salzer

CONTACTORS & OVERLOAD RELAYS

Switch on to the Best

www.salzergroup.com

Introduction

Salzer was established in 1985 with German Colloboration for Rotary switches to bring to the Indian Industry world class technology in Low voltage switchgear Products, coupled with dependability and excellence in service, to the delight of all end users.

We seek to understand the requirements of our clients and provide them the perfect electrical solution. All our ongoing developmental activities for innovative and value-added products are driven by this sense of responsibility.

With this in mind Salzer now introduces CONTACTORS AND OVERLOAD RELAYS to the Indian and Global market.

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Standard Contactors - Non Reversing (SC)

SC series contactors are ideal for motors, actuator, solenoid and other power switching applications they carry c UL us IEC and CE markings which makes them suitable for use anywhere in the world.

Features

- Compact size – Four (4) frames rating from 9A to 105A.
- 4 Poles from 9A to 25A and 3 Poles from 9A to 105A.
- High fault short circuit rating of 100kA @ 600V with Class J Fuses.
- 4 Terminal Coils on all SC Series AC/DC Contactors for control application flexibility.
- 50A to 105A DC operated devices feature electronic coil control.
- BR2 Series Overload Relays direct mount onto SC Series 9-25A Non - Reversing Contactors, reducing installation time and space.
- Removable / replaceable ID Marker for SC Series Contactors and Front Mounted Auxiliaries (SCFA series) Device identification marker for labeling contactors and front mounted auxiliary contacts simplifies trouble shooting in panels with many contactors.
- Snap on front mounted auxiliary contacts (SCFA series) can be installed without the use of tools for lower installation cost.
- Side Mounted Auxiliaries(SCSA series) and Electrical & Mechanical Interlock (SCMI & SCMEI series) can be installed without using any tools on to SC / RC Series Contactors.
- Markings and labels high visibility for ease of troubleshooting and maintenance.
- Environmentally friendly contacts are cadmium free and non-metallic materials are asbestos, halogen and cadmium free.
- Dual IEC and NEMA terminal markings for ease of wiring anywhere in the world.
- 35mm DIN rail mounting for all the contactors from 9A to 105A for fast and easy installation and removal or panel mounting for more secure installation in high shock and vibration applications.
- IP20 guarded terminals prevent accidental contact with live parts.

  Combination head terminal screws allow the use of straight, Phillips or posidrive screwdrivers. Allen head screws on 50A through 105A contactors make it easy to apply the proper terminal tightening torque for secure conductor connections.

Unique Product Featurers

4 TERMINAL COILS

4 terminal coils on 9A – 105A AC and DC operated contactors are easily accessible on contactor and overload relay assemblies or contactor and motor protection circuit breaker assemblies. The control circuit can be wired from the line side or the load side of the contactor, whichever is most convenient for the installation. Control circuit wire runs can be minimised, and the devices can be easily substituted in your existing equipement without disturbing or changing your control wires. So no matter what components are being used, SC series Contactors can be easily and quickly wired, reducing your labour and installation costs.

Standard Contactors - Reversing (RC)

RC series contactors are ideal for Reversing motors in applications where panel space is a premium and device modularity is required to satisfy virtually any application requirement carries cULus IEC and CE which makes them suitable anywhere in the world.

RC Reversing Contactors consists of Assembly of Standard Contactors along with interlock & wiring modules, these are assembled in the form for direct application as Reversing Contactor and to be used in a panel or in an enclosure.

A common mechanical interlock, power wiring modules and IP20 guarded terminals with dual terminal marking and shared accessories will help reduce your total installed cost and enhance the features and performance of your equipment.

Features

- High fault short circuit rating of 100kA @ 600V with Class J Fuses.
- BR2 Series Overload Relays direct mount onto RC Series 9 – 25A Reversing Contactors, reducing installation time and space.
- MP Series Motor Protection Circuit Breakers direct mount onto RC Series 9-40A Reversing AC/DC Contactors
- AC and DC operating coils for control circuit application flexibility. 50A to 80A DC operated devices featured electronic coil control.
- Environmentally friendly contacts are cadmium free and non-metallic materials are asbestos and halogen.
- IP20 guarded terminal to prevent accidental contacts from live parts.
- Dual IEC and NEMA terminal markings for ease of wiring anywhere in the world.
- Devices identification marker for labeling contactors and front mounted auxiliary contacts simplifies trouble shooting in panels with many contactors.
- Power wiring modules provide reliable, rigid interconnections between the forward and reverse contactors.
- Combination head terminal screws allow the use of straight, phillips or posidrive screwdrivers.
- Allen head screws on 50A through 80A contactors make it easy to apply the proper terminal tightening torque to secure conductor connections.
- Snap-on front mounted auxiliary contacts install without the use of tools for lower installed cost.
- Single circuit are available and it can be purchased on your need.

*For more details on this range please contact factory.

Unique Product Featurers

INTERLOCK

RC series Reversing Contactors feature a single side mounted electrical and mechanical or mechanical only interlock that is used for the whole range of contactors, enabling a 9A contactor to be interlocked with a 105A contactor. The side mounted interlock doesn't increase the depth of the contactor and doesn't prevent front mounted auxiliary contacts from being added to either the forward or reverse contactors. Contactors are physically secured together with a dovetail bracket that installs from the bottom of the contactor – so it can't fall out when it is installed on a DIN rail or on a panel, even in high vibration applications.

Standard Contactors

Technical Specifications

		SC009	SC012	SC018	SC025	SC032	SC040	SC050	SC065	SC080	SC095	SC105
ELECTRICAL GENERAL	Units											
Rated operating frequency	Hz	25 ~ 400										
Impedence per pole	mΩ	2.35	2.35	2.41	1.65	1.28	0.95	0.85	0.86	0.86	0.76	0.76
Power dissipation per pole												
AC - 1	W	1.47	1.47	2.46	3.34	4.6	3.42	6.89	10.4	10.4	14.89	14.89
AC - 3	W	0.19	0.34	0.78	1.03	1.31	1.52	2.12	3.63	5.5	6.86	8.37
Rated coil frequency		AC: 50Hz, 60Hz, 50/60Hz and DC										
IEC RATING												
Rated Insulation voltage, Ui	V	1000										
Rated Impulse voltage withstand, Uimp	kV	6	6	6	6	6	6	8	8	8	8	8
Rated operating voltage, Ue	V	690						1000				
Rated thermal current, Ith for Ambient Temperature < 55°C	A	25	25	32	32	60	60	90	110	110	140	140
MAKING CAPACITY	A	300	300	300	450	550	550	1000	1000	1000	1280	1280
BREAKING CAPACITY												
Ue ≤ 400V	A	250	250	250	350	450	450	920	920	920	1050	1050
Ue = 500V	A	250	250	250	350	450	450	920	920	920	1050	1050
Ue = 690V	A	130	130	130	170	205	780	780	780	780	950	950
AC-1 OPERATING CURRENT, Ie												
At 55°C	A	25.0	25.0	32.0	32.0	60.0	60.0	90.0	110.0	110.0	140.0	140.0
At 70°C	A	20.0	20.0	25.0	25.0	48.0	48.0	72.0	88.0	88.0	110.0	110.0
AC-3 OPERATING CURRENT, Ie												
220 ~ 240V	A	9.0	12.0	18.0	25.0	32.0	40.0	50.0	65.0	80.0	95.0	105.0
380 ~ 400V	A	9.0	12.0	18.0	25.0	32.0	40.0	50.0	65.0	80.0	95.0	105.0
415 ~ 440V	A	9.0	12.0	18.0	25.0	32.0	40.0	50.0	65.0	80.0	95.0	105.0
500V	A	7.5	10.5	14.0	19.0	24.0	32.0	38.0	55.0	63.0	79.0	85.0
660 ~ 690V	A	7.0	9.0	13.0	15.0	22.0	25.0	34.0	44.0	48.0	60.0	80.0
AC-3 OPERATING POWER, Pe												
220 ~ 240V	kW	2.2	3.0	4.5	6.5	9.2	11.0	15.0	18.5	22.0	25.0	30.0
380 ~ 400V	kW	4.0	5.5	7.5	12.5	15.0	18.5	22.0	30.0	40.0	45.0	55.0
415 ~ 440V	kW	4.5	6.5	9.2	12.5	15.0	22.0	30.0	37.0	45.0	55.0	59.0
500V	kW	4.5	6.5	10.0	12.5	15.0	25.0	30.0	40.0	45.0	55.0	59.0
660 ~ 690V	kW	5.5	7.5	11.0	12.5	18.5	25.0	30.0	45.0	45.0	55.0	65.0
AC-4 OPERATING CURRENT, Ie												
220 ~ 240V	A	7.5	10.0	15.0	20.8	26.7	33.3	41.7	54.2	66.7	79.2	87.5
380 ~ 400V	A	7.5	10.0	15.0	20.8	26.7	33.3	41.7	54.2	66.7	79.2	87.5
415 ~ 440V	A	7.5	10.0	15.0	20.8	26.7	33.3	41.7	54.2	66.7	79.2	87.5
500V	A	6.3	8.8	11.7	15.8	20.0	26.7	31.7	45.8	52.5	65.8	70.8
660 ~ 690V	A	5.8	7.5	10.8	12.5	18.3	20.8	28.3	36.7	40.0	50.0	66.7

Standard Contactors

Technical Specifications (Contd.)

		SC009	SC012	SC018	SC025	SC032	SC040	SC050	SC065	SC080	SC095	SC105
	Units											
AC-4 OPERATING POWER, Pe												
220 ~ 240V	kW	1.5	2.2	4.0	5.5	5.5	7.5	11.0	15.0	18.5	22.0	22.0
380 ~ 400V	kW	3.0	4.0	5.5	7.5	11.0	15.0	22.0	22.0	37.0	37.0	45.0
415 ~ 440V	kW	3.0	4.0	5.5	7.5	11.0	15.0	22.0	22.0	37.0	37.0	45.0
500V	kW	3.0	4.0	5.5	7.5	11.0	15.0	18.5	30.0	30.0	45.0	45.0
660 ~ 690V	kW	4.0	5.5	7.5	7.5	15.0	18.5	22.0	30.0	37.0	45.0	55.0
AC-4 OPERATING CURRENT Ie @ 200,000 OPERATIONS												
220 ~ 240V	A	2.7	3.6	5.5	7.6	9.7	12.1	15.2	19.7	24.2	28.8	31.8
380 ~ 400V	A	2.7	3.6	5.5	7.6	9.7	12.1	15.2	19.7	24.2	28.8	31.8
415 ~ 440V	A	2.7	3.6	5.5	7.6	9.7	12.1	15.2	19.7	24.2	28.8	31.8
500V	A	2.3	3.2	4.2	5.8	7.3	9.7	11.5	16.7	19.1	23.9	25.8
660 ~ 690V	A	2.1	2.7	3.9	4.5	6.7	7.6	10.3	13.3	14.5	18.2	24.2
AC-4 OPERATING POWER Pe @ 200,000 OPERATIONS												
220 ~ 240V	kW	0.55	0.75	1.1	1.5	2.2	3.0	4.0	4.0	5.5	7.5	7.5
380 ~ 400V	kW	1.1	1.5	2.2	3.0	4.0	5.5	5.5	7.5	11.0	11.0	15.0
415 ~ 440V	kW	1.1	1.5	2.2	3.0	4.0	5.5	5.5	7.5	11.0	11.0	15.0
500V	kW	1.1	1.5	2.2	3.0	4.0	5.5	5.5	7.5	11.0	15.0	15.0
660 ~ 690V	kW	1.5	1.5	3.0	3.0	5.5	5.5	7.5	11.0	11.0	15.0	22.0
SHORT CIRCUIT COORDINATION												
Short Circuit Current Rating	kA			5						10		
Type “1” gL/gG	A	50	50	63	63	100	125	200	200	200	250	250
Type “2” gL/gG	A	25	35	35	50	63	80	100	125	125	160	200
RATED SHORT TIME CURRENT, Icw												
1 second	A	455	455	570	630	1010	1265	1580	2530	2530	3300	3300
5 seconds	A	205	205	254	280	450	450	710	1130	1130	1485	1485
10 seconds	A	144	144	180	200	320	400	500	800	800	1050	1050
30 seconds	A	85	85	104	115	185	230	290	460	460	600	600
1 minute	A	60	60	74	80	130	165	205	325	325	430	430
3 minutes	A	35	35	46	50	90	100	120	185	185	250	250
MAXIMUM ELECTRICAL SWITCHING RATE												
AC - 1	Ops. /hr.	1200	1200	1200	1200	1200	1200	1200	1200	1200	600	600
AC - 3	Ops. /hr.	1200	1200	1200	1200	1200	1200	1200	1200	1200	600	600
AC - 4	Ops. /hr.	360	360	360	360	360	200	200	200	200	200	200
ELECTRICAL ENDURANCE, AC - 3 AT MAXIMUM RATED 3 PHASE OPERATING POWER @ 400V	Ops. (mill)	1.6	1.8	1.3	1.4	1.3	1.3	1.2	1.4	1.2	1.2	1.0

Standard Contactors

Technical Specifications (Contd.)

		SC009	SC012	SC018	SC025	SC032	SC040	SC050	SC065	SC080	SC095	SC105
	Units											
UL RATING												
General Purpose Current Rating	A	25	25	32	32	60	60	90	110	110	140	140
RATED 1 PHASE OPERATING CURRENT, Ie												
115V	A	9.8	13.8	16.0	24.0	34.0	34.0	34.0	56.0	80.0	80.0	100.0
230V	A	10.0	12.0	17.0	17.0	28.0	28.0	40.0	40.0	50.0	68.0	88.0
RATED 1 PHASE OPERATING POWER, Pe												
115V	HP	1/2	3/4	1	2	3	3	3	5	7 1/2	7 1/2	10
230V	HP	1 1/2	2	3	3	5	5	7 1/2	10	15	15	20
RATED 3 PHASE OPERATING CURRENT, Ie												
200V	A	11.0	11.0	17.5	25.3	32.2	32.2	48.3	62.1	62.1	78.2	92.0
230V	A	9.6	9.6	15.2	22.0	28.0	42.0	42.0	54.0	68.0	80.0	104.0
460V	A	7.6	11.0	14.0	21.0	27.0	40.0	52.0	65.0	65.0	77.0	96.0
575V	A	9.0	11.0	17.0	17.0	27.0	27.0	41.0	52.0	62.0	77.0	77.0
RATED 3 PHASE OPERATING POWER, Pe												
200V	HP	3.0	3.0	5.0	7 1/2	10.0	10.0	15.0	20.0	20.0	25.0	30.0
230V	HP	3.0	3.0	5.0	7 1/2	10.0	15.0	15.0	20.0	25.0	30.0	40.0
460V	HP	5.0	7 1/2	10.0	15.0	20.0	30.0	40.0	50.0	50.0	60.0	75.0
575V	HP	7 1/2	10.0	15.0	15.0	25.0	25.0	40.0	50.0	60.0	75.0	75.0
SCCRs												
STANDARD FAULT TEST												
Short Circuit Current Rating	kA	5						10				
Maximum Fuse Size	A	30	30	60	60	60	60	100	125	150	200	200
HIGH FAULT TEST												
Short Circuit Current Rating	kA	100										
Maximum Fuse Size	A	25	25	40	40	50	60	90	100	125	175	175
ELECTRICAL ENDURANCE												
@Maximum rated 3 Phase Operating Power (460 V)	Ops. (mill.)	1.8	2.0	1.6	1.6	1.5	1.5	1.6	1.8	1.5	1.5	1.0
COIL CHARACTERISTICS												
Rated Insulation Voltage, Ui	V	1000										
OPERATING LIMITS 50HZ, 60HZ, 50/60HZ												
Operating	xUc	0.80 ~ 1.10										
Pick - up	xUc	0.60 ~ 0.80				0.65 ~ 0.80						
Sealed	xUc	0.35 ~ 0.55				0.40 ~ 0.60						
DC												
Operating	xUc	0.80 ~ 1.10										
Pickup	xUc	0.45 ~ 0.65				0.45 ~ 0.75		0.70 ~ 0.80				
Sealed	xUc	0.15 ~ 0.30				0.15 ~ 0.45		0.40 ~ 0.60				

Standard Contactors

Technical Specifications (Contd.)

		SC009	SC012	SC018	SC025	SC032	SC040	SC050	SC065	SC080	SC095	SC105
	Units											
COIL CONSUMPTION 50HZ, 60HZ, 50/60HZ												
Pick - up	VA	70				98		255				
Hold - in	VA	7				9		16				
DC												
Pick - up	W	5.5				180		340				
Hold - in	W	5.5				2.2		6.5				
OPERATING TIMES												
AC												
Pick - up	msec	8 ~ 20				10 ~ 19		15 ~ 30				
Drop - out	msec	6 ~ 13				5 ~ 25		9 ~ 15				
DC												
Pick - up	msec	35 ~ 45				40 ~ 55		50 ~ 60				
Drop - out	msec	7 ~ 12				30 ~ 65		55 ~ 60				
POWER DISSIPATION 50HZ,60HZ,50/60HZ	W	2.6				4.3		8				
Power factor												
Closed	cosϕ	0.33				0.28		0.26				
Open	cosϕ	0.84				0.73		0.54				
MECHANICAL												
Mechanical Endurance	Ops (mill.)	10										
Maximum Mechanical switching rate	Ops/ hr	9000.0										
ENVIRONMENTAL												
Ambient Operating Temperature		-25 to +55°C (-13 to +131°F) - UL Standard -5 to + 40°C (-23 to +104°F) - IEC Standard										
Ambient Storage Temperature		-55 to +80°C (-67 to +176°F)										
CONSTRUCTION												
Pollution Degree		3										
INGRESS PROTECTION												
Main Terminals		IP20						IP20*				
Coil Terminals		IP20										
Auxiliary Terminals		IP20										
WEIGHT	Kg	0.295	0.295	0.295	0.295	0.52	0.52	1.105	1.12	1.13	1.45	1.47
	Lbs	0.65	0.65	0.65	0.65	1.15	1.19	2.44	2.47	2.49	3.2	3.24
RoHS COMPLAINCE		Yes										
Construction Conductor cross sections												
MAIN TERMINAL CAPACITY												
Solid Stranded without end sleeve	mm^2	2 x 0.5 ~ 6				2 x 1 ~ 16		2 x 1.5 ~ 35			2 x 1.5 ~ 50	
AWG Wire	AWG	2 x 20 ~ 10				2 x 18 ~ 6		2 x 16 ~ 2			2 x 16 ~ 1.0	
Recommended strip length	mm	8.5				10		13			15	
	in	5 / 16				3 / 8		1 / 2			9 / 16	
Tightening Torque												
	Nm	1 ~ 1.9				2.5 ~ 3.0		4 ~ 6			5 ~ 6.5	
	lb*in	8.8 ~ 16.9				22.1 ~ 26.6		35.4 ~ 53.1			44.3 ~ 57.5	
Screw Driver		**Philips nr.2**						**Allen 4mm**				

*Note: with Conductors connected

Standard Contactors

Auxiliary Contacts Technical Specifications

		Built-in Auxiliary	SCFA, SCSA
GENERAL	Units		
Minimum Switching Capacity		5mA @ 17V	
Electrical Endurance	Ops.(mill.)	1	
Mechanical Endurance	Ops.(mill.)	15	
Non-Overlap Time	msec.	1.5	
Insulation Resistance	mΩ	>10	
IEC RATINGS			
Rated Insulation Voltage, Ui	V	1000	
Rated Operating Voltage, Ue	V	690	
Rated Thermal Current, Ith for Ambient Temperature < 55°C	A	16	10
MAKING CAPACITY, Ue ≤ 400V, AC - 15			
Ue ≤ 400V 50/60Hz	A	250	90
Ue ≤ 220V DC	A	250	90
BREAKING CAPACITY, Ue ≤ 400V, AC - 15			
Ue ≤ 400V 50/60Hz	A	250	60
Ue ≤ 220V DC	A	2	0.95
AC - 15			
110 ~ 120V	A	10	6
220 ~ 240V	A	10	6
380 ~ 400V	A	6	4
415 ~ 440V	A	5	3.5
500V	A	4	2.5
600 ~ 690V	A	2.5	1.5
DC - 13			
24V	A	6	6
48V	A	4	4
110V	A	2	2
220 ~ 240V	A	0.7	0.7
440V	A	0.3	0.3
SHORT CIRCUIT COORDINATION			
gL/gG	A	10	10
UL RATINGS			
Rated Operating Voltage	V	600	
PILOT DUTY RATING			
AC		A600	
DC		P600	Q600
ENVIRONMENTAL			
Ambient Operating Temperature	-25 to +55°C (-13 to +131°F) - UL Std.,	-5 to + 40°C (-23 to +104°F) - IEC Std.	
Ambient Storage Temperature		-55 to +80°C (-67 to + 176°F)	
CONSTRUCTION			
TERMINAL CAPACITY			
AWG Wire	AWG	2 X 18 ~ 12 / 1 X 18 ~ 10	
Solid, Stranded Without End Sleeve	mm^2	2 X 1.0 ~ 4.0 / 1 X 1.0 ~ 6.0	
Tightening Torque	lb-in	10	
	Nm	1.13	
RoHS COMPLIANCE		Yes	

Standard Contactors - Accessories

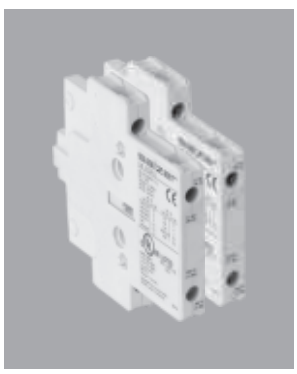
Front Mounted Auxiliary Contacts

Front mounted auxiliary contacts feature IP20 guarded terminals to protect against accidental contact with live parts The device identification marker simplifies trouble shooting in panels with many contactors. These contacts snap-on and install without the use of tools.

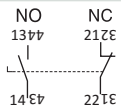
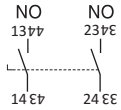
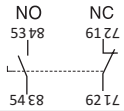
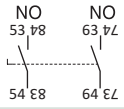
Code	Contact Configuration	Connection Diagram
SCFA10	1 Normally Open	
SCFA01	1 Normally Closed	
SCFA10EM	1 Normally Open Early Make	
SCFA01DB	1 Normally Closed Delayed Break	

Maximum Number of Front or Side Mounted Auxiliary Contacts	
Contactor	Maximum Number
SC009,SC012,SC018,SC025	4
SC032,SC040	6
SC050,SC065,SC080,SC095,SC105	8

Side Mounted Auxiliary Contact



Side mounted auxiliary contact feature IP20 guarded terminals to protect against accidental contact with live parts.

Code	Contact Configuration	Connection Diagram
SCSA11	1 Normally Open & 1 Normally Closed	
SCSA20	2 Normally Open	
SCSA11X	1 Normally Open & 1 Normally Closed*	
SCSA20X	2 Normally Open*	

*Note: For use with SCSA11 or SCSA20 when more than one side mounted auxiliary contact module is installed on the same side of the contactor.

Standard Contactors - Accessories

Interlocks

Mechanical Interlock

Side mounted mechanical interlock for use with reversing contactors, reversing starters, two speed starters and star-delta starters. The single interlock can be used with all size contactors from 9A-105A, Preventing the forward and reverse contactors from being energised at the same time.

Electrical & Mechanical Interlock

Electrical / Mechanical interlock for reversing contactors has the same features as the mechanical interlock but also has two normally closed auxiliaries built into the unit for electrical interlocking, eliminating the need for two normally closed auxiliary contactors and the Mechanical Interlock. The result of integrating the normally closed auxiliary contact is decreased width of reversing contactors and more available auxiliary contact locations.

Code	Description
SCMI	Side Mounted Mechanical Interlock
SCMEI	Side Mounted Electrical / Mechanical Interlock

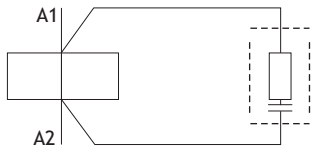
Wiring Modules

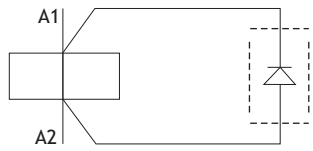
Reversing contactors power wiring modules make field assembly of reversing contactors easy. Line and load side over molded copper bus bar conductors ensure error free installation and make a rigid assembly with a mechanical interlock (SCMI) or electrical / mechanical interlock (SCMEI).

Code	For Use With Contactors
SC025RWM1 + SC025RWM2	SC009,SC012,SC018,SC025
SC040RWM1 + SC040RWM2	SC032,SC040
SC080RWM1 + SC080RWM2	SC050,SC065,SC080

Surge Suppressors

Coil mounted surge suppressors protect sensitive electronic components in control circuits from damaging line voltage spikes.

RC Surge Suppressor			
Code	Voltage Range		For Use With Contactor
SC040SSRA048	24 ~ 48V AC		SC009, SC012,SC018,SC025,SC032,SC040
SC040SSRA127	50 ~ 127V AC		SC009, SC012,SC018,SC025,SC032,SC040
SC040SSRA250	130 ~ 250V AC		SC009, SC012,SC018,SC025,SC032,SC040
SC105SSRA048	24 ~ 48V AC		SC050,SC065,SC080,SC095,SC105
SC105SSRA127	50 ~ 127V AC		SC050,SC065,SC080,SC095,SC105
SC105SSRA250	130 ~ 250V AC		SC050,SC065,SC080,SC095,SC105

Diode Surge Suppressor			
Code	Voltage Range		For Use With Contactor
SC105SSDD600	12 ~ 600V DC		SC009,SC012,SC018 SC025,SC032,SC040 SC050,SC065,SC080 SC095,SC105

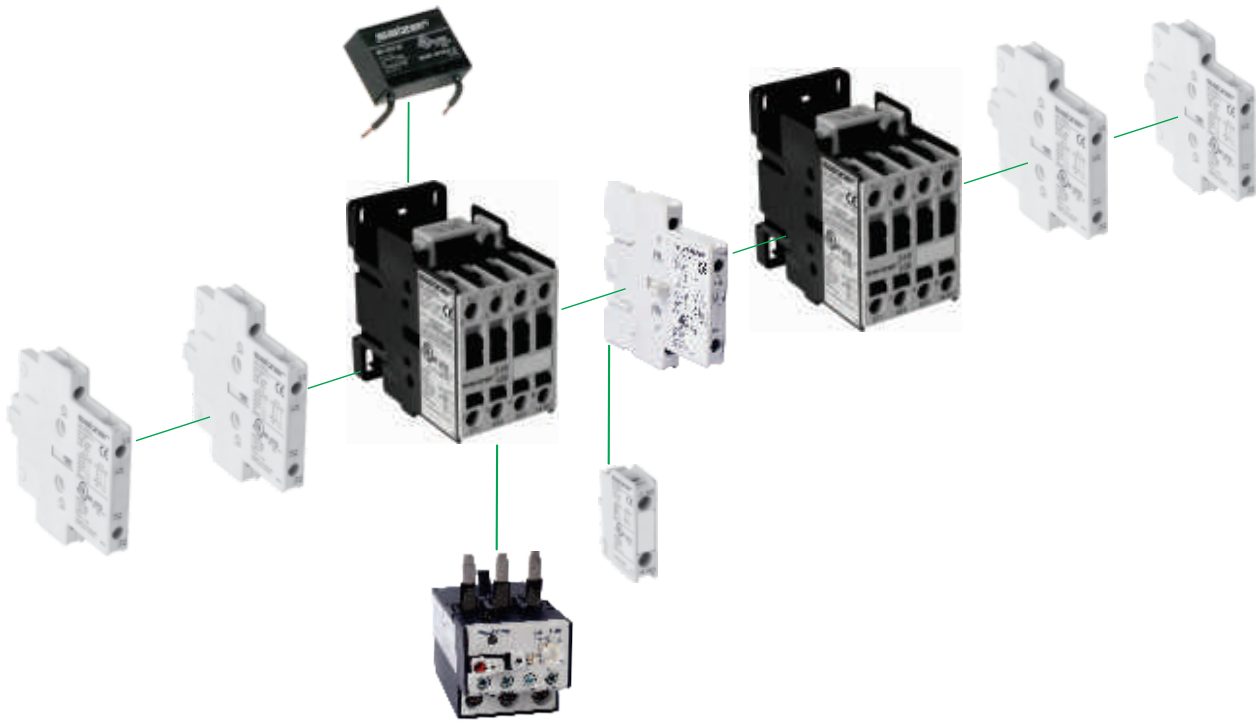
Operating Coils

Coil Voltage																	
AC Coil Voltage																	
Voltage	12	24	48	110	120	208	220	230	240	277	380	400	400~415	440	480	500	550	600
50Hz	✓	✓	✓	✓			✓				✓	✓	✓	✓		✓	✓	
60Hz	✓	✓	✓		✓	✓			✓	✓					✓			✓
50/60Hz	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓				

DC Coil Voltage										
Voltage	12	24	24 ~ 28	48	42 ~ 50	110	125	110 ~ 130	208 ~ 250	250
SC009 to SC040	✓	✓		✓		✓	✓			✓
SC050 to SC105			✓		✓			✓	✓	

Accessories for Non-Reversing & Reversing Contactors

The complete range of SC Series Non-Reversing Contactors and RC Series Reversing Contactors share common accessories including single circuit front mounted auxiliary contacts, two circuit side mounted auxiliary contacts, a single electrical/mechanical or mechanical interlock, and coil mounted surge suppressors.Designing starter assemblies and panels is easy - you don't have to remember which auxiliary is required for each contactor they all work together.Installation is easy too - once you learn how to install each accessory, it's always the same no matter what contactor it's being installed on. If simple design and assembly isn't enough - you'll also reduce your inventory and maximize its flexibility, because unique accessories are not required for each size contactor.



Standard Contactors - Ordering Code

Standard Contactor 9A to 105A

I	II	III	IV	V	VI	VII	VIII	IX (Optional)
Contactor Type	Current Rating	Poles	Main Pole Contact Configuration	Built in Auxiliary Contacts	Coil Type AC/DC	Coil voltage	Frequency	Additional feature

Example: **SC 009 P 30 01 A 110 F WW**

I - Contactor Type

SC - Standard Contactor
RC - Reversing Contactor

II - Current Rating

009 - 9A
012 - 12A
018 - 18A
025 - 25A
032 - 32A
040 - 40A
050 - 50A
065 - 65A
095 - 95A
105 - 105A

III - Poles

Main Poles - P

IV -Main Pole Contact Configuration

(9-25A)
20 - 2 Normally Open
02 - 2 Normally Closed
22 - 2 Normally Open & 2 Normally Closed
13 - 1 Normally Open & 3 Normally Closed
31 - 3 Normally Open & 1 Normally Closed
30 - 3 Normally Open
40 - 4 Normally Open
04 - 4 Normally Closed

(32-105A)
20 - 2 Normally Open
30 - 3 Normally Open

V - Built in Auxiliary

10 - 1 Normally Open
01 - 1 Normally Closed
00 - Aux not provided
For 32A - 40A
Please mention 00 as Aux Not provided
For 50A - 105A 1NO+1NC will be provided as standard

VI - Coil Voltage Type

A - AC Coil
D -DC Coil

VII - Coil Voltage

AC		DC	
Code	Voltage	Code	Voltage
024	24	024	24
048	48	048	48
110	**110**	110	110
220	220	125	125
240	240	250	250
380	380		
415	415		

* Refer page no. 11 for other coil voltage

VIII - Frequency

F - 50 Hz, S - 60 Hz
B - 50/60Hz
Blank - DC

IX - Additional feature

With Wiring Modules for RC (Reversing Contactors)

Note : RC Contactors wiring module available upto 80 Amps only

Ordering Code - Accessories

Side Mounted Accessories

Ordering Informations		
I	II	III
Description	Contact configuration	X (Optional)

SCSA 11 X

I - Description

Standard contactor side mounted auxiliary

II - Contact configuration

10 - 1 normally open
01 - 1 normally closed
20 - 2 normally open
11 - 1 normally open & 1 normally closed

III - X (Optional)

For Use With SCSA11 (or) SCSA20 When more than 1 side mounted auxiliary contact module is installed on same side of the Contactor

* Additional side mounted Acc is to be mounted on same side of contactor

Front Mounted Accessories

Ordering Informations		
I	II	III
Description	Contact configuration	Configuration Type

SCFA 10 EM

I - Description

Standard contactor front mounted auxiliary

III - Configuration Type

Blank - Standard
EM - Early Make
DB - Delay Break

II - Contact configuration

10 - 1 normally open
01 - 1 normally closed

Interlocks

Ordering Informations
I
Description

SCMI

Standard contactor side mechanical interlock

SCMEI

Standard contactor electrical & Mechanical interlock with 2 NC Aux

Ordering Code - Accessories

Wiring Module

Ordering Informations		
I	II	III
Contactor Type	Current Rating	Wiring Module

SC 025 RWM

I - Type

Standard Contactor

II - Current Rating

025 - SC 009 to SC 025
040 - SC 032 to SC 040
080 - SC 050 to SC 080

III - Wiring Module

RWM1 + RWM2
Load side + Line Side

Surge Suppressor

Ordering Informations				
I	II	III	IV	V
Type	Contactor Range	Type	Coil Type	Voltage Range

SC 040 SSR A 048

I - Type

Standard Contactor

II - Contactor Range

040 - SC009 to SC040 Contactor
105 - SC050 to SC105 Contactor

III - Type

SSR - Resistor Capacitor type
SSD - Diode type

IV - Coil Type

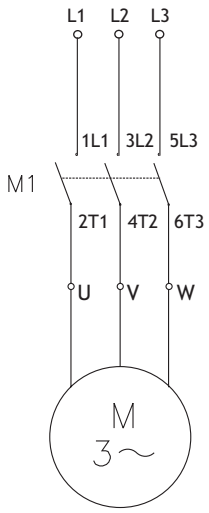
A - AC Coil
D - DC Coil

V - Voltage Range

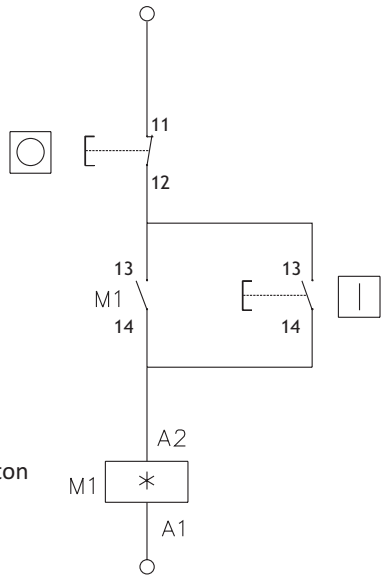
048 - 24 to 48V AC
127 - 50 to 127V AC
250 - 130 to 250V AC
600 - 12 to 600V DC

SC Non - Reversing Contactor circuit Diagrams

Power Circuit



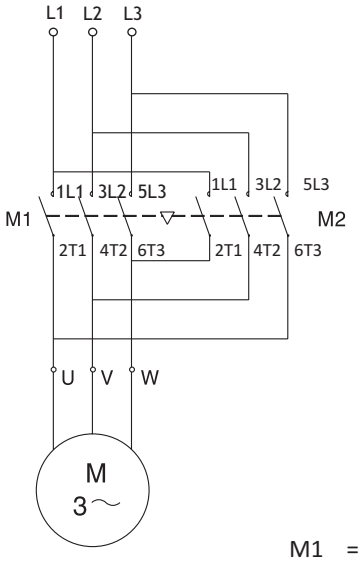
Control circuit



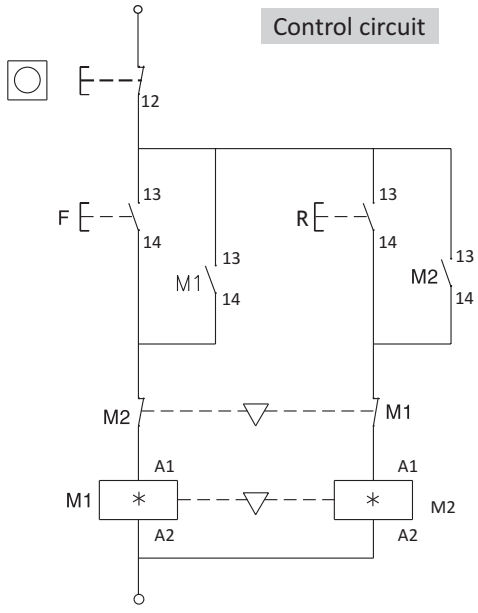
M1 = Contactor
I = Start Push Button
O = Emergency Stop Push Button
✱ = Coil Voltage Code

RC Reversing Contactor circuit Diagrams

Power Circuit



Control circuit



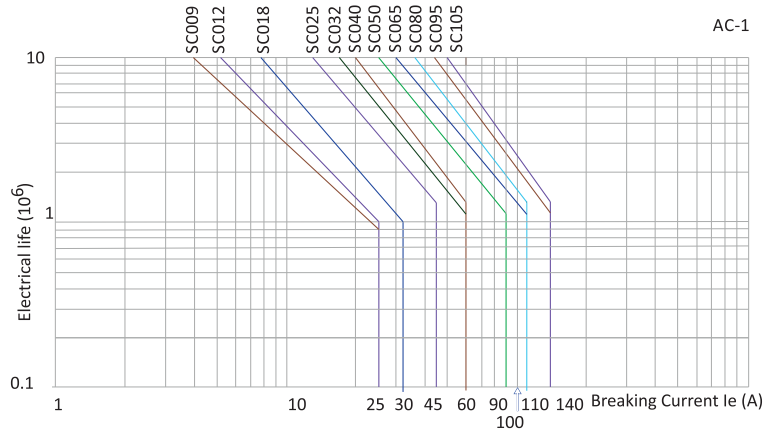
M1 = Forward Contactor
F = Forward Push Button
M2 = Reverse Contactor
R = Reverse Push Button
✱ = Coil Voltage Code
◎ = Emergency Stop Push Button

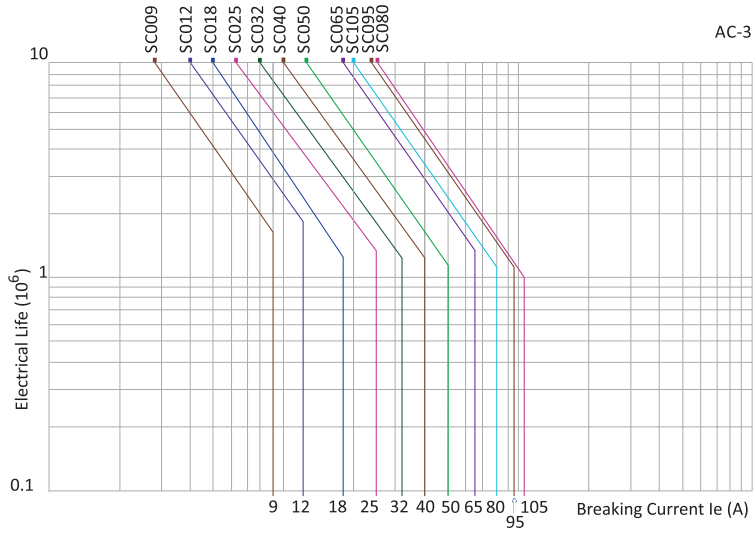
Electrical Life In Utilization Category

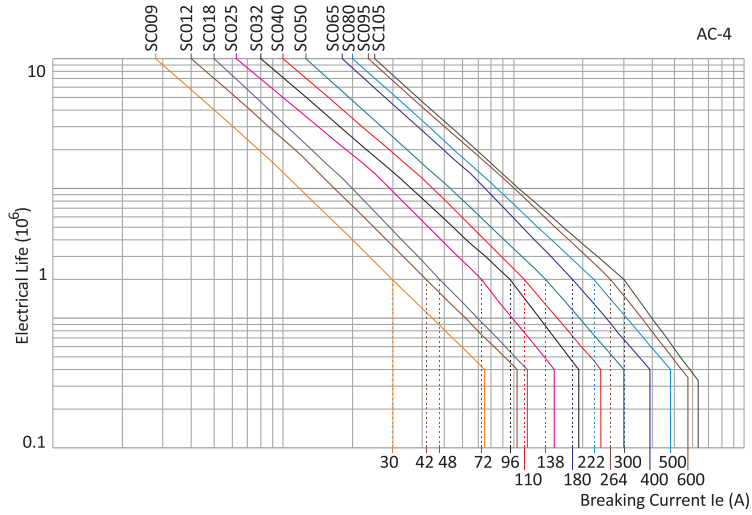
To find a Contactor's Estimated Life:

1. Identify the Utilization Category of the Application.
2. Refer to the chart For the Applicable Utilization category.
3. Locate the Intersection of the Life-load Curve For the Contactor Selected with the Application Breaking Current (Ie) on the Horizontal Axis of the Chart.
4. Read the estimated Contactor Life From the Vertical Axis of the Chart.

The Life -load curves are based on tests in accordance with IEC 60947-4-1. Many Conditions of an actual application effect contact life such as the environment and duty cycle, therefore, the actual contact life may vary from the life Indicated by the curves shown here.

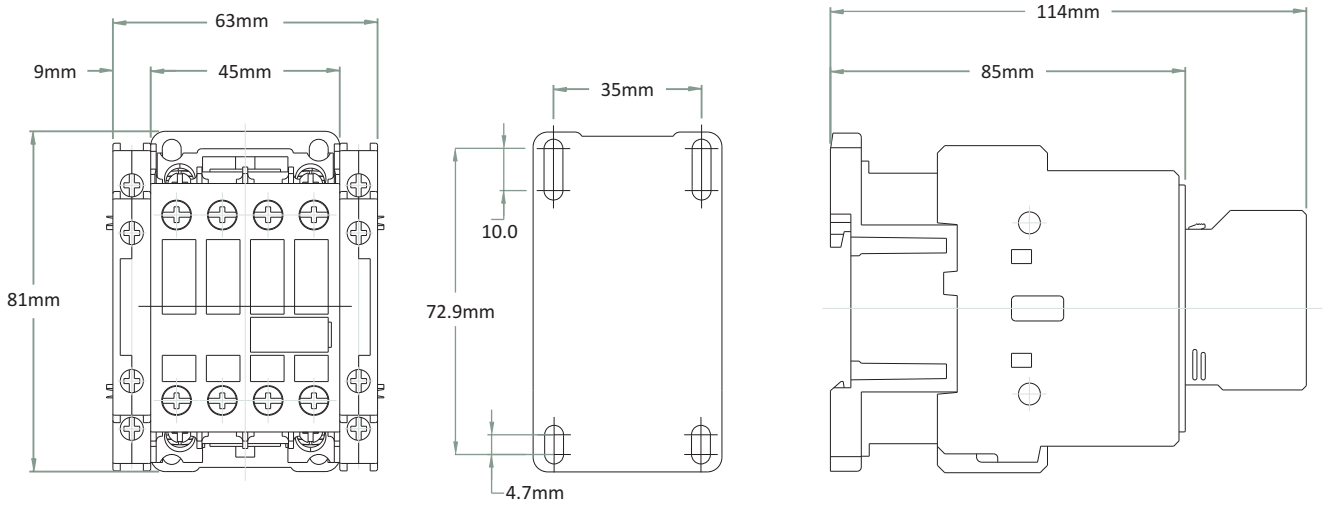




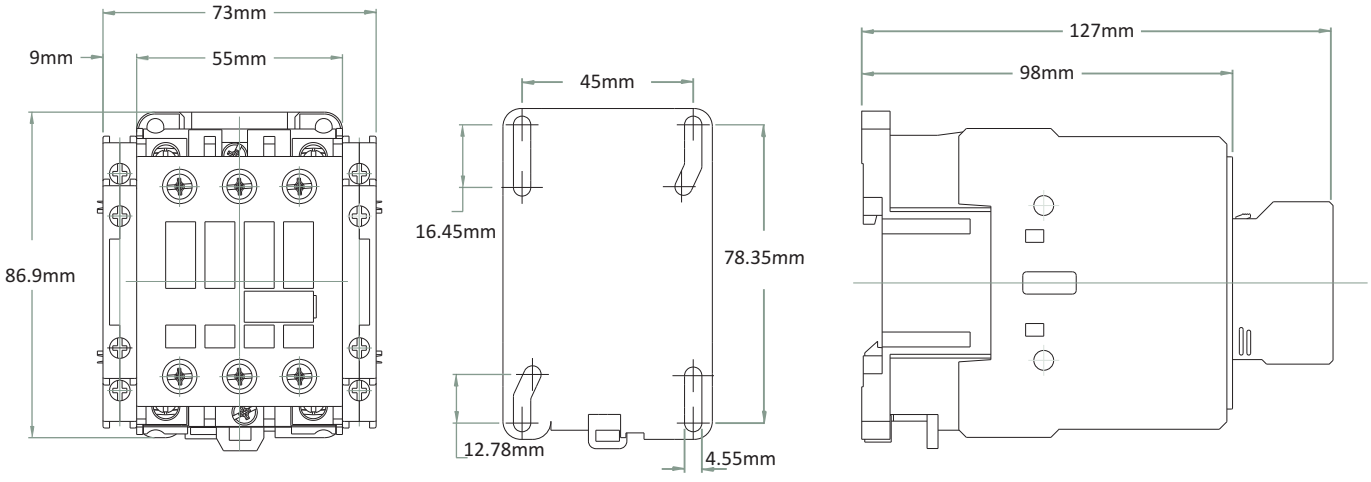


3 Pole Non-Reversing Contactors - AC Coils

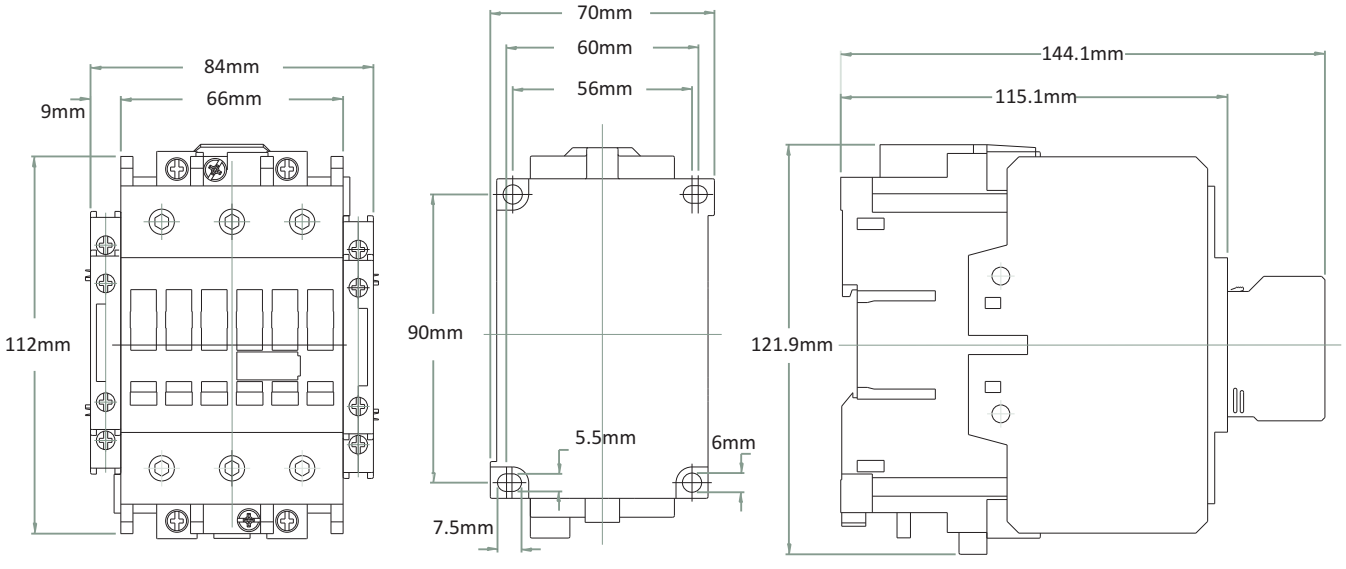
SC009, SC012, SC018 & SC025



SC032 & SC040

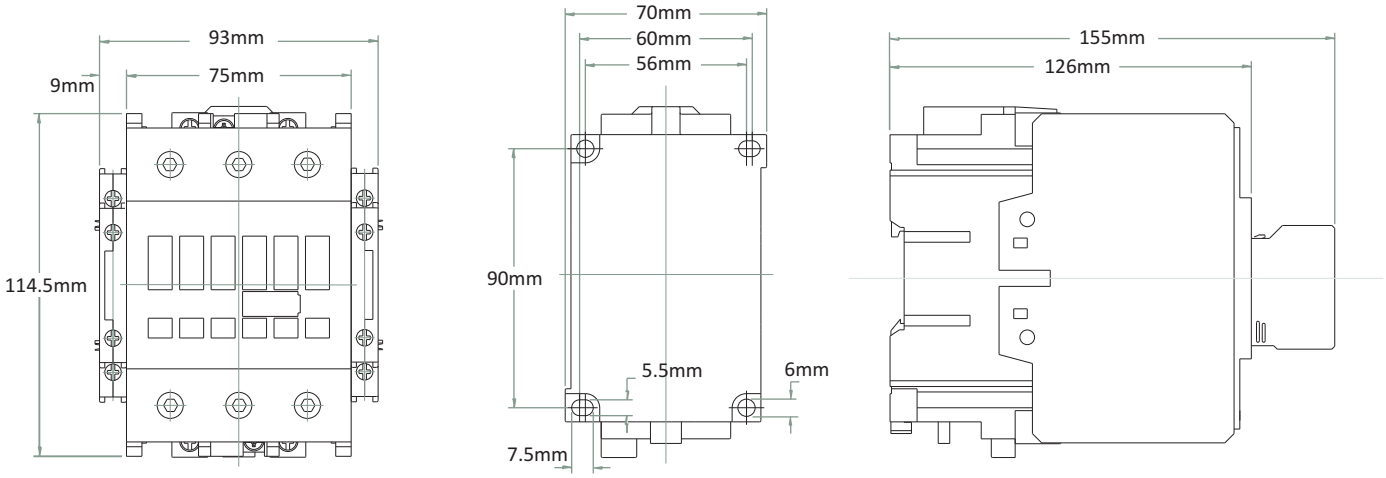


SC050, SC065 & SC080



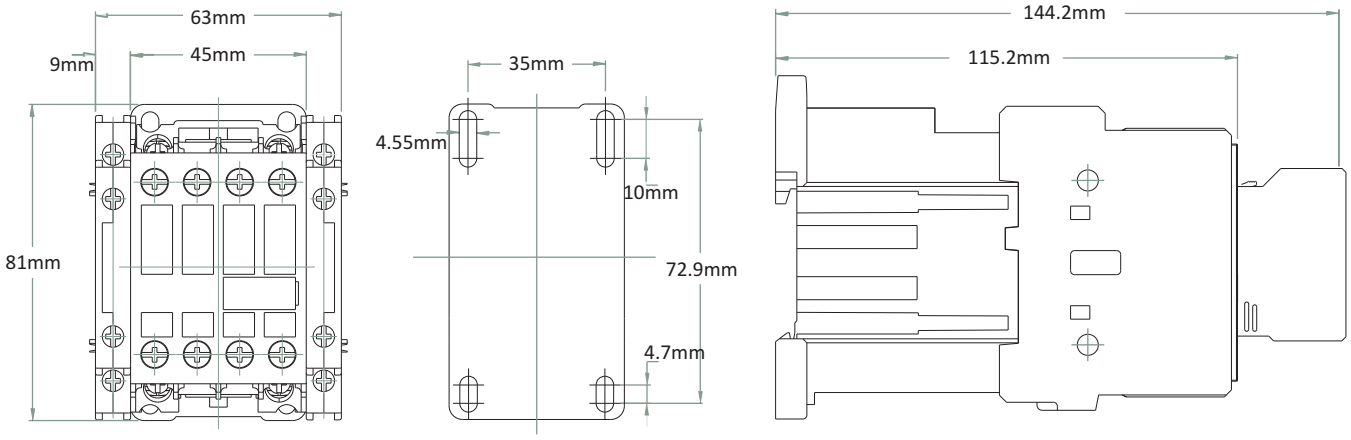
3 Pole Non-Reversing Contactors - AC Coils (Cont.)

SC095 & SC105



3 Pole Non-Reversing Contactors - DC Coils

SC009, SC012, SC018 & SC025



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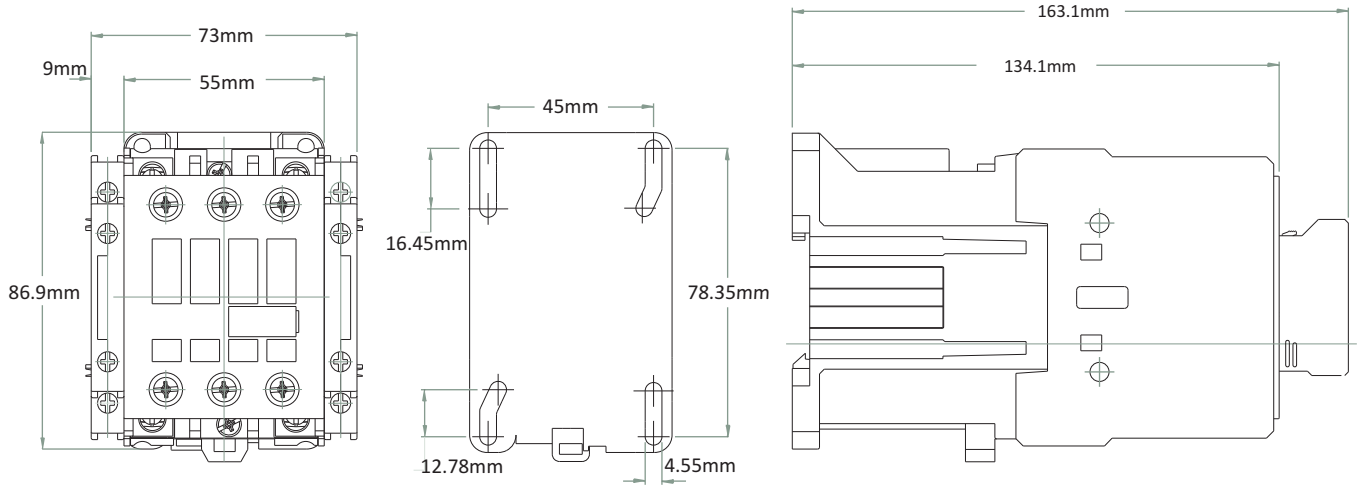
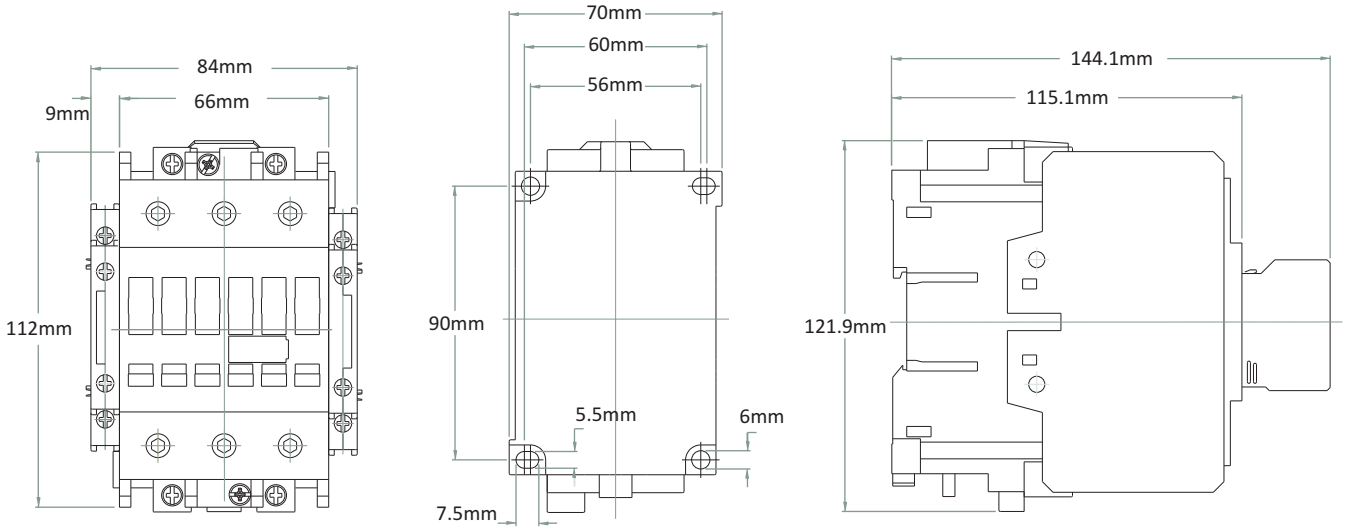
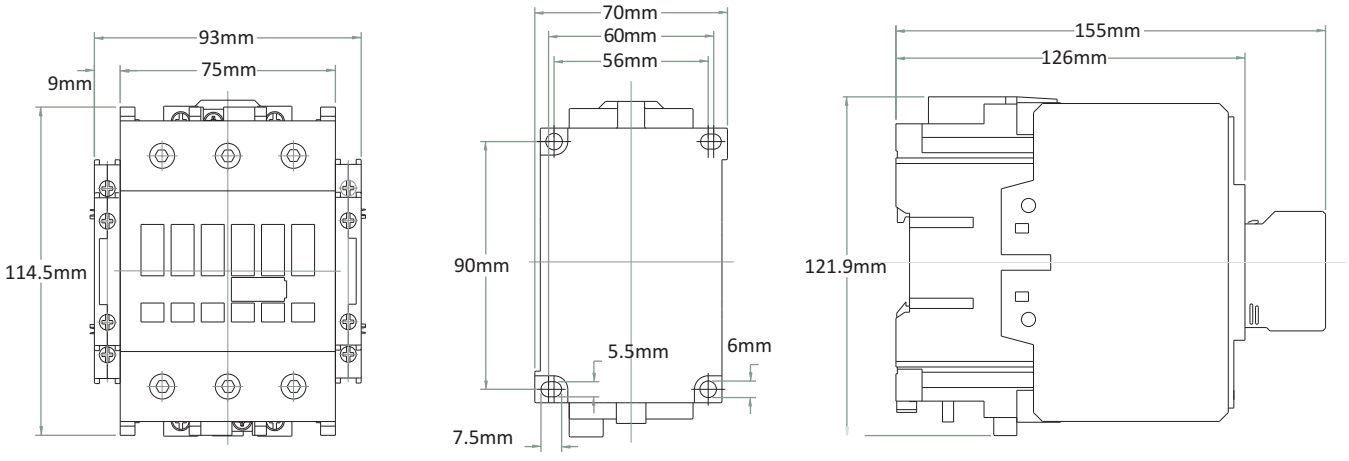


3 Pole Non-Reversing Contactors - DC Coils (Cont.)

SC050, SC065 & SC080

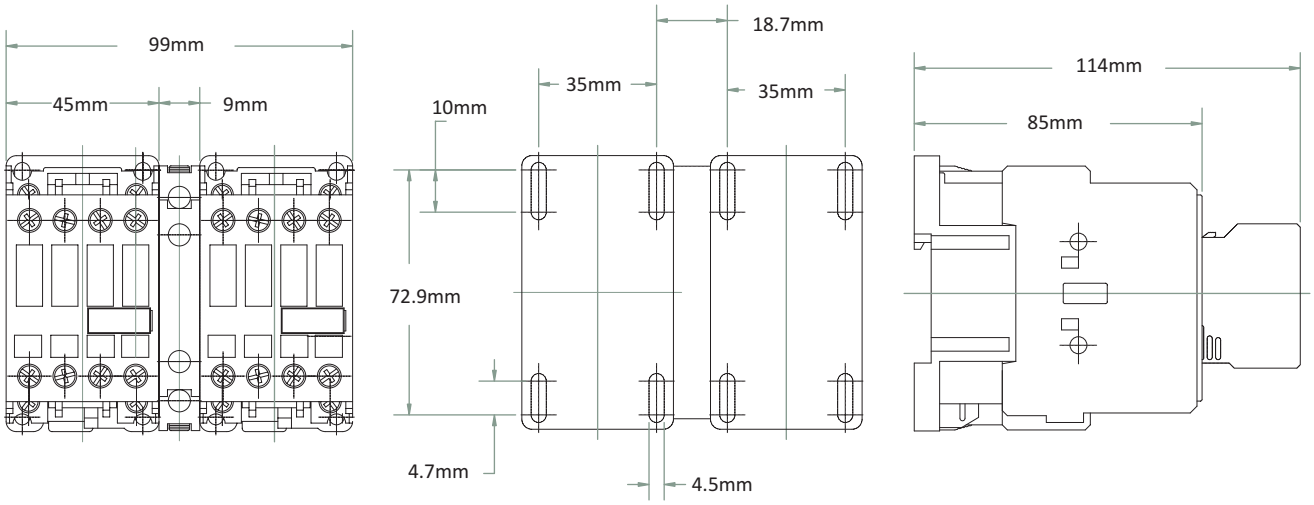


SC095 & SC105



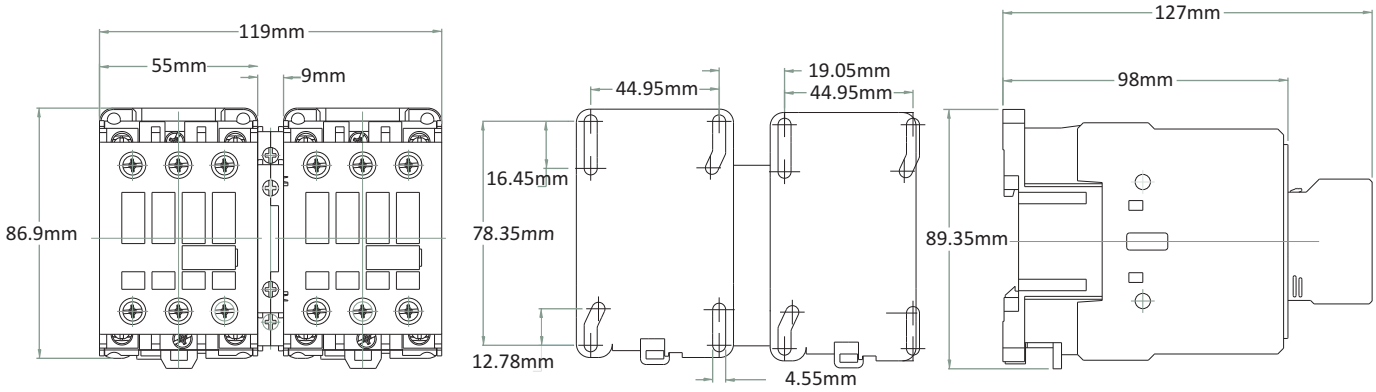
3 Pole Contactors with Electrical / Mechanical Interlock - AC Coils

SC009, SC012, SC018 & SC025

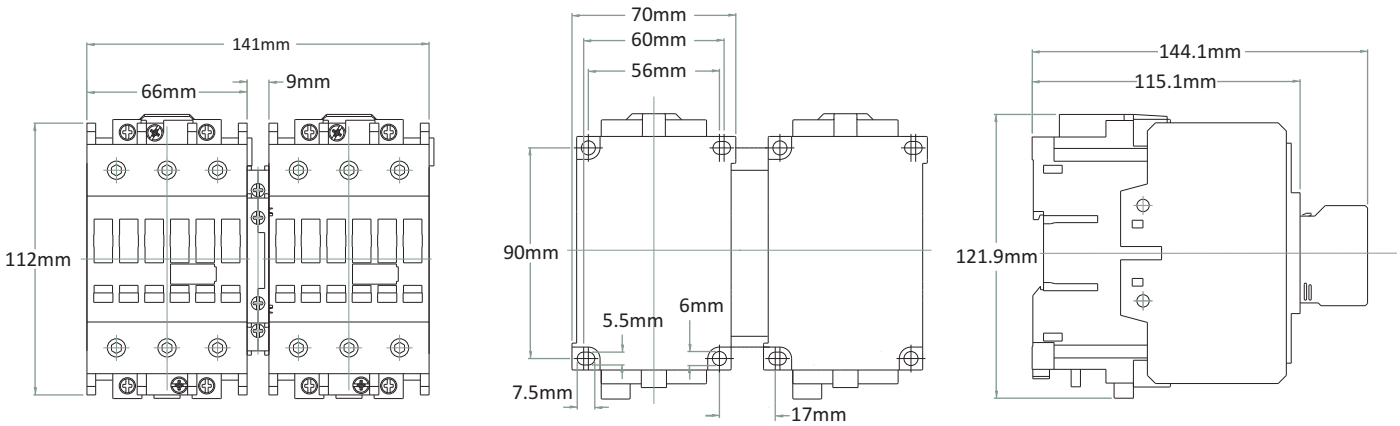


3 Pole Contactors with Electrical / Mechanical Interlock - AC Coils (Cont.)

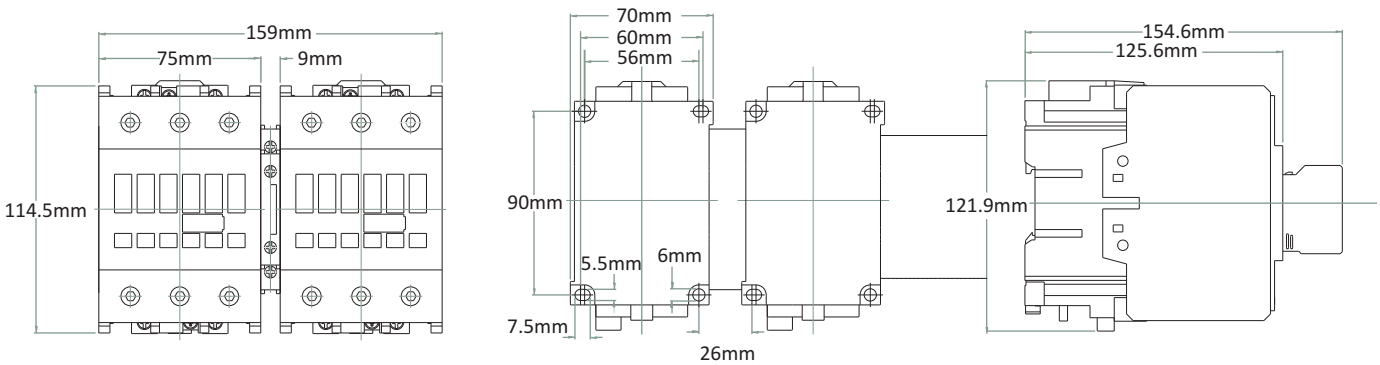
SC032 & SC040



SC050, SC065 & SC080

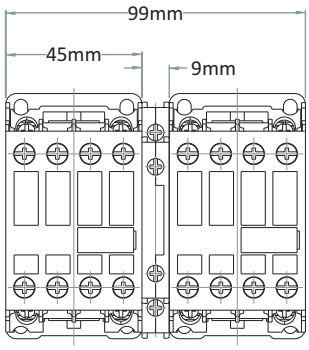


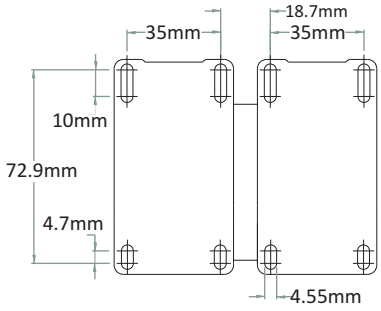
SC095 & SC105

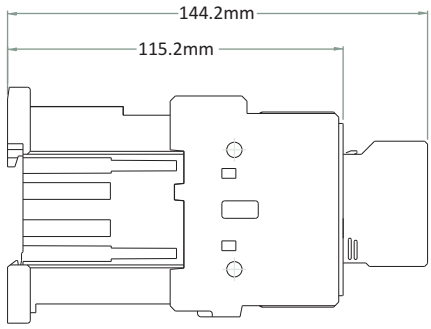


3 Pole Contactors with Electrical / Mechanical Interlock - DC Coils

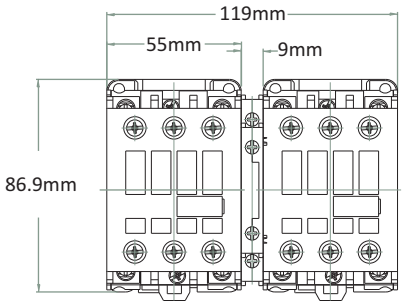
SC009, SC012, SC018 & SC025

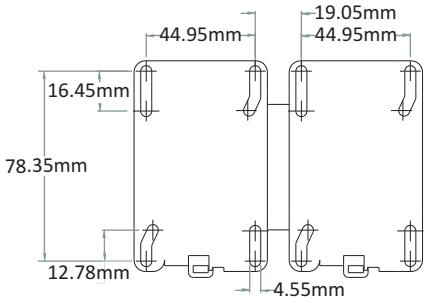


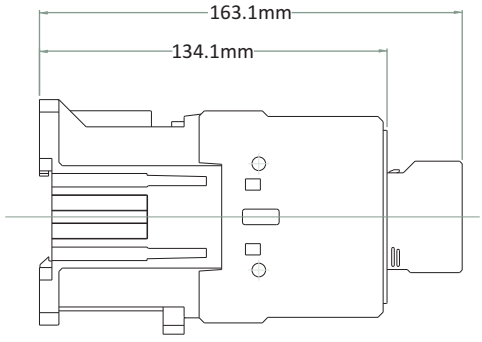




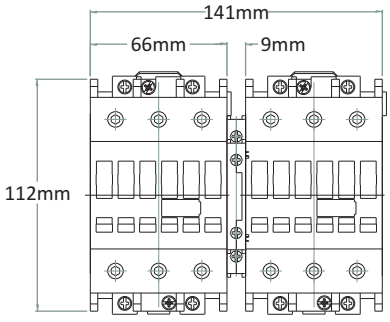
SC032 & SC040

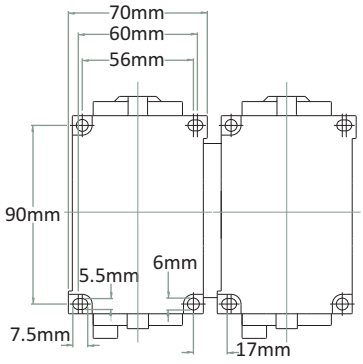


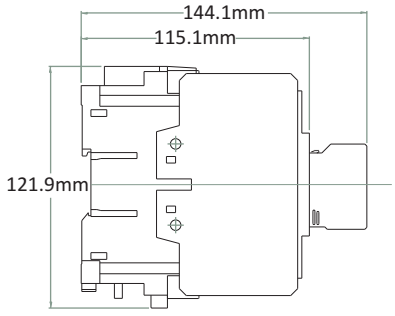




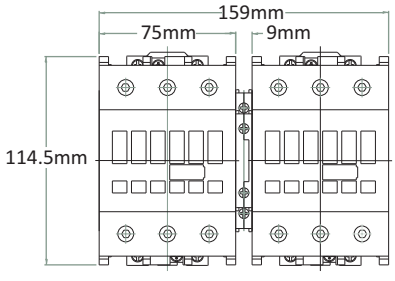
SC050, SC065 & SC080

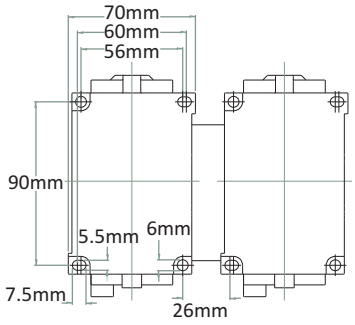


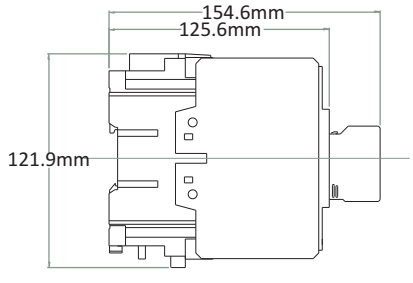




SC095 & SC105







MINI CONTACTORS & CONTROL RELAYS

www.salzergroup.com

Mini Contactors and Control Relays (MC & CR)

Salzer Mini Contactors (MC) and Control Relays (CR) are compact family of control devices for switching motors and other logic control circuits. MR Series Mini Reversing Contactors are ideal for reversing motors in applications where panel space is a premium and device modularity is required to satisfy virtually any application requirement. Common accessories enable the devices to be customized for each application. For motor overload protection, Overload Relays can be directly mounted to Mini Contactors.

Product features include

- High fault short circuit rating of 100kA @ 600V with Class J Fuses .
- Removable / replaceable ID Marker for MC Series Contactors and CR Series Control Relay, Device identification marker for labeling contactors and front mounted auxiliary contacts simplifies trouble shooting in panels with many contactors.
- Markings and labels, high visibility label for ease of troubleshooting and maintenance
- Compact size – one frame size for devices rated up to 16A.
- AC and DC operating coils for control circuit application flexibility – device is the same physical size with an AC or DC coil.
- Modular design and common snap-on accessories are easily installed without the use of tools, lowering assembly and installation costs.
- Front Mounted auxiliary contacts and surge suppressors install directly on top of the single front mounted mechanical interlock when used with our Mini reversing Contactor.
- Miniature Contactors compatible with directly mounted BR1 series overload Relays with current ratings from 0.28 to 17A.
- Over load relays are Class 10 with selectable manual or automatic reset, and provide phase loss sensitivity.
- IP20 guarded terminals with dual terminal markings prevent accidental contact with live parts.
- Device identification marker for labelling the contactor or control relay simplifies trouble shooting in panels with many devices.
- Universal ratings and markings: A, kW and HP rating as well as applicable 3rd party certification markings.
- 35mm DIN rail mounting for fast and easy installation and removal without the use of tools, panel mounting for more secure installation in high shock and vibration applications. Mini Non-Reversing contactors and Control Relays feature printed circuit board mounting with an accessory link module.
- Control relay includes bifurcated contacts rated 16A, AC-1,A600, and Q600 for high switching applications upto 600V.
- Four pole control relay with NO and NC contact configuration.

Unique Product Feature

The Printed Circuit Board Link Module installs directly on the Terminals of mini contactors and control relays enabling them to be directly mounted on an electronic printed circuit board. The module is rated 16A AC-3 and 22A AC-1 to take full advantage of the maximum switching capability of the Mini Contactor and Control relay.The insulated, wiring modules provide error free interconnections for reversing the power poles, and provide the electrical interlock through the integrated normally closed auxiliary contacts.

Mini Control Relays

Mini Control Relays		
Code	Description	Contact Ratings
CR016P00	Four Pole Control Relay	16A AC-1, A600,Q600

Contact Configuration	
Code	Description
22	2 NO and 2 NC
31	3 NO and 1 NC
40	4 NO
13	1 NO and 3 NC
04	4 NC

Coil Voltage									
AC Coil Voltage									
Voltage	24	48	110	120	230	240	400	480	600
50Hz			✓						
60Hz				✓		✓		✓	✓
50/60Hz	✓	✓			✓		✓		
DC Coil Voltage									
Voltage	12		24		110		125		250
	✓		✓		✓		✓		✓

Mini Contactor Technical Specifications

		MC007	MC009	MC012	MC016
ELECTRICAL GENERAL	Units				
Rated Operating Frequency		25 ~ 400			
Rated Coil Frequency		AC: 50Hz, 60Hz, 50/60Hz & DC			
IEC RATINGS					
Rated Insulation Voltage, Ui	V	690			
Rated Impluse Voltage withstand, Uimp	kV	4			
Rated Operating Voltage, Ue	V	690			
Rated Thermal Current, Ith for Ambient Temperature < 55°C	A	18	20	22	22
MAKING CAPACITY	A	70	90	120	160
BREAKING CAPACITY					
Ue ≤ 400V	A	50	72	96	128
Ue = 500V	A	50	72	96	128
Ue = 690V	A	35	54	72	96
AC-1 OPERATING CURRENT, Ie					
At 55°C	A	18.0	20.0	22.0	22.0
At 70°C	A	14.4	16.0	17.6	17.6
AC - 3 OPERATING CURRENT, Ie					
220 ~ 240V	A	7.0	9.0	12.0	16.0
380 ~ 400V	A	7.0	9.0	12.0	16.0
415 ~ 440V	A	7.0	9.0	12.0	16.0
500V	A	6.5	7.5	8.8	13.0
660 ~ 690V	A	4.9	6.0	6.6	9.7
AC - 3 OPERATING POWER, Pe					
220 ~ 240V	kW	2.2	2.2	3.0	4.5
380 ~ 400V	kW	3.0	4.0	5.5	7.5
415 ~ 440V	kW	3.7	4.5	5.5	7.5
500V	kW	4.0	4.5	5.5	7.5
660 ~ 690V	kW	4.0	4.5	5.5	7.5
AC - 4 OPERATING CURRENT, Ie					
220 ~ 240V	A	5.8	7.5	10.0	13.3
380 ~ 400V	A	5.8	7.5	10.0	13.3
415 ~ 440V	A	5.8	7.5	10.0	13.3
500V	A	5.4	6.3	7.3	10.8
660 ~ 690V	A	4.1	5.0	5.5	8.1
AC - 4 OPERATING POWER, Pe					
220 ~ 240V	kW	1.1	1.5	2.2	3.0
380 ~ 400V	kW	2.2	3.0	4.0	5.5
415 ~ 440V	kW	2.2	3.0	4.0	5.5
500V	kW	3.0	3.0	4.0	5.5
660 ~ 690V	kW	3.0	4.0	4.0	5.5
AC - 4 OPERATING CURRENT, Ie @ 200,000 OPERATIONS					
220 ~ 240V	A	2.1	2.7	3.6	4.8
380 ~ 400V	A	2.1	2.7	3.6	4.8
415 ~ 440V	A	2.1	2.7	3.6	4.8
500V	A	2.0	2.3	2.7	3.9
660 ~ 690V	A	1.5	1.8	2.0	2.9
AC - 4 OPERATING POWER, Pe @ 200,000 OPERATIONS					
220 ~ 240V	kW	0.37	0.55	0.75	1.1
380 ~ 400V	kW	0.75	1.1	1.5	1.5
415 ~ 440V	kW	0.75	1.1	1.5	1.5
500V	kW	0.75	1.1	1.1	2.2
660 ~ 690V	kW	0.75	1.1	1.1	2.2
MAXIMUM ELECTRICAL SWITCHING RATE					
AC - 1	Ops./Hr.	300			
AC - 3	Ops./Hr.	600			
AC - 4	Ops./Hr.	300			
Electrical Endurance, AC -3 at Maximum Rated 3 Phase Operating Power (@ 400V)	Ops. (mill.)	1.4	1.3	1.2	1.1
SHORT CIRCUIT COORDINATION	kA	5			
Type "1" gL/gG	A	35	35	35	35
Type "2" gL/gG	A	20	20	25	25

Mini Contactor Technical Specifications (Contd.)

		MC007	MC009	MC012	MC016
	Units				
UL RATINGS					
General Purpose Current Rating	A	18	20	22	22
Rated 1 Phase Operating Current, Ie					
115V	A	7.2	7.2	9.8	16.0
230V	A	6.9	8.0	12.0	12.0
Rated 1 Phase Operating Power, Pe					
115V	Hp	1/3	1/3	1/2	1
230V	Hp	3/4	1	2	2
Rated 3 Phase Operating Current, Ie					
200V	A	6.9	7.8	11.0	11.0
230V	A	6.0	6.8	9.6	9.6
460V	A	7.6	7.6	11.0	14.0
575V	A	6.1	9.0	9.0	11.0
Rated 3 Phase Operating Power, Pe					
200V	Hp	1 1/2	2	3	3
230V	Hp	1 1/2	3	3	5
460V	Hp	5	5	7 1/2	10.0
575V	Hp	5	7 1/2	7 1/2	10
SCCR					
Standard Fault (5KA) Fuse Size	A	30	30	30	40
High Fault (100KA) Fuse Size	A	15	15	15	20
ELECTRICAL ENDURANCE					
@ Maximum Rated 3 Phase Operating Power (400V)	Ops.(mill.)	1.4	1.3	1.2	1.1
COIL CHARACTERISTICS					
Rated Insulation Voltage, Ui	V	690			
OPERATING LIMITS					
50Hz, 60Hz, 50/60Hz					
Operating	xUc	0.8 ~ 1.1			
Pick-Up	xUc	0.40 ~ 0.76			
Sealed	xUc	0.25 ~ 0.65			
DC					
Operating	xUc	0.8 ~ 1.1			
Pick-Up	xUc	0.40 ~ 0.7			
Sealed	xUc	0.15 ~ 0.4			
COIL CONSUMPTION					
50Hz, 60Hz, 50/60Hz					
Pick-Up	VA	16			
Hold-In	VA	2 ~ 4			
DC					
Pick-Up	W	1.74 ~ 2.5			
Hold-In	W	1.74 ~ 2.5			
Operating Times					
AC					
Pick-Up	msec.	8 ~ 20			
Drop-Out	msec.	6 ~ 13			
DC					
Pick-Up	msec.	35 ~ 45			
Drop-Out	msec.	7 ~ 12			
POWER DISSIPATION					
50Hz, 60Hz, 50/60Hz	W	3			
POWER FACTOR					
Closed	cosΦ	0.27			
Open	cosΦ	0.8			
MECHANICAL					
Mechanical Endurance	Ops.(mill.)	10			
Maximum Mechanical Switching Rate	Ops./Hr.	2000			

Mini Contactor Technical Specifications (Contd.)

		MC007	MC009	MC012	MC016
ENVIRONMENTAL	Units				
Ambient Operating Temperature		-25 to +55°C (-13 to +131°F) - UL Std., -5 to + 40°C (-23 to +104°F) - IEC Std.			
Ambient Storage Temperature		-55 to +80°C (-67 to +176°F)			
CONSTRUCTION					
INGRESS PROTECTION					
Main Circuits		IP20			
Control Circuit Terminations		IP20			
Weight	Kg.	0.18			
	lbs.	0.4			
TERMINAL CAPACITY					
AWG Wire	AWG	2 X 20 ~ 14			
Solid	mm^2	1 X 0.5 ~ 2.5			
Stranded	mm^2	1 X 0.5 ~ 2.5			
Tightening Torque	Nm	1 ~ 1.2			
	lb-in	8.8 ~ 10.6			

Auxiliary Contact Specifications

		Built-in Auxiliary	MCFA, CRFA
IEC RATINGS			
Rated insulation Voltage, Ui	V	690	690
Rated Operating Voltage, Ue		690	690
Rated Thermal Current, Ith for Ambient Temperature < 55°C	A	10	10
Making Capacity, Ue ≤ 400V, AC-15		10 X Ie (AC-15)	30.0
Breaking Capacity, Ue ≤ 400V, AC-15	A	10 X Ie (AC-15)	3.0
AC-15			
≤ 240V	A	10.0	10.0
380 ~ 400V		6.0	5.0
415 ~ 440V	A	5.0	5.0
500V		4.0	4.0
660 ~ 690V	A	2.0	-
DC-13			
24V	A	6.0	1.5
48V		4.0	-
60V	A	1.5	0.5
110V		0.7	0.4
220 ~ 240V	A	0.35	0.2
SHORT CIRCUIT COORDINATION			
gL/gG	A	10	10
UL RATINGS			
Rated Voltage, Ue	V	600	600
PILOT DUTY RATING			
	AC DC	A600 Q600	A600 Q600
ELECTRICAL ENDURANCE	Ops.(mill.)	1.0	1.0
MECHANICAL			
Mechanical Endurance	Ops.(mill.)	10	10
ENVIRONMENTAL			
Ambient Operating Temperature	-25 to +55°C (-13 to +131°F) - UL Std., -5 to + 40°C (-23 to +104°F) - IEC Std.		
Ambient Storage Temperature		-55 to +80°C (-67 to +176°F)	
CONSTRUCTION			
Terminal Capacity			
AWG Wire		2 X 20 ~ 14	2 X 20 ~ 14
Solid	mm^2	2 X 0.5 ~ 2.5	2 X 0.5 ~ 2.5
Stranded		2 X 0.5 ~ 2.5	2 X 0.5 ~ 2.5
Tightening Torque	Nm	1 ~ 1.2	1 ~ 1.2
	lb-in	8.8 ~ 10.6	8.8 ~ 10.6

Control Relays

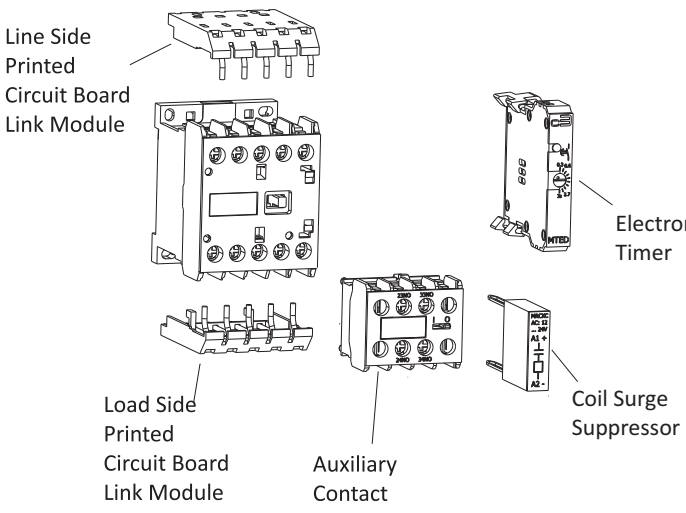
Technical Specifications

		Control Relay (CR016)
IEC RATINGS		
Rated insulation Voltage, Ui	V	690
Rated Operating Voltage, Ue	V	690
AC-1 Ratings @ 230V	A	16
Rated Thermal Current, Ith for Ambient Temperature < 55°C	A	10
Making Capacity, Ue ≤ 400V, AC-15	A	10 X Ie (AC-15)
Breaking Capacity, Ue ≤ 400V, AC-15	A	10 X Ie (AC-15)
AC-15		
≤ 240V	A	10.0
380 ~ 400V	A	6.0
415 ~ 440V	A	5.0
500V	A	4.0
660 ~ 690V	A	2.0
DC-13		
24V	A	6.0
48V	A	4.0
60V	A	1.5
110V	A	0.7
220 ~ 240V	A	0.35
SHORT CIRCUIT COORDINATION		
gL/gG	A	10
UL RATINGS		
Rated Voltage, Ue	V	600
PILOT DUTY RATING		
	AC DC	A600 Q600
ELECTRICAL ENDURANCE	Ops.(mill.)	1.0
MECHANICAL		
Mechanical Endurance	Ops.(mill.)	10
ENVIRONMENTAL		
Ambient Operating Temperature	-25 to +55°C (-13 to +131°F) - UL Std., -5 to + 40°C (-23 to +104°F) - IEC Std.	
Ambient Storage Temperature	-55 to +80°C (-67 to +176°F)	
CONSTRUCTION		
Terminal Capacity		
AWG Wire	AWG	2 X 20 ~ 14
Solid	mm^2	2 X 0.5 ~ 2.5
Stranded	mm^2	2 X 0.5 ~ 2.5
Tightening Torque	Nm	1 ~ 1.2
	lb-in	8.8 ~ 10.6

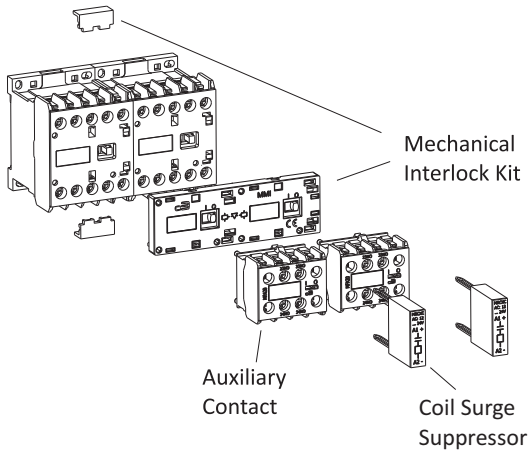
Accessories for Mini Contactors and Control Relays

The complete range of Mini Contactors and Control Relays share common accessories including auxiliary contacts, mechanical interlock, electronic timers, reversing wiring modules, surge supressors and a printed circuit board link module. Designing starter assemblies and panels is easy – you don't have to remember which auxiliary is required for each contactor or control relay, they all work together. Installation is easy too – once you learn how to install each accessory, it's always the same no matter what contactor or control relay it's being installed on. If simple design and assembly isn't enough – you'll also reduce your inventory and maximize its flexibility, because unique accessories are not required for each size contactor or control relay.

Mini Contactors & Control Relays



Reversing Mini Contactors



Auxiliary Contacts

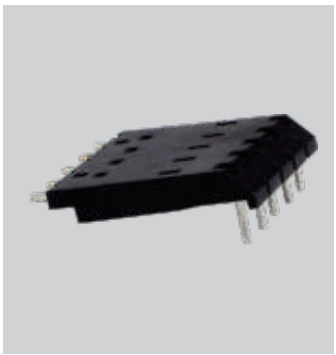
Front mounted auxiliary contact modules feature IP20 guarded terminals to protect against accidental contact with live parts. The modules are available in 2 and 4 circuit configurations. The device identification marker simplifies trouble shooting in panels with many devices. These modules snap on and install without the use of tools.

Contact Configuration			
Code	NO	NC	For Use With Contactors
MCFA20	2	0	MC007 MC009 MC012 MC016
MCFA11	1	1	
MCFA02	0	2	
MCFA40	4	0	
MCFA22	2	2	
MCFA04	0	4	
MCFA31	3	1	
MCFA13	1	3	

Contact Configuration			
Code	NO	NC	For Use With Control Relays
CRFA20	2	0	CR016
CRFA11	1	1	
CRFA02	0	2	
CRFA40	4	0	
CRFA22	2	2	
CRFA04	0	4	
CRFA31	3	1	
CRFA13	1	3	

Maximum Number of Front Mounted Auxiliary Contacts	
Coil Specification	Maximum Number
AC Coils : 110V/50Hz, 120V/60Hz, 480V/60Hz, 600V/60Hz	Up to four additional poles
DC Coils : 12V, 24V, 110V, 125V, 250V	Up to two additional poles

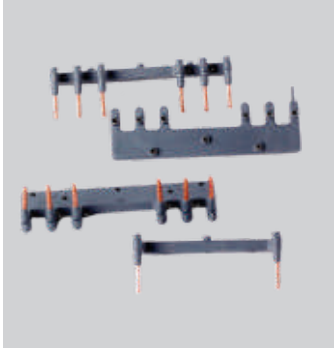
Printed Circuit Board Link Module



The printed circuit board module enables Mini Contactors and Control Relays to be mounted directly on electronic printed circuit boards. The module is rated 16A AC-3 and 22A AC-1.

Printed Circuit Board Link Module	
Code	Description
MCPCLM	Printed Circuit Board Link Module

Wiring Modules



Reversing contactor power wiring modules make field assembly of reversing contactors easy.

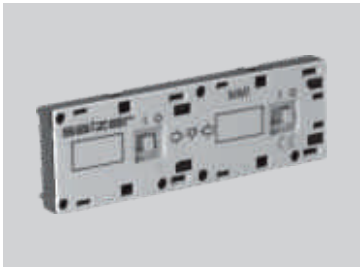
Wiring Module	
Code	For use with Contactors
MCRWM16	MC007, MC009, MC012, MC016
LIS	Line Side
LDS	Load Side

Electronic Timers

Right side mounted electronic timers are available in On-Delay and off-Delay configurations with timing ranges up to 30 seconds.The modules install without the use of tools, and can be used in conjunction with all other accessories.

Electronic Timers			
Code	Function	Timing Range(Secs.)	Voltage
MCETN03V240	On-Delay	0.3 ~ 3	24 ~ 240V AC/DC
MCETN10V240		1 ~ 10	
MCETN30V240		3 ~ 30	
MCETF03V060	Off-Delay	0.3 ~ 3	24 ~ 60V AC/DC
MCETF10V060		1 ~ 10	
MCETF30V060		3 ~ 30	
MCETF03V240	Off-Delay	0.3 ~ 3	100 ~240V AC/DC
MCETF10V240		1 ~ 10	
MCETF30V240		3 ~ 30	

Mechanical interlock



Our front mounted Mechanical interlock is for reversing Contactors. The interlock prevents the forward and reverse contactors from being actuated at the same time. Auxiliary contact modules, surge suppressors and timers can be used in conjunction with the mechanical interlock.

Mechanical Interlock	
Code	Description
MCMI	Front Mounted Mechanical Interlock

Surge Suppressors

Front mounted surge suppressors protect sensitive electronic components from damaging line voltage spikes. The modules install without the use of tools, and can be used in conjunction with all other accessories.

Code	Voltage Range	Type
MCRCA024B	12 ~ 24V 50/60Hz	RC
MCRCA048B	24 ~ 48V 50/60Hz	
MCRCA127B	50 ~ 127V 50/60Hz	
MCRCA250B	130 ~ 250V 50/60Hz	
MCRCA380B	275 ~ 380V 50/60Hz	
MCRCA510B	400 ~ 510V 50/60Hz	
MCVSAD048	12 ~ 48VAC/12 ~ 60VDC	Varistor
MCVSAD127	50 ~ 127VAC/60 ~ 180VDC	
MCVSAD250	130 ~ 250VAC/180 ~ 300VDC	
MCVSAD380	277 ~ 380VAC/380 ~ 510VDC	
MCVSAD510	400 ~ 510VAC	
MCDSD600	12 ~ 600VDC	Diode

Ordering Code

Mini Contactors

Ordering Informations

I	II	III	IV	V	VI	VII	VIII	IX (optional)
Contactor Type	Current Rating	Poles	Main Pole Configuration	Built in Auxiliary pole Contacts	Coil Type	Coil Voltage	Frequency	Additional Feature

MC 007 P 30 10 A 230 B WW

I - Type

MC - Mini Non - Reversing Contactor
MR - Mini Reversing Contactor

II -Current Rating

007 - 7A
009 - 9A
012 - 12A
016 - 16A

III - Poles

P = Main Poles

IV - Main Pole Configuration

20 - 2 Normally Open
02 - 2 Normally Closed
22 - 2 Normally Open & 2 Normally Closed
13 - 1 Normally Open & 3 Normally Closed
31 - 3 Normally Open & 1 Normally Closed
30 - 3 Normally Open
03 - 3 Normally Closed
40 - 4 Normally Open
04 - 4 Normally Closed

V - Built in Auxiliary pole Contacts

00 - No auxiliary
01 - 1 normally closed
10 - 1 normally open
11 - 1 normally open & 1 normally closed
20 - 2 normally open
02 - 2 normally closed

IX - Additional Feature (optional)

With Wiring Module for MR(Reversing Contactor)

VIII - Frequency

F - 50Hz, S - 60Hz, B - 50/60Hz
Blank - DC

VII - Coil Voltage

AC		DC	
Code	Voltage	Code	Voltage
024	24	012	12
048	48	024	24
110	110	110	110
120	120	125	125
230	230	250	250
240	240		
400	400		
480	480		
600	600		

* Refer page no. 25 for coil voltage

VI - Coil type

A -AC voltage coil
D- DC voltage coil
M - Multiple voltage AC coils

Control Relay

Ordering Informations

I	II	III	IV	V	VI	VII	VIII
Type	Model	P	Main Pole Configuration	Auxiliary Pole Configuration	Coil Type	Coil Voltage	Frequency

CR 016 P 00 40 A 230 B

I - Type

CR - Mini control relay

II - Model

016 - Model

III - Poles

P poles

IV - Main Poles

00 - No main poles

V - Auxiliary Pole Configuration

22 - 2 Normally Open & 2 Normally Closed
13 - 1 Normally Open & Normally Closed
31 - 3 Normally Open & Normally Closed
40 - 4 Normally Open
04 - 4 Normally Closed

VIII - Frequency

F - 50Hz, S - 60Hz
B - 50/60Hz, Blank - DC

VII - Coil Voltage

AC		DC	
Code	Voltage	Code	Voltage
024	24	012	12
048	48	024	24
110	110	110	110
120	120	125	125
230	230	250	250
240	240		
400	400		
480	480		
600	600		

* Refer page no. 25 for coil voltage

VI - Coil Type

A - AC Voltage Coil
D - DC Voltage Coil
M - Multiple Voltage AC Coil

Ordering Code - Accessories

Auxiliary Contact

Ordering Informations		
I	II	III
Type	Front Mounted Auxiliary	Contact configuration

MC FA 40

I - Type

MC -Mini Contactor
CR - Mini control relay

II - Accessories

FA - Front Mounted Accessories

III - Configuration

20 - 2 normally open contacts
11 - 1 normally open & 1 normally closed contact
02 - 2 normally closed contacts
40 - 4 normally open contacts
22 - 2 normally open & 2 normally closed contacts
04 - 4 normally closed contacts
31 - 3 normally open & 1 closed contacts
13 - 1 normally open & 3 normally closed contacts

Electronic Timer

Ordering Informations				
I	II	III	IV	V
Type	Time Type	Time	Voltage Type	Voltage Range

MC TDD 10 AD 060

I - Type

MC -Mini Contactor

II - Type

TED - On - Delay
TDD - Off - Delay

III - Time (Sec)

03 - 0.3 ~ 3 sec
10 - 1 ~ 10 sec
30 - 3 ~ 30 sec

V - Voltage Range

240 (if TED) 24 ~ 240V AC/DC
060 (if TDD) 24 ~ 60V AC/DC
240 (if TDD) 100 ~ 240V AC/DC

IV - Voltage type

A - AC Voltage, D - DC Voltage
AD - both AC & DC Voltage

Mechanical Interlock

Ordering Informations	
I	II
Type	Interlock

MC MI

I - Contactor

MC - Mini Contactor

II - Interlock

MI - Mechanical Interlock

Ordering Code - Accessories

Wiring Module

Ordering Informations	
I	II
MC	RWM16

MC **RWM16**

I - Type

MC - Mini Contactor

II -Modules

Reversing Wiring Module
LIS - Line Side + LDS - Load Side

Printed Circuit Board Link Module

Ordering Informations	
I	II
MC	PCLM

MC **PCLM**

I - Type

MC - Mini Contactor

II - Module Type

PCLM - Printed circuit board Link module

Mini Contactor surge Suppressor

Ordering Informations				
I	II	III	IV	V
Type	Model	Voltage Type	Voltage Range	Frequency Range

MC **RC** **A** **127** **B**

I - Type

MC - Mini Contactor Surge Suppressor

II - Model Type

RC - Resistor Capacitor type
VS - Varistor type
DS - Diode type

III - Voltage Type

A - AC Voltage
D - DC Voltage
M - Both AC & DC Voltage

V - Frequency Range

F - 50Hz
S - 60Hz
B - 50/60Hz

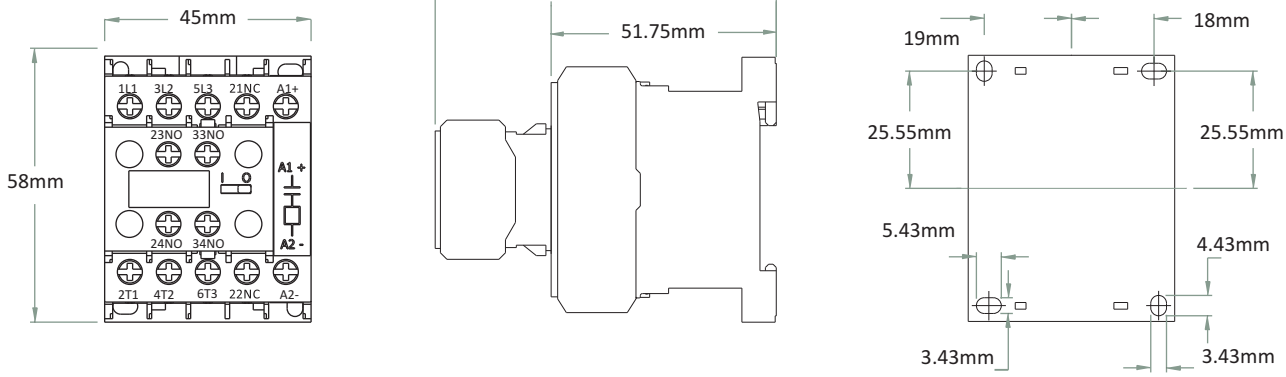
IV - Voltage Range

RC TYPE
024 - 12 ~ 24V 50/60Hz
048 - 24 ~ 48V 50/60Hz
127 - 48 ~ 127V 50/60Hz
250 - 127 ~ 250V 50/60Hz
380 - 250 ~ 380V 50/60Hz
510 - 380 ~ 510V 50/60Hz

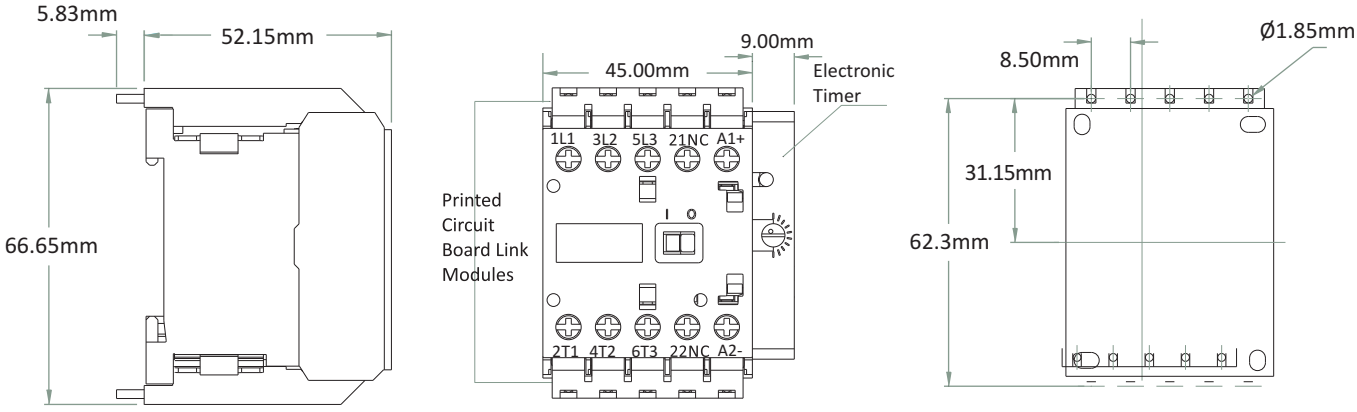
VS TYPE
048 - 12 ~ 48VAC / 12 - 60VDCV
127 - 50 ~ 127VAC / 60 - 180VDC
275 - 130 ~ 275VAC / 180 - 300VDC
380 - 277 ~ 380VAC / 300 - 510VDC
510 - 400 ~ 510VAC

DS TYPE
600 - 12 ~ 600VDC

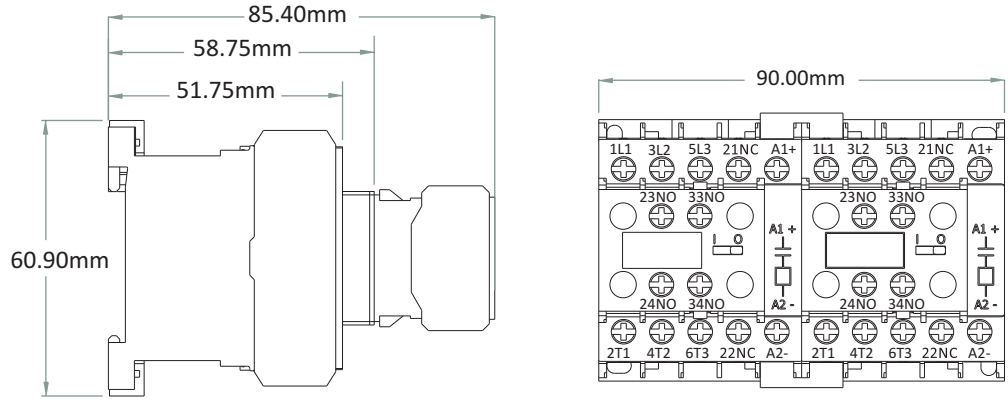
Mini Non -reversing Contactor & Control Relay with Auxiliary Contacts & Surge Suppressor



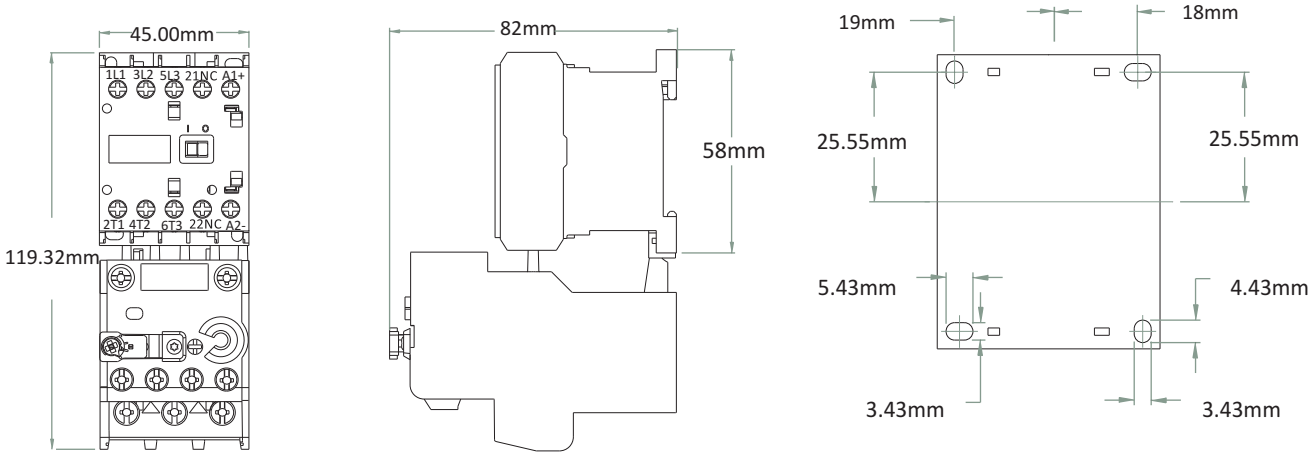
Mini Non -reversing Contactor & Control Relay With Printed Circuit Board Link Module & Electronic Timer



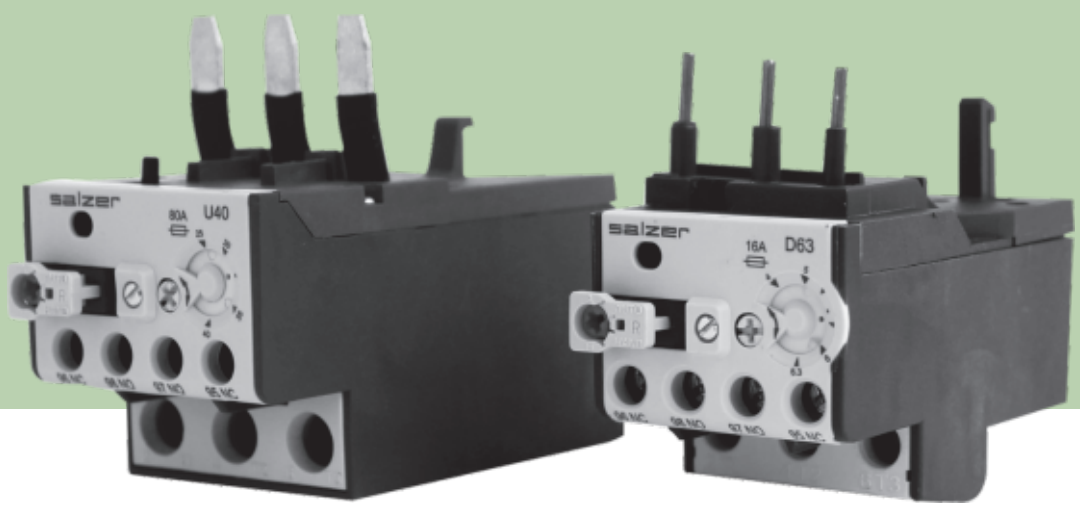
Mini Reversing Contactor & Control Relay with Auxiliary Contacts & Surge Suppressor



Mini Non - Reversing Contactor with Over Load Relay Assembly



BIMETALLIC OVERLOAD RELAYS



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Bimetallic Overload Relays (BR)

Our Series BR Bimetallic Overload Relays are available in five frame sizes for motor full load currents from 0.28 ~ 112A.

Overload Relay Type	
Code	Description
BR	Bimetallic Overload Relay

Overload Relay Frame Size and Current Adjustment Range		
Code	**Installs On Contactor**	**Current Adjustment Range**
BR1L40	MC007, MC009, MC012, MC016	0.28 ~ 0.4
BR1L63	MC007, MC009, MC012, MC016	0.4 ~ 0.63
BR1L80	MC007, MC009, MC012, MC016	0.56 ~ 0.8
BR1M12	MC007, MC009, MC012, MC016	0.8 ~ 1.2
BR1M18	MC007, MC009, MC012, MC016	1.2 ~ 1.8
BR1M28	MC007, MC009, MC012, MC016	1.8 ~ 2.8
BR1M40	MC007, MC009, MC012, MC016	2.8 ~ 4.0
BR1M63	MC007, MC009, MC012, MC016	4.0 ~ 6.3
BR1M80	MC007, MC009, MC012, MC016	5.6 ~ 8.0
BR1H10	MC007, MC009, MC012, MC016	7.0 ~ 10.0
BR1H12	MC007, MC009, MC012, MC016	8.0 ~ 12.5
BR1H15	MC007, MC009, MC012, MC016	10 ~ 15
BR1H17	MC007, MC009, MC012, MC016	11 ~ 17
BR2L40	SC009, SC012, SC018, SC025, SC032, SC040	0.28 ~ 0.4
BR2L63	SC009, SC012, SC018, SC025, SC032, SC040	0.4 ~ 0.63
BR2L80	SC009, SC012, SC018, SC025, SC032, SC040	0.56 ~ 0.8
BR2M12	SC009, SC012, SC018, SC025, SC032, SC040	0.8 ~ 1.2
BR2M18	SC009, SC012, SC018, SC025, SC032, SC040	1.2 ~ 1.8
BR2M28	SC009, SC012, SC018, SC025, SC032, SC040	1.8 ~ 2.8
BR2M40	SC009, SC012, SC018, SC025, SC032, SC040	2.8 ~ 4.0
BR2M63	SC009, SC012, SC018, SC025, SC032, SC040	4.0 ~ 6.3
BR2M80	SC009, SC012, SC018, SC025, SC032, SC040	5.6 ~ 8.0
BR2H10	SC009, SC012, SC018, SC025, SC032, SC040	7.0 ~ 10.0
BR2H12	SC009, SC012, SC018, SC025, SC032, SC040	8 ~ 12.5
BR2H15	SC009, SC012, SC018, SC025, SC032, SC040	10 ~ 15
BR2H17	SC009, SC012, SC018, SC025, SC032, SC040	11 ~ 17
BR2H23	SC009, SC012, SC018, SC025, SC032, SC040	15 ~ 23
BR2H32	SC009, SC012, SC018, SC025, SC032, SC040	22 ~ 32
BR3H40	SC032, SC040	25 ~ 40
BR4H50	SC050, SC065, SC080	32 ~ 50
BR4H57	SC050, SC065, SC080	40 ~ 57
BR4H63	SC050, SC065, SC080	50 ~ 63
BR4H70	SC050, SC065, SC080	57 ~ 70
BR5H80	SC095, SC105	63 ~ 80
BR5H97	SC095, SC105	75 ~ 97
BR5X11	SC095, SC105	90 ~ 112

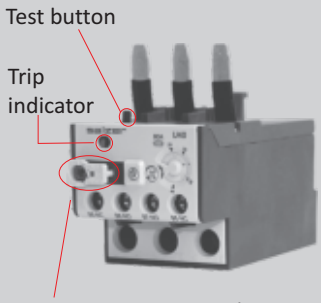
Bimetallic Overload Relays

Salzer BR Series Bimetallic Overload Relays provide thermal Trip Class 10 overload protection for single and three phase motors, and phase loss protection for three phase motors. Other features like IP20 guarded terminals with dual terminal markings, integral stop button, and direct mounting will help you to reduce your total installed costs and enhance the features and performance of your equipment.

Features

- 5 Frame sizes current rating up to 112 Amps suitable for Standard Contactors & Mini Contactors.
- BR1 series Overload Relays for use with MC Series Mini Contactors.
- BR series Overload Relays include integral connection to auxiliary and coil terminations for ease of wiring during installation when installed on MC Series Mini Contactors.
- BR series Overload Relays share the same great features and benefits of the larger frame sizes.
- Trip Class 10 for reliable and accurate protection against overload conditions.
- Single phase sensitivity to protect motors against damaging phase loss conditions.
- Direct mounting to all contactors, including BR1 Overload Relays for use with Series MC Mini Contactors.
- IP20 guarded terminals prevent accidental contact with live parts.
- Combination head terminal screws allow the use of straight, phillips or posidrive screwdrivers.
- Stop button for convenient and economical control circuit wiring.
- Ambient temperature compensation ensures reliable motor protection even in high temperature environments.

Unique Product Feature



A - Automatic Reset Only
AUTO - Automatic Reset and Test
H - Manual Reset Only
HAND - Manual Reset and Test

Salzer BR Series Bimetallic Overload Relays feature a multi-function reset button enabling the user to select the reset mode-manual or automatic and whether or not to enable the test function. When the reset button is pressed, with the reset function enabled, the Normally Open (NO) contact closes and the Normally Closed(NC) contact opens to verify the control circuit functionality. In addition, the NC contact can be used in a “Stop” circuit. With the test function disabled, the NO and NC contacts do not change state when the reset button is pressed-preventing unauthorized personnel from operating the control circuit. Multiple functions in a single device help you to reduce inventory and customize the overload relay operation to provide the performance and features you need for your specific application.

Bimetallic Overload Relays (BR)

Technical Specifications

		BR1	BR2	BR3	BR4	BR5
ELECTRICAL GENERAL	Units					
Current setting range	A	0.28 ~ 17	0.28 ~ 32	25 ~ 40	32 ~ 70	63 ~ 112
Operating Frequency	Hz			50 / 60 Hz		
Power Dissipation per pole	W	0.9 ~ 1.4	1.3 ~ 2.0	1.3 ~ 2.0	1.9 ~ 4.8	3 ~ 4.8
IEC Ratings						
Main Circuits						
Rated Insulation Voltage,Ui	V			690		
Rated Impulse Voltage withstand, Uimp	kV			6		
Rated Operating Voltage, Ue	VAC			690		
Maximum Rated Operating Current, Ie	A	17	32	40	70	112
Short Circuit Current, Ie	A			5kA		
Maximum fuse size in type “1” gL/gG*	A	63	100	125	200	300
Maximum fuse size in type “2” gL/gG*	A	35	63	100	160	250
Control Circuits						
Rated Insulation Voltage, Ui	V			690		
Rated Thermal Current	A			6		
Rated Operating Current, Ie						
AC-15						
24V	A			4		
48V	A			3.5		
60V	A			3.5		
110~120V	A			3.00		
220~240V	A			2.00		
400~415V	A			1.50		
500V	A			0.50		
660~690V	A			0.30		
DC-13						
24V	A			1.00		
48V	A			0.50		
60V	A			0.50		
110V	A			0.25		
220V	A			0.10		
250V	A			0.10		
Short Circuit Coordination						
gL/gG	A			6		
UL Ratings						
Main Circuits						
Rated Operating Voltage, Ue	VAC			600		
Short Circuit Coordination						
Standard Fault Current	kA		5		10	
Maximum Fuse Size*	A	60	90	90	175	250
High Fault Current	kA		100			
Maximum Fuse Size*	A	30	60	60	100	150
Control Circuits						
Pilot Duting Rating	AC			C600		
	DC			R300		

*Varies by current settings range of overload relay

Bimetallic Overload Relays (BR)

Technical Specifications (Contd.)

		BR1	BR2	BR3	BR4	BR5
ENVIRONMENTAL	Units					
Ambient Temperature		-25 to +55°C (-13 to +131°F) - UL Std., -5 to + 40°C (-23 to +104°F) - IEC Std.				
Ambient Storage Temperature		-40 to + 70°C (-40 to 158°F)				
Altitude		<2000 mtrs				
Ambient Storage Temperature		<50% of + 40°C, <90% of + 20°C				
Construction						
Number of Poles		3				
Trip Class		10				
Pollution Degree		3				
Ingress Protection						
Main Circuit Terminals		IP20 (With wires connected)				
Control Circuit Terminals		IP20				
Weight						
	Kg.	0.15	0.15	0.31	0.31	0.37
	lbs.	0.33	0.33	0.68	0.68	0.82
Conductor Size						
Main Circuit Terminals						
UL / CSA	AWG	14 ~ 6	14 ~ 6	18 ~ 2	18 ~ 2	8 ~ 1/0
Solid	mm^2	2.5 ~ 16	2.5 ~ 16	1 ~ 35	1 ~ 35	10 ~ 50
Stranded	mm^2	2.5 ~ 16	2.5 ~ 16	1 ~ 35	1 ~ 35	10 ~ 50
Terminal Torque	Nm	1.4 ~ 2.3	1.4 ~ 2.3	4 ~ 6	4 ~ 6	5 ~ 6.5
	lb.in.	12.4 ~ 20.4	12.4 ~ 20.4	35 ~ 53	35 ~ 53	44.3 ~ 57.5
Control Circuits						
UL/CSA	AWG	2 X 18 ~ 12				
Solid	mm^2	2 X 1 ~ 4				
Stranded	mm^2	2 X 1 ~ 4				
Terminal Torque	Nm	1.4 - 2.3				
	lb.in.	12.4 - 20.4				
ROHS Compliance		Yes				

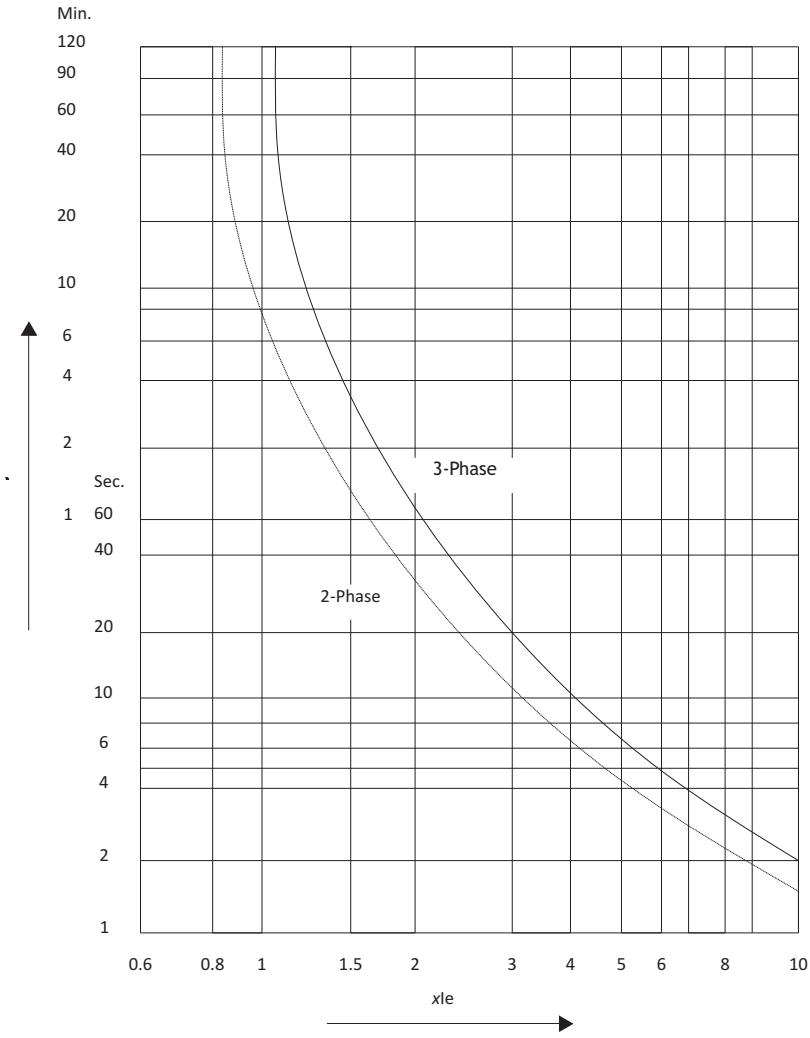
*Varies by current settings range of overload relay.

Mounting Adapters

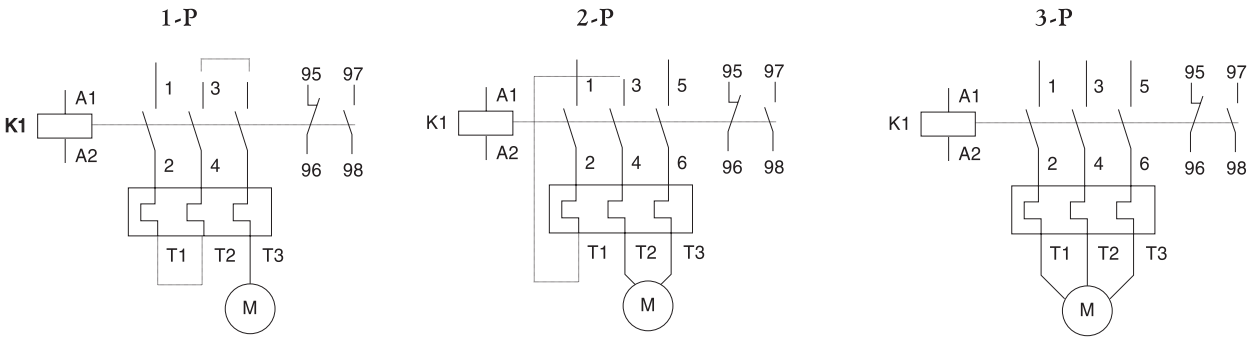
Mounting adapters enables Series BR Overload Relays to be installed separately from a contactor on a 35mm DIN rail or with fixing screws to a panel.

Separate Mounting Adapters	
Code	For use with
BRSMA2	BR2 Overload Relays
BRSMA4	BR3 & BR4 Overload Relays
BRSMA5	BR5 Overload Relays

Bimetallic Overload Relay Trip Characteristics



Circuit Diagrams



Ordering Code

Overload Relay

Ordering Informations		
I	II	III
Type	Frame Size	Configuration & Current Range

BR 2 L40

I - Type

BR

II - Frame Size

1 - 1st Frame
2 - 2nd Frame
3 - 3rd Frame
4 - 4th Frame
5 - 5th Frame

II - Current Range

L40 - 0.28 ~ 0.4
L63 - 0.4 ~ 0.63
L80 - 0.56 ~ 0.8
M12 - 0.8 ~ 1.2
M18 - 1.2 ~ 1.8
M28 - 1.8 ~ 2.8
M40 - 2.8 ~ 4.0
M63 - 4.0 ~ 6.3
M80 - 5.6 ~ 8.0
H10 - 7.0 ~ 10.0
H12 - 8.0 ~ 12.5
H15- 10 ~ 15
H17 - 11 ~ 17
H23 - 15 ~ 23
H32 - 22 ~ 32
H40 - 25 ~ 40
H50 - 32 ~ 50
H57 - 40 ~ 57
H63 - 50 ~ 63
H70 - 57 ~ 70
H80 - 63 ~ 80
H97 - 75 ~ 97
X11 - 90 ~ 112

* For Ordering Refer Page no 38

OLR Mounting Adapter

Ordering Informations	
I	II
BRSMA	Relay Frame

BRSMA 2

I - BRSMA

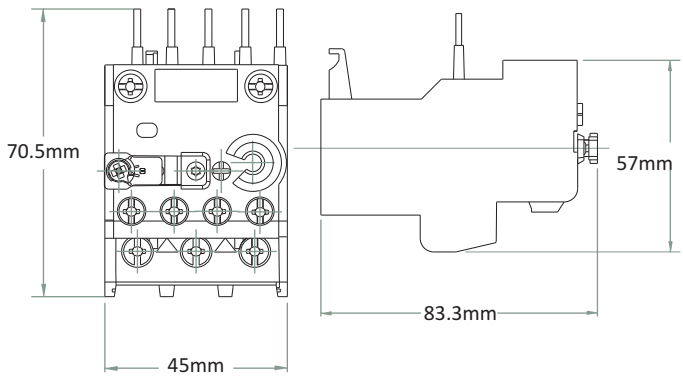
Bimetallic Overload Relay Separate Mounting Adaptor

II - Relay Frame

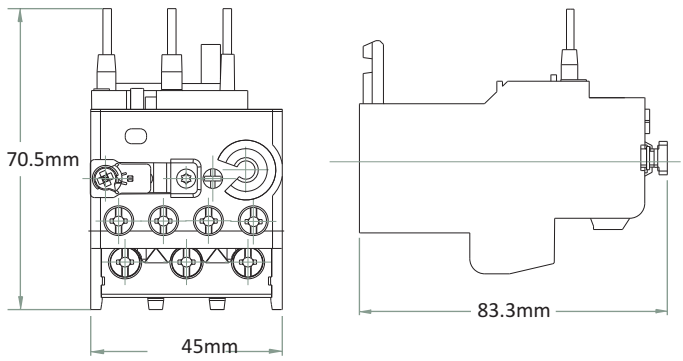
2 - BR2 Relay Frame
4 - BR3 & BR4 Relay Frame
5 - BR5 Relay Frame

BR Series Bimetallic Overload Relays

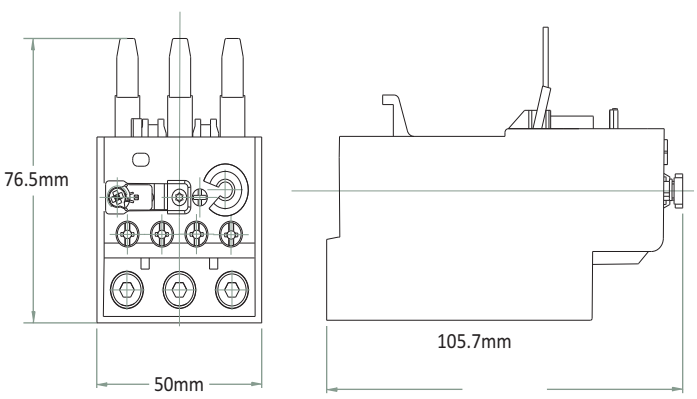
BR1



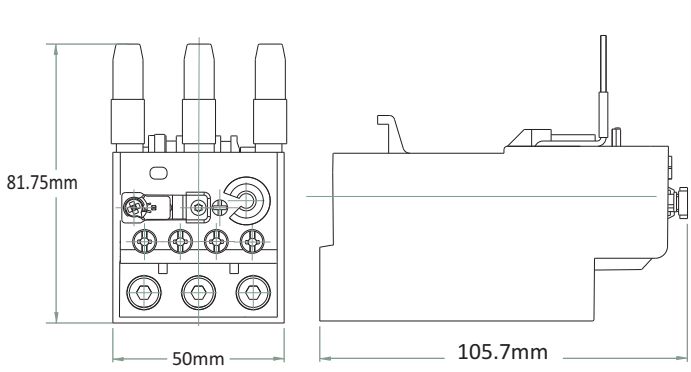
BR2



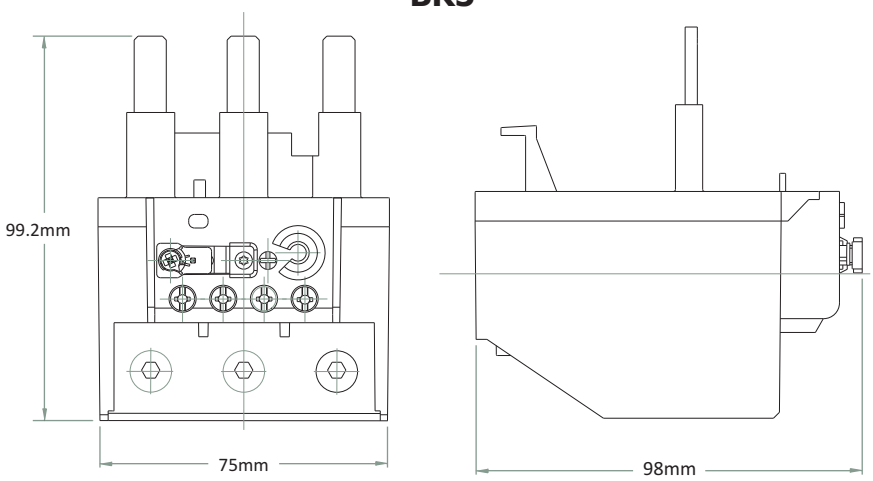
BR3



BR4

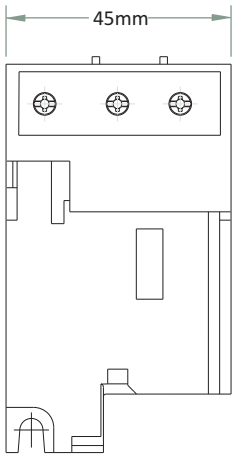


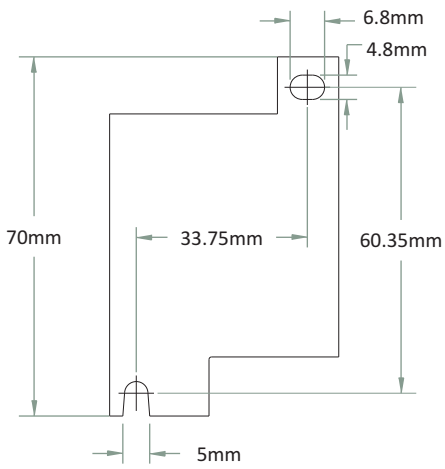
BR5

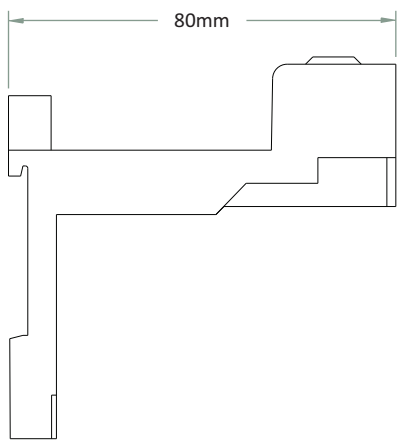


BR Series Mounting Adapters

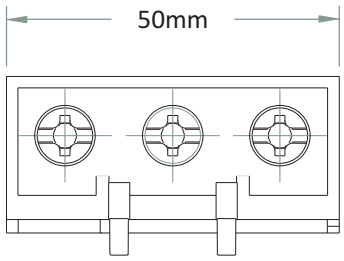
BRSMA2 Separate Mounting Adapter for use with BR2

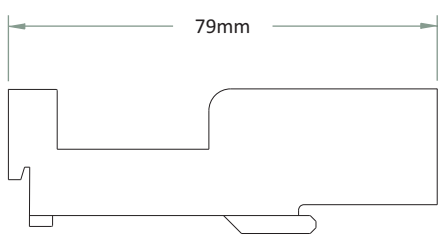


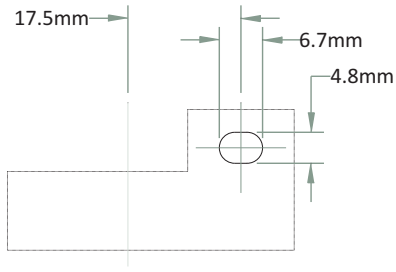




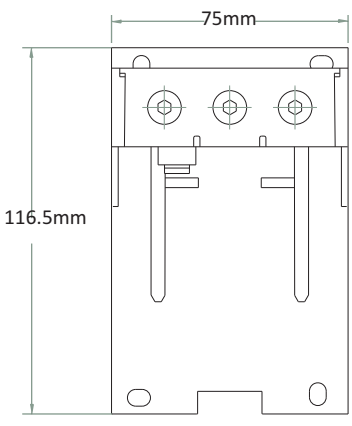
BRSMA4 Separate Mounting Adapter for use with BR3 & BR4

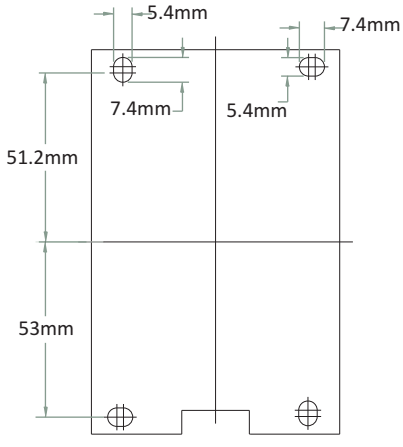


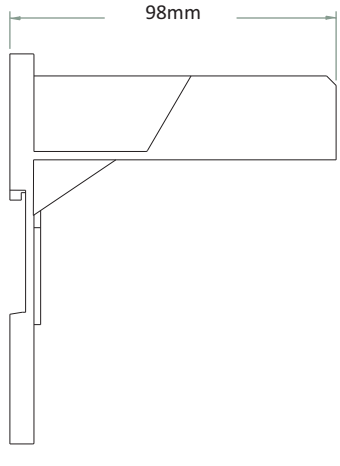




BRSMA5 Separate Mounting Adapter for use with BR5







Salzer Electronics Limited

Samichettipalayam, Jothipuram Post, Coimbatore 641047. INDIA

Tel : +91-422- 4233600 | Fax : +91-422-2692170

e-mail : sales@salzergroup.com

www.salzergroup.com

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