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 RELAY to the Indian and Global market.

# Index

# Standard Contactors - Non Reversing (SC)

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

## Features

- Compact size – Four (4) frames rating 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 can be installed without the use of tools for lower installed 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.
- Single circuit are available and it can be purchased on your need.

## 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, this 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 IP 20 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, halogen and cadmium free.
- IP20 guarded terminal 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 for 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.

## Unique Product Featurers

**4 TERMINAL COILS**

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.

# 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 | 45 | 45 | 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 | 45.0 | 45.0 | 60.0 | 60.0 | 90.0 | 110.0 | 110.0 | 140.0 | 140.0 |
| At 70°C | A | 20.0 | 20.0 | 32.0 | 32.0 | 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 |

# 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 |

## 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 | 175 | 200 |
| **High Fault Test** | | | | | | | | | | | | |
| Short Circuit Current Rating | kA | | | | | | 100 | | | | | |
| Maximum Fuse Size | A | 25 | 25 | 40 | 40 | 50 | 60 | 90 | 100 | 125 | 150 | 175 |
| **Electrical Endurance** | | | | | | | | | | | | |
| @Maximum rated 3 Phase Operating Power | 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 | | | |

## 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 | | | |
| **Power factor** | | | | | | | | | | | | |
| Closed | cos Φ | 0.33 | | | | 0.28 | | | 0.26 | | | |
| Open | cos Φ | 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) | | | | | | | | | | |
| Ambient Storage Temperature | | -55 to +80°C (-67 to +176° F) | | | | | | | | | | |
| **Construction** | | | | | | | | | | | | |
| Pollution Degree | | 3 | | | | | | | | | | |
| Ingress protection | | | | | | | | | | | | |
| Main Terminals | | IP20 | | | | 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** | | | | |

# 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** | | A600 | |
| AC | | | |
| DC | | P600 | Q600 |
| **Environmental** | | | |
| Ambient Operating Temperature | | -25 to +55°C (-13 to + 131°F) | |
| 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 | |
| ROHS Compliance | Nm | 1.13 | |
| | | Yes | |

# Accessories

## Front Mounted Auxiliary Contacts

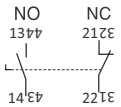
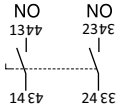
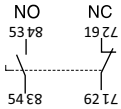
Front mounted auxiliary contacts feature IP20 guarded terminals to protect against accidental contact with live parts The device identification marker simplifies trouble shooting in panels with many contactors. These contacts snap-on and install without the use of tools.

| Code | Contact Configuration | Connection Diagram |
|---|---|---|
| SCFA10 | 1 Normaly Open |   |
| SCFA01 | 1 Normaly Closed |   |
| SCFA10EM | 1 Normaly Open Early Make |   |
| SCFA01DB | 1 Normaly 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 Normaly Open &<br>1 Normaly Closed |   |
| SCSA20 | 2 Normaly Open |   |
| SCSA11X | 1 Normaly Open &<br>1 Normaly Closed* |   |
| SCSA20X | 2 Normaly 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.

# 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 contacts 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 |

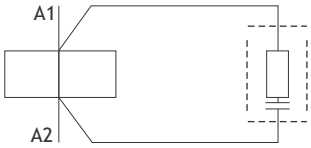
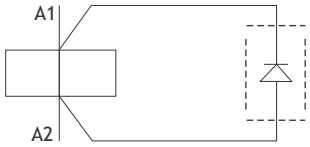
## Wiring Modules

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<br>SC025,SC032,SC040<br>SC050,SC065,SC080<br>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 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | | | | |

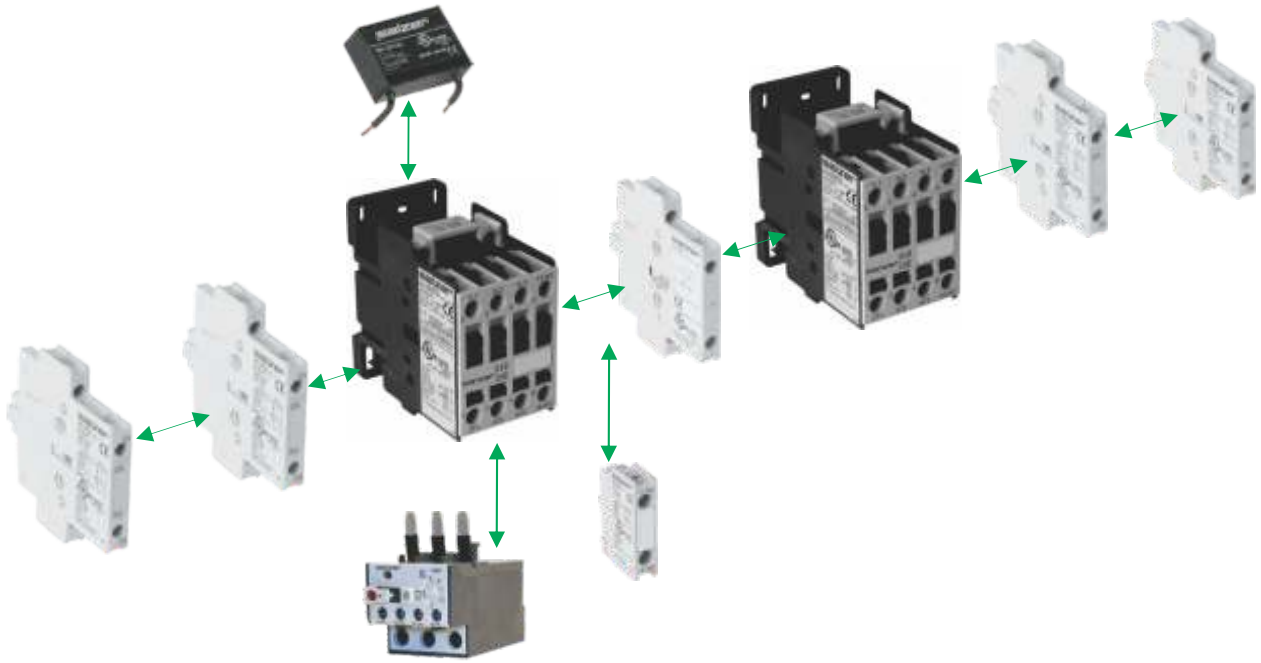
| DC Coil Voltage | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Voltage | 12 | 24 | 24 ~ 28 | 48 | 42 ~ 50 | 110 | 125 | 110 ~ 130 | 208 ~ 250 | 250 |
| SC009 to SC040 | ✓ | ✓ | | ✓ | | ✓ | ✓ | | | ✓ |
| SC050 to SC105 | | | ✓ | | ✓ | | | ✓ | ✓ | |

## 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.



# Ordering Code

## Non Reversing contactor - Standard contactor 9A to 105A

| I | II | III | IV | V | VI | VII | VIII | IX |
|---|---|---|---|---|---|---|---|---|
| Contactor Type | Current Rating | Poles | Normally Open Poles | Built in Auxiliary Contacts | Coil voltage type AC/DC | Coil voltage | Frequency | Additional feature |

Example

**SC 009 P 30 22 A 110 F WW**

**I - Contactor Type**

SC - Standard Contactor
RC - Standard Contactor

**II - Current Rating**

009 - 9A
012 - 12A
018 - 18A
025 - 25A
032 - 32A
040 - 40A
050 - 50A
065 - 65A
080 - 80A
105 - 105A

**III - Poles**

Main Poles

**IV - Normally Open Poles**

30 - 3 NO (Normally Open)

**V - Built in Auxiliary**

20 - 2 Normally Open
02 - 2 Normally Closed
10 - 1 Normally Open
01 - 1 Normally Closed
00 - Aux not provided
For 32A - 105A
Please mention 00 Aux
Not provided

**IX**

With Wiring Modules for RC (Reversing Contactors)

**VIII - Frequency**

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

**VII - Coil Voltage**

| AC | | DC | |
|---|---|---|---|
| 024 | 24 | 024 | 24 |
| 042 | 42 | 048 | 48 |
| 048 | 48 | 110 | 110 |
| **110** | **110** | 250 | 250 |
| 220 | 220 | | |
| 240 | 240 | | |
| 360 | 360 | | |
| 380 | 380 | | |
| 415 | 415 | | |
| 440 | 440 | | |
| 525 | 525 | | |

**VI - Coil Voltage Type**

A - AC Coil
D -DC Coil

Note : RC Contactors available upto 80 Amps only

# Ordering Code - Accessories

## Side mounted accessories

| Ordering Informations | |
|---|---|
| I | II |
| Description | Contact configuration |

**SCSA 11**

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

* 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 RWM1**

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 - R1 Reversing Wiring Module
RWM2 - R2 Reversing Wiring Module

## Surge suppressor

| Ordering Informations | | | | |
|---|---|---|---|---|
| I | II | III | IV | V |
| Contactor Type | Current Rating | Capacitor 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 - Surge Suppressor

SSR - Resistor Capacitor type
SSD - Diode type

IV - Coil Type

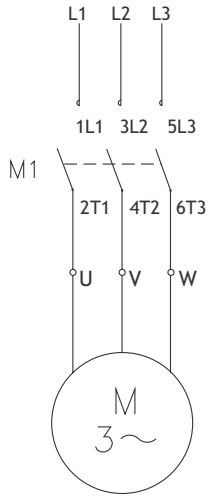
A - AC Coil
D - DC Coil

V - Voltage Range

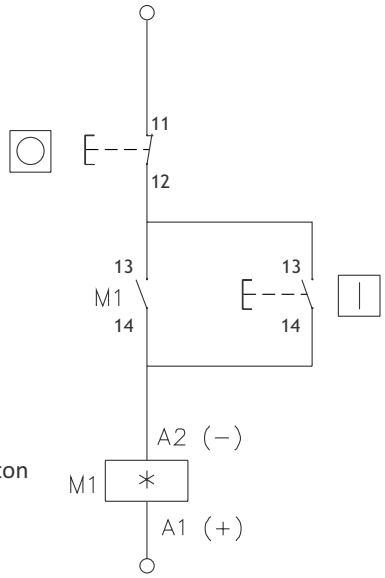
048 - 24 to 48V
127 - 50 to 127V
250 - 130 to 250V
600 - 12 to 600V

## SC Non - Reversing Contactor circuit Diagrams

Power Circuit



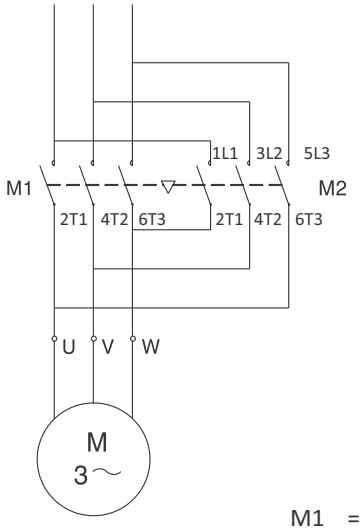

Control circuit



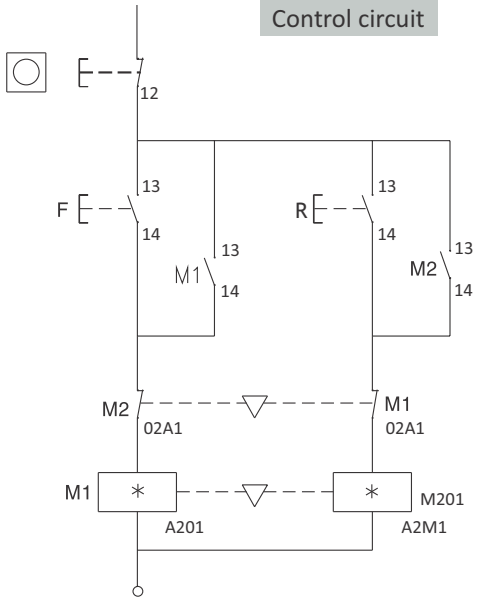

M1 = Contactor
I = Start Push Button
O = Emergency Stop Push Button
✱ = Coil Voltage Code

## 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:

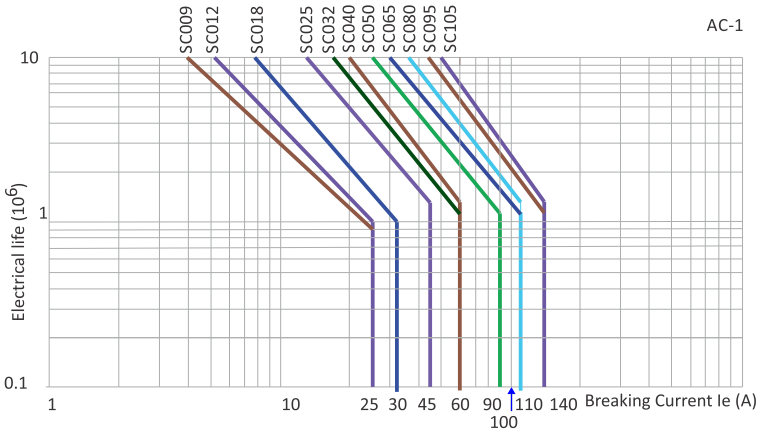
1. Identify the Utilization Category of the Application.

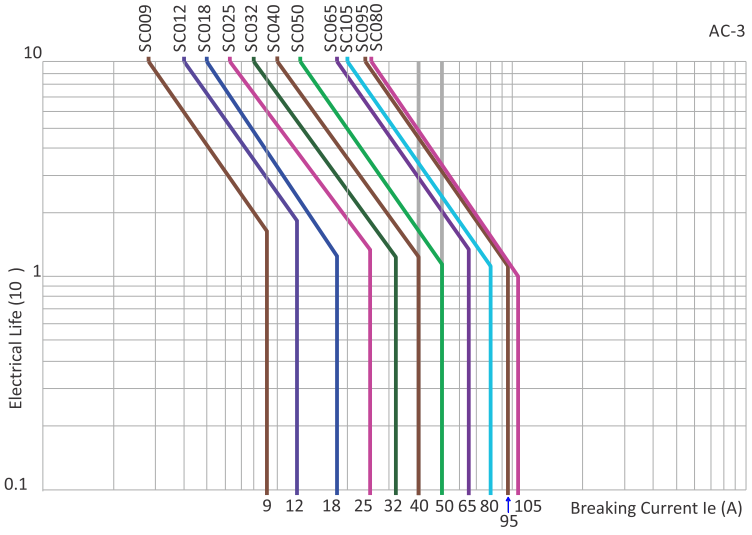
2. Refer to the chart For the Applicable Utilization category.

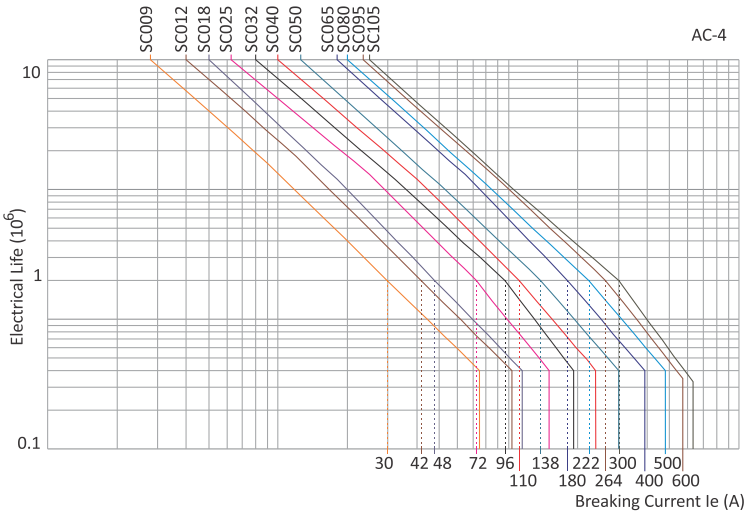
3. Locate the Intersection of the Life-load Curve For the Contactor Selected with the Application Breaking Current (Ie) on the Horizontal Axis of the Chart.

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.

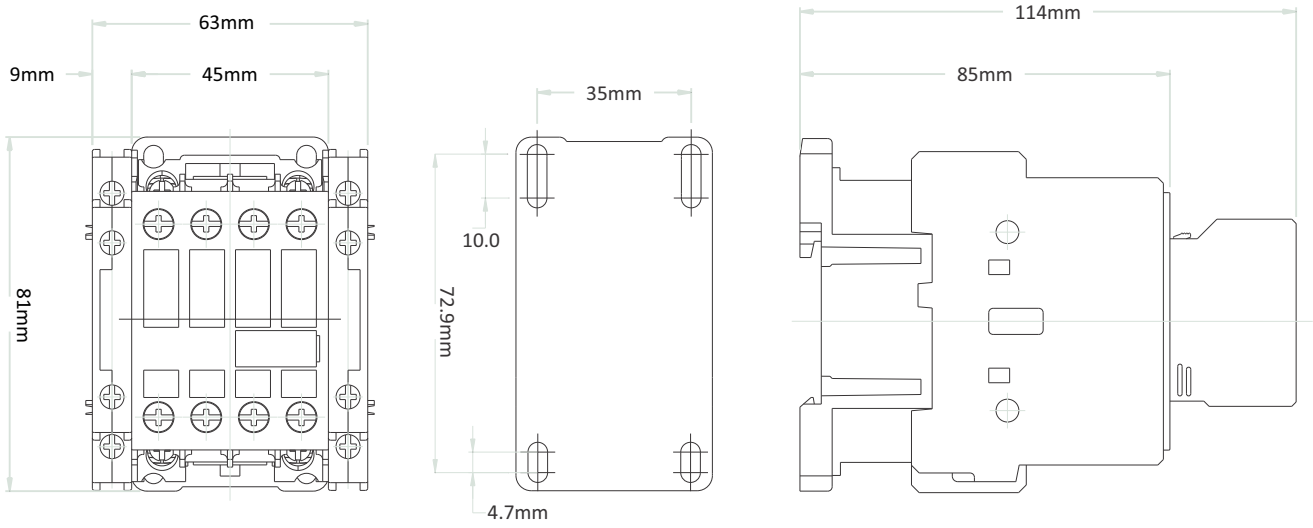


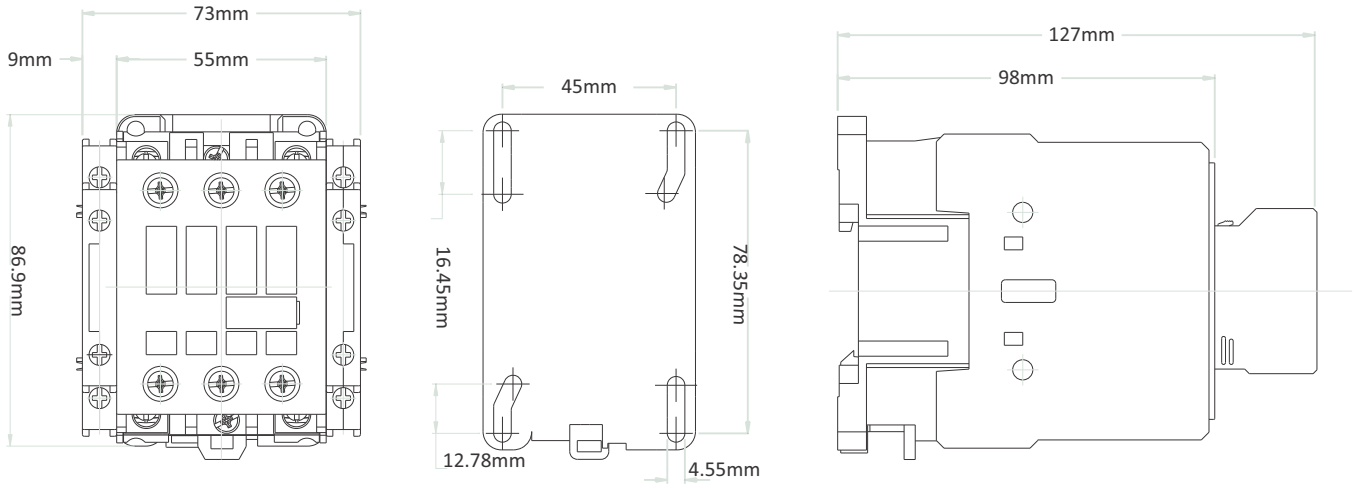



# 3 Pole Non-Reversing Contactors - AC Coils

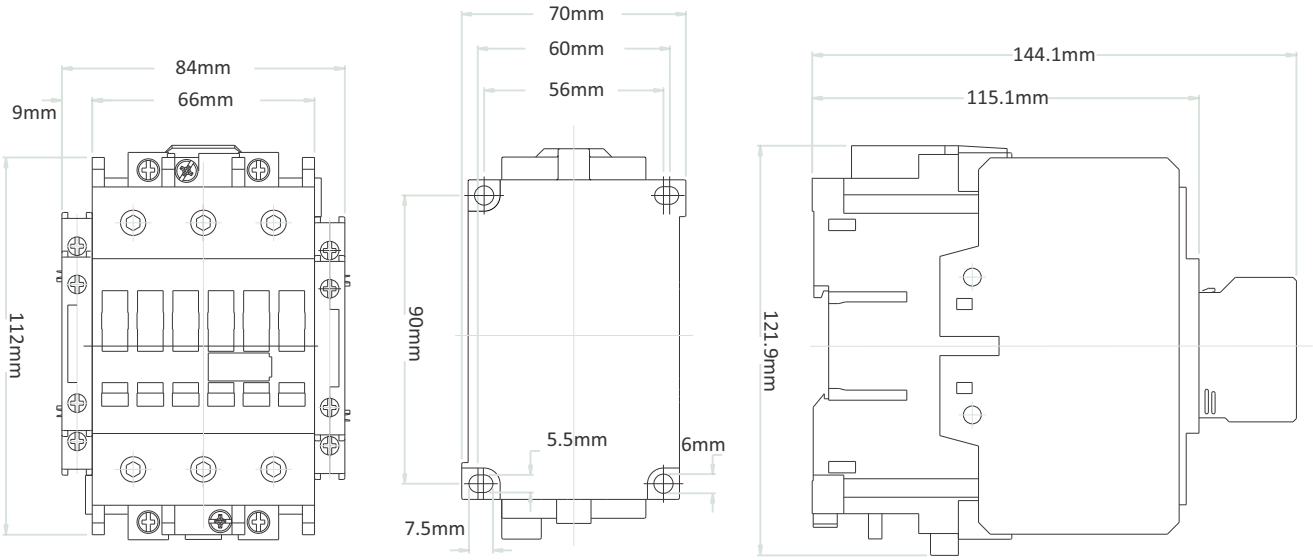
SC009, SC012, SC018 & SC025




SC032 & SC040

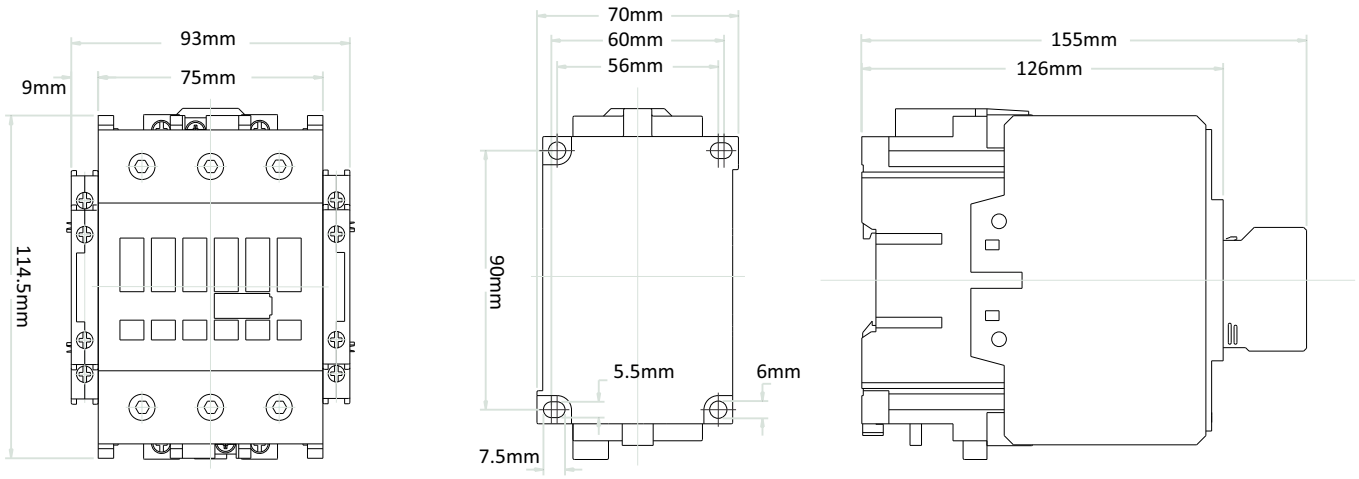



SC050, SC065, SC080



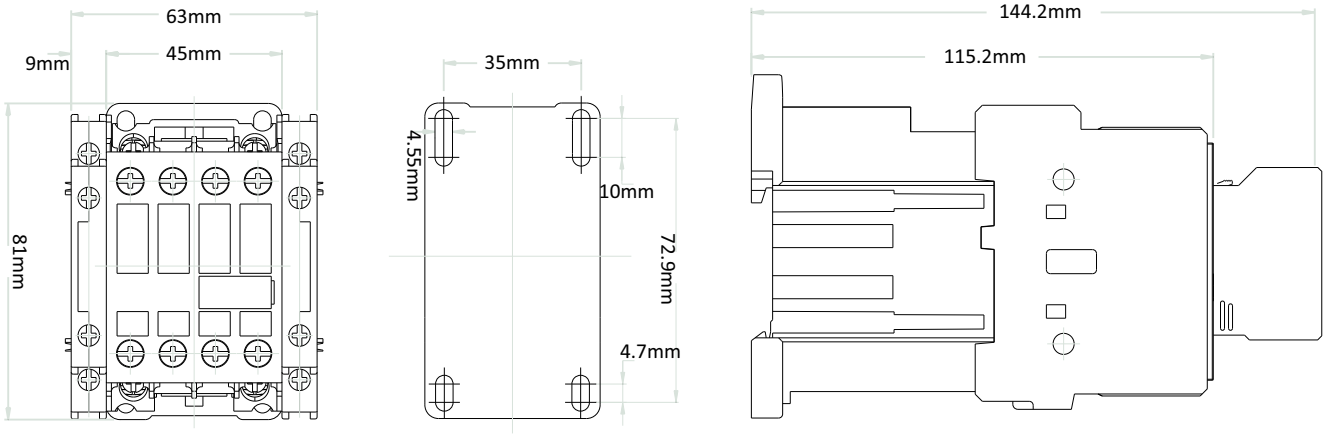
## 3 Pole Non-Reversing Contactors - AC Coils (Cont.)

SC095 & SC105

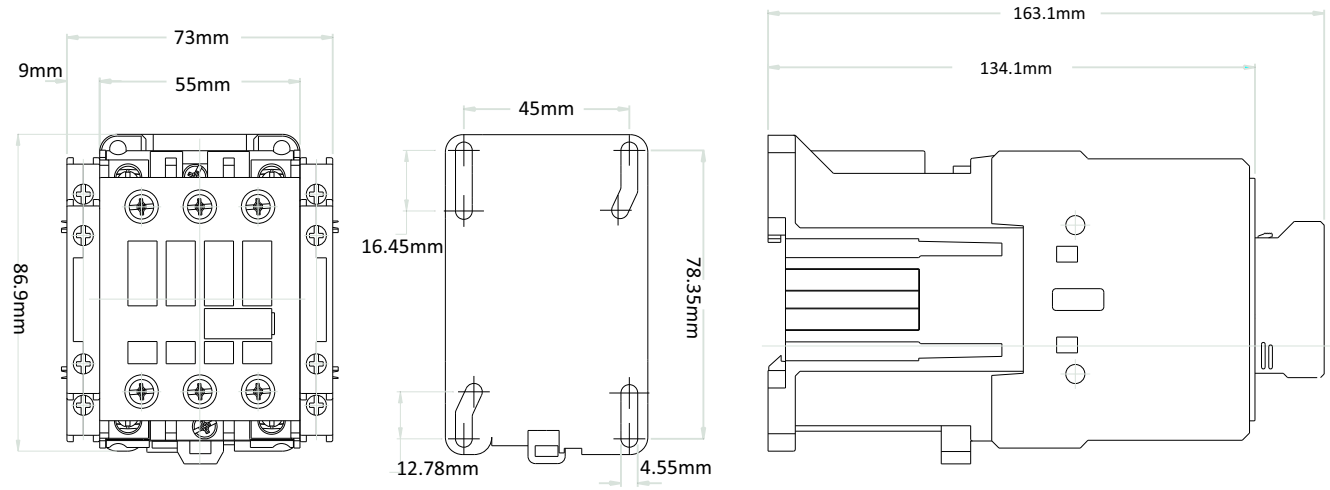



## 3 Pole Non-Reversing Contactors - DC Coils

SC009, SC012, SC018 & SC025

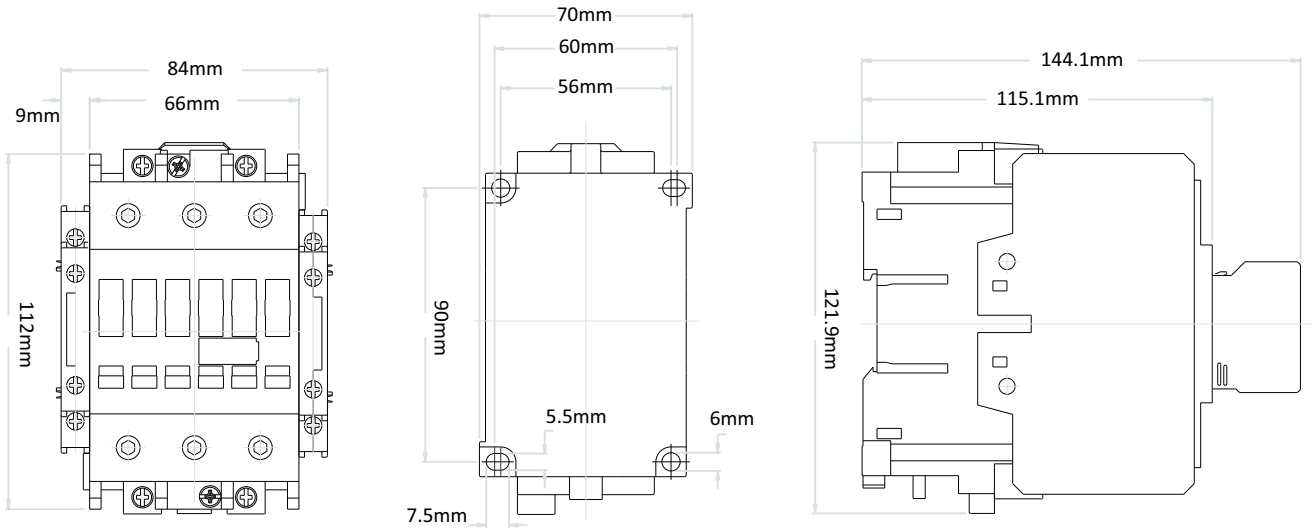



SC032, SC040

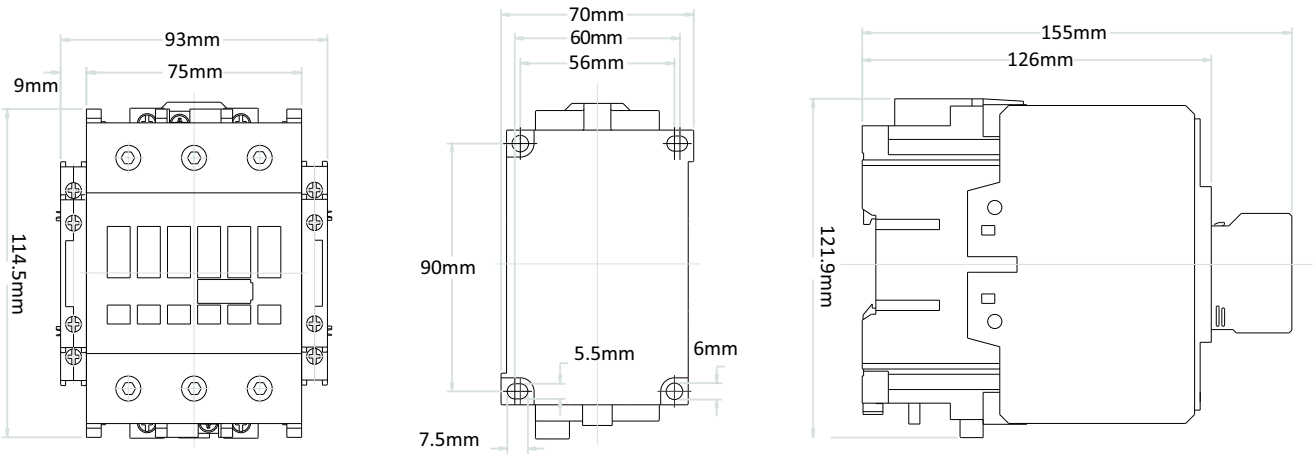


## 3 Pole Non-Reversing Contactors - DC Coils (Cont.)

SC050, SC065 & SC080

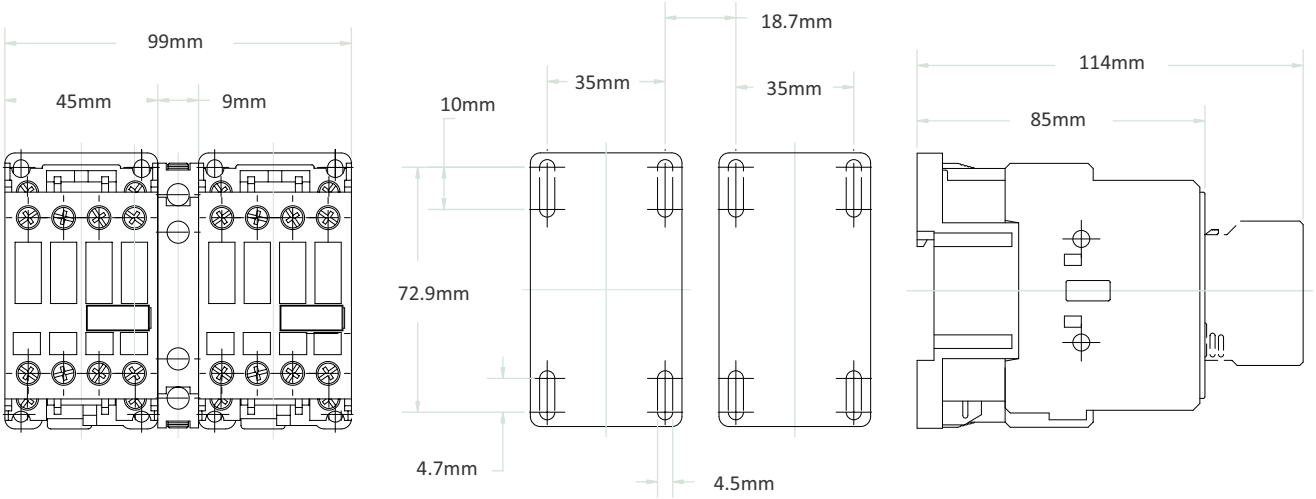



SC095 & SC105



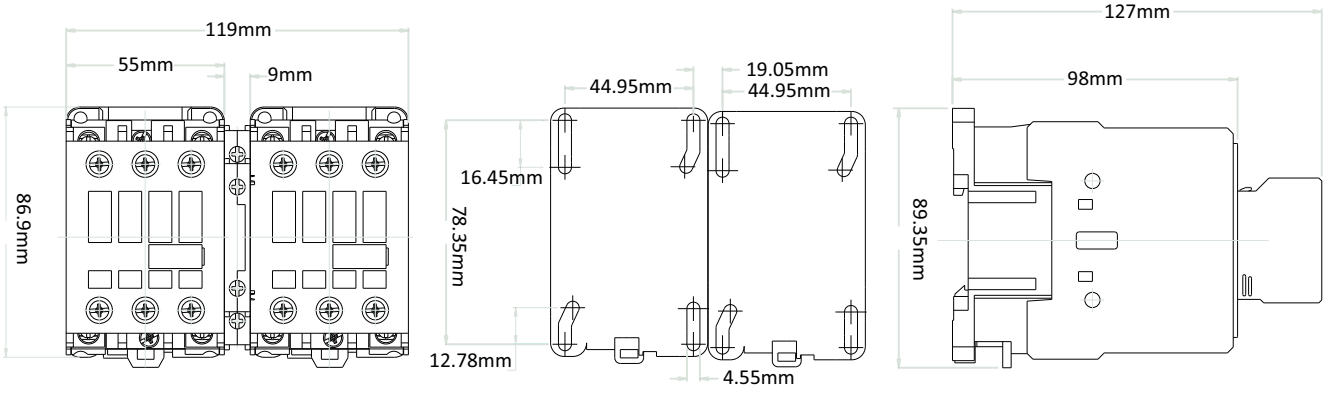

## 3 Pole Contactors with Electrical / Mechanical Interlock - AC Coils

SC009, SC012, SC018 & SC025

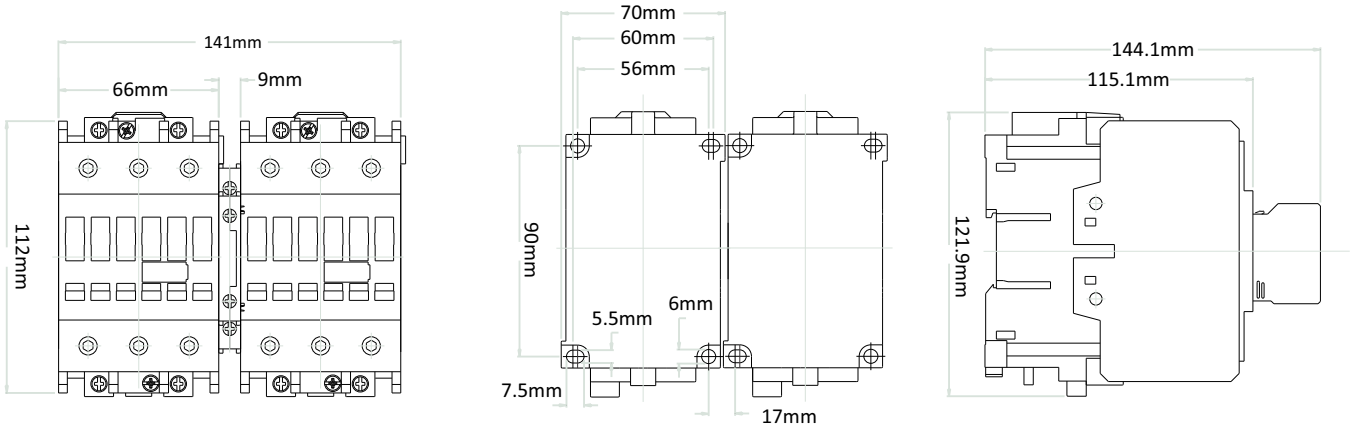


# 3 Pole Contactors with Electrical / Mechanical Interlock - AC Coils (Cont.)

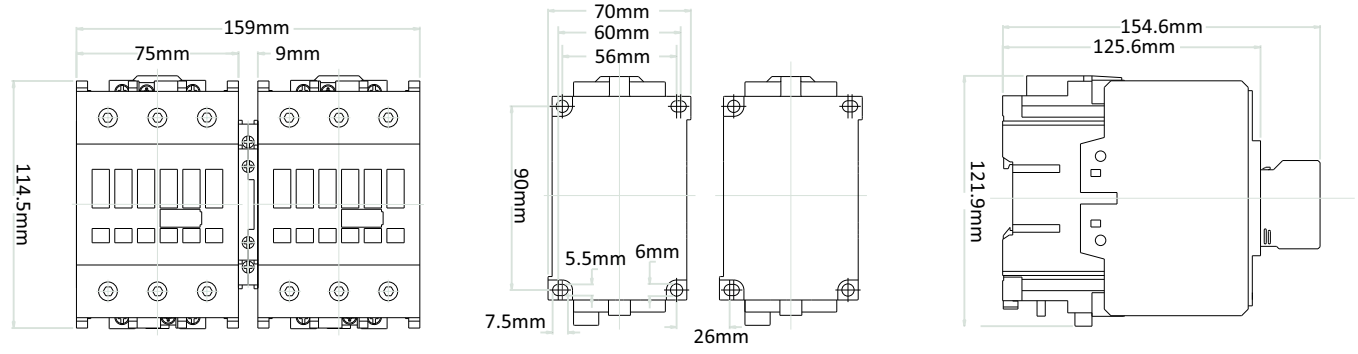
SC032 & SC040




SC050, SC065 & SC080

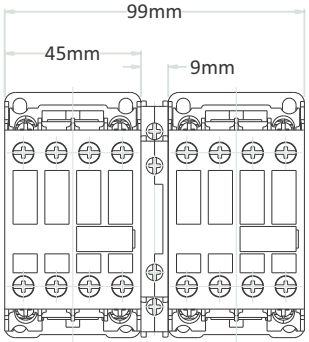


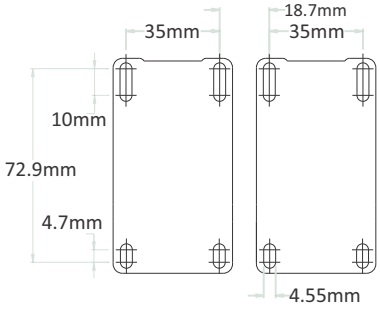

SC095 & SC105

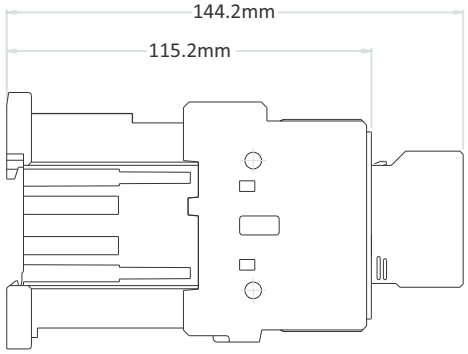


# 3 Pole Contactors with Electrical / Mechanical Interlock - DC Coils

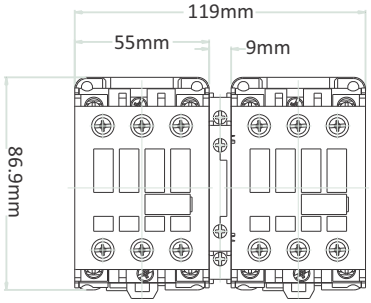
## SC009, SC012, SC018 & SC025

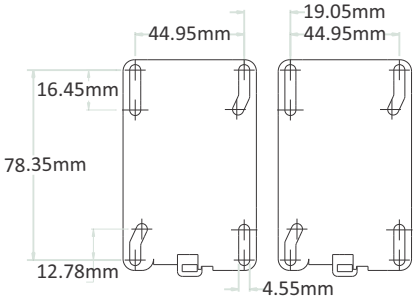


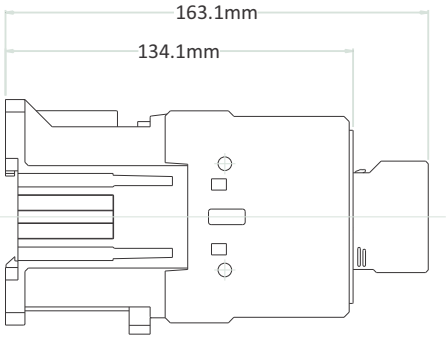



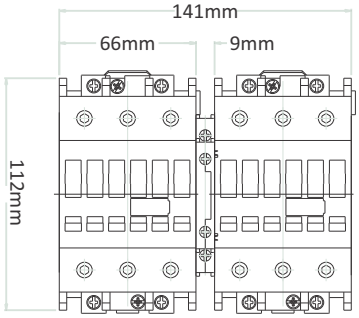

## SC032 & SC040

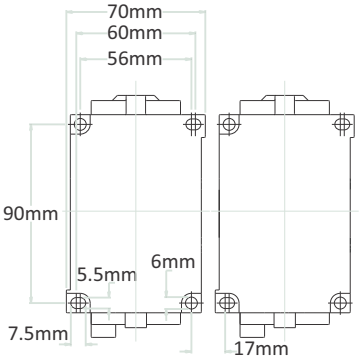


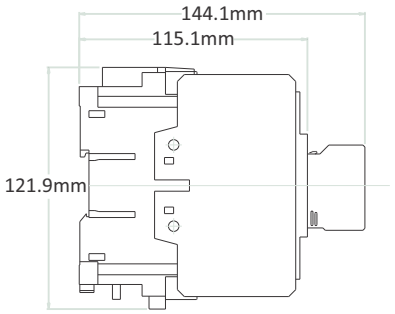



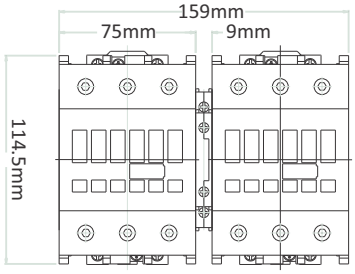

## SC050, SC065 & SC080

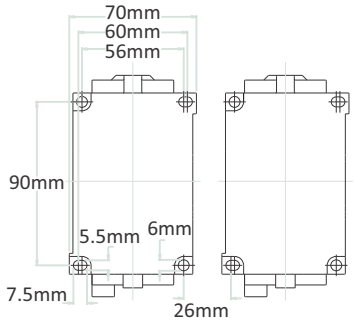


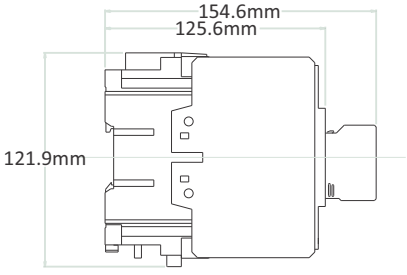




## SC095 & SC105



# Mini Contactors

## Mini Contactors and Control Relays

Salzer Mini Contactors and Control Relays 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.
- MP Series Motor Protection Circuit Breakers direct mount onto MR Series Reversing AC/DC 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 |
| | ✓ | ✓ | ✓ | ✓ | ✓ |

# Technical Specifications

| | | MC007 | MC009 | MC012 | MC016 |
|---|---|---|---|---|---|
| **Electrical General** | Units | | 25 ~ 400 | | |
| Rated Operating 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 |

# Technical Specifications

| | | 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 | 20 | 25 |
| **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 | W | 16 | | | |
| Hold-In | W | 2 ~ 4 | | | |
| **DC** | | | | | |
| Pick-Up | VA | 1.74 ~ 2.5 | | | |
| Hold-In | VA | 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 | | | |

## Technical Specifications

| | | MC007 | MC009 | MC012 | MC016 |
|---|---|---|---|---|---|
| **Environmental** | Units | | | | |
| Ambient Operating Temperature | | -25 to +55°C (-13 to +131°F) | | | |
| 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 | | | |

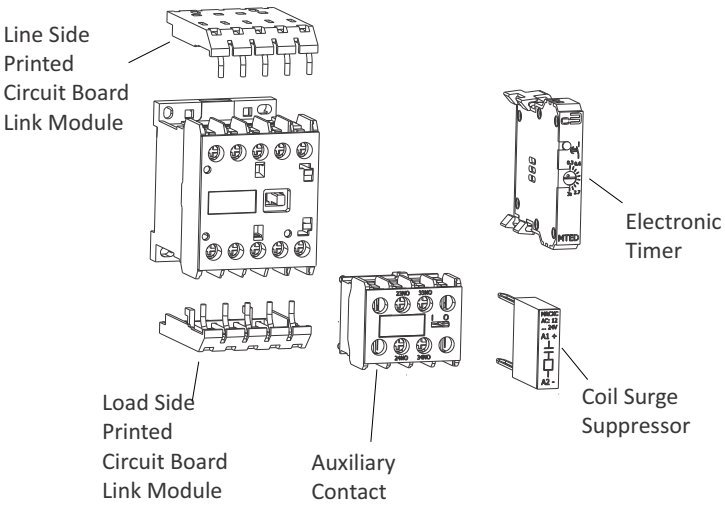
## Auxiliary Contact Specifications

| | | Built-in Auxiliary Control Relay (CR016) | MCFA, CRFA |
|---|---|---|---|
| **IEC RATINGS** | | | |
| Rated insulation Voltage, Ui | V | 690 | |
| Rated Operating Voltage, Ue | V | 690 | |
| AC-1 Ratings @ 230V (C016 only) | A | 16 | - |
| Rated Thermal Current, Ith for Ambient Temperature < 55°C | A | 10 | 10 |
| Making Capacity, Ue ≤ 400V, AC-15 | A | 10 X Ie (AC-15) | 10 |
| Breaking Capacity, Ue ≤ 400V, AC-15 | A | 10 X Ie (AC-15) | 30.0 |
| **AC-15** | | | |
| ≤ 240V | A | 10.0 | 10.0 |
| 380 ~ 400V | A | 6.0 | 5.0 |
| 415 ~ 440V | A | 5.0 | 5.0 |
| 500V | A | 4.0 | 4.0 |
| 660 ~ 690V | A | 2.0 | - |
| **DC-13** | | | |
| 24V | A | 6.0 | 1.5 |
| 48V | A | 4.0 | - |
| 60V | A | 1.5 | 0.5 |
| 110V | A | 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 | |
| Pilot Duty Rating | | | |
| | AC | A600 | |
| | DC | 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) | |
| 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 | |

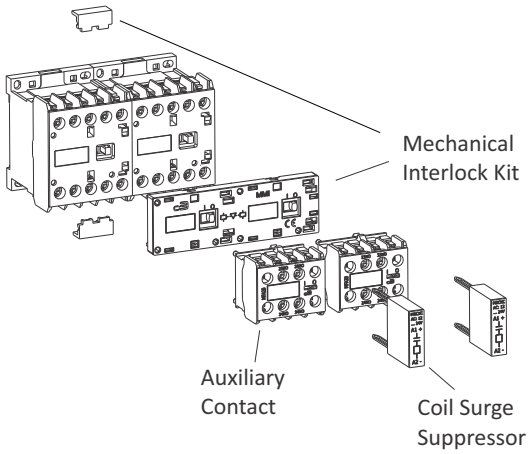
# Accessories for Mini Contactors and Control Relays

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 agains 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<br>MC009<br>MC012<br>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 Contactors |
| 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.

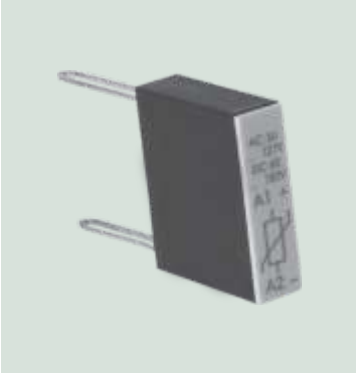
| Electronic Timers | | | |
|---|---|---|---|
| Code | Function | Timing Range(Secs.) | Voltage |
| MCETN03V240 | On-Delay | 0.3 ~ 3 | 24 ~ 240V AC/DC |
| MCETN10V240 | | 1 ~ 10 | |
| MCETN30V240 | | 3 ~ 30 | |
| MCETF03V060 | Off-Delay | 0.3 ~ 3 | 24 ~ 60V AC/DC |
| MCETF10V060 | | 1 ~ 10 | |
| MCETF30V060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

| Surge Suppressors | | |
|---|---|---|
| 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 | Varistor |
| MCRCA510B | 400 ~ 510V 50/60Hz | |
| MCVSAD048 | 12 ~ 48VAC/12 ~ 60VDC | |
| 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 |
| Contactor Type | Current Rating | Poles | Main Pole Configuration | Inbuilt Conatct Configuration | 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 - Ampere Rating**

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

**III - Letter P**

P = Main Poles

**IV - 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
40 - 4 normally open
04 - 4 normally closed

**V - Auxiliary Pole Configuration**

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**

With Wiring Module for MR(Reversing Contactor)

**VIII - Frequency range**

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

**VII - Coil Voltage**

| AC | | DC | |
|---|---|---|---|
| 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 | | |

**VI - Coil type**

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

## Mechanical Interlock

| Ordering Informations | |
|---|---|
| I | II |
| Type | Interlock |

**MC MI**

**I - Contactor**

MC - Mini Contactor

**II - Interlock**

MI - Mechanical Interlock

# 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

## Wiring Module

| Ordering Informations | | |
|---|---|---|
| I | II | III |
| MC | RWM16 | LIS or LDS |

**MC RWM16 LIS**

I - Type

MC - Mini Contactor

III -Configuration

LIS - Line Side
LDS - Load Side

II -Modules

Reversing Wiring Module

## Printed Circuit Board Link Module

| Ordering Informations | |
|---|---|
| I | II |
| MC | PCLM16 |

**MC PCLM**

I - Type

MC - Mini Contactor

II - Module Type

PCLM16 - Printed circuit board Link module

# Ordering Code - Accessories

## Mini Control Relay

| Ordering Informations | | | | | | | |
|---|---|---|---|---|---|---|---|
| I | II | III | IV | V | VI | VII | VIII |
| Type | Current | P | Main Pole Configuration | Auxiliary Pole Configuration | Coil Type | Coil Voltage | Frequency Range |

**CR 016 P 00 40 A 230 B**

I - Type
CR - Mini control relay

II - Model Type
016 - Model

III - Letter P
P denotes poles

IV - Main Poles
00 - No main poles

V - Pole Configuration
22 - 2 normally open & 2 normally closed
31 - 3 normally open & 1 normally closed
40 - 4 normally open
13 - 1 normally open & 3 normally closed
04 - 4 normally closed

VI - Coil Type
A - AC Voltage Coil
D - DC Voltage Coil
M - Multipl Voltage AC Coil

VII - Coil Voltage
230 - Voltage

VIII - Frequency range
F - 50Hz
S - 60Hz
B - 50/60Hz

## 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
MCSS - Mini Contactor Surge Suppressor

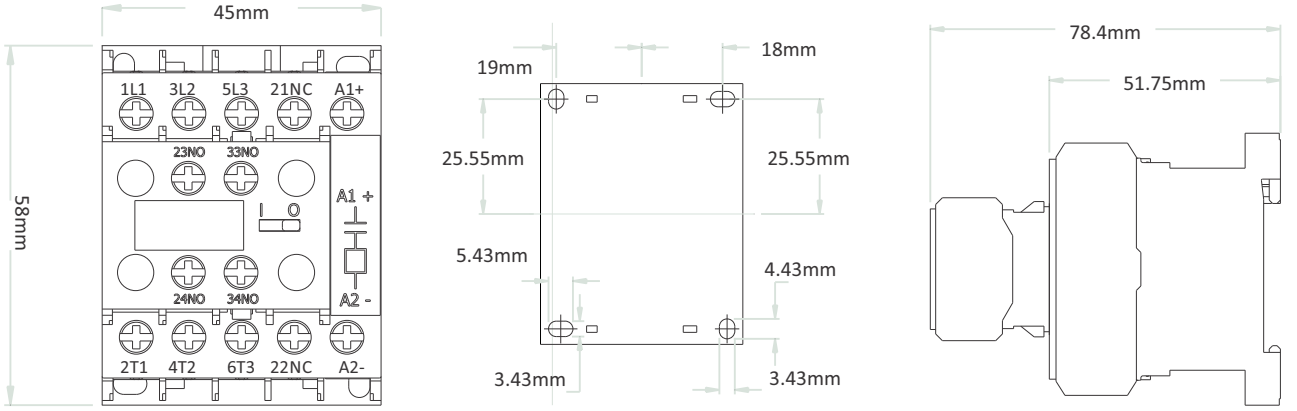
II - Model Type
RC - Resistor Capacitor type
VS - Varistor type
DS - Diode type

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

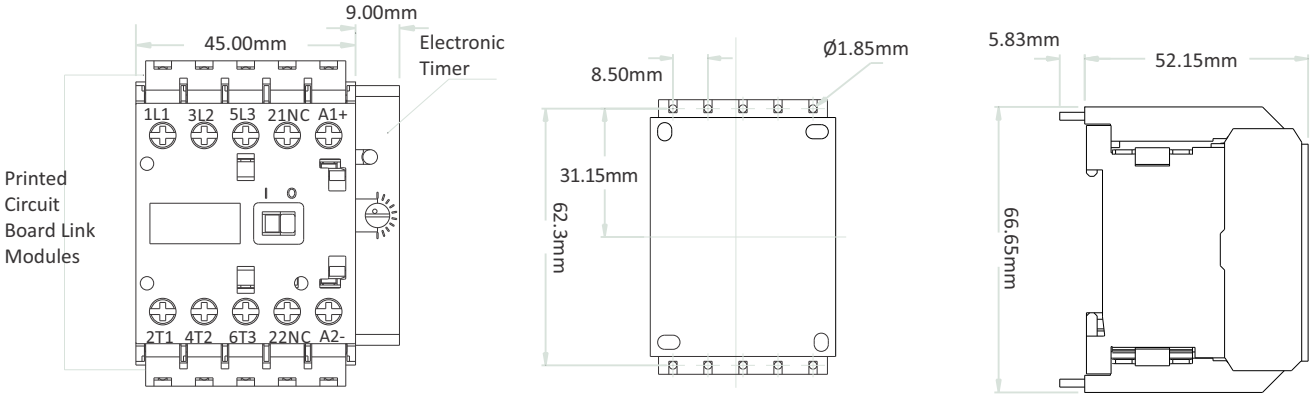
IV - Voltage Range
024 - 12 ~ 24V 50/60Hz
048 - 24 ~ 48V 50/60Hz
127 - 48 ~ 127V 50/60Hz
250 - 127 ~ 250V 50/60Hz
380 - 250 ~ 380V 50/60Hz
510 - 380 ~ 510V 50/60Hz
048 - 12 ~ 48VAC / 12 - 60VDC
127 - 50 ~ 127VAC / 60 - 180VDC
275 - 130 ~ 275VAC / 180 - 300VDC
380 - 277 ~ 380VAC / 300 - 510VDC
510 - 400 ~ 510VAC
600 - 12 ~ 600VDC

V - Frequency Range
F - 50Hz
S - 60Hz
B - 50/60Hz

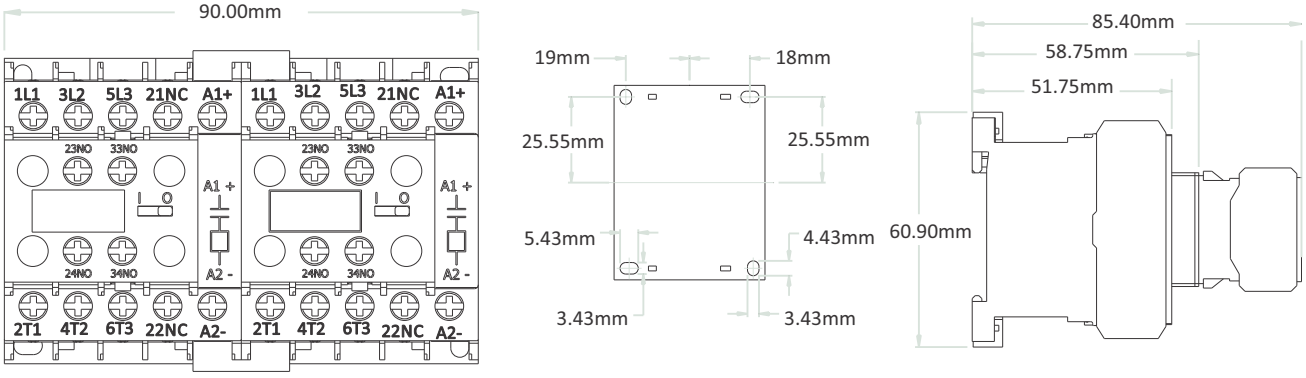
## Mini Non -reversing Contactor & Control Relay with Auxiliary Contacts & Surge Suppressor



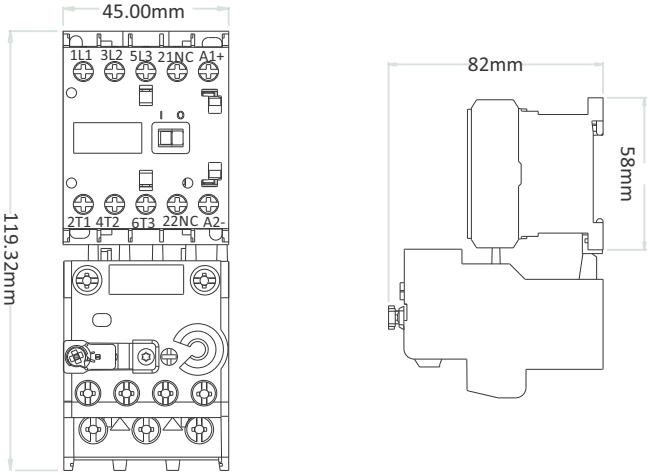

## Mini Non -reversing Contactor & Control Relay With Printed Circuit Board Link Module & Electronic Timer




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




## Mini Non -reversing Contactor with Over Load Relay Assembly



# OVERLOAD RELAY

# Bimetallic Overload Relays

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 |

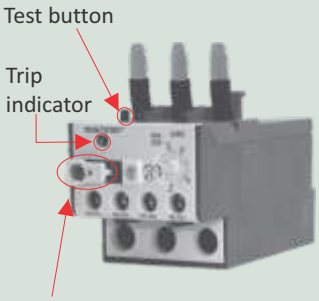
# Bimetallic Overload Relays

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 9 Standard Contactors & Mini Contactors.
- BR1 series Overload Relays for use with MC Series Mini Contactors.
- BR1 series Overload Relays include integral connection to auxiliary and coil terminations for ease of wiring during installation when installed on MC Series Mini Contactors.
- BR1 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.

# 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 | | | 0 ~ 400 | | |
| 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 | 60 | 90 | 125 | 200 | 275 |
| Maximum fuse size in type “2” gL/gG | A | 35 | 63 | 90 | 175 | 250 |
| **Control Circuits** | | | | | | |
| Rated Insulation Voltage,Ui | V | | | 690 | | |
| 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 | | | 10 | | |
| Maximum Fuse Size* | A | 30 | 60 | 50 | 100 | 150 |
| **Control Circuits** | | | | | | |
| Pilot Duting Rating | AC | | | C600 | | |
| | DC | | | R300 | | |

*Varies by current settings range of overload relay.

## Technical Specifications (Contd.)

| | | BR1 | BR2 | BR3 | BR4 | BR5 |
|---|---|---|---|---|---|---|
| Environmental General | Units | | | | | |
| Ambient Temperature | | -25 to +60°C ( -13 to 140°F ) | | | | |
| Ambient Storage Temperature | | -40 to +70°C ( -40 to 158°F ) | | | | |
| **Construction** | | | | | | |
| Number of Poles | | 3 | | | | |
| Trip Class | | 10 | | | | |
| Pollution Degree | | 3 | | | | |
| **Ingress Protection** | | | | | | |
| Main Circuit Terminals | | IP20 | | | | |
| 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 ~ 15 |
| Stranded | $mm^2$ | 2.5 ~ 16 | 2.5 ~ 16 | 1 ~ 35 | 1 ~ 35 | 10 ~ 15 |
| 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 | 1.13 | | | | |
| | lb.in. | 10 | | | | |
| ROHS Compliance | | Yes | | | | |

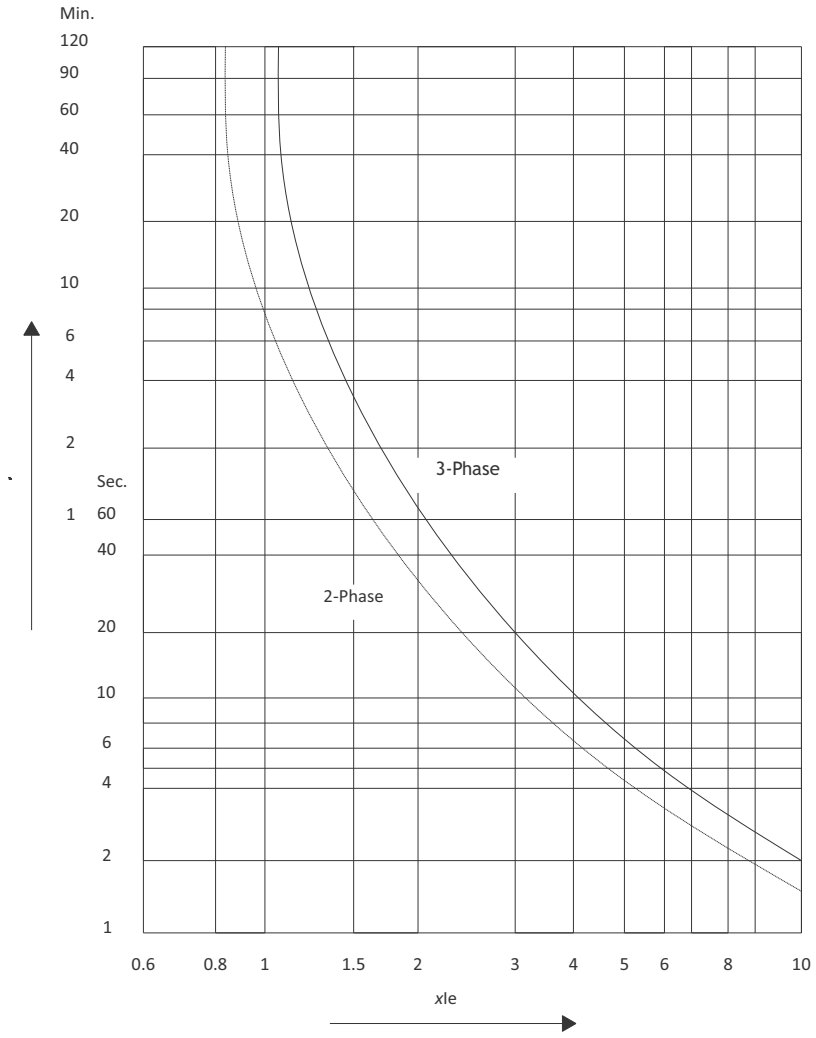
*Varies by current settings range of overload relay.

## Separate Mounting Adapters

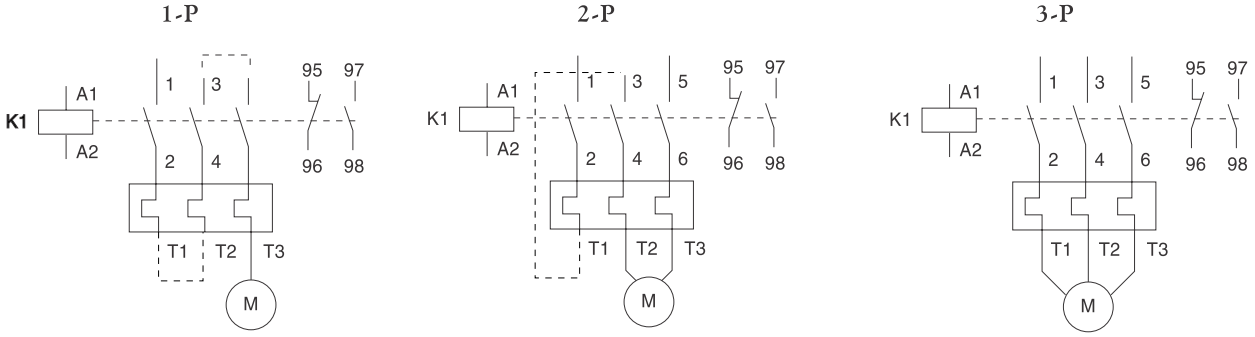
Separate mounting adapters enables Series BR Overload Relays to be installed separately from a contactor on a 35mm DIN rail or with fixing screws to a panel.

| 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 | IV |
| Type | Frame Size | Configuration | Current Range |

**BR 2 L 40**

**I - Type**

BR

**II - Frame Size**

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

**II - Configuration**

L - Low Range
M - Medium Range
H - Higher Range
X - Extra Range

**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

## OLR Mounting Adapter

| Ordering Informations | |
|---|---|
| I | II |
| BRSMA | Relay Frame |

**BRSMA 2**

**I - BRSMA**

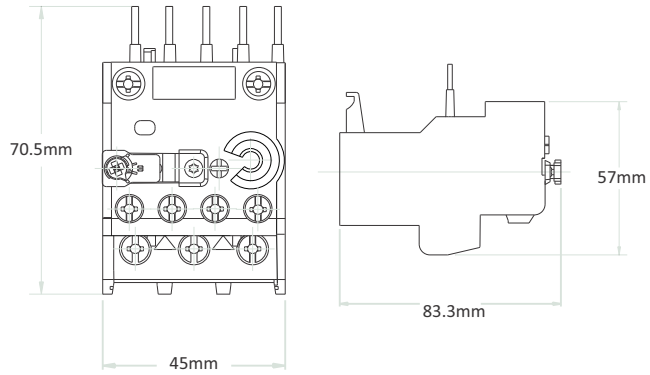
Bimetallic Overload Relay Separate

**II - Relay Frame**

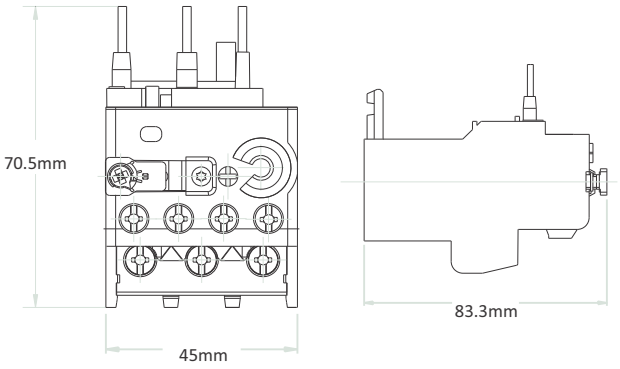
2 - BR2 Relay Frame
4 - BR3 & BR4 Relay Frame
5 - BR5 Relay Frame

# BR Series Bimetallic Overload Relays

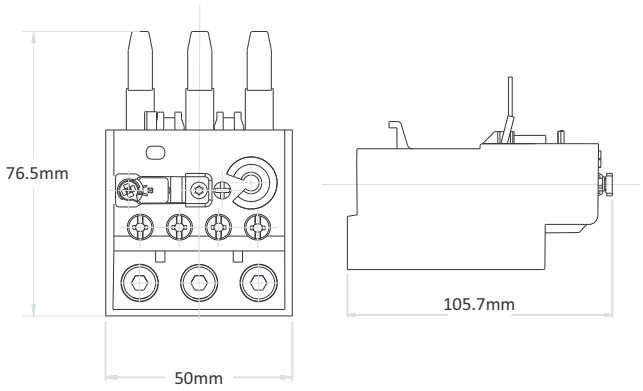
## BR 1



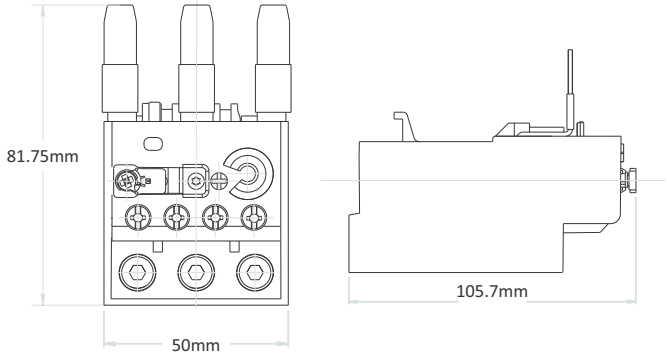

## BR 2



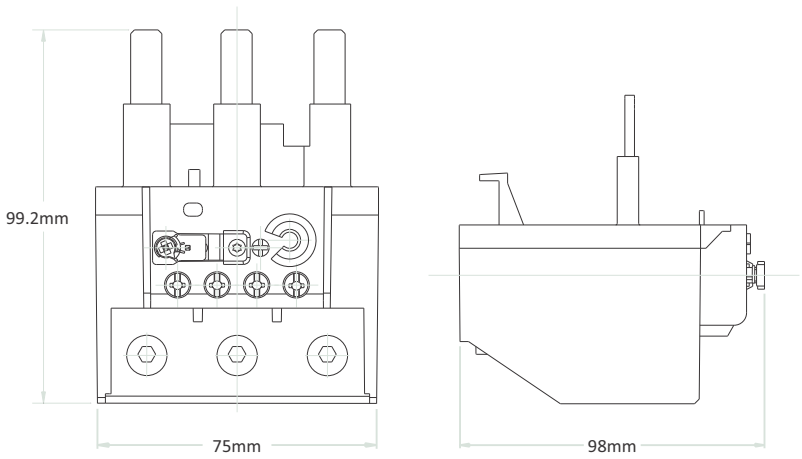

## BR3




## BR4

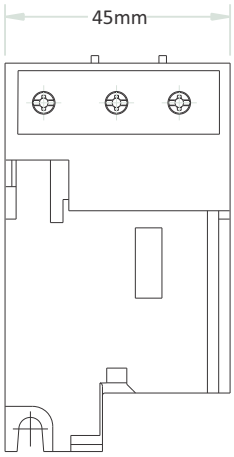


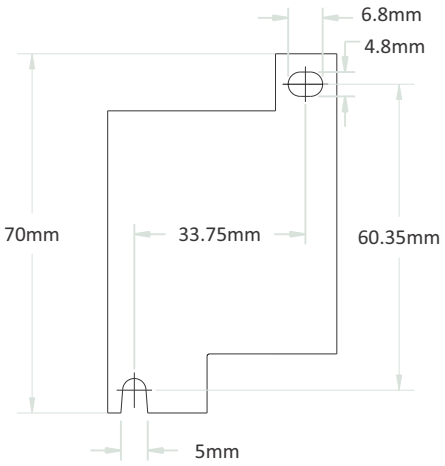

## BR5

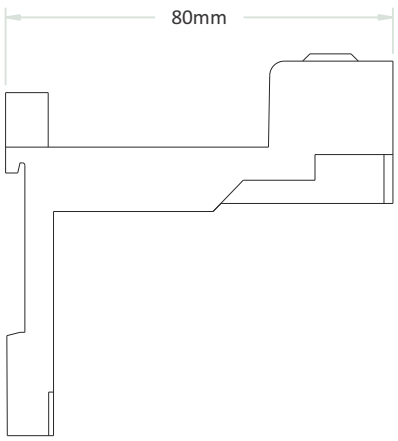


# BR Series Separate Mounting Adapters

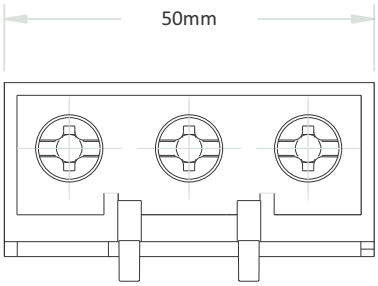
BRSMA2 Separate Mounting Adapter for use with BR2



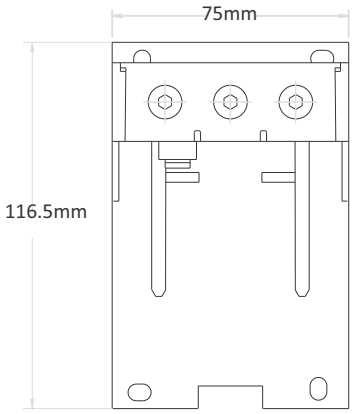



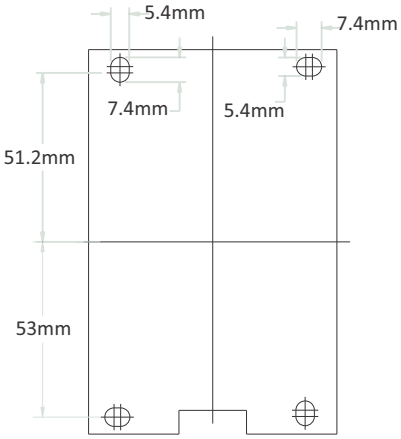



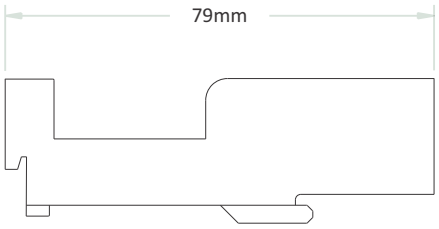

BRSMA4 Separate Mounting Adapter for use with BR3 & BR4

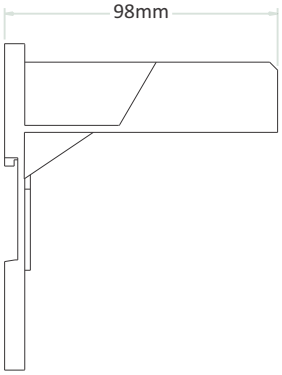


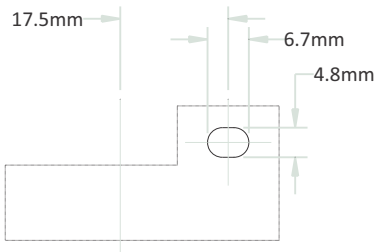

BRSMA5 Separate Mounting Adapter for use with BR5



# Notes

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