



 PRODUCT-DETAILS

AF09Z-40-00-21

AF09Z-40-00-21 24-60V50/60HZ 20-60VDC Contactor



General Information

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| Extended Product Type | AF09Z-40-00-21 |
| Product ID | 1SBL136201R2100 |
| EAN | 3471523115811 |
| Catalog Description | AF09Z-40-00-21 24-60V50/60HZ 20-60VDC Contactor |

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| Long Description | <p>The AF09Z-40-00-21 is a 4 pole - 690 V IEC or 600 UL contactor with screw terminals, controlling motors up to 4 kW / 400 V AC (AC-3) and switching power circuits up to 25 A (AC -1) or 25 A UL general use. Thanks to the AF technology, the contactor has a wide control voltage range (24-60 V 50/60 Hz and 20-60 V DC), managing large control voltage variations, reducing panel energy consumptions and ensuring distinct operations in unstable networks. Furthermore, surge protection is built-in, offering a compact solution. AF contactors have a block type design, can be easily extended with add-on auxiliary contact blocks and an additional wide range of accessories.</p> |
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Ordering

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| Minimum Order Quantity | 1 piece |
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Popular Downloads

| | |
|-----------------------|-----------------|
| Data Sheet, Technical | 1SBC100214C0202 |
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Information

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|--------------------------|-----------------|
| Instructions and Manuals | 1SBC101027M6801 |
| CAD Dimensional Drawing | 2CDC001079B0201 |

Dimensions

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| Product Net Width | 45 mm |
| Product Net Depth / Length | 77 mm |
| Product Net Height | 86 mm |
| Product Net Weight | 0.31 kg |

Technical

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| Number of Main Contacts NO | 4 |
| Number of Main Contacts NC | 0 |
| Number of Auxiliary Contacts NO | 0 |
| Number of Auxiliary Contacts NC | 0 |
| Standards | IEC/EN 60947-1, IEC/EN 60947-4-1, UL 60335-2-40 LZGH2 A2L, UL 60947-1, UL 60947-4-1, CSA C22.2 No. 60335-2-40 LZGH2 A2L, CAN/CSA C22.2 No.60947-1, CAN/CSA C22.2 No.60947-4-1 |
| Rated Operational Voltage | Main Circuit 690 V |
| Rated Frequency (f) | Control Circuit 50 / 60 Hz Main Circuit 50 / 60 Hz |
| Conventional Free-air Thermal Current (I _{th}) | acc. to IEC 60947-4-1, Open Contactors $\Theta = 40\text{ }^{\circ}\text{C}$ 35 A |
| Rated Operational Current AC-1 (I _e) | (690 V) 40 °C 25 A (690 V) 60 °C 25 A (690 V) 70 °C 22 A |
| Rated Operational Current AC-3 (I _e) | (415 V) 60 °C 9 A (440 V) 60 °C 9 A (500 V) 60 °C 9.5 A (690 V) 60 °C 7 A (380 / 400 V) 60 °C 9 A (220 / 230 / 240 V) 60 °C 9 A |
| Rated Operational Power AC-3 (P _e) | (400 V) 4 kW (415 V) 4 kW (440 V) 4 kW (500 V) 5.5 kW (690 V) 5.5 kW (380 / 400 V) 4 kW (220 / 230 / 240 V) 2.2 kW |
| Rated Short-time Withstand Current Low Voltage (I _{cw}) | at 40 °C Ambient Temp, in Free Air, from a Cold State 10 s 150 A at 40 °C Ambient Temp, in Free Air, from a Cold State 15 min 35 A at 40 °C Ambient Temp, in Free Air, from a Cold State 1 min 60 A at 40 °C Ambient Temp, in Free Air, from a Cold State 1 s 300 A at 40 °C Ambient Temp, in Free Air, from a Cold State 30 s 80 A |
| Maximum Breaking Capacity | cos phi=0.45 (cos phi=0.35 for I _e > 100 A) at 440 V 250 A cos phi=0.45 (cos phi=0.35 for I _e > 100 A) at 690 V 106 A |
| Maximum Electrical Switching Frequency | (AC-1) 600 cycles per hour |
| Rated Operational Current DC-1 (I _e) | (110 V) 1-Pole, 40 °C 10 A (110 V) 1-Pole, 60 °C 10 A (110 V) 1-Pole, 70 °C 10 A (110 V) 2 Poles in Series, 40 °C 25 A (110 V) 2 Poles in Series, 60 °C 25 A (110 V) 2 Poles in Series, 70 °C 22 A (110 V) 3 Poles in Series, 40 °C 25 A (110 V) 3 Poles in Series, 60 °C 25 A (110 V) 3 Poles in Series, 70 °C 22 A (110 V) 4 Poles in Series, 40 °C 25 A (110 V) 4 Poles in Series, 60 °C 25 A (110 V) 4 Poles in Series, 70 °C 22 A |

- (220 V) 2 Poles in Series, 40 °C 10 A
- (220 V) 2 Poles in Series, 60 °C 10 A
- (220 V) 2 Poles in Series, 70 °C 10 A
- (220 V) 3 Poles in Series, 40 °C 25 A
- (220 V) 3 Poles in Series, 60 °C 25 A
- (220 V) 3 Poles in Series, 70 °C 22 A
- (220 V) 4 Poles in Series, 40 °C 25 A
- (220 V) 4 Poles in Series, 60 °C 25 A
- (220 V) 4 Poles in Series, 70 °C 22 A
- (440 V) 4 Poles in Series, 40 °C 10 A
- (440 V) 4 Poles in Series, 60 °C 10 A
- (440 V) 4 Poles in Series, 70 °C 10 A
- (72 V) 1-Pole, 40 °C 25 A
- (72 V) 1-Pole, 60 °C 25 A
- (72 V) 1-Pole, 70 °C 22 A
- (72 V) 2 Poles in Series, 40 °C 25 A
- (72 V) 2 Poles in Series, 60 °C 25 A
- (72 V) 2 Poles in Series, 70 °C 22 A
- (72 V) 3 Poles in Series, 40 °C 25 A
- (72 V) 3 Poles in Series, 60 °C 25 A
- (72 V) 3 Poles in Series, 70 °C 22 A
- (72 V) 4 Poles in Series, 40 °C 25 A
- (72 V) 4 Poles in Series, 60 °C 25 A
- (72 V) 4 Poles in Series, 70 °C 22 A

Rated Operational Current
DC-3 (I_e)

- (110 V) 1-Pole, 40 °C 6 A
- (110 V) 1-Pole, 60 °C 6 A
- (110 V) 1-Pole, 70 °C 6 A
- (110 V) 2 Poles in Series, 40 °C 25 A
- (110 V) 2 Poles in Series, 60 °C 25 A
- (110 V) 2 Poles in Series, 70 °C 22 A
- (110 V) 3 Poles in Series, 40 °C 25 A
- (110 V) 3 Poles in Series, 60 °C 25 A
- (110 V) 3 Poles in Series, 70 °C 22 A
- (110 V) 4 Poles in Series, 40 °C 25 A
- (110 V) 4 Poles in Series, 60 °C 25 A
- (110 V) 4 Poles in Series, 70 °C 22 A
- (220 V) 2 Poles in Series, 40 °C 6 A
- (220 V) 2 Poles in Series, 60 °C 6 A
- (220 V) 2 Poles in Series, 70 °C 6 A
- (220 V) 3 Poles in Series, 40 °C 25 A
- (220 V) 3 Poles in Series, 60 °C 25 A
- (220 V) 3 Poles in Series, 70 °C 22 A
- (220 V) 4 Poles in Series, 40 °C 25 A
- (220 V) 4 Poles in Series, 60 °C 25 A
- (220 V) 4 Poles in Series, 70 °C 22 A
- (440 V) 4 Poles in Series, 40 °C 6 A
- (440 V) 4 Poles in Series, 60 °C 6 A
- (440 V) 4 Poles in Series, 70 °C 6 A
- (72 V) 1-Pole, 40 °C 25 A
- (72 V) 1-Pole, 60 °C 25 A
- (72 V) 1-Pole, 70 °C 22 A
- (72 V) 2 Poles in Series, 40 °C 25 A
- (72 V) 2 Poles in Series, 60 °C 25 A
- (72 V) 2 Poles in Series, 70 °C 22 A
- (72 V) 3 Poles in Series, 40 °C 25 A
- (72 V) 3 Poles in Series, 60 °C 25 A
- (72 V) 3 Poles in Series, 70 °C 22 A
- (72 V) 4 Poles in Series, 40 °C 25 A
- (72 V) 4 Poles in Series, 60 °C 25 A
- (72 V) 4 Poles in Series, 70 °C 22 A

Rated Operational Current
DC-5 (I_e)

- (110 V) 1-Pole, 40 °C 4 A
- (110 V) 1-Pole, 60 °C 4 A
- (110 V) 1-Pole, 70 °C 4 A
- (110 V) 2 Poles in Series, 40 °C 10 A
- (110 V) 2 Poles in Series, 60 °C 10 A
- (110 V) 2 Poles in Series, 70 °C 10 A
- (110 V) 3 Poles in Series, 40 °C 25 A
- (110 V) 3 Poles in Series, 60 °C 25 A
- (110 V) 3 Poles in Series, 70 °C 22 A
- (110 V) 4 Poles in Series, 40 °C 25 A
- (110 V) 4 Poles in Series, 60 °C 25 A
- (110 V) 4 Poles in Series, 70 °C 22 A
- (220 V) 2 Poles in Series, 40 °C 4 A
- (220 V) 2 Poles in Series, 60 °C 4 A
- (220 V) 2 Poles in Series, 70 °C 4 A
- (220 V) 3 Poles in Series, 40 °C 9 A
- (220 V) 3 Poles in Series, 60 °C 9 A
- (220 V) 3 Poles in Series, 70 °C 9 A
- (220 V) 4 Poles in Series, 40 °C 10 A
- (220 V) 4 Poles in Series, 60 °C 10 A

- (220 V) 4 Poles in Series, 70 °C 10 A
- (440 V) 4 Poles in Series, 40 °C 4 A
- (440 V) 4 Poles in Series, 60 °C 4 A
- (440 V) 4 Poles in Series, 70 °C 4 A
- (72 V) 1-Pole, 40 °C 9 A
- (72 V) 1-Pole, 60 °C 9 A
- (72 V) 1-Pole, 70 °C 9 A
- (72 V) 2 Poles in Series, 40 °C 25 A
- (72 V) 2 Poles in Series, 60 °C 25 A
- (72 V) 2 Poles in Series, 70 °C 22 A
- (72 V) 3 Poles in Series, 40 °C 25 A
- (72 V) 3 Poles in Series, 60 °C 25 A
- (72 V) 3 Poles in Series, 70 °C 22 A
- (72 V) 4 Poles in Series, 40 °C 25 A
- (72 V) 4 Poles in Series, 60 °C 25 A
- (72 V) 4 Poles in Series, 70 °C 22 A

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| Rated Insulation Voltage (U _i) | acc. to IEC 60947-4-1 690 V acc. to UL/CSA 600 V |
| Rated Impulse Withstand Voltage (U _{imp}) | 6 kV |
| Maximum Mechanical Switching Frequency | 3600 cycles per hour |
| Rated Control Circuit Voltage (U _c) | 50 Hz 24 ... 60 V 60 Hz 24 ... 60 V DC Operation 20 ... 60 V |
| Operate Time | Between Coil De-energization and NC Contact Closing 13 ... 98 ms Between Coil De-energization and NO Contact Opening 11 ... 95 ms Between Coil Energization and NC Contact Opening 38 ... 90 ms Between Coil Energization and NO Contact Closing 40 ... 95 ms |
| Mounting on DIN Rail | TH35-15 (35 x 15 mm Mounting Rail) acc. to IEC 60715 TH35-7.5 (35 x 7.5 mm Mounting Rail) acc. to IEC 60715 |
| Mounting by Screws (not supplied) | 2 x M4 screws placed diagonally |
| Connecting Capacity Main Circuit | Flexible with Ferrule 1/2x 0.75 ... 6 mm ² Flexible with Insulated Ferrule 1x 0.75 ... 4 mm ² Flexible with Insulated Ferrule 2x 0.75 ... 2.5 mm ² Rigid Solid 1/2x 1 ... 4 mm ² Rigid Stranded 1/2x 1 ... 6 mm ² |
| Connecting Capacity Auxiliary Circuit | Rigid Solid 1/2x 1 ... 2.5 mm ² Rigid Stranded 1/2x 1 ... 2.5 mm ² |
| Connecting Capacity Control Circuit | Flexible with Ferrule 1/2x 0.75 ... 2.5 mm ² Flexible with Insulated Ferrule 1x 0.75 ... 2.5 mm ² Flexible with Insulated Ferrule 2x 0.75 ... 1.5 mm ² Rigid Solid 1/2x 1 ... 2.5 mm ² Rigid Stranded 1/2x 1 ... 2.5 mm ² |
| Wire Stripping Length | Control Circuit 10 mm Main Circuit 10 mm |
| Degree of Protection | acc. to IEC 60529, IEC 60947-1, EN 60529 Coil Terminals IP20 acc. to IEC 60529, IEC 60947-1, EN 60529 Main Terminals IP20 |
| Terminal Type | Screw Terminals |

Technical UL/CSA

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| Maximum Operating Voltage UL/CSA | Main Circuit 600 V |
| General Use Rating UL/CSA | (600 V AC) 25 A |
| Connecting Capacity Main Circuit UL/CSA | Rigid Solid 1/2x 16-10 AWG Rigid Stranded 1/2x 16-10 AWG |
| Connecting Capacity Auxiliary Circuit UL/CSA | Rigid Solid 1/2x 18-14 AWG Rigid Stranded 1/2x 18-14 AWG |
| Connecting Capacity Control Circuit UL/CSA | Rigid Solid 1/2x 18-14 AWG Rigid Stranded 1/2x 18-14 AWG |
| Tightening Torque UL/CSA | Control Circuit 11 in-lb Main Circuit 13 in-lb |

Environmental

Ambient Air Temperature Close to Contactor for Storage -60 ... +80 °C

Near Contactor for Operation in Free Air -40 ... 70 °C

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| Climatic Withstand | Category B according to IEC 60947-1 Annex Q |
| Maximum Operating Altitude Permissible | Without Derating 3000 m |
| Resistance to Shock acc. to IEC 60068-2-27 | Closed, Shock Direction: B1 25 g Open, Shock Direction: B1 5 g Shock Direction: A 30 g Shock Direction: B2 15 g Shock Direction: C1 25 g Shock Direction: C2 25 g |
| Resistance to Vibrations | 4g Closed Position & 2g Open position 5 ... 300 Hz |

Material Compliance

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| Conflict Minerals Reporting Template (CMRT) | 9AKK108467A5658 |
| REACH Declaration | 2CMT2021-006202 |
| RoHS Information | 2CMT2021-006277 |
| RoHS Status | Following EU Directive 2011/65/EU and Amendment 2015/863 July 22, 2019 |
| Toxic Substances Control Act - TSCA | 2CMT2023-006525 |
| WEEE B2C / B2B | Business To Business |
| WEEE Category | 5. Small Equipment (No External Dimension More Than 50 cm) |

ABB EcoSolutions

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| Environmental Product Declaration - EPD | 1SBD250584E3000 2TFP200035A1001 |
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Certificates and Declarations

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| A2L Certificate - UL | 9AKK108469A4875;9AKK108469A4879 |
| ABS Certificate | ABS_20-2060694-PDA |
| BV Certificate | BV_2634H24898C0 |
| CB Certificate | CB_SE-113345 |
| CCC Certificate | CCC_2010010304445624 |
| CQC Certificate | CQC2010010304445624 CQC2020010304298240 |
| Declaration of Conformity - CCC | 2020980304001253 2020980304001082 |
| Declaration of Conformity - CE | 1SBD250001U1000 |
| Declaration of Conformity - UKCA | 1SBD250032U1000 |
| DNV Certificate | DNV_TAE00001AF-4 |
| GOST Certificate | GOST_POCCFR.ME77.B07175.pdf |
| KC Certificate | KC_HW02016-15007C |
| LR Certificate | LRS_LR23403517TA-02 |
| RINA Certificate | RINA_ELE142224XG |
| RMRS Certificate | RMRS_1802705280 |
| UL Certificate | UL-US-L319322-13-72119002-5 UL-CA-L319322-43-72119002-6 |
| UL Listing Card | UL_E319322 |

Container Information

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| Package Level 1 Units | box 1 piece |
| Package Level 1 Width | 87 mm |
| Package Level 1 Depth / | 79 mm |

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|--------------------------------|---------------|
| Length | |
| Package Level 1 Height | 47 mm |
| Package Level 1 Gross Weight | 0.31 kg |
| Package Level 1 EAN | 3471523115811 |
| Package Level 2 Units | box 27 piece |
| Package Level 2 Width | 250 mm |
| Package Level 2 Depth / Length | 300 mm |
| Package Level 2 Height | 315 mm |
| Package Level 2 Gross Weight | 16.74 kg |
| Package Level 3 Units | 1296 piece |

Classifications

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| Object Classification Code | Q |
| ETIM 7 | EC000066 - Power contactor, AC switching |
| ETIM 8 | EC000066 - Power contactor, AC switching |
| ETIM 9 | EC000066 - Power contactor, AC switching |
| eClass | V11.0 : 27371003 |
| UNSPSC | 39121529 |
| IDEA Granular Category Code (IGCC) | 4758 >> Iec Contactors |
| E-Number (Finland) | 3706333 |
| E-Number (Sweden) | 3211388 |

Accessories

| Identifier | Description | Type | Quantity | Unit Of Measure |
|-----------------|--|------------|----------|-----------------|
| 1SBN112303T1000 | BP38-4 Mounting Piece | BP38-4 | 1 | piece |
| 1SBN113403T1000 | BP65-4 Mounting Piece | BP65-4 | 1 | piece |
| 1SBN113903T1000 | BP96-4 Mounting Piece | BP96-4 | 1 | piece |
| 1SBN110108T1000 | BX4 Protective Cover | BX4 | 1 | piece |
| 1SBN110109W1000 | BX4-CA Protective Cover | BX4-CA | 1 | piece |
| 1SBN010110R1001 | CA4-01 Auxiliary Contact Block | CA4-01 | 1 | piece |
| 1SBN010160R1001 | CA4-01K Auxiliary Contact Block | CA4-01K | 1 | piece |
| 1SBN010110T1001 | CA4-01-T Auxiliary Contact Block | CA4-01-T | 1 | piece |
| 1SBN010140R1004 | CA4-04E Auxiliary Contact Block | CA4-04E | 1 | piece |
| 1SBN010110R1010 | CA4-10 Auxiliary Contact Block | CA4-10 | 1 | piece |
| 1SBN010160R1010 | CA4-10K Auxiliary Contact Block | CA4-10K | 1 | piece |
| 1SBN010110T1010 | CA4-10-T Auxiliary Contact Block | CA4-10-T | 1 | piece |
| 1SBN010140R1022 | CA4-22E Auxiliary Contact Block | CA4-22E | 1 | piece |
| 1SBN010146R1022 | CA4-22EK Auxiliary Contact Block | CA4-22EK | 1 | piece |
| 1SBN010140R1031 | CA4-31E Auxiliary Contact Block | CA4-31E | 1 | piece |
| 1SBN010146R1031 | CA4-31EK Auxiliary Contact Block | CA4-31EK | 1 | piece |
| 1SBN010140R1040 | CA4-40E Auxiliary Contact Block | CA4-40E | 1 | piece |
| 1SBN010146R1040 | CA4-40EK Auxiliary Contact Block | CA4-40EK | 1 | piece |
| 1SBN010120R1011 | CAL4-11 Auxiliary Contact Block | CAL4-11 | 1 | piece |
| 1SBN010134R1011 | CAL4-11K Auxiliary Contact Block | CAL4-11K | 1 | piece |
| 1SBN010120T1011 | CAL4-11-T Auxiliary Contact Block | CAL4-11-T | 1 | piece |
| 1SBN010151R1011 | CAT4-11E Auxiliary Contact / Coil Terminal Block | CAT4-11E | 1 | piece |
| 1SBN010111R1001 | CC4-01 Lagging Auxiliary Contact Block | CC4-01 | 1 | piece |
| 1SBN010111R1010 | CC4-10 Leading Auxiliary Contact Block | CC4-10 | 1 | piece |
| 1SBN010015R1001 | CE5-01D0.1 Auxiliary Contact Block | CE5-01D0.1 | 1 | piece |
| 1SBN010017R1001 | CE5-01D2 Auxiliary Contact Block | CE5-01D2 | 1 | piece |
| 1SBN010016R1001 | CE5-01W0.1 Auxiliary Contact Block | CE5-01W0.1 | 1 | piece |
| 1SBN010018R1001 | CE5-01W2 Auxiliary Contact Block | CE5-01W2 | 1 | piece |

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|-----------------|---|------------|---|-------|
| 1SBN010015R1010 | CE5-10D0.1 Auxiliary Contact Block | CE5-10D0.1 | 1 | piece |
| 1SBN010017R1010 | CE5-10D2 Auxiliary Contact Block | CE5-10D2 | 1 | piece |
| 1SBN010016R1010 | CE5-10W0.1 Auxiliary Contact Block | CE5-10W0.1 | 1 | piece |
| 1SBN010018R1010 | CE5-10W2 Auxiliary Contact Block | CE5-10W2 | 1 | piece |
| 1SBN073452R2000 | LK96-4F Terminals for Control Lead Connections | LK96-4F | 1 | piece |
| 1SBN070156T1000 | LDC4 Additional Coil Terminal Block | LDC4 | 1 | piece |
| 1SBN070159T1000 | LDC4K Additional Coil Terminal Block | LDC4K | 1 | piece |
| 1SBN071305R1000 | LF16-4 Connecting Strip | LF16-4 | 1 | piece |
| 1SBN071306R1000 | LG16-4 Connecting Strip | LG16-4 | 1 | piece |
| 1SBN123402R1000 | LT52-40 Terminal Shroud | LT52-40 | 1 | piece |
| 1SBN123902R1000 | LT80-40 Terminal Shroud | LT80-40 | 1 | piece |
| 1SBN071303T1000 | LY16-4 Connecting Strip | LY16-4 | 1 | piece |
| 1SBN060100R1000 | RA4 Interface Relay | RA4 | 1 | piece |
| 1SBN020114R1000 | TEF4-OFF Frontal Electronic Timer | TEF4-OFF | 1 | piece |
| 1SBN020112R1000 | TEF4-ON Frontal Electronic Timer | TEF4-ON | 1 | piece |
| 1SBN020115R1000 | TEF4S-OFF Frontal Electronic Timer | TEF4S-OFF | 1 | piece |
| 1SBN020113R1000 | TEF4S-ON Frontal Electronic Timer | TEF4S-ON | 1 | piece |
| 1SBN040100R1010 | WA4-10 24VDC Mechanical Latching Unit | WA4-10 | 1 | piece |
| 1SBN040100R1011 | WA4-11 24-60V50/60HZ-DC Mechanical Latching Unit | WA4-11 | 1 | piece |
| 1SBN040100R1012 | WA4-12 48-130V50/60HZ-DC Mechanical Latching Unit | WA4-12 | 1 | piece |
| 1SBN040100R1013 | WA4-13 100-250V50/60HZ-DC Mechanical Latching Unit | WA4-13 | 1 | piece |
| 1SBN040100R1014 | WA4-14 250-500V50/60HZ-DC Mechanical Latching Unit | WA4-14 | 1 | piece |
| 1SBN040200R1011 | WA4-96-11 24-60V50/60HZ-DC Mechanical Latching Unit | WA4-96-11 | 1 | piece |
| 1SBN040200R1012 | WA4-96-12 48-130V50/60HZ-DC Mechanical Latching Unit | WA4-96-12 | 1 | piece |
| 1SBN040200R1013 | WA4-96-13 100-250V50/60HZ-DC Mechanical Latching Unit | WA4-96-13 | 1 | piece |
| 1SBN040200R1014 | WA4-96-14 250-500V50/60HZ-DC Mechanical Latching Unit | WA4-96-14 | 1 | piece |

Categories

Low Voltage Products and Systems → Control Products → Contactors → Block Contactors → AF Contactors → AF09

