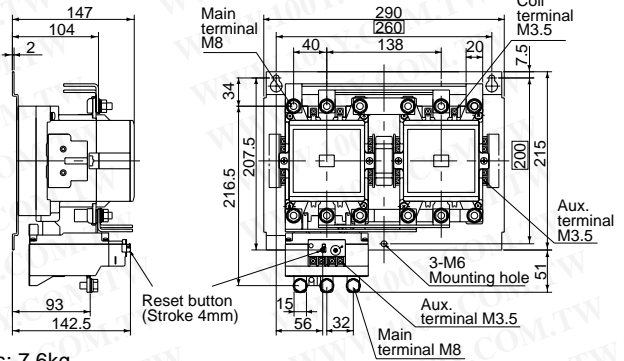
Mass: 6.5kg

**SW-N2SRM/3H, SW-N3RM/3H**



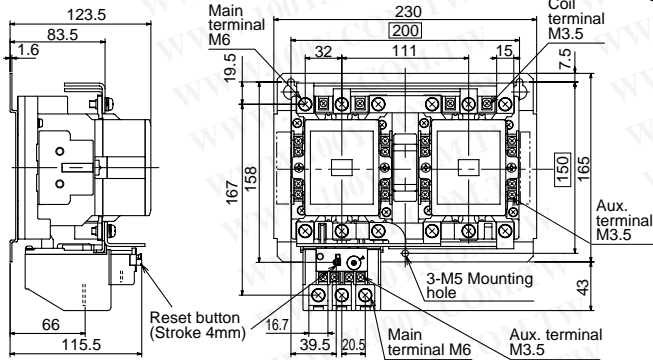
Mass: 2.6kg

**SW-N7RM/3H**



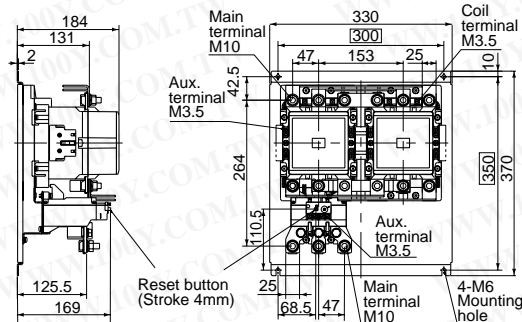
Mass: 7.6kg

**SW-N4RM/3H**



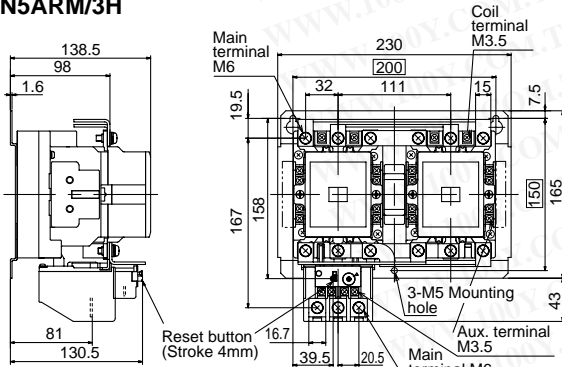
Mass: 4kg

**SW-N8RM/3H**



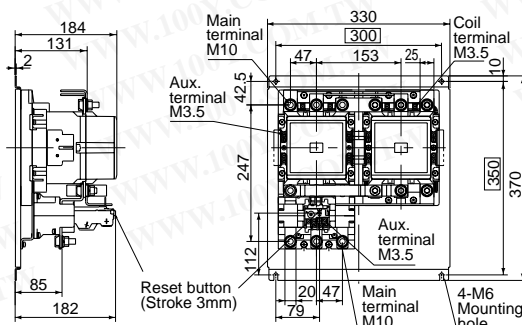
Mass: 12.2kg

**SW-N5ARM/3H**



Mass: 4kg

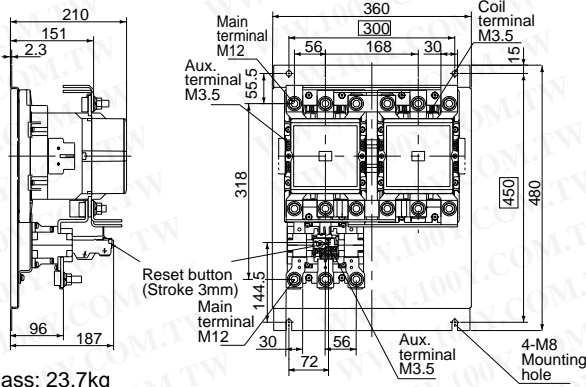
**SW-N10RM/3H**



Mass: 12.9kg

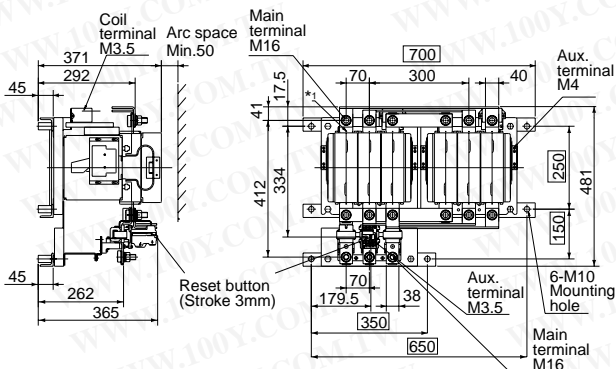
■ Dimensions, mm  
 Reversing motor starters/Open type

SW-N11RM/3H, SW-N12RM/3H



Mass: 23.7kg

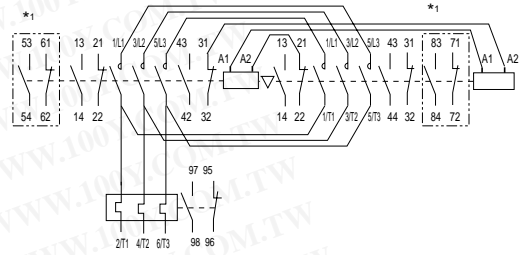
SW-N14RM/3H



Mass: 85kg

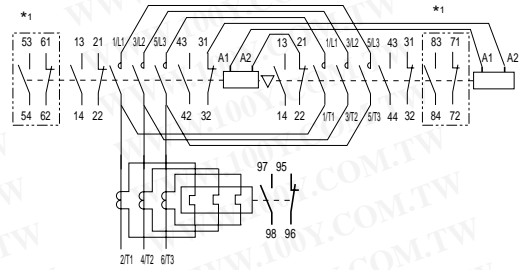
\*1 M4 tap for control circuit

■ Wiring diagrams  
 SW-N1RM/3H to SW-N8RM/3H



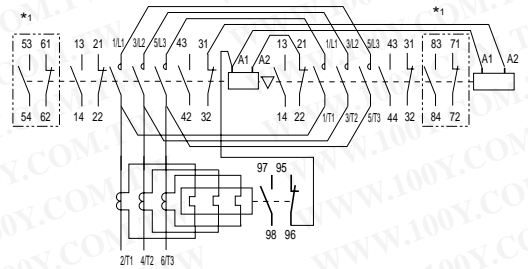
\*1 In case of auxiliary contact 3NO+3NC

SW-N10RM/3H to SW-N12RM/3H



\*1 In case of auxiliary contact 3NO+3NC

SW-N14RM/3H



\*1 In case of auxiliary contact 3NO+3NC

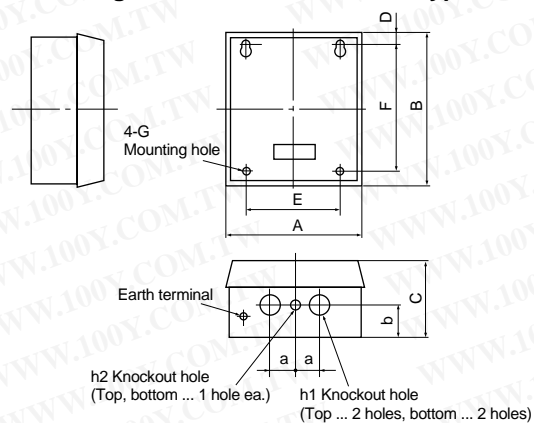
# Magnetic Contactors and Starters

## SC and SW series

### Reversing standard type

#### ■ Dimensions, mm

#### Reversing motor starters/Enclosed type



Type	A	B	C	D	E	F	G	h1	h2	a	b	Mass (kg) 3-element
<b>SW-03RMC/3H</b>	192	192	100	16	130	160	4-M6	φ22	—	65	65	1.9
<b>SW-0RMC/3H</b>	192	192	100	16	130	160	4-M6	φ22	—	65	65	1.9
<b>SW-05RMC/3H</b>	192	192	100	16	130	160	4-M6	φ22	—	65	65	1.9
<b>SW-4-0RMC/3H</b>	192	192	100	16	130	160	4-M6	φ22	—	65	65	1.95
<b>SW-4-1RMC/3H</b>	192	192	100	16	130	160	4-M6	φ22	—	65	65	1.95
<b>SW-5-1RMC/3H</b>	192	192	100	16	130	160	4-M6	φ22	—	65	65	2.0
<b>SW-N1RMC/3H</b>	254	250	131	20	185	210	4-M6	φ28	—	80	70	3.8
<b>SW-N2RMC/3H</b>	254	250	131	20	185	210	4-M6	φ28	—	80	70	3.8
<b>SW-N2SRMC/3H</b>	280	320	145	35	200	250	4-M6	φ35	φ28	55	70	6.6
<b>SW-N3RMC/3H</b>	280	320	145	35	200	250	4-M6	φ35	φ28	55	70	6.6
<b>SW-N4RMC/3H</b>	355	400	160	37.5	250	325	4-M8	φ43	φ28	65	80	10.7
<b>SW-N5ARMC/3H</b>	355	400	160	37.5	250	325	4-M8	φ43	φ28	65	80	11.4
<b>SW-N6RMC/3H</b>	400	450	180	50	300	350	4-M8	φ52	φ28	85	80	14.3
<b>SW-N7RMC/3H</b>	450	560	210	55	350	450	4-M10	φ65	φ28	90	95	21.5
<b>SW-N8RMC/3H</b>	500	670	225	85	400	500	4-M10	φ78	φ28	90	105	29.4
<b>SW-N10RMC/3H</b>	500	670	225	85	400	500	4-M10	φ78	φ28	90	105	32.4

Notes: • SW-5-1RMC/3H with aux. contact 2x2NO:2NC is not available.

• Dimensions of enclosed type contactor SC-03RMC to SC-N10RMC/3H are same as those of starters. Contact FUJI for mass.

**DC operated contactors and starters**

Up to 37kW 440 Volts

■ **Description**

In most cases general purpose AC magnetic motor starters employ AC coils, and although "AC motor with AC controls" is the normal practice, in complicated controls troubles can be expected due to the instantaneous voltage drop or power failure in the AC power source. Thus, in some applications "AC motor with DC control" offers a better system.

FUJI manufactures two types of DC operated contactors. In one type the ON/OFF operation is carried out by a DC operating coil. The other type is operated by the SUPER MAGNET. The SC-03/G to N3/G types use the single coil system. They can be operated at full voltage. When requiring the DC operation for SC-N1 to N4 contactor, the contactor with SUPER MAGNET is substituted(SC-N1/SE to N4/SE). AC/DC operated types with SUPER MAGNET

• SC-N1/SE to N4/SE, SW-N1/SE to N4/SE

• SC-N5 to N16, SW-N5/3H to 14/3H

These standard types employ the SUPER MAGNET.

■ **Ordering information**

Specify the following:

1. Ordering code
2. Operating coil voltage code
3. Contact arrangement:

In the case of the frame size 0/G to 5-1/G, specify the contact arrangement.

4. Overload relay setting range code.

■ **Ratings**

Max. motor capacity (kW)		Operational current (A)		Thermal current (A)	Auxiliary contact		Contactor Type	Ordering code	Starter (3-element)	
200V	380V	200V	380V		NO	NC			Type	Ordering code
2.5	4	11	9	20	1	—*1	SC-03/G	SC11AG-■10	SW-03/G3H	SC11AGN-■10T□D
3.5	5.5	13	12	20	1	—*1	SC-0/G	SC13AG-■10	SW-0/G3H	SC13AGN-■10T□D
3.5	5.5	13	12	20	1	1*2	SC-05/G	SC14AG-■11	SW-05/G3H	SC14AGN-■11T□D
4.5	7.5	18	16	25	1	—*1	SC-4-0/G	SC18AG-■10	SW-4-0/G3H	SC18AGN-■10T□D
5.5	11	22	22	32	1	—*1	SC-4-1/G	SC19AG-■10	SW-4-1/G3H	SC19AGN-■10T□D
5.5	11	22	22	32	1	1*3	SC-5-1/G	SC20AG-■11	SW-5-1/G3H	SC20AGN-■11T□D
7.5	15	32	32	50	2	2	SC-N1/G	SC25BAG-■22	SW-N1/G3H	SC25BAGN-■22T□D
11	18.5	40	40	60	2	2	SC-N2/G	SC35BAG-■22	SW-N2/G3H	SC35BAGN-■22T□D
15	22	50	50	80	2	2	SC-N2S/G	SC50BAG-■22	SW-N2S/G3H	SC50BAGN-■22T□D
18.5	30	65	65	100	2	2	SC-N3/G	SC65BAG-■22	SW-N3/G3H	SC65BAGN-■22T□D
22	40	80	80	135	2	2	SC-N4/G	SC80BAG-■22	SW-N4/G3H	SC80BAGN-■22T□D
30	55	105	105	150	2	2	SC-N5/G	SC93BAG-■22	SW-N5/G3H	SC93BAGN-■22T□D
7.5	15	32	32	50	2	2	SC-N1/SE	SC25BAS-■22	SW-N1/SE3H	SC25BASN-■22T□D
11	18.5	40	40	60	2	2	SC-N2/SE	SC35BAS-■22	SW-N2/SE3H	SC35BASN-■22T□D
15	22	50	50	80	2	2	SC-N2S/SE	SC50BAS-■22	SW-N2S/SE3H	SC50BASN-■22T□D
18.5	30	65	65	100	2	2	SC-N3/SE	SC65BAS-■22	SW-N3/SE3H	SC65BASN-■22T□D
22	40	80	80	135	2	2	SC-N4/SE	SC80BAS-■22	SW-N4/SE3H	SC80BASN-■22T□D
30	55	105	105	150	2	2	SC-N5	SC90BAA-■22	SW-N5/3H	SC90BAAN-■22T□D

Notes: 1. ■ : Coil voltage code, □ : Thermal overload relay ampere setting range code, see page 01/19  
 2. \*1 Auxiliary contact 1NC is available. \*2 Auxiliary contact 2NO or 2NC is available. \*3 Auxiliary contact 2NO, 2NC, or 2NO+2NC is available. For enclosed type, 2NO+2NC is not available  
 3. Auxiliary contact 4NO+4NC is available on request for frame size N1 and above.



■ **Coil ratings**

Type	Coil voltage (V DC)	Power consumption		Operating characteristic	
		Inrush (W)	Sealed (W)	Pick-up voltage (V)	Drop-out voltage (V)
SC-03/G	12, 24, 48, 60,	7	7	10-15	3-7
SC-0/G	100, 110, 120	7	7	10-15	3-7
SC-05/G	200, 210, 220	7	7	10-15	3-7
SC-4-0/G		7	7	11-16	3-7
SC-4-1/G		7	7	11-16	3-7
SC-5-1/G		7	7	11-16	3-8
SC-N1/G		9	9	9-15	3-9
SC-N2/G		9	9	9-15	3-9
SC-N2S/G		12	12	9-15	3-8
SC-N3/G		12	12	9-15	3-8
SC-N4/G		20	20	10-15	3-8
SC-N5/G		20	20	10-15	3-8
SC-N1/SE	24, 48	145	2.4	16-19	4-12
SC-N2/SE	100-120 *1	145	2.4	16-19	4-12
SC-N2S/SE	200-240 *2	175	2.0	16-19	4-12
SC-N3/SE		175	2.0	16-19	4-12
SC-N4/SE		100	2.8	16-19	4-12
SC-N5		100	2.8	16-19	4-12

Notes: Operating coil voltage 24V DC for 03/G to N5/G  
 24V DC for N1/SE to N4/SE, N5

\*1 The coil voltage from a DC power supply with single phase full-wave rectification will be 100 to 110 V.  
 \*2 The coil voltage from a DC power supply with single phase full-wave rectification will be 200 to 220 V.

■ **UL, CSA, TÜV and CCC approved:**  
 See page 01/116, 123, 127.

■ **Auxiliary contact**  
 Same as standard type, See page 01/20.

# Magnetic Contactors and Starters

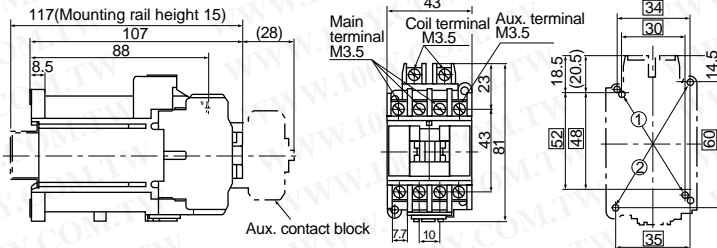
## SC and SW series

### DC operated

#### ■ Dimensions

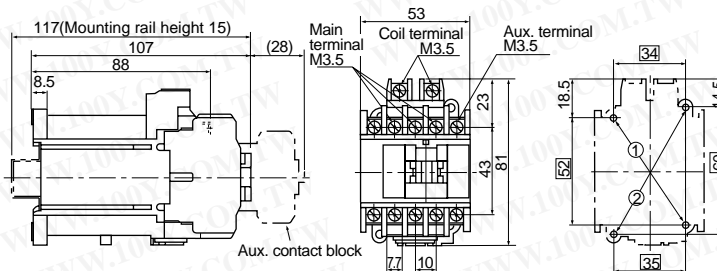
#### DC operated contactors

#### SC-03/G, SC-0/G



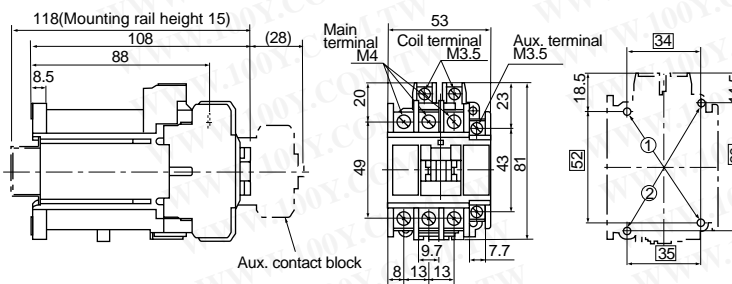
Mass:0.55kg

#### SC-05/G



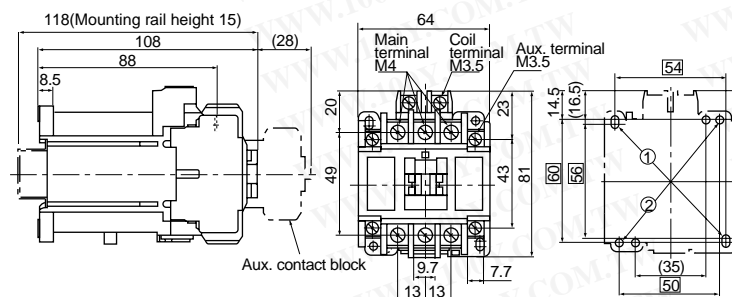
Mass:0.58kg

#### SC-4-0/G, SC-4-1/G



Mass:0.6kg

#### SC-5-1/G

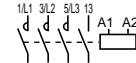


Mass:0.62kg

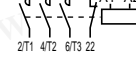
#### ■ Wiring diagrams

Auxiliary contact

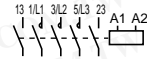
1NO



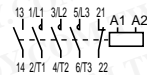
1NC



2NO



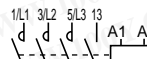
1NO+1NC



2NC



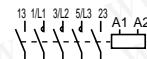
1NO



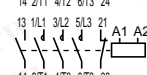
1NC



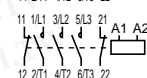
2NO



1NO+1NC

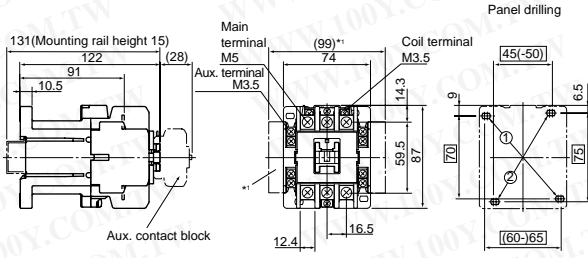


2NC



Note: Use the two mounting holes on a diagonal line to mount a contactor.  
Mounting holes indicated by ① are compatible with those of SRC type.  
Mounting holes indicated by ② are compatible with IEC standard

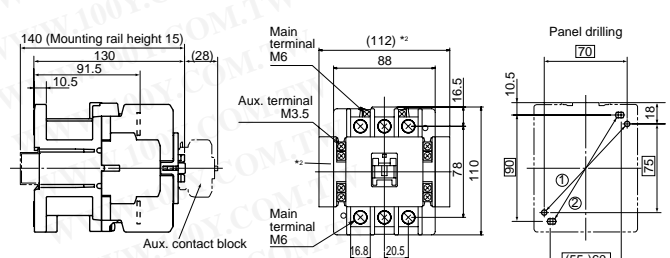
■ Dimensions  
 DC operated contactors  
**SC-N1/G, SC-N2/G**



Mass: 0.82kg

\*\* For two side mounting aux. contact blocks mounted

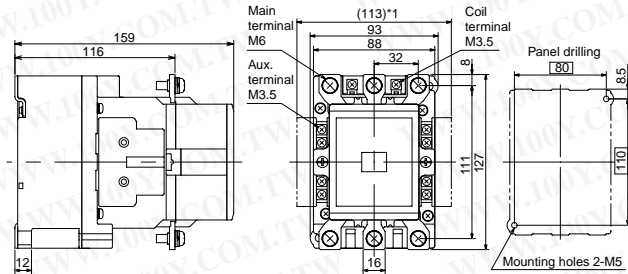
**SC-N2S/G, SC-N3/G**



Mass: 1.4kg

\*\* For two side mounting aux. contact blocks mounted

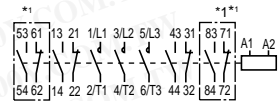
**SC-N4/G, SC-N5/G**



Mass: 2.3kg

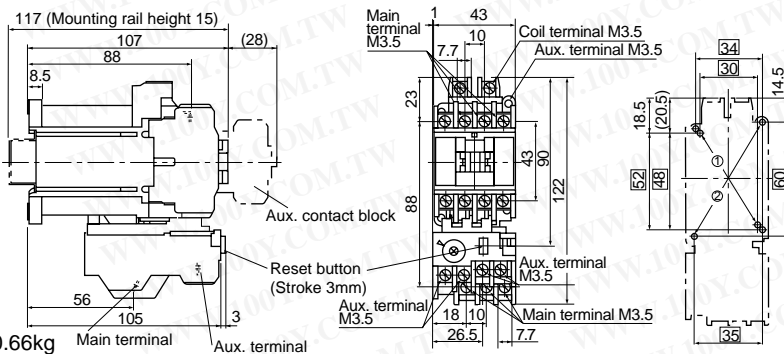
\*\* For two side mounting aux. contact blocks mounted

■ Wiring diagrams  
**SC-N1/G to SC-N5/G**



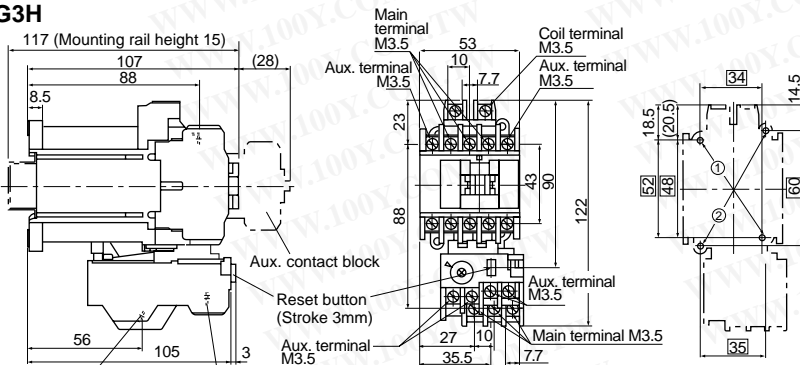
\*\* In case of auxiliary contact 4NO+4NC

DC operated starters  
**SW-03/G3H, SW-0/G3H**



Mass: 0.66kg

**SW-05/G3H**



Mass: 0.69kg

■ Wiring diagrams

Auxiliary contact

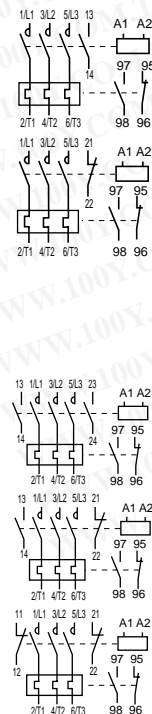
1NO

1NC

2NO

1NO+1NC

2NC



Note: Use the two mounting holes on a diagonal line to mount a contactor. Mounting holes indicated by ① are compatible with those of SRC type. Mounting holes indicated by ② are compatible with IEC standard

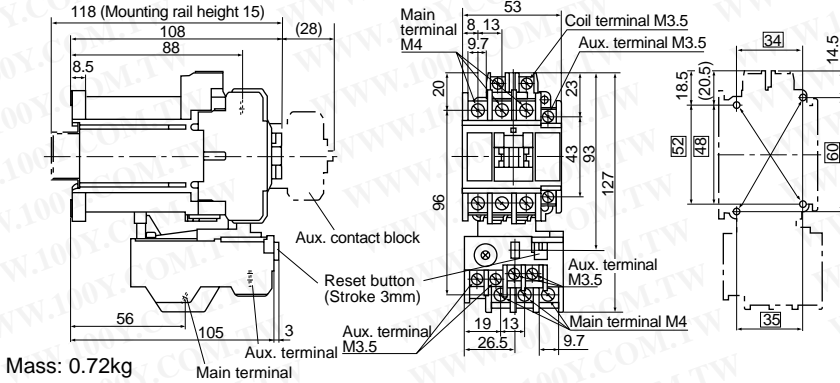
# Magnetic Contactors and Starters

## SC and SW series

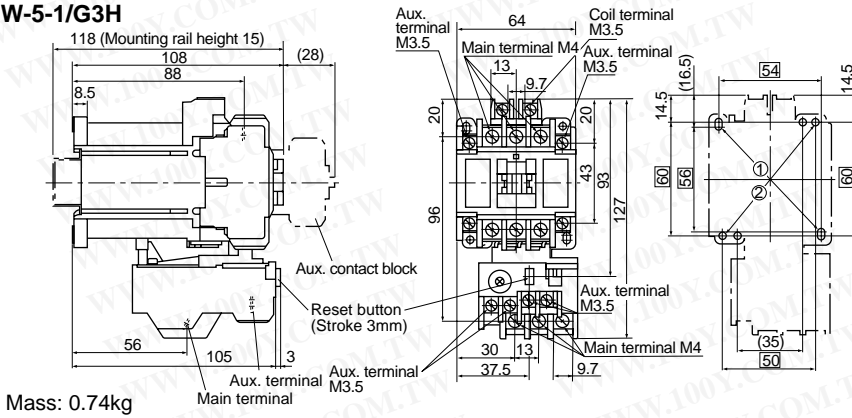
### DC operated

#### ■ Dimensions DC operated starters

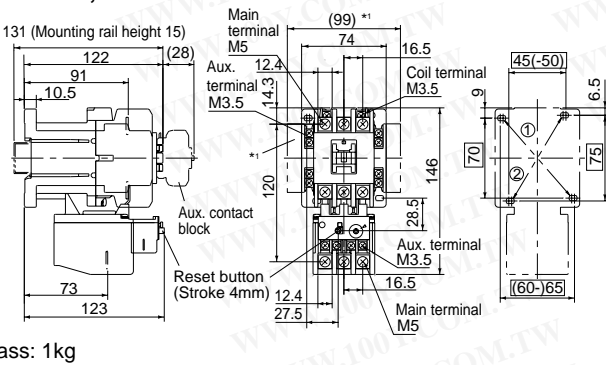
##### SW-4-0/G3H, SW-4-1/G3H



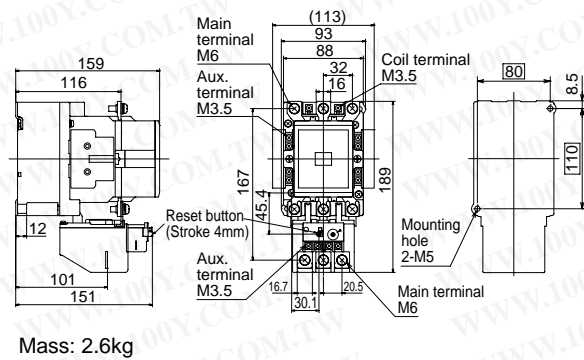
##### SW-5-1/G3H



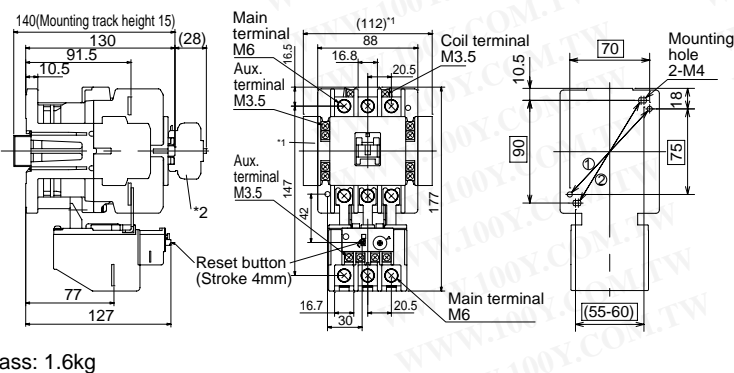
##### SW-N1/G3H, SW-N2/G3H



##### SW-N4/G3H, SW-N5/G3H



##### SW-N2S/G3H, SW-N3/G3H



#### ■ Wiring diagrams

Auxiliary contact

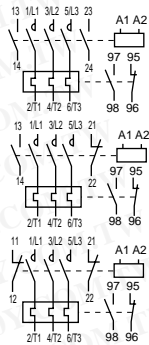
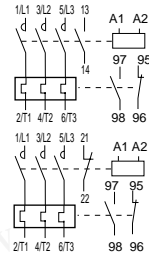
1NO

1NC

2NO

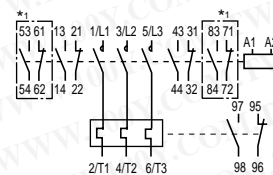
1NO+1NC

2NC



#### ■ Wiring diagrams

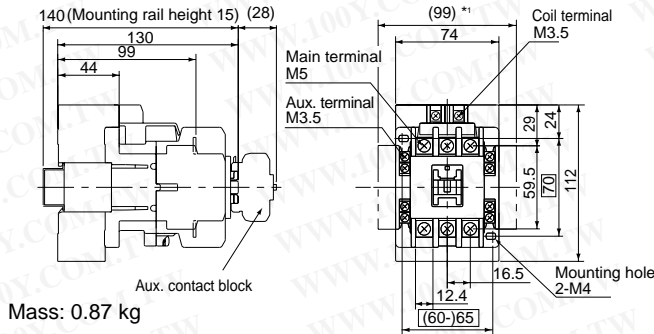
##### SW-N1/G3H to SW-N5/G3H



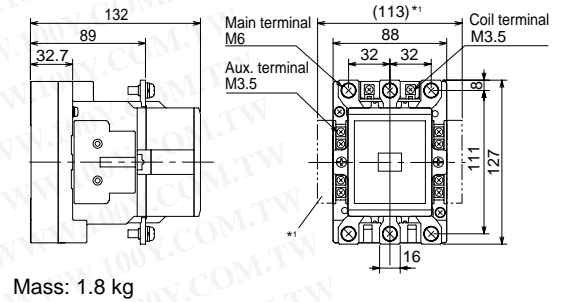
Note: • Use the two mounting holes on a diagonal line to mount a contactor.  
 Mounting holes indicated by ① are compatible with those of SRC type.  
 Mounting holes indicated by ② are compatible with IEC standard

\*1 For two side mounting aux. contact blocks mounted  
 \*2 For front mounting aux. contact blocks mounted

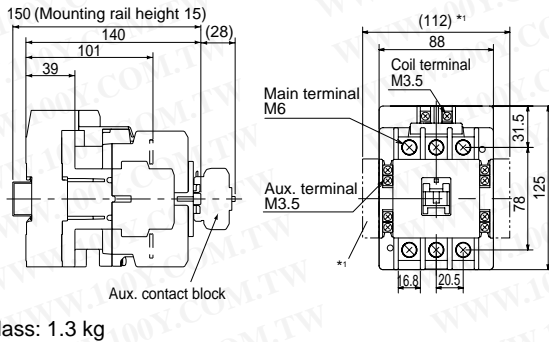
■ Dimensions  
**DC operated contactors**  
**SC-N1/SE, SC-N2/SE**



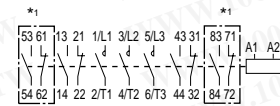
**SC-N4/SE, SC-N5**



**SC-N2S/SE, SC-N3/SE**

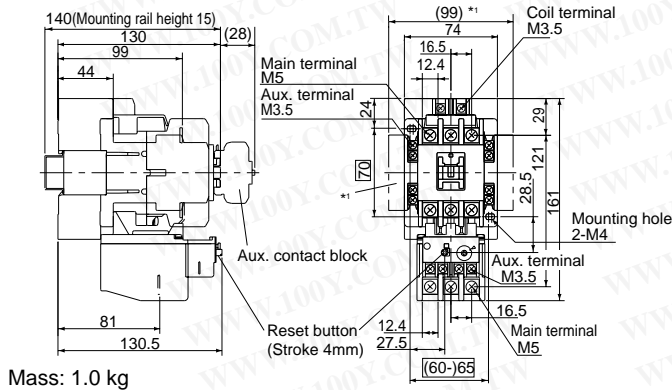


■ Wiring diagrams  
**SC-N1/SE to SC-N4/SE**

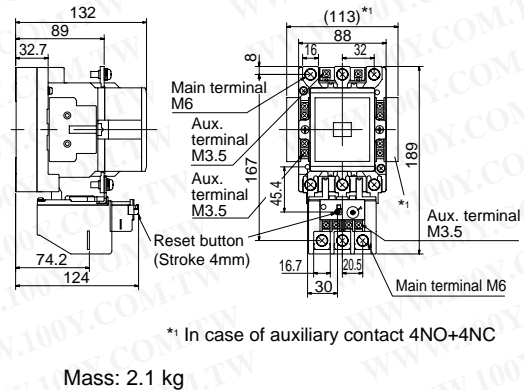


**Dimension for SC-N5 to SC-N16 types**  
 Same as standard open type  
 See page 01/27, 01/28

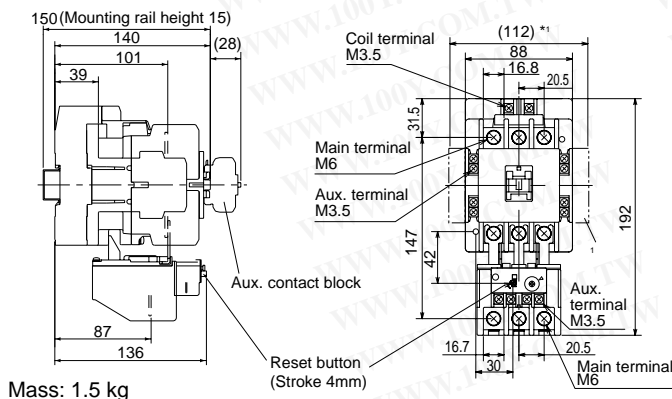
**DC operated starters**  
**SW-N1/SE3H, SW-N2/SE3H**



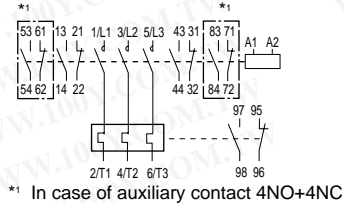
**SW-N4/SE3H, SW-N5/3H**



**SW-N2S/SE3H, SW-N3/SE3H**



■ Wiring diagrams  
**SW-N1/SE3H to SW-N5/3H**



**Dimension for SW-N6/3H to SW-N14/3H types**  
 Same as standard open type  
 See page 01/31, 01/32

Note: \*1 For two side mounting aux. contact blocks mounted

# Magnetic Contactors and Starters

## SC and SW series

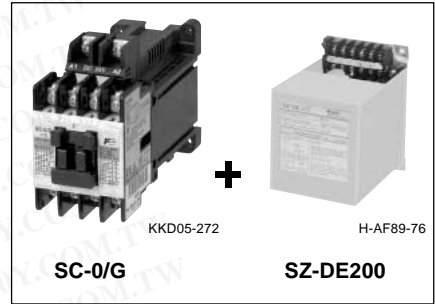
### OFF-delay release

#### OFF-delay release type

##### ■ Description

This type contactor consists of DC-operated contactor and off-delay release unit, and the contacts are released with a delay of 1-4 or 1-5 seconds after the coil has been de-energized. When the standard type contactor suffers an instantaneous voltage drop

in the AC power supply or a power failure takes place the operating coils are de-energized and the reclosing of the contacts must be carried out every time. The off-delay release contactor is so designed that in the event of a brief power outage the coil will not release the contacts and the power is maintained making reclosing action unnecessary.

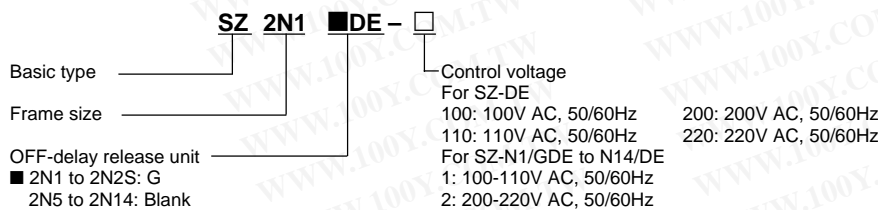


#### ■ Combination of OFF-delay release units and contactors

Contactor Type	Ordering code	Starter (3-element)		OFF-delay release unit	
		Type	Ordering code	Type	Ordering code
SC-03/G	SC11AG-■10	SW-03/G3H	SC11AGN-■10T□D	<b>SZ-DE</b> □	SZ1DE□
SC-0/G	SC13AG-■10	SW-0/G3H	SC13AGN-■10T□D		
SC-05/G	SC14AG-■11	SW-05/G3H	SC14AGN-■11T□D		
SC-4-0/G	SC18AG-■10	SW-4-0/G3H	SC18AGN-■10T□D		
SC-4-1/G	SC19AG-■10	SW-4-1/G3H	SC19AGN-■10T□D		
SC-5-1/G	SC20AG-■11	SW-5-1/G3H	SC20AGN-■11T□D		
SC-N1/G	SC25BAG-■22	SW-N1/G3H	SC25BAGN-■22T□D	<b>SZ-N1/GDE</b>	SZ2N1GDE-□
SC-N2/G	SC35BAG-■22	SW-N2/G3H	SC35BAGN-■22T□D	<b>SZ-N1/GDE</b>	SZ2N1GDE-□
SC-N2S/G	SC50BAG-■22	SW-N2S/G3H	SC50BAGN-■22T□D	<b>SZ-N2S/GDE</b>	SZ2N2SGDE-□
SC-N3/G	SC65BAG-■22	SW-N3/G3H	SC65BAGN-■22T□D	<b>SZ-N2S/GDE</b>	SZ2N2SGDE-□
SC-N4/SE	SC80BAS-■22	SW-N4/SE3H	SC80BASN-■22T□D	<b>SZ-N5/DE</b>	SZ2N5DE-□
SC-N5	SC93BAA-■22	SW-N5/3H	SC93BAAN-■22T□D	<b>SZ-N5/DE</b>	SZ2N5DE-□
SC-N6	SC1CBAA-■22	SW-N6/3H	SC1CBAAN-■22T□D	<b>SZ-N6/DE</b>	SZ2N6DE-□
SC-N7	SC1FBAA-■22	SW-N7/3H	SC1FBAAN-■22T□D	<b>SZ-N6/DE</b>	SZ2N6DE-□
SC-N8	SC1JBAA-■22	SW-N8/3H	SC1JBAAN-■22T□D	<b>SZ-N8/DE</b>	SZ2N8DE-□
SC-N10	SC2CBAA-■22	SW-N10/3H	SC2CBAAN-■22T□D	<b>SZ-N8/DE</b>	SZ2N8DE-□
SC-N11	SC3ABAA-■22	SW-N11/3H	SC3ABAAN-■22T□D	<b>SZ-N11/DE</b>	SZ2N11DE-□
SC-N12	SC4ABAA-■22	SW-N12/3H	SC4ABAAN-■22T□D	<b>SZ-N11/DE</b>	SZ2N11DE-□
SC-N14	SC6ABAA-■22	SW-N14/3H	SC6ABAAN-■22T□D	<b>SZ-N14/DE</b>	SZ2N14DE-□

- Notes: 1. For contactor and starter.  
Enter the coil voltage code in the ■ mark.  
Enter the thermal overload relay ampere setting range code in the □ mark.  
2. For off-delay release unit.  
Enter the control voltage code in the □ mark.

#### ● OFF-delay release unit ordering code



Note: If OFF-delay release contactors (starters) having capacities of frame size 03 to N3 are required the DC operated contactors (starters) will be combined with the OFF-delay release unit. When ordering make sure that the input voltage (AC) of the OFF-delay release unit is equal to the operating voltage (DC) of the contactors (starters).

Example:  
SZ-N5/DE 100V AC 50Hz+SC-N5 100V DC (OFF-delay release unit) + (Contactor)

#### ■ Performance data

Frame	Hold time	Making/breaking capacity	Operating cycles per hour	Life expectancy (operations)	
				Electrical	Mechanical
<b>03/G to 5-1/G</b>	1-5 sec.	10×le / 8×le	600	2 million*1	10 million
<b>N1/G, N2/G</b>	1-5 sec.	10×le / 8×le	600	2 million	10 million
<b>N2S/G, N3/G</b>	1-5 sec.	10×le / 8×le	600	2 million	5 million
<b>N4/SE</b>	1-4 sec.	10×le / 8×le	600	1 million	5 million
<b>N5 to N11</b>	1-4 sec.	10×le / 8×le	600	1 million	5 million
<b>N12</b>	1-4 sec.	10×le / 8×le	600	500,000	5 million
<b>N14</b>	1-4 sec.	10×le / 8×le	600	500,000	5 million

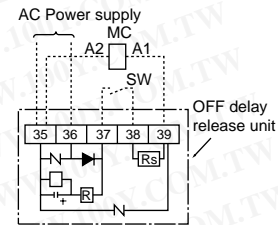
le: Rated operational current  
Capacitor life: 100,000 operations  
\*1 Frame size 4-0: 1.5 million  
Conforming to Class AC-3, IEC 60947-4-1

#### OFF-delay release unit

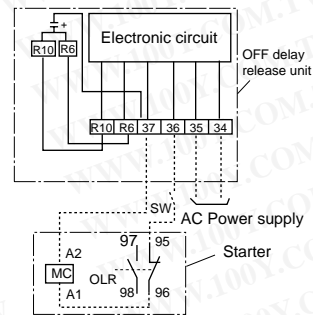
##### ■ Wiring diagrams

##### SZ-DE100, 110, 200, 220

##### SZ-N1/GDE, N2S/GDE



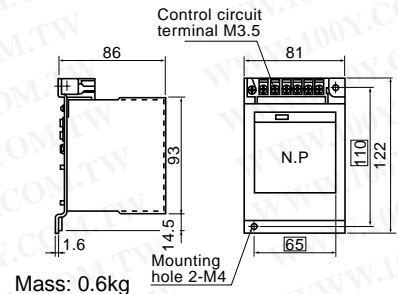
##### SZ-N5/DE to N14/DE



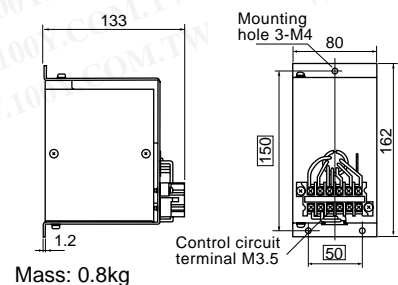
#### ■ Dimensions, mm

##### SZ-DE100, 110, 200, 220

##### SZ-N1/GDE, N2S/GDE



##### SZ-N5/DE to N14/DE



**Contactors and starters with extra pick-up operating coil**

■ **Description**

Generally, if the operating coil voltage of the contactor is within 85%–110% of its rated value normal operation can be expected. However, should the power source have a low capacity or if the supply point is some distance away from the power source a voltage drop can be expected and voltage may fall below 85% of its rated value under motor starting or similar conditions. Direct-on-line starting under these circumstances may result in poor starter performance, contacts welding together and coils overheating. The FUJI U-type contactors are provided with an extra operating coil which performs correctly even if the voltage is only 75% of its rated value. This starter is recommended for use in locations

where reduced voltage conditions are met.

Standard types for frame sizes N5 and above can be used as the contactor or starter with extra pick-up operating coil. Enclosed type starters (03 to N4) are also available.

■ **Ratings:** See page 01/20.

■ **Coil voltage:** See page 01/22.

■ **Dimensions:**

Same as standard type.

See page 01/26, 01/27.

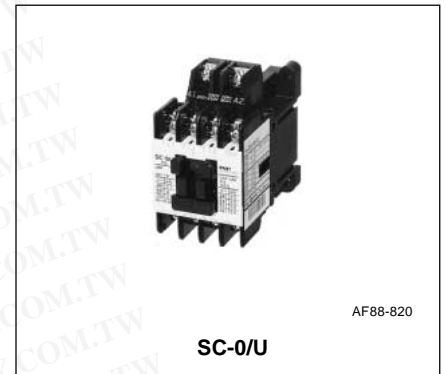
■ **Thermal overload relay:**

See page 01/88.

■ **Ordering information**

Specify the following:

1. Ordering code
2. Motor ratings: Voltage, frequency, capacity (kW) and full load current.
3. Operating coil voltage code



■ **Coil characteristics**

Contactor Type	Ordering code	Starter (3-element)		Aux. contact		Power consumption		Pick-up voltage (V)		Drop-out voltage (V)	
		Type	Ordering code	NO	NC	Inrush (VA)	Sealed (VA)	200V 50Hz	220V 60Hz	200V 50Hz	220V 60Hz
SC-03/U	SC11AU-■10	SW-03/U3H	SC11AUN-■10T□D	1	— *1	120	15	93–115	102–124	58–88	66–96
SC-0/U	SC13AU-■10	SW-0/U3H	SC13AUN-■10T□D	1	— *1	120	15	93–115	102–124	58–88	66–96
SC-05/U	SC14AU-■11	SW-05/U3H	SC14AUN-■11T□D	1	1 *2	120	15	93–116	103–126	60–90	70–99
SC-4-0/U	SC18AU-■10	SW-4-0/U3H	SC18AUN-■10T□D	1	— *1	120	15	100–120	110–130	63–90	73–100
SC-4-1/U	SC19AU-■10	SW-4-1/U3H	SC19AUN-■10T□D	1	— *1	120	15	100–120	110–130	63–90	73–100
SC-5-1/U	SC20AU-■11	SW-5-1/U3H	SC20AUN-■11T□D	1	1 *2	120	15	99–121	110–130	64–96	74–102
SC-5-1/U	SC20AU-■22	SW-5-1/U3H	SC20AUN-■22T□D	2	2	120	15	99–121	110–130	64–96	74–102
SC-N1/U	SC25BAU-■22	SW-N1/U3H	SC25BAUN-■22T□D	2	2 *3	130	13	104–122	114–132	68–88	80–98
SC-N2/U	SC35BAU-■22	SW-N2/U3H	SC35BAUN-■22T□D	2	2 *3	130	13	104–122	114–132	68–88	80–98
SC-N2S/U	SC50BAU-■22	SW-N2S/U3H	SC50BAUN-■22T□D	2	2 *3	195	14.3	104–120	118–134	72–90	84–102
SC-N3/U	SC65BAU-■22	SW-N3/U3H	SC65BAUN-■22T□D	2	2 *3	195	14.3	104–120	118–134	72–90	84–102
SC-N4/U	SC80BAU-■22	SW-N4/U3H	SC80BAUN-■22T□D	2	2 *3	235	20	104–120	118–134	72–90	84–102

Notes: 1 The standard SC-N5 to SC-N16 types are provided with the SUPER MAGNET which holds without chattering even if the line voltage drops to 65% of its rated value, so preventing the troubles such as contact welding or coil burning.

2. \*1 Auxiliary contact 1NC is available on request.

\*2 Auxiliary contact 2NO or 2NC is available on request.

\*3 Auxiliary contact 4NO+4NC is available on request

3. Enter the coil voltage code in the ■ mark.

Enter the thermal overload relay ampere setting range code in the □ mark.

■ **Performance data**

Type	Make and break capacity	Operating cycles per hour	Life expectancy (operations)	
			Electrical	Mechanical
Contactor	Starter			
SC-03/U	SW-03/U3H	1800	2 million	2.5 million
SC-0/U	SW-0/U3H	1800	2 million	2.5 million
SC-05/U	SW-05/U3H	1800	2 million	2.5 million
SC-4-0/U	SW-4-0/U3H	1800	2 million	2.5 million
SC-4-1/U	SW-4-1/U3H	1800	2 million	2.5 million
SC-5-1/U	SW-5-1/U3H	1800	2 million	2.5 million
SC-N1/U	SW-N1/U3H	1200	2 million	2.5 million
SC-N2/U	SW-N2/U3H	1200	1 million	1 million
SC-N2S/U	SW-N2S/U3H	1200	1 million	1 million
SC-N3/U	SW-N3/U3H	1200	1 million	1 million
SC-N4/U	SW-N4/U3H	1200	1 million	1 million

# Magnetic Contactors

## SC series

### Mechanical latch

#### Mechanical latch contactors

Up to 315kW 440 Volts AC 3-phase

#### Description

Mechanical latch contactors are used where operating sequence continuity must be maintained regardless of any outside interruptions, such as voltage failure or instantaneous voltage drop. Typical applications are for electric furnaces, machine tool circuits, standby power supply and normal power changeover circuits in hospitals, schools and office buildings. These contactors are provided with two coils. One is CC (Closing Coil) and the other is TC (Tripping Coil). An interlocking circuit is provided between the CC coil and the TC coil. Since a coil voltage is not applied during operation it is extremely quiet. Power consumption can also be saved.



#### Performance data

Frame size	Making capacity	Breaking capacity	Operating cycles per hour	Life expectancy (operations)	
				Electrical	Mechanical
<b>03/V to 5-1/V, 03/VG to 5-1/VG</b>	10×Ie	8×Ie	1200	500,000	1 million
<b>N1/VS to N3/VS</b>	10×Ie	8×Ie	600	500,000	500,000
<b>N4/VS to N12/VS</b>	10×Ie	8×Ie	600	250,000	250,000
<b>N14/VS</b>	10×Ie	8×Ie	600	100,000	100,000

Notes: Ie: Rated operational current.

- Mechanical latch units cannot be sold separately. Such units are only sold attached to contactors.
- Do not detach mechanical latch units from contactors and do not make modifications such as attaching mechanical latch units to other contactors.

#### Types and ratings

##### • AC, AC/DC operated

Max. motor capacity (kW)	Rated operational current (A)		Rated thermal current Ith (A)	Non-reversing			Reversing					
	200V	380V		Type	Aux. contact NO	NC	Ordering code	Type	Aux. contact NO	NC	Ordering code	
2.5	4	11	9	20	<b>SC-03/V</b>	–	–	SC11AV-■00	<b>SC03RM/V</b>	–	–	SC11RV-■00
3.5	5.5	13	12	20	<b>SC-0/V</b>	–	–	SC13AV-■00	<b>SC0RM/V</b>	–	–	SC13RV-■00
3.5	5.5	13	12	20	<b>SC-05/V</b>	1	–	SC14AV-■10	<b>SC05RM/V</b>	2	–	SC14RV-■10
3.5	5.5	13	12	20		–	1	SC14AV-■01		–	2	SC14RV-■01
4.5	7.5	18	16	25	<b>SC-4-0/V</b>	–	–	SC18AV-■00	<b>SC-4-0RM/V</b>	–	–	SC18RV-■00
5.5	11	22	22	32	<b>SC-4-1/V</b>	–	–	SC19AV-■00	<b>SC-4-1RM/V</b>	–	–	SC19RV-■00
5.5	11	22	22	32	<b>SC-5-1/V</b>	1	–	SC20AV-■10	<b>SC-5-1RM/V</b>	2	–	SC20RV-■10
5.5	11	22	22	32		–	1	SC20AV-■01		–	2	SC20RV-■01
5.5	11	22	22	32		1	2	SC20AV-■12		2	4	SC20RV-■12
7.5	15	32	32	50	<b>SC-N1/VS</b>	2	2	SC25BAE-■22	<b>SC-N1RM/VS</b>	4	4	SC25BRE-■22
11	18.5	40	40	60	<b>SC-N2/VS</b>	2	2	SC35BAE-■22	<b>SC-N2RM/VS</b>	4	4	SC35BRE-■22
15	22	50	50	80	<b>SC-N2S/VS</b>	2	2	SC50BAE-■22	<b>SC-N2SRM/VS</b>	4	4	SC50BRE-■22
18.5	30	65	65	100	<b>SC-N3/VS</b>	2	2	SC65BAE-■22	<b>SC-N3RM/VS</b>	4	4	SC65BRE-■22
22	40	80	80	135	<b>SC-N4/VS</b>	1	2	SC80BAE-■12	<b>SC-N4RM/VS</b>	2	4	SC80BRE-■12
30	55	105	105	150	<b>SC-N5/VS</b>	1	2	SC93BAE-■12	<b>SC-N5RM/VS</b>	2	4	SC93BRE-■12
37	60	125	125	150	<b>SC-N6/VS</b>	1	2	SC1CBAE-■12	<b>SC-N6RM/VS</b>	2	4	SC1CBRE-■12
45	75	150	150	200	<b>SC-N7/VS</b>	1	2	SC1FBAE-■12	<b>SC-N7RM/VS</b>	2	4	SC1FBRE-■12
55	90	180	180	260	<b>SC-N8/VS</b>	1	2	SC1JBAE-■12	<b>SC-N8RM/VS</b>	2	4	SC1JBRE-■12
65	110	220	220	260	<b>SC-N10/VS</b>	1	2	SC2CBAE-■12	<b>SC-N10RM/VS</b>	2	4	SC2CBRE-■12
90	160	300	300	350	<b>SC-N11/VS</b>	1	2	SC3ABAE-■12	<b>SC-N11RM/VS</b>	2	4	SC3ABRE-■12
120	220	400	400	450	<b>SC-N12/VS</b>	1	2	SC4ABAE-■12	<b>SC-N12RM/VS</b>	2	4	SC4ABRE-■12
180	315	600	600	660	<b>SC-N14/VS</b>	1	2	SC6ABAE-■12	<b>SC-N14RM/VS</b>	2	4	SC6ABRE-■12

Notes: Since SC-N1/VS to SC-N14/VS are provided with the SUPER MAGNET they operate on both AC or DC.

Enter the coil rated voltage code in the ■ mark, see page 01/19

##### • DC operated

Max. motor capacity (kW)	Rated operational current (A)		Rated thermal current Ith (A)	Non-reversing			Reversing					
	200V	380V		Type	Aux. contact NO	NC	Ordering code	Type	Aux. contact NO	NC	Ordering code	
2.5	4	11	9	20	<b>SC-03/VG</b>	–	–	SC11AD-■00	<b>SC03RM/VG</b>	–	–	SC11RD-■00
3.5	5.5	13	12	20	<b>SC-0/VG</b>	–	–	SC13AD-■00	<b>SC0RM/VG</b>	–	–	SC13RD-■00
3.5	5.5	13	12	20	<b>SC-05/VG</b>	1	–	SC14AD-■10	<b>SC05RM/VG</b>	2	–	SC14RD-■10
3.5	5.5	13	12	20		–	1	SC14AD-■01		–	2	SC14RD-■01
4.5	7.5	18	16	25	<b>SC-4-0/VG</b>	–	–	SC18AD-■00	<b>SC-4-0RM/VG</b>	–	–	SC18RD-■00
5.5	11	22	22	32	<b>SC-4-1/VG</b>	–	–	SC19AD-■00	<b>SC-4-1RM/VG</b>	–	–	SC19RD-■00
5.5	11	22	22	32	<b>SC-5-1/VG</b>	1	–	SC20AD-■10	<b>SC-5-1RM/VG</b>	2	–	SC20RD-■10
5.5	11	22	22	32		–	1	SC20AD-■01		–	2	SC20RD-■01
5.5	11	22	22	32		1	2	SC20AD-■12		2	4	SC20RD-■12

Note: Enter the coil rated voltage code in the ■ mark, see page 01/19

■ **Operating method**

**Closing**

When the closing coil is energized the latch mechanism interlocks to latch and the NC contact connected in series with the closing coil opens and the coil is de-energized.

**Tripping**

When the tripping coil is energized the latch is released and tripping is carried out by means of the back spring. At this time the NO contact connected in series with the tripping coil opens.

■ **Operating notes**

- When carrying out a sequence operating check make sure that the load circuit is open.
- The electrical signal time for closing and tripping should be 0.3 sec. or more.
- Tripping coil is short time rated. Tripping coil: Max. 15 seconds
- In the cases of 03/V to N3/VS versions the contacts cannot be replaced. In the cases of those versions above N4/VS the contacts can be replaced.
- Both closing and tripping circuits should be electrically interlocked with each other.

■ **Ordering information**

Specify the following:

1. Ordering code
2. Auxiliary contact arrangement: In the case of the frame size 05/V, 05/VG, 5-1/V or 5-1/VG, specify the contact arrangement.
3. Closing and tripping coil  
 For AC operated: Voltage and frequency  
 For DC operated: Voltage

■ **Coil characteristics**

**AC operated**

Type	Power consumption		Coil voltage *
	Closing (VA)	Tripping (VA)	
SC-03/V	95	150	100/100–110V AC 50/60Hz
SC-0/V	95	150	
SC-05/V	95	150	
SC-4-0/V	95	150	200/200–220V AC 50/60Hz
SC-4-1/V	95	150	
SC-5-1/V	95	150	
SC-N1/VS	100	140	100–110V AC 50/60Hz
SC-N2/VS	100	140	
SC-N2S/VS	115	140	
SC-N3/VS	115	140	200/220V AC 50/60Hz
SC-N4/VS	161	266	
SC-N5/VS	161	266	
SC-N6/VS	229	266	
SC-N7/VS	229	266	
SC-N8/VS	273	385	
SC-N10/VS	273	385	
SC-N11/VS	490	385	
SC-N12/VS	490	385	
SC-N14/VS	500	660	

**DC operated**

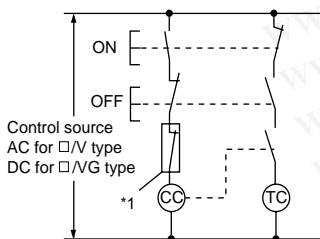
Type	Power consumption		Coil voltage *
	Closing (W)	Tripping (W)	
SC-03/VG	7	150	100, 110V DC
SC-0/VG	7	150	
SC-05/VG	7	150	
SC-4-0/VG	7	150	200, 220V DC
SC-4-1/VG	7	150	
SC-5-1/VG	7	150	
SC-N1/VS	95	150	100–110V DC
SC-N2/VS	95	150	
SC-N2S/VS	110	150	
SC-N3/VS	110	150	200–220V DC
SC-N4/VS	153	198	
SC-N5/VS	153	198	
SC-N6/VS	216	198	
SC-N7/VS	216	198	
SC-N8/VS	260	294	
SC-N10/VS	260	294	
SC-N11/VS	515	294	
SC-N12/VS	515	294	
SC-N14/VS	500	660	

Notes: \*Other coil voltage can be supplied.  
 SC-03/V to 5-1/V: 24 to 220V AC 50/60Hz  
 SC-N1/VS to N12/VS: 24 to 220V AC 50/60Hz  
 SC-N14/VS: 100 to 220V AC 50/60Hz

Notes: \*Other coil voltage can be supplied.  
 SC-03/VG to 5-1/VG: 24 to 220V DC  
 SC-N1/VS to N12/VS: 24 to 220V DC  
 SC-N14/VS: 100 to 220V DC

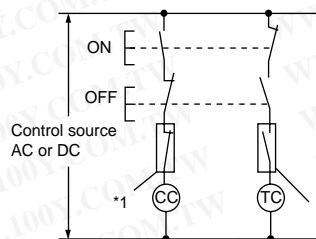
■ **Operating circuit**

**SC-03/V to 5-1/V**  
**SC-03/VG to 5-1/VG**



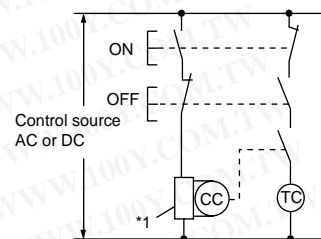
\*1 NC contact for closing coil to be de-energized

**SC-N1/VS to N3/VS**



\*1 NC contact for closing coil to be de-energized.  
 \*2 NO contact for tripping coil to be de-energized.

**SC-N4/VS to N14/VS**



\*1 Solid-state circuit for closing coil to be controlled. (NC solid-state contact)

# Magnetic Contactors

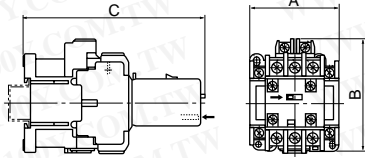
## SC series

### Mechanical latch

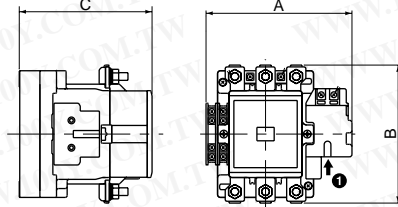
#### Mechanical latch type contactors

##### ■ Dimensions, mm

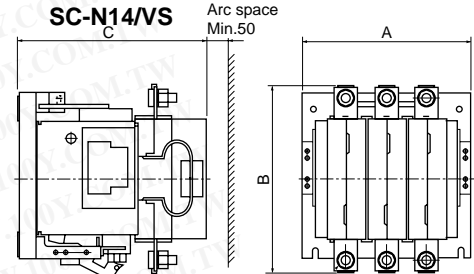
SC-03/V to 5-1/V  
SC-03/VG to 5-1/VG



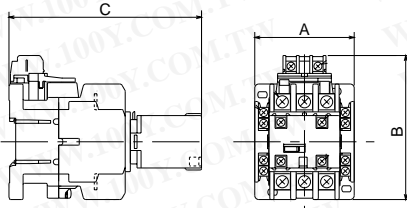
SC-N4/VS to N7/VS



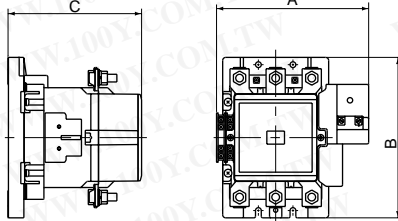
SC-N14/VS



SC-N1/VS to N3/VS



SC-N8/VS to N12/VS



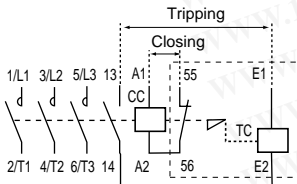
Dimensions for reference only.  
Confirm before construction begins.

Type	A	B	C	Mass (kg)
SC-03/V, 0/V	43	81	128	0.43
SC-05/V	53	81	128	0.45
SC-4-0/V, 4-1/V	53	81	129	0.47
SC-5-1/V	64	81	129	0.49
SC-03/VG, 0/VG	43	81	155	0.66
SC-05/VG	53	81	155	0.69
SC-4-0/VG, 4-1/VG	53	81	156	0.71
SC-5-1/VG	64	81	156	0.73

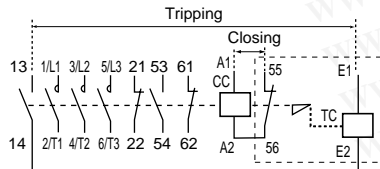
Type	A	B	C	Mass (kg)
SC-N1/VS, N2/VS	74	108	143.5	0.75
SC-N2S/VS, N3/VS	88	130	158	1.25
SC-N4/VS, N5/VS	140	127	132	2.3
SC-N6/VS	152	144	138	2.9
SC-N7/VS	167.5	156	140	3.2
SC-N8/VS, N10/VS	199	209	174	5.7
SC-N11/VS, N12/VS	215.5	240	195	8.6
SC-N14/VS	290	332	331	37

##### ■ Wiring diagrams

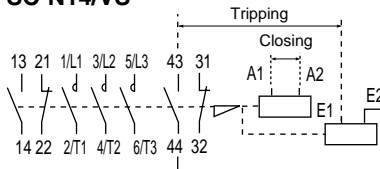
SC-03/V, 0/V, 4-0/V, 4-1/V  
SC-03/VG, 0/VG, 4-0/VG, 4-1/VG



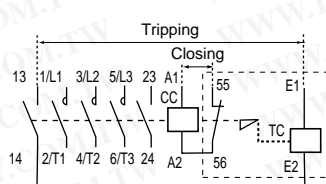
SC-5-1/V, /VG (Aux. contact 1NO+2NC)



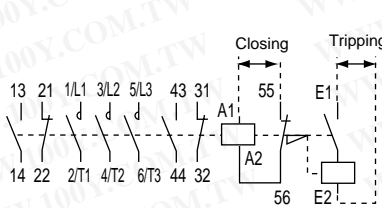
SC-N14/VS



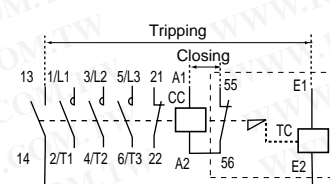
SC-05/V, 5-1/V SC-05/VG, 5-1/VG  
(Aux. contact 1NO)



SC-N1/VS to N3/VS



(Aux. contact 1NC)

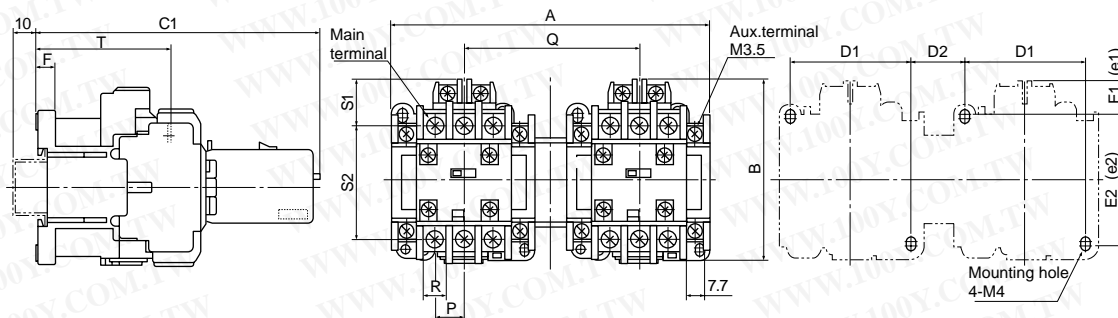


SC-N4/VS to N12/VS

CC: Closing coil  
TC: Tripping coil

Reversing mechanical latch contactors

■ Dimensions, mm  
SC-03RM/V to 5-1RM/V  
SC-03RM/VG to 5-1RM/VG



Type	Auxiliary contact	A	B	C1	D1	D2	E1(e <sub>1</sub> )	E2(e <sub>2</sub> )	F	P	Q	R	S1	S2	T	Main terminal	Mass (kg)
SC-03RM/V	—	99	81	128	34	22	18.5 (20.5)	52 (48)	8.5	10	56	7.7	23	43	61	M3.5	0.9
SC-0RM/V	—	99	81	128	34	22	18.5 (20.5)	52 (48)	8.5	10	56	7.7	23	43	61	M3.5	0.9
SC-05RM/V	2NO or 2NC	119	81	128	34	32	18.5 (20.5)	52 (48)	8.5	10	66	7.7	23	43	61	M3.5	0.94
SC-4-0RM/V	—	119	81	129	34	32	18.5 (20.5)	52 (48)	8.5	13	66	9.7	20	49	61	M4	0.98
SC-4-1RM/V	—	119	81	129	34	32	18.5 (20.5)	52 (48)	8.5	13	66	9.7	20	49	61	M4	0.98
SC-5-1RM/V	2NO or 2NC	141	81	129	54	23	14.5 (16.5)	60 (56)	8.5	13	77	9.7	20	49	61	M4	1.02
	2NO+4NC	165	81	129	54	23	14.5 (16.5)	60 (56)	8.5	13	77	9.7	20	49	61	M4	1.08
SC-03RM/VG	—	99	81	155	34	22	18.5 (20.5)	52 (48)	8.5	10	56	7.7	23	43	88	M3.5	1.36
SC-0RM/VG	—	99	81	155	34	22	18.5 (20.5)	52 (48)	8.5	10	56	7.7	23	43	88	M3.5	1.36
SC-05RM/VG	2NO or 2NC	119	81	155	34	32	18.5 (20.5)	52 (48)	8.5	10	66	7.7	23	43	88	M3.5	1.42
SC-4-0RM/VG	—	119	81	156	34	32	18.5 (20.5)	52 (48)	8.5	13	66	9.7	20	49	88	M4	1.46
SC-4-1RM/VG	—	119	81	156	34	32	18.5 (20.5)	52 (48)	8.5	13	66	9.7	20	49	88	M4	1.46
SC-5-1RM/VG	2NO or 2NC	141	81	156	54	23	14.5 (16.5)	60 (56)	8.5	13	77	9.7	20	49	88	M4	1.5
	2NO+4NC	165	81	156	54	23	14.5 (16.5)	60 (56)	8.5	13	77	9.7	20	49	88	M4	1.56

Fig. 1 SC-N1RM/VS to N3RM/VS

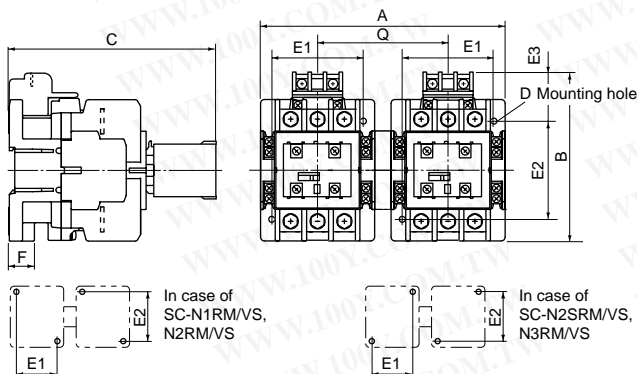


Fig. 2 SC-N4RM/VS to N12RM/VS

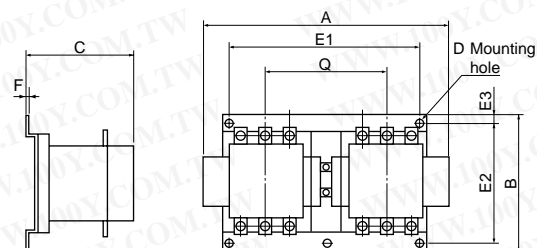
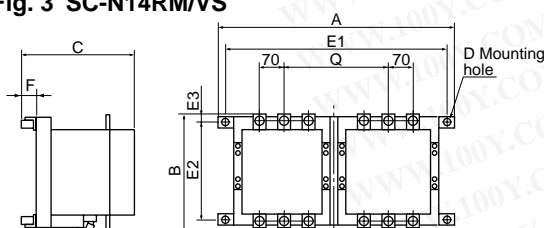


Fig. 3 SC-N14RM/VS



Type	A	B	C	D	E1	E2	E3	F	Q	Mass (kg)	Fig. No.
SC-N1RM/VS	161	108	143.5	4-M4	65	70	30	10.5	87	1.6	1
SC-N2RM/VS	161	108	143.5	4-M4	65	70	30	10.5	87	1.6	1
SC-N2SRM/VS	187	130	158	4-M4	70	75	38	10.5	100	2.6	1
SC-N3RM/VS	187	130	158	4-M4	70	75	38	10.5	100	2.6	1
SC-N4RM/VS	303	165	122	3-M5	200	150	7.5	1.6	135	5.0	2
SC-N5RM/VS	303	165	122	3-M5	200	150	7.5	1.6	135	5.0	2
SC-N6RM/VS	327	190	145	3-M5	220	175	7.5	1.6	147	6.7	2
SC-N7RM/VS	358	215	147	3-M6	260	200	7.5	2	162	8.1	2
SC-N8RM/VS	421	270	184	4-M6	300	250	10	2	177	13.0	2
SC-N10RM/VS	421	270	184	4-M6	300	250	10	2	177	13.0	2
SC-N11RM/VS	454	330	210	4-M8	300	300	15	2.3	192	21.4	2
SC-N12RM/VS	454	330	210	4-M8	300	300	15	2.3	192	21.4	2
SC-N14RM/VS	700	349	376	4-M10	650	250	41	45	324	80	3

Dimensions for reference only.  
Confirm before construction begins.

# Magnetic Contactors

## SC series

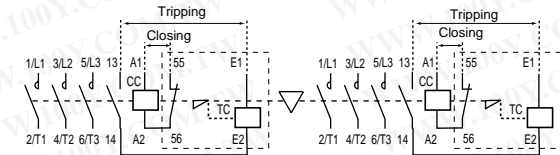
### Mechanical latch

#### Reversing mechanical latch contactors

##### ■ Wiring diagrams

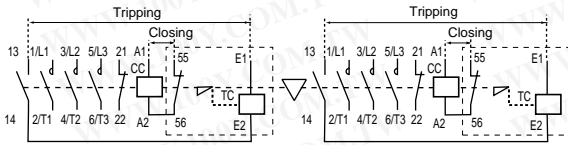
**SC-03RM/V, 0RM/V, 4-0RM/V, 4-1RM/V**

**SC-03RM/VG, 0RM/VG, 4-0RM/VG, 4-1RM/VG**



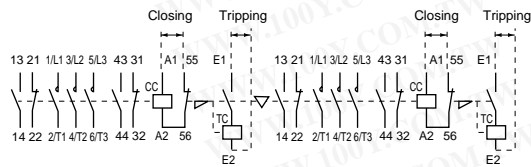
CC: Closing coil  
TC: Tripping coil

**SC-05RM/V, 5-1RM/V**  
**SC-05RM/VG, 5-1RM/VG**  
Auxiliary contact: 1NC×2



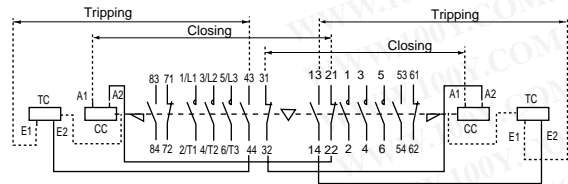
CC: Closing coil  
TC: Tripping coil

**SC-N1RM/VS to N3RM/VS**



CC: Closing coil  
TC: Tripping coil

**SC-N14RM/VS**

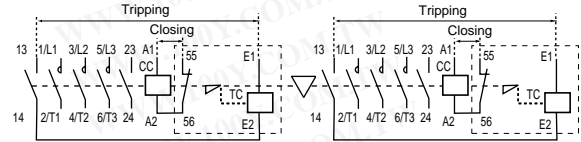


CC: Closing coil  
TC: Tripping coil

**SC-05RM/V, 5-1RM/V**

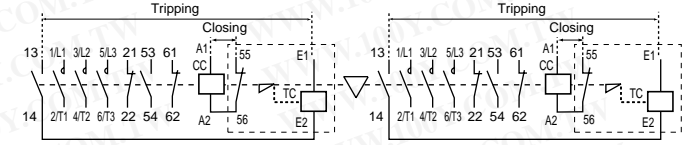
**SC-05RM/VG, 5-1RM/VG**

Auxiliary contact: 1NO×2



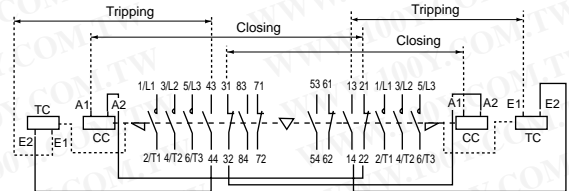
CC: Closing coil  
TC: Tripping coil

**SC-5-1RM/V**  
**SC-5-1RM/VG**  
Auxiliary contact: 2×(1NO+2NC)



CC: Closing coil  
TC: Tripping coil

**SC-N4RM/VS to N12RM/VS**



CC: Closing coil  
TC: Tripping coil

**Motor starters for heavy starting duty conditions**

Up to 315kW 440 Volts 3-phase

■ **Description**

This starter is designed for applications to those loads where the inrush current at the moment of starting persists for a long period, such as with blowers, winders, fans and centrifugal separators whose inertia force is large. In these cases the inrush current could last up to 7-8 sec., and would cause a standard type starter to misstrip. FUJI heavy load starters are highly suitable for such conditions and are provided with long time operating type thermal overload relays. In this type of



overload relay the small-sized saturable core reactors are connected in parallel with the heater elements. These divert the inrush current at the time of starting.

■ **Ordering information**

Specify the following:

1. Ordering code
2. Overload relay setting range code
3. Operating coil voltage code
4. Auxiliary contact arrangement

■ **Types and ratings**

Type	Ordering code	Aux. contact		Max. motor capacity (kW)		Operational current (A)		Combined thermal overload relay (3-element) Type
		NO	NC	200V 240V	380V 440V	200V 240V	380V 440V	
SW-03/3L	SC11AAF-■10T□	1	-	2.5	4	11	9	TR-0NL/3
SW-03/3L	SC11AAF-■01T□	-	1	2.5	4	11	9	TR-0NL/3
SW-0/3L	SC13AAF-■10T□	1	-	3.5	5.5	13	12	TR-0NL/3
SW-0/3L	SC13AAF-■01T□	-	1	3.5	5.5	13	12	TR-0NL/3
SW-05/3L	SC14AAF-■20T□	2	-	3.5	5.5	13	12	TR-0NL/3
SW-05/3L	SC14AAF-■11T□	1	1	3.5	5.5	13	12	TR-0NL/3
SW-05/3L	SC14AAF-■02T□	-	2	3.5	5.5	13	12	TR-0NL/3
SW-4-0/3L	SC18AAF-■10T□	1	-	4.5	7.5	18	16	TR-5-1NL/3
SW-4-0/3L	SC18AAF-■01T□	-	1	4.5	7.5	18	16	TR-5-1NL/3
SW-4-1/3L	SC19AAF-■10T□	1	-	5.5	11	22	22	TR-5-1NL/3
SW-4-1/3L	SC19AAF-■01T□	-	1	5.5	11	22	22	TR-5-1NL/3
SW-5-1/3L	SC20AAF-■20T□	2	-	5.5	11	22	22	TR-5-1NL/3
SW-5-1/3L	SC20AAF-■11T□	1	1	5.5	11	22	22	TR-5-1NL/3
SW-5-1/3L	SC20AAF-■02T□	-	2	5.5	11	22	22	TR-5-1NL/3
SW-5-1/3L	SC20AAF-■22T□	2	2	5.5	11	22	22	TR-5-1NL/3
SW-N1/3L	SC25BAAF-■22T□	2	2	7.5	15	32	32	TR-N2L/3
SW-N2/3L	SC35BAAF-■22T□	2	2	11	18.5	40	40	TR-N2L/3
SW-N2S/3L	SC50BAAF-■22T□	2	2	15	22	50	50	TR-N3L/3
SW-N3/3L	SC65BAAF-■22T□	2	2	18.5	30	65	65	TR-N3L/3
SW-N4/3L	SC80BAAF-■22T□	2	2	22	40	80	80	TR-N5L/3
SW-N5A/3L	SC93CAAF-■22T□	2	2	30	55	105	105	TR-N5L/3
SW-N6/3L	SC1CBAAF-■22T□	2	2	37	60	125	125	TR-N6L/3
SW-N7/3L	SC1FBAAF-■22T□	2	2	45	75	150	150	TR-N7L/3
SW-N8/3L	SC1JBAAF-■22T□	2	2	55	90	180	180	TR-N10L/3
SW-N10/3L	SC2CBAAF-■22T□	2	2	65	110	220	220	TR-N10L/3
SW-N11/3L	SC3ABAAF-■22T□	2	2	90	160	300	300	TR-N11L/3
SW-N12/3L	SC4ABAAF-■22T□	2	2	120	220	400	400	TR-N12L/3
SW-N14/3L	SC6ABAAF-■22T□	2	2	180	315	600	600	TR-N14L/3

- Notes: 1. ■ Enter the operating coil voltage code.  
 2. □ Enter the thermal overload relay ampere setting range code.  
 3. Starters with 2-element overload relay are also available SW-□/2L.

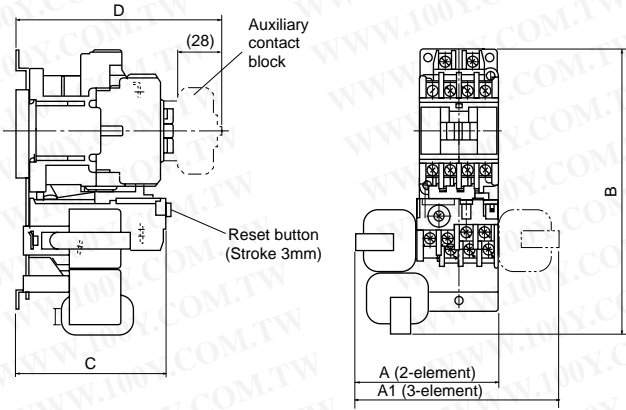
# Magnetic Motor Starters

## SW series

### Heavy starting duty

#### ■ Dimensions, mm

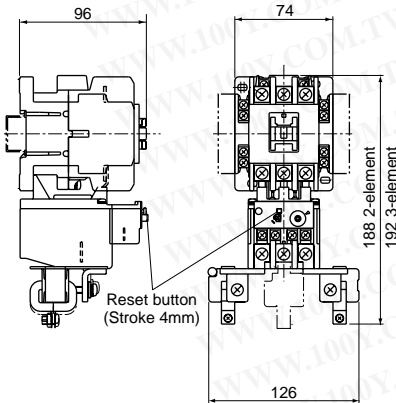
SW-03/2L to 5-1/2L  
SW-03/3L to 5-1/3L



Type	2-element	3-element	A	A1	B	C	D *	Mass (kg)	
								2-element	3-element
SW-03/2L	SW-03/3L		79	115	157	83	113	0.62	0.72
SW-0/2L	SW-0/3L		79	115	157	83	113	0.62	0.72
SW-05/2L	SW-05/3L		84	120	157	84	114	0.64	0.74
SW-4-0/2L	SW-4-0/3L		88	124	157	83	114	0.66	0.76
SW-4-1/2L	SW-4-1/3L		88	124	157	83	114	0.66	0.76
SW-5-1/2L	SW-5-1/3L		89	124	157	83	114	0.69	0.79
SW-5-1/2L	SW-5-1/3L		89	124	157	83	114	0.71	0.81

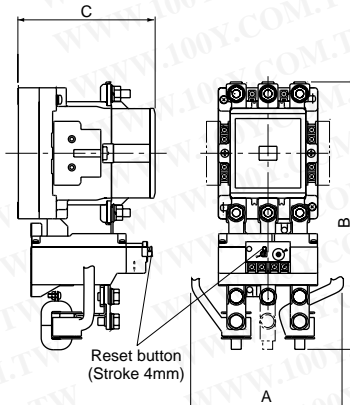
C: Without front mounting auxiliary contact block  
D: With front mounting auxiliary contact block  
\* Mounted auxiliary contacts 2NO+2NC

#### SW-N1/2L, N2/2L SW-N1/3L, N2/3L

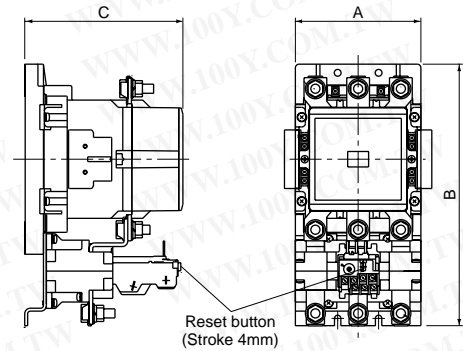


Mass: SW-N1/2L, N2/2L: 1.01kg  
SW-N1/3L, N2/3L: 1.13kg

#### SW-N2S/2L to SW-N7/2L SW-N2S/3L to SW-N7/3L



#### SW-N8/2L SW-N8/3L



Type	2-element	3-element	A	B	C	Mass (kg)	
				2-element	3-element	2-element	3-element
SW-N2S/2L	SW-N2S/3L		138	219	219	1.54	1.66
SW-N3/2L	SW-N3/3L		138(149)*	219(202)*	219(224)*	1.54	1.64
SW-N4/2L	SW-N4/3L		138(149)*	230(214)*	230(236)*	2.26	2.54
SW-N5A/2L	SW-N5A/3L		149	214	236	2.66	2.94
SW-N6/2L	SW-N6/3L		165	270	270	3.62	3.93
SW-N7/2L	SW-N7/3L		165	281	281	3.92	4.23
SW-N8/2L	SW-N8/3L		138	287	287	6.8	6.8

\*( ) = In case of ampere setting range 45 to 65A

Note: SW-N10/2L, N11/2L, N12/2L and N14/2L, SW-N10/3L, N11/3L, N12/3L and N14/3L, N11/3H, N12/3H and N14/3H, respectively.

Dimensions for reference only. Confirm before construction begins.

**Motor starters with quick operating thermal overload relay**

Up to 55kW 440 Volts 3-phase

■ **Description**

This motor starter is fitted with a quick operating type thermal overload relay which makes suitable for controlling submersible motor pumps and compressors. These motor windings are cooled by using liquid or other media.

Thus their overload capacity will be less than standard type motor. This also means that these motors cannot be protected by standard type overload relays since their operation would be rather slow. The starters are available in types ranging from SW-03/3Q to SW-N5/3Q. All thermal overload relays have 3-heater elements.

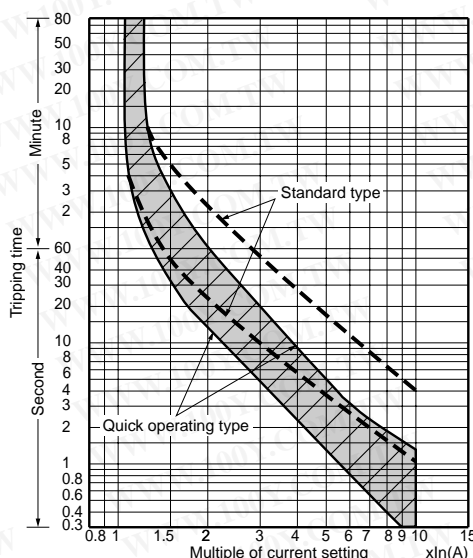
■ **Features**

- Thermal overload relays are designed to have similar starting characteristics to those of the motors. These relays will operate quicker than the standard type in the face of a locked rotor current. (Refer to the graph.)
- Compact with external dimensions similar to the standard type.
- The ampere setting dial of the overload relays is calibrated to an RC scale (Rated current). All that is necessary is to set a value equal to the full load current of the motor.



■ **Operating characteristics**

For explanation only



■ **Ordering information**

Specify the following:

1. Ordering code
2. Overload relay setting range code
3. Operating coil voltage code
4. Auxiliary contact arrangement

■ **Performance data:**

Same as standard types  
 See page 01/22.  
 Conforming to Class AC-3, IEC60947-4-1.

■ **Ratings of coil and auxiliary contact:**

See pages 01/20, 22 and 23.

■ **Dimensions and wiring diagrams:**

Same as standard types  
 See page 01/29, 30 and 31.

■ **Thermal overload relay:**

See page 01/88.

■ **Ratings**

Type	Ordering code	Max. motor capacity (kW)		Rated operational current (A)		Auxiliary contact		Combined thermal overload relay	
		200V 240V	380V 440V	200V 240V	380V 440V	NO	NC	Type	Ordering code
SW-03/3Q	SC11AAS-■10T□	2.5	4	11	9	1	- *1	TR-0NQ	TR13SW-□
SW-0/3Q	SC13AAS-■10T□	3.5	5.5	13	12	1	- *1	TR-0NQ	TR13SW-□
SW-05/3Q	SC14AAS-■11T□	3.5	5.5	13	12	1	1 *2	TR-0NQ	TR13SW-□
SW-4-0/3Q	SC18AAS-■10T□	4.5	7.5	18	16	1	- *1	TR-5-1NQ	TR20SW-□
SW-4-1/3Q	SC19AAS-■10T□	4.5	7.5	18	16	1	- *1	TR-5-1NQ	TR20SW-□
SW-5-1/3Q	SC20AAS-■11T□	4.5	7.5	18	16	1	1 *3	TR-5-1NQ	TR20SW-□
SW-5-1/3Q	SC20AAS-■22T□	4.5	7.5	18	16	2	2	TR-5-1NQ	TR20SW-□
SW-N1/3Q	SC25BAAS-■22T□	7.5	15	32	32	2	2	TR-N2Q	TR35BSW-□
SW-N2/3Q	SC35BAAS-■22T□	11	18.5	40	40	2	2	TR-N2Q	TR35BSW-□
SW-N2S/3Q	SC50BAAS-■22T□	15	22	50	50	2	2	TR-N3Q	TR65BSW-□
SW-N3/3Q	SC65BAAS-■22T□	18.5	30	65	65	2	2	TR-N3Q	TR65BSW-□
SW-N4/3Q	SC80BAAS-■22T□	22	40	80	80	2	2	TR-N5Q	TR93BSW-□
SW-N5A/3Q	SC93CAAS-■22T□	30	55	105	105	2	2	TR-N5Q	TR93BSW-□

Notes: \*1 Auxiliary contact 1NC is also available on request.  
 \*2 Auxiliary contact 2NO or 2NC is also available on request.  
 \*3 Auxiliary contact 2NO, 2NC or 2NO+2NC is also available on request.  
 Enter the coil voltage code in the ■ mark.  
 Enter the thermal overload relay ampere setting range code in the □ mark.

# Magnetic Motor Starters

## SW series

### With phase-loss protective device

#### Motor starters with phase-loss protective device

Up to 315 kW 440 Volts 3-phase

##### ■ Description

These starters are provided with a FUJI TK type thermal overload relay. This has an phase-loss protection function as well as the ordinary overload protection.

These devices prevent damage due to single-phasing such as fuse melting, cable troubles or loosening through excessive vibration.

They are highly suitable for such applications as cooling fans or circulating pumps for power transformers.

The switches use FUJI SC series contactors which have a life expectancy of over 1 million operations and which makes them suitable for motor controls for industrial use.

Size range from 03 to N14 with capacities from 2.5kW to 180kW 220 Volts AC. Starters are available in both open- and enclosed-type versions.

Reversing motor starters with TK relays are also available.

##### ■ Ordering information

Specify the following:

1. Ordering code
2. Overload relay setting range code
3. Operating coil voltage code
4. Auxiliary contact arrangement

##### ■ Performance data:

Same as standard types.

See page 01/22.

##### ■ Ratings of coil and auxiliary contacts:

See pages 01/20, 22 and 23.

##### ■ Dimensions and wiring diagrams:

See pages 01/29, 30, 31 and 32.

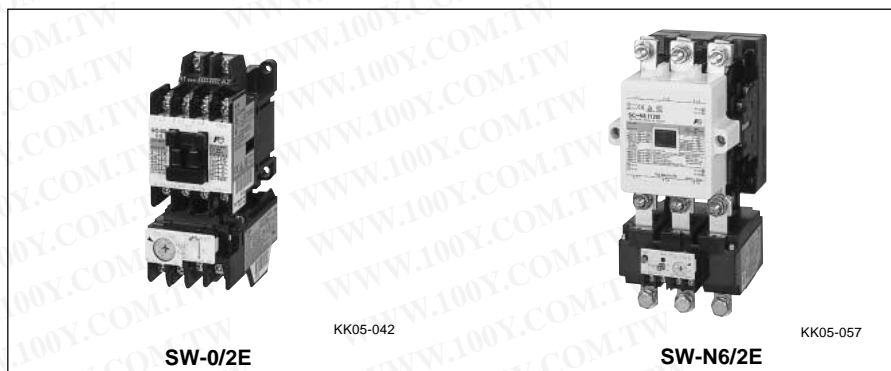
##### ■ Characteristics of TK relay:

See page 01/100.

##### ■ Thermal overload relays with phase-loss protection

The TK thermal overload relay perfectly matches the heat characteristics of 3-phase squirrel-cage induction motors. The heater element and phase-loss protective mechanism are built inside the enclosure.

The characteristics of the phase-loss



mechanism co-ordinate with the temperature rise curve of the stator winding at the time of phase-loss. When an phase-loss is produced during the full load operation of a 3-phase motor a current larger than the full load current will flow and operate the thermal overload relay.

Under this load condition the standard type OL relay can provide adequate protection. If the load is approx. 60% of the full load current the motor will continue a single phase running and the line current will become almost equal to the full load current.

However, since it will not reach the minimum operating point of OL relay the starter will not be tripped.

In the case of a delta winding motor a phase current of approx. 115% of the line full load current will flow in windings. This overcurrent results in a temperature rise in the motor windings and damage due to overheating can be expected.

FUJI TK thermal overload relays are provided with ADL mechanism which can correctly detect phase-loss under such medium load conditions. This sophisticated detecting mechanism can take corrective action quicker in the case of overload running.

The ADL mechanism operates on a dependable and simple level design. It works as follows:—

The heater, in phase-loss, will be cool since no load current flows, while heater of other phases will heat up since a large current flows.

The difference in temperature between the cold and hot heater elements causes the shift lever to operate the Trip/Alarm contact.

The operating current range is 105%–120% of the rated current set on the dial.

#### Reversing motor starter with phase-loss protective device

##### ■ Description

This reversing motor starter uses two contactors and TK type thermal overload relay. The TK relay is provided with a heater element and a built-in mechanism for phase-loss protection use, which match with the thermal characteristics of 3-phase squirrel-cage rotor motor. This eliminates the possibility of damage in the case of the motor overheating.

The TK relay also features manual tripping, a trip-free mechanism, MANUAL/AUTO selector lever, wide range dial ampere adjustment, ambient temperature compensator and 1NO•1NC trip/alarm contact, etc. Starters can be supplied with either open type or provided with enclosures. The general purpose enclosure is made of pressed steel and is not provided with a pushbutton.

Magnetic Motor Starters  
**SW series**  
With phase-loss protective device

■ Types and ratings/Non-reversing

Max. motor capacity (kW)		Operational current (A)		Auxiliary contact	Open Type	Ordering code	Enclosed Type	Ordering code	Combined thermal overload relay
200V	380V	200V	380V	Standard					
240V	440V	240V	440V						
2.5	4	11	9	1NO *1	<b>SW-03/2E</b>	SC11AAE-■10T□	<b>SW-03C/2E</b>	SC11CAE-■10T□	TK-0N
3.5	5.5	13	12	1NO *1	<b>SW-0/2E</b>	SC13AAE-■10T□	<b>SW-0C/2E</b>	SC13CAE-■10T□	TK-0N
3.5	5.5	13	12	1NO+1NC *2	<b>SW-05/2E</b>	SC14AAE-■11T□	<b>SW-05C/2E</b>	SC14CAE-■11T□	TK-0N
4.5	7.5	18	16	1NO *1	<b>SW-4-0/2E</b>	SC18AAE-■10T□	<b>SW-4-0C/2E</b>	SC18CAE-■10T□	TK-5-1N
5.5	11	22	22	1NO *1	<b>SW-4-1/2E</b>	SC19AAE-■10T□	<b>SW-4-1C/2E</b>	SC19CAE-■10T□	TK-5-1N
5.5	11	22	22	1NO+1NC *3	<b>SW-5-1/2E</b>	SC20AAE-■11T□	<b>SW-5-1C/2E</b>	SC20CAE-■11T□	TK-5-1N
7.5	15	32	32	2NO+2NC *4	<b>SW-N1/2E</b>	SC25BAAE-■22T□	<b>SW-N1C/2E</b>	SC25BCAE-■22T□	TK-N2
11	18.5	40	40	2NO+2NC *4	<b>SW-N2/2E</b>	SC35BAAE-■22T□	<b>SW-N2C/2E</b>	SC35BCAE-■22T□	TK-N2
15	22	50	50	2NO+2NC *4	<b>SW-N2S/2E</b>	SC50BAAE-■22T□	<b>SW-N2SC/2E</b>	SC50BCAE-■22T□	TK-N3
18.5	30	65	65	2NO+2NC *4	<b>SW-N3/2E</b>	SC65BAAE-■22T□	<b>SW-N3C/2E</b>	SC65BCAE-■22T□	TK-N3
22	40	80	80	2NO+2NC *4	<b>SW-N4/2E</b>	SC80BAAE-■22T□	<b>SW-N4C/2E</b>	SC80BCAE-■22T□	TK-N5
30	55	105	105	2NO+2NC *4	<b>SW-N5A/2E</b>	SC93CAAE-■22T□	<b>SW-N5AC/2E</b>	SC93CCAE-■22T□	TK-N5
37	60	125	125	2NO+2NC *4	<b>SW-N6/2E</b>	SC1CBAAE-■22T□	<b>SW-N6C/2E</b>	SC1CBCAE-■22T□	TK-N6
45	75	150	150	2NO+2NC *4	<b>SW-N7/2E</b>	SC1FBAAE-■22T□	<b>SW-N7C/2E</b>	SC1FBCAE-■22T□	TK-N7
55	90	180	180	2NO+2NC *4	<b>SW-N8/2E</b>	SC1JBAAE-■22T□	<b>SW-N8C/2E</b>	SC1JBCAE-■22T□	TK-N8
65	110	220	220	2NO+2NC *4	<b>SW-N10/2E</b>	SC2CBAAE-■22T□	<b>SW-N10C/2E</b>	SC2CBCAE-■22T□	TK-N10
90	160	300	300	2NO+2NC *4	<b>SW-4-1RM/2E</b>	SC3ABAAE-■22T□	<b>SW-N11C/2E</b>	SC3ABCAE-■22T□	TK-N11
120	220	400	400	2NO+2NC *4	<b>SW-N12/2E</b>	SC4ABAAE-■22T□	<b>SW-N12C/2E</b>	SC4ABCAE-■22T□	TK-N12
180	315	600	600	2NO+2NC *4	<b>SW-N14/2E</b>	SC6ABAAE-■22T□	<b>SW-N14C/2E</b>	SC6ABCAE-■22T□	TK-N14

Notes: Enter the coil voltage code in the ■ mark.  
Enter the thermal overload relay ampere setting range code in the □ mark.  
\*1 Auxiliary contact 1NC is available on request.  
\*2 Auxiliary contact 2NO or 2NC is available on request.  
\*3 Auxiliary contact 2NO, 2NC or 2NO+2NC is available on request. However, 2NO+2NC is not available for enclosed types.  
\*4 Auxiliary contact 4NO+4NC is available on request for frame sizes N1 and above.

■ Types and ratings/Reversing

Max. motor capacity (kW)		Operational current (A)		Auxiliary contact	Open Type	Ordering code	Enclosed Type	Ordering code	Combined thermal overload relay
200V	380V	200V	380V	Standard					
240V	440V	240V	440V						
2.5	4	11	9	1NC × 2 *1	<b>SW-03RM/2E</b>	SC11RAE-■01T□	<b>SW-03RMC/2E</b>	SC11MAE-■01T□	TK-0N
3.5	5.5	13	12	1NC × 2 *1	<b>SW-0RM/2E</b>	SC13RAE-■01T□	<b>SW-0RMC/2E</b>	SC13MAE-■01T□	TK-0N
3.5	5.5	13	12	(1NO+1NC) × 2 *2	<b>SW-05RM/2E</b>	SC14RAE-■11T□	<b>SW-05RMC/2E</b>	SC14MAE-■11T□	TK-0N
4.5	7.5	18	16	1NC × 2 *1	<b>SW-4-0RM/2E</b>	SC18RAE-■01T□	<b>SW-4-0RMC/2E</b>	SC18MAE-■01T□	TK-5-1N
5.5	11	22	22	1NC × 2 *1	<b>SW-4-1RM/2E</b>	SC19RAE-■01T□	<b>SW-4-1RMC/2E</b>	SC19MAE-■01T□	TK-5-1N
5.5	11	22	22	(1NO+1NC) × 2 *3	<b>SW-5-1RM/2E</b>	SC20RAE-■11T□	<b>SW-5-1RMC/2E</b>	SC20MAE-■11T□	TK-5-1N
7.5	15	32	32	(2NO+2NC) × 2 *4	<b>SW-N1RM/2E</b>	SC25BRAE-■22T□	<b>SW-N1RMC/2E</b>	SC25BMAE-■22T□	TK-N2
11	18.5	40	40	(2NO+2NC) × 2 *4	<b>SW-N2RM/2E</b>	SC35BRAE-■22T□	<b>SW-N2RMC/2E</b>	SC35BMAE-■22T□	TK-N2
15	22	50	50	(2NO+2NC) × 2 *4	<b>SW-N2SRM/2E</b>	SC50BRAE-■22T□	<b>SW-N2SRMC/2E</b>	SC50BMAE-■22T□	TK-N3
18.5	30	65	65	(2NO+2NC) × 2 *4	<b>SW-N3M/2E</b>	SC65BRAE-■22T□	<b>SW-N3RMC/2E</b>	SC65BMAE-■22T□	TK-N3
22	40	80	80	(2NO+2NC) × 2 *4	<b>SW-N4RM/2E</b>	SC80BRAE-■22T□	<b>SW-N4RMC/2E</b>	SC80BMAE-■22T□	TK-N5
30	55	105	105	(2NO+2NC) × 2 *4	<b>SW-N5ARM/2E</b>	SC93CRAE-■22T□	<b>SW-N5ARMC/2E</b>	SC93CMAE-■22T□	TK-N5
37	60	125	125	(2NO+2NC) × 2 *4	<b>SW-N6RM/2E</b>	SC1CBRAE-■22T□	<b>SW-N6RMC/2E</b>	SC1CBMAE-■22T□	TK-N6
45	75	150	150	(2NO+2NC) × 2 *4	<b>SW-N7RM/2E</b>	SC1FBRAE-■22T□	<b>SW-N7RMC/2E</b>	SC1FBMAE-■22T□	TK-N7
55	90	180	180	(2NO+2NC) × 2 *4	<b>SW-N8RM/2E</b>	SC1JBRAE-■22T□	<b>SW-N8RMC/2E</b>	SC1JBMAE-■22T□	TK-N8
65	110	220	220	(2NO+2NC) × 2 *4	<b>SW-N10RM/2E</b>	SC2CBRAE-■22T□	<b>SW-N10RMC/2E</b>	SC2CBMAE-■22T□	TK-N10
90	160	300	300	(2NO+2NC) × 2 *4	<b>SW-N11RM/2E</b>	SC3ABRAE-■22T□	<b>SW-N11RMC/2E</b>	SC3ABMAE-■22T□	TK-N11
120	220	400	400	(2NO+2NC) × 2 *4	<b>SW-N12RM/2E</b>	SC4ABRAE-■22T□	<b>SW-N12RMC/2E</b>	SC4ABMAE-■22T□	TK-N12
180	315	600	600	(2NO+2NC) × 2 *4	<b>SW-N14RM/2E</b>	SC6ABRAE-■22T□	<b>SW-N14RMC/2E</b>	SC6ABMAE-■22T□	TK-N14

Notes: Enter the coil voltage code in the ■ mark.  
Enter the thermal overload relay ampere setting range code in the □ mark.  
\*1 Auxiliary contact 1NO×2 is available on request. However, these contactors are not electrically interlocked. Be sure to arrange electrical interlock circuit externally to avoid short-circuit accidents.  
\*2 Auxiliary contact 2NC×2 is available on request.  
\*3 Auxiliary contact 2NC×2 or (2NO+2NC)×2 is available on request. However, (2NO+2NC)×2 is not available for enclosed types.  
\*4 Auxiliary contact (3NO+3NC)×2 is available on request.

# Magnetic Motor Starters

## SW series

### With phase-loss and phase-sequence protective device

#### Motor starters with phase-loss and phase-sequence relays

Up to 315kW 440 Volts 3-phase

##### ■ Description

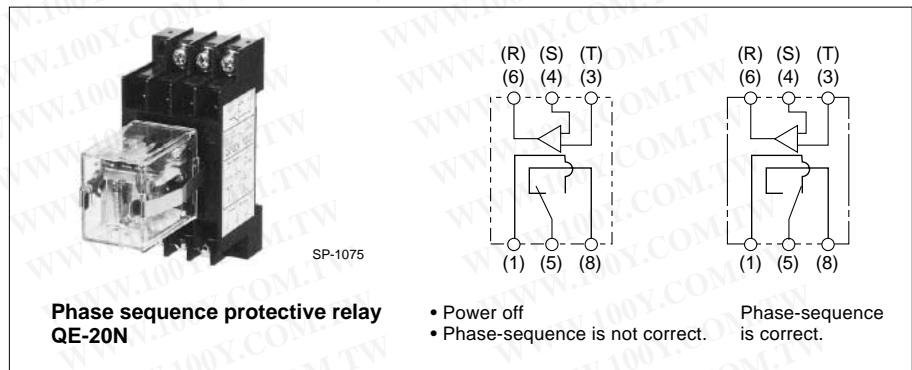
These starters are fitted with TK type thermal overload relay and phase-sequence relay. The phase-sequence relay only permits engagement of the starter when the phase rotation is confirmed to be correct.

These switches are mainly used for construction site machinery, window shutters, machine tools, compressors, freezers, conveyors, underwater pumps, car washing machines, blowers and similar applications. They give excellent protection against damage and overheating resulting from phase-loss operation.

##### ■ Ordering information

Specify the following:

- Ordering code  
2E type motor starter and phase sequence relay QE-20N.
- Overload relay setting range code
- Operating coil voltage code



##### ■ Types and ratings

Max. motor capacity (kW) 200V 380V 240V 440V	Operational current (A) 200V 380V 240V 440V		Auxiliary contact Standard	Starter with 2E type thermal overload relay		Phase-sequence protective relay		
	Type	Ordering code		Type	Ordering code			
2.5	4	11	9	1NO *1	SW-03/2E	SC11AAE-■10T□	200-220V: QE-20N	TQ1CPN
3.5	5.5	13	12	1NO *1	SW-0/2E	SC13AAE-■10T□	380-415V: QE-40N	TQ2CPN
3.5	5.5	13	12	1NO + 1NC *2	SW-05/2E	SC14AAE-■11T□		
4.5	7.5	18	16	1NO *1	SW-4-0/2E	SC18AAE-■10T□		
5.5	11	22	22	1NO *1	SW-4-1/2E	SC19AAE-■10T□		
5.5	11	22	22	1NO + 1NC *3	SW-5-1/2E	SC20AAE-■11T□		
5.5	11	22	22	2NO + 2NC	SW-5-1/2E	SC20AAE-■22T□		
7.5	15	32	32	2NO + 2NC *4	SW-N1/2E	SC25BAAE-■22T□		
11	18.5	40	40	2NO + 2NC *4	SW-N2/2E	SC35BAAE-■22T□		
15	22	50	50	2NO + 2NC *4	SW-N2S/2E	SC50BAAE-■22T□		
18.5	30	65	65	2NO + 2NC *4	SW-N3/2E	SC65BAAE-■22T□		
22	40	80	80	2NO + 2NC *4	SW-N4/2E	SC80BAAE-■22T□		
30	55	105	105	2NO + 2NC *4	SW-N5A/2E	SC93CAAE-■22T□		
37	60	125	125	2NO + 2NC *4	SW-N6/2E	SC1CBAAE-■22T□		
45	75	150	150	2NO + 2NC *4	SW-N7/2E	SC1FBAAE-■22T□		
55	90	180	180	2NO + 2NC *4	SW-N8/2E	SC1JBAAE-■22T□		
65	110	220	220	2NO + 2NC *4	SW-N10/2E	SC2CBAAE-■22T□		
90	160	300	300	2NO + 2NC *4	SW-N11/2E	SC3ABAAE-■22T□		
120	220	400	400	2NO + 2NC *4	SW-N12/2E	SC4ABAAE-■22T□		
180	315	600	600	2NO + 2NC *4	SW-N14/2E	SC6ABAAE-■22T□		

Notes: Enter the coil voltage code in the ■ mark.

Enter the thermal overload relay ampere setting range code in the □ mark.

\*1 Auxiliary contact 1NC is available on request.

\*2 Auxiliary contact 2NO or 2NC is available on request.

\*3 Auxiliary contact 2NO or 2NC is available on request.

\*4 Auxiliary contact 4NO+4NC is available on request for frame sizes N1 and above.

##### ■ Performance data:

Same as standard types.

See page 01/22.

##### ■ Ratings of coil and auxiliary contacts:

See pages 01/20, 22 and 23.

##### ■ TK type thermal overload relays:

See page 01/100.

##### ■ Thermal overload relays with phase-loss and phase-sequence protective relays

Motor starters with 3E relay are fitted with both TK type thermal overload and QE-20N type phase-sequence protective relays.

If the phase rotation of the power supply is not correct the relay will not permit the starter to be switched ON.

These starters provide motors with accurate and consistent protection under overcurrent, phase-loss and reverse-phase conditions.

■ Method of operation

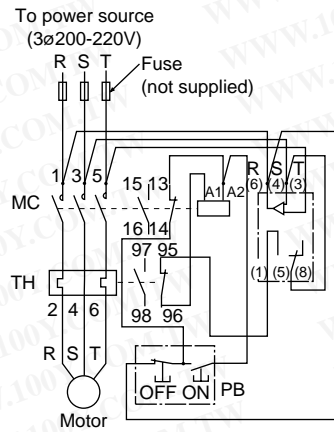
The FUJI phase-sequence relay contacts 1–5 will close if the phase rotation of the power source is correct. In case the rotation is incorrect the contacts 1–5 will remain open and the magnetic coil A1–A2 will not be energized.

■ Dimensions, mm

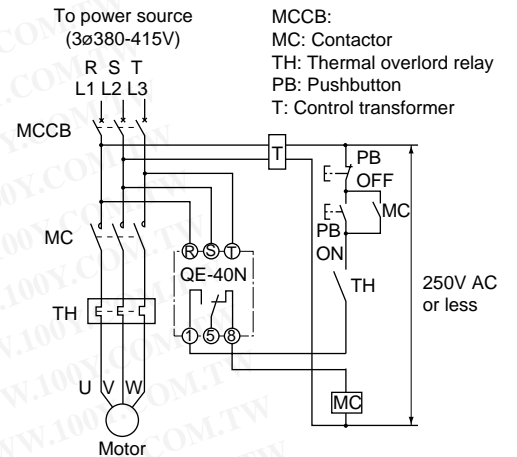
● Starter with phase-loss protection SW-03/2E to 14N/2E (Open)  
Same as standard types.  
See pages 01/29 to 01/32.

■ Wiring diagrams (example)

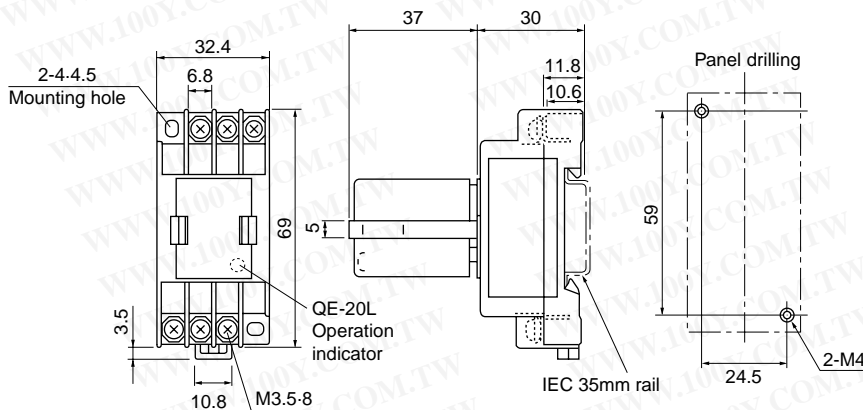
● QE-20N, 20NL  
200–220V



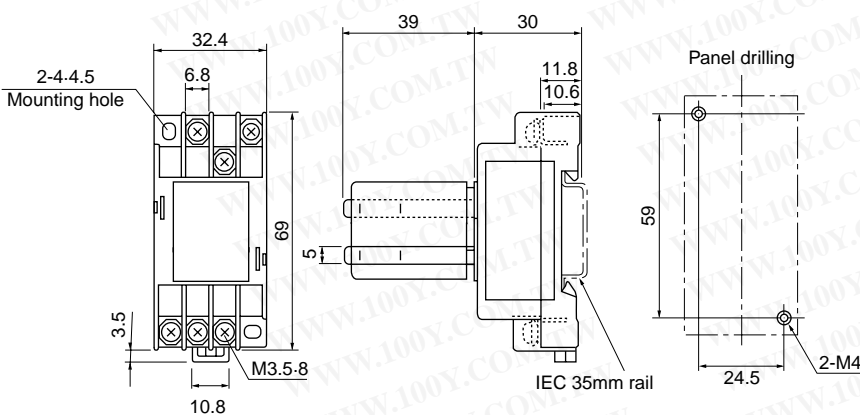
● QE-40N  
380–415V



● Phase-sequence protective relay  
QE-20N, 20NL



QE-40N



Dimensions for reference only. Confirm before construction begins.

# Magnetic Motor Starters

## SW series

### Enclosed with pushbuttons

#### Motor starters with on-off/reset pushbuttons

Up to 110kW 440 Volts

#### Description

It is provided with on-off push-buttons. Its small size makes little demand on space. The enclosure is a general purpose type and is made of pressed steel sheet. (Plastic enclosure for SW-03P to SW-5-1P)  
Compact, space-saving and easily mounted FUJI integral motor starters are highly reliable and efficient products to satisfy your application requirements. They are used with single and 3-phase squirrel-cage induction motors. Essentially consisting of a magnetic contactor and a thermal overload relay these units provide complete motor overload protection with the convenience of an outside reset button mounted on the front of the starter box.

#### Contactors

FUJI integral motor starters use the SC series of contactors. All starters incorporate the usual FUJI features. These include free-floating magnetic mechanisms, bounce damping devices, long-life low-maintenance silver alloy contacts and rapid heat-dispersing arc-quenchers. Starter exceed IEC specifications as far as service life is concerned.  
Choice of FUJI equipment will ensure you reduced maintenance, inspection and labor costs and uninterrupted dependable service. Available motor capacities are from 4kW to 110kW at 380 Volts.

#### Thermal overload relays

Highly efficient heater elements and ambient temperature compensators give motors added protection and more uniform performance. They are fitted with 3-pole heater elements, and resetting is carried out manually with the reset button.

#### Coil ratings:

See page 01/22.  
Same as standard type starters.



SW-0P/3H

#### Performance data:

- Operating cycle: 1,200 cycles per hours
- Life expectancy (operations)
  - Mechanical: 250,000
  - Electrical: 250,000

#### Thermal overload relay:

See page 01/98.  
Same as standard type starters.

#### Ordering information

- Specify the following:
1. Ordering code
  2. Overload relay setting range code
  3. Operating coil voltage code

#### Ratings

Max. motor capacity (kW) Single-phase 110V	3-phase		Auxiliary contact Standard	With on-off/reset pushbutton		With on-off pushbutton		Combined thermal overload relay
	200V	380V 240V 440V		Type	Ordering code	Type	Ordering code	
0.4	2.5	4	1NO	SW-03P/3H	SC11PAN-■10T□D	—	—	TR-0N/3
0.5	3.5	5.5	1NO	SW-0P/3H	SC13PAN-■10T□D	—	—	TR-0N/3
0.5	3.5	5.5	1NO+1NC	SW-05P/3H	SC14PAN-■11T□D	—	—	TR-0N/3
0.6	4.5	7.5	1NO	SW-4-0P/3H	SC18PAN-■10T□D	—	—	TR-5-1N/3
0.8	5.5	11	1NO	SW-4-1P/3H	SC20PAN-■10T□D	—	—	TR-5-1N/3
0.8	5.5	11	1NO+1NC	SW-5-1P/3H	SC20PAN-■11T□D	—	—	TR-5-1N/3
1.2	7.5	15	2NO+2NC	SW-N1PB/3H	SC25BSAN-■22T□D	SW-N1P/3H	SC25BPAN-■22T□D	TR-N2/3
1.7	11	18.5	2NO+2NC	SW-N2PB/3H	SC35BSAN-■22T□D	SW-N2P/3H	SC35BPAN-■22T□D	TR-N2/3
—	15	22	2NO+2NC	SW-N2SPB/3H	SC50BSAN-■22T□D	SW-N2SP/3H	SC50BPAN-■22T□D	TR-N3/3
—	18.5	30	2NO+2NC	SW-N3PB/3H	SC65BSAN-■22T□D	SW-N3P/3H	SC65BPAN-■22T□D	TR-N3/3
—	22	40	2NO+2NC	SW-N4PB/3H	SC80BSAN-■22T□D	—	—	TR-N5/3
—	30	55	2NO+2NC	SW-N5PB/3H	SC93BSAN-■22T□D	—	—	TR-N5/3
—	37	60	2NO+2NC	SW-N6PB/3H	SC1CBSAN-■22T□D	—	—	TR-N6/3
—	55	90	2NO+2NC	SW-N8PB/3H	SC1JBSAN-■22T□D	—	—	TR-N8/3
—	65	110	2NO+2NC	SW-N10PB/3H	SC2CBSAN-■22T□D	—	—	TR-N10/3

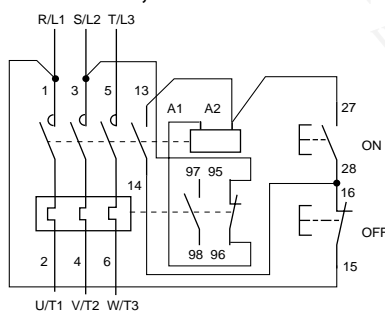
Notes: 2-element is available on request.

Enter the coil voltage code in the ■ mark.

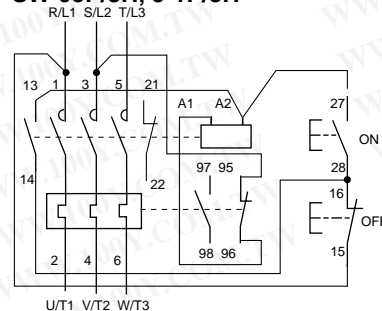
Enter the thermal overload relay ampere setting range code in the □ mark.

#### Wiring diagrams

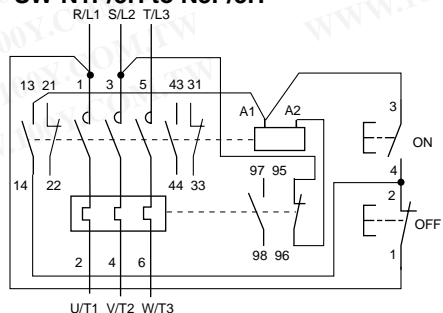
##### SW-03P/3H, 0P/3H SW-4-0P/3H, 4-1P/3H



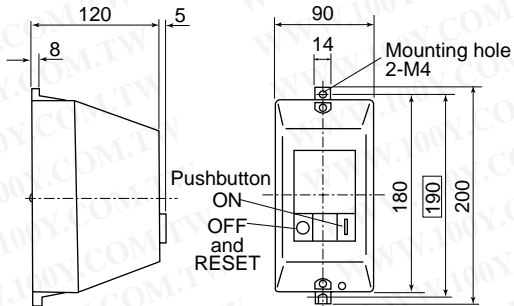
##### SW-05P/3H, 5-1P/3H



##### SW-N1PB/3H to N10PB/3H SW-N1P/3H to N3P/3H

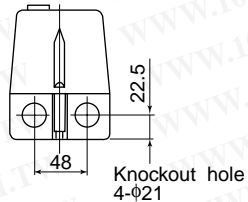


■ Dimensions, mm  
 SW-03P to SW-5-1P

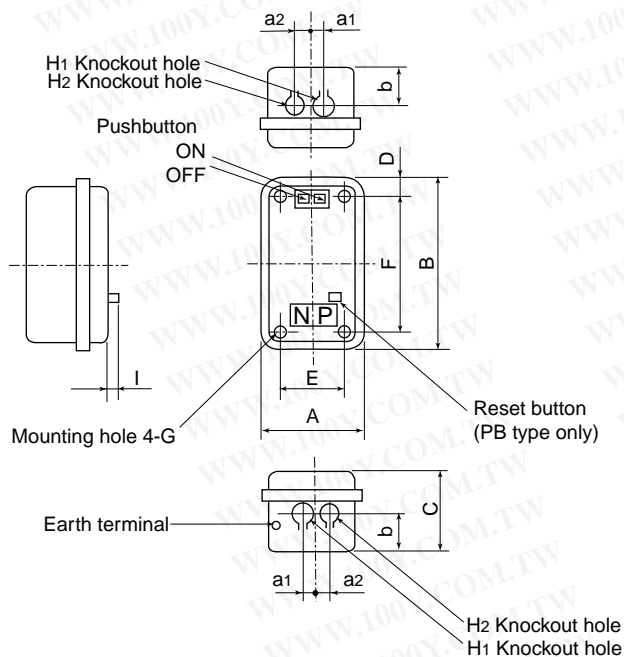


Type	Mass (kg)
SW-03P/3H	0.82
SW-0P/3H	0.82
SW-05P/3H	0.84
SW-4-0P/3H	0.86
SW-4-1P/3H	0.86
SW-5-1P/3H	0.89

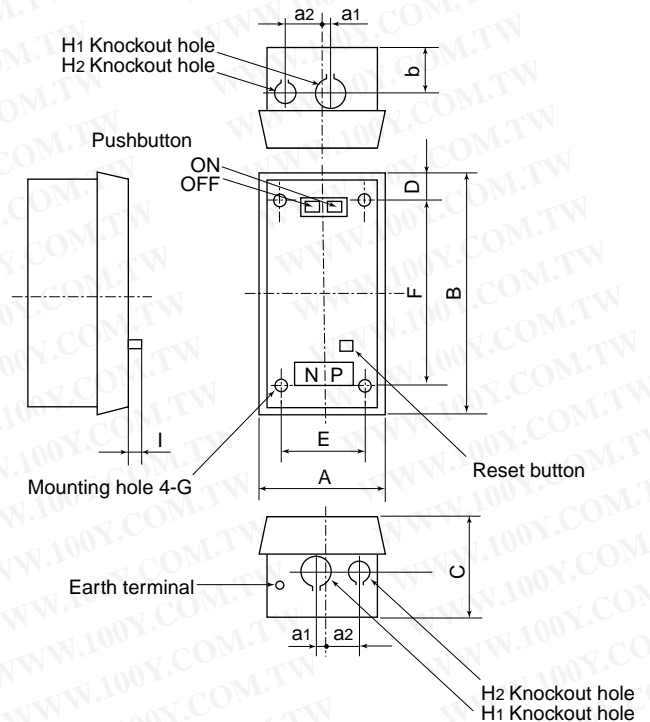
Plastic enclosure



SW-N1PB to SW-N5PB  
 SW-N1P to SW-N3P



SW-N6PB to SW-N10PB



Type		A	B	C	D	E	F	G	H <sub>1</sub>	H <sub>2</sub>	I	a <sub>1</sub>	a <sub>2</sub>	b	Mass (kg)	
															PB type	P type
SW-N1PB/3H	N1P/3H	175	320	145	35	110	250	M6	φ35	φ28	12	15	35	70	2.6	2.5
SW-N2PB/3H	N2P/3H	175	320	145	35	110	250	M6	φ35	φ28	12	15	35	70	2.6	2.5
SW-N2SPB/3H	N2SP/3H	175	320	145	35	110	250	M6	φ35	φ28	12	15	35	70	3.2	3.1
SW-N3PB/3H	N3P/3H	175	320	145	35	110	250	M6	φ35	φ28	12	15	35	70	3.2	3.1
SW-N4PB/3H		200	400	160	37	125	325	M8	φ43	φ28	12	20	40	80	4.6	—
SW-N5PB/3H		200	400	160	37	125	325	M8	φ43	φ28	12	20	40	80	5.0	—
SW-N6PB/3H		225	450	180	50	150	350	M8	φ52	φ28	12	10	70	80	8.6	—
SW-N8PB/3H		335	670	225	85	200	500	M10	φ78	φ28	11	—	100	95	18.2	—
SW-N10PB/3H		335	670	225	85	200	500	M10	φ78	φ28	11	—	100	95	19.3	—

Mass: with 3-thermal element

# Magnetic Motor Starters

## SW series

### Dust-tight/light-corrosion resistance

#### Dust-tight/light-corrosion resistance starters

##### ■ Description

When selecting a motor starter the operating conditions must be carefully considered. Attention must be given to such problems as dust, chemically aggressive atmosphere, water, oil and hazardous materials.

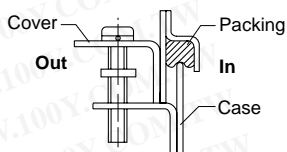
We can supply enclosures that meet the special needs of such industries as the cement and textile industries, where dust and lint can be expected, and the fertilizer, synthetic fiber, oil refining and electrochemical and metal-plating industries where corrosive gases and materials can affect the performance of electrical equipment.

A pressed metal enclosure designed for use in locations where dust, lint, fibers and similar airborne materials are present. The hingeless-type cover is provided with a corrosion-resistant rubber gasket and it is secured by screws. Knockout holes are situated at the top and bottom of the enclosure to accept conduit hubs or glands.

This type is for indoor use.

The outside surface of the enclosure is treated with a special anti-corrosion coating. This type of case is

recommended for cement and fertilizer plants and similar dusty locations. It is also suitable for oil refineries, breweries and metal-plating workshops and coastal areas where aggressive chemical conditions can be expected. This type of enclosure is not suitable for hazardous gas or hazardous dust locations.



##### ■ Ordering information

Specify the following:

1. Ordering code
2. Overload relay setting range code
3. Operating coil voltage code
4. Method of wiring works and size of conduit pipe
5. Type and density of gas



SW-N2LG/3H

SD-704

■ **Types and ratings:** See page 01/25. Same as standard enclosed type.

■ **Performance data:** Same as standard type. See page 01/22.

■ **Ratings of coil and auxiliary contact:** See pages 01/20, 22 and 23.

■ **Thermal overload relay:** See page 01/88.

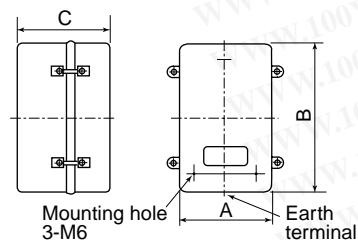
##### ■ Application for special atmosphere

Description	Standard type	Dust-tight/light corrosion res. (lg)
Dust-tight	—	○
Moisture-proof	○	○
Drip-proof	—	—
Splashing-proof	—	○
Rain-proof	—	—
Corrosion-resistant		
Light	○	○
Medium	—	○
Hazardous locations	—	—
Gas-tight	—	—

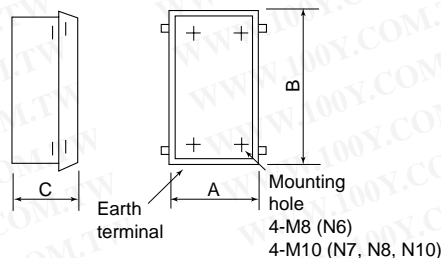
Note: ○ : Available  
— : Not available

##### ■ Dimensions, mm

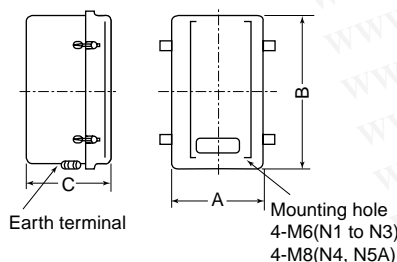
#### SW-03LG to SW-5-1LG



#### SW-N6LG to N10LG



#### SW-N1LG to SW-N5ALG



Dimensions for reference only. Confirm before construction begins.

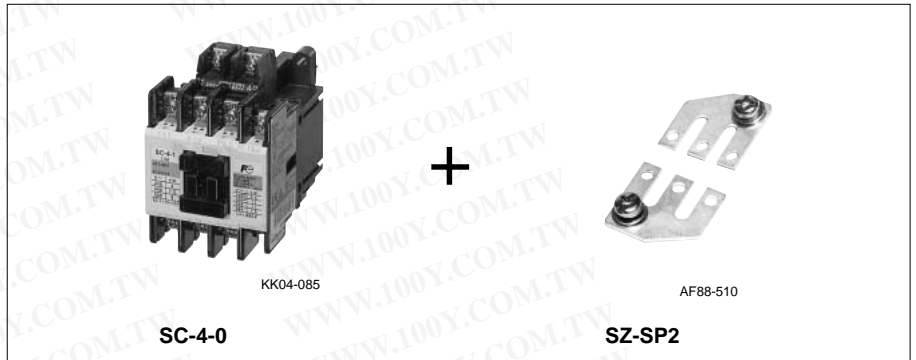
Type	Ordering code	Aux. contact	A	B	C	Mass (kg)
SW-03LG/3H	SC11LAN-■10T□D	1NO	120	195	117	1.4
SW-0LG/3H	SC13LAN-■10T□D	1NO	120	195	117	1.4
SW-05LG/3H	SC14LAN-■11T□D	1NO + 1NC	120	195	117	1.4
SW-4-0LG/3H	SC18LAN-■10T□D	1NO	120	195	117	1.5
SW-4-1LG/3H	SC19LAN-■10T□D	1NO	120	195	117	1.5
SW-5-1LG/3H	SC20LAN-■11T□D	1NO + 1NC	120	195	117	1.5
SW-N1LG/3H	SC25BLAN-■22T□D	2NO + 2NC	145	246	135	2.0
SW-N2LG/3H	SC35BLAN-■22T□D	2NO + 2NC	145	246	135	2.0
SW-N2SLG/3H	SC50BLAN-■22T□D	2NO + 2NC	175	320	145	3.1
SW-N3LG/3H	SC65BLAN-■22T□D	2NO + 2NC	175	320	145	3.1
SW-N4LG/3H	SC80BLAN-■22T□D	2NO + 2NC	200	400	160	4.5
SW-N5ALG/3H	SC93CLAN-■22T□D	2NO + 2NC	200	400	160	4.5
SW-N6LG/3H	SC1CBLAN-■22T□D	2NO + 2NC	225	450	180	8.5
SW-N7LG/3H	SC1FBLAN-■22T□D	2NO + 2NC	280	588	210	12.3
SW-N8LG/3H	SC1JBLAN-■22T□D	2NO + 2NC	335	698	225	18.1
SW-N10LG/3H	SC2CBLAN-■22T□D	2NO + 2NC	335	698	225	18.8

■ : Coil voltage code □ : Thermal overload relay ampere setting range code

**Resistance load magnetic contactors**

**■ Description**

These single pole contactors are for exclusively resistive load use. They are provided with large and sturdy parallel plate terminals attached to the 3-pole standard contactors to make them suitable for large current ratings. Typical applications are for industrial heating controls, PVA processing, solution vats, electric resistance furnaces, heat treatment facilities, drying kilns, farming, marine farming, lighting and similar purposes.



**■ Ordering information**

Specify the following:

1. Ordering code
2. Operating coil voltage code

3. State clearly "with parallel plate terminals for attaching to contactor".
4. Application and rated load current

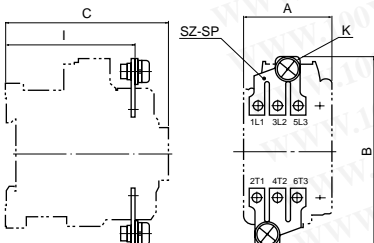
**■ Types and ratings**

Operational current (A) 110V/220V	Auxiliary contact		Making and breaking current	Operating cycles per hour	Life expectancy (operations)		Contactor Type		3-pole parallel terminal plate	
	NO	NC			Electrical	Mechanical	Ordering code	Type	Ordering code	
25	1	—	1.5 × Ie	150	500,000	10 millions	SC-03	SC11AA-■10	SZ-SP1	SZ1SP1
30	1	—	1.5 × Ie	150	500,000	10 millions	SC-0	SC13AA-■10	SZ-SP1	SZ1SP1
30	1	1	1.5 × Ie	150	500,000	10 millions	SC-05	SC14AA-■11	SZ-SP1	SZ1SP1
40	1	—	1.5 × Ie	150	500,000	10 millions	SC-4-0	SC18AA-■10	SZ-SP2	SZ1SP2
50	1	—	1.5 × Ie	150	500,000	10 millions	SC-4-1	SC19AA-■10	SZ-SP2	SZ1SP2
50	1	1	1.5 × Ie	150	500,000	10 millions	SC-5-1	SC20AA-■11	SZ-SP2	SZ1SP2
50	2	2	1.5 × Ie	150	500,000	10 millions	SC-5-1	SC20AA-■22	SZ-SP2	SZ1SP2
100	2	2	1.5 × Ie	150	500,000	5 millions	SC-N1	SC25BAA-■22	SZ-SP3	SZ2SP3
125	2	2	1.5 × Ie	150	500,000	5 millions	SC-N2	SC35BAA-■22	SZ-SP3	SZ2SP3
200	2	2	1.5 × Ie	150	250,000	5 millions	SC-N2S	SC50BAA-■22	SZ-SP4	SZ2SP4
250	2	2	1.5 × Ie	150	250,000	5 millions	SC-N3	SC65BAA-■22	SZ-SP4	SZ2SP4
315	2	2	1.5 × Ie	150	250,000	5 millions	SC-N4	SC80BAA-■22	SZ-SP5	SZ2SP5
400	2	2	1.5 × Ie	150	250,000	5 millions	SC-N5A	SC93CAA-■22	SZ-SP5	SZ2SP5
400	2	2	1.5 × Ie	150	250,000	5 millions	SC-N6	SC1CBAA-■22	SZ-SP6	SZ2SP6
500	2	2	1.5 × Ie	150	250,000	5 millions	SC-N7	SC1FBAA-■22	SZ-SP7	SZ2SP7
630	2	2	1.5 × Ie	150	250,000	5 millions	SC-N8	SC1JBAA-■22	SZ-SP8	SZ2SP8
710	2	2	1.5 × Ie	150	250,000	5 millions	SC-N10	SC2ABAA-■22	SZ-SP8	SZ2SP8
900	2	2	1.5 × Ie	150	250,000	5 millions	SC-N11	SC3ABAA-■22	SZ-SP9	SZ2SP9
1000	2	2	1.5 × Ie	150	250,000	5 millions	SC-N12	SC4ABAA-■22	SZ-SP9	SZ2SP9
1600	2	2	1.5 × Ie	150	250,000	5 millions	SC-N14	SC6ABAA-■22	SZ-SP10	SZ2SP10
2100	2	2	1.5 × Ie	150	100,000	2,500,000	SC-N16	SC8ABAA-■22	SZ-SP11	SZ2SP11

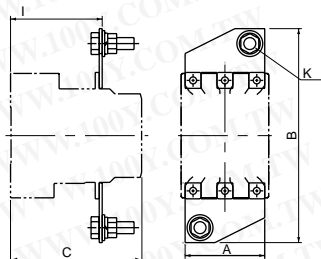
Notes: 1. ■: Coil voltage code, see page 01/27  
 2. Ie: Rated operational current. Conforming to Class AC-1, IEC60947-4-1.

**■ Dimensions, mm**

**SC-03 + SZ-SP1 to SC-5-1 + SZ-SP2**



**SC-N1+SZ-SP3 to SC-N16+SZ-SP11**



Type	A	B	C	I	K	Mass (g) *
SC-03+SZ-SP1	43	90	80	63	M6	25
SC-0+SZ-SP1	43	90	80	63	M6	25
SC-05+SZ-SP1	53	90	80	63	M6	25
SC-4-0+SZ-SP2	53	100	81	63	M6	35
SC-4-1+SZ-SP2	53	100	81	63	M6	35
SC-5-1+SZ-SP2	64	100	81	63	M6	35
	64	100	109	63	M6	35
SC-N1, N2+SZ-SP3	74	132	96	64	M8	110
SC-N2S, N3+SZ-SP4	88	174	111	75.5	M10	200
SC-N4+SZ-SP4	88	215	117	77	M12	320

Type	A	B	C	I	K	Mass (g) *
SC-N5A+SZ-SP4	88	215	132	92	M12	320
SC-N6+SZ-SP6	100	300	138	98	M12×2	760
SC-N7+SZ-SP7	115	312	140	98	M12×2	800
SC-N8, N10+SZ-SP8	138	371	174	120	M12×2	1300
SC-N11, N12+SZ-SP9	153	420	195	135	M12×4	3000
SC-N14+SZ-SP10	290	525	328	246	M12×4	4400
SC-N16+SZ-SP11	290	525	328	246	M12×4	5900

\*Mass: 3-pole parallel terminal plate only

# Magnetic Contactors

## SC series

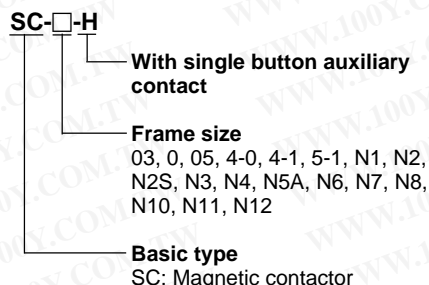
### With single button auxiliary contact

#### Magnetic contactors with single button auxiliary contact

##### Description

The SC-03H to N12H contactors are improved versions of the standard SC-03 to SC-N12 contactors. The improvement consists of changing the auxiliary contact from a bifurcated to a single button type contact. This change increases the auxiliary contact rating. The specifications, including the main contact rating and the expected electrical service life, are similar to that of the SC-03 to N12 types. The options for the SC series, such as the coil surge suppressor and mechanical interlock can also be used.

##### Type number nomenclature



##### Performance data

Same as standard types

##### Ordering information

Specify the following:

1. Ordering code
2. Operating coil voltage code
3. Auxiliary contact arrangement code.



##### Coil voltage

Same as standard type, See page 01/22

##### Ratings (Conforming to AC-3, IEC 60947-4-1)

Type	Ordering code	Max. motor capacity (kW)				Rated operational current (A)				Rated thermal current (A)	Auxiliary contact
		3-phase				3-phase					
		200V	380V	500V	600V	200V	380V	500V	600V		
		240V	440V	550V	660V	240V	440V	550V	660V		Standard
SC-03H	SC11AH-■10	2.5	4	4	4	11	9	7	5	20	1NO
SC-0H	SC13AH-■10	3.5	5.5	5.5	5.5	13	12	9	7	20	1NO
SC-05H	SC14AH-■11	3.5	5.5	5.5	5.5	13	12	9	7	20	1NO+1NC
SC-4-0H	SC18AH-■10	4.5	7.5	7.5	7.5	18	16	13	9	25	1NO
SC-4-1H	SC19AH-■10	5.5	11	11	7.5	22	22	17	9	32	1NO
SC-5-1H	SC20AH-■11	5.5	11	11	7.5	22	22	17	9	32	1NO+1NC
SC-5-1H	SC20AH-■22	5.5	11	11	7.5	22	22	17	9	32	2NO+2NC *
SC-N1H	SC25BAH-■11	7.5	15	15	11	32	32	24	15	50	2NO+2NC
SC-N2H	SC35BAH-■11	11	18.5	18.5	15	40	40	29	19	60	2NO+2NC
SC-N2SH	SC50BAH-■11	15	22	25	22	50	50	38	26	80	2NO+2NC
SC-N3H	SC65BAH-■11	18.5	30	37	30	65	65	60	38	100	2NO+2NC
SC-N4H	SC80BAH-■11	22	40	37	37	80	80	60	44	135	2NO+2NC
SC-N5AH	SC93CAH-■11	30	55	55	55	105	105	85	64	150	2NO+2NC
SC-N6H	SC1CBAH-■11	37	60	60	60	125	125	90	72	150	2NO+2NC
SC-N7H	SC1FBAH-■11	45	75	75	90	150	150	120	103	200	2NO+2NC
SC-N8H	SC1JBAH-■11	55	90	130	132	180	180	180	150	260	2NO+2NC
SC-N10H	SC2CBAH-■11	65	110	132	132	220	220	200	150	260	2NO+2NC
SC-N11H	SC3ABAH-■11	90	160	160	200	300	300	230	230	350	2NO+2NC
SC-N12H	SC4ABAH-■22	120	220	250	300	400	400	360	360	360	2NO+2NC

Notes: Enter the coil voltage code in the ■ mark

\* With auxiliary contact block SZ-A11 (1NO+1NC)

##### Auxiliary contact ratings (Conforming to IEC 60947-5-1)

Type	Continuous current (A)	Make/break current (AC, A)	Rated operational current (A)					
			AC Voltage (V)	AC-15 (Ind. load)	AC-12 (Res. load)	DC Voltage (V)	DC-13 (Ind. load)	DC-12 (Res. load)
SC-03H to SC5-1H	10	60	100-120	6	10	24	5	10
			200-240			48	1.5	5
SC-N1H to SC-N12H	10	60	380-440	4	10	110	0.7	4
			500-550			220	0.27	1
			100-120	6	10	24	10	10
			200-240			48	3	5
			380-440	4	10	110	1.5	2.5
			500-600	2.5	10	220	0.5	1

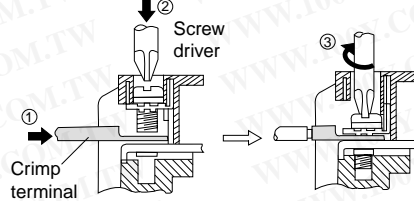
**Contactors and starters with quick connection terminals**

■ **Feature**

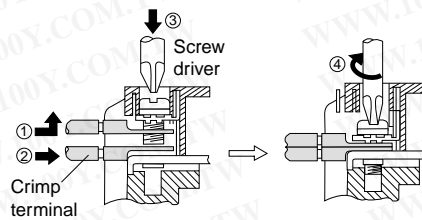
- Easy wiring  
Wiring time is at least 50% shorter than previous type.
- Safety  
The finger protection feature protects the charging current part during maintenance and check (complying with EN60947-4-1, and IEC60947-4-1)
- International use  
The product and terminal structure comply with international safety standards.  
It complies with VGB4, DIN57106, VDE0106, and VDE Teil 100 which are recommendation for preventing the exposure of charging current part.

**Quick connection terminal**

- When one crimp terminal is used



- When two crimp terminals are used



■ **Types and rating**

Max. motor capacity (kW) 3-phase AC-3 200V 380V 240V 440V	Rated operational current (A)				Rated thermal current (A)	Auxiliary contact arrangement	Contactor Type	Starter 3-element Type
	200V	380V	240V	440V				
2.5 4	11	9	20	20	20	1NO 1NC	SC-03Y10 SC-03Y01	SW-03Y/3H10 SW-03Y/3H01
3.5 5.5	13	12	20	20	20	1NO 1NC	SC-0Y10 SC-0Y01	SW-0Y/3H10 SW-0Y/3H01
3.5 5.5	13	12	20	20	20	2NO 1NO,1NC 2NC	SC-05Y20 SC-05Y11 SC-05Y02	SW-05Y/3H20 SW-05Y/3H11 SW-05Y/3H02
5.5 11	22	22	32	32	32	2NO 1NO,1NC 2NC	SC-5-1Y20 SC-5-1Y11 SC-5-1Y02	SW-5-1Y/3H20 SW-5-1Y/3H11 SW-5-1Y/3H02

■ **Ordering information**

- Specify the following:
1. Type number
  2. Coil voltage (Contactor only)
  3. Main circuit voltage (Starter only)
  4. Thermal overload setting range code (Starter only)
- See page 01/19.

■ **Dimensions and panel drilling**

Same as the standard types

■ **Mass**

Same as the standard types

■ **Optional unit**

**Auxilliary contact blocks with quick connection terminals**

Mounting	Thermal current (A)	Contact arrangement	Type
Front mounting	10	4NO	SZ-A40Y
		3NO+1NC	SZ-A31Y
		2NO+2NC	SZ-A22Y
		2NO	SZ-A20Y
		1NO+1NC	SZ-A11Y
		2NO	SZ-A02Y

● **Dimensions and contact arrangement diagrams**

Same as the standard type auxiliary contact blocks.  
See page 01/69.



# Magnetic Contactors and Starters

## SC and SW series

### Optional unit

#### ■ Optional unit

Optional unit	Description	Type	Used with	Further information
Auxiliary contact block	<b>Front mounting (Bifurcated)</b> 4NO 3NO+1NC 2NO+2NC 2NO 1NO+1NC 2NC 2NO+2NC (Overlapping) 1NO+1NC (Overlapping)	<b>SZ-A40</b> <b>SZ-A31</b> <b>SZ-A22</b> <b>SZ-A20</b> <b>SZ-A11</b> <b>SZ-A02</b> <b>SZ-A222</b> <b>SZ-A111</b>	SC-03 to N3	Page 01/69
	<b>Front mounting (Single button)</b> 4NO 3NO+1NC 2NO+2NC	<b>SZ-A40H</b> <b>SZ-A31H</b> <b>SZ-A22H</b>	SC-03 to N3	
	<b>Side mounting(Bifurcated)</b> 1NO+1NC <b>Side mounting(Single button)</b> 1NO+1NC 1NO+1NC 1NO+1NC 1NO+1NC	<b>SZ-AS1</b>  <b>SZ-AS2</b> <b>SZ-AS1H</b> <b>SZ-AS2H</b> <b>SZ-AS3H</b>	SC-03 to N3 SC-N4 to N12 SC-03 to N3 SC-N4 to N12 SC-N14, N16	
Auxiliary contact block with quick connection terminals	4NO 3NO+1NC 2NO+2NC	<b>SZ-A40Y</b> <b>SZ-A31Y</b> <b>SZ-A22Y</b>	SC-03Y, 0Y, 05Y, 5-1Y	Page 01/65
	2NO 1NO+1NC 2NC	<b>SZ-A20Y</b> <b>SZ-A11Y</b> <b>SZ-A02Y</b>		
Operation counter unit	<b>Without alarm contact</b>	<b>SZ-J</b>	SC-03 to N3	Page 01/74
	<b>With alarm contact</b> At 1 million operations At 2 million operations At 3 million operations At 4 million operations At 5 million operations At 6 million operations At 7 million operations At 8 million operations	<b>SZ-J1</b> <b>SZ-J2</b> <b>SZ-J3</b> <b>SZ-J4</b> <b>SZ-J5</b> <b>SZ-J6</b> <b>SZ-J7</b> <b>SZ-J8</b>	SC-03 to 5-1	
Main circuit surge suppression unit	<b>Front mounting</b>  <b>Side mounting</b>	<b>SZ-ZM1</b> <b>SZ-ZM3</b> <b>SZ-ZM2</b> <b>SZ-ZM4</b>	SC-03 to 5-1 SC-N1 to N3 SC-03 to 5-1 SC-N1 to N3	Page 01/72
Mechanical interlock unit		<b>SZ-RM</b>	SC-03 to N3	Page 01/73
Power connection kit for reversing		<b>SZ-RW1</b> <b>SZ-RW2</b> <b>SZ-RW3</b> <b>SZ-RW4</b> <b>SZ-RW5</b> <b>SZ-RW6</b>	SC-03, 0 SC-05 SC-4-0, 4-1 SC-5-1 SC-N1, N2 SC-N2S, N3	Page 01/73
Coil drive unit for IC output	<b>Relay type</b> Top mounting	<b>SZ-CD1</b> <b>SZ-CD3</b>	SC-03 to 5-1 SC-N1 to N3	Page 01/70
	Left-side mounting	<b>SZ-CD5</b>	SC-N4 to N12	
	<b>SSR type</b> Top mounting	<b>SZ-03/CD2-24</b> <b>SZ-CD4</b>	SC-03 to 5-1 SC-N1 to N3	
	Left-side mounting	<b>SZ-CD6A</b>	SC-N4 to N12	
3-pole parallel plate terminal	(2 pcs/set)	<b>SZ-SP1</b> <b>SZ-SP2</b> <b>SZ-SP3</b> <b>SZ-SP4</b> <b>SZ-SP5</b>	SC-03, 0, 05 SC-4-0, 4-1, 5-1 SC-N1, N2 SC-N2S, N3 SC-N4, N5A	Page 01/63

Optional unit	Description	Type	Used with	Further information
3-pole parallel plate terminal	(2pcs/set)	<b>SZ-SP6</b> <b>SZ-SP7</b> <b>SZ-SP8</b> <b>SZ-SP9</b> <b>SZ-SP10</b> <b>SZ-SP11</b>	SC-N6 SC-N7 SC-N8, N10 SC-N11, N12 SC-N14 SC-N16	Page 01/63
Coil surge suppression unit	<b>Varistor</b> 24 to 48V AC/DC 100 to 250V AC/DC  380 to 440V AC  24 to 48V AC/DC(with LED) 100 to 250V AC/DC(with LED)  24 to 48V AC/DC 100 to 250V AC/DC  380 to 440V AC  24 to 48V AC/DC 100 to 250V AC/DC 380 to 440V AC  <b>CR</b> 24 to 48V AC/DC 100 to 250V AC/DC  24 to 48V AC/DC(with LED) 100 to 250V AC/DC(with LED)  24 to 48V AC 100 to 250V AC  24 to 48V DC 100 to 250V DC  24 to 48VAC 100 to 250V AC 24 to 48V DC	<b>SZ-Z1</b> <b>SZ-Z2</b>  <b>SZ-Z3</b>  <b>SZ-Z6</b> <b>SZ-Z7</b>  <b>SZ-Z31</b> <b>SZ-Z32</b>  <b>SZ-Z33</b>  <b>SZ-Z41</b> <b>SZ-Z42</b> <b>SZ-Z43</b>  <b>SZ-Z4</b> <b>SZ-Z5</b>  <b>SZ-Z8</b> <b>SZ-Z9</b>  <b>SZ-Z34</b> <b>SZ-Z35</b>  <b>SZ-Z36</b> <b>SZ-Z37</b>  <b>SZ-Z44</b> <b>SZ-Z45</b> <b>SZ-Z46</b>	SC-03 to 5-1, SC03/G to 5-1/G SC-03 to 5-1, SC-03/G to 5-1/G  SC-03 to 5-1  SC-03 to 5-1, SC-03/G to 5-1/G SC-03 to 5-1, SC-03/G to 5-1/G  SC-N1 to N3, SC-N1/G to N3/G SC-N1 to N3, SC-N1/G to N3/G  SC-N1 to N3  SC-N4, N5A, SC-N4/G, N5/G SC-N4, N5A, SC-N4/G, N5/G SC-N4, N5A  SC-03 to 5-1, SC-03/G to 5-1/G SC-03 to 5-1, SC-03/G to 5-1/G  SC-03 to 5-1, SC-03/G to 5-1/G SC-03 to 5-1, SC-03/G to 5-1/G  SC-N1 to N3 SC-N1 to N3  SC-N1/G to N3/G SC-N1/G to N3/G  SC-N4, N5A SC-N4, N5A SC-N4/G, N5/G	Page 01/71
Fault detector unit	SPDT 100 to 120V AC SPDT 200 to 240V AC	<b>SY-F-A3/M</b> <b>SY-F-A4/M</b>	SC-03 to N16	Contact FUJI
Contact transfer protector	100 to 127V AC 200 to 250V AC	<b>SZ-RC1</b> <b>SZ-RC2</b>	SC-03 to N16	Contact FUJI
Terminal cover	<b>For contactor</b>          <b>For contactor</b>          <b>For starter</b>          <b>For reversing contactor</b>	<b>SZ-T1</b> <b>SZ-T2</b> <b>SZ-T3</b> <b>SZ-T4</b> <b>SZ-T22</b> <b>SZ-T23</b>  <b>SZ-N4T</b> <b>SZ-N6T</b> <b>SZ-N7T</b> <b>SZ-N8T</b> <b>SZ-N11T</b>  <b>SZ-N4T, SZ-WN4T</b> <b>SZ-N6T, SZ-WN6T</b> <b>SZ-N7T, SZ-WN7T</b> <b>SZ-N8T, SZ-WN8T</b> <b>SZ-N8T, SZ-WN10T</b> <b>SZ-N11T, SZ-WN11T</b>  <b>SZ-N4RT1, T2</b> <b>SZ-N6RT1, T2</b> <b>SZ-N7RT1, T2</b> <b>SZ-N8RT1, T2</b> <b>SZ-N11RT1, T2</b>	SC-03, 0 SC-05 SC-4-0, 4-1 SC-5-1 SC-N1, N2 SC-N2S, N3  SC-N4, N5A SC-N6 SC-N7 SC-N8, N10 SC-N11, N12  SW-N4/3H, N5A/3H SW-N6/3H SW-N7/3H SW-N8/3H SW-N10/3H SW-N11/3H, N12/3H  SW-N4RM, N5ARM SW-N6RM SW-N7RM SW-N8RM, N10RM SW-N11RM, N12RM	Page 01/75

Magnetic Contactors and Starters  
**SC and SW series**  
**Optional unit**

Optional unit	Description	Type	Used with	Further information
Terminal cover	<b>For thermal overload relay</b>  <b>For auxiliary contact block</b> For 4-pole front mount For 2-pole front mount For 1-pole front mount	<b>SZ-T10</b> <b>SZ-T11</b> <b>SZ-T12</b> <b>SZ-T13</b> <b>SZ-T14</b> <b>SZ-T15</b> <b>SZ-RN6T</b> <b>SZ-T16</b> <b>SZ-T17</b>  <b>SZ-T5</b> <b>SZ-T6</b> <b>SZ-T7</b>	SZ-HB SZ-HC TR-0N/3, TK-0N TR-5-1N/3, TK-5-1N TR-N2H/3, TK-N2H TR-N3H/3, TK-N3H TR-N6H/3, TKN6H TR-N2/3, TK-N2 TR-N3/3, TK-N3  SZ-A40, A31, A22, A222 SZ-A20, A11, A02, A111 SZ-AS1, AS2	Page 01/75
Insulation barrier	<b>For contactor</b>	<b>SZ-B1</b>  <b>SZ-B2</b>	SC(SW)-N4 to N7, TR(TK)-N6H  SC(SW)-N8 to N12, TR(TK)N10H/3 to N12H/3	Page 01/76
Off-delay release unit	100V AC 50/60Hz 110V AC 50/60Hz 200V AC 50/60Hz 220V AC 50/60Hz  100-110V AC, 50/60Hz  200-220V AC, 50/60Hz	<b>SZ-DE100</b> <b>SZ-DE110</b> <b>SZ-DE200</b> <b>SZ-DE220</b>  <b>SZ-N1/GDE</b> <b>SZ-N2S/GDE</b> <b>SZ-N5/DE</b> <b>SZ-N6/DE</b> <b>SZ-N8/DE</b> <b>SZ-N11/DE</b> <b>SZ-N14/DE</b>  <b>SZ-N1/GDE</b> <b>SZ-N2S/GDE</b> <b>SZ-N5/DE</b> <b>SZ-N6/DE</b> <b>SZ-N8/DE</b> <b>SZ-N11/DE</b>	SC-03/G to 5-1/G   SC-N1/G, N2/G SC-N2S/G, N3/G SC-N4/SE, N5 SC-N6, N7 SC-N8, N10 SC-N11, N12 SC-N14  SC-N1/G, N2/G SC-N2S/G, N3/G SC-N4/SE, N5 SC-N6, N7 SC-N8, N10 SC-N11, N12	Page 01/46
Live-section cover	<b>For contactor</b>          <b>For starter</b>          <b>For reversing starter</b>	<b>SZ-JC1</b> <b>SZ-JC2</b> <b>SZ-JC3</b> <b>SZ-JC4</b> <b>SZ-N1J</b> <b>SZ-N2SJ</b>  <b>SZ-N4J</b> <b>SZ-N6J</b> <b>SZ-N7J</b> <b>SZ-N8J</b> <b>SZ-N11J</b>  <b>SZ-JW1</b> <b>SZ-JW2</b> <b>SZ-JW3</b> <b>SZ-JW4</b> <b>SZ-WN1J</b> <b>SZ-WN2SJ</b>  <b>SZ-WN4J</b> <b>SZ-WN6J</b> <b>SZ-WN7J</b> <b>SZ-WN8J</b> <b>SZ-WN10J</b> <b>SZ-WN11J</b>  <b>SZ-WN4RJ</b> <b>SZ-WN6RJ</b> <b>SZ-WN7RJ</b> <b>SZ-WN8RJ</b> <b>SZ-WN10RJ</b> <b>SZ-WN11RJ</b>	SC-03, 0 SC-05 SC-4-0, 4-1 SC-5-1 SC-N1, N2 SC-N2S, N3  SC-N4, N5A SC-N6 SC-N7 SC-N8, N10 SC-N11, N12  SW-03/3H, 0/3H SW-05/3H SW-4-0/3H, 4-1/3H SW-5-1/3H SW-N1/3H, N2/3H SW-N2S/3H, N3/3H  SW-N4/3H, N5A/3H SW-N6/3H SW-N7/3H SW-N8/3H SW-N10/3H SW-N11/3H, N12/3H  SW-N4RM, N5ARM SW-N6RM SW-N7RM SW-N8RM SW-N10RM SW-N11RM, N12RM	Page 01/77

**Auxiliary contact blocks SZ-A**

■ **Features**

- Easy attaching of auxiliary contact block  
 This contact block can be attached to magnetic motor starter and contactor with a snap-on fitting. Auxiliary contacts can be added easily at site. When a front mounting block is used, there is no need to enlarge contactor installation space. This helps to make the control panel smaller.
- Bifurcated contact is standard  
 High reliable bifurcated contact makes it possible to input directly to electronic control circuits like programmable logic controllers.
- Auxiliary contact block with single button contacts is also available.
- Terminal number conforms to IEC standard

■ **Standards**

Except overlap and single button contact type



■ **Performance**

Operating frequency: 1800 times/hour  
 Mechanical durability: 10 million operations  
 Electrical durability:  
 500,000 operations (at 220V AC-15)

Type	Contact arrangement
<b>Front mounting</b>	
SZ-A40, A40H	4NO
SZ-A31, A31H	3NO+1NC
SZ-A22, A22H	2NO+2NC
SZ-A20	2NO
SZ-A11	1NO+1NC
SZ-A02	2NC
SZ-A111	1NO+1NC (Overlapping)
SZ-A222	2NO+2NC (Overlapping)
<b>Side mounting</b>	
SZ-AS1, AS1H	1NO+1NC
SZ-AS2, AS2H	1NO+1NC
SZ-AS3H	1NO+1NC

■ **Caution on use**

1. Front mounting auxiliary contact block and side mounting block cannot be attached to one contactor at the same time.
2. Only one front mounting block can be attached to one contactor.
3. Where mechanical latch unit is already attached, only side mounting auxiliary contact block can be attached.
4. Where interlock unit is already attached, side mounting auxiliary contact block can be attached on one side only.



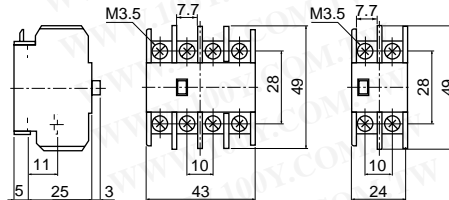
■ **Ratings**

Type	Thermal current (A)	Make/break current (A)	Rated operational current (A)*2			Minimum voltage/current
			AC Voltage	Ind. load (AC-15)	Res. load (AC-12)	
SZ-A□	10	60 (60)	110V	6 (6)	10 (10)	5V DC
SZ-AS1		30 (60)	220V	3 (6)	8 (10)	3 mA
SZ-AS2		15 (40)	440V	1.5 (4)	5 (10)	(24 V DC
SZ-A□H		12 (25)	550V	1.2 (2.5)	5 (10)	10mA)
SZ-AS1H						
SZ-AS2H						
SZ-AS3H						

Note: \*1 Enter the contact arrangement code in the □ mark.  
 \*2 DC ratings: Same as the auxiliary contact ratings of standard type contactors or contactors with single button contacts.  
 • ( ) : In case of SZ-A□H (single button contact)

■ **Dimensions, mm**

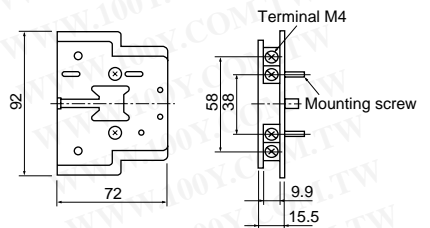
SZ-A40, A40H, A31, A31H, A22, A22H, A222  
 SZ-A20, A11, A02, A111



Mass: 36g

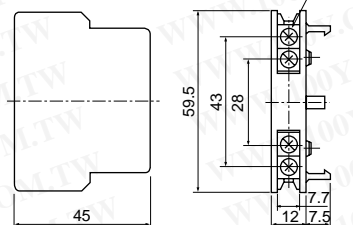
Mass: 20g

SZ-AS3H



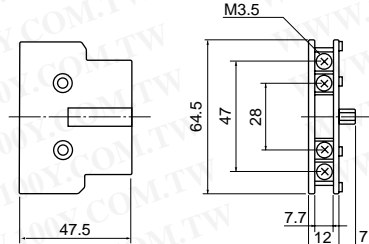
Mass: 75g

SZ-AS1, AS1H



Mass: 28kg

SZ-AS2, AS2H



Mass: 33kg

■ **Contact arrangement**

SZ-A40, A40H	SZ-A20	SZ-AS1, AS2, AS1H, AS2H, AS3H
4NO	2NO	1NO+1NC
53 63 73 83	53 63	53 61
54 64 74 84	54 64	54 62
		In case of left side mounting
SZ-A31, A31H	SZ-A11	
3NO+1NC	1NO+1NC	
53 61 73 83	53 61	
54 62 74 84	54 62	
SZ-A22, A22H	SZ-A02	SZ-AS1, AS2, AS1H, AS2H, AS3H
2NO+2NC	2NC	1NO+1NC
53 61 71 83	51 61	71 83
54 62 72 84	52 62	72 84
SZ-A222	SZ-A111	
2NO+2NC	1NO+1NC	
57 65 75 87	57 65	
58 66 76 88	58 66	
		In case of right side mounting

# Magnetic Contactors and Starters

## SC and SW series

### Optional unit

#### Coil drive units for IC output SZ-CD

This unit is designed to carry out ON-OFF control for contactors with output (24V DC) from the electronic controller. It can be attached to a side or top of a contactor, thus saving on installation space.

#### ■ Features

- This unit operates at, 24V DC.
- Module type allows easy attachment and removal.
- SZ-CD5 and -CD6 can be installed individually and rail mounted.
- Surge suppression function (except SZ-CD5)
- This unit has a built-in surge suppression device (varistor) to protect electronic equipment from surges which occur when the coil is de-energized.



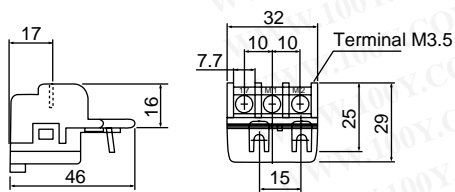
Type		Used with
<b>SZ-CD1</b> <b>SZ-CD3</b> <b>SZ-CD5</b>	With relay output	SC-03 to 5-1 SC-N1 to N3 SC-N4 to N12
<b>SZ-03/CD2-24</b> <b>SZ-CD4</b> <b>SZ-CD6</b>	With SSR output	SC-03 to 5-1 SC-N1 to N3 SC-N4 to N12

#### ■ Specifications

Description		<b>SZ-CD1</b>	<b>SZ-CD3, CD5</b>	<b>SZ-03/CD2-24, CD4, CD6</b>
Coil	Rated voltage	24V DC	24V DC	24V DC
	Pick-up voltage (at 20°C)	85% or less of rated voltage	85% or less of rated voltage	70% or less of rated voltage
	Drop-out voltage (at 20°C)	Over 5% of rated voltage	Over 5% of rated voltage	Over 5% of rated voltage
	Max. allowable voltage	130% or less of rated voltage	130% or less of rated voltage	110% or less of rated voltage
	Power consumption	0.2W(8.3mA)	0.2W(8.3mA)	0.36W(15mA)
Contact	Output device	Relay output	Relay output	SSR output
	Max. make/break voltage	250V AC, 110V DC	250V AC	100-240V AC
	Operating time(ms)	2-5	2-5(SZ-CD5: 3-6)	1 or less

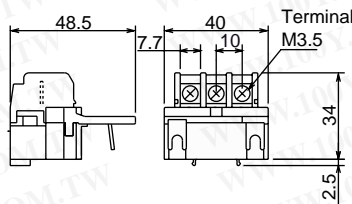
#### ■ Dimensions, mm

##### SZ-CD1,03/CD2-24 (Top mount)



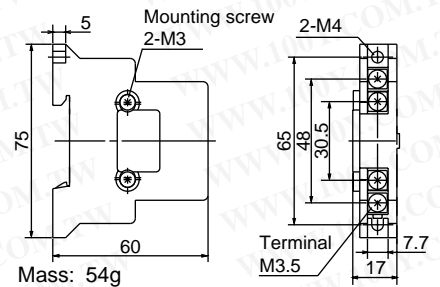
Mass: 26g

##### SZ-CD3,CD4 (Top mount)



Mass: 28g

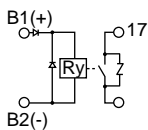
##### SZ-CD5,CD6 (Side mount)



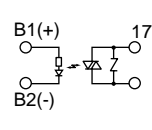
Mass: 54g

#### ■ Wiring diagrams

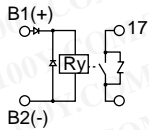
##### SZ-CD1



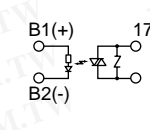
##### SZ-03/CD2-24



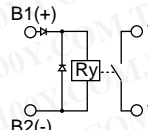
##### SZ-CD3



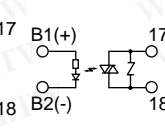
##### SZ-CD4



##### SZ-CD5



##### SZ-CD6



**Coil surge suppression units SZ-Z**

■ **Description**

This unit suppresses coil surge voltage due to contactor ON-OFF operations. This unit can be easily connected to contactor coil terminals.

Varistor types cut the peak value of surge voltages and CR types suppress rapid increases of surge voltage.

Standard type contactors SC-N6 to N16 are provided with surge suppression devices.

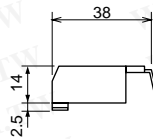
**Coil surge suppression unit (for SC-03 to 5-1, SC-N1 to N5A)**

Type	Device	Coil voltage	Used with
<b>SZ-Z1</b>	Varistor	24–48V AC/DC	SC-03 to 5-1 SC-03/G to 5-1/G
<b>SZ-Z2</b>	Varistor	100–250V AC/DC	
<b>SZ-Z3</b>	Varistor	380–440V AC	
<b>SZ-Z4</b>	CR	24–48V AC/DC	SC-N1 to N3 SC-N1/G to N3/G
<b>SZ-Z5</b>	CR	100–250V AC/DC	
<b>SZ-Z6 *</b>	Varistor	24–48V AC/DC	
<b>SZ-Z7 *</b>	Varistor	100–250V AC/DC	SC-N1 to N3 SC-N1/G to N3/G
<b>SZ-Z8 *</b>	CR	24–48V AC/DC	
<b>SZ-Z9 *</b>	CR	100–250V AC/DC	
<b>SZ-Z31</b>	Varistor	24–48V AC/DC	SC-N1 to N3 SC-N1/G to N3/G
<b>SZ-Z32</b>	Varistor	100–250V AC/DC	
<b>SZ-Z33</b>	Varistor	380–440V AC	SC-N1 to N3
<b>SZ-Z34</b>	CR	24–48V AC	SC-N1 to N3
<b>SZ-Z35</b>	CR	100–250V AC	
<b>SZ-Z36</b>	CR	24–48V DC	SC-N1/G to N3/G
<b>SZ-Z37</b>	CR	100–250V DC	
<b>SZ-Z41</b>	Varistor	24–48V AC/DC	SC-N4, N5A SC-N4/G, N5/G
<b>SZ-Z42</b>	Varistor	100–250V AC/DC	
<b>SZ-Z43</b>	Varistor	380–440V AC	SC-N4, N5A
<b>SZ-Z44</b>	CR	24–48V AC	
<b>SZ-Z45</b>	CR	100–250V AC	
<b>SZ-Z46</b>	CR	24–48V DC	SC-N4/G, N5/G

Note: \* With LED operating indicator

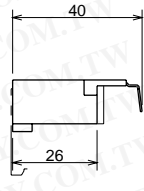


■ **Dimensions, mm**  
**SZ-Z1 to Z5**  
**SZ-Z24, Z25**



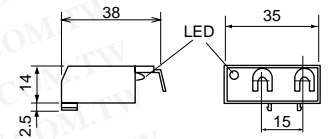
Mass: 14g

**SZ-Z31 to Z37**



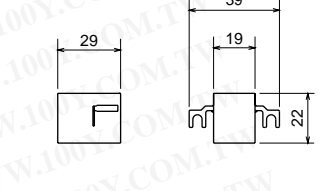
Mass: 15g

**SZ-Z6 to Z9**



Mass: 16g

**SZ-Z41 to Z46**



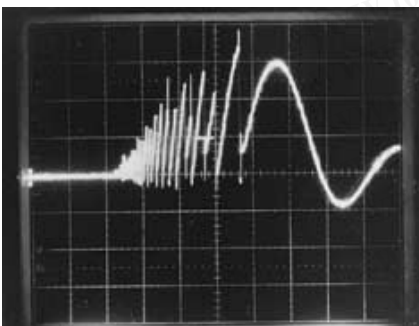
Mass: 15g

■ **Characteristics(coil rated 200V AC)**

● **Without coil surge suppression unit**

When current through a coil is interrupted, the sudden change of coil current, induces an abrupt surge voltage due to the coil inductance. The surge voltage sometimes produces noise which can damage or cause adjacent electronic devices to malfunction.

**SC-0** (0.1msec/div, 1000V/div)  
 200V AC coil

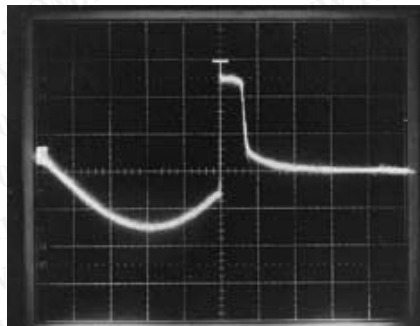


CP-487

● **With coil surge suppression unit Varistor type**

A surge voltage that exceeds a certain value causes a current to flow through the varistor connected in parallel with the coil, thereby suppressing peaks of the surge voltage. This surge suppression unit can be used in both AC and DC circuits.

**SC-0+SZ-Z2** (2msec/div, 200V/div)  
 200V AC coil



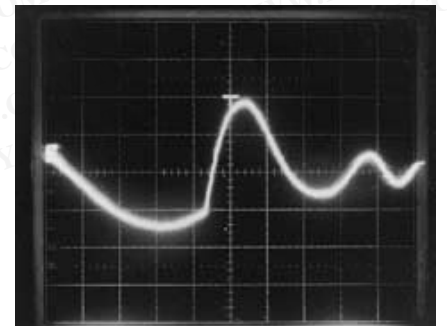
CP-489

● **With coil surge suppression unit CR type**

A CR (Capacitor-resistor) circuit connected in parallel with the coil suppresses the abrupt increase of surge voltage (dv/dt characteristics) by lowering the surge voltage oscillation frequency.

This surge suppression unit can be used in both AC and DC circuits.

**SC-0+SZ-Z5** (2msec/div, 200V/div)  
 200V AC coil



CP-488

# Magnetic Contactors and Starters

## SC and SW series

### Optional unit

#### Main circuit surge suppression units SZ-ZM

##### ■ Description

This unit consists of delta connected capacitor (C) and resistor (R).  
When contactor is energized or de-energized, a surge voltage is generated from motor circuit. This unit suppresses this surge voltage and protects electronic equipment from malfunction or damage.  
Space saving, front mounting type (SZ-ZM1) and side mounting type (SZ-ZM2), which allows simultaneous use of other front mounting optional unit.

Type	Mounting	Voltage	CR constant	Used with
<b>SZ-ZM1</b>	Front	250V AC	C=0.22μF R=100Ω	SC-03 to SC-5-1
<b>SZ-ZM2</b>	Side	250V AC	C=0.33μF R=47Ω	SC-N1 to SC-N3
<b>SZ-ZM3</b>	Front	250V AC		
<b>SZ-ZM4</b>	Side	50/60Hz		

Note: SZ-ZM1 is not applicable to SC-5-1 with auxiliary contact 2NO+2NC.

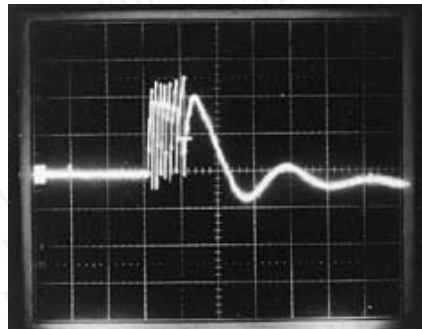
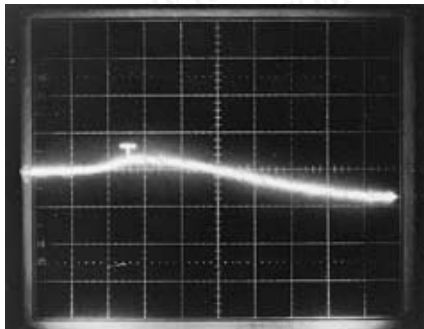


##### ■ Performance

Dielectric strength: 230% × Rated voltage, 1min. between terminals  
2 × Rated voltage + 1,000V, between terminals and case  
Insulation resistance: 2,000MΩ or more  
Capacitance tolerance: ±10% or less at 1kHz

##### ■ Characteristics

- Without surge suppression unit (200V AC 2.2kW motor)
- With surge suppression unit (5μsec/div 200V/div)



##### ■ Mounting methods

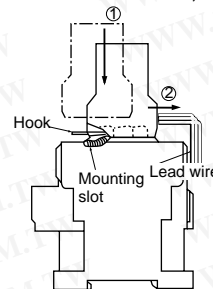
###### ● Front mounting/SZ-ZM1, ZM3

Set the unit on the contactor and slide it in direction ②.

Make sure that the unit's hook is in the mounting slot.

To detach the unit, push up on the unit's hook and move the unit in the reverse of direction ②.

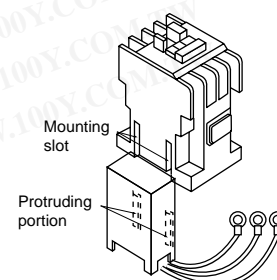
Connect the 3 lead wires of the unit to the contactor's load side terminals 2, 4 and 6. Wires can be connected to any of the terminals 2, 4 or 6.



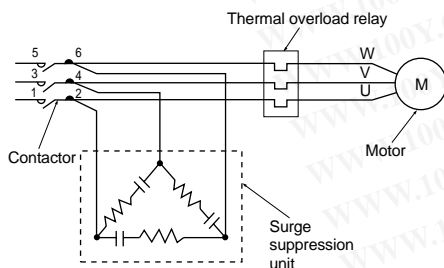
###### ● Side mounting /SZ-ZM2, ZM4

Push the protruding portions of the unit into the mounting slots of the contactor.

Connect the 3 lead wires of the unit to the contactor's load side terminals 2, 4 and 6. Wires can be connected to any of the terminals 2,4 or 6.

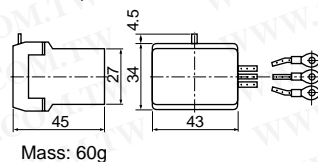


##### ■ Wiring example

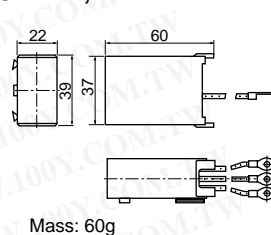


##### ■ Dimensions, mm

###### SZ-ZM1, ZM3



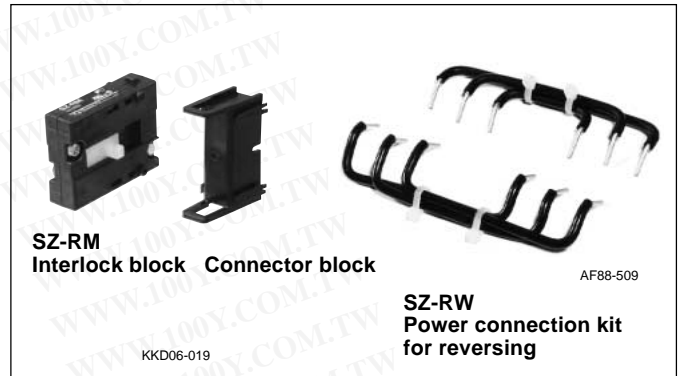
###### SZ-ZM2, ZM4



**Mechanical interlock units and power connection kit for reversing**

This SZ-RM unit consists of an interlock block, which mechanically prevents the simultaneous engagement of forward and reverse contactors, and a connector block. A reversing contactor can be easily assembled with this unit at site. An interlock mechanism prevents the engagement of 2 contactors at the same time.

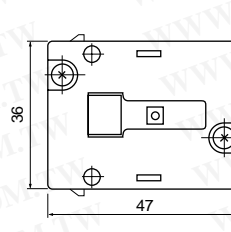
Interlock unit		Power connection kit for reversing		
Type	Used with	Type	Color	Used with
<b>SZ-RM</b>	SC-03 to N3	<b>SZ-RW1</b>	Blue	SC-03, SC-0
		<b>SZ-RW2</b>	Black	SC-05
		<b>SZ-RW3</b>	Yellow	SC-4-0, SC-4-1
		<b>SZ-RW4</b>	White	SC-5-1
		<b>SZ-RW5</b>	White	SC-N1, SC-N2
		<b>SZ-RW6</b>	White	SC-N2S, SC-N3



**■ Mounting methods**

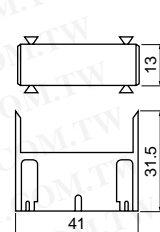
1. Position an interlock block between two contactors so that the tall, square projections ① on the movable portions on either side of the interlock block fit into the square holes ② on the sides of the contactors. The short, round projections ③ on the sides of the interlock block should fit into the round holes ④ on the sides of the contactors.
2. Insert the guides ⑤ on the ends of the connector block into the slots ⑥ in the sides of the contactors and push the frames ⑦ of the projecting windows on the ends of the connector block catch firmly on the hook-like projections ⑧ on the interlock block.
3. After connecting the contactors to each other, make sure that they operate smoothly by pressing down the movable manual operator one at a time.
4. To separate the contactors, insert the end of a flat-bladed screwdriver under the frame ⑦ of one of the projecting windows on the connector block and lift it up and over the hook-like projection ⑧ on the interlock block. While lifting up on the frame ⑦, push against the connector block to eject it from between the contactors.

**■ Dimensions, mm**  
 Interlock block



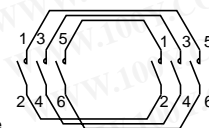
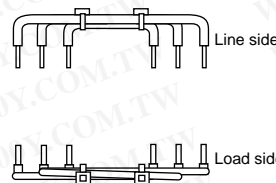
Mass: 18g

Connector block



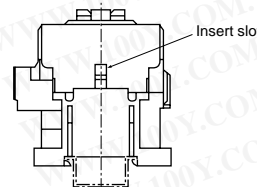
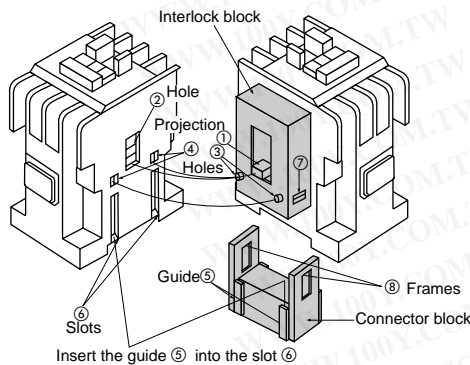
Mass: 4.2g

**Power connection kit for reversing**



**Cautions on attaching interlock unit to SC-03 and SC-0**

Insert the protruded portion of the interlock unit into the upper (not lower) part of two slots on the side of the contactor by pressing the manual operator of the contactor.



# Magnetic Contactors and Starters

## SC and SW series

### Optional unit

#### Operation counter units for SC-03 to N3

##### ■ Features

This unit counts the ON-OFF operation times of a contactor. The contact lifetime can be estimated at a glance. This operation counter unit is a mechanical type counter which can be easily attached to the SC series contactors (Frame size 03 to N3) with snap-on fittings. Before, the operation times of contactors were estimated from the operation status of other equipment. However, the operation times of contactors can be precisely counted and easily checked with this unit.

##### ■ Specifications

Type	SZ-J	SZ-J□
Alarm output contact	Not provided	Provided
Number of digits	7 digits	
Counting method	The counter increments by one each time the contactor completes one ON-OFF operation	
Counting speed	Max. 10Hz	
Reset function (to 0)	Not provided	
Output contact Arrangement	—	1NO
Rating	—	24V AC/DC 100mA
Making current	—	Max. 0.4A
Mechanical durability	10 million operations	
Used with	SC-03 to SC-N3	SC-03 to SC-5-1

The date for periodical maintenance and contact lifetime can be estimated directly counting the operation times of contactors.

So preventive maintenance of important facilities or plant become more effective.

2 types (without and with output contact type) are available.

The first one only counts and display the operation times up to 9,999,999.

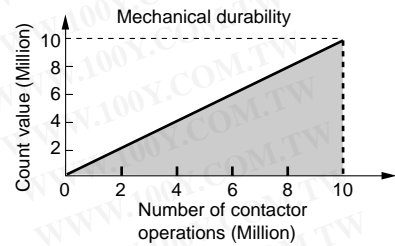
The another type is an output contact type which outputs the alarm output with a built-in reed switch after counting and displaying specified operation times (fixed).



SZ-J8

##### ■ Operation SZ-J

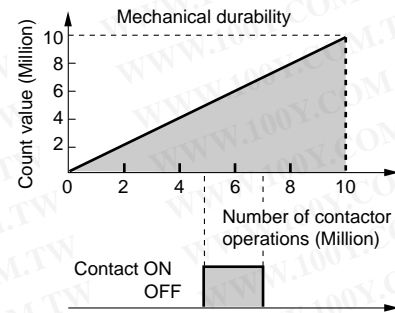
###### Without output contact



##### SZ-J□

###### With output contact

Example SZ-J5

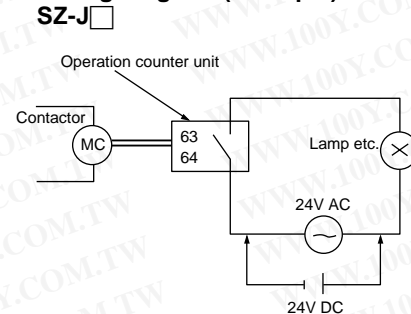


Note: The SZ-J□ operation counters (with alarm output contact) continue counting after an alarm is output. The alarm output is maintained for about 2 million operations.

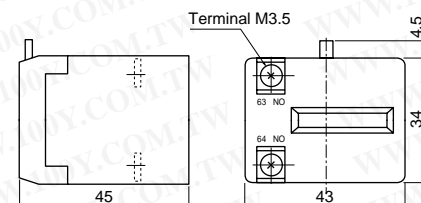
##### ■ Types and output contact operation

Type	Preset operation value	
	ON	OFF
SZ-J	—	—
SZ-J1	1 million	3 million
SZ-J2	2 million	4 million
SZ-J3	3 million	5 million
SZ-J4	4 million	6 million
SZ-J5	5 million	7 million
SZ-J6	6 million	8 million
SZ-J7	7 million	9 million
SZ-J8	8 million	0

##### ■ Wiring diagram (Example)



##### ■ Dimensions, mm



Mass: SZ-J 35g  
 SZ-J1 to J8 39g

### Terminal covers

The SZ-T type terminal cover conforms to DIN 57106 and VDE 0106 Teil 100 requirements regarding worker safety. The cover increases safety during maintenance and inspection.



Description	Type	Used with
For contactor	<b>SZ-T1</b>	SC-03, 0, SH-4
	<b>SZ-T2</b>	SC-05, SH5
	<b>SZ-T3</b>	SC-4-0, 4-1
	<b>SZ-T4</b>	SC-5-1, SJ-1SG
	<b>SZ-T22</b>	SC-N1, N2
	<b>SZ-T23</b>	SC-N2S, N3
	<b>SZ-N4T</b>	SC-N4, N5A
	<b>SZ-N6T</b>	SC-N6
	<b>SZ-N7T</b>	SC-N7
	<b>SZ-N8T</b>	SC-N8, N10
	<b>SZ-N11T</b>	SC-N11, N12
For starter	<b>SZ-T1</b>	SW-03/3H, 0/3H
	<b>SZ-T12</b>	
	<b>SZ-T2</b>	SW-05/3H
	<b>SZ-T12</b>	
	<b>SZ-T3</b>	SW-4-0/3H, 4-1/3H
	<b>SZ-T13</b>	SJ-1SWG
	<b>SZ-T4</b>	SW-5-1/3H
	<b>SZ-T13</b>	
	<b>SZ-T22</b>	SW-N1/3H, N2/3H
	<b>SZ-T16</b>	
	<b>SZ-T23</b>	SW-N2S/3H, N3/3H
	<b>SZ-T17</b>	
	<b>SZ-N4T</b>	SW-N4/3H, N5A/3H
	<b>SZ-WN4T</b>	
<b>SZ-N6T</b>	SW-N6/3H	
<b>SZ-WN6T</b>		
<b>SZ-N7T</b>	SW-N7/3H	
<b>SZ-WN7T</b>		
<b>SZ-N8T</b>	SW-N8/3H	
<b>SZ-WN8T</b>		
<b>SZ-N8T</b>	SW-N10/3H	
<b>SZ-WN10T</b>		
<b>SZ-N11T</b>	SW-N11/3H, N12/3H	
<b>SZ-WN11T</b>		
For auxiliary contact block	<b>SZ-T5</b>	SZ-A40, A31, A22, A222
	<b>SZ-T6</b>	SZ-A40H, A31H, A22H
	<b>SZ-T7</b>	SZ-A20, A11, A02, A111
		SZ-AS1, AS2
		SZ-AS1H, AS2H, AS3H
For thermal overload relay on-contactor mounting	<b>SZ-T12</b>	TR-0N, TK-0N
	<b>SZ-T13</b>	TR-5-1N, TK-5-1N
	<b>SZ-T16</b>	TR-N2, TK-N2
	<b>SZ-T17</b>	TR-N3, TK-N3
For thermal overload relay separate mounting	<b>SZ-T14</b>	TR-N2H, TK-N2H
	<b>SZ-T15</b>	TR-N3H, TK-N3H
	<b>SZ-RN6T</b>	TR-N6H, TK-N6H
Thermal overload relay base unit for separate mounting	<b>SZ-T10</b>	SZ-HB
	<b>SZ-T11</b>	SZ-HC
For coil drive unit	<b>SZ-T7</b>	SZ-CD5, SZ-CD6

Description	Type	Used with
For reversing contactor	<b>SZ-T1</b>	SC-03RM, 0RM
	<b>SZ-T2</b>	SC-05RM
	<b>SZ-T3</b>	SC-4-0RM, 4-1RM
	<b>SZ-T4</b>	SC-5-1RM
	<b>SZ-T22</b>	SC-N1RM, N2RM
	<b>SZ-T23</b>	SC-N2SRM, N3RM
	<b>SZ-N4RT1</b>	SC-N4RM, N5ARM
	<b>SZ-N4RT2</b>	
	<b>SZ-N6RT1</b>	SC-N6RM
	<b>SZ-N6RT2</b>	
	<b>SZ-N7RT1</b>	SC-N7RM
<b>SZ-N7RT2</b>		
<b>SZ-N8RT1</b>	SC-N8RM, N10RM	
<b>SZ-N8RT2</b>		
<b>SZ-N11RT1</b>	SC-N11RM, N12RM	
<b>SZ-N11RT2</b>		
For reversing starter	<b>SZ-T1</b>	SW-03RM, 0RM
	<b>SZ-T12</b>	
	<b>SZ-T2</b>	SW-05RM
	<b>SZ-T12</b>	
	<b>SZ-T3</b>	SW-4-0RM, 4-1RM
	<b>SZ-T13</b>	
	<b>SZ-T4</b>	SW-5-1RM
	<b>SZ-T13</b>	
	<b>SZ-T22</b>	SW-N1RM, N2RM
<b>SZ-T16</b>		
<b>SZ-T23</b>	SW-N2SRM, N3RM	
<b>SZ-T17</b>		

#### ■ Contactors and starters with terminal cover

Contactors, starters, industrial relays, and thermal overload relays with a terminal cover are also available as the finger-protected type for the European market. Suffix the code /T at the end of the type number, when ordering, for this type.

#### Example

**SC-03/T** type: Contactor **SC-03**+Terminal cover **SZ-T1**

**SW-03/3HT** type: Starter **SW-03/3H**+Terminal cover

**SZ-T1+SZ-T12**

# Magnetic Contactors and Starters

## SC and SW series

### Optional unit

#### Terminal covers (Continued)

##### ■ Dimensions, mm

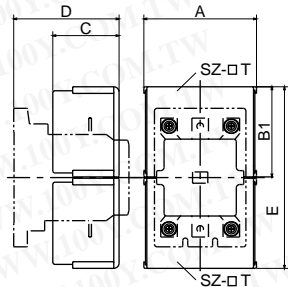


Fig.1

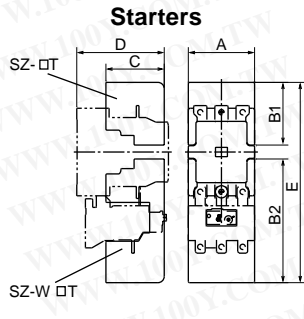


Fig.2

#### Reversing contactors

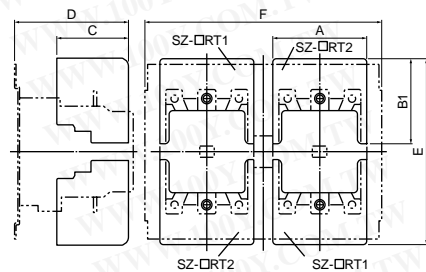


Fig.3

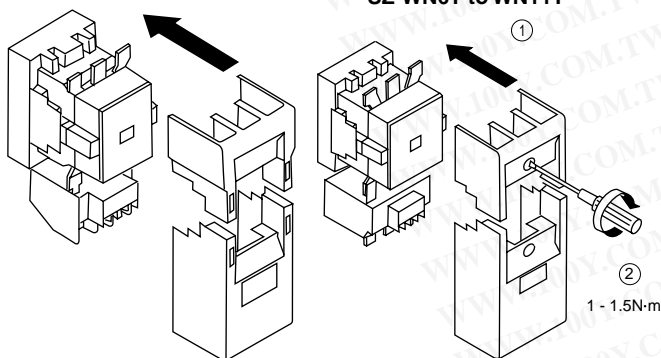
Type	Line side	Load side	A	B1	B2	C	D	E	F	Fig. No.
SZ-N4T	SZ-N4T	SZ-N4T	97.5	90	—	91.5	119*1	199	—	1
SZ-N6T	SZ-N6T	SZ-N6T	100	94.5	—	88	132	210	—	1
SZ-N7T	SZ-N7T	SZ-N7T	115	104	—	89	134	228	—	1
SZ-N8T	SZ-N8T	SZ-N8T	170	136	—	100	159	274	—	1
SZ-N11	SZ-N11T	SZ-N11T	185	175	—	116	175	352	—	1
SZ-N4T	SZ-WN4T	SZ-WN4T	97.5	90	143.5	91.5	119*1	252.5	—	2
SZ-N6T	SZ-WN6T	SZ-WN6T	100	94.5	186.5	88	132	302	—	2
SZ-N7T	SZ-WN7T	SZ-WN7T	115	104	193	89	134	317	—	2
SZ-N8T	SZ-WN8T	SZ-WN8T	170	136	237	100	159	375	—	2
SZ-N8T	SZ-WN10T	SZ-WN10T	170	136	228	100	159	366	—	2
SZ-N11T	SZ-WN11T	SZ-WN11T	185	175	304	116	175	481	—	2
SZ-N4RT1	SZ-N4RT2	SZ-N4RT2	97.5	90	—	91.5	124*2	199	230	3
SZ-N6RT1	SZ-N6RT2	SZ-N6RT2	100	94.5	—	88	140	210	250	3
SZ-N7RT1	SZ-N7RT2	SZ-N7RT2	115	104	—	89	144	228	290	3
SZ-N8RT1	SZ-N8RT2	SZ-N8RT2	160	136	—	100	172	277	330	3
SZ-N11RT1	SZ-N11RT2	SZ-N11RT2	175	175	—	116	194	352	360	3

Note: \*1 134 for SC-N5A, SW-N5A \*2 139 for SC-N5ARM

##### ■ Mounting methods

SZ-N4T, SZ-WN4T

SZ-N6T to N11T,  
SZ-WN6T to WN11T



#### Insulation barriers for SC-N4 to N12

##### ■ Features

These optional insulation barriers, prevent accidental short-circuits caused by metallic objects falling onto the terminals

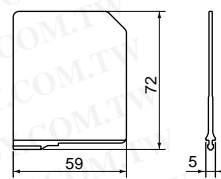


SW-N6+SZ-B1

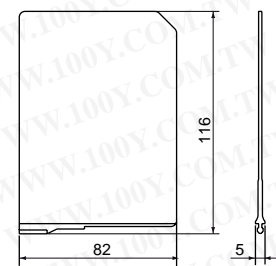
Description	Type	Used with
For contactor	SZ-B1	SC-N4, N5A, N6, N7
	SZ-B2	SC-N8, N10, N11, N12
For starter	SZ-B1	SW-N4/3H, N5A/3H, N6/3H, N7/3H
	SZ-B2	SW-N8/3H, N10/3H, N11/3H, N12/3H
For thermal overload relay	SZ-B1	TR-N6H, TK-N6H
	SZ-B2	TR-N10H, N12H, TK-N10H, N12H

##### ■ Dimensions, mm

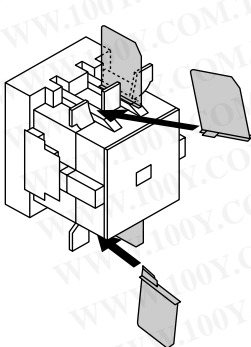
SZ-B1



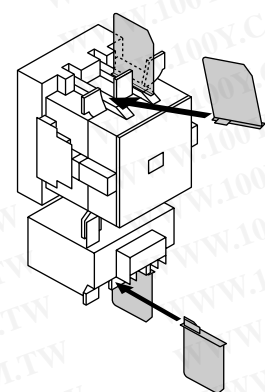
SZ-B2



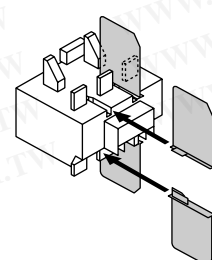
##### ■ Mounting methods



Starters



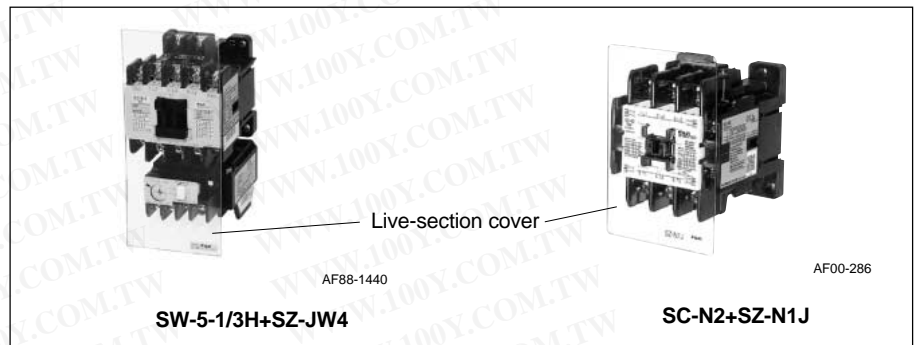
##### Thermal overload relays



勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
 Http://www.100y.com.tw

**Live-section cover**

The live-section cover completely encloses the front of a contactor or starter for increased worker safety during maintenance and inspection.



■ **Dimensions, mm**

- **Contactors**
- **Starters**

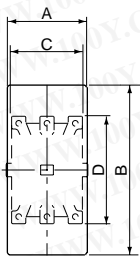


Fig. 1

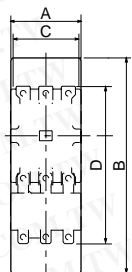


Fig. 2

● **Starters (reversing)**

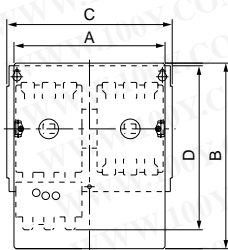
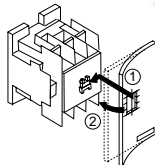


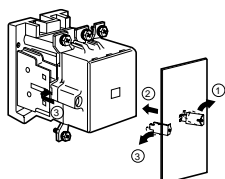
Fig. 3

■ **Mounting methods**

SZ-JC1 to JC4, SZ-N1J, N2SJ,  
 SZ-JW1 to JW4, SZ-WN1J, WN2SJ



SZ-N4J to N11J, SZ-WN4J to WN11J



**For contactor (Non-reversing)**

Cover type	Contactor Type	Fig. No.	Live-section cover		Contactor	
			A	B	C	D
SZ-JC1	SC-03, 0	1	43	97	43	81
SZ-JC2	SC-05	1	53	97	53	81
SZ-JC3	SC-4-0, 4-1	1	53	100	53	81
SZ-JC4	SC-5-1	1	64	100	64	81
SZ-N1J	SC-N1, N2	1	74	120	74	87
SZ-N2SJ	SC-N2S, N3	1	88	140	88	110
SZ-N4J	SC-N4, N5A	1	93	192	88	127
SZ-N6J	SC-N6	1	106	214	100	144
SZ-N7J	SC-N7	1	120	233	115	156
SZ-N8J	SC-N8, N10	1	138	265	138	209
SZ-N11J	SC-N11, N12	1	160	336	148	240

**For starter (Non-reversing)**

Cover type	Starter Type	Fig. No.	Live-section cover		Starter	
			A	B	C	D
SZ-JW1	SW-03/3H, 0/3H	2	44	140	44	122
SZ-JW2	SW-05/3H	2	53	140	53	122
SZ-JW3	SW-4-0/3H, 4-1/3H	2	53	145	53	127
SZ-JW4	SW-5-1/3H	2	64	145	64	127
SZ-WN1J	SW-N1/3H, N2/3H	2	74	175	74	146
SZ-WN2SJ	SW-N2S/3H, 3/3H	2	88	205	88	177
SZ-WN4J	SW-N4/3H, N5A/3H	2	93	254	88	189
SZ-WN6J	SW-N6/3H	2	106	281	100	225
SZ-WN7J	SW-N7/3H	2	120	300	115	237
SZ-WN8J	SW-N8/3H	2	138	347	138	305
SZ-WN10J	SW-N10/3H	2	138	347	138	287
SZ-WN11J	SW-N11/3H, N12/3H	2	160	423	148	360

**For starter (reversing)**

Cover type	Starter Type	Fig. No.	Live-section cover		Starter	
			A	B	C	D
SZ-WN4RJ	SW-N4RM/3H, N5ARM/3H	3	204	254	230	208
SZ-WN6RJ	SW-N6RM/3H	3	229	281	250	247.5
SZ-WN7RJ	SW-N7RM/3H	3	258	300	290	266
SZ-WN8RJ	SW-N8RM/3H	3	291	347	330	370
SZ-WN10RJ	SW-N10RM/3H	3	291	347	330	370
SZ-WN11RJ	SW-N11RM/3H, N12RM/3H	3	328	423	360	480

Note: Side mounting types with 4NO + 4NC auxiliary contacts are available. Add the suffix "4" to the type number when ordering.