PRODUCT-DETAILS

# AF12ZB-30-10-21

## AF12ZB-30-10-21 24-60V50/60HZ 20-60VDC Contactor



### General Information

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|---|---|
| Extended Product Type | AF12ZB-30-10-21 |
| Product ID | 1SBL156061R2110 |
| EAN | 3471523123717 |
| Catalog Description | AF12ZB-30-10-21 24-60V50/60HZ 20-60VDC Contactor |
| Long Description | The AF12ZB-30-10-21 is a 3 pole - 690 V IEC or 600 UL contactor with 1 built-in auxiliary contact and screw terminals, controlling motors up to 5.5 kW / 400 V AC (AC-3) or 7-1/2 hp / 480 V UL and switching power circuits up to 28 A (AC-1) or 28 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. |

### Ordering

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| Minimum Order Quantity | 1 piece |
| Customs Tariff Number | 85364900 |

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## Popular Downloads

| | |
|---|---|
| Data Sheet, Technical Information | 1SBC100220C0201 |
| 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 | 3 |
| Number of Main Contacts NC | 0 |
| Number of Auxiliary Contacts NO | 1 |
| Number of Auxiliary Contacts NC | 0 |
| Standards | IEC/EN 60947-1, IEC/EN 60947-4-1, UL 60947-4-1, CSA C22.2 No. 60947-4-1, IEC 60077-1 (applicable parts), IEC 60077-2 (applicable parts), EN 50155 (applicable parts), TR CU 001/2011, IEC 61373, For compliance confirmation on applicable parts based on your application and combination, please consult your ABB sales representatives. |
| Rated Operational Voltage | Auxiliary Circuit 690 V<br>Main Circuit 690 V |
| Rated Frequency (f) | Auxiliary Circuit 50 / 60 Hz<br>Control Circuit 50 / 60 Hz<br>Main Circuit 50 / 60 Hz |
| Conventional Free-air Thermal Current ($I_{th}$) | acc. to IEC 60947-4-1, Open Contactors Θ = 40 °C 35 A<br>acc. to IEC 60947-5-1, Θ = 40 °C 16 A |
| Rated Operational Current AC-1 ($I_e$) | (690 V) 40 °C 28 A<br>(690 V) 60 °C 28 A<br>(690 V) 70 °C 24 A |
| Rated Operational Current AC-3 ($I_e$) | (415 V) 60 °C 12 A<br>(440 V) 60 °C 12 A<br>(500 V) 60 °C 12.5 A<br>(690 V) 60 °C 9 A<br>(380 / 400 V) 60 °C 12 A<br>(220 / 230 / 240 V) 60 °C 12 A |
| Rated Operational Current AC-3e ($I_e$) | (415 V) 60 °C 12 A<br>(440 V) 60 °C 12 A<br>(500 V) 60 °C 12.5 A<br>(690 V) 60 °C 9 A<br>(380 / 400 V) 60 °C 12 A<br>(220 / 230 / 240 V) 60 °C 12 A |
| Rated Operational Power AC-3 ($P_e$) | (415 V) 5.5 kW<br>(440 V) 5.5 kW<br>(500 V) 7.5 kW<br>(690 V) 7.5 kW<br>(380 / 400 V) 5.5 kW<br>(220 / 230 / 240 V) 3 kW |
| Rated Operational Power AC-3e ($P_e$) | (415 V) 5.5 kW<br>(440 V) 5.5 kW |

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|---|---|
| | (500 V) 7.5 kW<br>(690 V) 7.5 kW<br>(380 / 400 V) 5.5 kW<br>(220 / 230 / 240 V) 3 kW |
| Rated Operational Current AC-15 ($I_e$) | (500 V) 2 A<br>(690 V) 2 A<br>(24 / 127 V) 6 A<br>(220 / 240 V) 4 A<br>(400 / 440 V) 3 A |
| 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<br>at 40 °C Ambient Temp, in Free Air, from a Cold State 15 min 35 A<br>at 40 °C Ambient Temp, in Free Air, from a Cold State 1 min 60 A<br>at 40 °C Ambient Temp, in Free Air, from a Cold State 1 s 300 A<br>at 40 °C Ambient Temp, in Free Air, from a Cold State 30 s 80 A<br>for 0.1 s 140 A<br>for 1 s 100 A |
| Maximum Breaking Capacity | cos phi=0.45 (cos phi=0.35 for Ie > 100 A) at 440 V 250 A<br>cos phi=0.45 (cos phi=0.35 for Ie > 100 A) at 690 V 106 A |
| Maximum Electrical Switching Frequency | (AC-1) 600 cycles per hour<br>(AC-15) 1200 cycles per hour<br>(AC-2 / AC-4) 300 cycles per hour<br>(AC-3) 1200 cycles per hour<br>(DC-13) 900 cycles per hour |
| Rated Operational Current DC-1 ($I_e$) | (110 V) 1-Pole, 40 °C 15 A<br>(110 V) 1-Pole, 60 °C 15 A<br>(110 V) 1-Pole, 70 °C 15 A<br>(110 V) 2 Poles in Series, 40 °C 27 A<br>(110 V) 2 Poles in Series, 60 °C 27 A<br>(110 V) 2 Poles in Series, 70 °C 24 A<br>(110 V) 3 Poles in Series, 40 °C 27 A<br>(110 V) 3 Poles in Series, 60 °C 27 A<br>(110 V) 3 Poles in Series, 70 °C 24 A<br>(220 V) 2 Poles in Series, 40 °C 15 A<br>(220 V) 2 Poles in Series, 60 °C 15 A<br>(220 V) 2 Poles in Series, 70 °C 15 A<br>(220 V) 3 Poles in Series, 40 °C 27 A<br>(220 V) 3 Poles in Series, 60 °C 27 A<br>(220 V) 3 Poles in Series, 70 °C 24 A<br>(72 V) 1-Pole, 40 °C 27 A<br>(72 V) 1-Pole, 60 °C 27 A<br>(72 V) 1-Pole, 70 °C 24 A<br>(72 V) 2 Poles in Series, 40 °C 27 A<br>(72 V) 2 Poles in Series, 60 °C 27 A<br>(72 V) 2 Poles in Series, 70 °C 24 A<br>(72 V) 3 Poles in Series, 40 °C 27 A<br>(72 V) 3 Poles in Series, 60 °C 27 A<br>(72 V) 3 Poles in Series, 70 °C 24 A |
| Rated Operational Current DC-3 ($I_e$) | (110 V) 1-Pole, 40 °C 7 A<br>(110 V) 1-Pole, 60 °C 7 A<br>(110 V) 1-Pole, 70 °C 7 A<br>(110 V) 2 Poles in Series, 40 °C 27 A<br>(110 V) 2 Poles in Series, 60 °C 27 A<br>(110 V) 2 Poles in Series, 70 °C 24 A<br>(110 V) 3 Poles in Series, 40 °C 27 A<br>(110 V) 3 Poles in Series, 60 °C 27 A<br>(110 V) 3 Poles in Series, 70 °C 24 A<br>(220 V) 2 Poles in Series, 40 °C 7 A<br>(220 V) 2 Poles in Series, 60 °C 7 A<br>(220 V) 2 Poles in Series, 70 °C 7 A<br>(220 V) 3 Poles in Series, 40 °C 27 A<br>(220 V) 3 Poles in Series, 60 °C 27 A<br>(220 V) 3 Poles in Series, 70 °C 24 A<br>(72 V) 1-Pole, 40 °C 27 A<br>(72 V) 1-Pole, 60 °C 27 A<br>(72 V) 1-Pole, 70 °C 24 A<br>(72 V) 2 Poles in Series, 40 °C 27 A<br>(72 V) 2 Poles in Series, 60 °C 27 A<br>(72 V) 2 Poles in Series, 70 °C 24 A<br>(72 V) 3 Poles in Series, 40 °C 27 A<br>(72 V) 3 Poles in Series, 60 °C 27 A |

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| | (72 V) 3 Poles in Series, 70 °C 24 A |
| Rated Operational Current DC-5 ($I_e$) | (110 V) 1-Pole, 40 °C 4 A<br>(110 V) 1-Pole, 60 °C 4 A<br>(110 V) 1-Pole, 70 °C 4 A<br>(110 V) 2 Poles in Series, 40 °C 15 A<br>(110 V) 2 Poles in Series, 60 °C 15 A<br>(110 V) 2 Poles in Series, 70 °C 15 A<br>(110 V) 3 Poles in Series, 40 °C 27 A<br>(110 V) 3 Poles in Series, 60 °C 27 A<br>(110 V) 3 Poles in Series, 70 °C 24 A<br>(220 V) 2 Poles in Series, 40 °C 4 A<br>(220 V) 2 Poles in Series, 60 °C 4 A<br>(220 V) 2 Poles in Series, 70 °C 4 A<br>(220 V) 3 Poles in Series, 40 °C 12 A<br>(220 V) 3 Poles in Series, 60 °C 12 A<br>(220 V) 3 Poles in Series, 70 °C 12 A<br>(72 V) 1-Pole, 40 °C 12 A<br>(72 V) 1-Pole, 60 °C 12 A<br>(72 V) 1-Pole, 70 °C 12 A<br>(72 V) 2 Poles in Series, 40 °C 27 A<br>(72 V) 2 Poles in Series, 60 °C 27 A<br>(72 V) 2 Poles in Series, 70 °C 24 A<br>(72 V) 3 Poles in Series, 40 °C 27 A<br>(72 V) 3 Poles in Series, 60 °C 27 A<br>(72 V) 3 Poles in Series, 70 °C 24 A |
| Rated Operational Current DC-13 ($I_e$) | (24 V) 6 A / 144 W<br>(48 V) 2.8 A / 134 W<br>(72 V) 1 A / 72 W<br>(110 V) 0.55 A / 60 W<br>(125 V) 0.55 A / 69 W<br>(220 V) 0.27 A / 60 W<br>(250 V) 0.27 A / 68 W<br>(400 V) 0.15 A / 60 W<br>(500 V) 0.13 A / 65 W<br>(600 V) 0.1 A / 60 W |
| Rated Insulation Voltage ($U_i$) | acc. to IEC 60947-4-1 690 V<br>acc. to IEC 60947-5-1 690 V<br>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<br>60 Hz 24 ... 60 V<br>DC Operation 20 ... 60 V |
| Operate Time | Between Coil De-energization and NC Contact Closing 13 ... 98 ms<br>Between Coil De-energization and NO Contact Opening 11 ... 95 ms<br>Between Coil Energization and NC Contact Opening 38 ... 90 ms<br>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<br>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 mm²<br>Flexible with Insulated Ferrule 1x 0.75 ... 4 mm²<br>Flexible with Insulated Ferrule 2x 0.75 ... 2.5 mm²<br>Rigid Solid 1/2x 1 ... 4 mm²<br>Rigid Stranded 1/2x 1 ... 6 mm² |
| Connecting Capacity Auxiliary Circuit | Rigid Solid 1/2x 1 ... 2.5 mm²<br>Rigid Stranded 1/2x 1 ... 2.5 mm² |
| Connecting Capacity Control Circuit | Flexible with Ferrule 1/2x 0.75 ... 2.5 mm²<br>Flexible with Insulated Ferrule 1x 0.75 ... 2.5 mm²<br>Flexible with Insulated Ferrule 2x 0.75 ... 1.5 mm²<br>Rigid Solid 1/2x 1 ... 2.5 mm²<br>Rigid Stranded 1/2x 1 ... 2.5 mm² |
| Wire Stripping Length | Auxiliary Circuit 10 mm |

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| | Control Circuit 10 mm<br>Main Circuit 10 mm |
| Degree of Protection | acc. to IEC 60529, IEC 60947-1, EN 60529 Auxiliary Terminals IP20<br>acc. to IEC 60529, IEC 60947-1, EN 60529 Coil Terminals IP20<br>acc. to IEC 60529, IEC 60947-1, EN 60529 Main Terminals IP20 |
| Terminal Type | Screw Terminals |

## Technical UL/CSA

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| NEMA Size | 0 |
| Continuous Current Rating NEMA | 18 A |
| Horsepower Rating NEMA | (115 V AC) Single Phase 1 Hp<br>(200 V AC) Three Phase 3 Hp<br>(230 V AC) Single Phase 2 Hp<br>(230 V AC) Three Phase 3 Hp<br>(460 V AC) Three Phase 5 Hp<br>(575 V AC) Three Phase 5 Hp |
| Maximum Operating Voltage UL/CSA | Main Circuit 600 V |
| General Use Rating UL/CSA | (600 V AC) 28 A |
| Horsepower Rating UL/CSA | (120 V AC) Single Phase 1 hp<br>(200 ... 208 V AC) Three Phase 3 hp<br>(220 ... 240 V AC) Three Phase 3 hp<br>(240 V AC) Single Phase 2 hp<br>(440 ... 480 V AC) Three Phase 7-1/2 hp<br>(550 ... 600 V AC) Three Phase 10 hp |
| Connecting Capacity Main Circuit UL/CSA | Rigid Solid 1/2x 16-10 AWG<br>Rigid Stranded 1/2x 16-10 AWG |
| Connecting Capacity Auxiliary Circuit UL/CSA | Rigid Solid 1/2x 18-14 AWG<br>Rigid Stranded 1/2x 18-14 AWG |
| Connecting Capacity Control Circuit UL/CSA | Rigid Solid 1/2x 18-14 AWG<br>Rigid Stranded 1/2x 18-14 AWG |
| Tightening Torque UL/CSA | Auxiliary Circuit 11 in·lb<br>Control Circuit 11 in·lb<br>Main Circuit 13 in·lb |

## Environmental

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| Ambient Air Temperature | Close to Contactor Fitted with Thermal O/L Relay -25 ... 60 °C<br>Close to Contactor without Thermal O/L Relay -40 ... 70 °C<br>Close to Contactor for Storage -60 ... +80 °C |
| Climatic Withstand | Category B according to IEC 60947-1 Annex Q |
| Maximum Operating Altitude Permissible | Without Derating 3000 m |
| Shock and Vibration Withstand acc. to IEC 61373 | Category 1, Class B |

## 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 |

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| 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<br>2TFP200035A1001 |
| Sustainable Material Content | Recycled Metal - 28 % |
| Sustainable Material Content in Packaging | Recycled Cardboard - 86 % |
| End of Life Instructions | 1SBC101080M6801 |

## Certificates and Declarations

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|---|---|
| CB Certificate | CB_SE-113345 |
| CCC Certificate | CCC_2010010304445624 |
| CQC Certificate | CQC2010010304445624 |
| Declaration of Conformity - CCC | 2020980304001253 |
| Declaration of Conformity - CE | 1SBD250002U1000 |
| Declaration of Conformity - UKCA | 1SBD250033U1000 |
| GOST Certificate | GOST_POCCFR.ME77.B07175.pdf |
| KC Certificate | KC_HW02016-15005C |
| UL Certificate | UL-US-2150887-5<br>UL-CA-2142658-5 |
| UL Listing Card | E312527 |

## Container Information

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| Package Level 1 Units | box 1 piece |
| Package Level 1 Width | 87 mm |
| Package Level 1 Depth / Length | 79 mm |
| Package Level 1 Height | 47 mm |
| Package Level 1 Gross Weight | 0.31 kg |
| Package Level 1 EAN | 3471523123717 |
| 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 |

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|---|---|
| ETIM 9 | EC000066 - Power contactor, AC switching |
| eClass | V11.0 : 27371003 |
| UNSPSC | 39121529 |
| IDEA Granular Category Code (IGCC) | 4758 >> Iec Contactors |

## Categories

Low Voltage Products and Systems → Control Products → Contactors → Block Contactors → AF Contactors → AF12



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