



Short form catalog

Motor protection and control

Manual motor starters, contactors and overload relays

Motor rated operational powers and currents

The currents given below concern standard three-phase four-pole cage motors (1500 r.p.m. at 50 Hz 1800 r.p.m. at 60 Hz). These values are given for guidance and may vary according to the motor manufacturer and depending on the number of poles.

| IEC | Motor nominal current: standardized values in blue colour (according to IEC 60947-4-1 Annex G) | | | | | | | | | |
|----------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Motor power kW | 220 V A | 230 V A | 240 V A | 380 V A | 400 V A | 415 V A | 440 V A | 500 V A | 660 V A | 690 V A |
| 0.06 | 0.37 | 0.35 | 0.34 | 0.21 | 0.2 | 0.19 | 0.18 | 0.16 | 0.13 | 0.12 |
| 0.09 | 0.54 | 0.52 | 0.50 | 0.32 | 0.3 | 0.29 | 0.26 | 0.24 | 0.18 | 0.17 |
| 0.12 | 0.73 | 0.7 | 0.67 | 0.46 | 0.44 | 0.42 | 0.39 | 0.32 | 0.24 | 0.23 |
| 0.18 | 1 | 1 | 1 | 0.63 | 0.6 | 0.58 | 0.53 | 0.48 | 0.37 | 0.35 |
| 0.25 | 1.6 | 1.5 | 1.4 | 0.9 | 0.85 | 0.82 | 0.74 | 0.68 | 0.51 | 0.49 |
| 0.37 | 2.0 | 1.9 | 1.8 | 1.2 | 1.1 | 1.1 | 1 | 0.88 | 0.67 | 0.64 |
| 0.55 | 2.7 | 2.6 | 2.5 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 0.91 | 0.87 |
| 0.75 | 3.5 | 3.3 | 3.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.5 | 1.15 | 1.1 |
| 1.1 | 4.9 | 4.7 | 4.5 | 2.8 | 2.7 | 2.6 | 2.4 | 2.2 | 1.7 | 1.6 |
| 1.5 | 6.6 | 6.3 | 6 | 3.8 | 3.6 | 3.5 | 3.2 | 2.9 | 2.2 | 2.1 |
| 2.2 | 8.9 | 8.5 | 8.1 | 5.2 | 4.9 | 4.7 | 4.3 | 3.9 | 2.9 | 2.8 |
| 3 | 11.8 | 11.3 | 10.8 | 6.8 | 6.5 | 6.3 | 5.7 | 5.2 | 4 | 3.8 |
| 4 | 15.7 | 15 | 14.4 | 8.9 | 8.5 | 8.2 | 7.4 | 6.8 | 5.1 | 4.9 |
| 5.5 | 20.9 | 20 | 19.2 | 12.1 | 11.5 | 11.1 | 10.1 | 9.2 | 7 | 6.7 |
| 7.5 | 28.2 | 27 | 25.9 | 16.3 | 15.5 | 14.9 | 13.6 | 12.4 | 9.3 | 8.9 |
| 11 | 39.7 | 38 | 36.4 | 23.2 | 22 | 21.2 | 19.3 | 17.6 | 13.4 | 12.8 |
| 15 | 53.3 | 51 | 48.9 | 30.5 | 29 | 28 | 25.4 | 23 | 17.8 | 17 |
| 18.5 | 63.8 | 61 | 58.5 | 36.8 | 35 | 33.7 | 30.7 | 28 | 22 | 21 |
| 22 | 75.3 | 72 | 69 | 43.2 | 41 | 39.5 | 35.9 | 33 | 25.1 | 24 |
| 30 | 100 | 96 | 92 | 57.9 | 55 | 53 | 48.2 | 44 | 33.5 | 32 |
| 37 | 120 | 115 | 110 | 69 | 66 | 64 | 58 | 53 | 40.8 | 39 |
| 45 | 146 | 140 | 134 | 84 | 80 | 77 | 70 | 64 | 49.1 | 47 |
| 55 | 177 | 169 | 162 | 102 | 97 | 93 | 85 | 78 | 59.6 | 57 |
| 75 | 240 | 230 | 220 | 139 | 132 | 127 | 116 | 106 | 81 | 77 |
| 90 | 291 | 278 | 266 | 168 | 160 | 154 | 140 | 128 | 97 | 93 |
| 110 | 355 | 340 | 326 | 205 | 195 | 188 | 171 | 156 | 118 | 113 |
| 132 | 418 | 400 | 383 | 242 | 230 | 222 | 202 | 184 | 140 | 134 |
| 160 | 509 | 487 | 467 | 295 | 280 | 270 | 245 | 224 | 169 | 162 |
| 200 | 637 | 609 | 584 | 368 | 350 | 337 | 307 | 280 | 212 | 203 |
| 250 | 782 | 748 | 717 | 453 | 430 | 414 | 377 | 344 | 261 | 250 |
| 315 | 983 | 940 | 901 | 568 | 540 | 520 | 473 | 432 | 327 | 313 |
| 355 | 1109 | 1061 | 1017 | 642 | 610 | 588 | 535 | 488 | 370 | 354 |
| 400 | 1255 | 1200 | 1150 | 726 | 690 | 665 | 605 | 552 | 418 | 400 |
| 500 | 1545 | 1478 | 1416 | 895 | 850 | 819 | 745 | 680 | 515 | 493 |
| 560 | 1727 | 1652 | 1583 | 1000 | 950 | 916 | 832 | 760 | 576 | 551 |
| 630 | 1928 | 1844 | 1767 | 1116 | 1060 | 1022 | 929 | 848 | 643 | 615 |
| 710 | 2164 | 2070 | 1984 | 1253 | 1190 | 1147 | 1043 | 952 | 721 | 690 |
| 800 | 2446 | 2340 | 2243 | 1417 | 1346 | 1297 | 1179 | 1076 | 815 | 780 |
| 900 | 2760 | 2640 | 2530 | 1598 | 1518 | 1463 | 1330 | 1214 | 920 | 880 |
| 1000 | 3042 | 2910 | 2789 | 1761 | 1673 | 1613 | 1466 | 1339 | 1014 | 970 |

| UL / CSA | Motor nominal current: standardized values (according to IEC 60947-4-1 Annex G and UL 508) | | | | |
|----------------|---|-------------|-------------|-------------|-------------|
| Motor power hp | 208 V A | 220-240 V A | 380-415 V A | 440-480 V A | 550-600 V A |
| 1/2 | 2.4 | 2.2 | 1.3 | 1.1 | 0.9 |
| 3/4 | 3.5 | 3.2 | 1.8 | 1.6 | 1.3 |
| 1 | 4.6 | 4.2 | 2.3 | 2.1 | 1.7 |
| 1-1/2 | 6.6 | 6 | 3.3 | 3 | 2.4 |
| 2 | 7.5 | 6.8 | 4.3 | 3.4 | 2.7 |
| 3 | 10.6 | 9.6 | 6.1 | 4.8 | 3.9 |
| 5 | 16.7 | 15.2 | 9.7 | 7.6 | 6.1 |
| 7-1/2 | 24.2 | 22 | 14 | 11 | 9 |
| 10 | 30.8 | 28 | 18 | 14 | 11 |
| 15 | 46.2 | 42 | 27 | 21 | 17 |
| 20 | 59.4 | 54 | 34 | 27 | 22 |
| 25 | 74.8 | 68 | 44 | 34 | 27 |
| 30 | 88 | 80 | 51 | 40 | 32 |
| 40 | 114 | 104 | 66 | 52 | 41 |
| 50 | 143 | 130 | 83 | 65 | 52 |
| 60 | 169 | 154 | 103 | 77 | 62 |
| 75 | 211 | 192 | 128 | 96 | 77 |
| 100 | 273 | 248 | 165 | 124 | 99 |
| 125 | 343 | 312 | 208 | 156 | 125 |
| 150 | 396 | 360 | 240 | 180 | 144 |
| 200 | 528 | 480 | 320 | 240 | 192 |
| 250 | - | 604 | 403 | 302 | 242 |
| 300 | - | 722 | 482 | 361 | 289 |
| 350 | - | 828 | 560 | 414 | 336 |
| 400 | - | 954 | 636 | 477 | 382 |
| 450 | - | 1030 | - | 515 | 412 |
| 500 | - | 1180 | 786 | 590 | 472 |

Motor protection and control

Manual motor starters, contactors and overload relays

| | |
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For additional information such as technical datas, dimension drawings, other products and accessories, refer to our main catalog and visit our website: www.abb.com/connecttocontrol

ABB sets a new standard in motor control and power switching

1

Featuring AF technology as standard, the latest range of ABB's contactors establishes a new industry benchmark. The electronically controlled coil offers multiple benefits over conventional alternatives, and together with ABB's wide product offering – an optimal configuration, every time.



Access Global Support

The contactor and motor protection range from ABB is compatible with all major national and international standards and is available worldwide via a global distribution network. One contactor coil now handles 100 V – 250 V, AC/DC for use in Europe or Asia as well as North America.



Optimize logistics

With its contactor and motor protection range, ABB has managed to reduce the number of contactor coils to just four. The total number of product variants has been reduced by up to 90%. This simplifies the customers' logistics and cuts administration costs.



Simplify design

By reducing contactor coil energy consumption by up to 80%, panels can be built smaller and transformers more compact. All the features of the AF technology, along with access to drawings and coordination tables online, simplifies your design and assembly process.



Secure uptime

Time to prevent stoppages caused by voltage fluctuations. The AF contactor ensures distinct operation in unstable networks and signifies a major advance in motor control and power switching. Voltage sags, dips and surges pose no threat. The AF contactor secures your uptime.



MacGregor. Keeping turnarounds brief.

Until the AF range was installed, voltage sags were affecting MacGregor's deck cranes.

Conventional contactors welded shut, leading to several stoppages a week. No longer. Known for superior quality and an ability to operate in the most hostile environments, MacGregor deck cranes enjoy a global reputation for reliability. A small but vital component, the AF contactor helps maintain this reputation.

To keep things moving, you need Control. Connect to Control.

Explore all our case studies at www.abb.com/connecttocontrol

SSAB
Making certainty
standard

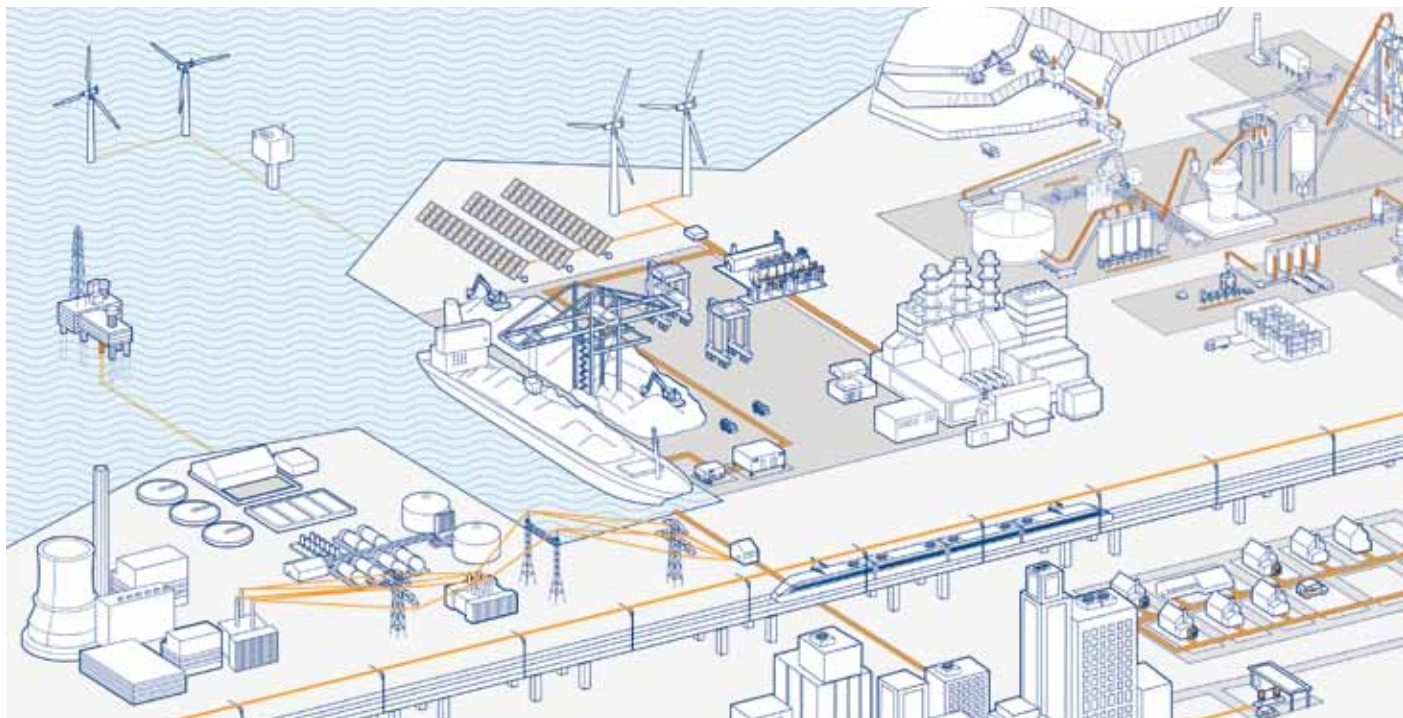
Gamesa
Taming the wind

LKAB
Providing fresh air

Contactors and motor protection

For a wide variety of segments

1



HVAC, General Machinery, Rail, Critical Power, Wind, Solar, Marine and Water & Wastewater

Contactors for any use

The AF contactor range covers small motor starting solutions from 4 kW / 5 hp up to big power switching solutions with our unique AF2650, the biggest single case block contactor in the world.

The contactor and motor protection range is part of one of the widest product offerings on the market meaning that ABB not only can provide the contactor but the full solution.

In addition to the standard product range ABB also offer products for special needs such as Bar contactors, GAF and contactors for capacitor switching.

Cooperating with customers

ABB cooperates closely with its customers to ensure that products meet requirements from their specific segments and applications. With over 100 years' experience in motor control and power switching ABB knows how to create efficient solutions for its customers.

AF technology

Benefits

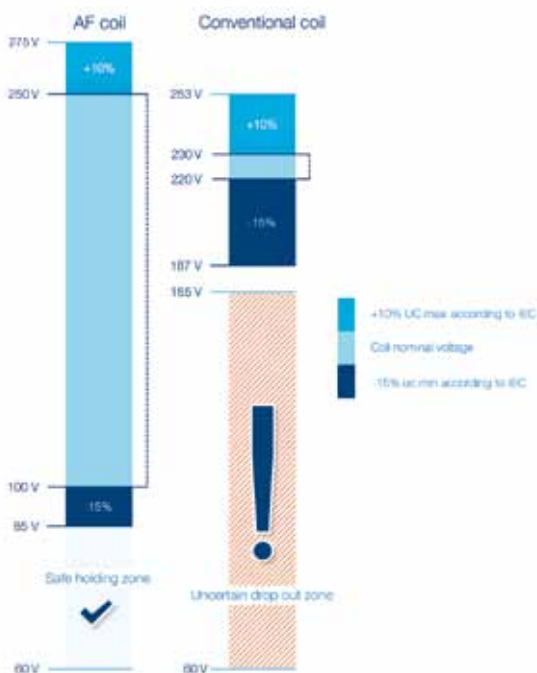


Reliable in all networks

The electronic system within the AF contactor rectifies the AC or DC control circuit voltage to a DC control voltage that is applied on the coil. The contactor is safely operated in an always optimized condition making it virtually noise free.

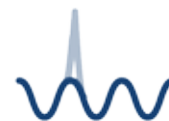
Four coils for the entire voltage range

The AF contactor features both AC and DC support. With the complete AF contactor range, functionality is improved. Still, the total number of product variants compared to a conventional range is reduced by 90 %. Only four coils are required to cover 24 V AC, 20 V DC - 500 V AC/DC.



Wide control voltage range

With conventional contactor technology, different contactors were needed for different network voltages. Thanks to the wide operating range of the AF contactor it can operate just as well in Europe as in Asia or North America. The core coil of the AF contactor range covers 100-250 V AC/DC 50/60 Hz.



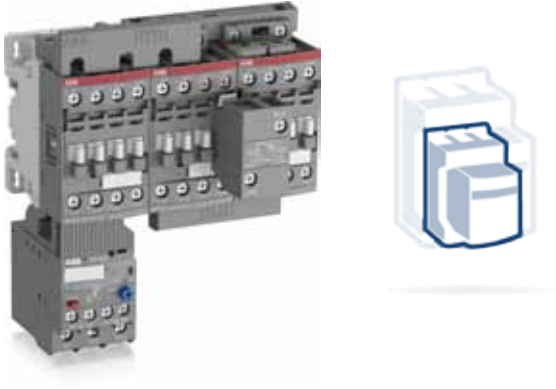
Built-in surge suppression

With conventional contactor technology it is recommended to use an external surge suppressor, an accessory that could cost as much as half the contactor itself. With the AF technology the surges are handled by the contactor itself and the surge never reaches the control circuit. Neither the surge suppressor nor the actual surge has to be considered anymore. One less product and one less complication to worry about.

Contactors and motor protection

Advanced but simple

1



The AF contactor is compact

The AF contactor is compact in size and has had its width reduced by up to 30 % thanks to an 80 % reduction of the coil's energy consumption.



The AF contactor is flexible

AF09 ... AF370 is perfect for motor starting applications and for solutions where space is limited. Interlocked reversing pairs require no spacing between contactors meaning you can fit more functionality into cabinets or other small enclosures.



Coil terminal access in the front

The AF contactor has its coil terminals accessible from the front. The cables or bars do not have to be disconnected in order to perform voltage measurement or servicing work.

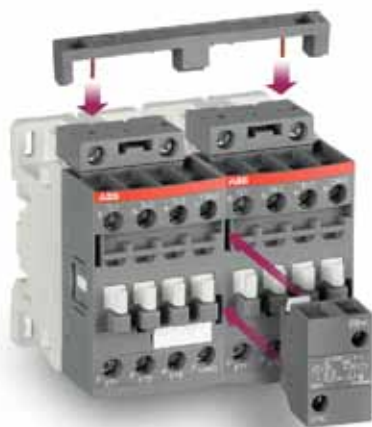


More functionality without adding width

The AF116 ... AF2650 can take up to 2 side mounted auxiliary contact blocks without adding to its width and are delivered with 1 N.O. + 1 N.C. as standard.

Contactors and motor protection

Mechanical features



Easy-to-use accessories

Contactors up to 96 A offer free choice of coil terminal access and can take side and front mounted auxiliary contact blocks. All the accessories: Coil connection terminals, mechanical and electrical interlocks and electronic timers are easily connected through the snap-to-connect function.



Top-mounted

Bottom-mounted



Additional LDC4 coil terminal block

Front-mounted



Safe control circuit with:

- Mirror contact according to IEC 60947-4-1
- Mechanically linked contacts according to IEC 60947-5-1
- Sealable and transparent protective covers on AF09 ... AF96 and overload relays TF/EF



3-pole contactors

Mini contactors

Contactors for motor control and

1



| | | | | | |
|------------------------|--------------------------------|---|-----|------------|------------|
| IEC (1) | AC-3 Rated operational power | $\theta \leq 60^\circ\text{C}$ (2), 400 V | kW | 4 | 5.5 |
| UL/CSA | 3-phase motor rating | 480 V | hp | 3 | 5 |
| AC / DC Control supply | | Type | — | — | |
| AC Control supply | | Type | B6 | B7 | |
| DC Control supply | | Type | BC6 | BC7 | |
| IEC | AC-3 Rated operational current | $\theta \leq 60^\circ\text{C}$ (2), 400 V | A | 8.5 | 11.5 |
| | AC-1 Rated operational current | $\theta \leq 40^\circ\text{C}$, 690 V | A | 20 (400 V) | 20 (400 V) |
| UL/CSA | General use rating | 600 V | A | 12 (300 V) | 16 |
| NEMA | NEMA Size | | | — | — |

| | | | | | | | | |
|-------|-------|-------|------|------|------|------|------|------|
| 4 | 5.5 | 7.5 | 4 | 5.5 | 7.5 | 11 | 15 | 18.5 |
| 5 | 7.5 | 10 | 5 | 7.5 | 10 | 15 | 20 | 20 |
| — | — | — | AF09 | AF12 | AF16 | AF26 | AF30 | AF38 |
| AS09 | AS12 | AS16 | AF09 | AF12 | AF16 | AF26 | AF30 | AF38 |
| ASL09 | ASL12 | ASL16 | AF09 | AF12 | AF16 | AF26 | AF30 | AF38 |
| 9 | 12 | 15.5 | 9 | 12 | 18 | 26 | 32 | 38 |
| 22 | 24 | 24 | 25 | 28 | 30 | 45 | 50 | 50 |
| 20 | 20 | 20 | 25 | 28 | 30 | 45 | 50 | 50 |
| 00 | 00 | 0 | 00 | 0 | — | 1 | — | — |

(1) 1000 V IEC ratings available for AF146 ... AF2650 contactors.
 (2) $\theta \leq 55^\circ\text{C}$ for mini contactors and AF400 ... AF2650 contactors.

Main accessories

| | | |
|--------------------------|--------------------------|---------|
| Auxiliary contact blocks | Front mounting | CAF6 |
| | Side mounting | CA6 |
| Timers | Electronic | |
| | Mechanical | |
| Interlocking units (4) | Mechanical / Electrical | |
| Connection sets | For reversing contactors | BSM6-30 |
| Surge suppressors | Varistor (AC/DC) | RV-BC6 |
| | RC type (AC) | |
| | Transil diode (DC) | RD7 |

| | | |
|--------------------|-------------------------------|---------|
| CA3-10 (1 x N.O.) | CA4-10 (1 x N.O.) | |
| CA3-01 (1 x N.C.) | CA4-01 (1 x N.C.) | |
| | CAL4-11 (1 x N.O. + 1 x N.C.) | |
| TEF3-ON | TEF4-ON | |
| TEF3-OFF | TEF4-OFF | |
| VM3 | VM4 | |
| | VEM4 | |
| BER16C-3 | BER16-4 | BER38-4 |
| RV5 (24...440 V) | Built-in surge protection | |
| RC5-1 (24...440 V) | | |
| RT5 (12...264 V) | | |

(4) See available reversing contactors VB6, VB7 and VAS09 ... VAS16.

Overload relays

| | | | |
|-------------------|--|--|-----------------------|
| Thermal relays | | Class 10 (Class 10A for TF140, TA200DU) | T16 (0.10...16 A) |
| Electronic relays | | Class 10E, 20E, 30E | E16DU (0.10...18.9 A) |

| | | | |
|-------------------|----------------------|----------------------|-----------------|
| T16 (0.10...16 A) | TF42 (0.10...38 A) | | |
| | EF19 (0.10...18.9 A) | EF19 (0.10...18.9 A) | EF45 (9...45 A) |

Manual motor starters

| | | |
|-------------|---|--|
| | Thermal / magnetic protection Class 10 | MS116 (0.10...32 A) lcs up to 50 kA for class 10A |
| | | MS132 (0.10...32 A) lcs up to 100 kA |
| | Magnetic only types | MO132 (0.16...32A) |
| Accessories | For contactor mounting | BEA7/132 |




| | | |
|---|---|---------|
| MS116 (0.10...32 A) lcs up to 50 kA for class 10 A | MS450 (28...50 A) lcs up to 50 kA | |
| MS132 (0.10...32 A) lcs up to 100 kA | MS497 (22...100 A) lcs up to 100 kA | |
| MO132 (0.16...32 A) lcs up to 100 kA | | |
| BEA16-3 | BEA16-4 | BEA38-4 |

4-pole contactors

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Mini contactors









| | | | | | |
|------------------------|---|--|-----|------------|----|
| IEC | AC-1 Rated operational current | $\theta \leq 40\text{ }^\circ\text{C}$, 690 V | A | 16 | 20 |
| UL/CSA | General use rating | 600 V | A | 12 (300 V) | 16 |
| AC Control supply |  | Type | B6 | B7 | |
| DC Control supply |  | Type | BC6 | BC7 | |
| AC / DC Control supply |  | Type | — | — | |

Contactor relays

Mini contactor relays



| | | | | | |
|------------------------|---|-------|---------|---|---------|
| IEC | AC-15 Rated operational current | 400 V | A | 3 | |
| UL/CSA | Pilot duty | | | A600 | |
| | | | |    | |
| AC Control supply |  | Type | K6-22Z | K6-31Z | K6-40E |
| DC Control supply |  | Type | KC6-22Z | KC6-31Z | KC6-40E |
| AC / DC Control supply |  | Type | — | — | — |

R contactors

DC Circuit switching



DC-1 Rated current up to 5000 A
 DC-3/DC-5 Rated current up to 2000 A
 1500 V with poles in series

IOR.. 63-...-CC to IOR.. 5100-...-CC

Specific contactors

DC Circuit switching



100 A, 440 V, DC-1
 GA75, GAE75 types



275 to 2050 A, 1000 V, DC-1
 GAF185 to GAF2050 types

Contactors



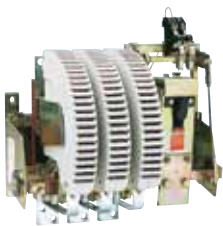
| | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|--------|
| 25 | 30 | 45 | 55 | 70 | 100 | 125 | 200 | 250 | 300 | 350 | 550 | 800 | 1000 |
| 25 | 30 | 45 | 55 | 65 | 80 | 105 | 170 | 200 | 250 | 300 | 420 | 540 | — |
| AF09 | AF16 | AF26 | AF38 | A45 | A50 | A75 | EK110 | EK150 | EK175 | EK210 | EK370 | EK550 | EK1000 |
| AF09 | AF16 | AF26 | AF38 | AE45 | AE50 | AE75 | EK110 | EK150 | EK175 | EK210 | EK370 | EK550 | EK1000 |
| AF09 | AF16 | AF26 | AF38 | AF45 | AF50 | AF75 | — | — | — | — | — | — | — |

Contactor relays



| | | | | | |
|------------|--------|--------|------------|-------|-------|
| 3 | | | 3 | | |
| A600, Q300 | | | A600, Q600 | | |
| | | | | | |
| NS22E | NS31E | NS40E | NF22E | NF31E | NF40E |
| NSL22E | NSL31E | NSL40E | NF22E | NF31E | NF40E |
| — | — | — | NF22E | NF31E | NF40E |

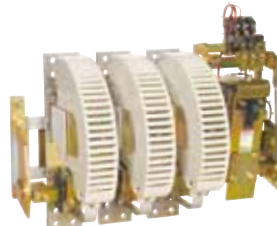
AC Circuit switching



AC-1 Rated current up to 5000 A
AC-3 Rated power up to 1500 kW
(1520 A - 440 V)

IOR.. 63-...-MT to IOR.. 5100-...-MT

Special versions



AC/DC Coupling: LOR.. contactors
Slip ring motor control: FOR .. contactors
Field discharge: AM(F)-CC-JORE contactors
AC/DC Switching (N.C./N.O. main poles):
NOR & JOR contactors
Latching contactors for energy saving
and safety requirements: AMA or AME contactors

Capacitor switching



12.5 to 80 kvar
UA16..RA to UA110..RA types
UA16 to UA110 types



Manual motor starters

[Overview](#) 2/2

0.10 to 32 A – with thermal and electromagnetic protection

Ics up to 50 kA

MS116 manual motor starters 2/4

Ics up to 100 kA

MS132 manual motor starters 2/5

0.16 to 32 A – with electromagnetic protection

Ics up to 100 kA

MO132 manual motor starters 2/6

Main accessories for MS116, MS132, MO132 2/7

22 to 100 A – with thermal and electromagnetic protection

Ics up to 50 kA

MS450, MS495, MS497 manual motor starters 2/13

32 to 100 A – with electromagnetic protection

Ics up to 50 kA

MO450, MO495, MO496 manual motor starters 2/14

Main accessories for MS450, MS495, MS497, MO450,

MO495, MO496 2/15

[General accessories](#) 2/18

For additional information such as technical datas, dimension drawings, other products and accessories, refer to our main catalog and visit our website: www.abb.com/connecttocontrol

Manual motor starters

2








2CDD241019R0011



1SBC101232FC010

| | | | | |
|---|-----------------|--------------|---------------------|--------------|
| Thermal and electromagnetic protection | Type | MS116 | MS132 | |
| Electromagnetic protection | Type | - | | MO132 |
| Phase loss sensitivity | | Yes | Yes | No |
| Switch position | | ON/OFF | ON/OFF/TRIP | |
| Magnetic trip indication | | - | Yes | |
| Lockable handle without accessories | | - | Yes | |
| Disconnecting feature | | Yes | Yes | |
| Width | | 45 mm | 45 mm | |
| Rated operational current I_e | | 0.16...32 A | 0.16...32 A | 0.16...32 A |
| Setting range for thermal release | | 0.10...32 A | 0.10...32 A | - |
| Rated operational voltage U_e | | 690 V AC | 690 V AC / 250 V DC | |
| Rated frequency | | 50/60 Hz | DC, 50/60 Hz | |
| Trip class | | 10A | 10 | |
| Short-circuit breaking capacity I_{cs} | 400 V AC | Up to 50 kA | Up to 100 kA | |
| Ambient air temperature open compensated | | -25...+55 °C | -25...+60 °C | |

Main accessories

| | | | |
|-----------------------------|---|------|-----|
| Auxiliary contacts | | | |
| Front mounting |  | HKF1 | |
| Side mounting |  | HK1 | |
| Signalling contacts | | | |
| Tripped alarm |  | SK1 | |
| Short-circuit alarm |  | - | CK1 |
| Auxiliary trip units | | | |
| Shunt trip |  | AA1 | |
| Undervoltage release |  | UA1 | |
| Busbar systems | | | |
| 3-phase busbar |  | PS1 | |
| Feeder terminals |  | S1 | |



2CDC241004F0009



1SBC101184F0014



2CDC241020F0011

| MS450 | | MS495 | | MS497 | |
|---------------------|-----------|---------------------|------------|---------------------|------------|
| MO450 | | MO495 | | MO496 | |
| Yes | No | Yes | No | Yes | No |
| ON/OFF/TRIP | | ON/OFF/TRIP | | ON/OFF/TRIP | |
| - | | - | | - | |
| Yes | | Yes | | Yes | |
| Yes | | Yes | | Yes | |
| 55 mm | | 70 mm | | 70 mm | |
| 40...50 A | 40...50 A | 63...100 A | 63...100 A | 32...100 A | 32...100 A |
| 28...50 A | - | 45...100 A | - | 22...100 A | - |
| 690 V AC / 440 V DC | | 690 V AC / 440 V DC | | 690 V AC / 440 V DC | |
| DC, 50/60 Hz | | DC, 50/60 Hz | | DC, 50/60 Hz | |
| 10 | | 10 | | 10 | |
| Up to 50 kA | | Up to 50 kA | | Up to 100 kA | |
| -20...+60 °C | | -20...+60 °C | | -20...+60 °C | |
| HK4 | | | | | |
| HKS4 | | | | | |
| SK4 | | | | | |
| SK4 | | | | | |
| AA4 | | | | | |
| UA4 | | | | | |
| PS4 | | - | | | |
| S4 | | - | | | |

2CDC131056C0201

MS116 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection

2



2CDD241010F0011

MS116-16



2CDD241010F0011

MS116-25



2CDD241013F0011

MS116-0.16-HKF1-11



2CDD241012F0011

MS116-32-HKF1-11

Description

Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse less against short-circuit, overload and phase failures. Fuse less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

MS116 is a compact and economic range for motor protection up to 15.5 kW (400 V) / 32 A in width of 45 mm. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. Auxiliary contacts, signalling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks and locking devices for protection against unauthorized changes are available as accessory.

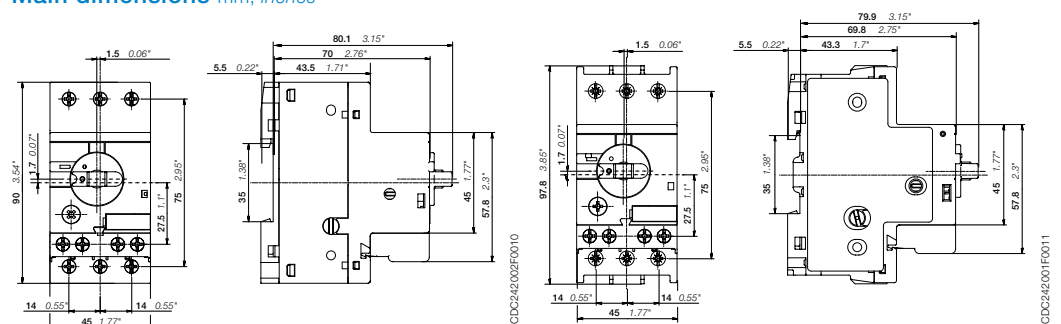
Ordering details

| Rated operational power 400 V AC-3 | Setting range | Short-circuit breaking capacity Ics at 400 V AC | Rated instantaneous short-circuit current setting Ii | Type | Order code | Weight (1 pce) |
|------------------------------------|---------------|---|--|------------|-----------------|----------------|
| kW | A | kA | A | | | kg |
| 0.03 | 0.10...0.16 | 50 | 1.56 | MS116-0.16 | 1SAM250000R1001 | 0.225 |
| 0.06 | 0.16...0.25 | 50 | 2.44 | MS116-0.25 | 1SAM250000R1002 | 0.225 |
| 0.09 | 0.25...0.40 | 50 | 3.90 | MS116-0.4 | 1SAM250000R1003 | 0.225 |
| 0.12 | 0.40...0.63 | 50 | 6.14 | MS116-0.63 | 1SAM250000R1004 | 0.225 |
| 0.25 | 0.63...1.00 | 50 | 11.50 | MS116-1.0 | 1SAM250000R1005 | 0.225 |
| 0.55 | 1.00...1.60 | 50 | 18.40 | MS116-1.6 | 1SAM250000R1006 | 0.265 |
| 0.75 | 1.60...2.50 | 50 | 28.75 | MS116-2.5 | 1SAM250000R1007 | 0.265 |
| 1.5 | 2.50...4.00 | 50 | 50.00 | MS116-4.0 | 1SAM250000R1008 | 0.265 |
| 2.2 | 4.00...6.30 | 50 | 78.75 | MS116-6.3 | 1SAM250000R1009 | 0.265 |
| 4.0 | 6.30...10.0 | 50 | 150 | MS116-10 | 1SAM250000R1010 | 0.265 |
| 5.5 | 8.00...12.0 | 25 | 180 | MS116-12 | 1SAM250000R1012 | 0.265 |
| 7.5 | 10.0...16.0 | 16 | 240 | MS116-16 | 1SAM250000R1011 | 0.265 |
| 9.0 | 16.0...20.0 | 10 | 300 | MS116-20 | 1SAM250000R1013 | 0.310 |
| 12.5 | 20.0...25.0 | 10 | 375 | MS116-25 | 1SAM250000R1014 | 0.310 |
| 15.5 | 25.0...32.0 | 10 | 480 | MS116-32 | 1SAM250000R1015 | 0.310 |

Auxiliary contacts mounted on the front (1 N.O. + 1 N.C.)

| | | | | | | |
|------|-------------|----|-------|--------------------|-----------------|-------|
| 0.03 | 0.10...0.16 | 50 | 1.56 | MS116-0.16-HKF1-11 | 1SAM250005R1001 | 0.240 |
| 0.06 | 0.16...0.25 | 50 | 2.44 | MS116-0.25-HKF1-11 | 1SAM250005R1002 | 0.240 |
| 0.09 | 0.25...0.40 | 50 | 3.90 | MS116-0.4-HKF1-11 | 1SAM250005R1003 | 0.240 |
| 0.12 | 0.40...0.63 | 50 | 6.14 | MS116-0.63-HKF1-11 | 1SAM250005R1004 | 0.240 |
| 0.25 | 0.63...1.00 | 50 | 11.50 | MS116-1.0-HKF1-11 | 1SAM250005R1005 | 0.240 |
| 0.55 | 1.00...1.60 | 50 | 18.40 | MS116-1.6-HKF1-11 | 1SAM250005R1006 | 0.280 |
| 0.75 | 1.60...2.50 | 50 | 28.75 | MS116-2.5-HKF1-11 | 1SAM250005R1007 | 0.280 |
| 1.5 | 2.50...4.00 | 50 | 50.00 | MS116-4.0-HKF1-11 | 1SAM250005R1008 | 0.280 |
| 2.2 | 4.00...6.30 | 50 | 78.75 | MS116-6.3-HKF1-11 | 1SAM250005R1009 | 0.280 |
| 4.0 | 6.30...10.0 | 50 | 150 | MS116-10.0-HKF1-11 | 1SAM250005R1010 | 0.280 |
| 5.5 | 8.00...12.0 | 25 | 180 | MS116-12.0-HKF1-11 | 1SAM250005R1012 | 0.280 |
| 7.5 | 10.0...16.0 | 16 | 240 | MS116-16.0-HKF1-11 | 1SAM250005R1011 | 0.280 |
| 9.0 | 16.0...20.0 | 10 | 300 | MS116-20-HKF1-11 | 1SAM250005R1013 | 0.326 |
| 12.5 | 20.0...25.0 | 10 | 375 | MS116-25-HKF1-11 | 1SAM250005R1014 | 0.326 |
| 15.5 | 25.0...32.0 | 10 | 480 | MS116-32-HKF1-11 | 1SAM250005R1015 | 0.326 |

Main dimensions mm, inches



MS116 ≤ 16 A & MS116-HKF1-11 ≤ 16 A

MS116 ≥ 20 A & MS116-HKF1-11 ≥ 20 A

MS132 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS132-10

1SBC101232F0010



MS132-32

2CDC241001F0011



MS132-0.16-HKF1-11

2CDC241014F0011



MS132-32-HKF1-11

2CDC241015F0011

Description

Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse less against short-circuit, overload and phase failures. Fuse less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

MS132 is a compact and powerful range for motor protection up 15.5 kW (400 V) / 32 A in width of 45 mm. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signalling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks.

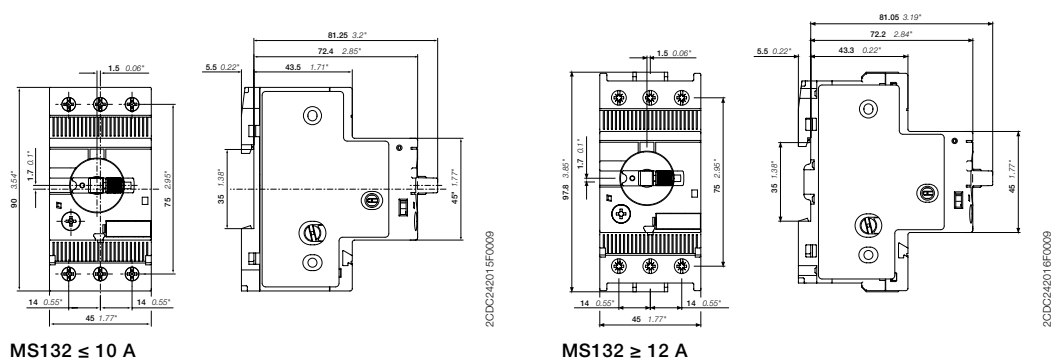
Ordering details

| Rated operational power 400 V AC-3 | Setting range | Short-circuit breaking capacity Ics at 400 V AC | Rated instantaneous short-circuit current setting Ii | Type | Order code | Weight (1 pce) |
|------------------------------------|---------------|---|--|------------|-----------------|----------------|
| kW | A | kA | A | | | kg |
| 0.03 | 0.10...0.16 | 100 | 1.56 | MS132-0.16 | 1SAM350000R1001 | 0.215 |
| 0.06 | 0.16...0.25 | 100 | 2.44 | MS132-0.25 | 1SAM350000R1002 | 0.215 |
| 0.09 | 0.25...0.40 | 100 | 3.90 | MS132-0.4 | 1SAM350000R1003 | 0.215 |
| 0.12 | 0.40...0.63 | 100 | 6.14 | MS132-0.63 | 1SAM350000R1004 | 0.215 |
| 0.25 | 0.63...1.00 | 100 | 11.50 | MS132-1.0 | 1SAM350000R1005 | 0.215 |
| 0.55 | 1.00...1.60 | 100 | 18.40 | MS132-1.6 | 1SAM350000R1006 | 0.265 |
| 0.75 | 1.60...2.50 | 100 | 28.75 | MS132-2.5 | 1SAM350000R1007 | 0.265 |
| 1.5 | 2.50...4.00 | 100 | 50.00 | MS132-4.0 | 1SAM350000R1008 | 0.265 |
| 2.2 | 4.00...6.30 | 100 | 78.75 | MS132-6.3 | 1SAM350000R1009 | 0.265 |
| 4.0 | 6.30...10.0 | 100 | 150 | MS132-10 | 1SAM350000R1010 | 0.265 |
| 5.5 | 8.00...12.0 | 100 | 180 | MS132-12 | 1SAM350000R1012 | 0.310 |
| 7.5 | 10.0...16.0 | 100 | 240 | MS132-16 | 1SAM350000R1011 | 0.310 |
| 9.0 | 16.0...20.0 | 100 | 300 | MS132-20 | 1SAM350000R1013 | 0.310 |
| 12.5 | 20.0...25.0 | 50 | 375 | MS132-25 | 1SAM350000R1014 | 0.310 |
| 15.5 | 25.0...32.0 | 25 | 480 | MS132-32 | 1SAM350000R1015 | 0.310 |

Auxiliary contacts mounted on the front (1 N.O. + 1 N.C.)

| | | | | | | |
|------|-------------|-----|-------|--------------------|-----------------|-------|
| 0.03 | 0.10...0.16 | 100 | 1.56 | MS132-0.16-HKF1-11 | 1SAM350005R1001 | 0.231 |
| 0.06 | 0.16...0.25 | 100 | 2.44 | MS132-0.25-HKF1-11 | 1SAM350005R1002 | 0.231 |
| 0.09 | 0.25...0.40 | 100 | 3.90 | MS132-0.4-HKF1-11 | 1SAM350005R1003 | 0.231 |
| 0.12 | 0.40...0.63 | 100 | 6.14 | MS132-0.63-HKF1-11 | 1SAM350005R1004 | 0.231 |
| 0.25 | 0.63...1.00 | 100 | 11.50 | MS132-1.0-HKF1-11 | 1SAM350005R1005 | 0.231 |
| 0.55 | 1.00...1.60 | 100 | 18.40 | MS132-1.6-HKF1-11 | 1SAM350005R1006 | 0.281 |
| 0.75 | 1.60...2.50 | 100 | 28.75 | MS132-2.5-HKF1-11 | 1SAM350005R1007 | 0.281 |
| 1.5 | 2.50...4.00 | 100 | 50.00 | MS132-4.0-HKF1-11 | 1SAM350005R1008 | 0.281 |
| 2.2 | 4.00...6.30 | 100 | 78.75 | MS132-6.3-HKF1-11 | 1SAM350005R1009 | 0.281 |
| 4.0 | 6.30...10.0 | 100 | 150 | MS132-10.0-HKF1-11 | 1SAM350005R1010 | 0.281 |
| 5.5 | 8.00...12.0 | 100 | 180 | MS132-12.0-HKF1-11 | 1SAM350005R1012 | 0.326 |
| 7.5 | 10.0...16.0 | 100 | 240 | MS132-16.0-HKF1-11 | 1SAM350005R1011 | 0.326 |
| 9.0 | 16.0...20.0 | 100 | 300 | MS132-20-HKF1-11 | 1SAM350005R1013 | 0.326 |
| 12.5 | 20.0...25.0 | 50 | 375 | MS132-25-HKF1-11 | 1SAM350005R1014 | 0.326 |
| 15.5 | 25.0...32.0 | 25 | 480 | MS132-32-HKF1-11 | 1SAM350005R1015 | 0.326 |

Main dimensions mm, inches



MS132 ≤ 10 A

MS132 ≥ 12 A

MO132 manual motor starters magnetic only

0.16 to 32 A – with electromagnetic protection

2



2CDC241009F0011

MO132-6.3



2CDC241009F0011

MO132-32

Description

Manual motor starters magnetic only are electromechanical protection devices for the main circuit. They are used mainly to switch motors manually ON/OFF and protect them fuse less against short-circuit.

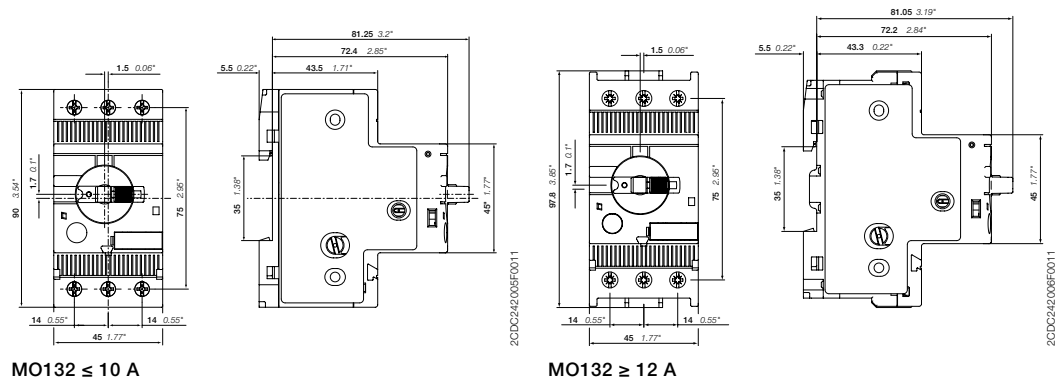
Fuse less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds. Fuse less starter combinations are setup together with contactors and overload relays.

Ordering details

| Rated operational power 400 V AC-3 (1) | Rated operational current | Short-circuit breaking capacity Ics at 400 V AC | Rated instantaneous short-circuit current setting Ii | Type | Order code | Weight (1 pce) |
|--|---------------------------|---|--|------------|-----------------|----------------|
| kW | A | kA | A | | | kg |
| 0.03 | 0.16 | 100 | 1.56 | MO132-0.16 | 1SAM360000R1001 | 0.215 |
| 0.06 | 0.25 | 100 | 2.44 | MO132-0.25 | 1SAM360000R1002 | 0.215 |
| 0.09 | 0.40 | 100 | 3.90 | MO132-0.4 | 1SAM360000R1003 | 0.215 |
| 0.12 | 0.63 | 100 | 6.14 | MO132-0.63 | 1SAM360000R1004 | 0.215 |
| 0.25 | 1.0 | 100 | 11.50 | MO132-1.0 | 1SAM360000R1005 | 0.215 |
| 0.55 | 1.6 | 100 | 18.40 | MO132-1.6 | 1SAM360000R1006 | 0.265 |
| 0.75 | 2.5 | 100 | 28.75 | MO132-2.5 | 1SAM360000R1007 | 0.265 |
| 1.5 | 4.0 | 50 | 50.00 | MO132-4.0 | 1SAM360000R1008 | 0.265 |
| 2.2 | 6.3 | 50 | 78.75 | MO132-6.3 | 1SAM360000R1009 | 0.265 |
| 4.0 | 10 | 50 | 125.00 | MO132-10 | 1SAM360000R1010 | 0.265 |
| 5.5 | 12 | 50 | 150.00 | MO132-12 | 1SAM360000R1012 | 0.310 |
| 7.5 | 16 | 50 | 200.00 | MO132-16 | 1SAM360000R1011 | 0.310 |
| 9.0 | 20 | 50 | 250.00 | MO132-20 | 1SAM360000R1013 | 0.310 |
| 12.5 | 25 | 50 | 312.50 | MO132-25 | 1SAM360000R1014 | 0.310 |
| 15.5 | 32 | 25 | 400.00 | MO132-32 | 1SAM360000R1015 | 0.310 |

(1) For overload protection of motors, an appropriate thermal or electronic overload relay must be used.

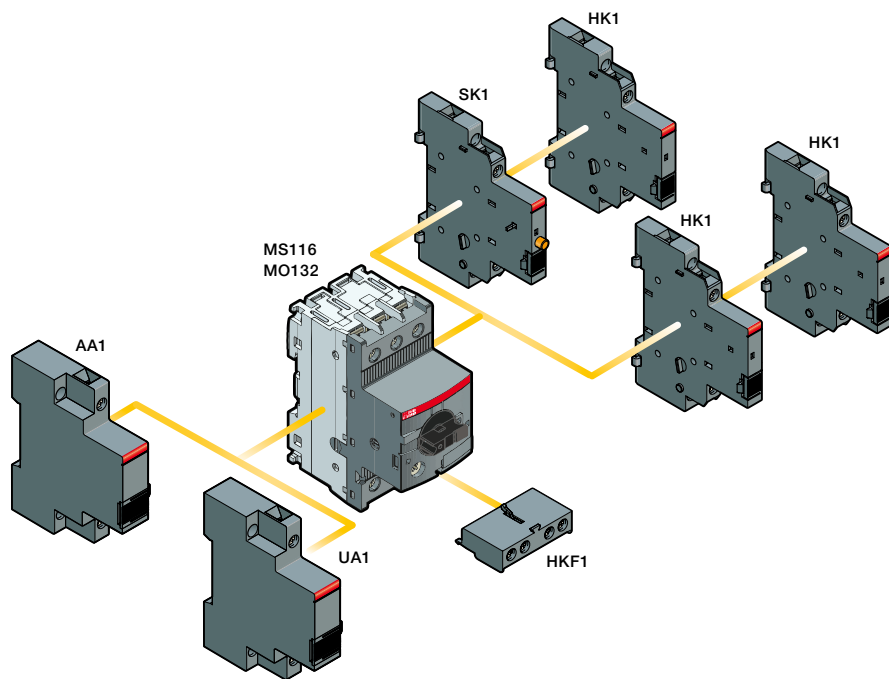
Main dimensions mm, inches



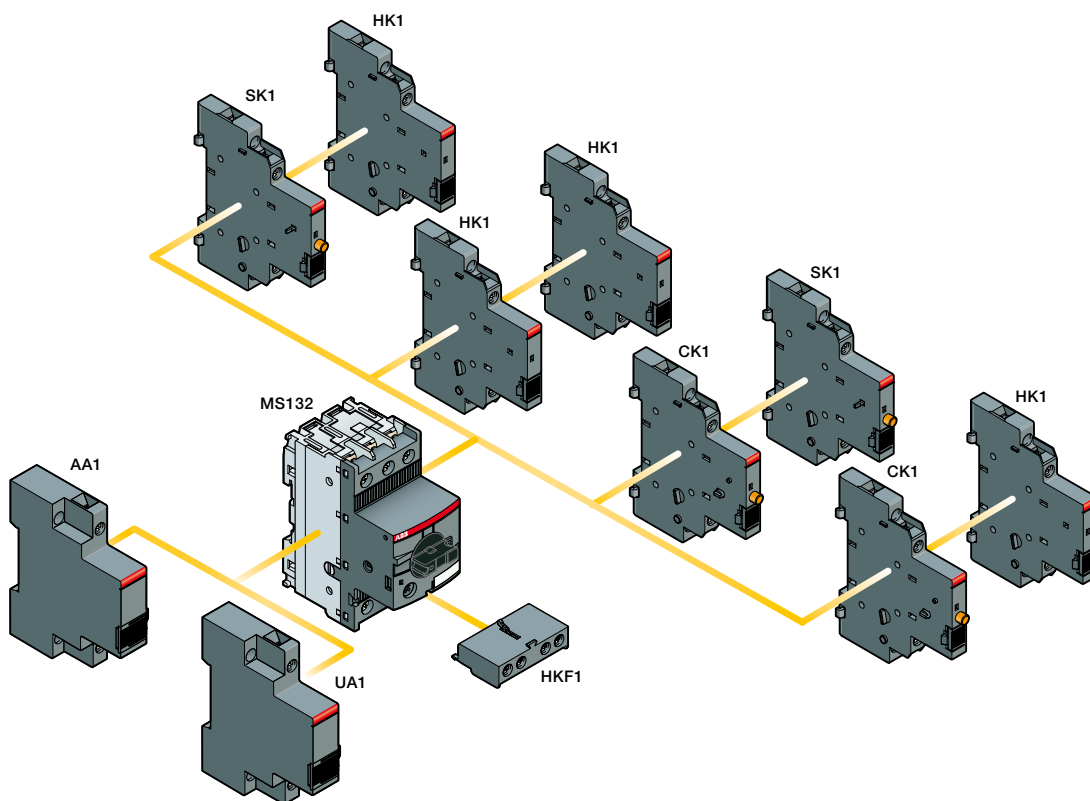
MS116, MS132, MO132 manual motor starters

Main accessories

MS116, MO132 manual motor starters with accessories



MS132 manual motor starters with accessories



MS116, MS132, MO132 manual motor starters

Main accessories



1SBC101208F0014

HKF1-11

2



1SBC101209F0014

HK1-11



1SBC101210F0014

SK1-11



1SBC101286F0014

CK1-11

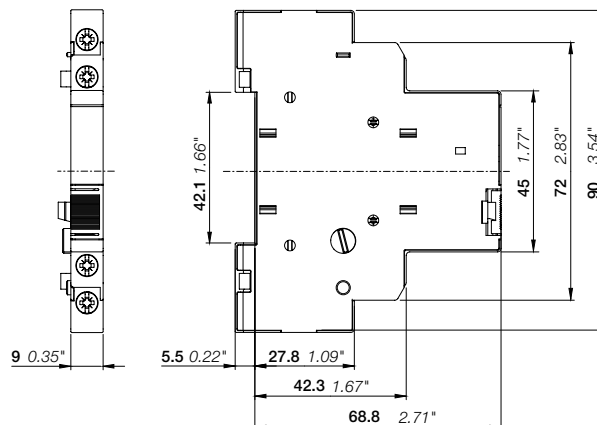
Description

Manual motor starters can be equipped with auxiliary contacts for lateral/front mounting, signalling contact for lateral mounting, undervoltage release and shunt trips. Two different signalling contacts are available. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. The signalling contact SK signals tripping regardless if it was caused by short-circuit or overload. The signalling contact CK signals tripping in case it was caused by short-circuit. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

| Suitable for | Auxiliary contacts N.O. | Auxiliary contacts N.C. | Description | Type | Order code | Pkg qty | Weight (1 pce) kg |
|---|-------------------------|-------------------------|--|---------|-----------------|---------|----------------------|
| Auxiliary contacts – mountable on the front | | | | | | | |
| MS116, MS132, MO132 | 1 | 1 | | HKF1-11 | 1SAM201901R1001 | 10 | 0.015 |
| | 2 | 0 | | HKF1-20 | 1SAM201901R1002 | 10 | 0.015 |
| Auxiliary contacts – mountable on the right | | | | | | | |
| MS116, MS132, MO132 | 1 | 1 | max. 2 pieces | HK1-11 | 1SAM201902R1001 | 2 | 0.035 |
| | 2 | 0 | max. 2 pieces | HK1-20 | 1SAM201902R1002 | 2 | 0.035 |
| | 0 | 2 | max. 2 pieces | HK1-02 | 1SAM201902R1003 | 2 | 0.035 |
| | 2 | 0 | with lead contacts | HK1-20L | 1SAM201902R1004 | 2 | 0.035 |
| Signalling contacts – mountable on the right | | | | | | | |
| MS116, MS132, MO132 | 1 | 1 | for tripped alarm, max. 2 pieces | SK1-11 | 1SAM201903R1001 | 2 | 0.035 |
| | 2 | 0 | for tripped alarm, max. 2 pieces | SK1-20 | 1SAM201903R1002 | 2 | 0.035 |
| | 0 | 2 | for tripped alarm, max. 2 pieces | SK1-02 | 1SAM201903R1003 | 2 | 0.035 |
| MS132 | 1 | 1 | for short-circuit alarm, max. 2 pieces | CK1-11 | 1SAM301901R1001 | 2 | 0.035 |
| | 2 | 0 | for short-circuit alarm, max. 2 pieces | CK1-20 | 1SAM301901R1002 | 2 | 0.035 |
| | 0 | 2 | for short-circuit alarm, max. 2 pieces | CK1-02 | 1SAM301901R1003 | 2 | 0.035 |

Main dimensions mm, inches



HK1

2DC24001F0012

2CDC131056C0201

MS116, MS132, MO132 manual motor starters

Main accessories



AA1-24



UA1-24

Ordering details

| Suitable for | Rated control supply voltage | Frequency | Type | Order code | Pkg qty | Weight (1 pce) |
|--------------|------------------------------|-----------|------|------------|---------|----------------|
| | V | Hz | | | | kg |

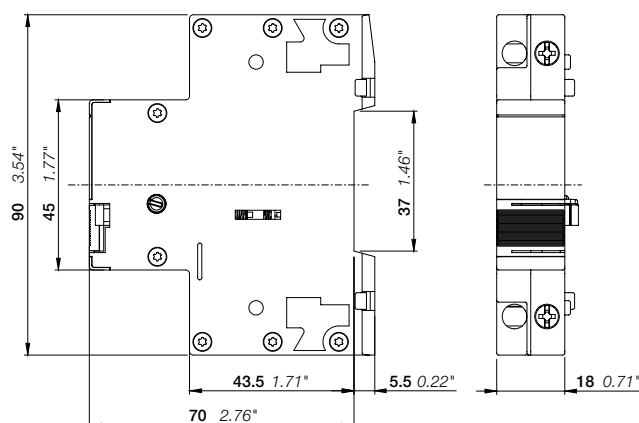
Shunt trips – mountable on the left

| | | | | | | |
|---------------------|-----------|-------|---------|-----------------|---|-------|
| MS116, MS132, MO132 | 20...24 | 50/60 | AA1-24 | 1SAM201910R1001 | 1 | 0.100 |
| | 110 | 50/60 | AA1-110 | 1SAM201910R1002 | 1 | 0.100 |
| | 200...240 | 50/60 | AA1-230 | 1SAM201910R1003 | 1 | 0.100 |
| | 350...415 | 50/60 | AA1-400 | 1SAM201910R1004 | 1 | 0.100 |

Undervoltage releases – mountable on the left

| | | | | | | |
|---------------------|-----------|-------|---------|-----------------|---|-------|
| MS116, MS132, MO132 | 24 | 50 | UA1-24 | 1SAM201904R1001 | 1 | 0.100 |
| | 48 | 50 | UA1-48 | 1SAM201904R1002 | 1 | 0.100 |
| | 60 | 50 | UA1-60 | 1SAM201904R1003 | 1 | 0.100 |
| | 110...120 | 50/60 | UA1-110 | 1SAM201904R1004 | 1 | 0.100 |
| | 208 | 60 | UA1-208 | 1SAM201904R1008 | 1 | 0.100 |
| | 230...240 | 50/60 | UA1-230 | 1SAM201904R1005 | 1 | 0.100 |
| | 400 | 50 | UA1-400 | 1SAM201904R1006 | 1 | 0.100 |
| | 415...480 | 50/60 | UA1-415 | 1SAM201904R1007 | 1 | 0.100 |

Main dimensions mm, inches



AA1, UA1

2CDC240029P0012

2CDC131056C0201

MS116, MS132, MO132 manual motor starters

Main accessories

2



2CDC241004F0010

IB132-Y



2CDC241003F0010

IB132-G

Description

IB132 are IP65 enclosures for single MMS installation. Additional mounting of auxiliary and signalling contacts, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.

DMS132 are IP65 door mounting kits for MMS installation in any enclosure. Additional mounting of auxiliary, signalling, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.

Ordering details

| Suitable for | Description | Color | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--|---|------------|----------|-----------------|---------|-------------------|
| IP65 enclosures (UL: Type 12) | | | | | | |
| MS116, | Padlockable max. 3 padlocks with bail diameter 4...6.5 mm | Yellow/red | IB132-Y | 1SAM201911R1011 | 1 | 0.370 |
| MS132, MO132 | | Grey/black | IB132-G | 1SAM201911R1010 | 1 | 0.370 |
| IP65 door mounting kits (UL: Type 12) | | | | | | |
| MS116, | Padlockable max. 3 padlocks with bail diameter 4...6.5 mm | Yellow/red | DMS132-Y | 1SAM201912R1011 | 1 | 0.170 |
| MS132, MO132 | | Grey/black | DMS132-G | 1SAM201912R1010 | 1 | 0.170 |

Indication I-O-T and ON-OFF-T.



2CDC241002F0010

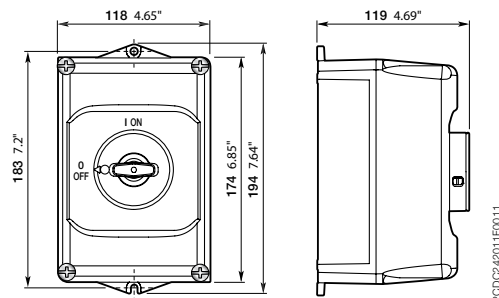
DMS132-Y



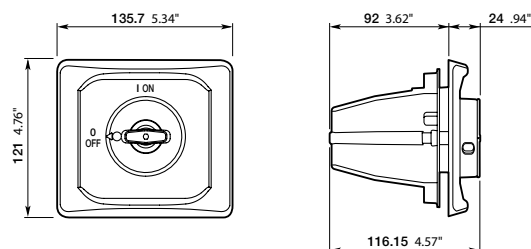
2CDC241001F0010

DMS132-G

Main dimensions mm, inches



IB132

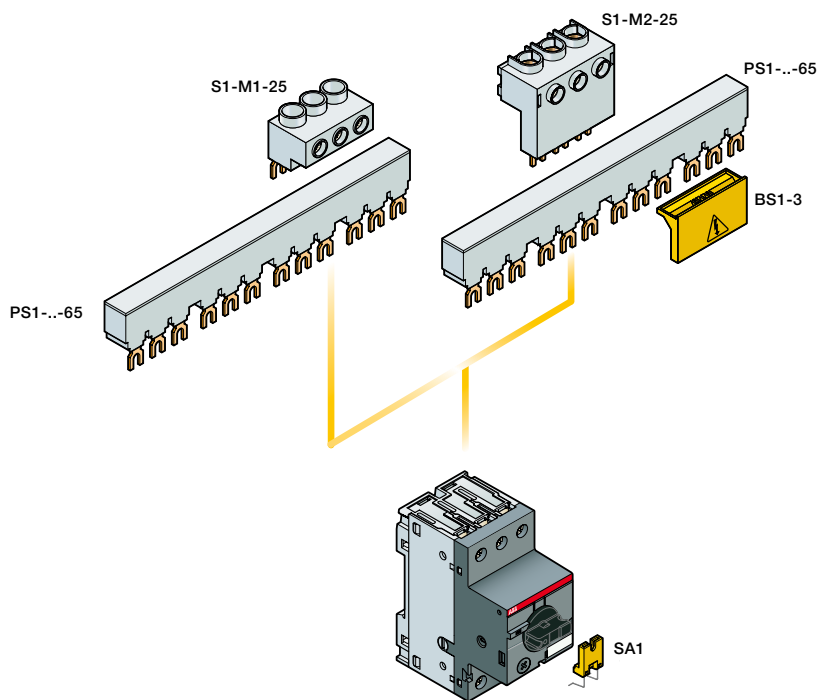


DMS132

MS116, MS132, MO132 manual motor starters

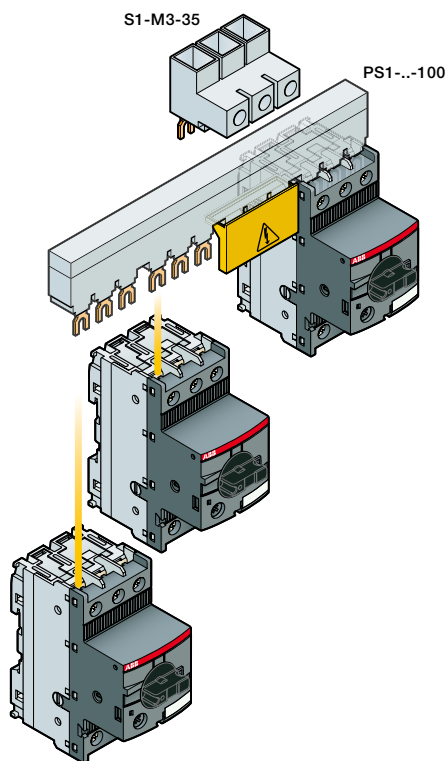
Main accessories

Manual motor starter with three-phase busbar systems



Three-phase busbar up to 65 A

2CDC240201F0013



Three-phase busbar up to 100 A

2CDC240201F0013

2CDC131056C0201

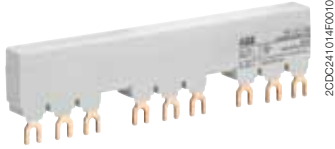
MS116, MS132, MO132 manual motor starters

Main accessories

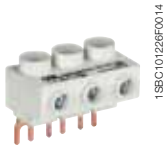
2



PS1-2-0-65



PS1-3-1-100



S1-M1-25



S1-M2-25



SA1



SA2

Description

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 100 A are in the assortment. Between 2 and 5 manual motor starters with none, one or two lateral auxiliary contacts can be connected. Different three-phase feeder terminals are available according to the application.

Ordering details

| Suitable for | Rated operational current A | Number of MMS | Number of lateral aux. | Type | Order code | Pkg qty | Weight (1 pce) kg |
|----------------------------|--------------------------------|---------------|------------------------|-------------|-----------------|---------|----------------------|
| Three-phase busbars | | | | | | | |
| MS116, MS132, MO132 | 65 | 2 | 0 | PS1-2-0-65 | 1SAM201906R1102 | 10 | 0.034 |
| | 65 | 3 | 0 | PS1-3-0-65 | 1SAM201906R1103 | 10 | 0.055 |
| | 65 | 4 | 0 | PS1-4-0-65 | 1SAM201906R1104 | 10 | 0.077 |
| | 65 | 5 | 0 | PS1-5-0-65 | 1SAM201906R1105 | 10 | 0.098 |
| | 65 | 2 | 1 | PS1-2-1-65 | 1SAM201906R1112 | 10 | 0.036 |
| | 65 | 3 | 1 | PS1-3-1-65 | 1SAM201906R1113 | 10 | 0.060 |
| | 65 | 4 | 1 | PS1-4-1-65 | 1SAM201906R1114 | 10 | 0.087 |
| | 65 | 5 | 1 | PS1-5-1-65 | 1SAM201906R1115 | 10 | 0.108 |
| | 65 | 2 | 2 | PS1-2-2-65 | 1SAM201906R1122 | 10 | 0.040 |
| | 65 | 3 | 2 | PS1-3-2-65 | 1SAM201906R1123 | 10 | 0.067 |
| MS116, MS132, MO132 | 65 | 4 | 2 | PS1-4-2-65 | 1SAM201906R1124 | 10 | 0.095 |
| | 65 | 5 | 2 | PS1-5-2-65 | 1SAM201906R1125 | 10 | 0.122 |
| | 100 | 3 | 0 | PS1-3-0-100 | 1SAM201916R1103 | 10 | 0.084 |
| | 100 | 4 | 0 | PS1-4-0-100 | 1SAM201916R1104 | 10 | 0.117 |
| | 100 | 5 | 0 | PS1-5-0-100 | 1SAM201916R1105 | 10 | 0.154 |
| | 100 | 3 | 1 | PS1-3-1-100 | 1SAM201916R1113 | 10 | 0.094 |
| | 100 | 4 | 1 | PS1-4-1-100 | 1SAM201916R1114 | 10 | 0.134 |
| | 100 | 5 | 1 | PS1-5-1-100 | 1SAM201916R1115 | 10 | 0.172 |
| | 100 | 3 | 2 | PS1-3-2-100 | 1SAM201916R1123 | 10 | 0.105 |

| Suitable for | Rated operational current A | Rated cross section mm ² | Mounting form | Type | Order code | Pkg qty | Weight (1 pce) kg |
|-------------------------------------|--------------------------------|--|-------------------|----------|-----------------|---------|----------------------|
| Three-phase feeder terminals | | | | | | | |
| MS116, MS132, MO132 | 65 | 25 | Flat | S1-M1-25 | 1SAM201907R1101 | 10 | 0.038 |
| | 65 | 25 | High | S1-M2-25 | 1SAM201907R1102 | 10 | 0.051 |
| | 65 | 25 | UL type E and IEC | S1-M3-25 | 1SAM201907R1103 | 10 | 0.042 |
| | 100 | 35 | UL type E and IEC | S1-M3-35 | 1SAM201913R1103 | 10 | 0.060 |

| Suitable for | Description | Type | Order code | Pkg qty | Weight (1 pce) kg |
|---------------------|------------------------------|-------|-----------------|---------|----------------------|
| MS116, MS132, MO132 | Protection cover for busbars | BS1-3 | 1SAM201908R1001 | 50 | 0.003 |
| | Screw fixing kit | FS116 | 1SAM201909R1001 | 1 | 0.020 |
| | Padlock + two keys | SA2 | GJF1101903R0002 | 10 | 0.020 |
| MS116 | Lock handle | SA1 | GJF1101903R0001 | 10 | 0.003 |
| | Lock handle box SA1/SA2 | SA3 | GJF1101903R0003 | 10 | 0.050 |

MS450, MS495, MS497 manual motor starters

22 to 100 A – with thermal and electromagnetic protection



2CDC241004F0009

MS450-40



1SBC101184F0014

MS495-40



2CDC241029F0011

MS497-100

Description

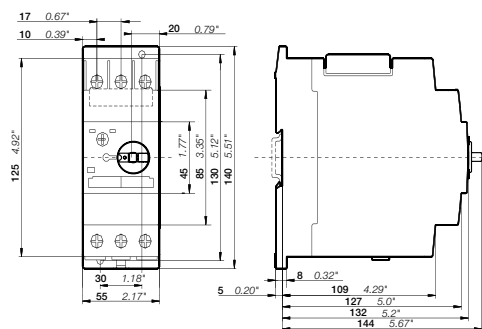
Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse less against short-circuit, overload and phase failures. Fuse less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signalling contacts, undervoltage releases, shunt trips, three-phase busbars, power in-feed blocks are available as accessory.

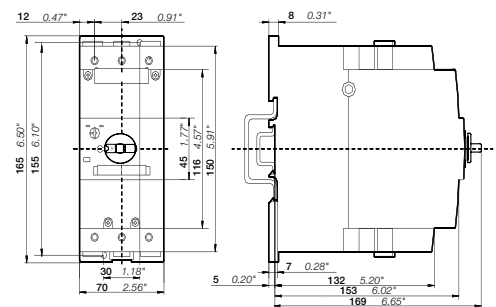
Ordering details

| Rated operational power 400 V AC-3 kW | Setting range A | Short-circuit breaking capacity Ics at 400 V AC kA | Rated instantaneous short-circuit current setting li A | Type | Order code | Weight (1 pce) kg |
|--|--------------------|---|---|-----------|-----------------|----------------------|
| MS450 manual motor starters | | | | | | |
| 15.8 | 28.0...40.0 | 25 | 520.00 | MS450-40 | 1SAM450000R1005 | 1.047 |
| 22 | 36.0...45.0 | 25 | 585.00 | MS450-45 | 1SAM450000R1006 | 1.039 |
| 22 | 40.0...50.0 | 25 | 650.00 | MS450-50 | 1SAM450000R1007 | 1.027 |
| MS495 manual motor starters | | | | | | |
| 30 | 45.0...63.0 | 25 | 819.00 | MS495-63 | 1SAM550000R1007 | 2.247 |
| 37 | 57.0...75.0 | 25 | 975.00 | MS495-75 | 1SAM550000R1008 | 2.253 |
| 45 | 70.0...90.0 | 25 | 1170.00 | MS495-90 | 1SAM550000R1009 | 2.280 |
| 55 | 80.0...100.0 | 25 | 1235.00 | MS495-100 | 1SAM550000R1010 | 2.295 |
| MS497 manual motor starters | | | | | | |
| 15 | 22.0...32.0 | 50 | 416.00 | MS497-32 | 1SAM580000R1004 | 2.222 |
| 18.5 | 28.0...40.0 | 50 | 520.00 | MS497-40 | 1SAM580000R1005 | 2.203 |
| 22 | 36.0...50.0 | 50 | 650.00 | MS497-50 | 1SAM580000R1006 | 2.230 |
| 30 | 45.0...63.0 | 50 | 819.00 | MS497-63 | 1SAM580000R1007 | 2.255 |
| 37 | 57.0...75.0 | 50 | 975.00 | MS497-75 | 1SAM580000R1008 | 2.266 |
| 45 | 70.0...90.0 | 50 | 1170.00 | MS497-90 | 1SAM580000R1009 | 2.268 |
| 55 | 80.0...100.0 | 50 | 1235.00 | MS497-100 | 1SAM580000R1010 | 2.275 |

Main dimensions mm, inches



MS450



MS495, MS497

MO450, MO495, MO496 manual motor starters magnetic only 32 to 100 A – with electromagnetic protection

2



ST02601

MO450-40



ST02601

MO495-75



2CDD241021F0011

MO496-100

Description

The manual motor starter magnetic only is used to manually switch on and off motors and to protect them reliably and without the need for a fuse from short-circuits.

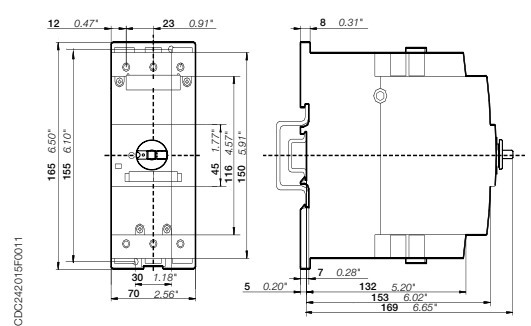
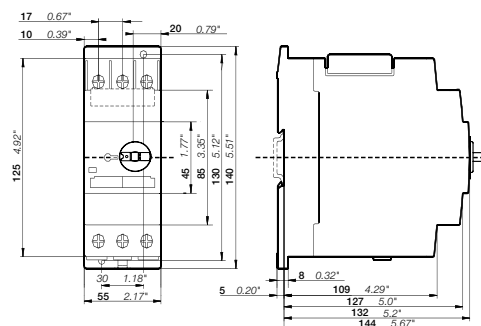
Further features are the build-in disconnect function, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter magnetic only is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signalling contacts, undervoltage releases, shunt trips, three-phase busbars, power in-feed blocks are available as accessory.

Ordering details

| Rated operational power 400 V AC-3 (1) kW | Rated operational current A | Short-circuit breaking capacity Ics at 400 V AC kA | Rated instantaneous short-circuit current setting Ii A | Type | Order code | Weight (1 pce) kg |
|--|--------------------------------|---|---|-----------|-----------------|----------------------|
| MO450 manual motor starter magnetic only | | | | | | |
| 15.8 | 40 | 25 | 520.00 | MO450-40 | 1SAM460000R1005 | 1.033 |
| 22 | 45 | 25 | 585.00 | MO450-45 | 1SAM460000R1006 | 1.040 |
| 22 | 50 | 25 | 650.00 | MO450-50 | 1SAM460000R1007 | 1.019 |
| MO495 manual motor starter magnetic only | | | | | | |
| 30 | 63 | 25 | 819.00 | MO495-63 | 1SAM560000R1007 | 2.244 |
| 37 | 75 | 25 | 975.00 | MO495-75 | 1SAM560000R1008 | 2.247 |
| 45 | 90 | 25 | 1170.00 | MO495-90 | 1SAM560000R1009 | 2.269 |
| 55 | 100 | 25 | 1235.00 | MO495-100 | 1SAM560000R1010 | 2.292 |
| MO496 manual motor starter magnetic only | | | | | | |
| 15 | 32 | 50 | 416.00 | MO496-32 | 1SAM590000R1004 | 2.208 |
| 18.5 | 40 | 50 | 520.00 | MO496-40 | 1SAM590000R1005 | 2.218 |
| 22 | 50 | 50 | 650.00 | MO496-50 | 1SAM590000R1006 | 2.218 |
| 30 | 63 | 50 | 819.00 | MO496-63 | 1SAM590000R1007 | 2.248 |
| 37 | 75 | 50 | 975.00 | MO496-75 | 1SAM590000R1008 | 2.278 |
| 45 | 90 | 50 | 1170.00 | MO496-90 | 1SAM590000R1009 | 2.266 |
| 55 | 100 | 50 | 1235.00 | MO496-100 | 1SAM590000R1010 | 2.293 |

(1) For overload protection of motors, an appropriate thermal or electronic overload relay must be used.

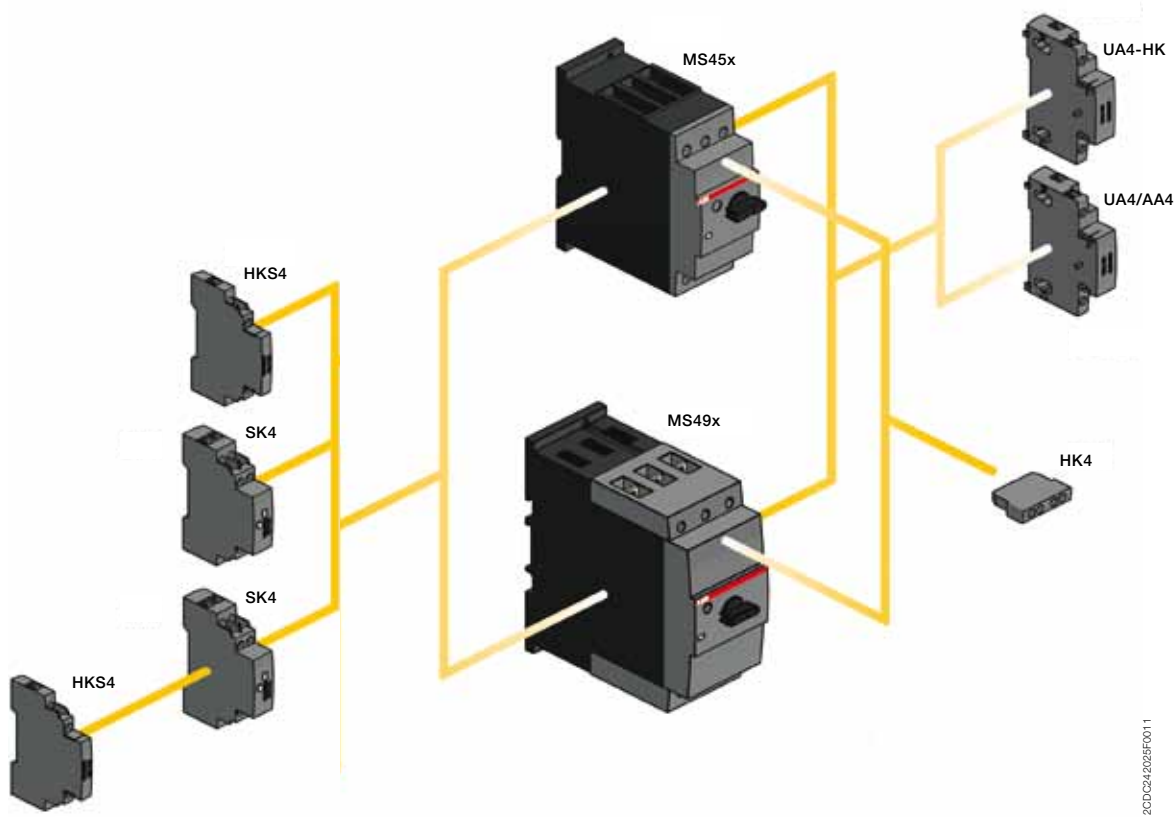
Main dimensions mm, inches



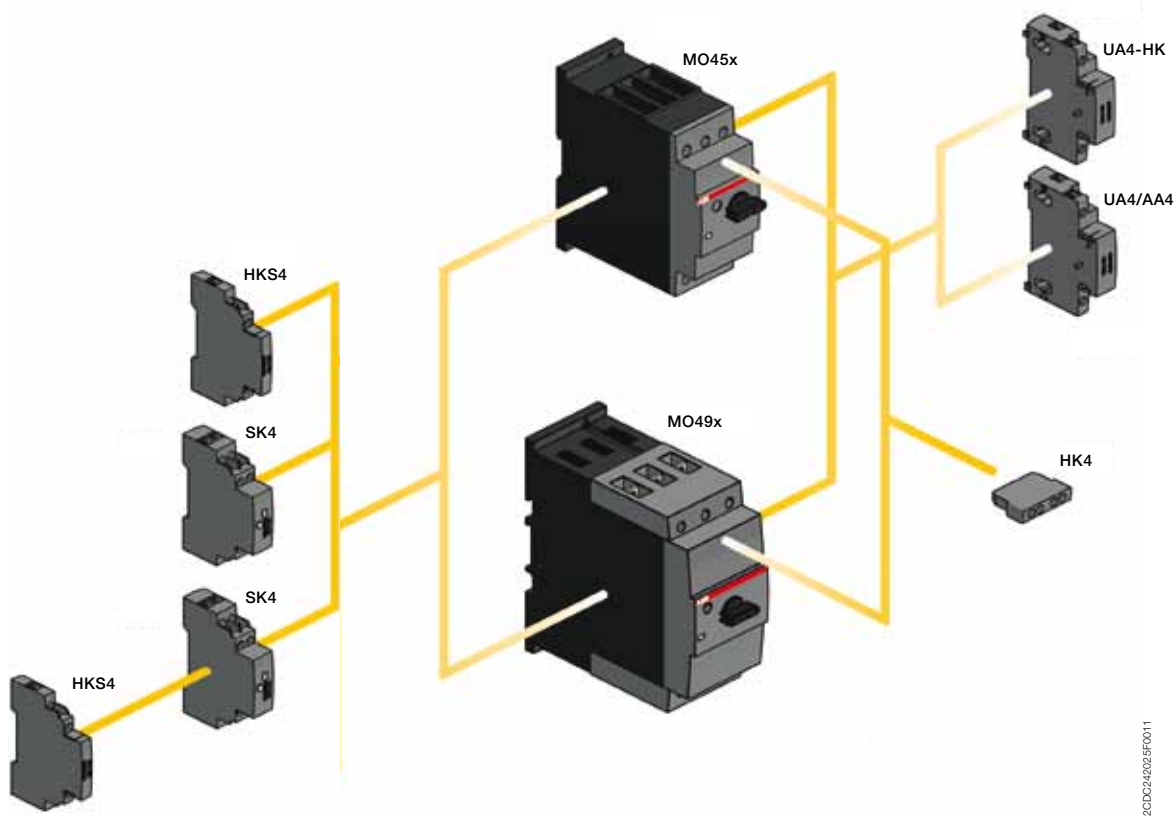
MS45x, MS49x, MO45x, MO49x manual motor starters

Main accessories

MS45x and MS49x manual motor starters with accessories



MO45x and MO49x manual motor starters with accessories



MS45x, MS49x, MO45x, MO49x manual motor starters

Main accessories



HK4-11

2CDC241028F0011

2



HKS4-20

2CDC241022F0011



SK4-11

2CDC241024F0011



AA4-24

2CDC241023F0011



UA4-110

2CDC241025F0011

Description

Manual motor starters can be equipped with auxiliary contacts for lateral/front mounting, signalling contact for lateral mounting, undervoltage release and shunt trips. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

| Suitable for | Auxiliary contacts N.O. | Auxiliary contacts N.C. | Description | Type | Order code | Pkg qty | Weight (1 pce) |
|--------------|-------------------------|-------------------------|-------------|------|------------|---------|----------------|
| | | | | | | | kg |

Auxiliary contacts – mountable on the front

| | | | | | | | |
|----------------------------|---|---|------------|-----------------|------------------------------------|----|----------------|
| MS45x, MS49x, MO45x, MO49x | 1 | 1 | Changeover | HK4-11 HK4-W | 1SAM401901R1001 1SAM401901R1002 | 10 | 0.017 0.015 |
|----------------------------|---|---|------------|-----------------|------------------------------------|----|----------------|

Auxiliary contacts – mountable on the left

| | | | | | | | |
|----------------------------|---|---|--------------|---------|-----------------|---|-------|
| MS45x, MS49x, MO45x, MO49x | 1 | 1 | Max. 1 piece | HKS4-11 | 1SAM401902R1001 | 2 | 0.045 |
| | 2 | 0 | Max. 1 piece | HKS4-20 | 1SAM401902R1002 | 2 | 0.045 |
| | 0 | 2 | Max. 1 piece | HKS4-02 | 1SAM401902R1003 | 2 | 0.045 |

Signalling contacts – mountable on the left

| | | | | | | | |
|----------------------------|---|---|---|--------|-----------------|---|-------|
| MS45x, MS49x, MO45x, MO49x | 2 | 2 | Separate signalling acc. UL508E 1 N.O. + 1 N.C. for short circuit alarm and 1 N.O. + 1 N.C. for tripped alarm, max. 1x SK4-11 + 1 x HKS4-xx | SK4-11 | 1SAM401904R1001 | 1 | 0.093 |
|----------------------------|---|---|---|--------|-----------------|---|-------|

| Suitable for | Rated control supply voltage | Frequency | Type | Order code | Pkg qty | Weight (1 pce) |
|--------------|------------------------------|-----------|------|------------|---------|----------------|
| | V | Hz | | | | kg |

Shunt trip units – mountable on the right

| | | | | | | |
|----------------------------|-----------|-------|---------|-----------------|---|-------|
| MS45x, MS49x, MO45x, MO49x | 20...24 | 50/60 | AA4-24 | 1SAM401907R1001 | 1 | 0.135 |
| | 90...110 | 50/60 | AA4-110 | 1SAM401907R1002 | 1 | 0.135 |
| | 200...240 | 50/60 | AA4-230 | 1SAM401907R1003 | 1 | 0.128 |
| | 350...415 | 50/60 | AA4-400 | 1SAM401907R1004 | 1 | 0.125 |

Undervoltage releases – mountable on the right

| | | | | | | |
|----------------------------|---------|-------|------------|-----------------|---|-------|
| MS45x, MS49x, MO45x, MO49x | 24 | 50/60 | UA4-24 | 1SAM401905R1004 | 1 | 0.134 |
| | 110/120 | 50/60 | UA4-110 | 1SAM401905R1001 | 1 | 0.134 |
| | 230/240 | 50/60 | UA4-230 | 1SAM401905R1002 | 1 | 0.131 |
| | 400/440 | 50/60 | UA4-400 | 1SAM401905R1003 | 1 | 0.129 |
| | 230/240 | 50/60 | UA4-HK-230 | 1SAM401906R1001 | 1 | 0.140 |
| | 400/440 | 50/60 | UA4-HK-400 | 1SAM401906R1002 | 1 | 0.137 |

MS45x, MS49x, MO45x, MO49x manual motor starters

Main accessories



PS4-2-0

2CDC241038F0012



PS4-3-0

2CDC241004F0012



PS4-4-0

2CDC241005F0012



SA2

2CDC241023F0013

Description

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 108 A are in the assortment. Between 2 and 4 manual motor starter with none or two lateral auxiliary contacts can be connected.

Ordering details

| Suitable for | Rated operational current | Number of MMS | Number of lateral aux. | Type | Order code | Pkg qty | Weight (1 pce) |
|--------------|---------------------------|---------------|------------------------|------|------------|---------|----------------|
| | A | | | | | | kg |

Three-phase busbars

| | | | | | | | |
|--------------|-------|---|---|---------|-----------------|---|-------|
| MS450, MO450 | 108 A | 2 | 0 | PS4-2-0 | 1SAM401911R1001 | 5 | 0.134 |
| | 108 A | 3 | 0 | PS4-3-0 | 1SAM401911R1002 | 5 | 0.206 |
| | 108 A | 4 | 0 | PS4-4-0 | 1SAM401911R1003 | 5 | 0.280 |
| | 108 A | 2 | 1 | PS4-2-2 | 1SAM401911R1004 | 5 | 0.148 |
| | 108 A | 3 | 1 | PS4-3-2 | 1SAM401911R1005 | 5 | 0.250 |
| | 108 A | 4 | 1 | PS4-4-2 | 1SAM401911R1006 | 5 | 0.362 |

| Suitable for | Rated operational current | Rated cross section | Mounting form | Type | Order code | Pkg qty | Weight (1 pce) |
|--------------|---------------------------|---------------------|---------------|------|------------|---------|----------------|
| | A | mm ² | | | | | kg |

Three-phase feeder terminals

| | | | | | | | |
|--------------|-------|----|------|-------|-----------------|---|-------|
| MS450, MO450 | 108 A | 25 | Flat | S4-M1 | 1SAM401911R1007 | 2 | 0.106 |
|--------------|-------|----|------|-------|-----------------|---|-------|

| Suitable for | Description | Type | Order code | Pkg qty | Weight (1 pce) |
|--|--|------------|-----------------|---------|----------------|
| | | | | | kg |
| MS450, MO450 | Protection cover for busbar | BS4-3 | 1SAM401911R1008 | 10 | 0.001 |
| | Disconnecter module | TB450 | 1SAM401910R1001 | 1 | 0.315 |
| | Terminal shroud | KA450 | 1SAM401908R1001 | 1 | 0.154 |
| MS495, MS497, MO495, MO496 | Terminal shroud | KA495 | 1SAM501901R1001 | 10 | 0.018 |
| | Terminal shroud | KA495C (1) | 1SAM501902R1001 | 10 | 0.038 |
| | Terminal insulation barrier for UL508E | DX495 | 1SAM401912R1001 | 1 | 0.154 |
| MS450, MS495, MS497, MO450, MO495, MO496 | Padlock + two keys | SA2 | GJF1101903R0002 | 10 | 0.020 |

(1) Is plugged onto the housing after removing the box terminals, if using cable lugs.

MS116, MS132, MO132, MS4xx, MO4xx manual motor starters

General accessories

2



2CDC241003R0011

MSHD-LB



2CDC241002S0011

MSHD-LY



2CDC241004F0011

MSMN



2CDC241001F0012

MSH-AR



2CDC241017V0013

MSAH1

Description

With this solution of door coupling rotary mechanism it is possible to operate a Manual Motor Starter in the back of a switch cabinet from outside. The door coupling mechanism prevents opening of the door of a switch cabinet with the Manual Motor Starter in ON position.

The complete mechanism includes handle, shaft, driver, shaft alignment ring and shaft supporter.

All accessories fit for 6 mm shafts with a maximum length of 180 mm. The degree of protection for handles MSHD is IP64.

Ordering details

| Suitable for | Description | Shaft length mm | Color | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--|---|-----------------|--------|--------------|-----------------|---------|-------------------|
| Shafts | | | | | | | |
| MS116, MS132, MO132, MS4xx, MO4xx | For MSHD handles. Shaft diameter 6 mm. Shaft extension for door coupling driver. | 85 | | OXS6X85 | 1SCA101647R1001 | 1 | 0.020 |
| | | 105 | | OXS6X105 | 1SCA108043R1001 | 1 | 0.020 |
| | | 130 | | OXS6X130 | 1SCA101655R1001 | 1 | 0.030 |
| | | 180 | | OXS6X180 | 1SCA101659R1001 | 1 | 0.040 |
| IP64 handles (UL: Type 1, 3R, 12) | | | | | | | |
| MS116, MS132, MO132, MS4xx, MO4xx | Padlockable max. 3 padlocks with bail diameter 5 ... 8 mm, door interlock in ON position defeatable, for use with 6 mm OXS6...types up to 180 mm or driver shafts MSOX. | | Black | MSHD-LB (1) | 1SAM201920R1001 | 1 | 0.065 |
| | | | Yellow | MSHD-LY (1) | 1SAM201920R1002 | 1 | 0.065 |
| | | | Black | MSHD-LTB (2) | 1SAM201920R1011 | 1 | 0.065 |
| | | | Yellow | MSHD-LTY (2) | 1SAM201920R1012 | 1 | 0.065 |
| Driver | | | | | | | |
| MS116, MS132, MO132, MS4xx, MO4xx | Coupling driver for use with 6 mm OXS6... types up to 180 mm. | | | MSMN (3) | 1SAM101923R0002 | 1 | 0.002 |
| | | | | MSMNO (4) | 1SAM101923R0012 | 1 | 0.002 |
| Shaft alignment ring | | | | | | | |
| MS116, MS132, MO132, MS4xx, MO4xx | The MSH-AR supports the long shafts for alignment to the handle inlet. It makes closing panel doors more easy. Use for OXS6X > 105 mm. | | | MSH-AR | 1SAM201920R1000 | 1 | 0.010 |
| Shaft supporter | | | | | | | |
| MS116, MS132, MO132 | With the MSAH1 it is possible to support the shaft in the extension of handle (MSHD). It is mandatory for the usage of shafts > 130 mm. | | | MSAH1 | 1SAM201909R1021 | 1 | 0.035 |

(1) Indication I-O and ON-OFF (recommended for MS116, MS4xx, MO4xx).

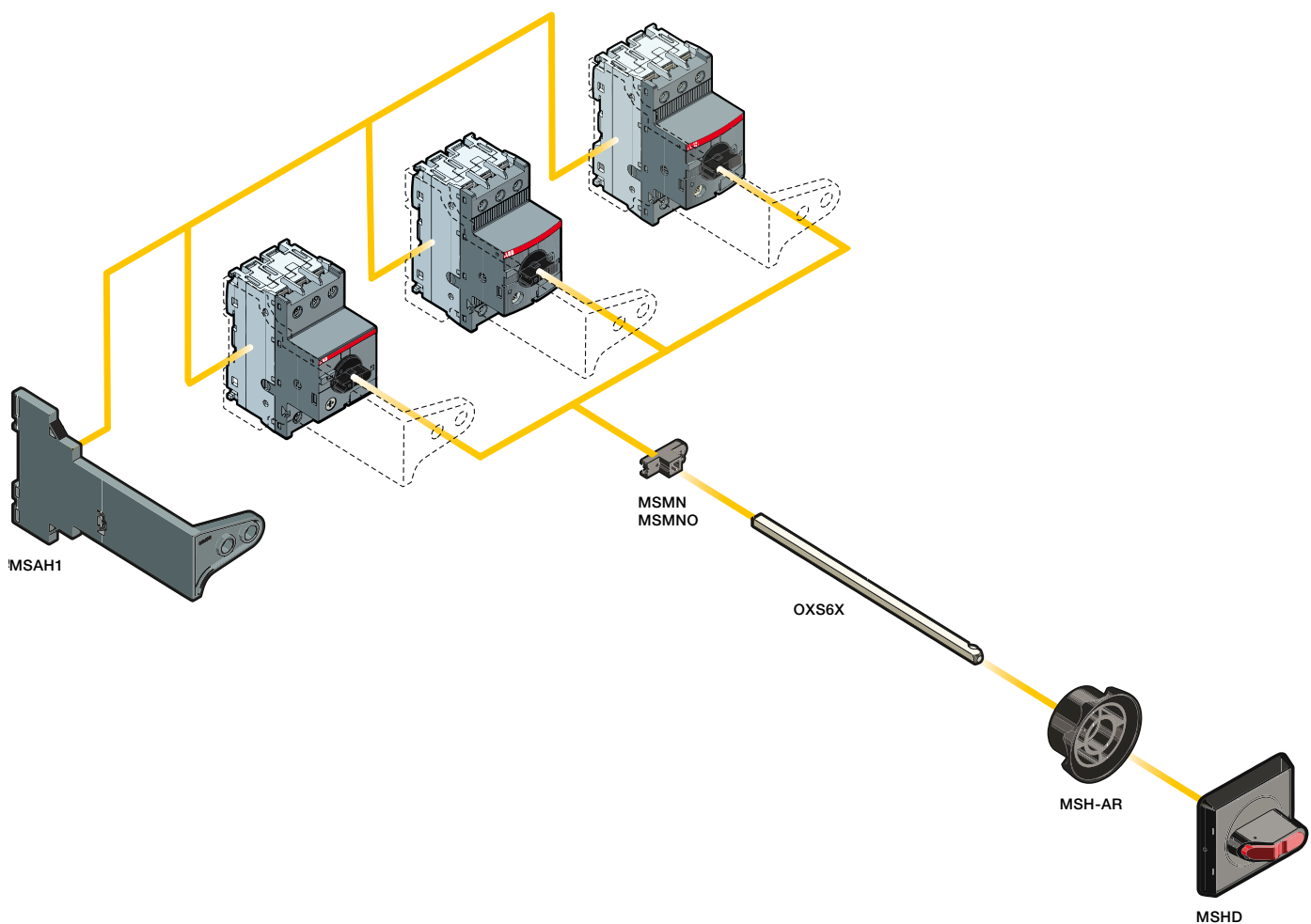
(2) Indication I-O and ON-OFF + Trip indication.

(3) Coded - Positioning of ON indication dependent from mounting orientation of the MMS.

(4) Uncoded - Positioning of ON indication independent from mounting orientation of the MMS.

MS116, MS132, MO132, MS4xx, MO4xx manual motor starters

General accessories



2CDC242022FX013



B mini contactors

K mini contactor relays

Overview 3/2

With screw terminals

3-pole contactors

| | | |
|---------------|-------------|-----|
| B6, B7 | AC operated | 3/4 |
| BC6, BC7, B7D | DC operated | 3/5 |

3-pole reversing contactors

| | | |
|------------|-------------|-----|
| VB6, VB7 | AC operated | 3/6 |
| VBC6, VBC7 | DC operated | 3/7 |

3-pole interface contactors

| | | |
|----------|-------------|-----|
| BC6, BC7 | DC operated | 3/8 |
|----------|-------------|-----|

3-pole contactors - large coil voltage range

| | | |
|------|-------------|-----|
| TBC7 | DC operated | 3/9 |
|------|-------------|-----|

4-pole contactors

| | | |
|----------|--|------|
| B6, B7 | AC operated | 3/10 |
| BC6, B7D | DC operated | 3/11 |
| TBC7 | DC operated - large coil voltage range | 3/12 |

Contactors relays

| | | |
|-----|-------------|------|
| K6 | AC operated | 3/13 |
| KC6 | DC operated | 3/14 |

Interface contactor relays



| | | |
|------|--|------|
| KC6 | DC operated | 3/15 |
| TKC6 | DC operated - large coil voltage range | 3/16 |

Accessories 3/17

For additional information such as technical datas, dimension drawings, other products and accessories, refer to our main catalog and visit our website: www.abb.com/connecttocontrol

Mini contactors



| | | Screw terminals | | | | | |
|--|--------------------------------|---------------------------------------|------|------------|----------------|-------------------|-------------------|
| AC Control supply  | | | | | | | |
| 3-pole contactors | | Coil consumption 3.5 W | Type | B6 | B7 | - | - |
| 3-pole reversing contactors | | Coil consumption 3.5 W | Type | - | - | VB6 VB6A (2) | VB7 VB7A (2) |
| 4-pole contactors | | Coil consumption 3.5 W | Type | B6 | B7 | - | - |
| DC Control supply  | | | | | | | |
| 3-pole contactors | | Coil consumption 3.5 W | Type | BC6 | BC7 B7D (1) | - | - |
| 3-pole interface contactors | | Coil consumption 1.4 ... 2.4 W | Type | BC6 | BC7 | - | - |
| 3-pole reversing contactors | | Coil consumption 3.5 W | Type | - | - | VBC6 VBC6A (2) | VBC7 VBC7A (2) |
| 4-pole contactors | | Coil consumption 3.5 W | Type | BC6 | B7D | - | - |
| Wide range types | | Extended coil voltage and temperature | Type | - | TBC7 | - | - |
| PLC types | | Coil consumption 1.7 W | Type | B6S (1) | B7S (1) | - | - |
| IEC | Rated operational power AC-3 | 220-230-240 V | kW | 2.2 | 3 | 2.2 | 3 |
| | | 380-400 V | kW | 4 | 5.5 | 4 | 5.5 |
| | Rated operational current AC-1 | 400 V, $\theta \leq 40$ °C | A | 20 | 20 | 20 | 20 |
| UL/CSA | 3-phase motor rating | 220-240 V AC | hp | 2 | 3 | 2 | 3 |
| | | 440-480 V AC | hp | 3 | 5 | 3 | 5 |
| | General use rating | | A | 12 (300 V) | 16 (600 V) | 12 (300 V) | 16 (600 V) |

(1) With integrated surge suppressor
(2) With safety blocking function

Main accessories

| | | |
|--------------------------|--------------------------|---------|
| Auxiliary contact blocks | Front mounting | CAF6 |
| | Side mounting | CA6 |
| Connection sets | For reversing contactors | BSM6-30 |
| Surge suppressors | Varistor (AC/DC) | RV-BC6 |

Overload relays



| | | |
|--|---------------------|-------|
| Thermal overload relays | Class 10 | T16 |
| Thermal and phase failure protection, with single setup possible | | |
| Electronic overload relays | Class 10E, 20E, 30E | E16DU |
| With single setup possible | | |

Manual motor starters

| | | |
|--|----------|--------------|
| Thermal / magnetic protection | Class 10 | MS116, MS132 |
| Magnetic only types | | MO132 |
| Connecting link to manual motor starters | | BEA7/132 |

Contactor relays



| | | Screw terminals | | | | | |
|--|---------------------------------|---------------------------------------|------|------|--|--|--|
| AC Control supply  | | | | | | | |
| 4-pole contactor relays | | Coil consumption 3.5 W | Type | K6 | | | |
| DC Control supply  | | | | | | | |
| 4-pole contactor relays | | Coil consumption 3.5 W | Type | KC6 | | | |
| 4-pole interface contactor relays | | Coil consumption 1.4 ... 2.4 W | Type | KC6 | | | |
| Wide range types | | Extended coil voltage and temperature | Type | TKC6 | | | |
| IEC | Rated operational current AC-15 | 220-230-240 V | A | 4 | | | |
| | | 380-400 V | A | 3 | | | |
| | Rated operational current DC-13 | 24 V | A | 2.5 | | | |
| Main accessories | | | | | | | |
| Auxiliary contact blocks | Front mounting | CAF6 | | | | | |
| | Side mounting | CA6-11K | | | | | |



| Soldering pins | | | | Flat pins | | | |
|----------------|-------------|---------------|---------------|------------|-------------|---------------|---------------|
| B6...P | B7...P | - | - | B6...F | B7...F | - | - |
| - | - | VB6...P | VB7...P | - | - | VB6...F | VB7...F |
| - | - | VB6A...P (2) | VB7A...P (2) | - | - | VB6A...F (2) | VB7A...F (2) |
| - | - | - | - | - | - | - | - |
| BC6...P | BC7...P | - | - | BC6...F | BC7...F | - | - |
| - | B7D...P (1) | - | - | - | B7D...F (1) | - | - |
| BC6...P | BC7...P | - | - | BC6...F | BC7...F | - | - |
| - | - | VBC6...P | VBC7...P | - | - | VBC6...F | VBC7...F |
| - | - | VBC6A...P (2) | VBC7A...P (2) | - | - | VBC6A...F (2) | VBC7A...F (2) |
| - | - | - | - | - | - | - | - |
| 2,2 | 3 | 2,2 | 3 | 2,2 | 3 | 2,2 | 3 |
| 4 | 5,5 | 4 | 5,5 | 4 | 5,5 | 4 | 5,5 |
| 12 | 12 | 12 | 12 | 20 | 20 | 20 | 20 |
| 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 |
| 3 | 5 | 3 | 5 | 3 | 5 | 3 | 5 |
| 12 (300 V) | 16 (600 V) | 12 (300 V) | 16 (600 V) | 12 (300 V) | 16 (600 V) | 12 (300 V) | 16 (600 V) |

| | | | | | | | |
|--------------|---|---|---|--------------|---|---|---|
| - | - | - | - | - | - | - | - |
| CA6-11K-P | - | - | - | CA6-11K-F | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| MS116, MS132 | - | - | - | MS116, MS132 | - | - | - |
| MO132 | - | - | - | MO132 | - | - | - |
| - | - | - | - | - | - | - | - |



| Soldering pins | | | | Flat pins | | | |
|----------------|---|---|---|-----------|---|---|---|
| K6...P | - | - | - | K6...F | - | - | - |
| KC6...P | - | - | - | KC6...F | - | - | - |
| KC6...P | - | - | - | KC6...F | - | - | - |
| 4 | - | - | - | 4 | - | - | - |
| 3 | - | - | - | 3 | - | - | - |
| 2,5 | - | - | - | 2,5 | - | - | - |
| - | - | - | - | - | - | - | - |
| CA6-11K-P | - | - | - | CA6-11K-F | - | - | - |

B6, B7 3-pole mini contactors – with screw terminals

4 to 5.5 kW

AC operated



2CDC21001F0010

B6-30-10



2CDC21101F0011

B7-30-10

Description

B6, B7 3-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with:

- 3 main poles and one built-in auxiliary contact
- control circuit: AC operated
 - low coil consumption (3.5 VA at pull-in and at holding).
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- hum-free coil
- designed for rail or wall mounting.

Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage U _c | | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|----------------------|----------------------|--------------------|--|-------|---------------------------|------|------------|---------|----------------|
| Rated operational power | current θ ≤ 40 °C | 3-phase motor rating | General use rating | 50 Hz | 60 Hz | | | | | |
| 400 V AC-3 | AC-1 | | | V AC | V AC | | | | | kg |
| kW | A | hp | | | | | | | | |

B6 mini contactors

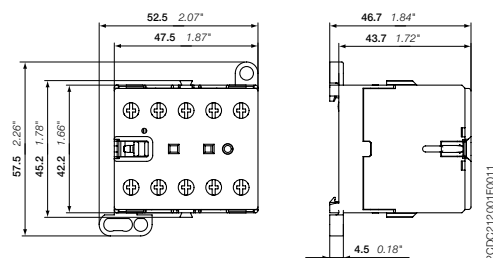
| Power (kW) | Current (A) | Motor Rating (hp) | Rated Voltage (V) | 50 Hz (A) | 60 Hz (A) | 1 0 | 0 1 | Type | Order code | Pkg qty | Weight (kg) |
|------------|-------------|-------------------|-------------------|-----------|-----------|-----|-----|-------------|-----------------|---------|-------------|
| 4 | 20 | 3 | 300 V / 12 A | 24 | 24 | 1 | 0 | B6-30-10-01 | GJL1211001R0101 | 10 | 0.175 |
| | | | | | | 0 | 1 | B6-30-01-01 | GJL1211001R0011 | 10 | 0.175 |
| | | | | 42 | 42 | 1 | 0 | B6-30-10-02 | GJL1211001R0102 | 10 | 0.175 |
| | | | | | | 0 | 1 | B6-30-01-02 | GJL1211001R0012 | 10 | 0.175 |
| | | | | 48 | 48 | 1 | 0 | B6-30-10-03 | GJL1211001R0103 | 10 | 0.175 |
| | | | | | | 0 | 1 | B6-30-01-03 | GJL1211001R0013 | 10 | 0.175 |
| | | | | 110...127 | 110...127 | 1 | 0 | B6-30-10-84 | GJL1211001R8104 | 10 | 0.175 |
| | | | | | | 0 | 1 | B6-30-01-84 | GJL1211001R8014 | 10 | 0.175 |
| | | | | 220...240 | 220...240 | 1 | 0 | B6-30-10-80 | GJL1211001R8100 | 10 | 0.175 |
| | | | | | | 0 | 1 | B6-30-01-80 | GJL1211001R8010 | 10 | 0.175 |
| | | | | 380...415 | 380...415 | 1 | 0 | B6-30-10-85 | GJL1211001R8105 | 10 | 0.175 |
| | | | | | | 0 | 1 | B6-30-01-85 | GJL1211001R8015 | 10 | 0.175 |

B7 mini contactors

| Power (kW) | Current (A) | Motor Rating (hp) | Rated Voltage (V) | 50 Hz (A) | 60 Hz (A) | 1 0 | 0 1 | Type | Order code | Pkg qty | Weight (kg) |
|------------|-------------|-------------------|-------------------|-----------|-----------|-----|-----|-------------|-----------------|---------|-------------|
| 5.5 | 20 | 5 | 600 V / 16 A | 24 | 24 | 1 | 0 | B7-30-10-01 | GJL1311001R0101 | 10 | 0.175 |
| | | | | | | 0 | 1 | B7-30-01-01 | GJL1311001R0011 | 10 | 0.175 |
| | | | | 42 | 42 | 1 | 0 | B7-30-10-02 | GJL1311001R0102 | 10 | 0.175 |
| | | | | | | 0 | 1 | B7-30-01-02 | GJL1311001R0012 | 10 | 0.175 |
| | | | | 48 | 48 | 1 | 0 | B7-30-10-03 | GJL1311001R0103 | 10 | 0.175 |
| | | | | | | 0 | 1 | B7-30-01-03 | GJL1311001R0013 | 10 | 0.175 |
| | | | | 110...127 | 110...127 | 1 | 0 | B7-30-10-84 | GJL1311001R8104 | 10 | 0.175 |
| | | | | | | 0 | 1 | B7-30-01-84 | GJL1311001R8014 | 10 | 0.175 |
| | | | | 220...240 | 220...240 | 1 | 0 | B7-30-10-80 | GJL1311001R8100 | 10 | 0.175 |
| | | | | | | 0 | 1 | B7-30-01-80 | GJL1311001R8010 | 10 | 0.175 |
| | | | | 380...415 | 380...415 | 1 | 0 | B7-30-10-85 | GJL1311001R8105 | 10 | 0.175 |
| | | | | | | 0 | 1 | B7-30-01-85 | GJL1311001R8015 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



B6, B7

BC6, BC7, B7D 3-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated



BC6-30-10

2CDC211040F0011



BC7-30-10

2CDC211019F0011

Description

BC6, BC7, B7D 3-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with:

- 3 main poles and one built-in auxiliary contact
- control circuit: DC operated, low consumption (3.5 W at pull-in and at holding)
- hum-free coil
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- designed for rail or wall mounting.

Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage U _c | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|---------|----------------------|--------------------|--|---------------------------|------|------------|---------|----------------|
| Rated operational power | current | 3-phase motor rating | General use rating | | | | | | |
| 400 V | AC-3 | θ ≤ 40 °C | | V DC | | | | | kg |
| kW | A | hp | | | | | | | |

BC6 mini contactors

| Rated operational power | current | 3-phase motor rating | General use rating | Rated control circuit voltage U _c | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|---------|----------------------|--------------------|--|---------------------------|--------------|-----------------|---------|----------------|
| 4 | 20 | 3 | 300 V / 12 A | 12 | 1 0 | BC6-30-10-07 | GJL1213001R0107 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-07 | GJL1213001R0017 | 10 | 0.175 |
| | | | | 24 | 1 0 | BC6-30-10-01 | GJL1213001R0101 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-01 | GJL1213001R0011 | 10 | 0.175 |
| | | | | 48 | 1 0 | BC6-30-10-16 | GJL1213001R1106 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-16 | GJL1213001R1016 | 10 | 0.175 |
| | | | | 60 | 1 0 | BC6-30-10-03 | GJL1213001R0103 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-03 | GJL1213001R0013 | 10 | 0.175 |
| | | | | 110...125 | 1 0 | BC6-30-10-04 | GJL1213001R0104 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-04 | GJL1213001R0014 | 10 | 0.175 |
| | | | | 220...240 | 1 0 | BC6-30-10-05 | GJL1213001R0105 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-05 | GJL1213001R0015 | 10 | 0.175 |

BC7 mini contactors

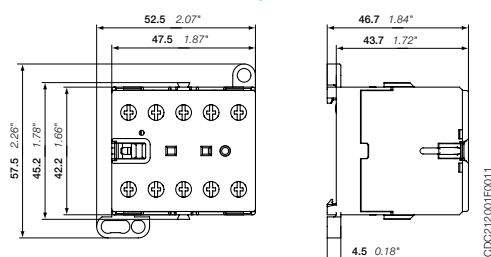
| Rated operational power | current | 3-phase motor rating | General use rating | Rated control circuit voltage U _c | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|---------|----------------------|--------------------|--|---------------------------|--------------|-----------------|---------|----------------|
| 5.5 | 20 | 5 | 600 V / 16 A | 12 | 1 0 | BC7-30-10-07 | GJL1313001R0107 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-07 | GJL1313001R0017 | 10 | 0.175 |
| | | | | 24 | 1 0 | BC7-30-10-01 | GJL1313001R0101 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-01 | GJL1313001R0011 | 10 | 0.175 |
| | | | | 48 | 1 0 | BC7-30-10-16 | GJL1313001R1106 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-16 | GJL1313001R1016 | 10 | 0.175 |
| | | | | 60 | 1 0 | BC7-30-10-03 | GJL1313001R1103 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-03 | GJL1313001R0013 | 10 | 0.175 |
| | | | | 110...125 | 1 0 | BC7-30-10-04 | GJL1313001R0104 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-04 | GJL1313001R0014 | 10 | 0.175 |
| | | | | 220...240 | 1 0 | BC7-30-10-05 | GJL1313001R0105 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-05 | GJL1313001R0015 | 10 | 0.175 |

B7D mini contactors with integrated suppressor diode

| Rated operational power | current | 3-phase motor rating | General use rating | Rated control circuit voltage U _c | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|---------|----------------------|--------------------|--|---------------------------|--------------|-----------------|---------|----------------|
| 5.5 | 20 | 5 | 600 V / 16 A | 24 | 1 0 | B7D-30-10-01 | GJL1317001R0101 | 10 | 0.175 |
| | | | | | 0 1 | B7D-30-01-01 | GJL1317001R0011 | 10 | 0.175 |
| | | | | 220 | 1 0 | B7D-30-10-05 | GJL1317001R0105 | 10 | 0.175 |
| | | | | | 0 1 | B7D-30-01-05 | GJL1317001R0015 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



BC6, BC7, B7D

2CDC212001F0011

2CDC102015C0201

VB6, VB7 3-pole mini reversing contactors – with screw terminals

4 to 5.5 kW

AC operated



2CDC211008F0011

VB7-30-10

3

Description

VB6, VB7 3-pole compact design reversing contactors are space optimized control products mainly used for switching resistive or motor loads up to 690 V AC.

These reversing contactors are designed with:

- built-in mechanical interlock. The coils must be mutually interlocked electrically and coils must be de-energised for 50 ms at least to prevent phase to phase short circuit on the arc.
- control circuit: AC operated
 - low coil consumption (3.5 VA at pull-in and at holding).
- hum-free coil
- add-on auxiliary contact blocks for front mounting
- designed for rail or wall mounting.

Ordering details

| IEC Rated operational power | Rated operational current $\theta \leq 40^\circ\text{C}$ | UL/CSA | | Rated control circuit voltage U_c | | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-----------------------------------|--|---|--------------------------|--|---------------|---------------------------------|------|------------|------------|-------------------|
| | | 3-phase motor rating 480 V hp | General use rating | 50 Hz V AC | 60 Hz V AC | | | | | |
| 400 V AC-3 kW | AC-1 A | | | | | | | | | kg |

VB6 mini reversing contactors

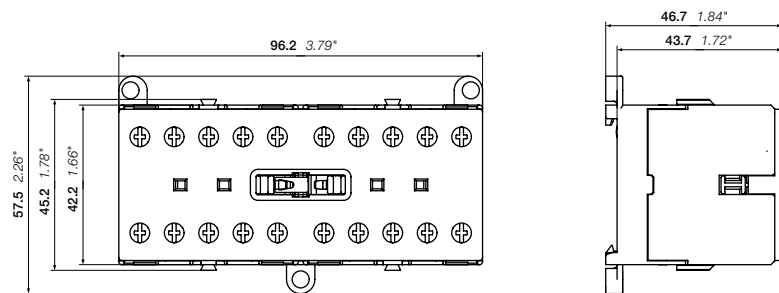
| | | | | | | | | | | |
|---|----|---|-----------------|-----------|-----------|-----|--------------|-----------------|---|-------|
| 4 | 20 | 3 | 300 V / 12 A | 24 | 24 | 1 0 | VB6-30-10-01 | GJL1211901R0101 | 5 | 0.355 |
| | | | | | | 0 1 | VB6-30-10-01 | GJL1211901R0011 | 5 | 0.355 |
| | | | | 42 | 42 | 1 0 | VB6-30-10-02 | GJL1211901R0102 | 5 | 0.355 |
| | | | | | | 0 1 | VB6-30-10-02 | GJL1211901R0012 | 5 | 0.355 |
| | | | | 48 | 48 | 1 0 | VB6-30-10-03 | GJL1211901R0103 | 5 | 0.355 |
| | | | | | | 0 1 | VB6-30-10-03 | GJL1211901R0013 | 5 | 0.355 |
| | | | | 110...127 | 110...127 | 1 0 | VB6-30-10-84 | GJL1211901R8104 | 5 | 0.355 |
| | | | | | | 0 1 | VB6-30-10-84 | GJL1211901R8014 | 5 | 0.355 |
| | | | | 220...240 | 220...240 | 1 0 | VB6-30-10-80 | GJL1211901R8100 | 5 | 0.355 |
| | | | | | | 0 1 | VB6-30-10-80 | GJL1211901R8010 | 5 | 0.355 |
| | | | | 380...415 | 380...415 | 1 0 | VB6-30-10-85 | GJL1211901R8105 | 5 | 0.355 |
| | | | | | | 0 1 | VB6-30-10-85 | GJL1211901R8015 | 5 | 0.355 |

VB7 mini reversing contactors

| | | | | | | | | | | |
|-----|----|---|-----------------|-----------|-----------|-----|--------------|-----------------|---|-------|
| 5.5 | 20 | 5 | 600 V / 16 A | 24 | 24 | 1 0 | VB7-30-10-01 | GJL1311901R0101 | 5 | 0.355 |
| | | | | | | 0 1 | VB7-30-10-01 | GJL1311901R0011 | 5 | 0.355 |
| | | | | 42 | 42 | 1 0 | VB7-30-10-02 | GJL1311901R0102 | 5 | 0.355 |
| | | | | | | 0 1 | VB7-30-10-02 | GJL1311901R0012 | 5 | 0.355 |
| | | | | 48 | 48 | 1 0 | VB7-30-10-03 | GJL1311901R0103 | 5 | 0.355 |
| | | | | | | 0 1 | VB7-30-10-03 | GJL1311901R0013 | 5 | 0.355 |
| | | | | 110...127 | 110...127 | 1 0 | VB7-30-10-84 | GJL1311901R8104 | 5 | 0.355 |
| | | | | | | 0 1 | VB7-30-10-84 | GJL1311901R8014 | 5 | 0.355 |
| | | | | 220...240 | 220...240 | 1 0 | VB7-30-10-80 | GJL1311901R8100 | 5 | 0.355 |
| | | | | | | 0 1 | VB7-30-10-80 | GJL1311901R8010 | 5 | 0.355 |
| | | | | 380...415 | 380...415 | 1 0 | VB7-30-10-85 | GJL1311901R8105 | 5 | 0.355 |
| | | | | | | 0 1 | VB7-30-10-85 | GJL1311901R8015 | 5 | 0.355 |

Other types on request.

Main dimensions mm, inches



VB6, VB7

2CDC211008F0011

2CDC102016C0201

VBC6, VBC7 3-pole mini reversing contactors – with screw terminals

4 to 5.5 kW

DC operated



VBC6-30-10

2CDC211049F0011



VBC7-30-10

2CDC211001F0011

Description

VBC6, VBC7 3-pole compact design reversing contactors are space optimized control products mainly used for switching resistive or motor loads up to 690 V AC.

These reversing contactors are designed with:

- built-in mechanical interlock. The coils must be mutually interlocked electrically and coils must be de-energised for 50 ms at least to prevent phase to phase short circuit on the arc.
- control circuit: DC operated
 - low coil consumption (3.5 W at pull-in and at holding).
- hum-free coil
- add-on auxiliary contact blocks for front mounting
- designed for rail or wall mounting.

Ordering details

| IEC | UL/CSA | Rated control circuit voltage: U _c | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|-----------------------------------|---|---------------------------|------|------------|---------|----------------|
| Rated operational power | 3-phase motor rating θ ≤ 40 °C | General use rating | | | | | |
| 400 V AC-3 kW | AC-1 A hp | 480 V | | | | | kg |

VBC6 mini reversing contactors

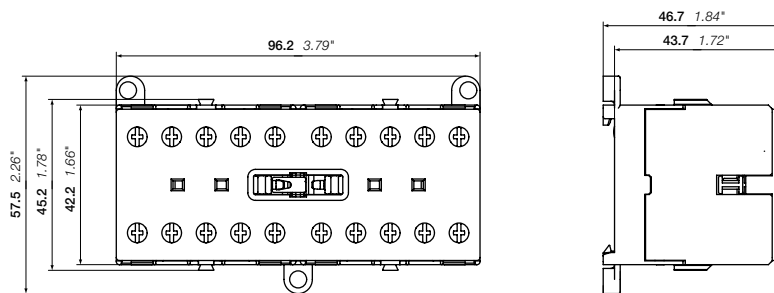
| Rated power | Rated current | 3-phase motor rating | Rated voltage | Rated control voltage | Auxiliary contacts | Type | Order code | Pkg qty | Weight |
|-------------|---------------|----------------------|---------------|-----------------------|--------------------|---------------|-----------------|---------|--------|
| 4 | 20 | 3 | 300 V / 12 A | 12 | 1 0 | VBC6-30-10-07 | GJL1213901R0107 | 5 | 0.355 |
| | | | | | 0 1 | VBC6-30-01-07 | GJL1213901R0017 | 5 | 0.355 |
| | | | | 24 | 1 0 | VBC6-30-10-01 | GJL1213901R0101 | 5 | 0.355 |
| | | | | | 0 1 | VBC6-30-01-01 | GJL1213901R0011 | 5 | 0.355 |
| | | | | 48 | 1 0 | VBC6-30-10-16 | GJL1213901R1106 | 5 | 0.355 |
| | | | | | 0 1 | VBC6-30-01-16 | GJL1213901R1016 | 5 | 0.355 |
| | | | | 60 | 1 0 | VBC6-30-10-03 | GJL1213901R0103 | 5 | 0.355 |
| | | | | | 0 1 | VBC6-30-01-03 | GJL1213901R0013 | 5 | 0.355 |
| | | | | 110...125 | 1 0 | VBC6-30-10-04 | GJL1213901R0104 | 5 | 0.355 |
| | | | | | 0 1 | VBC6-30-01-04 | GJL1213901R0014 | 5 | 0.355 |
| | | | | 220...240 | 1 0 | VBC6-30-10-05 | GJL1213901R0105 | 5 | 0.355 |
| | | | | | 0 1 | VBC6-30-01-05 | GJL1213901R0015 | 5 | 0.355 |

VBC7 mini reversing contactors

| Rated power | Rated current | 3-phase motor rating | Rated voltage | Rated control voltage | Auxiliary contacts | Type | Order code | Pkg qty | Weight |
|-------------|---------------|----------------------|---------------|-----------------------|--------------------|---------------|-----------------|---------|--------|
| 5.5 | 20 | 5 | 600 V / 16 A | 12 | 1 0 | VBC7-30-10-07 | GJL1313901R0107 | 5 | 0.355 |
| | | | | | 0 1 | VBC7-30-01-07 | GJL1313901R0017 | 5 | 0.355 |
| | | | | 24 | 1 0 | VBC7-30-10-01 | GJL1313901R0101 | 5 | 0.355 |
| | | | | | 0 1 | VBC7-30-01-01 | GJL1313901R0011 | 5 | 0.355 |
| | | | | 48 | 1 0 | VBC7-30-10-16 | GJL1313901R1106 | 5 | 0.355 |
| | | | | | 0 1 | VBC7-30-01-16 | GJL1313901R1016 | 5 | 0.355 |
| | | | | 60 | 1 0 | VBC7-30-10-03 | GJL1313901R0103 | 5 | 0.355 |
| | | | | | 0 1 | VBC7-30-01-03 | GJL1313901R0013 | 5 | 0.355 |
| | | | | 110...125 | 1 0 | VBC7-30-10-04 | GJL1313901R0104 | 5 | 0.355 |
| | | | | | 0 1 | VBC7-30-01-04 | GJL1313901R0014 | 5 | 0.355 |
| | | | | 220...240 | 1 0 | VBC7-30-10-05 | GJL1313901R0105 | 5 | 0.355 |
| | | | | | 0 1 | VBC7-30-01-05 | GJL1313901R0015 | 5 | 0.355 |

Other types on request.

Main dimensions mm, inches



VBC6, VBC7

2CDC212005F0011

2CDC102017C0201

BC6, BC7 3-pole interface mini contactors – with screw terminals

4 to 5.5 kW

DC operated



BC6-30-10

2CDC21104RF0011

3



BC7-30-10

2CDC211018RF0011

Description

BC6, BC7 3-pole interface mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with:

- 3 main poles and one built-in auxiliary contact
- control circuit: DC operated, very low coil consumption. Suitable for direct control by PLC outputs
- hum-free coil
- no auxiliary contact block permitted for mounting
- designed for rail or wall mounting.

Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage U _c | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|---------|----------------------|--------------------|--|---------------------------|------|------------|---------|----------------|
| Rated operational power | current | 3-phase motor rating | General use rating | | | | | | |
| 400 V AC-3 kW | AC-1 A | 480 V hp | | V DC | | | | | kg |

DC operation 24 V / 1.4 W

| | | | | | | | | | |
|-----|----|---|--------------|----|-----|------------------|-----------------|----|-------|
| 4 | 20 | 3 | 300 V / 12 A | 24 | 1 0 | BC6-30-10-1.4-81 | GJL1213001R8101 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-1.4-81 | GJL1213001R8011 | 10 | 0.175 |
| 5.5 | 20 | 5 | 600 V / 16 A | 24 | 1 0 | BC7-30-10-1.4-81 | GJL1313001R8101 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-1.4-81 | GJL1313001R8011 | 10 | 0.175 |

DC operation 17...32 V / 2.4 W

| | | | | | | | | | |
|-----|----|---|--------------|---------|-----|------------------|-----------------|----|-------|
| 4 | 20 | 3 | 300 V / 12 A | 17...32 | 1 0 | BC6-30-10-2.4-51 | GJL1213001R5101 | 10 | 0.175 |
| | | | | | 0 1 | BC6-30-01-2.4-51 | GJL1213001R5011 | 10 | 0.175 |
| 5.5 | 20 | 5 | 600 V / 16 A | 17...32 | 1 0 | BC7-30-10-2.4-51 | GJL1313001R5101 | 10 | 0.175 |
| | | | | | 0 1 | BC7-30-01-2.4-51 | GJL1313001R5011 | 10 | 0.175 |

Connection to PLCs with integrated protective circuit

DC operation 24 V / 1.7 W

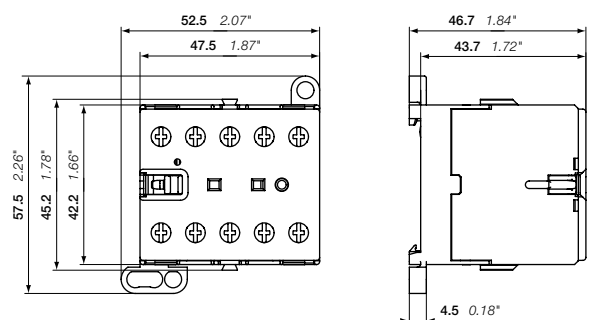
| | | | | | | | | | |
|-----|----|---|--------------|----|-----|------------------|-----------------|----|-------|
| 4 | 20 | 3 | 300 V / 12 A | 24 | 1 0 | B6S-30-10-1.7-71 | GJL1213001R7101 | 10 | 0.175 |
| | | | | | 0 1 | B6S-30-01-1.7-71 | GJL1213001R7011 | 10 | 0.175 |
| 5.5 | 20 | 5 | 600 V / 16 A | 24 | 1 0 | B7S-30-10-1.7-71 | GJL1313001R7101 | 10 | 0.175 |
| | | | | | 0 1 | B7S-30-01-1.7-71 | GJL1313001R7011 | 10 | 0.175 |

DC operation 17...32 V / 2.8 W

| | | | | | | | | | |
|-----|----|---|--------------|---------|-----|------------------|-----------------|----|-------|
| 4 | 20 | 3 | 300 V / 12 A | 17...32 | 1 0 | B6S-30-10-2.8-72 | GJL1213001R7102 | 10 | 0.175 |
| | | | | | 0 1 | B6S-30-01-2.8-72 | GJL1213001R7012 | 10 | 0.175 |
| 5.5 | 20 | 5 | 600 V / 16 A | 17...32 | 1 0 | B7S-30-10-2.8-72 | GJL1313001R7102 | 10 | 0.175 |
| | | | | | 0 1 | B7S-30-01-2.8-72 | GJL1313001R7012 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



BC6, BC7

2CDC212001F0011

2CDC102010C0201

TBC7 3-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated – large coil voltage range



TBC7-30-10

2CDC211015F0011

Description

TBC7 3-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with:

- 3 main poles and one built-in auxiliary contact
- control circuit: DC operated
 - low coil consumption (5 W at pull-in and at holding).
- hum-free coil
- expanded ambient temperature range -30...+70 °C and wide range voltage supply
- no auxiliary contact block permitted for mounting
- designed for rail or wall mounting
- material is approved for railway applications.

Ordering details

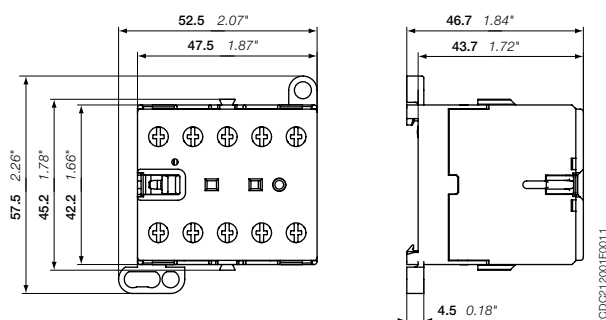
| IEC | UL/CSA | | Rated control circuit voltage Uc min ... Uc max | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|-------------------------|----------------------|--------------------|--|---------------------------|------|------------|---------|----------------|
| Rated operational power | 3-phase motor rating | General use rating | | | | | | |
| 400 V AC-3 kW | AC-1 A | hp | V DC | | | | | kg |

TBC7 mini contactors

| Rated operational power (kW) | Rated operational current (A) | 3-phase motor rating (hp) | Rated control circuit voltage (V DC) | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|------------------------------|-------------------------------|---------------------------|--------------------------------------|--------------------|---------------|-----------------|---------|----------------|
| 5.5 | 20 | 5 | 600 V / 16 A | 1 0 | TBC7-30-10-51 | GJL1313061R5101 | 10 | 0.185 |
| | | | | 0 1 | TBC7-30-01-51 | GJL1313061R5011 | 10 | 0.185 |
| | | | 50...90 | 1 0 | TBC7-30-10-55 | GJL1313061R5105 | 10 | 0.185 |
| | | | | 0 1 | TBC7-30-01-55 | GJL1313061R5015 | 10 | 0.185 |
| | | | 77...143 | 1 0 | TBC7-30-10-62 | GJL1313061R6102 | 10 | 0.185 |
| | | | | 0 1 | TBC7-30-01-62 | GJL1313061R6012 | 10 | 0.185 |
| | | | 140...260 | 1 0 | TBC7-30-10-68 | GJL1313061R6108 | 10 | 0.185 |
| | | | | 0 1 | TBC7-30-01-68 | GJL1313061R6018 | 10 | 0.185 |

Other types on request.

Main dimensions mm, inches



TBC7

2CDC211001F0011

2CDC102020 C0201

B6, B7 4-pole mini contactors – with screw terminals

4 to 5.5 kW

AC operated



2CDC211028F0011

B6-22-00

3

Description

B6, B7 4-pole mini contactors are compact control products mainly used for switching resistive loads up to 690 V AC.

These contactors are designed with:

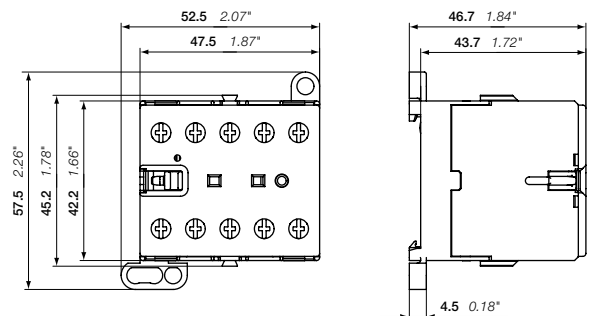
- 4 main poles
- control circuit: AC operated
 - low coil consumption (3.5 VA at pull-in and at holding).
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- hum-free coil
- designed for rail or wall mounting.

Ordering details

| IEC Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 A | UL/CSA General use rating | Rated control circuit voltage U_c 50/60 HZ V AC | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--|---------------------------------|---|-------------------------------------|-------------|-----------------|------------|-------------------------|
| 4 N.O. main poles | | | | | | | |
| 20 | 300 V / 12 A | 24 | 0 0 | B6-40-00-01 | GJL1211201R0001 | 10 | 0.175 |
| | | 42 | 0 0 | B6-40-00-02 | GJL1211201R0002 | 10 | 0.175 |
| | | 48 | 0 0 | B6-40-00-03 | GJL1211201R0003 | 10 | 0.175 |
| | | 110...127 | 0 0 | B6-40-00-84 | GJL1211201R8004 | 10 | 0.175 |
| | | 220...240 | 0 0 | B6-40-00-80 | GJL1211201R8000 | 10 | 0.175 |
| 20 | 600 V / 16 A | 24 | 0 0 | B7-40-00-01 | GJL1311201R0001 | 10 | 0.175 |
| | | 42 | 0 0 | B7-40-00-02 | GJL1311201R0002 | 10 | 0.175 |
| | | 48 | 0 0 | B7-40-00-03 | GJL1311201R0003 | 10 | 0.175 |
| | | 110...127 | 0 0 | B7-40-00-84 | GJL1311201R8004 | 10 | 0.175 |
| | | 220...240 | 0 0 | B7-40-00-80 | GJL1311201R8000 | 10 | 0.175 |
| 2 N.O. + 2 N.C. main poles | | | | | | | |
| 20 | 300 V / 12 A | 24 | 0 0 | B6-22-00-01 | GJL1211501R0001 | 10 | 0.175 |
| | | 42 | 0 0 | B6-22-00-02 | GJL1211501R0002 | 10 | 0.175 |
| | | 48 | 0 0 | B6-22-00-03 | GJL1211501R0003 | 10 | 0.175 |
| | | 110...127 | 0 0 | B6-22-00-84 | GJL1211501R8004 | 10 | 0.175 |
| | | 220...240 | 0 0 | B6-22-00-80 | GJL1211501R8000 | 10 | 0.175 |
| 20 | 600 V / 16 A | 24 | 0 0 | B7-22-00-01 | GJL1311501R0001 | 10 | 0.175 |
| | | 42 | 0 0 | B7-22-00-02 | GJL1311501R0002 | 10 | 0.175 |
| | | 48 | 0 0 | B7-22-00-03 | GJL1311501R0003 | 10 | 0.175 |
| | | 110...127 | 0 0 | B7-22-00-84 | GJL1311501R8004 | 10 | 0.175 |
| | | 220...240 | 0 0 | B7-22-00-80 | GJL1311501R8000 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



B6, B7

2CDC2112001F0011

2CDC102009C0201

BC6, B7D 4-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated



BC6-22-00

2CDC211032F0011

Description

BC6, B7D 4-pole mini contactors are compact control products mainly used for switching resistive loads up to 690 V AC.

These contactors are designed with:

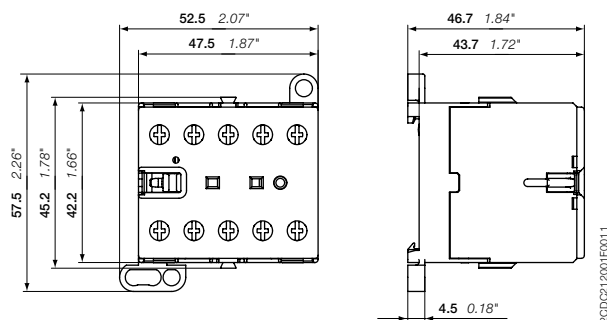
- 4 main poles
- control circuit: DC operated
 - low coil consumption (3.5 W at pull-in and at holding).
 - hum-free coil
- add-on auxiliary contact blocks for front or side mounting
- designed for rail or wall mounting.

Ordering details

| IEC | UL/CSA | Rated control circuit voltage: Uc | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|--|--------------------|-----------------------------------|---------------------------|--------------|-----------------|---------|----------------|
| Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 A | General use rating | V DC | | | | | kg |
| 4 N.O. main poles | | | | | | | |
| 20 | 600 V / 16 A | 24 | 0 0 | B7D-40-00-01 | GJL1317201R0001 | 10 | 0.175 |
| | | 220 | 0 0 | B7D-40-00-05 | GJL1317201R0005 | 10 | 0.175 |
| 2 N.O. + 2 N.C. main poles | | | | | | | |
| 20 | 300 V / 12 A | 12 | 0 0 | BC6-22-00-07 | GJL1213501R0007 | 10 | 0.175 |
| | | 24 | 0 0 | BC6-22-00-01 | GJL1213501R0001 | 10 | 0.175 |
| | | 42 | 0 0 | BC6-22-00-02 | GJL1213501R0002 | 10 | 0.175 |
| | | 48 | 0 0 | BC6-22-00-16 | GJL1213501R1006 | 10 | 0.175 |
| | | 60 | 0 0 | BC6-22-00-03 | GJL1213501R0003 | 10 | 0.175 |
| | | 110...125 | 0 0 | BC6-22-00-04 | GJL1213501R0004 | 10 | 0.175 |
| | | 220...240 | 0 0 | BC6-22-00-05 | GJL1213501R0005 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



BC6, B7D

2CDC211031F0011

2CDC102021C0201

TBC7 4-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated – large coil voltage range



2CDC211026F0011

TBC7-31-00

3

Description

TBC7 4-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with:

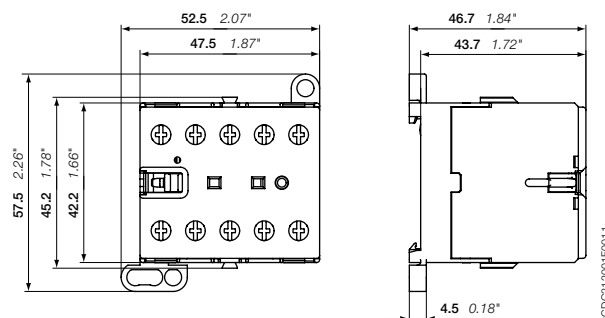
- 4 main poles
- control circuit: DC operated
 - low coil consumption (5 W at pull-in and at holding).
- hum-free coil
- expanded ambient temperature range -30...+70 °C and wide range voltage supply
- no auxiliary contact block permitted for mounting
- designed for rail or wall mounting
- material is approved for railway applications.

Ordering details

| IEC | UL/CSA | Rated control circuit voltage Uc min ... Uc max | Auxiliary contacts fitted | Type | Order code | Pkg qty | Weight (1 pce) |
|---|--------------------|--|---------------------------|---------------|-----------------|---------|----------------|
| Rated operational current $\theta \leq 40$ °C AC-1 A | General use rating | V DC | | | | | kg |
| 3 N.O. + 1 N.C. main poles | | | | | | | |
| 20 | 600 V / 16 A | 50...90 | 0 0 | TBC7-31-00-55 | GJL1313461R5005 | 10 | 0.185 |
| | | 77...143 | 0 0 | TBC7-31-00-62 | GJL1313461R6002 | 10 | 0.185 |
| | | 140...260 | 0 0 | TBC7-31-00-68 | GJL1313461R6008 | 10 | 0.185 |
| 2 N.O. + 2 N.C. main poles | | | | | | | |
| 20 | 600 V / 16 A | 50...90 | 0 0 | TBC7-22-00-55 | GJL1313561R5005 | 10 | 0.185 |
| | | 77...143 | 0 0 | TBC7-22-00-62 | GJL1313561R6002 | 10 | 0.185 |
| | | 140...260 | 0 0 | TBC7-22-00-68 | GJL1313561R6008 | 10 | 0.185 |

Other types on request.

Main dimensions mm, inches



TBC7

2CDC212001F0011

2CDC102022C0201

K6 4-pole mini contactor relays – with screw terminals AC operated



K6-22Z

2CDC211012F0011



K6-31Z

2CDC211004F0010

Description

K6 4-pole mini-contactor relays are space optimized control products mainly used for control functions or for small loads up to 4 A.

These contactors are designed with:

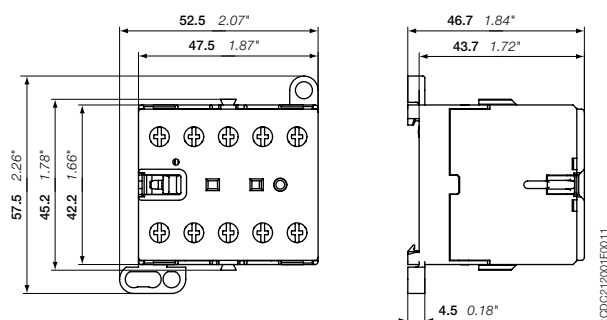
- 4-poles with various contact combinations
- control circuit: AC operated
 - low coil consumption (3.5 VA at pull-in and at holding).
 - hum-free coil
- add-on auxiliary contact blocks for front or side mounting
- designed for rail or wall mounting.

Ordering details

| Rated control circuit voltage U _c | | Type | Order code | Pkg qty | Weight (1 pce) |
|--|---------------|-----------|-----------------|---------|----------------|
| 50 Hz V AC | 60 Hz V AC | | | | kg |
| 2 N.O. + 2 N.C. main poles | | | | | |
| 24 | 24 | K6-22Z-01 | GJH1211001R0221 | 10 | 0.175 |
| 42 | 42 | K6-22Z-02 | GJH1211001R0222 | 10 | 0.175 |
| 48 | 48 | K6-22Z-03 | GJH1211001R0223 | 10 | 0.175 |
| 110...127 | 110...127 | K6-22Z-84 | GJH1211001R8224 | 10 | 0.175 |
| 220...240 | 220...240 | K6-22Z-80 | GJH1211001R8220 | 10 | 0.175 |
| 380...415 | 380...415 | K6-22Z-85 | GJH1211001R8225 | 10 | 0.175 |
| 3 N.O. + 1 N.C. main poles | | | | | |
| 24 | 24 | K6-31Z-01 | GJH1211001R0311 | 10 | 0.175 |
| 42 | 42 | K6-31Z-02 | GJH1211001R0312 | 10 | 0.175 |
| 48 | 48 | K6-31Z-03 | GJH1211001R0313 | 10 | 0.175 |
| 110...127 | 110...127 | K6-31Z-84 | GJH1211001R8314 | 10 | 0.175 |
| 220...240 | 220...240 | K6-31Z-80 | GJH1211001R8310 | 10 | 0.175 |
| 380...415 | 380...415 | K6-31Z-85 | GJH1211001R8315 | 10 | 0.175 |
| 4 N.O. main poles | | | | | |
| 24 | 24 | K6-40E-01 | GJH1211001R0401 | 10 | 0.175 |
| 42 | 42 | K6-40E-02 | GJH1211001R0402 | 10 | 0.175 |
| 48 | 48 | K6-40E-03 | GJH1211001R0403 | 10 | 0.175 |
| 110...127 | 110...127 | K6-40E-84 | GJH1211001R8404 | 10 | 0.175 |
| 220...240 | 220...240 | K6-40E-80 | GJH1211001R8400 | 10 | 0.175 |
| 380...415 | 380...415 | K6-40E-85 | GJH1211001R8405 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



K6

2CDC211001F0011

2CDC102011C0201

KC6 4-pole mini contactor relays – with screw terminals

DC operated



2CDC21016F0011

KC6-22Z

3

Description

KC6 4-pole mini-contactor relays are space optimized control products mainly used for control functions or for small loads up to 4 A.

These contactors are designed with:

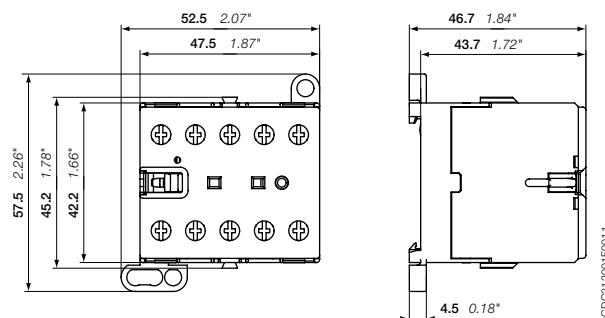
- 4-poles with various contact combinations
- control circuit: DC operated
 - low coil consumption (3.5 W at pull-in and at holding).
 - hum-free coil
- add-on auxiliary contact blocks for front or side mounting
- designed for rail or wall mounting.

Ordering details

| Rated control circuit voltage U _c | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--|------------|-----------------|---------|-------------------|
| V DC | | | | |
| 2 N.O. + 2 N.C. main poles | | | | |
| 12 | KC6-22Z-07 | GJH1213001R0227 | 10 | 0.175 |
| 24 | KC6-22Z-01 | GJH1213001R0221 | 10 | 0.175 |
| 48 | KC6-22Z-16 | GJH1213001R1226 | 10 | 0.175 |
| 60 | KC6-22Z-13 | GJH1213001R1223 | 10 | 0.175 |
| 110...125 | KC6-22Z-04 | GJH1213001R0224 | 10 | 0.175 |
| 220...240 | KC6-22Z-05 | GJH1213001R0225 | 10 | 0.175 |
| 3 N.O. + 1 N.C. main poles | | | | |
| 12 | KC6-31Z-07 | GJH1213001R0317 | 10 | 0.175 |
| 24 | KC6-31Z-01 | GJH1213001R0311 | 10 | 0.175 |
| 48 | KC6-31Z-16 | GJH1213001R1316 | 10 | 0.175 |
| 60 | KC6-31Z-13 | GJH1213001R1313 | 10 | 0.175 |
| 110...125 | KC6-31Z-04 | GJH1213001R0314 | 10 | 0.175 |
| 220...240 | KC6-31Z-05 | GJH1213001R0315 | 10 | 0.175 |
| 4 N.O. main poles | | | | |
| 12 | KC6-40E-07 | GJH1213001R0407 | 10 | 0.175 |
| 24 | KC6-40E-01 | GJH1213001R0401 | 10 | 0.175 |
| 48 | KC6-40E-16 | GJH1213001R1406 | 10 | 0.175 |
| 60 | KC6-40E-13 | GJH1213001R1403 | 10 | 0.175 |
| 110...125 | KC6-40E-04 | GJH1213001R0404 | 10 | 0.175 |
| 220...240 | KC6-40E-05 | GJH1213001R0405 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



KC6

2CDC212001F0011

2CDC102012C0201

KC6 4-pole interface mini contactor relays – with screw terminals DC operated



KC6-31Z

2CDC211017F0011

Description

KC6 4-pole interface mini-contactor relays are space optimized control products mainly used for control functions or for small loads up to 4 A.

These contactors are designed with:

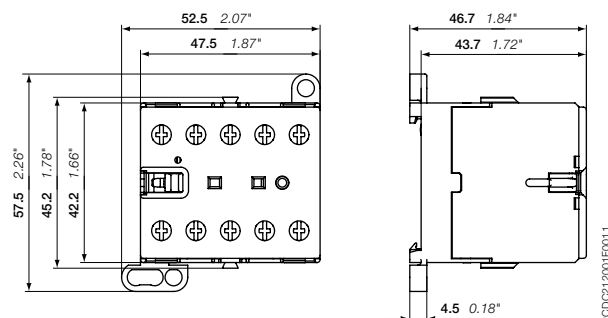
- 4-poles with various contact combinations
- control circuit: DC operated
 - low coil consumption (1.4...2.8 W at pull-in and at holding).
 - hum-free coil
- no auxiliary contact block permitted for mounting
- designed for rail or wall mounting.

Ordering details

| Rated control circuit voltage U _c | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--|----------------|-----------------|---------|-------------------|
| V DC | | | | |
| DC operation 24 V / 1.4 W | | | | |
| 24 | KC6-31Z-1.4-81 | GJH1213001R8311 | 10 | 0.175 |
| 24 | KC6-40E-1.4-81 | GJH1213001R8401 | 10 | 0.175 |
| DC operation 17...32 V / 2.4 W | | | | |
| 17...32 | KC6-31Z-2.4-51 | GJH1213001R5311 | 10 | 0.175 |
| 17...32 | KC6-40E-2.4-51 | GJH1213001R5401 | 10 | 0.175 |
| DC operation 24 V / 1.7 W | | | | |
| 24 | K6S-22Z-1.7-71 | GJH1213001R7221 | 10 | 0.175 |
| 24 | K6S-31Z-1.7-71 | GJH1213001R7311 | 10 | 0.175 |
| 24 | K6S-40E-1.7-71 | GJH1213001R7401 | 10 | 0.175 |
| DC operation 17...32 V / 2.8 W | | | | |
| 17...32 | K6S-22Z-2.8-72 | GJH1213001R7222 | 10 | 0.175 |
| 17...32 | K6S-31Z-2.8-72 | GJH1213001R7312 | 10 | 0.175 |
| 17...32 | K6S-40E-2.8-72 | GJH1213001R7402 | 10 | 0.175 |

Other types on request.

Main dimensions mm, inches



KC6

2CDC211001F0011

2CDC102013C0201

TKC6 4-pole mini contactor relays – with screw terminals

DC operated – large coil voltage range



2CDC211021F0011

TKC6-31Z

3

Description

TKC6 4-pole mini contactors are space optimized control products mainly used for control functions or for small loads up to 4 A.

These contactors are designed with:

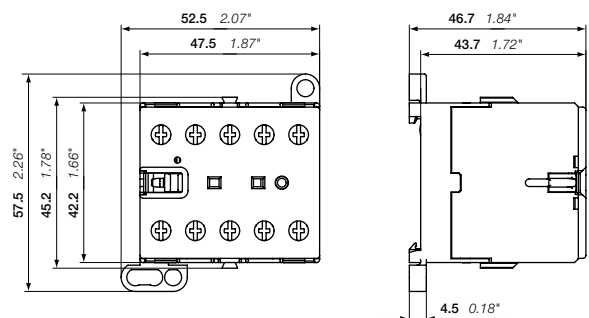
- 4-poles with various contact combinations
- control circuit: DC operated, hum free, low consumption (5 W at pull-in and at holding)
- expanded ambient temperature range -30...+70 °C and wide range voltage supply
- material is suitable for railway applications
- humfree operating DC coil
- no auxiliary contact block permitted for mounting
- designed for rail or wall mounting.

Ordering details

| Rated control circuit voltage U_c min ... U_c max | Type | Order code | Pkg qty | Weight (1 pce) kg |
|---|-------------|-----------------|---------|-------------------|
| V DC | | | | |
| 2 N.O. + 2 N.C. main poles | | | | |
| 17...32 | TKC6-22Z-51 | GJH1213061R5221 | 10 | 0.180 |
| 50...90 | TKC6-22Z-55 | GJH1213061R5225 | 10 | 0.180 |
| 77...143 | TKC6-22Z-62 | GJH1213061R6222 | 10 | 0.180 |
| 140...260 | TKC6-22Z-68 | GJH1213061R6228 | 10 | 0.180 |
| 3 N.O. + 1 N.C. main poles | | | | |
| 17...32 | TKC6-31Z-51 | GJH1213061R5311 | 10 | 0.180 |
| 50...90 | TKC6-31Z-55 | GJH1213061R5315 | 10 | 0.180 |
| 77...143 | TKC6-31Z-62 | GJH1213061R6312 | 10 | 0.180 |
| 140...260 | TKC6-31Z-68 | GJH1213061R6318 | 10 | 0.180 |
| 4 N.O. main poles | | | | |
| 17...32 | TKC6-40E-51 | GJH1213061R5401 | 10 | 0.180 |
| 50...90 | TKC6-40E-55 | GJH1213061R5405 | 10 | 0.180 |
| 77...143 | TKC6-40E-62 | GJH1213061R6402 | 10 | 0.180 |
| 140...260 | TKC6-40E-68 | GJH1213061R6408 | 10 | 0.180 |

Other types on request.

Main dimensions mm, inches



TKC6

2CDC211021F0011

2CDC102014C0201

B6, B7, BC6, BC7 3 and 4-pole mini contactors VB6, VB7, VBC6, VBC7 3-pole mini reversing contactors Accessories



CAF6-11N

2CDC2110750010



RV-BC6/250

2CDC21100750010



CA6-11E-P

2CDC21100650010



CA6-11E

2CDC21101850011



BSM6-30

5S127792R



T16

2CDC231012F0011

Ordering details

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Front-mounted instantaneous auxiliary contact blocks (not allowed for mounting on TBC, B6S, B7S, interface contactors) (1)

| | | | | | |
|----------------------------------|-----|----------|-----------------|----|-------|
| B6-, B7-40-00, BC6-, BC7-40-00 | 1 1 | CAF6-11E | GJL1201330R0002 | 10 | 0.020 |
| VB6, VB7, VBC6, VBC7, VB6A, VB7A | 2 0 | CAF6-20E | GJL1201330R0006 | 10 | 0.020 |
| VBC6A, VBC7A | 0 2 | CAF6-02E | GJL1201330R0010 | 10 | 0.020 |
| B6-, B7-30-10, BC6-, BC7-30-10 | 1 1 | CAF6-11M | GJL1201330R0003 | 10 | 0.020 |
| VB6, VB7, VBC6, VBC7, VB6A, VB7A | 2 0 | CAF6-20M | GJL1201330R0007 | 10 | 0.020 |
| VBC6A, VBC7A | 0 2 | CAF6-02M | GJL1201330R0011 | 10 | 0.020 |
| B6-, B7-30-01, BC6-, BC7-30-01 | 1 1 | CAF6-11N | GJL1201330R0004 | 10 | 0.020 |
| VB6, VB7, VBC6, VBC7, VB6A, VB7A | 2 0 | CAF6-20N | GJL1201330R0008 | 10 | 0.020 |
| VBC6A, VBC7A | 0 2 | CAF6-02N | GJL1201330R0012 | 10 | 0.020 |

Side-mounted instantaneous auxiliary contact block (1)

| | | | | | |
|--------------------------------|-----|---------|-----------------|----|-------|
| B6-, B7-40-00, BC6-, BC7-40-00 | 1 1 | CA6-11E | GJL1201317R0002 | 10 | 0.030 |
| B6-, B7-30-10, BC6-, BC7-30-10 | 1 1 | CA6-11M | GJL1201317R0003 | 10 | 0.030 |
| B6-, B7-30-01, BC6-, BC7-30-01 | 1 1 | CA6-11N | GJL1201317R0004 | 10 | 0.030 |

(1) CA6 and CAF6 must not be fitted simultaneously.

| For contactors | Rated control circuit voltage U _c V DC | Connection type | Type | Order code | Pkg qty | Weight (1 pce) kg |
|----------------|--|-----------------|------|------------|---------|----------------------|
|----------------|--|-----------------|------|------------|---------|----------------------|

Surge suppressors for contactor coils

| | | | | | | |
|----------|----------|------------------|--------------|-----------------|----|-------|
| BC6, BC7 | 24...60 | Cable lug | RV-BC6/60 | GHV2501902R0002 | 10 | 0.005 |
| | | Flat pin, 2.8 mm | RV-BC6-F/60 | GHV2501902R0003 | 10 | 0.005 |
| | 50...250 | Cable lug | RV-BC6/250 | GHV2501903R0002 | 10 | 0.005 |
| | | Flat pin, 2.8 mm | RV-BC6-F/250 | GHV2501903R0003 | 10 | 0.010 |
| | 380 | Cable lug | RV-BC6/380 | GHV2501904R0002 | 10 | 0.005 |
| | | Flat pin, 2.8 mm | RV-BC6-F/380 | GHV2501904R0003 | 10 | 0.010 |

Note: Mini contactors for AC operation have an integrated protective circuit.

Connecting links with manual motor starters

| | | | | |
|---|----------|-----------------|----|-------|
| To connect B..VB.. mini contactor to MS116, MS132 | BEA7/132 | 1SBN080906R1002 | 10 | 0.013 |
| To connect B..VB.. mini contactors to MS325 | BEA7/325 | 1SBN080906R1001 | 10 | 0.021 |

Connection sets for reversing contactors

| | | | | |
|--|---------|-----------------|----|-------|
| VB6, VB7, VBC6, VBC7, VB6A, VB7A, VBC6A, VBC7A, cross-section 1.8 mm ² | BSM6-30 | GJL1201908R0001 | 10 | 0.010 |
|--|---------|-----------------|----|-------|

Parallel connecting link

| | | | | |
|------------------|-----|-----------------|-----|-------|
| B6, B7, BC6, BC7 | LP6 | GJL1201907R0001 | 100 | 0.009 |
|------------------|-----|-----------------|-----|-------|

Cover cap, transparent fitting to DIN rail design, sealable

| | | | | |
|------------------|-------|-----------------|----|-------|
| B6, B7, BC6, BC7 | LT6-B | GJL1201906R0001 | 10 | 0.015 |
|------------------|-------|-----------------|----|-------|

Overload relays fitting details (2)

| Contactor types | Thermal overload relays | Electronic overload relays |
|------------------|-------------------------|----------------------------|
| B6, B7, BC6, BC7 | T16 (0.10...16 A) | E16DU (0.10...18.9 A) |

(2) Direct mounting - No kit required. Ordering details, see overload relays section.

K6, KC6 4-pole mini contactor relays

Accessories



2CDC211019S0011

CAF6-11K



2CDC211006S0010

CA6-11K



2CDC211011S0010

CA6-11K-P



2CDC211006S0010

LT6-B



2CDC211007S0010

RV-BC6/250

Ordering details

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Front-mounted instantaneous auxiliary contact blocks (1)

| | | | | | |
|---------|-----|----------|-----------------|----|-------|
| K6, KC6 | 1 1 | CAF6-11K | GJL1201330R0001 | 10 | 0.020 |
| | 2 0 | CAF6-20K | GJL1201330R0005 | 10 | 0.020 |
| | 0 2 | CAF6-02K | GJL1201330R0009 | 10 | 0.020 |

Side-mounted instantaneous auxiliary contact block (1)

| | | | | | |
|---------|-----|---------|-----------------|----|-------|
| K6, KC6 | 1 1 | CA6-11K | GJL1201317R0001 | 10 | 0.030 |
|---------|-----|---------|-----------------|----|-------|

(1) CA6 and CAF6 must not be fitted simultaneously.

| For contactors | Rated control circuit voltage U _c V DC | Connection type | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--|-----------------|------|------------|---------|----------------|
| | | | | | | kg |

Surge suppressors for contactor coils

| | | | | | | |
|-----|----------|------------------|--------------|-----------------|----|-------|
| KC6 | 24...60 | Cable lug | RV-BC6/60 | GHV2501902R0002 | 10 | 0.005 |
| | | Flat pin, 2.8 mm | RV-BC6-F/60 | GHV2501902R0003 | 10 | 0.005 |
| | 50...250 | Cable lug | RV-BC6/250 | GHV2501903R0002 | 10 | 0.005 |
| | | Flat pin, 2.8 mm | RV-BC6-F/250 | GHV2501903R0003 | 10 | 0.010 |
| | 380 | Cable lug | RV-BC6/380 | GHV2501904R0002 | 10 | 0.005 |
| | | Flat pin, 2.8 mm | RV-BC6-F/380 | GHV2501904R0003 | 10 | 0.010 |

Note: Mini contactors for AC operation have an integrated protective circuit.

Cover cap, transparent fitting to DIN rail design, sealable

| | | | | | |
|---------|--|-------|-----------------|----|-------|
| K6, KC6 | | LT6-B | GJL1201906R0001 | 10 | 0.015 |
|---------|--|-------|-----------------|----|-------|

Notes

A series of horizontal dotted lines for writing notes, spanning the width of the page.



AS 3-pole contactors and NS contactor relays with screw terminals

[Overview](#) 4/2

3-pole contactors

| | | |
|------------------|-----------------------|-----|
| AS09 ... AS16 | AC operated | 4/4 |
| ASL09 ... ASL16 | DC operated | 4/5 |
| AS09 ... AS16 | AC operated - 2-stack | 4/6 |
| ASL09 ... ASL16 | DC operated - 2-stack | 4/7 |
| Main accessories | | 4/8 |

Contactor relays

| | | |
|------------------|-------------|------|
| NS | AC operated | 4/10 |
| NSL | DC operated | 4/11 |
| Main accessories | | 4/12 |

[Voltage code table](#) 4/14

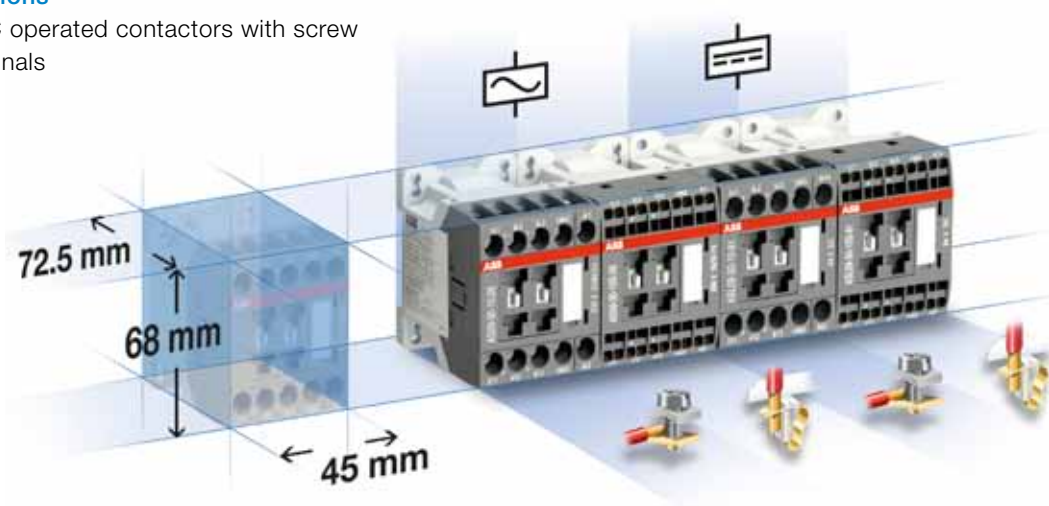
For additional information such as technical datas, dimension drawings, other products and accessories, refer to our main catalog and visit our website: www.abb.com/connecttocontrol

Compact Optimize your equipment dimensions!

One frame size for contactors up to 7.5 kW - 400 V

Same dimensions

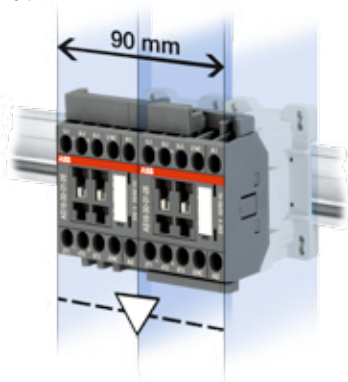
for AC and DC operated contactors with screw or spring terminals



4

Reversing contactors

including mechanical and electrical interlocking without additional width



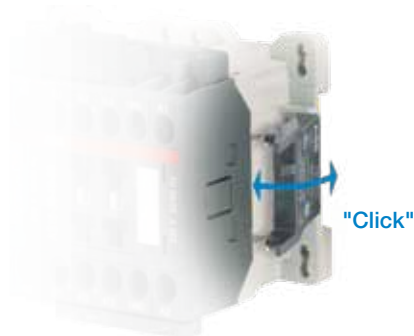
Direct control by PLC

removing any use of interface relay and reducing panel power consumption



Side clipped-on surge suppressors

integrated into overall contactor dimensions allowing free access to coil terminals



Multiple packaging available for all products



Simple

Choose reliable and time-saving solutions

Select compact starters:

- Direct-on-line and reversing starters up to 7.5 kW – 400 V
- Star-delta starters up to 11 KW – 400 V.

Protect your motors against short-circuits and overloads

- Type 1 or type 2 coordination guaranteed between contactors and short-circuit protection devices (manual motor starters or fuses)



Time/cost saving solutions with

- Connection sets for reversing and star-delta starter
- Easy, fast and secure assembly, fitting and wiring of components
- Direct 35 mm rail mounting: no additional mounting plate required
- Easy installation and dismantling of contactors: no unwiring of manual motor starters.



Compliant to International standards
Complies with RoHS European directives



Make your control circuits safe



High reliability
for low signals



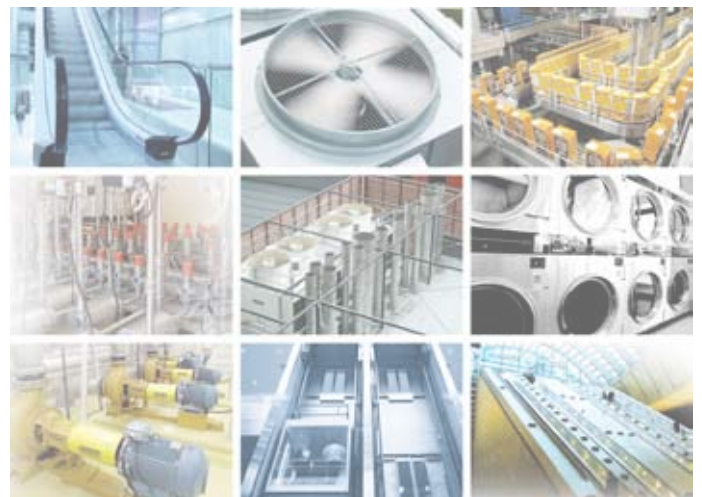
Mechanically linked
contacts according to
IEC 60947-5-1
Annex L 3.0



Mirror contact
according to
IEC 60947-4-1
Annex F 2.1

Time and space-saving solutions, suitable for your applications

- Escalators
- Elevators
- Conveyors
- Compressors
- Door control
- Hvac
- Pumps
- Washing machines...



AS09 ... AS16 3-pole contactors

4 to 7.5 kW

AC operated



AS09-30-10

4

Description

AS09 ... AS16 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 3 main poles and 1 built-in auxiliary contact
- control circuit: AC operated
- add-on auxiliary contact blocks for front mounting and a comprehensive range of accessories.

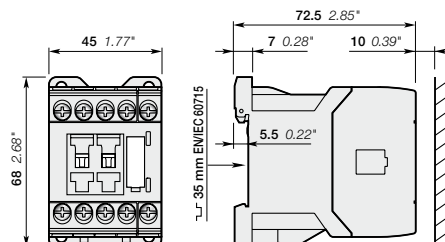
Ordering details

| IEC Rated operational power 400 V AC-3 kW | Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 A | UL/CSA 3-phase motor rating 480 V hp | General use rating 600 V AC A | Rated control circuit voltage Uc (1) | | Auxiliary contacts fitted | Type | Order code | Weight Pkg (1 pce) kg | | | | |
|--|---|---|---|---|---------|-------------------------------------|---------------|-----------------|--------------------------------|-----|---------------|-----------------|-------|
| | | | | V 50 Hz | V 60 Hz | | | | | | | | |
| 4 | 22 | 5 | 20 | 24 | 24 | 1 0 | AS09-30-10-20 | 1SBL101001R2010 | 0.220 | | | | |
| | | | | | | 0 1 | AS09-30-01-20 | 1SBL101001R2001 | 0.220 | | | | |
| | | | | - | 120 | 1 0 | AS09-30-10-16 | 1SBL101001R1610 | 0.220 | | | | |
| | | | | | | 0 1 | AS09-30-01-16 | 1SBL101001R1601 | 0.220 | | | | |
| | | | | 230 | 230 | 1 0 | AS09-30-10-26 | 1SBL101001R2610 | 0.220 | | | | |
| | | | | | | 0 1 | AS09-30-01-26 | 1SBL101001R2601 | 0.220 | | | | |
| | | | | 400 | 400 | 1 0 | AS09-30-10-28 | 1SBL101001R2810 | 0.220 | | | | |
| | | | | | | 0 1 | AS09-30-01-28 | 1SBL101001R2801 | 0.220 | | | | |
| | | | | 5.5 | 24 | 7.5 | 20 | 24 | 24 | 1 0 | AS12-30-10-20 | 1SBL111001R2010 | 0.220 |
| | | | | | | | | | | 0 1 | AS12-30-01-20 | 1SBL111001R2001 | 0.220 |
| - | 120 | 1 0 | AS12-30-10-16 | | | | | 1SBL111001R1610 | 0.220 | | | | |
| | | 0 1 | AS12-30-01-16 | | | | | 1SBL111001R1601 | 0.220 | | | | |
| 230 | 230 | 1 0 | AS12-30-10-26 | | | | | 1SBL111001R2610 | 0.220 | | | | |
| | | 0 1 | AS12-30-01-26 | | | | | 1SBL111001R2601 | 0.220 | | | | |
| 400 | 400 | 1 0 | AS12-30-10-28 | | | | | 1SBL111001R2810 | 0.220 | | | | |
| | | 0 1 | AS12-30-01-28 | | | | | 1SBL111001R2801 | 0.220 | | | | |
| 7.5 | 24 | 10 | 20 | | | | | 24 | 24 | 1 0 | AS16-30-10-20 | 1SBL121001R2010 | 0.220 |
| | | | | | | | | | | 0 1 | AS16-30-01-20 | 1SBL121001R2001 | 0.220 |
| | | | | - | 120 | 1 0 | AS16-30-10-16 | 1SBL121001R1610 | 0.220 | | | | |
| | | | | | | 0 1 | AS16-30-01-16 | 1SBL121001R1601 | 0.220 | | | | |
| | | | | 230 | 230 | 1 0 | AS16-30-10-26 | 1SBL121001R2610 | 0.220 | | | | |
| | | | | | | 0 1 | AS16-30-01-26 | 1SBL121001R2601 | 0.220 | | | | |
| | | | | 400 | 400 | 1 0 | AS16-30-10-28 | 1SBL121001R2810 | 0.220 | | | | |
| | | | | | | 0 1 | AS16-30-01-28 | 1SBL121001R2801 | 0.220 | | | | |

Note: for multiple packaging, please contact your ABB local sales organization.

(1) Other control voltages see voltage code table.

Main dimensions mm, inches



AS09, AS12, AS16

ASL09 ... ASL16 3-pole contactors

4 to 7.5 kW

DC operated



ASL09-30-10

1SBC101010F0014

Description

ASL09 ... ASL16 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 3 main poles and 1 built-in auxiliary contact
- control circuit: low consumption (3 W at pull-in and holding) DC operated with solid core magnet. Suitable for direct control by PLC outputs (the polarity on the coil terminals A1+ and A2- must be respected)
- add-on auxiliary contact blocks for front mounting and a comprehensive range of accessories.

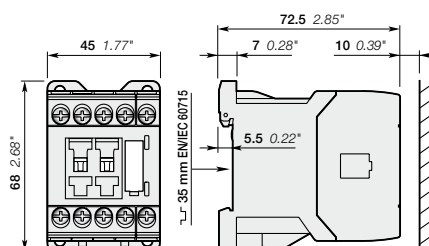
Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage Uc (1) | Auxiliary contacts fitted | Type | Order code | Weight Pkg (1 pce) |
|-------------------------|---|-------------------------------|--------------------------------|--|---------------------------|----------------|-----------------|--------------------------|
| Rated operational power | Rated operational current $\theta \leq 40^\circ\text{C}$ | 3-phase motor rating 480 V | General use rating 600 V AC | | | | | |
| 400 V AC-3 kW | AC-1 A | hp | A | V DC | | | | kg |
| 4 | 22 | 5 | 20 | 24 | 1 0 | ASL09-30-10-81 | 1SBL103001R8110 | 0.280 |
| | | | | | 0 1 | ASL09-30-01-81 | 1SBL103001R8101 | 0.280 |
| | | | | 48 | 1 0 | ASL09-30-10-83 | 1SBL103001R8310 | 0.280 |
| | | | | | 0 1 | ASL09-30-01-83 | 1SBL103001R8301 | 0.280 |
| | | | | | 1 0 | ASL09-30-10-86 | 1SBL103001R8610 | 0.280 |
| | | | | | 0 1 | ASL09-30-01-86 | 1SBL103001R8601 | 0.280 |
| 5.5 | 24 | 7.5 | 20 | 24 | 1 0 | ASL12-30-10-81 | 1SBL113001R8110 | 0.280 |
| | | | | | 0 1 | ASL12-30-01-81 | 1SBL113001R8101 | 0.280 |
| | | | | 48 | 1 0 | ASL12-30-10-83 | 1SBL113001R8310 | 0.280 |
| | | | | | 0 1 | ASL12-30-01-83 | 1SBL113001R8301 | 0.280 |
| | | | | | 1 0 | ASL12-30-10-86 | 1SBL113001R8610 | 0.280 |
| | | | | | 0 1 | ASL12-30-01-86 | 1SBL113001R8601 | 0.280 |
| 7.5 | 24 | 10 | 20 | 24 | 1 0 | ASL16-30-10-81 | 1SBL123001R8110 | 0.280 |
| | | | | | 0 1 | ASL16-30-01-81 | 1SBL123001R8101 | 0.280 |
| | | | | 48 | 1 0 | ASL16-30-10-83 | 1SBL123001R8310 | 0.280 |
| | | | | | 0 1 | ASL16-30-01-83 | 1SBL123001R8301 | 0.280 |
| | | | | | 1 0 | ASL16-30-10-86 | 1SBL123001R8610 | 0.280 |
| | | | | | 0 1 | ASL16-30-01-86 | 1SBL123001R8601 | 0.280 |
| 220 | 1 0 | ASL16-30-10-88 | 1SBL123001R8810 | 0.280 | | | | |
| | 0 1 | ASL16-30-01-88 | 1SBL123001R8801 | 0.280 | | | | |

Note: for multiple packaging, please contact your ABB local sales organization.

(1) Other control voltages see voltage code table.

Main dimensions mm, inches



ASL09, ASL12, ASL16

AS09 ... AS16 2-stack 3-pole contactors

4 to 7.5 kW

AC operated



AS09-30-32

1SBC101303R0014

Description

AS09 ... AS16 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 1st stack with 3 main poles and 1 N.O. built-in auxiliary contact
- 2nd stack with permanently fixed 2 N.O. + 2 N.C. auxiliary contact block. The auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC operated
- a comprehensive range of accessories.

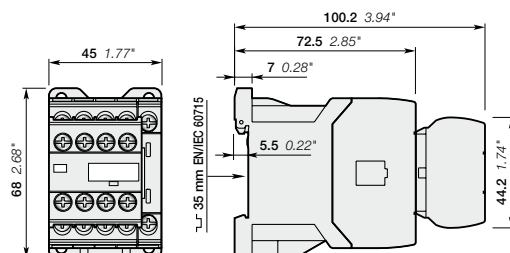
Ordering details

| IEC Rated operational power 400 V AC-3 kW | Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 A | UL/CSA 3-phase motor rating 480 V hp | General use rating 600 V AC A | Rated control circuit voltage Uc (1) | | Auxiliary contacts fitted | Type | Order code | Weight Pkg (1 pce) kg |
|--|---|---|---|---|---------|-------------------------------------|---------------|-----------------|--------------------------------|
| | | | | V 50 Hz | V 60 Hz | | | | |
| 4 | 22 | 5 | 20 | 24 | 24 | 3 2 | AS09-30-32-20 | 1SBL101001R2032 | 0.260 |
| | | | | - | 120 | 3 2 | AS09-30-32-16 | 1SBL101001R1632 | 0.260 |
| | | | | 230 | 230 | 3 2 | AS09-30-32-26 | 1SBL101001R2632 | 0.260 |
| | | | | 400 | 400 | 3 2 | AS09-30-32-28 | 1SBL101001R2832 | 0.260 |
| 5.5 | 24 | 7.5 | 20 | 24 | 24 | 3 2 | AS12-30-32-20 | 1SBL111001R2032 | 0.260 |
| | | | | - | 120 | 3 2 | AS12-30-32-16 | 1SBL111001R1632 | 0.260 |
| | | | | 230 | 230 | 3 2 | AS12-30-32-26 | 1SBL111001R2632 | 0.260 |
| | | | | 400 | 400 | 3 2 | AS12-30-32-28 | 1SBL111001R2832 | 0.260 |
| 7.5 | 24 | 10 | 20 | 24 | 24 | 3 2 | AS16-30-32-20 | 1SBL121001R2032 | 0.260 |
| | | | | - | 120 | 3 2 | AS16-30-32-16 | 1SBL121001R1632 | 0.260 |
| | | | | 230 | 230 | 3 2 | AS16-30-32-26 | 1SBL121001R2632 | 0.260 |
| | | | | 400 | 400 | 3 2 | AS16-30-32-28 | 1SBL121001R2832 | 0.260 |

Note: for multiple packaging, please contact your ABB local sales organization.

(1) Other control voltages see voltage code table.

Main dimensions mm, inches



AS09, AS12, AS16

ASL09 ... ASL16 2-stack 3-pole contactors

4 to 7.5 kW

DC operated



ASL09-30-32



Description

ASL09 ... ASL16 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 1st stack with 3 main poles and 1 N.O. built-in auxiliary contact
- 2nd stack with permanently fixed 2 N.O. + 2 N.C. auxiliary contact block. The auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: low consumption (3 W at pull-in and holding) DC operated with solid core magnet. Suitable for direct control by PLC outputs (the polarity on the coil terminals A1+ and A2- must be respected)
- a comprehensive range of accessories.

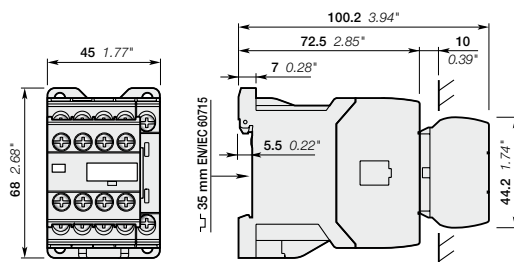
Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage U _c (1) | Auxiliary contacts fitted | Type | Order code | Weight Pkg (1 pce) |
|-------------|-------------------------------|----------------------------|-----------------------------|--|---|----------------|-----------------|--------------------|
| Rated power | operational current θ ≤ 40 °C | 3-phase motor rating 480 V | General use rating 600 V AC | | | | | |
| 400 V AC-3 | AC-1 | hp | A | VDC |   | | | kg |
| 4 | 22 | 5 | 20 | 24 | 3 2 | ASL09-30-32-81 | 1SBL103001R8132 | 0.320 |
| | | | | 48 | 3 2 | ASL09-30-32-83 | 1SBL103001R8332 | 0.320 |
| | | | | 110 | 3 2 | ASL09-30-32-86 | 1SBL103001R8632 | 0.320 |
| | | | | 220 | 3 2 | ASL09-30-32-88 | 1SBL103001R8832 | 0.320 |
| 5.5 | 24 | 7.5 | 20 | 24 | 3 2 | ASL12-30-32-81 | 1SBL113001R8132 | 0.320 |
| | | | | 48 | 3 2 | ASL12-30-32-83 | 1SBL113001R8332 | 0.320 |
| | | | | 110 | 3 2 | ASL12-30-32-86 | 1SBL113001R8632 | 0.320 |
| | | | | 220 | 3 2 | ASL12-30-32-88 | 1SBL113001R8832 | 0.320 |
| 7.5 | 24 | 10 | 20 | 24 | 3 2 | ASL16-30-32-81 | 1SBL123001R8132 | 0.320 |
| | | | | 48 | 3 2 | ASL16-30-32-83 | 1SBL123001R8332 | 0.320 |
| | | | | 110 | 3 2 | ASL16-30-32-86 | 1SBL123001R8632 | 0.320 |
| | | | | 220 | 3 2 | ASL16-30-32-88 | 1SBL123001R8832 | 0.320 |

Note: for multiple packaging, please contact your ABB local sales organization.

(1) Other control voltages see voltage code table.

Main dimensions mm, inches

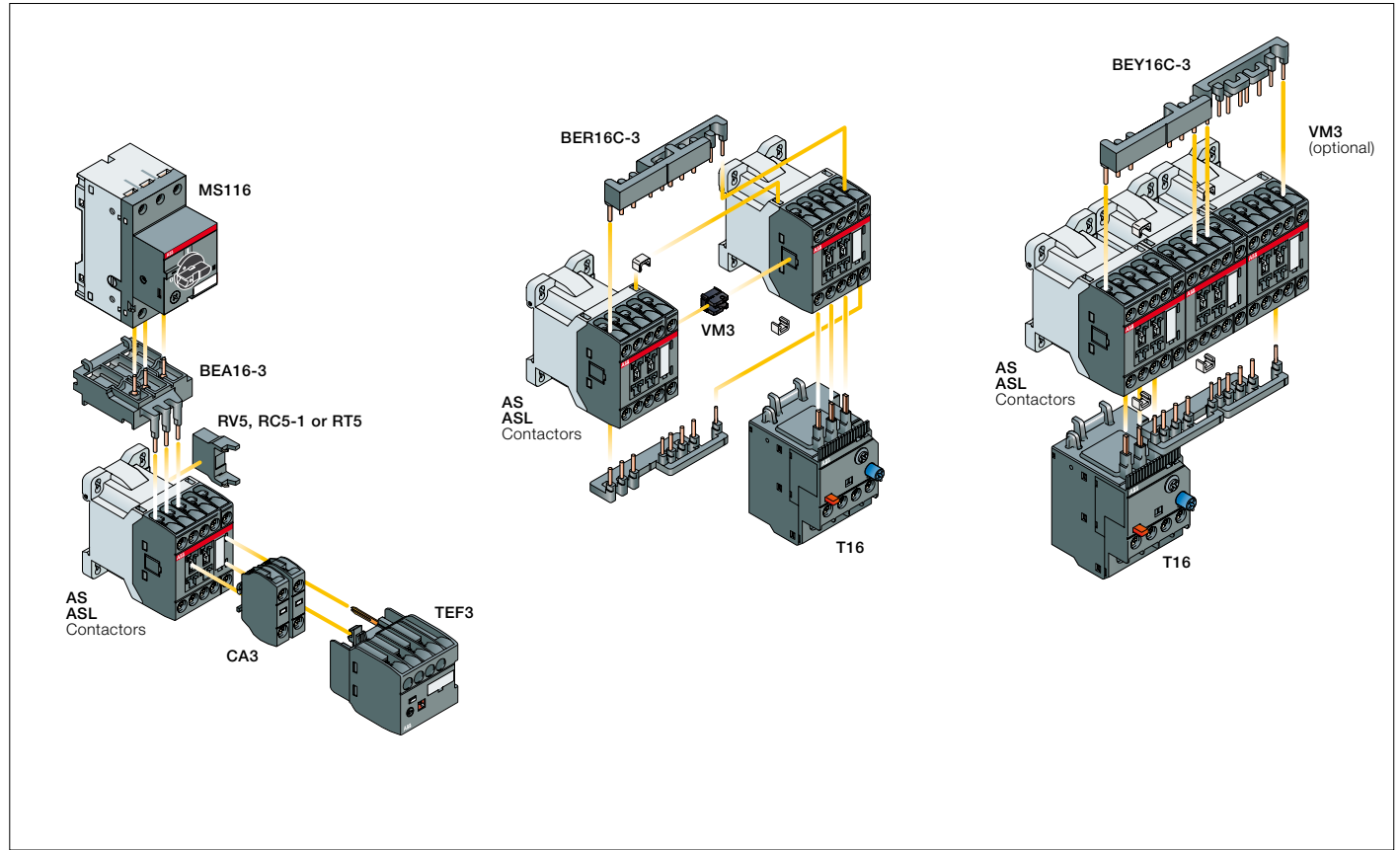


ASL09, ASL12, ASL16

AS09 ... AS16 and ASL09 ... ASL16 3-pole contactors

Main accessories

Contactor and main accessories (other accessories available)



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

| Contactor types | Main poles | Built-in auxiliary contacts | Front-mounted accessories | | | Side-mounted accessories | | | |
|-----------------|------------|-----------------------------|---------------------------|------------------|--|--------------------------|-----|-------|-------|
| | | | Auxiliary contact blocks | Electronic timer | Mechanical interlock unit (between 2 contactors) | Surge suppressors | | | |
| AS09 ... AS16 | 3 0 | 1 0 | 1-pole CA3 | TEF3 | VM3 | + | RV5 | or | RC5-1 |
| | | | 2 max. | or 1 | + | 1 | + | RC5-1 | |
| AS09 ... AS16 | 3 0 | 3 2 | - | - | 1 | + | RV5 | or | RC5-1 |
| ASL09 ... ASL16 | 3 0 | 1 0 | 1-pole CA3 | TEF3 | VM3 | + | RV5 | or | RT5 |
| | | | 2 max. | or 1 | + | 1 | + | RT5 | |
| ASL09 ... ASL16 | 3 0 | 3 2 | - | - | 1 | + | RV5 | or | RT5 |

Overload relays fitting details (1)

| Contactor types | Thermal overload relays |
|-----------------|-------------------------|
| AS09 ... AS16 | T16 (0.10...16 A) |
| ASL09 ... ASL16 | |

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.

(1) Direct mounting - No kit required.

AS09 ... AS16 and ASL09 ... ASL16 3-pole contactors

Main accessories



CA3-10

Front-mounted instantaneous auxiliary contact blocks

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) kg |
|-----------------|--------------------|--------|-----------------|---------|----------------------|
| AS09 ... AS16 | 1 0 | CA3-10 | 1SBN011010T1010 | 10 | 0.011 |
| ASL09 ... ASL16 | 0 1 | CA3-01 | 1SBN011010T1001 | 10 | 0.011 |



TEF3-ON

Front-mounted electronic timer

| For contactors | Rated control circuit voltage - Uc V | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--------------------------------|---|----------|-----------------|---------|----------------------|
| ON-delay | | | | | |
| AS09 ... AS16, ASL09 ... ASL16 | 24...240 V AC/DC | TEF3-ON | 1SBN021012R1000 | 1 | 0.065 |
| OFF-delay | | | | | |
| AS09 ... AS16, ASL09 ... ASL16 | 24...240 V AC/DC | TEF3-OFF | 1SBN021014R1000 | 1 | 0.065 |



VM3

Mechanical interlock unit

| For contactors | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--------------------------------|------|-----------------|---------|----------------------|
| AS09 ... AS16, ASL09 ... ASL16 | VM3 | 1SBN031005T1000 | 10 | 0.002 |



RV5

Surge suppressors

| For contactors | Rated control circuit voltage - Uc | | Type | Order code | Pkg qty | Weight (1 pce) kg |
|-----------------------------------|------------------------------------|-------|-----------|-----------------|---------|----------------------|
| | V | AC DC | | | | |
| AS09 ... AS16, ASL09 ... ASL16 | 24...50 | ● ● | RV5/50 | 1SBN050010R1000 | 2 | 0.015 |
| | 50...133 | ● ● | RV5/133 | 1SBN050010R1001 | 2 | 0.015 |
| | 110...250 | ● ● | RV5/250 | 1SBN050010R1002 | 2 | 0.015 |
| | 250...440 | ● ● | RV5/440 | 1SBN050010R1003 | 2 | 0.015 |
| AS09 ... AS16 | 24...50 | ● - | RC5-1/50 | 1SBN050100R1000 | 2 | 0.012 |
| | 50...133 | ● - | RC5-1/133 | 1SBN050100R1001 | 2 | 0.012 |
| | 110...250 | ● - | RC5-1/250 | 1SBN050100R1002 | 2 | 0.012 |
| | 250...440 | ● - | RC5-1/440 | 1SBN050100R1003 | 2 | 0.012 |
| ASL09 ... ASL16 | 12...32 | - ● | RT5/32 | 1SBN050020R1000 | 2 | 0.015 |
| | 25...65 | - ● | RT5/65 | 1SBN050020R1001 | 2 | 0.015 |
| | 50...90 | - ● | RT5/90 | 1SBN050020R1002 | 2 | 0.015 |
| | 77...150 | - ● | RT5/150 | 1SBN050020R1003 | 2 | 0.015 |
| | 150...264 | - ● | RT5/264 | 1SBN050020R1004 | 2 | 0.015 |



BEA16-3

Connecting links with manual motor starters

| For contactors | Manual motor starter | Type | Order code | Pkg qty | Weight (1 pce) kg |
|-----------------|-------------------------|---------|-----------------|---------|----------------------|
| AS09 ... AS16 | MS116-0.16 ... MS116-16 | BEA16-3 | 1SBN081006T1000 | 10 | 0.019 |
| ASL09 ... ASL16 | MS132-0.16 ... MS132-16 | | | | |

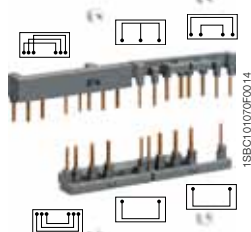


BER16C-3

Connection sets for reversing contactors

| For contactors | Mechanical interlock unit | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--------------------------------|---------------------------|----------|-----------------|---------|----------------------|
| AS09 ... AS16, ASL09 ... ASL16 | with or without VM3 | BER16C-3 | 1SBN081012R1000 | 1 | 0.035 |

Note: BER16C-3 connection set includes two BB3 fixing clips, and an electrical interlocking when fitted on contactors with built-in N.C. auxiliary contacts. BER16C-3 can be used with or without VM3 mechanical interlock unit.



BEY16C-3

Connection sets for star-delta starting

| For contactors | Mech. interlock unit between Star & Delta contactors | Type | Order code | Pkg qty | Weight (1 pce) kg |
|--------------------------------|--|----------|-----------------|---------|----------------------|
| AS09 ... AS12, ASL09 ... ASL12 | with or without VM3 | BEY16C-3 | 1SBN081018R2000 | 1 | 0.041 |

Note: BEY16C-3 connection set includes two BB3 fixing clips, and an electrical interlocking when fitted on Star and Delta contactors with built-in N.C. auxiliary contacts. BEY16C-3 can be used with or without VM3 mechanical interlock unit.

NS contactor relays

AC operated



NS22E

1SBG101012F0014

Description

NS contactor relays are used for switching auxiliary and control circuits.

These contactor relays are designed with:

- 4 poles or 8 poles. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: AC operated
- add-on auxiliary contact blocks for front mounting and a comprehensive range of accessories.

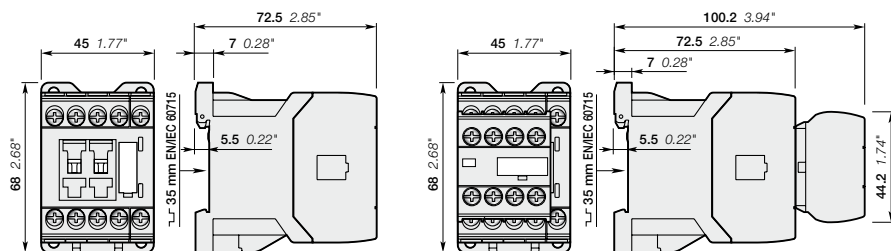
Ordering details

| Number of contacts 1st stack | 2nd stack | Rated control circuit voltage Uc (1) | | Type | Order code | Weight Pkg (1 pce) kg |
|---------------------------------|-----------|---|---------|----------|-----------------|------------------------------------|
| | | V 50 Hz | V 60 Hz | | | |
| | | 24 | 24 | NS22E-20 | 1SBH101001R2022 | 0.220 |
| | | - | 120 | NS22E-16 | 1SBH101001R1622 | 0.220 |
| | | 230 | 230 | NS22E-26 | 1SBH101001R2622 | 0.220 |
| | | 400 | 400 | NS22E-28 | 1SBH101001R2822 | 0.220 |
| | | - | 120 | NS31E-16 | 1SBH101001R2031 | 0.220 |
| | | 230 | 230 | NS31E-26 | 1SBH101001R1631 | 0.220 |
| | | 400 | 400 | NS31E-28 | 1SBH101001R2831 | 0.220 |
| | | - | 120 | NS40E-16 | 1SBH101001R1640 | 0.220 |
| | | 230 | 230 | NS40E-26 | 1SBH101001R2640 | 0.220 |
| | | 400 | 400 | NS40E-28 | 1SBH101001R2840 | 0.220 |
| | | 24 | 24 | NS44E-20 | 1SBH101001R2044 | 0.260 |
| | | - | 120 | NS44E-16 | 1SBH101001R1644 | 0.260 |
| | | 230 | 230 | NS44E-26 | 1SBH101001R2644 | 0.260 |
| | | 400 | 400 | NS44E-28 | 1SBH101001R2844 | 0.260 |
| | | 24 | 24 | NS53E-20 | 1SBH101001R2053 | 0.260 |
| | | - | 120 | NS53E-16 | 1SBH101001R1653 | 0.260 |
| | | 230 | 230 | NS53E-26 | 1SBH101001R2653 | 0.260 |
| | | 400 | 400 | NS53E-28 | 1SBH101001R2853 | 0.260 |
| | | 24 | 24 | NS62E-20 | 1SBH101001R2062 | 0.260 |
| | | - | 120 | NS62E-16 | 1SBH101001R1662 | 0.260 |
| | | 230 | 230 | NS62E-26 | 1SBH101001R2662 | 0.260 |
| | | 400 | 400 | NS62E-28 | 1SBH101001R2862 | 0.260 |
| | | 24 | 24 | NS71E-20 | 1SBH101001R2071 | 0.260 |
| | | - | 120 | NS71E-16 | 1SBH101001R1671 | 0.260 |
| | | 230 | 230 | NS71E-26 | 1SBH101001R2671 | 0.260 |
| | | 400 | 400 | NS71E-28 | 1SBH101001R2871 | 0.260 |
| | | 24 | 24 | NS80E-20 | 1SBH101001R2080 | 0.260 |
| | | - | 120 | NS80E-16 | 1SBH101001R1680 | 0.260 |
| | | 230 | 230 | NS80E-26 | 1SBH101001R2680 | 0.260 |
| | | 400 | 400 | NS80E-28 | 1SBH101001R2880 | 0.260 |

Note: for multiple packaging, please contact your ABB local sales organization.

(1) Other control voltages see voltage code table.

Main dimensions mm, inches



NS22E, NS31E, NS40E

NS44E, NS53E, NS62E, NS71E, NS80E

1SBG101475S0201

NSL contactor relays

DC operated



NSL22E

1SBC1018F0014

Description

NSL contactor relays are used for switching auxiliary and control circuits.

These contactor relays are designed with:

- 4 poles or 8 poles. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: low coil consumption (3 W at pull-in and holding) DC operated with solid core magnet. Suitable for direct control by PLC outputs (the polarity on the coil terminals A1+ and A2- must be respected)
- add-on auxiliary contact blocks for front mounting and a comprehensive range of accessories.

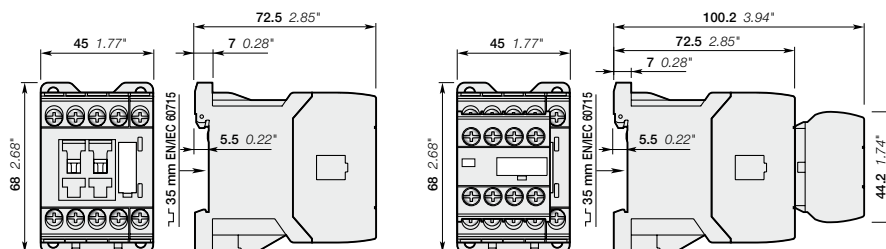
Ordering details

| Number of contacts 1st stack | 2nd stack | Rated control circuit voltage U _c (1) V DC | Type | Order code | Weight |
|---------------------------------|-----------|---|-----------|-----------------|----------------------|
| | | | | | Pkg (1 pce) kg |
| | | 24 | NSL22E-81 | 1SBH103001R8122 | 0.280 |
| | | 48 | NSL22E-83 | 1SBH103001R8322 | 0.280 |
| | | 110 | NSL22E-86 | 1SBH103001R8622 | 0.280 |
| | | 220 | NSL22E-88 | 1SBH103001R8822 | 0.280 |
| | | 24 | NSL31E-81 | 1SBH103001R8131 | 0.280 |
| | | 48 | NSL31E-83 | 1SBH103001R8331 | 0.280 |
| | | 110 | NSL31E-86 | 1SBH103001R8631 | 0.280 |
| | | 220 | NSL31E-88 | 1SBH103001R8831 | 0.280 |
| | | 24 | NSL40E-81 | 1SBH103001R8140 | 0.280 |
| | | 48 | NSL40E-83 | 1SBH103001R8340 | 0.280 |
| | | 110 | NSL40E-86 | 1SBH103001R8640 | 0.280 |
| | | 220 | NSL40E-88 | 1SBH103001R8840 | 0.280 |
| | | 24 | NSL44E-81 | 1SBH103001R8144 | 0.320 |
| | | 48 | NSL44E-83 | 1SBH103001R8344 | 0.320 |
| | | 110 | NSL44E-86 | 1SBH103001R8644 | 0.320 |
| | | 220 | NSL44E-88 | 1SBH103001R8844 | 0.320 |
| | | 24 | NSL53E-81 | 1SBH103001R8153 | 0.320 |
| | | 48 | NSL53E-83 | 1SBH103001R8353 | 0.320 |
| | | 110 | NSL53E-86 | 1SBH103001R8653 | 0.320 |
| | | 220 | NSL53E-88 | 1SBH103001R8853 | 0.320 |
| | | 24 | NSL62E-81 | 1SBH103001R8162 | 0.320 |
| | | 48 | NSL62E-83 | 1SBH103001R8362 | 0.320 |
| | | 110 | NSL62E-86 | 1SBH103001R8662 | 0.320 |
| | | 220 | NSL62E-88 | 1SBH103001R8862 | 0.320 |
| | | 24 | NSL71E-81 | 1SBH103001R8171 | 0.320 |
| | | 48 | NSL71E-83 | 1SBH103001R8371 | 0.320 |
| | | 110 | NSL71E-86 | 1SBH103001R8671 | 0.320 |
| | | 220 | NSL71E-88 | 1SBH103001R8871 | 0.320 |
| | | 24 | NSL80E-81 | 1SBH103001R8180 | 0.320 |
| | | 48 | NSL80E-83 | 1SBH103001R8380 | 0.320 |
| | | 110 | NSL80E-86 | 1SBH103001R8680 | 0.320 |
| | | 220 | NSL80E-88 | 1SBH103001R8880 | 0.320 |

Note: for multiple packaging, please contact your ABB local sales organization.

(1) Other control voltages see voltage code table.

Main dimensions mm, inches



NSL22E, NSL31E, NSL40E

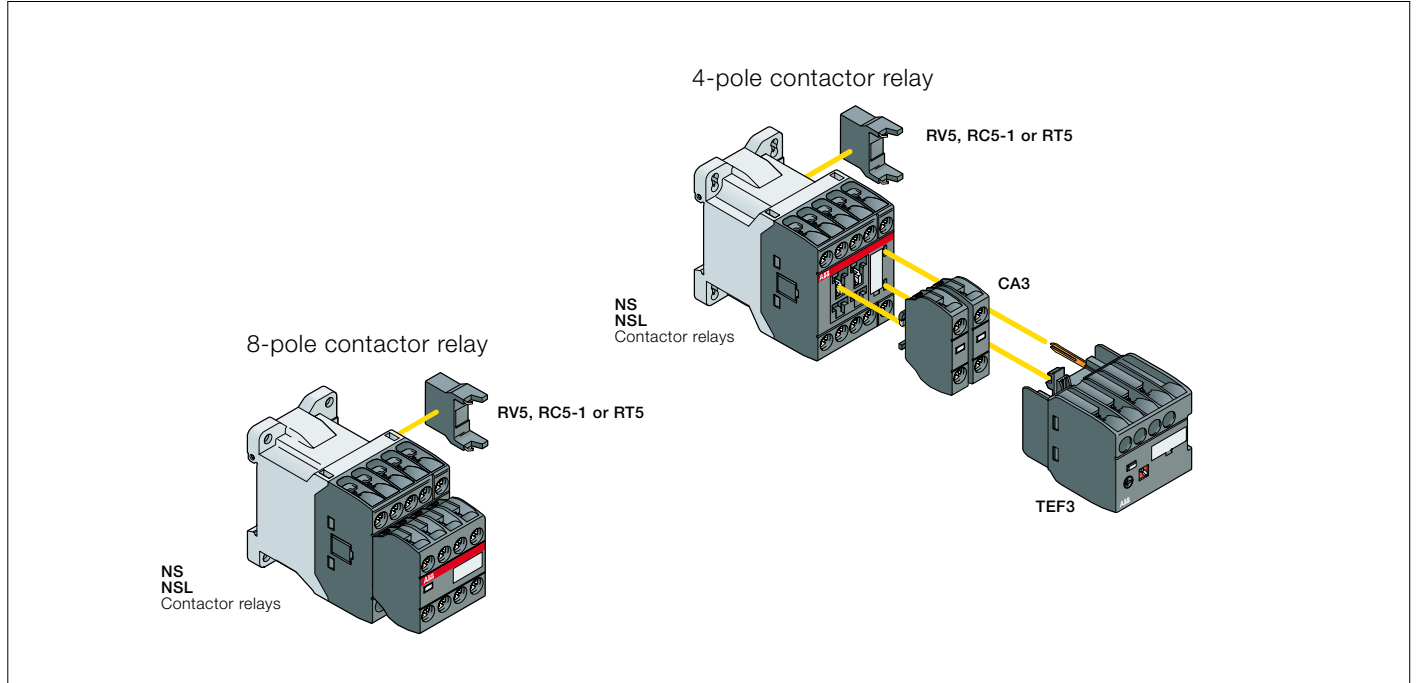
NSL44E, NSL53E, NSL62E, NSL71E, NSL80E

1SBC101479S0201

NS and NSL contactor relays

Main accessories

Contactor relays and main accessories (other accessories available)



Main accessory fitting details

| Contactor types | Main poles | Front-mounted accessories | | Side-mounted accessories | |
|-----------------|------------|---------------------------|------------------|--------------------------|--------------|
| | | Auxiliary contact blocks | Electronic timer | Surge suppressors | |
| | | 1-pole CA3 | TEF3 | | |
| NS.. | 2 2 E | 2 max. | or 1 | + | RV5 or RC5-1 |
| NS.. | 3 1 E | | | | |
| NS.. | 4 0 E | | | | |
| NS.. | 4 4 E | - | - | | RV5 or RC5-1 |
| NS.. | 5 3 E | | | | |
| NS.. | 6 2 E | | | | |
| NS.. | 7 1 E | | | | |
| NS.. | 8 0 E | | | | |
| NSL.. | 2 2 E | 2 max. | or 1 | + | RV5 or RT5 |
| NSL.. | 3 1 E | | | | |
| NSL.. | 4 0 E | | | | |
| NSL.. | 4 4 E | - | - | | RV5 or RT5 |
| NSL.. | 5 3 E | | | | |
| NSL.. | 6 2 E | | | | |
| NSL.. | 7 1 E | | | | |
| NSL.. | 8 0 E | | | | |

NS and NSL contactor relays

Main accessories



CA3-10

1SBC101038F0014



TEF3-ON

1SBC101337F0014



RV5

1SBC574001F0301

Front-mounted instantaneous auxiliary contact blocks

| For contactor relays | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------------|--------------------|--------|-----------------|---------|----------------|
| | | CA3-10 | 1SBN011010T1010 | 10 | 0.011 |
| | | CA3-01 | 1SBN011010T1001 | 10 | 0.011 |

Front-mounted electronic timer

| For contactors | Rated control circuit voltage - Uc V | Type | Order code | Pkg qty | Weight (1 pce) kg |
|------------------|---|----------|-----------------|---------|----------------------|
| ON-delay | | | | | |
| NS, NSL | 24...240 V AC/DC | TEF3-ON | 1SBN021012R1000 | 1 | 0.065 |
| OFF-delay | | | | | |
| NS, NSL | 24...240 V AC/DC | TEF3-OFF | 1SBN021014R1000 | 1 | 0.065 |

Surge suppressors

| For contactor relays | Rated control circuit voltage - Uc | | Type | Order code | Pkg qty | Weight (1 pce) kg |
|----------------------|------------------------------------|-------|-----------|-----------------|---------|----------------------|
| | V | AC DC | | | | |
| NS, NSL | 24...50 | ● ● | RV5/50 | 1SBN050010R1000 | 2 | 0.015 |
| | 50...133 | ● ● | RV5/133 | 1SBN050010R1001 | 2 | 0.015 |
| | 110...250 | ● ● | RV5/250 | 1SBN050010R1002 | 2 | 0.015 |
| | 250...440 | ● ● | RV5/440 | 1SBN050010R1003 | 2 | 0.015 |
| NS | 24...50 | ● - | RC5-1/50 | 1SBN050100R1000 | 2 | 0.012 |
| | 50...133 | ● - | RC5-1/133 | 1SBN050100R1001 | 2 | 0.012 |
| | 110...250 | ● - | RC5-1/250 | 1SBN050100R1002 | 2 | 0.012 |
| | 250...440 | ● - | RC5-1/440 | 1SBN050100R1003 | 2 | 0.012 |
| NSL | 12...32 | - ● | RT5/32 | 1SBN050020R1000 | 2 | 0.015 |
| | 25...65 | - ● | RT5/65 | 1SBN050020R1001 | 2 | 0.015 |
| | 50...90 | - ● | RT5/90 | 1SBN050020R1002 | 2 | 0.015 |
| | 77...150 | - ● | RT5/150 | 1SBN050020R1003 | 2 | 0.015 |
| | 150...264 | - ● | RT5/264 | 1SBN050020R1004 | 2 | 0.015 |

Voltage code table

The below tables indicate the available coil voltages and corresponding digits for order codes. When placing an order, please give either type or order code. Select a standard contactor from ordering detail pages. Change the **coil voltage code** in the type or in the order code according to the table below. Example: for contactor AS09-30-10 and coil 42 V 50/60 Hz, type is AS09-30-10-**21** and order code is 1SBL101001R**21**10.

3-pole contactors

Type

AS16 - 30 - 10 - 26

Auxiliary contacts
N.O. N.C.

Main contacts
N.O. N.C.

Contactor type
AS AC operated
ASL DC operated

Order code

1SBL121001R 26 10

AC coil code

| | 50 Hz | 60 Hz |
|----|-------|-------|
| 20 | 24 V | 24 V |
| 21 | 42 V | 42 V |
| 22 | 48 V | 48 V |
| 23 | 110 V | 110 V |
| 24 | 115 V | 115 V |
| 16 | - | 120 V |
| 25 | 220 V | 220 V |
| 26 | 230 V | 230 V |
| 27 | 240 V | 240 V |
| 17 | - | 277 V |
| 13 | 380 V | - |
| 28 | 400 V | 400 V |
| 29 | 415 V | 415 V |

DC coil code

| | |
|----|-------|
| 80 | 12 V |
| 81 | 24 V |
| 83 | 48 V |
| 84 | 60 V |
| 86 | 110 V |
| 87 | 125 V |
| 88 | 220 V |
| 89 | 240 V |

3-pole reversing contactors

Type

VAS12 S EM - 26 M

Surge suppressor

Contactor type
VAS AC operated
VASL DC operated

Order code

1SBK113800M 26 00

AC coil code

| | 50 Hz | 60 Hz |
|----|-------|-------|
| 20 | 24 V | 24 V |
| 21 | 42 V | 42 V |
| 22 | 48 V | 48 V |
| 23 | 110 V | 110 V |
| 24 | 115 V | 115 V |
| 16 | - | 120 V |
| 25 | 220 V | 220 V |
| 26 | 230 V | 230 V |
| 27 | 240 V | 240 V |
| 17 | - | 277 V |
| 13 | 380 V | - |
| 28 | 400 V | 400 V |
| 29 | 415 V | 415 V |

DC coil code

| | |
|----|----------|
| 80 | 12 V (1) |
| 81 | 24 V |
| 83 | 48 V |
| 84 | 60 V |
| 86 | 110 V |
| 87 | 125 V |
| 88 | 220 V |
| 89 | 240 V |

(1) Not for VASL..SEM

Contactor relays

Type

NS 40 E - 26

N.O. N.C.
Number contacts

Contactor type
NS AC operated
NSL DC operated

Order code

1SBH101001R 26 40

AC coil code

| | 50 Hz | 60 Hz |
|----|-------|-------|
| 20 | 24 V | 24 V |
| 21 | 42 V | 42 V |
| 22 | 48 V | 48 V |
| 23 | 110 V | 110 V |
| 24 | 115 V | 115 V |
| 16 | - | 120 V |
| 25 | 220 V | 220 V |
| 26 | 230 V | 230 V |
| 27 | 240 V | 240 V |
| 17 | - | 277 V |
| 13 | 380 V | - |
| 28 | 400 V | 400 V |
| 29 | 415 V | 415 V |

DC coil code

| | |
|----|-------|
| 80 | 12 V |
| 81 | 24 V |
| 83 | 48 V |
| 84 | 60 V |
| 86 | 110 V |
| 87 | 125 V |
| 88 | 220 V |
| 89 | 240 V |



AF, A contactors and NF contactor relays

[AF 3-pole contactors - Overview](#) 5/2

4 to 45 kW / 5 to 60 hp

| | | |
|------------------|------------------------------------|-----|
| AF09 ... AF38 | AC / DC operated | 5/4 |
| AF09Z ... AF38Z | AC / DC operated - low consumption | 5/5 |
| AF40 ... AF96 | AC / DC operated | 5/6 |
| Main accessories | | 5/8 |

55 to 200 kW / 75 to 300 hp

| | | |
|------------------|------------------|------|
| AF116 ... AF146 | AC / DC operated | 5/10 |
| AF190 ... AF370 | AC / DC operated | 5/11 |
| Main accessories | | 5/12 |

200 to 560 kW / 350 to 900 hp

| | | |
|-------------------|---------------------------------------|------|
| AF400 ... AF750 | AC / DC operated with 1 N.O. + 1 N.C. | 5/14 |
| AF1250 ... AF2650 | AC / DC operated with 1 N.O. + 1 N.C. | 5/15 |
| Main accessories | | 5/16 |

[AF, A 4-pole contactors - Overview](#) 5/18

25 to 55 A AC-1

| | | |
|------------------|------------------------------------|------|
| AF09 ... AF38 | AC / DC operated | 5/20 |
| AF09Z ... AF38Z | AC / DC operated - low consumption | 5/21 |
| Main accessories | | 5/22 |

70 to 125 A AC-1

| | | |
|------------------|------------------|------|
| A45 ... A75 | AC operated | 5/25 |
| AE45 ... AE75 | DC operated | 5/26 |
| AF45 ... AF75 | AC / DC operated | 5/27 |
| Main accessories | | 5/28 |

[NF 4-pole contactor relays](#)

| | | |
|------------------|------------------------------------|------|
| NF | AC / DC operated | 5/30 |
| NFZ | AC / DC operated - low consumption | 5/31 |
| Main accessories | | 5/32 |

[Voltage code table](#) 5/34

For additional information such as technical datas, dimension drawings, other products and accessories, refer to our main catalog and visit our website: www.abb.com/connecttocontrol



| | AF116 | AF140 | AF146 | AF190 | AF205 | AF265 | AF305 | AF370 | AF400 | AF460 | AF580 | AF750 | AF1250 | AF1350 | AF1650 | AF2050 | AF2650 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 30 | 37 | 45 | 55 | 55 | 75 | 90 | 110 | 110 | 132 | 160 | 220 | — | 257 | 315 | — | — |
| | 55 | 75 | 75 | 90 | 110 | 132 | 160 | 200 | 200 | 250 | 315 | 400 | — | 475 | 560 | — | — |
| | 55 | 75 | 75 | 90 | 110 | 132 | 160 | 200 | 220 | 250 | 355 | 425 | — | 500 | 600 | — | — |
| | 75 | 90 | 90 | 110 | 132 | 160 | 160 | 200 | 220 | 250 | 355 | 450 | — | 560 | 670 | — | — |
| | 75 | 90 | 90 | 110 | 132 | 160 | 200 | 250 | 250 | 315 | 400 | 520 | — | 560 | 700 | — | — |
| | 55 | 75 | 90 | 132 | 160 | 200 | 250 | 315 | 315 | 355 | 500 | 600 | — | 750 | 900 | — | — |
| | — | — | 75 | 110 | 132 | 132 | 132 | 132 | 220 | 280 | 355 | 400 | — | — | — | — | — |
| | 116 | 140 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | — | 860 | 1050 | — | — |
| | 160 | 200 | 225 | 275 | 350 | 400 | 500 | 600 | 600 | 700 | 800 | 1050 | 1260 | 1350 | 1650 | 2050 | 2650 |

| | | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|---|-------------|-------------|-------------|-------------|
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 30 | 40 | 40 | 50 | 60 | 75 | 100 | 125 | 125 | 150 | 150 | 200 | 250 | — | — | — | — | — |
| 40 | 50 | 50 | 60 | 75 | 100 | 125 | 150 | 150 | 200 | 250 | 300 | — | — | 400 | 450 | — | — |
| 75 | 100 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 500 | 600 | — | — | 800 | 900 | — | — |
| 100 | 125 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 500 | 600 | 700 | — | — | 1000 | 1150 | — | — |
| 160 | 200 | 200 | 250 | 300 | 350 | 400 | 520 | 550 | 650 | 750 | 900 | 1210 | — | 1350 | 1650 | 2100 | 2700 |
| — | 4 | — | — | — | 5 | — | — | — | 6 | — | 7 | — | — | — | 8 | — | — |

CAL19-11 (1 x N.O. + 1 x N.C.)

CAL18-11 (1 x N.O. + 1 x N.C.)

VM19 (for same size contactors)

VM750H
VM750V

VM1650H

BER140-4

BER205-4

BER370-4

BEM460-30

BEM750-30

TF140DU (66...142 A)
 $\theta \leq 55^\circ\text{C}$

TA200DU (66...200 A)
 $\theta \leq 55^\circ\text{C}$

EF146 (54...150 A)

EF205 (63...210 A)

EF370 (115...380 A)

E500DU (150...500 A)

E800DU (250...800 A)

E1250DU (375...1250 A)

Short-circuit protection devices

Tmax Circuit breaker and accessories



AF09 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated



AF09-30-10



AF26-30-00

Description

AF09 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

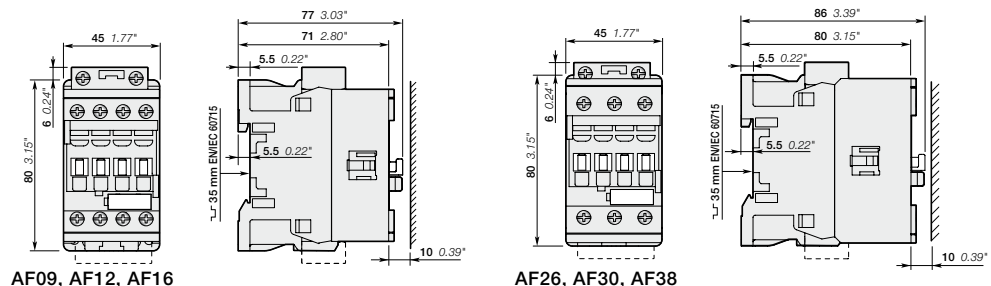
| IEC | | UL/CSA | | Rated control circuit voltage | | Auxiliary contacts fitted | | Type (1) | Order code | Weight | | | | |
|-------------------------|--------------------------------|----------------------|--------------------|-------------------------------|-----------|---------------------------|---------------|-----------------|-----------------|-------------|-----|---------------|-----------------|-------|
| Rated operational power | current | 3-phase motor rating | General use rating | Uc min. ... Uc max. | | | | | | Pkg (1 pce) | | | | |
| 400 V AC-3 | $\theta \leq 40^\circ\text{C}$ | 480 V | 600 V AC | V 50/60 Hz | V DC | | | | | kg | | | | |
| kW | A | hp | A | | | | | | | | | | | |
| 4 | 25 | 5 | 25 | 24...60 | - | (2) | 1 0 | AF09-30-10-41 | 1SBL137001R4110 | 0.270 | | | | |
| | | | | | | | 0 1 | AF09-30-01-41 | 1SBL137001R4101 | 0.270 | | | | |
| | | | | 48...130 | 48...130 | 1 0 | AF09-30-10-12 | 1SBL137001R1210 | 0.270 | | | | | |
| | | | | | | 0 1 | AF09-30-01-12 | 1SBL137001R1201 | 0.270 | | | | | |
| | | | | 100...250 | 100...250 | 1 0 | AF09-30-10-13 | 1SBL137001R1310 | 0.270 | | | | | |
| | | | | | | 0 1 | AF09-30-01-13 | 1SBL137001R1301 | 0.270 | | | | | |
| | | | | 250...500 | 250...500 | 1 0 | AF09-30-10-14 | 1SBL137001R1410 | 0.310 | | | | | |
| | | | | | | 0 1 | AF09-30-01-14 | 1SBL137001R1401 | 0.310 | | | | | |
| | | | | 5.5 | 28 | 7.5 | 28 | 24...60 | - | (2) | 1 0 | AF12-30-10-41 | 1SBL157001R4110 | 0.270 |
| | | | | | | | | | | | 0 1 | AF12-30-01-41 | 1SBL157001R4101 | 0.270 |
| 48...130 | 48...130 | 1 0 | AF12-30-10-12 | | | | | 1SBL157001R1210 | 0.270 | | | | | |
| | | 0 1 | AF12-30-01-12 | | | | | 1SBL157001R1201 | 0.270 | | | | | |
| 100...250 | 100...250 | 1 0 | AF12-30-10-13 | | | | | 1SBL157001R1310 | 0.270 | | | | | |
| | | 0 1 | AF12-30-01-13 | | | | | 1SBL157001R1301 | 0.270 | | | | | |
| 250...500 | 250...500 | 1 0 | AF12-30-10-14 | | | | | 1SBL157001R1410 | 0.310 | | | | | |
| | | 0 1 | AF12-30-01-14 | | | | | 1SBL157001R1401 | 0.310 | | | | | |
| 7.5 | 30 | 10 | 30 | | | | | 24...60 | - | (2) | 1 0 | AF16-30-10-41 | 1SBL177001R4110 | 0.270 |
| | | | | | | | | | | | 0 1 | AF16-30-01-41 | 1SBL177001R4101 | 0.270 |
| | | | | 48...130 | 48...130 | 1 0 | AF16-30-10-12 | 1SBL177001R1210 | 0.270 | | | | | |
| | | | | | | 0 1 | AF16-30-01-12 | 1SBL177001R1201 | 0.270 | | | | | |
| | | | | 100...250 | 100...250 | 1 0 | AF16-30-10-13 | 1SBL177001R1310 | 0.270 | | | | | |
| | | | | | | 0 1 | AF16-30-01-13 | 1SBL177001R1301 | 0.270 | | | | | |
| | | | | 250...500 | 250...500 | 1 0 | AF16-30-10-14 | 1SBL177001R1410 | 0.310 | | | | | |
| | | | | | | 0 1 | AF16-30-01-14 | 1SBL177001R1401 | 0.310 | | | | | |
| | | | | 11 | 45 | 15 | 45 | 24...60 | - | (2) | 0 0 | AF26-30-00-41 | 1SBL237001R4100 | 0.310 |
| | | | | | | | | | | | 0 0 | AF26-30-00-12 | 1SBL237001R1200 | 0.310 |
| 48...130 | 48...130 | 0 0 | AF26-30-00-13 | | | | | 1SBL237001R1300 | 0.310 | | | | | |
| | | 0 0 | AF26-30-00-14 | | | | | 1SBL237001R1400 | 0.350 | | | | | |
| 100...250 | 100...250 | 0 0 | AF26-30-00-13 | | | | | 1SBL237001R1300 | 0.310 | | | | | |
| | | 0 0 | AF26-30-00-14 | 1SBL237001R1400 | 0.350 | | | | | | | | | |
| 15 | 50 | 20 | 50 | 24...60 | - | (2) | 0 0 | AF30-30-00-41 | 1SBL277001R4100 | 0.310 | | | | |
| | | | | | | | 0 0 | AF30-30-00-12 | 1SBL277001R1200 | 0.310 | | | | |
| | | | | 48...130 | 48...130 | 0 0 | AF30-30-00-13 | 1SBL277001R1300 | 0.310 | | | | | |
| | | | | | | 0 0 | AF30-30-00-14 | 1SBL277001R1400 | 0.350 | | | | | |
| | | | | 100...250 | 100...250 | 0 0 | AF30-30-00-13 | 1SBL277001R1300 | 0.310 | | | | | |
| 0 0 | AF30-30-00-14 | 1SBL277001R1400 | 0.350 | | | | | | | | | | | |
| 18.5 | 50 | 20 | 50 | 24...60 | - | (2) | 0 0 | AF38-30-00-41 | 1SBL297001R4100 | 0.310 | | | | |
| | | | | | | | 0 0 | AF38-30-00-12 | 1SBL297001R1200 | 0.310 | | | | |
| | | | | 48...130 | 48...130 | 0 0 | AF38-30-00-13 | 1SBL297001R1300 | 0.310 | | | | | |
| | | | | | | 0 0 | AF38-30-00-14 | 1SBL297001R1400 | 0.350 | | | | | |

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

(2) For 24...60 V 50/60 Hz - 20...60 V DC, use AF.-30-...-11 (see voltage code table).

AF.-30-...-11 not suitable for direct control by PLC-output.

Main dimensions mm, inches



AF09, AF12, AF16

AF26, AF30, AF38

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated - low consumption



AF09Z-30-10

1SBC101001V0014



AF26Z-30-00

1SBC101001V0014

Description

AF09Z ... AF38Z contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
- can manage large control voltage variations
- allow direct control by PLC-output ≥ 24 V DC 500 mA
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

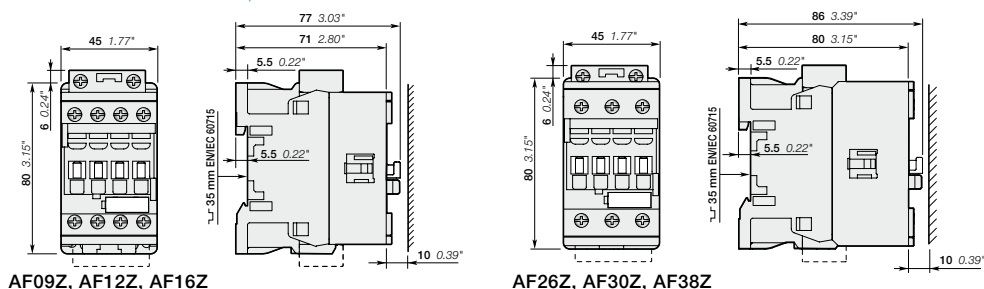
Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage | | Auxiliary contacts fitted | | Type (1) | Order code | Weight |
|---------------|--|----------------------|--------------------|-------------------------------|-----------------|---------------------------|---|----------------|-----------------|-------------|
| Rated power | operational current $\theta \leq 40^\circ\text{C}$ | 3-phase motor rating | General use rating | Uc min. ... Uc max. | | | | | | Pkg (1 pce) |
| 400 V AC-3 kW | AC-1 A | 480 V hp | 600 V AC A | V 50/60 Hz | V DC | | | | | kg |
| 4 | 25 | 5 | 25 | - | 12...20 | 1 | 0 | AF09Z-30-10-20 | 1SBL136001R2010 | 0.310 |
| | | | | 24...60 | 20...60 | 0 | 1 | AF09Z-30-01-20 | 1SBL136001R2001 | 0.310 |
| | | | | 48...130 | 48...130 | 1 | 0 | AF09Z-30-10-21 | 1SBL136001R2110 | 0.310 |
| | | | | 100...250 | 100...250 | 0 | 1 | AF09Z-30-01-21 | 1SBL136001R2101 | 0.310 |
| | | | | | | 1 | 0 | AF09Z-30-10-22 | 1SBL136001R2210 | 0.310 |
| | | 0 | 1 | AF09Z-30-01-22 | 1SBL136001R2201 | 0.310 | | | | |
| | | 1 | 0 | AF09Z-30-10-23 | 1SBL136001R2310 | 0.310 | | | | |
| | | 0 | 1 | AF09Z-30-01-23 | 1SBL136001R2301 | 0.310 | | | | |
| 5.5 | 28 | 7.5 | 28 | - | 12...20 | 1 | 0 | AF12Z-30-10-20 | 1SBL156001R2010 | 0.310 |
| | | | | 24...60 | 20...60 | 0 | 1 | AF12Z-30-01-20 | 1SBL156001R2001 | 0.310 |
| | | | | 48...130 | 48...130 | 1 | 0 | AF12Z-30-10-21 | 1SBL156001R2110 | 0.310 |
| | | | | 100...250 | 100...250 | 0 | 1 | AF12Z-30-01-21 | 1SBL156001R2101 | 0.310 |
| | | | | | | 1 | 0 | AF12Z-30-10-22 | 1SBL156001R2210 | 0.310 |
| | | 0 | 1 | AF12Z-30-01-22 | 1SBL156001R2201 | 0.310 | | | | |
| | | 1 | 0 | AF12Z-30-10-23 | 1SBL156001R2310 | 0.310 | | | | |
| | | 0 | 1 | AF12Z-30-01-23 | 1SBL156001R2301 | 0.310 | | | | |
| 7.5 | 30 | 10 | 30 | - | 12...20 | 1 | 0 | AF16Z-30-10-20 | 1SBL176001R2010 | 0.310 |
| | | | | 24...60 | 20...60 | 0 | 1 | AF16Z-30-01-20 | 1SBL176001R2001 | 0.310 |
| | | | | 48...130 | 48...130 | 1 | 0 | AF16Z-30-10-21 | 1SBL176001R2110 | 0.310 |
| | | | | 100...250 | 100...250 | 0 | 1 | AF16Z-30-01-21 | 1SBL176001R2101 | 0.310 |
| | | | | | | 1 | 0 | AF16Z-30-10-22 | 1SBL176001R2210 | 0.310 |
| | | 0 | 1 | AF16Z-30-01-22 | 1SBL176001R2201 | 0.310 | | | | |
| | | 1 | 0 | AF16Z-30-10-23 | 1SBL176001R2310 | 0.310 | | | | |
| | | 0 | 1 | AF16Z-30-01-23 | 1SBL176001R2301 | 0.310 | | | | |
| 11 | 45 | 15 | 45 | - | 12...20 | 0 | 0 | AF26Z-30-00-20 | 1SBL236001R2000 | 0.350 |
| | | | | 24...60 | 20...60 | 0 | 0 | AF26Z-30-00-21 | 1SBL236001R2100 | 0.350 |
| | | | | 48...130 | 48...130 | 0 | 0 | AF26Z-30-00-22 | 1SBL236001R2200 | 0.350 |
| | | | | 100...250 | 100...250 | 0 | 0 | AF26Z-30-00-23 | 1SBL236001R2300 | 0.350 |
| 15 | 50 | 20 | 50 | - | 12...20 | 0 | 0 | AF30Z-30-00-20 | 1SBL276001R2000 | 0.350 |
| | | | | 24...60 | 20...60 | 0 | 0 | AF30Z-30-00-21 | 1SBL276001R2100 | 0.350 |
| | | | | 48...130 | 48...130 | 0 | 0 | AF30Z-30-00-22 | 1SBL276001R2200 | 0.350 |
| | | | | 100...250 | 100...250 | 0 | 0 | AF30Z-30-00-23 | 1SBL276001R2300 | 0.350 |
| 18.5 | 50 | 20 | 50 | - | 12...20 | 0 | 0 | AF38Z-30-00-20 | 1SBL296001R2000 | 0.350 |
| | | | | 24...60 | 20...60 | 0 | 0 | AF38Z-30-00-21 | 1SBL296001R2100 | 0.350 |
| | | | | 48...130 | 48...130 | 0 | 0 | AF38Z-30-00-22 | 1SBL296001R2200 | 0.350 |
| | | | | 100...250 | 100...250 | 0 | 0 | AF38Z-30-00-23 | 1SBL296001R2300 | 0.350 |

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

Note: Only AF.Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

Main dimensions mm, inches



AF09Z, AF12Z, AF16Z

AF26Z, AF30Z, AF38Z

1SBC10137250201 - Rev. B

AF40 ... AF96 3-pole contactors

18.5 to 45 kW

AC / DC operated



AF40-30-00



AF80-30-00

Description

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

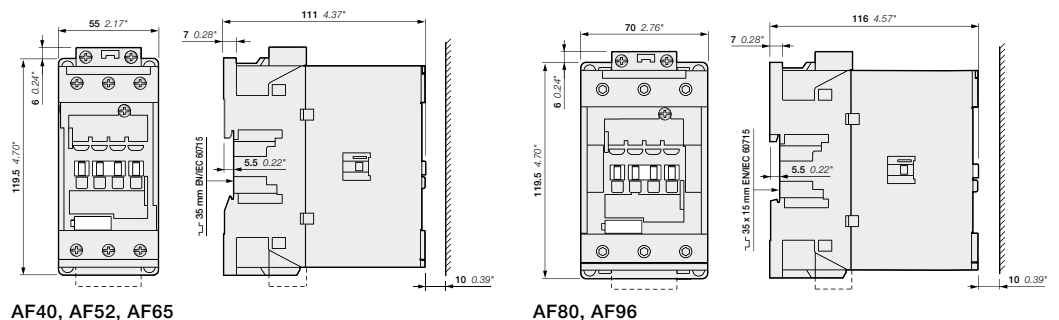
Ordering details

| IEC | | UL / CSA | | Rated control circuit voltage | | Auxiliary contacts fitted | Type (1) | Order code | Weight |
|-------------------------|---------|----------------------|--------------------|-------------------------------|-------------|---------------------------|---------------|-----------------|--------|
| Rated operational power | current | 3-phase motor rating | General use rating | Uc min. ... Uc max. | | | | | |
| 400 V AC-3 | AC-1 | 480 V | 600 V AC | V 50/60 Hz | V DC | | | kg | |
| 18.5 | 70 | 30 | 60 | 24...60 | - | 0 0 | AF40-30-00-41 | 1SBL347001R4100 | 0.970 |
| | | | | 24...60 | 20...60 (2) | 0 0 | AF40-30-00-11 | 1SBL347001R1100 | 0.970 |
| | | | | 48...130 | 48...130 | 0 0 | AF40-30-00-12 | 1SBL347001R1200 | 0.970 |
| | | | | 100...250 | 100...250 | 0 0 | AF40-30-00-13 | 1SBL347001R1300 | 0.950 |
| | | | | 250...500 | 250...500 | 0 0 | AF40-30-00-14 | 1SBL347001R1400 | 0.950 |
| 22 | 100 | 40 | 80 | 24...60 | - | 0 0 | AF52-30-00-41 | 1SBL367001R4100 | 0.970 |
| | | | | 24...60 | 20...60 (2) | 0 0 | AF52-30-00-11 | 1SBL367001R1100 | 0.970 |
| | | | | 48...130 | 48...130 | 0 0 | AF52-30-00-12 | 1SBL367001R1200 | 0.970 |
| | | | | 100...250 | 100...250 | 0 0 | AF52-30-00-13 | 1SBL367001R1300 | 0.950 |
| | | | | 250...500 | 250...500 | 0 0 | AF52-30-00-14 | 1SBL367001R1400 | 0.950 |
| 30 | 105 | 50 | 90 | 24...60 | - | 0 0 | AF65-30-00-41 | 1SBL387001R4100 | 0.970 |
| | | | | 24...60 | 20...60 (2) | 0 0 | AF65-30-00-11 | 1SBL387001R1100 | 0.970 |
| | | | | 48...130 | 48...130 | 0 0 | AF65-30-00-12 | 1SBL387001R1200 | 0.970 |
| | | | | 100...250 | 100...250 | 0 0 | AF65-30-00-13 | 1SBL387001R1300 | 0.950 |
| | | | | 250...500 | 250...500 | 0 0 | AF65-30-00-14 | 1SBL387001R1400 | 0.950 |
| 37 | 125 | 60 | 105 | 24...60 | - | 0 0 | AF80-30-00-41 | 1SBL397001R4100 | 1.220 |
| | | | | 24...60 | 20...60 (2) | 0 0 | AF80-30-00-11 | 1SBL397001R1100 | 1.220 |
| | | | | 48...130 | 48...130 | 0 0 | AF80-30-00-12 | 1SBL397001R1200 | 1.220 |
| | | | | 100...250 | 100...250 | 0 0 | AF80-30-00-13 | 1SBL397001R1300 | 1.170 |
| | | | | 250...500 | 250...500 | 0 0 | AF80-30-00-14 | 1SBL397001R1400 | 1.170 |
| 45 | 130 | 60 | 115 | 24...60 | - | 0 0 | AF96-30-00-41 | 1SBL407001R4100 | 1.220 |
| | | | | 24...60 | 20...60 (2) | 0 0 | AF96-30-00-11 | 1SBL407001R1100 | 1.220 |
| | | | | 48...130 | 48...130 | 0 0 | AF96-30-00-12 | 1SBL407001R1200 | 1.220 |
| | | | | 100...250 | 100...250 | 0 0 | AF96-30-00-13 | 1SBL407001R1300 | 1.170 |
| | | | | 250...500 | 250...500 | 0 0 | AF96-30-00-14 | 1SBL407001R1400 | 1.170 |

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

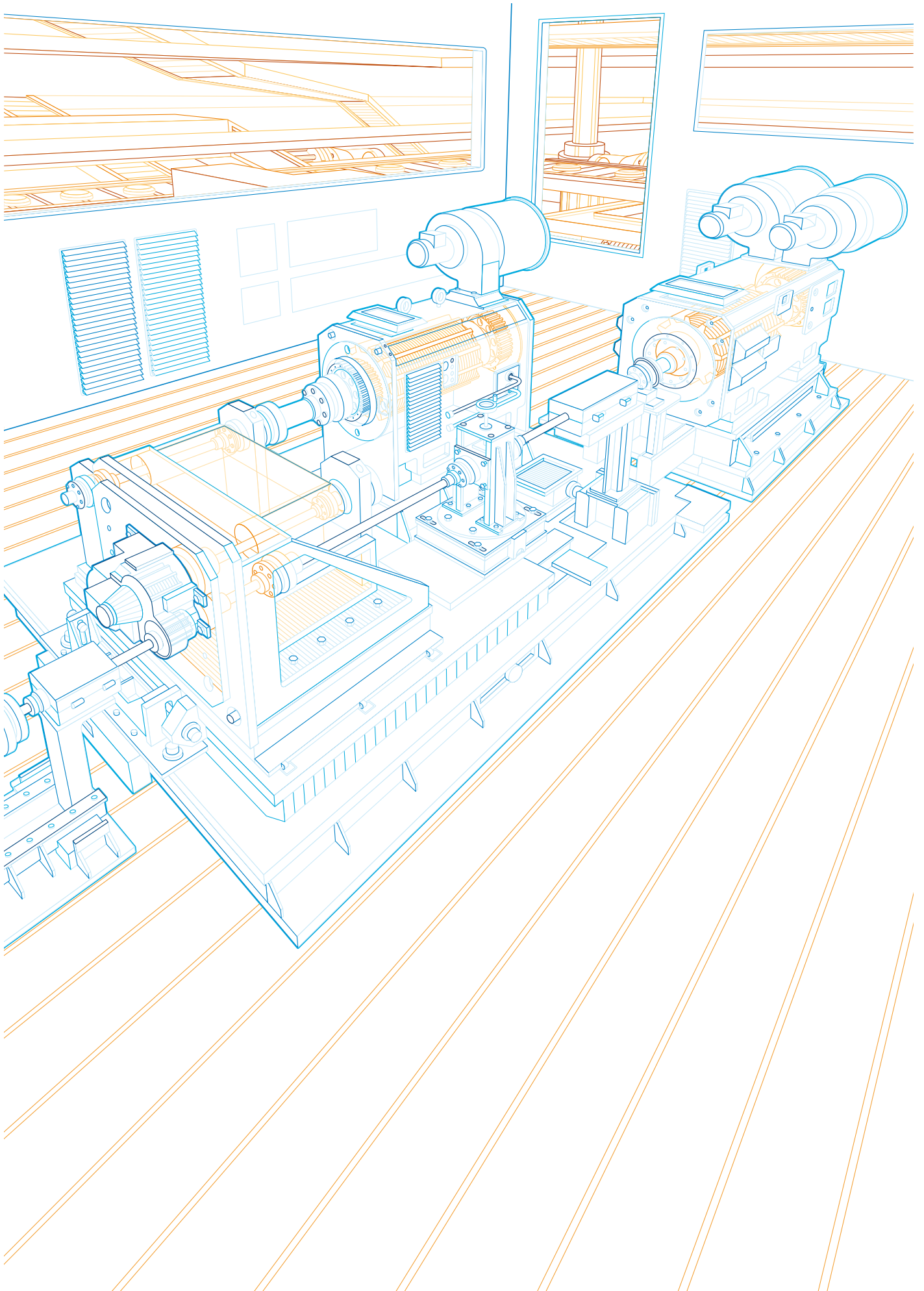
(2) AF...-30...-11 not suitable for direct control by PLC-output.

Main dimensions mm, inches



AF40, AF52, AF65

AF80, AF96



AF09 ... AF96 3-pole contactors

Main accessories



CA4-10



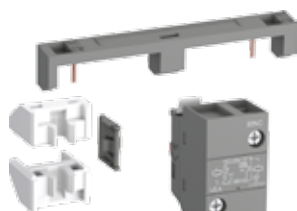
CAL4-11



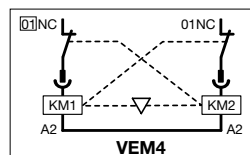
CA4-22E



CAT4-11E



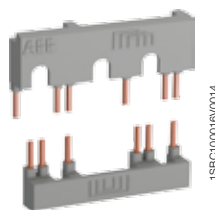
VEM4



TEF4-ON



BEA16-4



BER16-4

Ordering details (1)

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Front-mounted instantaneous auxiliary contact blocks

| | | | | | | |
|------------------------|-----|----|----------|-----------------|----|-------|
| AF09 ... AF96 | 1 0 | -- | CA4-10 | 1SBN010110R1010 | 1 | 0.014 |
| | 1 0 | -- | CA4-10-T | 1SBN010110T1010 | 10 | 0.014 |
| | 0 1 | -- | CA4-01 | 1SBN010110R1001 | 1 | 0.014 |
| | 0 1 | -- | CA4-01-T | 1SBN010110T1001 | 10 | 0.014 |
| AF09 ... AF16...-30-10 | 2 2 | -- | CA4-22M | 1SBN010140R1122 | 1 | 0.055 |
| AF26 ... AF96...-30-00 | 2 2 | -- | CA4-22E | 1SBN010140R1022 | 1 | 0.055 |
| AF09 ... AF16...-30-01 | 2 2 | -- | CA4-22U | 1SBN010140R1322 | 1 | 0.055 |

Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact

| | | | | | | |
|---------------|----|-----|--------|-----------------|---|-------|
| AF09 ... AF96 | -- | 1 0 | CC4-10 | 1SBN010111R1010 | 1 | 0.014 |
| | -- | 0 1 | CC4-01 | 1SBN010111R1001 | 1 | 0.014 |

Side-mounted instantaneous auxiliary contact blocks

| | | | | | | |
|---------------|-----|----|-----------|-----------------|----|-------|
| AF09 ... AF96 | 1 1 | -- | CAL4-11 | 1SBN010120R1011 | 1 | 0.040 |
| | 1 1 | -- | CAL4-11-T | 1SBN010120T1011 | 10 | 0.040 |

Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks

| | | | | | | |
|------------------------|-----|----|----------|-----------------|---|-------|
| AF09 ... AF16...-30-10 | 1 1 | -- | CAT4-11M | 1SBN010151R1111 | 1 | 0.040 |
| AF26 ... AF65...-30-00 | 1 1 | -- | CAT4-11E | 1SBN010151R1011 | 1 | 0.040 |
| AF09 ... AF16...-30-01 | 1 1 | -- | CAT4-11U | 1SBN010151R1311 | 1 | 0.040 |

Note: CAT4 not suitable for AF...Z contactors with DC control voltage 12...20 V DC.

Mechanical interlock unit

| | | | | | | |
|---------------|--|--|--------|-----------------|----|-------|
| AF09 ... AF38 | | | VM4 | 1SBN030105T1000 | 10 | 0.005 |
| AF40 ... AF96 | | | VM96-4 | 1SBN033405T1000 | 10 | 0.006 |

Note: VM4 and VM96-4 include 2 fixing clips (BB4) to maintain together both contactors.

Mechanical and electrical interlock set

| | | | | | | |
|---------------|-----|----|------|-----------------|---|-------|
| AF09 ... AF16 | 0 2 | -- | VEM4 | 1SBN030111R1000 | 1 | 0.035 |
| AF26 ... AF38 | | | | | | |

Note: - VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
- VEM4 not suitable for AF...Z contactors with DC control voltage 12...20 V DC.

| For contactors | Time delay range | Delay type | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------------|--------------------|------|------------|---------|----------------|
| | selected by switch | | | | | | kg |

Electronic timers

| | | | | | | | |
|---------------|-------------------------------------|-----------|-----|----------|-----------------|---|-------|
| AF09 ... AF96 | 0.1...1 s 1...10 s 10...100 s | ON-delay | 1 1 | TEF4-ON | 1SBN020112R1000 | 1 | 0.065 |
| | | OFF-delay | 1 1 | TEF4-OFF | 1SBN020114R1000 | 1 | 0.065 |

Note: Rated control circuit voltage U_c 24...240 V 50/60 Hz or DC.

Connecting links with manual motor starters

| | | | | | | |
|---------------|------|---|---------|-----------------|----|-------|
| AF09 ... AF16 | with | MS116-0.16 ... MS116-25, MS132-0.16 ... MS132-25 | BEA16-4 | 1SBN081306T1000 | 10 | 0.025 |
| AF26 ... AF38 | with | MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10 | BEA26-4 | 1SBN082306T1000 | 10 | 0.025 |
| | | MS116-20 ... MS116-32, MS132-12 ... MS132-32 | BEA38-4 | 1SBN082306T2000 | 10 | 0.030 |

Connection sets for reversing contactors

| | | | | | |
|---------------|--|---------|-----------------|---|-------|
| AF09 ... AF16 | | BER16-4 | 1SBN081311R1000 | 1 | 0.045 |
| AF26 ... AF38 | | BER38-4 | 1SBN082311R1000 | 1 | 0.100 |
| AF40 ... AF65 | | BER65-4 | 1SBN083411R1000 | 1 | 0.175 |
| AF80 ... AF96 | | BER96-4 | 1SBN083911R1000 | 1 | 0.250 |

Connection sets for star-delta starting

| | | | | | |
|---------------|------------------------|---------|-----------------|---|-------|
| AF09 ... AF16 | With or without VM4 | BEY16-4 | 1SBN081313R2000 | 1 | 0.050 |
| AF26 ... AF38 | With or without VM4 | BEY38-4 | 1SBN082713R2000 | 1 | 0.110 |
| AF40 ... AF65 | With or without VM96-4 | BEY65-4 | 1SBN083413R2000 | 1 | 0.200 |
| AF80 ... AF96 | With or without VM96-4 | BEY96-4 | 1SBN083913R2000 | 1 | 0.250 |

(1) For more information, refer to main catalog "Accessories" section.

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF146-30-11

1SFC101001V0001

Description

AF116 ... AF146 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 3 coils to cover control voltages between 24...250 V 50/60 Hz and 20...250 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

| IEC | UL / CSA | | Rated control circuit voltage | | Auxiliary contacts fitted | Type (1) | Order code | Weight |
|-------------------------|----------------------|--------------------|-------------------------------|--|---------------------------|----------|------------|-------------|
| Rated operational power | 3-phase motor rating | General use rating | Uc min. ... Uc max. | | | | | Pkg (1 pce) |
| 400 V AC-3 kW | 480 V AC-1 hp | 600 V AC A | V 50/60 Hz; V DC | | | | | kg |
| | | | | | 1 N.O. 1 N.C. | | | |

For connection with built-in cable clamps

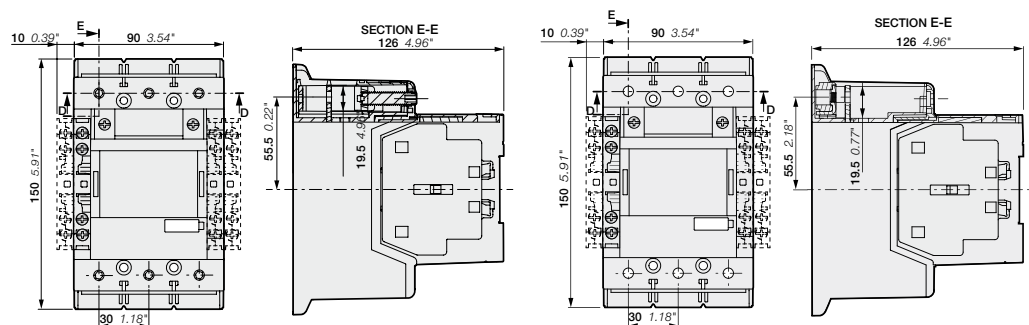
| Rated power (kW) | Width (mm) | Motor rating (hp) | General use rating (A) | Uc min. (V) | Uc max. (V) | N.O. | N.C. | Type | Order code | Weight (kg) |
|------------------|------------|-------------------|------------------------|-------------|-------------|------|------|----------------|-----------------|-------------|
| 55 | 160 | 75 | 160 | 24...60 | 20...60 | 1 | 1 | AF116-30-11-11 | 1SFL427001R1111 | 1.750 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF116-30-11-12 | 1SFL427001R1211 | 1.750 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF116-30-11-13 | 1SFL427001R1311 | 1.750 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF116-30-11-14 | 1SFL427001R1411 | 1.750 |
| 75 | 200 | 100 | 200 | 24...60 | 20...60 | 1 | 1 | AF140-30-11-11 | 1SFL447001R1111 | 1.750 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF140-30-11-12 | 1SFL447001R1211 | 1.750 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF140-30-11-13 | 1SFL447001R1311 | 1.750 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF140-30-11-14 | 1SFL447001R1411 | 1.750 |
| 75 | 225 | 100 | 200 | 24...60 | 20...60 | 1 | 1 | AF146-30-11-11 | 1SFL467001R1111 | 1.750 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF146-30-11-12 | 1SFL467001R1211 | 1.750 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF146-30-11-13 | 1SFL467001R1311 | 1.750 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF146-30-11-14 | 1SFL467001R1411 | 1.750 |

With bar connections

| Rated power (kW) | Width (mm) | Motor rating (hp) | General use rating (A) | Uc min. (V) | Uc max. (V) | N.O. | N.C. | Type | Order code | Weight (kg) |
|------------------|------------|-------------------|------------------------|-------------|-------------|------|------|-----------------|-----------------|-------------|
| 55 | 160 | 75 | 160 | 24...60 | 20...60 | 1 | 1 | AF116-30-11B-11 | 1SFL427002R1111 | 1.500 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF116-30-11B-12 | 1SFL427002R1211 | 1.500 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF116-30-11B-13 | 1SFL427002R1311 | 1.500 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF116-30-11B-14 | 1SFL427002R1411 | 1.500 |
| 75 | 200 | 100 | 200 | 24...60 | 20...60 | 1 | 1 | AF140-30-11B-11 | 1SFL447002R1111 | 1.500 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF140-30-11B-12 | 1SFL447002R1211 | 1.500 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF140-30-11B-13 | 1SFL447002R1311 | 1.500 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF140-30-11B-14 | 1SFL447002R1411 | 1.500 |
| 75 | 225 | 100 | 200 | 24...60 | 20...60 | 1 | 1 | AF146-30-11B-11 | 1SFL467002R1111 | 1.500 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF146-30-11B-12 | 1SFL467002R1211 | 1.500 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF146-30-11B-13 | 1SFL467002R1311 | 1.500 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF146-30-11B-14 | 1SFL467002R1411 | 1.500 |

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

Main dimensions mm, inches

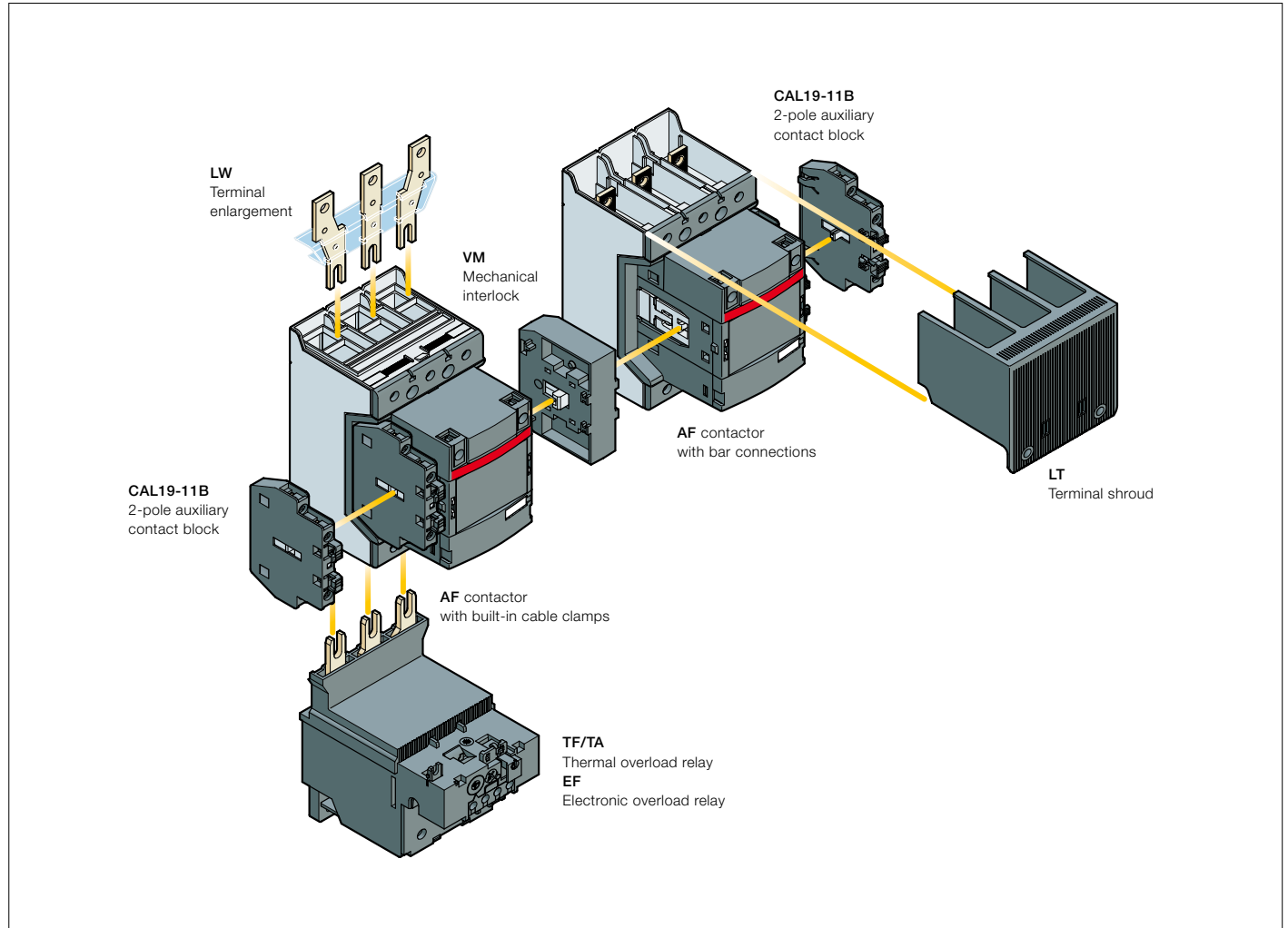


AF116, AF140, AF146-30-11

AF116, AF140, AF146-30-11B

AF116 ... AF370 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts Main accessories

Main accessories (other accessories available)



Main accessory fitting details

| Contactor types | Main poles | Available auxiliary contacts | Side-mounted accessories | | |
|-----------------|------------|------------------------------|--------------------------|---------------------|--|
| | | | Auxiliary contact blocks | | Mechanical interlock units (between two contactors) |
| | | | CAL19-11 | CAL19-11B | |
| AF116 ... AF370 | 3 | 0 1 1 | 1 x CAL19-11 | + 2 x CAL19-11B | - |
| AF116 ... AF370 | 3 | 0 1 1 | - | + 2 x CAL19-11B (1) | + VM... (2) |

(1) Total number of auxiliary contact blocks for the two contactors.

(2) Interlock type, according to the contactor ratings (see "Accessories").

Overload relays fitting details (1)

| Contactor types | Thermal overload relays | Electronic overload relays |
|-----------------|-------------------------|----------------------------|
| | AF116 ... AF140 | TF140DU (66...142 A) |
| AF146 | - | EF146 (54...150 A) |
| AF190, AF205 | TA200DU (66...200 A) | EF205 (63...210 A) |
| AF265 ... AF370 | - | EF370 (115...380 A) |

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.

(1) Direct mounting - No kit required.

AF116 ... AF370 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Main accessories



1SFC101071V0001

CAL19-11



1SFC101035V0001

VM19



1SFC101041V0001

LT370-30C



1SFC101049V0001

LX140

Ordering details (1)

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Side-mounted instantaneous auxiliary contact blocks

| | | | | | | |
|-----------------|---|---|-----------|-----------------|---|-------|
| AF116 ... AF370 | 1 | 1 | CAL19-11 | 1SFN010820R1011 | 2 | 0.050 |
| | 1 | 1 | CAL19-11B | 1SFN010820R3311 | 2 | 0.050 |

Mechanical interlock unit

| | | | | | |
|----------------------------------|--|-----------|-----------------|---|-------|
| AF116 ... AF370 | | VM19 | 1SFN030300R1000 | 1 | 0.054 |
| AF116 ... AF146 and AF190, AF205 | | VM140/190 | 1SFN034403R1000 | 1 | 0.088 |
| AF190, AF205 and AF265 ... AF370 | | VM205/265 | 1SFN035203R1000 | 1 | 0.090 |

Terminal shrouds

| | | | | | |
|---|--|-----------|-----------------|---|-------|
| AF116 ... AF146, with compression lugs | | LT140-30L | 1SFN124203R1000 | 2 | 0.070 |
| AF190, AF205, with cable clamps | | LT205-30C | 1SFN124801R1000 | 2 | 0.050 |
| AF190, AF205, with compression lugs | | LT205-30L | 1SFN124803R1000 | 2 | 0.220 |
| AF190, AF205, with shorting bar or between contactor and TOL/EOL in DOL-starters | | LT205-30Y | 1SFN124804R1000 | 1 | 0.050 |
| AF265 ... AF370, with cable clamps | | LT370-30C | 1SFN125401R1000 | 2 | 0.035 |
| AF265 ... AF370, with compression lugs | | LT370-30L | 1SFN125403R1000 | 2 | 0.280 |
| AF265 ... AF370, with shorting bar or between contactor and TOL/EOL in DOL-starters | | LT370-30Y | 1SFN125404R1000 | 1 | 0.075 |
| AF265 ... AF370, for use with extending cable clamps, ATK300/2 and OZXB4 | | LT370-30D | 1SFN125406R1000 | 1 | 0.150 |

| For contactors | Dimensions | | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|------------|--------|------|------------|---------|----------------|
| | hole Ø mm | bar mm | | | | kg |

Terminal enlargements

| | | | | | | |
|---------------|------|----------|-------|-----------------|---|-------|
| AF116...AF146 | 6.5 | 13 x 3 | LW140 | 1SFN074207R1000 | 1 | 0.115 |
| AF190...AF205 | 10.5 | 17.5 x 5 | LW205 | 1SFN074807R1000 | 1 | 0.260 |
| AF265...AF370 | 10.5 | 20 x 5 | LW370 | 1SFN075407R1000 | 1 | 0.340 |

Terminal extension

| | | | | | | |
|---------------|------|----------|-------|-----------------|---|-------|
| AF116...AF146 | 6.5 | 13 x 3 | LX140 | 1SFN074210R1000 | 1 | 0.072 |
| AF190...AF250 | 8.5 | 17.5 x 5 | LX205 | 1SFN074810R1000 | 1 | 0.180 |
| AF265...AF370 | 10.5 | 20 x 5 | LX370 | 1SFN075410R1000 | 1 | 0.234 |

(1) For more information, refer to main catalog "Accessories" section.

AF400 ... AF750 3-pole contactors

200 to 400 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



1SFC101023W0001

AF460-30-11



1SFC101026W0001

AF750-30-11

Description

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC or 600 V DC (2). These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

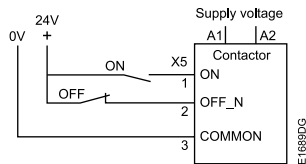
Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage | | Auxiliary contacts fitted | Type | Order code | Weight |
|-------------------------|---|----------------------|--------------------|-------------------------------|-----------|---------------------------|-------------|---------------------|--------|
| Rated operational power | current $\theta \leq 40^\circ\text{C}$ | 3-phase motor rating | General use rating | Uc min. ... Uc max. | Uc max. | | | | |
| 400 V AC-3 | 690 V AC-1 | 480 V | 600 V AC | V 50/60 Hz | V DC | | | | |
| kW | A | hp | A | | | | | kg | |
| 200 | 600 | 350 | 550 | - | 24...60 | 1 1 | AF400-30-11 | 1SFL577001R6811 (1) | 12.000 |
| | | | | 48...130 | 48...130 | 1 1 | AF400-30-11 | 1SFL577001R6911 | 12.000 |
| | | | | 100...250 | 100...250 | 1 1 | AF400-30-11 | 1SFL577001R7011 | 12.000 |
| | | | | 250...500 | 250...500 | 1 1 | AF400-30-11 | 1SFL577001R7111 | 12.000 |
| 250 | 700 | 400 | 650 | - | 24...60 | 1 1 | AF460-30-11 | 1SFL597001R6811 (1) | 12.000 |
| | | | | 48...130 | 48...130 | 1 1 | AF460-30-11 | 1SFL597001R6911 | 12.000 |
| | | | | 100...250 | 100...250 | 1 1 | AF460-30-11 | 1SFL597001R7011 | 12.000 |
| | | | | 250...500 | 250...500 | 1 1 | AF460-30-11 | 1SFL597001R7111 | 12.000 |
| 315 | 800 | 500 | 750 | - | 24...60 | 1 1 | AF580-30-11 | 1SFL617001R6811 (1) | 15.000 |
| | | | | 48...130 | 48...130 | 1 1 | AF580-30-11 | 1SFL617001R6911 | 15.000 |
| | | | | 100...250 | 100...250 | 1 1 | AF580-30-11 | 1SFL617001R7011 | 15.000 |
| | | | | 250...500 | 250...500 | 1 1 | AF580-30-11 | 1SFL617001R7111 | 15.000 |
| 400 | 1050 | 600 | 900 | - | 24...60 | 1 1 | AF750-30-11 | 1SFL637001R6811 (1) | 15.000 |
| | | | | 48...130 | 48...130 | 1 1 | AF750-30-11 | 1SFL637001R6911 | 15.000 |
| | | | | 100...250 | 100...250 | 1 1 | AF750-30-11 | 1SFL637001R7011 | 15.000 |
| | | | | 250...500 | 250...500 | 1 1 | AF750-30-11 | 1SFL637001R7111 | 15.000 |

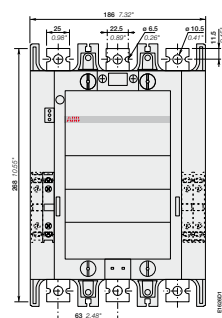
(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) Up to 850 V DC for AF580, AF750.

AF400 ... AF750 are equipped with low voltage inputs for control, for example by a PLC.

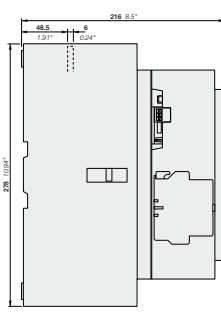
Control inputs



Main dimensions mm, inches



AF400, AF460



AF580, AF750

1SFC101013C0201

AF1250 ... AF2650 3-pole contactors

475 to 560 kW and 1260 to 2650 A AC-1

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF1250-30-11

1SFC101027V0001



AF2650-30-11

1SFC101031V0001

Description

AF1250 ... AF2050 contactors are mainly used for controlling power circuits up to 1000 V AC or 850 V DC, AF2650 for controlling power up to 1000 V AC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
- only 4 coils for AF1250 to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
- only 1 coil for AF1350 ... AF2650 to cover control voltages between 100...250 V 50/60 Hz and 100...250 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

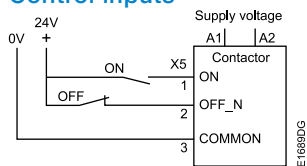
Ordering details

| IEC | | UL/CSA | | Rated control circuit voltage U _c | | Auxiliary contacts fitted | | Type | Order code | Weight |
|-------------------------|----------------------|----------------------|--------------------|--|-----------|---------------------------|---|--------------|---------------------|-------------|
| Rated operational power | current θ ≤ 40 °C | 3-phase motor rating | General use rating | (1) | | 1 1 | | | | Pkg (1 pce) |
| 400 V AC-3 | 690 V AC-1 | 480 V | 600 V AC | V 50/60 Hz | V DC | 1 1 | | | | kg |
| - | 1260 | - | 1210 | - | 24...60 | 1 | 1 | AF1250-30-11 | 1SFL647001R6811 (1) | 16.000 |
| | | | | 48...130 | 48...130 | 1 | 1 | AF1250-30-11 | 1SFL647001R6911 | 16.000 |
| | | | | 100...250 | 100...250 | 1 | 1 | AF1250-30-11 | 1SFL647001R7011 | 16.000 |
| | | | | 250...500 | 250...500 | 1 | 1 | AF1250-30-11 | 1SFL647001R7111 | 16.000 |
| 475 | 1350 | 800 | 1350 | 100...250 | 100...250 | 1 | 1 | AF1350-30-11 | 1SFL657001R7011 | 34.000 |
| 560 | 1650 | 900 | 1650 | 100...250 | 100...250 | 1 | 1 | AF1650-30-11 | 1SFL677001R7011 | 35.000 |
| - | 2050 | - | 2100 | 100...250 | 100...250 | 1 | 1 | AF2050-30-11 | 1SFL707001R7011 | 35.000 |
| - | 2650 | - | 2700 | 100...250 | 100...250 | 1 | 1 | AF2650-30-11 | 1SFL667001R7011 | 45.000 |

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
 (2) AF2650: Maximum operational voltage = 1000 V according to UL / CSA.

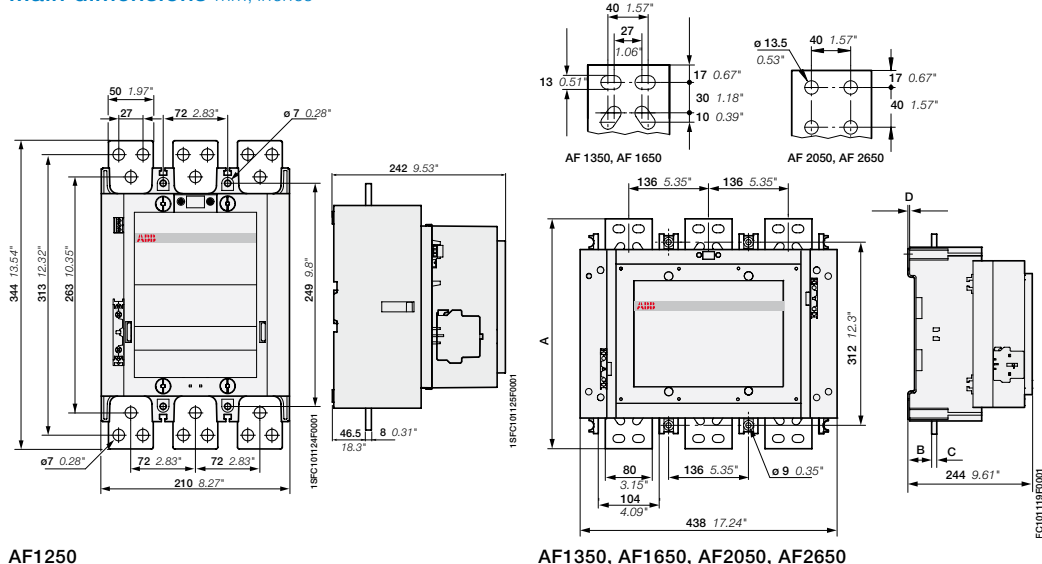
AF1250 ... AF2650 are equipped with low voltage inputs for control, for example by a PLC

Control inputs



| | AF1350, AF1650, AF2050 | AF2650 |
|---|------------------------|-----------------|
| A | 392 mm / 15.43" | 422 mm / 16.61" |
| B | 47 mm / 1.85" | 53.5 mm / 2.11" |
| C | 10 mm / 0.39" | 25 mm / 0.98" |
| D | 3 mm / 0.12" | - |

Main dimensions mm, inches

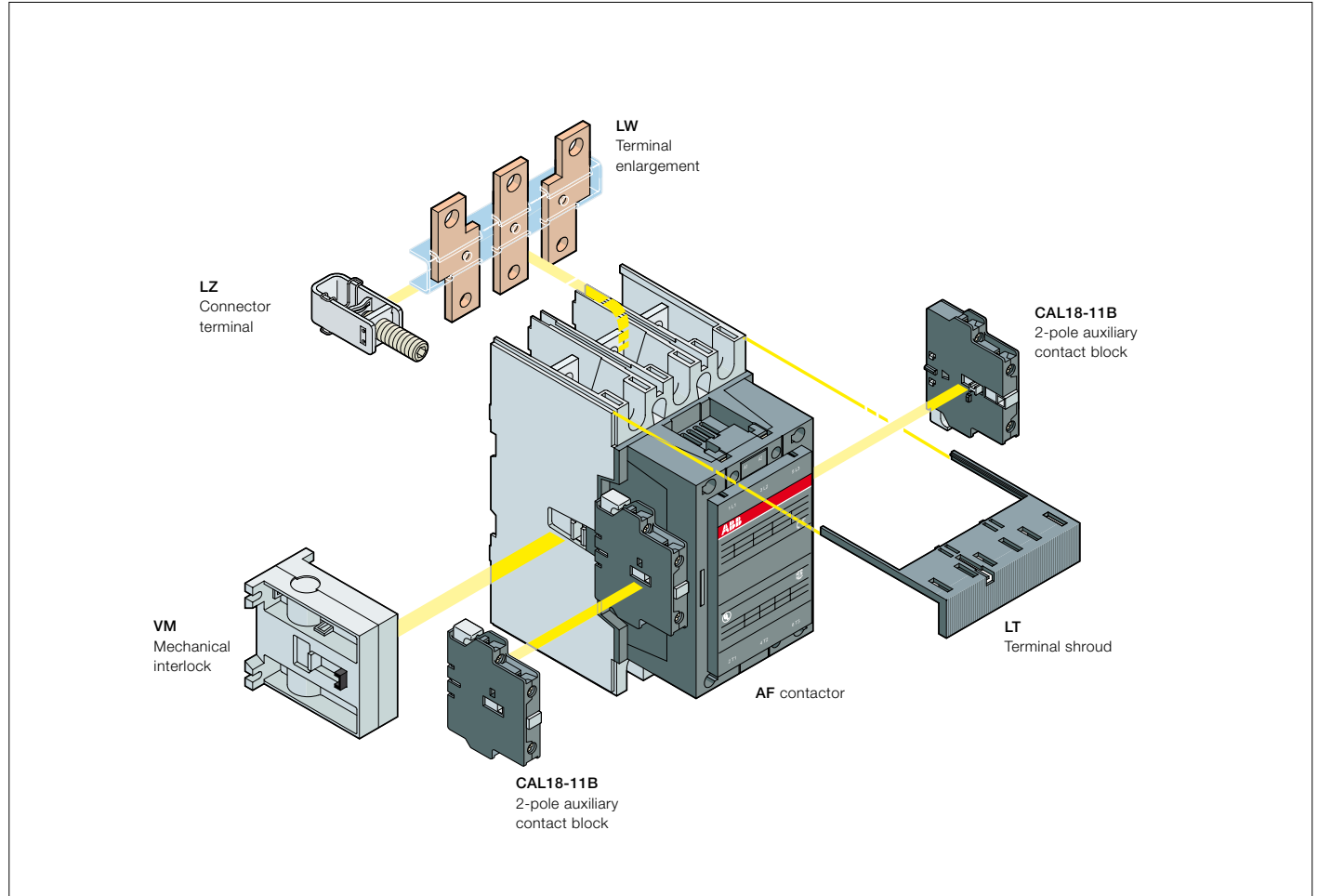


AF1250

AF1350, AF1650, AF2050, AF2650

AF400 ... AF2650 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts Main accessories

Main accessories (other accessories available)



Main accessory fitting details

| Contactor types | Main poles | Available auxiliary contacts | Side-mounted accessories | | Mechanical interlock units (between two contactors) |
|-----------------|------------|------------------------------|--------------------------|---------------|--|
| | | | Auxiliary contact blocks | | |
| | | | CAL18-11 | CAL18-11B (3) | |

Contactors + auxiliary contact blocks

| | | | | | | | | |
|------------------|---|---|---|---|--------------|---|---------------|---|
| AF400 ... AF2650 | 3 | 0 | 1 | 1 | 1 x CAL18-11 | + | 2 x CAL18-11B | - |
|------------------|---|---|---|---|--------------|---|---------------|---|

Contactors with mechanical interlocking + auxiliary contact blocks

| | | | | | | | | | |
|------------------|---|---|---|---|------------------|---|-------------------|---|------------|
| AF400 ... AF2650 | 3 | 0 | 1 | 1 | 2 x CAL18-11 (1) | + | 4 x CAL18-11B (1) | + | VM...H (2) |
|------------------|---|---|---|---|------------------|---|-------------------|---|------------|

(1) Total number of auxiliary contact blocks for the two contactors.

(2) Interlock type, according to the contactor ratings (see "Accessories").

(3) The CEL18-.. auxiliary contact blocks can replace the CAL18-11 and CAL18-11B. Though, no auxiliary contact block can be mounted outside the CEL18-..

Overload relays fitting details

| Contactor types | Thermal overload relays | Electronic overload relays |
|-----------------|-------------------------|----------------------------|
| AF400, AF460 | - | E500DU (150...500 A) (4) |
| AF580, AF750 | - | E800DU (250...800 A) (4) |
| AF1350, AF1650 | - | E1250DU (375...1250 A) (4) |

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.

(4) Mounting kit required (see "Motor protection").

AF400 ... AF2650 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts Main accessories



CAL18-11

1SFC101082V0001



VM750H

1SFC101084V0001



LT460-AC

1SFC101089V0001

Ordering details (1)

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Side-mounted instantaneous auxiliary contact blocks

| | | | | | | |
|------------------|---|---|-----------|-----------------|---|-------|
| AF400 ... AF2650 | 1 | 1 | CAL18-11 | 1SFN010720R1011 | 2 | 0.050 |
| | 1 | 1 | CAL18-11B | 1SFN010720R3311 | 2 | 0.050 |

Mechanical interlock unit

| | | | | | | |
|-------------------|--|--|---------|-----------------|---|-------|
| AF400 ... AF1250 | | | VM750H | 1SFN035700R1000 | 1 | 0.200 |
| AF1350 ... AF2650 | | | VM1650H | 1SFN036503R1000 | 1 | 6.000 |

Terminal shrouds

| | | | | | | |
|---------------------------------|--|--|----------|-----------------|---|-------|
| AF400, AF460 with connectors | | | LT460-AC | 1SFN125701R1000 | 2 | 0.100 |
| AF400, AF460 with lugs | | | LT460-AL | 1SFN125703R1000 | 2 | 0.800 |
| AF580 ... AF750 with connectors | | | LT750-AC | 1SFN126101R1000 | 2 | 0.120 |
| AF580 ... AF750 with lugs | | | LT750-AL | 1SFN126103R1000 | 2 | 0.825 |

5

| For contactors | Dimensions | | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|------------|-----|------|------------|---------|----------------|
| | hole Ø | bar | | | | kg |
| | mm | mm | | | | |

Terminal enlargements

| | | | | | | |
|--------------|------|---------|--------|-----------------|---|-------|
| AF400, AF460 | 10.5 | 25 x 5 | LW460 | 1SFN075707R1000 | 1 | 0.730 |
| AF580, AF750 | 13 | 40 x 6 | LW750 | 1SFN076107R1000 | 1 | 1.230 |
| AF1250 | 13 | 50 x 10 | LW1250 | 1SFN076407R1000 | 1 | 2.000 |




Terminal extension

| | | | | | | |
|--------------|------|--------|-------|-----------------|---|-------|
| AF400, AF460 | 10.5 | 25 x 5 | LX460 | 1SFN075710R1000 | 1 | 0.500 |
| AF580, AF750 | 13 | 40 x 6 | LX750 | 1SFN076110R1000 | 1 | 0.850 |

(1) For more information, refer to main catalog "Accessories" section.

4-pole contactors



| | | | | | | | | | | |
|-------------------------------|---|------------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| IEC | AC-1 Rated operational current | $\theta \leq 40\text{ °C}$, 690 V | A | 25 | 30 | 45 | 55 | 70 | 100 | 125 |
| UL/CSA | General use rating | 600 V | A | 25 | 30 | 45 | 55 | 65 | 80 | 105 |
| AC Control supply |  | Type | | AF09 | AF16 | AF26 | AF38 | A45 | A50 | A75 |
| DC Control supply |  | Type | | AF09 | AF16 | AF26 | AF38 | AE45 | AE50 | AE75 |
| AC / DC Control supply |  | Type | | AF09 | AF16 | AF26 | AF38 | AF45 | AF50 | AF75 |
| IEC | AC-1 Rated operational current | $\theta \leq 40\text{ °C}$ | A | 25 | 30 | 45 | 55 | 70 | 100 | 125 |
| | | $\theta \leq 55\text{ °C}$ (1) | A | 25 | 30 | 40 | 45 | 60 | 85 | 105 |
| | | $\theta \leq 70\text{ °C}$ | A | 22 | 26 | 32 | 37 | 50 | 70 | 85 |
| | With conductor cross sectional area | | mm² | 4 | 6 | 10 | 16 | 25 | 35 | 50 |
| | Rated operational voltage U_e max. | | V | 690 | 690 | 690 | 690 | 690 | 690 | 690 |
| UL/CSA | General use rating | 600 V | A | 25 | 30 | 45 | 55 | 65 | 80 | 105 |

(1) $\theta \leq 60\text{ °C}$ for AF09 ... AF38 contactors

Main accessories

| | | | |
|---------------------------------|-------------------------|--|--|
| Auxiliary contact blocks | Front mounting | CA4-10 (1 x N.O.), CA4-01 (1 x N.C.) | CA5-10 (1 x N.O.), CA5-01 (1 x N.C.) |
| | Side mounting | CAL4-11 (1 x N.O. + 1 x N.C.) | CAL5-11 (1 x N.O. + 1 x N.C.) |
| Timers | Electronic | TEF4-ON | TEF5-ON |
| | | TEF4-OFF | TEF5-OFF |
| Interlocking units | Mechanical | VM4 | |
| | Mechanical / Electrical | VEM4 | VE5-2 |
| Surge suppressors | Varistor (AC / DC) | Built-in surge protection | RV5 (24...440 V) |
| | RC Type (AC) | | RC5-2 (24...440 V) |
| | Transil diode (DC) | | RT5 (12...264 V) |



| | | | | | | | |
|--|-------|-------|-------|-------|---------|---------|---------|
| | 200 | 250 | 300 | 350 | 550 | 800 | 1000 |
| | 170 | 200 | 250 | 300 | 420 | 540 | — |
| | EK110 | EK150 | EK175 | EK210 | EK370 | EK550 | EK1000 |
| | EK110 | EK150 | EK175 | EK210 | EK370 | EK550 | EK1000 |
| | — | — | — | — | — | — | — |
| | 200 | 250 | 300 | 350 | 550 | 800 | 1000 |
| | 180 | 230 | 270 | 310 | 470 | 650 | 800 |
| | 155 | 200 | 215 | 250 | 400 | 575 | 720 |
| | 95 | 150 | 185 | 240 | 2 x 185 | 2 x 240 | 2 x 300 |
| | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| | 170 | 200 | 250 | 300 | 420 | 540 | — |

| | |
|--------------------------------|----------|
| CAL16-11 (1 x N.O. + 1 x N.C.) | |
| VH145 | VH300 |
| RC-EH300 | RC-EH800 |
| | VH800 |

AF09 ... AF38 4-pole contactors

25 to 55 A AC-1

AC / DC operated



AF09-40-00

1SBC101096FF014

Description

AF09 ... AF38 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

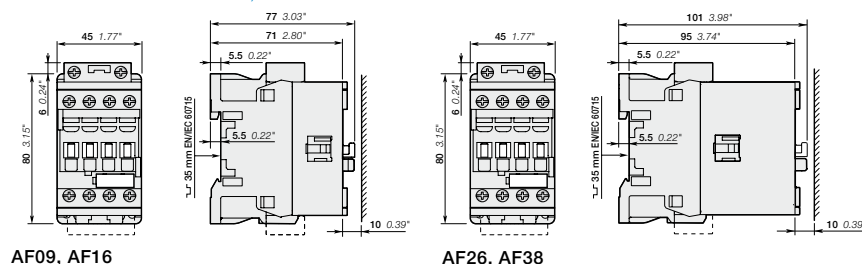
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

| IEC Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 A | UL/CSA General use rating 600 V AC A | Rated control circuit voltage Uc min. ... Uc max. | | Auxiliary contacts fitted | Type | Order code | Weight Pkg (1 pce) kg |
|--|--|---|-----------|-------------------------------------|---------------|-----------------|--------------------------------|
| | | V 50/60 Hz | V DC | | | | |
| 4 N.O. main poles | | | | | | | |
| 25 | 25 | 24...60 | - | (1) 0 0 | AF09-40-00-41 | 1SBL137201R4100 | 0.270 |
| | | 48...130 | 48...130 | 0 0 | AF09-40-00-12 | 1SBL137201R1200 | 0.270 |
| | | 100...250 | 100...250 | 0 0 | AF09-40-00-13 | 1SBL137201R1300 | 0.270 |
| | | 250...500 | 250...500 | 0 0 | AF09-40-00-14 | 1SBL137201R1400 | 0.310 |
| 30 | 30 | 24...60 | - | (1) 0 0 | AF16-40-00-41 | 1SBL177201R4100 | 0.270 |
| | | 48...130 | 48...130 | 0 0 | AF16-40-00-12 | 1SBL177201R1200 | 0.270 |
| | | 100...250 | 100...250 | 0 0 | AF16-40-00-13 | 1SBL177201R1300 | 0.270 |
| | | 250...500 | 250...500 | 0 0 | AF16-40-00-14 | 1SBL177201R1400 | 0.310 |
| 45 | 45 | 24...60 | - | (1) 0 0 | AF26-40-00-41 | 1SBL237201R4100 | 0.360 |
| | | 48...130 | 48...130 | 0 0 | AF26-40-00-12 | 1SBL237201R1200 | 0.360 |
| | | 100...250 | 100...250 | 0 0 | AF26-40-00-13 | 1SBL237201R1300 | 0.360 |
| | | 250...500 | 250...500 | 0 0 | AF26-40-00-14 | 1SBL237201R1400 | 0.400 |
| 55 | 55 | 24...60 | - | (1) 0 0 | AF38-40-00-41 | 1SBL297201R4100 | 0.360 |
| | | 48...130 | 48...130 | 0 0 | AF38-40-00-12 | 1SBL297201R1200 | 0.360 |
| | | 100...250 | 100...250 | 0 0 | AF38-40-00-13 | 1SBL297201R1300 | 0.360 |
| | | 250...500 | 250...500 | 0 0 | AF38-40-00-14 | 1SBL297201R1400 | 0.400 |
| 2 N.O. + 2 N.C. main poles | | | | | | | |
| 25 | 25 | 24...60 | - | (1) 0 0 | AF09-22-00-41 | 1SBL137501R4100 | 0.270 |
| | | 48...130 | 48...130 | 0 0 | AF09-22-00-12 | 1SBL137501R1200 | 0.270 |
| | | 100...250 | 100...250 | 0 0 | AF09-22-00-13 | 1SBL137501R1300 | 0.270 |
| | | 250...500 | 250...500 | 0 0 | AF09-22-00-14 | 1SBL137501R1400 | 0.310 |
| 30 | 30 | 24...60 | - | (1) 0 0 | AF16-22-00-41 | 1SBL177501R4100 | 0.270 |
| | | 48...130 | 48...130 | 0 0 | AF16-22-00-12 | 1SBL177501R1200 | 0.270 |
| | | 100...250 | 100...250 | 0 0 | AF16-22-00-13 | 1SBL177501R1300 | 0.270 |
| | | 250...500 | 250...500 | 0 0 | AF16-22-00-14 | 1SBL177501R1400 | 0.310 |
| 45 | 45 | 24...60 | - | (1) 0 0 | AF26-22-00-41 | 1SBL237501R4100 | 0.360 |
| | | 48...130 | 48...130 | 0 0 | AF26-22-00-12 | 1SBL237501R1200 | 0.360 |
| | | 100...250 | 100...250 | 0 0 | AF26-22-00-13 | 1SBL237501R1300 | 0.360 |
| | | 250...500 | 250...500 | 0 0 | AF26-22-00-14 | 1SBL237501R1400 | 0.400 |
| 55 | 55 | 24...60 | - | (1) 0 0 | AF38-22-00-41 | 1SBL297501R4100 | 0.360 |
| | | 48...130 | 48...130 | 0 0 | AF38-22-00-12 | 1SBL297501R1200 | 0.360 |
| | | 100...250 | 100...250 | 0 0 | AF38-22-00-13 | 1SBL297501R1300 | 0.360 |
| | | 250...500 | 250...500 | 0 0 | AF38-22-00-14 | 1SBL297501R1400 | 0.400 |

(1) For 24...60 V 50/60 Hz - 20...60 V DC, use AF...-...-11 (see voltage code table).
AF...-...-11 not suitable for direct control by PLC-output.

Main dimensions mm, inches



AF09, AF16

AF26, AF38

AF09Z ... AF38Z 4-pole contactors

25 to 55 A AC-1

AC / DC operated - low consumption



AF09Z-40-00





AF26Z-40-00

Description

AF09Z ... AF38Z 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
- can manage large control voltage variations
- allow direct control by PLC-output ≥ 24 V DC 500 mA
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

| IEC | UL/CSA | Rated control circuit voltage | | Auxiliary contacts fitted | Type | Order code | Weight |
|--|--------------------------------|-------------------------------|---------|---|------|------------|-------------|
| Rated operational current $\theta \leq 40$ °C AC-1 | General use rating 600 V AC | Uc min. ... | Uc max. | | | | Pkg (1 pce) |
| A | A | V 50/60 Hz | V DC |   | | | kg |

4 N.O. main poles

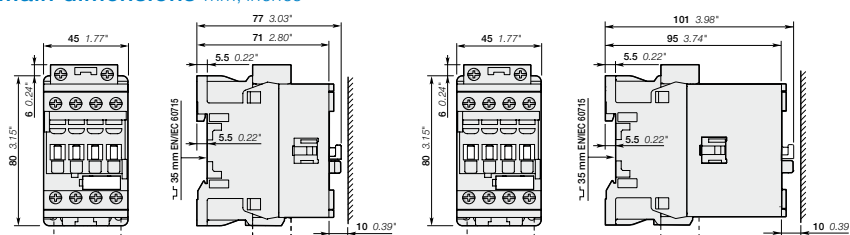
| Rated current | General use rating | Uc min. (V 50/60 Hz) | Uc max. (V DC) | Auxiliary contacts | Type | Order code | Weight |
|---------------|--------------------|----------------------|----------------|--------------------|----------------|-----------------|--------|
| 25 | 25 | - | 12...20 | 0 0 | AF09Z-40-00-20 | 1SBL136201R2000 | 0.310 |
| | | 24...60 | 20...60 | 0 0 | AF09Z-40-00-21 | 1SBL136201R2100 | 0.310 |
| | | 48...130 | 48...130 | 0 0 | AF09Z-40-00-22 | 1SBL136201R2200 | 0.310 |
| | | 100...250 | 100...250 | 0 0 | AF09Z-40-00-23 | 1SBL136201R2300 | 0.310 |
| 30 | 30 | - | 12...20 | 0 0 | AF16Z-40-00-20 | 1SBL176201R2000 | 0.310 |
| | | 24...60 | 20...60 | 0 0 | AF16Z-40-00-21 | 1SBL176201R2100 | 0.310 |
| | | 48...130 | 48...130 | 0 0 | AF16Z-40-00-22 | 1SBL176201R2200 | 0.310 |
| | | 100...250 | 100...250 | 0 0 | AF16Z-40-00-23 | 1SBL176201R2300 | 0.310 |
| 45 | 45 | - | 12...20 | 0 0 | AF26Z-40-00-20 | 1SBL236201R2000 | 0.400 |
| | | 24...60 | 20...60 | 0 0 | AF26Z-40-00-21 | 1SBL236201R2100 | 0.400 |
| | | 48...130 | 48...130 | 0 0 | AF26Z-40-00-22 | 1SBL236201R2200 | 0.400 |
| | | 100...250 | 100...250 | 0 0 | AF26Z-40-00-23 | 1SBL236201R2300 | 0.400 |
| 55 | 55 | - | 12...20 | 0 0 | AF38Z-40-00-20 | 1SBL296201R2000 | 0.400 |
| | | 24...60 | 20...60 | 0 0 | AF38Z-40-00-21 | 1SBL296201R2100 | 0.400 |
| | | 48...130 | 48...130 | 0 0 | AF38Z-40-00-22 | 1SBL296201R2200 | 0.400 |
| | | 100...250 | 100...250 | 0 0 | AF38Z-40-00-23 | 1SBL296201R2300 | 0.400 |

2 N.O. + 2 N.C. main poles

| Rated current | General use rating | Uc min. (V 50/60 Hz) | Uc max. (V DC) | Auxiliary contacts | Type | Order code | Weight |
|---------------|--------------------|----------------------|----------------|--------------------|----------------|-----------------|--------|
| 25 | 25 | - | 12...20 | 0 0 | AF09Z-22-00-20 | 1SBL136501R2000 | 0.310 |
| | | 24...60 | 20...60 | 0 0 | AF09Z-22-00-21 | 1SBL136501R2100 | 0.310 |
| | | 48...130 | 48...130 | 0 0 | AF09Z-22-00-22 | 1SBL136501R2200 | 0.310 |
| | | 100...250 | 100...250 | 0 0 | AF09Z-22-00-23 | 1SBL136501R2300 | 0.310 |
| 30 | 30 | - | 12...20 | 0 0 | AF16Z-22-00-20 | 1SBL176501R2000 | 0.310 |
| | | 24...60 | 20...60 | 0 0 | AF16Z-22-00-21 | 1SBL176501R2100 | 0.310 |
| | | 48...130 | 48...130 | 0 0 | AF16Z-22-00-22 | 1SBL176501R2200 | 0.310 |
| | | 100...250 | 100...250 | 0 0 | AF16Z-22-00-23 | 1SBL176501R2300 | 0.310 |
| 45 | 45 | - | 12...20 | 0 0 | AF26Z-22-00-20 | 1SBL236501R2000 | 0.400 |
| | | 24...60 | 20...60 | 0 0 | AF26Z-22-00-21 | 1SBL236501R2100 | 0.400 |
| | | 48...130 | 48...130 | 0 0 | AF26Z-22-00-22 | 1SBL236501R2200 | 0.400 |
| | | 100...250 | 100...250 | 0 0 | AF26Z-22-00-23 | 1SBL236501R2300 | 0.400 |
| 55 | 55 | - | 12...20 | 0 0 | AF38Z-22-00-20 | 1SBL296501R2000 | 0.400 |
| | | 24...60 | 20...60 | 0 0 | AF38Z-22-00-21 | 1SBL296501R2100 | 0.400 |
| | | 48...130 | 48...130 | 0 0 | AF38Z-22-00-22 | 1SBL296501R2200 | 0.400 |
| | | 100...250 | 100...250 | 0 0 | AF38Z-22-00-23 | 1SBL296501R2300 | 0.400 |

Note: Only AF.Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

Main dimensions mm, inches



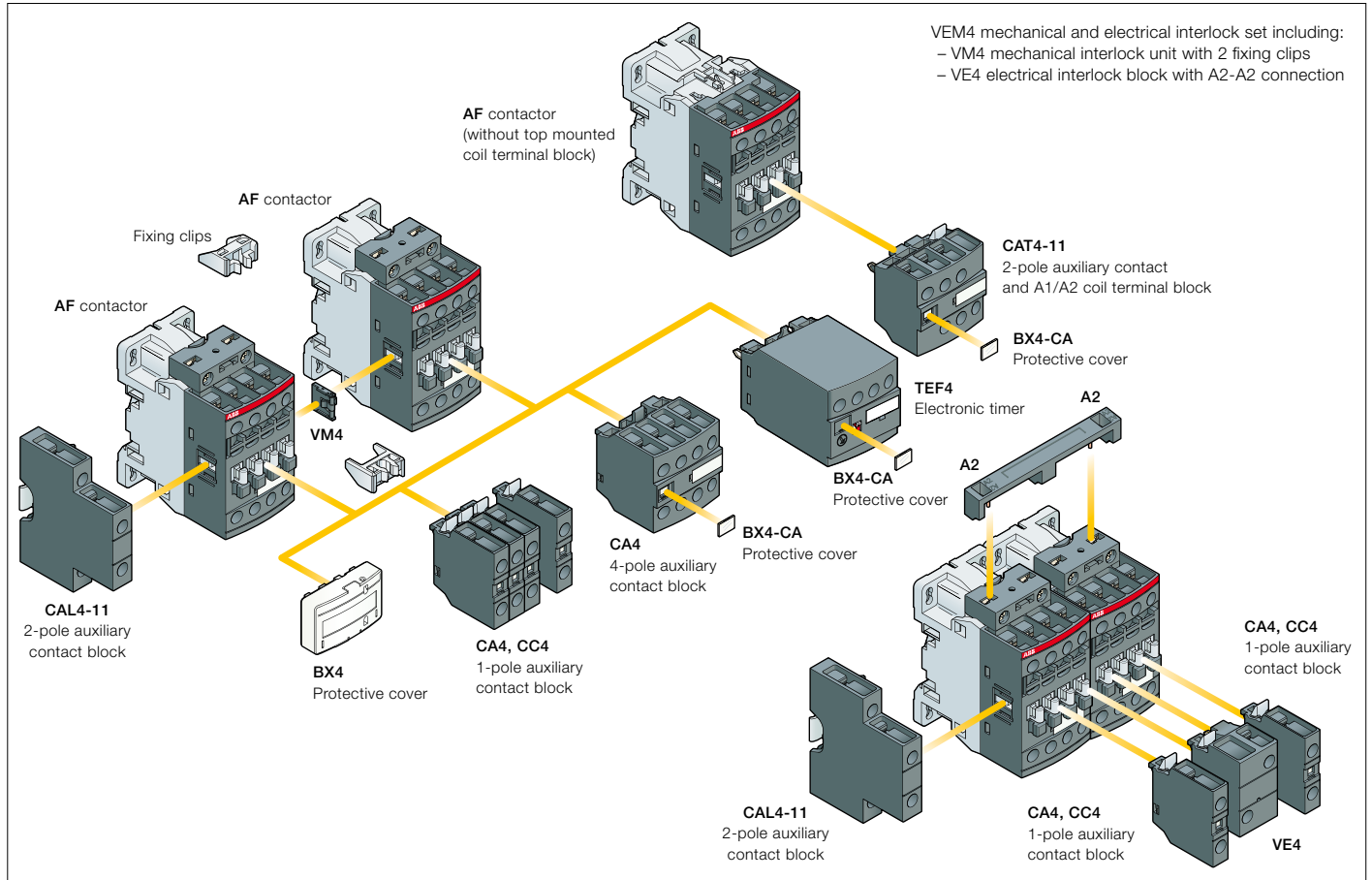
AF09Z, AF16Z

AF26Z, AF38Z

AF09 ... AF38 4-pole contactors

Main accessories

Contactor and main accessories (other accessories available)



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

| Contactor types | Main poles | Built-in auxiliary contacts | Front-mounted accessories | | | | Electronic timer | Electrical and mechanical interlock set (between 2 contactors) | Side-mounted accessories | | |
|---|------------|-----------------------------|---------------------------|----------------|------------|------|------------------|--|--------------------------|-----------|------------|
| | | | Auxiliary contact blocks | | | TEF4 | | | VEM4 | Left side | Right side |
| | | | 1-pole CA4 1-pole CC4 | 2-pole CAT4-11 | 4-pole CA4 | | | 2-pole CAL4-11 | | | |
| Max. add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5 | | | | | | | | | | | |
| AF09 ... AF16 | 4 | 0 | 0 | 0 | 4 max. | or 1 | or 1 | or 1 | - | + 1 | - |
| | | | | | 2 max. | or 1 | - | or 1 | - | + 1 | + 1 |
| | | | | | 3 max. | - | - | - | + 1 | + 1 | or 1 |
| Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5 | | | | | | | | | | | |
| AF26 ... AF38 | 4 | 0 | 0 | 0 | 4 max. | or 1 | or 1 | or 1 | - | + 1 | - |
| | | | | | 2 max. | or 1 | - | or 1 | - | + 1 | + 1 |
| | | | | | 3 max. | - | - | - | + 1 | + 1 | or 1 |
| AF09 ... AF16 | 2 | 2 | 0 | 0 | 4 max. | or 1 | or 1 | or 1 | - | + 1 | - |
| AF26 ... AF38 | 2 | 2 | 0 | 0 | 2 max. | or 1 | - | or 1 | - | + 1 | + 1 |

AF09 ... AF38 4-pole contactors

Main accessories



CA4-10



CAL4-11



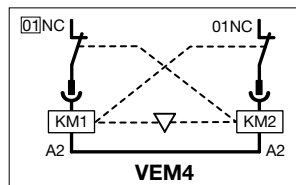
CA4-22E



CAT4-11E



VEM4



TEF4-ON

Ordering details (1)

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Front-mounted instantaneous auxiliary contact blocks

| | | | | | | |
|------------------------|-----|-----|----------|-----------------|----|-------|
| AF09 ... AF38...-40-00 | 1 0 | - - | CA4-10 | 1SBN010110R1010 | 1 | 0.014 |
| AF09 ... AF38...-22-00 | 1 0 | - - | CA4-10-T | 1SBN010110T1010 | 10 | 0.014 |
| | 0 1 | - - | CA4-01 | 1SBN010110R1001 | 1 | 0.014 |
| | 0 1 | - - | CA4-01-T | 1SBN010110T1001 | 10 | 0.014 |
| | 2 2 | - - | CA4-22E | 1SBN010140R1022 | 1 | 0.055 |
| | 3 1 | - - | CA4-31E | 1SBN010140R1031 | 1 | 0.055 |
| | 4 0 | - - | CA4-40E | 1SBN010140R1040 | 1 | 0.055 |
| AF09 ... AF16...-40-00 | 0 4 | - - | CA4-04E | 1SBN010140R1004 | 1 | 0.055 |

Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact

| | | | | | | |
|------------------------|-----|-----|--------|-----------------|---|-------|
| AF09 ... AF38...-40-00 | - - | 1 0 | CC4-10 | 1SBN010111R1010 | 1 | 0.014 |
| AF09 ... AF38...-22-00 | - - | 0 1 | CC4-01 | 1SBN010111R1001 | 1 | 0.014 |

Side-mounted instantaneous auxiliary contact blocks

| | | | | | | |
|------------------------|-----|-----|-----------|-----------------|----|-------|
| AF09 ... AF38...-40-00 | 1 1 | - - | CAL4-11 | 1SBN010120R1011 | 1 | 0.040 |
| AF09 ... AF38...-22-00 | 1 1 | - - | CAL4-11-T | 1SBN010120T1011 | 10 | 0.040 |

Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks

| | | | | | | |
|------------------------|-----|-----|----------|-----------------|---|-------|
| AF09 ... AF38...-40-00 | 1 1 | - - | CAT4-11E | 1SBN010151R1011 | 1 | 0.040 |
| AF09 ... AF38...-22-00 | | | | | | |

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

Mechanical interlock unit

| | | | | | | |
|------------------------|--|--|-----|-----------------|----|-------|
| AF09 ... AF38...-40-00 | | | VM4 | 1SBN030105T1000 | 10 | 0.005 |
|------------------------|--|--|-----|-----------------|----|-------|

Note: VM4 includes 2 fixing clips (BB4) to maintain together both contactors.

Mechanical and electrical interlock set

| | | | | | | |
|---------------------|-----|-----|------|-----------------|---|-------|
| AF09, AF16...-40-00 | 0 2 | - - | VEM4 | 1SBN030111R1000 | 1 | 0.035 |
| AF26, AF38...-40-00 | | | | | | |

Note: - VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
- VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

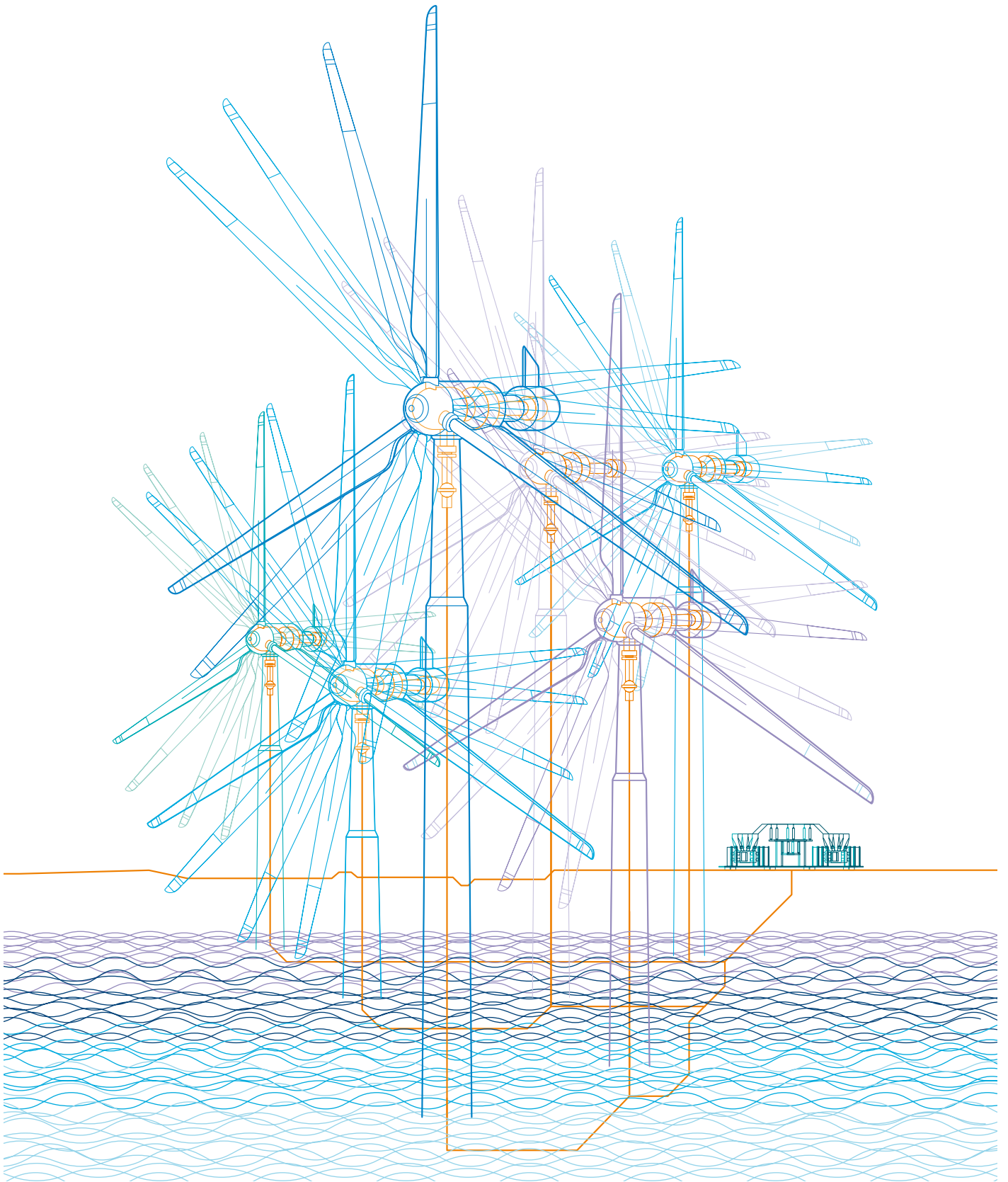
| For contactors | Time delay range selected by switch | Delay type | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|-------------------------------------|------------|--------------------|------|------------|---------|----------------|
| | | | | | | | kg |

Electronic timers

| | | | | | | | |
|---------------|------------|-----------|-----|----------|-----------------|---|-------|
| AF09 ... AF38 | 0.1...1 s | ON-delay | 1 1 | TEF4-ON | 1SBN020112R1000 | 1 | 0.065 |
| | 1...10 s | | | | | | |
| | 10...100 s | OFF-delay | 1 1 | TEF4-OFF | 1SBN020114R1000 | 1 | 0.065 |

Note: Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.

(1) For more information, refer to main catalog "Accessories" section.



A45 ... A75 4-pole contactors

70 to 125 A AC-1

AC operated



A45-40-00

Description

A45 ... A75 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 4 main poles
- control circuit: AC operated
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

| IEC | UL/CSA | Rated control circuit voltage U_c | | Auxiliary contacts fitted | Type | Order code | Weight |
|---|--------------------------------|-------------------------------------|---------|---------------------------|------|------------|-------------------|
| Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 | General use rating 600 V AC | V 50 Hz | V 60 Hz | | | | Pkg (1 pce) kg |

4 N.O. main poles

| Rated operational current | General use rating | V 50 Hz | V 60 Hz | NO | NC | Type | Order code | Weight |
|---------------------------|--------------------|-----------|-----------|----|----|-----------|-----------------|--------|
| 70 | 65 | 24 | 24 | 0 | 0 | A45-40-00 | 1SBL331201R8100 | 1.390 |
| | | 48 | 48 | 0 | 0 | A45-40-00 | 1SBL331201R8300 | 1.390 |
| | | 110 | 110...120 | 0 | 0 | A45-40-00 | 1SBL331201R8400 | 1.390 |
| | | 220...230 | 230...240 | 0 | 0 | A45-40-00 | 1SBL331201R8000 | 1.390 |
| | | 230...240 | 240...260 | 0 | 0 | A45-40-00 | 1SBL331201R8800 | 1.390 |
| | | 380...400 | 400...415 | 0 | 0 | A45-40-00 | 1SBL331201R8500 | 1.390 |
| | | 400...415 | 415...440 | 0 | 0 | A45-40-00 | 1SBL331201R8600 | 1.390 |
| 100 | 80 | 24 | 24 | 0 | 0 | A50-40-00 | 1SBL351201R8100 | 1.390 |
| | | 48 | 48 | 0 | 0 | A50-40-00 | 1SBL351201R8300 | 1.390 |
| | | 110 | 110...120 | 0 | 0 | A50-40-00 | 1SBL351201R8400 | 1.390 |
| | | 220...230 | 230...240 | 0 | 0 | A50-40-00 | 1SBL351201R8000 | 1.390 |
| | | 230...240 | 240...260 | 0 | 0 | A50-40-00 | 1SBL351201R8800 | 1.390 |
| | | 380...400 | 400...415 | 0 | 0 | A50-40-00 | 1SBL351201R8500 | 1.390 |
| | | 400...415 | 415...440 | 0 | 0 | A50-40-00 | 1SBL351201R8600 | 1.390 |
| 125 | 105 | 24 | 24 | 0 | 0 | A75-40-00 | 1SBL411201R8100 | 1.390 |
| | | 48 | 48 | 0 | 0 | A75-40-00 | 1SBL411201R8300 | 1.390 |
| | | 110 | 110...120 | 0 | 0 | A75-40-00 | 1SBL411201R8400 | 1.390 |
| | | 220...230 | 230...240 | 0 | 0 | A75-40-00 | 1SBL411201R8000 | 1.390 |
| | | 230...240 | 240...260 | 0 | 0 | A75-40-00 | 1SBL411201R8800 | 1.390 |
| | | 380...400 | 400...415 | 0 | 0 | A75-40-00 | 1SBL411201R8500 | 1.390 |
| | | 400...415 | 415...440 | 0 | 0 | A75-40-00 | 1SBL411201R8600 | 1.390 |

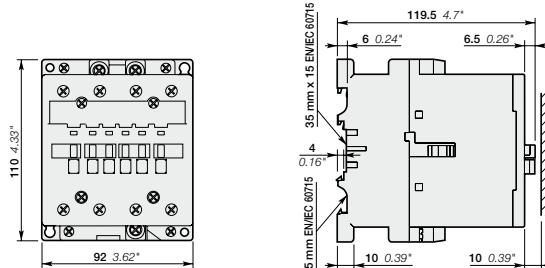
2 N.O. + 2 N.C. main poles (2)

| Rated operational current | General use rating | V 50 Hz | V 60 Hz | NO | NC | Type | Order code | Weight |
|---------------------------|--------------------|-----------|-----------|----|----|-----------|-----------------|--------|
| 70 | 65 | 24 | 24 | 0 | 0 | A45-22-00 | 1SBL331501R8100 | 1.400 |
| | | 48 | 48 | 0 | 0 | A45-22-00 | 1SBL331501R8300 | 1.400 |
| | | 110 | 110...120 | 0 | 0 | A45-22-00 | 1SBL331501R8400 | 1.400 |
| | | 220...230 | 230...240 | 0 | 0 | A45-22-00 | 1SBL331501R8000 | 1.400 |
| | | 230...240 | 240...260 | 0 | 0 | A45-22-00 | 1SBL331501R8800 | 1.400 |
| | | 380...400 | 400...415 | 0 | 0 | A45-22-00 | 1SBL331501R8500 | 1.400 |
| | | 400...415 | 415...440 | 0 | 0 | A45-22-00 | 1SBL331501R8600 | 1.400 |
| 125 | 105 | 24 | 24 | 0 | 0 | A75-22-00 | 1SBL411501R8100 | 1.400 |
| | | 48 | 48 | 0 | 0 | A75-22-00 | 1SBL411501R8300 | 1.400 |
| | | 110 | 110...120 | 0 | 0 | A75-22-00 | 1SBL411501R8400 | 1.400 |
| | | 220...230 | 230...240 | 0 | 0 | A75-22-00 | 1SBL411501R8000 | 1.400 |
| | | 230...240 | 240...260 | 0 | 0 | A75-22-00 | 1SBL411501R8800 | 1.400 |
| | | 380...400 | 400...415 | 0 | 0 | A75-22-00 | 1SBL411501R8500 | 1.400 |
| | | 400...415 | 415...440 | 0 | 0 | A75-22-00 | 1SBL411501R8600 | 1.400 |

(1) Other control voltages see voltage code table.

(2) These contactors are not suitable for a reversing starter or star-delta starter or for controlling a single load from 2 separate supplies. Please see technical data.

Main dimensions mm, inches



A45, A50, A75

AE45 ... AE75 4-pole contactors

70 to 125 A AC-1

DC operated



AE50-40-00

1SBC3519 1RFO303

Description

AE45 ... AE75 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 4 main poles
- control circuit: DC operated with double winding coil (and factory-mounted lagging contact for "holding" winding insertion)
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

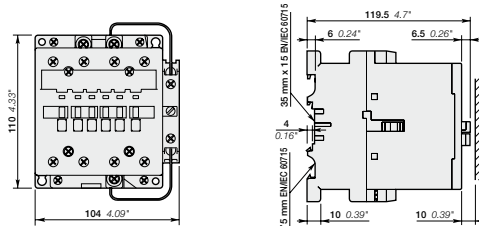
Ordering details

| IEC | UL/CSA | Rated control circuit voltage Uc (1) | Auxiliary contacts fitted | Type | Order code | Weight |
|---|--------------------------------|--|---------------------------|------------|-----------------|-------------|
| Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 | General use rating 600 V AC | | | | | Pkg (1 pce) |
| A | A | V DC | | | | kg |
| 4 N.O. main poles | | | | | | |
| 70 | 65 | 12 | 0 0 | AE45-40-00 | 1SBL339201R8000 | 1.430 |
| | | 24 | 0 0 | AE45-40-00 | 1SBL339201R8100 | 1.430 |
| | | 48 | 0 0 | AE45-40-00 | 1SBL339201R8300 | 1.430 |
| | | 60 | 0 0 | AE45-40-00 | 1SBL339201R8400 | 1.430 |
| | | 110 | 0 0 | AE45-40-00 | 1SBL339201R8600 | 1.430 |
| | | 125 | 0 0 | AE45-40-00 | 1SBL339201R8700 | 1.430 |
| | | 220 | 0 0 | AE45-40-00 | 1SBL339201R8800 | 1.430 |
| | | 240 | 0 0 | AE45-40-00 | 1SBL339201R8900 | 1.430 |
| 100 | 80 | 12 | 0 0 | AE50-40-00 | 1SBL359201R8000 | 1.430 |
| | | 24 | 0 0 | AE50-40-00 | 1SBL359201R8100 | 1.430 |
| | | 48 | 0 0 | AE50-40-00 | 1SBL359201R8300 | 1.430 |
| | | 60 | 0 0 | AE50-40-00 | 1SBL359201R8400 | 1.430 |
| | | 110 | 0 0 | AE50-40-00 | 1SBL359201R8600 | 1.430 |
| | | 125 | 0 0 | AE50-40-00 | 1SBL359201R8700 | 1.430 |
| | | 220 | 0 0 | AE50-40-00 | 1SBL359201R8800 | 1.430 |
| | | 240 | 0 0 | AE50-40-00 | 1SBL359201R8900 | 1.430 |
| 125 | 105 | 12 | 0 0 | AE75-40-00 | 1SBL419201R8000 | 1.430 |
| | | 24 | 0 0 | AE75-40-00 | 1SBL419201R8100 | 1.430 |
| | | 48 | 0 0 | AE75-40-00 | 1SBL419201R8300 | 1.430 |
| | | 60 | 0 0 | AE75-40-00 | 1SBL419201R8400 | 1.430 |
| | | 110 | 0 0 | AE75-40-00 | 1SBL419201R8600 | 1.430 |
| | | 125 | 0 0 | AE75-40-00 | 1SBL419201R8700 | 1.430 |
| | | 220 | 0 0 | AE75-40-00 | 1SBL419201R8800 | 1.430 |
| | | 240 | 0 0 | AE75-40-00 | 1SBL419201R8900 | 1.430 |
| 2 N.O. + 2 N.C. main poles (2) | | | | | | |
| 70 | 65 | 12 | 0 0 | AE45-22-00 | 1SBL339501R8000 | 1.440 |
| | | 24 | 0 0 | AE45-22-00 | 1SBL339501R8100 | 1.440 |
| | | 48 | 0 0 | AE45-22-00 | 1SBL339501R8300 | 1.440 |
| | | 60 | 0 0 | AE45-22-00 | 1SBL339501R8400 | 1.440 |
| | | 110 | 0 0 | AE45-22-00 | 1SBL339501R8600 | 1.440 |
| | | 125 | 0 0 | AE45-22-00 | 1SBL339501R8700 | 1.440 |
| | | 220 | 0 0 | AE45-22-00 | 1SBL339501R8800 | 1.440 |
| | | 240 | 0 0 | AE45-22-00 | 1SBL339501R8900 | 1.440 |
| 125 | 105 | 12 | 0 0 | AE75-22-00 | 1SBL419501R8000 | 1.440 |
| | | 24 | 0 0 | AE75-22-00 | 1SBL419501R8100 | 1.440 |
| | | 48 | 0 0 | AE75-22-00 | 1SBL419501R8300 | 1.440 |
| | | 60 | 0 0 | AE75-22-00 | 1SBL419501R8400 | 1.440 |
| | | 110 | 0 0 | AE75-22-00 | 1SBL419501R8600 | 1.440 |
| | | 125 | 0 0 | AE75-22-00 | 1SBL419501R8700 | 1.440 |
| | | 220 | 0 0 | AE75-22-00 | 1SBL419501R8800 | 1.440 |
| | | 240 | 0 0 | AE75-22-00 | 1SBL419501R8900 | 1.440 |

(1) Other control voltages see voltage code table.

(2) These contactors are not suitable for a reversing starter or star-delta starter or for controlling a single load from 2 separate supplies. Please see technical data.

Main dimensions mm, inches



AE45, AE50, AE75

1SBC101378S0201

AF45 ... AF75 4-pole contactors

70 to 125 A AC-1

AC / DC operated



AF45-40-00

Description

AF45 ... AF75 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 220 V DC.

These contactors are of the block type design with:

- 4 main poles
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
 - can manage large control voltage variations
 - only 3 coils to cover control voltages between 48...250 V 50/60 Hz and 20...250 V DC
 - reduced panel energy consumption
 - very distinct closing and opening
 - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

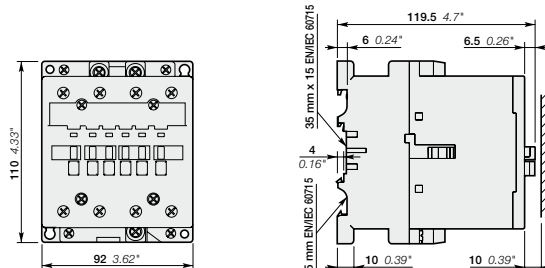
Ordering details

| IEC | UL/CSA | Rated control circuit voltage | | Auxiliary contacts fitted | Type | Order code | Weight |
|---|--------------------------------|-------------------------------|-----------|---------------------------|------------|---------------------|-------------|
| Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1 | General use rating 600 V AC | Uc min. ... Uc max. | | | | | Pkg (1 pce) |
| A | A | V 50/60 Hz | V DC | | | | kg |
| 4 N.O. main poles | | | | | | | |
| 70 | 65 | - | 20...60 | 0 0 | AF45-40-00 | 1SBL337201R7200 (1) | 1.420 |
| | | 48...130 | 48...130 | 0 0 | AF45-40-00 | 1SBL337201R6900 | 1.420 |
| | | 100...250 | 100...250 | 0 0 | AF45-40-00 | 1SBL337201R7000 | 1.420 |
| 100 | 80 | - | 20...60 | 0 0 | AF50-40-00 | 1SBL357201R7200 (1) | 1.420 |
| | | 48...130 | 48...130 | 0 0 | AF50-40-00 | 1SBL357201R6900 | 1.420 |
| | | 100...250 | 100...250 | 0 0 | AF50-40-00 | 1SBL357201R7000 | 1.420 |
| 125 | 105 | - | 20...60 | 0 0 | AF75-40-00 | 1SBL417201R7200 (1) | 1.420 |
| | | 48...130 | 48...130 | 0 0 | AF75-40-00 | 1SBL417201R6900 | 1.420 |
| | | 100...250 | 100...250 | 0 0 | AF75-40-00 | 1SBL417201R7000 | 1.420 |
| 2 N.O. + 2 N.C. main poles (2) | | | | | | | |
| 70 | 65 | - | 20...60 | 0 0 | AF45-22-00 | 1SBL337501R7200 (1) | 1.420 |
| | | 48...130 | 48...130 | 0 0 | AF45-22-00 | 1SBL337501R6900 | 1.420 |
| | | 100...250 | 100...250 | 0 0 | AF45-22-00 | 1SBL337501R7000 | 1.420 |
| 125 | 105 | - | 20...60 | 0 0 | AF75-22-00 | 1SBL417501R7200 (1) | 1.420 |
| | | 48...130 | 48...130 | 0 0 | AF75-22-00 | 1SBL417501R6900 | 1.420 |
| | | 100...250 | 100...250 | 0 0 | AF75-22-00 | 1SBL417501R7000 | 1.420 |

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

(2) These contactors are not suitable for a reversing starter or star-delta starter or for controlling a single load from 2 separate supplies. Please see technical data.

Main dimensions mm, inches

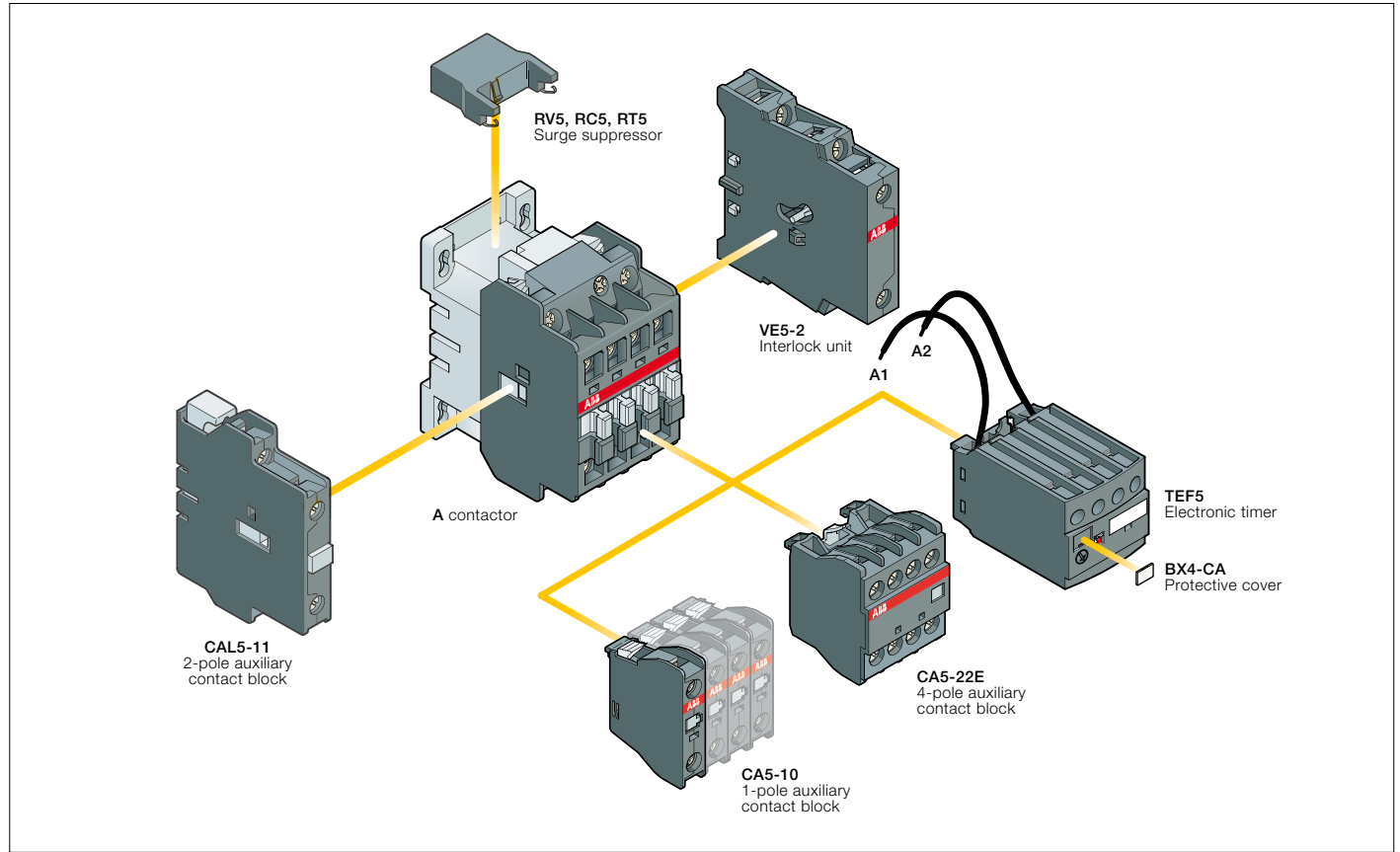


AF45, AF50, AF75

A45 ... A75, AE and AF45 ... AF75 4-pole contactors

Main accessories

Contactor and main accessories (other accessories available)



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

| Contactor types | Main poles | Available auxiliary contacts | Front-mounted accessories | | | Side-mounted accessories | | |
|------------------|-------------|------------------------------|---------------------------|---|-----------------------------------|--------------------------|------------------|-------------------------------|
| | | | Auxiliary contact blocks | | Electronic timer | Auxiliary contact blocks | Interlock unit | |
| | | | 1-pole CA5 | 4-pole CA5 | TEF5 | 2-pole CAL5-11 | VE5 | |
| A45, A50, A75 | 4 0 0 0 | 0 0 0 0 | 1 to 6 x CA5 | or 1 x CA5 (4-pole) + 2 x 1-pole CA5 | or 1 x TEF5 + 2 x CA5 (1-pole) | + | 1 to 2 x CAL5-11 | or 1 x VE5-2 + 1 x CAL5-11 |
| | 2 2 0 0 (1) | 0 0 (1) | 1 to 6 x CA5 | or 1 x CA5 (4-pole) + 2 x 1-pole CA5 | or 1 x TEF5 + 2 x CA5 (1-pole) | + | 1 to 2 x CAL5-11 | - |
| AE45, AE50, AE75 | 4 0 0 0 | 0 0 0 0 | 1 to 6 x CA5 | or 1 x CA5 (4-pole) + 2 x 1-pole CA5 | or 1 x TEF5 + 2 x CA5 (1-pole) | + | 1 x CAL5-11 | or 1 x VE5-2 |
| | 2 2 0 0 (1) | 0 0 (1) | 1 to 6 x CA5 | or 1 x CA5 (4-pole) + 2 x 1-pole CA5 | or 1 x TEF5 + 2 x CA5 (1-pole) | + | 1 x CAL5-11 | - |
| AF45, AF50, AF75 | 4 0 0 0 | 0 0 0 0 | 1 to 6 x CA5 | or 1 x CA5 (4-pole) + 2 x 1-pole CA5 | or 1 x TEF5 + 2 x CA5 (1-pole) | + | 1 to 2 x CAL5-11 | or 1 x VE5-2 + 1 x CAL5-11 |
| | 2 2 0 0 (1) | 0 0 (1) | 1 to 6 x CA5 | or 1 x CA5 (4-pole) + 2 x 1-pole CA5 | or 1 x TEF5 + 2 x CA5 (1-pole) | + | 1 to 2 x CAL5-11 | - |

(1) 2 x N.C. CA5 auxiliary contacts maximum.

A45 ... A75, AE and AF50 ... AF75 4-pole contactors

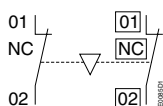
Main accessories



CA5-10



CAL5-11



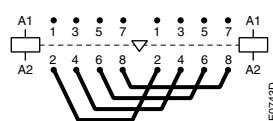
VE5-2
Terminal marking and positioning



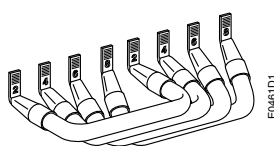
TEF5-OFF



RV5/50



BES
Changeover connections



BES75-40

Ordering details (1)

| For contactors | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Front-mounted instantaneous auxiliary contact blocks

| | | | | | |
|------------------|-----|---------|-----------------|----|-------|
| A45, A50, A75 | 1 - | CA5-10 | 1SBN010010R1010 | 10 | 0.014 |
| AE45, AE50, AE75 | - 1 | CA5-01 | 1SBN010010R1001 | 10 | 0.014 |
| AF45, AF50, AF75 | | | | | |
| A45, A50, A75 | 2 2 | CA5-22E | 1SBN010040R1022 | 2 | 0.060 |
| AE45, AE50, AE75 | | | | | |
| AF45, AF50, AF75 | | | | | |

Side-mounted instantaneous auxiliary contact blocks

| | | | | | |
|------------------|-----|---------|-----------------|---|-------|
| A45, A50, A75 | 1 1 | CAL5-11 | 1SBN010020R1011 | 2 | 0.050 |
| AE45, AE50, AE75 | | | | | |
| AF45, AF50, AF75 | | | | | |

Interlock unit

| | | | | | | |
|------------------------|---------------------------|-----|-------|-----------------|---|-------|
| A45, A50, A75-40-00 | Mechanical and electrical | - 2 | VE5-2 | 1SBN030210R1000 | 1 | 0.146 |
| AE45, AE50, AE75-40-00 | | | | | | |
| AF45, AF50, AF75-40-00 | | | | | | |

| For contactors | Time delay range selected by switch | Delay type | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|-------------------------------------|------------|--------------------|------|------------|---------|----------------|
| | | | | | | | kg |

Electronic timers

| | | | | | | | |
|------------------|------------|-----------|-----|----------|-----------------|---|-------|
| A45, A50, A75 | 0.1...1 s | ON-delay | 1 1 | TEF5-ON | 1SBN020312R1000 | 1 | 0.065 |
| AE45, AE50, AE75 | 1...10 s | | | | | | |
| AF45, AF50, AF75 | 10...100 s | OFF-delay | 1 1 | TEF5-OFF | 1SBN020314R1000 | 1 | 0.065 |

Note: Rated control circuit voltage U_c 24...240 V 50/60 Hz or DC.

| For contactors | Rated control circuit voltage U_c | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|-------------------------------------|-------|------------|---------|----------------|
| | V | AC DC | | | kg |

Surge suppressors

| | | | | | | |
|------------------|-----------|-----|-----------|-----------------|---|-------|
| A45, A50, A75 | 24...50 | ● ● | RV5/50 | 1SBN050010R1000 | 2 | 0.015 |
| AE45, AE50, AE75 | 50...133 | ● ● | RV5/133 | 1SBN050010R1001 | 2 | 0.015 |
| | 110...250 | ● ● | RV5/250 | 1SBN050010R1002 | 2 | 0.015 |
| | 250...440 | ● ● | RV5/440 | 1SBN050010R1003 | 2 | 0.015 |
| A45, A50, A75 | 24...50 | ● - | RC5-2/50 | 1SBN050200R1000 | 2 | 0.015 |
| | 50...133 | ● - | RC5-2/133 | 1SBN050200R1001 | 2 | 0.015 |
| | 110...250 | ● - | RC5-2/250 | 1SBN050200R1002 | 2 | 0.015 |
| | 250...440 | ● - | RC5-2/440 | 1SBN050200R1003 | 2 | 0.015 |
| AE45, AE50, AE75 | 12...32 | - ● | RT5/32 | 1SBN050020R1000 | 2 | 0.015 |
| | 25...65 | - ● | RT5/65 | 1SBN050020R1001 | 2 | 0.015 |
| | 50...90 | - ● | RT5/90 | 1SBN050020R1002 | 2 | 0.015 |
| | 77...150 | - ● | RT5/150 | 1SBN050020R1003 | 2 | 0.015 |
| | 150...264 | - ● | RT5/264 | 1SBN050020R1004 | 2 | 0.015 |

Connection sets for 4-pole changeover contactors

| | | | | |
|------------------------|----------|-----------------|---|-------|
| A45, A50, A75-40-00 | BES75-40 | 1SBN083302R1000 | 1 | 0.400 |
| AE45, AE50, AE75-40-00 | | | | |
| AF45, AF50, AF75-40-00 | | | | |

(1) For more information, refer to main catalog "Accessories" section.

NF 4-pole contactor relays

AC / DC operated



NF22E

Description

NF contactor relays are used for switching auxiliary and control circuits.

These contactor relays are of the block type design with:

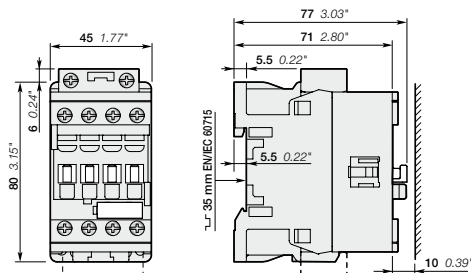
- 4 poles. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
 - can manage large control voltage variations
 - only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
 - reduced panel energy consumption
 - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

| Number of contacts | Rated control circuit voltage | | Type | Order code | Weight |
|--------------------|-------------------------------|-----------|--------------|-----------------|--------|
| | Uc min. ... Uc max. | | | | |
| | V 50/60 Hz | V DC | | | kg |
| | 24...60 | - | (1) NF22E-41 | 1SBH137001R4122 | 0.270 |
| | 48...130 | 48...130 | NF22E-12 | 1SBH137001R1222 | 0.270 |
| | 100...250 | 100...250 | NF22E-13 | 1SBH137001R1322 | 0.270 |
| | 250...500 | 250...500 | NF22E-14 | 1SBH137001R1422 | 0.310 |
| | 24...60 | - | (1) NF31E-41 | 1SBH137001R4131 | 0.270 |
| | 48...130 | 48...130 | NF31E-12 | 1SBH137001R1231 | 0.270 |
| | 100...250 | 100...250 | NF31E-13 | 1SBH137001R1331 | 0.270 |
| | 250...500 | 250...500 | NF31E-14 | 1SBH137001R1431 | 0.310 |
| | 24...60 | - | (1) NF40E-41 | 1SBH137001R4140 | 0.270 |
| | 48...130 | 48...130 | NF40E-12 | 1SBH137001R1240 | 0.270 |
| | 100...250 | 100...250 | NF40E-13 | 1SBH137001R1340 | 0.270 |
| | 250...500 | 250...500 | NF40E-14 | 1SBH137001R1440 | 0.310 |

(1) For 24...60 V 50/60 Hz - 20...60 V DC, use NF..E-11 (see voltage code table).
NF..E-11 not suitable for direct control by PLC-output.

Main dimensions mm, inches



NF22E, NF31E, NF40E

NFZ 4-pole contactor relays

AC / DC operated - low consumption



NFZ22E

Description

NFZ contactor relays are used for switching auxiliary and control circuits.

These contactor relays are of the block type design with:

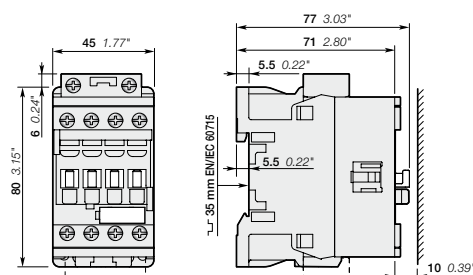
- 4 poles. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
 - can manage large control voltage variations
 - only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
 - allow direct control by PLC-output ≥ 24 V DC 500 mA
 - reduced panel energy consumption
 - very distinct closing and opening
 - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

| Number of contacts | Rated control circuit voltage Uc min. ... Uc max. | | Type | Order code | Weight Pkg (1 pce) kg |
|--------------------|--|-----------|-----------|-----------------|--------------------------------|
| | V 50/60 Hz | V DC | | | |
| | - | 12...20 | NFZ22E-20 | 1SBH136001R2022 | 0.310 |
| | 24...60 | 20...60 | NFZ22E-21 | 1SBH136001R2122 | 0.310 |
| | 48...130 | 48...130 | NFZ22E-22 | 1SBH136001R2222 | 0.310 |
| | 100...250 | 100...250 | NFZ22E-23 | 1SBH136001R2322 | 0.310 |
| | - | 12...20 | NFZ31E-20 | 1SBH136001R2031 | 0.310 |
| | 24...60 | 20...60 | NFZ31E-21 | 1SBH136001R2131 | 0.310 |
| | 48...130 | 48...130 | NFZ31E-22 | 1SBH136001R2231 | 0.310 |
| | 100...250 | 100...250 | NFZ31E-23 | 1SBH136001R2331 | 0.310 |
| | - | 12...20 | NFZ40E-20 | 1SBH136001R2040 | 0.310 |
| | 24...60 | 20...60 | NFZ40E-21 | 1SBH136001R2140 | 0.310 |
| | 48...130 | 48...130 | NFZ40E-22 | 1SBH136001R2240 | 0.310 |
| | 100...250 | 100...250 | NFZ40E-23 | 1SBH136001R2340 | 0.310 |

Note: Only NFZ contactor relays with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

Main dimensions mm, inches

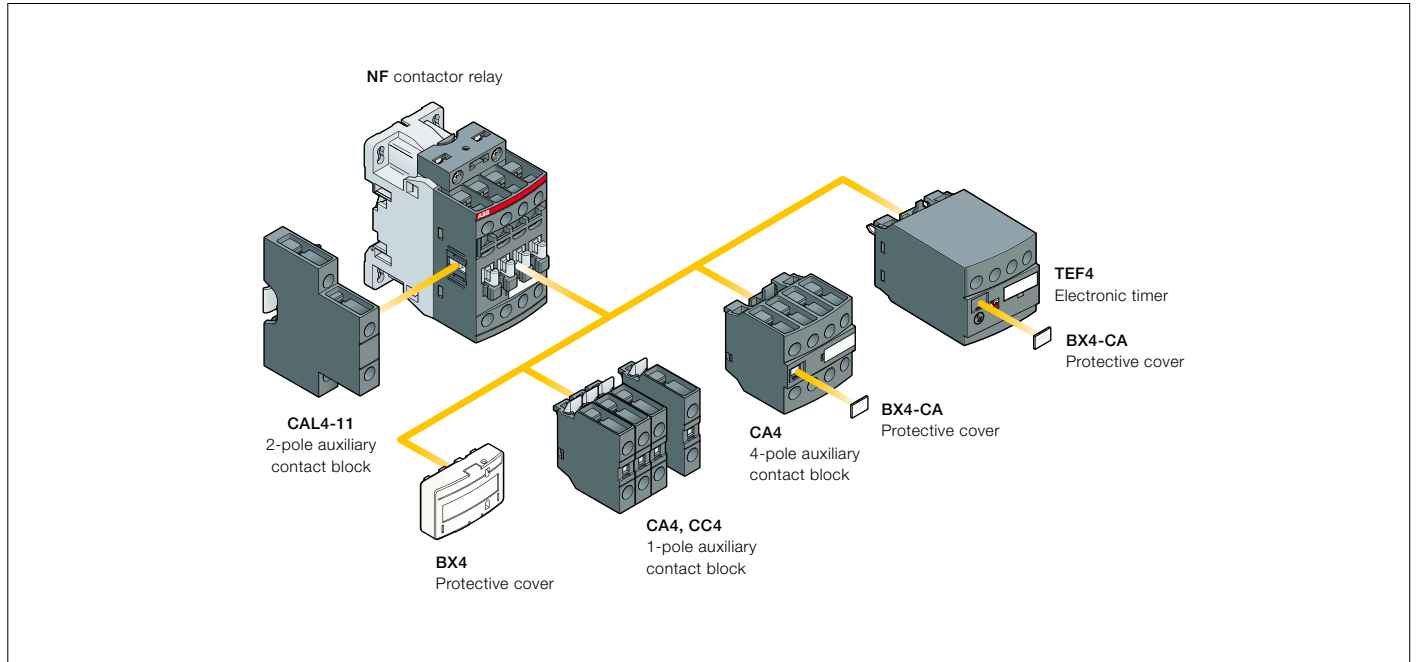


NFZ22E, NFZ31E, NFZ40E

NF 4-pole contactor relays

Main accessories

Contactor relays and main accessories (other accessories available)



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

| Contactor relay types | Main poles | Front-mounted accessories | | | Electronic timer | | Side-mounted accessories | |
|---|------------|---------------------------|------------|--|------------------|--------------------------|--------------------------|--|
| | | Auxiliary contact blocks | | | | Auxiliary contact blocks | | |
| | | 1-pole CA4 | | | | Left side | Right side | |
| | | 1-pole CC4 | 4-pole CA4 | | TEF4 | 2-pole CAL4-11 | | |
| Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5 | | | | | | | | |
| NF | 2 2 E | 4 max. | or 1 | | or 1 | + 1 | - | |
| | 3 1 E | 2 max. | - | | or 1 | + 1 | + 1 | |
| Max. add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5 | | | | | | | | |
| NF | 4 0 E | 4 max. | or 1 | | or 1 | + 1 | - | |
| | | 2 max. | - | | or 1 | + 1 | + 1 | |

NF 4-pole contactor relays

Main accessories



CA4-10



CA4-22N



CAL4-11



TEF4-ON



LDC4



BX4



BX4-CA

Ordering details (1)

| For contactor relays | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------------|--------------------|------|------------|---------|----------------|
| | | | | | kg |

Front-mounted instantaneous auxiliary contact blocks

| 4-pole NF | 1 0 | - - | CA4-10 | 1SBN010110R1010 | 1 | 0.014 |
|-----------|-----|-----|----------|-----------------|----|-------|
| | 1 0 | - - | CA4-10-T | 1SBN010110T1010 | 10 | 0.014 |
| | 0 1 | - - | CA4-01 | 1SBN010110R1001 | 1 | 0.014 |
| | 0 1 | - - | CA4-01-T | 1SBN010110T1001 | 10 | 0.014 |
| | 4 0 | - - | CA4-40N | 1SBN010140R1240 | 1 | 0.055 |
| | 3 1 | - - | CA4-31N | 1SBN010140R1231 | 1 | 0.055 |
| | 2 2 | - - | CA4-22N | 1SBN010140R1222 | 1 | 0.055 |
| | 1 3 | - - | CA4-13N | 1SBN010140R1213 | 1 | 0.055 |
| NF..40E | 0 4 | - - | CA4-04N | 1SBN010140R1204 | 1 | 0.055 |

Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact

| 4-pole NF | - - | 1 0 | CC4-10 | 1SBN010111R1010 | 1 | 0.014 |
|-----------|-----|-----|--------|-----------------|---|-------|
| | - - | 0 1 | CC4-01 | 1SBN010111R1001 | 1 | 0.014 |

Side-mounted instantaneous auxiliary contact blocks

| NF | 1 1 | - - | CAL4-11 | 1SBN010120R1011 | 1 | 0.040 |
|----|-----|-----|-----------|-----------------|----|-------|
| | 1 1 | - - | CAL4-11-T | 1SBN010120T1011 | 10 | 0.040 |

| For contactors | Time delay range selected by switch | Delay type | Auxiliary contacts | Type | Order code | Pkg qty | Weight (1 pce) |
|----------------|--|------------|--------------------|------|------------|---------|----------------|
| | | | | | | | kg |

Electronic timers

| NF | 0.1...1 s | ON-delay | 1 1 | TEF4-ON | 1SBN020112R1000 | 1 | 0.065 |
|----|------------|-----------|-----|----------|-----------------|---|-------|
| | 1...10 s | OFF-delay | 1 1 | TEF4-OFF | 1SBN020114R1000 | 1 | 0.065 |
| | 10...100 s | | | | | | |

Note: Rated control circuit voltage U_c 24...240 V 50/60 Hz or DC.

Additional coil terminal block

| NF | LDC4 | 1SBN070156T1000 | 10 | 0.010 |
|----|------|-----------------|----|-------|
|----|------|-----------------|----|-------|

Protective covers

| All 1-stack contactor relays | BX4 | 1SBN110108T1000 | 10 | 0.006 |
|---|--------|-----------------|----|-------|
| 4-pole CA4 auxiliary contact blocks and TEF4 electronic timer | BX4-CA | 1SBN110109W1000 | 50 | 0.001 |

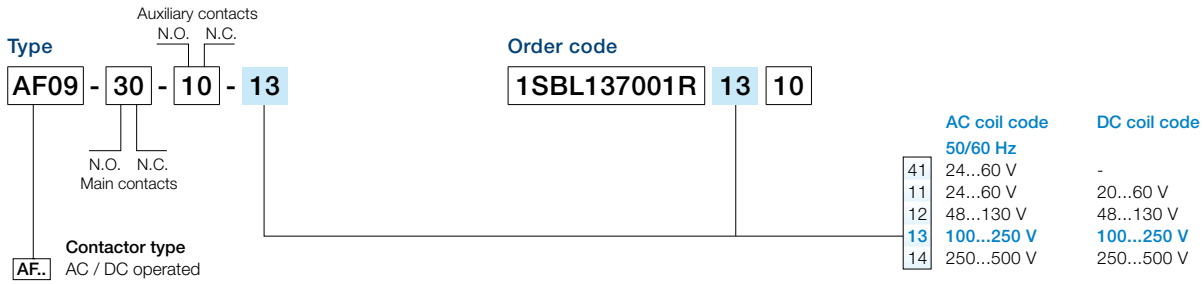
(1) For more information, refer to main catalog "Accessories" section.

Voltage code table

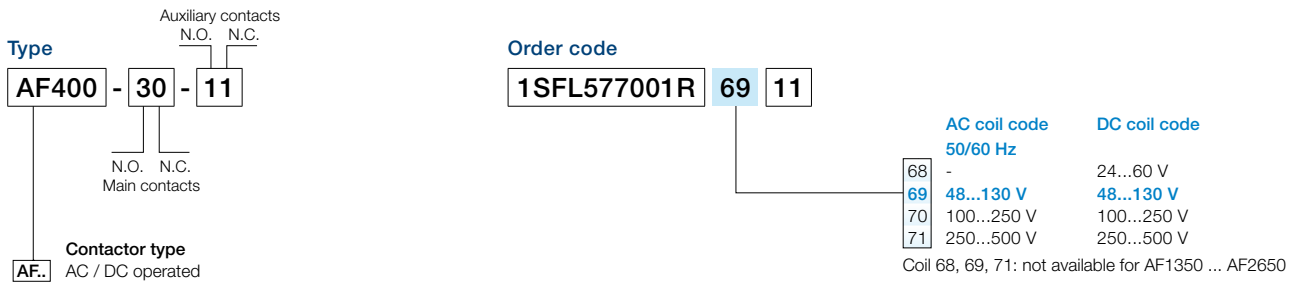
The below tables indicate the available coil voltages and corresponding digits for order codes. When placing an order, please give the order code. Select a standard contactor from ordering detail pages. Change the **coil voltage code** in the order code according to the table below. Example: for contactor AF400-30-11 and coil 100...250 V 50/60 Hz, the order code is 1SFL577001R7011.

AF09 ... AF370 3-pole contactors

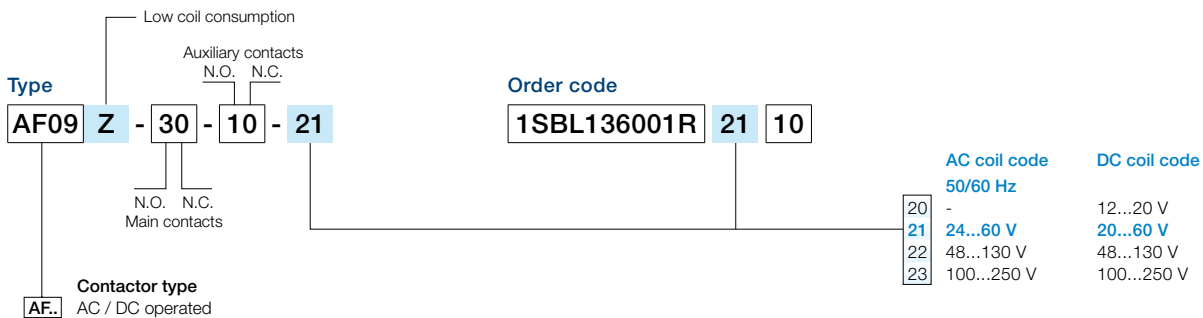
AF09 ... AF38 4-pole contactors



AF400 ... AF2650 3-pole contactors



AF09 ... AF38 3- and 4-pole contactors - low consumption

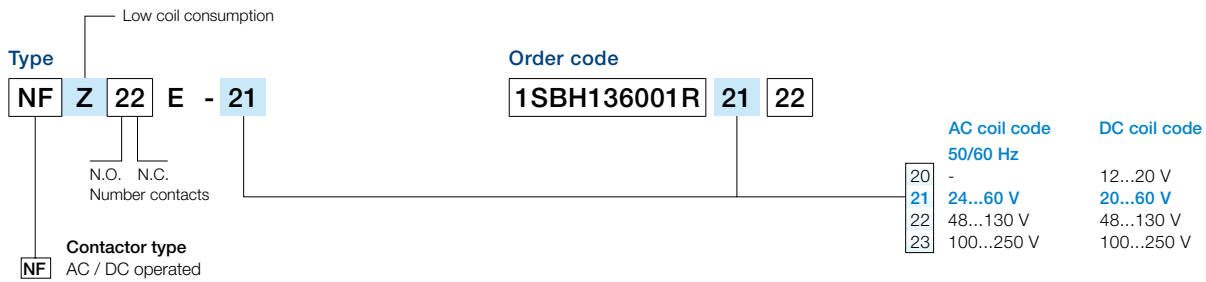


Voltage code table

NF contactor relays

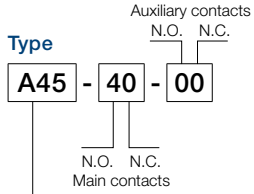


NF contactor relays - low consumption



Voltage code table

A.. 4-pole contactors, UA, UA..RA contactors



Order code

1SBL331201R **80** **00**

| Type | Contactor type |
|---------------------|---|
| A45, A50, A75 | AC operated |
| AE45, AE50, AE75 | DC operated |
| TAE45, TAE50, TAE75 | DC operated large coil voltage range |
| AF45, AF50, AF75 | AC / DC operated with electronic coil interface |
| GAF | AC / DC operated with electronic coil interface |
| UA, UA..RA | Capacitor switching - AC operated |
| GA | DC switching - AC operated |
| GAE | DC switching - DC operated |
| AM | Magnetically latched - DC operated |

Contactors: A, UA, UA..RA, GA AC coil code

| | 50 Hz | 60 Hz |
|----|-------------|-------------|
| 81 | 24 V | 24 V |
| 16 | 26 V | 28 V |
| 17 | 28 V | 32 V |
| 82 | 42 V | 42 V |
| 20 | 42 V | 48 V |
| 83 | 48 V | 48 V |
| 73 | 60 V | 60 V |
| 74 | 100 V | 100...110 V |
| 26 | 105 V | 110...127 V |
| 84 | 110 V | 110...120 V |
| 89 | 110...115 V | 115...127 V |
| 29 | 120 V | 140 V |
| 30 | 125...127 V | 150 V |
| 34 | 175 V | 208 V |
| 36 | 190 V | 220 V |
| 40 | 210 V | 240 V |
| 80 | 220...230 V | 230...240 V |
| 88 | 230...240 V | 240...260 V |
| 42 | 230...240 V | 277 V |
| 85 | 380...400 V | 400...415 V |
| 86 | 400...415 V | 415...440 V |
| 50 | 400 V | 440 V |
| 51 | 400...415 V | 480 V |
| 87 | 415...440 V | 440...460 V |
| 53 | 440 V | 500 V |
| 55 | 500 V | 600 V |
| 56 | 550 V | - |
| 58 | 660...690 V | - |
| 59 | - | 690 V |

Contactors: AE, TAE, GAE DC coil code

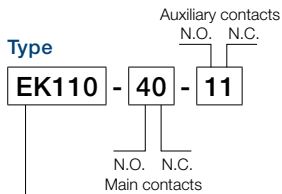
| | |
|----|-------|
| 80 | 12 V |
| 81 | 24 V |
| 82 | 42 V |
| 83 | 48 V |
| 21 | 50 V |
| 84 | 60 V |
| 85 | 75 V |
| 86 | 110 V |
| 87 | 125 V |
| 88 | 220 V |
| 89 | 240 V |
| 38 | 250 V |

Contactors: AF45, AF50, AF75 AC coil code DC coil code 50/60 Hz

| | | |
|----|-------------|-------------|
| 72 | - | 20...60 V |
| 69 | 48...130 V | 48...130 V |
| 70 | 100...250 V | 100...250 V |

Codes in bold for dual frequency coils.

EK contactors



Order code

SK824440 - **AD**

| Type | Contactor type |
|-----------|----------------------------|
| EK | AC operated or DC operated |

Contactors: EK110 ... EK210 AC coil code

| | 50 Hz | 60 Hz |
|----|-------------|-------|
| AA | - | 24 V |
| AB | 24 V | - |
| AC | - | 48 V |
| AD | 48 V | - |
| AE | - | 110 V |
| AF | 110 V | 120 V |
| AG | 127 V | - |
| AZ | - | 208 V |
| AH | 190 V | 220 V |
| AK | - | 240 V |
| AL | 220...230 V | - |
| AM | 230...240 V | - |
| AN | - | 380 V |
| AP | 380...400 V | 440 V |
| AR | 400...415 V | - |
| AS | - | 480 V |
| AT | 440 V | - |
| AU | 500 V | - |
| AV | - | 600 V |

Contactors: EK370 ... EK1000 AC coil code

| | 50 Hz | 60 Hz |
|----|-------------|-------|
| AD | 48 V | - |
| AE | - | 110 V |
| AF | 110 V | 120 V |
| AG | 127 V | - |
| AZ | - | 208 V |
| AH | 190 V | 220 V |
| AK | - | 240 V |
| AL | 220...230 V | 240 V |
| AM | 230...240 V | - |
| AN | - | 380 V |
| AP | 380...400 V | 440 V |
| AR | 400...415 V | - |
| AS | - | 480 V |
| AT | 440 V | - |
| AU | 500 V | - |
| AV | - | 600 V |

Contactors: EK110 ... EK1000 DC coil code

| | |
|----|----------|
| DA | 12 V (2) |
| DB | 24 V |
| DC | 36 V |
| DD | 48 V |
| DT | 60 V |
| DG | 75 V |
| DE | 110 V |
| DU | 125 V |
| DF | 220 V |

(2) Not for EK370 ... EK1000 contactors.

Contactors: EK110 ... EK210 Multi-frequency coil code

| | |
|----|-------------|
| EF | 40...400 Hz |
| EG | 110...120 V |
| EL | 115...127 V |
| EM | 220...230 V |
| EP | 230...240 V |
| ER | 380...400 V |

Contactors: EK370 ... EK1000 Dual frequency coil code

| | 50 Hz | 60 Hz |
|----|-------------|-------------|
| EF | 110 V | 110...120 V |
| EG | 110...115 V | 115...127 V |
| EL | 220 V | 220...240 V |
| EM | 220...230 V | 230...255 V |
| EP | 380 V | 380...415 V |
| ER | 380...400 V | 400...440 V |

2 auxiliary contact blocks maximum per contactor, ambient temperature ≤ 55 °C and mounting positions 2 and 6 excluded.

Notes

A series of horizontal dotted lines for taking notes, spanning the width of the page.



Overload relays

Thermal overload relays

| | | |
|---------|-------------|-----|
| T16 | 0.10...16 A | 6/4 |
| TF42 | 0.10...38 A | 6/5 |
| TF65 | 22...67 A | 6/6 |
| TF96 | 40...96 A | 6/7 |
| TF140DU | 66...142 A | 6/8 |
| TA200DU | 66...200 A | 6/9 |

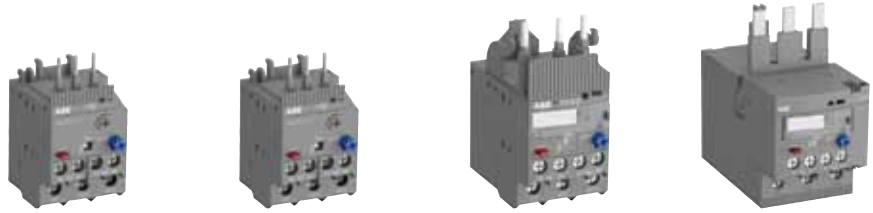
Electronic overload relays

| | | |
|-------------------------|---------------|------|
| E16DU | 0.10...18.9 A | 6/10 |
| EF19, EF45 | 0.10...45 A | 6/11 |
| EF65, EF96, EF146 | 25...150 A | 6/12 |
| EF205, EF370 | 63...380 A | 6/13 |
| E500DU, E800DU, E1250DU | 150...1250 A | 6/14 |

For additional information such as technical datas, dimension drawings, other products and accessories, refer to our main catalog and visit our website: www.abb.com/connecttocontrol

Thermal and electronic overload relays

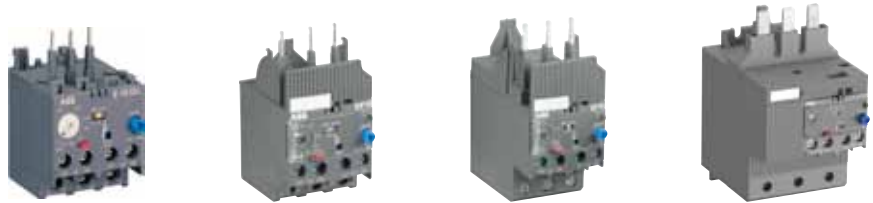
Thermal overload relays



| | | | | | |
|-----------------------------------|-------|---------------|---------------|---------------|------------------|
| IEC: rated operational power AC-3 | 400 V | 0.03...4.0 kW | 0.03...4.0 kW | 4.0...18.5 kW | 18.5...30 kW |
| UL/CSA: 3-phase hp-ratings | 480 V | 1/2...5 hp | 1/2...10 hp | 5...20 hp | 30...60 hp |
| Fitting to contactors | | B6, B7 | AS09 ... AS16 | AF09 ... AF38 | AF40, AF52, AF65 |
| Type | | T16 | T16 | TF42 | TF65 |
| Current range | | 0.10...16 A | 0.10...16 A | 0.10...38 A | 22...67 A |
| Trip class | | 10 | 10 | 10 | 10 |
| Single mounting kit | | DB16 | DB16 | DB42 | - |

6

Electronic overload relays with integrated CT



| | | | | | |
|-----------------------------------|-------|--------------------------|---------------|---------------|------------------|
| IEC: rated operational power AC-3 | 400 V | 0.03...4.0 kW | 4...7.5 kW | 4.0...18.5 kW | 18.5...30 kW |
| UL/CSA: 3-phase hp-ratings | 480 V | 1...5 hp | 5...10 hp | 5...20 hp | 30...60 hp |
| Fitting to contactors | | B6, B7 | AF09 ... AF38 | AF26 ... AF38 | AF40, AF52, AF65 |
| Type | | E16DU | EF19 | EF45 | EF65 |
| Current range | | 0.10...18.9 A | 0.10...18.9 A | 9...45 A | 25...70 A |
| Trip class | | 10E, 20E, 30E selectable | | | |
| Single mounting kit | | DB16E | DB19EF | - | - |

Electronic overload relays with external separate CT



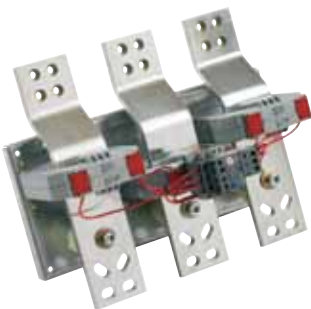
| | | | |
|-----------------------------------|-------|--------------------------|---------------|
| IEC: rated operational power AC-3 | 400 V | 200...250 kW | 315...400 kW |
| UL/CSA: 3-phase hp-ratings | 480 V | 350...400 hp | 500...600 hp |
| Fitting to contactors | | AF400, AF460 | AF580, AF750 |
| Type | | E500DU | E800DU |
| Current range | | 150...500 A | 250...800 A |
| Trip class | | 10E, 20E, 30E selectable | |



| | | |
|-------------|----------------|----------------|
| 37...45 kW | 55...75 kW | 90...110 kW |
| 60 hp | 75...100 hp | 125...150 hp |
| AF80, AF96 | AF116, AF140 | AF190, AF205 |
| TF96 | TF140DU | TA200DU |
| 40...96 A | 66...142 A | 66...200 A |
| 10 | 10A | 10A |
| - | - | DB200 |



| | | | |
|-------------|---------------------|--------------------------|---------------------|
| 37...45 kW | 55...75 kW | 90...110 kW | 132...200 kW |
| 60 hp | 75...100 hp | 125...150 hp | 200...350 hp |
| AF80, AF96 | AF116, AF140, AF146 | AF190, AF205 | AF265, AF305, AF370 |
| EF96 | EF146 | EF205 | EF370 |
| 36...100 A | 54...150 A | 63...210 A | 115...380 A |
| - | - | 10E, 20E, 30E selectable | |
| - | - | - | - |



| |
|--------------------------|
| 475...560 kW |
| 800...900 hp |
| AF1350, AF1650 |
| E1250DU |
| 375...1250 A |
| 10E, 20E, 30E selectable |

T16 thermal overload relays

0.10...16.0 A



2CDC231025F0013

T16



2CDC231025F0013

T16 + DB16



1SFC151402F0001

KPR-101L



2CDC231002F0011

DB16

Description

The T16 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function - Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications.

Ordering details

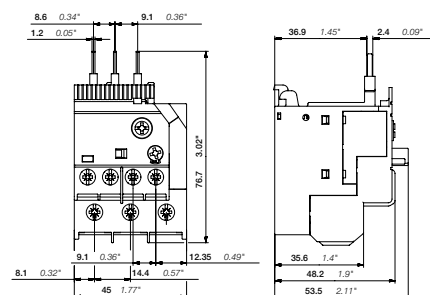
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|------------|----------|-----------------|-------------------|
| A | | | | | |
| 0.10...0.13 | 0.5 A, Fuse type T | 10 | T16-0.13 | 1SAZ711201R1005 | 0.100 |
| 0.13...0.17 | 1.0 A, Fuse type T | 10 | T16-0.17 | 1SAZ711201R1008 | 0.100 |
| 0.17...0.23 | 1.0 A, Fuse type T | 10 | T16-0.23 | 1SAZ711201R1009 | 0.100 |
| 0.23...0.31 | 1.0 A, Fuse type T | 10 | T16-0.31 | 1SAZ711201R1013 | 0.100 |
| 0.31...0.41 | 2.0 A, Fuse type gG | 10 | T16-0.41 | 1SAZ711201R1014 | 0.100 |
| 0.41...0.55 | 2.0 A, Fuse type gG | 10 | T16-0.55 | 1SAZ711201R1017 | 0.100 |
| 0.55...0.74 | 4.0 A, Fuse type gG | 10 | T16-0.74 | 1SAZ711201R1021 | 0.100 |
| 0.74...1.00 | 6.0 A, Fuse type gG | 10 | T16-1.0 | 1SAZ711201R1023 | 0.100 |
| 1.00...1.30 | 6.0 A, Fuse type gG | 10 | T16-1.3 | 1SAZ711201R1025 | 0.100 |
| 1.30...1.70 | 10.0 A, Fuse type gG | 10 | T16-1.7 | 1SAZ711201R1028 | 0.100 |
| 1.70...2.30 | 10.0 A, Fuse type gG | 10 | T16-2.3 | 1SAZ711201R1031 | 0.100 |
| 2.30...3.10 | 10.0 A, Fuse type gG | 10 | T16-3.1 | 1SAZ711201R1033 | 0.100 |
| 3.10...4.20 | 20.0 A, Fuse type gG | 10 | T16-4.2 | 1SAZ711201R1035 | 0.100 |
| 4.20...5.70 | 20.0 A, Fuse type gG | 10 | T16-5.7 | 1SAZ711201R1038 | 0.100 |
| 5.70...7.60 | 35.0 A, Fuse type gG | 10 | T16-7.6 | 1SAZ711201R1040 | 0.100 |
| 7.60...10.0 | 35.0 A, Fuse type gG | 10 | T16-10 | 1SAZ711201R1043 | 0.104 |
| 10.0...13.0 | 40.0 A, Fuse type gG | 10 | T16-13 | 1SAZ711201R1045 | 0.104 |
| 13.0...16.0 | 40.0 A, Fuse type gG | 10 | T16-16 | 1SAZ711201R1047 | 0.104 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| T16 | Single mounting kit | DB16 | 1SAZ701901R0001 | 0.032 |
| T16 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



T16

TF42 thermal overload relays

0.10...38.0 A



TF42

2CDC231006R0013



DB42

2CDC231001HF0011



TF42 + DB42

2CDC231026R0013



KPR-101L

1SFC151402F0001

Description

The TF42 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications.

Ordering details

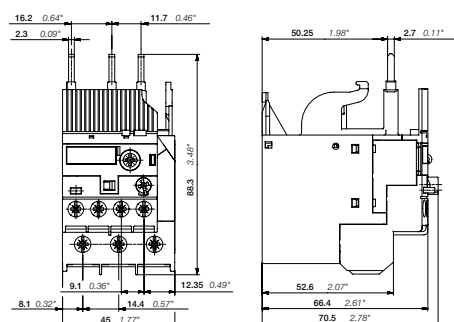
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|------------------|---------------------------------|------------|-----------|-----------------|-------------------|
| A | | | | | |
| 0.10...0.13 | 0.5 A, Fuse type T | 10 | TF42-0.13 | 1SAZ721201R1005 | 0.130 |
| 0.13...0.17 | 1.0 A, Fuse type T | 10 | TF42-0.17 | 1SAZ721201R1008 | 0.130 |
| 0.17...0.23 | 1.0 A, Fuse type T | 10 | TF42-0.23 | 1SAZ721201R1009 | 0.130 |
| 0.23...0.31 | 1.0 A, Fuse type T | 10 | TF42-0.31 | 1SAZ721201R1013 | 0.130 |
| 0.31...0.41 | 2.0 A, Fuse type gG | 10 | TF42-0.41 | 1SAZ721201R1014 | 0.130 |
| 0.41...0.55 | 2.0 A, Fuse type gG | 10 | TF42-0.55 | 1SAZ721201R1017 | 0.130 |
| 0.55...0.74 | 4.0 A, Fuse type gG | 10 | TF42-0.74 | 1SAZ721201R1021 | 0.130 |
| 0.74...1.00 | 6.0 A, Fuse type gG | 10 | TF42-1.0 | 1SAZ721201R1023 | 0.130 |
| 1.00...1.30 | 6.0 A, Fuse type gG | 10 | TF42-1.3 | 1SAZ721201R1025 | 0.130 |
| 1.30...1.70 | 10.0 A, Fuse type gG | 10 | TF42-1.7 | 1SAZ721201R1028 | 0.130 |
| 1.70...2.30 | 10.0 A, Fuse type gG | 10 | TF42-2.3 | 1SAZ721201R1031 | 0.130 |
| 2.30...3.10 | 10.0 A, Fuse type gG | 10 | TF42-3.1 | 1SAZ721201R1033 | 0.130 |
| 3.10...4.20 | 20.0 A, Fuse type gG | 10 | TF42-4.2 | 1SAZ721201R1035 | 0.130 |
| 4.20...5.70 | 20.0 A, Fuse type gG | 10 | TF42-5.7 | 1SAZ721201R1038 | 0.130 |
| 5.70...7.60 | 35.0 A, Fuse type gG | 10 | TF42-7.6 | 1SAZ721201R1040 | 0.130 |
| 7.60...10.0 | 35.0 A, Fuse type gG | 10 | TF42-10 | 1SAZ721201R1043 | 0.130 |
| 10.0...13.0 | 40.0 A, Fuse type gG | 10 | TF42-13 | 1SAZ721201R1045 | 0.130 |
| 13.0...16.0 | 40.0 A, Fuse type gG | 10 | TF42-16 | 1SAZ721201R1047 | 0.130 |
| 16.0...20.0 | 63.0 A, Fuse type gG | 10 | TF42-20 | 1SAZ721201R1049 | 0.145 |
| 20.0...24.0 | 63.0 A, Fuse type gG | 10 | TF42-24 | 1SAZ721201R1051 | 0.145 |
| 24.0...29.0 | 63.0 A, Fuse type gG | 10 | TF42-29 | 1SAZ721201R1052 | 0.145 |
| 29.0...35.0 | 80.0 A, Fuse type gG | 10 | TF42-35 | 1SAZ721201R1053 | 0.145 |
| 35.0...38.0/40.0 | 80.0 A, Fuse type gG | 10 | TF42-38 | 1SAZ721201R1055 | 0.145 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| TF42 | Single mounting kit | DB42 | 1SAZ701902R0001 | 0.087 |
| TF42 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



TF42

2CDC231006R0009

TF65 thermal overload relays

22.0...67.0 A



2CDC231004F0013

TF65



1SFC151402FC001

KPR-101L

Description

The TF65 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications.

Ordering details

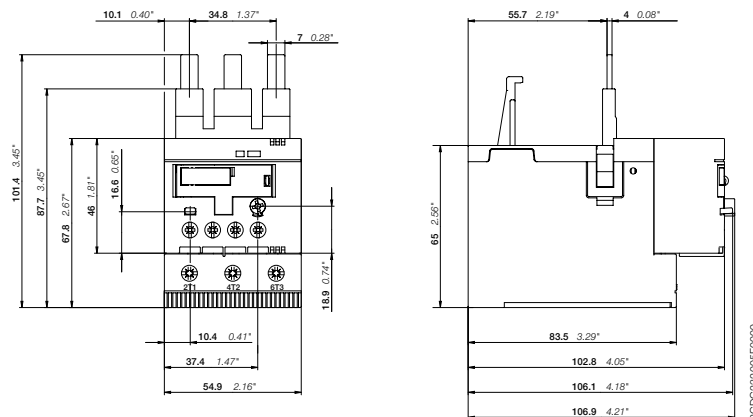
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|------------|---------|-----------------|-------------------|
| A | | | | | |
| 22.0...28.0 | 80 A, gG Type Fuses | 10 | TF65-28 | 1SAZ811201R1001 | 0.456 |
| 25.0...33.0 | 80 A, gG Type Fuses | 10 | TF65-33 | 1SAZ811201R1002 | 0.456 |
| 30.0...40.0 | 100 A, gG Type Fuses | 10 | TF65-40 | 1SAZ811201R1003 | 0.456 |
| 36.0...47.0 | 125 A, gG Type Fuses | 10 | TF65-47 | 1SAZ811201R1004 | 0.456 |
| 44.0...53.0 | 125 A, gG Type Fuses | 10 | TF65-53 | 1SAZ811201R1005 | 0.456 |
| 50.0...60.0 | 125 A, gG Type Fuses | 10 | TF65-60 | 1SAZ811201R1006 | 0.466 |
| 57.0...67.0 | 160 A, gG Type Fuses | 10 | TF65-67 | 1SAZ811201R1007 | 0.466 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| TF65 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



TF65

TF96 thermal overload relays

40.0...96.0 A



TF96

2CDC23100BF0013



KPR-101L

1SFC151402F0001

Description

The TF96 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications.

Ordering details

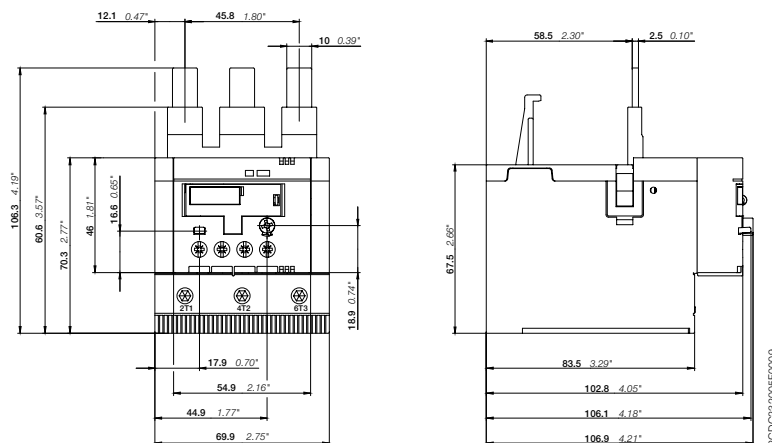
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|------------|---------|-----------------|-------------------|
| 40.0...51.0 | 125 A, gG Type Fuses | 10 | TF96-51 | 1SAZ911201R1001 | 0.620 |
| 48.0...60.0 | 160 A, gG Type Fuses | 10 | TF96-60 | 1SAZ911201R1002 | 0.620 |
| 57.0...68.0 | 160 A, gG Type Fuses | 10 | TF96-68 | 1SAZ911201R1003 | 0.620 |
| 65.0...78.0 | 200 A, gG Type Fuses | 10 | TF96-78 | 1SAZ911201R1004 | 0.620 |
| 75.0...87.0 | 200 A, gG Type Fuses | 10 | TF96-87 | 1SAZ911201R1005 | 0.620 |
| 84.0...96.0 | 250 A, gG Type Fuses | 10 | TF96-96 | 1SAZ911201R1006 | 0.630 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| TF96 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



TF96

2CDC232005F0009

2CDC106071C0201

TF140DU thermal overload relays

66...142 A



2CDC231012R0012

TF140DU



1SFC151402FC0001

KPR-101L

Description

The TF140DU thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10A.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications.

Ordering details

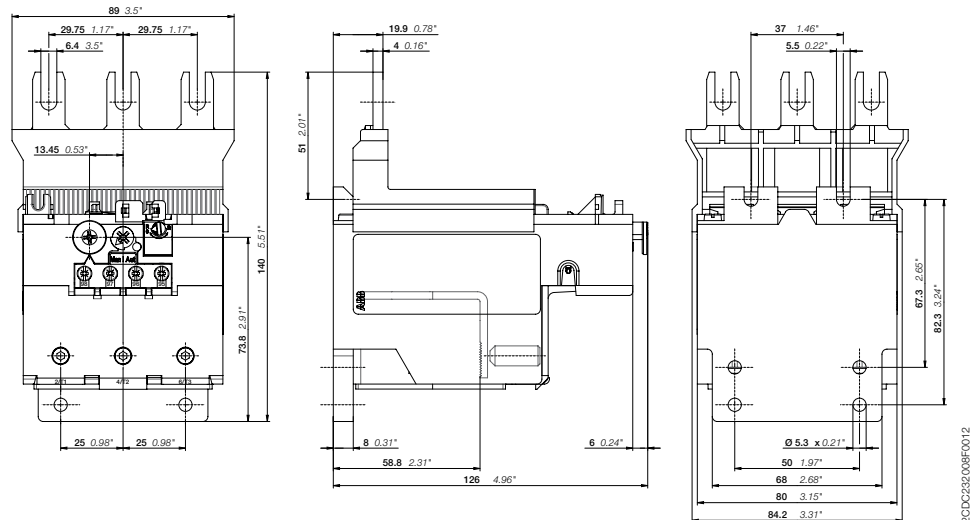
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|------------|-------------|-----------------|-------------------|
| A | | | | | |
| 66...90 | 200 A, Fuse type gG | 10A | TF140DU-90 | 1SAZ431201R1001 | 0.820 |
| 80...110 | 224 A, Fuse type gG | 10A | TF140DU-110 | 1SAZ431201R1002 | 0.820 |
| 100...135 | 224 A, Fuse type gG | 10A | TF140DU-135 | 1SAZ431201R1003 | 0.820 |
| 110...142 | 250 A, Fuse type gG | 10A | TF140DU-142 | 1SAZ431201R1004 | 0.820 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| TF140DU | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

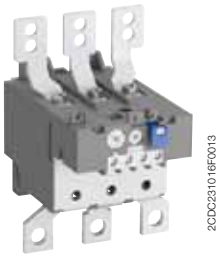
Main dimensions mm, inches



TF140DU

TA200DU thermal overload relays

66...200 A



TA200DU

2CDC2301016F0013



KPR-101L

1SFC151402F0001

Description

The TA200DU thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10A.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications.

Ordering details

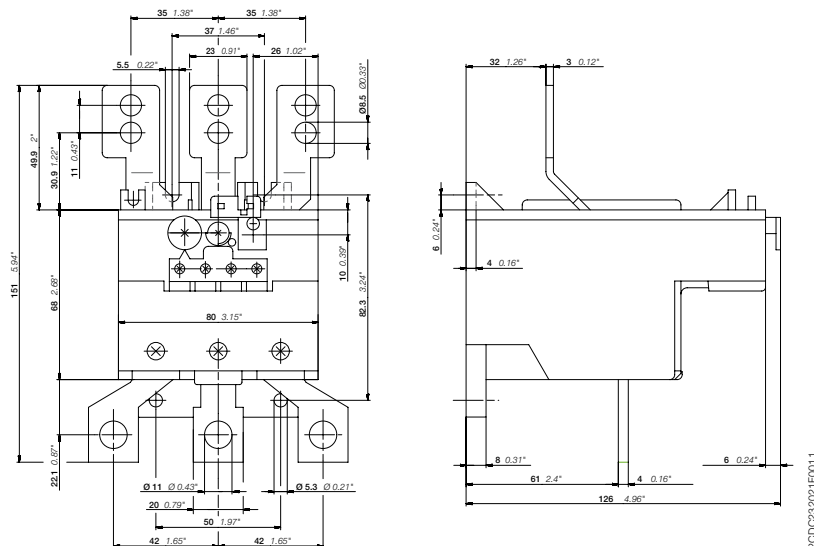
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|------------|-------------|-----------------|-------------------|
| A | | | | | |
| 66...90 | 200 A, Fuse type gG / 125 A aM | 10A | TA200DU-90 | 1SAZ421201R1001 | 0.755 |
| 80...110 | 224 A, Fuse type gG / 160 A aM | 10A | TA200DU-110 | 1SAZ421201R1002 | 0.760 |
| 100...135 | 224 A, Fuse type gG / 200 A aM | 10A | TA200DU-135 | 1SAZ421201R1003 | 0.760 |
| 110...150 | 250 A, Fuse type gG / 200 A aM | 10A | TA200DU-150 | 1SAZ421201R1004 | 0.760 |
| 130...175 | 315 A, Fuse type gG / 250 A aM | 10A | TA200DU-175 | 1SAZ421201R1005 | 0.770 |
| 150...200 | 315 A, Fuse type gG / 250 A aM | 10A | TA200DU-200 | 1SAZ421201R1006 | 0.785 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| TA200DU | Terminal shroud | LT200/A | 1SAZ401901R1001 | 0.090 |
| TA200DU | Single mounting kit | DB200 | 1SAZ401110R0001 | 0.225 |
| TA200DU | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



TA200DU

2CDC230201F0011

2CDC106071C0201

E16DU, electronic overload relays

0.10 to 18.9 A



E16DU-1.0

2CDC231001F0007

Description

The E16DU up to E140DU are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. The overload relays are connected directly to the contactors.

Ordering details

| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) |
|---------------|---------------------------------|------------|------|------------|----------------|
| A | | | | | kg |

E16DU electronic overload relays

| | | | | | |
|-------------|--------------------|---------------|------------|-----------------|-------|
| 0.10...0.32 | 1 A, Fuse type gG | 10E, 20E, 30E | E16DU-0.32 | 1SAX111001R1101 | 0.150 |
| 0.30...1.00 | 4 A, Fuse type gG | 10E, 20E, 30E | E16DU-1.0 | 1SAX111001R1102 | 0.150 |
| 0.80...2.70 | 10 A, Fuse type gG | 10E, 20E, 30E | E16DU-2.7 | 1SAX111001R1103 | 0.150 |
| 1.90...6.30 | 20 A, Fuse type gG | 10E, 20E, 30E | E16DU-6.3 | 1SAX111001R1104 | 0.150 |
| 5.70...18.9 | 50 A, Fuse type gG | 10E, 20E, 30E | E16DU-18.9 | 1SAX111001R1105 | 0.150 |



DB16E

2CDC231003F0010

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) |
|-----------------------------|-----------------------|----------|-----------------|----------------|
| A | | | | kg |
| E16DU | Single mounting kit | DB16E | 1SAX101110R0001 | 0.035 |
| E16DU, E45DU, E80DU, E140DU | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

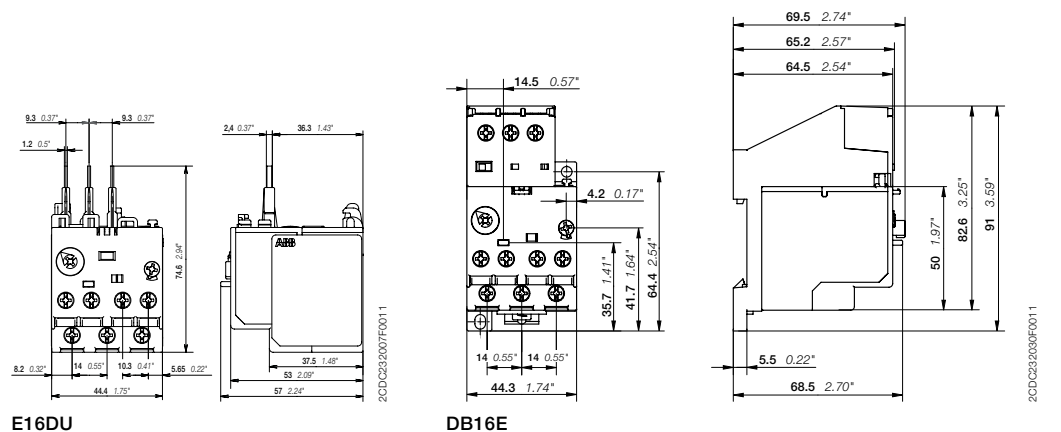
(1) Note: for more information see catalogue 1SFC151004C0201.



KPR-101L

1SFC151402F0001

Main dimensions mm, inches



EF19, EF45 electronic overload relays

0.10 to 45.0 A



1SBC101147F0010

EF19-18.9



1SBC101148F0010

EF45-30



2CDC23102AV0013

DB19EF



1SFC151402F0001

KPR-101L

Description

The EF19 and EF45 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. The overload relays are connected directly to the contactors.

Ordering details

| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|--|---------------------------------|---------------|-----------|-----------------|-------------------|
| A | | | | | |
| EF19 electronic overload relays | | | | | |
| 0.10...0.32 | 1 A, Fuse type gG | 10E, 20E, 30E | EF19-0.32 | 1SAX121001R1101 | 0.158 |
| 0.30...1.00 | 4 A, Fuse type gG | 10E, 20E, 30E | EF19-1.0 | 1SAX121001R1102 | 0.158 |
| 0.80...2.70 | 10 A, Fuse type gG | 10E, 20E, 30E | EF19-2.7 | 1SAX121001R1103 | 0.158 |
| 1.90...6.30 | 20 A, Fuse type gG | 10E, 20E, 30E | EF19-6.3 | 1SAX121001R1104 | 0.158 |
| 5.70...18.9 | 50 A, Fuse type gG | 10E, 20E, 30E | EF19-18.9 | 1SAX121001R1105 | 0.158 |

EF45 electronic overload relays

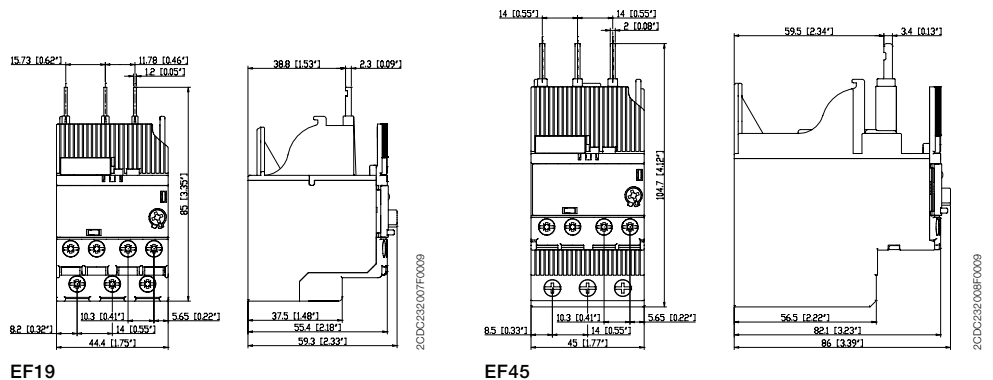
| | | | | | |
|-------------|---------------------|---------------|---------|-----------------|-------|
| 9.00...30.0 | 160 A, Fuse type gG | 10E, 20E, 30E | EF45-30 | 1SAX221001R1101 | 0.362 |
| 15.0...45.0 | 160 A, Fuse type gG | 10E, 20E, 30E | EF45-45 | 1SAX221001R1102 | 0.362 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| EF19 | Single mounting kit | DB19EF | 1SAX101910R1001 | 0.042 |
| EF19, EF45 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.019 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



EF19

EF45

EF65, EF96, EF146 electronic overload relays 25 to 150 A



2CDC231001F0013

EF65-70



2CDC231016F0012

EF96-100



2CDC231017F0012

EF146-150



1SFC151402F0001

KPR-101L

Description

The EF65, EF96 and EF146 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. The overload relays are connected directly to the contactors.

Ordering details

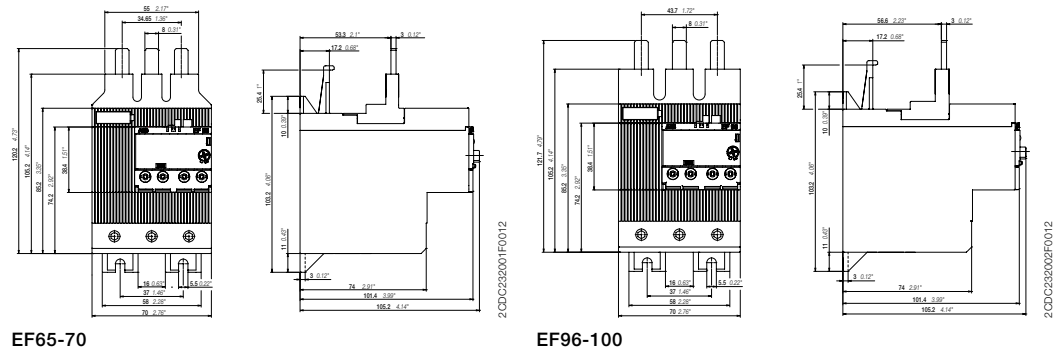
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|---------------|-----------|-----------------|-------------------|
| A | | | | | |
| 25...70 | 160 A, Fuse typ gG | 10E, 20E, 30E | EF65-70 | 1SAX331001R1101 | 0.790 |
| 36...100 | 200 A, Fuse typ gG | 10E, 20E, 30E | EF96-100 | 1SAX341001R1101 | 0.780 |
| 54...150 | 315 A, Fuse typ gG | 10E, 20E, 30E | EF146-150 | 1SAX351001R1101 | 0.890 |

Accessories

| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| EF65, EF96, EF146 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

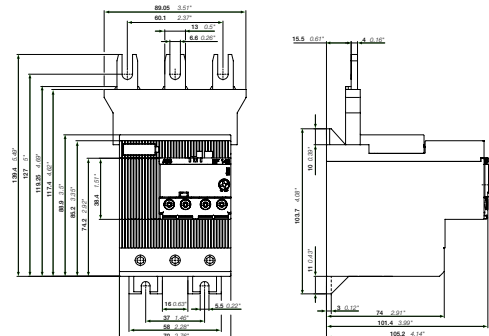
(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



EF65-70

EF96-100



EF146-150

EF205, EF370 electronic overload relays 63 to 380 A



2CDC231010V0012

EF205-210



2CDC231013V0012

EF370-380



1SFC151402F0001

KPR-101L

Description

The EF205 and EF370 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. The overload relays are connected directly to the contactors.

Ordering details

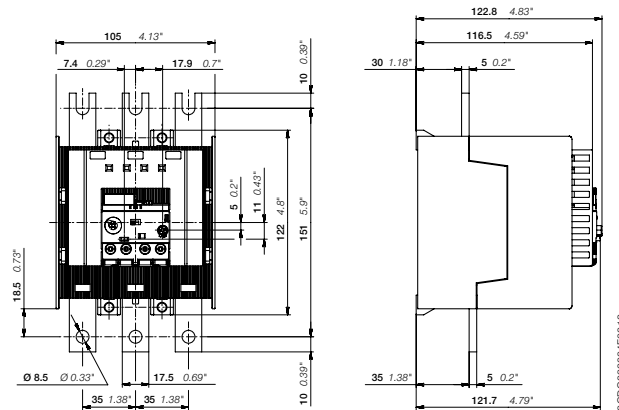
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|---------------|---------------------------------|---------------|-----------|-----------------|-------------------|
| A | | | | | |
| 63...210 | 1250 A, Fuse type gG | 10E, 20E, 30E | EF205-210 | 1SAX531001R1101 | 1.210 |
| 115...380 | 1600 A, Fuse type gG | 10E, 20E, 30E | EF370-380 | 1SAX611001R1101 | 1.430 |

Accessories

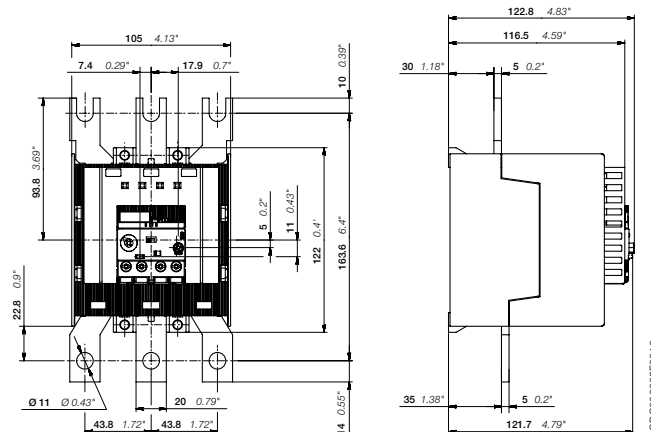
| For thermal overload relays | Description | Type | Order code | Weight (1 pce) kg |
|-----------------------------|-----------------------|----------|-----------------|-------------------|
| A | | | | |
| EF205, EF370 | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



EF205-210



EF370-380

E500DU, E800DU, E1250DU electronic overload relays 150 to 1250 A



2CDC23103F0008

E500DU-500



2CDC231064F0008

E800DU-800



1SFC101025F0201

E1250DU-1250



1SFC151402F0001

KPR-101L

Description

The E500DU up to E1250DU are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. Busbar kits are available as accessory for contactor mounting.

Ordering details

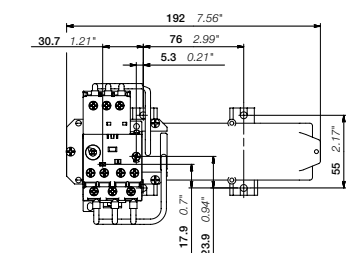
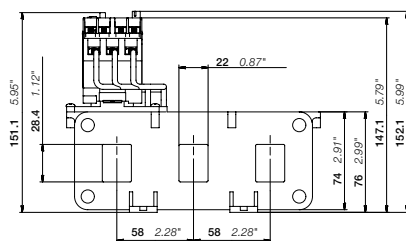
| Setting range | Short-circuit protective device | Trip class | Type | Order code | Weight (1 pce) kg |
|--|---------------------------------|---------------|--------------|-----------------|-------------------|
| A | | | | | |
| E500DU electronic overload relay | | | | | |
| 150...500 | 1000 A | 10E, 20E, 30E | E500DU-500 | 1SAX711001R1101 | 1.170 |
| E800DU electronic overload relay | | | | | |
| 250...800 | 1250 A | 10E, 20E, 30E | E800DU-800 | 1SAX811001R1101 | 3.905 |
| E1250DU electronic overload relay | | | | | |
| 375...1250 | - | 10E, 20E, 30E | E1250DU-1250 | 1SFA739001R1000 | 12.181 |

Accessories

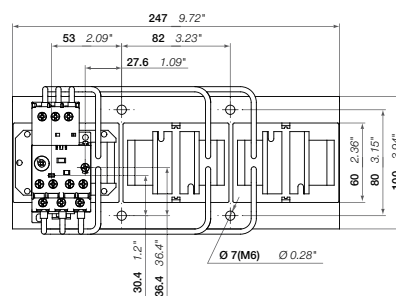
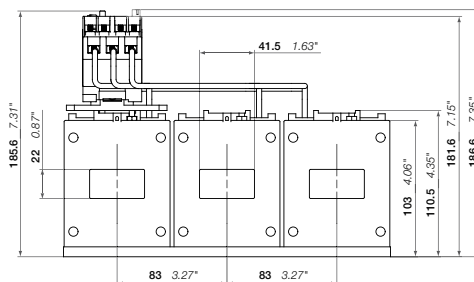
| For electronic overload relays | Description | Type | Order code | Weight (1 pce) kg |
|--------------------------------|-----------------------------------|----------|-----------------|-------------------|
| E500DU | LT500E Terminal shroud for E500DU | LT500E | 1SAX701904R0001 | 0.360 |
| E800DU | LT320E Terminal shroud for E320DU | LT800E | 1SAX601904R0001 | 0.105 |
| E500DU, E800DU | Reset push button (1) | KPR-101L | 1SFA616162R1014 | 0.027 |

(1) Note: for more information see catalogue 1SFC151004C0201.

Main dimensions mm, inches



E500DU



E800DU

Notes

A series of horizontal dotted lines for taking notes.

Coordination with short-circuit protection devices

In compliance with standards IEC 60947-4-1 and EN 60947-4-1, we define for the contactors and starters the type, rating and characteristics of the short-circuit protection devices SCPD which allow selective protection against overloads and ensure protection against short circuits.

Basic functions

Any starter is designed to:

- start motors,
- ensure continuous functioning of motors,
- disconnect motors from the supply line,
- guarantee protection of motors against overloads.

The starter is typically made up of a switching device (contactor) and an overload protection device (thermal overload relay or electronic overload relay).

These two devices MUST be coordinated with equipment capable of providing protection against short circuit (SCPD: short circuit protective device): typically a circuit breaker with magnetic release only or a switch fuse. These are not necessarily part of the starter.

Applicable standards

IEC 60947-4-1 (EN 60947-4-1) precisely defines the different points to be considered in order to carry out correct coordination.

Complete coordination for a combination includes the following points:

- Selectivity test between the overload relay and the short-circuit protection device SCPD.
- Short-circuit condition tests:
 - at prospective "r" currents - These currents depend on the rated operational current of the starter (**I_e** AC-3) and are given by the standard (Table 13). For example:
 - r = 1kA for **I_e** AC-3 < 16 A
 - r = 3 kA for 16 A < **I_e** AC-3 < 63 A
 - r = 5 kA for 63 A < **I_e** AC-3 < 125 A etc.
 - at the rated conditional short-circuit current "**I_q**" - This is the maximum prospective current that the combination can withstand, for example 50 kA.

Types of coordination

IEC 60947-4-1 (EN 60947-4-1) defines two types of coordination according to the expected level of service continuity. Acceptable extreme damage for the switchgear is divided into two types.

Type 1: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will not be able to then operate without being repaired or having parts replaced.

Type 2: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to operate afterwards. The risk of contacts light welding is acceptable. In this case, the manufacturer must stipulate the measures to be taken with respect to maintenance of the equipment.

The complete ABB offer

ABB has acquired years of experience with respect to problems of coordination and is able to make a complete offer based on tests performed in its qualified laboratories. This offer includes 400 V, 500 V, 690 V networks.

A complete data base of coordination tables, according to IEC 60947-4-1 (EN 60947-4-1), is available on the ABB Website.

In the coordination tables the following short-circuit protection devices are recommended:

- Moulded case circuit-breakers (MCCBs)
- Miniature circuit-breakers (MCBs)
- Switch-disconnector-fuses (aM, gG and BS)
- Manual Motor Starters (MMS).

General remarks applicable to all tables

- Each table is defined for a maximum ambient temperature of 40 °C. For higher temperatures, apply a derating factor according to the following rules:
 - Fuses: factor of 0.8 applied to **I_n** for an ambient temperature of 70 °C
 - MCCBs and MCBs: factor of 0.8 applied to **I_n** for an ambient temperature of 60 °C
 - The starter derating factor depends on the operating conditions of thermal overload relays:
 - Factor of 0.9 applied to **I_n** for an ambient temperature of 70 °C.
- Each table is defined for motor currents: 3-phase motors, 4-pole
- **Normal starting** means a starting time < 2 s. - **Difficult starting** means an accelerating time 10 s < **t_s** < 30 s
- **Tripping classes** of thermal overload relays according to IEC 60947-4-1 (EN 60947-4-1): 10A and 10
- **Tripping classes** of electronic overload relays according to IEC 60947-4-1 (EN 60947-4-1): 10E, 20E, 30E selectable
- In the tables with MCCBs, these are fitted with the magnetic relay alone. Setting is always carried out at > 12.3 **I_e** AC-3 so that the transient current peak occurring during starting does not lead to tripping.

Coordination with short-circuit protection devices

A complete data base of coordination tables, according to [IEC 60947-4-1](#) (EN 60947-4-1) or [UL 508 / UL 60947-4-1](#), is available on the ABB Website: see below.

Selection

Simple or multiple selections all from the same screen.

The screenshot shows the ABB 'Coordination tables for motor protection' selection tool. The interface includes a search bar, a 'Selected Optimized Coordination' section, and a table of results. The table has columns for Protection Device, Rated Voltage [V], Short-Circuit Current [kA], Starter Type, Coordination type, and Motor Rated Power [kW] [HP].

Short-circuit protection devices

- Air circuit breakers
- Fuses "gG" or "aM"
- Miniature circuit breaker
- Moulded case circuit breaker
- Manual motor starter

Starter type

- Direct-on-line normal start
- Direct-on-line heavy duty
- Star-delta normal start
- Soft starter normal start

Coordination

- IEC type 1 or type 2
- UL type A to Type F

Results

- Search results displayed at the bottom of the selection page.
- Only the most appropriate solutions to your application, will be displayed at the bottom of the page.
- "Enable Smart Current Search" function featured for the short-circuit current where "near to" selected values also are included in the result.
- Possible to print the page to a pdf file or from your printer.
- "Clear selection" function to deselect all selected.

| Fuses, 400 V, 80 kA, DOL-N5, Coordination type IEC Type 2 | | | | | | | |
|---|-------------------|------------------|----------------|---------------|------|---------------------------|------------------------------|
| Motor | Fuses IEC | Contactor | Overload Relay | | | | |
| Rated Power [kW] | Rated Current [A] | Switch-Fuse Type | Rating [A] | Type and Size | Type | Current setting range [A] | Max allowed load current [A] |
| 0.37 | 1.1 | OS32D | 2 | OFAM 80M | A9 | E18DU2 7 10 | 1.4 |
| 0.37 | 1.1 | OS32D | 2 | OFAM 80M | A9 | TA2SDU 1.4 | 1.4 |
| 0.37 | 1.1 | OS32D | 3 | OFAM 80M | A9 | UMC22/100 13 | 1.4 |
| 0.37 | 1.1 | OS32D | 4 | OPAA 101 | A9 | UMC22/100 13 | 1.3 |
| 0.37 | 1.1 | OS32D | 4 | OPAA 101 | A9 | E18DU2 7 10 | 1.3 |
| 0.37 | 1.1 | OS32D | 4 | OPAA 101 | A9 | TA2SDU 1.4 | 1.4 |

| Fuses, 400 V, 80 kA, DOL-N5, Coordination type IEC Type 2, Overload Relay TOL | | | | | | | |
|---|-------------------|------------------|----------------|---------------|------|---------------------------|------------------------------|
| Motor | Fuses IEC | Contactor | Overload Relay | | | | |
| Rated Power [kW] | Rated Current [A] | Switch-Fuse Type | Rating [A] | Type and Size | Type | Current setting range [A] | Max allowed load current [A] |
| 0.25 | 0.85 | OS32D | 2 | OFAF 500M | AF29 | TF42-1.6 | 1 |
| 0.12 | 0.44 | OS32D | 2 | OFAF 300H | AF39 | TF42-0.6E | 0.55 |

Access

To find the coordination tables for motor protection, please see:

www.abb.com/lowvoltage then go to the right menu: "Support", select: "[Online Product Selection Tools](#)" then select "[Coordination Tables for motor protection](#)"

Index

Order code classification

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| 1SAM101923R0012 | MSMNO | 2/18 | 1SAM250000R1007 | MS116-2.5 | 2/4 | 1SAM360000R1007 | MO132-2.5 | 2/6 |
| 1SAM201901R1001 | HKF1-11 | 2/8 | 1SAM250000R1008 | MS116-4.0 | 2/4 | 1SAM360000R1008 | MO132-4.0 | 2/6 |
| 1SAM201901R1002 | HKF1-20 | 2/8 | 1SAM250000R1009 | MS116-6.3 | 2/4 | 1SAM360000R1009 | MO132-6.3 | 2/6 |
| 1SAM201902R1001 | HK1-11 | 2/8 | 1SAM250000R1010 | MS116-10 | 2/4 | 1SAM360000R1010 | MO132-10 | 2/6 |
| 1SAM201902R1002 | HK1-20 | 2/8 | 1SAM250000R1011 | MS116-16 | 2/4 | 1SAM360000R1011 | MO132-16 | 2/6 |
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| 1SAM201904R1003 | UA1-60 | 2/9 | 1SAM250005R1004 | MS116-0.63-HKF1-11 | 2/4 | 1SAM401902R1002 | HKS4-20 | 2/16 |
| 1SAM201904R1004 | UA1-110 | 2/9 | 1SAM250005R1005 | MS116-1.0-HKF1-11 | 2/4 | 1SAM401902R1003 | HKS4-02 | 2/16 |
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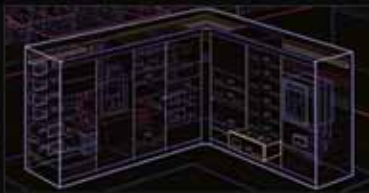
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Case studies

Instead of telling our customers about the AF contactor – we asked them. They are the ones using the products everyday and therefore they should have the most interesting stories.

→ Read more



Value propositions

Choose AF contactors and ABB to secure uptime, simplify design, optimize logistics and gain access to global support. Watch videos and read why AF contactors are the right choice.

→ Read more



Product tour

Read more about the technical details of the AF contactor and the technology. What has made it so appreciated by customers?

→ Read more

Sitemap

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Contact us

Sales → Low Voltage Products and Systems

Downloads

- Product panorama (1 mb)
- Promotion video (360p, 15 mb)
- Promotion video (720p, 25 mb)
- Promotion video (1080p, 104 mb)
- Main catalog (34 mb)
- Short-form catalog (50 mb)

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Cables

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Videos, prints, technical presentations and more



Videos



Success stories



Main catalog : 1SBC100173C0201
 Short form catalog : 1SBC100180C0201
 Panorama : 1SBC100176L0203

For direct product details information,
 use product type or order code, ex:

- www.abb.com/productdetails/AF09-30-10-13 or
- www.abb.com/productdetails/1SBL137001R1310



New

The AF range in your pocket

The eBinder gives you all the information you need about the AF range.



Always updated
 Always available
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Tools



Cadenas portal: Download 2D or 3D files according to your needs (STEP, IGES...)



SOC II: Select the Optimized Coordination tables for your starter according to IEC or UL standard

Contact us

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You can find the address of your local sales organisation
on the [ABB home page](#)



www.abb.com/connecttocontrol



www.abb.com/lowvoltage

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