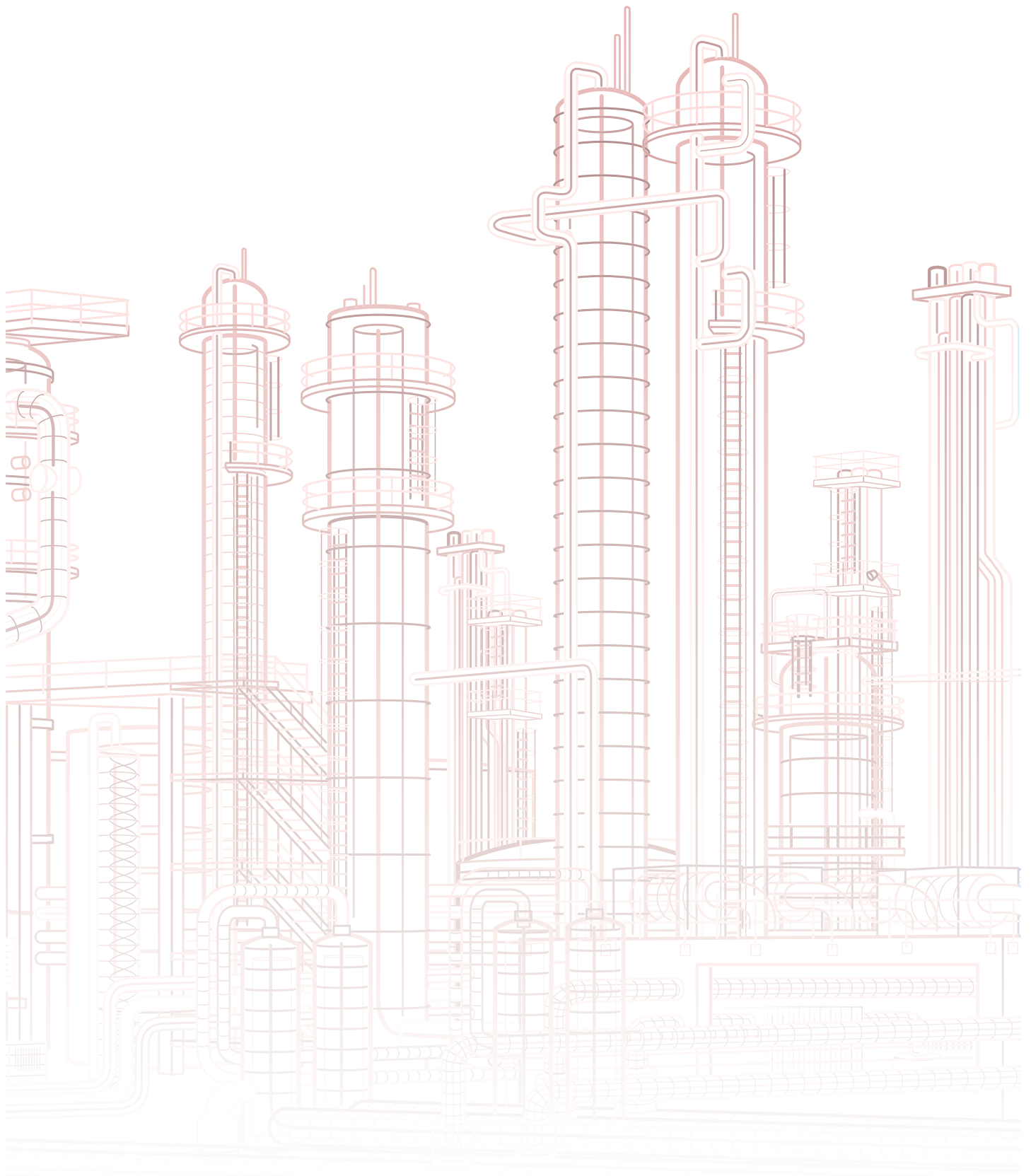
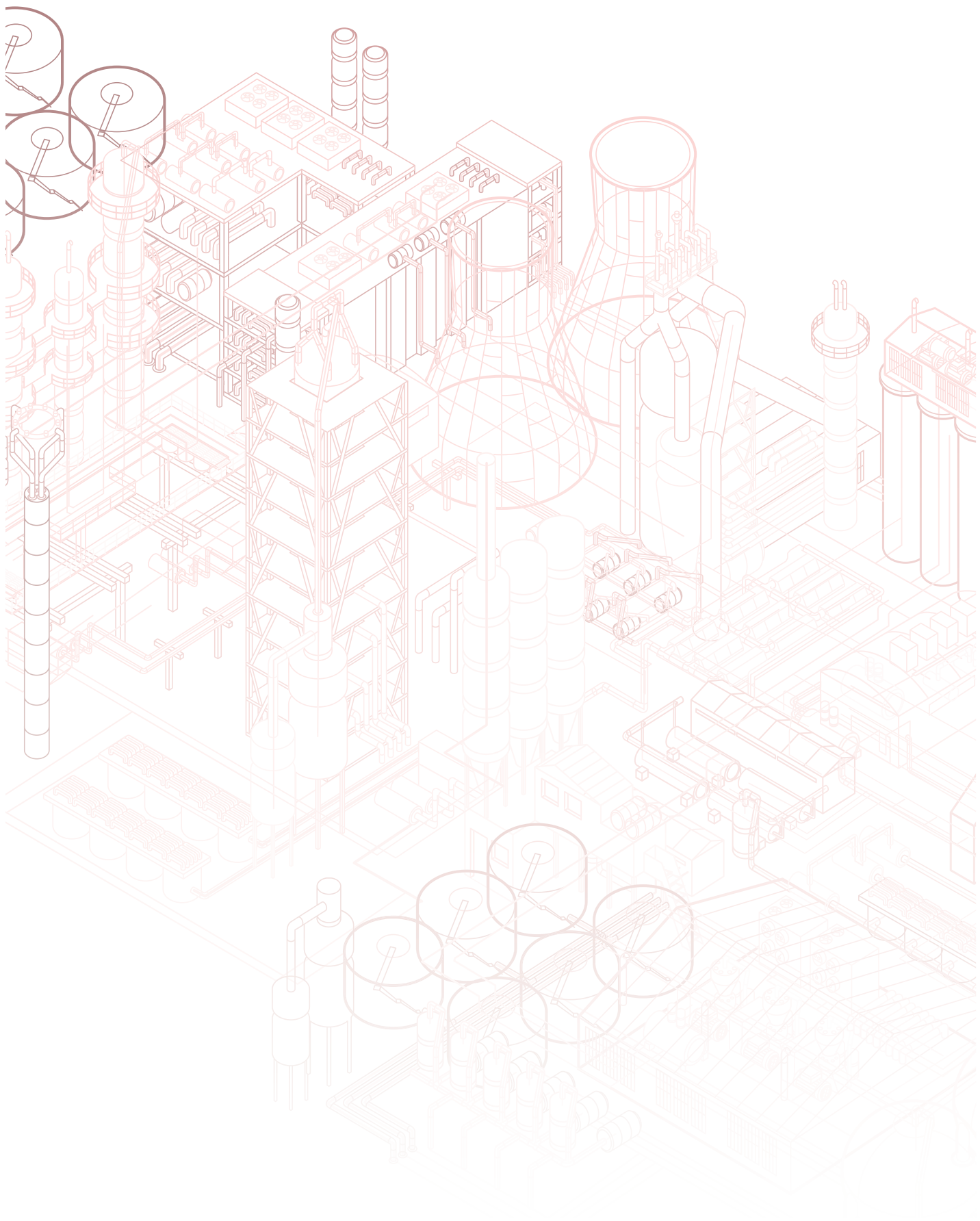




# AF09 ... AF38 4-pole Contactors up to 55 A, AC-1

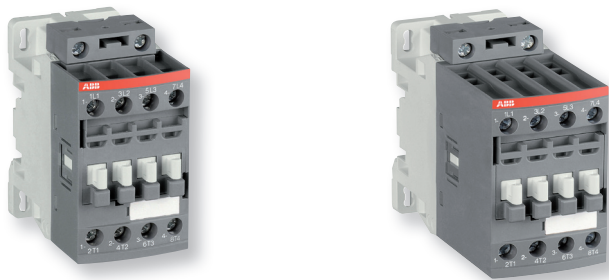


|                                                             |    |
|-------------------------------------------------------------|----|
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| Ordering Details                                            |    |
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# 4-pole Contactors

 AC / DC control voltage



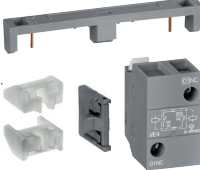
| AF09       | AF16       | AF26       | AF38       |
|------------|------------|------------|------------|
| AF09-40-00 | AF16-40-00 | AF26-40-00 | AF38-40-00 |
| AF09-22-00 | AF16-22-00 | AF26-22-00 | AF38-22-00 |

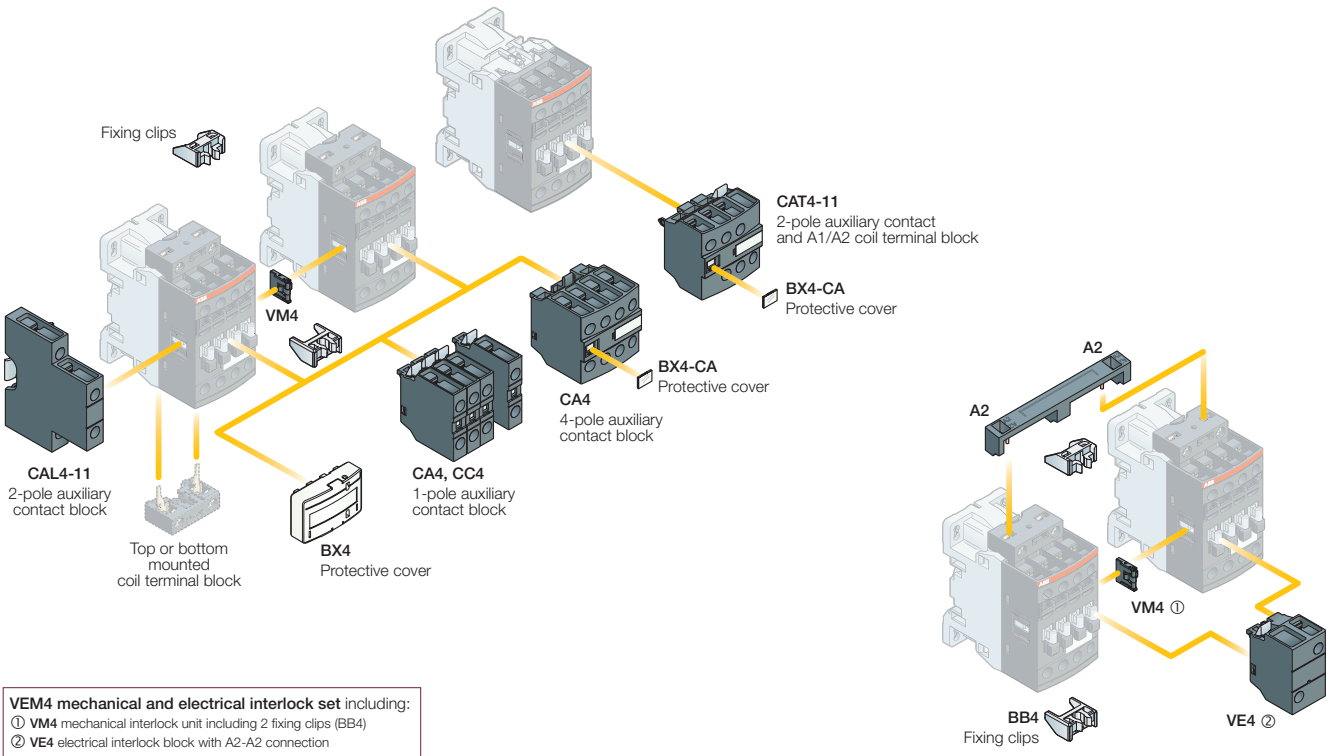
## Switching of Resistive Circuits

|                                                                                   |        |                                     |                                     |                                                |
|-----------------------------------------------------------------------------------|--------|-------------------------------------|-------------------------------------|------------------------------------------------|
|  | IEC    | AC-1                                | Rated operational current           | $\theta \leq 40\text{ }^{\circ}\text{C}$ 690 V |
|                                                                                   |        |                                     |                                     | $\theta \leq 60\text{ }^{\circ}\text{C}$ 690 V |
|                                                                                   |        |                                     |                                     | $\theta \leq 70\text{ }^{\circ}\text{C}$ 690 V |
|                                                                                   |        |                                     | With conductor cross-sectional area |                                                |
|  | UL/CSA | General use rating                  |                                     | 600 V AC                                       |
|                                                                                   |        | With conductor cross-sectional area |                                     |                                                |

|                   |                   |                    |                    |
|-------------------|-------------------|--------------------|--------------------|
| 25 A              | 30 A              | 45 A               | 55 A               |
| 25 A              | 30 A              | 40 A               | 45 A               |
| 22 A              | 26 A              | 32 A               | 37 A               |
| 4 mm <sup>2</sup> | 6 mm <sup>2</sup> | 10 mm <sup>2</sup> | 16 mm <sup>2</sup> |
| 25 A              | 30 A              | 45 A               | 55 A               |
| AWG 10            | AWG 10            | AWG 8              | AWG 6              |

## Main Accessories

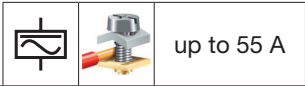
|                                                                                                                                                             |                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <div>Auxiliary contact blocks</div> <div> <div>Front mounting</div> <div>Side mounting</div> </div>                                                         |                                      |
|                                                                                                                                                             |                                                                                                                        |
| <div>Interlocks</div> <div>Mechanical</div>                                                                                                                 | <div>Mechanical / electrical</div>  |
|                                                                                                                                                             |                                                                                                                        |
| <div>1-pole CA4-10 or CA4-01, CC4-10 or CC4-01</div> <div>4-pole CA4</div> <div>2-pole CAT4-11 (with coil front connection)</div> <div>2-pole CAL4-11</div> |                                                                                                                        |
| <div>VEM4</div> <div>including VM4 mechanical interlock unit and VE4 electrical interlock block with A2-A2 connection</div>                                 |                                                                                                                        |
| <div>VM4</div> <div>including 2 fixing clips</div>                                                                                                          |                                                                                                                        |



AF09 ... AF38 4-pole Contactors

AC / DC Operated - with Screw Terminals

Catalogue Page 1SBC 101 242 S0201



AF09-40-00



AF26-40-00

Application

AF09 ... AF38 4-pole contactors are used for controlling power circuits up to 690 V AC and 440 V DC. They are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...).

Description

- AF09 ... AF38 contactors include an electronic coil interface accepting a wide control voltage  $U_c$  min. ...  $U_c$  max. Only four coils cover control voltages between 24...500 V 50/60 Hz or 20...500 V DC
- AF contactors can manage large control voltage variations. One coil (e.g. 100...250 V 50/60 Hz - DC) can be used for different control voltages used worldwide without any coil change
- AF contactors have built-in surge protection and do not require additional surge suppressors.

Note: - AF...-...-11 not suitable for a direct control by PLC-output.  
- AF...-...-11 type available in some countries: please consult your ABB representative.

Ordering Details

| IEC                                                          | UL/CSA                                 | Control voltage                                    | Auxiliary contacts fitted                                                                                                                                           | Type | Order code | Weight                                 |
|--------------------------------------------------------------|----------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|----------------------------------------|
| AC-1<br>Rated current<br>$\theta \leq 40^\circ\text{C}$<br>A | General use<br>rating<br>600 V AC<br>A | $U_c$ min. ... $U_c$ max.<br><br>V 50/60 Hz : V DC |   |      |            | Pack <sup>(ing)</sup><br>1 piece<br>kg |

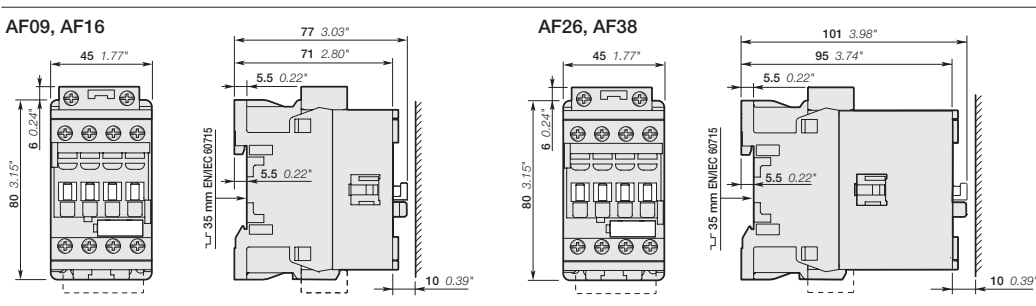
4 N.O. Main Poles

|    |    |           |           |     |               |                    |       |
|----|----|-----------|-----------|-----|---------------|--------------------|-------|
| 25 | 25 | 24...60   | 20...60   | 0 0 | AF09-40-00-11 | 1SBL 137 201 R1100 | 0.270 |
|    |    | 48...130  | 48...130  | 0 0 | AF09-40-00-12 | 1SBL 137 201 R1200 | 0.270 |
|    |    | 100...250 | 100...250 | 0 0 | AF09-40-00-13 | 1SBL 137 201 R1300 | 0.270 |
|    |    | 250...500 | 250...500 | 0 0 | AF09-40-00-14 | 1SBL 137 201 R1400 | 0.310 |
| 30 | 30 | 24...60   | 20...60   | 0 0 | AF16-40-00-11 | 1SBL 177 201 R1100 | 0.270 |
|    |    | 48...130  | 48...130  | 0 0 | AF16-40-00-12 | 1SBL 177 201 R1200 | 0.270 |
|    |    | 100...250 | 100...250 | 0 0 | AF16-40-00-13 | 1SBL 177 201 R1300 | 0.270 |
|    |    | 250...500 | 250...500 | 0 0 | AF16-40-00-14 | 1SBL 177 201 R1400 | 0.310 |
| 45 | 45 | 24...60   | 20...60   | 0 0 | AF26-40-00-11 | 1SBL 237 201 R1100 | 0.360 |
|    |    | 48...130  | 48...130  | 0 0 | AF26-40-00-12 | 1SBL 237 201 R1200 | 0.360 |
|    |    | 100...250 | 100...250 | 0 0 | AF26-40-00-13 | 1SBL 237 201 R1300 | 0.360 |
|    |    | 250...500 | 250...500 | 0 0 | AF26-40-00-14 | 1SBL 237 201 R1400 | 0.400 |
| 55 | 55 | 24...60   | 20...60   | 0 0 | AF38-40-00-11 | 1SBL 297 201 R1100 | 0.360 |
|    |    | 48...130  | 48...130  | 0 0 | AF38-40-00-12 | 1SBL 297 201 R1200 | 0.360 |
|    |    | 100...250 | 100...250 | 0 0 | AF38-40-00-13 | 1SBL 297 201 R1300 | 0.360 |
|    |    | 250...500 | 250...500 | 0 0 | AF38-40-00-14 | 1SBL 297 201 R1400 | 0.400 |

2 N.O. + 2 N.C. Main Poles

|    |    |           |           |     |               |                    |       |
|----|----|-----------|-----------|-----|---------------|--------------------|-------|
| 25 | 25 | 24...60   | 20...60   | 0 0 | AF09-22-00-11 | 1SBL 137 501 R1100 | 0.270 |
|    |    | 48...130  | 48...130  | 0 0 | AF09-22-00-12 | 1SBL 137 501 R1200 | 0.270 |
|    |    | 100...250 | 100...250 | 0 0 | AF09-22-00-13 | 1SBL 137 501 R1300 | 0.270 |
|    |    | 250...500 | 250...500 | 0 0 | AF09-22-00-14 | 1SBL 137 501 R1400 | 0.310 |
| 30 | 30 | 24...60   | 20...60   | 0 0 | AF16-22-00-11 | 1SBL 177 501 R1100 | 0.270 |
|    |    | 48...130  | 48...130  | 0 0 | AF16-22-00-12 | 1SBL 177 501 R1200 | 0.270 |
|    |    | 100...250 | 100...250 | 0 0 | AF16-22-00-13 | 1SBL 177 501 R1300 | 0.270 |
|    |    | 250...500 | 250...500 | 0 0 | AF16-22-00-14 | 1SBL 177 501 R1400 | 0.310 |
| 45 | 45 | 24...60   | 20...60   | 0 0 | AF26-22-00-11 | 1SBL 237 501 R1100 | 0.360 |
|    |    | 48...130  | 48...130  | 0 0 | AF26-22-00-12 | 1SBL 237 501 R1200 | 0.360 |
|    |    | 100...250 | 100...250 | 0 0 | AF26-22-00-13 | 1SBL 237 501 R1300 | 0.360 |
|    |    | 250...500 | 250...500 | 0 0 | AF26-22-00-14 | 1SBL 237 501 R1400 | 0.400 |
| 55 | 55 | 24...60   | 20...60   | 0 0 | AF38-22-00-11 | 1SBL 297 501 R1100 | 0.360 |
|    |    | 48...130  | 48...130  | 0 0 | AF38-22-00-12 | 1SBL 297 501 R1200 | 0.360 |
|    |    | 100...250 | 100...250 | 0 0 | AF38-22-00-13 | 1SBL 297 501 R1300 | 0.360 |
|    |    | 250...500 | 250...500 | 0 0 | AF38-22-00-14 | 1SBL 297 501 R1400 | 0.400 |

Main Dimensions mm, inches



# AF09Z ... AF38Z 4-pole Contactors - Low Consumption

## AC / DC Operated - with Screw Terminals

Catalogue Page 1SBC 101 073 S0201



AF09Z-40-00



AF26Z-40-00

### Application

**AF09Z ... AF38Z** 4-pole contactors are used for controlling power circuits up to 690 V AC and 440 V DC. They are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...).

### Description

- **AF09Z ... AF38Z** contactors include an electronic coil interface accepting a wide control voltage  $U_c$  min. ...  $U_c$  max and managing large control voltage variations.
- **AF..Z** contactors cover control voltages between 24...250 V 50/60 Hz or 12...250 V DC
- **AF..Z** contactors allow direct control by PLC-output  $\geq 24$  V DC 500 mA and obtain a reduced holding coil consumption.
- **AF..Z** contactors withstand short voltage dips and voltage sags (SEMI F47-0706 compliance)
- **AF..Z** contactors have built-in surge protection and do not require additional surge suppressors.

### Ordering Details

| IEC                                                             | UL/CSA                               | Control voltage<br>$U_c$ min. ... $U_c$ max. | Auxiliary<br>contacts<br>fitted                                                                                                                                     | Type | Order code | Weight                                 |
|-----------------------------------------------------------------|--------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|----------------------------------------|
| AC-1<br>Rated<br>current<br>$\theta \leq 40^\circ\text{C}$<br>A | General<br>use<br>rating<br>600 V AC | V 50/60 Hz   V DC                            |   |      |            | Pack <sup>(ing)</sup><br>1 piece<br>kg |

### 4 N.O. Main Poles

|    |    |           |           |     |                |                    |       |
|----|----|-----------|-----------|-----|----------------|--------------------|-------|
| 25 | 25 | -         | 12...20   | 0 0 | AF09Z-40-00-20 | 1SBL 136 201 R2000 | 0.310 |
|    |    | 24...60   | 20...60   | 0 0 | AF09Z-40-00-21 | 1SBL 136 201 R2100 | 0.310 |
|    |    | 48...130  | 48...130  | 0 0 | AF09Z-40-00-22 | 1SBL 136 201 R2200 | 0.310 |
|    |    | 100...250 | 100...250 | 0 0 | AF09Z-40-00-23 | 1SBL 136 201 R2300 | 0.310 |
| 30 | 30 | -         | 12...20   | 0 0 | AF16Z-40-00-20 | 1SBL 176 201 R2000 | 0.310 |
|    |    | 24...60   | 20...60   | 0 0 | AF16Z-40-00-21 | 1SBL 176 201 R2100 | 0.310 |
|    |    | 48...130  | 48...130  | 0 0 | AF16Z-40-00-22 | 1SBL 176 201 R2200 | 0.310 |
|    |    | 100...250 | 100...250 | 0 0 | AF16Z-40-00-23 | 1SBL 176 201 R2300 | 0.310 |
| 45 | 45 | -         | 12...20   | 0 0 | AF26Z-40-00-20 | 1SBL 236 201 R2000 | 0.400 |
|    |    | 24...60   | 20...60   | 0 0 | AF26Z-40-00-21 | 1SBL 236 201 R2100 | 0.400 |
|    |    | 48...130  | 48...130  | 0 0 | AF26Z-40-00-22 | 1SBL 236 201 R2200 | 0.400 |
|    |    | 100...250 | 100...250 | 0 0 | AF26Z-40-00-23 | 1SBL 236 201 R2300 | 0.400 |
| 55 | 55 | -         | 12...20   | 0 0 | AF38Z-40-00-20 | 1SBL 296 201 R2000 | 0.400 |
|    |    | 24...60   | 20...60   | 0 0 | AF38Z-40-00-21 | 1SBL 296 201 R2100 | 0.400 |
|    |    | 48...130  | 48...130  | 0 0 | AF38Z-40-00-22 | 1SBL 296 201 R2200 | 0.400 |
|    |    | 100...250 | 100...250 | 0 0 | AF38Z-40-00-23 | 1SBL 296 201 R2300 | 0.400 |

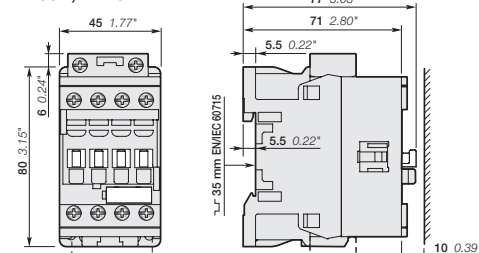
### 2 N.O. + 2 N.C. Main Poles

|    |    |           |           |     |                |                    |       |
|----|----|-----------|-----------|-----|----------------|--------------------|-------|
| 25 | 25 | -         | 12...20   | 0 0 | AF09Z-22-00-20 | 1SBL 136 501 R2000 | 0.310 |
|    |    | 24...60   | 20...60   | 0 0 | AF09Z-22-00-21 | 1SBL 136 501 R2100 | 0.310 |
|    |    | 48...130  | 48...130  | 0 0 | AF09Z-22-00-22 | 1SBL 136 501 R2200 | 0.310 |
|    |    | 100...250 | 100...250 | 0 0 | AF09Z-22-00-23 | 1SBL 136 501 R2300 | 0.310 |
| 30 | 30 | -         | 12...20   | 0 0 | AF16Z-22-00-20 | 1SBL 176 501 R2000 | 0.310 |
|    |    | 24...60   | 20...60   | 0 0 | AF16Z-22-00-21 | 1SBL 176 501 R2100 | 0.310 |
|    |    | 48...130  | 48...130  | 0 0 | AF16Z-22-00-22 | 1SBL 176 501 R2200 | 0.310 |
|    |    | 100...250 | 100...250 | 0 0 | AF16Z-22-00-23 | 1SBL 176 501 R2300 | 0.310 |
| 45 | 45 | -         | 12...20   | 0 0 | AF26Z-22-00-20 | 1SBL 236 501 R2000 | 0.400 |
|    |    | 24...60   | 20...60   | 0 0 | AF26Z-22-00-21 | 1SBL 236 501 R2100 | 0.400 |
|    |    | 48...130  | 48...130  | 0 0 | AF26Z-22-00-22 | 1SBL 236 501 R2200 | 0.400 |
|    |    | 100...250 | 100...250 | 0 0 | AF26Z-22-00-23 | 1SBL 236 501 R2300 | 0.400 |
| 55 | 55 | -         | 12...20   | 0 0 | AF38Z-22-00-20 | 1SBL 296 501 R2000 | 0.400 |
|    |    | 24...60   | 20...60   | 0 0 | AF38Z-22-00-21 | 1SBL 296 501 R2100 | 0.400 |
|    |    | 48...130  | 48...130  | 0 0 | AF38Z-22-00-22 | 1SBL 296 501 R2200 | 0.400 |
|    |    | 100...250 | 100...250 | 0 0 | AF38Z-22-00-23 | 1SBL 296 501 R2300 | 0.400 |

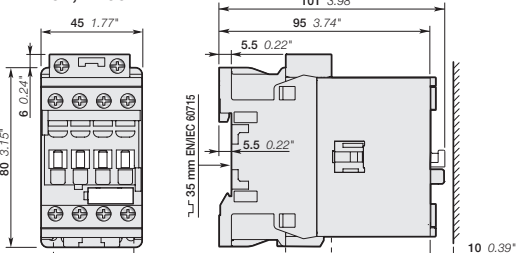
Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole

### Main Dimensions mm, inches

#### AF09Z, AF16Z



#### AF26Z, AF38Z



# AF09 ... AF38 4-pole Contactors

## AC / DC Operated - with Screw Terminals

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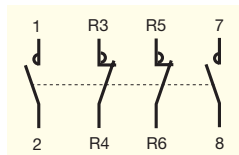
### Main Pole - Utilization Characteristics according to IEC

| Contactor types                                                                                                                               | AF09                                               | AF16              | AF26               | AF38               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------|--------------------|--------------------|
| <b>Standards</b>                                                                                                                              | IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1 |                   |                    |                    |
| <b>Rated operational voltage</b> $U_e$ max.                                                                                                   | 690 V                                              |                   |                    |                    |
| <b>Rated frequency limits</b>                                                                                                                 | 25 ... 400 Hz                                      |                   |                    |                    |
| <b>Conventional free-air thermal current</b> $I_{th}$<br>acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$               | 35 A                                               | 35 A              | 55 A               | 55 A               |
| with conductor cross-sectional area                                                                                                           | 6 mm <sup>2</sup>                                  | 6 mm <sup>2</sup> | 16 mm <sup>2</sup> | 16 mm <sup>2</sup> |
| <b>AC-1 Utilization category</b><br>for air temperature close to contactor                                                                    |                                                    |                   |                    |                    |
| <b><math>I_e</math> / AC-1 rated operational current</b><br>$U_e$ max. $\leq 690$ V, 50/60 Hz                                                 | $\theta \leq 40^\circ\text{C}$ 25 A                | 30 A              | 45 A               | 55 A               |
|                                                                                                                                               | $\theta \leq 60^\circ\text{C}$ 25 A                | 30 A              | 40 A               | 45 A               |
|                                                                                                                                               | $\theta \leq 70^\circ\text{C}$ 22 A                | 26 A              | 32 A               | 37 A               |
| with conductor cross-sectional area                                                                                                           | 4 mm <sup>2</sup>                                  | 6 mm <sup>2</sup> | 10 mm <sup>2</sup> | 16 mm <sup>2</sup> |
| <b>Short-circuit protection</b><br>for contactors without thermal O/L relay - Motor protection excluded<br>$U_e \leq 500$ V AC - gG type fuse | 25 A                                               | 32 A              | 50 A               | 63 A               |
| <b>Rated short-time withstand current</b> $I_{cw}$<br>at $40^\circ\text{C}$ ambient temperature, in free air from a cold state                | 1 s 300 A                                          | 300 A             | 450 A              | 450 A              |
|                                                                                                                                               | 10 s 150 A                                         | 150 A             | 300 A              | 300 A              |
|                                                                                                                                               | 30 s 80 A                                          | 80 A              | 225 A              | 225 A              |
|                                                                                                                                               | 1 min 60 A                                         | 60 A              | 150 A              | 150 A              |
|                                                                                                                                               | 15 min 35 A                                        | 35 A              | 55 A               | 55 A               |
| <b>Heat dissipation per pole</b><br>$I_e$ / AC-1                                                                                              | 0.8 W                                              | 1.2 W             | 1.6 W              | 2.3 W              |
| <b>Max. electrical switching frequency</b><br>AC-1                                                                                            | 600 cycles/h                                       |                   |                    |                    |

### Main Pole - Utilization Characteristics according to UL / CSA

| Contactor types                                               | AF09                   | AF16   | AF26  | AF38  |
|---------------------------------------------------------------|------------------------|--------|-------|-------|
| <b>Standards</b>                                              | UL 508, CSA C22.2 N°14 |        |       |       |
| <b>Rated operational voltage</b> $U_e$ max.                   | 600 V                  |        |       |       |
| <b>UL General use rating</b>                                  |                        |        |       |       |
| 600 V AC                                                      | 25 A                   | 30 A   | 45 A  | 55 A  |
| With conductor cross-sectional area                           | AWG 10                 | AWG 10 | AWG 8 | AWG 6 |
| 80 V DC - 1-pole for 4 N.O. main poles                        | 25 A                   | 30 A   | 45 A  | 55 A  |
| With conductor cross-sectional area                           | AWG 10                 | AWG 10 | AWG 8 | AWG 6 |
| 80 V DC - 1-pole for 2 N.O. / 2 N.C. main poles               | 20 A                   | 20 A   | 45 A  | 55 A  |
| With conductor cross-sectional area                           | AWG 12                 | AWG 12 | AWG 8 | AWG 6 |
| <b>Max. electrical switching frequency</b><br>for general use | 600 cycles/h           |        |       |       |

### Remark for 4-pole contactors fitted with 2 N.O. + 2 N.C. main poles



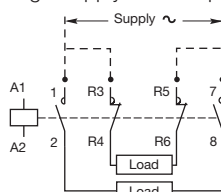
These contactors are suitable for controlling 2 separate circuits, i.e. 2 loads with 2 separate supplies, or 1 circuit comprising 2 separate loads with a single supply (see diagrams below). When the contactor operates there is no mechanical overlapping between the N.O. poles and the N.C. poles: BREAK before MAKE.



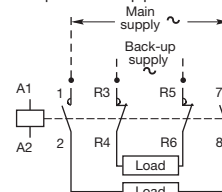
These contactors are not suitable for a reversing starter or for controlling a single load from 2 separate supplies.

### Block diagrams

– Single supply and 2 separate loads



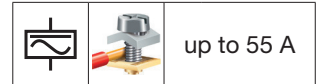
– 2 separate supplies and 2 separate loads



# AF09 ... AF38 4-pole Contactors

## AC / DC Operated - with Screw Terminals

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### General Technical Data

| Contactor types                                                                         | AF09                                                                                 | AF16 | AF26 | AF38 |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------|------|------|
| <b>Rated insulation voltage <math>U_i</math></b><br>acc. to IEC 60947-4-1<br>acc. to UL | 690 V<br>600 V                                                                       |      |      |      |
| <b>Rated impulse withstand voltage <math>U_{imp}</math></b>                             | 6 kV                                                                                 |      |      |      |
| <b>Electromagnetic compatibility</b>                                                    | Devices complying with IEC 60947-1 / EN 60947-1 - Environment A                      |      |      |      |
| <b>Ambient air temperature</b> close to contactor                                       |                                                                                      |      |      |      |
| Operation in free air                                                                   | -40 ... +70 °C                                                                       |      |      |      |
| Storage                                                                                 | -60 ... +80 °C                                                                       |      |      |      |
| <b>Climatic withstand</b>                                                               | Category B according to IEC 60947-1 Annex Q                                          |      |      |      |
| <b>Operating altitude</b>                                                               | ≤ 3000 m                                                                             |      |      |      |
| <b>Mechanical durability</b>                                                            |                                                                                      |      |      |      |
| Number of operating cycles                                                              | 10 millions operating cycles                                                         |      |      |      |
| Max. switching frequency                                                                | 3600 cycles/h                                                                        |      |      |      |
| <b>Shock withstand</b> acc. IEC 60068-2-27 and EN 60068-2-27                            |                                                                                      |      |      |      |
| Mounting position 1                                                                     | <b>Shock direction</b> 1/2 sinusoidal shock for 11 ms: no change in contact position |      |      |      |
|                                                                                         | <b>A</b> 30 g                                                                        |      |      |      |
|                                                                                         | <b>B1</b> 25 g Closed position / 5 g Open position                                   |      |      |      |
|                                                                                         | <b>B2</b> 15 g                                                                       |      |      |      |
|                                                                                         | <b>C1</b> 25 g                                                                       |      |      |      |
|                                                                                         | <b>C2</b> 25 g                                                                       |      |      |      |
|                                                                                         | <b>A</b> 30 g                                                                        |      |      |      |
|                                                                                         | <b>B1</b> 25 g Closed position / 5 g Open position                                   |      |      |      |
|                                                                                         | <b>B2</b> 15 g                                                                       |      |      |      |
|                                                                                         | <b>C1</b> 25 g                                                                       |      |      |      |
|                                                                                         | <b>C2</b> 25 g                                                                       |      |      |      |
| <b>Vibration withstand</b><br>acc. to IEC 60068-2-6                                     | 5 ... 300 Hz<br>4 g Closed position / 2 g Open position                              |      |      |      |

### Magnet System Characteristics

| Contactor types                                                                                                        | AF09                                                                                                                                                                                                                                                                                    | AF16 | AF26 | AF38 |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|
| <b>Coil operating limits</b><br>acc. to IEC 60947-4-1                                                                  |                                                                                                                                                                                                                                                                                         |      |      |      |
|                                                                                                                        | <b>AC supply</b> at $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$<br>at $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots U_c \text{ max}$                                                                              |      |      |      |
|                                                                                                                        | <b>DC supply</b> at $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$<br>at $\theta \leq 70^\circ\text{C}$ (AF) $0.85 \times U_c \text{ min} \dots U_c \text{ max}$ - (AF.Z) $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$ |      |      |      |
| <b>AC control voltage</b> 50/60 Hz                                                                                     | Rated control circuit voltage $U_c$ 24 ... 500 V AC                                                                                                                                                                                                                                     |      |      |      |
| Coil consumption                                                                                                       | <b>Average pull-in value</b> (AF) 50 VA - (AF.Z) 16 VA                                                                                                                                                                                                                                  |      |      |      |
|                                                                                                                        | <b>Average holding value</b> (AF) 2.2 VA / 2 W - (AF.Z) 1.7 VA / 1.5 W                                                                                                                                                                                                                  |      |      |      |
| <b>DC control voltage</b>                                                                                              | Rated control circuit voltage $U_c$ 12 ... 500 V DC                                                                                                                                                                                                                                     |      |      |      |
| Coil consumption                                                                                                       | <b>Average pull-in value</b> (AF) 50 W - (AF.Z) 12 ... 16 W                                                                                                                                                                                                                             |      |      |      |
|                                                                                                                        | <b>Average holding value</b> (AF) 2 W - (AF.Z) 1.7 W                                                                                                                                                                                                                                    |      |      |      |
| <b>PLC-Output control</b>                                                                                              | (AF.Z) $\geq 500 \text{ mA}$ 24 V DC                                                                                                                                                                                                                                                    |      |      |      |
| <b>Drop-out voltage in % of <math>U_c</math> min.</b>                                                                  | $\leq 60\%$ $U_c \text{ min}$                                                                                                                                                                                                                                                           |      |      |      |
| <b>Voltage sag immunity</b> according to SEMI F47-0706                                                                 | (AF.Z) conditions of use on request                                                                                                                                                                                                                                                     |      |      |      |
| <b>Dips withstand</b> (level 0% according to IEC 61000-4-11)<br>$-20^\circ\text{C} \leq \theta \leq +60^\circ\text{C}$ | (AF.Z) 22 ms average for $U_c = 24 \dots 250 \text{ V}$ 50/60Hz                                                                                                                                                                                                                         |      |      |      |
| <b>Operating time</b><br>between coil energization and:<br>between coil de-energization and:                           | <b>N.O. contact closing</b> 40 ... 95 ms                                                                                                                                                                                                                                                |      |      |      |
|                                                                                                                        | <b>N.C. contact opening</b> 38 ... 90 ms                                                                                                                                                                                                                                                |      |      |      |
|                                                                                                                        | <b>N.O. contact opening</b> 11 ... 95 ms                                                                                                                                                                                                                                                |      |      |      |
|                                                                                                                        | <b>N.C. contact closing</b> 13 ... 98 ms                                                                                                                                                                                                                                                |      |      |      |

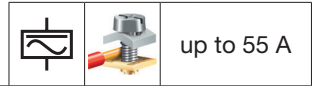
### Mounting Characteristics

| Contactor types                          | AF09                                                                                                    | AF16 | AF26 | AF38 |
|------------------------------------------|---------------------------------------------------------------------------------------------------------|------|------|------|
| <b>Mounting positions</b>                |                                                                                                         |      |      |      |
| <b>Mounting distances</b>                | Max. add-on N.C. auxiliary contacts: see accessory fitting details for a 4-pole contactor AF09 ... AF38 |      |      |      |
| <b>Fixing</b>                            | The contactors can be assembled side by side.                                                           |      |      |      |
| on rail according to IEC 60715, EN 60715 | 35 x 7.5 mm or 35 x 15 mm                                                                               |      |      |      |
| by screws (not supplied)                 | 2 x M4 screws placed diagonally                                                                         |      |      |      |

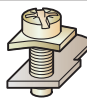
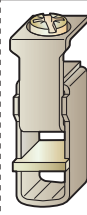
# AF09 ... AF38 4-pole Contactors

## AC / DC Operated - with Screw Terminals

Catalogue Page 1SBC 101 109 S0201



### Connecting Characteristics

| Contactor types                                                                                                         | AF09                                                                                                                      | AF16              | AF26                                                                                                                                                            | AF38                       |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Main terminals                                                                                                          | <br><br>Screw terminals with cable clamp |                   | <br><br>Screw terminals with double connector<br>2 x (5.5 width x 6.8 depth) |                            |
| Connecting capacity (min. ... max.)                                                                                     |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| Main conductors (poles)                                                                                                 |                                                                                                                           |                   |                                                                                                                                                                 |                            |
|  Rigid                                 | solid ( $\leq 4 \text{ mm}^2$ )                                                                                           | 1 x               | 1 ... 6 mm <sup>2</sup>                                                                                                                                         | 1.5 ... 16 mm <sup>2</sup> |
|  Stranded                              | stranded ( $\geq 6 \text{ mm}^2$ )                                                                                        | 2 x               | 1 ... 6 mm <sup>2</sup>                                                                                                                                         | 1.5 ... 16 mm <sup>2</sup> |
|  Flexible with non insulated ferrule   |                                                                                                                           | 1 x               | 0.75 ... 6 mm <sup>2</sup>                                                                                                                                      | 1.5 ... 16 mm <sup>2</sup> |
|  Flexible with non insulated ferrule   |                                                                                                                           | 2 x               | 0.75 ... 6 mm <sup>2</sup>                                                                                                                                      | 1.5 ... 16 mm <sup>2</sup> |
|  Flexible with insulated ferrule       |                                                                                                                           | 1 x               | 0.75 ... 4 mm <sup>2</sup>                                                                                                                                      | 1.5 ... 16 mm <sup>2</sup> |
|  Flexible with insulated ferrule       |                                                                                                                           | 2 x               | 0.75 ... 2.5 mm <sup>2</sup>                                                                                                                                    | 1.5 ... 16 mm <sup>2</sup> |
|  Bars or lugs                          |                                                                                                                           | L <               | 9.6 mm                                                                                                                                                          | -                          |
| Capacity according to UL/CSA                                                                                            |                                                                                                                           | 1 or 2 x          | AWG 16 ... 10                                                                                                                                                   | AWG 16 ... 6               |
| Stripping length                                                                                                        |                                                                                                                           |                   | 10 mm                                                                                                                                                           | 12 mm                      |
| Auxiliary conductors                                                                                                    |                                                                                                                           |                   |                                                                                                                                                                 |                            |
|  Rigid solid                           |                                                                                                                           | 1 x               | 1 ... 2.5 mm <sup>2</sup>                                                                                                                                       |                            |
|  Rigid solid                          |                                                                                                                           | 2 x               | 1 ... 2.5 mm <sup>2</sup>                                                                                                                                       |                            |
|  Flexible with non insulated ferrule |                                                                                                                           | 1 x               | 0.75 ... 2.5 mm <sup>2</sup>                                                                                                                                    |                            |
|  Flexible with non insulated ferrule |                                                                                                                           | 2 x               | 0.75 ... 2.5 mm <sup>2</sup>                                                                                                                                    |                            |
|  Flexible with insulated ferrule     |                                                                                                                           | 1 x               | 0.75 ... 2.5 mm <sup>2</sup>                                                                                                                                    |                            |
|  Flexible with insulated ferrule     |                                                                                                                           | 2 x               | 0.75 ... 1.5 mm <sup>2</sup>                                                                                                                                    |                            |
|  Bars or lugs                        |                                                                                                                           | L <               | 8 mm                                                                                                                                                            |                            |
| Capacity according to UL/CSA                                                                                            |                                                                                                                           | 1 or 2 x          | AWG 18 ... 14                                                                                                                                                   |                            |
| Stripping length                                                                                                        |                                                                                                                           |                   | 10 mm                                                                                                                                                           |                            |
| Degree of protection                                                                                                    |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529                                                               |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| Main terminals                                                                                                          |                                                                                                                           | IP20              |                                                                                                                                                                 |                            |
| Coil terminals                                                                                                          |                                                                                                                           | IP20              |                                                                                                                                                                 |                            |
| Screw terminals                                                                                                         |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| (delivered in open position, screws of unused terminals must be tightened)                                              |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| Main terminals                                                                                                          |                                                                                                                           | M3.5              |                                                                                                                                                                 | M4.5                       |
| Coil terminals                                                                                                          |                                                                                                                           | M3.5              |                                                                                                                                                                 |                            |
| Screwdriver type                                                                                                        |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| Flat Ø 5.5 / Pozidriv 2                                                                                                 |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| Tightening torque                                                                                                       |                                                                                                                           |                   |                                                                                                                                                                 |                            |
| Main pole terminals                                                                                                     |                                                                                                                           | 1.5 Nm / 13 lb.in |                                                                                                                                                                 | 2.5 Nm / 22 lb.in          |
| Coil terminals                                                                                                          |                                                                                                                           | 1.2 Nm / 11 lb.in |                                                                                                                                                                 |                            |

# AF09 ... AF38 4-pole Contactors

## Main Accessories



### Accessory fitting details for a 4-pole contactor AF09 ... AF38

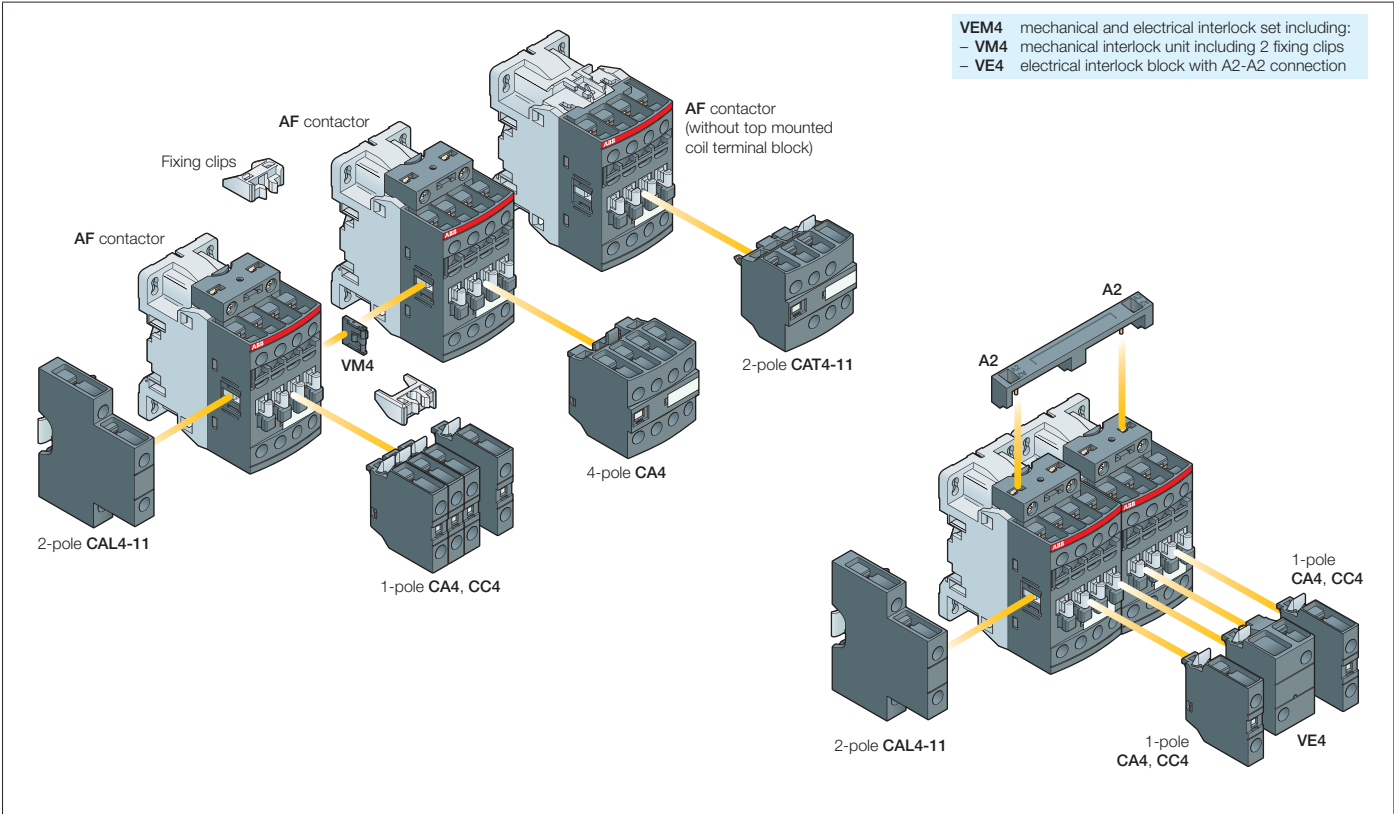
Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

| Contactor types                                                                                                 | Main poles                                                                        | Built-in auxiliary contacts                                                       | Front-mounted accessories |                |            |                                                                   | Side-mounted accessories |   |            |      |   |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------|----------------|------------|-------------------------------------------------------------------|--------------------------|---|------------|------|---|
|                                                                                                                 |                                                                                   |                                                                                   | Auxiliary contact blocks  |                |            | Electrical and mechanical interlock set<br>(between 2 contactors) | Auxiliary contact blocks |   |            |      |   |
|                                                                                                                 |  |  | 1-pole CA4                |                |            |                                                                   | Left side                |   | Right side |      |   |
|                                                                                                                 |                                                                                   |                                                                                   | 1-pole CC4                | 2-pole CAT4-11 | 4-pole CA4 | VEM4                                                              | 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                                                                               | 4 max.                    | or 1           | or 1       | -                                                                 | +                        | 1 | -          |      |   |
|                                                                                                                 |                                                                                   |                                                                                   | 2 max.                    | 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                                                                               | 4 max.                    | or 1           | or 1       | -                                                                 | +                        | 1 | -          |      |   |
|                                                                                                                 |                                                                                   |                                                                                   | 2 max.                    | or 1           | -          | -                                                                 | +                        | 1 | +          | 1    |   |
|                                                                                                                 |                                                                                   |                                                                                   | 3 max.                    | -              | -          | +                                                                 | 1                        | + | 1          | or 1 |   |
| AF09, AF16                                                                                                      | 2                                                                                 | 2                                                                                 | 0 0                       | 4 max.         | or 1       | or 1                                                              | -                        | + | 1          | -    |   |
| AF26, AF38                                                                                                      | 2                                                                                 | 2                                                                                 | 0 0                       | 2 max.         | or 1       | -                                                                 | -                        | + | 1          | +    | 1 |

### Mounting positions



### Contactors and main accessories (other accessories available)





CA4-10



CA4-22E



CAL4-11



CAT4-11E

### Application

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits.

### Description

Types of auxiliary contact blocks for standard industrial environments:

- **CA4** 1 or 4-pole block, front-mounted, instantaneous with N.O., N.C. contacts
- **CC4** 1-pole block, front-mounted, with N.O. leading contact or N.C. lagging contact
- **CAT4** 2-pole block, front-mounted, instantaneous N.O. + N.C. contacts with A1 / A2 coil terminal connection on front face
- **CAL4** 2-pole block instantaneous N.O. + N.C. contacts clipped onto the right and/or left side of the contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

Fitting Details - For each contactor, refer to "Accessory Fitting Details" table.

### Ordering Details

| For contactors | Auxiliary contacts                                                                                                                                                  | Type | Order code | Pack <sup>(ing)</sup> pieces | Weight kg (1 pce) |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|------------------------------|-------------------|
|                |   |      |            |                              |                   |

#### Front-mounted instantaneous auxiliary contact blocks

|                        |         |          |                    |    |       |
|------------------------|---------|----------|--------------------|----|-------|
| AF09 ... AF38...-40-00 | 1 0 - - | CA4-10   | 1SBN 010 110 R1010 | 1  | 0.014 |
| AF09 ... AF38...-22-00 | 1 0 - - | CA4-10-T | 1SBN 010 110 T1010 | 10 | 0.014 |
|                        | 0 1 - - | CA4-01   | 1SBN 010 110 R1001 | 1  | 0.014 |
|                        | 0 1 - - | CA4-01-T | 1SBN 010 110 T1001 | 10 | 0.014 |
|                        | 2 2 - - | CA4-22E  | 1SBN 010 140 R1022 | 1  | 0.055 |
|                        | 3 1 - - | CA4-31E  | 1SBN 010 140 R1031 | 1  | 0.055 |
|                        | 4 0 - - | CA4-40E  | 1SBN 010 140 R1040 | 1  | 0.055 |
| AF09 ... AF38...-40-00 | 0 4 - - | CA4-04E  | 1SBN 010 140 R1004 | 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 | 1SBN 010 111 R1010 | 1 | 0.014 |
| AF09 ... AF38...-22-00 | - - 0 1 | CC4-01 | 1SBN 010 111 R1001 | 1 | 0.014 |

#### Side-mounted instantaneous auxiliary contact blocks

|                        |         |           |                    |    |       |
|------------------------|---------|-----------|--------------------|----|-------|
| AF09 ... AF38...-40-00 | 1 1 - - | CAL4-11   | 1SBN 010 120 R1011 | 1  | 0.040 |
| AF09 ... AF38...-22-00 | 1 1 - - | CAL4-11-T | 1SBN 010 120 T1011 | 10 | 0.040 |

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

|                        |         |          |                    |   |       |
|------------------------|---------|----------|--------------------|---|-------|
| AF09 ... AF38...-40-00 | 1 1 - - | CAT4-11E | 1SBN 010 151 R1011 | 1 | 0.040 |
| AF09 ... AF38...-22-00 |         |          |                    |   |       |

Note: CAT4 not fittable on AF..Z contactors with DC control voltage 12...20VDC.



### Technical Data

|       |                                                              |
|-------|--------------------------------------------------------------|
| Types | 1-pole CA4, 1-pole CC4, 4-pole CA4, 2-pole CAT4, 2-pole CAL4 |
|-------|--------------------------------------------------------------|

### Contact Utilization Characteristics according to IEC

|                                                                            |                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                                                                  | IEC 60947-5-1 and EN 60947-5-1                                                                                                                                                                                                                          |
| Rated insulation voltage $U_i$ acc. to IEC 60947-5-1                       | 690 V                                                                                                                                                                                                                                                   |
| Rated impulse withstand voltage $U_{imp}$                                  | 6 kV                                                                                                                                                                                                                                                    |
| Rated operational voltage $U_o$ max.                                       | 24 ... 690 V                                                                                                                                                                                                                                            |
| Conventional thermal current $I_{th}$ - $\theta \leq 40^\circ\text{C}$     | 16 A                                                                                                                                                                                                                                                    |
| Rated frequency limits                                                     | 25 ... 400 Hz                                                                                                                                                                                                                                           |
| Rated operational current $I_o$ / AC-15<br>acc. to IEC 60947-5-1           | 24-127 V 50/60 Hz 6 A<br>220-240 V 50/60 Hz 4 A<br>400-440 V 50/60 Hz 3 A<br>500 V 50/60 Hz 2 A<br>690 V 50/60 Hz 2 A                                                                                                                                   |
| Making capacity acc. to IEC 60947-5-1                                      | 10 x $I_o$ AC-15 acc. to IEC 60947-5-1                                                                                                                                                                                                                  |
| Breaking capacity acc. to IEC 60947-5-1                                    | 10 x $I_o$ AC-15 acc. to IEC 60947-5-1                                                                                                                                                                                                                  |
| Rated operational current $I_o$ / DC-13<br>acc. to IEC 60947-5-1           | 24 V DC 6 A / 144 W<br>48 V DC 2.8 A / 134 W<br>72 V DC 1 A / 72 W<br>110 V DC 0.55 A / 60 W<br>125 V DC 0.55 A / 69 W<br>220 V DC 0.27 A / 60 W<br>250 V DC 0.27 A / 68 W<br>400 V DC 0.15 A / 60 W<br>500 V DC 0.13 A / 65 W<br>600 V DC 0.1 A / 60 W |
| Short-circuit protection gG type fuse                                      | 10 A                                                                                                                                                                                                                                                    |
| Rated short-time withstand current $I_{cw}$<br>$\theta = 40^\circ\text{C}$ | for 1.0 s 100 A<br>for 0.1 s 140 A                                                                                                                                                                                                                      |
| Minimum switching capacity<br>with failure rate acc. to IEC 60947-5-4      | 12 V / 3 mA<br>$10^{-7}$                                                                                                                                                                                                                                |
| Heat dissipation per pole at 6 A                                           | 0.1 W                                                                                                                                                                                                                                                   |
| Mechanical durability                                                      | Number of operating cycles 10 millions operating cycles<br>Max. switching frequency 3600 cycles/h                                                                                                                                                       |
| Max. electrical switching frequency                                        | for AC-15 1200 cycles/h<br>for DC-13 900 cycles/h                                                                                                                                                                                                       |

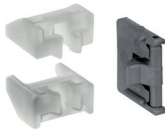
### Contact Utilization Characteristics according to UL / CSA

|                                        |                        |
|----------------------------------------|------------------------|
| Standards                              | UL 508, CSA C22.2 N°14 |
| Rated insulation voltage $U_i$         | 600 V                  |
| Max. rated voltage                     | 600 V AC, 600 V DC     |
| Pilot duty                             | A600, Q600             |
| AC thermal rated current               | 10 A                   |
| AC maximum volt-ampere making          | 7200 VA                |
| AC maximum volt-ampere breaking        | 720 VA                 |
| DC thermal rated current               | 2.5 A                  |
| DC maximum volt-ampere making-breaking | 69 VA                  |

### Connecting Characteristics

|                                                                                                                         |                                                                            |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Screw terminals                                                                                                         | (delivered in open position, screws of unused terminals must be tightened) |
| All terminals                                                                                                           | M3.5                                                                       |
| Connecting capacity (min. ... max.)                                                                                     |                                                                            |
|  Rigid solid                         | 1 x 1 ... 2.5 mm <sup>2</sup><br>2 x 1 ... 2.5 mm <sup>2</sup>             |
|  Flexible with non insulated ferrule | 1 x 0.75 ... 2.5 mm <sup>2</sup><br>2 x 0.75 ... 2.5 mm <sup>2</sup>       |
|  Flexible with insulated ferrule     | 1 x 0.75 ... 2.5 mm <sup>2</sup><br>2 x 0.75 ... 1.5 mm <sup>2</sup>       |
|  Bars or lugs                        | L < 8 mm                                                                   |
| Capacity acc. to UL/CSA                                                                                                 | 1 or 2 x AWG 18 ... 14                                                     |
| Stripping length                                                                                                        | 10 mm                                                                      |
| Degree of protection<br>acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529                                       | IP20                                                                       |
| Screwdriver type                                                                                                        | Flat Ø 5.5 / Pozidriv 2                                                    |
| Tightening torque                                                                                                       | 1.2 Nm / 11 lb.in                                                          |

Accessories for AF09 ... AF38 4-pole Contactors



VM4

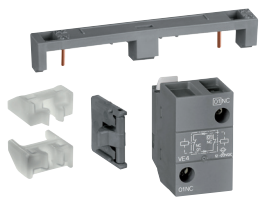
Mechanical interlock unit

Description

**VM4** mechanical interlock unit for the interlocking of two AF contactors. When mounted between two contactors without additional width, the VM4 mechanical interlock unit prevents one of the contactors from closing as long as the other contactor is closed. The mechanical interlock unit includes 2 fixing clips (BB4).

Ordering Details

| For contactors         | Type | Order code         | Pack <sup>(ing)</sup> pieces | Weight kg (1 pce) |
|------------------------|------|--------------------|------------------------------|-------------------|
| AF09 ... AF38...-40-00 | VM4  | 1SBN 030 105 T1000 | 10                           | 0.005             |



VEM4

Mechanical and electrical interlock set

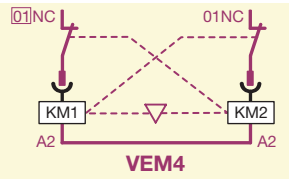
Description

**VEM4** mechanical and electrical interlock set for the interlocking of two AF contactors. **VEM4** set includes a mechanical interlock unit VM4 with 2 fixing clips (BB4) and a VE4 electrical interlock block with A2-A2 connection. Fixing the electrical interlock block to the contactor front face connects the 2 built-in N.C. interlocking contacts with the two coils. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.

Ordering Details

| For contactors                             | Auxiliary contacts                                                                        | Type | Order code         | Pack <sup>(ing)</sup> pieces | Weight kg (1 pce) |
|--------------------------------------------|-------------------------------------------------------------------------------------------|------|--------------------|------------------------------|-------------------|
| AF09, AF16...-40-00<br>AF26, AF38...-40-00 | <br>1 1 | VEM4 | 1SBN 030 111 R1000 | 1                            | 0.035             |

Note: VEM4 not fittable on AF.Z contactors with DC control voltage 12...20 V DC.



BB4

Fixing clips

Ordering Details

| For contactors         | Type | Order code         | Pack <sup>(ing)</sup> pieces | Weight kg (1 pce) |
|------------------------|------|--------------------|------------------------------|-------------------|
| AF09 ... AF38...-40-00 | BB4  | 1SBN 110 120 W1000 | 50                           | 0.002             |

## Accessories for AF09 ... AF38 4-pole Contactors



## Technical Data

|                            |                             |
|----------------------------|-----------------------------|
| Interlock types            | VM4                         |
| Mechanical durability      |                             |
| Number of operating cycles | 5 millions operating cycles |
| Max. switching frequency   | 1800 cycles/h               |

|                 |      |
|-----------------|------|
| Interlock types | VEM4 |
|-----------------|------|

## Contact Utilization Characteristics according to IEC

|                                                                        |                                             |
|------------------------------------------------------------------------|---------------------------------------------|
| Standards                                                              | IEC 60947-5-1 and EN 60947-5-1              |
| Rated insulation voltage $U_i$ acc. to IEC 60947-5-1                   | 690 V                                       |
| Rated impulse withstand voltage $U_{imp}$                              | 6 kV                                        |
| Rated control circuit voltage $U_c$                                    | AC 50/60 Hz control voltage 24 ... 500 V AC |
|                                                                        | DC control voltage 20 ... 500 V DC          |
| Conventional thermal current $I_{th}$ - $\theta \leq 40^\circ\text{C}$ | 16 A                                        |
| Mechanical and electrical durability                                   |                                             |
| Number of operating cycles                                             | 5 millions operating cycles                 |
| Max. mechanical switching                                              | 1800 cycles/h                               |
| Max. electrical switching frequency                                    | 1200 cycles/h                               |

## Contact Utilization Characteristics according to UL / CSA

|                    |                        |
|--------------------|------------------------|
| Standards          | UL 508, CSA C22.2 N°14 |
| Max. rated voltage | 500 V AC, 500 V DC     |

## Connecting Characteristics

|                                                                                                                         |                                  |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Screw terminals                                                                                                         |                                  |
| All terminals                                                                                                           | M3.5                             |
| Connecting capacity (min. ... max.)                                                                                     |                                  |
|  Rigid Solid                         | 1 x 1 ... 2.5 mm <sup>2</sup>    |
|  Flexible with non insulated ferrule | 2 x 1 ... 2.5 mm <sup>2</sup>    |
|  Flexible with insulated ferrule     | 1 x 0.75 ... 2.5 mm <sup>2</sup> |
|  Flexible with insulated ferrule     | 2 x 0.75 ... 2.5 mm <sup>2</sup> |
|  Bars or lugs                        | 1 x 0.75 ... 2.5 mm <sup>2</sup> |
|  Bars or lugs                        | 2 x 0.75 ... 1.5 mm <sup>2</sup> |
|  Bars or lugs                        | L < 8 mm                         |
| Capacity according to UL/CSA                                                                                            | 1 or 2 x AWG 18 ... 14           |
| Stripping length                                                                                                        | 10 mm                            |
| Degree of protection                                                                                                    |                                  |
| acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529                                                               | IP20                             |
| Screwdriver type                                                                                                        | Flat Ø 5.5 / Pozidriv 2          |
| Tightening torque                                                                                                       | 1.2 Nm / 11 lb.in                |

Accessories for AF09 ... AF38 4-pole Contactors



LDC4

Additional coil terminal block

Description

Additional coil terminal block for a bottom access to the coil terminals of contactors or contactor relays.

Ordering Details

| For contactors | Type | Order code         | Pack <sup>(ing)</sup><br>pieces | Weight<br>kg (1 pce) |
|----------------|------|--------------------|---------------------------------|----------------------|
| AF09 ... AF38  | LDC4 | 1SBN 070 156 T1000 | 10                              | 0.010                |



BX4



BX4-CA

Protective covers

Description

Sealable and transparent protective covers BX4 and non-removable BX4-CA to protect the devices against accidental contact.

Ordering Details

| For contactors                                          | Type   | Order code         | Pack <sup>(ing)</sup><br>pieces | Weight<br>kg (1 pce) |
|---------------------------------------------------------|--------|--------------------|---------------------------------|----------------------|
| All 1-stack contactors                                  | BX4    | 1SBN 110 108 T1000 | 10                              | 0.006                |
| For 4-pole CA4 and 2-pole CAT4 auxiliary contact blocks | BX4-CA | 1SBN 110 109 W1000 | 50                              | 0.001                |



BA4

Function markers

Description

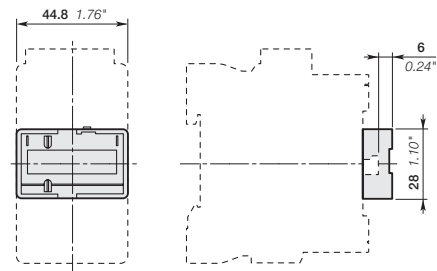
Box of 16 blank cards (16 markers by card) printable on HTP500 thermal transfer printer and AMS 500 marking table to identify your contactors, overload relays or manual motor starters.  
Marker dimensions: 7 x 20 mm (.276" x .787")

Ordering Details

| For contactors                  | Type       | Order code         | Pack <sup>(ing)</sup><br>pieces | Weight<br>kg (1 pce) |
|---------------------------------|------------|--------------------|---------------------------------|----------------------|
| Marker card                     | BA4        | 1SNA 235 156 R2700 | 16                              | 0.011                |
| AMS 500 support plate for 8 BA4 | SPRC 1     | 1SNA 360 010 R1500 | 1                               | 0.290                |
| HTP500 support plate            | HTP500-BA4 | 1SNA 235 712 R2400 | 1                               | 0.220                |

Main Dimensions mm, inches

BX4



# AF09 ... AF38 4-pole Contactors

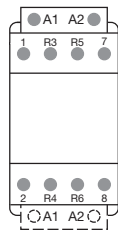
## Terminal Marking and Positioning



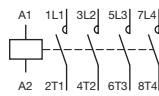
### Standard devices without addition of auxiliary contacts



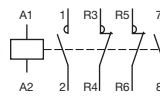
AF09 ... AF38...-40-00



AF09 ... AF38...-22-00

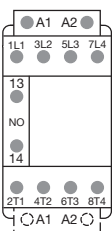


AF09 ... AF38...-40-00

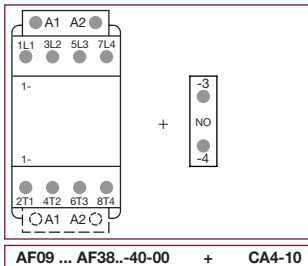


AF09 ... AF38...-22-00

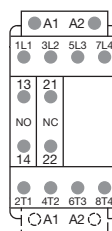
### Other possible contact combinations with auxiliary contacts added by the user



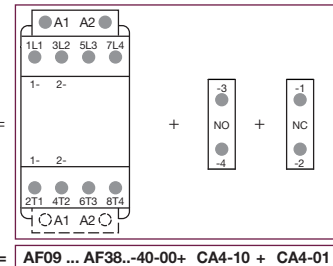
Combination 10 =



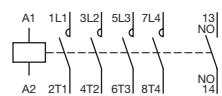
AF09 ... AF38...-40-00 + CA4-10



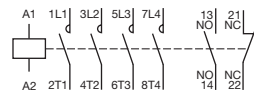
Combination 11 =



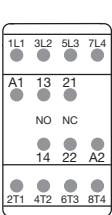
AF09 ... AF38...-40-00+ CA4-10 + CA4-01



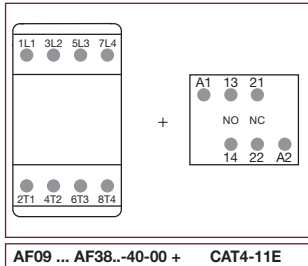
Combination 10



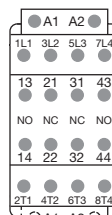
Combination 11



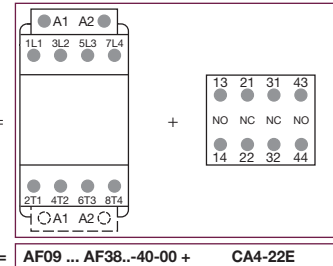
Combination 11 =



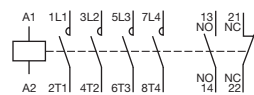
AF09 ... AF38...-40-00 + CAT4-11E



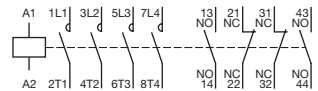
Combination 22 =



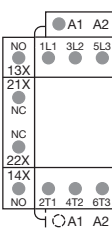
AF09 ... AF38...-40-00 + CA4-22E



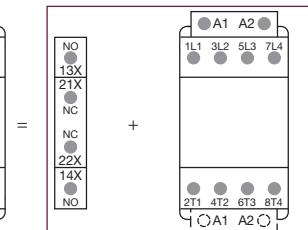
Combination 11



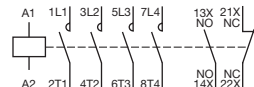
Combination 22



Combination 11 =



CAL4-11 + AF09 ... AF38...-40-00



Combination 11

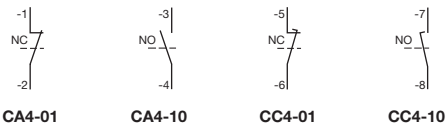
Note: Only AF.Z contactor with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole

# Add-on Auxiliary Contacts

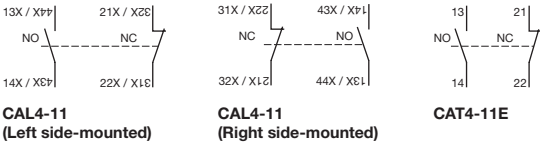
## Terminal Marking and Positioning



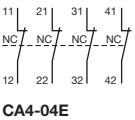
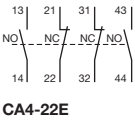
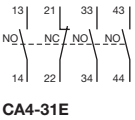
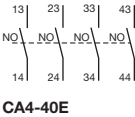
### 1-pole auxiliary contacts



### 2-pole auxiliary contacts



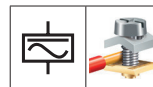
### 4-pole auxiliary contacts



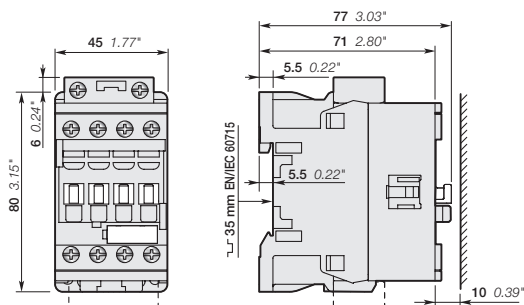
# AF09, AF16 4-pole Contactors

## AC / DC Operated - with Screw Terminals

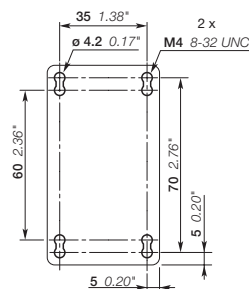
Catalogue Page 1SBC 101 100 S0201



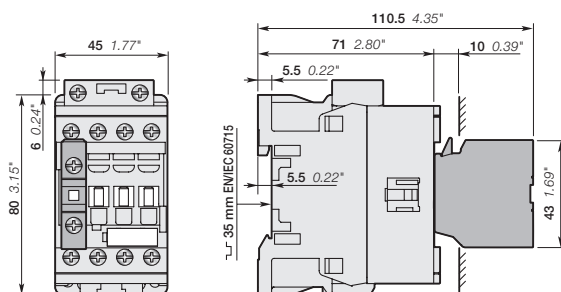
Dimensions mm, inches



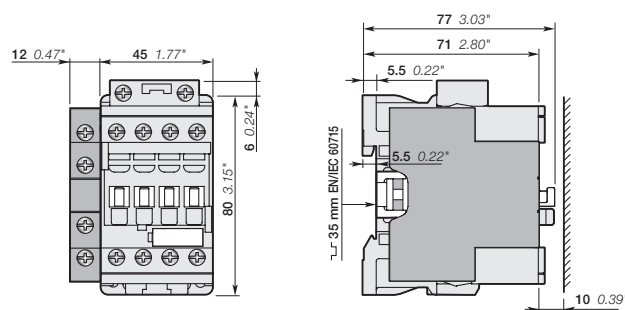
AF09, AF16



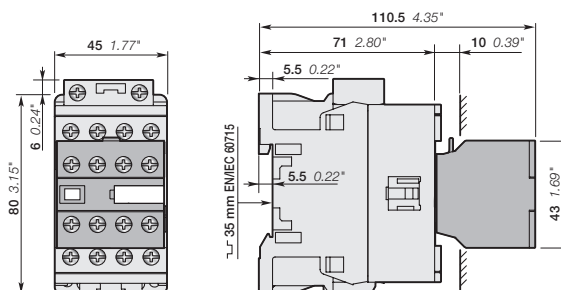
AF09, AF16



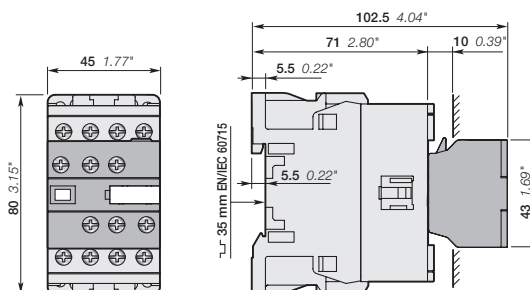
AF09, AF16  
+ CA4, CC4 1-pole auxiliary contact block



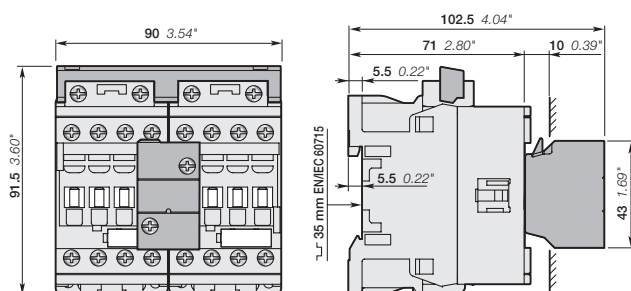
AF09, AF16  
+ CAL4-11 2-pole auxiliary contact block



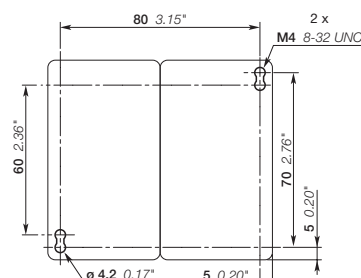
AF09, AF16  
+ CA4 4-pole auxiliary contact block



AF09, AF16  
+ CAT4 2-pole auxiliary contact and coil terminal block



AF09..-40-00, AF16..-40-00  
+ VEM4 mechanical and electrical interlock set



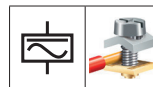
AF09..-40-00, AF16..-40-00  
+ VEM4 mechanical and electrical interlock set

Note: contactor lateral distance to grounded component 2 mm 0.08" min.

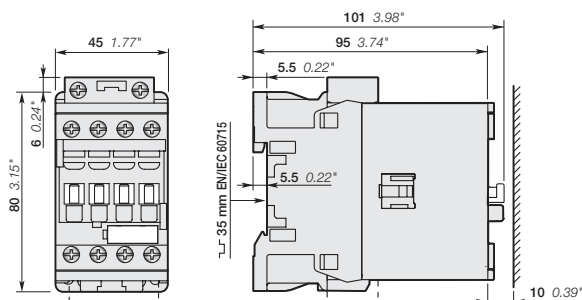
# AF26, AF38 4-pole Contactors

## AC / DC Operated - with Screw Terminals

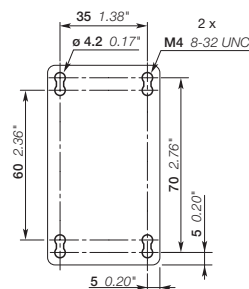
Catalogue Page 1SBC 101 100 S0201



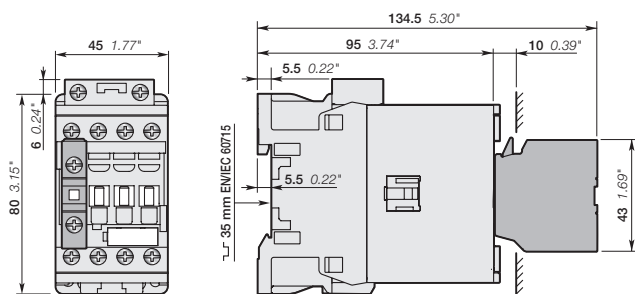
Dimensions mm, inches



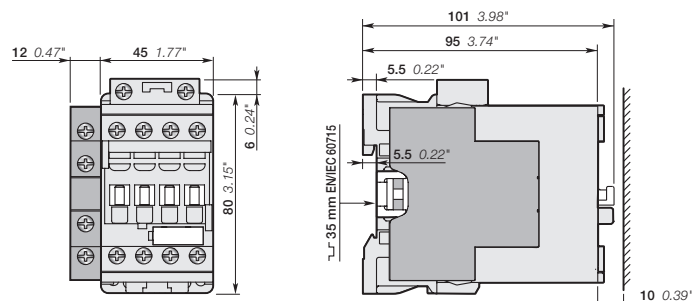
AF26, AF38



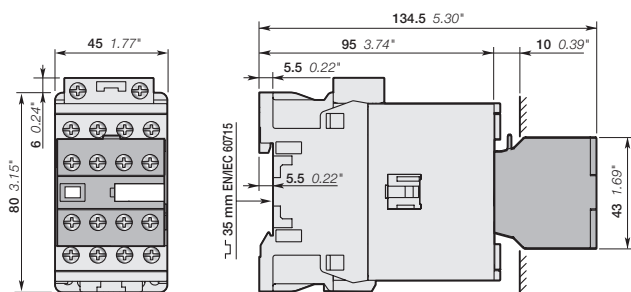
AF26, AF38



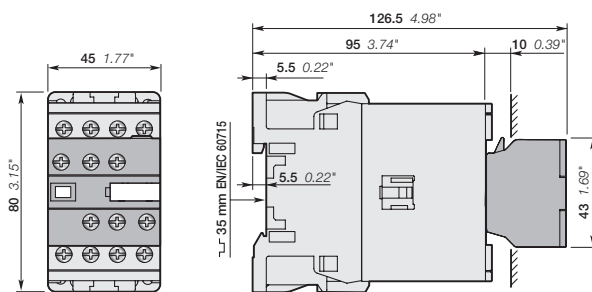
AF26, AF38  
+ CA4, CC4 1-pole auxiliary contact block



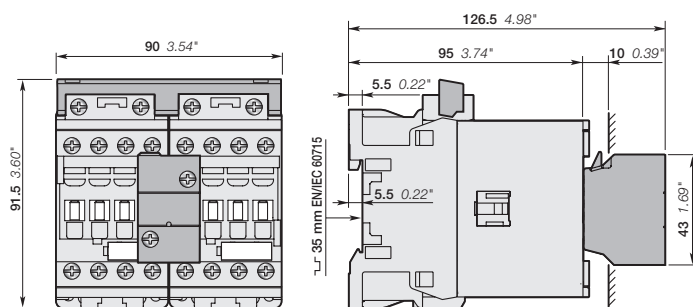
AF26, AF38  
+ CAL4-11 2-pole auxiliary contact block



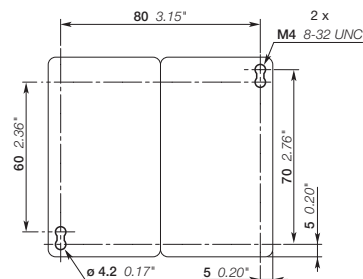
AF26, AF38  
+ CA4 4-pole auxiliary contact block



AF26, AF38  
+ CAT4 2-pole auxiliary contact and coil terminal block



AF26..-40-00, AF38..-40-00  
+ VEM4 mechanical and electrical interlock set



AF26..-40-00, AF38..-40-00  
+ VEM4 mechanical and electrical interlock set

Note: contactor lateral distance to grounded component 2 mm 0.08" min.

# Index

## Order Code Classification

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| 1SBL 136 201 R2000 | AF09Z-40-00-20 | 6    | 1SBN 010 110 T1001 | CA4-01-T   | 10   |            |      |      |            |      |      |
| 1SBL 136 201 R2100 | AF09Z-40-00-21 | 6    | 1SBN 010 110 T1010 | CA4-10-T   | 10   |            |      |      |            |      |      |
| 1SBL 136 201 R2200 | AF09Z-40-00-22 | 6    | 1SBN 010 111 R1001 | CC4-01     | 10   |            |      |      |            |      |      |
| 1SBL 136 201 R2300 | AF09Z-40-00-23 | 6    | 1SBN 010 111 R1010 | CC4-10     | 10   |            |      |      |            |      |      |
| 1SBL 136 501 R2000 | AF09Z-22-00-20 | 6    | 1SBN 010 120 R1011 | CAL4-11    | 10   |            |      |      |            |      |      |
| 1SBL 136 501 R2100 | AF09Z-22-00-21 | 6    | 1SBN 010 120 T1011 | CAL4-11-T  | 10   |            |      |      |            |      |      |
| 1SBL 136 501 R2200 | AF09Z-22-00-22 | 6    | 1SBN 010 140 R1004 | CA4-04E    | 10   |            |      |      |            |      |      |
| 1SBL 136 501 R2300 | AF09Z-22-00-23 | 6    | 1SBN 010 140 R1022 | CA4-22E    | 10   |            |      |      |            |      |      |
| 1SBL 137 201 R1100 | AF09-40-00-11  | 5    | 1SBN 010 140 R1031 | CA4-31E    | 10   |            |      |      |            |      |      |
| 1SBL 137 201 R1200 | AF09-40-00-12  | 5    | 1SBN 010 140 R1040 | CA4-40E    | 10   |            |      |      |            |      |      |
| 1SBL 137 201 R1300 | AF09-40-00-13  | 5    | 1SBN 010 151 R1011 | CAT4-11E   | 10   |            |      |      |            |      |      |
| 1SBL 137 201 R1400 | AF09-40-00-14  | 5    | 1SBN 030 105 T1000 | VM4        | 12   |            |      |      |            |      |      |
| 1SBL 137 501 R1100 | AF09-22-00-11  | 5    | 1SBN 030 111 R1000 | VEM4       | 12   |            |      |      |            |      |      |
| 1SBL 137 501 R1200 | AF09-22-00-12  | 5    | 1SBN 070 156 T1000 | LDC4       | 14   |            |      |      |            |      |      |
| 1SBL 137 501 R1300 | AF09-22-00-13  | 5    | 1SBN 110 108 T1000 | BX4        | 14   |            |      |      |            |      |      |
| 1SBL 137 501 R1400 | AF09-22-00-14  | 5    | 1SBN 110 109 W1000 | BX4-CA     | 14   |            |      |      |            |      |      |
| 1SBL 176 201 R2000 | AF16Z-40-00-20 | 6    | 1SBN 110 120 W1000 | BB4        | 12   |            |      |      |            |      |      |
| 1SBL 176 201 R2100 | AF16Z-40-00-21 | 6    | 1SNA 235 156 R2700 | BA4        | 14   |            |      |      |            |      |      |
| 1SBL 176 201 R2200 | AF16Z-40-00-22 | 6    | 1SNA 235 712 R2400 | HTP500-BA4 | 14   |            |      |      |            |      |      |
| 1SBL 176 201 R2300 | AF16Z-40-00-23 | 6    | 1SNA 360 010 R1500 | SPRC 1     | 14   |            |      |      |            |      |      |
| 1SBL 176 501 R2000 | AF16Z-22-00-20 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 176 501 R2100 | AF16Z-22-00-21 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 176 501 R2200 | AF16Z-22-00-22 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 176 501 R2300 | AF16Z-22-00-23 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 201 R1100 | AF16-40-00-11  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 201 R1200 | AF16-40-00-12  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 201 R1300 | AF16-40-00-13  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 201 R1400 | AF16-40-00-14  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 501 R1100 | AF16-22-00-11  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 501 R1200 | AF16-22-00-12  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 501 R1300 | AF16-22-00-13  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 177 501 R1400 | AF16-22-00-14  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 201 R2000 | AF26Z-40-00-20 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 201 R2100 | AF26Z-40-00-21 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 201 R2200 | AF26Z-40-00-22 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 201 R2300 | AF26Z-40-00-23 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 501 R2000 | AF26Z-22-00-20 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 501 R2100 | AF26Z-22-00-21 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 501 R2200 | AF26Z-22-00-22 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 236 501 R2300 | AF26Z-22-00-23 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 201 R1100 | AF26-40-00-11  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 201 R1200 | AF26-40-00-12  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 201 R1300 | AF26-40-00-13  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 201 R1400 | AF26-40-00-14  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 501 R1100 | AF26-22-00-11  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 501 R1200 | AF26-22-00-12  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 501 R1300 | AF26-22-00-13  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 237 501 R1400 | AF26-22-00-14  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 296 201 R2000 | AF38Z-40-00-20 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 296 201 R2100 | AF38Z-40-00-21 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 296 201 R2200 | AF38Z-40-00-22 | 6    |                    |            |      |            |      |      |            |      |      |
| 1SBL 296 201 R2300 | AF38Z-40-00-23 | 6    |                    |            |      |            |      |      |            |      |      |
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| 1SBL 297 201 R1200 | AF38-40-00-12  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 297 201 R1300 | AF38-40-00-13  | 5    |                    |            |      |            |      |      |            |      |      |
| 1SBL 297 201 R1400 | AF38-40-00-14  | 5    |                    |            |      |            |      |      |            |      |      |
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