CONTENTS

Thermal Relays & Starters

4

■ Application

3SR8 Series overload relays apply to circuit of AC 50Hz or 60Hz, rated voltage to below 660V and rated current 0.1A~93A for AC motor overload and open-phase protection during long time or intermittent long time service,which can also protect 3-phase serious imbalance and long starting time of motor or long time operation, can also be used for corresponding AC contactor for electromagnetic starter.

This product has innovative, elegant model and small installation area, functions such as temperature compensation, action indication, automatic and manual reset, stop with steady and reliable performance

Thermal relay can be combined/connected with contactor or installed separately.

Standard: IEC 60947-4-1

■ Types and Meanings

3S R 8- □ /□

- Installation method code (Z for assembly installation, F for independent installation)
- Basic specification code, indicated by rated working current of main circuit
- Design serial number
- Thermal overload relay code
- SASSIN enterprise code

■ Structural Features:

1) 3 phase bimetal type
2) With overload and open-phase protection
3) With setting current continuous adjustable apparatus
4) With temperature compensation
5) With action indication
6) With testing mechanism
7) With stop button
8) With manual and automatic reset button
9) With electrically separable normal open and normal closed contacts
10)Installation method: plug installation with contactor or independent installation

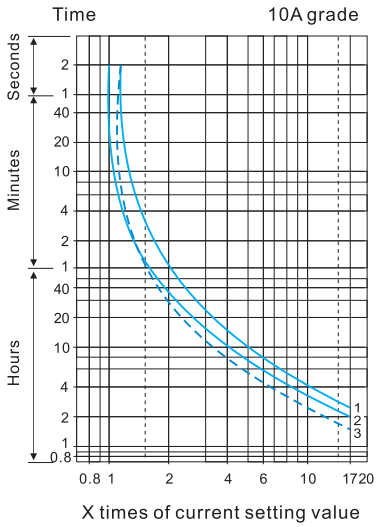
■ Normal Application and Installation Conditions

a) Ambient temperature: The upper limit shall not exceed +40℃; the average value within 24 hours shall not exceed +35℃; the lower limit shall be not less than -5℃.
b) Atmosphere conditions: Relative humidity shall not exceed 50% when the ambient temperature is +40℃. Higher relative humidity is permissible at lower temperature, for example, it can reach 90% at 20℃. Special measures should be taken to address the dew occurred occasionally due to temperature changes.
c) Altitude: Installation altitude shall not exceed 2000m.
d) Anti-pollution degree: Ⅲ.
e) Installation category: Ⅲ.
f) Installation conditions: Install at proper working position, slant of contactor mounting surface shall not exceed±5℃. Thermal relay shall be installed in places with no obvious shake or shock.
g) Environmental protection: Sufficient consideration of environmental protection factors has been taken in design process by adopting retrievable and naturally degradable materials in components.

■ Specifications

Serial number	Type	Rated insulating voltage Ui V	Rated working current Ie A	Setting current adjusting range A	Adaptable AC contactor type	Recommended fuse type
1	3SR8-D13	660	25	0.1～0.12～0.14～0.16	3SC8-09	RT16-2
2				0.16～0.19～0.22～0.25		
3				0.25～0.3～0.35～0.4		
4				0.4～0.5～0.63		
5				0.63～0.8～0.9 1		RT16-4
6				1～1.2～1.4 1.6		
7				1.25～1.5～1.75 2		RT16-6
8				1.6～1.9～2.2 2.5		
9				2.5～3～3.5 4		RT16-10
10				4～5～6		RT16-16
11				5.5～6～7 8		RT16-20
12				7～8～9 10	3SC8-12	
13				9～11～13		RT16-25
14				12～14～16 18	3SC8-18	RT16-35
15				17～21～25	3SC8-25	RT16-50
16	3SR8-D23		36	23～26～29 32	3SC8-32	RT16-63
17				28～32～36		RT16-80
18	3SR8-D33		93	23～26～29 32	3SC8-40	RT16-63
19				30～33～36 40		RT16-100
20				37～41～46 50	3SC8-50	
21				48～54～60 65	3SC8-65	
22				55～60～65 70	3SC8-80	RT16-125
23				63～71～80		
24				80～85～93	3SC8-95	RT16-160

■ Tripping curve



1. Equilibrium running, 3 phase, start from cold state
2. Equilibrium running, 2 phase, start from cold state
3. Equilibrium running, 3 phase, after long period of setting current (hot state)

■ Product Outline and Installation Dimensions (see Fig 1-Fig 3)

See Figure 4 for Operation Instruction

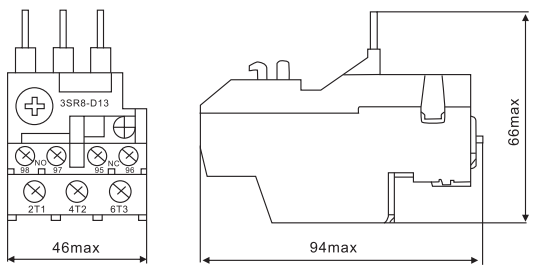


Fig 1: 3SR8-D13/Z outline dimension diagram

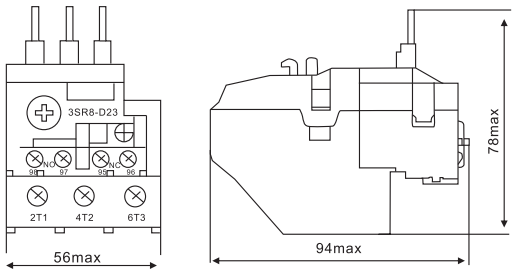


Fig 2: 3SR8-D23/Z outline dimension diagram

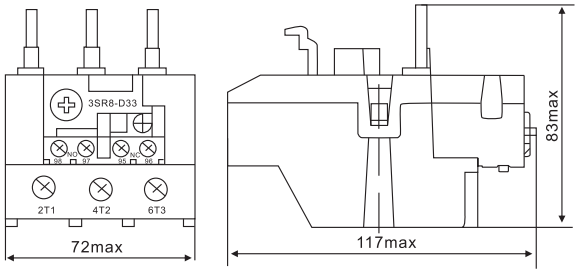


Fig 3: 3SR8-D33/Z outline dimension diagram

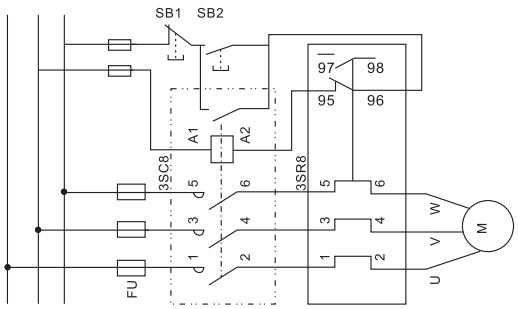
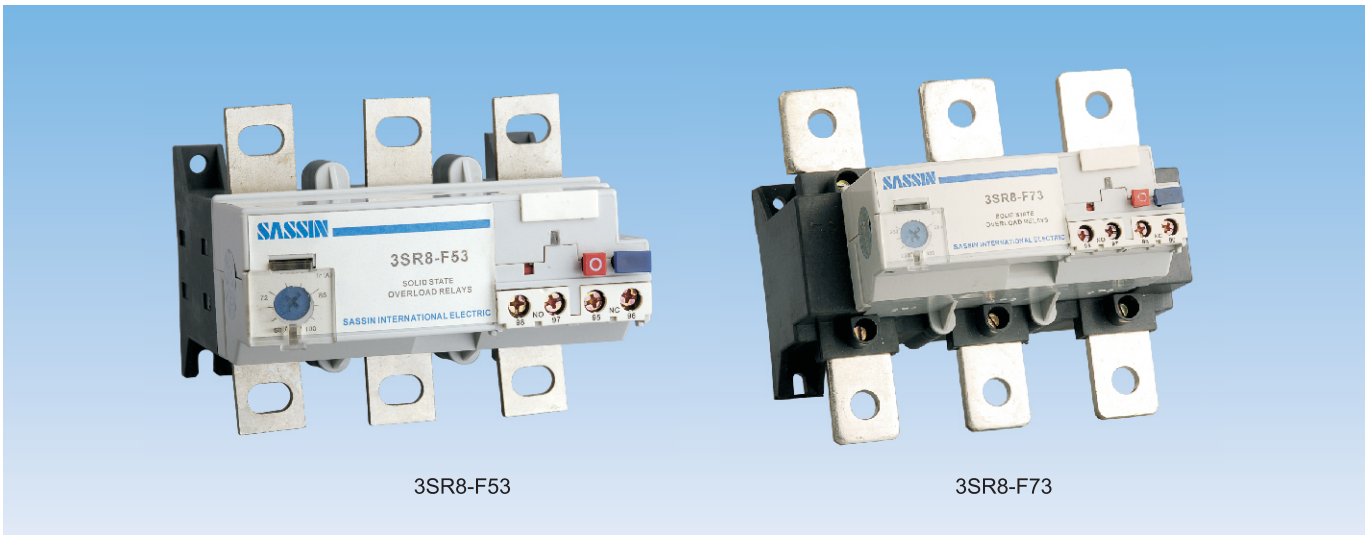


Fig 4: operating principle diagram of thermal overload relay

FU-fuse 3SC8 AC contactor
3SR8-thermal relay

SB1- stop button SB2-start button



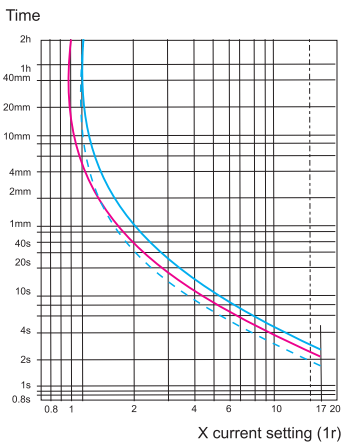
3SR8-F53　　3SR8-F73

■ Application

3SR8-F thermal overload relays are designed for use with contactors from 3SC8-115 to 3SC8-330. In addition to the protection provided by modular thermal overload relays 3SR8, they offer the following special features:

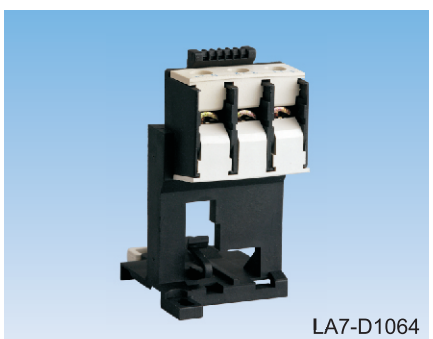
- Protection against phase imbalance.
- Choice of starting class.
- Protection of unbalanced circuits.
- Protection of single-phase circuits.

■ Performance Curve



■ Specifications

Type	Number	Setting range(A)	For contactor
3SR8-F53	F5357	30~50	CJX2-F115~F185
	F5363	48~80	CJX2-F115~F185
	F5367	60~100	CJX2-F115~F185
	F5369	90~150	CJX2-F115~F185
	F5371	132~220	CJX2-F225~F265
3SR8-F73	F7357	200~330	CJX2-F225~F500
	F7379	300~500	CJX2-F225~F500
	F7381	380~630	CJX2-F400~F630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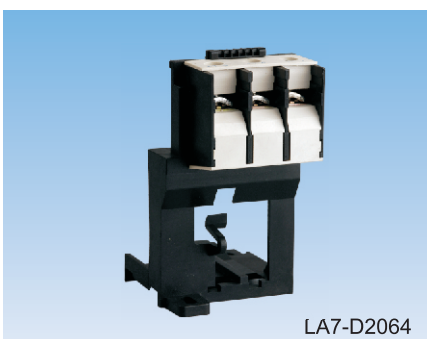
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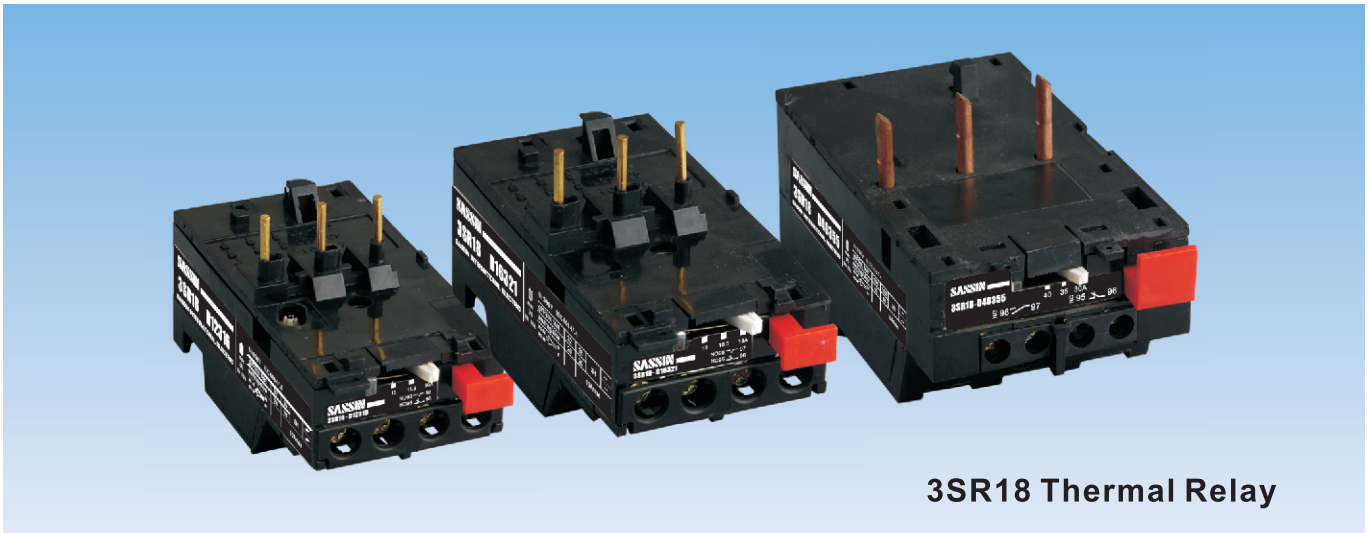
LA7-D3064



Application

3SR18 series thermal overload relay are suitable for overload protection in the circuit with AC 50/60Hz, voltage up to 660V, motor power up to 45kW or less. It has the function of automatic temperature-compensation. It can be fixed onto contactor and can also be fixed separately. The product is made in accordance with IEC60947-4.

Specifications

Type	Adjusting range of current (A)	Control power (AC3) (KW)					Plug in contactor
		220V	380V	415V	440V	660V	
3SR18-09301	0.1~0.16						3SC8-09-25
3SR18-09302	0.16~0.25						
3SR18-09303	0.25~0.40						
3SR18-09304	0.40~0.63					0.37	
3SR18-09305	0.63~1					0.55	
3SR18-09306	1~1.6		0.37		0.55	0.7~1.1	
3SR18-09307	1.6~2.5	0.37	0.55~0.75	1.1	0.75~1.1	1.5	
3SR18-09308	2.5~4	0.55~0.75	1.1~1.5	1.5	1.5	2.2~3	
3SR18-09310	4~6	1.1	2.2	2.2	2.2	4	
3SR18-09312	5.5~8	1.5	3	3~3.7	3~3.7	5.5	
3SR18-09314	7~10	2.2	4	4	4	7.5	
3SR18-12316	10~13	3	5.5	5.5	5.5	10	
3SR18-16321	13~18	4	7.5	9	9	15	
3SR18-25322	18~25	5.5	11	11	11	18.5	
3SR18-40353	23~32	7.5	15	15	15	22	3SC8-D40、50、60
3SR18-40355	30~40	10	18.5	22	22	30	
3SR18-63357	38~50	11	22	25	25	37	
3SR18-63359	48~57	15	25	30	30	45	
3SR18-63361	57~66	18.5	30	37	37	55	
3SR18-80363	63~80	22	33~37	40~45	40~45	59~63	3SC8-D80

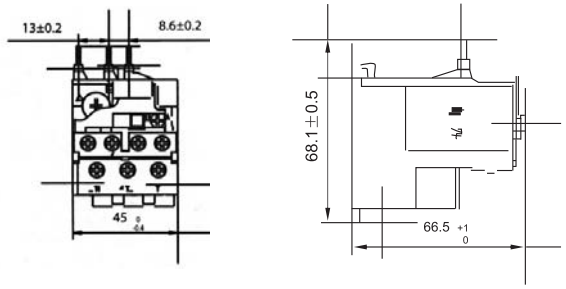
■ Application

3SR7 thermal overload relay is suitable for power system with AC 50Hz, rated operation voltage up to 660V and 1000V in main circuit, current from 0.1A to 630A. It is used to protect AC 3 phase asynchronous motor against overload and phase failure. The current setting value can be regulated and the setting current values of many thermal elements are overlapping arrangement, for easy selecting by the customers from -25℃ to +55℃ air temperature for temperature compensation purpose. The relays have the test push-button for breaking NC contacts,operating indication and free tripping characteristics. The relays conform to IEC60947-4-1.

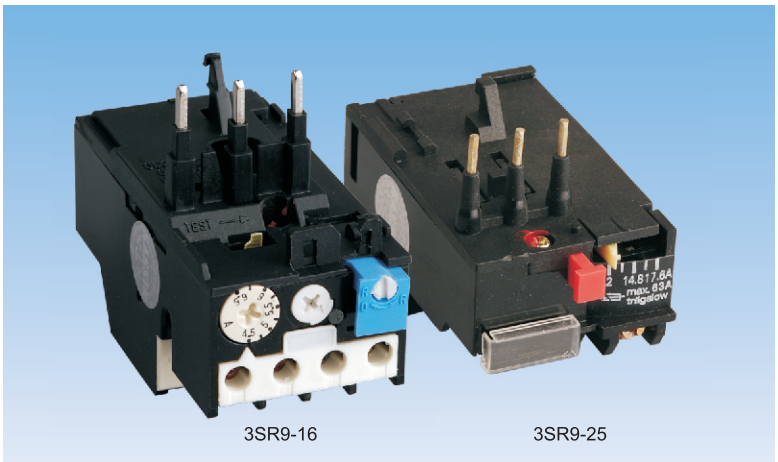
■ Specifications

Type	Rated operating current(A)	Rated insulation voltage(V)	Current setting range (A)
3SR7-50	12.5	660	0.1~0.16, 0.16~0.25, 0.25~4, 0.32~0.63, 0.63-1, 0.8~1.25 1~1.6, 1.25~2, 1.6~2.5, 2~3.2, 2.5~4, 3.2~5, 4~6.3, 5~8, 6.3~10, 8~12.5
3SR7-52	25	660	0.1~0.16, 0.16~0.25, 0.25~0.4, 0.4~0.63, 0.63-1, 0.8~1.25 1~1.6, 1.25~2, 1.6~2.5, 2~3.2, 2.5~4, 3.2~5, 4~6.3, 5~8, 6.3~10, 8~12.5, 10~16, 12.5~20, 16~25
3SR7-54	32	660	4~6.3, 6.3~10, 10~16, 12.5~20, 16~25, 20~32
3SR7-58	80	1000	16~25, 20~32, 25~40, 32~50, 40~57, 50~63, 57~70, 63~80
3SR7-59	63	600	0.1~0.16, 0.16~0.25, 0.25~0.4, 0.4~0.63, 0.63~1, 0.8~1.25 1~1.6, 1.25~2, 1.6~2.5, 2~3.2, 2.5~4, 3.2~5, 4~6.3, 5~8, 6.3~10, 8~12.5, 10~16, 12.5~20, 16~25,20~32, 25~40, 32~45, 40~57, 50~63
3SR7-62	180	660	55~80, 63~90, 80~110, 90~120, 110~135, 120~150, 135~160, 150~180
3SR7-66	400	1000	80~125, 125~200, 180~250, 200~320, 250~400
3SR7-68	630	1000	320~500, 400~630

3SR8-K Thermal Relay

Setting Range(A)	0.10-0.16	0.16-0.25	0.25-0.4	0.4-0.63	0.63-1	1-1.6	1.6-2.5	2.5-4	4-6	5.5-8	7-10	9-13
For Contactor	3SC8-K06/09 、3SC8/CJX2-09、3SC8/CJX2-12、3SC8/CJX2-18											
Contactor parameter	Ith=10A、INO+INC											
Outline and mounting dim												

3SR9 Thermal Relay



■ Application

3SR9 thermal overload relay is suitable for using in the power circuits up to rated voltage 660V, rated current 500A 50Hz or 60Hz for overload and loss of phase protection of three phase induction motor and combined with 3SC9 series AC contactor as magnetic starter.

Type		3SR9-16	3SR9-25	3SR9-45	3SR9-85	3SR9-105	3SR9-170	3SR9-250	3SR9-370
Rated current (A)		16	25	45	85	105	170	250	370
Thermal element setting current range (A)		0.11~17.6	0.17~32	0.28~45	6.0~100	27~115	90~200	100~400	100~500
Aixiliary contacts	Number	1NO，1NC		1NO，1NC		1NC，1NO，2NC		1NO，1NC	
	Rated poerating current (A)	220V:3 380V:2 500V:1		220V:3 , 1.7 380V:2, 1.3 500V:1, 0.95		220V:3 , 2.5 380V:2, 1.3 500V:1.5, 0.95		220V:3 , 1.7 380V:2, 1.3 500V:0.95	

3SQ1-09/12/18

3SQ1-40/50/65

3SQ1-25/32

3SQ1 DOL Magnetic Starter

Application

3SQ1 DOL magnetic starter mainly applies to circuit of AC 50 or 60Hz, voltage up to 550V for remote making and breaking circuit and frequently starting and controlling motor. It features small volume, light weight, low power consumption, high efficiency, safe and reliable performance etc.

Enclosure	3SQ1-09 and 12	Double insulated, protected as per IP 429(3) or IP 659(4)
	3SQ1-18 and 25	Double insulated, protected IP 427(3) or to IP 557(4)
	3SQ1-32...95	Metal, IP 55 to IP 559
Control(2 pushbuttons mounted on enclosure cover)	3SQ1-09...95	1 green Start button"I" 1 red Stop/Reset button"O"
Connections	3SQ1-09...95	Pre-wired power and control circuit connections

Standard control circuit voltages											
Volts	24	42	48	110	220/230	230	240	380/400	400	415	440
50/60Hz	B7	D7	E7	F7	M7	P7	U7	Q7	V7	N7	R7

Specifications

Maximum power AC3 duty (kW)						Rated Current (A)	Type of enclosure	Code Number		Suitable Thermal Relay (A)
220V 230V	380V 400V	415V	440V	500V	660V 690V			LL (long life)	NL(3) (normal life)	
2.2	4	4	4	5.5	5.5	9	IP42 IP65	3SQ1-094.. 3SQ1-093..	– –	3SR8-D1312 3SR8-D1314
3	5.5	5.5	5.5	7.5	7.5	12	IP42 IP55	3SQ1-124.. 3SQ1-123..	3SQ1-094.. 3SQ1-093..	3SR8-D1316
4	7.5	9	9	10	10	18	IP42 IP55	3SQ1-188.. 3SQ1-185..	3SQ1-124.. 3SQ1-123..	3SR8-D1321
5.5	11	11	11	15	15	25	IP42 IP55	3SQ1-258.. 3SQ1-255..	3SQ1-188.. 3SQ1-185..	3SR8-D1322 3SR8-D2353
7.5	15	15	15	18.5	18.5	32	IP55	3SQ1-325..	3SQ1-255..	3SR8-D2355
11	18.5	22	22	22	30	40	IP55	3SQ1-405..	3SQ1-325..	3SR8-D3353 3SR8-D3355
15	22	25	30	30	33	50	IP55	3SQ1-505..	3SQ1-405..	3SR8-D3357 3SR8-D3359
18.5	30	37	37	37	37	65	IP55	3SQ1-655..	3SQ1-505..	3SR8-D3361
22	37	45	45	55	45	80	IP55	3SQ1-805..	3SQ1-655..	3SR8-D3363 3SR8-D3365
25	45	45	45	55	45	95	IP55	3SQ1-955..	3SQ1-805..	3SR8-D3365

3SQ12、3SQ2 DOL Magnetic Starter


3SQ12-11PM


3SQ12-20PM


3SQ2-11PM


3SQ2-35PM

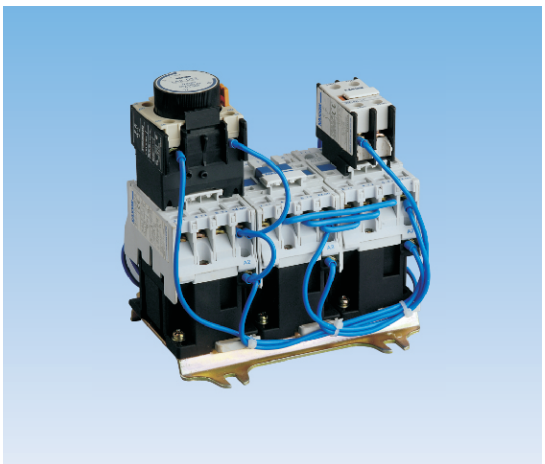
■Application

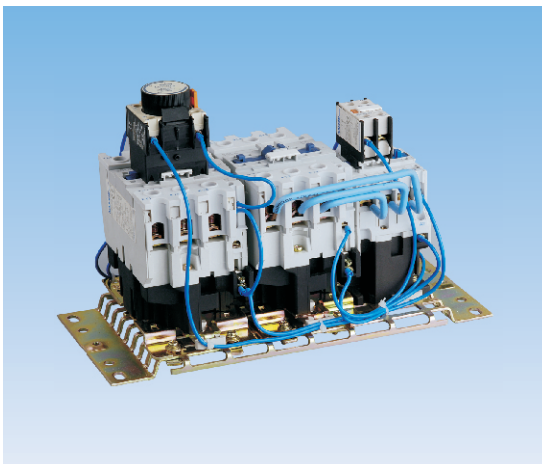
3SQ12 & 3SQ2 series DOL magnetic starters are used in circuit of voltage up to 660V, AC 50-60Hz to start, stop and convert motors, and protect motors from overload and phase failure.

■ Specifications

Type	Rated current Ac3 (A)		Rated power (KW)				Aux contacts		Setting current (A)	
	220V	380V	220V	380V	550V	660V				
3SQ12-10 (3SQ2-10)	11	9	2.5	4	4	4	1	-	0.24A 0.35A 0.5A 0.7A 0.9A 1.3A 1.7A 2.1A 2.5A 3.6A 5A 6.6A 9A	
3SQ12-11 (3SQ2-11)	13	12	3.5	5.5	5.5	5.5	1	-		
3SQ12-18 (3SQ2-18)	18	16	4.5	7.5	7.5	7.5	1	-		11A 15A
3SQ12-20 (3SQ2-20)	22	22	5.5	11	11	7.5	1	-	0.24A 0.35A 0.5A 0.7A 0.9A 1.3A 1.7A 2.1A 2.5A 3.6A 5A 6.6A 9A 11A 15A	
3SQ12-21 (3SQ2-21)	22	22	5.5	11	11	7.5	1	2		19A
3SQ12-25 (3SQ2-25)	30	30	7.5	15	15	11	1	2		22A 29A
3SQ12-35 (3SQ2-35)	40	40	11	18.5	18.5	15	1	2		35A
3SQ12-50 (3SQ2-50)	55	50	15	22	22	22	1	2	15A 22A 29A 35A 42A 54A	
3SQ12-65 (3SQ2-65)	65	62	18.5	30	30	30	1	2		
3SQ12-80 (3SQ2-80)	85	85	22	45	45	45	1	2		67A
3SQ12-95 (3SQ2-95)	105	105	30	55	55	55	1	2		82A 95A

3SQ8-D Star-Delta Reduced Voltage Starter





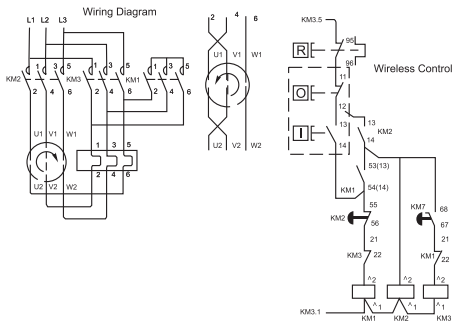
Application

3SQ8-D series star-delta starters are suitable for starting motor in the circuit of AC 50/60Hz, voltage up to 660V and current up to 95A. It is provided with a timer for automatic changeover of star-delta motor and reduces the voltage and current while motor starting.

Specifications

Type	Rated operating current (A)	3-phase motor capacity (kw) AC3 Loaded			
	AC3	220V	380V	415V	440V
3SQ8-D093	9	4	7.5	7.5	7.5
3SQ8-D123	12	5.5	11	11	11
3SQ8-D183	18	7.5	15	15	18.5
3SQ8-D253	25	11	18.5	18.5	22
3SQ8-D323	32	15	25	25	30
3SQ8-D403	40	18.5	33	33	37
3SQ8-D503	50	25	45	45	59
3SQ8-D653	65	30	55	55	59
3SQ8-D803	80	37	63	63	75
3SQ8-D953	95	45	80	80	80

Dimensions



3SQ9 DOL Magnetic Starter

Application

3SQ9 series DOL magnetic starters are used in circuit, AC 50-60 Hz to start, stop, convert and protect motors from overload and phase failure.

3SQ9-9 starters have two types: open type and protective cover type.